

# FUEL INJECTION SYSTEM

## THE ELECTRONIC FUEL INJECTION SYSTEM

### Digital 'P' Pressure Sensing Type

#### Description

The electronic fuel injection system is divided into two sub-systems interconnected only at the injectors.

The systems are:

1 The fuel system delivering to the injectors a constant supply of fuel at the correct pressure, 2.5 bar (38 lbf/in).

2 The electronic sensing and control system which monitors engine operating conditions of load, speed, temperature (coolant, and induction air) and throttle movement. The control system then produces electrical pulses of appropriate width to hold open the injector solenoid valves and allows the correct quantity of fuel to flow through the nozzle for each engine cycle.

As fuel is held constant, varying the pulse width increases or decreases the amount of fuel passed through the injector to comply with the engine requirements.

Pulse width and therefore fuel quantity is also modified to provide enrichment during starting and warming-up, at closed throttle, full throttle and while the throttle is actually opening.

The injectors are operated by the Electronic Control Unit (ECU) in two groups of six. Each is further broken into two sub-groups of three, although each pair of sub-groups is operated simultaneously to make up the two groups of six twice per engine cycle.

Injection in two groups of six:

<b>A Bank</b>			<b>B Bank</b>		
1A	3A	5A	1B	3B	5B
2A	4A	6A	2B	4B	6B

Firing order:

1A 6B 5A 2B 3A 4B 6A 1B 2A 5B  
4A 3B

Cylinders numbered from front of engine

The induction system is basically the same as that on a carburetted engine: tuned ram pipe, air cleaners, plenum chambers and induction ports. Air is drawn through paper element cleaners to a butterfly valve for each bank and to individual ports for each cylinder leading off the plenum chamber. The injectors are positioned at the cylinder head end of each port so that fuel is directed at the back of each inlet valve.

	A	(1)	(2)	(3)	(4)	(5)	(6)
Front	B	(1)	(2)	(3)	(4)	(5)	(6)
(1)	Inlet opens				13° BTDC		
(2)	Inlet closes				55° ABDC		
(3)	Ignition with engine at normal operating temperature						
	UK/Europe				24° BTDC		
	All others				25—27°		
					BTDC		
(4)	Exhaust opens				55° B BDC		
(5)	Exhaust closes				13° ATDC		

