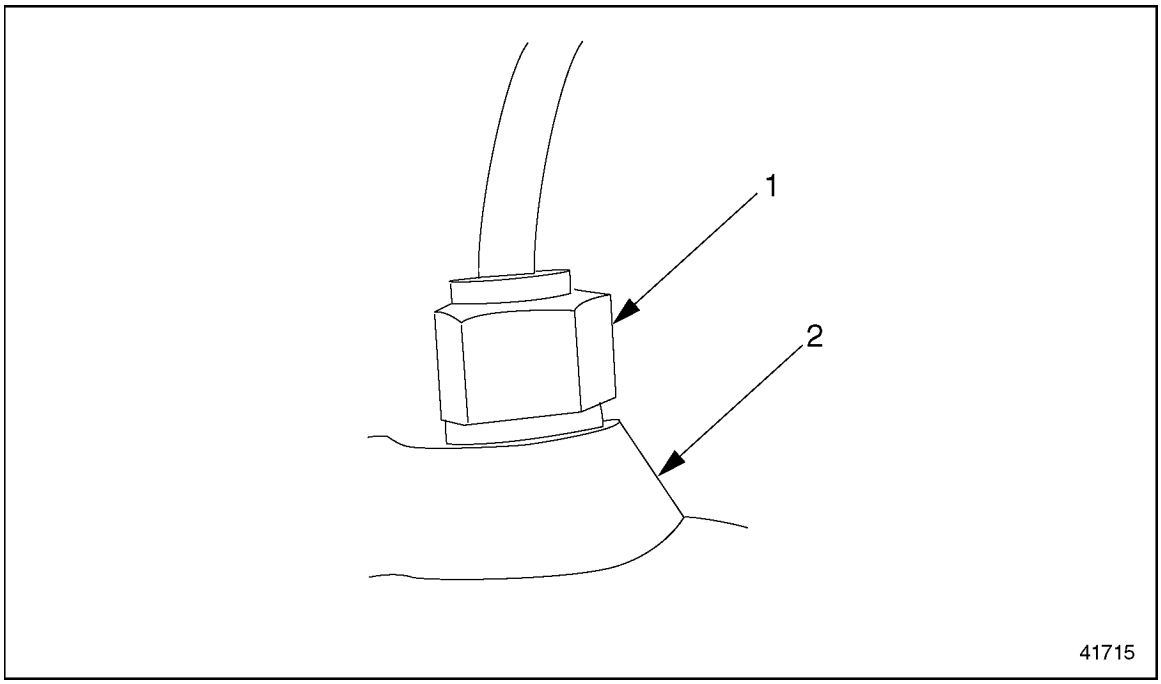
6.6.18 Removal of the Speed Sensor

For Series 60 engines equipped with EGR systems remove the turbocharger speed sensor from the turbocharger as follows:

NOTE:
Servicing of the speed sensor is limited to its replacement.

NOTE:
If the turbocharger speed sensor is difficult to access, removal of the turbocharger may be required. Refer to section 6.6.2.

1. Clean the center housing area around the base of the speed sensor. See Figure 6-93o.

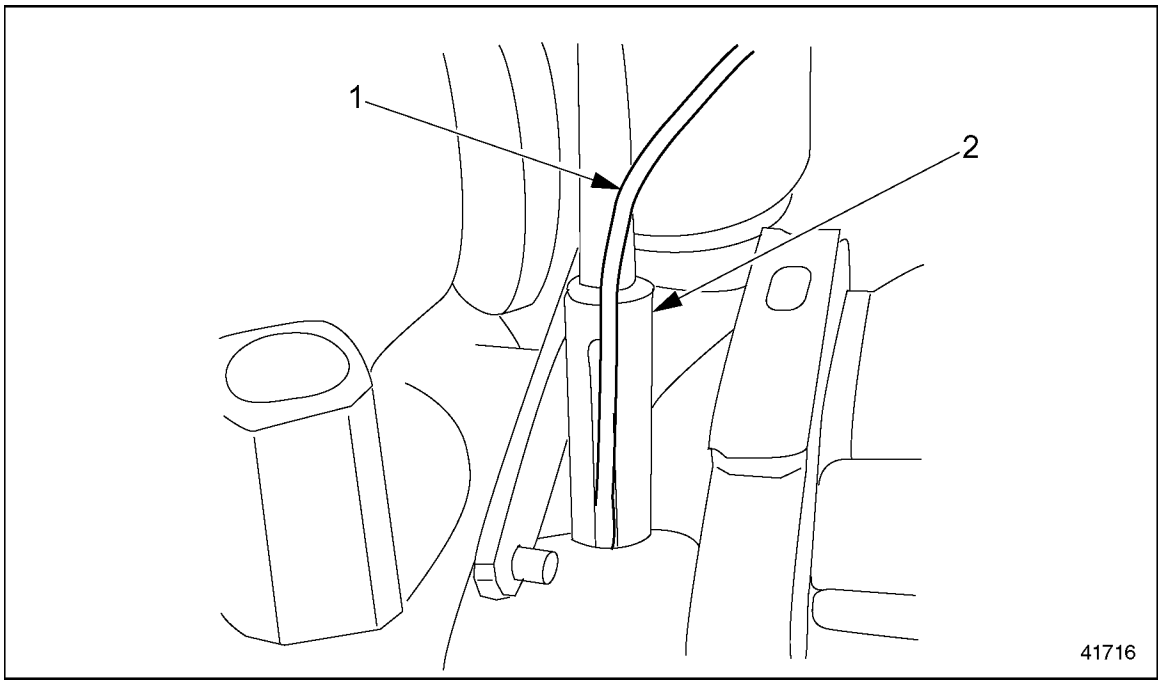


1. Turbocharger Speed Sensor
2. Center Housing

Figure 6-93o Location of Speed Sensor

2. Disconnect the sensor wire from the main harness.

3. Place turbocharger speed sensor socket J 45643 on speed sensor while threading the lead wire through the slot in the side of the socket.

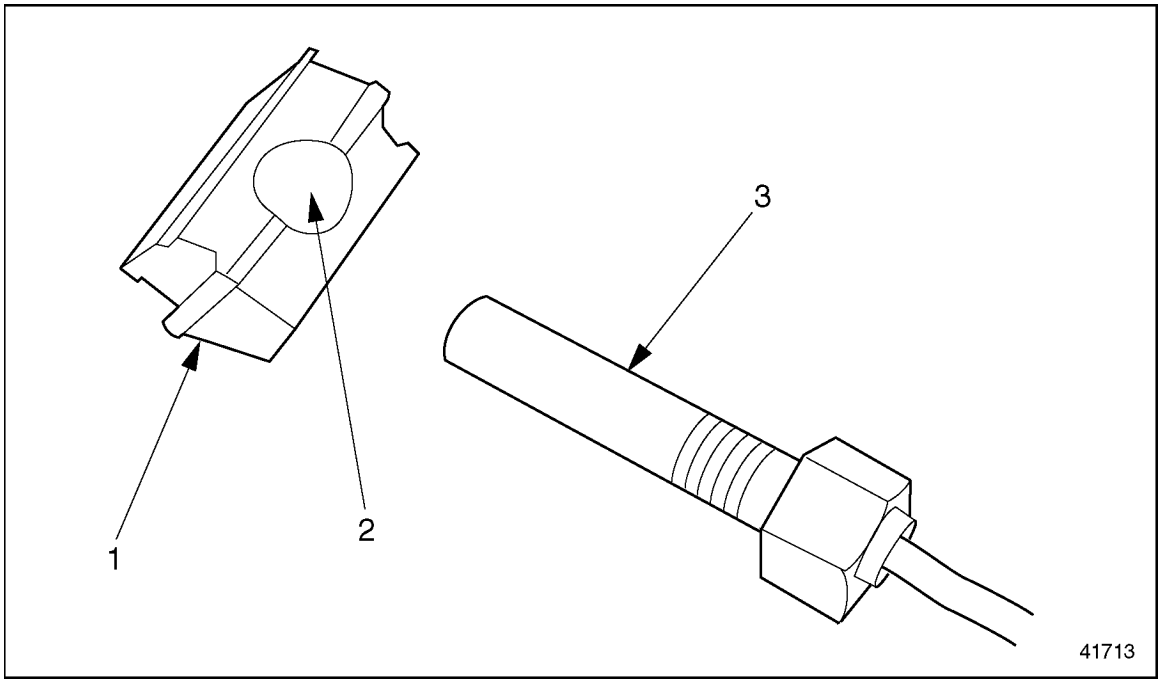


1. Sensor Lead Wire
2. Turbocharger Speed Sensor Socket

Figure 6-93p Removal of Turbocharger Speed Sensor

NOTICE:

Ensure the turbocharger shaft is secured and not rotated when the turbocharger speed sensor is removed from the bearing spacer. Turning the shaft without the sensor in place can rotate the bearing spacer. If the sensor is not properly positioned in the opening of the bearing spacer, see Figure 6-93q, the sensor and turbocharger bearings will be damaged during sensor installation.



1. Bearing Spacer
2. Spacer Hole
3. Turbocharger Speed Sensor

Figure 6-93q Turbocharger Speed Sensor Position

4. Loosen and remove the sensor while avoiding exessive pulling, bending or twisting of the sensor lead wire.

6.6.19 Installation of the Speed Sensor

Install the turbocharger speed sensor in the center housing as follows:

1. Place the turbocharger speed sensor socket J 45643 over the head of the turbocharger speed sensor with the lead wire through the slot on the side of the socket.
2. Inspect the threaded hole for the speed sensor and ensure the hole in the bearing spacer is aligned and the rotor shaft is visible.
3. Manually insert the turbocharger speed sensor into the threaded hole of the center housing wall. Turn the sensor until the sealing lip on the underside of the sensor seats against the flat on the center housing and the sensor is finger tight.
4. Turn the turbocharger rotor to ensure it spins freely with minimal resistance. If binding occurs, repeat speed sensor installation.

NOTICE:
Ensure the turbocharger rotor turns freely. If the shaft binds, the speed sensor is not aligned with the bearing spacer and damage can occur to the shaft and speed sensor.

5. Tighten the speed sensor to 10-11 N·m (90-100 lb·in.) torque.
6. Turn the turbocharger rotor to ensure it spins freely. If binding occurs it is not aligned properly. Refer to step 3.

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6.7 TURBOCHARGER SERIES 60 GAS ENGINES (GENSET)

The turbocharger is designed to increase the overall power and efficiency of the engine. Power to drive the turbocharger is extracted from the energy in the engine exhaust gas.

A turbocharger can be broken down into 3 basic pieces; a compressor cover, a center housing rotating assembly (CHRA), and a turbine housing.

The compressor cover is an aluminum alloy casting that encloses the compressor wheel and provides a V-band connection for the compressor outlet, and a hose connection for the compressor inlet. The compressor cover is secured to the compressor side of the CHRA.

The CHRA contains a turbine wheel and shaft assembly, piston ring(s), thrust spacer, compressor wheel, and wheel retaining nut. This rotating assembly is supported on two pressure-lubricated bearings that are retained in the center housing by snap rings. Internal oil passages are drilled in the center housing to provide lubrication to the turbine wheel shaft bearings, thrust washer, thrust collar, and thrust spacer.

The turbine housing is a heat-resistant steel alloy casting that encloses the turbine wheel and provides a flanged engine exhaust gas inlet and an axially located turbocharger exhaust gas outlet. The turbine housing is secured to the turbine end of the center housing.