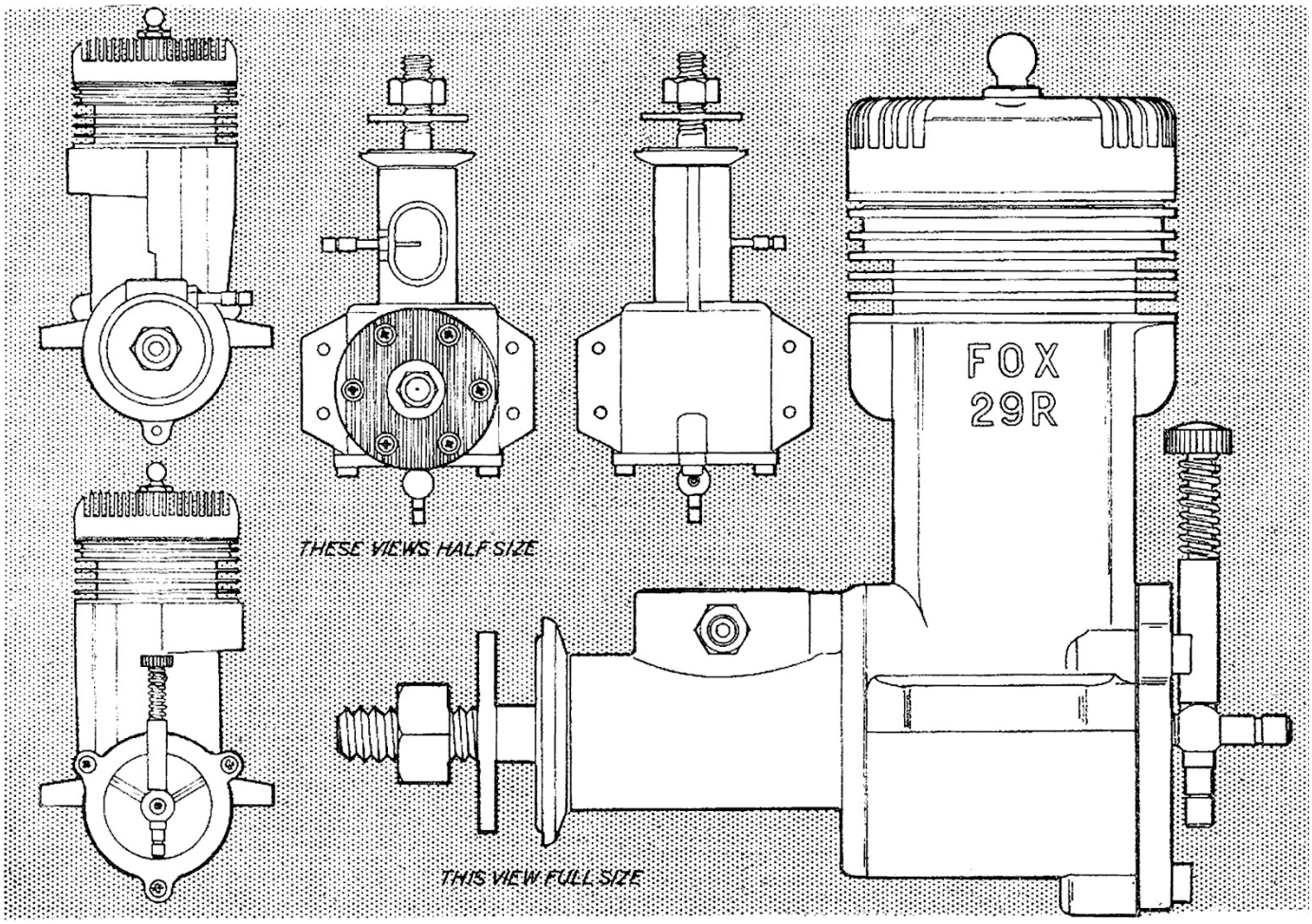
Fox 29R



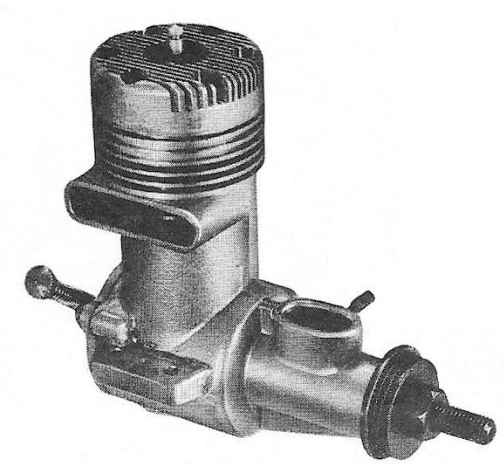
Outstanding plain bearing, pressure fed racing engine with a potential performance above most other engines of similar size.

The 29R is a unique design of racing engine which you will either drool over if you are an out and out speed control line fan, or regard as an extremely irritating and highly unnecessary piece of machinery. This racing Fox is undoubtedly a very powerful engine with a potential performance probably far and above most other engines of its size.

We say “potential” because in our experience, operating this engine can be a tricky even frustrating business. Starting is not a particularly difficult job, only everything has to be just right, and whilst this can be set up quite satisfactorily for bench running tests, operating the engine in a model could be quite another question. Consistent starting, we found, was a two-man operation one to flick over the propeller and one looking after the fuel control. This engine is no toy and, whilst not exactly being frightening, is one which you treat with a certain amount of respect. It demands much more in technique than the average pen bladder pressure fed engine. Yet having mastered the starting technique we had no particular troubles or qualms about hand starting on a 7 inch diameter propeller.

The basic difference between the Fox 29R and other engines is this method of fuel induction. The engine is of the crankshaft rotary valve type, but the shaft opening and intake is so enormous that the conventional method of sucking in a spray of fuel-air mixture is no longer effective. Instead, liquid fuel is poured into the intake through a small tube located in the normal jet position, the rate of flow controlled by a needle valve mounted on the back of the crankcase.

Fox 29R



To get a satisfactory fuel flow the supply must be pressurized either by locating the tank well above the engine (about two feet is adequate) so that it flows under gravity; or by using some form of pressurized tank, like a pen bladder.

Fox recommends a mixture with a very high proportion of nitromethane. We found a 50 per cent, nitro-methane proportion the maximum miscible with methanol and castor (without the addition of a mixing agent, like ether) and used this for our tests. This mixture appears very hard on glow plugs, so another very necessary technique would appear to be the selection, by practical tests, of a suitable plug for the actual mixture employed.

No detailed tests were undertaken with the Fox because of the somewhat limited appeal of this specialized design but rough measurements of torque and speed over the range 14.000-18.000 r.p.m. indicated at maximum B.H.P. output somewhat in excess of .6 at around 17.500 r.p.m. which figure is probably pessimistic as regards the maximum potential of the design.

Duke Fox himself makes the point that the people who buy this class of engine will want to rework it, polishing the interior surfaces, etc., so he has concentrated on the highest standard running fits. Certainly the engine "feels" very nice, with general freeness all round and excellent compression seal. It is one of the few glow motors, for instance, which you can effectively "hydraulic" like a diesel.

The overall size of the Fox is quite massive, particularly cylinder height. The design layout follows conventional "glow" practice, with transfer and exhaust diametrically opposed, the die-cast crankcase unit incorporating lower cylinder, exhaust and transfer and cooling fins. The cylinder liner is of leaded steel alloy and a plug fit in the casting when cold. The cylinder is heavily de Saxe or offset relative to the crankshaft to relative the piston of side loading. The piston is of cast iron, ground with a "matt" finish for oil retention with the appearance of a scratchy surface, but actually very fine and smooth. It is different in this respect of appearance from the more expected "cross hatch" pattern associated with micro-honing.

After withdrawing the liner, the piston can be removed only by withdrawing the gudgeon pin first, which is done through a hole in the cylinder jacket.

The crankshaft is a huge affair, ½ in. diameter stepping down at the front to a ¼ in. N.F. thread. The crank pin, turned integral with the web, is 25 in. diameter. A tough connecting rod is machined from flat alloy bar.

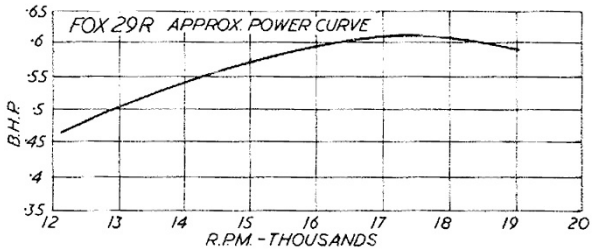
The crankcase bore (intake) is 360 in. and the inlet port cut in the wall 11/16 in. long by 11/32 in. wide. The timing of the intake port is quite normal, in fact it closes somewhat earlier than most engines of racing type.

We found the grip provided by the shallow knurling on the prop driver marginal. Even when tightened the very high torque generated on starting tends to accelerate the shaft away from the propeller and the knurling then grinds through the propeller hub face as soon as any such movement takes place the serrations are filled and grip destroyed. As a consequence the shaft accelerates away from the propeller and unwinds the prop nut.

Summarising, a lot of practical "know-how" has undoubtedly gone into the development of this engine with the achieved object of producing a really "hot" racing engine. As we said at the beginning, if you are a speed fan you will almost

Fox 29R

certainly fall for it, and get a lot of satisfaction in experimenting with different compression ratios and fuels, and internal polishing.



SPECIFICATION

Bore: .733 in.
Stroke: .697 in.
Displacement: 4.896 c.c..298 cu. in.
Bore/Stroke ratio: 1.06.
Max. B.H.P.: approximate figure 0-61 at 17.500 r.p.m.
Bare weight: 9 ounces.
Power output: approximate figure .125 B.H.P per c.c.

Power/weight ratio:
approximate figure .068 B.H.P. per ounce.
Fuel: 50% nitromethane, 25% methanol, 25% castor.

FOX 29R

PROPELLER—R.P.M. FIGURES	
Propeller dia. x pitch	*r.p.m.*
8 x 5 (Stant)	16,500
8 x 4 (Stant)	18,000
8 x 6 (Stant)	14,800
8 x 8 (Stant TR)	14,500
9 x 6 (Stant)	13,700
7 x 6 (Stant)	18,400

More: https://flyinghlsat.com/search.php?search_keywords=Fox-Engines