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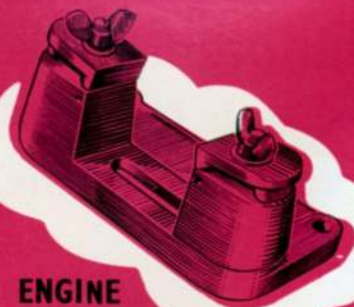
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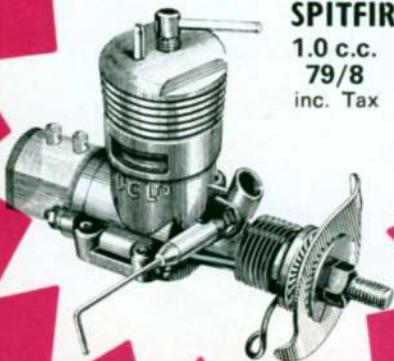
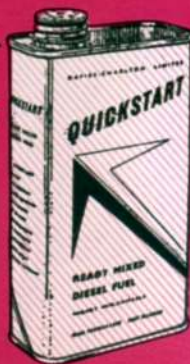
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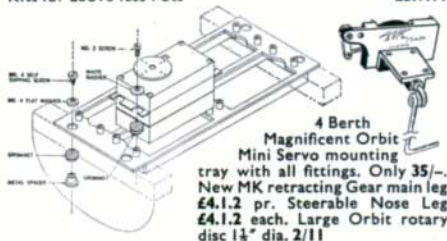
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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

September 1969

VOLUME XXXIV No. 404

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HOBBY MAGAZINE

ALSO MODEL BOATS . MODEL CARS . RADIO
CONTROL MODELS & ELECTRONICS . MODEL
ENGINEER, MODEL RAILWAY NEWS and
MECCANO MAGAZINE

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ROLAND SUTTON

COMMENT

This year could well be described as the year in which flying scale models became established as a competition class. There's nothing new in the subject. We've had free flight and control-line scale firmly established for ages, as our vast Plans range indicates; but the utter reliability of modern radio control equipment has created a new image. The impossible becomes possible, the incredible becomes commonplace. Four engines, geared engines, flaps, elevons, slab tails, retract gear - you name it, the R/C scale enthusiast will tackle it, and produce a successful solution in miniature.

We've had four events of major importance this year in R/C scale. The Nationals, Old Warden, Metz and Lemwerder. Other rallies are playing their part, and that is why we too have given more space (and a new magazine next month) to this glamorous subject.

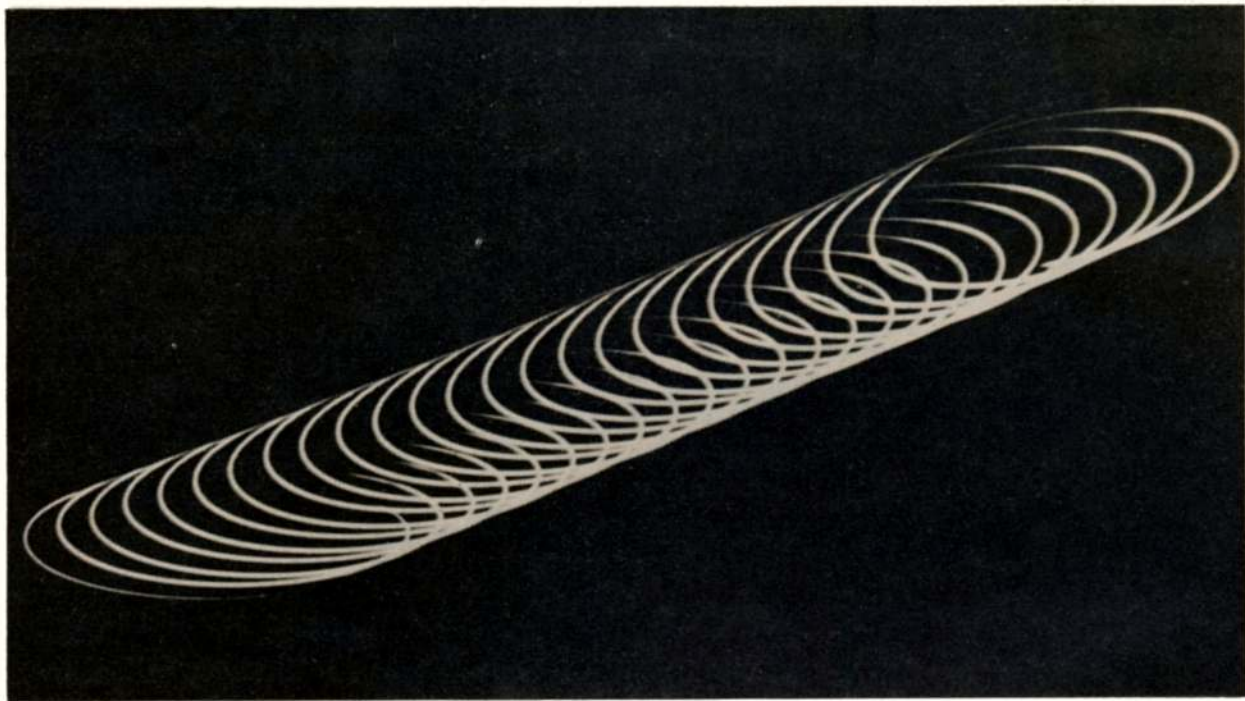
There is another important aspect which captures our support. The Scale contests are not bitterly-fought affairs. They generate a fellow feeling which is unique. It has taken five years to reach the present scoring methods to align flying skill with workmanship and accuracy, and there is still room for improvement. The challenge to succeed is a spur for all enthusiasts.

on the cover

K. Brown of Worcester Sky pals produced this beautifully finished Jetco (U.S.A.) kit P-51D Mustang control-line scale model at the National Championships, model flies extremely realistically.

next month

Champion of Italy, though now a British citizen, Joe Savini, gives the story of his 'Vital' F.A.I. power design which enters our Plans range. Return of full size plans - with a free flight 'Flying Flea', and G. F. Elsegood's 'Spinner' 25 in. span novices rubber driven model. Preparing for flight article, plus all the regular features - out September 19th.



FLYING SAUCERS?... WHAT'S YOUR GUESS?

We got a dozen different answers when we asked a number of aeromodellers what this picture was, ranging from a squadron of flying saucers (in transparent metal?) to Lissojou figures (whatever they are!). The answer is obvious when you know it. It's the pattern traced by lights mounted on a rotor tip of a helicopter flying at night. It just shows how wrong guesses can be.

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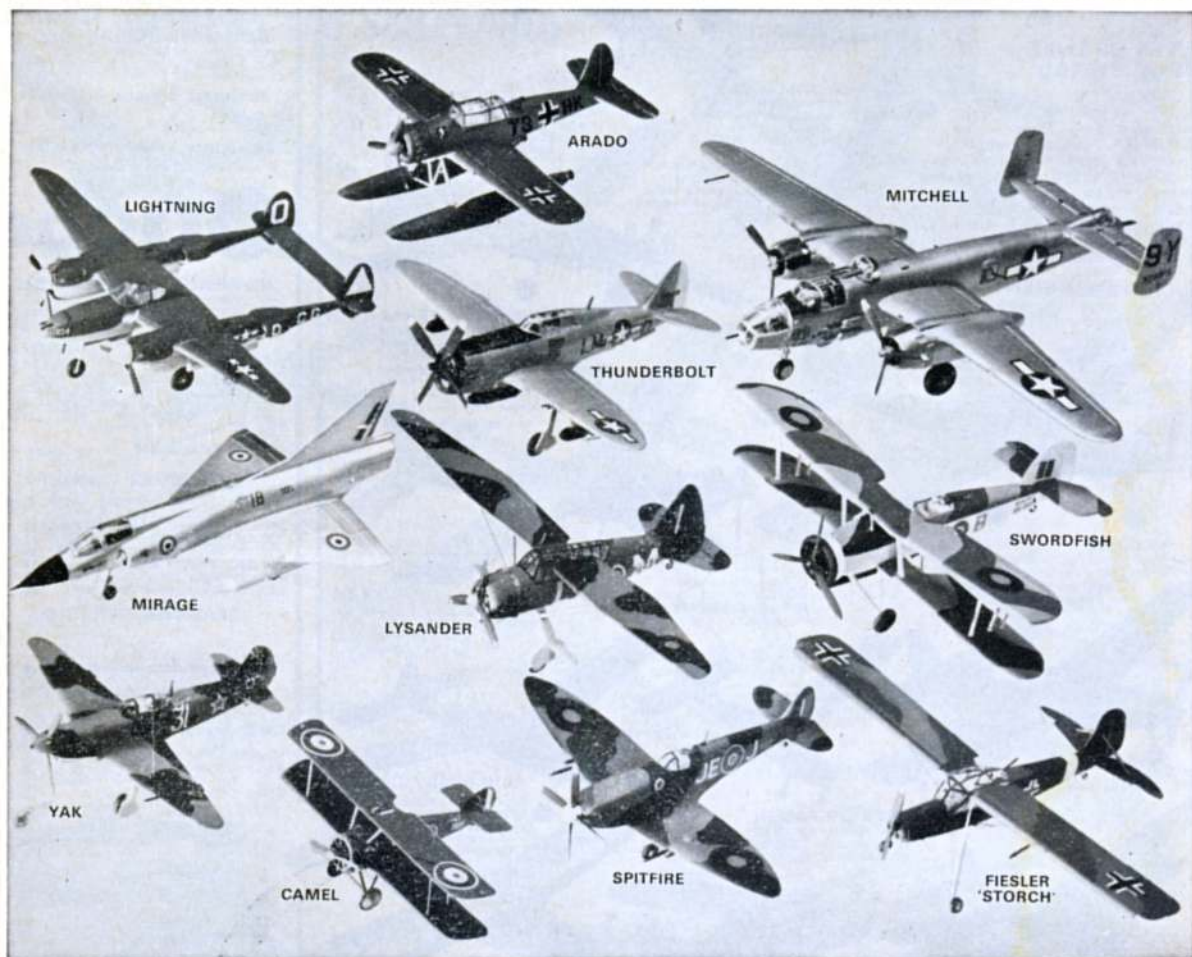
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KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS

Graupner 1969 de luxe KITS

THE WORLD'S FINEST KITS

with the accent on super quality . . . extensively prefabricated in selected 'aircraft grade' materials . . . and noted for their **COMPLETENESS**. Comprehensive instructions, including separate overlay Radio Installation plan (where appropriate). Treat yourself to a **GRAUPNER** kit - today!

GLIDERS and SAILPLANES



HS 19 CLOU £13.5.0
Here's a superbly MULTI-POSE model. Fly with 97" span wing for towline soaring, or 75" span for slope soaring (parts for either in kit). Also fly as POWER MODEL with detachable nose 'power' egg. Free flight OR R/C in each case!

FOKA De LUXE R/C SAILPLANE
102" span £11.12.6
Spare fuselage £4.2.6.
Spare canopy 10/-

This fabulous kit includes a **FINISHED ONE-PIECE FUSELAGE** incorporating wing mounts and fairings in high-strength plastic, other parts in balsa and ply (mostly fully shaped), shaped wire parts, canopy, tissue, decals, cement, etc., etc.

(AVAILABLE SOON!) NEW! CIRRUS

GIANT 118" SPAN model
featuring **INJECTION MOULDED FUSELAGE SHELLS** in high-impact ABS plastic.

This superbly engineered kit has only just been released by Graupner, specially designed with radio control in mind.



Pylon power mount also available to convert to auxiliary sailplane. (1.5-2 cc. engines).

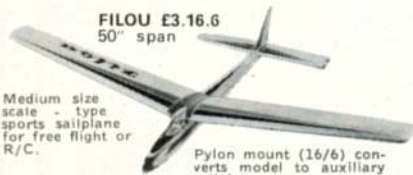
Mixed plastic and balsa construction, all parts prefabricated.



38" span BEGINNER £2.5.0
Simple construction and a very complete kit makes this the ideal choice for a first 'free flight' glider.



45" span JOLLY A.1. £2.16.0
Designed for maximum performance in the 'A.1' contest specification. Ideal for club flying, etc.



FILOU £3.16.6
50" span

Medium size scale - type sports sailplane for free flight or R/C.

Pylon mount (16/6) converts model to auxiliary sailplane.



NANCY £3.12.6
48 1/2" span

A special 'Quickie' kit, fully

prefabricated, including milled fuselage nose section.

A NEW class A.1 towline sailplane fitted with etharlisser and auto rudder.



74" span PASSAT 57 £3.17.6
A highly developed contest towline glider on classic European lines. Selected materials throughout.



HOBBY £2.9.6
span 53 1/2"

A general purpose free flight towline glider suitable for sport or contest work.

Specially recommended as a 'club' model.

DANDY R/C SAILPLANE ... £5.19.6 63" span



Super kit includes die-cut sheet, pre-shaped fuselage parts, milled and slotted stripwood, canopy, cement, tissue, decals, etc.

High performance towing glider suitable for R/C or F/F - also convertible to powered glider. Takes 2- to 4-channel radio, or proportional. Power pylon kit 16/6

AMIGO II £6.10.0
79" span CONTEST TYPE sailplane, specially developed with R/C in mind. Fully prefabricated kit in balsa and balsa ply. Pylon engine mount 16/6



FOUGA SYLPHIE £1.12.6
25 1/4" span scale type jet-powered glider.

Designed to take Jetex power unit. A model that is different!

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43" span super beginners model with easy construction and a super performance. For free flight only - sport or contest flying! Ideal for use as a club trainer for junior members!

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An exact scale model 79" span, equally suited for free flight or R/C. Kit includes **FULLY FINISHED** foam plastic fuselage; fully prefabricated parts for built up wings, etc. Also adaptable as **AUXILIARY SAILPLANE**. Pylon mount 22/6.



SEE THEM ALL AT YOUR LOCAL MODEL SHOP

All prices subject to 5d. in the £ P/T Surcharge

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£50 MUST BE WON!

Enter this exciting Mainstream Accessories competition and you can win one of 10 - £5 vouchers redeemable against any Mainstream product

Simple to enter. The pictures of Mainstream Accessories are marked with letters A to L and captions are listed 1 to 12. Place the letter of the appropriate picture against the captions listed on the entry form below. Complete the form and send in *with a card or pack from a Mainstream product you have purchased.*

The panel of radio control and modelling experts will select the winners from correct entries on the suitability of the completed sentence as an advertising slogan.

Please note that the decisions of the judges must be accepted as final and no correspondence can be entered into regarding the competition.

Please enclose s.a.e. if notification of names and addresses of winners is required. Details will also be published in this journal in November. Winners will be notified before October 31st, 1969. Employees and members of their families of Mainstream Productions Limited and of their advertising agents are not permitted to enter.

N.B.

These are only some of the full Mainstream range of accessories that really add to the pride in your models as well as the performance. See them—skin-packed and factory-perfect—for yourself at your local model shop.

Picture Caption

- | | |
|----|-----------------------------------|
| 1 | 'K' link connector |
| 2 | Wing fastener |
| 3 | Metal C/L/B crank (bushed) medium |
| 4 | Metal C/L/B crank (bushed) large |
| 5 | Fuel tube |
| 6 | Steerable nose wheel assembly |
| 7 | Single nose leg |
| 8 | High-speed propshaft |
| 9 | Rudder assembly |
| 10 | Water scoop |
| 11 | Folding deck aerial |
| 12 | Balloon wheel |

Complete the following sentence in no more than ten additional words.

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Name _____

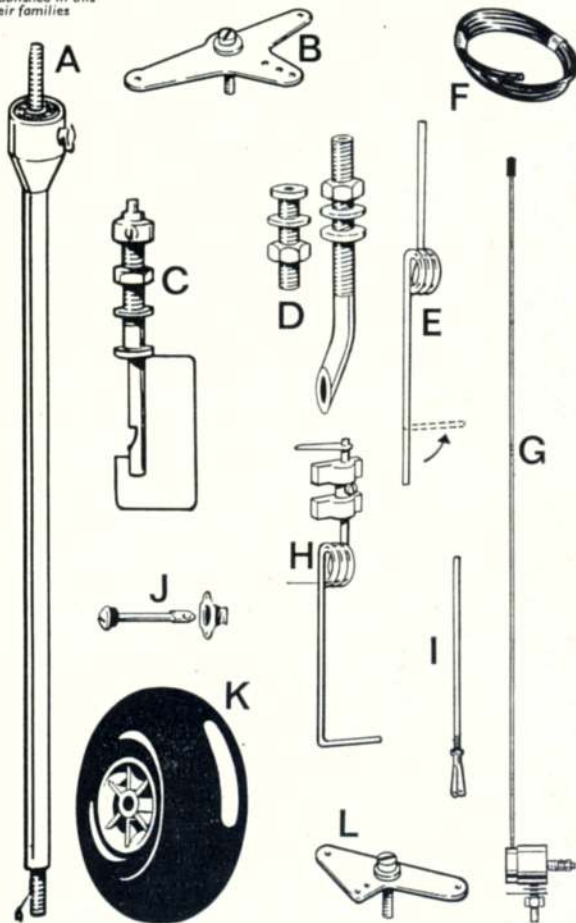
Address _____

No responsibility will be taken for entries lost, delayed or damaged in the post or offered for delivery insufficiently stamped. Proof of posting cannot be accepted as proof of delivery.

Send to: Comp. M.A. 2.

MAINSTREAM PRODUCTIONS LTD

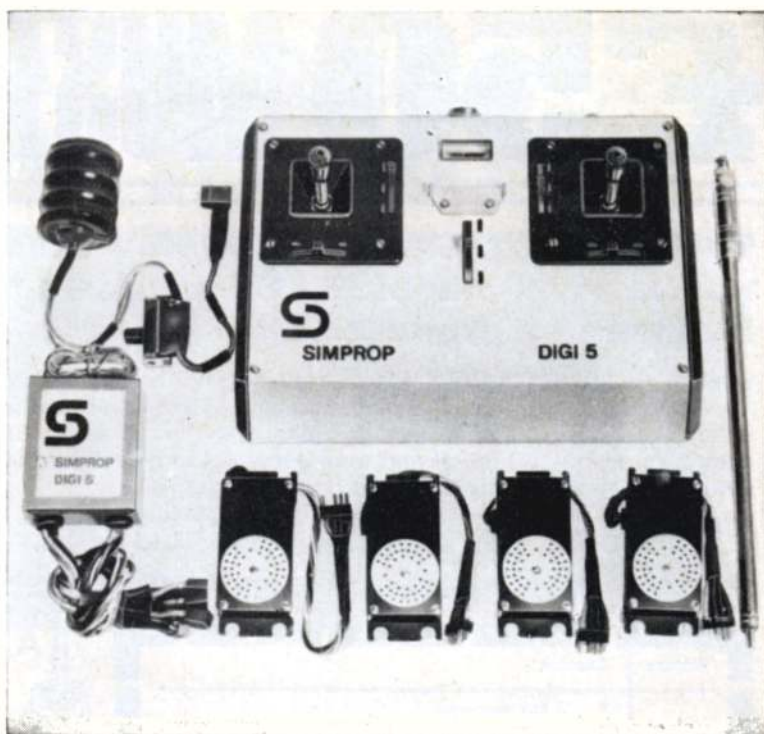
HALLAM STREET WORKS · HALLAM STREET
STOCKPORT · CHESHIRE SK2 6QQ



Hurry-closing date is 30th September!

If you want to enter the competition without spoiling your magazine, copies of this entry form can be obtained from your model shop.

SPECTACULAR! WIN A SIMPROP DIGI 5 WORTH £160



Enter this great competition when you buy a Mainstream ECS2, Simprop Digi 2 + 1 or Digi 5 during August and September 1969

Think of it . . . The excitingly spectacular radio control system Simprop Digi 5, could be yours – free – when you win this spectacular competition. Just read the specification here and then ask for the entry form from your local model shop! *Mainstream ECS2*. Two Function Digital Proportional Designed by boat enthusiasts but soon became a favourite with aero modellers.

Simprop Digi 2 + 1. Three Function Digital Proportional Advanced digital system of international status. Three entirely independent propo functions plus plug-in dual pupil-teacher operation.

Simprop Digi 5. Five Function Digital Proportional All the qualities of Simprop 2 + 1 and many of its own.

The Receiver: sensitive superhet and decoder; built on one epoxy resin panel, suspended in a metal case, and almost indestructible; 3 microvolt sensitivity (approx); 85g; 60 × 47 × 21mm; plug-in crystals. Battery: 2-piece DEAC 2/500 DKZ complete with harness, switch

and connectors; 3 to 6 hours life depending on servos used; 130g; 45 × 34mm.

The Servos: Simprop mini type developed for arduous service, with heavy duty gear train for reliability and power. Centering: ±0.5°.

ALL UP FLYING WEIGHT: 18½oz.

The Transmitter: Six spot frequencies in the 26.975 to 27.255 MHz waveband can be selected by plug-in crystals. The two 2-axis stick assemblies are easily interchanged; self-aligning metal bearings eliminate wear; and one-sided rudder neutralisation can be set at will. With a servo, the central trim lever can control a fifth function. Plug-in teacher-pupil operation and battery charging are standard features. The centre-loaded aerial is angle-mounted to stay above the horizontal, and the case shape and layout (which includes an 'early-warning' battery meter) is idealised. Power output: 300 mW; 10/225 DKZ or 10/500 DKZ 12V DEAC; provides 2 to 6 hours operation.



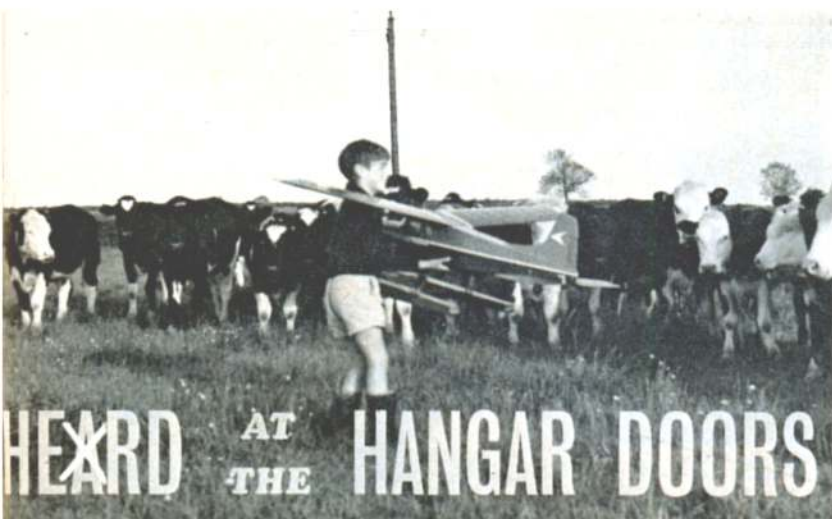
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KINDLY MENTION 'AEROMODELLER' WHEN REPLYING TO ADVERTISEMENTS



HEARD AT THE HANGAR DOORS

PRICE CHANGES. In common with the other magazines in our Hobby Group, the cover price of *Aeromodeller* will be 3/- as from the October issue. Price has been held at 2/6d. since we incorporated *Model Aircraft* in January 1966. During the past three years paper, printing, blockmaking, postage... indeed every conceivable thing has been costing more and more. We have tried very hard to contain the price within the compass of a single coin—but alas even the friendly half-crown is soon to be withdrawn from circulation!

We, on our part, are happy to offer readers a little more, so that features that we have in recent months covered in a less ambitious way than we should have liked, can now blossom forth in a style suitable to their interest and importance.

Subscribers will, of course, continue to enjoy their balance of subscription at the agreed rate: new subscribers and renewals will

pay at the rate of £2 1s. 0d. per annum. Dollar subscription rate remains at \$5.

AIR SHOW SUPERB, especially for west country holidaymakers is NATO Air Day at RAF Chivenor near Barnstaple, North Devon on August 23rd. Fighter aircraft and aerobatic teams from all the NATO countries will be there, plus advanced aircraft from neutral Sweden. Who can resist the chance of seeing Harriers, Phantoms, Jaguars, Viggen, F-104, F-5 etc. for free admission? Programme sales receipts will go to the RAF Museum Fund, gates open 8 a.m. to 6.30 p.m.

QUOTE: How do you pick the first man to set foot on the Moon?

Neil Armstrong has been flying since he was five. He was a combat pilot in the Korean War. He is a highly qualified scientist. He is an athlete. He was one of the Bell X-1 and X-15 pilots. He has coolly

Bovine audience for the younger Boddington as he retrieves dad's marinated Mighty-Super was too good to miss for heading this feature! David Boddington deals with R/C floatplanes in R.C.M.&E. this month.

handled some really frightening emergencies, including the wild spin of Gemini 8 in 1966 and the NASA lunar rig crash in 1967. He can fly any form of aeroplane, including sailplanes, and he is a keen aeromodeller.

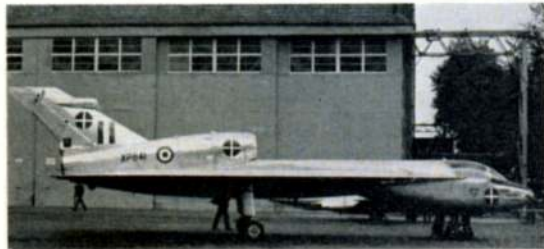
He'll do. (He did!) from *Flight International*, 10th July 1969.

WATCH OUT LOUIE! (from the D.C.R.C. Newsletter)—OR 'There's one in every crowd'.

Louie, give the lady back her hat. What? You went over the spectators to miss the cows? Well, at least you missed the pits. Oh, you didn't go into the pits because the fellows there promised to stomp on your model the next time you did? The next time? Have you done that before? Oh, once or twice each session, eh? Well, you must expect them to get a little nervous. Why don't you fly out away from the pits and the spectators? You don't know your left from your right? That's really unfortunate. I suppose you should practice some. You can't? Why? Oh, because unless there are other members out at the field you can't get your motor started. That's too bad. What's that? The one time you were there alone and got the motor started you needed some parts and there wasn't anyone around to borrow from? That's also too bad. Have you considered taking up R/C yachts?

IN PROTEST against S.M.A.E. Council decision not to provide cash prizes for the Nats, Southern and Northern Galas, the Northern Area has elected not to run the Northern Gala on September 7th as arranged at R.A.F. Lindholme. The S.M.A.E. contests will now be re-allocated. Free-flight events at the London Area Gala, October 12th, R.A.F. Greenham Common; R/C and C/L to be announced.

Below, Cranfield Open Day this year revealed the Handley Page experimental delta HP 115 featured as a novel catapult subject in centre pages. This 'Hangar Door' shot may aid decorations. Right, Ambassador for Britain at famous D.C.R.C. Annual Symposium on radio control subjects was Dave Platt, seen lecturing on realism in painting scale models. Dave's paper introduced so many handy hints we hope to reproduce it in **SCALE MODELS**. Thanks to Roger Miliham for the photo.





TWENTY FIVE Nations were represented by 67 competitors in the largest yet World Championship for radio controlled aerobatic models at the V.F.W. airfield, Lemwerder near Bremen in West Germany. Hot and humid conditions with light winds varying in direction across the smooth runway played a great part in making this tense contest a memorable affair. We shall certainly not forget the inspiring flights of the leaders, or the less pleasant aspects of being continuously hounded by police. Thank goodness we took telephoto lenses! There is certainly a different attitude to the Model (or National) press in Germany. One has to engage in a continuous battle of wits to obtain one's photos or any information. All credit to Willi & Christine Streil of Zurich who helped fill our gaps with an equipment analysis.

Practice sessions rarely reveal much. Luxemburgers chose to oscillate inverted down the runway at 5 ft., Phil Kraft threw in several touch and goes plus a rolling loop and the S. Africans chose not to fly on the field at all... for very good reason. They were on 'orange' or 27.095 Mc/s and had experienced a week of interference. The Monitoring system denied that interference was possible. Juji Oki, all the way from Japan wrecked his model on the grandstand. He was on 'red' and had no reserve. Through Bob Elliott of Logictrol, the monitor was eventually able to establish interference which was traced to an unregistered Diathermy unit. The monitor aerial was later elevated on a fire ladder, and a closer check made, but we were never able to establish that communications existed between the distant monitor and each of the two take-off points or even whether the monitor was continuously staffed. When Mick Charles' Sirocco went down with runaway throttle, elevator and aileron, the monitor staff advised his mechanic, Chris Olsen, that (a) they did not know his frequency and (b) the flight had not been taped. In such circumstances even the most sophisticated equipment becomes no more than decorative. Stringent precautions had been taken beforehand to warn all registered transmitters in the locality, but such safeguards are rendered useless unless the system has the capacity of warning a pilot of a pirate signal. Chris Sweatman of S. Africa persisted through a whole flight with wild signals, others from Ireland, Mexico and Belgium were less fortunate. Fine service by Simprow staff following permission to change crystals eventually resolved all the difficulties, but this was cold comfort to those whose chances were dashed in a thousand pieces.

The multi event was run from two points, each with five judges. Highest and lowest scores were discarded. Each entrant flew twice at each point. The better three flights were to count. It took just one round on the first day to indicate that the two points were scoring to different standards. Henceforth, point 1 became known as 'hard' and point 2 as 'soft'.

Our long years of org. work and judging tell us that this variable human factor is unavoidable, even where ten judges from as many different Nations are involved. One has to live with it, and hope for the luck of the draw. In other words late flights with tired judges after a string of mediocre efforts on the 'soft' circuit. It happened for Marrot, who stormed around with a spectacular display late on the first day. The score was 200 pts. better than for his first flight, with a high 1,421, though in so doing he, and Phil Kraft before him (1,275 pts.) were identified by a 'Halo factor' from their less appreciative critics. There were five other flyers whose standards earmarked them for possible top place. Schoenfeldt had the second best score of 1,316 (also the second flight of the contest on the 'soft' circuit). Giezendanner, using retract gear and skilfully employing throttle made 1,301 before the same judges while Wolfgang Matt was not far behind with 1,267. Top of the 'hard' scores was Rich. Brand at 1,258 followed by Josef Wester with 1,233. All had one thing in common—excellent positioning, entry and exit to the manoeuvres.

The order at halfway stage was Marrot, Schoenfeldt, Wester, Kraft, Brand, Giezendanner, Matt. Mike Birch had started well with 1,156 as leading Briton but dropped heavily on the second flight. The 'Hard' judges were tough

WORLD CHAMPS

For Radio Control plus
Scale internats organised
by the Deutsche Aero
Club



Bremen-Lemwerder
23.-27. 7. 1969



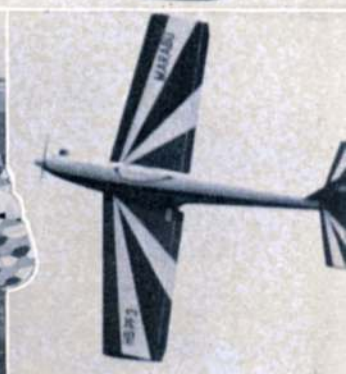
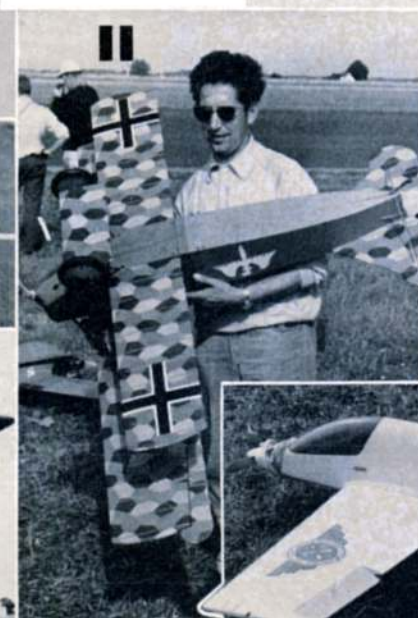
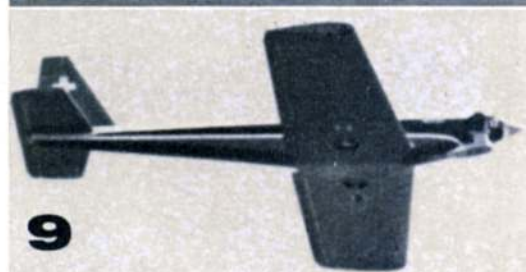
Above left, Albert Frei who made all the Swiss Team's radio equipment and was mechanic to Bruno Giezendanner (centre) with his Webra 61 powered 'Marabu' and to right, Albert Degen, for a quarter of a century the Aero Club instructor in aeromodelling, and now a proud Team Manager for the new World Champion. Above, hardly an intro is needed for Roy Yates of Eastcote with his Percival Proctor Mk. IV to 1/7th scale and powered by Merco Mk. 2. Radio is R.C.S. Digi-6. Roy's accumulation of scale accuracy, workmanship and flying points earned first place in the Scale International.

on Marrot's third flight and now it was the young Swiss Bruno Giezendanner's turn to reap a harvest of 1,444 in his second turn before the 'softies'. Though the best score, he was still rated 4th when the three rounds were totalled, Phil Kraft having similarly benefited with 1,328 to overtake Wester for 3rd place, while Schoenfeldt was in the lead over Marrot by 44 pts. But the 4th and final round was to topple the order among the leading seven completely.

Schoenfeldt and Marrot were flying simultaneously. Each made the same errors in double wingover, tailslide and Cuban eight. Schoenfeldt's big 'Prestige' one of the most admired designs of the meeting dropped with 1,197, and Marrot with airbraked 'Styx' overtook him with his second best score of 1,257. The scores indicate from which points they flew. Brand and Matt were unable to pull off anything spectacular, so all eyes were upon Giezendanner who had just 1,172 to make for top place. He was at the 'Hard' circuit, well supported by partisans and in spite of the circumstances, amazingly calm. The flight was quite easily the best of the whole meeting. To British eyes, the technique of using throttle and retract gear to aid manoeuvres was like starting all over again in multi-control. The inverted 8 was made on just two bursts of throttle. Engine speed was continuously changed in all looping plane figures. Precision was the keynote, coupled with Bruno's enviable capacity for making it all look so easy. The roar of approval as he landed, and the cheers for 1,411 out of the tough judges signified how much everyone admired (and was inspired by) the superb flying. Bruno had set an impossible task for Wester and Kraft. They had to break the 1,500 barrier by a large margin as they flew simultaneously at the end of the meeting, Kraft getting a personal best 1,362 and Wester with the 'softies', 1,424, for the second best score of the Championships.

Team wise, the West Germans were way ahead with 11,429 against 10,953 from the U.S.A. and 10,345 from little Switzerland. The British placing at 6th was no disgrace in such impressive company and we are sure that those among the 200 supporters and team members who witnessed the flights will have returned much the wiser, and considerably spurred to take up the challenge in 1971 in Austria.

Results p. 468. Scale report p. 491



1. Bruno Klupp's Fokker DVII, one of 3. 2. Herbert Reger's Zlin 326A, with fixed gear flew fast, fully aerobatic, uses flaps. 3. From Aviomodelli luxury kit, Rinaldo Godenzi's Cessna 182 Skylane was very realistic using part power of ST60. 4. Maxie Hester's Zlin 526A is obviously designed for kitting (SIG), 1/6th scale, Enya 60 and Logictrol Pro R/C gear. 5. Dr. Amman's DH2 (Kraft R/C and Enya 60) flew well till overloaded in a loop. 6. Walter Reger's Yak 18 PM, neat and tidy to 1/6th scale for ST 60 and Microprop R/C, has fixed gear. 7. Jim Kirkland's Citron 3, smart with Mustang hook and roof fillets. 8. Josef Wester's 3rd place 'AW 40' with Varioprop and ST 60, weighs 8lbs. 9. Two shots of Bruno Giezendanner's 'Marabu' with KDH retract gear. Swiss made Digi-Fly R/C and Webra 61, weighs 7lbs, a superb winner. 10. Phil Kraft's Kwik-Fly III second placer opens up Enya 60 for take off. 11. Alf Laline's DVII has hand decorated camouflage. 12. Chris Sweatman's 'Lady Luck' shows flaps used for landing. 13. Bo Bergstedt's 'Bolly' with Digi-Fly gear, almost a caricature of the 'Dolphin' trend in side profiles.

INTERNATIONAL SCALE CONTEST (CLASS F4C)											
Pl.	Name	Nation	Freq.	Aircraft	Scale	W'ship	Fit. 1	Fit. 2	Scale Factor	Corr'd Fit. pts.	Total
1	R. Yates	U.K.	Blue	Percival Proctor IV	691-5	602-0	2545-0	2378-5	0-922	2346-49	3639-99
2	M. Charles	U.K.	Brown	Jurca Sirocco	676-0	654-5	1789-0	—	0-901	1611-88	2942-38
3	H. Reger	W. Germany	Brown	Zlin 326A	535-5	437-0	2075-0	2562-0	0-714	1829-26	2801-76
4	M. Hester	U.S.A.	Brown	Zlin 526A	499-0	427-5	2584-5	2488-5	0-665	1718-69	2645-19
5	J. Bridi	U.S.A.	Brown	Nieuport II	549-5	494-0	2081-0	2146-5	0-732	1571-23	2614-73
6	R. Godenzi	Italy	Brown	Cessna 182	374-0	267-5	2111-0	2147-5	0-786	1687-97	2329-47
7	C. McCullough	U.S.A.	Brown	Fletcher FU24	617-5	516-0	1343-0	—	0-823	1105-28	2238-78
8	D. Bryant	U.K.	Blue	R.W.D. 8	506-6	488-5	1074-0	1353-0	0-675	913-27	1884-67
9	W. Reger	W. Germany	Brown	Yak 18 PM	422-5	446-5	—	1732-0	0-563	975-11	1844-11
10	A. Laline	Belgium	?	Fokker D VII	382-5	214-5	1064-0	2380-0	0-510	1213-80	1810-80
11	B. Klupp	W. Germany	Red	Fokker D VII	566-5	481-0	—	871-0	0-755	657-60	1705-10
12	Dr. A. Elzondo	Mexico	Brown	Fokker D VII	262-0	239-5	1947-0	1775-5	0-346	673-66	1165-16
13	A. Blansaer	Belgium	Brown	V.A. Spitfire IX	276-5	299-5	1525-0	—	0-368	561-20	1137-20
14	Dr. J. Amman	Switzerland	Green	De Havilland DH2	398-0	406-0	465-0	—	0-530	246-45	1050-45
15	R. Swenningsson	Sweden	Grn/Blue	North American P51D	119-5	135-0	2097-0	1857-0	0-159	333-42	587-92
16	S. Hellström	Sweden	Brown	Piper Cub J3	201-5	213-0	207-0	641-0	0-268	171-78	586-28
17	K. Tell	Sweden	Brown	Piper Comanche	75-0	309-0	1370-5	1883-5	0-100	188-30	567-35

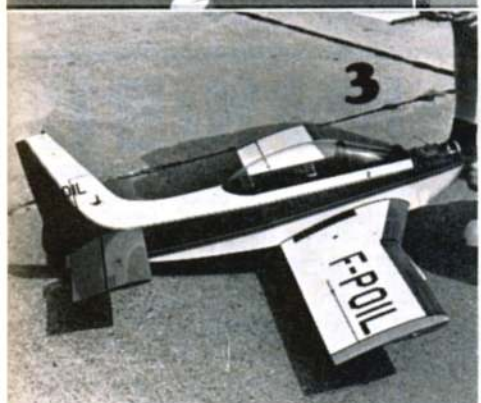
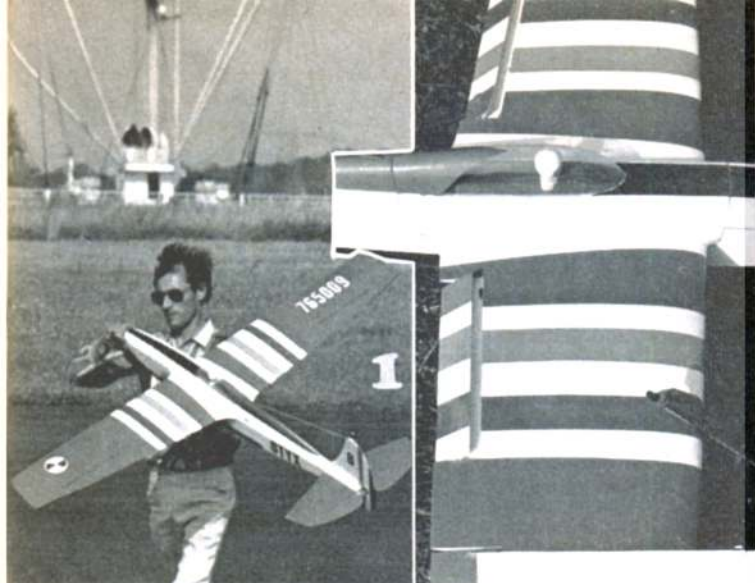
Score is calculated as Scale + Workmanship + Corrected Flight points (× Scale Factor)

Scale Factor is percentage of Scale Score over perfection (750 points)

Note all points are Total Scores from three judges.

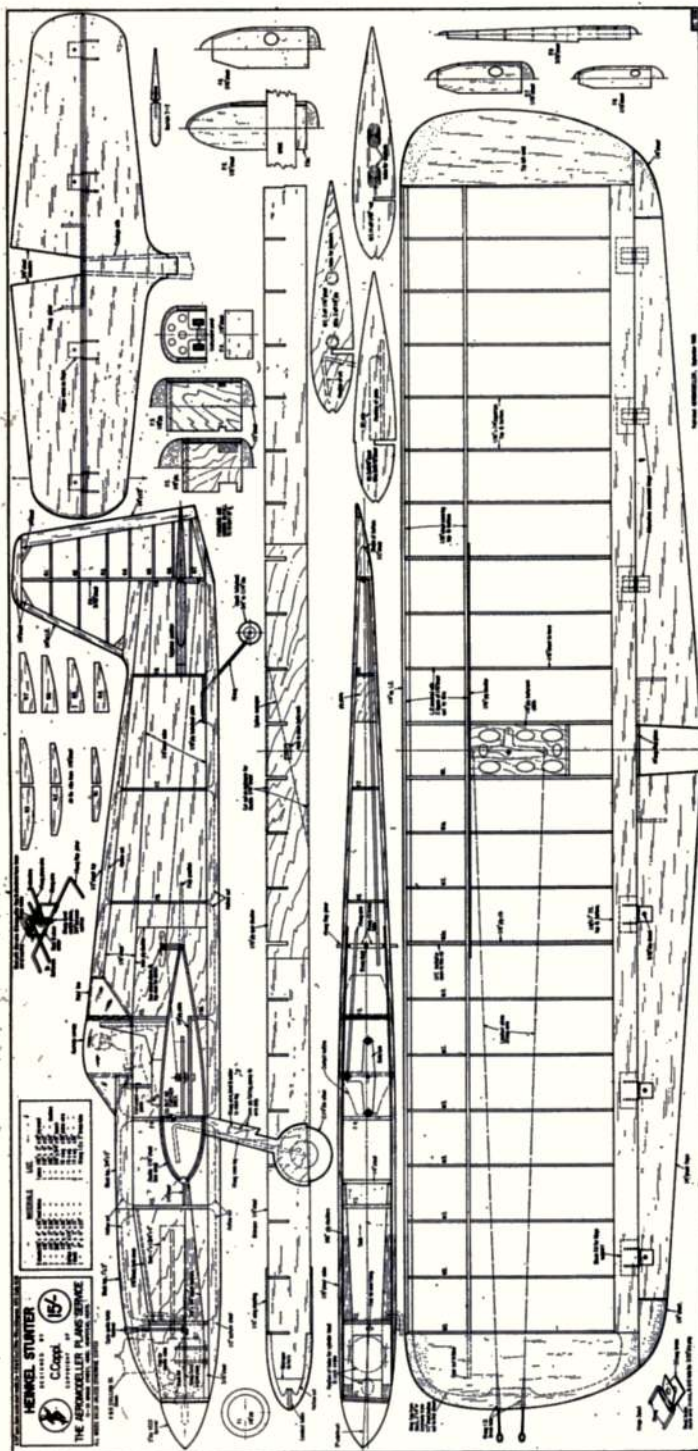
1969 WORLD R/C CHAMPIONSHIPS (CLASS F3A)									
Place	Name	Nation	R/C	Engine	Fit. 1	Fit. 2	Fit. 3	Fit. 4	Total (Best 3)
1	Bruno Giezendanner	Switzerland	Digi-Fly	Webra 61	1301	1030	1444	1411	4156
2	Philip O. Kraft	U.S.A.	Kraft	Enya 60	1219	1275	1328	1362	3965
3	Josef Wester	W. Germany	Varioprop	ST.G.60	1233	1280	1229	1424	3937
4	Pierre Marrot	France	Radio Pilote	Rossi 60	1243	1421	1182	1257	3921
5	Wilbert Schoenfeldt	W. Germany	Simprop	ST.G.60	1316	1291	1283	1197	3890
6	Wolfgang Matt	Liech.	Simprop	ST.G.60	1267	1035	1120	1231	3618
7	Heinz Elsaesser	W. Germany	Robbe Digi	ST.G.60	1146	1148	1243	1211	3602
8	Richard Brand	S. Africa	Logictrol	ST.G.60	1258	1180	1140	1161	3599
9	James Kirkland	U.S.A.	Pro-Line	Lee 61	996	1232	1153	1166	3551
10	James Whitley	U.S.A.	Pro-Line	ST.G.60	1171	1104	1162	1061	3437
11	Harold Tom	Canada	Kraft	Veco 61	1162	1086	1141	962	3389
12	Polu Stephansen	Norway	Kraft	HP60	1118	1121	1074	1143	3382
13	Mike Birch	U.K.	Skyleader	Merco 61	1156	804	1147	1070	3373
14	Fredi Schenk	Switzerland	Digi-Fly	Veco 61	1035	971	996	1148	3179
15	Don Mackenzie	S. Africa	Logictrol	ST.G.60	899	1017	1027	1094	3138
16	Isao Matsui	Japan	O.S. Digital	O.S.60	832	973	1000	1146	3119
17	Denis Hammant	U.K.	Skyleader	Merco 61	931	917	1026	1144	3101
18	M. Bruls	Netherlands	Simprop	ST.G.60	959	1006	1039	1018	3063
19	Chris Sweatman	S. Africa	Logictrol	ST.G.60	931	1006	655	1123	3060
20	Graziano Pagni	Italy	Logictrol	ST.G.60	1003	891	920	1096	3019
21	Kurt Saupe	Switzerland	Digi-Fly	Rossi 60	1148	867	848	995	3010
22	Joshihiro Ikejiri	Japan	O.S. Digital	O.S.60	913	861	1013	1059	2985
23	Stuart Foster	U.K.	Sprengbrook	Merco 61	1038	970	896	972	2980
24	Ronald Chapman	Canada	C.R.C.	Veco 61	870	971	1053	—	2894
25	Jesper von Segebaden	Sweden	Micronic	ST.G.60	1011	758	965	913	2889
26	Guy Hardy	France	Simprop	ST.G.60	610	977	966	910	2853
27	Heinrich Sekirnjak	Austria	Dirigent 6	Rossi 60	871	826	918	998	2787
28	Jean-Claude Cousson	France	Radio Pilote	Rossi 60	997	872	911	878	2786
29	Georges Haegemann	Belgium	Radio Pilote	Rossi 60	768	810	1018	950	2778
30	Franz Schachinger	Austria	Graupner TX14	HP61	816	533	897	928	2641
31	Guglielmo Reda	Italy	Robot	ST.G.60	794	826	910	886	2622
32	Hannu Ruhelae	Finland	P.C.S.	Webra 61	840	697	782	954	2576
33	J. Van Vliet	Netherlands	Simprop	ST.G.60	824	756	852	883	2559
34	Heinz Sekirnjak	Austria	Dirigent 6	Rossi 60	730	475	840	986	2556
35	Koos Tromp	Netherlands	Microprop	Webra 61	770	857	717	891	2518
36	Bo Bergstedt	Sweden	Digiplex	Enya 60	863	732	861	757	2481
37	Warren Hitchcox	Canada	C.R.C.	Veco 61	757	794	833	224	2384
38	Jean-Pierre Gobeaux	Belgium	Radio Pilote	Rossi 60	763	555	795	788	2346
39	Knut Aker	Norway	Nortrol	ST.G.60	63	692	814	820	2326
40	Roberto Guzmán	Mexico	Orbit	ST.G.60	720	762	823	484	2305
41	Luciano Reineri	Italy	Logic Bell	Rossi 60	765	598	819	718	2302
42	Tore Paulsen	Norway	Heathkit	Webra 61	729	693	715	833	2277
43	Elias Villegas	Mexico	Orbit	Webra 61	686	766	576	778	2230
44	Lutz Schramm	E. Germany	Varioprop	ST.G.60	579	642	805	699	2146
45	Salo Feiner	Mexico	Orbit	ST.B.60	165	626	769	553	1948
46	Robert Troy	N. Ireland	Kraft	Merco 61	601	673	629	625	1927
47	Milan Vostry	Czechoslovakia	Simprop	Enya 60	514	610	592	716	1918
48	Norbert Bertemes	Luxembourg	Simprop	ST.G.60	513	556	527	669	1752
49	Bert-Erik Stoeving	Sweden	Telepilot	Enya 60	—	867	—	878	1745
50	Jiri Michalovic	Czechoslovakia	Simprop	Fox 59	537	519	689	442	1745
51	Erik Jensen	Denmark	Orbit	Rossi 60	477	—	555	562	1594
52	Kaj Robert Hansen	Denmark	Controlaire	ST.G.60	465	486	565	533	1584
53	Frederick Buick	N. Ireland	Kraft	Merco 61	499	527	496	384	1522
54	Paul Behm	Luxembourg	Simprop	Rossi 60	587	525	244	395	1507
55	John Dible	Ireland	Simprop	Merco 61	36	628	374	315	1317
56	Sylwester Kujawa	Poland	Grundig TX14	ST.G.60	390	493	337	288	1220
57	Ronald Fischer	E. Germany	Simprop	O.S.60	376	427	227	400	1203
58	Pierre Hoffmann	Luxembourg	Simprop	Merco 61	46	458	294	401	1153
59	Jiri Havel	Czechoslovakia	Varioprop	M.V.V.S.60	—	73	640	401	1114
60	Jens Jorgensen	Denmark	Bonner	Webra 61	120	343	299	339	981
61	Petti Reinas	Finland	Microprop	O.S.60	124	189	256	406	851
62	Karl-Heinz Wenisch	E. Germany	Simprop	O.S.60	363	370	26	—	759
63	Alfred Laline	Belgium	Microprop	Rossi 60	5	289	—	—	294
64	Emil Karlev	Bulgaria	—	—	—	20	—	—	20

Retired:- 65 Juji Oki, Japan; 66 Milischo Bonischer, Bulgaria; 67 Nikola Malinov, Bulgaria.



1. Two views of Pierre Marrot's bright green/white 'Styx' with Red/White/Blue bands, fast in flight, slowed for tailslide and landing by spoiler/flaps. 2. Yuji Oki and Joshihiro Ikejiri with 'Pearl' a 6lb. beauty with superb finish, OS Digital R/C OS 60 engine. 3. Mick Charles' Jurca Sirocco, unhappily destroyed by interference. 4. Wilbert Schoenfeldt and his 9lb. 'Prestige', heaviest and steadiest, with retract gear, placed 5th. Team Manager Fritz Bosch at right. 5. Joe Bridi and his Nieuport 11 'Bebe' from Lou Proctor's beautiful kit, a spectacular flier. 6. Rich Brand's 'Spitpanzer', long and lead, well finished with Logictrol, ST60. 7. Ron Chapman's original pair for Canadian CRC gear and Veco 61s, based on Orion and Yak 18. 8. Claude McCullough's Fletcher FU24 cropduster, fine rivet detail and interesting twin cyl 10c.c. Shereshaw exp. engine. 9. Wolfgang Matt and 'Super Star' for Simprop R/C flew very well. 10. British Scale fans reduce Den Bryant's RWD-8 by 14 ozs!





Full-size copies of this 1/8th scale reproduction are available as plan CL 1036, price 15/- from Aeromodeller Plans Service.

WHEN construction started on this model last winter, it was intended to duplicate the author's previous model named *Skylady*, a development of the *Skilat* (squirrel) by Luciano Compostella which has so strongly influenced the stunt trend in Italy.

The problem was that perhaps too many *Skilais* have been built in Italy during the last two years so that the design is now rather commonplace. It was decided that it would be better to personalise the new model in some way, without losing anything of the very remarkable flying characteristics of its ancestors. A good semi-scale effect seemed to be the right solution. When research for a suitable aircraft was commenced it was obvious that the choice was not too wide owing to the upright engine. In fact only W.W. II fighters developed around Daimler Benz 601 could be considered.

After discarding the *Tony* and *Macchi 202* which were already being flown by other modellers, the designer's attention was caught by the *Heinkel 100* which, though not so renowned, had the advantage of being particularly suitable.

HEINKEL

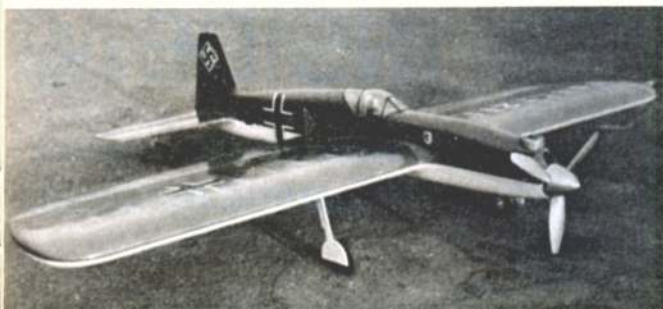
If readers compare the plan of my model with drawings of the real aircraft (see *War Planes of the Second World War, Fighters Volume One* by W. Green or the monograph by Aero Publishers of U.S.A.) they will easily discover that details of this model are not to scale. This is because the first object was to have a 100 per cent competitive stunter so the proportions and surfaces of the previous *Skylady* were not altered.

After more than a hundred flights, the *Heinkel* is still in perfect condition and this proves that the basic design is functional and exempt from substantial errors. It can be recommended to those flyers who like to have a good-looking semi-scale stunter which is not too difficult to build.

Construction

The original model was powered by a Fox 35 and weighed 45 ozs. without fuel. Flying characteristics can be still further improved by reducing weight to approximately 43 ozs. This can be achieved with a careful selection of balsa and a light finish.

The wing should be built first as the model is constructed around it. The wing has a 'D' tube structure which is now traditional in stunt. The main advantage is a high torsional strength which practically eliminates the danger of warps due to covering. On the other hand, it must be carefully built to avoid built-in warps which are very difficult to remove, and can seriously affect the model's flight behaviour. Keeping this in mind check critically your building board; if it is not absolutely rigid and flat do not hesitate to replace it. The spar is slotted from the ribs which are then glued on using a P.V.A. glue as this does not shrink. The 10 s.w.g. landing gear is mounted with J bolts onto the respective ribs before they are glued to the spar. By constructing the wing upside down, blocks may be placed under the L.E. and T.E. to assure accurate setting of the parts. Be sure to position the spar correctly on the board, otherwise one risks getting the shorter panel on the inside! Wing tips are carved from 2 in. balsa block. Only the inboard tip is hollowed. Leave out-board



tip solid. Remember to insert (between trailing edges) the small triangular blocks supporting the flap hinges. To complete wing, cement bellcrank mount in place, add bellcrank with leadouts, add pushrod bent as per design, epoxy flap horn to T.E. and finally add planking. Do not forget double planking the central section between L.E. and spar. To allow this, cut

Stunter

Clemente Cappi's
semi-scale 54 ins.
control-line design

centre ribs as per plan. The flap horn is bushed as shown. The tail is cut from $\frac{1}{8}$ in. balsa sheet and profiled. Central section has a constant thickness to facilitate 0° setting and obtain a stronger bond with fuselage. Flaps are cut from $\frac{1}{4}$ in. balsa and slotted to accept horn and hinges. They are epoxied in place before mounting wing in fuselage. Cut fuselage sides from two $\frac{1}{8}$ in. balsa sheets with perfectly straight edges. Mark the thrust line carefully which will allow one to align the various components: engine, wing tailplane fuselage doublers are cut from $\frac{1}{8}$ in. plywood and epoxied in place. Then cut slots for wing and tail. Mark reference lines for engine mounts which are mounted 1 mm. lower than thrust line to allow a place for 1 mm. aluminium reinforcement to be epoxied to the mount. Cut motor mounts and drill holes for engine bolts remembering the side-thrust (2-3 degrees). Glue them to doublers. Cut formers, top and bottom blocks, then assemble fuselage sides using the bottom block as a reference. To obtain exact distance between sides, engine is temporarily bolted in place. Only the formers are firmly glued, while top and bottom blocks are spot-glued only taking care to insert paper between wood parts in contact. Round off the blocks as per design, then separate them, hollow the inside and put aside.



Do not hollow the blocks where the formers fit. Now cut fuselage under the wing slot (this piece is glued in place after the wing is mounted) to allow insertion of wing with flaps already mounted. Glue wing, checking carefully that it is square and true. Cement horizontal tailplane with push rod already in place. Now glue bottom block permanently in place, not forgetting to add tail wheel which is sewn to a plywood plate. Now secure push rods to flap horn. All parts including the bellcrank must be *absolutely neutral*. Be very careful and critical at this stage! Now the fuselage can be completed by adding the two upper sides and top rear block. Tack glue this in place, carve, then detach - hollow it and glue permanently in place. Add rudder which is built separately. Cut rear cockpit frame from $\frac{1}{8}$ in. plywood and look for a bubble canopy of suitable dimensions. Make tank and glue permanently in place with scrap balsa. The tank compartment is sealed with balsa cover so that fuel cannot seep into fuselage. Carve the engine cowl from block and hollow inside.

Before covering the model, give the entire structure two coats of sanding sealer. Then, sand with 400 wet or dry paper to obtain a smooth surface. Wing, rudder and front fuselage (to spar) are covered with silk, other parts with light weight Modelspan. Apply several coats of clear dope until all pores of the silk are filled and a smooth surface is obtained on other parts. Between coats, sand with 600 grade wet and dry paper used dry on silk and with 400 on solid parts. Brush or spray again a final coat of sanding sealer and check for results, repeating if not satisfied. The model is painted in a very simple way but the final result is good. The underside is first sprayed pale blue, then separation lines are masked and upper surface sprayed olive green. Paint inside of cockpit matt grey; add cockpit details and then epoxy a clear canopy in place. Small strips of thin black self-adhesive tape will stimulate the presence of a cockpit frame. Apply military insignia. Finally, apply a coat of fuel proofer.

Flying

First of all, check balance point: it should be 3 in. behind the leading edge. A nose-heavy model will make beautiful landings and take-offs, but will not 'square' so well, while a tail-heavy model will be oversensitive and will fly with slack lines, particularly when the down line is under tension. While a nose-heavy model is easily balanced with some lead wrapped around tail wheel, it usually needs much more weight to correct tail-heaviness. Therefore it is recommended to build the model in such a way that the second case does not apply. For instance, a good precaution is to hollow the tailplane and elevator and then add ribs inside.

Fly the model on 60 foot lines and gain confidence gradually. Observe its behaviour: if it flies with a wing down, counteract this by adjusting the small fixed tabs. Do not twist the flaps as this can adversely affect the behaviour of the model on squares.

Generally speaking there is no secret to stunt except consistent training. However, results can be more or less satisfactory depending on various factors.

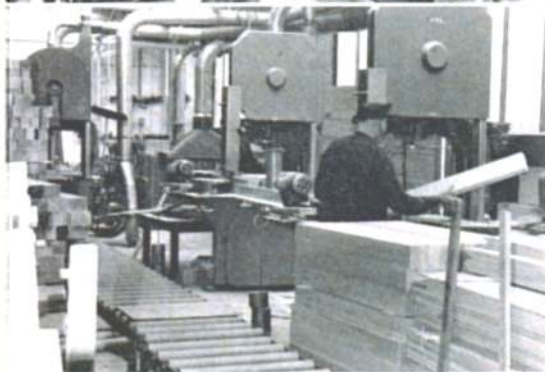
If you intend to become a regular competitor, the following factors are critical: -

1. A well designed and correctly built model.
2. A well broken-in engine.
3. A good fuel.
4. A fuel filter between carburettor and tank.
5. The right prop.
6. Lines free from kinks.
7. Hard wearing bellcrank and horns.
8. Someone watching your flight from judge's point of view and willing to explain what mistakes you are making.
9. Crush-free engine mounts, so that the engine is not in any way disturbed when bolts are screwed tight.



INSIDE G

**We visit the purpose
factory at Kirchheim**



Heading: Office block and staff car park. Production buildings out of picture to right, warehouse and despatch at rear. Next is part of plastic injection dept. producing small parts. Central, a section of the Mill, showing roller-conveyor system and some of the bandsaws. Above, a large vacuum forming machine, used for the power boat hulls. Right, the kitting line has moving belt transporter.

THE LONG established family firm of Graupner, based at Kirchheim/Teck in Southern Germany is too well known to require introduction. In its time it has pioneered so many new ideas in aeromodelling and built up such a reputation throughout Europe for the excellence of its products that we are sure the name is now synonymous with magnet steering, electric free flight, slope-soaring, the Wankel engine and the modular system of building up two to ten channel radio control.

Over the years, we have never failed to have been impressed by their handsome colour printed catalogue. It has progressively indicated expansion of the Johannes Graupner ranges, with introduction of what have sometimes been radically new kits and accessories; the latest of which are the plastic hulls and fuselages for '69 kits. And with the latest additions has come the biggest single leap forward in the long history of the company.

An entirely new, purpose-designed model kit and accessory factory with integrated warehouse, development and administration departments has been recently completed at Kirchheim. It totals 6,000 square metres, in addition to the previous factory area of 3,200 square metres, and a further 1,200 square metres of established office space.

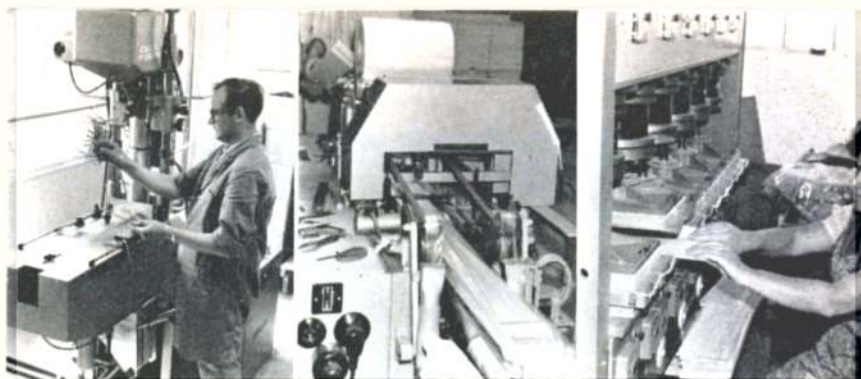
Big by any standards, the new plant is all the more remarkable for its functional design. Production flow, from acceptance of raw baulks of balsa and other timbers through to despatch of packed kits is a smooth transitional process. There is a large degree of mechanisation, blended with manual skills. Machinery is new, ranging from multiple cutters to shrink wrapping of packed balsa for shop stocks, and much of it has been specially designed for the peculiarities of our modelling demands. The mill is exceptionally clean, due to an extraction plant that feeds the boiler house, in turn supplying heat. Huge cylinders mix the explosive balsa dust with oil, so eliminating one of the greatest problems the kit manufacturer has to face.

Everything bearing the Graupner name originates,



RAUPNER

-designed huge new
m/Teck in Germany



and is made, at Kirchheim. Development staff are continually working on new ideas, and such is the pressure that separate marine and aero draughting departments are maintained. There are, in all, about 200 employees and we envy them their attractive restaurant and stainless buffet counter, pastel coloured plastic furnishings, timbered walls and inexpensive menu. It's a restaurant that would put many of our high street establishments to shame both for size and cleanliness!

In such an atmosphere, interesting work becomes even more absorbing. Our recent flying visit was too short to accept a full appreciation of the big plant; but of one thing we are most sure. This is the sheer sincerity of the management to produce nothing short of the best, and to keep it so. For this reason, our most impressive moments came when shown the Graupner-Grundig Radio Service Section.

Eight highly qualified technicians, each equipped with the most sophisticated electronic instrumentation, linked via underfloor wiring to master signal generators and other radio mysteries can tackle any Graupner R/C gear, no matter how old, abused and misused. We spotted an ancient Bellaphon, a few of the most complex TX-14 receivers, Variophons, Variotons, Varioprops and all being reinstated good as new. It was an eye-opener even to note the flow of work which itself indicates how much R/C equipment is regularly used in Germany, and extremely satisfying to see the speed of service.

Close to the factory is the famous 'Teck', a mini-mountain with many workable slopes. It is no exaggeration that over 20 R/C gliders have been flown *simultaneously* around the Teck slopes, and that on any day of any week, one can find at least a dozen, as was our experience on a most unsuitable day. With this in proximity, plus a local group of lightplane fields which have spawned some of the most famous sailplanes and light aircraft in the world, is it any wonder that Kirchheim, and Graupner have become the hub of European modelling production?



Top: Mechanisation includes large plastic injection machines, shrink wrapping for kits or Balsa packs (centre) and specially developed press to form sheet balsa wing sections. Three (out of eight) R/C servicing tables loaded with sophisticated test equipment indicate high standard of work in maintaining Graupner-Grundig R/C gear. Left: a 'puzzle picture' of shaped yacht hulls, straight from the multiple profiler.



AS CONTROL-LINE competition flying enters its twenty-first year, one wonders how many entrants of that original Gold Trophy event are still currently flying stunt models. One name that immediately comes to mind is that of Laurie Glover, P.R.O. of the Three Kings Club – whose models, however, are far from dated – as witness his silver Mono-Koted jet-like design.

Whilst on the subject of aerobatics, some useful information is given on stunt motors in that excellent newsletter 'Tarmac Torque', mouthpiece of the Rand M.A.C.: –

The main requirement of a good stunt 35 is that it should possess good 'switching' qualities, i.e. it will change from a four stroke in level flight to a two stroke during manoeuvres, quickly and without losing airspeed. This is particularly essential in square manoeuvres, where the engine must pick up into its two stroke run immediately in order to give a burst of acceleration during the vertical climb. Any 'fluffing' at the critical turn-point will result in a very non-square, square.

A further requirement is that the four stroke and two stroke speeds should not differ by too large a degree, as a large power differential will result in the model surging around those square corners, rather

French system of circle marking for safety zone is shown at left, with Miss Regine Curt's model being withdrawn to the outer perimeter for take-off.

than accelerating smoothly, and will again result in out of shape manoeuvres.

The factors that govern four stroke/two stroke relationships are many and varied, but in general the lower the compression ratio, the faster the motor will four stroke, and the slower it will two stroke. Therefore, by the judicious use of head gaskets, a motor may be tuned to suit your own requirement. If the motor four strokes too slowly, and the power differential is thus too great, then add gaskets (i.e. lower the compression ratio), if the reverse is true, then remove gaskets.

It is worth noting that out of the first four places at the 1968 World Champs, three used Fox 35s – an engine which four strokes at exceptionally high r.p.m., and the two stroke speed of which is only some 2-3,000 r.p.m. faster.

Latest 'Blue' Sport

News of the Australian New South Wales State Championships, which were held during April, has just filtered through. Of particular note was the setting of a new Australian record in Class 'B' team race, by the team of Peter Tilley and Alan Sling, who recorded 6 min. 6.6 seconds for the 10 miles. This time is probably close to an *unofficial* World Record. The record breakers used one of the new Super Tigre A.B.C. 29 R.V. engines fitted with a home-made carb., turning a home-cast glass fibre prop. This combination resulted in 107 m.p.h. for exactly 70 laps – the Super Tigre holding compression extremely well even when hot. In fact, it was very easy handling, starting first time with only a mild flick.

Another Australian record was established in F.A.I. speed when Jack Finneran put in a run of 143.4 m.p.h., using an unpiped Super Tigre G15, fitted with a 'Cox' type trumpet head, slightly enlarged transfer parts, and a very much re-worked Top Flite 6 in. x 7 1/2 in. propeller.

These Super Tigre A.B.C. engines must be quite some engines, as Class 'B' speed winner, Andy Kerr, recorded 165 m.p.h., which he claims was semi-four stroking!

Combat at the Nats – or give that man an advertising rate card!

It is a well-known fact that Oliver Tigers are the supreme engines for combat, due to their reliability, performance and ruggedness – but not many realise the numbers of Copeman tuned Olivers that are in circulation. Vernon Hunt, of A.C.E., points out that at the recent Nationals, from the quarter finals onwards, *everyone* used an engine that had been through George's delicate fingers. Quite a record – and this is by no means an isolated occurrence.

Although the Nationals combat entries were considerably fewer than last year, the general standard of flying was very much better – as several of the 'top names' found out to their cost when eliminated in the first or second rounds. One may complain at stereotyped models and the sameness of power units, but this is understandable when 'being different' can and

Left, Ziegler's 'Sprint' tuned exhaust system seen fitted to a Super Tigre ST60 SR. Claims power increase of up to 1,200 r.p.m., with fuel economy of 20 per cent over standard engines. Right is a map of a new Belgian control-line site, 8 miles from Wavre on the Brussels-Wavre road. Unfortunately, no such good news from this side of the water. Far right, simple basic trainer by Paul Tupker.



often does result in defeat. An example of this is Mick Davis' use of Super Tigre glow engines, whose unreliability was a contributory factor to his defeat in the third round.

Probably another reason for the sameness of the models is the speed with which they may be built. No more those thin sectioned 'Razor Blades' with spruce spars and laminated trailing edges, or 'Cleavers' with semi-geodetic structures, but functional, strong, models, with no spars, flat sectioned ribs permitting easy 'on the board' building and hefty leading edges. With the high mortality rate of this competition class, who can afford the time for complex models, for complexity's sake?

Diesel Fuel Additives

Readers may recall Don Jehlik and Herb Stockton's very informative article on team race fuels in the August 1967 issue. The World Champions stated that they used *Diesel Ignition Improver* as a 'dope' to their fuel, rather than the universally used amyl nitrate, finding it to be more consistent in use.

Up until now you may have had some difficulty in obtaining this additive (which incidentally contains approximately 60% Amyl Nitrate plus various other nitrates), but now a source of supply has come available to this country - J. R. Mager, of College Road, East Halton, Grimsby, Lincs., who is able to supply 18 oz. tins at 26/- + 1/6d. transit costs, or two tins for 49/- the pair. This may sound expensive until you calculate the equivalent cost of Amyl Nitrate - which is up to double the price. Mager states that he has used D.I.I. for some time in a variety of engines with every success, and supplies three well-proven 'recipes' for either general purpose, combat or team-race fuels.

North Luffenham Meeting

Brief report from Andrew Longhurst concerning the S.M.A.E. Area Centralised meeting at North Luffenham on June 8th, shows that this event suffered from its proximity to the Nationals.

Class 'B' team race for the Davies Trophy attracted seven entries - eventual winners being Place/Haworth (a pair of up and coming lads!) with an over-bored E.T.A. of 2.6 c.c., which recorded 99 m.p.h. for 75 laps. Second placemen were Taylor/McNess with an old (early '50's) model powered by an E.T.A. 29, whilst third placers Dell/Wooding retired on their 82nd lap with undercarriage failure.



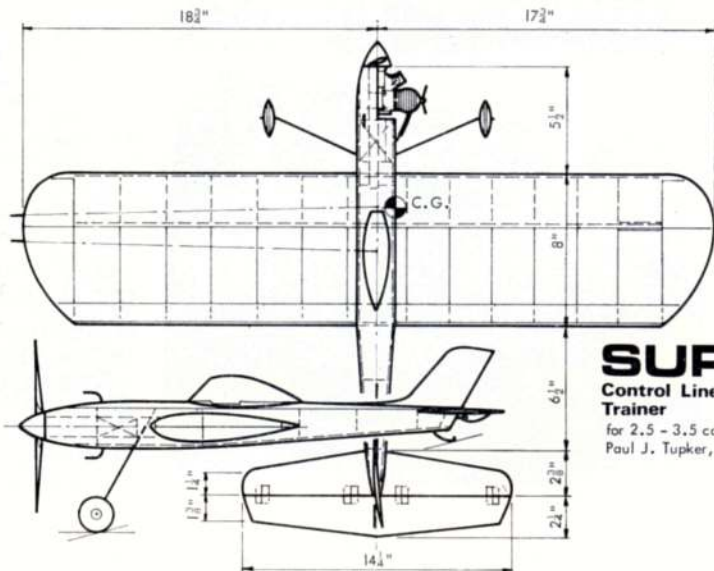
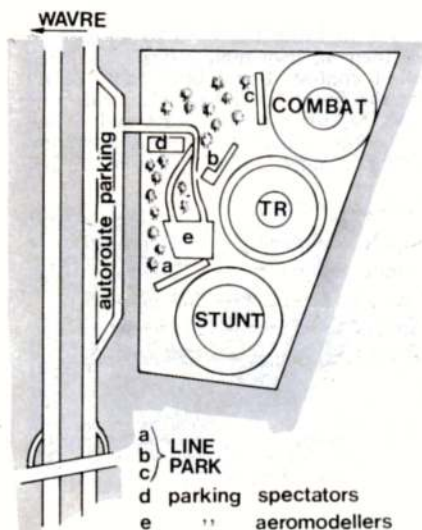
Above, seen at the Burtonwood Criterium was Malcolm Ross's own designed (and beautifully built) M.R. 15 team racing engine.

Rat race was another Feltham club benefit, the final being marred by a mid-air prang between Longhurst and Bradley which was quickly followed by Dixon 'landing' his model into his own fuel can! This left the unscathed model of Dave Rudd an easy victor, with a time of 6.25.3.

Handicap Speed attracted twelve entries, of which six recorded times. First was M. Billington, recording 159.8 m.p.h. with his 10 c.c. model, which was the equivalent of 95% of the record. Second was 'new name' M. Radcliffe, of Feltham, with 141.6 m.p.h., and 5 c.c. model (92%) and third was G. Farnsworth, who recorded 80.7% of the 'open' record with a 2.5 cc. speed ship.

Somebody needs YOU

Good news for control-line fliers in the Midlands area is the formation of a new club who have excellent facilities, but need more members to use them. The club concerned is the 'Air Centre Hobbies', who have control-line facilities on Halfpenny Green Aerodrome (with common land just 1/4 mile away for free flight and radio minded types) as well as a club room with 900 sq. ft. of floor space. Interested persons should contact the Secretary, P. J. Male, of 66 Balmoral Road, Ashwood Park, Wordsley, Stourbridge, Worcs. Meetings are held at 8 p.m. every Wednesday evening on Halfpenny Green Aerodrome, Bobbington, Nr. Stourbridge.



SUPPI
Control Line Sports
Trainer

for 2.5 - 3.5 cc engines, by
Paul J. Tupker, Netherlands



'OPÉRATION PLANEURS'

Pierre Delfeld tells how 526 boys and girls (under 16) flew the same model design in one contest

ONE OF the main purposes of the newly formed Belgian Model Federation (known as the *Association Belge d'Aéromodélisme*) was, in 1964, to make a big effort to raise the interest in model aircraft amongst the youngsters.

It is the same problem in every country. At that time, the membership of the old (and dead) F.P.A.B.

had dropped to a low 400! Something *had* to be done. First, the Federal organisation had to be dissolved. So it was. Secondly, the model organisation had to be formed on another basis.

Summarising, the A.B.A. is constituted in seven sections; control-line, free-flight, radio-control, rockets, General secretariat, General treasury, and . . . education (the most important on this occasion). Each director is free to organise the activities of his own section.

So the 'Opération Planeurs' was created.

The idea came from Jean-Marie Tordoir, who is a teacher in a state College and familiar both with model aircraft building (he is a keen competitor and leader of a school club) and the need of the boys.

Jo Marechal was education director. He energetically supported the project.

The campaign for the first Operation (then called 'Opération 100 Planeurs') started at the end of 1964.

A Belgian-made kit was chosen, 'the A.B.A. - Junior' (A/I type) and largely tested from September to November by the modellers of the free-flight section. Flashes appeared in the daily press (both French and Flemish).

A little more than one hundred model kits were distributed that year.

The purpose was to bring the boys to an airfield in order to help them to trim their models and then to have a kind of contest. Forty boys came to fly this first time on the Evere (near Brussels) field, now occupied by NATO. This was a success and a fine encouragement for the organisers to run a second 'Opération Planeurs', now called 'Opération 200 Planeurs'.

And the organization grew:

1965	—	100 model sailplanes	—	40 entrants
1966	—	300 model sailplanes	—	72 entrants
1967	—	600 model sailplanes	—	343 entrants
1968	—	1,000 model sailplanes	—	350 entrants
1969	—	2,000 model sailplanes	—	526 entrants



Top, just a small selection of the models to be seen at Evere. Middle, eating chips, licking ice-creams, talking about models . . . Bottom, interest was shown in the 'big stuff' too.



Left, Why not girls? Look at her expression, she is obviously totally absorbed. Right, the model of the meeting. There were more than 500 on the field! (2,000 distributed).



It must be kept in mind that Belgium is only a little country of about 9,000,000 people.

What are the reasons for such success?

First: Men who believe in education through model aircraft.

Second: A kind of model organisation where it was possible to have the 'ideas'.

Third: Clever minded people.

Fourth: Close contact between A.B.A. and the Aéro-Club Royal de Belgique.

Fifth: Massive help (but no money) from the Royal Belgian Air-Force.

Last: but not least: *hard work!*

The main idea is:

Buy a model, come to fly with us and be repaid!

All in all, the model kit is sold for about £1. This includes postage fees and insurance, and a little profit.

As proved by experience, there are sufficient buyers that do not come to the contest, to cover all the costs.

After five years of success, the number of A.B.A. members has jumped from 400 to more than 1,500. Seventy per cent of the entrants came back to the next 'Operation'. From year to year, the standard of building quality grew incredibly. During the last contest, many of these little modellers scored at least one maximum (180 secs.). The first time there were no girls, in subsequent years the girls came too and the last time there were more than seventy amongst a total of five hundred and twenty six modellers! The age limit for entrants is not more than 15 years at Ascension Day.

Thanks to the Air Force, this big meeting was held on an Air Force base (Brustem) just half way between Brussels and Liège.

Below, from left to right, L. Leroy, M. de Pauw, and J. M. Tordoir seen standing with 'the' model. Right, lecture time. A time-keeper gives last-minute instructions to an enrapt audience.



From 8 o'clock hundreds of cars passed through the base-gates. More than one thousand were counted at noon.

How could it be possible to describe all these boys and girls (with their parents, of course), flying the same model?

No technicalities, of course, only swarming children rambling across the field, laughing or crying sometimes when having lost or destroyed their models!

Massive queues near the entry tents and everywhere, boys, girls, boys, girls with that same model (*The Zephyr* from Sweden's Modelflyg Industri, this year).

Adults, parents were very busy. The time-keepers were teachers too, showing the boys how to trim, how to launch a model. Dad (and Mother too) were helping in testing, or repairing the models and a bright sun with a quiet wind danced merrily over all that intense young life! TV-Reporters were there from Belgium and Holland. Direct interviews were made for Youth Programmes.

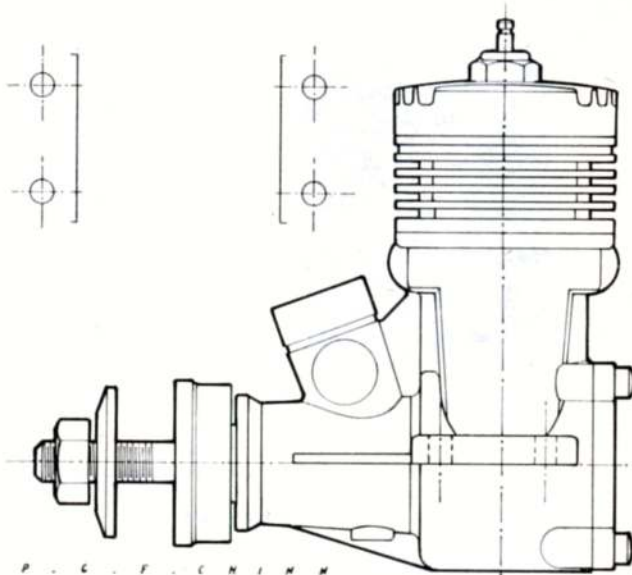
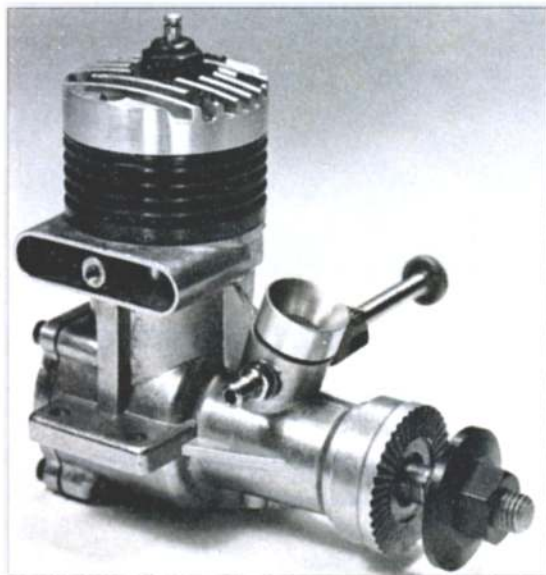
Daily Press reporters wrote enthusiastic articles. Civil and Military authorities played their part in the general fun. One had to be there to fully appreciate the atmosphere.

Who produces such a fine response?

The terrific job by the A.B.A. section director Louis Leroy, the always present Jean-Marie Tordoir, secretary, and M. de Pauw, treasurer of the operation? Or the help of the Air Force which offered more than six hundred flights to the entrants and the help of the Air base installations, including refreshments and food? Or the enthusiasm of these boys and girls? Or the highly acclaimed thanks to the organizers from the parents?

All in all, the A.B.A. 'Opération-Planeurs' demonstrates that new paths have to be traced to ensure that the next generation becomes fully indoctrinated with our educational hobby of aeromodelling.





ENGINE TEST by Peter Chinn O.S.19

THE O.S. MAX-19 HAS, for many years, been one of the most popular motors in the O.S. range. Originally introduced in 1962, the Max-19 was the O.S. company's first venture into the .19 cu. in. capacity group and is now, in both standard and R/C versions, among the most widely accepted of all current engines in this useful intermediate size.

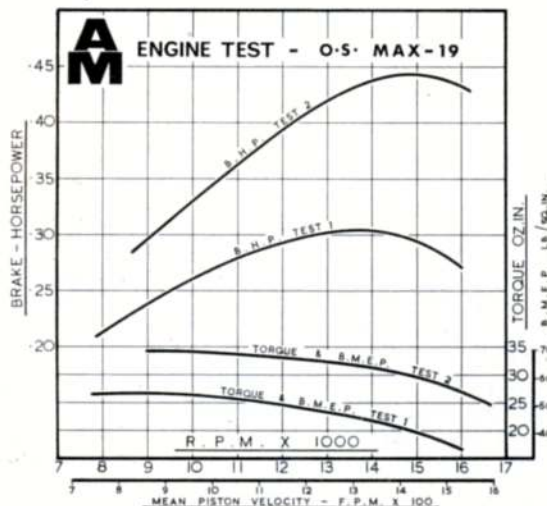
Various minor improvements have been incorporated in the engine over the years but, basically, it has remained unaltered in seven years of production. Actually, a successor to the present Max-19 was planned some time ago by the manufacturer. With the same bore and stroke as the present 19, prototype units have a one-piece cylinder/crankcase casting like other recent O.S. engines and resemble the

present S.30 model in design. However, with the demand for Max-19's still far in excess of current production capacity and in view of the factory's present preoccupation with other more urgent matters (such as their new Wankel type rotary piston engine), it may be some time yet before the Max-S.20 (as it will be called) reaches the production stage.

Among the features that are responsible for the Max-19's popularity, one would assume that its light weight, compact size and neat, well-engineered appearance must influence many purchasers, while those who know the engine by repute, or previous experience, probably choose it also for its lively performance, easy handling and flexibility (plus, in the case of the R/C version, exceptionally good throttle control).

If there is one area in which O.S. owners in the U.K. have sometimes had cause for complaint, it has been in the matter of the availability of spare parts—especially minor parts susceptible to crash damage, such as needle-valve assemblies. This is something that is now receiving the attention of Keilkraft, the British O.S. distributors, and the long delays that a few O.S. owners have suffered should, from now on, be a thing of the past.

One of the attractions of the Max-19 is that it is an extremely versatile engine which the user can employ to power a wide variety of models, should his finances or inclinations so dictate. As supplied, the engine comes with two venturi inserts. With the smaller of these, the 19 has very good fuel suction and makes an excellent power unit for medium sized control-line stunt models. With the larger one, more power is developed and, especially with a hotter fuel, the 19 offers a very good power/weight ratio for open type free-flight models. With the appropriate O.S. throttle type carburettor, in place of the existing needle-valve and venturi, the engine can be instantly converted into a first class R/C engine for single-channel or small multi-channel radio-controlled models. Finally,





O.S. Max 19 with Jetstream type S silencer.

a complete set of marine parts are obtainable to enable the engine to be adapted to model powerboat use.

In design, the Max-19 is fairly orthodox and is generally similar to the smaller Max-III 15. A generously dimensioned crankshaft runs in a bronze main bearing and a lapped Meehanite piston is used in conjunction with a one-piece cylinder with integral cooling fins. Skirt ports are incorporated in the piston and cylinder and the combustion chamber is of a shallow hemispherical pattern with a small squish area. The exhaust period is 138 deg., and the transfer period 114 deg., of crank angle. The shaft type rotary-valve opens early at 20 deg. ABDC and closes at 40 deg. ATDC.

Performance

There is, as our performance graph indicates, quite a big variation in the power output of the Max-19 depending on the type of fuel used, the venturi size and on whether the silencer is fitted or not.

Our first tests, after running-in, were conducted on the engine with the 'stunt' (small size) venturi, plus the standard O.S. small size silencer and running on a mild fuel containing 5 per cent nitromethane. We experimented by first substituting the larger venturi (this liberated another 250 r.p.m. on an 8 x 5 prop which was turned at 13,400 r.p.m.) then by removing the silencer (another 700 r.p.m.) and finally by substituting 30 per cent nitro fuel (another 900 r.p.m.). In this final 'all stops out' condition, the power increase, as confirmed by the output curves, was over 45 per cent. This, of course, was still with the engine on suction feed. Conceivably, an even higher peak output could be realised (in such installations as would suit such a set-up) with the venturi insert discarded and with the engine running on a pressurised feed of even hotter fuel.

However, interesting as this may sound, the Max-19 is not really intended as a racing engine and of

SPECIFICATION

Type: Single cylinder, aircooled glowplug ignition, two-stroke with shaft rotary-valve induction and bronze bushed main bearing.

Bore: 16.6 mm. (0.6535 in.)

Stroke: 14.6 mm. (0.5748 in.)

Swept Volume: 3.159 c.c. (0.1928 cu. in.)

Stroke/Bore Ratio: 0.88:1

Weight: 144 grammes - 5.08 oz. (less silencer)

167 grammes - 5.89 oz. (including standard and extension duct)

General Structural Data

Pressure diecast aluminium alloy crankcase with cast-in phosphor-bronze main bearing. One-piece counterbalanced hardened steel crankshaft with 10.5 mm. dia. main journal, 7.7 mm. dia. gas passage and 4.5 mm. dia. tubular crankpin. Ground and tapped steel cylinder with integral cooling fins and blued anti-corrosive finish. Pressure diecast and machined aluminium alloy cylinder-head with cast-in brass thread insert for glowplug. Head attached with six Phillips screws, three extra long and passing through fins to secure complete cylinder assembly to crankcase. Soft aluminium .015 in. head gasket. Rubber/asbestos cylinder base gasket. Lapped Meehanite cast-iron piston with flat crown and straight baffle with fillet radii each side at base. Piston dia. relieved .001 in. for 1.0 mm. below crown. Two 5 mm. dia. skirt transfer ports in piston and cylinder. Fully floating 3.9 mm. dia. hardened tubular gudgeon-pin with brass pads. Machined aluminium alloy connecting-rod with oil hole at big end. Two interchangeable machined aluminium alloy carburettor venturi inserts (one 5.5 mm. bore; one 7.0 mm. bore) retained by plated brass spraybar assembly. Pressure diecast aluminium alloy counterbalanced prop driver. Steel prop retaining washer and hexagon nut with blued finish. Pressure diecast aluminium alloy crankcase backplate retained with four Phillips screws. Beam mounting lugs.

OPTIONAL EXTRAS

(a) O.S. Jetstream Type 'S' expansion chamber silencer. Weight 23 grammes - 0.81 oz. (b) AMA safety pattern spinner nut. (c) R/C type carburettor. (d) Marine flywheel. (e) Marine conversion set for watercooling cylinder head and crankcase. (f) Marine universal-joint drive coupling.

TEST CONDITIONS

Running time prior to test: 1 hour.

Fuels used:

Test No. 1: 5 per cent pure nitromethane, 25 per cent Duckhams racing castor-oil, 70 per cent I.C.I. methanol.

Test No. 2: 30 per cent pure nitromethane, 25 per cent Duckhams racing castor-oil, 45 per cent I.C.I. methanol.

Venturi insert used:

Test No. 1: Small size (5.5 mm.) Test No. 2: Large size (7.0 mm.)

Silencer used

Test No. 1: O.S. Jetstream Type S with extension duct. Test No. 2: No silencer.

Air Temperature: 52 deg.F. Barometer: 29.6 in. Hg.

greater importance to the average user is the question of performance available in standard trim on suitable props. We therefore ran some prop tests on the engine using standard KK 'Methanex' fuel. With the 7 mm. venturi and standard silencer, we obtained 10,800 r.p.m. on a 9 x 5 Top-Flite wood, 11,500 on a 9 x 4 Tornado nylon, 12,500 on an 8 x 6 Power-Prop and 13,300 on an 8 x 5 Top-Flite. There is no point in using a prop smaller than an 8 x 5 as the engine will obviously be accelerating well past its peak in the air. On the other hand, the Max-19 developed quite useful low speed torque and could use (with, for example, a larger scale-type model) a slightly bigger prop than those mentioned. Our test engine turned up a useful 10,400 r.p.m. on a 10 x 3½ Top-Flite nylon and a very good 8,500 r.p.m. on a 10 x 6 Tornado nylon.

Power/Weight Ratio

0.83 b.h.p./lb. (Test 1). 1.38 b.h.p./lb. (Test 2).

Specific Output

96 b.h.p./litre (Test 1). 139 b.h.p./litre (Test 2).





NATIONALS PICTORIAL, LOOKING



Above left: Dave Rudd and Richard King, officials, competitors, and eventual winners of Rat Race, using a development of their 'Brat' design, K&B40. Centre: Vernon Hunt of A.C.E. displays his winning combat model, Copeman Oliver powered. Right: A team race winners yet again, setting new records in the process, were David Hughes and Brian Turner with Oliver Tiger Cub, of course!



Above, D. B. Goddard's high scoring Ansaldo SVA-4 control liner with Tap-lin Twin diesel placed second, despite a flight pattern that would have done justice to a helicopter. Slowest model we've ever seen on lines! Below left is another 2nd placer, John Boxall of Croydon releases a Power during torrential rain - hence night effect and flash arrested raindrops. Meanwhile, back at the camp... everyone was bailing out!

What's this, a flying plastic? Almost, but not quite - it's Doug McHard's answer to those who can't build light models, a 1/48th Scale Messerschmitt that flies beautifully on rubber power. Below is Don Reece's novel twisting tail-tailless! That forward inclined rudder pivots when the fuse burns and it turns 90 degrees to act as a dethermaliser in the normal (?) model sense. Sounds screwy but it works!





Overweight for domestic rules by a small margin, but always in demand for a demonstration is A. J. Briggs' remarkable Boeing B.17 Flying Fortress, largely constructed of ply. With four engines roaring in quick style (Oliver Tiger Major 3.5 c.c. diesels) the 'Fort' flies steadily on 70 ft. lines. Can't recall when Briggs was ever without a Fort - dates back to those 'All Britain' Rallies of the early fifties!

Joe Devenish and Les Davy display their superb clear-finished F.A.I. racer, which reached the finals by consistently clocking 97 m.p.h. for 33 laps (ETA 15). Model uses the technique employed by Continental aces, Nery Bernard of Belgium in earlier years and the Czechs Trynka and Dražek on their famous 'Orion'.



BACK ON A WONDERFUL MEETING



Above, and to left below, an ornithopter that astounded the indoor flyers in Hangar 8. Lt/Cdr. Alwyn Greenhalgh made repeated climbing flights with this over thirty-year old model. Centre below, Doug. McHard's other surprise, a Heinkel He 46 which we hope to publish later, and below right, Tony Slater with his ornithopter which buzzed at fast flap to 40 ft. from hand launch. Right: modelling superb, an all-metal Beagle Pup, prepared thus far by S. A. Hollaway, of Wokingham, and which had even the most hardened Scale-ites nodding in disbelief!

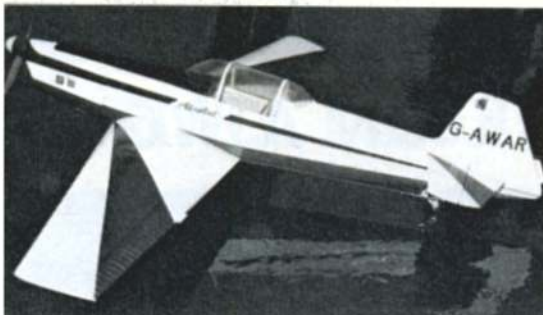




Roy Yates with his Percival Proctor IV, Merco 61 and RCS radio, placed second by narrow margin in R/C scale. Has opening doors, leather seats, uses flaps for landing and take-off. Below are Terry Melleney's fine Hawk Speed Six and Jack Morton's Isaacs' Fury, a fine pair of R/C entries, respectively top scorers for scale and flying.



P.40 Kittyhawk entered by J. F. Cooper faithfully reproduces the twisting undercarriage, also has flaps, Merco 61 and Heath Kit radio. Below is one of two Zlins, this one by M. Roper is a 526 Akrobat as to be used by British team next year. Two interesting types that need de-bugging for R/C contests.



Odd model out on this page - since it is control line and not R/C, is Mick Reeves' Druine Turbulent above. Merco 61 powered it will go right through the aerobatic schedule, even includes inverted low level in its repertoire - unlike real aircraft. Below, Dave Day with 'Mister Unlucky', OS40 pylon racer, was unlucky, since rebuilt.

Robin Lehman's red and white Pitts Special is $\frac{1}{2}$ scale, very smart, uses Sprengbrook radio, one of few with a pilot in the cockpit. Below, our R.C.M.&E. columnist Peter Russell readies his appropriately registered pylon racer, unfortunately not up to reputation this time. Model is a Denight Special.





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

Dear John,

I have bought a Frog Viper from a friend and because of the angled exhaust parts I don't know of a silencer that would fit. I have it installed in a Contest kit Voodoo as a trainer, and if silencing the engine means blocking off one port, will this not reduce power too much? The Voodoo is for 2.5 c.c. engines. I have an A.M.10 which I will later install in a Frog Hornet JA Team Racer. I am going on to model gliders next and hope to be radio flying by next year. How many Plan rebate coupons per plan can you use? Would a universal needle valve fit the A.M.10? Hexham, Northumberland. G. Biscoe

The Frog Viper was only in production for a short period, and before silencers were in general use. The manufacturers never produced a silencer for this model, nor will any commercial unit suit. Blanking off one of the exhaust ports will reduce the power, and will hardly affect the noise.

Only one plan rebate coupon, available to 'Golden Wings' club members, may be used for each plan purchased.

The 'universal' needle valve will certainly fit the A.M.10. When fitting make sure that the two holes in the spray bar face fore and aft.

Dear John,

I bought a copy of Aeromodeller two days ago. It's a very attractive journal. I've found in the journal an article about your Golden Wings Club. I'm 16, and I'm interested in model cars. I would like to correspond with somebody from Britain. I'm collecting plastic car kits, but I can correspond with aeromodellers. I'm interested principally in kits: Airfix, Revell and Cox. I can send for model cars, Polish aircraft plans, plane kits, books about aircraft, Polish journal 'Modelarz'. I'm very interested in the magazine Model Cars.

Wroclaw-2, Tomasz Piotrowski
ul. Smoluchowskiego 52/8,
Poland.

How about it lads! Here's a fine way of exchanging magazines and kits.

Dear John,

I have the A.P.S. free flight plan for the Fairey Fulmar. I also have a D.C. Dart engine. Would the Fulmar be very overpowered if this engine was fitted? Also, as a scale modeller, I would like to fit an undercarriage to the model, would this be inadvisable? Middlesbrough, Teeside. Bill Duffield

You could certainly fit the D.C. Dart into the Fairey Fulmar, but I suggest you use a 7 in. x 4 in. prop to keep the revs down, and make sure that you keep the centre of gravity in the position shown on the plan.

An undercarriage could be fitted, especially with your larger engine, but keep the weight down as much as possible.

Dear John,

I would like to write and say how pleased I am with the Hawk built from the plans in the June Aeromodeller. After correction of a slight warp in the upper mainplane, it now performs beautifully with steady climbing turns under power and a slow flat glide with wide turns. With a full tank on my D.C. Bantam, I am getting times of 2½ to 3 minutes.

I am now building a Veron Impala with R.S. Navigator radio equipment. Hastings, Sussex. K. P. Anderson

Dear John,

I am the proud owner of a red and yellow Super 60 with nosewheel undercarriage equipped with a Merco 29 R/C and Flight Link series one radio.

What would be a sensible plane to follow on with after a Super 60 with the same radio, and if possible, the same engine?

Marlborough, Wilts. Q. Tudor Evans
The Super 60 with proportional R/C equipment is an ideal introduction to this form of flying.

For your next model I would suggest the 'Tauri', available from our plans range as No. RC/857 price 10s. This model would be particularly suitable as now that you have some flying experience, a few manoeuvres could be

attempted, whilst it still remains a docile model.

Strip ailerons could also be added, and the result would be a very pleasant aircraft, capable of all basic aerobatics such as loops, rolls, stall turns bunts, etc. Your Merco 29 R/C would suit this model very well, but I suggest you use an 11 in. x 4 in. prop and set the engine to run rich for the initial flights.

Dear John,

I have been aeromodelling for about four years and have been a member of your club for about a year. I have four engines, one of which is the Cox Babe Bee .049. It persists in running in the wrong direction and is fitted with a Tornado 6 in. x 3 in. three-bladed prop. Please could you tell me a cure.

Also, I would like to know if the R.S. Navigator with the Elmec Corporal and Commander escapements is a suitable combination? Dumbarton, Scotland. I. Lindsay

The reason why your engine runs backwards is probably due to over-priming of the exhaust port. If there is too much fuel on top of the piston, on the upward stroke the piston will 'bounce off' compression before reaching top dead centre, and will therefore descend on the downward stroke in the reverse direction.

The cure is, not to use such a heavy prime, or else after priming, blow through the exhaust port to clear the excess fuel.

The radio control combination you mention would be fine.

Dear John,

Although I am not a member of the 'Golden Wings Club' I would be grateful if you would answer my following questions.

I have bought the plans of Dragonette Plan No. U/784. Only the largest and smallest size wing ribs are shown. Can I find the others by the method in the Aeromodeller Pocket Data Book? That is, pivot the largest rib about a point on the leading edge until it intersects the reference line at the required length.

Cwmarn, Mon. Nigel Clark.
The quickest and easiest way of making the intermediate ribs for the tapered wing on your 'Dragonette', is by the 'Sandwich' method.

Make plywood templates of the root and tip ribs, and then cut sufficient rectangular blanks for the intermediate ribs. Now place the blanks between the two templates, line up their centre-lines, and pin securely together, and clamp the whole assembly in a vice. With a sanding block, sand down the balsa ribs to the plywood templates, and then cut the spar slots with a file.

The result is a set of perfectly tapered ribs.

Reminder! If you're interested in flying, don't forget the 'Flying for Fun' rally, September 13/14th at Sywell, Northampton. Models, Light planes, Gliders, Parachutes

Dear John Bridge,

I am between 10 & 16 years of age and would like to become a member of the "Golden Wings Club". With this application I enclose postal order (International Money Order) for 2/6d. to cover cost of the enamel club badge, two coloured transfers and membership card.

NAME IN FULL

ADDRESS

YEAR OF BIRTH SCHOOL

NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I BELONG (if any)

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

1969 2d. in the 1/- Rebate
for plan purchase coupon
to Golden Wings Members
G.W. No.

HANDLEY PAGE 115

CARICATURE MODEL BY BILL HANNAN



HERE IS AN easy-to-build profile glider, based upon one of the most interesting jet aircraft ever made. Note the striking resemblance to a folded paper 'dart'.

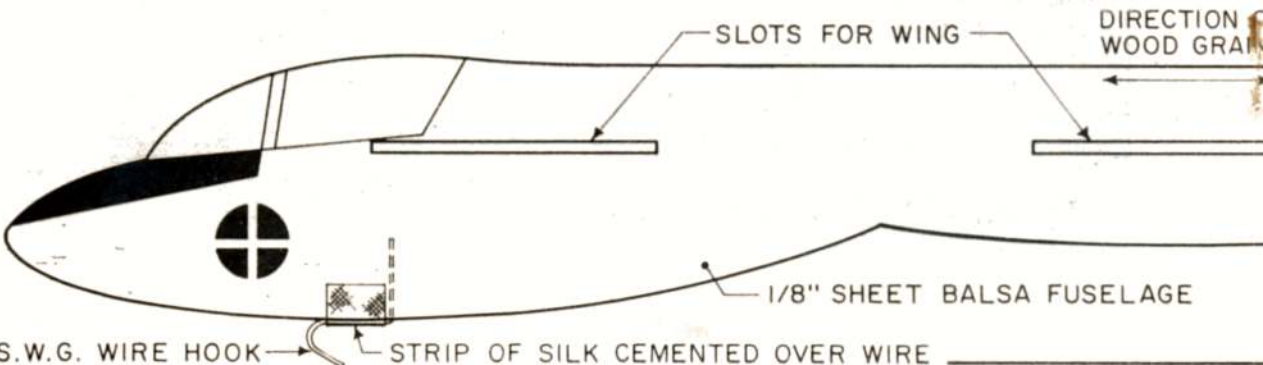
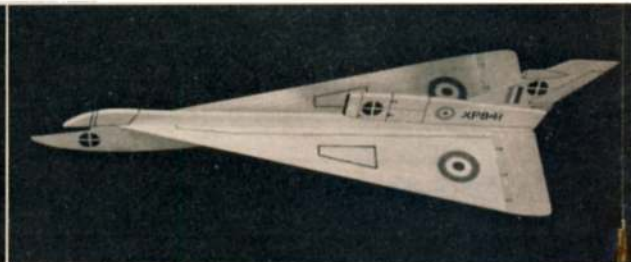
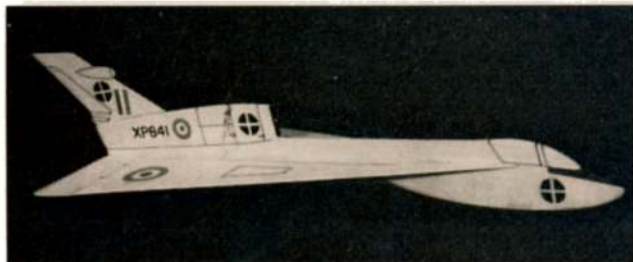
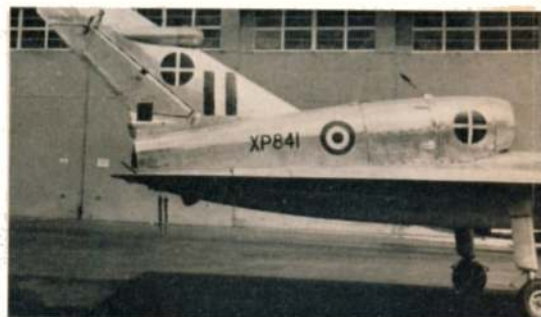
Begin by cutting the parts to shape from medium weight balsa, which should be selected for freedom from twists or warps. Sandpaper all surfaces and edges to a smooth finish. Decorate the components before assembly, using coloured felt pens for the insignia and a ball-point pen for the panel lines.

Assemble the parts, being generous with glue at the wing to fuselage joints. A piece of silk soaked in cement helps to secure the wire hook which serves as both a launching device and landing skid. Note that the trailing edges of the elevons must be raised relative to the wing. It is important that both sides be equal in angle, or the model may snap roll during launch!

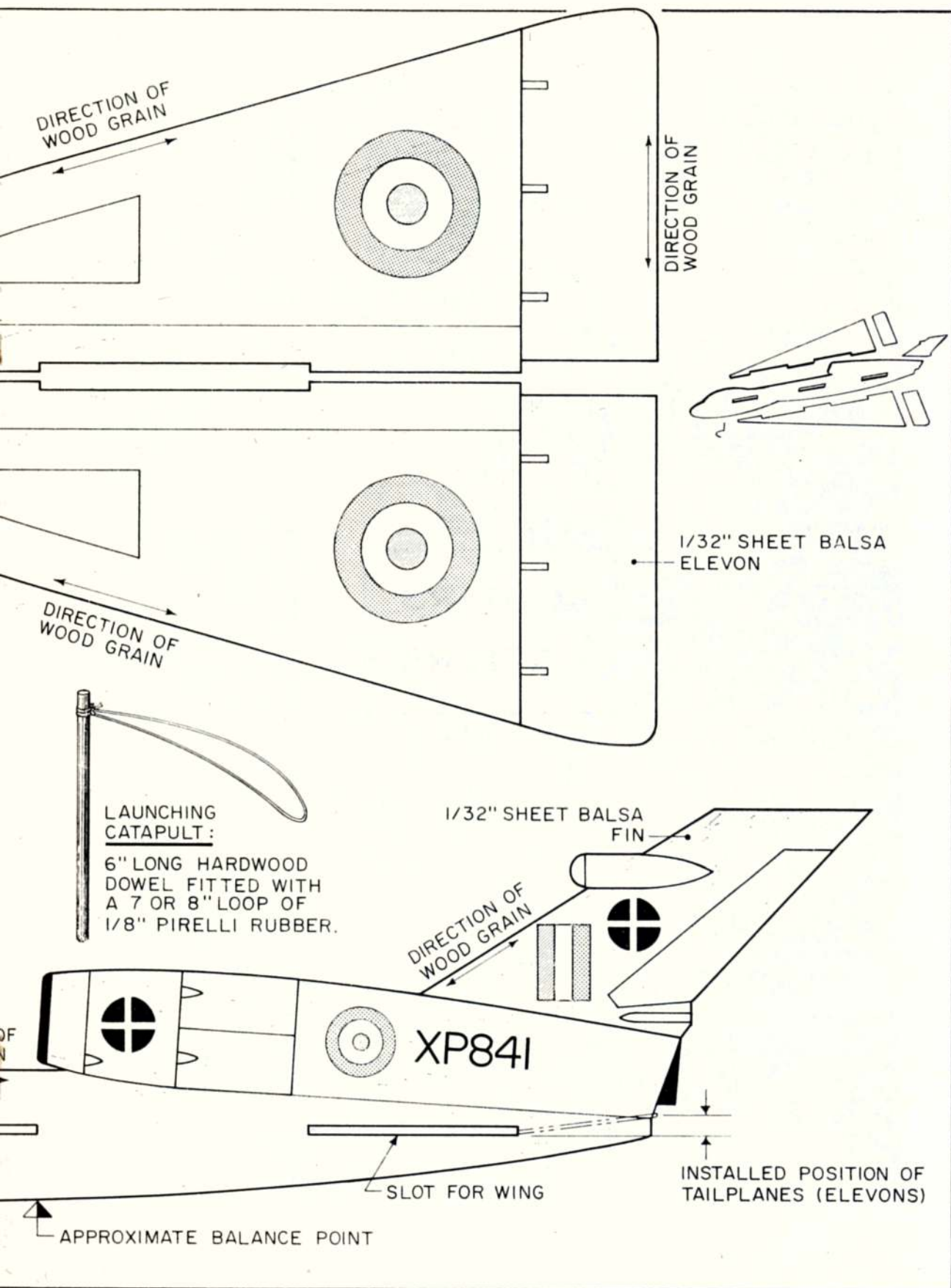
Test glide the finished model by hand lanching, and if required, add Plasticine ballast to obtain a smooth descent. When launching with the catapult, aim nearly straight up. **CAUTION:** Do not aim at anyone! It is interesting to experiment with the angle of the elevons. A slightly lower angle will permit higher altitude launches, but at some sacrifice in stability. Any re-setting of the elevons will probably necessitate addition or removal of ballast. For all-out performance, fit a loop of 3/16 in. Pirelli rubber to the catapult.

1/16" SHEET
BALSA
WING

DRAW WITH
BALL-POINT
PEN



20 S.W.G. WIRE HOOK — STRIP OF SILK CEMENTED OVER WIRE



Cutting point

Dear Sir,

Re the article on Expanded Polystyrene by T. Faulkner. I would suggest a new razor blade in a razor plane and an injector razor blade in a No. 2 Xacto knife for shaping and cutting E.P. Fig. 4 shows the very dangerous practise of cutting towards the other hand!

Deltas M.A.C., Hatfield. Alan Woodrow.

Thanks

Dear Sir,

I thought I would write to thank you for the free plan 'The Hawk' in the June issue. Although extremely simple to construct, it proved to be a beautiful flier - straight off the plan. In fact I nearly lost it on the very first flight. Not bad on a 20-second engine run, with a DC Dart.

I have been aeromodelling for 18 years and have always had an affection for biplanes. It's a shame KeilKraft don't re-introduce their old C/L biplane the 'Scout'. It looked much like a Phantom with another wing on top. No doubt many modellers will remember it. I built several powered by the old faithful Mills 1.3 and Mills 2.4's.

Thanks again for the plan. I hope a lot of youngsters will build it.

Barry, S. Wales.

T. L. Pengelly.

Insurance

Dear Sir,

Reference 'Hazards of the Modern Age' (Heard at the Hangar Doors), July Aeromodeller, I too, had my car stolen just over a year ago and had it not been for a last-minute hitch in arrangements to go flying with a colleague after work, I would have lost my 10 channel radio outfit and Merco 35 powered model.

The car in this instance was a company car and it was recovered three days later minus car radio and rally type seat covers which I had installed myself. Needless to say, I have never been reimbursed for this loss.

I have since taken out an All Risks Policy with Norwich Union (recommended by my insurance broker) to cover such another occurrence.

The rate is 2½% per annum with a minimum of £100 to be insured. On this basis a brand new Multi with .61, and one of most of today's proportional outfits could be covered for an outlay of £5.

I would think that most car owners are covered by their insurance for contents, but it is certainly worth checking on and to anyone who like myself uses a firm's car, then it is surely a must.

The majority of car thieves, I understand, are the joy-riding types who have a nasty habit of smashing up the interior after using.

K. Bradbury.

Secretary, West Birmingham Radio Control Model Society.

Covering

Dear Sir,

I hate to take issue with your Free Flight expert, Mr. John O'Donnell, but his discussion on the use of Jap Tissue was slightly in error. The proof that Jap tissue will adhere to ribs and spars was well demonstrated during the repair of the wing of my ½A Witch Doctor. I agree that each rib must have the tissue doped to it when covering the bottom of an under cambered airfoil wing. This need not be done on the top surface, however, or on any other flat or convex surface. The secret is to pre-dope the structure to be covered

with two thinned coats. The tissue is then secured to the outer members of the panel being covered, allowing the tissue to tighten more evenly following the water doping. The thinner in the first coat of dope softens that put on in pre-doping and secures the tissue to the framework quite securely. The result is a very rigid structure which will withstand all sorts of bumps and bangs. I had to sand off the tissue from the ribs of the Witch Doctor wing in those areas that needed repair, a tedious process, before re-covering them. I was unaware that Jap Tissue was difficult to obtain in Great Britain. It is one of my favourite covering materials, being presently used on wings and tails of my small power ships, A/1 Towliners, rubber powered models, A/2 stabs, and wing and tail of my Ohlson .23 powered 'Old Timer' model.

I would gladly trade an equal value of assorted colours of Sig Jap Tissue, present price \$0.07 per sheet, for a complete, unmodified, and runnable, Rivers Silver Streak diesel engine for my engine collection. Others also would be considered, especially on a D-C Bambi.

Aside from the above comment, I felt that Mr. O'Donnell's discussion on the covering of models to be excellent. Information of this type has been sadly lacking in all model magazines and these are just the things that the beginner most asks about.

James A. Kloth.

St. Petersburg, Fla., U.S.A.

READERS' LETTERS

Scale ambassadors

Dear Editor,

The happiest man in the world is telling you here that you have lost two INCREDIBLE days at the Scale Contest in Metz. (Meeting reported last month - Ed.) I strongly expect that my friends Thompson, Marsh, Neate, Scott, Yates, Sutherland, Butcher and Lehman will be in a much better position than I to explain to you what this Scale meeting was!

Everything went, CONSTANTLY, well far ahead that the fact of building a magnificent scale model and flying it. Your people have given an outstanding example of first class workmanship, but also something much more important: SCALE SPIRIT.

This means that, regardless of the difference in languages, we had the immediate impression of receiving the visit of old and well known FRIENDS. Despite a crash, initial take-off problems and minor mishaps, we have only seen frank smiles, gentleness and total brotherhood.

It is furthermore completely beyond my means to describe you the atmosphere, the 'ambiance' that took possession of everyone and never left us. Even the top Commanding Officers of the military section of Metz (Armée de l'Air) had to surrender to the charm (this is the word). No human being, competitors, judges, interpreters, military or public, could possibly resist!

In the name of my friends of LES AILES MOSELANES, in the name of the French competitors, and in my own

name, tell your British friends that we will never forget this extraordinary example of comradeship. Personally, in 30 years of modelling, and even in countries like Argentina and Brazil, where my friends and I were easily able to transform any meeting into a Carnival, I have yet to see something comparable to this Challenge at Metz.

That is why, I won't wait any longer to tell you that we should immediately start launching the idea of a FRANCO-BRITISH R/C FLYING SCALE CHALLENGE. No matter the winner, we do it one year in England and one year in France.

Flying Scale is unquestionably the only category having this power of enthusiasm, generator of friendships instead of jealousies. Let us not lose this opportunity of making another step ahead, and a really big one! Look at the results attained by the Coupe d'Hiver challenge. You know as well as I do, that a lot of modellers are under the impression of walking in a tunnel, precisely because they haven't found the human part of this marvellous hobby in their F.A.I. Multi career. (I am also an F.A.I. flyer, I know what I'm saying...)

We have seen at Metz a radical abolition of languages, nationalities and administrative obstacles. Let us put all our strength together in order to keep this wonderful example bigger and better!

TO HECK WITH THE CHANNEL!
LONG LIVE FLYING SCALE!

Paris

R. Lestourneaud

Open rubber

Dear Sir,

It is amusing to read about the 'problems' of open rubber. Some 15 years ago when I was a rubber contest flyer - mainly Wakefield - I suggested a form of open contest which was greeted with derision because it did not give advantage to design for maximum potential duration.

It -

1. Requires no model restriction and is applicable to glider and power as well (Roll up in your Thousands!).
2. Provides for instant calculation of results (no percentages).
3. Retains round-by-round excitement and spectator appeal (Sponsors forward).
4. Allows minimum scope for fiddling (Fiddling? what does he mean?).
5. Makes tactical flying unnecessary (Boo!).
6. Requires no maximum (he must be joking!).
7. Tests flying skill in existing conditions (which I hope is what rallying is all about) and not skill in design for maximum duration with or without limited rubber, towline, engine run.

The clue is to rethink what 'Open' means. In gliding the 'open' bit means no restriction on aircraft. But the flying has restrictions. The accent is on tasks set by the contest directors or by the pilot, i.e. he declares a goal.

This is the answer for modellers:-

1. It requires the modeller to know his machine, be practised with it and to judge conditions. Separately for each round he declares his goal duration, minimum, say, 90 seconds.
2. This is done immediately before preparation for launch, entered on flight card with his signature.
3. Flight time is recorded to nearest second, score is difference.
4. 3 rounds, winner has lowest aggregate of differences.
5. Fly-offs, if necessary, to same rules. What could be more 'Open'?

Walton-on-Thames.

Vic Dubery

Response to Exclusivity

Dear Sir,

I refer to the readers' letter entitled 'Exclusivity' in your June edition from a Mr. D. A. Thornton of Penketh, Warrington. I would like to point out that despite the address, the Warrington Model Club was not one of the local clubs that he approached for permission to use their flying field. I have spoken with Mr. Thornton to try and persuade him to join a club and I have suggested sites that I think are suitable for his type of modelling which are known to be used by other 'Lone Ranger' aeromodellers in the town.

However, whilst on this subject, as the hard worked secretary of a club with over 60 members covering almost the complete spectrum of modelling activities, I have little sympathy for the views expressed by Mr. Thornton. With no reflection on him as an individual, I wonder when the vast majority of modellers are going to realise that we are going to get nowhere without the formation of responsible and well organised clubs. It is only by doing this that we will overcome the seemingly universal shortage of flying sites. It is an unfortunate fact of life that these clubs cost money to run hence the usual very modest club subscription compared with say the cost of golf which requires a similar amount of land.

Nevertheless, in my experience as a club member there are always plenty of modellers keen to jump in to use and maybe lose the valuable site, but not many who are prepared to work for it in the first place. I may sound bitter on this point but again from experience I have found that, at the end of the day, the members who have most to say and create the most trouble are the very ones to do least and on one occasion proved to be lapsed members of the club. Happily, they quickly leave and take their seemingly fanatical views elsewhere.

Culcheth,
Lancs.

D. Broadley, Hon. Sec.,
Warrington Model Club.

Join up !

Dear Sir,

Having read Mr. D. A. Thornton's letter in the June issue of AERO-MODELLER it did indeed give me food for thought. I wondered how many others there are like him who do not join clubs but expect to use the local club flying field for nothing. A few years ago when fields were more plentiful, maybe the odd visit would be tolerated. Today things are rather different, clubs usually have to go to local councils or farmers and negotiate with them for a reasonable patch to fly on and then pay out large sums of club funds for the privilege.

O.K., so Mr. Thornton is a full member of the S.M.A.E., this is not a flying fields passport and I wonder how he would feel if, after working and paying to get a field, he found others using it had not helped in any way in its acquisition?

Supposing Mr. Thornton had decided to take up angling rather than pursue our excellent hobby, he could have made his own tackle, but to use it he would have had to purchase, at the very minimum, a day permit from the local authority. Perhaps it's time clubs began to charge for the use of their fields by casual part-time aeromodellers?

Bletchley,
Bucks.

Derek Giles,
Hon. Sec.,

The Buckaneers Model Club.

Join up !

Dear Sir,

Your correspondent, Mr. D. A. Thornton of Penketh, Warrington, complains that local clubs will not let him use their flying fields without joining. I am puzzled as to what his objections can be to club membership and surprised that he expects to be allowed to use club facilities without joining. Were Mr. Thornton an angler, for instance, would he, as a non-member, expect to be allowed to fish the angling club's water?

As for insurance, no matter what club secretaries may say, permission to use fields for model flying is normally negotiated by or on behalf of clubs and paid for by clubs, such permission being restricted in the agreement, or indemnity in the case of Service airfields, to club members only. It is not just a matter of insurance although that is also necessary.

In theory, there is no reason why permission to use a flying field could not be negotiated for Mr. Thornton as an individual, by separate agreement. However, I suspect that in practice the owner or Ministry, as the case may be, would refer him to the club already holding permission.

Should Mr. Thornton be having difficulty in finding a club congenial to his tastes, if he will contact me I will be pleased to help.

M. Reeves, Chairman,
S.M.A.E. North Western,
Area Committee.

Join up !

Sir,

Seeing no 'letters' page in the book this month (-owing to 'Nats' report - good show!) I felt I ought to make the obvious reply to our old pardner - 'Lone Ranger' of dear memory.

And to tell him to get off his high piebald, and put some leathers round his six-shooters and 'welcome to the club'.

If you can't beat 'em - join 'em. He might then find that the said club officials are also human, have a couple of kids, do their modelling on the kitchen table when they're not digging the garden - or what you will, and whose grey hairs are falling out 'cos they're scared stiff some twit is going to fly a 10 c.c. 6ft. span monster all over their hard-won local field.

He should know well enough as he reads the 'good book' how hard flying fields are to find and anyhow, with a car he's laughing, as in this neck of the woods there's much balsa bashing going on which doesn't find its way in to the club, as I'm told people just take themselves off into 'injun country' to fly, and good luck to 'em.

Our dark stranger should try and see the other feller's point of view. We need 'responsible citizens' who should be the backbone of the club movement.

It is necessary to put on a show of superiority to impress some councillors. Part of the fight against 'Toys for Boys'.

So let him and others like him join a club like ours and where I'm sure he'll have a pleasant surprise. He won't be told what to do and when. He'll be encouraged to fly as and when he can. We'll even welcome his youngsters as and when they show aptitude. A well-behaved lad is always an asset on the flying field. Welcome to the Club !

R. G. Harris,
Chairman Debdenaires M.F.C.

Join up !

Dear Sir,

I fully endorse the club secretary's refusal to allow anyone to fly models on his club field unless they are members. What Mr. Thornton (June issue) does not seem to realise is the fact that flying fields cost money. Even the most benevolent farmer is likely to ask at least £10 per annum for the use of a field. So, if Mr. Thornton is not prepared to support a club with his membership fee, then he can hardly expect to use the amenities that club members pay for, can he? More food for thought Mr. Thornton?

While I have every sympathy for Mr. D. J. T. Miller (East Anglia P.R.O.), if he went all that way to Manchester and could not find any room to fly his model (our club members found lots of it). I do most strongly object to his statement, quote: - 'In 1970 I shall turn up with a pylon model and GOD HELP ANYONE WHO GETS IN THE WAY'.

This kind of irresponsible, get out of the way attitude is the kind that loses the use of airfields such as Woodford, and also gets Radio control fliers a bad name.

Bolton M.A.S.

A. Priddey P.R.O.

Contest Calendar

- August 17 S.M.A.E. ALL SCALE MEETING R/C F/F, C/L, R.A.F. Little Rissington.
- August 24 SUTTON COLDFIELD R/C RALLY for Multi Aerobatics. 10.30 a.m. start, Fradley, near Lichfield.
- August 24 S. MIDLAND AREA Burns-Brown Combat Trophy open to all comers. 4/- pre entry to T. Heeley, 22 Upper High Street, Harpole, Northamptonshire, at Midsummer Meadow, Northampton. (Silencers required).
- August 24 TORBAY RALLY. Open R/G/P, F.A.I. Rubber, Chuck glider at Woodbury Common, Exmouth, Devon.
- August 24 SOUTH-EASTERN AREA R/C RALLY. In aid of the Cheshire Homes. Goodyear pylon race, Scale, Free Style Aerobatics, at R.A.F. West Malling, Maidstone, Kent. Details from N. Cooling, 7 The Green Walk, Willingdon, Eastbourne, Sussex.
- August 31 WEST OF ENGLAND R/C SCALE AIR DAY. Westland Aerodrome, Yeovil (on A30 between Yeovil and Crewkerne). Pre-entry - essential for super-regen - and details from D. Sheppard of 14 The Drive, Whitchurch, Bristol BS14 9JB. No entry fees.
- August 31 WOODFORD MODEL AIRCRAFT RALLY Open R/G/P. Tail-less, chuck glider, F.A.I. T/R, 1/2A, Combat, R/C multi free style aerobatics, scale F/F, C/L and R/C. Entry fee 5/- per event, juniors 2/6. Commence 10 a.m. at Woodford Aerodrome, Bramhall, Cheshire. Note, no stunt or rat race.

- August 31 R/C THERMAL SOARING RALLY 'Towner Trophy' Golden Cross, Lewes, Sussex.
- September 7 SOUTH COAST R/C RALLY, Golden Cross, Lewes, Sussex.
- September 7 BOSCOMBE DOWN AND FLYING DRUIDS RALLY. Fly for fun, Open Power, Open Glider, F/F Scramble, Novelty radio events, Multi and Single Channel, Middle Wallop Aerodrome, Hants.
- September 13 FLY FOR FUN Demo's, Sywell.
- September 14 CROOKHAM AUTUMN GALA. Open R/G/P, 1/2A power C, d'H, 10 a.m. at Chobham Common.
- September 14 S.M.A.E. C/L TEAM TRIALS, R.A.F. Upwood.
- September 14 NORTHERN AREA Goodyear and Open Pylon R/C Races, R.A.F. Topcliffe.
- September 21 EDINBURGH RALLY Team Pylon Race and Spot Landing, Donbristle.
- September 21 SOUTH MIDLAND GALA, literally everything! Open R.G.P. 1/2A, Cd'H., Tailless Chuck, Helicopter, single and multi R/C, Vintage, Carrier, Combat, Stunt, 1/2A, F.A.I.T/R, Rat, Mouse racing, C/L. Entries to T. Heeley, 22 Upper High Street, Harpole, Northamptonshire. R/C to D. Giles, Derron, Station Road, Bow Brickhill, Buckinghamshire. F/F to T. Payne 92 Coppice Drive, Parklands, Northampton. 2/6 each event at Cranfield.
- September 28 SOUTH COAST GALA details later.
- September 28 S.M.A.E. CENTRALISED R/C & C/L MEETING, 1/2A T/R, F.A.I. T/R, Stunt, Carrier, R.A.F. Upwood.
- October 5 SPORTS RALLY (Performance Kits) Old Warden, Beds.



AIRCRAFT DESCRIBED Number 186

described & drawn
by J. H. ROBINSON

PERCIVAL MEW GULL E3H

Unpainted for first tests in 1937, the Mew Gull carries X2 experimental identity above, at right is her 1938 scheme.



DESIGNED AND BUILT during the first half of 1937, the Mew Gull E3H was, like its predecessors E.1. and E2H, designed by Captain Edgar Percival, who also designed such diverse types as the Gull, Vega Gull, and Proctor, the twin-engined Q.6 and the postwar EP.9. E3H was an entirely new design based on the experience of earlier models, with fuselage and tail surfaces of similar form and structure but completely restressed for higher performance.

Gross weights of E3H and E2H were identical, and both were fitted with the Gypsy Six Series II engine rated at 205 h.p. at 2,400 r.p.m. Wing span of E3H was 22 ft. 9 in. compared with 24 ft. 6 in. for E2H, taper ratio was 2:1 against 1.8:1, and the gross wing area was reduced from 88 sq. ft. to 75 sq. ft. The aerofoil was modified, with reduced camber, maximum camber farther aft, and sharper entry. Stalling and landing speeds were approximately the same for both models, while top speed in level flight was 265 m.p.h. against 235 m.p.h.



Cockpit canopy and rear fuselage decking were shallower than formerly: although the cross-section at the cockpit was determined solely by minimum dimensions required to enclose Capt. Percival and his famous hat, the view was 'absolutely perfect'. The upward sloping main truss consisted of four spruce longerons joined by vertical and horizontal cross-members, with birch plywood panels glued to the sides. Upper and lower deckings of plywood were carried on plywood formers and the plywood covered fin was integral with the fuselage. All plywood surfaces were covered with Medapolam cloth doped on.

The wing was built about two close-spaced box spars with spruce flanges and plywood webs, and plywood ribs carried spruce cap-strips, corner blocks and stiffeners. Covering was birch plywood surfaced with Medapolam. Ailerons with spruce spars, spruce and plywood ribs and fabric covering were cable operated through internal levers with differential movement. Each split flap was built about a steel torque tube, with solid spruce ribs and plywood covering to the lower surface only. Each half of the undercarriage consisted of a splined cantilever oleo leg bolted to the forward face of the front spar, with

Left: Pretty as any picture, the Mew Gull cavorts above Bedfordshire in 1939. Right, Capt. Edgar Percival designer and pilot, wearing his famous Brown Trilby hat.



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a wide-chord fairing fixed to the wing and telescoping inside the distinctive wheel spat. A streamlined section steel tail-skid with an oval shoe was fitted to the stern-post.

A standard Gipsy Six Series II engine turning a De Havilland constant-speed propeller was mounted on a welded steel-tube engine mount, pin-jointed to steel plates bolted to the forward end of the fuselage truss. Cowling panels held by Dzus fasteners could be quickly released for engine access. The oil tank was mounted low on the firewall and between firewall and cockpit was the main 16 gal. fuel tank. Two narrow 11 gal. tanks approximately 5 ft. long were set between the wing spars and permanently connected to each side of the main tank by a crossfeed tube.

For its first flights E3H was unpainted, with the Percival official experimental number X2. The carburettor intake and an exit louvre for cooling air were carried on the starboard cowling. By the 1937 King's Cup Race the louvre had been deleted and the conventional intake replaced by a short ram-type intake in the nose. Now resplendent in overall off-white enamel, the *Mew Gull* carried its registration G-AFAA in bright Royal blue with a narrow gold outline, with fuselage and spat striping of the same colour.

Entered by Lady Wakefield, 'FAA' was flown by Capt. Percival. In the Eliminating Contest on September 10, from Hatfield via Aberdeen to Dublin, Percival covered the course at an average 225.5 m.p.h., earning Lord Wakefield's prize of £200 for the fastest time for aircraft of over 150 h.p. For the Final on September 11, from Dublin to Hatfield via Carlisle, Leicester, and Cardiff, Percival averaged 238.7 m.p.h., fastest speed for the race, but on handicap placed second to C. E. Gardner's *Mew Gull* E2H which averaged 233.7 m.p.h.

Modifications in 1938 included greater slope to the nose cowling, shorter exhaust-stacks, and a single tube strut replacing the original longitudinal members of windscreen and cockpit hood. While these modifications were in progress 'FAA' was photographed with oxide primer on engine cowling and wheel spats. For the 1938 King's Cup Race 'FAA' was again off-white overall with modified fuselage and spat striping, the carburettor ram intake removed and the blue tip and Percival emblem deleted from the fin. Racing No 23 was carried in quite outrageously irregular black figures.

With no Eliminating Round handicap times were based on estimated performance. The course of



Underside is equally glamorous on the *Mew Gull* in 1939 above; and below left, at Hatfield in 1937.

50.607 miles from Hatfield via Buntingford to Barton and back to Hatfield was to be flown twenty times in four stages of five laps each, with a forty minute refuelling period at Hatfield between stages. Percival started on scratch 2 hrs. 46 minutes 33 seconds after the first away. Despite gaining almost two minutes on handicap during each stage, he finished in sixth place at 234 m.p.h., some 2 m.p.h. slower than the winner Alex Henshaw in his modified *Mew Gull* E2H.

The constant-speed propeller available in 1937 had a pitch variation of only 9 deg., later increased to nearly 12 deg., but 14 deg. was necessary to accommodate the *Mew Gull's* unusually large speed range. The propeller was adjusted for take-off, so that maximum speed and acceleration suffered, and since the 1938 course involved at least 60 turns 'FAA's' average was some 4.7 m.p.h. slower than in 1937. About mid-1939 De Havilland's supplied a propeller with sufficient pitch variation to realise the *Mew Gull's* full top speed potential of 264 m.p.h.

The 1939 Isle of Man Races were held over the Whitsun weekend, and in the London-Isle of Man Race, Percival finished third at 220 m.p.h., the fastest speed, after flying wide at the finish when oil leaking from the front of the crankcase spread across 'FAA's' windscreen and obscured his vision. In the Manx Air Derby Percival again finished third at 237 m.p.h., again the fastest speed and only 44 seconds behind the winner, Albert 'Pop' Henshaw's *Vega Gull*.

For these events the *Mew Gull* carried racing number 20 in regular stencilled figures and a new ram-type carburettor intake was fitted, slightly longer and about one and a half inches lower than formerly. The exhaust stacks were replaced by a manifold which terminated in a curved ejector pipe designed to give optimum thrust.

Following the outbreak of war 'FAA' did not fly again until lent to a De Havilland test pilot while Captain Percival was in America for the M.A.P. This pilot landed from a considerable height, driving both undercarriage legs through the wings and doing other damage. The remains were swept into a corner for the duration and 'FAA' finished its career as the star of a fire-fighting display soon after the war. Always recording the fastest times during three years of competition, except for the slight superiority enjoyed by Alex Henshaw's higher-powered 'XF', Captain Percival's final variation on his felicitous *Mew Gull* theme was without doubt the most intelligently designed racing aircraft to grace the British racing scene during the 1930's.

The author wishes to thank Capt. Edgar Percival for his patient and enthusiastic co-operation in preparing and checking this article.



TOPICAL TWISTS

by "Pylonius",
illustrated by "Sherry"

All for Number One

I SUPPOSE with all this talk of fragmentation of our hobby, we can expect some fragmentation of that solidarity that we model flyers used to share with dockers and others united in a common cause. At one time the only fragmentation we had to worry about was that of our models splitting up into splinter groups, but now the only unity to be found among modellers is the tie up you get in a team race circle.

But such was the unity in the model movement at one time that such segregationists as there were came in for much ironic criticism. Mostly the segregationists could be immediately recognised by the angle of incidence at which they hoisted their nose-pieces; a condition of self-elevation that was generally attributable to the winning of a model competition. In fact, the keen observer could place a model flyer in the Championship table by his angle of nasal inclination and degree of non-fraternisation with the common non-winning ruck.

Generally, though, it was all one happy band on the flying field, and no introduction was needed beyond the wave of a model wing and the opening of a 'coffin'. Whenever a model came to an unfortunate end the luckless model flyer was not left to grieve alone; all would join in a jubilant salutation and gather round to enjoy the cremation of the remains. What a difference now! The other day I saw



'Whirlwind nothing!
It's a Model
Aircraft display.'

a model crash in—a crash worthy of wild acclaim—and there was just a deathly silence. Not one friendly cheer was heard nor one friendly hand offered for the digging out ceremony. It just makes you lose heart, as the patient said to the surgeon.

It may be, of course, that model flying is no longer regarded as an eccentricity, with the afflicted getting into a defensive huddle against the jeers from the multitude. What with all the odd people knocking around these days, beatniks, hairy mary's and fuzzy wuzzy pop singers, the old short back and sides model flyer cuts quite the conventional figure. He can at least be expected to be fairly normal in his behaviour. The only sit-in he's likely to be involved in is a midnight plus stretch in his workroom, and if he does get high it's on nothing more noxious than model altitude. He's not likely to take his clothes off either, unless he happens to drop a bit of d/t fuse down his shirt. All in all, he's very much the average British type who's not going to talk to anyone unless he jolly well has to.

INTERNATIONAL SCALE CONTEST

(cont. from page 468)

SEVENTEEN entries from eight Nations established the radio controlled Scale Model class as a viable event for a future World Championships at Bremen. It was an ideal trials for rules, judges and competitors alike, and largely due to our much longer experience of the F.A.I. judging system, British attention to fine scale detail carried the day with the first two placings and return home of the Keil Trophy. Not that we agree with the points given! That's quite another matter, aside from the result.

First assessed for Scale and Workmanship, all models were given the opportunity of making two official flights, and many went on to make further demonstration flights after all was over. The D.Ae.C. scales indicated that Den Bryant's RWD-8 had 'grown' 14 oz. since checked at the Nats. Standing it in the sun reduced weight by 3 ounces, change of tank, silencer, pilot and other detail solved the situation. But Den's 7th position in the scale accuracy table was inexplicable, even allowing for poor documentation. His team-mates' ever close rivalry, had added even more lustre to their Nats, leading *Sirocco* and *Proctor*, so much so that even the tough judges passed them as over 90 per cent perfect!

Closest competition came from the U.S.A. with Claude McCullough's well prepared *Fletcher Cropduster* and all its fine rivets plus stabiliser, flat twin engine, flaps and excellent finish. Maxie Hester, fresh from winning the U.S. Nats only a few days before, brought his second *Zlin 526A*. This and the *Sirocco* were the only retract gear entries, but the *Zlin* was handicapped by lack of detail, in spite of a fine colour scheme. Joe Bridi, with the originator (Lou Proctor) as his mechanic, flew a kit *Nieuport 11* with enormous prop. Of all the entries, it was prettiest in the air.

From Germany, the Reger bros. had their *Yak 18PM* and *Zlin 326*, each well prepared, and practical fliers like team mate Bruno Klupp with one of 3 *Fokker DVIIs*. Others came

from Fred Laline of Belgium and Dr. Elizondo from Mexico. A *Spit IX* by Blansaer; *Cub* from Helstrom (Sweden), *DH2* by Dr. Amman of Switzerland, and *Cessna 182* from Godenzi of Italy completed the serious entries, though Sweden produced an undocumented *Comanche* and semi-scale *P-51* to make up numbers. One was left to wonder where the French, Canadians, or Japanese potential entries had gone.

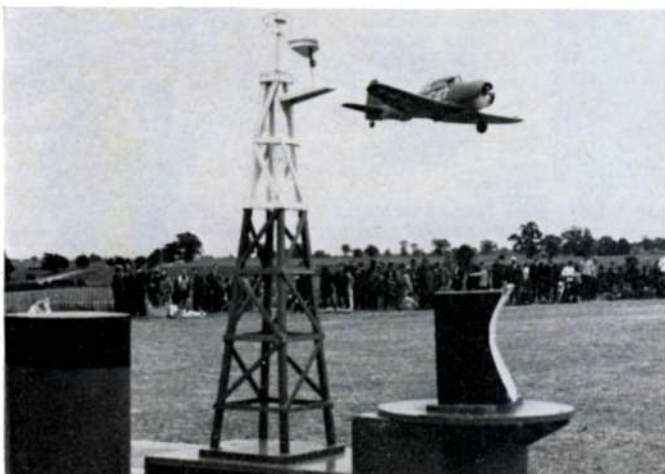
The scale factor is now paramount in influence, but this does not release any model from its obligation to fly like the real thing!

Roy Yates' *Proctor* made only slightly second best flight to Maxie Hester, perhaps due to enforced choice of options that gave him automatic potential loss of 120 points against the American. Den Bryant suffered a motor cut, and did not do well, even on low score options, but at least he fared better than Mick Charles. The *Sirocco* was storming around, and was halfway through its Cuban 8 when three of the controls went haywire. A partial pullout seemed possible, but the River Weser sand dune took its toll, and only the tailplane survived! Without any doubt, this was interference.

Both *Zlins* were far too fast. Not so Bridi's *Nieuport*, the three *DVIIs* and Dr. Amman's *DH2*, which unhappily folded up in a loop. The Bipes were a joy to watch, though low on scores. When Joe Bridi pushed his stick in the corner for a spin, the *Bebe* went wild—maybe even too wild, even for a rotary engined *Bipe*! We specially liked Klupp's *DVII*, though not aerobatic as Laline's, and the *Yak 18* could almost be forgiven its fixed gear (though not Blansaer's *Spitfire*) as it flew at reasonable velocity. The quiet, unassuming Claude McCullough is to be congratulated for his touch and go—the only one to nominate this tough option, which deserves far more points. It was a great pity a simple glow plug prevented our enjoyment of his second flight.

Finally, all scale fans should thank Dr. Helmut Ziegler for his single-handed direction of this first event, and his perseverance in carrying the job through so successfully.

OUR ALL-SCALE RALLY OLD WARDEN '69



MIDSUMMER SUNDAY – that is, the nearest to June 21st, is by reputation a fair weather day for aeromodelling. For many years it was the undisputed prerogative of the Northern Heights MFC to use this day for their famous gala. This year the date was calendared for no less than six events of some consequence, ranging from a National Combat rally to Slope Soaring . . . and our own Scale Model Rally at Old Warden.

When we chose the date, almost 10 months earlier, we did so partly as a weather insurance, partly through convenience in that the airfield was available that day, and mostly to restore the fading memory of an event that had great social attractions, for the Northern Heights Gala was always renowned as a family affair, and its passing is to be regretted.

Experience in '68 at Old Warden led us to the conviction that outright contests were not popular, nor even desirable. The flyers wanted a *Rally* in the true sense of the word, no restrictions on flying (apart from R/C channel discipline) and a measure of crowd control to avert accidents. Practical needs were for a model enclosure, a large (120 ft. square) close mown take-off patch and a crowd barrier. These were provided.

With so many other attractions on the same day, we might have been excused for not expecting more than the previous 3,000 visitors. We would have been disappointed with less – for this is our way of supporting the needy Shuttleworth Trust in return for using the field. Those 4/- admission fees are for the Museum and what the visitor sees on the airfield is free!

By 11 a.m. records of the three previous Old Warden Scale Rallies were shattered. By noon the crowd was already bigger



Control-line arena highlights in heading, B. Pope's Dauntless and R. Ivans' Henschel HS 129 fly by the Carrier Deck of HMS 'Flycatcher'. Left, massive 1/4 scale S.E.5 'Shuttleworth' Trophy winner by P. J. Morrell of Bury St. Edmunds in 85 Sqdn. markings and below him is John Palmer with freeflight Rumpler V1b seaplane using AM 15 for all of its 35 ounces. Right, a section of the static show by I.P.M.S. members and visitors in the hangar and greatly admired.





than in '68, and the eventual count tallied no less than 4,500. This compares with a peak day at a well sited Nats!

And it was not only a spectating crowd. Fewer than a third of the modellers bothered to register, and the result was a little chaotic as free fliers became over-run by a participating audience. We apologise to those who suffered near misses. Happily the worst accident of the day involved a lad who fell through a hatch in the Anson for a ten stitch mending job and to prove that aeroplanes can bite even when standing still!

All of our problems in running this Rally centred upon the impulsive need of the spectator, whether a modeller or not, to watch engines start and see the model take off at a range of not more than ten feet. So anxious were the R/C flyers to get airborne, six at a time on the spot frequencies, that having a ready-park 150 feet distance was just too much to accept. So we suffered from peg passing, colour blindness, interference and not a little impatience. Just the same, we'll guarantee that never before, anywhere, have so many R/C scale flights ever been made in a day from one take-off spot. That's the record we'd like most to beat next year; but with a few changes in the means of achievement.

With each of these A/M, R.C.M.&E. Scale Rallies we have learned a little, to make each successive event even better. At this rate 1970 should be an absolute cracker!

Having got that little lot off our chest - what of the models?

It would be utterly impossible to detail all one could see. Judges were roaming the field throughout the day to note outstanding flights and models for which some fine prizes were awarded by Shuttleworth and M.A.P. Ltd. Their comments are pertinent and start with **Carrier Deck** in the **Control line** arena. Mick Reeves had both his *Seamews* in fine form (Plans in A.P.S. later), hooking two first places in the '40 and '61 classes. Father/Son team of the Perry's also did well with *Kingfisher* and *Buffalo*. The *Corsair* looked good, also B. Pope's *Dauntless* but this did not use H.M.S. Flycatcher's deck and was strictly land based. A fine *Hawk P6-E* by D. Wale went well, also P. Brown's *Sopwith 1½ Strutter* and H. Carter's *Pup*. Bob Ivans fired his *Hs 219* cannon after landing (misfire?) and another giant was the famous Briggs' *Fortress*. In **free flight**, most topical, repeatedly airborne and at times hazardous was Burnham's *Concorde*. In fact we've been asked since so many times for our back number with a *Concorde* flying model plan that we are reprinting the feature! Mr. Bishop's unique *Kaman Huskie* (where are you - there's a prize waiting) was fantastic at times, so too Ken McDonough's magnificent *Instone Airlines DH 9*, all of 8 oz. to compare with the heavyweights. Eric Coates and Terry Manley, regular Yorkshire performers did not disappoint with a *Nimrod* and *Sopwith Triplane*, and fellow organiser Mick Staples, who is Secretary of the Shuttleworth Model Section was doing very well with his *Pup*. A look at the list indicates the variety.

Static models were organised by our friends Bob Jones and Bill Henderson of the I.P.M.S. and what a fine turn-out they encouraged. Anyone who thinks of a plastic kit as a click-together assembly job should see what these chaps do with them! The full gamut of modified subjects was to be seen. W. Vandersteen's *Farman Shorthorn* was quite incredible. Others had detailed engines exposed by open cowls, float conversions and rare markings. The Shuttleworth trophy was to go to the biggest 'static' model of the show. This was P. J. Morrell's *SE5a*, a ½ scale monster, due to fly

Left: Isaacs' *Fury* free flight launched by J. Archbold (Leicester) and B. Pope with smart SBD *Dauntless* control-liner. Below, top to bottom: Ken McDonough's 8 oz. free flight *Instone Airlines DH.9* with D.C. Dart power; D. Wale's Curtiss *Hawk P6e* which flew well in the control-line area. Brightly decorated biplane is Don Stothers' *Great Lakes Special* in Harold Krier's colours, a most impressive radio control flyer and at bottom, a true family shot of John Beresford (Havering M.A.C.) starting the D-C *Merlin* in his *Harriot* while his young son sits on his knee!



Continued on page 495

LATEST ENGINE NEWS

**Peter Chinn
compares two
'famous forties'**

THE TWO most successful engines in control-line rat-racing competition in America of late have been the K&B Torpedo 40 and the Super-Tigre G.21/40. It so happens that, through the good offices of Ron Irvine and Mick Wilshire (the U.K. importers respectively, of K&B and Super-Tigre engines), we have been able to examine examples of the very latest disc-valve versions of each of these two motors.

Both units have evolved from earlier designs of smaller displacement, so it is not possible to say that each necessarily represents its designer's 'ideal' 40—any such ambitions are likely to have been somewhat inhibited by the need to avoid any drastic divergence from each basic design that would involve costly retooling. Nevertheless, they do make an interesting comparison and we have therefore



taken the opportunity of checking certain data on the two engines.

The Torpedo 40 'Series 69R' is a development of the previous 'Series 67' model. Outwardly, there is nothing to distinguish it from the earlier model, other than the fact that, unlike all previous Torpedo engines, it is now normally assembled with the exhaust on the right instead of the left. (As the front and rear end assemblies are interchangeable, it can be put together either way.) Inside, however, the transfer passage has been widened appreciably by means of machined flutes each side.

The Torpedo 40 is, of course, also made in a shaft valve version. This was first marketed as the 'Series 66' model and in its latest version, is known as the 'Series 69F'. In essence, the 'Series 69R' rear induction 40 is a hybrid based on parts of the 40 Series 69F, blended with parts from the Torpedo 29R 'Series 64' 5 c.c. speed motor. It uses the 40/69F crankcase/cylinder-block, cylinder-liner, head, piston, gudgeon-pin and conrod in conjunction with the 29R/64 front housing, bearings, backplate, rotary-valve and carburettor. The crankshaft is virtually

the only part exclusive to the rear induction 40.

The G.21/40RV also has 5 c.c. C/L speed engine parentage. Actually, the G.21 type number goes back to the early 'fifties and although there is nothing to identify the present G.21s with those early models, the G.21/40



Distinctive K&B front end features internally counterbalanced shaft, pinned prop-driver and Dykes ringed piston. Gudgeon-pin now has PTFE pads.

Left, G.21/40RV cylinder liner has chromed bore. Head uses hemispherical combustion chamber with wide squish band.

Right, G.21/40RV shaft is drilled for front end lubrication. Conrod has bronze bushed big end.

retains certain basic features of the present G.21/29.

An attempt, early in 1966, to break with this tradition by bringing out an entirely new short-stroke 40, known as the G.40, was unsuccessful. The G.40, a rear induction motor rated (a little optimistically, perhaps) at 1.40 b.h.p., and much heavier than the previous shaft-valve G.21/40, was withdrawn after popular demand had obliged the manufacturer to revert to a revamped edition of the older G.21/40 design, now with rear disc-valve. The present G.21/40RV is the latest development of this line.

Although the K&B 40 Series 69R and



Above, Torpedo Series 69 cylinder casting has machined out transfer passage, as visible in this photo.

Left, K&B rear induction unit is ex-Torpedo 29R. Uses multi-jet intake and ultra-lightweight non-metallic valve rotor.

Right, G.21/40RV uses standard G.21 RV main casting and racing 29 rear induction unit.

the S.T.G.21/29RV are both twin ball-bearing, rear intake, ringed piston motors intended for the same sort of flying, they have little in common as regards appearance or design. Perhaps the best way of illustrating this is to compare individual parts.

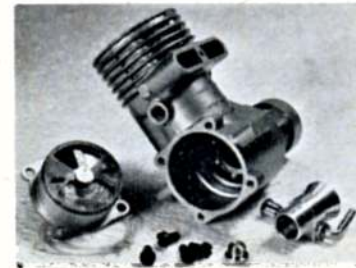
Main Casting. This comprises the cylinder casing and crankcase barrel only, in the case of the K&B, whereas the Super-Tigre casting includes the main bearing housing as well. This latter is well braced with triangular webs, and makes for a strong and rigid unit. As on the K&B, the transfer passage is opened out by machining internally.

Cylinder Liner. Fairly thin cylinder liners (approx. .040 in. wall thickness) are used on both engines—a consequence of increasing the bore to accommodate a larger displacement with-



in the confines of the existing casting. Both engines have orthodox cross-scavenged porting with ports divided up by vertical bridges. Port timings are remarkably similar, as are the total areas of the transfer ports. The K&B, however, has about 25 per cent greater exhaust port area.

Pistons. The K&B employs a machined aluminium piston with a low-pressure Dykes type ring. The S.T. has a gravity diecast aluminium piston with a single orthodox ring. The S.T. piston has semi-circular cutaways in the skirt, front and rear, to clear the crankshaft counterweight and rotary-valve unit, at BDC. Because of the engine's relatively long stroke (increased by 2.8 mm. over the 17 mm. of the G.21/29), this means that the piston skirt uncovers the exhaust port for about 32½ deg. each side of BDC. This is a disadvantage if a silencer is used, as charge dilution is then likely to occur in the crankcase. The K&B gudgeon-pin is unusual in its use of PTFE pads in place of the more usual aluminium or brass pads. The S.T. piston/conrod assembly is heavier than that of the K&B, but includes a larger diameter gudgeon-pin and a





Latest 'rat-race' variant in the Super-Tigre G.21 range is the 6.5 c.c. G.21/40RV.

decreasing to only $\frac{1}{4}$ in. (6.35 mm.) at the front end. The shaft terminates just ahead of the front bearing, where it is fitted with a machined drive hub into which is screwed a separate $\frac{1}{16}$ in. propeller stud. A full circle crank disc is employed, with counterbalancing by means of slots in its periphery, sealed off by a shrunk-on aluminium rim. The crankpin is tubular, made separately and pressed in. In contrast to the several parts that go to make the K&B

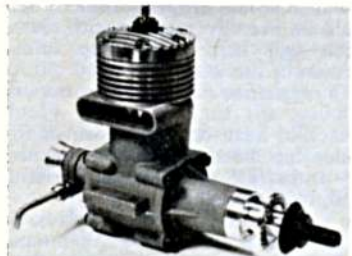


bronze bushed lower conrod eye.

Cylinder Heads. The K&B has a 'wedge' pattern combustion chamber whereas the S.T. has a small hemispherical combustion chamber and a wide squish band. The S.T. has much greater cooling fin area than the K&B.

Rear Induction Unit. The K&B is fitted with the 29R racing type venturi, having six small peripheral jets fed from an externally mounted needle-valve assembly. The S.T. uses a 9 mm. dia. venturi with single jet tangent spraybar which reduces choke area to slightly less than that of the K&B. The K&B features an ultra lightweight valve rotor of an undisclosed plastic material. The G.21/40RV has the new Super-Tigre balanced hardened steel rotary-disc. The S.T. valve remains open slightly longer and closes later.

Crankshaft. As neither engine is of the shaft induction type, large diameter crankshafts are not necessary. The K&B uses a shaft having a maximum diameter of only $\frac{3}{8}$ in. (9.52 mm.).



Tests have shown new 'GP' series O.S.60 to have up to 30 per cent more power than previous model. A report on this versatile 10 c.c. R/C engine was published in the August issue of R.C.M.&E.

shaft assembly, the S.T. shaft is more conventional, and is made in one piece. It features a 12 mm. main journal, a 7 mm. front journal, and a $\frac{1}{4}$ in. threaded length for the prop retaining nut. The prop driver partly encloses the front bearing and is mounted on a split taper collet. Counterbalancing is by means of orthodox cutaways each side of the solid integral crankpin.

Stroke/Bore Ratio. The methods by which the displacement of these engines have been enlarged from their respective .29 versions are quite different. In the case of the K&B, the bore has been increased by 12 per cent and the stroke by 6.66 per cent, thereby

New 'Series 69R' K&B Torpedo 40 does not differ in appearance from 'Series 67' model except for right-hand exhaust.

lowering the stroke/bore ratio to 0.857:1. The S.T. bore, on the other hand, is increased by only 7.89 per cent, whereas the stroke has gone up by no less than 16.47 per cent, as a result of which, stroke/bore ratio is raised to 0.966:1. The increased crank throw is only just accommodated by the S.T.'s crankcase which, slightly smaller in diameter than the K&B's, now needs a machined channel to give sufficient clearance for the conrod big end.

The Super-Tigre is slightly bigger all round in overall dimensions, and is about 14 per cent heavier than the K&B, but should withstand knocks a little better. The factory rates the engine at 1.10 b.h.p. at 18,500 r.p.m., which sounds very reasonable if it relates to the performance on high nitro fuel. No precise output claims are made for the K&B but, based on our experience of the earlier models, we would not expect it to fall short of the Super-Tigre figure. We hope to publish some test data in due course.



OLD WARDEN 1969

Continued from page 493

sometime with an OS 80 and 20 inch propeller. Equally spectacular was the box in which it arrived - an aircraft type framework, covered with clear doped linen and stencilled with R.F.C. markings and inscriptions!

In the R/C section which our companion magazine R.C.M.&E. will cover in greater detail, the flight performances by D. Stothers (*Great Lakes*) P. Soden (*Chipmunk*) G. Ford (*Spitfire*) J. Morton (*Isaacs Fury*) R. Nicholls (*P.T.17*) and F. v. d. Berg (*Hawker Fury*) were exceptional. Dennis Bryant's geared *Gauntlet* broke a wheel hub so we cleared him to fly a reserve which was non-scale, and which in turn deserves explanation to those who were mystified by the tailless design. It's Den's practical prototype to test the layout before he makes a *Grainger 'Archeopteryx'* (yes that's right!). Of all the R/C Scale types we must confess that the 'Flea' took our fancy most. To think that at one time it was considered dangerously unstable!

In all, the field was being used for more than twelve hours. Even a few rain showers failed to dampen the ardour. It was a day to remember, one that convinces us that Scale Modelling is enjoying a tremendous boom, and which we shall do our best to foster as much as we can.

Here's to the next time!

ROLL CALL (of those who registered for judging)

CONTROL LINE
Fokker D21, Druine Turbulent, Fairey Topsy B, Topsy Junior, Consolidated Catalina, Sopwith Pup (2), S.E.5A, Douglas Dakota, North American Mustang P51 D (2), Wackett

Boomerang, Curtiss Hawk P6E, Douglas SBD Dauntless, D.H. Mosquito (2), Midget Mustang, Fokker Triplane, Flying Fortress, Heinkel 129, Sopwith 1 $\frac{1}{2}$ Strutter (2), De Havilland D.H.9, Beagle Pup.

CARRIER DECK LANDING MODELS

Short Seamew (2), Brewster Buffalo, Vought-Sikorsky Kingfisher, Fairey Gannet, CV Corsair F4U-1, Bell XFL Airabonita, Hawker Hurricane, Grumman Hellcat.

FREE FLIGHT

Avro 504, Blackburn Monoplane (3), S.E.5A (4), Gloster Gladiator (2), Fairey Flycatcher, Morane Parasol, Luton Minor (2), Auster, Sopwith Pup (4), R.E.8, Sopwith Triplane (3), Sopwith Tabloid (2), Rumbler VIB, Bristol Racer, Aeronca Sedan (3), Bristol Scout 'D', Supermarine Spitfire 2A, Aeronca 100, Hawker Nimrod, Bucker Jungmann, Sopwith Snipe, D.H. Puss Moth, Isaacs' Fury, D.H. Gipsy Moth, D.H. Tiger Moth, Cessna Bird Dog, Pfalz D3, Albatros, Fokker D7.

RADIO CONTROL

Avro 504K, D.H. Chipmunk, S.E.5A (2), Piper Cub, Albatros D5 (2), Great Lakes Special (2), Nieuport 17, Piper Comanche, Beagle Pup, Stearman PT17 (5), Sopwith Tabloid, Luton Minor, Curtiss P40 Kittyhawk, Sopwith Triplane (2), Midget Mustang, Yak 18PM, Fokker Triplane, Bristol Fighter, Fokker D7 (2), Isaacs' Fury, Depardussin, Bucker Jungmeister, Flying Flea, D.H. Tiger Moth (2), Fokker D8 (2), Westland Widgeon, Supermarine Spitfire IX, Miller Special, Hawker Fury, Topsy Junior, Aeronca Grasshopper, Gloster Gauntlet, Shoestring, Grumman Wildcat, Douglas A.D. Skyraider, Luton Minor.

Basic Aeromodelling..... SOLDERING

THE NEED for soldered joints in model aircraft construction is, fortunately, quite limited – fortunate because soldering is a skill which many otherwise competent aeromodellers find difficult to master, particularly where joints in steel wire are required. This is because steel is a rather difficult metal to solder, unless the following basic requirements are meticulously observed: – (i) the parts to be soldered together must be absolutely 'bright clean' and free from grease or 'fingerprinting'; (ii) the soldering iron must be *large enough* for the job (to transfer enough heat to the metal); and it must also be *hot enough*; (iii) you must use an acid flux (e.g. Baker's fluid), and plain (not cored) solder. It also helps considerably, depending on the type of job, if the two parts to be joined can be bound together with very thin wire (e.g. 5 amp fuse wire).

Let's tackle a typical undercarriage soldering job step-by-step, as in Fig. 136. The first thing is to clean the wire in the joint area *thoroughly* by rubbing with fine emery paper until the metal is uniformly bright. After this, avoid touching the cleaned parts of the wire with the fingers if you possibly can. The next step is to bind the two parts together with fuse wire, and it will help here if you pre-clean the fuse wire by pulling a length through a doubled up piece of emery paper, although this is not essential. The main object of the fuse wire binding it to hold the parts together is to make it easier to complete the soldering job, but it will also add strength to the finished joint. The binding should be fairly openly spaced, not tight together like a thread binding, to allow solder to flow freely around and under the binding.

The next step is to apply a generous coating of flux over the whole joint. A short piece of string makes a useful 'brush' for this job. Meantime the soldering iron should be heated up.

As soon as the iron is really hot, place the tip under the joint and wait a few seconds for the heat of the iron to flow into the wires. You will then find that if the end of the solder is pressed onto the upper side of the joint it will melt and flow along the joint. Once enough solder has been melted in this manner you can move the iron to draw the solder uniformly over the joint, if necessary. Once the solder has spread out all over the joint, remove the iron and blow on the joint to cool it. Do *not* dunk the joint in water to cool it. This could destroy the 'temper' of the wire.

If the joint is anything less than perfect, you can trace the probable trouble under the following: –

(i) *Solder collects in blobs and does not run and 'wet' the joint.*

This is nearly always an indication that the joint surfaces are not clean enough. Disassemble the joint, clean properly and start again, taking particular care

to avoid 'fingerprinting'. The same fault may arise if the flux is unsuitable, but that should not apply if you are using Baker's fluid. This flux will also help counter lack of perfect cleanliness, but no flux will compensate for a surface which is not at least adequately clean to start with.

(ii) *Solder is very reluctant to melt when applied to the opposite side of the joint.*

Either the iron is not hot enough, or it is not big enough. The best type of iron for soldering steel wire is the old-fashioned type which is heated in a gas flame, when it can be heated up to a temperature where it is just beginning to turn a very dull red. Small electric irons are useless for soldering steel wire. If you do use an electric iron it must have a large bit and a high wattage rating.

(iii) *Solder melts readily but does not flow over the whole joint.*

This could happen if the iron is not big enough and consequently does not heat the whole joint area. You can get away with this by working along the length of the joint bit by bit. On the other hand, it may be that part of the joint is dirty (and dirt may have been applied by the iron). It could also be caused by absence of flux over part of the joint.

(iv) *Solder melts readily but drops off the joint.*

This could be caused by a dirty joint, a dirty iron, or use of an iron which is not properly tinned. The tip of the iron should be literally running with clean, molten solder which will help 'draw' the solder applied to the other side of the joint.

(v) *Solder joint has a crystalline rather than a smooth appearance.*

This is a sign of lack of heat, or iron too small for the job. If the solder has been 'worked' along the length of the joint – as in (iii) above – then the iron is definitely too small, or too cool.

An apparent way round this possibility of lack of heat, or too small an iron, is to use a small butane blowlamp to heat the joint area direct, rather than an iron. Certainly this can produce a clean, nice-looking joint – but if the wire has been overheated in the process it may well be weakened, and that is something to avoid on undercarriages. For that reason, stick to an iron for soldering wire undercarriage joints.

After mastering undercarriage joints the rest of the soldering jobs are quite straightforward, but the same basic principles apply. There are also some 'tricks of the trade' to make jobs easier. Take soldering washers onto a stub axle, for example, to hold a wheel in place. It's quite easy to solder the washers to the wire (provided both are clean), but not so easy to get the washers 'square' – they usually tend to tilt sideways as the fillet of solder is formed – or to get the correct 'running clearance' for the wheel.

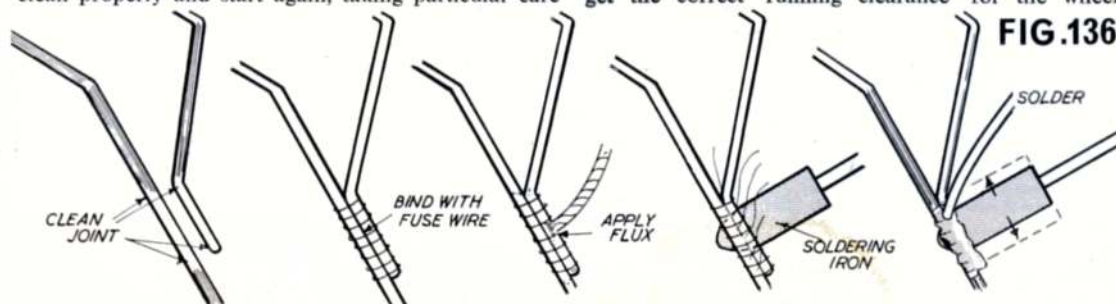


FIG.136

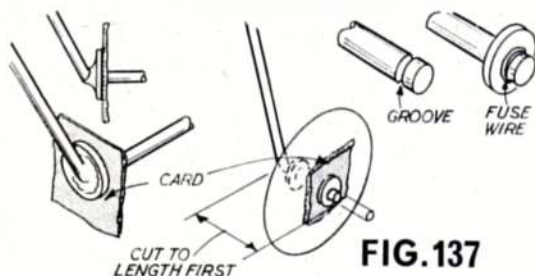


FIG. 137

Fig. 2 shows how to use a scrap of card to locate and hold the inner washer upright whilst it is being soldered in place. Then tear the card off, place the wheel on the axle, and locate the outside washer with another piece of card. This card will also act as a 'spacer' to give the wheel 'running clearance' when the card is finally torn off. Also if the wheel is of a type where the hub might be damaged by the heat of the soldering iron, use blotting paper soaked in water instead of card to act as a 'heat sink' so that heat from the joint does not reach the wheel.

If you are not too confident about your soldered joints, the detail sketches (Fig. 137) shows how you can produce a mechanical lock for the outer washer. File a groove in the axle just outside the washer position, then take two or three turns of fuse wire around this groove. Washer and fuse wire binding are then locked together, and to the axle, by the solder fillet.

Fig 138 shows the use of pre-tinning when soldering a locking bar between two motor mounting bolts. 18 gauge steel wire is used for the locking bar, cut to a suitable length to span the bolt heads. Line up the bolt head slots and file out, as necessary, until the wire will just fit in place. Clean the wire with emery paper, hold in the middle with pliers and pre-tin each end in turn, with solder. Lay in place over the bolts, when the extra thickness of tinning should make the wire too tight a fit to drop in place. Paint the bolt head slots with flux, lay the wire in place and press down with a hot iron. As the tinning melts the wire will drop into the head slots, when a final touch of solder can be added to complete a permanent joint.

Pre-tinning is *essential* when a fuel tank has to be soldered up. The body and two ends are cut from thin sheet metal (brass or tinplate) and bent to shape with overlapping joint surfaces. Each joint surface is then cleaned, painted with flux and tinned, or given a thin coating of solder flowed in place as evenly as possible. This time, a non-acid type flux should be used - e.g. 'Fluxite'. Avoid fingerprinting the tinned surfaces.

The body can then be slipped onto a piece of hard wood, as shown in Fig. 139, so that the hot iron can be applied to the outside surface along the overlapping joint and pressed into close contact. As soon as the heat of the iron melts the tinning on the actual joint surfaces, move the iron along the length of the joint. In this manner the whole length of the joint can be completed neatly.

The tank body can then be removed from its supporting block, the ends fitted with their pre-tinned joint surfaces, and the remaining seams 'welded' up with an iron run along the outside, as before. If in any doubt as to the tightness of the joint, an additional line of solder can be drawn along the actual edge of each joint with the point of the iron. Finally

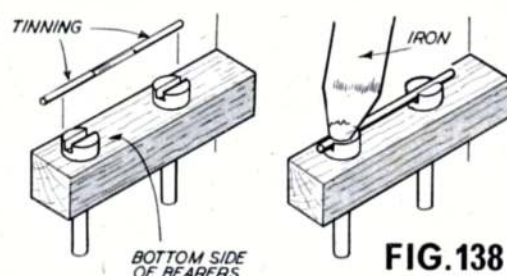


FIG. 138

the fuel pipes can be soldered in place with fillets of solder; or these can be fitted to the body before adding the ends, if preferred. Note, however, that unless the tank has holes in it for the pipes, or pipes fitted to the body it will be impossible to complete a tight joint when the second end is soldered in place. Without a 'breathing' hole, air heated by the iron will expand and bubble out through the molten solder joint, making it virtually impossible to complete a perfect seal.

If acid flux is used - some people prefer it to paste-type fluxes, even for tanks - then the completed tank should be flushed out with warm water in which is dissolved a few crystals of washing soda. Then drain the tank and dry out (e.g. by putting it in a warm place). Many people also recommend neutralising any flux remaining on all soldered joints when an acid flux is used, either by washing generously in clean water or with a weak alkaline solution.

Basically, the use of acid flux should be restricted to soldering of steel wires. For soldering metals like tinplate or brass or copper, use a non-corrosive paste flux. For electrical work, of course, an acid flux *must never be used*. Instead a cored solder is employed, which already contains a non-corrosive flux.

Electrical soldering requires a different technique - a cored solder with no separate flux and, generally, a *small* electric iron for best results - just large enough for the job, but no larger than it need be. Connections are almost invariably pre-tinned (i.e. solder tags and wiring), and only a minimum quantity of solder is applied to complete a smooth, clean joint. Again, however, cleanliness of the joint is of vital importance. Also the iron must be hot enough to heat the joint quickly. Excessive heat applied to electrical joints can be conducted up the wiring, or through terminal tags, and damage adjacent components.

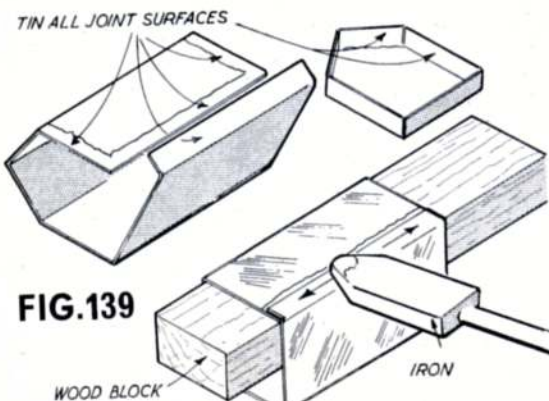


FIG. 139



CONTEST NEWS

Three midsummers day events reported

Not very often do we publish photographs of every entrant in a contest; but just to show how much we favour the newly adopted thermal soaring glider class, so successful in Europe, we reproduce, at far left, Alan Brocklehurst with nine-footer; near left, winner Alec Murison and Graupner Clou; and below, Dick Godden with eight-footer at R.A.F. Topcliffe.

FIRST NORTHERN AREA THERMAL SOARING CONTEST ELVINGTON ner YORK, June 22nd.

THIS EVENT was intended to give some idea of the scope and problems of this type of contest and to feel out likely Northern support. Announced before the rival attraction at Clwyd it was carried through with the hope of at least two entries, and actually attracted three! Dick Godden must have been a little disappointed though, having travelled all the way from Cambridge.

The weather was, to say the least, variable. Wind direction remained constant, allowing the use of the quarter mile concrete square for towing, and some old fashioned type long grass for the 100 by approx 150 yd. landing area. It varied in strength from ideal to too much, and the best conditions came when all concerned had finished. Alan Brocklehurst's 600 ft. 400 lbs.b.s. line was used by all.

Both Alan and Dick had slight reservations about the wind for their first 'tryout' flights which proved perfectly satisfactory, Dick landing just on the six minute mark after soaring in low lift. After a happy start Alan's model spun-in with a stuck rudder, the fact that the fuselage was repaired by the afternoon indicating the resilience of this large, light and original design.

Dick was away shortly after, not getting to the top of the line, and finding only slight assistance for 4:39. The model was a converted large type open glider which had proved too heavy and been converted. Spanning 8 ft. with a 10 in. chord and large tail surfaces it had four channel reed equipment giving left and right rudder and all moving trim elevator. Wing loading was 9 oz./sq. ft., a little marginal in the stronger wind patches. Second flight was launched in a 'hole' and was purposely put down outside the area for another try. Unfortunately the model then found lift but lost control. Rapid assessment of the situation, hasty car exit and a bit of luck brought the model back from its 6 min. plus flyaway but with two attempts the second flight was lost.

Winner Alec Murison from R.A.F. Coningsby, late with the R.A.F. in Germany went next with a standard Graupner 'Clou' using the long wings and with well finished scale appearance. This was the first time on the tow-line, 'bungee' having previously been preferred. Model climbed very steeply to the top, released in lift well upwind and stayed there, very skilfully controlled for almost five minutes. Once out and returning it sank very rapidly and only just got into the square, nearly landing in front of it! Compared with the others this model flew fast and appeared to have no difficulty with the wind. Alec used Grundig 10 Channel gear, using six for left and right, up and down and elevator trim. Remaining two flights were made in gradually worsening conditions and did not get much help.

Alan Brocklehurst flew his 7 oz./sq. ft. model, found good lift but could make no headway and the model flew away and despite searching was not found on the day. Model featured American style 'multi-hedral' in the almost 9 ft. (model box limitations) by 9 in. wing. Fin and rudder were swept 'Utopian' style and Alan feels perhaps the rudder was too small. Gear was O.S. Pixie single channel operating

rudder only through a Minimate servo.

1st Alec Murison	Coningsby	5:38	3:28	2:44	11:50
2nd Dick Godden	Cambridge	4:39	—	4:30	9:09

STOCKPORT COMBAT RALLY, BREDBURY, STOCKPORT, June 22nd.

The first of an annual series of combat rallies organised by SADMAR for the 'Mainstream Combat Trophy' was run at the Stockport County Football Club training ground in Bredbury, Stockport, on Sunday, June 22nd. The results were:- 1st, S. French (Scunthorpe); 2nd, G. Johnson (FACCT); 3rd, —, Hardy (ACE); 4th, G. Howard (ACE).

A relatively small number of 28 competitors entered. The entry was almost entirely made up of ACE, FACCT, Scunthorpe, Urmston and SADMAR members with two from Cannock Outlaws. A larger entry is to be hoped for next year if the standard of prizes established this year is to be maintained, which were:-

1st Prize - 'Mainstream Combat Trophy' plus £10 cash.

2nd Prize - PAW 249 Mk. IV new engine.

3rd Prize - 'Peacemaker' Stunt Kit.

A 'Cox' control-line kit was also raffled off.

Flying started at 11.30 a.m. witnessed by the Chairman of the Bredbury and Romiley Council and his Lady. The first round consisted of 16 entries (four having byes into the second round). As expected, ACE, FACCT and Scunthorpe members showed their superiority in this and the following rounds and good bouts were seen when members of these clubs flew against each other. The best bouts were predictably those featuring French (Scunthorpe), Hunt (ACE) and Shaw (FACCT) with the best-of-the-day title going to the Hunt/French duel. This was in the current mode of continuous fast, tight manoeuvres showing fine judgment of low bunts and avoidance of unintended line tangles. French was the victor only because Hunt made his winning cut two seconds after the end of the bout.



Mainstream Combat Trophy winner S. French collects from Miss Norene Rigby of Stockport. Below is Coleman of FACCT launching for the other semi-finalist, Johnson.

At about 5 o'clock the two losing semi-finalists flew off for third place; Graham Howard being beaten by fellow ACE club member Hardy. Following this fly-off, Johnson (FACCT) and French (Scunthorpe) came out for what resulted in a fairly good final. French won decisively since Johnson's spare model was not as fast or manoeuvrable as his number one.

Models seen were almost all variations on the Dominator/Warlord theme. The Outlaws entries were not flying their glow powered 'Confetti' boomed models - the engines and models are too fragile. There can be little doubt that the 'Warlord '69' is the best FAI combat design yet. Similarly almost everyone used Oliver Tigers, the best being Copeman tuned. A few PAW 249's and Super Tigre G.20D's were seen, but these could not be started reliably. The fastest engine of the day was a MVVS TRS using pressure feed, however, this suffered from in-flight inconsistency.

The proceeds from the rally are being used for the Granville House Spastics Society.

N.W. AREA MEETING, BURTONWOOD, June 22nd.

Short notice and the absence of combat (which the N.W. Area had generously dropped from its programme to avoid a clash with the nearby Stockport combat-only meeting) were perhaps responsible for a total entry of under 50 on this stormy Sunday. This comparatively low entry was reflected in a late start (and uncomfortable finish!) to most events as the organisers awaited late arrivals to bolster the lists.

The weather was very unsettled. The early morning fair breeze, which had been mitigated with some sunshine, dropped away to some extent during the course of the day following the passage of some mild thunderstorms, whilst particularly heavy rain completely cleared the arena on two occasions.

The formerly popular **JA Team Race** could boast of only eight fliers from an entry list of ten. The winners of the first three heats were also the participants in a somewhat disappointing (foul-riden) final, in which Turner/Hughes pipped Place/Haworth by a few seconds to win in 8.05. Paradoxically, the F.A.I. event had rather more entries than on some previous occasions with 18 hopefuls, of whom all but two flew. Nevertheless, times generally were not too fast, and a certain lack of experience in the volunteer organisation showed in uncertain decisions. Even Harknett/Smith were fortunate to be afforded the re-run which gave them their place in the final. In this, the Turner/Hughes team, fastest qualifiers at 4.31, suffered disqualification, leaving an equally fast (but so effortless!) Place/Haworth to record a 9.28 win, over a minute faster than the Feltham team.

Stunt, which with only 8 entries looked to be showing signs of a relapse after its recently much touted renaissance, suffered most of all from the weather, although some calm periods in the afternoon resulted in an improvement in standards over the morning's flying and enabled Blake of Buckaneers, by making the day's best flight to move in front of Taylor (Rolls Royce) and win by a clear margin.

Interest appeared to be lacking in **Rat Race** and it took most of the day to attract a field of just 6, which reduced the proceedings to a couple of heats and a final. The racing was dominated by the two Feltham 'Dive Bombers' of Bradley and Hindess, both in speed and reliability. Due to having common team members for the day, Hindess was forced to scratch from the final, leaving his clubmate to a convincing win over Horton/Humphrey's Class B racer. Bradley had earlier qualified with a 2:38 heat, claimed to be 9 secs. better than previous record heat time.

Handicap Speed, in contrast, revealed itself to be a positive centre of activity. There were eleven official times recorded, amongst a great many 'attempts' and continuous activity lasting the day long from over 20 entries. However, this did not serve to emphasise that although some sophisticated engine/plane combinations were being operated, the problem still appears to be that of recording a timed flight!

Results:
F.A.I. Team Race - 1 Place/Haworth, Wharfedale, 9.28; 2 Harknett/Smith, Feltham, 10.25; 3 Turner/Hughes, Wharfedale, disq. **JA Team Race** - 1 Turner/Hughes, Wharfedale, 8.05; 2 Place/Haworth, Wharfedale, 8.10; 3 Davy/Devenish, Wharfedale, disq. **Stunt** - 1 S. Blake, Buckaneers, 927 points; 2 T. Taylor, Rolls Royce, 821 points; 3 P. Tindal, 804 points. **Rat Race** - 1 Bradley, Feltham, 5:33; 2 Horton/Humphrey, Thurnscoe, 7:38; 3 Hindess, Feltham (scratched). **Speed** F.A.I. 1 D. Jackson, Sheffield, T.W.A., 117.5 m.p.h. Open 2.5 c.c. 1 P. Tarr, Sheffield, G.15, 98.9 m.p.h. 5 c.c. 1 M. Radcliffe, Feltham, ST.29, 129 m.p.h.

Right: Don Haworth arrests the progress of winning F.A.I. racer at Burtonwood just clear of the stormwater hazard. Note the natty headgear worn speed-style. Above Don is Best Junior R. Nicholl of Clenrothes after collecting prize at North-East Area Gala, June 29th, at R.A.F. Ouston, from Stn. Cdr. Flt. Lt. Daniels. Glider winner A. Cordes in centre.



CLUB NEWS



Left: Second place in Wakefield at Northern Area F.A.I. Gala was taken by Laurie Burrows of Blackheath, with a model using timer operated variable incidence tailplane and prop fold actuated auto rudder. Very fast climb
Right: F.A.I. Power model by Brian Worthington of Whitefield, at Topcliffe, used a G.15 mounted in a pan cast by Derek Culpin.



IT MAY be an old ingrained response of mine, but I can never resist a spot of ideal flying weather. When the skies clear and the winds calm you will see the most ancient order of clubman stagger out to get some of that nice warm air wrapped around one of his antediluvian craft. I only wish that more people were smitten with the same urge. It seems such a pity to see all that glorious weather wasted on a few larks.

Keen sounding name for the **Buckaneers Model Club** is 'The Scimitar'. The issue to hand though, is not the usual Browning version - by which I mean that it isn't Charley Browning who is doing the editorial chores, but D. Giles; Mr. Browning having nipped off to the quietitude of the Shetlands for a pony and nap. Sorry, Mr. Giles, I didn't quite get that bit about the indicator support of monomic alloy from Woolworth's. Care to explain it in more detail? A thriving club this, with lots going on, from lucrative Bring and Buy sessions to a high model density Concours event. Speaking of the latter item, we are here reminded that Buckaneering is not a wholly aerial pursuit, as boats, cars and other two dimensional movers were much in evidence. All round expert judging, therefore, from Ted Evans, Ron Moulton and Jack Hartley. Winning models were exhibited at the Bletchley Arts and Crafts Exhibition. Good news for the R/C contingent comes in the form of a new flying site just outside Bow Brickhill. A fine site, but flyers are warned not to bash the cattle around too much - in other words, steer clear. And talking of those who live in fields, a report on the camping adventure at the Nationals suggests that the back to nature boys got more than their share of the rude elements.

Oh, those frustrating paper members! A club with a reamful of same is the **Heswall M.A.C.** 80 members on the books, but only 10 non paper back editions on the flying field. Would seem a case for the intervention of Flying Officer

Prune, and so very tiresome for the tireless committee, particularly since they put up such a tremendous programme. Quite apart from such projects as fund raising displays, acquisition of airfields etc., there is building of the club's very own clubhouse. However, we are told that something of a revivalist campaign is under way; so let us hope that some of the paper members can be persuaded to turn over a new leaf.

Newsheet of the **Model Aeronautical Council of Ireland** raises the question of contest participation and its relative importance. Whilst a seeming disproportionate emphasis is given to the contest side of things, it is, nevertheless, the competition factor which makes for cohesiveness and objectiveness within the movement. Then again, it seems, the contest flyers are the people who have the energy and enthusiasm for all that ough organising. Good, then, to see a few more 'outsiders' taking on the established experts at recent National meetings such as the Leinster C/L Champs.

Mike Segrave's 'Internationalist' from Canada brings, by circuitous route, a weather report on the **Danish Nationals**. 15-20 m.p.h. winds drove along the 2 mile runway of Vandel Aerodrome to the accompaniment of mist and rain. Visibility was so poor, in fact, that power jobs were in danger of going o.o.s. under power. Oldies can take comfort from a convincing A/2 win by Hans Hansen at the ripe old age of 56. An equally gruelling performance at the Canadian end of the Spanish Postal Event was given by Andy deMello, towing up a glider with one foot encased in plaster. ('Cast off', they cried.) Word has now got abroad that British Wake Flyers have been putting in much intensive work since that not too inspiring last outing. We can certainly vouch for this; witness those winter and evening work outs on Chobham.

If you are a global type (travelwise rather than dimensionally) you may be interested to know that the Montreal

NORTHERN AREA F.A.I. GALA

Held at RAF Topcliffe on July 13th, this event attracted disappointingly few entries. With Topcliffe only four hours' drive or so from London, and itself one of the country's best airfields, the appearance of only half a dozen people from the London region was hard to understand on a day having quite a reasonable weather forecast.

In fact, at the start of the first of five rounds (why, one wonders do organisers seem reluctant to run a proper seven round FAI event in this country? Is it perhaps a hope that people will have a dabble in several of the classes?), the weather was quite calm but the wind increased during this two hour round and, perhaps due to the use of a 'launch across the line' rule, some models were going out of the airfield. During the first round the launch area was moved, which must have pleased those who flew beforehand, and from then on the direction remained substantially down the main runway, although there were some large diameter thermals that wandered off along meandering paths round the field complete with models. Although the launch area rule was apparently reintroduced to reduce that bad old tactical flying, at least one contestant, not knowing that the area had been moved, flew from that spot in order to have the best chance of flying under models in lift.

Light relief was provided on a couple of occasions by large swarms of noisy bees which buzzed the airfield at about three feet altitude, causing numbers of people to drop rapidly to their knees.

After the first two rounds with perhaps 10 knots wind, things calmed down and several large diameter thermals came through, although none seemed particularly easy to

find. Dave Hipperson goofed badly during the third round in Wakefield when his noseblock assembly jumped out of position when the prop folded, resulting in a 46 second flight and the end of his interest. In FAI Power, which attracted rather more entries than is usual, Ray Monks and Dave Wiseman were using the occasion to iron out models for Wiener Neustadt, Ray only dropping four seconds on the five flights. Several Night Trains were in action and the Wath club seemed particularly active with these, although few pipes were in use.

The Burrows Wakefield with timer operated V.I.T. and the usual prop fold-actuated auto-rudder seemed spot on, and impressed as one of the few British Wakefields which, when thrown really hard, really carry on climbing at the same speed, rather than looking glad when they can manage to slow down to their normal airspeed once the momentum dies away.

Results

A/2 (31 entries)		
1. M. Reeves, Whitefield	...	14:44
2. S. Bowles, Norwich	...	14:13
3. A. Cordes, Tynemouth	...	13:41
Power (13 entries)		
1. R. Monks, Birmingham	...	14:56
2. D. Wiseman, York	...	14:11
3. A. Carter, Liverpool	...	13:31
Wakefield (16 entries)		
1. D. Greaves, Birmingham	...	13:57
2. L. Burrows, Blackheath	...	13:55
3. R. Paveley, Norwich	...	13:46

M.F.C. is holding its **Annual Eastern Canada Open Free Flight Contest** on Sunday, 14th September at Mountain View Air Force Station, Belleville, Ontario.

A 'must' for the keen Scale modeller is the **Shuttleworth Veteran Aeroplane Society Model Section Club News**. Well set out and sporting an attractive cover, but somewhat lacking in 'meaty' content, but remedy in the form of plans and articles promised for future issues. Good to see that the club has been entrusted the late Fred Borders famous Dakota radio controlled model.

The vitality and enthusiasm of the **Three Kings Aero-modellers** has brought something of a C/L renaissance to the South London area. At the club site, Three Kings Place, Mitcham, members are actually queueing for that Sunday morning flight! At least fifteen .35 powered Stunters can be seen straining at the wires on a flyable Sunday, with a force of some half dozen scale models in support. Although very much a 'wired up' concern, members are happily not too rooted in their pet obsessions to be oblivious to other kites of the air. The Stunt boys take a hand in Scale, and, reciprocally, the Scale boys are taking large Stunters through the schedule. Embryonic, but soon emergent, is a pure Speed group. Don Burgess and Geoff Burkett are but two who hope to step up their speed of rotation. Nats news is that it was a jolly good Regatta, also that a little bird whispers that it was P.R.O. Laurie Glover, who was responsible for getting that half page picture of the Spitfire in the *Daily Mirror*.

Main interest in the **Watford Wayfarers M.A.C.** evolves around the two stage Spot Landing event. The first leg got a wading reception from the weather, with vast quantities of rain and wind driving all to shelter. But up flew one brave competitor to engage in a sort of aerial King Canute act with a 'Senator'. It didn't hold office for long, and thereby hangs a tail, albeit quickly repaired. The second leg was less hairy, with Brian Cooper, the new Spot Landing Champion, missing the target by only seventeen feet (What, on one leg?). Club flying ground is the Moor.

We are never without the 'Irish Troubles', and the latest to date is the loss by the **Belfast M.F.C.** of 'Scoop Doo', the site of many a heated modelling wrangle over the years. A report in *Nitro*, the club mag., tells of a takeover by a Chinese gentleman. (Not Hoo Flung again, surely?). However, thanks to member, Keith Smeltzer, an alternative meeting place is available.

Too many interlopers have been finding their nefarious way on to the **Leicester M.A.C.** flying field. In order to legitimate the situation all visitors are to be clocked in by a Controller and a 2/6d. fee is to be levied from non members, but only for three visits; after that they must become Club members or else. Lucky club, the only interlopers on our local flying field have either four legs or four wheels, and sometimes both. Cautionary tale from a recent club display: the circle provided was so minimal—radius of wires plus nothing—that a spectator came into collision with a landing model. Happily, there was no serious consequence, but the warning lights flashed.

Antipodean antics reported from the **Debdenairs M.F.C.**, of Loughton. A series of lively missives from migrant John Tidey, now resident in New South Wales, has kept club interest centred on where they fly inverted. All long distance stuff for the contest goes down under, they are told, with overnight hops of 500 miles across the wild outback just a matter of course. John, who has taken his modelling interests very much with him, has stretched back his hand to the old country by arranging a 'Par Avion' Postal Event between his old Debdenairs club and his new N.S.W. club. A free flight contest this, and one grievously frustrated by the atrocious weather at the British end. Time and again it had to be postponed, but success came with the Southern Gale where weather was up to normal N.S.W. standards—it was mid-winter out there! Would seem on balance that N.S.W. gained the day, although the Debdenairs boys had more than their share of bad luck. Roy Collins did a couple of convincing maxes in Power, then suffered engine failure on his third flight, whilst G. Harris lost his JA on a trial flight overrun. Odd factor on the N.S.W. debit side of things was the lack of good rubber power: Pirelli, no—knicker elastic, yes. Next time the two clubs are to make their flights over a period of several months, say, September to January, thus allowing for the more equally comparable weather than a simultaneous effort might give.

Having that very afternoon been dive-bombed by a not so radio controlled model on my local patch, I read in the evening the comments in 'Seadog', the **South East Area Newsletter**, on the need for safety in model flying. It says, in effect, that although most insurance claims these days result from Radio incidents, it is up to everyone to fly with care, whatever his model. In an earlier report we mentioned a collision incident at a Fete display, and 'Seadog', too, gives a warning about such public displays, suggesting that clubs should safeguard themselves by taking out special insurance cover for the event—normal insurance is not valid. Much Area activity these days seems to centre on the Long Man, Wilmington (no wonder he's had to have a face lift!),

where they who like 'silent' Radio, are wont to congregate for those very stimulating slope soaring meetings.

The 'Satellite', voice of the **San Valeers Model Club** of California, has taken Happiness, as opposed to Hippiness, for its theme. Thus, we are informed, Happiness is chewing the glue off your fingers; seeing that d/t work etc. Possibly, but surely true happiness is unbelievably taking your model home in one piece. What is a Fox's Tail? Well, in California it means a nasty piece of cornfield vegetation designed on the lines of an angler's barb. Seems that a flying session is equally divided between messing about with models and pulling the dreaded fox's tails from shoes, clothing and the wilting flesh. Another point of interest culled from the *Satellite* is the historical one of the origins of the international Gas Model Association, which has nothing to do with North Sea mockups, but owed its name to the early model petrol engine. Anyway, the Association was formed to combat snowballing legislation aimed at the banning of the new fangled, noisy gas engine—and very successful it proved, too. Still on the American scene, whereas we, over here, have relapsed into orthodox club names (all the Outlaws and Cement Squeezers having long vanished) they are still as facetious as ever Stateside, from where they are happy or otherwise to report that the Thermal Thumbers and the Dallas Cloud Climbers are up there pitching.

From John Pool, late of N.A.N., comes a report on the 2nd **Halifax International Postal Tailless Competition**. Although publicity for the event was not as extensive as hoped, the response was nevertheless up to expectations—well in advance of last year in all classes: 43, in fact. In spite of the increase in entries the contest is still run as an All-in affair, with Glider, Rubber and Power in direct competition. Although the first sixteen results published shows a healthy mixture of the three classes, I, personally, feel that a separation into like breeds would be a worthwhile thing to aim for. Anyway, magnificent flying by John Pool, whose *Never Forget X* did a brilliant triple max, plus a 4:21 fly off. Geoff Mills of Leatherhead also got a full house with his glider, but why no fly off time? Perhaps the most outstanding performance came from Tony Slater, who did a remarkable 8:14 with his 'Lil Plank', a fifteen year old design. He also won the Chuck Glider event (He has the advantage of the toughest and most practiced Popeye arm in throw business), again with excellent times for a tailless model: 4:22 for five flights. Next year's event will again be held during April. Full details of the contest will be available in the Autumn from John Pool, 3 Rothwell Drive, Savile Park Road, Halifax, Yorkshire, England.

John Cahill, of the Radio and Cycle Shop, Sallins Road, Naas, Co. Kildare, Eire, is interested in starting a model club in Naas. Anyone interested can contact Mr. Cahill at the aforementioned address.

A resuscitation effort on the part of a group of enthusiasts up North has brought back the **York M.A.C.** to a state of active flying after 3 years in a more or less catalytic state. Dave White, who has kept vigil over the patient, continues as Hon. Sec. B. Amos is now Chairman, and C. O. Stanford, who sends us this report, is P.R.O. Among other blessings the club has the use of a permanent flying field, to wit, R.A.F. Elvington. Presumably this is where the York Rally is to be held in October, but only for Dick Turpin and other free fliers. However, a fly-for-fun (not these days, surely) has been organised for R/C and C/L addicts, also for later in the year. Mention is made of another flying site for Radio; so if resident in the York area and looking for a companionable club with excellent amenities, contact D. G. White, Hon. Sec., 24 Surtees Street, York.

Another revival story comes from Tony Rudkin, P.R.O. of the **Bath M.A.C.** He tells us that the club has its roots in model flying antiquity, having come into existence in the Edwardian year of 1904, when men were men and kites were kites. It has since been given a modern injection of life in 1966, and membership is now at the comfortable figure of 24, mostly of the handle waving variety, although there is an interfusion of free fliers led by British Team member, Chris Batty. And it is Chris who sets the standard for outside participation. At the Nationals, four members entered Glider, Open and A/2, with two at least returning good scores. Jim Litser and Stewart Lodge entered JA Team Race but had the misfortune to have their model demolished during pit stop (hungry work). In addition the club has given various displays, including one at the Camerton Steam Engine Rally, but no mention of Tractor models. Club meetings are held every second Thursday, and Sunday flying takes place at R.A.F. Colerne. Interested? Then contact Club Sec. J. Litser, of 69 Purlweat Drive, Bath.

We have to hand the fully uncensored copy of the Swedish Newsletter style magazine, 'Stabben'. A well stocked edition. Photographs and model plans speak their own eloquent language. I was particularly intrigued by a fine looking A/2 called Russian Ghost IV. There was also a very functional looking pylon type A/1 that caught my eye.

And that's about all for this. Don't let that airfield grass grow under your feet.

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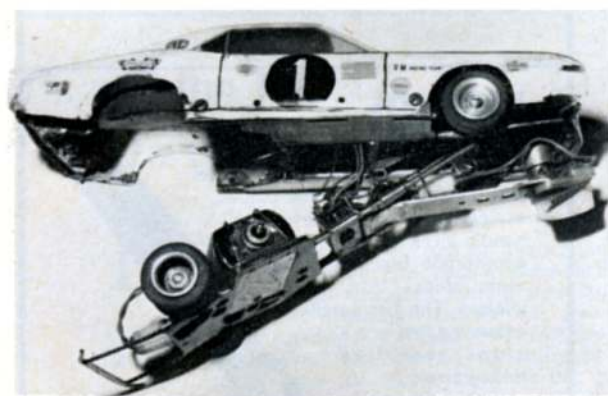
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HIGHLIGHTS OF ISSUE No. 1...

Special 'Battle of Britain' features; Spitfire Mk. 1 super plans; One fifth scale *working* model of inverted Vee 8 aircooled Argus AS 10 C aero engine; Outstanding flying models; Latest Plastic Kit news; Famous Matra-Ford racer detail and plans; Book reviews; Royal Fleet Auxiliary steamer and early sailing ships, plus unique photos for marine modellers. Militaria, of course, to fill a pot-pourri guaranteed to satisfy the immediate scale appetite and to whet your taste for more!



Continuing our policy of providing readers with complete details on top cars of the moment, our main feature for slot racers is a technical breakdown of the Vauxhall 24 Hours Airfix trophy winner which incorporates a multitude of ingenious time saving ideas; features on working lights for models (in keeping with the endurance theme), Prototype Parade for the Chaparral 2G, Racing Review, and full complement of collectors articles and features go to complete another top line number.

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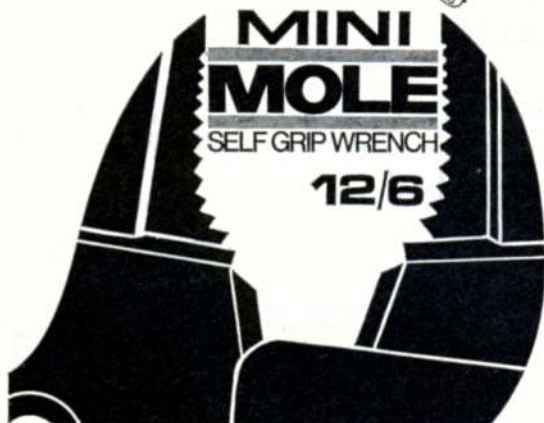
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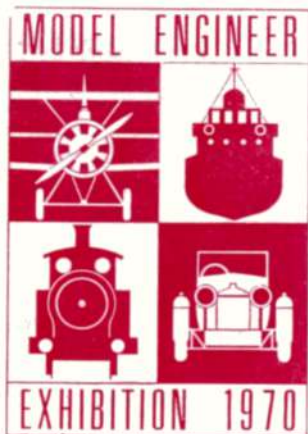
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SPECIAL ATTRACTIONS

Continuing a policy of change whilst retaining popular features, we shall this year have stands looking in towards a central model display system. At the entrance a small circular pool will provide an area for operation radio controlled boats. Surrounding this circular area will offer opportunities for further electric powered aircraft (so popular last exhibition): plus space for some radio controlled cars to show their paces.

The ever green live steam exhibit with passenger carrying of visitors of all ages behind miniature steam locomotives will again be under the direction of Mr. Bill Carter and his colleagues of the Society of Model & Experimental Engineers. A working S.M.E.E. feature will be faced by a typical model engineer's workshop.

Nearby, in the Bryanston Room, a further railway track will offer another 75 ft. stretch, and here entries for the new LBSC Memorial Bowl competition - which demands a track test as well as beauty - will be judged. Visiting clubs will also be invited to 'bring an engine' and book public demonstration time at Seymour Hall.

In the LECTURE HALL a working CAR CIRCUIT will be available for visitors to try their skill during the day and to offer exciting competitive racing each evening.

In the galleries (which also offer several hundreds of seating places for packet lunchers or tired visitors to rest and watch from above) will be displays of 'junior models' which may take any form from plastics to Meccano or to working model boats. The 'boys' exhibition' last year under Commander Guffick, O.B.E., was most encouraging and will be expanded.

SOUVENIR GUIDE

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

AWARDS

The cups, medals and diplomas will be forwarded to the successful competitors, as early as possible after the close of the Exhibition, when names have been engraved and diplomas signed.

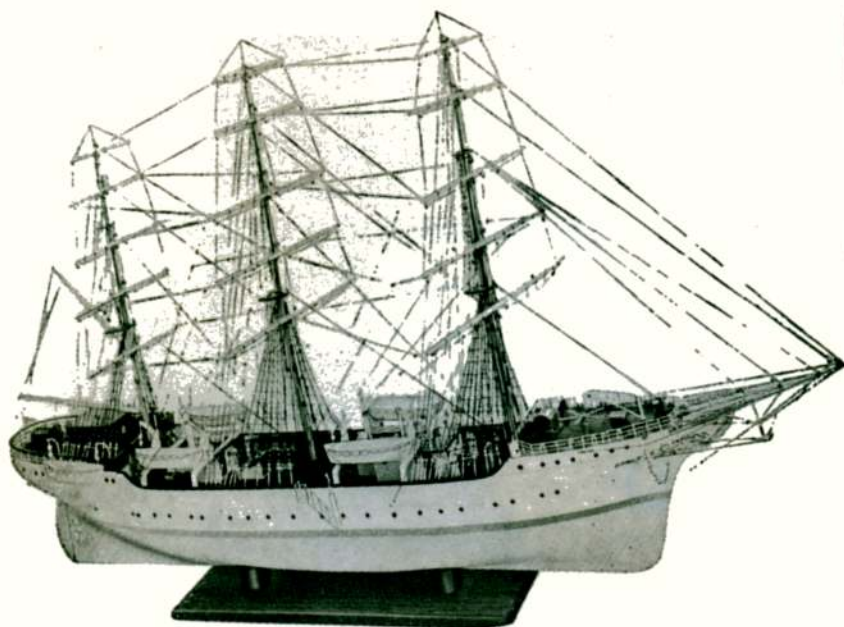
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ENTRIES' CLOSING DATE

All entries must be made by October 20th 1969.

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KEILKRAFT

HANDLEY PAGE 115

CARICATURE MODEL BY BILL HANNAN

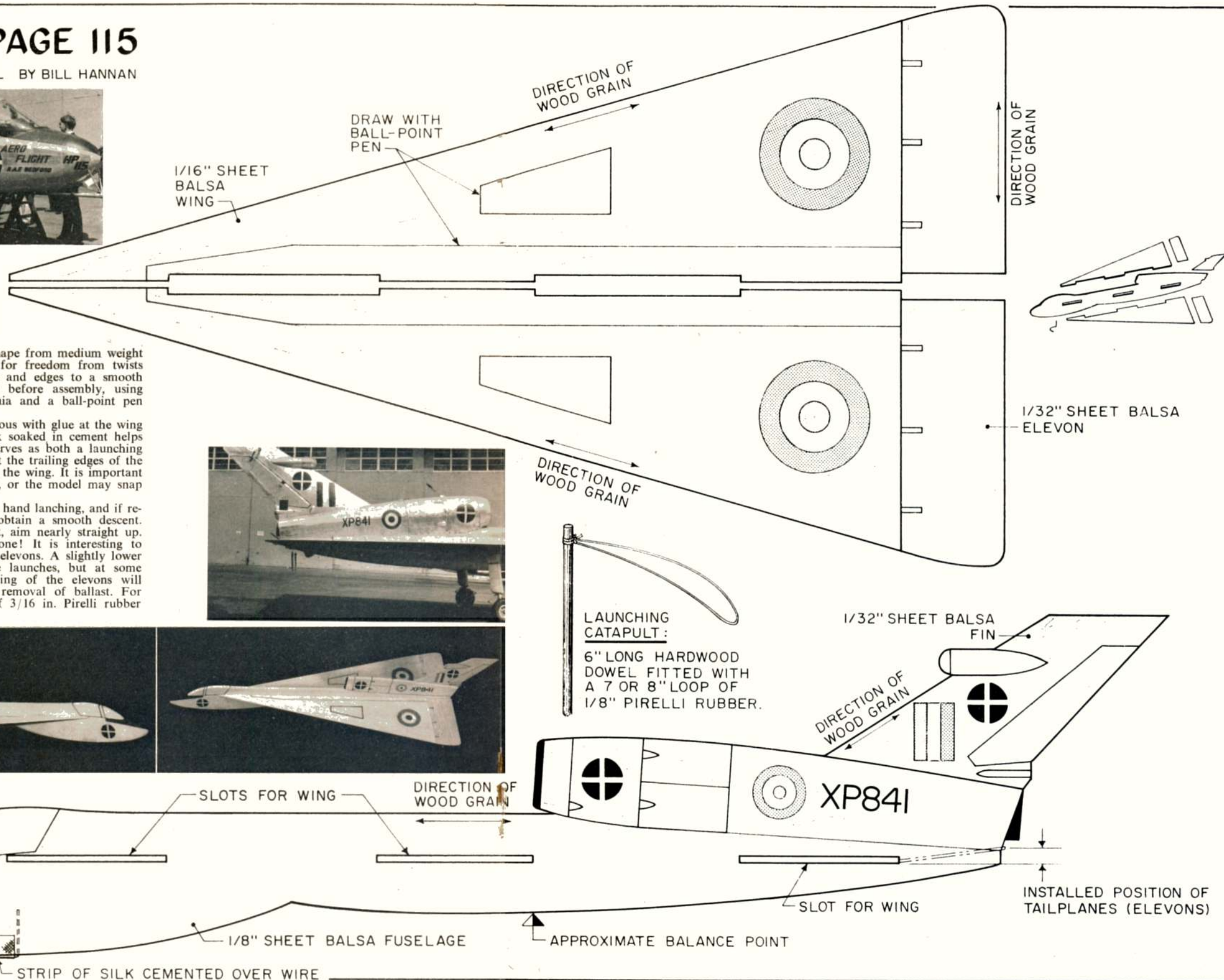
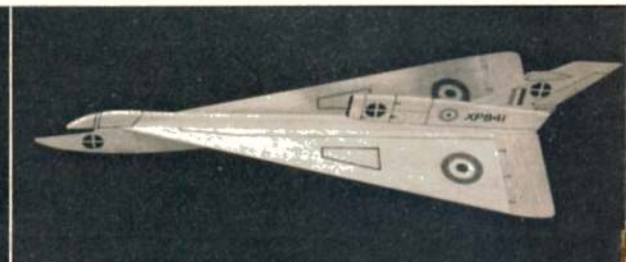


HERE IS AN easy-to-build profile glider, based upon one of the most interesting jet aircraft ever made. Note the striking resemblance to a folded paper 'dart'.

Begin by cutting the parts to shape from medium weight balsa, which should be selected for freedom from twists or warps. Sandpaper all surfaces and edges to a smooth finish. Decorate the components before assembly, using coloured felt pens for the insignia and a ball-point pen for the panel lines.

Assemble the parts, being generous with glue at the wing to fuselage joints. A piece of silk soaked in cement helps to secure the wire hook which serves as both a launching device and landing skid. Note that the trailing edges of the elevons must be raised relative to the wing. It is important that both sides be equal in angle, or the model may snap roll during launch!

Test glide the finished model by hand launching, and if required, add Plasticine ballast to obtain a smooth descent. When launching with the catapult, aim nearly straight up. **CAUTION:** Do not aim at anyone! It is interesting to experiment with the angle of the elevons. A slightly lower angle will permit higher altitude launches, but at some sacrifice in stability. Any re-setting of the elevons will probably necessitate addition or removal of ballast. For all-out performance, fit a loop of 3/16 in. Pirelli rubber to the catapult.



20 S.W.G. WIRE HOOK — STRIP OF SILK CEMENTED OVER WIRE