#PI01624A: Service VME - 4.8 5.3 6.0 LM4 LM7 LR4 LQ4 LQ9 GEN III Engines with MAF Sensor Code P0101 - kw driveability fluctuation idle intermittent MAP rough stall surge hesitation - (Apr 5, 2004)

Subject: Service VME - 4.8 5.3 6.0 LM4 LM7 LR4 LQ4 LQ9 GEN III Engines with MAF Sensor Code P0101

Models: .

When servicing the vehicle with the VIN you entered, the following diagnosis might be helpful if the vehicle exhibits the described symptoms.

SERVICE VME

This message applies to all 1999 through 2004 Chevrolet, GMC, Olds, Buick and Cadillac pick-ups and utilities that are equipped with either the 4.8 liter, 5.3 liter or 6.0 liter Gen 3 V-8 engines. Recent warranty analysis indicates that both the MAF, or mass airflow sensor, and the MAP, or manifold absolute pressure sensor, are being replaced for a MAF sensor code P0101. The cause may actually be a MAP sensor failure causing the MAF sensor code. One of the MAP sensor's primary functions is the calculation of the speed density formula, which is compared to the MAF sensor reading. Should the MAP sensor fail, the PCM may interpret this as a MAF sensor concern and set a P0101 code. If diagnostics are followed thoroughly the technician may find a MAP sensor failure causing this condition. In conclusion, when a MAF sensor code of P0101 is found the technician needs to verify the proper operation of the MAP sensor before concluding that the MAF sensor requires replacement.

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Please follow this diagnosis process thoroughly and complete each step. If the condition exhibited is resolved without completing every step, the remaining steps do not need to be performed. If these steps do not resolve the condition, please contact GM TAC for further diagnostic assistance. This diagnostic approach was developed for the vehicle with the VIN you entered and should not be automatically be used for other vehicles with similar symptoms.

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MODELS:

(00-04 Chevrolet Silverado Truck C1,C2,C3) and (00-04 Chevrolet Tahoe C1,C2,C3) and (00-04 Chevrolet Suburban C1,C2,C3) and (00-04 GMC Sierra Truck C1,C2,C3) and (00-04 GMC Yukon C1, C2, C3) and (00-04 GMC Yukon XL C1, C2 C3) and (02-04 Cadillac, Escalade, C6) and (03-04 Cadillac, EXT, C1) and (02-043 Chevrolet, Avalanche, K1, K2) and (02-04 Chevrolet Silverado Truck K1, K2, K3) and (02-04 GMC Sierra Truck K1, K2, K3) and (02-04 Chevrolet Tahoe, K1, K2, K3) and (02- 04 Chevrolet Suburban, K1, K2, K3) and (03 Chevrolet Camaro) and (02-04 Chevrolet Corvette) and (03 Pontiac Firebird) and (02-04 GMC, Yukon, K1, K2, K3) and (02-04 GMC, Yukon XL, C1,C2, C3) and (00-04 GMC, Yukon XL, K1, K2, K3) and (03-04 GMC S1 T1) and (03-04 Chevrolet S1 T1) and (03-04 Chevrolet Express G1, G2) and (03-04 GMC Savana G1, G2)

DTC P1514

Circuit Description

The powertrain control module (PCM) uses the throttle position (TP), barometric pressure (BARO), intake air temperature (IAT), and engine RPM in order to calculate the predicted mass airflow rate. The PCM compares the predicted mass air flow (MAF) value to the actual mass airflow value and the speed density calculation in order to verify the proper throttle operation.

Conditions for Running the DTC

- DTCs P0601, P0602, P0604, P0606, P1515, P1516, P1517, or P1518 are not set.
- DTCs P1120, P1220 and P1221 are not set at the same time or DTCs P1120 and P1220 are not set at the same time.

- The engine operates longer than 1 second.
- The engine speed is greater than 500 RPM.

Conditions for Setting the DTC

- The PCM detects that the difference between the actual airflow (MAF) and the speed density calculated airflow is greater than expected.
- All of the above conditions met for less than 1 second.

Action Taken When the DTC Sets

- The control module illuminates the malfunction indicator lamp (MIL) when the diagnostic runs and fails.
- The control module records the operating conditions at the time the diagnostic fails. The control module stores this information in the Freeze Frame and/or the Failure Records.
- The control module commands the TAC system to operate in the Reduced Engine Power mode.
- A message center or an indicator displays Reduced Engine Power.
- Under certain conditions the control module commands the engine OFF.

Conditions for Clearing the MIL/DTC

- The control module turns OFF the malfunction indicator lamp (MIL) after 3 consecutive ignition cycles that the diagnostic runs and does not fail.
- A current DTC, Last Test Failed, clears when the diagnostic runs and passes.
- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other emission related diagnostic.
- Clear the MIL and the DTC with a scan tool.

Diagnostic Aids

- Inspect the throttle blade for being broken, bent, or missing.
- Inspect the TP sensor for proper installation. A sensor that is mis-aligned could set this DTC.
- Inspect the TAC module connectors for signs of water intrusion. When water intrusion occurs, multiple DTCs could be set with no DTC circuit or component conditions found during diagnostic testing.
- Physically and visually inspect the throttle body assembly, and correct any problems that you observe. Manually move the throttle blade from closed to wide open throttle (WOT). You should not need to use excessive force. The throttle blade should move smoothly through the full range and should return to a slightly open position on its own.
- When the TAC module detects a condition within the TAC system, more than 1 TAC system related DTC may set. This is due to the many redundant tests that run continuously on this system. Locating and repairing 1 individual condition may correct more than 1 DTC. Disconnecting components during testing may set additional DTCs. Keep this in mind when reviewing the stored information, Capture info.
- For an Intermittent condition, refer to Intermittent Conditions .

Test Description
The number below refers to the step number on the diagnostic table.

When the TAC module detects a condition within the TAC system, more than 1 TAC system related DTC may set. This is due to the many redundant tests that run continuously on this system. Locating and repairing 1 individual condition may correct more than 1 DTC. Disconnecting components during testing may set additional DTCs. Keep this in mind when reviewing the stored information, Capture info.

Step
Action
Yes
No

Schematic Reference: Engine Controls Schematics

Connector End View Reference: Powertrain Control Module Connector End Views or Engine Controls Connector End Views

1
Did you perform the Diagnostic System Check-Engine Controls?
Go to Step 2
Go to Diagnostic System Check - Engine Controls

2
Is DTC P0101, P0102, P0103, P0107, P0108, P0112, P0113, P1111, or P1112 set?
Go to Diagnostic Trouble Code (DTC) List
Go to Step 3

3
Caution: Turn OFF the ignition before inserting fingers into the throttle bore. Unexpected movement of the throttle blade could cause personal injury.

Important: If any of the conditions listed below exist, replace the throttle body assembly. Refer to Throttle Body Assembly Replacement .

Inspect the throttle body for the following conditions:

- A loose or damaged TP sensor
- A loose or damaged throttle blade
- A cracked or bent throttle shaft
- Drive mechanism damage

Did you find and correct the condition?
Go to Step 4
Go to Diagnostic Aids

4
Use the scan tool in order to clear the DTCs.
Turn OFF the ignition for 30 seconds.
Start the engine.

Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text.
Does the DTC run and pass?
Go to Step 5
Go to Step 2

5
With a scan tool, observe the stored information, Capture Info.

Does the scan tool display any DTCs that you have not diagnosed?
Go to Diagnostic Trouble Code (DTC) List
System OK

DTC P0343

Circuit Description

The camshaft position (CMP) sensor works in conjunction with a 1X reluctor wheel on the camshaft. The powertrain control module (PCM) provides a 12-volt reference, a low reference, and a signal circuit to the CMP sensor.
The CMP sensor determines whether a cylinder is on a firing stroke or on an exhaust stroke. A magnet within the sensor produces a magnetic field. The reluctor wheel of the rotating camshaft interrupts this magnetic field. The sensor's internal circuitry detects this field, and produces a signal which the PCM reads. The PCM uses this 1X signal in combination with the 24X signal of the crankshaft position (CKP) sensor. The PCM uses this information in order to determine the crankshaft position and the stroke. The PCM monitors for a loss of the CMP sensor signal.
As long as the PCM receives the CKP sensor 24X signal, the engine will start. The PCM can determine the top dead center for all of the cylinders just by using the CKP sensor 24X signal. The PCM uses the CMP sensor 1X signal in order to determine which stroke the cylinder at the top dead center is on. The PCM determines if the cylinder is on the firing stroke or on the exhaust stroke. The system attempts synchronization, and looks for an increase in the engine speed, indicating that the engine started. If the PCM does not detect an increase in the engine speed, the PCM assumes the PCM is incorrectly synchronized to the exhaust stroke. The PCM synchronizes to the opposite cam position. A slightly longer cranking time may be a symptom of this condition.

Conditions for Running the DTC

The engine speed is less than 4000 RPM.

Action Taken When the DTC Sets

- The control module illuminates the malfunction indicator lamp (MIL) on the second consecutive ignition cycle that the diagnostic runs and fails.

- The control module records the operating conditions at the time the diagnostic fails. The first time the diagnostic fails, the control module stores this information in the Failure Records. If the diagnostic reports a failure on the second consecutive ignition cycle, the control module records the operating conditions at the time of the failure. The control module writes the operating conditions to the Freeze Frame and updates the Failure Records.

Conditions for Clearing the MIL/DTC

- The control module turns OFF the malfunction indicator lamp (MIL) after 3 consecutive ignition cycles that the diagnostic runs and does not fail.

- A current DTC, Last Test Failed, clears when the diagnostic runs and passes.

- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other emission related diagnostic.
- Clear the MIL and the DTC with a scan tool.

Diagnostic Aids

- The following conditions may cause this DTC to set:
  - Camshaft reluctor wheel damage
  - A sensor that is in contact with the reluctor wheel
- For an intermittent conditions, refer to Intermittent Conditions .

Test Description

The numbers below refer to the step numbers on the diagnostic table.

2. This step verifies that the fault is present.
4. If the duty cycle is present at the PCM connector, the 12-volt reference circuit, and the low reference circuit of the CMP sensor are OK.
5. This step tests the 12-volt reference circuit of the CMP sensor.
6. This step tests the low reference circuit of the CMP sensor .
9. This step tests for a short to voltage on the CMP sensor signal circuit.
10. This step tests for a short to ground on the CMP sensor signal circuit.

Step	Action	Value	Yes	No
Schematic Reference: Engine Controls Schematics				
1	Did you perform the Diagnostic System Check-Engine Controls?	--	Go to Step 2	Go to Diagnostic System Check - Engine Controls
2	1. Connect a scan tool. 2. Start the engine. 3. Use the scan tool in order to monitor the CAM signal input High to Low transition. Does the scan tool parameter increment?	--	Go to Step 3	Go to Step 4
3	1. Observe the Freeze Frame/Failure Records for this DTC. 2. Turn OFF the ignition for 30 seconds. 3. Start the engine. 4. In order to operate the vehicle under the conditions which set the DTC, use the following information:	--	Go to Step 4	Go to Diagnostic Aids

	• The data in the Freeze Frame/Failure Records • The parameters listed in the Conditions for Running in the DTC Does the DTC fail this ignition?			
4	1. Disconnect both PCM connectors. Refer to Powertrain Control Module Replacement . 2. Locate the PCM connector C1 on the sensor side. Use a jumper wire in order to connect the low reference circuit of the CMP sensor to a known good ground. 3. Locate the PCM connector C2 on the sensor side. Use a fused jumper wire in order to connect the 12-volt reference circuit of the CMP sensor to B+. Refer to Using Fused Jumper Wires in Wiring Systems. 4. Probe the CMP sensor signal circuit with one lead of the DMM, and connect the other lead to a ground. 5. Select the duty cycle option on the DMM. 6. Crank the engine. Is the duty cycle within the specified range?	45-55 %	Go to Step 17	Go to Step 5
5	1. Turn OFF the ignition. 2. Connect the PCM connectors. Refer to Powertrain Control Module Replacement . 3. Remove the intake manifold in order to access the CMP sensor. Refer to Intake Manifold Replacement in Engine Mechanical-5.7L. 4. Disconnect the CMP sensor electrical connector. 5. Turn ON the ignition, with the engine OFF. 6. Use the DMM in order to measure the voltage from the 12-volt reference circuit of the CMP sensor to the battery ground. Does the DMM display the specified voltage?	B+	Go to Step 6	Go to Step 8
6	Use a DMM in order to measure the voltage of the CMP sensor from the 12-volt reference circuit to the low reference circuit. Does the DMM display the specified voltage?	B+	Go to Step 9	Go to Step 7
7	Test for an open in the low reference circuit of the CMP sensor. Refer to Testing for Continuity in Wiring Systems. Did you find an open low reference circuit?	--	Go to Step 13	Go to Step 17
8	Test for an open or for a short to ground in the 12-volt reference circuit of the CMP sensor. Refer to Testing for Continuity in Wiring Systems. Did you find the circuit open or shorted to a ground?	--	Go to Step 12	Go to Step 17
9	1. Turn ON the ignition, with the engine OFF.	1 V	Go to Step 10	Go to Step 14

	2. Use a DMM in order to measure the voltage at the CMP sensor signal circuit to ground with the DMM. Is the voltage less than the specified value?			
10	Probe the CMP signal with a test lamp connected to battery voltage. Does the test lamp illuminate?	--	Go to Step 15	Go to Step 11
11	1. Turn OFF the ignition. 2. Disconnect the PCM connector C1. Refer to Powertrain Control Module Replacement . 3. Use the DMM in order to test the continuity of the signal circuit from the sensor harness connector to the PCM . Refer to Testing for Continuity in Wiring Systems. Is the resistance less than the specified value?	2 ohms	Go to Step 18	Go to Step 16
12	Repair the open, or repair the short to ground in the 12-volt reference circuit of the CMP sensor. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	--	Go to Step 20	--
13	Repair the open in the low reference circuit of the CMP sensor . Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	--	Go to Step 20	--
14	Repair the short to voltage in the CMP sensor signal circuit. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	--	Go to Step 20	--
15	Repair the short to ground in the CMP sensor signal circuit. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	--	Go to Step 20	--
16	Repair the open in the CMP sensor signal circuit. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	--	Go to Step 20	--
17	1. Inspect for poor connections at the PCM. Refer to Testing for Intermittent Conditions and Poor Connections in Wiring Systems. 2. If you find a poor connection, repair the connection as necessary. Refer to Repairing Connector Terminals in Wiring Systems. Did you find and correct the condition?	--	Go to Step 20	Go to Step 19
18	Replace the CMP sensor. Refer to Camshaft Position Sensor Replacement . Did you complete the replacement?	--	Go to Step 20	--
19	Replace the PCM. Refer to Powertrain Control Module Replacement . Did you complete the replacement?	--	Go to Step 20	--
20	1. Use a scan tool in order to clear the DTCs. 2. Turn OFF the ignition for 30 seconds. 3. Start the engine.	--	Go to Step 21	Go to Step 2

	4. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC run, and pass?			
21	With a scan tool, observe the stored information in Capture Info. Does the scan tool display any DTCs that you have not diagnosed?	--	Go to Diagnostic Trouble Code (DTC) List	System OK

DTC P1575

Circuit Description

This diagnostic test functions on the assumption that a brake application causes a sudden decrease in non-drive wheel speed.
The extended travel brake switch is a normally closed switch. When the extended travel brake switch is closed, the powertrain control module (PCM) senses ignition voltage on the extended travel brake switch signal circuit. If the PCM senses a voltage on the extended travel brake switch signal circuit when the extended travel brake switch should be open, this DTC sets.

Conditions for Running the DTC

- The engine speed is greater than 700 RPM.
- The engine has been operating longer than 2 seconds.
- The wheel speed must be greater than 30 MPH in order to enable the diagnostic. The diagnostic will disable when the wheel speed is below 10 MPH.
- The vehicle speed is decreasing at a rate greater than 2.6 MPH over a 250 millisecond period.

Conditions for Setting the DTC

- The PCM detects voltage on the extended travel brake switch circuit when the extended travel brake switch should be open.
- The above condition is present for 1.5 seconds.

Action Taken When the DTC Sets

- The control module stores the DTC information into memory when the diagnostic runs and fails.
- The malfunction indicator lamp (MIL) will not illuminate.
- The control module records the operating conditions at the time the diagnostic fails. The control module stores this information in the Failure Records.
- The driver information center, if equipped, may display a message.

Conditions for Clearing the DTC

- A current DTC Last Test Failed clears when the diagnostic runs and passes.

- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other non-emission related diagnostic.

- Clear the DTC with a scan tool.

Diagnostic Aids

Important:

- Remove any debris from the powertrain control module/throttle actuator control (PCM\TAC) module connector surfaces before servicing the PCM\TAC module. Inspect the PCM\TAC module connector gaskets when diagnosing/replacing the modules. Ensure that the gaskets are installed correctly. The gaskets prevent contaminate intrusion into the PCM\TAC modules.

- For any test that requires probing the PCM or probing a component harness connector, use the connector test adapter kit J 35616 . Using this kit prevents damage to the harness/component terminals. Refer to Using Connector Test Adapters in Wiring Systems.

- Test drive the vehicle if you cannot find a problem with the switch or the circuit. An intermittent condition may be duplicated on a test drive.

- This DTC does not set for an open circuit. If the PCM senses the Extended Travel Brake switch is Applied when the brake pedal is actually released a driveability concern may result.

- If a condition is intermittent, refer to Symptoms - Engine Controls .

Test Description

The numbers below refer to the step numbers on the diagnostic table.

11. An extended travel brake switch signal that indicates Applied when the pedal is actually released may cause a driveability concern.

12. An extended travel brake switch that is not properly adjusted may cause this DTC to set.

13. This step tests for an extended travel brake switch circuit for being shorted to battery voltage.

Step	Action	Value(s)	Yes	No
Schematic Reference: Engine Controls Schematics				
1	Did you perform the Diagnostic System Check-Engine Controls?	--	Go to Step 2	Go to Diagnostic System Check - Engine Controls
2	4. Install a scan tool. 5. Start the engine. 6. Use a scan tool in order to observe the Extended Brake Travel switch parameter. Does the scan tool display Released?	--	Go to Step 3	Go to Step 7

3	5. Depress the brake pedal approximately half way down. 6. Use a scan tool in order to observe the Extended Brake Travel switch parameter. Does the scan tool display Applied?	--	Go to Intermittent Conditions	Go to Step 4
4	Inspect the adjustment of the Extended Travel Brake switch. Refer to Stop Lamp Switch Adjustment in Hydraulic Brakes. Was an adjustment necessary?	--	Go to Step 17	Go to Step 5
5	7. Turn OFF the ignition. 8. Remove the Closeout Panel. Refer to Instrument Panel Insulator Panel Replacement - Right Side and Instrument Panel Insulator Panel Replacement - Left Side in Instrument Panel, Gauges, and Console. 9. Disconnect the Extended Travel Brake switch. 10. Turn ON the ignition, with the engine OFF. 11. Use a scan tool in order to observe the Extended Brake Travel switch parameter. Does the display indicate Applied?	--	Go to Step 14	Go to Step 6
6	7. Turn ON the ignition, with the engine OFF. 8. Measure the voltage on the extended brake travel switch signal circuit at the extended brake travel switch connector using a DMM. Does the voltage measure more than the specified value?	0.5 V	Go to Step 10	Go to Step 16
7	3. Turn OFF the ignition. 4. Remove the Closeout Panel. Refer to Instrument Panel Insulator Panel Replacement - Right Side and Instrument Panel Insulator Panel Replacement - Left Side in Instrument Panel, Gauges, and Console. 5. Disconnect the extended travel brake switch. 6. Turn ON the ignition, with the engine OFF. 7. Probe the ignition 1 voltage circuit at the extended travel brake switch electrical connector using the test lamp J 35616-200 connected to ground. Refer to Probing Electrical Connectors in Wiring Systems. Does the test lamp illuminate?	--	Go to Step 8	Go to Step 11
8	4. Turn OFF the ignition. 5. Jumper the Extended Travel Brake signal circuit to the Extended Travel Brake ignition 1 voltage circuit at the electrical connector. 6. Turn ON the ignition, with the engine OFF. 7. Use a scan tool in order to observe the Extended Brake Travel switch parameter. Does the scan tool display Released?	--	Go to Step 13	Go to Step 9
9	3. Turn OFF the ignition.	--	Go to Step 15	Go to Step 12

	4. Disconnect the PCM connectors. Refer to Powertrain Control Module Replacement . 5. Test the continuity of the signal circuit using the DMM . Refer to Testing for Continuity in Wiring Systems. Does the DMM display continuity?			
10	Repair the short to voltage on the signal circuit. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	--	Go to Step 17	--
11	Repair the open ignition 1 voltage circuit. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	--	Go to Step 17	--
12	Repair the open Extended Travel Brake switch signal circuit. Refer to Wiring Repairs in Wiring Systems. Did you complete the repair?	--	Go to Step 17	--
13	5. Inspect for poor connections at the Extended Travel Brake switch electrical connector. Refer to Testing for Intermittent Conditions and Poor Connections in Wiring Systems. 6. If you find a poor connection, repair the terminal as necessary. Refer to Repairing Connector Terminals in Wiring Systems. Did you find and correct the condition?	--	Go to Step 17	Go to Step 14
14	Replace the Extended Travel Brake switch. Refer to Stop Lamp Switch Replacement in Hydraulic Brakes. Did you complete the replacement?	--	Go to Step 17	--
15	1. Inspect for a poor connection at the PCM. Refer to Testing for Intermittent Conditions and Poor Connections in Wiring Systems. 2. If you find a poor connection, repair the terminal as necessary. Refer to Repairing Connector Terminals in Wiring Systems. Did you find and correct the condition?	--	Go to Step 17	Go to Step 16
16	Replace the PCM. Refer to Powertrain Control Module Replacement . Did you complete the replacement?	--	Go to Step 17	--
17	1. Use the scan tool in order to clear the DTCs. 2. Turn OFF the ignition for 30 seconds 3. Start the engine. 4. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC run and pass?	--	Go to Step 18	Go to Step 2
18	With a scan tool, observe the stored information, Capture Info. Does the scan tool display any DTCs that you have not diagnosed?	--	Go to Diagnostic Trouble Code (DTC) List	System OK

DTC C1292, C1293, or C1296

Circuit Description

The EBCM uses the input from the brake fluid pressure sensor for more accurate braking control during VSES.

Conditions for Running the DTC

C1292
The ignition is ON.
C1293
The vehicle speed is greater than 40 km/h (25 mph).
C1296
The ignition is ON for 1.2 seconds.

Conditions for Setting the DTC

C1292
The brake fluid pressure is less than 345 kPa (50 psi) for 3 deceleration cycles.
C1293
The brake fluid pressure is greater than 345 kPa (50 psi) for 2 consecutive ignition cycles.
C1296
One of the following conditions exists:

- The brake fluid pressure sensor signal is greater than 4.9 volts for 2 minutes.
- The brake fluid pressure sensor signal is less than 0.14 volts for 0.1 seconds.

Action Taken When the DTC Sets

- The EBCM disables the VSES for the duration of the ignition cycle.
- The Traction Control and Active Handling indicator turns ON.
- The DIC displays the Service Active Handling message.
- The ABS remains functional.

Conditions for Clearing the DTC

- The condition for the DTC is no longer present and the DTC is cleared with a scan tool.
- The EBCM automatically clears the history DTC when a current DTC is not detected in 100 consecutive drive cycles.

Diagnostic Aids

- Find out from the driver under what conditions the DTC was set (when the DIC displayed the Service Active Handling message). This information will help to duplicate the failure.
- The Snapshot function on the scan tool can help find an intermittent DTC.
- A deceleration cycle consists of the following sequence:

1. The vehicle speed is greater than 24 km/h (15 mph).
2. The vehicle decelerates more than 8 km/h/second (5 mph/second) for 2 seconds.

3. The vehicle speed decelerates to less than 16 km/h (10 mph).

Test Description

The numbers below refer to the step numbers on the diagnostic table.

3. Tests for the proper operation of the circuit in the low voltage range.
4. Tests for the proper operation of the circuit in the high voltage range. If the fuse in the jumper opens when you perform this test, the signal circuit is shorted to ground.
5. Tests for a short to voltage in the 5 volt reference circuit.
6. Tests for a high resistance or an open in the low reference circuit.

Step	Action	Values	Yes	No
Schematic Reference: Antilock Brake System Schematics *Connector End View Reference: Antilock Brake System Connector End Views*				
1	Did you perform the ABS Diagnostic System Check?	--	Go to Step 2	Go to Diagnostic System Check - ABS
2	7. Install a scan tool. 8. Turn ON the ignition, with the engine OFF. 9. With a scan tool, observe the Brake Fluid Pressure Sensor Input parameter in the VSES data list. Does the scan tool display that the Brake Fluid Pressure Sensor Input parameter is within the specified range?	0.14-4.9 V	Go to Diagnostic Aids	Go to Step 3
3	7. Turn OFF the ignition. 8. Disconnect the brake fluid pressure sensor connector. 9. Turn ON the ignition, with the engine OFF. 10. With the scan tool, observe the Brake Fluid Pressure Sensor Input parameter. Does the scan tool indicate that the Brake Fluid Pressure Sensor Input parameter is less than the specified value?	0.14 V	Go to Step 4	Go to Step 10
4	12. Turn OFF the ignition. 13. Connect a 3 amp fused jumper wire between the 5 volt reference circuit of the brake fluid pressure sensor and the signal circuit of the brake fluid pressure sensor. 14. Turn ON the ignition, with the engine OFF. 15. With the scan tool, observe the Brake Fluid Pressure Sensor Input parameter. Does the scan tool indicate that the Brake Fluid Pressure Sensor Input parameter is greater than the specified value?	4.9 V	Go to Step 5	Go to Step 8
5	9. Disconnect the fused jumper wire.	5 V	Go to Step 6	Go to Step 7

	10. Measure the voltage between the 5 volt reference circuit of the brake fluid pressure sensor and the low reference circuit of the brake fluid pressure sensor. Does the voltage measure less the specified value?			
6	8. Turn OFF the ignition. 9. Disconnect the negative battery cable. Refer to Battery Negative Cable Disconnection and Connection in Engine Electrical. 10. Measure the resistance from the low reference circuit of the brake fluid pressure sensor to a good ground. Does the resistance measure less than the specified value?	5 ohms	Go to Step 12	Go to Step 11
7	Test the 5 volt reference circuit of the brake fluid pressure sensor for a short to voltage. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	--	Go to Step 16	Go to Step 13
8	Test the 5 volt reference circuit of the brake fluid pressure sensor for the following conditions: • An open • A short to ground • A high resistance Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?	--	Go to Step 16	Go to Step 9
9	Test the signal circuit of the brake fluid pressure sensor for the following conditions: • An open • A short to ground • A high resistance Refer to Circuit Testing and	--	Go to Step 16	Go to Step 13

	Wiring Repairs in Wiring Systems. Did you find and correct the condition?				
10	Test the signal circuit of the brake fluid pressure sensor for a short to voltage. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?		--	Go to Step 16	Go to Step 13
11	8. Disconnect the EBCM harness connector. 9. Install the J 39700 universal pinout box using the J 39700-300 cable adapter to the EBCM harness connector only. 10. Test the low reference circuit of the brake fluid pressure sensor for a high resistance or an open. Refer to Circuit Testing and Wiring Repairs in Wiring Systems. Did you find and correct the condition?		--	Go to Step 16	Go to Step 13
12	Inspect for poor connections at the harness connector of the brake fluid pressure sensor. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?		--	Go to Step 16	Go to Step 14
13	Inspect for poor connections at the harness connector of the EBCM. Refer to Testing for Intermittent Conditions and Poor Connections and Connector Repairs in Wiring Systems. Did you find and correct the condition?		--	Go to Step 16	Go to Step 15
14	Replace the brake fluid pressure sensor. Refer to Brake Fluid Pressure Sensor Replacement . Did you complete the repair?		--	Go to Step 16	--
15	Replace the EBCM. Refer to Electronic Brake Control Module Replacement . Did you complete the repair?		--	Go to Step 16	--
16	6. Clear the DTCs using the scan tool. 7. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text. Does the DTC reset?		--	Go to Step 2	System OK