DTC P0089:00 [SKYACTIV-G 2.0, SKYACTIV-G 2.5]

id0102h4008900

DTC P0089:00	Spill valve control solenoid valve control circuit range/performance problem
DETECTION CONDITION	• The average fuel pressure on the high pressure side, measured by the fuel pressure sensor, exceeds the specified value. **Diagnostic support note** • This is a continuous monitor (CCM). • The check engine light illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Stops high pressure fuel pump control • Limits intake air amount • Restricts the upper limit of the engine speed.
POSSIBLE CAUSE	• High pressure fuel pump connector or terminals malfunction • PCM connector or terminals malfunction • Fuel pressure sensor malfunction • High pressure fuel pump malfunction — Spill valve control solenoid valve (built-into high pressure fuel pump) malfunction • High pressure fuel pipe clogging • Fuel distributor malfunction • Fuel injector malfunction • PCM malfunction

Diagnostic Procedure

STEP	INSPECTION		ACTION
1	**VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED** • Has the FREEZE FRAME DATA (Mode 2)/ snapshot data been recorded?	Yes	Go to the next step.
		No	Record the FREEZE FRAME DATA (Mode 2)/snapshot data on the repair order, then go to the next step.
2	**VERIFY RELATED SERVICE INFORMATION AVAILABILITY** • Verify related Service Information availability. • Is any related Service Information available?	Yes	Perform repair or diagnosis according to the available Service Information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	**INSPECT HIGH PRESSURE FUEL PUMP CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the high pressure fuel pump connector. • Inspect for poor connection (such as damaged/ pulled-out pins, corrosion). • Is there any malfunction?	Yes	Replace the following parts because the part for the high pressure fuel is damaged. • High pressure fuel pump (See HIGH PRESSURE FUEL PUMP REMOVAL/ INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • High pressure fuel pipe • Fuel injector No.1 (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Fuel injector No.2 • Fuel injector No.3 • Fuel injector No.4 • Fuel distributor Go to Step 9.
		No	Go to the next step.

STEP	INSPECTION		ACTION
4	**INSPECT PCM CONNECTOR CONDITION** • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/ pulled-out pins, corrosion). • Is there any malfunction?	Yes	Replace the following parts because the part for the high pressure fuel is damaged. • PCM (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • High pressure fuel pump (See HIGH PRESSURE FUEL PUMP REMOVAL/ INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • High pressure fuel pipe • Fuel injector No.1 (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Fuel injector No.2 • Fuel injector No.3 • Fuel injector No.4 • Fuel distributor Go to Step 9.
		No	Go to the next step.
5	**INSPECT FUEL PRESSURE SENSOR** • Reconnect all disconnected connectors. • Inspect the fuel pressure sensor. (See FUEL PRESSURE SENSOR INSPECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Is there any malfunction?	Yes	Replace the fuel distributor, then go to Step 9. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
		No	Go to the next step.
6	**INSPECT HIGH PRESSURE FUEL PUMP** • Inspect the high pressure fuel pump. (See HIGH PRESSURE FUEL PUMP INSPECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Is there any malfunction?	Yes	Replace the following parts because the part for the high pressure fuel is damaged. • High pressure fuel pump (See HIGH PRESSURE FUEL PUMP REMOVAL/ INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • High pressure fuel pipe • Fuel injector No.1 (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Fuel injector No.2 • Fuel injector No.3 • Fuel injector No.4 • Fuel distributor Go to Step 9.
		No	Go to the next step.
7	**INSPECT HIGH PRESSURE FUEL PIPE** • Inspect the high pressure fuel pipe. (See HIGH PRESSURE FUEL PUMP REMOVAL/ INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Is there clogging or damage in the high pressure fuel pipe?	Yes	Replace the following parts because the part for the high pressure fuel is damaged. • High pressure fuel pump (See HIGH PRESSURE FUEL PUMP REMOVAL/ INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • High pressure fuel pipe • Fuel injector No.1 (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Fuel injector No.2 • Fuel injector No.3 • Fuel injector No.4 • Fuel distributor Go to Step 9.
		No	Go to the next step.

STEP	INSPECTION		ACTION
8	**INSPECT FUEL INJECTOR** • Inspect the fuel injector. (See FUEL INJECTOR INSPECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Is there any malfunction?	Yes	Replace the following parts because the part for the high pressure fuel is damaged. • High pressure fuel pump (See HIGH PRESSURE FUEL PUMP REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • High pressure fuel pipe • Fuel injector No.1 (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Fuel injector No.2 • Fuel injector No.3 • Fuel injector No.4 • Fuel distributor Go to the next step.
		No	Replace the fuel distributor, then go to the next step. (See FUEL INJECTOR REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
9	**VERIFY DTC TROUBLESHOOTING COMPLETED** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Perform the KOER self test. (See KOEO/KOER SELF TEST [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Is the same DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) Go to the next step.
		No	Go to the next step.
10	**VERIFY AFTER REPAIR PROCEDURE** • Perform the “AFTER REPAIR PROCEDURE”. (See AFTER REPAIR PROCEDURE [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [SKYACTIV-G 2.0, SKYACTIV-G 2.5].)
		No	DTC troubleshooting completed.