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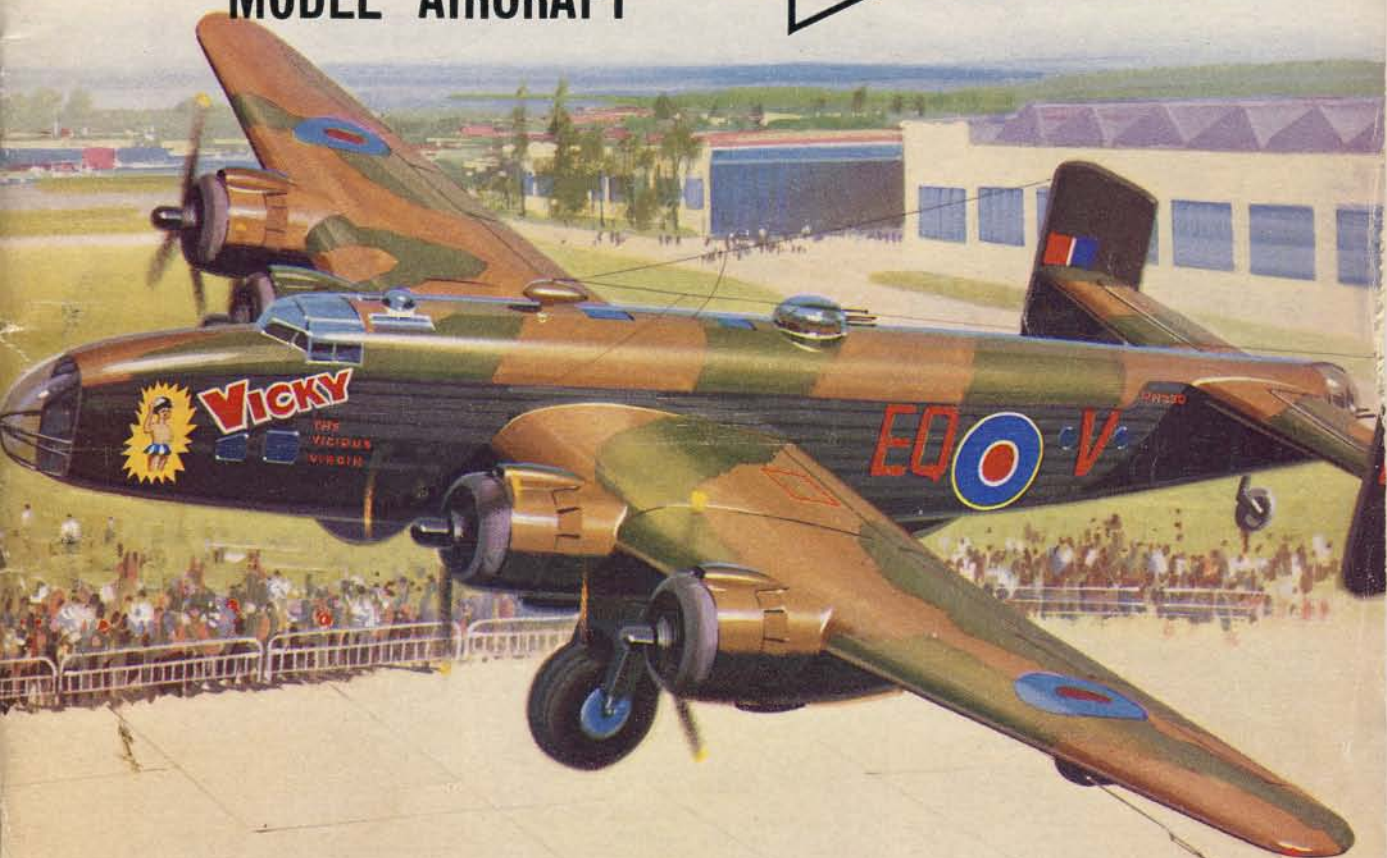
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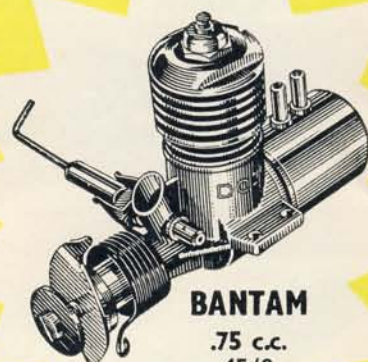
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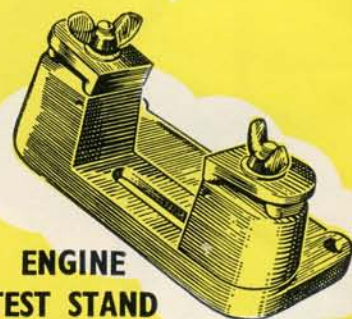
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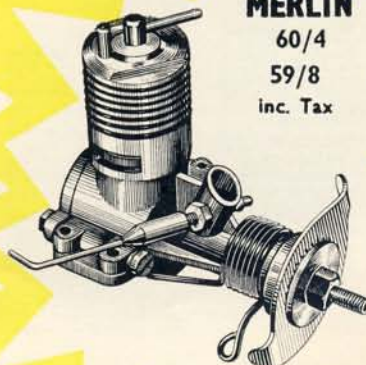


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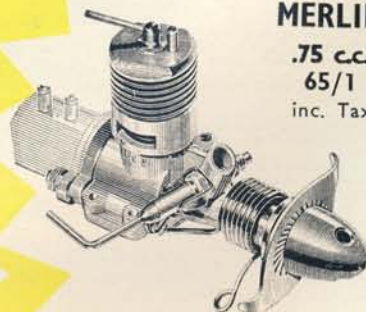
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Aero Modeller

INCORPORATING
MODEL AIRCRAFT

December 1966

VOLUME XXXI No 371

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COMMENT

As we go to press the National Body Governing Aeromodelling in the United Kingdom is re-grouping its officers through electoral ballot for the 1967 season. There remains an ominous gap in the nominations. No names have been put forward for election to the post of Competition Secretary and there is little prospect of the Council repeating their practice since 1964 under such circumstances when they have co-opted the services of a "volunteer". Something must be mighty rotten in the state of the art when interest in contests and their administration falls to so low a level.

The result of such a void can mean any of many changes. The work can be delegated, in which case experience has shown that a deterioration of standards and efficiency must follow. The Area centralised and decentralised events can be removed from the annual contest calendar and the Officers and delegates on the S.M.A.E. Council must then run the Nationals, Northern & Southern Galas and trials. Or, the Trophies can be re-allocated to sanctioned meetings, throwing the responsibility on the Areas. Whichever way the 1967 Official S.M.A.E. Contest Season is run, we are due for a change that may not be palatable to those who like frequent contests and prompt issue of the results.

cover

Maurice Bodey's Halifax airborne in a control-line Scale event, four diesels throbbing before a thrilled crowd. This scene by Laurie Bagley typifies reaction to, and the impression of "Vicky"—our plan of the month on pages 658-660 of this issue.

next month

Peter Gray returns with a scale drawing of the Le Rhone engined Sopwith Pup. John O'Donnells Delinquent 36 in. simple contest model makes an ideal transition from the elementary kit model for open rubber events. Photo feature on more old Timers, Scale Commentary covers latest kits, Styrobat makes a real change for combat with revolutionary new structure—Plus regular features and a review of last minute hunts for Christmas Shopping—out December 16th.

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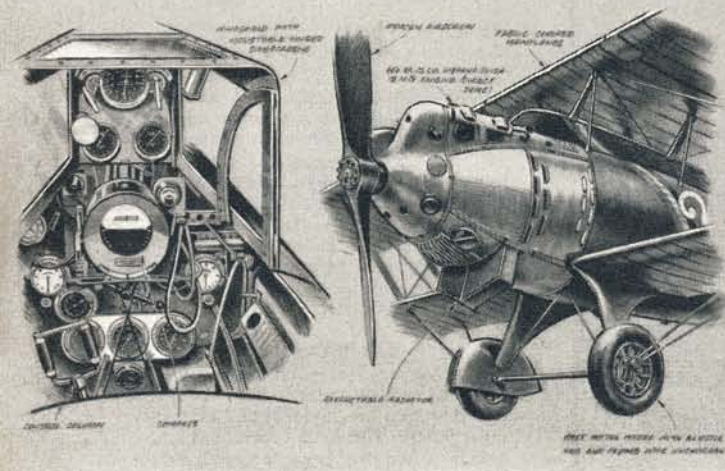


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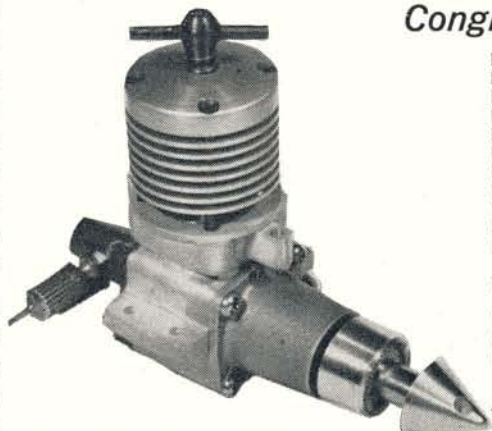
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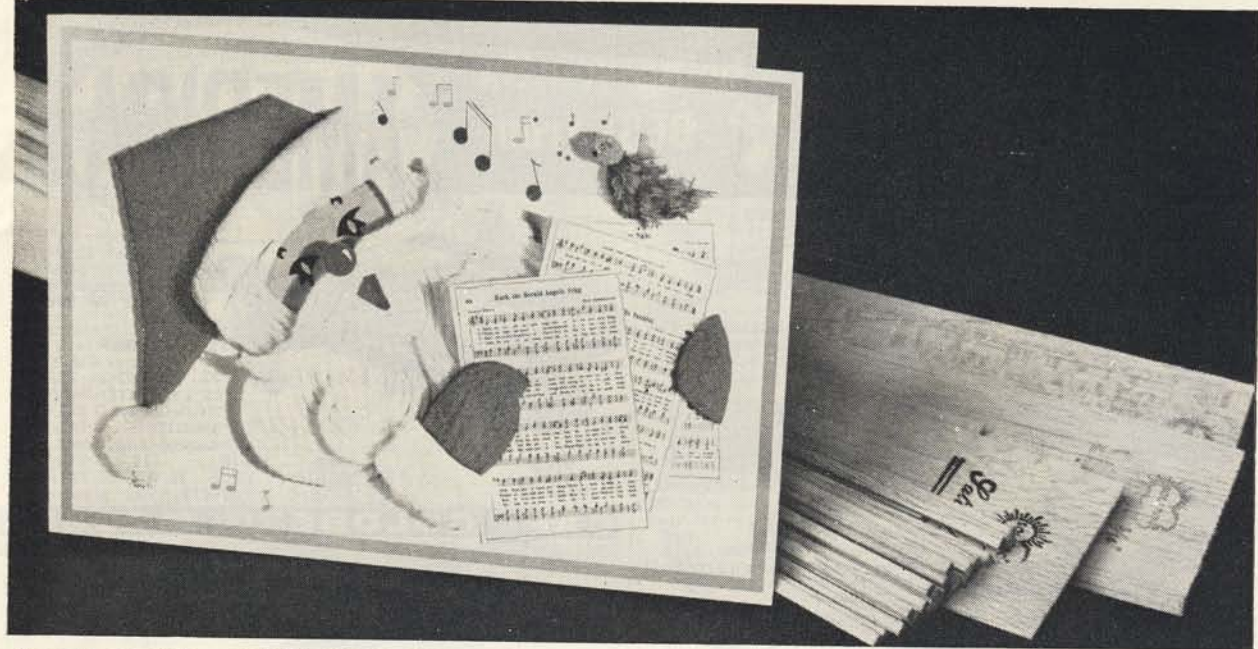
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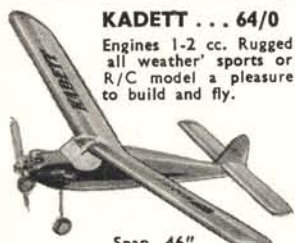
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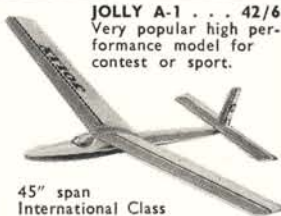
44" PIPER TRIPACER.....99/6

also

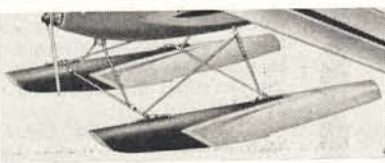
32" BULKOW JUNIOR.....79/6
44" PIAGGIO.....132/6

JOLLY A-1 . . . 42/6

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DE LUXE KIT 132/6 79" scale SAILPLANE FULLY FINISHED foam plastic fuselage.

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Heard at the HANGAR DOORS

Members of Kentish Clubs
assembled at Lympe Airport for
their goodwill charter flight to
Beauvais in France (see Club
News for report).

LOOKING BACK on the year 1966 we find many changes of trend in Aeromodelling. Some contest classes have lost a great deal of their former attraction, while others, particularly Coupe d'Hiver, have gained interest. To the regular reader, such fluctuations of interest must be obvious, especially as far as radio control is concerned. We have left much of the coverage of events, features on developments and details of radio designs to our specialist companion magazine *Radio Control Models & Electronics*, and have tried to foster the more simple, sports enthusiast aspects in our own pages. Some correspondents have complained that we have completely forsaken the R/C scene; but this is a wild exaggeration. For example, the two top selling plans in our range of over 800 designs happen to be the "Wizard of Oz" slope soarer and the Cessna 172 "Skyhawk" radio control designs from our April and March editions. To have a glider top the sales list is something of a record—when it's a model specifically created for single channel slope soaring operation, it's nothing less than a milestone in aeromodelling interest. Congratulations to designer James H. Osborne for obviously providing just what the modellers wanted.

NATIONAL PRESS for October 28th carried a story that read like a grand hoax until one arrived at the punchline. "They were fined £35 each", (\$100). Facts of the case are that John Marsh was flying over Highgate Common in Staffordshire and apparently lost control of his radio model. It disappeared over a hill, and must have seemed to have been receiving spurious signals. But what he

found over the crest of the hill was not only his model but also two Swindon men with a "Pirate" transmitter. They were charged in court, admitted stealing the model and collected a fine that exceeds those we have observed for serious motoring offences. Should be a deterrent to others! Moral of the story is to have a monitor on the field, a number of excellent commercial units are now generally available.

LATEST ACHIEVEMENT of that highly skilled free flight exponent and NASA pilot, Bob Champagne, in the United States is to fly the Canadair tilt wing CL-84. Bob is chief of the pilot section at Langley, and has flown practically every V/STOL experiment including moon landers. On October 17th he made a 4½ hour flight with his chief of flight ops in the CL-84 including vertical take-off. Bob relaxes with aeromodelling, recently topped an indoor event and represents the AMA in International committee matters. Many SMAE members had the pleasure of meeting him at the annual prizegiving dinner a few years back and will join us in wishing him more power to his arm in this very valuable test flight programme.

SADDEST NEWS of the month hit the headlines in all the National daily papers and all Northern locals. It concerned yet another fatality due to a control line model being flown too close to overhead power cables. Ronald Ibbertson, a 21-year-old toolmaker, was flying in a field behind his house at Brancepeth, County Durham, and had just said that he would make "just one more flight" when apparently the model made contact with the cables. Efforts to

revive him from the electrocution through artificial respiration failed despite prompt aid by parents and friends, and so our hobby claimed yet another victim. (The last was reported in our April 1965 edition). Ronald Ibbertson had been a keen modeller for over ten years, and was engaged to be married next year. He had much to live for, yet a moment of haste, maybe over-familiarity with his next-door flying area in the Brancepeth Castle Estate took him tragically in one almighty flash of electricity.

Power supplies for a ten mile area were cut off by the accident. The reports made much of the fact that he was using stranded metal lines, one quoted Mr. Ibbertson senior as recommending nylon lines and wooden control handles. But, as the North Eastern Area PRO of the SMAE was quick to point out in the *Northern Echo*, damp Nylon is just as hazardous as any length of wire, and their susceptibility to stretch makes them unsuitable—especially where, as in this case, a 45 ft. length is needed. The only form of advice one can possibly offer is to keep clear of any form of overhead cable. Our own local experience at Watford in 1956 involved a modeller drifting whilst flying his control line model to a point where the current "jumped" over 9 ft. Result of this was a seriously shocked and burned enthusiast, thankful for his thick soled crepe shoes, and forever warned against repeating his brush with death by two charred areas of grass which did not come back to life again for a full season. We are very sorry for Mr. Ibbertson's parents and fiancée, and reiterate their quote that *this tragedy might serve as a warning to others. KEEP AWAY FROM ALL POWER CABLES.*

HAPPIER NOTE concerns plastic model maker John Wilkinson of Chalfont St. Peter, Bucks., who was the lucky winner of the recent "Revell" contest which earned him a free two-week tour of the USA beginning October 26th.—Not bad for a 2/6d. kit of the De Havilland 2 World War One biplane eh? John has been making plastics since the days of those pioneering bakelite type mouldings and is a regular at the London meetings of the International Plastic Modellers Society. Incidentally, for those of our readers who also specialise in this phase of aeromodelling, the IPMS membership offers a lively monthly bulletin filled with excellent advice, drawings, colour schemes, reviews of new products and tidbits on what is to come. We'd be pleased to forward enquiries for membership.

ODD TWIST took place in July, when a Czech modeller went to West Germany and a West German visited Czechoslovakia and each of them set up a new national record for radio controlled slope soaring duration at their holiday spots. Radoslav Cizek established 4 hours, 36 minutes and 21 seconds at Kirchheim-Teck, close by the Graupner factory with his "Delfin" four channel model using Grundig Variophon/Varioton and only 4 days later, George Friedrichs made an outstanding record flight of 12 hours 2 minutes and 13 seconds from the gliding site at Rana in Czechoslovakia.

TV viewers all over the nation will be a little wiser as to the reasons why we take up the hobby of aeromodelling thanks to a half-hour interview with John Simmance on October 17th. Though restricted to a personal interview with one man concerning only his models (including Marauder, used for flight demonstrations) it will have given valuable publicity to the hobby in general.



COUPE D'HIVER postal contest forms will soon be issued to applicants—now is the time to get on the circulation register. We hope to maintain our record of arranging a British contingent to take part in the French contest near Paris at the end of February in spite of the limited overseas travel allowance and would welcome volunteers to fly models by proxy for entrants in the United States. Experience of the class is absolutely essential for all proxies.

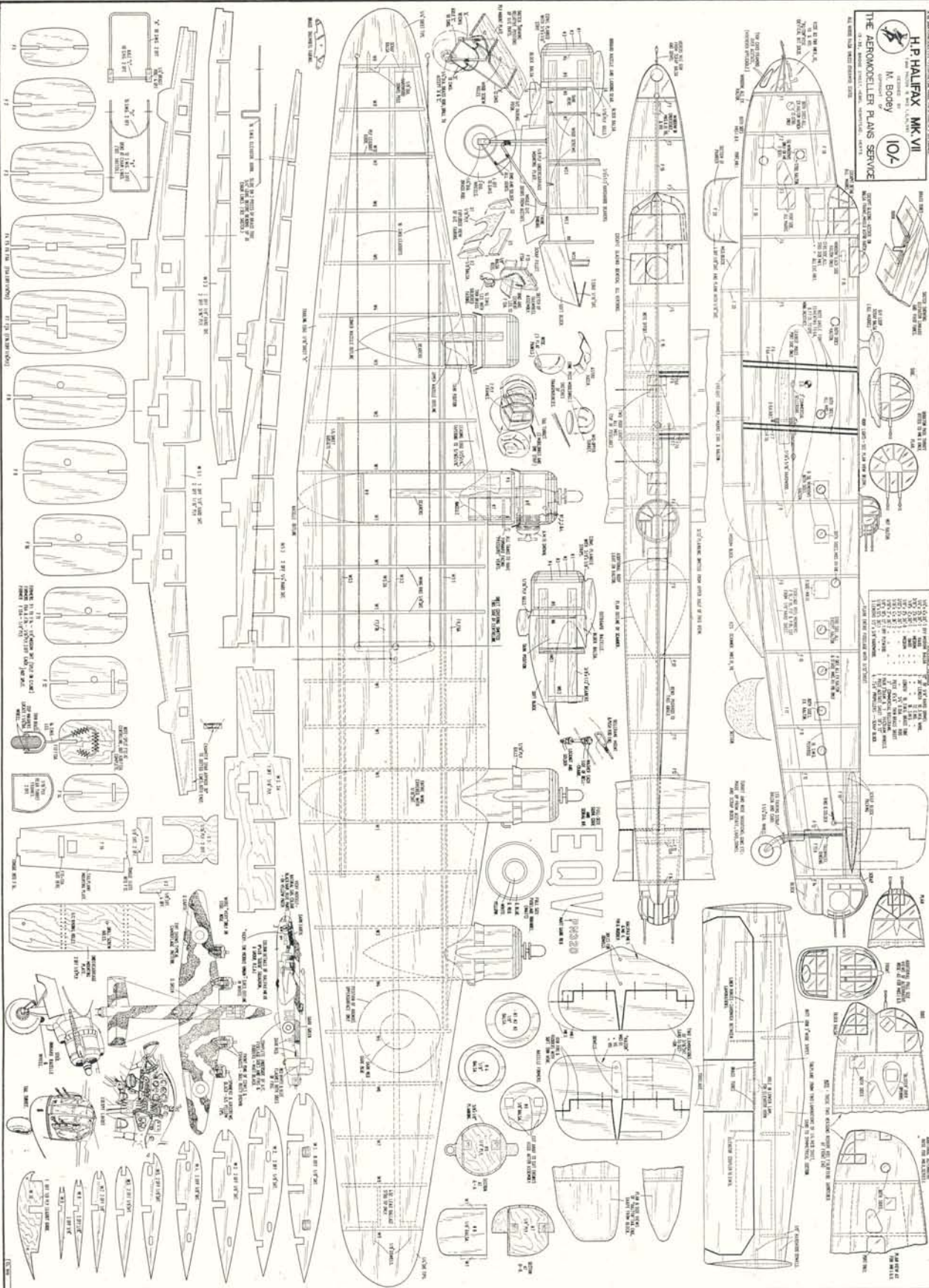
WELCOME to a new modelling periodical—or rather, one with a new "face"—in the *Canadian Model Aircraft* newspaper, printed in large broadsheet with photographs and contest reports. Their FAI trials show that the far West lads in Vancouver are going to be well represented in '67, the A/2 team may well be entirely from that club. One pic. illustrates what we thought at first sight was another man-powered project, but it turns out to be Ben Tarofsky and his wing for a twenty-two feet span radio model (?)—Anyone read the Air Navigation Order lately? Glad to see four of our own pics, used in the first edition—we look forward to seeing Canada's own aeromodelling publication blossom further with advertising support.

FREE FLIGHT commentary by J.O'D. gave us the names of the US team members in the three free flight categories, and now we have received what surely must be the best ever statistical report on any trials ever produced. Floyd Miller prepared the paper work and was also Contest Director at Bong where 68 individuals were administered by 69 others to select America's top nine. Facts are fascinating. 306 models were processed, average time in 1,066 flights was 2:32, total air time of all models was 45 hours, 3 minutes, 52 secs. and California produced 4 of the final nine. Fees and donations rustled up £270 for the FAI Travel Fund. Hard luck stories abound but Sid Jepson who slipped from 1st to 9th in the last two

flights in Power, Carl Perkins, who did almost the same (1st to 8th) in Wakefield, and George Reich, who slipped in late rounds after having a fighting chance of qualifying yet another time for Wakefield, are the more obvious ones from the extensive results. 624 maxs were recorded in the three day contests. Those who missed the team names when we published them in October will like to know that they are: *Wakefield*, John Lenderman, Herb Kothe and George Xenakis. *Power*, Bob Cherny, Doug Galbreath, Joe Wagner, *A/2 Glider*, Bill Langenberg, Bob Van Nest and Hugh Langevin.

TOURNAMENT OF CHAMPIONS held over September 23-25 at Cimarron Airport, Oklahoma City, was the scene for the first ever centralised finals to select a U.S. Radio Control Team. The Tournament is a sponsored spectacle with parachute, gliding, full-scale aerobatics and Air Force fly-bys as part of the proceedings. Eight Goodyear Races were planned for each of two days and the Confederate Air Force was represented by Col. Thorpe and his white Mustang. This was also the first use of the newly suggested FAI schedule for an American trials and by all accounts it was well received. Each of 32 finalists from zone eliminators were given the opportunity of six flights, each of which was judged by four of the twelve judges. Everyone had his portrait in the programme, judges included, and nine of the judges' names were listed against sponsors who presumably met their travel costs. These nine have trade connections, and the sponsors are either their own companies or magazines for which they work. (One is left to wonder how far such a system can be taken). Anyway, the result of all this is a Californian team of Phil Kraft, Doug Spreng and Cliff Weirick and Southerners Coleson and Whitley close behind. World Champion Doc Brooke placed 7th Hal deBolt 10th and Gerry Nelson 20th.

The Editor and Staff of Aeromodeller send seasonal greetings and best wishes for a happy and prosperous New Year to all our readers.



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(Marks I, II, III & VII plus Halton)

to 1/24th scale for control-line
using 1cc, 1.5cc or 2.5cc

designed by Maurice Bodey

Based on the fine details offered in "Profile" No. 11, (Profile Publications Ltd., — price 2/-). This prototype carries the markings of "Vicky" The Vicious Virgin of 408 Squadron (RCAF). Several useful alternatives are included in the same "Profile". Engines are two A.M.15s and two Marown Snipes. The model has already won scale events and never fails to make a most realistic flying display.



THE construction of this model closely follows the methods used in Maurice Bodey's previous multi-engined models of this type, (the **Douglas Dakota** CL/765, 8s. 6d.; **Lockheed Neptune** CL/783, 7s. 6d.; **Avro Shackleton** MR3 CL/746, 8s. 6d.; **Vickers Viscount** CL/701, 8s. 6d.) and, providing the following notes are followed carefully, no difficulty will be found in building the model.

The wings form the basis of construction for the model. Start by cutting out the wing spars from $\frac{1}{4}$ in. hard balsa and $\frac{1}{16}$ in. ply, and make up as shown on plan. Care must be taken to see that these components are accurately made. Cut out all wing ribs from $\frac{1}{8}$ in. sheet. Make up formers F6, F6A, F7 and F7A and glue in position on to respective spars as shown on plan, then put to one side.

Fuselage keels can now be cut out. Use a $\frac{1}{4}$ in. hard sheet balsa and laid over plan followed by former halves F1-F5, F8-F12 and F14. When completely set, remove from board and other halves. When this part of fuselage is ready, cement in place former/spar assembly F6-F7 and spars WS1 and WS2. Check for alignment and set aside for the time being.

The tailplane/elevator assembly can be built up at this stage, as these parts are straightforward construction. Little need be said except that good quality balsa is essential. When complete, check

elevator for free movement. Make up fins from $\frac{1}{16}$ in. balsa sheet and sand to section. Drill holes for retaining dowels. By this time the spar/former components will be firmly set to the fuselage, make up bellcrank assembly and glue in position on spars.

Make the tailwheel assembly as shown on plan, bind and glue to former F13/F13A, after which the complete assembly can be cemented on to keel. Add F19 between F12 and F14 and check for alignment.

Wing ribs W1-W9 can now be placed on to spars, followed by L-E and T-E, add gussets and thread in 16 s.w.g. leadouts, secure to bellcrank with soldered cup washers.

Start nacelles by cementing formers N6, N7 and N8 on to wing spars on all four nacelles, and when set thread engine bearers. Fuel tanks can be either commercial or self-made, these are situated firmly between bearers (note the vent positions). At this stage the centre section of the wings can be covered with $\frac{1}{16}$ in. sheet balsa, allowing $\frac{1}{2}$ in. overlap inside the fuselage. Place 16 s.w.g. pushrod through formers from tail end and secure to bellcrank.

If a cockpit floor is desired, it should be placed in position at this stage; make from $\frac{1}{16}$ in. sheet. The fuselage is now ready for planking with $\frac{1}{16}$ in. strips, checking that no warp occur in the fuselage. Whilst this is undertaken, add tail block and, when firmly



Opposite sides of the nose have different markings (compare with the cover). Note side mounted engines with silencers camouflage painted to match scheme. Merlin engined version below is the same size, but with 1/16 in. sheet balsa covering and has two A.M. 25s in the inner nacelles with free-wheeling propellers in outers. Small elevators made this one a tricky flyer. Note 3 blade props on each.

set, carve to shape. Fuselage can now be sanded to shape, taking care not to sand too thin. The main undercarriage can now be made, as shown. Bind and glue firmly to the $\frac{1}{8}$ in. ply mount, which is glued and screwed to lower engine bearers; nacelles can now be planked with $\frac{1}{8}$ in. strips, and blocks added where required.

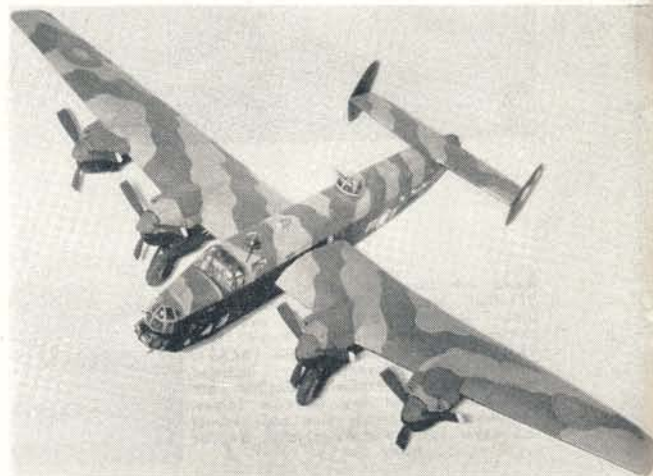
Cement the ply line guide to W7 after threading in lead outs; complete wing with $\frac{1}{16}$ in. sheet, not forgetting to add weight in right wing. Cement on tip blocks and carve to shape. The wing should now be sanded all over to correct shape. The completed model can now be given three coats of sealer, sanding to a smooth finish, cover with lightweight tissue and give five coats of clear dope.

D.F. loop, undercarriage doors, oil coolers, air intakes etc., can now be cemented in position, given several coats of sanding sealer and sanded to a smooth finish.

Window positions should now be marked on fuselage and carefully cut out; it is recommended that windows are put in position *after* painting. The whole model is now given two further coats of clear dope, followed by two coats of colour. Humbrol matt enamel was used on the prototype, and was found to be completely satisfactory. When complete, mould all cockpits, gun turrets and windows from acetate sheet. If the builder uses the method shown in the *Aeromodeller Plans Book No. 1* no difficulty will be experienced.

The following procedure was used when flying the prototype model Halifax:

Warming up the starboard outer engine, followed



by starboard inner, port inner and port outer. When satisfied with each motor, stop them all, refill the tanks and start each in the same order. Obtain maximum power and have the model released, allow the model to do one complete lap *before* attempting to lift off the runway. Speed reached will be around 60-65 m.p.h., so hold on tightly! The model flies best on 7 in.—6 in. props. Try to make a landing with at least one engine still going—after all the real thing was hardly a glider!

Readers write

Dear Sir,

From a quick perusal of November issue it would appear that S.M.A.E. strength would compare very unfavourably with that of U.S.A. in regard to proportion of affiliated modellers to Society members. One must agree that this must be the concern of club officials, and I must be very "square" as it was only recently that I came to know of the apparently common practice of only registering the minimum of club members with the Society.

We understand at last how the Society is always in such a poor financial state.

This must place a heavy burden on such clubs as our own who have always "paid their whack" even this at the moment being mostly Associates who are *not* contest-minded.

This matter of Associates again leans heavily on the clubs as there's little incentive to join a club if one only has to fill in a form to become an Associate and thereby disregard the local club entirely, while probably using the local park and "queering the pitch" for those who may have worked hard to gain a facility.

Loughton, Essex.
R. G. Harris,
Chairman, Debdenaires.

Club directory

Dear Sir,

I read with surprise in November *Aeromodeller*, that after your recent survey of clubs the Whyteleafe M.F.C. is one of the largest.

I have been secretary for a number of years and did not receive your survey, but one of our old secretaries did and put some old figures down.

Our membership is now 20 and rising. I would be grateful if you will send any future correspondence to the above address (quoted on letter—Ed.)
Caterham, Surrey.
G. W. Brown

SILENCERS & NOISE

Sound Analysis and R/C silencers

by Peter Demuth

Reproduced from "Modell" (West Germany)

Experimental resonant length silencer in Herr Galinskis' "Demoiselle" here fitted to an S.T. .60, has placed in contests, unit only weighs 5½ ozs. and does not lose any power at all.

of sound. Normally one spot reading of a decibel meter would give a reading of, say, 100 db. and one would hear sounds mixed as one, but this is only over a limited range of frequency, say, 100-200 cycles. For these tests, filters broke the overall noise into 20 separate sections, allowing a graph to be plotted of db. against frequency of sound per second. The lower scale is logarithmic to condense it for practical use.

It was surprising to note that the analysis showed a large proportion of the sound is produced by the propeller, wooden propellers running more quietly than plastic.

In the diagram for the Webra Glo-Star, measurements were taken with a plastic propeller and no silencer. In comparison with the noise measurement of this, the noise produced when fitted with wooden propellers and a resonance silencer is about 10 db. lower and the best silencers on the German modelling market are the Webra and Mini-Vox. Unfortunately, at about 4,000 cycles the silencer chamber of the Mini-Vox is not entirely effective and it gives the engine a tinny exhaust tone. Further, at 200 cycles the fundamental wave of the engine is hardly deadened, though it is better with the resonance silencer.

The advantage of the Mini-Vox silencer is that assembly is direct to the engine. Unfortunately, however, the silencer does not have a long life, because seating of the silencer at the exhaust bracket is not entirely satisfactory, vibration cracks appear and the silencer is ruined. In the case of the Webra silencer, the connection usually loosens.

The Resonance Silencer

With two-stroke engines the exhaust gas energy can be utilized to improve gas change and scavenging. This principle is used in motor cycle engines and is also fundamentally possible with model engines. The conditions in model engines are even better because the power output can be improved as it is generally running at peak performance.

TO our knowledge this is the first analysis of sound sources and the noise generated by model engines. As he deals with engines and noise measurements professionally in the Experimental Department of Daimler-Benz AG, Stuttgart, Herr Demuth was able to make a survey of model engines with the measuring equipment in his department. The results were first published in the West German magazine "Modell" to whom we owe credit for permission to reproduce this translation.

The engines were bench run in a test room, but since the room could not be described as "fully sound absorbent", only measurements taken near to the sound were significant. The tape recorder microphone was positioned at 39 inches in front of the engine, running at 12,000 r.p.m., this speed was used for all the engines and silencers under test, being kept constant by using suitable propellers.

All engine noises were tape recorded, and an endless tape recorded band was made up. This tape recording was analysed electronically in tone-thirds, each of these thirds being measured out by the noise meter.

As can be seen from the graphs the lower scale of frequencies per second is not engine r.p.m. but frequency

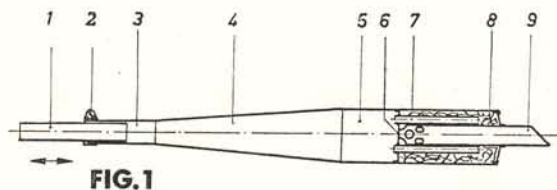


FIG. 1

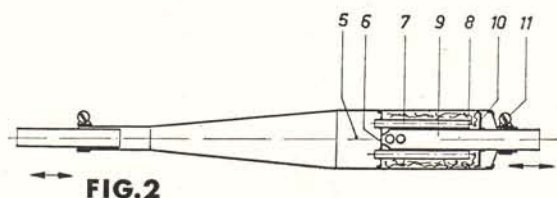
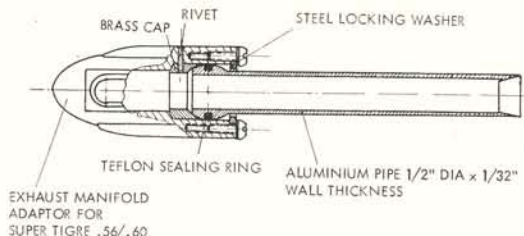
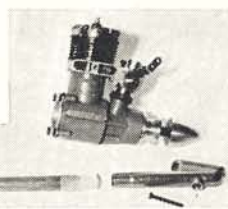


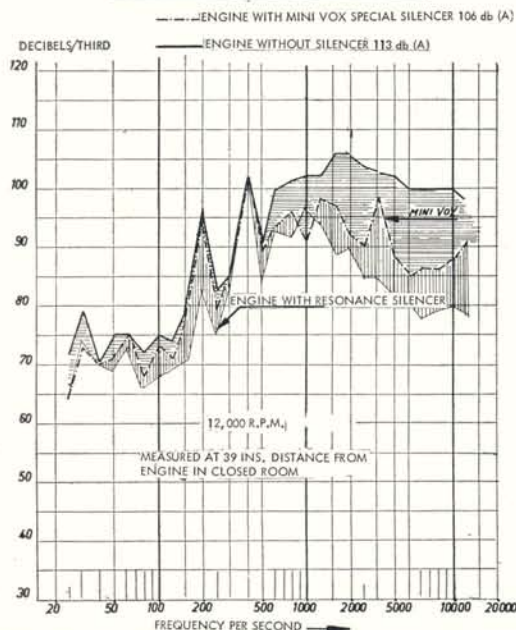
FIG. 2



EXHAUST MANIFOLD ADAPTOR FOR SUPER TIGRE .56/.60



Above, Manifold for Super Tigre .56/.60 with universal joint, sealing ring from Teflon. Left, Webra Glo-Star with Webra manifold to which welded aluminium alloy silencer is fitted, rather long but effective, gives performance increase.

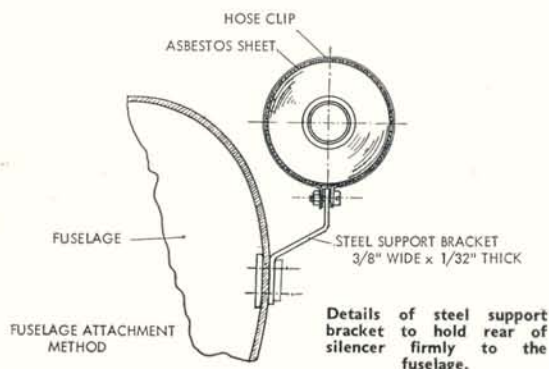
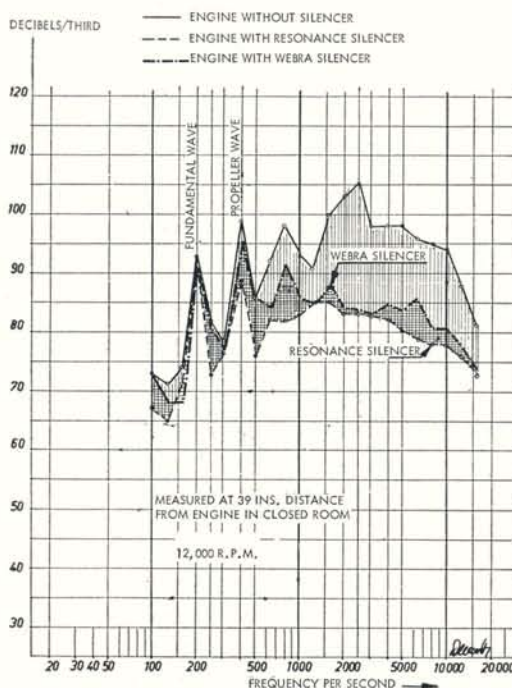
SUPER TIGRE ST. 60 10 cc

Above and at right graphs which show the sound that would normally be read, one on a dB meter broken down into 20 channels to find sources.

An increase in performance can be achieved with a so-called diffuser which is coupled to a tuned length pipe. The diffuser is operated by suction of the exhaust gas, if the outlet compression thrust in it is freed. It also brings about a suction wave back to the engine and assists the gas change. However, fresh gas is also sucked out of the cylinder with the exhaust gas, and thus, combustion is lost. These gases can be recirculated in the engine if the released exhaust compression wave from the diffuser is reflected on a wall and is returned as a weakened pressure wave to the engine cylinder.

Figure 1 shows such a silencer. Pipe (1) slides in a second pipe (3), which is supported along its length by bracket (2). From the pipe there is a diffuser (4) which must have a maximal cone angle of only 4°. An opening ratio of 1 : 3 of the inlet diameter to the outlet diameter is possible, a larger outlet diameter being impractical. Beyond the diffuser (4) there is an expansion chamber (5) after which the individual silencer parts follow together with the reflection wall (6) and the filter rows (7, 8, 9). The gas dynamically operating part of the exhaust should be moved through the pipes (1, 3), until resonance is achieved. A 3 harmonious fundamental engine wave results. For a maximal additional charging effect, the silencer part as in Fig. 2 is obviously still slidable.

Fig. 3 shows performance gain and loss with a 3.5

**Webra GLO STAR 3.5 cc**

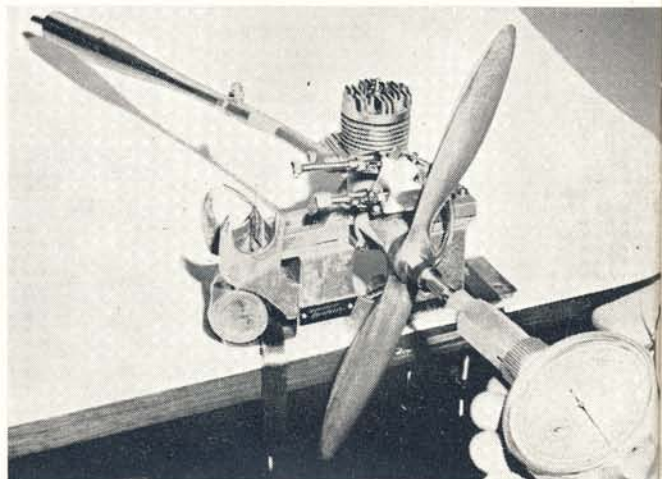
Webra Glo-Star engine, a maximum gain of 15% in performance being achieved.

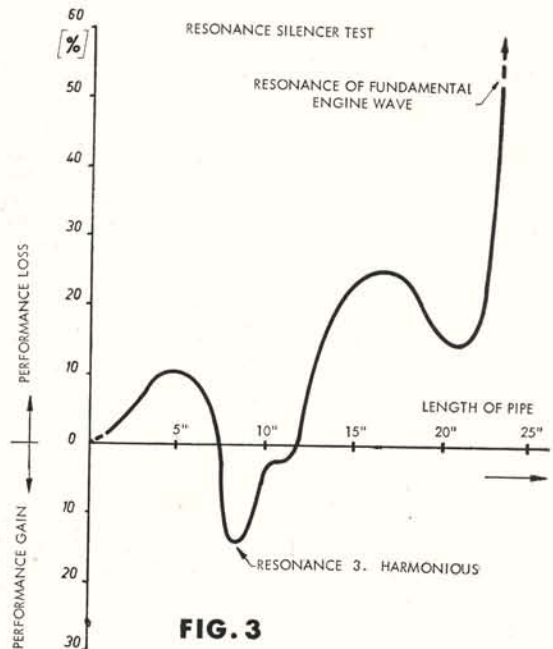
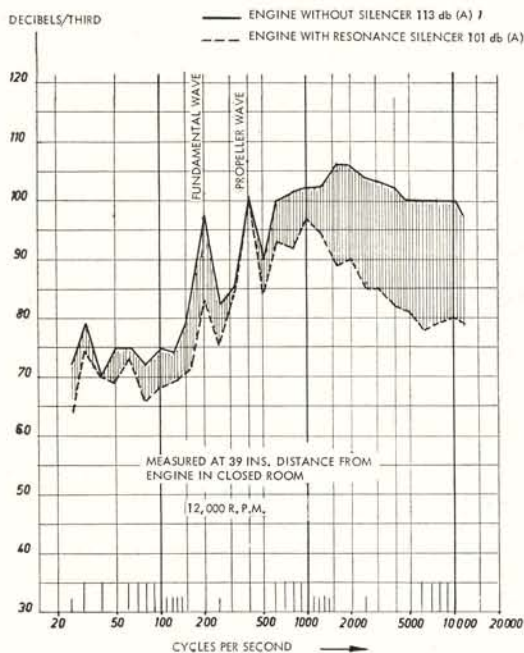
For the Webra 3.5 the silencer was made from 0.25 mm. brass sheet and joints soldered. The 10 cc. Super-Tigre silencer was pressed from aluminium and welded, and a small hand run of these silencers is being constructed by Herr Winkler, Aich bei Nürtingen, Germany.

Practical Experience in Flight

The resonanc silencer hand-built by Herr Winkler was tested by Herr Galinski in his "Demoiselle" model. So far, the silencer has been used on 80 flights with a total flying time of 25 hours. With the Super-Tigre ST.56 and ST.60 and resonanc silencer the engine does not increase much in performance. The r.p.m. readings were

Enya .45 being bench run and R.P.M. checked with tachometer on Tornado propeller, Webra manifold adapted to fit Enya and silencer.



SUPER TIGRE ST.60 10cc**FIG. 3**

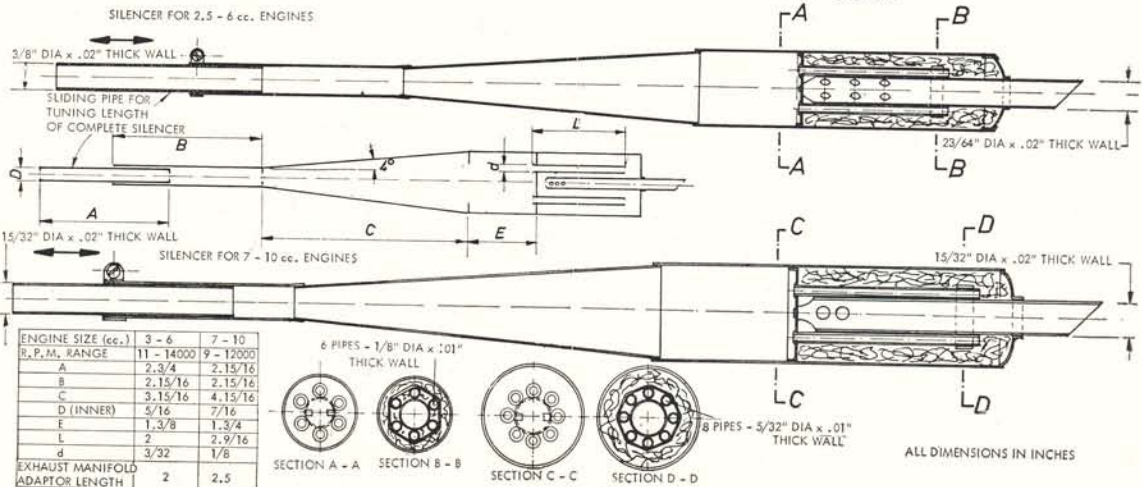
Spot analysis of S.T. .60 at left, with the performance gain and loss graph of a Webra Glo Star plotted in Fig. 3.

the same with and without exhaust, but the engine with the resonance exhaust runs steadily and is never troublesome, idling is steadier and more uniform, and fuel consumption is reduced by 10%.

The exhaust pipe is fastened to the engine with a ball and socket joint, tightening and sealing by a Teflon ring which is well protected. It must be pointed out that the first pipe and the ball should be made of brass and covered or coated, with aluminium. The latest version is of brass and weighs 5½ ozs. complete. In addition, the silencer "inner equipment" is plated with Devcon plastic steel. This plastic adhesive will endure temperature of up to 300°C.

Herr Galinski has achieved several successes with the silencer in competitions, as well as at friendly meetings in Luxembourg and a regional championship near Bauerheim.

Modifications needed to convert an O.S. silencer to carry a leadout pipe. Below; dimensioned drawings for two sizes of silencer.





Reminiscences ★★★★★

Chapter the First

(In which I encounter a coachman with a touch of d/t's; meet an eminent aeronautical gentleman who shows me a man carrying aeroplane (must be jolly light for a man to carry.) and achieve an airborne state with the help of two giant footmen.)

My interest in flying began when the strange craft carrying Sir George Cayley's coachman landed with a great splintering of oaken bulkheads and wattle stringers in the Orangery.

"Be that dratted altimeter," he roared, "Ah told Sir George the bell rope was too dang heavy; though, come to think on it, t'weren't so much the bell rope as the dang bell on end of it."

I dusted the goose feathers off my hat and followed John Betjeman into the Italian Garden. Sir George was about to test his latest model. It measured full three footmen across the eccentric wing brace. Sir George and I took a few turns round the winding Pirelli.

"Look here, Sir George," I said at last, "Do you know you could make that model five pounds lighter by using new wonder elastic."

"Elastic," cried Sir George, "What a splendid idea!"

He then called over to a group of fifty

flunkeys who were standing around the neo-gothic control tower.

"Alright, men. Stop pumping and follow me."

Screams were heard coming from the West wing.

When I next saw Sir George he had a face as long as a kite.

"Why have you a face as long as a kite, Sir George?" I asked.

"Damn fool question," he boomed, "Can't you see I'm designing a man carrying machine."

"Had you a flapper in mind?" I asked innocently.

"I said a man carrying machine!" he roared, "Never mix work with wimmin, me lad. Now, out of me way, while I work out the power/weight ratio of one overfed, lazy, gourmless—"

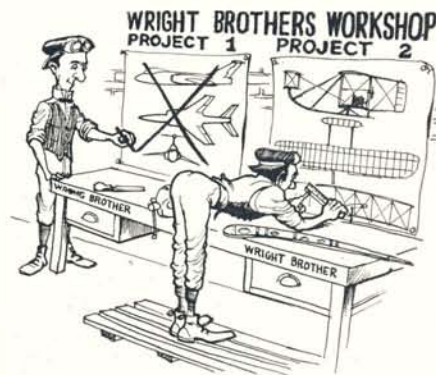
"broken legged—" I suggested.

"coachman."

"And Leonardo De Vinci to you, too." I retorted.



De olde tymes recalled by 'Pyloniuss
with ye engravings



Chapter the Second

(In which I go to a distant land to meet two famous brothers. I see a strange feathery flying machine and many bald looking Indians.)

"So, you're the Wright Brothers," I exclaimed, "I always get you mixed up with those three singing sisters. But, of course, you wouldn't know that; you Americans don't follow football."

I then embarked upon a lengthy argument with them about flying tail first, suggesting it might cause some confusion upon landing after their epic flight across the Atlantic.

"That's Alcock and Brown," they cried.

"Well, you don't have to be rude about it,"

I replied, "Anyway, I've heard tell of a little Frenchman whose been flying around the Moulin Rouge, or one of those Froggy places."

"Toulouse-Lautrec?" they enquired.

"No, I think he got down in one piece,"

I answered. "Seems he uses some sort of steam engine."

"Rocket?" they queried.

"Give him a chance. It's only 1895 yet,"

I replied. "By the way, now you've built your plane why don't you take it up?"

"Don't be silly," they shouted, "Who's going to teach us to fly?"

and graphically illustrated
of a "Sherry"



☆☆☆☆☆☆☆☆☆☆ of a Vintage Flyer ☆☆☆☆☆

Chapter the Third

(I visit Gay Paree in search of a famous flyer. No one believes me.)

"Is that Bleriot?" I asked of the way-farer, pointing to the strange contraption overhead.

"Be quite clear to me," he replied, "Must be your eyes. That be one of them new fangled pylons. Be lots of complaints from that there Montgolfier bloke."

"Wouldn't know about that," I said, "Don't play the game myself."

Anyway, I eventually tracked down Monsieur Bleriot to a field outside Paris. He was practising nose down landings on a piece of specially sown English grassland.

"Accepting that you're a Frenchman. Ooh-la-la and all that," I said, "Don't you think that, in the interests of our strong English morality you ought to keep your fuselage covered?"

"You zink I sits with my legs in ze draught for nuzzings, like some mad-mini skirted Eenglish mam'selle?" he demanded. "Eet ees zat crazee Van Gogh fellow. He keep, how you say, wheeping away the covering for his canvases, not to mention 'is ear'ole bandage."

"But, look here," I asked, "Do you think it wise to undertake your projected flight using only Single Channel?"

"Ah, zee Eenglish sense of humour."

"You'd better get a move on," I suggested, "You can't expect that bloke to keep painting the Cliffs of Dover just for your benefit."

"But what about Graham-White?" he asked.

"No, just white," I replied.



Chapter the Fourth

(In which I espy a craft seemingly to lack all visible means of propulsion. I investigate closer. I purchase a fine wig.)

"Can I see Frank Whittle?" I asked.

"Yes, but see you don't tread the shavings all over the place," came the answer.

"Why does he whittle all day?" I enquired.

"Between you and me," answered my informant, "He just can't get the hang of carving a decent propeller."

"I get the same trouble myself," I admitted, "It's the helical."

"I'll say it is. But did you want to see him about anything in particular?"

"I hear he's designing a propellerless engine. Using a turbine."

"Turbine?" he queried. "You must be thinking of Cadet Ran Singh."

At this I gave up and returned to the problem of winding up my A Frame Pusher. But where was I to find two girl friends?

Next week I visit the Sheikdom of El Rancid.

The End





Top left: William Wargo from Redding, Connecticut, releases his 1/12th scale "Douglas" 046A powered by Fox .049 which weighs 24 ozs. Note the fine finish on the fuselage and tissue covered pretty elliptical wings for lightness. About to hand launch a "Boeing 226" tri-motor biplane is David H. Shipton, well known scale model enthusiast from Delevan, Illinois. Powered by a Cox Pee Wee .020 in the centre engine cowl, the model is painted in the colours of the Standard Oil Company who operated these unusual airliners in 1932.



ACTION U. S. A.

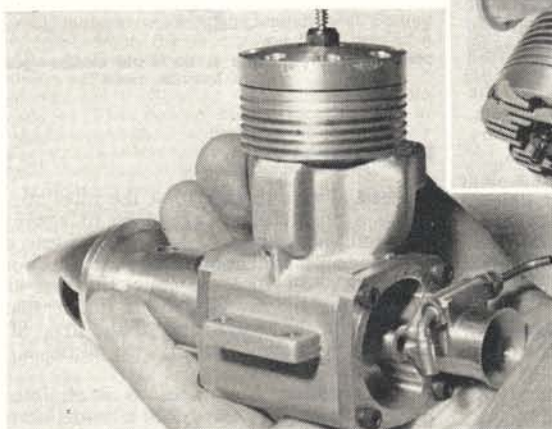
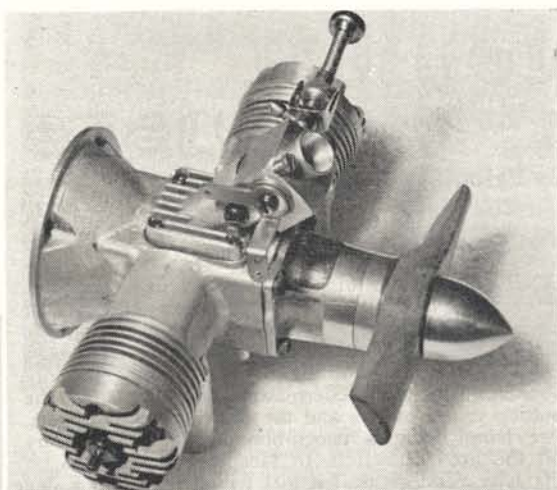
Photographs
R. Stouffer,
and 'Doc'

FREE FLIGHT
MODELS and
NEW ENGINES

Away on its own is the little known "Church Midwing" made to 1/6th scale by W. Kear of Tulsa, Oklahoma. This model has full shock absorbing undercarriage, is 52 in. in wingspan and weighs 28 ozs. with Cox T.D. .09 engine. Below it and also very much in action is John D. Clausen's Cessna L-19E "Bird Dog" in U.S. Army markings made to 1/12th scale with 36 in. span weighing only 10 ozs. This model was placed 2nd in the U.S. Nats open event.

To the right is Aeromodeller Plans Service scale model designer Richard Meixell of Dayton, Ohio, launching his 40 in. "Fokker D VII" with Cox .049 engine. This model is to the scale of 1 1/2 in. — 1 ft. and weighs 24 ozs. "Piper Tripacer P.A. 20" by Wayne R. Cain of Grand Rapids, Michigan, was the winning entry in Open Flight Scale and was powered by a Super Tigre 1 cc. diesel. It was built from old Berkeley kit plans and is seen climbing away with realistic aileron trim.

At bottom left, Edgar A. Franklin of Bergenfield, New Jersey, entered Free Flight with North America "P. 15D Mustang" weighing only 6 1/2 ozs. for Cox Pee Wee .020. This model is 1/16th scale, having a wing span of 37 in.

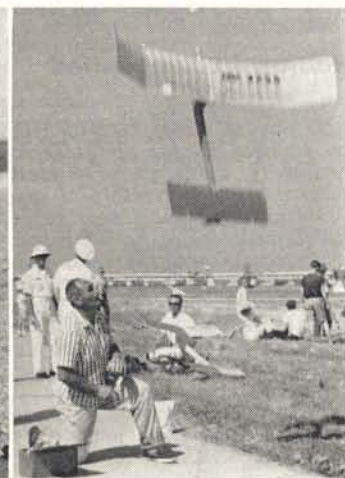


AT THE NATS

by
F. Monts
R. Nichol

Two fascinating engines caught by "Doc, the Mad Modeller", Richard E. Nichol, are the long awaited Bantam twin by Ben Shereshaw, creator of the Famous Bantam 19, many years back. This is Number 6 engine, featuring 5 reed valves and deflector vanes in the rear cylinder transfer port to even out the fuel distribution. Production engine will have differences. To its left is a 10 cc. version of Bill Wisniewski's famous "wart". Jim Nightingale was operating this one. Bill's own has been close to 200 m.p.h., actually pulling itself and pan out of model sideways during flight. Cathy Monts is the young lady with Frank Parmenter "Langley". Cathy beat all the boys to win Senior Wakefield (13,14) and Unlimited Rubber (10,26) at the Nats—great show Cathy Ann!

Along the bottom row, left is John Lenderman, once more in the U.S. Wakefield team with a 2608 secs total from 15 flights, 13 of which were max's at Bong A.F.B. where trials were held. Centre is John Gieskieng of Colorado, who was 75th in Power trials with "all auto" design, covered in sheet having thick trailing edge. To right is that old timer and popular designer, Sal Taibi releasing his 900 "Starduster" with K&B 35. More Stardusters than any other type were seen at Glenview for the Nats.



TOPICAL TWISTS

By Pylonius

Illustrated by "Sherry"

Tough decision

THE old image of the modeller as a shadowy creature who skulked in the fusty atmosphere of his hobby den, and whose highest adventure in life was a trip to the science museum, is as dead as a 2-4-2 Over Fired Shunting Engine. Nothing is more abhorrent to the modern style modeller than the buffing up of buffers and the blowing up of boilers. Far from being a bench-bound boffin, he's every bit the man of action. In fact, if you saw him on the telly deodorising his girl friend with five a day cigar smoke you would not find it amiss, nor indeed when taking a tough swipe at someone. Altogether, he's a rugged, with-it type, hardly likely to think that a mini-skirt is part of a car piston, or inclined to start forming a circle when Paul Jones is announced.

Just how tough is exemplified by a Swedish model flyer. Not satisfied that spelling his way through "Wentzelpokalen" was duration enough, he made a 125 mile round trip through the breathalyser road blocks to get a replacement wing. As they say in this country, he must be off his Swede!

Coupe Lummy

"Coupe de la Cote d'Azur" sounds like another success story for the bleke who broke the bank at Monte Carlo. But nothing so exotic. All it is is an event for the kid brother of the Wakefield, the "Coupe d'Hiver" along that strip of coast, if strip is not too indelicate a word, where once the cream of European society disported itself.

"Amanda! Why have they stopped playing our tune?"

"But, darling, don't you know? They've gone to the Coupe d'Hiver."

"So that's what they call it, Amanda. No wonder I couldn't find it."

Mission Accomplished

Some people take up aeromodelling in much the same way as others take up religion. The object of the exercise is not the objective exercise, but a missionary campaign to convert the idle heathen to an industrious worship of model flying.

Now, in my pagan time, I've seen too many zealous model missionaries boiled in pots to be impressed. In my case, love of my fellow being has always taken second place to love of my flying field, and, for that reason, I have always kept the joys of model flying locked up in my own little hairy bosom. The converted masses, I find, are not content with the simple hairy shirt delights of the chuck glider or or sports model. No. Before you can say Heath Robinson, they have got all the golden calf apparatus in full session: huge hunks of screeching, heathen machinery blasting over the common. And, in no time at all, you are excommunicated from your beloved flying field.



"It's a tip he picked up at the world champs—guarantees never to lose the model!"

Rising Star

I had always thought that the most successful way to fly a model plane would be to equip it with its own built-in thermal. I had many ideas on the subject, none of which quite rose to the occasion, like very thick d/t fuse, or long silencers to feed hot gases along the wings. Now I notice that a hot air contraption of balsa and tissue has at last been successfully flown, putting up quite a respectable duration.

The question now arises: is it eligible as a competition model? I mean, does a model aeroplane have to be a model aeroplane, or can it be any sort of flying contraption?

If we are so hidebound as to limit all development to something with a fixed wing and fuselage then we might as well be back in the days of Montgolfier, if you see what I mean.

Sterling(?) Qualities

It is fashionable in these satirising times to be the smart cynic. When confronted with the super modeller, holding his masterpiece in miniature we no longer go into raptures, but merely murmur "Big-head". Likewise when we see some emaciated radio flyer, who has lived for months on dog food and broken biscuits in order to realise his multi dream, we do not admire his thrift, we just call him "Moneybags".

Much the same goes for traditional myths. If there is such a thing as an Englishman who displays a stiff upper lip, we presume he does so in order to keep his National Health dentures in.

In spite of this, I can't help feeling that that stiff upper lipped composure, once held in awe from Katmandu to Khartoum, is still very much a characteristic trait, but one which I, alas, do not possess. This occurred to me as I saw a Typical Englishman doing nonchalant, sang froid things with his super radio model. Now, when you see such a piece of model perfection performing as a mechanical shovel it is a sight to make the strongest weep, or so you think. For my own part I rush to the wailing wall at the slightest mishap. I have been known to brood a whole week over a cracked tail-plane, and as for a pile-in, I have to be carefully nursed back to health. Yet this stalwart radio flyer almost sauntered over to the wreckage. No wonder the Dervishes took fright.

Free : Flight : comment by J. O' Donnell

The mild Autumn has meant that several recent contests have been blessed with calm weather. Conditions may have been overcast and generally murky, but it was ideal flying weather.

The **Northern Area** decided to separate its **Tony Pannett** (open power) and **Vintage Trophy** events from Area centralised events; and held them, together with A/1 and Coupe d'Hiver to balance, on 25th September. There was certainly an increase in interest in the events with this arrangement. Scores were naturally high but only the open power event needed a flyoff—won by Ray Monks with a two second lead over Mike Green in conditions approaching dead air.

This contest was the first outing for Whitefield's audio tachometer made by Terry Toolan from a recent article in "M.A.N." Readings on the flyoff participants "in the air" may be of general interest and are detailed in the table on page 671. They certainly help explain Ray Monks' power successes as his TD15 is obviously a very good one.

A ground check against a Smith's mechanical tachometer gave excellent agreement and also showed that a G15 jumped 700-800 r.p.m. when the Smith's tach. was removed.

Vintage had plenty of interest and was dominated by rubber models, despite the generous motor run allowed the power entries. Glider is either of little interest or is considered outclassed. It was noticeable that several entrants had built quite complicated models for this event. The r.o.g. requirement gave one or two entrants some trouble but I now realise why take off shots used to be so popular with the model press photographers.

Gerry Tideswell proved the eventual victor with just eight seconds short of a treble flying a "Gutteridge Trophy Winner". Bob Hynes took second place with a much simpler design (Ted Buxton's "Collector" lightweight) but probably regretted not changing the motor for his final flight. Third place went to Lou Roberts with a Keil Kraft "Gypsy" very little in front of the fourth place tie. This was between Ron Firth flying a "Warring's Lightweight" and Keith Harris flying a "Thorobred" proxy for John Mayes. The event's only flyaway was provided by Henry Tubbs who made a D.T.-less test flight with a "Mick Farthing Glider" and last saw it 20 mins. later, still going up and away!

A/1 was less spectacular and seemed to give trouble when it came to finding lift. Nevertheless I managed to max out with a model so old that with the original wing it could have qualified for Vintage. In complete contrast was Mike Reeves' second place model, three seconds short of a treble. This was brand new and only completed the day before. Ray Monks was third with another newish looking model although it proved to possess a 1958 (but recently recovered) Wakefield wing.

Coupe d'Hiver seems to be a private battle between Dave White and myself and we ended up in that order. The models are the same ones that we have flown for the last two years.

Vintage event winner at Chobham, August Holiday, was John Mayes with Elfin powered "Thorobred".



Bob Bailey won both the Southern Gala and the Midland Area Rally fly-offs with this model.

The **Southern Gala** at Odiham on 9th October was preceded by a weather forecast that included the unheard-of phrase "no wind". It was justified even though accompanied by thick mist that refused to disperse till early afternoon. This was ideal for talking but not for much else.

When the mist did commence to clear it was soon apparent that there was plenty of weak lift. There was consequently a rush to fly glider, even though models were drifting from free flight control straight out of the airfield. Maxs were very easy at this stage, but few fliers managed three flights before the conditions changed. The air then seemed very "dead" for a couple of hours. Nevertheless it was very calm and people were still more anxious to fly than move. Flights were only going 300-400 yards at most for maxs but there were many who "dropped" a flight at this stage.

I'd done nine flights and was ready to start on rubber when I was told that the flyoffs had been advanced to 5 o'clock and were to be held at the other end of the drome. Investigations revealed that this was a decision by the S.M.A.E. Comp. Sec. and that the event organisers were as surprised as anyone. This type of change makes a mockery of the rules printed in the programme and can certainly penalise competitors (who are surely entitled to fly at the last minute should this be either necessary or, in their opinion, advantageous).

The flyoffs themselves were satisfactory enough. Glider was first away with a surprising lack of reluctance to fly. Scores were very close with Tony Young, who flew well away from everyone else, proving the winner. Power followed almost immediately with all models on trim and going well. Dave Posner and George Fuller cleared five minutes, Art Fisher edged Ray Monks out of the prize list by just one second, and my TD 049 was rather outclassed. A very quick recovery was necessary so I could fly it again in the 1/4 A flyoff! This was rather more successful, although it must be admitted that Tony Rodgers had both engine and model trouble on his fly off.

The rubber flyoff was proceeding simultaneously so I didn't see much of it. It had a lot of participants but proved a clear win for Bob Bailey. Although he flew at the same time as others he got very high and had both a good model and good air. John Bailey was up with him but stalled on glide. Even chuck glider had a flyoff although I heard it was not to resolve a treble max. One nice feature for a S.M.A.E. event was the awarding "on the field" of the cash side of the prizes. What a pity this can't extend to the badges and certificates as well.

★ ★ ★ ★

The **Midland Area** have obtained the use of Wellesbourne aerodrome again—or, to be precise, of half of it. The drome has been divided between two landowners. The Midland rally, held on 16th Oct., was quite well supported. Initially drift, although slight, was in a "difficult" direction—but permission was eventually obtained for flying to take place in the other half. This, plus variable drift (and a couple of minor showers), led to the establishing of two separate f/f camps. As flight cards were not recorded until filled it was doubly difficult to tell how scores were progressing.

Lift was rather weak and somewhat uncertain. Rubber naturally had the biggest flyoff and was held first. Attempts to find 38 timekeepers soon collapsed and the competitors were left to

Continued on page 671



LATEST ENGINE NEWS

By Peter Chinn

Parts of a McCoy 40 from an experimental batch fitted with flat-crown bar-stock pistons. 1967 McCoy's are to be equipped with forged pistons.

one of an experimental batch of 1000 that were put on the market without any announcement to the effect by the manufacturer, who wished to test consumer reaction. We are informed that, in fact, the change appeared to pass largely unnoticed.

This seems to indicate either some lack of perception on the part of the average user, or that our sample of the Meehanite piston 40 was somewhat substandard, as our tests revealed a marked difference in performance between the two types. We carefully checked this by interchanging piston and cylinder assemblies between the two engines and obtained increases of up to 1,000 r.p.m., according to prop size, with the old type piston.

Two Japanese .09 engines, little known outside Japan, are the .096 cu. in. "Strong" and the .099 cu. in. K.O. The Strong bears a superficial resemblance to the Cox Medallion series but has a one-piece diecast crankcase and a separate glowplug. It weighs 3 oz. The K.O. weighs 3.3 oz., is of orthodox design and is also available with throttle control and silencer.

AN EASY TO MAKE SILENCER

The home-made silencer shown on this page was devised by L. R. Cook of Rayleigh, Essex, who tells us that he has been using one at flying displays for Keilkraft. The silencer is shown fitted to a McCoy 29 but can be made to fit virtually any similar sized engine having a side exhaust duct, by suitably tailoring the opening and/or securing strap.

Quite apart from the fact that this silencer can be used to equip engines—such as the McCoy's—for which the manufacturers do not, themselves, make silencers, the great thing about it is that it is made largely from expendable items—namely, an empty gas-lighter refill and a cigar tube. The only other things needed are three 6 BA screws, nuts and

washers and some scrap aluminium sheet of about 16 s.w.g. thickness.

The outer casing of the Cook silencer is a Ronson butane refill container, approximately 4½ in. long by 1-13/64 in. diameter. The ends of this are drilled and reamed to accept, as a fairly tight push fit, an aluminium cigar tube, in this instance a "Falstaff" tube of 0.635 in. dia. This is drilled with a series of 1/8 in. holes through which gas escapes, to be discharged through its open rear end. Mr. Cook sent us two tubes, one with 36 holes and a closed front end and the other with slightly fewer holes but an air inlet at the front end, presumably to assist in extracting exhaust gasses.

We tried out the Cook silencer on a McCoy Red-Head Stunt 40 engine and found it quite impressive. It caused no starting complications and absorbed very little power indeed. On a 10 x 6 Tornado nylon prop, which the McCoy turned at 10,800 r.p.m. without a silencer, revs were reduced by 200 using the closed tube and by 300 with the open ended tube. A similar drop was recorded on a 10 x 4 prop, i.e., 11,500 r.p.m. with open-ended tube, 11,600 r.p.m. with closed tube and 11,800 r.p.m. with silencer removed. The degree of silencing obtained appeared to be quite good.

The complete silencer weighs slightly over 1½ oz.—a quite modest figure—and fits very securely. About the only criticism that might be levelled against it, perhaps, is the fact that, being fitted close to the cylinder without any sort of extension, it might call for some front-end modification on certain types of models. On the other hand, this does mean that the engine is rather less vulnerable to crash damage—a hefty silencer sticking well out in the line of fire can be rather a mixed blessing in a spiral dive.

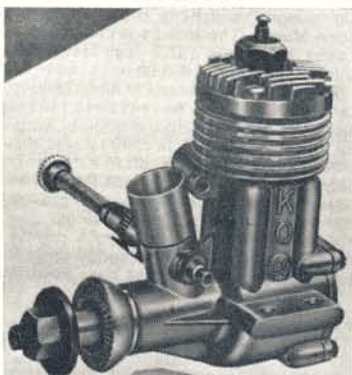
McCoy 40

Last April, we commented on the "Blue Head" R/C version of the McCoy 40 which, on examination of our test sample, revealed a departure from the piston design common to all the McCoy low priced engines produced during recent years. In place of the usual domed crown piston produced from a sintered iron casting, this model reverted to a more orthodox piston, machined from Meehanite bar stock with a flat crown. It now transpires that this engine was



Parts of Cook silencer, showing alternative tailpipe inserts. Silencer is made almost entirely from scrap material.

McCoy Stunt 29 fitted with L. R. Cook's home-made silencer. Silencer was tested by author on McCoy 40 and found to cause negligible power loss.



This, clearly, is not merely due to the difference in material. The Meehanite piston was, in fact, very slightly shorter above the gudgeon-pin which, in the absence of the domed crown also, reduced compression ratio quite noticeably and also altered port timing slightly.

Since our tests on these engines, the Testor Corporation have announced improvements to the entire range of McCoy shaft-valve engines for 1967 which, in future, will be known as the "Custom" series. Among these improvements is a new forged piston which apparently combines the crown and baffle shape of the old sintered iron piston with the longer wearing qualities of the Meehanite piston.

The outward appearance of these new McCoy's is slightly altered by the adoption of matt finished castings in place of the previous tumble-polished components. U.S. prices average about 30 per cent higher than 1966 models.

Enya 45BB

We have just received a couple of samples from the U.S. distributors, the MRC-Enya Company, of the latest Enya product. This is the new 45BB-TV and a very nice looking job it is too. Unlike the standard Enya 45-TV, it has a twin ball bearing shaft and a ringed aluminium piston. The carburettor is similar to that of the Enya 60-II TV, i.e. a conventional single needle-valve barrel-throttle type with airbleed, not the big dual needle-valve type of the original 45-TV. As a result, the engine tips the scales at a modest 10 oz.—the same as for the older model, despite the addition of ball-bearings and a heavier front end.

Inside, the 45BB-TV has some interesting features. The piston, like that of the 60-II, has bronze-bushed gudgeon-pin bosses. The conrod is an aluminium forging, rather than a diecasting as on the older 45, and is bronze bushed at the

big end. The piston also has skirt ports. The combustion chamber shape is different. It features a shallow hemispherical head centre area surrounded by a narrow machined band—we won't call it a squish-band, because it obviously doesn't "squish" very much; there is too much clearance between it and the piston crown at TDC.

It seems unlikely that the engine will attract the attention of many contest multi enthusiasts, since most of them seem to be committed to the idea that nothing less than a 60 will do. It should, however, have a performance equal to, or better than, existing 45's, since the standard Enya 45 is just about the most powerful of these. Assuming that a standard non-throttle 45BB is made available, this, too, might well prove acceptable for C/L stunt among those who favour a larger type model, especially in view of its reasonable weight.

Free Flight Comment by John O'Donnell

(Continued from page 669)

find their own. This did not matter as drift was almost nil. Results were almost complete when Bob Bailey flew last of all—for another convincing win of about 8½ minutes. His model is quite conventional except for a right climb/left glide trim (with washin on the port wing). Wing section for those interested is a modified version of Loffler's Wakefield one. Perhaps Bob has also got good rubber as he went as to win the unprecedented Coupe d'Hiver flyoff! He did 2:15 compared with my 1:58 and Dave Whites' 1:45.

The power and glider flyoffs were held simultaneously with ground mist starting to rise. Ray Monks won another power contest although I got a bit closer with my 1½ A. Roger Baggott and John Bailey filled the other places. Glider was very close with Jon Clements flying a "Wichita" to a very narrow lead over Chris Hayward and Boon's "Caprice". Tailless and Chuck glider did not need flyoffs and were won by Ken Attiwell and Greaves.

Several "old hands" from the Midland Area reappeared at this meeting including David Greaves who managed third in rubber with an old model "out of the loft".

Wellesbourne Mountford 16th October 1965

(Free-Flight only—see p. 691 for other events)
Rubber 1, R. Bailey (Croydon) 9:00+8:39; 2, G. Cornell (Croydon) +7:19; 3, D. Greaves +7:10; 4, D. Morley (Lincoln) +7:05. **Coupe d'Hiver** 1, R. Bailey (Croydon) 6:00+2:15; 2, J. O'Donnell (Whitefield) +1:58; 3, D. White (York) +1:45. **Glider** 1, J. Clements (Baldon) 9:00+2:26; 2, C. Hayward (Croydon) +2:23; 3, Boon (Congleton) +2:20; 4, B. Lumb (Baldon) +2:07. **Power** 1, R. Monks (Birmingham) 9:00+4:44; 2, J. O'Donnell (Whitefield) +4:16; 3, R. Baggott (Birmingham) +3:45; 4, J. Bailey (Bristol & West) +2:40. **Chuck Glider** 1, D. Greaves 3:03 ago; 2, Hall 2:37; 3, R. Lennox (Birmingham) 2:25. **Tailless** 1, K. Attiwell (York) 8:14.

Flyoffs at these contests have obviously been no trouble. But conditions were (unfortunately) not typical and the problem is still with us—especially for rubber. There has been a certain amount of interest in this subject and the resultant discussions

do reveal definite feelings. It seems certain that a lot of open rubber exponents like unrestricted rules and are quite content to live with the flyoff situation.

Equally strong is the feeling that if any restriction has to be placed on rubber contests then we should go "all Wakefield". This is not my personal view as is probably well known. But ballast in any shape or form seems to have singularly little appeal to most modellers. Dave Pym wrote in at length to argue (via the Palmgren formula) that Dave Furbank's and my suggestions achieved almost identical penalisation of inefficient design—but neither scheme seems in the least popular.

Any restricted rule (Wakefield, Cd'H or ballast) has one unfortunate result in that it "forces" competitors to fly tactically. If conditions are such that this is practical (and successful) then the flyoff problem remains.

There have been suggestions for altering the maxs and/or flyoffs. These include the "creeping max" idea (either for the contest or the flyoff) and holding the flyoffs early or late. One idea was to have the second flight unlimited and demand that the third flight be made with the same model. This might well do more than good, especially to the downwind crops. There has even been a suggestion of no max—which would certainly change the approach of some people.

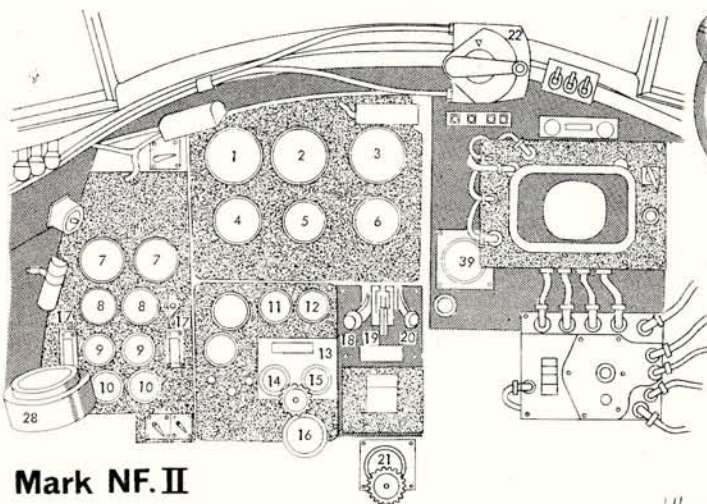
I'm afraid that any objective appraisal of the situation tends to indicate that free flight in its current form has progressed to the stage of being impractical. In short, it is too good for the facilities available; and hence some change is almost inevitable.

| Name | Engine | Prop (nylon) | r.p.m. |
|--------------|-------------------|---------------------------|--------|
| Ray Monks | Cox TD 15 Special | Cox 8x4 | 16,000 |
| Mike Green | Eta 29 | Frog 9x4 | 14,500 |
| Russel Pears | Veco 19 | K.K. 8x4 | 15,600 |
| Roland Lee | Super Tigre G15 | K.K. 8x4 | 17,500 |
| Brian Hooley | K & B 15 (1966) | cut to 7½ Topflite 8x4 | 14,500 |

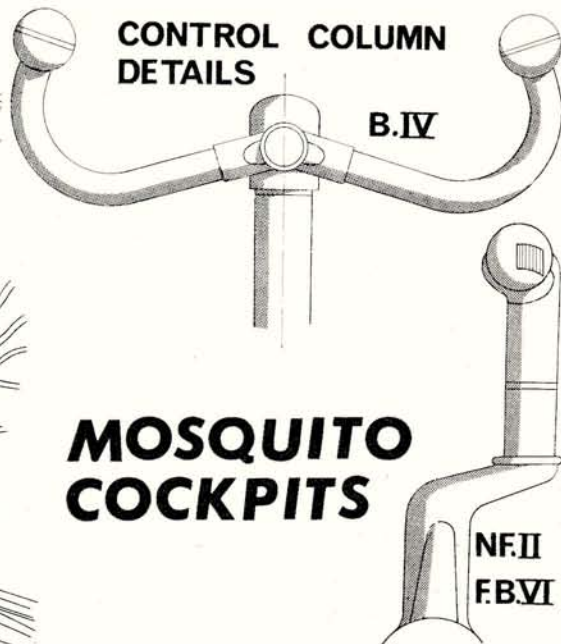


Left, Gerry Abbot lost his APS "Bazooka" on this third flight in vintage event at Chobham, August Bank Holiday so had to be content with 2nd place. At Right, Trevor Faulkner's D.I.Y. Wakefield base for self-winding — in action.

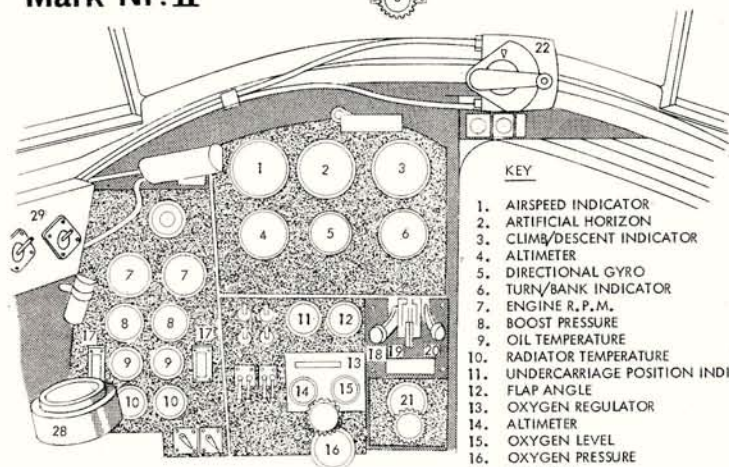




Mark NF.II



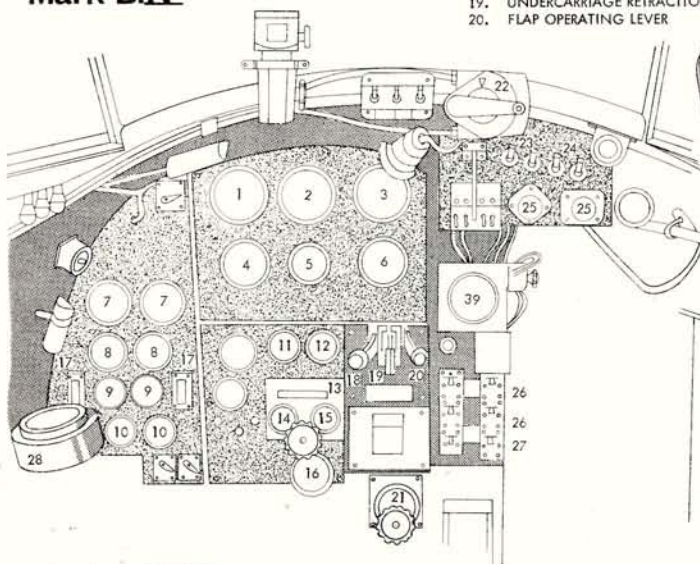
MOSQUITO COCKPITS



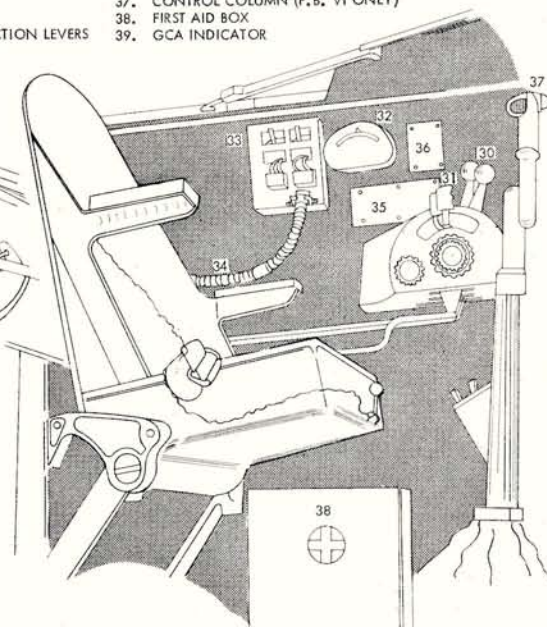
Mark B.IV

KEY

1. AIRSPEED INDICATOR
2. ARTIFICIAL HORIZON
3. CLIMB/DESCENT INDICATOR
4. ALTIMETER
5. DIRECTIONAL GYRO
6. TURN/BANK INDICATOR
7. ENGINE R.P.M.
8. BOOST PRESSURE
9. OIL TEMPERATURE
10. RADIATOR TEMPERATURE
11. UNDERCARRIAGE POSITION INDICATOR
12. FLAP ANGLE
13. OXYGEN REGULATOR
14. ALTIMETER
15. OXYGEN LEVEL
16. OXYGEN PRESSURE
17. OIL LEVEL
18. BOMB DOOR LEVER
19. UNDERCARRIAGE RETRACTION LEVERS
20. FLAP OPERATING LEVER
21. AILERON TRIM AND INDICATOR
22. RUDDER TRIM
23. ENGINE STARTER SWITCHES
24. BOOSTER COIL BUTTONS
25. PROPELLER FEATHERING SWITCHES
26. BOMB SELECTORS
27. BOMB FUSING SWITCHES
28. COMPASS
29. FORMATION KEEPING LIGHT SWITCHES
30. THROTTLE LEVERS
31. PROPELLER SPEED CONTROL
32. ELEVATOR TRIM TAB INDICATOR
33. BEAM APPROACH SWITCHES
34. OXYGEN PIPE
35. UNDERCARRIAGE EMERGENCY INSTRUCTIONS PLATE
36. OPERATIONAL LIMITATIONS PLATE
37. CONTROL COLUMN (F.B. VI ONLY)
38. FIRST AID BOX
39. GCA INDICATOR



Mark F.B.VI



De Havilland MOSQUITO

(marks II, IV and VI)

AIRCRAFT DESCRIBED No. 157

Described by C. Buck

Drawn by G. R. Duval

Photographs illustrate the three marks described, note drawing subject in 105 Squadron line up foreground at right (this photo courtesy "The Aeroplane").



THE ERA 1925-38 saw the de Havilland Aircraft Company establish itself as a prolific manufacturer of civil aircraft, the designs ranging from light single engined machines through a twin engined racer to a high speed four engined mail-plane. These last two examples, the D.H.88 Comet and D.H.91 Albatross, marked a departure in established manufacturing techniques in that the principle structures employed laminated wood, including a stressed skin. Having first proved the basic technique with the Comet, A. E. Hagg, encouraged by improved adhesives and more easily formed laminates elected to use the same method in the construction of the Albatross. An aesthetically beautiful aircraft, the Albatross presented its designers with a number of problems, including a structural failure of the rear fuselage, but despite this it proved conclusively the value of laminated wood construction.

It was with this information uppermost in their minds that Captain Geoffrey de Havilland and his team produced, in 1938, a project specification for a high speed unarmed twin engined bomber. Initially the Air Ministry received the design with scepticism and suggested the de Havilland factory would be probably better employed building other people's aircraft. Although initially disheartened, de Havilland persevered with the design on company funding and with the enthusiasm of Air Marshal Sir Wilfred Freeman, Air Member for Development and Production, instructions to proceed were given on December 29th, 1939, some eighteen months after the initial submission had been made.

A production order for fifty aircraft was placed on March 1st, 1940 and construction of the prototype commenced in a small hangar at Salisbury Hall near London Colney where the design team, led by R. E. Bishop, had been removed, for reasons of security. Despite slight difficulties with the forming of some of the more complex skinning and problems

associated with the control runs, the construction of the prototype moved ahead swiftly. Then, on the 25th November, 1940, having been transported to Hatfield three weeks beforehand, the first Mosquito took to the air, a mere eleven months after the detail design work had commenced. Painted a bright yellow for easy identification, the prototype (W4050) was allotted but initially the aircraft was marked EO 234) underwent three months of intensive trials before being handed over to the A. & A. E. E. at Boscombe Down.

Meanwhile, construction of the prototype Mk. II (W4052) was well under way, also at Salisbury Hall. This prototype was completed as a night fighter with strengthened wing spars, A.I. Mk. IV "Arrowhead" radar and a simple flat bullet-proof windscreen. To save valuable time the aircraft was flown out of a field behind Salisbury Hall, this event taking place on the 15th May, 1941. The armament of this machine comprised 4 x 20 mm. Hispano cannon and 4 x 0.303 Browning machine guns, the firing mechanism being pneumatically operated by a small compressor installed in the port engine nacelle. The compressor also fed air to operate the undercarriage retraction system. The installation of the cannons extended rearwards, necessitating the replacement of the earlier 'trap door' cockpit entry by a side entry door with an air-portable ladder.

The third and final aircraft of the basic prototype batch (W4051) was completed as a P.R.1; the maiden flight taking place on the 10th June, 1941. Following acceptance trials the aircraft was handed over to No. 1 P.R.U. at Benson where four of the first batch of ten production aircraft were soon to join it. To No. 1 P.R.U. was to fall the task of introducing the Mosquito into operational service, the aircraft proving admirable for the task of photographing enemy held territory from a wide range of altitudes.

Development of fighter and bomber versions continued apace, the first production model of the bomber, designated Mk. IV, was initially produced with the original short engine nacelles (series 1) but



N.B. F.B. MK VI. FIN IS
O.S. ON BOTH SIDES
FROM TOP OF FIN
TO TIP.



DG. — DARK GREEN.
 OG. — OCEAN GREY.
 MSG. — MEDIUM SEA GREY.
 SI. — SILVER
 NM. — NATURAL METAL.
 LG. — LIGHT GREY.
 B. — BLACK.
 DB. — DULL BLUE.
 DR. — DULL RED.
 W. — WHITE.
 Y. — YELLOW.

N.F. MARK II.
COLOUR NOTES

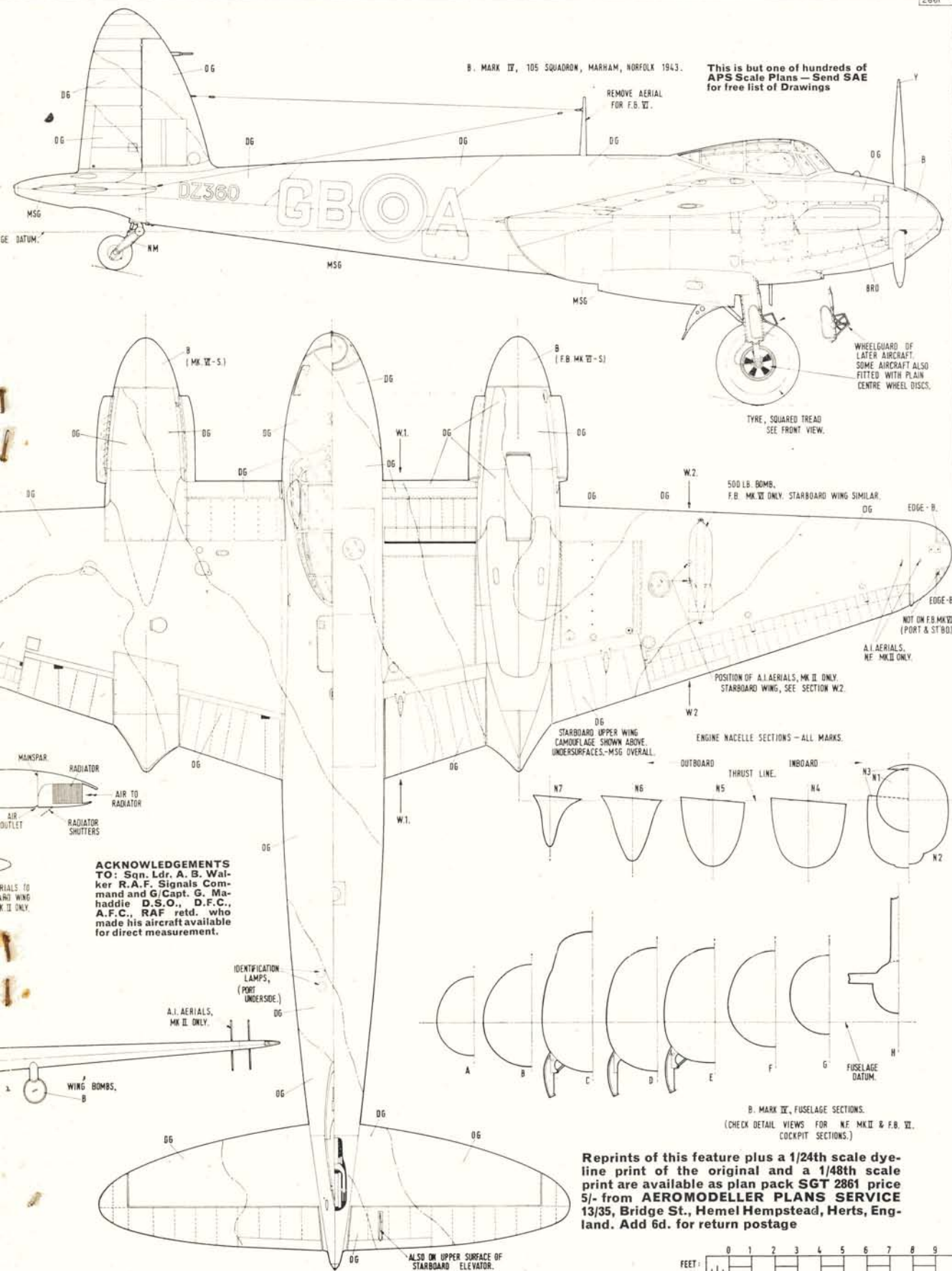
OVERALL: SEMI-MATT NIGHT BLACK.
STANDARD NATIONAL MARKINGS.
SERIAL NUMBERS: DULL RED,
AND ALSO SQUADRON CODE LETTERS
WHICH WERE APPLIED AT A LATER
DATE.
REPRESENTATIVE SERIAL NO. —
DD 750.

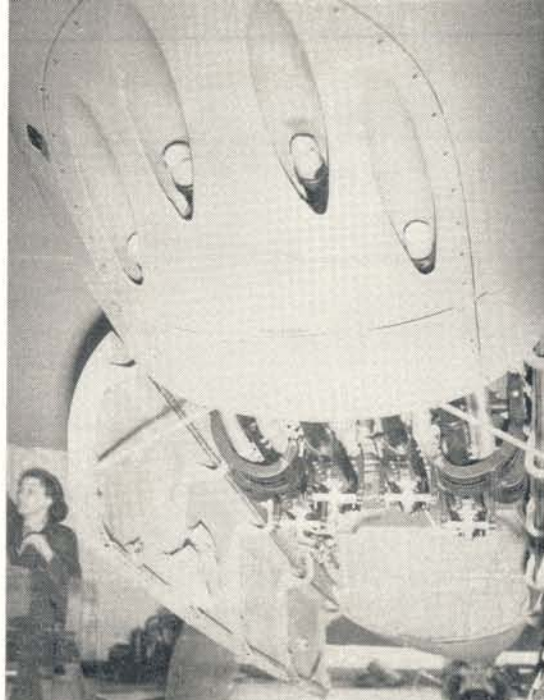
F. B. MARK VI
COLOUR NOTES

CAMOUFLAGE AS B. MARK IV.
SQUADRON CODES = 'SKY'
SPINNER = 'SKY'
18" 'SKY' BAND AROUND REAR FUSELAGE,
FROM LEADING EDGE OF FIN FILLET
FORWARD.
ABOVE DETAILS APPLY TO AIRCRAFT
HP 927, SY-B, OF No 613
SQUADRON

DRAWN BY: G. R. DUVAL TRACED BY: A. A. P. LLOYD

DE HAVILLAND D.H.98. MOSQUITO, Mk.s.II, IV & VI.





Left, Armament view showing 420 mm. Hispano cannon which fires through shaped troughs with access through doors in fuselage. Above is illustration of the nacelle extension the shape of which is frequently misunderstood by model makers and is difficult to illustrate in a three view drawing. Note also the flaps in this view.

was soon superseded by the series II with longer nacelles. The factor limiting the maximum bomb load was, at that time, the sheer physical space available and accordingly the Mosquito had been offered with 4 x 250 lbs. capacity. However, experimental cropping of the bomb vanes produced little adverse effect during trials and accordingly the maximum bomb load was increased to 4 x 500 lbs.

In November, 1941, the Mosquito BIV entered service with 105 Squadron (code letters GB) at Swanton Morley and after a full 'working up' programme the squadron commenced operations in May, 1942, with a daylight raid on Cologne. Early operations by 105 Squadron indicated how admirably the Mosquito operated as a precision bomber and it was this feature which made the aircraft so perfect for the now famous raids on the Gestapo H.Q. in Oslo and Aarhus and the Amiens prison. The Mosquito also served with considerable success in the "Pathfinder" role marking the targets for the 'heavies' of Bomber Command.

Shortly after 105 Squadron received their Mosquito BIV's 157 (RS) Squadron was formed at Debden with N.F.II's and joined the fight in April, 1942, after moving to Castle Camps. 23 Squadron (FY) also received Mosquito N.F.II's and operated them in

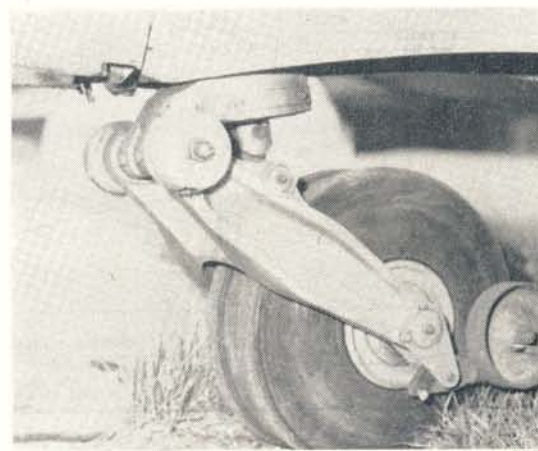
conjunction with Havocs from Ford until they moved to Malta in December, 1942, to operate the Mosquito in the intruder role.

It was the role of the intruder which led the development of the F.B.V.I. The series I aircraft with Merlin 21's was able to carry 2 x 250 lb. bombs in the rear of the bomb bay plus one 250 lb. bomb under each wing, this with the Mk. II's cannon and machine gun armament made a formidable weapon. This became even more apparent when the series II Mk. VI was born, with Merlin 25's permitting the 250 lb. bombs to be replaced by 500 pounders. Initial deliveries of the Mk. VI were made to 418 Squadron (code letters TH) which became operational in May, 1943. 418 Squadron was destined to become famous in the daring intruder role and by war's end they were able to lay claim to 178 enemy aircraft destroyed in addition to a tremendous amount of damage to ground installations.

The Mosquito was, of course, developed a great deal further as the war progressed and perhaps its classic lines were to suffer a little in the interests of operational efficiency with the advent of bulbous noses for the night fighter role and deeper bomb bays for increased bomb loads. Nevertheless it was a rare breed of thoroughbred which, but for the faith of a handful of people, could have been just another sketch in the project office file.



The unusual rubber shock type undercarriage legs of oval section are seen at left, also the door guard framework whilst below is the tail wheel units with Marstrand tyre having a groove in centre. Extra "wheel" belonging to the ground steering fixture was temporarily attached to this aircraft when picture was taken.





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



J. Green holds his Picador control liner, described below.

Dear Sir,

With this letter I enclose a photograph of my D.C. Sabre powered *Picador*. It is a fine flyer and although quite capable of performing a loop I have not plucked up enough courage to try it yet in case I crash it. The wings are left neutral in colour with just a coating of clear dope, the fuselage and fin is black with a yellow cockpit and elevator and has the word "Sling Shot" across the wings.

I learned to fly control line on a *Veron Provost* powered by the Sabre which although very fast was also very strong. Preston, Dorset. J. Green.

Dear Sir,

I have a *Cox Spitfire*, but I have been unlucky, because the *Spitfires* wheels are only 1 in. diameter and they are not large enough to be flown off grass, so the only place I can fly my plane is on smooth hard ground. But every time I fly it,—

being a learner I crash and nearly always break something. I was wondering if there is a firm that makes larger wheels to fit this plane or if there is any way in which I could get round this problem. Stevenage, Herts. R. Hubbert.

The "*Aeromodeller*" *Cox Spitfire* took off from smooth grass without any undue trouble on test, but the grass has to be very short. Larger wheels are available at any model shop, there being several types of 1½ in. and 1½ inch wheels to choose from.

Dear Members,

The festive season is upon us and only a few weeks remain before Christmas. Many of you will be given Aeromodelling presents and may be asked for your preference beforehand. Don't jump in too deep by asking for something that is too complicated, why not ask your model shop dealer for advice he will be very pleased to help!

Many of your friends may want to build A.P.S. plan models, so don't forget to remind them of our special rebate offer for G.W. Club members. Another excellent gift suggestion is an *Aeromodeller* Subscription, this only costs 35/- and ensures an issue is not missed.

All the very best for the winter building season to all of you, and let's hope next year will be even better than '66 for all Aeromodelling—Keep away from those Power Lines. John Bridge.

Dear Sir,

I am very glad I am a member of your *Golden Wings Club*. Please could you



Left to right, A.P.S. Siesta, control line trainer and Jasco Tutor constructed by T. Marshall.

supply me with a pen pal. My main interests is in stunt and combat. My address is 2 Raglan Grove, Singapore 19, Singapore. R. Choy.

Dear Sir,

I have been receiving *Aeromodeller* for just under a year now and have found it very interesting and instructive. Enclosed is a photo with three of the models I have built recently. The two gliders are the *Jasco Tutor* and the *Aeromodeller* Plans Service *Siesta*. The control line trainer is powered by a Davis Charlton Merlin and is as yet unflown. I am 15 and I am eager to contact other Aeromodellers in my area and also find a flying field to test my trainer.

Stranraer Scotland. T. Marshall.

Any *Golden Wings* club members living near Tom should contact him at "Frenchwood", Brookfield Ave., Stranraer, Wigtownshire.

Dear Sir,

I have had some experience at control line flying and am thinking of starting radio control. I have made a list of things I shall want and would like your opinions on these things.

Graupner Kadette 46" wingspan, Enya .09 III glowplug engine, Mac Gregor Transmitter and Receiver which I am thinking of putting in, in the way it is installed in June edition of *Aeromodeller*. I would like a list of the mixture to make my own glow fuel. I am a member of the *Golden Wings Club* No. 10,097. Gt. Totham, Essex. P. Cork.

You are a very lucky chap to be able to afford to start single channel R/C in such a grand manner. The model, engine, and R/C gear you mention are all ideal and David Boddington's installation method shown in June "*Aeromodeller*" is the best yet for ease of installation. To make your own glow fuel for the Enya .09 III you will need Methanol, Castrol M, and Nitromethane for a little extra performance, but this is an extra. Use these ingredients in the following proportions, 25% Castrol M or Castor Oil, and 70% Methanol, plus 5% Nitromethane.

SPECIAL PRIVILEGE OFFER exclusive to Golden Wingmen

ANNOUNCEMENT of importance to all Golden Wings is a special privilege offer of 2d. in each whole Shilling rebate on Plan orders accompanied by the coupon clipped from this page. **Be sure to add your registration number to the coupon.** The offer applies to plan purchases only and is limited to one order per month per G.W. member. Orders with rebate coupons attached should be addressed to G.W. Plans, 13/35, Bridge Street, Hemel Hempstead, Herts. The rebate is effective on prices listed in the new edition A.P.S. Plans Handbook No. 1 (i.e. 3/4 in the £1 reduction). Note that there is no reduction on postage (6d. for orders under 10/-)

Dear John Bridge,

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

NAME IN FULL

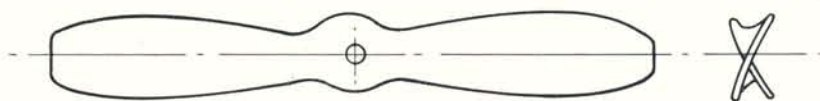
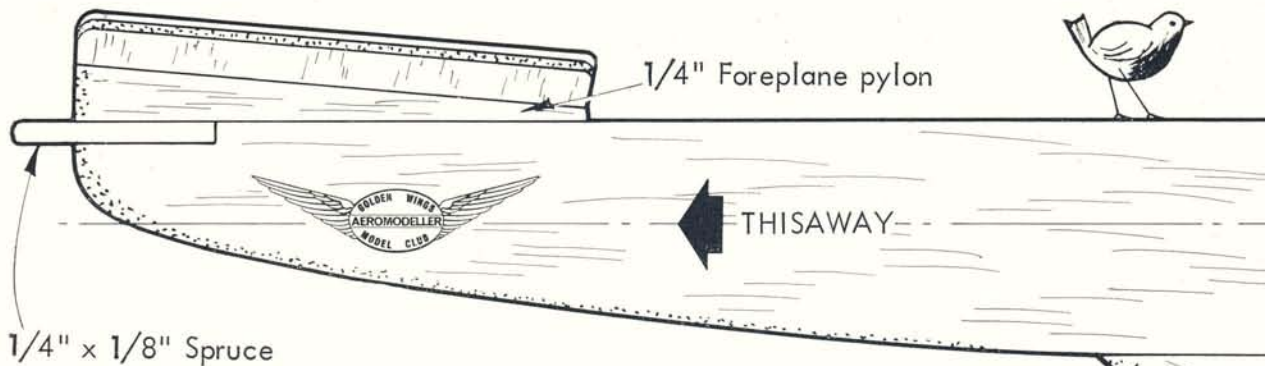
ADDRESS

YEAR OF BIRTH.....SCHOOL

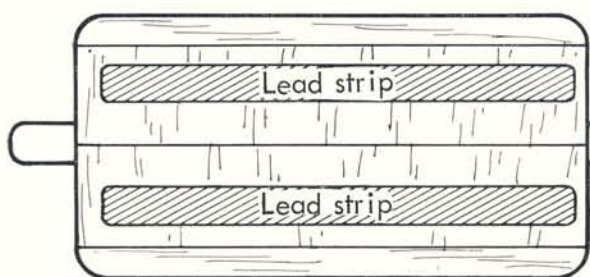
NAME OF ANY OTHER CLUB OR CLUBS TO WHICH I BELONG (if any)

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

2d. in the 1/- Rebate coupon for Golden Wings Members No.



1/16" hard balsa keel



1/16" sheet tailplane support to fit dihedral

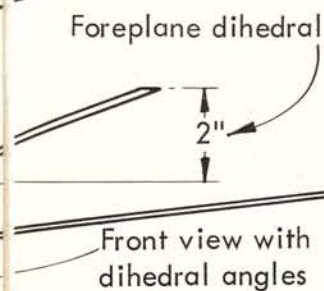
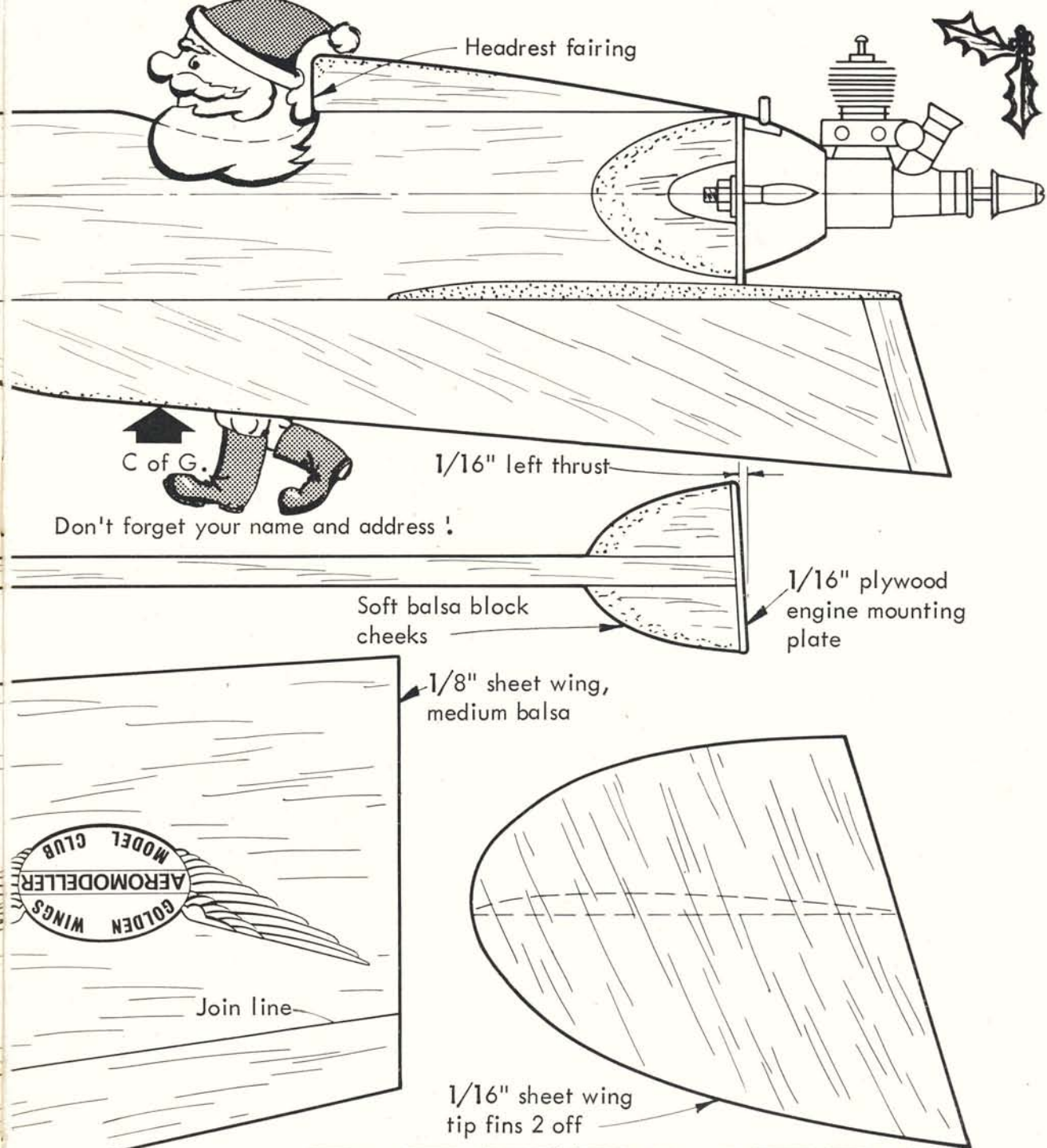
1/4" hard balsa fuselage

Foreplane, hard 3/16" sheet

Thread turbulator on Foreplane only

1/8" hard balsa

Wing dihedral - 1"



REZENEBE

(A BACKWARD EBENEZER)

18" Wingspan free flight canard for .010 engines

Designed by Fullerton

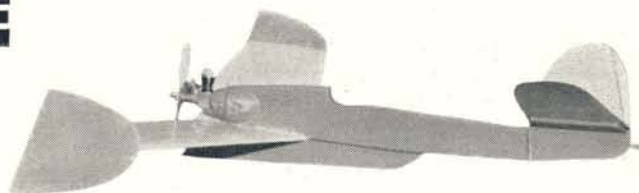
Instructions this way



REZENEBE

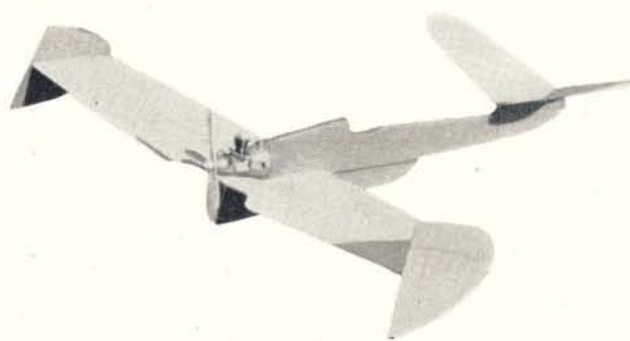
Whichaway? Whataway?

Thisaway for flying fun



A lively 18 inch span tail-first free flight model for .010 engines designed by Australian down-under-tail-first exponent, **JIM FULLARTON**.

It all started one day when we were playing around with that wonderful word of Bert Streigler's, and found out it could be written backwards. After that discovery, there was only one thing for it. There just *had* to be a canard **EBENEZER**. What is more, it had to be a *real* canard, not one of your half-baked tractor efforts, but a genuine tail-first, propeller-last *pusher*, like they used to build back in '09.



We will not bore readers with a detailed description of construction, beyond a reminder to use light material (and not too much paint either) behind the C.G. so as to minimise the amount of nose ballast required. The foreplane has a thicker section than the wing and has a turbulator to prevent premature stalling.

To make Mr. Cox's tiny powerhouse "Push" instead of "Pull", we need a left hand propeller, which is bent from dural. This will be quite safe provided you do not use soft aluminium, and replace rather than straighten it should it ever become badly bent (*most unlikely on a canard*.)

Incidentally, with a new motor and a pusher prop., you may have some trouble with overheating until it is run in. Correct location of the C.G. is absolutely vital, so when completely painted and assembled, balance at the point shown by cementing lead strips to the elevator platform. The wing is fixed, but the elevator is attached by rubber bands, and the angle may be varied by packing as required to get a satisfactory glide trim. A small celluloid tab may be used on the left fin to induce a wide left glide turn. The left thrust offset shown should produce a safe right turn (things are reversed on a canard) under power.

Work up to full power gradually, (not too much fuel in the tank either) and your model will soon be turning in flights which will be all the more spectacular because it is apparently flying backwards!

Is it a record?

Dear Sir,

On July 17th members of Hunts. M.A.C. flew a 5 cc. control-line model for 1 hour 17 mins. 52 secs. non-stop. This was a distance of 79 miles. The model had 370 sq. ins. area, and weighed 3.2 lbs. without its 100 ccs. fuel. The engine was a Johnson 29R turning a 10" x 6" Topflite prop.

It is hoped that this time may be improved considerably, but if any readers have any information about a similar project I would be glad to hear from them. Huntingdon.

D. Wood.

Hon. Sec. Hunts. Model Aircraft Club.

Good Service

Dear Sir,

I wonder if you have room in your crowded columns for a compliment to one manufacturer who certainly does not subscribe to today's 'throw away' attitude that seems to prevail.

I recently purchased a second hand model, powered by a very battle scarred D.C. Bantam. It wasn't running well so, rather than fiddle with it, I packed it off to Davies-Charlton. They examined the engine, replaced the faulty parts (a wrong glow plug had been fitted, and the cylinder head distorted) and returned it to me

Readers Write

with a complete Engine Service Report.

The entire transaction was carried out free of charge, and the engine was back in the model just two days after first taking it out!

As the engine only cost 45/- in the first instance brand new, it seems that here at last is a Company that thinks more of its goodwill than immediate profits.

Reading, Berks.

Geoffrey D. Allen.

Safety

Dear Sir,

In the November edition of "Aeromodeller", under the heading "Hangar Doors" you had a report of two more accidents involving model aircraft and the subsequent injuries sustained by those unlucky enough to be on the receiving end.

With the increase of the "cheque book—no brains" and the pure "no brains" element in the hobby, the time has come for the election of a Safety Officer at competitions with the authority to throw offenders off the site.

This need was demonstrated at the Southern Area meeting at RAF Station

Odiham when a group of pure yobs, with a whole airfield at their disposal were allowing models to take off within the hollow square formed by parked cars close to the free flight area. Only after giving a car, luckily not competitor nor spectator, a resounding whack did they move off, presumably to annoy someone else.

Having cleared that subject, and still referring to the November edition, are we to expect the "old cornflake packet" pages to be a permanent feature of the magazine. The September issue also suffered from this insertion and the reproduction of the drawing on those sheets was worse than awful. I, for one, will be terminating my order for a cardboard "Aeromodeller".

Eastleigh, Hants.

K. Barker.

Fair comment Mr. Barker—we too tried to prevent hazardous free flight sports launching in a confined area at Odiham and witnessed removal of a glowplug accumulator from one culprit. You'll be relieved to know that our "cardboard" page "extra" features will in future be on a different kind of paper. This makes a thinner issue: but obviously it will gain in quality.

Ed.



Fontana/Amodio in action, Franco Amodio is seen catching the retracting undercarriage equipped 'Evil Woodpecker' (Plans in '65-'66 Aeromodeller Annual, Page 109). Note the off-bounce catch, crouch, flick and leg lifting to clear wing on release.

Italian Retractable U/C

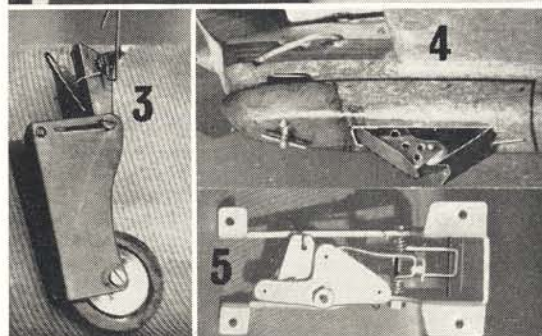
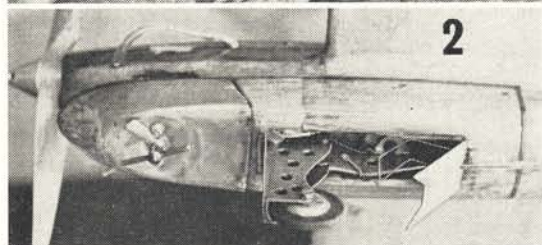
Designed by Pietro Fontana

Reproduced by courtesy of "Modellistica" as seen at the World Champs.

SEEN in action for the first time at the 1965 Criterium of Aces, then this year's World Control Line Championships, this retracting undercarriage is developed from an idea by Pietro Fontana, and constructed by Fabrizio Marcelli and Franco Amodio. The first principle involved, with a vertical u/c leg is the wheel position in relation to the centre of gravity, the distance between the two should be about $\frac{1}{4}$ in, so as to get the u/c reaction force on landing acting almost straight up the leg, and not tending to bend the wheel up to the fuselage as it would if the wheel was further forward on a raked leg, all the forces will always act through the wheel and not the u/c leg attachment point on the fuselage.

Retraction takes place at approx 70 m.p.h. and the force required to effect this, i.e. line tension, is $8\frac{1}{2}$ lbs. This will vary from model to model and you have to experiment with different tension springs and the pivot arm 3. This force is calculated for a model weighing 20 ounces. To calculate retracting spring force for a model weighing other than 20 ounces, use the following formula with typical calculations for the 20 ounce model.

Continued on page 683



Above 1. Latest "Evil Woodpecker" with extra windows to meet F.A.I. rules. 2. U/C down, rear door catch bar visible and lightening holes in leg. 3. Leg unit with pivot arm and spring removed from chassis, note bolt together wheel. 4. U/C semi-retracted with wheel, lifting catch bar and doors preparing to interlock 5. Overhead view of naked unit, note main bellcrank linked to pivot arm and sub bellcrank underneath it. Good fits and true bearings are essential for smooth operation.

SPRING FORCE FORMULA

$$\text{Centrifugal force} = F = \frac{M \times V^2}{R}$$

M = mass of model
weight of model in ounces

gravitational acceleration (32 ft/sec)

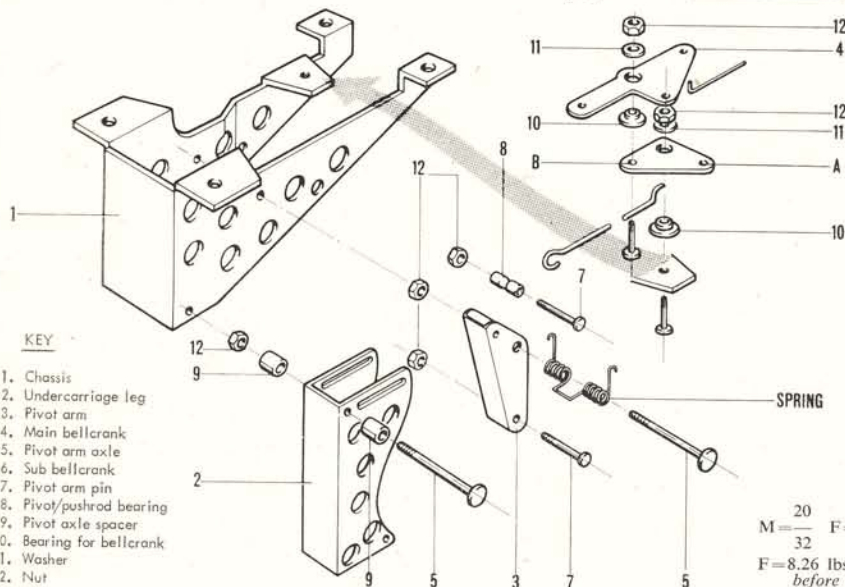
V = velocity in feet per second

R = radius of flight circle

$$V = 70 \text{ m.p.h.} = \frac{70 \times 5280}{3600} \text{ ft/sec} = 102.6 \text{ ft/sec.}$$

$$M = \frac{20}{32} \quad F = \frac{20}{32} \times \frac{102.6^2}{52.25} = \frac{55263.38}{418} = 132.2 \text{ ounces}$$

F = 8.26 lbs. i.e., the tension needed in the pivot arm spring before the undercarriage retracts.



Note that all dimensions on the full size component drawing are in millimeters and great care should be taken to get all hole centres accurate, as the slightest out of true bearing will make the system bind and likely not to work properly in the air.

Construction is simple, and pivot sizes can be changed to suit English silver steel rod diameters, so we will only describe the operational sequence, and assembly.

Starting with the main bellcrank 4 to which the lead-outs and elevator pushrod are attached in the normal manner. The 5 mm central bearing hole has a bearing 10 inserted which is in turn bolted to hole B in sub-bellcrank 6. This has a bearing 10 inserted into hole A and is then bolted to the mounting hole on the top chassis. Thus 4 is free moving on 6, which will in turn pivot freely. Bend spring for pivot arm 3 to suit the line tension required as calculated. Insert pivot arm 3 into undercarriage leg 2 with a pivot axle 7 through slot. Now bolt leg 2 into chassis with spacers 9 on each side, using a pivot pin 5. Then fix upper pivot pin 5 through chassis 1 and pivot arm 3, retaining the spring at the same time. The spring is fitted around the pivot arm 3 with coils acting as spacers between 3 and the chassis 1 and with the hooked ends engaged to the upper edges of the chassis. It is tensioned to depress the u/c in the down

position through pressure on 3. Next add second pivot arm pin 7 to upper hole in pivot 3, with free running bearing 8 central. Make sure that the bellcrank is at "neutral" elevator position and is in position nearest outboard tip then bend to shape and fit piano wire pushrod between bearing 8 and the remaining hole in sub bellcrank 6.

At this stage you should check to establish spring tension and as can be seen from the formula a weaker spring will allow earlier retraction and later extension. It is not recommended that the undercarriage should be retracted below 60 m.p.h. since one could be caught with it still up at a fast pit stop, when using the latest techniques as seen at the World Champs with the Austrian or U.S.A. Tautz/Jones controlled crash type landing.

The plywood fuselage doors are 1 mm thick, the front door being Araldite to the leg 2 and the rear door hinged on the fuselage with piano wire wheel catch bar sewn on for automatic closure as the wheel goes up. Note the thin spring to keep the door down when the wheel is out, and plywood stop to prevent door blowing backwards.

Chassis 1 should be tailored to suit your model, the 6 mm rear step down shown is to clear the wing centre section inside fuselage.

WORLD CONTROL LINE CHAMPIONSHIPS WINNING MODELS



Above: Austrian Glass fibre fuselages are produced from a common glass fibre mould, makes for rapid model construction. Below: the machined magnesium alloy mounting plate and experimental H.P.15D engine, note overflow primer and long, very long, venturi. Right: the American team with Group Captain Hamilton. Left to right standing, Bill Wisniewski, Lew McFarland, Herb Stockton, Group Captain Hamilton, O.B.E., D.F.C., A.F.C. Commanding Officer R.A.F. Swinderby, Don Jehlik, Berni Tautz, Steve Wolley, Roy LeCrone, sitting, left to right, Chuck Schuette, Roger Theobald, George Mobley, Dan Jones, Team Manager Laird Jackson and last but not least "Mr. Finish" Jim Silhavey.

Austrian Team Racers

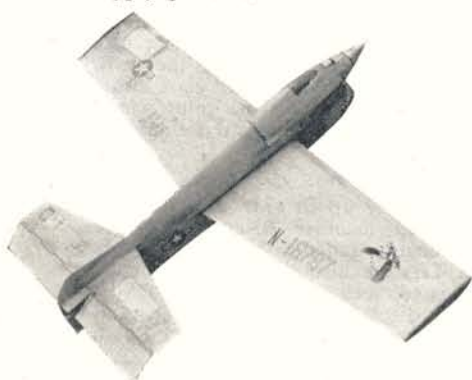
The fuselages for all the Austrian models were moulded from glass fibre on the same mould. In two vertical halves, they are joined down the centre line with a very small air intake low down the cowl. The top cowling and cockpit are also glass fibre, so the cockpit is translucent, and the pilot which might be carried does not have forward vision!

T.W.A. Engines in G.B.

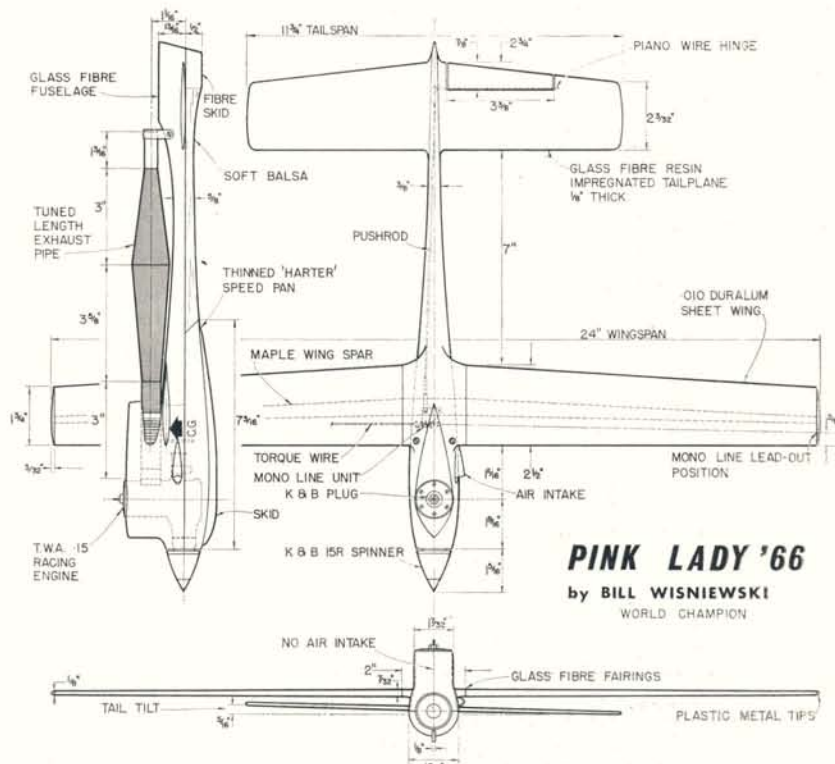
Speeds should be going up in G.B. soon, as Bill Wisniewski gave team member Brian Jackson a T.W.A. .15 racing engine, tuned pipes and a supply of spares, Kevin Lindsey also received an engine. Any one who missed seeing Bill's model at the Champs can see it displayed with the engine and pipe at a model shop not far from Holloway Road, London.



Bill's *Pink Lady '66* uses very little of the traditional modellers material, balsa, only the lower fuselage section behind the fin. Fuselage top and cowling is moulded from glass fibre in one piece incorporating the wing root fillets, and mountings for a maple wing spar that is used for attachment of the home-made mono line unit with the fixing button in the fuselage and torque wires in the outer wing panel. The wings are formed from Dural sheet, the blank being cut with the top surface oversize by .020 in. to allow for top surface camber. The leading edge is marked, then the wing is bent roughly to shape, next comes the scientific part with the wing on the floor a steel plate placed on top of it then a jump on the plate produces one much flattened wing. The tapered thickness spar governs the section thickness then the trailing edge is contact cemented together and a clamping jig is screwed up to apply pressure.



Stockton / Jephik's
clean low aspect
ratio Jefe II
displays its some-
what unusual lines
at left.

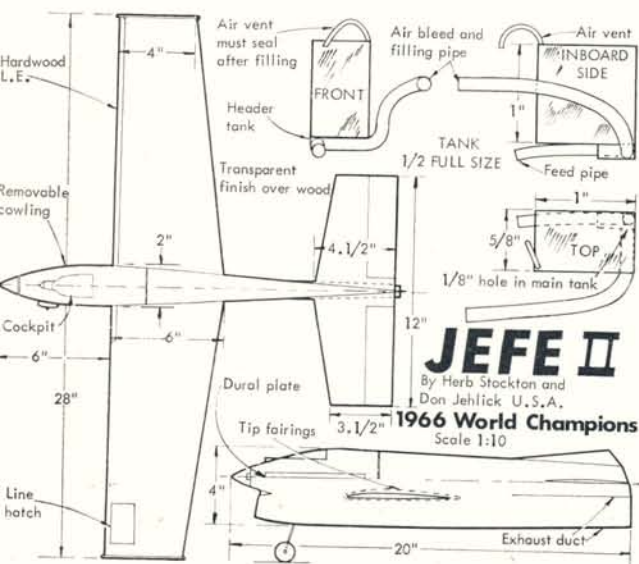


The L.E. is trued with the T.E., wing tips are filled with plastic metal and sanded smooth. The tailplane and propeller are impregnated with glass fibre resin by placing them in a container of resin then pulling a vacuum and allowing the air to bubble out of the grain. After approx 10 minutes the vacuum is released and the glass resin is drawn into the wood grain where partial vacuum still exists. Time is an important factor or the resin may set solid. Weights are as follows: tuned length exhaust pipe with supporting bracket $\frac{1}{2}$ oz., model $5\frac{1}{2}$ oz., pan $1\frac{1}{4}$ oz., chicken hopper tank from stainless steel $\frac{3}{4}$ oz., total weight including engine and propeller $14\frac{1}{2}$ ounces.

Rather unusual and purley functional, *Jefe II* is developed from the all red low aspect ratio model flown to second place at last years *Criterium of Aces*. It has through-fuselage exhaust ducting with an alloy deflector ring bonded to the Eta 15 crankcase to ensure the gases are sealed into the lower fuselage and lead out through the fuselage exhaust tube.

Continued on page 687

The three Eta modification Kings chat shop over Don Jehliks engine, left to right Don Jehlik, Don Haworth and Maurice Favre.



Peter Chinn's

ENGINE TEST

WEBRA Sport-Glo 1.7

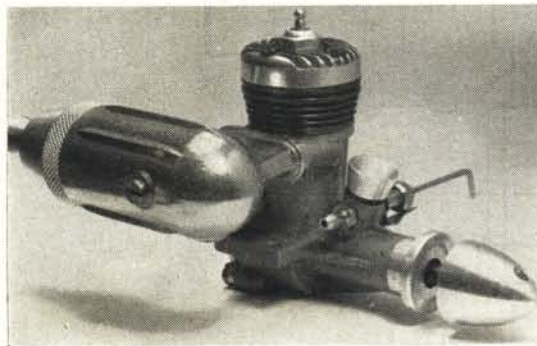
A FEW of our readers may remember the West German Webra Sport-Glo 1.7 as a slightly out-of-the-rut, small glowplug engine, that appeared in the mid 'fifties.

The new Sport-Glo, introduced in the spring of this year, is, however, in no way connected, despite its name, with the earlier model. Admittedly, it is a shaft-valve glowplug engine of similar displacement but is an entirely fresh design, better made and of substantially higher performance.

Manufactured by the firm of Fein und Modell Technik, now owned by Martin Eberth, the Sport-Glo was designed by Guenther Bodemann, under whose direction it is made at Fein und Modell Technik's West Berlin factory. In appearance, the engine bears an obvious family resemblance to the Webra Glo-Star 3.4 cc. engine. Construction is also similar, the main difference being that the Sport-Glo employs a bushed main bearing, in place of the twin ball-bearings of the larger model.

At just under 1.7 cc., the Glo-Star is a trifle bigger in swept volume than engines in the popular 1.5 group or the American .099 class. Being outside these two classes, however, is of little account since neither constitutes a significant contest category at the present time. The Sport-Glo is, in fact, most likely to appeal to the "sport" modeller or for small R/C models, especially as a throttle type carburettor is available if required. The manufacturers also make a neatly-fitting silencer, especially designed for the Sport-Glo.

Among the many improvements that the 1966 Sport-Glo has to offer, in comparison with its earlier namesake, are a stronger and better finished crankcase with the crankshaft running in a bronze bushing, instead of directly in the crankcase material, a counterbalanced crankshaft, with larger diameter journal and bigger porting, and a lighter piston with a stronger gudgeon-pin. Instead of a reverse-flow scavenged type cylinder with internal flute type transfer passages and diametrically opposed ports exhausting into a collector chamber with single outlet, the 1966 Glo-Star uses conventional loop scavenged porting. The new engine is nearly an ounce heavier than the old model, but this is more than compensated by increased power output and stronger construction.



Radio control throttle equipped versions of the Webra Sport-Glo 1.7 are also available as illustrated at right, though this is not the subject of the Engine Test.



Construction

The main casting comprises crankcase and front housing in pressure diecast aluminium alloy. It terminates just above the level of the cylinder ports, the cylinder itself being machined in one piece complete with cooling fins. The crankcase includes a cast-in phosphor-bronze main bearing bush, substantial beam mounting lugs, a large exhaust duct, a short, inclined intake boss and ample webbing around the front end. A machined aluminium venturi insert, with rubber sealing ring, plugs into the intake boss and is retained by a plated spraybar type needle-valve assembly. The exhaust duct is strengthened by a centre post, drilled and tapped for mounting the optional silencer.

The cylinder has orthodox transfer and exhaust ports of similar area, positioned to give transfer opening 55 degrees each side of bottom-dead-centre and exhaust timing of 65 degrees each side of B.D.C. A graphited asbestos gasket makes the joint between the cylinder base flange and the top of the crankcase and a gasket of similar material is used to make the cylinder head joint. The cylinder head is of pressure diecast aluminium and includes a centrally located 1.5 volt Webra No. 2 glow-plug. Two screws secure the head to the cylinder and two more, longer, screws pass through the cylinder fins, fore and aft, to tie the complete cylinder assembly to the crankcase.

The crankshaft has an 8 mm. dia. journal and a 3.5 mm. solid crankpin. Counterbalance is provided by cut-away web flanks each side of the crankpin. The shaft is case-hardened and is bored for a 5.5 mm. gas passage. The shaft o.d. is also very slightly relieved for a short distance between the front end of the journal and the valve port and there is a shallow oilway in the main bearing surface extending forward to this point. The valve port is rectangular and is timed to open at 48 deg. after BDC and to close, fairly late, at 55 deg. after TDC—according to measurement of our test engine. The intake boss is bored 6 mm. dia. into the main bearing. The venturi reduces this to 4.5 mm. bore at the fuel jet position, choke area being further reduced by the 2.5 mm. dia. spraybar.

The piston has a flat crown and a straight baffle and has a continuous gudgeon-pin band. The fully-floating gudgeon-pin is placed high in the piston and the piston skirt is relieved approximately .001 in. on diameter below the gudgeon-pin. The piston skirt is quite long and the top of the crankcase backplate is therefore cut away to provide the necessary clearance at the bottom of the stroke. A diecast connecting-rod is used.

Drive to the prop is effected via a strong machined aluminium driver which fits onto a taper machined on the crankshaft, beyond which the shaft is reduced to 5 mm. with metric thread for a solid machined aluminium spinner-nut. The propshaft is of ample length to accommodate all appropriate prop pitches.

The Sport-Glo is seen here with the maker's large volume silencer which can easily be taken apart for cleaning.

The Webra Sport-Glo silencer is of the non-baffled expansion chamber type, similar in general design to (but rather better looking than) the standard Enya silencer. It comprises a pressure diecast aluminium body section, with integral duct, into which a machined rear section, with short tailpipe, is screwed. A single long screw secures the complete unit to the Sport-Glo's exhaust duct. This is a method of attachment that has not proved very satisfactory on some larger engines, but appears to be quite adequate in the case of the Sport-Glo. For an engine of the Sport-Glo's size, this silencer is quite large and this, together with the lack of restriction in the movement of gasses from the exhaust port to the expansion chamber, results in very little loss of power.

SPECIFICATION

Type: Single cylinder, air-cooled, loop-scavenged two-stroke cycle, glowplug ignition. Shaft type rotary-valve induction

Bore: 13 mm. (0.5118 in.) **Stroke:** 12.7 mm (0.5000 in.)

Swept Volume: 1.686 cc. (0.1029 cu. in.)

Stroke/Bore Ratio: 0.977 : 1

Weight: 3.4 oz. (4.3 oz. with silencer)

General Structural Data

Pressure diecast aluminium alloy *crankcase/front housing* unit with cast-in phosphor-bronze main bearing and detachable *rear cover* secured with four hexagon head screws. Hardened, counterbalanced *crankshaft* with 8 mm. dia. journal, 5.5 mm. bore gas passage and 3.5 mm. solid crank-pin. Machined aluminium *prop driver* and *spinner nut*. Lapped cast-iron *piston* with flat crown and straight baffle. Pressure diecast aluminium alloy unbushed *connecting-rod*, coupled to piston with 3.5 mm. solid fully-floating *gudgeon-pin*. Machined steel *cylinder* with integral cooling fins. Pressure diecast aluminium alloy *cylinder-head*. Graphited asbestos *cylinder-head* and base *gaskets*. Machine aluminium alloy carburettor *venturi insert* with rubber grommet and retained by plated brass *spraybar*. Beam mounting lugs.

TEST CONDITIONS

Running time prior to test: Approximately 1½ hours.

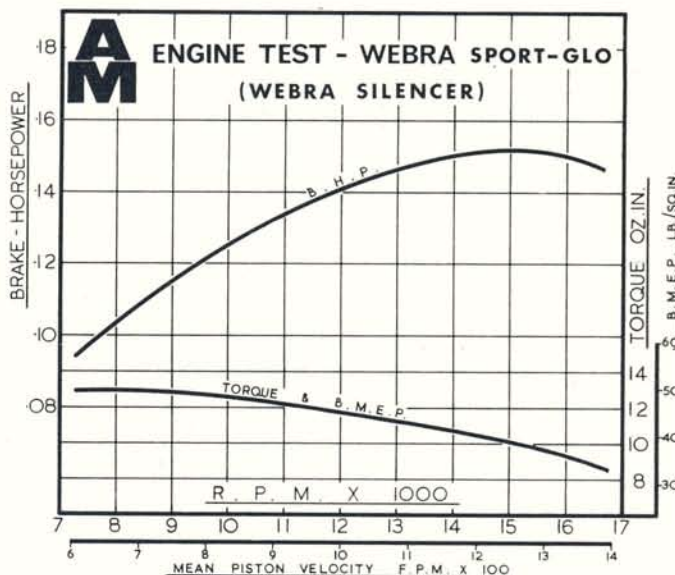
Fuel used: 5 per cent pure nitromethane, 25 per cent Duckhams Racing Castor-Oil, 70 per cent I.C.I. Methanol.

Glowplug used: Webra No. 2, 1.5. volt, 5 mm. reach.

Air temperature: 68 deg. F.

Barometer: 29.8 in. Hg.

Silencer Type: Webra Sport-Glo expansion chamber.

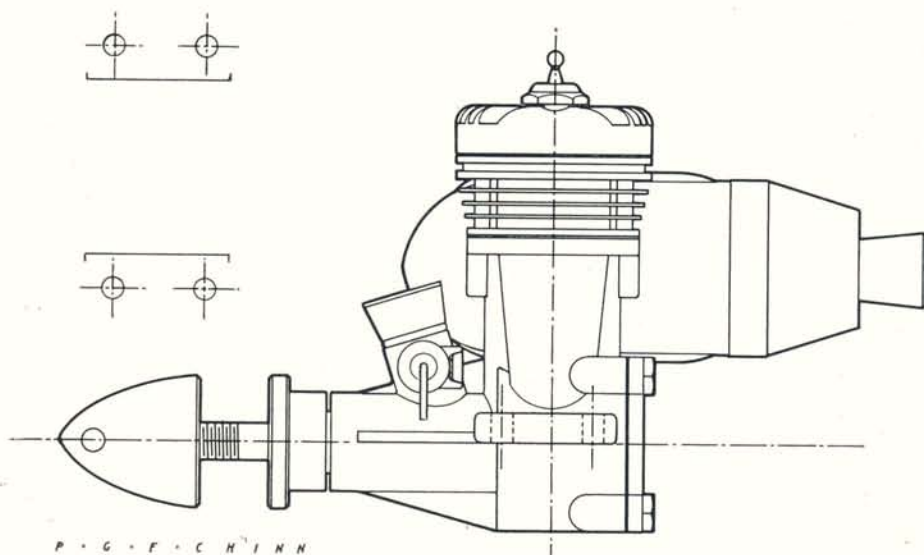


Performance

Two samples of the Sport-Glo were submitted for test by the factory in Germany. These were given a preliminary running-in period of thirty minutes each, followed by a short series of prop tests in order that the better of the two might be selected for further testing. Actually, there was little to choose between them as regards power, but the one selected proved to be about 1 per cent faster on an 8×4 prop, together with very slightly quicker starting.

This engine was therefore given a further half-hour of accumulated running time, followed by a series of prop/rpm checks on straight methanol/castor fuel with silencer fitted.

Figures obtained were as follows: 8,100 rpm. on 9×4 Top-Flite nylon, 9,800 on 8×5 Power-Prop wood, 9,900 on 8×4 Tornado nylon, 10,150 on 8×4 Top-Flite

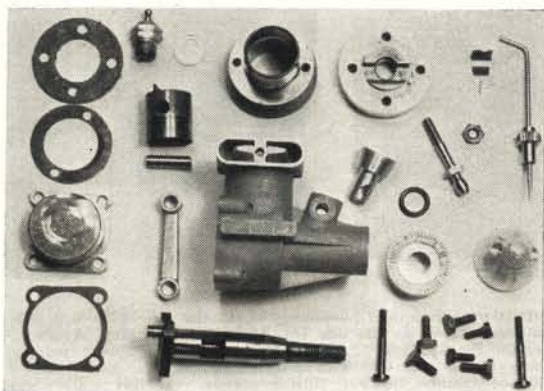


THIS DRAWING FULL SIZE

nylon, 11,400 on 8x4 Power-Prop wood, 12,300 on 7x4 Tornado nylon, 13,000 on 7x4 Top-Flite nylon, 14,300 on P.A.W. Trucut wood and 14,900 on 7x3 Top-Flite wood. Removal of the silencer gave a 200 rpm. increase at a 13,000 rpm. load-speed and 500 rpm. increase at a 15,000 rpm. load-speed. The degree of noise suppression obtained with the Sport-Glo silencer is not so great as is obtainable with some silencers which impose more restriction on gas flow, but, as the figures indicate, the loss of power caused by the Sport-Glo silencer is very small.

Torque tests carried out on the Sport-Glo, still fitted with the silencer, but running on a mildly doped fuel (5 per cent nitromethane) resulted in the curves indicated on our performance graph. These display a maximum torque of 13 oz. in. at 8,000 rpm.—equivalent to a b.m.p. of nearly 50 lb./sq. in.—and a peak output of approximately .152 bhp. at 15,000 rpm.

In general the Sport-Glo was easy to handle. Cold starting was good. We found hot restarting a little more critical, and better if the engine were inverted so that there could be no risk of flooding the crankcase. The needle-valve was easy to adjust, becoming just a shade touchy on a very light load, allowing static revs to reach 14-15,000. This should not be encountered in normal operational use, since props which load the engine to



Parts of Sport-Glo. Design and construction are quite conventional.

static rpm. in the 11-13,000 rpm. bracket (e.g. 8x4, 8x3, 7x4) are most likely to be used.

To sum up, we found the Sport-Glo a likeable little motor. It performs well and is nicely made. It is also a neat and attractive looking engine, with or without its silencer.

WINNING MODELS Continued from page 684.



At left the highly detailed model of Juri Sirotkin showed up with this mono-wheel set-up, gave model bad landings and take offs.

U.S.S.R. Team Race finalists Sharovalov / Radchenko cleaning the model after a brief warm up run prior to the final in which they placed third.

A very small section of Peter Farrar's 2,000 scale model selection on show in the exhibition hangar, drew thousands of spectators and was a rival attraction to the four main events.



Propellers

Glass fibre propellers have really caught on. No less than 18 teams used them as made by Jurgen Bartles including two of the T/R finalists. They have now passed the test of an international meeting and we expect to see them become more popular. For the fast 35 lap model they seem ideal, but the 50 laps models that in the main fly a little slower don't seem to hit peak performance with them, that is with the exception of Stockton/Jehlik who were getting both speed and laps. The other U.S.A. teams and some Canadians used the cuffed root Top Flite Speed 7 x 8 and these seem to work as well as the thin hub Tornado 7 x 8 Plasticote. The U.S.S.R. team racers had small diameter props with generous blade width.

Speed Now Increased

Rolf Miebach who was reported last month to have made 141 m.p.h. at the Bochum contest Germany after the World Champs, in fact exceeded 147 m.p.h. with a Kevin Lindsey pipe and the one sided tailplane "Stuppi". Rolf is now working with Kevin on restyled pipes and the motor suitably re-timed to take advantage of the pipes function.





In the aeronautical publishing world the year 1966 will well be remembered as the one for Books about Marine Aviation. Within the space of a few months we have enjoyed reading three titles, each of them a revelation of the lesser known side of aviation history. Most impressive was this year's effort from **Harleyford Publications Ltd.** This company, now concentrating on production of one book a year, has, within its standard 11½ in. x 8½ in. format compressed, more concerning **MARINE AIRCRAFT OF THE 1914-18 WAR** than your reviewer was ever aware existed. It seems fashionable these days to revive samples of the World War One Schreck designed, French built "Franco-British Aviation" single and two seat Flying boats. Visitors to the French and Swedish Museums are usually surprised to discover that such an aeroplane existed as early as 1915 and we are very pleased to see due emphasis placed upon its importance in the Harleyford production compiled and written by H. J. Nowarra with text for the British section of the book by Bruce Robertson and Peter G. Cooksley. This is a book which will certainly uphold the Harleyford tradition for its collection of rare photographs, compilation of extensive factual detail and collection of standard 1/72nd scale drawings all of which, we are pleased to note contain typical fuselage and wing cross sections. We do also detect a slightly changed style of tracing which has added clarity and benefits the presentation. Dealing with Marine aircraft in the broadest sense so that it includes Shipborne, catapulted and various types of marine associated aircraft, the book has a very wide appeal and will certainly be appreciated by ardent enthusiasts. The list of aircraft described is impressively long. The drawings include a few rare types on which information must have been very hard to obtain. For example the Russian Grigorovich M9 and the somewhat bizarre Hansa-Brandenburg W20. The latter is a mighty challenge for the scale modeller! Two hundred and twentyseven pages, more than five hundred photographs, fifty six scale drawings and the usual fine colour frontispiece by Doug Carrick all add up to excellent value at Harleyford's standard price of 60/- a volume.

In the Putman series of books standard measurement 5½ x 8½ in. **AEROMARINE ORIGINS** by H. F. King at 30s. brings to light many little known experiments from the early days of endeavouring to travel at speed over the surface of water. A fair proportion of the descriptions deal with models and some of them are weird enough to tax the ingenuity of the present day modeller who has a taste for the unorthodox. Mr. King has made an excellent choice of subject and well illustrates that old adage that "there is nothing new under the sun". Clement Ader provided drawings in 1904 of a Swing-wing flat bottomed boat which grazed the surface of the water in the manner of the present day Hovercraft. There is a reproduction of an advertisement for the "fastest boats in the World" of hydroplane design, and air cushions, annular jets and several other prophetic devices are described in lucid style. Also from Putman is **BRITISH FLYING-BOATS AND AMPHIBIANS 1909-52** by G. R. Duval. This 268 page 50s. book completes a trio of the "Wyvenhoe Flier" 1909 with its weird wings and launching chassis. This is one of earliest aircraft described by Mr. Duval and contrasts vividly with the Saunders-Roe S.R.45 "Princess". As a midway contrast one should have a look at the 1930 "Parnell Prawn". This little 28 ft. 5 in. flying boat had unusual yet simple lines for the scale modeller and an added attraction in that the engine was so arranged to provide 15 deg. up-thrust for take-off! Unfortunately the fate of this interesting machine is not revealed. Another similarly interesting flying boat in miniature was the "Short Cockle". This first appeared in 1924. It was actually twin engine, having a pair of air cooled Cherub engines mounted over the wings which were 36 ft. span with full span ailerons.

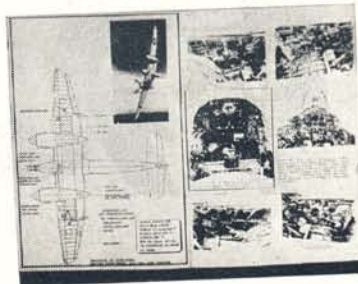
The modeller will find plenty to absorb his interest in this title. Model flying boats are still a rarity but those who have made them never cease to praise their merits. Putmans have been very busy this year. In June they released **BOEING AIRCRAFT SINCE 1916**, a 443 page standard 5½ x 8½ in. well

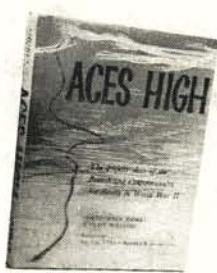
ARMCHAIR

bound volume at 63s. by Peter Bowers. The enthusiasm of the author as an aeromodeller, lightplane designer who makes his own "Flybaby", historian, photographer with one of the worlds largest negative collections and markings expert is already known to those who follow the general aviation press. Peter is also a Boeing man, and therefore knows his subject. His credit list is formidable, making plain his rigid adherence to a policy of check and double check so that this work becomes a reference par excellence and its illustrations are rare indeed. The Boeing phases, through seaplanes to fighters to bombers to becoming the worlds largest producer of transport aircraft makes fascinating reading. We find the P-12 in German markings — for a film of the '30s, a camouflaged 246 without national markings, the many experiments with the B-17 Flying Fortress and the B-29 and an appendix of drawings which show a number of types which were not built, concluding with the XB-59. Altogether, very recommended reading for the aerophile. Most recent of the Putman books is **EUROPEAN TRANSPORT AIRCRAFT** by John Stroud at 105s. This is a fat one, no less than 680 pages to tell us the story beginning with the Zeppelins of 1910. The aircraft are grouped Nationally and in alphabetical order for each country so that instead of appearing in date order as a whole, they come as development histories for each manufacturer. For example, the Breguet series starts with the type 14 of 1917 and traces through the 763 Deux Ponts now in service between Paris and Bristol. The Junkers section is specially interesting, also that of Dornier and Fokker. British aircraft are excluded, not that we do not belong to Europe, but really because they form part of another publication. The last 100 pages are a register of aircraft serials and individual airliner names which in itself is a major work.

The second volume of **MARKINGS AND CAMOUFLAGE SYSTEMS OF LUFTWAFFE AIRCRAFT IN WORLD WAR 2** by Karl Ries Jr. (112 pages 6½ x 9½ in.) has been in circulation since May but surprisingly few of our readers in difficulty with modelling of German aircraft seem to be aware of its usefulness. Squadron emblems, official camouflage patterns, colouring—140 illustrations printed in colour, and variations of National markings are the speciality of the second in the series, sold in this country by post at 59s. through G. K. Scott of 2, The Broadway, London N.11. The main text is in German but the illustrations are liberal and easily understood! Latest of these books from Verlag Dieter Hoffmann, **DORA KURFÜRST UND ROTE 13** (192 pages) is Volume 3 in the range of picture books and offers such rarities as a Mustang, Thunderbolt, and Fortress in German insignia, the Me 323D, He 111Z multi engine unusuals, the FW 189 and BV 141 in service and close up views of all the Luftwaffe types. Something to browse through at anytime, or use regularly for reference, it costs 45s. through G. K. Scott by post.

Blanford Press have produced a pair of very useful 4½ x 7 in., 148 page "Pocket Encyclopaedias of World Aircraft in colour", at 16s. each book. Eighty of the pages are printed in colour and depict a side elevation and split upper/lower plan of a typical aircraft of the type described elsewhere in





AERONAUTICS

the book on cartridge pages. Thus in **FIGHTERS** we start with a Dominican Republic F-47D which is about as colourful as one can find for a Thunderbolt and carry on through the spectrum via an Argentine Corsair to Chinese Thunderflash, Finish Gnat, Thai Thunderjet, Ceylonese Jet Provost to a Korean T-28. At five for a shilling, no plastic modeller could possibly complain! Similarly, the **BOMBERS** volume starts with a Vietnam Skyraider and carries on via Spanish CASA 2.111-D to the French Mirage IVA then through the patrolers, the Lockheed U-2 included, to transports which range from Broussard to Globemaster. Colours in print must never be taken as gospel and here we have no exception; but the publishers have gone to some trouble to be as close as possible to true tones. Modellers of the Mustang and Thunderbolt will find the **Kookaburra "Historic Aircraft Book" No. 1 MARKINGS OF THE ACES** specially useful. This contains markings of thirty aircraft flown by the 8th USAF in Europe during W.W.2. 24 pages measuring 6½ x 10 in. plus cover illustrations offer top and one side view of nine machines in tone whilst the remainder are in line drawings. It sells at 7/6d. plus post through Beaumont Aviation Literature, 11 Bath St., London E.C.2. It was at Jack Beaumont's cavern of aero reading (where the cellar holds such delights as pre-war pulp mags and back numbers of almost every periodical) that Chris Shores made a personal appearance to autograph copies of **ACES HIGH** which he and Clive Williams produced for **Neville Spearman Ltd.** Selling at 50/-, the book is 7½ x 9½ ins., 335 pages and has many line illustrations by Bruce Rigelsford of seventy aircraft to show their plumage. Potted histories of over a thousand Aces in British and Commonwealth Air Forces of W.W.2. tell a tale in detail hitherto buried in the archives. The Squadrons and their equipment are also detailed so that one gets an awful lot for one's money in this bulky volume. An ace, incidentally, is one with five "kills" and it is a sobering thought that a third of those in the book are now dead. Among them was Squadron Leader Joseph Berry, who thought not technically an "Ace" since his score was 4 aircraft, managed to destroy no less than 61 V-1 "Doodle-bugs", 57 of these at night and 7 in a single sortie.

A similar tale but concerning World War One, is found in **THE FIGHTERS** by Thomas R. Funderburk. This 199 page, 8½ x 10½ in. book was originally produced in the USA but appears now from **Arthur Barker** at 45/- Tones and line drawings of the aircraft are mixed with the text in a rather unusual style and a number of preserved machines in the Shuttleworth Collection, and Tallman Collection in the USA are used for action views. This is a very pleasant, attractive book, it makes a fine gift.

Kookaburra Technical Manual series of Monographs on famous aircraft have been enlarged both in style and in number in the past few months. The **FOCKE-WULF FW 190** appears with an appendix supplement for its 28 pages, which include the Monogram Plastic kit instructions for colouring, 1/72nd scale drgs. of the A-3 and A-8, reprints of cockpit sketches from the L.Dv. Manual, J. H. Clarke's famous cut-away which he produced from Faber's surrendered machine,

and a number of photographs which will help the aero-modellers. It sells at a modest 7/6d. through J. Beaumont, the U.K. Distributor. Its companion, the **WESTERN WHIRLWIND**, is dealt with in a slightly different, though no less interesting way, if anything offering more in scale drawings which are both tone and line, and also giving a complete individual history of the Whirlwinds from Prototype L6864 to P7122. The fate of these fighters makes grim reading and accounts for the fact that this is a type now completely extinct and totally lost for preservation.

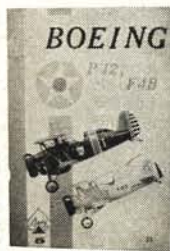
W. E. Hersant Ltd., of 228 Archway Rd., London N.6 are the U.K. distributors for a number of very useful reference works from America, among them the **Aero Series**. They sell at 23/6d. each and are 7½ x 10½ in. with offset reproduction of large photographs and drawings, including colour views. The **BOEING P-12 & F4B** is by Ed. Maloney, who has the Air Museum at Ontario in California and has been concerned in the restoration of an actual P-12E. Thus the selection of pictures is excellent. But if it's a scale drg. you need, then you'll have to send for our own plans! Same goes for the **KAMIKAZE** book which is No. 7 in the same series, dealing with the Japanese OKA-11 of which Ed. Maloney has a sample, and the OKA-22. The manned V-1 and Bachem Natter are included but must not in any way be confused with the title. Number 8 in the Aero Series is the **JUNKERS JU 87 "STUKA"**, of which Ed. does not have even a souvenir, but at least he has arranged for Uwe Feist to produce a colour 3-view to 1/72nd scale across the centre pages. The variations of the Ju87 are rarely understood and we're not so sure that the reader will have a clearer appreciation of the distinctions even after study of this book. For the scale modeller it is a valuable reference to add to other data.

Volume III of Paul Matt's **HISTORICAL AVIATION ALBUM** is also 23/6d. from Hersants and lives up to the reputation of the earlier works with magnificent drawings and pictures of some very rare birds. How about a seaplane pusher with the prop. in the mid-fuselage or a Vee winged tail-less flying car? These, and the conventional Vought SBU, the Lockheed Orion, and Ryan Fireball are some of the subjects. Get it if you don't like to miss a treat and a challenge to your ingenuity.

Also from the house of Hersant comes **U.S. CIVIL AIRCRAFT Vol. 3**, by Joseph P. Juptner and published in the U.S.A. by Aero Publishers. It sells in the U.K. at 71/- and has 292 7½ x 10½ in. pages printed by offset. This deals with one hundred American aircraft, listed in order of certification in the U.S.A. and starting with the Monocoach of 1928 when designed by Clayton Folkerts, running through to the Lockheed Sirius of 1930. It could well be said to cover a golden age of aircraft design. The Curtiss Robin, Ryan Brougham, Bellanca Pace-maker, Waco Taper-wing, Ford Tri-motor Stinson Detroiter, and Great Lakes Sport Trainer are among the descriptions, each of which is well illustrated with examples. It seems a pity that reproduction of those "Aero Digest" 3-views of the same period could not have been arranged to show more of the shapes in each chapter. For all lightplane enthusiasts, and scale modellers this is a fine reference.

Flying Enterprises is an American publishing company which has produced a monograph on the **MESSERSCHMITT Me 262**, on sale in the U.K. through Graham K. Scott at 24/- in 30 8½ x 11 in. pages there is a reprint of the Wright Field Air Material Command T-2 report on the Me 262 as a pilot's handbook, the remaining 12 pages carry reprints of "Aviation magazine" illustrations and photographs of captured examples. Rather grey and faint in reproduction, the pictures tend to lose much of their detail but to make amends the author tells how to obtain original glossy prints from the United States Air Force.

Last, but by no means least, **Blackie** have produced **AIRPORTS** by Charles King with 60 5½ x 8 in. pages. It tells in a simple way, aided by the author's own sketches, how an airport is operated. For only 5/- it makes a fine little gift for the youngster.





"Pan American Clipper" by Cpl. Rex Denker and "Skeeter Canard" by J/T D. Carter were but two unorthodoxies at R.A.F. Champs.



From Germany to compete in R.A.F. Champs was J/T P. F. Child with Webra Mach 2 "Pulteri".



One of many R.A.F. Champs F/F scale models 'on test' was J/T Shea's Ryan P.T.20 seen on its merry way, conditions were good for F/F.

Round the Rallies

S.M.A.E. Summer Gala

Organised in the main by the South Eastern Area S.M.A.E. the **Summer Gala** at R.A.F. Odiham, Hants on October 9th was fog bound for a few hours to start with, but things soon got under way. **Multi Radio Control** for the **Aeromodeller Trophy** was the most delayed event other than free flight but the entry was low and only 8 decided to fly, the rival attraction being the **Cotswold Radio Rally** at Morton Valance. Flying in a relaxed and almost sports-like atmosphere the competitors battled against the F.A.I. schedule. Dave Platt (Wanstead) was using the new O.S. Max H-60 rear induction engine in his Micro Avionics 5 proportional equipped "Kingpin II" but only placed 6th. Ray Brown (Lee Bees) in third place with 2,451 pts. flew his "Encore" design with glass fibre fuselage and foam filled wings but it was too heavy at 7½ lbs. for the O.S. 58, though the Kraft K.P.6. single stick proportional outfit made it fly very smoothly. Brian Burt, (Hillingdon R/C) this years **S.M.A.E. Radio Control Champion** on a points basis from all S.M.A.E. contests topped the results with 2,862 pts., flying an own design model with all R.C.S. gear including servos and neatly finished in red, yellow and white polyurethane. Ed Johnson, (Larkhill) flying the same model as



Top: Dave Balch's winning B team racer at S.M.A.E. Southern Gala, took home Davies B Title, Ed Johnson won "Aeromodeller" Trophy after fly-off with Brian Burt, new S.M.A.E. Radio Champion.

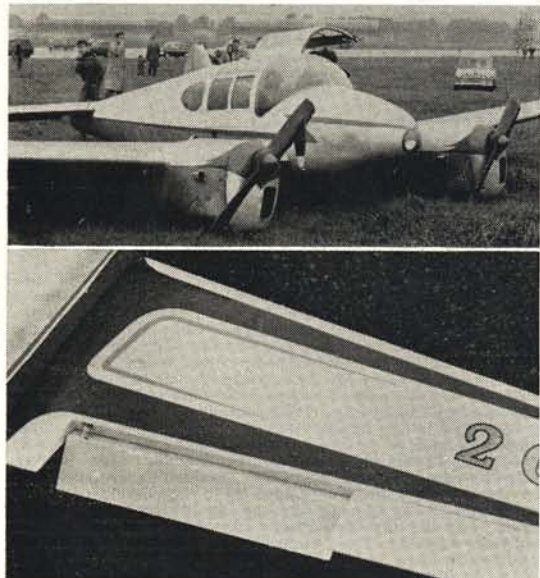
detailed in the last few rally reports with red and white MonoKote sunburst wings, scored 2,816 pts., so a fly off was called for as only two rounds were flown and the scores were within the 2% margin. Ed. topped the fly off with 1,458 pts. against Brian's 1,353½ pts. so winning the **Aeromodeller Trophy**. **Combat** was fast, hectic and organised by Bald Eagles M.A.C. The 43 entries displayed a good standard and there were many new faces to be seen, most entries flying A.P.S. designs in standard or modified form. Richard Wilkens (Sidcup) won with a model constructed, and flown by Dan Jones of the U.S.A. in the combat demonstration, at the World Control Line Championships, but now fitted with an Oliver Tiger instead of Cox .15 Special Mk. II. Steve Smith (Feltham/Hayes) placed second and J. Chamberlain (Maidenhead) placed third this time in his own name, not an equal third as three competitors were left for the final. **Class B Team Racing** for the once prized **Davies B Trophy** was a sad spectacle to watch with 9 entries none of whom were doing over 100 m.p.h., credit must go to the few old hands from other classes who have built B models to keep the class alive. Balch/King (Feltham/Hayes) won the final with an Eta .29 powered "Super Trident" in 7:38.8 and Place/Haworth (Wharfedale) placed second, but were disqualified for flying their oversize Eta .15 model on 33 s.w.g. lines and not the regulation 30 s.w.g. moving Dell Fry (Feltham/Hayes) up from third to second. Their pitting method for the yellow Eta .29 powered model, is novel to say the least, after filling, the propeller, a Bartels 8x8 glass fibre, is turned round a few times then Dave Fry the pit man blows down the Eta silencer and it starts next flick... to the outsider it looks as though he is kissing it (goodbye?). **A Team Racing** attracted 18 entries and the fastest heat went to Dell/Fry with 4:07.4 in Round 1, but the Wharfedale lads would not have this and the 2nd round saw Turner/Hughes with 3:56.1 and Place/Haworth with 3:57.2 apart from these times it was rather uneventful until the final. Turner/Hughes notched another win with 8:17.1. Place/Haworth came second with 8:36.8 and Dell/Fry third with 9:22, the flying can only be described as hectic and each team was trying really hard.

South Bristol Autumn Gala

With seasonal misty weather and no wind most fliers left their flights until afternoon, giving the appearance of a large entry, though there was quite a fair turnout considering the two rival attractions "down south". It was refreshing to see the vintage event is here to stay with many new, oldies, if you see what we mean. Lou Roberts (Lincoln) topped **Combined Vintage** with a "K.K. Gypsy", but it was treed in the down wind woods later on, after 7:57. Second place went to K. Horry (Birmingham) with a lightweight "Hep Cat" at 6:43 despite rubber bunching whilst Mr. Lyons had an old giant glider "Sun-spot" and it made 6:12, the gliders being allowed 250 foot lines to even out the chances. Several underbellied **Jaguars** were seen turning in fine flights. The **Coupe D'Hiver** event was almost a "Baron Knight" benefit but it was an older design the "Garner Knight" in the hands of Allen (Cheltenham) with 4:28. Hadland of R.A.F. Brize Norton placed second with an own design, recording 4:18. Close behind came hard working Trueluck (R.A.F. Lyneham) with a Baron Knight. The **All In F.A.I.** event turned out to be a glider benefit, all being A/2's, the three man fly off was won by J. Caddick (Swindon), +2:22, with Trueluck second at +1:38 after finding sink (what with a name like that!) as did third man D. Bailey (Swindon) +1:25. **Chuck Glider** was affected by the damp grass causing warps, but the winner Trueluck had a well water proofed model and made one max then two narrow misses giving a total of 4:16, whilst J. Mayes (S. Bristol) made 1:59 for second position.

Midland Area Rally

The now re-organised Midland Area of the S.M.A.E. who "went out" with a rally several years ago, have now "come back" with one, making a grand job of it. Held at Wellesbourne Mountford, on October 16th, this private Ex. R.A.F. Airfield has an excellent runway surface and could be an ideal rally venue, entries being very good for a non-established meeting. The biggest event of the day was the crash landing of a "Miles Gemini" twin engined private aircraft. It circled the airfield in rain and mist, so the Radio fliers cleared the main runway except for a few cars down one side and a joining strip was also clear, but no, the pilot did not take these and chose to come in about 15 feet above the R/C flight line and car park then onto the grass, the u/c collapsed then it slid along on the engine cowls breaking both propellers and badly denting the underside, this was a real crowd puller and to the pilots annoyance he had a packed circle of curious aeromodellers around. **Multi R/C** could not start until 11 o'clock due to the mist, Geoff Pike losing his all white model upwards, but it was in sight again in a few moments. Called "Plane Logic" with Logitrol 7 proportional gear, Merco .61 Mk. I, it has a polyurethane painted fuselage and MonoKote wings, the two whites being a perfect match, weight is 7½ lbs. and an experimental silencer with the exhaust holes in the side instead of the back sprays the fuel clear of the fuselage and wing. D. Hammant (Grimsby) had a week old model with large wing flaps that drop to some 45 degree elevation on proportional control, the fuselage is built around the Rx and this makes it very slim with a well forward cockpit, wingspan 63in. weight 7½lb. Suspected interference was tracked down to youngsters flying single channel at the other end of the runway! With four nominated manoeuvres, double stall turn, double Immelman, three loops, three outside loops, the balance of five minutes duration was free style. D. Read placed third with 3,773 and Pete Waters (S. Wales R/C) and Ed. Johnson (Larkhill) flew off for first place giving Pete 2,483 to Ed's 2,366, as due to the late start only the top ten were flown off for a second round. **Team Racing** was run by Dennis Nixon who after his stints of running the Nationals, Team Trials and World Championships must be really well read in the rule book! With 26 entries in F.A.I. and 16 in ½A, 25 and 15 flew respectively, a better proportion than at the Nationals and any other contest we can recall, but the faces were all the same. **F.A.I.** had the fastest time in Rd.1 go to Turner/Hughes (Wharfedale) at 4:40 then this was equalled by Franklin/Ives (Wanstead) in Rd.2. As several teams were flying in both classes and Dennis Nixon was running both, things were pretty hectic, the semi-finals (fastest 9 from heats) were run between downpours and added Place/Haworth to the other Wharfedale, and sole Wanstead team. All three were aiming for 50 laps and Franklin/Ives were slightly faster than the other two doing 60 laps on their first tank.



Things were rough in the centre, all teams wandering a lot as they jockeyed for the optimum position and Mick Hughes being the only small fellow, was having a hard time of it! Results, I. Franklin/Ives 9:44, Turner/Hughes 9:50 and Place/Haworth 10:07, all used Eta .15's. We did not see much of the ½A team race final as it was too dark, the pit men having a hard time tracking their model after the engine had cut, however Turner/Hughes won with 8:42, Heaton/Ross 8:45, and Place/Haworth 8:59. **Combat** also went on into darkness and fog, run by Outlaws M.A.C. this was won by P. Smith against M. Davies in second position. **Speed** was organised by G. Farnsworth, and Ivor Roffey took top spot in this handicap event with 163 m.p.h. from his Carter Dooling .61 powered black tissue covered model as illustrated in August issue in "Silencers and Noise," though Ivor only uses a manifold that changes the exhaust gas direction as a silencer, not the pipe shown in the picture.

Cotswold proportional Rally

Held at Morton Valance on October 9th and a direct clash with the Summer Gala had a date change at the last moment, a good entry was attracted and this, the first proportional only rally organised by the Cotswold R/C Society, saw the simple home built set, side by side with the most expensive and sophisticated commercial units. The **Spot Landing** contest warmed up contestants giving all entries a go in the fun and Dennis Hammant (Grimsby) came closest with 12ft. error, followed by C. Wall (Cotswold R/C Soc.) at 14ft., then Reynolds (Bristol) with 17ft. **Aerobatics** followed with the accent on smooth flying, a "Tiger Moth" by M. Ruck (S. Wales) performed very well and the biplane configuration makes it just that bit different. The Pylon Racing made an intermission in Aerobatics with two up heats. Peter Waters, "Saracen" won the day with a time of 1:12 with C. Wall (Cotswold R/C Soc.) runner up with 1:28. After this little intermission the aerobatics continued and Peter Waters won yet again at 3:018, followed by M. Dench (Buccaneers) 2,945, with Dennis Hammant in third position. The most novel model was Peter Lovegroves eight foot wingspan semi-scale "Bleriot Monoplane" which lounged around at very low speed with a Merco .61 pulling the pram wheels, rigging wire, and all around.

Right, Peter Lovegrove with giant Merco .61 powered vintage style flier. Below, centre, Jens Malmberg, from Denmark, with glass fibre fuselage Controlaire multi winner at Luton. Lower right, Ken Tansley (N. Heights) single channel winner. Top left, Miles Gemini low on fuel crash landed at Midland Area Rally where Dennis Hammant's large droop flaps were seen.





Pilgrimage to France

Though not making the trip to Beauvais Airfield, France on Sunday October 2nd to sample the holy waters, members of *Canterbury Pilgrims M.A.C.* returned to England that same day rather drowned, to say the least! The meeting between Pilgrims to celebrate the founding of their club and the two French groups *Hermes* and *Beauvais* was arranged as a club charter flight by Chairman John Ward. Thirty-four members piled aboard the D.C.3, G-AMSH, "Sierra Mike" of *Skyways-Coach-Air* at 8.30 a.m. together with mountains of modelling gear and sandwiches.

An hour after the take off from Lympe, Kent, Sierra Mike discharged all its spare wings, engines, and modellers, these being transported by relays of French modellers' cars to the flying site on the same airfield. This consisted of one 6 foot wide "T" take off strip for R/C and a small asphalt C/L circle. Idris Francis did most of the flying, demonstrating his Flite Link gear in a "Smog Hog" powered by a Miles .60 R/C and the French modellers were most impressed. Imported R/C gear from the U.S.A. is very expensive over there. Several single channel models pranced around the sky, and it started to rain at mid-day, in buckets,—plus! The Aero Club provided a shelter and cold lunch with cans of beer etc. for the over 18's served by charming young ladies who could hardly speak a word of English, bar one! After lunch, in pouring rain, several models were flown including the Beauvais club President's (M. H. Mucherie) "Concorde" glider. Semi scale and tissue covered it is nearly 6 foot long and as a tow line glider, it flew quite well. French club chairman, Philippe Marquet made several flights with a "Graupner Amigo" using Graupner radio and Cox engine, allowing power and tow-line flights. Eugene Senare was one of the few present C/L fliers and his "Veco Thunderbird" with a Merco .35 flew well on short lines. Multi proportional flying of the most dangerous type was demonstrated by Pham Anh Tuan, who was runner up in the French National Championships and is an aeronautical engineer in Paris. His

all-orange, glass fibre fuselage F & M proportional equipped model was started up and taken off from a 15 foot wide strip with people standing about and the wing tip running about 5 foot from the cars, low level beat-ups preceded the landing, back in front of the cars and spectators! After this things were wrung out and the English group was presented with a souvenir plaque by the French club president depicting the *Concorde* and "Sierra Mike" took off for Lympe with its cargo off soggy models and fliers, who are already thinking of doing it all again in the spring, and the French coming to England later next summer.

Beauvais club President, M. H. Mucherie with Concorde tow line glider.

CLUB AND CONTEST NEWS

Best wishes to all club members and those hardworking officers
CLUBMAN

BRIXTON D.F.C. COME OF AGE

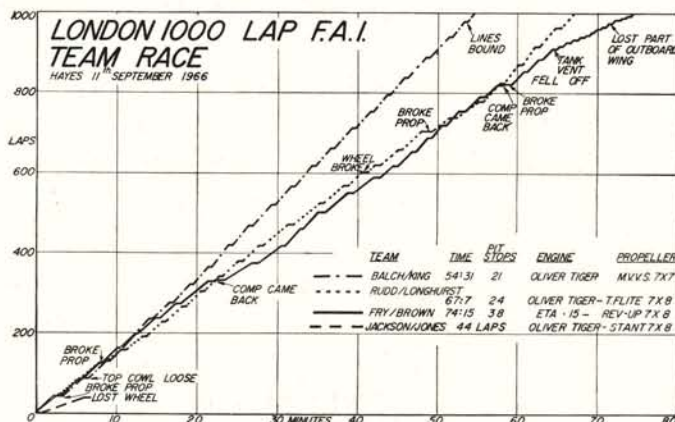
Brixton D.F.C. think their 21st anniversary should be celebrated by a mention in *Aero Modeller Club News*. Activities have slowed up since they were formed in 1941, the only active members are the speed fliers who are well-known in the contest world. Mike Billington is still using his Checkshield Dooling 61 and Ivor Roffey an eight- or nine-year-old Carter Dooling 61. Anyone between the ages of nine and 90 who is interested in any form of control line flying should attend a club meeting on any Tuesday or Thursday evening at Rosendale Road School, Turney Road, Tulse Hill, London, S.E.24. Here they have facilities for test running engines.

Is It a Record—Error

On page 462 in August Club and Contest News under the heading "Is It a Record" the section reading "... the model flying 12 miles in 10 hours ..." should read "... the model flying 12 miles in 1 1/2 hours ...". Leatherhead say they are not claiming a duration record!

NOVOCASTRIAN C/L GALA

A cool and windless day promised a good day's flying for all "up north" team racing and combating. F.A.I. team race saw Place/Haworth make a fast time in the first round with a 4:22, the fastest silenced heat time yet. In the semi-finals they broke a prop, and did not make the finals. Turner/Hughes made 4:39, so the final comprised of Turner/Hughes, John Horton and Davy/Hudson. They finished in this order, with the winners recording 9:36 for the 200-lap final. Brian Turner's real triumph was in 1/4A though, when he broke the heat record for 90 laps by recording 3:46.6, and won the final with 8:42.8, using a Bartels glass fibre propeller. B racing had little to offer except tales of mishaps and burnt out plugs, etc. This really is a pity because in many ways this is one of the most open branches in control line, the standard having dropped by at least 50 per cent in the last four years after the departure of such names as Chas. Taylor, Sid McGowan, Ray Tuthill, "Mac" McNess, etc. These models can fly in any wind—the Eta 29 in standard form can do 115 m.p.h. for 35 laps and there is very little opposition of a high standard. Yates/Hampson eventually won with 8:40. Combat on the other hand, attracted 27 entries from far and wide, and the first two places went to Mad Mac members J. Dunker and I. Coutts, from Scotland. Third place went to T. Lee, of Wharfedale, with a model that was almost silenced to death. In all a very successful rally that Novo's intent to make a regular fixture—if they have any sites left after the spread of building work has ceased in their area.



WHARFEDALE 1000 LAP F.A.I. TEAM RACE

Yet another win for Turner/Hughes of Wharfedale M.A.C., that's the result of Wharfedale M.A.C. marathon team race event for F.A.I. racers. A semi-postal, the Southern contingent flew off in London at the Hayes site on the same day and Dave Balch's graph tells this tale in which he made the fastest time of 54:31 to place him second after Turner/Hughes with 52:40 with Rudd/Longhurst third at 67:17. Devonish/Horton in 6th position had the compression to keep going back then the mechanic (Panic) filled one eye with fuel, so fumbling the stop with one eye, they broke a prop and a bottle top for 69:28.3. Davy/Hudson were hovering around 40 laps to a tank and changed lines during the race. Meanwhile Turner/Hughes were doing 42 laps to a tank.

IMPERIAL COLLEGE CONTROL LINE RALLY

Fine weather ensured a good turnout for Imperial Colleges' control line rally, the fourth they have run at their sports ground, this year on October 16th. Combat had a full 64 entries and fine flying was displayed by most entries. Of interest was the fact that Stoo Holland and Baz Bumstead were both flying new designs, Baz however eventually being beaten by Chamberlain, the eventual finalist. Owing to a number of re-flights in the second semi-final between Richard Wilkens and Stoo Holland (eventually won by Wilkens) darkness had descended by the time the final was due. An abortive attempt was made to fly, then the prize money was shared out between Chamberlain and Wilkens. One particularly noticeable incident was in the first heat of the first round, when one pilot let go of his handle—the model ending up yards downfield with the wires and handle well wrapped round the top of a nearby set of rugby posts! Rat race attracted 30 entries, good consistent times were put up during the heats by Dave Rudd (3:26, 3:33) and Tom Jolley (3:31, 3:36). Tom Jolley was the winner with 8:31, followed by Dave Rudd 9:08, D. Fairbank 9:25 and lastly A. Longhurst 11:50 in fourth position.

Keep Dunfermline Tidy

For several seasons Dunfermline M.A.C. have had permission to use the local Pitreavie Playing Fields as a flying area. This ground is rather small for free flight but excellent for control line and radio control. Unfortunately this popular area may soon be lost to the club, due to thoughtless use by independent flyers. The reason—on more than one occasion this year, the park attendants have encountered control lines left behind on the ground after an event and these wires have been caught up in the mowing machine cutters thus entailing partly dismantling the mowers. This, we would point out, need not happen if people were careful to lift their lines at the off in competitions. Should this happen again, Dunfermline will lose its best flying area, and will be hard put to find another one.

Large Flying Site

Havering MC, who have wide interests, including free flight, control line, radio control and boats, are very fortunate in having a 30-acre flying field at Bedfords Park made available through the local council. Only formed recently, they have 45 members. This large membership is due in no small part to the efforts of Home and Hobby Store, of Romford, a very active local model shop who have been collecting names and address of those wishing to start a club. They will shortly be seeking SMAE affiliation as several members want to enter competitions next season. Club meetings are fortnightly, and prospective members should contact B. Fraser, 138 Parkside Avenue, Romford, Essex.

Three New Clubs

From Worcester, where "Aeromodeller" is printed, incidentally, G. Stockle sends word that Wordsley MAC has been formed. Near Dudley they have 20 members and flying is possible in a local park by permission of the local Council, providing strict flying times are adhered to and silencers are used at all times. Prospective members should contact Mr. G. Stockle, 5 King-swinford Road, Holly Hall, Dudley, Worcs. They would also like any advice on how to run their club from officers of other clubs. Alsager MAC, from Stoke-on-Trent, were disbanded several years ago due to a general lack of local interest. With a few pounds still left in the kitty, the last treasurer and secretary are hoping to start things going again now they have facilities for a clubroom. Although their postal address is Stoke-on-Trent, they are in fact located in Cheshire, a good 10 miles from the Five Towns Spitfires club. Contact E. M. Wilshaw, 35 Harpur Crescent, Alsager, Stoke-on-Trent. R. Benson, 5 Edge Lane, Thornhill, Dewsbury, Yorks., has formed a new club called Dewsbury and District Aeromodellers. Mainly control line, prospective members should contact Mr. Benson, telephone Ossett 2727.

SCOTTISH NEWS

Scottish literature received this month by "Clubman" seems to contain mostly local contest news. They seem to have contests all the time up there! The Glasgow Hornets Gala on August 7th was a clean-up for Jim Read, who won F.A.I., 1/4A and Rat Race, with respective times of 11:31, 11:25 and 9:20, and he had to replace a wheel during the F.A.I. final. Pictures of the T/R in the local press were excellent to say the least, with S. White landing an F.A.I. model in a picture that shows the model almost in plan view and the pilot.

August 14th saw their Control Line Scale and Concours contest off in fine style, entries including a Sterman Kaydet. D.H.88, ME 110, Spitfire X, Lockheed Neptune, Bhlomn & Voss, F. W. Moskito and two Curtiss Hawks. J. S. Anderson's Sterman Kaydet took the top spot with second and third places taken by the Curtiss Hawks. McLaughlin, of East Kilbride, entered the Neptune and though a junior builds nothing but C/L scale twins. The only question was, when is the next scale comp.? Twenty entries

were attracted by Concours, and J. S. Anderson won this as well with a free flight scale B.E.2E., while the junior prize went to N. Scott with a Marquis that would have beaten several of the older entries. At the Auchenharvie Rally, July 24th, the usual names came through to the top in combat Ian Coutts, of Mad Mac, eventually defeating John Dunker, of the same club. W. Paton, of Esk Valley, was top dog (rat) in rat race, followed by Andrew Snowdown with a 1.5 cc. engine. At Dalkeith, on August 6th, the standard of combat was high and some amusement was caused when a streamer tangled with an Oliver and won, the model being towed for half a lap before the streamer broke. Ian Coutts again won this event, with John Dunker winning rat race. Aeromodellers who were lucky enough to have free time to visit the pictures at "Annisland Odeon" saw Look at Life on Aeromodelling and Mag. Men in one show (Down in London we had to sit through Cow Boys and Indians before the Look at Life!) Ed.

Radio Control Interest Expanding

Cotswold R/C Society now boasts 45 members, most being keen and active. They have the use of two excellent air-fields and full use is made of them with monthly contests for single and multi enthusiasts, current models under construction include a Senior Falcon, Skylark, Orion and Taurus's. They are are trying hard to master the art of glass fibre fuselages and polystyrene wings, one member getting one pair of 32 in. span wings from 6 ft. 2 in. block, better luck next time sir! Proportional equipment is the most popular, with home built Flight Link much to the fore

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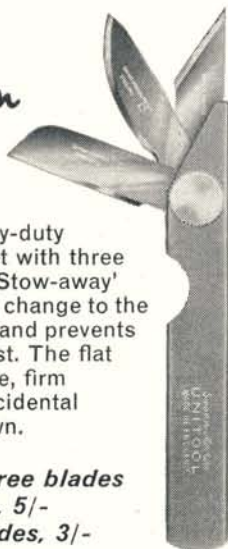
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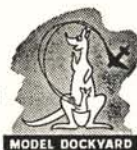
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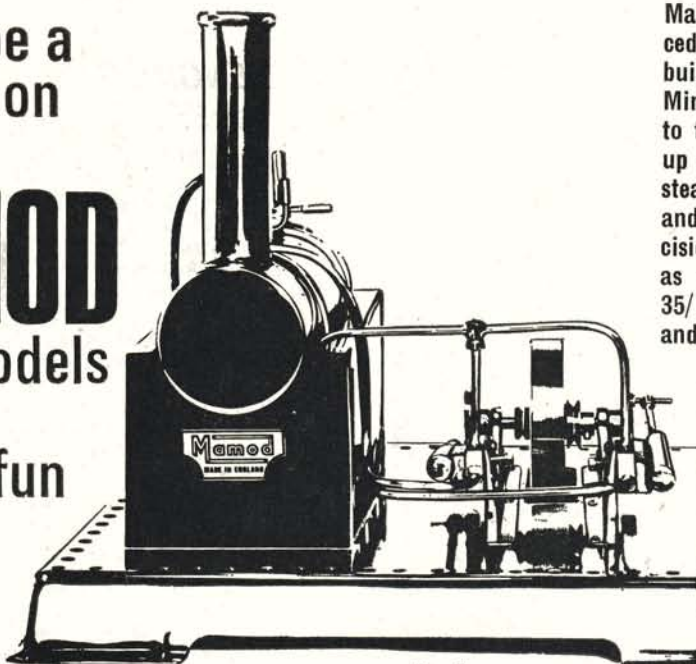


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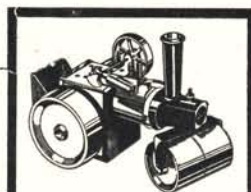


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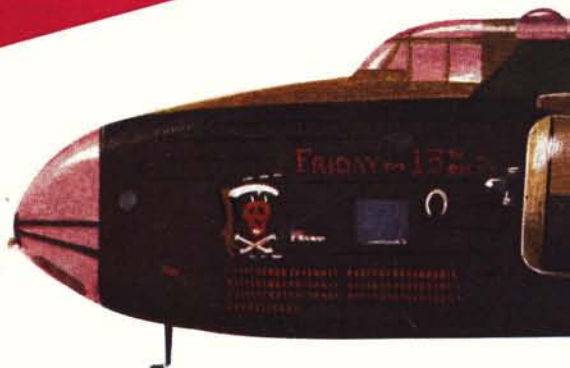
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308 GREETINGS! GREETINGS!



In offering you our best wishes for Christmas and the New Year, let us look back for a moment at 1966. This has been a fabulous year that deserves honourable mention before it finally fades out in the New Year celebrations. The Control-Line Championships at R.A.F. Swinderby were a great success and brought twenty visiting teams to Great Britain, many of whom we had the pleasure of welcoming in our shop. Bill Wizenewski of California who achieved a personal success in F.A.I. speed with a record

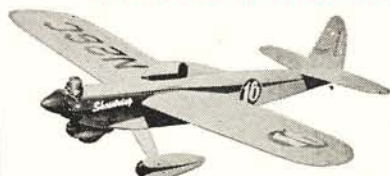
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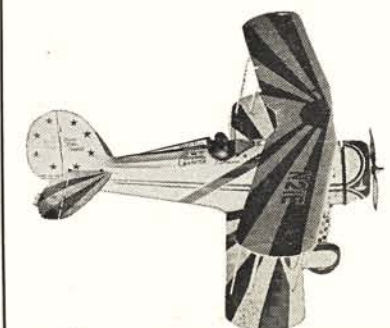
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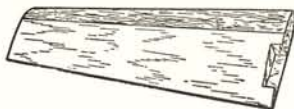
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COUPLINGS AND CLEVISSES

Dubro Kwiklinks KL49
Dubro Kwiklinks 12"
Dubro dual take-off DT4
Dubro duraconnector and V-link
Dubro Kwik-Keepers
Dubro linkage arms
Dubro trim-bars TB2
Mercury nylon clevises 12" pair

DOPE AND POLYURETHANE FINISHES

Celcon Butyrate fuel-proof clear dope 1 pt. 6/6.
1 gal 45/-.
Celcon, 217 and Titanine clear 1 pt 4/9
International polyurethane 2-part clear 1 pt 16/3
Ditto in colours 19/6
H.M.G. fuel proofer 2/6
Humbrol fuel proofer 2/-

FUEL TANKS

"308" R/C clunk tanks, 1oz 5/6; 2ozs 6/-; 4ozs 6/6
Veco C/L baffle tanks, 3-3 1/2 & 4ozs 13/9
Mercury 100 and 125ccs baffle tanks 7/6
Comprehensive stocks of all R/C and C/L tanks always in stock.

Our MAIL ORDER DEPARTMENT will send any goods advertised by us to any part of the World. C.O.D. available for home orders only; you pay the postman. PLEASE ADD A REASONABLE AMOUNT FOR POSTAGE AND PACKING ON ALL ORDERS. Shop hours Mon., Tues., Wed., Fri., Sat. 9am-5.30pm., Thurs. 9am.-1pm.

FUELS AND FUEL MATERIALS

(Callers only please!)
"308" glowfuel with 25% Castrol "M" per 25/-
gallon
Methanol per gallon 12/6
Castrol "M" per quart 9/6
KK Nitrex 15 per gallon 37/6
Mercury No. 8 per gallon 35/-
Nitromethane per 500 gms 20zs 6/8; 40zs 13/4
Amyl Nitrate 2/6
Nitrobenzene 40zs
All Mercury and KK fuels always in stock in 1/2 pints.

GLOWPLUGS and Glowplug clips

K & B 1L 2V.
Fireball hot standard and cool
Merco 2V LR
Glowplug protector holds 8 plugs
All COX glowleads always stocked.
Dubro glowclip large or small
Cox glowclip with lead
KK glowclip with lead

HINGES AND HINGE MATERIAL

Bonner polypropylene pkt-8 9/11
Williams nylon small 9/11
Williams nylon large 4/11
"308" mylar hinge strip 2/6
Tatone C/L brass hinges per pair 3/6
Mercury nylon packet of 14 6/3

NYLON AND SILK COVERING

American light weight nylon white, red, yellow and blue 36" x 45" 9/11
"308" nylon white only per yard 6/-
Lightweight lap silk, white, yellow, orange, red and purple per yard 9/11

PILOTS

Williams civil and military: 1" 5/9; 1 1/2" 7/9;
2" 8/9; pylon racer 2 1/2" 11/-.

PROPELLERS

Tornado nylon. Note new reduced prices:
6x3 2/3; 7x5 7/8; 8x6 3/3; 8x6 5/4; 9x4 9/8; 10x4 10/6;
7/-; 11x6 8/3; 12x5 12/6; 12/3.
Pusher props: 8x6 7/4; 9x6 10x6 8/3
Threebladed: 8x6 10/3; 9x6 10x6 12/3
Bartel glassfiber T/R 15/11
Bartel speed special 6x7 15/11
All KK nylon props always in stock]

SPINNERS and fittings

Veco aluminium. Needle-nose 1 1/2" 8/6; 1 1/2" 9/9;
1 1/2" 10/6; 2" 14/-; Standard 1 1/2" 7/9; 1 1/2" 9/6;
1 1/2" 10/6; 2" 11/-; 2 1/2" 15/-; 2 1/2" 16/6.
Veco spinner adaptor nut 2/6
Veco extension shaft 7/9
Hillcrest nylon universal ftg. 2" 7/6; 2 1/2" 8/9;
2 1/2" Williams nylon universal 1 1/2" 8/9; 1 1/2" 8/9; 2"
11/9; 2 1/2" 17/9.
All KK plastic spinners always in stock.

MONOKOTE IS HERE

Buy your Monokote by post from us and we will send you two or more sheets post free in our crushproof cardboard tubes which ensure that your Monokote gets to you in perfect condition. White, yellow, orange, red, silver and black all in stock. 25/- per sheet.

A NEW RANGE OF GLOWPLUG ENGINES FROM JAPAN.

These engines offer a truly economical buy for those who want something below the higher price bracket motors. The engines are well made from high grade casting materials and perform well. Please note that all are supplied without glowplugs.
UEDA 09 Standard £2.1.6
UEDA 09 R/C £3.5.0
UEDA 15 Standard £3.13.6
UEDA 15 R/C £4.3.6

SWITCHES, WIRE AND CONNECTORS

Bonner slide 4.P.D.T. 9/6
N.K. sub-min toggle S.P.D.T. 14/11 D.P.D.T. 19/11
MK plugs and sockets 6 & 8 12/9
ORBIT hook-up wire 7 colours pkt. 3/6

TIMERS

Tatone 1/4 shut-off; engine shut-off, engine flood-off and 5 min D/T, all 38/6.
KSK engine cut-off and D/T 35/-

WHEELS

Dubro standard, low bounce and slicks: 1 1/2" 21/9; 2" 23/9; 2 1/2" 25/9; 2 1/2" 27/9; 2 1/2" 29/9; 3" 31/9; 3 1/2" 33/9; 3 1/2" 35/9.
Williams W.W.1. scale wheels. 1 1/2" 12/6; 2 1/2" 19/6; 3 1/2" 39/6; 4 1/2" 49/6 per pair.
Williams smooth contour 2 1/2" 14/6; 2 1/2" 22/6; 3 1/2" 29/6 per pair.
Veco semi-pneumatic: 2" 14/-; 2 1/2" 16/-; 3" 18/6; pneumatic 3 1/2" 49/6; 4 1/2" 59/6.
All KK, R.M. Mercury wheels stocked.

DEACS AND ACCUMULATORS AND CHARGERS

Deac rechargeable batteries 225mah 500mah
Voltage 18/8 27/4
3.6 27/8 40/4
4.8 36/8 54/-
6.0 46/- 67/8
7.2 54/- 80/-
Varley 2V accumulator for glowplugs 28/6

THE "308" UNIVERSAL CHARGER



Specially produced for us this charger will charge Deacs up to 18V and your 2V glowplug accumulator simultaneously. Transformer has two separate secondary windings. Rectifier is long-life silicon type. Guaranteed for two years. £5.19.6. Postage 3/6.

THE NEW OS 60 R/C

New rear rotary induction motor of tremendous power. Ball races and rings of course. A completely new O.S. design in every respect. Price £15.14.0



MERCO MK II '49' and '61'



The new twin-plug bronzed-bush version of the R/C World Championship motor is a revelation in power, flexibility and ease of operation. Fully guaranteed and backed by 100 per cent spares and servicing
49 MK2 £12.19.8
61 MK2 £13.17.6

HENRY J. NICHOLLS & SON LTD.

THE MODERN MODEL SHOP
308 HOLLOWAY RD. LONDON N7.
TELEPHONE: NORTH 4272

KEILKRAFT

Just the job for

Put one of these
on your
"wanted" list

CHRISTMAS!



FIREFLY

Stunt model with "profile" type fuselage, specially designed for engines under 1 c.c. Kit contains die-cut parts. Wingspan 20".

19/9



DEMON

Class A team racer to the new S.M.A.E. specification. Kit contains die-cut parts. For engines up to 2.5 c.c. Wingspan 30".

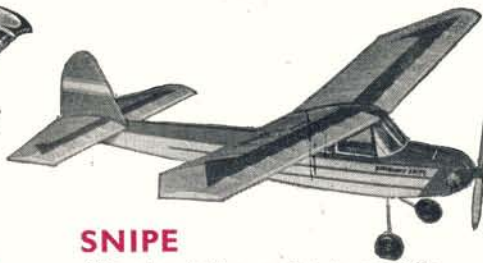
36/3



TALON

Combat design of considerable strength. Easy and quick to build. A fully aerobatic model that is great fun to fly. For 2.5 to 3.5 cc. engines. Wingspan 32".

30/6



SNIPE

This nice looking model is especially suitable for beginners as it is so straightforward to build and easy to fly. Kit contains die-cut parts and has been specially designed for .5 diesel and .8 glow motors. Wingspan 40".

24/3



GEMINI

Duration model with all fuselage parts, tailplane, and fins in pre-cut pre-decorated sheet balsa. Wingspan 22".

10/-

MARQUIS

A very fine looking stunt model with attractive semi-scale lines, featuring tricycle undercarriage and extra large cockpit. For 1 to 1.5 cc. engines. Wingspan 30".



40/0



ROBIN

Duration model with good flying performance. Kit features die-cut parts, plastic propeller and wheels. An ideal "first" model. Wingspan 22".

10/7



CONQUEST

Towline glider for beginners, with a very good performance. Kit contains die-cut parts. Wingspan 30".

9/4



NOMAD

Beginners model with fuselage parts, tailplane and fins in pre-cut, decorated sheet balsa. 20" span.

5/11

KEILKRAFT

Right from the
Start

