

2012 - Mazda6 - Body and Accessories

No.1 DOOR GLASS DOES NOT MOVE UP AND DOWN IN AUTOMATIC MODE [POWER WINDOW SYSTEMS (AUTO-OPEN/ CLOSE FUNCTION)]

NOTE:

- Perform the following inspection for the power window system component parts of windows where the door glass cannot be operated automatically.

1	Door glass does not move up and down in automatic mode		
POSSIBLE CAUSE	<		

Diagnostic procedure

STEP	INSPECTION	ACTION
1	INSPECT WHETHER POWER WINDOW SWITCH ENTERS FAIL-SAFE MODE OR NOT	YesSystem is normal.

	• Switch the ignition to off for 3 minutes. • Switch the ignition to ON. • Initialize the power window system. • Operate the auto open/close function. • Does the power window operate properly?	The power window system auto open/close function does not operate temporarily for any of the following reasons: • The power window switch is operated while the power window motor protection circuit (integrated in power window motor) is operating. • The power window main switch power supply is cut off by disconnection of the negative battery cable or removing the fuse.
		No Go to the next step.
2	VERIFY WHETHER MALFUNCTION IS IN WIRING HARNESS (BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR) OR ELSEWHERE • Switch the ignition to ON. • Inspect the voltage at the following power window switch terminals (sensor 1 signal): ▪ Driver's side (at power window main switch): 2C ▪ Passenger's side (at power window subswitch): C • Is the voltage approx.12 V when the door glass is moving up and down?	Yes Go to step 7. No Go to the next step.
3	VERIFY SENSOR 1 OUTPUT SIGNAL • Switch the ignition to ON. • Inspect the voltage at the following power window motor terminals B (sensor 1 signal): • Is the voltage approx.12 V when the door glass is moving up and down in manual mode?	Yes Go to the next step. No Replace the power window motor, then go to Step 12.
4	INSPECT WIRING HARNESS BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR FOR CONTINUITY • Switch the ignition to off. • Disconnect the power window switch 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's side: • 2C-B (sensor 1 signal) • 2B-D (sensor power supply) • 2A-C (ground signal) ▪ Passenger's side: • C-B (sensor 1 signal) • K-D (sensor power supply) • I-C (ground 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.
5	VERIFY WHETHER MALFUNCTION IS IN WIRING HARNESS	Yes Repair the wiring harness between the power

	(BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR) OR POWER WINDOW SWITCH - Switch the ignition to ON. - Inspect the voltage at 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): - Driver's side 2C (sensor 1 signal) 2A (ground signal) - Passenger's side - C (sensor 1 signal) - I (ground signal) - Is the voltage approx.12 V?	window switch and power window motor, then go to Step 12.
		No Replace the power window switch (open circuit or short to power supply in power window switch).
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's side 2C (sensor 1 signal) 2B (sensor power supply) - Passenger's side - C (sensor 1 signal) - K (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 to 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's side: 2D - Passenger's side: F - 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 to 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.	Yes Go to the next step.
		No Repair the wiring harness between the power window switch and power window motor, then

	- 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's side: 2D and A (sensor 2 signal) - Passenger's side: F and A (sensor 2 signal)		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's side: 2D - Passenger's side: F	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.
11	VERIFY WHETHER MALFUNCTION IS IN WIRING HARNESS (BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR) OR POWER WINDOW SWITCH - Switch the ignition to ON. - Measure 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's side: 2D - Passenger's side: F - Is the voltage approx. 12 V?	Yes	Repair the wiring harness between the power window switch and front driver-side power window motor, then go to the next step.
		No	Replace the power window switch (open circuit or short to power supply/ground in power window switch), then go to the next step.
12	REINSPECT MALFUNCTION SYMPTOM AFTER REPAIR Is malfunction no longer present?	Yes	- Troubleshooting completed. - Explain repairs to the customer.
		No	Reinspect malfunction symptoms, then repeat from Step 1 if malfunction recurs.

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NOTE:

- Perform the following inspection for the power window system component parts of windows where the door glass cannot be operated automatically.

1	Door glass does not move up and down in automatic mode
POSSIBLE CAUSE	• Open circuit or short to power supply in sensor 1 signal, ground signal from wiring harness (between power window switch and power window motor), inner power window switch, or inner motor: Steps 4–7 • Open circuit or short to power supply/ground in sensor 2 signal from wiring harness (between power window switch and power window motor), inner power window switch, or inner motor: Steps 8–12 NOTE: • The automatic function and the IG OFF timer function do not operate while the power window switch is in fail-safe mode. The fail-safe operates when sensor 1, and/or sensor 2, and/or the sensor power supply malfunctions. • Sensor 1 and/or 2 malfunction ▪ When the door glass is moving up and down, the power window switch cannot sense a pulse signal from sensor 1 during the time it senses 5 pulses (2.5 cycles) from sensor 2. ▪ When the door glass is moving up and down, the switch cannot sense a pulse signal from sensor 2 during the time it senses 5 pulses (2.5 cycles) from sensor 1. ▪ There are three abnormal pulses in a pulse signal while the door glass is moving up or down. ▪ There are 20 cycle pulses from a closed position while the door glass is moving up. ▪ There is no pulse signal for 1 s after the door glass is moved down.
POWER WINDOW MAIN SWITCH WIRING HARNESS-SIDE CONNECTOR POWER WINDOW SUBSWITCH WIRING HARNESS-SIDE CONNECTOR POWER WINDOW MOTOR WIRING HARNESS-SIDE CONNECTOR	

Diagnostic procedure

STEP	INSPECTION	ACTION
1	INSPECT WHETHER POWER WINDOW SWITCH ENTERS FAIL-SAFE MODE OR NOT	YesSystem is normal.

	• Switch the ignition to off for 3 minutes. • Switch the ignition to ON. • Initialize the power window system. • Operate the auto open/close function. • Does the power window operate properly?	The power window system auto open/close function does not operate temporarily for any of the following reasons: • The power window switch is operated while the power window motor protection circuit (integrated in power window motor) is operating. • The power window main switch power supply is cut off by disconnection of the negative battery cable or removing the fuse.
		No Go to the next step.
2	VERIFY WHETHER MALFUNCTION IS IN WIRING HARNESS (BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR) OR ELSEWHERE • Switch the ignition to ON. • Inspect the voltage at the following power window switch terminals (sensor 1 signal): ▪ Driver's side (at power window main switch): 2C ▪ Passenger's side (at power window subswitch): C • Is the voltage approx.12 V when the door glass is moving up and down?	Yes Go to step 7. No Go to the next step.
3	VERIFY SENSOR 1 OUTPUT SIGNAL • Switch the ignition to ON. • Inspect the voltage at the following power window motor terminals B (sensor 1 signal): • Is the voltage approx.12 V when the door glass is moving up and down in manual mode?	Yes Go to the next step. No Replace the power window motor, then go to Step 12.
4	INSPECT WIRING HARNESS BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR FOR CONTINUITY • Switch the ignition to off. • Disconnect the power window switch 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's side: • 2C-B (sensor 1 signal) • 2B-D (sensor power supply) • 2A-C (ground signal) ▪ Passenger's side: • C-B (sensor 1 signal) • K-D (sensor power supply) • I-C (ground 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.
5	VERIFY WHETHER MALFUNCTION IS IN WIRING HARNESS	Yes Repair the wiring harness between the power

	(BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR) OR POWER WINDOW SWITCH - Switch the ignition to ON. - Inspect the voltage at 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): - Driver's side 2C (sensor 1 signal) 2A (ground signal) - Passenger's side - C (sensor 1 signal) - I (ground signal) - Is the voltage approx.12 V?	window switch and power window motor, then go to Step 12.
		No Replace the power window switch (open circuit or short to power supply in power window switch).
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's side 2C (sensor 1 signal) 2B (sensor power supply) - Passenger's side - C (sensor 1 signal) - K (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 to 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's side: 2D - Passenger's side: F - 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 to 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.	Yes Go to the next step.
		No Repair the wiring harness between the power window switch and power window motor, then

	- 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's side: 2D and A (sensor 2 signal) - Passenger's side: F and A (sensor 2 signal)		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's side: 2D - Passenger's side: F	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.
11	VERIFY WHETHER MALFUNCTION IS IN WIRING HARNESS (BETWEEN POWER WINDOW SWITCH AND POWER WINDOW MOTOR) OR POWER WINDOW SWITCH - Switch the ignition to ON. - Measure 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's side: 2D - Passenger's side: F - Is the voltage approx. 12 V?	Yes	Repair the wiring harness between the power window switch and front driver-side power window motor, then go to the next step.
		No	Replace the power window switch (open circuit or short to power supply/ground in power window switch), then go to the next step.
12	REINSPECT MALFUNCTION SYMPTOM AFTER REPAIR Is malfunction no longer present?	Yes	- Troubleshooting completed. - Explain repairs to the customer.
		No	Reinspect malfunction symptoms, then repeat from Step 1 if malfunction recurs.