

Service Information
Crankshaft Position System Variation Learn

- 1. Install a scan tool.
- Monitor the engine control module (ECM) for DTCs with a scan tool. If other DTCs are set, except DTC P0315, refer to <u>Diagnostic Trouble Code (DTC) List</u> <u>- Vehicle</u> for the applicable DTC that set.
- 3. Select the crankshaft position (CKP) variation learn procedure with a scan tool.
- 4. The scan tool instructs you to perform the following:
 - 4.1. Accelerate to wide open throttle (WOT).
 - 4.2. Release throttle when fuel cut-off occurs.
 - 4.3. Observe fuel cut-off for applicable engine.
 - 4.4. Engine should not accelerate beyond calibrated RPM value.
 - 4.5. Release throttle immediately if value is exceeded.
 - 4.6. Block drive wheels.
 - 4.7. Set parking brake.
 - 4.8. DO NOT apply brake pedal.
 - 4.9. Cycle ignition from OFF to ON.
 - 4.10. Apply and hold brake pedal.
 - 4.11. Start and idle engine.
 - 4.12. Turn A/C OFF.
 - 4.13. Vehicle must remain in Park or Neutral.

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- 4.14. The scan tool monitors certain component signals to determine if all the conditions are met to continue with the procedure. The scan tool only displays the condition that inhibits the procedure. The scan tool monitors the following components:
 - CKP sensors activity--If there is a CKP sensor condition, refer to the applicable DTC that set.
 - Camshaft position (CMP) sensor activity--If there is a CMP sensor condition, refer to the applicable DTC that set.
 - Engine coolant temperature (ECT)--If the ECT is not warm enough, idle the engine until the engine coolant temperature reaches the correct temperature.
- 21. Enable the CKP System Variation Learn Procedure with a scan tool.

Important: While the learn procedure is in progress, release the throttle immediately when the engine starts to decelerate. The engine control is returned to the operator and the engine responds to throttle position after the learn procedure is complete.

- 22. Accelerate to WOT.
- 23. Release when the fuel cut-off occurs.
- 24. Test in progress.
- 25. The scan tool displays Learn Status: Learned this ignition. If the scan tool indicates that DTC P0315 ran and passed, the CKP Variation Learn Procedure is complete. If the scan tool indicates DTC P0315 failed or did not run, refer to <u>DTC P0315</u>. If any other DTCs set, refer to <u>Diagnostic Trouble Code (DTC)</u> <u>List - Vehicle</u> for the applicable DTC that set.
- 26. Turn OFF the ignition for 30 seconds after the learn procedure is completed successfully.
- 27. The CKP Variation Learn Procedure is also required when the following service procedures have been performed, regardless of whether DTC P0315 is set:
 - A CKP sensor replacement
 - An engine replacement
 - A ECM
 replacement
 - A harmonic balancer replacement
 - A crankshaft
 replacement
 - Any engine repairs which disturb the CKP sensor relationship

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