Fox 25 R/C

PETER CHINN'S

RADIO MOTOR COMMENTARY

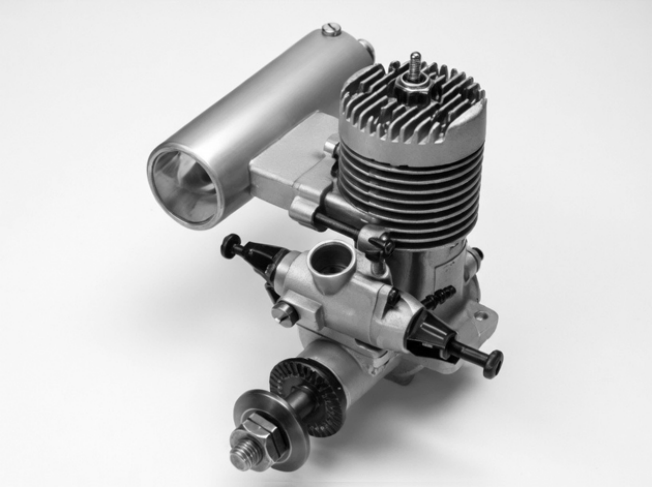
Fox 25 R/C tested.

Introduced in the autumn of 1980, the 1981 model Fox 25 is the latest development of a design that first appeared in 1972. Soon afterwards, it was joined by a sleeved down and destroked '19' version. We had both engines on test and each turned out to be of above-average performance at the time. The standard 25 delivered 0.43bhp at 14.500rpm on Fox 'Missile Mist' (25 per cent nitro) fuel. On the same fuel, the 19, while lacking the 25's low-speed torque and therefore having less power when loaded for speeds below 15.000rpm, peaked much higher, reaching a maximum of 0.45bhp at 18.000rpm. This prompted the suggestion that it had possibilities in the UK as a power unit for the then new Club 20 pylon racing class, a prophecy that was later to be borne out by actual contest results.

These earlier tests were confined to standard non-throttle equipped motors, whereas the present report deals with the R/C version of the 25. Quite apart from this, however, the current engine incorporates a number of modifications and improvements.

For example, the one-piece crankcase casting has a larger main bearing housing, a heftier carburettor mounting flange and the addition of lugs, fore and aft of (instead of above and below) the exhaust duct, for silencer attachment. The crankshaft, which uses a 7/16in journal with a 5/16 in gas passage, now has a larger (3/16 in) dia. crankpin and its valve port is open for a longer period. Another change is to the finish of the castings which are bead blasted instead of tumble polished, giving a grey matt surface which looks better than the earlier shiny finish.

The carburettor of this latest Fox 25R/C is a two needle adjustable automatic mixture control type.



The engine is a simple crossflow scavenged type but has better than average performance. Above: the 1981 model Fox 25R/C with new type Fox carburettor and Fox 'B' silencer.

Although this breaks with a Fox tradition of distinctively different and original carburettor designs, the fact that, in operation, it resembles a type that is more familiar to most modellers, has the merit of making it easier for the average user to adjust.

The Fox company offers various sizes of silencer for its engines. The one for the 25 is the Fox 'B' size. This is small in overall dimensions (only 25ml capacity) and incorporates internal baffling via a full length slotted outlet tube, but outlet areas are large, as a result of which power losses are apparent only at the top end of the performance curves i.e above 13.000rpm

Most Fox engines are designed to run on Fox Missile Mist fuel (which, by US standards, is a medium rated mixture and contains 25 per cent nitromethane) although many of them, particularly the larger sizes, will operate quite satisfactorily on a low nitro blend or even on a straight methanol/castor- oil mix.

Our test model Fox 25 was run-in on a five per cent mixture and this was also used for a preliminary series of test readings. The 25 ran quite well on this, but there was a worth-while improvement in both power and running qualities with the 25 per cent nitro mix and this was the fuel used to obtain the figures shown in the table.

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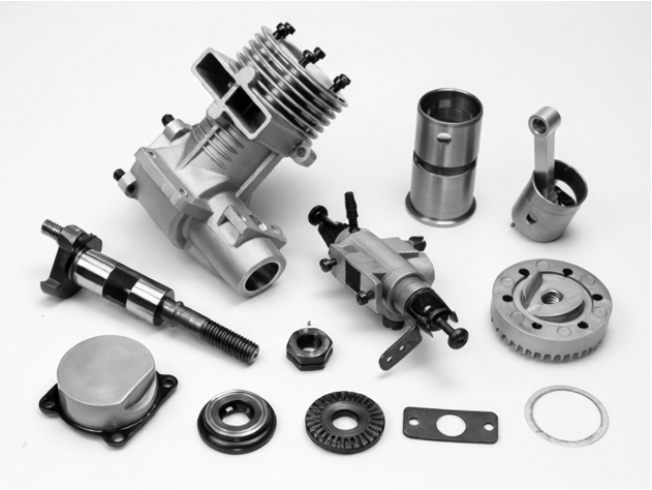

Parts of the latest Fox 25 R/C

The figures quoted are very good and well above average for a 4cc crossflow scavenged plain-bearing engine.

General handling and running qualities were also good. Our test motor started promptly from cold and warm restarting was also reliable. Needle-valve adjustment was fairly critical when the engine was operated on five per cent nitro, particularly when small props were used, allowing the 25R/C to run at high speeds. There was a marked improvement when the 25 per cent blend was used. Response to the throttle control was good, with idling at between 2.800 and 3.000rpm on props giving full throttle revs of around 13.000rpm.

Fox engines are handled in the UK by Model Aircraft (Bournemouth) Ltd and John D Haytree (Fox Mfg. Co (UK), The Haven. Rixey Park, Chudleigh, Newton Abbot, Devon TQ14 OAN. who also service Fox engines.

Specifications and performance data for 1981 Fox 25 R/C

Performance tests.

(**Note:** all the figures quoted below relate to 25 per cent nitromethane fuel).
Power output, gross (less silencer): 0.455bhpat 15.500rpm.
Power output, net (with silencer): 0.440bhp at 14.500rpm.
Torque: 37oz in at 8.500rpm.
Equivalent bmep: 59lb/sq in.
Specific output, gross: 112bhp/litre.
Specific output, net: 108bhp/litre.
Power/weight ratio, gross: 1.06bhp/lb.
Power/weight ratio, net: 0.84bhp/lb.

Typical prop rpm (with silencer)

9.450rpm on a 10 x 6 Top Flite maple.
10.200rpm on a 10 x 5 Top Flite maple.
10.900rpm on a 9 x 6 Zinger maple.
11.700rpm on a 9 x 5 Zinger maple.
11.500rpm on a 10x4 Top Flite maple.
12.800rpm on a 9 x 4 Top Flite maple.
13.000rpm on a 9 x 4 Zinger maple.
13.700rpm on a 9 x 4 Power Prop maple
14.100rpm on an 8 x 5 Zinger maple.

Test conditions: 25 per cent nitromethane fuel; air temperature 13°C, pressure 756mm Hg; relative humidity 74 per cent.

General data.

Type: Single cylinder, front rotary valve, side exhaust, crossflow-scavenged two- stroke with bronze-bushed main bearing Bore and stroke: 0.680 x 0.680in (17.27 x 1 7.27mm).
Stroke/Bore Ratio: 1.0:1.
Measured combustion chamber volume: 0.65ml.
Nominal Compression Ratio (full stroke): 7.2:1.
Swept volume: 0.2470cu. in. (4.047cc).
Exhaust period: 133°.
Transfer period: 116°.
Rotary-valve opens: 43° ABDC.
Rotary-valve closes: 52° ATDC
Carburettor: Fox adjustable automatic mixture control type with 6.6mm choke (14sq mm effective choke area).
Silencer: Extra. Fox B size baffled expansion chamber with 25 ml volume and 85sq mm outlet area.
Weight: 195 grammes (6.9oz) less silencer. 238 grammes (8 4oz) with silencer.
Required bearer spacing: 29mm.

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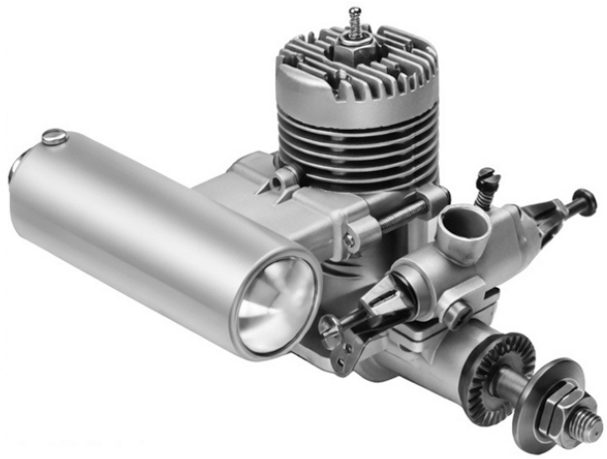

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