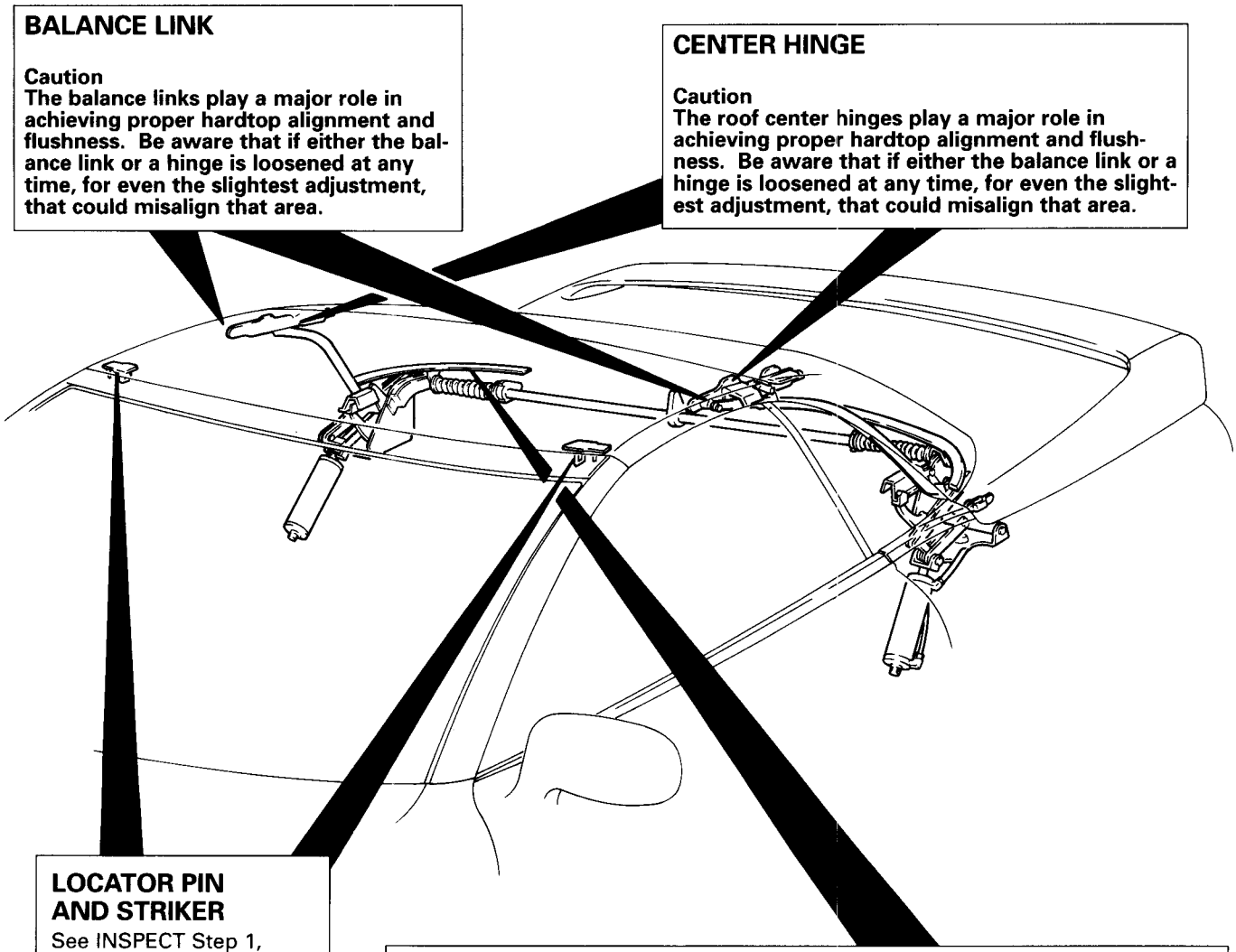
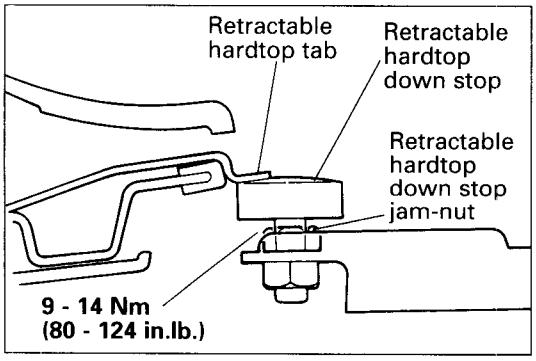
11. Adjust
    Adjustment points



RETRACTABLE HARDTOP DOWN STOP

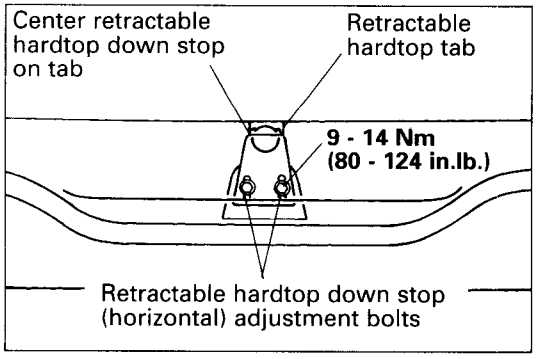
Caution
The hardtop down stop can be adjusted vertically on its two-piece mounting bracket. The bracket can be adjusted horizontally without affecting down stop height.
Mechanical adjustment to, or replacement of, the retractable hardtop system components will require that the hardtop ECU be run through "auto-configuration" using the ASC INCORPORATED computerized diagnostic system. DO NOT perform any adjustment or replacement without having the latest version of the ASC INCORPORATED diagnostic system.

1. Verify that the retractable hardtop is adjusted properly when in the closed position (refer to RETRACTABLE HARDTOP ASSEMBLY, in this section).
2. Open the hardtop using the hardtop "OPEN" switch. Release the switch before the hard tonneau begins to close.



3. Check alignment of hardtop-mounted tab to hardtop down stop.

   Standard Value: Tab resting on down stop bumper and centered side-to-side forward on bumper. Continue to Step 4.



4. Adjust down stop side-to-side to hardtop tab.
   (1) Loosen bracket bolts and adjust down stop to the Standard Value in Step 3. Tighten bracket bolts.

   Standard Value: 9 - 14 Nm (80 - 124 in.lb.)

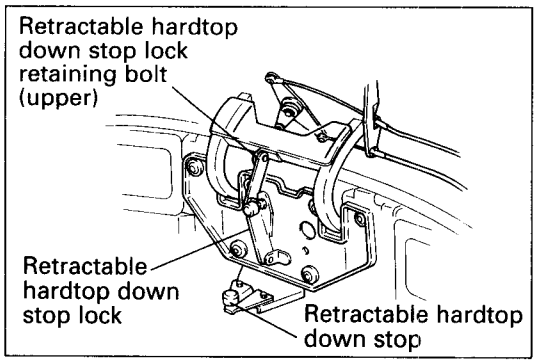
5. **DOWNSTOP HEIGHT ADJUSTMENT**
   1. Close and latch the hardtop.
   2. Open the hard tonneau.
   3. Make sure object-in-trunk sensor is properly positioned.
   4. Loosen the hardtop down stop jam-nut.
   5. Measure from the top of the object-in-trunk sensor carpet to the top of the hardtop down stop.
   6. Adjust to 38 mm ± 2 mm (1.3 inch ± .08 inch).
   7. Tighten the hardtop downstop jam-nut.

   Standard value: 9 - 14 Nm (80 - 124 in.lb.)

   8. Check and adjust downstop lock. Refer to DOWNSTOP LOCK ADJUSTMENT in this section.
   9. Run the hardtop ECU through Auto-configuration.

DOWNSTOP LOCK ADJUSTMENT

1. Verify that the hardtop down stop is adjusted properly, refer to Retractable hardtop down stop, in this section.
2. Close the retractable hardtop.
3. Open the hard tonneau.

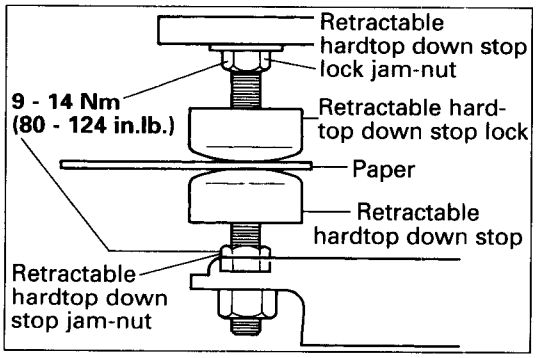


4. Remove the upper hardtop down stop lock retaining bolt.
5. Lower the hardtop down stop lock against the down stop.
6. Loosen the hardtop downstop lock jam-nuts and align the hardtop downstop lock to the hardtop downstop. Tighten jam-nuts and mark the location of the jam-nuts.

   Standard value: 9 - 14 Nm (80 - 124 in.lb.)

7. Install the hardtop downstop lock retaining bolt. Tighten the hardtop downstop lock retaining bolt.

   Standard value: 9 - 14 Nm (80 - 124 in.lb.)



8. Lower both rear seatbacks.
9. Place a sheet of paper on top of the hardtop downstop.
10. Close the hard tonneau.
11. Reaching in through the rear seatback area, pull the paper from between the hardtop down stop and the hardtop down stop lock. There should be a drag on the paper.
12. Adjust hardtop down stop lock as necessary to attain proper gap.
13. Make sure hardtop down stop lock is aligned with the mark, to ensure proper alignment with hardtop down-stop.
14. Run the hardtop ECU through Auto-configuration.

WINDSHIELD HEADER POWER LATCH SYSTEM

Caution
Mechanical adjustment to, or replacement of, the header latch system components will require that the hardtop ECU be run through "auto-configuration" using the ASC INCORPORATED computerized diagnostic system. DO NOT perform any adjustment or replacement without having the latest version of the ASC INCORPORATED diagnostic system.

LATCH ACTUATOR ADJUSTMENT

1. Check that the hardtop assembly is adjusted correctly (refer to SERVICE ADJUSTMENT PROCEDURES - RETRACTABLE HARDTOP ASSEMBLY in this section).

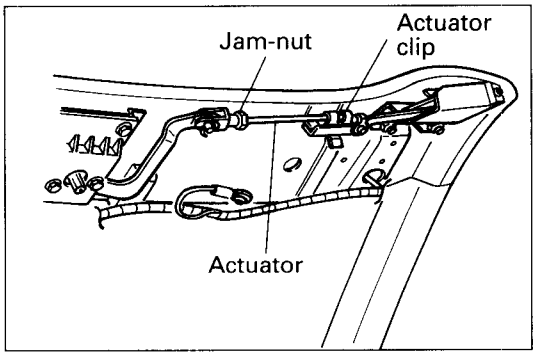
   NOTE
   The hardtop locator pins determine the flushness of the hardtop to the windshield header, and must be adjusted correctly before proceeding. (Refer to RETRACTABLE HARDTOP ASSEMBLY - in this section).

2. Open the hardtop using the hardtop control switch.

   NOTE
   If the hardtop cannot be opened using the hardtop control switch, it will be necessary to open the hardtop manually. Refer to Manual Operation - Retractable Hardtop - Opening Retractable Hardtop in GROUP-00 in this manual.

3. Remove the windshield header garnish. (Refer to GROUP 52, in this Manual).
4. Loosen the actuator jam-nuts on LH and RH actuators.
5. Release LH and RH actuator retaining clips and remove both actuators from the latches.
6. Move the latches to the full open (outboard) position.
7. Adjust both actuators a few turns at a time until they line up with the holes in the latches.
8. Reconnect the actuators in the latches and secure with clips.
9. Tighten the jam-nuts.

   Standard value: 6 - 8 Nm (54 - 71 in.lb.)



10. Operate the hardtop 2 or 3 cycles to verify proper operation.
11. Reinstall windshield header garnish.
12. Run hardtop ECU through Auto-configuration, refer to Diagnostics and Testing in this section.

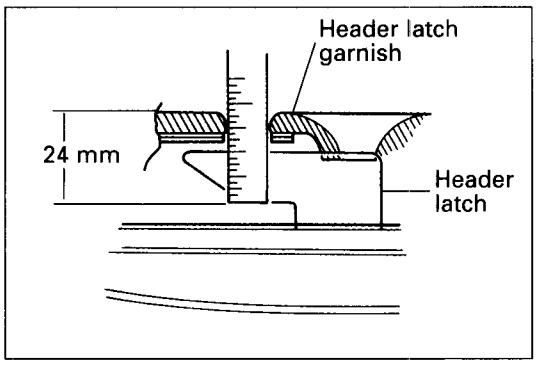
LATCH HEIGHT ADJUSTMENT

1. Check that the hardtop assembly is adjusted correctly. Refer to SERVICE ADJUSTMENT PROCEDURES - RETRACTABLE HARDTOP ASSEMBLY, in this section.
2. Open the hardtop using the hardtop control switch.

NOTE
If the hardtop cannot be opened using the hardtop control switch, it will be necessary to open the hardtop manually. Refer to Manual Operation - Retractable Hardtop - Opening Retractable Hardtop in GROUP-00 in this manual.

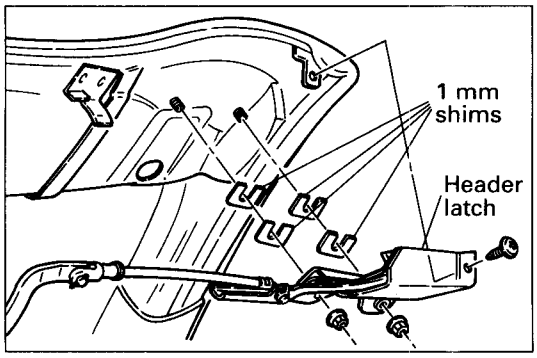
NOTE
The hardtop locator pins determine the flushness of the hardtop to the windshield header, and must be adjusted correctly before proceeding. (Refer to ADJUSTMENT OF THE RETRACTABLE HARDTOP SYSTEM, in this section).

3. Remove the windshield header garnish. (Refer to GROUP 52, in this manual).
4. Manually close the header latches.



5. Measure the distance from the bottom of the latch to the top of the header latch garnish.

Standard value: 24 ± 1mm (.944 ± .04 inch)



6. Install or remove 1mm (.04 inch) shims between the latch and the header structure to achieve desired dimension.

NOTE
If desired dimensions cannot be achieved, inspect latch and header latch garnish and service as required.

POWER QUARTER WINDOW

Caution
Mechanical adjustments to, or replacement of, the quarter window system components will require that the hardtop ECU be run through "auto-configuration"using the ASC INCORPORATED computerized diagnostic system. DO NOT perform any adjustment or replacement without having the latest version of the ASC INCORPORATED diagnostic system.

Caution
Mechanical adjustment to, or replacement of, the quarter window system components will require that the retractable quarter window extend and retract sensors be adjusted.

Description

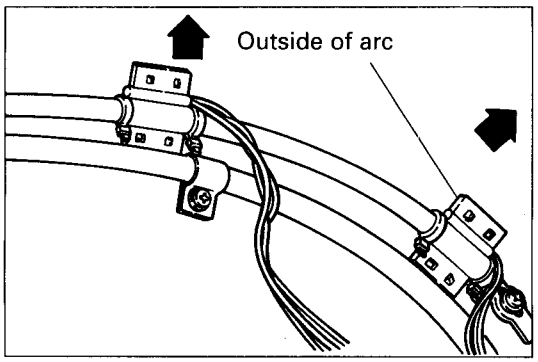
The power quarter windows are housed in the hardtop rear roof section. The quarter windows are driven by a single electric motor that is controlled only by the hardtop system ECU. No switch is provided to operate the quarter windows independently of the hardtop system.

Unlike conventional quarter windows that lower into the body cavity, a pivot at the top of each window allows the glass to retract into the hardtop toward the rear window.

Each window has two plastic guides mounted on the body structure. These guides maintain the proper door glass-to-quarter window sash seal contact. When the hardtop and/or quarter window is not adjusted properly the windows may bind on the guides, causing the hardtop ECU to sense stall current which turns off the motor. The drive motor is also controlled through the ECU by time, or by the position sensors, whichever comes first.

Each window has a spirally wound drive cable that functions as a flexible, rack-like gear. The cable's spiral winding functions similar to teeth on a rigid rack-type gear. The helical gear on the drive motor meshes with the cable's "teeth", driving the cable in or out depending on gear (motor) rotation.

Quarter window opened and closed positions are sensed by two position sensors located on the right-hand quarter window cable return tube. The sensor nearest the drive motor senses the fully-closed (extended) position. The other sensor senses the fully-open (retracted) position. The position sensor consists of an adjustable position, reed-type switch that is saddle-mounted around the cable return tube. The sensors are tripped by a small magnet on the end of the right-hand drive cable. The ECU cannot determine what position the windows are in if they are neither fully open or fully closed.



The fully-closed position sensor performs the function of an electronic down-stop; no hard down stop is used.

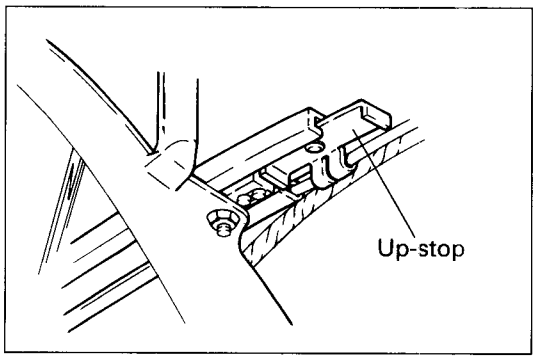
For optimal performance the sensor should be located on the outside arc of the cable return tube. This will ensure the magnet will be in closer proximity to the sensor than if it was on the inside arc of the tube.

Caution
The positions of quarter window position sensors are critical for proper operation of not only the quarter window system but the hardtop system as a whole. Damage can occur to the quarter windows, hardtop, and hard tonneau if the position sensors are not properly adjusted. Personal injury could result.

SYNCHRONIZATION OF QUARTER WINDOW CABLES

NOTE
(1) Whenever one quarter window is serviced, the other should be inspected for alignment, wear, or breakage, especially when the drive cables are suspect.
(2) Whenever the quarter window drive motor is removed and replaced the quarter windows must be synchronized.
(3) Synchronization should only be performed on a quarter window system that is known to be in good working order.

1. Open the retractable hardtop halfway.
2. Remove the headlining from the rear roof section. (Refer to GROUP 52, in this Manual.)
3. Remove the quarter window drive motor.
   (1) Disconnect the harness connector.
   (2) Remove the bolts securing the motor, and remove the motor.



4. Manually push (retract) both quarter windows into the hardtop until they contact the up-stops as shown in the illustration.
5. Reinstall and reconnect the quarter window drive motor.

   Standard value: 2 - 5 Nm (18 - 44 in.lb.)

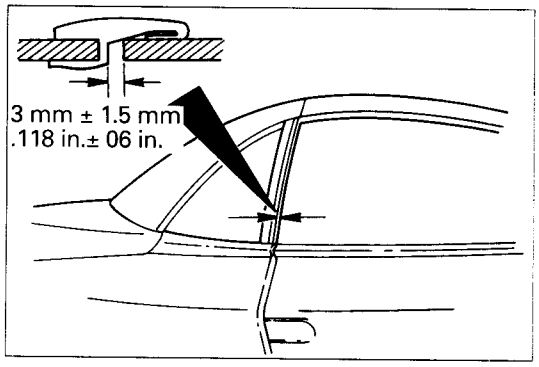
   NOTE
   Do not disturb the cables as the drive gear meshes with them. Otherwise the synchronization will be off by one or more "teeth" on the cable, which will cause the windows not to open or close at their original adjusted position.

6. Re-install the headlining (see GROUP 52, in this Manual).

QUARTER WINDOW ADJUSTMENT

NOTE
In order for the quarter windows to operate properly, the hardtop MUST be properly adjusted to the vehicle body, and the door glass properly adjusted to the hardtop. Otherwise, the quarter windows may bind in the quarter glass guides located on the body. This will cause poor door glass-to-sash seal contact and/or inconsistent or unrepeatable closing of the windows.

Caution
DO NOT attempt to adjust the quarter windows unless you are sure the hardtop is adjusted properly. If the hardtop is not adjusted properly and the quarter windows are adjusted to conform to the maladjusted hardtop, the door glass will not be in the correct position to the A-pillar and hardtop weatherstrips. Damage to the hardtop weatherstrips may occur,water leaks and possibly wind noise may develop.

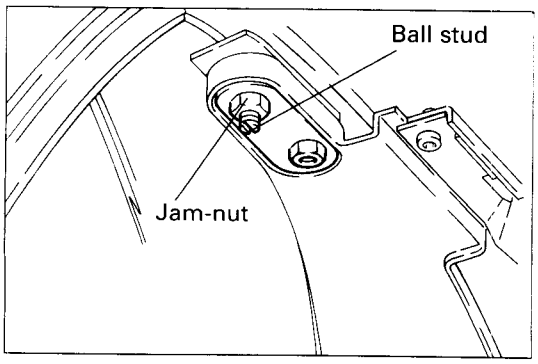


INSPECT

1. Close and latch the hardtop, and close both vehicle doors with the door windows fully up.
2. Inspect the gap between the sash seal and the door glass rear edge.

   Standard value: Constant 3 mm ± 1.5 mm (.118 in. ± 0.6 in.) gap between door glass edge and sash seal

   - If gap is within the standard value, go to Step 5.
   - If gap is not good, go to Step 4.



4. Adjust the door glass-to-sash seal gap.

   Top of window:

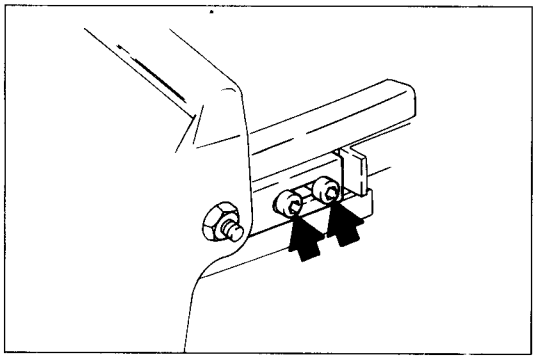
   (1) Remove the headlining from the rear roof section. Refer to Group 52, in this Manual.
   (2) Use a screwdriver to hold the ball stud (DO NOT rotate stud), and loosen the ball stud jam-nut.
   (3) Loosen the ball stud tapping plate nut.
   (4) Slide the window fore or aft to the Standard value in Step 3.

(5) Tighten the nut, and hold the ball stud and tighten the jam-nut.

Standard value: 2.8 - 4.2 Nm (25 - 37 in.lb.)

(6) Close the vehicle doors. Using the hardtop "CLOSE"/-"OPEN" switch, open the windows partway, and then fully close them.
(7) Inspect the gap.

- If the gap is within the standard value, go to Step 5.
- If the gap is not OK, go to **Bottom of window**, in this Step 4.



Bottom of window:

NOTE
If there is no more mechanical adjustment available to extend the quarter windows, it may be necessary to adjust the quarter window extend position sensor.

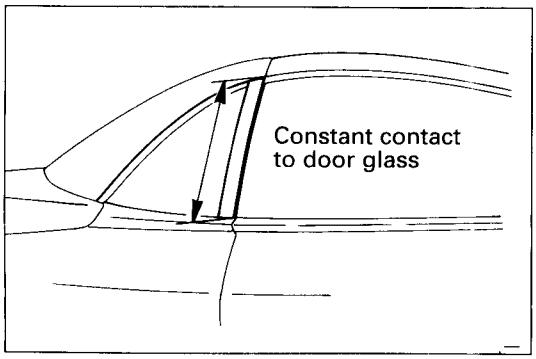
(1) Loosen the bolts holding the swivel to the drive cable.
(2) Manually pull/push the glass closed to achieve the desired gap.
(3) Tighten the bolts.

Standard value: 6 - 8 Nm (53 - 71 in.lb.)

(4) Close the vehicle doors. Using the hardtop "CLOSE"/-"OPEN" switch, open the windows partway, and then fully close them.
(5) Inspect the gap.

NOTE
Gap adjustments to one window will usually change the gap of the other window. Always check the other window after making gap adjustments.

- If the adjustments did not yield the desired result, repeat the above.
- If the gap is OK, go to Step 5.

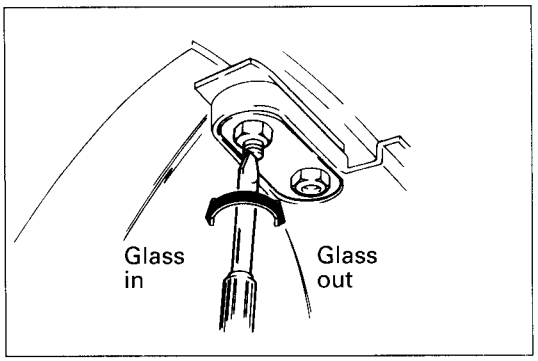


5. Inspect the contact of the sash seal to the door glass.
(1) Close and latch the hardtop, and close both vehicle doors.
(2) Inspect the contact of the sash seal to the door glass.

Standard value: Constant contact of door glass to sash seal

- If contact is good, go to ADJUSTMENT OF QUARTER WINDOW GUIDING SYSTEM (RUDDER), in this section.

- If contact is not good, go to Step 6.



6. Adjust the door glass-to-sash seal contact.

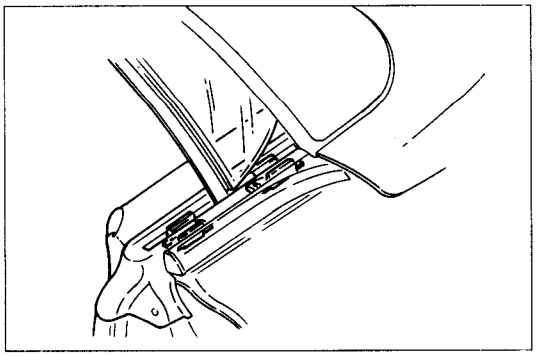
Top of window:

(1) Use a screwdriver to hold the ball stud, loosen the ball stud jam-nut.
(2) Adjust the window to the Standard value in Step 4 by rotating the ball stud.

Standard value: In = Counterclockwise
Out = Clockwise

(3) Close the vehicle doors. Using the hardtop "CLOSE"/"OPEN" switch, open the windows partway, and then fully close them.
(4) Inspect the contact.

- If contact is good, tighten the ball stud jam-nut, go to ADJUSTMENT OF QUARTER WINDOW GUIDING SYSTEM (RUDDER), in this section.
- If contact is not good, go to **Bottom of window** in this Step.



Bottom of window:

(1) Loosen the quarter window guides to adjust the window to the Standard value in Step 4.
(2) Tighten quarter window guide nuts.

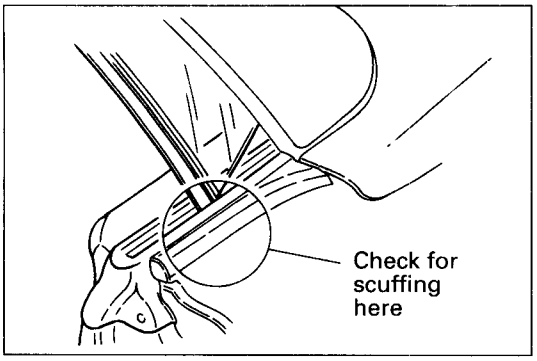
Standard value: 2.8 - 4.2 Nm (25 - 37 in.lb.)

(3) Close the vehicle doors. Using the hardtop "CLOSE"/"OPEN" switch, open the windows partway, and then fully close them.
(4) Inspect the contact.
(5) Go to ADJUSTMENT OF QUARTER WINDOW GUIDING SYSTEM (RUDDER), in this section.

ADJUSTMENT OF QUARTER WINDOW GUIDING SYSTEM (RUDDER)

NOTE
A rudder-like arm attached to the rear of the window steers the window along a slide (cam) while the quarter windows

open and close. The "rudder" steers the window into the quarter window guides, located on the vehicle body, as they close.
When the rudder system is not adjusted properly the window may contact the quarter belt molding causing scuffing or damage.
The rudder does not directly affect adjustment of the quarter window system in general, but will provide optimum operational performance.

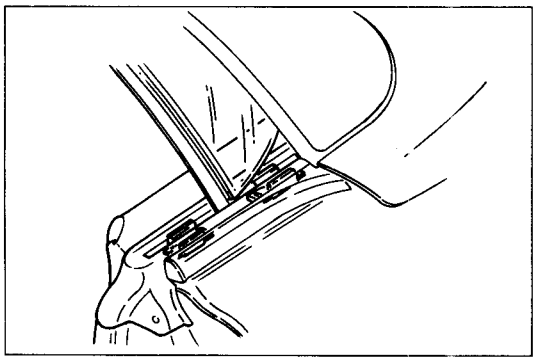


INSPECT

NOTE
The quarter window system must be adjusted properly before attempting to adjust the rudder system.

1. Inspect the quarter belt mouldings for scuffing or damage.

   - If damage is noted, go to Step 2.
   - If damage is not noted, go to Step 3.

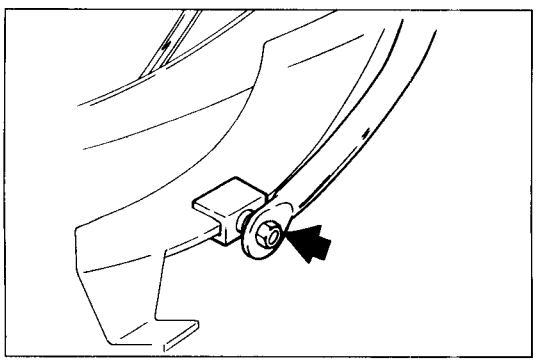


2. Inspect the operation of the window rudder system.
   (1) Close and latch the hardtop.
   (2) Open the vehicle doors. Using the hardtop "CLOSE"/"OPEN" switch, fully open and close the windows several times noting the relationship of motion of the quarter window into the quarter window guides located on the vehicle body.

   Standard value:

   - **Windows do not tend to ride close to the quarter belt mouldings.**
   - **The motion of the windows into the quarter window guides is smooth.**

   - If the motion is acceptable according to the Standard value, the procedure is complete; check other areas of the quarter window system for problems if a problem still exists.
   - If the motion is not OK according to the Standard value, remove all the rear headlining (refer to GROUP 52, in this Manual), and go to Step 3.



3. Adjust the quarter window rudder system.
   (1) Open the windows using the hardtop "OPEN" switch.
   (2) Loosen the nut on the yoke swivel holding the window rudder.

(3) Close the hardtop. As the quarter windows are closing, release the switch just before they contact the quarter belt moulding and the quarter window guides.
(4) Tighten the yoke swivel nut.

Standard value: 2.8 - 4.2 Nm (25 - 37 in.lb.)

(5) Open and close the windows several times to check for proper operation.
(6) Go to ADJUSTMENT OF QUARTER WINDOW POSITION SENSORS, in this section.

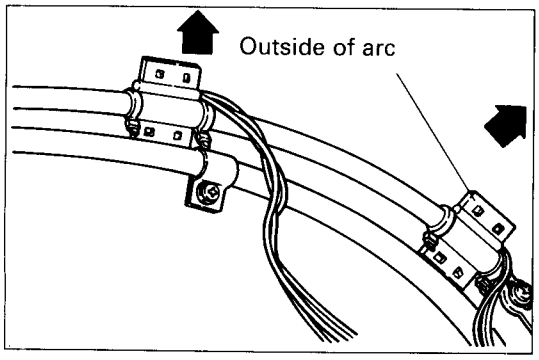
ADJUSTMENT OF QUARTER WINDOW POSITION SENSORS

Caution
Mechanical adjustments to, or replacement of, the quarter window position sensors will require that the hardtop ECU be run through "auto-configuration" using the ASC INCORPORATED computerized diagnostic system. DO NOT perform any adjustment or replacement without having the latest version of the ASC INCORPORATED diagnostic system.

Description

Quarter window open and close positions are sensed by two position sensors located on the right-hand quarter window cable return tube (left hand side of the vehicle). The sensor nearest the drive motor senses the fully-closed (extended) position. The other sensor senses the fully-open (retracted) position. The position sensor consists of an adjustable position, reed-type switch that is saddle-mounted around the cable return tube. The sensors are tripped by a small magnet on the end of the right-hand drive cable. The ECU cannot determine what position the windows are in if they are neither fully-open or fully closed.

The fully-closed position sensor performs the function of an electronic down stop; no hard down stop is used.

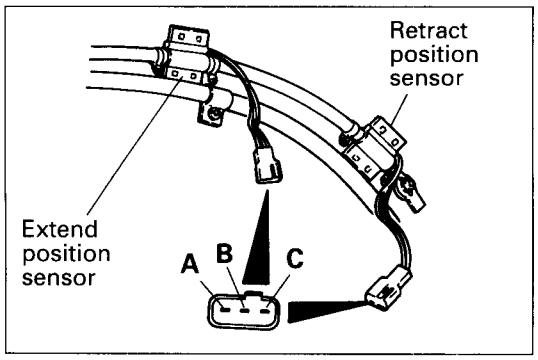


For optimal performance the sensors should be located on the outside arc of the cable return tube. This will ensure the magnet will be in closer proximity to the sensor than if it was on the inside arc of the tube.

Caution
The positions of quarter window position sensors are critical for proper operation of not only the quarter window system but the hardtop system as a whole. Damage can occur to the quarter windows, hardtop, and hard tonneau if the position sensors are not properly adjusted. Personal injury could result.

NOTE
This procedure should be performed for both position sensors.

1. Remove rear headlining (refer to GROUP 52, in this Manual).
2. Using the hardtop "OPEN" switch, open the quarter windows.
3. Disconnect the retract position sensor harness connector.



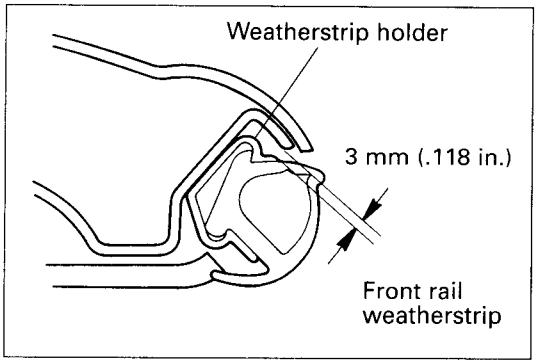
4. Check and set the position of the sensor.

Standard value:

Retract Position Sensor Measured terminal	With quarter window extended (closed)	With quarter window retracted (open)
B and C	No continuity	Continuity
A and B	Continuity	No continuity

Extend Position Sensor Measured terminal	With quarter window extended (closed)	With quarter window retracted (open)
B and C	Continuity	No continuity
A and B	No continuity	Continuity

5. Reconnect the retract position sensor.
6. Using the hardtop "CLOSE" switch, close the quarter windows.
7. Disconnect the extend position sensor.
8. Check and set the position of the sensor.
9. Reconnect the extend position sensor.
10. Check operation of the quarter windows by cycling the hardtop several times.
11. Reinstall the headlining (refer to GROUP 52, in this Manual.)



FRONT RAIL WEATHERSTRIP AND HOLDER

1. Open the hardtop halfway.
2. Measure the distance between the weatherstrip holder and the underside of the hardtop as shown in the illustration.

   Standard value: 3 mm (.118 in.) between holder and hardtop

   - If the holder is not at the Standard value:
     (1) Remove the weatherstrip from the holder.
     (2) Loosen the holder attaching screws, adjust the holder to the Standard value and tighten screws.
     (3) Reinstall the weatherstrip.
     (4) Go to Step 3.

   - If the holder is at the Standard value, go to Step 3.

3. Close the hardtop.
4. Adjust the front rail weatherstrip to the windshield header weatherstrip and the hardtop weatherstrip by sliding it in the holder.

   Standard value: Equal compression to the header weatherstrip and hardtop weatherstrip.

5. Open the hardtop halfway, close it, and recheck weatherstrip compression in Step 4.

HARD TONNEAU

- TONNEAU HINGE
- TONNEAU LATCH SYSTEM

Caution

Mechanical adjustments to, or replacement of, certain components of the hard tonneau system, including tonneau weatherstrip and/or hardtop replacement and adjustment will require that the hardtop ECU be run through "auto-configuration" using the ASC INCORPORATED computerized diagnostic system. DO NOT perform any adjustment or replacement without having the latest version of the ASC INCORPORATED diagnostic system.

Description

The rearward-opening tonneau is attached to the vehicle body at the rear by a single center hinge assembly. Hydraulic cylinders actuate lifting arms that are hinged at both sides of the vehicle which open and close the hard tonneau. The lifting arms have plastic guides on the end of them that slide in track assemblies mounted to the underside of the tonneau. The tracks are hinged from their mounting brackets at the rear. The purpose of the hinged tracks is two-fold: it allows the tonneau to be driven into the tonneau latches without damaging the latches and tonneau, and provides the additional travel of the hydraulic cylinders after the tonneau is closed to mechanically pull the tonneau latches closed through a system of levers and cables. Each latch is remotely released by an electric actuator controlled by the hardtop ECU.

If the hardtop system latch system becomes inoperable, the tonneau latches can be unlatched manually by pulling the manual release lever located to the left of the driver seat.

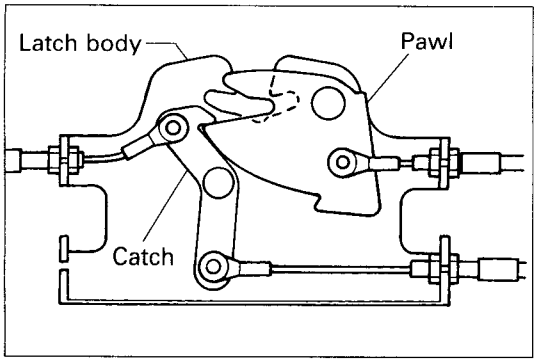
When adjusting one component or area of the hard tonneau, all components relating to hardtop operation should be checked, and readjusted, if necessary.

Within a certain tolerance or range, electronically speaking, even the slightest adjustment, or difference in weatherstrip compression, can affect the electronic data to the ECU. This ultimately affects the overall performance of the hardtop and tonneau system.

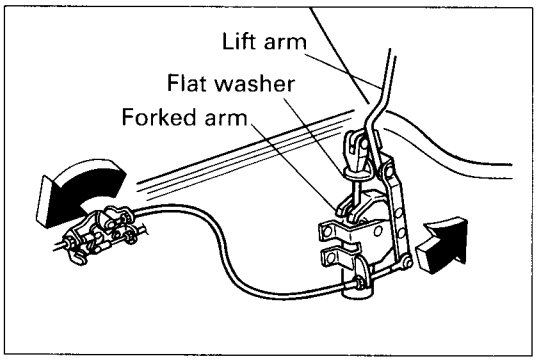
ADJUSTMENT OF HARD TONNEAU AND TONNEAU LATCHES

INSPECT

1. Verify that the retractable hardtop is adjusted correctly (refer to SERVICE ADJUSTMENT PROCEDURES in this section). Otherwise, the tonneau may not line up properly with the hardtop in order to achieve the proper gap conditions around the hardtop and the gaps side-to-side between the tonneau and the rear fenders.



2. Inspect the timing relationships of the striker as the latch pawl draws it down to latch it, and inspect for proper latch pawl catch engagement which will hold the pawl closed and release it when required. If the latch pawl catch does not engage the latch pawl, the tonneau may feel closed and latched, but over time the tonneau cylinders will drift up allowing the latch pawl to open and release the tonneau.

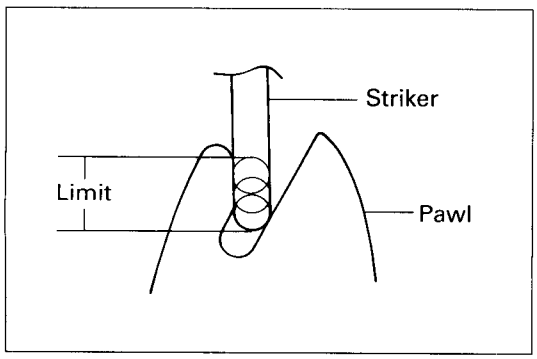


NOTE
For each latch the timing of the latch pawl closing (opening is not as critical) is controlled by the forked arm attached to the lift arm of the tonneau mechanism. This forked arm is actuated by a flat washer located at the top of the hydraulic cylinder rod.

As the cylinder rods retract when closing the tonneau, the tonneau strikers will enter the latches and begin to close the latch pawls. Even though the tonneau has stopped moving the cylinder rods will have just enough travel to pull the latches closed. This is accomplished by the pivoting slide tracks mounted on the tonneau, which allows the cylinders the extra travel they need to have the washers at the clevises bear down on the forked arms. The forked arms have the mechanical leverage to pull the cables which finally draw the pawls to the closed position allowing the pawl catches to engage and secure the pawls closed.

If the forked arms are too high on the lift arm, the pawls will close too soon and may bind on the striker as it closes. In extreme cases the pawls will close before the striker enters it. If the forked arms are too low on the lift arms, the pawls will not have travelled far enough to draw the pawls latched.

Follow the procedure below to inspect the timing of the latch pawl and catch engagement. Open and close the tonneau manually to do this.

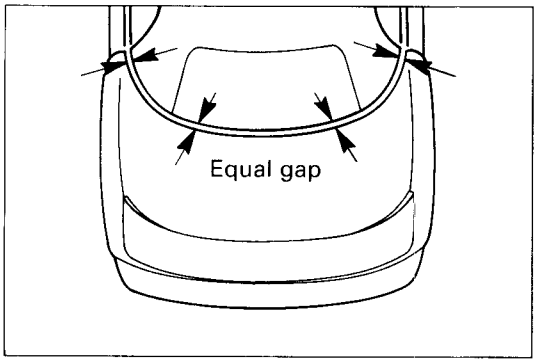


Standard values:

1. **Striker must enter the latch pawl within the limit as shown in the illustration.**
2. **Latch pawl must be secured by the latch catch after the pawl closes.**

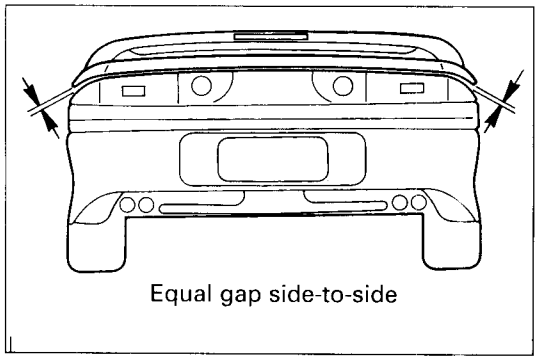
The position of the forked arm on the lift arm can be used to get the rough timing of the pawl closing near or within the Standard value. Fine adjustment can be accomplished by adjusting the cables at the latch.

TSB Revision



3. Close the hard tonneau using the hardtop or tonneau switch.
4. Inspect the position of the tonneau relative to the rear quarters and the hardtop.
   (1) Inspect the gap between the hardtop and tonneau along the front edge of the tonneau.

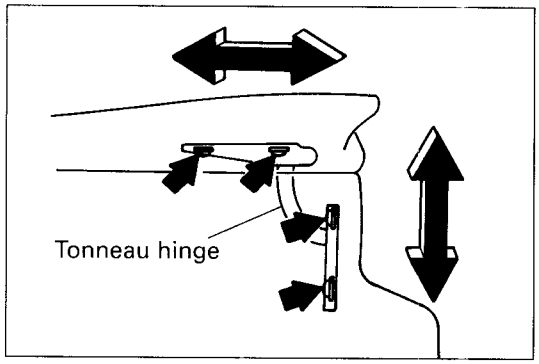
   Standard value: Equal gap at forward ends of tonneau and along the rear roof glass



   (2) Inspect the hard tonneau's side-to-side overhang to the rear quarters.

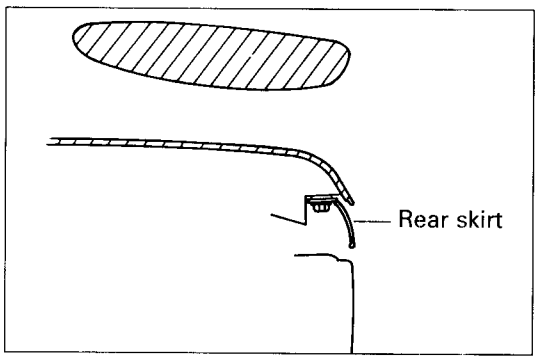
   Standard value: Equal overhang of both sides to the rear quarters

- If the tonneau position is within the Standard value, go to the inspection of the tonneau latches, Step 4.

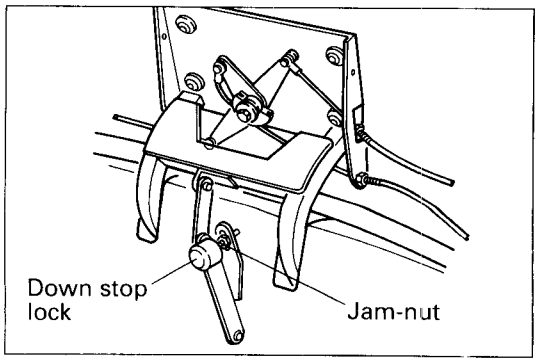


- If the tonneau position is not within the Standard value, adjust the tonneau as shown in the illustration below.

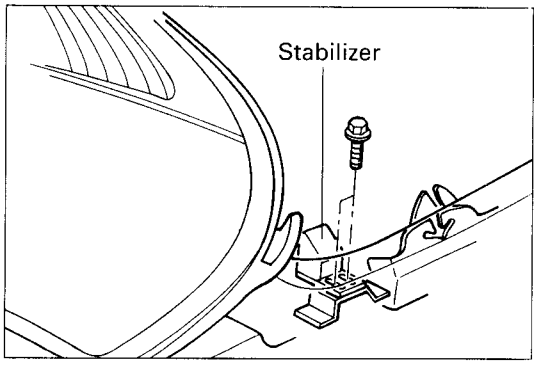
NOTE
1. Do not open and close the tonneau manually while performing tonneau adjustments; use the hardtop or tonneau switches.



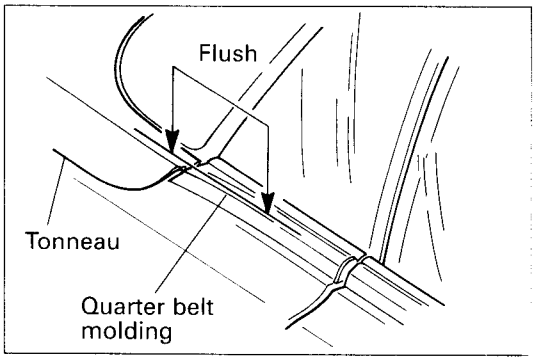
2. Be sure the tonneau rear skirt will not damage the rear combination lights or the upper bumper extensions as the tonneau opens and closes. If it appears the rear skirt will cause damage, loosen the attaching bolts and adjust it out of the way. You will need to adjust the position of the rear skirt after the tonneau has been properly adjusted.



3. With the tonneau open, loosen the hardtop down-stop lock jam-nut, and back-off the hardtop down-stop lock several turns. Otherwise the tonneau may not freely move down. You will have to re-adjust the down stop lock after adjusting the tonneau (refer to SERVICE ADJUSTMENT PROCEDURES, in this section).



4. Move the LH and RH tonneau stabilizers inboard.
   (1) Detach the LH and RH trunk trim panels.
   (2) Loosen the bolts attaching the LH and RH tonneau stabilizers and move them inboard. This will allow the tonneau to be adjusted side-to-side.



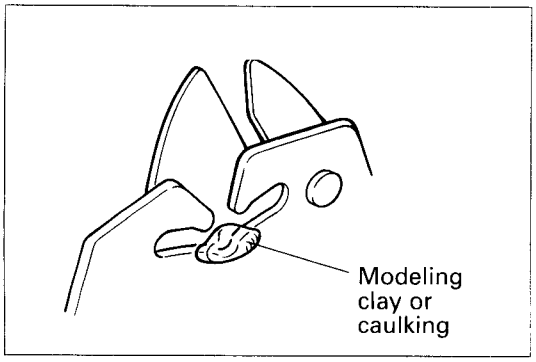
(3) Check the front ends of the tonneau where they meet the quarter belt mouldings.

Standard value: Front ends flush to +3 mm (.118 in.) with quarter belt mouldings

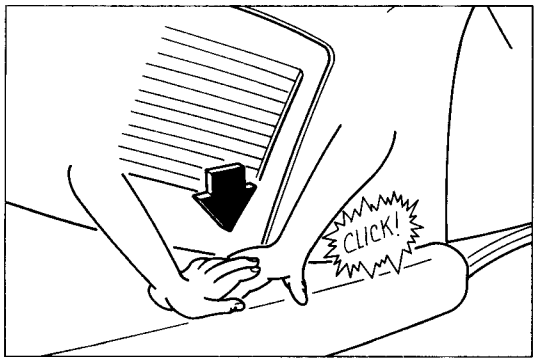
- If the front ends of the tonneau are within the Standard value, and the tonneau latches are working properly the adjustment of tonneau is complete.
- If the flushness of one or both front ends of the tonneau are not within the Standard value, or the flushness is within the Standard value, but one or both latches do not operate properly, go to Step 5.

5. Inspect the tonneau latches for proper centering of the outboard strikers to latch bodies, then the height of the latches which controls flushness of the tonneau to the quarter belt mouldings.
   (1) Open the tonneau manually. Do not return the bypass valve to the POWER position at this time.

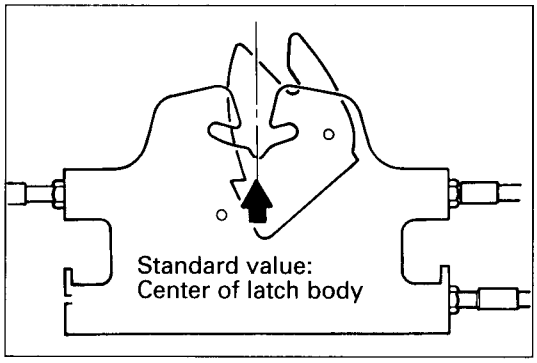
Caution
The tonneau may begin to close without warning since the bypass valve is not in the POWER position. Hold the tonneau open while performing the next



(2) Place a piece of modeling clay, caulking strip, or equivalent, the size of pencil eraser on the latch body as shown in the illustration. This will indicate where the striker is in relation to the latch when the tonneau is closed and latched.



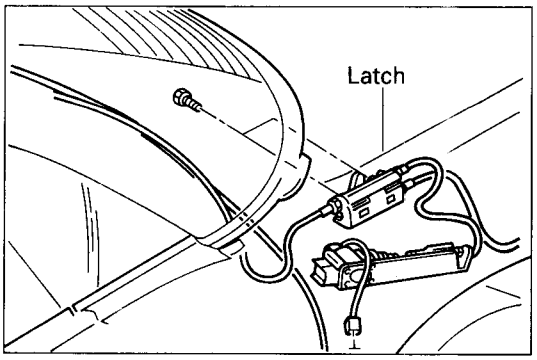
(3) Slowly lower the tonneau to close it. Then latch it, if possible. Using the hand-on-hand method, at the front ends of the tonneau above the latch, push down until you hear it click. Then, pull up on the tonneau to confirm that it has latched. Repeat for the other side.



(4) Open the tonneau, and return the bypass valve to the POWER position, or support it.
(5) Inspect the indentation in the clay or caulking where the striker entered the latch.

Standard value: Centered on the latch body as shown in the illustration. The striker should not have penetrated the clay or caulking allowing the striker to contact the latch body.

- If the striker is centered to the latch body, go to Step (6).
- If the striker is not centered to the latch body, adjust the latch by performing the following procedure.



1. Slightly loosen the latch attaching bolts. In small increments, adjust the latch to center it to the striker. Open and close the tonneau manually to do this.
2. Repeat for the other latch if necessary.
3. Tighten the latch attaching bolts.

   Standard value: 9 - 14 Nm (80 - 24 in.lb.)

4. Go to Step (6).

(6) Adjust the height of the latch to attain proper flushness of the front ends of the tonneau to the quarter belt mouldings.

1. Matchmark the latch position on the vehicle structure in order to not lose the centered location of the latch to the striker.
2. Slightly loosen the latch attaching bolts. In small increments, adjust the latch up or down to attain the proper flushness to the quarter belt mouldings. Open and close the tonneau manually to do this.

3. Repeat for the other latch if necessary.
4. Tighten latch attaching bolts.

   Standard value: 9 - 14 Nm (80 - 124 in.lb.)

5. Go to Step 6 below.

6. Verify that the latches are properly adjusted by returning the bypass valve to the POWER position. Then, try operating the tonneau using the switch.

   NOTE
   Most likely, the hardtop ECU will need to be run through Auto-configuration, unless the adjustments that were made cannot be detected by the hardtop ECU. A good indication that the hardtop ECU does require Auto-configuration is when the tonneau was being adjusted the adjustment procedure worked well when it was being latched manually. But now that the tonneau is being closed and latched using the switch the tonneau will not close completely or does not latch at one or both sides. (Refer to Diagnostics and Testing in this section.)

7. Adjust the hardtop down stop lock. Refer to SERVICE ADJUSTMENT PROCEDURES - HARDTOP DOWN STOP LOCK, in this section.

8. With the tonneau closed inspect the tonneau rear skirt.

   Standard value: Flush to the upper bumper extensions with equal gap side-to-side

9. Tighten the rear skirt attaching bolts.

   Standard value: 2.8 - 4.2 Nm (25 - 37 in.lb.)

10. Adjust the LH and RH tonneau stabilizers.

    (1) Open the tonneau.
    (2) Move the stabilizers outboard until they stop.

    NOTE
    The stabilizers should be free to slide inboard when the tonneau closes.

    (3) Close then open the tonneau using the switch.
    (4) The stabilizers should be approximately where they need to be, but will need to be squared up with the stabilizer brackets on the tonneau. When they contact each other, they should have roughly a square-shaped contact patch. To determine the contact patch, apply or spray a witness-compound (such as machinists bluing or white leak detector spray) on the stabilizer or the stabilizer bracket. Close the tonneau, then open it to determine the contact patch. Adjust

the stabilizer, as required, to attain the proper contact patch.

(5) Tighten the stabilizer attaching bolts.

Standard value: 9 - 14 Nm (80 - 124 in.lb.)

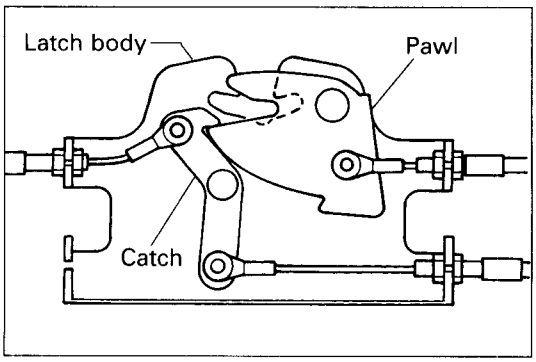
11. Reattach the LH and RH trunk trim panels.

HARD TONNEAU

• TONNEAU LATCH MANUAL RELEASE SYSTEM

Description

The tonneau latch manual release cable (formerly remote rear hatch release for the coupe) runs from the left side of the drivers seat, through the body structure and across the vehicle to the passenger side. There it connects to a junction box, which splits the pulling force to the two latches by cables.

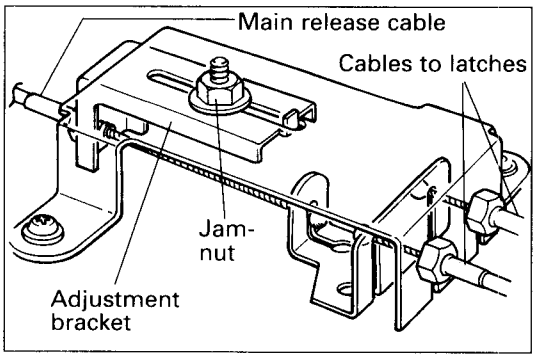


ADJUSTMENT OF HARD TONNEAU MANUAL RELEASE SYSTEM

INSPECT

1. Open the tonneau using the switch or manually (refer to GROUP 00, in this Manual).
2. Manually latch the latch pawl for the LH and RH latches.
3. Pull the tonneau manual release lever located to the left of the driver seat. When the lever is pulled listen for the latches to release within a fraction of a second of each other.

   - If the latches release within a fraction of a second of each other, the manual release system is working properly.
   - If the latches do not release within a fraction of a second of each other, the manual release system requires adjustment. Go to Step 4.



4. Detach the RH trunk trim panel (refer to GROUP 52, in this Manual).
5. Loosen the jam-nut at the manual release cable junction box.
6. Pull the bracket holding the main manual release cable rearward and remove any slack at the cables that go to the latches, and tighten the jam-nut.

   Standard value: 2 Nm (18 in.lb.)

7. Repeat Steps 2 and 3.

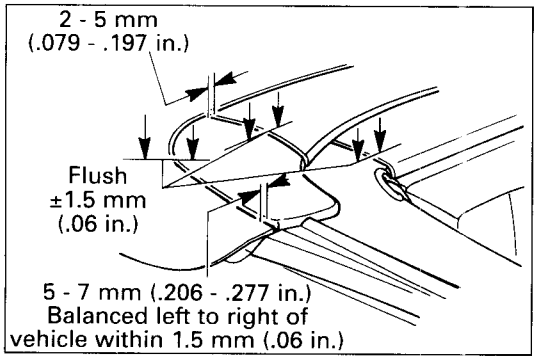
   - If the latches still don't release within a fraction of a second of each other, the system can be fine tuned by adjusting the cables at the latches.

8. Reattach the RH trunk trim panel.

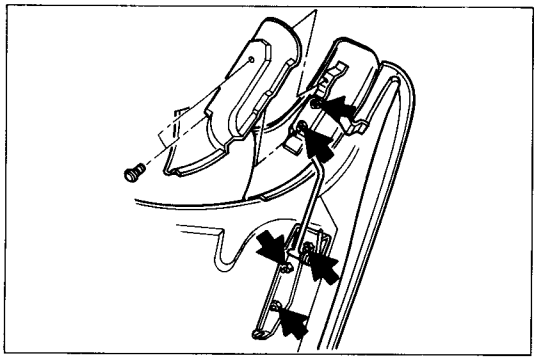
ADJUSTMENT OF HARD TONNEAU FLIPPER DOORS

INSPECT

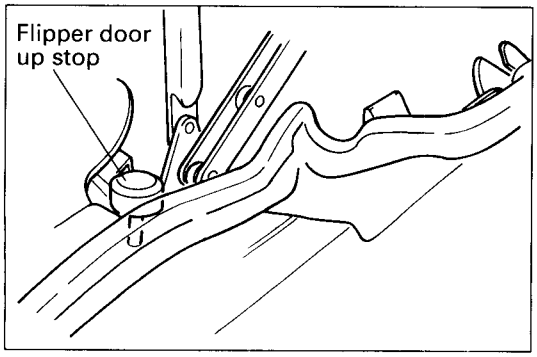
1. Verify that the retractable hardtop and tonneau are adjusted correctly (refer to SERVICE ADJUSTMENT PROCEDURES in this section).
2. Fully open the hardtop using the switch.
3. Verify that the interior trim is adjusted correctly (refer to SERVICE ADJUSTMENT PROCEDURES, GROUP 52, in this Manual).
4. Close the hard tonneau using the hardtop or tonneau switch.



5. Inspect as shown in the illustration:
   (1) The gap between the quarter trim panels and the bottom of the flipper doors.
   (2) The gap between the rear shelf panel and the flipper doors.
   (3) The gap between the flipper doors and the tonneau.



- If adjustment is required, open the tonneau and make the adjustments at the points on the flipper door assembly, and/or the body structure as required, as shown in the illustration.
- If adjustment is not required go to Step 6.



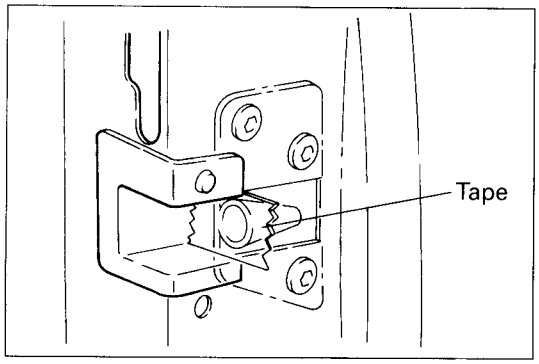
6. Open the tonneau and check that both flipper doors are retracted within the Standard value.

   NOTE
   The hardtop must be closed and latched.

   Standard value: 155 mm ± 3 mm (6.102 in. ± .118 in.) measured from the underside end of the flipper door to the inside surface of the tonneau

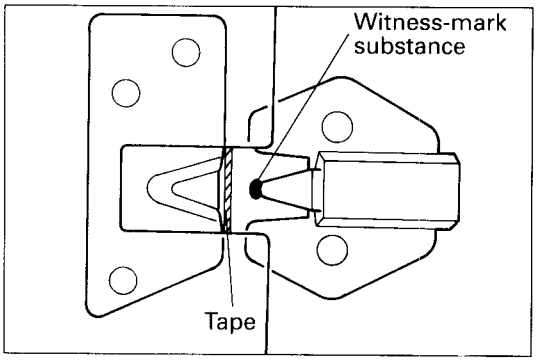
   - If the flipper doors are within the Standard value, the flipper doors do not require adjustment.
   - If one or both flipper doors are not within the Standard value, adjustment is required. Make adjustments where the cables attach to the flipper door hinge and/or at the tonneau hinge.

   NOTE
   Each time an adjustment is made to the flipper doors, the hardtop (and tonneau) should be cycled which will retract and extend the flipper doors. Opening and closing the tonneau only will not operate the flipper doors.



DOOR LOCATING PIN

1. Check the centering of the pin to the receiver.
   (1) Wipe clean the receiver mouth.
   (2) Apply a piece of masking tape to the receiver mouth.



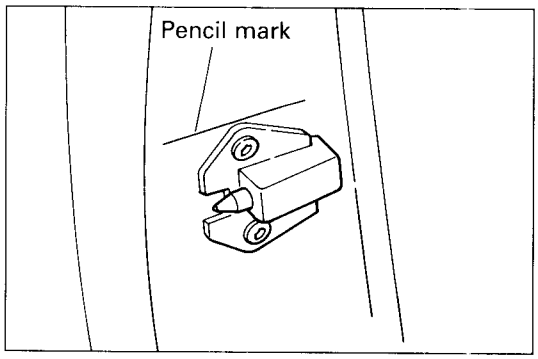
   (3) Apply a small dab of grease, paint, or other substance to the tip of the locating pin. This will leave a witness-mark on the tape.
   (4) Carefully close the door until the pin slightly contacts the tape, leaving a witness-mark. Do not puncture, or push the tape into the receiver.

   - If the witness-mark is in the center of the receiver mouth, in-line adjustment is good. Go to Step 4.
   - If the witness-mark is off-center, go to Step 2.

2. Adjust the locating pin to center it to the receiver. Use shims (available as a service part) to adjust the pin assembly forward (toward the front of the vehicle) and/or by moving the locating pin assembly up or down.

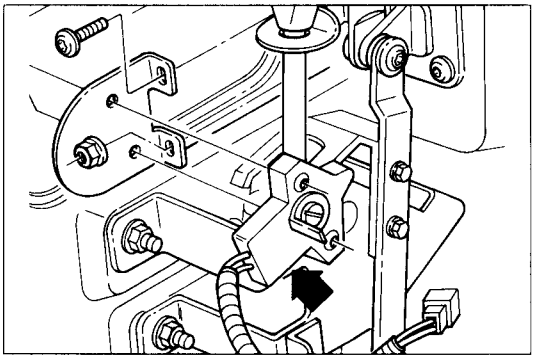
   Standard value: Locating pin centered to, and in-line with, the receiver mouth

3. Repeat Steps 1 and 2 until alignment is at the standard value. Remove the tape from receiver.



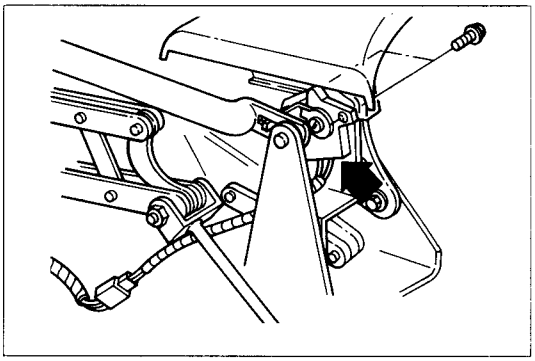
4. Adjust the locating pin inboard or outboard.
   (1) Using a sharp pencil, mark the horizontal location of the locating pin assembly on the vehicle body.
   (2) Loosen the locating pin attaching bolts enough to allow the assembly to be pushed inboard when the door closes (the locating pin is spring-loaded and will "give" somewhat). Move the pin assembly to the outboard-most location, while maintaining horizontal alignment with the pencil marks.
   (3) Gently close the door, allowing the locating pin assembly to move inboard. Open the door and check that the locating pin is still aligned horizontally.
   (4) Move the receiver outboard 3 mm ± 1 mm (.118 in. ± .04 in.).
   (5) Tighten the locating pin attaching bolts.

   Standard Value: 9 - 12 Nm (80 - 106 in.lb.)



HARD TONNEAU POSITION SENSOR (POTENTIOMETER)

1. Caution
   This part is not adjustable mechanically. It must not be disturbed at any time whether or not the hardtop or hard tonneau is in operation. Any rotational movement of ± 1 mm (.04 in.) may upset hardtop operation. If the sensor is disturbed, you must run the hardtop ECU through Auto-configuration using the latest version of the ASC INCORPORATED diagnostic system (refer to Diagnostics and Testing in this section).



RETRACTABLE HARDTOP POSITION SENSOR (POTENTIOMETER)

1. Caution
   This part is not adjustable mechanically. It must not be disturbed at any time whether or not the hardtop or hard tonneau is in operation. Any rotational movement of ± 1 mm (.04 in.) may upset hardtop operation. If the sensor is disturbed, you must run the hardtop ECU through Auto-configuration using the latest version of the ASC INCORPORATED diagnostic system (refer to Diagnostics and Testing in this section).

HARD TONNEAU

REMOVAL AND INSTALLATION

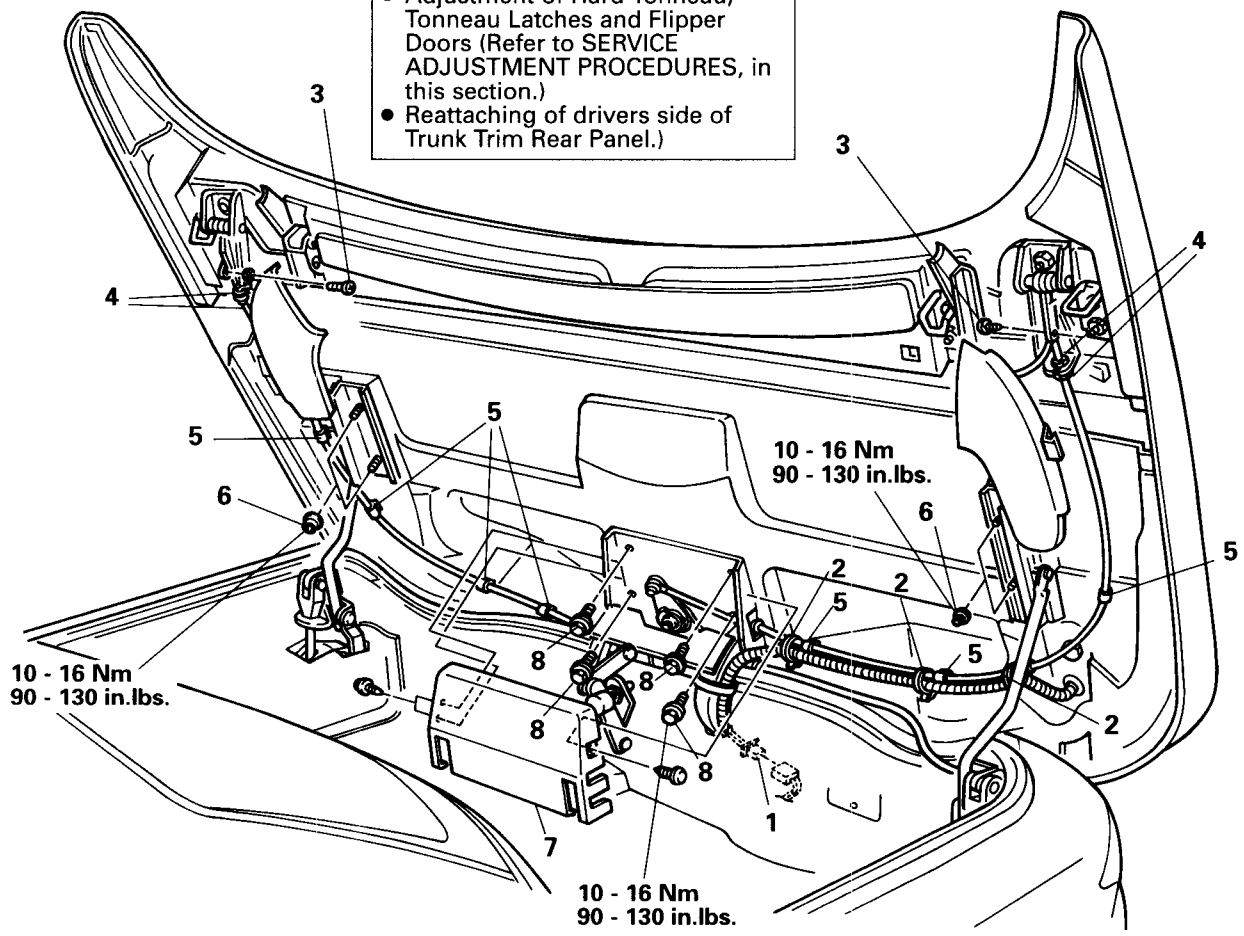
CAUTION:
Adjustment or replacement of this component requires that the hard-top ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

NOTE
Open the hardtop halfway to allow slack in the flipper door drive cable

CAUTION:
This procedure requires two individuals.

Pre-removal Operation
- Detaching of drivers side of Trunk Trim Rear Panel to access wire harness (Refer to GROUP 52, in this Manual.)

Post-installation Operation
- Adjustment of Hard Tonneau, Tonneau Latches and Flipper Doors (Refer to SERVICE ADJUSTMENT PROCEDURES, in this section.)
- Reattaching of drivers side of Trunk Trim Rear Panel.)



Hard tonneau removal steps

1. High mount stop light electrical connector
2. Wire tie
3. Screw
4. Jam-nut
5. Cable retainer
6. Nut
7. Cover
8. Bolt

SERVICE POINT OF REMOVAL

6. REMOVAL OF SLIDE TRACK ATTACHING NUTS

After removing the slide track attaching nuts be sure secure the slide tracks to the lift arms with tape or wire. This will prevent the slide tracks from falling onto the vehicle finish.

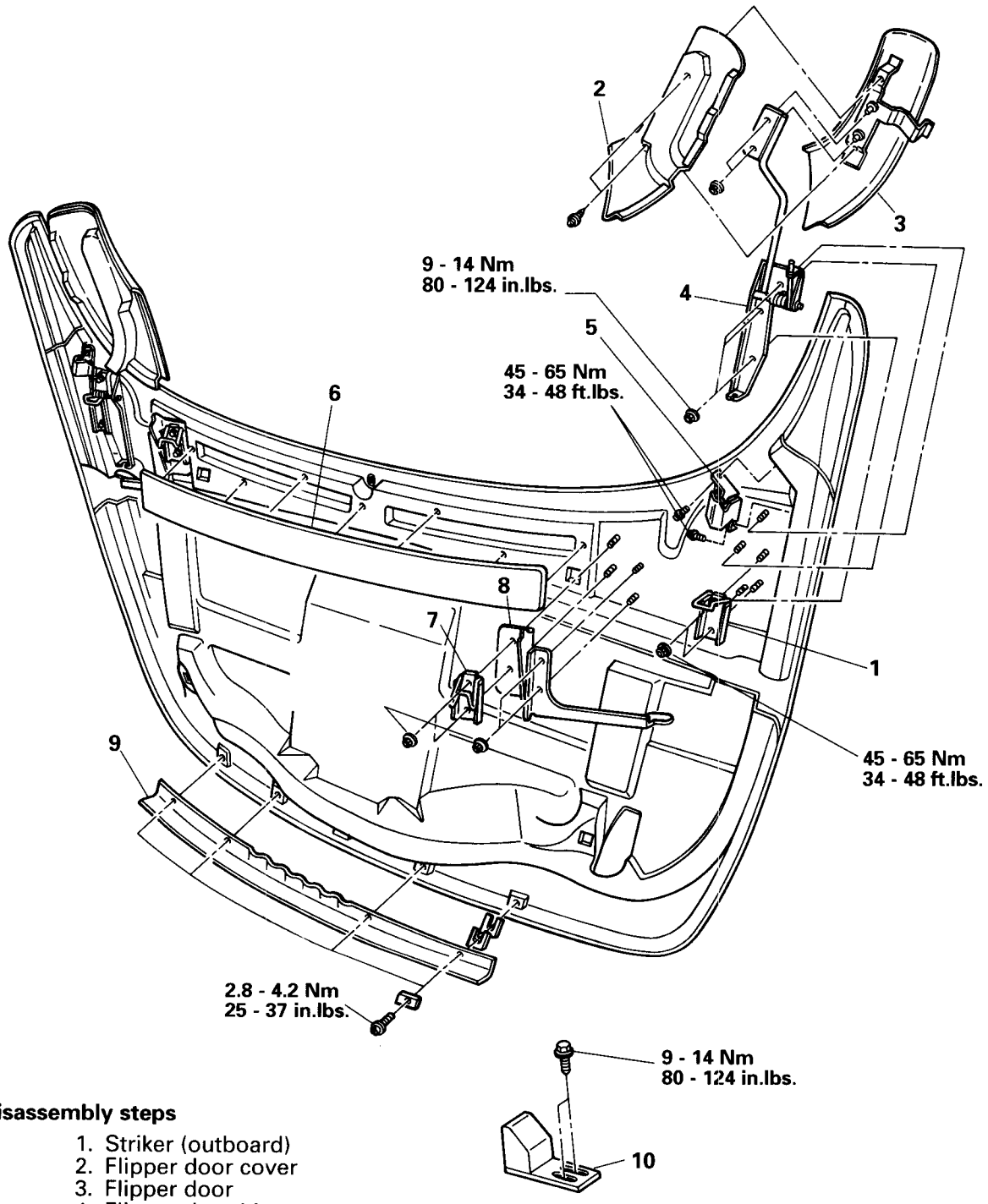
SERVICE POINT OF INSTALLATION

6. INSTALLATION OF SLIDE TRACK ATTACHING NUTS

Once the tonneau is in place, remove the tape or wire securing the slide tracks.

HARD TONNEAU

DISASSEMBLY AND REASSEMBLY



Disassembly steps

1. Striker (outboard)
2. Flipper door cover
3. Flipper door
4. Flipper door hinge
5. Stabilizer bracket
6. Tonneau pad
7. Striker (inboard)
8. Retainer
9. Rear skirt
10. Stabilizer

NOTE
Matchmark components before removal.

HARD TONNEAU MECHANISM

REMOVAL AND INSTALLATION

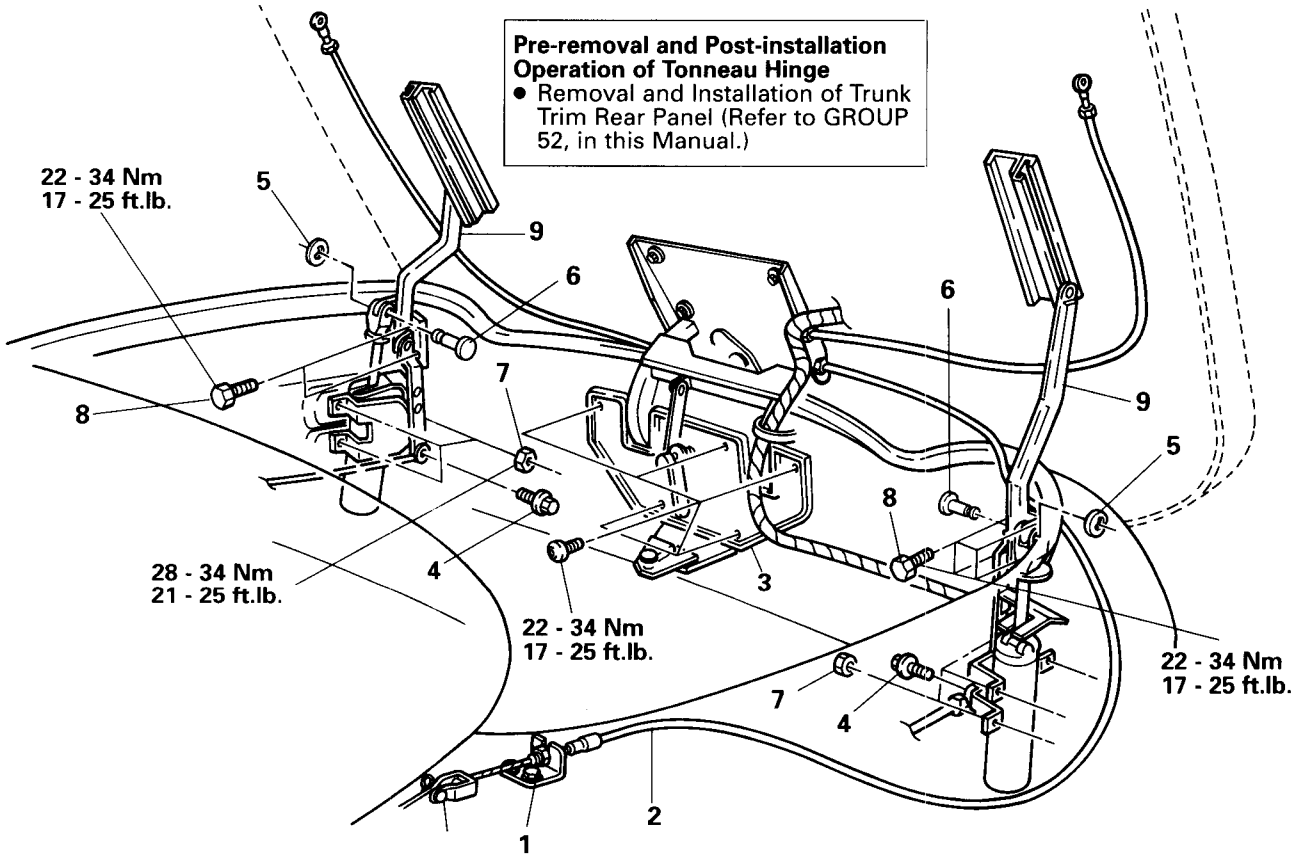
NOTE
When removing a tonneau mechanism it is not necessary to remove the tonneau. Suitably support the tonneau.

NOTE
Matchmark components before removal.

CAUTION:
Adjustment or replacement of these components may require that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

Pre-removal and Post-installation Operation of RH Tonneau Mechanism
- Removal and Installation of RH Trunk Trim Panel (Refer to GROUP 52, in this Manual.)
- Removal and Installation of Hard Tonneau Position Sensor (Potentiometer) (Refer to this section.)

Pre-removal and Post-installation Operation of Tonneau Hinge
- Removal and Installation of Trunk Trim Rear Panel (Refer to GROUP 52, in this Manual.)



Tonneau hinge removal steps

1. Jam nut
2. Flipper door drive cable
3. Tonneau hinge

Tonneau mechanism removal steps

4. Screw
5. Clip
6. Clevis pin
7. Nut
8. Bolt
9. Tonneau mechanism lift arm

Pre-removal and Post-installation Operation of LH Tonneau Mechanism
- Removal and Installation of LH Trunk Trim Panel (Refer to GROUP 52, in this Manual.)

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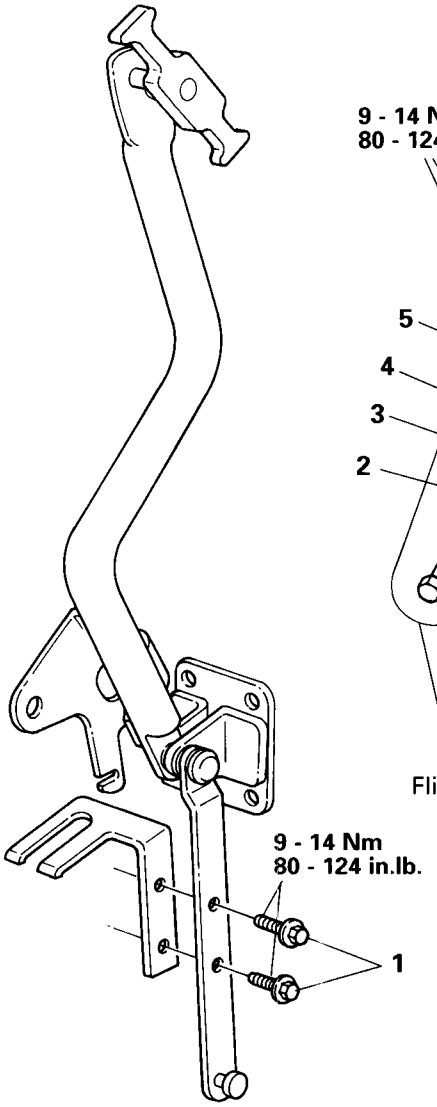
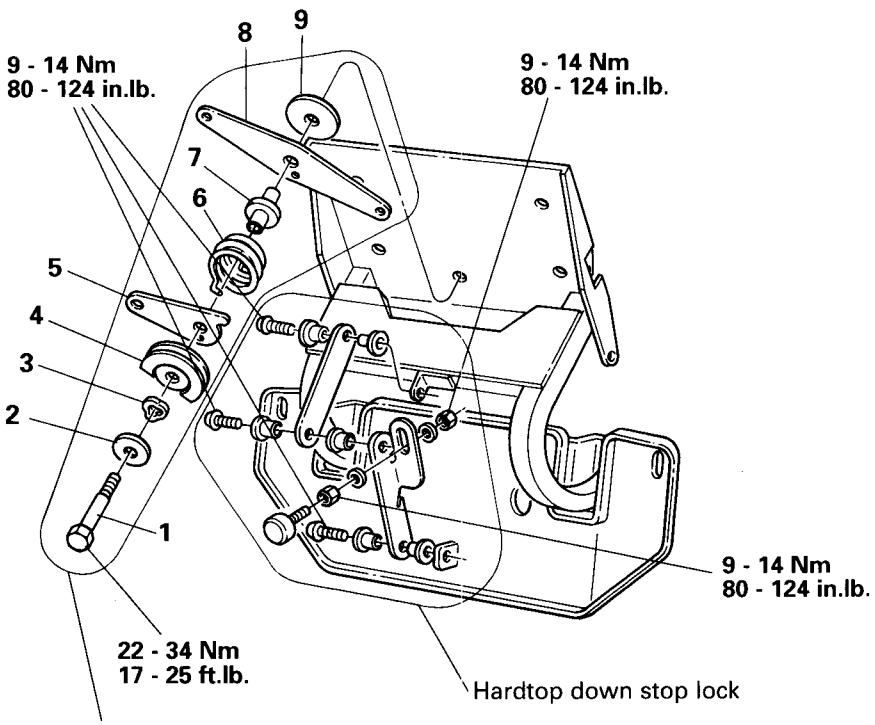
HARD TONNEAU MECHANISM

DISASSEMBLY AND REASSEMBLY

<Lift arm>

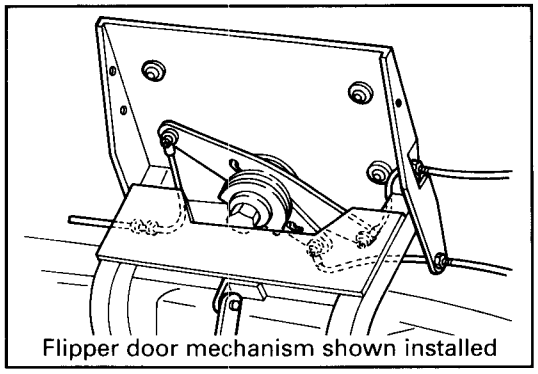


NOTE
Matchmark components before removal.



<Flipper door mechanism>

<Hardtop down stop lock>


Flipper door mechanism shown installed

Tonneau mechanism disassembly

1. Bolt

Tonneau hinge disassembly steps

1. Bolt
2. Washer
3. Spring washer
4. Pulley
5. Idler
6. Spring
7. Bushing
8. Crank
9. Washer

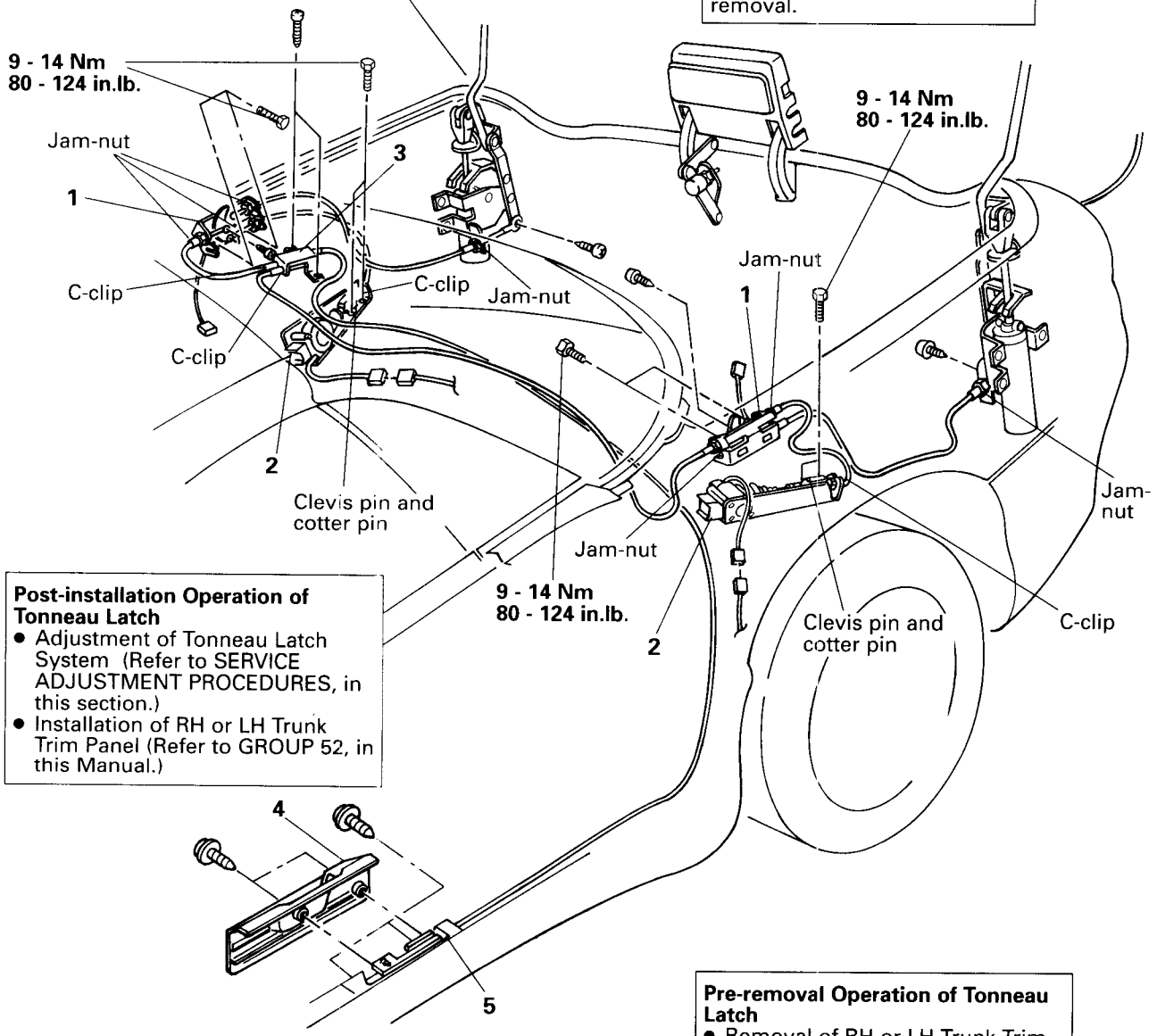
HARD TONNEAU LATCH SYSTEM

REMOVAL AND INSTALLATION

CAUTION:
Adjustment or replacement of this component requires that the hard-top ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

Pre-removal and Post-installation of Manual Release Cable
- Removal and Installation of LH Quarter Trim Panel (Refer to Group 52, in this Manual.)
- Removal and Installation of LH Trunk Trim Panel, Trunk Center Front Panel and Hydraulic Line Cover (Refer to Group 52, in this Manual.)

NOTE
Matchmark components before removal.



Post-installation Operation of Tonneau Latch
- Adjustment of Tonneau Latch System (Refer to SERVICE ADJUSTMENT PROCEDURES, in this section.)
- Installation of RH or LH Trunk Trim Panel (Refer to GROUP 52, in this Manual.)

Pre-removal Operation of Tonneau Latch
- Removal of RH or LH Trunk Trim Panel (Refer to GROUP 52, in this Manual.)

Pre-removal and Post-installation Operation of Tonneau Latch Actuator
- Removal and Installation of LH or RH Luggage Compartment Floor Box (Refer to GROUP 52, in this Manual.)

Removal steps

1. Tonneau latch
2. Latch actuator
3. Manual release junction
4. Cover
5. Manual release lever and cable

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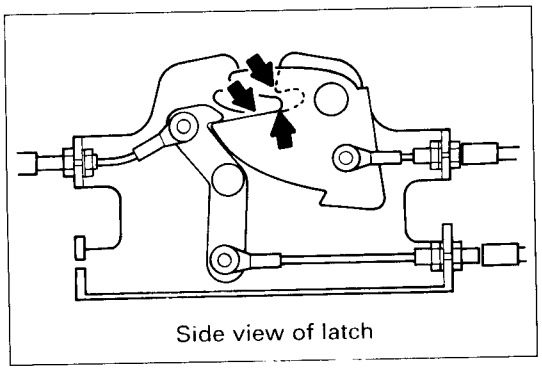


Side view of latch

INSPECTION

HARD TONNEAU LATCH

Inspect the tonneau latches for wear on the body of the latch and the pawl.

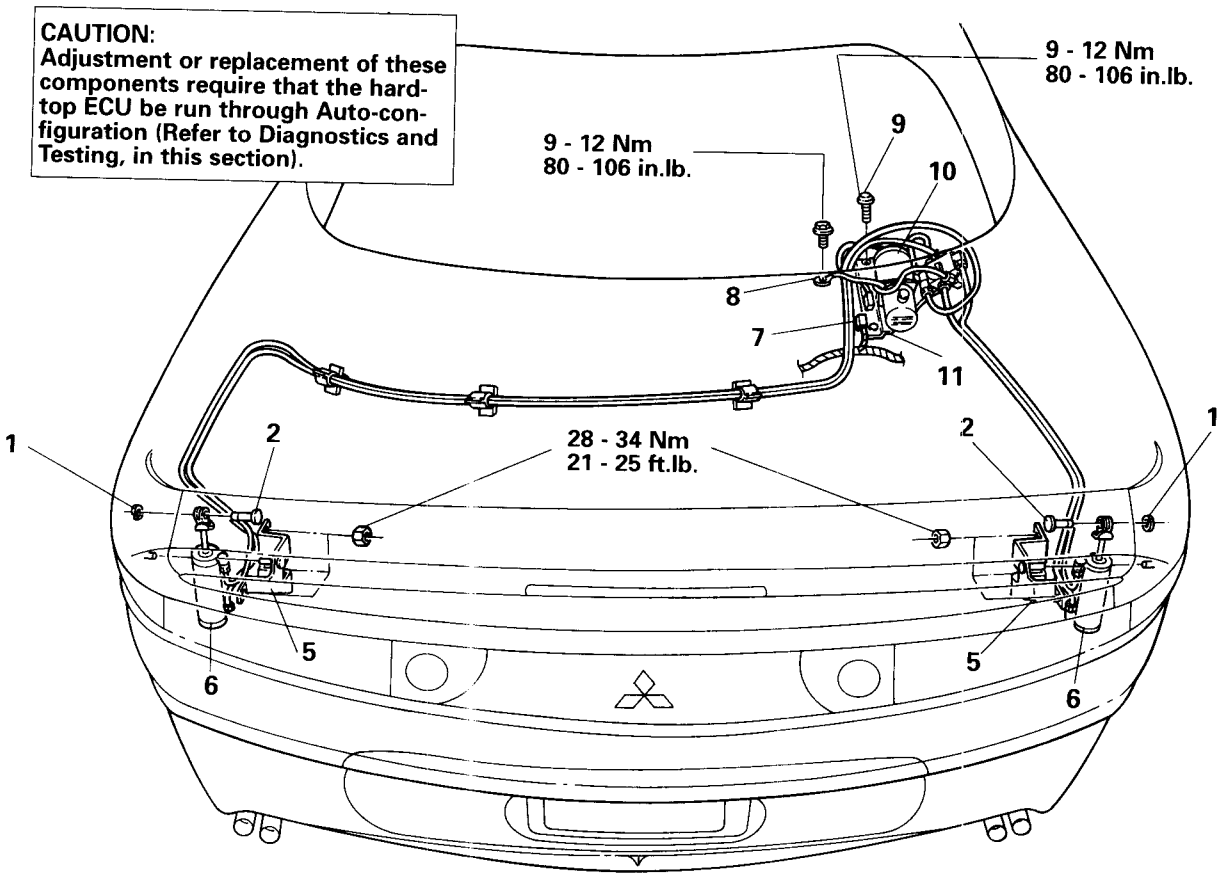
NOTE:
Wear is an indication of improperly adjusted latches, or excessive side-to-side motion of the hard tonneau due to improperly adjusted tonneau isolators.

Standard value: No wear on the latch body or pawls

Caution
Do not lubricate latch mechanisms or cable assemblies. Lubrication can attract dirt, causing rapid component wear and hamper system operation.

HARD TONNEAU HYDRAULIC SYSTEM PUMP/MOTOR AND CYLINDERS

REMOVAL AND INSTALLATION



CAUTION:
When removing and installing any component of the hard tonneau hydraulic system, always suitably support the hard tonneau. Otherwise, injury could result.

Pre-removal and Post-installation Operation
- Removal of LH, RH and Front Trunk Trim (Refer to GROUP 52, in this Manual.)

Cylinder removal steps

1. Clip
2. Clevis pin
3. Screw
4. Bolt
5. Cylinder mounting bracket

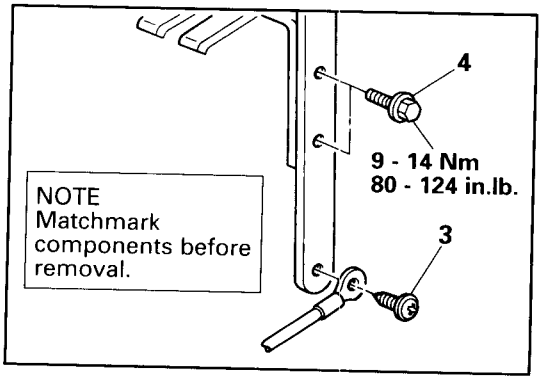
◆◆ ◆◆ 6. Cylinder

Pump/motor assembly removal steps

7. Harness connector
8. Ground strap
9. Bolt

◆◆ ◆◆ 10. Pump/motor assembly

11. Bracket



SERVICE POINTS OF REMOVAL

6. REMOVAL OF HARD TONNEAU HYDRAULIC CYLINDER FROM HYDRAULIC LINES, IF REQUIRED

(1) Place clean rags around the cylinder to prevent dripping of the hydraulic fluid.
(2) Remove the hydraulic hoses from the hydraulic cylinder. Plug or cap the hoses and cylinder fittings to prevent leakage.

Caution
Mismatched hoses will cause damage to the hard tonneau, mechanisms, and hinge. To avoid system damage and ease reassembly, be sure to label the correct position of each hose as they are removed.

10. REMOVAL OF HYDRAULIC PUMP/MOTOR ASSEMBLY

(1) • For removal of the hydraulic pump/motor assembly with hoses still attached, go to Step (2).

• For removal of the hydraulic pump/motor assembly only, follow the procedure below.

1. Place clean rags around the pump manifold to prevent dripping of the hydraulic fluid.
2. Remove the hydraulic hoses from the manifold. Plug or cap the hoses and manifold fittings to prevent leakage.

Caution
Mismatched hoses will cause damage to the hard tonneau, mechanisms, and hinge. To avoid system damage and ease reassembly, be sure to label the correct position of each hose as they are removed.

3. Go to Step (2).

(2) Lift the pump/motor to separate the bracket grommets from the body and to disengage the dual-lock fastener from the body.

SERVICE POINTS OF INSTALLATION

10. INSTALLATION OF HYDRAULIC PUMP/MOTOR ASSEMBLY

(1) Place the pump/motor in position, align the bracket grommets to the holes, and press them in.
(2) Install the bolt to hold the pump/motor bracket in place.
(3) Press the manifold-end of the assembly to engage the dual-lock fasteners.
(4) Reconnect the hydraulic hoses if they have been disconnected using the following procedure.
   1. Place clean rags around the pump manifold to prevent dripping of the hydraulic fluid.
   2. Remove the caps or plugs from the pump manifold and hydraulic hoses.
   3. Reconnect the hoses in the correct positions.

Caution
Mismatched hoses will cause damage to the hard tonneau, mechanisms, and hinge. To avoid system damage and ease reassembly, be sure to observe the hose position labels.

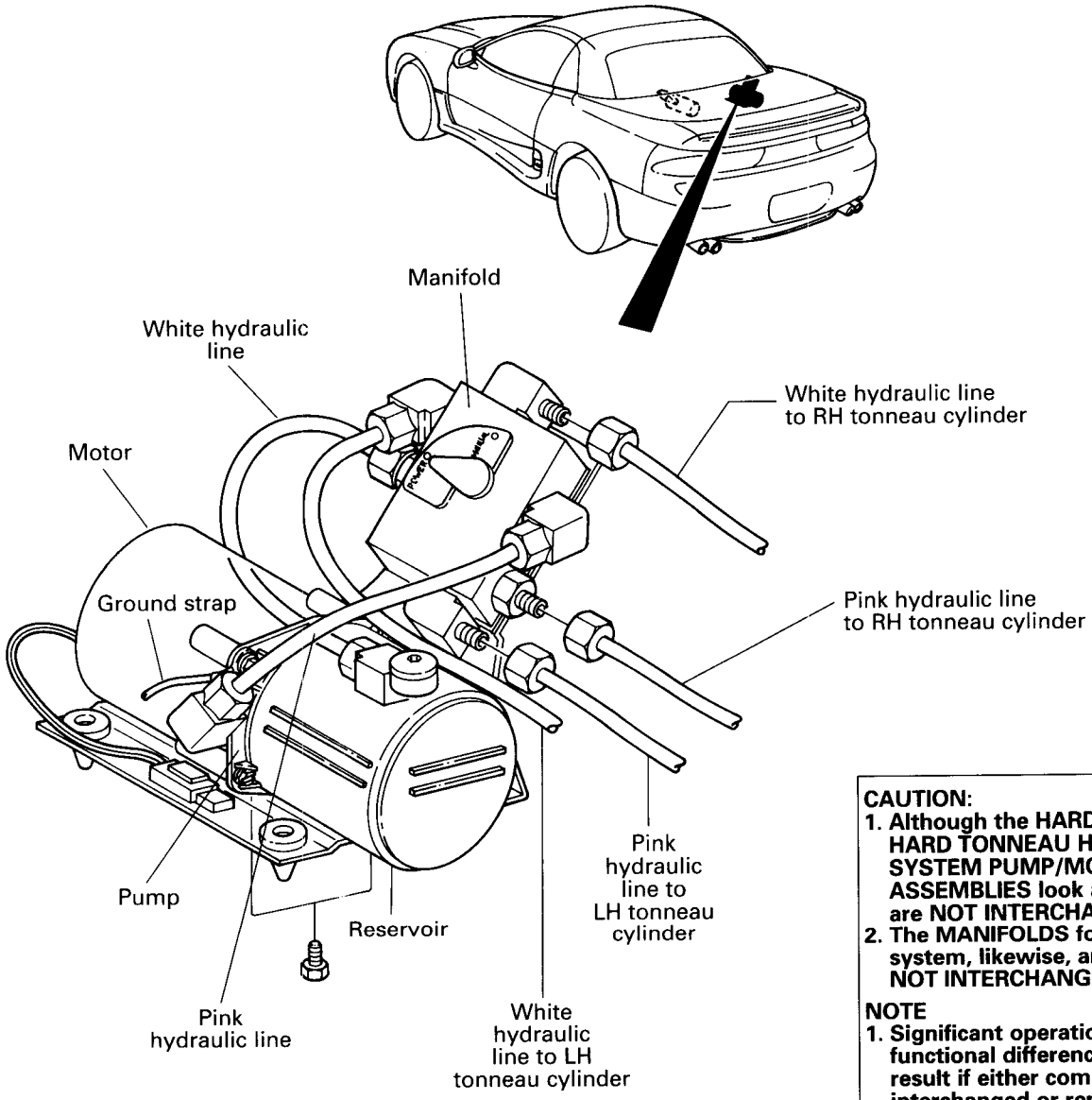
6. INSTALLATION OF HARD TONNEAU HYDRAULIC CYLINDER TO HYDRAULIC LINES, IF REQUIRED

(1) Place clean rags around the cylinder to prevent dripping of the hydraulic fluid.
(2) Remove the caps or plugs from the hoses and hydraulic cylinder.
(3) Reconnect the hoses in the correct positions.

Caution
Mismatched hoses will cause damage to the hard tonneau, mechanisms, and hinge. To avoid system damage and ease reassembly, be sure to observe the hose position labels.

HARD TONNEAU HYDRAULIC SYSTEM PUMP/MOTOR ASSEMBLY

DISASSEMBLY AND REASSEMBLY



CAUTION:
1. **Although the HARDTOP and HARD TONNEAU HYDRAULIC SYSTEM PUMP/MOTOR ASSEMBLIES look alike, they are NOT INTERCHANGEABLE.**
2. **The MANIFOLDS for either system, likewise, are also NOT INTERCHANGEABLE.**

NOTE
1. **Significant operational and functional differences will result if either component is interchanged or replaced with an incorrect part. Damage may result.**
2. **Individual parts do not bear distinguishing marks or identification.**

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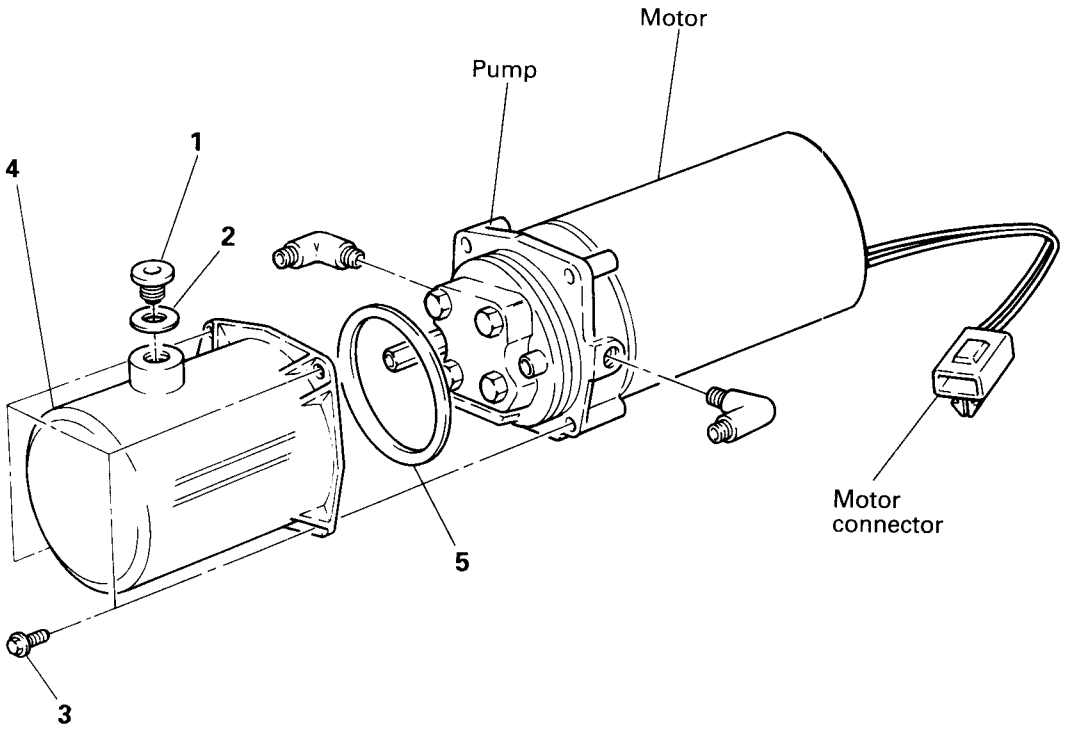
HARD TONNEAU HYDRAULIC PUMP/MOTOR

DISASSEMBLY AND REASSEMBLY

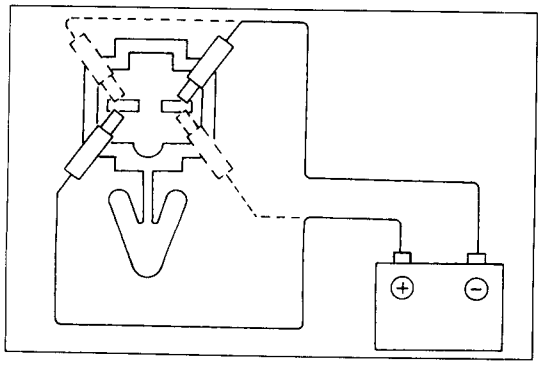


Disassembly steps

1. Plug
2. Seal

Reservoir

3. Screw
4. Reservoir
5. Seal



INSPECTION

HYDRAULIC PUMP MOTOR

1. Connect the battery directly to the motor connector and check that the motor spins freely.
2. Reverse the polarity and check that the motor spins freely in the opposite direction.

NOTE
If the motor does not spin freely, replace the pump/motor. **DO NOT repair or rebuild motor.**

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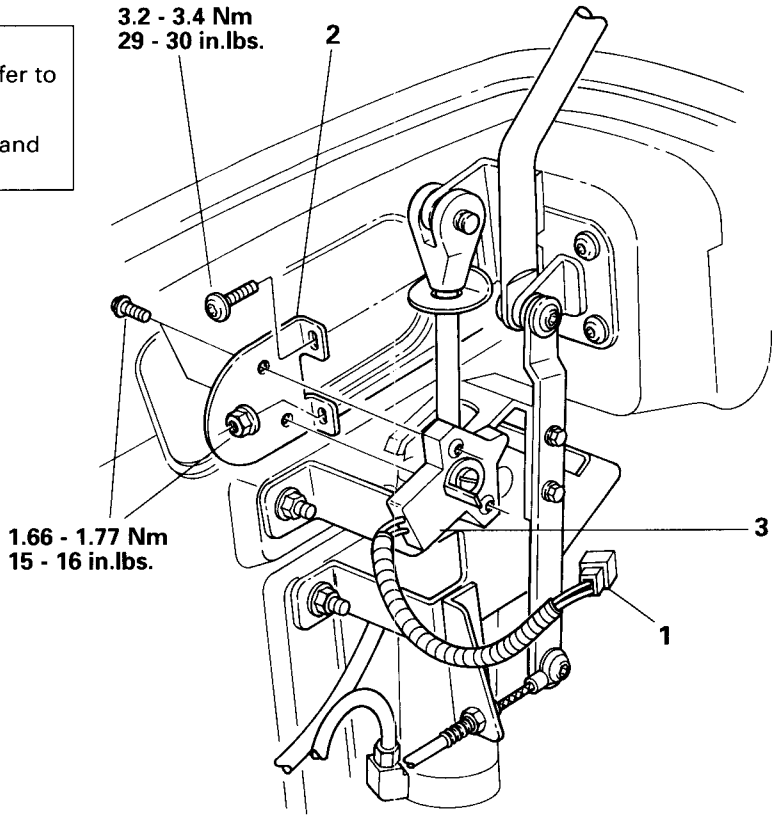
HARD TONNEAU POSITION SENSOR (POTENTIOMETER)

REMOVAL AND INSTALLATION

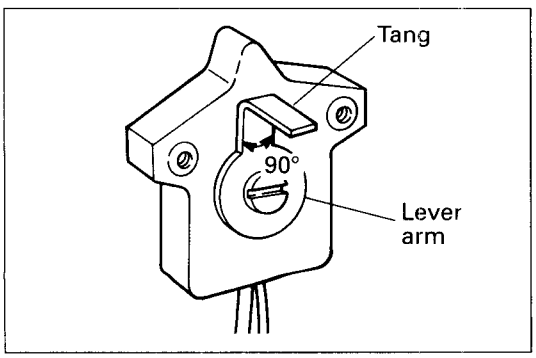
Pre-removal Operation
- Open the hard tonneau halfway to access the sensor's mounting bracket upper attaching bolt
- Removal of RH Trunk Trim Panel (Refer to GROUP 52, in this Manual.)

Post-installation Operation
- Installation of RH Trunk Trim Panel (Refer to GROUP 52 - Trims, in this Manual.)
- Run the Hardtop ECU Through Auto-configuration (Refer to DIAGNOSTICS and TESTING, in this section.)



Removal steps

1. Electrical connector
2. Sensor bracket
3. Sensor (potentiometer)



INSPECTION

INSPECTION OF HARD TONNEAU POSITION SENSOR

1. ON- AND OFF-CAR VISUAL INSPECTION

(1) Check that the sensor's lever arm and tang are not bent.

Standard value: Tang 90° to lever arm

(2) Check the lever arm shaft for radial play and mechanical operation.

Standard value: No play and smooth, quiet operation

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NOTE:
If the sensor is removed for inspection, you must run the hardtop ECU through Auto-configuration using the latest version of the ASC INCORPORATED diagnostic system.

2. **ON-CAR ONLY ELECTRONIC INSPECTION**

   Refer to Diagnostics and Testing, in this section.

SERVICE POINT OF INSTALLATION

3. **INSTALLATION OF HARD TONNEAU POSITION SENSOR**

   Be sure the sensor's lever arm tang is in the slot in the lift arm.

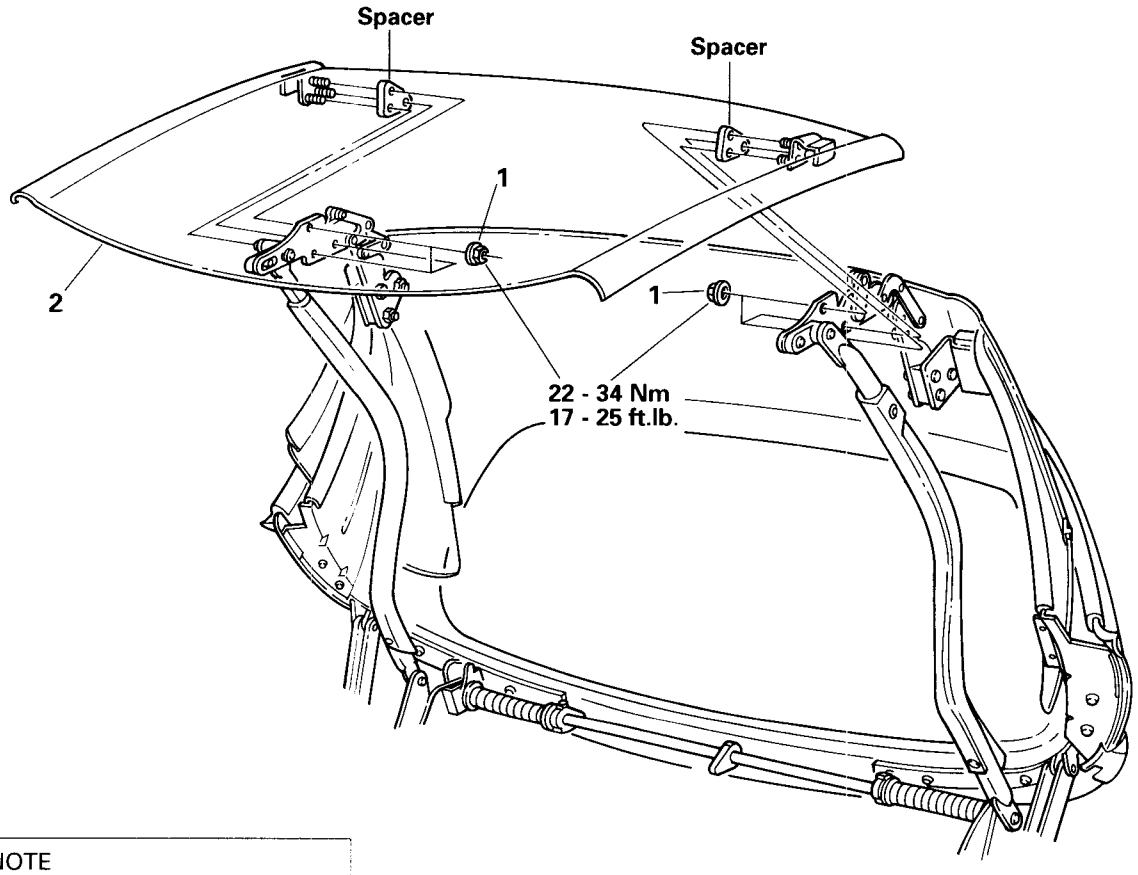
RETRACTABLE HARDTOP FRONT ROOF PANEL

REMOVAL AND INSTALLATION

Pre-removal Operation
- Removal of Front Headlining (Refer to GROUP 52, in this Manual.)

Post-installation Operation
- Installation Front Headlining (Refer to GROUP 52, in this Manual.)
- Adjustment of Hardtop (Refer to SERVICE ADJUSTMENT PROCEDURES, in this section.)

CAUTION:
This procedure requires two individuals to safely remove and install front roof panel.



NOTE
Matchmark components before removal.

CAUTION:
Adjustment or replacement of this component requires that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

Removal steps

1. Nut
2. Roof panel

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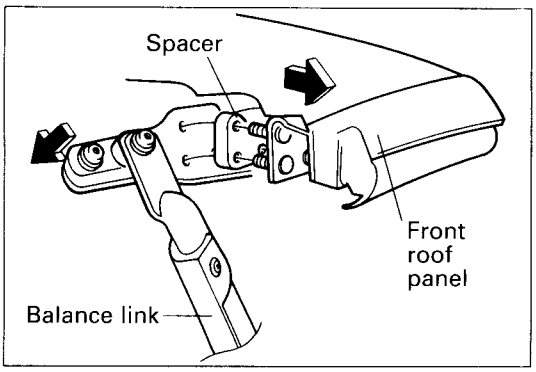


SERVICE POINT OF REMOVAL

2. REMOVAL OF FRONT ROOF PANEL

(1) From one side of the vehicle have the assistant hold the front roof panel steady.
(2) From the other side of the vehicle push inboard on the balance link to disengage the roof from the roof hinge.
(3) Repeat for the other side.

SERVICE POINT OF INSTALLATION

2. INSTALLATION OF FRONT ROOF PANEL

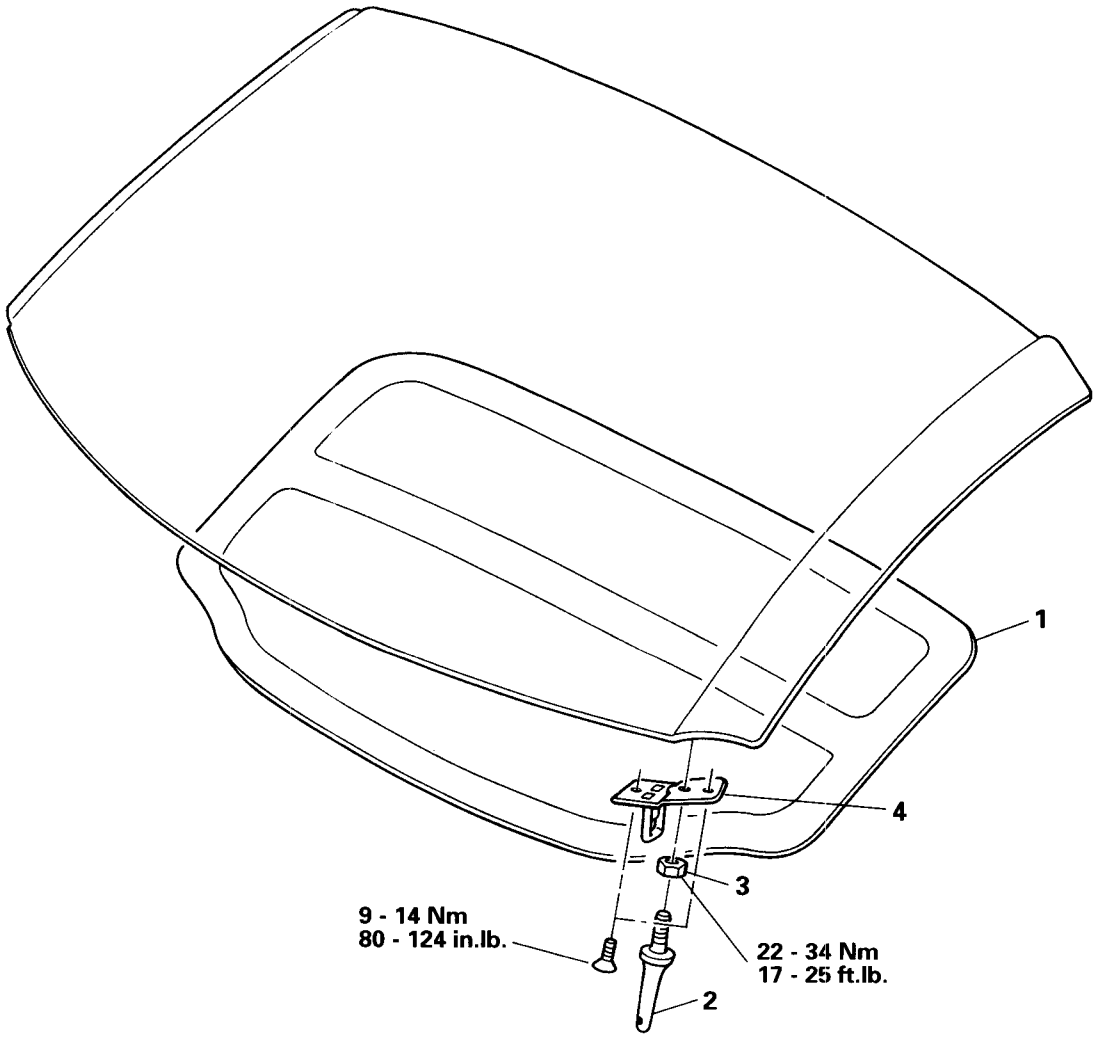
(1) Install LH and RH spacers to roof panel brackets.
(2) From one side of the vehicle engage the roof panel into the roof hinge.
(3) At the other side of the vehicle push inboard on the balance link and engage the roof panel into the hinge.

RETRACTABLE HARDTOP FRONT ROOF PANEL

DISASSEMBLY AND REASSEMBLY

Post-reassembly Operation
- Adjustment of Hardtop Locator Pins (Refer to SERVICE ADJUSTMENT PROCEDURES, in this section.)

NOTE
Matchmark components before disassembly.



Disassembly steps

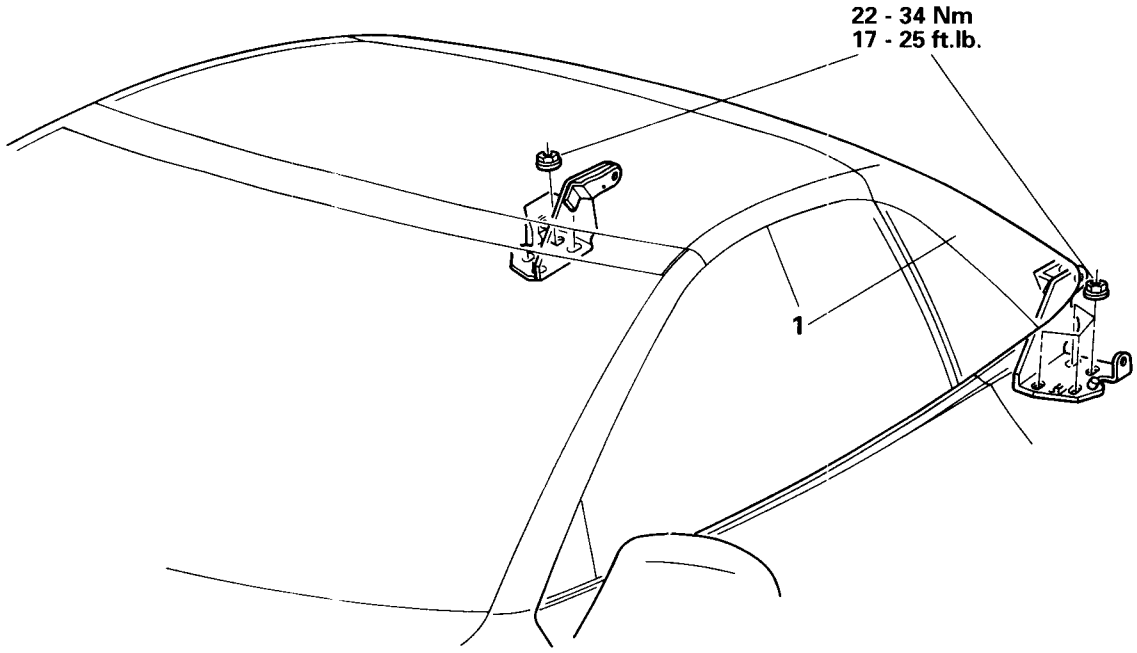
1. Sound deadener
2. Locator pin
3. Jam-nut
4. Striker

RETRACTABLE HARDTOP ASSEMBLY

REMOVAL AND INSTALLATION

CAUTION:
This procedure requires at least two individuals to safely remove and install the hardtop assembly.

Pre-removal and Post-installation Operation
- Removal and Installation of Trunk Center Front Panel, Hydraulic Line Cover, Center Closeout Panel, and LH and RH Quarter Trim Panels (Refer to GROUP 52, in this Manual.)



CAUTION:
Adjustment or replacement of this component requires that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

Removal step

◆■ ■◆ 1. Hardtop assembly

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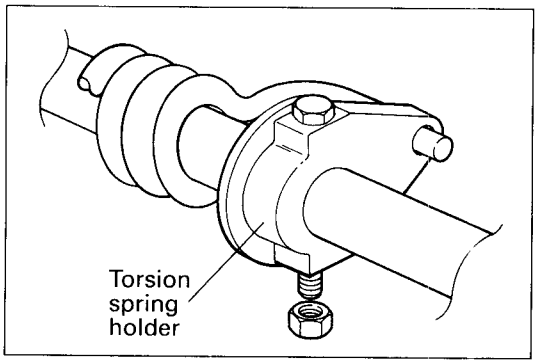
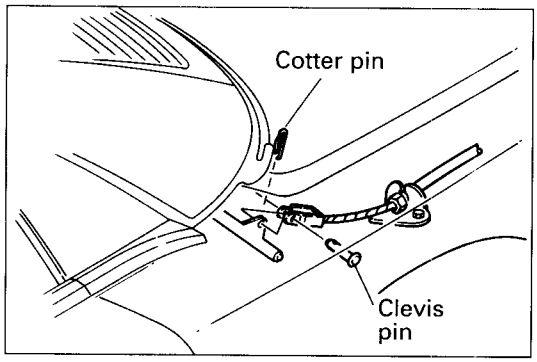
SERVICE POINT OF REMOVAL

1. REMOVAL OF HARDTOP ASSEMBLY

(1) Open the hardtop until the LH and RH torsion springs are unsprung and can be moved easily on the torque tube.
(2) Matchmark the torsion springs to the main pivot brackets and to the torsion spring holders on the torque tube.
(3) Matchmark the torsion spring holders to the torque tube.



(4) Remove the bolts attaching the torsion spring holders to the torque tube.
(5) Disconnect the roof wiring harness.



(6) Disconnect the flipper door drive cable from the hardtop mechanism.
(7) Fully open the hardtop.

Caution
Since the torsion springs have been disconnected from the hardtop mechanism the hardtop will not have spring resistance when opening or closing. This will cause accelerated opening or closing.

(8) Remove the nut and bolt attaching the LH and RH hardtop hydraulic cylinders to the hardtop mechanism.
(9) Close the hardtop manually.
(10) Retract both hydraulic cylinders using the hardtop "CLOSE" switch.
(11) Disconnect the hardtop position sensor (potentiometer) harness connector.
(12) Open the hardtop manually.
(13) There are four main pivot attaching nuts at both main pivot brackets. At each main pivot bracket remove both forward nuts and one of the rearward nuts. Loosen only the remaining fourth nuts so that they will prevent the hardtop assembly from prematurely separating from the vehicle.
(14) Carefully close or raise the hardtop.
(15) Remove the remaining main pivot attaching nuts.
(16) Carefully separate the hardtop assembly from the vehicle.

Caution
As the hardtop assembly is being raised and separated from the vehicle it will tend to fold into itself. Therefore keep fingers and other body parts out of moving parts.

SERVICE POINT OF INSTALLATION

2. INSTALLATION OF FRONT ROOF PANEL

(1) Carefully install the hardtop assembly to the vehicle.

Caution
As the hardtop assembly is being installed in the vehicle it will tend to fold into itself. Therefore keep fingers and other body parts out of moving parts.

(2) Make sure the locator pin on each main pivot bracket is in the locator hole in the body structure.
(3) Close the hardtop.
(3) Install the two rearward main pivot attaching nuts at each main pivot bracket.
(4) Carefully open the hardtop.

Caution
Since the torsion springs have been disconnected from the hardtop mechanism the hardtop will not have spring resistance when opening or closing. This will cause accelerated opening or closing.

(5) Install the remaining main pivot attaching nuts at both main pivot brackets.
(6) Reconnect the hardtop position sensor (potentiometer) harness connector.
(7) Reconnect the roof wiring harness.
(8) Extend both hydraulic cylinders using the hardtop "OPEN" switch.
(9) Reattach the LH and RH hardtop hydraulic cylinders to the hardtop mechanism with the nuts and bolts.

NOTE
The hardtop "OPEN"/"CLOSE" switch can be used to incrementally position the cylinder rods to the hardtop mechanisms.

Standard value: 22 - 34 Nm (17 - 25 ft.lb.)

(10) Open the hardtop halfway.
(11) Reconnect the flipper door drive cable to the hardtop mechanism.
(12) Engage the LH and RH torsion springs into the main pivot brackets.
(13) Slide the torsion spring holders over to the torsion springs and engage the coil spring into them.
(14) Open or close the hardtop as necessary to align the bolt holes in the torsion spring holders to the holes in the torque tube and install the attaching bolts and nuts.

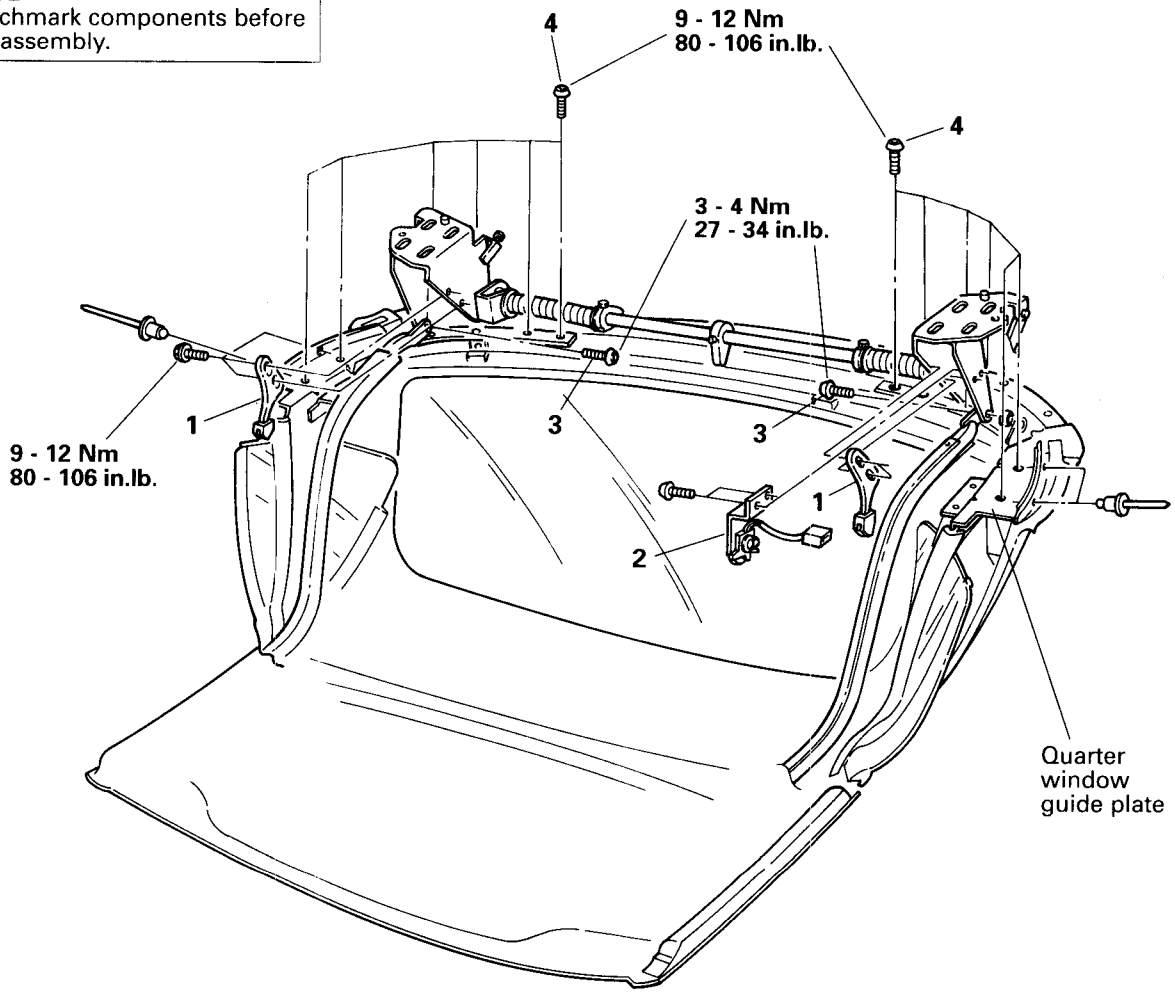
Standard value: 45 - 65 Nm (34 - 48 ft.lb.)

RETRACTABLE HARDTOP ASSEMBLY

DISASSEMBLY AND REASSEMBLY

<Mechanism>

NOTE
Matchmark components before dissassembly.



Pre-removal and Post-installation Operation
- Removal and Installation of Two Front Rivets attaching Hardtop Weatherstrip (Refer to Weatherstrip in this section.)

Disassembly steps

1. Center closeout guide assembly
2. Hardtop position sensor bracket
3. Bolt
4. Bolt

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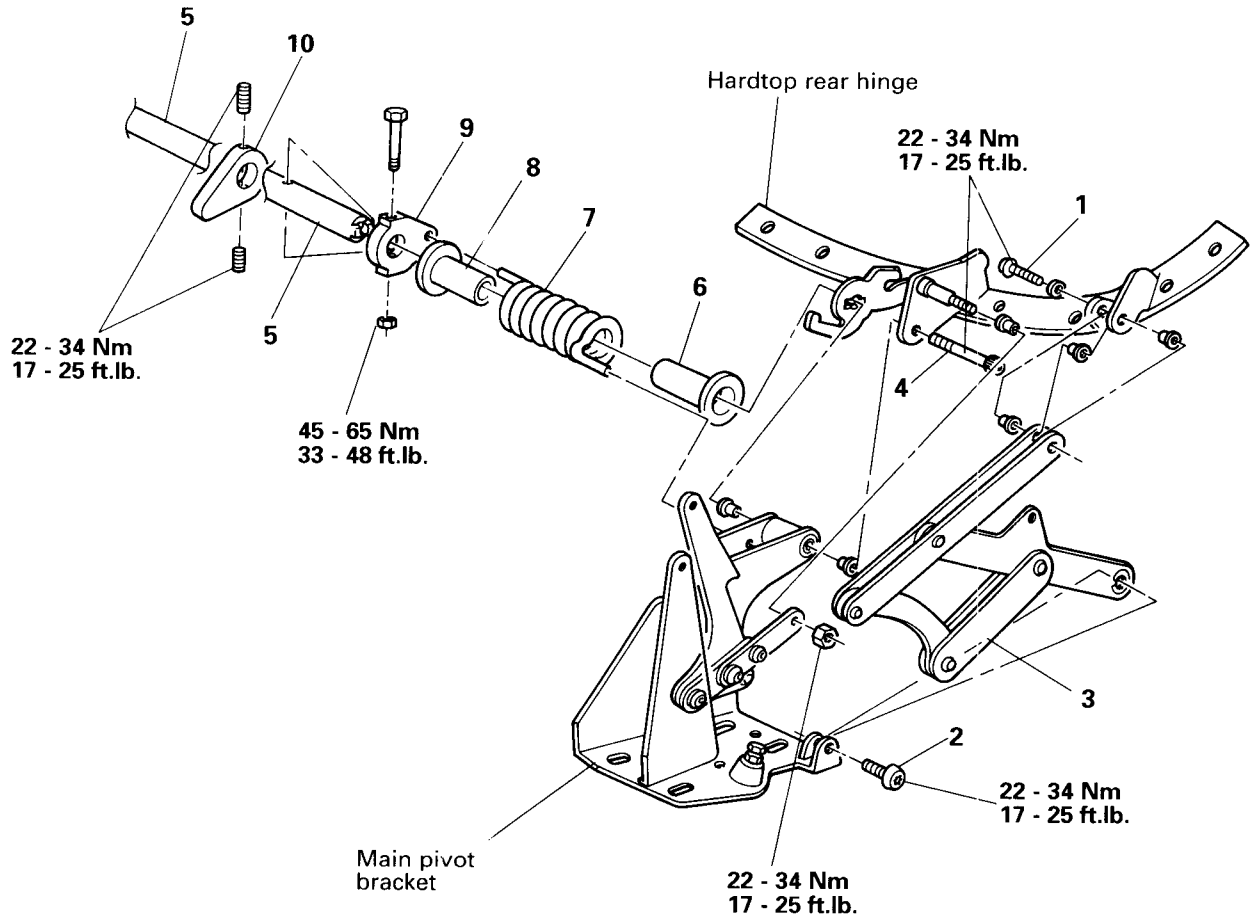
RETRACTABLE HARDTOP ASSEMBLY

DISASSEMBLY AND REASSEMBLY

<Mechanism>



Disassembly steps

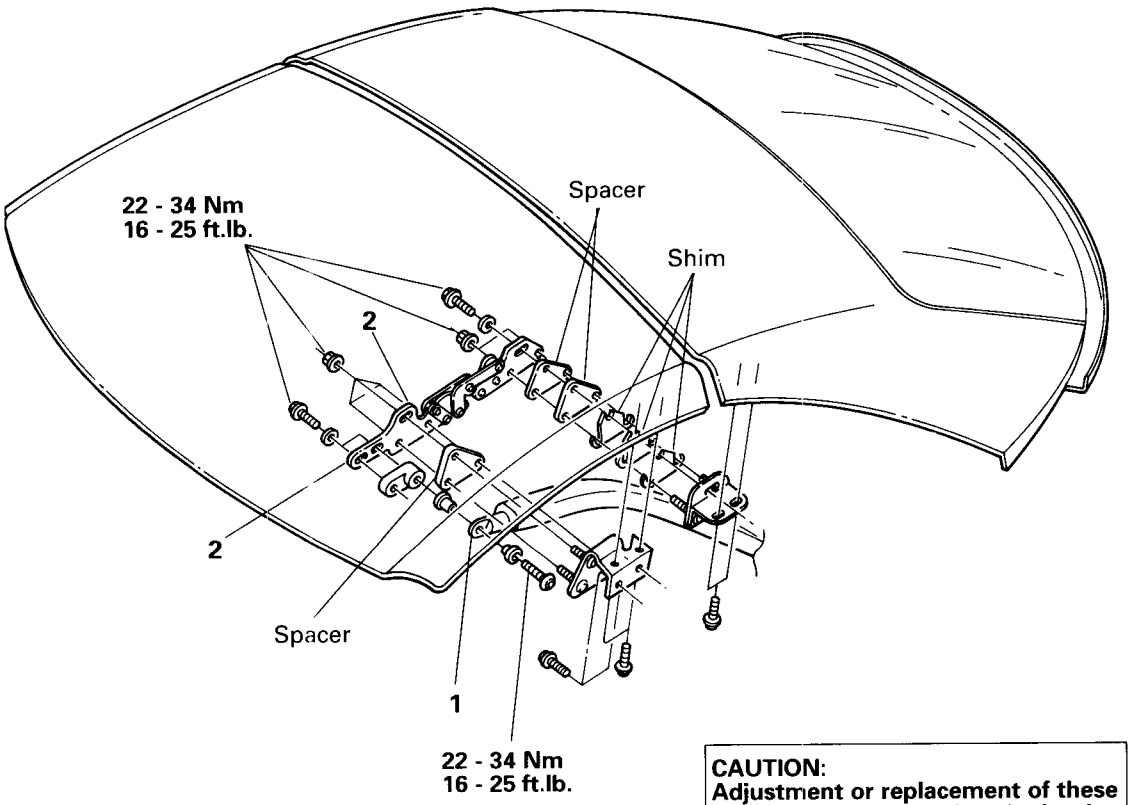
1. Bolt
2. Bolt
3. Drive link assembly
4. Bolt
5. Torque tube
6. Torsion spring spacer
7. Torsion spring
8. Torsion spring spacer
9. Torsion spring holder
10. Center closeout down stop

RETRACTABLE HARDTOP ASSEMBLY

DISASSEMBLY AND REASSEMBLY

<Mechanism>

NOTE
Matchmark components before disassembly.

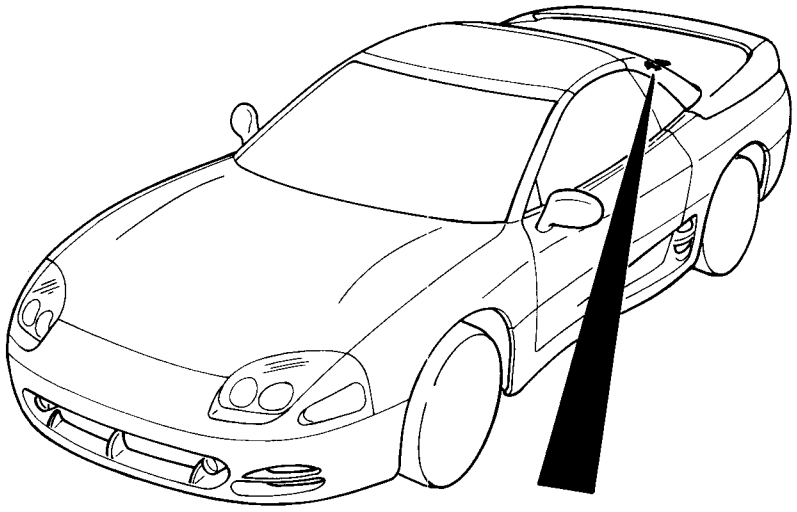


CAUTION:
Adjustment or replacement of these components require that the hard-top ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

Disassembly steps

1. Balance link
2. Roof center hinge

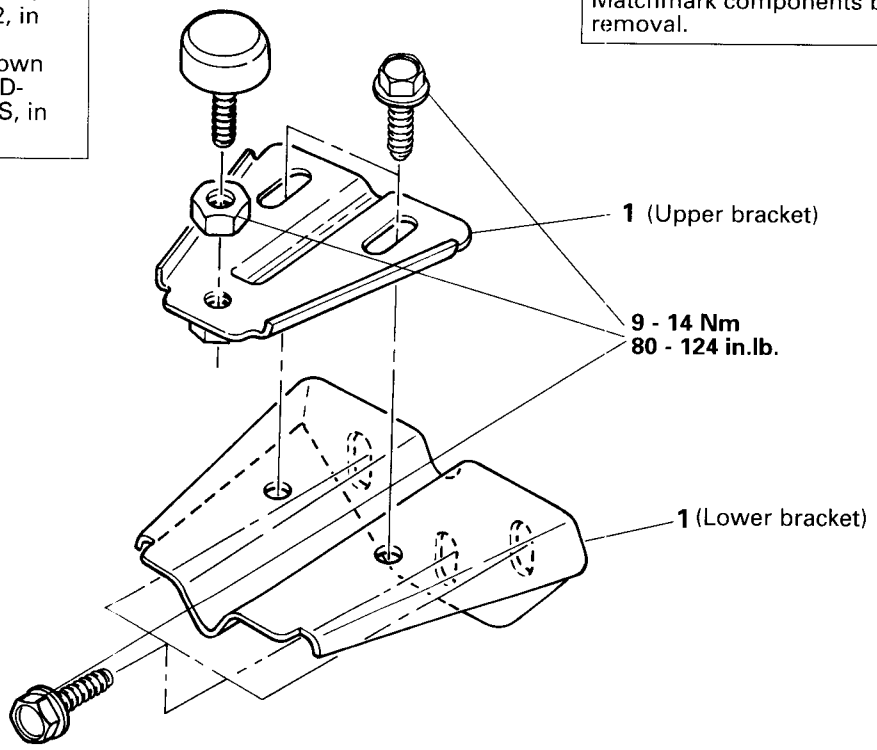
<Hardtop down stop>



Pre-removal Operation
- Removal of Trunk Trim Rear Panel (Refer to GROUP 52, in this Manual.)

Post-installation Operation
- Installation of Trunk Trim Rear Panel (Refer to GROUP 52, in this Manual.)
- Adjustment of Hardtop Down Stop (Refer to SERVICE ADJUSTMENT PROCEDURES, in this Manual.)

NOTE
Matchmark components before removal.



CAUTION:
Adjustment or replacement of this component requires that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

Removal step

1. Hardtop down stop

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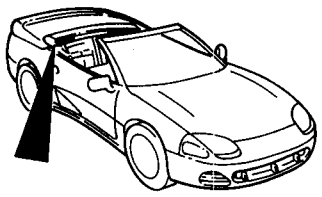
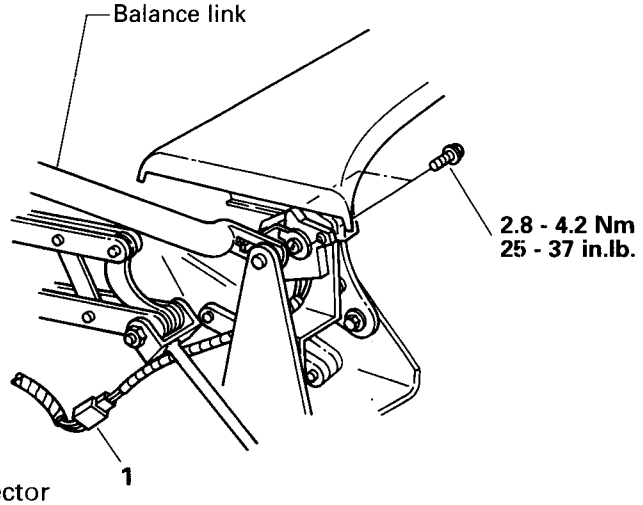
RETRACTABLE HARDTOP POSITION SENSOR (POTENTIOMETER)

REMOVAL AND INSTALLATION

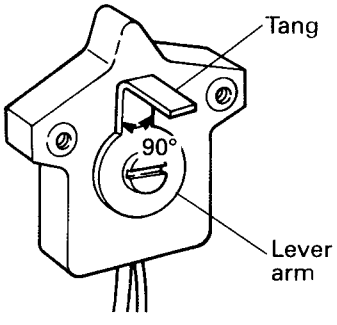
Pre-removal Operation
- Fully open the hardtop, but do not close tonneau.

Post-installation Operation
- Run the Hardtop ECU through Auto-configuration (Refer to DIAGNOSTICS and TESTING in this section.)





Removal steps
1. Electrical connector
◆◆ 2. Sensor



INSPECTION

INSPECTION OF RETRACTABLE HARDTOP POSITION SENSOR

1. ON- AND OFF-CAR VISUAL INSPECTION

(1) Check that the sensor's lever arm and tang are not bent.

Standard value: Tang 90° to lever arm

(2) Check the lever arm shaft for radial play and mechanical operation.

Standard value: No play and smooth, quiet operation

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NOTE:
If the sensor is removed for inspection, you must run the hardtop ECU through Auto-configuration using the latest version of the ASC INCORPORATED diagnostic system.

2. **ON-CAR ONLY ELECTRONIC INSPECTION**

   Refer to Diagnostics and Testing, in this section.

SERVICE POINT OF INSTALLATION

2. **INSTALLATION OF RETRACTABLE HARDTOP POSITION SENSOR**

   Be sure the sensor's lever arm tang is in the balance link.

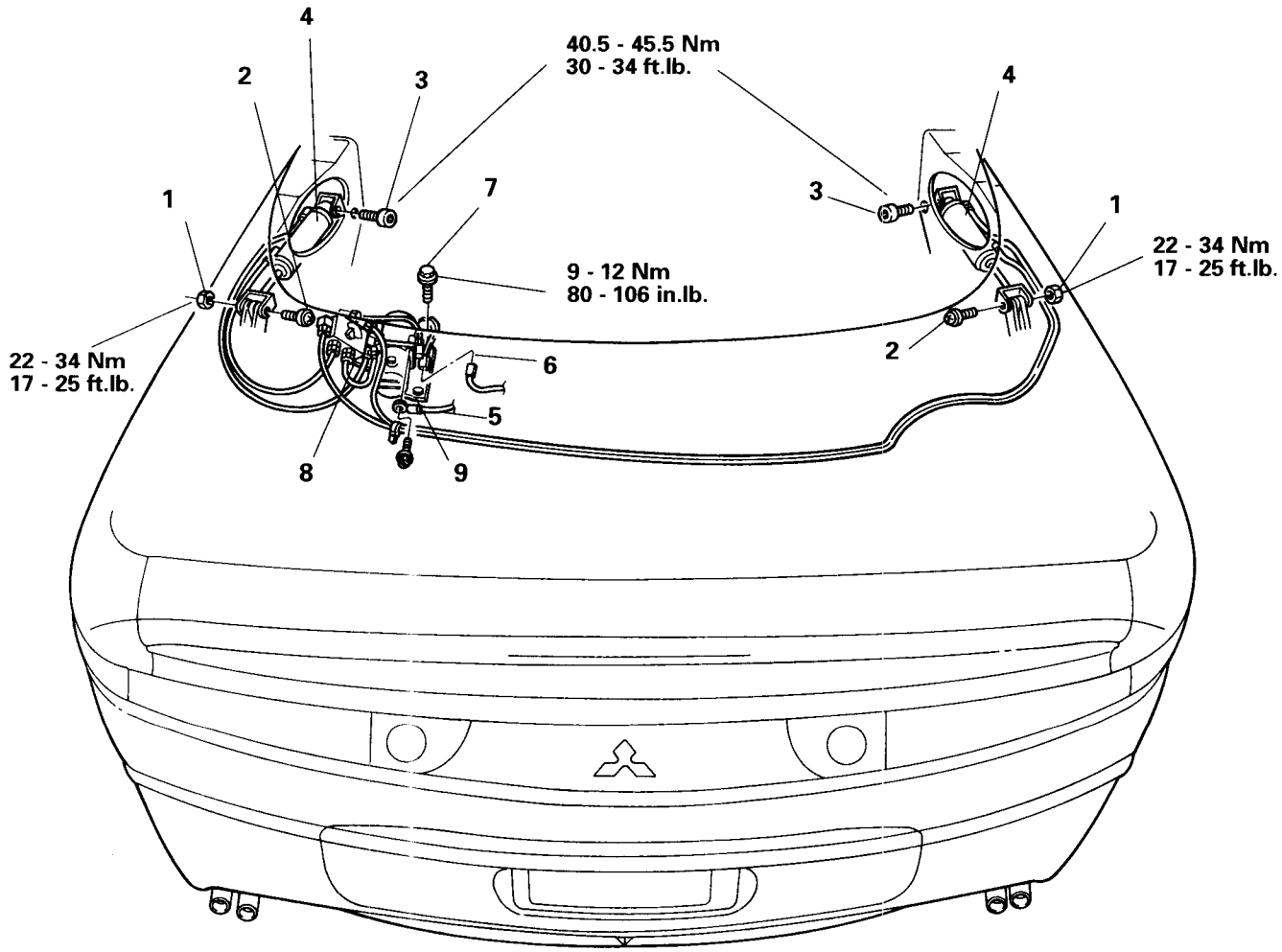
RETRACTABLE HARDTOP HYDRAULIC SYSTEM PUMP/MOTOR AND CYLINDERS

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation of Hardtop Hydraulic Cylinders
- Removal and Installation of LH and/or RH Quarter Trim Panels (Refer to GROUP 52, in this Manual.)
- Removal and Installation of LH and/or RH Speaker (Refer to GROUP 54, in this Manual.)

NOTE
Hardtop must be open to remove hydraulic cylinders.

CAUTION:
Adjustment or replacement of these components require that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).



Hardtop hydraulic cylinder removal steps

1. Nut
2. Bolt
3. Bolt
4. Hydraulic cylinder

Hardtop hydraulic pump/motor removal steps

5. Ground strap
6. Electrical connector
7. Bolt
8. Pump/motor assembly
9. Bracket

Pre-removal and Post-installation Operation of Hardtop Hydraulic Pump/Motor
- Removal and Installation of Trunk Center Front Panel and Hydraulic Line Cover (Refer to GROUP 52, in this Manual.)

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SERVICE POINTS OF REMOVAL

4. REMOVAL OF HARDTOP HYDRAULIC CYLINDER FROM HYDRAULIC LINES, IF REQUIRED

(1) Place clean rags around the cylinder to prevent dripping of the hydraulic fluid.
(2) Remove the hydraulic hoses from the hydraulic cylinder. Plug or cap the hoses and cylinder fittings to prevent leakage.

Caution
Mismatched hoses will cause damage to the hardtop and mechanisms. To avoid system damage and ease reassembly, be sure to label the correct position of each hose as they are removed.

8. REMOVAL OF HYDRAULIC PUMP/MOTOR ASSEMBLY

(1) • For removal of the hydraulic pump/motor assembly with hoses still attached, go to Step (2).
• For removal the hydraulic pump/motor assembly only, follow the procedure below.
1. Place clean rags around the pump manifold to prevent dripping of the hydraulic fluid.
2. Remove the hydraulic hoses from the manifold. Plug or cap the hoses and manifold fittings to prevent leakage.

Caution
Mismatched hoses will cause damage to the hardtop and mechanisms. To avoid system damage and ease reassembly, be sure to label the correct position of each hose as they are removed.

3. Go to Step (2).

(2) Lift the pump/motor to separate the bracket grommets from the body and to disengage the dual-lock fastener from the body.

SERVICE POINTS OF INSTALLATION

8. INSTALLATION OF HYDRAULIC PUMP/MOTOR ASSEMBLY

(1) Place the pump/motor in position, align the bracket grommets to the holes, and press them in.
(2) Install the bolt to hold the pump/motor bracket in place.
(3) Press the manifold-end of the assembly to engage the dual-lock fasteners.
(4) Reconnect the hydraulic hoses if they have been disconnected using the following procedure.
1. Place clean rags around the pump manifold to prevent dripping of the hydraulic fluid.
2. Remove the caps or plugs from the pump manifold and hydraulic hoses.
3. Reconnect the hoses in the correct positions.

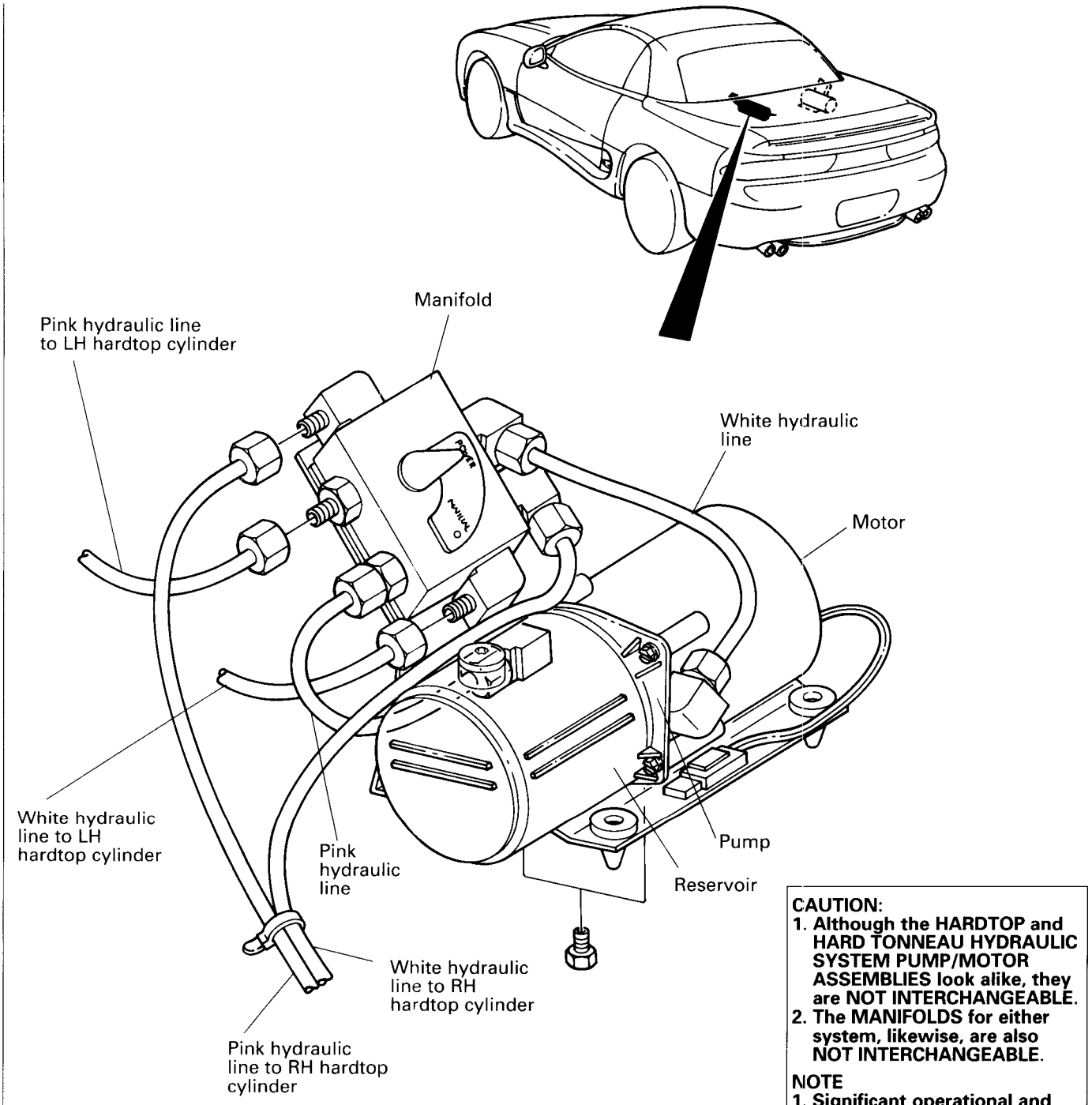
Caution
Mismatched hoses will cause damage to the hardtop and mechanisms. To avoid system damage and ease reassembly, be sure to observe the hose position labels.

4. **INSTALLATION OF HARD TONNEAU HYDRAULIC CYLINDER FROM HYDRAULIC LINES, IF REQUIRED**
   (1) Place clean rags around the cylinder to prevent dripping of the hydraulic fluid.
   (2) Remove the caps or plugs from the hoses and hydraulic cylinder.
   (3) Reconnect the hoses in the correct positions.

Caution
Mismatched hoses will cause damage to the hardtop and mechanisms. To avoid system damage and ease reassembly, be sure to observe the hose position labels.

RETRACTABLE HARDTOP HYDRAULIC SYSTEM PUMP/MOTOR ASSEMBLY

DISASSEMBLY AND ASSEMBLY



CAUTION:
1. **Although the HARDTOP and HARD TONNEAU HYDRAULIC SYSTEM PUMP/MOTOR ASSEMBLIES look alike, they are NOT INTERCHANGEABLE.**
2. **The MANIFOLDS for either system, likewise, are also NOT INTERCHANGEABLE.**

NOTE
1. **Significant operational and functional differences will result if either component is interchanged or replaced with an incorrect part. Damage may result.**
2. **Individual parts do not bear distinguishing marks or identification, only the entire assembly itself.**

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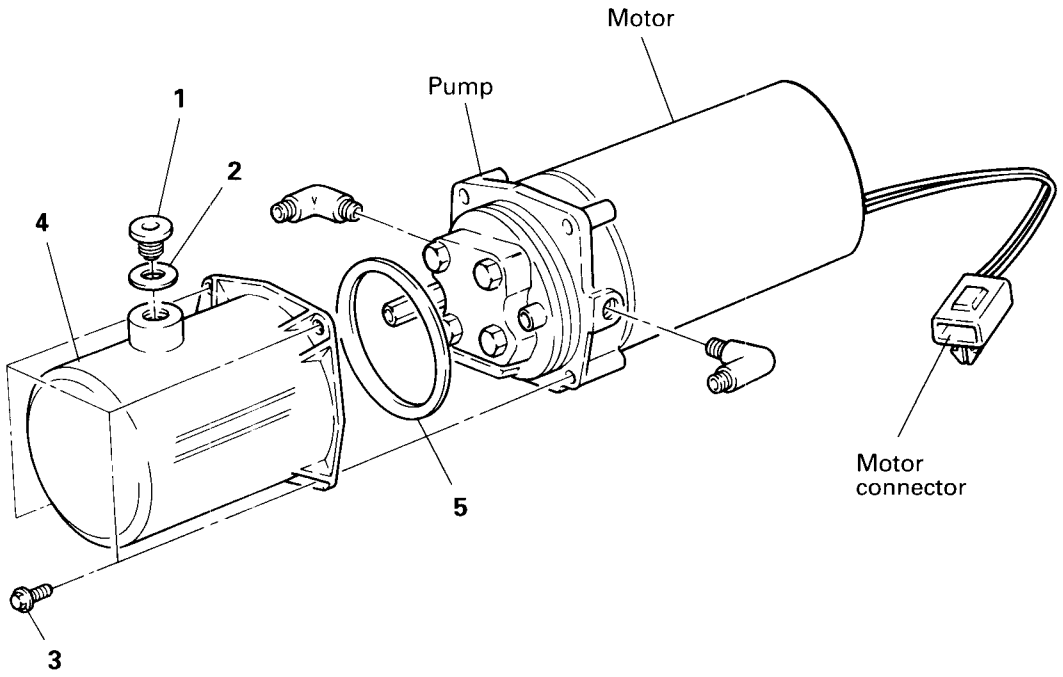
RETRACTABLE HARDTOP HYDRAULIC PUMP/MOTOR

DISASSEMBLY AND REASSEMBLY

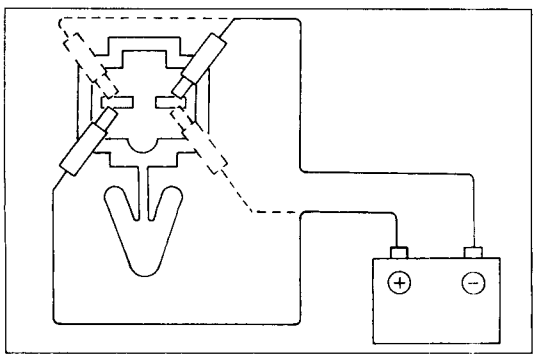


Disassembly steps

1. Plug
2. Seal

Reservoir

3. Screw
4. Reservoir
5. Seal



INSPECTION

HYDRAULIC PUMP MOTOR

1. Connect the battery directly to the motor connector and check that the motor spins freely.
2. Reverse the polarity and check that the motor spins freely in the opposite direction.

NOTE
If the motor does not spin freely, replace the pump/motor. DO NOT repair or rebuild motor.

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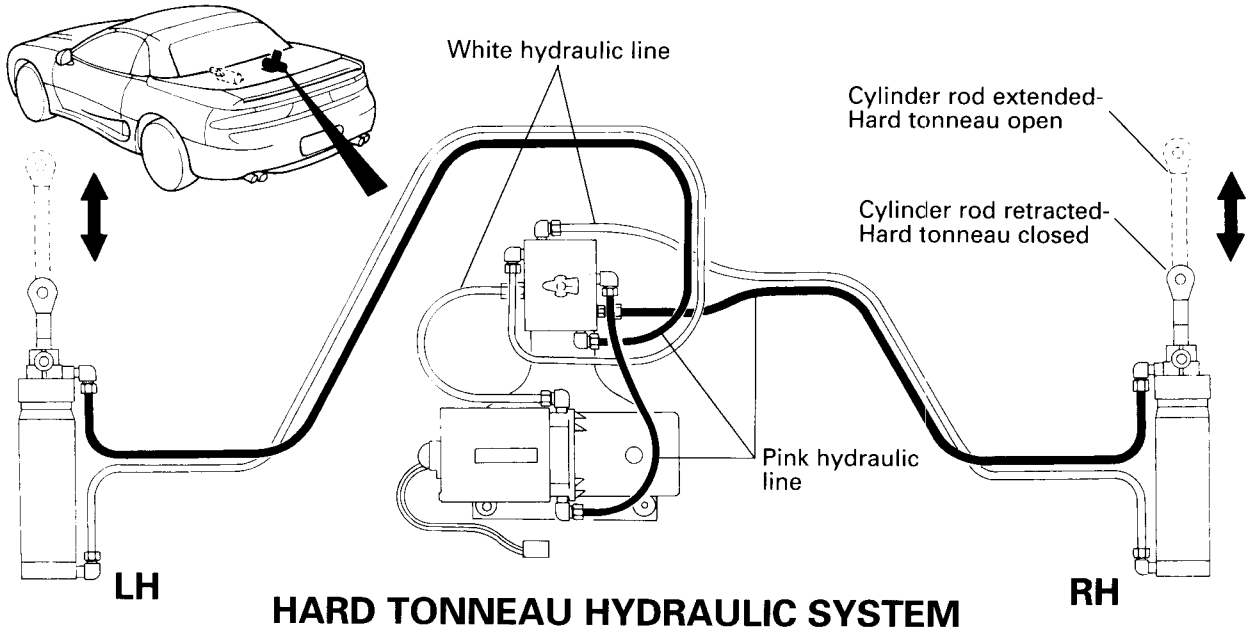
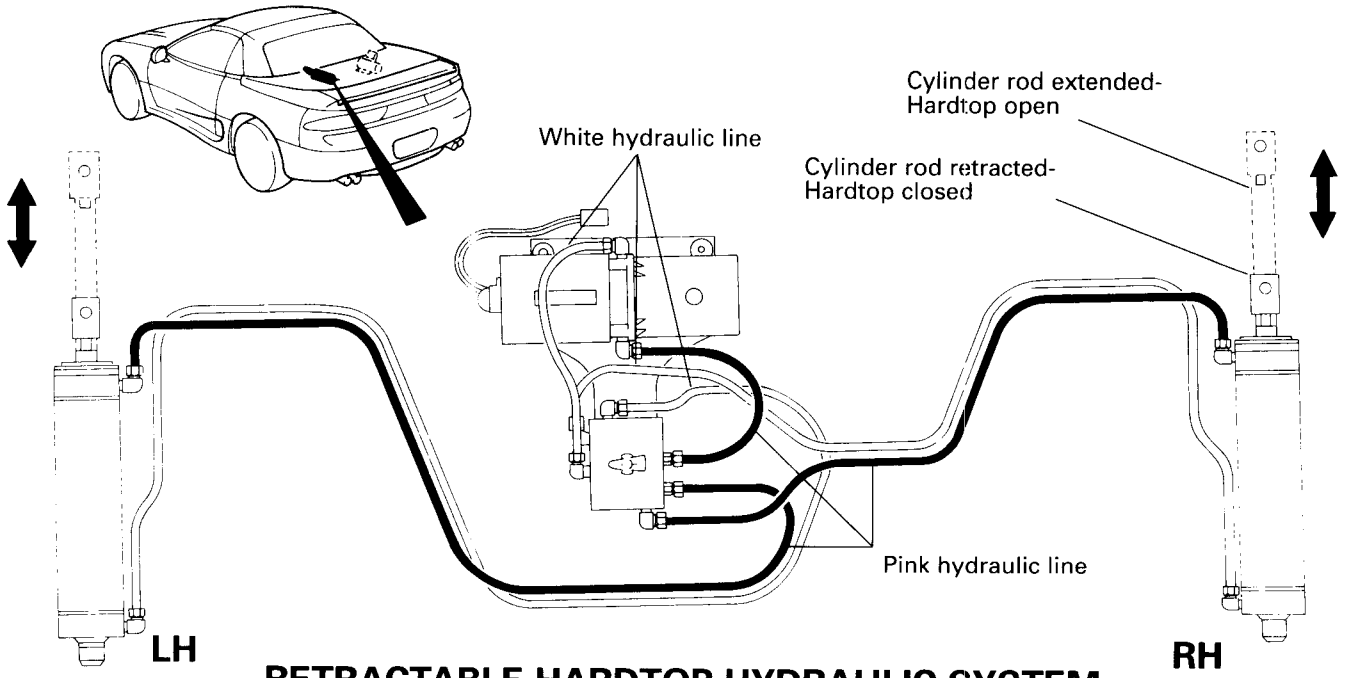
HYDRAULIC SYSTEM DIAGRAMS

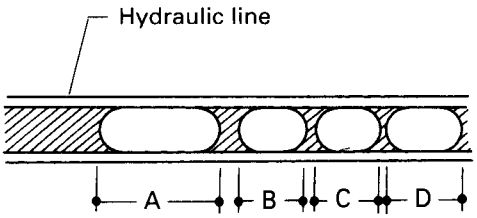


HARD TONNEAU HYDRAULIC SYSTEM
NOT TO SCALE



RETRACTABLE HARDTOP HYDRAULIC SYSTEM
NOT TO SCALE

TSB Revision



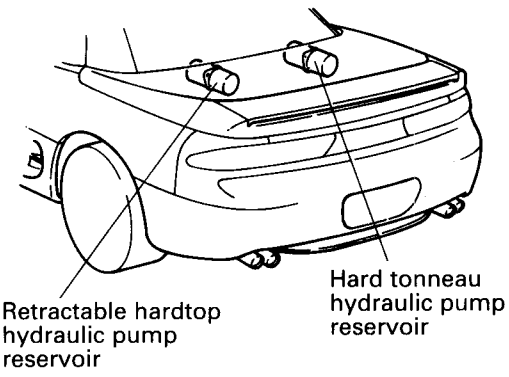
A+B+C+D=X Air bubbles

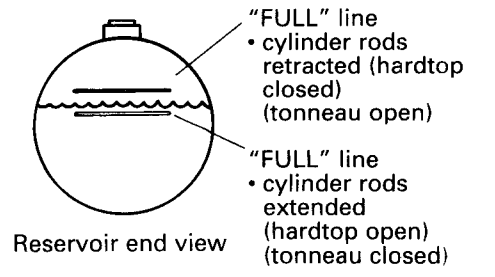
HYDRAULIC SYSTEM BLEEDING

ACCEPTABLE LEVELS OF TRAPPED AIR BUBBLES

The hard tonneau and retractable hardtop hydraulic systems are each designed to operate with 101.6 linear mm ± 50.8 linear mm (4 linear in. ± 2 in.) (cumulative) of visible trapped air bubbles in each of the hydraulic lines. Bubbles can be viewed through the translucent plastic lines after the protective black tubing is removed. This does not include air trapped elsewhere in the system such as in the pump cavity; in fittings; in the manifold assembly; and under or above each hydraulic cylinder piston.

Above 152.4 linear mm (6 linear in.), operation may be sluggish, accompanied by an intermittently noisy pump/motor. The noise is created by the air bubbles being forced through the pump. A noisy pump is a good indicator of excessive air in the system. To bleed the system, use the following appropriate procedure.





PRE-BLEEDING NOTES

(1) Remove the appropriate trunk trim to access the hydraulic system components.
(2) Make sure the hydraulic reservoir is filled.
(3) Do not allow the hydraulic oil to become aerated or foamy, which may occur with constant operation. If this occurs, discontinue operation and allow the air bubbles to rise in the reservoir. Bleed the system only when the oil in the reservoir becomes clear and aeration-free.
(4) Inspect all components for breaks or looseness that could cause air to enter the system or fluid leaks.
(5) Before bleeding, remove the reservoir filler plug to vent off trapped air, and place clean absorbent rags around the pump/motor to catch any spills.
(6) A hydraulic system with 152.4 linear mm (6 linear in.) or less of air in each line can sometimes be sufficiently bled by cycling the affected system 6-8 times.
(7) When cycling is not effective in reducing air bubbles to an acceptable level, the system must be bled.

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HARD TONNEAU SYSTEM BLEEDING

Under most circumstances the hard tonneau hydraulic system can be effectively bled simply by cycling the hard tonneau 6-8 times using the tonneau "OPEN"/"CLOSE" switch.

If cycling the tonneau 6-8 times proves unsuccessful, bleed the system using the following procedure. This will allow the cylinder rods to fully extend and retract, forcing out most of the air.

1. Open the tonneau and suitably support the tonneau.
2. Disconnect the LH and RH tonneau cylinders from the lift arms by removing the clips and the clevis pins.
3. Using the tonneau switch, fully extend and retract the tonneau cylinders until they are within the Standard value for having air in the lines.

   NOTE
   If the tonneau cylinders do not react to the switch, it may be necessary to lower the tonneau slightly because the tonneau position sensor may be reading a full-open position.

   Caution
   Be sure that when the cylinders are cycling that they do not contact the vehicle or the lift arms, or cause personal injury.

4. Reattach the cylinders with the clevis pins and clips. Remove the suitable support.
5. Reattach the trunk trim.

RETRACTABLE HARDTOP SYSTEM BLEEDING

Under most circumstances the hardtop hydraulic system can be effectively bled simply by cycling the hardtop 6-8 times using the hardtop "OPEN"/"CLOSE" switch.

If cycling the hardtop 6-8 times proves unsuccessful, bleed the system using the following procedure. This will allow the cylinder rods to fully extend and retract, forcing out most of the air.

1. Disconnect the LH and RH hardtop cylinders from the hardtop (refer to **RETRACTABLE HARDTOP HYDRAULIC SYSTEM PUMP/MOTOR AND CYLINDERS,** in this section).
2. Install and connect the object in trunk sensor, if it is not already installed.
3. Raise and suitably support the hardtop 101.6 mm (4 in.) off the hardtop down stop. Otherwise, the hardtop position sensor may read a full-open position.
4. Using the hardtop switch, fully extend and retract the hardtop cylinders until they are within the Standard value for having air in the lines.

Caution
Be sure that when the cylinders are cycling that they do not contact the vehicle or hardtop mechanisms, or cause personal injury.

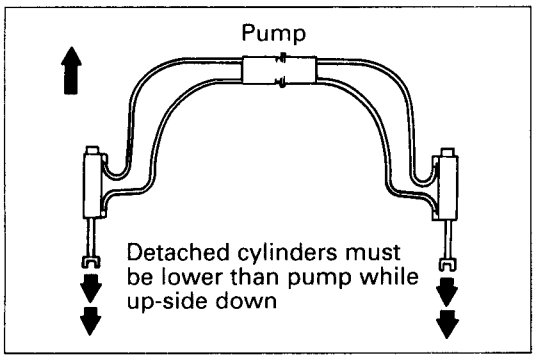
- If the bleeding procedure was successful, go to Step 5, then the procedure will be complete.
- If the bleeding procedure was unsuccessful, go to Step 8.

5. Reattach the cylinders (refer to **RETRACTABLE HARDTOP HYDRAULIC SYSTEM PUMP/MOTOR AND CYLINDERS,** in this section).
6. Remove the suitable support from the hardtop down stop.
7. Reattach the trunk trim.
8. Remove both hardtop hydraulic cylinders from the vehicle with hydraulic lines still connected (refer to **RETRACTABLE HARDTOP HYDRAULIC SYSTEM PUMP/MOTOR AND CYLINDERS,** in this section).

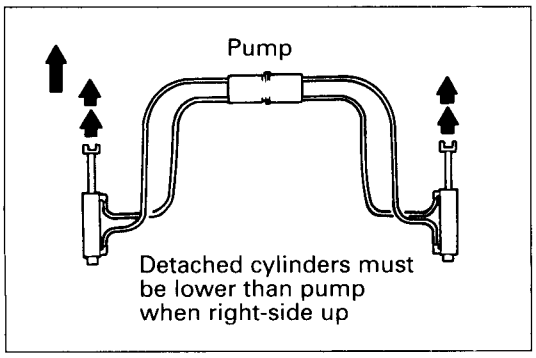
NOTE
This procedure is best performed with both cylinders held in the cargo/hardtop stowage area.

Caution
To prevent injury or damage when operating the hydraulic cylinders, keep the hydraulic cylinders clear of your body and the vehicle.

9. Close the hardtop until it is approximately 152.4 mm (6.0 in.) from the header and suitably support it there.



10. Press the hardtop "OPEN" switch to fully extend the hydraulic cylinder piston rods.
11. Instruct two helpers to turn the cylinders up-side down and hold them lower than the pump for approximately 3-4 minutes. This allows air bubbles in the cylinders to rise so they will be forced out when the hardtop "CLOSE" switch is pressed.



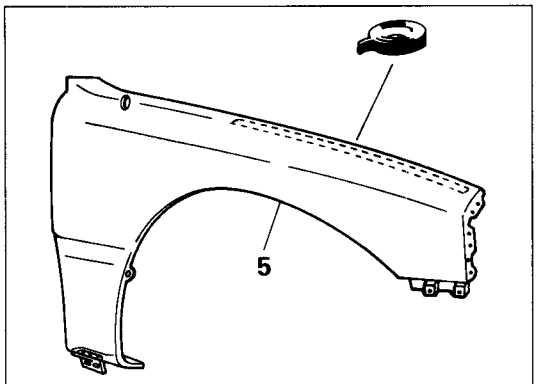
12. Press the hardtop "CLOSE" switch to fully retract both cylinders.
13. Instruct the helpers to turn the cylinders right-side-up and hold them lower than the pump for approximately 3-4 minutes.
14. Press the hardtop "OPEN" switch to fully extend both cylinders.
15. Check the hydraulic lines for air bubbles.
    - If the air in each line is within the Standard value, reinstall the hydraulic cylinders (refer to **RETRACTABLE HARDTOP HYDRAULIC SYSTEM PUMP/MOTOR AND**

CYLINDERS, in this section).
- If the air in the lines is more than the Standard value, repeat Steps 9 through 15.

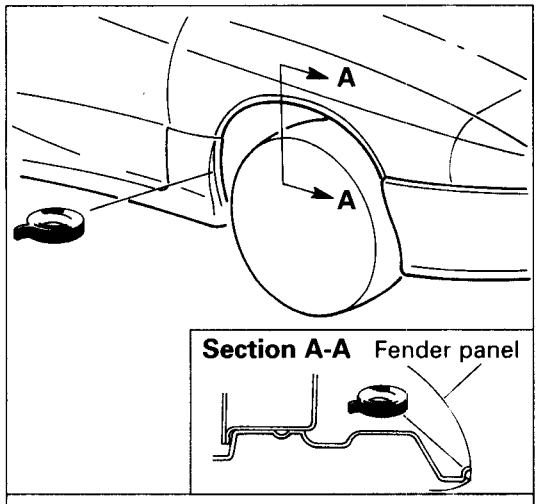
FRONT FENDER

REMOVAL AND INSTALLATION

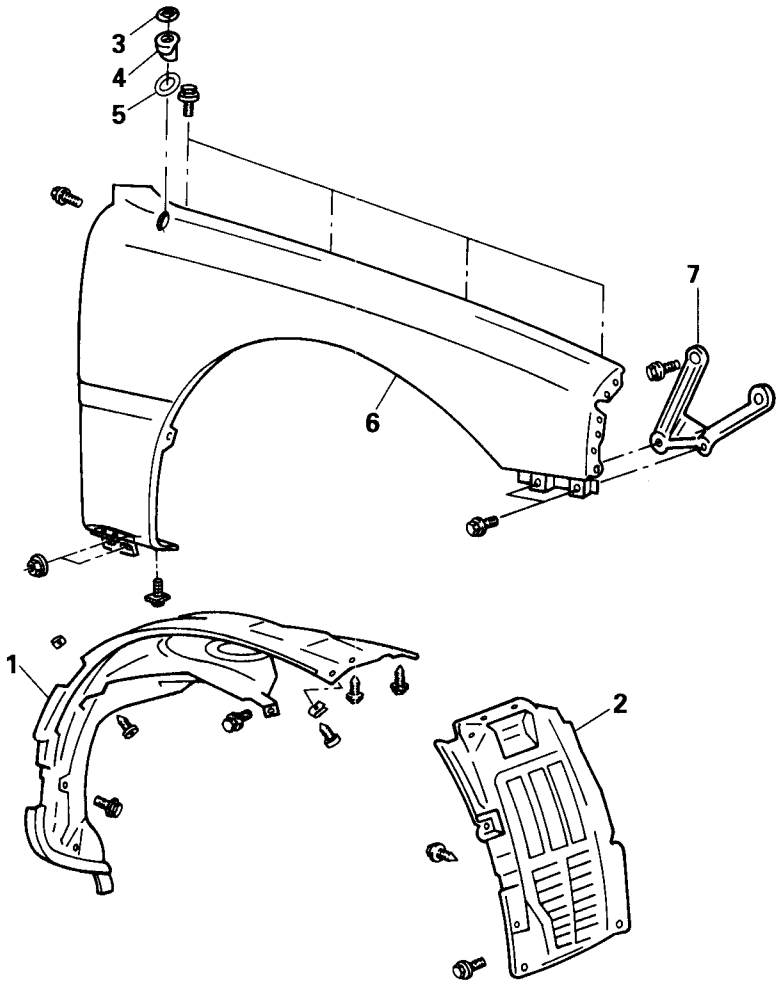
CAUTION: SRS
When removing and installing the front fender panel, do not allow any impact or shock to the front impact sensor.



Sealant:
3M ATD Part No. 8625, or equivalent

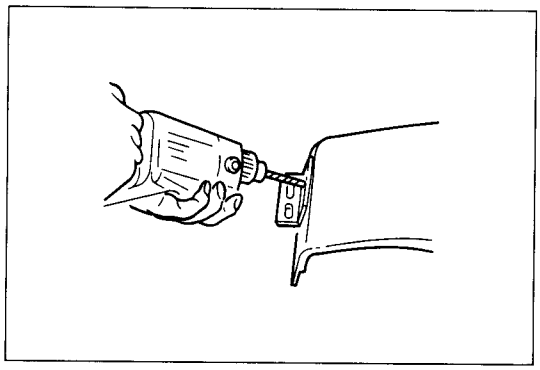


Sealant:
3M ATD Part No. 8625, or equivalent



Removal steps

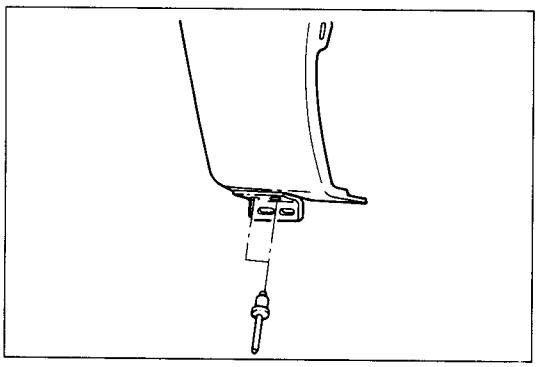
1. Front splash shield
   Side airdam
   (Refer to GROUP 51 - Aero Parts, in the Volume 1 Service Manual.)
2. Front splash shield
   Front bumper
   (Refer to GROUP 51 - Front Bumper, in the Volume 1 Service Manual.)
3. Motor antenna ring nut
   (RH fender only)
4. Motor antenna outer garnish
   (RH fender only)
5. Gasket
6. Front fender panel
7. Front fender bracket



DISASSEMBLY OF LOWER FENDER BRACKET

NOTE
The lower fender bracket can be removed and installed on- or off-car.

1. Remove the two rivets using a drill with a 3/16 in. bit.
2. Apply zinc-rich primer to the rivet holes in the fender, and let dry.



REASSEMBLY OF LOWER FENDER BRACKET

1. Attach the lower fender bracket using two rivets.

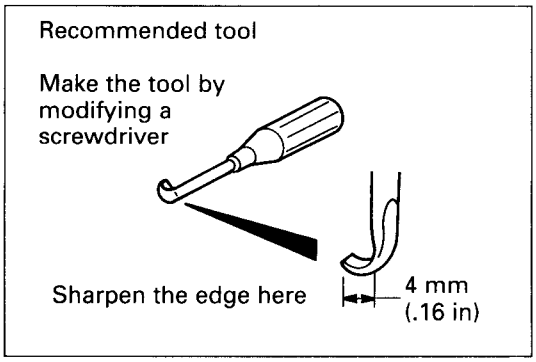
   Rivet: 3/16 in. x .125 Flange head

ROOF GLASS

GENERAL

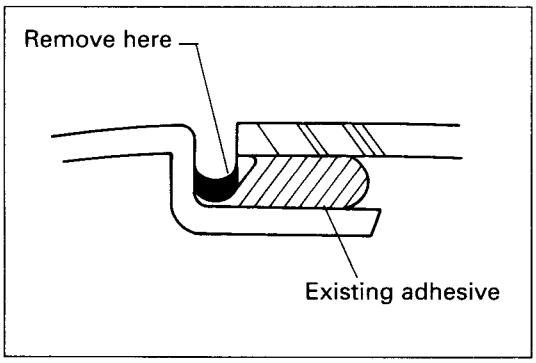
GLASS WIPE, PRIMERS, ADHESIVE AND GLASS INSTALLATION ITEMS

Glass Wipe, Primers, Adhesive and Glass Installation Items	Applications	Quantity
Glass Wipe (Clear) ESSEX SPECIALTY PRODUCTS, INC. brand BETASEAL 43518 glass primer		As required
Glass Primer (Black) ESSEX SPECIALTY PRODUCTS, INC. brand BETASEAL 43520A glass primer		As required
Roof Primer (Black) ESSEX SPECIALTY PRODUCTS, INC. brand BETASEAL 43533 body primer		As required
Glass Moulding Primer ESSEX SPECIALTY PRODUCTS, INC. brand BETASEAL 43555 PVC primer	for installing new moulding, but not glass	As required
Adhesive ESSEX SPECIALTY PRODUCTS, INC. brand BETASEAL 57502 urethane adhesive		Two cartridges
Clean Up - Body and Glass ESSEX SPECIALTY PRODUCTS, INC. brand URETHANE SEALANT CLEANER		As required
Clean Up - Hands ESSEX SPECIALTY PRODUCTS, INC. brand URETHANE E INDUSTRIAL HAND CLEANER		As required
Paint brushes	for glass wipe and primer application	Three
Adhesive gun	for adhesive application	One
Wiping rags	for cleaning jointing surfaces	As required
Glass holder		Two
Roof glass moulding (Service Part)		One
Glass spacers (Service Part)		Four



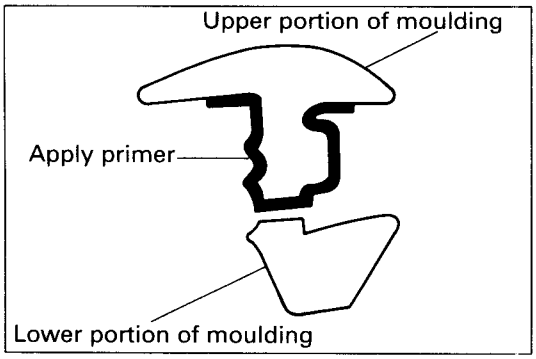
REPLACEMENT OF MOULDING (BONDING TYPE)

1. Remove the moulding by cutting.
2. To cut the existing adhesive, make a tool such as the one shown in the illustration.



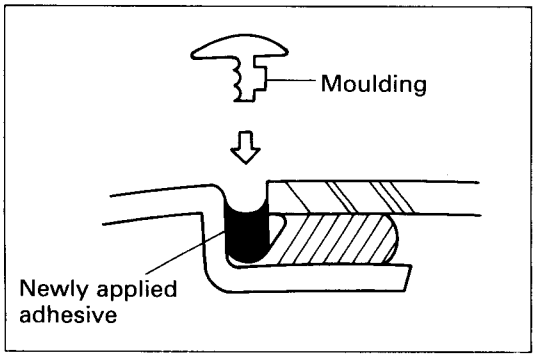
3. Using the tool, scoop out the existing adhesive.

   Caution
   (1) Do not remove existing adhesive more than necessary.
   (2) Use care not to damage the coated surface.
   (3) If the coated surface is damaged, apply paint.



4. Cut off the lower portion of the new moulding and install the moulding temporarily to check that it is seated securely.
5. Wipe the entire moulding with a clean, lint free cloth, dampened with naphtha or BETASEAL Urethane E Sealant Cleaner. **Do not use isopropyl alcohol.**
6. Wipe the groove where the moulding will go with a clean, lint free cloth, dampened with naphtha or BETASEAL Urethane E Sealant Cleaner. **Do not use isopropyl alcohol.**
7. Using a small brush, or suitable applicator, apply BETASEAL 43555 PVC primer to the moulding as shown in the illustration.

   Caution
   Never touch the primer coated surface.



8. Apply BETASEAL 57502 adhesive to the illustrated area and install the moulding before it hardens.
9. Carefully scrape away excess sealant forced out during installation of the moulding from the glass or roof and wipe the surfaces clean with BETASEAL Urethane E Sealant Cleaner.

   NOTE
   It may be necessary to hold the moulding in place with adhesive tape while the adhesive hardens.

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Caution
Be sure that adhesive tape will not react with or harm the roof finish due to sunlight or heat. And it can be easily removed without harming the roof finish.

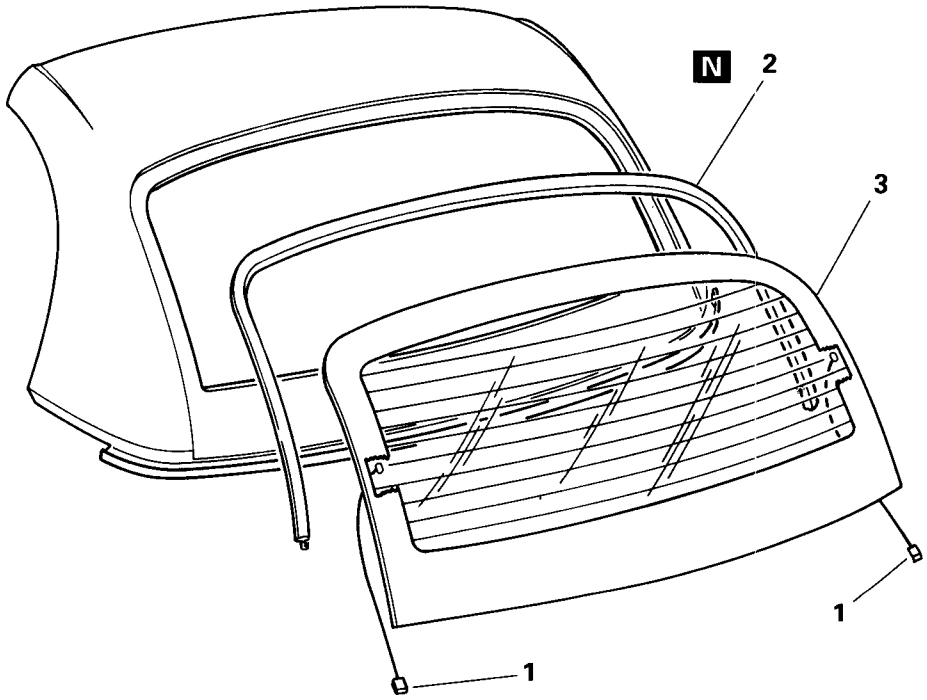
10. Do not move the vehicle for 6-8 hours until the adhesive hardens.

NOTE
(1) The adhesive relies on moisture in the air to cure it.
(2) Inducing curing by wetting the adhesive with water is not recommended, as the moulding creates a seal between the glass and roof.
(3) DO NOT use a heat source to cure the adhesive.

ROOF GLASS

REMOVAL AND INSTALLATION

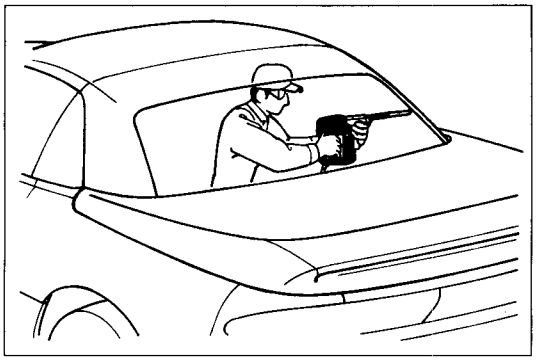
Pre-removal and Post-installation Operation
- Removal and Installation of all Rear Roof Panel Headlining (Refer to GROUP 52 - Trims, in this Manual.)
- Removal and Installation of rear portion of Hardtop Weatherstrip (Refer to GROUP 42, in this Manual.)



Removal steps

1. Defogger connector
2. Roof glass moulding
3. Roof glass

◆◆ ◆◆



SERVICE POINT OF REMOVAL

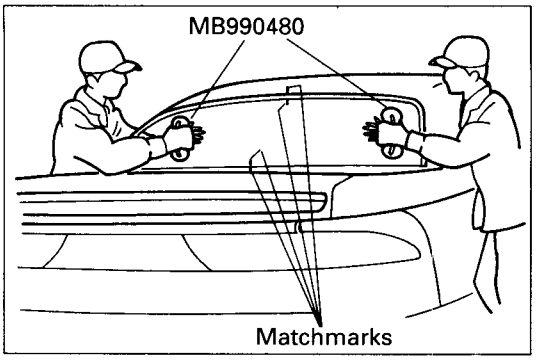
3. REMOVAL OF ROOF GLASS

(1) For protection of the body paint, apply cloth tape around the roof glass opening.

(2) Use a pneumatic or electric cold knife (reciprocating blade type) designed for cutting windshields from vehicles.

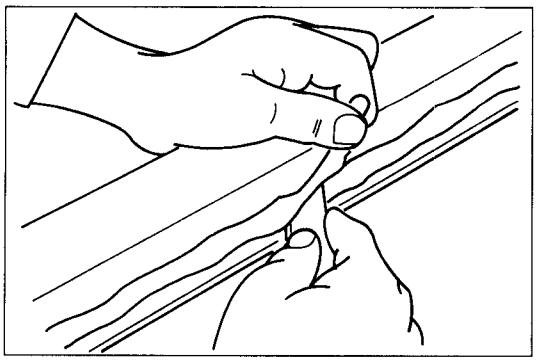
NOTE
A short blade is recommended for cutting the top and sides, and a longer blade is recommended for the bottom. There are two lines of adhesive along the bottom of the glass.

Caution
1. **Use care not to nick or scratch the blackout on the inside of the roof glass.**
2. **Using the wire cutting method to remove the roof glass is not recommended.**



(3) When reusing the glass, put matchmarks on the roof and the glass.

(4) Using the special tool (MB990480, or equivalent), remove the roof glass.



(5) Using a sharp knife, scoop out existing adhesive from the roof flange to 2 mm (.08 in.), all around the roof glass opening.

(6) Finish smooth the flange surfaces.

Caution
1. **Do not remove the adhesive more than necessary.**
2. **Use care not to damage the coated surface of the roof with the knife. If it is damaged, apply touch-up paint.**

(7) If the glass will be reused, scoop out existing adhesive completely from the glass.

Caution
Do not penetrate the adhesive. When the adhesive is penetrated, it is necessary to cover the exposed glass surface with BETASEAL 43520A glass primer. Otherwise, the adhesive will not adhere to the glass.

(8) Clean the glass adhesive surfaces using a clean, lint free cloth dampened with naphtha or BETASEAL Urethane E Sealant Cleaner. **Do not use isopropyl alcohol.**

(9) Clean the roof the same way.

Caution
After cleaning, allow three minutes or more to dry before next work. Do not touch the cleaned surface.

SERVICE POINTS OF INSTALLATION

PREPARATION

When installing or reinstalling the roof glass, refer to the installation headings below.

- **PREPARATION - REINSTALLATION OF ROOF GLASS TO ITS ORIGINAL ROOF, refer to 42-226, in this manual.**
- **PREPARATION - INSTALLATION OF A NEW ROOF GLASS TO A NEW ROOF, refer to 42-227, in this manual.**
- **PREPARATION - INSTALLATION OF A NEW ROOF GLASS TO A REUSED ROOF, refer to 42-228, in this manual.**
- **PREPARATION - INSTALLATION OF A REUSED ROOF GLASS TO A NEW ROOF, refer to 42-229, in this manual.**

Caution
It is strongly advised that when installing a new, or reused roof glass to a new, or reused roof that ONLY BETASEAL chemicals and adhesives as indicated be used. Do not use any other chemicals or adhesives. Always follow the manufacturer's directions. The use of other brands has not been tested for use with, or as a replacement for, BETASEAL products used for the Spyder, and is not recommended.

The BETASEAL adhesive is a moisture-curing type. It relies on moisture in the air to cure the adhesive.

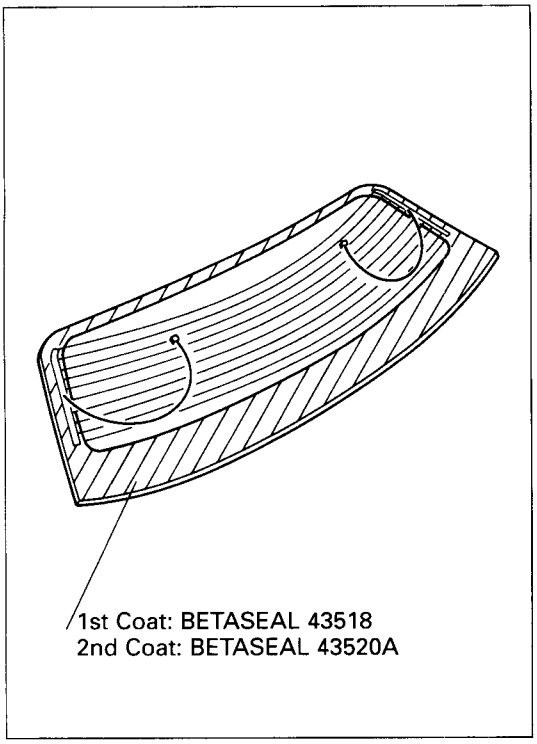
SERVICE POINTS OF INSTALLATION

3. PREPARATION - REINSTALLATION OF ROOF GLASS TO ITS ORIGINAL ROOF

NOTE
(1) Roof glass that has been removed from its original roof, can be reinstalled to the same roof using new BETASEAL 57502 adhesive, without using primers, provided the adhesive on the glass and roof is not dirty or contaminated, and will be reinstalled within 72 hours from when it was originally removed. If the adhesive is dirty or contaminated, it MUST be cleaned with Urethane E Sealant Cleaner. Otherwise, the adhesive will not adhere. Then, reinstall the glass as described below.

(2) When the reused roof glass is reinstalled 72 hours, or more after removal, the adhesive surfaces of the glass and roof panel MUST be cleaned with Urethane E Sealant Cleaner, and BETASEAL 43533 body primer applied to the adhesive surfaces of the roof and glass. Otherwise, the adhesive will not adhere. Then, reinstall the glass as described below.

1. Install the glass to the roof (refer to **GENERAL ROOF GLASS INSTALLATION** 42-230, in this manual).



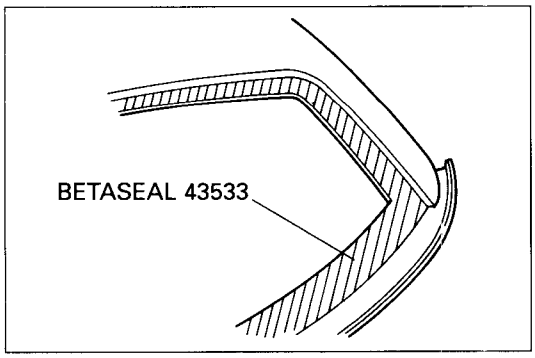
3. PREPARATION - INSTALLATION OF A NEW ROOF GLASS TO A NEW ROOF

(1) Place the new roof glass on a clean, protected work surface. Using a brush or other suitable applicator, prime the roof glass with BETASEAL 43518 glass primer (clear) as shown in the illustration. Immediately after the primer application, wipe the primer from the glass with a clean, lint free cloth. Be sure to leave no streaks or visible residue to assure the thinnest possible coat. Allow to dry for 10 minutes.

NOTE
If the BETASEAL 43520A glass primer (black) is not applied within 30 minutes, the BETASEAL 43518 glass primer (clear) MUST be reapplied and wiped.

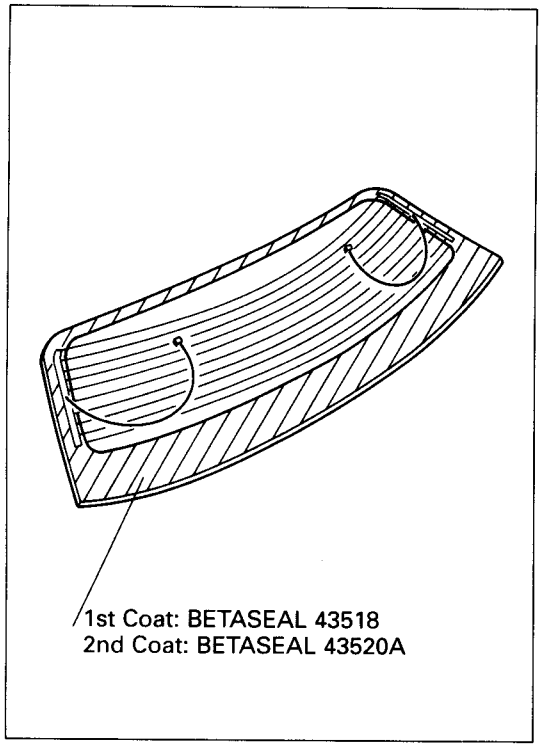
(2) Using a brush or suitable applicator, apply BETASEAL 43520A glass primer (black) over the glass primer. Apply the primer 3-5 mils thick to achieve the necessary 1 mil dry thickness. Allow the primer to air-dry to a tack-free condition

NOTE
Provided the primer surface is kept clean, adhesive can be applied within 96 hours.



(3) Using a brush or suitable applicator, apply BETASEAL 43533 body primer to the roof glass opening, as shown in the illustration. Apply the primer 3-5 mils thick to achieve the necessary 1 mil dry thickness. Allow the primer to air-dry for at least 15 minutes prior to applying adhesive.

(4) Install the glass to the roof (refer to **GENERAL ROOF GLASS INSTALLATION** 42-230, in this manual).



3. PREPARATION - INSTALLATION OF A NEW ROOF GLASS TO A REUSED ROOF

(1) Place the new roof glass on a clean, protected work surface. Using a brush or other suitable applicator, prime the roof glass with BETASEAL 43518 glass primer (clear) as shown in the illustration. Immediately after the primer application, wipe the primer from the glass with a clean, lint free cloth. Be sure to leave no streaks or visible residue to assure the thinnest possible coat. Allow to dry for 10 minutes.

NOTE
If the BETASEAL 43520A glass primer (black) is not applied within 30 minutes, the BETASEAL 43518 glass primer (clear) MUST be reapplied and wiped.

(2) Using a brush or suitable applicator, apply BETASEAL 43520A glass primer (black) over the glass primer. Apply the primer 3-5 mils thick to achieve the necessary 1 mil dry thickness. Allow the primer to air-dry to a tack-free condition.

NOTE
Provided the primer surface is kept clean, adhesive can be applied with 96 hours.

(3) Prepare the reused roof for the roof glass.

NOTE
1. The roof does not require preparation, provided the adhesive on the roof is not dirty or contaminated, and the glass will be reinstalled within 72 hours from when it was removed. If the adhesive is dirty or contaminated, it MUST be cleaned with Urethane E Sealant Cleaner. Otherwise, the adhesive will not adhere. Then, install the glass as described below.
(2) When the new roof glass is installed 72 hours, or more after removal from the reused roof, the adhesive surfaces of the roof MUST be cleaned with Urethane E Sealant Cleaner, and BETASEAL 43533 body primer applied to the adhesive surfaces of the roof. Otherwise, the adhesive will not adhere. Then, install the glass as described below.

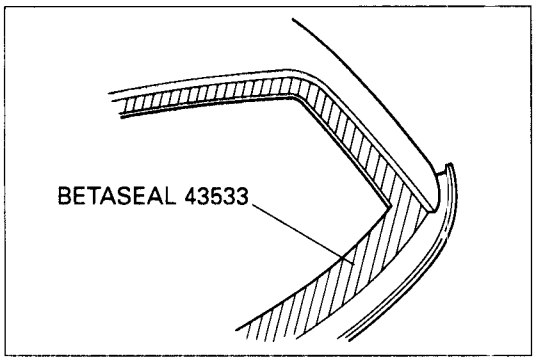
(4) Install the glass to the roof (refer to **GENERAL ROOF GLASS INSTALLATION** 42-230, in this manual).

3. PREPARATION - INSTALLATION OF A REUSED ROOF GLASS TO A NEW ROOF

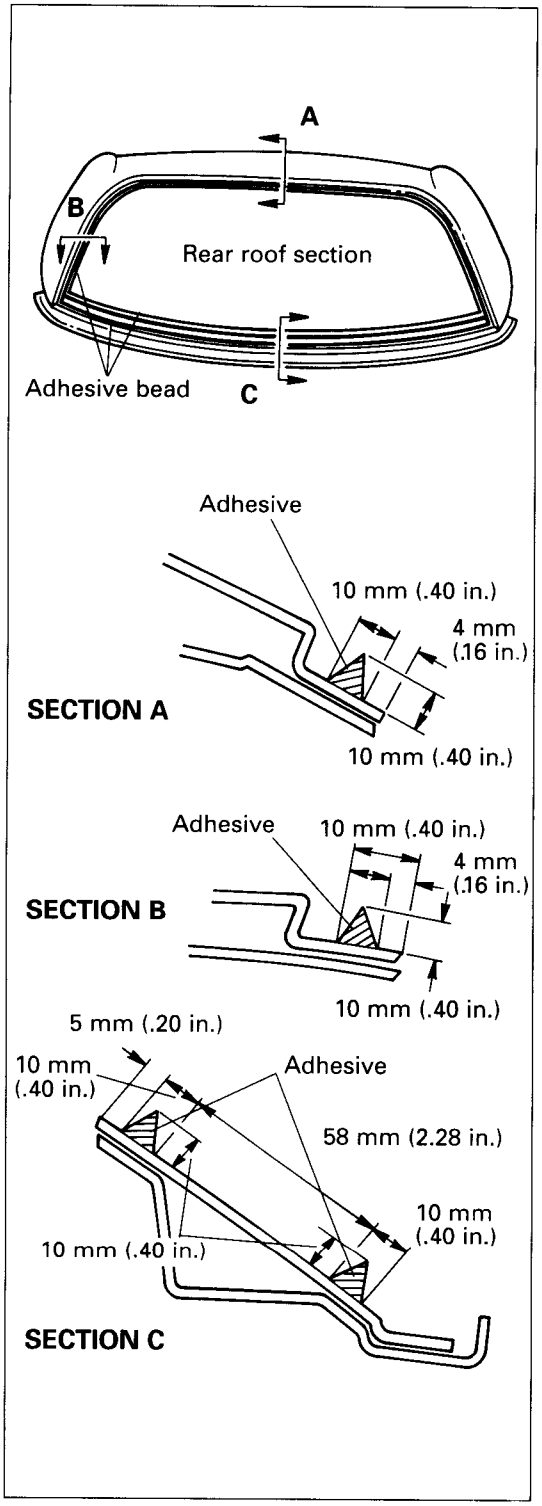
NOTE

(1) Roof glass that has been removed from another roof, can be reinstalled to a new roof using new BETASEAL 57502 adhesive, without using primers on the glass only, provided the adhesive on the glass is not dirty or contaminated, and will be reinstalled within 72 hours from when it was originally removed. If the adhesive is dirty or contaminated, it MUST be cleaned with Urethane E Sealant Cleaner. Otherwise, the adhesive will not adhere. Then, reinstall the glass as described below.

(2) When the reused roof glass is reinstalled 72 hours, or more after it was originally removed, the adhesive surfaces of the glass MUST be cleaned with Urethane E Sealant Cleaner, and BETASEAL 43533 body primer applied to the adhesive surfaces of the roof glass. Otherwise, the adhesive will not adhere. Then, reinstall the glass as described below.



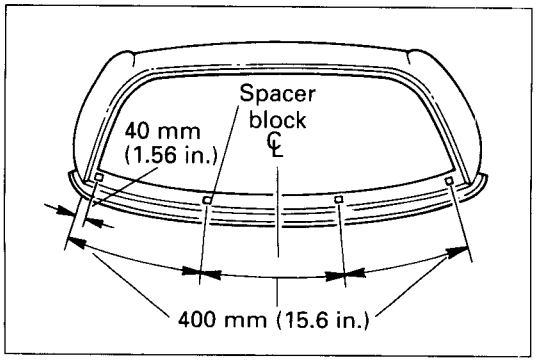
1. Using a brush or suitable applicator, apply BETASEAL 43533 body primer to the roof glass opening, as shown in the illustration. Apply the primer 3-5 mils thick to achieve the necessary 1 mil dry thickness. Allow the primer to air-dry for at least 15 minutes prior to applying adhesive. Then, install the glass as described below.
2. Install the glass to the roof (refer to **GENERAL ROOF GLASS INSTALLATION** 42-230, in this manual).



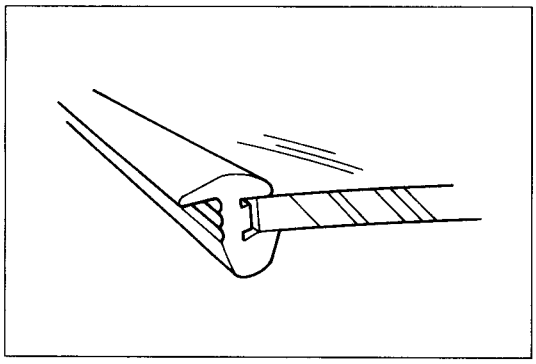
GENERAL ROOF GLASS INSTALLATION

NOTE
Before installing the roof glass, be sure the roof glass and/or the roof have been correctly prepared. Refer to the appropriate heading under **SERVICE POINTS OF INSTALLATION - PREPARATION,** page 42-226, in this manual.

1. Apply a uniform, continuous bead of BETASEAL 57502 adhesive to the roof as shown in the illustration. Start applying the adhesive at lower corner of the roof's valance, go up one side, across the top, down the side, and across the bottom. Connect the sides with a second bead along the top of the valance as shown in the illustration.

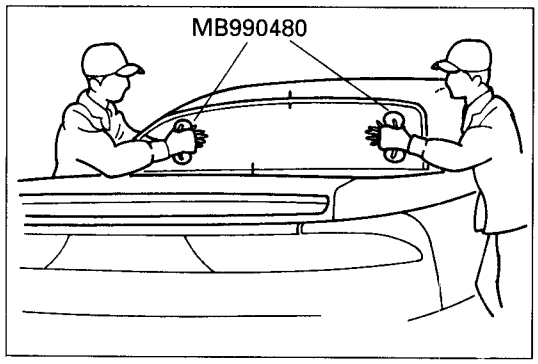


2. Place the four (4) spacer blocks along the bottom line of adhesive as shown in the illustration.



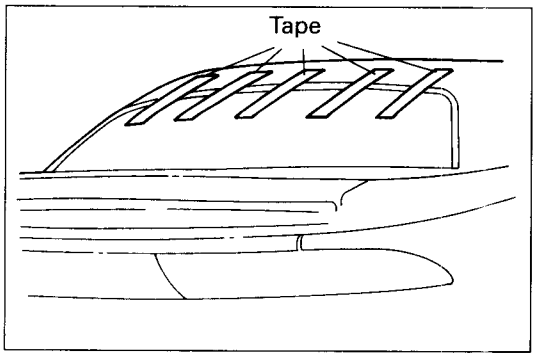
3. Wrap the left, top, and right side of the glass with the new moulding.

   NOTE
   (1) The moulding is easier to work with when it is warmed.
   (2) Do not stretch the moulding around the corners.
   (3) Do not trim the ends of the moulding at this time.

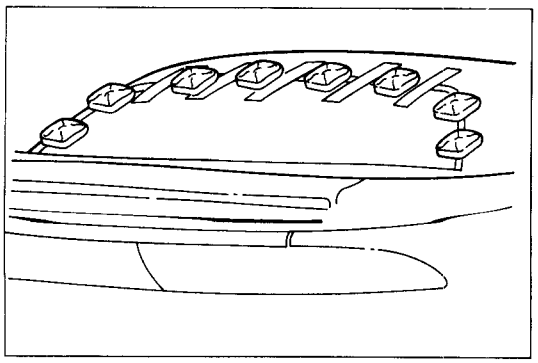


4. Using the special tool (MB990480, or equivalent), install the glass to the roof.
   (1) Align the roof glass to the roof opening at the sides and top. Hinge the glass from the top while keeping constant pressure at the top of the glass, and press the glass into place.
   (2) Check that the glass is flush to the sides and top of the roof, and moulding is not curled outward or deformed.
5. Clean any excess adhesive off the glass, moulding, and roof with Urethane E Sealant Cleaner, and wipe dry.
6. Prepare five 2" wide x 12" long pieces of very strong masking tape, having low-stretch characteristics.

   Caution
   Be sure the masking tape will not react with or harm the roof finish due to sunlight or heat. And it should be removed easily without harming the roof finish. The tape will be left on for 24 hours while the adhesive hardens.



7. Affix the lower half of one piece of tape to the top center of the glass, pull it taut, and secure it to the roof. Affix the remaining pieces equally spaced to the left and right of center the same way.
8. Trim the ends of the moulding 6.5 mm (.25 in.) from the bottom of the glass.
9. Reinstall the hardtop weatherstrip.
10. Close the hard tonneau.



11. Using weighted bags (45.36 Kg [100 lbs.] maximum total), lay them on the moulding to hold the glass and moulding in place, as shown in the illustration. Be sure the weight of the bags do not cause the glass to slide down, or press the glass in. And be sure the moulding is laying flat along the glass and the roof.

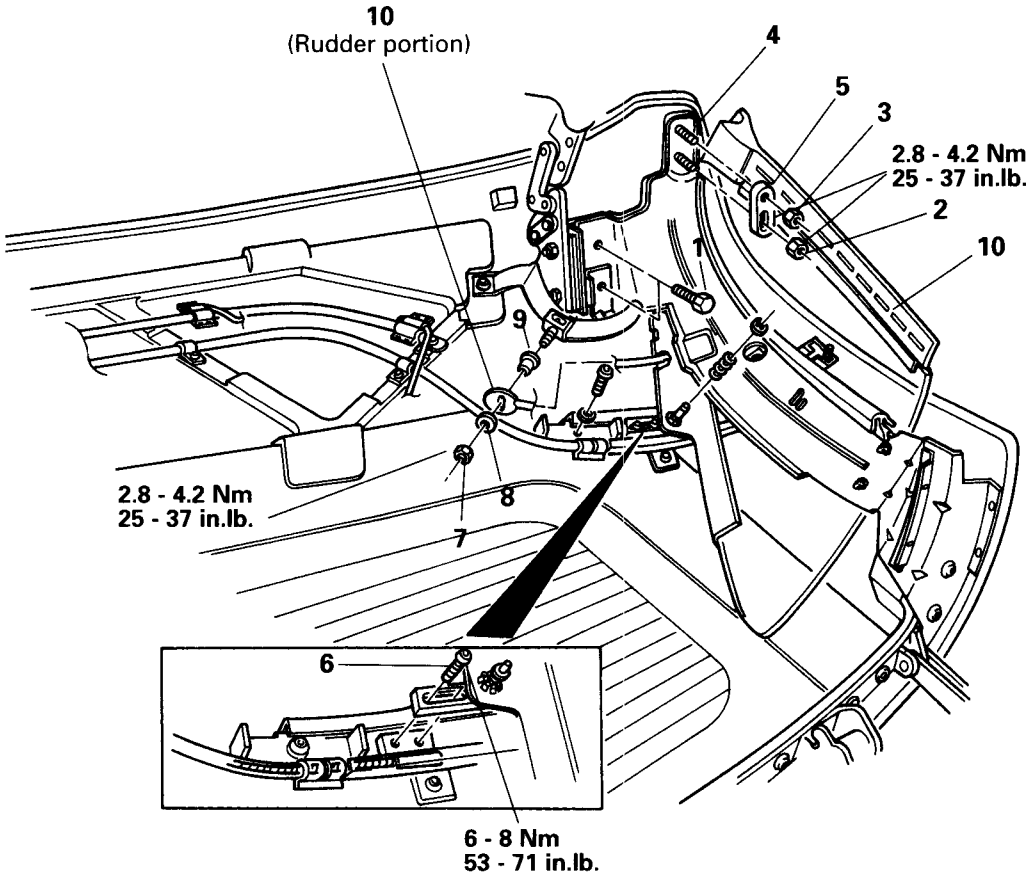
12. After installing the roof glass, allow the vehicle to stand at room temperature for 24 hours until the adhesive hardens. DO NOT open the hardtop until the adhesive hardens.

    Caution
    (1) If the vehicle is to be moved, do so gently.
    (2) The adhesive relies on moisture in the air to cure.
    (3) Inducing curing by wetting the adhesive with water is not recommended, as the moulding creates seal between the glass and roof.
    (4) DO NOT use a heat source to cure the adhesive

13. Trim the moulding flush to the bottom edge of the glass.

QUARTER WINDOW

REMOVAL AND INSTALLATION



<Quarter window>

Pre-removal Operation
- Removal of Rear and Center Headlining (Refer to GROUP 52, in this Manual.)

Post-installation Operation
- Adjustment of Quarter Window
- Installation of Rear and Center Headlining (Refer to GROUP 52, in this Manual.)

CAUTION:
Adjustment or replacement of this component requires that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

Quarter window removal steps

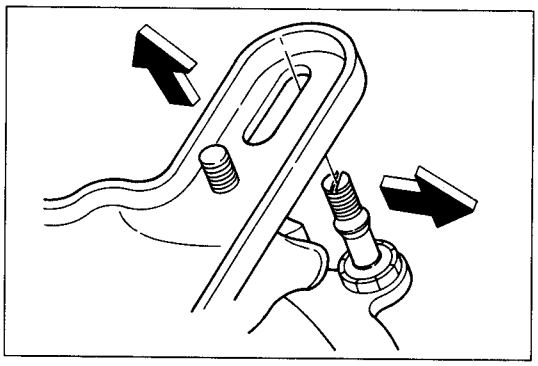
1. Bolt
2. Nut
3. Nut
4. Pivot stud
5. Pivot adjustment bracket
6. Bolt
7. Nut
8. Washer
9. Bushing
10. Quarter window

TSB Revision

SERVICE POINTS OF REMOVAL

4. REMOVAL OF PIVOT STUD

Using a screwdriver, screw in the stud into the guide plate.



10. REMOVAL OF QUARTER WINDOW

Pull the guide plate away from the roof to remove the quarter window.

SERVICE POINTS OF INSTALLATION

10. INSTALLATION OF QUARTER WINDOW

Pull the guide plate away from the roof to install the quarter window.

4. INSTALLATION OF PIVOT STUD

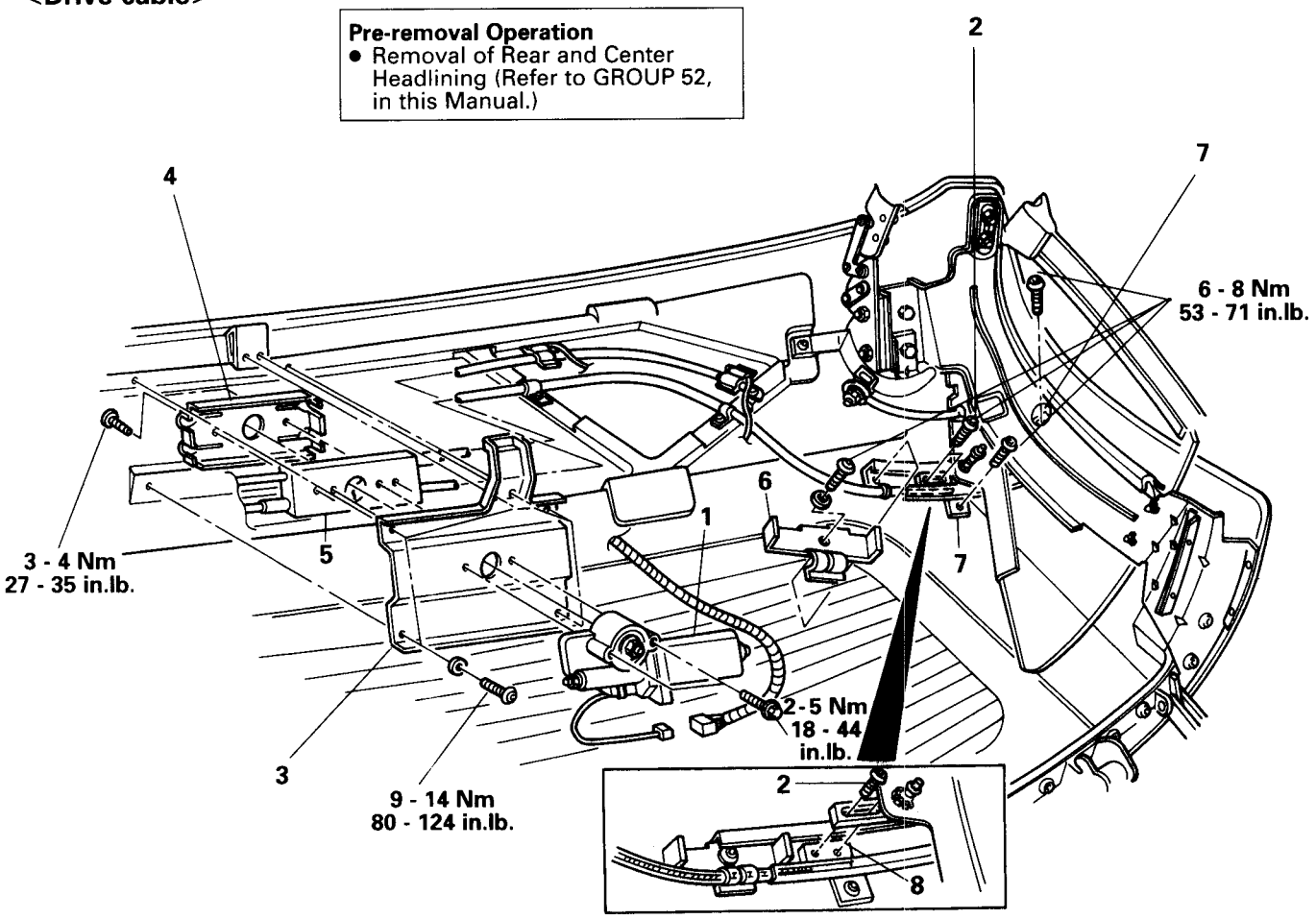
(1) Using a screwdriver, screw in the stud into the guide plate.
(2) Temporarily install the pivot stud's jam-nut

QUARTER WINDOW

REMOVAL AND INSTALLATION

<Drive cable>

Pre-removal Operation
- Removal of Rear and Center Headlining (Refer to GROUP 52, in this Manual.)



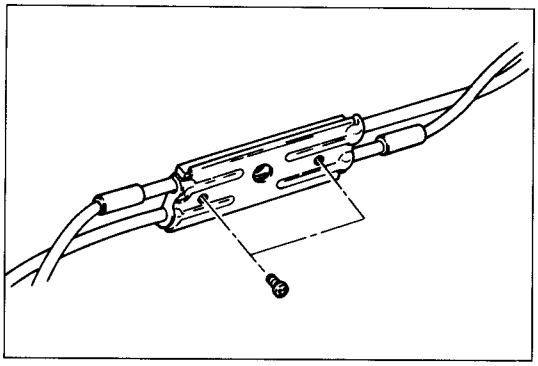
CAUTION:
Adjustment or replacement of this component requires that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section.)

Quarter window drive cable removal steps

- ◆◆ 1. Drive motor
- 2. Bolt
- 3. Motor mounting bracket
- ◆◆ ◆◆ 4. Cable guide cover
- 5. Cable guide retainer
- 6. Up stop
- 7. Drive track
- 8. Drive cable

Post-installation Operation
- Synchronization of Quarter Window Cables (Refer to SERVICE ADJUSTMENT PROCEDURES, in this section.)
- Adjustment of Quarter Window (Refer to SERVICE ADJUSTMENT PROCEDURES, in this section.)
- Adjustment of Quarter Window Position Sensors (Refer to SERVICE ADJUSTMENT PROCEDURES, in this section.)
- Installation of Rear and Center Headlining (Refer to GROUP 52, in this Manual.)

TSB Revision



SERVICE POINT OF REMOVAL

4. REMOVAL OF CABLE GUIDE COVER

Twist the cable guide retainer assembly about the cable tubes to access the cable guide cover. Then, remove the cable guide cover.

SERVICE POINTS OF INSTALLATION

4. INSTALLATION OF CABLE GUIDE COVER

Install the cable guide cover, then twist the cable guide retainer assembly to its original position.

1. INSTALLATION OF DRIVE MOTOR

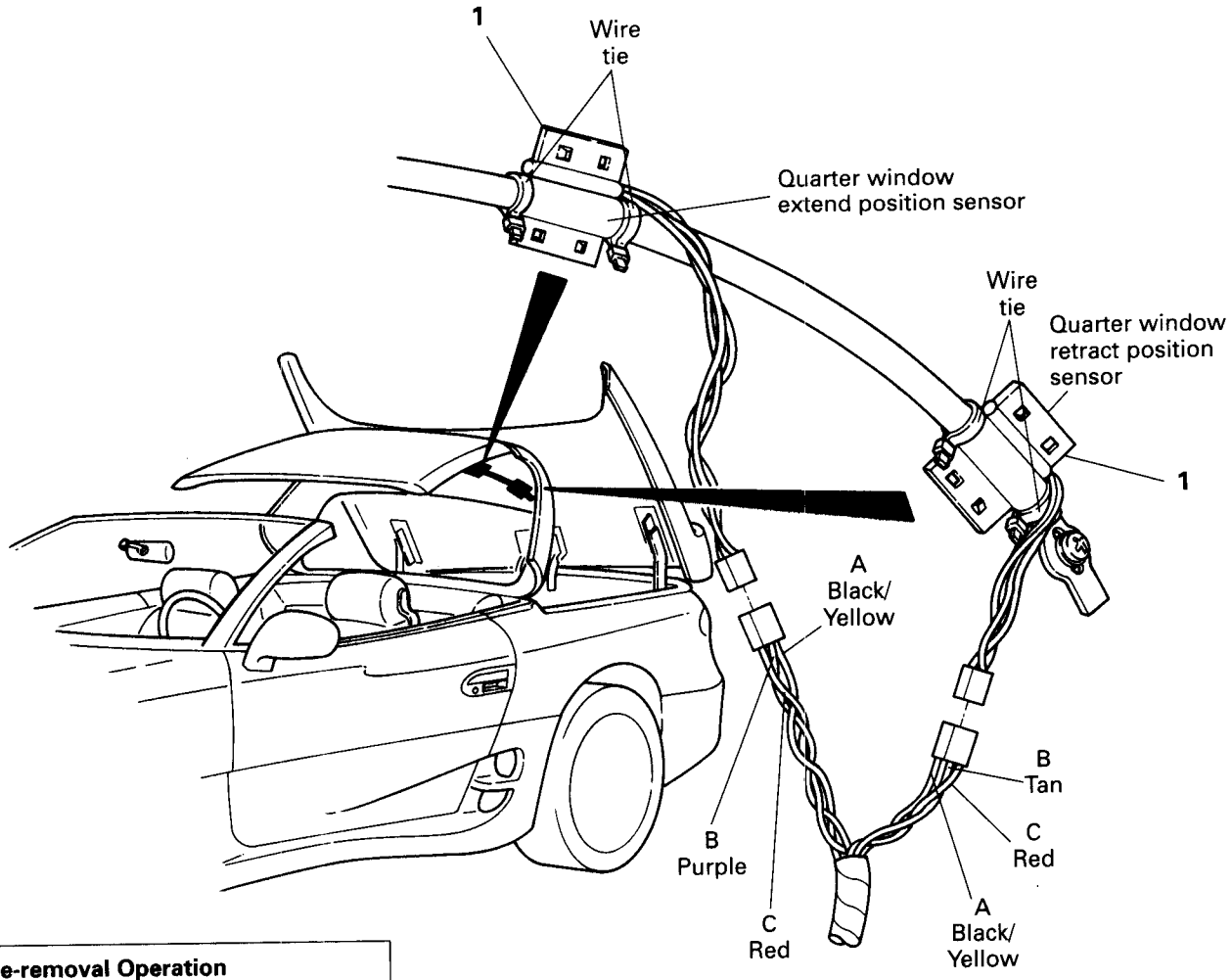
Do not install drive motor at this time. Refer to **SERVICE ADJUSTMENT PROCEDURES - POWER QUARTER WINDOW - SYNCHRONIZATION OF QUARTER WINDOW CABLES,** in this section.

QUARTER WINDOW

REMOVAL AND INSTALLATION

NOTE
Wire ties next to both position sensors must be sufficiently tight to prevent the position sensor from moving longitudinally about the return tube.

<Position sensors>



Pre-removal Operation
- Removal of Rear and Center Headlining (Refer to GROUP 52, in this Manual.)

Post-installation Operation
- Adjustment of Quarter Window Position Sensors (Refer to SERVICE ADJUSTMENT PROCEDURES, in this section.)
- Installation of Rear and Center Headlining (Refer to GROUP 52, in this Manual.)

NOTE
1. Label position sensor connectors if the connector positions are known to be correct.
2. If the connectors are not correctly connected the hardtop will not function properly.

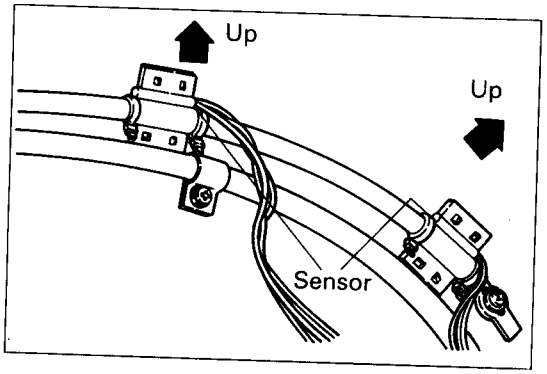
Quarter window position sensor removal step

◆◆ ◆◆ 1. Position sensor

SERVICE POINT OF REMOVAL

1. REMOVAL OF POSITION SENSOR

(1) Disconnect the harness connector.
(2) Separate the sensor holder by unsnapping it and remove the sensor.



SERVICE POINT OF INSTALLATION

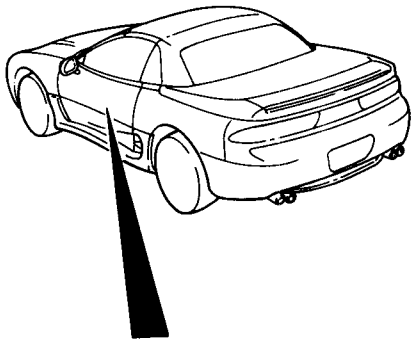
1. INSTALLATION OF POSITION SENSOR

(1) When the position sensor is installed on the return tube it must face up (when the hardtop is halfway open) or forward (when the hardtop is closed).
(2) Adjust the sensor (see **SERVICE ADJUSTMENT PROCEDURES,** in this section).

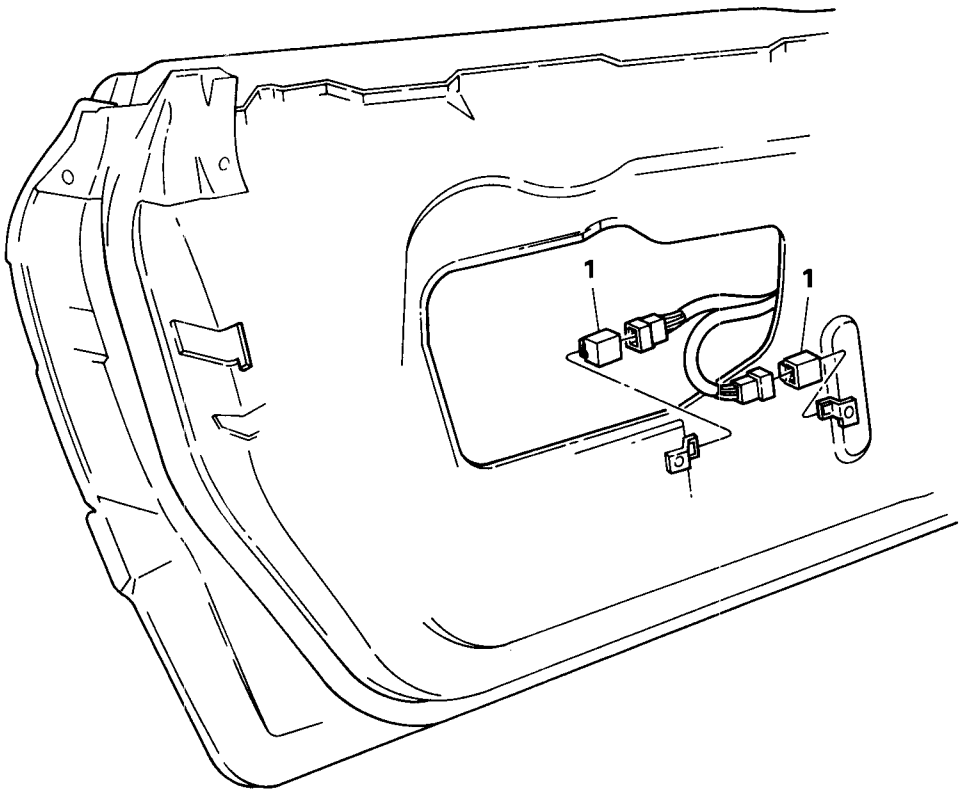
Caution
The hardtop will not operate properly when the position sensors are incorrectly connected to the harness connectors.

DOOR WINDOW RELAYS

REMOVAL AND INSTALLATION



Pre-removal and Post-installation Operation
- Removal and installation of Drivers Side Door Trim Panel (Refer to GROUP 42, in Volume 1.)



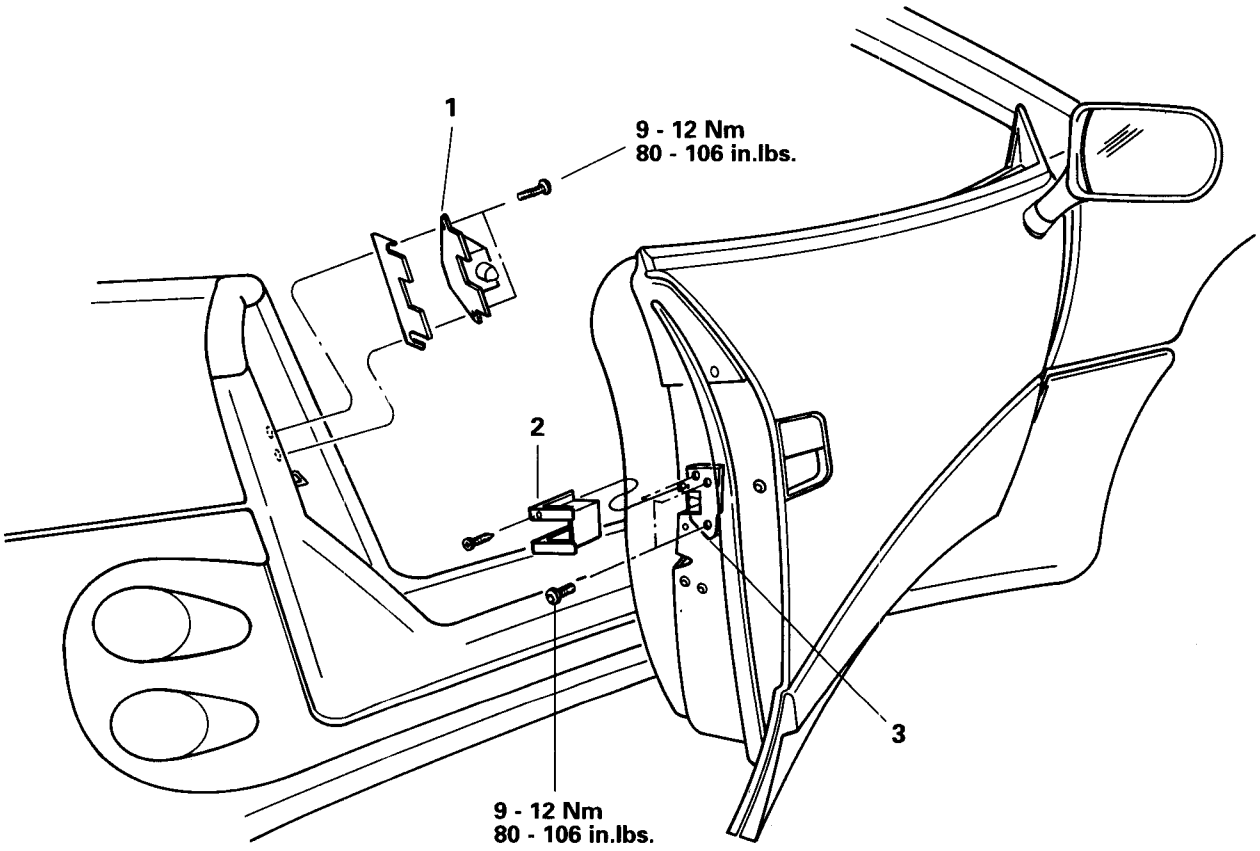
Removal step

1. Relays

DOOR LOCATING PIN AND RECEIVER

REMOVAL AND INSTALLATION

Adjustment
- Door Locating Pin Adjustment (Refer to SERVICE ADJUSTMENT PROCEDURES, in this section.)

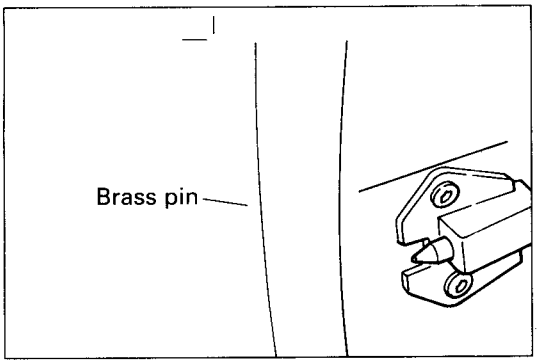


Door locating pin removal steps

◆■ ■◆ 1. Locating pin

Door locating pin receiver removal steps

◆■ ■◆ 2. Cover
3. Locating pin receiver

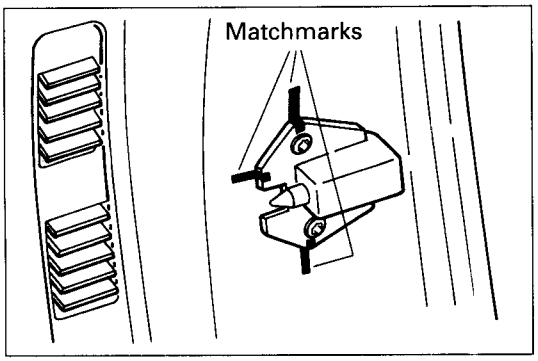


INSPECTION

DOOR LOCATING PIN

Check for wear of the brass pin and looseness of the pin in the carrier body. Excessive wear and/or presence of brass particles indicates poor pin alignment to the receiver.

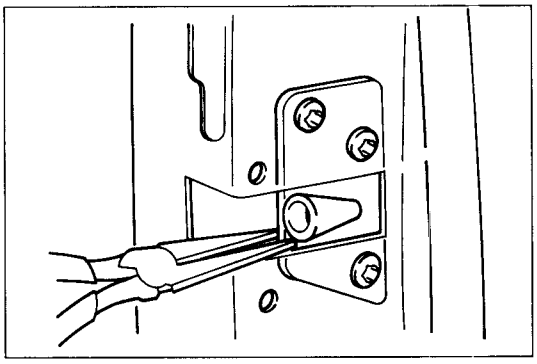
Standard value: Even wear about the locating pin head



SERVICE POINTS OF REMOVAL

2. REMOVAL OF DOOR LOCATING PIN

Matchmark the locating pin to the vehicle body.



3. REMOVAL OF DOOR LOCATING PIN RECEIVER

Use needle-nose pliers to hold the receiver.

SERVICE POINTS OF INSTALLATION

3. INSTALLATION OF DOOR LOCATING PIN RECEIVER

Use needle-nose pliers to hold the receiver.

2. INSTALLATION OF DOOR LOCATING PIN

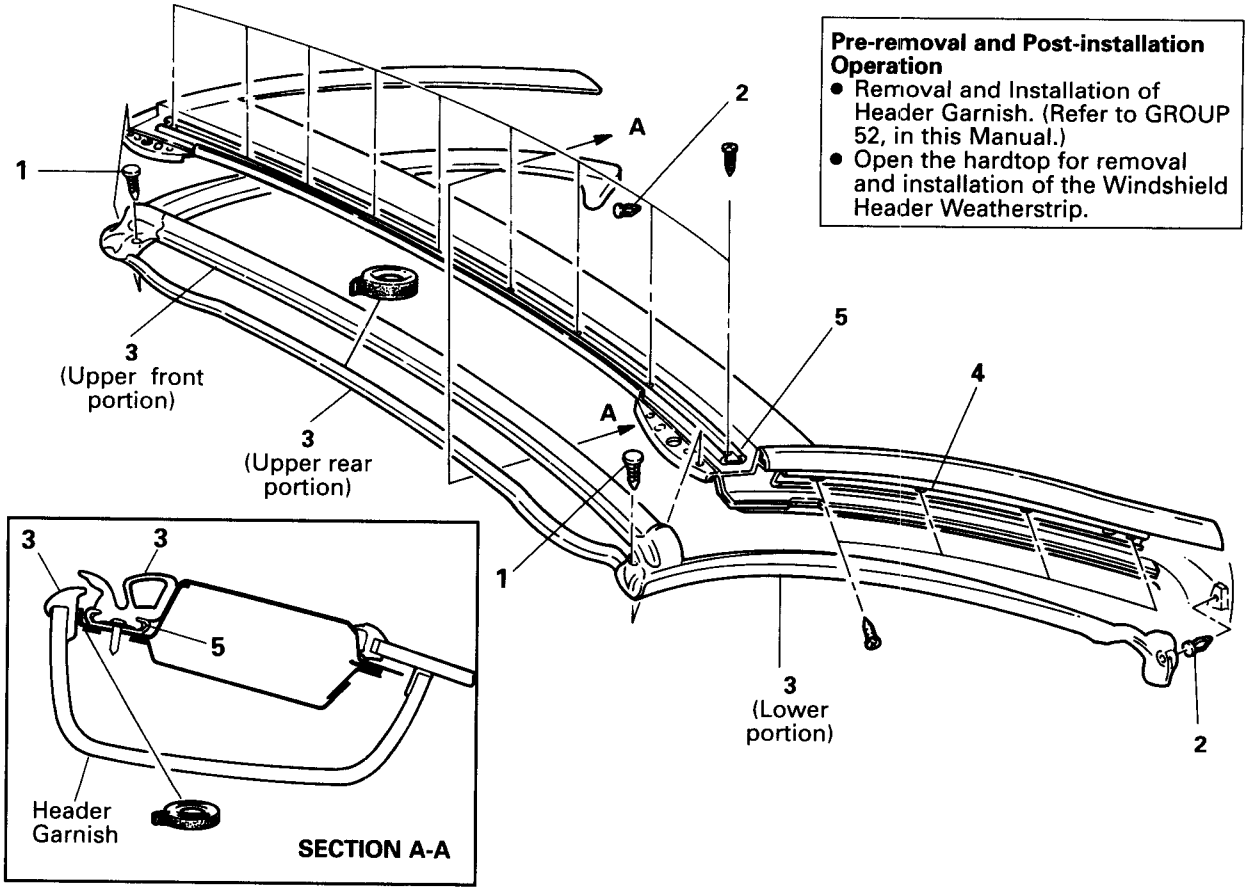
If the locating pin location is known to be correct, align the matchmarks. If is not correct, refer to **SERVICE ADJUSTMENT PROCEDURES - DOOR LOCATING PIN.**

WEATHERSTRIP

REMOVAL AND INSTALLATION

CAUTION:
Adjustment or replacement of this component requires that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

<Windshield header weatherstrip>



Pre-removal and Post-installation Operation
- Removal and Installation of Header Garnish. (Refer to GROUP 52, in this Manual.)
- Open the hardtop for removal and installation of the Windshield Header Weatherstrip.

Windshield header weatherstrip removal steps

1. Retainer
2. Retainer
3. Windshield header weatherstrip (upper front, upper rear, and lower portions)

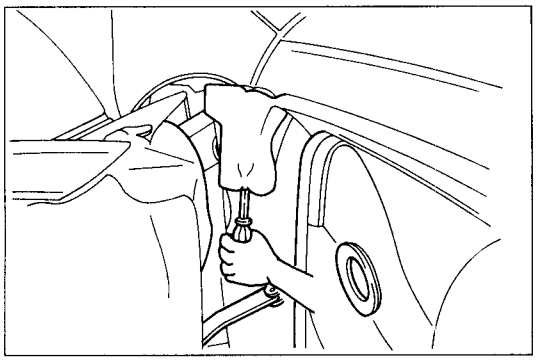
Windshield header weatherstrip holder removal steps

3. Windshield header weatherstrip (upper front portion only)
5. Weatherstrip holder

A-pillar weatherstrip holder removal steps

2. Retainer
3. Windshield header weatherstrip (lower portion only)
4. Weatherstrip holder

TSB Revision



SERVICE POINTS OF REMOVAL

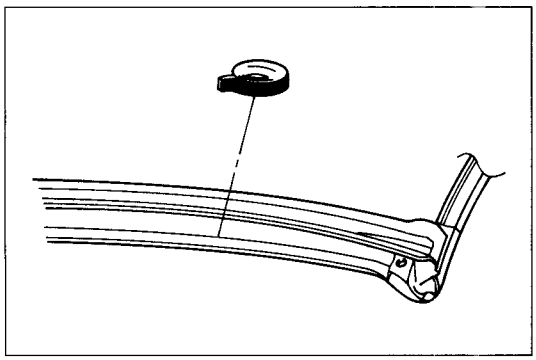
2. REMOVAL OF WEATHERSTRIP RETAINER

Use a small pry tool between the body and weatherstrip to remove the concealed retainer.

3. REMOVAL OF WINDSHIELD HEADER WEATHERSTRIP

(1) Upper rear portion:
If reusing the weatherstrip, carefully separate the weatherstrip and adhesive tape from the backside of the windshield header.

(2) Upper front portion:
Disengage the weatherstrip from the holder.



SERVICE POINT OF INSTALLATION

3. INSTALLATION OF WINDSHIELD HEADER WEATHERSTRIP

(1) • If reusing the header weatherstrip:
1. Remove the adhesive tape and residue from the weatherstrip and the header.
2. Apply new 1/4" wide x 1041.4 mm (41 in.) adhesive tape to the weatherstrip as shown in the illustration.
Do not remove the adhesive tape's paper backing at this time.

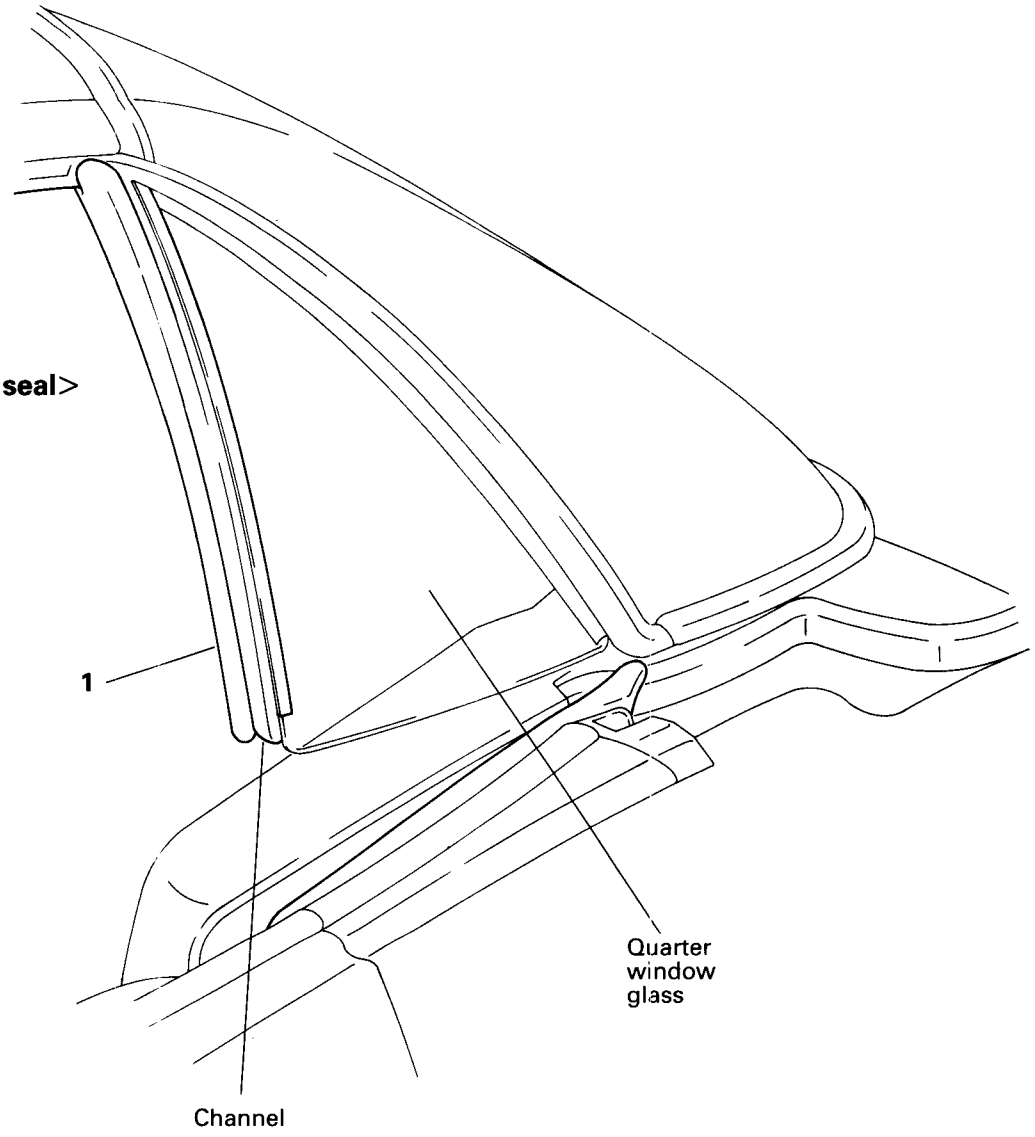
• If installing a new weatherstrip:
Remove the tape residue from the windshield header.

(2) Attach the upper corners of the weatherstrip with the retainer.

(3) Using a plastic trim tool, and starting in the center and working toward the ends, engage the weatherstrip into the holder.

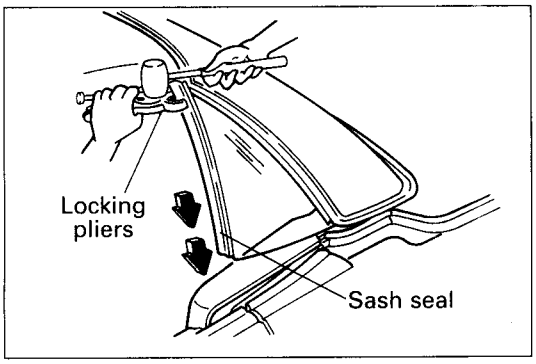
WEATHERSTRIP

REMOVAL AND INSTALLATION



Removal step

◆◆ ◆◆ 1. Quarter window sash seal



SERVICE POINT OF REMOVAL

1. REMOVAL OF QUARTER WINDOW GLASS SASH SEAL

(1) Manually open the hardtop to a suitable position to allow the sash seal to be removed from the quarter window.
(2) Using locking-pliers, or equivalent, grasp the sash seal near the top of the seal.
(3) Tap on the locking-pliers with a rubber mallet to remove the sash seal.

NOTE
If the seal is difficult to remove, apply or spray penetrating fluid or lubricant between the sash seal and the metal channel attached to the window.

SERVICE POINT OF INSTALLATION

1. INSTALLATION OF QUARTER WINDOW GLASS SASH SEAL

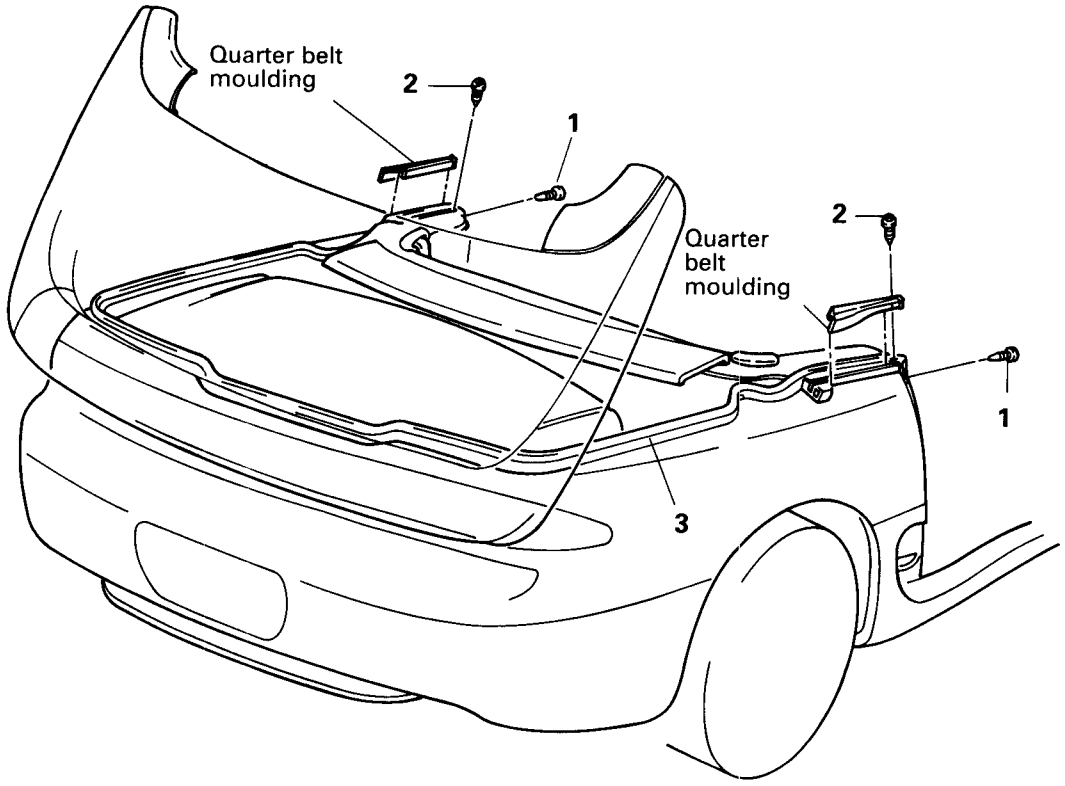
(1) Apply a small amount of lithium-grease to the sash seal before installing it.
(2) Install the seal to the channel only by hand until the groove in the seal stops at the bottom of the channel.

WEATHERSTRIP

REMOVAL AND INSTALLATION

CAUTION:
Adjustment or replacement of this component requires that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

Pre-removal and Post-installation Operation
- Removal and Installation of LH and RH Quarter Belt Mouldings (Refer to GROUP 51, in this Manual.)
- Removal and Installation of LH and RH Quarter Trim Panels (Refer to GROUP 52, in this Manual.)



<Hard tonneau weatherstrip>

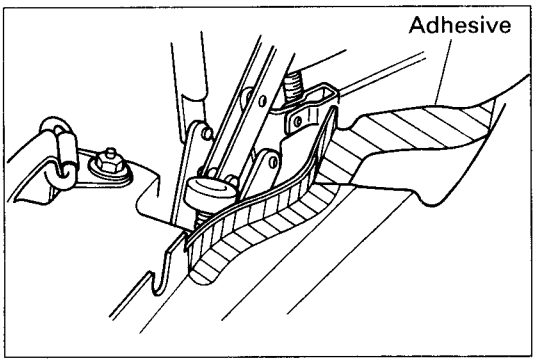
Removal steps

1. Retainer
2. Screw
3. Weatherstrip

3. REMOVAL OF HARD TONNEAU WEATHERSTRIP

(1) Open the hardtop, and leave the hard tonneau open.
(2) Using a suitable release agent (3M p/n 08971, or equivalent), remove the weatherstrip from the body.

Butyl is also used to make a weatherproof joint where the end of the weatherstrip returns back to the weatherstrip at the quarter window area. Note the location and application of the butyl.



SERVICE POINT OF INSTALLATION

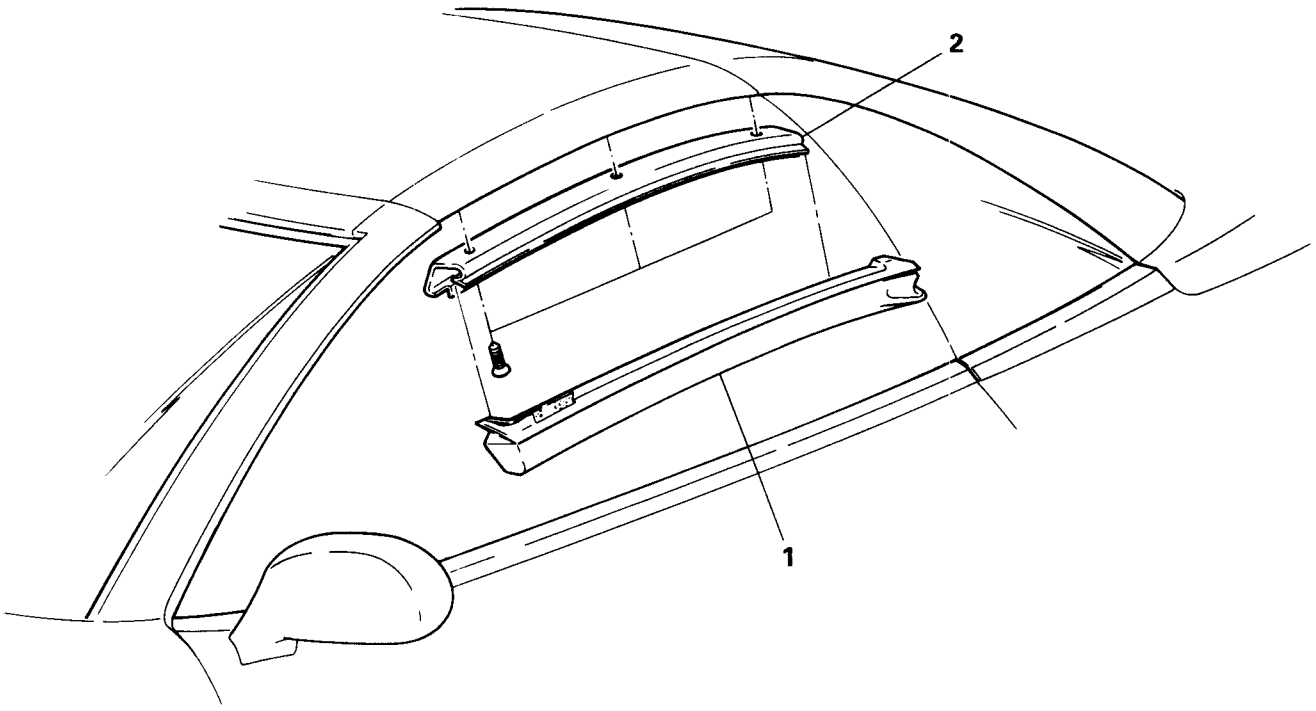
3. INSTALLATION OF HARD TONNEAU WEATHERSTRIP

(1) Apply a continuous bead of adhesive (3M p/n 08008, or equivalent) to the area body as shown in the illustration.
(2) Apply butyl to the free end of the weatherstrip, then join it to the weatherstrip.
(3) Install the ends of the weatherstrip to the body first, then work left to right ending in the center at the rear.

WEATHERSTRIP

REMOVAL AND INSTALLATION

<Front rail weatherstrip>

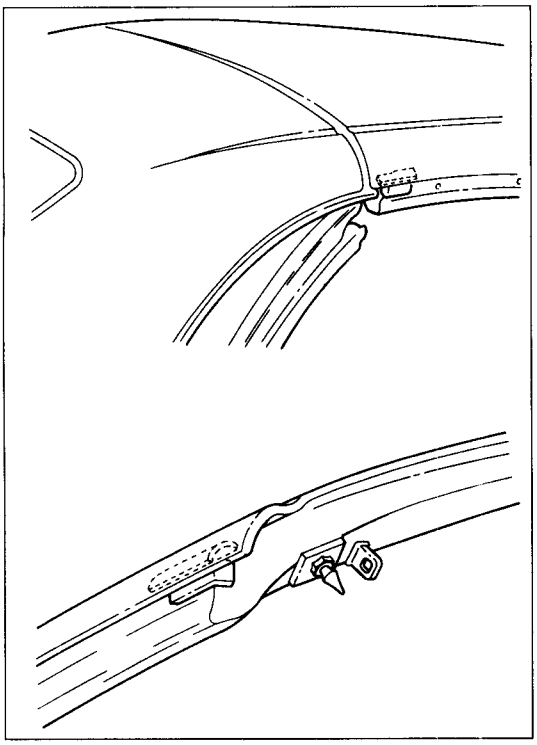


Front rail weatherstrip removal step

◆◆ 1. Weatherstrip

Front rail weatherstrip holder removal steps

◆◆ 1. Weatherstrip
2. Holder



SERVICE POINT OF INSTALLATION

1. INSTALLATION OF FRONT RAIL WEATHERSTRIP

(1) Open the hardtop to a suitable position to install the front rail weatherstrip.

NOTE
Be sure the mating piece of foam tape on the front roof section is in good condition and securely attached. If it is damaged or not attached, wind noise or water leaks may be detected.

(2) Using plastic trim tool, install the weatherstrip into the holder.
(3) Close the hardtop.
(4) Adjust the weatherstrip relationship to the header weatherstrip and hardtop weatherstrip by sliding it in the holder.

Standard value: Equal compression to the header weatherstrip and hardtop weatherstrip.

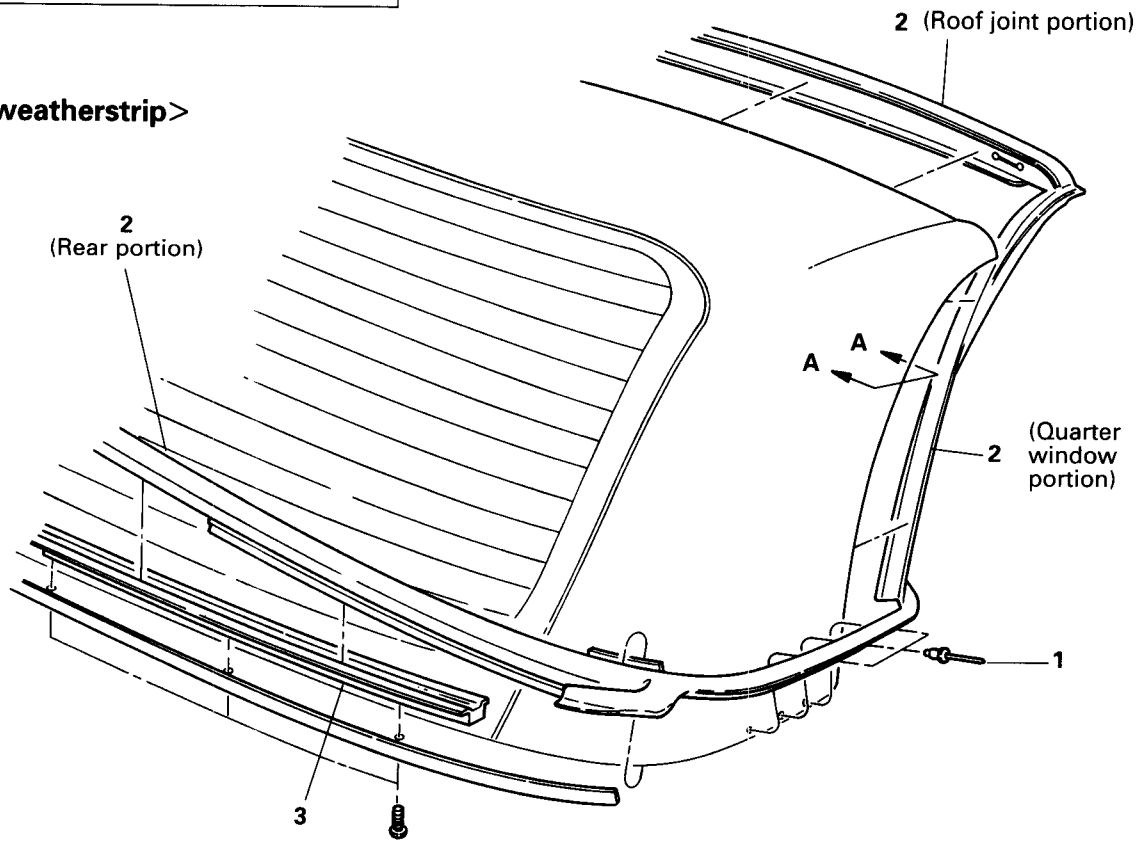
(5) Open the hardtop halfway, close it, and recheck weatherstrip contact in Step 4.

WEATHERSTRIP

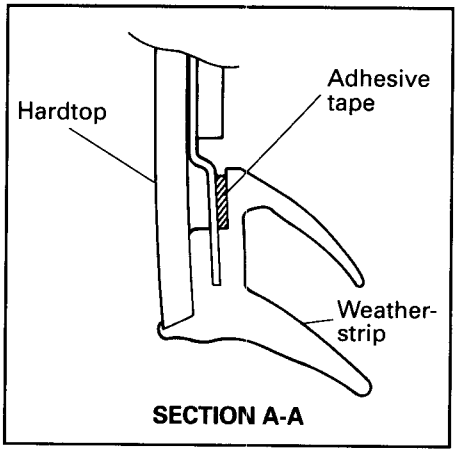
REMOVAL AND INSTALLATION

CAUTION:
Adjustment or replacement of this component requires that the hardtop ECU be run through Auto-configuration (Refer to Diagnostics and Testing, in this section).

<Hardtop weatherstrip>



Pre-removal and Post-installation Operation
- Removal and Installation of LH and RH Quarter Windows (Refer to Quarter Window, in this section.)



Hardtop weatherstrip removal steps
- ◆◆ ◆◆ 1. Rivet
- ◆◆ 2. Weatherstrip

Hardtop weatherstrip holder removal steps
2. Weatherstrip (Rear portion only)
3. Holder

TSB Revision

SERVICE POINT OF REMOVAL

1. REMOVAL OF HARDTOP WEATHERSTRIP RIVET

Using a 1/8" diameter drill bit drill out the four rivets from each side.

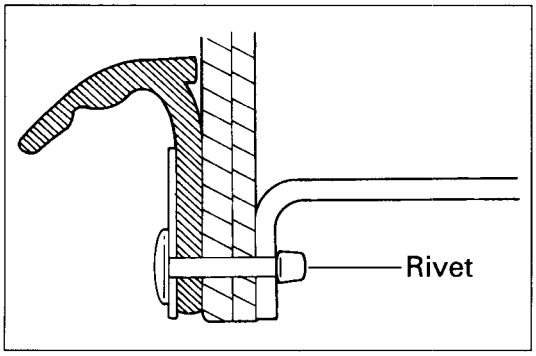
SERVICE POINT OF INSTALLATION

2. INSTALLATION HARDTOP WEATHERSTRIP

(1) Remove all old tape or glue from weatherstrip attaching surfaces of the hardtop.
(2) Starting at the outboard-most corners of the hardtop rear roof section, and working toward the center, engage the front portion of the weatherstrip to the roof.

NOTE
Be sure the weatherstrip is equally exposed on both corners.

(3) Starting at the sides, and working toward the center, engage the rear portion of the weatherstrip to the holder.
(4) Remove the paper backing from along the quarter window portion on one side only.
(5) Attach the weatherstrip to the hardtop. Using hand-pressure, be sure to work out any bubbles in the adhesive tape.
(6) Repeat for the other side.



1. INSTALLATION OF HARDTOP WEATHERSTRIP RIVET

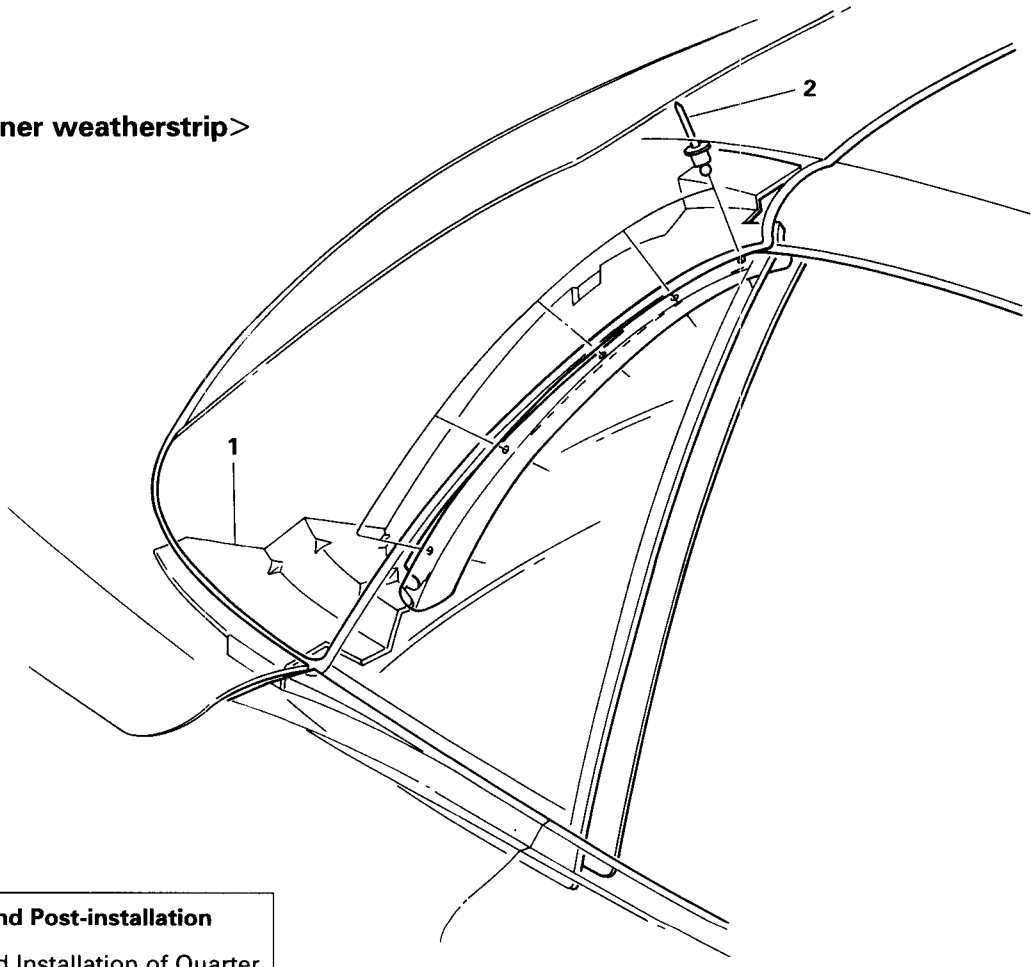
Align the bottom quarter window section to the hardtop, and install the four rivets.

Rivet: All aluminum 1/8" x .625 in. Dome head

WEATHERSTRIP

REMOVAL AND INSTALLATION

<Rear rail inner weatherstrip>



Pre-removal and Post-installation Operation
- Removal and Installation of Quarter Window (Refer to Quarter Window, in this section.)

Rear rail inner weatherstrip removal step

◆■► ►◆ 1. Quarter window guide plate
◆■► ►◆ 2. Rivet