4.22 Fuel Injectors

4.22.1 Description

The engine is fitted with 8 fuel injectors (one per cylinder), each of which is directly driven by the ECM. The Injectors are fed from a common fuel rail as part of a return less fuel system, with the fuel rail pressure constant at 3.5 bar (52 psi). The Fuel Pressure Regulator is integral to the fuel pump module, within the fuel tank. There is no reference signal line to the intake manifold.

The ECM monitors the output power stages of the injector drivers for electrical faults. A fault is detected if any of the following conditions is satisfied: -

1. Fuel injector driver short circuit to battery positive, i.e. the driver voltage is greater than half the battery voltage when the driver is on.
2. Fuel injector driver short circuit to ground, i.e. the driver voltage is less than one third of the battery voltage when the driver is off.
3. Fuel injector driver open circuit, i.e. the driver voltage is greater than one third of the battery voltage but less than two thirds of the battery voltage when the driver is off.

Fuel Injectors								
Component/ System	Fault Codes	Monitoring Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameter	Enable Conditions	Time Required	MIL Illumination
Fuel Injector	P0201 to P0208	circuit continuity - open circuit	voltage - drive off	1/3* Battery positive < voltage < 2/3* Battery positive	engine speed battery voltage	> 80 rpm 7.5V < Battery positive < 17V	immediately/ continuous	two driving cycles
	P0261/4/7 P0270/3/6 P0279/82	circuit continuity - short to ground.	voltage - drive off	voltage < 1/3 * Battery positive				
	P0262/5/8 P0271/4/7 P0280/3	circuit continuity - short to battery positive	voltage - drive on	voltage > 1/2 * Battery positive				

If the above table does not include details of the following enabling conditions: - IAT, ECT, vehicle speed range, and time after engine start-up then the state of these parameters has no influence upon the execution of the monitor.