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Symptom Troubleshooting (Power Window System) - MX-5 Miata

POWER WINDOW SYSTEM WIRING DIAGRAM[POWER WINDOW SYSTEM]

POWER RETRACTABLE HARDTOP MODEL (WITH EXTERIOR OPEN FUNCTION)

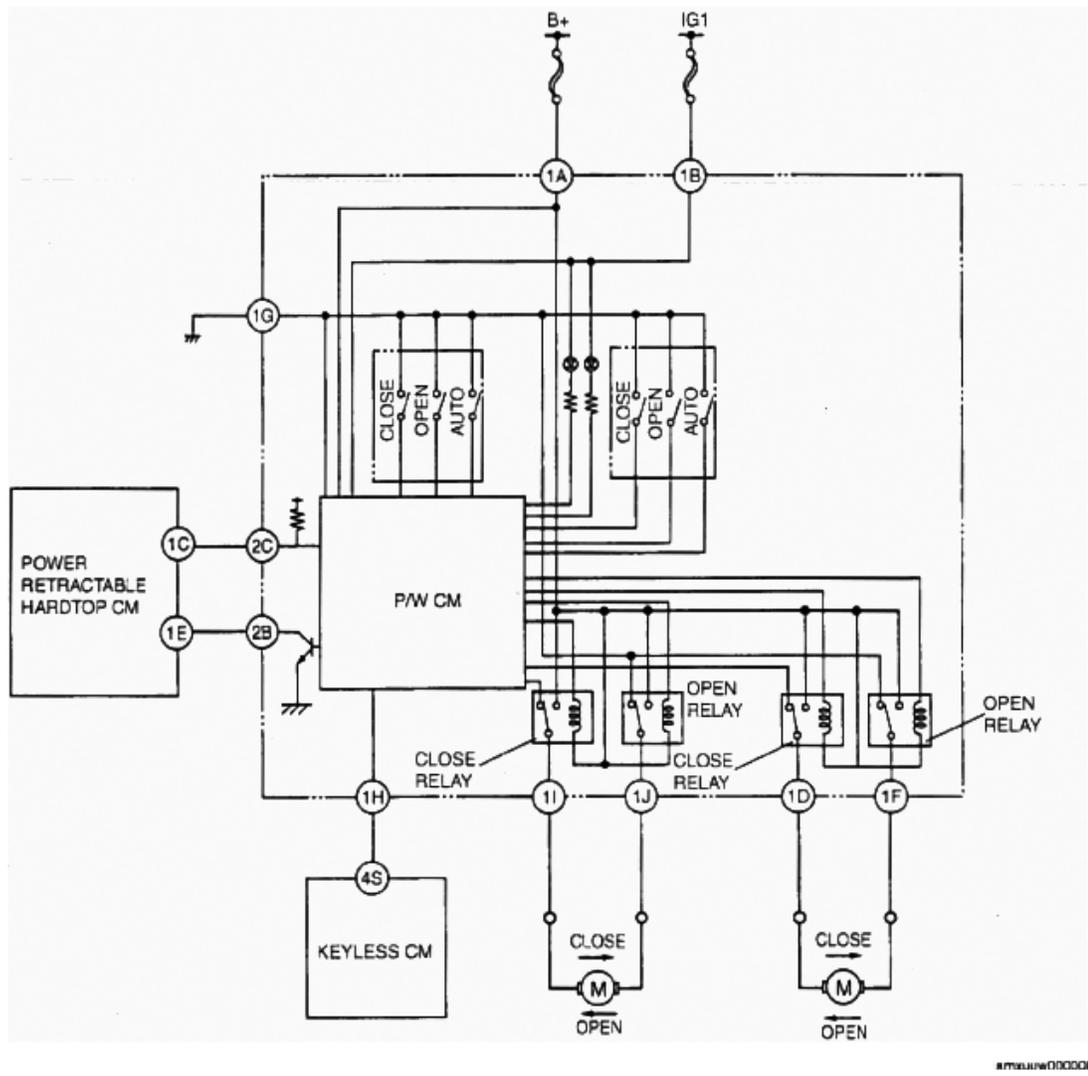


Fig. 1: Power Window System Wiring Diagram - Power Retractable Hardtop Model (With Exterior Open Function)

Courtesy of MAZDA MOTORS CORP.

POWER RETRACTABLE HARDTOP MODEL (WITHOUT EXTERIOR OPEN FUNCTION)

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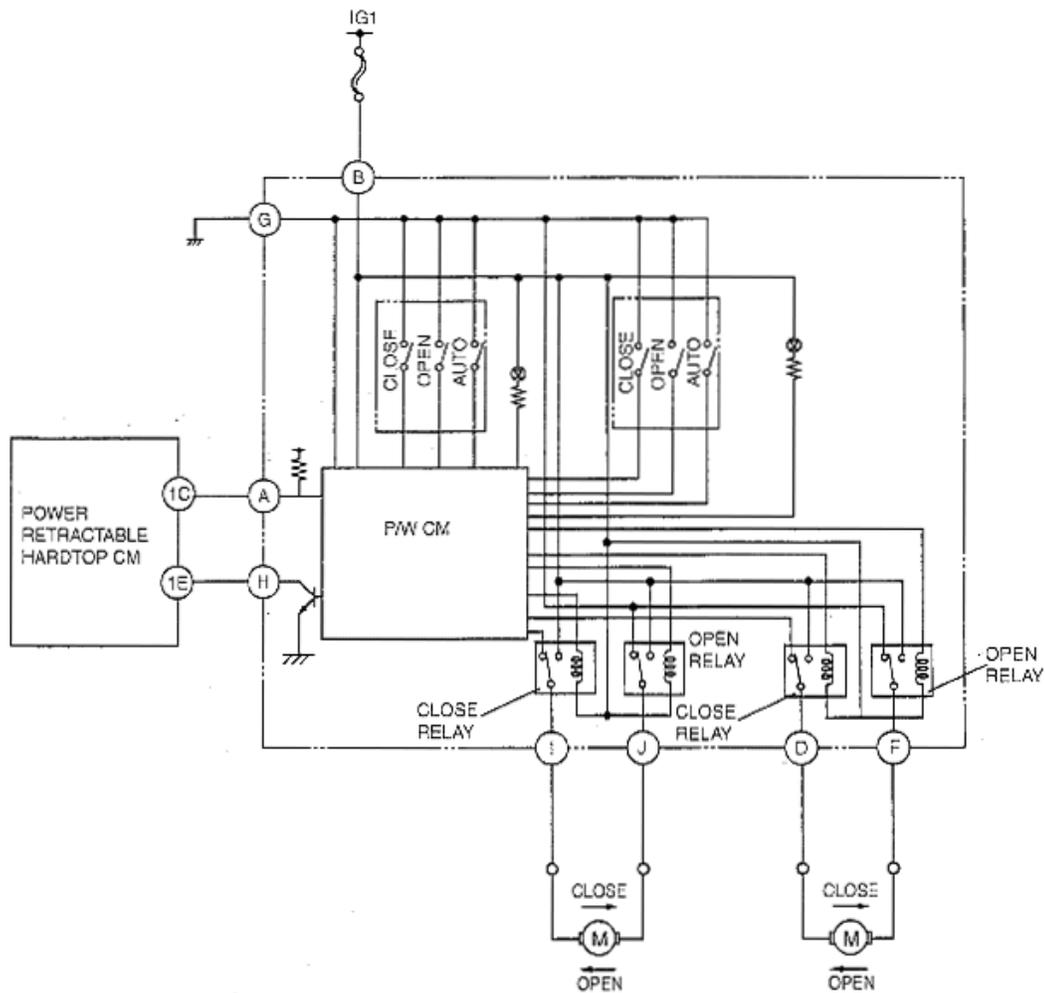
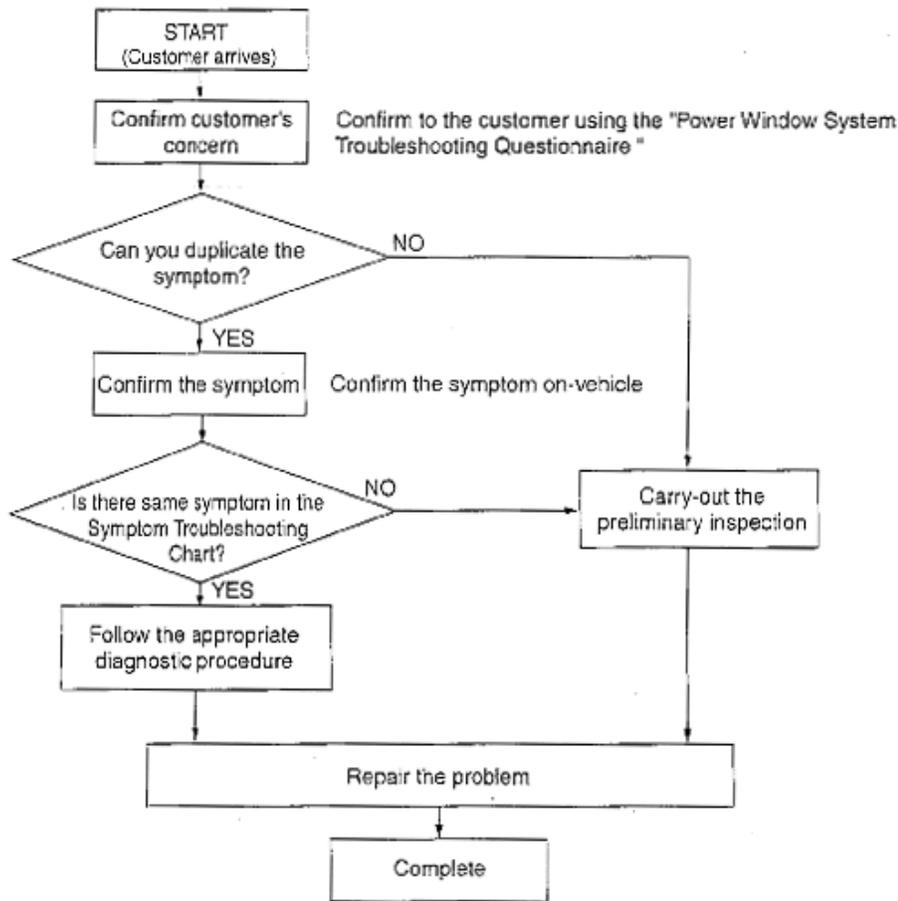


Fig. 2: Power Window System Wiring Diagram - Power Retractable Hardtop Model (Without Exterior Open Function)
Courtesy of MAZDA MOTORS CORP.

SOFT-TOP MODEL

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Fig. 4: Foreword (Power Window System) Troubleshooting Procedure
Courtesy of MAZDA MOTORS CORP.

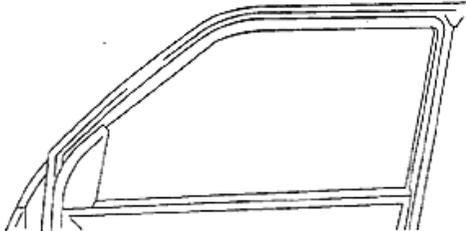
- Slightly shake the wiring harness and connectors while performing the inspection to discover whether poor contact points are the cause of any intermittent malfunctions.

POWER WINDOW SYSTEM TROUBLESHOOTING QUESTIONNAIRE[POWER WINDOW SYSTEM]

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Date :

When did the malfunction first occur ?			
Weather conditions	<input type="checkbox"/> Fair weather <input type="checkbox"/> Cloudy <input type="checkbox"/> Rain <input type="checkbox"/> Snow <input type="checkbox"/> Other ()	Outside temperature	Approx. °F
Driving conditions	<input type="checkbox"/> Driving <input type="checkbox"/> Stopped (Engine is : <input type="checkbox"/> Running <input type="checkbox"/> Stopped)		
Duplicate symptom?	<input type="checkbox"/> YES <input type="checkbox"/> NO	Frequency	<input type="checkbox"/> Always <input type="checkbox"/> Sometimes (times/month)
Road conditions	<input type="checkbox"/> City <input type="checkbox"/> Outer city <input type="checkbox"/> Freeway <input type="checkbox"/> Other () / <input type="checkbox"/> Paved <input type="checkbox"/> Dirt road		
-Follow the appropriate diagnostic procedures shown below or perform the basic troubleshooting flow.			
<input type="checkbox"/> (No.1) The auto open function on the driver's and passenger's side power window inoperative.			
<input type="checkbox"/> (No.2) The driver's side power window is inoperative.			
<input type="checkbox"/> (No.3) The passenger's side power window is inoperative.			
<input type="checkbox"/> (No.4) All power windows are inoperative.			
<input type="checkbox"/> (No.5) Abnormal noise while the door glass is opening or closing.			
<input type="checkbox"/> Other (Describe the symptom below if the symptom does not appear in the above list.)			
			
Please describe the conditions when the malfunction occurs. (Example) : When the outer mirrors are operated			
Please describe the conditions under which the system returns to normal operation after malfunctioning. (Example) : The ignition switch is turned to the ON position after inserting the ignition key into the key cylinder			

amxcluw0000005

Fig. 5: Power Window System Troubleshooting Questionnaire (Power Window System)
Courtesy of MAZDA MOTORS CORP.

SYMPTOM TROUBLESHOOTING CHART[POWER WINDOW SYSTEM]

SYMPTOM TROUBLESHOOTING CHART[POWER WINDOW SYSTEM]

No.	Malfunction symptom

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1	<u>NO.1 THE AUTO OPEN FUNCTION ON THE DRIVER'S AND PASSENGER'S SIDE POWER WINDOW IS INOPERATIVE[POWER WINDOW SYSTEM]</u>
2	<u>NO.2 THE DRIVER'S SIDE POWER WINDOW IS INOPERATIVE[POWER WINDOW SYSTEM]</u>
3	<u>NO.3 THE PASSENGER'S SIDE POWER WINDOW IS INOPERATIVE[POWER WINDOW SYSTEM]</u>
4	<u>NO.4 ALL POWER WINDOWS ARE INOPERATIVE[POWER WINDOW SYSTEM]</u>
5	<u>NO.5 ABNORMAL NOISE WHILE THE DOOR GLASS IS OPENIGN OR CLOSING [POWER WINDOW SYSTEM]</u>

POWER WINDOW SYSTEM PRELIMINARY INSPECTION[POWER WINDOW SYSTEM]

MANUAL OPEN/CLOSE FUNCTION INSPECTION

MANUAL OPEN/CLOSE FUNCTION INSPECTION CHART

STEP	INSPECTION	ACTION	
1	<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Operate the driver-side power window using the manual open/close function on the power window main switch. • Does the driver-side power window operate properly? 	Yes	Go to the next step.
		No	<ul style="list-style-type: none"> • Inspect the following items: <ul style="list-style-type: none"> ○ Power window main switch power supply fuse ○ Power window main switch ground wiring harness ○ Power window main switch power supply wiring harness ○ Wiring harness between power window main switch and driver-side power window motor ○ Power window main switch (driver-side power window control is malfunctioning) ○ Driver-side power window motor • Repair or replace the malfunctioning part, then go to the next step.
2	<ul style="list-style-type: none"> • Operate the passenger-side power window using the power window main switch. • Does the passenger-side power window operate properly? 	Yes	<ul style="list-style-type: none"> • Manual open/close function is normal. • Perform the auto open/close function inspection.
		No	<ul style="list-style-type: none"> • Inspect the following items: <ul style="list-style-type: none"> ○ Wiring harness between

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		<p>power window main switch and passenger-side power window motor</p> <ul style="list-style-type: none"> ○ Power window main switch (passenger-side power window control is malfunctioning) ○ Passenger-side power window motor ● Repair or replace the malfunctioning part, then go to the next step.
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AUTO OPEN FUNCTION INSPECTION

- NOTE:**
- The soft-top models do not have passenger's side power window auto open function.

AUTO OPEN FUNCTION INSPECTION CHART

STEP	INSPECTION		ACTION
1	<ul style="list-style-type: none"> ● Turn the ignition switch to the ON position. ● Operate the driver-side and passenger-side power window using the auto open function on the driver-side and passenger-side power window main switch. ● Do each power window operate properly? 	Yes	Go to the next step.
		No	<ul style="list-style-type: none"> ● Go to <u>NO.1 THE AUTO OPEN FUNCTION ON THE DRIVER'S AND PASSENGER'S SIDE POWER WINDOW IS INOPERATIVE[POWER WINDOW SYSTEM].</u>
2	<ul style="list-style-type: none"> ● Operate the power window main switch to the close position while the power window is opening. ● Does the power window operation stop? 	Yes	<ul style="list-style-type: none"> ● Auto open function is normal.
		No	<ul style="list-style-type: none"> ● Replace the power window main switch (power window control unit is malfunctioning.)

NO.1 THE AUTO OPEN FUNCTION ON THE DRIVER'S AND PASSENGER'S SIDE POWER WINDOW IS INOPERATIVE[POWER WINDOW SYSTEM]

AUTO OPEN FUNCTION ON DRIVER'S AND PASSENGER'S SIDE POWER WINDOW INOPERATIVE[POWER WINDOW SYSTEM] POSSIBLE CAUSES

1	<p>The auto open function on the driver's and passenger's side power window is inoperative.</p> <ul style="list-style-type: none"> ● No power supply to power window main switch
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POSSIBLE CAUSE	<ul style="list-style-type: none"> • Power window main switch malfunction (power window control unit malfunction, auto switch malfunction) • Power window motor malfunction • Malfunction in wiring harness between power window motor and power window main switch
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NOTE:

- **The soft-top models do not have passenger's side power window auto open function.**

DIAGNOSTIC PROCEDURE

AUTO OPEN FUNCTION ON DRIVER'S AND PASSENGER'S SIDE POWER WINDOW INOPERATIVE[POWER WINDOW SYSTEM] DIAGNOSTIC PROCEDURE

STEP	INSPECTION		ACTION
1	<ul style="list-style-type: none"> • Turn the ignition switch to ON position. • Operate driver and passenger side power window using automatic open function on the power window main switch. • Do each side power window open normally? 	Yes	The power window system is normal.
		No	<p>Automatic open function does not operate both sides:</p> <ul style="list-style-type: none"> • Go to the next step. <p>Automatic open function does not operate one side:</p> <ul style="list-style-type: none"> • Go to step 4.
2	<ul style="list-style-type: none"> • Turn the ignition switch to ON position. • Measure the voltage between power window main switch following terminal and ground. <ul style="list-style-type: none"> ○ Terminal 1B (power retractable hardtop model) ○ Terminal I (soft-top model) • Is the voltage B+? 	Yes	Go to the next step.
		No	Repair or replace for open circuit.
3	<ul style="list-style-type: none"> • Turn the ignition switch to LOCK position. • Disconnect the power window main switch connector. • Verify that the continuity between following power window main switch terminal and ground. <ul style="list-style-type: none"> ○ Terminal 1G (power retractable hardtop model) 	Yes	<p>Inspect the power window main switch. (See POWER WINDOW MAIN SWITCH INSPECTION .) (See POWER WINDOW MAIN SWITCH INSPECTION[POWER RETRACTABLE HARDTOP] .) Replace the power window main switch if necessary.</p>

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	<ul style="list-style-type: none"> ○ Terminal J (soft-top model) ● Is there continuity? 	No	Repair or replace for open circuit.
4	<ul style="list-style-type: none"> ● Turn the ignition switch to ON position. ● Operate suspected side power window using manual open function on the power window main switch. ● Do suspected side power window open normally? 	Yes	Replace the power window main switch. (power window control unit malfunction) (See POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION .)
		No	Go to the next step.
5	<ul style="list-style-type: none"> ● Turn the ignition switch to LOCK position. ● Disconnect the power window main switch and suspected side power window motor connector. ● Inspect for poor connection (such as damaged/pulled-out pins, corrosion etc.) ● Is there any malfunction? 	Yes	Go to the next step.
		No	Repair or replace malfunctioning part.
6	<ul style="list-style-type: none"> ● Inspect for open or short circuit in wiring harness between suspected side power window motor and power window main switch. <p>Power retractable hardtop model driver's side:</p> <ul style="list-style-type: none"> ○ Terminal 1I (main switch)-terminal G (motor) ○ Terminal 1J (main switch)-terminal A (motor) <p>Power retractable hardtop model passenger's side:</p> <ul style="list-style-type: none"> ○ Terminal 1D (main switch)-terminal G (motor) ○ Terminal 1F (main switch)-terminal A (motor) <p>Soft-top model driver's side:</p>	Yes	Repair or replace for open or short circuit.
		No	Go to the next step.

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	<ul style="list-style-type: none"> ○ Terminal G (main switch)-terminal G (motor) ○ Terminal B (main switch)-terminal A (motor) <p>Soft-top model passenger's side:</p> <ul style="list-style-type: none"> ○ Terminal A (main switch)-terminal G (motor) ○ Terminal D (main switch)-terminal A (motor) <ul style="list-style-type: none"> ● Is the open or short circuit detected? 		
7	<ul style="list-style-type: none"> ● Inspect suspected side power window motor. <p>(See POWER WINDOW MOTOR INSPECTION .)</p> <ul style="list-style-type: none"> ● Is the power window motor normal? 	Yes	Replace the power window main switch. (power window control unit malfunction, auto switch malfunction) (See POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION .)
		No	Replace the power window motor. (See POWER WINDOW REGULATOR REMOVAL/INSTALLATION .)

NO.2 THE DRIVER'S SIDE POWER WINDOW IS INOPERATIVE[POWER WINDOW SYSTEM]

DRIVER'S SIDE POWER WINDOW INOPERATIVE[POWER WINDOW SYSTEM] POSSIBLE CAUSES

2	The driver's side power window is inoperative.
POSSIBLE CAUSE	<ul style="list-style-type: none"> ● Power supply circuit or ground circuit malfunction <ul style="list-style-type: none"> ○ Burnt fuse (B+) ○ Open or short circuit in wiring harness between fuse (B+) and power window main switch ○ Open or short circuit in wiring harness between power window main switch and power window motor ○ Open or short circuit in wiring harness between power window main switch and ground ● Power window main switch malfunction ● Power window motor malfunction ● Power window regulator malfunction

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DIAGNOSTIC PROCEDURE

DRIVER'S SIDE POWER WINDOW INOPERATIVE[POWER WINDOW SYSTEM] DIAGNOSTIC PROCEDURE

STEP	INSPECTION		ACTION
1	<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Does the LED on the power window main switch illuminate? 	Yes	Go to step 6.
		No	Go to the next step.
2	<ul style="list-style-type: none"> • Operate the passenger's side power window using the power window main switch. • Does the power window operate properly? 	Yes	Go to the next step.
		No	Inspect for an open or short circuit in the following wiring harnesses. Inspect the connector connections (damage/ pulled-out pins, corrosion): <ul style="list-style-type: none"> • P.WIND 20 A fuse-Power window main switch terminal 1B (power retractable hardtop model)/I (soft-top model) • Power window main switch terminal 1G (power retractable hardtop model)/terminal J (soft-top model)-ground. Repair or replace if necessary.
3	<ul style="list-style-type: none"> • Is the P.WIND 20 A fuse normal? 	Yes	Go to step 5. (power retractable hardtop model with exterior open function) Replace the power window main switch. (See POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION .) (power retractable hardtop model without exterior open function/soft-top model)
		No	Inspect the following: <ul style="list-style-type: none"> • Short circuit in B+ power supply wiring harness • Short circuit in power window motor Repair or replace if necessary. Replace with the appropriate standard fuse. Then, go to the next step.
4	<ul style="list-style-type: none"> • Operate the power window 	Yes	Troubleshooting is completed.

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	<p>system.</p> <ul style="list-style-type: none"> Do the power windows operate properly? 	No	Re-confirm the symptom and go to step 1.
5	<ul style="list-style-type: none"> Measure the voltage at the power window main switch terminal 1A. Is the voltage B+? 	Yes	Replace the power window main switch. (See <u>POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION</u> .)
		No	Inspect for an open or short circuit in the power window main switch wiring harness (battery power supply). Inspect the power window main switch connector connection. (damage/pulled-out pins, corrosion) Repair or replace if necessary.
6	<ul style="list-style-type: none"> Measure the voltage at the power window main switch. (power window motor output terminal) while operating the power window using the power window main switch. Is the voltage B+? <p>Power retractable hardtop model: Open: terminal 1 J/close: terminal 1I Soft-top model: Open: terminal B/close: terminal G</p>	Yes	Go to the next step.
		No	Replace the power window main switch. (See <u>POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION</u> .)
7	<ul style="list-style-type: none"> Measure the voltage at the power window motor, (battery power supply terminal) while operating the power window using the power window main switch. Is the voltage B+? <p>(Open: terminal A/close: terminal G)</p>	Yes	Go to the next step.
		No	Inspect for an open or short circuit in the wiring harness between the power window main switch and the power window motor. Inspect the power window main switch and power window motor connector connections, (damage/pulled-out pins, corrosion) Repair or replace if necessary.
8	<ul style="list-style-type: none"> Operate the driver's side power window using the power window main switch. Does the power window motor operate (rotate)? <p>CAUTION:</p> <ul style="list-style-type: none"> If the power window motor temperature is 	Yes	Go to the next step.
		No	Replace the power window motor. (See <u>POWER WINDOW REGULATOR REMOVAL/INSTALLATION</u> .)

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	high, the motor may not rotate due to the motor internal bimetal function. Leave it untouched for about 3 min to cool it down, then reinspect.		
9	<ul style="list-style-type: none"> • Remove the door glass from the carrier plate. • Make sure that the door glass moves smoothly using your hand. • Does the door glass move smoothly? 	Yes	Replace the power window regulator. (See <u>POWER WINDOW REGULATOR REMOVAL/INSTALLATION</u> .)
		No	Inspect for a bent regulator guide or other possible malfunction. If normal, replace the door glass run-channel.

NO.3 THE PASSENGER'S SIDE POWER WINDOW IS INOPERATIVE[POWER WINDOW SYSTEM]

PASSENGER'S SIDE POWER WINDOW INOPERATIVE[POWER WINDOW SYSTEM] POSSIBLE CAUSES

3	The passenger's side power window is inoperative.
POSSIBLE CAUSE	<ul style="list-style-type: none"> • Power supply circuit malfunction <ul style="list-style-type: none"> ○ Open or short circuit in wiring harness between power window main switch and passenger's side power window motor • Power window main switch malfunction • The passenger's side power window motor malfunction • The passenger's side power window regulator malfunction

DIAGNOSTIC PROCEDURE

PASSENGER'S SIDE POWER WINDOW INOPERATIVE[POWER WINDOW SYSTEM] DIAGNOSTIC PROCEDURE

STEP	INSPECTION	ACTION	
1	<ul style="list-style-type: none"> • Turn the ignition switch to the ON position. • Operate the driver's side power window using the power window main switch. • Does the power window operate properly? 	Yes	Go to the next step.
		No	Go to the <u>No.4 ALL POWER WINDOWS ARE INOPERATIVE [POWER WINDOW SYSTEM]</u> .
2	<ul style="list-style-type: none"> • Measure the voltage at the power window main switch (power window motor output terminal) while operating the passenger's 	Yes	Go to the next step.

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	<p>side power window using the power window main switch.</p> <ul style="list-style-type: none"> Is the voltage B+? <p>Power retractable hardtop model:</p> <ul style="list-style-type: none"> Open: terminal 1F/close: terminal 1D <p>Soft-top model:</p> <ul style="list-style-type: none"> Open: terminal D/close: terminal A 	No	<p>Replace the power window main switch. (See POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION .)</p>
3	<ul style="list-style-type: none"> Measure the voltage at the power window motor (battery power supply terminal) while operating the passenger's side power window using the power window main switch. Is the voltage B+? <p>(Open: terminal A/close: terminal G)</p>	Yes	Go to the next step.
		No	<p>Inspect for an open or short circuit in the wiring harness between the power window main switch and the power window motor. Inspect the power window main switch and power window motor connector connections. (damage/pulled-out pins, corrosion) Repair or replace as necessary.</p>
4	<ul style="list-style-type: none"> Operate the passenger's side power window using the power window main switch. Does the power window motor operate (rotate)? <p>CAUTION:</p> <ul style="list-style-type: none"> If the power window motor temperature is high, the motor may not rotate due to the motor internal bimetal function. Leave it untouched for about 3 min to cool it, then reinspect. 	Yes	Go to the next step.
		No	<p>Replace the power window motor. (See POWER WINDOW REGULATOR REMOVAL/INSTALLATION .)</p>
5	<ul style="list-style-type: none"> Remove the door glass from carrier plate. Make sure that the door glass moves smoothly using your hand. Does the door glass move 	Yes	<p>Replace the power window regulator. (See POWER WINDOW REGULATOR REMOVAL/INSTALLATION .)</p>
		No	<p>Inspect for a bent regulator guide or other possible malfunction. If normal, replace the door glass run-</p>

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smoothly?

channel.

NO.4 ALL POWER WINDOWS ARE INOPERATIVE[POWER WINDOW SYSTEM]

ALL POWER WINDOWS ARE INOPERATIVE[POWER WINDOW SYSTEM] POSSIBLE CAUSES

4	All power windows are inoperative.
POSSIBLE CAUSE	<ul style="list-style-type: none"> • Power supply circuit or ground circuit malfunction <ul style="list-style-type: none"> ○ Burnt fuse (B+) ○ Open or short circuit in wiring harness between ignition switch (IG1) and power window main switch ○ Open or short circuit in wiring harness between power window main switch and power window motor ○ Open or short circuit in wiring harness between power window main switch and ground • Power window main switch malfunction (switch malfunction) • Power window motor malfunction

DIAGNOSTIC PROCEDURE

ALL POWER WINDOWS ARE INOPERATIVE[POWER WINDOW SYSTEM] DIAGNOSTIC PROCEDURE

STEP	INSPECTION	ACTION	
1	<ul style="list-style-type: none"> • Operate the passenger's side power window using the power window main switch. • Does any power window operate? 	Yes	Go to step 5.
		No	Go to the next step.
2	<ul style="list-style-type: none"> • Operate the driver's side power window using the power window main switch. • Does the power window operate? 	Yes	Go to the next step.
		No	Inspect for an open circuit in the wiring harness between the power window main switch and the body ground. Inspect the power window main switch connector connection. (damage/pulled-out pins, corrosion) Repair or replace if necessary
3	<ul style="list-style-type: none"> • Is the P.WIND 20 A fuse normal? 	Yes	Replace with the appropriate standard fuse. If the fuse is melted, inspect the wiring harness for a short to ground. Repair or replace the wiring harness, then replace the fuse.
		No	Go to the next step. (power retractable hardtop model with exterior open

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			function.) Replace the power window main switch. (See POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION .) (power retractable hardtop model without exterior open function/soft-top model.)
4	<ul style="list-style-type: none"> • Measure the voltage at the power window main switch terminal 1A. • Is the voltage B+? 	Yes	Replace the power window main switch. (See POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION .)
		No	Inspect for an open or short circuit in the power window main switch wiring harness (battery power supply). Inspect the power window main switch connector connection. (damage/pulled-out pins, corrosion) Repair or replace if necessary.
5	<ul style="list-style-type: none"> • Operate the power window using the power window main switch • Does the power window motor operate (rotate)? <p>CAUTION:</p> <ul style="list-style-type: none"> • If the power window motor temperature is high, the motor may not rotate due to the motor internal bimetal function. Leave it untouched for about 3 min to cool it down, then reinspect. 	Yes	Go to the next step.
		No	Replace the power window motor. (See POWER WINDOW REGULATOR REMOVAL/INSTALLATION .)
6	<ul style="list-style-type: none"> • Remove the door glass from the carrier plate. • Make sure that the door glass moves smoothly using your hand. • Does the door glass move smoothly? 	Yes	Replace the power window regulator guide.
		No	Inspect for a bent regulator guide or other possible malfunction. If normal, replace the glass run channel
7	<p>NOTE:</p> <ul style="list-style-type: none"> • Do not operate the power window main switch during the following inspection. • Inspect the continuity between power window main switch 	Yes	Go to the next step.
		No	Replace the power window main switch. (See POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION .)

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	terminal (up-side 1I, 1D (power retractable hardtop model)/G, A (soft-top model) and ground. <ul style="list-style-type: none"> • Is there continuity? 		
8	NOTE: <ul style="list-style-type: none"> • Do not operate the power window main switch during the following inspection. • Inspect the continuity between power window main switch terminal (down-side 1J, 1F (power retractable hardtop model)/B, D (soft-top model) and ground. • Is there continuity? 	Yes	Inspect the power window main switch connector connections. (damage/pulled-out pins, corrosion) Repair or replace if necessary.
		No	Replace the power window main switch. (See <u>POWER WINDOW MAIN SWITCH REMOVAL/INSTALLATION</u> .)

NO.5 ABNORMAL NOISE WHILE THE DOOR GLASS IS OPENING OR CLOSING[POWER WINDOW SYSTEM]

ABNORMAL NOISE WHILE DOOR GLASS OPENING OR CLOSING[POWER WINDOW SYSTEM] POSSIBLE CAUSES

5	Abnormal noise while the door glass is opening or closing
POSSIBLE CAUSE	<ul style="list-style-type: none"> • Installation screw is loose between the door glass and carrier plate. • Deformity in the power window regulator plastic part due to use. <ul style="list-style-type: none"> ○ Scratching, wear marks to the power window regulator resin part due to twisting of the cable. ○ Gear deformity in the power window motor. <p>NOTE:</p> <ul style="list-style-type: none"> • Identify the location of the noise using a stethoscope or similar device.

DIAGNOSTIC PROCEDURE

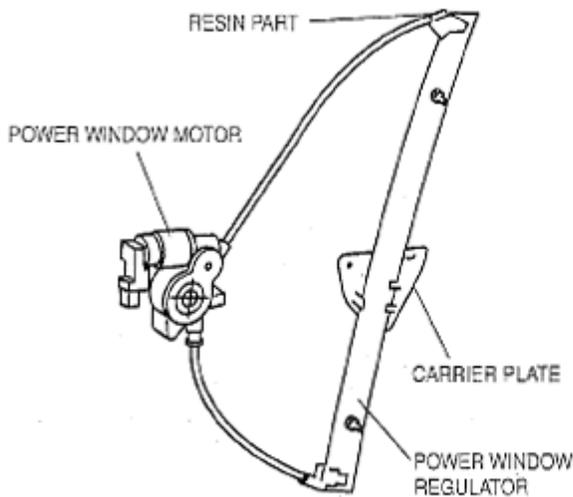
ABNORMAL NOISE WHILE DOOR GLASS OPENING OR CLOSING[POWER WINDOW SYSTEM] DIAGNOSTIC PROCEDURE

Noise type	Time of occurrence	Possible cause	Location of noise	Action
Clanking noise	Door glass begins to move	Insufficiently tightened installation screw between the door glass and carrier plate.	Between door glass lower edge and carrier plate.	Securely tighten the installation screw.

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Groaning noise (Sound increases due to use)	While door glass is operating	Vibration caused by wear on the resin part from cable twisting due to use of the power window regulator. NOTE: <ul style="list-style-type: none">• Noise does not occur if a roller is equipped to power window regulator resin part.	Power window regulator	Replace the power window regulator (See <u>POWER WINDOW REGULATOR REMOVAL/INSTALLATION</u> .)
Whining noise		Gear inside power window motor is deformed due to use.	Gear in power window motor	Replace the power window motor (See <u>POWER WINDOW REGULATOR REMOVAL/INSTALLATION</u> .)
Clicking noise (Periodic noise)				



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Fig. 6: Identifying Power Window Motor, Regulator And Carrier Plate
 Courtesy of MAZDA MOTORS CORP.