DTC P0340 Camshaft Position (CMP) Sensor Circuit

Circuit Description

The camshaft position (CMP) sensor is used to indicate the camshaft position. The VCM uses the CMP sensor in order to determine which cylinder is misfiring. This DTC is also used to check for a properly installed high voltage switch. This is a type B DTC.

Conditions for Setting the DTC

- The DTC will set if the engine is running and the cam sensor reference pulse is not seen once every complete revolution of the camshaft.
- The above condition is present for more than 1.75 seconds.

Action Taken When the DTC Sets

The VCM turns the malfunction indicator lamp (MIL) ON after 2 consecutive driving cycles with the fault active.

Conditions for Clearing the MIL/DTC

The VCM turns OFF the MIL after 3 consecutive driving trips without a fault condition present. A history DTC will clear if no fault conditions have been detected for 40 warm-up cycles, the coolant temperature has risen 22°C (40°F) from the start-up coolant temperature and the engine coolant temperature exceeds 71°C (160°F) during that same ignition cycle, or the scan tool clearing feature has been used.

Diagnostic Aids

- A poor connection, rubbed through wire insulation, or a wire that is broken inside the insulation may cause an intermittent.
- Thoroughly check any circuitry that is suspected of causing the intermittent complaint. Check for the following conditions:
  - Backed out terminals
  - Improper mating
  - Broken locks
  - Improperly formed or damaged terminals
  - Poor terminal to wiring connections or
  - Physical damage to the wiring harness
  - Refer to Intermittent Conditions .

Test Description

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

2. This step determines if the DTC P0340 is the result of a hard failure or an intermittent condition.

3. Determines if the voltage is available to the CMP through the VCM.

4. If the feed circuit is shorted to ground, the test lamp will be ON. This step determines if the circuit is open or shorted to ground. If the circuit is OK, then the VCM connections or VCM is faulty.

Step	Action	Value (s)	Yes	No
1	**Important:** Before clearing the DTCs, use the scan tool to record the Freeze Frame and the Failure Records for reference. This data will be lost when the Clear Info function is used. Was the Powertrain On-Board Diagnostic (OBD) System Check performed?	--	Go to Step 2	Go to Powertrain On Board Diagnostic (OBD) System Check
2	1. Allow the engine to idle. 2. Install the scan tool. 3. Record the freeze frame and failure records for DTC. 4. Wait 1 minute with the engine idling. 5. Observe the last test failed for the DTC that was recorded in the freeze frame. 6. If failed, turn the engine OFF and restart. Is malfunction indicator lamp (MIL) on?	--	Go to Step 3	Go to Step 8
3	1. Turn ON the ignition, with the engine off. 2. Disconnect the camshaft position (CMP) sensor electrical connector. 3. With a test lamp connected to a ground, probe the cavity C of the connector. Is the test lamp?	--	Go to Step 4	Go to Step 9
4	Jumper the test lamp between cavities A and C of the CMP sensor connector, engine side. Is the test lamp ON?	--	Go to Step 5	Go to Step 11
5	1. Turn OFF the ignition. 2. Install the gray jumpers from J 35616 GM Approved Terminal Test Kit. 3. Allow the engine run. 4. Using a DVM, measure voltage on the 1X cam signal circuit. Is the voltage between the specified value?	5-7 V	Go to Step 15	Go to Step 6
	Inspect the CMP sensor signal circuit for an			

6	open. Was a problem found?	--	Go to Step 13	Go to Step 7
7	Inspect the CMP sensor signal circuit for a short. Was a problem found?	--	Go to Step 13	Go to Step 12
8	DTC is intermittent. If no other DTCs are stored, refer to the Diagnostic Aids.	--	Go to Step 17	--
9	Check for an open in the Camshaft Position sensor feed circuit. Was a problem found?	--	Go to Step 13	Go to Step 10
10	Repair short to ground in the Camshaft Position sensor feed circuit. Is the action complete?	--	Go to Step 17	--
11	Repair open in the Camshaft Position sensor Low circuit. Is the repair complete?	--	Go to Step 17	--
12	Check for a faulty connection at the Camshaft Position sensor. Was a problem found?	--	Go to Step 13	Go to Step 14
13	Repair the circuit as necessary. Is the action complete?	--	Go to Step 17	--
14	Replace the Camshaft Position sensor. Is the action complete?	--	Go to Step 17	--
15	Check for a faulty connection at the VCM. Was a problem found?	--	Go to Step 13	Go to Step 13
16	Replace the VCM. **Important:** If the VCM is faulty, reprogram the VCM. Refer to Vehicle Control Module . Is the replacement complete?	--	Go to Step 17	--
17	1. Using the scan tool, select the DTC and the Clear Info. 2. Start the Engine. 3. Idle at the normal operating temperature. 4. Select the DTC and the Specific. 5. Enter the DTC number which was set. 6. Operate the vehicle within the conditions for setting this DTC as	--		

	specified in the supporting text. Does the scan tool indicate that this diagnostic ran and passed?		Go to Step 18	Go to Step 2
18	Using the scan tool, select the Capture Info and the Review Info. Are any DTCs displayed that have not been diagnosed?	--	Go to The Applicable DTC Table	System OK