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2017 Mazda 6 Service and Repair Manual

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Snapshot data item	Unit	Data contents	Data read/use method	Corresponding data monitor items
TOTAL_TIME	hh:mm:ss *2	Accumulated total elapsed time since vehicle completion until adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit detects a DTC Note • When the ROOM fuse is removed, and the ignition is switched off, the time is not included in the elapsed time.	The elapsed time from which the adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit detects DTCs to the present can be calculated by performing the following procedure. 1. Verify the instrument cluster PID item TOTAL_TIME. 2. Verify the snapshot data item TOTAL_TIME. 3. Subtract 2 from 1.	TOTAL_TIME *1
VPWR	V	Adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit power supply voltage	–	VPWR_IG
VSPD_STATUS	Stop/0-10km/h/Over10km/h/FAIL	Vehicle speed status	• The adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit constantly receives the vehicle speed sent via CAN signal from the instrument cluster. • If a DTC is detected, the adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit records the vehicle speed when the DTC was detected, and it is displayed in the M-MDS.	SPEEDOMTR *1

*1:Instrument cluster PID (See PID/DATA MONITOR TABLE [INSTRUMENT CLUSTER].)

*2:The seconds may be indicated after the decimal point.

DTC No.	LED headlight warning light	Description	Fail-safe	Drive cycle	Self test type*1	Memory function	Page
U0320:09 *2	ON	Electric power steering (EPS) control module malfunction	×	–	C, D	×	(See DTC U0320:09 [AFS/ALM].)
U0420:68 *2	ON	Error signal received from electric power steering (EPS) control module	×	–	C, D	×	(See DTC U0420:68 [AFS/ALM].)
U0423:68	–	Error signal received from instrument cluster • Ignition switch error signal	×	–	C, D	–	(See DTC U0423:68 [AFS/ALM].)
	ON	Error signal received from instrument cluster • Selector lever position (R position) signal error	×	–	C, D	×	
	–	Error signal received from instrument cluster • Selector lever position (R position) signal not determined	×	–	C, D	–	
U2005:86 *3	ON	Error signal received from PCM	×	–	C, D	×	(See DTC U2005:86 [AFS/ALM].)
U2300:54 *3	ON	Error configuration data received from instrument cluster	×	–	C, D	×	(See DTC U2300:54 [AFS/ALM].)
U2300:55 *3	–	Instrument cluster configuration not implemented	×	–	C, D	×	(See DTC U2300:55 [AFS/ALM].)
U2300:56 *3	ON	Configuration data unmatched with instrument cluster	×	–	C, D	×	(See DTC U2300:56 [AFS/ALM].)
U3000:42 *3	ON	Adaptive front lighting system (AFS) control module / auto leveling control module internal malfunction	×	–	C, D	×	(See DTC U3000:42 [AFS/ALM].)
U3000:49	ON	Adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit internal malfunction	×	–	C, D	–	(See DTC U3000:49 [AFS/ALM].)
U3003:16	–	Adaptive front lighting system (AFS) control module / auto leveling control module / turn light unit low power supply voltage input	×	–	C, D	–	(See DTC U3003:16 [AFS/ALM].)

HEADLIGHT LEVELING ACTUATOR OPERATION CHECK MODE [AFS/ALM]

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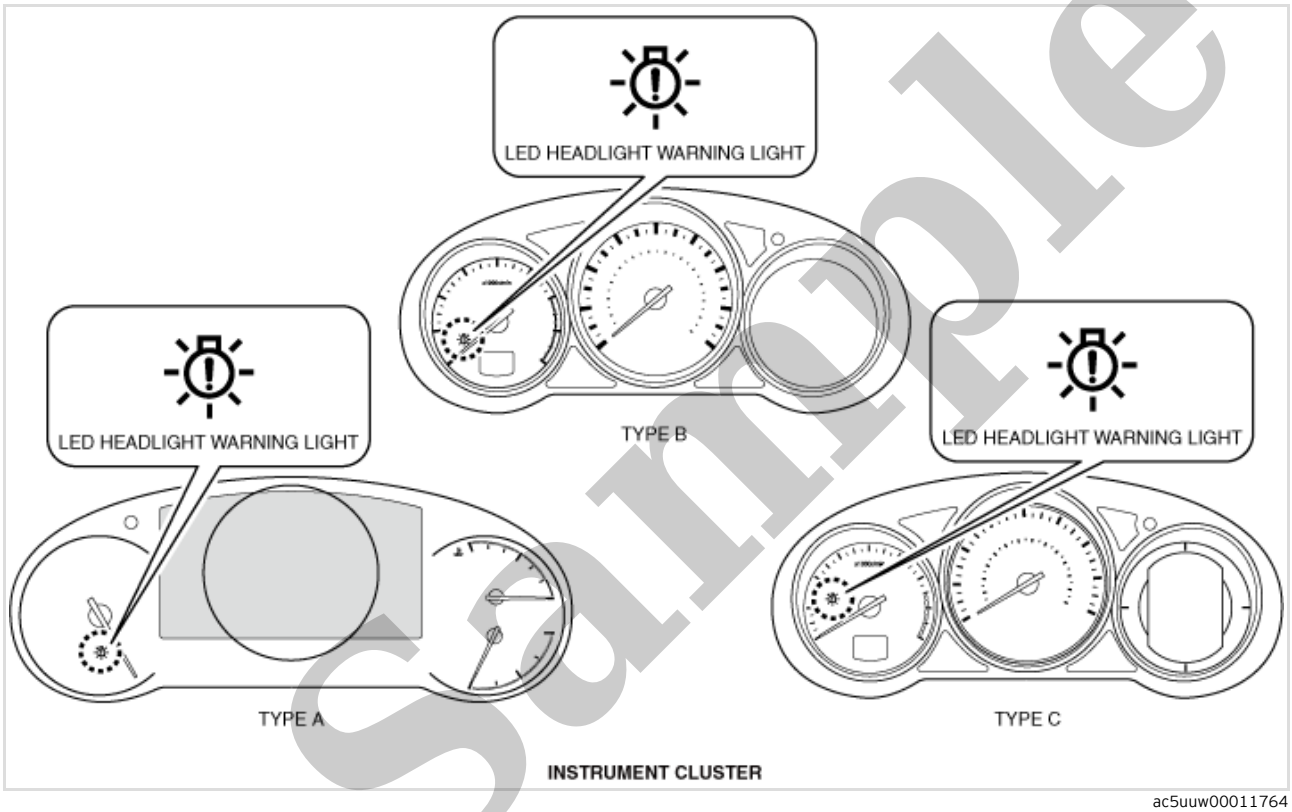
1.Connect the M-MDS to the DLC-2.

2.Switch the ignition ON (engine off or on).

3.Verify that LED headlight warning light is illuminated for 3 s and then turned off.



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4.Turn on the headlights.

5.After vehicle identification, select in the following order from the M-MDS initial screen.

Type-A

1. "Electrical"
2. "ExteriorLighting"
3. "Headlamp"
4. "Auto Leveling Sensor"
5. "Auto Leveling Actuator Test"

Type-B

1. "Toolbox"

STEP	INSPECTION		ACTION
9	**INSPECT WIRING HARNESS BETWEEN REAR BODY CONTROL MODULE (RBCM) AND POWER WINDOW MAIN SWITCH FOR OPEN CIRCUIT** • Switch the ignition off. • Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.) • Verify that the rear body control module (RBCM) connector and the power window main switch connector are disconnected. • Inspect the wiring harness between rear body control module (RBCM) terminal 3D (wiring harness) and power window main switch terminal 1E (wiring harness) for continuity. • Is there continuity?	Yes	Go to the next step.
		No	Repair or replace the wiring harness which has an open circuit.
10	**DETERMINE IF MALFUNCTION LOCATION IS POWER WINDOW MAIN SWITCH** • Replace the power window main switch. (See POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION,) • After short-pressing the unlock button on the remote transmitter 3 times within 2 s, press and hold it within 2 s. • Is the open operation for all door glass performed?	Yes	Troubleshooting completed (explain the contents of the servicing to the customer.).
		No	Repeat the inspection from Step 1. If the malfunction has not been resolved, replace the rear body control module (RBCM). (See REAR BODY CONTROL MODULE (RBCM) REMOVAL/INSTALLATION.)

SYMPTOM TROUBLESHOOTING CHART [POWER WINDOW SYSTEM]

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No.	Troubleshooting item	page
1	Door glass does not move up and down in automatic mode	(See DOOR GLASS DOES NOT MOVE UP AND DOWN IN AUTOMATIC MODE [POWER WINDOW SYSTEM].)
2	Door glass does not reverse, even when encountering a foreign object in it is path	(See DOOR GLASS DOES NOT REVERSE, EVEN WHEN ENCOUNTERING A FOREIGN OBJECT IN IT IS PATH [POWER WINDOW SYSTEM].)
3	Door glass reverses even though the glass does not encounter a foreign object while it is moving up in automatic mode	(See DOOR GLASS REVERSES EVEN THOUGH THE GLASS DOES NOT ENCOUNTER A FOREIGN OBJECT WHILE IT IS MOVING UP IN AUTOMATIC MODE [POWER WINDOW SYSTEM].)
4	Abnormal noise during the power window operation	(See ABNORMAL NOISE WHILE THE DOOR GLASS IS OPENING OR CLOSING [POWER WINDOW SYSTEM].)
5	Door glass does not operate using remote transmitter	(See DOOR GLASS DOES NOT OPERATE USING REMOTE TRANSMITTER [POWER WINDOW SYSTEM].)

STEP	INSPECTION		ACTION
3	• Switch the ignition ON (engine off or on). • Perform the following for all doors. — Lower the driver-side front door glass completely. — Take a hammer and hold it against the inside of the top of the door glass frame so that the door glass will hit its handle when it is closing. — Raise the door glass using manual mode. • When the door glass hits the hammer handle, does it immediately reverse and move down to approx. 200 mm {7.87 in} from the completely closed position?	Yes	Go to the next step.
		No	• Perform the suspect power window initialization procedure, and reinspect. (See POWER WINDOW SYSTEM INITIALIZATION PROCEDURE.) — If operation is not normal, replace the suspect power window switch, then go to the next step.
4	• Open any door. • Switch the ignition ON (engine off or on). • Push/pull the power window main switch or subswitch for all door glass within approx. 40 s after ignition switch off (LOCK). • Verify that the door glass does not move up or down. • Does the door glass move up or down?	Yes	• Inspect the suspect door switch and related wiring harness. • If above parts are normal, replace the suspect power window switch, then go to the next step. • If the above parts have any malfunction, repair or replace the malfunction part, then go to the next step.
		No	Go to the next step.
5	• Close all doors. • Switch the ignition ON (engine off or on). • Push/pull the power window main switch or subswitch for all door glass after approx. 60 s after ignition switch off (LOCK). • Verify that the door glass does not move up or down. • Does the door glass move up or down?	Yes	• Perform the suspect power window initialization procedure, and reinspect. (See POWER WINDOW SYSTEM INITIALIZATION PROCEDURE.) — If operation is not normal, replace the suspect power window switch.
		No	The IG OFF timer function is normal.

STEP	INSPECTION		ACTION
6	VERIFY WHETHER MALFUNCTION IS IN WIRING HARNESS (BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR) OR ELSEWHERE • Is there continuity between the following power window switch terminals (wiring harness-side) (for driver's door at power window main switch, for except driver's door at suspected door's power window subswitch) and ground? — Driver-side • 2D (sensor 1 signal) • 1I (sensor power supply) — Except driver-side • F (sensor 1 signal) • L (sensor power supply)	Yes	Replace the wiring harness between the power window switch and power window motor, then go to Step 12.
		No	Go to the next step.
7	VERIFY WHETHER MALFUNCTION IS IN POWER WINDOW SWITCH OR ELSEWHERE • Switch the ignition ON (engine off or on). • Inspect the voltage at the following power window switch terminals (sensor 2 signal) (for driver's door at power window main switch, for except driver's door at suspected door's power window subswitch): — Driver-side: 2F — Except driver-side: D • Is the voltage approx. 6 V when the door glass is moving up and down?	Yes	Replace the power window switch (malfunction in power window switch automatic mode control), then go to Step 11.
		No	Go to the next step.
8	VERIFY SENSOR 2 OUTPUT SIGNAL • Switch the ignition ON (engine off or on). • Inspect the voltage at power window motor terminal A (sensor 2 signal). • Is the voltage approx. 12 V when door glass is moving up and down?	Yes	Go to the next step.
		No	Replace the power window motor, then go to Step 12.
9	VERIFY WHETHER MALFUNCTION IS IN WIRING HARNESS (BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR) OR ELSEWHERE • Switch the ignition to off (LOCK). • Disconnect the power window switch connector and power window motor connector. • Is there continuity between the following power window switch terminals (for driver's door at power window main switch, for except driver's door at suspected door's power window subswitch) and power window motor terminals? — Driver-side: 2F and A (sensor 2 signal) — Except driver-side: D and A (sensor 2 signal)	Yes	Go to the next step.
		No	Repair the wiring harness between the power window switch and power window motor, then go to Step 12.
10	VERIFY WHETHER MALFUNCTION IS IN WIRING HARNESS (BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR) OR ELSEWHERE • Is there continuity between the following power window switch terminals (sensor 2 signal) (for driver's door at power window main switch, for except driver's door at suspected door's power window subswitch) and ground? — Driver-side: 2F — Except driver-side: D	Yes	Repair the wiring harness between the power window switch and power window motor, then go to Step 12.
		No	Go to the next step.

DOOR GLASS DOES NOT REVERSE, EVEN WHEN ENCOUNTERING A FOREIGN OBJECT IN IT IS PATH [POWER WINDOW SYSTEM]

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Note

• Perform the following inspection for the power window system component parts of the windows where the door glass does not reverse, even when encountering a foreign object in its path.

2	Door glass does not reverse, even when encountering a foreign object in its path.
POSSIBLE CAUSE	Automatic window return range did not reset after battery disconnection: Step 2

Diagnostic procedure

STEP	INSPECTION		ACTION
1	VERIFY CUSTOMER COMPLAINT • Did the customer complain that the door glass did not reverse when near complete closed position?	Yes	• The system is normal. • Explain to the customer that automatic window return power window system does not operate when near complete closed position.
		No	Go to the next step.
2	RESET REVERSE AREA STORED IN DOOR GLASS MOTOR • Perform the power window system initial setting procedure. • Did malfunction disappear?	Yes	• Troubleshooting completed. • Explain to the customer that misadjustment of automatic window return range was the problem.
		No	Replace the power window switch. • Verify auto-up/down operation and if the automatic function does not operate, go to Step 1 of DOOR GLASS DOES NOT MOVE UP AND DOWN IN AUTOMATIC MODE [POWER WINDOW SYSTEM]. • If the automatic function operates, replace the power window switch.

FOREWORD [POWER LIFTGATE (PLG) SYSTEM]

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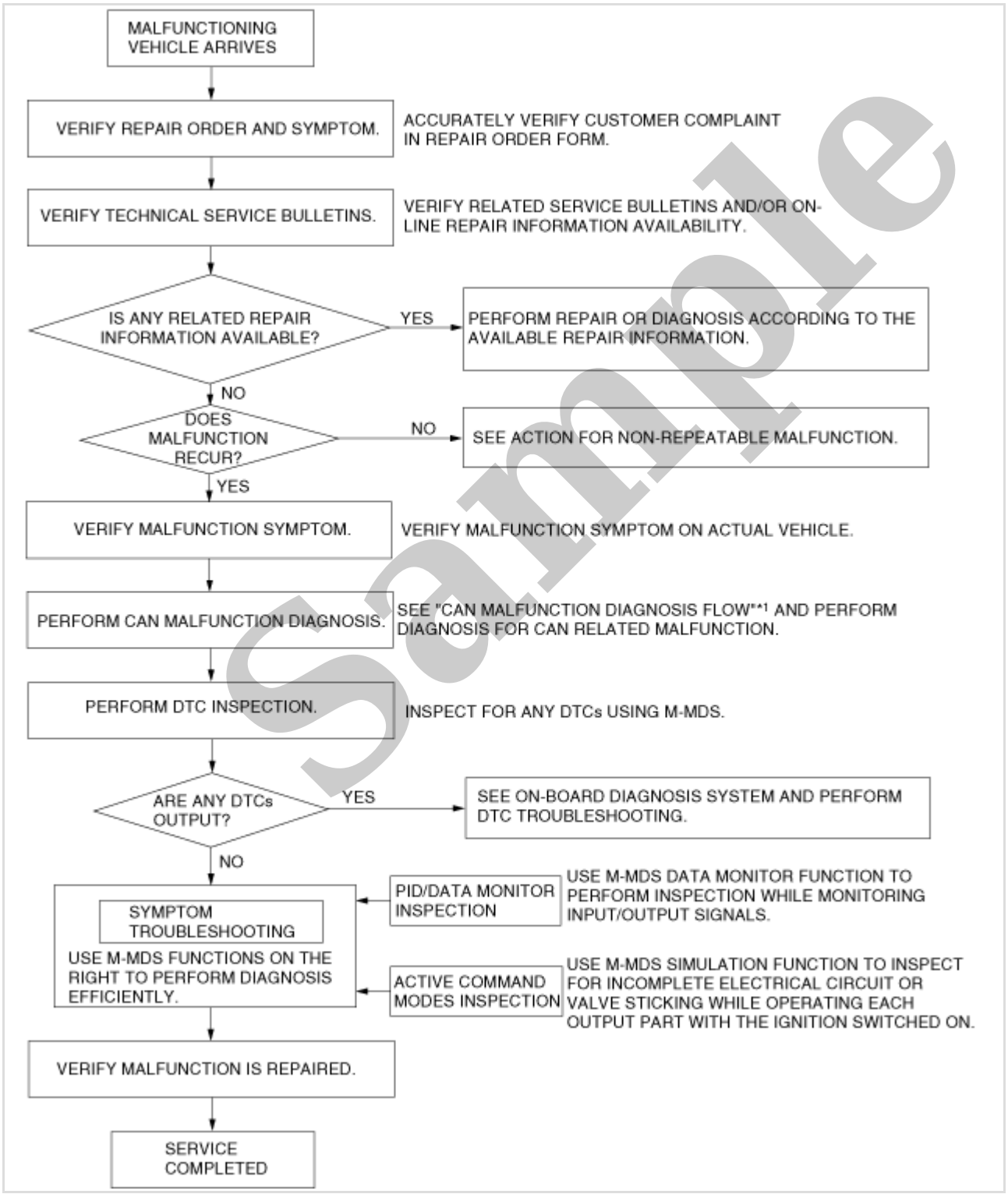
• If there is any vehicle malfunction complaint lodged by a customer, perform malfunction diagnosis according to the troubleshooting procedure.

Troubleshooting Procedure



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