

WINGS CLUB FOR BOYS SEE INSIDE

OCTOBER 1962

1'6

MODEL *aircraft*



Ju. 52-3m FIVE-PAGE PLANS
RADIO CONTROL CHAMPIONSHIP
4 in 1 FLYING SCALE PLANS

ELECTRIC FLYING

THE ONLY WAY TO DESCRIBE
THE NEW **RIPMAX 'ELECTRA'**

FIRST AGAIN—and opening up a new field of model flying! The first complete electric aircraft at a down-to-earth price—**NOW AT YOUR**

KIT COMPLETE TO LAST DETAIL—FULLY PRE-FABBED—ASSEMBLE IN HALF AN HOUR!

MODEL SHOP!

KIT INCLUDES exclusive Ripmax POWAFLITE battery and selected, high-performance electric motor. **GET AN "ELECTRA" TODAY!!**



Span 19"
Length 17"
Weight 1 3/4 oz.

Super-complete kit comprising fuselage shells, wings, fin and tail-plane moulded in ultra-light expanded polystyrene plastic. Spruce boom, ready formed wire and plastic parts, special cement, prop. POWAFLITE ELECTRIC MOTOR and set of BATTERIES

PRICE ONLY

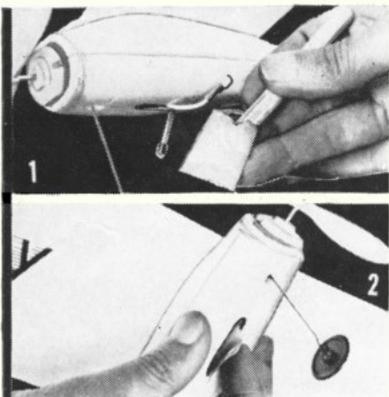
14/11

**ELECTRIC POWERED
FREE FLIGHT
DURATION MODEL**

PHOTO 1 Powaflyte battery being "activated" with salt water prior to flight. Spare batteries available at 1s. per set, wired ready for fitting.

PHOTO 2 Batteries plug-in to motor leads—polarised plugs prevent wrong connection. Batteries stow in fuselage slot, reducing drag.

- ★ NO WINDING! NO FUEL! NO NOISE!
- ★ FULLY PRE-FABBED AIRFRAME IN ULTRA-LIGHT PLASTIC
- ★ SMOOTH, SILENT, EFFICIENT PERFORMANCE—1 TO 2 MIN. FLIGHTS!
- ★ NO RESTRICTIONS—NO DANGER—UNLIMITED FUN—FLY ANYWHERE!



Other models in the same range include:-

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NOW ONLY 9/6

18" span duration model, fully prefabricated plastic fuselage shells, wings, tail surfaces—8" plastic prop, wheels, all hardware and rubber motor. Nothing else to buy—assemble in half an hour! EASY TO FLY!

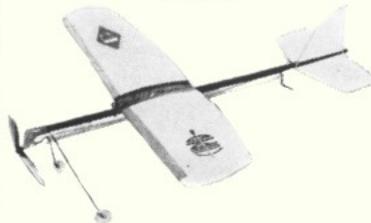
CESSNA 180



NOW ONLY 10/6

16" span scale flyer with a wonderful performance. All airframe parts moulded in ultra-light plastic. Kit includes propeller, shaped undercart, all hardware, wheels, spinner, rubber and special cement.

CUPID



NOW ONLY 2/11

11" span ready-to-fly rubber model. Ultra-light plastic wings and tail surfaces. 4 1/2" plastic propeller. Weight complete 1/2 ounce! Super value and a wonderful flyer—virtually crashproof, too!

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 Telegrams: SOLARBO WORTHING

August, 1962.

From my own experience I can't believe that all shop stewards are of the type of "I'm all right, Jack" or rip-roaring red Communists.

This morning I found myself standing in the middle of the Machine Shop enjoying a ten minute discussion with my shop steward on 18th Century antiques in general and glass in particular. The conversation started because we are using a Georgian motif on our pelmet design. This led to Georgian design in general and so to glass, as I have a collection built up over thirty years.

It appears that he loves glass and so I have invited him to come and see my glass collection and I hope he will enjoy it. I'll try not to bore him, but it's a bit of a family joke when "Pop starts talking glass". I even hope he may start collecting himself.

Our previous shop steward is now my Works Manager, so you will see it is not just an isolated case that this one happens to be one of the most reasonable and skilled men in the works.

I have never seen any reason why management and labour should be at loggerheads. They are not at Solarbo. Without good relations how can you be sure of the quality and service you can offer.

J. V. Paterson

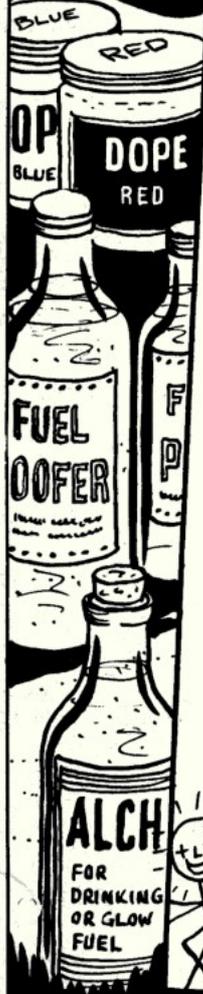
J. V. Paterson.

GOLDWAR

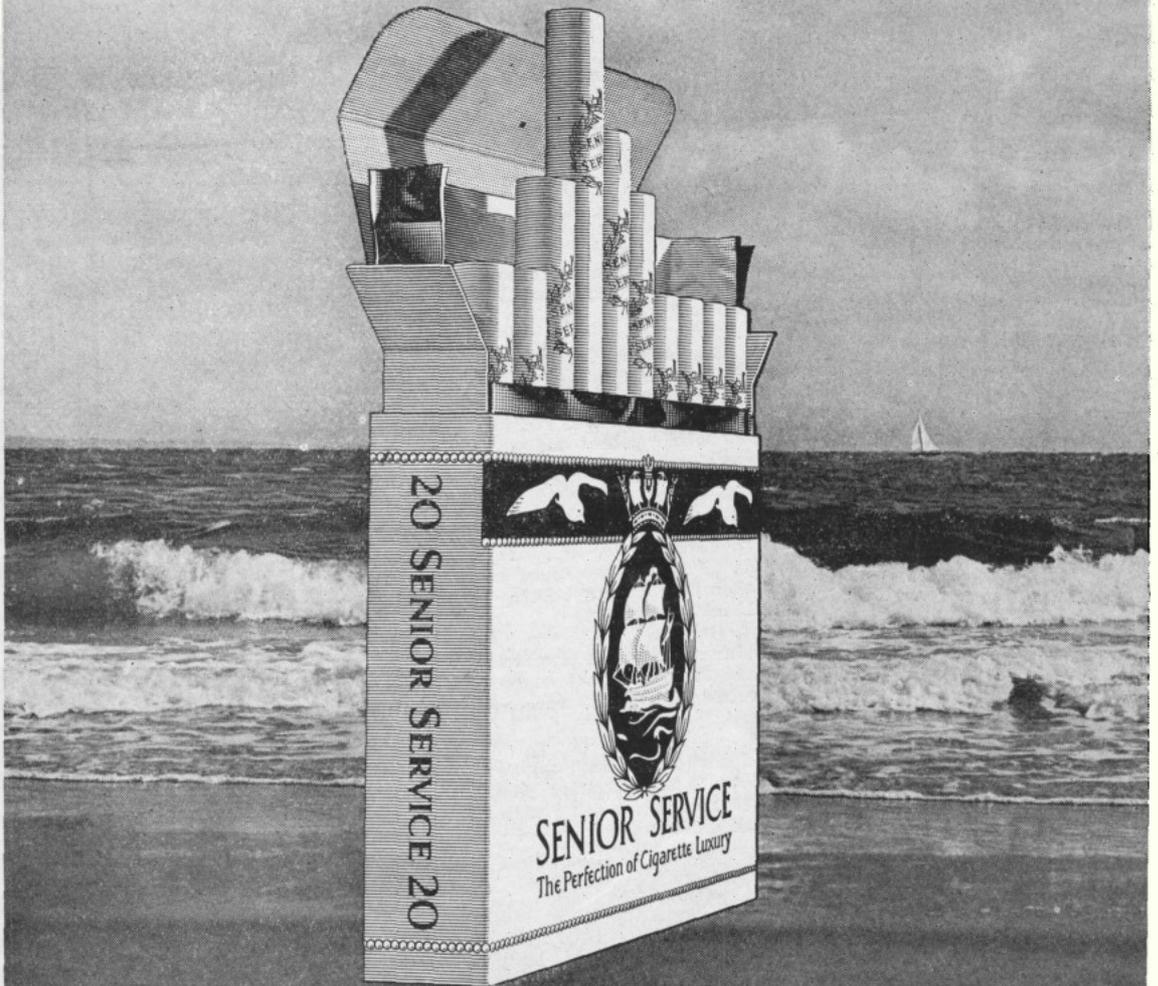
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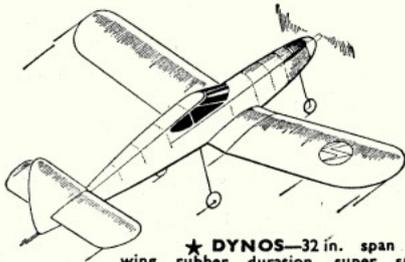


SENIOR SERVICE *Satisfy*

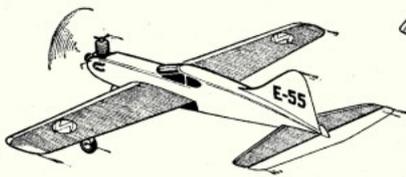


THE OUTSTANDING CIGARETTE
OF THE DAY

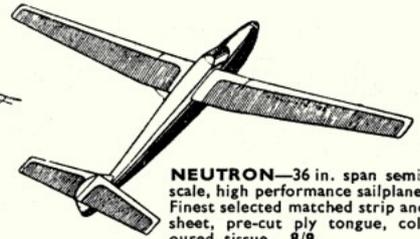




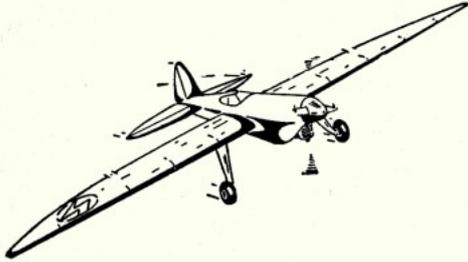
★ **DYNOS**—32 in. span low wing rubber duration super sports model for the discriminating enthusiast. Parts are die-cut for rapid assembly. 13/11.



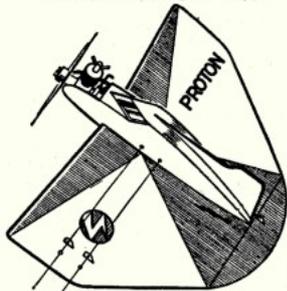
★ **ORBIT SPORTS**—Intermediate C/L stunt trainer for 0.75-1.5 c.c. Parts die-cut. Simplified rapid assembly coupled with great strength. 21/6.



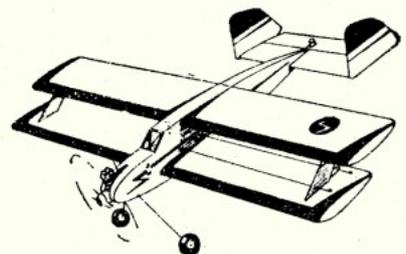
NEUTRON—36 in. span semi-scale, high performance sailplane. Finest selected matched strip and sheet, pre-cut ply tongue, coloured tissue. 8/9.



CIRRUS—32 in. span advanced stunt model or 0.8-1½ c.c. Features coupled elevators and flaps. Will execute the new S.M.A.E. stunt schedule with ease. 21/6.



PROTON—27 in. span C/L combat model for 2½-3½ c.c. Rapid construction and great manoeuvrability. 18/7.



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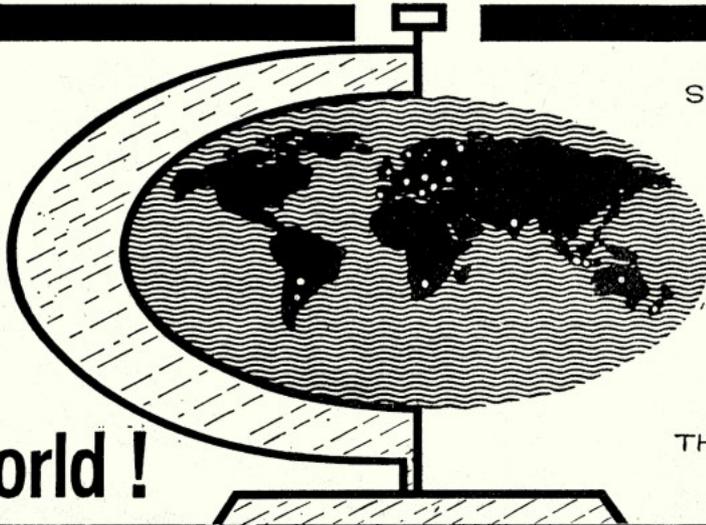
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Duration	10/6
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K.K. Conquest	8/9
K.K. Chief	25/10

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 IN STOCK
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3 ft. Telescopic with Socket	16/6
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Centre Loaded	22/6

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The lightest, most compact
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 than 2 in. square x 1 1/8 in.
 Weight only 1.3 ounces.

Standard version ... 58/9

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New R.E.P. 10-reed Unit for 2-10 Channel Tone Receivers	50/-
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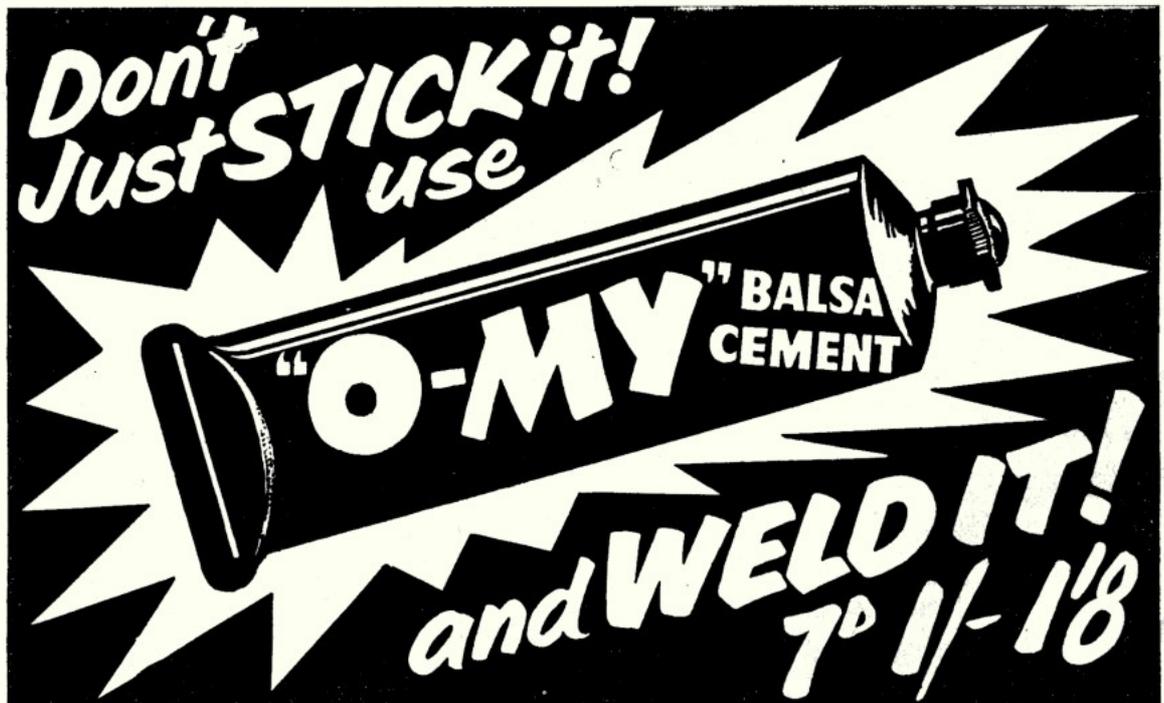
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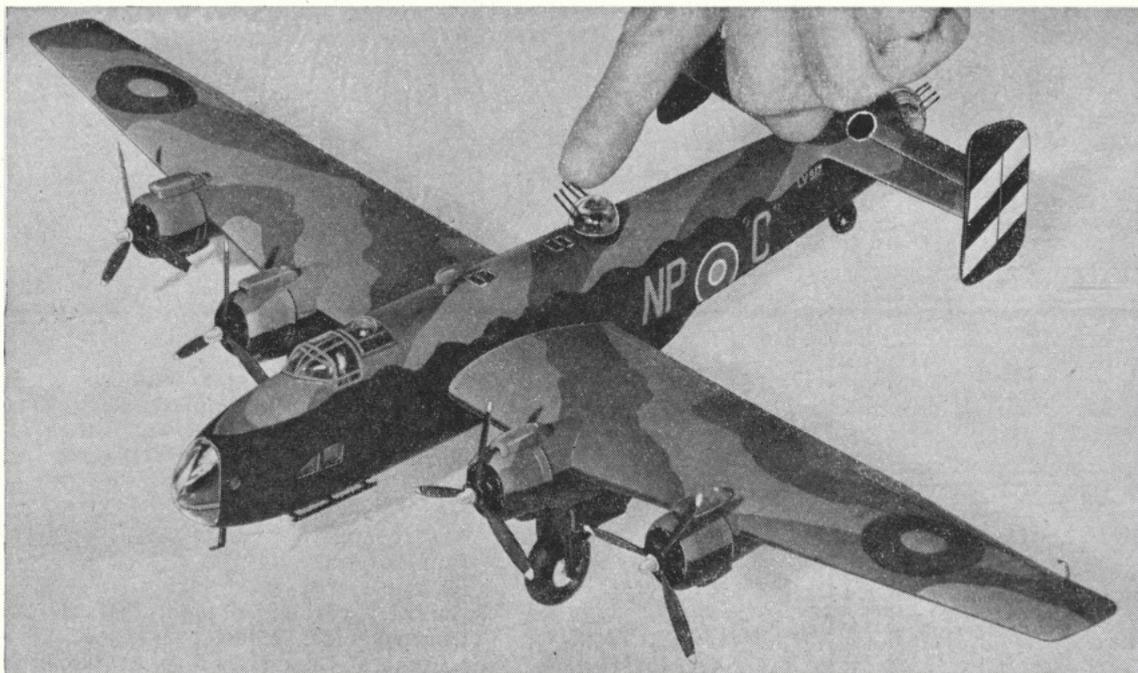
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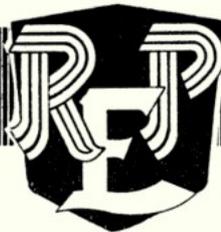


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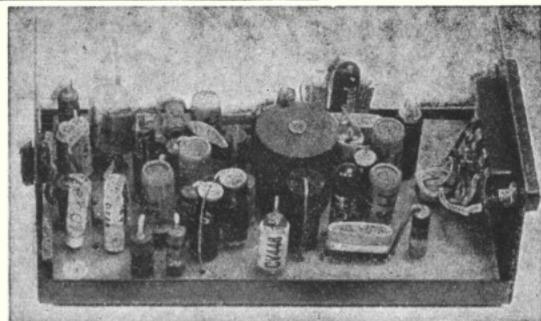
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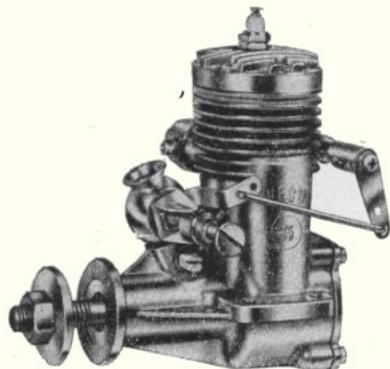
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 Full spares service on Veco engines.



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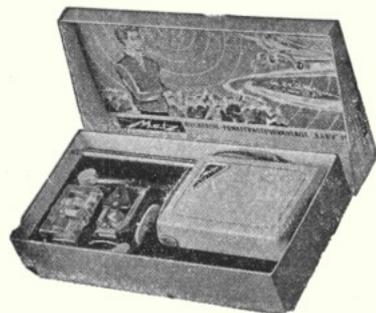
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MODEL *aircraft*

OCTOBER 1962

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Here and There

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THE 1962 World Championship for Radio Controlled models, which is fully reported elsewhere in this issue, was well supported both competitively and spectatorwise. This is the first time that the S.M.A.E. have organised a "spectator appeal" World Championship and the public certainly rolled up in force. Under the sponsorship of Castrol, the publicity aspect of the meeting was handled by professional public relations consultants and the meeting certainly had excellent Press, T.V. and film coverage. Much of this was achieved prior to the three contest days and doubtless contributed to the excellent attendance, estimated at several thousand on the last day.

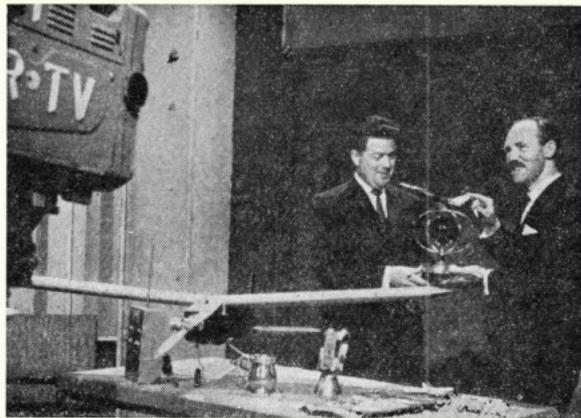
As a public spectacle, this form of competition has the widest appeal and, without doubt, many laymen left Kenley very impressed and with a completely new image of what aeromodelling can offer. Fortunately the

weather was good for the spectator, although the blustery wind on the first two days made flying somewhat tricky. The S.M.A.E. should benefit financially from the excellent attendance and the efforts made to present model flying as a spectacle were well rewarded.

On the competition side anyone who had predicted a draw would have been laughed out of court, yet this is what happened and a fly-off had to be held, to determine who would hold the King of the Belgians Cup for the individual winner. The F.A.I. rule stating that scores must differ by 2 per cent. might seem reasonable at first glance, but does not stand up to analysis. For example if "A" scores 100 points and "B" 98 points the result is a draw, but if "B" only scores 97.9 points, "A" is the winner. Is this better than declaring "A" the winner in the first place?

The present system of judging calls

Manager of the successful British team at the R/C World Championships, Stewart Uwins, (left) is seen with Doug McHard showing T.V. viewers the splendid Team Trophy which was made by P. E. Norman. (A.R.T.V. Photo.)



NEXT MONTH IN MODEL AIRCRAFT will be featured full size fold-out plans for a really simple-to-build, F/F biplane sportster, for the Cox .010; a full report of the C/L championship held at Kiev in Russia; plus all the regular features you look forward to each month.

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Flying Fokker

for five judges, whose highest and lowest scores per flight are discarded and the remaining three averaged. It has been suggested that only three judges, all of whose scores are counted, are necessary and the results this year would seem to confirm this. An analysis of all the scores show that the order for the first ten and last twelve, would have been the same with all scores counted, although there would have been a slight juxtaposition in the middle range.

One aspect where the final placings do not present a true picture of achievement concerns the Russian entries. In addition to building their models, they had also to make their own radio equipment and even fabricate certain radio components. Viewed in this light their achievement was particularly meritorious and that this fact was appreciated by the other competitors, was shown by the ovation they received at the prize-giving banquet.

Another aspect that was pointed by this year's event, was that a mechanic is certainly no longer essential for each team member. Neither the America nor British teams had mechanics and certainly suffered no disadvantage! The F.A.I. should revise this rule, which is now openly acknowledged as being a means to enable "supporters" to obtain official entry to the contest area, without being of practical help in the competition.

This is the first time in many years that an "outdoor" event has been run in England, without having access

to the almost unlimited facilities of Cranfield. The more limited accommodation available at Kenley posed many problems which, without the endless help and assistance of Group Captain O. Graydon, O.B.E., Commanding Officer of the Station, and his staff, would have been insurmountable.

Number Two

THE second permanent C/L circuit in the London Area (the first was at Esher) opened recently at Charville Lane, Hayes, Middlesex, by Councillor P. J. Burke, J.P., chairman of the Hayes and Harlington Council, represents the worthwhile culmination of two years' negotiation by the local club with the authorities. Suitably isolated in a field, well away from houses, there is a smooth, grit free, asphalt circuit, plus two grass circles, allowing ample scope for all types of C/L flying. Access is by a yearly season ticket which costs only 12s. 6d.—an extremely reasonable amount to pay for a year's flying.

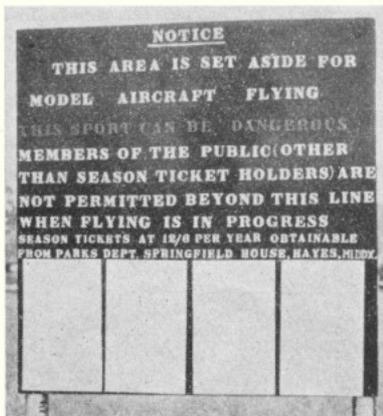
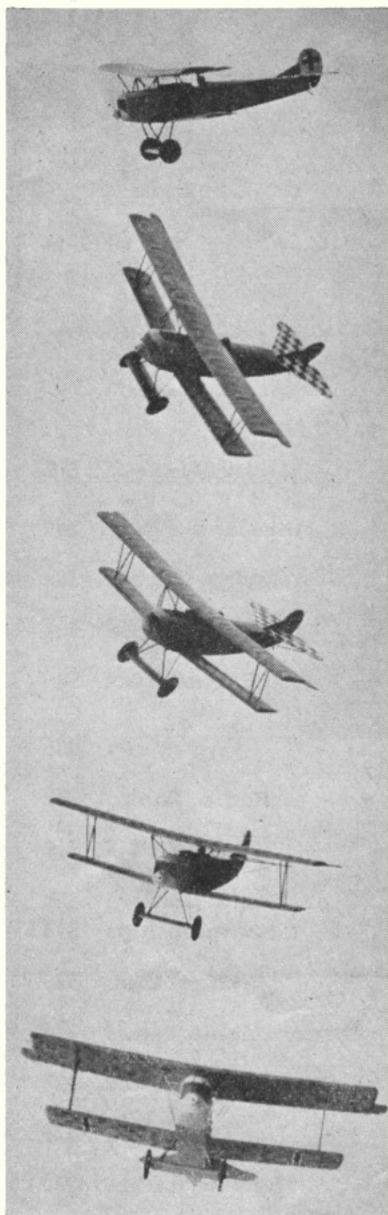
Once again, we express the hope that other local authorities will follow the excellent examples set by the Hayes and Esher councils, in providing special flying facilities and thus, in one stroke, pleasing not only modellers but local residents, who are concerned with noise and safety when models are flown in parks.

On the Cover

POSED against the *Spitfire* which dominates the entrance drive to Kenley aerodrome, Harry Brooks, joint winner of the R/C World Championship, with his successful model. A full report of the meeting appears elsewhere in this issue.

Plans Catalogue

THE old Model Aircraft Plans Catalogue which cost 6d. is now completely out of print. However, an up-to-date, fully illustrated, list of plans is a feature of the "Model Aircraft" Handbook which also includes pages of useful data, conversion tables, a list of over 300 model shops, etc. At a cost of only 2s. (2s. 5d. post free) the "Handbook" is wonderful value and should be on every modeller's reference bookshelf.



Top left: the notice board displayed at the Hayes C/L circuit gives details of where to obtain season tickets.

Left: Councillor P. J. Burke, J.P., with a group of club members in the background, cutting the tape to declare the circuit officially open.

OUR four-page full size fold-out plans for Doug McHard's 1 in. = 1 ft. F/F Fokker DVII, which was presented with last month's issue, has proved a resounding success. In view of the interest shown in this feature we reproduce above a series of un-retouched photographs of the original model in flight.

The photographs were selected from a number of single shots taken over a number of flights and they have been arranged in sequence, to give the sort of view that many an allied gunner of W.W.I. must have had of this, the most famous of all the German biplane fighters.

ROVING REPORT

A Round-up of World News

THE radio . . . is a miniature transistorised oscillator, tuned to a flat 86 mc/s wavelength. By using the latest plastics, the transmitter can withstand temperatures up to 150 deg. C. and 100 g. accelerations. Power comes from a series of small mercury cells housed in a Tufnol tube which, in turn, is fitted within the gudgeon-pin. The batteries have an output of 135 volts and last for about five hours when hot. To conserve their power, while the engine is being assembled, a small switch is fitted so that the transmitter can be switched on just before the sump is put on."

No, the printer hasn't got "Radio Topics" and "Latest Engine News" mixed up. The above is an extract from a rather remarkable item in a recent issue of the "Autocar," describing how Hepworth & Grandage Ltd. (who, incidentally, make piston rings for Eta and Merco) are now investigating piston-slap and gudgeon-pin rattle in car engines, by radio. Signals from the miniature transmitter, actually fitted inside the piston, are picked up by a small ferrite rod aerial inside the crankcase, whence they are amplified and relayed to recording equipment. Now all we want is a miniaturised miniature setup of the same kind and we'll be able to find out what goes on inside a model engine. . . .

With foreign model equipment now so widely used in the U.K., especially imports from the U.S., Germany and Japan, we are often asked, especially by those who see the American model magazines, whether it is not better to buy direct from, say, a mail order model shop in New York, than to pay the higher

prices charged in the U.K. for the same American product. The short answer to this is "No." Of course, we have all heard of the lucky ones who never have to pay customs charges, but the chances are that you may pay for their luck by being well and truly stung yourself.

The unfortunate part about importing through the post is that (a) you can never be sure exactly how much you will have to pay in customs charges, (b) charges are assessed by H.M. Customs & Excise with whom you cannot normally negotiate before delivery, (c) the first you know is when the postman knocks at the door and apologetically demands "X" pounds, shillings and pence for the parcel and finally, (d) once you have taken delivery, you haven't a ghost of a chance of recovering any cash unless you can prove conclusively that you have been over-charged.

Customs charges are, of course, considerable, amounting to approximately 3/5ths of the value of the goods. This is because purchase-tax is not merely levied on the original price of the goods but on 125 per cent. of the value—i.e. the cost plus 25 per cent. import duty. If, therefore, you buy an engine costing \$14 (£5) in America, it may cost you anything up to £8. You might very well have bought the same engine in the U.K. for £6 10s. od. Theoretically, charges should be levied on wholesale prices, but with small private importations, one frequently finds that this is not the case. Nor is there any exception in the case of gifts. On these, in fact, the practice, apparently, is always to assess purchase-tax, in particular, on retail price.

Occasions arise, of course, when one wishes to import something from abroad which cannot be obtained through regular retail channels in the U.K. If this is sent through the post, you may have warning of its arrival (especially if it costs more than about £10) in the form of a four-page document (C.160) on which you are required to give, among other things, evidence as to the value. Incidentally, never have anything sent by ordinary letter post or by sample post. The importation of anything dutiable by letter or sample post is prohibited and, in such cases, you will get an even more formidable document (C.113E) headed, "Notice

Left: K & B Supersonic-100 and Supersonic-1000 glow fuels will shortly be canned in England. Fuel will sell at competitive prices, but this quart sample, imported from California, cost over £6 in shipping charges!

Right: picture taken at Polish A/2 eliminators in Warsaw, shows J. Falecki releasing J. Kapowski's model.



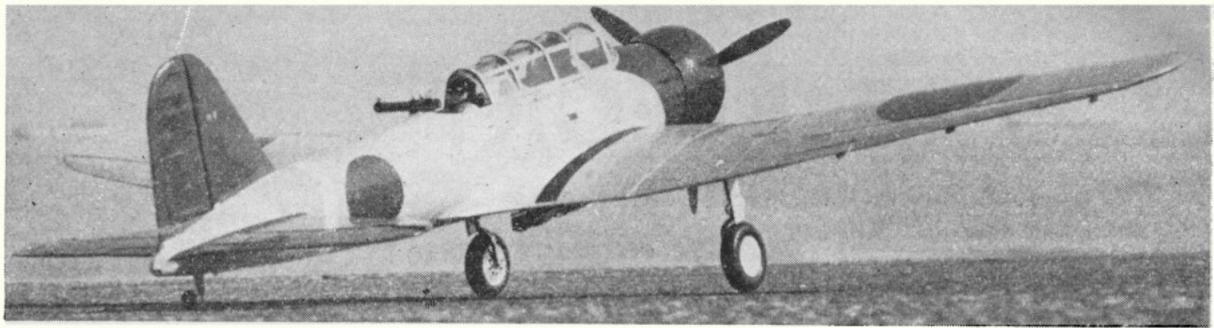
Model shop, Japanese style. The Esaki model company's premises in Gifu City, Japan. Owner Mamoru Esaki, former Japanese champion, has been modelling for 30 years.

of Seizure"—in other words, the goods have been confiscated. This isn't quite so ominous as it sounds, as the customs authorities have a way of letting one off "lightly"—i.e. the payment of an extra charge "as a condition of waiver of seizure." This charge is based on the total duty and purchase-tax charges and varies between 25 and 50 per cent.

There is an alternative to the postal route, namely air or ocean freight. The advantage of this is that one is advised of the amount of the customs charges before delivery, but this is outweighed by the extra documentation and handling costs, since one is obliged to employ a shipping agent. As an example of how costly this can be, the quart can of K & B fuel illustrated on this page sent from Los Angeles to London cost over £3 in agent's fees alone!

All of which, we feel, amply shows that, generally, it is far better to deal with the local model shop wherever possible!





NAKAJIMA B5N KATE — by M. F. Hawkins

This $\frac{3}{4}$ in. to 1 ft. scale model can be built in four versions—free-flight sport, free-flight scale, control-line semi-stunt and control-line super scale. Just take your pick—all versions detailed on the one plan.

THREE years ago I built a C/L stunt version of *Kate* to go with my *Zero* and Nakajima B6N2 *Jill* (already in the M.A. plans range). With an A.M.2.5, it flew loops, bunts, eights and inverted, but was too heavy for square manoeuvres. A friend suggested that it would make a good F/F model so this year I built a sports version in twelve evenings and fitted it with a D.C. Merlin. Much to my surprise and delight it flew well, at a weight of 14 oz.

Encouraged by this success I then built an all sheet covered, highly detailed F/F version for the Nationals. This weighed 18 oz. and was rather tricky to trim, but it did fly—into the only ditch within miles—and the fuselage, stuck with P.V.A. (which is not waterproof) came apart!

As a point of interest, the outer wing panels of the sports version, having

$\frac{1}{32}$ in. sheet back to the spar and silk covering, weighed 2 oz., whilst the all- $\frac{1}{16}$ in. sheet panels for the scale model weighed $2\frac{1}{2}$ oz. Much less difference than I had expected.

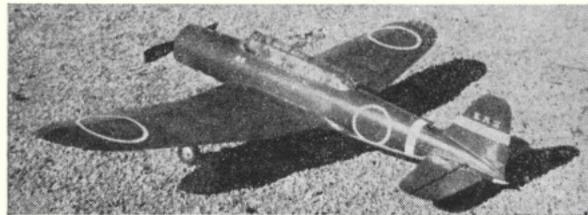
The plan enables any of four versions to be built: i. F/F sport; ii. F/F scale; iii. C/L semi-stunt; iv. C/L scale. So now you must decide which version to build, then spend some time studying the plan, so that you know exactly which type of construction you will be using throughout. Follow the building order—it makes things much easier.

Step-by-step Constructional Notes: Wing

1. Make undercarriage. Note that torsion bar should rotate freely in outer bearing to allow leg to spring back and forward. Do not attach wheels until later.
2. Laminate centre section mainspar,

bolt and "Evostick" u/c in place.

3. Make up top and bottom surfaces of centre section from soft $\frac{1}{16}$ in. sheet stuck edge to edge. Balsa cement is best for this as P.V.A. leaves hard ridges after sanding. Make surfaces oversize to allow for camber.
4. Assemble centre section structures on lower surface. Pin down on the building board to avoid warps. (U/C legs hanging down over the edge.)
5. Add wing tongues, with plenty of scrap bracing, or, in the case of the C/L version, control plate and push rod.
6. Cover top of centre section and cut out wheel wells.
7. Build outer wing panels—for scale versions assemble on lower surface. For F/F note $\frac{1}{4}$ in. wash-out at tip. Do not stick R2 and tongue box in place until wing has been matched to centre section and dihedral and root rib angle checked for a good fit. For C/L there is no R2 in outer wing—sheeting fits over R2 in centre section. For the all-sheet covered C/L scale version, thread should be passed through line lead-outs during construction of outer wing. This is used to pull wires through when wing is assembled.



Our heading photo shows the scale C/L version: left we have the C/L semi-stunt, below left the writer in action with the F/F version and, right, the F/F and scale C/L models.

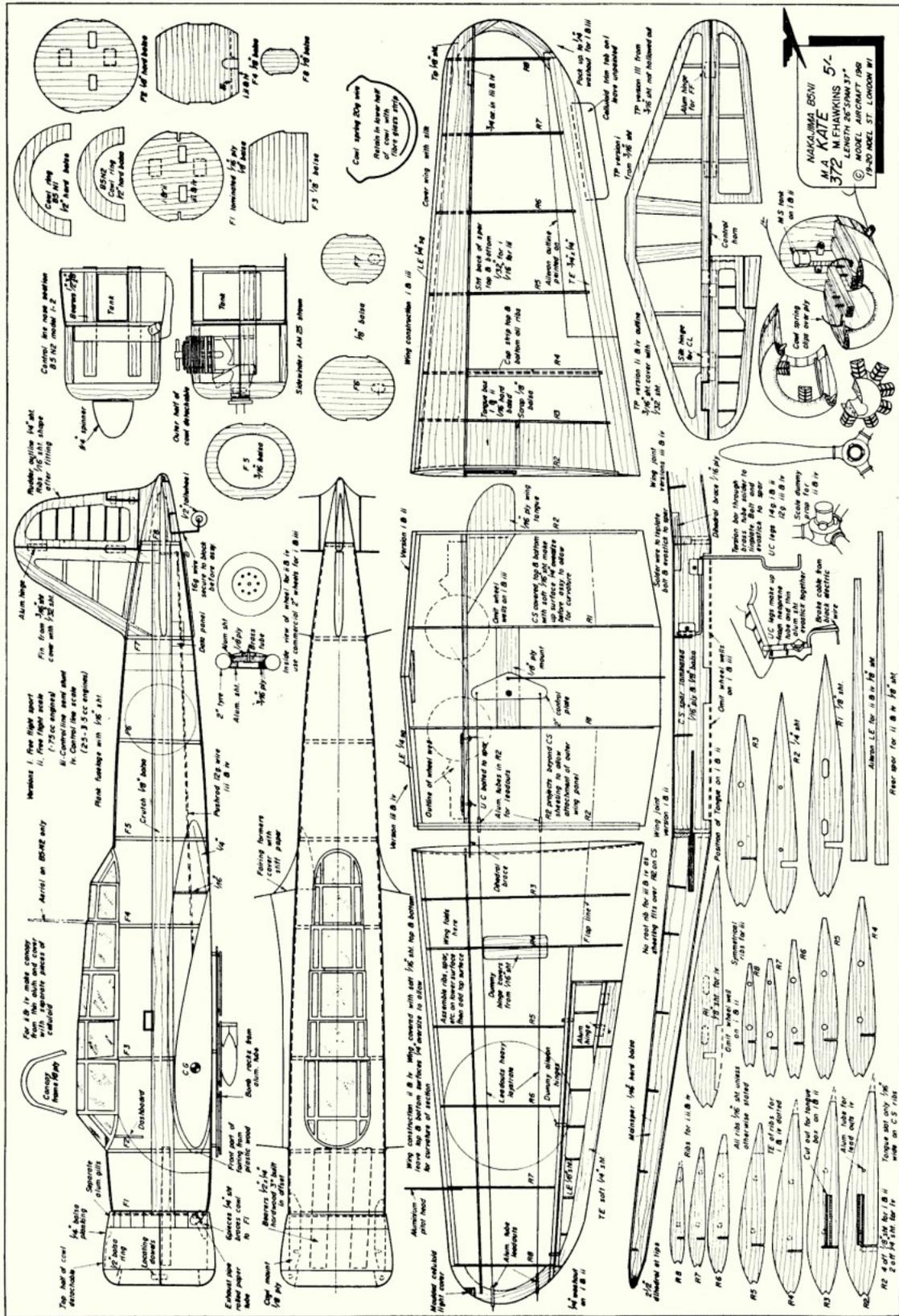


Fuselage

1. Laminate F1 and assemble to bearers and F2. Install C/L fuel tank.
2. Attach fuselage crutch ($\frac{1}{8}$ in. sheet) to bearer assembly and insert other formers.
3. Build stabiliser of appropriate type

Continued on page 330





FULL SIZE WORKING DRAWINGS ARE OBTAINABLE FROM YOUR LOCAL DEALER, OR BY POST FROM THE "MODEL AIRCRAFT" PLANS DEPARTMENT, 19-20, NOEL STREET, LONDON, W.1, PRICE 5s. 0d., POST FREE

PETER CHINN tests the JENA 2M

2 c.c. Diesel Motor

“... an interesting
subject”



IT is many years since a 2 c.c. engine was dealt with in the M.A. test series. In the early days of model diesels, a 2 c.c. capacity was a very common size, but, with the standardisation of the 1.5 and 2.5 c.c. groups for contest purposes, the popularity of the 2 c.c. motor rapidly declined. Today, the 1.97 c.c. Jena is the only modern high performance 2 c.c. diesel currently available.

Jena engines have recently become available in Great Britain through the West German model firm of “Robbe” (Robert Becker O.H.G.) who are offering these and various other products to model shops in the U.K. These engines are manufactured in East Germany by Jenoptic Jena G.m.b.H., better known to most of us as the Carl Zeiss optical works.

With the reputation of such a famous precision manufacturing organisation

behind it, one would expect the Jena diesel to be a soundly made and well finished engine, and, in general, one is not disappointed. Nor can the 2M be criticised on the score of power developed. Since it is, in effect, a reduced bore version of the Jena 2.5 MK contest 2.5 c.c. diesel (for which an output of 0.36 b.h.p. is claimed) it was no surprise to find that, while it fell a little short of the manufacturer's claim of 0.28 b.h.p., its specific output was well up to modern competition diesel standards.

Two models of the 2 c.c. Jena are made: the 2D, with rear rotary disc-valve induction, and the 2M, the subject of our present report, which has reed-valve induction and which is rated at slightly higher power. Both models share the same crankcase and twin ball-bearing crankshaft assembly with the 2.5 c.c. version.

(This latter is also available in disc or reed-valve form and also, incidentally, with an optional type cylinder jacket having extra large diameter cooling fins.)

In general design, the 2.5 c.c. disc-valve Jena appears to owe something to the West German Webra Mach-1 diesel. It has the latter's multiple internal transfer flute system, a similar design of screw-in cylinder with screw-on fins and (departing from the orthodox European 15 × 14 mm. com-

bination) the same 15.5 × 13 mm. bore and stroke. In addition, the rotary-valve is ported to locate the intake centrally above the shaft line as on the Mach-1.

Differences to be noted on the 2M are a reduction in the bore to 13.9 mm., a reduction in the number of transfer flutes from eight to six, and a revised backplate assembly with central intake to the reed-valve.

An unusual feature of the Jena is the black non-metallic collet of bakelite type material, which, a push fit on the front end of the crankshaft, is positioned between the front bearing housing and the prop driver. This, together with a thin washer, helps to protect the front bearing from the entry of dirt, but, in fact, its existence would appear to be due, primarily, to the fact that the Jena employs the basic crankcase casting first used on the Zeiss Aktivist engine but with a new and longer crankshaft. The ancestry of the casting is evidenced by the faced off lugs, just visible, which, formerly, were the attachment lugs for the three-stud cylinder fixing of the older Aktivist models. These engines, and the subsequent Aktivist-IV and V models, all had a shorter crankshaft. It seems probable, in fact, that future production engines will not have the plastic collet, as a model 2.5 DK, which we recently examined, had a new crankcase with lengthened front housing. This, incidentally, also had the beam mounting lugs re-positioned to bring their lower faces on the centre line.

Specification

Type: Single-cylinder, air-cooled, reverse-flow scavenged two-stroke cycle, compression ignition. Reed valve induction.

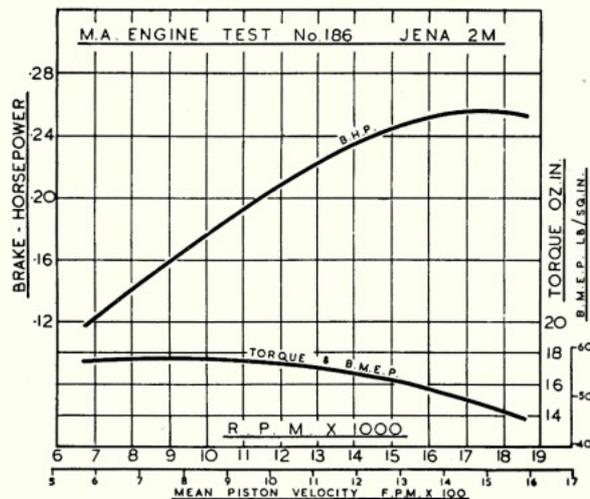
Bore: 13.9 mm. (0.5472 in.). Stroke: 13 mm. (0.5118 in.)

Swept Volume: 1.973 c.c. = 0.1204 cu. in.

Weight: 5.1 oz.

General Structural Data

Pressure diecast “Hydronalium” (aluminium-magnesium) alloy crankcase and main bearing housing containing two



7 × 19 mm. 7-ball journal bearings. Hardened and ground non-counter-balanced crankshaft, with 5 mm. crank-pin, tapered end for dural prop driver and tapped for 4 mm. prop retaining screw. Hardened steel cylinder flanged at exhaust belt and screwed into crankcase casting. Cast-iron piston with pressed-in 3.5 mm. gudgeon-pin and conical crown. Matching hardened steel contra-piston. Forged duralumin connecting rod. Machined alloy venturi intake, 5 mm. bore at throat, widening to 12 mm. at reed-valve, flanged and retained in backplate recess by alloy ring threaded on periphery. Valve reed of 0.006 in. spring steel clamped between front rim of venturi and annular seating in backplate. Complete carburettor assembly may be rotated through 360 deg. for any convenient needle control position. Separate jet and needle block. Wire ratchet device to hold needle setting. Complete backplate assembly retained by three 2.5 mm. screws into lugs on crankcase. Screw-on finned aluminium alloy cylinder barrel, anodised blue; 5 mm. compression screw with tommy bar plus screwdriver slot for adjustment in cowled installation. Beam mounting lugs placed symmetrically on centre-line.

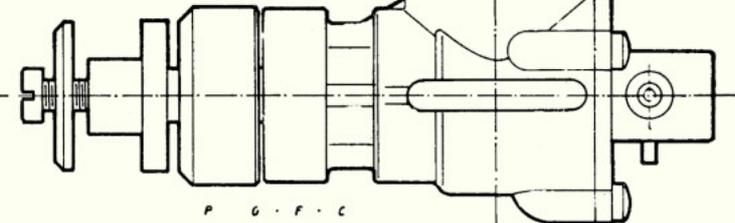
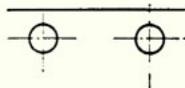
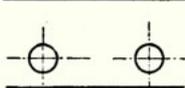
Test Engine Data

Running time prior to test: 2 hours.
 Fuel used: Mercury RD diesel fuel.
 Air temperature: 59 deg. F. (15 deg. C.).
 Barometer: 29.4 in. Hg.

Performance

The prop driver on the Jena has a 10 mm. diameter centre boss, 7 mm. long. To fit this, props would have to be bored out to nearly 13/32 in. which, with most popular modern makes of prop—especially in the smaller sizes—means that dangerously little material is left around the hub of the prop itself. (Presumably the props sold for use with these engines in Eastern Europe have much more material around the hub.) For our prop tests, we, in fact, fitted a smaller prop driver from another engine having the same size shaft and taper, but a practical alternative would be to sub-

JENA 2M



ACTUAL SIZE

stantially reduce the length of the centre boss. The boss actually overhangs the crankshaft length by approximately 4.5 mm. and it would be perfectly feasible to cut this much off the length of the boss so that the back of the prop has to be counterbored only to a depth of about 1/10 in.

Another point that should be borne in mind is that a much lower tank location is required with the Jena than with shaft induction motors. The top of the tank should be below the centre line of the engine, otherwise there is a tendency to flood the intake and, with the 2M, this was found to complicate starting, especially on small props.

When properly set up, the Jena's starting qualities were good, except on the smaller prop sizes. Handling qualities on 9 × 4 and larger props (i.e. for speeds up to 10,000 r.p.m.) were very pleasant. However, the engine's docility did begin to disappear rather sooner than we expected, as prop size was reduced. On a "fast" 8 × 4 or 8 × 3½, for example (on which sizes the 2M is capable of bettering 13,500 r.p.m.), a too casual approach might earn a sharply rapped finger and some care is, therefore, needed if the 2M is propped for speeds approaching its b.h.p. peak. Such discomforts can best be avoided by making sure that the engine is not overchoked or over-

compressed for starting. Reverse starts, which are common with reed-valve engines when lightly propped, were no problem. If the 2M started in the reverse direction, stopping the engine (by slackening off the compression a full turn) and restarting at a lower compression setting, proved to be an immediate cure.

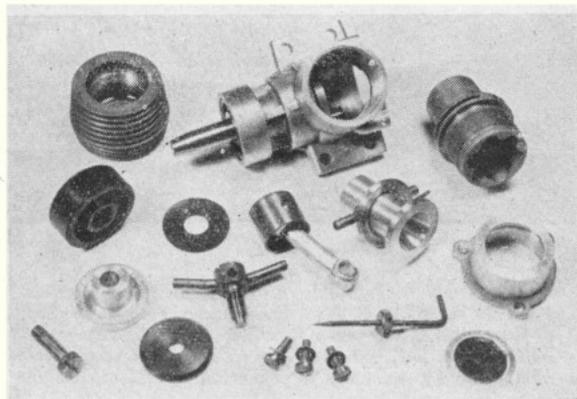
Maximum torque developed by the 2M on test, reached nearly 18 oz. in. at 9-10,000 r.p.m. Torque was well maintained up to 12,000 r.p.m. and declined slowly over the whole usable r.p.m. range, resulting in an unusually high b.h.p. peaking speed of approximately 17,500 r.p.m. where the very good output of 0.255 was recorded. At approximately 16,000 r.p.m., on a 7 × 4 prop, after the engine had accumulated three hours running time, the valve reed broke. This was replaced with the spare reed included with the engine and the tests completed without further incident.

The needle and compression controls were easy to operate and the needle held its setting firmly. Unfortunately, the compression setting would not hold at high speeds, the contra piston and compression screw running back at speeds above about 15,500. This condition was probably aggravated by the rather high level of vibration recorded but might well have been a fault of the particular engine tested.

In all, we found the Jena 2M an interesting subject. Not entirely without faults, it is, nevertheless, an attractive and well built motor with a very good performance.

Power/Weight Ratio (as tested): 0.80 b.h.p./lb.

Specific Output (as tested): 129 b.h.p./litre.

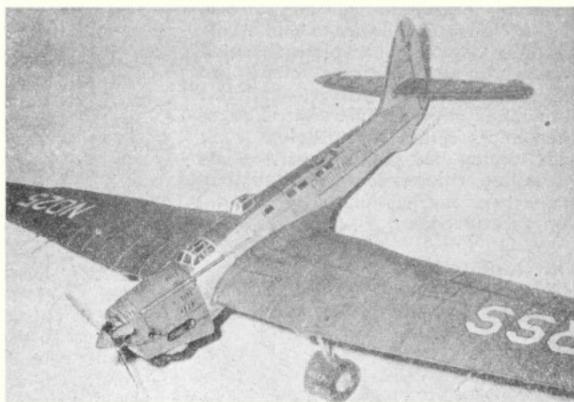


PHOTONEWS—brings you a selection of readers' photographs



Shown in the workshop at their home in Brisbane, Australia are Jack Jorgenson and son Darryl, with some of the models they have built since they started modelling in 1959. With the Class "C" team racer shown in the foreground they clipped 11.6 sec. off the old record to make a new time of 7 min. 15 sec. for the final, at the Nationals held at Rosewood. Their success with the racer, which uses an OS Max 35, is due they say, to its streamlining and light weight—only 20 oz.

Unusual scale subject is this Russian Tupolev ANT-25. Keen Italian modeller Franco Bugada of Milan built the Super-Tigre G21/35 powered model, which weighs 38 oz., and has a span of 64 in. It has been entered in many contests and last year it won the Provincial Championships of the Aero Club Milano, the Centro Sportivo Italiano, and also the Championships of the Lombardia. Photo by Carlo d'Agostino.

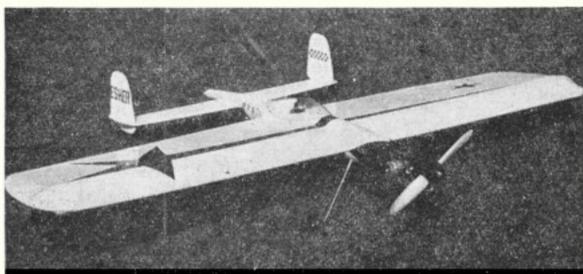


This Hawker Hurricane was scaled up from M.A. plan No. 207 by G. H. Smith of London S.E.11, who built the original 40 in. span model, and was so pleased with it that he scaled it up to 60 in. span, for the Merco 35. Weighing 4 lb. it is finished in the American markings of the "Flying Tigers."

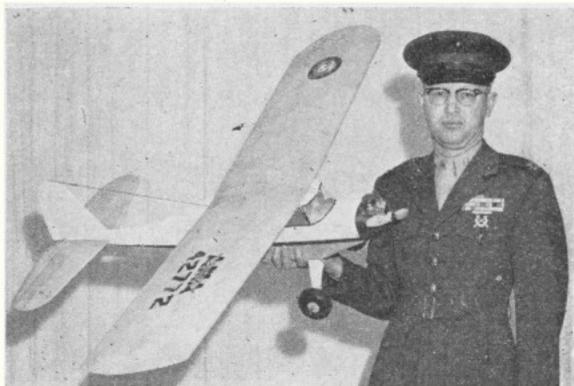
From Peter King of Cheam, Surrey, comes this photograph of his latest R/C model, held by his son. With REP tone equipment giving rudder, and speed control for the OS Max 15, the 52 in. span, 2 lb. model has over 50 flights to its credit.



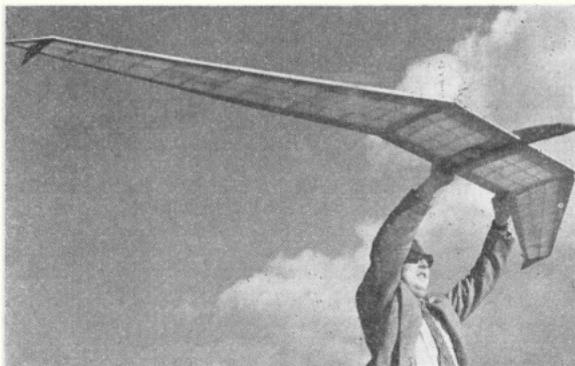
Readers will recognise this stunt model as Stan Robinson's Kentish Wind M.A. Plan 332. Owner Peter Wolfenden of Esher M.A.C. says that his "Oliver" powered model stunts well on 57 ft. lines, but he suggests limiting the elevator movement to 40 deg. each way to prevent loss of line tension in square manoeuvres.



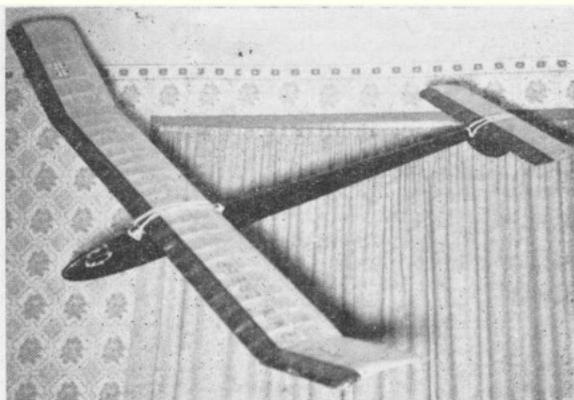
The silk covered wing of this R/C model, by Captain R. D. Willoughby of Virginia, U.S.A. is painted with Day-Glo Orange. Captain Willoughby says that the silk covered wing was first given three coats of clear dope and then two of white Aero Gloss before being sprayed with two very thin coats of Day-Glo.



A. Cook of Sunderland, Co. Durham sent this photograph of F. C. Smith of Portslade, Sussex holding his tailless glider. Model is called Pheon and weighs 1 lb. for a span of 9 ft.



Indoor flash shot here of an A1 glider is the work of G. Smith of Cannock. The black and yellow 48 in. span model weighs 5½ oz. and is capable of a regular 1½ min.



Keith Hoover sent this photograph of his HTL F.A.I. power model. As can be seen, the OS Max 15 is faired into the fin, but unfortunately his latest Cox Tee Dee powered, fibreglass fuselage model has not been photographed.



Cert Wayken of Soest/Westf, Germany, shown with some of his models. The biplane is an OS Max 35 Multispeed powered scale C/L Bucker Jungmeister. It has throttle control, automatic rudder, ailerons coupled as flaps to elevators, and a drop off glider towing device, altogether a magnificent effort! Lower right is a super scale Junkers 87 Stuka dive bomber. The other two models are team racers, the conventional one is Dave Platt's Weaver (M.A., May 1957) which Cert built to try out his OS Pet in. The unorthodox model is an F.A.I. racer which has done 85 m.p.h. with a standard Webra Mark I.



Radio Topics

NEWS AND VIEWS
FROM THE WORLD
OF RADIO CONTROL

ONE feature of radio installation that has always annoyed us is that standard plugs and sockets for connections are so bulky (and heavy for a small model). Sub-miniature counterparts are obtainable but are usually either (i) unreliable or (ii) tremendously expensive, as well as being difficult to obtain.

Radio and Electronic Products have now produced what could be the answer—a 10-pin plug and socket assembly which they designate as sub-miniature and which is sensibly designed around minimum proportions. The plug and socket consist of identical polystyrene mountings. The plug has ten wires inserted and the socket ten corresponding tubes and lead-out wires. Wires and socket tubes are silver plated for low contact resistance and the “fit” is designed to give reliable contact pressure on each connection. The plug and socket can be polarised, if required, simply by reversing one end plug (wire) and socket (tube)—i.e. pushing one end wire out of the plug and one end tube out of the socket and replacing in opposite order.

Size of the complete assembly is $1\frac{1}{8} \times 1 \times \frac{3}{32}$ in. and weight only $\frac{1}{5}$ th oz. The contacts are rated to carry up to 2 amps. The design readily lends itself to stacking, to increase the

number of connections available. About the only criticism we have is that plug and socket do not close together completely but leave a small air gap. A stray fragment of flex wandering about inside the fuselage could get trapped here and cause a short. However, the ends of the mouldings are readily trimmed off (e.g. with a file) to produce complete closure.

* * *
Ace Radio Control (America) have recently produced a kit for a mechanical pulser for “Galloping Ghost” transmitter modification, the complete unit being hand held and simply plugging into a standard transmitter. Mechanical pulser action is provided by an electric motor powered wiper, traversing a printed circuit contact plate giving a full range of mark/space ratio output. The price is quite high—165s. in this country—but the kit is completely prefabricated and is an “assembly” rather than a constructional job. The “non-electronic” bods, too, are often happier with a mechanical rather than an electronic pulser, since they can at least understand how it works!

All told, in fact, the “Galloping Ghost” system seems set for a new lease of life in this country as the “poor man’s multi,” with manufacturers beginning to produce both pulsers and servos designed for the job.

Also, we hear rumours that there are other model kits scheduled for this type of control system.

* * *
Why are nearly all the American manufacturers using glass fibre laminates for printed circuit base material whilst we still stick to Paxolin in this country? Certainly the glass fibre panel is that much more

robust and even a bit lighter. But mechanical damage is seldom a problem with printed circuit panels and electrically there is little, if anything, to choose, between the two materials. We checked comparative prices—glass fibre bases are readily available, but can add a shilling or more to the cost of a panel. So perhaps it is just a gimmick.

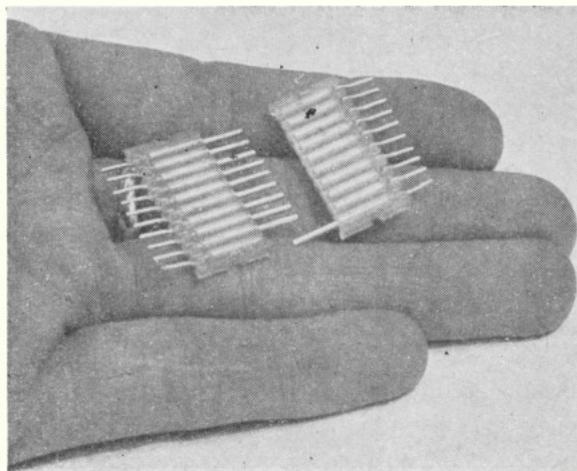
* * *
Many letters we receive pose embarrassing questions on the subject of “How do I” or “Can I” use such-and-such an actuator with so-and-so’s receiver. The question is embarrassing because we are particularly fussy about the performance of an escapement or servo, on which we trust the life of a model—and there are quite a number of commercial units which do not measure up to our required standards. Even our normal “first choice” actuators sometimes need a little adjustment, or “finishing,” to achieve consistent reliability.

There is no complete way of bench-testing an actuator. The only real proof of its quality is how it behaves over an extended period of use flying a model. How about letting us know what actuators you have found most successful and would normally choose again? A users “popularity poll” on this basis would be most valuable.

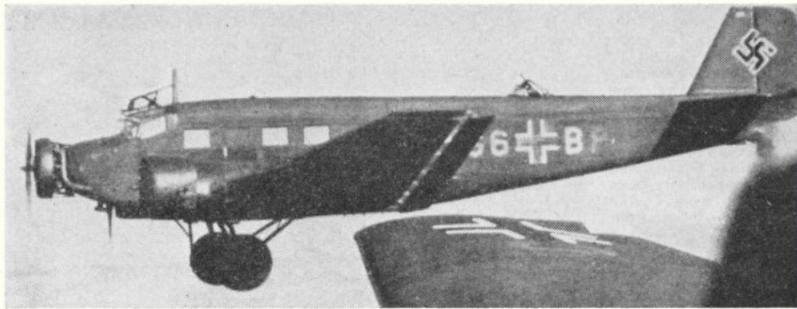
* * *
Does a control surface count as total area or not? In other words, is the effective area of a tailplane and elevators as affecting stability proportions the total area? Theoretically the answer is—no. In practice—partly.

Theoretically a freely hinged surface (e.g. elevators) trailing a fixed surface (e.g. a tailplane) has no effect at all, other than to add a little drag. On this basis movable control surfaces are normally designed as “extra” area—e.g., you use a tailplane of normal size and add elevator area on. The same with fin and rudder area.

In practice, control surfaces are held at fixed positions. In a fixed position the area is effective as a stabilising surface. Some loss of stability will be experienced, however, when the surface moves to a displaced position. Again, too, a movable control surface is not usually



The R.E.P. 10-pin socket and plug described in the text.



John W. R. Taylor's Plane of the month

THE JUNKERS JU 52/3M

BECAUSE of its corrugated skin, *Luftwaffe* pilots gave the *Ju 52/3m* the nickname of "Iron Annie." It was mere coincidence that the R.A.F. also called one of its favourite aircraft of that period "Annie." Yet there are links, for both the *Ju 52/3m* and *Anson* had their origins in a civil transport design, became bomb-carrying first-line operational types for a spell and finally reverted to transport duties. However, that word "finally" should not be misinterpreted, for both types are still in service, although their stories began way back in the 1930's.

The original *Ju 52/1m* of 1930 was a single-engined civil freighter, able to carry a two-ton payload for about 950 miles. It was followed in 1932 by the prototype *Ju 52/3m*. This had the same basic airframe, but with an extra pair of engines mounted on the wings at such a degree of offset that the aircraft seemed to be trying to go in three directions at once.

In fact, as a design it did go in two directions, as a 14/17-passenger version was soon flying in the insignia of *Luft-hansa* and other airlines (including British Airways which had three *Ju 52/3m* freighters), while an essentially-similar aircraft, with bomb-racks in place of passenger seats, was being produced in secret as a bomber for the still-undercover *Luftwaffe*.

Both versions were powered at that stage by three 600 h.p. BMW 132A engines (licence-built Pratt & Whitney Hornets) and were covered by the designation *Ju 52/3m g3e*. The bomber carried a four-man crew, of whom two manned open gun positions, each with a single 7.9 mm. MG 15 machine-gun.

One of the gun positions was above the rear fuselage; the other was the dustbin of dustbins, consisting of no more than a metal bucket which was lowered from the fuselage aft of the undercarriage. The result was far from handsome, but it worked and gave the new *Luftwaffe* a weapon with which to practise its trade in Spain during the Civil War.

Well before the start of World War II,

this makeshift bomber gave way to the real thing in the shape of the Junkers *Ju 86* and Heinkel *He 111*. These were developed with surprising ease from their peaceful "commercial transport" prototypes, designed at a time when Germany was not permitted to build military aircraft, and the *Ju 52/3m* reverted to transport duties, still in both civil and military forms.

There is little need to recall its war record. In April 1940 it spearheaded the first great airborne assault in history when Germany invaded Norway. The same tactics were used soon afterwards in the Low Countries, then in Crete and North Africa; but as the Allied air forces grew in strength even large fighter escorts could no longer save the 52's from annihilation. Various replacements were produced, including the much larger *Ju 252* and 352, but "Iron Annie," like the *Dakota*, refused to be replaced and plodded its way through the skies until the end of the war.

Of the total of 3,234 that were built, 2,804 were manufactured between 1939 and 1944, the peak year being 1943 when production totalled 887. There were several versions:

Ju 52/3m g4e—development of *g3e* with undercarriage strengthened to permit increase in a.u.w. from about 20,950 lb. to 23,150 lb. Used mainly as a commercial aircraft.

Ju 52/3m g5e—with more powerful BMW 132T engines, each of 830 h.p., and wing de-icing equipment. This version could be fitted with floats for operation from water. Used mainly as a civil transport.

Ju 52/3m g6e—development of *g5e* with improved radio equipment. Used mainly as a military transport and often armed. Some fitted, like the

Wellington, with hoops for exploding magnetic mines.

Ju 52/3m g7e—main production version, carrying up to 18 troops or 12 stretchers. Development of *g5e* with automatic pilot, wider cabin doors and other improvements. Standard defensive armament comprised one 13 mm. MG 131 machine-gun in open position on top of fuselage and two 7.9 mm. MG 15's poking through side windows. A.u.w. of 24,230 lb.

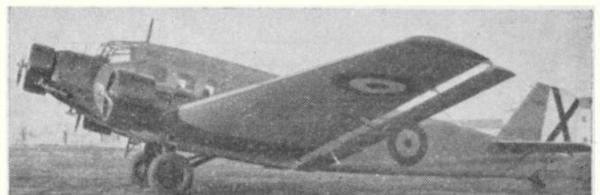
Ju 52/3m g8e—development of *g6e*. Specialised troop transport with extended window area and unspatted wheels.

The end of the war was by no means the end of the *Ju 52's* story. Production of the *g7e* had been transferred to the Junkers-controlled Société Amiot in France and was continued after VE-Day to re-equip the French Air Force. The French-built machines were designated A.A.C.1 *Toucan*. One hundred similar aircraft, built in Spain by CASA for the Spanish Air Force, with 750 h.p. Elizalde/BMW 132 engines, were designated CASA-352-L. Most surprising of all, 12 captured *g8e's* went into service on B.E.A.'s domestic routes in 1946-47 as the Corporation's "Jupiter" class.

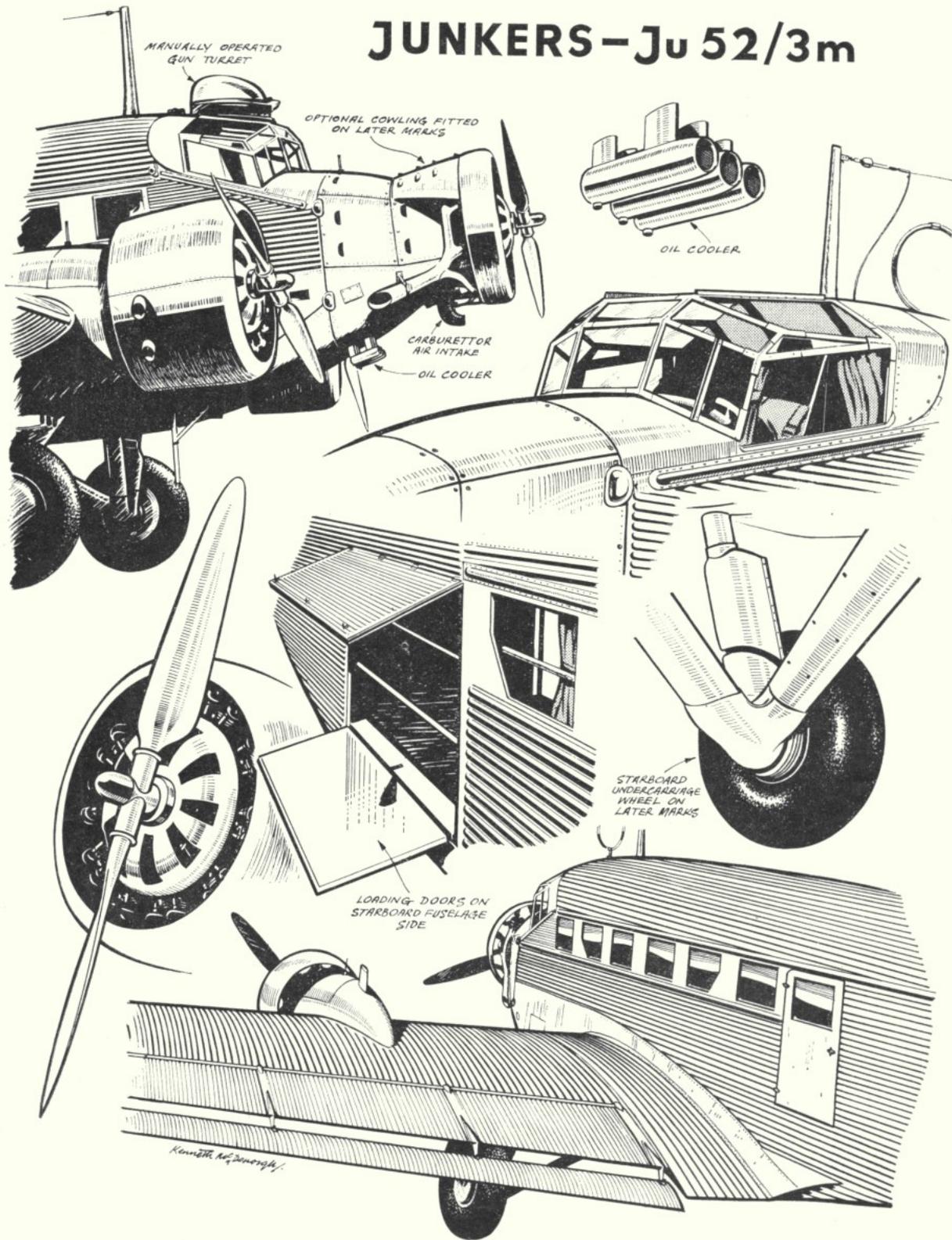
Even today CASA-352-L's and A.A.C.1's continue to be operated by the Spanish and French Air Forces, while the Swiss Air Force retains some *Ju 52/3m's* on its strength. All of which is pretty remarkable in "Iron Annie's" thirtieth year.

Data (*Ju 52/3m g7e*): Span 95 ft. 10 in.; length 62 ft.; height 14 ft. 10 in.; wing area 1,190 sq. ft.; weight empty 14,325 lb., loaded 24,230 lb.; max. speed 165 m.p.h.; cruising speed 132 m.p.h.; ceiling 18,000 ft.; range 800 miles.

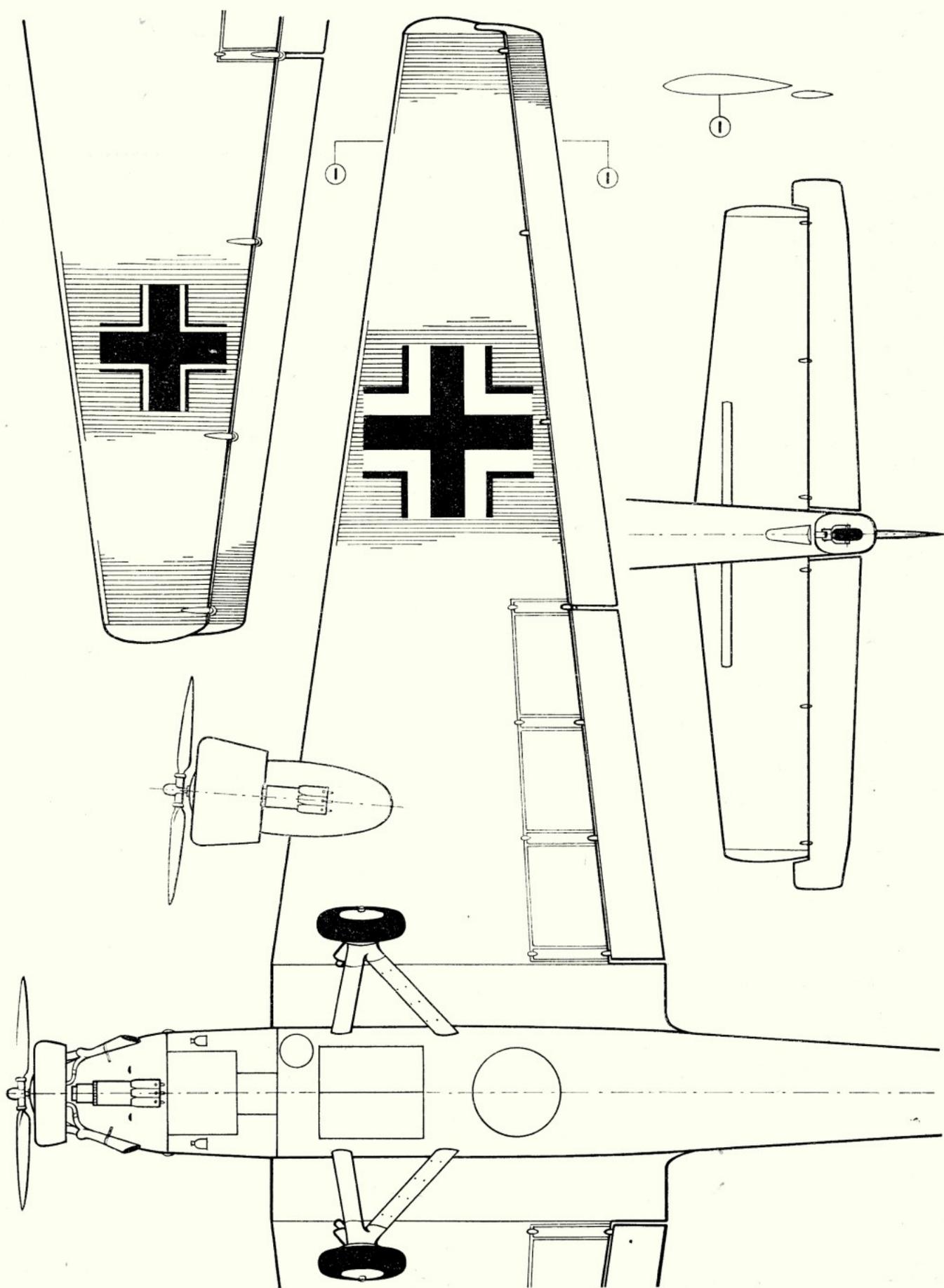
Heading photo shows a *Luftwaffe Ju.52*. Right: A Swiss example still flying. Below left: the French "Toucan." Below right: a Spanish CASA-352-L.



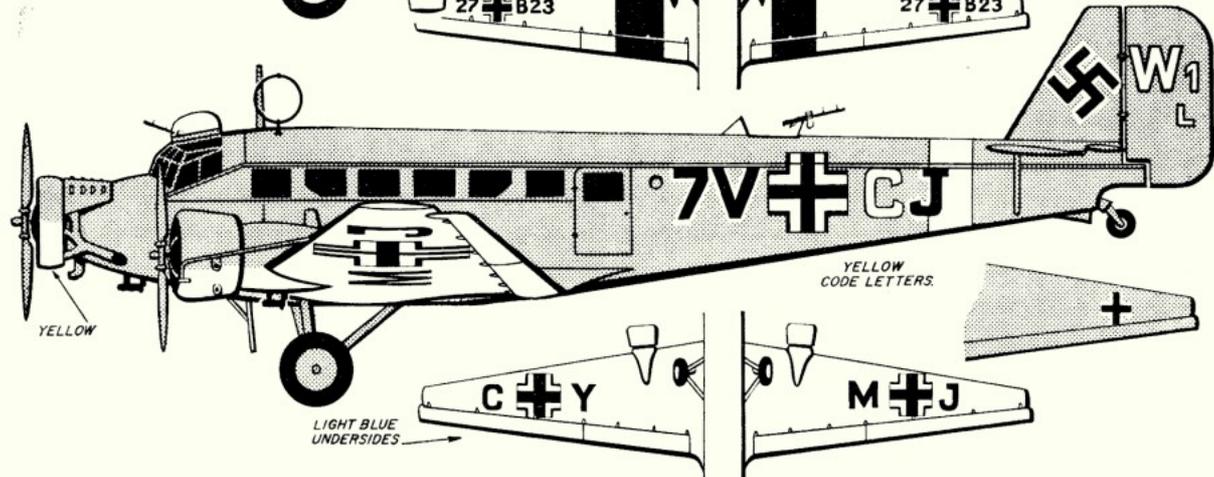
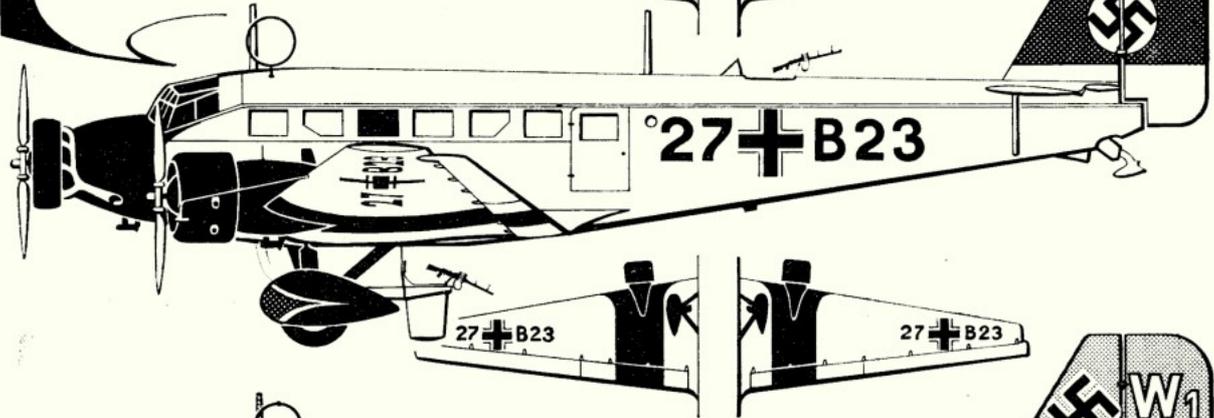
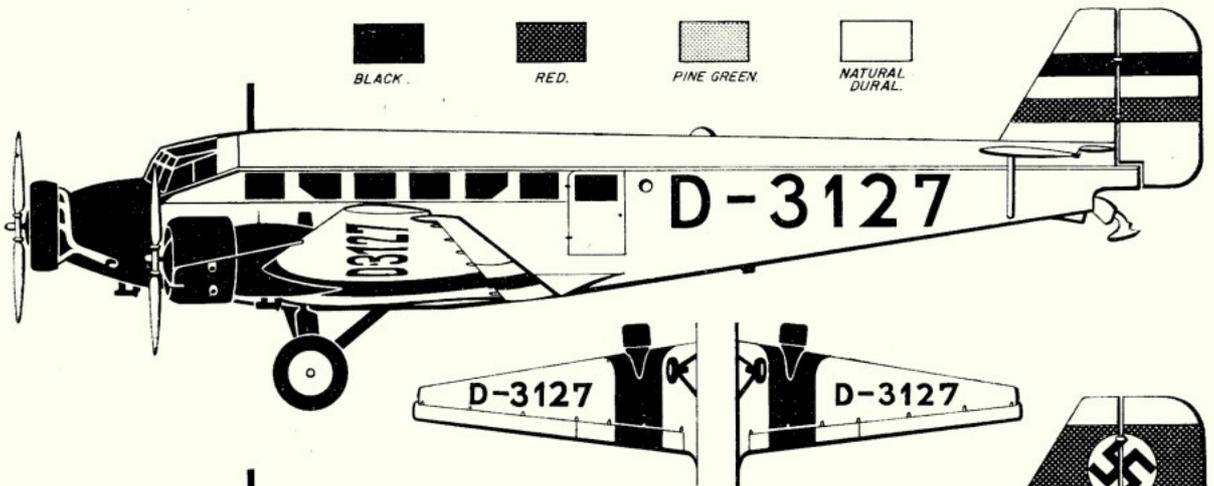
JUNKERS - Ju 52/3m



MORE DRAWINGS OVERLEAF 



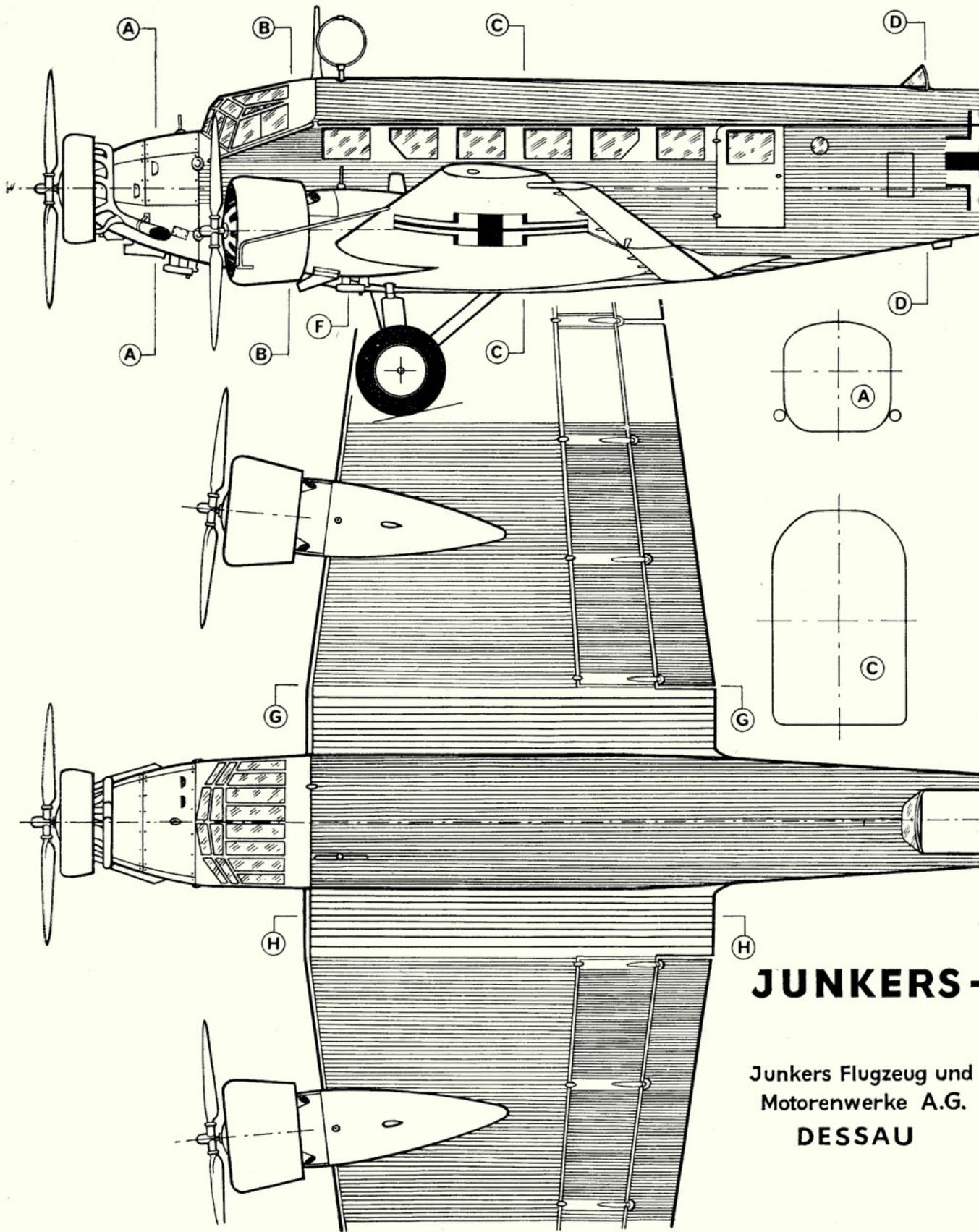
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MORE DRAWINGS OVERLEAF ➔

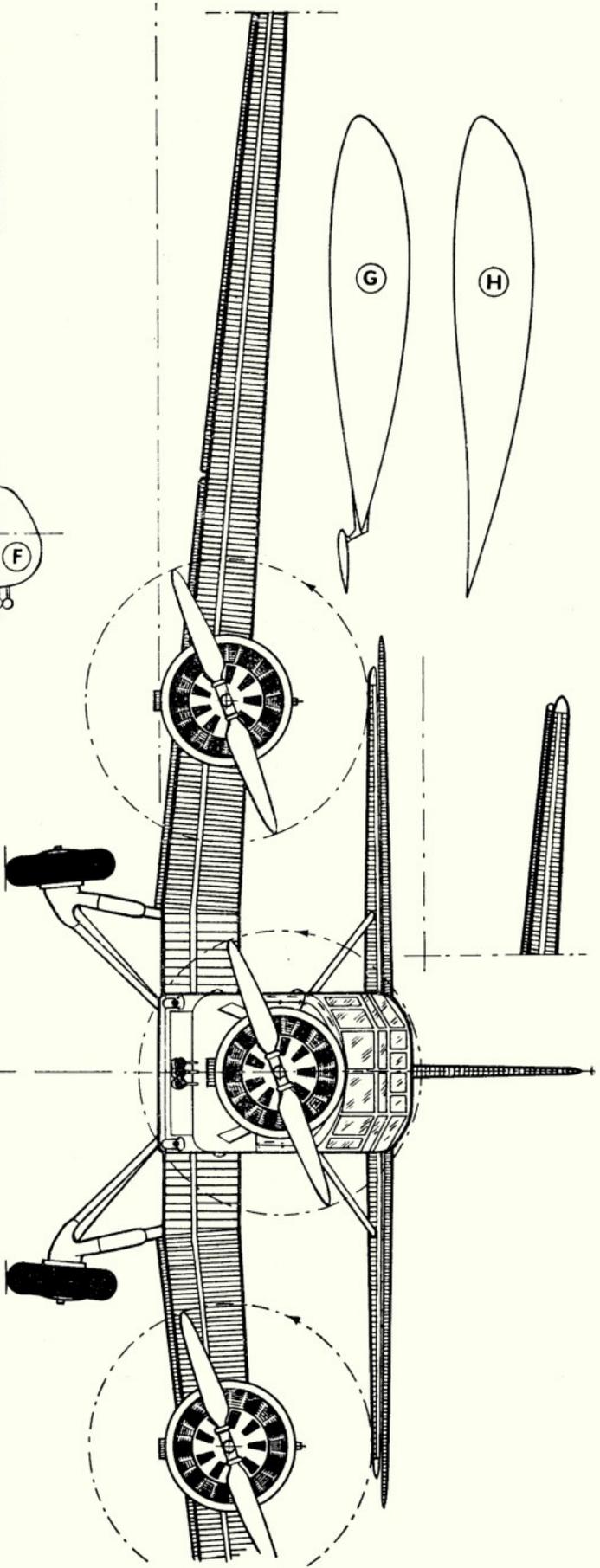
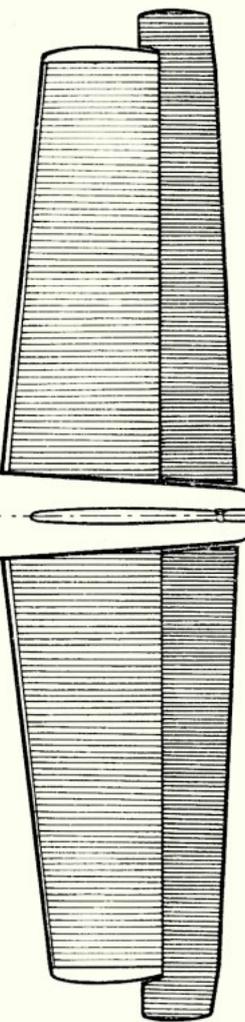
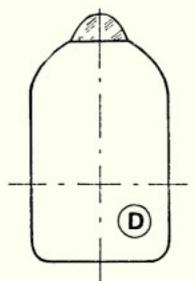
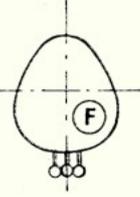
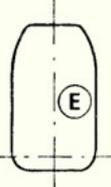
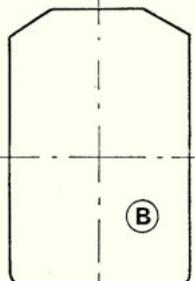
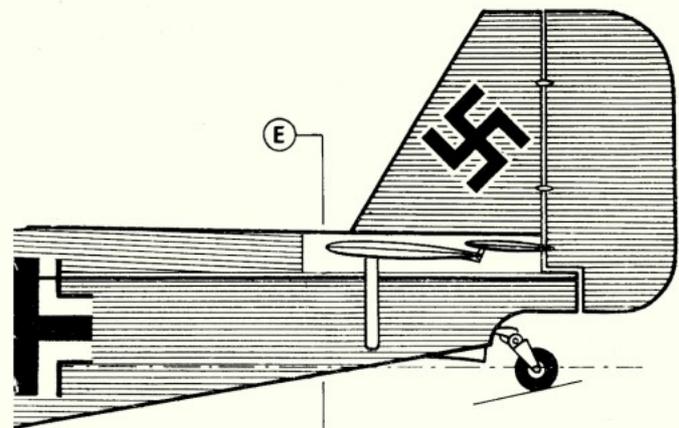
METRES—
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JUNKERS-

Junkers Flugzeug und
Motorenwerke A.G.
DESSAU



- Ju 52/3m



RADIO CONTROL CHAMPS



Held at
R.A.F. KENLEY, 15-19 August 1962

Report and photos by J. D. McHard

THE second world R/C championships, whilst not producing any surprise fireworks will, nevertheless, be remembered as one of the most enjoyable and (from the British side) successful, internationals to date.

The Dubendorf results of two years ago, when Ed Kazmirski romped off with the individual trophy for the U.S. and G.B. won the team award, were repeated—but with a difference. In those 24 months, the European radio flyers have narrowed the gulf that existed between their own flying standards and those of the Americans until now (on the showing at Kenley) there is little to choose between them. This trend was dramatically reflected in the top individual results, where the points scored by our own Harry Brooks and America's Tom Brett were so very close, that a fly-off was necessary (see *Here and There*). In this fly-off experience paid off and although neither flew as well as they did during the rounds, Tom Brett was clearly the better man and so retained the trophy for the U.S., although in the official results he will, of course, share first place with Harry Brooks.

Chris Olsen flew his latest trike *U/C Uproar* into second place and Frank Van den Bergh fought his way into third place. This formidable performance ensured the British team victory, which was well deserved.

Frank's effort was particularly praiseworthy, his new *Sky Dancer*, with a Merco 49, was one of the smoothest-flying machines at Kenley and obviously

a favourite for the individual honours. Following the spin in the first round however, the model dived straight into the ground. The remains presented a dismal picture indeed, but by forfeiting a night's sleep and with willing hands to assist, the model was miraculously rebuilt in time for the second round! Further damage was sustained during this flight, when loss of control again prevented complete spin recovery, but once more Frank managed to make the model airworthy for the final round.

This episode underlines the desirability of having a reserve model, for no matter how good the flyer may be, an accident such as this could completely wreck the team's chances and nullify

the efforts of the other members.

Weather on the two practice days and during the first round was not at all encouraging. Blustery winds and cold conditions, with a forecast of worse to come, undoubtedly dampened many spirits, but the dismal predictions from the Air Ministry roof were, not for the first time, a bit out and rounds two and three were flown in rapidly improving conditions. Weather on the last day was, in fact, so good that even the Americans took off their windcheaters and enthusiastic spectators turned out in their thousands.

Tremendous interest was shown in the Russian team, who were flying against
Continued on page 320

Heading photograph shows Harry Brooks bringing "Reb" in to a perfect spot landing. Right: the jovial British team with their winners' hardware.



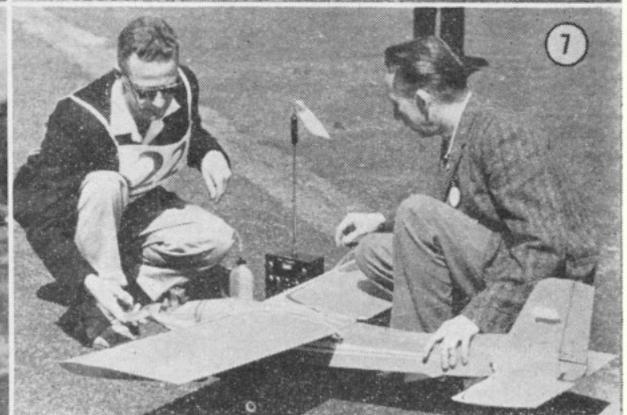
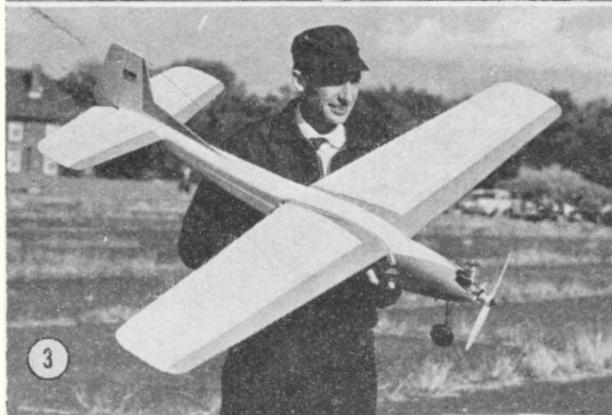
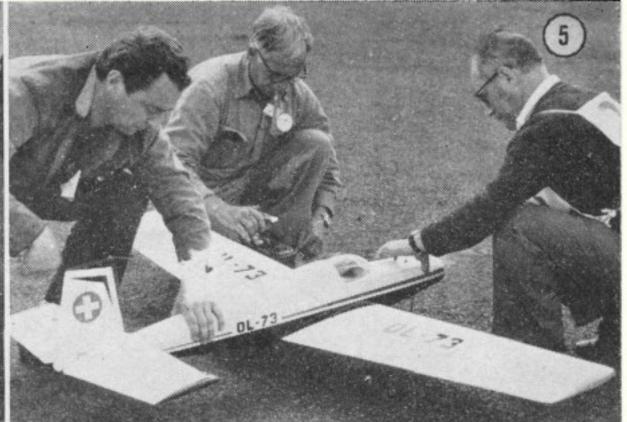
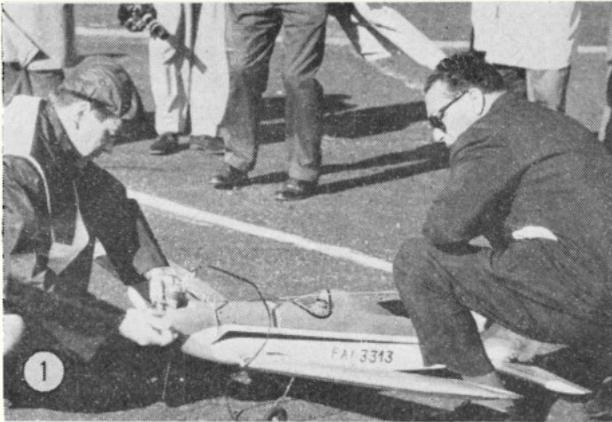


The first round was flown in cold, windy conditions. Winner Tom Brett checks his radio. Don Brown restrains "Perige."

RESULTS

Individual placings

| | | | | | | | | |
|------------------------|-----------|---------|------------------------|-------------|---------|----------------------|---------|---------|
| 1. T. Brett .. | U.S.A. | 2,933.0 | 13. M. Kato .. | Japan | 1,910.6 | 30. W. de Mulder .. | Holland | 149.9 |
| | | | 14. P. Eliasson .. | Sweden | 1,905.3 | 31. P. Stephansen .. | Norway | 46.6 |
| | | | 15. A. Sauthier .. | Switzerland | 1,887.6 | | | |
| H. Brooks .. | G.B. | 2,931.2 | 16. P. Louis .. | Belgium | 1,782.0 | <i>Team placings</i> | | |
| | | | 17. R. Dilot .. | Sweden | 1,577.2 | 1. Great Britain .. | | 8,309.4 |
| | | | 18. A. Mathey .. | Switzerland | 1,445.3 | 2. U.S.A. .. | | 7,654.5 |
| 2. C. Olsen .. | G.B. | 2,749.6 | 19. J. de Dobbeleer .. | Belgium | 1,412.9 | 3. Germany .. | | 6,748.9 |
| 3. F. Van den Bergh .. | G.B. | 2,628.6 | 20. A. Bickel .. | Switzerland | 1,360.9 | 4. Belgium .. | | 5,229.5 |
| 4. D. Brown .. | U.S.A. | 2,585.9 | 21. H. Oki .. | Japan | 1,281.9 | 5. Italy .. | | 5,062.6 |
| 5. F. Bosch .. | Germany | 2,556.3 | 22. F. Plessier .. | France | 1,253.6 | 6. Sweden .. | | 4,709.5 |
| 6. J. M. Malherbe .. | S. Africa | 2,293 | 23. J. Levenstam .. | Sweden | 1,227.0 | 7. Switzerland .. | | 4,693.8 |
| 7. G. Samaan .. | Germany | 2,198 | 24. V. Miliani .. | Italy | 1,160.0 | 8. Japan .. | | 3,192.5 |
| 8. W. Robinson .. | U.S.A. | 2,135.6 | 25. F. Martens .. | Holland | 1,128.6 | 9. France .. | | 2,325.5 |
| 9. C. Teuwen .. | Belgium | 2,034.6 | 26. P. Martot .. | France | 1,071.9 | 10. South Africa .. | | 2,293.5 |
| 10. H. Gast .. | Germany | 1,994.6 | 27. A. A. Arler .. | U.S.S.R. | 591.9 | 11. Holland .. | | 1,493.8 |
| 11. A. Bellocchio .. | Italy | 1,983.0 | 28. P. Velichkovsky .. | U.S.S.R. | 538.3 | 12. U.S.S.R. .. | | 1,130.2 |
| 12. E. Corghi .. | Italy | 1,919.3 | 29. W. van de Hoek .. | Holland | 215.9 | 13. Norway .. | | 46.6 |



1. ITALY. Miliani flew the only "Astro Hog" at Kenley, it looked surprisingly "dated."
2. U.S.A. Tom Brett's proportional transmitter is clearly seen in this photograph as Don Brown (centre) walks out for the third round.
3. GERMANY. G. Saaman used a Merco 49 in his smooth flying and very "clean" high wing model.
4. GREAT BRITAIN. After an all-night repair session Frank Van den Bergh (right) looks sleepy as his model is processed by Walt Good (left). Team Manager Stewart Uwins, hand on hip, looks on with a "He'd better pass it" expression!
5. SWITZERLAND. Bickel with his well proven K. & B. 45 powered low winger.
6. FRANCE. P. Marrot flew this functional K. & B. powered design.
7. SOUTH AFRICA. Monte Malherbe with Bob Dunham. Monte removed his Merco 49 after the contest and presented it to the Russians.



8. BELGIUM. Nice getaway by P. Louis who finished 16th.
9. SWEDEN. Levenstam's "Sonic Cruiser" used R.E.P. Octone, with Duramites. Seen here adjusting his Merco 49.
10. HOLLAND. De Mulder (with transmitter) had engine trouble. Team-mate Martens acted as mechanic.
11. JAPAN. H. Oki carries his model back to the pits after an exciting first round flight. His motor cut with the model inverted, but he brought it in to a very good touch-down.
12. U.S.A. Three A.M.A. officials who helped make the Championships so successful. From left to right; Maynard Hill (Judge), Dr. Walter Good (processing), and Howard McEntee (Chief Marshal).
13. U.S.S.R. A. Arler walks out, followed by a well wrapped-up team of judges.
14. NORWAY. Sole representative Poju Stephansen had stability trouble with his home-built proportional gear.



Western R/C modellers for the first time. Unlike most of the other entrants, their models were quite uninfluenced by Ed Kazmirski's ubiquitous *Orion* but, although struggling valiantly, the Russians were completely outclassed. Not only were their comparatively slow models unsuited to the windy weather conditions, but from the equipment angle they were unique (except for Norway's Stephansen) in that they built *all* their own gear! They even fabricated some of their radio components and deserve every praise for their tremendous enthusiasm. Even their propellers were "home-made" and it was nice to see the U.S. and other teams helping out with commercial props, glow plugs and other sundries which were like gold dust to the Russians. Now that they know what they are up against, we have a feeling that they will be a greatly improved team next time.

We will be featuring a technical report of the meeting next month, but it is interesting to note that Arler was using the only diesel at the meeting (Webra Boxer twin) and pneumatic servos. His high aspect ratio model was the biggest and heaviest at Kenley, weighing 8 lb. 6 oz.; he placed 28th. Winner Tom Brett, on the other hand, flew the smallest and lightest model (5 lb. 2 oz.) and his *Orbit* equipped, K. & B. 45 powered, *Perigee* zipped effortlessly through the schedule.

Doug Spreng, who has been U.S. Nats. R/C champion for two consecutive years, forfeited his place on the team so as to attend the '62 Nats. He was replaced by the No. 4 man Willis Robinson.

The third U.S. team member, Don Brown, used a Merco 49, but found it too thirsty for his 7 oz. capacity tank. The motor, which was not yet fully run-in, showed some overheating tendencies and was thus "run rich" this, combined with a rather small prop, gave insufficient duration to complete the schedule and this probably cost Don at least one place. His motor cut in rounds two and three, the second time following a good tailslide, which manoeuvre incidentally, gave contestants the most headaches. Don's proportional control set-up certainly gave very smooth response—his turns were a delight, however, there was a distinct tendency to over-correct and the loops (especially the outsides) were inferior. There are lots of corners to be knocked off the current proportional equipment, before it can be considered up to the standard of our "standard" gear.

1. A. Arler, U.S.S.R., carries out some hasty repairs before the second round.
2. Chris Olsen prepares his latest "Uproar."
3. Mr. K. H. Tang holding Oki's model (left) flew in from Hong Kong for the meeting. Oki is in the centre of the group. Second team member Kato holds his "Thunder Chief" and behind him flying companion Y. Mikam from Tokio.
4. First place was shared by Tom Brett (U.S.A.) and Harry Brooks (G.B.) seen here after the fly-off.

Everyone thoroughly enjoyed this meeting but if we were to single out the team who, in our opinion, enjoyed it most, the Japanese would win hands down! They were favourite subjects for the many press photographers at the take-off area as they flew their models through the schedule and excitedly discussed the next manoeuvre in animated fashion, eventually nominating it in impeccable Peter Sellers' type English! Each manoeuvre (with serious expression) was followed by much jollity, and shoulder slapping—they might almost have been out for a Sunday morning's sport flying! M. Kato, who owns a hobby shop in Osaka and flew with Orbit Superhet and home-made servos, raised a big cheer from an enthusiastic audience for a superb wing-over in the second round. H. Oki flew with Japanese 10-channel Chimitron and Duramite servos, these being rigidly mounted on a fibreglass printed circuit board which simplifies installation and wiring very considerably. He intends to market this product and we hope some enterprising importer will take it up in this country—it could be a best seller.

Germany's Gustav Saaman, who came second in Switzerland two years ago, flew a much cleaner model into eighth place at Kenley. He was using a 10-channel Graupner Bellaphon radio and a brand new Merco 49! His horizontal rolls were magnificent—very slow, and completely controlled.

Monte Malherbe, sole South African representative, had a couple of flat top *Stormers*, a Doug Spreng design modified to use full-span ailerons. Merco-powered and using Orbit Radio, it was appropriate that he should be crewed by Mr. Orbit himself—Bob Dunham.

Some of the Italian models were so elaborately decorated that they resembled some of that country's rather flamboyant juke boxes! Although they did not quite make the top ten, they nevertheless performed well. Corghi and Miliani patriotically used the Super Tigre 56 and Bellochio a K. & B. 45. The K. & B. was much in evidence at Kenley—we counted 16 competitors using them and there were at least seven Mercos, used by Britain, Germany, South Africa, U.S.A. and Sweden.

Smallest motor was an Enya 29 used by Norway's only representative Poju Stephansen, whose home-built proportional equipment suffered from temperature instability. A tremendous amount of work had gone into this highly ingenious equipment which shows considerable promise, given further development.

1. Willis Robinson's colourful model "on finals."
2. The U.S. team, from left to right, Tom Brett, Willis Robinson, Don Brown. Team Manager Gordon Gabbert stands behind.
3. Tom Brett explains the intricacies of his radio installation to P. Marrot and J. Mirault of France.
4. Brett's magnificent model box in which both his models—"Perigee" and "Apogee" were transported.



Biggest engine was the extensively modified McCoy 60 used by Harry Brooks. Running at rather less than its full potential, this 10 c.c. motor may well foreshadow a future trend to even bigger engines. The McCoy, reworked by Norman Rogers and fitted with an Automix carburettor, ran extremely well and throttled beautifully. Not surprisingly, the engine is quite greedy and needs a 12 oz. fuel tank to satisfy its .85 oz. per min. appetite. Harry used F. & M. Hercules Midas radio with Transmits and when, during the third round, he brought his score to 2,931.2 we all thought the trophy was as good as in the bag.

All the more credit, therefore, to Tom Brett who, later in the day, flew a superb pattern to score 2,933—just 1.8 points ahead, but well inside the 2 per cent. requiring a fly-off. This flight was a real cliff-hanger and in an effort to make absolutely no mistakes, he took things so carefully that he almost overran his 15 min. flight-time, landing with only 12 sec. to spare! In contrast his fly-off schedule was completed in 12 min. 21 sec.

Many times since the close of the contest, we have been asked "What was the flying like?" It is impossible, of course, to accurately sum up in a few words, but the overall impression was a

little disappointing. Perhaps we were expecting too much or, after the tremendously rapid developments in recent years, we may now be reaching the limits of the possibilities offered by the present schedule. Modern R/C equipment and model design enable the schedule to be flown without undue difficulty and a new challenge is needed.

Placings at Kenley were won and lost as often for the *positioning* of the manoeuvres as for the *quality* of them. Many otherwise excellent performances scored only a fraction of their potential points because the manoeuvres were either too high, or otherwise positioned so as to be un-judgeable. Loops "end-on" or directly overhead, were the most frequent point losers and, once more, the British team showed the others how it *should* be done. Team manager Stewart Uwins well knows the importance of these remarks and his able guidance was responsible, in no small way, for our fine showing in the results.

From a purely personal viewpoint the meeting was something of a grand reunion! Enthusiasts who had almost been given up for lost, turned out for at least one day at Kenley and some, who had been out of touch for only a few years, were overawed by the technical progress that had been made.

Joint sponsors of the meeting, the

American Academy of Model Aeronautics, sent a party of officials to help out, Howard McEntee was Chief Marshal, "Father of R/C" Dr. Walter Good did all the processing and Maynard Hill was one of the five judges. The other judges were Rudi Beck (Hungary), Norbert Trumpfheller (West Germany), A. Aarts (Holland) and C. S. Rushbrooke (G.B.). They had the most arduous job of all—three solid days of eye straining concentration and, although each had his own standards, the *consistency* of the judging was quite remarkable.

The prizegiving banquet—by candlelight in the Officers' Mess—was a great success and after the trophies, Walt Good presented Frank Van den Bergh with his "Down Elevator Club" diploma, which we know Frank will treasure as much as his team hardware!

These R/C World Championships are, of course, scheduled to be run every other year, however, in order to bring all the model Internationals into their correct sequence, the next R/C Champs. will be in Belgium *next* year. Thereafter, the normal two yearly rota will apply. If the British rate of progress is maintained we may well be able to pull off a team prize hat trick, as well as standing a good chance of winning the individual award.

1. F. Martens of Holland concentrates on some plug soldering.
2. "Try that one!" Gast of Germany takes a handful of loose ends as he assists Samaan to instal a new receiver.
3. "Dodgy!" Velichkowsky, U.S.S.R. seems to be miming as he follows the manoeuvres of his model with the switchbox.

4. Velichkowsky and Arler with S.M.A.E. Chairman, A. F. Houlberg, M.B.E., and Councillor A. C. J. Hartley-Sharp, J.P.
5. Two in harmony—from Japan Kato and Oki were most popular team.
6. Of completely original design Velichkowsky's model used a Fox 59.





"Common" sense

IF we are to safeguard such flying field sites still left to us more than a little discretion should be exercised in the way we use them. Part of such discretion is surely to suit the type of model to the nature and location of the flying field, thus to reduce the hazards to a safe minimum, and to avoid causing undue nuisance to other users of the amenity. It takes very few incidents to produce a ban or restriction, and only one black sheep to create them.

These cautionary comments are inspired by reports of a small public common becoming extensively popular with radio enthusiasts. Like many such open spaces on the fringes of large urban areas, it attracts the usual mass of mobile weekend trippers, and, at the Sunday afternoon peak, is jammed with cars and picnic parties. Obviously, to attempt to fly a powered model in such crowded conditions would be to take an extreme risk. In such a situation the sensible modeller would prefer to forego his pleasure than wade in regardless of consequences.

However, where there are no alternative flying sites in the area—and certainly in many parts of the country model flyers have a very limited choice—discriminating and valuable use can be made of a public open space simply by the individual or club group restricting flying to the off peak periods. Normally, the build-up of visitors does not get under

way until lunch-time, and then slackens off towards the evening, leaving the area uncongested during the calmer periods of the day when flying conditions are at their best.

Thus the modeller who is prepared to put himself out in this way stands less chance of himself being put out in another way.

No matter where you fly a F/F model, you should never neglect to fix an address label somewhere on the model.

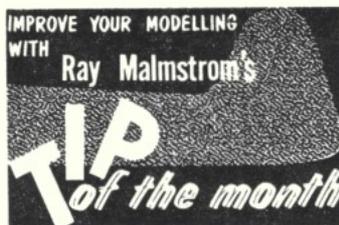
We are constantly reminded of this by the number of letters we receive during the summer months, from wingmen whose models have flown away—sometimes carrying with them valuable engines. Even the smallest model is liable to be caught in a thermal and some are carried many miles from their launching point.

It does not take long to write out an address label, but when you have done so, do fix it in such a way that it will not be affected by the elements! A lost model may have to stay out of doors for many days in all kinds of weather. If the model has a glazed cabin the best place for the label is inside the fuselage where it can be read through the clear celluloid. If it must be affixed to the outside, the label can be waterproofed by giving a coat of clear dope or banana oil.

It is unlikely that your model (however efficient) will travel as far as the one in our cartoon but even if it only flies a mile or so—without an address label it might as well be on the moon!

ALAN WINTERTON

Two more wings clubs pages overleaf!



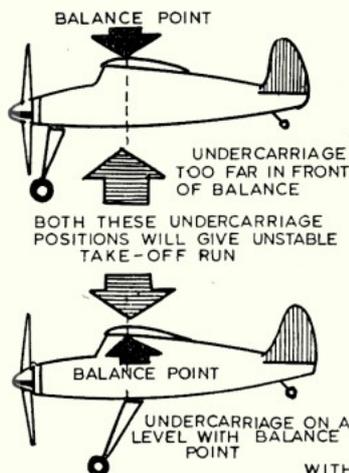
—Undercarriage Location for R.O.G.

Most modern F/F models are capable of taking off from the ground, and there is no denying the thrill of that run

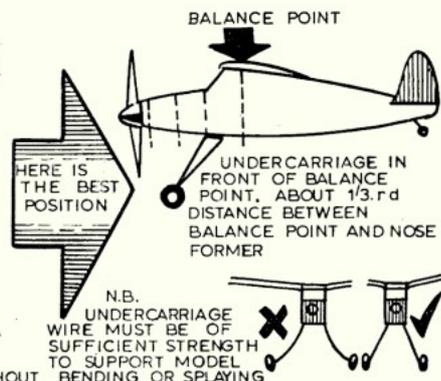
with the model gathering speed until the wheels lift and it is airborne. For successful R.O.G.'s (rise off ground), however, the location of the undercarriage is important. When designing a model for R.O.G. performance, make sure that your undercarriage is not too far forward, or back at the centre of balance position. As shown below, in front of the model's balance point, about one-third of the total measurement from the balance point to the nose former is the best position. Remember, too, for good take-offs your wheels must revolve freely, and without wobble. R.O.G.'s are easy—with a well designed undercart!



"Tell me Fred, where exactly is Wigan?"



FOR CONSISTENTLY GOOD TAKE-OFF'S (R.O.G) CORRECT POSITIONING OF THE UNDERCARRIAGE IS VERY IMPORTANT



WINGMEN AND

THEIR MODELS

My 5 ft. 4 in. wingspan Contest Kits, *Inchworm* is painted all gold, but it has not got my Wings Club number on, because this photograph was taken before



I joined. Its performance is well up to A.2 standards and it has completed many fine flights.

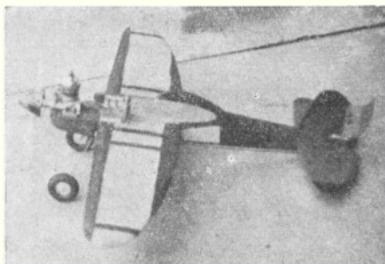
Yours sincerely,
Henley-on-Thames, ALAN MITCHELL.
Oxon.

My latest glider is the Graupner *Amigo*, which is radio-controlled and is fitted with the "Ivy" carrier wave



receiver. It has been test glided, but I have not yet towed it up. I have also built an *Empress* 79 in. A.2, a *Caprice* and a *Nomad*.

Yours sincerely,
Fakenham, VICTOR CROWLEY.
Norfolk.



J. S. Exley of Cullingworth, Bradford, sent us this photograph (above) of his latest C/L model—a K.K. *Champ* powered by a Frog 150.

I look forward every month to the day when my MODEL AIRCRAFT magazine arrives so that I can read the Wings

Club pages. At the moment I have a *Champ* which is powered by a D.C. Bantam, also a *Marvin* powered by an AM 10. All of my planes have my Wings Club transfers on them.

Yours sincerely,
Sth. Petherton, ROBERT HAMM.
Somerset.

I am a keen wingman and I look forward to receiving MODEL AIRCRAFT each month, as I get a lot of tips on how to fly and build models from it.



I have built three K.K. *Gazelles*, and two *Fireflies*, but I like drawing up my own plans and the two models in the photograph are of my own design. The small one is a very fast stunter and the one in my hand is a stunter which does not stunt!

Yours sincerely,
Saltenbeck, KENNETH WILLIAMSON.
Workington.

Dear Alan Winterton—I am between 10 and 16 years of age and would like to become a member of the Model Aircraft Wings Club. With this coupon I enclose a postal order (overseas readers should send an International Money Order as local postal orders cannot be cashed in England) for 1/- to help cover the cost of the badge, transfers and membership book. All membership applications must be on this form.

Name in full.....

Address.....

..... Year of birth.....

School or College.....

Name of other club or clubs to which I belong (if any).....

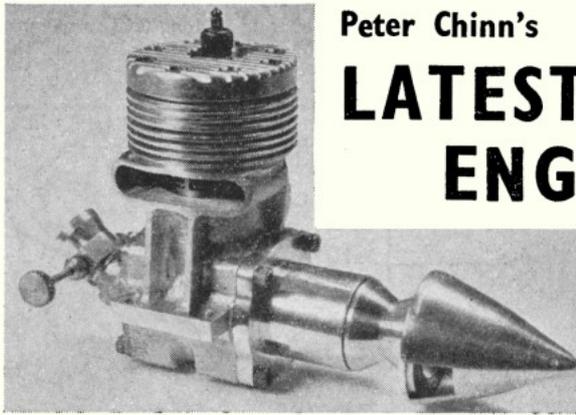
Send to—MODEL AIRCRAFT WINGS CLUB, 19-20 NOEL STREET, LONDON, W.1.



Tandem Wing Models

NO tail but two wings—one behind the other!—that's a tandem wing model. Besides being excitingly "out of the rut" they are real flyers. Some tips on this fascinating type are given in the two small sketches below.

Around the 1930's a Frenchman, M. Henri Mignet designed and developed a tiny tandem wing aircraft which he called *Pou du Ciel* (*Flying Flea*). He claimed it was stall-proof, easy to build



Peter Chinn's LATEST ENGINE NEWS

Ivor Roffey's Dooling/Yellow-Jacket 10 c.c. special. The engine is built around an Underwood YJ-61 casting and liner with a mixture of Dooling and home-made parts.

TWO or three years ago, in MODEL AIRCRAFT, we described the Yellow-Jacket 61 sandcast crankcase/cylinder block, produced, as a finished, machined and anodised component, by Bruce Underwood of Columbus, Ohio. This was originally introduced as a replacement part for the Dooling 61 and, in particular, for the model hydroplane and car fraternity. The original die-cast Dooling component had proved to be a weak point when subjected to the extra stressing resulting from hotting-up and the hammering of prop-riding and track bouncing and, in addition, to being made of a stronger material, the YJ-61 block was, therefore, strengthened with stiffening webs and larger fillet radii.

The YJ block has proved very successful in the U.S. and Bruce Underwood has since produced other parts to enable enthusiasts to make up their own YJ-Dooling specials and is now approaching the point where a 100 per cent. YJ-61 engine will be available. These engines have not, however, been widely used by C/L speed aircraft enthusiasts and we were, therefore, most interested to have the opportunity of examining a YJ-Dooling special built by Ivor Roffey, of Brockley, London, for Class III speed.

This engine consists of a combination of Yellow-Jacket, Dooling and home-made parts. It has a special YJ chromed cylinder-liner, in addition to the YJ block. Dooling parts include the crankshaft, conrod and needle-roller big-end assembly, the rear cover, head and piston. The head, however, has the fin depth reduced and the piston is fitted

with two stainless steel rings in the top groove. The crankshaft is supported in Fafnir bearings in a heavy-duty front housing machined from dural. A special carburettor is used. This is shorter than the stock Dooling component and is opened up to over $\frac{1}{16}$ in. throat dia. and the jet is also enlarged. The valve rotor is of Tufnol.

Ivor Roffey is still developing this engine and among the parts due for replacement, or modification, are the rotary-valve bearing—(to be replaced by two small ball races) and the cylinder head. Minor troubles have so far prevented any startling speeds being recorded with the monoline model that has been built for it, but the engine definitely shows promise. Comparative r.p.m. figures on 40 per cent. nitromethane and an 8×12 test prop, quoted by the owner, are 16,500 for a "very good" McCoy (166 m.p.h. in practice, monoline) against 17,000 plus for the Roffey-YJ-Dooling. Incidentally, the fuel consumption is stated as being nearly double that of the McCoy.

Apart from this example, we have heard of one other special based on the Yellow-Jacket casting. This one, built by the well-known model car expert A. W. Bennett of Maidstone and for which he made his own liner, piston and shaft, is on spark ignition with an o.d. magneto and has done 145 m.p.h. in a model car.

A weak point of the O.S. 49 engine has been the prop driver. Aimed at providing extra counterbalancing, this component is partially hollowed internally,

leaving a solid section to augment the crankshaft counterweight. Unfortunately, this left the sleeve section surrounding the shaft rather prone to cracking on the hollowed side and several instances of such failure have been reported. Our own test 49, in fact, suffered this fate—but not, as luck would have it, until after the M.A. tests had been completed.

This failure was reported to the O.S. company who have now produced a modified driver having a thicker sleeve section plus three webs on the hollowed side.

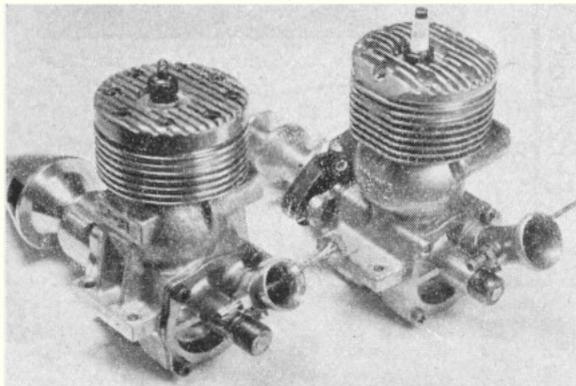
Also just received from O.S. is the new Max-19 model. Available in standard and R/C versions, this is the first O.S. engine to be made to the popular 0.19 cu. in. glow motor size. With a swept volume of 3.16 c.c., it generally resembles the 2.48 c.c. Max-III 15, but is not merely an increased capacity version of the latter. It is slightly bigger all round and uses new parts throughout.

In its R/C version, the Max-19 is fitted with a new type of coupled throttle. This has the rather neat enclosed type exhaust valve of the kind fitted to the 49 (but on a smaller scale of course) and a modified version of the 49 type carburettor. In this, the needle-valve is installed in the standard spraybar position, but is not, in fact, a spraybar. Instead, it is used to meter fuel, via vertical connecting pipe, to a jet above, which feeds fuel into the throttle barrel. Like the 49, it has an adjustable throttle stop and an adjustable air-bleed for low-speed mixture control.

We hope to report on the performance of this new engine in due course. Weight of the R/C version, incidentally, is a little over $5\frac{1}{2}$ oz.

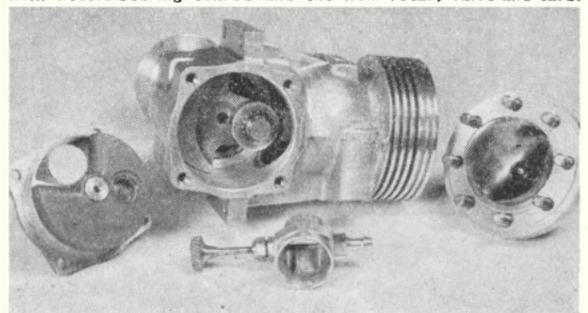
Elsewhere in this issue there is a test report on an East German engine, the Jenoptic Jena 2M. Another East German make is the "Wilo" and the Czechoslovakian MVVS test centre has recently published a report on the Wilo 1.5 diesel, which merits attention.

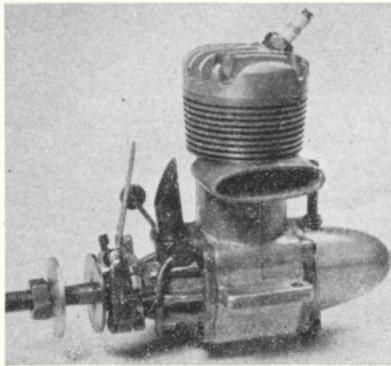
The Wilo 1.5 is an orthodox shaft-valve, plain bearing, radially ported engine, weighing only 2.7 oz. and rather similar in appearance and general design (except for having internal flute type transfer passages) to the old Allbon-Javelin 1.49. MVVS, however, credit it with no less than 0.183 c.v. (0.1805 b.h.p.) at 15,000 r.p.m. which,



Left: the Roffey special with, for comparison, the writer's almost-standard Dooling 61. The special weighs only about $\frac{1}{2}$ oz. more than the standard engine.

Right: the Roffey special, showing the stock Dooling head and shaft with needle-bearing conrod and the new rotary-valve and carb.





even allowing for slight discrepancies in individual methods of b.h.p. testing, is an unusually good figure for such a design.

* * *

Most model engines are manufactured by firms which either began as model engineering concerns or had other model trade connections, but a few have appeared, from time to time, as the products of organisations which were already established in other fields: examples that come to mind are Amco, Burgess, Nordec, Rivers and Zeiss. The last-named is, of course, the famous German optical and camera works in East Germany at Jena, and Jena is the name under which its wares are now known, to distinguish them from the Stuttgart-made Zeiss products.

This brings us to another make, this time Japanese, with "camera connections" namely, Mamiya. Actually, the Mamiya engines, which were made in various sizes from 1.6 to 10 c.c., were manufactured by Minoru Sato, a leading Japanese modeller, who was formerly associated with Mamiya, the now well-known camera manufacturer, hence the name. Recently, we acquired an early Mamiya 60 engine, kindly donated for our collection, by Mamoru Esaki, proprietor of the Esaki Model Manufacturing Co. Inc. (The Esaki company is perhaps best known for its superior quality model silk and tissue, which are widely exported to the U.S. and elsewhere and sold under various other brand names.)

This particular model of the Mamiya 60 is a spark ignition shaft-valve model and belongs to the early post-war period—probably around 1948. A large proportion of the engines of that period (excepting most American makes) were often rather rough, but the Mamiya is an exception. In general, it is a robust and quite well finished product and has one or two nice touches. The fuel delivery pipe, for example, is of copper. It runs under the crankcase and neatly around the crankcase nose to a right angled fitting on the spraybar. At the tank, it is attached with a neat miniature brass banjo union. The piston is of aluminium with two cast-iron rings and runs in a hardened and highly finished cylinder liner. The crankshaft,

Left: well-built early post-war engine from Japan, the Mamiya 60 spark-ignition petrol engine. Mamiya is now better known in the U.K. for high grade cameras.

Right: the American Johnson Stunt-Supreme engine. This is one of the more powerful .35 stunt engines currently available.

which has an 11 mm. dia. journal is also hardened and well finished on working diameters. It has, incidentally, a riveted-on brass counterweight. The engine contains no gaskets, all joints being made by machined metal-to-metal surfaces.

* * *

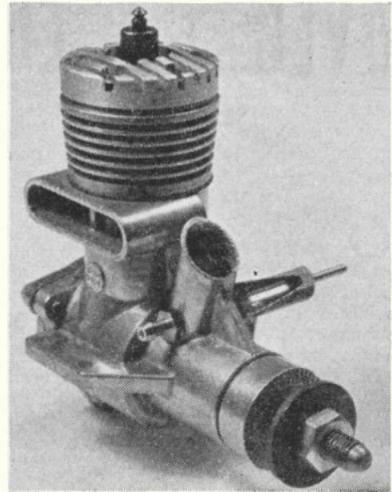
As we mentioned in last month's issue, George Copeman's modifications to Darrel Dolgner's Moki TR-4 have raised the b.h.p. of this engine to a level where it should be quite a threat to modded Olivers and Etas. We have been asked to enlarge on last month's brief paragraph and to describe the modifications carried out.

It will be recalled that the engine, as originally received, was already partially (factory) modified. We have not had the opportunity of examining a perfectly stock TR-4 for comparison, but the original mods appeared to be confined to piston lightening and a limited amount of internal polishing. The former, in the Oliver manner, consists of vertical drilling of the gudgeon-pin band, six holes approximately 0.048 in. each side of the pin.

At this stage, it appears that the improvement in performance was moderate as, although 0.30 b.h.p. at 17,000 is claimed for the stock engine, we could get no more than this with this "modded" model. In contrast, as tuned by Copeman, the Moki is now approximately 20 per cent. up on its former performance.

In the main, the Copeman mods are basically those found most effective on the Oliver and include work on the transfer passages and crankshaft. The four external flutes in the cylinder liner leading to the inclined transfer ports have been carefully ground to smooth the gas flow into the cylinder and additional flutes have been cut into the inside wall of the crankcase casting to line up with the cylinder flutes and increase transfer passage volume. These latter converge to clear the crankweb and ball race at the front and the backplate at the rear. The diameter of the crankshaft passage has been enlarged from a nominal 5 mm. to approximately 0.225 in. and polished. The valve port sides have been squared to give more rapid opening and closing and timing adjusted to give 10 deg. later closing. The rear face of the crank disc, front

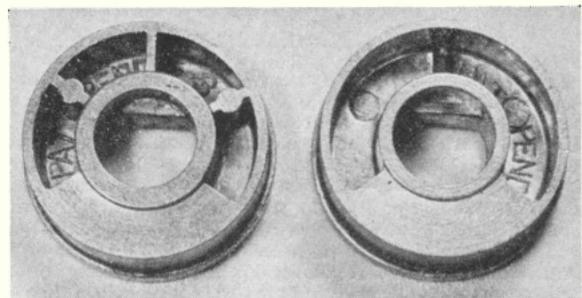
Strengthened prop driver (left) as now being fitted to O.S. 49 engine, compared with old type.



face of the backplate have been polished and the edges radiussed to improve gas flow to the transfer passages. Other modifications include polishing the piston crown (and rounding off the conical shape to a slightly "domed" contour, cleaning up the intake and polishing the carburettor venturi.

George Copeman feels that it may well be possible to further improve the Moki. The snag in tuning only one engine of a particular type (especially when it is not even your own property!) is that there is really no room for drastic experiment unless one has a load of spare parts with which to replace unsuccessful mods—and/or broken parts! George tells us that he would have liked to do some cut-and-try development on the induction timing. We imagine that modifications of the bearing aperture would be the safest approach here as the shaft, at 9 mm. (0.354 in.) is rather on the small size, added to which, the tensile strength of the rather soft steel used, is unknown, so that any further enlargement of the shaft port might well have unfortunate consequences.

Incidentally, for the benefit of those interested, George Copeman does tuning work to order and, in addition to tuning Oliver-Tigers for the U.K. has lately worked on Olivers and Super-Tigers for customers in the U.S.A. and on Olivers for Sweden and Australia. Standard charges are £1 10s. for Olivers and £2 for S/T Jubilee glow 2.5's.



OVER the COUNTER

ONE of the most rapidly expanding ranges of flying models is that of **Veron**, whose latest product is the *Robot* single channel R/C trainer. The *Robot* is 45 in. wingspan and the construction is very straightforward with many pre-shaped parts, so presents very few problems to even inexperienced modellers. Our test kit is being built by someone new to R/C models and we will report further in due course.

Price of the *Robot* is 79s. 6d.

THIS month, **Airfix** have yet another candidate for the "top ten," with their Heinkel He.III. Probably the most widely known of the wartime Luftwaffe bombers, the HE.III had an extremely long service career, being

Veron designer Phil Smith with his prototype "Robot" at the Northern Heights Gala.



in use until very recently by the Spanish Air Force.

The Airfix kit does full justice to the not unattractive lines of this famous (or infamous) aircraft, the sub-type represented being the H.20 which was used extensively on the Russian front. Now some enthusiastic modifier will no doubt be quick to make up a

five-engined He.III-Z glider-tug using Airfix components as a basis.

There are numerous other intriguing variants which immediately suggest themselves, for example, the colourful Spanish CASA 2111, described in MODEL AIRCRAFT of September, 1961. Cost of this 12½ in. span model is 6s.

THE **Jetex** *Easiflyer* is a modern version of the old R.O.G. stick model, making extensive use of plastic mouldings to improve the appearance and simplify assembly. It is an ideal flying model to keep the youngster amused on a family outing to the beach and quite a lot of elementary flight trimming technique can be learned from it.

Completely preformed (including correct warps) and featuring an adjustable rudder, this little model will provide endless fun for junior. We must confess, however, that despite the impressive looking and ingeniously designed, wing attachment device, we found a rubber band much more efficient!

The *Jetex Easiflyer* costs 5s. 11d.



Branching out from the 308, Holloway Road shop, the Henry Nicholls team are now regular visitors to galas with their well stocked Mini van. This photo was taken at the Northern Heights gala and shows "Pop" centre, with his son Richard and daughter in law Caroline.

TRADE TOPICS

THIS feature is intended as an Editorial report of new products, based on information sent by the manufacturers or wholesalers of these items. Prices and details are as accurate as can be determined at the time of publication and all items, unless specifi-

cally noted to the contrary, should be obtainable from local shops. In case of difficulty in obtaining supplies write direct to the manufacturer. This is not a critical review—these will be published from time to time in our regular "Over the Counter" feature.

● **RUSSELL MODELS**, 4, Ryton Street, Worksop, Notts., and also at 24, Newland, Lincoln, are run by that husband and wife modelling team Peter and Bridget Russell. Peter, who has won the Gold Trophy on several occasions, runs the Lincoln shop and sees to it that local modellers receive a really comprehensive C/L service. Although perhaps best known for his tethered models, Peter is now actively

building and flying R/C and this trend is again reflected in his well-stocked shop where the R/C modeller will find a wide selection of interesting material.

Bridget runs the Ryton Street shop which has been transformed from a "rather dim little corner" into something on the lines of a self service store, with plenty of room to display all those interesting little bits and pieces that modellers like to browse over. She

still finds time to build and fly models occasionally and visitors to the 1962 Nats. may remember her as the lady flier in the Class II speed event. Other branches of modelling are not neglected and this unbiased outlook even goes so far as to include a model ship display!

● **IMPEX (SHIPPING AND FORWARDING) LTD.**, of 5, Norton Street, Manchester 3, handle import accounts for many of this country's leading model retailers, for, although there is certainly a demand for modelling goods from overseas, particularly Germany, U.S.A. and Japan, retailers are sometimes reluctant to accept orders from customers, because of the frustrating formalities involved in getting the goods into the country. Customs clearance and licensing can be quite a headache but this is daily routine work for Impex, run, incidentally by Mr. A. Thorley, who assures us that charges for this service are most reasonable.

TOPICAL TWISTS

by pylonius

Rateable Value

Life not only gets more complicated it gets more expensive, even in our lowly model world. In the old days the process of becoming a Society member was simple and cheap; you just plonked down your couple of bob and picked up your card. Under the modern system you first have to be sorted into one of the many categories. Are you a Full Junior, or just a rather empty Associate? You could, of course, be an Intermediate member, for which intermediate honour you would only have to fork out a quid. If, on the other hand, you decide to go the whole, Full Status hog, it will be a question of doubling your money.

These increases will come as a shock to the more tight fisted among us. It is a funny thing, but the more affluent our society becomes in its luxury purchasing power, the meaner it gets in all other directions. Most people will try to give the Jones's a good run for their money on the fridge and motor car level, but could give old Scrooge a few pointers when it comes to forking out for the basic necessities of life, like model mags., membership dues and contest fees. "What!" gasps the opulent visitor, "half a crown per contest. Catch me!" And hastily scabbles his model back into the boot of his Jaguar.

Prepared, as most of us are, to fight to the last ditch over the odd shilling, we are ready to contest the Society's scale of fees, if our particular requirements do not fit the least expensive category. At one time we would accept the variants of age and contest participation without question, but with insurance coming more into the picture some consideration should be given to the type of model, and where flown. Thus, the bloke who flies the fearsome type of model on and around the urban parks would get the top fee rating, while the chap who messes around with small gliders far from the madding crowd would get off quite lightly. Then again, anyone who wishes to support the contest programme should be encouraged to do so with financial help; he should go into the lowest fee category if the model flag is to be kept flying. On this basis my membership fee should work out to about five bob a year—from the Society.

Togetherness

Undoubtedly the main obstacle to club unity is the wide diversity of interests within the hobby, not to mention those outside the hobby, such as motor bike engine testing at the A.G.M., which play an all too prominent part in club life. In those progressive clubs, where the active ingredient can be measured in plural quantity, the two or three operative members may

well be so separatist in their interests to be engaged in a constant vendetta over the allocation of the club's annual trophy. The combat enthusiast will contend that his unchallenged supremacy in the lists entitles him to top recognition; the rubber genius will counter by hinting at the traditional ascendancy of the classic mode of flying; and the radio bod will try to over-ride all with the sheer magnitude of his well grounded project.

Under the strain of such conflict it is not long before the club falls apart at the seams. In order to avoid such a catastrophe, and thus to save the Society from the headache of two extra one-man clubs to its lists, some sort of unifying agent is required. One suggestion is to make the club room more of a social centre than the boardroom it too often becomes. Meetings usually cover only two aspects of model life: contests and constitution. The officials (who often outnumber the members) are either discussing the next one entry club contest, which in the third month of discussion has covered five exercise books of closely written rules and engaged the services of 60 phantom officials, or they are adding to the already copious club rules with an inventiveness bordering on genius.

Exactly what form the social high jinks should take is a matter of conjecture. Those with an intimate knowledge of club life will know there is not much in the social line that is left undone by the majority of members during the lengthy procedural discussions being held at the hierarchical end of the room. Indoor sports, judo, and conker sessions are but a few of the social activities enjoyed by the cheerfully suffering members. Hardly anyone listens to the demagogic declamations from the platform. Possibly that is why the contests get no entries, and why the thousand club rules are constantly broken.

About the only social activity yet to be explored is old tyme dancing, but something very much approaching this occurs when the r.t.p. jets go into action.

Flying Circus

The crises in our modelling affairs are not however, limited to the club-room; the flying field too, where obtainable, has its share of critical situations. Currently under fire is that collections of competitions which the contest types refer to as flying meetings and the socially conscious as rallies. Seemingly, the rally or flying meeting is not the jolly get-together it once was supposed to have been. Where there was festal gaiety, with the modelling eccentrics in full cry, there is now only the grim, purposeful business of pot lifting to depress the gaga visitor. This humourless routine is carried through not by a

happy, have-a-go-Joe, crowd of sporty modellers, but by a handful of dedicated types who tour the rallies on a profit making basis, rather like professional bathing beauties doing the rounds of the holiday resorts.

This predatory circus of top performers leave no prize unlifted and no rally unplundered. Even the novice's beginners kit prize goes into the swag bag along with the cups, engines and other loot. And such is their high speed mobility that any hopeful rally organiser who tries to slip in a quick off the beat meeting while the circus is laying waste to the northern airfields finds his optimism shaken, when in the late afternoon, the triple-max horde invades the field to set the idling stopwatches into furious activity. Joe Bloggs junior, with three, 30 sec. chuck glider flights to his credit, would be just on the point of assuming a victory stance in front of the cameras, when he sees a small, seemingly jet-propelled model, streaking up to the clouds. By the time he discovers the identity of the space object he's down to sixth position.

At the moment there is some concern over the way in which the rudder-only novice, in all his single channelled innocence, is being ploughed under by the professional pot lifters. With all the multifarious resources of multi-electronics put to the task of wiggling the rudder through a series of the most improbable manoeuvres known to aerobatic science, the shattered novice can only furtively pack away his prehistoric equipment and retire to his local park.

This is only one case where an attempt to bring a little competitive comfort to the underprivileged novice has gone awry. You just can't keep the big boys out of the kiddies playground, and perhaps the only way to get the expert and novice to co-exist is by introducing some sort of handicapping system, as they have in the golf world. For example, the expert with three wins to his credit would get a scratch rating, while the multi-nought novice would get something like a 30 point or 3 min. start. This should even up the score between the rabbits and tigers, and do much to prevent the non-expert from getting that under par feeling.

Big Deal

It is some time since we have seen the multi-engined, monster model on our airfields, but the trend is once again to Giant Size, and those with a taste for the spectacular will be happy to see the leviathans of the model world being put through their ponderous paces.

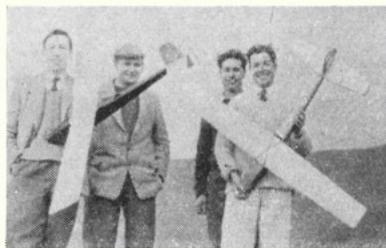
Public entertaining gets tougher and tougher, and an indication of this is gargantuan size of the new breed of multi-engined monsters. Gone are the days when the public turned out in droves to watch a 30 in. span rubber model flit over the putting green. So novelty battered have they become that little short of a model space ship will make them raise an astonished eyebrow.

RECENT RALLIES

Clwyd Slope Soaring Contest, Moel Ffamau, North Wales

WHEN the contest organisers arrived at the site shortly after nine, the air was almost still yet, an hour before, they were told by some who had camped out, a heavy gale was in progress. Due to a freak of nature the wind gave both the R/C and "free" fliers a fair crack of the whip; during the morning it was suitable for the latter and a breeze came up in the afternoon for the R/C men.

The classes were Radio, Open, A/2 and Junior and with a good entry in each, competition was keen. One of the most impressive flights in the morning was made by a Junior, Ben Morris of Chester M.F.C. with an *Amigo*. This model, during its flight of 5 min. 9 sec. had an uncanny habit of turning right or left searching for lift: at times it appeared to be radio controlled but it was found later that this trim was achieved by the use of rudder and uncentered wings similar to a C/L model. This flight was beaten (by a mere 6 sec.) shortly afterwards by another Junior of the same club.



Very successful R/C group from Kidderminster, The Fellows, took 1st and 2nd with these models. Same group were 2nd, 3rd and 4th last year.



Doug Barber (Chester) with well finished "Tiny Tim" which is some five years old. Not at all the model for this year's conditions.

Throughout the day competition in the A/2 and Open classes was very keen and by the end of the contest the timekeepers were eye-weary due to a heavy haze that had crept up over the fields below. J. Conroy of Wallasey, who left the contest early and unaware that he had won a bronze medal in the Open Class, made a copy book flight of 6 min. 11 sec., with a slow spiral up in lift followed by a similar spiral out to the valley below. This flight was regarded for a long time as the best flight of the day for the Gosling Trophy, but during the late afternoon J. O'Donnell appeared to win the Trophy for the third time with 6 min. 13 sec.

The Radio event attracted 28 entries and was of the fixed time type, points being lost for times about and below 5 min. The lack of wind during morning was made up for in the afternoon, when the second round started. In the first round M. B. Fellows of Kidderminster had a good lead with a loss of only 12 points but in round 2, J. Fellows of the same club, obtained perfection and so won the event. During the past years the trend in this event has been for large slow flying models, but this year, the small agile model was predominant; the first and second placed were of this type and were single channel, pulse controlled.

At the close of flying at 5.30 a well-known Clwyd exponent, H. F. Wilde, of the Chester M.F.C. presented the Trophy and medals. After the presentation many R/C fliers continued to

fly and take advantage of the ideal summer evening.

RESULTS

| Gosling Trophy | | | |
|-----------------|---------------------|--------------|--|
| J. O'Donnell .. | .. Whitefield .. | .. 6: 13 | |
| A/2 | | | |
| J. O'Donnell .. | .. Whitefield .. | .. 6: 13 | |
| Open | | | |
| J. Conroy .. | .. Wallasey .. | .. 6: 11 | |
| Junior | | | |
| R. Howard .. | .. Chester .. | .. 5: 15 | |
| R/C | | | |
| J. Fellows .. | .. Kidderminster .. | .. 37 points | |

Recent results

| Pilcher Cup (66 entries) | | | |
|--------------------------|------------------|----------|--|
| 1. M. Burrows .. | .. St. Albans .. | .. 6.33 | |
| 2. D. Lutter .. | .. Brighton .. | .. 6.13 | |
| 3. K. Winstanley .. | | .. 5.24 | |
| 4. A. F. Fisher .. | .. Croydon .. | .. 5.11 | |
| 5. L. Larrimore .. | .. Portsmouth .. | .. 4.27 | |
| 6. M. Frapp .. | .. Brighton .. | .. 3.49 | |
| J. O'Donnell .. | .. Whitefield .. | .. 3.49 | |
| Gamage Cup (48 entries) | | | |
| 1. J. West .. | .. Brighton .. | .. 10.10 | |
| 2. N. P. Elliott .. | .. Croydon .. | .. 7.12 | |
| 3. J. O'Donnell .. | .. Whitefield .. | .. 5.17 | |
| 4. D. Harper .. | .. Glevum .. | .. 4.17 | |
| 5. R. Paveley .. | .. Hornchurch .. | .. 4.60 | |
| 6. A. R. Wells .. | | .. 1.40 | |

Contest Calendar

| | | |
|------|------|---|
| Oct. | 7th | (Revised date) Hayes Rally, Chobham Common, R/G/P $\frac{1}{2}$ AP. |
| " | 13th | F.A.S.T.E. Rat Race, U.S.A.F. Lakenheath, Jun. and Sen. Class 2 R/R; "A" Combat; Stunt. |
| " | 21st | Blackheath Gala, Chobham Common, 10 a.m. open R/G/P. |
| Nov. | 4th | Croydon Gala, Chobham Common. Open R/G/P $\frac{1}{2}$ AP/Al.G/Coupe d'Hiver and R/C Spot Landing. |
| " | 4th | Wanstead C/L Rally, Wanstead Flats Rat Racing; "B" Combat; 2s. 6d. pre-entry to D. Collis, 179, Newport Road, London, E.10. |

The Selby Trophy Scale event at the Northern Gala is postponed to the Air League Rally, Elvington, on September 23rd.

NAKAJIMA KATE

Continued from page 302

- and slide through slots in rear of crutch.
- Stick wing to F₂, F₃, and F₄. Add the fin and ensure that everything is properly lined up. Add rudder and elevators.
 - Complete planking of fuselage with $\frac{1}{16}$ in. sheet. Sheet cover the cockpit wells for sports version.
 - Make up tail block and fix tail wheel strut with Araldite.
 - Make wing fairing from plastic wood (smoothed down with a finger dipped in thinners) back as far as F₃. Behind this point notepaper is used in two sections jointed at the $\frac{1}{16}$ in. former at the wing trailing edge.
 - Instal engine and build cowling. Versions I and III have a simple cowling held on with a rubber band. Version II has a cowl which completely encloses the engine, with the compression screw bent down. It has separate aluminium cooling gills attached with Evostick. The lower part of the cowl is attached to F₁ by ply mounts on each side and plenty of $\frac{1}{4}$ in. sheet

gussets. The spring clip is retained with a strip of fibreglass. Linen tape soaked in cement makes a reasonable substitute.

- Paint inside of fuselage yellowish green and add cockpit details. Crew were made from Hong Kong type policeman dolls (1s.) which were decapitated and re-headed from Class A team race pilots!
- A simplified canopy can be made from four pieces of celluloid for sports versions. Scale versions need seven pieces which should have frames cut from thin aluminium. Simplified framing can be made from painted notepaper (yellowish green on one side, and fuselage colour on the other), cut into strips and fixed with Evostick.

Finishing

Give two overall coats of talc and 50/50 dope/thinners and rub down well. Cover wing panels with silk where necessary, then cover entire model with lightweight Modelspan (over the silk too after doping as it avoids "pinholes"). Give two coats of clear dope and two thin coats of talc and dope well rubbed down. Colour dope, or use two coats of gloss Humbrol enamel as it is light in weight and fuel proof. See photos for colour schemes. The models are dark green and pale grey or red and

yellow respectively. Add any further details such as bomb racks etc., after painting.

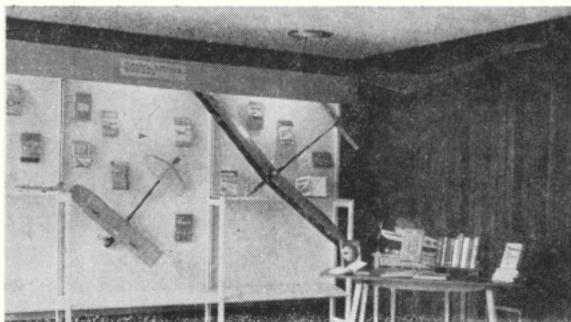
Flying

- C/L versions: Check that the C.G. is on, or slightly in front of the point given. Do not fly if it is not. For 2.5 c.c. engines use about 45 ft. lines. Do not try stunts until you are used to the model.
- F/F versions: My sports version needed no ballast. The scale version had 1 $\frac{1}{2}$ oz. of lead in the cowling. Both used a 7 x 4 nylon propeller. Find a field of long grass. The model flies fast, so a "hard" launch is required. Trim for a very gentle turn on the glide using the movable control surfaces. After glide-trimming, cement these surfaces in place and use only trim tabs for power trimming.

Use moderate power at first and trim for a gentle turn—it is quite safe either way but the nose drops if the turn is too tight. The model will R.O.G. well from tarmac and looks most realistic in the air. (We can confirm this—Ed.)

Should the wing tongues become loose with use, cement a layer of Modelspan onto the tongue. This can be repeated as necessary. The best of British luck to all Kate builders, Banzai!

CLUB NEWS



DEBDENAIRS M.F.C.

Things being very quiet lately, it was decided to hold a display in the local library foyer, this being the best venue available. With the kind co-operation of the librarian, the display of models was mounted with books on flying, etc., several of which are recent issues on modelling topics (see heading photo). All this has been tied up with two local papers with photos and reports, so we hope to arouse some interest.

WHARFEDALE

The 1962 bugbear of wind was with us with a vengeance at our rally where, on a brilliant day, the wind was so high that even the Combat boys couldn't compete!

This has not deterred arrangements for next year however, and a provisional date has been fixed for Sunday, June 23rd, with Rufforth as the proposed venue. All T/R classes and Combat will be held, as a minimum. More on this later.

WHITEFIELD M.A.C.

The F/F lads have had a good time of it lately, four of our members flew for the N.W. Area in the recent Area Champs. and we took second, third and fifth Power places at the Rush Trophy. Toolan and Bailey (fifth and second) both using *Dixielanders* with off-set pylons and black and dayglo colour schemes. No trimming troubles with this off-set and the dayglo patches are a boon for spotting in corn. Farmers will always retrieve, we find, if you show them where the model is.

Our local gala at Prestwich saw the "Yo-Yo" boys in action for two, half-hour demonstrations. It's the one time of the year when John Citizen likes big noisy motors, and a small well-drilled team of "Yo-Yo" flyers can really fetch the crowd around the circuit. Using a gala as a sort of extra club meeting with higgledy piggedly flying is a waste of time and boring for the spectators. Take a tip, get a small team, fly to a pattern for half-an-hour, and finish with everybody in the middle.

F.A.S.T.E. CLUB

We had a successful Nationals, and great success at the U.S.A.F. meet held at Molesworth early in July. We invited a number of well-known British modellers to participate, most of whom met with some success, as the results published last month show. It was a fantastic day for Speed, there was 30 deg. humidity in the air, and the air temperature was about 65-70 deg. F., which led to a top speed of 171.6 m.p.h. in Class "C" Speed, by Gus Johnson. The winner of "B" Speed at the Nationals, Hall/Yeldham, only managed to come in fourth, and turned the same speed on this occasion as they did at the Nats.!

There were some gasps of surprise when we flew our jet as our first and only run produced a speed of 173 m.p.h. Unfortunately there was no pylon available, so the speeds could not be put forward as records, but were timed by unbiased modellers from a different club.

The banquet afterwards, to which all were invited, was a great social success. You should have seen us twist! All the wives present voted the meet (particularly the social events following the more serious flying time) a winner, and it was suggested that we should "do this more often."

The recent Speed meet at Oakington saw Ralph Gould set up a new British jet record, which has been sent in for ratification. We feel sure that this record will not last long and can be increased by several m.p.h., if Ralph can be more fortunate with the weather, on this occasion there was 90 deg. humidity—like flying through a puddle!

We will be running a contest on October 13th, 1962, at U.S.A.F. Lakenheath, Suffolk. This meet is to celebrate the opening of a modelling shop for the base aeromodellers. Events will be Junior and Senior Class 2 Rat Race, "A" Combat and Stunt. There will be trophies down to third place for each event. The Junior Rat Race trophies will be of equal value to those for the Senior event, so come on you young modellers, here's your chance to win a big gold (?) trophy. The flying will all be over grass, so Rat racers will need good sized tyres. No F.A.S.T.E. club members will participate, so you'll all have a chance! Refreshments etc., will be available. There are no entry fees, and the flying will commence at 10 a.m. Entry will be closed at 12 noon. No age limit at all, so if you are between 9 and 90, and have a model which will fly, bring it along and have a go. Come and enjoy competition flying.

CROYDON & D.M.A.C.

The date for this year's Croydon Gala is November 4th and the venue Chobham (*where else—Ed.?*). Classes will be Open Rubber, Glider and Power, with additional 1/4A Power, A1 Glider, Coupe d'Hiver and also an R/C Spot Landing event. Entry will be 2s. per event, taken on the day only; maximums to be decided according to the weather.

COSMO A.C.

Our demonstration team have performed twice recently—once for the Meopham Scouts Camp Day and A.E.I. Ltd.'s Gala Day. In the latter display, our normal schedule was changed so as to include a demonstration of one pilot two models, by Stan Robinson. This proved to be highly successful and entertaining. We are glad to say that all of this year's demonstrations so far have been very successful, with no prangs!

SURBITON M.F.C.

This year's gala was held at Chobham on probably the best flying day of the year. Wind was light and as the sun hardly came out it was not too hot. The standard of flying was high and a fly-off was required in all events. So far as we know, no models were lost and everyone enjoyed themselves. This gala is run by eight bods and two wives and the only outside help required is for the fly-offs, as, apart from these, all flights are timed by our members. If we can do it, why don't you. The club makes no profit as the entire entry fee is handed back in prize money and we gave prizes down to fourth place in the three main events. These prizes exceeded amounts given by the S.M.A.E. at its Northern Gala. J. O'D. won the Gala Championship as planned. He really did win it, but would have

Winner of the scale event at Drogheda M.F.C.'s contest held at Butlin's Holiday Camp, Mosney, was Tommy Short's Fokker "Friendship." Of 4 ft. span and powered with two E.D. Racers, it has a mirror-like finish and flies very well.



got the Smiths electric wall clock anyway. We omitted to say that the wall was a canteen and the face 2 ft in diameter. He took the joke and everyone had a good laugh. We gave him the chrome pot as well for luck.

RESULTS

| Power (Top fly-off times—10 qualified) | | | |
|--|---------------|----|------|
| J. West | .. Brighton | .. | 5.00 |
| G. French | .. Essex | .. | 4.17 |
| A. Young | .. St. Albans | .. | 4.16 |
| 35 entries | | | |

| Rubber (Top fly-off times—9 qualified) | | | |
|--|---------------|----|------|
| R. Lennox | .. Birmingham | .. | 6.12 |
| J. North | .. Croydon | .. | 5.35 |
| J. O'Donnell | .. Whitefield | .. | 5.19 |
| 29 entries | | | |

| Glider | | | |
|---------------|----------------|-------------|--|
| K. Winstanley | .. Brighton | 9.00 + 3.37 | |
| M. Burrows | .. St. Albans | 9.00 + 2.30 | |
| J. Manville | .. Bournemouth | 8.10 | |
| 57 entries | | | |

| 1/4A Power | | | |
|------------|---------------|-------------|--|
| G. French | .. Essex | 9.00 + 4.20 | |
| K. Smith | .. Croydon | 9.00 + 1.55 | |
| G. Fuller | .. St. Albans | 8.04 | |
| 15 entries | | | |

Gala Champion

J. O'Donnell, Whitefield

SOUTH MANCHESTER M.G.

An exhibition of model's is to be held in the Stamford Hall, Altrincham, Cheshire (near Altrincham and Bowden Railway Station), on Friday, October 5th, for three days.

Models on view will be aircraft, boats and cars and admission is: adults 1s. 6d., Juniors 9d.. Opening hours are Friday, 6 p.m.-10.30 p.m.; Saturday, 11 a.m. to 10 p.m.; Sunday, 11 a.m. to 10 p.m.

WANSTEAD A.C.

As our annual C/L rally has become rather a handful to organise, our new policy will be to run two separate competitions.

One consisting of Stunt and "A" Combat, the other for Rat Racing and "B" Combat. As usual, there will be awards for the top placing juniors.

A Rat Race and "B" Combat rally is to be held on November 4th. Further details will be given shortly.

Our secretary, Dave Bolt, won our Chuck Glider comp. and recently came second in the Open Glider event of the 3rd U.S.A.F. Nationals at R.A.F. Molesworth.

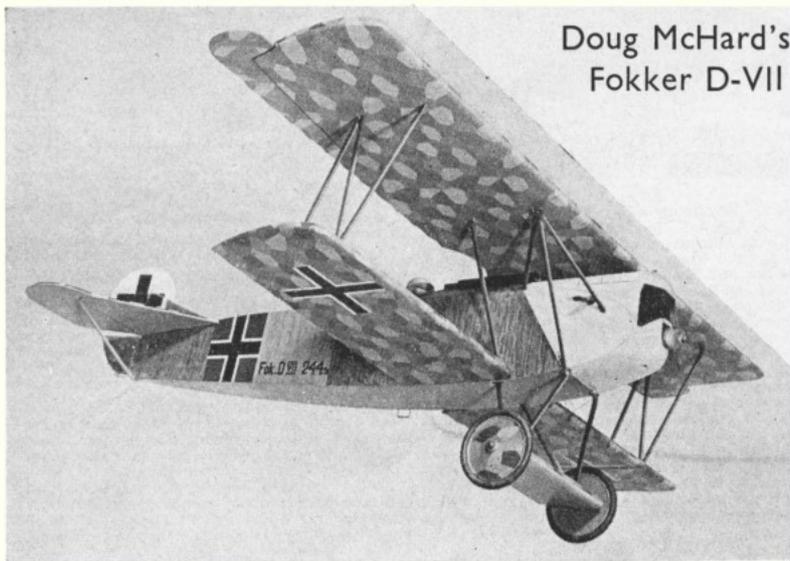
To pass the more boring club evenings we shake the dust off the rafters by holding RTP Rat Race competitions using Cox Tee-Dee .01 glue motors. The models fly 100 laps, which must include one pit stop.

The two models in each heat are timed separately (this we find helps to conduct a safer comp.).

NOVOCASTRIA M.A.S.

As the number of competitions attended month up, the lads also count up the cost of repairs. After a long drive down to High Wycombe, J. Muncaster had his two new models smashed, and the Wallace/Laurie team will want a new motor after the 300 laps marathon final. At the Scottish Gala the same team had another model "dig a hole in the tarmac" after a 4.39 heat; but things such as these were forgotten when the Dugmore-Bell-Roughhead team set up a new record for the Class B (ETA 29) with the very fast time of 6:35.6 at the Scottish Gala.

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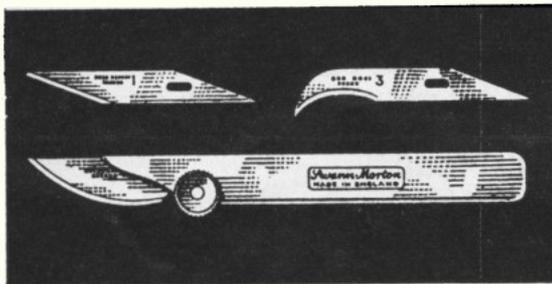
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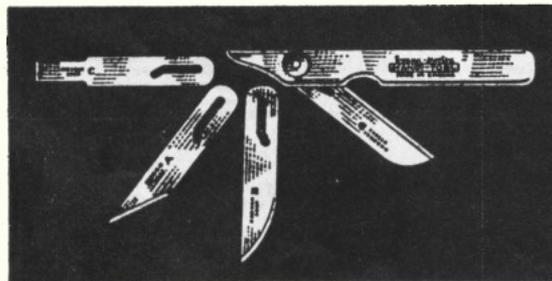
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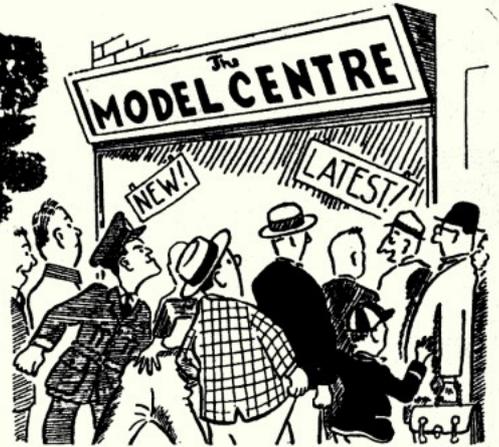
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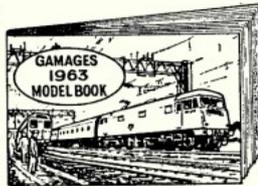
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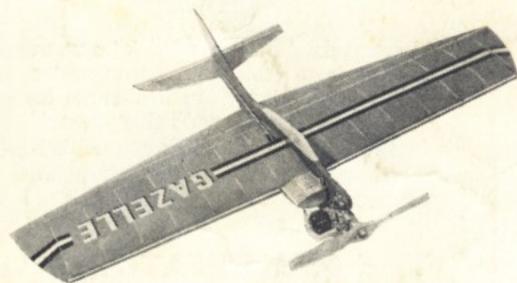
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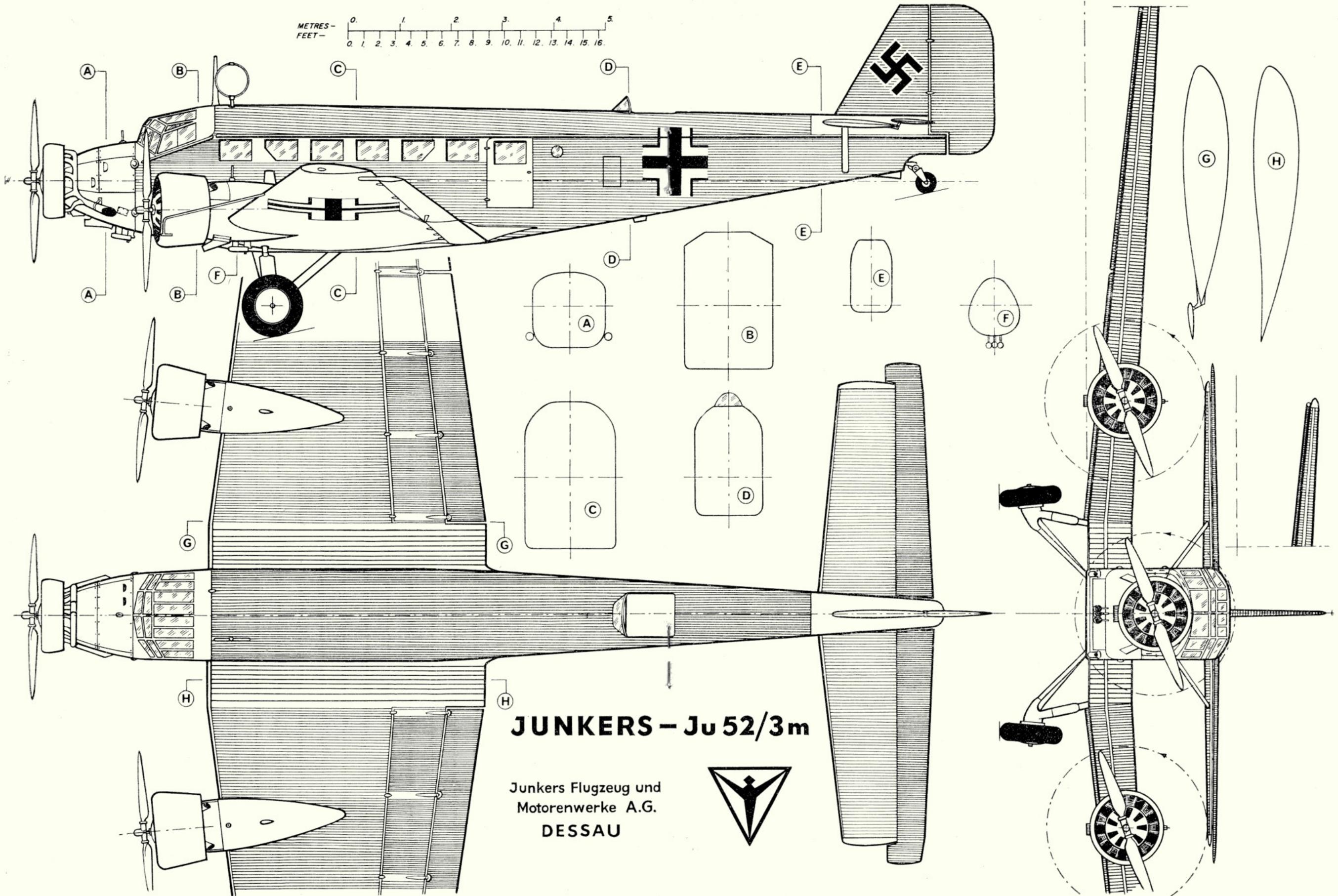
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