

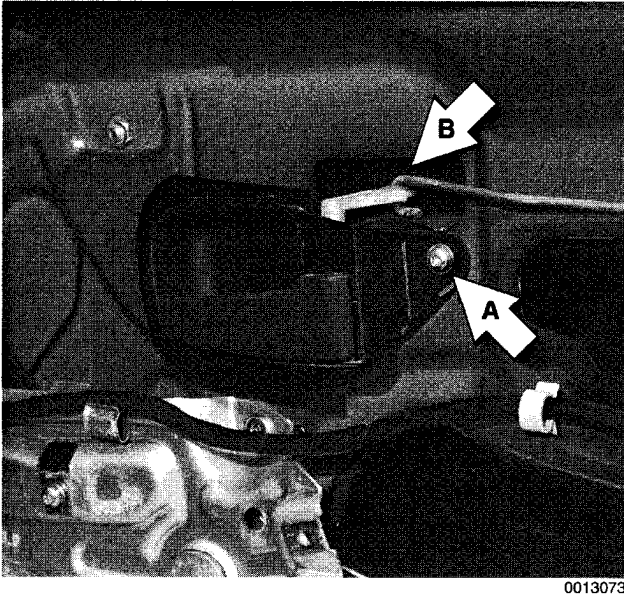


Fig. 31. Inside door handle. Remove screw **A**, then unhook from rod **B**.

7. Unbolt power window motor from rear of regulator.

NOTE —

Some of the window regulators are mounted to the doors with rivets. The rivets must be drilled out. During installation, M6 x 10 bolts and self-locking nuts can be substituted.

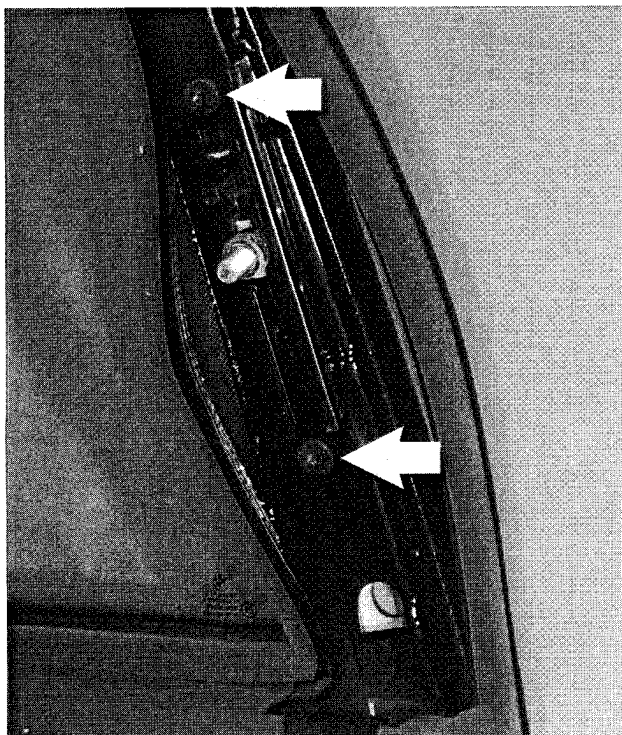
8. Installation is reverse of removal.

- Adjust door window as described earlier.
- Re-initialize window regulators as described earlier.

Tightening Torques

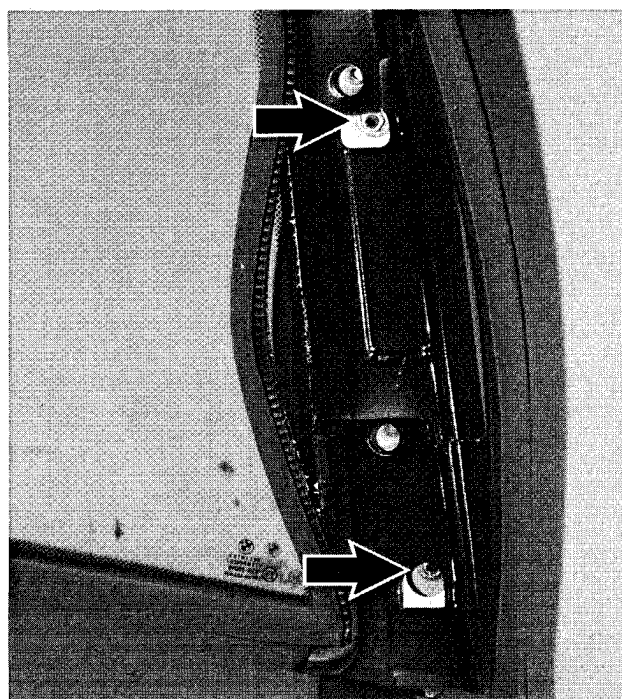
- Window regulator to door 9 Nm (7 ft-lb)
 - Window motor to regulator 5 Nm (4 ft-lb)
-





0013071

Fig. 29. Seat belt sliding anchor mounting bolts on B-pillar (arrows). Note door post and vent window trim strips peeled away.



0013072

Fig. 30. Vent window mounting nuts on B-pillar (arrows).

Tightening Torques

- Latch to vent window (M5 screw) 6 Nm (53 in-lb)
- Seat belt anchor nut 31 Nm (23 ft-lb)
- Seat belt sliding anchor mounting bolts 24 Nm (17 ft-lb)
- Vent window to body (M6 nut) 6.2 Nm (55 in-lb)

WINDOW REGULATOR SERVICE

Door window regulator and motor, removing and installing

This procedure applies to front or rear door windows.

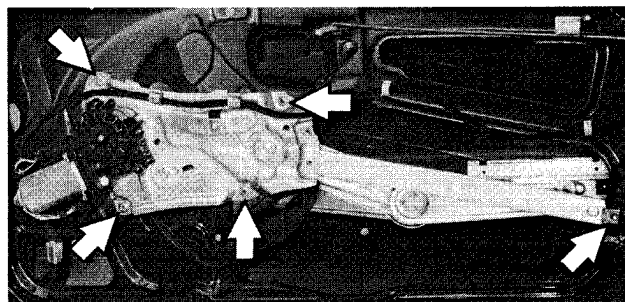
1. Remove door panel and vapor barrier as described in 411 Doors.

WARNING —

• Some 1997 and all 1998 model year cars are equipped with front side-impact airbags in the front doors. Whenever servicing the doors or windows on cars with front side-impact airbags, always disconnect the negative (–) battery cable. See 721 Airbag System (SRS) for cautions and procedures relating to the airbag system.

• Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

2. Remove door glass as described earlier in this section.
3. Remove inside door handle. See Fig. 31.
4. Disconnect wiring connector to power window motor.
5. Remove regulator mounting bolts or drill out rivets. See Fig. 32.

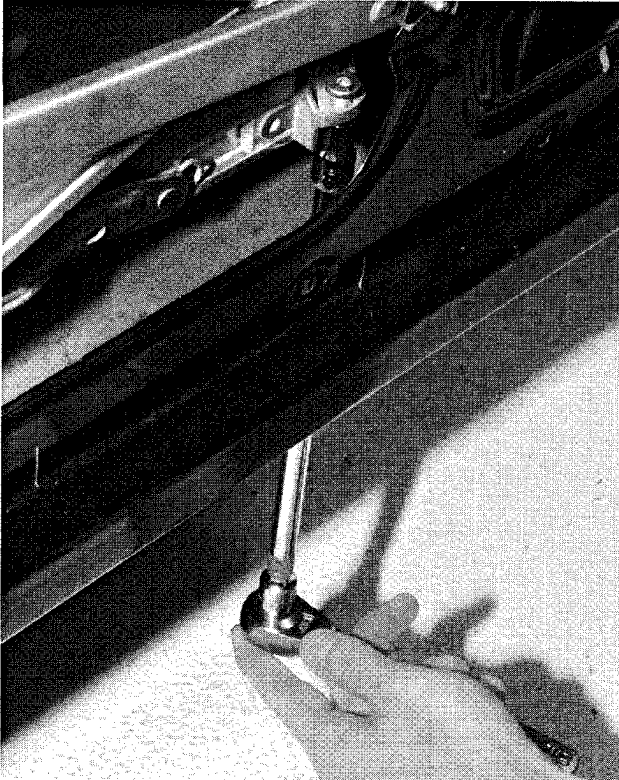


0013193

Fig. 32. Front window regulator mounting fasteners (arrows).

6. Remove regulator assembly from door.

WINDOW REGULATOR SERVICE

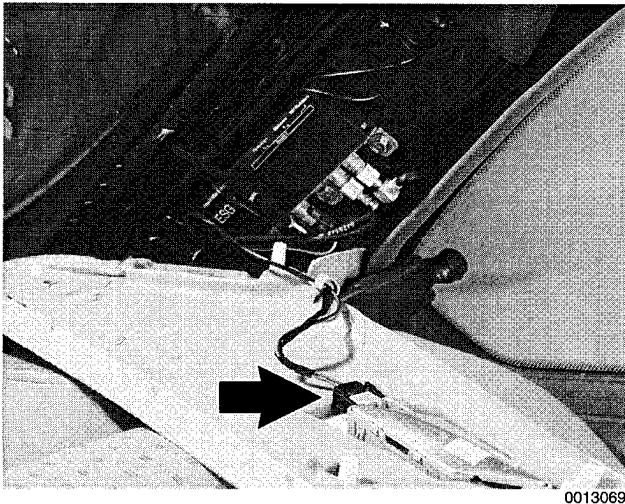


0013080

Fig. 25. Reach through door bottom to adjust window limit stops. Rear stop being adjusted.

Rear vent window or vent latch, replacing (2-door models)

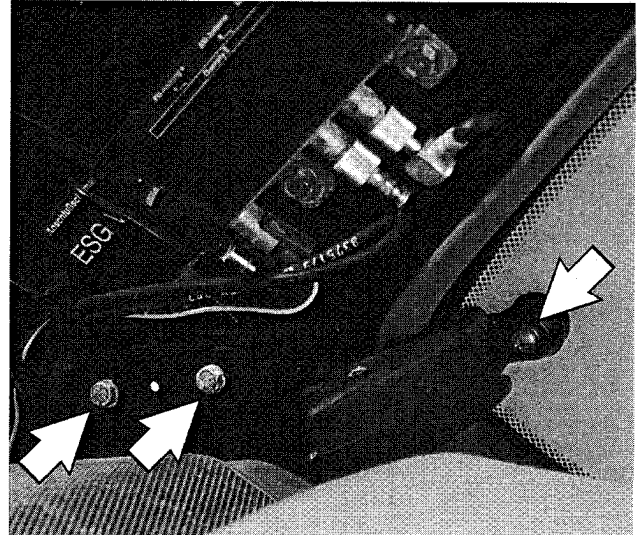
1. Remove C-pillar (rear roof pillar) trim. See Fig. 26.



0013069

Fig. 26. C-pillar trim shown removed. Peel off window sealing trim and then unclip pillar trim piece. Unplug interior light socket (arrow).

2. Remove window latch screws at C-pillar. See Fig. 27.



0013070

Fig. 27. Rear vent latch screws on C-pillar and on window (arrows).

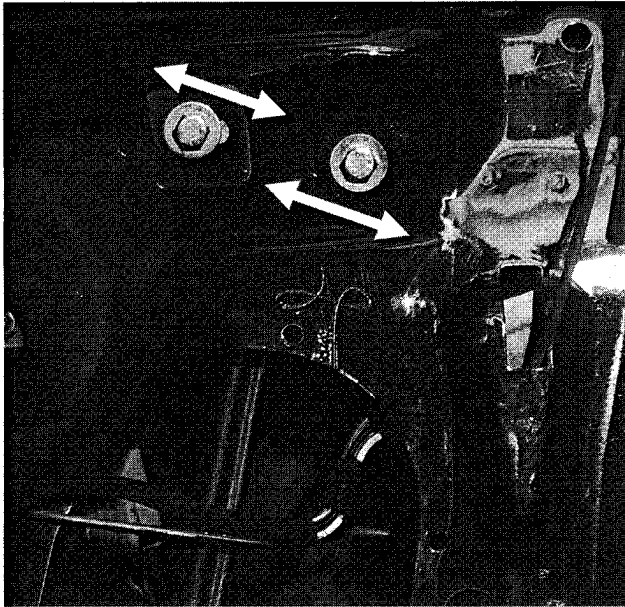
3. Remove front seat belt sliding anchor trim at B-pillar (door post), and remove anchor nut. See Fig. 28.



0012672

Fig. 28. B-pillar seat belt anchor trim (arrow).

4. Pull off sliding anchor adjusting knob. Partially pull away door edge and vent window trim strips and remove top B-pillar plastic trim.
5. Remove seat belt sliding anchor. See Fig. 29.
6. While supporting window, remove its B-pillar mounting fasteners. See Fig. 30.
7. Installation is reverse of removal. Keep in mind the following:
 - Plastic sealing washers must be installed between glass and body on forward glass mounting studs.
 - Reinstall sealing washers on both sides of glass at rear latch attachment.



0013078

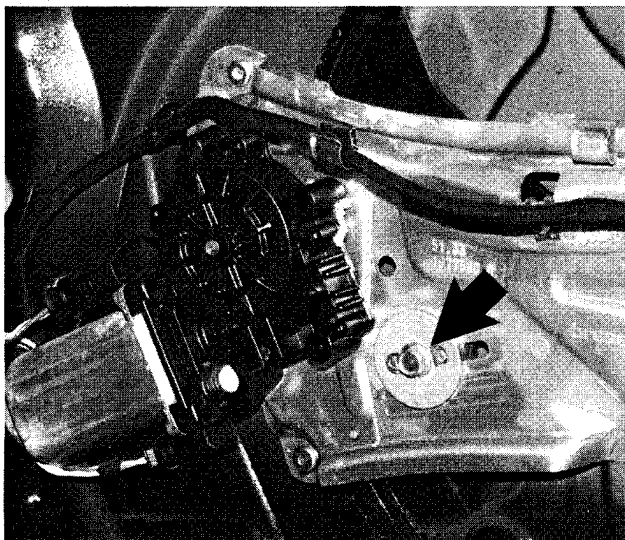
Fig. 22. Move window fore/aft at rear guide rail top mounting bolts (arrows).

Insertion Depth

- **A** (See Fig. 17.) 1-1.5 mm (0.04-0.6 in.)

6. To set insertion depth **C** (Refer to Fig. 17.):

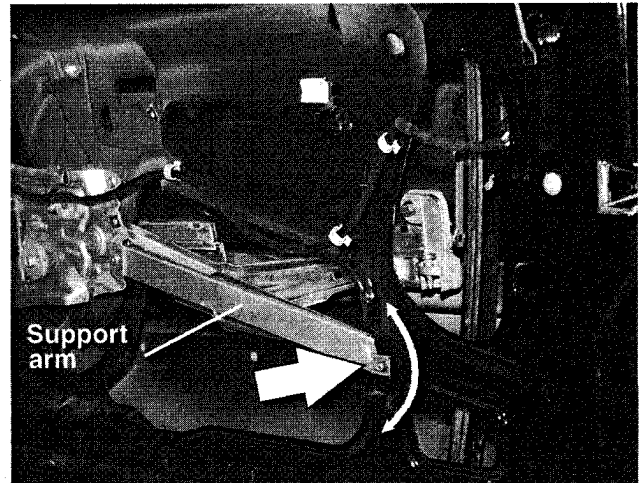
- Lower window slightly. Loosen stop at window regulator motor. See Fig. 23.



0013075

Fig. 23. Window regulator stop (arrow).

- Raise window. Loosen rear bolt at regulator support arm (5mm Allen wrench). See Fig. 24. Align window parallel to roof line by moving support arm up or down. Tighten arm bolt.
- Lower window and remove rubber plugs at bottom of door. If necessary, temporarily reconnect battery cable.
- Adjust front and rear limit stops so that window retracts into window seal as specified. See Fig. 25.
- Raise window to check adjustment.
- Push regulator stop fully forward and tighten bolt.
- Close door and check window operation.



0013077

Fig. 24. Use 5mm Allen socket to loosen mounting bolt at support bracket (arrow) and slide bracket up or down to adjust window position at roof line. (Allen bolt head faces outside of door.)

CAUTION —

- Recheck preload gap **B** (step 4). Excessive preload could cause window to shatter.
- The fully closed window must not contact the rain gutter when opening the door (in the event the "close with door shut" feature is faulty or the battery is dead).

7. Use new mounting bolts when reinstalling the side-impact airbag to the door (where applicable). Reset SRS warning light and clear SRS fault memory using special test equipment. See **721 Airbag System (SRS)**.
8. Replace door panel, rubber door plugs and outside door molding.
9. Re-initialize window regulator motors as described earlier.

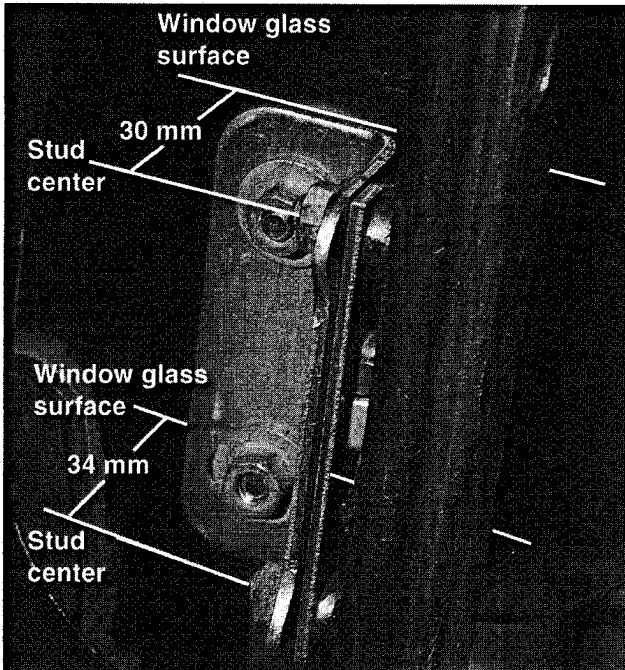


Fig. 18. Rear guide rail to rear guide bracket initial adjustment. Top should be set at 30 mm (1.2 in.) from glass to stud center; bottom should be set at 34 mm (1.3 in.) from glass to stud center.

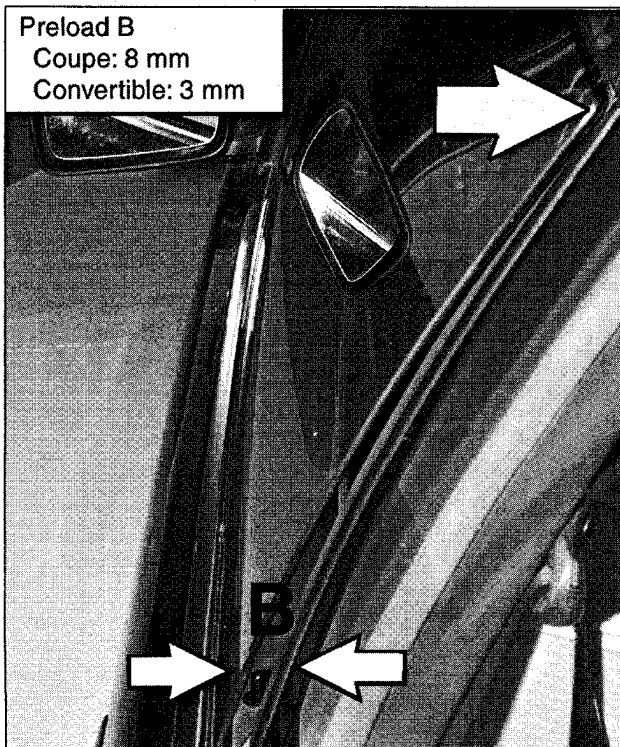


Fig. 19. With top of glass against door seal (top arrow), measure preload **B** at 20 mm (0.75 in.) above top of door.

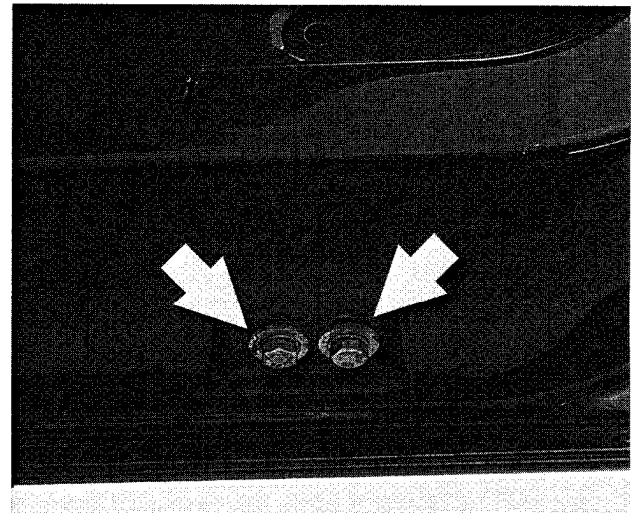


Fig. 20. Rear guide rail lower mounting bolts in bottom of door (arrows).

5. To set insertion depth **A** (Refer to Fig. 17.):

- Lower window about 10 in. to access window bracket at rear guide. If necessary, temporarily reconnect battery cable.
- Loosen guide rail bracket and/or rear guide rail mounting bolts and reposition window left to right. See Fig. 21. or Fig. 22.
- Fully close and align window. Check that glass enters window seal to the specification listed.
- When adjustment is correct, tighten loosened fasteners.

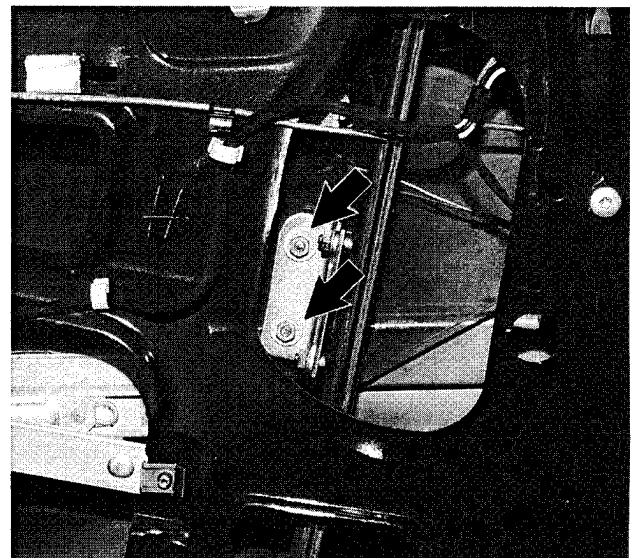
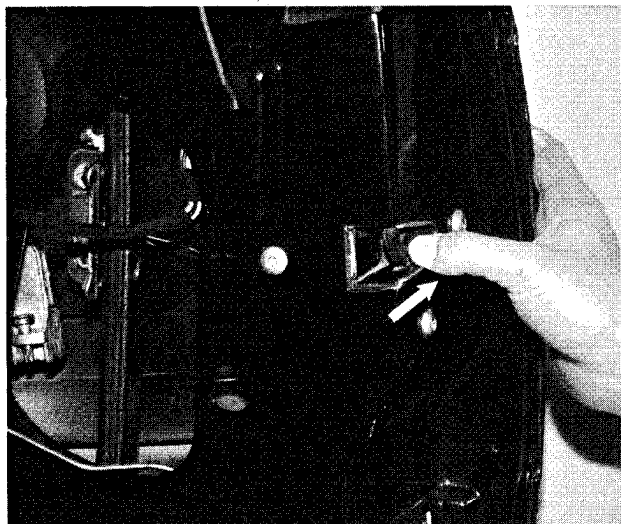


Fig. 21. Loosen nuts on rear guide bracket (arrows) and reposition glass fore/aft. Holes in bracket are elongated to allow for small amounts of adjustment.

NOTE —

To achieve an accurate window adjustment in 2-door models with "close with door shut" feature, simulate a closed door as follows: On early cars, manually turn the latch on the door to the closed position. See Fig. 16. On later cars, insert a wedge of wood into the striker on the body to close the striker switch. Be sure to open the rotary latch (by pulling up on the door handle) or remove the wedge before closing the door.



0013066

Fig. 16. To manually close door latch, push rotary latch in direction of arrow.

CAUTION —

Do not close the door with the rotary latch in closed position, or with a wedge in the striker.

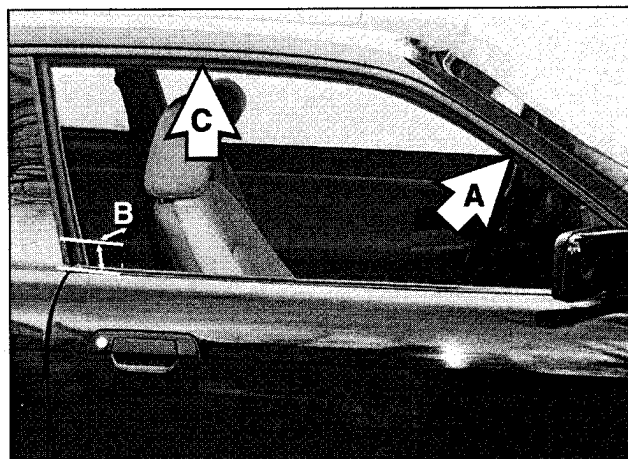
When making adjustments to the front door window, see Fig. 17.

1. On cars with side-impact airbags, disconnect negative (-) cable from battery.

CAUTION —

Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

2. Remove interior door panel and vapor barrier. See 411 Doors.
3. Where applicable, remove side-impact airbag from door. See 721 Airbag System (SRS).



- A** Window insertion depth at A-pillar
- B** B-pillar preload gap (measure gap at 20 mm from top of door)
- C** Window insertion depth at roof line/window parallelism (make measurement at 3.5 in. and 16 in. from B-pillar edge)

0013076

Fig. 17. 2-door window adjustment positions.

NOTE —

- In some models covered in this manual, it is not essential to remove the side-impact airbag to access internal door components. However, the procedure is recommended for safety reasons.
- After each adjustment step, fully lower and raise window and check adjustment before going on to the next step.
- If parts of the front window mechanism were replaced, make sure initial adjustments are in the center of their travel range. Once the glass is installed, position glass to the rear guide rail as shown in Fig. 18.

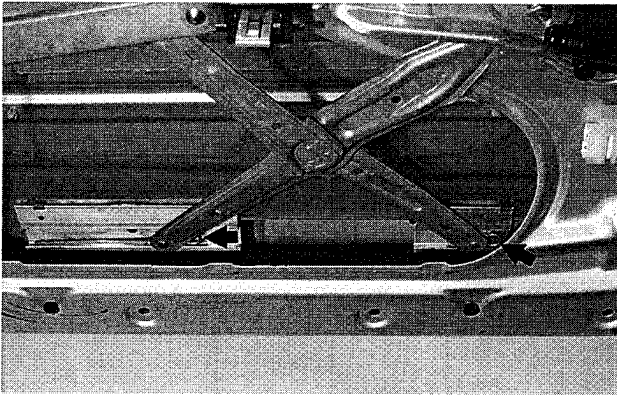
4. To set window preload **B** (See Fig. 19.):

- Measure up 20 mm (0.75 in.) from top of door and mark position on glass.
- Close door just until top of glass contacts seal.
- Measure gap between glass (at 20 mm mark) and window seal.
- If adjustment is necessary, move bottom of window guide in or out to correct. See Fig. 20.
- If further adjustment is needed, move bottom of window in or out by sliding guide bracket. Refer to Fig. 18.

Preload Gap

- **B** (Refer to Fig. 19.)

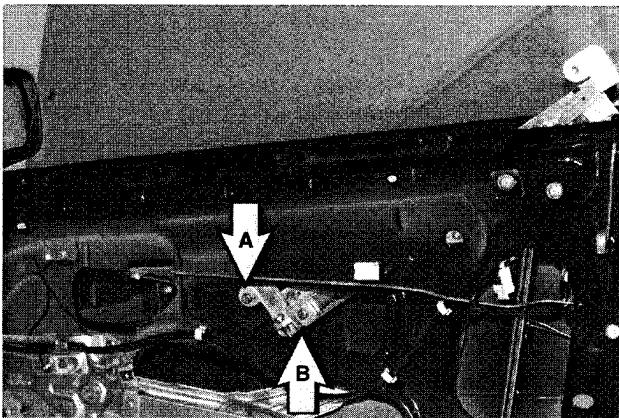
Coupe	8 mm (0.32 in.)
Convertible	3 mm (0.12 in.)



0011696

Fig. 13. Lifting arm retaining clips (arrows) at window slides.

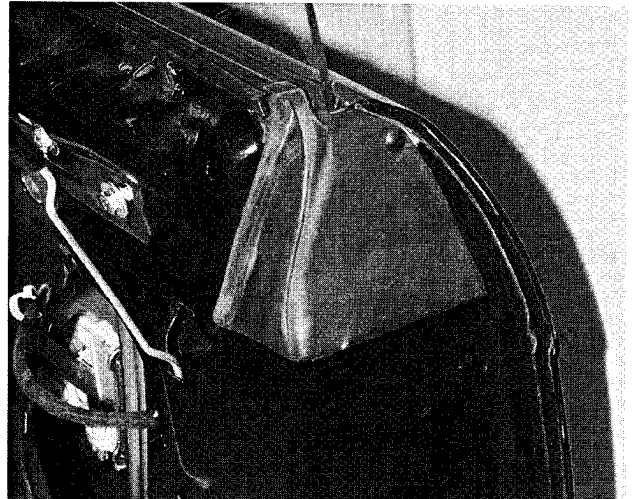
12. Tip window so rear of glass is up out of door. While supporting window, remove window front limit stop bracket. See Fig. 14.



0013067

Fig. 14. With window glass shown partially tipped out of door, remove bolt **A** and loosen bolt **B** in order to remove front window limit stop bracket.

13. Take glass fully out of door.
14. Installation is reverse of removal, noting the following:
 - Guide front of window into front guide rail and rest it there while installing front window limit stop bracket.
 - When installing window rear guide bracket, tighten countersunk screws in glass first (through outside of door), then install guide rail bracket.
 - Insert rubber seal at top of door correctly. See Fig. 15.
 - Use new mounting bolts when reinstalling the side-impact airbag to the door (where applicable). Reset SRS warning light and clear SRS fault memory using special test equipment. See **721 Airbag System (SRS)**.
 - Adjust window as described later.
 - Re-initialize window regulator motors as described earlier.



0013068

Fig. 15. Correct installation of door top rubber seal.

Tightening Torques

- Rear guide bracket to window 6 Nm (53 in-lb)
- Rear guide bracket to roller guide 9 Nm (7 ft-lb)

Front door window, adjusting (2-door models)

The "close with door shut" feature of 2-door cars, as well as the frameless window, makes window adjustment critical.

WARNING —

- Some 1997 and all 1998 2-door cars are fitted with side-impact airbags in the front doors. When servicing the door windows on cars with front side-impact airbags, always disconnect the negative (–) battery cable. See **721 Airbag System (SRS)** for cautions and procedures relating to the airbag system.
- Adjusting the front window requires that the battery cable be reconnected with the side-impact airbag disconnected. This will set a fault code in the SRS control module, turn on the SRS warning light, and disable the SRS system until the fault memory is cleared using special SRS test equipment.
- There is risk of window glass breakage if correct adjustment procedures are not used. If in doubt, this procedure should be left to a trained BMW technician.

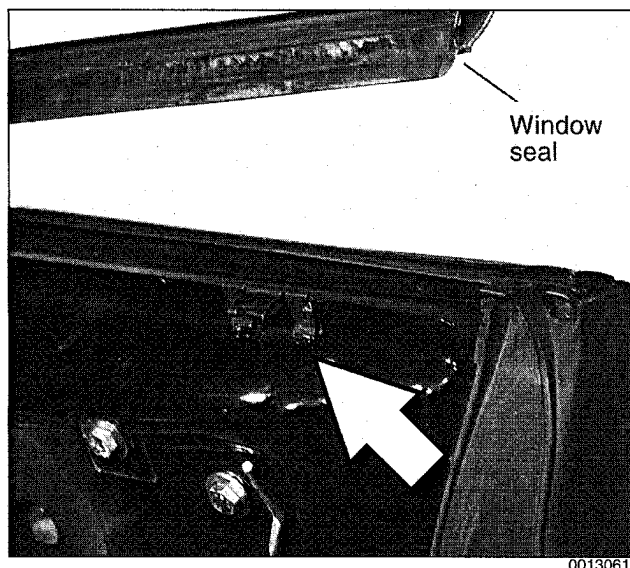


Fig. 9. Lift window inner sealing lip from door. Note metal retainer (arrow).

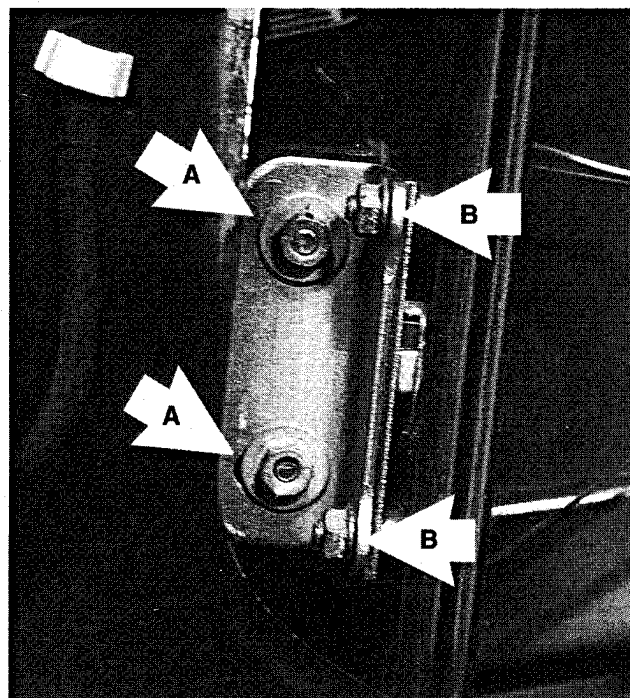


Fig. 10. Window rear guide bracket nuts **A** to be removed. Loosen nuts **B** to allow bracket room to swivel out of the way.

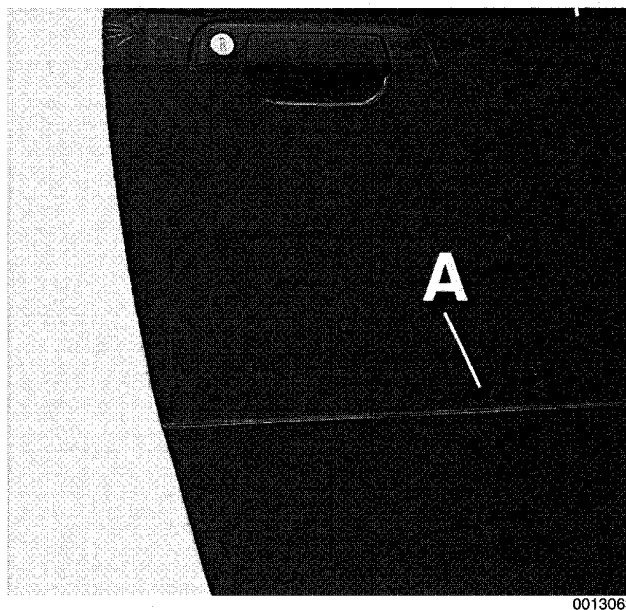


Fig. 11. Using 4mm Allen socket, reach through rear bore hole (**A**) in door to remove window guide bracket bolts. (Exterior door molding has been removed.)

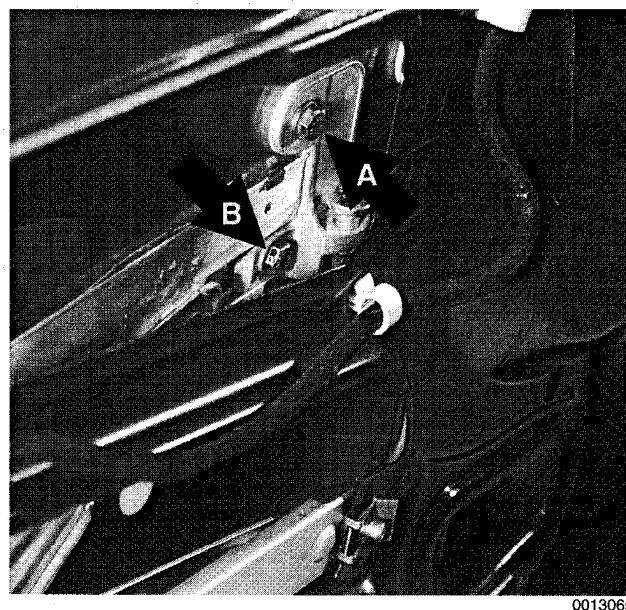


Fig. 12. To remove rear window limit stop bracket, remove bolt **A** and loosen clamping bolt **B**.

11. Lower window about 4½ in. (110 mm). If necessary, temporarily reconnect battery cable. While supporting window, remove retaining clips from window slides and disconnect lifting arms from slides. See Fig. 13.

3. Remove guide rail screw at top and move rail aside enough to slide glass forward and out of door frame. See Fig. 8.

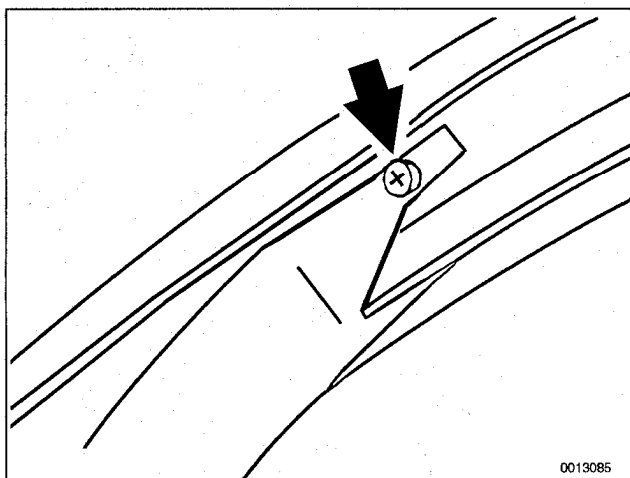


Fig. 8. Remove guide rail screw (A) and move rail aside.

4. Installation is reverse of removal.

WINDOW SERVICE, 2-DOOR MODELS

WARNING —

When servicing the door windows, the harness connector to the window regulator should always be disconnected to prevent pinching fingers in closing window.

2-door models are equipped with the "close with door shut" feature. In this mode, the window glass moves down slightly when the door latch is activated, then goes up tightly against the weather-strip when the door is fully closed.

NOTE —

The front window regulator motors must be re-initialized after repairs are carried out. If the window motors are not reinitialized, the programmed one-touch up/down and anti-pinch functions will be disabled. See **Front door window, initializing**.

Front door window, removing and installing (2-door models)

WARNING —

Some 1997 and all 1998 cars are fitted with side-impact airbags in the front doors. When servicing the front windows on cars with front side-impact airbags, always disconnect the negative (–) battery cable. See **721 Airbag System (SRS)** for cautions and procedures relating to the airbag system.

CAUTION —

- In models with side-impact airbags, removing the front window requires that the battery cable be reconnected with the side-impact airbag disconnected. This will set a fault code in the SRS control module, turn on the SRS warning light, and disable the SRS system until the fault memory is cleared using special SRS test equipment.
- Removing the front window will upset the adjustment and alignment of the window. Window adjustment, as described later, **must** be carried out after installation to prevent damaging the glass.

1. On cars with side-impact airbags, disconnect negative (–) cable from battery.

CAUTION —

Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

2. Remove interior door panel and vapor barrier. See **411 Doors**.
3. Where applicable, remove side-impact airbag from door. See **721 Airbag System (SRS)**.

NOTE —

In some models covered in this manual, it is not essential to remove the side-impact airbag to access internal door components. However, the procedure is recommended for safety reasons.

4. Pull off exterior door molding. See **510 Exterior Trim, Bumpers**.
5. Lower door window completely. If necessary, temporarily reconnect battery cable.
6. Lift up and remove window inner sealing lip. Remove all metal retainers under sealing lip. See Fig. 9.
7. Raise window to about 10 in. (250 mm). If necessary, temporarily reconnect battery cable. Remove guide bracket mounting nuts and remove bracket. See Fig. 10.
8. Lower window about 4½ in. (110 mm). If necessary, temporarily reconnect battery cable. Working through bore hole in door exterior, remove lower guide bracket through-bolt from glass. See Fig. 11.
9. Lower window about 2½ in. (65 mm). If necessary, temporarily reconnect battery cable. Repeat step 8 to remove upper through-bolt from guide bracket.
10. Raise window to about 7½ in. (190 mm) from top. If necessary, temporarily reconnect battery cable. Remove window rear limit stop bracket. See Fig. 12.

512-4 DOOR WINDOWS

7. Push regulator stop tightly against window regulator sector and tighten nut.
 - Check for tight, even fit at top of window frame.
 - If necessary, temporarily reconnect negative (–) cable to battery and raise window so it is pressing uniformly against top rubber seal before final tightening.
8. Reinitialize front window motors as described earlier.

Tightening Torques

- Regulator stop to window regulator 9 Nm (7 ft-lb)
- Window regulator bracket to door 9 Nm (7 ft-lb)

Rear door window, removing and installing (4-door models)

1. Remove rear door panel and vapor barrier. See 411 Doors.
2. Pull out rubber guide at front of window frame. Remove three screws and pull off exterior trim cover. See Fig. 6.

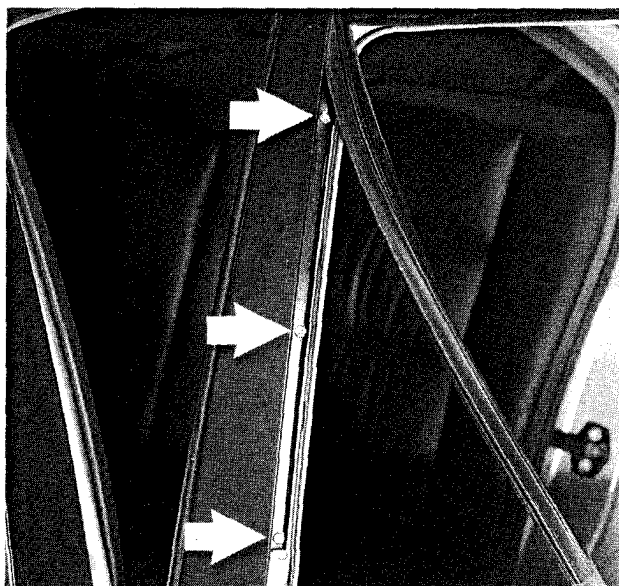


Fig. 6. Trim cover mounting screws (arrows). To remove cover, slide up and off door.

3. Lift up and remove window inner sealing strip. Remove clips at edge of window channel. Refer to Fig. 1.

4. Lower door window about 12 in. (300 mm). Remove window lifting arm retaining clip from window slide. Refer to Fig. 2.

WARNING —

Once the window is lowered, disconnect harness connector from power window motor to prevent accidental operation of the window.

5. Pry lifting arm out of slide. Refer to Fig. 3.

NOTE —

Support window in door before disconnecting lifting arm from window slide.

6. Remove rubber channel from door frame perimeter.

7. Remove window glass from above.

8. Installation is reverse of removal.

- Rear window adjustment is similar to front window adjustment, given earlier.
- Reinitialize window motors as described earlier.

Rear door fixed glass, removing and installing (4-door models)

1. Remove window from rear door as described earlier.
2. Remove upper and lower bolts at guide rail. Lift up rubber seal to access upper bolt. See Fig. 7.

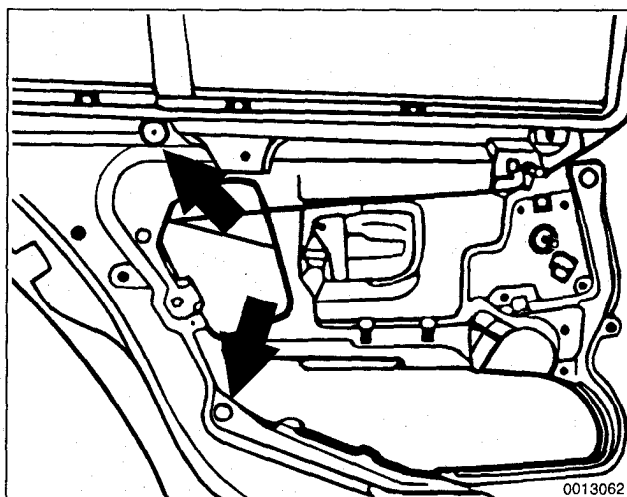
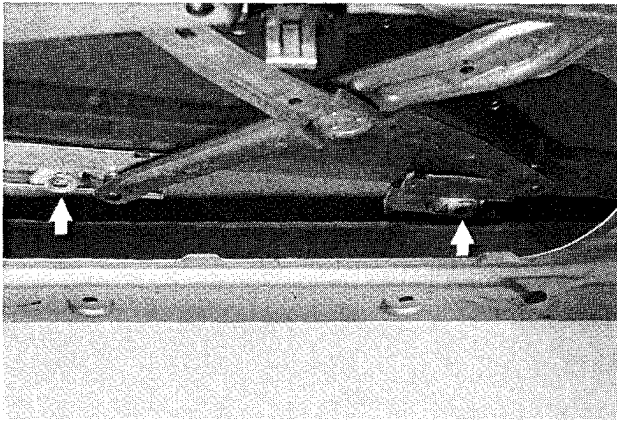


Fig. 7. Rear guide rail mounting bolts (arrows).



0011697

Fig. 3. Window lifting arms shown removed from slides (arrows).

Front door window, adjusting (4-door models)

Whenever the front window or window regulator is removed, window adjustment should be checked. The glass should contact the top of the window squarely and should seat against the window seal uniformly.

NOTE —

If the window does not contact the window seal uniformly, wind noise or water infiltration may result.

Be sure to re-initialize the window motors as described earlier.

WARNING —

Some 1997 and all 1998 cars are fitted with side-impact airbags in the front doors. When servicing the door windows on cars with front side-impact airbags, always disconnect the negative (–) battery cable. See 721 Airbag System (SRS) for cautions and procedures relating to the airbag system.

CAUTION —

- In models with side-impact airbags, adjusting the front window requires that the battery cable be reconnected with the side-impact airbag disconnected. This will set a fault code in the SRS control module, turn on the SRS warning light, and disable the SRS system until the fault memory is cleared using special SRS test equipment.

- Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

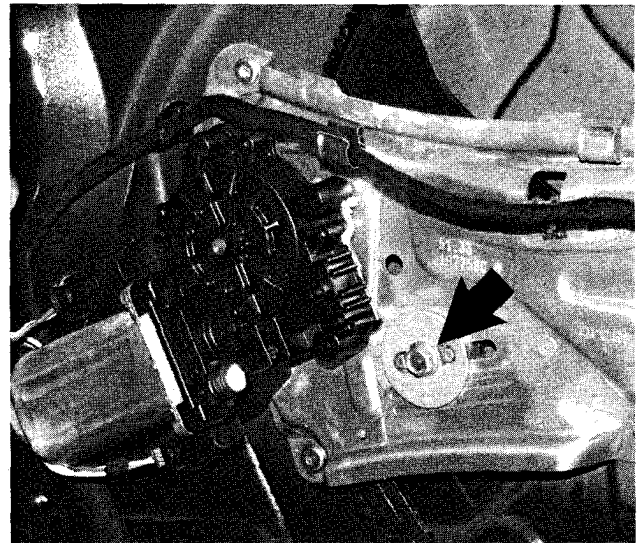
1. Raise door window to top of its travel.
2. On cars with side-impact airbags, disconnect negative (–) cable from battery.

3. Remove front door panel and vapor barrier as described in 411 Doors.
4. Remove airbag unit from door. See 721 Airbag System (SRS).

NOTE —

In some models covered in this manual, it is not essential to remove the side-impact airbag to access internal door components. However, the procedure is recommended for safety reasons.

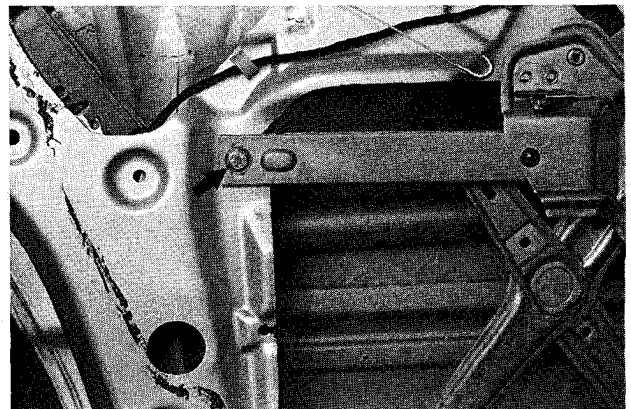
5. Loosen regulator stop at window regulator support. See Fig. 4.



0013075

Fig. 4. Window regulator stop (arrow).

6. If glass is not squarely positioned in window frame, loosen support arm bolt and reposition arm as necessary. Tighten bolt. See Fig. 5.



0011705

Fig. 5. Adjust window to its frame by loosening bolt (arrow) and repositioning support arm up or down.

WINDOW SERVICE, 4-DOOR MODELS

WARNING —

When servicing the door windows, the harness connector to the window regulator should always be disconnected to prevent pinching fingers in closing window.

NOTE —

If the battery is disconnected, the front window regulator motors must be re-initialized after repairs are carried out. If the window motors are not reinitialized, the programmed one-touch up/down and anti-pinch functions will be disabled. See **Front door window, initializing**.

Front door window, removing and installing (4-door models)

1. Lower door window about 12 in. (300 mm).
2. Remove front door panel and vapor barrier as described in **411 Doors**.

WARNING —

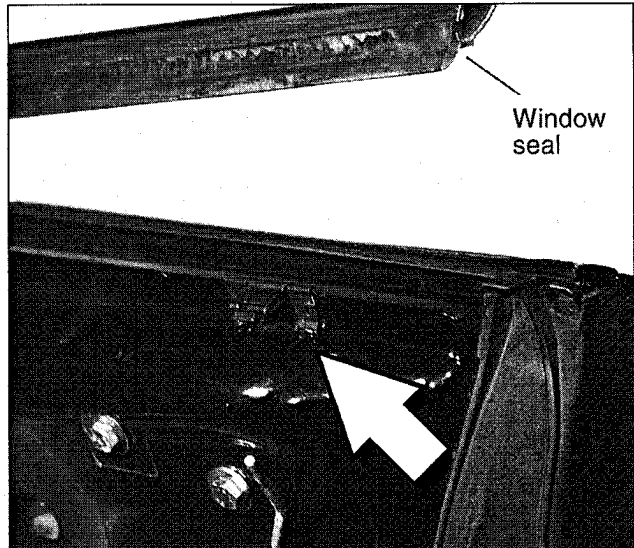
- Some 1997 and all 1998 cars are fitted with side-impact airbags in the front doors. When servicing the door windows on cars with front side-impact airbags, always disconnect the negative (–) battery cable. See **721 Airbag System (SRS)** for cautions and procedures relating to the airbag system.
- Prior to disconnecting the battery, read the battery disconnection cautions given at the front of this manual on page viii.

3. On cars with side-impact airbags, disconnect negative (–) cable from battery. Then remove airbag unit from door. See **721 Airbag System (SRS)**.

NOTE —

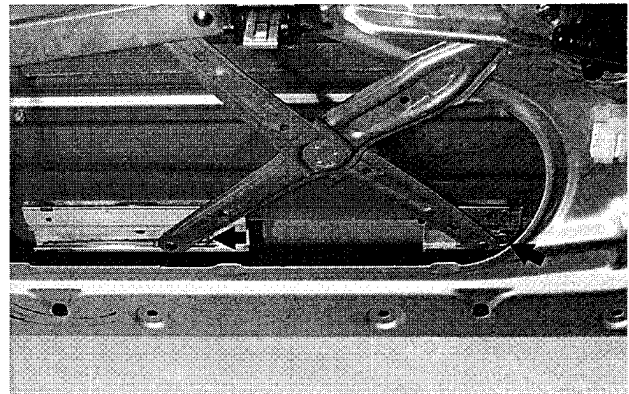
In some models covered in this manual, it is not essential to remove the side-impact airbag to access internal door components. However, the procedure is recommended for safety reasons.

4. Disconnect harness connector from window motor to prevent accidental operation.
5. Carefully remove window inner seal and pry off metal retainers under sealing lip to prevent scratching glass. See Fig. 1.
6. Remove retaining clips from window slides. See Fig. 2.



0013061

Fig. 1. Lift off window seal from door. Note metal retainer (arrow). 2-door car shown.



0011696

Fig. 2. Retaining clips for window slides (arrows).

7. While supporting window glass, pry window lifting arms out of left and right slides. See Fig. 3.
8. Pivot window up at rear and out of door.
9. Installation is reverse of removal, noting the following:
 - Use new mounting bolts when reinstalling the side-impact airbag to the door (where applicable). See **721 Airbag System (SRS)**.
 - Adjust window as described later.
 - Re-initialize window regulator motors as described earlier.

512 Door Windows

GENERAL	512-1	WINDOW SERVICE,	
Front door window, initializing.	512-1	2-DOOR MODELS	512-5
WINDOW SERVICE,		Front door window, removing and installing	
4-DOOR MODELS	512-2	(2-door models)	512-5
Front door window, removing and installing		Front door window, adjusting	
(4-door models)	512-2	(2-door models)	512-7
Front door window, adjusting		Rear vent window or vent latch,	
(4-door models)	512-3	replacing (2-door models)	512-11
Rear door window, removing and installing		WINDOW REGULATOR SERVICE	512-12
(4-door models)	512-4	Door window regulator and motor,	
Rear door fixed glass, removing and installing		removing and installing.	512-12
(4-door models)	512-4		

GENERAL

This heading covers door glass, window regulator and power window motor repair information. Before proceeding with window repairs, specifically on late cars fitted with front side-impact airbags, read the procedure through to determine the scope of the repair.

The bonded windshield and rear glass are replaced using special adhesives and tools. It is recommended that bonded glass replacement be done by a professional glass installer.

WARNING —

- Always wear hand and eye protection when working with broken glass.
- If a window is broken, all of the glass bits should be vacuumed out of the door cavity. Use a blunt screwdriver to clean out any remaining glass pieces from the window guide rails.

CAUTION —

If battery power is lost or the battery has been disconnected, windows must be re-initialized. Both one touch up/down and pinch-protection will be inactive until windows are re-initialized. See below.

Front door window, initializing

The front door windows incorporate a pinch-protection feature as well as one-touch up/down (1994 and later models). In order for these features to work correctly, the mechanical stop reference point must be re-initialized after repairs are carried out.

1. Close door and turn ignition key on. Fully open front window.
2. Fully close front window.
3. Hold window button in up position for at least 5 seconds after window is closed.
4. Repeat for remaining window.
5. The windows should now be initialized and the anti-pinch and one-touch up/down functions should be enabled.

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