

P0394: CAMSHAFT POSITION SENSOR "B" CIRCUIT INTERMITTENT (BANK 2)

OVERVIEW

Severity	:	High
DIY Difficulty Level	:	Intermediate
Repair Cost	:	\$200-\$400
Can I Still Drive?	:	No

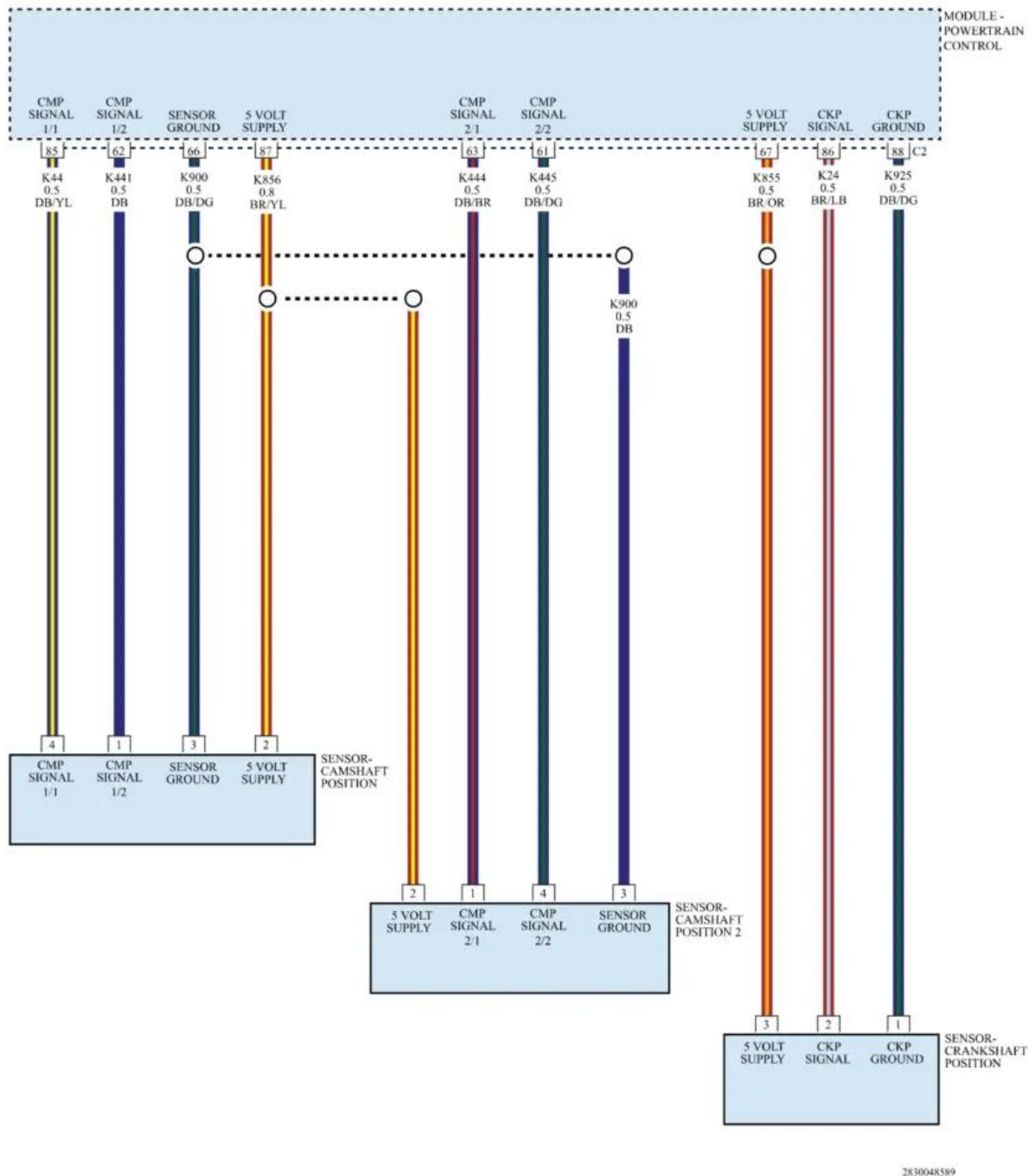
What Does The P0394 Code Mean?

This is a generic powertrain diagnostic trouble code (DTC), which means it covers all makes/models starting around 2003. Specific troubleshooting steps will vary depending on the vehicle.

These vehicles can have a single camshaft in block, or a single (SOHC) or dual (DOHC) overhead camshafts, but this code is strictly concerned about the incoming signal from the camshaft position sensor(s) "B" from Bank 2 being missing at some point when it is not supposed to be. This is an electrical circuit fault, and it is intermittent in nature. It is not there all the time. Bank #2 is the bank of the engine that does not contain cylinder #1.

The PCM uses the Camshaft Position Sensor to tell it when the Crankshaft Sensor signal is correct, when a given Crankshaft Position Sensor signal is timed to Cylinder #1 for timing, and it is also used for fuel injector synchronization / start of injection.

Codes [P0390](#) or [P0391](#) may also be present at the same time as the P0394. The only difference between these 3 codes is how long the problem lasts and the type of electrical problem that the sensor/circuit/engine controller is having. Troubleshooting steps may vary depending upon manufacturer, type of camshaft position sensor and wire colors.



P0394 wiring diagram

What Are The Symptoms Of The P0394 Code?

Symptoms of a P0394 engine code may include:

- Check Engine Light on
- Intermittent bucking or surging

- Intermittently Dies out, but will immediately restart

What Are The Potential Causes Of The P0394 Code?

Typically the causes for this code are:

- Intermittent open in the power supply circuit to the camshaft position sensor "B"
- Intermittent short to ground in the power supply circuit to the camshaft position sensor "B"
- Intermittent open in the ground circuit to the camshaft position sensor "B"
- Intermittent open in the signal circuit to the camshaft position sensor
- Intermittent short to 5 volts in the signal circuit to the camshaft position sensor
- Intermittent short to ground in the signal circuit to the camshaft position sensor
- Camshaft Position Sensor tone ring damage
- Occasionally-Crankshaft Position Sensor producing intermittent signals

How Can You Fix The P0394 Code?

A good starting point is always a technical service bulletin (TSB) search for your particular vehicle. The vehicle manufacturer may have a PCM flash/reprogram to cover this issue, and it pays to check on this before you find you've gone down a long/wrong path.

Next, locate both Camshaft "B" and Crankshaft Position Sensors on your particular vehicle. Once located, visually inspect the connectors and wiring. Look for chafing, rubbing, bare wires, burn spots or melted plastic. Pull the connectors apart and carefully inspect the terminals (the metal parts) inside the connectors. See if they look corroded, burnt or possibly green in color versus the normal metal color you are probably used to seeing. You can get some Electrical Contact cleaner at any parts store if cleaning of the terminals is needed. If this is not possible, find some 91% rubbing alcohol and a light plastic bristle brush to clean them with. Afterwards let them air dry, get some dielectric silicone compound (same stuff they use for light bulb sockets and spark plug wires) and put some where the terminals come into contact.

If you have a scan tool, clear the diagnostic trouble codes from memory, and see if this code returns. If it does not, then the connections were most likely your problem.

If the code does return, we will need to test the sensor and its associated circuits. The next steps will be determined by which type of sensor you have: Hall Effect or Magnetic Pick up. You can typically tell which one you have by the number of wires coming from the sensor. If there are 3 wires from the sensor, it is a Hall Effect sensor. If it has 2 wires, it will be a Magnetic Pick up style sensor.

Hall Effect Sensor

If it is a Hall Effect sensor, disconnect the harness going to the Camshaft and the Crankshaft

Position Sensors. With a Digital Volt Ohm Meter (DVOM), test the 5V power supply circuit going to each sensor to insure it is being powered up (Red lead to the 5V power supply circuit, black lead to a good ground). If there is no 5 volts to the sensor, repair the wiring from the PCM to the sensor, or possible a bad PCM.

If that's OK, with a DVOM, check to make sure you have 5V on each signal circuit going to each sensor to insure it has a signal circuit (Red lead to the sensor signal circuit, black lead to a good ground). If there is no 5 volts to the sensor, repair the wiring from the PCM to the sensor, or possible a bad PCM.

If that's OK, check to make sure you have a good ground at each sensor. Connect a test light to 12V and touch the other end of the test light to the ground circuit going to each sensor. If the test light does not light up, this would indicate the problem circuit. If it does light up, wiggle the wiring harness going to each sensor to see if the test light flickers, indicating an intermittent connection.

Magnetic Pickup Style Sensor

If it is a Magnetic Pickup style sensor, we can check the sensor itself to see if it is working properly. We will test it for:

- Resistance
- A/C voltage output
- Short to ground

With the sensor disconnected, connect the two leads of your ohmmeter to the 2 terminals of the Camshaft / Crankshaft Position Sensor. Read the ohms resistance and compare it to specifications for your vehicle: typically 750 – 2000 ohms.

While still on ohms, disconnect 1 lead of your ohmmeter from the sensor and connect it to a good ground on the vehicle. If you get any ohms reading other than infinite or OL, the sensor has an internal short to ground. Remember not to touch the metal part of the leads with your fingers, as this may affect your readings.

Reconnect the two leads of your DVOM to the 2 terminals of the Camshaft / Crankshaft Position Sensor. Set your meter to read A/C voltage. While cranking the engine over, read the a/c voltage output on your DVOM. Compare to manufacturers specifications for your vehicle. A good rule of thumb is generally .5V AC.

Related Camshaft Trouble Codes: [P0340](#), [P0341](#), [P0342](#), [P0343](#), [P0345](#), [P0346](#), [P0347](#), [P0348](#), [P0349](#), [P0365](#), [P0366](#), [P0367](#), [P0368](#), [P0369](#), [P0390](#), [P0392](#), [P0393](#), [P0394](#).

Reference Sources

[P0394 Camshaft Position Sensor "B" Circuit Intermittent Bank 2](#), OBD-Codes.