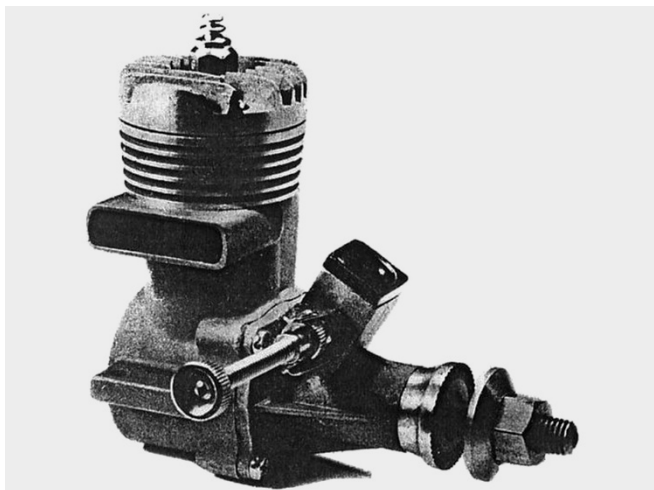


## Enya 29-III



The Enya 29 Model 5103, or "Series 3," is one of several leading Japanese-made model engines now freely available to British modellers through Keil kraft stockists. This particular engine, successor to the earlier 29 Model 5001, was first introduced nearly three years ago and has been commented upon, in past issues of M.A., as being an especially outstanding example of modern 5 c.c. engine design.

This Enya is, in fact, one of the most impressive 0.29 cu. in. motors we have ever tested, equalling, and, in many cases exceeding, the performance of most disc-valve, ball-bearing racing 29's, in the higher r.p.m. bracket, and bettering not a few 35's on typical stunt size props. Quite possibly, not all 29-3's have such a high output as our two test samples, some variation between individual production examples being inevitable. That similar performances are, however, possible with perfectly stock off-the-shelf 29-3's is clear from checks made on two such engines, and by reports that have reached us of team racer speeds as high as 118 m.p.h.

Potential performance is also dependent on the care with which a new engine is run-in. Notwithstanding the modest break-in period mentioned in the makers leaflet, we would advise at least one hour of rich mixture running. Some engines may require a considerably longer period. The important point is to avoid any risk of the overheating or seizure that can occur if a new motor is allowed to two-stroke on a lean needle-valve setting. The needle should be opened up to produce reduced-power "four-stroke" running which will provide the added lubrication and



### The ENYA 29-Series 3

4.9 c.c. Glo-plug motor

"... one of the most impressive 29's we have tested ..."

extra cooling necessary for safe running-in.

This, of course, applies in equal measure to most modern lapped-piston glow engines, except the smaller capacities. Experience with recent American 29's and 35's has shown that anything up to 4 or 5 hours' running may, in fact, be necessary before any of the hotter varieties of fuel can be safely used. Obviously, for, running-in, a mild fuel either a straight 2½ : 1 methanol-castor mixture, or a blend containing not more than 3 or 4 per cent, nitromethane and not less than 30 per cent, castor-oil is advisable.

In connection with running-in the Enya, it should be mentioned that the most recent (29-3B) examples to leave the factory are now being supplied with two interchangeable cylinder heads, having deeper cooling fins. In place of the standard 10:1 and 9 : 1 cylinder heads formerly used, the standard head, as installed, is now 7.5 : 1 and the spare, high compression, head is 9:1. The makers recommend running the engine for at least two to three hours on the standard head before using the H/C head.

The basic design of the Enya 29-3 is to the usual shaft-intake, loop- scavenged layout with lapped piston and bushed main bearing, but it is obvious that a good deal of thought has been brought to bear on the problem of increasing volumetric efficiency, the first essential of high performance in any engine. Starting at the rotary-valve, it is observed that the shaft port, nearly ½ in. long by 3/8 in. wide, registers with a bearing aperture of the same dimensions, i.e. a rectangular aperture, not the usual round or

## Enya 29-III

elliptical shape. The result of this is that the valve opens and closes more abruptly and the effect can be likened to that of a quick-lift cam in a racing four-stroke engine. The crankshaft itself is generously dimensioned, with a 11.5 mm. (0.452 in.) dia. journal, allowing an 8 mm. gas passage. From the crank-case, gas is offered every encouragement to complete its journey as easily as possible. The transfer passage is of truly massive proportions and further aids to unrestricted flow arc the short cylinder liner skirt and the specially shaped back wall of the crankcase.

Structurally, the Enya features a one-piece crankcase and cylinder barrel, the front bearing housing being a separate unit. The hardened cylinder liner, of high finish, is closely fitted to the barrel and a ground, metal-to-metal head joint is used, thus facilitating the interchange of cylinder heads without the bother of replacing gaskets.

Three interchangeable venturi inserts are provided to suit the differing requirements of stunt, F/F, team racing, etc. Alternatively, when absolute maximum b.h.p. and revolutions are required, a pressure fuel system can be used and the venturi discarded entirely.

### Specification

**Type:** Single-cylinder, air-cooled, loop-scavenged two-stroke cycle, glow-plug ignition with crankshaft type rotary-valve induction.

**Bore:** 0.735 in- **Stroke:** 0.704 in.

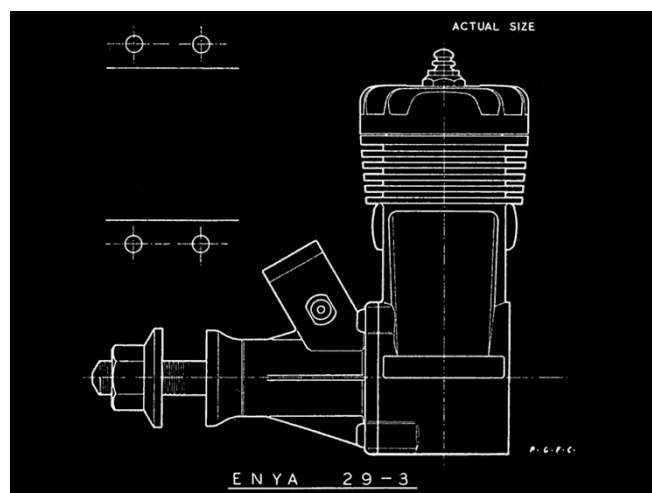
**Swept Volume:** 0.2987 cu. in. = 4.895 c.c.

**Stroke/Bore Ratio:** 0.956 : 1.

**Compression Ratio:** 9:1. (7.5 : 1 optional.) **Weight:** 6.8 oz.

### General Structural Data

Pressure diecast aluminium alloy crankcase and cylinder barrel with inserted liner. Pressure diecast aluminium alloy front housing with bronze main-bearing, supporting hardened, counterbalanced crank-shaft. Lapped, lightweight piston with straight fence baffle and 5 mm. dia. fully floating tubular gudgeon pin with aluminium end-pads. Heavily proportioned pressure diecast aluminium alloy



connecting-rod with bronze big-end bush. Deeply-finned aluminium alloy cylinder head having cast-in bush for glow-plug and attached to cylinder, via metal-to-metal joint, with four screws. Machined alloy prop driver, fitted to matching taper on shaft. Nickel-plated spray-bar type needle-valve assembly with flexible control stem. Beam mounting lugs.

### Test Engine Data

**Running time prior to test:** 4 hours approximately.

**Fuel used:** Record Super-Nitrex (30 per cent, nitromethane).

**Ignition plug used:** Enya No. 6, platinum-rhodium filament, cold rating.

**Venturi used:** No. 3 (large).

### Performance

The excellent performance of the 29-3, as revealed in preliminary tests, suggested to us that this could make a very good Class "B" team-race engine. Accordingly, it was decided to test the engine, as it might be used in a team-racer, i.e. on a fairly heavily nitrated fuel, using a "cold" type racing plug and with the largest venturi installed. The results of this test are seen in the accompanying performance curves.

The first thing that became apparent was the outstandingly high torque developed; far in excess of usual 29 standards and equalling some of the better 35's. Expressed in terms of b.m.e.p., this was equivalent to a figure of 67 lb./sq. in. at between 11,000 and 12,000 r.p.m. which has only been equalled by two other engines tested in this series:

## Enya 29-III

the McCoy 60 Series 20 and the Fox 29R racing engines.

The peak output realised as a consequence of this high torque— 0.69 b.h.p. at close to 16,000 r.p.m. is, needless to say, phenomenally good.

Handling qualities were good. The engine was easy to start from cold and required only finger choking for a hot restart. The characteristic Enya needle-valve was pleasant to use and positive in operation. Running qualities were excellent, with no excessive vibration detected at any speed and consistent running over the whole range of speeds tested.

In conclusion, we should mention that, when comparing the performance reached in this test with that of some other motors, it should be noted that we do not normally employ a fuel containing as much as 30 per cent, nitromethane and that, on a milder fuel, the 29 would naturally deliver a somewhat lower performance.

**Power/Weight Ratio:** 1.47 b.h.p./lb.

**Specific Output:** 141 b.h.p./litre.

