

ENYA 09-III

Country of Origin: Japan

Type: Glowplug ignition, shaft rotary-valve with bronze bushed main bearing

Bore: 13.0mm (0.5118in.)

Stroke: 12.2mm (0.4803in.)

Swept Volume: 1.619cc (0.0988cu.in.)

Weight: 105 grammes (3.7oz.)

Last year, the Enya 09-III was superseded by the 09-IV. This most recent version has not yet come our way, but there appears to be very little difference from the 09-III and it is reasonable to suppose that it will have a similar performance to the previous well-developed engine. Certainly it is highly unlikely that it will be in any way inferior to the 09-III.

The design features a pressure diecast aluminium crankcase/cylinder-block unit with a drop-in steel cylinder-liner and a detachable front housing secured to the crankcase with four Phillips screws. The front housing has a phosphor-bronze main bearing bush and an integral air intake into which is inserted a choke restrictor held in place by the spraybar assembly.

The very first Enya 09 motor had the conventional arrangement of opposed cylinder ports with the transfer passage between the outside of the liner and the inside of the surrounding casting. This was abandoned, in subsequent models, in favour of twin side-by-side transfer flutes formed in the inner wall of a very thick liner, diametrically opposite the exhaust, an arrangement that

has been copied by at least three other Far Eastern manufacturers of small glow engines.

The actual scavenging system is of the traditional crossflow type and the piston has a straight deflector on the transfer side, for which the bolt-on cylinder-head is suitably shaped to give adequate clearance. The lapped piston is of cast-iron and is fitted with a fully-floating 3.5mm dia. hardened tubular gudgeon-pin with brass pads. The connecting-rod is an aluminium pressure casting, but is of hefty proportions and has a bronze big-end bush. The counter-balanced crankshaft has a journal diameter of 8mm, a 4.5mm dia. crankpin and a 6.5mm bore gas passage fed from a relatively large rectangular valve port.

For our tests on the Enya 09-III we used Enya No. 30 platinum-rhodium element glowplugs. The engine was given a running-in period of one hour on our standard 5 per cent nitromethane glow fuel and this fuel was also used for the first set of tests.

The maximum torque obtained on this fuel was just on 15oz.in. at between 7,000 and 8,000rpm — a very good figure on a mild fuel — beyond which torque declined in a fairly smooth curve to produce a peak output of just under 0.19bhp at slightly over 16,000rpm.

The way in which the Enya pulled relatively large props was quite impressive. For example, it even tolerated being lumbered with a 10x3½ Top Flite wooden prop (something one would not generally

use on a glow engine smaller than twice the 09's size) which it lugged around at just over 8,000rpm, yet it was perfectly happy pulling a 7x3.

However, it was also obvious that, especially at the top end, the small choke area presented by the venturi restrictor was preventing the engine from breathing as freely as it might. We therefore decided to run a repeat series of tests with the restrictor removed and, just to see how near the engine might get to the Cox TD09, a 30 per cent nitromethane fuel was substituted.

As the performance curves show, these changes pushed the 09's maximum torque up to 17oz.in. and its peak bhp to just over 0.24 at nearly 18,000rpm. In other words, the maximum torque was slightly better than that of the Cox and, at speeds below 14,000rpm, the Enya was actually the more powerful of the two. The Cox's higher peaking speed, however, gave it the advantage at the top end.

The Enya ran very steadily with the choke restrictor installed and continued to do so with it removed.

The choice between the two engines will depend on the use to which the user wishes to put them. The high peak output and high power/weight ratio of the Cox would still make it the favourite for a 1.5cc contest free-flight model. The Enya, however, might be preferred for control-line stunt and R/C use. For the latter, the Enya, in both 09-III and 09-IV versions, is also available with a barrel throttle carburettor.

