

The ENFIELD "100"

Twin Cylinder Air-Cooled Diesel Engine



FOREWORD

The object of this book is to set forth the operating and maintenance instructions for the Enfield Air-Cooled Diesel Engine in a concise, clear, and simple manner, so that the operator will be able to obtain the maximum efficiency from the engine. In it, we first endeavor to describe the engine, its parts, and its operation, and by means of illustrations, the various parts of the engine, together with the recommended methods of maintenance and the location of faults.

Each unit is treated separately and the information is conveniently grouped together so as to be available at a moment's notice.

Though large users may have their own methods of maintenance, we consider the detailed notes to them as well as those in charge of individual engines, as a useful study of the pages which follow will prove informative and instructive.

INSTALLATION

If the engine is to drive equipment by means of belts, both should be levelled up on a suitable foundation, and the accuracy of alignment established.

Do not run with belts which are too tight or one of them as this causes undue strain on shafts and bearings, and can lead to trouble.

In the case of a direct-coupled set, the driven unit must be correctly lined up with the engine, and a flexible coupling should be incorporated between the shafts.

FUEL TANKS

Important Note.

It is important that fuel tanks used should not be of galvanized iron as this material is unsuitable for containing fuel oil.

ENFIELD AIR-COOLED DIESEL ENGINES

will modify the speed from the maximum down to around nearly 500 r.p.m.

Lubricating System.

The gear type oil pump is an air cylinder, and is driven direct at engine speed from the crankshaft.

Oil is drawn through a strainer in the large cylinder and displaced at the rate of 30 gallons an hour into an external full flow filter on the side and top-end bearings, inlet and bearings, valve mechanism, gear, etc.

Cooling.

Air cooling is used and achieved by the aid of a carefully designed fan on the flywheel, capable of adequately cooling the engine in ambient temperatures of up to 55° C.

Around the fan and flywheel is a cast aluminium alloy fan-casing in which are formed ducts which direct air over the cylinders and cylinder heads.

ENGINE DATA.

Bore	100 mm.
Stroke	100 mm.
Capacity	1570 cc.
B.H.P. (Maximum)	20 at 1800 r.p.m. (at normal temperatures and pressures).
B.H.P. (Rated)	16.25 at 1800 r.p.m. (at normal temperatures and pressures).
Compression ratio	18.5 : 1.
Fuel Consumption (Average)	0.42 lbs. per h.p. hr. @ 1500 r.p.m.

FUEL AND LUBRICATING OILS.

Fuel Oil.

To make sure that the injection system will function properly, the fuel oil must always be clean and free from water. Barrels of fuel should be allowed to settle before use, and sludge and water which may collect at the bottom of a barrel must never be put into the tank supplying the engine.

A "cheap" fuel is always more expensive in the long run than the correct grade as its use increases wear on working

ENFIELD AIR-COOLED DIESEL ENGINE

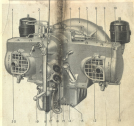


Fig. 2

Front View of Engine

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|-------------------------------------|--------------------------------|
| 1. Pipe—Fuel Pump to Injector, L-H. | 10. Safety Valve, R-H. |
| 2. Fuel Filter Screen. | 11. Cap, Nut—Oil Return Pipe. |
| 3. Compression Guard Ring. | 12. Exhaust Valve. |
| 4. Breather Cover. | 13. Safety Valve Plug. |
| 5. Injection Valve. | 14. Oil Filter Cap and Flange. |
| 6. Fan Cover. | 15. Injection Pump and Pump. |
| 7. Delivery Valve—Water—Fuel Pump. | 16. Oil Pressure Relief Valve. |
| 8. Cap Cover. | 17. Governor Adjusting Screw. |
| 9. Pipe—Fuel Pump to Injector, R-H. | 18. Lubricating Oil Valve. |
| | 19. Timing Rod. |
| | 20. Exhaust Bolt. |

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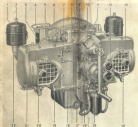


Fig. 1

Labelled from View of Figure.

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|--------------------------------------|----------------------------|
| 1. Air Cleaner | 11. Oil Pressure Gauge. |
| 2. Ether Starting Aid. | 12. Oil Temperature Gauge. |
| 3. Fuel Filter | 13. Injection Assembly. |
| 4. Fuel Pipe—Filter to Pump, L-Hand | 14. Governor Lever. |
| 5. Valve Plug—Fuel Pump. | 15. Power Steering Gear. |
| 6. Rock Cover—Fuel Pump. | 16. Oil Fatty Matter Plug. |
| 7. Overhead Valve | 17. Oil Pump. |
| 8. Fuel Control Cam. | 18. Crankshaft. |
| 9. Control Rod—Fuel Pump. | 19. Cylinder Head. |
| 10. Governor | 20. Valve Gears, L-Hand. |
| 11. Clutch | 21. Air Intake Pipe. |
| 12. Fuel Pipe—Filter to Pump, R-Hand | |