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2012 MAZDA MX-5 / Miata Roadster Coupe OEM Service and Repair Workshop Manual

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DTC P0757:00 [TCM (GW6A-EL, GW6AX-EL)]

SM2898322

id0502o981900

DTC P0757:00	Shift solenoid No.2 stuck on
DETECTION CONDITION	• Under the following conditions, shift solenoid No.2 stuck-on detected by combination of gear ratio malfunction and oil pressure switch pattern malfunction: — Engine is running. — ATF temperature is 20 °C {68 °F} or more. — There is no difference between vehicle speed signal from DSC HU/CM and output shaft speed sensor signal. — Turbine/input shaft speed sensor and output shaft speed sensor DTC is not recorded.
FAIL-SAFE FUNCTION	• Inhibits malfunctioning gear. • Limits engine torque. • Inhibits learning control. • Inhibits manual mode. • Inhibits neutral idle control. • Inhibits AAS.
POSSIBLE CAUSE	• Shift solenoid No.2 malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY DTC OUTPUT STATUS • Is the DTC P1738:00 also present?	Yes	Go to the applicable DTC inspection. (See DTC P1738:00 [TCM (GW6A-EL, GW6AX-EL)] .)
		No	Go to the next step.
2	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture of the PC function. • Record the freeze frame data/snap shot data.	–	Go to the next step.
3	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.

STEP	INSPECTION		ACTION
3	VERIFY DTC TROUBLESHOOTING COMPLETED • Clear the DTC using the M-MDS. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [TCM (GW6A-EL, GW6AX-EL)].) • Perform the following procedure to ensure that the DTC has been resolved: 1. Switch the ignition ON (engine off or on). • Perform the DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [TCM (GW6A-EL, GW6AX-EL)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [TCM (GW6A-EL, GW6AX-EL)] .)
		No	DTC troubleshooting completed.

Sample

DTC P0762:00 [TCM (GW6A-EL, GW6AX-EL)]

SM2898325

id0502o981930

DTC P0762:00	Shift solenoid No.3 stuck on
DETECTION CONDITION	• Under the following conditions, shift solenoid No.3 stuck-on detected by combination of gear ratio malfunction and oil pressure switch pattern malfunction: — Engine is running. — ATF temperature is 20 °C {68 °F} or more. — There is no difference between vehicle speed signal from DSC HU/CM and output shaft speed sensor signal. — Turbine/input shaft speed sensor and output shaft speed sensor DTC is not recorded.
FAIL-SAFE FUNCTION	• Inhibits malfunctioning gear. • Limits engine torque. • Inhibits learning control. • Inhibits manual mode. • Inhibits neutral idle control. • Inhibits AAS.
POSSIBLE CAUSE	• ATF is less than specified value • Shift solenoid No.3 malfunction • Control valve body malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY DTC OUTPUT STATUS • Is the DTC P1738:00 also present?	Yes Go to the applicable DTC inspection. (See DTC P1738:00 [TCM (GW6A-EL, GW6AX-EL)] .)
	No	Go to the next step.
2	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture of the PC function. • Record the freeze frame data/snap shot data.	– Go to the next step.

DTC P0763:00 [TCM (GW6A-EL, GW6AX-EL)]

SM2898326

id0502o981940

DTC P0763:00	Shift solenoid No.3 circuit malfunction
DETECTION CONDITION	- Under the following condition, the TCM detects the shift solenoid No.3 circuit malfunction: - Battery voltage is 10.5 V or more.
FAIL-SAFE FUNCTION	- Set to emergency mode. - Inhibits learning control. - Inhibits manual mode. - Inhibits neutral idle control. - Inhibits AAS.
POSSIBLE CAUSE	- Short or open circuit in shift solenoid No.3 circuit - Shift solenoid No.3 malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic procedure

STEP	INSPECTION		ACTION
1	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION Note - Recording can be facilitated using the screen capture of the PC function. - Record the freeze frame data/snap shot data.	–	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, replace the control valve body. (See CONTROL VALVE BODY REMOVAL/INSTALLATION [GW6A-EL, GW6AX-EL].) Go to the next step.
		No	Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL/INSTALLATION [GW6A-EL, GW6AX-EL].)

STEP	INSPECTION		ACTION
4	PERFORM ON-BOARD DIAGNOSTIC TEST • Perform the following procedure to ensure that the DTC has been resolved: 1. Start the engine. 2. Verify that the ATF temperature is 55 °C {131 °F} or more. • Perform the on-board diagnostic test. (See ON-BOARD DIAGNOSTIC TEST MODE [TCM (GW6A-EL, GW6AX-EL)] .) • Are P0766:00 present?	Yes	Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL/INSTALLATION [GW6A-EL, GW6AX-EL])
		No	No DTCs are displayed: • Drive the vehicle to check it, and if there is no problem then the DTC troubleshooting is complete. If a DTC other than the one indicated on the left is displayed: • Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [TCM (GW6A-EL, GW6AX-EL)])
5	RE-PERFORM ON-BOARD DIAGNOSTIC TEST • Perform the following procedure to ensure that the DTC has been resolved: 1. Start the engine. 2. Verify that the ATF temperature is 55 °C {131 °F} or more. • Perform the on-board diagnostic test. (See ON-BOARD DIAGNOSTIC TEST MODE [TCM (GW6A-EL, GW6AX-EL)] .) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [TCM (GW6A-EL, GW6AX-EL)] .)
		No	DTC troubleshooting completed.

Sample

DTC P0771:00 [TCM (GW6A-EL, GW6AX-EL)]

SM2898330

id0502o981980

DTC P0771:00	On/off solenoid stuck off
DETECTION CONDITION	• Under the following conditions, on/off solenoid stuck-off detected by combination of gear ratio malfunction and oil pressure switch pattern malfunction: — Engine is running. — ATF temperature is 20 °C {68 °F} or more. — There is no difference between vehicle speed signal from DSC HU/CM and output shaft speed sensor signal. — Turbine/input shaft speed sensor and output shaft speed sensor DTC is not recorded.
FAIL-SAFE FUNCTION	• Inhibits malfunctioning gear. • Limits engine torque. • Inhibits learning control. • Inhibits manual mode. • Inhibits neutral idle control. • Inhibits AAS.
POSSIBLE CAUSE	• On/off solenoid malfunction • Control valve body malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY DTC OUTPUT STATUS • Is the DTC P1738:00 also present?	Yes	Go to the applicable DTC inspection. (See DTC P1738:00 [TCM (GW6A-EL, GW6AX-EL)] .)
		No	Go to the next step.
2	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture of the PC function. • Record the freeze frame data/snap shot data.	–	Go to the next step.
3	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.

STEP	INSPECTION		ACTION
3	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.
4	INSPECT ATF LEVEL - Inspect the ATF level. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [GW6A-EL, GW6AX-EL].) - Is there any malfunction?	Yes	Adjust the ATF level to the specification, then go to the next step. (See AUTOMATIC TRANSAXLE FLUID (ATF) ADJUSTMENT [GW6A-EL, GW6AX-EL].)
		No	Replace the on/off solenoid, then go to the next step. (See ON/OFF SOLENOID REMOVAL/INSTALLATION [GW6A-EL, GW6AX-EL].)
5	PERFORM ON-BOARD DIAGNOSTIC TEST - Perform the following procedure to ensure that the DTC has been resolved: - Start the engine. - Verify that the ATF temperature is 55 °C {131 °F} or more. - Perform the on-board diagnostic test. (See ON-BOARD DIAGNOSTIC TEST MODE [TCM (GW6A-EL, GW6AX-EL)].) - Are any DTCs present?	Yes	ATF amount in Step 4 is correct: - Replace the automatic transaxle, then drive the vehicle to check it, and if there is no problem then the DTC troubleshooting is complete. (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [GW6A-EL (SKYACTIV-G 2.5T)].) (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [GW6A-EL (SKYACTIV-D 2.2)].) (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [GW6AX-EL (SKYACTIV-G 2.5T)].) (See AUTOMATIC TRANSAXLE REMOVAL/INSTALLATION [GW6AX-EL (SKYACTIV-D 2.2)].) ATF amount adjusted in Step 4: - Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL/INSTALLATION [GW6A-EL, GW6AX-EL].)
		No	Drive the vehicle to check it, and if there is no problem then the DTC troubleshooting is complete.
6	RE-PERFORM ON-BOARD DIAGNOSTIC TEST - Perform the following procedure to ensure that the DTC has been resolved: - Start the engine. - Verify that the ATF temperature is 55 °C {131 °F} or more. - Perform the on-board diagnostic test. (See ON-BOARD DIAGNOSTIC TEST MODE [TCM (GW6A-EL, GW6AX-EL)].) - Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [TCM (GW6A-EL, GW6AX-EL)].)
		No	DTC troubleshooting completed.

DTC P0883:00 [TCM (GW6A-EL, GW6AX-EL)]

SM2898333

id0502o982010

DTC P0883:00	TCM power supply voltage high
DETECTION CONDITION	• TCM power supply voltage is 18 V or more for 5 s.
FAIL-SAFE FUNCTION	• Set to emergency mode. • Inhibits learning control. • Inhibits manual mode. • Inhibits neutral idle control. • Inhibits AAS.
POSSIBLE CAUSE	• PCM DTC is stored. • Battery malfunction • Generator malfunction
SYSTEM WIRING DIAGRAM	Not applicable

Diagnostic procedure

STEP	INSPECTION		ACTION
1	RECORD VEHICLE STATUS WHEN DTC WAS DETECTED TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture of the PC function. • Record the freeze frame data/snap shot data.	–	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	VERIFY PCM DTC • Perform the PCM DTC inspection using the M-MDS. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-D 2.2)].) (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5T)].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-D 2.2)] .) (See DTC TABLE [PCM (SKYACTIV-G 2.5T)] .)
		No	Go to the next step.
4	INSPECT BATTERY • Inspect the battery. (See BATTERY INSPECTION.) • Is there any malfunction?	Yes	Replace the battery, then go to Step 6. (See BATTERY REMOVAL/INSTALLATION [SKYACTIV-D 2.2] .) (See BATTERY REMOVAL/INSTALLATION [SKYACTIV-G 2.5T] .)
		No	Go to the next step.