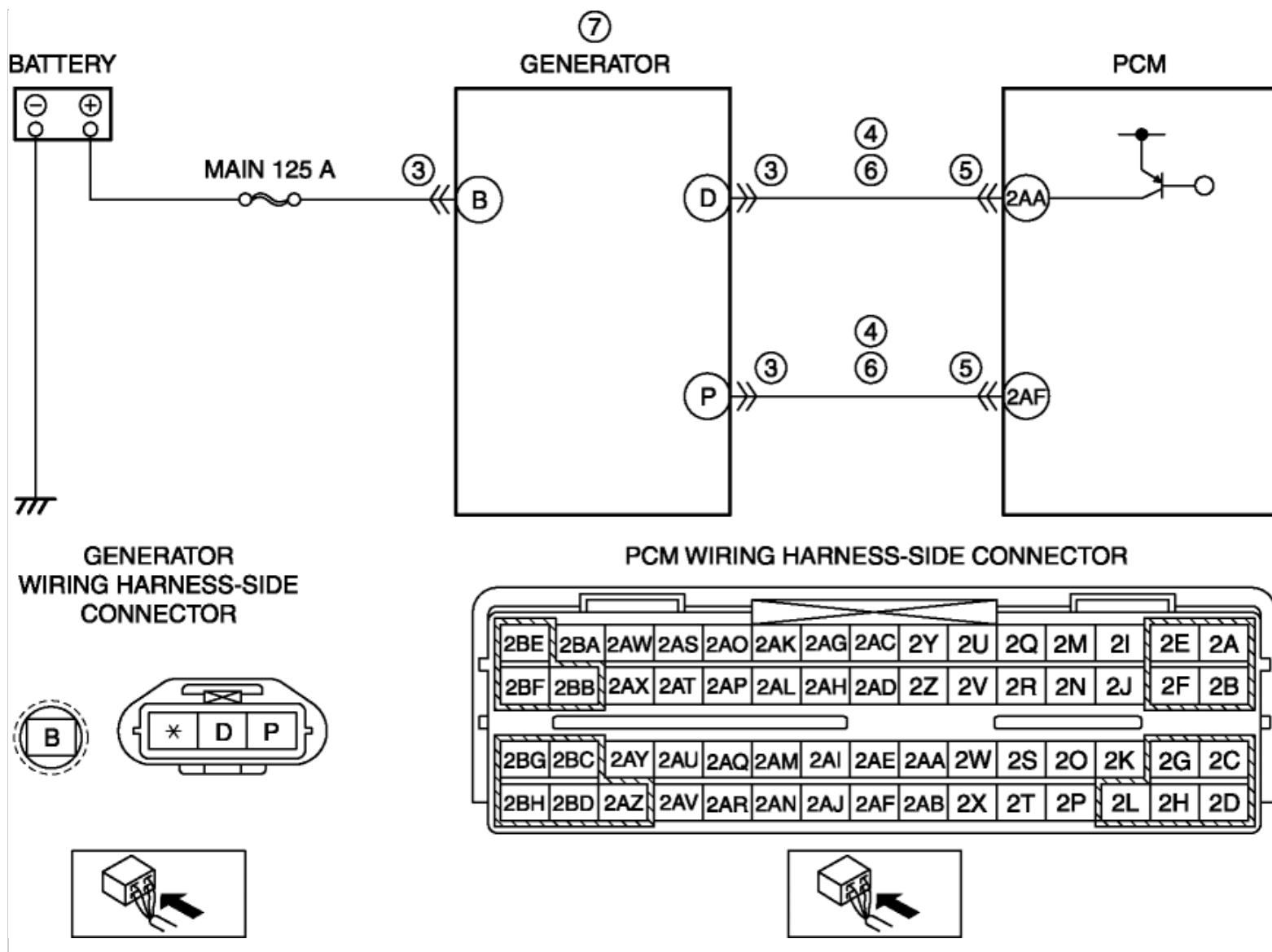


2012 - Mazda6 - Engine

DTC P2503:00 [MZR 2.5]

DTC P2503:00	Charging system voltage low
DETECTION CONDITION	- The PCM needs more than 20 A from the generator, and determines that the generator output voltage is below 8.5 V for 5 s while the engine running. Diagnostic support note - This is a continuous monitor (other). - The MIL does not illuminate. - FREEZE FRAME DATA (Mode2)/Snapshot data is not available. - The DTC is stored in the PCM memory.
POSSI BLE CAUSE	- Drive belt exceed limit - Generator connector or terminal malfunction - Short to ground in wiring harness between generator terminal D and PCM terminal 2AA - Short to ground in wiring harness between generator terminal P and PCM terminal 2AF - PCM connector or terminal malfunction - Open circuit in wiring harness between generator terminal D and PCM terminal 2AA - Open circuit in wiring harness between generator terminal P and PCM terminal 2AF - Generator malfunction - PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	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.
2	INSPECT DRIVE BELT CONDITION - Verify that the drive belt auto tensioner indicator mark does not exceed limit. - Is the front drive belt normal?	Yes Go to the next step. No Replace or adjust drive belt, then go to Step 8. (See DRIVE BELT REMOVAL/ INSTALLATION [MZR 2.5].)
	INSPECT GENERATOR CONNECTOR CONDITION	

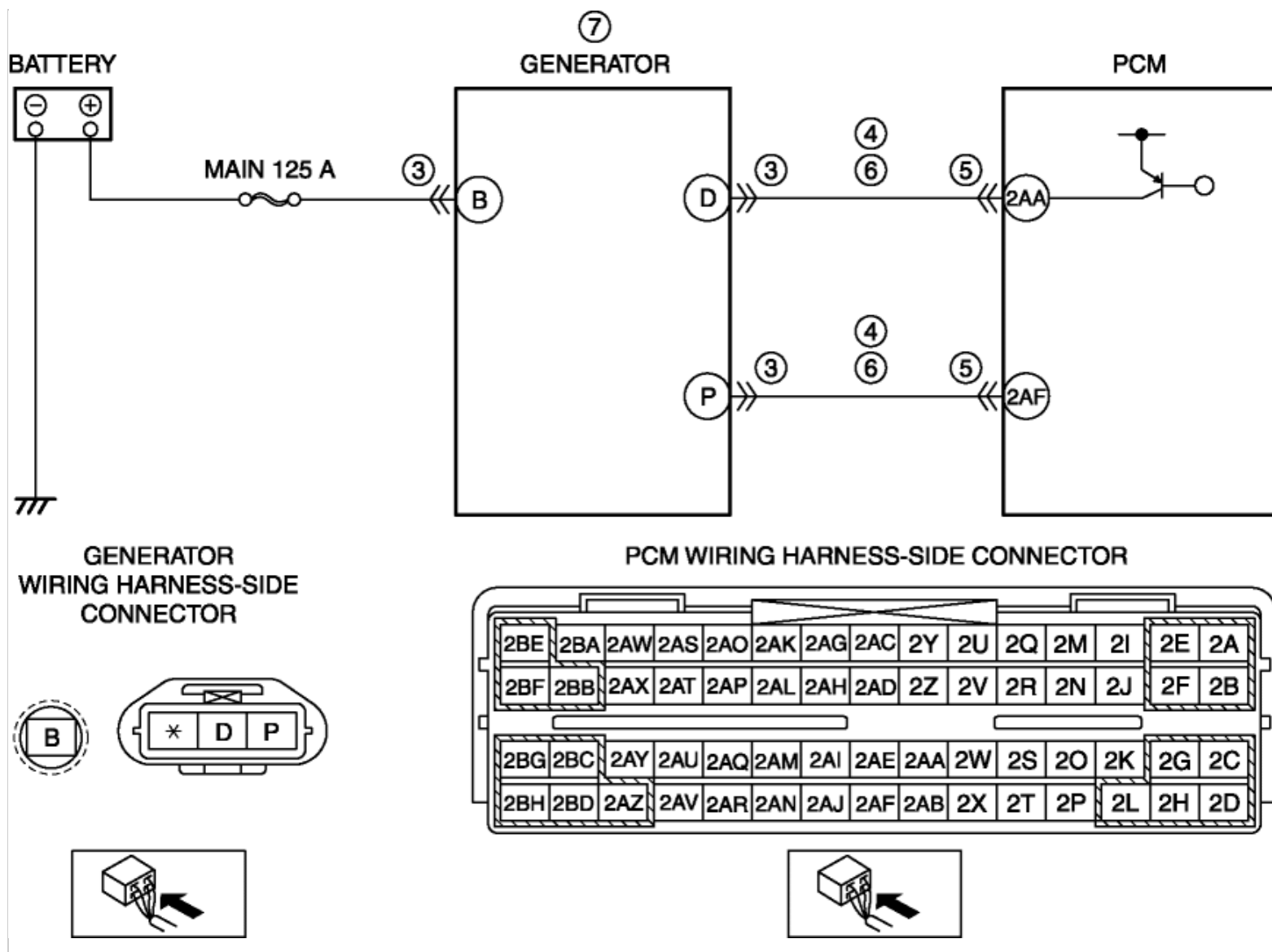
3	• Switch the ignition to off. • Disconnect the generator connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	YesRepair or replace the terminal and/or connector, then go to Step 8.	NoGo to the next step.
4	INSPECT GENERATOR CIRCUIT FOR SHORT TO GROUND • Generator connector is disconnected. • Inspect for continuity between the following terminals and body ground: ▪ Generator terminal D (wiring harness-side) ▪ Generator terminal P (wiring harness-side) • Is there continuity?	YesIf the short to ground circuit could be detected: • Repair or replace the wiring harness for a possible short to ground. If the short to ground circuit could not be detected: • Replace the PCM (short to ground in PCM internal circuit). (See PCM REMOVAL/ INSTALLATION [MZR 2.5] .) Go to Step 8.	NoGo 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?	YesRepair or replace the terminal and/or connector, then go to Step 8.	NoGo to the next step.
6	INSPECT GENERATOR CIRCUIT FOR OPEN CIRCUIT • Generator and PCM connectors are disconnected. • Inspect for continuity between the following terminals: ▪ Generator terminal D (wiring harness-side) and PCM terminal 2AA (wiring harness-side) ▪ Generator terminal P (wiring harness-side) and PCM terminal 2AF (wiring harness-side) • Is there continuity?	YesGo to the next step.	NoRepair or replace the wiring harness for a possible open circuit, then go to Step 8.
7	INSPECT GENERATOR • Inspect the generator. (See GENERATOR INSPECTION [MZR 2.5] .) • Is there any malfunction?	YesReplace the generator, then go to the next step. (See GENERATOR REMOVAL/ INSTALLATION [MZR 2.5] .)	NoGo to the next step.

8	VERIFY DTC TROUBLESHOOTING COMPLETED • Make sure to reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Perform the KOER self test. (See KOE0/ KOER SELF TEST [MZR 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 [MZR 2.5].) Go to the next step.
		No	Go to the next step.
9	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5].)
		No	DTC troubleshooting completed.

2012 - Mazda6 - Engine

DTC P2503:00 [MZR 2.5]

DTC P2503:00	Charging system voltage low
DETECTION CONDITION	- The PCM needs more than 20 A from the generator, and determines that the generator output voltage is below 8.5 V for 5 s while the engine running. Diagnostic support note - This is a continuous monitor (other). - The MIL does not illuminate. - FREEZE FRAME DATA (Mode2)/Snapshot data is not available. - The DTC is stored in the PCM memory.
POSSI BLE CAUSE	- Drive belt exceed limit - Generator connector or terminal malfunction - Short to ground in wiring harness between generator terminal D and PCM terminal 2AA - Short to ground in wiring harness between generator terminal P and PCM terminal 2AF - PCM connector or terminal malfunction - Open circuit in wiring harness between generator terminal D and PCM terminal 2AA - Open circuit in wiring harness between generator terminal P and PCM terminal 2AF - Generator malfunction - PCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	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.
2	INSPECT DRIVE BELT CONDITION - Verify that the drive belt auto tensioner indicator mark does not exceed limit. - Is the front drive belt normal?	Yes Go to the next step. No Replace or adjust drive belt, then go to Step 8. (See DRIVE BELT REMOVAL/ INSTALLATION [MZR 2.5].)
	INSPECT GENERATOR CONNECTOR CONDITION	

3	• Switch the ignition to off. • Disconnect the generator connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes Repair or replace the terminal and/or connector, then go to Step 8. No Go to the next step.
4	INSPECT GENERATOR CIRCUIT FOR SHORT TO GROUND • Generator connector is disconnected. • Inspect for continuity between the following terminals and body ground: ▪ Generator terminal D (wiring harness-side) ▪ Generator terminal P (wiring harness-side) • Is there continuity?	Yes If the short to ground circuit could be detected: • Repair or replace the wiring harness for a possible short to ground. If the short to ground circuit could not be detected: • Replace the PCM (short to ground in PCM internal circuit). (See PCM REMOVAL/ INSTALLATION [MZR 2.5].) Go to Step 8. 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 terminal and/or connector, then go to Step 8. No Go to the next step.
6	INSPECT GENERATOR CIRCUIT FOR OPEN CIRCUIT • Generator and PCM connectors are disconnected. • Inspect for continuity between the following terminals: ▪ Generator terminal D (wiring harness-side) and PCM terminal 2AA (wiring harness-side) ▪ Generator terminal P (wiring harness-side) and PCM terminal 2AF (wiring harness-side) • Is there continuity?	Yes Go to the next step. No Repair or replace the wiring harness for a possible open circuit, then go to Step 8.
7	INSPECT GENERATOR • Inspect the generator. (See GENERATOR INSPECTION [MZR 2.5].) • Is there any malfunction?	Yes Replace the generator, then go to the next step. (See GENERATOR REMOVAL/ INSTALLATION [MZR 2.5].) No Go to the next step.

8	VERIFY DTC TROUBLESHOOTING COMPLETED • Make sure to reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Perform the KOER self test. (See KOE0/ KOER SELF TEST [MZR 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 [MZR 2.5].) Go to the next step.
		No	Go to the next step.
9	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .)
		No	DTC troubleshooting completed.