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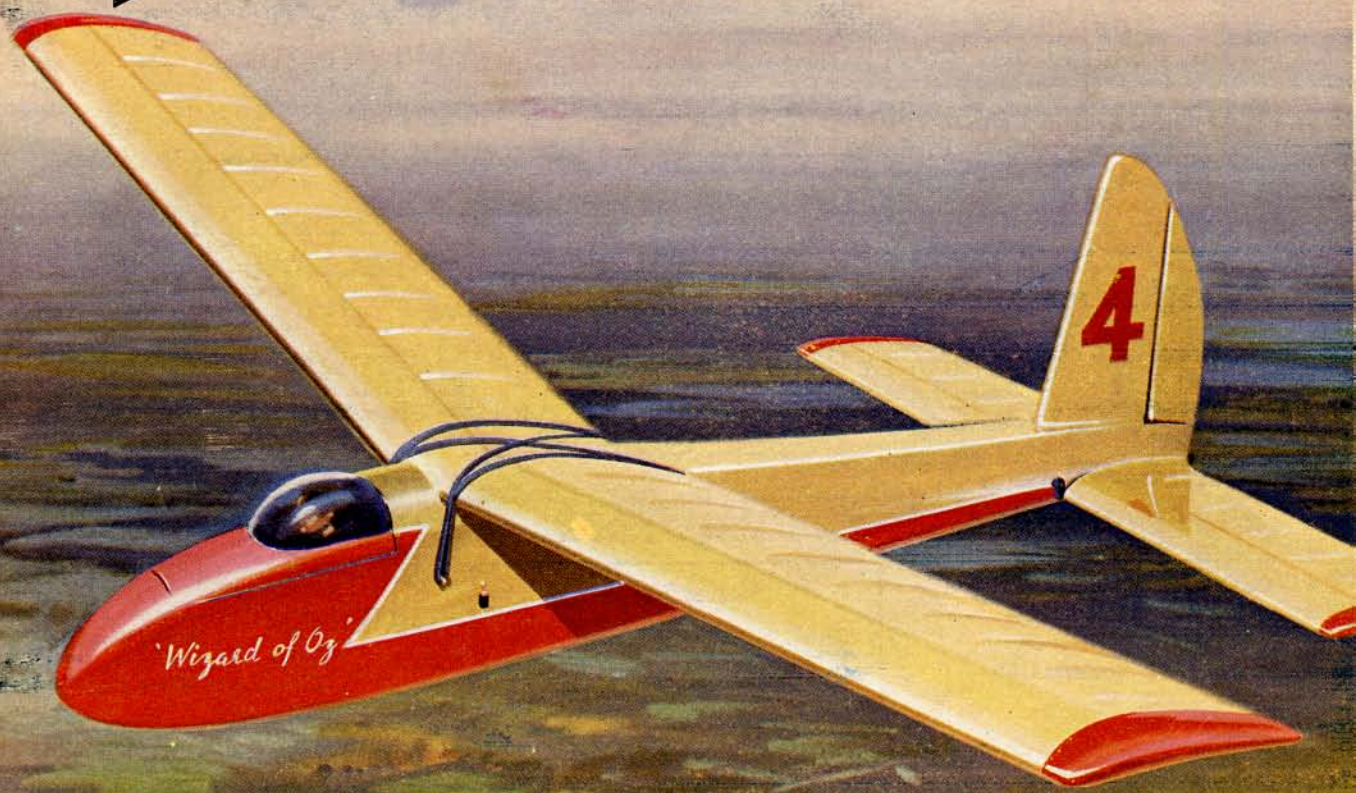
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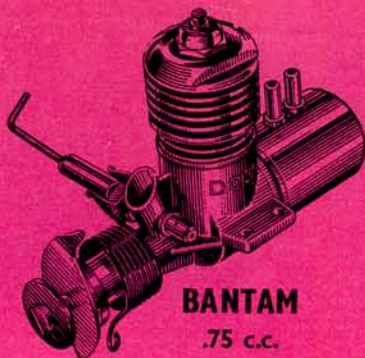
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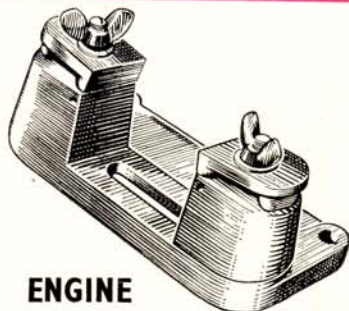
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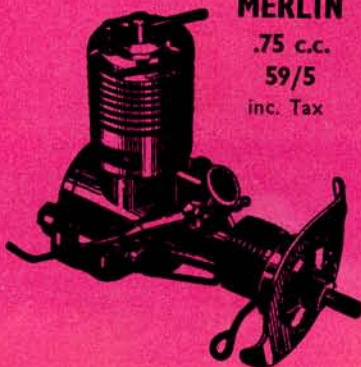
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MODEL AIRCRAFT

April 1966

VOLUME XXXI No 363

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Assistant Editor **J. FRANKLIN**

Advertisement Manager **LIONEL HARRIS**

If ever there was a single item specifically designed to disrupt the smooth harmony of aeromodelling progress then it is surely the introduction of a *silencer* requirement.

Don't misunderstand, - we *approve* silencers, have used them personally for longer than anyone else we know in the country (since 1950) and have done our best to keep readers informed of silencer developments. But the regulation, loosely worded as it is in many respects becomes a bone of contention for those who fly in F.A.I. classes, or are on remote airfields - or are just plain noise-happy.

There's no need for us to reiterate here the value of the silencer for flying field preservation.

Now another aspect arises in the shape of a tuned exhaust. Some evidence of what is in prospect can be seen on p. 217.

More will follow in our pages when tests are completed in this country. It is not too much to ask for our two stroke engines to emulate the success of racing motor cycle power units with these exhausts. Until such fittings become reality, let's seek a little patience and understanding in the matter. Those who press for total silencer enforcement as well as the discontented power hounds could each well show a little tolerance.

cover

Not since November 1950 has our cover been graced by a painting of a model in action. Then it was Vic Smeed's "Tomboy" - one of the most popular designs in our range of Aeromodeller Plans and now the "Wizard of Oz" joins the fold. Laurie Bagley captures the spirit of simple radio controlled Slope soaring gliding which is well described on pages 192-195 of this issue.

coming next month

Report on the Coupe d'Hiver International, Old Timer events and the first of the seasons contests. Full size plans for Richard Wilken's "Mini Early Bird" plus two fine chuck gliders are on the pull-out pages. Scale drawing the Italian Macchi MB 326 Jet trainer, now equipping several Air Forces. Regular columnists Peter Chinn, John O'Donnell and Pylonius have all the latest news and we add a survey of Control-line developments. On sale April 15th.



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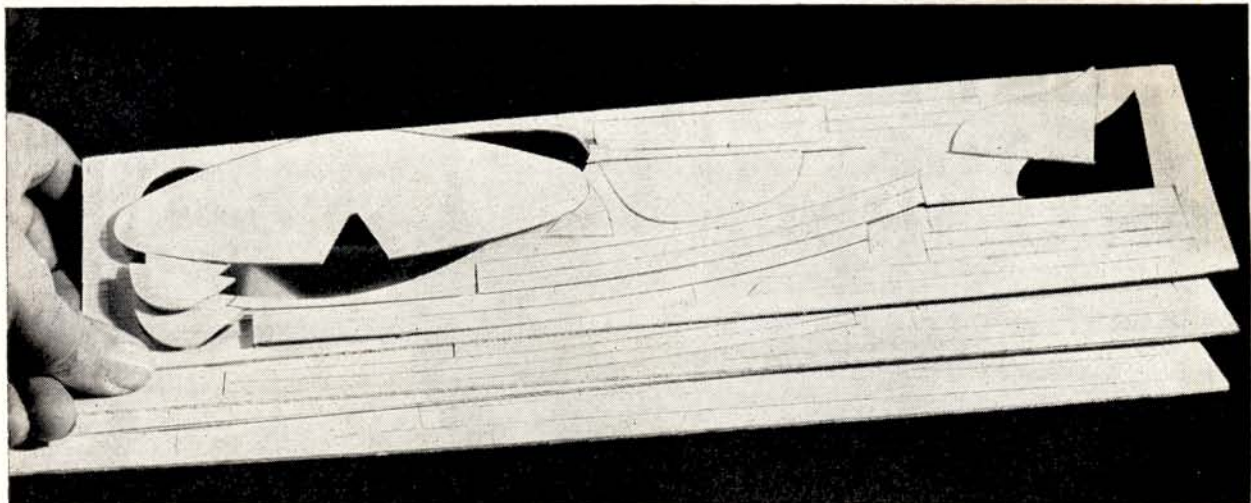
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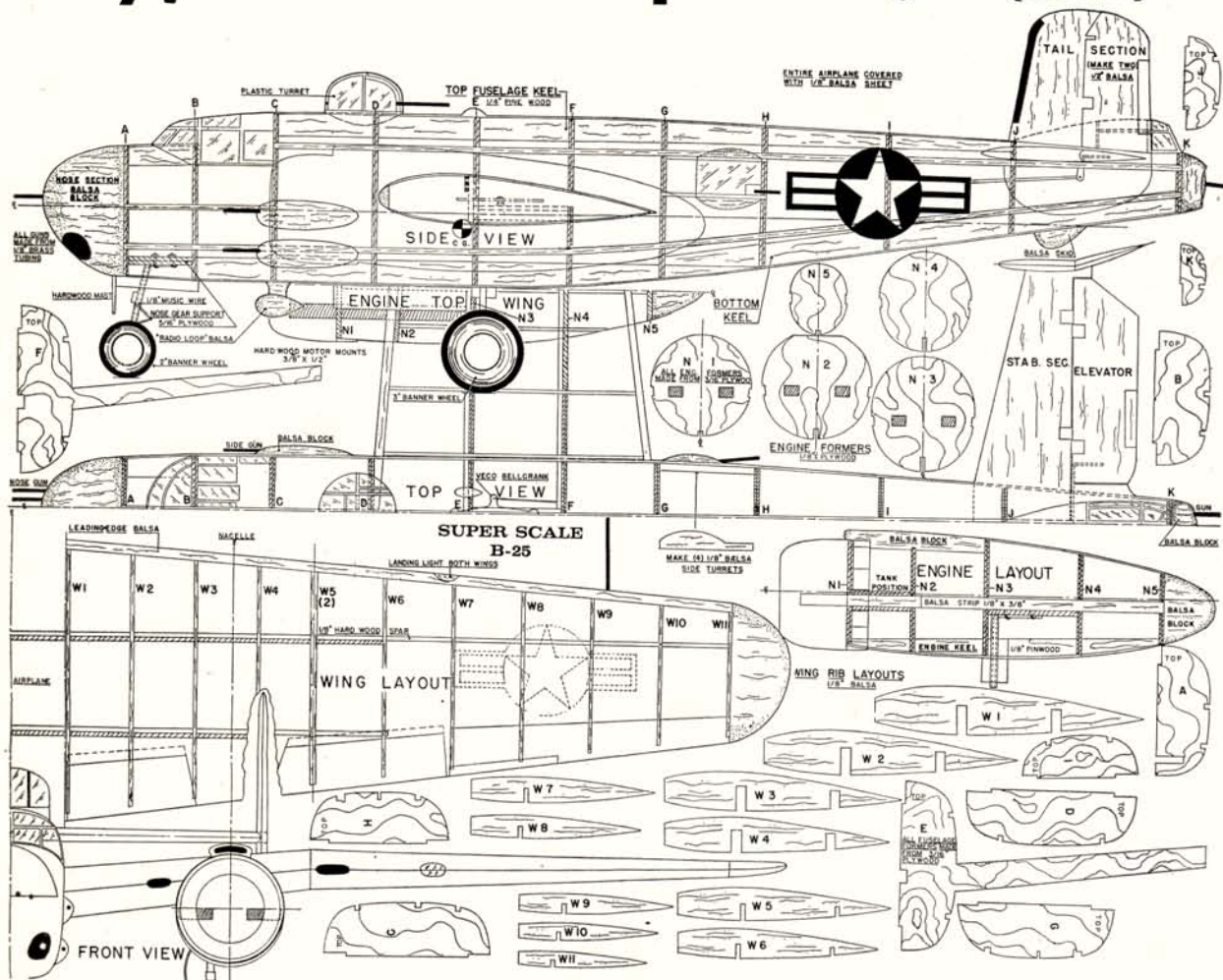
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- M.A.N. 35A** DEMON:- C/L class 'B' combat, remote elevator .35 (6cc) 35 in.
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- M.A.N. 36A** DUSTER:- R/C multi aerobatic biplane .49—.60 (8—10cc) 67 in.
SCORCHER:- C/L proto speed racer .39 (5cc) monoline 32 in.
- M.A.N. 37A** URANUS F.A.I.:- F/F F.A.I. power .15 (2.5cc) 64 in.
SUPER FLIPPER:- C/L Stunter half wing flaps .15 (2.5cc) 35½ in.
- M.A.N. 38A** O.K. Two .02:- R/C twin engine .020 (.32cc) single channel 38 in.
MOUSTIQUE:- F/F high thrustline Coupe d' Hiver 45 in.
KING RAT:- C/L Rat racer .35 (6cc) 25 in.
- M.A.N. 39A** SWAMP BOX:- R/C single channel .09—.15 (1.5—2.5cc) 48 in.
LIL' DUSTER:- C/L ½ A speed model .049 (.8cc) 33 in.
CHIPPER II:- F/F sports, all sheet, .020 (.32cc) 30 in.
- M.A.N. 40A** CESSNA SKYKNIGHT 320D:- C/L scale 1½ in. scale, two .35's (6cc) 54 in.
- M.A.N. 41A** THE CONDORIAN:- F/F F.A.I. power model .15 (2.5cc) 62 in.
CRUSADER:- Doc Brooke's R/C World Champion multi .60 (10cc) 67½ in.
- M.A.N. 42A** MUSTANG STUNTER:- C/L semi scale stunter .35 (6cc) 55½ in.
HIFIN:- R/C single channel .35 (6cc) 45 in.
BOEING P-26A:- C/L scale famous fighter .19—.35 (3.5—6cc) 42 in.
- M.A.N. 43A** U-ALL 2:- R/C "Gallop Ghost" .020 (.32cc) 50 in.
BELLY DANCER:- F/F Wakefield rubber 48½ in.
TWO TUBE:- C/L twin boom sport .049 (.8cc) 27½ in.
- M.A.N. 44A** LIL' KNARF:- Jerry Nelson's N.M.P.R.A. pylon racer .40 (6.5cc) 43½ in.
- M.A.N. 45A** ARCTURUS:- F/F A/1 contest glider 49½ in.
SCHTICK:- C/L simple rat racer .35 (6cc) 29½ in.
- M.A.N. 46A** LI'L SWELL:- R/C single channel flying boat .020 (.32cc) 33 in.
LOCKHEED P-38:- C/L U.S. Nats. scale winner .35 (6cc) 52 in.
- M.A.N. 47A** MORANE SAULNIER:- R/C aerobatic glider 56½ in.
GRABBER:- F/F Wakefield or open rubber model 50½ in.
- M.A.N. 48A** MIDAS:- C/L stunter, ziggy lines .35 (6cc) 61 in.
GALLOPING JOHN:- R/C single or multi biplane .09—.19 (1.5—3.5cc) 40 in.
- M.A.N. 49A** VEEDO:- R/C aerobatic single channel .19 (3.5cc) 57½ in.
SUSPENSE:- F/F F.A.I. power simple construction .15 (2.5cc) 60 in.
- M.A.N. 50A** REPUBLIC P-47N:- R/C multi scale Thunderbolt .45 (8cc) 63 in.
COUGAR-NE SMITH:- F/F rubber scale 23½ in.
- M.A.N. 51A** CHOPPER '64:- F/F helicopter .19—.35 (3.5—6cc) 50 in.
TRAVEL AIR 2000:- R/C multi scale .60 (10cc) 58 in.
- M.A.N. 52A** SANTA MARIA:- R/C single channel scale .09 (1.5cc) 42 in.
SUNDOWNER:- F/F open power .15—.23 (2.5—3.8cc) 61 ins.
BLUE BONNET:- C/L open speed .15 (2.5cc) 16½ in.
- M.A.N. 53A** DELTA TOO:- R/C delta pylon racer .15 (2.5cc) 36½ in.
DOVE:- F/F A/2 glider simple construction 51 in.
DANCER:- Tow Dec. .010 (.2cc) stunter all sheet 13½ in.
- M.A.N. 54A** THERMAL TUMBLER:- F/F ½ A contest power .049 (.8cc) 40 in.
- M.A.N. 55A** HOT TUBE:- C/L ducted fan C/L tow .049's (.8cc) 51½ in.
LARK:- C/L stunter .35 (6cc) 52½ in.

- M.A.N. 68** **WORLD CHAMP, NORDIC**:- F/F A/2 by Gerry Ritz 86 in.
EL BOBO:- F/F biplane sportster .049 (.8cc) 32 in.
VOUGHT KINGFISHER:- C/L scale .35 (6cc) 36 in.
- M.A.N. 70** **N.A.S.N.J.**:- C/L scale "Harvard" .29-.35 (5-6cc) 42 in.
ATLANTIS:- F/F power duration .09 (1.5cc) 52 in.
TIPSY:- C/L scale .29-.35 (5-6cc) 40 in.
- M.A.N. 72** **BREWSTER BUFFALO**:- C/L .35 (6cc) 35 in.
SLIVER:- R/C multi, pylon racer, .19-.60 (3.5-10cc) 59 in.
- M.A.N. 73** **CHANCE VOUGHT CRUSADER**:- C/L scale jet powered 27 in.
BUTTONS:- F/F sports free flight .020 (.32cc) 30 in.
- M.A.N. 74** **RYAN ST**:- R/C scale multi or single channel .19-.29 (3.5-5cc) 56 1/2 in.
U2:- F/F semi scale "Jetex" for PAA motor 31 in.
- M.A.N. 75** **LIGHTNING ROD**:- F/F high thrustline .15 (2.5cc) 60 in.
MILES MASTER 2:- C/L proto speed .29 (5cc) 28 in.
MAC-FAN-TUM:- Hovercraft .049-.09 (.8cc-1.5cc)
- M.A.N. 76** **ALOUETTE**:- R/C single or multi channel biplane .19 (3.5cc) 54 in
CHESTER JEEP:- F/F scale very detailed .049 (.8cc) 27 in.
- M.A.N. 77** **KRAZY KAT**:- C/L Stunt and combat .09 .19 (1.5-3.5cc) 36 in.
TIPSY 'NIPPER:- F/F, R/C or C/L scale 39 in.
SUPER R.O.G. F/F elementary "stick" rubber model 37 in.
- M.A.N. 78** **FLY ROD**:- F/F 1/4 A power duration .049 (.8cc) 45 in.
CURTISS ROBIN:- C/L rubber powered R.T.P. model 31 in.
MISS AMERICA:- F/F 1/2 size version of vintage model .020 (.32cc) 30 in.
- M.A.N. 79** **FOKKER E III EINDECKER**:- C/L fine detail scale .35 (6cc) 52 in.
GYRATOR:- F/F helicopter .020 (.32cc) 13 1/2 in.
- M.A.N. 80** **FIVE GIANT STEPS** - Complete building course, chuck glider R.O.G. rubber, profile rubber, built up rubber, 0.020 F/F.
- M.A.N. 83** **TEE DEE BIRD**:- F/F sportster .010 (.2cc) 34 in.
WIRELESS WIDGEON:- R/C scale single or multi trainer .29 (5cc) 52 in.
- M.A.N. 84** **ARROWHEAD-3**:- C/L three versions of a miniature .010 (.2cc) combat wing 9.
- M.A.N. 85** **LIGHTING BUG**:- R/C miniature .010 (.2cc) 27 in.
PIPER-TRI-PACER:- F/F profile fuselage .020 (.32cc) 27 in.
VOODOO:- C/L winning 'B' combat model .35 (6cc) 34 1/2 in.
- M.A.N. 86** **LOWDOWN**:- F/F U.S.Championship Indoor Model 30 in.
SCORCHER:- R/C pylon racer .049 (.8cc) 32 in.
F 4-U:- C/L profile scale .020-.049 (.32-.8cc) 18 1/2 in.
R/C CURTISS ROBIN:- R/C scale single channel .049 (.8cc) 40 in.
- M.A.N. 87** **PALQUE**:- F/F 1/4 A contest trainer .049 (.8cc) 42 in.
PAA-ABLE:- F/F PAA load model .020 (.32cc) 35 1/2 in.
- M.A.N. 88** **CURTISS TRIAD**:- C/L scale .15 (2.5cc) 44 in.
PIPER PAWNEE:- C/L scale .19-.29 (3.5cc-5cc) 36 in.
- M.A.N. 89** **PHOENICIAN**:- C/L contest winning stunter .35 (6cc) 58 in.
STINSON 195:- F/F profile scale .020 (.32cc) 28 1/2 in.
THUNDERBIRD:- F/F open rubber and Wakefield 45 1/2 in.
LIL ZOT:- C/L Sunter .020-.049 (.32cc-.8cc) 20 in span.
ARADO:- R/C multi scale .35-.45 (6-8cc) 58 in.
CAUDRON MONOPLANE:- F/F scale vintage .020 (.32cc) 23 1/2 in.
GAWN:- F/F Blanchard's F.A.I. power duration .15 (2.5cc) 64 in.
MULVIHILL WINNER:- F/F Wakefield rubber 47 in.
COMPER SWIFT:- F/F rugged scale .06 (1cc) 41 in.

Typical M.A.N. plan (B-25 on I2A)



Note the address : AEROMODELLER PLANS SERVICE, 13/35 Bridge St., Hemel Hempstead, Herts.

HEARD at the HANGAR DOORS



Frog's latest plastic scale model kit is the famous "Southern Cross" Fokker Trimotor. This realistic scene indicates the quality of the kit which can lend itself to several interesting modified variations.

Below: Nancy Willoughby with 1-26 glider
—see first column.



FILMS WITH NANCY. Dale Willoughby, whose photographs from the U.S.A. have frequently graced our columns tells us that his daughter Nancy, a 19 year old redhead Californian Student will be touring England and the European continent from July to September ending in Brussels. Any clubs or interested individuals wishing to view an 8 mm colour film, together with taped comments in English, of slope and thermal soaring in America should write immediately to Dale Willoughby 14695 Candeda Dale, Tustin California, 92680 U.S.A. in order that an itinerary be planned for her trip.

The account of slope soaring with single channel which appears on the following pages, plus a feature on multi-channel soaring due to be printed in our companion journal *Radio Control Models and Electronics* will give the uninitiated a taste of the pleasure that can be obtained from silent flight. Featured in Dale's reels is a long scene of the strange bird, christened "Pig tail Otto" which joined the radio controlled gliders on a Californian ridge.

INTERNATIONAL EVENTS (1). Scale modellers who want to travel abroad for an event which embraces Free-flight, Control-line and Radio controlled categories should write to the Royal Netherlands Aeronautical Association, Aeromodelling section, 8 Jozef Israelsplein, The Hague. Contests will take place on a R.N.A.F. base 17/16 September. F.A.I. rules will apply. How about it scale fliers? Some of the exciting projects such as Gloster Gladiator,

Bristol Beaufighter, North American T-28, Bucker Jungmeister etc., which are now being groomed for entry at the British Nats in R/C scale should make quite an impression overseas.

INTERNATIONAL EVENTS (2). Also in the Netherlands, an event for the three F.A.I. free-flight classes (with 50 gm motors allowed in Wakefield) is planned by the Amsterdam MAC c/o H. J. Sheyde, V. Oldenbarneveldtstraat 80, Amsterdam, The Netherlands. It will take place at Rozendaalse Heide near to Arnhem on May 7/8th. Six Nations are already represented among the entries.

INTERNATIONAL EVENTS (3). Not for aeromodelling at all, but nonetheless of great interest is an invitation extended to all readers by the Youth sport flying section of the German Aero Club. It offers a gliding training course over a period of 16 days from June 7th to 22nd at Hirzenhain/Dillkreis for enthusiasts between the ages of 16 and 25. Having spent a few very pleasant days there ourselves during the International R/C event a few years ago, we can verify the claim in the invitation that the community spirit of Hirzenhain's fine youth centre will do much to improve relationships between the young people of G. Britain and Germany.

Beginners will be trained up to solo stage, and there is winch and aircraft tug launching. Cost of the course is 150 Deutsch Marks and on presentation of a ticket, 50% of 2nd class rail fare is refunded. Details can be obtained from Jugendausbildungstelle der Luftsportjugend, 6341 Hirzenhain/Dillkreis Germany.

RULE CHANGES by the F.A.I. which were authorised by the C.I.A.M. last November will take effect immediately in S.M.A.E. contests. This means that F.A.I. rubber motors are to weigh 40 grammes. Power models use a standard fuel mixture of straight Methanol/Castor in ratios of 70/30 or 75/25, and scale control-line models with multiple engines may have a total engine capacity of up to 20cc and may weigh up to 15.4 lbs.

Trials for all teams in the control-line World Champs take place at R.A.F. Swinderby by kind permission of the Station Commander, Group Capt: B. Hamilton, O.B.E., D.F.C., A.F.C., on June 26th and the leading three in control-line scale will qualify to make individual entries in the supporting event at the Championships.

Another contest location which can now be confirmed is that the radio events on August 14th will be an area set aside for the purpose by authorities at Leigh on Sea, Essex. This is a mown grass area.

KRAZY NITE is to be a feature at the British Nats over Whitsun at R.A.F. Hullavington. Special events calling for zany models, and a duration competition, with standard commercial ready-to-fly models sold on the spot, will be a great event on the Sunday night. Who'll be the first to emulate last months cartoon by Sherry in *Topical Twists*?

REMINDER for all S.M.A.E. members is that the current membership year terminates on March 31st. Clubs should be collecting subs *right now* and submitting old cards with renewal remittances to the

Secretary's office at 15A Low Ousegate, York.

STAFF CHANGE in our M.A.P. organisation brings Tony Dowdeswell into the editorial chair of *R.C.M. & E.* while Peter W. Holland takes on a new mantle as head of our new Creative department. Peter's talents, which have earned him an International reputation as an artist beside architectural achievements, now have far wider scope in the preparation of new books, catalogues and promotional schemes. He will continue his regular technical appraisals of latest radio control gear (using self designed and highly complex special analytical apparatus) to which will now be added practical field tests with flight operation of all new R/C outfits.

Tony Dowdeswell's appointment inevitably means a change of style in *R.C.M. & E.*, especially as yours truly is impressed as "big brother" to tune all his channels to maximum range of transmission with a broad bandspread of practical gen to suit expert and novice alike. The changes are effective from the May issue, out on April 8th.

LATEST ADDITION to the collection of aircraft at the Imperial War Museum is a de Havilland Mosquito Mk.T.3. Refurbished by the Royal Air Force at No. 71 Maintenance Unit, Bicester, it had previously been used by the Civilian Anti-Aircraft Co-operation Unit following R.A.F. Service. We also understand that Mosquitoes both fullsize and model variety are being prepared for yet another film epic.

FLYING SITE created in Italy (where, although the Aero Club and the Aeromodellers and the model journals seem to be in constant argument, the Government

Col. Bowers, for long a resident in Paris, and an ardent scale modeller, offers us the free plan of the month in the shape of this Buhl sesquiplane. The narrow lower wing helps support the upper wing as well as adding novelty to the appearance.



does at least allocate a seemingly generous annual grant for aeromodelling) is the result of private enterprise on the part of Franco Marcenaro. Those who have met Franco know that nothing, not even absolute darkness, quells his enthusiasm for model jets. He flew one such beast at a Belgian meeting by torchlight! Anyway Franco "discovered" a 450 x 200 ft. concrete area once used by Arado Bombers in 1944 only 8 miles from his town and near to Malpensa Airport. Gathering rental from fellow clubmates and organising a construction project, Franco can now boast of a circuit suitable for all C/L classes with 16 ft. high safety barrier at a cost of only £1 per head. Just shows what enthusiasm will do. The result? We forecast that Franco's ideas and the new readily available flying site will see some exciting C/L developments soon. His jet designs are used by World Record holder Zanin and his tab-control system promises a new look in single line control. A helicopter engineer, he is currently working on an FAI model that will have a half-wing and an upward facing exhaust—hope you make the '66 Italian team Franco after all your efforts!

NEAREST YET to absolute success in the Coupe d'Hiver

International was the British team's performance at Chavenay, near Paris, on February 28th. Only by the bad luck of a fast running fuse which caused an early dethermalising action was John O'Donnell robbed of a perfect score, and this, too, would have added vital seconds to gain GB the Challenge trophy for the first time. Still, it's not so much the object of winning the contest but the pleasure of taking part in this Parisian weekend event which satisfies the participants, and all 27 in the British party organised by AEROMODELLER returned wishing to repeat the trip in '67.

As can be seen in the results, seven of the first fourteen places were taken by British modellers flying either their own or proxy entered models from the United States. Of these, our lady Champion, Shirley Horton, from Crawley, eclipsed many of the renowned aces with a magnificent fourth place.

We shall be featuring pictures and full story next month. With entrants from the Netherlands, Germany, U.S.A. and Great Britain, as well as the host country, France totalling 208 models, Coupe d'Hiver is rapidly spreading its influence. We shall also publish details of our postal event, which attracted 244 entries.

—the Editor

22nd Coupe d'Hiver Results

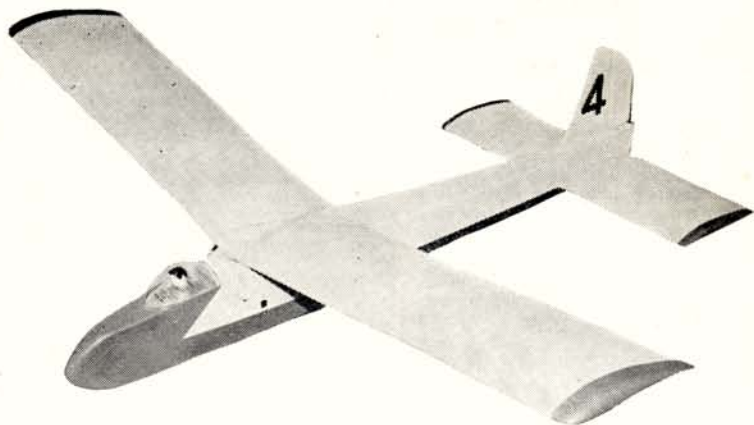
- | | | | |
|------------------------------|-------------|--|-----------------------------------|
| 1) Oskar Ehmann (Germany) | 355 (Secs). | 52) Roger Schroder (U.S.A.-Bill Horton) | 224; 52) Sargentini (F) |
| 2) John O'Donnell (G.B.) | 351 (Secs). | 224; 54) Peter Cameron (G.B.) | 223; 55) Cognet (F) 219; 56) |
| 3) Georges Matherat (France) | 349 (Secs). | John Mabey (G.B.) | 216; 56) Peter Cameron (G.B.) |
| 4) Shirley Horton (G.B.) | 339 (Secs). | Roger Taylor (U.S.A.-Dave Tipper) | 215; 59) Charles Solich (U.S.A.) |
| 5) Andre Meritte (France) | 337 (Secs). | Vince Taylor | 210; 60) Graham Head (G.B.) |
| | | 207; 62) John Mabey (G.B.) | 199; 63) Jamet (F) 197; 64) Henry |
| | | Struck (U.S.A.-Michele Pierrard) | 195; 65) Matherat (F) 194; |
| | | 66) Taupin (F) 193; 66) Blon (F) | 193; 68) Gordon Cornell (G.B.) |
| | | 188; 69) John Dumble (G.B.) | 187; 70) Kieft (Netherlands) 186; |
| | | 71) R. Elliott (G.B.-Graham Head) | 183; 72) U. Schmidt (Ger- |
| | | many) 180; Other visiting Nations' positions | down to best |
| | | single flight performance as follows:- | 79) De Bode (Netherlands) |
| | | 166; 87) Bruce Rowe (G.B.) | 153. 91) F. Takagi (U.S.A.-Dick |
| | | Johnson) 136; 93) Schmidt (U.S.A.-Boulnois) | 120; |
| | | Approximately 140 out of 208 registrations | made flights. Con- |
| | | ditions: Winds variable 10-20 m.p.h. 45-50 | degrees fahrenheit |
| | | 4/8ths.cloud most time with improving | conditions at extreme |
| | | close of contest. | |
| | | Continuous flying 9.15 a.m. - 4.15 p.m. | |
| | | Anglo French Challenge Results. | |
| | | On positions G.B. 14 pts. | France 14pts. |
| | | On best scores G.B. 1006 | France 1011. |
| | | Individual winner - Anglo French Challenge. | |
| | | J. O'Donnell (Whitefield - G.B.) | |

- | | | | | |
|---|-----------------------------|---|-------------------------------------|----------------------------|
| 6) J. P. Templier (F) 325; 7) Lusicic (F) 323; 8) F. Monts (U.S.A.) | 316; 9) Jack Allen (G.B.) | 315; 10) J. P. Templier (F) | 314; 11) David Tipper (G.B.) | 312; 11) Alain Landeau (F) |
| 312; 13) Henry Tubbs (G.B.) | 309; 14) Bob Bailey (G.B.) | 306; 15) Lepage (F) | 302; 16) Ly Sonneborn (Netherlands) | 299; 17) Matherat (F) |
| 297; 18) Neglais (F) | 290; 19) R. Jossien (F) | 283; 20) W. Wetzel (Germany) | 282; 20) R. Jossien (F) | 282; 22) Bruce |
| Rowe (G.B.) | 281; 22) Meritte (F) | 281; 24) Bill Horton (G.B.) | 272; 24) Meritte (F) | 272; 24) Poulain (F) |
| 272; 27) Lepage (F) | 271; 28) Menget (F) | 263; 28) Ganateau (F) | 263; 30) Miard (F) | 262; 31) Matherat (F) |
| 261; 32) Taupin (F) | 258; 33) Gouverne (F) | 257; 34) Schmidt (Germany) | 253; 35) Raulin (F) | 252; 36) Blon (F) |
| 251; 36) Vince Taylor (G.B.) | 251; 38) Dupuis (F) | 250; 39) Mrs. Marieka Oskamp (Netherlands) | 249; 40) L. Burrows (G.B.) | 246; |
| 41) J. Fluehr (U.S.A.-Bruce Rowe) | 244; 41) Landeau (F) | 244; 43) Dave Linstrum (U.S.A.-Peter Cameron) | 243; 44) Boulnois (F) | 241; 45) Jack Allen (G.B.) |
| 240; 46) Landeau (F) | 237; 47) Graham Head (G.B.) | 235; 48) Dick Johnson (G.B.) | 231; 49) Valery (F) | 229; 49) Menget (F) |
| 229; 51) Ed. Dolby (U.S.A.-Piau) | 225; | | | |

James H. Osborne
describes his
experiences with

WIZARD of OZ

A 4 ft. simple glider for
radio controlled soaring.



THERE are many areas in the British Isles highly suitable for the sport of slope soaring—and sport it is. We in Yorkshire are particularly favoured. The steep, heather-sprung Cleveland Hills offer slopes facing in every direction and they are deserted except for the kestrel hawks and jackdaws.

The moors are excellent for the week end family picnics and we choose our sites according to wind direction and we can always fly as there is always a breeze on these hill tops.

On the slopes no one can complain of the noise or nuisance—no noise, no nuisance and no spectators except the sheep and kestrels—and they disappear the moment we put a glider up. We find the gamekeepers most friendly and very interested in our hobby.

Slope soaring is the ideal way to learn to fly a radio model—steady, stable flying for minutes on end—no engine trouble, and for the expert, aerobatics are real fun—just imagine looping a glider and completing the manoeuvre fifty feet below your position—then climbing steadily upwards for two or three hundred feet.

Bruce and I have enjoyed this sport and relaxation for four years now and we have been fairly successful in interesting other modellers. Unfortunately many power R/C flyers seem to think that there is no challenge. They usually appear when conditions are ideal and throw their power models off the edge. These machines usually climb in the strong lift but are treacherous to handle and inevitably they crash—(no dihedral and not enough rudder movement). The disgruntled power men then stalk off muttering that there is nothing to slope soaring as “anything” appears to soar.

The slope soarer is a highly specialised machine and requires an experienced pilot to put up a reasonable performance.

The models we see flying fall into one of these three categories—they are usually any old power model, or scale types, or functional models for the man who likes flying and lots of it. Our models are in this latter class. Recently I have noticed a number of continental kit models and these combine good performance with semi-scale appearance. My criticism of these machines is that they are either light breeze types or gale force types—they are not versatile enough.

Requirements

In our views a slope soarer should not exceed four feet in span for single channel control. Larger models tend to be difficult to build, expensive, difficult to repair, difficult to transport and often heavy due to wing strengthening and centre joining methods and devices. I close the case against the large model by pointing out that a small

model will turn tighter and needs less height for recovery after manoeuvring.

A glider must be very strong and simple to operate. Radio should be one of the small single channel relayless types operating on a 4½ volt torch battery and using an Elmic Conquest escapement—“bang-bang” control is a must.

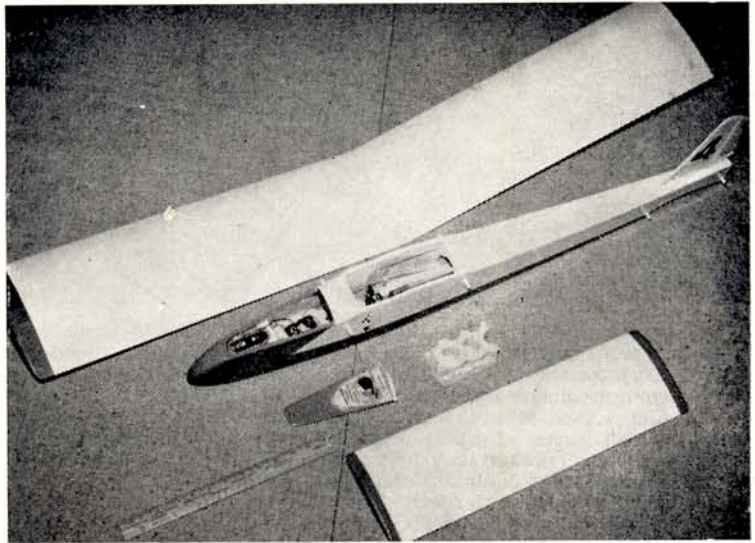
The final requirement is that the model must be extremely stable and able to soar over a wide range of conditions *i.e.* from a very light breeze to near gale. This last need is extremely difficult to fulfil as most models seem to have their own rather restricted speed range and hence can only be flown successfully on a few days during the year.

The *Wizard of Oz* is a model specifically designed to meet with the above specification. The model is strong, four foot span, has a sheeted fuselage, sheeted leading edges and large enough compartments for any of the popular receivers and actuators. With a 4½ volt torch battery, *Terrytone*, and *Conquest* actuator the weight is around 1½ to 1¾ lbs giving a loading of 10 to 11 oz per square foot.

The model is quite orthodox but we have not yet considered stability and performance. Stability is taken care of by adequate dihedral angle and balanced side areas to give smooth turns. A preservation of at least 2° longitudinal dihedral angle ensures stability in this plane.



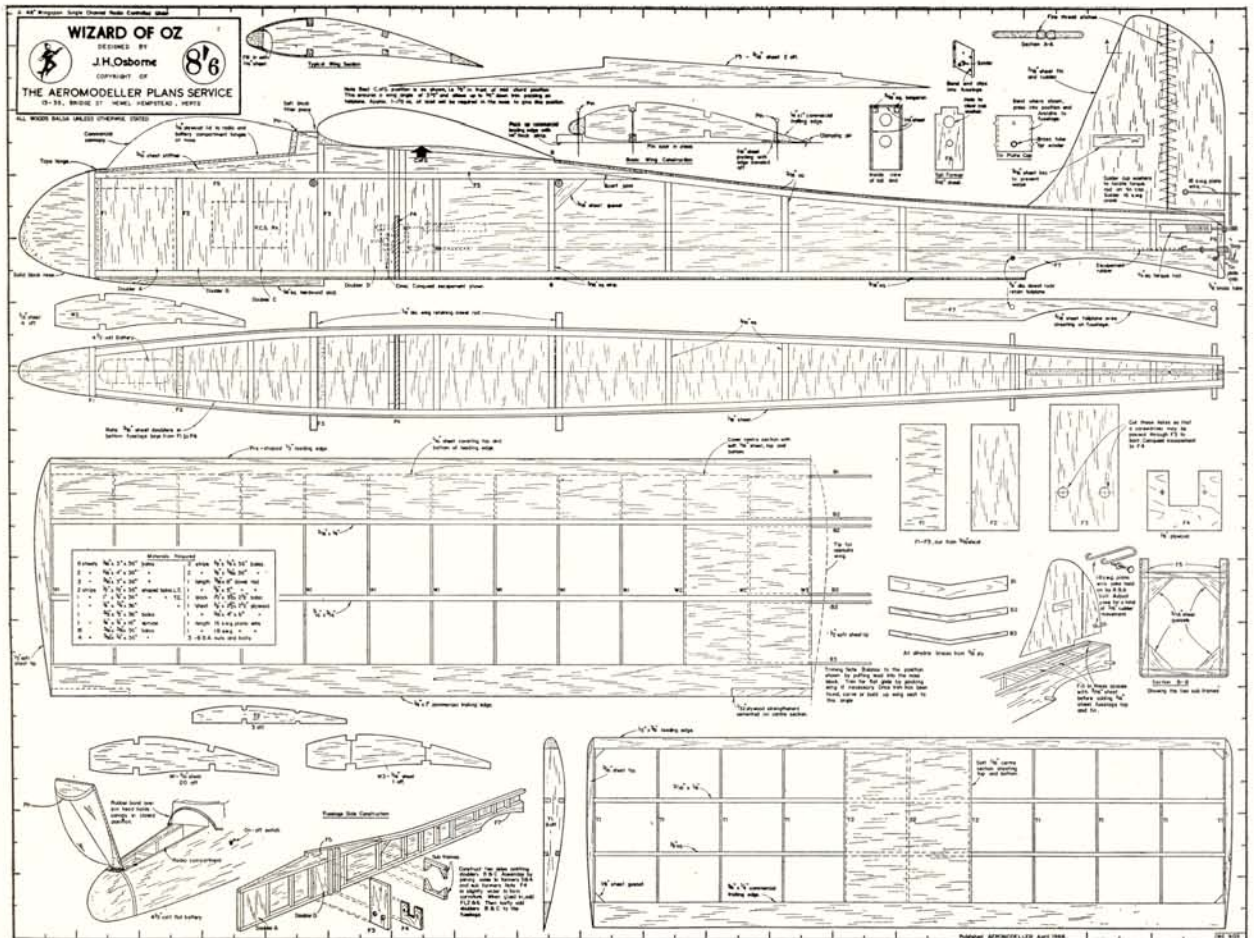
Breakdown of parts ensures your "Wizard-of-Oz" does not have transport problems. Note the foam rubber cushion to protect R/C gear in the event of a hard landing.

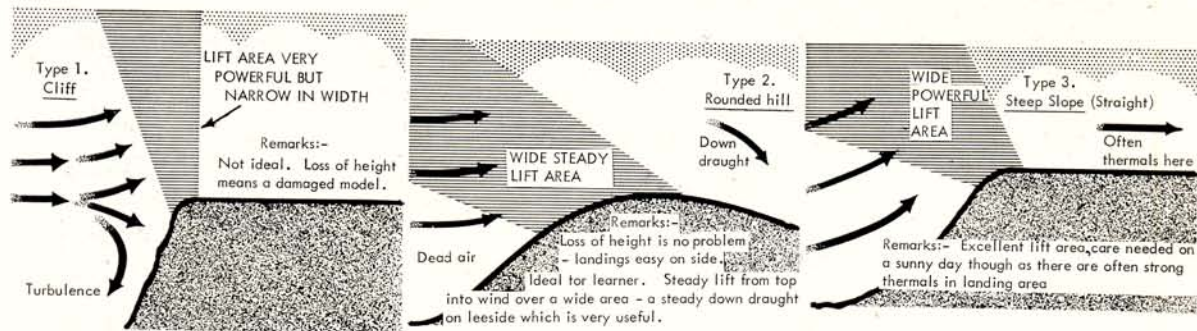


Until recently it was the author's opinion that the minimum size for a model that would fly in varying conditions was about six feet. His models have always

been this size and smaller models seem to have an inferior performance which is due one supposes, to scale effect.

Full size copies of this 1/6th scale reproduction are available through Aeromodeller Plans Service, Plan as RC 903. Price 9/0d. inc. post. Border scale represents 1 inch divisions.





The high performance of the 'Wizard' hinges on the fact that every trainee pilot is amazed to learn, namely that the control column *controls* the air speed of the aircraft. Our soarer utilises a thick undercambered section, with the centre of gravity forward of the mid point of the chord. Trimmed for calm weather this wing flies at an angle of attack of about 5° thus allowing 3° adjustment on the tailplane for extra speed in rough conditions. The wing section and C.G. position is therefore the key to the success of this model. The author personally disagrees with the flat aerofoil section design. To obtain a good glide with this type section one of two methods can be used—either of which I cannot accept. First the flat section can be used when the C. of G. is kept well aft of the centre of the chord, but whilst the glide is excellent under these conditions the penalty is lack of speed for rough weather as the model is bound to have little longitudinal dihedral angle. Second method often employed is to build a very light model but they do not stand up to varying conditions as they are always weak—leading edge not sheeted and so on. The best approach to the flat section type is to employ some method of ballasting for windy conditions so that C. of G. is moved forward and the model is therefore under-elevated. This is a clumsy way of obtaining the desired under-elevation and makes the model very prone to damage. The thin section follower would appear to have the answer to the problem but he has to fly his wing at a very high angle of attack to get his lift and the light breeze performance is very poor because the wing is so near the stall that the inner wing on a turn nearly always stalls despite washout: apart from this their wings are weak.

Flying a slope soarer

The best way to find suitable slopes is to examine a quarter inch map of your area and select ridges which are

indicated by the closeness of the contours. Height is not of great importance but the slope angle should be 45° to 60° . It is best to select different ridges for different wind directions. The author has four such slopes nearby and the Sunday picnic situation depends entirely on the prevailing wind—slopes are chosen most carefully—the road must run over the top and not along the bottom of the hill!

Some don'ts

- 1) Don't fly over cliffs until experienced, the air is very turbulent and loss of height means a crashed model.
- 2) If the wind is more than 15° off the slope don't fly—the wind starts to corkscrew i.e. model goes up quickly and vice versa.
- 3) Don't bother to fit a tow hook—you will never use it once you have experienced soaring flight off a ridge.

Some do's

- 1) Use appropriate packing for the breeze and err on the under-elevation side.
- 2) Before flying choose a nearby depression on the hill so that if the wind drops or trim is incorrect the model can be flown "straight" in after launch, without it disappearing over the ridge, or tumbling to the foot of your slope.
- 3) An alternative method is to drift the model sideways towards the hill then turn and lift the wing at the last moment. If it doesn't touch down, simply circle round and try again a little lower down the slope.
- 4) Fly from the highest point on the hill otherwise the model climbs high and eventually disappears over the back of the hill—lost!
- 5) Never turn model down wind—always let it drift sideways back towards the ridge when landing and



Peter gives the Wizard a good old heaving launch below the top level of the Cleveland Hills in Yorkshire.

An early Wizard about to be launched over the Tees Valley, note the altitude.



when possible land well away behind the ridge and out of turbulence.

- 6) When the wind is strong, launch lower down the slope.
- 7) Before setting out for a flying session check wind direction—I use a small compass—as illustrated in the recent Model Recovery article (AEROMODELLER, July '65).

First flight with "Wizard of Oz"

- 1) For the first flight, wait until the wind is on one of the slopes of the type recommended and the wind strength could be described as a stiff breeze. An excellent guide to wind strength is the flight of crows and gulls. If these birds are just able to "penetrate" into wind then this is the maximum wind strength you can fly in. If the crows keep peeling off downwind, then put your model away.
- 2) Test glide well away from the ridge where the wind is steady. Pack the wing until the slowest, flattest, glide is obtained then carve wing platform away so that these packings can be dispensed with.
- 3) Decide on the trim for the wind strength but do not exceed $\frac{1}{8}$ in. down trim. As a guide to trim.
 - A. Swallows and larks flying on the ridge—no packing required on model—this is light breeze.
 - B. Smoke from fires nearly horizontal. Tall trees swaying at the top just a little, crows and gulls penetrating quite steadily—medium breeze—conditions ideal— $\frac{1}{16}$ in. packing down trim.
 - C. Smoke horizontal, trees swaying, model is becoming difficult to hold. Strong breeze conditions—(one begins to keep away from the ridge for personal comfort). Add $\frac{1}{8}$ in. down trim packing. One should not try first flight under these conditions.

N.B. Trim packing is placed above the trailing edge.
- 4) Get a helper to launch the model with the nose well down. Check that first signal will be left and stick to procedure for subsequent flights.
- 5) Allow the model to fly straight out for 50 ft. to 100ft. and correct with rudder if it tries to turn.

The model will now do one of three things:—

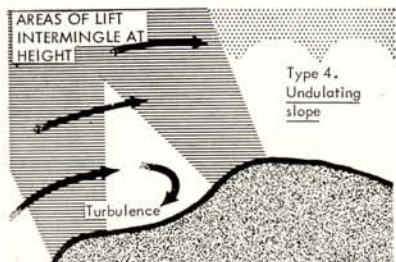
- A. It may lack speed, climb and be blown "backwards". In this case keep it straight into wind and it will descend behind the hill close to you. Pack $\frac{1}{16}$ in. "down" on rear of tailplane and try again.
- B. It may go straight out and gradually lose height. Fly the model parallel to the slope and the breeze will drift it back on to the hill. If the surface is rough let it descend to the bottom and go down for it. You may be quick enough to fly up a little valley or depression mentioned previously and a downwind landing won't matter here but *don't* let it fly straight downwind into the hill-side.
- C. If the model climbs steadily, keep it straight and well ahead for about five minutes, then fly to and fro parallel to the ridge until it drifts back behind you. Straighten the model up and make your first approach and landing—it takes longer than you think. If you overshoot, fly straight out over the ridge and let it gain height on the "wave" before trying again. You will soon discover that the problem with this glider is getting it *down*—not up.

Conclusions

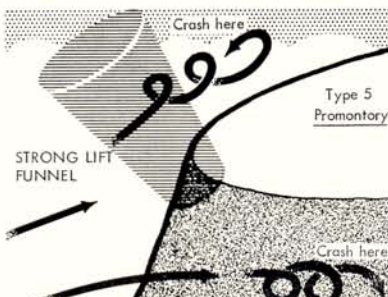
Slope soaring is a sport which requires a very carefully designed model and considerable skill and experience on the part of the pilot. The model should be small, strong and utilise a high lift undercambered section with the C.G. well forward, thus giving a high angle of attack allowing for under-elevation in windy conditions.

Single channel radio gear is considered to be adequate and ideal for getting plenty of flying time. The author and his son Bruce usually fly for about three hours *each* (airborne time) on the average day out and limit flight times to 20 minutes each launch.

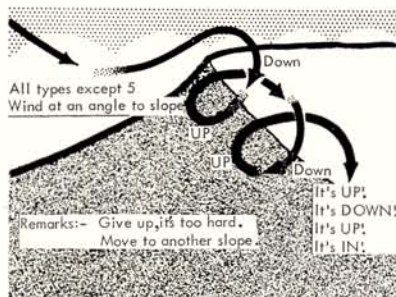
We change batteries after about four hours flying time and don't bother checking them now. There can be no doubt that slope soaring is an ideal introduction to R/C flying, indeed to aeromodelling, and we feel that the *Wizard of Oz* fulfils a distinct need.



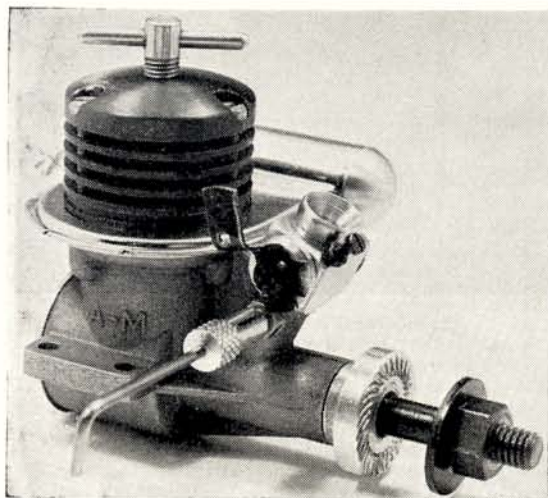
Remarks:— Lift is always 'patchy'! Get model high where lift areas intermingle - don't try low passes here



Remarks:— Dangerous - if you risk it keep in Fig. 8. turns all the time to keep in lift area.



Remarks:— Give up, it's too hard. Move to another slope.



ENGINE TEST

by Peter Chinn

A-M. 10

A popular 1 c.c. diesel
with radio control fittings

THE original Allen-Mercury 10 was introduced early in 1956 at a time when most 1 c.c. motors were of quite modest output and forthwith set a new standard of performance among 1 c.c. diesels. In general appearance and layout, the A.M.10 has not altered very much in the past ten years, but numerous modifications, mostly internal, have, in fact, been made to the engine during recent years. It is now available also in an "R/C" version, i.e. with the addition of a barrel type throttle valve above the spraybar, and in order to comply with current S.M.A.E. requirements, the manufacturer also offers a suitable silencer unit. It is with this version that our present report deals.

The silencer is a very neat piece of work and D. J. Allen Engineering Ltd.—who, of course, also make the highly successful Merco glowplug engines—are to be commended in tackling the problem so purposefully. The A.M.'s are not the easiest of engines for which to make an efficient muffler unit, but the A.M. silencer is simple to fit, light and compact and effectively muffles exhaust noise without excessive loss of performance.

Latest Modifications

The construction of the A.M.10, in general, is orthodox. The crankcase of the current 10 R/C is the same as that of all previous A.M.10's, except for having the air intake shortened to accommodate the throttle. The throttle consists of a barrel type valve in a machined body which is plugged into the shortened intake and held in place by the spraybar. Since this, in effect, sleeves down the intake bore, whereas the spraybar diameter remains the same, the choke area is considerably reduced. This, of course, will have the effect of improving fuel suction—a desirable condition for R/C—but at the expense of top end power. A 10 B.A. screw with locknut, in the top of the throttle body, engages a slot in the barrel, in the usual way, for the throttle stop. Unfortunately, on our test engine, the slot was wrongly positioned and would not provide both the full throttle stop position as well as a practical idling setting. The screw had to be almost totally withdrawn to allow the barrel to be rotated to a suitable low-speed setting and a separate means of establishing the full-throttle position (via the throttle push-rod) was therefore adopted.

Several changes are evident in the crankshaft of the A.M. 10 since the original model was marketed. The gas passage through the shaft has been reduced from approximately 4.8 mm. to 4.2 mm. and the valve port is also smaller. The actual induction period, however, is not significantly reduced, since the intake aperture in the main bearing is slightly larger. The propshaft section of the shaft is 0.2 in. longer and the knurled section onto which the prop driver is pressed, is of larger diameter. The crankpin is slightly shorter and is drilled instead of solid.

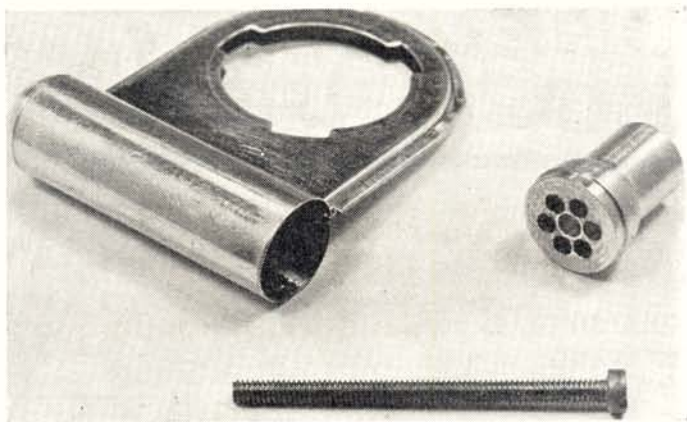
One of the more distinctive features of the original A.M.10 was its very thick cylinder. On the current model an even heavier cylinder is used: it now has a wall thickness above the ports of 0.100 in. instead of 0.067 in. Cylinder porting has also been altered quite extensively. Exhaust and transfer ports are still of the radial slit type, three exhaust and three transfer, but both are rather smaller in area and the exhaust ports are appreciably higher in the bore and since the gudgeon-pin is placed a little higher in the piston, exhaust port timing now leads the transfer by a very large amount. The exhaust, in fact, remains open for no less than 172 degrees of crank angle—28 degrees longer than on the original A.M.10. This is just about the longest exhaust period we have encountered on any model aircraft engine to date.

The throttle and needle-valve controls may be installed on the left or right hand side of the engine. The silencer, too, may be mounted on either side. The silencer consists of a collector ring and a cylindrical expansion chamber cleverly formed from a single tinplate pressing. A machined dural nose piece plugs the front end of the expansion chamber and a nozzle of similar material, having six outlet holes, is inserted at the rear and retained by a long 6 B.A. screw. The silencer is easily fitted by removing the cylinder jacket, dropping the collector in position over the cylinder screw lugs and replacing the jacket so that the collector is clamped between the base of the jacket and the top of the crankcase. This does not in any way interfere with the manner in which the cylinder itself is retained.

Performance

Although the majority of our reports are based on the results of examinations and tests of engines submitted for

The manufacturer's silencer for the A.M.10 is light, efficient and easily fitted.



the purpose by manufacturers, our subject for this month's article was purchased in the normal way from a model shop. We mention this fact because, although instances of manufacturers trying to "pull a fast one" by sending us a specially prepared example, are rare nowadays, the chances of getting an extra good one from a model shop are, obviously, a good deal less.

We gave our A.M.10 R/C about two hours total operation in short runs, with and without silencer, before undertaking any tests. Although our old type A.M.10 would start at any time without priming the cylinder, the newer engine responded best to a small exhaust prime. This fact made starting more difficult with the silencer fitted as there is then no provision for port priming. Under these circumstances, we found it helpful to prime the intake and to then invert the engine to induce a rich charge into the cylinder. It was also helpful to so position the prop and throttle arm that one's "flicking finger" did not foul the latter. In an engine of this size, it is all too easy to accidentally swipe the throttle arm when flicking the prop in the usual "up and over" manner.

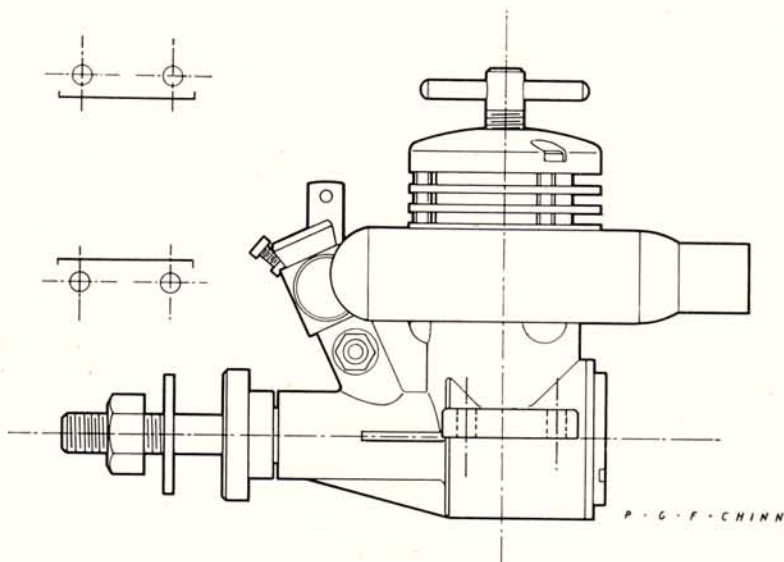
The A.M.10 R/C was not unduly sensitive to needle-valve adjustment and the split thimble type control held any setting firmly irrespective of speed. The compression lever was quite comfortable to operate and also held its setting at all speeds, exhibiting no tendency to run back at high r.p.m. as is sometimes the case with diesels. Nor did the contra piston tighten or stick in the bore when the engine was hot. The compression screw remained com-

fortable to operate hot or cold and the contra piston followed readjustments smoothly.

One does not expect small R/C engines, diesels especially, to achieve such favourable throttle performance as the big glow "multi" engines. Throttle systems are invariably much simpler and therefore less flexible. In the case of diesels, an "under-compressed" condition results on resuming full-throttle after the cooling off that occurs during a protracted period of slow running and this may cause the engine to stop or to misfire continuously for the remainder of the flight. Bearing this in mind, the "idling" speeds obtained with the A.M.10 R/C were quite favourable, especially with the silencer fitted. On an 8x4 PAW prop and using the silencer, we managed to bring the engine down to 3400-3700 rpm (it tended to wander between these two readings) and although, on opening up again, the A.M.10 R/C misfired and took a long time to pick up to its maximum, it did not cut out. A safe idle of 4000 r.p.m. would, therefore, appear to be practical under these conditions. On smaller props, higher idling speeds are, of course, inevitable—e.g. 6000 r.p.m. on a 7x3 Top Flite. As a general rule, it seems safe to aim at an idling speed of about half the full throttle r.p.m. obtained on any particular prop. There is only one adjustment that can be made on the throttle, namely to set the barrel for the required opening at idling speed. There is no airbleed or low-speed mixture control of any kind. The beginner should therefore have no difficulty in arriving at the best available setting.



Examination of the parts of the current A.M.10 and a comparison with those of the original 1956 model, show numerous internal changes. These are detailed in the text.

FULL SIZE
DRAWING

Without the silencer fitted we first checked out the A.M. 10 R/C on some typical props. Maximum r.p.m. obtained were as follows: 7500 r.p.m. on 8x5 Power-Prop, 8600 r.p.m. on 8x4 P.A.W., 8700 on 8x3½ Top-Flite, 9800 on 7x4 Tornado Nylon, 11,200 on 7x3 P.A.W. and 11,600 on 7x3 Top-Flite.

Torque tests were carried out with the silencer and indicated a maximum torque of just over 8 oz.in. at between 8000 and 9000 r.p.m. Maximum power fell just short of .08 b.h.p. at slightly over 11,000 r.p.m. This compares with 9.4 oz.in. at 10,000 r.p.m. and nearly 0.12 b.h.p. at 14,000 r.p.m. for the original A.M.10 without throttle or silencer. Actually, the silencer accounts for a smaller power loss than one might expect. Most of the difference in power between the two engines appears to be due to the restricted intake of the R/C version, although the smaller shaft bore and revised cylinder porting may also be a factor.

Remembering that this is only a 1 c.c. engine, the performance with throttle and silencer fitted is, of course, very good. Like its predecessor, this latest A.M.10 is nicely made and of robust design. Owners may expect to obtain plenty of reliable service from these engines.

Power/Weight Ratio (as tested complete with silencer): 0.34 b.h.p./lb.

Specific Output (as tested complete with silencer): 78 b.h.p./litre.

SPECIFICATION

Type: Single-cylinder, air-cooled, reverse-flow scavenged two-stroke cycle compression-ignition with intake throttle Crankshaft type rotary-valve induction. Plain bearings.

Bore: 0.422 in. Stroke: 0.4375 in.

Swept Volume: 0.0612 cu.in. = 1.003 c.c.

Stroke/Bore Ratio: 1.037 : 1

Weight: 3.3 oz. (less silencer, less fuel tank)
3.7 oz. (with silencer, less fuel tank)

General Structural Data

Pressure diecast crankcase and unbushed main bearing unit in LAC.112A aluminium alloy. Case-hardened steel crankshaft with disc web, 0.312 in.dia. journal, 0.187 in.dia. crankpin and 0.165 in. bore gas passage. Case-hardened cylinder liner, flanged at exhaust belt and located by annular seating in crankcase. Machined aluminium alloy finned cooling jacket colour anodised green. Cylinder assembly secured to crankcase with three 7 B.A. screws. Lapped cast-iron piston with conical crown and fully-floating 0.125 in.dia. gudgeon-pin. Machined aluminium alloy connecting-rod. Machined aluminium alloy screw-in crankcase rear cover. Machined aluminium alloy prop driver pressed on to splines on crankshaft. Machined aluminium alloy throttle-valve and body retained by conventional spraybar type needle-valve assembly. Beam mounting lugs. Optional expansion-chamber type silencer unit.

TEST CONDITIONS

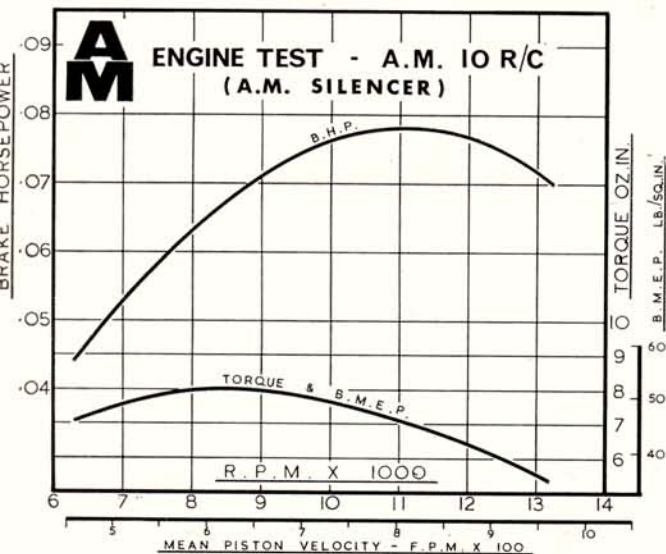
Running time prior to test: 2 hours

Fuel used: Keilkraft Diesel

Atmospheric Temperature: 54 deg. F

Barometer: 29.9 in. Hg.

Silencer Type: A.M. as recommended.





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37 illustrations in FULL COLOUR of 1914-1918 War Camouflage and Serial Mark-

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24 photographs in FULL COLOUR of 1939-1945 War personal insignia, and 1945-1954 period Colours and Markings. Many tables of British, French, German, Australian and American Squadron, Unit and individual aircraft serial markings. R.A.F. Unit code letters 1939-1945.

Table of British Service Serial Number Allocations 1912-1954.

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TOPICAL

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by 'Pylonius'

illustrated by 'Sherry'

AIRCRAFT MODELS MAY GUARD RUNWAYS

MODEL planes may be used to chase birds away from the runways of Britain's airports. Trials with a radio-controlled miniature aircraft

Quote from "The Sun" daily newspaper relates to r/c activity at R.A.F. Northolt by Eric Faulkner of R.C.S. and Douglas Thorp at right.



Feathered Frenzy

THOSE people who aver that model flying is strictly for the birds, have been proved only too right if what we hear about the latest piece of radio flying gimmickry is true. Seems that the with-it boys are converging on the large airports for a sporty spot of bird scaring aerobatics. All to do, we are told, with the fact that, by the time the big jets get airborne, the intake of wild bird life into the pressure cooker jet units makes for a grand aerial barbecue—not exactly the thing to appeal to lovers of wild life, or, indeed, to lovers of the human variety.

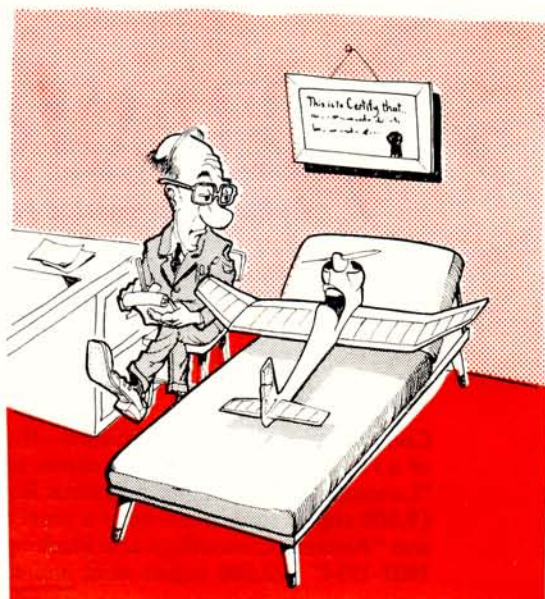
For some odd reason the birds have no fear of the big stuff, but seem to share with Councillors and farm folk a distinct phobia of model aircraft. They can look a screaming jet fearlessly into the roasting depths of its red hot orifices, but the mere sight of model plane sends them hell bent for a re-charge of Swoop.

Of course, the whole scare-crowning stint must need be put on an organised basis. After all, you just can't open London Airport as a free for all, bird chasing centre (like the local Palais). Get a few of the old Bunt and Bounce Brigade cutting up the ether and the grass roots and it won't even be safe for the fire tender to go down the runway, let alone a jet. In fact, the problem might well be to rid the full-size stuff from the danger of the model planes. Perhaps birds could be trained to chase them off.

But this bird chasing sport is no poor man's pastime like pigeon fancying. In fact, the airfield fringes might well be, to the rich man of the future, what the grouse moors are to-day. As one of the bird chasers pointed out, apropos radio flying:

"This is no kid's stuff—it's a rich man's game."

Well, the only other rich man's game I know is Monopoly, and such a game could be some consolation to us poor, steam powered rubber modellers. "Reed operated equipment becomes obsolescent—go back to square one." "Council refuse bribe—abandon airfield." "Model fails to get airborne—miss a throw", and so on. Fortunes could be wiped out at the drop of an elevator and a bonanza made from a dicey effort.



"But Doctor, I just cannot stand heights."

Cold Feet

Efforts to make al fresco winter flying popular have met with something of a chilly reception. Seemingly, modellers as a whole prefer to indulge in round the clubroom pole as a winter diversion rather than around that other, icier sort of pole. You can hardly blame them for wishing to enjoy their flying rather than suffer in its cause. And anyone prepared to venture out in the teeth of a blizzard just to give continuity to the annual contest programme can only be described as true blue.

Odd Type

from our January pages: "Why keep Pylonius" say many sport fliers who seek more in control-line. "Glad they kept Pylonius" stated a dozen newsletters and notes from readers far and wide. "Too

When this column learned that half the readers of this journal didn't love it, it went scurrying to the nearest psychiatrist for a spot of ego reconditioner. It lay its weary head type on a well couched term.

"You say fifty per cent of the readers?" asked the headline shrinker, "Could be a case of split personality."

"But it's the people who fly for fun who don't want to read for fun," sobbed the column.

"Perhaps you don't write the right sort of article", suggested the headline shrinker, "Possibly your sentences give offence. Could be a case of Parannoyer."

"But I only make fun of multi radio flyers," wailed the column, "And they never read anything but the Financial Times."

"Trouble is, said the headline shrinker, "You're suffering from a severe Inferiority Complex, due to having J.O'Donnell on the opposite page. Why not take a leaf out of his journal and write something like this: 'A funny thing happened to me on the way to the contest. A black cat crossed my path. I said to myself, that's good. I've only won this event three years out of five. Perhaps now I'll get a change of luck.'"

"Or you could disguise yourself as a trimming article. 'If the model continues to smash itself to pieces it can hardly be said you are really flying for fun. It is possible of course, you may have been misled by a minor error in my last article. 'Move wing backwards' should have read 'Move wing forwards' and vice versa.'"

Fly-Under

From down under we learn that the latest thing in radio flying is the nocturnal flip. When the sun sinks into wherever suns sink into in that part of the world you bring out your specially illuminated gear and billabong detector for a night under the stars. But why anyone should want to fly under such conditions I can't imagine, unless he happens to be the type who enjoys model flying but can't stand the sight of model aircraft. Or, it may be that in the outback everywhere is so crowded with sheep and wallabies during the daylight hours that it's night flying or nothing.

Dummy Run

Anyone who seeks to flatter himself that he is involved in a mature and intelligent hobby must squirm in an agony of disillusionment when confronted with that refugee from Toyland, the Team Race Pilot. Why is it, we ask, that the F.A.I., in its infinite wisdom, continues to inflict the indignity of the "Watch With Mother" puppet on the adult model flyer?

Obviously it would seem that the attitude prevailing in the higher echelons is that we modellers are still at the "dummy" stage. And, unlike those obsolescent minded little chappies who hope to grow up to become engine drivers we "with it" kiddies of the scientific age engage in the advanced play therapy of the would-be aircraft pilot.

All very noble and progressive, no doubt, but I am of the minority opinion that full size realism should not be compulsory but a matter of free choice. It should never be imposed on anyone whose approach to the hobby is other than that of an "air mad" boy. Some people, like myself, are presumptuous enough to regard the model plane as a flying machine in its own right, and believe that the only useful note of realism which could usefully be introduced into the hobby would be a few ejector seats in the Council's chamber.



"Drat those Radio Modellers."

Peter Chinn's

Latest Engine News

U.S.A.

CONFIDENCE in the future of the Goodyear pylon-racing class, which was a bit patchy in the U.S.A. last year, seems to be rather more widespread now and many British R/C enthusiasts are also taking an interest in this exciting new class. The Goodyear event has, of course, now been recognised for a trial period of one year by the AMA as an official U.S. National contest and this is bound to give it more impetus.

As is generally known, maximum permissible engine size for Goodyear models is 0.40 cu.in. and engines must be series production items, fitted with throttles. This type of motor, therefore, is likely to be of increasing interest over the next year or two.

Last year, the only genuine R/C 40's on the market were the Super-Tigre G.21/40-R/C and O.S. Max-H 40 R/C. The O.S. (current record holder) and throttle equipped versions of the Series 64 K & B Torpedo 35, seem to have been the most favoured Goodyear power plants in the U.S.A. during 1965. New R/C 40's have, however, already been announced by Duro-Matic Products (McCoy) and by K & B and a throttle-equipped version of the Super-Tigre G.40 is also rumoured. It seems unlikely that Fox will miss the opportunity of offering a throttle equipped version of the powerful Fox 40-BB.

Samples of the McCoy Blue-Head 40 R/C and K & B Torpedo 40 R/C "Series 66", have recently reached us from the United States. These are likely to fill somewhat different roles. The McCoy follows other engines in the current McCoy .19 cu.in.—.40 cu.in. range and is a low-priced product that is also aimed at the new "Profile Carrier" C/L class in the U.S.A. The K & B, on the other hand, is strictly a high-performance motor, developed from the Series 64 twin ball-bearing shaft valve 29F and 35 and priced accordingly—i.e. nearly twice as expensive as the McCoy. It is therefore destined to offer somewhat more serious competition when, as is bound to occur when the real experts muscle in, sheer power becomes the deciding factor in Goodyear racing. We will describe the K & B in more detail in a subsequent "Engine News". For the present, let's have a look at the McCoy.

This is an R/C version of the standard McCoy 40, first put on the market late last summer, which, itself, is a development of the current McCoy 35. The 40 is, in fact, a bored out version of the 35 (the stroke of 0.740 in. being common to both models) and external dimensions are identical with the 35 versions in both the standard and R/C models.

The McCoy is, of course, a plain (bronzed bushed) bearing, shaft-valve motor. The shaft is hardened, has a diameter of 0.437 in. and a crescent counterbalance. The cylinder is of unhardened steel with integral fins and as a result of using a 0.828 in. bore in the 29/35 size crankcase, has an extremely thin cylinder wall. It is topped by a diecast head, enamelled blue, having the bar-type glow-plug offset forward and to the right (exhaust side) of the cylinder axis. The piston of the 40 R/C, unlike those of the standard 40 and all other models in the range, which

Continued on page 203

VERON's Top of the 'POPS'



MINI-CONCORD

40" Span Super-Streamlined

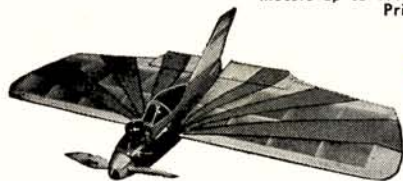
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Marine Version 124/1
R/C Marine Version 135/10



BULLY 11 3.44 cc. 133/10
R/C Version 148/8
Marine Version 183/1
R/C Marine Version 200/7



WINNER 2.46 cc. 95/4
R/C Version 106/2
Marine Version 137/5
R/C Marine Version 148/10



GLO-STAR 3.5 cc. 132/9
R/C Version 147/6
Marine Version 170/8
R/C Marine Version 186/8



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LATEST ENGINE NEWS *From page 201*

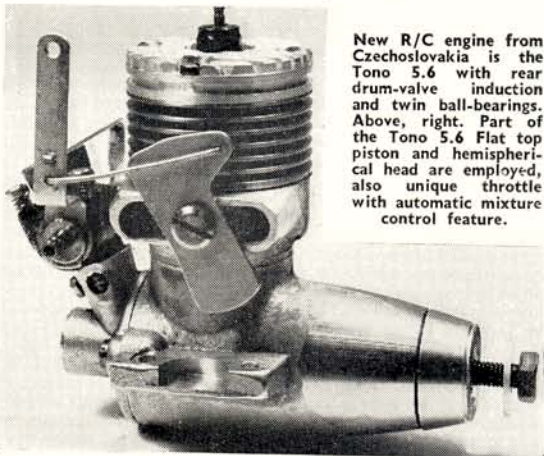
are sintered iron castings, is machined from, the solid with a flat instead of a slightly domed crown. We do not, at present, know the reason for this change. It may be limited to the 40 R/C or it may foreshadow a change of material in respect of other models also.

The carburettor is the same as that of the 35 except for a slightly bigger choke diameter. It is of a simple barrel throttle type, without airbleed or idling mixture adjustment and has the disadvantage of a needle-valve which rotates with the throttle. It is coupled to a pivoted plate type exhaust restrictor. At 7.4 oz., the 40 R/C is extremely light—actually a trifle lighter than the 35 R/C.

Japan

The latest products from the Enya Metal Products Company of Tokyo are the Enya 09-III and 09-III TV. These, superseding the 09-II and 09-II TV, are entirely new and are not merely modifications of the 09-II and 09-II TV. They have a different bore and stroke, larger diameter crankshaft, a more advanced throttle system and new parts throughout. Weight has gone up slightly to 3.7 oz for the standard version and the R/C model adds another half-ounce to this.

Breaking with previous Enya practice, the 09-III TV, like the new 60-II TV, has a coupled exhaust restrictor.



New R/C engine from Czechoslovakia is the Tono 5.6 with rear drum-valve induction and twin ball-bearings. Above, right. Part of the Tono 5.6 Flat top piston and hemispherical head are employed, also unique throttle with automatic mixture control feature.



On the 09-III TV this takes the form of a conventional centrally pivoted blanking plate and is regarded as optional, being included with the engine but not fitted to it. The carburettor is a barrel throttle type with the usual screw stop adjustment plus airbleed and an independent needle-valve assembly. This latter has a tee type fuel inlet and, as on the larger Enya and most O.S. R/C engines, has an adjustment which allows the choke area to be varied for greater or less fuel suction.

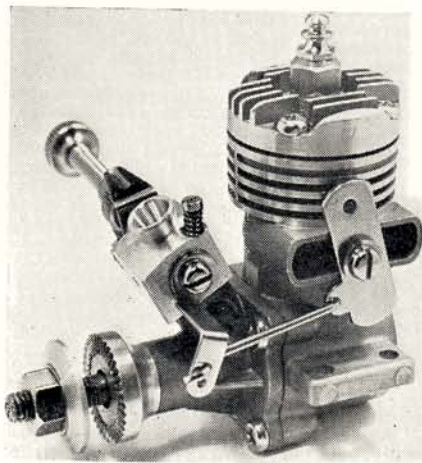
Czechoslovakia

Designed by Frantisek Stary, a new throttle version of the .34 cu.in. Tono 5.6 engine is now being made at Vysoke Myto in Czechoslovakia. This is a twin ball-bearing engine with rear drum valve induction. Our photo of the parts of the engine give a general idea of its construction.

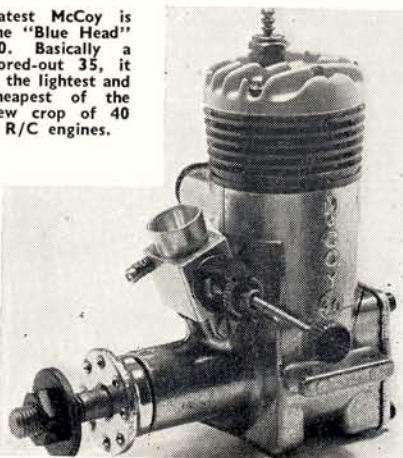
Many usual features distinguish the Tono. The crankshaft, only 8 mm. dia., since it is not weakened by a valve port, has a separate counterweight and the rear valve rotor (10 mm. dia.) is also made in two parts. The barrel-throttle carburettor is quite complex. It has two adjustment screws (idle stop and airbleed) but also achieves automatic mixture control by having the needle-valve carried in a sleeve which, rotating on a coarse thread on the end of the spraybar and coupled to the throttle arm, gradually reduces mixture strength as the throttle is closed.

The Tono 5.6 has a bore and stroke of 20 x 17.7 mm. and has a capacity of 5.56 c.c. or 0.339 cu.in. It weighs 9.9 oz.

Right. Neat little 1.6 cc. from Japan is the all-new Enya 09-III TV. This has a regular "multi" style carburettor and optional coupled exhaust restrictor.



Latest McCoy is the "Blue Head" 40. Basically a bored-out 35, it is the lightest and cheapest of the new crop of 40 R/C engines.





John O'Donnell

offers some
expert hints & tips

on Free Flight

THIS issue contains a brief report concerning Coupe d'Hiver, but there are some aspects that fall outside the scope of contest reports. This event seems to have "caught on" to the extent that 242 entry forms have been requested for the "Aeromodeller" decentralised contest. This, I feel, is more a measure of the success of magazine sponsorship and publicity than of the specification being inherently attractive.

I am very far from decrying such sponsorship or prestige publicity. Indeed several (or most) other branches of the hobby could well benefit from similar treatment. In fact this might well be part of what is lacking with present day contest flying. We live in a mercenary age, and people tend to expect material returns for effort expended. Such a viewpoint is rather foreign to those who consider that the game should be its own reward. Just about the limit has already been reached as I found out last year. Helping win the World Championship A/2 team trophy carried nothing whatsoever for the individual in the way of even a souvenir!

But to return to Coupe d'Hiver! The specification has certainly been successful in producing a small model of low performance that is consequently ideal for small flying fields. It does however place a very high premium on the possession of top quality rubber and the use of absolute full turns. This is



Frank Monts' daughter Cathy, aged 16, handles a Fox 35X in this 900 square inch version of the 'Starduster' which she calls 'Aeolus'. Symbols on wings are cut-out tissue birds.



At left: Frank Monts, of Kansas, USA, preparing to R.O.G. his Coupe d'Hiver design prior to despatching it to John O'Donnell. Right: John is seen in his model bedecked workshop at Stockport, Cheshire, checking the model over before taking it to France. As related on page 191, the model was top placing proxy flown entry, coming 8th in the Coupe d'Hiver final at Chavenay.

perhaps not as fully appreciated as it should be—especially by the relative novice who is apt to purchase a batch of rubber from his local supplier and use it until exhausted.

The making up and flight testing of motors from different sources can be quite an eye opener. As illustration I can quote last year's trimming session at Chavenay (France) immediately prior to the contest. I found 30 seconds variation in duration merely by changing motors from one batch to another.

Unfortunately it is not just a case of "Brand X" (Pirelli or Dunlop) as all exhibit marked variations. It is the quality of the individual batch that matters—and even this may not be the full story. I do some rudimentary stretch tests on all rubber purchased, and am currently finding that the two ends of all skeins give results that are different—often wildly. Some of this rubber is so uninspiring that I am unlikely ever to find out how it performs in the air. Luckily I have a fair number of motors from the early 1950's (when Wakefields had 5 ozs plus of rubber) and these will keep my open models going for some time yet. But with the present day allowance for Wakefield and Coupe d'Hiver rubber is critical. The only real advice I can give is to purchase rubber from as wide a variety of sources as possible and at whatever intervals you can afford. Then test it, either indoors or out, and use the best. The rest can be stored in the hopes that it might improve with age. Some rubber seems to get better—but this can take literally years.

One misconception about Coupe d'Hiver, and other small models in general, is that because they are small they are therefore necessarily simpler and easier to build than larger versions. It is perfectly true that many small models are simple, but is this necessarily the best approach? If such items as geodetic construction, 2 blade propellers, fancy stop systems, and fancier shaft assemblies are worthwhile on Wakefields then they should also be worthwhile on Coupe d'Hiver. The production of equivalent gadgetry on a smaller and lighter scale can be far from easy. In comparison a few less ribs to cut and less tissue to dope becomes unimportant. The simple model has obvious appeal but, I fear, is not the real answer for winning specification contests. When performance is well under the max, as is the case with Coupe d'Hiver, thermals are consequently necessary for winning scores, and this is more a reflection of the modeller than his model. One of the real advantages of small models only becomes apparent when the flier makes a mistake—a small model tends to "bounce" rather than disintegrate. A case where the "square-cube law" works the right way!

International Postal events

Quite the ultimate in decentralised contests are the *International Postal events*, which have had spasms of popularity over

MONOGRAM MOSQUITO

new plastic kit

reviewed by R. C. Jones

Author's review model decorated in 605 Sqn. markings as an NF. II.



THE popularity of Monogram's range of 1/48th scale kits is such that any new release is regarded as somewhat of an event, and their latest, the D.H. Mosquito B.IV will be regarded by many as their finest kit to date. The basic kit is that of a B.IV but extra and alternative parts are included in the kit offering a choice of two N.F.II's and an F.B.VI. The first Monogram kit to feature similar alternatives was the superb P-38 'Lightning' but the rather complex assembly of this kit discouraged many younger modellers, however the Mosquito has been designed to suit the limitations of the less experienced while providing the experienced modeller with an excellent basis for a truly exceptional model.

Finished in semi-gloss medium grey plastic the moulding detail is up to the usual high standard associated with this company and the clarity of the instruction sheet with each stage of assembly or conversions so clearly illustrated leaves no possibility of error.

To produce all but the basic B.IV the complete nose section forward of the wing root has to be removed, this is facilitated by the inside of the mouldings being clearly marked and reduced to half-thickness thus ensuring a clean and accurately positioned cut. The bomb-bay and undercarriage doors are moulded integrally with the main components but again are thinned down on the inside face so that they can be removed and fixed in the open position if so desired, small separate hinges being provided ensuring correct alignment when re-assembled.

The Bomber canopy includes the very noticeable blisters on each side panel, and owing to technical

problems this had to be moulded in two complete halves, joining down the centre line framework. However the fighter canopy with its flat 'bullet-proof' style windscreen is a one-piece moulding of exceptional clarity and detail, the wing tip navigation lights also being clear mouldings, though when fitted they do require trimming to ensure the correct wing tip shape.

The box-lid illustration is however incorrect as are the painting instructions for the 105 Sqn B.IV—this should be Dark Green and Dark Sea Grey or Ocean Grey upper surfaces with Sea Grey Medium undersides and NOT the shades green and brown as shown. Each variant is illustrated on the instruction sheet showing position and style of insignia but the transfer sheet although matt has incorrect white code letters for the day versions, and the red of the night fighter codes and 'inner' roundels is too bright. The serial DZ230 for the 23 Squadron NFII should also be red and not black. In addition to codes, serials and roundels the usual excellent W/T and other stencils are also included.

The many alternative external loads such as rockets, bombs, drop tanks, plus two superbly accurate R.A.F. type aircrew, add to the appearance of the completed model.

The kit sells in the U.S. at 2 Dollars, but with import and similar duty paid the retail price in the U.K. will be nearer 27/6d., however, even at this price this kit must surely be added to most collections and the variety of schemes in which the Mosquito operated will provide some very colourful models of this famous aircraft.

FREE FLIGHT COMMENT (Continued)

the years. One such regular event is that organised by the Norwich club and which attracts world wide participation. The fifth of this series of contests was held nominally on 31st October last year and, although somewhat dated, details should be of interest. Entry is apparently restricted to one club per country, although the club involved appears to be able to field several teams.

From reports received via Mike Woodhouse of Norwich it is obvious that weather conditions were critical. Several countries had weather ranging from indifferent to unflyable—and interest and scores to match. At least one club allowed themselves a week's postponement. The overall team event was won by the Aero Club of Firenze, Italy, who after waiting for early morning fog to clear had perfect conditions described as "light sun, temperature 18°C, wind no more than 2–3 metres per second". They also said that they missed the spirit of competition due to the absence of other competitors! This affected Franco Barthel to the extent of forgetting to wind his D.T. timer past his normal trimming position—to give a 70 second flight in the midst of 4 maxs. Urs Schaller (831 seconds with rubber) and Valdemaro Lenzi (851 with glider) made up the team total of 2472.

Second place went to New Zealand's Hamilton No. 3 team—comprising Paul Lagan flying all three classes for a 2440 total. Weather there was extremely varied. Cumulus clouds and breeze in the morning was followed by a violent thunderstorm, an hour's calm and finally by a gusty and cold 15 knot wind. Hamilton's No. 2 team retired to retrieve for Lagan, but their

No. 1 team (Alf Leong, Alwyn Graves and John Tomson) persevered to 2424 seconds and third place.

Max Boccardo from Chile could have closely rivalled Paul Lagan—but split his flights between his clubs first and second teams.

British representatives and organisers from Norwich had weather troubles—wind and rain in the morning was followed by drizzle and then more rain. This gave visibility troubles in already depressing (pun!) conditions. Best score was from Geof Lefever who managed 764 in Wakefield.

The above probably reads as if the event is decided purely by the local weather conditions—and I think that this is very largely true for any decentralised event. Apart altogether from the physical difficulties experienced by a competitor who has poor conditions there is also the psychological handicap of knowing that someone else is probably enjoying better weather. There is consequently a great temptation for those with bad weather not to bother risking loss or damage—or waiting another week if this is permissible.

When my own club got involved in postal events some years ago we soon decided that they were not really worth the trouble and of no value at all as serious contests. Combining the postal with another event just about killed all interest in the postal—it was just something worked out afterwards.

The real value of such decentralised events (and postals in particular) is in the club team spirit that they can generate and in the "social side" of exchanging letters, results and the like. Decentralisation is always advocated as an alternative to travel—but most names appearing in the decentralised results seem to be those of regular contest fliers. I've a feeling that contest flying is for the enthusiast!



STRICTLY SIMPLE

David Boddington
reviews a kit model
and offers his very
useful tips

Typical local field
scene at left!

THE American kit manufacturers have produced many small all sheet single channel R/C models and these have proved to be very popular on the home and foreign markets. It is surprising that no British manufacturers have produced kits of this type considering the sales potential—perhaps this will soon be rectified.

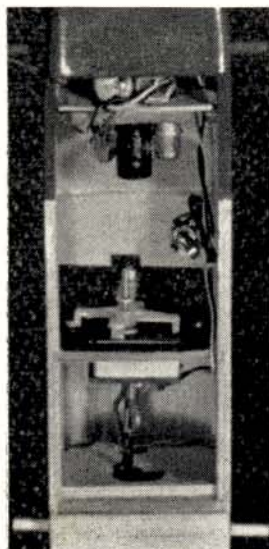
Manufactured by Sterling Models, U.S.A. the L'il Roughneck has clean and complete die-cutting of parts for .01 and .02 Engines. Wing spans 22½ in. Length 20¼ in. Price in this country 47s. 6d. Imported by Roland Scott.

The L'il Roughneck has plenty of eye appeal and has very much the appearance of a small "Orion". The original was designed by Aubrey Kochman specifically for flying from small rough fields where a normal tissue covered model would be likely to suffer minor damage. The design is only suitable for subminiature receivers (i.e. Otation, Kraft KV3K, etc.) and single lightweight escapements. L'il Roughneck is advertised as being suitable for beginners but I have reservations about this, it could be quite "nippy" in flight but more of this after the flight tests. With the import tax on American goods their kits are bound to be relatively expensive and the retail price of 47s. 6d. is on the high side for this diminutive model, especially considering the kit is dry and no wheels are included. The plan is clear, the sketches of

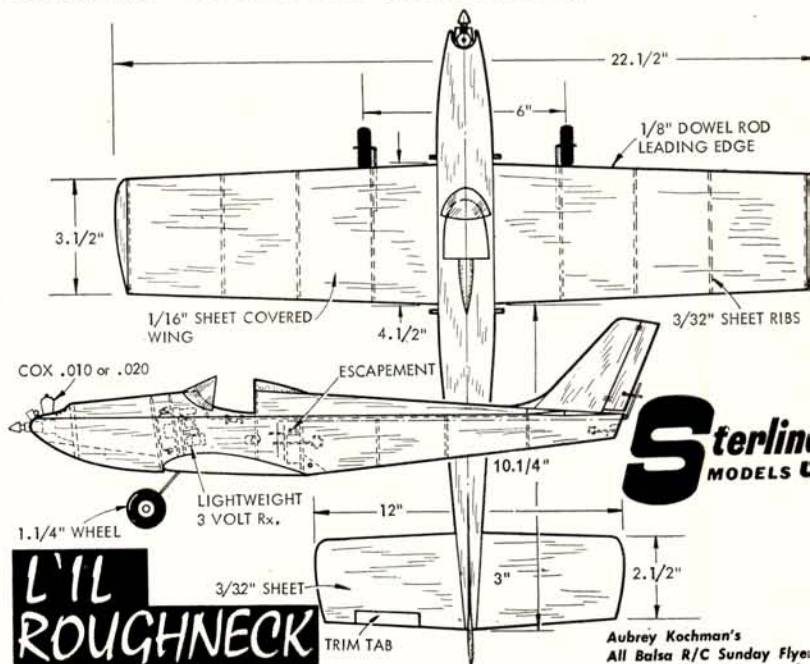
method of construction and the written instructions are most comprehensive. The balsa is all even graded well matched and of excellent quality, although it is possibly on the heavy side for some of the components. Die-cutting of the balsa parts was clean and reasonably accurate, but the plywood required a small amount of additional cutting. The landing gear is pre-bent and there are ample materials supplied.

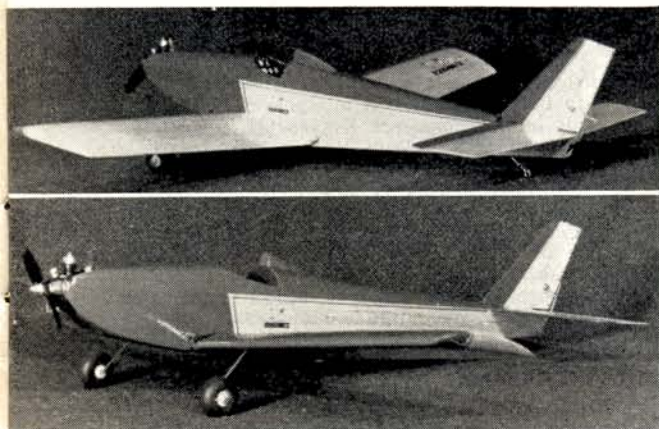
Anyone having a liking to building small models should certainly enjoy putting this one together, parts fit together with very little trimming needed. Building is easy and fairly foolproof, some parts because of their size have to be handled carefully, and a modeller with experience in constructing one or two previous models should have no difficulties.

One thing not mentioned on the plan is side thrust, but I would suggest that 2—3° right side thrust will be needed to counteract torque. It is essential with small models to keep them absolutely as light as possible or their flying characteristics will deteriorate rapidly with increase in wing load; to this extent all lightly stressed areas (i.e. wing sheeting, fuselage rear end and tailplane, etc.) should be well sanded. Decoration also should be kept to a reasonable minimum, if a grainfiller is used make sure it has a lightweight base such as talc and that it is very well rubbed down before fuel proofing.



PLAN,
KIT
PARTS
AND
RADIO
INSTALL-
ATION
SHOWN
ON
THESE
PAGES





Radio equipment installed in the completed Li'l Roughneck was:-

1. An Elmic Conquest Escapement (positioned further forward than shown on plan to allow for access to the rubber motor and the 18 g. torque rod).
2. An Otation Receiver 0-21 mounted by sponge rubber to a removable ply former.
3. Two HP16 1.5v batteries, for receiver and escapement supply, mounted on the front of the ply former.
4. The switching took the form of a miniature jack plug wired to 'make' the circuit with the jack removed. This plug was used in an effort to reduce size and weight over a normal slide switch and was positioned in the top of the cockpit. It functioned perfectly reasonably but is not recommended as a normal substitute for a conventional switch because the contacts do not 'make' in such a positive way and could possibly fail with continuous use.

Initial trouble with the radio installation was traced to a fault in the batteries, although new and showing full voltage off load they were found to have a high resistance factor and were therefore unsuitable. This is not a very common occurrence in batteries but proves that it is well worth while changing the batteries (replacements from a separate batch if possible) before suspecting the other radio equipment.

No further trouble was encountered on bench testing with replacement batteries installed.

With the radio fitted the model weighed approximately 7½ oz. and was tail heavy. As it was impossible to move the batteries further forward to change the centre of gravity



position, approximately 1/3 oz. of lead was added to the nose to obtain the correct balance. Field tests assured us of adequate radio range and with conditions of no wind we were all set to go. Glide tests were not undertaken as with the relatively high wing loading and small dimensions of the model it was thought that these would not give much indication of the models trim. The Cox 010 was adjusted to give slightly less than maximum revs and Li'l Roughneck was launched for its first flight consisting of gentle arc to the right with insufficient time for left rudder to take effect before contact with the ground again. A 'tweak of rudder (1/32 in.—1/16 in.) was applied and, as there was no damage, the model was launched against his time a more vicious wing over occurred—to the left. Slightly more weight was added to the nose and a mite of left rudder taken off for the third attempt, by this time the wings were showing damage with the top sheeting splitting slightly from the leading edge. From the third launch the model climbed away smoothly and straight. At a safe altitude, right rudder was blipped to bring her round followed by a left signal to straighten her up again. When the rudder was held on (in either direction) for more than a fraction of a second the nose would tend to drop and the model would then build up to a spiral dive of its own accord. In this attitude the rudder would become 'blanketed' from the airstream by the low set wings and recovery became a doubtful factor. In any case the resultant speed from the dive would cause a steep climb followed by a wing dropping near the stalling point and a further spiral dive. After a few very 'hairy' minutes with the 'plane cavorting around the sky in all directions the engine cut only to be followed by a turn to the right gradually building up into the inevitable spiral with insufficient effective left rudder to correct it. Further damage was sustained to the wings and the tailplane, fin and rudder tore away from the fuselage.

It is *not* to be said that this model *cannot* be trimmed out to fly satisfactorily but this type of model, not incorporating any additional stability devices is almost bound to be neutrally stable and with rudder-only control, problems arise. For those modellers still keen to have a go at some really 'sporting' flying I would suggest consideration be given to the following modifications, made to produce less nerve racking flying.

- (a) Approx. 3° right side thrust for .010 power.
- (b) Weight be kept down to an absolute minimum, say 6½ oz. at the outside. Best achieved by ensuring wood is of the correct grade and by adequate sanding and minimum paint trim.
- (c) Building in washout on the wings, it is impossible to adjust this to the completed wing due to the stiffness of the structure.
- (d) Extending the rudder to the bottom of the fuselage so that more of the rudder is effective.
- (e) Covering the forward part of the wings with tissue to give increased strength at the leading edge. It would also help if the front of the wing recess in the fuselage was angled to prevent the leading edge hitting it squarely in a hard landing.

My chief criticism, and one that I consider most valid, is that the design is specifically described as a beginners model and in no circumstances can I imagine a modeller getting a satisfactory introduction to R/C flying with this type of kit. It is difficult to understand why a firm of repute such as Sterling Models, who already produce good beginners designs, i.e. the 'Mambo' range, need to make this misleading statement. One sees so many would-be R/C fliers discouraged from the hobby through unfortunate choice of models and equipment that it would seem to be in the manufacturers' interest to lead them along the correct path. Surely a satisfied customer is going to come back for more!



New style dispenser for Hales "Frogflite" first seen at Brighton, a range of 6 quickly kits.

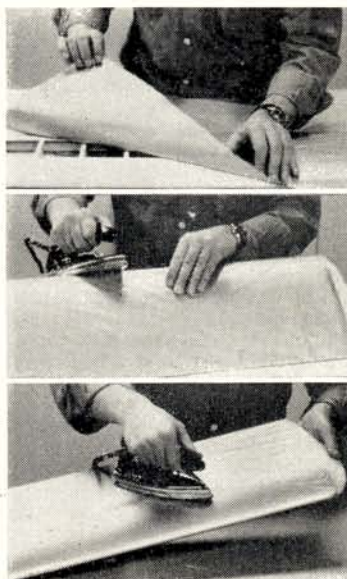
From the Trade Fairs

Lindberg line have a World War II release that is bound to be popular to sell at 3/11 in 1/72 scale. First four in the range are Komet ME163, HE162 and HE100 and Focke Wulf 190D-9. To follow are Fiesler Storch and Arado. Interest in ready-to-fly rubber powered models is still increasing, Model Toys have now finalised their distribution through Warnefords of a robust 22 in. wingspan "Mustang" all made of expanded polystyrene except the high impact nose cone of plastic. This will be leader of a whole range and sells at 24/11; others in the same family are priced from 1/3.

We saw the mock-up of a kit dispenser on Allan Hales' stand. This will be carrying the new Hales "Frogflite" kits, thirty six in a dispenser in six assorted kits to sell at 3/6d. each. Kits are packed in clear polythene bags, and wood is ready stained in bright colours. A. A. Hales' choice of assortment for opener—re-orders to traders' choice—so if there is a local bias one way or another it can be satisfied.

At BRIGHTON

New name in model aircraft plastics should soon begin to mean something if firm of *Inpact (Components) Ltd.*, go on as they have started! Their first release of three aircraft that already captured the public imagination in "Those Magnificent Men" in one-forty eighth scale which does ample justice to their early intricacies. Doug McHard gives his opinions on P. 214. They are not really beginners' jobs,—rigging should occupy at least an evening's concentrated effort! But aren't they just worth the effort! In a matter of detail things like the pilot's facial expression, and even whiskers on one make them specially endearing. Another three are coming from same source shortly. Managing Director Gezy and his Sales Manager K. C. Bushell should be on to a good thing . . . get on too!



Stage by stage "Mono Koting" with coloured self adhesive Mylar now introduced by Topflite. Heat from Household Iron is only tool needed! Below are the two new Graupner trainer type R/C Kits.

At NUREMBERG

The Cox stand revealed a new approach to the silencer problem with the "QZ" (for Quiet Zone) .049 engine as now fitted in the Trainer ready to fly model. Cox has re-ported and re-tuned the resonance of the reed valve so that the new version is claimed to give more power silenced (totally muffled) than ever before un-muffled! Degree of muffling is variable by rotating the collar clip—see drawing at top right, facing page. Same engine was on show and created a great impression at Chicago.

Schuco-Hegi revealed new kits in the form of a sleek 88" glider "Ali" for up to 6 channel R/C a multi-channel 64" power job "Syncom" with expended polystyrene wings and masses of prefabrication, low-wing, very much on the traditional pattern of fashion plus a novel "Antoinette" sort of kit chuck glider!

Edgenweiler introduces 2 gliders, the "Nova" of about 32" for single channel and an unusual Tee Tail "Amazon" with power assist pylon over 6 ft. It is also rudder-only.

Graupner have gone digital in the new fully proportional Radio Control outfit of the same name "Digital" with 14 channels of operation. Our R.C.M.&E. will be offering more data on this one. The popular "Amigo" comes now as a Mk 2 version with 2 or 4 channel R/C plus power assist and the elegant, almost 9 ft. span semi-scale "Foka" becomes the Queen of all R/C gliders. This introduces new structure in the form of a plastic fuselage, fin integral and it will take up to 6 channels. We can't wait to get one of these to review! On the power side, the "Amateur" is a trainer for .8 cc. to 1.5 cc. 2-6 Channel and the "Taxi" a big brother equivalent for 2.5-6 cc. Floats are available for the latter and they also fit the





Allan Hales with new Cox ready to fly trainer using the Quiet Zone engine, shown at Nuremburg. Engine starts easily although fully muffled.

"Caravelle". Both trainers are high wing, trike geared designs as seen in the photographs and should be enormously popular for many years.

CHICAGO

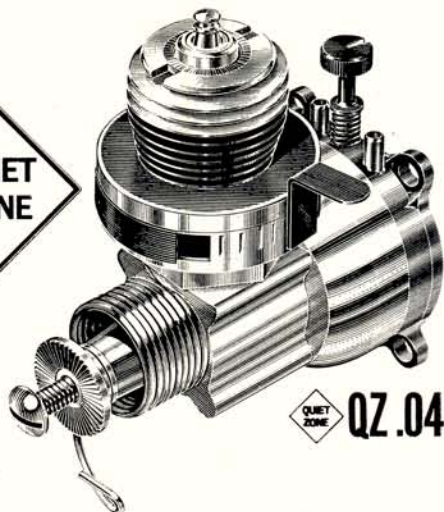
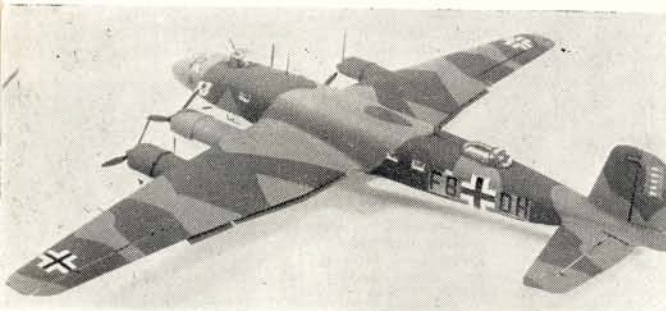
Without doubt the sensation of the Chicago Fair was *Topflite's* revolutionary new covering material MonoKote—the covering with the built-in finish. Initially available in six colours, this new material does away with all conventional covering and finishing materials and produces an indestructible exhibition finish in less than a quarter of the time normally taken. Using a Mylar (Melinex) type skin which is coated with colouring and adhesive, one has only to lay this on the airframe, seal the edges, and heat shrink using an ordinary flat iron, to produce the results. Completely fuel proof, yet weighing no more than silk with six coats of dope, MonoKote means that you can cover tonight and fly tomorrow, without even getting your hands dirty!

Long awaited and shown for the first time at Chicago was the new *Veco 61* which claims 12,000 r.p.m. plus on an 11 x 8 wood prop featuring chrome cylinder liner, aluminium piston, low expansion rings and twin ballraces. A running-in period of no more than 30 mins. is necessary to achieve peak performance, the tentative retail price is £27 10s. 0d.

Heralding a new phase in R/C modelling, *Testors* introduced their ready-to-go radio models, consisting of a plane and a car, with the promise of more to come.

The aircraft has 44 inch expanded polystyrene wings, tricycle undercarriage and a remarkably strong vacuum formed fuselage with an all-up weight of 21 oz., including Cox .049. Tentative U.K. retail price of the aircraft complete with Tx., starting battery and fuel £49 10s. 0d.

F. W. Condor by Revell below, made by Tony Silver. Complex undercarriage seen in close-up, also the correct turret height—take note builders—also leave dorsal canopy fitting until after fuselage is painted.



At your model shop

Recently released to the model shops from *Airfix* are two 3/- gems from W.W.2 and the Korean War. First a 1/72nd scale *Fairey Firefly Mk V* that entered operational service in 1947. Moulded in light blue, many variants are possible from this 34 piece kit either with folded or fixed wings. Markings are given for an aircraft of 817 Squadron R.A.N. that operated from H.M.A.S. Sydney during the Korean War but retaining "Royal Navy" markings. Second release, a 1/72nd scale kit for the *Grumman TBM-3 Avenger* torpedo bomber in U.S. Navy markings, contains 30 parts. Two colour schemes are suggested, one for U.S.S. Yorktown aircraft and another for U.S.S. Bennington. These two will be quickly followed by a Northrop T-5, last month's inside back cover colour subject.

Also recent from *Revell* and at present under construction is the *Focke-Wulf F.W. 200C-4 Condor*. A general purpose bombing torpedo strike aircraft that played havoc with Allied shipping convoys and was developed from a civil airline of pre-war origin. The instruction sheet initially provided is misleading and the model cannot be assembled as indicated, so modellers who have purchased one of the first production batch should check the assembly sequence. New instruction sheets are to be included in the FW 200C-4 which sells at a low price of 12/6d, for such a large model.



The "down-under" Nats in New Zealand



Reported & photographed by J. Malkin

Every once in a while the weather man seems to catch up with the National Championship Meetings around the world and this year was New Zealand's turn. What with 30 knot winds during the contests, the competitors also had to battle with tents being blown down, plus thunderstorms at night and occasional falls of hail. Believe it or not, it was summer in New Zealand, but judging by the amount of snow around it took a bit of convincing some visitors that Feilding, in the North Island was not in the northern hemisphere!

With over 160 entered in a record total of 33 events, everything promised a good keen tussle in most contests but unfortunately this was not to be, due of course to conditions.

When the first round of Nordic A/2 commenced on Tuesday 28th December the weather was particularly bleak with hail from an early shower and a 15-25k. gusting wind from the West causing quite a bit of consternation. With approx. 60 entered in this class a good contest should have resulted, but the number was reduced considerably owing to withdrawals. The amazing part of this

Gordon Speedie from Wellington won the A/1 glider class with his APS "Aiglet".



contest was the lack of wing breakage whilst towing, in fact quite the reverse, the models generally got upset due to the turbulence caused by a big patch of trees upwind. The eventual winner had his wings break whilst on tow with the line *completely slack*. Flying in these conditions made things fairly hectic, and if the model managed to arrive at the top of the tow O.K., it still had to get back on the ground without shredding itself on a fence or something similar. Ivan Treen of Levin was flying extremely well, and



G. Hely of Tauranga placed 3rd in JA team race with Oliver Tiger Cub powered design.

should have won the contest but for a poor launch by his helper in the 5th round.

1. J. MALKIN, Wellington.	300.6
2. I. TREEN, Levin.	247.2
3. T. HORN, Levin.	193.7

Back at camp on the Feilding racecourse the C/L. Aerobatics was in progress, and by about 1 p.m. the wind was up to 30/35k. and with the flying area surrounded by trees causing extreme turbulence, Neville Dawson of Wellington flew, what your reporter considered a magnificent pattern in the prevailing conditions. A newcomer to watch is 16 year old Tim Haiselden of Wellington, who though only coming 6th, showed up quite a few experts with his complete indifference to the conditions.

1. N. DAWSON, Wellington.	pts. 983
2. P. WHEELER, Kaiapoi.	785
3. D. TRISTRAM, Papatoe	614

Flown concurrently with Aerobatics, was Speed I. (2.5) and IV. (10cc.) and Proto Speed which is a new event. Contrary to normal, Speed was well patronised this year with 12 flying in 2.5 cc. and 4 in

10 cc. Proto speed went off extremely well considering that the wind had some pilots groping madly for the pylon in the first lap.

Speed I. (2.5 c.c.)		
1. P. STAPLES, Wanganui.		120.8
2. A. CLARKE, Palm. Nth.		112.5
3. { P. LEVET, Auckland.		109.1
{ D. KENNEDY, Kaiapoi.		

Speed IV. (10 c.c.)		
1. D. KENNEDY, Kaiapoi.		125.9
2. A. PEARCE,		113.9
3. D. McANELLY,		104.0

Proto Speed.		
1. A. WOODING,		101.7
2. P. STAPLES,		101.1
3. O. BRYANT,		92.3

There was no need for an alarm clock on the morning of 29th December for F.A.I. Power, as a violent thunderstorm over the area provided an effective rouser, even though a trifle early. On arrival at the 'drome, the wind was not quite as powerful as earlier, but sufficient to send models off the field for a max. Rounds 1-3 were flown in hourly bouts, but because of the deterioration of the weather, the last rounds (4-5) were thrown open. In this event Tom Horn of Levin held off a serious challenge by Harry Winn and Brian Roots, and his S.T.G15 powered "Saturn" flew beautifully throughout the event, even though in the last round the wind increased to 30-35k. In this event, the value of a high gloss fuel proofer paid off, as when the sun flashed on the surfaces, this was virtually the only method that made maxes possible. T. Horn who had two prior maxes, gained a third in the last round and thus secured first place.

1. T. HORN, Levin.	704.8
2. B. ROOTS, Wellington.	586.6
3. A. LEONG, Hamilton.	510.9

The first round of R/C. Multi was being flown concurrently with F.A.I. Power and the way these models handled the conditions was amazing. The wind at 500 ft. was approx. 50k. and the models just bored into it without any trouble. Taking the weather into account, the flying was of a very high standard, marred only by one serious crash. Hoppy Richardson of Palmerston North had bought a new transmitter battery the day before for his

W. Manson of Papatoe entered this McCoy 60 speedster. Interest in the speed classes was higher than usually expected.





Bruce Keegan's OS Max 15 powered "Ramrod" entered in Open Power. This design never seems to age and appears all round the world in various sizes at National Championships.

proportional rig, only to find it was a dud when he was in the air, with the consequent result he was able to pack the model in a much smaller carrying box than usual. The "Touch and Go" seemed to be the easiest manoeuvre, with the "cuban eight" the hardest, due to the wind. Dave Whitehead flew a beautiful 1st round but unfortunately could not get his model into the air for the second round. Mike Kendrick flew his 'modded' *Taurus* cum *Sultiflier* to score 285 out of a possible 360 in the first round and 266 in the second. Brian Perry who flew a 'modded *Sultiflier*' now called a '*Orifire*' flew consistently to place 2nd. There were 7 propo. rigs but the majority did not fly due to lack of experience.

		pts.
1.	M. KENDRICK. <i>Wanganui.</i>	285
2.	D. WHITEHEAD. <i>Hawera.</i>	235
3.	B. PERRY. <i>Hastings.</i>	210

In the afternoon the heats of $\frac{1}{2}$ A Team Racing were flown and because of the wind and in the interests of safety, only two models were flown in each race. During the final there was a certain amount of confusion in the start which resulted in one finalist being disqualified.

1.	W. ROBINSON. <i>Roskill.</i>	4:48.7
2.	G. HEALEY. <i>Christchurch.</i>	6:05.4
3.	G. TITMUS. <i>Christchurch.</i>	6:55.7

In the evening, the **Indoor Hand Launched Glider** was flown at the Izadium (40 ft.) and some good times were recorded. With approx. 25 fliers on the floor, conditions were a bit hectic for a while, but there were very few collisions. Two hydrogen balloons proved very handy for stuck models. After the contest D. McMurray of Roskill, upped the N.Z. record to 37.3 secs. with an O/D which had a very flat glide.

1.	T. MARTIN. <i>Roskill.</i>	31.3
2.	P. LAGAN. <i>Hamilton.</i>	30.2
3.	D. McMURRAY. <i>Roskill.</i>	30.0

Wakefield was flown on the morning of 30th December and whilst the sky was clear, the air was moving very rapidly and fortunes changed fairly quickly. Paul Lagan must be considered a connoisseur of fences as during this contest he Shredded his Wake, which brought his total to three, having done the same in F.A.I. Power and Nordic.

Brian Roots who was tipped as the winner, had his No. 1. model dive in under full turns and on the next flight his No. 2. got away beautifully but when it was about 100 ft. up and climbing well, it struck severe turbulence and turned upside down and broke his wings. Most modellers wound in the shelter of the cars and waited for a lull. Some were seen winding sans wings and strapping them on after being fully wound. Noel Hewitson flew consistently with his model performing well in the conditions. (15-25k.) to come in top for his first ever Nationals Wakefield win.

1.	N. HEWITSON. <i>Auckland.</i>	476.4
2.	B. KEEGAN. <i>Auckland.</i>	447.4
3.	A. GRAVES. <i>Hamilton.</i>	440.7

H/L Glider was also flown with Wakefield and with these models the turbulence had a real "ball." It appeared as though they either had a good flight or were pushed down whence they came.

1.	P. CLARK. <i>Palm. Nth.</i>	366.4
2.	G. HARDWICK. <i>Ashburton.</i>	278.5
3.	P. LAGAN. <i>Hamilton.</i>	265.6



Winner of stunt was Neville Dawson's (Wellington) "Crusader" with Johnson 35.

During the afternoon **Class A. Team Race** was run and once again the wind caused the T.R. Steward to limit the number of models in the circle to three. In the heats and in the final Geoff Tennant of Palmerston North, who holds the current N.Z. Record, came first, closely followed by Alan Clarke of P.N.

1.	G. TENNANT. <i>Palm.Nth.</i>	4:42.4, 4:55.4
2.	A. CLARK. <i>Palm.Nth.</i>	5:06.0, 5:49.0
3.	G. HELY. <i>Tauranga.</i>	5:35.8, 5:53.0

In the evening **Indoor Class B. (Easy B.) and Class D.** (18 in. up to 36 in.) were flown and conditions were extremely turbulent. Only the Easy B's and heavy microfilm models managed to get through the rough air, with the light models just getting pushed along at head height. The Class D. winners flights flew the majority of the time at 5 ft. and in the last minute climbing to 15 ft., only to hang up on the balcony. Once again the hydrogen balloons came in

Ouch! One point landing obtained No points for Gordon Speedie as engine tries to hide its face.

handy. These were filled from a generator made from a beer bottle and a mixture of caustic soda and aluminium, and when a certain member of Council saw the gear in operation said that "Hydrogen couldn't be made like that"; casually one of the experimenters pointed up to the ceiling where a balloon was floating serenely. Exit one red-faced official.

INDOOR CLASS B.

1.	T. MARTIN. <i>Roskill.</i>	6:16.2
2.	J. MALKIN. <i>Wellington.</i>	5:51.0
3.	B. ROOTS. <i>Wellington.</i>	4:00.4

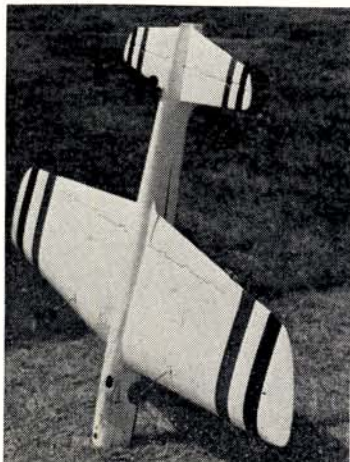
INDOOR CLASS D.

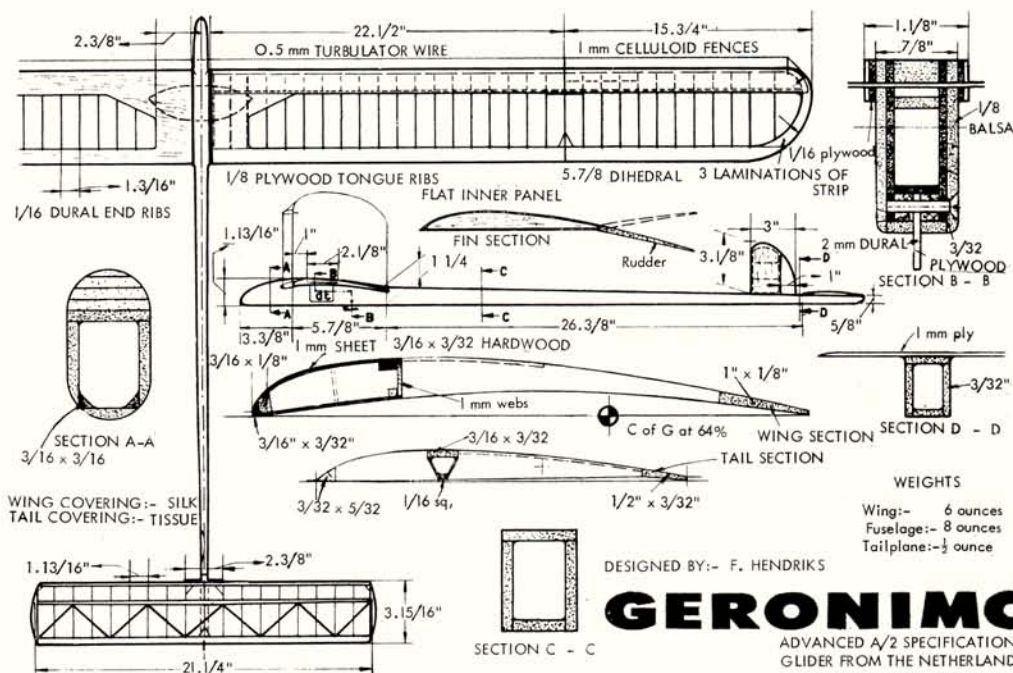
1.	J. MALKIN. <i>Wellington.</i>	8:04.4
2.	B. ROOTS. <i>Wellington.</i>	5:18.6
3.	T. MARTIN. <i>Roskill.</i>	4:16.8

On Friday morning **Open Power and Payload** were flown and this started off with reasonably calm weather, but the Council decided to reduce Payload to three rounds because the weather forecast indicated deteriorating conditions. The fact that the weather stayed fairly reasonable made these two contests quite a relaxed affair, but the increasing wind made maxes a long chase. In Class A Power both B. Roots of Wellington and Tom Horn of Levin made perfect scores which necessitated a fly-off. Unfortunately Horn lost his model on his third round flight and had to use his payload model which had a slight stall, and though evidently in lift at the start it stalled right out of it for 163.5. Roots was flying his F.A.I. Model "Saturn" and in the fly-off it streaked away and into a fat thermal for his 4 min. winning flight.

1.	G.B.ROOTS. <i>Wellington.</i>	540.0+240.0
2.	T. HORN. <i>Levin.</i>	540.0+163.5
3.	J. JOHNSON. <i>Christchurch.</i>	498.9

(Continued on page 224)

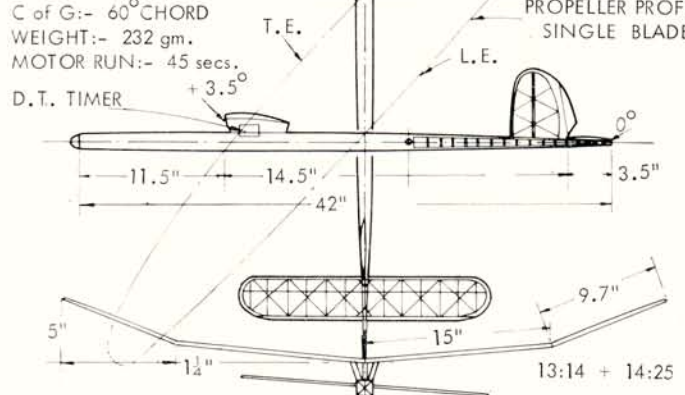




CONTEST DESIGNS

WING AREA:- 230 sq. in.
TAIL AREA:- 63 sq. in.
PROPELLER:- 24 x 26 PITCH
POWER:- 2 STRANDS 1/4" PIRELLI
FUSELAGE:- 1.4 sq. in. CROSS SECTION. MOTOR TUBE 26 in.

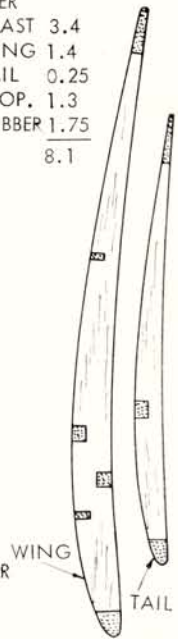
WING SECTION BENEDEK 6485b
WEIGHTS (OZS)
FUSELAGE
FIN, TIMER
AND BALLAST 3.4
WING 1.4
TAIL 0.25
PROP. 1.3
RUBBER 1.75



Geoff Lefever's F. A. I. RUBBER MODEL

Wakefield

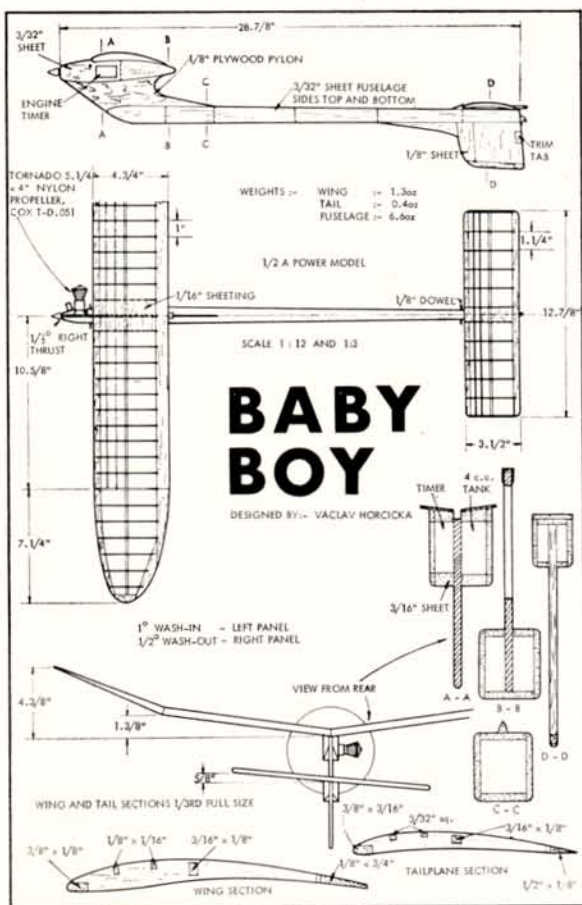
1964/5 BRITISH TEAM TRIALS WINNER
DESIGNED BY G. LEFEVER.



Geronimo A/2 designed by F. Hendriks reflects last seasons features in Dutch Gliders. The wing uses a strong boxed nose section and is covered with lightweight silk. The quarter-grain sheet fuselage sides are all tapered in thickness to avoid rear end weight, and the tailplane has an unusual "triangular" section and sharp leading edge. **Geronimo** won the Dutch A/2 Championships and the Europa Cup in 1964 in this form. A lot of attention is paid to aerodynamic soundness and turbulent flow requirements with details taken from the book, "Aerodynamik des Flugmodells" by F. W. Schmitz. Note the large tip panels to prevent angle increase when slipping occurs. During test flights a tab was added to the left inner panel to adjust angle of attack difference between the two wing halves. Great attention is given to this by Dutch modellers (who are consistently high in International contest results). Sharp entry to the airfoils is another characteristic of Dutch models.

Though now a well known and often used European design, perhaps familiar to many readers, Vaclav Horcicka's "**Baby Boy**" power duration model for .8cc engines still makes an ideal small project for those who wish to try High Thrustline designs. Vaclav's original uses a Cox .051 with Tornado 5 1/4 x 4" nylon propeller, COX T-D-051

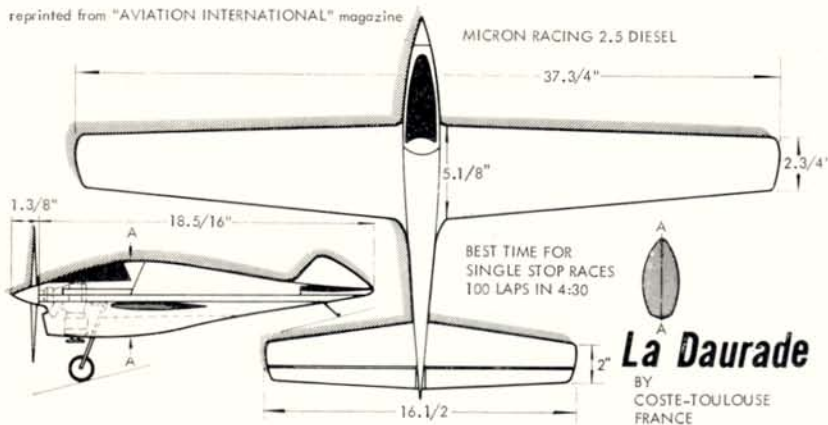
Wakefield '64 by Geoff Lefever of Norwich Club is a development of "**Ottair**" an 80 gm. Wakefield that placed 17th on the '56W. Championships and "**Fevair**" that placed 8th in '58'W. Championships. This model should have been called "**Finair**" but the trip to Finland was not possible so it must remain just plain "**Wakefield**". Due to the recent F.A.I. motor weight rule change, distance from the nose block rear to motor peg is now approx 22" for a 12 strand motor with 20" length and 2" for bobbin etc. Performance with 40 gms is nearly as good as that of 50 gms. With a new Wakefield under construction, basically, a stretched version, it is hoped for similar performance without any drastic redesigning. Construction uses 1/32" ribs 3/16" square leading edge and 3/8 x 1/8" trailing edges. Tips are laminated. The motor tube is 1/4" medium balsa sheets with 1/4" hard longerons. The single blade prop is from four layers of 3/32" sheet on a 14 swg. shaft.

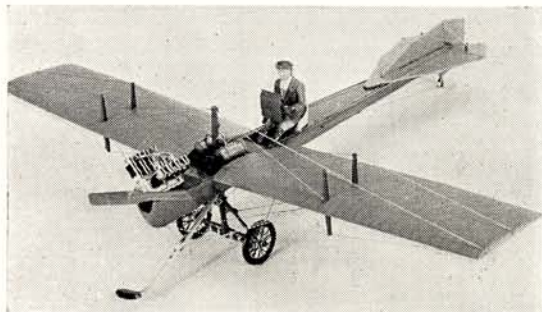


AUSTRIAN POWER MODEL

NEW FRENCH TEAM RACER DESIGN

La Daurade by the team of Coste-Toulouse of, strangely enough, Toulouse, is anticipated as one of the French national team models to be entered on the forthcoming World Control Line Championships to be held in Great Britain this year. It is similar in fuselage side view to **Hi-Fi** by R. Leloup of Belgium but with longer moments etc. Powered by a Micron Racing 2.5cc diesel also from France and one of the oldest established engine manufacturers in the world, its 4:30 time makes it a model and team to be respected. Cooling air outlet from what is described as a particularly well constructed cowling is through the underbelly.





SCALE COMMENTARY

by J. D. McHARD

Editor of Meccano Magazine

MOST branches of scale modelling seem to be enjoying increasing popularity. Those multi-engined full-house-plus R/C scale show stoppers, continue to appear as unexpectedly and impressively as monsters emerging from some Dr. Frankenstein's castle. In many cases, their complexity would, I am sure, confound even the doc. and his feindishly involved lightning-powered lab!

At the other end of the scale (*pardon*) some Americans, notably the members of the North American Flightmasters, are wafting around the rafters with fractions-of-an-ounce indoor jobs and, in the process, gathering together quite an appreciable following.

Between these two extremes, which each demand a high degree of skill and rather special flying facilities, we have the free flight and control-line enthusiasts; single-channel flyers—where some interesting developments are taking place; a few (very few) rubber scale types, and a small, but significant, knot of R/C scale glider builders. Only branch that seems to be quite, quite dead, is that one-time scale cornerstone—the solid scale modeller. Polystyrene has replaced wood in the hands of the countless thousands of aero-modelling's Do-Do's.

From time to time, we hear that the "plastic boom" has passed and that such aircraft kits will shortly be ousted by model cars or boats or whatever. Well, it hasn't happened yet and this year's Toy Fairs unveiled some ambitious production plans for 1966. Let's take a look at some of the forthcoming attractions that will tempt many an enthusiast to camp out on his dealer's doorstep until the delivery van arrives.

Most ambitious release programme that can be mentioned here is that of **REVELL** whose 1/72nd scale Fiat CR 42 'Falco', Boeing PT 13 'Kaydet' and PZL P-IIc are just now available in the 2s. 11d. range. Three surprise additions to the Revell World War I range of 2s kits are the Fokker Dr I Triplane, Sopwith Triplane and Nieuport 28—the latter two are as yet un-kitted by anyone else in this scale.

Then there's a Lancaster I complete with 'S' for Sugar and 'Q' for Queenie transfers at 12s 6d. The box art work

"Impact" is a new name in plastics. This is their "Antoinette" type Martin-Handasyde.

on this one is really terrific. For later release, Revell promise a Martin B-26 'Marauder' and Heinkel He 219 'Uhu' (August), both at 8s 6d, a Lockheed YF-12A at 12s 6d, and a Douglas DC-9 at 8s 6d.

In other than 1/72nd scale, there will be a North American 'Vigilante' (1/80th), Republic 'Thunderchief' (1/75th), Douglas 'Skysark' (1/50th), F-102 'Delta Dagger' (1/79th), Lockheed 'Starfire' (1/53rd), all priced at 4s 11d each.

Finally an out-of-the-rut subject is the 'Gemini' Space Capsule, complete with opening hatches, removable screw and Launch Adaptor Module. This one is to 1/24th scale and costs 19s 11d. **FROG** have just released their latest 1/72nd 'Trailblazer'—a Fokker F VII-3M, 'Southern Cross'. This comes complete with two beautifully sculpted standing figures representing Kingsford Smith and George Ulm. This is quite an impressive model and will be eagerly pounced upon by the plastic surgeons who have a host of potential conversions in this kit. It costs 6s.

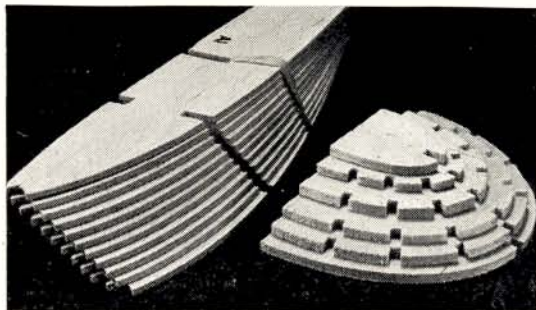
Next 'Trailblazer' will be the Gloster E 28/39 'Whittle' at 2s 6d. Later this year, Frog will release a Messerschmitt Me 410. This kit will contain parts to enable two versions to be built, price 3s 6d. Next in the 5s range will be the Heinkel He 219 night fighter, which, according to the box illustration, will now contain swastikas for the fins. This is a point that will be greatly appreciated by collectors.

Nearly all the Frog plastics are to be re-boxed and the new box art is first-class.

AIRFIX follow their big B 29 with the minute 'Wasp' helicopter. The Fairey Firefly II and Grumman 'Avenger' should be available by the time you read this. Further Airfix releases are shrouded in mystery at present, but there are some exciting ones on the way; including the Northrop F5 as on last month's inside back cover. Production delays have disturbed the release date of this one.

These companies are, of course, firmly established in the highly competitive plastic field and it's nice to see a newcomer to the ranks, especially when his opening shots are so original and well produced. The name to watch is **IMPACT** and their first six models are largely based on "Mag Men" prototypes. Three first ones are a Bleriot XII, Deperdussin, and Antoinette type 'Martin Handasyde'. Very shortly these will be joined by a Bristol 'Boxkite', Avro 'Triplane' and Avro 'Biplane'. All are to 1/72nd scale and cost a very reasonable 5s 6d each. They are moulded in a light buff coloured plastic and fabric surfaces are quite beautifully 'textured'. An original touch is the moulding of the 'spoked' wheels in crystal clear plastic with 'solid' centres and spokes

Parts for the French "Airalma" kits are precision cut, as evident in formers and ribs for Topsy Jnr. Far right is Bucker Jungmeister frame, now being prepared by Mick Charles for Digifive R/C and Enya 61



moulded on. The finished effect can be highly effective if you've a steady hand and a good 00 sable brush! Other good points are the engines, which are really complete; the lifelike pilots—each one different; the general accuracy of the models which can only be the result of much painstaking research—(some other manufacturers please note).

Richard Kohnstam (RIKO) are importing, among other good things, the interesting and expanding range of U.P.C. kits. These models, that owe a lot to the pioneering Marusan series, will tempt the 1/50th scale enthusiasts. All the models are to be sold at the standard price of 8s 11d and the first three, now out are the Mitsubishi *Jake* twin float seaplane complete with folding wings and beaching trolley Republic P-47N, and the Mitsubishi *Babs*. This machine is, of course, the one that made the epic Tokyo - London hop in 1937. Those shortly to appear include the F86D *Sabre*, Hunter, Lightning, Starfighter, and Messerschmitt Me 262. The only 1/72nd model in the range is the impressive Martin Bomber. A twin engined biplane of pre-war vintage. Still at the Riko exhibition—there was a tantalising glimpse of a whole heap of those magnificent Tamiya kits. No firm plans yet, but some of them are likely to become available through Riko later this year.

Leaving plastics now, I must mention two new multi-R/C scale kits from France. Not a country noted of late for its model goods, France was once the home of much advanced model aeronautical development. It is nice therefore, to be able to say some complementary things about these latest AIRALMA kits. The prototypes represented are a Tippy 'Junior' and an in-line engined Bucker 'Jungmeister'.

The most striking first impression upon opening the big boxes is the extremely 'clean' appearance of the many pre-fabricated parts. Closer examination confirms this quality. The balsa and ply parts are not die-cut, but individually sawn! This cutting is extremely accurate, and it would be a highly skilled modeller who could do a better job.

Against this, there are some facets of the designs that are a little 'basic'. Many builders will wish to beef-up the structures here and there—the 'Tippy' undercarriage anchorage was a case in point. Robert Lestournaud the manufacturer has anticipated us by altering the design on many points we queried. No wheels are included, but there's quite a lot of hardware.

The plans—big and bi-lingual—are clear, and accurately drawn but some modelling experience is assumed and a rank newcomer could find himself in difficulties here and there. The 1/5th scale 'Tippy' is 4ft 6ins span, and designed for .29 engines according to the instructions although a .19 is shown on the drawings. The instructions also state that rudder control is not essential though ailerons are obligatory, and six channels are recommended.

The 'Jungmeister' is 1/5th scale 4ft 4ins span and needs a minimum of eight channels. The additional local stressing required by its biplane configuration is catered for by a large number of ply parts. It makes an impressive model for multi-channel R/C, though extra fastidious true-scale types will want to correct one or two points of deviation.

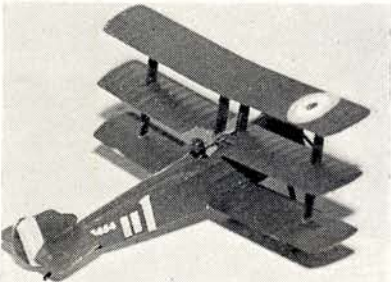
These two kits are unique and they will shortly be available, but price in this country is not yet established.

If you buy an Airalma kit, don't be deceived by the label on the box. It shows, besides pictures of the 'Tippy' and the 'Bucker', several very interesting aeroplanes but unhappily, these are not (I understand) scheduled for production—pity! My mouth was watering for that Spitfire V, Dewoitine 520 and Curtiss P-6E.—cor! !

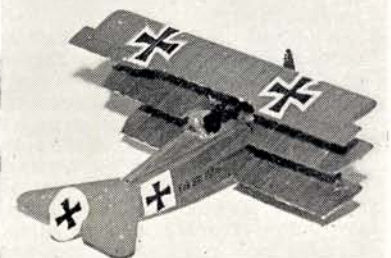
(actually the next is a Jodel-Ed.)



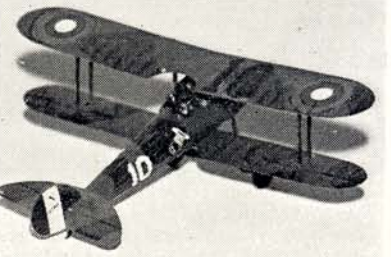
Airfix 'Wasp' helicopter is a very interesting change from the usual run of plastics.



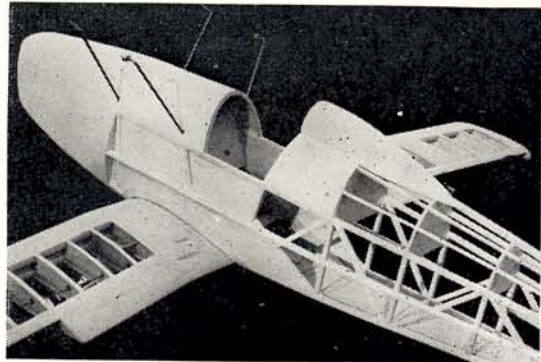
Revell's addition to the World War I range includes two Triplanes. This is the Sopwith Tripe.

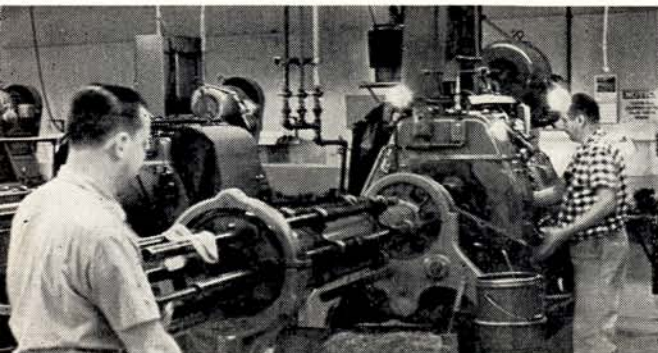


It's only natural that the other Tripe should be the famous Fokker Dr. I, another excellent value kit for only 2s. 0d.



Third of the new Revell trio is the Nieuport 28 with the U.S. Forces markings. These models were on display at the Brighton Toy Fair in February.



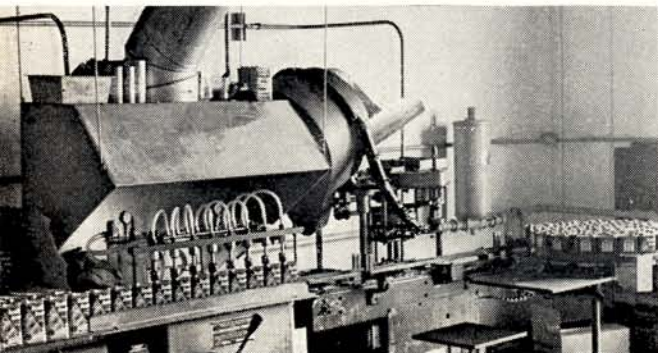


COX Manufacturing Co. is the largest producer of miniature engines in the world. During 1965, they averaged 4,000 units per workday. They sell a lot of fuel for these engines too and they also have a tremendous amount of ready-to-fly planes leaving the factory every day. Even so, the model engine business is becoming less significant every month compared to the boom in slot cars. Cox held back on this hobby initially feeling that the slot car rage might be another passing fad; but since they entered this field three years ago the market has steadily expanded and demand in the U.S. has not yet passed its peak.

A tour of the factory is rather impressive. The plant occupies a brand new 132,000 square feet building (it will grow to 145,000 sq. ft. by June), in the Los Angeles area, California. There's plenty of room for expansion, in the back of the building the orange trees still occupy most of the site. When you enter, there's a neat reception room, fully carpeted, and from there one enters the office area occupying the front of the building.

Leroy Cox occupies a fine Manager's suite, there are a few individual rooms and a hall for the clerical staff. Canteen facilities are attractive, there is a large sealed off research and development area where a team of twelve people—most of them modellers—work out next year's products.

In the slot car business, a new car every three months or so is mandatory to keep sales soaring and Cox aims to have new products ready about a year before full scale production. The actual production goes on in six or seven different areas. One section is for automatic screw machines turning out engine parts from bar stock and alloy extrusions (Cox engines, of course, are designed to be turned out like this and don't employ any metal castings). They also produce shafts and sundry parts for the slot cars—these shafts are made out of stainless steel for its non-magnetic properties. Hopper-fed, they also turn out wheels from magnesium die castings. Close by is the magnesium casting area, completely open to the outside because of the fire risk.



K & B and COX

U.S.A. Engine manufacturers infiltrated by MANS HAGBERG

Cox employees setting up one of many automatic lathes in Santa Ana for mass production of some close tolerance parts used in Cox engines.

Completely air conditioned and sealed off there is a special room for the precision grinding for which Cox engines are renowned. Operating to extremely close tolerances, a few millionths of an inch, no selective fitting of pistons to cylinder liners is necessary for the .049 motors, but every piston-cylinder combination is checked using a special manometer rig for compression seal after parts have been manually deburred. This is done in the central assembling section. Brightly lighted, very clean and with piped music—*sans* commercials—from a local FM station this huge area is an attractive place to work in, and certainly compares very favourably to most other mass-production industries.

At the pre-Christmas peak Cox employed over 700 people working in shifts making it a major firm in the L.A. area. Most of these assemble and package engines, ready-to-fly planes, slot cars and sundry products from parts manufactured by Cox. Very little is brought in from the outside: Cox designed his own bubble-pack equipment, there is a medium-sized printing office with four offset presses, all plastic parts are done by Cox, in fact, apart from some Japanese items for the slot cars only bulk material is bought and the finished article sold. Cox even employs his own commercial artists to design his literature, advertisements and packages.

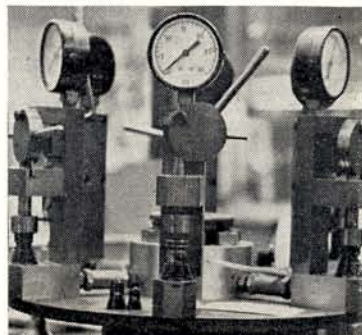
Most modellers have mixed their own fuel sometime. So does Cox—in batches of 10,000 gallons. Except for the high nitro stuff where batches are kept at 2,000 gallons, mixing is done in underground tanks and fuel piped inside, filtered 14 times and poured into cans using automatic machines filling eight cans simultaneously. This goes on and on with a fresh batch being mixed every few days—it is difficult to visualize all this fuel being used!

As far as can be seen during a visit like this, Cox Manufacturing Co. seems to be a paragon employer. Cleanliness, systematic operation and safety obviously are at a premium providing working conditions rather better than the average for a plant of this size.

Over at K & B, now a subsidiary of Aurora, the model engine business is dwindling, at least in numbers of units

At right Cox piston and cylinders are checked for compression seal and piston tolerance on a battery of air pressure gauges in a manometer rig.

One of the Cox "eight at a time" glow plug fuel can filling machines 10,000 gallons of fuel are mixed every few days.



sold. Their best seller, the .049, sold 250,000 units in it's latest variation. The present large engines, designed mainly for competition purposes are made in batches of 500 and 5,000 a year is a repeatably good sales figure for one model. Bill Wisniewski, who is running the machine shop, designing jigs and fixtures and supervising quality control also develops the engines.

As speed fans know, the present K & B factory specials are second to none in FAI Bill Wisniewski consistently upping 140 mph in the hands of Bill Wisniewski and Roger Theobald. These engines operate at around 25,000 rpm in the air, showing that the "old-fashioned" speed motor layout with a rear intake, a piston with a baffle and suction feed is still very much in the running. A new squish-band head and improved materials made the difference.

Out of interest, Wisniewski also develops the Schnürle ported motor he used so effectively in Budapest 1964. Currently a longer-stroked .15; a diesel conversion of same, and a really massive .60 are being developed. There is little hope of these engines ever reaching the market because of lack of *apparent* demand makes tooling-up for a short production run prohibitively expensive. Most interesting of course, is the fact that the .15 currently sports a rear exhaust. To this is coupled a machined alloy tuned exhaust. This works on the idea of actually drawing mixture through the engine pushing it *back* into the cylinder just when the exhaust is about to close on the up-stroke. Dimensions and volume are as per motor cycle practice, Wisniewski by now being very well read in this field. Resonant length is important but not apparently critical to the nearest fraction of an inch.

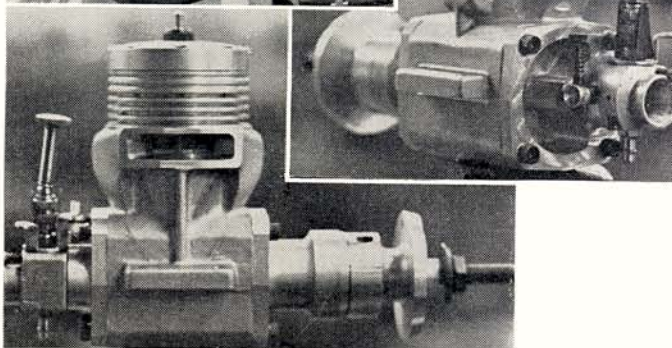
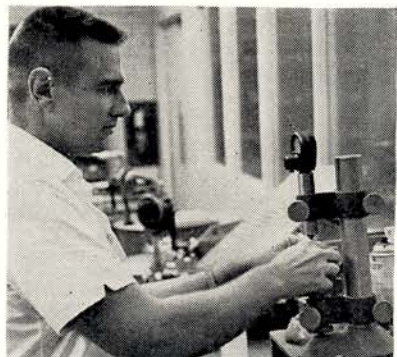
On a test run, this engine did 24,000 rpm accompanied by an ear-shattering noise—a good stock G.15 usually does 22,000 on the same prop. With the exhaust fitted, the noise was reduced to a quite endurable level and rpm increased to 26,000. A fine demonstration of an intelligently applied silencer!

The .60 using the same design ideas is very powerful. An R/C version with a dual carburettor proved to be quite amazing: Despite the fact that the low speed carb. is none other than a Cox Tee-Dee type for the .020, this .60 engine refused to drop below 3000 rpm. providing Bill's present headache.

The Schnürle porting system seems very suitable for model size engines though, and using Wisniewski's present construction with a crankcase machined from the solid, bypasses milled right through the crankcase walls and sealed off from atmosphere by a very thin shrunk-on alloy sleeve, should be suitable for homebuilders.

Apart from engine manufacturing, and the fuel business, slot-car production occupies by far the largest proportion of K & B's three or four hundred employees. Engine making is outnumbered twenty to one, and to keep slot cars going out at a good enough rate, shift work had to be resorted to, even after the Christmas peak period. Assembly is carried out in the standard industrial way for this sort of thing with women operators sitting around a rotating table in six or eight stations, each doing the same few operations using suitable electrical or pneumatic tools.

To the European visitor in California, it does appear that manufacturers of large model engines rely heavily on the slot car boom for their present affluence and no longer is there scope in the market for the past number of various makes. While sales have stagnated, costs keep rising. Slot cars have introduced a lucrative market for material that is easier to produce for better financial returns so that like it or not, we aeromodellers are in many ways fortunate that a few high quality model engine manufacturers have remained faithful to our particular hobby.

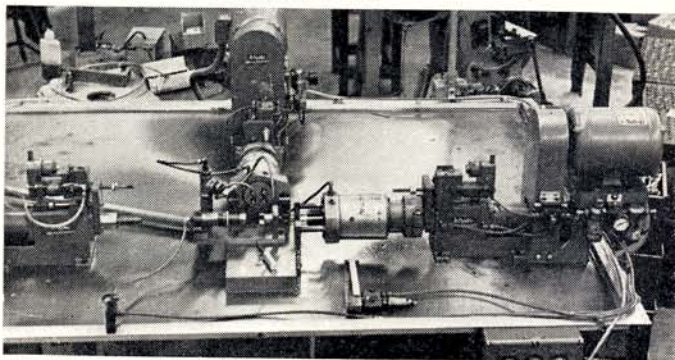


Bill Wisniewski at top checks a piston at the K & B factory where he runs the machine shop, designs jigs and fixtures as well as supervising quality control and development. Above and at right two views of the "Wart" .60 (10 cc.) R/C speed engine. Note the diminutive Cox .020 carburettor on left hand side of intake, this is used for slow running.



Bill holds latest experimental K & B 15 above with tuned length exhaust pipe. Increases 24,000 to 26,000 R.P.M. and reduces noise!

Below, a machine for simultaneous drilling of 12 or more holes in crankcases at K & B.





Two Thunderbolt views from R. S. Capewell, above 615 Sqdn., India 1945, right 135 Sqdn. 1944-45 Burma.



READERS LETTERS

P47 Thunderbolt

Dear Sir,

Your article on the P47 and the subsequent correspondence was of great interest to me. As an ex Thunderbolt pilot I would like to try and clear up a few points.

In general the Mk I T'bolts were camouflaged green/earth where as Mk II's were usually green/grey except for the late Mk II's which were natural aluminium with black codes and identification bands. This suggests progressive changes in official policy.

The code letters of 135 Squadron (Mk I T'bolts) were positioned as shown in your drawing (example HB 974, WK-P) but the letters were larger, similar to the American lettering. 615 Squadron (Mk II T'bolts) also had large lettering but had both squadron and aircraft codes stepped up from the roundel. The 615 Squadron letters were positioned astern of the roundels (example KL856 D-KW). Their particular example was in natural finish with black letters and was referred to as a Mk IIa, having a dorsal fin.

Aircraft flown by Wing and Group commanders usually had the pilot's initials in the form of unit codes.

Personal adornment of aircraft was at the discretion of Squadron commanders and varied from uniform Squadron badges (Palm tree—30 Sqdn) or markings (red and white check engine cowling—Sqdn. unknown) to individual names (Maggie, Little Audrey etc.) or personal badges positioned near the cockpits.

Propeller hubs were usually painted to indicate flights or sections. Red blue and green were common colours.

The Mk I was usually preferred by pilots, despite its horrible 'greenhouse' canopy, because it was fully aerobatic whereas the Mk II was restricted. Both types were, however, limited in permitted diving speeds at altitude because of the danger due to high Mach no. effects.

Modellers of the Harvard might be interested to know that considerable freedom in colour scheme was allowed when in use on squadrons for training and communications. For example the Harvard finished soot black all over except for the roundels, or one finished in dapple camouflage of brown, green and grey (Italian style) would be authentic.

I enclose two snapshots showing the markings I have mentioned.

Neston, Cheshire.

R. S. Capewell.

Inverted Pots

Dear Sir,

Having recently returned to aeromodelling after a break of some fifteen years, I am delighted with the many advances that I see have been made in the hobby. The standards of construction and flying have never been higher, and as a scale enthusiast I am both pleased and amazed at what the multi-channel boys can do nowadays.

But one depressing feature of the old-time gas model remains: the protruding cylinder head. Now I know all the arguments in favour of upright engines (unless any new ones have been raised since I last read your magazine, all those years ago) but I just can't reconcile all those pots perched up on the noses with the elegant airframes behind them. Surely the superb construction and finish of today's models demand a more enterprising approach to the way we mount our engines? To see a magnificent scale model such as Fujio Arigaya's *Skyhawk* utterly ruined by its visible upright engine—whatever the designer's reasons for having it this way—is nothing short of sacrilege.

Incidentally, am I right in thinking it was Dr. Forster who always insisted that the only "upright" engine was an "inverted" one?

Henry Skinner (Sqdn. Ldr.)

RAF Manby, Louth.

Boeing 727

Dear Sir,

I am writing in regard to your 'New Plastics of the Month' column page 489 of the October 1965 issue of 'Aeromodeller'. As a mechanic for American Airlines, I read with interest your notes on the colour and markings of American Airlines Boeing 727's.

The insignia on the fin is a dark blue (bonnet blue) eagle lettering on a white ellipse inside an orange (international orange) circle. The lettering inside of the ellipse, below the eagle says 'American'.

The lettering '727 Astrojet' is on the sides of the centre engine intake, while the number is on the lower part of the fin. The numbers run from N 1970 through to N 1994.

The fuselage flash is an 11 inch orange stripe, tapered to a point at front and rear.

This has 1 inch white outline and a 1 inch blue outline. The lettering 'American Airlines' is in blue with a white outline.

Frank Hunter.

Powners Grove III.

That teamracer

Dear Sir,

Mr. Heimann has provided an amusing sketch of what he considers a "feasible" position of a pilot in that Russian model and he cautiously admits—in the understatement of the year—that the poor chap's position would be uncomfortable. Let's face it, this position is hopelessly unrealistic.

Years ago CIAM issued an internationally accepted set of TR rules, based on well proven British and US contest rules and practical experience with this type of model in these countries. These early rules clearly specified that TR models must resemble racing type airplanes. This is, of course, the basic idea of teamracing—and to anyone engaged in it there has never been a doubt about this fact.

If Mr. Heimann would care to check his German rule-book once more, his dreams of nonplussing officials entering a model of a transport plane in a TR event should quickly fold, because the paragraph concerning the semi-scale looks of TR entries is, of course, listed under the appropriate heading "team racer", making it quite clear to which category of models the rules apply.

Unfortunately the scale appearance of TR models has to some extent been traded off for higher speeds in recent years, a trend encouraged by a certain indifference on the part of TR officials. This has led to a marked deterioration of the aeroplane-like appearance required by the rules.

At a recent meeting, CIAM informed the delegates of all countries, including the USSR, about the official point of view in this matter. It can therefore be safely assumed that—Mr. Heimann's personal interpretation of the rules notwithstanding—the models participating in the coming TR world championships will sport a canopy fitted in the proper place.

Hans Justus Meier.

Bremen, Germany.

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FROG '100' Mark III

Specially developed for the sports flyer and beginner with a particular emphasis on easy starting and adjustment—plus **REALLY CONSISTENT PERFORMANCE**. Readily identified by the red anodised cooling fins



Price 59/6

SPECIFICATION

Displacement: 0.9 c.c.
(.060 cu. in.)
Bore: .416"
Stroke: .460"
Mounting dimensions:
(Beam) 1 1/4" x 7/16"
Height: 2 1/2"
Length: 2 1/2" (less tank)
Crankcase width: 1"
Weight: 3 ounces
(3 1/2 oz. with tank)
Piston: Meehanite
Cylinder: Hardened steel
Crankshaft: Hardened steel
Contra-Piston: Meehanite
Con. rod: Alloy forging
Crankcase: Light alloy pressure die casting
Main bearing: Bronze
Model Sizes: Free flight 34"-48" span. Control line 15"-36" span (depending on type, etc.)

● **NOW WITH SPRING STARTER**

● **INTEGRAL PLASTIC TANK**

(readily detachable, if preferred)

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Front rotary (crankshaft port) induction specially developed for optimum timing. Precision honed cylinder bore; centreless ground piston; tough, hardened steel crankshaft. Precision made throughout from highest specification materials — a power unit you can really depend upon!

EVERY "FROG" ENGINE GIVES YOU—

- ★ **DEPENDABLE, DEAD-EASY STARTING !**
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- ★ **AN ENGINE THAT STAYS ON TUNE !**

Frog Engines are obtainable from your Model Shop

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150 MARINE	75/0
249 MARINE	119/6
349 MARINE	139/6
349 R/C MARINE	157/6

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FROG "80" Mark III 54/6
 .8 c.c.
 Latest version of this world-famous 'sports' diesel now fitted with spring starter and other detail improvements for even better performance. Twin exhaust stacks, angled needle valve. Built-in compression screw lock
 Capacity: .79 c.c. Weight: 1.9 oz.
 (.48 cu. in.) Speed range: 3,000
 Bore: .400" to 16,000 r.p.m.
 Stroke: .392" Front rotary valve

FROG "150" Mark III 65/0
 1.5 c.c.
 A superb high-performance diesel for 1/4 A Team Racing, the smaller stunt model, or sports or contest free flight. Now fitted with spring starter—and performance uprated!
 Capacity: 1.49 c.c. Weight: 3 oz.
 (.060 cu. in.) (3 1/2 oz. with tank)
 Bore: .500" Power: approx. .15
 Stroke: .460" blip at 15,000 r.p.m.

FROG "249 BB" 97/6
 2.5 c.c.
 A true competition engine designed for top performance and featuring twin ball races, high speed rotary (crankshaft) induction and special cylinder porting. Robust design ensures great strength and extremely consistent performance
 Capacity: 2.494 c.c. Weight: 6 1/2 oz.
 (.152 cu. in.) Power: Approx. 0.3
 Bore: .581" bhp at 15,500 r.p.m.
 Stroke: .574" Angled needle valve

FROG "349 BB" 99/6
 3.5 c.c.
 3.425 c.c. capacity (.209 cu. in.) ball race engine specially suited for Combat or larger stunt models. Original design of rear-mounted barrel valve induction for really smooth performance with a large size diesel
FROG "349 BB" R/C . . . 119/6
 Special radio control version fitted with exhaust muffler and barrel-throttle for fully flexible speed control

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A Member of the Lines Group



MEMBERS' PAGE

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

Dear Sir,

Here is a photograph of my single-channel Veron 'Robot' which although as yet unflown, has made several test glides. The 'Robot' is powered by a P.A.W. 1.49 motor, and is equipped with a Terrytone Mk. II receiver and a pushrod Commander actuator. Initially I tried a 4.5 volt battery to drive the Rx and actuator, but the spring tension was too much, and the actuator failed to operate with more than twenty turns on the rubber motor. The battery was then changed to a 4.8 volt DEAC 225, and the spring was slightly eased, so that now the motor can be fully wound and the escapement functions correctly.

I hope eventually to obtain a multi R/C outfit, possibly a Grundig 4 channel set.

We have recently formed a school model club of which I am secretary. Interest is mainly in control-line models, although two of us do operate R/C. Speaking of control-lines, we have flown (and crashed!) seven different Keil Kraft 'Talons' and four different Veron 'Colts' in the past two years.

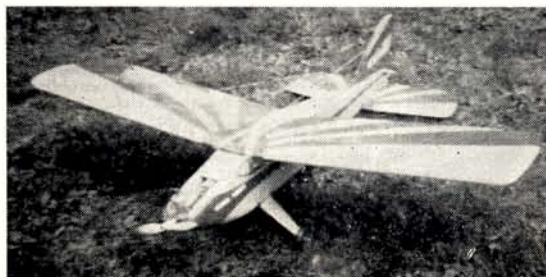
We do not hesitate in recommending the Veron 'Colt', with an A.M. 15 R/C engine as the ideal approach to C/L flying. First flights can be made with the engine throttled back, and as experience is gained this can be speeded up until it is full throttle, when the model can be made to perform 'mild' aerobatics, such as loops and wing-overs.

The only control-liner which I have seen doing a barrel-roll(?) was an overweight Pee-Wee powered stunter. I was flying it in a strong wind, when it was blown into the circle. The torque of the motor caused the low aspect ratio model to roll on its inboard wing-tip. By the time it was the right way up again it was crosswind on the downwind side, and I regained line tension.

Needless to say, this manoeuvre was completely unintentional.

N. J. Wilcock.

Taunton, Somerset.



How to join our new club

To join, fill in the handy membership coupon and send with postal order/money order, or cheque to the value of 2/6d made payable to "Aeromodeller". Post to Golden Wings Club, Aeromodeller, 13-35 Bridge Street, Hemel Hempstead, Herts. Each member will receive his own badge depicting "Golden Wings", a membership card, and two transfers to decorate his model box or model. So don't delay, join the "Golden Wings Club" and make it aeromodellings biggest and best ever model club, as well as being a founder member.

John Bridge

Dear Sir,

I am sorry to hear that there will no longer be a magazine called 'Model Aircraft' but I am sure that I will find the combined magazine just as interesting. I have two aircraft, one is a *Phantom Mite* which is camouflaged and renamed *Wildcat J.W.5*. It is powered by a Mills .75. I have almost finished a *Veron Focke-Wulf 190 A3* which is to be powered by a Frog 349. I have just started *Avion* which was given in the June issue of *Model Aircraft*. Out here I am luckier than most boys because I can fly my models all the year although there is a period of rains which we call the rainy season.

Tristram Charles Read.

Uganda. E. Africa.

N. J. Wilcock's "Veron Robot" below is powered by a P.A.W. 1.49 with Terrytone Rx.

Dear Sir,

Can you refer me to a back issue or book that gives information how to carve rubber model propellers.

Having just constructed my first own design rubber model I would like to get as much information as possible on this subject.

Romford, Essex.

J. Clarke.

Details of how to carve rubber model propellers from solid block are in "All about Model Aircraft" published by Model Aeronautical Press price 7/6d. Author Peter Chinn describes step-by-step construction of a Frog Raven kit and shows the novice how to mark out, carve and balance propellers. If you would like to laminate one from sheet the "Little Mavis" A.P.S. plan published on page 426, September 1965 Aeromodeller gives all the gen. Plans for this design can be purchased complete with these details costing 4/- including postage.

Dear Sir,

I have recently bought a plan for the Tempest Mk II off you. Information on squadron and camouflage markings for this variant seems difficult to obtain. Could you please help me with them or recommend any books with information on this aircraft.

S. G. Hayes.

Northenden, Manchester. 22.

We would recommend the book "Famous Fighters of the Second World War" published by Macdonald. This has a chapter on the Hawker Typhoon and Tempest with a three view Typhoon IB drawing and several Tempest photographs.

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 badge, transfers and membership card.

NAME IN FULL

ADDRESS

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

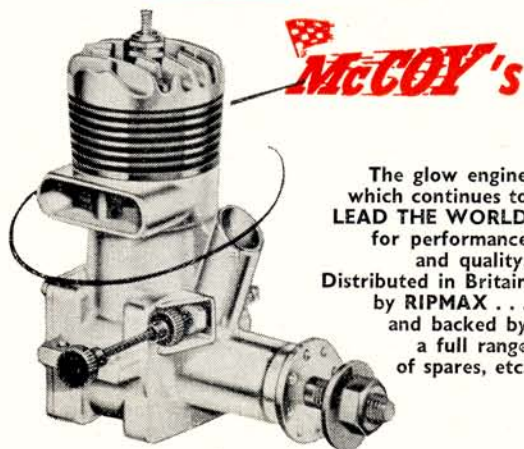
NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I BELONG (if any)

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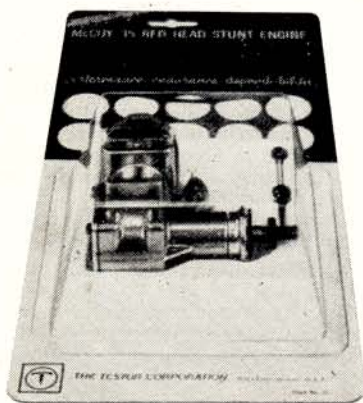


The glow engine which continues to **LEAD THE WORLD** for performance and quality. Distributed in Britain by **RIPMAX** . . . and backed by a full range of spares, etc.

McCOY for **DEPENDABLE POWER** and rugged reliability which goes on . . . and on . . . and on . . .

McCOY in the classic 'racing' engine layout pioneered by the original McCoy designs which held every world record in their class.

McCOY which comes to you in the plastic bubble pack . . . new and untouched until you start it up.



McCOY 19 STUNT

Snappy short stroke engine for free flight or control line. Just watch it lick the other 19's—and just look at the sensational price!
only 67/6!



SPECIFICATION

Bore .642
Stroke .617
Displacement .19
Weight 6.0 ounces
H.P. Rating .40 at 13,000

McCOY 19 R/C

Same specification as the 19 stunt, but fitted with the special McCoy barrel-type throttle for R/C work. Power to fly a 'Tauri', or similar model.
only 109/6!



SPECIFICATION

Bore .642
Stroke .617
Displacement .19
Weight 7.0 ounces
H.P. Rating .40 at 13,000

McCOY 29 STUNT

Rugged power aplenty for that larger free flight or control line stunt model. Develops over one half horsepower.
only 74/6!



SPECIFICATION

Bore .732
Stroke .712
Displacement .29
Weight 7.0 ounces
H.P. Rating .54 at 12,500

McCOY 35 STUNT

Larger bore and stroke (not a bored-out 29) for a genuine 0.6 BHP at only 7 ounces weight! Superb for control line stunt.
only 79/6!



SPECIFICATION

Bore .775
Stroke .740
Displacement .35
Weight 7.0 ounces
H.P. Rating .60 at 12,500

McCOY 35 R/C

Handles those 'full house' multi models with lightweight gear, or puts real pep into a medium size R/C job. With full throttle control.
only 133/6!



SPECIFICATION

Bore .775
Stroke .740
Displacement .35
Weight 8.0 ounces
H.P. Rating .60 at 12,500

McCOY 40 STUNT

Increased stroke giving that little extra in performance for handling those really big control-liners or larger free flight models.
only 105/0!



SPECIFICATION

Bore .828
Stroke .740
Displacement .40
Weight 8.0 ounces
H.P. Rating .60 at 12,500

McCOY 40 R/C

Same specification as '40' with throttle for R/C. This is the ideal choice of power plant for R/C pylon racing or the lighter 'full house' multi jobs around 60' span.
only 158/6!



SPECIFICATION

Bore .828
Stroke .740
Displacement .40
Weight 8.0 ounces
H.P. Rating .60 at 12,500

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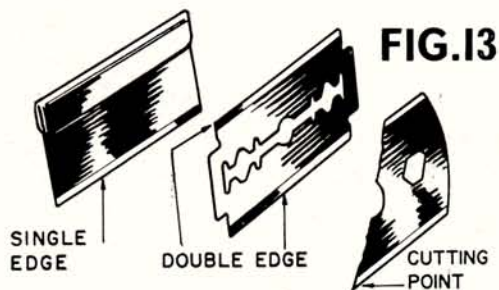
In case of difficulty write: RIPMAX MODELS & ACCESSORIES, 80 HIGHGATE ROAD, LONDON, N.W.5

BASIC Aeromodelling tools

The fourth part of our monthly series for the novice modeller

THE one 'basic' tool required for aeromodelling construction is a very sharp cutting edge. Opinion is divided as to whether a *razor blade* or *modelling knife* is best for cutting balsa strip to length and cutting out sheet parts. The principal advantage of a razor blade is that it has a sharper edge; but it is, of course, a more hazardous tool to employ and the fact that it is flexible makes it difficult to cut thicker sheet accurately. A modelling knife has the advantage that it can 'take' different shapes of blades for different work; or even a razor saw for cutting thicker sections of strip wood.

In fact, both tools are really essential. In the case of razor blades, some people prefer the stiffer (and safer to handle) single edged 'backed' type; others the more flexible double-edge type either whole or broken in half to form an angled cutting point—*Fig. 13*. Choice is largely a matter of individual preference, although double-edge types usually appear to stay sharper longer—but perhaps this is only because they have two usable cutting edges! In all cases, however, it pays to buy new blades and throw away blades as soon as they lose their edge. It is not worth the trouble of trying to re-sharpen razor blades as the results obtained are seldom satisfactory.



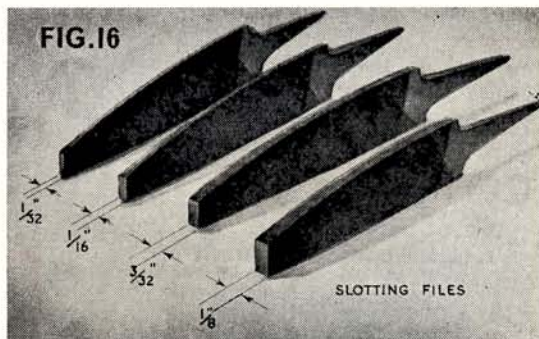
As regards modelling knives, again choice is rather a matter of individual preference. The slim handled knife with tapered, pointed blade is best for light cutting and trimming work. A heavier handle, either plain or enlarged into a 'grip', will take a stouter and wider straight tapered blade for cutting thicker sheet, etc; or various carving blades—*Fig. 14*. When it comes to heavier carving work, however—*e.g.* carving balsa propellers or carving thick sheet wing panels to aerofoil section—a separate knife is usually better than a long carving blade in a modelling knife handle. This can be an inexpensive kitchen-type knife, sharpened to a really keen edge—and kept sharp. A long modelling knife blade can snap if used for 'heavy' carving and the fact that it will



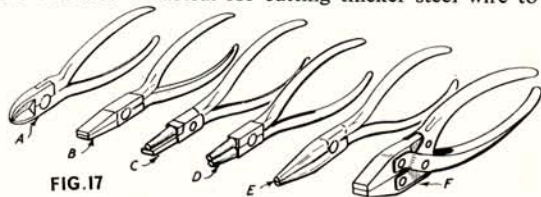
also tend to flex makes for less accurate carving work.

For other cutting jobs a variety of saws will be handy, and in some cases essential. Thus a fretsaw or coping saw is essential for cutting out parts in ply thicker than $\frac{1}{16}$ in. Ply of $\frac{1}{16}$ in. thickness or less can be cut more accurately with a modelling knife—but more easily with a saw. A small stiff-backed saw and a small hacksaw are also other handy tools—also a hacksaw blade fitted with a handle made from a length of dowel split in half—*Fig. 15*. None of these is an expensive item to buy and all are worthwhile additions to the aeromodeller's workshop equipment.

The razor saw, which is like a small version of the stiff-backed saw but fitting a modelling knife handle, is also well worth having. Its very fine teeth produce a clean cut across the grain when parting off thicker strip, and it can also be used on ply and hard sheet plastic. It is not so suitable for cutting materials of any appreciable thickness, however, as the blade tends to jam in the cut.



Other useful cutting tools are a set of small files, although these will have more limited application. Fine flat files are very useful for accurate slotting work—such as slotting a trailing edge to accommodate inset ribs. Choose a thickness the same as that of the rib sheet *Fig. 16*—and be sure to buy files that have a cutting surface on the edge as well as the face! A small triangular file will also be useful for cutting thicker steel wire to



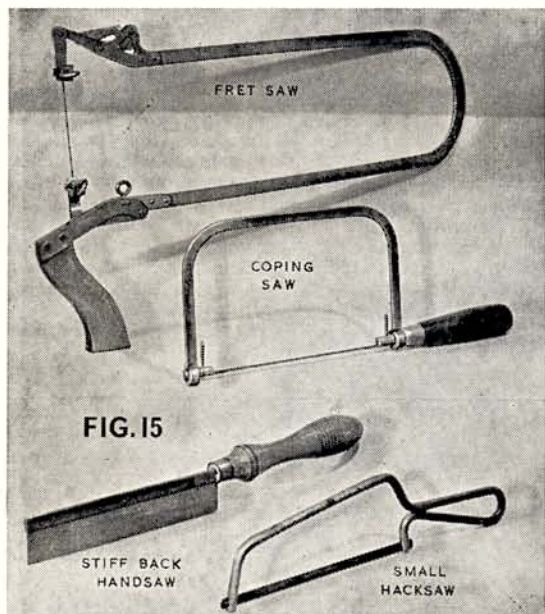


FIG. 15

length—cutting pliers usually 'give up' on this sort of job on 16 swg wire, or thicker.

You will also need some 'marking out' tools, such as a steel ruler, small metal *tri-square* and a 30-60 or 45 degree set square. Beside measuring, the steel rule can also be used as a guide for straight cuts with a razor blade or modelling knife. The *tri-square* is for marking out right angles on sheet or block (or larger strip sections). The set square is a necessary instrument for checking the squareness of the alignment of box fuselages when assembling the two side frames.

A collection of good pliers is always useful, but this can be built up as you go along. Most of the wire bending and cutting requirements can be tackled with a stout pair of general purpose pliers (type F, Fig. 17), since hooks, loops and similar shapes are most accurately formed by pulling and bending wire around a suitable mandrel (e.g. a piece of metal rod held in a vice).

Cutting pliers (type A) have their uses for cutting piano wire up to 16 swg, but not larger, and even then need to be of first class quality to withstand notching, or even breaking. Types B, C and D are very useful for manipulating bends in soft wire or piano wire up to 20 swg. Type E is a useful tool for various work, but is not suitable for wire bending or cutting.

A hand drill is one of those tools which is an essential part of most home workshops, together with a suitable selection of twist drills. Since no modelling materials are really hard the twist drill can be of inexpensive type—e.g. a Woolworth's set is quite good enough for general aeromodelling requirements. For working with the smaller drill sizes— $\frac{1}{16}$ in. and under—a pin vice is easier to handle than a hand drill and far less likely to produce broken drills. (See Fig. 18)

The hand drill should be kept as a workshop tool, and not double as a winder for rubber motors. To make a good winder you need a heavier type drill than is necessary for the workshop; and also a securely fitted winding hook mounted in the chuck which is not disturbed by repeated 'conversion' from winder to drill and back again.

A vice is one of those tools which many modellers can do without, but is really an essential piece of equipment for making life easier. It can be a simple, but good quality, type which clamps onto a table or bench. If you have the scope to fit up a proper workbench, however, get a small engineer's vice and bolt it permanently to the bench.

There are plenty of other tools which can be added, or improvised from various materials, many of which can prove extremely useful for specific jobs. A small pointed awl, for example, is very useful for 'spotting' centres for drilling in harder materials—although a similar tool can be improvised from a large round nail with the point finely tapered and sharpened by filing or grinding down. Punches for cutting neat circular holes in balsa or thin ply are also useful—but once again these can be made from short lengths of metal tube with one end sharpened to a cutting edge. 'Punches' made in thin-walled aluminium tube are quite adequate for use on balsa. For harder materials, use brass or steel tubing.

The electric drill and its various attachments has limited use in aeromodelling construction. However, if you have one, there is no reason why it should not be put to work. The sanding bench, for example, is particularly useful for 'squaring up' blocks of balsa which have been sawcut to rough side. Be very wary of using the flexible sanding disc on balsa airframes, however, as it cuts rapidly and the spinning disc can readily damage an adjacent part of the structure. If employed with skill, however, it can be used for 'carving' in solid balsa—e.g. wing tip shapes from block, or shaping sheet wing panels to aerofoil section. The main objection here is the amount of balsa dust produced. It is far less messy to hand carve with a knife and finish by hand sanding.

Finally we come to the *building board* which is about the most essential of all equipment in the aeromodeller's workshop. Since frames are constructed directly on it, the building board *must* be true and flat; and also soft enough to take pins stuck into it to hold the various parts in position over the plan. It is also obvious that the building board must be as large as the plan—or at least as the biggest single framework that has to be assembled flat.

A large drawing board makes an ideal building board, but this is not an item which can be picked up easily or cheaply, although a good board is usually well worth the money spent on it. You can make one in hard balsa sheet or obeche for about £1, as shown in Fig. 19; or from planks of any wood which is reasonably soft, joined edge to edge with battens. The main thing is to use 'plank' material which is true and stays true. It is also important that the edge joints should be as tight as possible.

A suitable alternative is an old type wooden-topped kitchen table, using the whole table as a workbench. However, this will only make a good building board if the top is unwarped and unridged. Old tabletops, in particular may be badly warped and also have cracks and roughened grain. It will be almost impossible to true them up. The best treatment in such cases is usually to level off the surface as far as possible with a plane and then cover

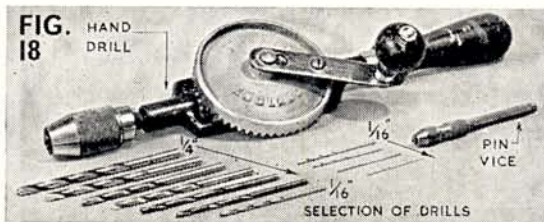
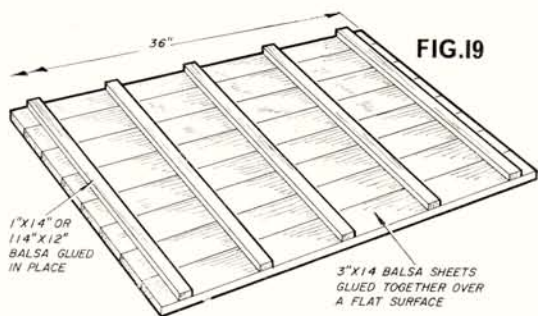


FIG. 18



the whole tabletop with a new base material—balsa sheet, lino or sheet cork insulation. This will probably end up being just as expensive as making a new board from scratch.

For temporary working, rigid *strawboard* is quite a good building board material, provided it can be pinned or weighted down over a flat surface. If strawboard is kinked it is useless as a working surface. Strawboard can also be used to 'face' another surface. For example, a strawboard facing glued to a lightweight insulation board about 1 in. thick will make quite a good working unit, especially if the edges are bound with masking tape. The surface will not be as durable as a wooden board, however, and will require replacing from time to

time. You can do this simply by sticking another layer of strawboard on top of the first.

Logically, since you work right over the plan mounted on the building board you will be tempted to cut balsa parts to length on the building board itself. If the board is large enough, you can leave yourself a 'working area' for this below the position of the plan. However, this is bad practice for it will damage the board surface and you may need to work over that damaged area when using another plan. Cutting should always be carried out on another surface quite separate from the building board. If you do not have the room, make a separate cutting board to fit over the edge of the building board, as shown in Fig. 20.

NEXT MONTH Adhesives

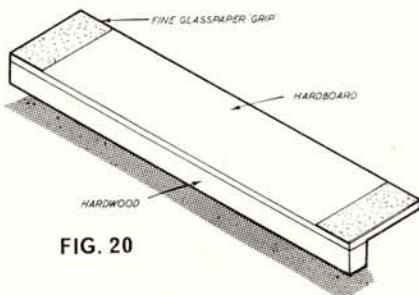


FIG. 20

NZ NATS Continued from page 211

Payload was once again dominated by the .049 size models and some of those were particularly well-trimmed. In this event Harry Winn of Auckland led throughout being closely chased by Alf Leong of Hamilton. Leong had the bad luck to break his wing on the 2nd flight and using a piece of 1/16th sheet and lots of rubber bands and pins managed to max out in the 3rd round and ensure himself second place.

- | | | |
|--------------|-------------|-------|
| 1. H. WINN. | Auckland. | 518.5 |
| 2. A. LEONG. | Hamilton. | 457.3 |
| 3. B. ROOTS. | Wellington. | 440.5 |

Class B. Team Race was flown in the afternoon and in this event the motor to beat was the Eta 29. Fastest time was put up in the heats by Phil Staples of Wanganui with 7:00.8, but was unable to repeat this in the final.

- | | | |
|----------------------|------------|--------|
| 1. A. DOUGLAS. | Gisbourne. | 8:00.1 |
| 2. P. STAPLES. | Wanganui. | 8:20.7 |
| 3. P. O'CONNOR—GUNN. | | 9:07.2 |

Below is Mike Kendrick's R/C scale winner, a Merco 49 powered Chipmunk and at right is Laurie Ackroyd's Veco 45 Piper Comanche (Controlaire 10).



Saturday morning was devoted to **Nordic A.1. Glider** and once again the wind was fairly strong (15-28k). With the lessons learned in A/2, most fliers played their models very cautiously. Gordon Speedie of Wellington who was flying an AP.S *Aiglet* started the ball rolling with a 179.3 flight and was never headed off, although chased very closely by Ross Glennie of Wanganui.



Alf Leong (Hamilton) prepares to launch son Russell's all sheet A/1 glider.

Speedie, when making his model, had put two Oregon Spruce Spars in the wings just for the windy eventuality and it certainly paid off. The worst feature of the contest, was the way a lot of modellers were throwing their reels away in order to release the models and three times they were seen to come close to hitting a person or car. This is definitely a practice that will have to be remedied in N.Z. before an accident does occur. Other countries (including Great Britain ban the thrown winch).

- | | | |
|----------------|--------------|-------|
| 1. G. SPEEDIE. | Wellington. | 786.9 |
| 2. R. GLENNY. | Wanganui. | 732.6 |
| 3. A. COLE. | Lone Member. | 427.7 |

R/C. Multi Scale was flown in the late afternoon and whilst lacking in entries, the standard of the models were superb both in static and flying. Mike Kendrick of Wanganui won this event flying a well-finished *D. H. Chipmunk*.

- | | |
|-------------------------|-----------------------|
| (Flight: Scale + Total) | |
| 1. M. KENDRICK. | Wanganui. 280 415 695 |
| 2. L. ACKROYD. | Howers. 239 333 572 |
| 3. R. MILNE. | Hastings. 40 206 246 |

The prize-giving wound up this years Nationals and top modeller for **Champ of Champs** was Paul Lagan of Hamilton who came completely prepared, in fact he sent all his models ahead by rail in November!

With the weather as bad as it was, there were thoughts that few would brave the elements, but this was proved wrong. Actually there were surprisingly few complaints about the weather and most modellers were pleased to hear Feilding would possibly be the locale of the Nats. for 1966-67.

With Wellington taking over the reins of Council for the next two years, after a job well done by Christchurch, it is hoped that future Nationals will be as pleasant as those of the past.



AIRCRAFT DESCRIBED Number 149

P.Z.L. 104

drawn & described
by F. Pawlowicz

another interesting
subject for
flying scale



THIS unique high-wing general purpose monoplane as designed by R. Orłowski, B. Zurakowski and A. Frydrychewicz, and manufactured by Panstwowe Zakłady Lotnicza (Polish National Aircraft Factory) in Warsaw. It has been evolved from the experimental PZL-104 Wilga 1, which first flew on April 24, 1962. A modified Wilga 2, powered by the Polish engine WN-6RB2 of 185 h.p., was supplied to Polish aero-clubs. Wilga 2 first flew on August 1, 1963 and the subsequent Wilga C on November 30, 1963. The Wilga C is basically similar to earlier models but is powered by 225 h.p. Continental O-470-13A engine with an all metal McCauley 2A34C-50-90A2 propeller.

Five versions of the Wilga C are currently projected, these including the Wilga CS ambulance, CA glider tug, CR agricultural aircraft, and CP general purpose four-seater. It is proposed that the Wilga will be manufactured

for Indonesia. The aircraft is of all metal semi-monocoque construction, and the cabin design is readily convertible for the cargo or ambulance roles. The wing is mounted high on the top of the fuselage which permits the latter to be close to the ground with consequent easy loading for passengers and freight. Wing is of single spar structure, utilising NACA 2415 section. One of the unusual features of the Wilga C is the wing construction. In place of the usual complicated structure of spars and ribs Wilga C has a stressed skin of corrugated Duralumin over five basic ribs. The wing is fitted with slotted flaps which are manually operated, and has full-span fixed slats to provide good control at low speed. Ailerons and flaps are all constructed with a corrugated skin. The tail unit is of similar construction to the wing and has a symmetrical NACA 0012 M section. The fuselage is of semi-monocoque structure in stressed skin Dural.

Wilga C has a fixed undercarriage, with two semi-cantilever struts. All three undercarriage shock absorbers are of the air-oil type.

As a flying scale project it presents difficulties of representing the various corrugated surfaces and the wing mounting, but its proportions, especially the long legged undercarriage make it ideal for rubber power. It offers a challenge for a simplified version, and for free-flight power scale it allows inclusion of detail which would make it a perfect contest subject.



Details in the Wilga 2 close up of show earlier under-carriage which is easier to reproduce.



DATA

Dimensions:-

Span 36 ft. 5 in.
Length 27ft. 2 in.
Height 8 ft. 8½ in.
Wing area 166.84 sq. ft.

Weight.

Empty 1154.35 lbs.
Loaded 2330 lbs.

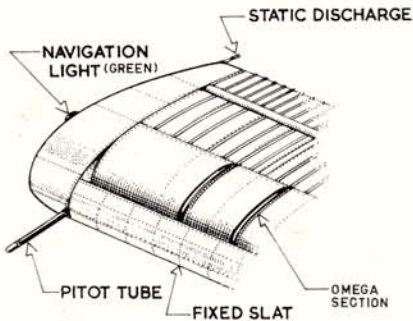
Performance.

Max Speed 124 m.p.h.
Cruising Speed 111 m.p.h.
Min. Speed 33 m.p.h.
Service ceiling 15,000 ft.
Normal range 372 miles.
Take-off run 393 ft.
Landing run 328 ft.
Landing from obstacle
50 ft. high 918ft.

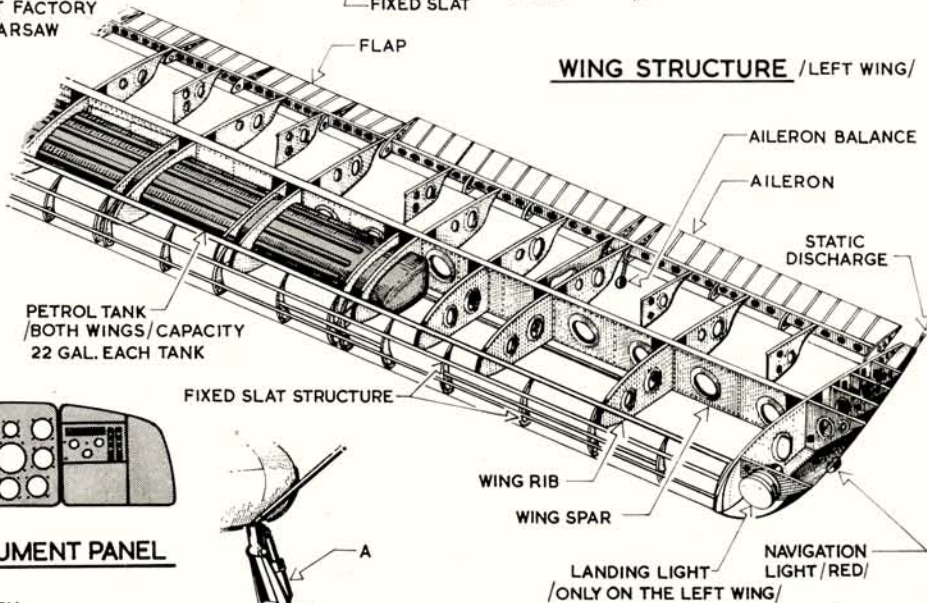
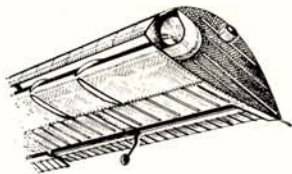


FACTORY MARKING /BLACK/
POLISH NATIONAL
AIRCRAFT FACTORY
IN WARSAW

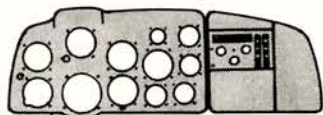
TIP OF THE RIGHT WING



LEFT WING WITH LANDING
AND POSITION LIGHT

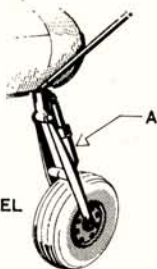


WING STRUCTURE /LEFT WING/

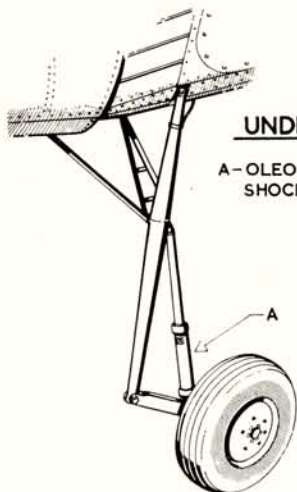


INSTRUMENT PANEL

DARK GREEN



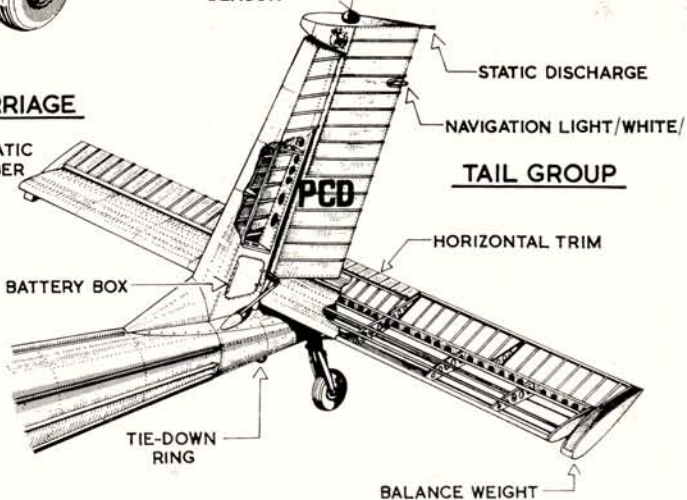
TAIL WHEEL



UNDERCARRIAGE

A - OLEO-PNEUMATIC
SHOCK ABSORBER

ANTI-COLLISION
BEACON

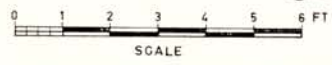
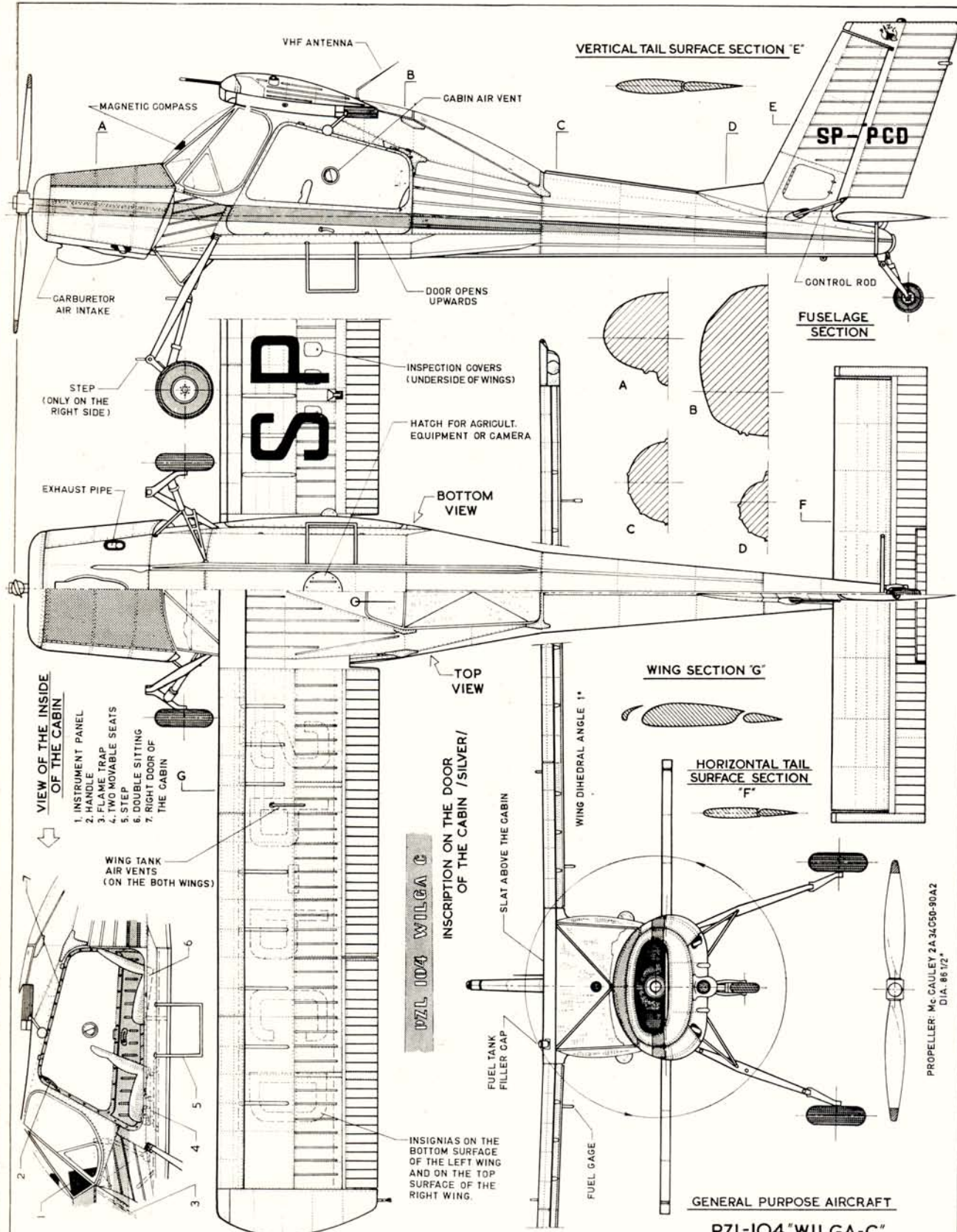


TAIL GROUP

PZL-104 "WILGA-C"

DRAWN BY F. PAWLOWICZ

Reprints of the 1/48th plan plus 1/24th scale dye-lines are sold as plan pack 2862, price 2/6d plus 6d. postage, from AEROMODELLER PLANS SERVICE 13-35, Bridge Street, Hemel Hempstead, Herts.



COLORING NOTE:

ENTIRE AEROPLANE POLISHED ALUMINIUM, PROPELLER SILVER WITH YELLOW TIPS, ANTIGLARE PANEL BLACK, STRIPE ON THE FUSELAGE RED, NATIONAL INSIGNIAS BLACK.

PROPELLER: Mc CAULEY 2A 34/CSO-90A2
DIA. 86 1/2"

DRAWN BY F.PAWLOWICZ



CLUB AND CONTEST NEWS

A nice club shot from Sheffield Society of Aeromodellers, shows high interest in free flight rubber and glider. Note the percentage of junior members.

A.P.S. PLANS AND ESSEX CONSTRUCTION

During Friday night club meetings Debbenais M.F.C. are constructing two A.P.S. profile models, the *Red Dragon* and *Stallion*. Building is worked out to a schedule each member has a specific evening task i.e. one cuts wing ribs, another cuts fuselage parts etc. The system is working well and they hope to use them as club models in local flying displays during the summer show and fête season. If you're looking for club activity—why not consider this useful and productive idea?

EASTER EXHIBITION

Sheffield Society of Aeromodellers are taking part in an exhibition of handicrafts at Easter and most club members are thinking hard of how to make their display the most eye catching. At present they have a large collection of electric R.T.P. models, including one that drops bombs in flight—ouch!! Current project is a club cine film and this is nearing completion.

The Message N.W.A. Style

"For what you are about to receive, McClave make you truly thankful"; this is the opening line of "The Message", the North Western Area S.M.A.E. newsletter, issue number one. Written in a breezy style with plenty of cracks at established N.W.A. organisers and contest fliers by Peter Branigan, respected editor of *Blueprint*, the Liverpool D.M.A.S. newsheet; its twelve pages contain two free flight and one control line plan, latest area news, topical comment and pertinent comment in "Private Eye" by J. Vaselini. Peter is also P.R.O. for N.W.A. and can be contacted at 36 Windsor Road, Formby, Liverpool.

NEW AEROMODELLING CLUBS

Not strictly a new club, *Potteries M.A.C. (Spitfires)* are an amalgamation of Five Towns M.A.C. and Clayton (Newcastle-u-Lyme) M.A.C. who are both located quite close to each other so the Spitfires now have 100 members. The late R. J. Mitchell of Spitfire fame hailed from their area, hence the name. Very active, Glider, Power and Radio fliers are all hard at it and to prove they are an "In" club indoor R.T.P. meetings are a regular feature. Prospective members should contact Jack Fisher, 1 George Street, Newcastle-u-Lyme, Staffs, Down south *The Invicta Modellers Club*, hail from Orpington, Kent, with 30 members R/C is the main interest and any modellers in North Kent are more than welcome. For details write to J. Howard, 17 Blythe Hill, St. Pauls Cray, Orpington, Kent. Up country to Hull in East Yorkshire, *The Dolphins A.M.C.* with eight members are hoping to find a clubroom and attract a few more members from the Hull area. Contact the Secretary, *The Dolphins A.M.C.* 21 Astoria Crescent, Shaftesbury Avenue, Holderness Road, Hull for details. Last but not least come the *Tudor Falcons* (that's how they spell it) from Sutton Coldfield in Warwickshire; any interested locals should contact John Osborn, 18 Maple Road, Sutton Coldfield, Warwickshire.

MEETINGS AT EASTER

In recent years the Contest Calendar has become more crowded each season. Last year several events clashed and this year many are sure to do so as organisers realise they have left their date selection rather late and have to take one already booked by another club. This is alright as long as the two, or sometimes three, rallies events do not duplicate each other too badly. Unfortunately this Easter, three meetings are being run and they all clash, two of these in fact are two-day meetings on Sunday and Bank Holiday Monday. On Monday the 11th we have the Goodyear Pylon Race Meeting at R.A.F. Hullavington for radio controlled pylon racers that meet with N.M.P.R.A. rules as flown in the U.S.A., with £30 *STARTING MONEY* (sounds like a horse race, so they may get Saturday afternoon Television coverage yet!) This clashes with the North Western Area's Easter Meeting at R.A.F. Tern Hill which was the last to be announced. They will have Multi Channel F.A.I. radio control on the Monday, with a special £15 prize. This duplication of events can only do harm by splitting the number of contestants at each meeting, as most of the pylon race entrants will come from the ranks of already skilled multi aerobatic pilots. A still larger clash is that of the N.W. Area two day meeting and the two day South of England free flight Gala at Chobham. As well as splitting the entries this will surely only make for a less exciting competition at both venues. The choice is up to you! Geographically the events are fairly widely spread so that the clash affects the keenest modellers most and we'd be the last to tell them where to go!

Stop Press. Last minute information just received from the North Western Area S.M.A.E. reveals a change round of events from those listed above so as not to clash with the Pylon Race meeting which some of their radio organisers want to attend. Latest and correct events for each day are those shown in "Events this Month".

1947 NATIONALS SITE

Gravesend and District Model Engineering Association are awaiting confirmation for use of the new proposed recreation park being constructed on the site of Gravesend Airport where the 1947 Nationals were held as "oldies" well remember. Cor—that was when the slicker was a new kit and Mills diesels were on ration! Members interest is still towards radio control with at least 26 active in this sphere. Project for this season is a club building programme on a "Thunderchief" power assisted glider with a cine camera in the nose for aerial movies. They have one reel of 8 mm cine film on radio flying and this could be loaned to other clubs interested in radio flying by contacting the club P.R.O.

MODEL FOUND

Why don't modellers put their name and address on their models? It's such a simple thing to do and can save the owner a lot of money and loss of effort. A case in point was brought to our attention by Mr. A. S. Diebelius of 119, Stanley Road North, Rainham, Essex, who has recently come across a lost model. Details as follows, span 48 ins., length 34 ins., McCoy .19, single channel radio control. Red, white and black paintwork. Lost about six months ago. Number on it is D.G.A.-006.

SCOTTISH AEROMODELLING

The Scottish Aeromodelling Association report a good financial year and a successful Dinner and Dance. Their main problem seems to be how to run contests without flying sites, quite a problem, and one shared by many other clubs. One flying site they have obtained is the I.B.M. factory at Gourcock, where the idea is to hold team race events on the floodlit car park, combat on the factory front lawn, with the adjacent Spango valley for free flight and radio. This has been possible only through the co-operation of I.B.M. who have made available their full Sports and Social Club facilities, including use of changing rooms, showers, a lounge with panoramic windows overlooking the control line flying area and a restaurant serving anything from a bun to a four-course meal. The Caley Shield is to run at this venue as a try-out and if successful more contests will be run there. Scottish contest shown in "Coming Events" are open to all insured modellers at the usual 2/6 entry fee or 5/- on the field. Rat Racing will be flown to S.M.A.E. rules, but on 52' 3" length lines due to lack of space. Where free flight contests with S.M.A.E. area centralized events, these will be run simultaneously.

Members of Hawker Siddeley Aviation Model Club (Hatfield) pose with some free flight, control line and radio models on Hatfield aerodrome.

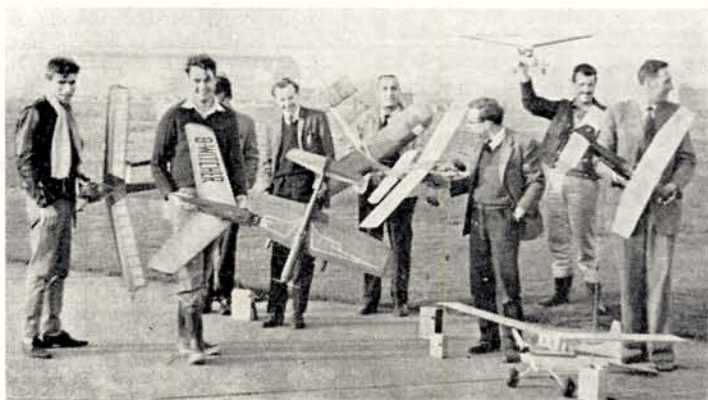
ROYAL AERONAUTICAL SOCIETY MODEL CLUB

There seems to be plenty of activity at Hatfield, home of the de Havilland section of Hawker Siddeley Aviation with 35 active members in their model club. The lucky members have an area two miles long by one mile wide with a fine grain asphalt runway to fly upon. Permanent premises have not yet been found for regular club meetings, but they have the use of a committee room in the Social Centre where talks from outside speakers and film shows can be given. Although over half their models are radio control they also have interest in most other classes and club members include Dave Tipper, Bruce Rowe, Nigel Noel and Pete Putman who have had several successes in free flight contests. A recent exhibition at their Social Centre has 40 models on display, in a rather small space with some 5 foot wing span multi jobs amongst them. Four radio sets were wired up for demonstration, one a single channel set up with Rx, Tx escapement, and rudder mechanism built onto a "bread-board". The others were on experimental proportional system constructed by one of their members, a ten channel system installed in a Super 60 and MacGregor single channel working an Elmlic Compact escapement on rudder, elevator and engine speed control. This was installed in a Keil Kraft Mini Super with the airframe uncovered, so that all the working parts could easily be seen. All systems worked faultlessly in spite of busy fingers from some of the younger visitors and almost continual use, this being a good test of both home made and commercial radio gear.

This elegant cup will be presented to the Senior Stunt Winner at the Finchley Control Line Contest.

CLUB DIARY

Next month we shall be starting a new service for clubs. Space will be devoted for a regular "Club Diary" of club events covered by the month of issue. This will include film shows, R.T.P. meetings, etc., for your club that will be of interest to your members and many non-members who will want to come along and join in the fun. Please send details to "Clubman" at "Aeromodeller". The same system has been used by "Model Engineer" for some while now, and has established itself very well.



DO NOT
FORGET —
ALL
RALLIES
REQUIRE
INSURANCE
COVER



COMING EVENTS

Additional to last Month's announcement.

- May 8** Imperial College C/L Rally. Imperial College Sports Ground, Harlington Nr. London Airport, Class A and B Combat, Rat Race. Pre-Entry 3/- to:— I. Turner, 9 Ryecroft Street, Fulham, London S.W.6.
- May 8** Kilmarnock F/F Rally. Ballageich Moor, Eaglesham, Renfrewshire Open. R/G/P. Pre-Entry to:— W. McGill, 12 Clyde Place, Kilmarnock.
- June 12** Croydon Gala. Chobham Common Surrey. R/G/P.
- June 12** Dunfermline C/L Rally. Pitreavie, Nr. Dunfermline. Rat Race Combat Stunt and Chuck Glider. Pre-Entry to:— Dunfermline M.A.C. 2, Macgregor's Building, Woodmill St., Dunfermline.
- June 12** East Anglian Area Postal Contest.
- June 26** Madmacs Meet, Pitreavie, Nr. Dunfermline. Combat and Rat Race. Pre-Entry to:— J. Dunker, Kirklands Garage, Kinross, Kinrosshire.
- July 4** Scottish Gala. Spango Valley, Gourcock, Open R/G/P. JA, F.A.I. T/R. Combat, Rat Race. F/F entry:— T. Preston, 53 North Gyle Terrace, Edinburgh 12. C/L:— I. Coultts, 12 Machan Road, Larkhill, Lanarkshire.
- July 10** Clwyd Slope Soaring Meeting. West slopes of Moei Ffamau Nr. Mold.
- July 24** South Coast Gala. R.A.F. Tangmere, Nr. Chichester, Sussex, F/F/R/C and C/L.
- July 24** Ardrossan C/L Contest. Auchenhavrie, Ardrossan, Ayrshire. Rat Race and Combat.
- August 7** Glasgow Hornets C/L Rally. College Milton East Kilbride JA, F.A.I. Team Race, Rat Race Pre-Entry to:— G. McCree, "Slioch", Langrig Road, Newton Mearns, Glasgow.
- August 14** Control Line Scale Meeting. College Milton, East Kilbride. Pre-Entry to:— G. McCree, "Slioch" Langrig Road, Newton Mearns, Glasgow.
- August 21** East Anglian Area Open Meeting. R.A.F. Upwood Open R/G/P.
- August 28** Kirkcaldy R/C Rally. Donibristle, Fife, Single and Multi. Pre-Entry to:— A. Morrison, 185 St. Clair Street, Kirkcaldy, Fife.
- Sept. 18** South Midland Gala. College of Aeronautics Cranfield. All classes of F/F/C/L, and R/C including Coupe d'Hiver, and Chuck Glider, except Speed, B/T/R, and Scale. Enquiries to:— T. Payne, 7 Silverdale Road, Northampton.
- October 9** Greenock Rally. Spango Valley, Gourcock, R/G/P. JA, F.A.I. Team Race, Rat Race, Combat and Radio Control. Details from:— A. Oakley, Salvage Officer, H.M. Mooring and Salvage Depot, Brymner St, Greenock.

Events this Month

- March 20** Irvine Radio Control Rally. Gables, Nr. Irvine, Ayrshire, Pre-Entry to:— H. Cochran, 18 Mount View, Dregburn, Ayrshire.
- March 27** S.M.A.E. Event. Area Venues. F.A.I. Power, Open Rubber and Glider.
- April 3** Kirkcaldy Control Line Rally, Beveridge Park, Kirkcaldy Fife Combat Stunt, and Rat Race. Pre-Entry to:— A. Morrison, 185 St. Clair Street, Kirkcaldy.
- April 3** S.M.A.E. Event. R.A.F. Cardington Indoor.
- April 3** Rolls Royce Pylon Race. Thulston Field. Single channel, single button, galloping ghost and proportional on single surface, contest loops in five minutes. Pylon race up to 2.5 c.c. and N.M.P.R.A. Goodyear racing in pairs. Both events flown together prize for highest placed Goodyear racers. Novelty race for multi stunters. Control line Combat. Pre-Entry 1/6d. to:— P. Clarke, 70 Brisbane Road, Micklegate, Derby.
- April 3** Esher. Fairmile Circuiton A-3 between Esher and Cobham F.A.I. team racing. Pre-Entry to:— D. R. Scrivener, 33 Fircroft Rd., Chessington, Surrey.
- April 10 & 11** South of England Free Flight Gala. Chobham Common. Sunday. Open Glider, Coupe d'Hiver, Combined F.A.I. JA Power, Monday, Open Rubber and Power A/1 and Chuck Glider.
- April 10 & 11** North Western Area Meeting. R.A.F. Tern Hill, Sunday:— C/L, Stunt, Combat, JA, B, T/R, Open JA Power, Multi F.A.I. radio, Monday:— C/L Scale (F.A.I.) rules Combat, F.A.I. T/R, Open G/R, Tailless (G/R/P.), Free Style Radio.
- April 11** Goodyear Pylon Race Meeting. R.A.F. Hullavington, Wilts. Goodyear Racers to N.M.P.R.A. rules. Details from:— Dr. G. Henley, 47 Pembroke Road, Clifton, Bristol, 8.
- April 17** S.M.A.E. Event. Area Venues, Open Power Rubber and Glider.
- April 24** Southern Area Free Flight Gala. Bosauite Heath (Ex-Airfield Nr. Southampton). Open R/G/P. and A/1 Glider.

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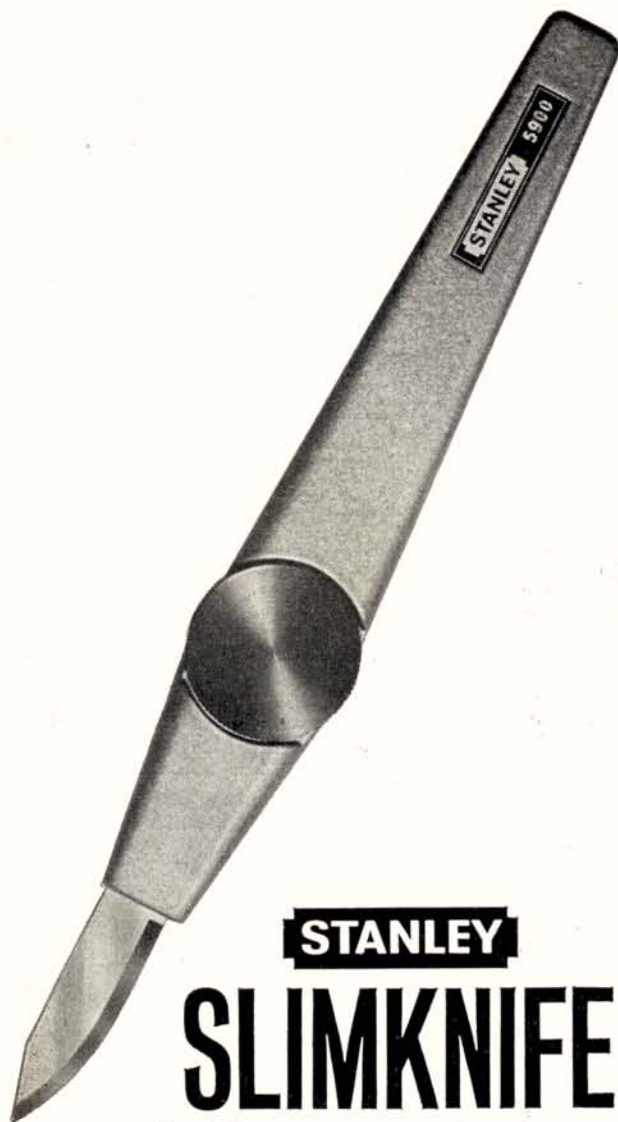


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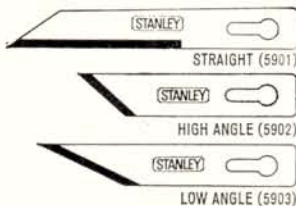
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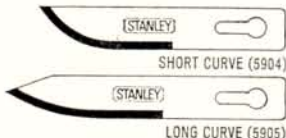
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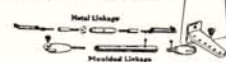
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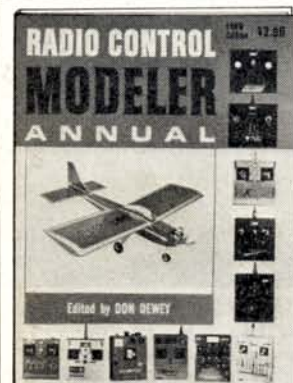
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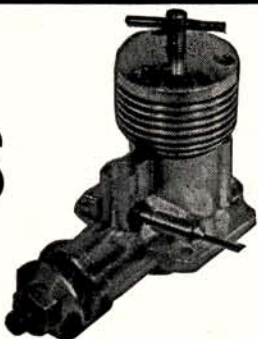
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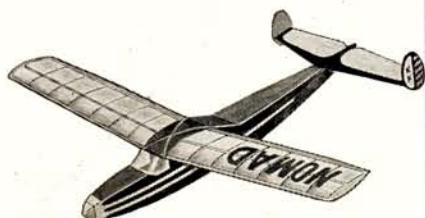


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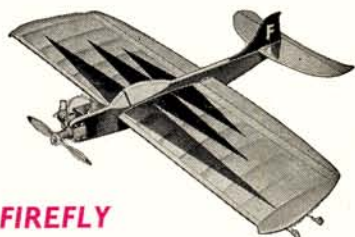
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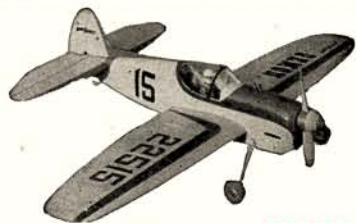
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