Service Manual Supplement

3000GT SPYDER

1995 Volume 3

FOREWORD

This Service Manual Supplement has been prepared with the latest service information available at the time of publication. It is subdivided into various service groups that are unique to the retractable hardtop. Each section may contain one or more of the following: diagnosis, disassembly, repair, installation procedures, specifications, and tightening references. Service groups that are not specific to the retractable hardtop can be found in Volumes 1 & 2. Use of this manual will aid in properly performing any servicing necessary to maintain or restore the high levels of performance and reliability designed into these outstanding vehicles.

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GROUP INDEX

General	00
Electronic Control Suspension (ECS)	33B
Service Brakes	35
Body	42
Exterior	51
Interior	52
Chassis Electrical	54
Heater, Air Conditioning and Ventilation	55
Alphabetical Index	
Quick Reference Chart Hatchback-To-Convertible Wiring Harness Connector Changes	

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press and hold the "CLOSE" switch until the quarter windows and door windows are closed and the 1 second chime sounds. Then, if you wish, use the door window switches to raise or lower the door windows.

2. Although the door windows can be raised and lowered independently of the quarter windows using the door window switches, they will also operate simultaneously with the quarter windows regardless of what position they are in when the hardtop "OPEN" or CLOSE" switch is pressed.

Caution

(1) DO NOT at any time press the hardtop "OPEN" switch to solely open the windows. Pressing the "OPEN" switch solely to open any of the window glass will, without notice, unlatch the hardtop and hard tonneau, and possibly start opening the hard tonneau and hardtop. DO NOT drive the vehicle with the header latches not fully latched.

(2) Whenever the hardtop "OPEN" switch is accidentally pressed, open the hardtop 101.6 - 152.4 mm (4 - 6 inches) and then close the hardtop.

(3) When opening the hardtop, ALWAYS be sure BOTH quarter windows have retracted. DO NOT open the hardtop if BOTH windows do not fully retract.

(4) The hardtop may not open if the quarter windows do not retract. Therefore, do not attempt to open the hardtop manually until the headlining is removed, and the quarter windows are retracted manually. This can be done using a 5 mm allen wrench. Insert the 5 mm allen wrench into the center of the quarter window motor and turn clockwise to retract both quarter windows.

(5) Do not force the door or quarter windows.

LOW OR DISCHARGED BATTERY

(1) If the vehicle battery voltage is less than 10 volts for more than 2 consecutive seconds, the hardtop ECU will shut down until 10 or more volts is detected.

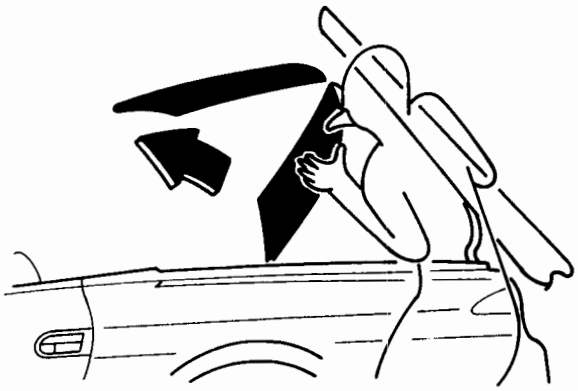
(2) If the vehicle battery is discharged, the battery must be charged or the car must be started and the battery allowed to recharge before attempting to resume hardtop operation.

(3) If the battery cannot be charged, or the car started, the closing of the hardtop, opening and closing of the hard tonneau or header latches can be operated manually. To do this, refer to the appropriate heading under **MANUAL OPERATION** - in this section.

OVER-CHARGED BATTERY

The hardtop ECU will instantly shut down whenever 16 or more volts is detected, and turn on after the voltage has dropped below 16 volts. This is a good indication of a faulty charging system.

NOTE: This procedure requires two people.
For illustration clarity, only one person is shown.



8. Push only on the rear portion of the hardtop as shown above; DO NOT PUSH ON THE REAR WINDOW. Push the hardtop forward until it drops into the windshield header latches.
9. Close header latches. Refer to **MANUAL OPERATION - HEADER LATCHES**, in this section.
10. Close hard tonneau. Refer to **MANUAL OPERATION - HARD TONNEAU**, in this section.

Caution

(1) DO NOT drive the vehicle if the hardtop is not properly latched to the windshield header. Driving with the top incompletely latched is hazardous.

(2) In an emergency, do not force the windows. If the quarter windows do not close, remove the headlining, and retract the quarter windows manually. This can be done using a 5 mm allen wrench. Insert the 5 mm allen wrench into the center of the quarter window motor and turn clockwise to retract both quarter windows.

11. Return the bypass valve to the "POWER" position by rotating the handle counterclockwise 90°.
12. Close the access door.
13. Return the seatback to its fully upright position and lock in place.

OPENING RETRACTABLE HARDTOP

Caution

(1) To prevent damage to hardtop system components (especially the quarter windows), manual operation should only be performed by trained technicians, for the sole purpose of vehicle servicing or repair.

(2) Manual operation of the retractable hardtop requires two individuals.

1. Set the parking brake. Make sure the gear selector lever is in the "P" (PARK) (automatic transaxle), or neutral position (manual transaxle).
2. Start the engine.
3. Open the hard tonneau one of three ways:
   - automatically using the hardtop "OPEN" switch;
   - automatically using the hard tonneau "OPEN" switch;
   - manually, if either system becomes inoperable.

NOTE
When the hardtop "OPEN" switch is pressed sequentially the following may occur: the quarter windows may retract and door windows lower, and the header latches unlatch, and the hard tonneau unlatches and begins to open.

4. Unlatch the hardtop one of two ways:
   - automatically using the hardtop "OPEN" switch;
   - manually if either system becomes inoperable. (refer to **MANUAL OPERATION - HEADER LATCHES**, in this section).

Caution

(1) The quarter windows must be fully retracted in order for the header latches to unlatch. If the quarter windows do not retract, remove the headlining, and manually retract the windows. This can be done using a 5 mm allen wrench. Insert the 5 mm allen wrench into the center of the quarter window motor and turn clockwise to retract both quarter windows.

(2) The header latches must be unlatched before opening the hardtop. If the header latches do not unlatch they can be opened manually (refer to MANUAL OPERATION - HEADER LATCHES, in this section).

(3) Remove any items from the hardtop stowage area.

5. Fold the driver side rear seatback down to expose the carpeting behind the seatbacks. The retractable hardtop pump/motor is on the driver side.

LUBRICATION AND MAINTENANCE

The retractable hardtop system has been designed to provide reliable, maintenance-free service under normal driving conditions. This is accomplished by using specially formulated, self-lubricating, long wearing components.
Most of these components do not require lubrication. The only parts requiring periodic lubrication are the header latches, hard tonneau latches, and hard tonneau lifting mechanism slide tracks. Note that lubrication, where it is not required, may actually deteriorate the materials or attract dirt which could cause rapid wear and/or component breakage.

MAINTENANCE SCHEDULES

Due to the virtually maintenance-free design of the retractable hardtop system maintenance schedules are not required. Typically, wiping off the mechanism component with a clean damp cloth to remove dust and dirt is all that is needed.

SEVERE SERVICE

Vehicles operating under severe service conditions will require more frequent cleaning of system components under one or more of the following conditions:

Operation of the vehicle
(1) Driving in sandy areas
(2) Driving in salty areas
(3) Driving in dusty conditions

HARD TONNEAU AND RETRACTABLE HARDTOP HYDRAULIC SYSTEM FLUID

When it is necessary to re-fill the pump reservoir, hydraulic cylinders, hoses, or the entire hydraulic system, MIL-H-5606 **(AVIATION HYDRAULIC FLUID)**, or equivalent, can be used in the tonneau and hardtop hydraulic systems. Some examples of this aviation hydraulic fluid are Mobil Aero HFA, Aeroshell Fluid 4, or Royco 756. When it is necessary to top-off the reservoir, SAE 10W may be used.

As the name implies, the fluid must be an aviation-type fluid, not an automotive or other type. **DO NOT** use any other fluid or oils other than what is specified. Other types or weights of fluids or oils may slow operation, particularly during cold weather.

Generally, but not in all instances, if the hardtop ECU detects slower-than-normal operation (in this case due to using the wrong hydraulic fluid), it will set a diagnostic trouble code (DTC). The DTC can only be recovered using the ASC INCORPORATED computerized diagnostic system.

In addition to slowing operation, other oils may not be compatible with system components such as the O-ring seals.

Warning
When servicing the hydraulic system, use protective eyewear. Also, wear gloves and clothing that cannot be penetrated by the hydraulic fluid. If fluid contacts the skin, wash the area thoroughly with soap and water or waterless hand soap. Do not use gasoline, thinner, or solvents to clean the fluid from the skin.

LUBRICANTS - GREASES

Semi-solid lubricants bear the NLGI designation and are further classified as grades 0, 1, 2, 3, etc. Whenever "Chassis Lubricant" is specified, Multi-Purpose Grease, NLGI grade 2, should be used.

RETRACTABLE HARDTOP SEQUENCE OF OPERATION - OPENING

Conditions:

- Hardtop and hard tonneau completely closed and latched
- Ignition "ON" with engine running at idle
- Transmission in "PARK" (A/T) or "Neutral" (M/T)
- Parking brake set
- Vehicle battery fully charged
- All vehicle accessories off
- All items or packages removed from hardtop stowage area

NOTE

(1) If the hardtop "OPEN" switch is released before the hardtop is fully open, the hardtop stops in mid-movement. Pressing the switch a second time causes the hardtop to continue the opening cycle. Whenever the hardtop "OPEN" switch is pressed, released, and pressed again, an audible sound may be heard as the hard tonneau latch motors release and reset.

(2) System operational time may vary due to conditions such as vehicle age and condition, ambient temperature (affecting oil viscosity), battery condition, and level of hardtop ECU software.

Time lapse tolerance +20/-10 seconds

1. Press and hold the "HARDTOP OPEN" switch.	
Time Lapse:	Operation
0.0 sec to 4 sec:	• Chime and indicator light comes on and stays on until the end of the hardtop open cycle. • Door windows open and quarter windows retract.
4 sec to 11 sec:	• Hard tonneau and header latches unlatch. • Hard tonneau pump/motor starts and raises the hard tonneau to the full open position and turns off.
10 sec to 18 sec:	• Hardtop pump/motor starts and moves the hardtop to the fully open position and turns off.
18 sec to 25 sec:	• Hard tonneau pump/motor starts and moves the hard tonneau to the fully closed and latched position and turns off. • One second chime sounds indicating the completion of the hardtop open cycle. • Chime and indicator turn off.
2. Release the switch.	

Observe ALL Cautions and Warnings in Removal and Installation, and Adjustment procedures.

Warning!

(1) Depending on system malfunction and/or diagnostic procedure, inadvertent operation of the hardtop and/or hard tonneau may occur. For example: if one circuit to hard tonneau pump/motor is shorted to ground or voltage and you connect the other circuit to ground or voltage, hard tonneau may close.

ALWAYS stay clear of hardtop and hard tonneau moving components when diagnosing and/or operating system.

Caution

(1) Make sure both retractable quarter windows are retracted before opening hardtop. DO NOT open the hardtop if BOTH retractable quarter windows do not fully retract.

(2) When opening the retractable hardtop, always make sure there are no items or packages in the hardtop stowage area. Even a small article could scratch the hardtop's finish or damage the hardtop, glass windows or mechanisms. Personal injury could result.

(3) The retractable hardtop stowage area has an object-in-trunk sensor that will restrict operation of the hardtop system if certain articles are within the hardtop stowage area. Object shape, size, material or placement may affect detection. ALWAYS check the hardtop stowage area for items when opening the hardtop.

(4) Once the retractable hardtop is opened and stowed do not place any cargo in or around it.

(5) Make sure the hardtop and hard tonneau are closed and latched; driving with hardtop or hard tonneau partially open is hazardous.

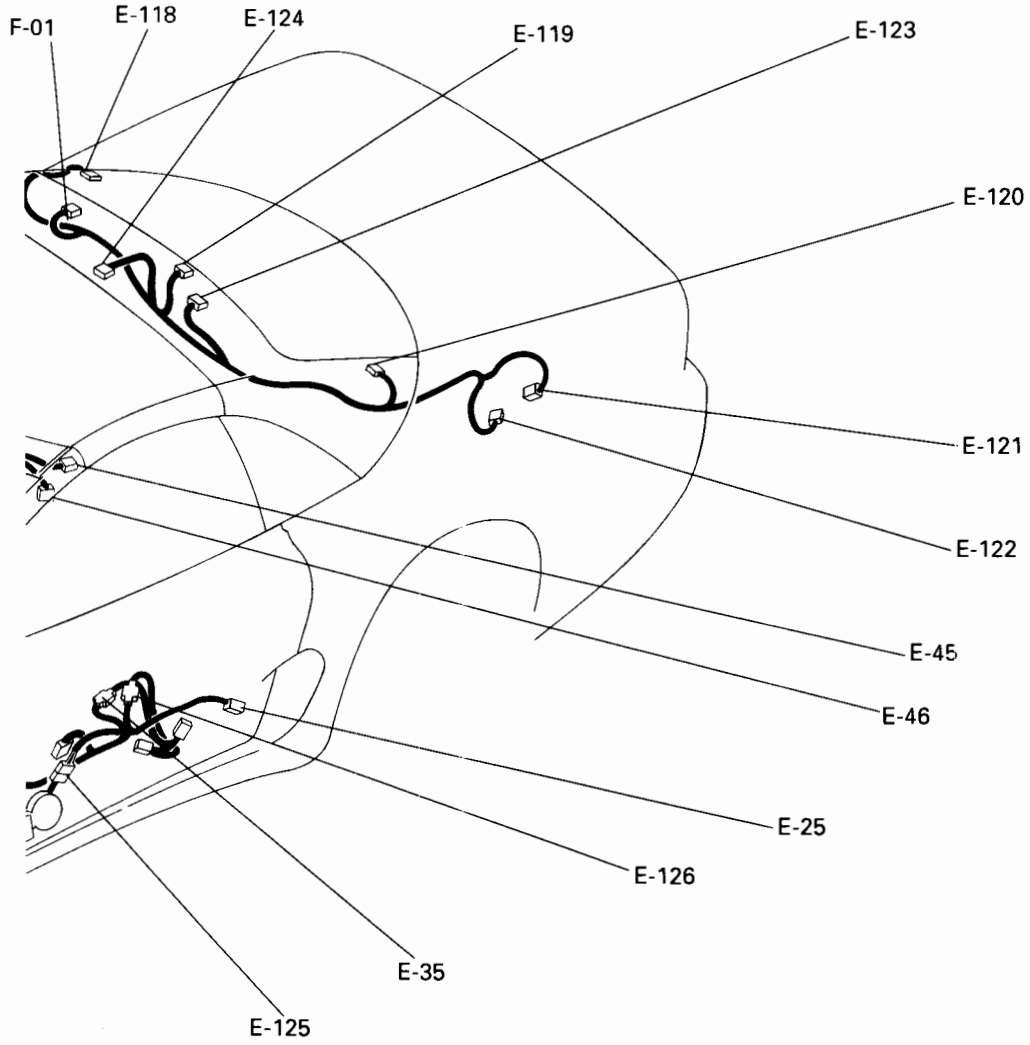
(6) Never operate the retractable hardtop or the hard tonneau while the vehicle is in motion.

(7) To avoid damage, do not sit or place excessive weight on the hard tonneau or the trim panels above the rear seat backs.

(8) When opening and closing the hardtop or hard tonneau keep hands and any part of the body away from moving parts, such as the flipper doors (located at the front ends of the hard tonneau) and along where the hard tonneau seals to the vehicle body.

(9) When MANUALLY operating hardtop and/or hard tonneau the weight and/or the position of the hardtop and/or hard tonneau may cause it to continue movement.

(10) Depending on the nature of the concern when operating hardtop and/or hard tonneau, the weight and/or position of the hardtop and/or hard tonneau may cause it to continue movement. Turning bypass valve to POWER position MAY NOT stop movement of hardtop and/or hard tonneau, for example; if hydraulic system leaks, or if hydraulic cylinders are damaged.



E-42 MMC (refer to Volume 2)*
E-43 MMC (refer to Volume 2)*
E-44 MMC (refer to Volume 2)*
E-45 Body to Header harness (LH)(6 way)
E-46 Body to Header harness (LH)(9 way)
E-47 Chime Module (retractable hardtop)
E-110** Not used
E-111 Header position switch (RH)
E-112 HomeLink™ Universal transmitter
E-113 Header unlatch switch
E-114 Header position switch (LH)
E-115 Header latch switch
E-116 Rearview mirror (self dimming and lighted)
E-117 Header latch motor
E-118 Defogger (neg)
E-119 Retractable quarter window retract switch
E-120 Defogger (pos)
E-121 Roof harness to rear harness (four way connector)
E-122 Roof harness to rear harness (eight way connector)
E-123 Retractable quarter window extend switch
E-124 Retractable quarter window motor
E-125 Drivers window relay to power window motor
E-126 Drivers window relay to power window main switch
E-127 Jumper to mirror (from E-116)(P.I.A. mirror)
F-01 Interior temperature sensor

* Connectors (not shown) are in Mitsubishi wiring harness and are used on retractable hardtop.

** Connectors numbered 110 and higher are new connectors in ASC Inc. wiring harnesses for retractable hardtop.

SYMPTOM CHART

DIAGNOSTIC TROUBLE CODES

NOTE: AFTER DETERMINING THE DTC REFER TO TROUBLESHOOTING HINTS FOLLOWING SYMPTOM CHART. FOR DTC DESCRIPTION REFER TO PAGES 42-47 AND 42-48

CONDITION	POSSIBLE CAUSE	ACTION
• DTC 00	• No fault.	• Check for possible mechanical or hydraulic concerns. • Go to Symptom Chart-No Diagnostic Trouble Codes present.
• DTC 01	• Reserved	• Reserved.
• DTC 02	• Damaged ECU. • Circuitry open/shorted. • Damaged limit switch.	• Go to Pinpoint Test DTC 02-06.
• DTC 03	• Damaged ECU. • Circuitry open/shorted. • Damaged limit switch.	• Go to Pinpoint Test DTC 02-06.
• DTC 04	• Damaged ECU. • Circuitry open/shorted. • Damaged limit switch.	• Go to Pinpoint Test DTC 02-06.
• DTC 05	• Damaged ECU. • Circuitry open/shorted. • Damaged limit switch.	• Go to Pinpoint Test DTC 02-06.
• DTC 06	• Damaged ECU. • Circuitry open/shorted. • Damaged limit switch.	• Go to Pinpoint Test DTC 02-06.
• DTC 07	• Blown fuse. • Circuitry open/shorted. • Damaged ECU.	• Go to Pinpoint Test DTC 07.
• DTC 08	• Damaged battery. • Charging system malfunction. • Damaged ECU.	• Go to Pinpoint Test DTC 08.
• DTC 09	• Damaged hardtop potentiometer. • Circuitry open/shorted. • Damaged ECU.	• Go to Pinpoint Test DTC 09-11.
• DTC 10	• Damaged hardtop potentiometer. • Circuitry open/shorted. • Damaged ECU.	• Go to Pinpoint Test DTC 09-11.
• DTC 11	• Damaged hardtop potentiometer. • Circuitry open/shorted. • Damaged ECU.	• Go to Pinpoint Test DTC 09-11.
• DTC 12	• Damaged hard tonneau potentiometer. • Circuitry open/shorted. • Damaged ECU.	• Go to Pinpoint Test DTC 12-14.
• DTC 13	• Damaged hard tonneau potentiometer. • Circuitry open/shorted. • Damaged ECU.	• Go to Pinpoint Test DTC 12-14.

TROUBLESHOOTING HINTS FOR DTCs (CONTINUED)

DTC 53:

Indicates that the ECU has not seen the passenger window motor stall current before a specified time (timeout). This may occur if there is mechanical failure allowing the window motor to run without a load, or if the motor or circuitry is open.

DTC 54:

This DTC will normally occur with other DTC's, this indicates that the ECU has not seen movement from the hard tonneau when it should have seen movement, this DTC is recorded as the result of other concerns and not the cause. This may occur as a result of various components not allowing movement, latches not releasing, motors not operating, limit switches indicating wrong positions, etc.

DTC 55: This DTC will normally occur with other DTC's, this indicates that the ECU has not seen movement from the hardtop when it should have seen movement, this DTC is recorded as the result of other concerns and not the cause. This may occur as a result of various components not allowing movement, latches not releasing, motors not operating, limit switches indicating wrong positions, etc.

DTC 56:

Indicates that the ECU is no longer seeing a return voltage from the object-in-trunk sensor (OTS) on circuit GC 49. This may occur with damaged OTS, circuits GC 47 or GC 49 open or OTS is disconnected.

DTC 57:

Indicates that the LH tonneau latch has stayed latched for too long after the ECU has received input to release and open the tonneau. This may occur with damaged and/or binding, LH tonneau latch, release cable, and/or latch release motor, or if LH tonneau latch limit switch is sticking.

DTC 58:

Indicates that the RH tonneau latch has stayed latched for too long after the ECU has received input to release and open the tonneau. This may occur with damaged and/or binding, RH tonneau latch, release cable, and/or latch release motor, or if RH tonneau latch limit switch is sticking.

DTC 59:

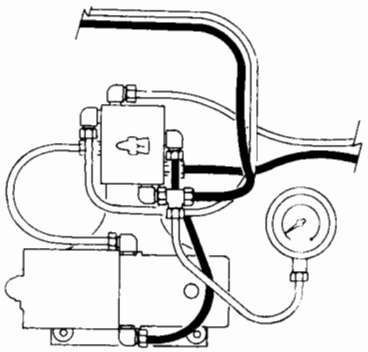
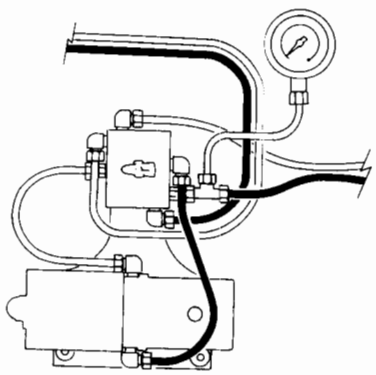
Indicates that the ECU has not received input from either the RH or LH header position switch when the hardtop is in the CLOSED position. This may occur with binding, misaligned and/or damaged hardtop linkage, header latch strikers, header position switches.

DTC 60:

Indicates that the ECU has not received input from either the RH or LH tonneau position switch when the hard tonneau is in the CLOSED position. This may occur with binding, misaligned and/or damaged hard tonneau linkage, tonneau latch strikers, tonneau position switches.

PINPOINT TESTS **REFER TO: PAGES 42-15 THROUGH 42-17 FOR PRECAUTIONS BEFORE SERVICE, NOTES AND DEFINITIONS OF TERMS.**
PAGES 42-33 THROUGH 42-40 FOR SYMPTOM CHARTS.
PAGES 42-41 THROUGH 42-46 FOR TROUBLESHOOTING HINTS.

TEST D (CONTINUED)
HARD TONNEAU HYDRAULIC SYSTEM

TEST STEP		RESULT ▶	ACTION TO TAKE
D-8	CHECK HARD TONNEAU HYDRAULIC SYSTEM FLOW PRESSURE		
• Operate hard tonneau and support in OPEN position. • Turn hard tonneau bypass valve to MANUAL position. • Connect pressure gauge to LH cylinder retract side.  • Turn hard tonneau bypass valve to POWER position, remove support. • Turn ignition to ON position. • Press hard tonneau control switch and operate hard tonneau to CLOSE position. • Press hard tonneau control switch and operate hard tonneau to OPEN position. • Read and record highest pressure indicated. • Restore LH cylinder retract side. • Support hard tonneau in open position. • Turn hard tonneau bypass valve to MANUAL position. • Connect pressure gauge to RH cylinder retract side.  • Turn hard tonneau bypass valve to POWER position, remove support. • Turn ignition to ON position. • Press hard tonneau control switch and operate hard tonneau to CLOSE position. • Press hard tonneau control switch and operate hard tonneau to OPEN position. • Read and record highest pressure indicated. • **Are pressures less than 250 psi ± 20 psi and within 100 psi of each other?**		Yes ▶ No ▶	Hydraulic system Okay. Restore vehicle. Retest system. Pressure over 250 psi ± 20 psi check for hard tonneau binding. Under 250 psi ± 20 psi replace hydraulic cylinder on side with the lowest pressure. Restore vehicle. Retest system.

TSB Revision

PINPOINT TESTS **REFER TO: PAGES 42-15 THROUGH 42-17 FOR PRECAUTIONS BEFORE SERVICE, NOTES AND DEFINITIONS OF TERMS.**
PAGES 42-33 THROUGH 42-40 FOR SYMPTOM CHARTS.
PAGES 42-41 THROUGH 42-46 FOR TROUBLESHOOTING HINTS.

TEST H (CONTINUED)
HARDTOP CONTROL SWITCH INOPERATIVE

TEST STEP		RESULT ▶	ACTION TO TAKE
H-5	CHECK CIRCUIT GC 3 FOR VOLTAGE AT ECU		
• Access connector F-124 at ECU. • Using a Digital Volt/Ohm Meter (DVOM) set to DC volt connect, negative lead to a known good ground. • Back probe and connect the positive lead to pin 28 at ECU connector F-124. • Turn ignition to ON position. • Press hard tonneau control switch to the CLOSE position. • Read voltmeter. • **Is system voltage present?**		Yes ▶ No ▶	Replace ECU. Restore vehicle. Retest system. Repair circuit GC 3. Restore vehicle. Retest system.

PINPOINT TESTS

REFER TO: PAGES 42-15 THROUGH 42-17 FOR PRECAUTIONS BEFORE SERVICE, NOTES AND DEFINITIONS OF TERMS.
PAGES 42-33 THROUGH 42-40 FOR SYMPTOM CHARTS.
PAGES 42-41 THROUGH 42-46 FOR TROUBLESHOOTING HINTS.

DTC 02-06

TEST STEP		RESULT ▶	ACTION TO TAKE
2-1	CHECK CIRCUIT GC 20 FOR SHORT TO GROUND		
• Access and disconnect connector F-124 at ECU. • Using a Digital Volt/Ohm Meter (DVOM) set to ohm scale, connect negative lead to a known good ground. • Connect the positive lead to pin 22 at ECU connector F-124. • Read ohmmeter. • **Is there continuity?**		Yes ▶ No ▶	Go to **2-4.** Go to **2-2.**
2-2	CHECK CIRCUIT GC 22 FOR SHORT TO GROUND		
• Connector F-124 at ECU disconnected. • Using a DVOM set to ohm scale, connect negative lead to known good ground. • Connect positive lead to pin 23 at ECU connector F-124. • Read ohmmeter. • **Is there continuity?**		Yes ▶ No ▶	Go to **2-4.** Go to **2-3.**
2-3	CHECK CIRCUIT GC 20 AND GC 22 FOR SHORT		
• Connector F-124 at ECU disconnected. • Using a DVOM set to ohm scale, connect one lead to pin 22 at ECU connector F-124. • Connect the second lead to pin 23 at ECU connector F-124. • Read ohmmeter. • **Is there 3 ohms or less?**		Yes ▶ No ▶	Go to **2-4.** Replace ECU. Restore vehicle. Retest system.
2-4	CHECK ROOF HARNESS FOR SHORT		
• Connector F-124 at ECU disconnected. • Using a DVOM set on ohm scale, connect as previous test. • Access and disconnect roof harness to rear harness connector E-122 (8 way) at LH rear roof area. • Read ohmmeter. • **Is short still present?**		Yes ▶ No ▶	Go to **2-5.** Repair roof harness as necessary. Restore vehicle. Retest system.
2-5	CHECK HEADER HARNESS FOR SHORT		
• Connector F-124 at ECU disconnected. • Using a DVOM set on ohm scale, connect as previous test. • Access and disconnect header harness to body harness 10 way connector E-46 at LH A-pillar area. • Read ohmmeter. • **Is short still present?**		Yes ▶ No ▶	Go to **2-6.** Repair header harness as necessary. Restore vehicle. Retest system.

PINPOINT TESTS **REFER TO: PAGES 42-15 THROUGH 42-17 FOR PRECAUTIONS BEFORE SERVICE, NOTES AND DEFINITIONS OF TERMS.**
PAGES 42-33 THROUGH 42-40 FOR SYMPTOM CHARTS.
PAGES 42-41 THROUGH 42-46 FOR TROUBLESHOOTING HINTS.

DTC 16

TEST STEP	RESULT ▶	ACTION TO TAKE
16-1 CHECK CIRCUIT GC 18 FOR VOLTAGE AT ECU • Access connector F-124 at ECU. • Using a Digital Volt/Ohm Meter (DVOM) set to DC volt, connect negative lead to known good ground. • Back probe and connect positive lead to pin 15 at ECU connector F-124. • Turn ignition to ON position. • Read voltmeter. • **Is 5.5 or more volts present?**	Yes ▶ No ▶	Go to **16-2.** Replace ECU. Restore vehicle. Retest system.
16-2 CHECK ECU VOLTAGE TO CIRCUIT GC 18 • Disconnect connector F-124 at ECU. • Using a DVOM set to DC volt, connect negative lead to a known good ground. NOTE: BE CAREFUL WHILE CONNECTING DVOM TO ECU. • Connect the positive lead to pin 15 on ECU. • Turn ignition to ON position. • Read voltmeter. • **Is 4.5 to 5.5 volts present?**	Yes ▶ No ▶	Go to **16-3.** Replace ECU. Restore vehicle. Retest system.
16-3 CHECK CIRCUIT GC 18 FOR SHORT TO VOLTAGE • Connector F-124 at ECU disconnected. • Using a DVOM set to DC volt, connect negative lead to known good ground. • Connect the positive lead to pin 15 at ECU connector F-124. • Turn ignition to ON position. • Read voltmeter. • **Is there voltage present?**	Yes ▶ No ▶	Go to **16-4.** Replace ECU. Restore vehicle. Retest system.
16-4 CHECK CIRCUIT GC 18 FOR VOLTAGE WITH HARD TONNEAU POTENTIOMETER DISCONNECTED • Connector F-124 at ECU disconnected. • Disconnect hard tonneau potentiometer connector F-114. • Using a DVOM set to DC volt, connect negative lead to a known good ground. • Connect the positive lead to pin 15 at ECU connector F-124. • Turn ignition to ON position. • Read voltmeter. • **Is there voltage present?**	Yes ▶ No ▶	Go to **16-5.** Repair circuit GC 17. Restore vehicle. Retest system.

PINPOINT TESTS

REFER TO: PAGES 42-15 THROUGH 42-17 FOR PRECAUTIONS BEFORE SERVICE, NOTES AND DEFINITIONS OF TERMS.
PAGES 42-33 THROUGH 42-40 FOR SYMPTOM CHARTS.
PAGES 42-41 THROUGH 42-46 FOR TROUBLESHOOTING HINTS.

DTC 23

TEST STEP	RESULT ▶	ACTION TO TAKE
23-1 CHECK CIRCUIT GC 23 FOR SHORT TO GROUND • Access and disconnect connector F-124 at ECU. • Using Digital Volt/Ohm Meter (DVOM) set to ohm scale, connect negative lead to a known good ground. • Connect the positive lead to pin 24 at ECU connector F-124. • Read ohmmeter. • **Is there continuity?**	Yes ▶ No ▶	Go to **23-2.** Replace ECU. Restore vehicle. Retest system.
23-2 CHECK CIRCUIT GC 20 FOR VOLTAGE • Connect connector F-124 at ECU. • Access and disconnect header unlatch limit switch connector E-113. • Using DVOM set to DC volt, connect negative lead to a known good ground. • Connect positive lead to pin A at header unlatch limit switch connector E-113. • Turn ignition to ON position. • Read voltmeter. • **Is 2.1 volts present?**	Yes ▶ No ▶	Go to **23-3.** Repair circuit GC 20 for open. Repair circuit GC 23 for short to ground. Restore vehicle. Retest system.
23-3 CHECK CIRCUIT GC 22 FOR VOLTAGE • Connector E-113 at header unlatch limit switch disconnected. • Using DVOM set to DC volt, connect negative lead to a known good ground. • Connect the positive lead to pin C at header unlatch limit switch connector E-113. • Turn ignition to ON position. • Read voltmeter. • **Is 0.7 volt present?**	Yes ▶ No ▶	Go to **23-4.** Repair circuit GC 22 for open. Repair circuit GC 23 for short to ground. Restore vehicle. Retest system.
23-4 CHECK HEADER UNLATCH LIMIT SWITCH • Connector E-115 at header unlatch limit switch disconnected. • Using DVOM set on ohm scale, connect one lead to pin A of header unlatch limit switch. • Connect second lead to pin B of header unlatch limit switch. • Check for continuity. • Connect one lead to pin B of header unlatch limit switch. • Connect second lead to pin C of header unlatch limit switch. • Check for continuity. • Switch pressed = continuity between A and B. • Switch open = continuity between B and C. • **Does switch operate properly?**	Yes ▶ No ▶	Repair circuit GC 23 for open and short to ground. Restore vehicle. Retest system. Replace header unlatch limit switch. Repair circuit GC 23 for short to ground. Restore vehicle. Retest system.

PINPOINT TESTS **REFER TO: PAGES 42-15 THROUGH 42-17 FOR PRECAUTIONS BEFORE SERVICE, NOTES AND DEFINITIONS OF TERMS.**
PAGES 42-33 THROUGH 42-40 FOR SYMPTOM CHARTS.
PAGES 42-41 THROUGH 42-46 FOR TROUBLESHOOTING HINTS.

DTC 30 (CONTINUED)

TEST STEP		RESULT ▶	ACTION TO TAKE
30-7	CHECK VOLTAGE AT RETRACTABLE QUARTER WINDOW MOTOR		
• Access and disconnect retractable quarter window motor connector E-124. • Using DVOM set to DC volt, connect negative lead to pin A at retractable quarter window motor connector E-124. • Connect positive lead to pin B at retractable quarter window motor connector E-124. • Turn ignition to ON position. NOTE: Quarter windows and/or quarter window switches must be in a position that will allow the quarter windows to operate to the open position, if the quarter windows are already retracted, the ECU will not try to retract them again. It may be necessary to cycle the hardtop in order to observe the test light. • Press hardtop control switch to OPEN position. • Read voltmeter. • **Is system voltage present?**		Yes ▶ No ▶	Replace retractable quarter window motor. Restore vehicle. Retest system. Go to **30-8.**
30-8	CHECK CIRCUITS GC 36 AND GC 37		
• Connector E-124 at retractable quarter window motor disconnected. • Using DVOM set to DC volt, connect negative lead to a known good ground. • Connect positive lead to pin B at retractable quarter window connector E-124. • Turn ignition to ON position. NOTE: Quarter windows and/or quarter window switches must be in a position that will allow the quarter windows to operate to the open position, if the quarter windows are already retracted, the ECU will not try to retract them again. It may be necessary to cycle the hardtop in order to observe the test light. • Press hardtop control switch to OPEN position. • Read voltmeter. • **Is system voltage present?**		Yes ▶ No ▶	Repair circuit GC 36. Restore vehicle. Retest system. Repair circuit GC 37. Restore vehicle. Retest system.

PINPOINT TESTS

REFER TO: PAGES 42-15 THROUGH 42-17 FOR PRECAUTIONS BEFORE SERVICE, NOTES AND DEFINITIONS OF TERMS.
PAGES 42-33 THROUGH 42-40 FOR SYMPTOM CHARTS.
PAGES 42-41 THROUGH 42-46 FOR TROUBLESHOOTING HINTS.

DTC 40

TEST STEP		RESULT ▶	ACTION TO TAKE
40-1	CHECK CIRCUIT GC 45 AT ECU FOR VOLTAGE		
• Access connector F-124 at ECU. • Using Digital Volt/Ohm Meter (DVOM) set to DC volt, connect negative lead to a known good ground. • Back probe and connect the positive lead to pin 39 at ECU connector F-124. • Turn ignition to ON position. • Turn on all accessories and lights and operate hardtop system. • Read voltmeter. • **Is there 3.0 volts or more?**		Yes ▶ No ▶	Go to **40-2.** Replace ECU. Restore vehicle. Retest system.
40-2	CHECK CIRCUIT GC 20 AT RH HEADER LATCH POSITION SWITCH FOR VOLTAGE		
• Access and disconnect RH header latch position switch connector E-111. • Using DVOM set to DC volt, connect negative lead to a known good ground. • Connect positive lead to pin C at RH header latch position switch connector E-111. • Turn ignition to ON position. • Turn on all accessories and lights and operate hardtop system. • Read voltmeter. • **Is voltage over 2.1 volts?**		Yes ▶ No ▶	Repair circuit GC 20. Restore vehicle. Retest system. Go to **40-3.**
40-3	CHECK CIRCUIT GC 22 AT RH HEADER LATCH POSITION SWITCH FOR VOLTAGE		
• Connector E-111 at RH header latch position switch disconnected. • Using DVOM set to DC volt, connect negative lead to a known good ground. • Connect positive lead to pin A at RH header latch position switch connector E-111. • Turn ignition to ON position. • Turn on all accessories and lights and operate hardtop system. • Read voltmeter. • **Is voltage over 0.7 volts?**		Yes ▶ No ▶	Repair circuit GC 22. Restore vehicle. Retest system. Repair circuit GC 45. Restore vehicle. Retest system.

PINPOINT TESTS

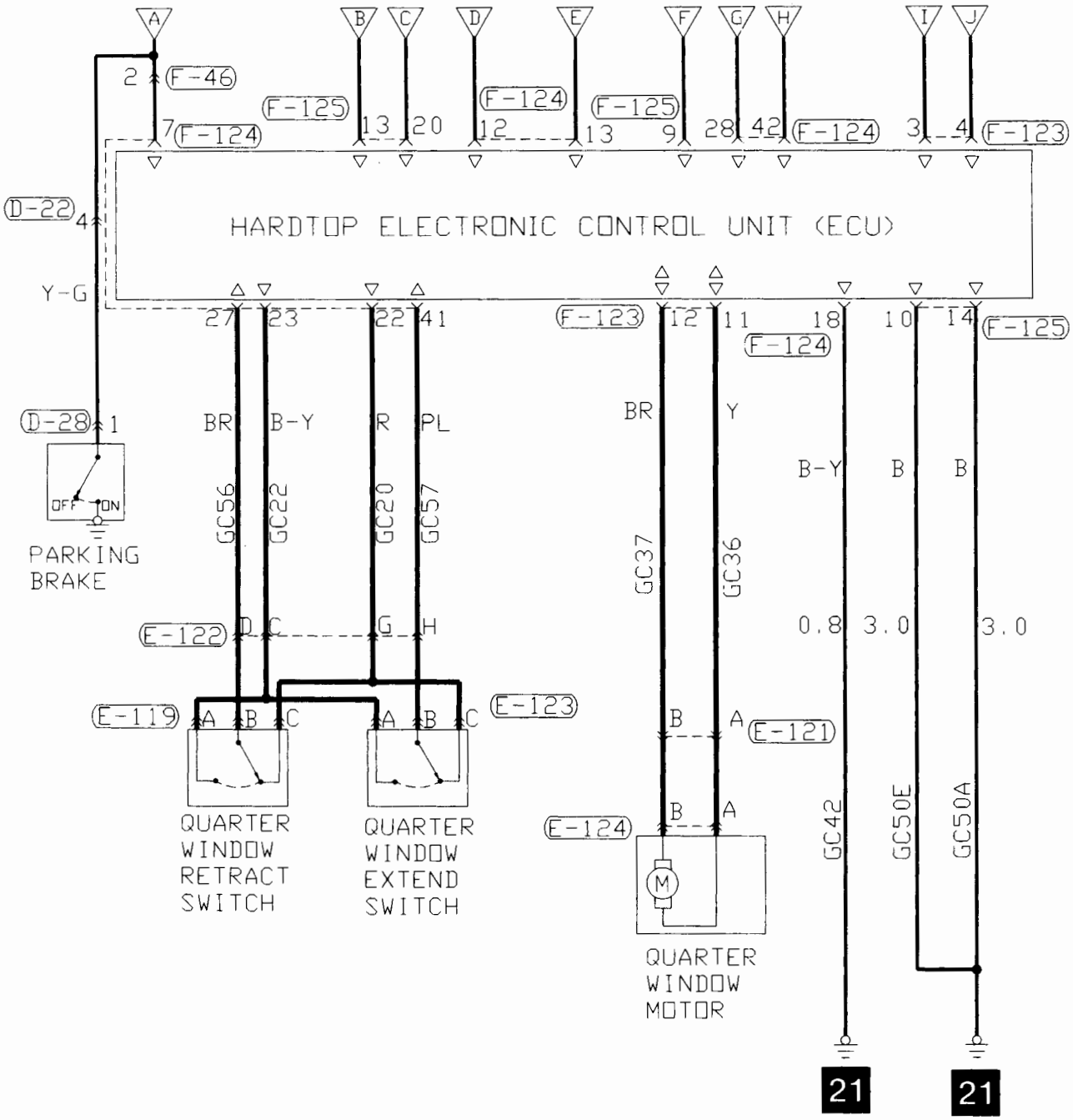
REFER TO: PAGES 42-15 THROUGH 42-17 FOR PRECAUTIONS BEFORE SERVICE, NOTES AND DEFINITIONS OF TERMS.
PAGES 42-33 THROUGH 42-40 FOR SYMPTOM CHARTS.
PAGES 42-41 THROUGH 42-46 FOR TROUBLESHOOTING HINTS.

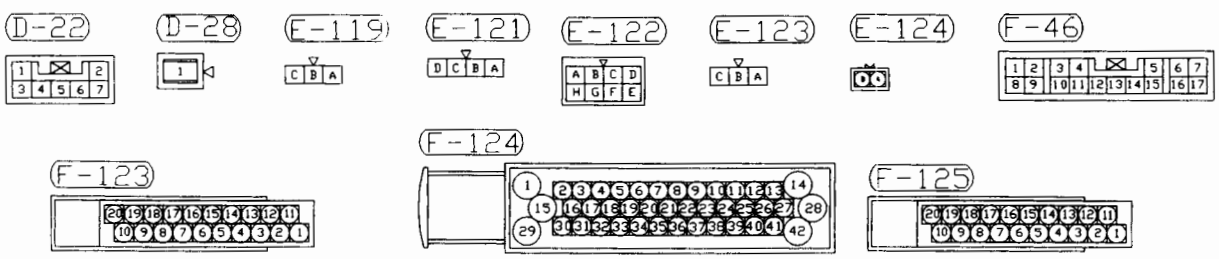
DTC 50

TEST STEP		RESULT ▶	ACTION TO TAKE
50-1	CHECK HARDTOP MANUAL OPERATION		
NOTE: A second person will be needed for this operation. • Open hard tonneau. • Access and turn hardtop bypass valve to MANUAL position. • Turn ignition to the ON position. • Press hardtop control switch to the OPEN position to release header latches. Release hardtop control switch. • Turn ignition to OFF position. • Manually operate hardtop to full open and full closed positions. • **Does hardtop operate without binding?**		Yes ▶ No ▶	Go to **50-2.** Check for binding of mechanical and/or hydraulic components. Service as required. Restore vehicle. Retest system.
50-2	CHECK HARDTOP PUMP OPERATION WHILE IN BYPASS		
• Clear DTCs from ECUs memory. • Hardtop bypass valve in MANUAL position. • Turn ignition to ON position. • Press hardtop control switch to OPEN position. • Check for DTCs. • **Did DTC 50 return?**		Yes ▶ No ▶	Go to **50-3.** Replace hardtop pump assembly. Restore vehicle. Retest system.
50-3	CHECK CIRCUIT GC 29 FOR SHORT TO GROUND		
• Disconnect connector F-125 at ECU. • Disconnect hardtop drive motor connector F-120. • Using Digital Volt/Ohm Meter (DVOM) set to ohm scale, connect negative lead to a known good ground. • Connect the positive lead to pin B at hardtop drive motor connector F-120. • Read ohmmeter. • **Is there continuity?**		Yes ▶ No ▶	Repair circuit GC 29. Restore vehicle. Retest system. Go to **50-4.**
50-4	CHECK CIRCUIT GC 30 FOR SHORT TO GROUND		
• Connector F-125 at ECU disconnected. • Connector F-120 at hardtop drive motor disconnected. • Using DVOM set to ohm scale, connect negative lead to a known good ground. • Connect the positive lead to pin A at hardtop drive motor connector F-120. • Read ohmmeter. • **Is there continuity?**		Yes ▶ No ▶	Repair circuit GC 30. Restore vehicle. Retest system. Go to **50-5.**

POWER QUARTER WINDOW CIRCUIT DIAGRAM

CONTINUED FROM PAGE 134





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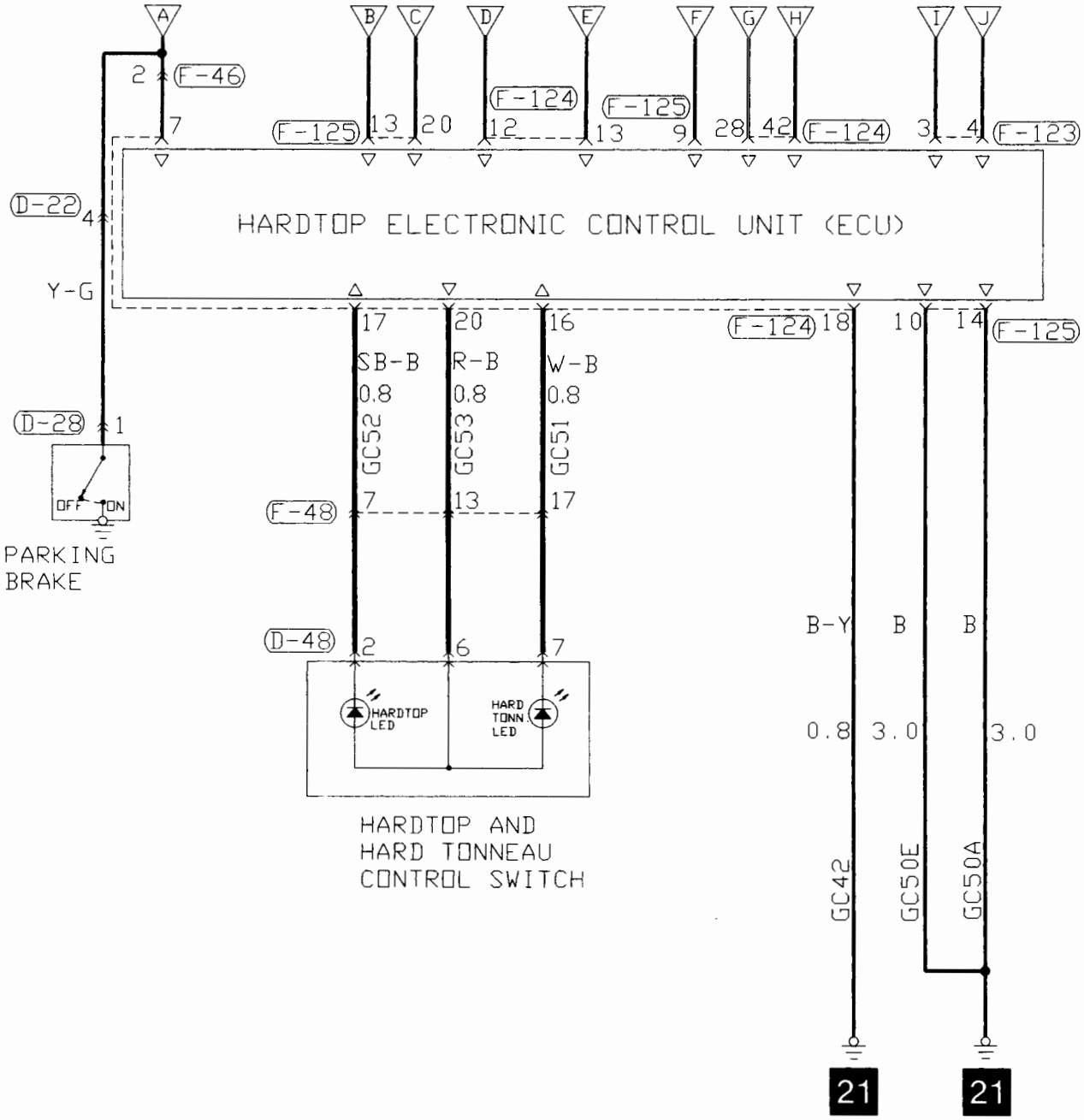
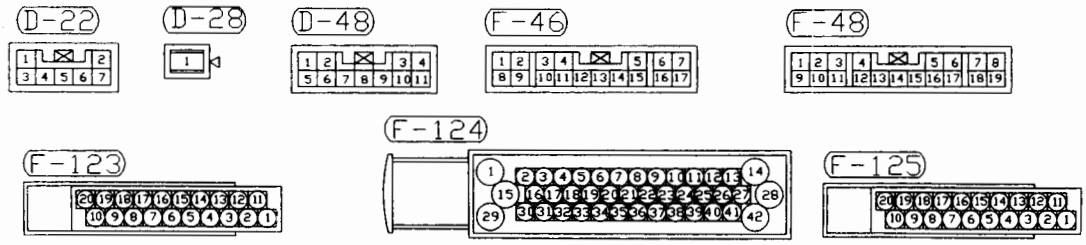
LED's CIRCUIT DIAGRAM

CONTINUED FROM PAGE 134





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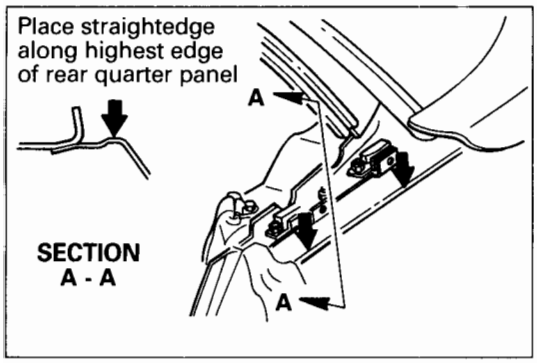
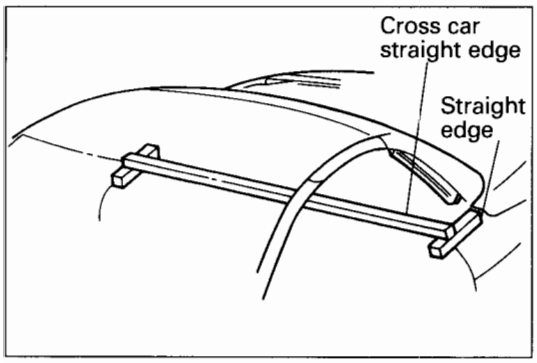


(4) Place a straightedge along the highest point of LH and RH rear fenders as shown in the illustration. The vehicle doors must be open. The straightedge must extend forward past the B-pillar a minimum of 50 mm (2 in.)

NOTE
Seek assistance and/or use clamps, adhesive tape, or similar holding devices to hold the straightedges in place.



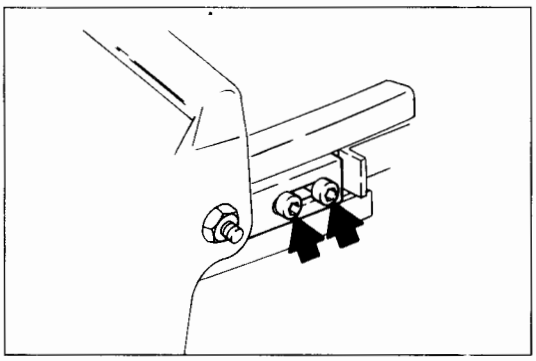
(5) Place another straight edge across the two straight edges as shown in the illustration.

(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.

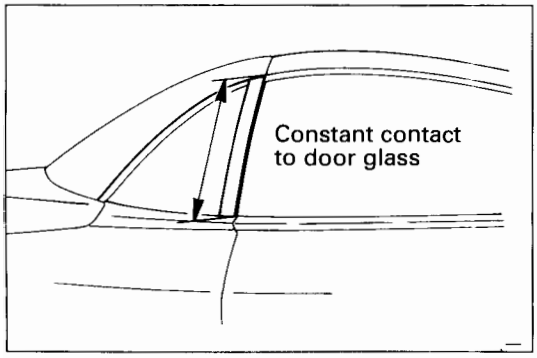
(1) Loosen the bolts holding the swivel to the drive cable.
(2) Manually pull/push the glass closed to achieve the desired gap.
(3) Tighten the bolts.

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.

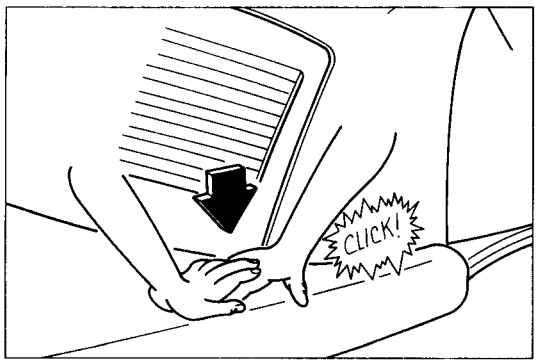
- If the adjustments did not yield the desired result, repeat the above.
- If the gap is OK, go to Step 5.



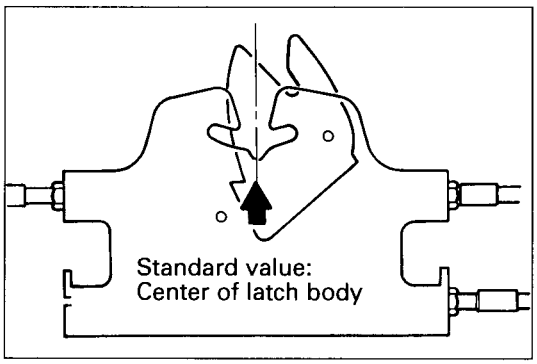
5. Inspect the contact of the sash seal to the door glass.
(1) Close and latch the hardtop, and close both vehicle doors.
(2) Inspect the contact of the sash seal to the door glass.

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.



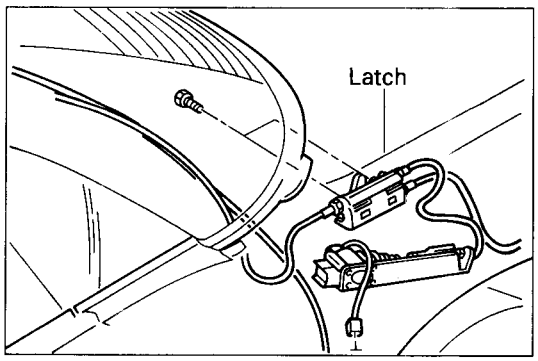
(3) Slowly lower the tonneau to close it. Then latch it, if possible. Using the hand-on-hand method, at the front ends of the tonneau above the latch, push down until you hear it click. Then, pull up on the tonneau to confirm that it has latched. Repeat for the other side.



(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.)

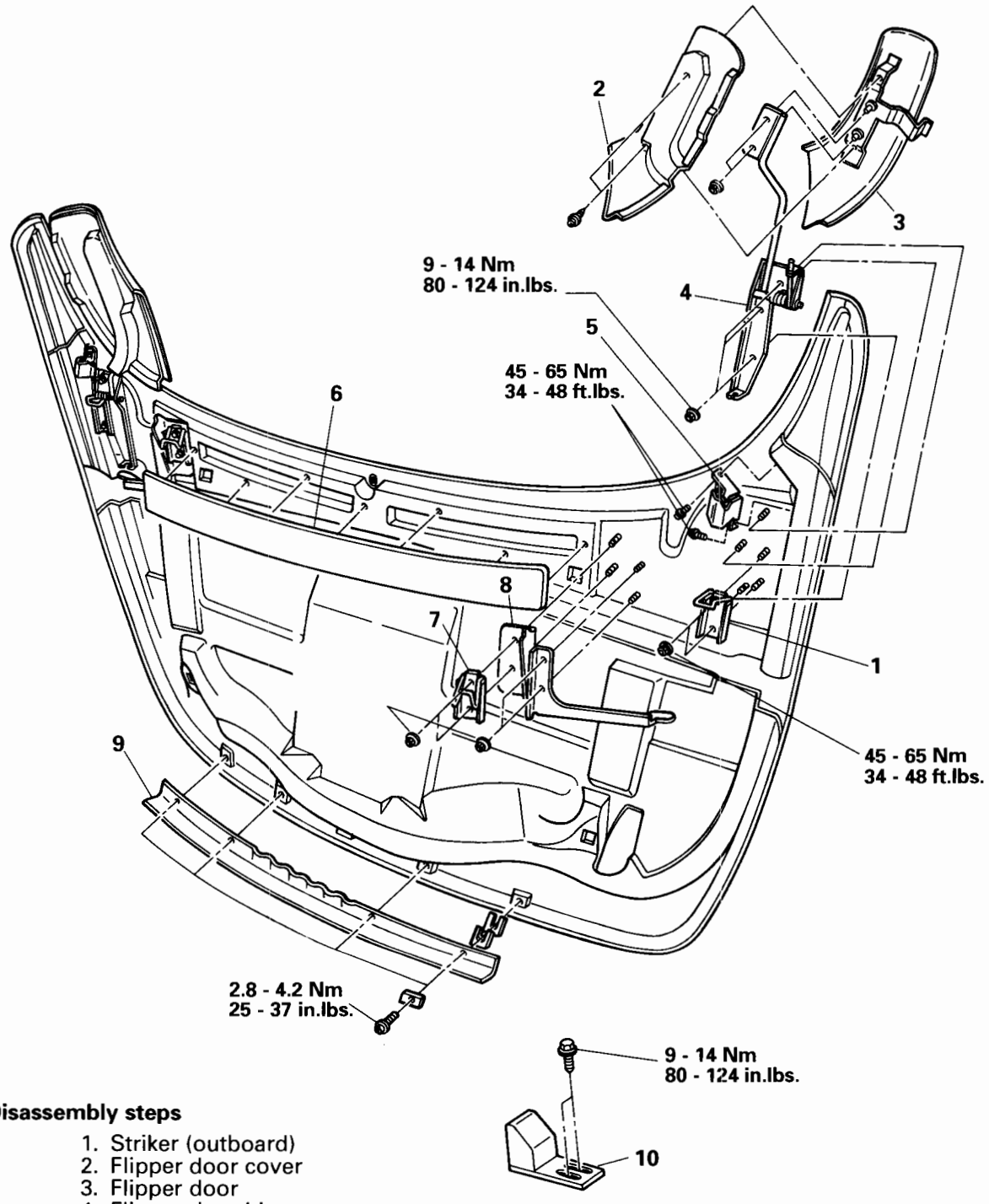
4. Go to Step (6).

(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.

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

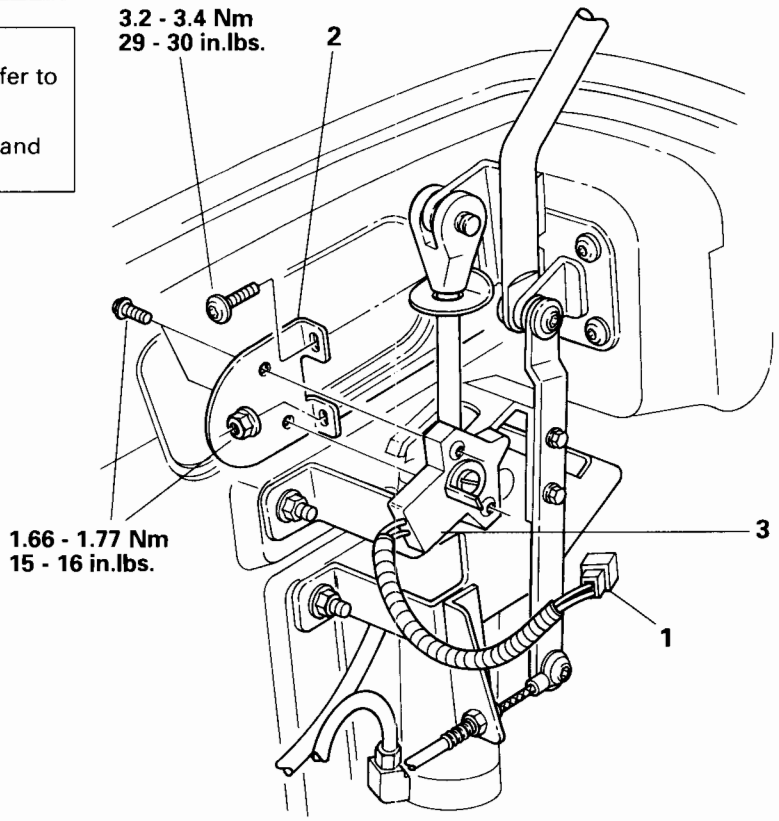
NOTE
Matchmark components before removal.

HARD TONNEAU POSITION SENSOR (POTENTIOMETER)

REMOVAL AND INSTALLATION

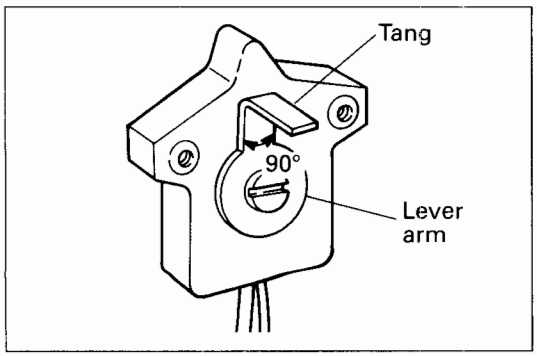
Pre-removal Operation
- Open the hard tonneau halfway to access the sensor's mounting bracket upper attaching bolt
- Removal of RH Trunk Trim Panel (Refer to GROUP 52, in this Manual.)

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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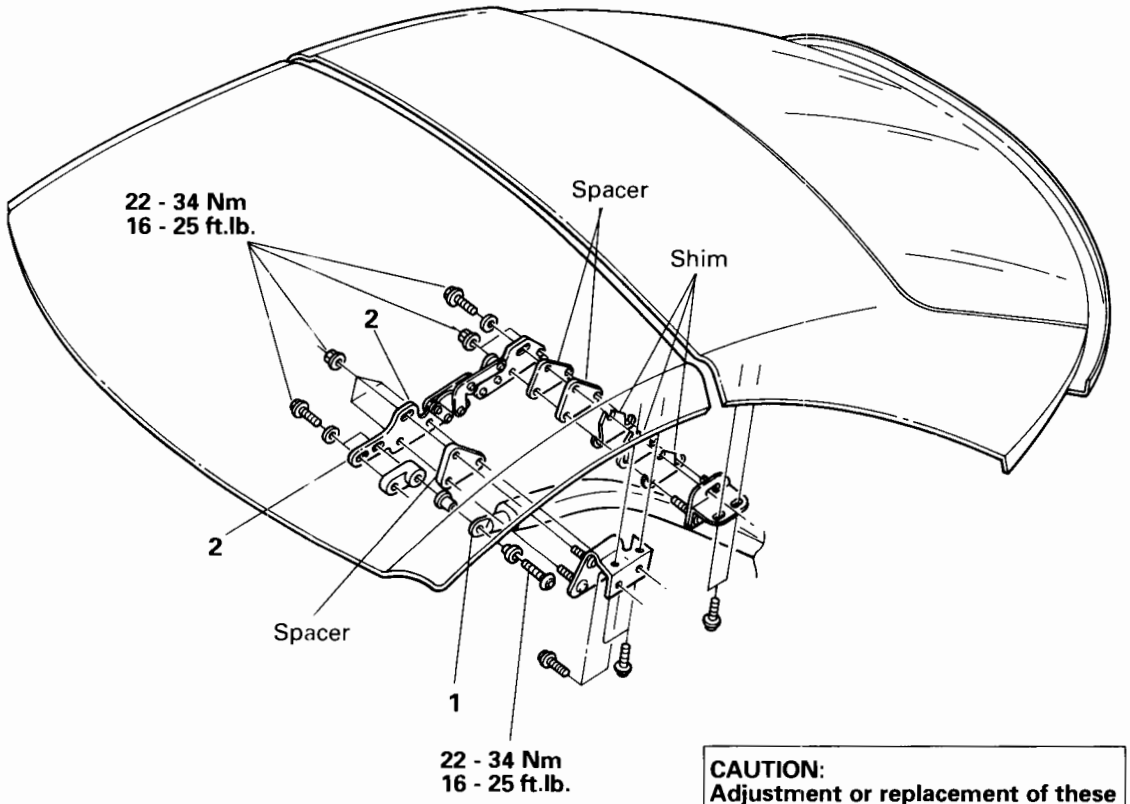
RETRACTABLE HARDTOP ASSEMBLY

DISASSEMBLY AND REASSEMBLY

<Mechanism>

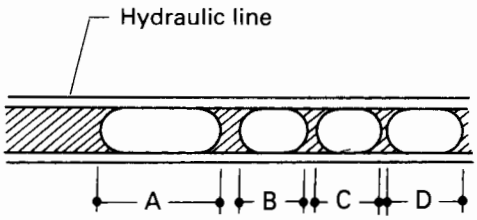
NOTE
Matchmark components before disassembly.



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).

Disassembly steps

1. Balance link
2. Roof center hinge



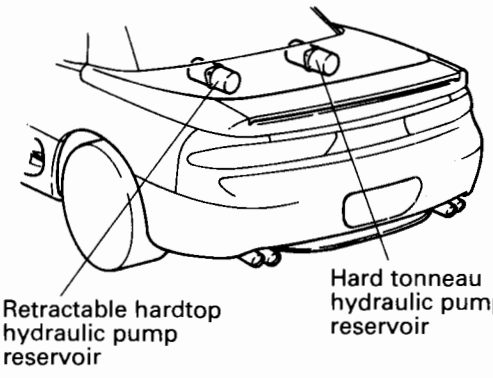
A+B+C+D=X Air bubbles

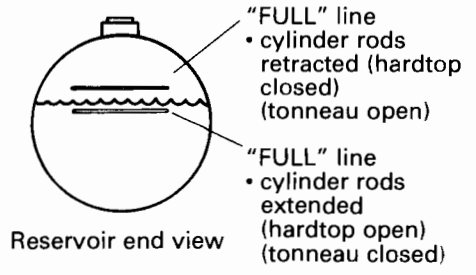
HYDRAULIC SYSTEM BLEEDING

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.

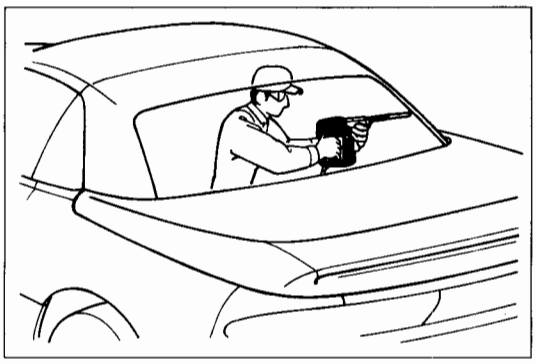




Reservoir end view

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.



SERVICE POINT OF REMOVAL

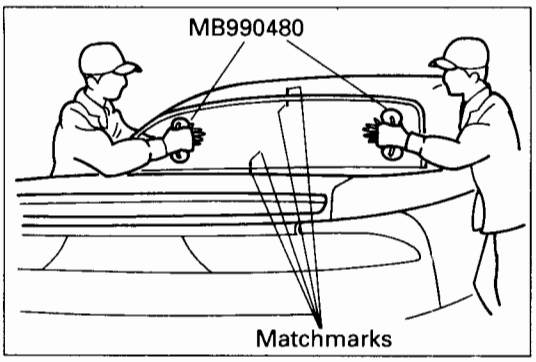
3. REMOVAL OF ROOF GLASS

(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.

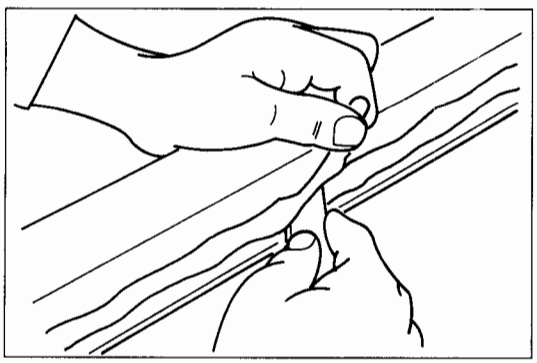
NOTE
A short blade is recommended for cutting the top and sides, and a longer blade is recommended for the bottom. There are two lines of adhesive along the bottom of the glass.

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.**

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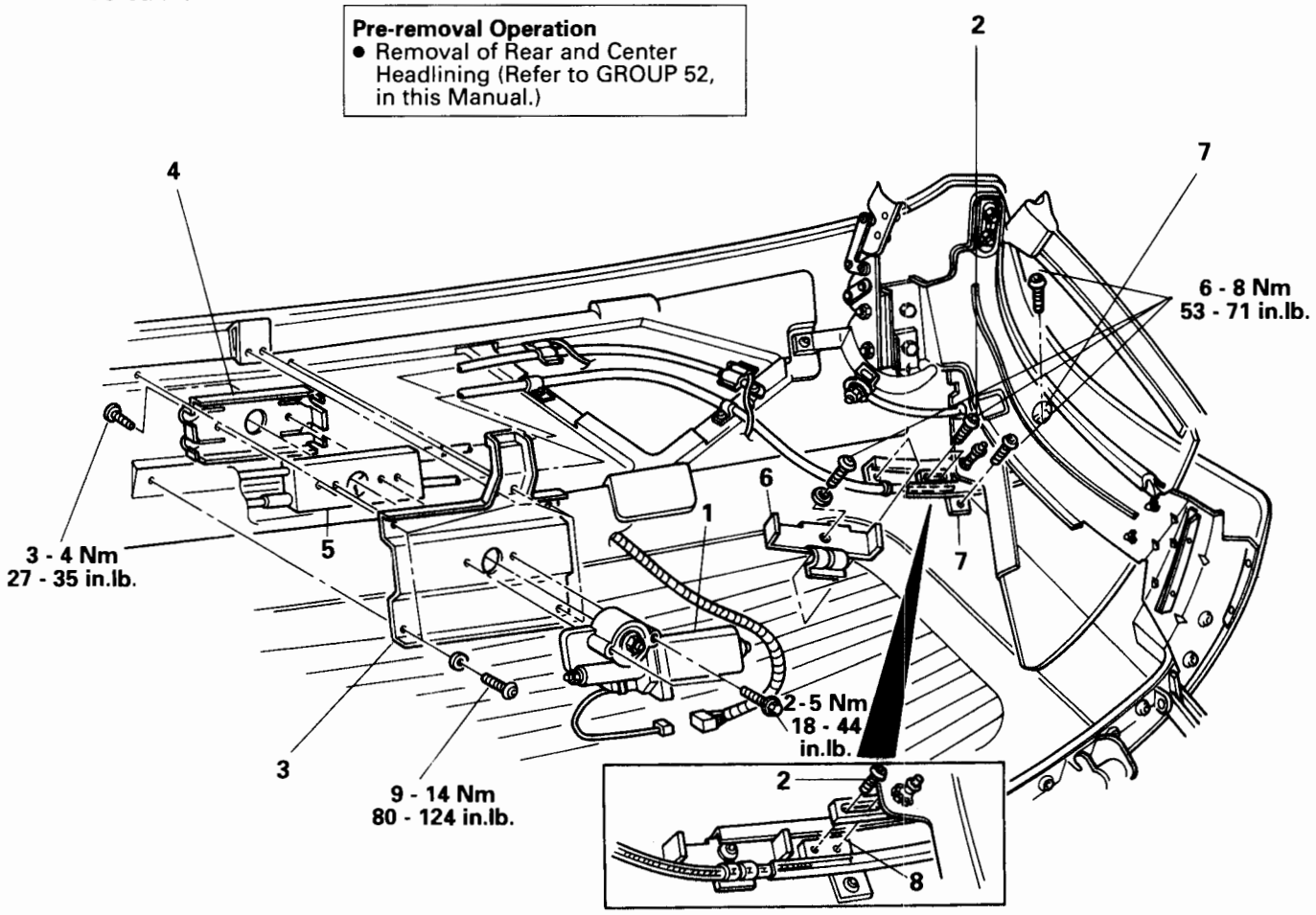
QUARTER WINDOW

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.)

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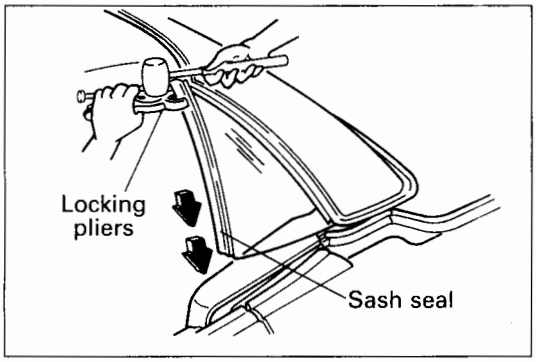


SERVICE POINT OF REMOVAL

1. REMOVAL OF QUARTER WINDOW GLASS SASH SEAL

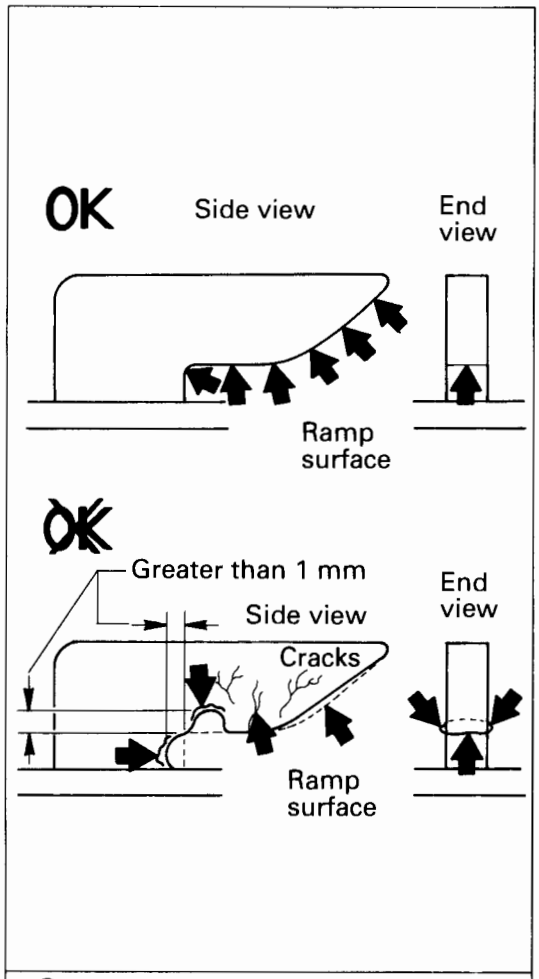
(1) Manually open the hardtop to a suitable position to allow the sash seal to be removed from the quarter window.
(2) Using locking-pliers, or equivalent, grasp the sash seal near the top of the seal.
(3) Tap on the locking-pliers with a rubber mallet to remove the sash seal.

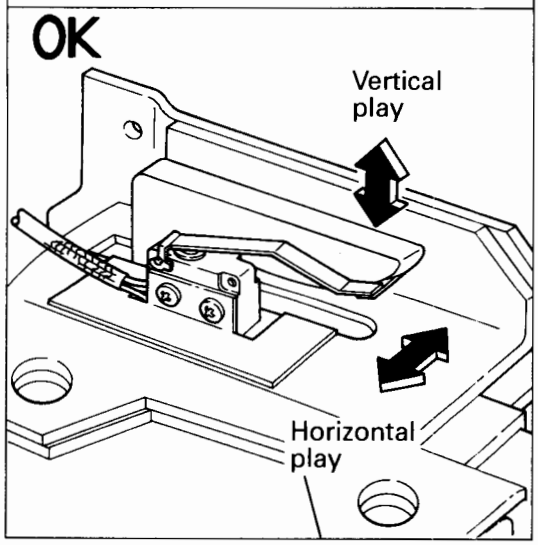
NOTE
If the seal is difficult to remove, apply or spray penetrating fluid or lubricant between the sash seal and the metal channel attached to the window.

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.





ON-CAR LATCH INSPECTION

1. Open the retractable hardtop.
2. Remove the left and right header latch garnishes.
3. Inspect the ramp surface of both latches for wear or indentation.

   Standard value: Ramp surface flat with no sign of wear penetrating over 1 mm (.039 in.), or cracks to the plastic covering, as shown in the illustration.

   NOTE
   The header latch ramp portion is designed to have some free-play vertically and horizontally within the latch body, and may vary. Excessive play can be compensated for by shimming down the latch body from the windshield header (refer to **SERVICE ADJUSTMENT PROCEDURES,** in this section).

4. Reinstall both header latch garnishes.

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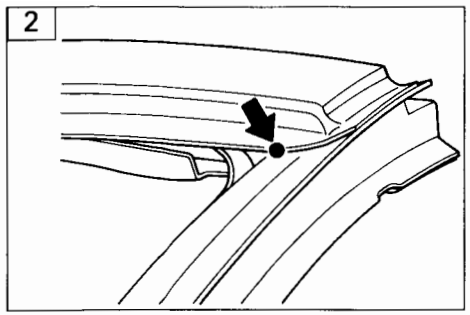
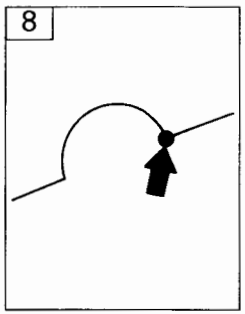
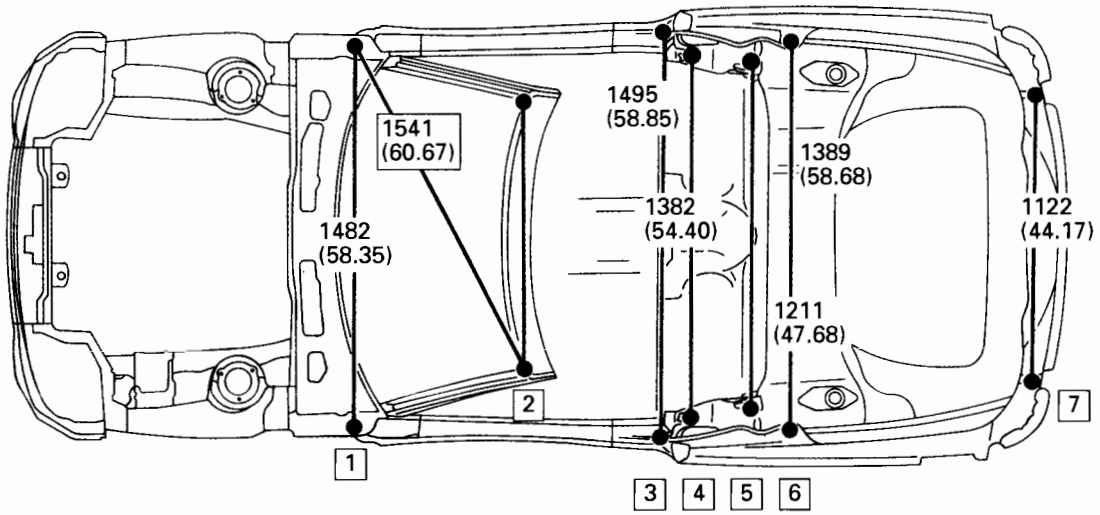
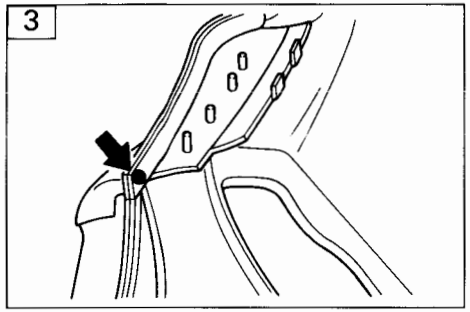
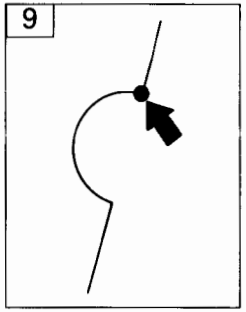


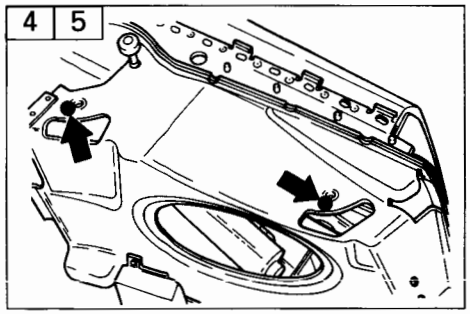


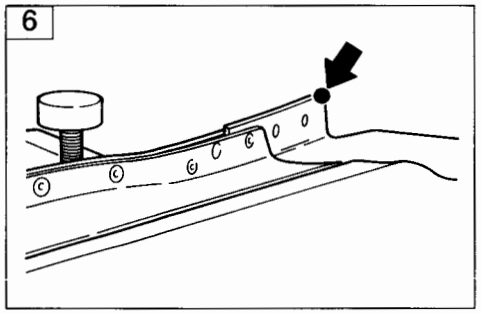
UPPER BODY



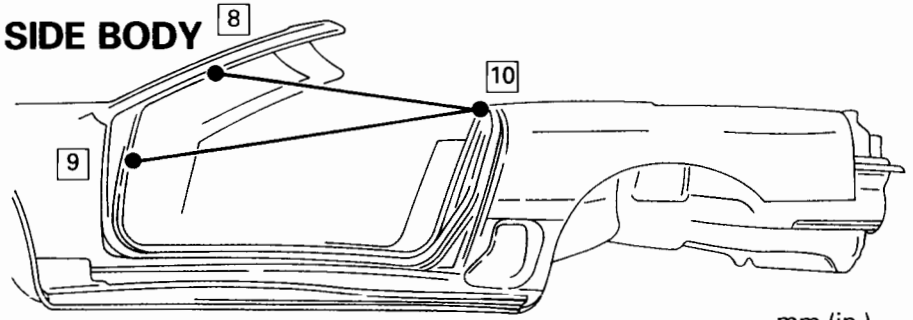






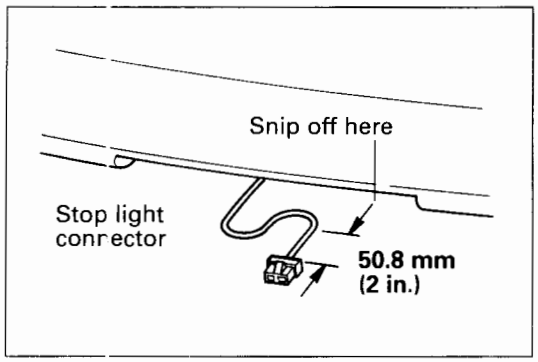


SIDE BODY



mm (in.)

No.	Measurement points	Diameters	No.	Measurement points	Diameters	No.	Measurement points	Diameters
1	Center of front fender mounting hole	6.6 mm (.26 in.)	5	Rear seat belt retractor D-ring attaching point	11.1 mm (.44 in.)	9	Notch on front pillar (lower)	--
2	Front pillar and roof connection	--	6	Rear pillar and quarter panel connection	--	10	Lock pillar reference point	--
3	Outside of quarter panel	--	7	Center of rear light mounting hole	□ 8.5mm (□ .33 in.)			
4	Front seat belt retractor D-Ring attaching point	11.1 mm (.44 in.)	8	Notch on front pillar (upper)	--			



SERVICE POINT OF REMOVAL

1. REMOVAL OF REAR SPOILER

(1) Remove high mounted stop light (refer to 54-25, in this Manual.)
(2) Snip off the stop light harness connector at the spoiler as shown in the illustration.

NOTE
Retain the connector with the cut off wires for reinstallation.

(3) Open the hard tonneau. Pull the stop light wire harness grommet out from the tonneau and pull out the remaining wire.
(4) Remove the bolts attaching the spoiler, and separate the spoiler from the vehicle.

SERVICE POINT OF INSTALLATION

1. INSTALLATION OF REAR SPOILER

(1) Using adhesive tape, attach a 1.52 m (5 ft.) length of 16 ga. bell wire, or similarly stiff wire to the gathered ends of the stop light wire harness.

NOTE
This wire will be used to fish the stop light harness wire back through the spoiler.

(2) Route the fish wire back up through the tonneau and close the tonneau.
(3) Place a protective cover on the hard tonneau large enough to lay the spoiler face down on it.

NOTE
Be sure the tonneau and the spoiler are clean to prevent scratches.

(4) Place the spoiler face down on the protective cover.
(5) Fish the wire harness back through the spoiler.
(6) Install the spoiler to the tonneau.
(7) Open the tonneau making sure the spoiler will stay in place.
(8) Install the attaching bolts.

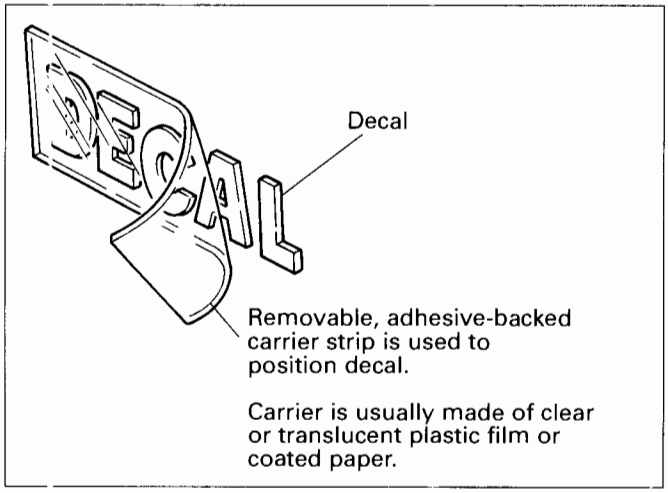
Standard value: 6 - 8 Nm (53 - 71 in. lb.)

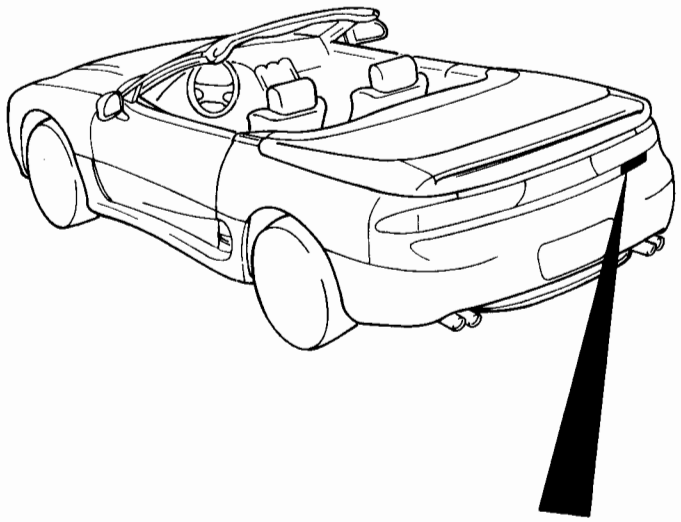
(9) Remove the fish wire.
(10) Reattach the stop light connector to the harness in the spoiler using the **RECOMMENDED WIRE REPAIR** procedure (refer to **GROUP 42, Diagnostics and Testing**, in this Manual.)

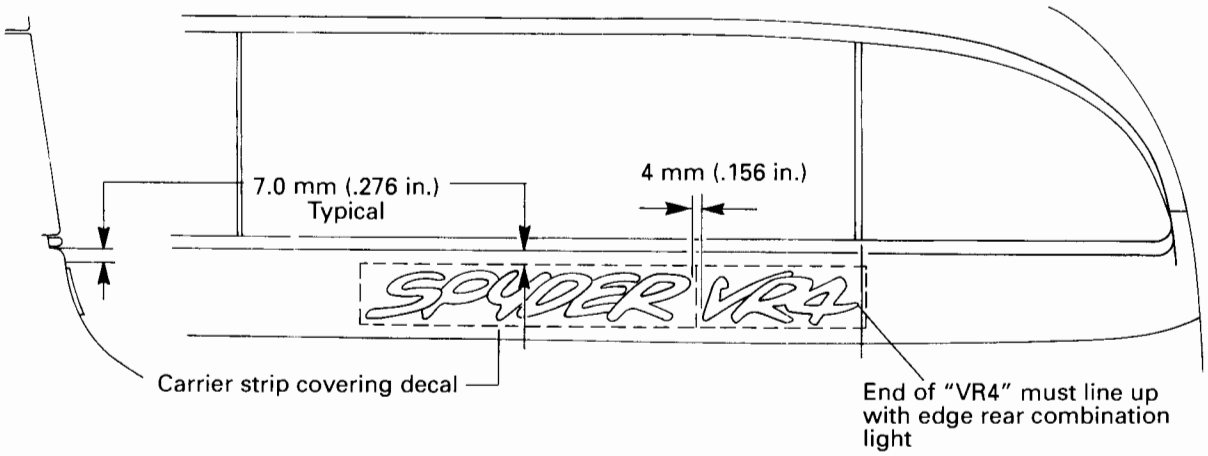
NOTE
The harness wires must be installed to their respective wire colors. Otherwise, the stop light will not operate.

SPYDER-UNIQUE DECALS

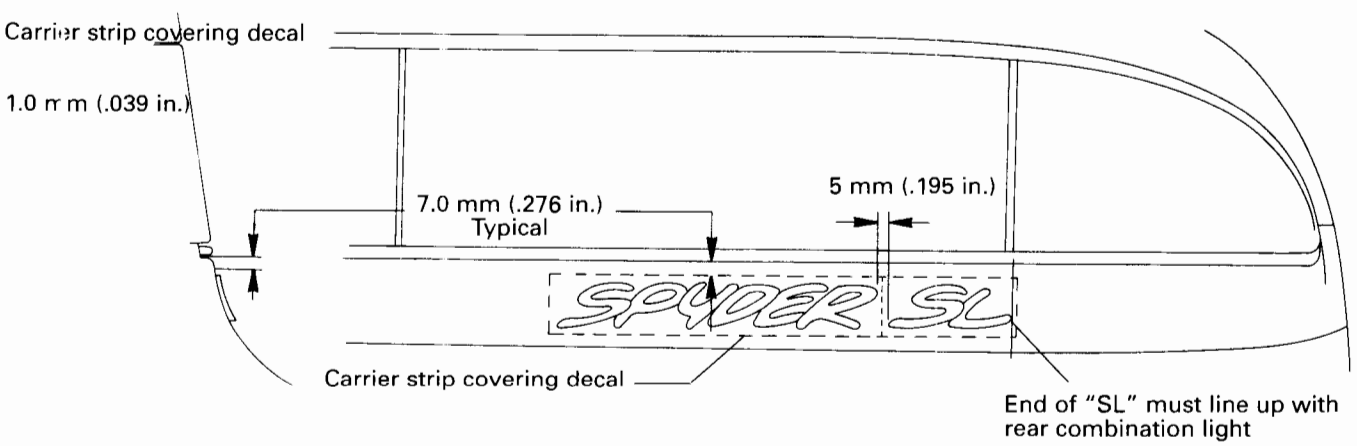
PLACEMENT



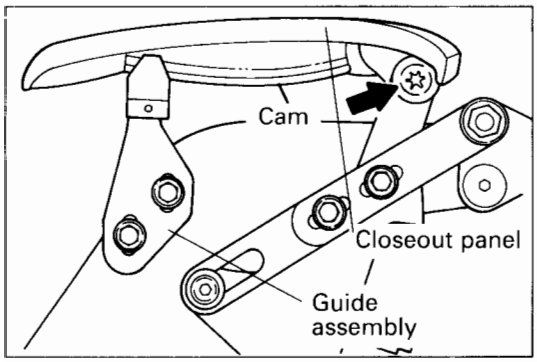




SPYDER VR4 ONLY



SPYDER SL ONLY

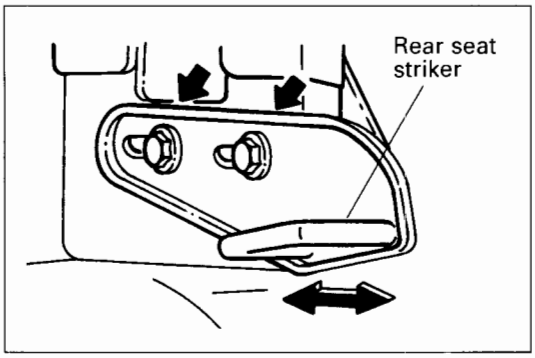


5. Adjust the height of the center closeout panel, as necessary, as shown in the illustration.

NOTE
Because of the nature of the cams and mechanisms, the adjustment height of the center closeout panel in the forward position will be the same as the rearward position.

Guide assembly bolts
Standard value: 9 - 12 Nm (80 - 106 in.lb.)

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

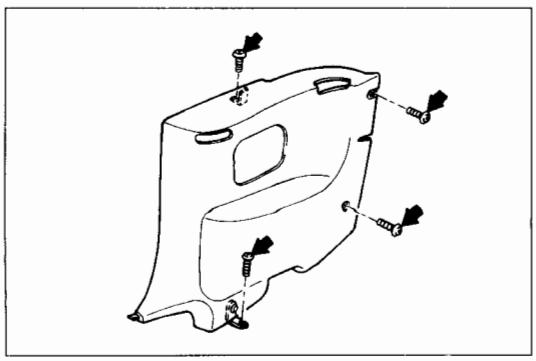


REAR SEAT STRIKERS

NOTE
The rear shelf panel MUST be properly adjusted before attempting to adjust rear seat strikers.

1. With both rear seat backs installed, fold them forward.
2. Loosen the bolts holding the striker at one side enough to adjust the striker.
3. Raise the seat back while aligning it to the striker. Adjust the striker to align the seat back catch and lock the rear seat back in position. Then tighten the bolts.

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



QUARTER TRIM PANELS

The quarter trim panels are not necessarily designed to be adjusted. When adjustment is necessary, the attaching holes and the corresponding hole locations in the brackets or body structure may need to be redrilled.

SERVICE POINT OF

1. **REMOVAL OF RIVET**

   Use a 3/16 in. drill to remove

   Caution
   Be sure drill chips are completely re... ing the area so that they do not get ca... reclining adjuster.

SERVICE POINTS OF INSTALLATION

2. **INSTALLATION OF RECLINE-ANGLE STOP**

   Seats requiring no drilling for installation of seat recline-angle stop:

   Install the seat recline-angle stop to the stop pin on the seat.

   Seats requiring drilling for installation of seat recline-angle stop:

   (1) Grind or file the stop pin on the seat, if necessary, to install the seat recline-angle stop.
   (2) Install the seat recline-angle stop to the stop pin on the seat.
   (3) Recline the seat back to apply pressure on the recline-angle stop so that it seats against the seat reclining adjuster assembly.
   (4) Using a 3/16 in. drill, use the recline-angle stop as a drill guide and drill the hole for the rivet.

   Caution
   Be sure drill chips are completely removed by vacuuming the area so that they do not get caught in the seat reclining adjuster.

1. **INSTALLATION OF RIVET**

   Rivet: 3/16" x .375 Protruding head

CHASSIS ELECTRICAL

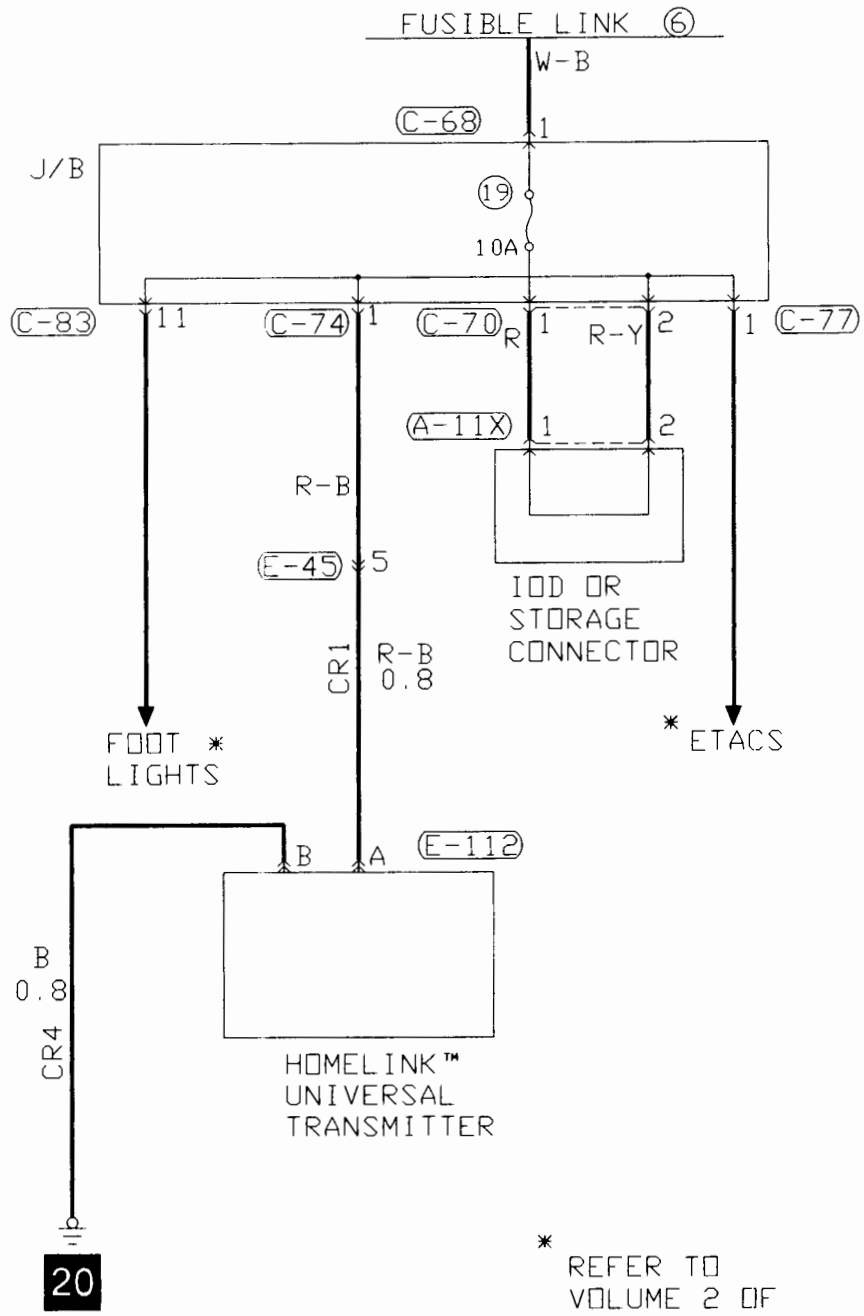
CONTENTS

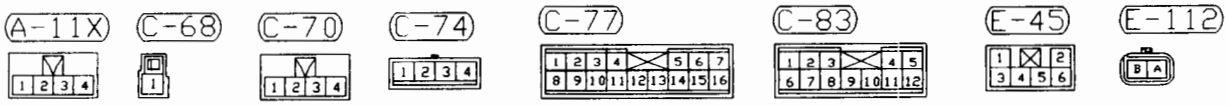
CARGO/HARDTOP STOWAGE AREA LIGHT 22
CD CHANGER 15
DIAGNOSTICS AND TESTING 5
- Circuit Diagrams 11
  - Cargo/hardtop Stowage Area Lamp 13
  - HomeLink™ Universal Transmitter 11
  - Lighted Rearview Mirror (Map Lights) .. 12
- Inspection and Verification 5
- Pinpoint Tests 7
  - Test A: Both Map Lights Inoperative with Switches 7
  - Test B: Map Light (One) Inoperative 8
  - Test C: Luggage Compartment Lamp Inoperative 9
  - Test D: Universal Transmitter (HomeLink™) Inoperative 10
- Symptom Chart 6
- Troubleshooting Hints 6

GENERAL INFORMATION 2
- Cargo/Hardtop Stowage Area Lamp System 4
- CD Changer 2
- Motor Antenna 3

HIGH MOUNTED STOP LIGHT 25
HOMELINK™ UNIVERSAL TRANSMITTER .. 19
LIGHTED REAR VIEW MIRROR (MAP LIGHTS) 14
MOTOR ANTENNA AND RELAY 17
QUARTER TRIM PANEL COURTESY LIGHT .. 20
REAR COMBINATION LIGHTS 23
REAR SPEAKER 16
THEFT ALARM SYSTEM, LIGHT AUTOMATIC SHUT-OFF AND KEYLESS ENTRY RECEIVER ASSEMBLY (SPYDER-UNIQUE RELOCATION) 21

HomeLink™ UNIVERSAL TRANSMITTER CIRCUIT DIAGRAM



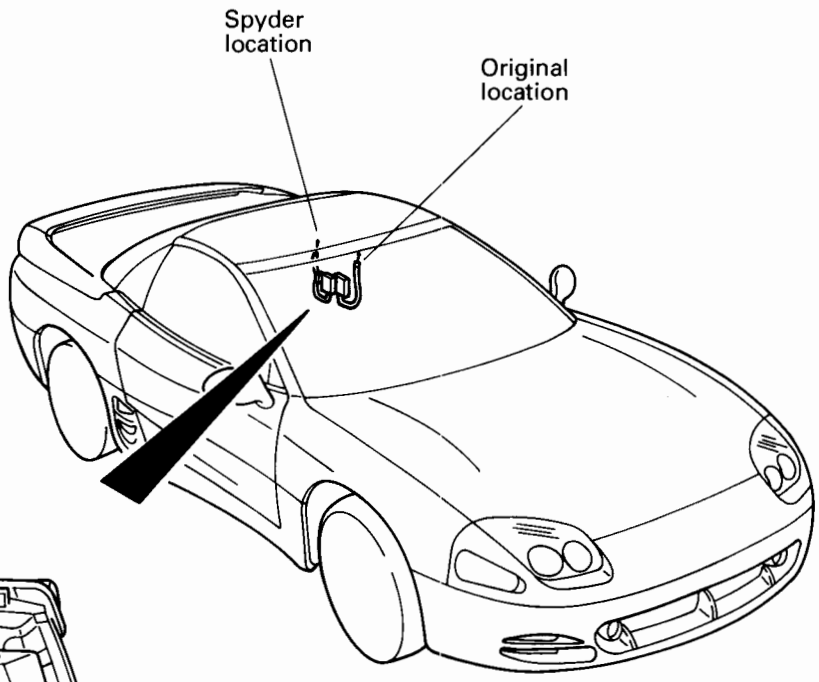


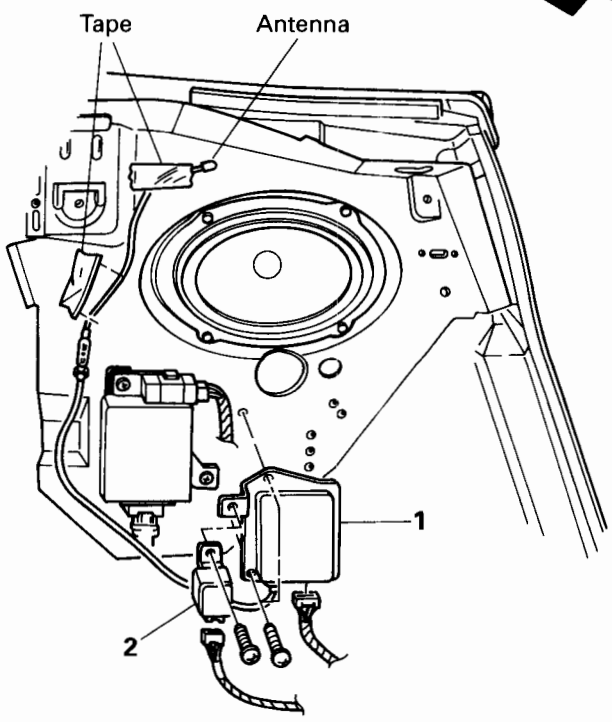
TSB Revision

THEFT ALARM SYSTEM - LIGHT AUTOMATIC SHUT-OFF AND KEYLESS ENTRY RECEIVER ASSEMBLY (SPYDER-UNIQUE RELOCATION)

REMOVAL AND INSTALLATION

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





NOTE
Refer to Volume 2 of the Service Manual for more information.

Removal steps

◆◆ ◆◆ 1. Keyless entry receiver assembly
2. Light automatic shut-off unit

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