

VERSATILITY PLUS ECONOMY

Two-Litre Diesel Introduced for Land-Rover

GREATER operating economy has been added to the many existing qualities of the versatile Land-Rover with the introduction this week of an alternative diesel power unit for the vehicle. The new engine has been designed by the Rover Co., Limited, and developed over a period of two years. It is available now in Land-Rovers in the United Kingdom and will be available overseas later this year.

The five basic four-wheel-drive Land-Rover models, each having a range of optional extra equipment to meet almost every conceivable need, have established a deservedly high reputation for their ability to operate in conditions where few other vehicles can go and to do work that no other vehicle can do. The introduction of the new diesel as an alternative to the well-established Rover

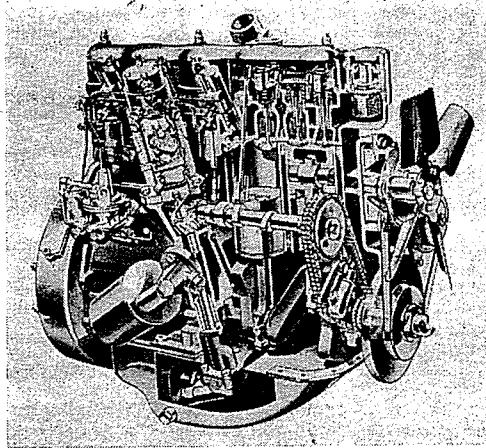
expansion aluminium alloy have the familiar Ricardo Comet-type recess cast in the crown and are fitted with one chrome and two taper-faced iron compression rings and one slotted oil-control ring above the fully floating gudgeon pin. Although not initially required, provision is made for fitting a second oil control ring should this become necessary after long periods of service.

The connecting rods are of forged steel and incorporate a jet hole through which oil from the big end is squirted on to the thrust side of the cylinder walls. Big-end design permits the withdrawal of the pistons and rods upwards through the bores. The counterbalanced crankshaft is a steel forging machined in the hardened state. It runs in three main bearings and these and the big-end bearing shells are of copper lead with tin overlay. The camshaft, which is driven by duplex roller chain incorporating a self-adjusting hydraulic tensioner, is made of case-hardened steel. High-lift cams operate in contact with roller-type cam followers of novel design in which the roller runs in a lead tin-plated bronze shoe which itself slides in a steel tappet guide. This feature permits the high valve lifts needed for efficient breathing with minimum wear on the cams.

Injection Equipment

Overhead valves, bright ray-faced XB steel exhaust and Silchrome No. 1 inlet, are operated by solid push rods from the tappets and have large-diameter heads and rubber sealing rings at the guides. The cast-iron cylinder head is designed to give a free flow of coolant round injector pockets and between the valves and incorporates the combustion chambers. The pintaux-type injector nozzles are designed to spray into the hottest zone of the compressed air in the chamber when starting from cold and to direct fuel tangentially into the direction of swirl in normal running. A heat-resistant steel thimble is fitted into each nozzle cavity to protect the nozzles from hot gases and give longer life. The K.L.G. glow plugs are operated by press button on the starting lever.

The C.A.V. D.P.A. injection pump, which is a single-cylinder opposed-plunger inlet-metering distributor-type unit, is driven from a skew gear on the camshaft and draws its supply from an A.C. mechanical lift pump driven by an eccentric on the camshaft through a C.A.V. paper-element filter. A submerged gear-type pump supplies oil under pressure to the crankshaft and camshaft bearings and the tappet gallery and thence by external pipe to the rocker shaft and rockers. The system employs a pump intake gauge filter and an external full-flow filter. The cooling system embodies a belt-driven centrifugal pump and four-bladed fan and



Cutaway view of the new Rover 2-litre diesel engine

petrol engine increases its efficiency in conditions favouring diesel operation by reducing fuel costs and by reason of the characteristically greater reliability and durability of the diesel engine.

Direct Replacement

The new unit has a speed range very close to that of the petrol engine, enabling the same transmission units to be used and permitting, where desired, the interchange of engines on the 88-in. and 109-in. wheelbase versions. From a capacity of 2,052 c.c., it develops 52 b.h.p. at 3,500 r.p.m. and 87 lb./ft. torque at 2,000 r.p.m., comparing with figures for the petrol engine of 52 b.h.p. at 4,000 r.p.m. and 101 lb./ft. torque at 1,500 r.p.m.

The Rover diesel embodies the best of contemporary British design practice for high-speed engines of less than about 0.7 litres per cylinder. It employs the new C.A.V. P.D.A. distributor-type injection pump with all-speed mechanical governor and pintaux-type nozzles and indirect injection with the Ricardo Comet V type of combustion chambers. Although the separate chamber system adds complication in that glow plugs or some form of induction-air heating are required to facilitate low-temperature starting, it is generally acknowledged to give more efficient combustion over the whole speed range in these small high-speed diesels intended for variable-speed operation as in road vehicles.

The four-cylinder engine has a nearly square bore-stroke ratio with dimensions of $3\frac{1}{2}$ in. (85.7 mm.) bore and $3\frac{1}{2}$ in. (88.9 mm.) stroke. It has a compression ratio of 19.5 to 1. The cylinder block-crankcase is an iron casting with walls extended below the main-bearing split line to give added rigidity, incorporating removable wet-type cast-iron cylinder liners. Pistons of low-



Typical work and everyday conditions for the versatile Land-Rover, which is now available with diesel power

thermostat-controlled circulation. A large-capacity A.C. oil-bath air cleaner is fitted.

The diesel-engined Land-Rover is available at the quite remarkably small increase in price over petrol-engined vehicles of £100, in the home market, making the diesel-engined 88-in. w.b. regular model £715 and the 109-in. w.b. vehicle £790.