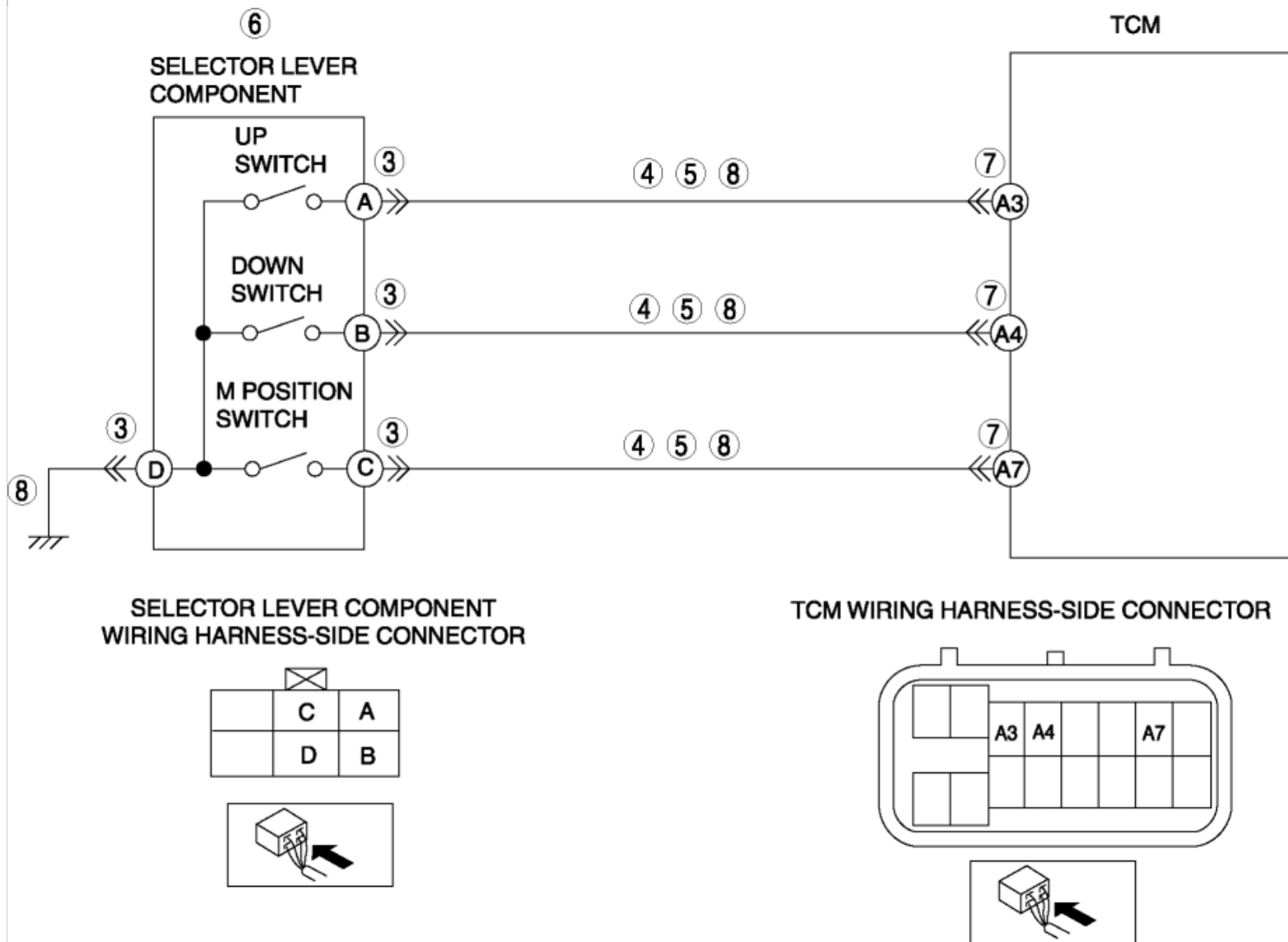


2012 - Mazda6 - Transmission/ Transaxle

DTC P0819:00 [AY6A-EL]

DTC P0819:00	Up and down switch to transaxle range correlation
DETECTION CONDITION	• Conditions: Engine running and TCM communication normal • Circumstances: M position (5V) signal is detected with the shift lever in a position except D position, or M position (0V) signal is detected when the shift lever is in the UP or DOWN position • Time period: Determined after 1 times lasting 10 or more seconds Diagnostic support note: • The MIL does not illuminate. • The AT warning light illuminates. • PENDING CODE is not available. • FREEZE FRAME DATA is available. • The DTC is stored in the TCM memory.
FAIL-SAFE FUNCTION	• Inhibits manual mode control
POSSIBLE CAUSE	• Selector lever component connector or terminal malfunction • Short to GND in wiring harness between selector lever component terminal A and TCM terminal A3 • Short to GND in wiring harness between selector lever component terminal B and TCM terminal A4 • Short to GND in wiring harness between selector lever component terminal C and TCM terminal A7 • Short to power supply in wiring harness between selector lever component terminal A and TCM terminal A3 • Short to power supply in wiring harness between selector lever component terminal B and TCM terminal A4 • Short to power supply in wiring harness between selector lever component terminal C and TCM terminal A7 • M position switch malfunction • Up switch malfunction • Down switch malfunction. • TCM connector or terminal malfunction • Open circuit between selector lever component terminal A and TCM terminal A3 • Open circuit between selector lever component terminal B and TCM terminal A4 • Open circuit between selector lever component terminal C and TCM terminal A7

- 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 SELECTOR LEVER COMPONENT CONNECTOR FOR POOR CONNECTION	Yes Repair or replace the terminal, then go

	- Switch the ignition OFF (LOCK). - Disconnect the selector lever 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 M POSITION SWITCH, UP SWITCH OR DOWN SWITCH CIRCUIT FOR SHORT TO GND - Switch the ignition OFF (LOCK). - Disconnect the TCM connector. - Inspect for continuity between the following circuits: - Selector lever component terminal A (wiring harness-side) and body GND - Selector lever component terminal B (wiring harness-side) and body GND - Selector lever component terminal C (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.
5	INSPECT M POSITION SWITCH, UP SWITCH AND DOWN SWITCH CIRCUIT FOR SHORT TO POWER SUPPLY - Disconnect the TCM connector. - Switch the ignition ON. (engine off). - Measure the voltage between the following circuits: - Selector lever component terminal A (wiring harness-side) and body GND - Selector lever component terminal B (wiring harness-side) and body GND - Selector lever component terminal C (wiring harness-side) and body GND - Is there continuity?	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.
6	INSPECT M POSITION SWITCH, UP SWITCH AND DOWN SWITCH - Inspect the M position switch, up switch and down switch. (See M POSITION SWITCH INSPECTION [AY6A-EL].) (See UP SWITCH INSPECTION [AY6A-EL].) (See DOWN SWITCH INSPECTION [AY6A-EL].) - Is there any malfunction?	Yes	Replace the selector lever component, then go to Step 9. (See AUTOMATIC TRANSAXLE SHIFT MECHANISM REMOVAL/ INSTALLATION.)
		No	Go to the next step.
7	INSPECT TCM CONNECTOR FOR POOR CONNECTION - Switch the ignition OFF (LOCK). - 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.
	INSPECT M POSITION SWITCH, UP SWITCH AND DOWN SWITCH		

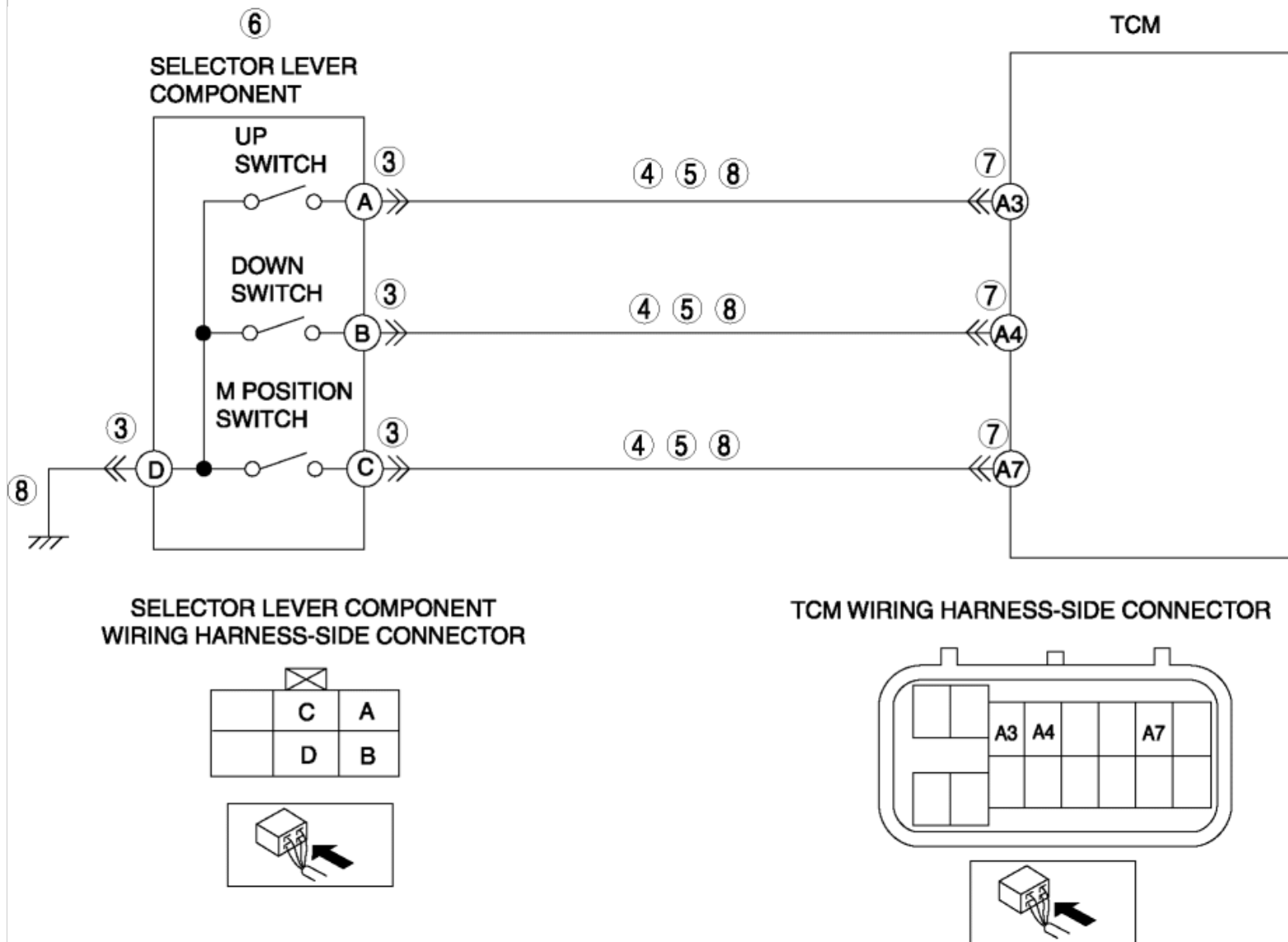
8 CIRCUIT FOR OPEN CIRCUIT • Switch the ignition OFF (LOCK). • Inspect for continuity between the following circuits: ▪ Selector lever component terminal A (wiring harness-side) and TCM terminal A3 (wiring harness-side) ▪ Selector lever component terminal B (wiring harness-side) and TCM terminal A4 (wiring harness-side) ▪ Selector lever component terminal C (wiring harness-side) and TCM terminal A7 (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 the next step.
9 VERIFY DTC TROUBLESHOOTING COMPLETED • 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: ◦ Start the engine. ◦ Warm up the engine to normal operating temperature. ◦ Drive the vehicle in M position, and shift the selector lever (operate up and down switches) between 1GR to 6GR for 10 s or more. • Is the same DTC present?	Yes Replace the TCM, then go to the next step. (See TCM REMOVAL/ INSTALLATION [AY6A-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 [AY6A-EL].) • Are any DTCs present?	Yes Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [AY6A-EL].) No DTC troubleshooting completed.

2012 - Mazda6 - Transmission/ Transaxle

DTC P0819:00 [AY6A-EL]

DTC P0819:00	Up and down switch to transaxle range correlation
DETECTION CONDITION	• Conditions: Engine running and TCM communication normal • Circumstances: M position (5V) signal is detected with the shift lever in a position except D position, or M position (0V) signal is detected when the shift lever is in the UP or DOWN position • Time period: Determined after 1 times lasting 10 or more seconds Diagnostic support note: • The MIL does not illuminate. • The AT warning light illuminates. • PENDING CODE is not available. • FREEZE FRAME DATA is available. • The DTC is stored in the TCM memory.
FAIL-SAFE FUNCTION	• Inhibits manual mode control
POSSIBLE CAUSE	• Selector lever component connector or terminal malfunction • Short to GND in wiring harness between selector lever component terminal A and TCM terminal A3 • Short to GND in wiring harness between selector lever component terminal B and TCM terminal A4 • Short to GND in wiring harness between selector lever component terminal C and TCM terminal A7 • Short to power supply in wiring harness between selector lever component terminal A and TCM terminal A3 • Short to power supply in wiring harness between selector lever component terminal B and TCM terminal A4 • Short to power supply in wiring harness between selector lever component terminal C and TCM terminal A7 • M position switch malfunction • Up switch malfunction • Down switch malfunction. • TCM connector or terminal malfunction • Open circuit between selector lever component terminal A and TCM terminal A3 • Open circuit between selector lever component terminal B and TCM terminal A4 • Open circuit between selector lever component terminal C and TCM terminal A7

- 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 SELECTOR LEVER COMPONENT CONNECTOR FOR POOR CONNECTION	Yes Repair or replace the terminal, then go

	- Switch the ignition OFF (LOCK). - Disconnect the selector lever 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 M POSITION SWITCH, UP SWITCH OR DOWN SWITCH CIRCUIT FOR SHORT TO GND - Switch the ignition OFF (LOCK). - Disconnect the TCM connector. - Inspect for continuity between the following circuits: - Selector lever component terminal A (wiring harness-side) and body GND - Selector lever component terminal B (wiring harness-side) and body GND - Selector lever component terminal C (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.
5	INSPECT M POSITION SWITCH, UP SWITCH AND DOWN SWITCH CIRCUIT FOR SHORT TO POWER SUPPLY - Disconnect the TCM connector. - Switch the ignition ON. (engine off). - Measure the voltage between the following circuits: - Selector lever component terminal A (wiring harness-side) and body GND - Selector lever component terminal B (wiring harness-side) and body GND - Selector lever component terminal C (wiring harness-side) and body GND - Is there continuity?	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.
6	INSPECT M POSITION SWITCH, UP SWITCH AND DOWN SWITCH - Inspect the M position switch, up switch and down switch. (See M POSITION SWITCH INSPECTION [AY6A-EL].) (See UP SWITCH INSPECTION [AY6A-EL].) (See DOWN SWITCH INSPECTION [AY6A-EL].) - Is there any malfunction?	Yes	Replace the selector lever component, then go to Step 9. (See AUTOMATIC TRANSAXLE SHIFT MECHANISM REMOVAL/ INSTALLATION.)
		No	Go to the next step.
7	INSPECT TCM CONNECTOR FOR POOR CONNECTION - Switch the ignition OFF (LOCK). - 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.
	INSPECT M POSITION SWITCH, UP SWITCH AND DOWN SWITCH		

8	CIRCUIT FOR OPEN CIRCUIT • Switch the ignition OFF (LOCK). • Inspect for continuity between the following circuits: ▪ Selector lever component terminal A (wiring harness-side) and TCM terminal A3 (wiring harness-side) ▪ Selector lever component terminal B (wiring harness-side) and TCM terminal A4 (wiring harness-side) ▪ Selector lever component terminal C (wiring harness-side) and TCM terminal A7 (wiring harness-side) • Is there continuity?	Yes	Go to the next step.
9	VERIFY DTC TROUBLESHOOTING COMPLETED • 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: ◦ Start the engine. ◦ Warm up the engine to normal operating temperature. ◦ Drive the vehicle in M position, and shift the selector lever (operate up and down switches) between 1GR to 6GR for 10 s or more. • Is the same DTC present?	Yes	Replace the TCM, then go to the next step. (See TCM REMOVAL/ INSTALLATION [AY6A-EL] .)
10	VERIFY NO DTCs ARE PRESENT • Perform the "Reading DTCs Procedure". (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [AY6A-EL] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [AY6A-EL] .)
		No	DTC troubleshooting completed.