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Service Information Bulletin

SUBJECT	DATE
Sensor Overview	January 2013

Additions, Revisions, or Updates

Publication Number / Title	Platform	Section Title	Change
DDC-SVC-MAN-0084	DD Platform	Sensor Overview	Add fuel rail pressure sensor and low pressure fuel sensor to the charts. Remove fuel line pressure sensor from the charts.



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2 Sensor Overview

Detroit Diesel Electronic Control (DDEC) is designed to operate with several types of sensors, listed in the tables below.

Table 1.

Sensor Type	Description
Variable Reluctance/Magnetic Pick-up	Used to monitor the crankshaft position, engine speed, turbocharger speed, and vehicle speed.
Thermistor	Used to monitor temperatures.
Variable Capacitance	Used to monitor manifold and oil gallery pressures.
Variable Resistance (Potentiometer)	Used to sense throttle position.
Switch	Used to signal coolant level.

The sensors integrated into the engine harness are factory-installed. The sensors integrated into the Vehicle Interface Harness are installed by the Original Equipment Manufacturer (OEM).

Factory-installed Sensors

The sensors integrated into the factory-installed Engine Harness are listed below.

Table 2.

Sensor Type	Description
Camshaft Position (CMP) sensor	Indicates a specific cylinder in the firing order.
Crankshaft Position (CKP) sensor	Senses crankshaft position and engine speed for functions such as fuel control strategy.
Diesel Particulate Filter (DPF) inlet pressure sensor	Sensor measures pressure between the Diesel Oxidation Catalyst (DOC) and the Diesel Particulate Filter (DPF) in the aftertreatment assembly located in the exhaust system of the vehicle.
DPF outlet pressure sensor	Sensor measures pressure on the outlet of the after-treatment device in the exhaust system of the vehicle. Located after the DPF that is within the aftertreatment device.
DPF outlet temperature sensor	Temperature measured at the outlet of the after-treatment system that is installed within the exhaust system of the vehicle. Located after the DPF that is within the aftertreatment device.
Diesel Oxidation Catalyst (DOC) inlet temperature sensor	Temperature measured at the inlet of the aftertreatment device in the exhaust system of the vehicle. Located before the DOC that is within the aftertreatment device.
DOC outlet temperature sensor	Temperature measured between the DOC and the DPF in the aftertreatment assembly located in the exhaust system of the vehicle.
Exhaust Gas Recirculation (EGR) Delta Pressure (Delta P) sensor	Senses EGR pressure for EGR control.
EGR temperature sensor	Senses EGR exhaust temperature after EGR cooler. Used for EGR system diagnosis.
Engine Coolant Temperature (ECT) sensor	Senses coolant temperature for functions such as engine protection, fan control and engine fueling.
Engine Oil Pressure (EOP) sensor	Senses gallery oil pressure for functions such as engine protection.
Engine Oil Temperature (EOT) sensor	Senses oil temperature for functions such as reducing variation in fuel injection and fan control.

Sensor Type	Description
Fuel compensation pressure sensor	Compensates fuel line pressure.
Fuel rail pressure sensor	Senses high pressure fuel in the fuel rail
Intake Manifold Pressure (IMP) sensor	Senses turbocharger boost for functions such as smoke control and engine protection.
Intake Manifold Temperature (IMT) sensor	Senses boost temperature.
Low pressure fuel sensor	Senses pressure in the low pressure fuel circuit
Supply fuel temperature sensor	Senses fuel temperature for functions such as engine fueling.
Turbocharger compressor temperature out sensor	Senses turbocharger out air temperature.
Turbocharger Speed Sensor (TSS)	Monitors turbocharger speed.
Water-in-Fuel (WIF) sensor	Detects water in the fuel filter that alerts the owner/driver that the fuel filter needs to be dried out.

OEM-installed Sensors

All sensors must be of the proper type and continuously monitor vehicular and environmental conditions, so the MCM-MCM2 can react to changing situations. The OEM is responsible for installing the sensors listed in this table.

Table 3.

Sensor	Function
Ambient Air Temperature (AAT) sensor	Senses ambient air temperature specifically for the ambient air temperature override disable feature or for Optimized Idle (OI).
Engine Coolant Level (ECL) sensor	Senses coolant level for engine protection.
Turbocharger compressor inlet temperature sensor	Senses the temperature of the turbocharger compressor inlet.
Vehicle Speed Sensor (VSS)	Senses vehicle speed for cruise control and vehicle speed limiting.