

2012 - Mazda6 - Transmission/ Transaxle

NO.17 EXCESSIVE SHIFT SHOCK FROM N TO D OR N TO R POSITION [AY6A-EL]

17	Excessive shift shock from N to D or N to R position
DESCRIPTION	Strong shock felt when shifting from N to D or N to R position at idle.
POSSIBLE CAUSE	- Shift shock may worsen when the fail-safe is operating. If no DTC is output, the shift shock may worsen due to poor operation of the control valve body or sticking of the clutch. - Clutch burnt (N→D: C1 clutch, N→R: C3 clutch or B2 brake) - Line pressure low - Incorrect accelerator opening signal - TFT sensor malfunction - Sensor ground malfunction - Shift solenoid B malfunction - Shift solenoid C malfunction - Shift solenoid E malfunction - Line pressure control solenoid malfunction - Control valve body malfunction - Not within ATF amount - Poor hydraulic operation (Malfunction in range change) - Idle speed high - Poor tightening torque of engine mount, exhaust mount - Line pressure high - Garage shift control is not learned - Initial learning did not perform
	NOTE: Before following the troubleshooting steps, make sure that the Automatic

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY MALFUNCTION CONDITION Does the shift shock occur only when the engine is cold?	Yes	Go to the next step.
		No	Go to Step 3.
2	INSPECT TFT SENSOR AND RELATED CIRCUIT FOR MALFUNCTION - Inspect the TFT sensor and related wiring harness: vibration, intermittent open/short circuit. (See TRANSAXLE FLUID TEMPERATURE (TFT) SENSOR INSPECTION [AY6A-EL].) - Is it normal?	Yes	Go to the next step.
		No	Repair or replace part if necessary.
3	VERIFY IF MALFUNCTION CAUSE IS UN-EXECUTION OF INITIAL LEARNING PROCEDURE - Perform the initial learning procedure. (See Initial Learning.) - Does symptom eliminate?	Yes	Troubleshooting is completed.
		No	Go to the next step.
4	INSPECT LINE PRESSURE - Is the line pressure normal? (See MECHANICAL SYSTEM TEST [AY6A-EL].)	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts according to the inspection results.
5	INSPECT STALL SPEED - Is stall speed normal? (See MECHANICAL SYSTEM TEST [AY6A-EL].)	Yes	Go to the next step.
		No	Repair or replace any malfunctioning parts according to the inspection results.
6	VERIFY IF MALFUNCTION CAUSE IS SHIFT SOLENOIDS OR OTHER - Stop the engine. - Inspect following solenoids. - Line pressure control solenoid	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] .)

	(See LINE PRESSURE CONTROL SOLENOID INSPECTION [AY6A-EL] .) ▪ Shift solenoid B (See SHIFT SOLENOID B INSPECTION [AY6A-EL] .) ▪ Shift solenoid C (See SHIFT SOLENOID C INSPECTION [AY6A-EL] .) ▪ Shift solenoid E (See SHIFT SOLENOID E INSPECTION [AY6A-EL] .) • Are they normal?		
7	VERIFY IF MALFUNCTION CAUSE IS TRANSAXLE (INCLUDING CONTROL VALVE BODY) OR ATF FLUID LEVEL • Inspect the ATF condition. • Are a metal specks found?	Yes If large amount of metal specks are found, replace the transaxle. (See AUTOMATIC TRANSAXLE REMOVAL/ INSTALLATION [AY6A-EL] .) If a large amount of metal specks are not found, replace the control valve body. (See CONTROL VALVE BODY REMOVAL/ INSTALLATION [AY6A-EL] .)	No Perform the "AUTOMATIC TRANSAXLE FLUID (ATF) LEVEL ADJUSTMENT" procedure. (See AUTOMATIC TRANSAXLE FLUID (ATF) LEVEL ADJUSTMENT [AY6A-EL] .)
8	• 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.		

WARNING:

- When performing initial learning, be aware of other vehicles, people, and other impediments in order to avoid an accident.

NOTE:

- While self-learning control gradually reduces shock during normal driving, initial learning is performed to initially learn a certain amount of driving conditions.

1. Warm-up

- Increase the ATF temperature by leaving the vehicle idling or performing city driving. Verify that the ATF temperature is between **66—110 °C { 151—230 °F }**. If the ATF temperature is outside this range, work to bring it inside the range.

CAUTION:

- Do not raise the ATF temperature by stalling the engine.

NOTE:

- If the ATF temperature is not between **66—110 °C { 151—230 °F }**, initial learning cannot be performed.

Before learning, inspect for variable shift shock.

2. Garage shift learning

- With the vehicle standing still, depress the brake pedal and keep the selector lever in N position for **3 s**. Then, shift the selector lever from the N position into D position, and maintain in this condition for **3 s**. Repeat this procedure **5 times**. Then repeat it **5 times** in the same way for R position.

3. Gear shift control learning

- In D position, with the accelerator opening between **25—30%**, drive until you reach 6th gear and a vehicle speed of **80 km/ h { 50 mph }** or higher. Then, release the accelerator pedal and coast, and bring the vehicle to a stop in at least **60 s**. Repeat this procedure **10 times**.

4. Inspect learning results

- Verify that variable speed shock and shift shock have decreased compared to the conditions before learning.

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		No	Repair or replace part if necessary.
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