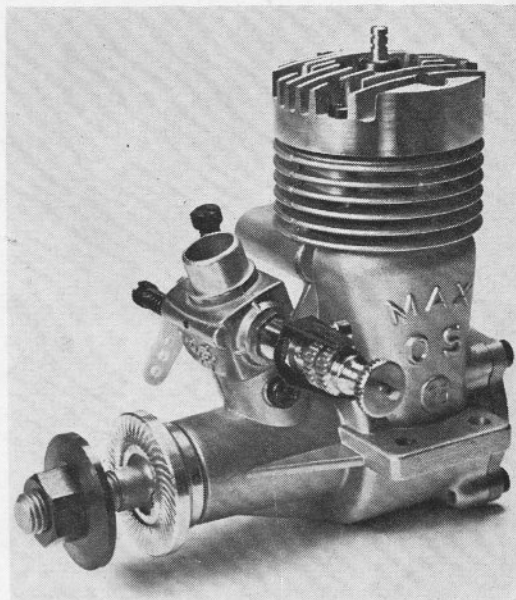


Current O.S. Max-25 R/C with type 21 carburettor. Good engine for the newcomer to R/C. As with all O.S. engines, an effective silencer is included with the Max-25 R/C.



Peter Chinn's **RADIO COMMENTARY MOTOR**

**O.S. Max 25 R/C Tested**

One of the most popular O.S. engines in the past was the Max-19. Introduced in 1962 and manufactured continuously for nearly ten years in standard and R/C versions, it was finally superseded by the present Max-20 model towards the end of 1971. A report on the Max-20 R/C was featured in the March 1972 *R.C.M.&E.*

Shortly after the 20 was put into production, the O.S. company announced a companion model, the Max-25, utilising the same body casting as the 20, but with 1.2 mm larger bore and 1.4 mm longer stroke to increase swept volume from 3.236 c.c. (0.1975 cu. in.) to 4.071 c.c. (0.2485 cu. in.). The 25 is also

obtainable in a choice of standard or throttle equipped models but, unlike the 20, is not at present available in a water-cooled marine version.

The Max 25 R/C was briefly described in the July 1972 issue. Last year, in common with the 15 and 20 models, it appeared with the new O.S. Type 21 carburettor and we have recently run some tests on a couple of examples of this latest version.

Prop r.p.m. obtained, using our standard R/C test fuel containing 5 per cent nitromethane, were as follows (figures in brackets indicate r.p.m. with appropriate O.S. silencer):

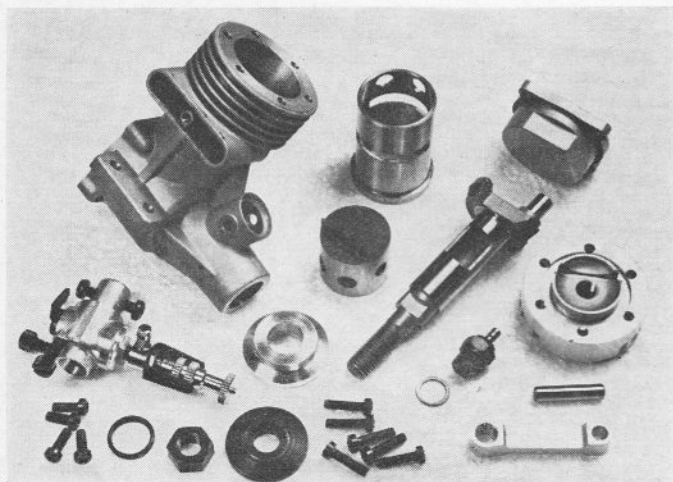
9,500 (9,400) on a 10 x 5  
Super nylon-glassfibre

- 10,000 (9,800) on a 9 x 6  
Top-Flite maple
- 10,300 (10,000) on a 9 x 6  
Taipan nylon-glassfibre
- 11,600 (11,300) on a 10 x 3½  
Top-Flite standard
- 12,200 (11,700) on a 9 x 4  
KeilKraft nylon
- 12,700 (12,100) on a 9 x 4  
Top-Flite nylon
- 13,500 (12,800) on an 8 x 6  
Power-Prop standard

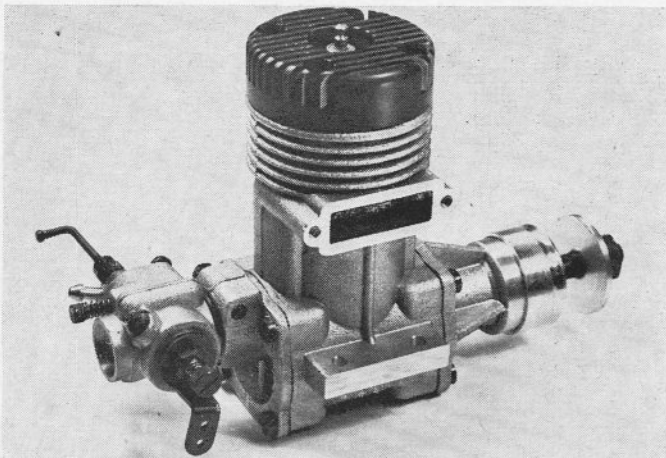
The glowplug used was the O.S. No. 7 bar type. We also tried the unshielded No. 9 type, which has been found to give excellent results in the O.S. 40, 60 and 80 engines, but this did not suit the 25 so well. On the No. 9, the 25 started off more slowly and would cut if attempts were made to lean it out to a higher speed before it had become well warmed up, whereas, on the No. 7, the engine was into its stride immediately, about 200 r.p.m. faster and was not in the least critical to mixture adjustment.

All O.S. engines are supplied complete with an O.S. silencer of the expansion chamber pattern and, in the case of the Max 25, this is the Type OS-702 which also fits the Max 15, 19 and 20. In order to reduce back-pressure with the 25, the OS-702 now has its short tailpipe reamed out from 5 mm to 6 mm i.d., giving an increase in cross-sectional area of 44 per cent to just over 28 sq. mm. This still knocks about 15 per cent off the engine's top end power but does not greatly increase exhaust noise.

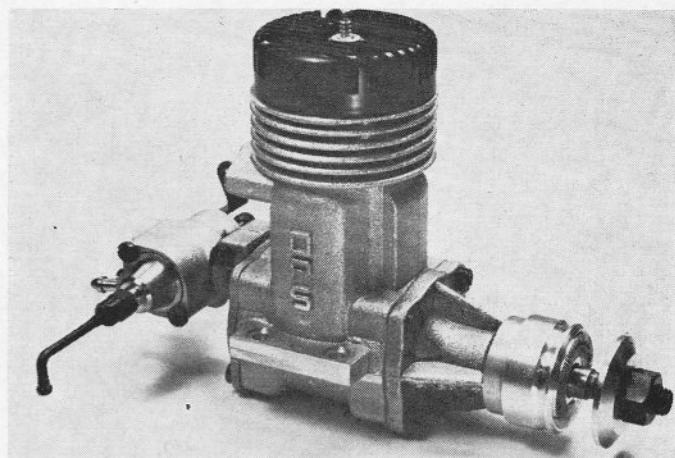
The general handling and running qualities of both test engines were good. Hand-starting was excellent from cold and only a little less so when the engines were warm. Throttle control was good, with safe idling in the 2,200/2,600 r.p.m. range, depending on prop size, and a good response through the



Well made parts of the Max-25 R/C (earlier type carburettor shown in this photo).



**OPS 40-SLP PYLON.** This model has large choke carb. without airbled. Like all current OPS engines, it has ABC type piston/cylinder assembly.



**OPS 40-SPP PYLON.** Similar to 40-SLP but with rear exhaust. Also available as 40-SPP RC/PIPED model with specially ported cylinder liner for use with OPS tuned pipe exhaust system.

middle range. It is to be expected that a heavier piston and a substantial enlargement in displacement, without a corresponding scaling up of all other dimensions, will result in an increase in vibration levels but, although the 25 may be marginally less smooth than the 20, this was certainly not very noticeable during the tests.

A comparison of the figures previously obtained with the 20 R/C on 5 per cent nitro fuel, with those of the 25 R/C on the same mixture, showed that, for an increase in swept volume of just under 26 per cent, the maximum torque developed by the 25 R/C was raised by almost exactly the same amount, but that the improvement in top end power was a little less at approximately 20 per cent. This, having regard to the fact that the carburettor choke area and gas passages of the two engines are much the same, is as one might anticipate.

Where the 25 scores over the 20 is in its superior power weight ratio, plus the fact that it develops as much power with the OS-703 silencer fitted, as the 20 does without a silencer — more, in fact, on 9 x 4 and larger props.

For a throttle-equipped engine weighing only 5.9 oz. (or 7.2 oz. with silencer) and overall dimensions no larger than those of the average '19', the 25 R/C therefore offers a very good level of performance and should

appeal to anyone looking for more power than is normally obtained with engines of this size and weight. On the other hand, the 20 will consume less fuel and, being less highly stressed, may be expected to outlast the 25, although both engines are very soundly made and reports received to date suggest that they both stand up to normal usage very well.

### Fox 19 R/C

There are only two .25 cu. in. motors on the market at the present time: the O.S. Max 25 just dealt with and the Fox 25 and, by a coincidence, both are also made in 0.20 cu. in. companion models, all four engines being marketed in a choice of standard or R/C versions. However, whereas the Max-20 preceded its larger brother, the smaller Fox arrived much more recently and quite a while after the launching of the Fox 25.

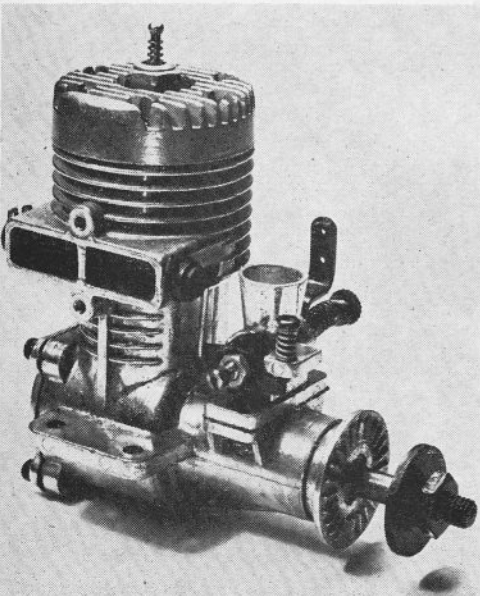
As with the O.S., the two Fox engines are based on a common body casting but have different bore and stroke measurements, so that the crankshaft, piston, cylinder-liner and head are all different.

Two external changes instantly distinguish the Fox 19 from its elder brother. Firstly, it has a more squat appearance due to the fact that the height of the cylinder casing is reduced 0.1 in. by removal of the top cooling fin. Secondly, the propshaft length is shorter and is reduced in diameter from  $\frac{1}{4}$  in. to  $\frac{3}{16}$  in. Apart from its slightly lower overall height, the 19's installation dimensions are the same as those

of the 25 and the weights of the two engines are almost identical. (The manufacturer's advertising literature gives the respective weights as 6 oz. for the 19 R/C and  $6\frac{1}{2}$  oz. for the 25 R/C. In fact, our test samples checked out at 5.90 oz. and 5.93 oz. respectively.) This identity of weights is partly due to the 19's thicker-walled cylinder-liner and heavier crankweb, which largely cancel out the weight saved by the shorter cylinder casing and smaller shaft end.

One of the improvements made to the 19 is its use of a machined connecting-rod, in place of the diecast conrod fitted to the 25 tested earlier. After running examples of both engines for several hours, we were left in no doubt as to which rod has the longer bearing life, and it seems very likely that later 25's will be fitted (if they are not already being so equipped) with a machined rod.

The general design and construction of the 19 follow the usual pattern of the small to medium capacity Fox motors. The main casting includes crankcase and finned cylinder casing and is pressure diecast in aluminium alloy with a cast-in bronze main bearing bush. The crankshaft has a  $\frac{7}{16}$  in. journal and a  $\frac{5}{16}$  in. gas passage. The lapped Meehanite piston has a pressed-in gudgeon-pin and runs in a drop-in steel cylinder sleeve with orthodox crossflow porting. The cylinder-head is a pressure-casting with wedge type combustion chamber and aluminium gasket and is secured with six screws.



**Left:** after some delay, new Fox 19 R/C is now available. Good performance at low price. **Right:** Fox 19 is based on Fox 25. Outward differences are reduced cylinder height and smaller propshaft.

