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NOVEMBER 1961

1'6

MODEL aircraft

Full Report

World Champs and Criterium d'Europe

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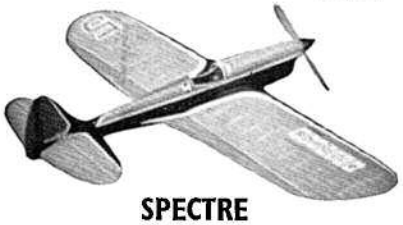

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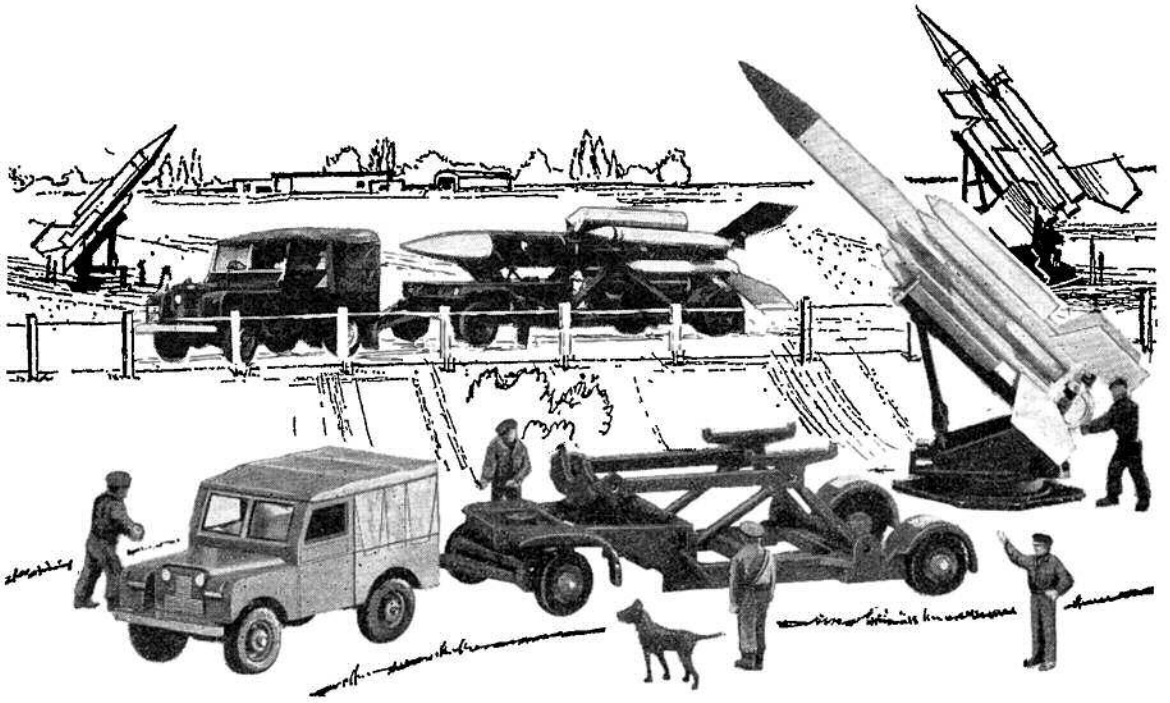

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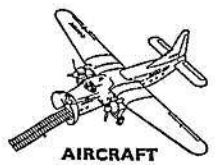

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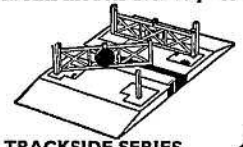

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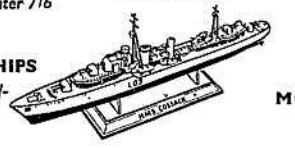

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MODEL aircraft

NOVEMBER 1961

No. 245 VOLUME 20

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IN THIS ISSUE

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Here and There

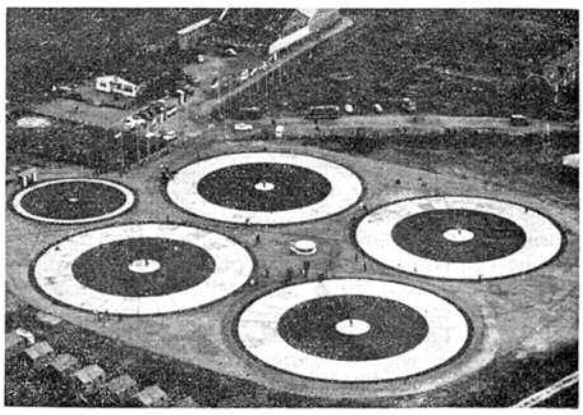
Wish it was Here!

THIS year's Criterium d'Europe, now renamed the Criterium of Aces, which is fully reported elsewhere in this issue, inaugurated the newly laid out flying site at Genk. The photograph below, gives a good idea of the layout of the four flying circles, plus car track, with the control box set into the ground, an 8-ft. wire fence enclosing the speed circle in the lower right-hand corner and telephone communication between each circle and the control centre.

Genk is the centre of a coal mining area and the municipality is permitted to spend a portion of its revenue on sports facilities. Hence the origin of this excellent C/L arena, which adjoins a grass landing strip for full size aircraft and also incorporates a concrete landing and take off area (some 200 yards beyond the tents) for R/C models. Only started earlier this year, the final touches were still being added when the photograph was taken during test flying on the Friday.

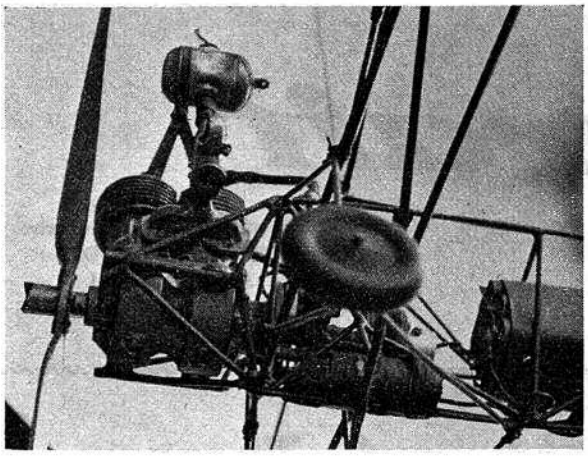
The £7,000 needed to build this circuit is certainly not an excessively large amount of money, even though modellers assisted with the work. How is it that Belgium, with only a 1 : 10 ratio of modellers compared to ourselves, is able to obtain such facilities? We wish we knew, but no doubt an active approach at National level to a local authority with appropriate land at its disposal, rather than our own haphazard method of leaving matters to local clubs, might well be a part of the answer.

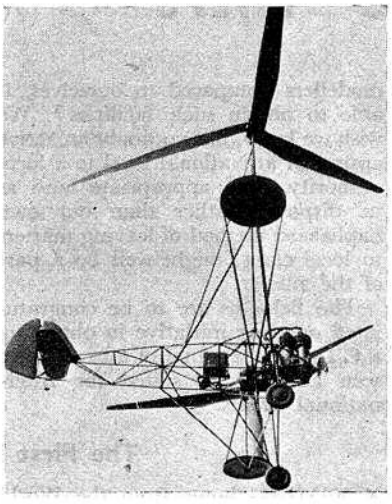
The Belgians are to be congratulated on their initiative in obtaining a C/L site, the equal of any we have seen and ideally suited for International events.



The First ?

COMING home from the World Free Flight Championships in Germany, we had a couple of hours to spend in Munich, so took the opportunity of visiting the aeronautical department of the Deutches Museum. Among the many fascinating exhibits (including an immaculate Me 262) we spotted, hanging from the ceiling, this unique F/F model





helicopter. It was built in 1936, as part of the development programme of the record breaking Focke Achgelis Fa 61. Apart from the fact that this was probably the first successful helicopter model, the close-up (above) reveals some interesting details of the vertical twin, spark ignition engine.

It is of three-port layout with gravity fuel feed. An extension of the crankshaft behind the crankcase carries a double pulley, which drives the two three-bladed rotors via long belts and the contact breaker is also fitted to this extension. The bayonet prop boss is obviously for an external starter of some sort. The crankcase, which appears to be of the divided type, is in two parts joined along a horizontal line passing through the engine bearers, and two drain plugs are fitted. At a guess we would suggest a capacity of 10 c.c. per cylinder. The square pack to the rear of the engine houses three 4.5 volt flat batteries, while the ignition coil is just beneath the rear crankshaft extension.

The whole model is painted black, so it is difficult to say what materials are employed in its construction, but at a guess we would suggest welded aluminium rod or tube.

We would be interested to hear from any reader having further information on this unique model.

Good Ambassadors ?

THE Englishman is noted for his lack of comformity. If ever there were a " uniform " in which he could be said to feel at home, it is the traditional shirtsleeves and braces. Perhaps it is for this reason that the excellent track suits, provided for the use of International teams by the F.M.A.M.W., were never worn with that lack of self consciousness, characteristic of many foreign teams.

Not that we are in favour of over uniformity of dress, " civvies " can, in themselves, be a distinctive uniform—who could mistake a gaudy, but neat, American at an International meeting ? Equally, no one could ever accuse a British team of being inconspicuous but, regrettably, in recent years this has been because they look the scruffiest bunch on the field. This is not to say that entire teams are at fault, but it only needs one or two individuals to appear in their usual dirty or oil-stained flying " suits " and obviously having stood well away from their razor that morning, for the entire team to be classed with them.

Such dress is almost universal, so seems in no way out of place at home events, but at an International it stands out a mile. It is obviously desirable that British teams should make an impression, but let it be a good one. Sloppy dress, not infrequently coupled with similar models, not only reflects badly on us as a nation, but is all too often equally reflected in the results.

Strangely, C/L teams seem to come off best in any comparison—although at home they are the worst offenders. The vast amount of fuel, oil and dirt, apparently inseparable from a C/L contest, contaminates even the most immaculate track suits within a few hours, bringing everyone down to the same level.

We will strongly resist any attempt to " regiment " our International teams, but surely it is not asking too much for a team from a country that is noted for the quality of its clothes, to at least look tidy ?

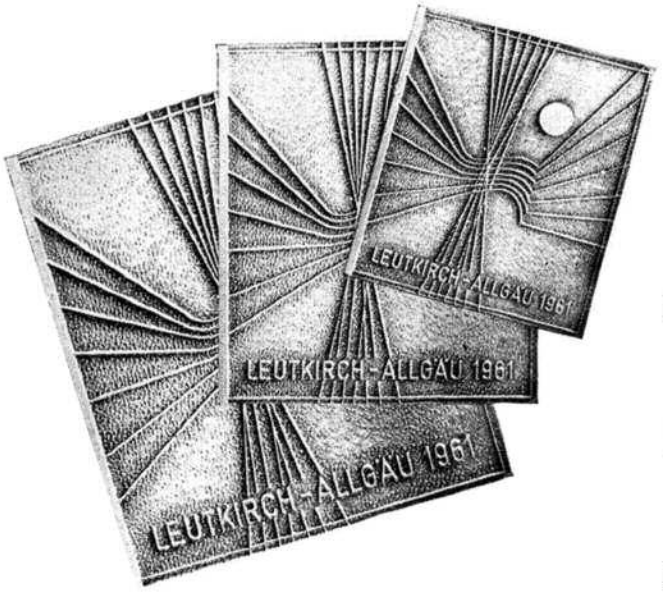
No Glow ?

IN " Latest Engine News " this month, Peter Chinn gives the results of some tests he has recently conducted with glow-plugs. This question of plug life and performance has been spotlighted by the recent startling advances in engine performance, which has led to complaints that " plugs ain't wot they used to be."

Quite independently of Peter, we also have been conducting tests and while the results are surprisingly similar, the conclusions arrived at are different. In the first place, although certain motors have a voracious appetite for plugs, other motors can be run at speeds far in excess of those obtainable with the " blower," with no detrimental effects. Whether a " straight " or highly nitrated fuel is used, the results have been the same. This would indicate that it is the motor, not the plug, which is at fault, and this diagnosis was strengthened when one notorious " blower " was fitted with a new cylinder head, subsequently becoming a perfect gentleman.

Logic would indicate that if a plug will stand " X " r.p.m. in motor " A," but " blows " at the same speed in motor " B," then it is not the plug which is to blame. However, modellers tend to be illogical and blame the symptom instead of the disease.

Peter also mentions the old type K.L.G. Mini Glow which, although it was frequently roundly cursed when it was in production, has attained a posthumous reputation, both for performance and life. Why should a plug which was never exceptionally highly rated, suddenly change ? We posed this question to an engine manufacturer, who has done considerable research into glow-plugs and he suggested that it was because the plugs now in use had aged. The years which have lapsed between their manufacture and use, allowing time for the element to " mature " (for want of a better term). We wonder !



The World FREE FLIGHT CHAMPIONSHIPS

held at Leutkirch, Germany 1st—4th September, 1961

Report and photographs by J. D. McHard

THREE World Championships on consecutive days, is just about as concentrated a programme as could be devised. There were over 200 contestants at Leutkirch, a small town in the Allgau district of Germany, and the tiny postage stamp size of the flying field, nestling under picturesque fir tree covered hills, *could* have produced complete chaos. As things turned out, conditions during the whole three days were so calm, that even the minute airfield was rarely used, flying taking place at the extreme end of the strip—on farm land! The meeting was a joint effort, financial support being given by the American A.M.A., although the organisation of the championships, was almost entirely in the hands of the Deutscher Aero Club.

Buses were laid on to collect participants and supporters (who were accommodated in a number of hotels in the local towns and villages) and transported them to the field. Owing to the early start required by the crowded programme a few breakfasts were missed, but apart from this the system worked smoothly. Packed lunches were distributed at the field, and ample refreshments were available, the comparative absence of litter was very noticeable.

Glider

This was the opening event, and the contest got off to a fine start, with a rousing fanfare of horns that would have done justice to any Jack Solomons promotion. Control was established at the west end of the airstrip in anticipation of a west wind later in the day; as it happened, what little wind there was came from the east, but was considered insufficient to justify moving.

Processing of models had been carried out in a rather novel way—by photographing a plan view of each entry, which saved a considerable amount of time, but was open to criticism on the count of accuracy owing to perspective distortion. The system had, however, been checked out at the German Nationals and found to be quite satisfactory.

Another innovation, which was much appreciated and could well be taken up by future contest organisers, was the allocation of two timekeepers to each team. These were hand-picked men, themselves experienced modellers, who carried out their duties admirably.

The jury had several disputes to settle during the early part of the day, the most controversial being a proposed time limitation of three minutes between drawing flight cards and releasing the model! This was later amended to limit the time *on the line* to three minutes —a pointless restriction—anyone who could keep a model on tow for that time, in the extremely hot windless conditions prevailing, would have been worthy of any Olympics athletic team. Common sense prevailed in the end and all launch limitations were removed. Language difficulties introduced misunderstandings of rules, but prompt jury action put most matters straight.

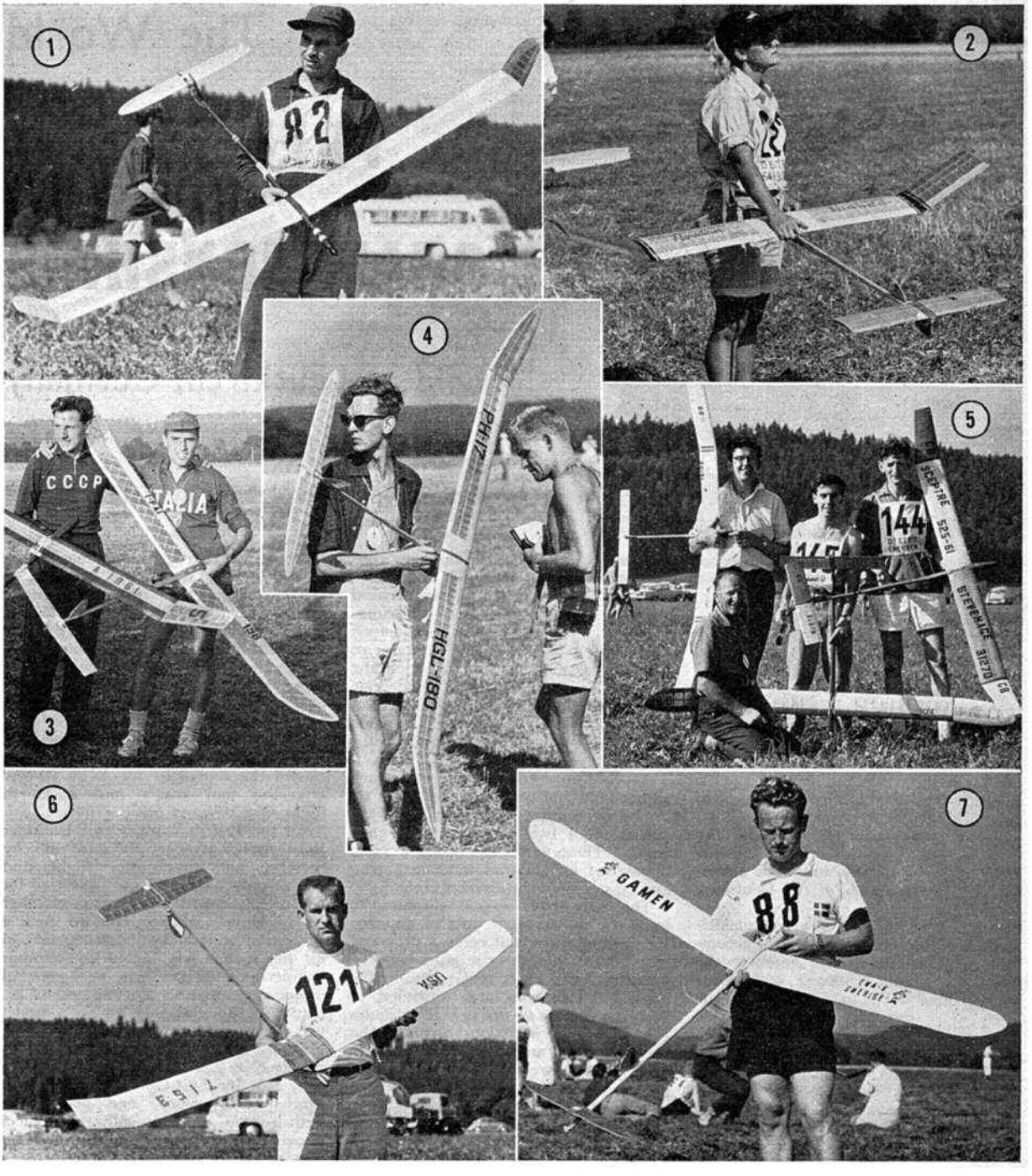
Undoubtedly the phenomemon of the meet was the very popular U.S. lady team member Betty Bell, who could talk most hardened contest flyers into the ground on any modelling subject, from reworking Super Tigres, to A.2 airfoil theory! Betty's *forte* is really team racing and, although fairly new to glider, she made a very convincing show at Leutkirch, scoring one of the 28 max's in the first round.

The question most frequently thrown at the U.S. team was—"where's Gerry Ritz"—well, although, he wasn't in the team, his influence on international A.2 design was very obvious, quite apart from the several exact replicas of his *Continental*, numerous "original" models were obviously based on the Ritz formula. One of the reproductions, built by Rodriques of Portugal, just missed the four-man fly-off by 18 sec. following four max's and a fourth flight of 2 min. 42 sec.

Of the British team, Geoff Dallimer must surely have been the most unlucky member, with four perfect flights and one of only 1 min. 27 sec. He tied for twelfth place with fellow team-member Al Freeston. Bruce Halford had a succession of unlucky incidents, first of all his model was fouled by another competitor's towline then, on the second attempt, yet another towline crossed his own. On top of all this, his No. 1 model was damaged when it struck a farmhouse, crushing the wing leading edge.

The New Zealand models were flown very ably by their German proxies into ninth team place, one below the British team and, ironically, two places above their own German team! This was all the more remarkable because of the badly warped condition of the N.Z. models upon arrival in Germany, after three months in transit. This necessitated extensive warp removal work by their German proxies. We understand that some of the warps were corrected over the steam from the field frankfurter boiler which, perhaps, accounts for the fact that the wings never entirely lost their sausage-shaped dihedral!

Our heading photo shows the commemorative plaque measuring 2 × 2½ in., especially cast in bronze for the meeting.



A.2 Glider

1. Rodrigues of Portugal was well placed with his slightly modified Ritz Continental.

2. Most popular U.S. member—Betty Bell, caught in a typical attitude with her Floridian A.2.

3. Top two flyers. Averianov—U.S.S.R., and Soave—Italy.

4. Fourth place man—Vant t'Rood (Holland) and holding his model M. Van Dyk.

5. The British A.2 team—Freeston, Halford and Dallimer with Team Manager Sid Smeed down on his knees—exhaustion?

6. Leonard Lortz (U.S.A.) who only narrowly missed a top placing following a poor fifth round flight after four maxes.

7. Third place went to Gunnar Kalen (Sweden), whose all-sheet wing with turbulator, produced much comment.

ON THE COVER

Another view of A.2 winner Averianov. He is holding up his hand and saying—understandably after five minutes of posing—"Please, no more photographs"!

Top team placing went to the Netherlands, who had one member in the four-man fly-off—Vant't Rood who eventually placed fourth. Paolo Soave of Italy and Gunnar Kalen of Sweden, who came second and third respectively, each followed the Russian Averianov in the mass fly-off launch, but only Averianov found the centre of the rather weak thermal, taking top individual honours by a clear 12 seconds. Russia missed top team position by only 40 seconds.

The Finnish team (who arrived at Leutkirch two days before anyone else) placed fourth and one of its members, Matti Pyykko, was perhaps the youngest entrant in the Championships, being just 16. This was his first international, and to judge by his calm, unflurried approach to the game, he will one day be a challenger to watch. His final placing—nineteenth out of 69 entrants was not bad for a first try.

A.2 Glider Results

1.	Averianov, A.	Russia	900+171
2.	Soave, P.	Italy	900+159
3.	Kalen, G.	Sweden	900+147
4.	Van't Rood, T.	Holland	900+131
5.	Rodrigues, A.	Portugal	882
6.	Michalek, J.	Czechoslovakia	867
7.	Hlubocky, M.	Czechoslovakia	855
8.	Daley, J.	U.S.A.	841
9.	Lortz, L.	U.S.A.	822
10.	Guilloteau, R.	France	818
11.	Strang, T.	Finland	809
11.	Teunisse, P.	Holland	809
11.	Schnürer, O.	Austria	809
12.	Dallimer, G. W.	G.B.	807
12.	Freeston, A. G.	G.B.	807
13.	Günther, K.	Germany	806
14.	Sulisz, A.	Poland	801
15.	Schnürer, H.	Austria	795
16.	Schulten, J.	Holland	789
17.	Boncompagni, A.	Italy	781
18.	Skard, A.	Norway	766
19.	Pyykkö, M.	Finland	760
20.	Borras, R.	France	751
21.	Cook, W.	New Zealand	
	(P)Schmidt, M.	Germany	749
22.	Boscarol, C.	Italy	739
23.	Spejzl, I.	Czechoslovakia	736
24.	Takko, S.	Finland	731
25.	Simon, G.	Hungary	718
26.	McGarvey	New Zealand	
	(P)Roemer, G.	Germany	715
27.	Malkin, J.	New Zealand	
	(P)Maibaum, G.	Germany	704
28.	Berg, E.	Denmark	694
29.	Semskij, A.	Russia	690
30.	Hermann, A.	Germany	688
31.	Michel, H.	Switzerland	686
31.	McGillivray, J.	Canada	686
32.	Sares, I.	Sweden	685
33.	Fernandez, F.	Spain	679
34.	Miroslav, V.	Yugoslavia	675
35.	Borthne, T.	Norway	674
36.	Leduc, A.	Belgium	671
37.	Giudici, G.	France	666
38.	Hansen, A.	Denmark	651
39.	Glod, J.	Luxembourg	647
40.	Mederer, A.	Germany	642
40.	Nestratow, J.	Russia	642
41.	Babic	Yugoslavia	598
41.	Visser, P. W.	South Africa	598
42.	Bell, Mrs. E.	U.S.A.	588
43.	Hertig, A.	Switzerland	585
44.	Hansen, B.	Denmark	584
45.	Fitzpatrick, G.	Ireland	576
46.	Rozycki, St.	Poland	573
47.	Halford, B. L.	G.B.	571
48.	Sousa, M.	Portugal	562
49.	Benedikt, J.	Poland	561
50.	Modeer, B. O.	Sweden	559
51.	Stevo, P.	Yugoslavia	556
52.	De Graef, R.	Belgium	515
53.	Kargl, H.	Austria	506
54.	Bachmann, Ch.	Switzerland	502
55.	Mackenzie, D.	Canada	490
56.	Hassrod, R.	Norway	487
57.	Price, B.	Canada	478
58.	Guffens, J.	Belgium	470
59.	Pando, L.	Spain	452
60.	Leick, J. M.	Luxembourg	442
61.	Kraemer, F.	Luxembourg	411
62.	Sereno, A.	Portugal	360
63.	Gonzalez, S.	Spain	334

Team

1.	Holland	2,498
2.	Czechoslovakia	2,459
3.	Italy	2,420
4.	Finland	2,300
5.	U.S.A.	2,251
6.	France	2,235
7.	Russia	2,232
8.	G.B.	2,185
9.	New Zealand	2,168
10.	Sweden	2,144
11.	Germany	2,136
12.	Austria	2,110
13.	Denmark	1,929
14.	Norway	1,927
15.	Poland	1,905
16.	Yugoslavia	1,829
17.	Portugal	1,804
18.	Switzerland	1,773
19.	Belgium	1,656
20.	Canada	1,654
21.	Luxembourg	1,500
22.	Spain	1,465

Power

After the quiet and comparatively leisurely A.2 event, Saturday's Power contest was quite nerve-shattering. Despite some complaints, the mobile control was again established at the western end of the field and, although once more the breeze was almost insignificant, there was a definite drift out of the flying area, towards an isolated clump of trees, which inevitably claimed some victims. Perhaps the most exasperating moment for the British team occurred during the first round, when Ray Monks was treed only one-tenth-of-a-second short of a max.

George French, upon whose performance we had placed so much faith, had crashed his No. 2 model, testing the previous evening, wrecking the engine (a Tee Dee) and almost writing-off the airframe. Since the processors insisted on having two models, George stayed up repairing until 3 a.m. On his first contest flight, he landed in the same tree as Ray Monks!

Tony Young, our third team member, also had the misfortune to write off his No. 1 model. A warped fuselage was the suspected cause of the mishap, producing a disastrous right turn.

The crowd control during the contest left much to be desired, contestants, spectators, officials and photographers being allowed to roam around where they pleased. After complaints were lodged, an attempt was made to erect rope barriers, but it was all very half-hearted and in any case, should have been organised before flying commenced.

One of the most hard working teams was undoubtedly the New Zealand proxy group of British flyers. Vic Jays flew John Wynn's Tee Dee powered model (which was, incidentally, a modified Jays design). Pete Muller flew Ian Henry's H.T.L. model, which also used a Tee Dee. But the really outstanding member of the team was undoubtedly Pete Buskell, whose skill took John Sheppard's Eta 15 job, up to fourth place (incidentally, the highest placed diesel powered model). The model was similar to John's 1960 *Glow Worm*, but slightly lengthened.

Consistent flying by the Hungarians gave them the team prize, but our own position of fifth out of 20 competing countries was, in the circumstances, not at all bad, less than two minutes below the winners.

We could detect no significant revolutionary trends in the power models flown at the Championships. Careful refinement and detail modifications were, as usual, the keys to success, but, if anything, design appears to be leaning towards simplification and closer attention to surface finish.

There was no fly-off and Fritz Schneeberger's winning model was a completely orthodox pylon design, with a simple box fuselage. It did, however, feature elliptical wing tips and was very well finished. The side mounted Cox Tee Dee 15 was unpressurised, like most of the top models, and drove a Top-Flite nylon 8 × 4 propeller.

Out of the first 12 places, eight were taken by glow engines, including the first three. Second and third placers used the M.V.V.S. 2.5 (Speed) and the Moki S-2 (Speed) respectively, both unpressurised.

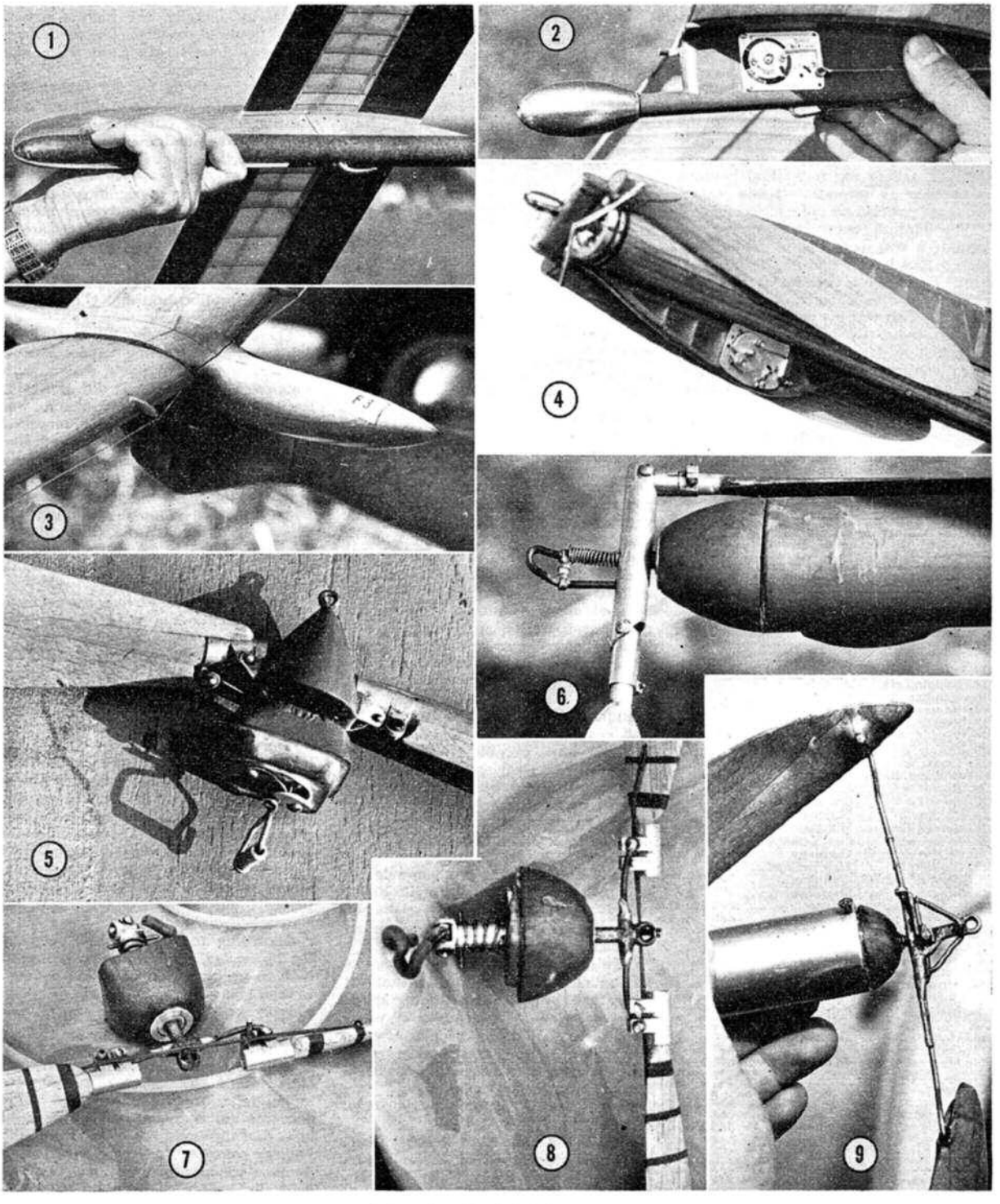
Pete Buskell, as already mentioned, used a straight Eta 15 diesel in John Sheppard's model. Another diesel—a Krizma K-8—powered No. 5 followed by five pressurised motors—two Super Tigres, the new O.S. Max and two K. &. B. 15s. Hajek's M.V.V.S. diesel-powered model, placed twelfth.

There seems to be no obvious pattern here, and the ability to spot the thermals and, equally important, avoid the down-draughts is still just as vital to success, as possession of the latest super-hopped up pressure-fed mill. There is no doubt that it was Swiss team manager Arnold Degan's uncanny thermal predicting, which played a large part in Schneeberger's success—wish we knew his system!

According to statistics published by the processors, the 137 models processed had an average span of 59 in., average weight being 770 grams. Motors were roughly 40 per cent. glow and 60 per cent. diesel.

After the flying, when everyone had returned to the Leutkirch Municipal Hall where the evening meals were served, the organisers provided some first rate entertainment, including local folk dancing—and a band from the Hohner company playing, among other items, a selection of traditional German drinking songs, the words of which everyone except the British seemed to know. Someone is said to have asked, after seeing the knee-slapping, thigh-thumping, high-jumping folk dancing, whether this was a new kind of Bavarian model flyers' thermal dance!

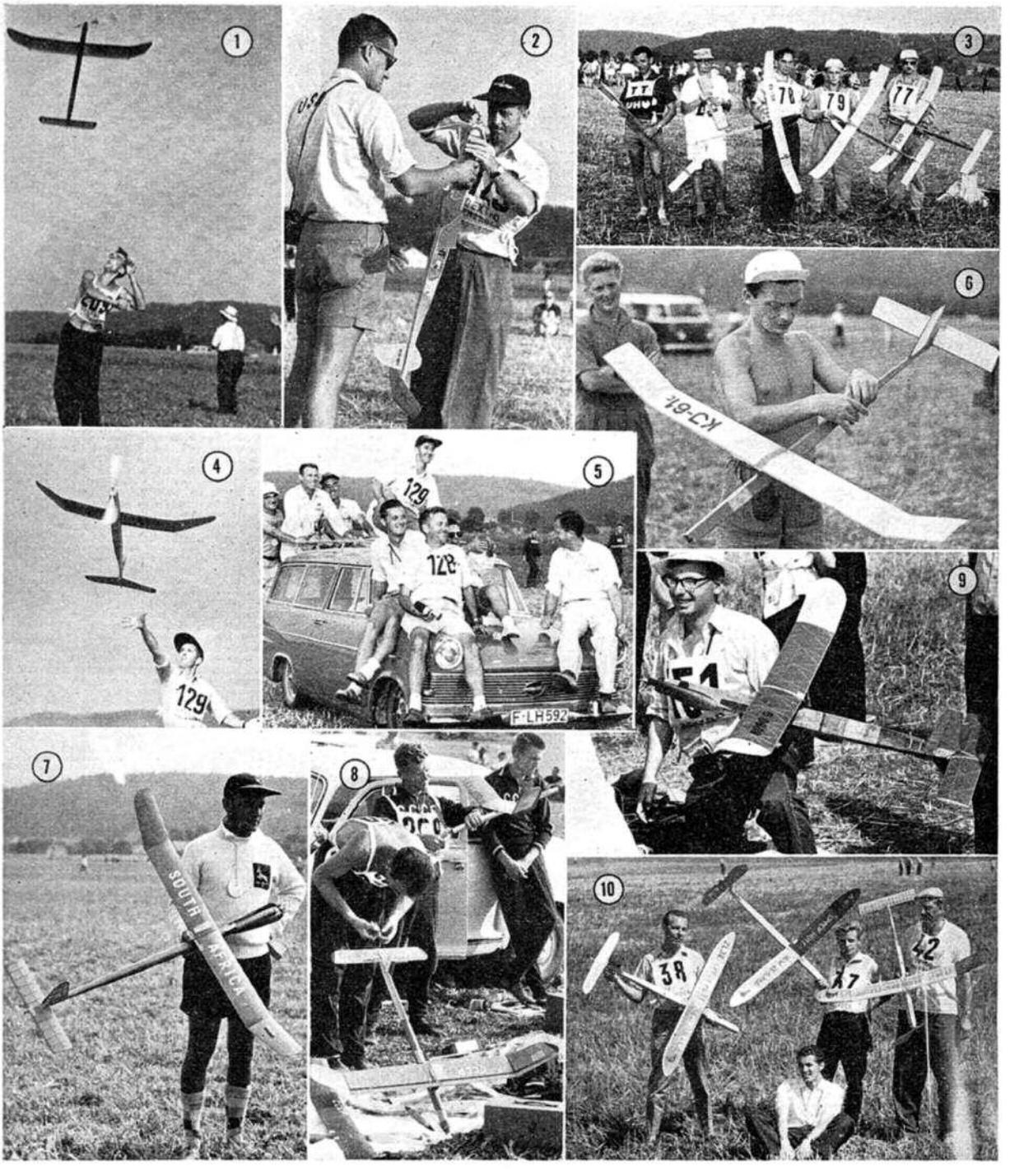
Continued on page 349.



A.2 and Wakefield Close-ups

1. The nose of Averianov's winning A.2. The dural wing mount is continued forward to form a one-piece nose fin and skid (U.S.S.R.).
2. A complete contrast is the turned brass weight on the very short nose of Lortz's model (U.S.A.).
3. The nose of Kalen's model is yet another approach. Carved from hardwood and beautifully polished. Note nylon turbulators on wing L.E. (Sweden).
4. The unusual nose underfin, housing the clockwork D/T and the built-up fuselage spine, are seen in this view of Allessandro Alinari's No. 2 model (Italy).
5. Willim Kmoch's adjustable pitch propeller. Note the spring wire " catch " on the rear of the noseblock to lock the prop horizontal before folding (Yugoslavia).

Continued in next column.



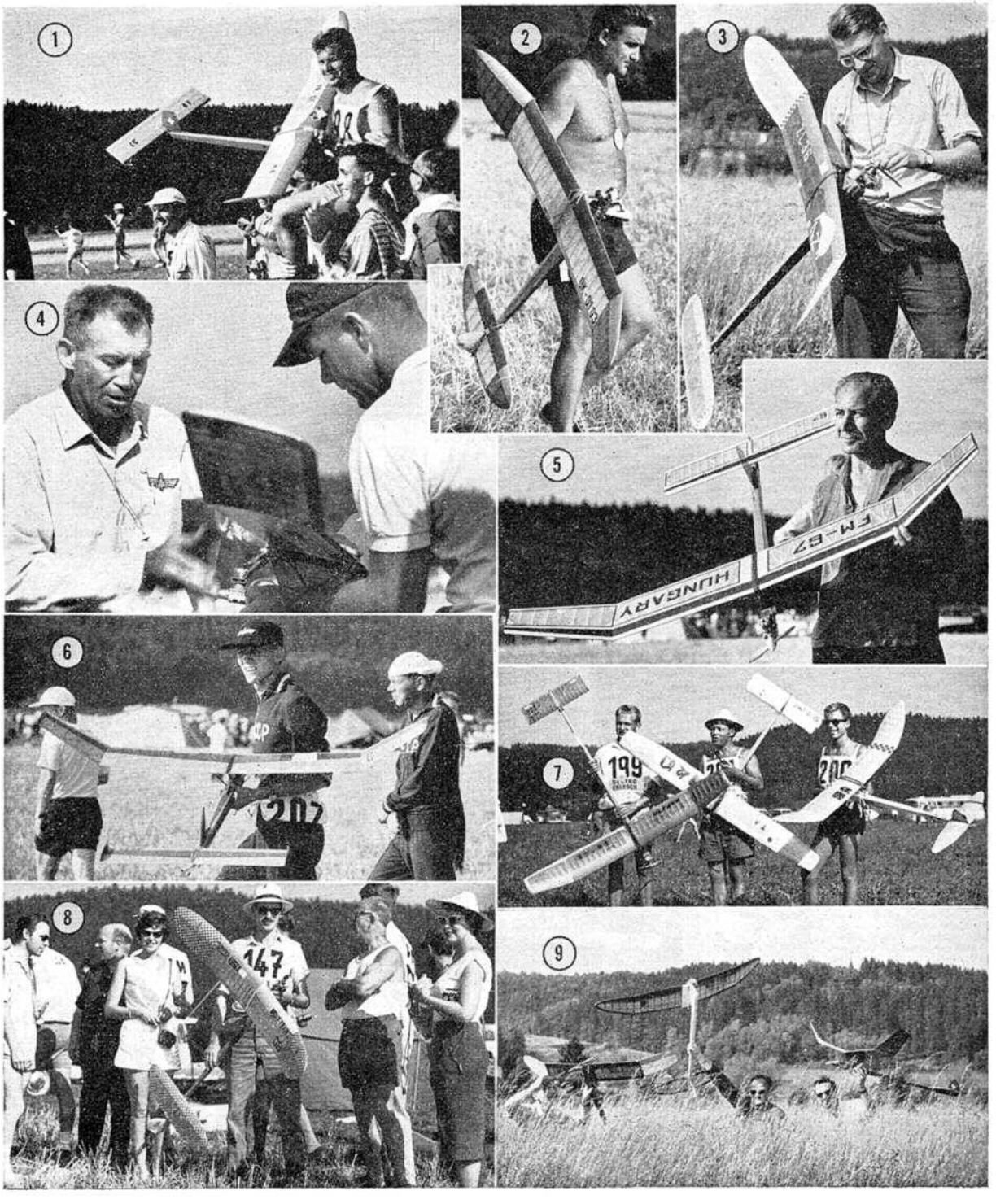
6. Jim Patterson had a very neat adjustable pitch prop with the hub fashioned from dural tube. Note also the rolled balsa, nylon covered, fuselage and small nose " bumper " (U.S.A.).

7. & 8. Koczinski's propeller assembly was interesting, featuring adjustable pitch, twin ball bearings and universal joint rubber hook (Poland).

9. Ivanikov's variable pitch propeller was crudely built but worked well. Note the aluminium tube fuselage and the noseblock securing nail ! (U.S.S.R.).

Wakefield

1. Typical Russian launch by Sapaschyj.
2. U.S. Team Manager Herb Kothe assists George Reich to thread a new motor.
3. The winning Polish Team and their two timekeepers. Stanislav Zurad is No. 78, Jerzy Koczinski is No. 79 and Vladislav Niestoj is No. 77.
4. George Reich gets away on his winning flight. Note triangular rear fuselage and anhedral on elevator.
5. Returning in triumph, George Reich atop the U.S. team's estate car.
6. Poland's Jerzy Koczinski, checks the rear motor fixing prior to the fly-off.
7. All the way from South Africa came Pete Visser. Models were beautifully built.
8. Typical scene at the Russian camp as Sapaschyj prepares to fly.
9. John O'Donnell, with his typical " boxy " job, could not find any lift at all.
10. N.Z. proxy flyers—Gunter Maibaum with Malkin's model, Schmidt with Cook's model, and Waldhauser with Hewittson's. Manager Ken Glynn squats in front.



Power

Winner Fritz Schneeberger is triumphantly carried back, after recovering his damaged model.
2. Jiri Czerny came third and is here seen walking out for his final flight.
3. Our own Pete Buskell with New Zealander John Sheppard's model.
4. The real "character" of the U.S. team was W. Dub McCormick from Texas.
5. Hungarian Erno Frigyes with his immaculate model, which gave him second place.
6. Two Russians walk out—Urbitski, proudly wearing his A.M.A. cap, followed by teammate Sokolov, with artificial bald pate.
7. The Japanese proxy team left to right: Schwienn with Kusuya's model, Zwilling with Iwai's model and Dreyer with Sugata's model, all Enya 15D powered.
8. British supporters surround George French, as he prepares for the second round.
9. We didn't remember the grass being quite *that* long, but here, ploughing through it are the N.Z. proxy flyers. Pete Buskell, Pete Muller with Ian Henry's H.T.L. model (Slicker 60 wing planform) and Vic Jays with John Wynn's pressurised Tee Dee job.

With all the supporters and other "odd bods," there must have been around 500 people in the hall and the extremely friendly atmosphere, between visitors from both east and west, was most noticeable and commented upon frequently.

Power Results

1.	Schneeberger, F.	Switzerland	900
2.	Frigyes, E.	Hungary	859
3.	Czerny, J.	Czechoslovakia	854
4.	Sheppard, J.	New Zealand	
	(P)Buskell, P.	G.B.	851
5.	Meczner, A.	Hungary	835
6.	Verbitz, E.	Russia	831
7.	Parry, G.	Canada	827
8.	Raulio, H.	Finland	822
9.	Rieke, K. H.	Germany	803
9.	French, G. R.	G.B.	803
10.	Ranta, S.	Canada	795
11.	Hajek, V.	Czechoslovakia	794
12.	Monks, R.	G.B.	786
13.	Horcicka, W.	Austria	774
14.	Eriksson, M.	Sweden	773
14.	Fontaine, J.	France	773
15.	Wagner, H.	Austria	764
16.	Czerny, R.	Czechoslovakia	760
17.	Simon, G.	Hungary	748
18.	Eng, E.	Switzerland	746
19.	Pimenoff, S.	Finland	738
20.	Young, T.	G.B.	737
21.	Bjelajao, M.	Yugoslavia	725
22.	Larsson, L.	Sweden	716
23.	Surry, D.	Canada	711
24.	Schenker, R.	Switzerland	708
25.	Soares, J.	Portugal	704
26.	Guilloteau, R.	France	697
27.	Padovano, E.	Italy	696
28.	Becker, K. H.	Germany	694
29.	Guerra, G.	Italy	692
30.	McCormick, W. D.	U.S.A.	687
31.	Thomson, J. D.	Ireland	686
32.	Billes, P.	Austria	679
33.	Van Dijk, M.	Holland	661
34.	Poorman, G.	U.S.A.	651
35.	Filimonov, B.	Russia	647
36.	Scepanovic, A.	Yugoslavia	644
37.	Hagel, R.	Sweden	639
38.	Pecorari, V.	Italy	635
39.	Benedik, J.	Yugoslavia	625
40.	Laxman, P.	Finland	622
41.	Kusura-ma.	Japan	
	(P)Schwenn, R.	Germany	614
42.	Bulukin, B.	Norway	610
43.	Jwaj	Japan	
	(P)Zwilling, W.	Germany	603
44.	Sulisz, Z.	Poland	574
45.	Henry, I.	New Zealand	
	(P)Muller, P.	G.B.	564
46.	Sereno, A.	Portugal	554
47.	Christiensen, N.	Denmark	546
48.	Czinczel, W.	Germany	545
49.	Johannessen, T.	Norway	536
50.	Winn, J.	New Zealand	
	(P)Jays, V.	G.B.	532
50.	Jermakov, A.	Russia	532
51.	Giudici, G.	France	515
52.	Pregaldien, H.	Belgium	494
53.	Sugata	Japan	484
54.	Sheldon, C.	U.S.A.	478
55.	Martino, F.	Portugal	472
56.	Clement, M.	South Africa	
	(P)Piesk, L.	Germany	463
57.	Oxager, J.	Denmark	450
58.	Balasse, E.	Belgium	442
59.	Gogorcena, J.	Spain	438
60.	Matute, V.	Spain	425
61.	Mortensen, F.	Denmark	381
62.	Dalseg, G.	Norway	294
63.	Gonzalez, P.	Spain	240

Team

1.	Hungary	2,442
2.	Czechoslovakia	2,408
3.	Switzerland	2,354
4.	Canada	2,333
5.	G.B.	2,326
6.	Austria	2,217
7.	Finland	2,182
8.	Sweden	2,128
9.	Germany	2,042
10.	Italy	2,023
11.	Russia	2,010
12.	Yugoslavia	1,994
13.	France	1,985
14.	New Zealand	1,947
15.	U.S.A.	1,816
16.	Portugal	1,730
17.	Japan	1,701
18.	Norway	1,440
19.	Denmark	1,377
20.	Spain	1,103

Wakefield

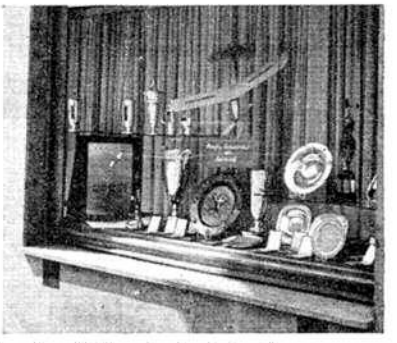
The most interesting of the three contests from an enthusiast's point of view, was undoubtedly the Wakefield. By its very nature, the rubber-powered model gives tremendous scope for originality and few experts are content to build someone else's design, without adding so much alteration that it becomes virtually an original.

The most striking single impression was the near vertical climb of the Russian and Hungarian models following a javelin-like launch, which itself must have been responsible for the first 20 ft. The power run of these models was in the region of 25 to 30 sec. and performance was very dependent upon finding a thermal. These were very elusive and conditions, although hot and almost windless, were for some obscure reason not producing top times.

John O'Donnell's model, which he swears was in perfect trim, was sinking so rapidly that he could hardly believe it; and John's was by no means an isolated case. The sink, generally, was colossal and thermals not nearly as numerous, or powerful, as one would normally expect. One theory advanced for the widespread overall reduction in performance, was the altitude of the field—about 1,500 ft. above sea level—although even this answer was not entirely convincing, but whatever the cause it made a bumper fly-off less likely.

Despite all the complaints, 30 of the 65 flyers scored 3 min. in the first round, although none went to the British team. The conditions took their toll, however, and double max's were down to 16, triples to six and, by the end of the fourth round, only four remained with a perfect score. Jugoslav Emil Fresl, one of these four, was well backed to make his fifth max as his model had been performing beautifully. Unfortunately, Emil broke a trim tab following the fourth round and, in resetting it, he completely lost the delicate trim and destroyed the vital initial climb, to return only 2 min. 34 sec.

One surprising feature of the event was the almost complete, absence of motor winding tubes. John O'Donnell's was in fact quite a curiosity, but it undoubtedly saved his model more than once, when the rubber burst. This was by no means an isolated occurrence, the extreme heat and blazing sun, produced more broken motors each round than we can remember for a long time. The number of shattered models did not, however, equal the rubber failures, for one of the



Local publicity obtained by displaying the cups and other awards in a shop window.

significant trends at the meeting was towards paxolin and aluminium tube fuselages which, of course, will easily withstand the shock of an exploding rubber motor.

Pete Visser constituted the one-man team from South Africa and his beautifully built models, both A.2 and Wakefield, were a delight to the eye. Pete paid most of his own air fares and expenses in order to fly at Leutkirch, and his quiet, unassuming manner was an example that could well be recommended to certain other excessively temperamental competitors.

At the end of the fifth round only three flyers had five max's—George Reich (U.S.A.), Jerzy Koczinski (Poland) and Alessandro Alinari (Italy). George's model, a development of his earlier *Max Maker* (M.A.N. Plan No. 81) was the perfect example of orthodox design progressively refined. The only unusual features about the model were the fuselage, which altered in section aft of the rear motor peg from rectangular to triangular, and the elevator, which had marked anhedral. This latter has almost become a Reich trademark.

Kozinski's diamond fuselage model was the only one of the three in the fly-off, to use a variable pitch prop. It featured hardwood blade roots set in aluminium collets, allowing the pitch to be pre-set and, like many of the other top flyers, Kozinsky employed twin ball bearing thrust races on a prop shaft of about $\frac{3}{16}$ in. diameter.

Alinari's two models were each completely different. His No. 1 was a very long moment arm tubular fuselage job. His No. 2, shorter, featured several original ideas, such as nose underfin, in which the clockwork d.t. timer was mounted, and a built up "spine" along the planked circular fuselage, running from nose to fin.

As the fly-off time approached, the wind increased, in fact it was almost the only wind of any consequence in the entire contest. This necessitated a trek down the whole length of the field and gave the timekeepers their only real test of the championships.

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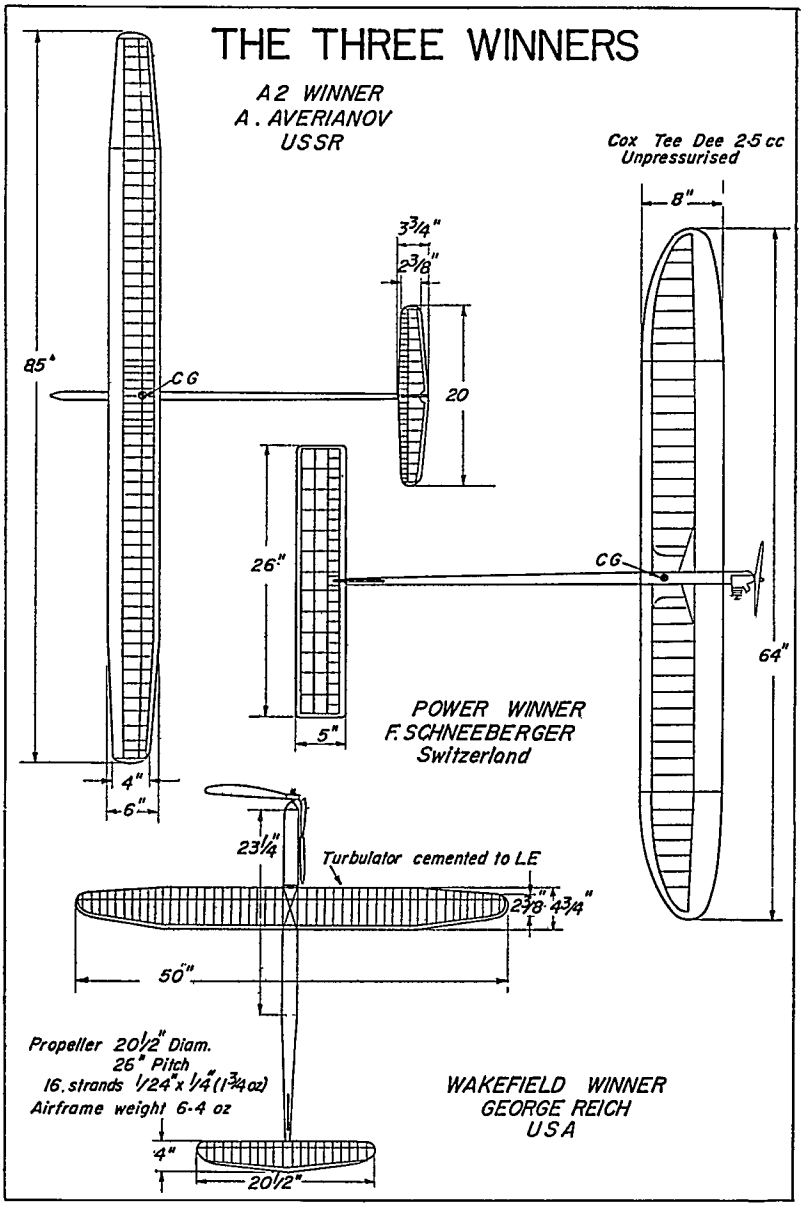


Reich went straight into lift and was followed quickly by Kozinski. Alinari just missed the thermal and returned 2 min. 49 sec., leaving Reich and Kozinski to battle it out. It was an extremely close finish and Reich only made it by a mere three seconds with 3 min. 30 sec.

A jubilant U.S. team tore off down the bumpy field in (and on) their estate car, returning with the victor perched precariously on the roof and surrounded by jostling photographers.

It was a most popular victory, for George had twice previously been within sight of the crown, once in 1953 and again in 1958 when he missed the fly-off by only one second.

The team prize went to Poland and was, to some extent, compensation for their near miss in the individual stakes. This, too, was a close match, with Russia breathing down the Poles' necks only 7 sec. behind, and U.S.A. a further 24 sec. away.

That evening, after the excellent dinner and the commendably short speeches, the prizes were presented. The biggest cheer was for popular Betty Bell who, weighed down with badges given to her by every team at Leutkirch, was presented with a cocktail shaker by the Deutcher Aero Club.

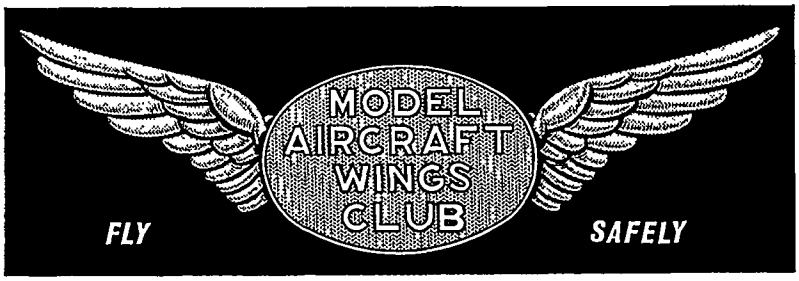
So ended this Model Olympics and, we think it will be agreed by all who took part, that this was one of the most enjoyable meetings for many years. Congratulations to our German hosts, both those directly concerned with the contest, and the public, whose town we "took over" for three days, and who made us more than welcome.

Wakefield Results

1.	Reich, G.	U.S.A...	900+210
2.	Koczinski, J.	Poland	900+207
3.	Alinari, A.	Italy	900+169
4.	Azor, L.	Hungary	887
5.	Niestoj, W.	Poland	882
6.	Riffaud, L.	France..	880
7.	Sapaschyj, W.	Russia	875
8.	Fresl, E.	Yugoslavia	874
9.	Sjögren, S.	Sweden	870
10.	Petiot, J.	France..	865
11.	Osborne, J.	Holland	859
12.	Hämaläinen, E.	Finland	856
13.	Bousfield, K.	Canada	855
14.	Ivanikov, I.	Russia	854
15.	Rupp, G.	Germany	849
16.	Krizsma, G.	Hungary	844
17.	Kmoch, W.	Yugoslavia	840
18.	Axelsson, U.	Sweden	837
19.	Roberts, G.	G.B.	829
20.	Sokolow, J.	Russia	824
20.	Breiht, F.	Austria	824
21.	Patterson, J.	U.S.A...	821
22.	Zurad, St.	Poland	818
23.	Leissner, K.	Germany	816
24.	Storgards, B.	Finland	812
25.	Perkins, C.	U.S.A.	808
26.	Merori, J.	Yugoslavia	796
26.	Artioli, R.	Italy	796
27.	Aalto, P.	Finland	786
28.	Murari, B.	Italy	785
29.	Kieft, R.	Holland	783
30.	Meseburger, C.	Spain	776
31.	Mackenzie, D.	Canada	775
32.	Elliott, N.	G.B.	774
33.	Ehmann, O.	Germany	766
34.	Tammel, E.	Austria	760
35.	Segrave, M.	Canada	755
36.	Flodstrom, L.	Sweden	752
37.	Fernandez, F.	Spain	749
38.	Rohlena, M.	Czechoslovakia	748
39.	Liechti, R.	Switzerland	744
40.	Lust, P.	Holland	736
41.	O'Donnell, J.	G.B.	730
42.	Nienstedt, E.	Denmark	725
43.	Visser, P. W.	South Africa	724
44.	Malkin, J.	New Zealand	
	(P)Maibaum, G.	Germany	715
45.	Rasmussen, P.	Denmark	712
46.	Frigyes, E.	Hungary	703
47.	Rodrigues, A.	Portugal	699
48.	Balasse, E.	Belgium	691
48.	Sereno, A.	Portugal	691
49.	Hegglin, E.	Switzerland	690
50.	Fontaine, J.	France..	682
51.	Grunbaum, P.	Austria	675
52.	Hewitson, N.	New Zealand	
	(P)Waldhauser	Germany	672
53.	Muzny, L.	Czechoslovakia	665
54.	Cunderlik, J.	Czechoslovakia	651
55.	Dahl, H.	Norway	639
56.	Cook, W.	New Zealand	
	(P)Schmidt, M.	Germany	637
57.	Meier, J.	Switzerland	634
57.	Simonsen, A.	Norway	634
58.	Matute, V.	Spain	516
59.	Stovland, N.	Norway	482
60.	Sousa, M.	Portugal	477
61.	Mikkelsen, H.	Denmark	398

Team

1.	Poland	2,600
2	Russia	2,553
3.	U.S.A...	2,529
4.	Yugoslavia	2,510
5.	Italy	2,481
6.	Sweden	2,459
7.	Finland	2,454
8.	Hungary	2,434
9.	Germany	2,431
10.	France..	2,427
11.	Canada	2,385
12.	Holland	2,378
13.	G.B.,	2,333
14.	Austria	2,259
15.	Switzerland	2,068
16.	Czechoslovakia	2,064
17.	Spain	2,041
18.	New Zealand	2,024
19.	Portugal	1,867
20.	Denmark	1,835
21.	Norway	1,755



Once a Wingman . . .

SEVERAL Wingmen have recently written to me about a personal problem. Since they joined the Wings Club they have, not surprisingly, grown older. There is nothing that I could do about this, even if they asked me to; like them, I am a year older than I was last year.

But I am not 16. It is there, for these correspondents, that the problem lies. The Model Aircraft Wings Club was founded for modellers under 16 years of age and they are wondering whether they can still consider themselves members, when they have passed this official limit.

Let me go back to the beginning for a moment and explain why MODEL AIRCRAFT decided to form an organisation for young modellers. The club was founded to help and encourage those who, because of their age and inexperience, felt themselves out of place in a local club, and those too, who had no club in their home area. If they already belonged to a group, they could regard the Wings Club as a link with modellers of about the same age in Britain and other parts of the world.

This applied also to those who lived in places where there was no suitable organisation which they could join. We know how much the lone modellers needed the sense of belonging and the letters which we have received from young people, as far apart as Scotland and Australia, leave us in no doubt of what the club means to those who had no means of sharing their interests, or enjoying a sense of community, before it was founded.

These are the motives which inspired the club. Behind them was the knowledge that aircraft modelling needed a code of behaviour, founded on consideration for other people and for the individual flier's own safety.

Obviously, there is no reason why a Wingman should lose the link which the Wings Club affords, or cast away the code which it employs, merely because he has reached the ripe age of 16. Nothing which he has gained from membership need be forsaken. He can continue to be a member, except that he now becomes a Wingman Emeritus. The only difference is that he can no longer take advantage of the club's special offers. This should not be a disappointment. The special offers are intended for the help of the younger Wingmen, and most of the older ones will, in any case, have passed the stage of needing them.

My hope is that every Wingman will eventually become a Wingman Emeritus and will remain one, as long as the craft of aircraft modelling delights him.

ALAN WINTERTON.

Turn to next page for SPECIAL PLANS OFFER!

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.

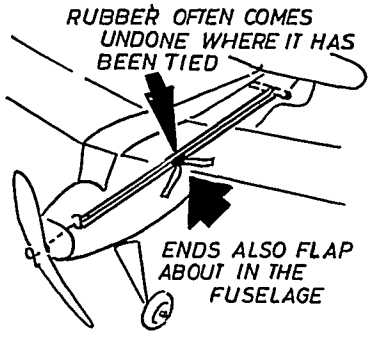
IMPROVE YOUR MODELLING

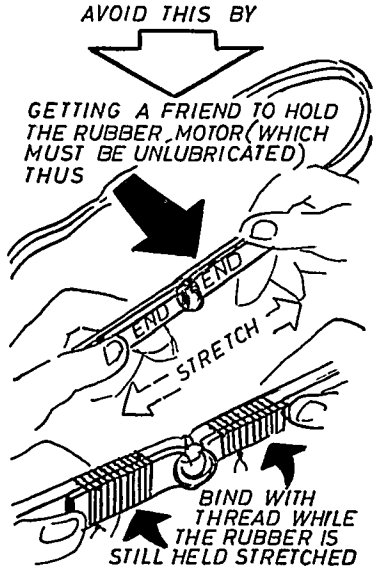
with this month's

BY
RAY MALMSTRÖM

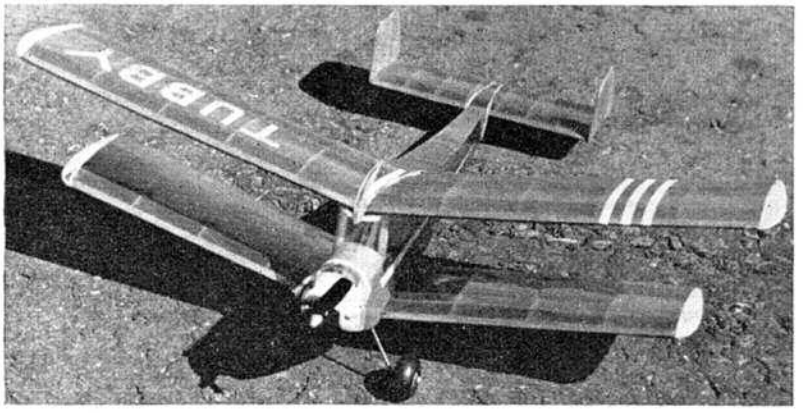
BINDING A RUBBER MOTOR

THE weak link in a rubber motor is the place where it is tied. However tightly the reef knot is made, it very often comes undone—aided and abetted by the lubricant! The two loose ends also flap about, causing friction and possible damage to formers. Getting rid of this bother is simple. When tying the ends of your motor, leave two pieces either side of the knot about ¾ in. long. Get a friend to stretch these as shown below, while you bind them carefully with thread. You can then lubricate your motor in the usual way. As long as you have bound the ends tightly to the other strand of elastic you will have a neat, permanent join.





TUBBY — by Colin Read



An easy to build, tough little 20 in. wingspan "small field" sportster for the Cox .010

FOLLOWING the publication of our feature "Pocket Size Power Models" in the August issue, we have been plagued by requests for a simple-to-build sports job for the Cox Tee Dee .010. Colin Read has produced just such a model and we are sure that this attractive little 20 in. span biplane will prove an extremely popular design.

The basic fuselage is constructed from $\frac{1}{8}$ in. sq. balsa. The two sides are built flat on the drawing, building in the $\frac{1}{8}$ in. sheet pieces "F" and the rear reinforcement. Bind and cement the undercarriage to former F2 and assemble the two fuselage sides, adding the top and bottom $\frac{1}{8}$ in. sq. cabin cross braces. Cement the rear of the fuselage sides together, then add the remaining cross braces and formers F2a and 3. Finally, fix the nose former F1 and then cover the top of the fuselage in front of the cabin and the nose underside with $\frac{1}{16}$ in. sheet.

Cut the cowl sides, etc., from $\frac{1}{4}$ in. soft sheet, and cement firmly into position, being careful to allow sufficient room for the spring starter. Shape the cowl fairings from soft block and hollow out before cementing in place. Make the top portion of the cowl removable for engine access.

Sand the fuselage smooth and add $\frac{1}{16}$ in. dowels where shown. Cover with lightweight Modelspan and finally add the windscreen from thin acetate sheet. Give at least three coats of clear dope and one coat of fuel proofer to the fuselage, to protect the covering against the destructive glow fuel exhaust.

The wings are built directly over the plan and the construction is quite straightforward, but be careful to use hard balsa for the leading edges and spars, to prevent warping when doped. Sand to a fine finish and cover with Jap tissue if available, or use lightweight Modelspan. Give two coats of clear dope and one coat of fuel-proof dope.

The tailplane, like the wings, is very straightforward and should present no difficulties; cover with Jap tissue and give one coat of dope. Cement the two fins in position after covering.

The original model looks very attractive, with its colour scheme of orange with white trim—dark blue with fluorescent orange transfer trim is also a very striking finish, but no doubt builders will think up more!

Close-up of alternative motor installation, mounted inverted and uncowled.

SPECIAL PLANS OFFER TO WINGMEN

As the design "Tubby" which is featured on these pages is a model especially suitable for Wingmen to construct, we have arranged for the full size plan of the model to be available to all Wings Club Members at a special price. The usual price for the plan is 3s. 6d. but Wingmen need only pay 2s. 6d. for a copy.

This offer only applies to Wings Club Members, orders must be on this form, and you must give your membership number.

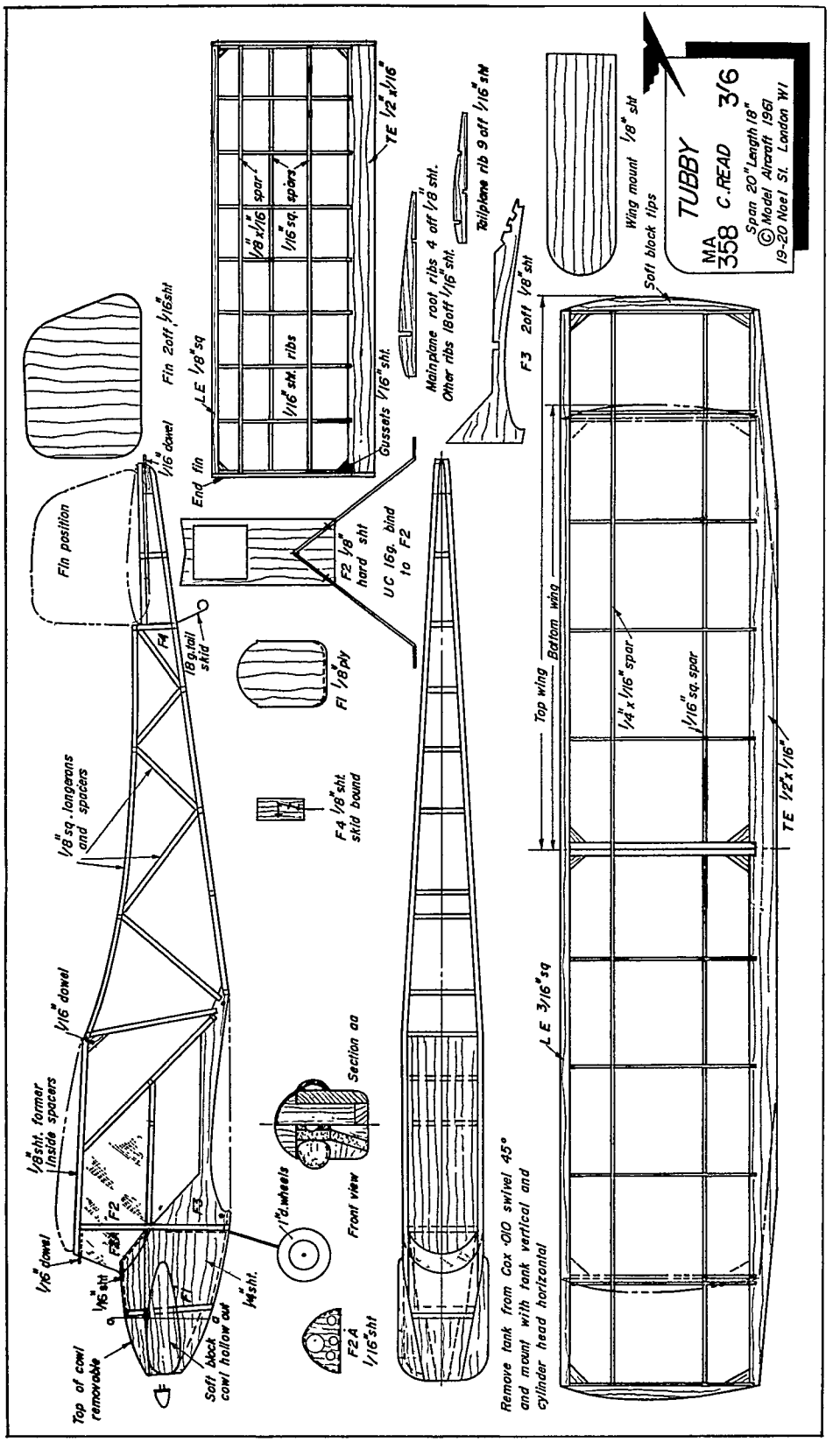
Please send me the plans of *Tubby*. I enclose herewith postal order value 2s. 6d.

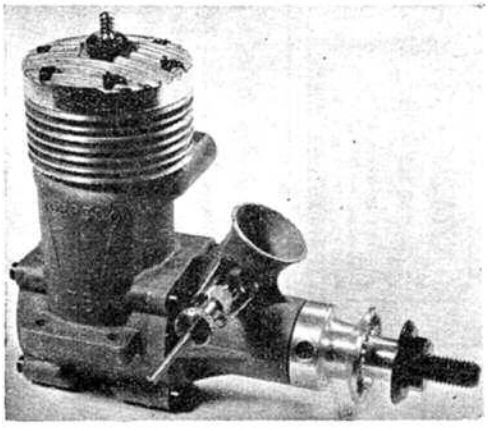
Name in full.....

Address.....

.....

Wings Club Membership No.....





Peter Chinn's

LATEST ENGINE NEWS

OUR comments, in the July issue, concerning the need for improved glow-plugs for high-powered glow engines, earned a disclaimer from one manufacturer but thanks from several contest modellers who have suffered the inconvenience and expense of rapid plug failure and/or reduced performance.

The manufacturer very kindly sent us a batch of plugs to try, but, we regret to say, tests on these have only served to strengthen our opinion that most plugs currently available are just not up to the requirements of the latest high performance motors. Testing a long reach type in the new K. & B. Torpedo 35C, for example, power dropped by 8 per cent. by comparison with the K. & B. KB-IL plug supplied, while life was reduced to the rate of one plug per run of less than one minute at speeds above 14,000 r.p.m. This, we might add, was on a fuel containing only 5 per cent. nitromethane.

One thing that has been confirmed in tests of the new generation of ultra high performance glow engines, is that it is very worthwhile to try different types of plugs in these engines to determine the best performance for a given set of conditions—i.e. atmospheric condition, fuel and operating speed. Merely because one plug gives a higher performance in a certain engine on, say, a high nitro fuel, does not mean that this is still the plug to use with the new regulation FAI speed formula fuel of straight methanol and castor oil.

As a practical illustration of this, we quote the following extract of prop/r.p.m. figures that were obtained recently with a racing 2.5 glow engine under constant climatic condition but using three different plugs and two fuels.

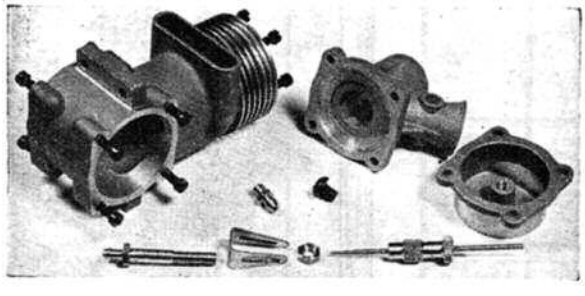
Firstly, tests were run on a straight 75/25 methanol and castor-oil mixture. On this fuel, using an 8 × 4 prop, the best performance was realised with an old type K.L.G. plug, 14,000 r.p.m. being recorded. Second best was with a K. & B. KB-IS plug at 13,800 r.p.m., while 13,400 r.p.m. were obtained with an O.S. No. 5 plug. The same series of tests was then repeated with a fuel containing 30 per cent. nitromethane. On this fuel, there was an improvement of 1,300 r.p.m. on the K.L.G. plug to 15,300 r.p.m. On the O.S. plug, however, there was an increase of no less than 2,100 to 15,500 r.p.m., while a 1,900 increase was obtained on the K. & B. plug to give the highest recorded speed of 15,700 r.p.m.

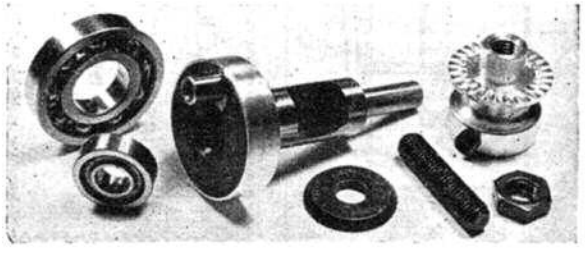
Thus, on straight fuel, the order, under these particular conditions was 1st K.L.G., 2nd K. & B., 3rd O.S., but on 30 per cent. nitro, the order was completely different: K. & B., O.S., K.L.G. Yet, under different conditions —different engines and speeds in the region of 20,000 r.p.m., the pattern was again changed.

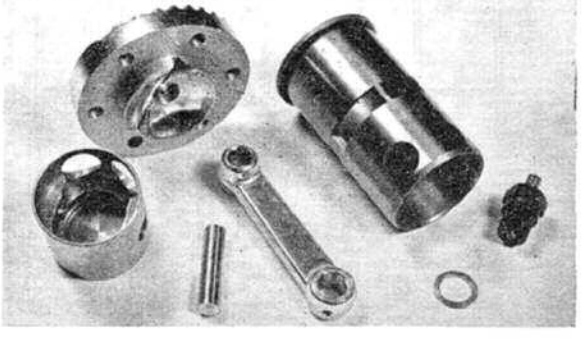
Incidentally, the three types of plugs mentioned above—and particularly the old type K.L.G.—appear to have a reasonable life expectancy but may still, under fairly severe conditions, last no more than a single run. This does make it extremely difficult—and more than a trifle expensive—to obtain sufficient data on the performance and durability of different plugs under varying conditions, to arrive at any firm conclusions. Some months ago, when tests on the new 2.5 c.c. K. & B., O.S. and Super-Tigre engines were bringng the plug problem very forcibly to our notice, we attempted to make some plug tests in the hope of correlating results. Numerous tests and a score or so of dead plugs later, the only real conclusions reached were that we would need at least a gross of assorted plugs to reach any accurate results at all.

Not even plugs of the same type used under identical conditions were always consistent in the matter of durability or failure. We have had plugs last for three or four runs at speeds in excess of 21,000 r.p.m. on 50 per cent. nitro in the K. & B. 15R. Yet three plugs of the same type have burned out in succession after single runs in this engine under identical conditions and we have also experienced burn-outs on straight fuel at only 15-16,000 r.p.m.

We should, perhaps, emphasise at this juncture, that this highly critical situation is virtually confined to a few very high powered engines that are new to the model market. Most plugs are perfectly satisfactory in the majority of glow engines currently available and for which they were designed and in due course, no doubt, improved plugs will appear that will be able to cope with the big advances that have recently been made in competition type glow engines.







Heading photo shows the K. & B. .35 Series 61, just released in U.S., one of the most powerful .35s to date. The castings (top left) are very clean and accurate. Metal-to-metal joints are featured throughout. Bottom left: crankshaft and bearing components of K. & B. .35 Series 61. Counterbalanced shaft is of 3-piece construction like K. & B. 15R, with pressed-in plated crankpin. Below, the piston and cylinder parts. Piston is hard-plated, running in cast-iron liner.

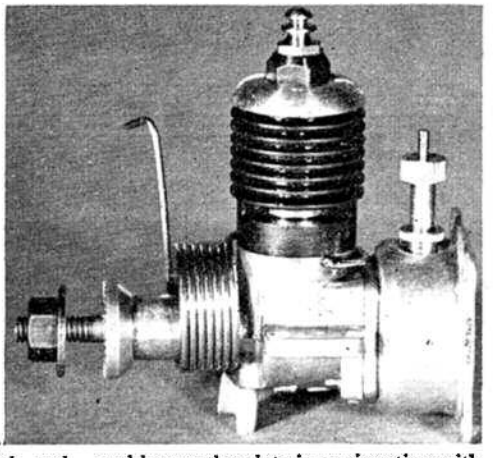
The K. & B. 35C Series 61 mentioned at the beginning of this article, is one of the latest engines to reach the American market and we have recently received a sample from the U.S.

Incidentally, to digress for a moment, we are sometimes asked whether it is not cheaper to import engines direct from their country of origin instead of paying the alleged "inflated" prices of these engines in the U.K., now that it is easier (and legal), in many cases, to transfer currency for such a purpose. We are quoted, for instance, a such-and-such engine which sells for $16.95 (£6 1s.) in the States but costs £8 5s. in the U.K. To this we can only reply that all model engines are subject to purchase tax and duty and, while you may be lucky and get your privately imported engine cheaper than you would have to pay for it in a model shop, the chances are that you may equally well find yourself sadly out of pocket. We do not yet know what the U.K. price will be, when imported through regular trade channels, for the K. & B. 35C ($19.95 = £7 2s. 6d. in the U.S.) but we do know that ours cost us £4 7s. 5d. in tax and duty.

The 35C is the second to be released of the new "Series 61" contest engines, announced this year by the K. & B. Manufacturing Corporation. Its general construction, markedly different from previous K. & B. .35 models, is generally similar to the other two Wisniewski designed "Series 61" motors, the .15R and .29R racing engines. Instead of rotary disc valve induction, however, it features the more usual shaft rotary valve favoured for 0.35 class engines.

Most 0.35 cu. in. engines purchased in the U.K. are used for C/L stunt flying, whereas the 35C is primarily intended for American "combat," "rat-racing" and F/F contests. The engine would, of course, be eligible for open type F/F contests in the U.K., but is too large for the British combat class. It remains to be seen whether rat-racing will achieve wide popularity in Great Britain and whether any rules formulated for this class will allow the use of large engines.

Designed for this sort of work, the Series 61 35C is a good deal more powerful than most stunt 35s. Even on a low nitro content fuel it is capable of up to 13,000 r.p.m. on 10×6 props and as high as 15,000 on a 10×4 Tornado nylon F/F prop. The engine is designed for pressure feed only—either by means of a bladder tank or a sealed metal tank pressurised from the crankcase. Unlike the 15R and 29 R, the crankcase pressure take-off is not rotary-valve timed and is, therefore, of the low pressure type. We used it in conjunction with a Veco 3 oz. pressure tank and found handling very good.



The engine is very well made. It features the same unique three-piece crankshaft construction as the 15R. It has a ½ in. main journal, a ¼ in. dia. front journal and a ⅜ in. bore gas passage. The lightweight hard-plated piston, featuring an annular rib above the gudgeon-pin bosses to resist ovality, has two circular transfer ports in the skirt which is relieved below the gudgeon-pin centre. The piston is an extremely good fit in the bore both hot and cold. The cylinder head employs a hemispherical combustion chamber shape with centrally located plug.

The Series 61 .35C has a bore and stroke of 0.790 × 0.720 in. and weighs a little over 8½ oz.

* * *

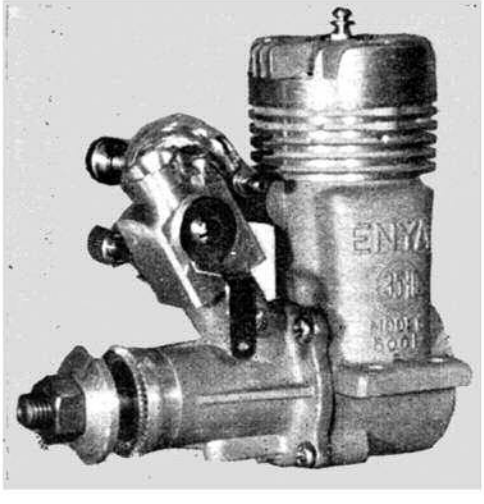
The Fox 40 engine, of which we gave brief impressions in the September issue, is to be available in a new R/C version. This has a throttle system which is of a new type, differing appreciably from previous Fox throttles. It comprises a carburettor throttle coupled to a sliding plate exhaust restrictor. An extension is fitted to the exhaust stack with the plate positioned between. A crank fitted to the throttle arm raises and lowers the plate in conjunction with the intake throttle. The complete throttle assembly is priced $5.00, higher than for previous models.

* * *

One of the lesser-known U.S. makes of engine is the Cameron. Although relatively unknown in contest circles, the Cameron Precision Engineering Company has produced some very well-built and pleasant handling engines in the 0.09-0.19 cu. in classes. Cameron have now announced a 0.15 cu. in engine at a record low price of only $3.95. Also available in a coupled-throttle version at $6.95, the engine is a loop-scavenged, shaft-valve model.

* * *

From Italy, we learn that the Rossi brothers, well-known for their Vulcan pulse-jets and modified versions of Super-Tigre engines, have produced a 10 c.c. racing engine. To be known as the Rossi 60, the new motor is rated at 1.80 b.h.p. at 18,500 r.p.m. In general design and construction, the Rossi is similar to the McCoy Series 20 and features a one-piece crankcase and cylinder block with detachable front and back units, twin ball-bearings, rear disc induction and an aluminium piston with two rings.



Above: New small Enya is this 049 reed-valve model with spring starter and optional beam or bulkhead mounting.

Left: Enya's latest is this complicated throttle carburettor on Enya .35 Mk. 2. Features separate high speed and low speed jets.

Right: first diecast pilot-run O.S. Max 49RC has further improved throttle system.

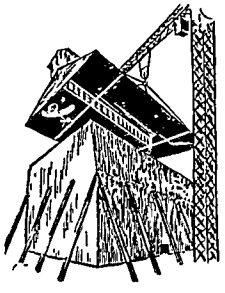
TOPICAL TWISTS

by pylonius

Flimsy Pretext

The trouble with human progress is that it goes just that little bit too far. Undoubtedly the happiest time in model history were those few blissful years when models were doing their modest minute-plus at sub-thermal level. Then along came some dynamic character with an " If Found " label on his model, and an ambitious eye to the distant horizon. After that all was confusion and cross-eyed timekeepers.

Much the same happened with the control-liner. In the early days anyone who could do a loop was hailed as a national hero. Mostly, the judge's job was a cinch. The first competitor to do a clean wing-over got the pot, while anyone who got his engine started was highly commended. Then, whoosh, the quiet tempo was jazzed into frenzy by a circus type performer, flying three models simultaneously through an endless series of eight leaf clovers and hexagonal eights. A dearth of three-headed, multi-eyed judges took the gilt off the Gold Trophy, and led to a decline in the competitive sport.



Amid all this chaos the indoor contest continued to provide a haven of peace and sanity, with no eyestrain or free-for-all fly-off's. Even the dimmest timekeeper had little difficulty in sighting the flimsy flopping around within tickling distance of his nose, and no athletic prowess was needed to retrieve a model from a two pace distance.

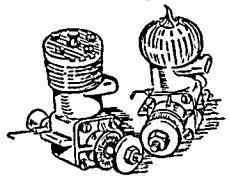
But, now alas, the inevitable has happened. The cosy 15 min. stint has been pushed up to three-quarters-of-an-hour, and everything has gone haywire, with competitors scurrying about the catwalks like scalded moggies and officials waving captive balloons among the rafters.

And, with 45 min. per flight, you can imagine what it is like to queue up for a timekeeper. Before it ever got to your turn he would have been carried off in a red-eyed delirium, or gone back to bird watching. We can also look forward to the F.A.I., moving in with a new contest schedule of five, 50 min. flights, and the removal of the roof for the grand fly-off.

Kremlin Gremlin

It's nice to see a bit of Western one-upmanship for a change. Mostly, in the realm of missile development, we come panting up a poor second to the hammer and sickle boys, but, at least, in the model missile field, our American friends seem to extract more power from the potent pot than the rival Russkis.

Illustrating this comforting point are the side by side performance ratings of two similar size engines: one from the West and one from the East. To my unpractised eye there is nothing to distinguish between them externally. Apart from the fact that the Russian version has an onion shaped dome they could have been produced from the same mould. We are assured, however, that the Western version demands twice the rotational speed from the vertiginous pilot. Also, we can assume that Western modellers will be kicked off their open spaces at twice the rate of their Russian counterparts.



Neutral Viewpoint

In this age of Sputniks, space ships and wingless aircraft, you would hardly think that the tissue covered model plane could be the cause of aerodynamic dispute. On the face of it the notion is about as archaic as an article by Stirling Moss on the wheelbase characteristics of the horseless carriage. Nevertheless, the experts seem to have found a source of disagreement in the backroom boys' latest hobby horse: the neutral point.

Now, if you'd like to know what the neutral point is, just read up all the latest guff on the subject, and you'll be as wise as I am—dead ignorant. Some experts even go so far as to disbelieve the whole thing. As Bloggschev once said: " There can be no neutral point. Forces which are not for us are against us."

But most experts take the fashionable view that such a dead spot focus does exist somewhere along the formula haunted fuzz and, by a great stretch of the mathematical imagination, have devised a means of locating it. All you need to know is where to start looking. You begin by trimming out the model by the old rule of thumb method, and when you've got it flying stably, you can forget the whole thing.

Like winklepickers and Italian jackets, these aerodynamic fads enjoy a brief and fashionable vogue. Older modellers will recall the age of the corpulent fuzz, when the Centre of Lateral Area was all the rage. As with the Neutral Point, no one could accurately pinpoint the C.L.A. but, as an act of faith, all fuselages were given the full bellied treatment. A device which was thought to act as a good medicine juju against the evil machinations of the demon Spiral. Needless to say, this had no effect upon the rate of prang; the only constant factor in all the mathematical formulae.

Later on came the underfin craze. This proved to be a field day for the experts. Any model that didn't sprout a profusion of fins on its netherparts was looked upon as a freak—even the model that won the contests.

The unnerving thing about the Neutral Point is that there is nothing practical we can do about it. If only the experts had thought up something like a cranked tailplane to go with it we'd all be happier, but to feel so impotent about it, that's what gets us.

Only Jung Once

When taking home the wreckage from the contest field, we are all too prone to psychoanalyse the model, going stage by traumatic stage back to its infant origins on the design board. Perhaps that first outing on the wilds of Chobham Common had induced a state of agoraphobia*, or that an over tense motor, plus a lack of directional control was responsible for the withdrawal symptons of the noseblock. Altogether we are too quick to attribute the erratic behaviour of our model to the nasty nosedive it took on an early test flight; we never think of our lack of success having anything to do with any nasty nosedive we ourselves may have taken in childhood.

Now, at last, we have woken up to the realities of the situation. The new edition of the Frank Zaic Year Book puts forward the proposition that positive thinking is more effective than positive incidence in your climb to the top. Forget all that gumph about rubber fatigue and downdraughts; the fault lies not in your falling stars but in your repressed personality.

How does the top man get in 14 max's in one day, using 14 different models? The answer is energy. Not the energy you get from the telly commercial breakfast foods, but the inner energy that comes from a vitalised, rediscovered " You."

Most contest failure, it seems, comes not from an out of trim model so much as from the out of sorts modeller. You can't expect to take home the cup with a ten-year-old model, not unless your name happens to be O'Donnell. There's room at the top for the man who keeps the midnight oil burning in the room at the top. Understand your psyche and you can sling the telly and the bed out of the window and flex your reflexes for that top ten rating.

* *Agoraphobia: fear of open spaces.*

The XIth Criterium of Aces

(Criterium d' Europe)

held at Genk, Belgium
15—17th September, 1961

Report and photographs by N. J. Butcher

THE new C/L area at Genk, which is some 30 miles north-east of Liege (see Here and There), was the venue for this year's meeting, the 11th in the series. Although the old title has been dropped in favour of Criterium of Aces, it was very much the enjoyable mixture as before, with a new event for scale models to widen the scope somewhat.

All competitors and visitors, except those who had opted for hotel accommodation, were housed at Beukenhof, a large hostel situated about five minutes' drive from the flying area. Here the processing was carried out expeditiously on the Friday and as only 20 minutes was allowed per team, this meant that the day was virtually free for test flying.

Much to the surprise of those who left England in the midst of a cold, rainy, depression, the weather was fine and very hot. A strong wind throughout the day, dying away to a flat calm late in the afternoon meant that the fliers, particularly stunt, who were lucky enough to draw for a late flight, definitely received an advantage. Fortunately the 20 stunt fliers who flew the A.M.A. pattern all flew under virtually the same calm conditions.

Stunt

This year saw the introduction of the new rules, whereby each competitor flew two flights to the F.A.I. pattern and the top 20 a further flight to the A.M.A. pattern, the top F.A.I. score, plus the A.M.A., determining the final placing. Originally, the organisers intended to score the "straight" A.M.A. points, but strong representations to the jury, resulted in a decision to use a conversion factor to give identical totals.

Only two British fliers were present, Frank Warburton and Dave Day, and it was thought that their familiarity with the A.M.A. schedule should give them an edge. In the event, only Warburton reached the top 20 and throughout did not show the form that he has frequently displayed at home events. An off day is a well-known hazard for stunt fliers, which no amount of practise can eradicate and the consistency with which he did in fact fly, reflects the terrific amount of hard work Frank has put in during the year.

For his first and A.M.A. flights he flew his new model, which is a semi-scale replica of the Belgian *Stampe Monitor III* lightplane. This, together with his U.2, which he flew for his second flight, were certainly among the most realistic models present and aroused

Our heading photo shows the Combat semi-finalists with helpers. Tribe and Perry are in the centre, with the Germans Schoppe (left) and Kellner, whom they beat to make it an all-British final. Below left: Imre Toth with his winning monoline speed model; Moki engine in this is ringed. Below centre: Stunt winner Louis Grondal with his new design, which was quite the most superbly finished model at the meeting. Right: Victory at last; Kjell Rosenlund has good reason to look happy (see text).


1
HUNGARY


2


3
G-30022


4
CUBA
21


5


6


7

considerable interest. Both were powered with the new Fox 40.

For the third year running Grondal, of Belgium, topped the results. His first flight was when the wind was at its strongest, but by changing places with another team member and due to half an hour extension of flying time, he was able to make his second and highest scoring F.A.I. flight of the contest in flat calm. Why, in fact, he does so well still puzzles many observers for, taken individually, his manoeuvres are no better than many others, yet his pattern as a whole is integrated to such a degree as to give an excellent impression. All criticisms and prejudices apart he is a superb flier, who should remain a force to reckon with for many years to come. Deserting his *Nobler* this year, Grondal flew an own design model with an absolutely superb bronze and white finish.

Cirotkin flew the same rather dumpy design he had in Hungary last year, although this was a new model in white with light blue trim. His A.M.A. pattern was, without doubt, the best of the meeting, easily scoring the highest points and earning well deserved applause.

In point of fact, there is now little to choose between any of the top European fliers—a different order of flying under the conditions, with a strong wind dying away late in the afternoon, could well have resulted in a complete reshuffle.

Team Racing

With Rosenlund still demonstrating his superiority with two identical, as well as the fastest, heat times, everyone turned out to watch the final. His disqualification, after winning this event twice previously, was still fresh in everyone's mind and we had the feeling that anything similar this year, would have resulted in a riot!

As it turned out all fears were groundless, the race being one of the cleanest we have seen. Rosenlund was first away and as he released the model the motor coughed and almost stopped, but fortunately recovered and after that never missed a beat. Clearly the fastest in the air at some 102 m.p.h., he was gaining one lap in five on Leloup and Azor, but as he would have to make an extra pit stop it could be anyone's race. However, by the half way mark it was apparent that if all went well the race was in the bag—which it was in the splendid time of 4.40. Both Rosenlund and his pilot Bjork, are to be congratulated on their perseverance in obtaining official victory at the third attempt—without doubt the most popular win of the meeting.

It was definitely not the British team's meeting. Nixon crashed a model test flying, Dick Edmunds was plagued with tank trouble and Ken Long who, after shearing a crankshaft in flight while testing, was going very well, lost his pilot when Les Davy regrettably had to return home due to sudden illness in the family. Dave Balch was allowed to fly Long's model proxy and it looked as though a fast time might be recorded. Unfortunately, however, as Long attempted to catch it for a pit stop, the wing was broken and with it our only real chance of reaching the final.

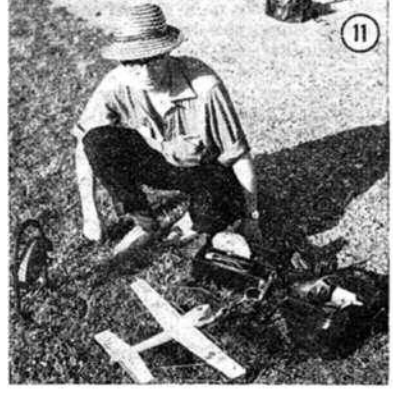
The standards of flying have improved tremendously, disqualifications being so rare as to cause comment! Indeed, it was no uncommon sight to see three models passing in echelon, all below the limit of the height marker. Although there were sometimes rather long delays between getting the teams in position and starting each race, in general the organisation worked very smoothly. Due to the last minute rush to complete the circles, the excellent lap clocks used in previous years, although fixed in position, were not yet wired up. However, we particularly liked the special height markers' shelter, which was strongly reminiscent of a private Silverstone grandstand.

Speed

Our hopes in speed received a boost when it was found at a testing session, that the Carter motors used by Wright and Butcher were out-turning the Italian team's Super Tigres by some 1,000 revs. on the same propeller. In fact Wright's top speed equalled the best that Toth or Pech could manage on two lines, but when they changed to monoline . . .

This first event to the new fuel and handle rules was considered to be very much a testing ground for next year's World Champs. and it is apparent from the results that things are, at the moment, more even, although doubtless by next year one or two motors will establish their superiority. The speeds attained by the top men were very high for "straight," but it is now apparent that monoline is a must.

The only protest of the meeting came when Toth made his second flight, using



1. Team race finalist Laslo Azor (right) receiving some advice from Neri Bernhard, winner in 1959 and 60. Business commitments prevented him from competing this year—a pity, we had looked forward to yet another Rosenlund/Bernhard duel.
2. Upholding Belgium's reputation for T/R expertise was Leloup, who placed second.
3. Ken Long starting up for his first heat.
4. Ivan Cirotkin (left) is watched by team mate Chkursi, as he prepares for his A.M.A. flight which gained him second place.
5. Norman Butcher starts up George Copeman's model. Kevin Lindsey is manipulating the "Wirrlitzer," which was quite the neatest and most compact starter unit on the field and was made by George Fletcher.
6. Pete Wright tries out the two line handle and new type pylon yoke.
7. Pech displays his monoline handle described in the text.
8. Scale winner Huybrechts with his "Chipmunk."
9. Like the rest of our team race entries, Ellis and Nixon were sadly out of luck, having crashed a model in practice.
10. Rosenlund's pilot Nils Bjork also flew in speed with this M.V.V.S. powered model.
11. George Copeman with his Super-Tigre powered model.

1. Dave Day is assisted by Frank Warburton.
2. Hofherr's "Super Constellation," disqualified after outpointing the other scale entries.
3. British team manager "Pop" Warburton with son Frank's new stunter.
4. Sladky was unable to return a score with his monoline entry.
5. Amato Prati with his Super Tigre powered model.
6. Young Dutch competitor Bob Geilman warms up for a team race heat.

monoline for the first time. It was contended that his handle was "illegal," a suggestion that the jury promptly discounted. They could hardly do otherwise—it was an exact replica of the handle illustrated in the rulebook! Pech's handle was most interesting (see photo), the drive to the lines being via bevel gears and a universal coupling. There are some five turns per inch of bobbin travel, but even so Pech had two shaft-runs testing and Sladky, who used the handle after getting in a time on two lines, was unable to complete the requisite 10 laps for an official flight. Had he done so, he would have been well up with the winners, as his model was very fast.

Pete Wright was top of the British contingent and well up with the best of the two liners. He was using the newest of Fred Carter's motors and it is obvious that with monoline, he will be well up in the 200 k.p.h. bracket. Using the Super Tigre with which he won the Nationals, George Copeman had a new model with a synthetic resin finish. His first flight at some 108 m.p.h. was in fact the first time the model had been flown, so it is not surprising he "jumped" the pylon to return a no score. However, this was more than made up for with his second and third flights, which were entirely trouble free.

Norman Butcher was also using a Carter motor, but after a promising first flight it showed signs of slowing. In spite of being stripped down (by Fred Carter who accompanied the team) and having a blown cylinder head rectified, it was impossible to improve on this time. Fred certainly deserves success with his motors as some recompense for the hours of work, modifying and rebuilding, which he has put into them in the last few years. Of orthodox racing layout, they obviously have a potential as good as any motor in the world. In spite of the recent swing to plain pistons, Fred sticks to rings and it is interesting to note that both Toth and Pech were also using ringed motors.

The team were all using propellers carved by Kevin Lindsey, who has spent many hours without complaint carving props which subsequently were unsuitable. A final set in hydrulignum, which were the best finished speed props we have seen, were unusable because a harmonic vibration coincided with the ground revs of the motors. To see Kevin, with spirit level adjusted razor edge balancer, plus a micrometer for checking blade thickness, is an object lesson in patience and workmanship.

Combat

This was the first time that Combat has been well supported at a Criterium and the Northwood/Kenton combination certainly made it a field day. After some immaculate flying, the final could well have been an anti-climax, but Tribe and Perry put on a magnificent show. The pay-off came after a mix-up when both models, which were identical, were grounded and the pilots swapped handles. This really threw the judges out of gear, but the crowd were delighted.

The rules are not as straightforward as

those we fly to at home, additional points being awarded for sundry manoeuvres, etc., but in spite of this, the event ran smoothly and no one argued excessively about decisions.

It seems that combat will become even more popular at future meetings and the British team have set a standard of flying and conduct that will be hard to equal.

Scale

There were only six entries in this event and frankly they were disappointing. Cesare Milani, one of the judges, had taken his Ansaldo with him and, in comparison, the entries were poor. Any of the higher placers at our own Nationals could have been assured of a virtual walkover, had they attended.

The eventual winner, Huybrechts, flew a *Chipmunk* in Belgian markings and replaced Hofher, after the latter's *Constellation*, which flew well—all engines being started in well under three minutes, an object lesson for our " Multi " men—was disqualified, as the drawings required by the rules were not produced.

A final banquet and prizegiving, of which the least said the better—1¼ hours between the hors d'oeuvres and the soup is a bit much and was obviously a great embarrassment to the organisers—brought the meeting to a close. This was a very well organised and run event, without doubt an auspicious opening meeting for the Genk circuit, which will, we trust, be the scene of many more Criteriums.

RESULTS

Stunt

1.	Grondal	Belgium	962	1,086	1,029	2,115
2.	Cirotkin	Russia	986	976	1,111	2,097
3.	Herber	Czechoslovakia	1,024	1,074	1,008	2,082
4.	Seeger, K.	Germany	922	990	1,064	2,054
5.	Kroch	Germany	906	987	1,021	2,008
6.	Bartos	Czechoslovakia	861	1,010	971	1,981
7.	Hedinger	Switzerland	980	988	988	1,976
8.	Gabris	Czechoslovakia	858	961	997	1,958
9.	Kondratenko	Russia	869	1,032	918	1,950
10.	Hegervary	Hungary	935	899	1,089	1,944
11.	Souliac	France	877	984	931	1,915
12.	Compostella	Italy	961	967	919	1,886
13.	Scherbarov	Russia	685	962	913	1,875
14.	Warburton	G.B.	855	931	929	1,860
15.	Dooring	Germany	735	930	910	1,840
16.	Deville	Belgium	816	917	903	1,820
17.	Koelewein	Holland	790	981	828	1,809
18.	Cappuyns	Belgium	834	891	913	1,804
19.	Richter	Austria	752	861	836	1,697
20.	Van Dorp	Holland	775	910	93	1,003
21.	Veronesi	Italy	85	899		
22.	Soderberg	Sweden	726	870		
23.	Lischak	Austria	667	839		
24.	Turk	Austria	839	438		
25.	Bjornwall	Sweden	628	834		
26.	Day	G.B.	775	818		
27.	Garcia	Spain	711	794		
28.	Watile	Switzerland	234	762		
29.	Durdandez	Spain	522	751		
30.	Lauron	France	737	722		
31.	Fabre	France	729	374		
32.	Bartoli	Monaco	605	716		
33.	Mantellassi	Italy	715	—		
34.	Kuhn	Hungary	133	634		
35.	Novaro	Monaco	75	596		
36.	Gil	Spain	55	549		
37.	Galli	Switzerland	426	519		
38.	Barata	Portugal	493	430		

Speed

1.	Toth, I.	Hungary	181.82	202.25	200
2.	Pech, Z.	Czechoslovakia	179.10	195.65	201.12
3.	Krizsma, G.	Hungary	180	—	193.55
4.	Prati, A.	Italy	191.82	138.46	189.47
5.	Hagberg, M.	Sweden	183.67	177.34	—
6.	Wright, P.	G.B.	172.25	181.82	176.47
7.	Grandesso, R.	Italy	—	180.90	178.22
8.	Sladky, J.	Czechoslovakia	180.90	—	—
9.	Gogorcena, J.	Spain	175.61	172.25	180
10.	Romeyer, M.	France	—	175.61	180
11.	Katona, S.	Hungary	—	180.00	—
12.	Gorziza, H.	Germany	—	175.61	178.22
13.	Ricci, G.	Italy	171.43	176.47	—
14.	Bjork, N.	Sweden	—	175.61	171.43
	Copeman, G.	G.B.	—	175.61	171.43
16.	Giro, E.	Spain	168.22	—	174.76
17.	Battlo, F.	Spain	174.76	161.43	—
18.	Ziegler, G.	Germany	171.43	169.81	169.81
19.	Butcher, N.	G.B.	171.43	167.44	167.44
20.	Bulg, P.	Austria	—	—	168.22
21.	Frolich, J.	Germany	—	135.85	163.64
22.	Kjellberg, O.	Sweden	162.90	—	148.76
23.	Hie, S.	France	—	—	156.52
24.	Jenatton, J.	Switzerland	—	—	153.91
25.	Studer, R.	Switzerland	138.53	144.58	152.54
26.	Freundt, H.	Austria	124.14	151.90	135.85
27.	Couprie, F.	France	—	133.83	145.75
28.	Garner, C.	Switzerland	—	145.16	144.00
29.	Cappuyns, J.	Belgium	—	—	136.88

(*Winning times in bold type*)

Unplaced

Lischak, W., Austria; Cluysen, Ph., Belgium; Cluysen, M., Belgium; Rachov, C., Bulgaria; Stoil, T., Bulgaria; Vlaytchev, Bulgaria.

Team Racing

1.	Rosenlurid/Bjork	Sweden	4.47	4.47	4.40
2.	Leloup/Lecuyer	Belgium	4.55	—	5.06
3.	Azor/Kuhn	Hungary	5.15	4.50	5.15
4.	Drazek/Trnka	Czechoslovakia	4.58	5.23	
5.	Malik/Hobler	Germany	—	5.00	
6.	Pierree/Grondal	Belgium	5.13	5.25	
7.	Magne/Malfait	France	5.16	6.09	
8.	Egervary/Toth	Hungary	6.41	5.17	
9.	Schluchter/Fromm	Germany	5.18	5.31	
10.	Scherbakov/Gelman	Russia	—	5.20	
11.	Saxer/Hedinger	Switzerland	5.23	6.00	
12.	Komonenko/Chkursi	Russia	6.28	5.25	
13.	Gafner, N/Gafner, Ch.	Switzerland	5.27	6.10	
14.	Anderson/Bjornwall	Sweden	5.58	5.20	
15.	Nixon/Ellis	G.B.	5.28	—	
16.	Edmonds/Taylor	G.B.	5.36	5.32	
17.	Fernandez/Battlo	Spain	6.15	5.32	
18.	Pennessi/Zane	Italy	7.56	5.33	
19.	Raschnov/Stoil	Bulgaria	5.50	5.36	
20.	Schnorreberg/Remzen	Germany	6.05	5.36	
21.	Fischer/Neusburger	Austria	—	5.37	
22	Mattelassi/Mantellassi	Italy	7.55	5.40	
23.	Gogorcena/Gil	Spain	5.45	7.14	
24.	Nordin/Soerberg	Sweden	5.55	5.56	
25.	Vogelaar/Geilman	Holland	5.58	6.12	
26.	De Jonge/Frouwhein	Holland	—	5.58	
27.	Katona/Gombotz	Hungary	6.38	6.12	
28.	Lauron/Romeyer	France	6.04	8.06	
29.	Vlaytchev/Topalov	Bulgaria	6.25	6.16	
30.	Puchinger/Beidner	Austria	6.24	—	
31.	Cappuyns/Proesmans	Belgium	6.43	—	
32.	Paonnov/Nevenkine	Bulgaria	—	7.53	
33.	Baria/Bartoli	Monaco	—	8.10	
34.	Carmo/Piccolo	Portugal	—	8.20	

(*Winning times in bold type*)

Unplaced

Cirotkin/Kondratenko, Russia; Mayer/Galli, Switzerland; Long/Day (proxy Balch), G.B.; Garcia/Durendez, Spain; Contini, E./Contini, F., Italy; Rogl/Glaser, Austria; Bador/Bador, France; Silva/Barata, Portugal.

Combat

1.	Perry, P.	G.B.	
2.	Tribe, P.	G.B.	
3.	Schope, P.	Germany	
4.	Kellner, R.	Germany	
5.	Bjornwall, E.	Sweden	
6.	Raenebalke, G.	Belgium	
7.	Benoy, J.	G.B.	
8.	Trnka, Y.	Czechoslovakia	
9.	Anderson	Sweden	
10.	Reichle, A.	Germany	
11.	Nordin	Sweden	
12.	Engels, A.	Belgium	
13.	Moreau, G.	Belgium	
14.	Drazek	Czechoslovakia	

Flying Scale

			Concours	*Flying*	*Total*
1.	Huybrechts	Belgium	67	81	148
2.	Groos	Holland	56	88	144
3.	Engels	Belgium	47	81	128
4.	Heinen, P.	Germany	35	56	91
5.	Labordery, P.	Belgium	18	55	73

Criterium Team Awards

1.	Czechoslovakia	8 points	
2.	Hungary	10	,,
3.	Belgium	14	,,
4.	Sweden	15	,,
5.	Germany	16	,,
6.	France	18 points	
7.	Italy	20	,,
8.	Switzerland	21	,,
	G.B.	21	,,
10.	Spain	26	,,
11.	Austria	29 points	

The remaining five nations did not enter all events so were not eligible.

RADIO TOPICS

THE radio constructional kit is one of those easy forms of production which can lend itself to abuse. We remember, many years ago, taking a practical correspondence course in domestic superhet design and construction, at about the time when R/C was just starting in this country and we felt we needed some "radio" background. Although we learnt a lot and built a number of other "kit" sets subsequently, we also learnt that a "kit of parts" could be an open invitation to include surplus, obsolete and even unsuited components. Thus we have always retained a certain suspicion about "kits," particularly as applied to the even more critical requirements of R/C units and "home-built" equipment in general (with the notable exceptions where the builder is obviously very competent and experienced in this type of work).

The simplest type of "kit" merely comprises a collection of components. This can be satisfactory, provided the components are correctly chosen. Making the kit more attractive, by including as many cheap components as possible and reducing the price, is no saving in the long run. Very much still depends on the builder's ability, however, to produce a good assembly which is sound electronically. The good model builder is not necessarily good at soldered electrical assemblies. The modeller who builds "rough" models, usually assembles an electronic circuit in a manner which makes you shudder to look at it—even if it does work (sometimes !).

Just as model building can be made easier by prefabricating the kit, so can radio construction. The use of a printed circuit, for example, is rather like supplying die-cut rather than printed sheet. If the remainder of the radio kit components are of proper choice and standard, even the beginner is virtually assured of good results, if the circuit is sound.

The good radio kit is very much to be welcomed. By "good," we mean a "prefabricated" kit to the extent that the builder is left with *simple* soldered assemblies, is provided with the best components for the job and is supplied with foolproof instructions, which can be followed by the non-electrically-minded. That is, a kit which the *model* builder can tackle with confidence and that, we are pleased to see, is a standard which is being reached in this country. Let the more experienced man build from scratch and selected components, for he should know what he is after and not be influenced by price. But for the *modeller* who wants to improve his practical knowledge of radio control, building from a *good* kit is just the thing, as it is the cheapest way of getting started.

With these points in mind, we have no hesitation in recommending the MacGregor kits, as particularly well suited to the modeller who would like to have a go at building his own simple radio equipment. This is not just a "plug" for MacGregor, we have no acquaintance at all with the firm, we were just impressed with the quality of these kits and their suitability for beginners to radio construction.

The present series of kits includes the well-known Ivy single channel carrier transmitter; the later Tommy Ives design of single channel tone transmitter; Ivy carrier receiver; and the "Ivistor." The latter is a transistor d.c. amplifier unit, suitable for converting the receiver for "relayless" operation and also adaptable to other single channel receivers. A tone receiver kit is also to be produced shortly. Each kit is complete (except for relay in the case of the Rx), with no parts to make or drill and no coils to wind. The transmitters are assembled on a printed circuit board and a matching case, with telescopic aerial, is available as a separate item. The carrier receiver is assembled on a plain Paxolin chassis board already drilled and tagged.

The MacGregor tone receiver kit —which should be available late November—is a fully transistorised relayless design to operate off 3 volts. Total receiver weight is 1¼ ounces. The kit will comprise a printed circuit, with all necessary components to complete and the price is expected to be £5 19s. 6d.

All these kits, which are distributed by Ripmax Marine Accessories, are available from model shops. Have a look at them and see what we mean about quality of design and production.

* * *

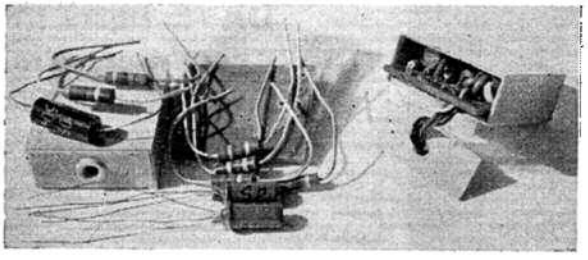
We have just received preliminary details of the new American Wen-Mac "Air Guidance System"—or transmitter-receiver outfit, in plain English ! This comprises a fully transistorised miniature hand-held transmitter (working off a single 9 volt battery) and matching single-channel superhet receiver (again fully transistorised and relayless), plus battery case and switch. The receiver is intended for connection to any conventional single-channel actuator. Price (in America) 30 dollars for the transmitter and 40 dollars for the receiver. The latter appears most reasonable for a superhet and could be quite a proposition. This receiver also works off a single 9 volt battery (with a separate battery for the actuator) and employs five transistors. The transmitter circuit looks to be conventional MOPA, with R 456 transistor tone modulator and despite the centre loaded aerial, we would suspect the range with only 1/10th watt input as quoted. More details next month, when we have had a chance to analyse the circuit.

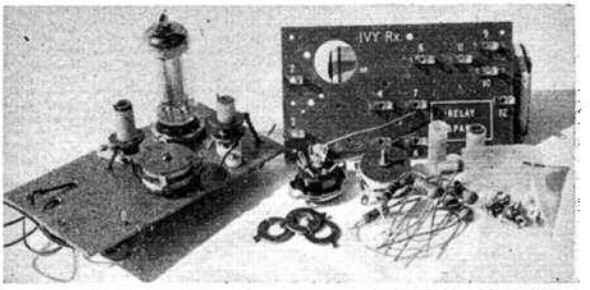
* * *

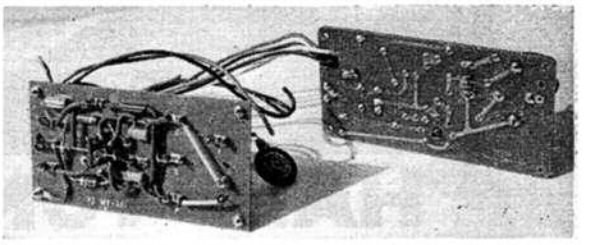
A crystal control "conversion kit" for the Windy Kreulen transmitter (described last month) is now available from Stockmann and Westley, comprising sub-miniature Cathodeon crystal, plug, socket, sleeving and wire. The actual conversion work required is quite simple. A hole has to be cut in the

Below : Ivy tone Tx kit and made up unit.

Right: Ivy carrier Tx and made up unit.







Above: Ivistor kit and made up unit. Top right: Ivy Receiver kit and made up Rx. Right: underside and top views of made up Tx.

transmitter case to mount the meter socket for tuning; the crystal replaces the 47 p.f. capacitor in the original circuit; and one switch wire is disconnected and taken to the socket, the other side of the socket being wired back to the switch. Price of this conversion kit is 35s.

Stockmann and Westley, incidentally, are also developing a four-transistor receiver (also on an original design by Windy Kreulen) in both relay and relayless forms; a field strength meter and multi-range voltmeter and milliammeter; and a miniature 12 volt field soldering iron.

Answering a query on interference, which turned out to be genuine "outside" interference and not local interference from a motor-servo, led to the thought that Mullard have just brought out a new R.F. induction heater, which puts some 300-400 watts of R.F. into the work coil at a centre frequency of 27.12 megacycles. With an unshielded work coil the incidental radiating range of this industrial unit could be *very* considerable—and right in the middle of our operating band.

* * *

Another reader—whom we are sure wishes to remain anonymous, although the same problem troubles a considerable number of the not-so-expert—says that he despairs of ever getting good "professional" soldered joints. All his efforts, even with the best electric iron he can buy, still look "puddly."

The trouble, almost certainly, is that the iron is not getting hot enough. We looked up the mains voltage for his district and, as we suspected, this was 200. Most electric soldering irons—including all the small mains type, as far as we know—are intended for 220-250 volts. On 200 volts they just do *not* get hot enough. Our own mains supply is 200 volts, so we should know! We have to use an auto-transformer to boost the mains voltage supply to the iron by 20 per cent. The local radio surplus shop can usually dig up a suitable auto-transformer for a nominal price, if you have this sort of trouble.

* * *

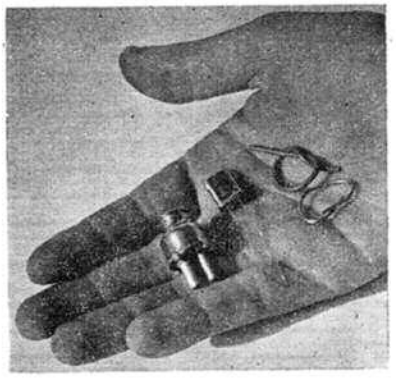
Query from reader E. Hinchcliffe asks how to wire the Fred Rising compound escapement, supplied with the Mini Reptone, to an ordinary receiver. Actually the F.R. compound unit used with the Mini Reptone, is a *modified* version of the standard F.R. unit. The Mini Reptone is relayless, so there is no back contact available for quick-blip switching. Hence, a modified switching circuit is fitted to the F.R. unit supplied with Mini Reptone and connection of the secondary actuator is to the separate "stand up" tags. In this form it cannot be used with a conventional relay-type receiver, without re-modification again back to the original form.

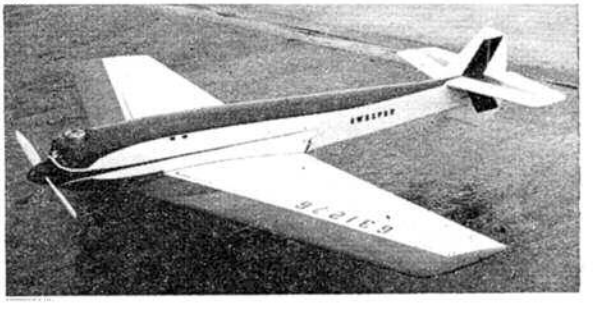
* * *

Typical American R/C contest flight pattern and scoring is reproduced in the table (right). Three classes of models are recognised for "pattern" flying, as it is called—"Rudder-only" and "Intermediate" employing single-channel equipment only; and "Multi" any controls. Engine control is permitted in "Rudder-only" (operated off a compound actuator). In the "Intermediate" class any number of controls are allowed (provided they are all worked off single-channel).

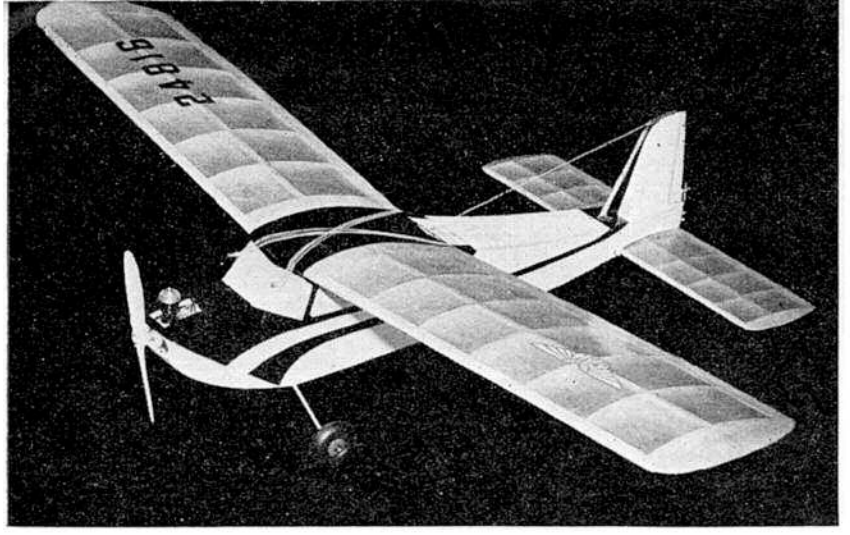
Judging Rating

Manoeuvre	Faultless	V. Good	Fair to Good	Poor
1. Proto take-off	24	16	8	0
Simplified proto. ...	18	12	6	0
R.O.G. unassisted ...	9	6	3	0
Hand launch	0	0	0	0
2. Straight flight	6	4	2	0
3. Procedure turn ...	6	4	2	0
4. Straight return ...	6	4	2	0
5. Figure eight	9	6	3	0
6. Touch and go	21	14	7	0
7. Wing over	6	4	2	0
8. Immelman turn ...	9	6	3	0
9. Inside loops: first ...	6	4	2	0
second ...	6	4	2	0
third ...	6	4	2	0
10. Spiral dive	9	6	3	0
11. Power dive	9	6	3	0
12. Horiz. rolls: first ...	6	4	2	0
second ...	6	4	2	0
third ...	6	4	2	0
13. Touch and go	21	14	7	0
14a. Inverted flight ...	21	14	7	0
b. (Optional) 2 pt. roll	21	14	7	0
15. Outside loops: first ...	9	6	3	0
second	9	6	3	0
third ...	9	6	3	0
16. Cuban eight	15	10	5	0
17. Split S	9	6	3	0
18. True spin: first two ...	12	8	4	0
19. third ...	6	4	2	0
20a. Landing	12	8	4	0
b. Spot landing:				
(1) within 100' circle	2X			
(2) within 30' circle ...	3X			
21. Proto landing	9	6	3	0
Max. possible total—118 points.				





Left: crystal conversion kit for Windy Kreulen Tx. Right: Frank Van den Bergh's latest design has 54 in. span x 18 in. root chord wing, steerable nosewheel and weighs 6¼ lb. Fitted Merco "49" and Orbit relayless 10.



DAVE PLATT'S really *practical* R/C design for 0.8 c.c. motors

HALF TONE

JUST once in a while every modeller builds a model which, by its sheer simplicity, lack of fuss and expense, and real flyability, proves that sometimes the simple things of life are best. After a whole series of R/C models, some with fancy engines and exotic R/C gear, of which few flew really well and even less justified their time and cost, this little model was made in an honest attempt to return to essentials.

The reasoning went like this—if I could make a model for a 0.8 c.c. engine (Baby Bee) to carry a Unitone Rx and compound escapement, which would fly in a reasonable wind, then what more could I need? The old adage "Simplicate and add more lightness" was borne in mind in the design stage, with the happy result that the little job was completed in a week—without burning any midnight oil. Further, the cost was so low as to be laughable and the designed all-up weight of 20 oz. was exactly met. No grey hairs here!

The following construction notes are just as brief as the model warrants, only the points of special importance being mentioned.

Wing

Build one half, then prop this up at correct dihedral (don't increase the angle) and build the other half on to it. Use medium to hard balsa for the L.E. and spars, soft or very light wood for the T.E. and ribs, but the centre braces must be of the hardest balsa you've ever seen.

Build the wings with a parallel chord and, when built, trim the taper into the tips, sanding the bottoms of the last two ribs to give a little wash-out at the tips. Total weight, completely finished, should be 3 oz. Use coloured tissue doped on for any decoration.

Tailplane

Sheet tailplanes are all the vogue for ½A R/C, but symmetrical sections are better. Don't alter this one—it doesn't take long to make. Using light wood throughout, weight is less than ½ oz.

Fuselage

Cut out all the formers and mount the engine, U/C, 7-pin socket and escapement on to their respective ones. Make up a basic assembly of the fuselage sides and all formers, then install the escapement torque rod, rubber motor, etc. After the circuit wiring is installed, the rest of the fuselage can be put together quite simply. Use light wood only, as strength will be ample. There is adequate width to accommodate beam mounted motors, with suitable modification at the front end to take the bearers. Cover with heavyweight Modelspan.

The weight of the fuselage complete and finished, should be about 16 oz. Arrange for about ⅛ in. of rudder movement. You can increase this later when you get used to flying the model, but in any case, she is quite lively on this amount.

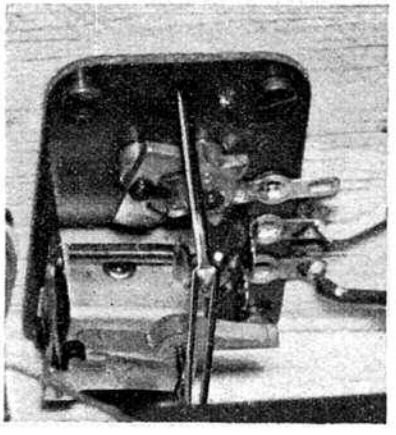
Flying

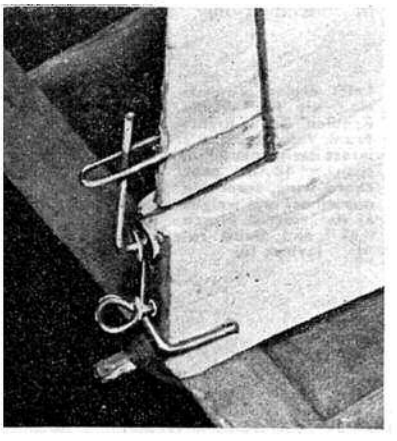
This is where the pay-off comes! Hand glide and remove any trace of natural turn with the rudder. Now, provided that the c.g. and incidences are as shown on the plan and the R/C is working 100 per cent., you can fire up the engine, adjust for *full* revs. and launch. Don't be too gentle here—a good fling is needed. Wait a little while before keying and watch what she does. Is there a turn? If so, get rid of it when she lands, before making another flight.

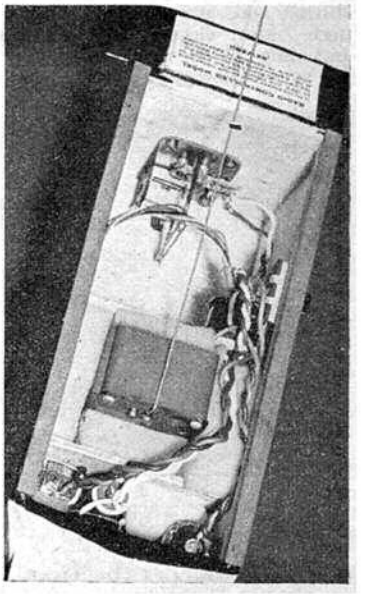
When a turn is started by the rudder, the model will normally complete a 360° circle before straightening up. A quick touch of opposite rudder will straighten her up before, if this is required. Manoeuvres are fast and thrilling, one full circle of applied rudder gives quite enough speed for a crisp loop when neutralised. Opposite rudder in the zoom gives a nice barrel roll—or two!

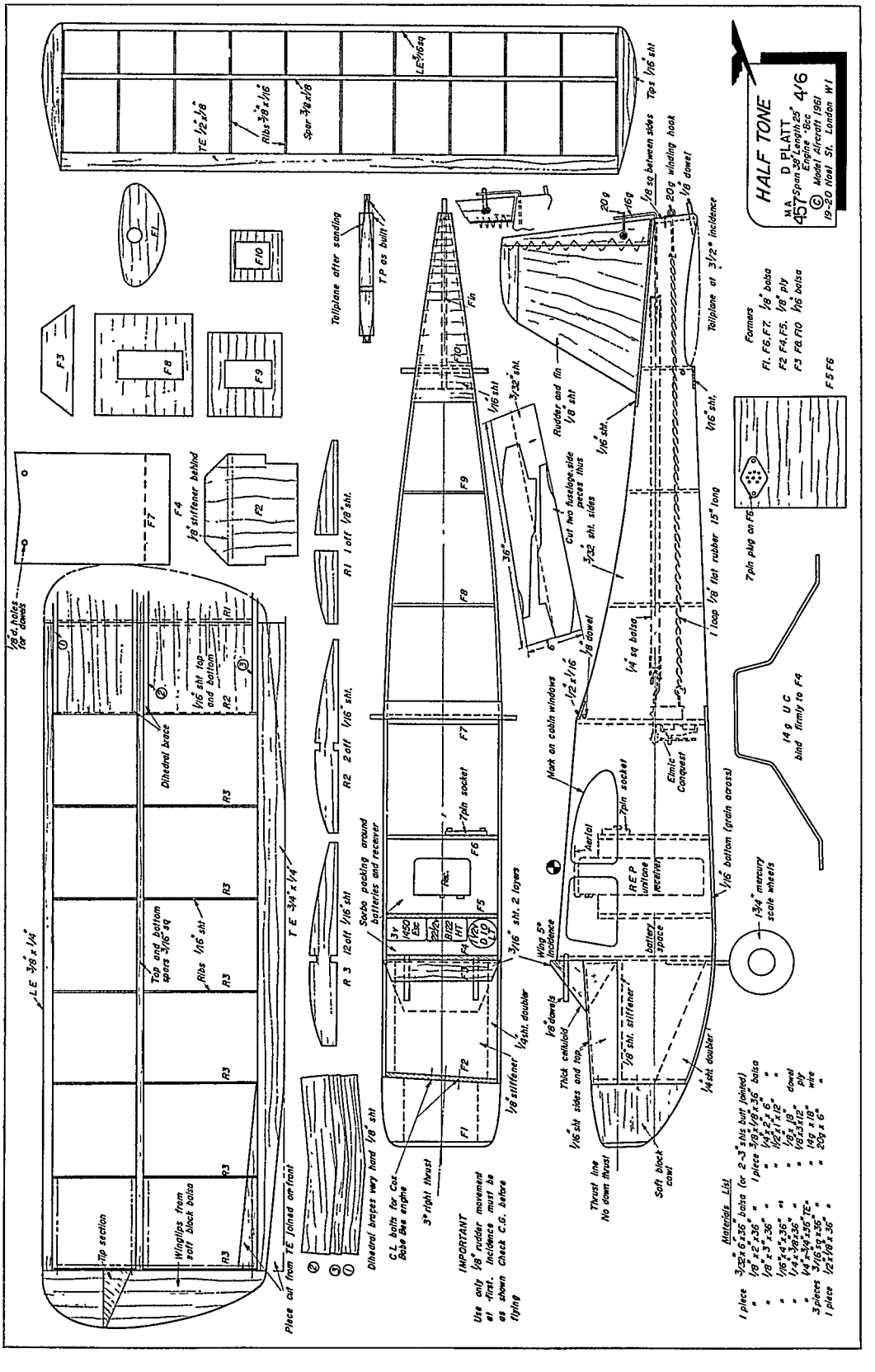
When you take her home, after flying from early morning until dusk, and using only about half-a-pint of fuel, as I did recently, if you can honestly say you ever had a model that gave you more for less, then you're either gifted, or lucky.

Below left: The Rising escapement modified for use with a torque rod and yoke. Centre: The rudder yoke. Right: Layout of R/C components showing Unitone receiver.









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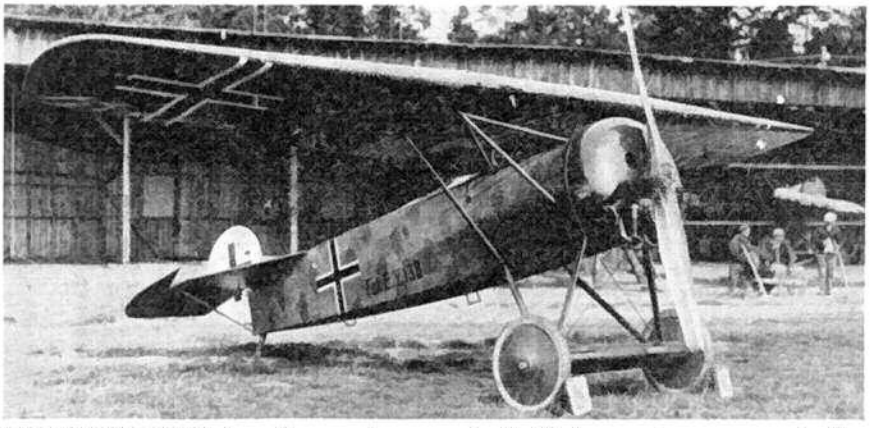


John W. R. Taylor's

PLANE of the MONTH

The FOKKER EV and DVIII

WHEN British fighter pilots caught their first glimpse of the little Fokker *E-V* over the Western Front in France, in August 1918, they gave it the nickname of " Flying Razor Blade." Its shape left little doubt of its maker, and they must have wondered if it would repeat the success of the earlier Fokker monoplanes of 1915-16 which had almost shot the R.F.C. from the sky.

In the event, the first victims claimed by the new fighter were German. Within a few weeks of the arrival of the first six aircraft in the combat area, three of them shed their wings in flight, and production of the *E-V* was suspended. This was a lucky break for the Allies, as the *E-V* was in many respects even better than the famous Fokker *D-VII* biplane, which had itself put the German Air Service back on level terms with the R.A.F. in the Spring of 1918.

The *E-V* was typical of the designs produced for Fokker by Reinhold Platz. Although not the first to utilise cantilever wings, Platz was the greatest exponent of this type of construction during the 1914-18 war. The wings on the *D-VII*, although fitted with interplane struts, were really cantilever, with deep wooden box spars and none of the usual wire bracing. Other German fighters sometimes broke up in action when their struts and wires were hit by machine-gun fire. The *D-VII* showed itself able to absorb tremendous punishment without structural collapse.

According to one story, development of the *D-VIII* began when a test pilot named Kuhlisch, at the request of Anthony Fokker, demonstrated that the *D-VII* could be flown successfully without its bottom wing.

As the next step, Platz designed a small cantilever parasol monoplane fighter designated *V.26*. Construction was conventional, with plywood-covered wooden wings, fabric-covered steel-tube fuselage, a typical Fokker undercarriage with " aerofoil " axle, and armament of two machine-guns.

There was a shortage of the 160-185 h.p. Mercedes and B.M.W. water-cooled engines which were then standard in German fighters ; so Platz built the *V.26* around a 110 h.p. Le Rhone rotary, many of which had been bought for training aircraft and never used. Even with this low power, it proved an easy winner of the competition for a fighter to supersede the *D-VII* in April 1918. It was put into immediate production and was in action in France only four months later.

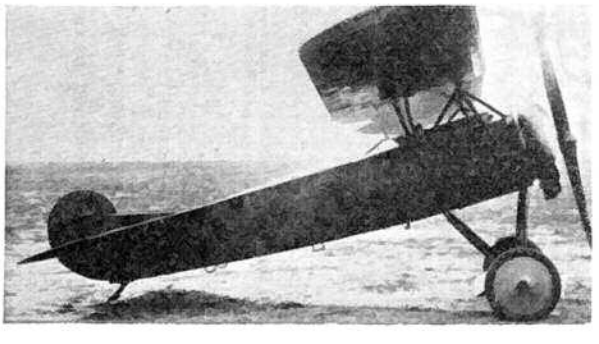
The production model was designated *E-V* and differed from the prototype in having balanced elevators and a strut-braced tailplane. More significant, it had a strengthened rear spar. This was demanded by the technical " experts " of the German Air Service, despite the fact that the *V.26* had performed every manoeuvre in the book without any sign of structural weakness and had survived the usual static tests of loading sandbags on the wings.

As mentioned earlier, the *E-Vs* were no sooner issued to squadrons than they began breaking up in flight. Fokker blamed this on the strengthened rear spar. He claimed that static tests in his factory showed that the rear spar flexed less than the front one under increasing loads, so that the angle of incidence gradually increased at the wing-tip until the wing collapsed. The new Harleyford book on *Fokker—the Man and the Aircraft* (reviewed last month) states, on the other hand, that " from remarks made by certain executives of the firm, it would appear that the factory was to blame." Whatever the truth, the original wing, with unstrengthened rear spar, went back and there was no more trouble.

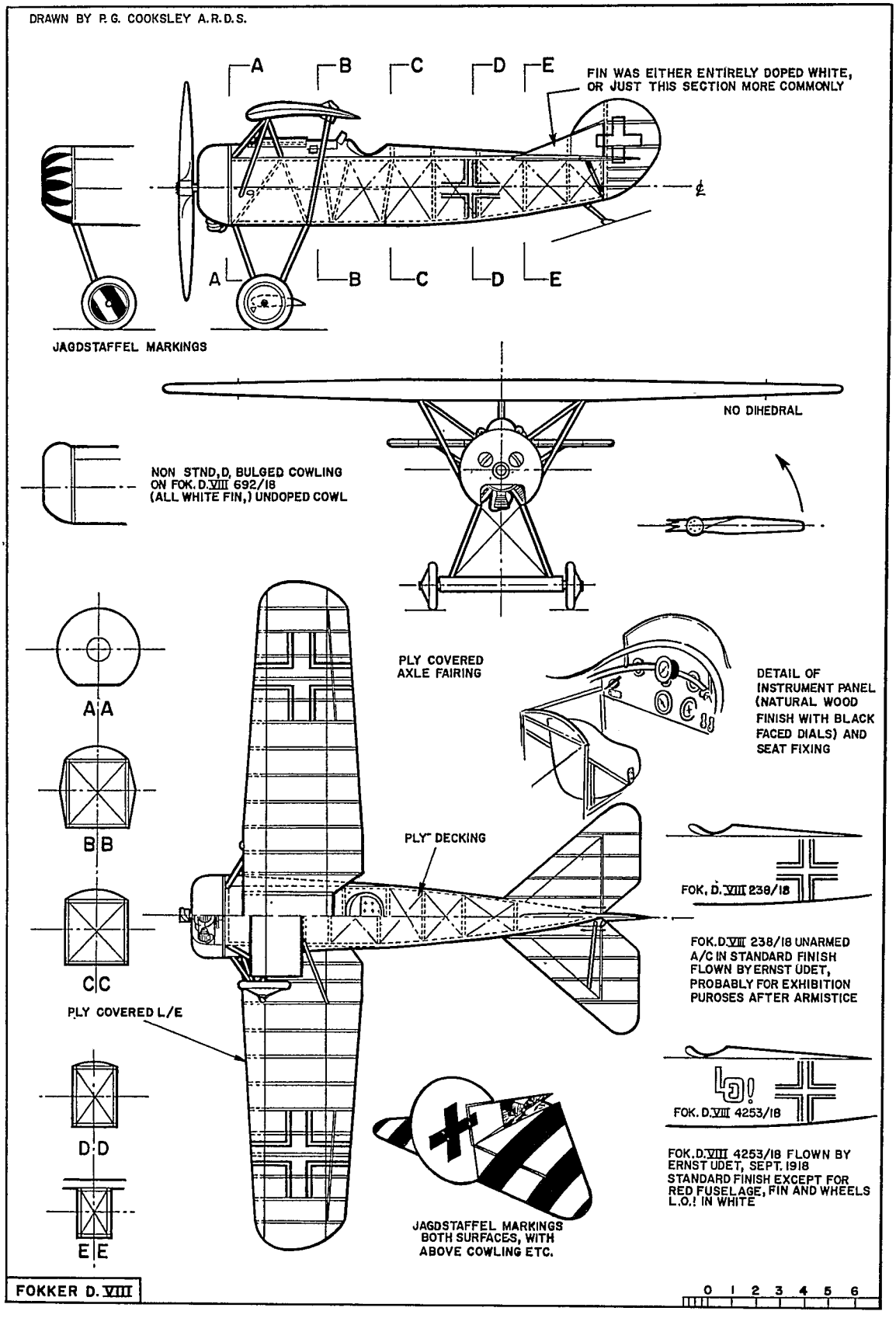
The aircraft was redesignated *D-VIII* and put into series production with both Le Rhone and 145 h.p. Oberursel engines. But it was too late by then to play any major part in the fighting before the Armistice.

A few *D-VIIIs* were taken to the United States after the war. The impression they made is best indicated by the fact that Pete Bowers is now busy on a redesign of the *D-VIII*, in association with Reinhold Platz, so that plans can be made available to amateur builders. If a privately-owned fighter sounds a trifle ambitious, remember that, fully-loaded, this one weighed only a little more than the four Firestreak missiles carried by its modern counterparts !

Data (*D-VIII*): Span 277 ft. 5 in.; length 19 ft 2½ in.; height 9 ft. 2½ in.; weights, empty 891 lb., loaded 1,331 lb.; max. speed (Le Rhone) 115 m.p.h., (Oberursel) 124 m.p.h.

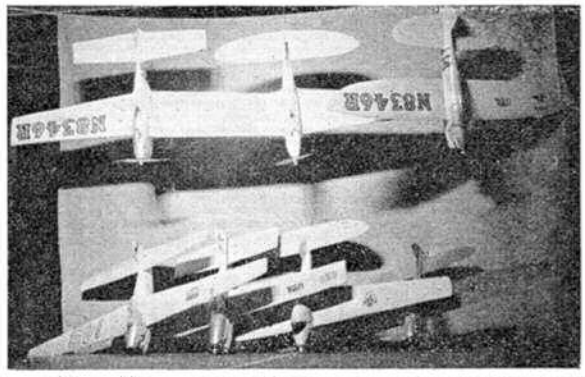


Heading shows very early D VIII, note registration—Fok. E. V 138. Left: The Fokker V.26. Below: An E. V on active service.



Plans for a 27 in. wingspan F/F scale model of the Fokker D VIII appeared in the September 1961 edition. Copies of the drawing (M.A. 353, 4s. 6d. post free), and back issues, are obtainable from Model Aircraft Plans Dept., 19-20, Noel Street, London, W.1.

ROVING REPORT



Right: some of the F.A.I. racers built in six months as part of a development programme by Darrel Dolgner and Paul Burke—these boys deserve success.

Below: Joyce Dolgner (aged four) with one of Pop's most successful models.

MOST of the various classes of model aircraft flown today—particularly in contests—originated in America: F/F power-duration, R/C, indoor models, stunt, speed and team-racing, to name a few. The exceptions are mainly specialised variants of a basic type and one is F.A.I. class team-racing.

Until this year, the American Academy of Model Aeronautics recognised only one team-racing class, based on rules drawn up in the late 'forties by the Californian F.A.S.T. Club which founded team-racing and from which our own "B" team racing formula was developed. In order to foster interest in World Championship class racing, however, the A.M.A. have now incorporated F.A.I. team racing into their contest schedule and, from Darrel Dolgner, who was a member of the U.S. team at last year's World Championships in Hungary we have a report of the F.A.I. team-racing at this year's U.S. Nationals.

The event was held towards the end of the week-long meeting and during the previous five flying days, atmospheric temperature and relative humidity had averaged about 90 deg. F. and 60 per cent. However, at the start of the first heats, it was raining hard with temperature down to 60 deg. F., which returned to 90 deg. F., but about 98 per cent. humidity by the start of the final. This great variation in temperature and the high humidity made engine adjustments very difficult and times were lower than expected. Four of the entries had made practice times of under 5 min. prior to the contest, but the best time on the day was Edwards' 5 min. 9 sec. in his second heat. During the heats, the three finalists were clocked at 97 m.p.h. (Dolgner), 89 m.p.h. (Edwards), and 84 m.p.h. (Ayers).

In the final, the consistency of Ayers, flying a very clean model reminiscent of Bernard's designs, paid off and he finished first. Dolgner, plagued with poor settings on his very fast Eta powered model, was second. Edwards, who, it may be remembered, used a Cox Olympic glow engine in last year's World Championships (and incidentally, did a lot better with it than was anticipated) had also used an Eta earlier this year but had switched to an Oliver to record the two fastest times in the heats. He was unfortunate enough to have a bad crash in the final, the result of an upwind take-off position and so ended up in 3rd place.

The standard Oliver-Tiger was the most popular engine. In fact the bulk of the entry was using British motors, including tuned and standard Rivers Silver-Streaks, in addition to Etas and tuned Olivers. Other motors used were Super-Tigre and Enya 15D Mk. II. Power-Prop, Tornado and T.M.H.K. were the favoured makes of propeller and the average model weight was 20 oz. Three entries had monowheel, the rest using conventional two-wheel undercarts.

Darrel Dolgner comments that our own Henry Nicholls (whom the A.M.A. had invited to run the event—a nice touch this) did an excellent job of directing and appreciating their inexperience in F.A.I. team-racing was, we are told, very lenient with the American flyers.

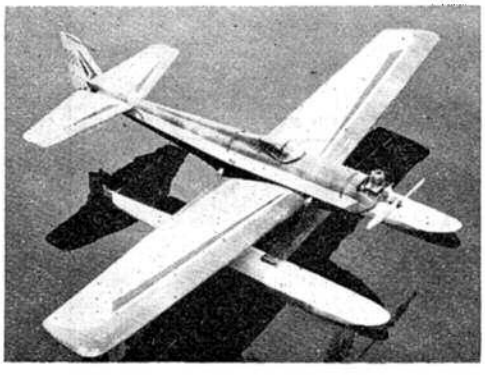
* * *

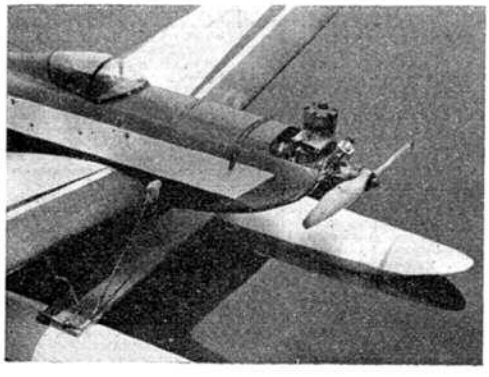
The plastic models boom appears to have long since passed its peak. Nevertheless, there still seems to be some good business for the top manufacturers in this field. Monogram Models, we hear, founded 15 years ago with two employees, has just moved into a new £450,000 factory in which 250 workers will be employed. Leroy Cox, better known to us for his wonderful engines can, according to the *New York Times*, be compared to the late Henry Ford. Like Ford's, Cox's engineering and production genius, built a multi-million dollar business in less than ten years.

* * *

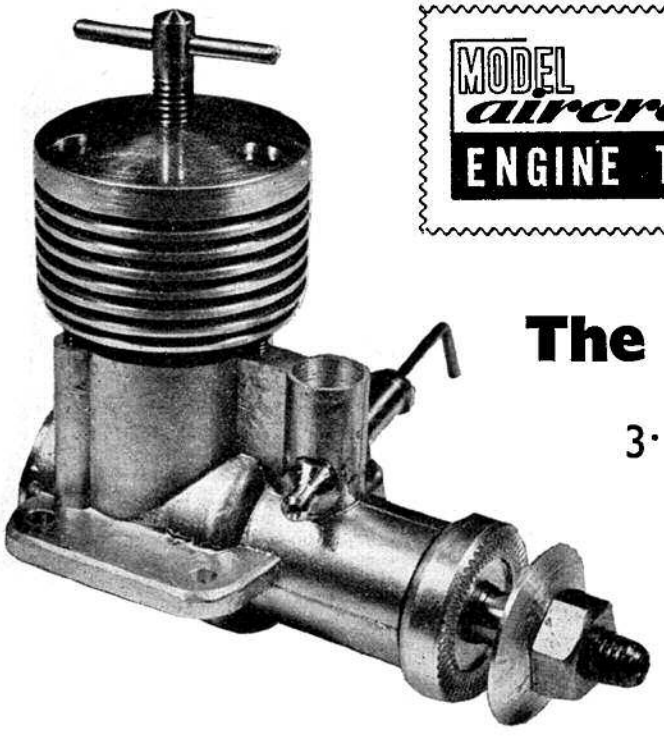
U.S. speed flyer Harry Latshaw is currently using a British Eta 29 engine in a "proto" class speed model and, on a 7½ × 8 prop, has achieved 123 m.p.h. The engine has modified rotary valve timing and special bearings and is stated to turn up a very respectable 16,500 r.p.m. on a 6¾ × 10 speed prop.

A friend of Latshaw's, Lieut. David Cotton, U.S.A.F., lately stationed in France, has been putting up some remarkably good performances with an M.V.V.S. 2.5/1959 powered speed model — 136-138 m.p.h. (on nitro, of course) which is comparable with the best speeds the Czechs themselves have reached.





Japan's most prolific builder of multi-channel R/C models, Masahiro Kato, owns this smart looking float equipped modified Orion. O.S. 10-channel radio and Max .49 R/C engine.



MODEL aircraft ENGINE TESTS

The P.A.W. 19-D

and

The Frog "80" Mk. II

The P.A.W. 19-D

3·1 c.c. Diesel Motor

"... Interestingly designed, easy handling engine at a reasonable price."

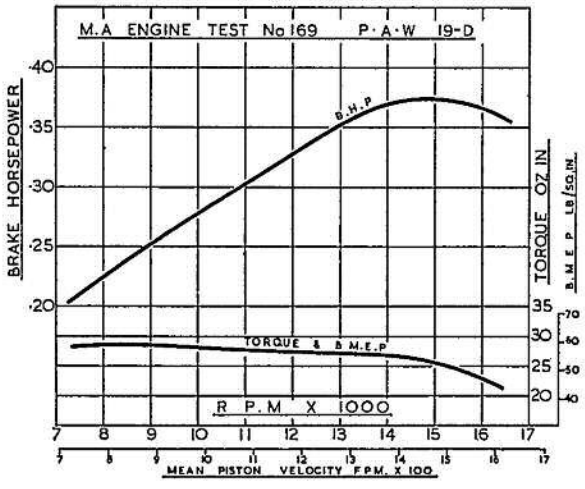
THE P.A.W. 19-D is the latest development of a very sound original 2.5 c.c. design that first saw production a little over four years ago in the shape of the P.A.W. Special 2.49D engine. Developing in its original form an output of 0.28 b.h.p., the 2.49 was subsequently improved to nearly 0.30 b.h.p. in its Mk. II version and, early this year, appeared in a Mk. III model with further modifications and an output raised to around the 0.32 b.h.p. mark. Introduced as a supplementary model to take greater advantage of the 3.5 c.c. C/L combat class capacity limit, the new 19-D (0.19 cu. in. or just over 3.1 c.c.) has a larger bore and stroke and various internal modifications but, externally, is almost indistinguishable from the 2.5 c.c. model. Only close examination reveals that the 19-D has a slightly modified crankcase and very slightly larger diameter cooling fins.

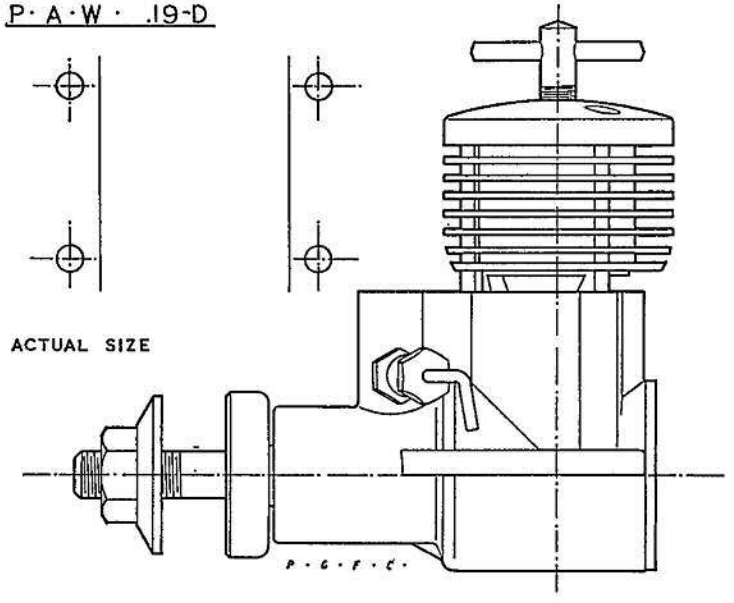
Our test 19-D was submitted by the manufacturers and had already had an appreciable amount of running-in when received. All these motors, however, are checked up to around 13,000 r.p.m. before despatch and Messrs. Progress Aero Works state that buyers should not need to go to great lengths to run them in prior to installation in a model. Provided that the motor is left uncowled and that a fuel of adequate lubricating properties is used, running-in can be completed in flight.

The 19-D is of the single ball journal bearing type and uses a Hoffmann eight-ball race in place of the 2.49's R. & M. seven-ball bearing. The crankshaft is a very free fit in this race and also in the cast-iron outer bush. The 19-D has a fractionally longer shaft journal but diameter and valve port dimensions remain unaltered. The bearing aperture, however, is slightly wider, giving a rotary valve timing of 55 deg. ABDC to 30 deg. ATDC for a total induction period of 155 deg. compared with 140 deg. for the Mk. III 2.49. The rotary-valve is of the type so successfully used on the other current P.A.W. engines in which a slot shaped valve port, running parallel to the shaft axis, is employed in conjunction with a large intake aperture through the bearing bush. This promotes efficient induction while avoiding an unduly wide valve port in the shaft journal that would weaken the $\frac{3}{8}$ in. dia. shaft at this point.

Another distinctive P.A.W. feature that is further developed in the 19-D is the circumferential port system. The three wide, smoothly contoured internal transfer flutes have been still further enlarged—so much so that their edges almost touch the bottom corners of the exhaust ports. In our test sample, this had also led to some external distortion of the liner skirt, although happily, with no effect on the actual operation of the engine. The transfer ports also extend higher into the bore between the exhaust ports to give an exceptionally long transfer period, reducing exhaust lead to no more than three or four degrees of crank angle. The actual cylinder assembly remains basically similar to that of the other P.A.W. models: a plain liner located by a narrow annular seat in the crankcase, topped by a finned alloy barrel and secured with three long machine screws.

The short skirted piston has a shallow conical crown and is similar in design to that used for the 2.49 except for





having a fully-floating $\frac{3}{16}$ in. dia. gudgeon-pin. The conrod is machined from high duty alloy and has an extra wide little end bearing.

Drive to the prop is conveyed through a $\frac{7}{8}$ in. dia. serrated face alloy driving hub, taper fitted to the crankshaft which has a $\frac{1}{4}$ in. B.S.F. threaded length and a standard steel hexagon nut.

Specification

Type: Single cylinder, air-cooled, reverse-flow scavenged two-stroke cycle, compression ignition. Crankshaft type rotary valve induction with sub-piston supplementary air induction.

Bore: 0.640 in. Stroke: 0.590 in.

Swept Volume: 0.1896 cu. in. = 3.11 c.c.

Stroke/Bore Ratio: 0.922 : 1.

Weight: 5.5 oz.

General Structural Data

Gravity diecast aluminium alloy crankcase and main bearing housing with integral carburettor intake. Screw-in rear cover. Hardened high-tensile steel counterbalanced crankshaft with $\frac{3}{8}$ in. dia. journal and 13/64 in. dia. solid crankpin and running in $\frac{3}{8}$ in. × $\frac{7}{8}$ in. Hoffmann ball journal bearing supplemented by Meehanite outer bush. Cylinder liner of high tensile steel, heat treated, ground and lapped. Lapped piston of Meehanite with fully-floating $\frac{3}{16}$ in. dia. solid gudgeon-pin and machined RR.56 aluminium alloy connecting-rod. Machined alloy finned cylinder cooling barrel, sliding fit over cylinder liner and held down by three screws into crankcase. Brass spraybar type needle-valve assembly fitted for left-handed operation and inclined rearward. Beam mounting lugs.

Test Conditions

Running time prior to test: 4 hours approx.

Fuel used: Record Powerplus Diesel (castor base, 4 per cent. nitrate).

Air temperature: 56 deg. F.

Barometer: 29.6 in. Hg.

Performance

Any diesel of over 2.5 c.c. capacity is large by diesel standards and large diesels, in general, have a reputation for being somewhat harsh running and not over-simple to operate. The P.A.W., however, would appear to be one of the exceptions to this generalisation.

Starting, we found, was extremely good at all times. Started from cold for the first time, our test motor came to life within three flicks of a 10 × 6 prop after sucking-in. No port prime was used. This ease of starting was maintained on a wide variety of props, ranging from 12 × 6 Power-Prop and P.A.W. Trucut wood props, down to 8 × 4 wood and nylon types. On the smaller sizes we found it best to choke the intake for three or four flicks and to reduce the compression setting slightly below the normal running setting on these props. Compression was then quickly advanced to sustain running as soon as the engine started and then backed off again as the motor warmed up to its running setting.

The maximum torque developed by the 19-D on test was 28 oz. in. This is equivalent to a b.m.e.p. of approximately 58 lb./sq. in. (as one might expect, not quite so high as for the 2.49 Mk. III) but more important was the manner in which torque was maintained at high r.p.m. This was emphasised by the power loss on warming up which was especially noticeable at the lowest speeds but disappeared entirely at speeds above 12,000 r.p.m. The resultant torque b.m.e.p. curve is remarkably flat and the corresponding power curve climbs steadily from 0.225 b.h.p. at 8,000 r.p.m. to 0.35 b.h.p. at 13,000 r.p.m., levelling off at 0.375 b.h.p. at 15,000 r.p.m. This figure, it will be noted, closely approaches the maker's claim of 0.38 b.h.p.

Checks on a wide variety of props yielded 7,500 r.p.m. on a 12 × 3 Power-Prop, 8,200 r.p.m. on an 11 × 4 Tornado nylon, 8,700 on a 10 × 6 P.A.W., 9,000 on a 10 × 6 Frog nylon, 10,800 on a 10 × 4 Tornado nylon, 12,300 on a 9 × 4 KK nylon, 12,600 on an 8 × 6 Top-Flite nylon and 14,500 r.p.m. on an 8 × 5 Power-Prop. There would not seem to be any reason for using any smaller size since a static r.p.m. of 14,000 should be quite high enough to take full advantage of the engine's performance in the air.

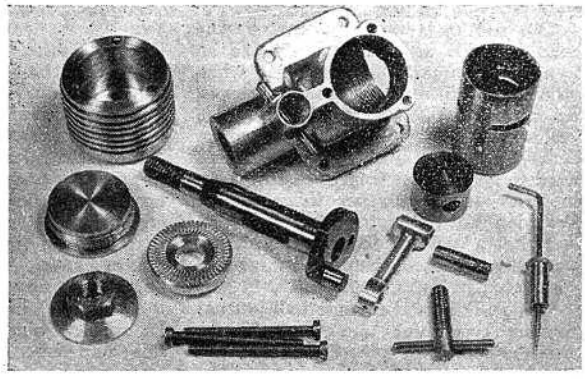
Running qualities of the 19-D were, in general, good. The level of vibration was reasonable for a diesel of this capacity and there was none of the tendency, sometimes found with high performance diesels, to spit or misfire at high speeds.

Compared with the 2.49 Mk. III, the 19-D produced 19 per cent. more power for an increase in swept volume of 26 per cent. In terms of power per ounce, however, it shows a very worthwhile increase on an already high power/weight ratio, since it is a mere $\frac{1}{4}$ oz. (5 per cent.) heavier than the 2.49.

To sum up, on the basis of our findings, this is an interestingly designed, easy handling, well performing engine at a reasonable price and is, we feel, a worthy companion to the existing 1.5 and 2.5 c.c. class P.A.W. diesels.

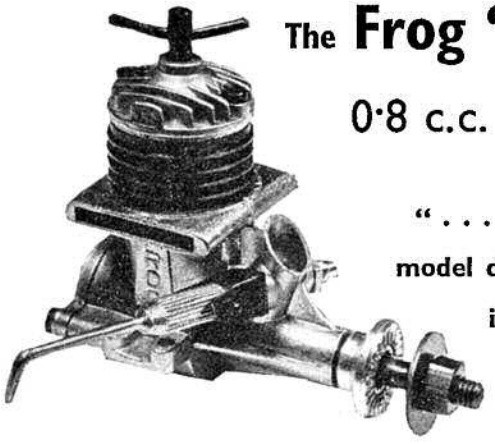
Power/Weight Ratio (as tested): 1.09 b.h.p./lb.

Specific Output (as tested): 120.5 b.h.p./litre.



The Frog "80" Mk. II

0·8 c.c. Diesel Motor



" . . . the lowest priced model diesel in production in the U.K."

THE Frog " 80 " Mk. II has the distinction of being the lowest priced model diesel at present in production in the U.K. With it, the modeller with a shallow pocket can produce a power driven model aircraft for an all-up cost of around £3. Frog model kits suitable for the " 80 " are available as low as seven shillings for the 17 in. *Tyro* C/L model and 17s. 6d. for the 30 in. *Nimrod* F/F model. A particularly good combination for C/L enthusiasts is the " 80 " powered *Chimp* 22 in. stunt model, as has been demonstrated, at meetings this year, by the Frog Competition Department.

The original model " 80 " diesel was first announced nearly five years ago. It was joined, three years later, by the Frog " 049 " glow-plug motor which was based on the " 80 " but with modifications to the cylinder, piston, crankshaft, etc. Most of these modifications, plus others, have now been incorporated in the Mk. II " 80 " so that, despite an almost identical exterior appearance, the Mk. II differs quite appreciably from the original.

One basic component that remains unchanged is the main casting. This, comprising crankcase, main bearing and lower cylinder housing, is a neat aluminium alloy pressure diecasting incorporating twin exhaust stubs and a bell-mouthed carubrettor intake. The spraybar bosses are inclined rearward and slightly upward to bring the needle-valve control stem back from the prop. The crankcase backplate is also unchanged but the cylinder head casting is of slightly greater depth. One excellent feature of the original " 80 " that is retained in the Mk. II is the compression screw thread lock. This consists of a nylon insert, embedded in the underside of the cylinder-head and through which the compression-screw passes and is thereby gripped.

The crankshaft, identical with that of the " 049," has a smaller valve port and smaller gas passage than in the Mk. I. It does not have the surface hardness of the original Mk. I shaft, but is well finished and robust and there is now not such an abrupt reduction in diameter between the shaft journal and prop driver splines.

The unhardened, blued steel cylinder is substantially different from that of the case-hardened cylinder of the Mk. I. It has fewer cooling fins, a thinner wall and a shorter skirt length below the base flange. Cylinder porting is also different. The twin opposed exhaust ports are much deeper and, in place of each of the fore and after transfer slots, twin circular ports are used, appreciably lengthening the transfer period. The cylinder is, in fact, identical with that of the " 049 " but the piston, in contrast to that used by the glow engines, has the same height above the gudgeon-pin centres as the Mk. I. As a result of this, the " 80 " Mk. II has a quite abnormal exhaust timing of practically a full 90 deg. either side of BDC—quite the longest exhaust period of any engine yet dealt with in this series.

The Mk. I model " 80 " was unique among British diesels in using a synthetic rubber " O-ring " compression seal on the contra-piston. The Mk. II reverts to the more normal lapped contra-piston. The piston is also slightly different in that it has a thicker skirt.

The " 80 " is for beam mounting but could, quite easily, be converted to bulkhead mounting using lengthened backplate mounting screws or studs. The engine is quite light for a 0.8 c.c. diesel (less than 2 oz.) and is compact and of pleasing appearance.

Specification

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

Bore: 0.400 in.
Stroke: 0.392 in.
Swept Volume: 0.0493 cu. in. = 0.807 c.c.
Stroke/Bore Ratio: 0.98 : 1.
Weight: 1.95 oz.

General Structural Data

Pressure diecast LAC.112A aluminium alloy crankcase and unbushed main bearing unit with integral intake, exhaust ducts, etc. Non-counterbalanced disc web crankshaft with ¼ in. dia. journal, 9/64 in. dia. crankpin and splined for pressed-on prop driver. Lapped cast-iron piston with flat crown and fully-floating ⅛ in. dia. gudgeon-pin. Forged duralumin connecting-rod. One piece steel cylinder with integral cooling fins. Diecast LAC. 112A aluminium alloy cylinder head with nylon thread insert for compression screw. Lapped cast-iron contra piston. Complete cylinder assembly retained by two long 8 B.A. cylinder head screws, passing through fins and into the crankcase. Paper gaskets used to make cylinder-to-crankcase and backplate to crankcase joints. Brass spraybar type needle-valve assembly. Beam mounting lugs.

Test Conditions

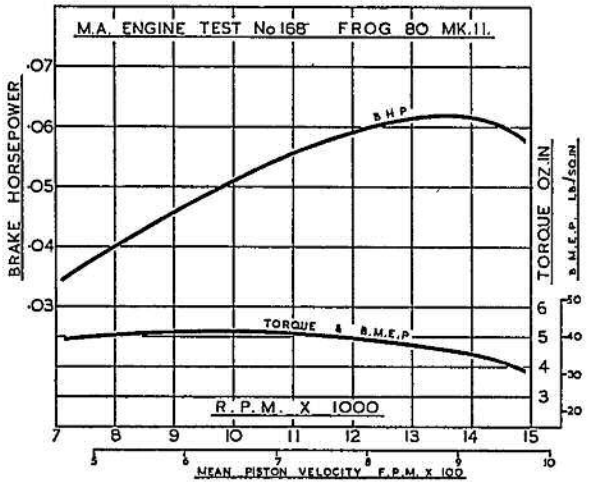
Running time prior to test: 1½ hours.
Fuel used: Frog Super Powa-Mix diesel (castor base, 3 per cent. nitrate).
Air temperature: 58 deg. F.
Barometer: 29.55 in. Hg.

Performance

Despite its outward similarity to the original " 80 ", the Mk. II, we found, differed quite a lot in handling and performance characteristics.

The Mk. II seemed to prefer to be port primed for starting; this applying to warm restarts as well as to initial cold starts. In general, we would not rate its starting qualities quite so foolproof as some of the other engines in the Frog range, but the " 80 " did remain quite docile at all times, and could be hand-started on props down to 5 × 3 size with little tendency to rap the fingers of the unwary. The long

Continued on page 373



RECENT RALLIES

SCOTTISH GALA AND U.K. CHALLENGE MATCH

Despite its status as a National event, this meeting, once again held at R.N.A.S. Abbotsinch, could hardly be described as well attended. There were the usual regulars, a few combining attendance with holiday, and a coach load from Newcastle upon Tyne. The latter travelled overnight and experienced good trimming weather on arrival. This unfortunately did not persist for long and soon became windy with drizzle. At this stage it was heard that the 'drome was also being used for full-size gliding !

Conditions were such as to cause the Scottish organisers to reduce the rubber and power max's to 3.00 and to cut power run to 10 sec. There was some controversy as to whether this was in fact legal—but it was certainly more suited to the weather and recovery conditions. The question of having some rules adjustable if need be on the field is to be taken up with the S.M.A.E.

The U.K. Challenge Match was scheduled to be held in conjunction with the Gala and England's Champion Area (Midland) were supposed to be providing a team to fly against the Scottish team. With no Midland representatives attending and without information from them or the S.M.A.E., a scratch English team was selected from those present prior to the start of the events. The Scottish team also appeared to be picked in a similar manner. Despite the weather improving to brilliant sunshine in the afternoon, one of the nominated English rubber fliers refused to fly and departed to continue his holiday. The Scottish team agreed to a substitute being allowed—and then the wind started to drop.

Several of the top F/F places went to competitors who did not start to fly until after 5.30, with the events closing at 7.00. Power winner Brian Eggleston flew a *Creep* style model with about 400 sq. in. wing area and powered by an Eta 29. As he knew the score he had to beat, he was under-d.t.-ing without trying for max's. The Glider event was dominated, as usual, by Nordics, although second place went to Sleight of Hayes with a Baguley *Max Maker*, finished on the preceeding Thursday and having just one test flight before the contest. Sue Allsop's third place was achieved with an *Empress*. Rubber was the only contest needing a fly-off. J. O'Donnell flew a five-year old 80 gm. Wakefield for three max's, then changed to an open *Maxie* to win the fly-off. Runner-up, Urlan Wannop, flew a rather Midland-area looking lightweight structure model. Third was Henry Tubbs with three 2¼ min. flights with a 50 gm. Wakefield.

Team results for the U.K.C.M. saw England win Rubber and Power, while Scotland won Glider. On the points system used, England proved the overall winner.

RESULTS

Power—1. B. Eggleston, Baildon, 7.04; 2. G. Hutton, Wallasey, and T. Bailey, Novocastria, 6.07; 3. R. Firth, Sheffield, 5.56.

Rubber—1. J. O'Donnell, Whitefield, 9.00+4.00; 2. U. Wannop, C/M, 9.00+2.40; 3. H. Tubbs, Baildon, 7.41.

Glider—1. J. O'Donnell, Whitefield, 7.14; 2. R. Sleight, Hayes, 6.27; 3. Miss S. Allsop, Cambridge, 5.22.

U.K. Challenge Match—1. England; 2. Scotland.

NORTHERN GALA

This now firmly established event was held once again at R.A.F. Rufforth, near York, and was quite well supported. The weather was good from the flying point of view, with a generally overcast sky giving fairly gentle lift and sink. It was hardly calm most of the day with max. flights using most of (or more than) the length of the airfield. The allowing of motorised retrieving was certainly appreciated.

Organisation of the F/F events appeared casual but quite adequate, although the ability to provide one's own timekeepers was a distinct advantage. The control points were very sensibly moved as soon as a wind shift proved permanent.

Late afternoon seemed the time to fly although some of the rubber and power fly-off qualifiers had achieved their trebles before then. It is interesting to note that first and third places in glider were won by fliers who did not begin their flights until within an hour of the end of the contest. Several potential qualifiers for the fly-offs eliminated themselves in various ways—at least two well-known experts under-d.t.'d one flight apiece.

The fly-offs proved somewhat of a visibility/timekeeping test as the winning models were landing over a mile from launch and a certain amount of haze was present. Joe Barnes (single blade featherer *Topflight* development) certainly went appreciably further than Henry Tubbs (two blade folder lightweight) and J. O'Donnell (featherer open *Maxie*). Their recorded scores show remarkably little and are indecisive. The others in the rubber fly-off were C. P. Miller (featherer reserve model) and Gerry Tideswell (folder 250 sq. in. lightweight).

The power fly-off was a London Area monopoly. Their fly-off times varied considerably—but all three models landed in the same field ! The St. Albans fliers were both using AM 3.5 powered *Dixielanders*, although George Fuller flew a TD 15 version for his first max. Carl Simeons' winner had a very novel colour scheme—a dark blue wing, pink fuselage and purple fin, that would hardly seem likely to explain his visibility win. Dave Posner flew a Merco 35 version of his usual *Dream Weaver* design.

About all that can be said of America Class Payload is that it attracted even less interest than usual.

The C/L events were, once again, run by the Wharfedale club and ¼A Team Race was the best supported class, with fast heat times from Newton of St. Helens (4-36.4) and T. Ellis of Hinckley (4-37.0). The event was finally won by junior T. Northage of Wharfedale, in a record time of 8-58.6 for the 10 miles. Not bad for a left-handed pit man ! Atkinson of Debdenairs, after travelling 200 miles to enter, had the misfortune to "fly in" and prang on take off in the final.

The Class A (F.A.I.) Team Race, for the Wharfedale Trophy, was run in two rounds with everyone flying twice. Unfortunately, it was rather poorly supported, with less than half the entry recording times and only two teams, Cooper/Allen of West Essex and C. S. McPhail of Ecurie Cadzow, going under the 5 min. mark.

Class B provided plenty of thrills, with the Bowden/McGee (Chorlton) team's model parting its lines and doing a slow 120 m.p.h. roll across the front of the control tent, to prang spectacularly in an open space 200 yd. away, O.S. Max O.K. Then Novocastrian A. Wallace had an almost uncontrollable fire, after a blow back on his first pit stop in the final.

Stunt was very poorly supported with only four entries, so judge Ron Moulton's job was soon over. The lack of entries was probably due to poor S.M.A.E. publicity for the event.

RESULTS

Rubber—1. J. Barnes, Liverpool, 12.00+6.09; 2. H. Tubbs, Baildon, 12.00+6.07; 3. J. O'Donnell, Whitefield, 12.00+6.03.

Power—1. J. Simeons, St. Albans, 12.00+6 min.; 2. D. Posner, Surbiton, 12.00+5 min.; 3. G. Fuller, St. Albans, 12.00+4 min.

Glider—1. Jackson, Baildon, 8.42; 2. Lincoln, 8.26; 3. J. O'Donnell, Whitefield, 8.15.

¼A T/R (27 entries)—1. J. Northage, Wharfedale, 8-58.6; 2. Newton, St. Helens, 10-26.2; 3. H. Lorrimar, Prestwick, 10-32.9.

Wharfedale Trophy F.A.I. T/R (35 entries)—1. A. Wallace, Novocastria, 5-16.0; 2. C. S. McPhail, Ecurie Cadzow, 5-39.0; 3. Cooper/Allen, West Essex, 6-9.8.

Class B T/R (19 entries)—1. Dugmoor/Bell, Novocastria, 6-55.2; 2. A. Greenland, Sidcup, 7-52.1; 3. A. Wallace, Novocastria; 4. T. Pasco, Thornaby.

Stunt (4 entries)—1. F. L. Warburton, Bolton, 576; 2. D. Day, Wolves, 542; 3. Perry, Richmond, 464.

He not only writes about 'em, but flies 'em as well ! John Pool at the Northern Gala.

Left: Scottish U.K.C.M. team member McQuillen.

Below: "Fire down below." Wallace of Novocastria attempts to quench the flames that spelt disaster for him in the class "B" final at the N. Gala.

CLUB NEWS

WHARFEDALE M.A.C.

A dozen members made the 216-mile journey to R.N.A.S. Abbotsinch for the Scottish Gala. The Hawthorn/Horton team won class B with their *Dalesman II* (E.T.A. 29). The final time was 7 : 03 for the 10-mile race—a new club class B record.

The class A event was won by the Davy/Long F.A.I. team in 4 : 57 using the old type E.T.A. 15 powered *Tigress V*.

At the Northern Gala, 40 members were in attendance. Senior members ran the three T/R and Stunt events. Our ½A team of junior, John Northage/Teesdale won, establishing a new British record time of 8:58.6.

We will be organising the 1961 Rufforth 1,000 lap team race for S.M.A.E. class B models on November 5th. Entries and enquiries for this specialised race should be sent to Wharfedale comp. secretary Don Haworth, 38 Lidgett Park Avenue, Rounhay, Leeds 8, Yorkshire, and must be posted to arrive not later than October 29th. Pre-entry is essential (2s. 6d. per entry); and remember, 1,000 laps ≈ 74 miles plus, so "be prepared."

MARKET HARBOROUGH M.A.C.

At a recent committee meeting the painting of the club hut was discussed. The hut was obtained and erected on the flying field to facilitate repairs and as a shelter. Also discussed was the winter programme, including film shows, r.t.p. flying, lectures, engine starting competitions, and two beginners' classes.

The local paper recently devoted a full-page feature to a survey of club activities.

LEICESTER M.A.C.

Twenty-one cars, loaded with members and families, arrived at Barkston Heath, in the middle of a torrential thunderstorm, which cleared to dull weather later, for an Inter-Club Competition with the Grantham and Littleover Clubs.

The results were: *Chuck Glider*—1st E. G. Percival of Grantham, 2nd F. Barnett and 3rd K. Lambert both of Leicester. *Open Glider*—1st F. Barnett of Leicester, 2nd I. R. Johnson of Grantham and 3rd M. Keeling of Littleover. *Open Power*—1st was D. G. England of Leicester who, although he achieved three max's, found them to be equalled by E. G. Percival of Grantham, so there was a thrilling fly-off, which Dennis England won with a splendid flight of 4 min. 10 sec. in the gathering dusk; 3rd was A. H. Percival of Grantham.

Although previously this year, Inter-Club competitions have been Combat only, this one arranged for our F/F members, turned into a young rally with 34 entrants, and was most enjoyable—thanks to the Grantham Club for their hospitality.

FORESTERS (Nottm.) M.F.C.

An invitation from the local Model Engineering Society to take a stand at their Annual Exhibition in the Victoria Exhibition Hall, Nottingham proved to be a great success. In fact more space was given in the local press to the Foresters' stand in the exhibition, than to the stands of the organisers themselves.

At the invitation of the Commanding Officer, of the Royal Canadian Air Force Station, Langar Ken Moore and Geof Pike gave a demonstration of multi R/C flying at the annual open day, which proved to be a great success. A demonstration was also given of C/L flying both combat and stunt.

John Bradley and Geof Pike entered the I.R.C.M.S. competition at Wellesbourne and considering it was their first attempt in a competition, they put up a good show. Geof gained fifth place, but John was unfortunately unplaced, due to premature engine failure after getting full marks for the manoeuvres he had completed.

BRIGHTON & D.M.A.C.

Dennis Latter was our sole representative at the Devon Rally where he placed third in Glider.

An unfavourable wind plus low water in the pond prevented the flying of our Seaplane event, although the day was well spent trimming seaplanes ready for the event which will now be held on November 5th.

WEST BROMWICH M.A.C.

In spite of a very low membership and lack of interest, the club has scored two recent successes. Tony Day won a bronze medal at the Model Engineer Exhibition with his Nationals scale winning Fokker *DVII*.

A small party visited Cranfield, and four members flew in the combat, among them being Mac "Chopper" Grimmett, returning to the fray after nearly three years.

Mike Kendrick won the Combat with the Oliver, *Black Ghost*. This is the fifth time in seven years that the Combat at Cranfield has been won by West Brom. Thanks are due to the Kenton M.A.C. for the fair and efficient manner in which they ran the Combat comp.

DEVON RALLY

For the first time in four years, members of the organising club, Exmouth & D.M.A.C., were able to compete, club membership having increased to a sufficient extent to make this possible.

First flights from the 88 entries got away as soon as "shop" was set up. Most first round flights collected max's and those who made their flights early certainly benefited, for lift had completely gone by 3 o'clock, as some of the thermal hunting glider boys, who saw their models start to sink while still on the line, will agree. Elton

Continued overleaf

ENGINE TESTS

Continued from page 371

needle-valve stem, well raked back to provide a safe clearance between the fingers and the propeller, was easy to adjust and held any setting firmly. The compression control was also easy and comfortable to use, the fit of the contra-piston being such that there was no tendency to stick in the bore when hot.

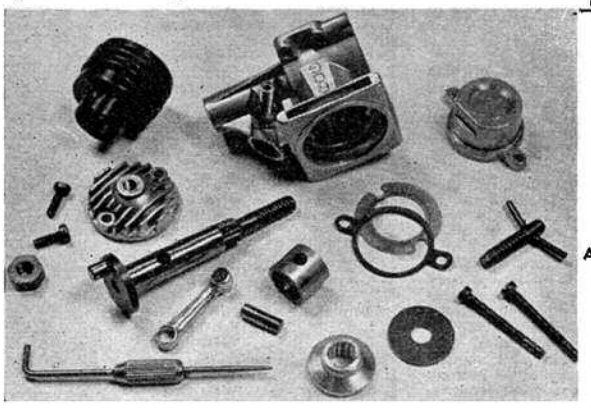
Maximum torque developed by the Mk. II on test, 5.1 oz. in. at 10,000 r.p.m., was somewhat less than that achieved by the older model. The fall off of torque as load was reduced, however, was much less rapid, with the result that a rather higher b.h.p. peaking speed was realised—approximately 13,600 r.p.m.—where a maximum output of 0.062 b.h.p. was recorded. There was, it should be noted, a slight loss of power with warming up, and this was detectable over the whole load-speed range. As is normal in these tests, readings were taken only after the engine had reached a reasonable operating temperature.

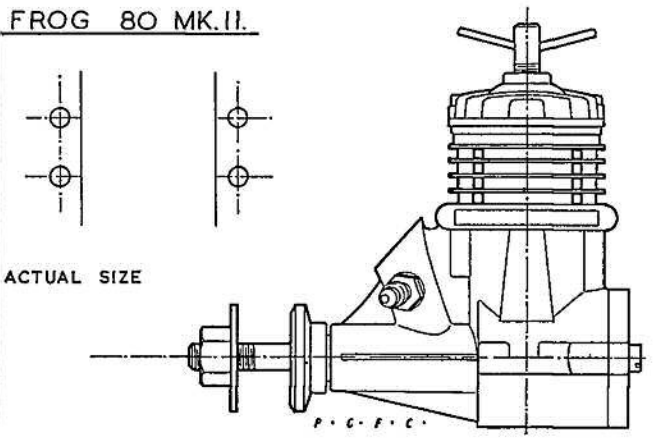
For initial running, the makers recommend a heavy 7 × 4 prop. Where it is desired to take greater advantage of the engine's performance, however, a 7 × 3 or 6 × 4 prop will allow it to get nearer to its peak horse-power. On a 7 × 3 Top-Flite wood prop, our engine turned at 9,900 r.p.m. and this would, for example, be quite a suitable choice for a general-purpose type F/F model. Speeds ranging from 11,000 to 11,800 were obtained on Keilkraft (nylon), Power-Prop (wood), Tornado (nylon) and Top-Flite (wood and nylon) 6 × 4 props with a best figure of 12,700 r.p.m. on a Frog 6 × 4 nylon. With this latter prop, the "80" should, therefore, reach or exceed its peak power in the air.

A slightly increased vibration level was detected at speeds around 15,000 r.p.m.—which, however, is of academic interest only, since there is no point in propping this engine for speeds above 13,000-14,000 r.p.m. in the air. At these latter speeds, the Mk. II ran steadily and evenly.

Power/Weight Ratio (as tested): 0.51 b.h.p./lb.

Specific Output (as tested): 76.8 b.h.p./litre.





Class B T/R winner at the South Midland Area Rally, Ron Lucas (left) with pilot Pete Drewell.

Drew of Glevum certainly had a change of luck. For the first time in five years, he recorded all three rubber flights and returned home with his model.

With Combat entries coming from the Kenton/Northwood "Kombo" and Weston, plus four Exmouth entries, it was certain that it would be a big improvement on last year. A good day's flying was rounded off by a very exciting final, in which P. Tribe was chopped up by G. Copeman and his *Cleaver*.

It was very heartening to see the regular visitors to this rally yet again giving their support. Among those who spring to mind are George Fuller, Jack and Peter Manville, Al Wisher, Tony Young and many more.

RESULTS

Power: 1. G. Fuller, St. Albans, 9 : 00. 2. G. Castell, Stevenage, 8 : 39. 3. B. Mack, Stevenage, 8 : 24.

½A Power: 1. M. Dilly, Croydon, 8 : 42. 2. A. Young, St. Albans, 8 : 20. 3. J. Clampitt, Bristol Aces, 2 : 40.

Rubber: 1. A. Parker, Exmouth, 9 : 00. 2. J. Rowland, Exmouth, 9 : 00. 3. E. Drew, Glevum, 8 : 01.

Glider: 1. D. H. Tipper, St. Albans, 6 : 46. 2. E. J. Langton, Cardiff, 6 : 35. 3. D. G. Latter, Brighton, 6 : 31.

F/F Champion: A. Young, St. Albans.

Combat: 1. G. Copeman, Kenton/Northwood. 2. P. Tribe, Kenton/Northwood.

NORTH DUBLIN A.C.

Four members entered the Irish C/L Nationals at Raheny. The Herrievan-Corwell team won F.A.I. and T. Rafter won ½A T/R. Combat, which for the most part was fought out between the Cahir and Dun-Laoire lads, was much faster than usual and E.T.A. 15s were much in evidence. It was hoped for a T/R team from this club to represent Ireland at Brussels in September, but regrettably this fell through.

ROTHERHAM & D.M.F.C.

The Hanniman Trophy for ½A Combat was flown locally, and the winner was George Stringwell, who had a tough fight to beat juniors Brian Parkin and Tony Baker.

Altogether 23 members and their families attended the Northern Gala, which was enjoyed by everyone. The club's best performance came from Ron Boid flying his new Cox Tee Dee 15 O.D. job, which scored two max's and 1 min. 41 sec. Top clubman in A2 was Eric Jepson with 5 min. 10 sec., and in her first big competition, Mrs. Ruth Jepson, managed a very creditable 2 min. 30 sec.

ECURIE CADZOW

The boys fought hard to take second place at the Scottish Gala, in F.A.I. racing, the weather being rather harsh, even for Scotland! Two trips down South proved successful recently. At Cranfield, the latest Oliver racer topped 100 m.p.h. and 20 laps, to record 5.01 for fifth fastest time, although during the event, six motors suffered damage. The same model recorded 4.57 to qualify at the Northern Gala and placed second in the final, behind a good model which merits far better flying technique. The organisers of both competitions are worthy of praise for their good job of work.

WINCHESTER M.A.S.

We recently gave a 45 min. flying demonstration at a local fete. We started off with a large stunter towing an 11 ft. streamer, bearing the name of the club, but the star attraction was five in a circle combat which was really good fun!

HORNCHURCH M.A.C.

The flying season has been overshadowed by the fear that we might lose our local flying field—Hornchurch Aerodrome—due to close next April or May. We have taken up the question with the local council to determine whether alternative space will be available. So far we have not received a reply but await the answer with fingers crossed hoping for the best.

BAILDON M.F.C.

Members made the Northern Gala a field day, Henry Tubbs placing second in the Rubber fly-off, and Malcolm Jackson first in Glider.

Messrs. Tubbs, Tideswell and Stoker managed to fly off their round of the Northern Area knockout against Rotherham on the same day and obtained, for what is believed the first time in the area, a perfect total of 27 minutes.

HALIFAX M.A.C.

At the Northern Gala a degree of success was had by members. John Pool, whose new open rubber job was having its first contest airing, spoilt his chances by launching into a down draught for 2.05, while Alan Nobbs was singularly unfortunate, being credited with 3.59 and 3.57!

EAST LANCS M.A.C.

We owe an apology to the 30 or 40 contestants at our third Open Day, who were waiting at the field when we, the organisers, arrived at 12 o'clock. The best excuse we can make is that most of our committee had been on holiday during the last few weeks, so had got rather out of touch with each other, we do not intend this to happen again.

The contest having got off to a late start, entries were smaller than at the previous Open Days, the weather fine, sunny but with a strong wind and many downdraughts.

RESULTS

Glider: 1. J. Birks, Chorlton, 6 : 31. 2. B. Faulkner, Cheadle, 6 : 27. 3. J. O'Donnell, Whitefield, 5 : 43.

Rubber: 1. J. Chadwick, Ashton, 3 : 34. 2. R. Linton, Wakefield, 3 : 00. 3. D. Wolstenholme, East Lancs, 1 : 43.

Power: 1. D. Barber, Bala, 4 : 34. 2. J. D. Bailey, Wakefield 4 : 27. 3. J. Turner, Chorlton, 0 : 07.

ABINGDON & D.M.F.C.

A competition for a standard 24 in. glider, to encourage younger members to try their hand, attracted 18 entrants. Five flights off a 100 ft. line were required, and the fresh wind soon singled out a few models that would tow up O.K. Andy Crisp won overall only making four flights; Albert Fathers was second with the best individual time of 1 : 38, which was just about o.o.s. The competition was enjoyed by all concerned and we intend to hold another one in the near future.

HAYES & D.M.A.C.

Dave Balch, B.Sc., has recently not only won Combat, at the Ashford Rally, but also placed fourth in class 2 and second in the experimental 1.5 c.c. class at the Oakington S.M.A.E. speed meet. Rubber man John Wassell placed third at the South Midland Area Rally; only a few seconds behind the winner.

Congratulations to our best known F/F man Jim Baguley, who was married at the end of August.

WESTON CONTROLINERS

Only a small contingent entered the South Midland Area Rally, but we all had a very enjoyable day, even though our only success was in the Stunt, where Dave Christopher placed fourth with his usual large *Skua* and Merco 35. The combat boys were completely out of luck.

On the occasional calm Sunday, F/F models have been in evidence—mainly slope soarers and ½A power. These ½As show great promise, they really shift on the climb and glide well.

COSMO A.C.

At the Model Engineer Exhibition two of our members were successful. Bill Jeffery won the MODEL AIRCRAFT Prize with his *Coy Kat* and our chairman, Alec Crick, obtained a Very Highly Commended with his cabin cruiser *Princess Tina*. This was his first attempt at modelling a boat—not bad for a "dyed in the wool" aeromodeller in his 61st year!

SOUTHAMPTON M.A.C.

We were very fortunate to obtain a luxurious 30-seat coach for our trip to the South Midland Area Rally—for every previous trip we had been lumbered with the "old banger," as it is known to the club. However, the day turned out to be a catastrophe, as we had nothing but wrecked models and engines at the end of it.

RECENT RESULTS

SCOTTISH GALA

Power			
1. B. Eggleston	Baildon		7.04
2. C. Hutton	Wallasey		6.07
3. T. Bailey	Novocastria		6.07
4. R. Firth	Sheffield		5.56
5. J. O'Donnell	Whitefield		5.55
6. D. Bathgate	Edinburgh		5.35
Glider			
1. J. O'Donnell	Whitefield		7.14
2. R. Sleight	Hayes		6.27
3. S. Allsopp	Cambridge		5.22
4. J. Hannay	Wallasey		5.06
5. J. B. Harris	Prestwick		4.59
6. H. O'Donnell	Whitefield		4.18
Rubber			
1. J. O'Donnell	Whitefield		9.00
2. U. Wannop	C/M		9.00
3. H. Tubbs	Baildon		7.41
4. C. Christie	B.A.T.		7.15
5. J. Pool	Halifax		6.57
6. R. Pollard	Tynemouth		6.38

U.K. Challenge Match

	Power	*Rubber*	*Glider*
England	12 pts.	9 pts.	7 pts.
Scotland	3 pts.	6 pts.	8 pts.

SOUTH MIDLAND AREA GALA

Open Glider		
1. C. Simeons	St. Albans	8.35
2. R. Neilson	Springpark	8.24
3. M. Turner	Charlton	8.15
Open Power		
1. N. R. Johnson	C.M.	9.00
2. G. Fuller	St. Albans	8.55
3. R. A. Haisman	Belfairs	8.34
Open Rubber		
1. R. Godden	Cambridge	8.16
2. J. North	Croydon	8.02
3. J. Wassel	Hayes	8.01
½A Power		
1. D. Posner	Surbiton	9.00
2. V. Jays	Surbiton	7.37
3. M. Burrows	St. Albans	7.15
Chuck Glider—(best 3 of 10 chucks)		
1. D. Greaves	Leamington	4.53
2. G. Hall	Walsall	3.47
3. A. Fathers	Abingdon	2.37
R/C Multi		
1. F. Knowles	Reigate	
2. S. Uwins	C.M.	
3. K. Marsh	West Essex	
R/C Single		
1. S. Uwins	C.M.	
2. R. Yates	—	
3. M. J. Dumble	A.R.C.C.	

Combat		Pts.
1. M. Kendrick	W. Bromwich	+9
2. G. Williams	Brierley Hill	—8
3. R. Gibbard	Derby	—15
Stunt		Pts.
1. D. Day	Wolves	523½
2. F. Warburton	Bolton	492
3. C. Higgs	Bolton	480
T/R "A"—(10 kilometres)		
1. A. Wallace	Novocastria	4.45
2. L. Davy	Wharfedale	4.48
3. J. Hall	West Essex	—
T/R "B"—(10 miles)		
1. R. Lucas	West Essex	7.13
2. C. Taylor	West Essex	7.16
3. D. Greenland	Ecurie Endeavour	9.58

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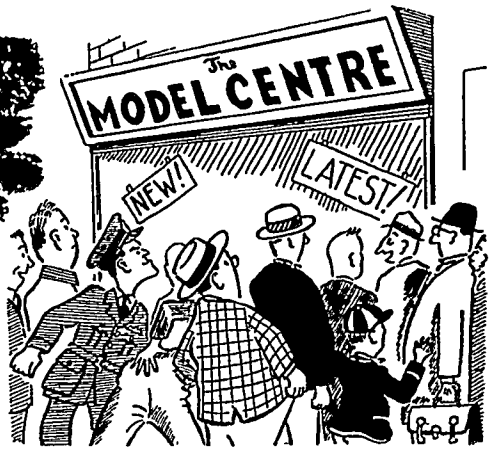

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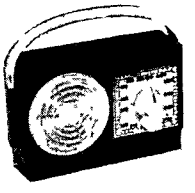

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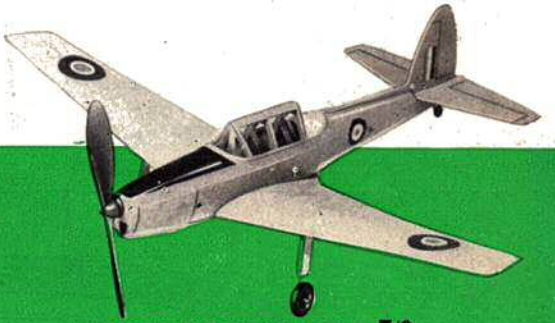

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