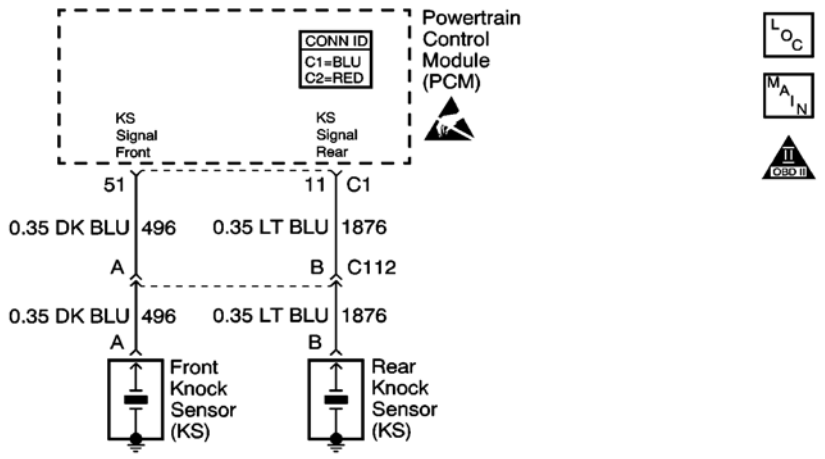
DTC P0332 Knock Sensor (KS) 2 Circuit



Circuit Description

The knock sensor (KS) system detects engine pre-detonation. The powertrain control module (PCM) retards the spark timing based on the signals from the knock sensors. The knock sensors produce an AC voltage when specific frequencies are detected. The knock sensor voltages are an input to the PCM. The amount of AC voltage produced is proportional to the intensity of the knock.

An operating engine produces a normal amount of engine mechanical vibration. The knock sensors produce an AC voltage signal from this noise. When an engine operates, the PCM learns the minimum and maximum frequency of the noise that the engine produces. When the PCM determines that this frequency is less than or more than the expected amount, a knock sensor diagnostic trouble code (DTC) sets.

Conditions for Running the DTC

- The engine speed is between 1,500 RPM and 3,000 RPM.
- The MAP is less than 44 kPa.
- The engine coolant temperature(ECT) is more than 60°C (140°F).
- The throttle angle is more than 0.5 percent.
- The engine run time is more than 20 seconds.

Conditions for Setting the DTC

The PCM determines that this frequency is less than or more than the expected amount for less than 3 seconds.

Action Taken When the DTC Sets

- The PCM illuminates the malfunction indicator lamp (MIL) on the second consecutive ignition cycle that the diagnostic runs and fails.
- The PCM records the operating conditions at the time the diagnostic fails. The first time the diagnostic fails, the

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

Conditions for Clearing the MIL/DTC

- The PCM turns OFF the malfunction indicator lamp (MIL) after 3 consecutive ignition cycles that the diagnostic runs and does not fail.
- A last test failed, or current DTC, clears when the diagnostic runs and does not fail.
- A history DTC clears after 40 consecutive warm-up cycles, if no failures are reported by this or any other emission related diagnostic.
- Use a scan tool in order to clear the MIL and the DTC.

Diagnostic Aids

Important

Remove any debris from the PCM connector surfaces before servicing the PCM. Inspect the PCM connector gaskets when diagnosing or replacing the PCM. Ensure that the gaskets are installed correctly. The gaskets prevent water intrusion into the PCM.

Check the knock sensor for proper installation. A knock sensor that is loose or over torqued may cause the DTC P0332 to set.

If DTCs P0327 and P0332 are set at the same time, inspect for poor connections at the KS harness jumper located at the left side of the intake manifold.

For an intermittent, refer to Symptoms .

Test Description

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

2. This verifies the malfunction is present. The scan tool will display DTC Ran=Yes and Pass=Int if the failure is intermittent. This indicates the diagnostic passed this ignition cycle and failed this ignition cycle. At this point the resistance of the knock sensors should be verified to be in the correct range. If the knock sensor resistances are correct, inspect the KS system wiring connections. When inspecting the KS system connections, start at the KS system jumper harness connector located on the left side of the intake manifold. Then inspect the connections at the PCM. Refer to the wiring schematic for the correct connector and terminal. Then inspect the connections at the appropriate knock sensor. Failure Records data does not include the parameter KS activity, however other parameters may aid in locating the conditions under which an intermittent occurred.

3. This test will isolate the knock sensor from the rest of the circuit.

4. Tap on the engine block near the appropriate knock sensor.

Step	Action	Value(s)	Yes	No
1	Did you perform the Powertrain On-Board Diagnostic (OBD) System Check?	--	Go to Step 2	Go to Powertrain On Board Diagnostic (OBD) System Check
	Important If an engine knock can be heard, repair the engine mechanical condition before proceeding with this diagnostic. Refer to Engine			

2	Noise Diagnosis in Engine Mechanical 4.8L, 5.3L, 6.0L. 1. Turn ON the ignition, with the engine OFF. 2. Review the Freeze Frame and Failure Records data for this DTC and observe the parameters. 3. Turn OFF the ignition for 15 seconds. 4. Start the engine. 5. Operate the vehicle within the conditions required for this diagnostic to run, and as close to the conditions recorded in Freeze Frame and Failure Records as possible. Special operating conditions that you need to meet before the PCM will run this diagnostic, where applicable, are listed in Conditions for Running the DTC. 6. Select the Diagnostic Trouble Code (DTC) option and the Specific DTC option, then enter the DTC number using the scan tool. Does the scan tool indicate that this diagnostic failed this ignition?	--	Go to Step 3	Go to Diagnostic Aids
3	1. Remove the intake manifold sight shield. 2. Disconnect the knock sensor jumper harness connector located on the left side of the intake manifold. 3. Set the DMM to the 400K ohm scale. 4. Measure the resistance of the appropriate knock sensor using the DMM connected to battery ground. Is the resistance of the knock sensor within the specified range?	93-107K ohms	Go to Step 4	Go to Step 6
4	1. Connect the DMM between the appropriate knock sensor signal circuit on the sensor side and the engine block. 2. Set the DMM to the AC voltage scale. **Important** Do not tap on plastic engine components. 3. Tap on the engine block near the appropriate knock sensor while observing the signal indicated on the DMM. Is any signal indicated on the DMM while tapping on the engine block near the knock sensor?	--	Go to Step 5	Go to Step 7
5	1. Disconnect the PCM connector C1 located on the same side as the manufacturers logo. Refer to Powertrain Control Module (PCM) Replacement . 2. Test the KS signal circuit between the PCM and the knock sensor connector for the following: ○ An open ○ A short to voltage ○ A short to ground Did you find and correct the condition?	--	Go to Step 10	Go to Step 8
	1. Remove the intake manifold. Refer to Intake Manifold Replacement in Engine Mechanical 4.8L, 5.3L, 6.0L. 2. Test for an open or a short to ground in the signal circuit between the knock sensor jumper harness connector,			

6	located at the left side of the intake manifold and the knock sensor connector. Did you find and correct the condition?	--	Go to Step 10	Go to Step 7
7	Replace the knock sensor. Refer to Knock Sensor (KS) Replacement . Is the action complete?	--	Go to Step 10	--
8	1. Inspect the KS signal circuit for a poor connection at the PCM. Refer to Testing for Intermittent and Poor Connections in Wiring Systems. 2. If you find a poor connection, repair the connector as necessary. Refer to Connector Repairs in Wiring Systems. Did you find and correct the condition?	--	Go to Step 10	Go to Step 9
9	**Important:** The replacement PCM must be programmed. Replace the PCM. Refer to Powertrain Control Module (PCM) Replacement . Is the action complete?	--	Go to Step 10	--
10	1. Select the Diagnostic Trouble Code (DTC) option and the Clear DTC Information option using the scan tool. 2. Idle the engine at the normal operating temperature. 3. Select the Diagnostic Trouble Code (DTC) option and the Specific DTC option, then enter the DTC number using the scan tool. 4. Operate the vehicle within the Conditions for Running the DTC as specified in the supporting text, if applicable. Does the scan tool indicate that this test ran and passed?	--	Go to Step 11	Go to Step 2
11	Select the Capture Info option and the Review Info option using the scan tool. Does the scan tool display any DTCs that you have not diagnosed?	--	Go to the applicable DTC table	System OK