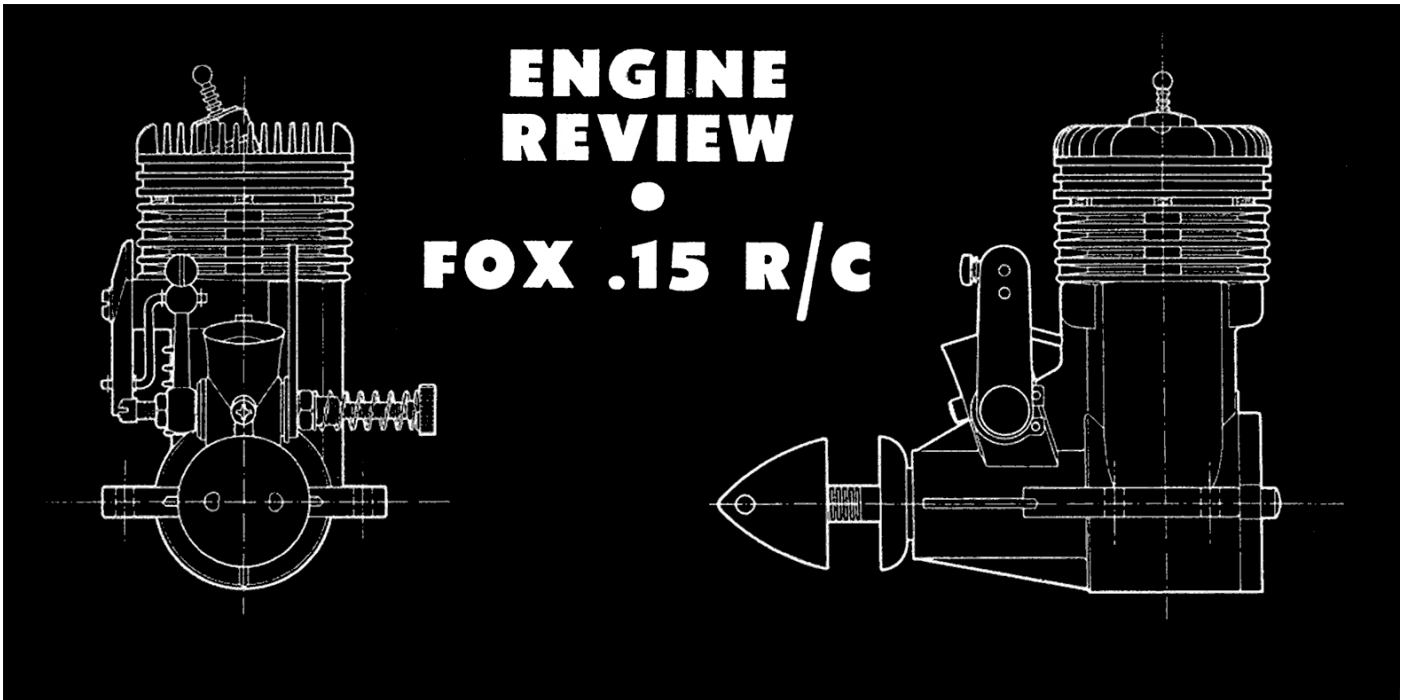


Fox 15 R/C



NEW DELUXE VERSION OF THE OLD LOW- PRICED FOX .15 R/C HAS NUMEROUS RE-FINEMENTS AND BIG BONUS IN POWER. By P. G. F. CHINN.

► Three years ago Fox announced the first Fox 15 R/C based on the low-priced 15X engine and costing only \$8.95. The new 1965 15 R/C is a development of this engine and is listed at \$14.95.

At first sight, the \$6 price increase may seem to be hard to justify, since external changes do not appear to be all that significant.

Therefore, before we go any further with this report, we would like to put on record the following facts and findings concerning this new model.

1. The 1965 15 R/C is equipped with the special piston/ cylinder assembly and connecting-rod that were the main features of the \$15. Fox 15XX competition engine.
2. The original 15 R/C, when fitted with these XX grade parts was sold, to special order, at \$20.
3. The 1965 15 R/C has many additional refinements including a more complex throttle.
4. The power output of the 1965 15 R/C is greatly improved, the peak bhp on test being raised by over thirty percent compared with the original 15 R/C. The new engine is also very slightly lighter.

Let's take a closer look at the modifications that have been made to the new engine.

To take the throttle assembly first, a machined steel throttle valve rotor, with separate high-speed and low-speed jets, is used in place of the earlier brass rotor which had no provision for adjusting idling mixture strength. The rotor (of the usual Fox pattern in which intake air is directed each side of a flattened center portion instead of through a cross-hole) is drilled axially and threaded to take, from the right-hand side, a brass needle-valve jet and. from the opposite side, the externally threaded valve needle. The fuel metered by the needle-valve and released into the interior of the rotor, is then fed into the intake via two jet holes, one (the idling jet) placed in the center of the rear

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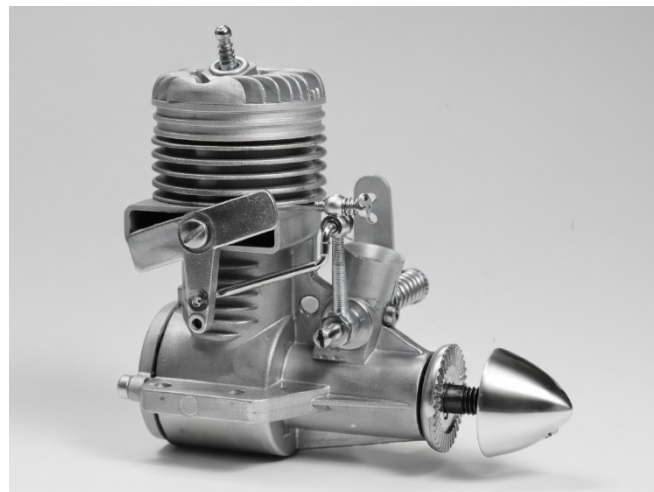
"flat" and the other one (the high-speed jet) placed in the bottom of the rotor and off-set to one side.

Since the rotor is supported in a circular bore intake, this offset location of the high-speed jet means that it is only exposed when the throttle approaches the open position. At low speed settings, the jet is masked by the surrounding housing and thereby becomes inoperative. The idling jet, on the other hand, remains exposed at all times and feeds continuously.

The correct mixture strength for normal full speed running is controlled by the needle-valve in the usual way. However, as we have already remarked, the same needle-valve also feeds the idling jet. Therefore, to effect control of the amount of fuel released by the idling jet, this has its own metering adjustment. To operate it, one first removes the fuel delivery tube, thereby uncovering a small screwdriver slot in the end of the brass inlet fitting that is also the needle-valve jet. After slackening the locknut on this, one can screw the brass jet in (to lean out the idling mixture) or out (to enrich idling mixture). The brass jet is, itself, acting as a needle valve here, since its tip. (in addition to being drilled to accept the regular needle-valve tip), is extremely tapered and projects beyond the position of the idling jet hole and thereby controls the amount of fuel fed back to the idling jet.

As before, the throttle is coupled to a centrally pivoted plate type exhaust valve but many refinements have been made to the whole assembly. Formerly, provision for escapement or servo linkage was on the exhaust valve only. On the new engine, an additional (and adjustable) actuating arm is fitted on the left hand side at the carburetor. There is also a stop screw in the front of the carb to set the full-speed position and, on the stop screw which sets the idle adjustment, a spring has been added to reduce the risk of this becoming unscrewed through vibration. Spring retaining clips are now fitted to both ends of the rod coupling the exhaust plate to the carburetor throttle.

The main body casting of the engine is basically the same as the original model except for a shorter, bigger bore intake. This has had approximately 9/64



External changes are minor and include spinner-nut, machined head, extra throttle arm and improvements to the throttle linkage and adjustment.

in. machined off its height and about .018 in. added to its bore. The cylinder head retains the familiar Fox wedge pattern combustion chamber, but has the addition of two annular fins or ribs externally. Superficially, the drop-in leaded steel cylinder liner is unchanged. However, closer examination reveals that the cylinder ports have been lowered quite substantially and this has had the effect of reducing the exhaust and bypass durations by around 12 degrees. Our measurements gave the new 15R/C an exhaust timing of 68-68 deg. and a bypass timing of 60-60.

The decompression spacer used under the cylinder head on the original 15 R/C and 15X, is omitted and an extra 10 thou, gasket is added in its place. The substantially higher compression ratio resulting from this, contributes much of the improved power of the new model. The glow-plug is now a Fox Shield-master short-reach R/C type with disc pattern shield. The improved piston, as on the 15XX engine, is lightened by having unwanted metal milled away each side of the wrist-pin bosses but leaving an annular rib above the wrist-pin to minimise ovality. An unusual feature of the piston is the fitting of the wrist-pin which is semi floating and can only be inserted from the front, the rear wrist-pin hole being very slightly tapered. The 15XX grade connecting rod, replacing the cheaper

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pressure die-cast rod of the older model, is fully machined from 24ST aluminum and is color anodized red.

Finally, appearance has been improved with the substitution of the regular hexagon prop nut by a neat machined aluminum spinner-nut.

Two samples of the 15 R/C were sub-mitted for test and examination indicated that they had been run only very briefly. However, virtually no break-in time was called for. Naturally, we were cautious about leaning out the engines too soon, but a short series of runs totalling no more than 15 minutes on each, convinced us that both were ready to be given their head. Just to make sure that they would be sufficiently loosened up before being tested for power output, however, we put in a further 30-40 minutes running on each engine. The opportunity was taken to record some prop rpm readings during this time and these yielded the following averages on Missile Mist fuel: 8900 rpm on 10x314 Top-Flite wood. 9,900 rpm on 9x4 Tornado nylon. 10,500 rpm on 8x6 Top-Flite nylon. 12,200 rpm on an 8x4 Power-Flite nylon. 14,200 rpm on an 8-4 Power-Prop. 15,000 on a 7x4 Tornado nylon and 16,700 rpm on a 7x4 Power-Prop.

These prop figures seemed to indicate that the 1965 15 R/C would have a somewhat different torque curve than the earlier model and would peak at substantially higher rpm. This much was, in fact, confirmed by the dynamometer test in which maximum torque rose from less than 17 oz.in. to over 19 oz.in. and maximum power was realised at just over 16,000 rpm instead of slightly less than 14,000 rpm. The actual peak blip recorded on our test was very nearly 0.28 bhp compared with 0.21 bhp for the original engine.

Incidentally, after we had completed tests on the engine and plotted (he performance curves, we noticed that the output of 0.28 bhp we had obtained was precisely the figure claimed in a recent Fox ad., as was 3500 rpm minimum idling speed obtainable on an 8x4 prop. We had found it possible to get the engine to idle as low as 3000 rpm but pickup was then unreliable: in fact, under the cold conditions obtaining



The inside story of the new .15 R/C. Included are more costly 15XX grade piston and connecting rod, plus new twin jet throttle and E ring clips.

at the time of testing, we found that the 15 R/C preferred to be set for an idling speed of about 3800-4000.

Starting was easy, the engine tending to prefer to be fairly wet for a cold start, but, when hot, restarting readily without priming or choking, provided that the fuel line remained full. The 15 R/C would also re-start quite easily with the throttle in the idling position. The engine was easy to adjust, the needle-valve being especially non-critical.

To summarize then, the new 15 R/C unquestionably has many worthwhile ad-vantages over the original model. It is light, powerful (it is certainly one of the most powerful R/C 15's available anywhere) and easy to handle. One final point: its appetite for glow filaments seems to be commendably modest: no plugs were burned out during extensive tests which included running speeds of up to 18,000 rpm.

Summary of Data

Type: Loop-scavenged two-stroke cycle with shaft rotary-valve induction. Coupled intake and exhaust throttle valves.

Weight: 3.7 oz.

Displacement: 0.1476 cu.in. (2.419 c.c.)

Bore: 0.590 in.

Stroke: 0.540 in.

Stroke/Bore Ratio: 0.915 : 1

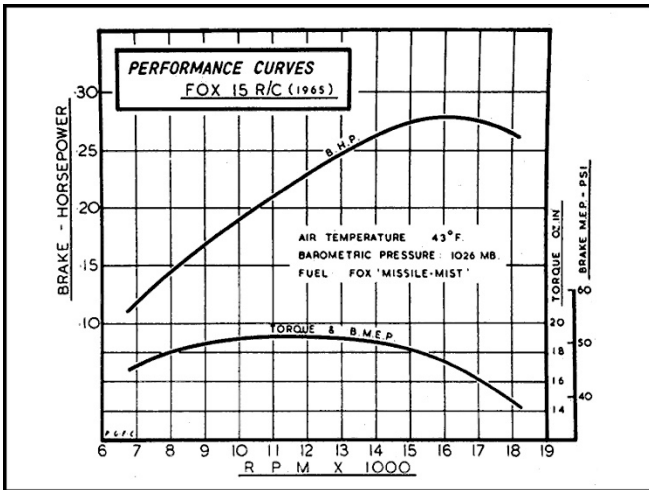
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Specific Output (as tested): 1.88 bhp/cu.in.

Power/Weight Ratio (as tested): 1.20 bhp/lb.

Manufacturer: Fox Manufacturing Company, 5305
Towson Avenue.

Price: \$ 14.95 Fort Smith, Arkansas. 72903.



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