
Quick Test Description

Quick Test is divided into eight specialized tests:

1. Retrieve/Clear Continuous DTCs
2. Key On Engine Off (KOEO) On-Demand Self Test
3. Key On Engine Off (KOEO) Injector Electrical Self Test
4. Key On Engine Off (KOEO) Output State Self Test
5. Key On Engine Running (KOER) On-Demand Self Test
6. Key On Engine Running (KOER) Switch Self Test
7. Key On Engine Running (KOER) Cylinder Contribution Self Test
8. Key On Engine Running (KOER) Glow Plug Monitoring Self Test

All eight are described below.

Quick Test checks the integrity and function of the EEC-V Powertrain Control system and outputs the test results upon demand. Quick Test also provides a quick end check of the powertrain control system and is usually performed at the start of each diagnostic procedure. It is also performed at the end of most pinpoint tests for verification of repair and to make sure no other faults were incurred while servicing a previous fault.

All self tests are completely menu driven in the New Generation Star (NGS) Tester.

Note: Retrieving continuous DTCs must be performed separately from KOEO Quick Tests.

Retrieve/Clear Continuous DTCs

Retrieve/Clear Continuous DTCs is a functional test of the PCM. DTCs can be retrieved or cleared with the key on and the engine off or running. Unlike KOEO and KOER self tests, which can only be activated on demand, the Continuous monitor is always active in monitoring the system. When a fault is detected, a code will be stored in memory to be retrieved at a later date, making it possible to diagnose intermittent faults. For California vehicles, P1000 DTC may be the only code displayed, indicating an incomplete OBD II drive cycle (more drive time needed). The IDM stores both historical and hard IDM fault codes. To retrieve IDM fault codes, you must run KOEO On Demand Self Test or KOEO Injector Electrical Self Test. The only way to clear IDM DTCs is to Clear Continuous even though IDM codes do not show up on the Continuous display.

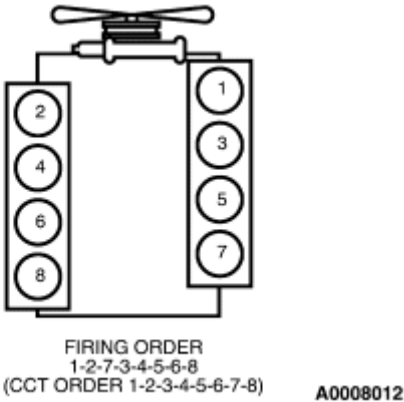
Key On Engine Off (KOEO) On-Demand Self Test

Key On Engine Off (KOEO) On-Demand Self Test is a functional test of the PCM performed on demand with the key on and the engine off. This test will check that all inputs and outputs (circuits, sensors, regulators, relays and solenoids) connected to the PCM are electrically operating without fault, with the exception of the Injector Driver Module DTCs. The IDM stores both historical and hard IDM fault codes; to ensure that IDM DTC is a hard fault, you must first clear continuous DTCs (be sure to record all fault codes before clearing). After clearing, rerun self test; a fault must be present at the time of testing for the KOEO On Demand Self Test to detect the fault. If a fault is detected, a Diagnostic Trouble Code (DTC) will be the output on the data link at the end of the test when requested by a scan tool. Only a hard fault code (DTC) will be displayed.

Key On Engine Off (KOEO) Injector Electrical Self Test

Key On Engine Off (KOEO) Injector Electrical Self Test is a functional test of the PCM performed on demand with the key on and the engine off. This test determines if the injector circuits and solenoids are electrically operating without fault. All injectors will first buzz (audible feedback of the injector solenoids energizing the injector valves) together for approximately 2 seconds, then each injector will buzz for approximately 1 second in numerical order (1 through 8). The IDM stores all historical IDM fault codes; to ensure that the DTC is a hard fault, you must first clear continuous DTCs (be sure to record all IDM fault codes before clearing). After clearing, rerun self test; a fault must be present at the time of testing for the KOEO Injector Electrical Self Test to detect the fault. If a fault is detected, a Diagnostic Trouble Code (DTC) will be the output on

the data link at the end of the test when requested by a scan tool. Only a hard fault code (DTC) will be displayed.



Key On Engine Off (KOEO) Output State Self Test

Key On Engine Off (KOEO) Output State Self Test is a functional test of the PCM performed on demand with the key on and the engine off. This test is designed to cycle outputs high and low. After pressing the trigger to start the test, you must then depress and release the accelerator pedal to cycle the outputs high: solenoids, wait to start lamp, IDM relay, TCIL, FDCS, CID and EF. The second time the accelerator pedal is depressed and released the outputs are cycled low, with the exception of the glow plug relay, which is cycled on for 5 seconds the first time only that the accelerator is pressed and released. This Self Test does not set any codes.

Key On Engine Running (KOER) Switch Self Test

Key On Engine Running (KOER) Switch Self Test is a functional test of the PCM performed on demand with the engine running. This test is designed to set DTC(s) if the test does not detect a transition on one or more of the switches. After pressing the trigger to start the test, wait 5 seconds before running through the driver-operated controls to eliminate the chance of setting a false IVS code. The accelerator pedal must first be depressed and released to begin test, then the Parking Brake, Speed Control ON, OFF, SET, RESUME, COAST, Transmission Control or Clutch. The last to be depressed and released must be the brake pedal, which will test both the brake pressure applied (BPA) switch and the brake ON/OFF (BOO) switch.

Key On Engine Running (KOER) On-Demand Self Test

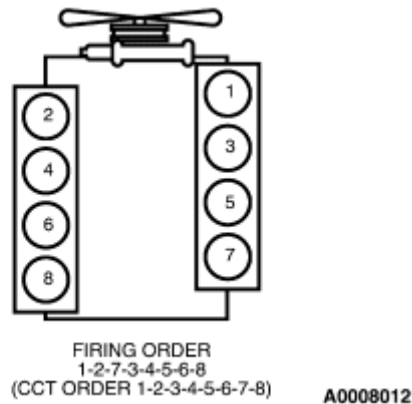
Note: On F-Series 650/750, only the injection control pressure (ICP) check is performed.

Key On Engine Running (KOER) On-Demand Self Test is a functional test of the PCM performed on demand with the engine running. Temperature is not a factor, but A/C must be turned off. A check is made on the injection control pressure (ICP), exhaust back pressure (EBP), and manifold intake air heater (MIAH) systems. During this test, engine rpm will increase; the PCM will first command ICP high and low, then command EBP high and low. A fault must be present at the time of testing for the KOER On Demand Self Test to detect a fault. If a fault is detected, a Diagnostic Trouble Code (DTC) will be the output on the data link at the end of the test when requested by a scan tool. Only a hard fault code (DTC) will be displayed.

Key On Engine Running (KOER) Cylinder Contribution Self Test

Key On Engine Running (KOER) Cylinder Contribution Self Test is a functional test of the PCM performed on-demand with the engine running, A/C off and engine oil temperature above 21°C (70 °F). This test will determine if all cylinders are contributing equally to engine performance. The PCM will test all 8 cylinders continuously during the test; there is no change in engine speed or operation that can be detected by the technician. The test checks for cylinder-to-cylinder changes in engine rpm, and sets a code if the rpm change is not within a pre-calibrated range. The test checks for weak injectors or low compression cylinders. A fault must be present at the time of testing for the KOER Cylinder Contribution Self Test to detect a

fault, so the engine operating condition at which the idle is the worst will produce the best test results. For automatic transmission vehicles, the best results are reached with the parking brake set and the transmission in DRIVE. If a fault is detected, a Diagnostic Trouble Code (DTC) will be output on the data link at the end of the test when requested by a scan tool. Only a hard fault code (DTC) will be displayed.



Key On Engine Running (KOER) Glow Plug Monitor Self Test

Note: This test is not performed on F-Series 650/750.

Key On Engine Running (KOER) Glow Plug Monitor Self Test (California and Excursion) is a functional test of the glow plug system performed on demand with the engine running and the A/C off. The test will maintain a system voltage of 10-14 volts. If necessary, press the accelerator pedal to increase voltage to the specified level. The PCM will activate the Glow Plug Control Module (GPCM) and monitor the glow plug circuits. A fault must be present at the time of testing for the test to detect a fault. The trouble codes will be sent to the PCM on the diagnostic line and then output to the NGS.

MIL DTCs

MIL DTCs are generated to alert the driver that there is a concern with the system or the vehicle is in Failure Management Effects Mode (FMEM). MIL DTCs are also used to indicate an emission concern for California vehicles. Non-MIL DTCs indicate a less serious or non-emission related concern with the system.
