

DETROIT DIESEL



SERIES 60[®] EGR Technician's Guide

NUMBER: 08 60 EGR-1 **S.M. REF.:** See Table **ENGINE:** EPA04 Series 60 EGR **DATE:** November 2008

SUBJECT: EGR VALVE DIAGNOSTICS

PUBLICATION: DDC-SVC-MAN-0078

EGR valve diagnostics have been revised.

DETAILS AND REASON

Section	Change
10.4.1 Test A, refer to section 10.4.1	Test A has been revised with a new procedure.
10.4.3.1 Delta P Sensor Test, refer to Section 10.4.3.1	Delta P Sensor Test steps 1 through 4 have been updated.
10.4.3.2 VPOD Output Pressure Test, refer to section 10.4.3.2	VPOD Output Pressure Test step 3 has been changed from 305 kPa to 483–517 kPa (70–75 psi @ VPOD)
10.4.4 Test D, refer to section 10.4.4	Test D has been revised with a new procedure.

10.4.1 TEST A

Perform Test A as follows.

1. Remove the dust cover from the EGR valve.

 WARNING: PRESSURIZED CHARGE COOLER SYSTEM
To avoid eye or face injury from flying debris, wear a face shield or goggles.

2. Install air pressure regulator TLZ00100 or equivalent to oil supply line for the EGR valve. Adjust regulator to give 10 psi output pressure.
3. Activate EGR VPOD (PWM #2) to 90% using the DDDL.

NOTE:

Only activate the EGR valve 3 times. Activating the valve more than that will blow all the oil out of the actuator and false results will be obtained.

4. Watch the EGR valve when activating to see if the rod turns smoothly when opening the EGR valve.
 - [a] If the valve opens smoothly and all the way, test A is complete. Install the dust cover.
 - [b] If the valve does not open smoothly or sticks, replace the EGR valve and verify repairs.

10.4.3.1 DELTA P SENSOR TEST

Check the Delta P Sensor as follows:

1. Turn ignition ON. (key ON, engine OFF).
2. Connect either Detroit Diesel Diagnostic Link® (DDDL) or a Diagnostic Data Reader (DDR).
3. Read the Delta P counts and record the data.
4. Remove the Delta P Sensor from the mounting plate.

 **WARNING:**
EYE INJURY

To avoid injury from flying debris when using compressed air, wear adequate eye protection (face shield or safety goggles) and do not exceed 276 kPa (40 psi) air pressure.

5. Blow down through the sensor tubes (by way of the holes in the mounting plate).
6. Gently shake the sensor to remove any moisture before reinstalling. Moisture in the sensor does not cause permanent damage.
7. Turn ignition ON. (key ON, engine OFF).
8. Connect either DDDL or a DDR.
9. Read the Delta P counts and record the data.
 - [a] If the recorded Delta P counts read 86-118 (from step 9), verify that the Venturi Tube hoses-to-Delta P Sensor are correctly installed and are not damaged. See Figure . Repair as necessary; verify repairs. Visually inspect the delivery pipe for damage and proper assembly. If no problem was found, perform a VPOD Output Pressure Test found in the next section.

NOTE:

Damaged hoses will have an adverse effect on engine performance resulting in black exhaust smoke and engine surging.

- [b] If the Delta P counts are out of the 86-118 range, replace the sensor, and go to the verification section.

10.4.3.2 VPOD OUTPUT PRESSURE TEST

Test steps are as follows:

1. Disconnect the air hose from the VNT actuator.
2. Install gauge at the outlet of the VNT air line. See Figure 1.

NOTE:

The gauge should be accurate to within 1.4 kPa (0.2 psi).

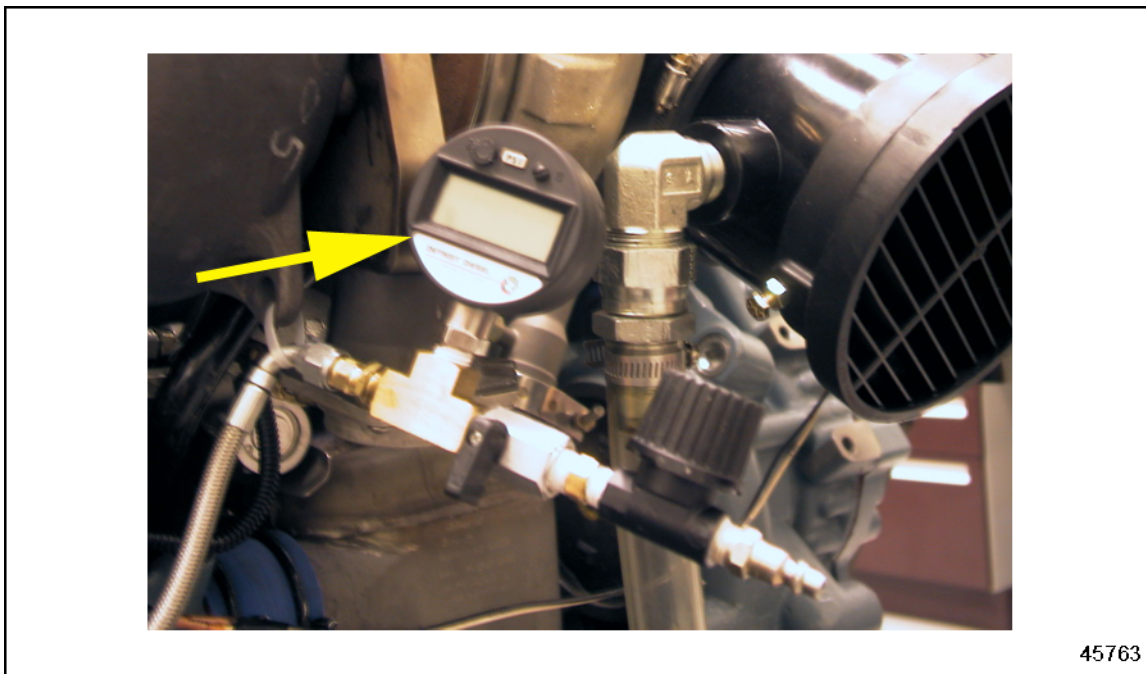


Figure 1 Gage Setup

3. Using either DDDL or DDR, activate the PWM #4 duty cycles and monitor the output pressure from the VPOD. Activate the duty cycle to 90%. Pressure should equal 483-517 kPa (70-75 psi @ VPOD).

NOTE:

Both activations must have full linkage travel.

NOTICE:

Ensure that the VPOD air supply line fitting is not crossed-threaded when connecting the VPOD air supply to the turbo actuator. If the air supply line fitting is not properly seated, the turbo actuator will not function properly.

4. Connect VPOD air supply line to the turbo actuator. Perform a VPOD Input Pressure Test.

10.4.4 TEST D

Test D steps are as follows.

NOTE:

Engines built from February 2004 (Serial Number: 06R0761470) through the end of July 2004 (Serial Number: 06R0788688) may be affected.

1. Turn the ignition ON but leave the engine OFF.
2. Connect either Detroit Diesel Diagnostic Link® (DDDL) or a Diagnostic Data Reader (DDR) to measure the barometric pressure and compare the results of the measured values to the barometric pressure in your area.
 - [a] If the difference is greater than 4.1 kPa (0.6 psi), replace the Barometric Pressure Sensor.
 - [b] If the difference is less than or equal to 4.1 kPa (0.6 psi), go to step 3.
3. Compare the barometric pressure to the Inlet Manifold Pressure Sensor.
 - [a] If pressure difference is greater than 4.1Kpa (0.6 psi), replace the Inlet Manifold Pressure Sensor.
 - [b] If the pressure is less than 4.1 kPa (0.6 psi), testing is complete. Verify repair.
4. Verify repair.
 - [a] If Flash Code 39 (SID 147/FMI 2) is not logged, repair is complete.
 - [b] If Flash Code 39 (SID 147/FMI 2) is logged, contact the Detroit Diesel Customer Support Center at 313-592-5800.



ADDITIONAL SERVICE INFORMATION

Additional technician information is available in the Detroit Diesel *Series 60 EGR Technician's Manual* (DDC-SVC-MAN-0078) and Power Service Literature (PSL). The next revision to this manual will include the revised information.

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