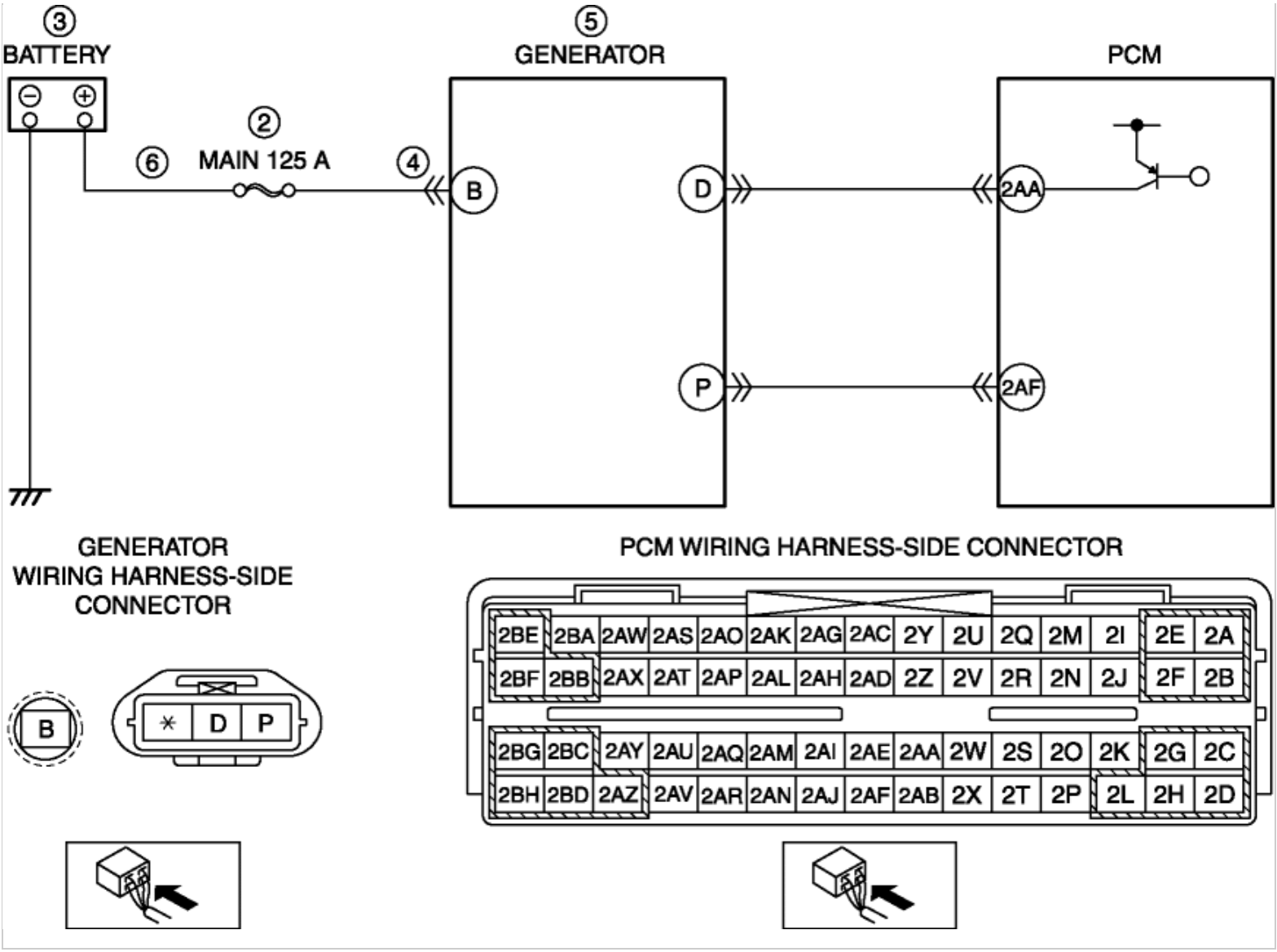
2012 - Mazda6 - Engine

DTC P2502:00 [MZR 2.5]

DTC P2502:00	Charging system voltage problem
DETECTION CONDITION	• The PCM determines that the generator output voltage is **above 17 V** or battery voltage is **below 11 V** for **5 s** while the engine is 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.
POSSIBLE CAUSE	• MAIN 125 A fuse malfunction • Short to ground circuit in wiring harness at downstream circuit for MAIN 125 A fuse • Battery malfunction • Looseness generator terminal B installation nut • Generator malfunction • Open circuit in wiring harness between generator terminal B and battery positive terminal • 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 FUSE** • Switch the ignition to off. • Disconnect the negative battery cable. • Remove the MAIN 125 A fuse. • Inspect the fuse. • Is there any malfunction?	Yes	If the MAIN 125 A fuse is melt: • Repair or replace for short to ground circuit before replace the MAIN 125 A fuse. Go to Step 7.
		No	Go to the next step.

3	**INSPECT BATTERY** • Inspect the battery. (See **BATTERY INSPECTION [MZR 2.5]**.) • Is there any malfunction?	Yes	Recharge or replace the battery, then go to Step 7. (See **BATTERY RECHARGING [MZR 2.5]**.) (See **BATTERY REMOVAL/ INSTALLATION [MZR 2.5]**.)
		No	Go to the next step.
4	**INSPECT POOR INSTALLATION OF GENERATOR TERMINAL** • Inspect for looseness of generator terminal B installation nut. • Is the nut loose?	Yes	Tighten the generator terminal B installation nut, then go to Step 7.
		No	Go to the next step.
5	**INSPECT GENERATOR** • Inspect the generator. (See **GENERATOR INSPECTION [MZR 2.5]**.) • Is there any malfunction?	Yes	Replace the generator, then go to Step 7. (See **GENERATOR REMOVAL/ INSTALLATION [MZR 2.5]**.)
		No	Go to the next step.
6	**INSPECT BATTERY CHARGING CIRCUIT FOR OPEN CIRCUIT** • Install the fuse. • Reconnect the disconnected connectors. • Reconnect the negative battery cable. • Measure the voltage between generator terminal B (wiring harness-side) and body ground. • Is the voltage **B+** ?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
7	**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 **KOEO/ 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.
8	**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.

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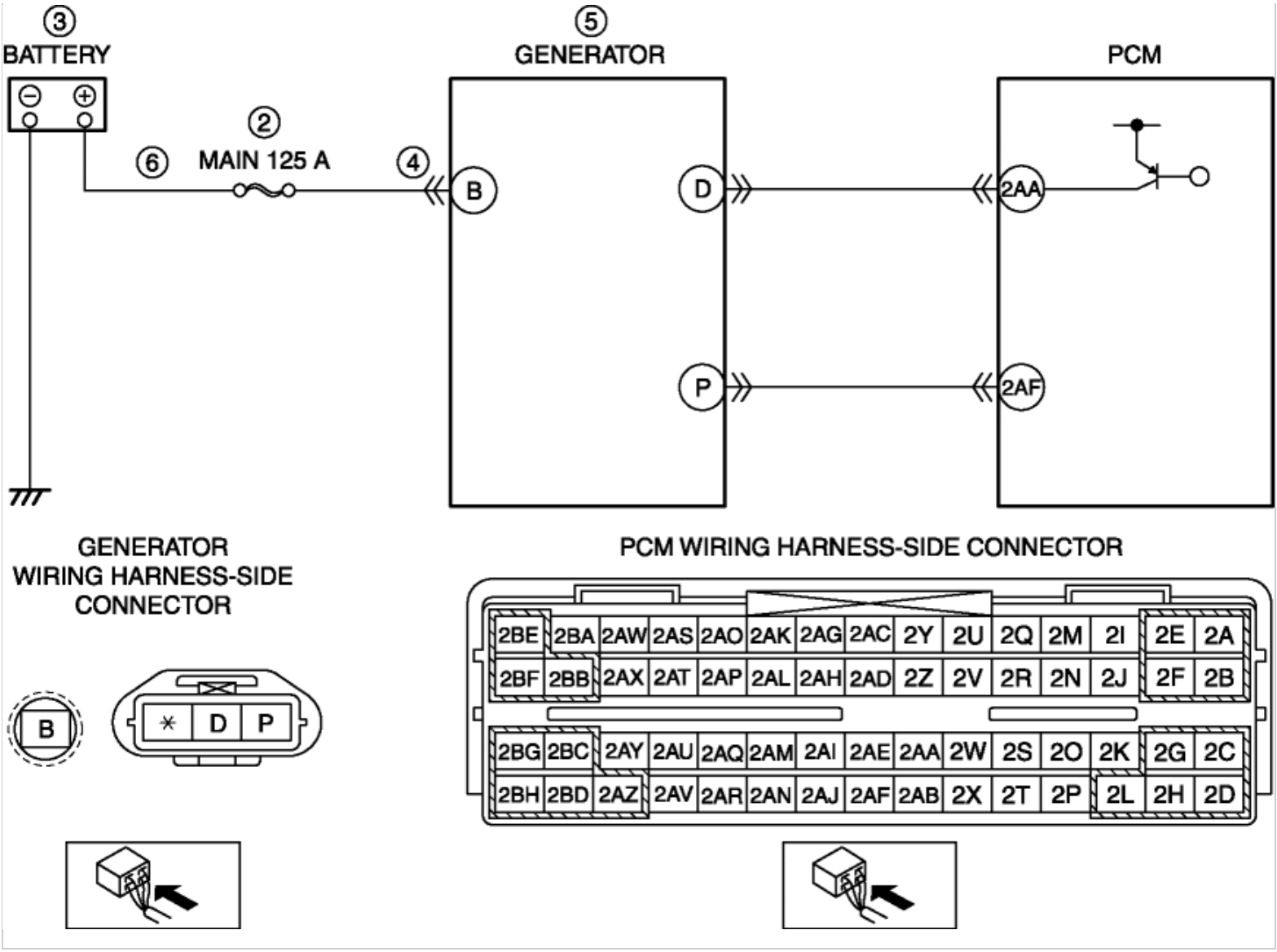
DETECTION CONDITION	• The PCM determines that the generator output voltage is **above 17 V** or battery voltage is **below 11 V** for **5 s** while the engine is running. **Diagnostic support note** • This is a continuous monitor (other). • The MIL does not illuminate. • FREEZE FRAME DATA (Mode2)/Snapshot data is not available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• MAIN 125 A fuse malfunction • Short to ground circuit in wiring harness at downstream circuit for MAIN 125 A fuse • Battery malfunction • Looseness generator terminal B installation nut • Generator malfunction • Open circuit in wiring harness between generator terminal B and battery positive terminal • 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 FUSE** • Switch the ignition to off. • Disconnect the negative battery cable. • Remove the MAIN 125 A fuse. • Inspect the fuse. • Is there any malfunction?	Yes	If the MAIN 125 A fuse is melt: • Repair or replace for short to ground circuit before replace the MAIN 125 A fuse. Go to Step 7.
		No	Go to the next step.

3	**INSPECT BATTERY** • Inspect the battery. (See **BATTERY INSPECTION [MZR 2.5]**.) • Is there any malfunction?	Yes	Recharge or replace the battery, then go to Step 7. (See **BATTERY RECHARGING [MZR 2.5]**.) (See **BATTERY REMOVAL/ INSTALLATION [MZR 2.5]**.)
		No	Go to the next step.
4	**INSPECT POOR INSTALLATION OF GENERATOR TERMINAL** • Inspect for looseness of generator terminal B installation nut. • Is the nut loose?	Yes	Tighten the generator terminal B installation nut, then go to Step 7.
		No	Go to the next step.
5	**INSPECT GENERATOR** • Inspect the generator. (See **GENERATOR INSPECTION [MZR 2.5]**.) • Is there any malfunction?	Yes	Replace the generator, then go to Step 7. (See **GENERATOR REMOVAL/ INSTALLATION [MZR 2.5]**.)
		No	Go to the next step.
6	**INSPECT BATTERY CHARGING CIRCUIT FOR OPEN CIRCUIT** • Install the fuse. • Reconnect the disconnected connectors. • Reconnect the negative battery cable. • Measure the voltage between generator terminal B (wiring harness-side) and body ground. • Is the voltage **B+** ?	Yes	Go to the next step.
		No	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
7	**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 **KOEO/ 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.
8	**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.