

DRIVEABILITY - DIESEL

Symptom List:

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT NEGATIVE DEVIATION

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT POSITIVE DEVIATION

Test Note: All symptoms listed above are diagnosed using the same tests. The title for the tests will be P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT NEGATIVE DEVIATION.

When Monitored and Set Condition:

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT NEGATIVE DEVIATION

When Monitored: With the ignition on.

Set Condition: The Boost Pressure Sensor indicates more boost pressure than the ECM is commanding.

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT POSITIVE DEVIATION

When Monitored: With the ignition on.

Set Condition: The Boost Pressure Sensor indicates less boost pressure than the ECM is commanding.

POSSIBLE CAUSES

INTERMITTENT CONDITION

CHECKING VACUUM SUPPLY

TURBOCHARGER WASTEGATE SOLENOID

ENGINE CONTROL MODULE

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT NEGATIVE DEVIATION — Continued

TEST	ACTION	APPLICABILITY
1	<p>NOTE: If the ECM detects and stores a DTC, the ECM also stores the engine/vehicle operating conditions under which the DTC was set. Some of these conditions are displayed on the DRB at the same time the DTC is displayed.</p> <p>NOTE: Before erasing stored DTCs, record these conditions. Attempting to duplicate these conditions may assist when checking for an active DTC.</p> <p>NOTE: Ensure all turbocharger inlet and outlet tubes are connected properly, without damage and restriction before continuing with this test. Also ensure the wastegate actuator and actuator rod are attached and functioning properly.</p> <p>Turn the ignition on. With the DRBIII®, erase ECM DTCs. Test drive the vehicle. Monitor the DRBIII® for ECM DTCs. Did this DTC set again?</p> <p style="padding-left: 40px;">Yes → Go To 2</p> <p style="padding-left: 40px;">No → Go To 4</p>	All
2	<p>Turn the ignition off. Disconnect both vacuum lines at the Turbocharger Wastegate Solenoid. Using a vacuum line connection tee, connect the vacuum supply line to the Turbocharger Wastegate Solenoid Output line at the Turbocharger Wastegate Solenoid. Disconnect the vacuum line at the Turbocharger Wastegate. Connect a vacuum gauge to the Turbocharger Wastegate Solenoid Output line at the Turbocharger Wastegate. Start the engine. With the engine at idle, note the vacuum gauge reading. Is the vacuum above 22 inches?</p> <p style="padding-left: 40px;">Yes → Go To 3</p> <p style="padding-left: 40px;">No → Inspect the vacuum hoses/tubes for damage, restriction and leaks. If OK, refer to the Service Information to check the Vacuum Pump operation. Perform ROAD TEST VERIFICATION - VER-2.</p>	All
3	<p>Turn the ignition off. Install a substitute Turbocharger Wastegate Solenoid in place of the vehicle's Turbocharger Wastegate Solenoid. NOTE: Ensure the ECM and Turbocharger Wastegate Solenoid harness connectors are connected. Turn the ignition on. With the DRB, check for this DTC to set again. Did this DTC set again?</p> <p style="padding-left: 40px;">Yes → Replace and program the Engine Control Module in accordance with the Service Information. Perform ROAD TEST VERIFICATION - VER-2.</p> <p style="padding-left: 40px;">No → Replace the Turbocharger Wastegate Solenoid. Perform ROAD TEST VERIFICATION - VER-2.</p>	All

DRIVEABILITY - DIESEL

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT NEGATIVE DEVIATION — Continued

TEST	ACTION	APPLICABILITY
4	<p>WARNING: WHEN THE ENGINE IS OPERATING, DO NOT STAND IN A DIRECT LINE WITH THE FAN. DO NOT PUT YOUR HANDS NEAR THE PULLEYS, BELTS OR FAN. DO NOT WEAR LOOSE CLOTHING.</p> <p>NOTE: The conditions that set the DTC are not present at this time. The following list may help in identifying the intermittent condition.</p> <p>With the engine running at normal operating temperature, monitor the DRB parameters related to the DTC while wiggling the wiring harness. Look for parameter values to change and/or a DTC to set.</p> <p>Review the DTC When Monitored and Set Conditions. If possible, try to duplicate the conditions under which the DTC was set.</p> <p>Refer to any Technical Service Bulletins (TSB) that may apply.</p> <p>Visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.</p> <p>Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.</p> <p>Were any of the above conditions present?</p> <p>Yes → Repair as necessary. Perform ROAD TEST VERIFICATION - VER-2.</p> <p>No → Test Complete.</p>	All

Symptom:

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT OPEN CIRCUIT

When Monitored and Set Condition:

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT OPEN CIRCUIT

When Monitored: With the ignition on.

Set Condition: The ECM detects an open or short to ground on the Turbocharger Wastegate Solenoid Control circuit.

POSSIBLE CAUSES
INTERMITTENT CONDITION ASD RELAY OUTPUT CIRCUIT OPEN TURBOCHARGER WASTEGATE SOLENOID CONTROL CIRCUIT SHORTED TO GROUND TURBOCHARGER WASTEGATE SOLENOID CONTROL CKT OPEN TURBOCHARGER WASTEGATE SOLENOID ENGINE CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	<p>NOTE: If the ECM detects and stores a DTC, the ECM also stores the engine/vehicle operating conditions under which the DTC was set. Some of these conditions are displayed on the DRB at the same time the DTC is displayed.</p> <p>NOTE: Before erasing stored DTCs, record these conditions. Attempting to duplicate these conditions may assist when checking for an active DTC.</p> Turn the ignition on. With the DRB, erase ECM DTCs. Test drive the vehicle. Monitor the DRB for ECM DTCs. Did this DTC set again? Yes → Go To 2 No → Go To 7	All
2	Turn the ignition off. Disconnect the Turbocharger Wastegate Solenoid harness connector. Turn the ignition on. Using a 12-volt test light connected to ground, check the ASD Relay Output circuit. Does the test light illuminate brightly? Yes → Go To 3 No → Repair the ASD Relay Output circuit for an open. Perform ROAD TEST VERIFICATION - VER-2.	All

DRIVEABILITY - DIESEL

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT OPEN CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
3	<p>Turn the ignition off. Disconnect the Turbocharger Wastegate Solenoid harness connector. Disconnect the ECM harness connectors. Measure the resistance between ground and the Turbocharger Wastegate Solenoid Control circuit. Is the resistance above 1000 ohms?</p> <p>Yes → Go To 4</p> <p>No → Repair the Turbocharger Wastegate Solenoid Control circuit for a short to ground. Perform ROAD TEST VERIFICATION - VER-2.</p>	All
4	<p>Turn the ignition off. Disconnect the Turbocharger Wastegate Solenoid harness connector. Disconnect the ECM harness connectors. Measure the resistance of the Turbocharger Wastegate Solenoid Control circuit. Is the resistance below 10.0 ohms?</p> <p>Yes → Go To 5</p> <p>No → Repair the Turbocharger Wastegate Solenoid Control circuit for an open. Perform ROAD TEST VERIFICATION - VER-2.</p>	All
5	<p>Turn the ignition off. Install a substitute Turbocharger Wastegate Solenoid in place of the vehicle's Turbocharger Wastegate Solenoid. NOTE: Ensure the ECM and Turbocharger Wastegate Solenoid harness connectors are connected. Turn the ignition on. With the DRB, check for this DTC to set again. Did this DTC set again?</p> <p>Yes → Go To 6</p> <p>No → Replace the Turbocharger Wastegate Solenoid. Perform ROAD TEST VERIFICATION - VER-2.</p>	All
6	<p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace and program the Engine Control Module in accordance with the Service Information. Perform ROAD TEST VERIFICATION - VER-2.</p>	All

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT OPEN CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	<p>WARNING: WHEN THE ENGINE IS OPERATING, DO NOT STAND IN A DIRECT LINE WITH THE FAN. DO NOT PUT YOUR HANDS NEAR THE PULLEYS, BELTS OR FAN. DO NOT WEAR LOOSE CLOTHING.</p> <p>NOTE: The conditions that set the DTC are not present at this time. The following list may help in identifying the intermittent condition.</p> <p>With the engine running at normal operating temperature, monitor the DRB parameters related to the DTC while wiggling the wiring harness. Look for parameter values to change and/or a DTC to set.</p> <p>Review the DTC When Monitored and Set Conditions. If possible, try to duplicate the conditions under which the DTC was set.</p> <p>Refer to any Technical Service Bulletins (TSB) that may apply.</p> <p>Visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.</p> <p>Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals.</p> <p>Were any of the above conditions present?</p> <p>Yes → Repair as necessary. Perform ROAD TEST VERIFICATION - VER-2.</p> <p>No → Test Complete.</p>	All

DRIVEABILITY - DIESEL

Symptom:

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT SHORT CIRCUIT

When Monitored and Set Condition:

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT SHORT CIRCUIT

When Monitored: With the ignition on.

Set Condition: The ECM detects a short to battery on the Turbocharger Wastegate Solenoid Control circuit.

POSSIBLE CAUSES

INTERMITTENT CONDITION

TURBOCHARGER WASTEGATE SOLENOID

TURBOCHARGER WASTEGATE SOLENOID CONTROL SHORT TO VOLTAGE

ENGINE CONTROL MODULE - INTERNAL

ENGINE CONTROL MODULE - INTERNAL SHORT TO VOLTAGE

TEST	ACTION	APPLICABILITY
1	<p>NOTE: If the ECM detects and stores a DTC, the ECM also stores the engine/vehicle operating conditions under which the DTC was set. Some of these conditions are displayed on the DRB at the same time the DTC is displayed.</p> <p>NOTE: Before erasing stored DTCs, record these conditions. Attempting to duplicate these conditions may assist when checking for an active DTC.</p> <p>Turn the ignition on. With the DRB, erase ECM DTCs. Test drive the vehicle and monitor the DRB for ECM DTCs. Did this DTC set again?</p> <p>Yes → Go To 2 No → Go To 5</p>	All
2	<p>Turn the ignition off. Disconnect the Turbocharger Wastegate Solenoid harness connector. Turn the ignition on. With the DRB, erase ECM DTCs. Monitor the DRB for ECM DTCs. Does the DRB display P0243 TURBOCHARGER WASTEGATE OPEN CIRCUIT?</p> <p>Yes → Replace the Turbocharger Wastegate Solenoid. Perform ROAD TEST VERIFICATION - VER-2.</p> <p>No → Go To 3</p>	All

P0243-TURBOCHARGER WASTEGATE SOLENOID CIRCUIT SHORT CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
3	<p>Turn the ignition off. Disconnect the Turbocharger Wastegate Solenoid harness connector. Turn the ignition on. Measure the voltage of the Turbocharger Wastegate Solenoid Control circuit. Is the voltage below 0.5 volt?</p> <p>Yes → Replace and program the Engine Control Module in accordance with the Service Information. Perform ROAD TEST VERIFICATION - VER-2.</p> <p>No → Go To 4</p>	All
4	<p>Turn the ignition off. Disconnect the Turbocharger Wastegate Solenoid harness connector. Disconnect the ECM harness connectors. Remove the ASD Relay from the PDC. Connect a jumper wire between cavity 30 and cavity 87 of the ASD Relay connector. Turn the ignition on. Measure the voltage of the Turbocharger Wastegate Solenoid Control circuit. Is the voltage below 0.5 volt?</p> <p>Yes → Replace and program the Engine Control Module in accordance with the Service Information. Perform ROAD TEST VERIFICATION - VER-2.</p> <p>No → Repair the Turbocharger Wastegate Solenoid Control circuit for a short to voltage. Perform ROAD TEST VERIFICATION - VER-2.</p>	All
5	<p>WARNING: WHEN THE ENGINE IS OPERATING, DO NOT STAND IN A DIRECT LINE WITH THE FAN. DO NOT PUT YOUR HANDS NEAR THE PULLEYS, BELTS OR FAN. DO NOT WEAR LOOSE CLOTHING. NOTE: The conditions that set the DTC are not present at this time. The following list may help in identifying the intermittent condition.</p> <p>With the engine running at normal operating temperature, monitor the DRB parameters related to the DTC while wiggling the wiring harness. Look for parameter values to change and/or a DTC to set. Review the DTC When Monitored and Set Conditions. If possible, try to duplicate the conditions under which the DTC was set. Refer to any Technical Service Bulletins (TSB) that may apply. Visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires. Visually inspect the related wiring harness connectors. Look for broken, bent, pushed out, or corroded terminals. Were any of the above conditions present?</p> <p>Yes → Repair as necessary. Perform ROAD TEST VERIFICATION - VER-2.</p> <p>No → Test Complete.</p>	All