

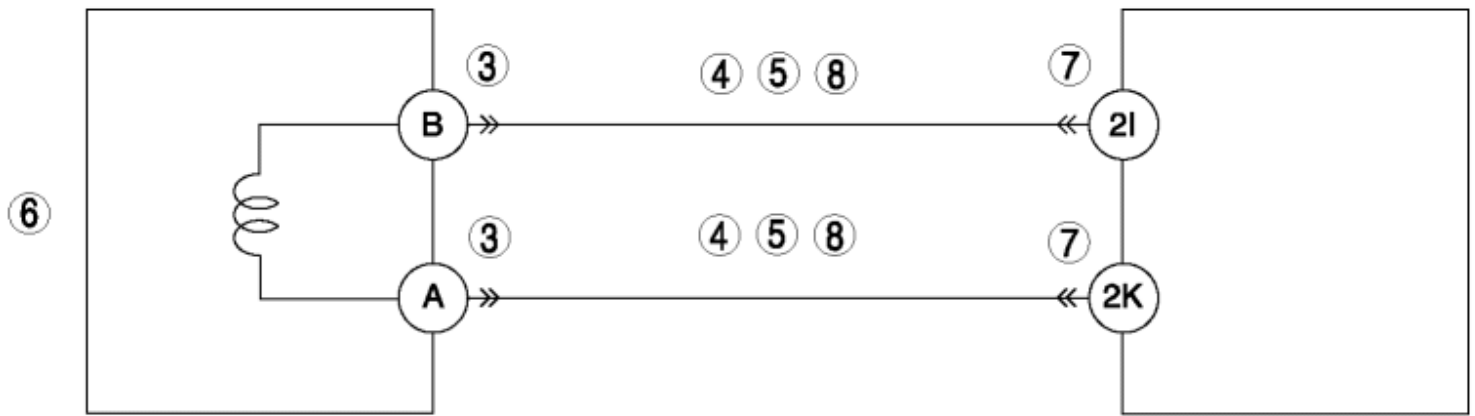
2012 - Mazda6 - Transmission/ Transaxle

DTC P0715:00 [FS5A-EL]

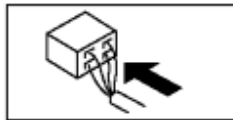
DTC P0715:00	Input/turbine speed sensor circuit malfunction
DETECTION CONDITION	• The TCM detects no signal from the input/turbine speed sensor for 775 ms when the following conditions are met. ▪ D or M position ▪ Vehicle speed: 41 km/h {26 mph} or more Diagnostic support note • The MIL illuminates if 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.
POSSI BLE CAUSE	• Input/turbine speed sensor connector or terminal malfunction • Short to GND in wiring harness between input/turbine speed sensor terminal B and TCM terminal 2I • Short to GND in wiring harness between input/turbine speed sensor terminal A and TCM terminal 2K • Short to power supply in wiring harness between input/turbine speed sensor terminal B and TCM terminal 2I • Short to power supply in wiring harness between input/turbine speed sensor terminal A and TCM terminal 2K • Input/turbine speed sensor malfunction • TCM connector or terminal malfunction • Open circuit in wiring harness between input/turbine speed sensor terminal B and TCM terminal 2I • Open circuit in wiring harness between input/turbine speed sensor terminal A and TCM terminal 2K • TCM malfunction

INPUT/TURBINE SPEED SENSOR

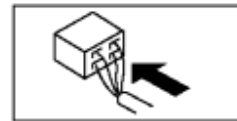
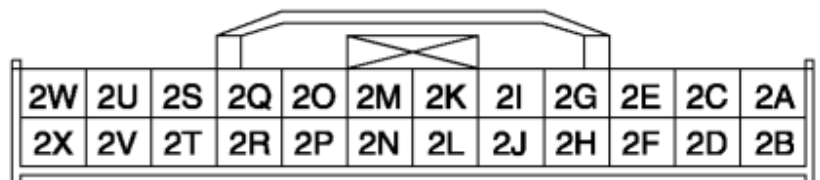
TCM



INPUT/TURBINE SPEED SENSOR HARNESS-SIDE CONNECTOR



TCM HARNESS-SIDE CONNECTOR



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 INPUT/ TURBINE SPEED SENSOR CONNECTOR FOR POOR CONNECTION Switch the ignition off.	Yes Repair or replace the terminal, then go to Step 9. No Go to the next step.

	• Disconnect the input/turbine speed sensor connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion) • Is there any malfunction?	No	Go to the next step.
4	INSPECT INPUT/ TURBINE SPEED SENSOR CIRCUIT FOR SHORT TO GND • Switch the ignition off. • Inspect for continuity between the following circuits: ▪ Input/turbine speed sensor terminal B (wiring harness-side) and body GND ▪ Input/turbine speed sensor terminal A (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 INPUT/ TURBINE SPEED SENSOR CIRCUIT FOR SHORT TO POWER SUPPLY • Switch the ignition to ON (Engine off). • Measure the voltage between the following circuits: ▪ Input/turbine speed sensor terminal B (wiring harness-side) and body GND ▪ Input/turbine speed sensor terminal A (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.
6	INSPECT INPUT/ TURBINE SPEED SENSOR • Inspect the input/turbine speed sensor. (See INPUT/ TURBINE SPEED SENSOR INSPECTION [FS5A-EL] .) • Is there any malfunction?	Yes	Replace the input/turbine speed sensor, then go to Step 9. (See INPUT/ TURBINE SPEED SENSOR 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)	Yes	Repair or replace the terminal, then go to Step 9.
		No	Go to the next step.

	Is there any malfunction?		
8	INSPECT INPUT/ TURBINE SPEED SENSOR CIRCUIT FOR OPEN CIRCUIT - Switch the ignition off. - Inspect for continuity between the following circuits: - Input/turbine speed sensor terminal B (wiring harness-side) and TCM terminal 2I (wiring harness-side) - Input/turbine speed sensor terminal A (wiring harness-side) and TCM terminal 2K (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 TROUBLESHOOTING OF DTC P0715:00 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: - Drive the vehicle at 41 km/h {26 mph} or more for 1 s or more. - Is the same DTC present?	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?	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [FS5A-EL] .)
		No	DTC troubleshooting completed.

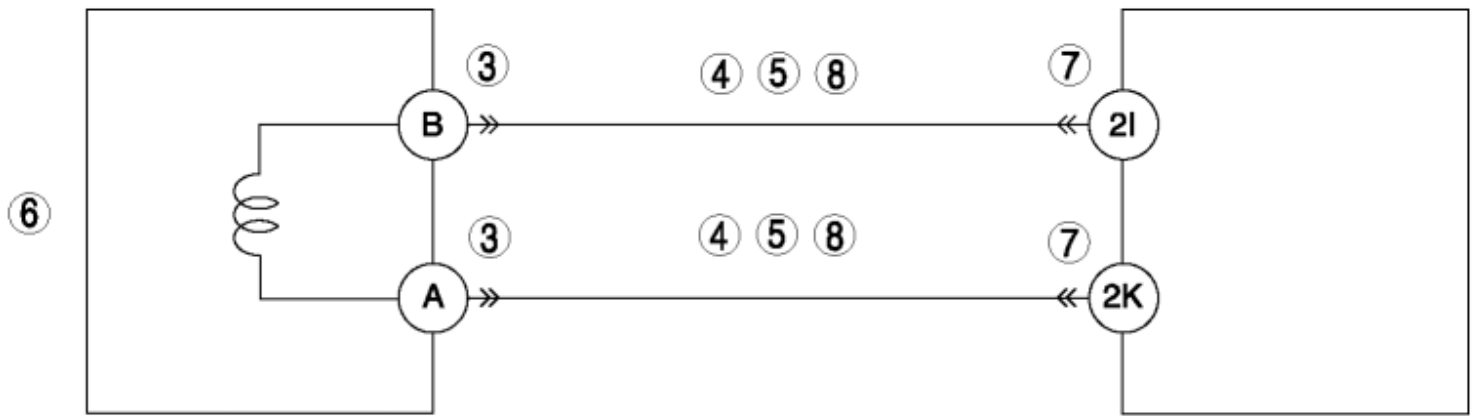
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DTC P0715:00 [FS5A-EL]

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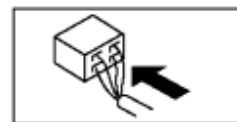
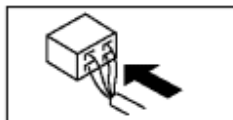
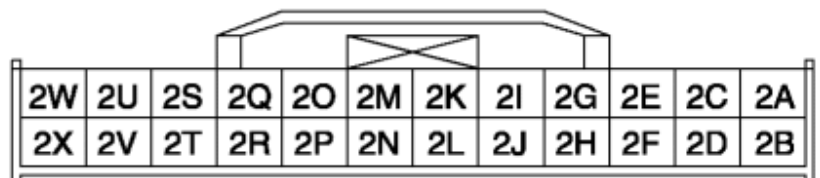
INPUT/TURBINE SPEED SENSOR

TCM



INPUT/TURBINE SPEED SENSOR HARNESS-SIDE CONNECTOR

TCM HARNESS-SIDE CONNECTOR



Diagnostic procedure

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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 INPUT/ TURBINE SPEED SENSOR CONNECTOR FOR POOR CONNECTION Switch the ignition off.	Yes Repair or replace the terminal, then go to Step 9.

	• Disconnect the input/turbine speed sensor connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion) • Is there any malfunction?	No	Go to the next step.
4	INSPECT INPUT/ TURBINE SPEED SENSOR CIRCUIT FOR SHORT TO GND • Switch the ignition off. • Inspect for continuity between the following circuits: ▪ Input/turbine speed sensor terminal B (wiring harness-side) and body GND ▪ Input/turbine speed sensor terminal A (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 INPUT/ TURBINE SPEED SENSOR CIRCUIT FOR SHORT TO POWER SUPPLY • Switch the ignition to ON (Engine off). • Measure the voltage between the following circuits: ▪ Input/turbine speed sensor terminal B (wiring harness-side) and body GND ▪ Input/turbine speed sensor terminal A (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.
6	INSPECT INPUT/ TURBINE SPEED SENSOR • Inspect the input/turbine speed sensor. (See INPUT/ TURBINE SPEED SENSOR INSPECTION [FS5A-EL] .) • Is there any malfunction?	Yes	Replace the input/turbine speed sensor, then go to Step 9. (See INPUT/ TURBINE SPEED SENSOR 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)	Yes	Repair or replace the terminal, then go to Step 9.
		No	Go to the next step.

	Is there any malfunction?		
8	INSPECT INPUT/ TURBINE SPEED SENSOR CIRCUIT FOR OPEN CIRCUIT - Switch the ignition off. - Inspect for continuity between the following circuits: - Input/turbine speed sensor terminal B (wiring harness-side) and TCM terminal 2I (wiring harness-side) - Input/turbine speed sensor terminal A (wiring harness-side) and TCM terminal 2K (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 TROUBLESHOOTING OF DTC P0715:00 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: - Drive the vehicle at 41 km/h {26 mph} or more for 1 s or more. - Is the same DTC present?	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?	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [FS5A-EL] .)
		No	DTC troubleshooting completed.