Crankshaft Position Sensor Diagnostics

Over 80% of the Crankshaft Position Sensors (CKP) returned under warranty are tested and **N**o **T**rouble is **F**ound. There can be several common reasons for misdiagnosis and/or replacement of a good working part. The following troubleshooting tips are common practice and apply to most situations including CKP diagnosis.

When following diagnostic flowcharts or using Pinpoint or Guided Diagnostics to correct historic DTC's, keep the following message in mind, it can be found in the Electrical Diagnostic Manuals:

"Diagnostic charts are designed for use with current trouble codes and as a result they frequently suggest part replacement. When diagnosing a historic code the charts can be helpful but should not lead to part replacement without verification the part is faulty."

The best practice to follow is always to check for any DTC's , write them down, clear them and then test ride and see if any reset under run conditions as customer has indicated.

When performing diagnostic electrical checks, some things to remember are:

- One megohm is very high resistance. Some meters will read OL, OPEN, etc. When asked if the resistance is greater than 1 megohm, we are checking to make sure there is no continuity. Generally we are checking for a short to ground, and we hope to have OL.

- The CKP is used to determine engine speed, so the presence of engine speed at Digital Tech, a Scanalyzer or an onboard tachometer, indicates CKP signal is present.

- Engine must be cranked for more than five seconds without CKP signal to set a DTC. The DTC indicates that something within the crank sensor circuit is a problem (this includes connections at ECM, vehicle harness and connectors and sensor itself).

- Engine will not spark with both spark plugs removed. When checking for spark, use SPARK TESTER (Part No. HD-26792) with both plugs installed. Additionally acceptable engine compression must be present or no spark will occur.

- If the resistance across the terminals is 600-1200 ohms and the sensor is magnetized, it's very unlikely that the CKP is the issue.

- A check for AC voltage at breakout box (more than 1 ACV) also indicates a functioning CKP.

- If a CKP signal is not detected or cannot synchronize (DTC P0374), engine will not start. So, if you have an engine that runs, has spark or engine speed detected by ECM, it is unlikely you have a faulty CKP.

- Inaccurate MAP sensor fluctuations occurring , due to faulty wiring for example, while engine is running , may cause CKP code to be set (even when MAP code is not present)

- It is possible for a CKP (or other sensors) to have intermittent heat related failures. If this occurs, testing of the component while hot should still reveal a failed component, such as no AC voltage while cranking, or resistance values outside the normal range.

- CKP sensors are heated and tested when returned for warranty.