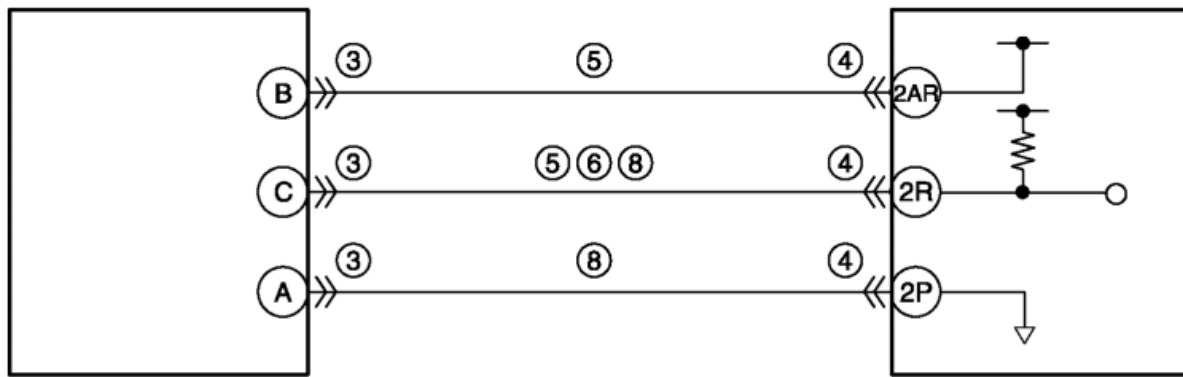


2012 - Mazda6 - Engine

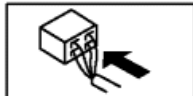
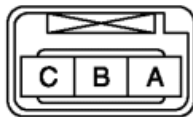
DTC P2017:00 [MZR 2.5]

DTC P2017:00	Variable tumble shutter valve position sensor circuit high input
DETECTION CONDITION	• The PCM monitors input voltage from SCV position sensor. If input voltage is above 4.9 V for 4.9 s, the PCM determines that the SCV position sensor circuit has a malfunction. Diagnostic support note • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Variable tumble shutter valve position sensor connector or terminal malfunction • PCM connector or terminal malfunction • Short circuit in variable tumble shutter valve position sensor power supply circuit and signal circuit each other • Short to power supply in wiring harness between variable tumble shutter valve position sensor terminal C and PCM terminal 2R • Variable tumble shutter valve position sensor malfunction • Open circuit in wiring harness between variable tumble shutter valve position sensor terminal C and PCM terminal 2R • Open circuit in wiring harness between variable tumble shutter valve position sensor terminal A and PCM terminal 2P • PCM malfunction

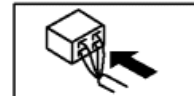
⑦
**VARIABLE TUMBLE
 SHUTTER VALVE POSITION SENSOR**



**VARIABLE TUMBLE
 SHUTTER VALVE POSITION SENSOR
 WIRING HARNESS-SIDE CONNECTOR**



PCM WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED Has the FREEZE FRAME DATA (Mode 2)/snapshot data been recorded?	Yes Go to the next step. No Record the FREEZE FRAME DATA (Mode 2)/snapshot 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 VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR CONNECTOR CONDITION - Switch the ignition to off. - Disconnect the variable tumble shutter valve position sensor 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 9. No Go to the next step.
4	INSPECT PCM CONNECTOR CONDITION	Yes Repair or replace the terminal and/or connector,

	• Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	then go to Step 9. No Go to the next step.
5	INSPECT VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR POWER SUPPLY AND SIGNAL CIRCUITS FOR SHORT EACH OTHER • Variable tumble shutter valve position sensor and PCM connectors are disconnected. • Inspect for continuity between variable tumble shutter valve position sensor terminals B and C (wiring harness-side). • Is there continuity?	Yes Repair or replace the malfunctioning wiring harness, then go to Step 9. No Go to the next step.
6	INSPECT VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY • Variable tumble shutter valve position sensor and PCM connectors are disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between variable tumble shutter valve position sensor terminal C (wiring harness-side) and body ground. • Is there any voltage?	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.
7	INSPECT VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR • Reconnect all disconnected connectors. • Inspect the variable tumble shutter valve position sensor. (See VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR INSPECTION [MZR 2.5].) • Is there any malfunction?	Yes Replace the variable tumble shutter valve position sensor, then go to Step 9. (See INTAKE-AIR SYSTEM REMOVAL/ INSTALLATION [MZR 2.5].) No Go to the next step.
8	INSPECT VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR CIRCUIT FOR OPEN CIRCUIT • Variable tumble shutter valve position sensor and PCM connectors are disconnected. • Switch the ignition to off. • Inspect for continuity between the following terminals: ▪ Variable tumble shutter valve position sensor terminal C (wiring harness-side) and PCM terminal 2R (wiring harness-side) ▪ Variable tumble shutter valve position sensor terminal A (wiring harness-side) and PCM terminal 2P (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 disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Perform the KOEO or 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.

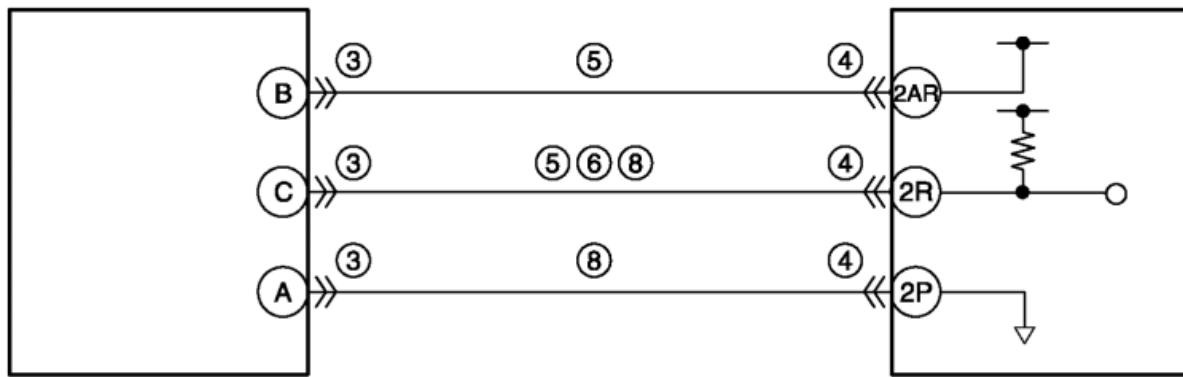
10	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [MZR 2.5] .)
		No	DTC troubleshooting completed.

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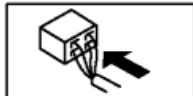
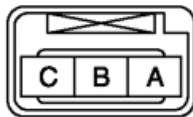
DTC P2017:00 [MZR 2.5]

DTC P2017:00	Variable tumble shutter valve position sensor circuit high input
DETECTION CONDITION	• The PCM monitors input voltage from SCV position sensor. If input voltage is above 4.9 V for 4.9 s, the PCM determines that the SCV position sensor circuit has a malfunction. Diagnostic support note • This is a continuous monitor (CCM). • The MIL illuminates if the PCM detects the above malfunction condition during the first drive cycle. • FREEZE FRAME DATA (Mode 2)/Snapshot data is available. • The DTC is stored in the PCM memory.
POSSIBLE CAUSE	• Variable tumble shutter valve position sensor connector or terminal malfunction • PCM connector or terminal malfunction • Short circuit in variable tumble shutter valve position sensor power supply circuit and signal circuit each other • Short to power supply in wiring harness between variable tumble shutter valve position sensor terminal C and PCM terminal 2R • Variable tumble shutter valve position sensor malfunction • Open circuit in wiring harness between variable tumble shutter valve position sensor terminal C and PCM terminal 2R • Open circuit in wiring harness between variable tumble shutter valve position sensor terminal A and PCM terminal 2P • PCM malfunction

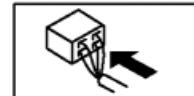
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**VARIABLE TUMBLE
 SHUTTER VALVE POSITION SENSOR**



**VARIABLE TUMBLE
 SHUTTER VALVE POSITION SENSOR
 WIRING HARNESS-SIDE CONNECTOR**



PCM WIRING HARNESS-SIDE CONNECTOR



Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY FREEZE FRAME DATA (MODE 2)/ SNAPSHOT DATA HAS BEEN RECORDED Has the FREEZE FRAME DATA (Mode 2)/snapshot data been recorded?	Yes Go to the next step. No Record the FREEZE FRAME DATA (Mode 2)/snapshot 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 VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR CONNECTOR CONDITION - Switch the ignition to off. - Disconnect the variable tumble shutter valve position sensor 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 9. No Go to the next step.
4	INSPECT PCM CONNECTOR CONDITION	Yes Repair or replace the terminal and/or connector,

	• Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	then go to Step 9. No Go to the next step.
5	INSPECT VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR POWER SUPPLY AND SIGNAL CIRCUITS FOR SHORT EACH OTHER • Variable tumble shutter valve position sensor and PCM connectors are disconnected. • Inspect for continuity between variable tumble shutter valve position sensor terminals B and C (wiring harness-side). • Is there continuity?	Yes Repair or replace the malfunctioning wiring harness, then go to Step 9. No Go to the next step.
6	INSPECT VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY • Variable tumble shutter valve position sensor and PCM connectors are disconnected. • Switch the ignition to ON (engine off). • Measure the voltage between variable tumble shutter valve position sensor terminal C (wiring harness-side) and body ground. • Is there any voltage?	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.
7	INSPECT VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR • Reconnect all disconnected connectors. • Inspect the variable tumble shutter valve position sensor. (See VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR INSPECTION [MZR 2.5].) • Is there any malfunction?	Yes Replace the variable tumble shutter valve position sensor, then go to Step 9. (See INTAKE-AIR SYSTEM REMOVAL/ INSTALLATION [MZR 2.5].) No Go to the next step.
8	INSPECT VARIABLE TUMBLE SHUTTER VALVE POSITION SENSOR CIRCUIT FOR OPEN CIRCUIT • Variable tumble shutter valve position sensor and PCM connectors are disconnected. • Switch the ignition to off. • Inspect for continuity between the following terminals: ▪ Variable tumble shutter valve position sensor terminal C (wiring harness-side) and PCM terminal 2R (wiring harness-side) ▪ Variable tumble shutter valve position sensor terminal A (wiring harness-side) and PCM terminal 2P (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 disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See AFTER REPAIR PROCEDURE [MZR 2.5].) • Perform the KOEO or 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.

10	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.