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1993 MAZDA 626 (Mk.5) Sedan OEM Service and Repair Workshop Manual

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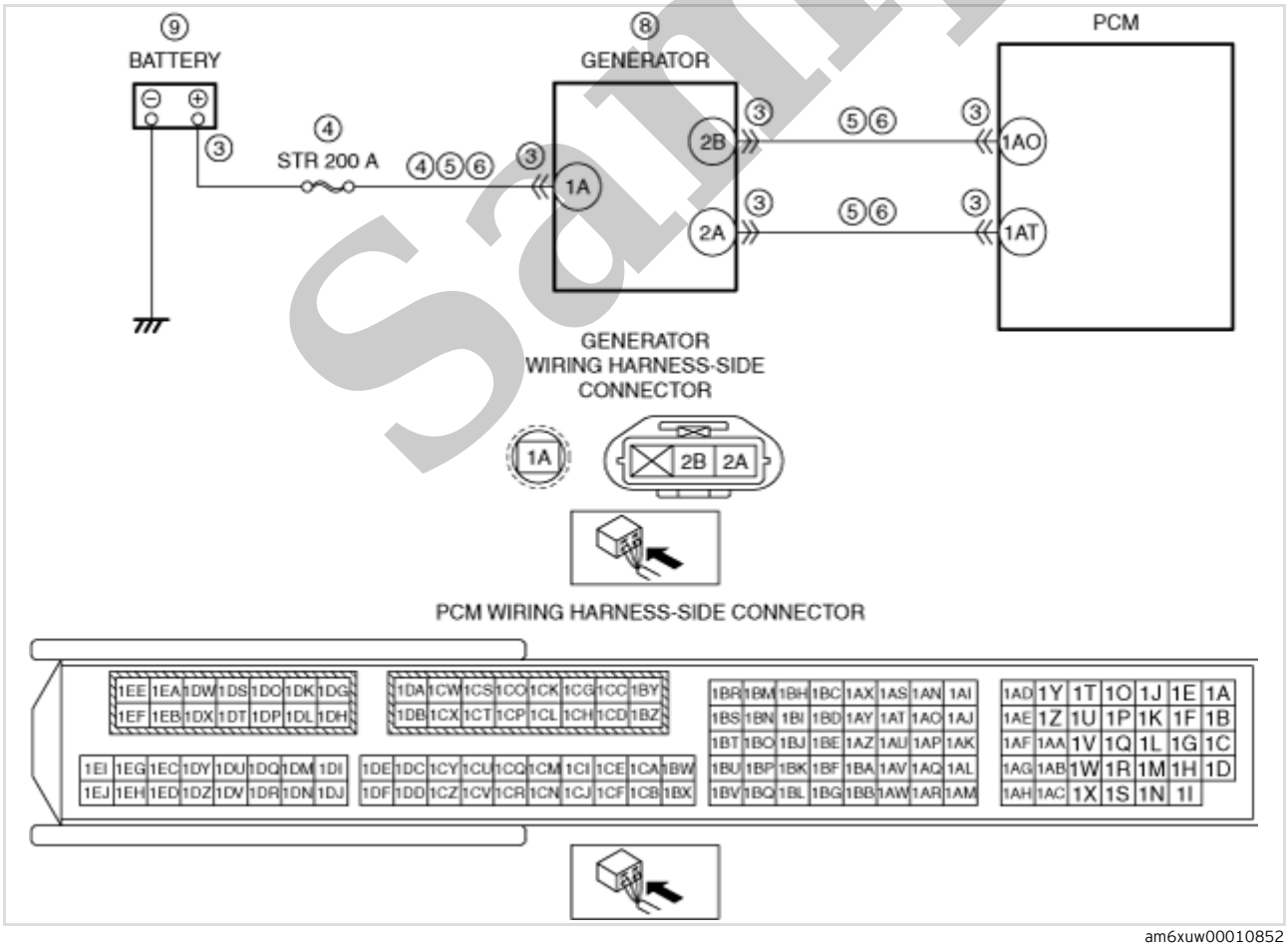
STEP	INSPECTION	RESULTS	ACTION
4	**PURPOSE: INSPECT FUSE** • Remove the STR 200 A fuse. • Inspect the STR 200 A fuse. • Is there any malfunction?	Yes	If the fuse is blown: • Refer to the wiring diagram and verify whether or not there is a common connector between battery positive terminal and generator terminal 1A. **If there is a common connector:** — Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. — Repair or replace the malfunctioning part. **If there is no common connector:** — Repair or replace the wiring harness which has a short to ground. — Replace the fuse. If the fuse is damaged: • Replace the fuse. Go to Step 8.
		No	Reinstall the STR 200 A fuse, then go to the next step.
5	**PURPOSE: VERIFY IF SHORT TO GROUND IN GENERATOR CHARGE/DISCHARGE CIRCUIT AFFECTS DIAGNOSTIC RESULTS** • Verify that the battery, generator and PCM connectors are disconnected. • Inspect for continuity between generator terminal 1A (wiring harness-side) and body ground. • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between battery positive terminal and generator terminal 1A. **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to ground. Go to Step 8.
		No	Go to the next step.
6	**PURPOSE: VERIFY IF OPEN CIRCUIT IN GENERATOR CHARGE/DISCHARGE CIRCUIT AFFECTS DIAGNOSTIC RESULTS** • Verify that the battery, generator and PCM connectors are disconnected. • Inspect for continuity between battery positive terminal (wiring harness-side) and generator terminal 1A (wiring harness-side). • Is there continuity?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between battery positive terminal and generator terminal 1A. **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has an open circuit. Go to Step 8.
7	**PURPOSE: DETERMINE INTEGRITY OF GENERATOR** • Inspect the generator. (See GENERATOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the generator, then go to the next step. (See GENERATOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
8	**PURPOSE: VERIFY CONDITIONS OF BATTERY** • Inspect the battery. (See BATTERY INSPECTION.)	–	Follow the inspection instructions, then go to the next step.

DESCRIPTION	Generator system: Voltage generated by generator is low
POSSIBLE CAUSE	• Poor connection of the following parts: — Battery — Generator — PCM • Connector or terminal malfunction of the following parts: — Battery — Generator — PCM • STR 200 A fuse malfunction • Short to ground in wiring harness between the following terminals: — Battery positive terminal–Generator terminal 1A — Generator terminal 2B–PCM terminal 1AO — Generator terminal 2A–PCM terminal 1AT • Open circuit in wiring harness between the following terminals: — Battery positive terminal–Generator terminal 1A — Generator terminal 2B–PCM terminal 1AO — Generator terminal 2A–PCM terminal 1AT • Drive belt exceeds limit • Generator malfunction • Battery malfunction • PCM malfunction

System Wiring Diagram



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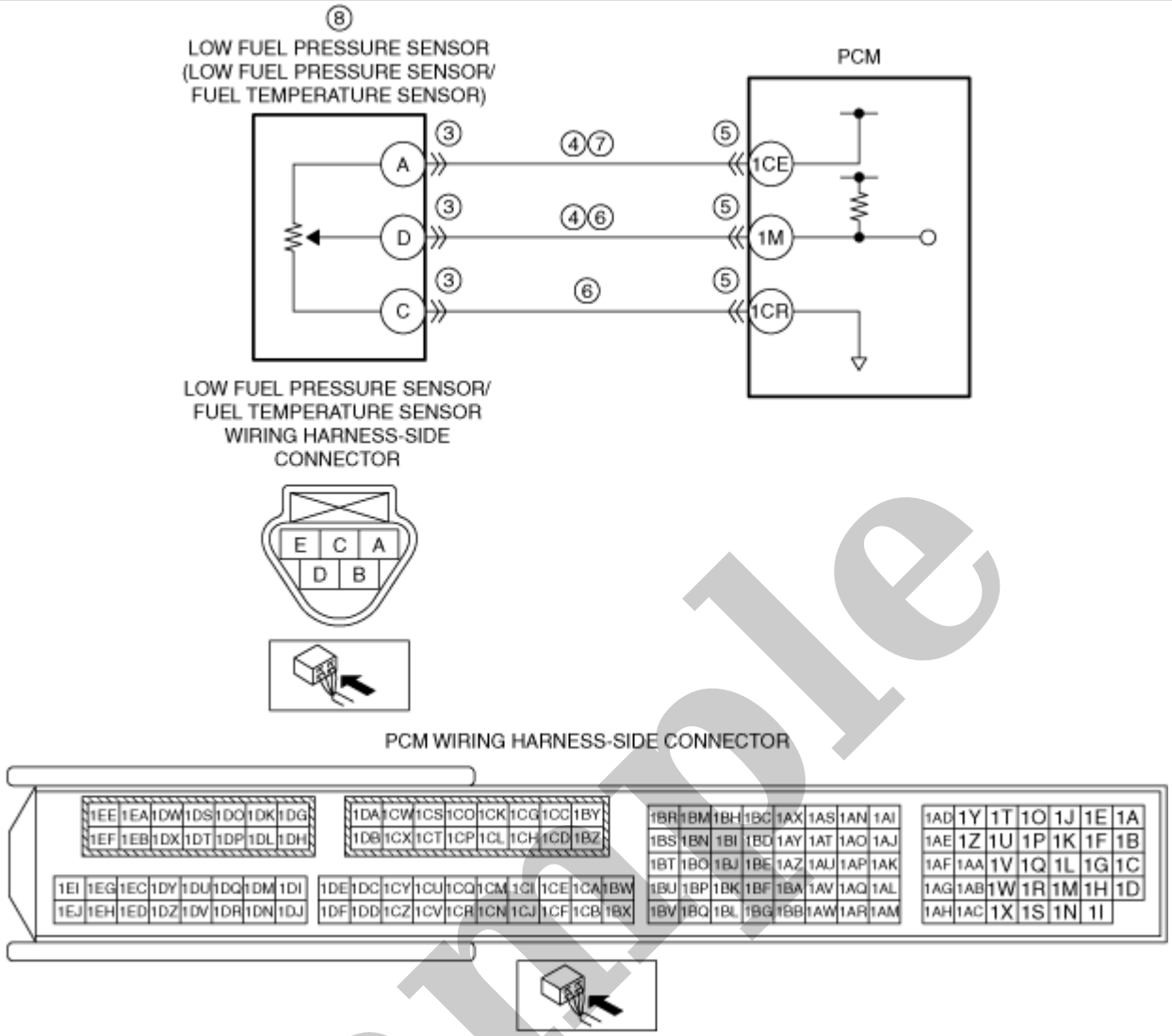
Function Explanation (DTC Detection Outline)

STEP	INSPECTION	RESULTS	ACTION
5	**PURPOSE: VERIFY IF SHORT TO GROUND IN EACH WIRING HARNESS AFFECTS DIAGNOSTIC RESULTS** • Verify that the battery, generator and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Generator terminal 1A — Generator terminal 2B — Generator terminal 2A • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Battery positive terminal–Generator terminal 1A • Generator terminal 2B–PCM terminal 1AO • Generator terminal 2A–PCM terminal 1AT **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to ground. Go to Step 9.
		No	Go to the next step.
6	**PURPOSE: VERIFY IF OPEN CIRCUIT IN EACH WIRING HARNESS AFFECTS DIAGNOSTIC RESULTS** • Verify that the battery, generator and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — Battery positive terminal–Generator terminal 1A — Generator terminal 2B–PCM terminal 1AO — Generator terminal 2A–PCM terminal 1AT • Is there continuity?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Battery positive terminal–Generator terminal 1A • Generator terminal 2B–PCM terminal 1AO • Generator terminal 2A–PCM terminal 1AT **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has an open circuit. Go to Step 9.
7	**PURPOSE: VERIFY IF MALFUNCTION RELATED TO GENERATOR DRIVE BELT AFFECTS DIAGNOSTIC RESULTS** • Inspect the generator drive belt. (See DRIVE BELT INSPECTION [SKYACTIV-G 2.5T].) • Is the indicator mark on the drive belt auto tensioner within the normal range?	Yes	Go to the next step.
		No	Replace the generator drive belt, then go to the next step. (See DRIVE BELT REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
8	**PURPOSE: DETERMINE INTEGRITY OF GENERATOR** • Inspect the generator. (See GENERATOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the generator, then go to the next step. (See GENERATOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
9	**PURPOSE: VERIFY CONDITIONS OF BATTERY** • Inspect the battery. (See BATTERY INSPECTION.)	–	Follow the inspection instructions, then go to the next step.

DTC P2541:00	Low fuel pressure sensor circuit low input



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture function of the PC. • Record the snapshot data on the repair order.	–	Go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.

DTC P2542:00 [PCM (SKYACTIV-G 2.5T)]

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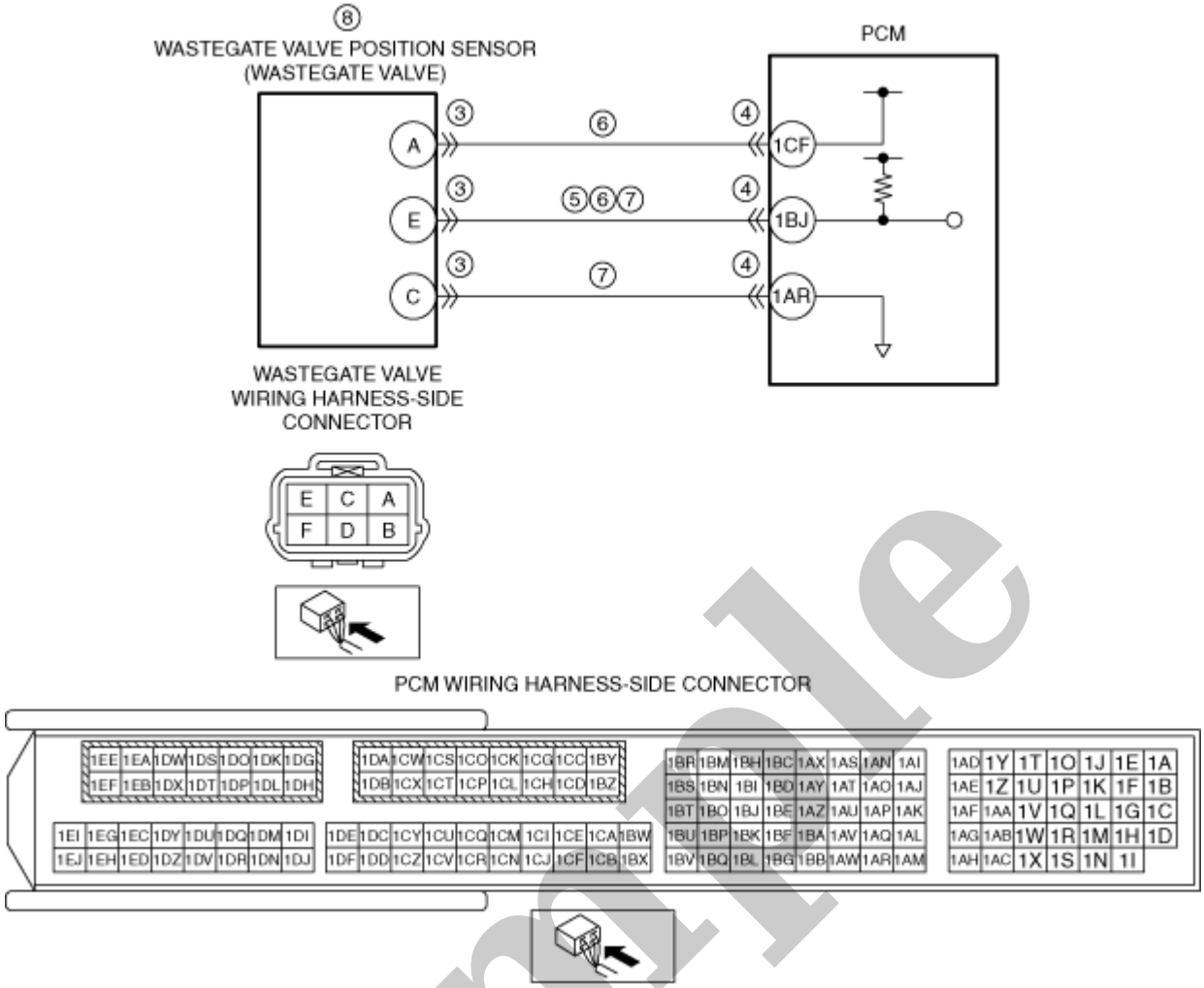
DTC P2542:00	Low fuel pressure sensor circuit high input
DETECTION CONDITION	• If the input voltage at the PCM terminal 1M is more than 4.82 V for 5 s, the PCM determines that the low fuel pressure sensor circuit is high. MONITORING CONDITIONS — Battery voltage: 8 V or more Diagnostic support note • This is a continuous monitor (CCM). • The check engine light does not illuminate. • FREEZE FRAME DATA is not available. • Snapshot data is available. • DTC is stored in the PCM memory.
FAIL-SAFE FUNCTION	• Limits the engine torque or the upper limit of the engine speed.
POSSIBLE CAUSE	• Low fuel pressure sensor/fuel temperature sensor connector or terminals malfunction • PCM connector or terminals malfunction • Short to power supply in wiring harness between low fuel pressure sensor/fuel temperature sensor terminal D and PCM terminal 1M • Low fuel pressure sensor power supply circuit and signal circuit are shorted to each other • Open circuit in wiring harness between the following terminals: — Low fuel pressure sensor/fuel temperature sensor terminal D—PCM terminal 1M — Low fuel pressure sensor/fuel temperature sensor terminal C—PCM terminal 1CR • Low fuel pressure sensor malfunction • PCM malfunction

STEP	INSPECTION	RESULTS	ACTION
7	**INSPECT LOW FUEL PRESSURE SENSOR CIRCUIT FOR OPEN CIRCUIT** • Verify that the low fuel pressure sensor/fuel temperature sensor and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — Low fuel pressure sensor/fuel temperature sensor terminal D—PCM terminal 1M — Low fuel pressure sensor/fuel temperature sensor terminal C—PCM terminal 1CR • Is there continuity?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Low fuel pressure sensor/fuel temperature sensor terminal D—PCM terminal 1M • Low fuel pressure sensor/fuel temperature sensor terminal C—PCM terminal 1CR **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has an open circuit. Go to Step 9.
8	**INSPECT LOW FUEL PRESSURE SENSOR** • Reconnect all disconnected connectors. • Inspect the low fuel pressure sensor. (See LOW FUEL PRESSURE SENSOR INSPECTION [SKYACTIV-G 2.5T].) • Is there any malfunction?	Yes	Replace the low fuel pressure sensor/fuel temperature sensor, then go to the next step. (See LOW FUEL PRESSURE SENSOR/FUEL TEMPERATURE SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].)
		No	Go to the next step.
9	**VERIFY DTC TROUBLESHOOTING COMPLETED** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5T)].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5T)].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) 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 [PCM (SKYACTIV-G 2.5T)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5T)].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
3	**INSPECT WASTEGATE VALVE CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the wastegate valve connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 9.
		No	Go to the next step.
4	**INSPECT WASTEGATE VALVE POSITION SENSOR CIRCUIT FOR SHORT TO GROUND** • Verify that the wastegate valve connector is disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Wastegate valve terminal A — Wastegate valve terminal E • Is there continuity?	Yes	Disconnect the PCM connector and inspect the wiring harness for short to ground. • If the short to ground circuit could be detected in the wiring harness: — Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Wastegate valve terminal A—PCM terminal 1CF • Wastegate valve terminal E—PCM terminal 1BJ **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to ground. • If the short to ground circuit could not be detected in the wiring harness: — Replace the PCM (short to ground in the PCM internal circuit). (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5T].) Go to Step 9.
		No	Go to the next step.
5	**INSPECT PCM CONNECTOR CONDITION** • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 9.
		No	Go to the next step.

DTC P2565:00	Wastegate valve position sensor circuit high input



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture function of the PC. • Record the snapshot data on the repair order.	–	Go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.

DTC P2504:00 [PCM (SKYACTIV-G 2.5T)]

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Note

• To determine the malfunctioning part, proceed with the diagnostics from "Function Inspection Using M-MDS".

Details On DTCs

DESCRIPTION	**Generator system: Voltage generated by generator is high**	
DETECTION CONDITION	Determination conditions	• The voltage generated by the generator is 18.5 V or higher or the battery voltage is 16 V or higher for a continuous specified time.
	Preconditions	• While engine is running
	Malfunction determination period	• 5 s period
	Drive cycle	• 1
	Self test type	• CMDTC self test
	Sensor used	• PCM • Generator
FAIL-SAFE FUNCTION	• Generator control is inhibited.	
VEHICLE STATUS WHEN DTCs ARE OUTPUT	• A warning message is displayed in the display. • Illuminates charging system warning light. • The charging system warning indication is displayed on the multi-information display. (With multi-information display) • The following vehicle conditions differ depending on the type of malfunction: — Vehicle shock may occur due to generator load. — Idling feel due to generator-stop may occur.	
POSSIBLE CAUSE	• Poor connection of the following parts: — Battery — Generator — PCM • Connector or terminal malfunction of the following parts: — Battery — Generator — PCM • Short to power supply in wiring harness between battery positive terminal and generator terminal 1A • STR 200 A fuse malfunction • Open circuit in wiring harness between battery positive terminal and generator terminal 1A • Generator malfunction • Battery malfunction • PCM malfunction	

System Wiring Diagram