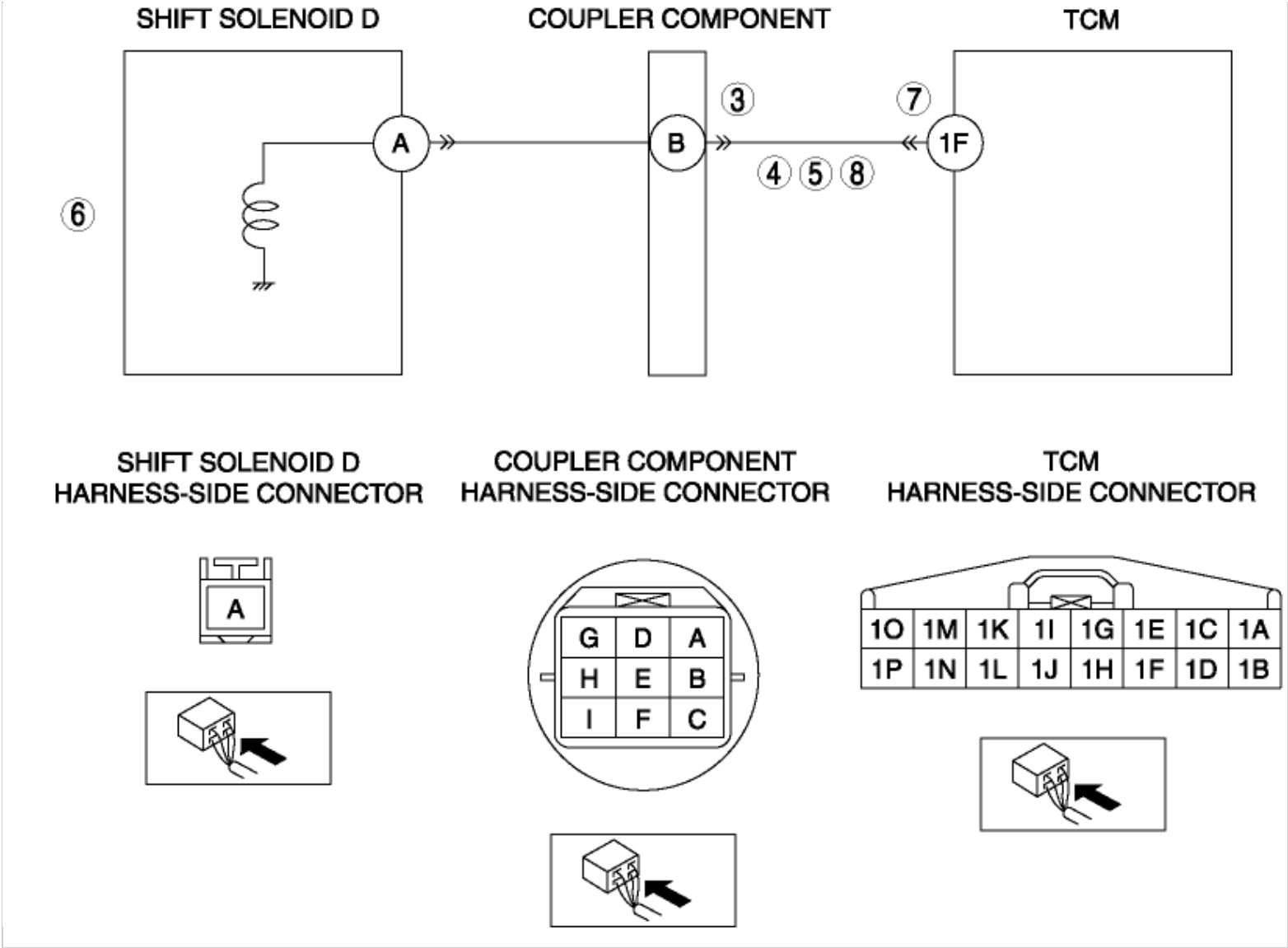


2012 - Mazda6 - Transmission/ Transaxle

DTC P0768:00 [FS5A-EL]

DTC P0768:00	Shift solenoid D electrical malfunction
DETECTION CONDITION	• The TCM detects that output voltage to the shift solenoid D is stuck at 0 V or B+ when the solenoid valve operates according to TCM calculation. Diagnostic support note • The MIL illuminates if the TCM detects the above malfunction condition during the first drive cycle. • The AT warning light illuminates. • PENDING CODE is available. • FREEZE FRAME DATA is available. • The DTC is stored in the TCM memory.
POSSIBLE CAUSE	• Coupler component connector or terminal malfunction • Short to power supply in wiring harness between shift solenoid D terminal A and TCM terminal 1F • Short to GND in wiring harness between shift solenoid D terminal A and TCM terminal 1F • Shift solenoid D malfunction • TCM connector or terminal malfunction • Open circuit in wiring harness between shift solenoid D terminal A and TCM terminal 1F • TCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED Has the FREEZE FRAME DATA been recorded on the repair order?	Yes Go to the next step.
		No Record the FREEZE FRAME DATA on the repair order, then 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.
3	INSPECT COUPLER COMPONENT CONNECTOR FOR POOR	Yes Repair or replace the terminal, then go

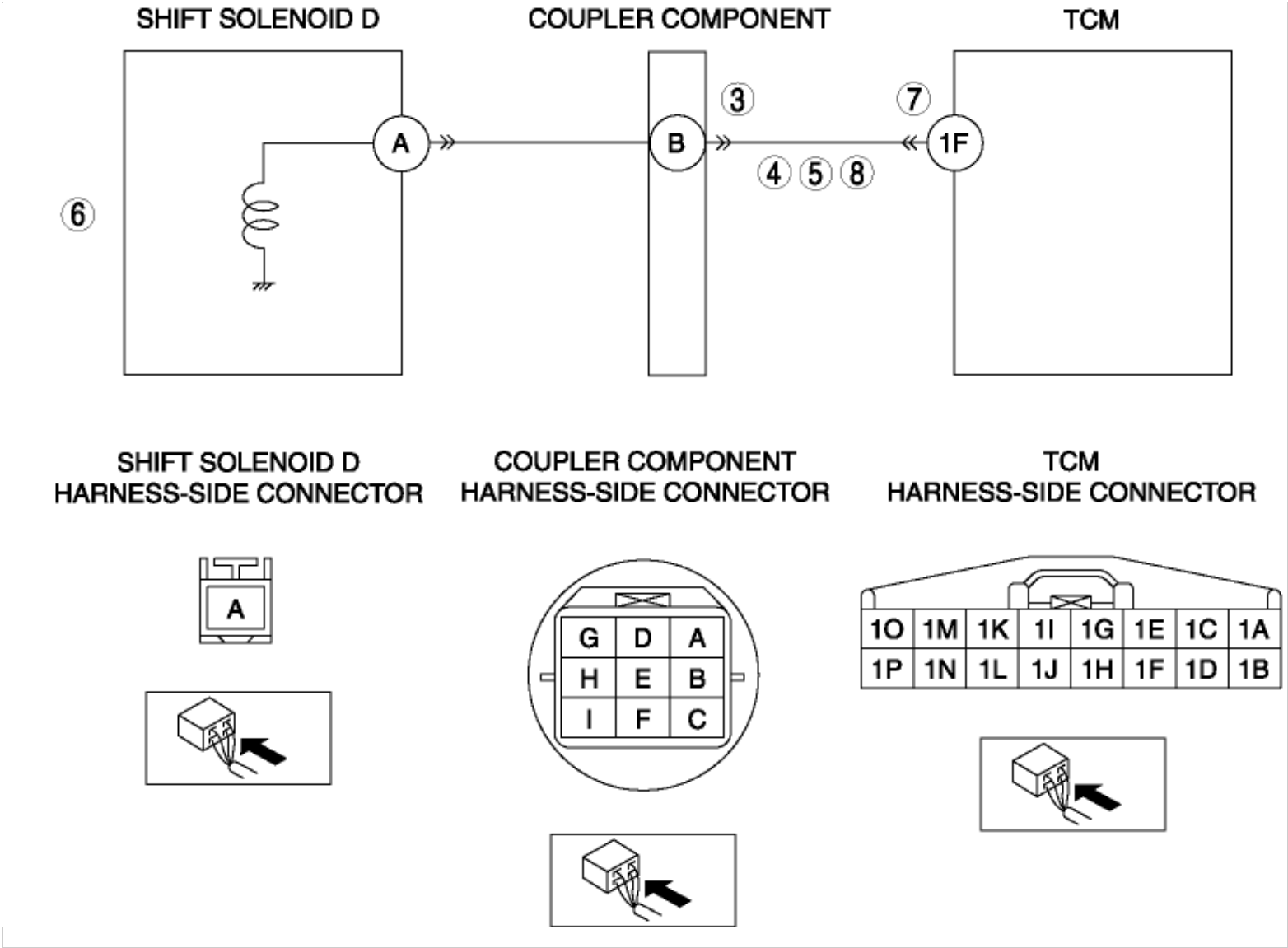
	CONNECTION • Switch the ignition off. • Disconnect the coupler component connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion) • Is there any malfunction?		to Step 9.
		No	Go to the next step.
4	INSPECT SHIFT SOLENOID D CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY • Switch the ignition off. • Measure the voltage between the coupler component terminal B (wiring harness-side) and body GND. • Is the voltage B+ ?	Yes	Repair or replace the wiring harness for a possible short to power supply, then go to Step 9.
		No	Go to the next step.
5	INSPECT SHIFT SOLENOID D CONTROL CIRCUIT FOR SHORT TO GND • Switch the ignition off. • Inspect for continuity between the coupler component terminal B (wiring harness-side) and body GND. • Is there continuity?	Yes	Repair or replace the wiring harness for a possible short to GND, then go to Step 9.
		No	Go to the next step.
6	INSPECT SHIFT SOLENOID D • Inspect the shift solenoid D. (See SOLENOID VALVE INSPECTION [FS5A-EL] .) • Is there any malfunction?	Yes	Replace the shift solenoid D, then go to Step 9. (See SOLENOID VALVE REMOVAL/ INSTALLATION [FS5A-EL] .)
		No	Go to the next step.
7	INSPECT TCM CONNECTOR FOR POOR CONNECTION • Switch the ignition off. • Disconnect the TCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion) • Is there any malfunction?	Yes	Repair or replace the terminal, then go to Step 9.
		No	Go to the next step.
8	INSPECT SHIFT SOLENOID D CONTROL CIRCUIT FOR OPEN CIRCUIT • Switch the ignition off. • Inspect for continuity between the coupler component terminal B (wiring harness-side) and PCM terminal 1F (wiring harness-side). • Is there continuity?	Yes	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
		No	Go to the next step.
	VERIFY TROUBLESHOOTING OF DTC P0768:00 COMPLETED		

9	• Make sure to reconnect all the disconnected connectors. • Clear the DTC using the M-MDS. • Perform the following procedure to ensure that the DTC has been resolved: ◦ Make sure that the gears shift smoothly from 1GR to 5GR. ◦ Make sure that TCC operates smoothly. • Is the same DTC present?	<table><tr><td>Yes</td><td>Replace the TCM, then go to the next step. (See TCM REMOVAL/ INSTALLATION [FS5A-EL] .)</td></tr><tr><td>No</td><td>Go to the next step.</td></tr></table>	Yes	Replace the TCM, then go to the next step. (See TCM REMOVAL/ INSTALLATION [FS5A-EL] .)	No	Go to the next step.
Yes	Replace the TCM, then go to the next step. (See TCM REMOVAL/ INSTALLATION [FS5A-EL] .)					
No	Go to the next step.					
10	VERIFY NO DTCs ARE PRESENT • Perform the “Reading DTCs Procedure”. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [FS5A-EL] .) • Are any DTCs present?	<table><tr><td>Yes</td><td>Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [FS5A-EL] .)</td></tr><tr><td>No</td><td>DTC troubleshooting completed.</td></tr></table>	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [FS5A-EL] .)	No	DTC troubleshooting completed.
Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [FS5A-EL] .)					
No	DTC troubleshooting completed.					

2012 - Mazda6 - Transmission/ Transaxle

DTC P0768:00 [FS5A-EL]

DTC P0768:00	Shift solenoid D electrical malfunction
DETECTION CONDITION	• The TCM detects that output voltage to the shift solenoid D is stuck at 0 V or B+ when the solenoid valve operates according to TCM calculation. Diagnostic support note • The MIL illuminates if the TCM detects the above malfunction condition during the first drive cycle. • The AT warning light illuminates. • PENDING CODE is available. • FREEZE FRAME DATA is available. • The DTC is stored in the TCM memory.
POSSIBLE CAUSE	• Coupler component connector or terminal malfunction • Short to power supply in wiring harness between shift solenoid D terminal A and TCM terminal 1F • Short to GND in wiring harness between shift solenoid D terminal A and TCM terminal 1F • Shift solenoid D malfunction • TCM connector or terminal malfunction • Open circuit in wiring harness between shift solenoid D terminal A and TCM terminal 1F • TCM malfunction



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA HAS BEEN RECORDED Has the FREEZE FRAME DATA been recorded on the repair order?	YesGo to the next step.
		No Record the FREEZE FRAME DATA on the repair order, then 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?	YesPerform 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.
3	INSPECT COUPLER COMPONENT CONNECTOR FOR POOR	YesRepair or replace the terminal, then go

	CONNECTION • Switch the ignition off. • Disconnect the coupler component connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion) • Is there any malfunction?		to Step 9.
		No	Go to the next step.
4	INSPECT SHIFT SOLENOID D CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY • Switch the ignition off. • Measure the voltage between the coupler component terminal B (wiring harness-side) and body GND. • Is the voltage B+ ?	Yes	Repair or replace the wiring harness for a possible short to power supply, then go to Step 9.
		No	Go to the next step.
5	INSPECT SHIFT SOLENOID D CONTROL CIRCUIT FOR SHORT TO GND • Switch the ignition off. • Inspect for continuity between the coupler component terminal B (wiring harness-side) and body GND. • Is there continuity?	Yes	Repair or replace the wiring harness for a possible short to GND, then go to Step 9.
		No	Go to the next step.
6	INSPECT SHIFT SOLENOID D • Inspect the shift solenoid D. (See SOLENOID VALVE INSPECTION [FS5A-EL] .) • Is there any malfunction?	Yes	Replace the shift solenoid D, then go to Step 9. (See SOLENOID VALVE REMOVAL/ INSTALLATION [FS5A-EL] .)
		No	Go to the next step.
7	INSPECT TCM CONNECTOR FOR POOR CONNECTION • Switch the ignition off. • Disconnect the TCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion) • Is there any malfunction?	Yes	Repair or replace the terminal, then go to Step 9.
		No	Go to the next step.
8	INSPECT SHIFT SOLENOID D CONTROL CIRCUIT FOR OPEN CIRCUIT • Switch the ignition off. • Inspect for continuity between the coupler component terminal B (wiring harness-side) and PCM terminal 1F (wiring harness-side). • Is there continuity?	Yes	Repair or replace the wiring harness for a possible open circuit, then go to the next step.
		No	Go to the next step.
	VERIFY TROUBLESHOOTING OF DTC P0768:00 COMPLETED		

9	• Make sure to reconnect all the disconnected connectors. • Clear the DTC using the M-MDS. • Perform the following procedure to ensure that the DTC has been resolved: ◦ Make sure that the gears shift smoothly from 1GR to 5GR. ◦ Make sure that TCC operates smoothly. • Is the same DTC present?	YesReplace the TCM, then go to the next step. (See TCM REMOVAL/ INSTALLATION [FS5A-EL] .) NoGo to the next step.
10	VERIFY NO DTCs ARE PRESENT • Perform the “Reading DTCs Procedure”. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [FS5A-EL] .) • Are any DTCs present?	YesGo to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [FS5A-EL] .) NoDTC troubleshooting completed.