

on the

**FROG 50**  $\frac{1}{2}$  c.c. diesel

THE  $\frac{1}{2}$  c.c. Frog 50 is the cheapest model engine currently manufactured in Great Britain. It is also the most compact and just about the lightest of the  $\frac{1}{2}$  c.c. models at present available. The Mk. II model was introduced just over a year ago and supersedes the original 50 which first appeared on the market three years earlier. The Mk. I was dealt with in the M.A. Engine Tests series in August, 1952.

The Mk. II 50 can be distinguished from the earlier model by its somewhat longer fuel tank and by the needle-valve unit which is now raked back. The cylinder barrel is of a slightly different shape and a thicker compression lever is used. Internally, the cylinder porting has been revised and the three transfer channels are now on the outside of the liner, with inclined ports into the cylinder, instead of on the inner wall as previously used.

**Type**

Single-cylinder, air-cooled, two-stroke cycle, compression-ignition. Shaft type

Hardened steel full-disc crankshaft with  $\frac{3}{16}$  in. dia. journal running in bushed main bearing. Deep section diecast alloy rear cover. Machined alloy cylinder barrel. Inclined spraybar type needle-valve. Beam or radial mounting.

**Performance**

Practically all  $\frac{1}{2}$  c.c. class diesels are a little trickier to start than some of their bigger brothers and the 50 is no exception. It is not, perhaps, the engine we would recommend as the best for a beginner, although the knack of handling it will improve with further acquaintance.

On a standard Frog 6 in.  $\times$  4 in. propeller, the engine will reach 10,000 r.p.m. and this prop is well suited to the engine for most applications. The engine will hold an even speed and does not suffer the severe power loss with warming up that is common to many diesels.

In contrast to our findings on the Mk. I, the contra-piston was found to be an excellent fit and easy to adjust by



Compare the Mk. II above with the Mk. I below to see the few external changes.

rotary valve induction. Reverse-flow scavenged cylinder using three radial exhaust ports and three (external) transfer grooves with inclined ports into cylinder between and halfway below exhaust ports. Flat crown piston.

**Dimensions**

Bore: 0.343 in. Stroke: 0.330 in. Swept Volume: 0.499 c.c. (0.0305 cu. in.). Height to top of cylinder: 1.5 in. Length, rear face of prop to backplate: 1.5 in. Propshaft diameter:  $\frac{1}{8}$  in. Weight: 1.2 oz.

**General data**

Aluminium alloy diecast crankcase and main bearing housing. Hardened steel cylinder liner screwed into crankcase. Meehanite piston and contra-piston, ground and lapped. Forged RR.56 alloy connecting-rod. Silver-steel gudgeon-pin pressed into piston.

means of the new, heavier compression lever.

The maximum output is of the order of 0.04 b.h.p. or a little over at around 12,500 r.p.m.—i.e. about the same as that recorded for the Mk. I. The engine is well made throughout and represents very good value.

The diminutive proportions of the 50 are well shown in this photo.

