

2012 - Mazda6 - Transmission/ Transaxle

DTC P0978:00 [AY6A-EL]

DTC P0978:00	Shift solenoid C circuit range/performance
DETECTION CONDITION	• Conditions: TCM communication normal • Circumstances: Inappropriate feedback current for solenoid current command value detected • Time period: Determined after lasting 2 or more seconds 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 not available. • FREEZE FRAME DATA is available. • The DTC is stored in the TCM memory.
FAIL-SAFE FUNCTION	• Emergency mode 1
POSSIBLE CAUSE	• Deteriorated ATF • ATF level low • Line pressure malfunction • Solenoid valve malfunction ▪ Shift solenoid C • TCM malfunction
SYSTEM WIRING DIAGRAM	—

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 FOR ATF LEAKAGE - Verify that there is no ATF leaking from the transaxle case, and the connecting surfaces of the transaxle and the engine. - Is any ATF leakage verified?	Yes	After repairing the spot where there is ATF leakage, adjust the ATF level, then go to Step 7. (See AUTOMATIC TRANSAXLE FLUID (ATF) LEVEL ADJUSTMENT [AY6A-EL] .)
		No	Go to the next step.
4	INSPECT ATF CONDITION - Inspect the ATF condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [AY6A-EL] .) - Is it normal?	Yes	Go to the next step.
		No	Replace the ATF, then go to Step 7. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT [AY6A-EL] .)
5	INSPECT LINE PRESSURE - Perform the "Line Pressures Test". (See MECHANICAL SYSTEM TEST [AY6A-EL] .) - Is there any malfunction?	Yes	Repair or replace malfunctioning part according to test result, then go to Step 7.
		No	Go to the next step.
6	INSPECT SHIFT SOLENOID C - Inspect the shift solenoid C. (See SHIFT SOLENOID C INSPECTION [AY6A-EL] .) - Is there any malfunction?	Yes	Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL/ INSTALLATION [AY6A-EL] .)
		No	Go to the next step.
7	VERIFY DTC TROUBLESHOOTING COMPLETED Make sure to reconnect all the disconnected connectors.	Yes	Replace the TCM, then go to the next step. (See TCM REMOVAL/ INSTALLATION

	• 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 and transaxle. ◦ Drive the vehicle in D position and make sure that the gears shift smoothly from 1GR to 6GR. • Is the same DTC present?	[AY6A-EL] .)
		No Go to the next step.
8	VERIFY NO DTCs ARE PRESENT • Perform the “Reading DTCs Procedure”. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [AY6A-EL] .) • Are any DTCs present?	YesGo to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [AY6A-EL] .) No DTC troubleshooting completed.

2012 - Mazda6 - Transmission/ Transaxle

DTC P0978:00 [AY6A-EL]

DTC P0978:00	Shift solenoid C circuit range/performance
DETECTION CONDITION	• Conditions: TCM communication normal • Circumstances: Inappropriate feedback current for solenoid current command value detected • Time period: Determined after lasting 2 or more seconds 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 not available. • FREEZE FRAME DATA is available. • The DTC is stored in the TCM memory.
FAIL-SAFE FUNCTION	• Emergency mode 1
POSSIBLE CAUSE	• Deteriorated ATF • ATF level low • Line pressure malfunction • Solenoid valve malfunction ▪ Shift solenoid C • TCM malfunction
SYSTEM WIRING DIAGRAM	—

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 FOR ATF LEAKAGE - Verify that there is no ATF leaking from the transaxle case, and the connecting surfaces of the transaxle and the engine. - Is any ATF leakage verified?	Yes	After repairing the spot where there is ATF leakage, adjust the ATF level, then go to Step 7. (See AUTOMATIC TRANSAXLE FLUID (ATF) LEVEL ADJUSTMENT [AY6A-EL] .)
		No	Go to the next step.
4	INSPECT ATF CONDITION - Inspect the ATF condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [AY6A-EL] .) - Is it normal?	Yes	Go to the next step.
		No	Replace the ATF, then go to Step 7. (See AUTOMATIC TRANSAXLE FLUID (ATF) REPLACEMENT [AY6A-EL] .)
5	INSPECT LINE PRESSURE - Perform the "Line Pressures Test". (See MECHANICAL SYSTEM TEST [AY6A-EL] .) - Is there any malfunction?	Yes	Repair or replace malfunctioning part according to test result, then go to Step 7.
		No	Go to the next step.
6	INSPECT SHIFT SOLENOID C - Inspect the shift solenoid C. (See SHIFT SOLENOID C INSPECTION [AY6A-EL] .) - Is there any malfunction?	Yes	Replace the control valve body, then go to the next step. (See CONTROL VALVE BODY REMOVAL/ INSTALLATION [AY6A-EL] .)
		No	Go to the next step.
7	VERIFY DTC TROUBLESHOOTING COMPLETED Make sure to reconnect all the disconnected connectors.	Yes	Replace the TCM, then go to the next step. (See TCM REMOVAL/ INSTALLATION

	• 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 and transaxle. ◦ Drive the vehicle in D position and make sure that the gears shift smoothly from 1GR to 6GR. • Is the same DTC present?	[AY6A-EL] .)
		No Go to the next step.
8	VERIFY NO DTCs ARE PRESENT • Perform the “Reading DTCs Procedure”. (See ON-BOARD DIAGNOSTIC SYSTEM DTC INSPECTION [AY6A-EL] .) • Are any DTCs present?	YesGo to the applicable DTC inspection. (See ON-BOARD DIAGNOSTIC SYSTEM DTC TABLE [AY6A-EL] .) No DTC troubleshooting completed.