

2012 - Mazda6 - Transmission/ Transaxle

NO.9 ABNORMAL SHIFTING [AY6A-EL]

9	Abnormal shifting
DESCRIPTION	• Shift incorrectly (incorrect shift pattern).
POSSIBLE CAUSE	• There is a malfunction in the signal circuit which controls shifting (Accelerator opening signal, input/turbine speed sensor, VSS), the control valve is stuck, or the clutch circuit is stuck. NOTE: • If a tire of a different diameter from the standard tire is installed, the TCM determines that the driving mode is the AAS mode, and may change to a different shift timing from the normal timing. ▪ Clutch slippage, burnt (C1 clutch, C2 clutch, C3 clutch, B1 brake) • Line pressure low • Incorrect accelerator opening signal • VSS malfunction • Input/turbine speed sensor malfunction • Sensor ground malfunction • Shift solenoid C malfunction • Shift solenoid D malfunction • Shift solenoid E malfunction • Line pressure control solenoid malfunction • TCC control solenoid malfunction • Shift solenoid F malfunction • Body ground malfunction • Control valve body malfunction ▪ Wheel speed signal malfunction

- Tire of a different diameter from the standard tire is installed
- ABS wheel-speed sensor malfunction

NOTE:

- Before following the troubleshooting steps, make sure that the Automatic Transaxle On-Board Diagnostic and Automatic Transaxle Basic Inspection are conducted. (See **BASIC INSPECTION [AY6A-EL]**.)

Diagnostic procedure

STEP	INSPECTION	ACTION
1	VERIFY TIRE CONDITION • Inspect the tire size and air pressure. • Is the tire of specified size and air pressure?	Yes Go to the next step.
		No Replace with a specified tire size or adjust the air pressure of each specified tire to the specified value.
2	INSPECT ABS WHEEL SPEED SENSOR SIGNAL • Display the following DSC CM PIDs using the M-MDS. (See ON-BOARD DIAGNOSIS [DYNAMIC STABILITY CONTROL (DSC)].) ▪ WSPD_LF ▪ WSPD_LR ▪ WSPD_RF ▪ WSPD_RR • Are the monitoring values displayed uniformly while driving?	Yes Go to the next step.
		No • Perform the following inspections: ABS wheel-speed sensor installation inspection ▪ Is the ABS wheel-speed sensor installation normal? ABS sensor rotor installation inspection ▪ Is the ABS sensor rotor installed twisted? (may cause output of abnormal

			wave pattern at high speeds.) ▪ Are there missing teeth on the sensor rotor? • If there is any malfunction, repair or replace the malfunctioning location.
3	INSPECT TCM FOR POOR GROUND • Inspect for continuity between the TCM terminal A9 and battery negative terminal. • Is there continuity?	YesGo to the next step. No Repair or replace ground circuit.	
4	INSPECT SHIFT SOLENOIDS FOR MALFUNCTION • Inspect following shift solenoids. ▪ Shift solenoid C (See SHIFT SOLENOID C INSPECTION [AY6A-EL].) ▪ Shift solenoid D (See SHIFT SOLENOID D INSPECTION [AY6A-EL].) ▪ Shift solenoid E (See SHIFT SOLENOID E INSPECTION [AY6A-EL].) ▪ Line pressure control solenoid (See LINE PRESSURE CONTROL SOLENOID INSPECTION [AY6A-EL].) ▪ TCC control	YesGo to the next step. No Inspect the coupler component. If normal, replace the control valve body. (See CONTROL VALVE BODY REMOVAL/ INSTALLATION [AY6A-EL].)	

	solenoid (See TORQUE CONVERTER CLUTCH (TCC) CONTROL SOLENOID INSPECTION [AY6A-EL].) ▪ Shift solenoid F (See SHIFT SOLENOID F INSPECTION [AY6A-EL].) • Are they normal?		
5	VERIFY IF MALFUNCTION CAUSE IS TCM TERMINAL OR TRANSAXLE • Inspect the ATF condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [AY6A-EL].) • Is the ATF condition normal?	Yes	Inspect the TCM terminal for bend, damage, corrosion or poor contact.
		No	Replace the transaxle. (See AUTOMATIC TRANSAXLE REMOVAL/ INSTALLATION [AY6A-EL].)
6	• Verify test results. ▪ If normal, return to the diagnostic index to service any additional symptoms. ▪ If malfunction remains, inspect the related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the TCM.		

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NOTE:

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		No Replace with a specified tire size or adjust the air pressure of each specified tire to the specified value.
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			wave pattern at high speeds.) ▪ Are there missing teeth on the sensor rotor? • If there is any malfunction, repair or replace the malfunctioning location.
3	INSPECT TCM FOR POOR GROUND • Inspect for continuity between the TCM terminal A9 and battery negative terminal. • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace ground circuit.
4	INSPECT SHIFT SOLENOIDS FOR MALFUNCTION • Inspect following shift solenoids. ▪ Shift solenoid C (See SHIFT SOLENOID C INSPECTION [AY6A-EL] .) ▪ Shift solenoid D (See SHIFT SOLENOID D INSPECTION [AY6A-EL] .) ▪ Shift solenoid E (See SHIFT SOLENOID E INSPECTION [AY6A-EL] .) ▪ Line pressure control solenoid (See LINE PRESSURE CONTROL SOLENOID INSPECTION [AY6A-EL] .) ▪ TCC control	Yes	Go to the next step.
		No	Inspect the coupler component. If normal, replace the control valve body. (See CONTROL VALVE BODY REMOVAL/ INSTALLATION [AY6A-EL] .)

	solenoid (See TORQUE CONVERTER CLUTCH (TCC) CONTROL SOLENOID INSPECTION [AY6A-EL].) ▪ Shift solenoid F (See SHIFT SOLENOID F INSPECTION [AY6A-EL].) • Are they normal?		
5	VERIFY IF MALFUNCTION CAUSE IS TCM TERMINAL OR TRANSAXLE • Inspect the ATF condition. (See AUTOMATIC TRANSAXLE FLUID (ATF) INSPECTION [AY6A-EL].) • Is the ATF condition normal?	Yes	Inspect the TCM terminal for bend, damage, corrosion or poor contact.
		No	Replace the transaxle. (See AUTOMATIC TRANSAXLE REMOVAL/ INSTALLATION [AY6A-EL].)
6	• Verify test results. ▪ If normal, return to the diagnostic index to service any additional symptoms. ▪ If malfunction remains, inspect the related Service Bulletins and/or On-line Repair Information and perform repair or diagnosis. • If the vehicle is repaired, troubleshooting completed. • If the vehicle is not repaired or additional diagnostic information is not available, replace the TCM.		