

[Potential Symptoms of A Failed Camshaft Or Crankshaft Sensor]

- Scan Tool – P0335 To P0349 Codes
- Scan Tool – No RPM Present During Cranking
- Ignition System – Engine Misfire
- Ignition System – Poor Idle Quality
- Ignition System – Hard Starting
- Ignition System – No Spark
- Fuel System – Stalling
- Fuel System – Poor Power
- Fuel System – No Fuel Injector Pulse
- Fuel System – Poor Fuel Economy

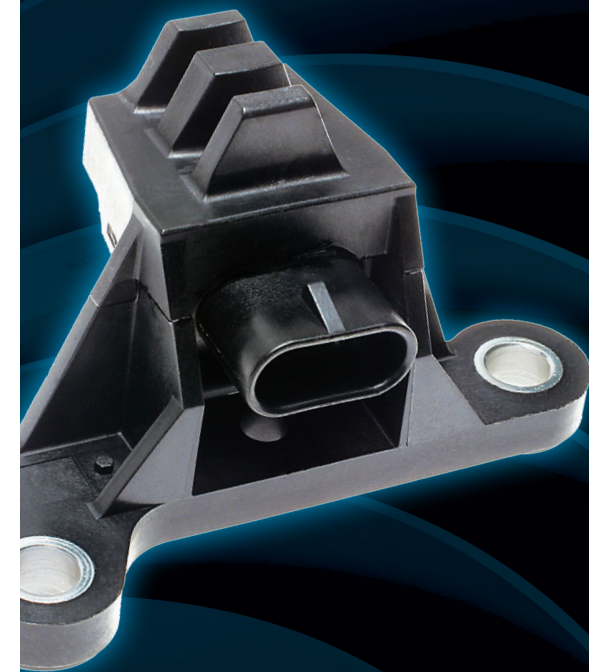
TIP - Chrysler engines require very precise CKP and CMP synchronization. A lack of proper synchrony will lead to a variety of engine performance symptoms. The CMP and CKP Synch data PIDs can mislead you so the best way to check the alignment of the sensors is with a dual trace lab scope. On engines prior to NGC (4 plug PCM) the rule of thumb is that the CMP pulses should fall between the CKP pulses.



Camshaft and Crankshaft Sensors

[Features and Benefits]

NAPA® Echlin® designs and manufactures camshaft (CMP) and crankshaft (CKP) sensors to be equal to or better than the failed OE component that requires replacement. Our Hall effect CMP & CKP sensors contain an integrated A/D inverter with a dynamic adaptive switch point that provides accurate digital signal processing while improving signal accuracy and response. Additionally, we include advanced circuitry protection within our sensors which increases their resistance to electro-magnetic interference (EMI). Our camshaft and crankshaft sensors are manufactured in one of our TS16949 certified North American or European manufacturing facilities. All of these sensors go through extensive testing throughout production and are 100% end-of-line tested to ensure proper signal frequency, amplitude, and timing.



What Do Camshaft and Crankshaft Sensors Do?

These sensors monitor the position of the engine's crankshaft and camshaft by generating an electrical signal based on the position of the trigger wheel (variable reluctance sensor) or metal rotor (Hall effect sensor). This information is used by the ignition control module and/or the engine control computer for the sequencing of ignition timing and fuel injector timing.

What Are the Different Types of Camshaft and Crankshaft Sensors?

Hall effect sensors are most commonly used in automotive applications for measuring the speed of a rotating object, such as a wheel, crankshaft, or camshaft. Hall effect sensors are chosen for their accuracy across the entire speed range, along with their resistance to dirt, mud, water, and rust. These are constructed of a stationary permanent magnet and semiconductor which contains an analog to digital (A/D) signal inverter. The A/D inverter produces the square wave electrical signal which is interpreted by the vehicle's electronic controls to determine the position of the engine's camshaft or crankshaft.

A variable reluctance sensor is an analog signal generating sensor that is comprised of a permanent magnet and a pole piece. As the metal cog of the tone ring or reluctor wheel passes the tip of the sensor, a signal is generated and it drops as the cog moves away. The signal strength increases with the speed and proximity of the sensor to the tone ring.

A magnetoresistive sensor is a device that uses a magnetic field to transform mechanical motion into an electrical signal. It requires a power source to operate. This type of sensor is found in CMP, CKP, ABS, and steering wheel speed sensors due to its increased accuracy and resistance to electromagnetic interference (EMI).

How To Determine If A Camshaft (CMP) or Crankshaft Sensor Is Malfunctioning?

- Analysis of the CKP or CMP sensor's electrical signal waveform on a lab scope
- Physical inspection of the sensor and related components

