

Enya 35-II TV R/C



Although in production for a number of years and rated as one of the better 0.35 cu. in. glow engines, the Enya 35 is not widely known in the U.K. and has not been previously dealt with in this series. During 1961, the Enya Metal Products Co. Ltd., of Tokyo, replaced the existing Enya 35 (Model No. 5001) with a new Series II model (Model No. 6001) and, for 1962, this will also be available in a R/C version (known as the 35-II TV) equipped with an entirely new type of throttle valve carburettor. It is this latter model which is the subject of our present report.

Broadly speaking, the Series II engine follows the same basic construction and design layout as has been used for all the previous medium sized Enya models but has various refinements and practically all component parts are new. The carburettor fitted to the 35-II TV is a very interesting piece of work. It is quite large (it weighs nearly 2 oz.) and is a good deal more complicated than most other throttle type carburettors. A description of this component together with details of the main differences between the old and new model Enya 35's will be found in L.E.N. in this issue.

Specification.

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

The ENYA 35-II TV

5.85 c.c. Glow Plug Motor

“... special design of carburettor throttle gives a speed range comparable with many coupled intake/exhaust throttles.”

Baffle piston and central ignition plug.
Carburettor throttle with compensated mixture control.

Bore: 0.803 in. **Stroke:** 0.704 in.

Swept Volume: 0.3565 cu. in. or 5.852 c.c.

Stroke/Bore Ratio: 0.877 : 1.

Compression Ratio: 7.5 : 1.

Weight: 10.1 oz.

General Structural Data.

Pressure die cast aluminum alloy crankcase and cylinder barrel with inserted liner. Pressure die cast aluminum alloy front housing with cast-in bronze main bearing. Hardened, counterbalanced alloy steel crankshaft with $\frac{1}{2}$ in. dia. journal and in. dia. hollow crankpin. Lapped piston of inoculated cast-iron with fully-floating tubular 5 mm. dia. hardened gudgeon pin having brass end pads. Forged alloy connecting-rod with bronze big end bush. Deeply finned die cast alloy cylinder head with cast-in bush for glow plug and attached to cylinder, via metal-to-metal joint, with six screws. Machined alloy prop driver fitted to matching taper on shaft. Beam mounting lugs. Machined alloy "carburettor body with brass throttle barrel and plated brass needle-valve assemblies.

Test Conditions.

Running time prior to test: 3 hours.

Fuel used:

(i) 70 per cent. Methanol and 30 per cent.

Duckham's Racing Castor oil for running-in and initial tests.

(ii) 75 per cent. Methanol, 20 per cent.

Duckham's Racing Castor oil and 5 per cent. Nitromethane for dynamometer tests.

Ignition plug used: Enya No. 5 (medium heat range platinum rhodium filament).

Air temperature: 44 deg. F.

Barometer: 30.00 in. Hg.

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Parts of the Enya 35-II TV.

Performance.

Examination of our test sample indicated that it had received a slight amount of running at the factory but had not been fully run-in. About 2 ½ hours total running time were required before the Enya would hold sustained full throttle running without any falling off in r.p.m.

Starting qualities were good at all times. An exhaust prime was used when the engine was started from cold. Hot or warm restarts were readily achieved after intake choking and the engine would also restart with the throttle fully closed.

The Enya company do not specifically recommend a bar type glow plug for use with the 35-II TV but suggest the use of a fuel containing not more than 20 per cent, castor oil and 10 per cent, nitro. Enya plugs suggested for the 35-II TV are the No. 3 and No. 5 types. We tried the No. 3 but this burned out when r.p.m. were pushed above 10,000. The No. 5 was thereafter used and survived all tests including speeds up to 14,000 r.p.m. Two other makes of plug were also tried, including a bar-type. One resulted in slightly reduced power, otherwise there was little noticeable difference in performance and handling characteristics or throttle response.

The Enya 35-II TV can be made to idle at under 2,000 r.p.m. on a 12 in. prop. However, as tested, our engine would then cut out if the throttle was opened after more than about half a minute of idling. This condition was probably aggravated by the cold weather at the time of testing.

The following maximum / minimum speeds were obtained, on various props, with the throttle adjusted to the point where the engine would not cut out if opened up to full throttle after not less than one minute of low speed running: 14 x 6 Top Flite 6,500-2,300, 13 X 5 ½ Top Flite 7,700-2,450, 12 X 5 Power Prop 9,150-2,750, 11 X 6 Keil Kraft Nylon 10,100-2,900, 11 X 5 Power Prop 10,500-3,000, 11 X 4 Power Prop 11,000-3,200.

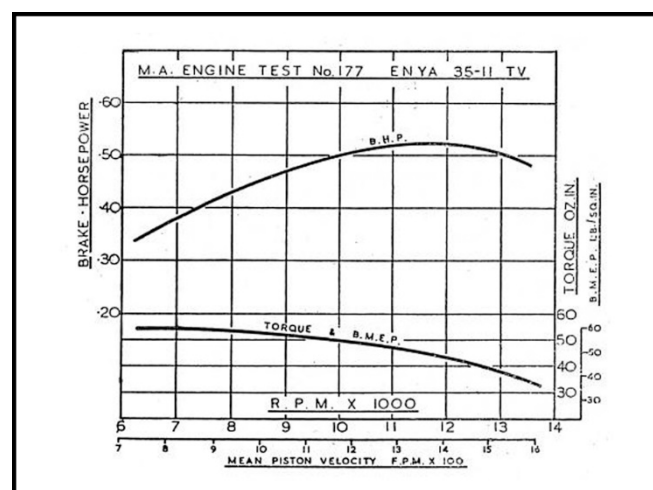
The performance recorded by the Enya was notable for an excellent maximum torque figure of 54 oz. in. at 7,000 r.p.m. equivalent to a b.m.e.p. of 59 lb./sq. in. The decline in torque, as r.p.m. were increased, was gradual and a very useful horsepower output was maintained right up to the b.h.p. peaking speed of 11,600 r.p.m. where a maximum power of 0.52 was recorded. In terms of propeller performance, this means that the Enya delivers above average performance for a .35 on the prop sizes best suited to R/C models.

The Enya, it will be noted, does not use a coupled exhaust throttle, the special design of the carburettor throttle being such as to give a speed range comparable with that obtainable with many coupled intake/exhaust throttles.

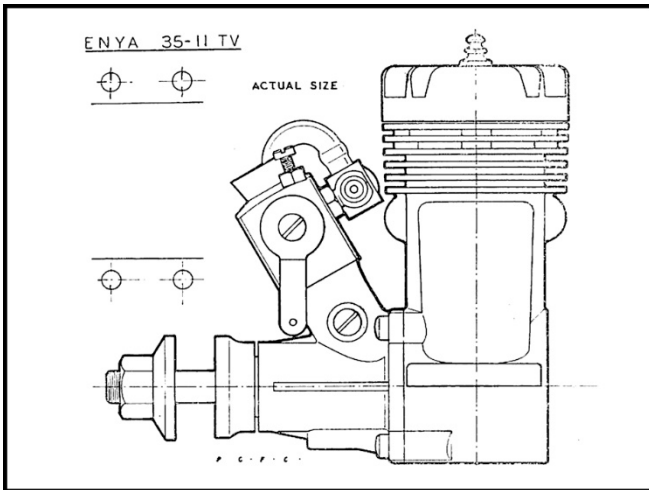
Enya engines are generally good and the new 35 seems to be no exception.

Power) Weight Ratio (as tested): 0.824 b.h.p./lb.

Specific Output (as tested): 88.8 b.h.p./litre.



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