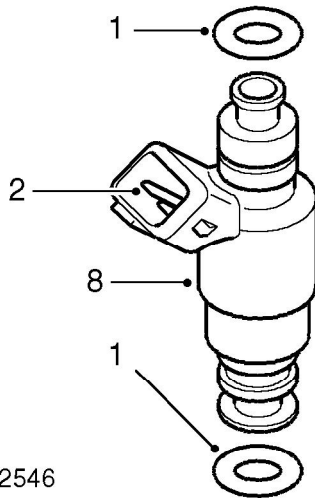
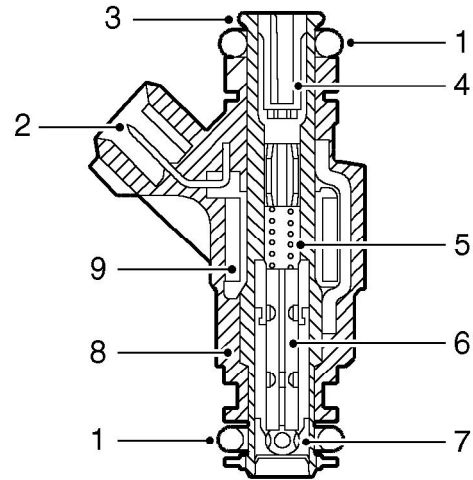




**Injectors**



M19 2546



- 1 'O' ring 2 off
- 2 Electrical connector
- 3 Steel housing
- 4 Filter strainer
- 5 Spring

- 6 Valve needle and armature
- 7 Valve seat/spray orifice
- 8 Plastic housing
- 9 Solenoid winding

An injector for each cylinder is mounted externally in the lower inlet manifold on the engine. The injector protrudes into the inlet manifold tract, where it releases a controlled delivery of fuel into the manifold air inlet.

Each injector is sealed to the fuel rail and the inlet manifold with 'O' rings. Spring clips retain each injector to the fuel rail and the attachment of the fuel rail clamps the injectors in the lower manifold.

The injector housing is manufactured from plastic which encapsulates a high-alloy steel housing. The steel housing contains all components which come into contact with fuel. The plastic housing also provides the attachment for the engine harness connector for the injector. A solenoid is located between the two housings and moves a valve needle via an armature. The valve needle seats on a valve seat which incorporates a spray orifice plate. A filter strainer is fitted at the connection with the fuel rail to remove any particulate matter from the fuel before it enters the injector.

When the ECM energises the solenoid, the armature moves lifting the valve needle off its seat. This allows pressurised fuel from the fuel rail to pass through the injector housing and needle to the spray orifice. The spray orifice controls the spray shape and fuel metering. When the solenoid is de-energised, the valve needle returns to the valve seat, aided by a spring, closing off the injection of fuel into the inlet.

Each injector receives a battery supply voltage via a fuse in the engine compartment fusebox. The fuel delivery timing is controlled by the ECM, which, at a precisely timed interval, provides a ground path for the injector. The completion of the ground path operates the injector to allow fuel at pump pressure to be delivered from the fuel rail to the injector nozzle. Each injector sprays a finely atomized spray of fuel into the inlet, where it is mixed with the intake air prior to combustion.

**ENGINE MANAGEMENT SYSTEM - V8, DESCRIPTION AND OPERATION, Description - engine management.**

Faults for each injector are stored in the ECM and can be retrieved using TestBook. Each injector can be checked across the two connector pins. For a correctly functioning injector a resistance of between 13.8 and 15.2 ohms at a temperature of 20°C (65°F) should be read across the pins.

## FUEL DELIVERY SYSTEM - V8

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### Operation

When the ignition switch is moved to position II, the fuel pump relay in the engine compartment fusebox is energised by the ECM. Battery voltage is supplied from the fuel pump relay to the fuel pump which operates. If engine cranking is not detected by the ECU within a thirty second period, the ECU will 'time-out', de-energising the fuel pump relay.

### ENGINE MANAGEMENT SYSTEM - V8, DESCRIPTION AND OPERATION, Description - engine management.

The fuel pump draws fuel from the swirl pot and pumps it along the fuel feed pipe to the injector fuel rail on the engine. When the pressure in the fuel feed line reaches 3.5 bar (50 lbf.in<sup>2</sup>) the fuel pressure regulator opens and relieves pressure by directing fuel back into the swirl pot. The pressure regulator is constantly opening and closing to maintain the pressure in the fuel feed pipe and the fuel rail at 3.5 bar (50 lbf.in<sup>2</sup>).

The pressure is felt at each of the eight injectors connected to the fuel rail. The ECM controls the injection timing and energises each injector to allow a metered amount of fuel at pump pressure to be injected into the inlet tract of the inlet manifold. The atomised fuel from the injector is mixed with air from the inlet manifold before passing into the cylinder.