

Quick Test Description

Note: Verify the power take off (PTO) system or auxiliary idle control (if equipped) is off when trying to carry out the self-tests.

The Quick Test is carried out by retrieving the key ON engine OFF (KOEO), key ON engine running (KOER), and continuous memory DTCs.

The Quick Test checks the integrity and function of the PCM and outputs the test results upon demand. The Quick Test also provides a quick end check of the powertrain control system and is usually carried out at the start of each diagnostic procedure. It is also carried out at the end of the pinpoint tests for verification of repair and to make sure no other concerns were incurred while repairing a previous concern.

Key ON Engine OFF (KOEO) Self-Test

The KOEO self-test is a functional test of the PCM carried out with the ignition ON and the engine OFF. This test checks that all inputs and outputs (circuits, sensors, regulators, relays, and solenoids) connected to the PCM are electrically operating without a concern.

Key ON Engine Running (KOER) Self-Test

The KOER self-test is a functional test of the PCM carried out with the engine running. The engine must be at operating temperature for the KOER self-test to operate. A check is made on the fuel rail pressure (FRP) sensor, turbocharger, and exhaust gas recirculation (EGR) systems. During this test, the engine RPM may vary. The brake pedal position (BPP) test is a part of the KOER self-test and must be carried out during this operation. A concern must be present at the time of testing for the KOER self-test to detect a concern. If a concern is detected, a DTC is output on the data link at the end of the test when requested by the scan tool.

Brake Pedal Position (BPP) Test

The BPP test checks the ability of the EEC system to detect a change of state in the BPP switch. The brake pedal is briefly applied and released on all vehicles equipped with a BPP input. This is done during a KOER on demand self-test.

Retrieve Continuous Memory Diagnostic Trouble Codes (DTCs)

Retrieving continuous memory DTCs is a functional test of the PCM. The DTCs can be retrieved or cleared with the ignition ON and the engine OFF. Unlike the KOEO and KOER self-tests, which can only be activated on demand, the continuous monitor is always active in monitoring the system. When a concern is detected, a DTC is stored in memory to be retrieved at a later date, making it possible to diagnose intermittent concerns.

Key ON Engine OFF (KOEO) Injector Electrical Self-Test

The KOEO injector electrical self-test is a functional test of the PCM carried out with the ignition ON and the engine OFF. This test determines if the injectors and circuits are correctly operating. If a concern is detected by the PCM, the corresponding DTCs are displayed at the end of the self-test.

- Turn off all accessories. If the vehicle is equipped with a PTO system or auxiliary idle control, it must be turned off to carry out self-tests.
- Carry out the necessary vehicle preparation and a visual inspection. Refer to [Quick Test Description](#)
- Refer to the scan tool manufacturers manual for instructions.
- Ignition ON, engine OFF.
- Carry out the KOEO injector electrical self-test.
- Ignition in OFF position.
- Record the DTCs and carry out the appropriate pinpoint test.

Key ON Engine Running (KOER) Glow Plug Monitoring Self-Test

Note: When running this self-test, the battery voltage must not decrease to less than 10 volts or exceed 14 volts. Make sure the batteries are OK and the charging system is working correctly. If necessary, apply the accelerator pedal to maintain system voltage.

The KOER glow plug monitoring self-test is a functional test of the glow plug system carried out with the ignition ON, engine running and the A/C OFF. Maintain battery voltage at 10.5-14 volts during this test. If necessary, apply the accelerator pedal to increase voltage to the specified level. The PCM activates the glow plug control module (GPCM) and monitors the glow plug circuits. A concern must be present at the time of testing for the test to detect a concern. The DTCs are sent to the PCM and then output to the scan tool.

Malfunction Indicator Lamp (MIL) DTCs

The 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). The MIL DTCs are also used to indicate an emission concern. The Non-MIL DTCs indicate a less serious or non-emission related concern with the system.

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