

**2001 ACCESSORIES & EQUIPMENT****Power Windows - Catera****DESCRIPTION & OPERATION**

**WARNING:** Vehicles are equipped with air bag supplemental restraint system. Before attempting any repairs involving steering column, instrument panel or related components, see **SERVICE PRECAUTIONS** and **DISABLING & ACTIVATING AIR BAG SYSTEM** in appropriate **AIR BAG RESTRAINT SYSTEMS** article.

Power window system consists of left and right front and rear window switches, rear window lock-out switch and 4 window regulator/motor assemblies. Driver and front passenger window motors are protected by fuse No. 1 (30-amp) and rear windows are protected by fuse No. 7 (30-amp). Each window contains a built-in logic module to perform the following features:

- End stops.
- Invoke pinch guard feature when necessary.
- Stop power window operation when any door is open.

Input from all doors is supplied to driver's master window switch. If master window switch senses any door is open, all window switches are disabled.

A lock-out switch for rear windows is located in driver's master power window switch panel. Rear window switches are operational only if rear window lock-out switch is in UNLOCK position.

Power windows will operate with ignition switch in OFF position. As a battery saver feature, power windows will not work if any door is opened. Power windows have an express up and down feature activated by holding any window switch either up or down.

**COMPONENT LOCATIONS****COMPONENT LOCATIONS**

| <b>Component</b>                     | <b>Location</b>   |
|--------------------------------------|---|
| Driver's Master Power Windows Switch | Left Front Door Trim Panel                                    |
| Fuse Block                           | Mounted To Instrument Panel, At Lower Left Of Steering Column |
| Rear Window Switch                   | Rear Door Trim Panel  |
| Rear Window Lock-Out Switch          | On Driver's Master Power Windows Switch                       |

**PROGRAMMING****WINDOW MOTOR**

**NOTE:** If battery on vehicle has been disconnected, each window motor must be reprogrammed in order for express up and down feature to operate properly. Ensure there is no obstruction keeping window from closing or opening completely. Programming with an obstruction will cause express up or down to stop where obstruction existed.

1. Depress and hold window switch in DOWN position until window is fully down. Continue holding window switch in DOWN position for 3 seconds.

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2. Depress and hold window switch in UP position until window is fully up. Continue holding window switch in UP position for 3 seconds.
3. Power window motor is now programmed for express function. Repeat process for all windows.

### ADJUSTMENTS

#### WINDOW

1. Open window. Open door. Grasp door upper sealing strip at upper outer corner and pull downward to expose window stop bumper. Loosen top bumper screw.
2. Roll window fully up. Ensure window is fully seated in weatherstrip. Tighten stop bumper screw to 35 INCH lbs. (4 N.m).
3. Reposition upper sealing strip to original position. Close door. Repeat for each door.

### TROUBLE SHOOTING

#### PRELIMINARY INSPECTION

Check system related fuses. See **WIRING DIAGRAMS** . Ensure windows are free of mechanical binding, battery is fully charged and ground is clean and tight. Check for broken or partially broken wire inside of insulation which may cause system failure but test okay in continuity and voltage check. Check after market electronic equipment that may affect other systems for proper installation. If problem still exists, perform appropriate system test. See **SYMPTOM INDEX** table under SYSTEM TESTS.

#### SYSTEM CHECK

1. Turn ignition on. Operate each window up and down from left front window switch (on door), and then from each individual window switch. Each window should operate smoothly and quietly, with no sticking or mechanical noises.
2. Operate express function for each window from each individual window switch by holding switch in UP or DOWN position for one second. Express function on each window should operate quietly and smoothly, with no sticking or mechanical noises. If window system does not function properly, perform **PRELIMINARY INSPECTION** .

### SYSTEM TESTS

**CAUTION:** To prevent damage to terminal, connector Test Adaptor Kit (J 35616-A) must be used whenever a diagnostic procedure requires checking or probing a terminal.

**NOTE:** To identify terminals and wires, see **WIRING DIAGRAMS** .

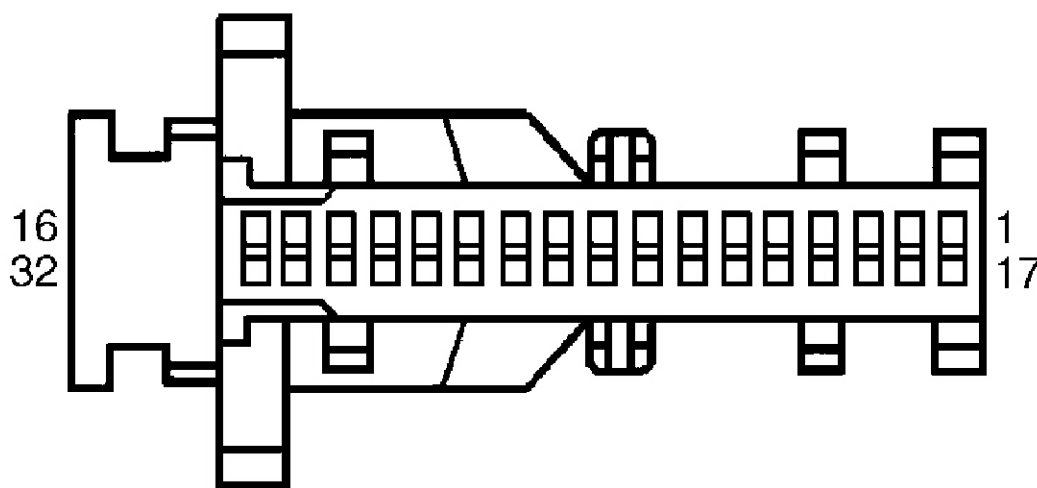
#### SYMPTOM INDEX

| Symptom                           | Perform Test |
|-----------------------------------|--------------|
| All Windows Inoperative           | <b>A</b>     |
| Left Front Window Inoperative     | <b>B</b>     |
| Lock-Out Function Inoperative     | <b>C</b>     |
| Passenger Door Window Inoperative | <b>D</b>     |

#### TEST A: ALL WINDOWS INOPERATIVE

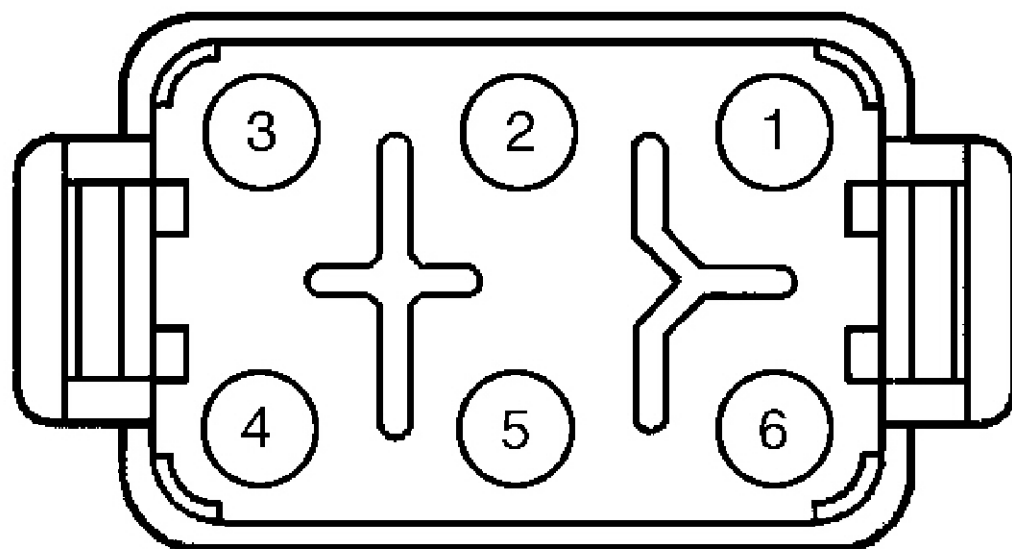
1. If power window system check was performed, go to next step. If power window system check was not

- performed, perform system check. See **SYSTEM CHECK** under TROUBLE SHOOTING.
2. Check symptom and verify all power windows are inoperative. If all power windows do not operate, go to next step. If power windows operate normally, check for loose wires and poor connections in power window circuit.
  3. Turn ignition off. Disconnect driver's master power window switch harness connector. Turn ignition on. Connect test light to ground and probe driver's master power window switch harness connector terminal No. 4 (Red wire). See **Fig. 1** . If test light illuminates, go to next step. If test light does not illuminate, go to step 9 .
  4. Turn ignition off. Disconnect driver's window motor harness connector. Connect driver's master power window switch harness connector. Turn ignition on. Connect test light to ground and probe driver's master power window switch harness connector terminal No. 29 (Yellow wire). See **Fig. 1** . If test light illuminates, go to next step. If test light does not illuminate, go to step 6 .
  5. Turn ignition off. Disconnect driver's master power window switch harness connector. Connect driver's window motor harness connector. Turn ignition on. Connect test light to driver's master power window switch harness connector terminal No. 27 (Gray/Yellow wire) and probe driver's master power window switch harness connector terminal No. 4 (Red wire). See **Fig. 1** . If test light illuminates, go to step 8 . If test light does not illuminate, go to step 7 .
  6. Check for an open, short to voltage or short to ground in Yellow wire between driver's master power window switch harness connector terminal No. 29 and driver's power window motor harness connector terminal No. 5. See **Fig. 1** . If no problem was found, go to step 8 . If a problem was found and corrected, go to step 11 .
  7. Check for an open in Black wire between driver's master power window switch terminal No. 6 and ground located at driver's kick panel. See **Fig. 1** . If no problem was found, go to next step. If problem was found and corrected, go to step 11 .
  8. Check for loose wires and poor connections at driver's master power window switch harness connector. If no problem was found, go to step 10 . If problem was found and corrected, go to step 11 .
  9. Repair open in Red wire between fuse No. 1 (30-amp) in instrument panel fuse block and driver's master power window switch harness connector terminal No. 4. See **Fig. 1** and **Fig. 2** . Go to step 11 .
  10. Replace driver's door power window switch. Go to next step.
  11. Operate system to verify power windows have been repaired properly. If system operates normally, system is okay at this time. If system does not operate normally, return to step 2 .



G00056202

**Fig. 1: Identifying Driver's Master Power Window Switch Harness Connector Terminals**  
 Courtesy of GENERAL MOTORS CORP.



G00013382

**Fig. 2: Identifying Window Motor Connector Terminals**  
 Courtesy of GENERAL MOTORS CORP.

**TEST B: LEFT FRONT WINDOW INOPERATIVE**

1. If power window system check was performed, go to next step. If power window system check was not performed, perform system check. See **SYSTEM CHECK** under TROUBLE SHOOTING.
2. Check symptom and verify all power windows are inoperative. If all power windows do not operate properly, go to next step. If any power windows operate, check for loose wires and poor connections at inoperative windows and switches.
3. Turn ignition off. Disconnect the driver's power window motor harness connector. Turn ignition on. Connect test light to ground and probe power window motor harness connector terminal No. 1 (Red wire). See **Fig. 2** . If test light illuminates, go to next step. If test light does not illuminate, go to step 13 .
4. Connect test light to driver's power window motor harness connector terminal No. 4 (Black wire) and probe driver's power window motor harness connector terminal No. 1 (Red wire). If test light illuminates, go to next step. If test light does not illuminate, go to step 14 .
5. Connect test light to ground and probe driver's master power window switch harness connector terminal No. 29 (Yellow wire). See **Fig. 1** . If test light illuminates, go to next step. If test light does not illuminate, go to step 8 .
6. Connect test light to ground and probe driver's power window motor harness connector terminal No. 2 (Gray/Green wire). See **Fig. 2** . Depress driver's power window switch to UP position. If test light illuminates, go to next step. If test light does not illuminate, go to step 9 .
7. Connect test light to ground and probe driver's power window motor harness connector terminal No. 3 (Blue/Red wire). See **Fig. 2** . Depress driver's power window switch to DOWN position. If test light illuminates, go to step 11 . If test light does not illuminate, go to step 10 .
8. Check for an open, short to voltage or short to ground in Yellow wire between driver's master power window switch harness connector terminal No. 29 and driver's power window motor harness connector terminal No. 5. See **Fig. 1** and **Fig. 2** . If a problem was not found, go to step 12 . If a problem was found and corrected, go to step 17 .
9. Check for an open or short to ground in Gray/Green wire between driver's power window motor harness connector terminal No. 2 and driver's master power window switch harness connector terminal No. 26. See

- Fig. 1** . If problem was not found, go to step 12 . If a problem was found and corrected, go to step 17 .
10. Check for an open or short to ground in Blue/Red wire between driver's power window motor harness connector terminal No. 3 and driver's master power window switch harness connector terminal No. 25. See **Fig. 1** and **Fig. 2** . If problem was not found, go to step 12 . If a problem was found and corrected, go to step 17 .
  11. Check for loose wires and poor connections at driver's power window motor harness connector. If a problem was not found, go to step 15 . If problem was found and corrected, go to step 17 .
  12. Check for loose wires and poor connections at driver's master power window switch. See **Fig. 1** . If no problem was found, go to step 16 . If problem was found and corrected, go to step 17 .
  13. Repair open in Red wire between fuse No. 1 (30-amp) and driver's master power window switch harness connector terminal No. 4. See **Fig. 1** . Go to step 17 .
  14. Repair open in Black wire between terminal No. 4 of driver's power window motor harness connector and ground located at driver's kick panel. See **Fig. 2** .
  15. Replace driver's front power window motor. See **WINDOW REGULATOR & MOTOR** under REMOVAL & INSTALLATION. Go to next step.
  16. Replace driver's master power window switch. See **WINDOW SWITCH** under REMOVAL & INSTALLATION. Go to next step.
  17. Reprogram driver's window motor. See **WINDOW MOTOR** under REMOVAL & INSTALLATION. Operate system to verify power windows have been repaired properly. If system operates normally, system is okay at this time. If system does not operate normally, return to step 2 .

#### TEST C: LOCK-OUT FUNCTION INOPERATIVE

1. If power window system check was performed, go to next step. If power window system check was not performed, perform system check. See **SYSTEM CHECK** under TROUBLE SHOOTING.
2. Verify rear power window lock-out function is inoperative. If power window lock-out function is inoperative, go to next step. If power window lock-out function operates, check for loose wires and connections in Gray/Yellow wire between driver's master power window switch harness connector terminal No. 28 and terminals No. 4 of rear right and left power window switches. See **Fig. 1** .
3. Turn ignition off. Disconnect driver's master power window switch harness connector. Turn ignition on. Connect test light between ground and probe driver's master power window switch harness connector terminal No. 28 (Gray/Yellow wire). If test light does not illuminate, go to next step. If test light illuminates, go to step, 5 .
4. Check for loose wires and poor connections at driver's master power window switch harness connector. If no problem was found, go to step 6 . If problem was found and corrected, go to step 7 .
5. Repair short to voltage in Gray/Yellow wire between driver's master power window switch harness connector terminal No. 28 and both rear door power window switch harness connector terminals No. 4. See **Fig. 1** . Go to step 7 .
6. Replace driver's master power window switch. See **WINDOW SWITCH** under REMOVAL & INSTALLATION. Go to next step.
7. Operate power window lockout function. If lockout function operates correctly, system is okay at this time. If lockout function does not operate correctly, return to step 2

#### TEST D: PASSENGER DOOR WINDOW INOPERATIVE

**NOTE:** For driver's master power window switch harness connector terminal identification, see **Fig. 1** . For window motor circuit, terminal and wire color identification, see **MOTOR CIRCUIT IDENTIFICATION** table. For window motor connector terminal identification, see **Fig. 2** .

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1. If power windows description and operation was reviewed, go to next step. If power windows description and operation was not reviewed, go to **DESCRIPTION & OPERATION** .
2. Verify power window on specified passenger door does not operate. If faulty power window is not operating, go to next step. If specified faulty power window is operating, check for loose wires and poor connections to faulty power window motor and switch assembly.
3. If all passenger's power windows are inoperative, go to step 15 . If all passenger's power windows are not inoperative, go to next step.
4. If front passenger's power window is inoperative, go to next step. If front passenger's power window is not inoperative, go to step 6 .
5. Turn ignition off. Disconnect front passenger's power window switch harness connector. Turn ignition on. Connect test light to ground and probe, front passenger's power window switch harness connector terminal No. 3 (Yellow wire). If test light illuminates, go to step 7 . If test light does not illuminate, go to step 15 .
6. Turn ignition off. Disconnect faulty rear window switch harness connector. Turn ignition on. Connect test light to ground and probe faulty power window switch harness connector terminal No. 3 (Yellow wire on front passenger's door and White wire on rear doors). If test light illuminates, go to step 8 . If test light does not illuminate, go to step 26 .
7. Turn ignition off. Connect front passenger's window switch harness connector. Disconnect front passenger's power window motor harness connector. Turn ignition on. Connect test light to ground and probe passenger's power window motor harness connector terminal No. 1 (Red wire). See **Fig. 2** . If test light illuminates, go to step 9 . If test light does not illuminate, go to step 26 .
8. Turn off ignition. Connect rear power window switch harness connector of faulty rear power window. Turn ignition on. Connect test light to ground and probe, faulty rear power window motor harness connector terminal No. 1 (Red wire). See **Fig. 2** . If test light illuminates, go to step 10 . If test light does not illuminate, go to step 27 .
9. Connect a test light to ground and probe right front power window motor harness connector terminal No. 2 (Gray/Green wire). See **Fig. 2** . Move passenger's power window to UP position using power window switches on both driver's and passenger's door. If test light illuminates when operating both switches, go to step 11 . If test light does not illuminate while using both switches, go to step 17 .
10. Connect a test light to ground and probe driver's master power window switch harness connector terminal No. 24 (Gray/Green wire) for left rear power window and terminal No. 8 (Gray/Green wire) for right rear power window. See **Fig. 1** . Move appropriate rear window to UP position using switches on both driver's and passenger's door. If test light illuminates when operating both switches, go to step 12 . If test light does not illuminate while using both switches, go to step 18 .
11. Connect test light to ground and probe driver's master power window switch harness connector No. 7 (Blue/Red wire). See **Fig. 1** . Move front passenger's window down using power window switches on both driver's and passenger's door. If test light illuminates using both switches, go to step 13 . If test light does not illuminate using both switches, go to step 19 .
12. Connect a test light to ground and probe driver's master power window switch harness connector terminal No. 23 for left and No. 7 for right (Blue/Red wires) rear power window switch harness connector. See **Fig. 1** and **Fig. 2** . Move rear window to UP position using both driver's master switch and appropriate rear door switch. If test light illuminates when operating both switches, go to step 14 . If test light does not illuminate while using both switches, go to step 20 .

### MOTOR CIRCUIT IDENTIFICATION

| Terminal No.<br>(Wire Color) | Circuit Description |
|------------------------------|---------------------|
| Front Doors                  |                     |
| 1 (Red)                      | Battery Voltage     |
| 2<br>(Gray/Green)            | Up Switch Signal    |

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|                   |                    |
|-------------------|--------------------|
| 3 (Blue/Red)      | Down Switch Signal |
| 4 (Black)         | Ground             |
| 5 (Yellow)        | Ignition Voltage   |
| Rear Doors        |                    |
| 1 (Red)           | Battery Voltage    |
| 2<br>(Gray/Green) | Up Switch Signal   |
| 3 (Blue/Red)      | Down Switch Signal |
| 4 (Black)         | Ground             |
| 5 (Yellow)        | Ignition Voltage   |

13. Connect test light to front passenger's power window motor harness connector terminal No. 4 (Black wire) and probe vehicle battery power. If test light illuminates, go to step [21](#) . If test light does not illuminate, go to step 28 .
14. Connect test light to faulty rear power window motor harness connector terminal No. 4 (Black wire) and probe battery voltage. See [Fig. 2](#) . If test light illuminates, go to step 22 . If test light does not illuminate, go to step 29 .
15. Check Yellow wire for open, short to ground or short to voltage between driver's master power window switch harness connector terminal No. 29 and all window motor harness connector terminals No. 5. See [Fig. 1](#) and [Fig. 2](#) . If no problem was found, go to step 23 . If problem was found and corrected, go to step 35 .
16. Check Gray/Yellow wire for open or short to ground between driver's master power window switch harness connector terminal No. 28 and both rear door power window switch harness connectors No. 4. See [Fig. 1](#) and [Fig. 2](#) . If no problem was found, go to step 23 . If a problem was found and corrected, go to step 35 .
17. Check for open or short to ground in Gray/Green wire between driver's master power window switch harness connector terminal No. 10 and front passenger's power window motor harness connector terminal No. 2. See [Fig. 1](#) and [Fig. 2](#) . If no problem was found, go to step 24 . If a problem was found and corrected, go to step 35 .
18. Check for open or short to ground in Gray/Green wire between driver's master power window switch harness connector terminal No. 24 for left or No. 8 for right and rear power window motor harness connector terminals No. 2. See [Fig. 1](#) and [Fig. 2](#) . If no problems were found, go to step 25 . If a problem was found and corrected, go to step 35 .
19. Check for open or short to ground in Blue/Red wire between driver's master power window switch harness connector No. 9 and front passenger's power window motor harness connector No. 3. See [Fig. 1](#) and [Fig. 2](#) . If no problem was found, go to step 24 . If a problem was found and corrected, go to step 35 .
20. Check for open or short to ground in Blue/Red wire between driver's master power window switch harness connector terminal No. 23 for left and No. 7 for right and rear power window motor harness connector terminals No. 3. See [Fig. 1](#) and [Fig. 2](#) . If no problems were found, go to step 25 . If a problem was found and corrected, go to step 35 .
21. Check for loose wires and poor connections at front passenger's window motor harness connector. If no problem was found, go to step 30 . If a problem was found and corrected, go to step 35 .
22. Check for loose wires and poor connections of faulty rear power window motor harness connector. If no problem was found, go to step 31 . If a problem was found and corrected, go to step 35 .
23. Check for loose wires and poor connections at driver's master power window switch harness connector. If no problem was found, go to step 32 . If a problem was found and corrected, go to step 35 .
24. Check for loose wires and poor connections at both driver's and front passenger's power window switch harness connectors. If no problem was found, go to step 33 . If problem was found and corrected, go to step 35 .
25. Check for loose wires and poor connectors at driver's and both rear door power window harness connectors. If no problem was found, go to step 34 . If problem was found and corrected, go to step 35 .

26. Repair open in Red wire between passenger's power window motor harness connector terminal No. 1 and fuse No. 1 (30-amp) in instrument panel fuse block. See **Fig. 2** . Go to step 35 .
27. Repair open in Red wire at faulty rear power window motor harness connector terminal No. 1. See **Fig. 2** . Go to step 35 .
28. Repair open in Black wire between passenger's power window motor harness connector terminal No. 4 and ground at driver's kick panel. See **Fig. 2** . Go to step 35 .
29. Repair open in Black wire between faulty rear power window motor harness connector terminal No. 4 and ground at driver's kick panel. Go to step 35 .
30. Replace front passenger's power window motor and regulator. See **WINDOW REGULATOR & MOTOR** under REMOVAL & INSTALLATION. Go to step 35 .
31. Replace faulty rear window motor. See **WINDOW REGULATOR & MOTOR** under REMOVAL & INSTALLATION. Go to step 35 .
32. Replace driver's master power window switch. See **DRIVER'S MASTER POWER WINDOW SWITCH** under REMOVAL & INSTALLATION.
33. Replace faulty driver's or passenger's power window switch. See **DRIVER'S MASTER POWER WINDOW SWITCH** or **WINDOW SWITCH** under REMOVAL & INSTALLATION.
34. Replace faulty driver's master power window switch or faulty power window switch for rear windows. See **DRIVER'S MASTER POWER WINDOW SWITCH** or **WINDOW SWITCH** under REMOVAL & INSTALLATION.
35. Reprogram appropriate power window motor. See **WINDOW MOTOR** under PROGRAMMING. Operate system and verify power window system operates properly. If power windows operate properly, system is okay at this time. If power windows do not operate properly, return to step 2 .

## REMOVAL & INSTALLATION

**WARNING:** Vehicles are equipped with air bag supplemental restraint system. Before attempting ANY repairs involving steering column, instrument panel or related components, see SERVICE PRECAUTIONS and DISABLING & ACTIVATING AIR BAG SYSTEM in appropriate AIR BAG RESTRAINT SYSTEMS article.

### DRIVER'S MASTER POWER WINDOW SWITCH

#### Removal & Installation

Insert flat-blade tool under side edge of switch plate. Gently pry upward to release side edges of switch plate from trim panel. Disconnect electrical connectors and remove driver's master power window switch. To install, reverse removal procedure.

### WINDOW REGULATOR & MOTOR

**CAUTION:** Disconnect power window switch when working inside vehicle doors. Express down feature, if activated, allows window to drop very quickly, which may cause personal injury.

#### Removal & Installation (Front)

1. Position window halfway down. Tape window into place. Pull up on door lock knob until Orange tab is exposed. Pry out on Orange tab to release lock knob. Discard Orange tab. Remove door handle trim panel. Remove driver's master power window switch. See **DRIVER'S MASTER POWER WINDOW SWITCH** .



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2. Carefully pry out door courtesy light. Remove trim panel screws. Lift trim panel upward to release retaining clips. Remove front door trim panel and set aside. Remove front door water deflector.
3. Disconnect electrical connector from inflatable restraint side impact sensor (if equipped). Drill out inflatable restraint side impact sensor rivets. Remove inflatable restraint side impact sensor mounting plate. Disconnect power window motor harness connector. Remove guide rail adjuster bolts and guide rail adjuster.
4. Drill out rivets. Remove front door window regulator and motor. Remove door window regulator from motor. To install, reverse removal procedure. Tighten window regulator-to-motor screws to 45 INCH lbs. (5 N.m).

### Removal & Installation (Rear)

1. Position window halfway down. Tape window into place. Remove power window switch. See **WINDOW SWITCH**. Carefully pry out door courtesy light. Remove trim panel screws. Lift trim panel upward to release retaining clips. Remove rear door trim panel and set aside. Remove water deflector.
2. Remove inner belt sealing strip by pulling up at rear. Remove outer belt sealing strip by pulling up at rear. Starting at upper rear corner, pull door window weatherstrip from channel to remove. Remove vent window and division channel screws. Pull division channel away from door. Remove division channel weatherstrip. Remove vent window.
3. Slide inside door handle forward. Pry up on tab to release inside door handle from door. Unlock inside door handle and remove rod. Remove inside door handle. Disconnect door window electrical connector. Drill out rivets holding door window regulator and motor. Disconnect guide from door window regulator and motor from sash. Remove door window regulator from motor.
4. Install door window regulator and motor into door. Set guide in center of regulator assembly to assist in alignment of the sash to window. Connect guide to window. To complete installation, reverse removal procedure.

### WINDOW SWITCH

#### Removal & Installation

Insert flat-blade tool under front edge of switch plate. Gently pry upward to release front edge of switch plate from trim panel. Disconnect electrical connector and remove window switch. To install, reverse removal procedure.

### WIRING DIAGRAMS

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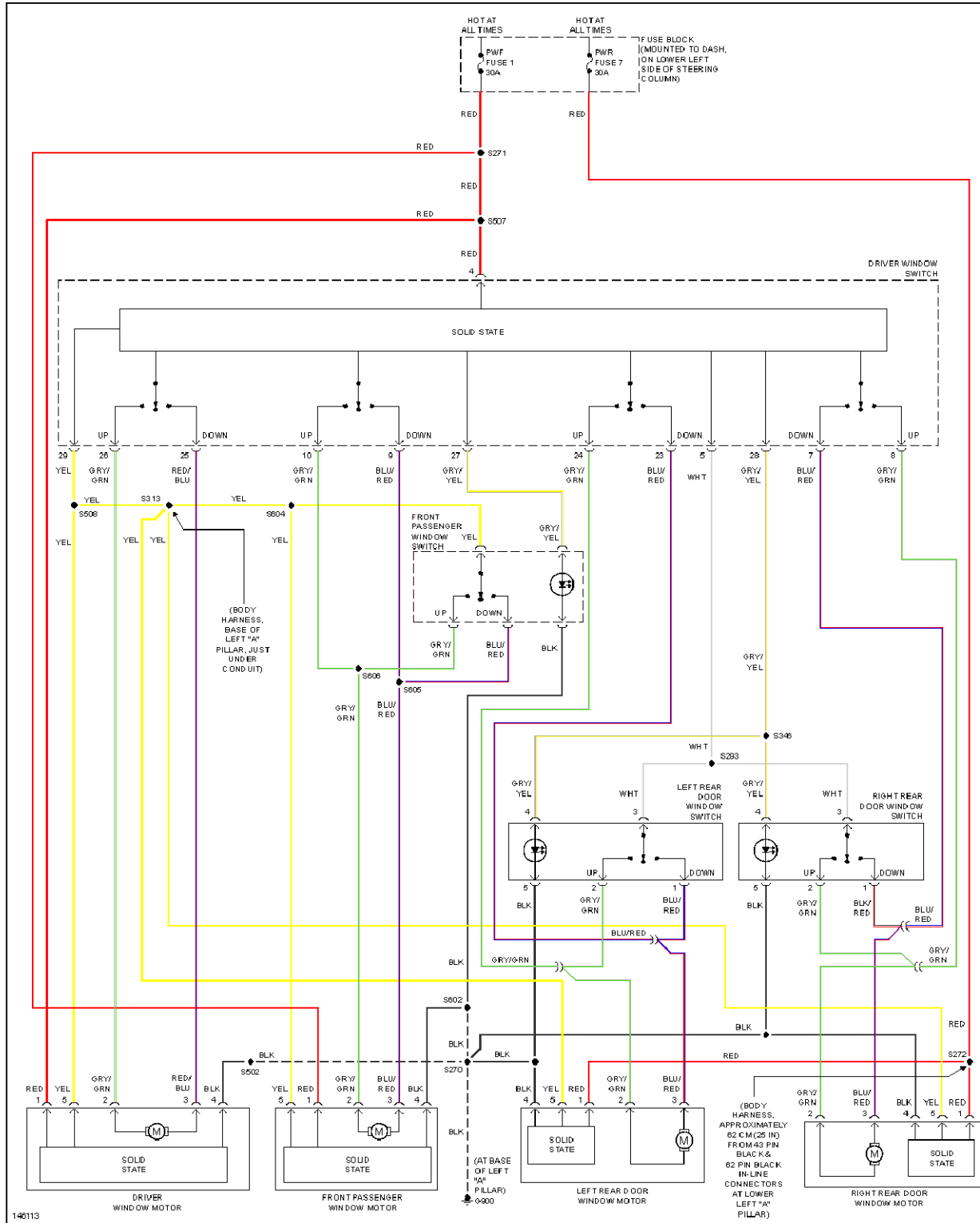


Fig. 3: Power Window System Wiring Diagram (Catera)

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