



DESCRIPTION

The air cleaner is positioned on the L.H. side of the engine compartment and is connected by hoses to the air box. The air box is connected either to the inlet manifold – Non – Turbo Models or the turbocharger – Turbo Models; engine coolant is circulated around the air box to warm induction air thereby improving combustion efficiency.

Turbo Models

A single stage turbocharger is fitted between the exhaust manifold and exhaust pipe and an intercooler is fitted on the R.H. side of the radiator.

All Models

A 55 litre capacity fuel tank is mounted at the rear of the vehicle. Fuel tank breathing is via a two – way valve inserted in a pipe routed beneath the vehicle. A fuel heater is inserted in the fuel pick – up pipe between the fuel tank and filter. Coolant is circulated around the heater to warm the fuel. The fuel filter, mounted on the bulkhead contains an element and incorporates a water separator. A priming button in the filter head is used to bleed the fuel pipes and filter.

A Lucas DPC fuel injection pump is mounted on the front of the engine and is driven by the timing belt. The pump meters and distributes fuel to 4 pintle type injectors and incorporates the following features:

- Centrifugal mechanical governor
- Automatic injection advance system
- Excess fuel device for starting
- Stop/start solenoid
- High pressure delivery valves
- Injection timing facility
- Coolant controlled fast idle
- Manual stop lever
- Boost control – Turbo Models
- Idle adjustment screw
- Anti – stall adjustment screw

Excess fuel delivered to the pump is returned to the fuel tank via the spill return pipes.

The four fuel injectors are fitted with pintle type nozzles and are sealed to the cylinder head with copper and stainless steel washers. Excess fuel delivered to the injectors is returned to the fuel tank via spill return pipes.

To assist cold starting, four glow plugs are fitted in the cylinder head directly below each injector.

OPERATION

Diesel engines operate on the compression ignition principle. The rapid compression of air in the cylinder during the compression cycle heats the injected fuel, causing it to self ignite. During cold starting, automatically controlled glow plugs assist in raising the temperature of the compressed air to ignition point.

Turbo Models

The engine is supplied with pre – compressed air by a single stage turbocharger. Exhaust gasses passing over a turbine cause it to rotate and drive a compressor mounted on the turbine shaft.

All Models

The injection pump meters a precisely timed, exact quantity of fuel to the injectors in response to throttle variations, injection timing varying with engine speed. Any excess fuel delivered to the injection pump is not injected, passing back to the tank via the fuel return line.

Fuel is injected in a finely atomised form into a swirl (pre – combustion) chamber in the cylinder head where it ignites. The burning fuel expands rapidly into the main combustion chamber, creating extreme turbulence which mixes the burning fuel thoroughly with the compressed air, providing complete combustion.

Cold starting is assisted by glow plugs, a cold start advance unit and a high idle setting

Glow plug operation is controlled by a timer unit, start relay and resistor. When the ignition is turned on, the timer unit is energised, the glow plugs start to operate and a warning light on the dashboard illuminates, remaining illuminated until the glow plugs are automatically switched off.

The length of time the glow plugs will operate is dependent on under bonnet temperature.