O.S. Max-25FSR-R/C

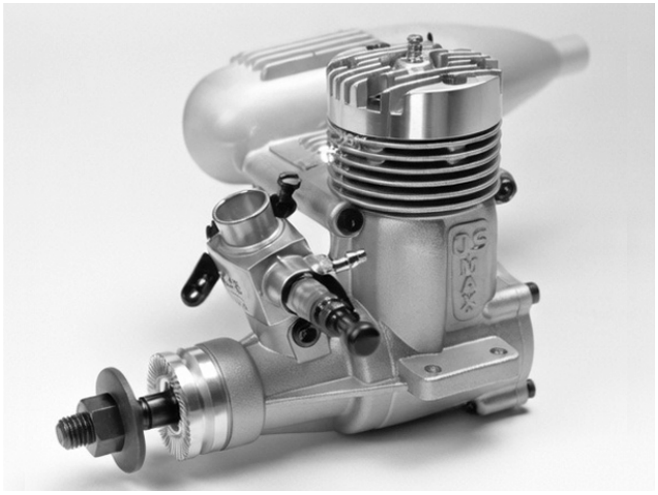
O.S. Max-25FSR Tested.

More powerful, heavier and more expensive than the crossflow scavenged, bronze bearing O.S. Max-25RC the Schnuerle scavenged, twin ball-bearing Max-25FSR was introduced nearly a year ago but we have only recently got around to testing one and this is the first published report on the engine. The results were good. Prop rpm figures obtained on 5% nitro fuel, using an O.S. No. 8 glow plug and the OS-762 silencer supplied with the motor were as follows (figures in parenthesis are the results of a repeat series of checks with the silencer removed):

10 x 6 Top Flite maple	9.800 (10.350) rpm
9 x 6 Top Flite maple	11.000 (11.800) rpm
9 x 6 Taipan glass fiber nylon	11.500 (12.400) rpm
10 x 4 Taipan glass fiber nylon	11.700 (12.600) rpm
9 x 4 Taipan glass fiber nylon	13.800 (14.800) rpm
8 x 6 Power Prop	14.200 (15.300) rpm
7 x 6 Taipan glass fiber nylon	15.900 (17.100) rpm
8 x 4 Taipan glass fiber nylon	16.000(17.200) rpm
7 x 4 Taipan glass fiber nylon	18.500 (20.400) rpm

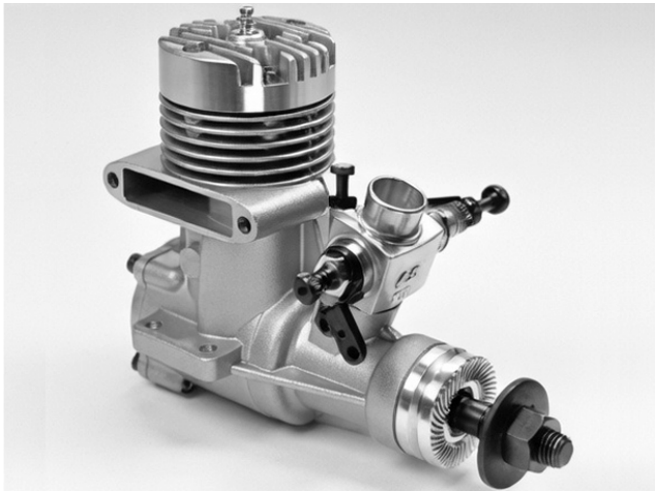
The 25FSR's strong point, compared with other engines in the newly emerging 3.5 - 4cc high performance motor group, is not its peak output (in this respect it falls short of the OPS 3.5-Speed as well as the immensely powerful K. & B 3.5) but in its high maximum torque which gives it well above average performance on the props most likely to be used, such as 10 x 4, 9 x 5, 9 x 4 and 8 x 6. If the engine's maximum available power is to be utilized, one would suggest propping it for a ground rpm of about 14.000 when the OS-762 silencer is fitted. (Peak bhp is reached at approximately 15.500 rpm with the silencer. This rises to 18.000 rpm with the silencer removed, compared with 21.000 – 22.000 for the K & B and OPS).

When the O.S design team were developing the 25FSR, a major consideration was the need for a



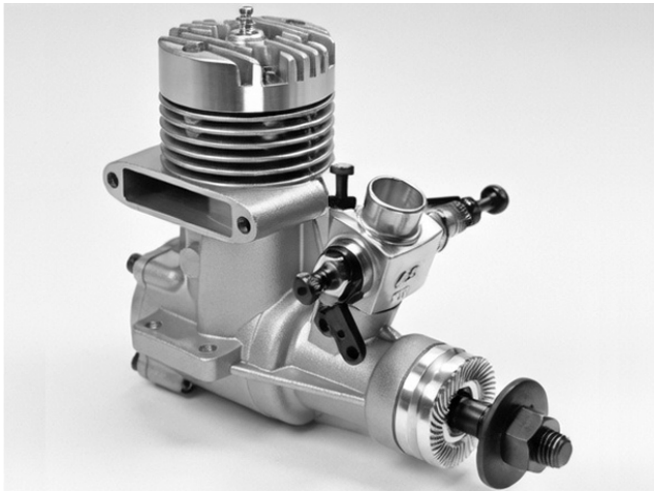
Included with each O.S. Max-25FSR is the effective OS-762 silencer, specially designed for this engine.

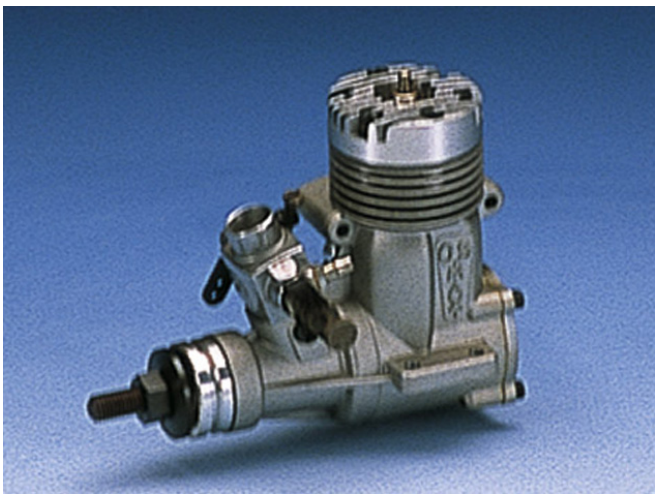
motor capable of instant, reliable throttle response for helicopter use. That the engine is eminently suitable for small helicopters has been borne out in practice and the new O.S. Type 2B automatic mixture control carburettor fitted to the 25FSR works admirably. With the engine loaded for a 12.000 rpm maximum, our example provided a very linear throttle response with reliable idling down to as low as 2.200 rpm. The change from two- stroking to "four-stroke" firing occurred at between 6.500 and 7.000 rpm but was very gradual so that there was no sudden drop in power at the transition. The engine's overall handling characteristics were, in fact, very good.

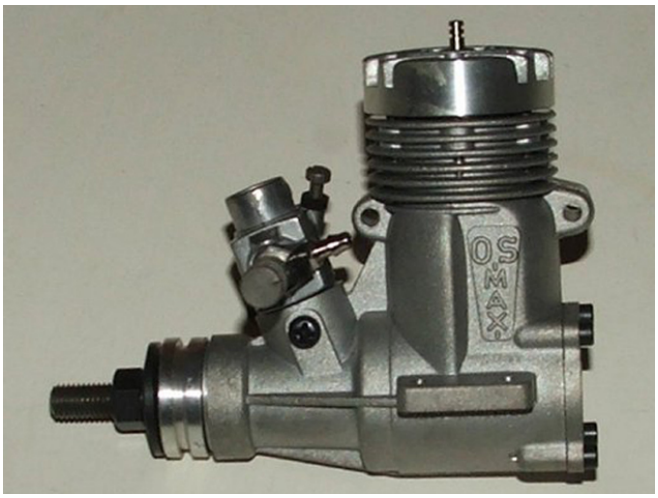


Some Max-25FSR parts, showing bowl and squish cylinder head, large diameter shaft, light weight Meehanite piston, machined conrod and Schnuerle ported liner.

O.S. Max-25FSR-R/C







Comparing the design and construction of the Max-25FSR with the less expensive Max-25R/C, one finds that almost the only thing that they have in common is their 18 mm X 16 mm bore and stroke. In addition to being supported in two large ball bearings instead of a bronze bush, the shaft has a bigger main journal (12 mm o.d. instead of 10.5 mm) and a larger gas passage (8.4 mm instead of 7.6 mm). The Schnuerle porting system is similar to that used for the larger “SR” series O.S. engines except that the ports are, in effect, rotated 35 deg in a clockwise direction (looking down the bore) so that the exhaust is brought to the right rear quarter and the three transfer ports are relocated accordingly.

Unlike the bigger O.S. Schnuerle engines, all of which have ringed aluminum pistons, the 25FSR uses a lapped Meehanite piston and, because of the relocation of the cylinder ports (which provides an uninterrupted bore surface fore and aft) a fully-floating gudgeon pin, fitted with PTFE pads is used. The machined high duty alloy conrod is stronger than that of the 25R/C and is also longer (29 mm) for reduced rod angularity.

The OS-762 silencer is a conventional expansion chamber type and bolts directly to the engine’s wide exhaust duct. It has a capacity of 35cc and an outlet area of 28 sq.mm. It is equipped with an exhaust priming nozzle and an outlet nipple for pressurising the fuel system.

Checked weight of our sample 25FSR was 215 grammes (7.6 oz.), plus 49g (1.7 oz.) for the silencer, making 264g (9.3 oz.) all-up.

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