Y: Engine Oil Temperature (EOT) Sensor Introduction
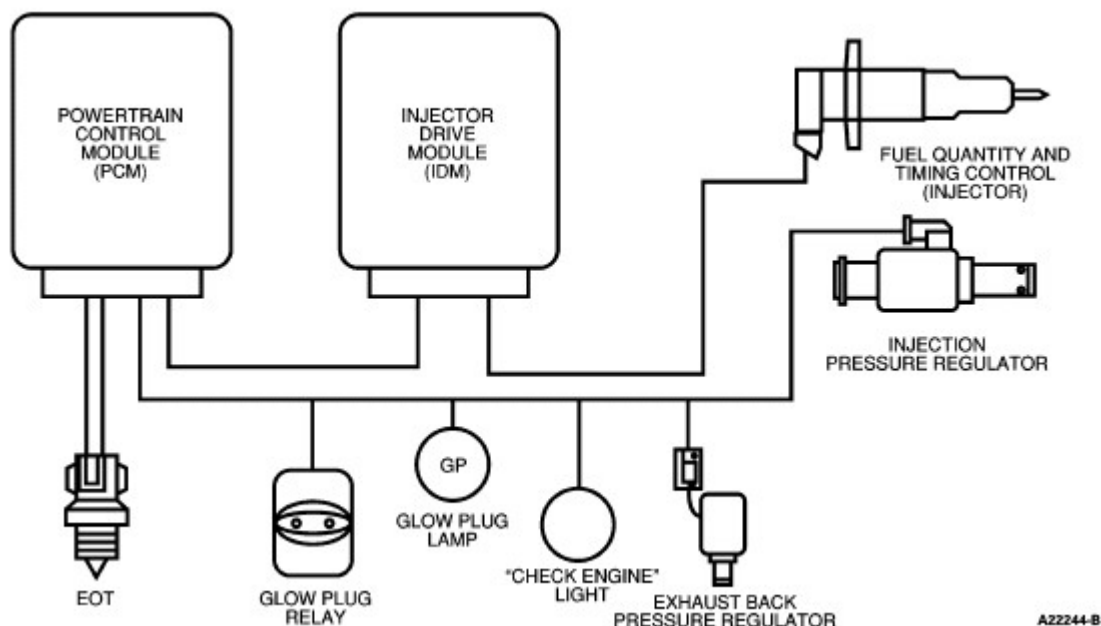
A22244-B

Signal Functions

The engine oil temperature (EOT) sensor is a thermistor type sensor that has a variable resistance that changes when exposed to different temperatures. When interfaced with the powertrain control module (PCM), it produces a 0 to 5 volt analog signal that will deduce temperature.

Cranking Fuel Quantity/Timing Control — The EOT sensor signal is used to determine the timing and quantity of fuel required to optimize starting over all temperature conditions.

Idle Speed — At oil temperatures below 70° C (158°F) low idle is incrementally increased to a maximum of 950 rpm.

Temperature Compensation — Fuel quantity and timing is controlled throughout the total operating range to ensure adequate torque and power is available.

Glow Plug Control — The glow plug relay and lamp ON time are controlled by engine oil temperature.

Detection/Management

An EOT sensor signal that is detected out of range (high or low) by the PCM will cause the PCM to ignore the EOT sensor signal and assume an engine oil temperature of -34°C (-29°F) for starting and a temperature of 100°C (212° F) for engine-running conditions. The CHECK ENGINE light will also be illuminated as long as the condition exists.

Note

After removing connectors, always check for damaged pins, corrosion, loose terminals, etc.

CONNECTOR CHECKS TO GROUND (B-)
(CHECK WITH SENSOR CONNECTOR DISCONNECTED AND IGNITION KEY OFF,
ALL ACCESSORIES OFF)

Test Points	Spec.	Comments
A to Grd	<5 ohms	Resistance to ground. If greater than 5 ohms the harness is open
B to Grd	>5 ohms	Resistance less than 5 ohms indicates a short to ground

CONNECTOR VOLTAGE CHECKS
(CHECK WITH SENSOR CONNECTOR DISCONNECTED AND IGNITION KEY ON)

| Test Points	Spec.	Comments
A to Grd	0-.25 volts	If greater than .25 volts signal wire is shorted to VREF or battery
B to Grd	4.6-4.9 volts	Pull up voltage, if no or low voltage circuit has open or high resistance

HARNESS RESISTANCE CHECKS
(CHECK WITH BREAKOUT BOX INSTALLED ON HARNESS ONLY)

Test Points	Spec.	Comments
No. 91 to A	<5 ohms	Resistance from sensor connector to 104-pin connector
No. 38 to B	<5 ohms	Resistance from sensor connector to 104-pin connector

DTC Descriptions

Circuit Faults:

0197 = EOT sensor circuit low input.

0198 = EOT sensor circuit high input.

System Faults

0196 = Engine oil temperature less than 74°C (165° F) or above 116°C (240°F) during KOER Cylinder Contribution
Self Test (self test access denied).
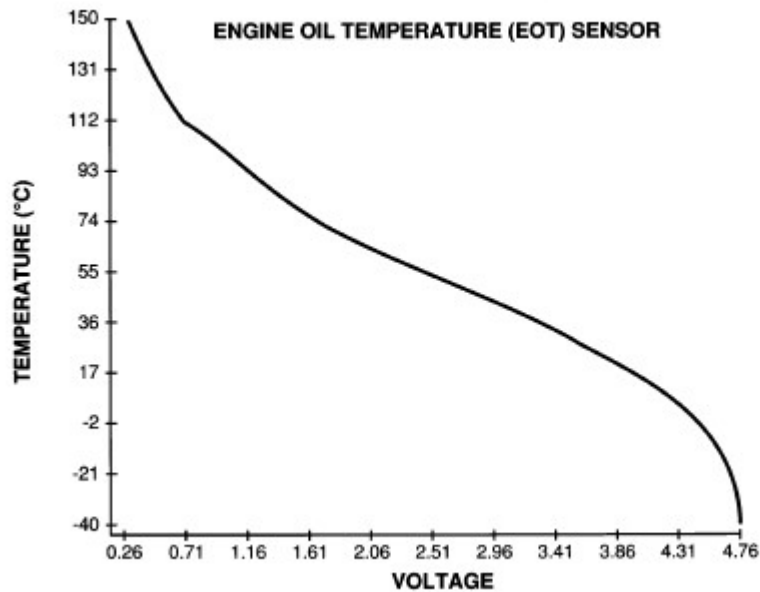
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k Ohms	EOT (Volts)	°C	°F
1.19	0.53	120	248
1.56	0.67	110	230
2.08	0.86	100	212
2.80	1.09	90	194
3.84	1.37	80	176
5.34	1.72	70	158

k Ohms	EOT (Volts)	°C	°F
7.55	2.11	60	140
10.93	2.56	50	122
16.11	3.01	40	104
24.25	3.44	30	86
37.34	3.82	20	68
58.99	4.13	10	50