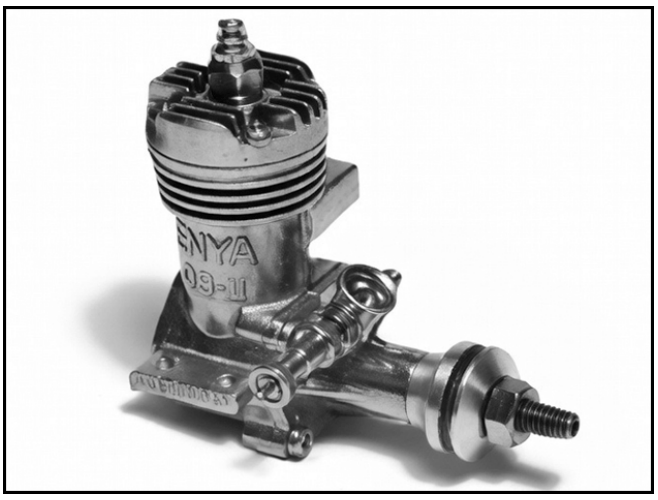
Enya .09-II



ON PERFORMANCE WE can say that this was one of the nicest glow engines we have had to handle for some time. Peak power output was not exceptional on our example showing as .115 B.H.P. al 12.800 r.p.m. on test, but this was on undoped fuel and no doubt could be boosted, if necessary by 15-20 per cent, nitromethane addition. For popular applications, however, plain glow fuels are quite suitable and far more economic. This is not a racing engine but a very good general purpose design characterised by most consistent operation and a ruggedness which should ensure long life.

Starting characteristics are extremely good, even with the smallest sizes of propellers, with absence of kick-back and quick response to either finger choking or direct priming, whichever is the more convenient. The needle valve is not at all critical and adjustments for optimum mixture arc readily made without fear of the engine stopping. Load-speeds down below 7.000 r.p.m. are accommodated with the same smooth running, and at the other end 16.000 r.p.m. can be exceeded on 5 inch diameter propellers with the engine sounding really happy. A 7 x 4 seems a useful size of propeller.

The typical Enya layout features a detachable front end the front bearing housing carrying the shaft being secured to the crankcase by four screws, but the cylinder is unusual for a glow motor of this size, consisting of a really rugged cast iron liner with 3/32 in. thick walls locating in the die-cast crankcase unit.

Engine Analysis No. 76

Two Japanese .09 engines tested on straight fuel by R. H. Warring

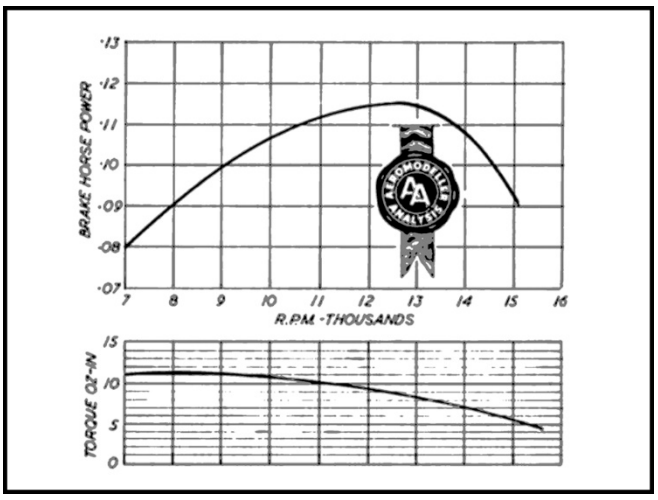
The ENYA 09-II

Only the exhaust port is cut through the cylinder wall, the transfer passages being crescent sections milled on the inside of the cylinder finishing in a step overlapping the diametrically opposed exhaust port by some 70 per cent, (exhaust port depth). The rigidity of this cylinder no doubt contributes a lot to the wonderfully consistent performance.

The crankcase unit itself is an intricate die-casting, extending the full height of the engine (less head) yet weighs only 7/8 ounce. A stub exhaust is cast integral on the left hand side, and the casting is machined to take the cylinder liner, which seats on a ridge at the bottom. The head scats directly without a gasket and is a further die casting, faced on the underside and contoured to clear the piston deflector. It is held down by four screws of generous diameter, but short length and appears to provide a perfectly adequate assembly. Provision is made for radial mounting in the form of four blind holes in the back of the crankcase unit. Mounting in this manner would, however, appear to be awkward as these holes would have to be tapped to take mounting screws and the screws fitted and tightened up from behind the firewall. Orthodox beam mounting is thus logical.

The front bearing unit is another pressure die-casting, incorporating the forward slanting intake tube. It is fitted with a bronze main bearing, extremely well finished, to carry the .295 in. diameter hardened steel crankshaft. Crankpin diameter is 5 mm. and the crank web is machined away to provide counterbalance. Bearing length and crankpin are finished by grinding. A copious oil leak from the front of the bearing was noticeable when running, but the bearing was not at all slack and the only adverse effect was a “dirty” slipstream.

Enya .09-II



The dural propeller driver forces on the taper length of the shaft which steps down to a .191 in. diameter (American) thread. The front washer is also turned from dural. The complete bearing unit is compact, neat and quite light, total weight being only a bare fraction over one ounce. Lightening is even carried out on the front end of the crankshaft (threaded length) as well as the hollow crankpin and taking the central hole well down along the length of the shaft. The rectangular intake port is relatively narrow and barely detracts from the strength of the shaft.

A straight deflector is machined across the flat top on the transfer side of the cast iron piston. The .137 in. diameter gudgeon pin is hollow and fitted with aluminum end pads, it is fully floating, locating in the thicker section of the piston well above the centre, and the connecting rod appears to be a die-casting of generous proportions, with big and little end bearings reamed to size.

Everything about the Enya 09-II is workmanlike, neat and extremely well finished. It is also a compact engine in size, which generally enhances its ruggedness.

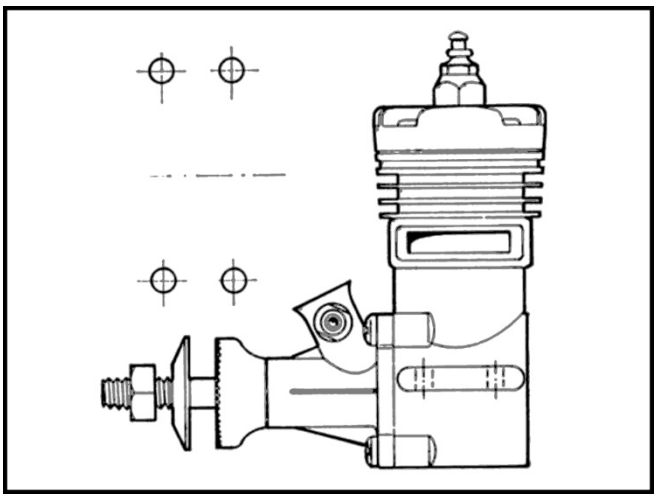
SPECIFICATION
Displacement: 1.60 c.c. (.0978 cu. in.).
Bore: .500 in.
Stroke: .498 in.
Bore stroke ratio: 1.0.
Bare weight: 3 ½ oz.
Max. Power: .115 B.H.P. at 12.800 r.p.m.
Max. Torque: 11 oz./ ins. at 8.000 r.p.m
Power rating: .072 B.H.P. per c.c.

Power/weight ratio: 1.033 B.H.P. per oz.
Material Specification:
Crankcase unit: Light alloy pressure die-casting.
Cylinder: Cast iron.
Piston: Cast iron.
Front bearing: Bronze, in light alloy die-cast housing.
Propeller driver: Dural.
Propeller shaft thread: .191 in. diameter (3/16 in. nominal).
Spray bar: Nickel plated brass.
Glow plug: Japanese (2 volt).
Manufacturers: Enya Manufacturing Ltd., 553 Araimachi, Nakamoku, Tokyo, Japan.

PROPELLER	**R.P.M. FIGURES**
diameter x pitch	**r.p.m.**
7 x 4 Frog nylon	12.000
8 x 4 Frog nylon	10.000
8 x 6 Frog nylon	7.000
6 x 4 Frog nylon	15.000
9 x 4 Trucut	7.800
8 x 4 Trucut	10.500
7 x 5 Trucut	10.500
7 x 4 Trucut	12.200
7 x 3 Trucut	13.300
6 x 4 Trucut	13.300
6 x 4 Top Flite	14.800
7 x 4 Top Flite	11.800
7 x 6 Top Flite	10.400
8 x 4 Top Flite	10.600
9 x 4 Top Flite	8.200

Fuel: Straight methanol castor oil blend.
Note: Performance is improved slightly (4-5 per cent.) with an A-M glow plug, as compared with the Japanese standard plug on straight fuels.

Enya .09-II







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