

## Diesel Electronic EC System

### Overview

The Electronic Engine Control (EC) system provides optimum control of the engine and transmission through the enhanced capability of the Powertrain Control Module (PCM). The Electronic EC also has an on-board diagnostics monitoring system (On Board Diagnostics II) with features and functions to meet federal regulations on exhaust emissions.

The Electronic EC system has two major divisions: hardware and software. The hardware includes the Powertrain Control Module (PCM), Injection Drive Module (IDM), sensors, switches, actuators, solenoids, and interconnecting terminals. The software in the PCM provides the strategy control for outputs (engine hardware) based on the values of the inputs to the PCM. Electronic EC hardware and software are discussed in this section.

The PCM receives information from a variety of sensor and switch inputs. Based on the strategy and calibration stored within the memory chip, the PCM generates the appropriate output. The system is designed to minimize emissions and optimize fuel economy and driveability. The software strategy controls the basic operation of the engine and transmission, provides the OBD II strategy, controls the Malfunction Indicator Lamp (MIL), communicates to the scan tool [New Generation Star (NGS), etc.] via the Data Link Connector (DLC), allows for Flash Electrically Erasable Programmable Read Only Memory (EEPROM), fuel trim, and controls Failure Mode Effects Management (FMEM).

### Modifications to OBD II Vehicles

Modifications or additions to the vehicle may cause incorrect operation of the OBD II system. Burglar alarms, cellular telephones and CB radios must be carefully installed. **Do not install these devices by tapping into or running wires close to powertrain control system wires or components.**

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