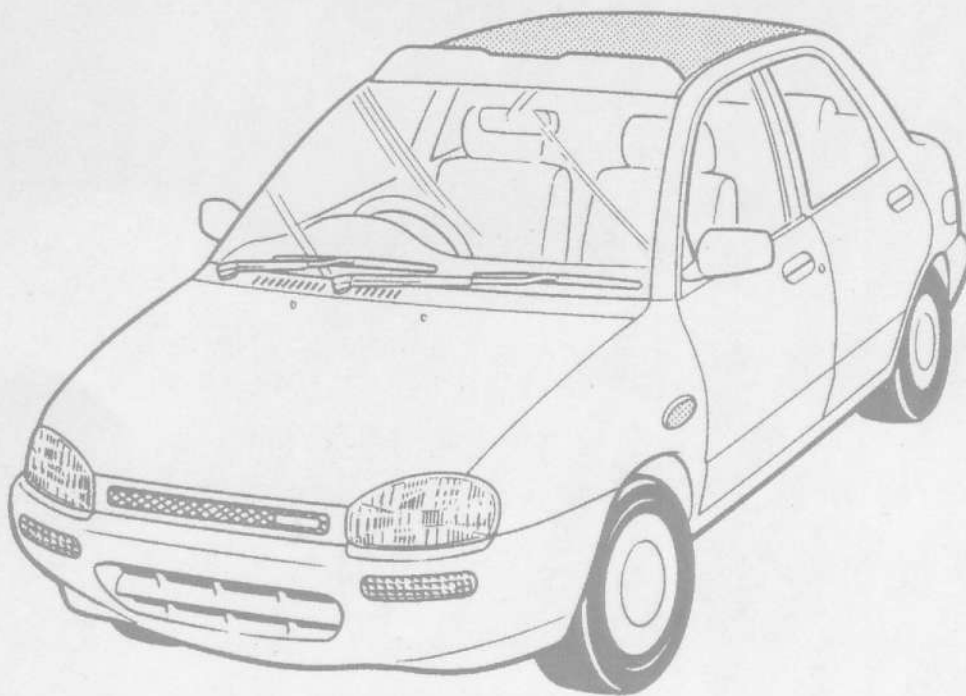


# Mazda 121

## Workshop Manual Volume 2 of 2



JMO DB1031 00

10/90 1249-10-90J

**mazda**

Australia





# VEHICLE IDENTIFICATION NUMBERS (VIN)

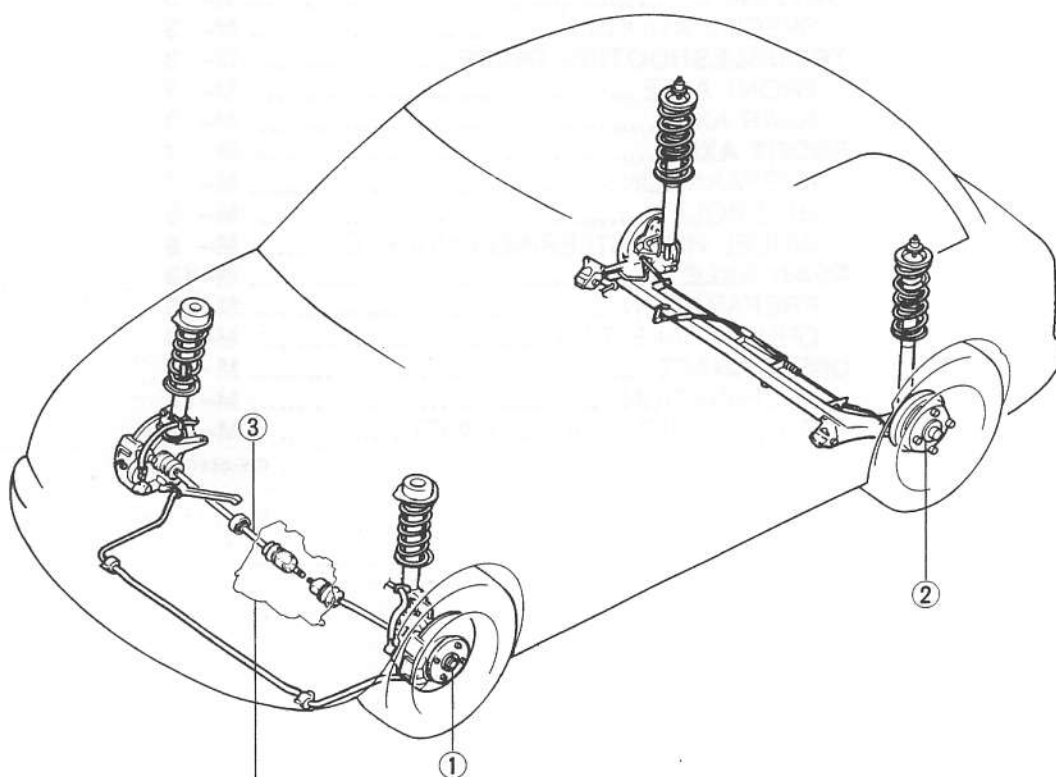
JM0 DB1031 00 100001 ~

## FRONT AND REAR AXLES

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01E0MX-001

## INDEX



TRANSAXLE  
SERVICE, SECTION, J, K

01E0MX-002

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## OUTLINE

### SPECIFICATIONS

Item		Transaxle	MTX	ATX
Front axle				
Bearing play, axial direction		mm (in)	0 (0)	
Rear axle				
Bearing play, axial direction		mm (in)	0.05 (0.002)	
Drive shaft				
Length of joint (between centers of joints)	mm (in)	Right side	659.7 (25.97)	658.0 (25.91)
		Left side	385.7 (15.19)	386.0 (15.20)
Shaft diameter		mm (in)	20.0 (0.79)	21.0 (0.83)

01E0MX-003

## TROUBLESHOOTING GUIDE

### FRONT AXLE

Problem	Possible Cause	Action	Page
<b>Steering wheel vibration</b>	Worn or damaged wheel bearing Excessive wheel bearing play	Replace Tighten or replace	M- 6 M- 6
<b>Steering wheel pulls or one-sided braking</b>	Worn or damaged wheel bearing Excessive wheel bearing play	Replace Tighten or replace	M- 6 M- 6
<b>Excessive steering wheel play</b>	Excessive wheel bearing play	Tighten or replace	M- 6
<b>Abnormal noise</b>	Bent or worn drive shaft Worn or damaged wheel bearing Insufficient grease in joint or on splines of drive shaft Worn drive shaft tripod joint	Replace Replace Replenish or replace Replace	M-17 M- 6 M-20 M-22
<b>Grease leakage from boot</b>	Damaged or broken boot Faulty boot band Excessive grease	Replace Replace Repair	M-20 M-20 M-20

01E0MX-004


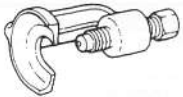
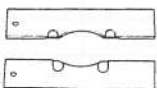
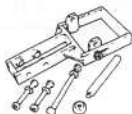


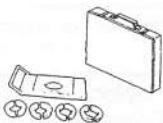
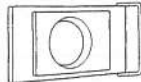


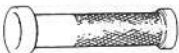
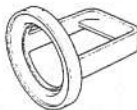


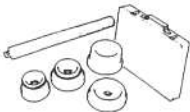

### REAR AXLE

Problem	Possible Cause	Action	Page
<b>Steering wheel vibration</b>	Worn or damaged wheel bearing Excessive wheel bearing play	Replace Tighten or replace	M-14 M-14
<b>Steering wheel pulls or one-sided braking</b>	Worn or damaged wheel bearing Excessive wheel bearing play	Replace Tighten or replace	M-14 M-14
<b>Excessive steering wheel play</b>	Excessive wheel bearing play	Tighten or replace	M-14
<b>Abnormal noise</b>	Worn or damaged wheel bearing	Replace	M-14

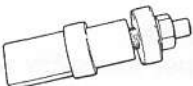

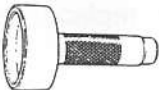

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### FRONT AXLE

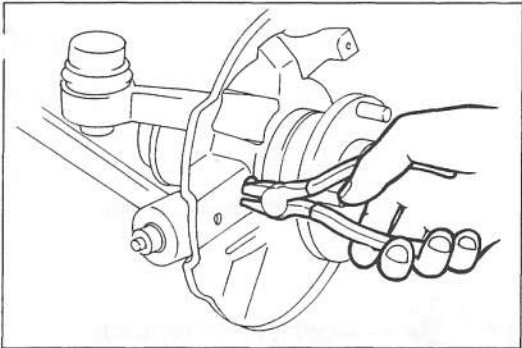
#### PREPARATION SST

49 0727 575 Puller, socket joint 	For replacement of hub bolt	49 0118 850C Puller, ball joint 	For removal of tie rod end
49 F026 103 Puller, wheel hub 	For disassembly of wheel hub and installation of bearing race	49 B026 1A0 Puller set, wheel hub 	For disassembly of wheel hub
49 G030 727 Attachment A (Part of 49 B026 1A0) 	For disassembly of wheel hub	49 G033 102 Handle (Part of 49 B026 1A0) 	For disassembly of wheel hub
49 D017 2A0 Remover set, bearing 	For removal of wheel bearing	49 F401 366A Plate (Part of 49 D017 2A0) 	For removal of wheel bearing
49 B092 372 Attachment F (Part of 49 D017 2A0) 	For removal of wheel bearing	49 FT01 361 Remover, bearing 	For removal of bearing race
49 0180 321A Installer, bearing 	For removal of bearing race	49 G025 001 Installer, sensor rotor 	For installation of dust cover
49 G030 795 Installer, oil seal 	For installation of bearing race and oil seal	49 G030 797 Handle (Part of 49 G030 795) 	For installation of bearing race and oil seal
49 F027 0A1 Installer set, bearing 	For installation of bearing race	49 F027 005 Attachment for 62 bearing (Part of 49 F027 0A1) 	For installation of bearing race

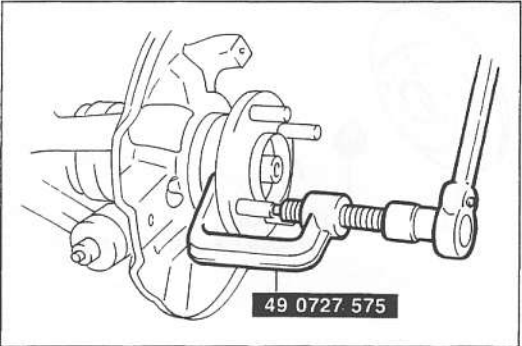


49 B001 727 Selector, spacer		For adjustment of bearing preload and assembly of wheel hub	49 0180 510B Attachment, preload		For adjustment of bearing preload
49 B001 795 Installer, oil seal		For installation of oil seal	49 B001 796 Body (Part of 49 B001 795)		For installation of oil seal

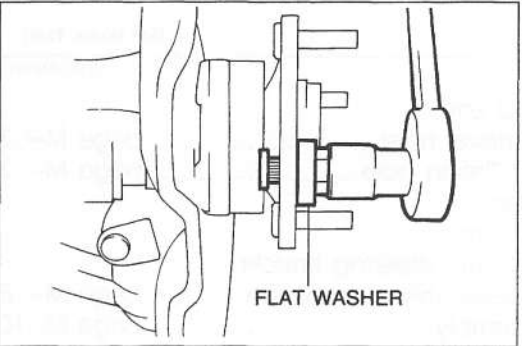
01E0MX-006



01E0MX-007



01E0MX-008



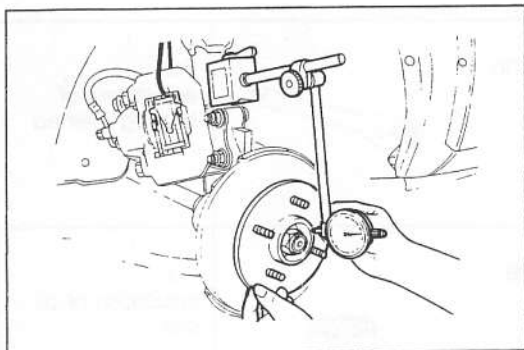
01E0MX-009

### HUB BOLT Replacement

1. Remove the wheel and tire.
2. Remove the brake caliper assembly and disc plate.
3. Cut away the hole of the dust cover to remove the hub bolt.

4. Use the **SST** to remove the hub bolt.

5. Pull in the new hub bolt with a nut (M12x1.5) and a flat washer as shown in the figure.



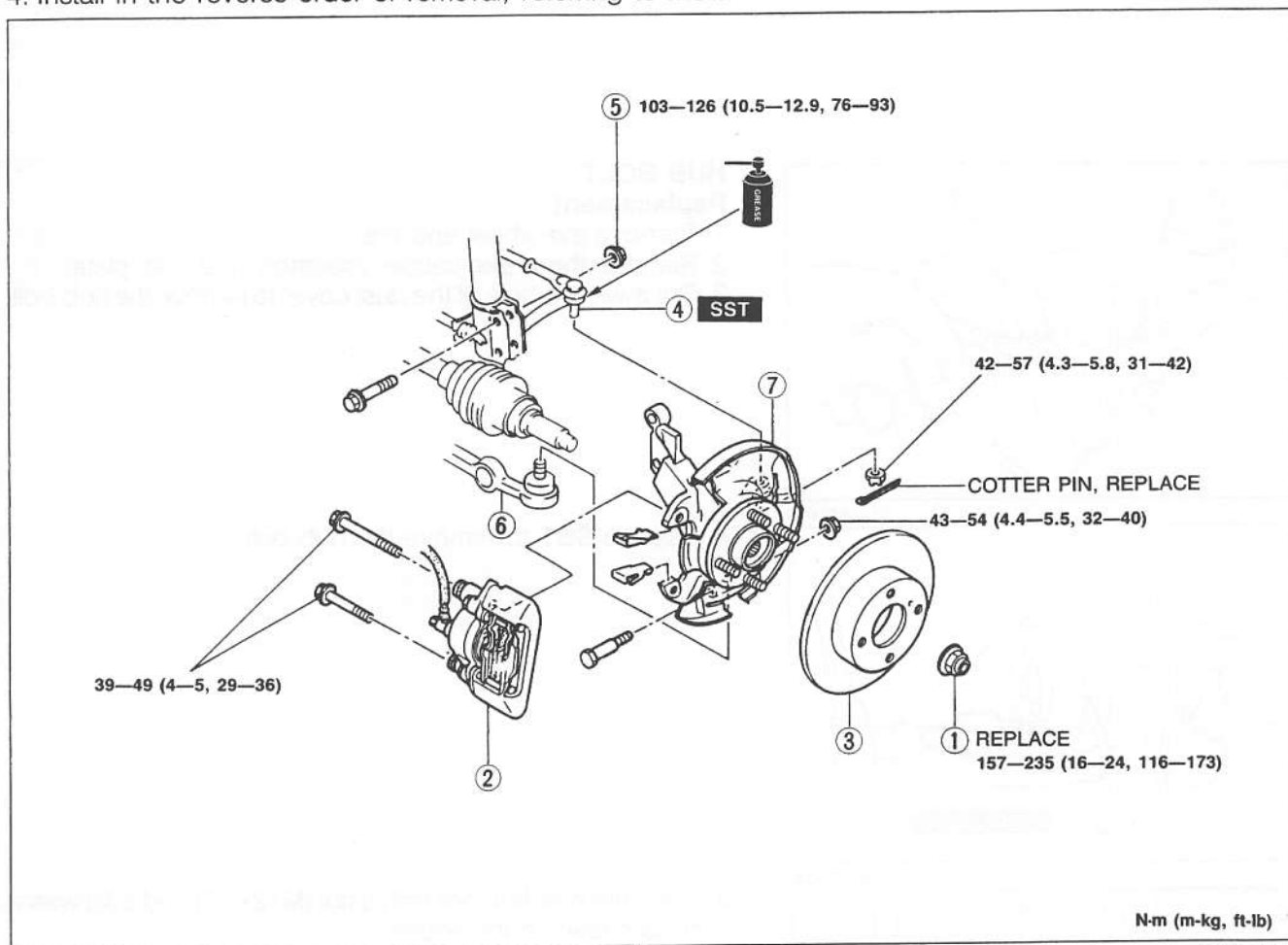
01E0MX-010

**WHEEL HUB, STEERING KNUCKLE****Preinspection****Wheel bearing play**

1. Remove the wheel and tire.
2. Remove the brake caliper assembly and disc plate.
3. Position a dial indicator against the wheel hub. Push and pull the wheel hub by hand in the axial direction and measure the wheel bearing play.
4. If the bearing play exceeds specification, check and adjust the locknut torque, or replace the wheel bearing if necessary.

**Wheel bearing play: 0mm (0 in) max.****Removal / Installation**

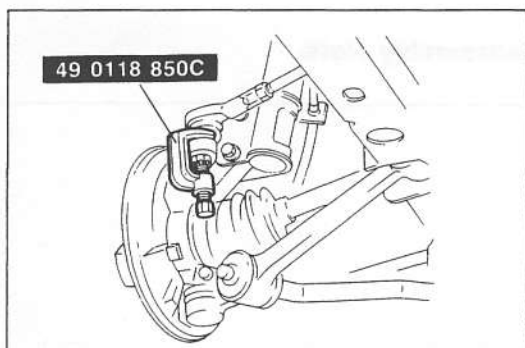
1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the wheel and tire.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.



N-m (m-kg, ft-lb)

01E0MX-011

- |                                |           |
|--------------------------------|-----------|
| 1. Locknut                     |           |
| Installation note.....         | page M- 7 |
| 2. Brake caliper assembly      |           |
| Service .....                  | Section P |
| 3. Disc plate                  |           |
| Service .....                  | Section P |
| 4. Tie rod end                 |           |
| Removal note.....              | page M- 7 |
| Installation note.....         | page M- 7 |
| 5. Nut, bolt                   |           |
| 6. Lower arm                   |           |
| 7. Wheel hub, steering knuckle |           |
| Disassembly / Inspection ..... | page M- 8 |
| Assembly .....                 | page M-10 |



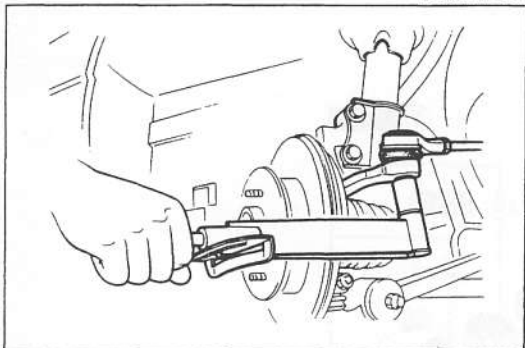
01E0MX-054

## Removal note Tie rod end

### Caution

- Do not damage the dust boot.

Loosen the nut and use the **SST** to disconnect the tie rod end.



01E0MX-055

## Installation note Tie rod end

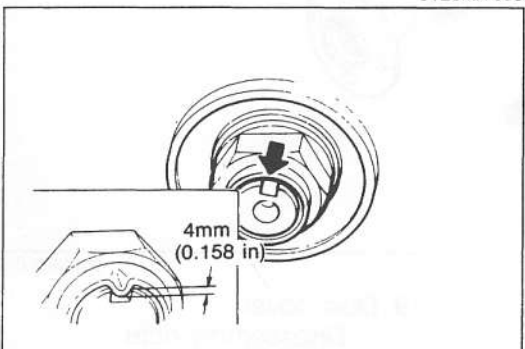
### Caution

- Do not damage the dust boot.

Install the nut and secure it with the new cotter pin.

### Tightening torque:

**42—57 N·m (4.3—5.8 m·kg, 31—42 ft·lb)**



01E0MX-012

## Locknut

1. Install a new locknut and stake it, as shown.

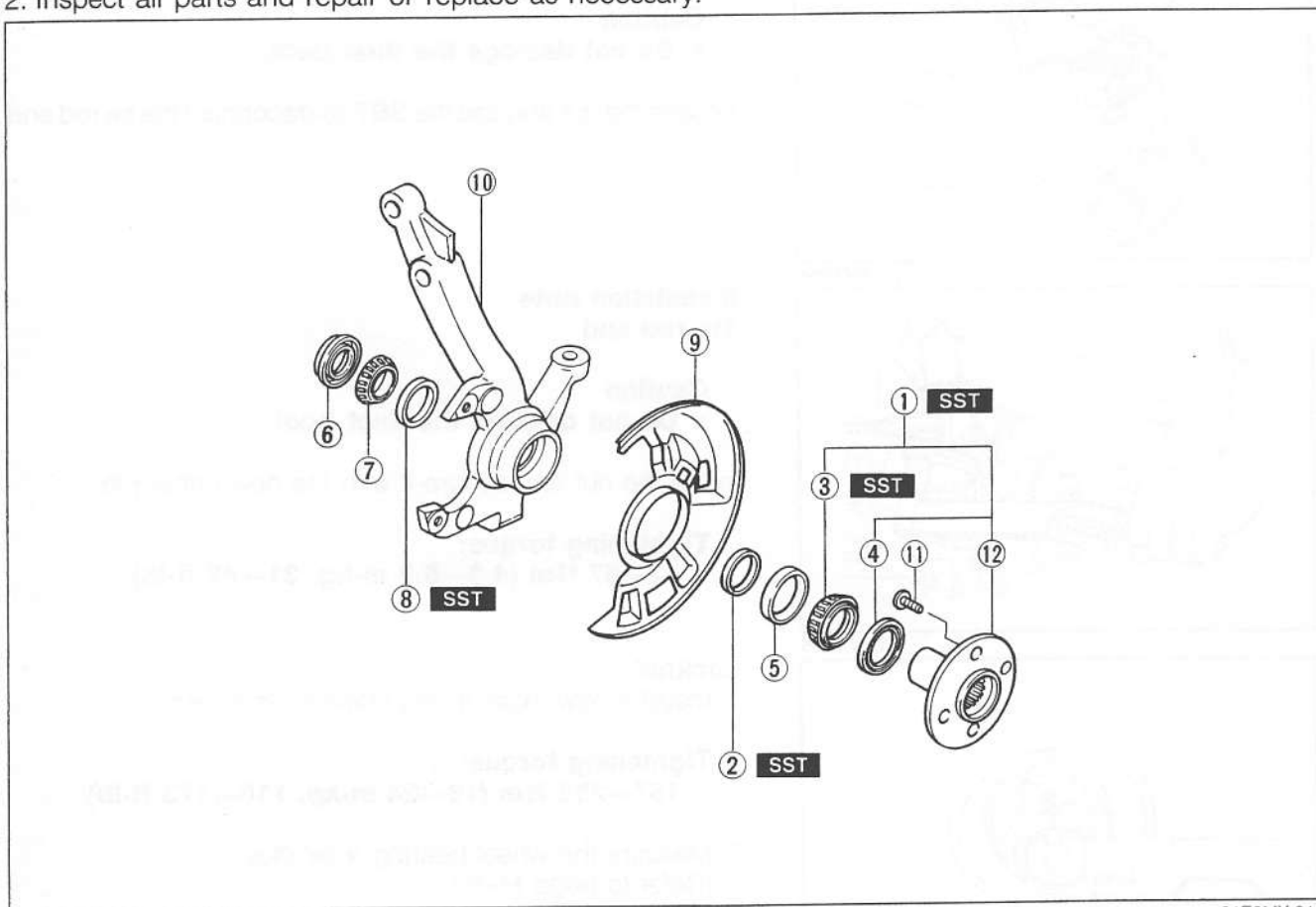
### Tightening torque:

**157—235 N·m (16—24 m·kg, 116—173 ft·lb)**

2. Measure the wheel bearing axial play.  
(Refer to page M-5.)

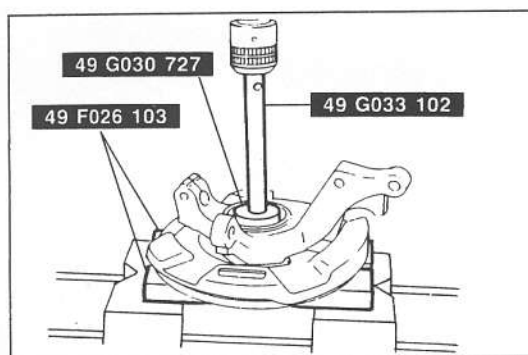
**Disassembly / Inspection**

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.



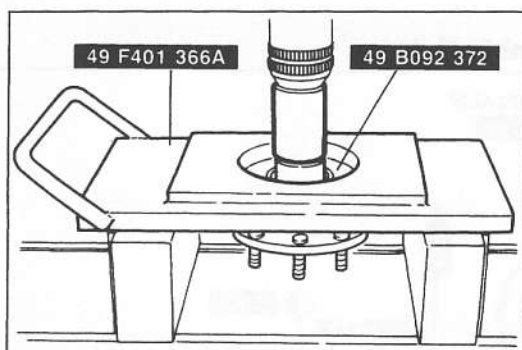
01E0MX-013

- |  |  |  |
|--|--|--|
| 1. Wheel hub assembly<br>Disassembly note ..... below  | 5. Bearing race (outer)<br>Disassembly note<br>..... page M- 9                                       | 9. Dust cover<br>Disassembly note<br>..... page M- 9   |
| 2. Spacer  | 6. Oil seal (inner)<br>Disassembly note<br>..... page M- 9   | 10. Steering knuckle<br>Inspect for wear and<br>damage |
| 3. Wheel bearing (outer)<br>Disassembly note<br>..... page M- 9<br>Inspect for wear and<br>operation | 7. Wheel bearing (inner)<br>Disassembly note<br>..... page M- 9<br>Inspect for wear and<br>operation | 11. Hub bolt<br>Disassembly note<br>..... page M- 9    |
| 4. Oil seal (outer)<br>Disassembly note<br>..... page M- 9   | 8. Bearing race (inner)<br>Disassembly note<br>..... page M- 9                                       | 12. Wheel hub<br>Inspect for wear and<br>damage        |



01E0MX-014

**Disassembly note**  
**Wheel hub assembly**Use the **SST** to remove the wheel hub assembly.



01E0MX-015

## Wheel bearing (outer), oil seal (outer)

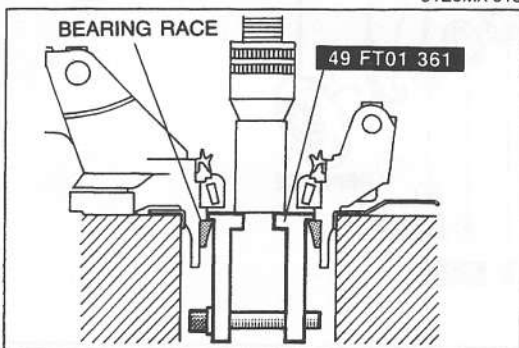
### Caution

- Hold the wheel hub to prevent it from falling.

1. Remove the wheel bearing (outer) with the **SST** and a press.
2. Remove the oil seal (outer) with a screwdriver.

### Caution

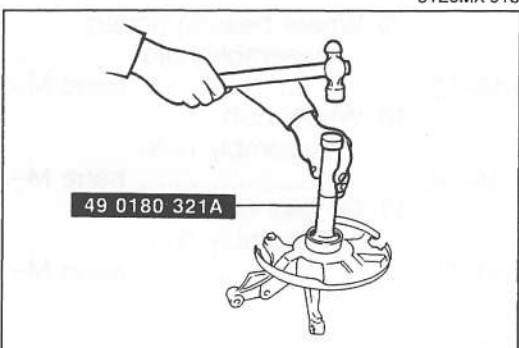
- Do not damage the wheel hub when removing the oil seal.



01E0MX-016

## Bearing race (outer)

Remove the bearing race (outer) with the **SST** and a press.



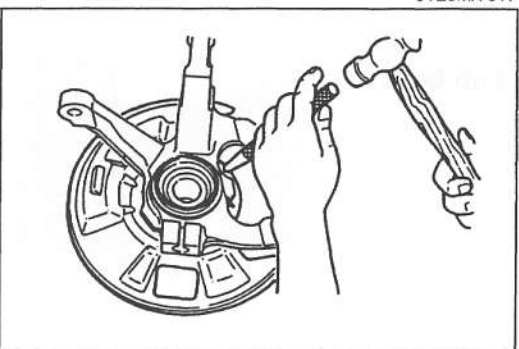
01E0MX-017

## Oil seal (inner), wheel bearing (inner), bearing race (inner)

1. Remove the oil seal (inner) with a screwdriver.
2. Remove the wheel bearing (inner).
3. Remove the bearing race (inner) with the **SST** and a hammer.

### Caution

- Tap on the bearing race (inner) only.



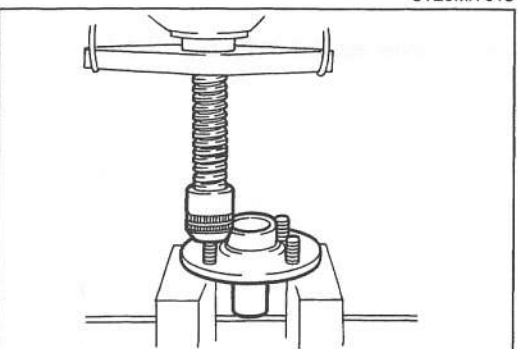
01E0MX-018

## Dust cover

### Caution

- Do not remove the dust cover if not necessary.
- Do not reuse the dust cover if removed.

1. Mark the dust cover and knuckle for proper reassembly.
2. Remove the dust cover with a chisel.



01E0MX-056

## Hub bolt

### Caution

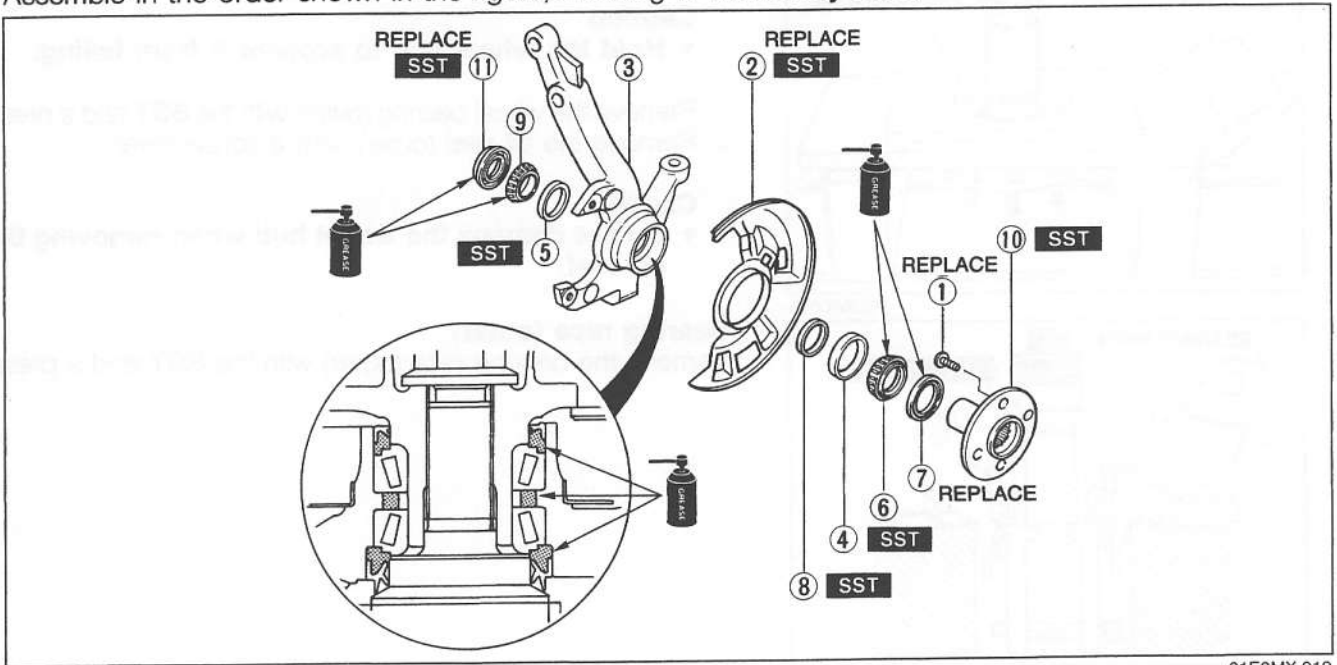
- Do not remove the hub bolts if not necessary.
- Do not reuse the hub bolts if removed.

Remove the hub bolts with a press.



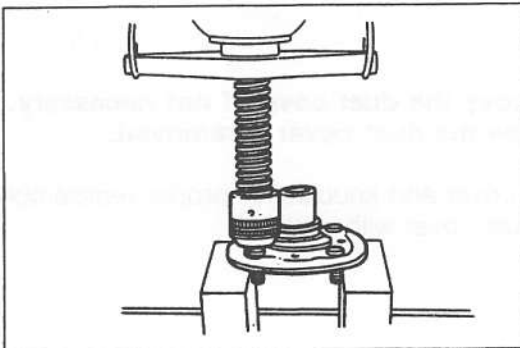
### Assembly

Assemble in the order shown in the figure, referring to **Assembly Note**.



01E0MX-019

- |   |  |  |
|---|--|--|
| 1. Hub bolt<br>Assembly note..... below                     | 6. Wheel bearing (outer)<br>Assembly note<br>..... page M-12 | 9. Wheel bearing (inner)<br>Assembly note<br>..... page M-12 |
| 2. Dust cover<br>Assembly note..... below                   | 7. Oil seal (outer)<br>Assembly note<br>..... page M-12      | 10. Wheel hub<br>Assembly note<br>..... page M-13            |
| 3. Steering knuckle<br>Assembly note<br>..... page M-11     | 8. Spacer<br>Assembly note<br>..... page M-12                | 11. Oil seal (inner)<br>Assembly note<br>..... page M-13     |
| 4. Bearing race (outer)<br>Assembly note<br>..... page M-11 |  |  |
| 5. Bearing race (inner)<br>Assembly note<br>..... page M-11 |  |  |

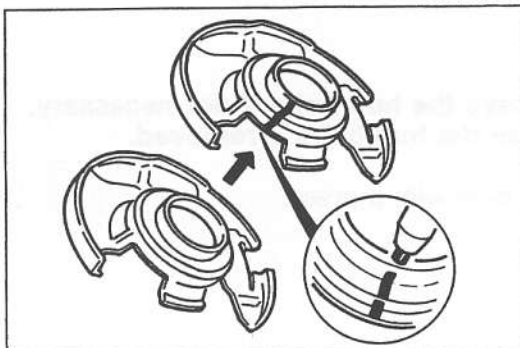


01E0MX-057

### Assembly note

#### Hub bolt

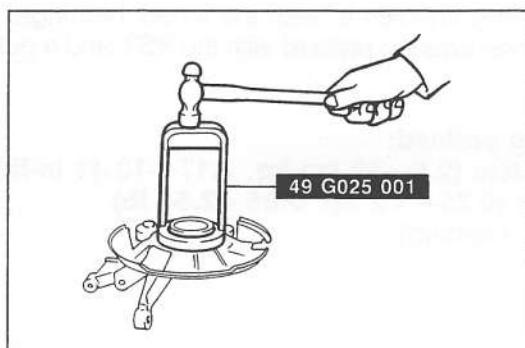
Press in the new hub bolts.



9MU0MX-621

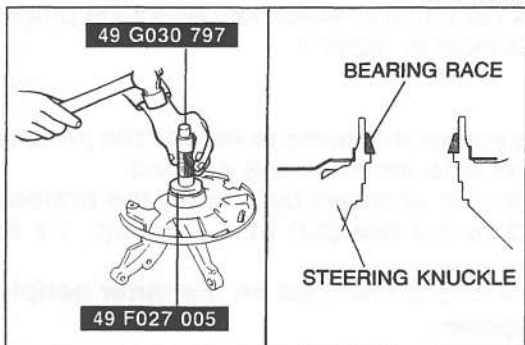
### Dust cover

1. Mark the new dust cover as the one removed.



01E0MX-020

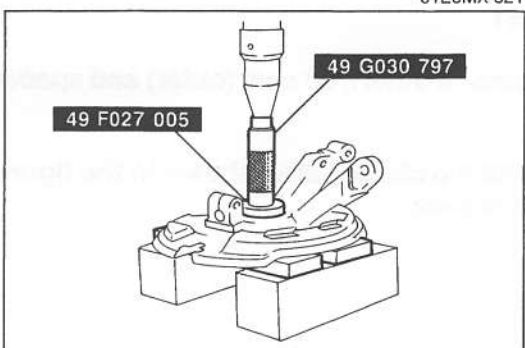
2. Align the marks of the new dust cover and the steering knuckle.
3. Tap on the new dust cover with the **SST** and a hammer.



01E0MX-021

## Bearing race (outer)

Install the bearing race (outer) with the **SST** and a hammer until it contacts the steering knuckle.



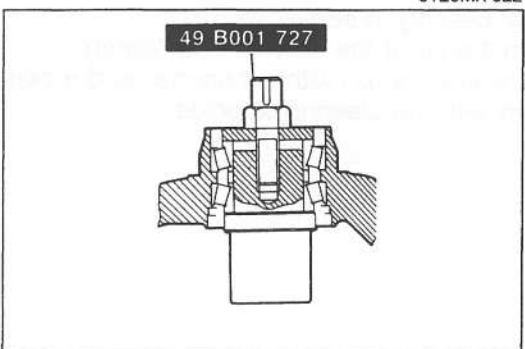
01E0MX-022

## Bearing race (inner)

Press in the bearing race (inner) with the **SST**.

### Note

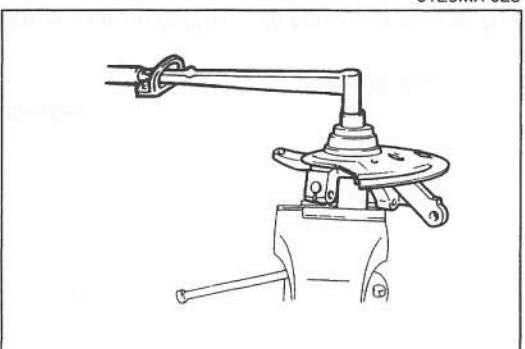
- After replacing a bearing race, adjust the wheel bearing preload.



01E0MX-023

## Adjustment of wheel bearing preload

1. Insert the two wheel bearings and removed spacer into the steering knuckle and attach the **SST**.
2. Secure the bottom of the **SST**.



01E0MX-024

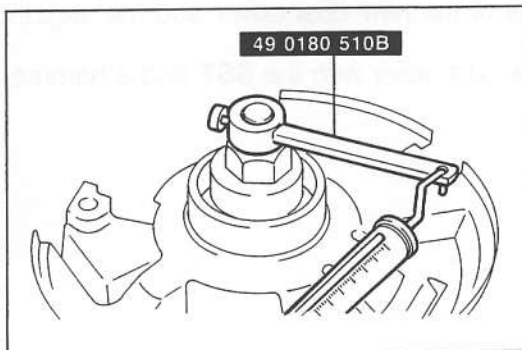
3. Tighten the nut of the **SST** to the specified torque.

### Tightening torque:

157—235 N·m (16—24 m·kg, 116—174 ft·lb)

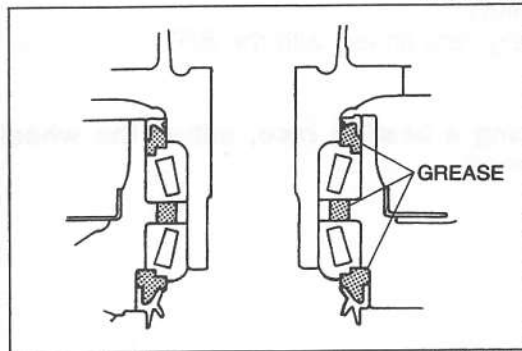
### Caution

- When tightening, torque in steps of 49 N·m (5 m·kg, 36 ft·lb) to prevent applying excessive preload.

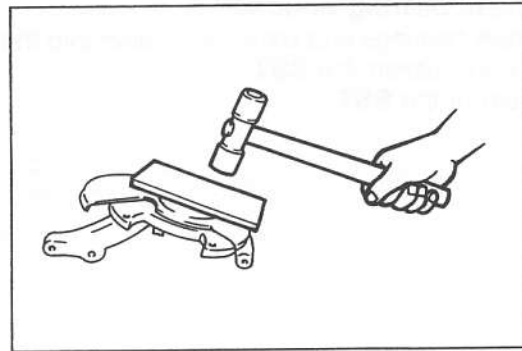
01E0MX-025  
mm (in)

Mark	Thickness	Mark	Thickness
1	6.285 (0.2474)	12	6.725 (0.2648)
2	6.325 (0.2490)	13	6.765 (0.2663)
3	6.365 (0.2506)	14	6.805 (0.2679)
4	6.405 (0.2522)	15	6.845 (0.2695)
5	6.445 (0.2538)	16	6.885 (0.2711)
6	6.485 (0.2554)	17	6.925 (0.2726)
7	6.525 (0.2570)	18	6.965 (0.2742)
8	6.565 (0.2585)	19	7.005 (0.2758)
9	6.605 (0.2600)	20	7.045 (0.2774)
10	6.645 (0.2616)	21	7.085 (0.2789)
11	6.685 (0.2631)		

01E0MX-026



01E0MX-027



01E0MX-028

4. Rotate the steering knuckle to seat the wheel bearings.
5. Measure the wheel bearing preload with the **SST** and a pull scale.

**Wheel bearing preload:**

**0.25—1.17 N·m (2.5—12 cm·kg, 2.17—10.41 in·lb)**  
**2.5—11.7 N (0.25—1.2 kg, 0.55—2.64 lb)**  
 (pull scale reading)

6. If the preload is not within specification, select the proper spacer from the table to adjust it.

**Note**

- Increase the spacer thickness to reduce the preload and decrease it to increase the preload.
- When a spacer is changed by 1 rank, the preload changes 0.2 to 0.4 N·m (2.0 to 4.0 cm·kg, 1.7 to 3.5 in·lb)
- The rank marking is stamped on the outer periphery of the spacer.

7. Remove the **SST**.

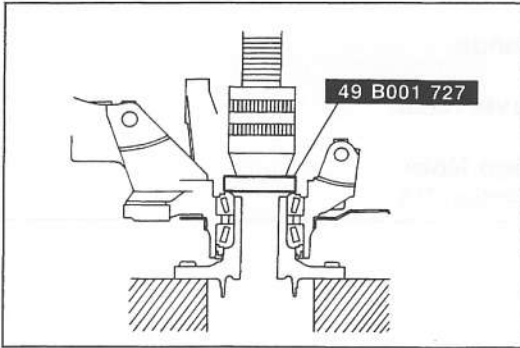
**Wheel bearing (outer & inner), oil seal (outer) and spacer****Note**

- Completely fill the shaded area shown in the figure with lithium grease.

1. Install the wheel bearing (outer).
2. Apply grease to the lip of the new oil seal (outer).
3. Install the new oil seal (outer) with a hammer and a plate so that it is flush with the steering knuckle.

4. Install the spacer that was selected at "Adjustment of wheel bearing preload".
5. Install the wheel bearing (inner).

01E0MX-029

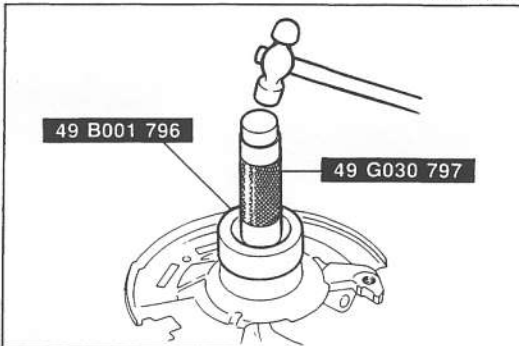


01E0MX-030

## Wheel hub

Press the wheel hub into the steering knuckle with the **SST**.

**Pressure: 24,500 N (2,500 kg, 5,500 lb) max.**



01E0MX-031


## Oil seal (inner)

1. Apply grease to the lip of the new oil seal (inner).
2. Install the new oil seal (inner) with the **SST** and a hammer so that it is flush with the steering knuckle.

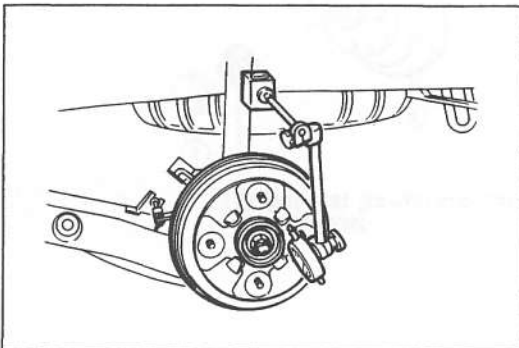
## REAR AXLE

### PREPARATION

#### SST

<p>49 0259 770B</p> <p>Wrench, flare nut</p> 	<p>For removal/ installation of brake pipe</p>
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01E0MX-058



01E0MX-059

## DRUM BRAKE TYPE

### Preinspection

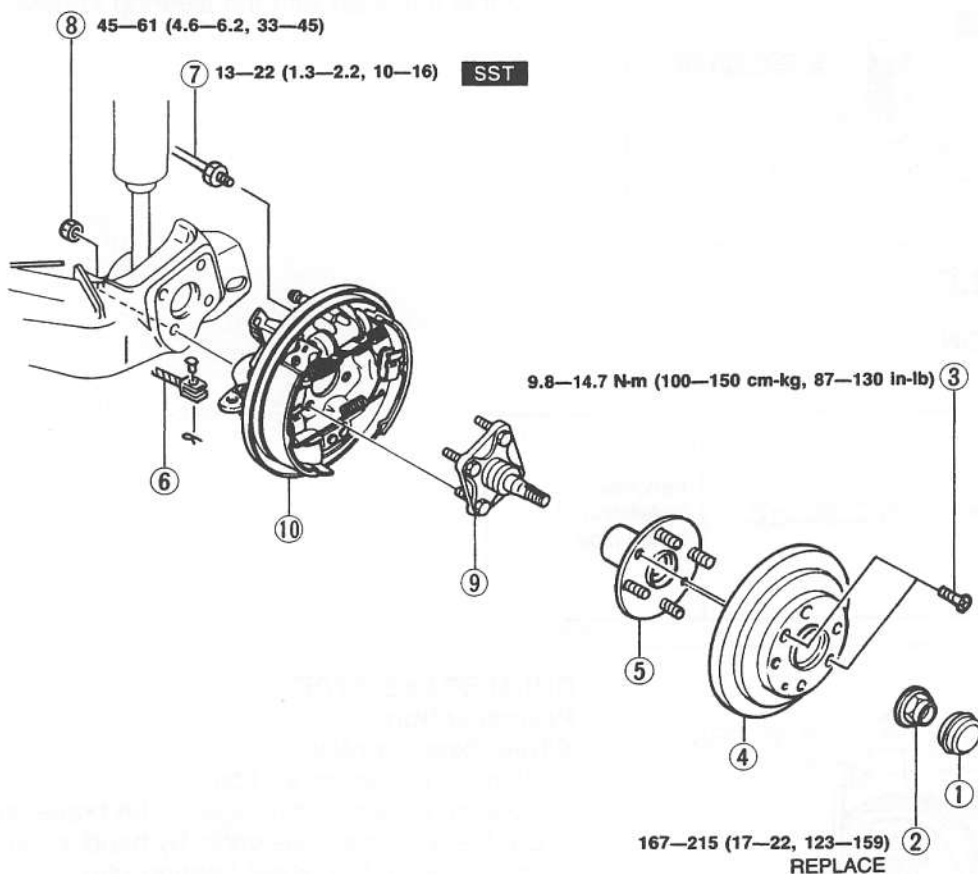
#### Wheel bearing play

1. Remove the wheel and tire.
2. Position a dial indicator against the brake drum. Push and pull the rear brake assembly by hand in the axial direction and measure the wheel bearing play.
3. If the bearing play exceeds specification, check and adjust the locknut torque, or replace the wheel bearing if necessary.

**Wheel bearing play: 0.05mm (0.002 in) max.**

### Removal / Inspection / Installation

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheel and tire.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Inspect all parts and repair or replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. After installing, bleed air from the brake system. (Refer to Section P.)



N-m (m-kg, ft-lb)

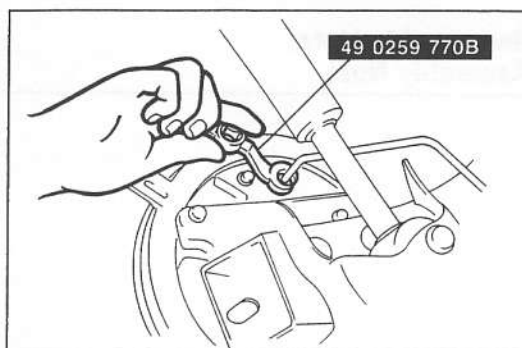
01E0MX-032

1. Hub cap
2. Locknut  
Installation note  
..... page M-15
3. Screw
4. Brake drum  
Service..... Section P

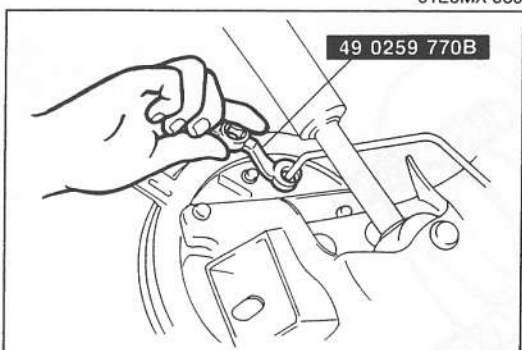
5. Wheel hub assembly  
Disassembly /  
Assembly..... page M-16  
Inspect for wear and  
operation
6. Parking brake cable  
Service..... Section P

7. Brake pipe  
Removal note.. page M-15  
Installation note  
..... page M-15
8. Nut
9. Spindle  
Inspect for wear and  
damage
10. Backing plate  
Service..... Section P

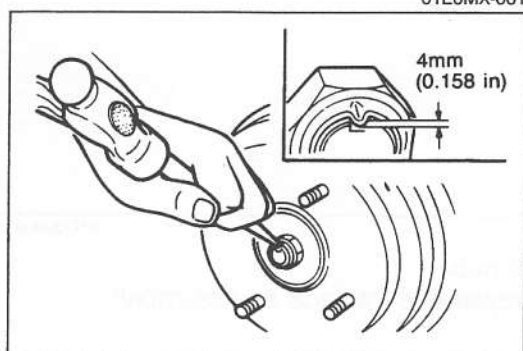




01E0MX-060



01E0MX-061



01E0MX-033

## Removal note Brake pipe

### Caution

- After disconnecting the brake pipe, plug it to avoid fluid leakage.

Disconnect the brake pipe with the **SST**.

## Installation note Brake pipe

Tighten the brake pipe with the **SST**.

### Tightening torque:

**13—22 N·m (1.3—2.2 m·kg, 10—16 ft·lb)**

## Locknut

1. Install a new locknut and stake it, as shown.

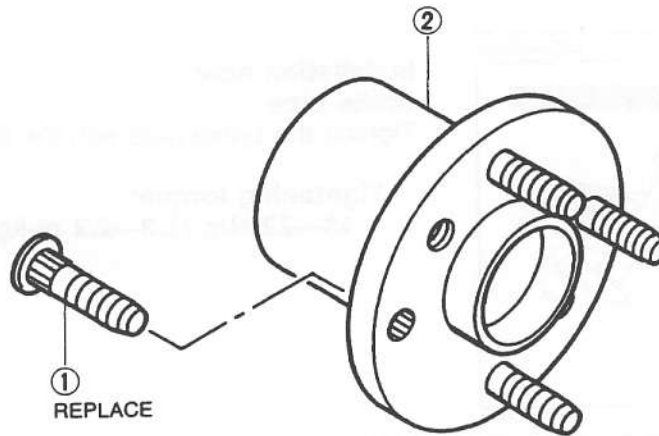
### Tightening torque:

**167—215 N·m (17—22 m·kg, 123—159 ft·lb)**

2. Measure the wheel bearing axial play.  
(Refer to page M-13.)

### Disassembly / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



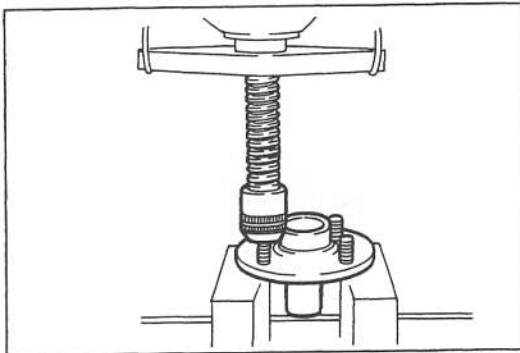
01E0MX-034

#### 1. Hub bolt

Disassembly note ..... below  
Assembly note ..... below

#### 2. Wheel hub

(Not repairable, replace as assembly)



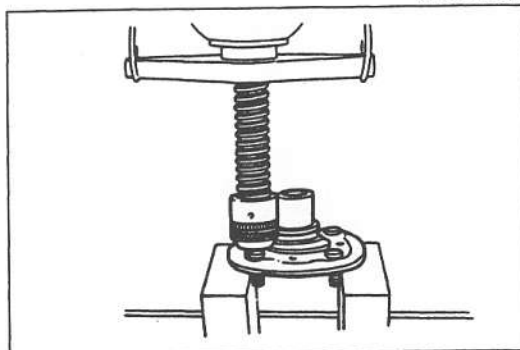
01E0MX-062

### Disassembly note Hub bolt

#### Caution

- Do not remove the hub bolts if not necessary.
- Do not reuse the hub bolts if removed.

Remove the hub bolt with a press.



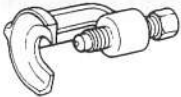
01E0MX-063

### Assembly note Hub bolt

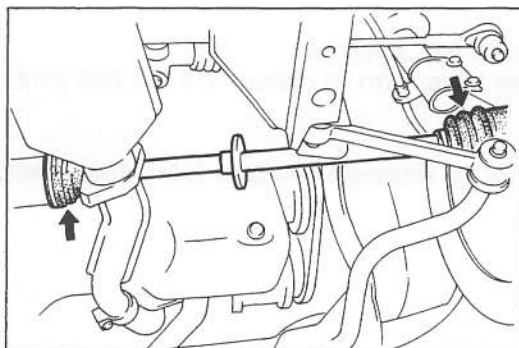
Press in the new hub bolt.

## DRIVE SHAFT

### PREPARATION SST

49 0118 850C Puller, ball joint		For removal of tie rod end
------------------------------------	---	----------------------------

01E0MX-035



01E0MX-036

### DRIVE SHAFT (TRIPOD JOINT)

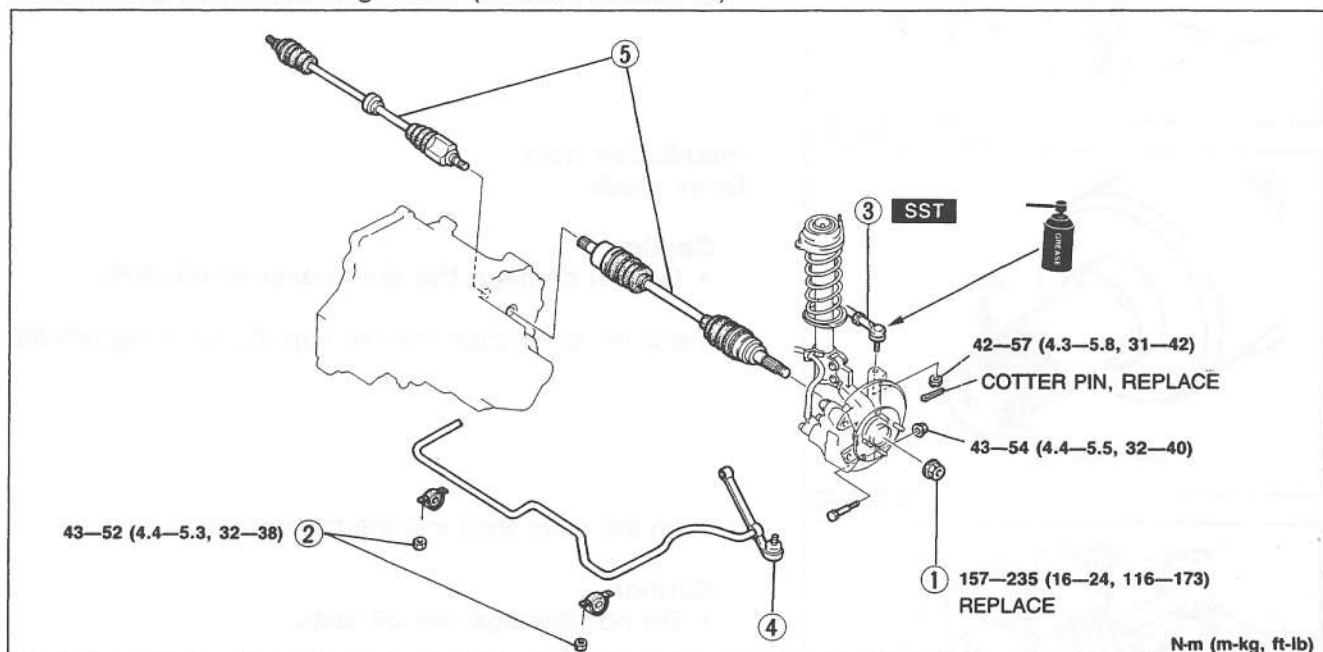
#### Preinspection

#### Drive shaft

1. Check the dust boot on the drive shaft for cracks, damage, grease leakage, and a loose boot band.
2. Check the drive shaft for bending, cracks, and wear of joints or splines.
3. Repair or replace the drive shaft if necessary.

### Removal / Installation

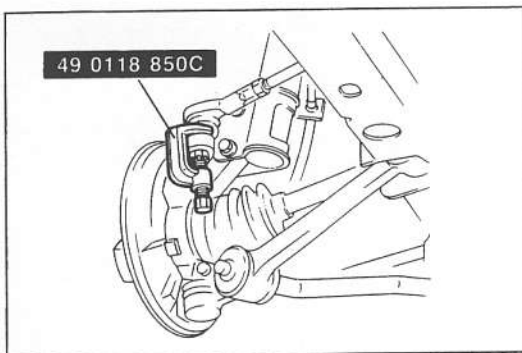
1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheel and tire.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.
5. Check the transaxle oil amount. (Refer to Sections J, K.)
6. Check the front wheel alignment. (Refer to Section R.)



N-m (m-kg, ft-lb)

01E0MX-037

- |  |  |   |
|--|--|---|
| 1. Locknut<br>Installation note<br>..... page M-19 | 3. Tie rod end<br>Removal note.. page M-18 | 5. Drive shaft<br>Removal note.. page M-18<br>Installation note<br>..... page M-18<br>Overhaul..... page M-20 |
| 2. Nut   | 4. Lower arm<br>Removal note.. page M-18   |   |



01U0MX-066

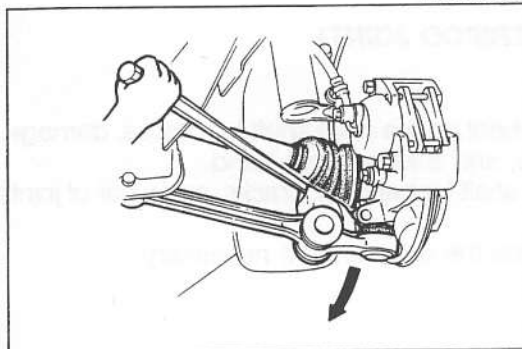
### Removal note

#### Tie rod end

#### Caution

- Do not damage the dust boot.

Loosen the nut and use the **SST** to disconnect the tie rod end.



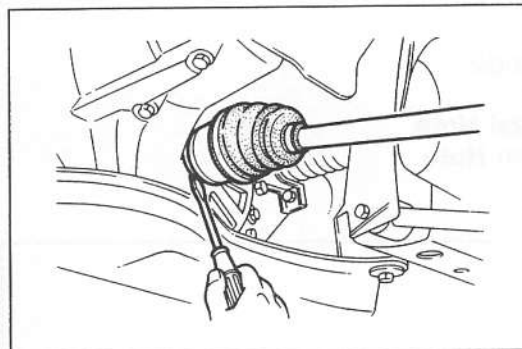
01E0MX-038

### Lower arm

1. Remove the clinch bolt and nut.
2. Pry down on the lower arm to disconnect the ball joint.

#### Caution

- Be careful not to damage the ball joint dust boot.



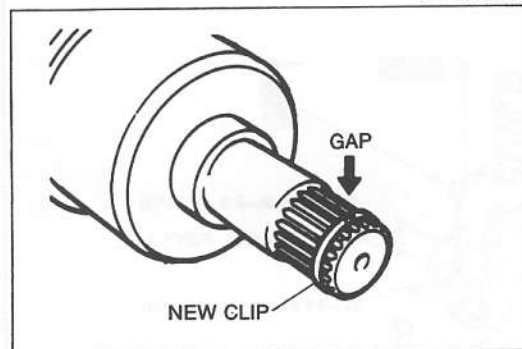
01E0MX-039

### Drive shaft

#### Caution

- Do not damage the dust cover or oil seal.

Pry the drive shaft from the transaxle with a screwdriver.



01E0MX-065

### Installation note

#### Drive shaft

#### Caution

- Do not damage the dust cover or oil seal.

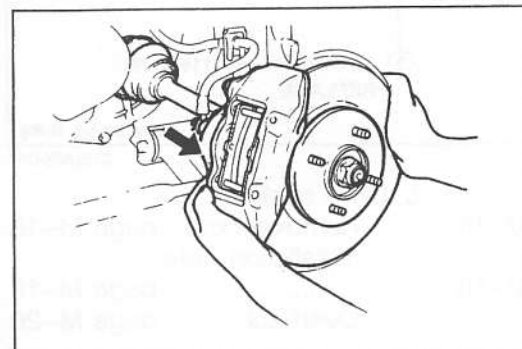
1. Install the drive shaft with the gap of clip facing upward.
2. Push the drive shaft into the transaxle.

#### Caution

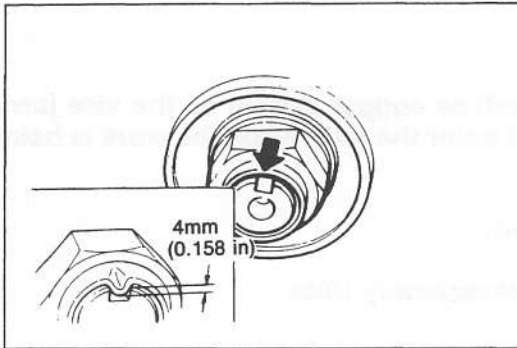
- Do not damage the oil seal.

#### Note

- After installation, pull the front hub outward to verify that the drive shaft is held.



01E0MX-040



01E0MX-041

## Locknut

Install a new locknut and stake it, as shown.

## Tightening torque:

**157—235 N·m (16—24 m·kg, 116—173 ft·lb)**

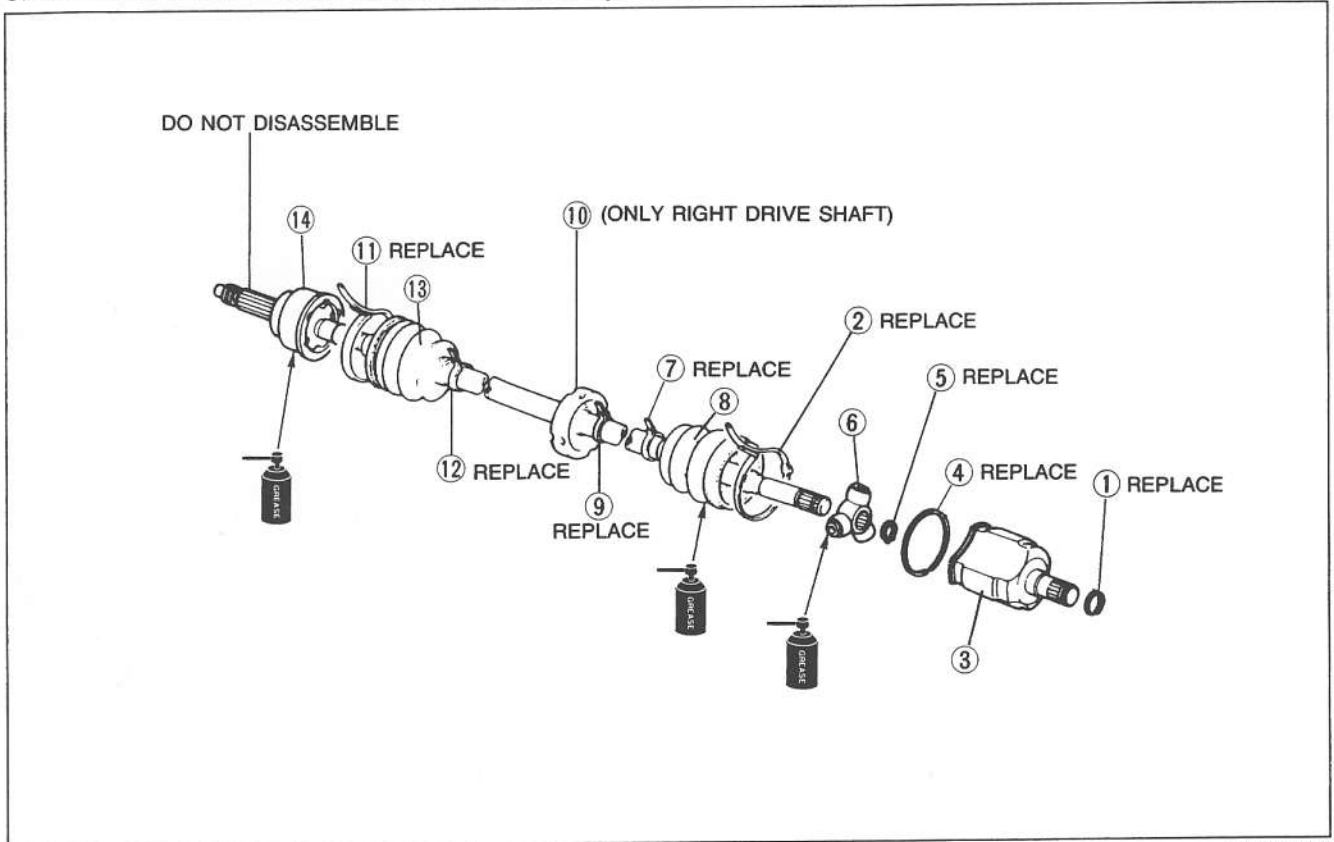


### Overhaul

#### Caution

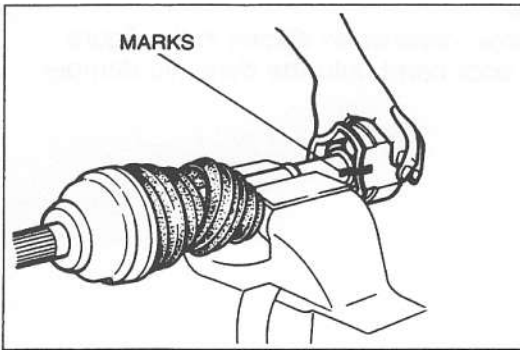
- Secure the joint in a vise with protective material (such as copper plates) on the vise jaws.
- Be careful that dust or other foreign material does not enter the joint while the work is being performed.
- Do not disassemble the wheel side ball joint.
- Do not wash the joint unless it is being disassembled.

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



01E0MX-042

- |                         |                          |                                   |
|-------------------------|--------------------------|-----------------------------------|
| 1. Clip                 | 6. Tripod joint          | 11. Boot band                     |
| 2. Boot band            | Disassembly note         | Assembly note                     |
| Assembly note           | ..... page M-21          | ..... page M-23                   |
| ..... page M-23         | Inspect for wear and     | 12. Boot band                     |
| 3. Outer ring           | damage                   | Assembly note                     |
| Disassembly note        | Assembly note            | ..... page M-23                   |
| ..... page M-21         | ..... page M-22          | 13. Boot (wheel side)             |
| Inspect inside bore for | 7. Boot band             | Inspect for wear and              |
| wear, corrosion, and    | Assembly note            | damage                            |
| scoring                 | ..... page M-23          | Assembly note                     |
| Assembly note           | 8. Boot (transaxle side) | ..... page M-21                   |
| ..... page M-22         | Inspect for wear and     | 14. Shaft and ball joint assembly |
| 4. Retaining ring       | damage                   | Inspect splines for damage        |
| 5. Snap ring            | 9. Boot band             | and wear                          |
|                         | Assembly note            | Inspect wheel side joint for      |
|                         | ..... page M-23          | excessive play and rough          |
|                         | 10. Dynamic damper       | rotation                          |
|                         | Assembly note            |                                   |
|                         | ..... page M-22          |                                   |

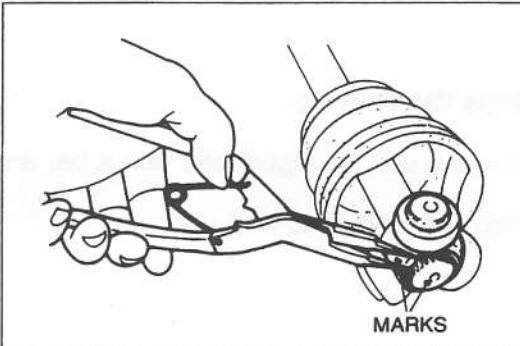


01E0MX-043

## Disassembly note

### Outer ring

1. Mark the outer ring and the shaft for proper reassembly.
2. Remove the outer ring.



01E0MX-044

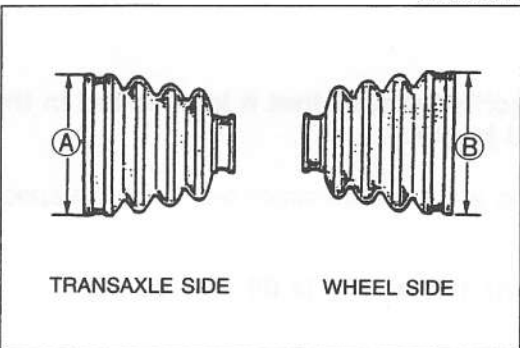
## Tripod joint

1. Mark the shaft and tripod joint for proper reassembly.
2. Remove the snap ring with snap-ring pliers.

### Caution

- Do not damage the bearing.

3. Remove the tripod joint from the shaft.



01E0MX-045

## Assembly note

### Boot (wheel side)

### Caution

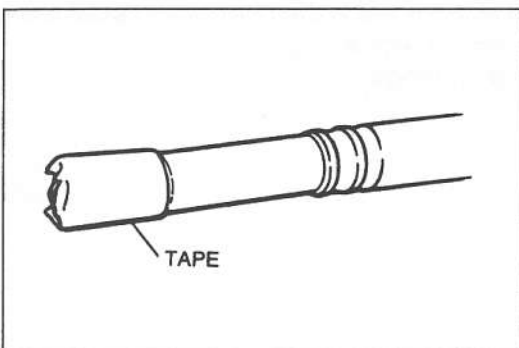
- The wheel side and transaxle side boots are different.

mm (in)

	MTX	ATX
(A)	82.0 (3.23)	
(B)	80.2 (3.16)	85.3 (3.36)

### Caution

- Use the specified grease that it is supplied in the boot kit and joint kit.



01E0MX-047

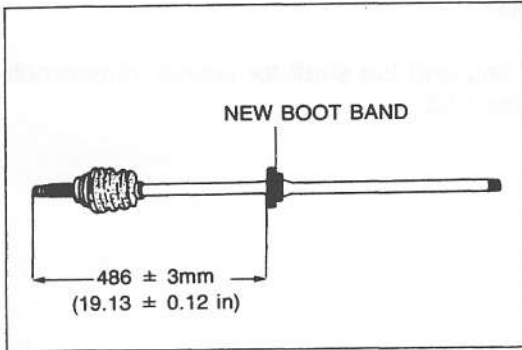
1. Fill the boot (wheel side) with the specified grease.

### Grease amount

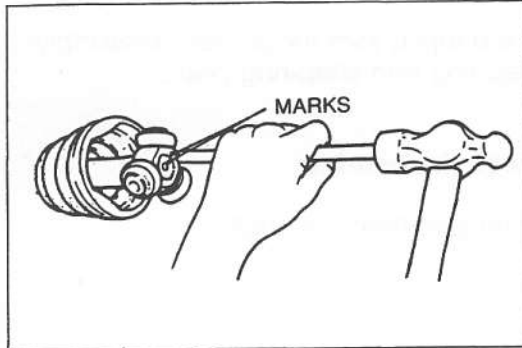
MTX: 60 ± 10g (2.12 ± 0.35 oz)

ATX: 80 ± 10g (2.82 ± 0.35 oz)

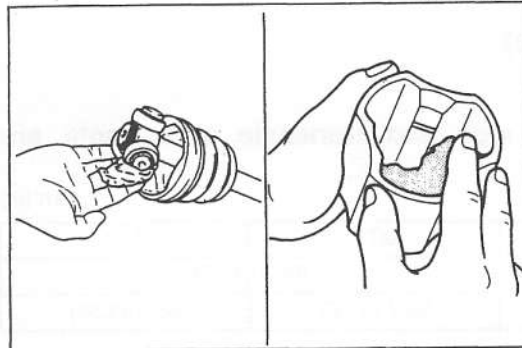
2. Wrap the splines of the transaxle side shaft, and install the wheel side boot.



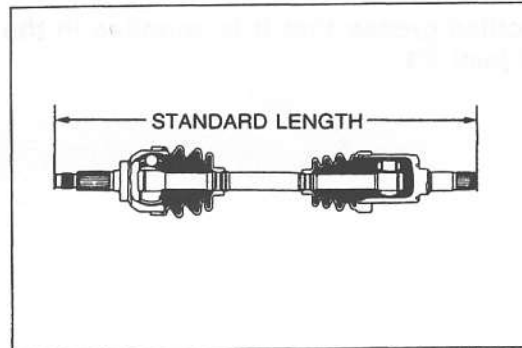
01E0MX-048



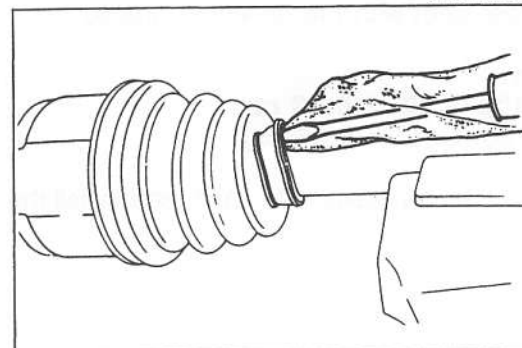
01E0MX-049



01E0MX-050



01E0MX-051



01E0MX-052

**Dynamic damper**

1. Install the dynamic damper as shown in the figure.
2. Install the new boot band onto the dynamic damper.

**Tripod joint****Caution**

- Do not damage the bearing.

1. Align the marks and install the tripod joint with a bar and a hammer.
2. Install a new snap ring with snap-ring pliers.

**Outer ring****Caution**

- Use the specified grease that it is supplied in the boot kit and joint kit.

1. Fill the outer ring and boot (transaxle side) with the specified grease.

**Grease amount: 115 ± 10g (4.06 ± 0.35 oz)**

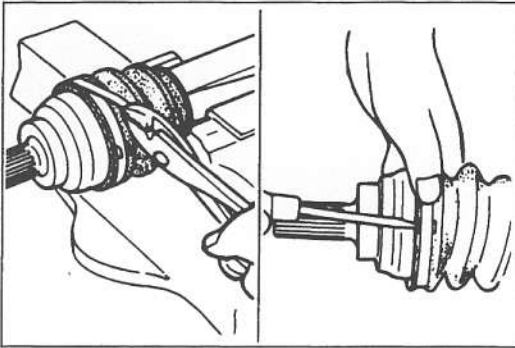
2. Install the new outer ring.
3. Set the drive shaft to the standard length.

**Standard length**

mm (in)

Transaxle	Left side	Right side
MTX	634.4 ± 5 (24.98 ± 0.20)	908.4 ± 5 (35.76 ± 0.20)
ATX	634.0 ± 5 (24.96 ± 0.20)	906.0 ± 5 (35.67 ± 0.20)

4. Release trapped air from inside the boot (wheel side) using a screwdriver covered with a rag.
5. Verify the drive shaft length.



01E0MX-053

**Boot band****Caution**

- Always use new bands.
- The bands should be mounted in the direction opposite the forward revolving direction of the drive shaft.

1. Fold the band back by pulling the end of it with pliers.
2. Lock the end of the band by bending the locking clips.

# STEERING SYSTEM

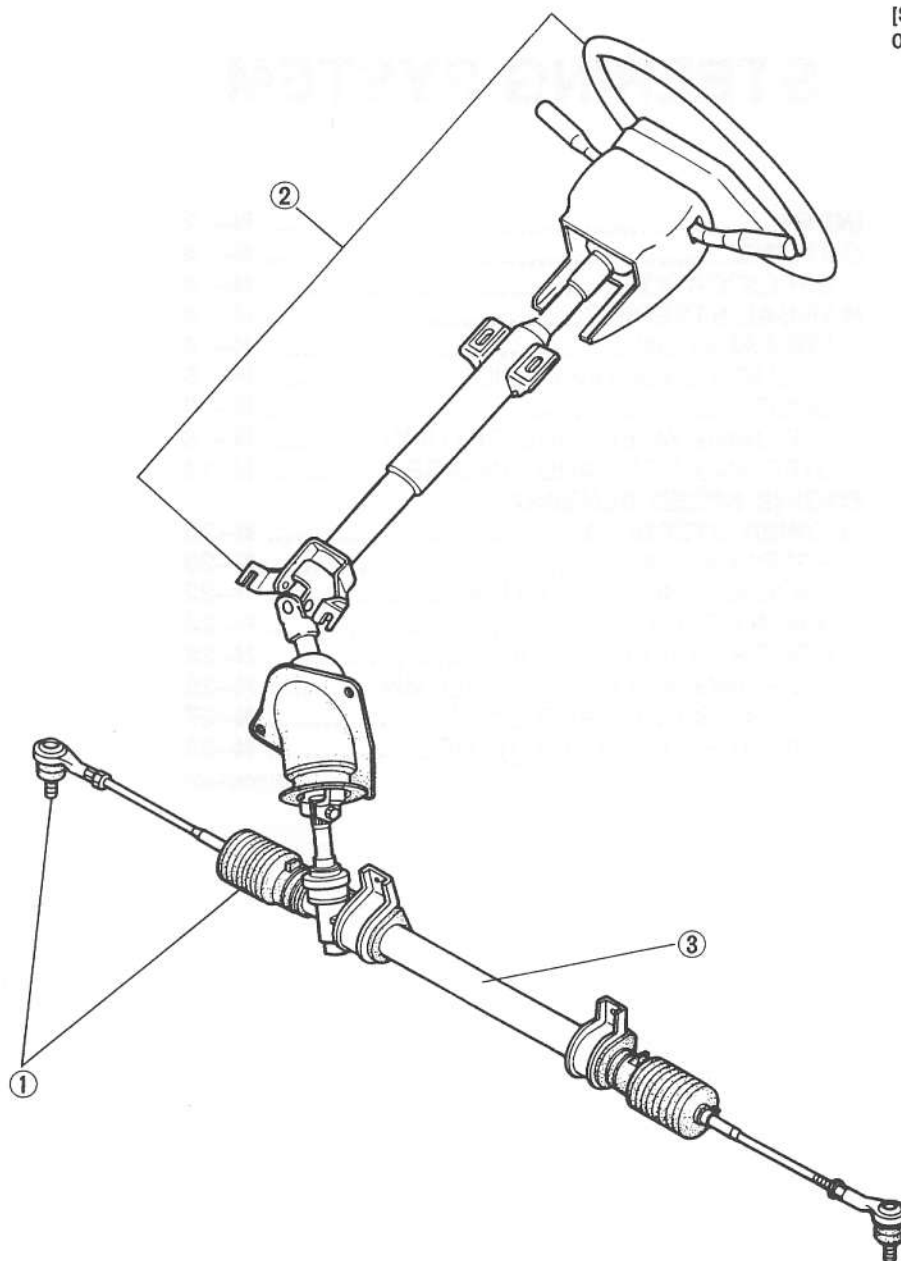
<b>INDEX</b> .....	<b>N- 2</b>
<b>OUTLINE</b> .....	<b>N- 4</b>
SPECIFICATIONS.....	<b>N- 4</b>
<b>MANUAL STEERING</b> .....	<b>N- 4</b>
PREPARATION .....	<b>N- 4</b>
TROUBLESHOOTING GUIDE .....	<b>N- 5</b>
BOOT .....	<b>N- 6</b>
STEERING WHEEL AND COLUMN .....	<b>N- 8</b>
STEERING GEAR AND LINKAGE .....	<b>N-13</b>
<b>ENGINE SPEED SENSING</b>	
<b>POWER STEERING</b> .....	<b>N-20</b>
PREPARATION .....	<b>N-20</b>
TROUBLESHOOTING GUIDE .....	<b>N-22</b>
AIR BLEEDING .....	<b>N-23</b>
POWER STEERING FLUID.....	<b>N-23</b>
STEERING WHEEL AND COLUMN .....	<b>N-26</b>
STEERING GEAR AND LINKAGE .....	<b>N-27</b>
POWER STEERING OIL PUMP.....	<b>N-38</b>

01G0NX-001

## INDEX

## MANUAL STEERING

[STEERING WHEEL PLAY  
0—30mm (0—1.18 in)]



01A0NX-008

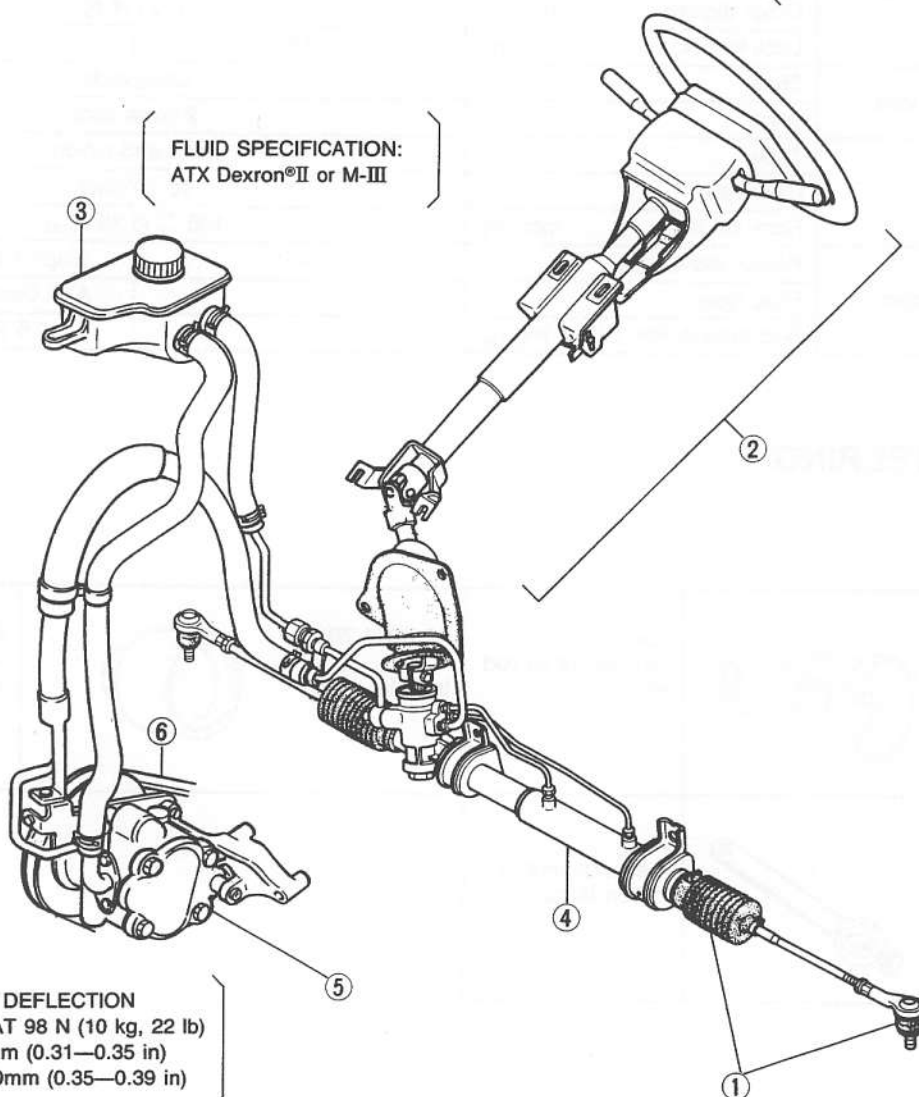
- |                                       |   |
|---------------------------------------|---|
| 1. Boot                               | 3. Steering gear and linkage            |
| Replacement..... page N- 6            | Removal / Installation..... page N-13   |
| 2. Steering wheel and column          | Disassembly / Inspection..... page N-15 |
| On-vehicle inspection..... page N- 8  | Assembly..... page N-17                 |
| Removal / Installation..... page N- 9 |   |
| Disassembly / Inspection /            |   |
| Assembly..... page N-11               |   |

# ENGINE SPEED SENSING POWER STEERING (ESPS)

STEERING WHEEL  
FREE PLAY:  
0—30mm (0—1.18 in)

FLUID SPECIFICATION:  
ATX Dexron®II or M-III

DRIVE BELT DEFLECTION  
(PRESSED AT 98 N (10 kg, 22 lb))  
NEW: 8—9mm (0.31—0.35 in)  
USED: 9—10mm (0.35—0.39 in)



01G0NX-003

- |                               |           |
|-------------------------------|-----------|
| 1. Boot                       |           |
| Replacement.....              | page N- 6 |
| 2. Steering wheel and column  |           |
| On-vehicle inspection.....    | page N-26 |
| Removal / Installation.....   | page N- 9 |
| Disassembly / Inspection /    |           |
| Assembly.....                 | page N-11 |
| 3. Power steering fluid       |           |
| Inspection.....               | page N-23 |
| 4. Steering gear and linkage  |           |
| Air bleeding.....             | page N-23 |
| Removal / Installation.....   | page N-27 |
| Disassembly / Inspection..... | page N-28 |
| Assembly.....                 | page N-32 |
| 5. Power steering oil pump    |           |
| Air bleeding.....             | page N-23 |
| Removal / Installation.....   | page N-38 |
| Disassembly / Inspection /    |           |
| Assembly.....                 | page N-39 |
| 6. Drive belt                 |           |
| Inspection.....               | page N-41 |
| Adjustment.....               | page N-41 |
| Replacement.....              | page N-41 |

## OUTLINE

## SPECIFICATIONS

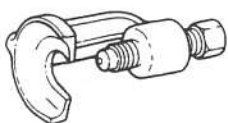
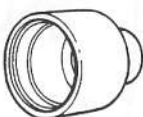
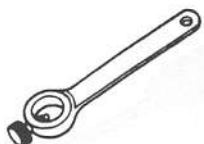
Item		Type	Manual steering	Power steering
Steering wheel	Outer diameter	mm (in)	370 (14.6)	
	Lock-to-lock	turns	3.8	3.3
Steering shaft and joint	Shaft		Collapsible	
	Joint		2-cross joint	
Steering gear	Type		Rack-and-pinion	
	Gear ratio		$\infty$ (infinite)	
	Rack stroke	mm (in)	136 $\pm_2^0$ (5.35 $\pm_{0.08}^0$ )	
Power steering system	Power assist type		—	Engine speed sensing
	Fluid type		—	ATF Dexron®II or M-III
	Fluid capacity liter (US qt, Imp qt)		—	0.6 (0.63, 0.53)

01A0NX-009

## MANUAL STEERING

## PREPARATION

## SST

49 0118 850C Puller, ball joint		For removal of tie rod end	49 8038 785 Installer, boot		For installation of tie rod end boot
49 0180 510B Preload attachment		For measurement of pinion torque			

01E0NX-004



## TROUBLESHOOTING GUIDE

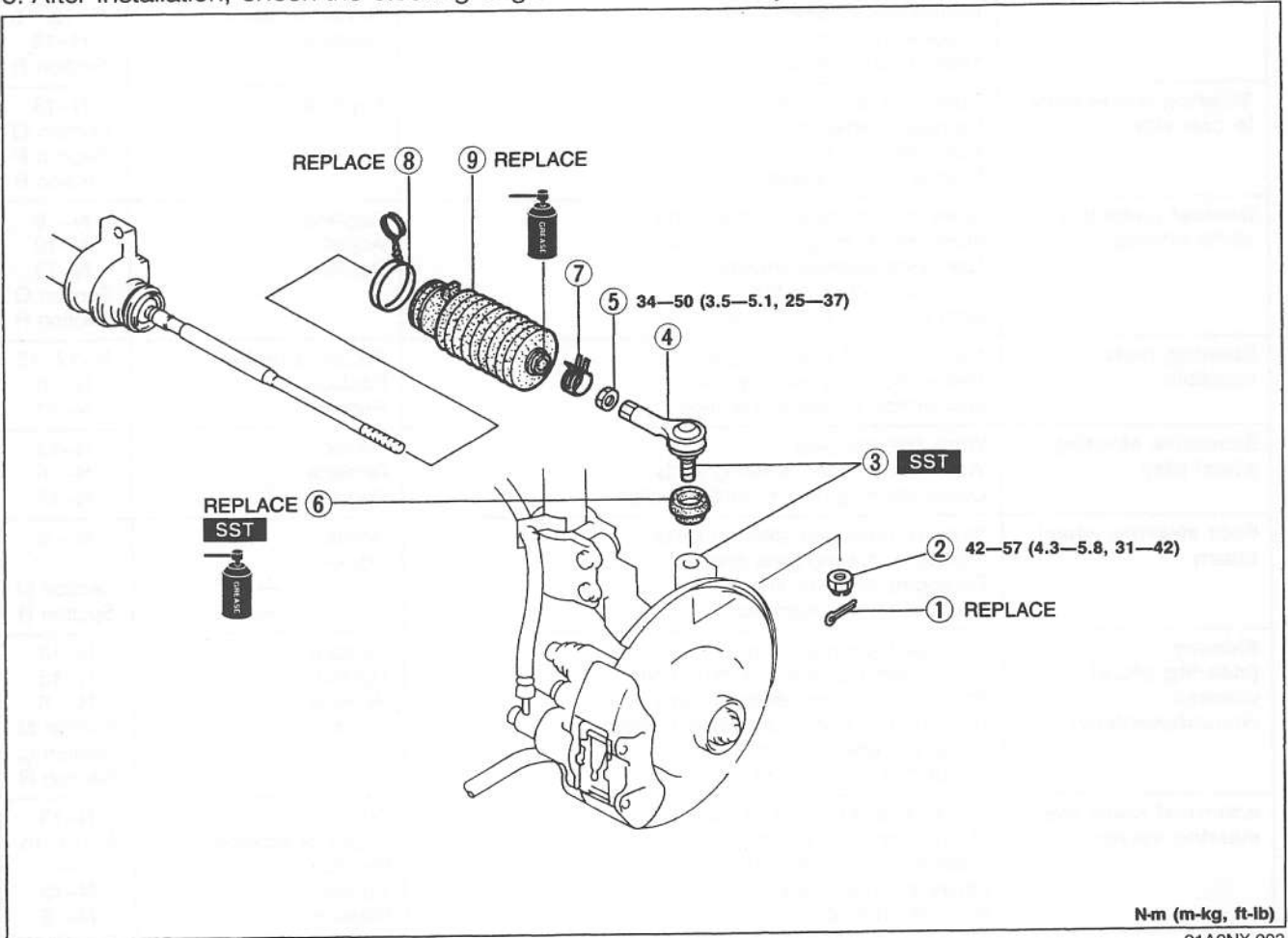
Problem	Possible cause	Action	Page
<b>Steering feels heavy (vehicle jacked up)</b>	Poor lubrication, foreign material in mechanism, stuck or damaged steering ball joint Improper steering gear preload Damaged steering gear Malfunction of steering shaft joint Malfunction of steering gear Cracked or worn steering gear mounting rubber Malfunction of suspension	Lubricate or replace  Adjust Replace Replace Repair or replace Replace —	N- 6  N-19 N-13 N- 9 N-13, 15 N-13 Section R
<b>Steering wheel pulls to one side</b>	Damaged steering linkage Damaged wheel or tire Malfunction of braking system Malfunction of suspension	Replace — — —	N-13 Section Q Section P Section R
<b>General instability while driving</b>	Worn or damaged steering joints Improper steering gear preload Damaged steering linkage Damaged wheel or tire Malfunction of suspension	Replace Adjust Replace — —	N- 6 N-19 N-13 Section Q Section R
<b>Steering feels unstable</b>	Malfunction of steering gear Malfunction of steering joints Malfunction of steering linkage	Repair or replace Replace Replace	N-13, 15 N- 6 N-13
<b>Excessive steering wheel play</b>	Worn steering gear Worn or damaged steering joints Loose steering gear mounting bolts	Replace Replace Replace	N-13 N- 6 N-13
<b>Poor steering wheel return</b>	Stuck or damaged steering joints Improper steering gear preload Damaged wheel or tire Malfunction of suspension	Replace Adjust — —	N- 6  Section Q Section R
<b>Shimmy (steering wheel vibrates circumferentially)</b>	Damaged steering linkage Loose steering gear mounting bolts Stuck or damaged steering joints Damaged or worn front wheel bearing Damaged wheel or tire Malfunction of suspension	Replace Tighten Replace Replace — —	N-13 N-13 N- 6 Section M Section Q Section R
<b>Abnormal noise from steering system</b>	Loose steering gear mounting bolts Malfunction of steering gear Obstruction near steering column Loose steering linkage Worn steering joints	Tighten Repair or replace Replace Tighten Replace	N-13 N-13, 15 — N-13 N- 6

01A0NX-010

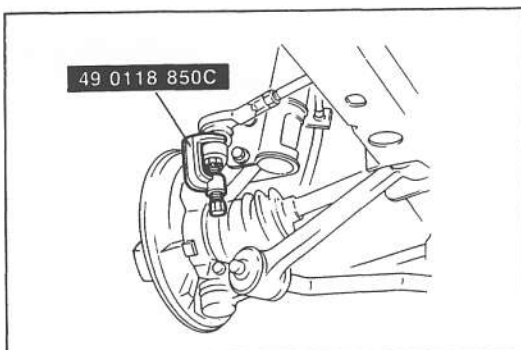
## BOOT

## Replacement

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheel.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. After installation, check the steering angle and toe-in and adjust if necessary. (Refer to Section R.)



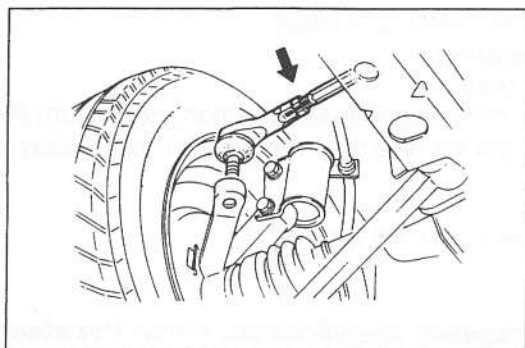
1. Cotter pin  
2. Nut  
3. Tie rod end/Steering knuckle  
Removal note..... below  
4. Tie rod end  
5. Locknut  
Removal note..... page N-7
6. Tie rod end boot  
Removal / Installation note ..... page N-7  
7. Boot clamp  
8. Boot wire  
9. Steering gear boot  
Installation note ..... page N-7



### Removal note

### Tie rod end/Steering knuckle

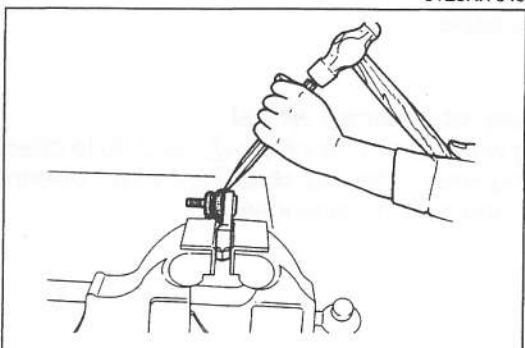
1. Loosen the tie rod nut.
2. With the nut protecting the tie rod end stud, separate the tie rod end from the steering knuckle with the **SST**.



01E0NX-040

## Locknut

Before loosening the locknut from the tie rod end, make a mark for reference when tightening.



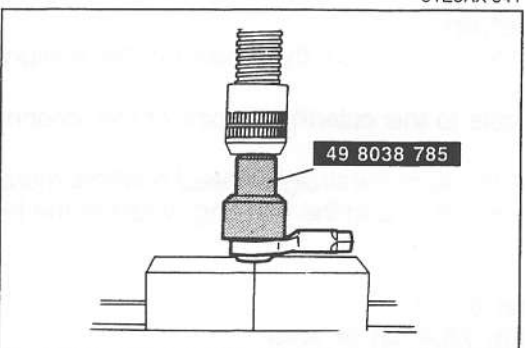
01E0RX-041

## Tie rod end boot

### Caution

- Do not scar the part where the boot is attached to the tie rod end.

Secure the tie rod end in a vise. Place a chisel against the boot and hold it at the angle shown. Remove the boot by tapping it with a hammer.



01E0NX-008

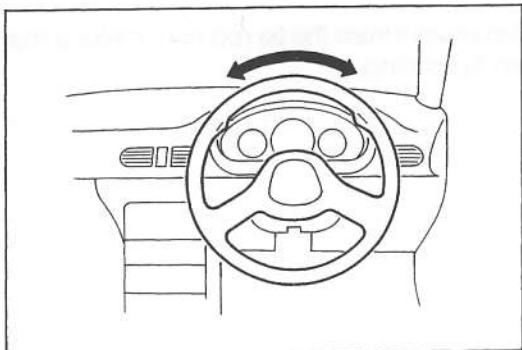
## Installation note

### Tie rod end boot

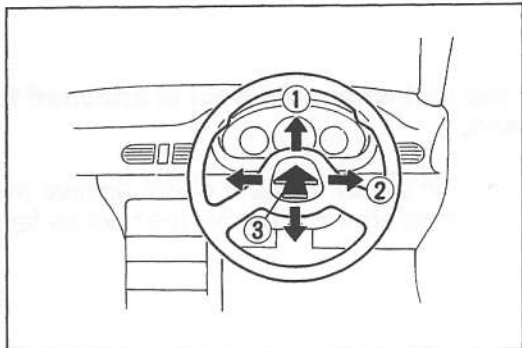
1. Put a small amount of grease (lithium base) into the new boot and set it onto the tie rod end.
2. Press the boot onto the tie rod end with the **SST** and a press.

### Steering gear boot

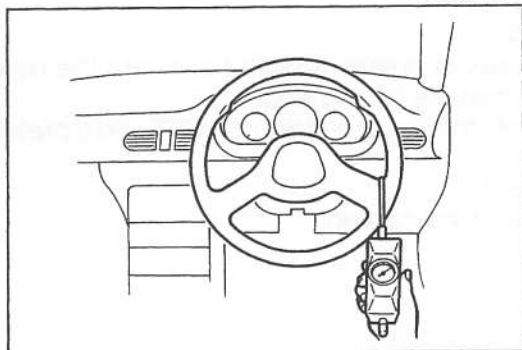
Verify that the boot is not twisted.



95A0NX-006



05U0NX-011



01A0NX-004

## STEERING WHEEL AND COLUMN

### On-vehicle Inspection

#### Steering wheel play

With the wheels in the straight-ahead position, gently turn the steering wheel to the left and right and verify that the play is within specification.

**Play: 0—30mm (0—1.18 in)**

#### Note

- If the play exceeds specification, either the steering joints are worn or the backlash of the steering gear is excessive.

#### Looseness or play of steering wheel

Move the steering wheel in directions ①, ②, and ③ to check for column bearing wear, steering shaft joint play, steering wheel looseness, and column looseness.

#### Steering wheel effort

1. Move the steering wheel to put the wheels in the straight-ahead position.
2. Attach a pull scale to the outermost point of the steering wheel spoke.
3. Starting with the wheels in the straight-ahead position, measure the effort required to turn the steering wheel to the left and to the right.

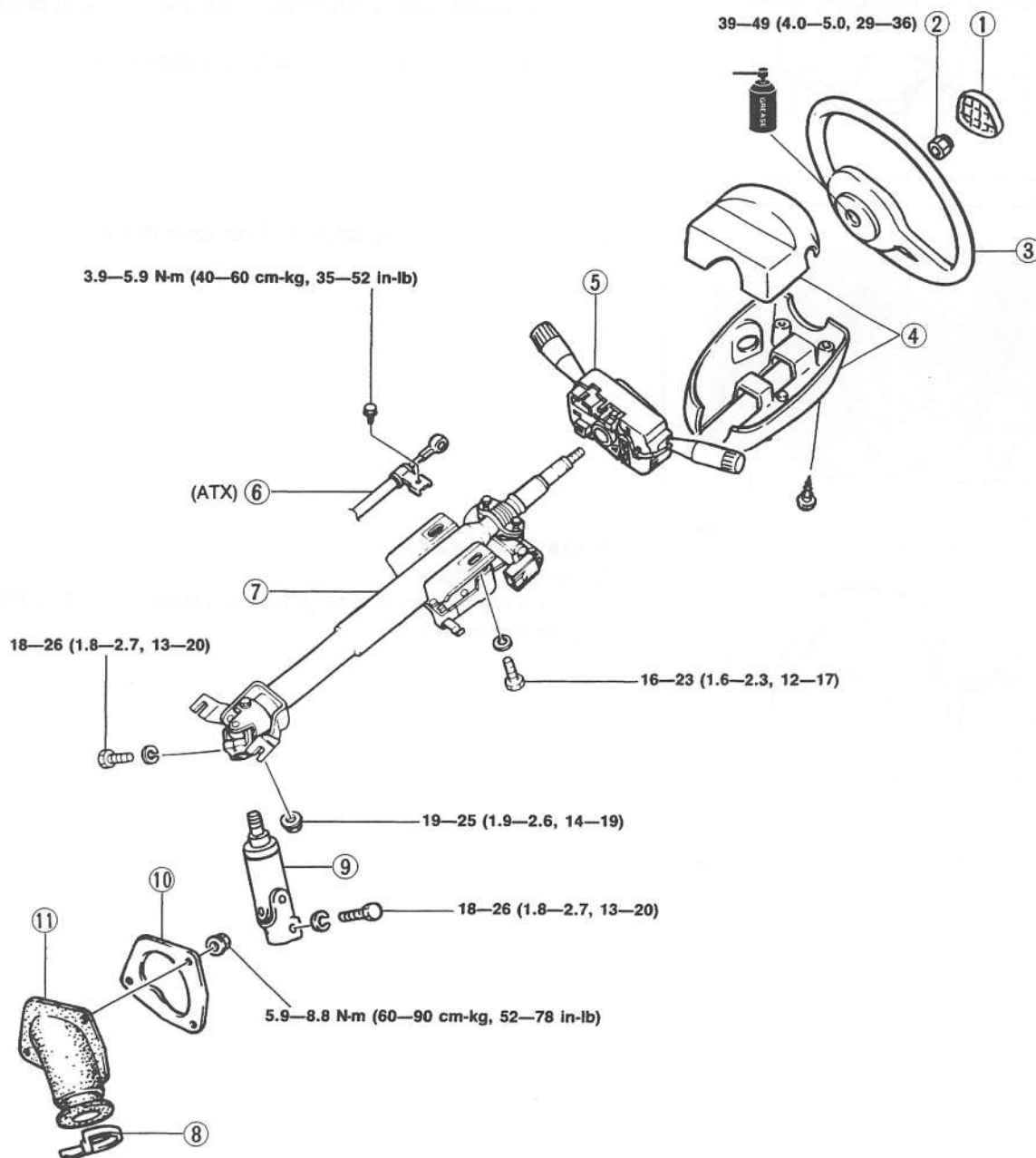
#### Steering wheel effort:

**118 N (12 kg, 26.4 lb) or less**

**[during one turn of steering wheel]**

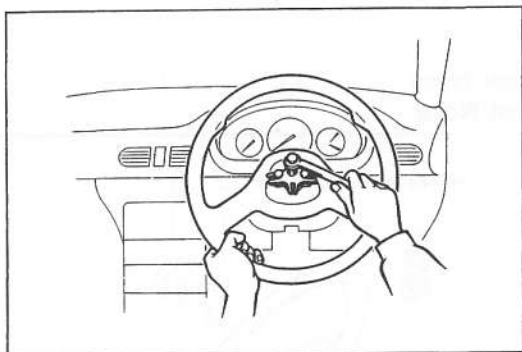
4. If not within specification, check the following: rotation starting torque of pinion (refer to page N-19) and steering joints.

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.



01A0NX-005

- |  |                             |
|--|-----------------------------|
| 1. Horn pad                            | 7. Steering shaft           |
| 2. Locknut                             | Disassembly / Inspection /  |
| 3. Steering wheel                      | Assembly..... page N-11     |
| Removal note..... page N- 10           | 8. Band                     |
| Installation note ..... page N- 10     | 9. Intermediate shaft       |
| 4. Column cover                        | 10. Plate                   |
| 5. Combination switch                  | Removal note..... page N-10 |
| Removal / Installation ..... Section T | 11. Dust cover              |
| 6. Key interlock cable (ATX)           |                             |

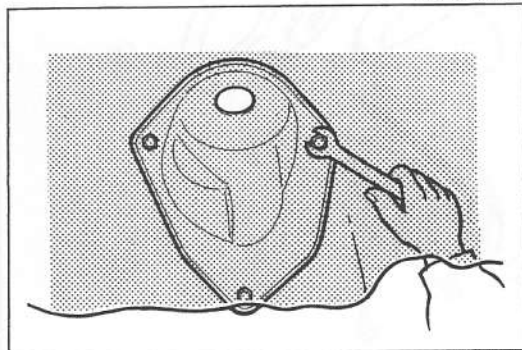


01E0NX-042

**Removal note**  
**Steering wheel****Caution**

- Do not try to remove the steering wheel by hitting the shaft with a hammer. The column will collapse.

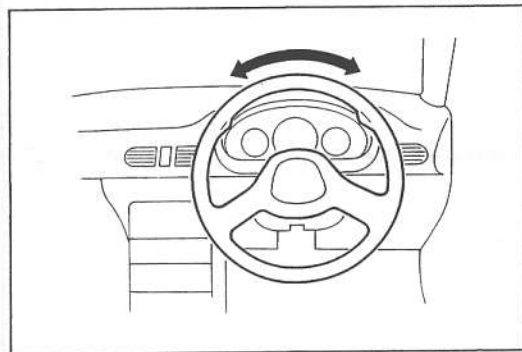
Remove the steering wheel with a suitable puller.



01E0NX-011

**Plate**

Reach under the insulator and remove the nuts.



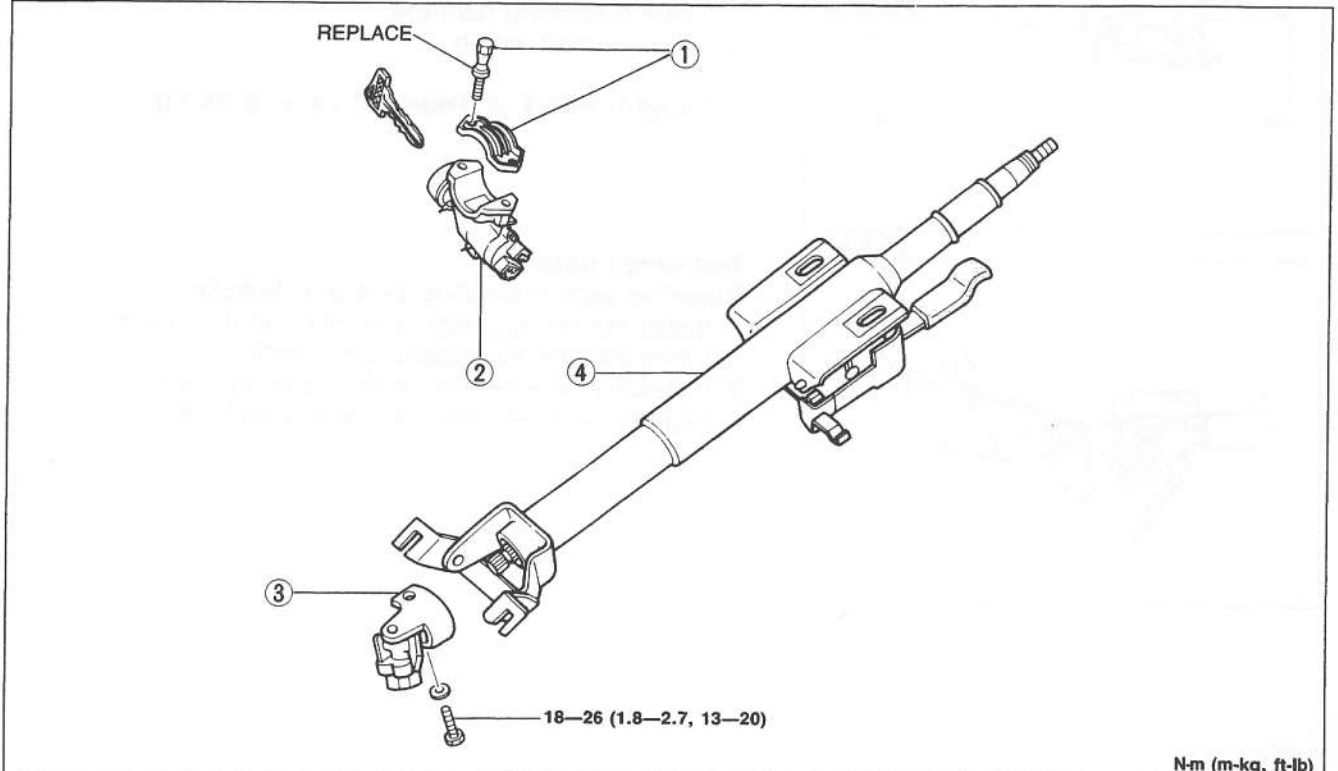
01E0NX-012

**Installation note**  
**Steering wheel**

With the wheels in the straight-ahead position, install the steering wheel as shown.

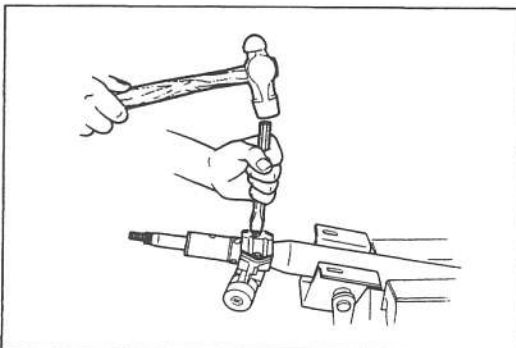
## Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



1. Steering lock mounting bolt and bracket  
Disassembly note..... below  
Assembly note ..... page N-12
2. Steering lock assembly  
Inspection..... below

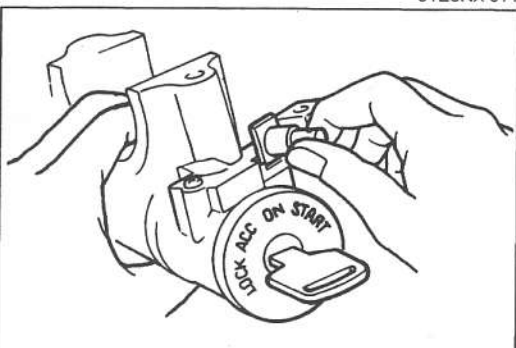
3. Universal joint  
Inspection..... page N-12
4. Steering shaft  
Inspection..... page N-12



### Disassembly note

#### Steering lock mounting bolt and bracket

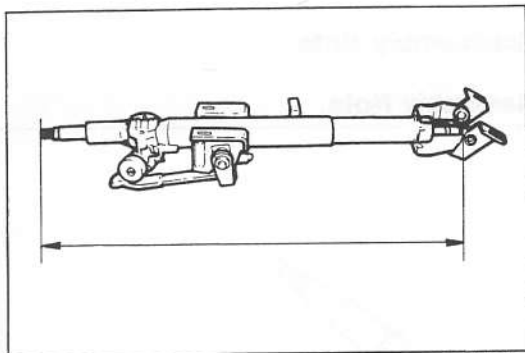
1. Use a chisel to make a groove in the heads of the steering lock mounting bolts.
2. Remove the bolts with a screwdriver.
3. Remove the steering lock assembly.



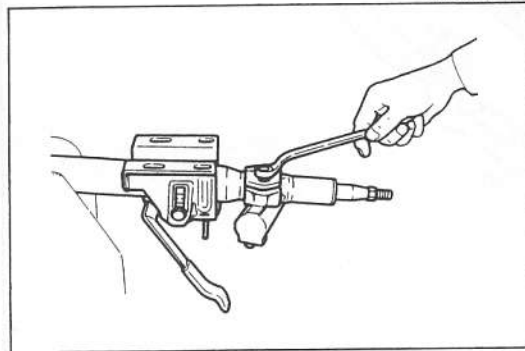
### Inspection

#### Steering lock assembly (ATX)

Verify that the cable connector cannot move when the key is in the LOCK position, and that it moves freely with the key in other positions.



01E0NX-016



01E0NX-017

**Steering shaft**

Check for the following and replace the column assembly if necessary.

1. Column bearing damage
2. Column bushing damage
3. Steering shaft length

**Length:  $603.1 \pm 1\text{mm}$  ( $23.74 \pm 0.04\text{ in}$ )**

**Assembly note****Steering lock mounting bolt and bracket**

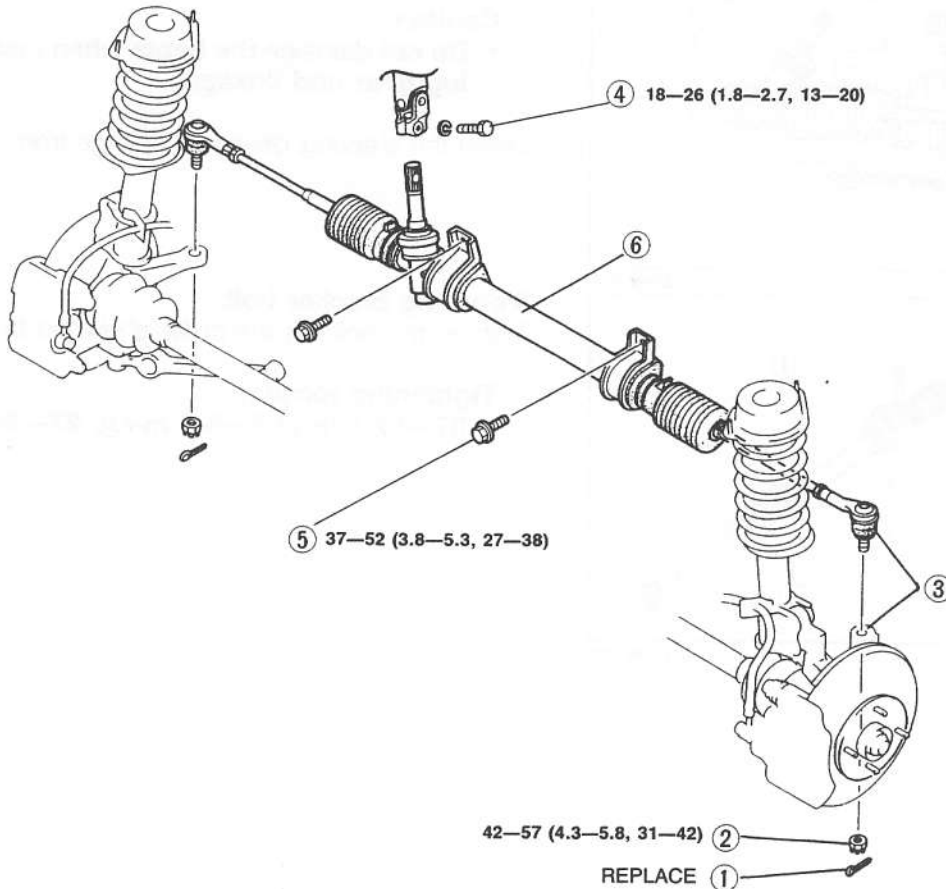
1. Install the steering lock assembly on the jacket.
2. Verify that the key operates correctly.
3. Install the new steering lock mounting bolts.
4. Tighten the bolts until the heads break off.



## STEERING GEAR AND LINKAGE

### Removal / Installation

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheels and tires.
4. Remove in the order shown in the figure, referring to **Removal Note**.
5. Install in the reverse order of removal, referring to **Installation Note**.
6. After installation, check the maximum steering angle and the toe in and adjust if necessary.  
(Refer to Section R.)

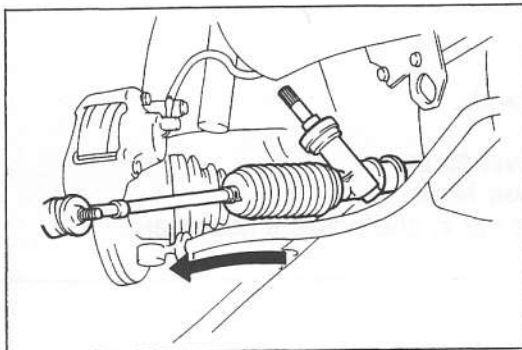


N·m (m·kg, ft·lb)

01A0NX-002

1. Cotter pin
2. Nut
3. Tie rod end/steering knuckle  
Removal note..... page N- 6
4. Intermediate shaft bolt  
Installation note..... page N-14
5. Mounting bracket bolt  
Installation note..... page N-14

6. Steering gear and linkage  
Removal note..... page N-14  
Installation note..... page N-14  
Disassembly / Inspection..... page N-15  
Assembly..... page N-17



01E0NX-019

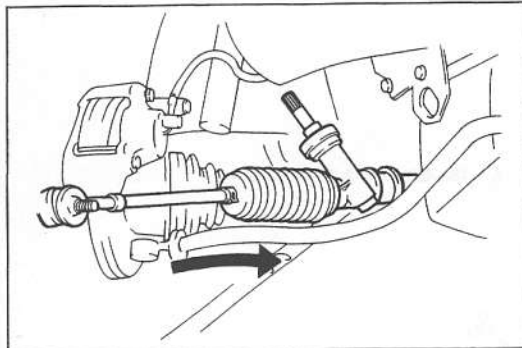
### Removal note

#### Steering gear and linkage

#### Caution

- Do not damage the boots when removing the steering gear and linkage.

Remove the steering gear and linkage from the driver's side.



01E0NX-020

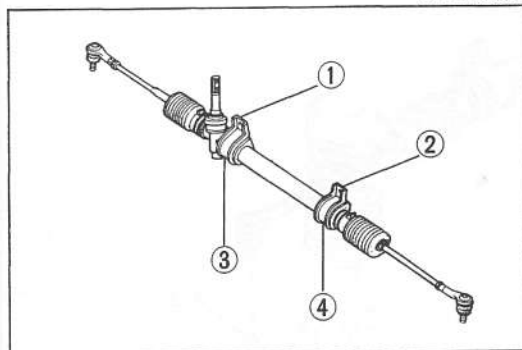
### Installation note

#### Steering gear and linkage

#### Caution

- Do not damage the boots when installing the steering gear and linkage.

Install the steering gear and linkage from the driver's side.



01E0NX-021

### Mounting bracket bolt

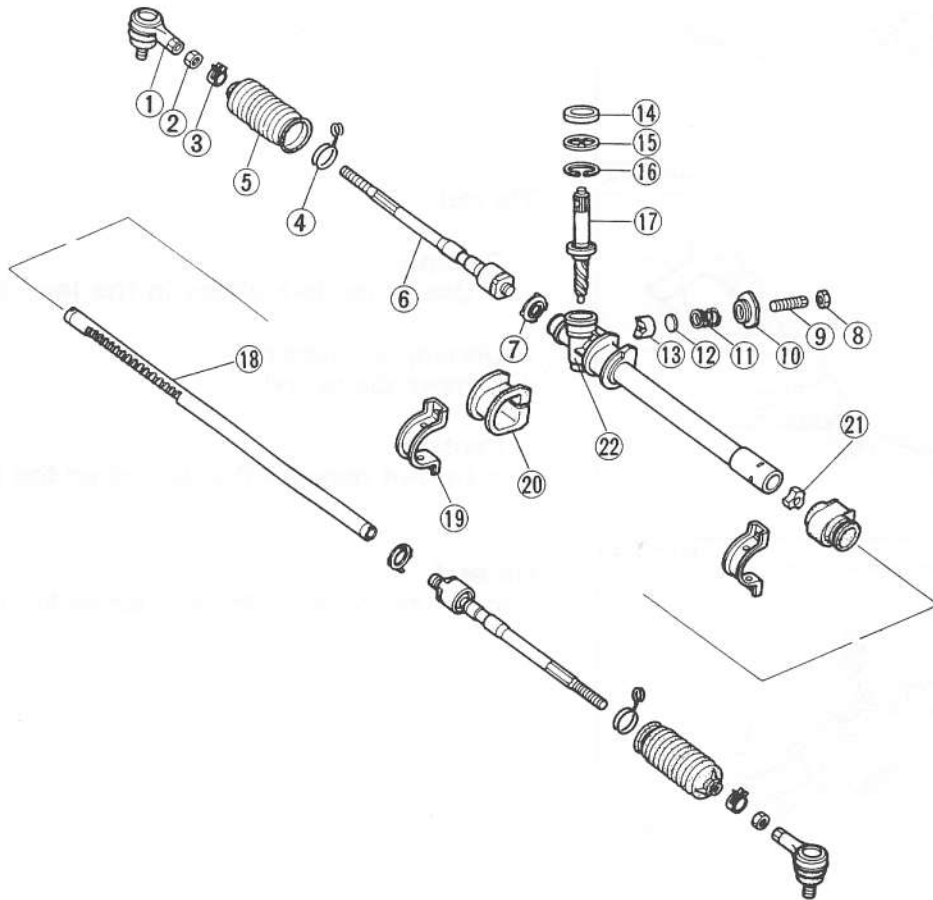
Tighten the bolts in the order shown in the figure.

#### Tightening torque:

37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)

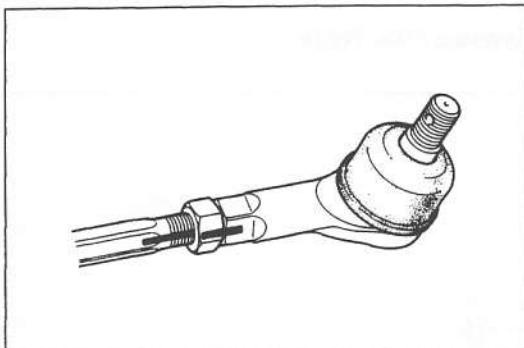
## Disassembly / Inspection

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and replace as necessary.



01A0NX-007

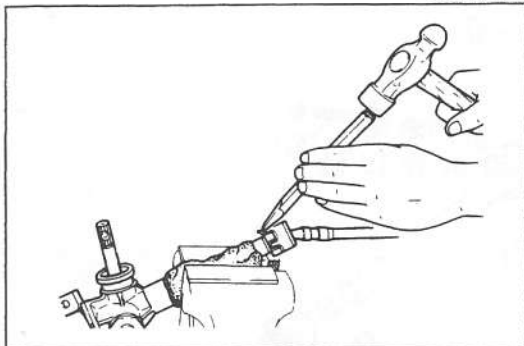
- |  |  |
|--|--|
| <ol style="list-style-type: none"> <li>1. Tie rod end<br/>Disassembly note..... page N-16<br/>Inspect ball joint for damage and poor operation</li> <li>2. Locknut</li> <li>3. Boot clamp</li> <li>4. Boot wire</li> <li>5. Steering gear boot<br/>Inspect for cracks and damage</li> <li>6. Tie rod<br/>Disassembly note..... page N-16<br/>Inspect for bending<br/>Inspect ball joint for damage and poor operation</li> <li>7. Washer</li> <li>8. Locknut</li> <li>9. Adjusting bolt</li> <li>10. Adjusting cover</li> <li>11. Yoke spring<br/>Inspect for wear and damage</li> <li>12. Spacer</li> </ol> | <ol style="list-style-type: none"> <li>13. Support yoke<br/>Inspect for wear and damage</li> <li>14. Oil seal<br/>Disassembly note..... page N-16</li> <li>15. Stop ring</li> <li>16. Snap ring</li> <li>17. Pinion shaft assembly<br/>Inspect for poor operation<br/>Inspect teeth for wear and damage</li> <li>18. Rack<br/>Disassembly note..... page N-16<br/>Inspection..... page N-17</li> <li>19. Mounting bracket</li> <li>20. Mounting rubber</li> <li>21. Rack bushing<br/>Disassembly note..... page N-16<br/>Inspect for cracks, wear, and damage</li> <li>22. Gear housing<br/>Inspect for cracks and damage<br/>Inspect bushing for wear and damage</li> </ol> |
|--|--|



01E0NX-043

**Disassembly note****Tie rod end**

Mark the tie rod, locknut, and tie rod end for proper reassembly.



01E0NX-044

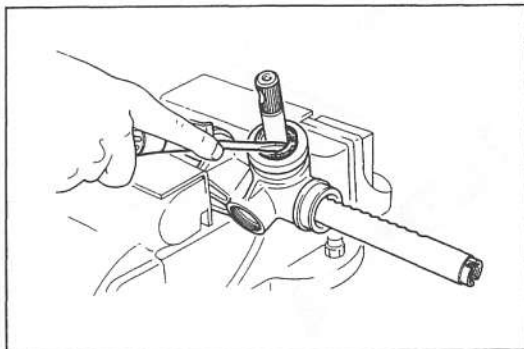
**Tie rod****Caution**

- Use protective plates in the jaws of the vise.

1. Uncrimp the washer.
2. Remove the tie rod.

**Caution**

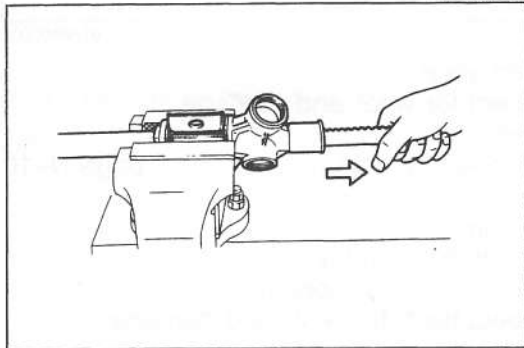
- Do not damage the tie rod or the rack.



01E0NX-023

**Oil seal**

Remove the oil seal with the a screwdriver.



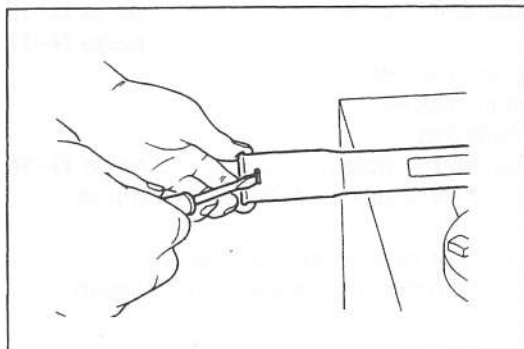
01E0NX-024

**Rack**

Remove the rack from the housing side.

**Caution**

- Do not damage the rack bushing with the rack teeth.

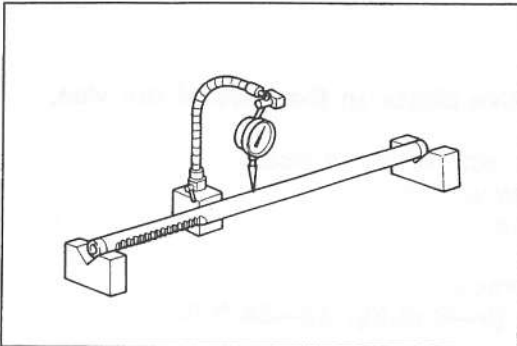


01E0NX-045

**Rack bushing****Caution**

- Do not remove the rack bushing if not necessary.
- Do not damage the column when removing.

Depress the locking tab to remove the rack bushing.



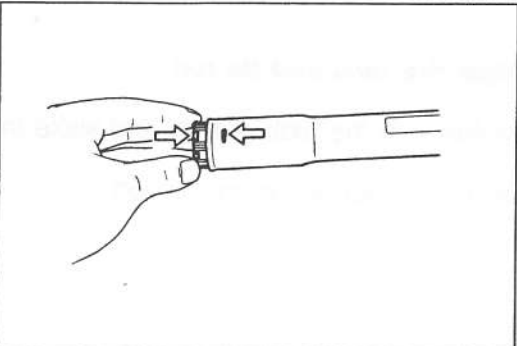
01E0NX-025

## Inspection Rack

1. Inspect for cracking, damage, and tooth wear, replace if necessary.
2. Measure runout of the the rack.

**Runout: 0.4mm (0.016 in) max.**

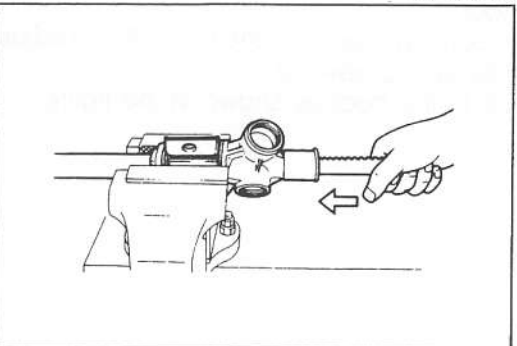
3. If not within specification, replace the rack.



01E0NX-026

## Assembly

1. Rack bushing
  - (1) Align the tab of the rack bushing with hole in the column.
  - (2) Push the rack bushing in until it is locked in place by the tab.
2. Mounting bracket, mounting rubber
  - (1) Install the mounting bracket and mounting rubber.



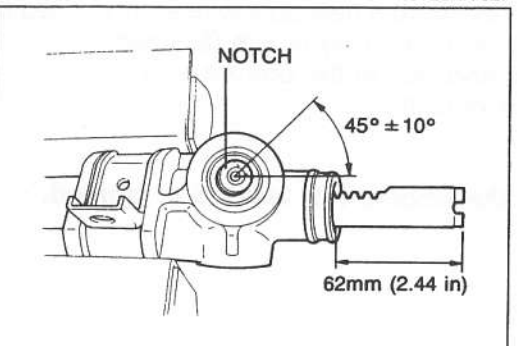
01E0NX-027

3. Rack
  - (1) Secure the mounting bracket in a vise.

## Caution

- Do not damage the rack bushing.

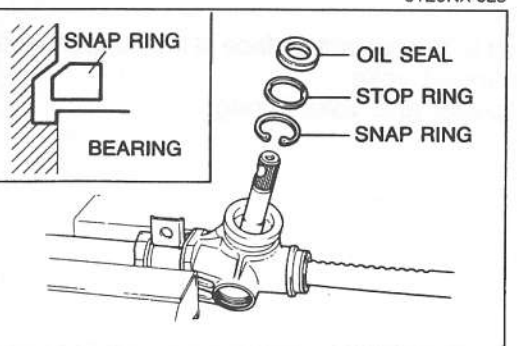
- (2) Carefully slide the rack in from the housing side.



01E0NX-028

## 4. Pinion shaft assembly

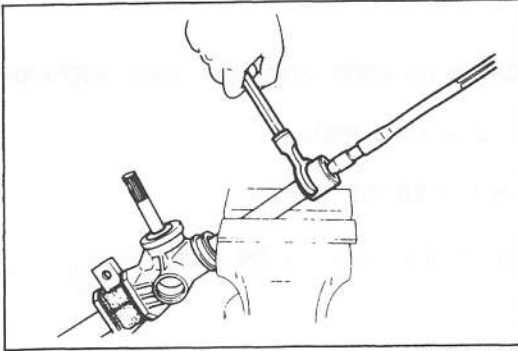
- (1) Apply grease to the upper bearing and the teeth of the pinion shaft.
- (2) Install the pinion shaft with the notch positioned as shown in the figure when the rack is at the center position.



01E0NX-029

## 5. Oil seal

- (1) Install a new snap ring with the tapered side facing upward.
- (2) Install the stop ring.
- (3) Apply grease to the lip of a new oil seal.
- (4) Install the oil seal.



01E0NX-030

## 6. Tie rod

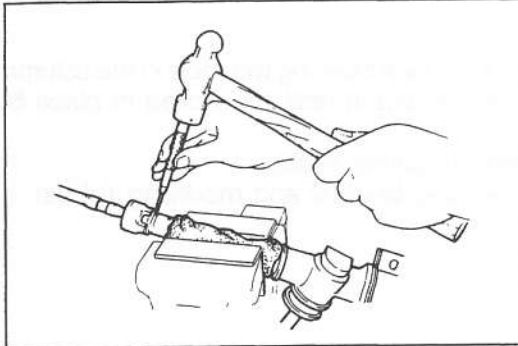
**Caution**

- Use protective plates in the jaws of the vise.

- (1) Secure the rack teeth in a vise.
- (2) Install a new washer.
- (3) Install the tie rod.

**Tightening torque:**

59—78 N·m (6—8 m·kg, 43—58 ft·lb)

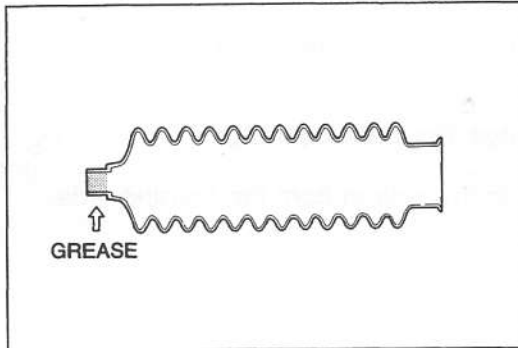


01E0NX-031

**Caution**

- Do not damage the rack and tie rod.

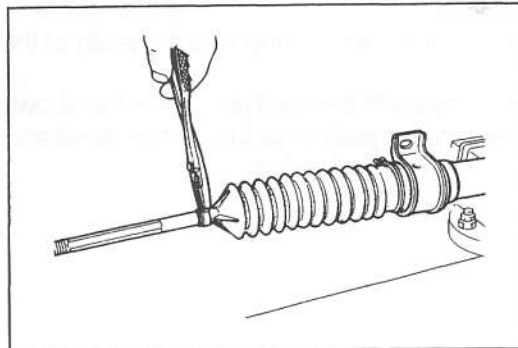
- (4) Align the washer with the rack groove and stake the washer.
- (5) Apply grease to the ball joint of the tie rod.



01E0NX-032

## 7. Steering gear boot

- (1) Secure the mounting bracket in the vise with the adjusting cover hole facing upward.
- (2) Apply grease to the boot as shown in the figure.

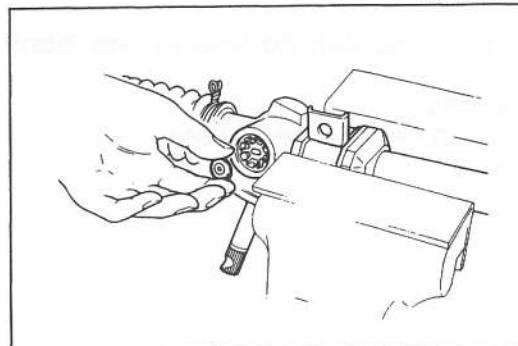


01E0NX-033

- (3) Install the boot, wrap a new boot wire around it two (2) times, then twist it four (4) or five (5) times.
- (4) Fold the twisted part to the bracket side.
- (5) Install the boot clamp.

**Caution**

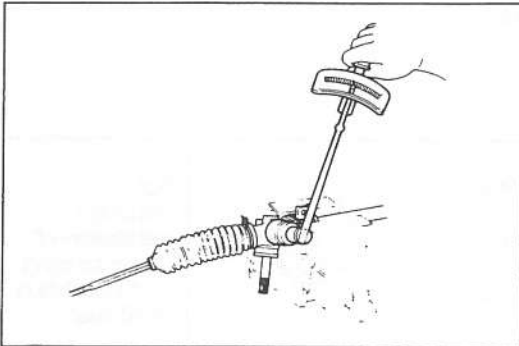
- Verify that the boot is not twisted or dented.



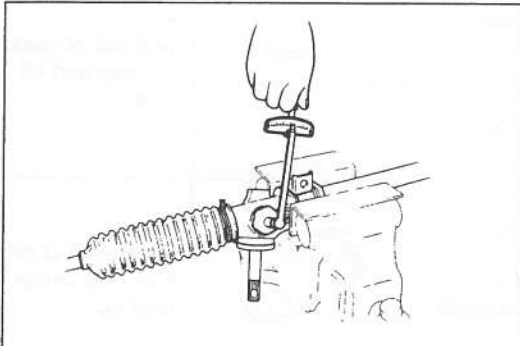
01E0NX-034

## 8. Support yoke

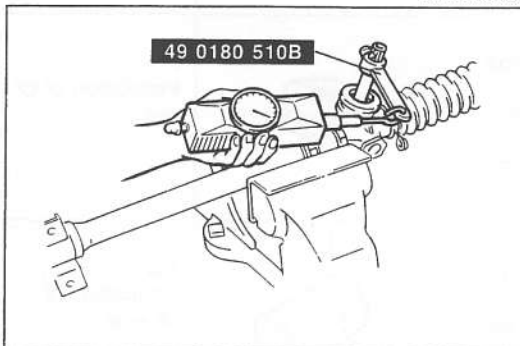
- (1) Apply grease to the contact surface of the support yoke.
- (2) Install the support yoke.
- (3) Install the spacer and yoke spring.



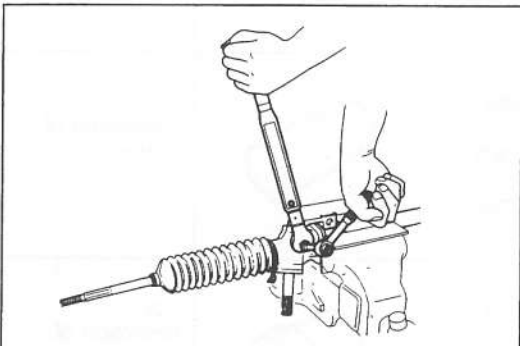
01E0NX-035



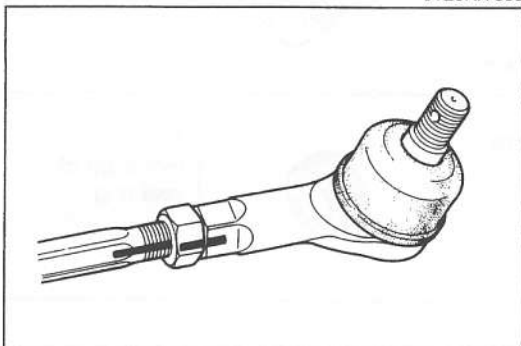
01E0NX-036



01E0NX-037



01E0NX-038



01E0NX-039

## 9. Adjusting cover

- (1) Apply sealant to the threads of the adjusting cover.
- (2) Install the adjusting cover.

### Tightening torque:

**39—59 N·m (4—6 m·kg, 29—43 ft·lb)**

- (3) Tighten the adjusting bolt to **1 N·m (10 cm·kg, 8.7 in·lb)**, and loosen it **10°—40°** from that position.
- (4) Slide the rack to the left and right slowly five (5) times to seat the support yoke.

- (5) Measure the pinion torque with the **SST** and a pull scale.

### Pinion torque

**Neutral position ± 90°:**

**1.1 ± 0.2 N·m (11 ± 2 cm·kg, 9.5 ± 1.8 in·lb)**

**Pull scale reading: 1,100 ± 200 g (38.8 ± 7.1 oz)**

**Any other position:**

**1.5 N·m (15 cm·kg, 13 in·lb) or less**

**Pull scale reading: 1,500 g (53.0 oz) or less**

- (6) If not within specification, readjust by turning the adjust bolt **10°—40°**.
- (7) Tighten the locknut while holding the adjusting bolt.

### Tightening torque:

**9.8—14.7 N·m (100—150 cm·kg, 87—130 in·lb)**

### Caution







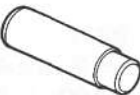









- Do not allow the adjusting bolt to turn.

## 10. Tie rod end

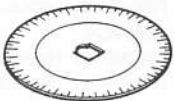





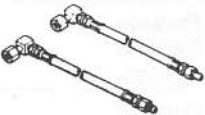
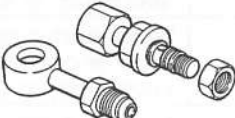
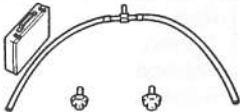
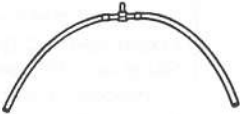
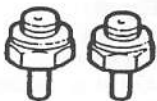
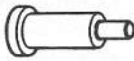


Install the tie rod ends and align them with the marks made before disassembly.

## ENGINE SPEED SENSING POWER STEERING

PREPARATION  
SST

49 D032 3A0 Repair set, power steering 	For disassembly / assembly of steering gear	49 D032 306 Block, support (Part of 49 D032 3A0) 	For removal / installation of upper bearing, and installation of oil seal
49 D032 304 Installer, oil seal & bearing (Part of 49 D032 3A0) 	For removal of upper bearing and in- stallation of oil seal	49 F032 303 Handle (Part of 49 D032 3A0) 	For removal of back- up ring and oil seal
49 D032 308 Remover, backup ring & oil seal (Part of 49 D032 3A0) 	For removal of back- up ring and oil seal	49 D032 301 Installer body, oil seal & bearing (Part of 49 D032 3A0) 	For installation of oil seal and center bearing
49 D032 307 Remover, oil seal & bearing (Part of 49 D032 3A0) 	For removal of oil seal and center bearing	49 D032 302 Attachment (Part of 49 D032 3A0) 	For installation of oil seal
49 D032 303 Attachment (Part of 49 D032 3A0) 	For installation of center bearing	49 D032 312 Guide, oil seal (Part of 49 D032 30A) 	For installation of oil seal
49 D032 311 Protector body, rack (Part of 49 D032 3A0) 	For installation of oil seal	49 D032 309 Protector, rack (Part of 49 D032 3A0) 	For installation of holder
49 D032 314 Former & guide, seal ring (Part of 49 D032 3A0) 	For installation of steering rack assembly	49 D032 315 Former & guide, seal ring (Part 49 D032 3A0) 	For formation of seal ring
49 D032 305 Remover, oil seal and bearing (Part of 49 D032 3A0) 	For installation of upper bearing	49 D032 313 Former, seal ring 	For formation of seal ring



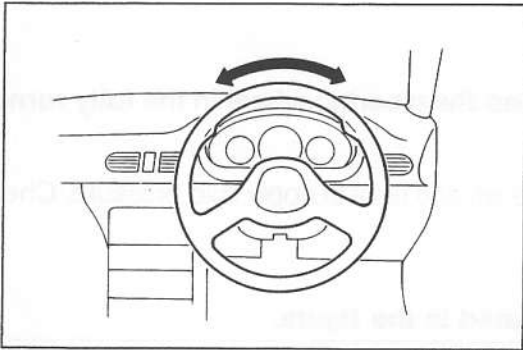
49 D032 316 Protractor (Part of 49 D032 3A0)		For installtion of adjusting cover	49 D032 310 Protector, pinion shaft (Part of 49 D032 3A0)		For installation of plug assembly
49 0118 850C Puller, ball joint		For removal of tie rod end	49 1232 670A Gauge set, power steering		For inspection of power steering fluid pressure
49 1232 673 Valve body (Part of 49 1232 670A)		For inspection of power steering fluid pressure	49 1232 672 Gauge (Part of 49 1232 670A)		For inspection of power steering fluid pressure
49 H002 671 Adaptor, power steering gauge		For inspection of power steering fluid pressure	49 B032 304 Adaptor		For inspection of power steering fluid pressure
49 G032 3A1 Joint hose		For inspetion of hermetic seal of steering gear	49 G032 317 Hose (Part of 49 G032 3A1)		For inspection of hermetic seal of steering gear
49 G032 319 Adaptor (Part of 49 G032 3A1)		For inspection of hermetic seal of steering gear	49 B032 305 Holder		For disassembly / assembly of pow- er steering oil pump
49 0180 510B Attachment, steering worm bearing preload measuring		For inspection of pinion preload	49 9200 020 Tension gauge, V-ribbed belt		For inspection of drive belt tension

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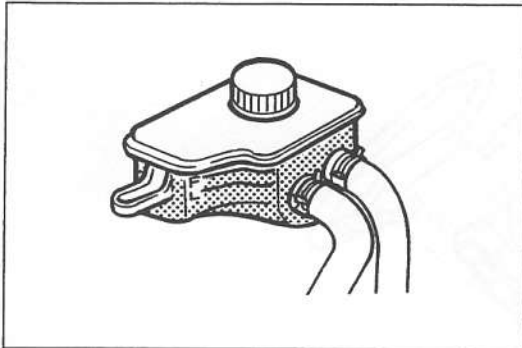
## TROUBLESHOOTING GUIDE

Problem	Possible cause	Action	Page
<b>Steering feels heavy</b>	Poor lubrication, foreign material in mechanism, stuck or abnormal wear of steering ball joint	Lubricate or replace	N-27
	Improper steering pinion preload	Adjust	N-36
	Damaged steering gear	Repair or replace	N-27, 28
	Malfunction of steering shaft joint	Replace	N- 9
	Malfunction of steering gear	Repair or replace	N-27, 28
	Leakage of fluid	Repair or replace	N-24
	Low fluid level or air in system	Add fluid or bleed air	N-23
	Malfunction of P/S oil pump	Replace	N-38
	Damaged or loose P/S oil pump drive belt	Adjust or replace	N-41
	Clogged P/S lines	Repair or replace	—
	Damaged wheel or tire	—	Section Q
	Malfunction of suspension	—	Section R
<b>Steering wheel pulls to one side</b>	Damaged steering linkage	Replace	N-27, 28
	Damaged wheel or tire	—	Section Q
	Malfunction of braking system	—	Section P
	Malfunction of suspension	—	Section R
<b>General instability</b>	Worn or damaged steering ball joint	Replace	N- 6
	Improper steering pinion preload	Adjust	N-36
	Damaged steering linkage	Replace	N-27, 28
	Damaged wheel or tire	—	Section Q
	Malfunction of suspension	—	Section R
<b>Steering feels unstable</b>	Loose P/S oil pump drive belt	Adjust or replace	N-41
	Malfunction of steering gear	Repair or replace	N-27, 28
	Malfunction of steering ball joint	Replace	N-27, 28
	Malfunction of steering linkage	Replace	N-27, 28
<b>Excessive steering wheel play</b>	Worn steering gear	Replace	N-27, 28
	Worn or damaged steering ball joint	Replace	N-27, 28
	Loose steering gear mounting bolts	Tighten	N-27
<b>Steering wheel doesn't return properly</b>	Stuck or damaged steering ball joint	Replace	N-27, 28
	Improper steering pinion preload	Adjust	N-36
	Damaged wheel or tire	—	Section Q
	Malfunction of suspension	—	Section R
<b>Shimmy (steering wheel vibrates circumferentially)</b>	Damaged steering linkage	Replace	N-27, 28
	Loose steering gear mounting bolts	Tighten	N-27
	Stuck or damaged steering ball joint	Replace	N-27, 28
	Damaged or worn front wheel bearing	Replace	Section M
	Damaged wheel or tire	—	Section Q
	Malfunction of suspension	—	Section R
<b>Abnormal noise from steering system</b>	Loose steering gear mounting bolts	Tighten	N-27
	Malfunction of steering gear	Repair or replace	N-27, 28
	Obstruction near steering column	Repair	N- 9
	Loose steering linkage	Tighten	N-27
	Worn or damaged steering ball joint	Replace	N-27, 28
	Loose or damaged P/S oil pump drive belt	Adjust or replace	N-41
	Loose P/S oil pump bracket	Tighten	N-38
	Loose P/S oil pump mounting bolts	Tighten	N-38
	Air in system	Bleed air	N-23
	Malfunction of P/S oil pump	Replace	N-38

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01G0NX-014



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**AIR BLEEDING**

1. Check the fluid level. (Refer to below.)
2. Jack up the front of the vehicle.
3. Turn the steering wheel fully to the left and right several times with the engine not running.
4. Recheck the fluid level. If it has dropped, add fluid.
5. Repeat Steps ② and ③ until the fluid level stabilizes.
6. Start the engine and let it idle.
7. Turn the steering wheel fully to the left and right several times.
8. Verify that the fluid is not foamy and that the fluid level has not dropped.
9. Add fluid if necessary and repeat Steps ⑦ and ⑧.

**POWER STEERING FLUID****Inspection****Fluid level**

Check the power steering fluid level. Add fluid to the specified level, if necessary.

**Caution**

- Use only the specified power steering fluid.

**Fluid specification:**

**ATF Dexron®II or M-III**

## Fluid leakage

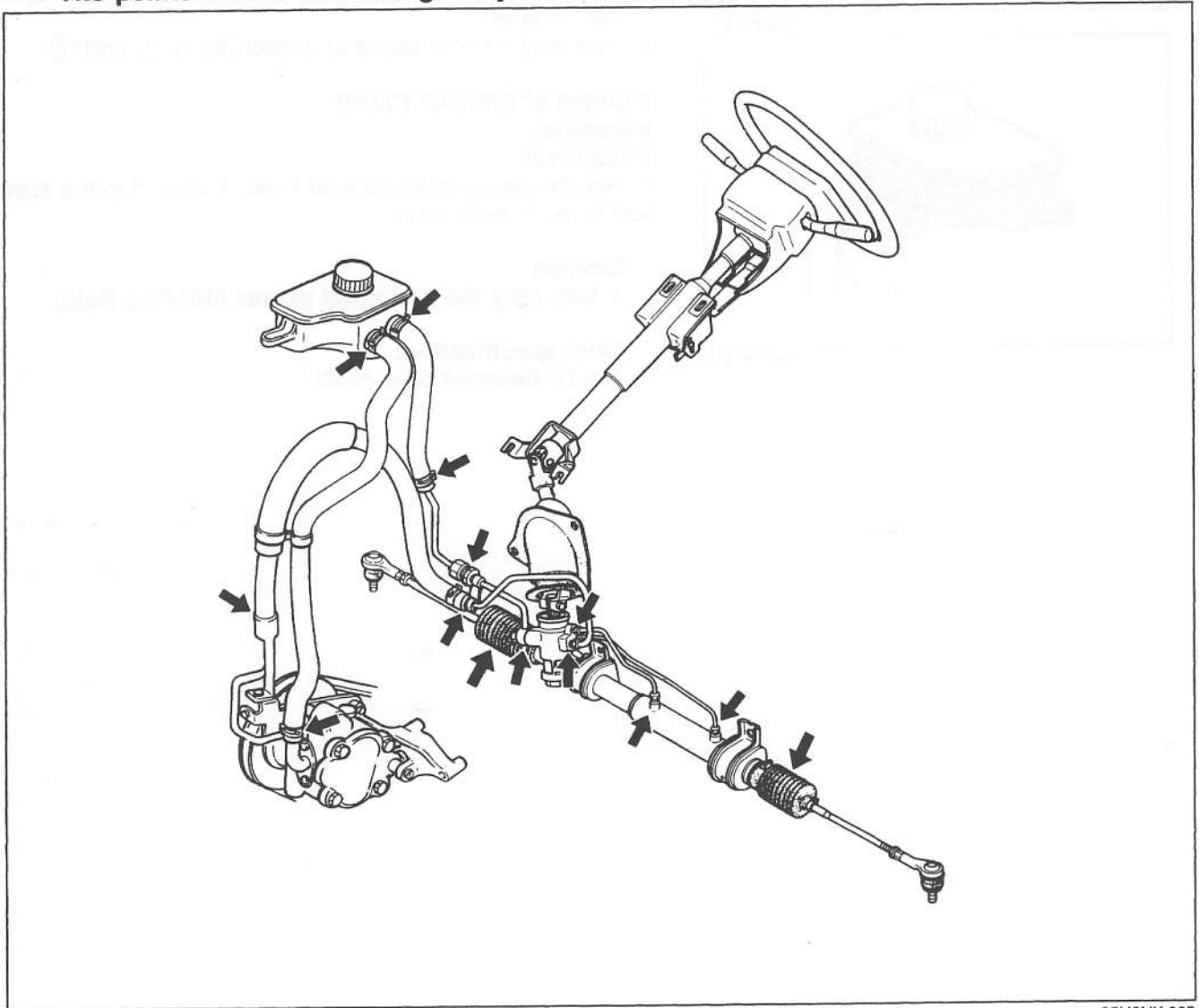
**Caution**

- To prevent damage to the steering system, do not keep the steering wheel in the fully turned position for more than 15 seconds.

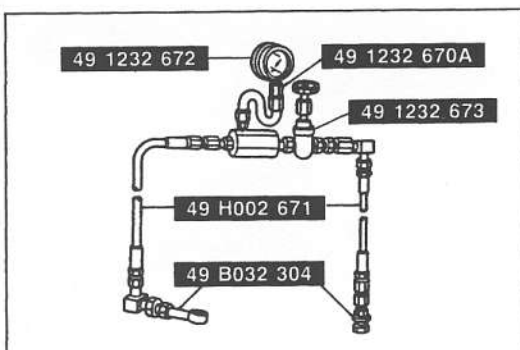
Start the engine and let it idle. Turn the steering wheel fully to the left and right to apply fluid pressure. Check for fluid leakage.

**Note**

- The points where fluid leakage may occur are indicated in the figure.



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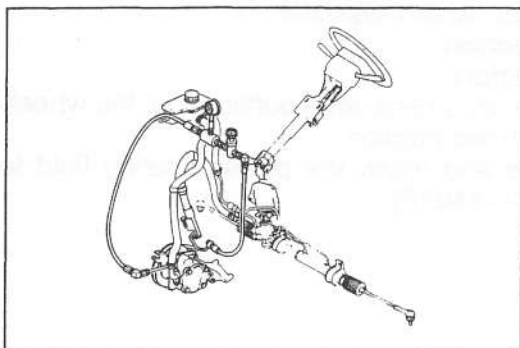
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**Fluid pressure**

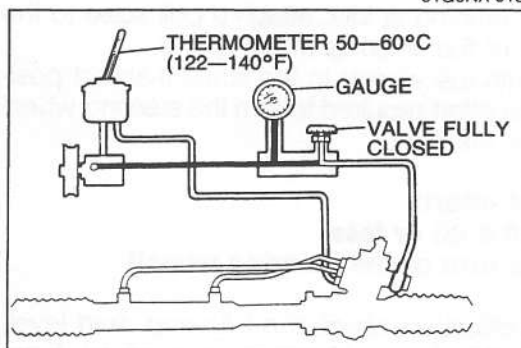
1. Assemble the **SST** as shown in the figure.

**Tightening torque:**

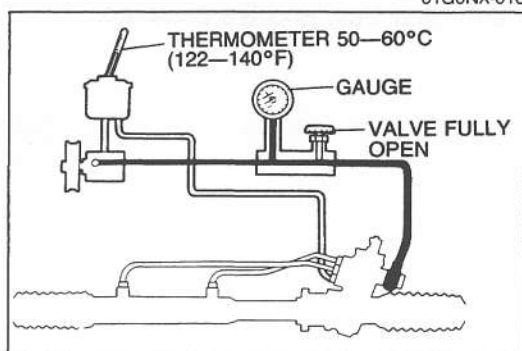
39—49 N·m (4.0—5.0 m·kg, 29—36 ft·lb)



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01G0NX-016



01A0NX-011

## Note

- Before disconnecting the hose, make marks at the connections for proper reinstallation.

2. Disconnect the high-pressure hose from the oil pump and attach the **SST** to the pump.
3. Bleed the air from the system. (Refer to page N-23.)
4. Open the gauge valve fully. Start the engine and turn the steering wheel fully left and right to raise the fluid temperature to **50—60°C (122—140°F)**.

## Caution

- If the valve is left closed for more than 15 seconds, the fluid temperature will increase excessively and adversely affect the oil pump.

5. Close the gauge valve completely. Increase the engine speed to **1,000—1,500 rpm** and measure the fluid pressure generated by the oil pump. If the pressure is not within specification, replace the oil pump assembly.

**Oil pump fluid pressure: 7,358—7,848 kPa  
(75—80 kg/cm<sup>2</sup>, 1,067—1,138 psi)**

6. Open the gauge valve fully and increase the engine speed to **1,000—1,500 rpm**.

## Caution

- If the steering wheel is kept in the fully turned position for more than 15 seconds, the fluid temperature will rise excessively and adversely affect the oil pump.

7. Turn the steering wheel fully to the left and right and measure the fluid pressure generated by the gear housing. If the pressure is not within specification, replace the gear housing assembly.

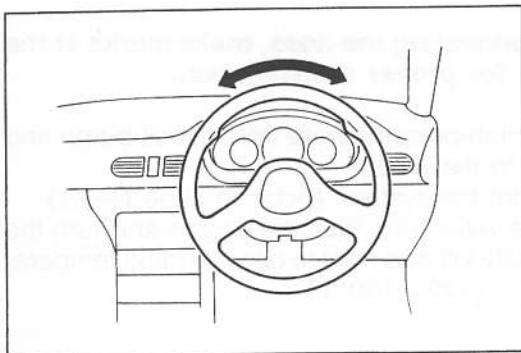
**Gear housing fluid pressure: 7,358—7,848 kPa  
(75—80 kg/cm<sup>2</sup>, 1,067—1,138 psi)**

8. Remove the gauge set. Install and tighten the high-pressure hose to the specified torque.

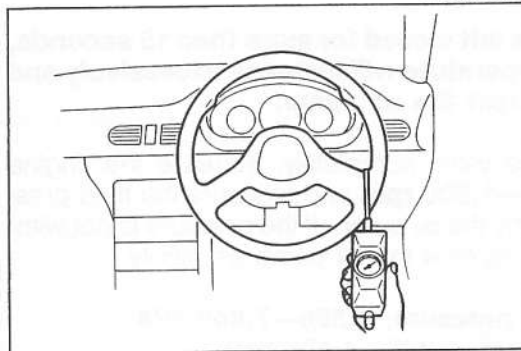
## Tightening torque:

**16—24 N·m (1.6—2.4 m·kg, 12—17 ft·lb)**

9. Bleed the air from the system. (Refer to page N-23.)



01G0NX-018



01G0NX-019

**STEERING WHEEL AND COLUMN****On-vehicle Inspection****Steering wheel effort**

1. With the vehicle on a hard, level surface, put the wheels in the straight-ahead position.
2. Start the engine and warm the power steering fluid to **50—60°C (122—140°F)**.

3. With the engine running at idle, attach a pull scale to the outermost point of the steering wheel spoke. Then, starting with the wheels in the straight-ahead position, measure the effort required to turn the steering wheel to the left and to the right.

**Steering wheel effort:****29 N (3 kg, 6.6 lb) or less****[during one turn of the steering wheel]**

4. If not within specification, check the following: fluid level, air in system, fluid leakage at hose or connections, function of oil pump and gear box, and tire pressure.

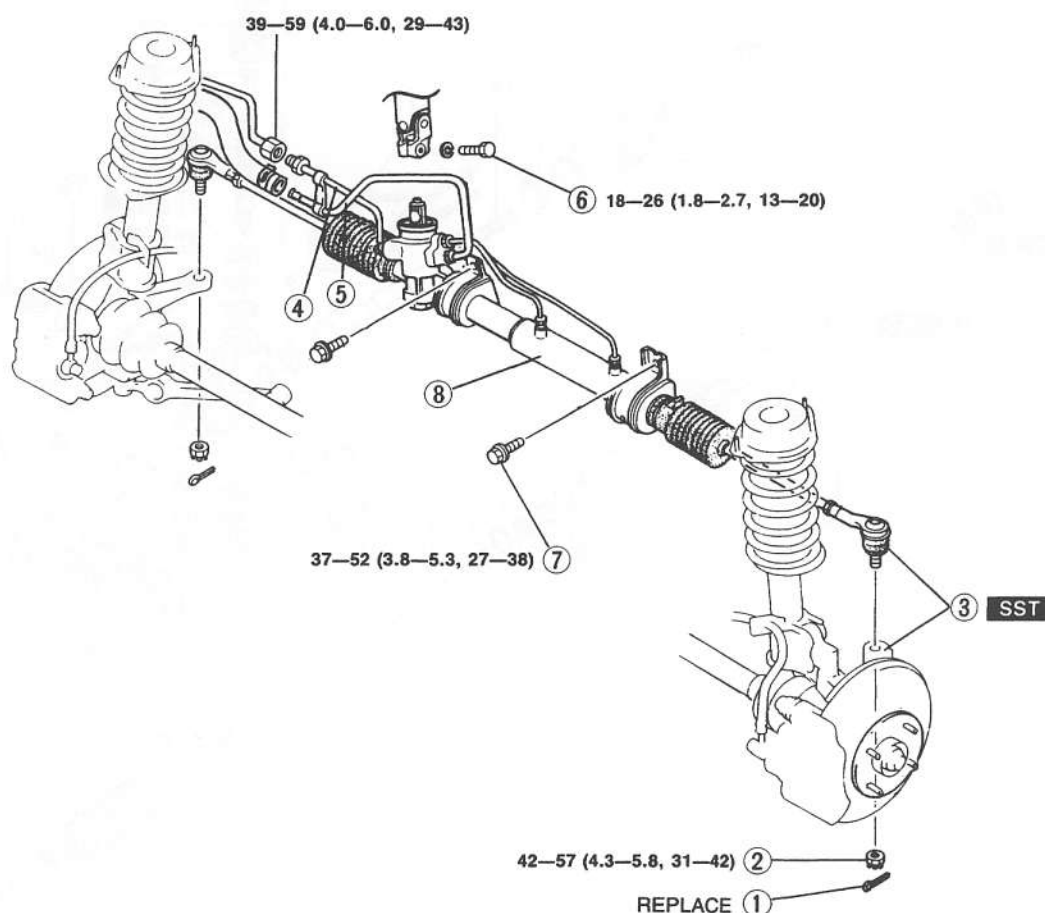
**STEERING GEAR AND LINKAGE****Removal / Installation**

1. Loosen the wheel lug nuts.
2. Jack up the front of the vehicle and support it with safety stands.
3. Remove the wheels.
4. Remove in the order shown in the figure, referring to **Removal Note**.

**Note**

- Use a container or rags to collect the power steering fluid when disconnecting the pressure pipe and return hose.

5. Install in the reverse order of removal, referring to **Installation Note**.
6. Tighten all necessary bolts and nuts to the specified torques.
7. After installation:
  - (1) Check for fluid leakage. (Refer to page N-24.)
  - (2) Bleed air from the system. (Refer to page N-23.)



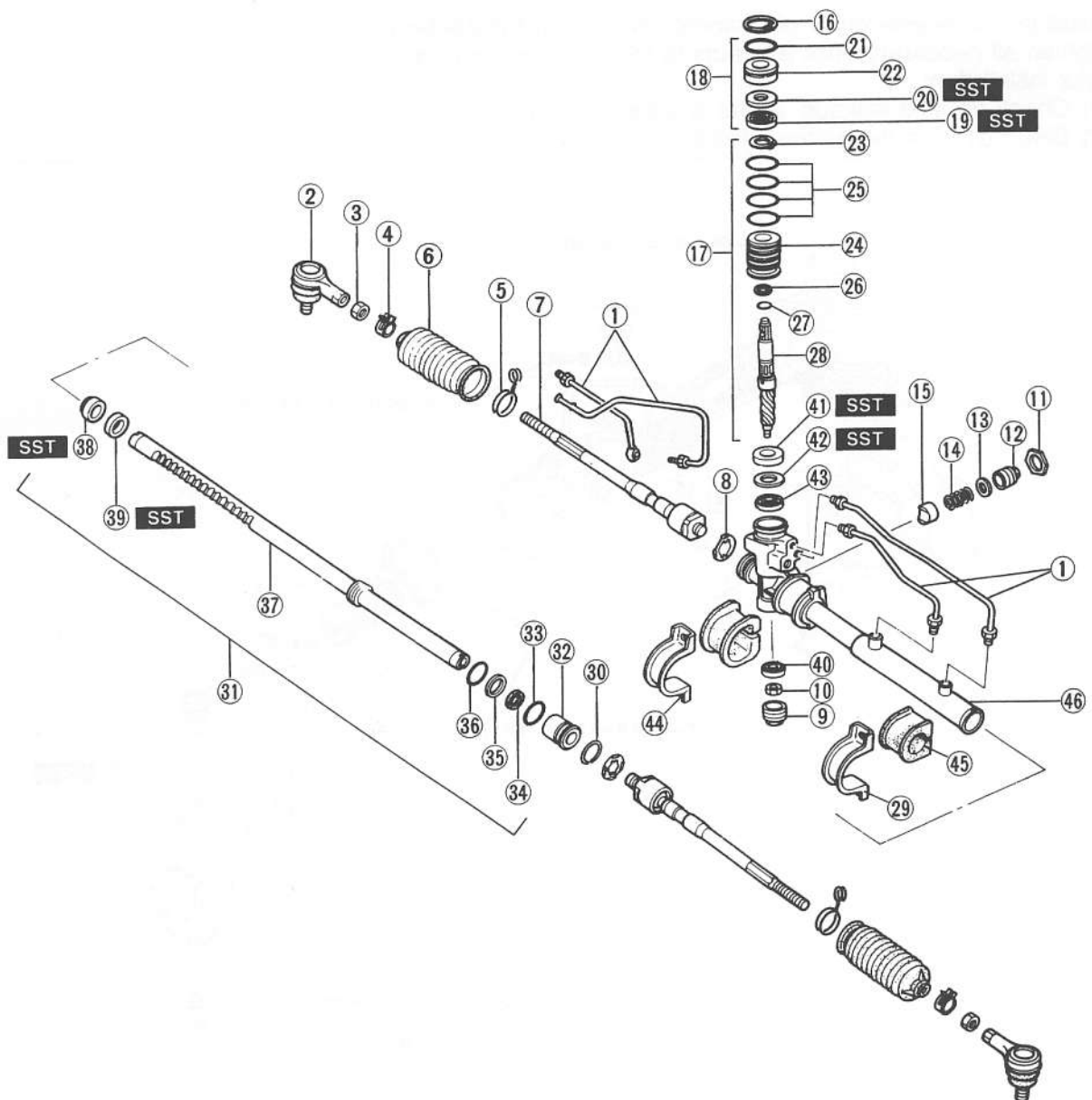
N·m (m·kg, ft·lb)

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- |                                 |  |
|---------------------------------|--|
| 1. Cotter pin                   | 7. Mounting bracket bolt                 |
| 2. Nut                          | Installation note ..... page N-14        |
| 3. Tie rod end/Steering knuckle | 8. Steering gear and linkage             |
| Removal note ..... page N-6     | Removal note ..... page N-14             |
| 4. Return pipe                  | Installation note ..... page N-14        |
| 5. Pressure pipe                | Disassembly / Inspection ..... page N-28 |
| 6. Intermediate shaft bolt      | Assembly ..... page N-32                 |

**Disassembly / Inspection**

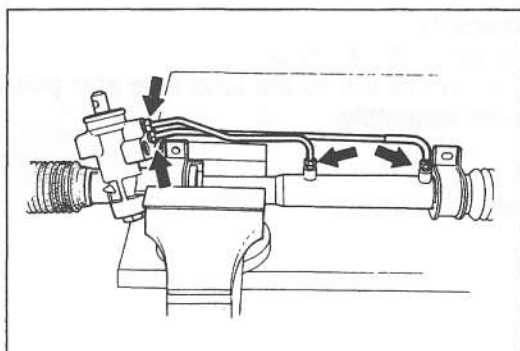
1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Inspect all parts and repair or replace as necessary.





1. Oil pipe  
Disassembly note..... below  
Inspect for clogging and damage
2. Tie rod end  
Disassembly note..... page N-30  
Inspect ball joint for damage and malfunction
3. Locknut (tie rod end)
4. Boot clamp
5. Boot wire
6. Boot  
Inspect for cracks and other damage
7. Tie rod  
Disassembly note..... page N-30  
Inspect for bending  
Inspect ball joint for damage and malfunction
8. Washer
9. Housing cover
10. Locknut (pinion shaft)
11. Locknut (adjusting cover)
12. Adjusting cover
13. Plate
14. Yoke spring  
Inspect for weakness and damage
15. Support yoke  
Inspect for damage and wear
16. Retaining ring
17. Pinion shaft assembly  
Disassembly note..... page N-30  
Inspect teeth of pinion shaft for wear and damage  
Inspect control valve for damage, oil passage clogging and seal ring and friction surface wear and damage
18. Plug assembly
19. Upper bearing  
Disassembly note..... page N-30  
Inspect for wear, damage, and malfunction
20. Oil seal  
Disassembly note..... page N-30
21. O-ring
22. Plug
23. Snap ring
24. Control valve
25. Seal ring
26. Seal ring
27. O-ring
28. Pinion shaft
29. Mounting bracket
30. Stop ring
31. Steering rack assembly  
Disassembly note..... page N-30
32. Holder  
Disassembly note..... page N-31  
Inspect for wear and damage
33. O-ring
34. Y-packing
35. Seal ring  
Disassembly note..... page N-31
36. O-ring  
Disassembly note..... page N-31
37. Steering rack  
Inspect for cracks, damage, and wear
38. Backup ring  
Disassembly note..... page N-31  
Inspect for cracks and other damage
39. Oil seal  
Disassembly note..... page N-31
40. Lower bearing  
Disassembly note..... page N-31  
Inspect for wear, damage, and malfunction
41. Oil seal  
Disassembly note..... page N-31
42. Spacer  
Disassembly note..... page N-31  
Inspect for cracks, damage, and wear
43. Center bearing  
Disassembly note..... page N-31  
Inspect for wear, damage, and malfunction
44. Mounting bracket
45. Mounting rubber
46. Gear housing

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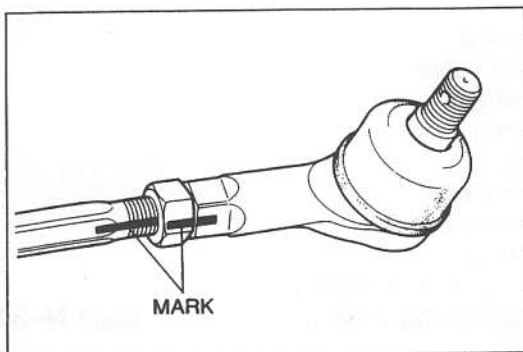


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## Disassembly note Oil pipe

### Caution

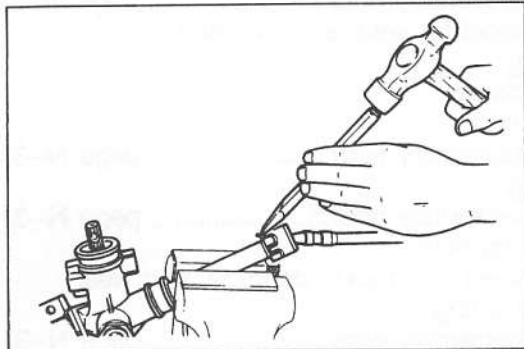
- After removing the oil pipes, plug the ports to prevent the entry of dirt into the steering gear housing.



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**Tie rod end**

Mark the tie rod, locknut and tie rod end for proper reassembly.



95E0NX-022

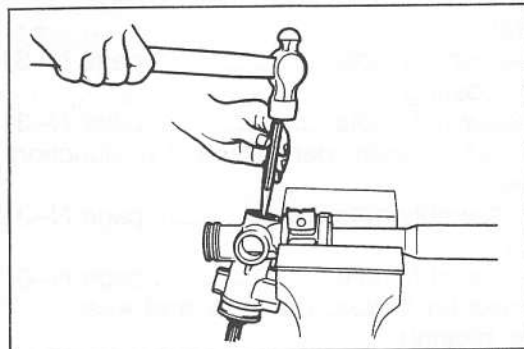
**Tie rod****Caution**

- Use copper or aluminum plates in the jaws of the vise.

1. Uncrimp the washer.
2. Remove the tie rod.

**Caution**

- Do not damage the tie rod or the rack.



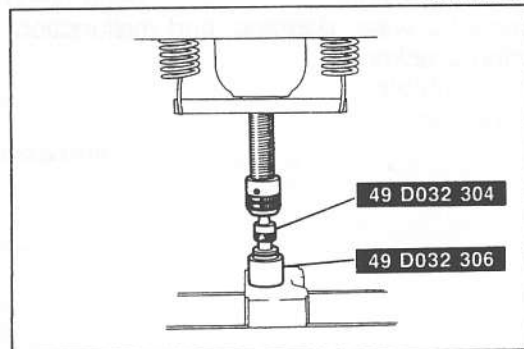
95E0NX-023

**Pinion shaft assembly**

1. Secure the mounting bracket in a vise.
2. Remove the retaining ring.
3. Tap the pinion shaft with a punch to remove it.

**Caution**

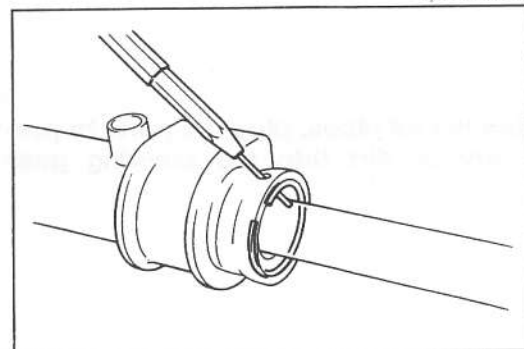
- Do not tap on the lower bearing.



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**Upper bearing and oil seal**

1. Remove the plug assembly from the pinion shaft.
2. Press out the upper bearing and oil seal with the **SST**.
3. Remove the O-ring from the plug.



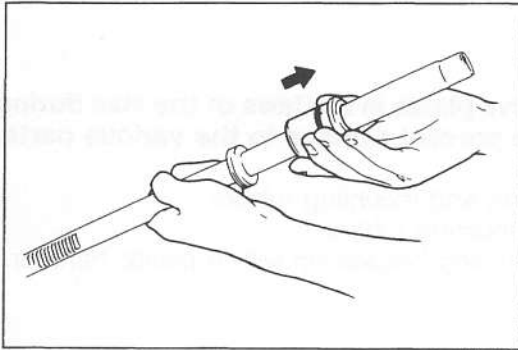
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**Steering rack assembly**

1. Remove the stop ring with a pin punch.
2. Temporarily tighten the tie rod to the tube side and pull it to remove the rack assembly.

**Caution**

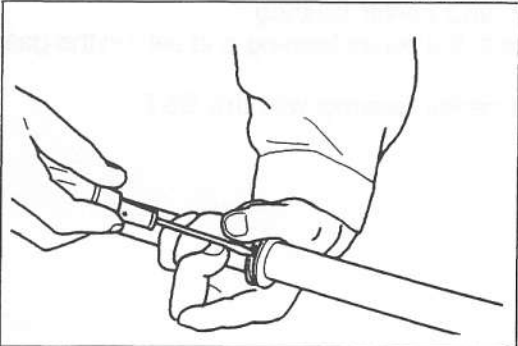
- Do not damage the rack.



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**Holder****Caution**

- When removing the holder, do not damage its inside bore by the end of the rack.

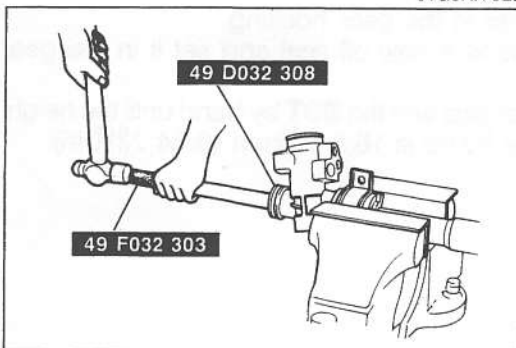


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**Seal ring and O-ring****Caution**

- Do not damage the groove when removing

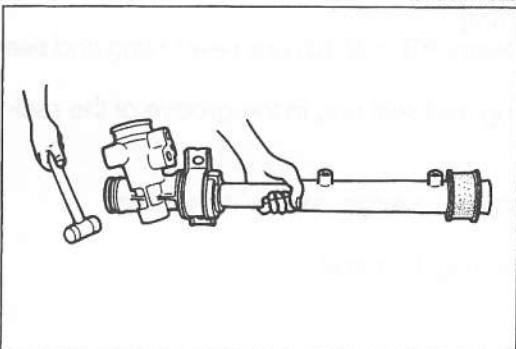
Remove the seal ring and O-ring with a screwdriver.



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**Backup ring and oil seal**

1. Install the **SST (attachment)** onto the end of the **SST (handle)**.
2. Tap the **SST** from gear housing side to remove the backup ring and the oil seal.



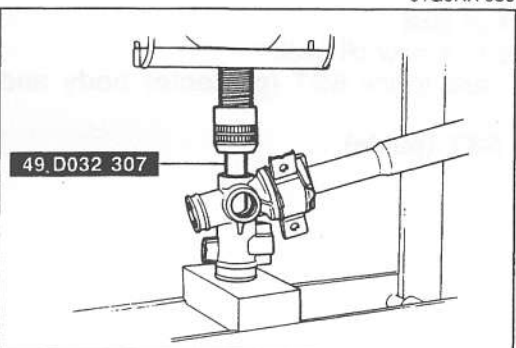
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**Lower bearing**

Tap the end of the gear housing column to remove the lower bearing.

**Caution**

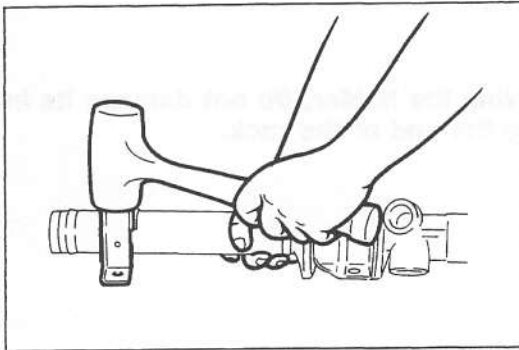
- Do not tap at the gear housing bearing section.



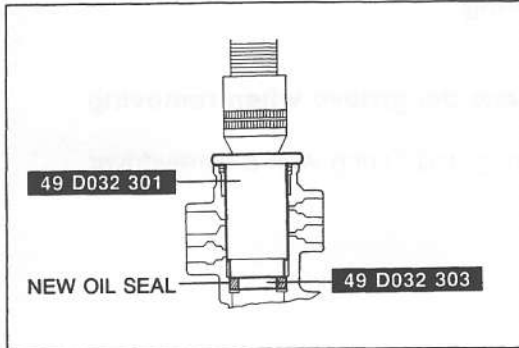
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**Oil seal, spacer and center bearing**

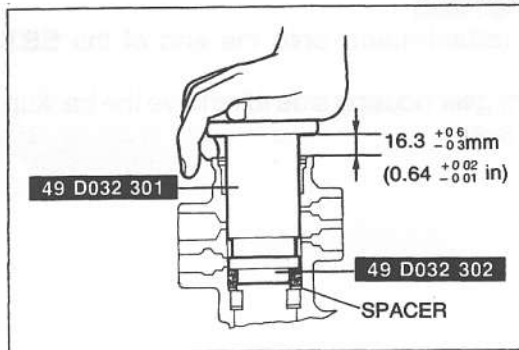
Press out the oil seal, the spacer, and the center bearing with the **SST**.



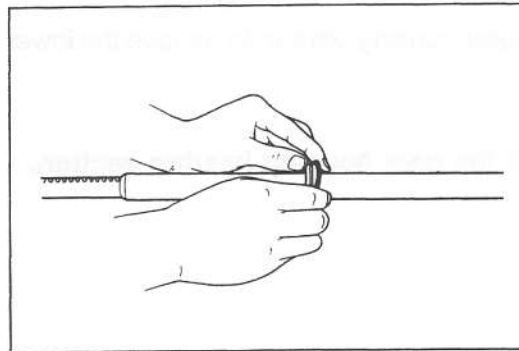
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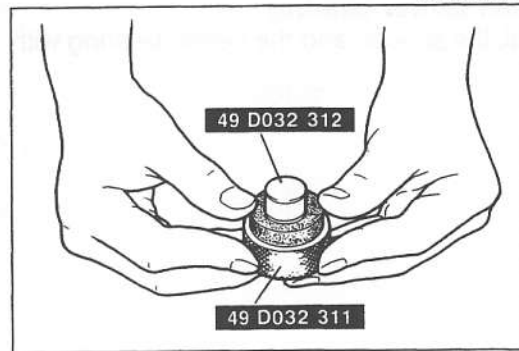
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01G0NX-034



01G0NX-035



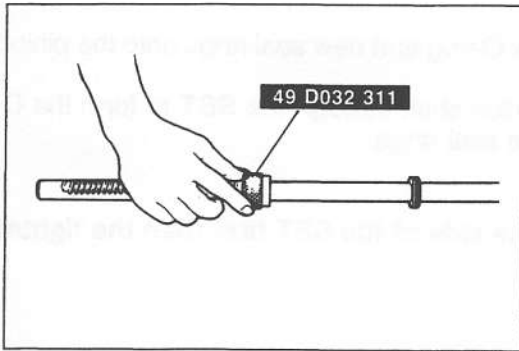
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## Assembly

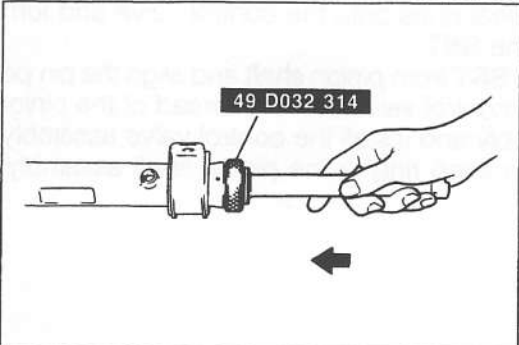
### Note

- Use protective plates in the jaws of the vise during assembly to prevent damage to the various parts.

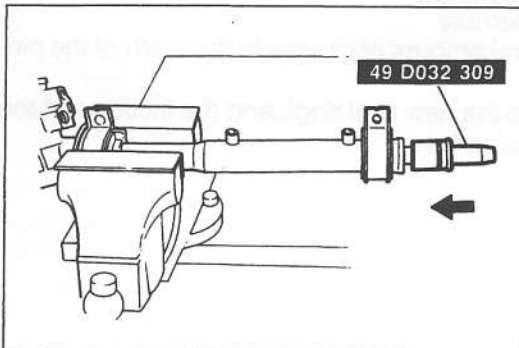
1. Mounting bracket and mounting rubber
    - (1) Install the mounting rubber.
    - (2) Tap the mounting bracket on with a plastic hanmer.
  2. Oil seal, spacer, and center bearing
    - (1) Apply grease to the center bearing and set it in the gear housing.
    - (2) Press in the center bearing with the **SST**.
    - (3) Set the spacer in the gear housing.
    - (4) Apply grease to a new oil seal and set it in the gear housing.
    - (5) Press in the oil seal with the **SST** by hand until the height shown in the figure is  $16.3 \pm 0.6 \text{ mm}$  ( $0.64 \pm 0.02 \text{ in}$ ).
  3. O-ring and seal ring
    - (1) Apply ATF (Dexron® II or M-III) to a new O-ring and seal ring.
    - (2) Install th O-ring and seal ring in the groove of the rack.
- Caution**
- Do not damage the edge of the seal ring.
- (3) From the seal ring by hand.
  4. Backup ring and oil seal
    - (1) Apply grease to a new oil seal.
    - (2) Install the oil seal to the **SST (protector body and guide)**.
    - (3) Remove the **SST (guide)**.



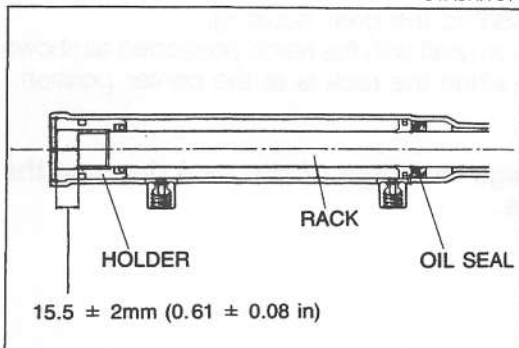
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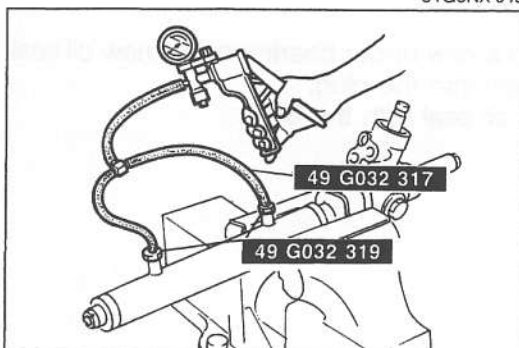
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01A0NX-014



01G0NX-040



01G0NX-041

- (4) Slide the oil seal and the **SST** over the rack from the rack teeth side to the piston. Remove the **SST**.
- (5) Install the backup ring with the small end facing the gear.

## 5. Steering rack assembly

- (1) Apply grease to the teeth and friction surface of the rack.
- (2) Slide the rack into the gear housing from the tube side with the **SST**.

## 6. Holder

- (1) Apply grease to a new Y-packing and install it into the holder.
- (2) Install a new O-ring onto the holder.
- (3) Install the **SST** over the rack end and install the holder.
- (4) Apply ATF to the inside bore of the holder.
- (5) Install the stop ring.

## 7. Oil seal

- (1) Press in the new oil seal from tube side with a suitable pipe.

**Diameter: 20mm (0.79 in).**

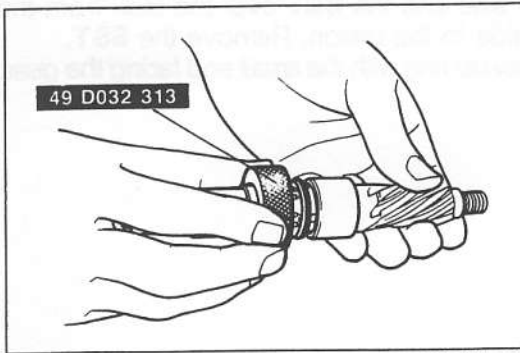
### Caution

- Do not press over 400 kg (880 lb).

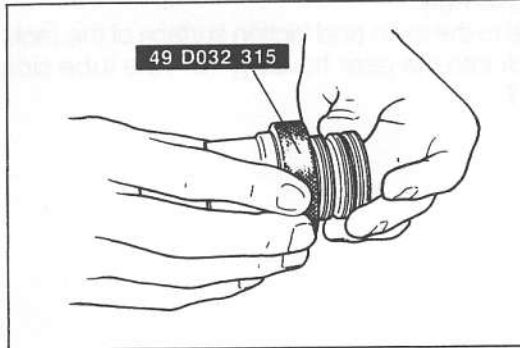
- (2) Verify that the distance between the end of the rack and the holder is  $15.5 \pm 2\text{mm}$  ( $0.61 \pm 0.08\text{ in}$ ).

## 8. Hermetic sealing inspection

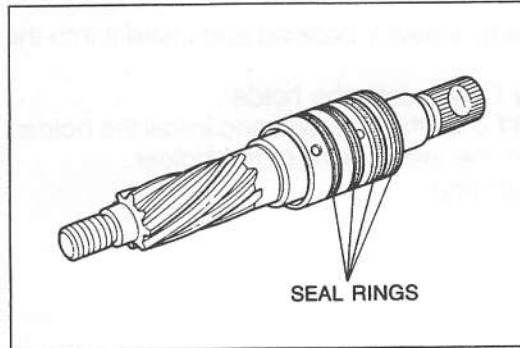
- (1) Connect the **SST** to the power cylinder section of the gear housing.
- (2) Apply **400 mmHg (15.7 inHg)** vacuum with a vacuum pump and verify that it is held for at least **30 seconds**.
- (3) If vacuum is not held, replace the oil seal.



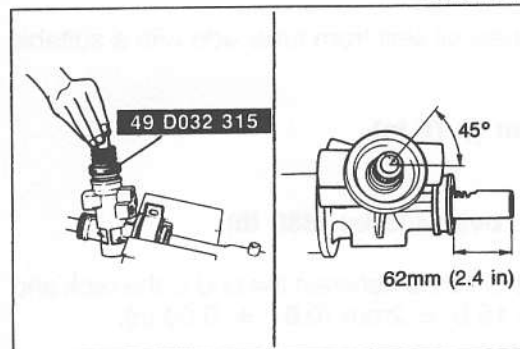
01G0NX-042



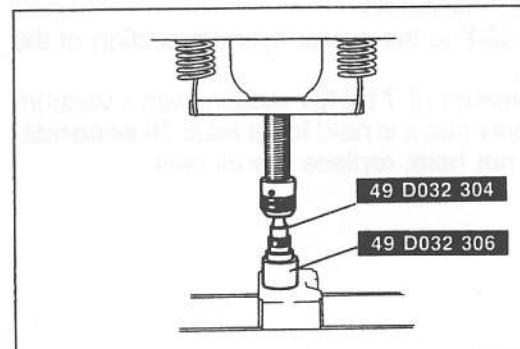
01G0NX-043



01G0NX-044



01G0NX-045



01G0NX-046

## 9. Control valve

- (1) Install a new O-ring and new seal rings onto the pinion shaft.
- (2) Pass the pinion shaft through the **SST** to form the O-ring and the seal rings.

**Caution**

- Use the loose side of the SST first then the tighter side.

- (3) Install new seal rings onto the control valve and form them with the **SST**.
- (4) Remove the **SST** from pinion shaft and align the pin position of the control valve with the thread of the pinion shaft assembly and install the control valve assembly.
- (5) Install a new snap ring to the pinion shaft assembly.

## 10. Pinion shaft assembly

- (1) Apply a liberal amount of grease to the teeth of the pinion shaft.
- (2) Apply ATF to the new seal rings and the friction surface of the control valve.

- (3) Attach the **SST** to the gear housing.

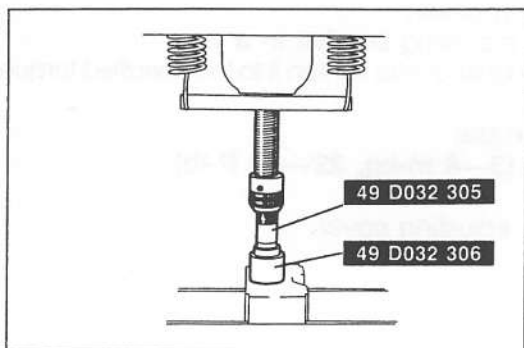
- (4) Install the pinion shaft with the notch positioned as shown in the figure when the rack is at the center position.

**Caution**

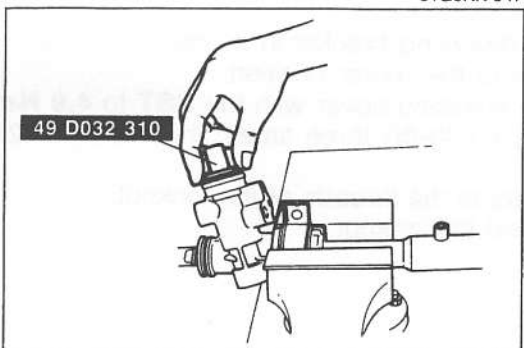
- Do not damage the edge of the seal ring and the control valve.

## 11. Plug assembly

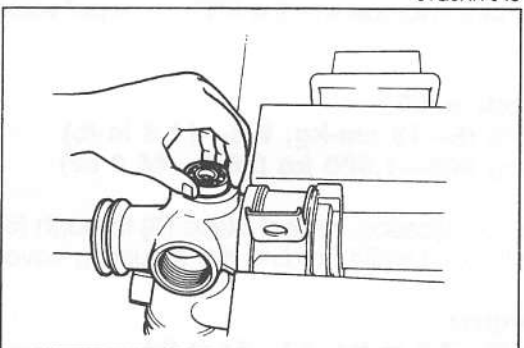
- (1) Apply ATF to a new upper bearing and a new oil seal.
- (2) Set the oil seal into the plug.
- (3) Press in the oil seal with the **SST**.



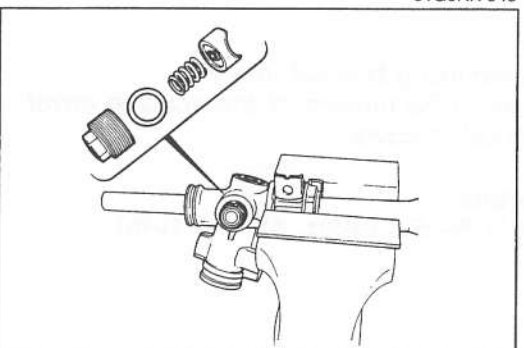
01G0NX-047



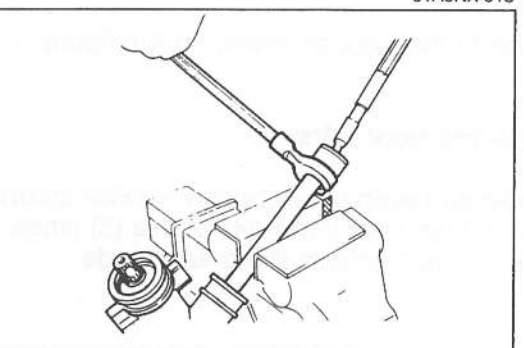
01G0NX-048



01G0NX-049



01A0NX-015



01G0NX-051

- (4) Put the upper bearing into the plug.
- (5) Press in the upper bearing with the **SST**.
- (6) Install a new O-ring to the plug assembly.

- (7) Attach the **SST** to the pinion and install the plug assembly.
- (8) Install a new retaining ring.

## 12. Lower bearing

- (1) Secure the mounting bracket in a vise with the lower bearing bore of the gear housing facing upward.
- (2) Apply grease to the lower bearing and install it onto the pinion shaft.

## 13. Adjusting cover

- (1) Secure the mounting bracket in a vise.
- (2) Apply grease to the support yoke and install it.
- (3) Install the yoke spring
- (4) Install the plate.
- (5) Loosely tighten the adjusting cover.

## 14. Tie rod

- (1) Secure the rack teeth in a vise.
- (2) Install a new washer onto the tie rod.
- (3) Install the tie rod to the rack.

### Tightening torque:

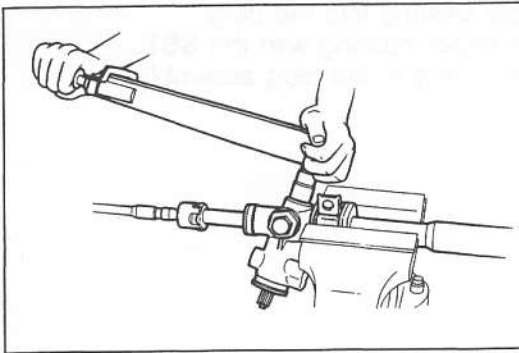
**78—98 N·m (8—10 m·kg, 58—72 ft·lb)**

- (4) Crimp the washer.

### Caution

- Do not damage the rack or tie rod.



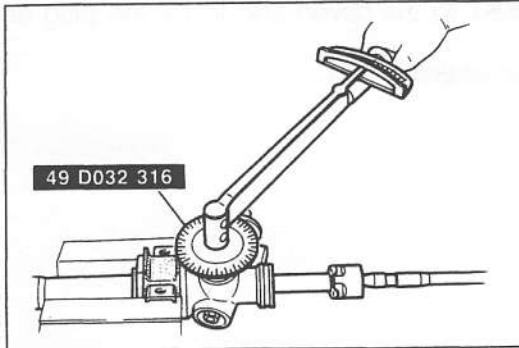


01G0NX-052

15. Locknut (housing cover)
- (1) Secure the mounting bracket in a vise.
  - (2) Install a new locknut and tighten it to the specified torque.

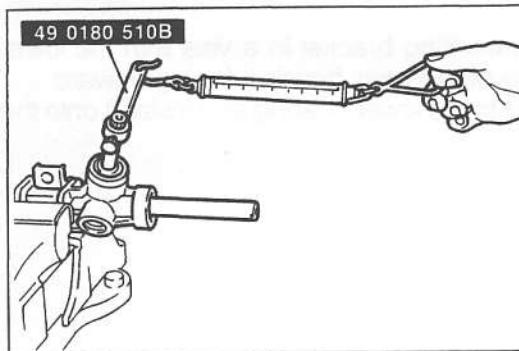
**Tightening torque:****29—39 N·m (3—4 m·kg, 22—29 ft·lb)**

- (3) Loosen the adjusting cover.



01A0NX-016

16. Adjusting cover
- (1) Secure the mounting bracket in a vise.
  - (2) Set the rack to the center position.
  - (3) Tighten the adjusting cover with the **SST** to **4.9 N·m (50 cm·kg, 43 in·lb)** three times, then return it **25 degrees**.
  - (4) Apply sealant to the threads of the locknut.
  - (5) Loosely install the locknut.

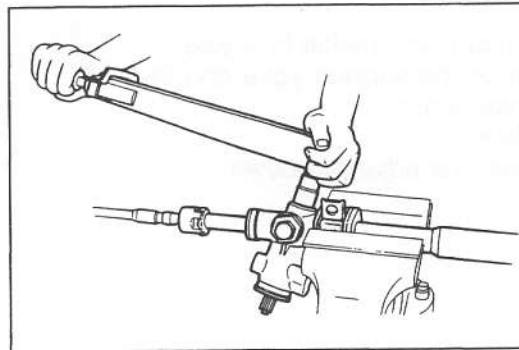


95E0NX-044

- (6) Measure the pinion torque with the **SST** and a pull scale.

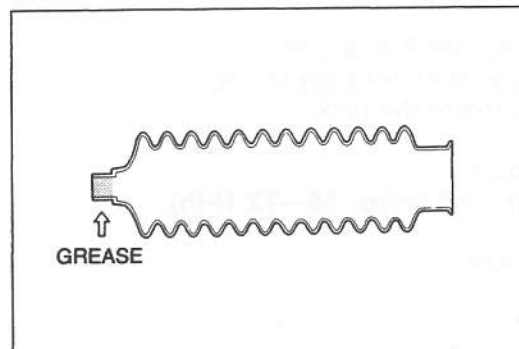
**Standard:****Center of rack  $\pm 90^\circ$** **0.8—1.3 N·m (8—13 cm·kg, 6.9—11.3 in·lb)****Scale reading 800—1,300 kg (28.2—45.9 oz)**

- (7) If not within specification, repeat Steps (3) through (6).
- (8) Tighten the locknut while holding the adjusting cover.

**Tightening torque:****59—74 N·m (6—7.5 m·kg, 43—54 ft·lb)**

01G0NX-055

17. Housing cover
- (1) Secure the mounting bracket in a vise.
  - (2) Apply sealant to the threads of the housing cover.
  - (3) Install the housing cover.

**Tightening torque:****44—54 N·m (4.5—5.5 m·kg, 33—40 ft·lb)**

01G0NX-056

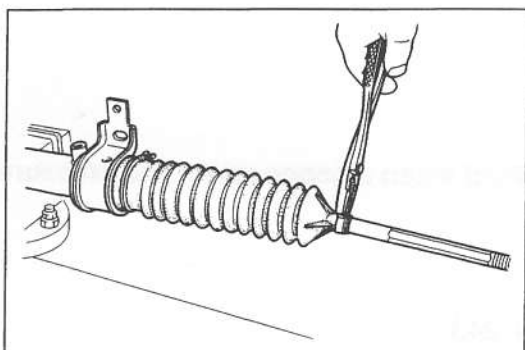
18. Boot
- (1) Apply grease to the boot as shown in the figure.

**Caution**

- **Do not break the boot wire.**

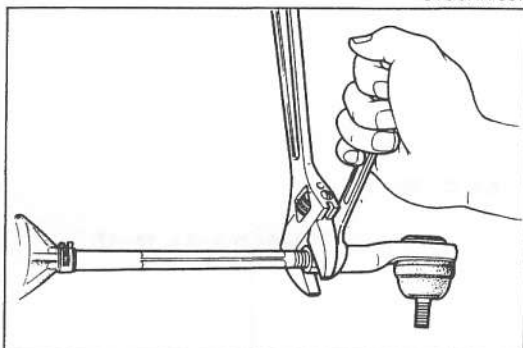
- (2) Install the boot and wrap a new boot wire twice around the large end, then twist it four (4) or five (5) times.
- (3) Bend the wire down against the bracket side.





01G0NX-057

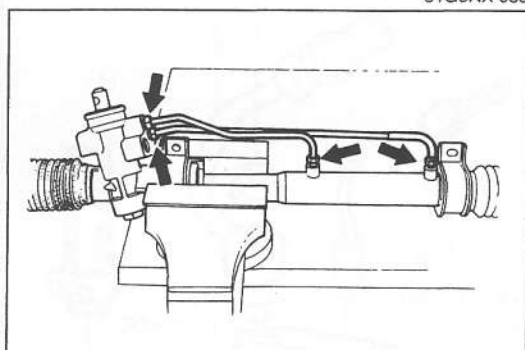
- (4) Install the boot clamp onto the small end of the boot.



01G0NX-058

## 19. Tie rod end

- (1) Install the tie rod ends and align them with the marks made before disassembly.



01G0NX-059

## 20. Oil pipe

- (1) Secure the mounting bracket in a vise.  
(2) Install the oil pipes.

### Tightening torque:

**16—24 N·m (1.6—2.4 m·kg, 12—17 ft·lb)**

**POWER STEERING OIL PUMP****Removal / Installation**

1. Remove in the order shown in the figure.

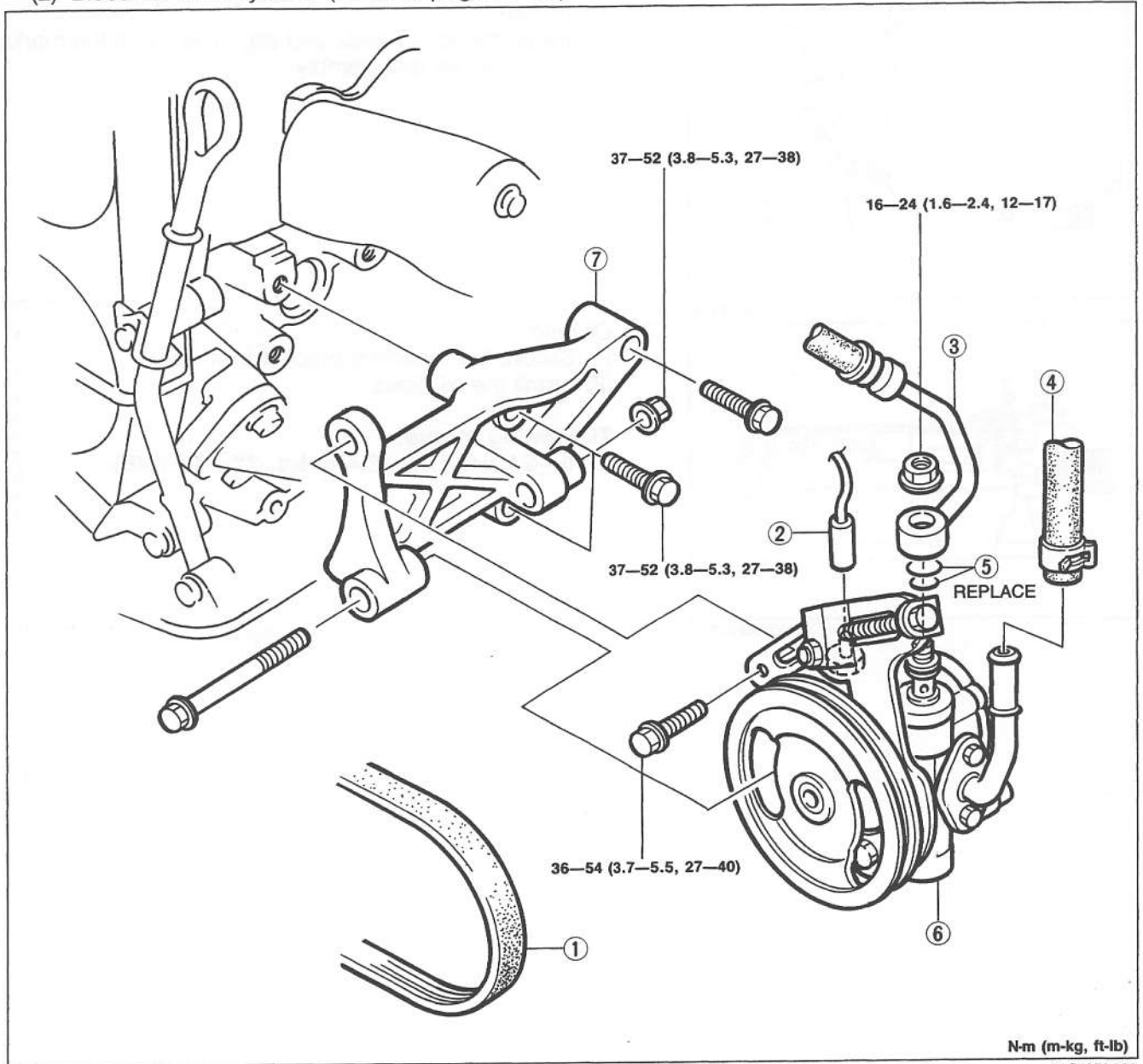
**Note**

- Use a container or rags to collect the power steering fluid when disconnecting the pressure pipe and return hose.

2. Install in the reverse order of removal.

3. After installation:

- (1) Check all connections for fluid leakage. (Refer to page N-24.)
- (2) Bleed air from system. (Refer to page N-23.)



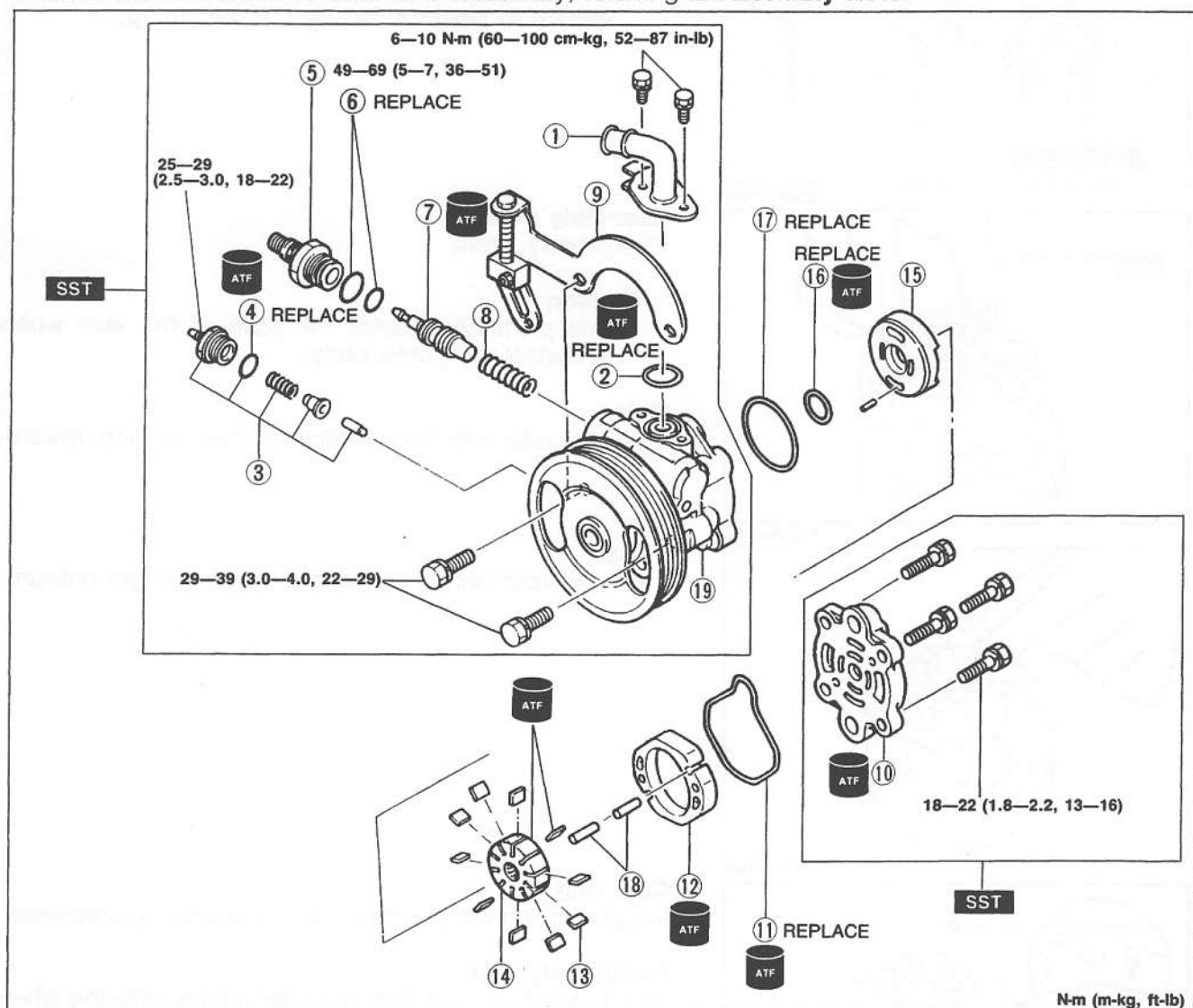
N-m (m-kg, ft-lb)

01GONX-060

- |   |                            |
|---|----------------------------|
| 1. Drive belt                               | 4. Return hose             |
| Inspection..... page N-41                   | 5. O-ring                  |
| Adjustment..... page N-41                   | 6. Oil pump assembly       |
| Replacement..... page N-41                  | Disassembly / Inspection / |
| 2. Power steering pressure switch connector | Assembly..... page N-39    |
| 3. Pressure pipe                            | 7. Oil pump bracket        |

## Disassembly / Inspection / Assembly

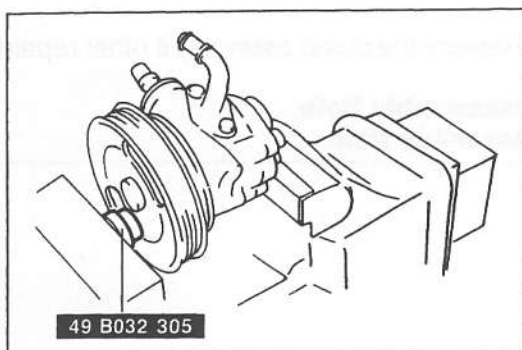
1. The following procedure is for replacement of the O-ring only. Replace the pump assembly if other repairs are necessary.
2. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



N-m (m-kg, ft-lb)

01GONX-061

- |  |                                      |
|--|--------------------------------------|
| 1. Suction pipe                                | 12. Cam ring                         |
| 2. O-ring                                      | Assembly note ..... page N-40        |
| 3. Pressure switch assembly                    | Inspect friction surface for wear    |
| 4. O-ring                                      | 13. Vane                             |
| 5. Connector                                   | Assembly note ..... page N-40        |
| 6. O-ring                                      | Inspect friction surface for wear    |
| 7. Control valve                               | 14. Rotor                            |
| Inspect for cracks, damage, clogging, and wear | Assembly note ..... page N-40        |
| 8. Spring                                      | Inspect friction surface for wear    |
| Inspect for damage and weakness                | 15. Plate                            |
| 9. Bracket                                     | Inspect friction surface for wear    |
| 10. Pump body, rear                            | 16. O-ring                           |
| Assembly note ..... page N-40                  | 17. O-ring                           |
| Inspect for cracks, damage, and wear           | 18. Pin                              |
| 11. O-ring                                     | 19. Pump body, front                 |
|  | Assembly note ..... page N-40        |
|  | Inspect for cracks, damage, and wear |

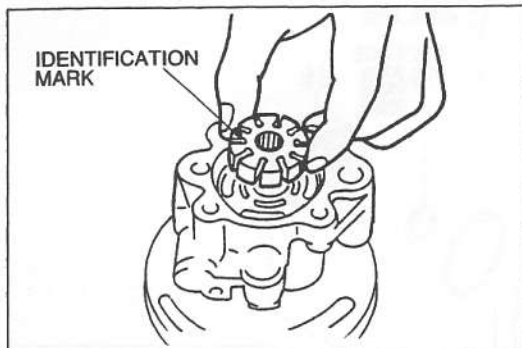


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#### Disassembly note Oil pump

##### Caution

- To secure the oil pump in a vise, use the SST as shown to prevent damage to the pump.



01G0NX-062

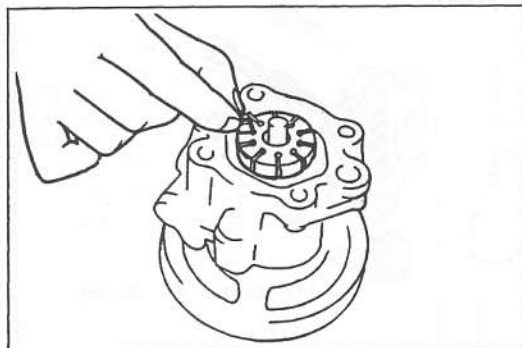
#### Assembly note Pump body, front

##### Caution

- Use protective plates the jaws of the vise when securing the pump body.

#### Rotor

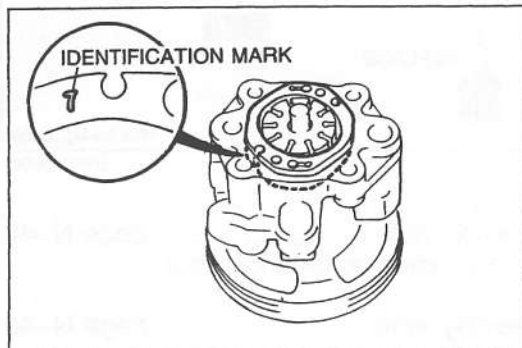
Install the rotor with the identification mark facing upward.



01G0NX-063

#### Vane

Install the vanes into rotor with the rounded edges outward.



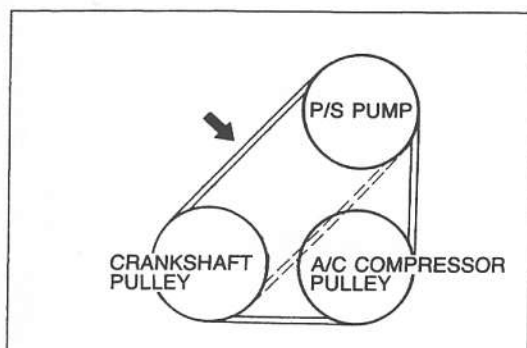
01G0NX-064

#### Cam ring

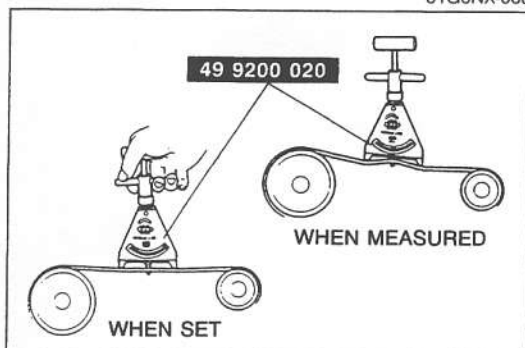
Install cam ring with the identification mark facing downward.

#### Pump body rear

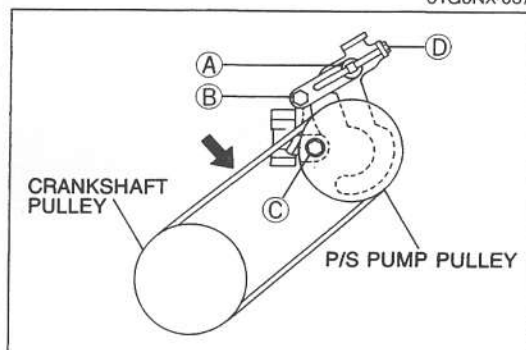
After installation, verify that the pulley rotates smoothly when rotated by hand.



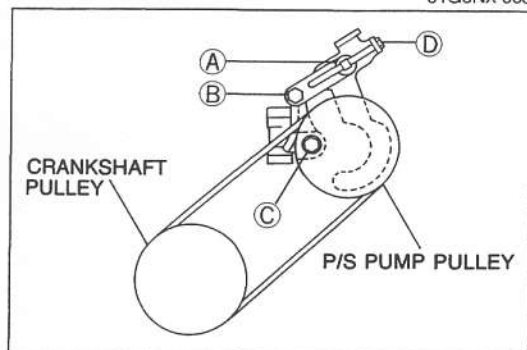
01G0NX-066



01G0NX-067



01G0NX-068



01G0NX-069

## DRIVE BELT

### Inspection

1. Check the drive belt for wear, cracks, and fraying. Replace if necessary.
2. Check the drive belt deflection by applying moderate pressure (**98 N, 10 kg, 22 lb**) midway between the pulleys. Adjust if necessary.

### Deflection (depressed at 98 N [10 kg, 22 lb])

**New : 8—9mm (0.31—0.35 in)**

**Used: 9—10mm (0.35—0.39 in)**

### Tension

**New : 491—589 N (50—60 kg, 110—132 lb)**

**Used: 422—491 N (43—50 kg, 95—110 lb)**

### Note

- Belt tension can be measured between any two pulleys.

### Adjustment

1. Loosen P/S oil pump bolt A and nuts B and C. Adjust the belt deflection by turning the adjusting bolt D.

### Tightening torque

**(A): 19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)**

**(B): 36—54 N·m (3.7—5.5 m·kg, 27—40 ft·lb)**

**(C): 37—52 N·m (3.8—5.3 m·kg, 27—38 ft·lb)**

### Replacement

1. Loosen bolt A, nuts B and C, and adjusting bolt D.
2. Remove and replace the drive belt.
3. Adjust the deflection (tension). (Refer to above.)

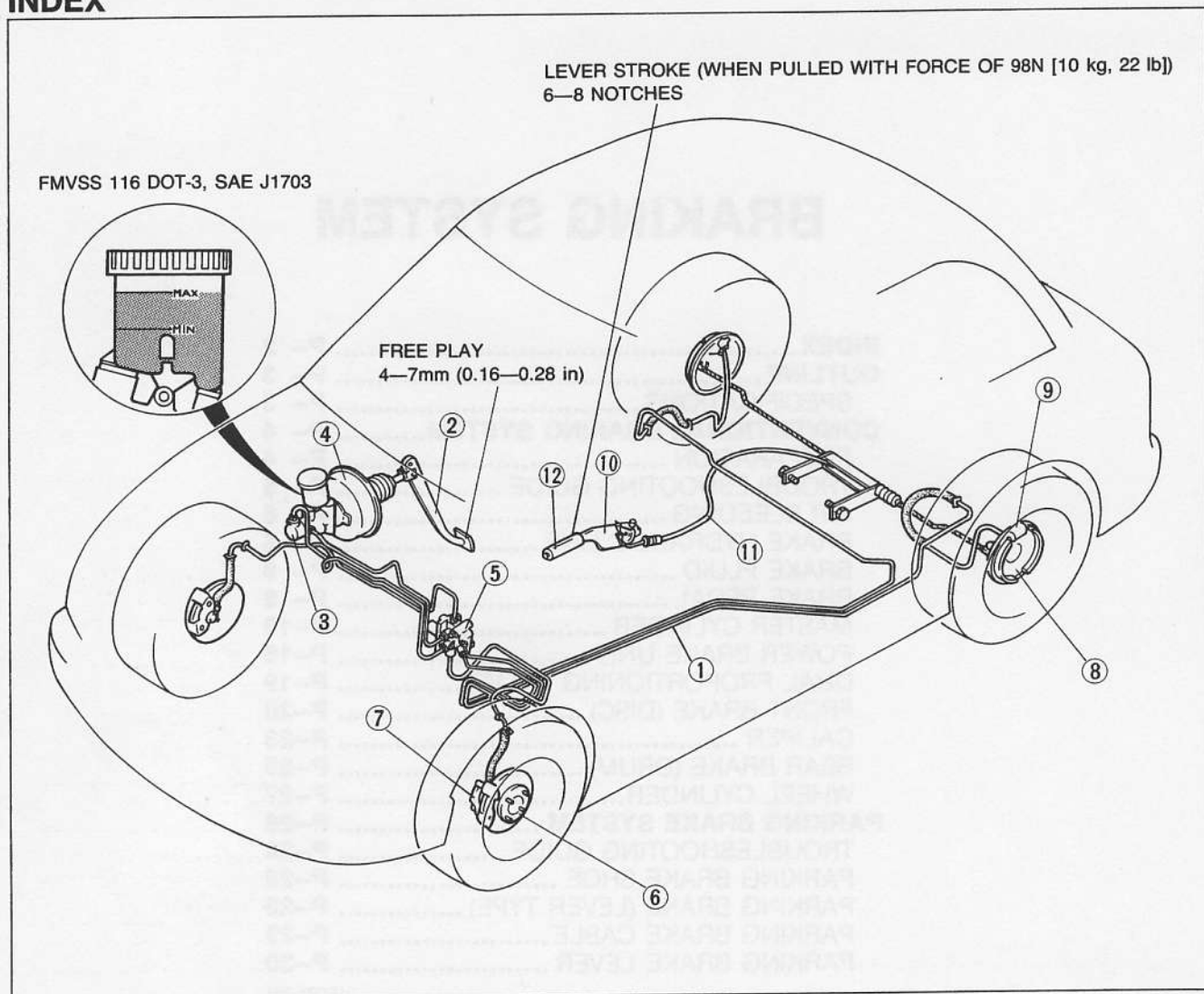
# BRAKING SYSTEM

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PARKING BRAKE LEVER .....	P-30

01E0PX-001



## INDEX



01E0PX-002

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| Disassembly / Inspection /<br>Assembly .....                           | page P-14 | 10. Parking brake (lever type)<br>Inspection (on-vehicle).....         | page P-28 |
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| Removal / Installation .....   | page P-18 | 11. Parking brake cable<br>Removal / Inspection /<br>Installation..... | page P-29 |
| 5. Dual proportioning valve<br>Inspection .....                        | page P-19 | 12. Parking brake lever<br>Removal / Inspection /<br>Installation..... | page P-30 |
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| Removal / Installation .....   | page P-21 |  |           |
| Inspection .....   | page P-22 |  |           |

## OUTLINE

### SPECIFICATIONS


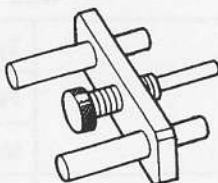
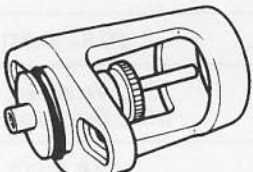
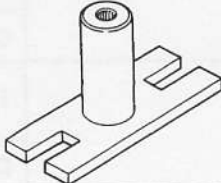
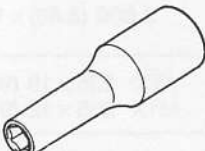

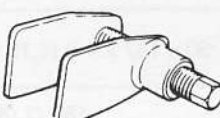
Item		Specification
Brake pedal	Type	Suspended
	Pedal lever ratio	4.26
	Maximum stroke mm (in)	137.6 (5.42)
Master cylinder	Type	Tandem (with level sensor)
	Cylinder inner diameter mm (in)	20.64 (0.81)
Front disc brake	Type	ATX: Ventilated disc MTX: Solid disc
	Cylinder bore mm (in)	50.8 (2.00)
	Pad dimensions (area × thickness) mm <sup>2</sup> (in <sup>2</sup> ) × mm (in)	3,800 (5.89) × 10 (0.39)
	Disc plate dimensions mm (in) (outer diameter × thickness)	ATX: 235 × 18 (9.25 × 0.71) MTX: 235 × 12 (9.25 × 0.47)
Rear drum brake	Type	Leading-trailing
	Wheel cylinder inner diameter mm (in)	15.87 (0.63)
	Lining dimensions (width × length × thickness) mm (in)	30 × 157 × 4 0 (1.18 × 6.18 × 0.16)
	Drum inner diameter mm (in)	180 (7.09)
	Shoe clearance adjustment	Automatic adjuster
Power brake unit	Type	Vacuum multiplier
	Diameter	ATX 214 (8.43), MTX. 189 (7.44)
Rear wheel hydraulic control system	Type	Dual proportioning valve
Brake fluid		FMVSS116. DOT-3, SAE: J1703
Parking brake	Type	Mechanical two rear wheel control
	Operation system	Center lever

01A0PX-001



## CONVENTIONAL BRAKE SYSTEM

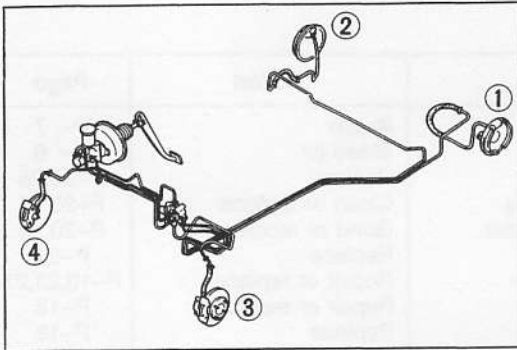
PREPARATION  
SST

49 0259 770B Wrench, flare nut 	For removal of brake pipe	49 F043 001 Gauge, adjust 	For adjustment of piston-to-push rod clearance
49 B043 001 Gauge, adjust 	For adjustment of piston-to-push rod clearance	49 B043 003 Turning lock tool 	For adjustment of piston-to-push rod clearance
49 B043 004 Socket wrench 	For adjustment of piston-to-push rod clearance	49 0208 701A Air-out tool, boot 	For removal of piston seal
49 0221 600C Expansion tool, disc brake 	For installation of brake pads (front disc brake)	01E0PX-004	

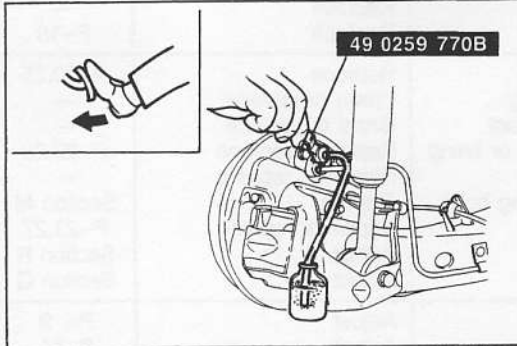
## TROUBLESHOOTING GUIDE

Problem	Possible cause	Action	Page
<b>Poor braking</b>	Leakage of brake fluid Air in system Worn pad or lining Brake fluid, grease, oil, or water on pad or lining Hardening of pad or lining surface or poor contact Malfunction of disc brake piston Malfunction of master cylinder or wheel cylinder Malfunction of power brake unit Malfunction of check valve (vacuum hose) Damaged vacuum hose Deterioration of flexible hose Malfunction of dual proportioning valve	Repair Bleed air Replace Clean or replace Grind or replace Replace Repair or replace Repair or replace Replace Replace Replace Replace	P- 7 P- 6 P-20,25 P-20,25 P-20,25 P-21 P-10,23,27 P-18 P-18 P-18 — P-19
<b>Brakes pull to one side</b>	Worn pad or lining Brake fluid, grease, oil, or water on pad or lining Hardening of pad or lining surface or poor contact Abnormal wear or distortion of disc, drum, pad, or lining Malfunction of automatic adjuster Looseness of backing plate / dust cover mounting bolts Malfunction of wheel cylinder Improperly adjusted wheel alignment Unequal tire air pressures	Replace Clean or replace Grind or replace Repair or replace Repair or replace Tighten Repair or replace Adjust Adjust	P-20,25 — — P-20,25 — Section M P-23,27 Section R Section Q
<b>Brakes do not release</b>	No brake pedal play Improperly adjusted push rod clearance Clogged master cylinder return port Weak brake pad or shoe return spring Wheel cylinder or caliper not returning properly Malfunction of piston seal of disc brake Excessive runout of disc plate	Adjust Adjust Clean Replace Clean or replace Replace Replace	P- 9 P-11 P-14 P-25 — P-21 P-22
<b>Pedal goes too far (too much pedal stroke)</b>	Improperly adjusted pedal play Worn pad or lining Air in system	Adjust Replace Bleed air	P- 9 P-20,25 P- 6
<b>Abnormal noise or vibration during braking</b>	Worn pad or lining Deteriorated pad or lining Brakes do not release Foreign material or scratches on disc plate or drum contact surface Looseness of backing plate / dust cover or caliper mounting bolts Damaged disc or drum contact surface Poor contact of pad or lining Insufficient grease on sliding parts	Replace Grind or replace Repair Clean  Tighten  Replace Repair or replace Grease	P-20,25 P-20,25 — —  Section M, P-21 — P-20,25 —
<b>Steering wheel pulls to one side</b>	Dragging brake Malfunction of steering system Damaged or unbalanced wheel(s) Incorrect tire air pressure Malfunction of suspension	Repair — — — —	— Section N Section Q Section Q Section R

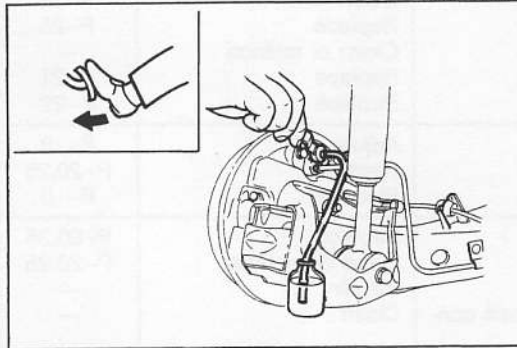
01E0PX-005



01E0PX-039



01E0PX-040



01E0PX-041

### AIR BLEEDING

1. Jack up the vehicle and support it with safety stands.

#### Caution

- The brake fluid reservoir must be kept 3/4 full during air bleeding.

2. Remove the bleeder cap and attach a vinyl hose to the bleeder plug.
3. Place the other end of the vinyl tube in a clear container.
4. One person should depress the brake pedal a few times, and then hold it in the depressed position.
5. A second person should loosen the bleeder screw, drain out the fluid, and retighten the screw with the **SST**.

#### Caution

- The two persons should stay in voice contact with each other.
- Be sure the pedal remains depressed until the bleed screw is tightened.

6. Repeat Steps 4 and 5 until no air bubbles are seen.
7. Check for correct brake operation.
8. Verify that there is no fluid leakage. Clean away any spilled fluid with rags.
9. After bleeding the air, add brake fluid to the reservoir up to the specified level.

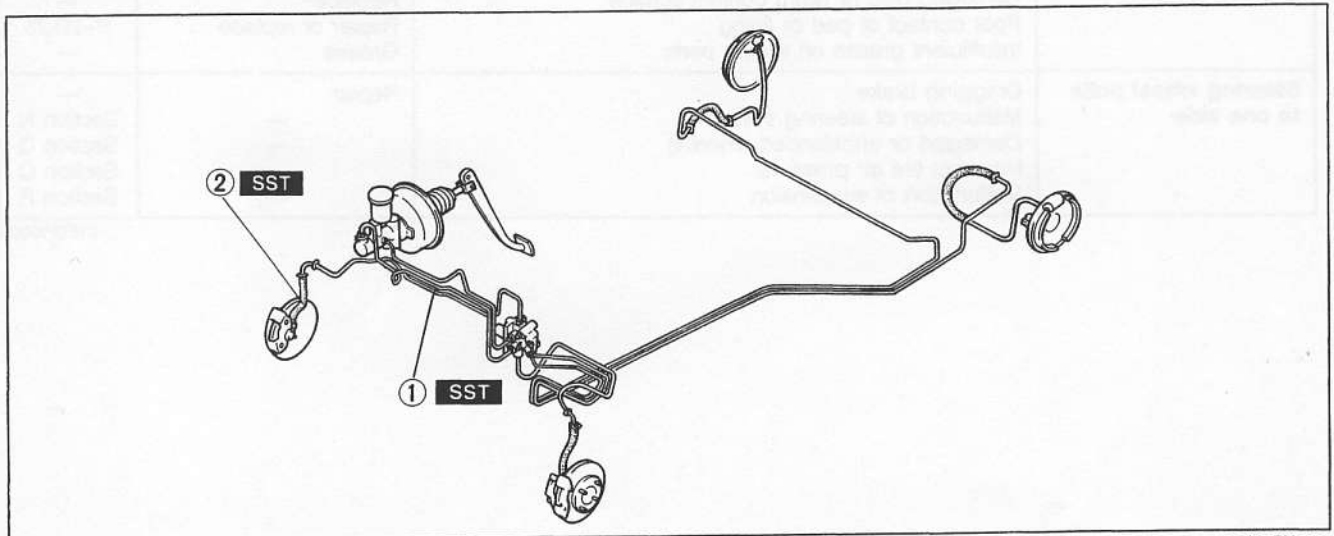
#### Tightening torque:

5.9—8.8 N·m (60—90 cm·kg, 52—78 in·lb)

#### Note

- Air bleeding must be done from the bleeder screw farthest from the disassembled parts to the nearest.

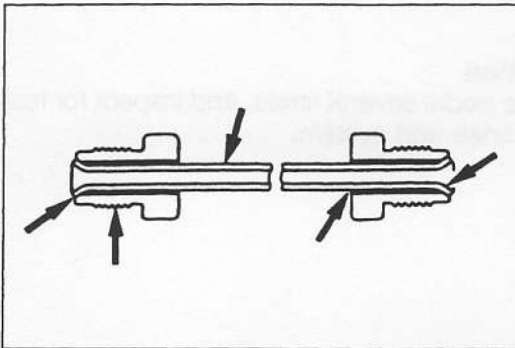
### BRAKE HYDRAULIC LINE



03U0PX-009

1. Brake pipe  
Inspection / Removal /  
Installation..... page P-7

2. Flexible hose  
Inspection / Removal /  
Installation..... page P-7

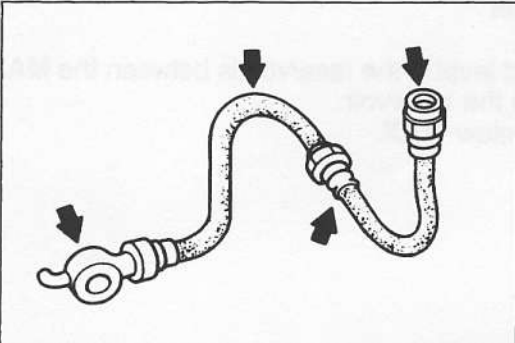


01E0PX-042

## Inspection (On-vehicle)

### Brake pipe

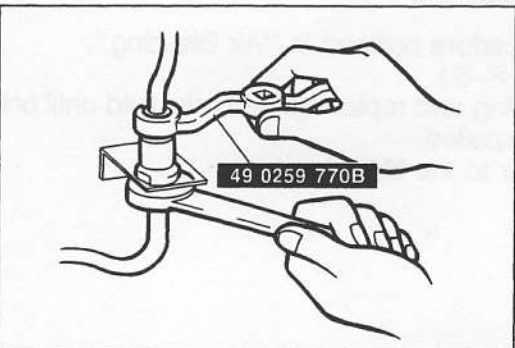
Check for cracks, damage, and corrosion of the brake pipe. Replace the pipe or flare nut if necessary.



01E0PX-043

### Flexible hose

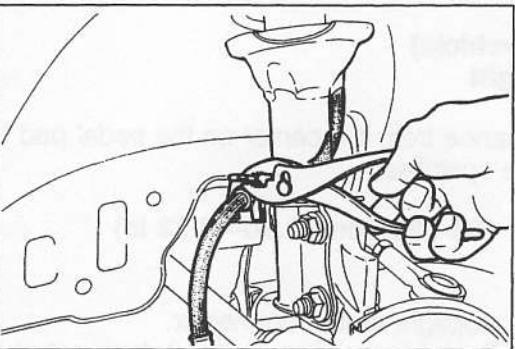
Check for scars, cracks, and swelling of the flexible hose. Replace the hose if necessary.



03U0PX-012

## Removal

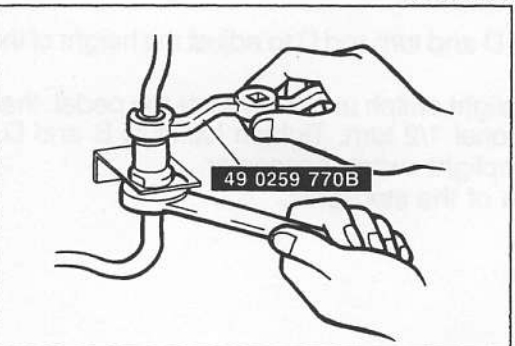
1. Remove the brake pipe with the **SST**.
2. Disconnect the clip and remove the flexible hose from the bracket.



01E0PX-044

## Installation

1. Fix the flexible hose in the bracket and install the clip.



03U0PX-014

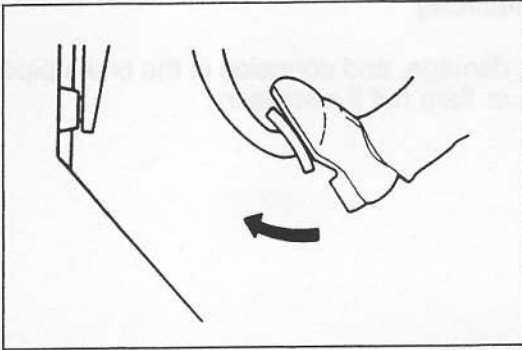
2. Connect the flexible hose to the brake pipe and tighten the flare nut with the **SST**.

### Caution

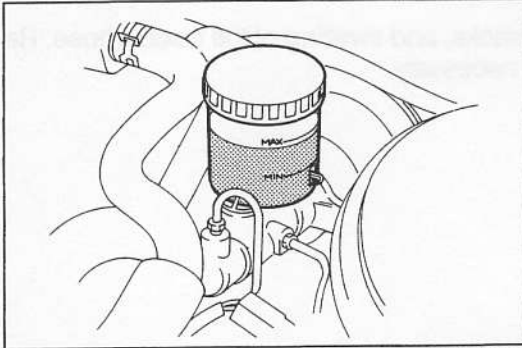
- Verify that the hose is not twisted.
- Verify that the hose does not contact other parts when the vehicle bounces or when the steering wheel is turned fully right or left.

### Tightening torque:

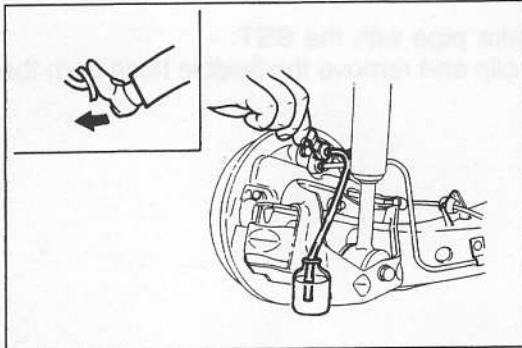
13—22 N·m (1.3—2.2 m·kg, 9—16 ft·lb)



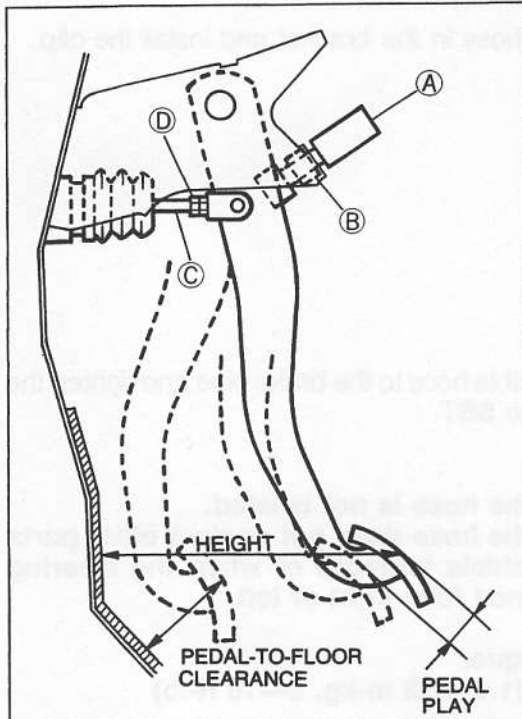
01E0PX-045



03U0PX-016



03U0PX-017



01A0PX-002

## BRAKE FLUID

### Inspection

#### Leakage inspection

Depress the brake pedal several times, and inspect for leakage of the brake lines and system.

### Brake Fluid Level

#### Leakage check

Verify that the fluid level in the reservoir is between the **MAX** and **MIN** lines on the reservoir.

Add fluid if it is below **MAX**.

### Replacement

1. Follow the procedure outlined in "Air Bleeding". (Refer to page P-6.)
2. Continue bleeding and replacing the brake fluid until only clean fluid is expelled.
3. Fill the reservoir to the **MAX** level.

## BRAKE PEDAL

### Inspection (On-vehicle)

#### Brake pedal height

#### Inspection

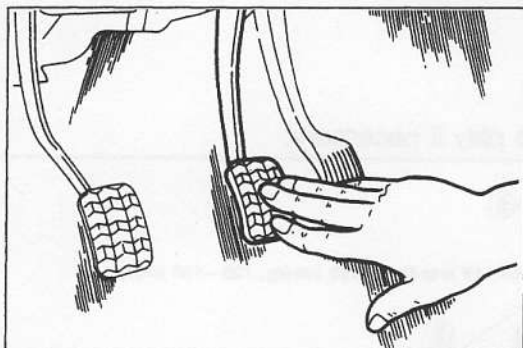
Verify that the distance from the center on the pedal pad to the floor mat is as specified.

**Specification: 198—209mm (7.80—8.23 in)**

### Adjustment

1. Disconnect the stoplight switch connector.
2. Loosen locknut B and turn switch A until it does not contact the pedal.
3. Loosen locknut D and turn rod C to adjust the height of the brake pedal.
4. Tighten the stoplight switch until it contacts the pedal; then turn it an additional 1/2 turn. Tighten locknuts B and D.
5. Connect the stoplight switch connector.
6. Verify operation of the stoplights.



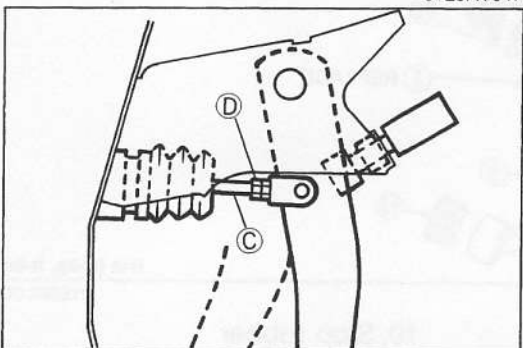


01E0PX-047

## Pedal Play Inspection

1. Depress the pedal a few times to eliminate the vacuum in the system.
2. Gently depress the pedal by hand and check the free play (until resistance is felt).

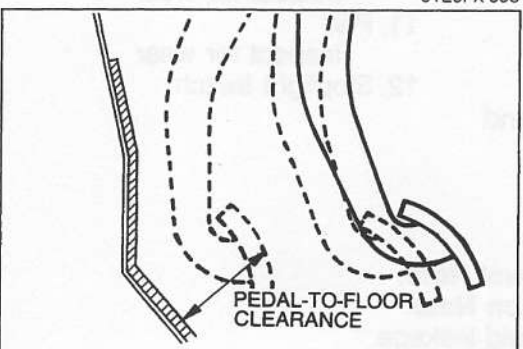
**Free play: 4—7mm (0.16—0.28 in)**



01E0PX-006

## Adjustment

1. Loosen locknut D and turn rod C to adjust the free play.
2. Verify the pedal height and the stoplight operation.



01A0PX-003

## Pedal-To-Floor Clearance Inspection

Verify that the distance from the floor panel to the center of the pedal pad is as specified when the pedal is depressed with a force of **589 N (60 kg, 132 lb)**.

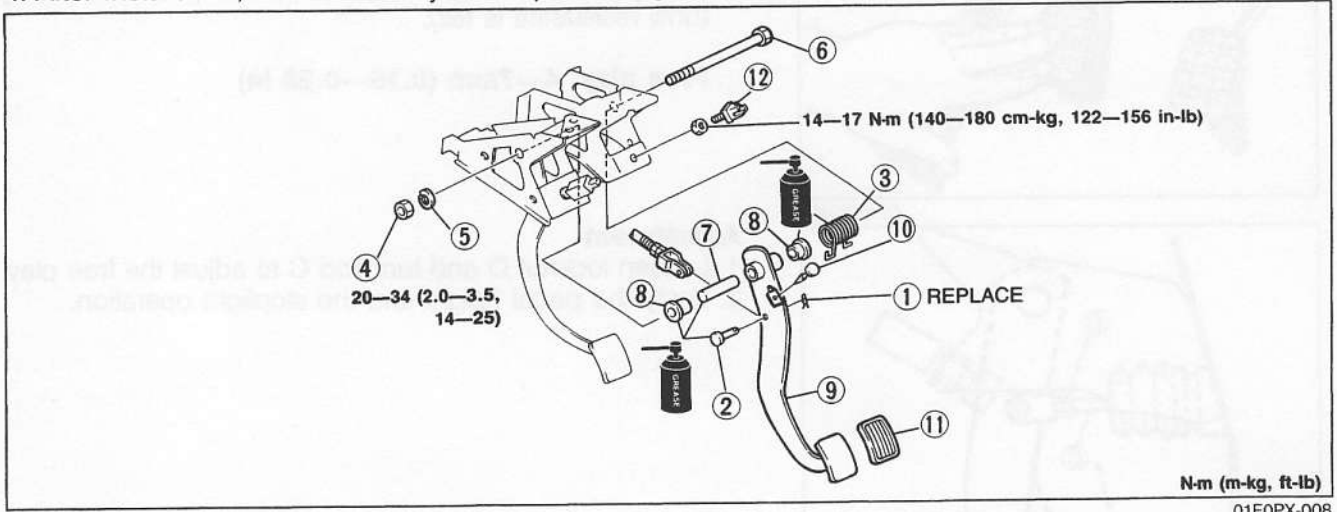
**Pedal-to-floor clearance: 60mm (2.37 in) min.**

If the distance is less than specified, check for the following problems:

1. Air in brake system
2. Malfunction of automatic adjuster (rear drum brakes)
3. Worn shoes or pads

### Removal / Inspection / Installation

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal.
4. After installation, check and adjust the pedal height and free play if necessary.

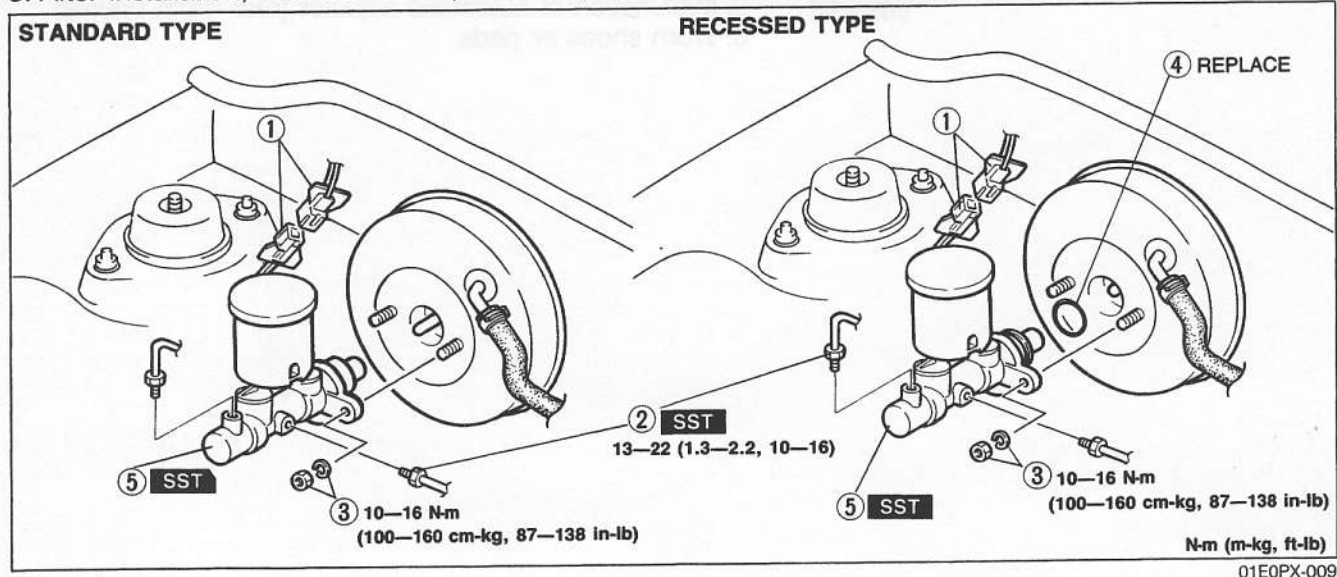


- |                             |                                |                      |
|-----------------------------|--------------------------------|----------------------|
| 1. Spring pin               | 6. Bolt                        | 10. Stop rubber      |
| 2. Clevis pin               | 7. Spacer                      | Inspect for wear     |
| 3. Return spring            | 8. Bushing                     | 11. Pad              |
| Inspect for wear and damage | Inspect for wear               | Inspect for wear     |
| 4. Nut                      | 9. Brake pedal                 | 12. Stoplight switch |
| 5. Washer                   | Inspect for bending and damage |                      |

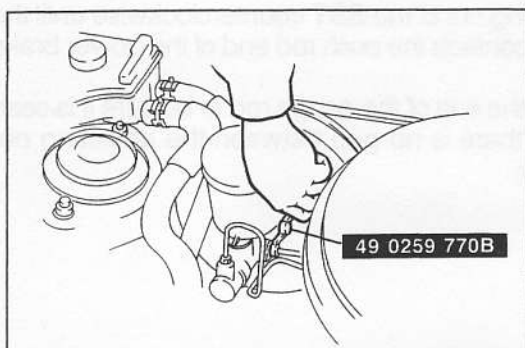
### MASTER CYLINDER

#### Removal / Installation

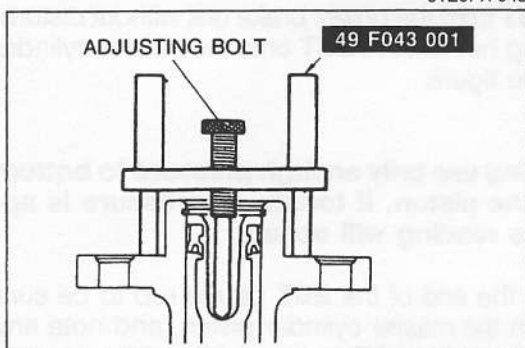
1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.
3. After installation, add brake fluid, bleed air, and check for fluid leakage.



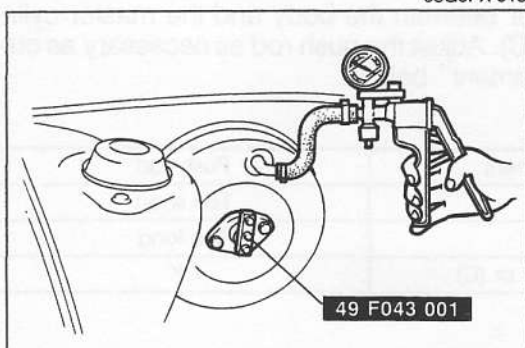
- |                                  |                                  |
|----------------------------------|----------------------------------|
| 1. Connector                     | 4. O-ring                        |
| 2. Brake pipe                    | 5. Master cylinder               |
| Removal note ..... page P-11     | Installation note..... page P-11 |
| Installation note..... page P-13 | Disassembly / Inspection /       |
| 3. Nut and washer                | Assembly ..... page P-14         |



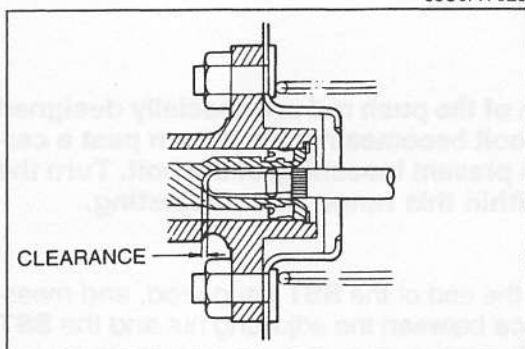
01E0PX-048



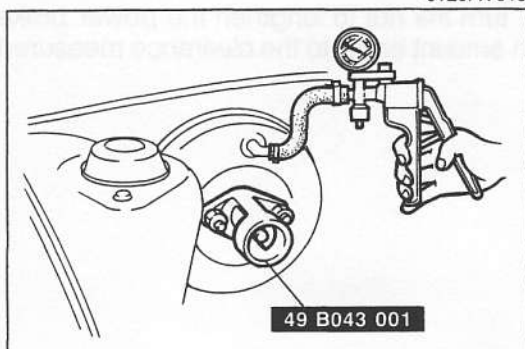
93G0PX-015



03U0PX-026



01E0PX-010



01E0PX-049

## Removal note

### Brake pipe

Disconnect the brake pipe from the master cylinder with the SST.

## Caution

- Do not allow the brake fluid to get on painted surfaces. If it does, wipe it off immediately.

## Installation note

### Master cylinder

### Piston to push rod clearance

### Standard type

- Place the SST on the master cylinder. Turn the adjusting bolt until it bottoms in the push rod hole in the piston.

- Apply **500 mmHg (19.7 inHg)** vacuum to the power brake unit with a vacuum pump.
- Invert the adjustment gauge used in Step 1 and place it on the power brake unit.
- Measure the clearance between the end of the gauge and the push rod of the power brake unit. If it is not **0mm (0 in)**, loosen the push rod locknut and turn the push rod to make the adjustment.

## Note

- By making the above adjustment, the clearance between the push rod and piston (after installation of the brake master cylinder to the power brake unit) will be as shown in the table below.

Vacuum applied to unit	Push rod-to-piston clearance
0 mmHg (0 inHg)	0.4—0.6mm (0.016—0.024 in)
Approx. 500 mmHg (19.7 inHg)	0.1—0.4mm (0.004—0.016 in)

## Recessed type

- Turn the nut of the SST clockwise to fully retract the gauge rod. Attach the SST to the power brake unit.

## Caution

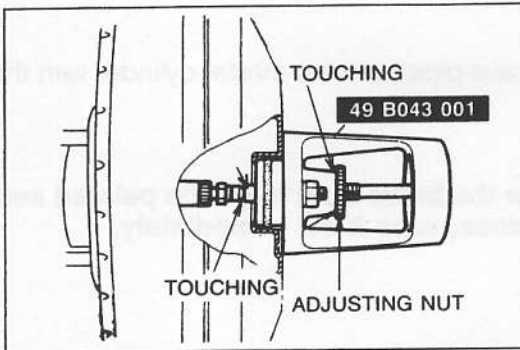
- Install with the gauge rod fully retracted.

## Tightening torque:

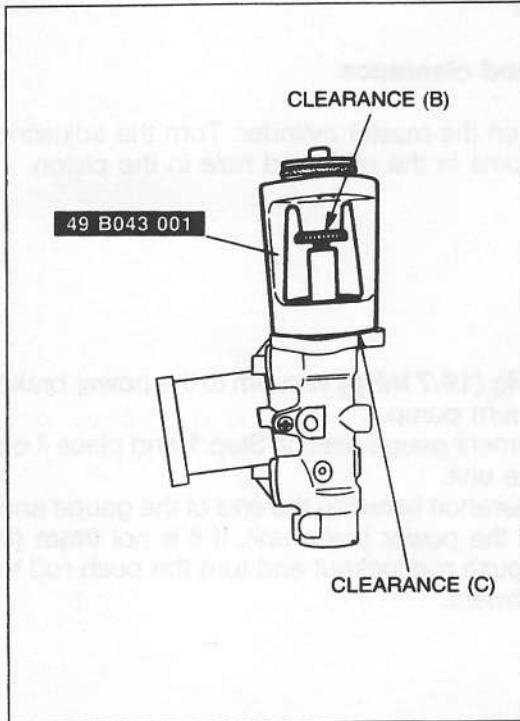
**10—16 N·m (100—160 cm·kg, 87—138 in·lb)**

- Apply **500 mmHg (19.7 inHg)** vacuum using a vacuum pump.





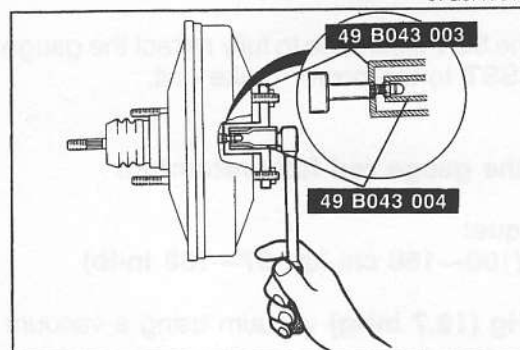
97G0PX-010



05E0PX-049



97G0PX-012



01E0PX-011

- Turn the adjusting nut of the **SST** counterclockwise until the gauge rod just contacts the push rod end of the power brake unit.  
Push lightly on the end of the gauge rod to be sure it is seated. Verify that there is no gap between the adjusting nut and **SST** body.

- Remove the **SST** from the power brake unit without disturbing the adjusting nut. Set the **SST** onto the master cylinder as shown in the figure.

#### Caution

- When pushing use only enough pressure to bottom the rod in the piston. If too much pressure is applied a false reading will occur.

- Push lightly on the end of the **SST** gauge rod to be sure it is bottomed in the master cylinder piston, and note any clearance between the **SST** body and the adjusting nut (clearance B) or between the body and the master cylinder (clearance C). Adjust the push rod as necessary as outlined in "Adjustment" below.

Measurement	Push rod
Clearance at (B)	Too short
Clearance at (C)	Too long
No clearance at (B) or (C)	OK

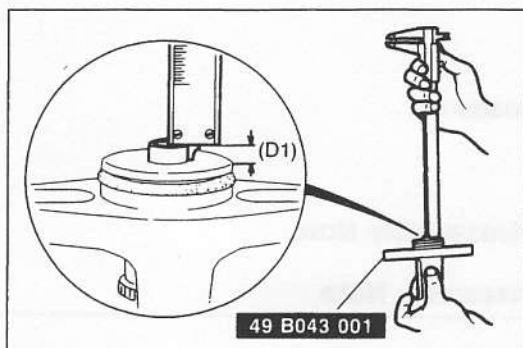
#### Adjustment

##### Note

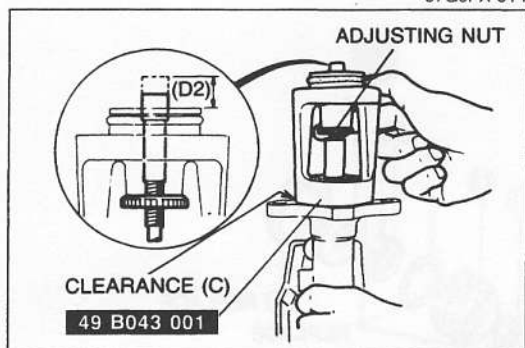
- The threads of the push rod are specially designed so that the bolt becomes harder to turn past a certain point to prevent loosening of the bolt. Turn the bolt only within this range when adjusting.

#### Clearance at B

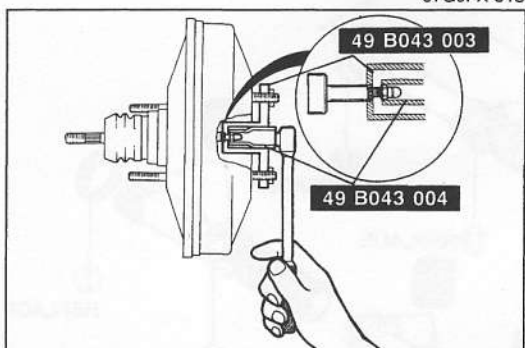
- Push lightly on the end of the **SST** gauge rod, and measure the clearance between the adjusting nut and the **SST** body.
- Using the **SST**, turn the nut to lengthen the power brake unit push rod an amount equal to the clearance measured at B.



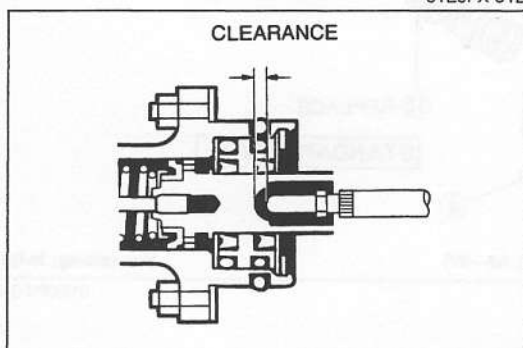
97G0PX-014



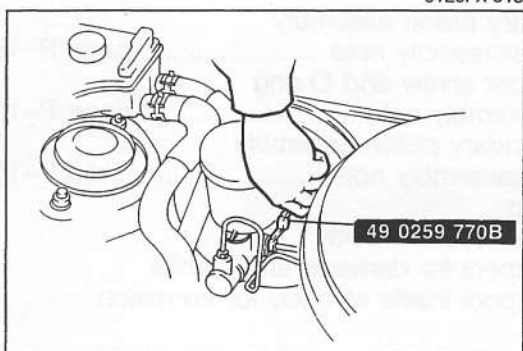
97G0PX-015



01E0PX-012



01E0PX-013



01E0PX-014

## Clearance at C

1. Measure and record height D1 of the gauge rod.

2. Turn the adjusting nut until the **SST** body sets squarely on the master cylinder. (Turn only enough for the body to touch.)

3. Measure and record height D2 of the gauge rod.

4. Subtract D1 from D2; then using the **SST**, turn the nut to shorten the power brake unit push rod an amount equal to the difference.

## Note

- By making the above adjustment, the clearance between the push rod and piston (after installation of the brake master cylinder to the power brake unit) will be as shown in the table below.

Vacuum applied to unit	Push rod-to-piston clearance
0 mmHg (0 inHg)	0.4—0.6mm (0.016—0.024 in)
Approx. 500 mmHg (19.7 inHg)	0.1—0.4mm (0.004—0.016 in)

## Brake pipe

Tighten the brake pipe flare nut with the **SST**.

## Tightening torque:

13—22 N·m (1.3—2.2 m·kg, 10—16 ft·lb)

## Note

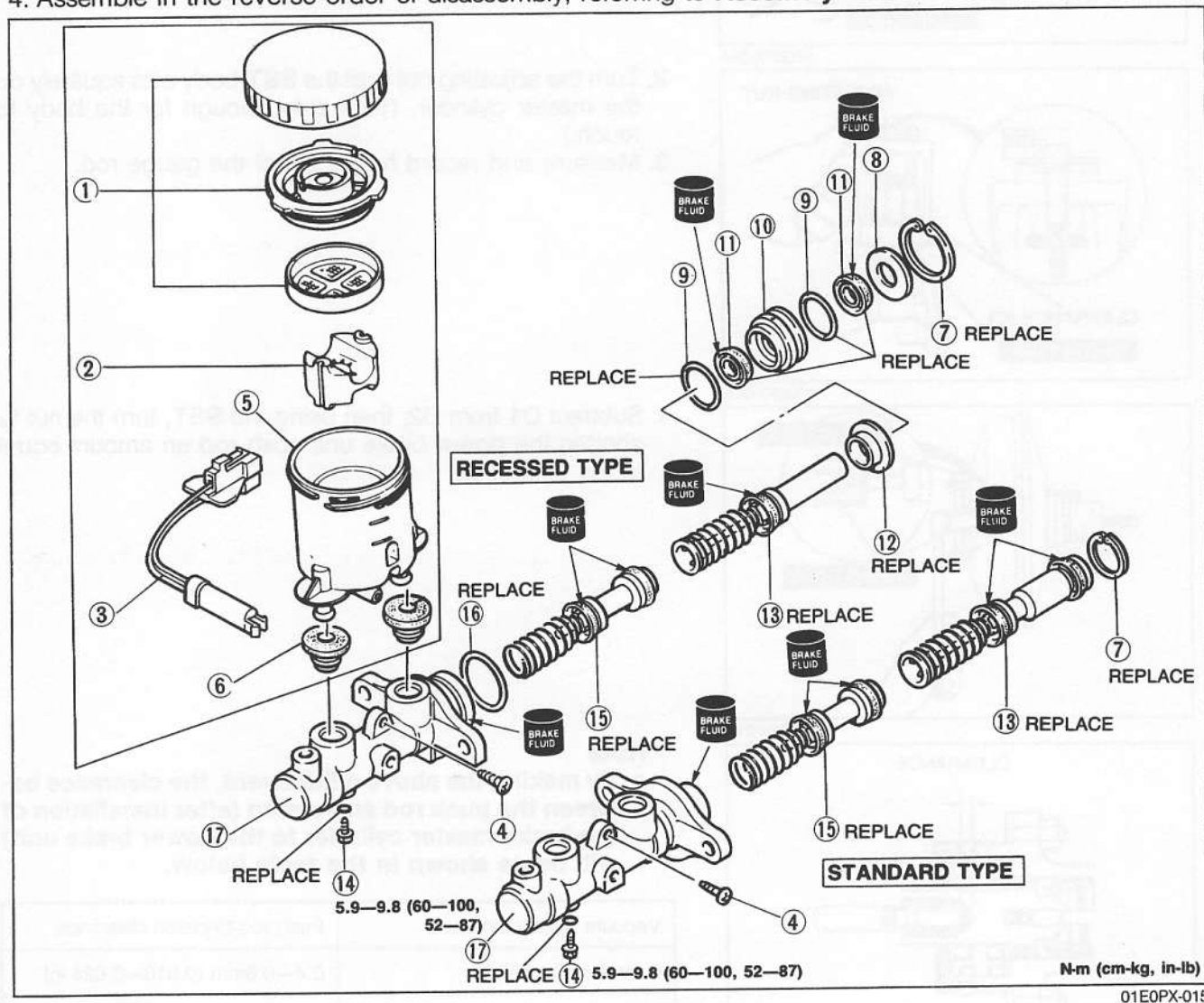
- After installation:
  - Add brake fluid and bleed air. (Refer to page P-6.)
  - Check for fluid leakage. (Refer to page P-6.)

## Disassembly / Inspection / Assembly

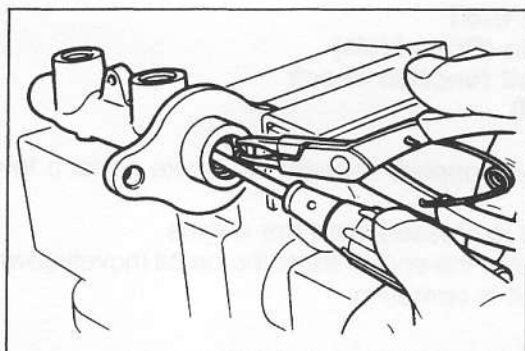
### Caution

- Secure the master cylinder flange in a vise when necessary.
- Replace the piston assembly, if necessary.

1. Drain the brake fluid
2. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
3. Inspect all parts and repair or replace as necessary.
4. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



- |  |   |
|--|---|
| 1. Cap set   | 11. Cup   |
| 2. Float   | 12. Stopper   |
| 3. Fluid level sensor                                | 13. Primary piston assembly<br>Disassembly note ..... page P-15                                   |
| 4. Screw   | 14. Stopper screw and O-ring<br>Assembly note..... page P-15                                      |
| 5. Reservoir<br>Inspect for damage                   | 15. Secondary piston assembly<br>Disassembly note ..... page P-15                                 |
| 6. Joint bushing                                     | 16. O-ring  |
| 7. Snap ring<br>Disassembly note ..... page P-15     | 17. Master cylinder body<br>Inspect for damage and cracks<br>Inspect inside of body for corrosion |
| 8. Spacer  |   |
| 9. O-ring  |   |
| 10. Piston guide<br>Disassembly note ..... page P-15 |   |

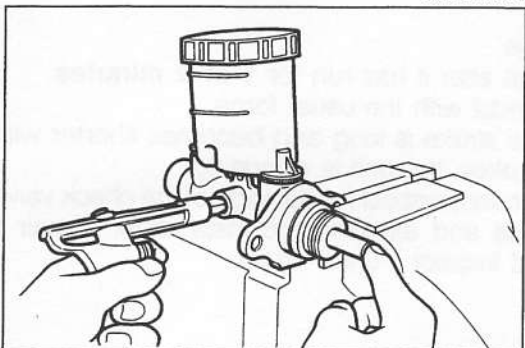


01E0PX-016

## Disassembly note

### Snap ring

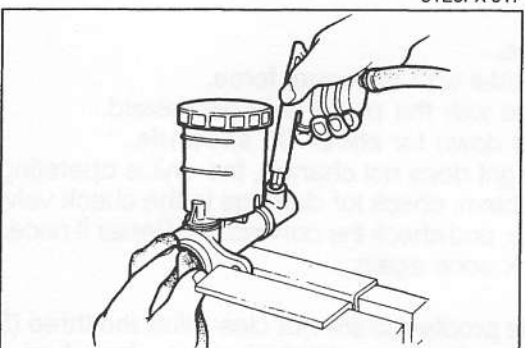
Push the piston with a screwdriver and remove or install the snap ring with snap-ring pliers.



01E0PX-017

## Piston guide and primary piston assembly

Remove the piston guide assembly and primary piston assembly by gradually blowing compressed air into the cylinder.



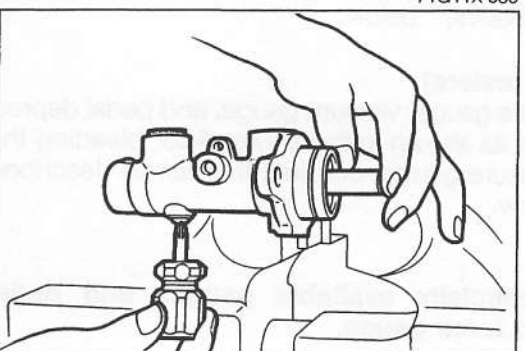
71G11X-030

## Secondary piston assembly

Remove the secondary piston assembly by gradually blowing compressed air into the cylinder.

### Caution

- Use a rag to stop the secondary piston assembly.



01E0PX-018

## Assembly note

### Stopper screw and O-ring

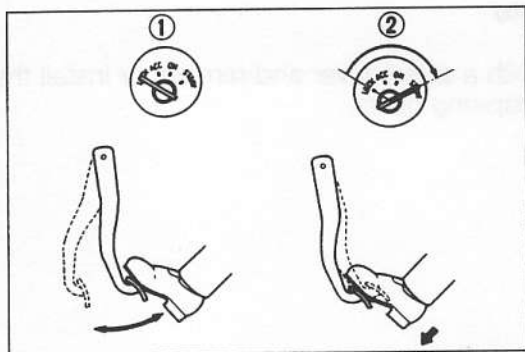
1. Install the new O-ring onto the stopper screw.
2. Push the primary piston assembly in fully.
3. Install and tighten the stopper screw.

### Tightening torque:

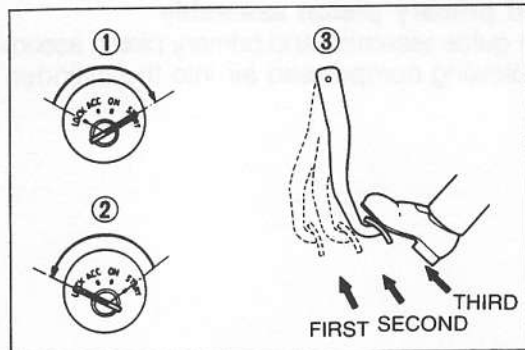
**5.9—9.8 N·m (60—100 cm·kg, 52—87 in·lb)**

4. Push and release the piston to verify that the stopper screw is installed correctly.

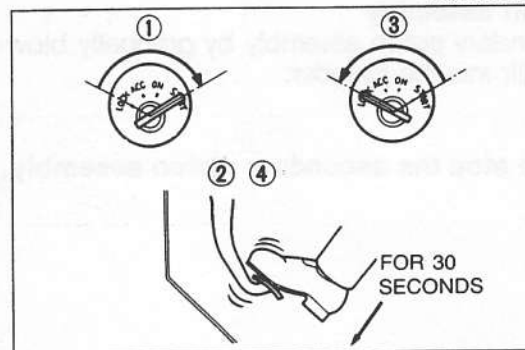




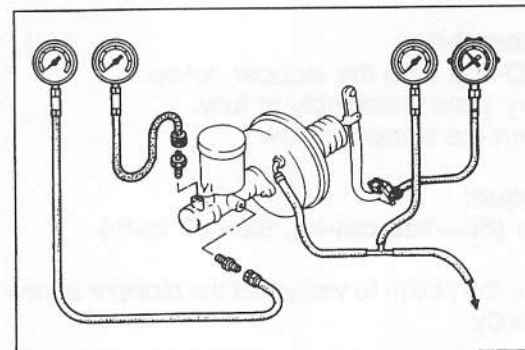
01E0PX-050



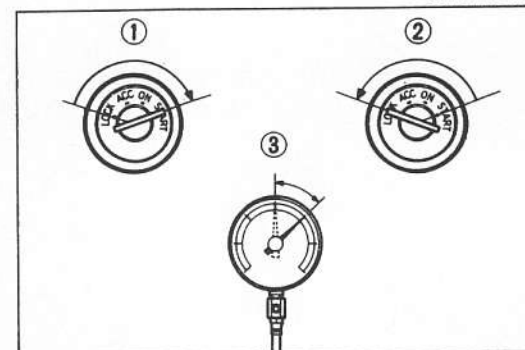
03U0PX-032



01E0PX-051



01E0PX-052



03U0PX-035

**POWER BRAKE UNIT****Quick Inspection (On-vehicle)****Power brake unit function check (Simple method)****Step 1**

1. With the engine stopped, depress the brake pedal a few times.
2. With the pedal depressed, start the engine.
3. If immediately after the engine starts the pedal moves down slightly, the unit is operating.

**Step 2**

1. Start the engine.
2. Stop the engine after it has run for **1 or 2 minutes**.
3. Depress the pedal with the usual force.
4. If the first pedal stroke is long and becomes shorter with subsequent strokes, the unit is operating.
5. If a problem is found, inspect for damage of the check valve or vacuum hose and examine the installation. Repair if necessary, and inspect it once again.

**Step 3**

1. Start the engine.
2. Depress the pedal with the usual force.
3. Stop the engine with the pedal held depressed.
4. Hold the pedal down for **about 30 seconds**.
5. If the pedal height does not change, the unit is operating.
6. If there is a problem, check for damage to the check valve or vacuum hose, and check the connection. Repair if necessary and check once again.

If the nature of the problem is still not clear after the three (3) steps above, follow the more detailed check described in "Method using testers," below.

**(Method using testers)**

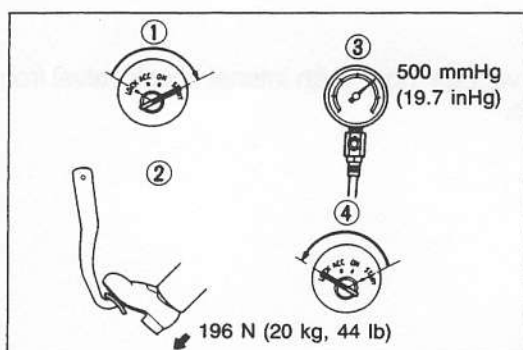
Connect a pressure gauge, vacuum gauge, and pedal depression force gauge as shown in the figure. After bleeding the air from the pressure gauge, conduct the test as described in the steps below.

**Note**

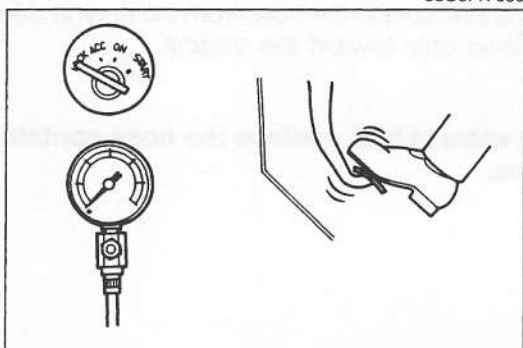
- Use commercially available gauges and pedal depression force gauge.

**a) Checking for vacuum loss****Unloaded condition**

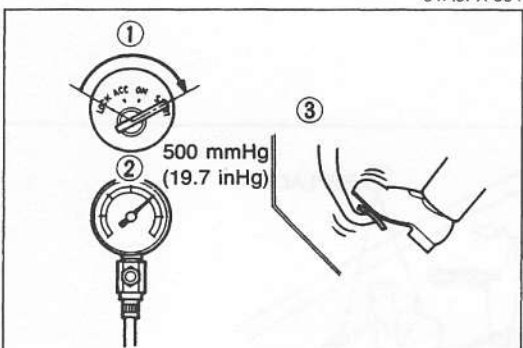
1. Start the engine.
2. Stop the engine when the vacuum gauge reading reaches **500 mmHg (19.7 inHg)**.
3. Observe the vacuum gauge for **15 seconds**. If the gauge shows **475—500 mmHg (18.7—19.7 inHg)**, the unit is operating.



03U0PX-036



01A0PX-004



01A0PX-005

## Loaded condition

1. Start the engine.
2. Depress the brake pedal with a force of **196 N (20 kg, 44 lb)**.
3. With the brake pedal depressed, stop the engine when the vacuum gauge reading reaches **500 mmHg (19.7 inHg)**.
4. Observe the vacuum gauge for **15 seconds**. If the gauge shows **475—500 mmHg (18.7—19.7 inHg)**, the unit is operating.

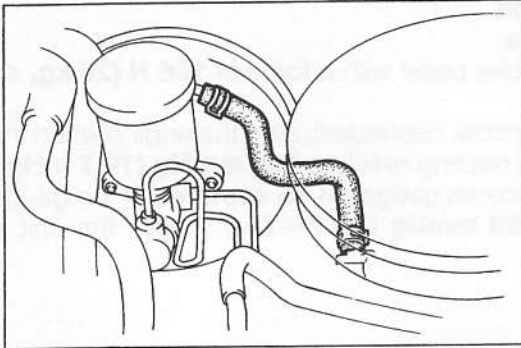
## b) Checking for hydraulic pressure

1. If, with the engine stopped (vacuum **0 mmHg**), the fluid pressure is within specification, the unit is operating.

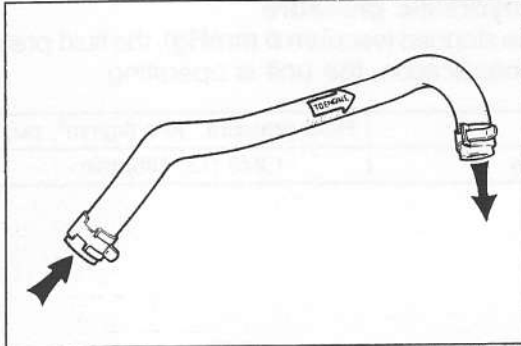
Pedal force	Fluid pressure kPa (kg/cm <sup>2</sup> , psi)
196 N (20 kg, 44 lb)	1,275 (13, 185) min.

2. Start the engine. Depress the brake pedal when the vacuum reaches **500 mmHg (19.7 inHg)**. If the fluid pressure is within specification, the unit is operating.

Pedal force		Fluid pressure kPa (kg/cm <sup>2</sup> , psi)
196 N (20 kg, 44 lb)	ATX	7,260 (74, 1,053) min.
	MTX	5,690 (58, 825) min.



03U0PX-039



01E0PX-055

### Check valve Inspection

1. Disconnect the vacuum hose (with internal check valve) from the engine side.

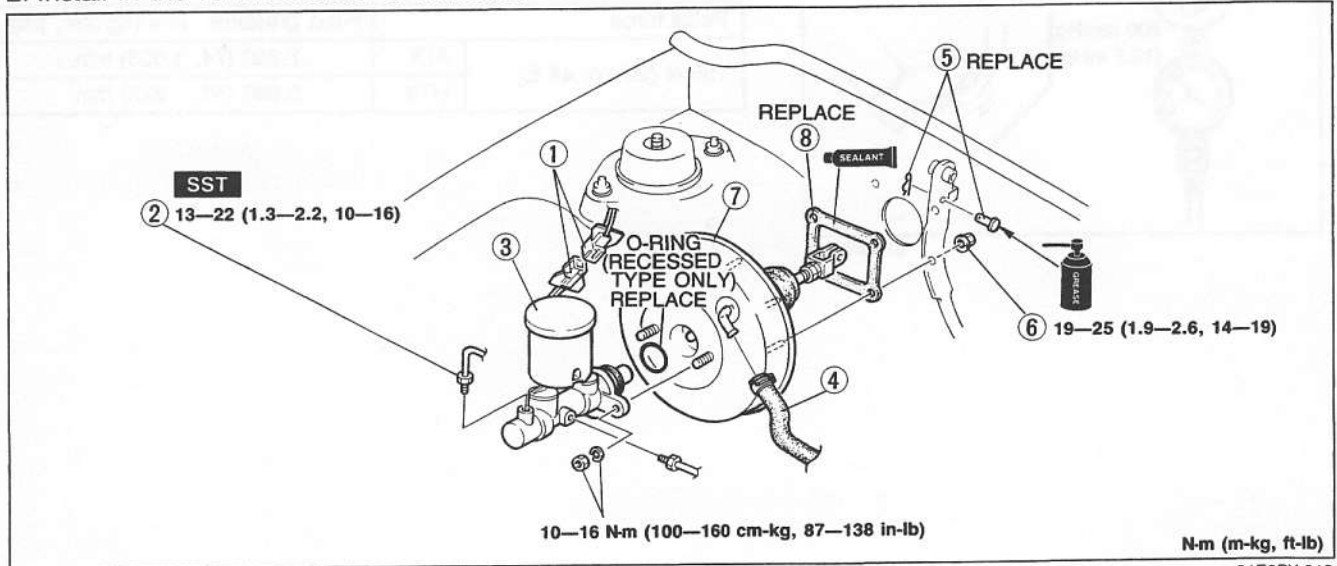
2. Apply suction and pressure to the hose from the engine side. Verify that air flows only toward the engine.

### Caution

- If the check valve is bad, replace the hose containing the valve.

### Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



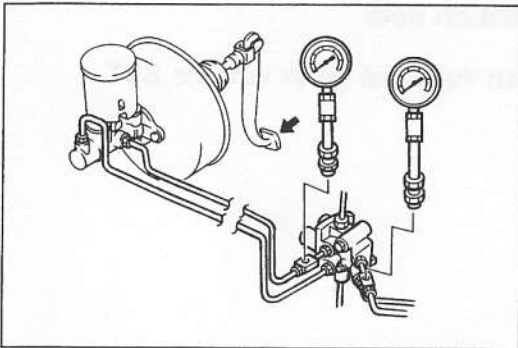
- |                           |                              |                     |
|---------------------------|------------------------------|---------------------|
| 1. Connector              | 3. Master cylinder assembly  | 6. Nut              |
| 2. Brake pipe             | Installation Note            | 7. Power brake unit |
| Removal Note .. page P-11 | ..... page P-11              | 8. Gasket           |
| Installation Note         | 4. Vacuum hose               |                     |
| ..... page P-13           | 5. Spring pin and clevis pin |                     |

### Caution

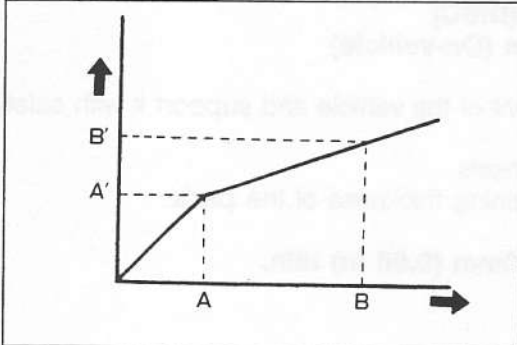
Take the following steps after installation:

- Add fluid and bleed the air. (Refer to page P-6.)
- Check all parts for fluid leakage. (Refer to page P-6.)
- Adjust and check the brake pedal operation. (Refer to page P-8.)
- Make an on-vehicle check of the unit. (Refer to page P-16.)

01E0PX-020



01E0PX-056



01A0PX-006

## DUAL PROPORTIONING VALVE

### Inspection

1. Connect two pressure gauges (9,810 kPa [100 kg/cm<sup>2</sup>, 1,422 psi]) to the brake pipes with adapters as shown in the figure.

### Adapter and flare nut tightening torque:

13—22 N·m (1.3—2.2 m·kg, 10—16 ft·lb)

### Note

- Disconnect and connect the brake pipes with the SST.

2. Bleed the air from the brake system.  
(Refer to page P-6.)
3. Depress the brake pedal until the master cylinder pressure equals A; then record rear brake pressure A'.
4. Depress the brake pedal again, apply additional pressure until the pressure equals B; then record pressure B'.

### Fluid pressure

kPa (kg/cm<sup>2</sup>, psi)

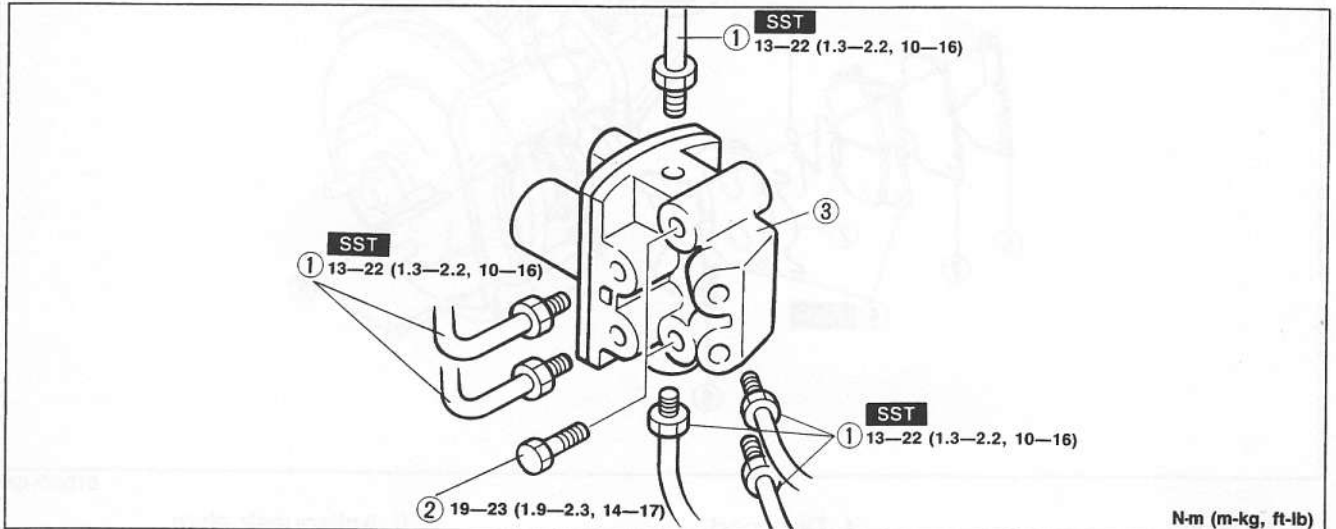
Transaxle	A	A'	B	B'
MTX	2,943 (30, 427)	2,943 (30, 427)	5,886 (60, 853)	3,826 (39, 555) ± 294 (3, 43)
ATX		± 196 (2, 28)		3,532 (36, 512) ± 294 (3, 43)

### Caution

- Do not attempt to adjust the dual proportioning valve.
- After the inspection, bleed the air from the brake system and check for fluid leakage.
- If the measurements are not within specification, replace the valve assembly.

### Replacement

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



N·m (m·kg, ft·lb)

01E0PX-022

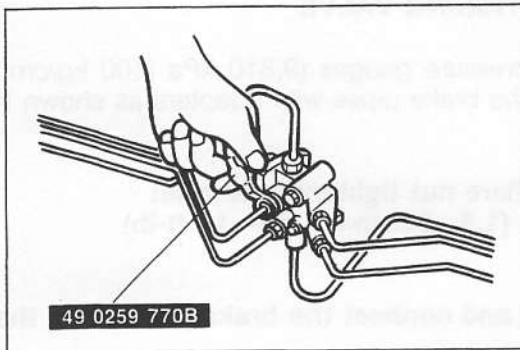
1. Brake pipe

Removal / Installation Note ..... page P-20

2. Bolt

3. Dual proportioning valve



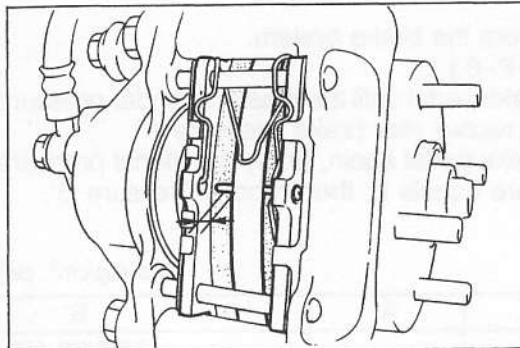


03U0PX-047

**Removal / Installation note**

**Brake pipe**

Loosen and tighten the brake pipes with the **SST**.



01E0PX-062

**FRONT BRAKE (DISC)**

**Quick Inspection (On-vehicle)**

**Disc pad**

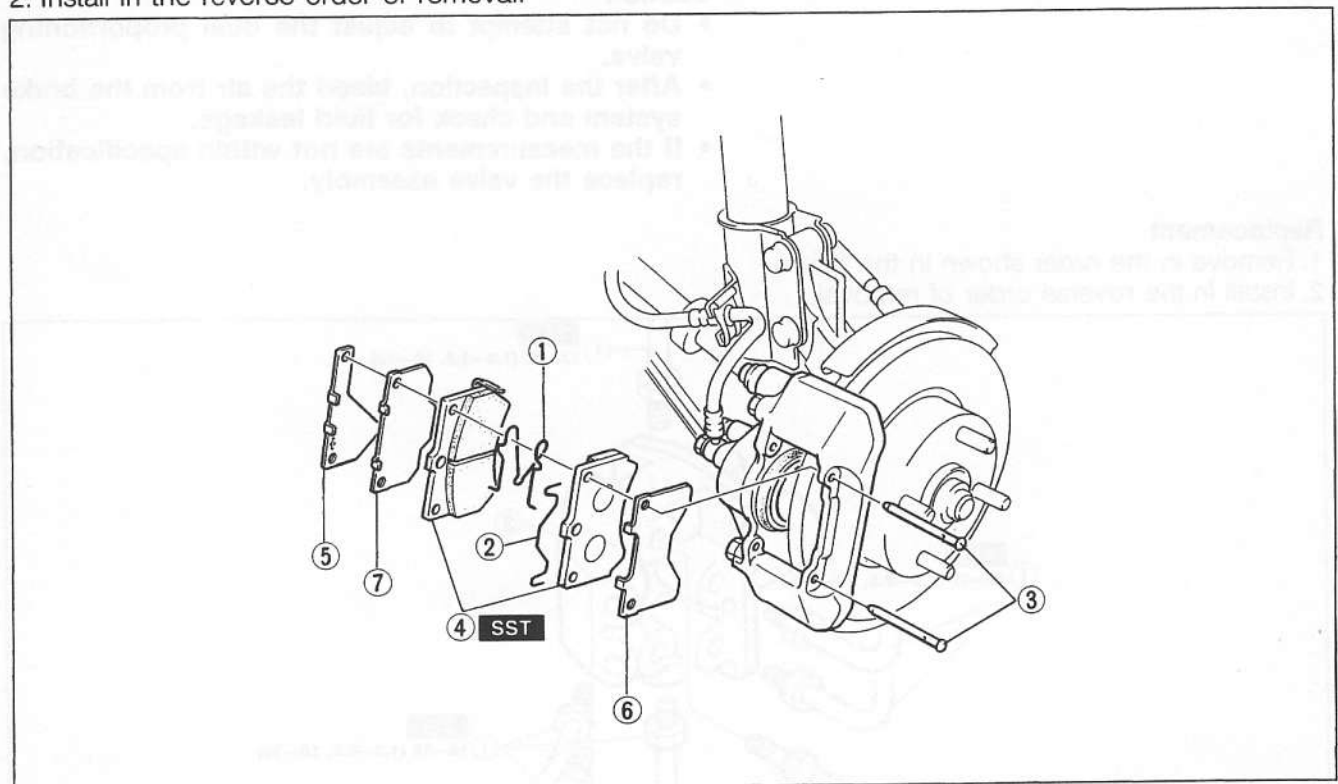
1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the wheels.
3. Verify the remaining thickness of the pads.

**Thickness: 2.0mm (0.08 in) min.**

**Replacement**

**Disc pad**

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.

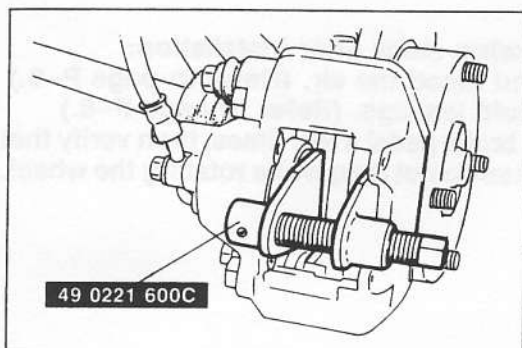


01E0PX-023

1. M-spring
2. W-pin
3. Pad pin

4. Disc pad  
Installation Note  
..... page P-21  
Inspection..... above

5. Antisqueak shim
6. Outer shim
7. Inner shim



13U0PX-012

## Installation note

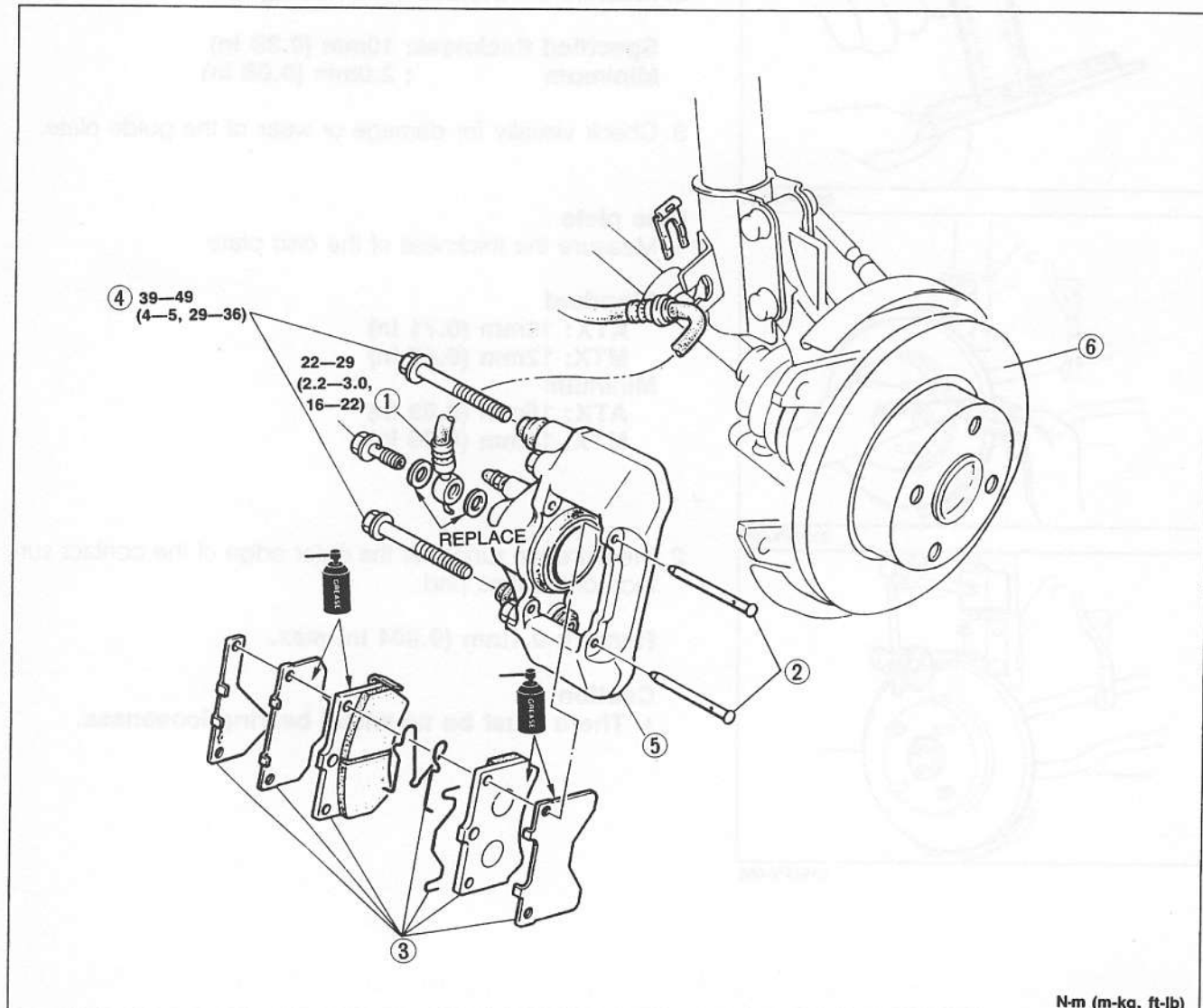
### Disc pad

When installing the disc pads, push the piston fully inward with the **SST** and an old pad.

## Removal / Installation

### Caliper

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.

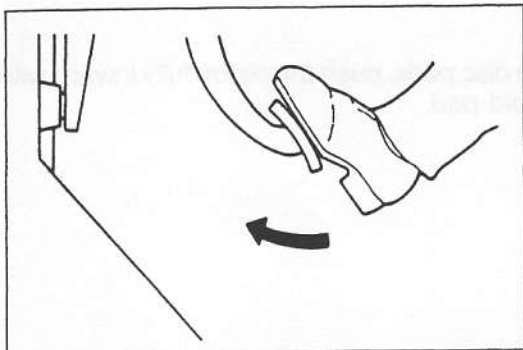


N-m (m-kg, ft-lb)

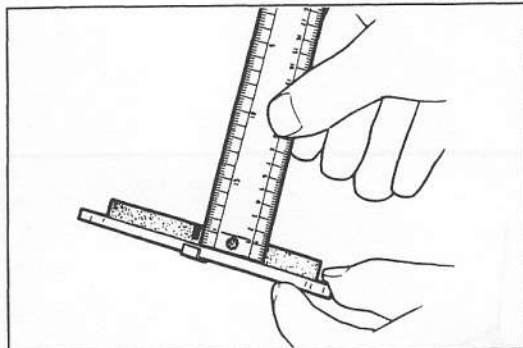
01E0PX-024

1. Flexible hose
2. Pad pin
3. Disc pad assembly  
Inspection ..... page P-22
4. Bolt

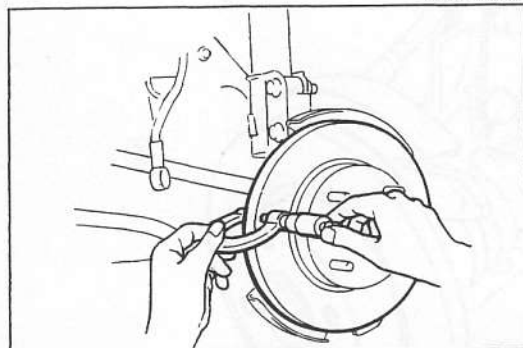
5. Caliper  
Disassembly / Inspection /  
Assembly ..... page P-23
6. Disc plate  
Inspection ..... page P-22



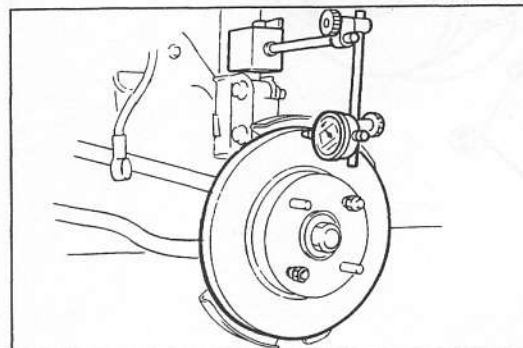
01E0PX-057



03U0PX-053



01E0PX-025



01E0PX-058

**Caution**

Take the following steps after installation:

- Add fluid and bleed the air. (Refer to page P-6.)
- Check for fluid leakage. (Refer to page P-8.)
- Depress the brake pedal a few times, then verify that the rear brakes do not drag while rotating the wheel.

**Inspection****Disc pad**

1. Check for oil or grease on the facing, abnormal wear or cracks, and deterioration or damage from heat.
2. Measure the thickness of the lining.

**Specified thickness: 10mm (0.39 in)**  
**Minimum : 2.0mm (0.08 in)**

3. Check visually for damage or wear of the guide plate.

**Disc plate**

1. Measure the thickness of the disc plate.

**Standard**

ATX: 18mm (0.71 in)

MTX: 12mm (0.47 in)

**Minimum**

ATX: 16mm (0.63 in)

MTX: 10mm (0.39 in)

2. Measure the runout at the outer edge of the contact surface of the disc pad.

**Runout: 0.1mm (0.004 in) max.**

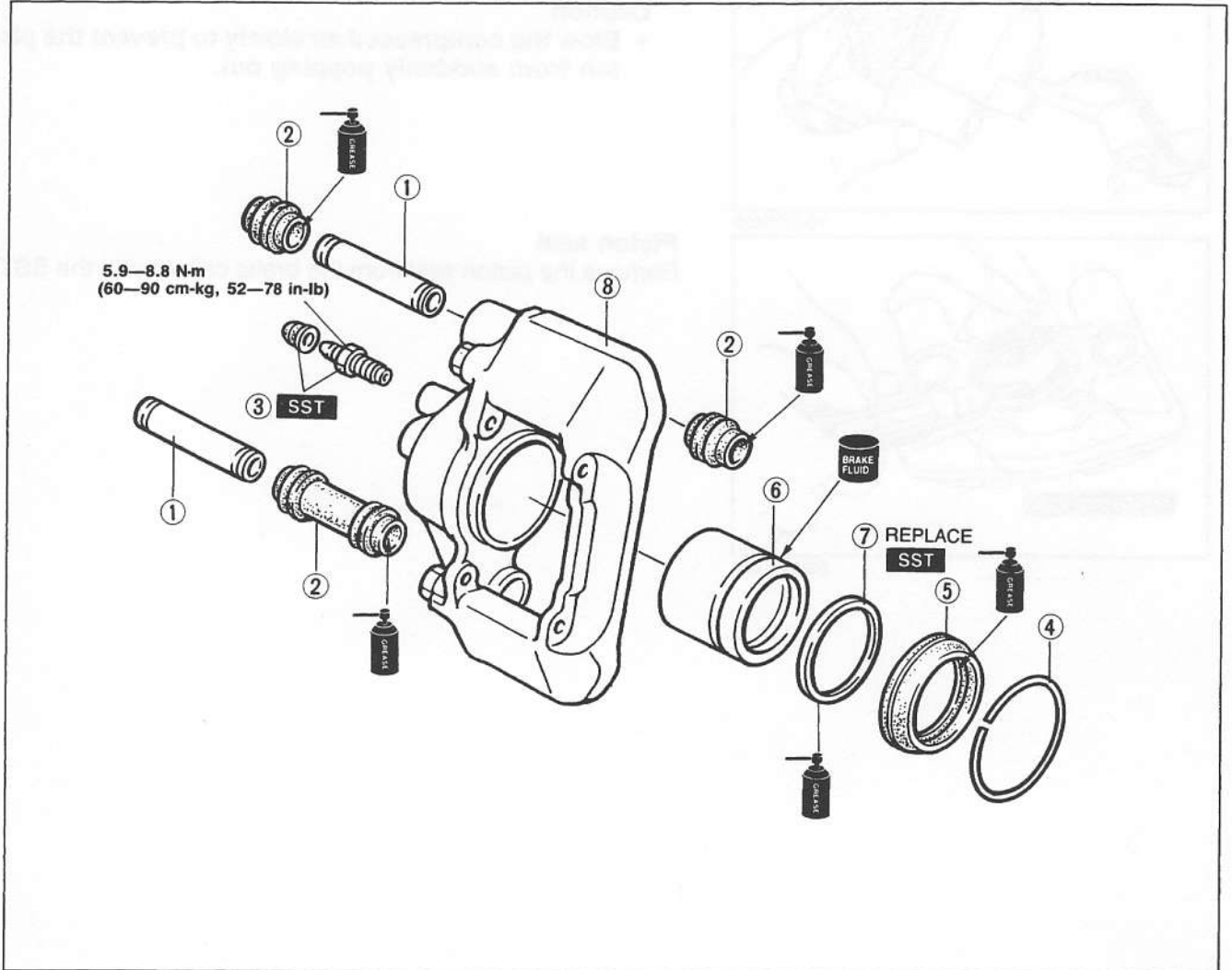
**Caution**

- There must be no wheel bearing looseness.

## CALIPER

### Disassembly / Inspection / Assembly

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly.



01E0PX-026

- |   |                                    |
|---|------------------------------------|
| 1. Sleeve pin                               | 7. Piston seal                     |
| 2. Boot                                     | Disassembly Note..... page P-24    |
| 3. Rubber cap and bleeder screw ..... Below | 8. Caliper body                    |
| 4. Retaining ring                           | Inspect for damage, wear, and rust |
| 5. Dust seal                                |                                    |
| 6. Piston                                   |                                    |
| Disassembly Note..... page P-24             |                                    |
| Inspect for damage, wear, and rust          |                                    |

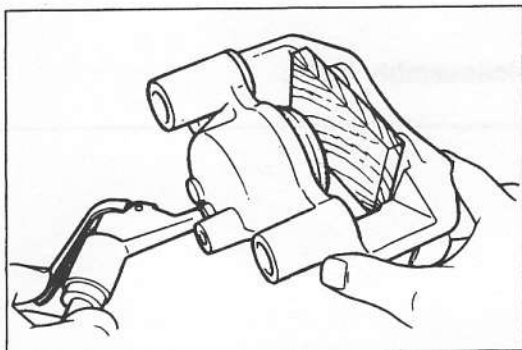


03U0PX-057

### Disassembly note

#### Rubber cap and bleeder screw

Remove the rubber cap and remove the bleeder screw from the brake caliper with the **SST**.



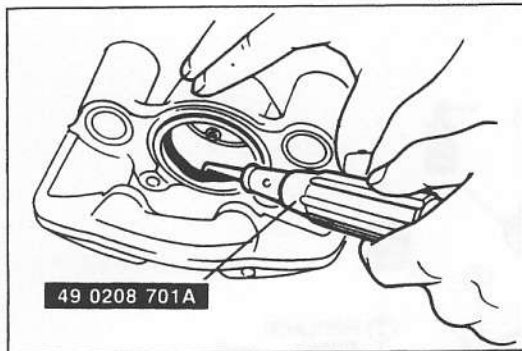
13U0PX-023

### Piston

Place a piece of wood in the caliper; then blow compressed air through the hole to force the piston out of the caliper.

### Caution

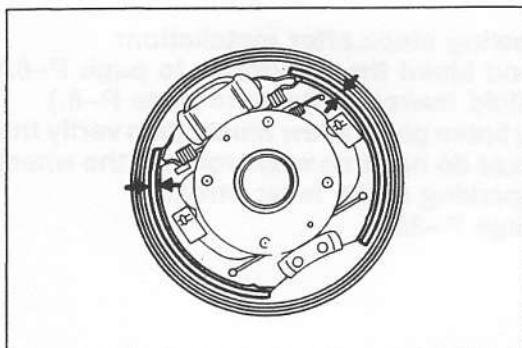
- **Blow the compressed air slowly to prevent the piston from suddenly popping out.**



03U0PX-058

### Piston seal

Remove the piston seal from the brake caliper with the **SST**.



01E0PX-059

## REAR BRAKE (DRUM)

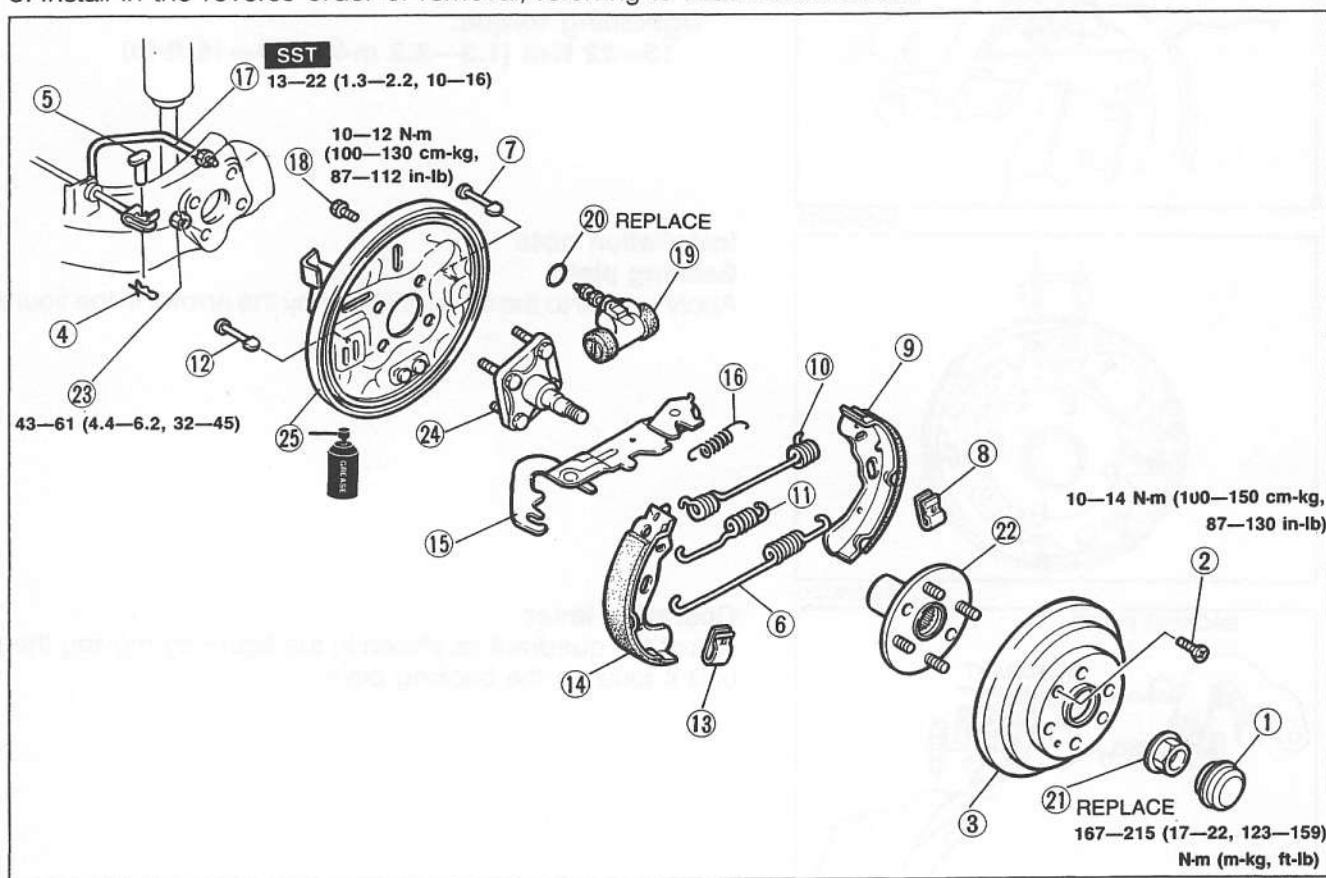
### Quick Inspection (On-vehicle)

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheels.
3. Remove the brake drum. (See below.)
4. Verify the remaining thickness of the lining.

**Thickness: 1.0mm (0.04 in) min.**

### Removal / Inspection / Installation

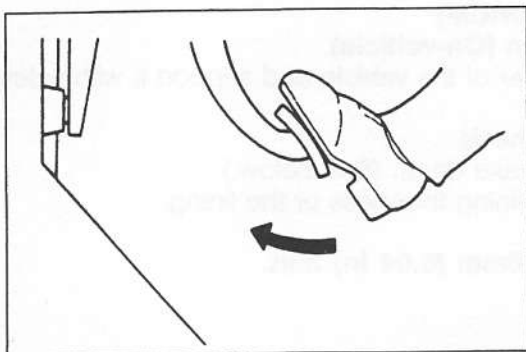
1. Remove the lining in the order shown in the figure, referring to **Removal Note**.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal, referring to **Installation Note**.



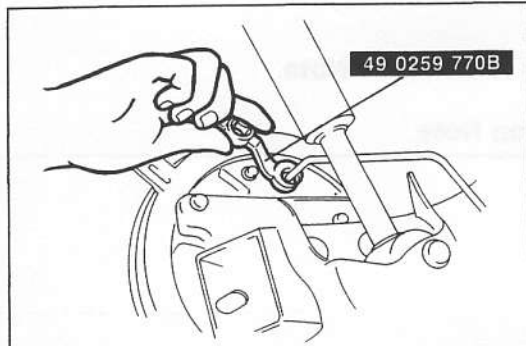
01E0PX-027

- |                           |                             |                             |
|---------------------------|-----------------------------|-----------------------------|
| 1. Hub cap                | 12. Hold pin                | 19. Wheel cylinder assembly |
| 2. Screw                  | 13. Hold spring             | Disassembly / Inspection /  |
| 3. Brake drum             | 14. Leading shoe            | Assembly ..... page P-27    |
| Inspection..... page P-26 | 15. Operating lever         | 20. Gasket                  |
| 4. Spring pin             | Installation note           | 21. Locknut                 |
| 5. Clevis pin             | ..... page P-26             | 22. Wheel hub and bearing   |
| 6. Lower return spring    | 16. Quadrant spring         | assembly                    |
| 7. Hold pin               | 17. Brake pipe              | 23. Nut                     |
| 8. Hold spring            | Removal / Installation note | 24. Hub spindle             |
| 9. Trailing shoe          | ..... page P-26             | 25. Backing plate           |
| Inspection..... above     | 18. Bolt                    | Installation note           |
| 10. Upper return spring   |                             | ..... page P-26             |
| 11. Anti-rattle spring    |                             |                             |

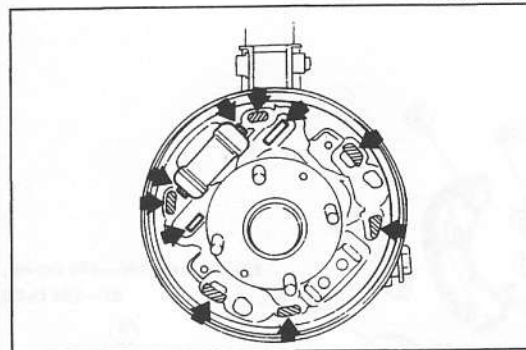




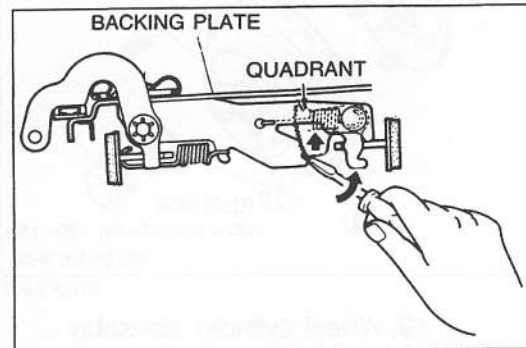
01E0PX-028



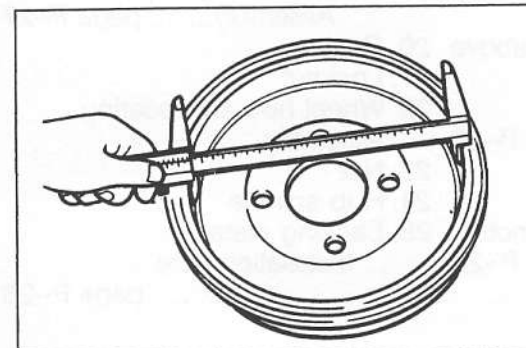
01E0PX-029



01E0PX-030



01E0PX-031



01E0PX-032

**Caution**

Take the following steps after installation:

- Add fluid and bleed the air. (Refer to page P-6.)
- Check for fluid leakage. (Refer to page P-8.)
- Depress the brake pedal a few times; then verify that the rear brakes do not drag while rotating the wheel.
- Check the parking brake lever stroke. (Refer to page P-28.)

**Removal / Installation note****Brake pipe**

Disconnect or connect the brake pipe from/to the wheel cylinder with the **SST**.

**Tightening torque:**

13—22 N·m (1.3—2.2 m·kg, 10—16 ft·lb)

**Installation note****Backing plate**

Apply grease to the area indicated by the arrows in the figure.

**Operating lever**

Adjust the quadrant as shown in the figure by moving the it until it touches the backing plate.

**Inspection****Brake drum**

1. Measure the inner diameter of the drum.

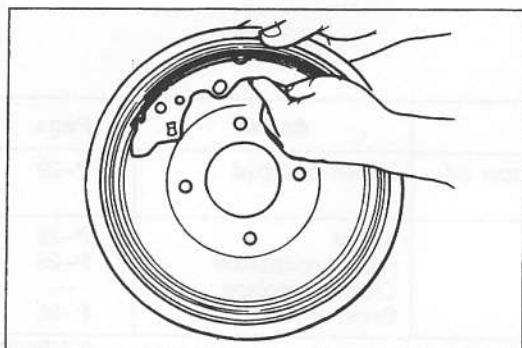
**Standard diameter : 180.0mm (7.09 in)**

**Maximum diameter: 181.5mm (7.15 in)**

**Caution**

- When repairing or replacing the drum, check the contact with the shoes.





01E0PX-060

2. Check for scratches, uneven, or abnormal wear inside the drum.

## Note

- Repair if the problem is minor.

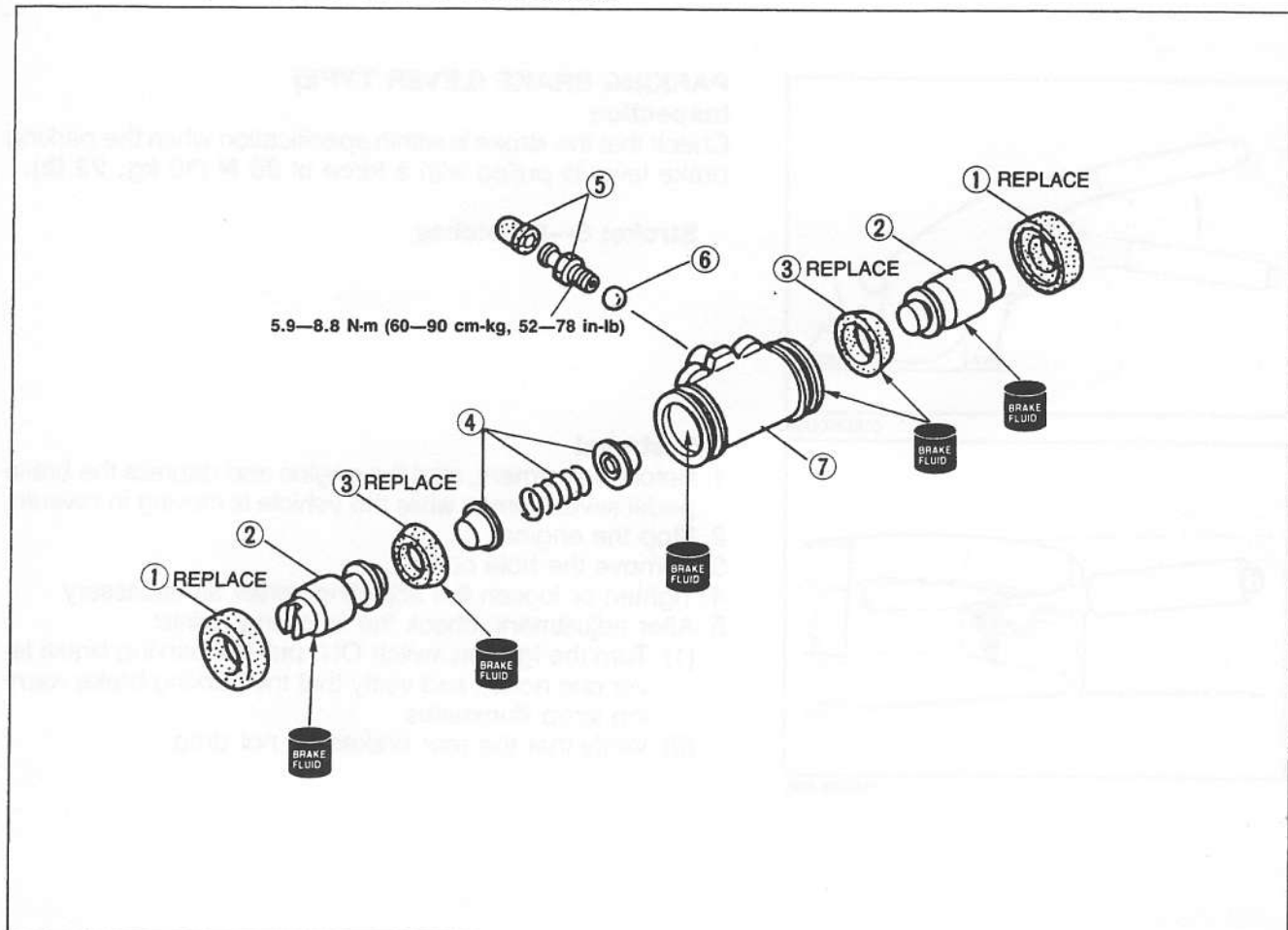
## WHEEL CYLINDER

### Disassembly / Inspection / Assembly

#### Caution

- Replace the wheel cylinder assembly if a problem is found.

1. Disassemble in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Assemble in the reverse order of disassembly.



01E0PX-033

1. Dust boot
2. Piston  
Inspect for corrosion and damage
3. Piston cup
4. Spring and cup

5. Rubber cap and bleeder screw
6. Steel ball
7. Wheel cylinder body  
Inspect for corrosion and damage

## PARKING BRAKE SYSTEM

## TROUBLESHOOTING GUIDE

Problem	Possible cause	Action	Page
Brakes do not release	Improper return of parking brake cable or improper adjustment	Repair or adjust	P-29
Parking brake does not hold well	Excessive lever stroke Brake cable stuck or damaged Brake fluid or oil on lining Hardening of lining surface or poor contact	Adjust Repair or replace Clean or replace Grind or replace	P-28 P-29 — P-25

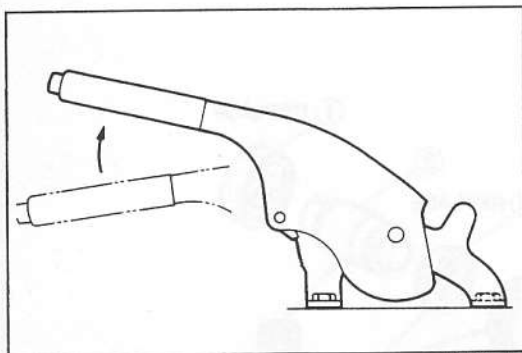
01E0PX-061

## PARKING BRAKE SHOE

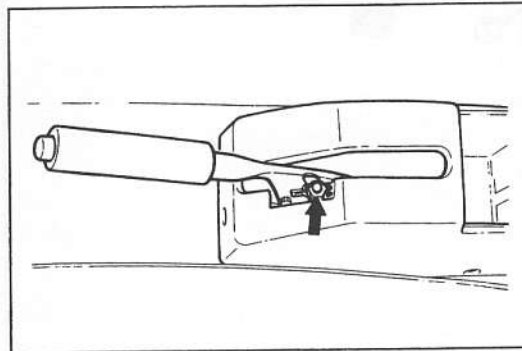
## Removal / Inspection / Installation

Refer to page P-25.

01E0PX-034



01E0PX-035



01E0PX-036

## PARKING BRAKE (LEVER TYPE)

## Inspection

Check that the stroke is within specification when the parking brake lever is pulled with a force of **98 N (10 kg, 22 lb)**.

**Stroke: 6—8 notches**

## Adjustment

1. Before adjustment, start the engine and depress the brake pedal several times while the vehicle is moving in reverse.
2. Stop the engine.
3. Remove the hole cover.
4. Tighten or loosen the adjusting screw as necessary.
5. After adjustment, check the following points:
  - (1) Turn the ignition switch ON, pull the parking brake lever one notch, and verify that the parking brake warning lamp illuminates.
  - (2) Verify that the rear brakes do not drag.

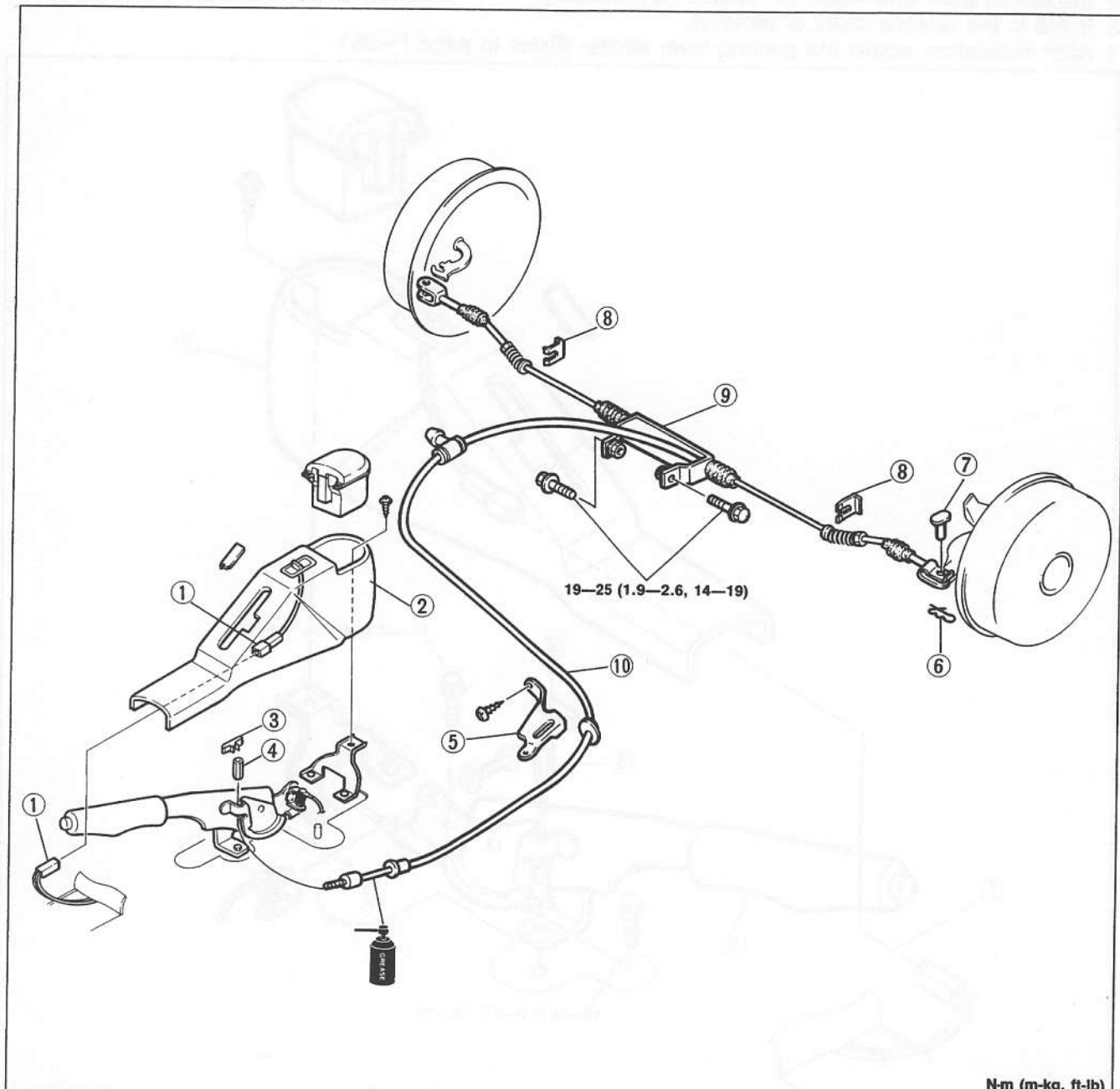
## PARKING BRAKE CABLE

### Removal / Inspection / Installation

#### Caution

- After installing, adjust the parking brake lever stroke.
- Depress the brake pedal a few times and verify that the rear brakes do not drag while rotating the wheels.

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal.



N-m (m-kg, ft-lb)

01E0PX-037

- |                                  |                    |                             |
|----------------------------------|--------------------|-----------------------------|
| 1. Power window switch connector | 3. Clip            | 8. Clip                     |
| 2. Rear console                  | 4. Adjusting screw | 9. Cable bracket            |
| Removal / Installation           | 5. Cable cover     | 10. Parking cable           |
| ..... Section S                  | 6. Spring pin      | Inspect for damage and wear |
|                                  | 7. Clevis pin      |                             |

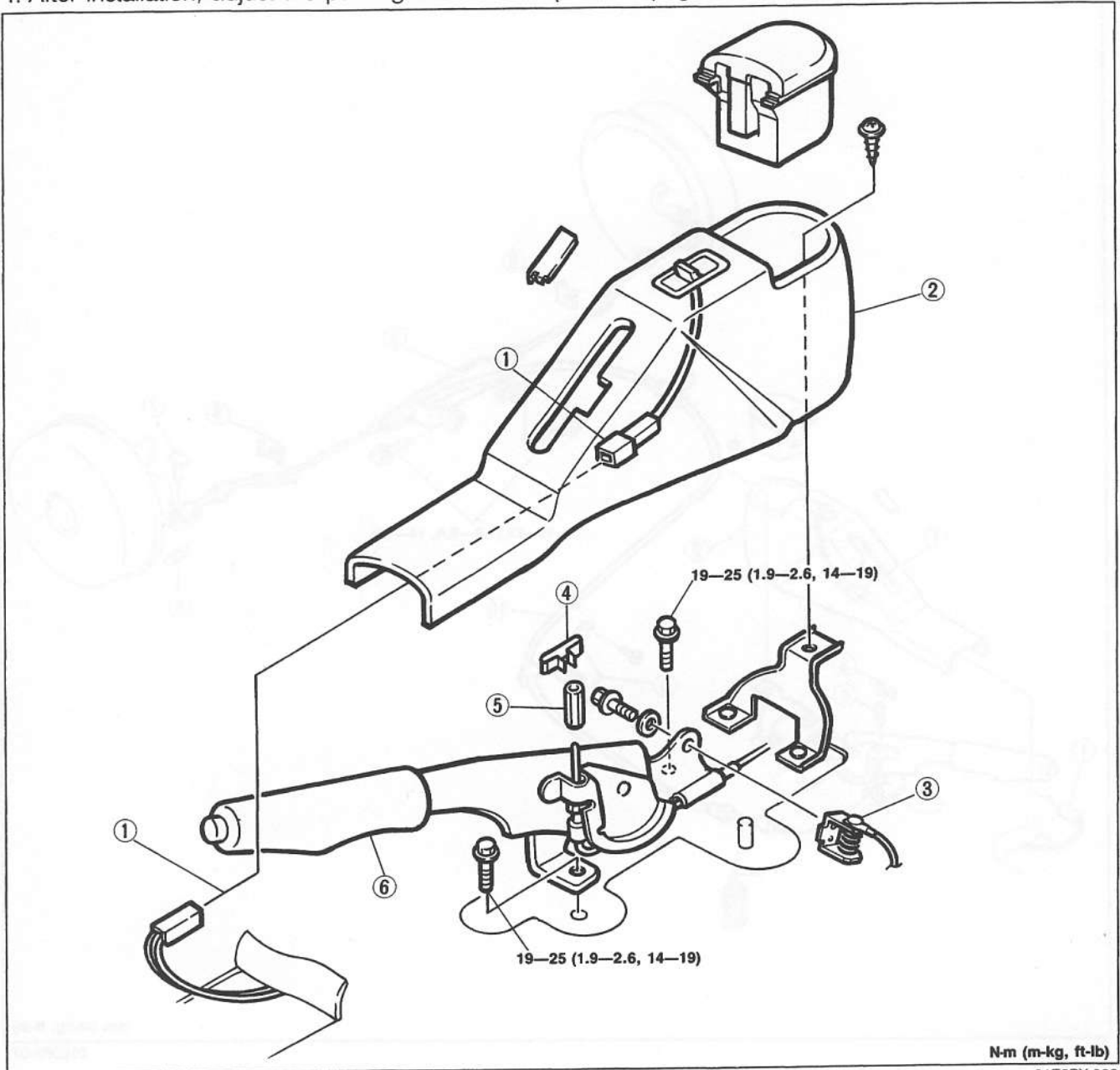
### PARKING BRAKE LEVER

#### Removal / Inspection / Installation

##### Caution

- Install the parking brake switch so that it contacts the parking brake lever when the lever is fully released.
- Turn the ignition switch ON, and verify that the parking brake warning lamp illuminates with the lever pulled one (1) notch.

1. Remove in the order shown in the figure.
2. Inspect all parts and repair or replace as necessary.
3. Install in the reverse order of removal.
4. After installation, adjust the parking lever stroke. (Refer to page P-28.)



N-m (m·kg, ft·lb)

01E0PX-038

1. Power window switch connector
2. Rear console  
Removal / Installation ..... Section S
3. Parking brake switch

4. Clip
5. Adjusting screw
6. Parking brake lever  
Inspect for damage and wear

# WHEELS AND TIRES

<b>OUTLINE.....</b>	<b>Q- 2</b>
<b>SPECIFICATIONS.....</b>	<b>Q- 2</b>
<b>TROUBLESHOOTING GUIDE.....</b>	<b>Q- 3</b>
<b>WHEELS AND TIRES.....</b>	<b>Q- 4</b>
SPECIAL NOTES ABOUT WHEELS AND TIRES .....	<b>Q- 4</b>
NOTES REGARDING TIRE REPLACEMENT.	<b>Q- 4</b>
INSPECTION / ADJUSTMENT.....	<b>Q- 4</b>
REMOVAL / INSTALLATION .....	<b>Q- 6</b>
TIRE ROTATION .....	<b>Q- 6</b>
WHEEL BALANCE ADJUSTMENT .....	<b>Q- 6</b>

01E0QX-001

## OUTLINE

## SPECIFICATIONS

## Standard Tire

Item			Specifications
Wheel	Size		14 × 5 1/2JJ
	Offset	mm (in)	45 (1.77)
	Pitch circle diameter	mm (in)	100 (3.94)
	Material		Aluminum alloy
Tire	Size		175/60R14 78H
	Air pressure kPa (kg/cm <sup>2</sup> , psi)	Front	180 (1.8, 26)
		Rear	

01A0QX-001

## Temporary Spare Tire

Item			Specifications
Wheel	Size		14 × 4T
	Offset	mm (in)	45 (1.77)
	Pitch circle diameter	mm (in)	100 (3.94)
	Material		Steel
Tire	Size		T105/70D14
	Air pressure kPa (kg/cm <sup>2</sup> , psi)	Front	412 (4.2, 60)
		Rear	

01A0QX-002

## TROUBLESHOOTING GUIDE

Problem	Possible Cause	Action	Page
<b>Excessive or irregular tire wear</b>	Refer to page Q-5 for details		
<b>Premature tire wear</b>	Incorrect tire air pressure	Adjust	Q-2
<b>Tire squeal</b>	Incorrect tire air pressure Tire deterioration	Adjust Replace	Q-2 —
<b>Road noise or body vibration</b>	Insufficient tire air pressure Unbalanced wheel Deformed wheel or tire Irregular tire wear	Adjust Adjust Repair or replace —	Q-2 Q-6 — Q-5
<b>“Shake” occurs (Steering wheel vibrates up/down)</b>	Excessive tire and wheel runout Loose lug nuts Unbalanced wheel Cracked or worn engine mount rubber Cracked or worn transaxle mount rubber	Replace Tighten Adjust Replace Replace	— Q-5 Q-6 Section B Sections J,K
<b>“Shimmy” occurs (Steering wheel vibrates circumferentially)</b>	Excessive tire and wheel runout Loose lug nuts Unbalanced wheel Irregular tire wear Insufficient tire air pressure Damaged or worn front wheel bearing Malfunction of steering system Malfunction of suspension	Replace Tighten Adjust — Adjust Replace — —	— Q-5 Q-6 Q-5 Q-2 Section M Section N Section R
<b>Steering wheel pulls to one side</b>	Incorrect tire air pressure Excessive or irregular tire wear Malfunction of steering system Malfunction of braking system Malfunction of suspension	Adjust — — — —	Q-2 Q-5 Section N Section P Section R
<b>General driving instability</b>	Unequal tire air pressures Deformed wheel or tire Loose lug nuts Malfunction of steering system Malfunction of suspension	Adjust Repair or replace Tighten — —	Q-2 — Q-5 Section N Section R
<b>Uneven (one-sided) braking</b>	Unequal tire air pressures Malfunction of braking system	Adjust —	Q-2 Section P
<b>Heavy handling</b>	Insufficient tire air pressure Malfunction of steering system Malfunction of suspension	Adjust — —	Q-2 Section N Section R
<b>Steering wheel doesn't return properly</b>	Insufficient tire air pressure Malfunction of steering system Malfunction of suspension	Adjust — —	Q-2 Section N Section R

01E0QX-004



## WHEELS AND TIRES

## SPECIAL NOTES ABOUT WHEELS AND TIRES

1. Do not use wheels or tires other than the specified types.
2. Aluminum wheels are easily scratched. When washing them, use a soft cloth, never a wire brush. If the vehicle is steam cleaned, do not allow boiling water to contact the wheels.
3. If alkaline compounds (such as saltwater or road salts) get on aluminum wheels, wash them as soon as possible to prevent damage. Use only a neutral detergent.

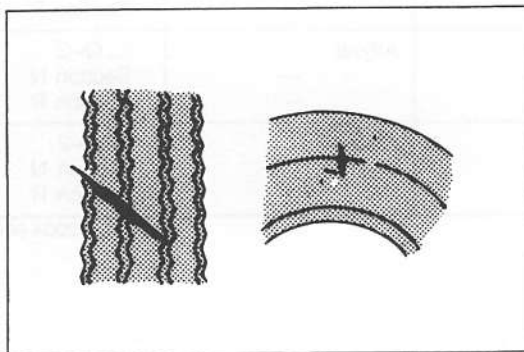
9MU0QX-004

## NOTES REGARDING TIRE REPLACEMENT

Note the following points when tires are to be removed from or mounted onto the wheels.

1. Be careful not to damage the tire bead, the rim bead, or the edge of the rim.
2. Use a wire brush, sandpaper, or cloth to clean and remove all rust and dirt from the rim edge and the rim bead.
3. When cleaning aluminum wheels, use a soft cloth, never a wire brush or sandpaper.
4. Remove any pebbles, glass, nails, and other foreign items embedded in the tire tread.
5. Be sure the air valve is installed correctly.
6. Apply a soapy solution to the tire bead and the edge of the rim before mounting.
7. After mounting a tire onto a wheel, inflate the tire to 250—300 kPa (2.55—3.06 kg/cm<sup>2</sup>, 36—42 psi). Verify that the bead is seated correctly onto the rim and that there are no air leaks. Then reduce the pressure to the specified level.
8. If a tire iron is used to change a tire on an aluminum wheel, be sure to use a piece of rubber between it and the wheel to avoid damage to the wheel. Work should be done on a rubber mat, not on a hard or rough surface.

01E0QX-013



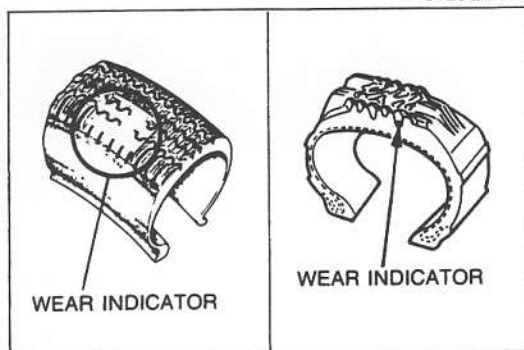
01E0QX-005

## INSPECTION / ADJUSTMENT

## Visual inspection

## Inspection (Tire and Wheel)

A wheel or tire should be replaced if any cracks, damage, deformation and other problem is found.



WEAR INDICATOR

WEAR INDICATOR

93G0QX-008

## Tire Wear

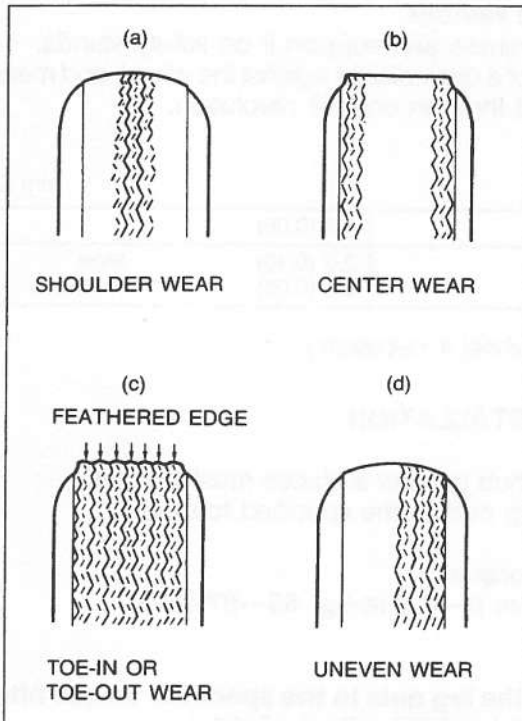
1. Check the remaining tread.

## Remaining tread

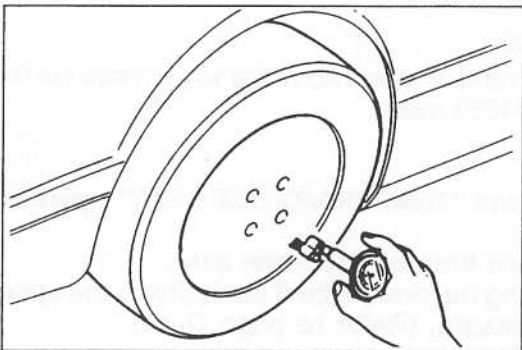
Standard tires: 1.6mm (0.063 in) min.

Snow tires: 50% of tread

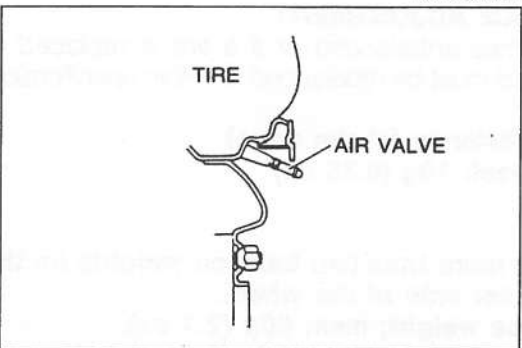
2. A tire should be replaced if the wear indicators are exposed.



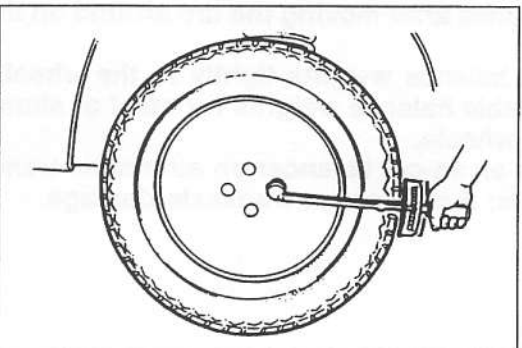
01E0QX-006



01E0QX-007



93G0QX-007



01E0QX-008

## Abnormal tire wear

Abnormal tire wear patterns shown in the illustration can occur. Refer to the chart for the possible causes and actions.

	Possible cause	Action
(a)	<ul style="list-style-type: none"> <li>Underinflation (both sides worn)</li> <li>Incorrect camber (one side worn)</li> <li>Hard cornering</li> <li>Lack of rotation</li> </ul>	<ul style="list-style-type: none"> <li>Measure and adjust air pressure</li> <li>Repair or replace axle and suspension parts</li> <li>Reduce speed</li> <li>Rotate tires</li> </ul>
(b)	<ul style="list-style-type: none"> <li>Overinflation</li> <li>Lack of rotation</li> </ul>	<ul style="list-style-type: none"> <li>Measure and adjust air pressure</li> <li>Rotate tires</li> </ul>
(c)	<ul style="list-style-type: none"> <li>Incorrect toe-in</li> </ul>	<ul style="list-style-type: none"> <li>Adjust toe-in</li> </ul>
(d)	<ul style="list-style-type: none"> <li>Incorrect camber or caster</li> <li>Malfunctioning suspension</li> <li>Unbalanced wheel</li> <li>Out-of-round brake drum or disc</li> <li>Other mechanical problem</li> <li>Lack of rotation</li> </ul>	<ul style="list-style-type: none"> <li>Repair or replace axle and suspension parts</li> <li>Repair or replace</li> <li>Balance or replace</li> <li>Correct or replace</li> <li>Correct or replace</li> <li>Rotate tires</li> </ul>

## Air Pressure

Check the air pressure of all tires, including the spare tire, with an air pressure gauge. If necessary, adjust the air pressure.

**Air pressure: Refer to page Q-2**

## Air Leakage

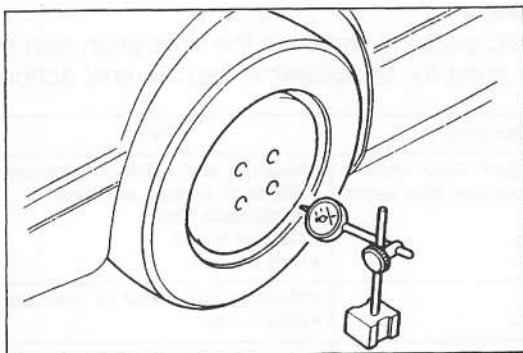
Verify that there is no air leakage from the air valve.

## Loose Lug Nut

Verify that the lug nuts are tightened to the specified torque.

### Tightening torque:

88—118 N·m (9—12 m·kg, 65—87 ft·lb)



01E0QX-009

**Wheel and Tire Runout**

1. Jack up the vehicle and support it on safety stands.
2. Set the probe of a dial indicator against the wheel, and measure the runout through one full revolution.

**Runout limit**

mm (in)

Radial direction	1.5 (0.06)	
Lateral direction	2.5 (0.10)	Steel
	2.0 (0.08)	Aluminum

3. Replace the wheel if necessary.

**REMOVAL / INSTALLATION****Installation**

1. The wheel-to-hub contact surfaces must be clean.
2. Tighten the lug nuts to the specified torque.

**Tightening torque:****88—118 N·m (9—12 m·kg, 65—87 ft·lb)****Caution**

- Retighten the lug nuts to the specified torque after about 1000 km (620 miles) of driving.

**TIRE ROTATION**

To prolong tire life and assure uniform tire wear, rotate the tires every 7500 km (4650 miles).

**Caution**

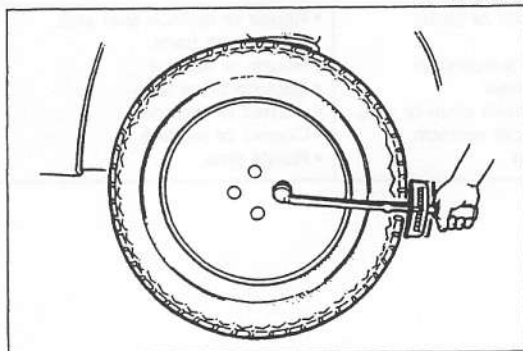
- Do not include "TEMPORARY USE ONLY" spare tire in rotation.
- Use the best tires on the front axle.
- After rotating the tires, adjust each tire to the specified air pressure. (Refer to page Q-2.)

**WHEEL BALANCE ADJUSTMENT**

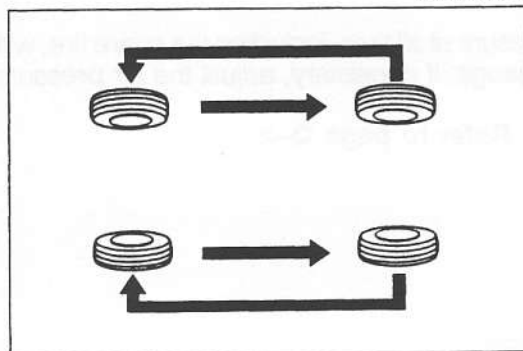
If a wheel becomes unbalanced or if a tire is replaced or repaired, the wheel must be rebalanced to within specification.

**Maximum unbalance (at rim edge)****14-inch wheel: 10g (0.35 oz)****Caution**

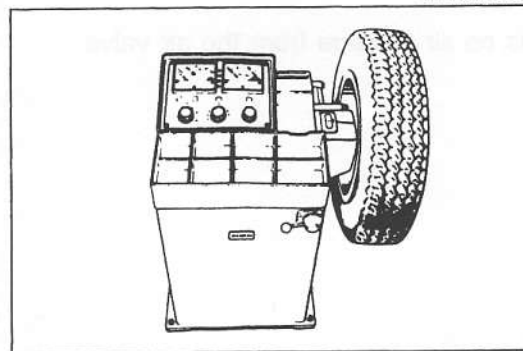
- Do not use more than two balance weights on the inner or outer side of the wheel.
- One balance weight; max. 60g (2.1 oz).
- If the total weight exceeds 100g (3.5 oz) on the one side, rebalance after moving the tire around on the rim.
- Attach the balance weights tightly to the wheel.
- Select suitable balance weights for steel or aluminum alloy wheels.
- Do not use an on-car balancer on automatic trans-axle models; it may cause transaxle damage.



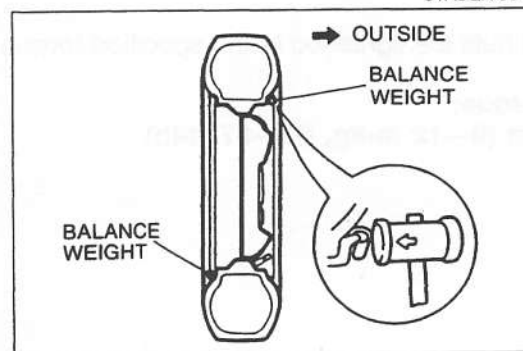
01E0QX-010



01A0QX-003



01A0QX-004



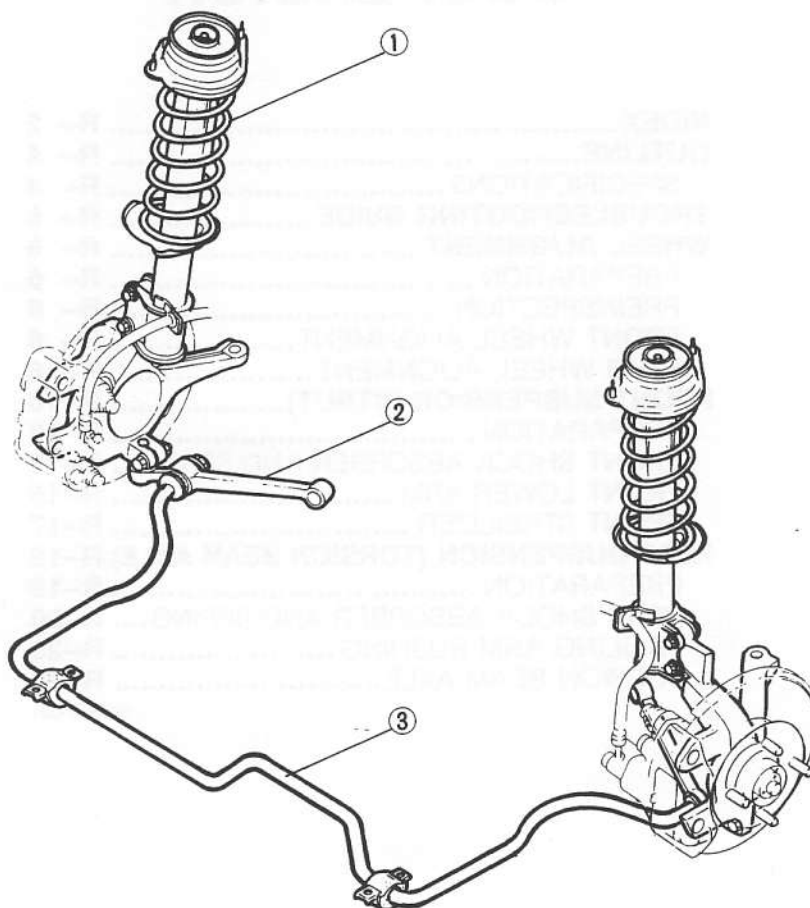
# SUSPENSION

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SPECIFICATIONS .....	<b>R- 4</b>
<b>TROUBLESHOOTING GUIDE</b> .....	<b>R- 5</b>
<b>WHEEL ALIGNMENT</b> .....	<b>R- 6</b>
PREPARATION .....	<b>R- 6</b>
PREINSPECTION .....	<b>R- 6</b>
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REAR WHEEL ALIGNMENT .....	<b>R- 8</b>
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## INDEX

## FRONT SUSPENSION



## FRONT WHEEL ALIGNMENT

MAXIMUM STEERING ANGLE:  $41^{\circ} \pm 2^{\circ}$  (INNER),  $34^{\circ} \pm 2^{\circ}$  (OUTER)

TOTAL TOE-IN  $3 \pm 3\text{mm}$  ( $0.12 \pm 0.12\text{ in}$ ,  $0^{\circ}12' \pm 10'$ )

CAMBER ANGLE:  $0^{\circ}50' \pm 45'$

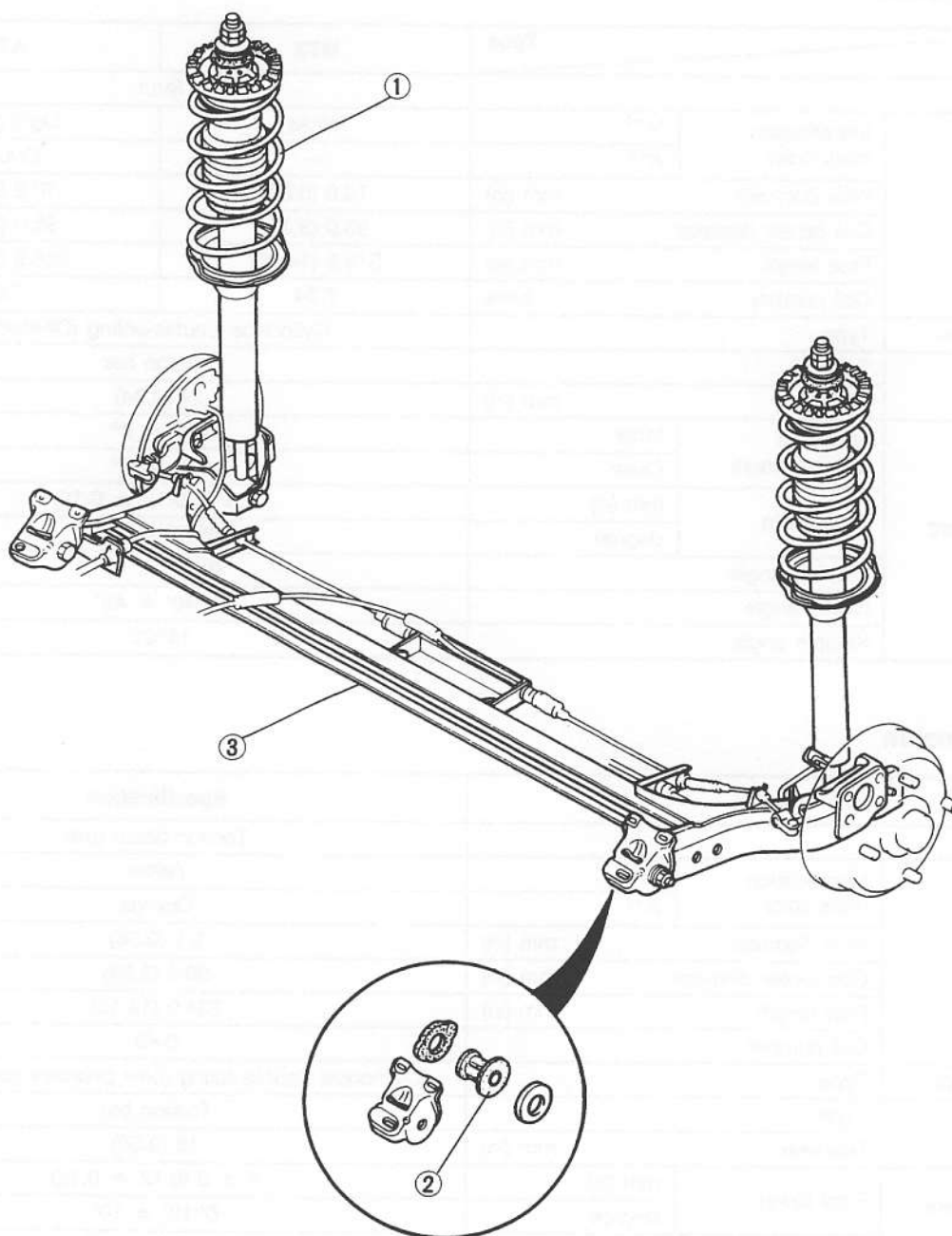
CASTER ANGLE:  $1^{\circ}40' \pm 45'$

KINGPIN ANGLE:  $14^{\circ}25'$

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- |                                       |                             |
|---------------------------------------|-----------------------------|
| 1. Front shock absorber and spring    | 2. Front lower arm          |
| Removal / Installation..... page R-11 | Removal / Inspection /      |
| Disassembly / Inspection /            | Installation..... page R-15 |
| Assembly..... page R-12               | 3. Front stabilizer         |
|                                       | Removal / Inspection /      |
|                                       | Installation..... page R-17 |

# REAR SUSPENSION



## REAR WHEEL ALIGNMENT

TOTAL TOE-IN:  $3 \pm 3\text{mm}$  ( $0.12 \pm 0.12\text{ in}$ ,  $0^\circ 10' \pm 10'$ )

CAMBER ANGLE:  $-0^\circ 15' \pm 45'$

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1. Rear shock absorber and spring  
Removal / Inspection /  
Installation..... page R-20
2. Trailing arm bushing  
Removal / Installation..... page R-23

3. Torsion beam axle  
Removal / Inspection /  
Installation..... page R-26



## OUTLINE

## SPECIFICATIONS

## Front Suspension

Item			Type	MTX	ATX
Type				Strut	
Coil spring	Identification mark color	M <sup>*1</sup>		White	Light green
		A <sup>*2</sup>		—	Orange
	Wire diameter		mm (in)	10.0 (0.39)	10.2 (0.40)
	Coil center diameter		mm (in)	95.0 (3.74)	95.0 (3.74)
	Free length		mm (in)	373.5 (14.70)	385.6 (15.18)
	Coil number		turns	7.24	7.89
Shock absorber	Type			Cylindrical double-acting (Oil-filled)	
Stabilizer	Type			Torsion bar	
	Diameter		mm (in)	24 (0.94)	
Wheel alignment (Unladen <sup>*3</sup> )	Maximum steering angle	Inner		41° ± 2°	
		Outer		34° ± 2°	
	Total toe-in	mm (in)		3 ± 3 (0.12 ± 0.12)	
		degree		0°10' ± 10'	
	Camber angle			0°50' ± 45'	
	Caster angle			1°40' ± 45'	
	Kingpin angle			14°25'	

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## Rear Suspension

Item			Specification
Type			Torsion beam axle
Coil spring	Identification mark color	M*1	Yellow
		A*2	Orange
	Wire diameter mm (in)		9.1 (0.36)
	Coil center diameter mm (in)		90.0 (3.54)
	Free length mm (in)		334.0 (13.15)
	Coil number		6.49
Shock absorber	Type		Cylindrical double-acting (Low pressure gas charged)
Stabilizer	Type		Torsion bar
	Diameter mm (in)		15 (0.59)
Wheel alignment (Unladed*3)	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)
		degree	0°10' ± 10'
	Camber angle		-0°15' ± 45'

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<sup>\*1</sup>Main identification mark color: On second coil from bottom.

<sup>\*2</sup>Auxiliary identification mark color: On third coil from bottom.

<sup>\*3</sup>Fuel tank full; radiator coolant and engine oil at specified levels; and spare tire, jack, and tools in designated positions.

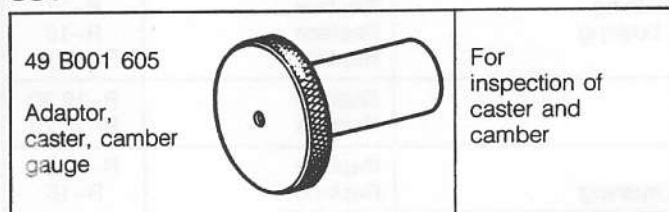


## TROUBLESHOOTING GUIDE

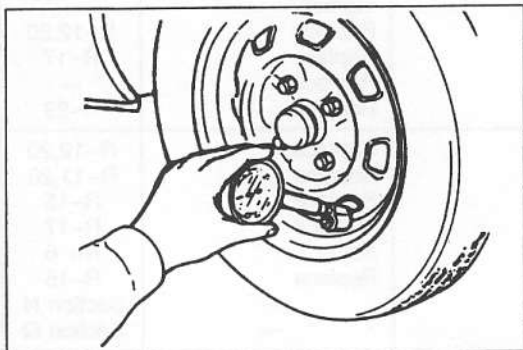
Problem	Possible Cause	Action	Page
<b>Body "rolls"</b>	Worn or deteriorated stabilizer bushing Worn or deteriorated lower arm bushing Malfunction of shock absorber	Replace Replace Replace	R-17 R-15 R-12,20
<b>Poor riding comfort</b>	Weak coil spring Malfunction of shock absorber	Replace Replace	R-12,20 R-12,20
<b>Body leans</b>	Weak coil spring Worn or deteriorated lower arm bushing	Replace Replace	R-12,20 R-15
<b>Abnormal noise from suspension system</b>	Poor lubrication or wear of lower arm ball joint Looseness of peripheral connections Malfunction of shock absorber Worn or deteriorated stabilizer bushing Worn or deteriorated lower arm bushing Worn or deteriorated trailing arm bushing	Lubricate or replace Tighten Replace Replace Replace Replace	R-15 — R-12,20 R-17 — R-23
<b>General driving instability</b>	Weak coil spring Malfunction of shock absorber Worn or deteriorated lower arm bushing Worn or deteriorated stabilizer bushing Improperly adjusted wheel alignment Damaged lower arm ball joint Malfunction of steering system Damaged or unbalanced wheel(s)	Replace Replace Replace Replace Adjust Replace — —	R-12,20 R-11,20 R-15 R-17 R- 6 R-15 Section N Section Q
<b>Heavy steering</b>	Poor lubrication or wear of lower arm ball joint Improperly adjusted wheel alignment Malfunction of steering system Damaged or unbalanced wheel(s)	Lubricate or replace Adjust — —	R-15 R- 6 Section N Section Q
<b>Steering wheel pulls to one side</b>	Weak coil spring Damaged strut bearing Worn or deteriorated stabilizer bushing Worn or deteriorated lower arm bushing Damaged lower arm ball joint Improperly adjusted wheel alignment Malfunction of steering system Malfunction of braking system Damaged or unbalanced wheel(s)	Replace Replace Replace Replace Replace Adjust — — —	R-12,20 R-12 R-17 R-15 R-15 R- 6 Section N Section P Section Q
<b>"Shimmy" occurs (steering wheel vibrates circumferentially)</b>	Damaged lower arm ball joint Malfunction of shock absorber Loose shock absorber mounting Worn or deteriorated lower arm bushing Worn or deteriorated stabilizer bushing Improperly adjusted wheel alignment Damaged or worn wheel bearing Malfunction of steering system Damaged or unbalanced wheel(s)	Replace Replace Tighten Replace Replace Adjust Replace — —	R-15 R-12,20 R-11,20 R-15 R-17 R- 6 Section M Section N Section Q
<b>Steering wheel doesn't return properly</b>	Stuck or damaged lower arm ball joint Damaged strut bearing Improperly adjusted wheel alignment Malfunction of steering system Damaged or unbalanced wheel(s)	Replace Replace Adjust — —	R-15 R-12 R- 6 Section N Section Q

01A0RX-003

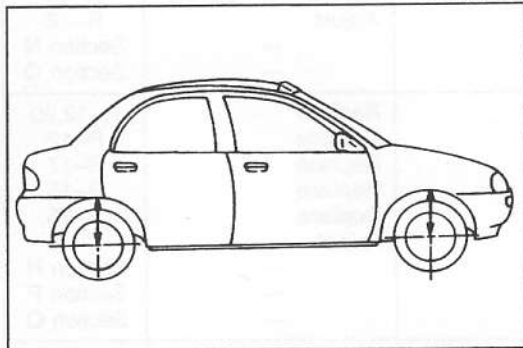
## WHEEL ALIGNMENT

PREPARATION  
SST

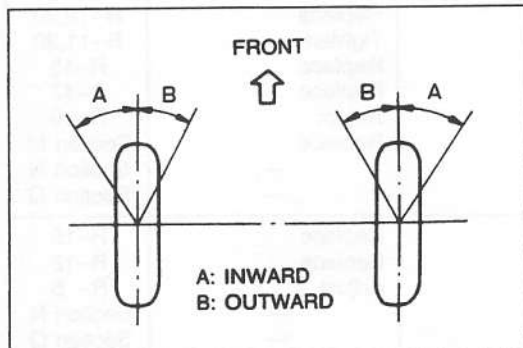
01E0RX-006



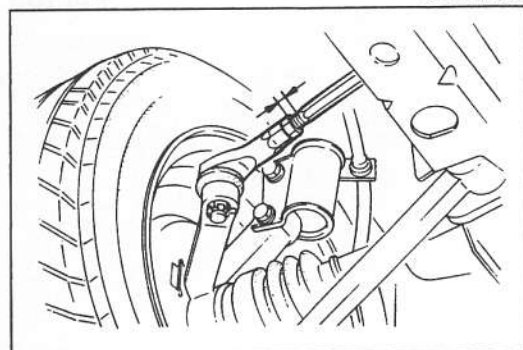
01E0RX-007



01E0RX-055



01E0RX-008



01E0RX-009

## PREINSPECTION

1. Check the tire inflations and set to the recommended pressure if necessary. (Refer to Section Q.)
2. Inspect the front wheel bearing play; replace the bearing if necessary. (Refer to Section M.)
3. Inspect the wheel runout. (Refer to Section Q.)
4. Inspect the ball joints and steering linkage for any excessive looseness.
5. The vehicle must be on level ground and have no luggage or passenger load.
6. The difference in height between the left and right sides from the center of the wheel to the fender brim must not exceed **10mm (0.39 in)**.
7. Shake the vehicle to check operation of the shock absorbers. If the vehicle is slow stop shaking, replace the shock absorbers. (Refer to pages R-11, 20.)

## FRONT WHEEL ALIGNMENT

## Maximum Steering Angle

## Inspection

Measure the maximum steering angle by placing the front wheels on a turning-radius gauge.

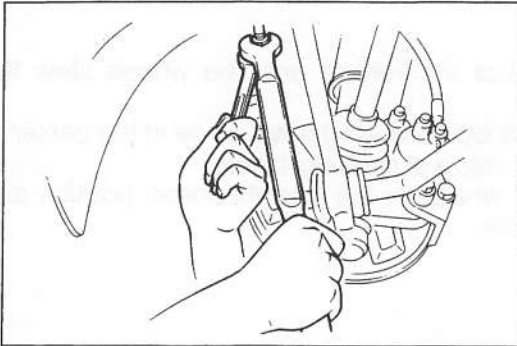
**Inward :  $41^{\circ}00' \pm 2^{\circ}$**

**Outward:  $34^{\circ}00' \pm 2^{\circ}$**

## Adjustment

Loosen the left and right tie rod locknuts, and turn the tie rods equally.

**Maximum left/right difference: 3mm (0.12 in)**



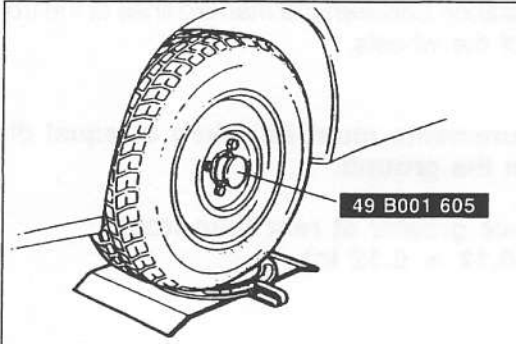
01E0RX-010

2. Tighten the tie rod locknuts.

## Tightening torque:

**34—50 N·m (3.5—5.1 m·kg, 25—37 ft·lb)**

3. Adjust the toe-in after adjusting the steering angle.



01E0RX-011

## Camber and Caster Inspection

1. Place the front wheels on a turning-radius gauge.
2. Remove the locknut.
3. Attach the **SST** to the wheel as shown in the figure.

4. Attach the caster/camber gauge to the **SST**.
5. Measure the caster and camber.

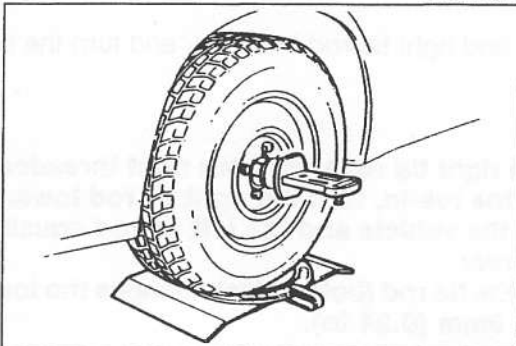
**Camber angle:  $0^{\circ}50' \pm 45'$**

**Caster angle :  $1^{\circ}40' \pm 45'$**

## Left/right difference

**Camber: 30' max.**

**Caster : 40' max.**



01E0RX-012

6. Install a new locknut and crimp it.

## Tightening torque:

**157—235 N·m (16—24 m·kg, 116—174 ft·lb)**

## Adjustment

### Note

- Caster is not adjustable.

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the mounting block nuts.
3. Push the mounting block downward, and turn it 180 degrees so that the direction indicator faces the outboard of the vehicle.

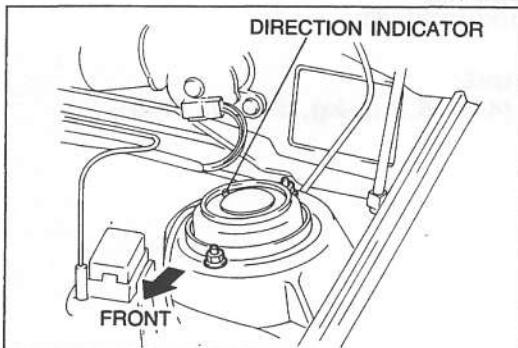
### Note

- When facing the indicator outboard, camber is adjusted by  $+28'$ .

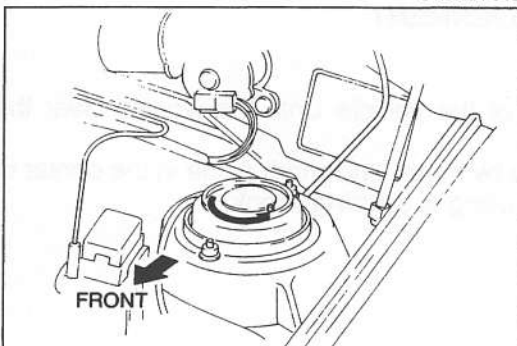
4. Tighten the mounting block nuts to the specified torque.

## Tightening torque:

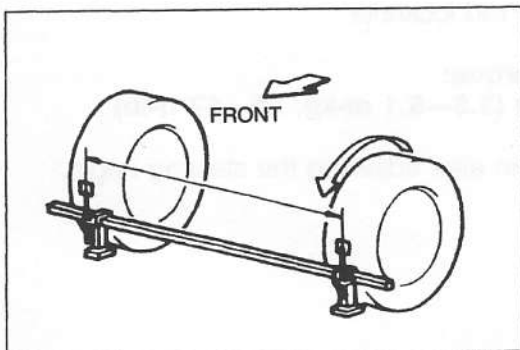
**29—36 N·m (3.0—3.7 m·kg, 22—27 ft·lb)**



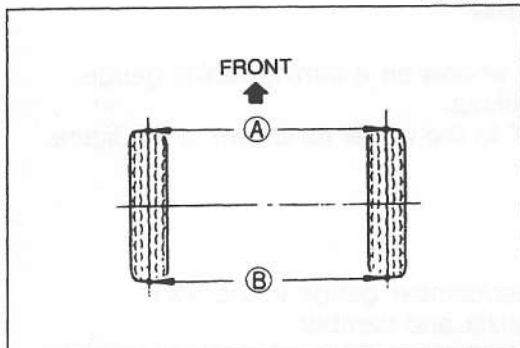
01E0RX-013



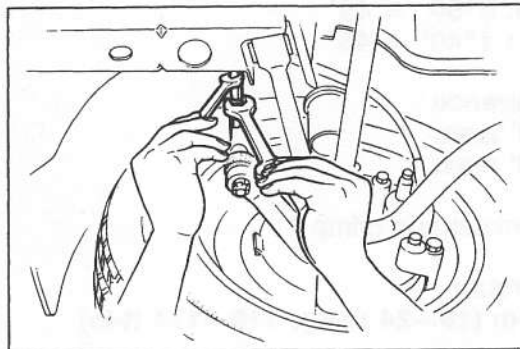
01E0RX-014



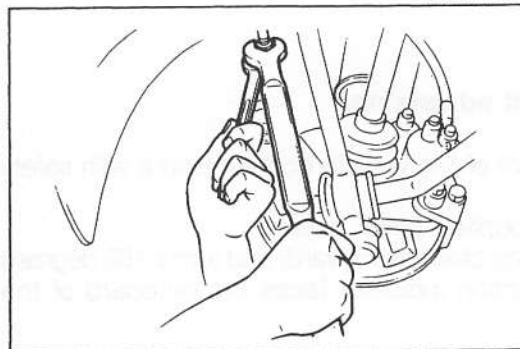
01E0RX-056



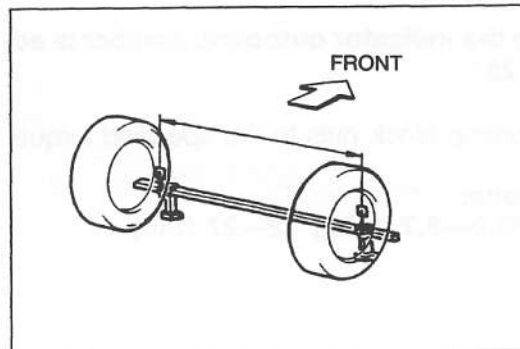
01A0RX-004



01E0RX-057



01E0RX-016



01E0RX-058

### Total Toe-in Inspection

1. Raise the front of the vehicle until the wheels clear the ground.
2. Turn the wheels by hand, and mark a line in the center of each tire tread using a scribing block.
3. Place the front wheels in the straight-ahead position and lower the vehicle.
4. Measure the distance between the marked lines at the front A and rear B of the wheels.

### Note

- Both measurements must be taken at equal distances from the ground.

**Toe-in (distance greater at rear than front):**  
 $3 \pm 3\text{mm}$  ( $0.12 \pm 0.12\text{ in}$ )

### Adjustment

1. Loosen the left and right tie rod locknuts, and turn the tie rods equally.

### Caution

- The left and right tie rods are both right threaded, to increase the toe-in, turn the right tie rod toward the front of the vehicle and the left tie rod equally toward the rear.
- One turn of the tie rod (both sides) changes the toe-in by about 6mm (0.24 in).

2. Tighten the tie rod locknuts.

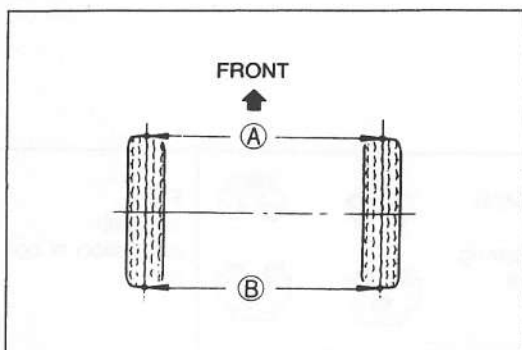
### Tightening torque:

$42\text{--}57\text{ N}\cdot\text{m}$  ( $4.3\text{--}5.8\text{ m}\cdot\text{kg}$ ,  $31\text{--}42\text{ ft}\cdot\text{lb}$ )

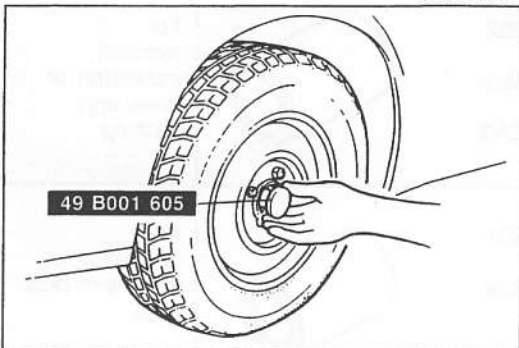
### REAR WHEEL ALIGNMENT

#### Total Toe-in Inspection

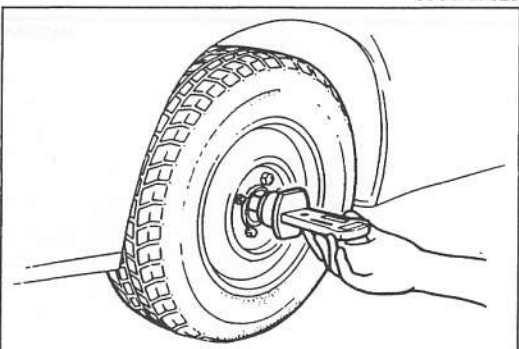
1. Raise the rear of the vehicle until the wheels clear the ground.
2. Turn the wheels by hand, and mark a line in the center of each tire tread using a scribing block.
3. Lower the vehicle.



01E0RX-017



93G0RX-023



01E0RX-018

4. Measure the distance between the marked lines at the front A and rear B of the wheels.

**Toe-in:  $3 \pm 3\text{mm}$  ( $0.12 \pm 0.12\text{ in}$ )**

## Note

- Toe-in is not adjustable.

## Camber Inspection

1. Remove the wheel hub cap and locknut.
2. Attach the **SST** to the wheel hub as shown in the figure.

3. Attach the caster/camber gauge to the **SST**.
4. Measure the camber.

**Camber angle:  $-0^{\circ}15' \pm 45'$**

## Note

- Camber is not adjustable.

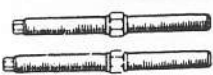
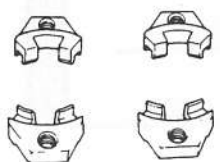
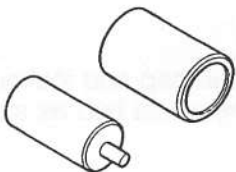
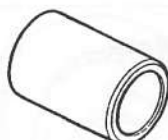
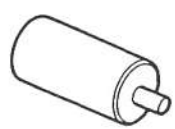


5. Install a new locknut and crimp it.

## Tightening torque:

**$167\text{--}216\text{ N}\cdot\text{m}$  ( $17\text{--}22\text{ m}\cdot\text{kg}$ ,  $123\text{--}159\text{ ft}\cdot\text{lb}$ )**

## FRONT SUSPENSION (STRUT)

PREPARATION  
SST

<p>49 0370 641</p> <p>Screw, coil spring compressor</p> 	<p>For removal/ installation of coil spring</p>	<p>49 0223 640B</p> <p>Arm, coil spring compressor</p> 	<p>For removal/ installation of coil spring</p>
<p>49 D034 2A0</p> <p>Puller &amp; installer set, lower arm bushing</p> 	<p>For removal/ installation of lower arm bushing</p>	<p>49 D034 202</p> <p>Support block (Part of 49 D034 2A0)</p> 	<p>For removal/ installation of lower arm bushing</p>
<p>49 D034 203</p> <p>Puller &amp; installer (Part of 49 D034 2A0)</p> 	<p>For removal/ installation of lower arm bushing</p>	<p>49 D034 201</p> <p>Installer, dust boot</p> 	<p>For installation of lower arm dust boot</p>
<p>49 0180 510B</p> <p>Attachment, preload measuring</p> 	<p>For inspection of lower arm ball joint</p>		

01E0RX-019



## FRONT SHOCK ABSORBER AND SPRING

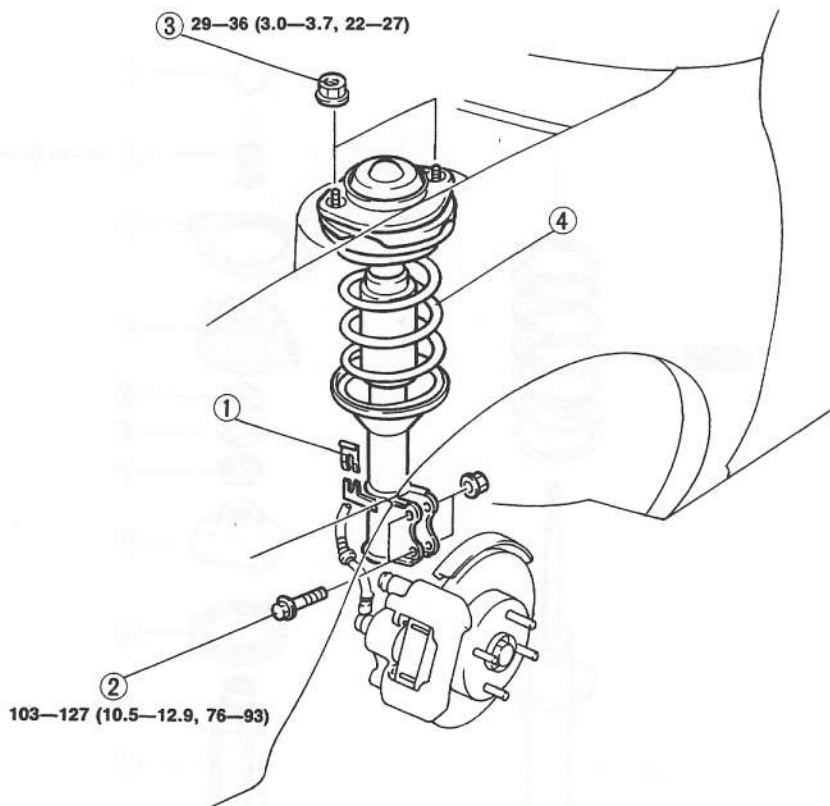
### Removal / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the wheels.
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal, referring to **Installation Note**.

### Caution

- Loosely tighten the shock absorber bolts and nuts. Lower the vehicle and tighten them the specified torque with the vehicle unladen.

5. After installation, measure the front wheel alignment, and adjust it if necessary.

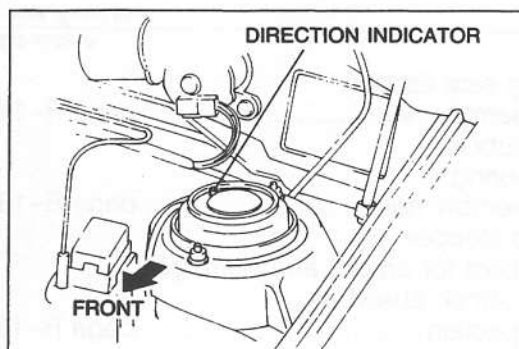


N·m (m·kg, ft·lb)

01E0RX-020

1. Clip
2. Shock absorber clinch bolt
3. Nut

4. Front shock absorber and spring  
Installation note ..... below  
Disassembly / Inspection /  
Assembly ..... page R-12



01E0RX-021

### Installation note

#### Front shock absorber and spring

Face the direction indicator of the mounting block inboard, and install the shock absorber and spring.

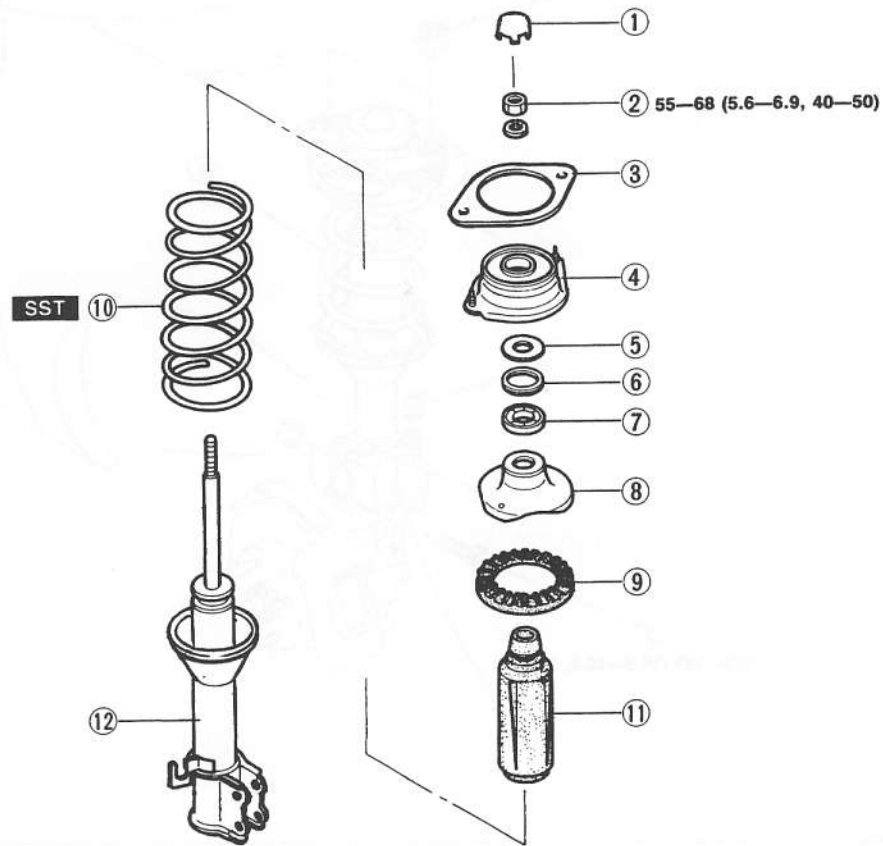
### Note

- When facing the indicator outboard, camber is adjusted by +28'.



**Disassembly / Inspection / Assembly**

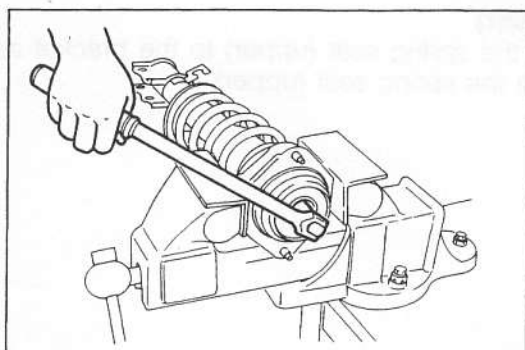
1. Disassemble in the order shown, referring to **Disassembly Note**.
2. Inspect all parts and replace as necessary.
3. Assemble in the reverse order of disassembly, referring to **Assembly Note**.



N·m (m·kg, ft·lb)

01E0RX-022

- |                                  |                               |
|----------------------------------|-------------------------------|
| 1. Cap                           | 8. Spring seat (upper)        |
| 2. Piston rod nut                | Assembly note..... page R-14  |
| Disassembly note ..... page R-13 | 9. Seat rubber                |
| 3. Adjusting plate               | 10. Coil spring               |
| 4. Mounting rubber               | Assembly note..... page R-13  |
| 5. Washer                        | 11. Bump stopper              |
| 6. Dust seal                     | Inspect for cracks and damage |
| 7. Bearing                       | 12. Front shock absorber      |
| Inspect for wear and damage      | Inspection..... page R-13     |



03U0RX-022

## Disassembly note

### Piston rod nut

1. Secure the mounting block in a vise.

### Caution

- Use protective plates in the jaws of the vise.

2. Loosen the piston rod nut a few turns. **Do not remove it.**

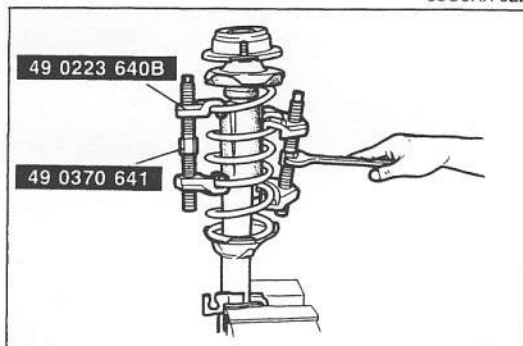
### Caution

- Do not remove the nut.

3. Compress the coil spring with the **SST**.

4. Remove the piston rod nut.

5. Remove the coil spring.



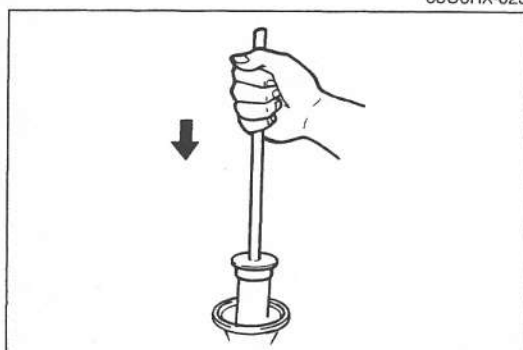
03U0RX-023

## Inspection

### Front shock absorber

Check for the following and replace the shock absorber if necessary.

1. Inspect for damage and oil leakage.
2. Compress and expand the shock piston at least three times. Verify that the operational force does not change and that there is no unusual noise.



01E0RX-023

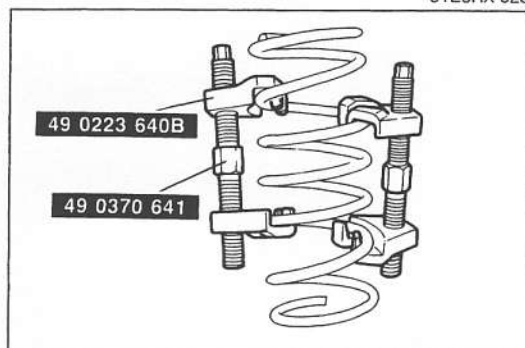
## Assembly note

### Coil spring

### Caution

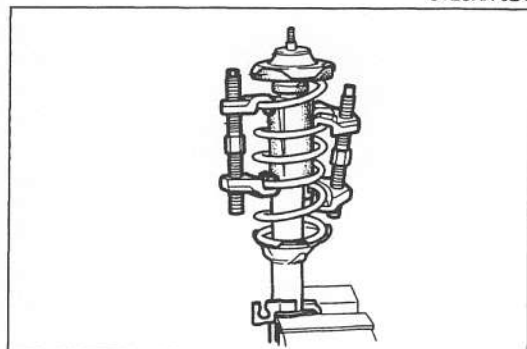
- Use protective plates in the jaws of the vise.

1. Compress the coil spring with the **SST**.

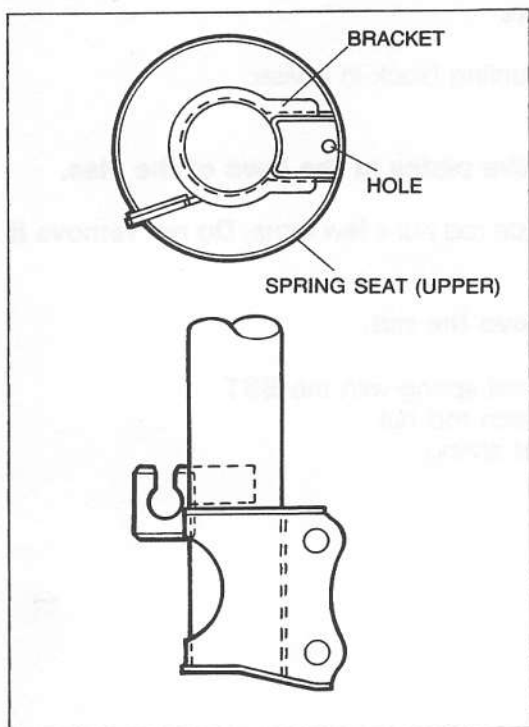


01E0RX-024

2. Install the coil spring so that the lower end of the coil spring is seated on the step of the lower seat.



01E0RX-025



01E0RX-026

**Spring seat (upper)**

Align the hole of the spring seat (upper) to the bracket as shown, and install the spring seat (upper).

## FRONT LOWER ARM

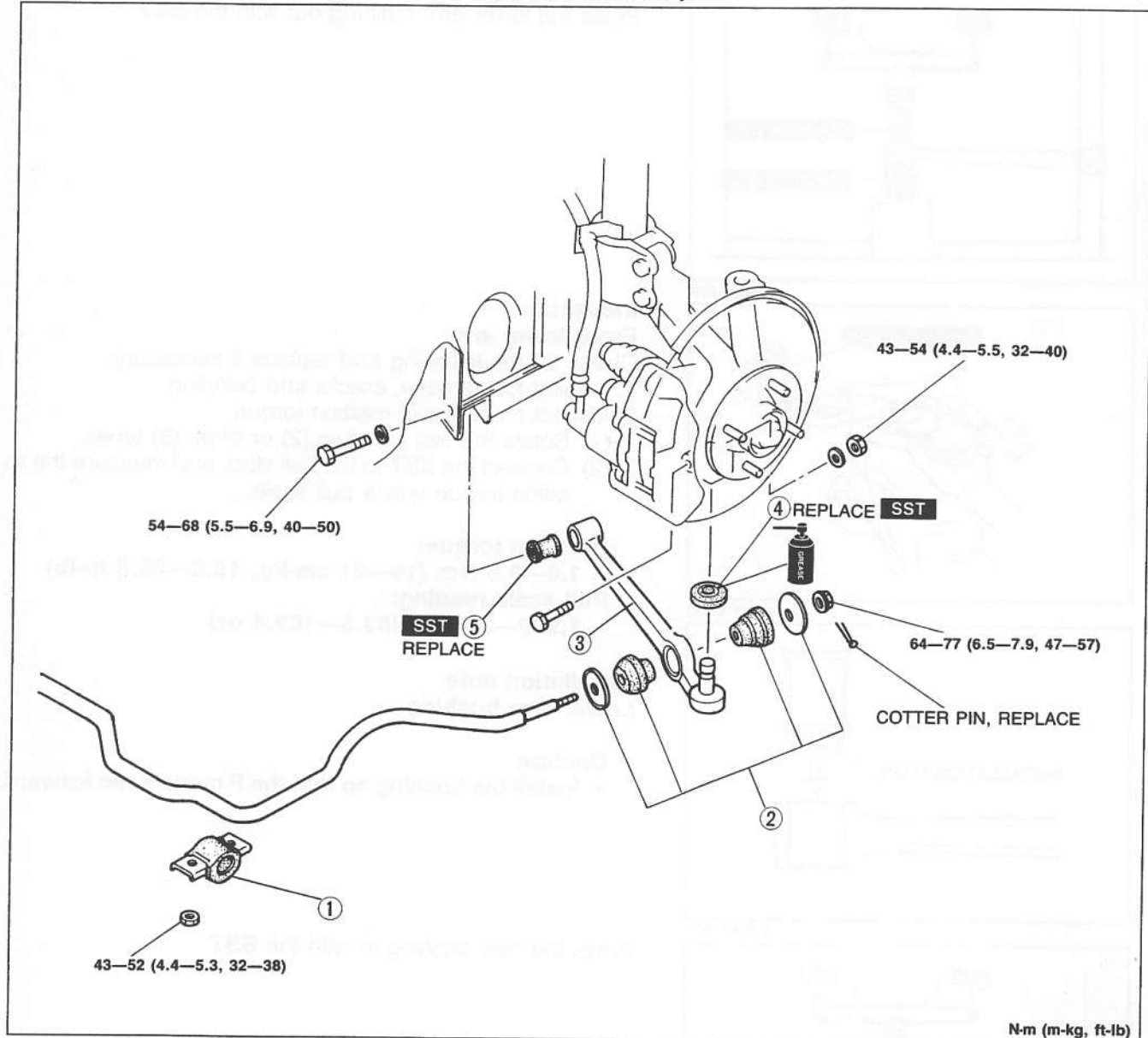
### Removal / Inspection / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove the wheel and tire.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Inspect all parts and repair or replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.

### Caution

- Loosely tighten the lower arm bolts, stabilizer plate nuts and stabilizer nut (lower arm side). Lower the vehicle and tighten all nuts and bolts to the specified torques with the vehicle unladen.

6. Inspect the front wheel alignment and adjust it if necessary.

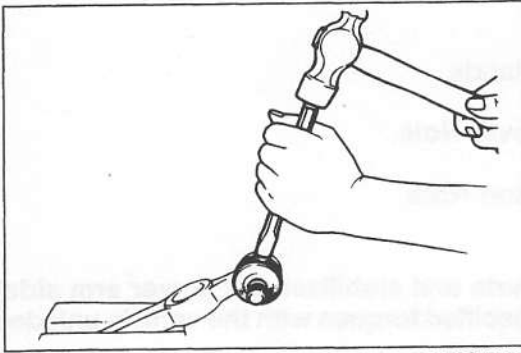


N·m (m·kg, ft·lb)

01A0RX-006

1. Rubber bushing assembly
2. Stabilizer washer, stabilizer bushing  
Installation note ..... page R-18
3. Front lower arm  
Inspection ..... page R-16

4. Ball joint dust boot  
Removal note ..... page R-16  
Installation note ..... page R-17
5. Lower arm bushing  
Removal note ..... page R-16  
Installation note ..... page R-16



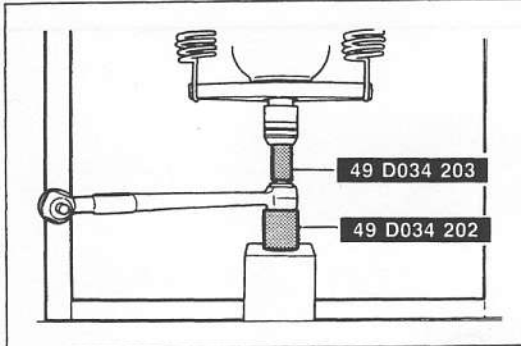
01E0RX-028

**Removal note****Ball joint dust boot**

Remove the dust boot with a chisel.

**Caution**

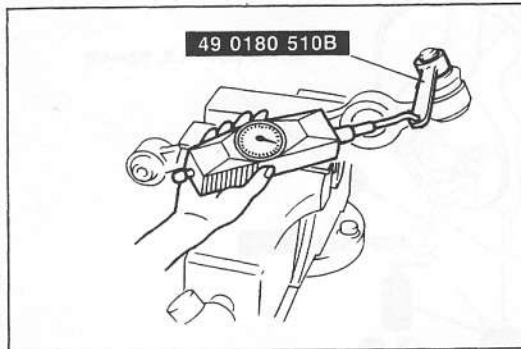
- Do not damage the ball joint stud.



01E0RX-029

**Lower arm bushing**

Press the lower arm bushing out with the **SST**.



01E0RX-030

**Inspection****Front lower arm**

Check for the following and replace if necessary.

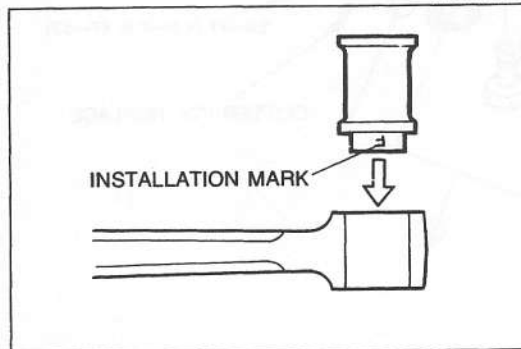
1. Inspect for damage, cracks and bending.
2. Inspect for ball joint rotation torque.
  - (1) Rotate the ball joint two (2) or three (3) times.
  - (2) Connect the **SST** to the ball stud, and measure the rotation torque with a pull scale.

**Rotation torque:**

1.8—3.0 N·m (18—31 cm·kg, 15.6—26.9 in·lb)

**Pull scale reading:**

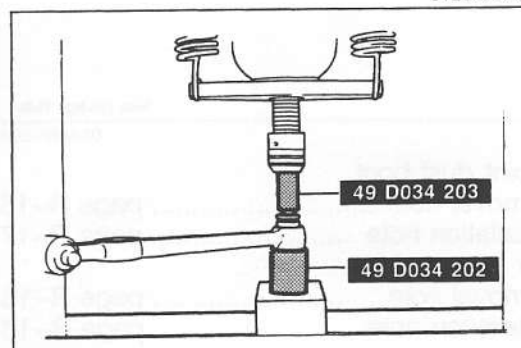
1,800—3,100 g (63.5—109.4 oz)



01E0RX-031

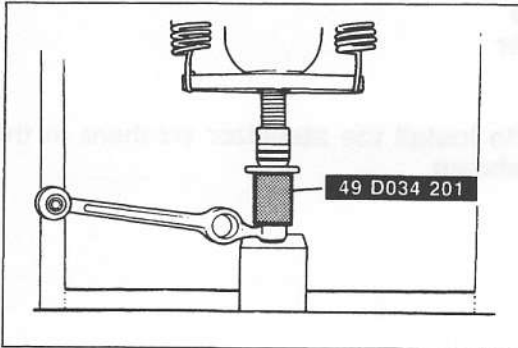
**Installation note****Lower arm bushing****Caution**

- Install the bushing so that the F mark faces forward.



01E0RX-032

Press the new bushing in with the **SST**.



## Ball joint dust boot

1. Liberally coat the inside of the new dust boot with grease.
2. Press the dust boot onto the ball joint with the **SST**.

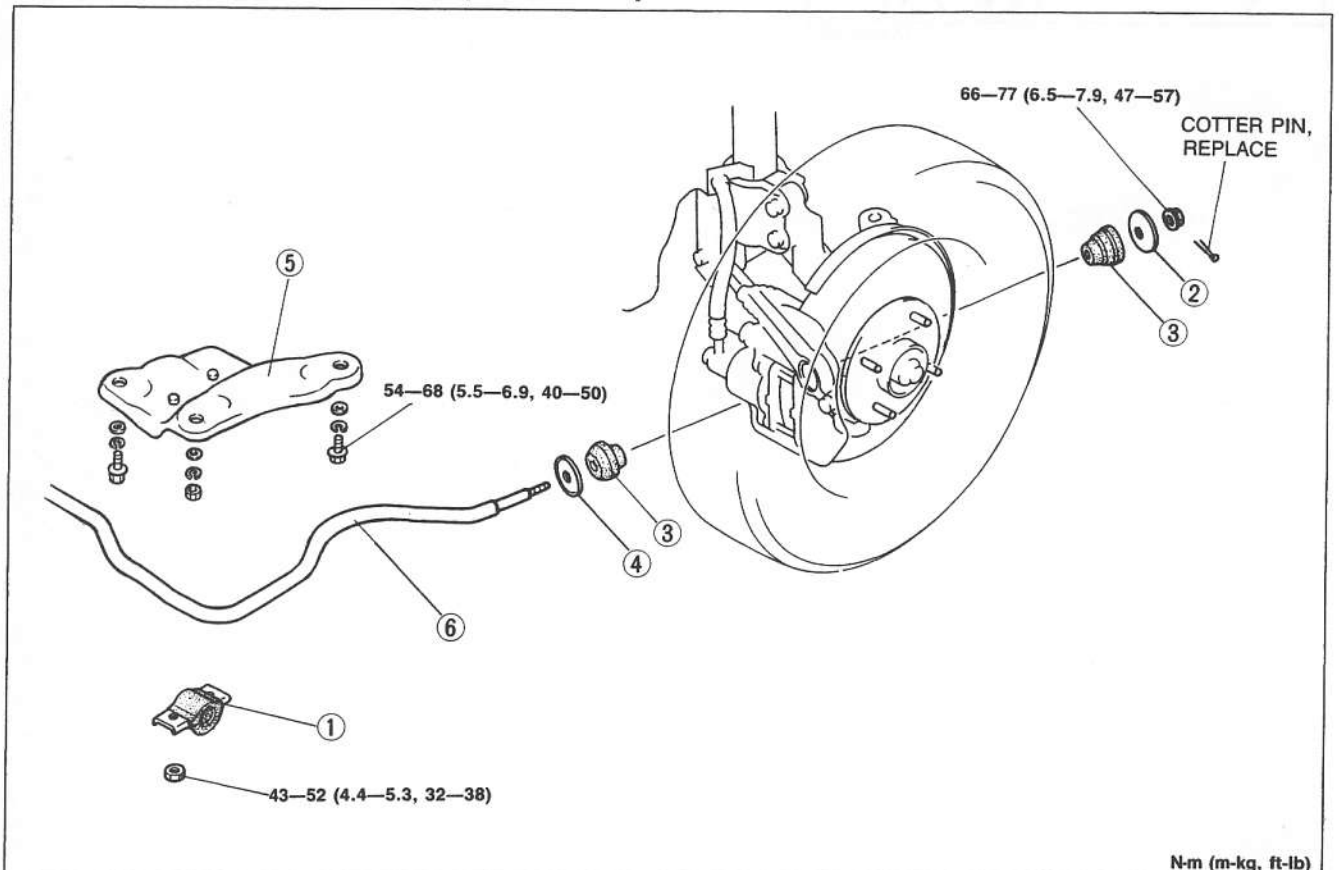
## FRONT STABILIZER

### Removal / Inspection / Installation

1. Jack up the front of the vehicle and support it with safety stands.
2. Remove in the order shown in the figure.
3. Inspect all parts and replace as necessary.
4. Install in the reverse order of removal, referring to **Installation Note**.

### Caution

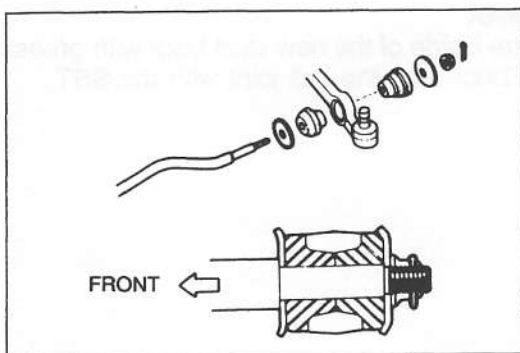
- Loosely tighten the stabilizer plate nuts and stabilizer nut (lower arm side). Lower the vehicle and tighten all nuts to the specified torques with the vehicle unladen.



N-m (m-kg, ft-lb)

01E0RX-034

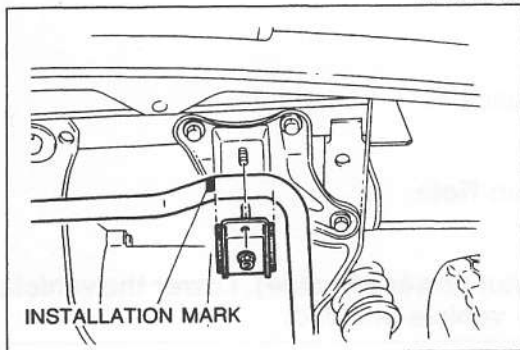
- |   |   |
|---|---|
| 1. Rubber bushing assembly<br>Installation note ..... page R-18<br>Inspect for deterioration and wear | 4. Stabilizer washer (front)<br>Installation note ..... page R-18 |
| 2. Stabilizer washer (rear)<br>Installation note ..... page R-18                                      | 5. Stabilizer mounting bracket                                    |
| 3. Stabilizer bushing (rear and front)<br>Inspect for deterioration and wear                          | 6. Front stabilizer<br>Inspect for bending, damage and cracks     |



01E0RX-035

**Installation note**  
**Stabilizer washer****Caution**

- Be careful to install the stabilizer washers in the directions shown.



01A0RX-005



**Rubber bushing assembly**

Align the bushing with the installation mark and attach it with the seam facing forward.



## REAR SUSPENSION (TORSION BEAM AXLE)

### PREPARATION SST

<p>49 0839 425C</p> <p>Puller set, bearing</p> 	<p>For removal/ installation of trailing arm bushing</p>	<p>49 0259 770B</p> <p>Wrench, flare nut</p> 	<p>For removal/ installation of brake pipe</p>
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01E0RX-037

## REAR SHOCK ABSORBER AND SPRING

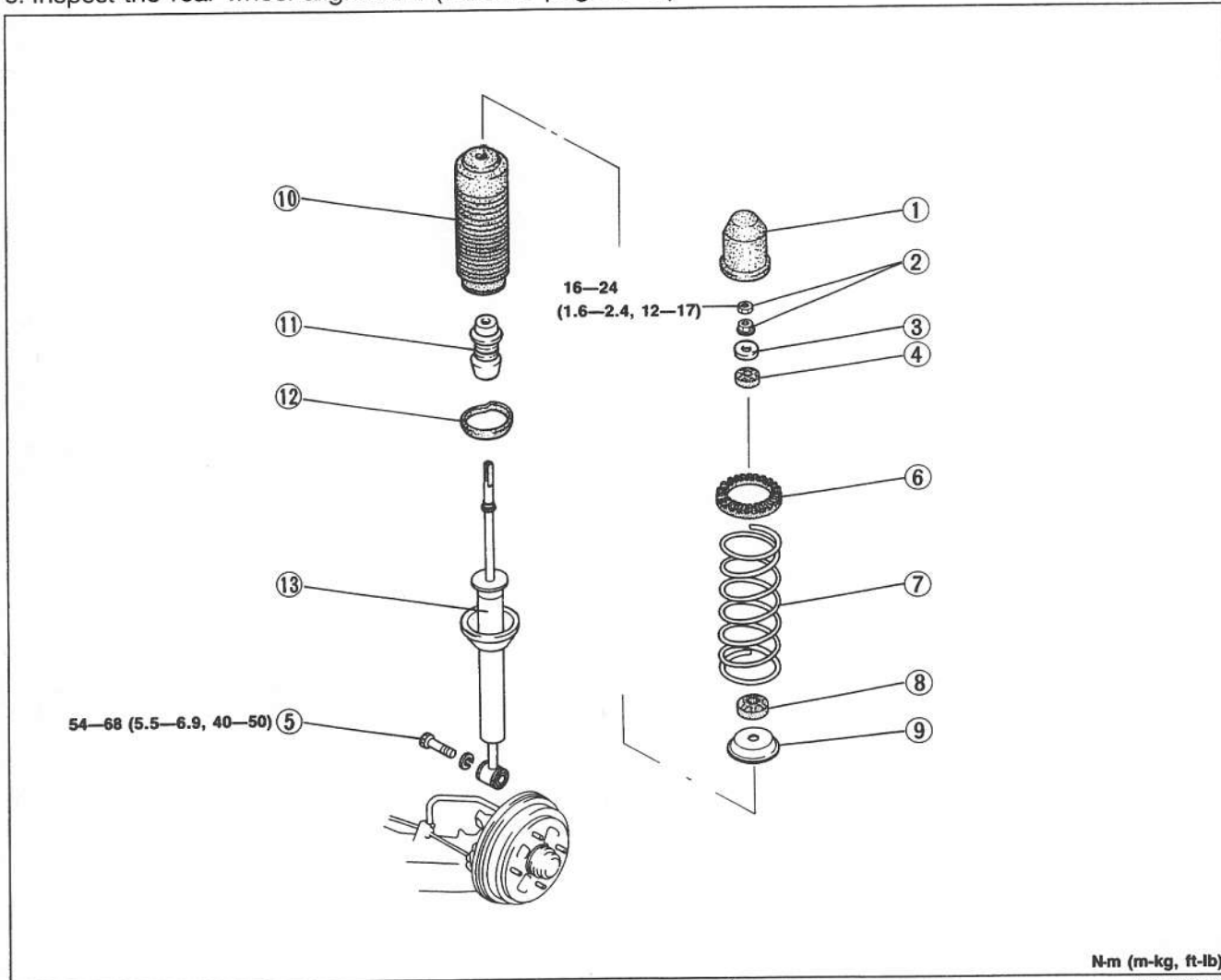
## Removal / Inspection / Installation

1. Jack up the rear of the vehicle and support it at the body with safety stands.
2. Remove the wheels and tires.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Inspect all parts and replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.

**Caution**

- Loosely tighten the shock absorber bolt and nut. Lower the vehicle and tighten them to the specified torques with the vehicle unladen.

6. Inspect the rear wheel alignment. (Refer to page R-8.)



1. Cap

2. Nut

Removal note ..... page R-21

Installation note ..... page R-22

3. Retainer

Installation note ..... page R-22

4. Damper bushing (upper)

Installation note ..... page R-22

Inspect for deterioration and wear

5. Shock absorber bolt

Removal note ..... page R-21

6. Spring seat rubber (upper)

7. Coil spring

8. Damper bushing (lower)

9. Stopper casing

10. Dust cover

Inspect for damage and cracks

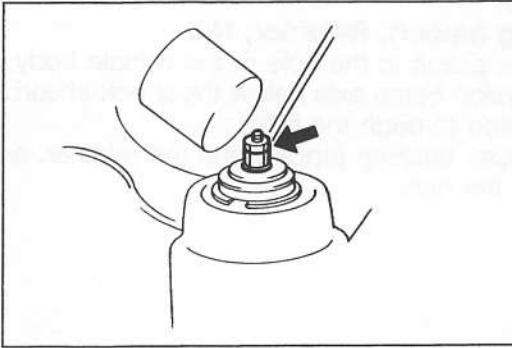
11. Bump stopper

Inspect for damage and cracks

12. Spring seat rubber (lower)

13. Rear shock absorber

Inspection ..... page R-21

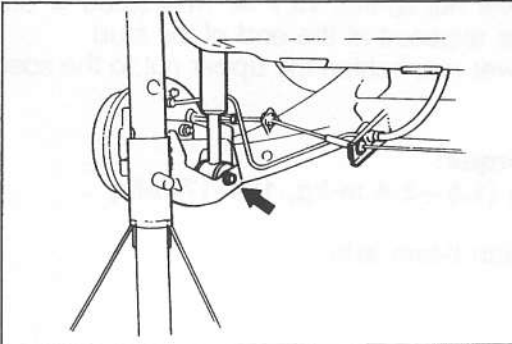


01E0RX-039

## Removal note

### Nut

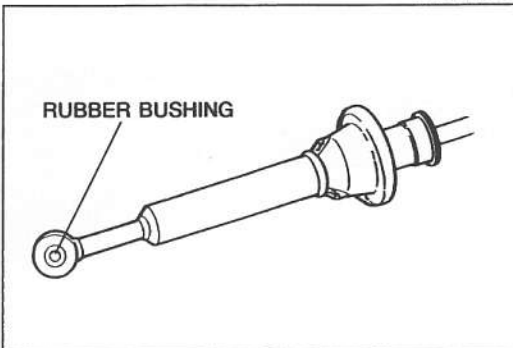
1. Jack up the torsion beam axle at the center of the axle.
2. Remove the nuts.



01E0RX-040

## Shock absorber bolt

1. Lower the torsion beam axle.
2. Remove the bolt.



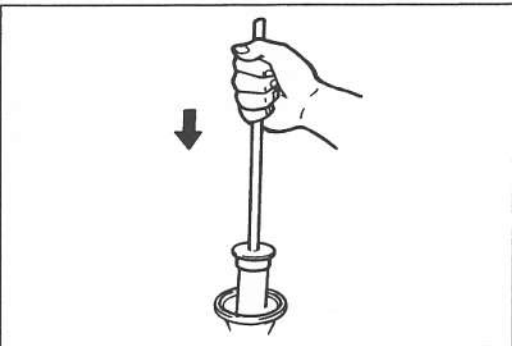
01E0RX-041

## Inspection

### Rear shock absorber

Check the following and replace if necessary.

1. Inspect for damage and oil leakage.
2. Inspect the rubber bushing for deterioration and wear.



01E0RX-042

3. Compress and extend the shock piston at least three (3) times. Verify that the operational force does not change and that there is no unusual noise.
4. (1) Compress the shock absorber piston and release it.  
(2) Verify that the piston extends fully at a normal speed.

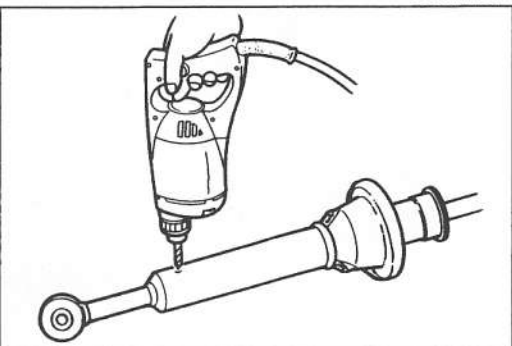
## Disposal of shock absorber

### Caution

- The gas in the shock absorber is colorless, odorless, and nontoxic.
- Wear safety glasses as drilling chips may be expelled by the pressurized gas.

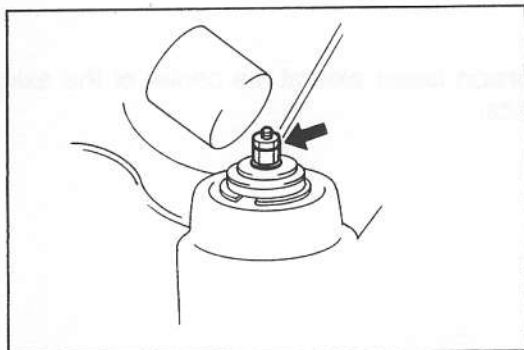
1. Lay the shock absorber flat.
2. Drill a hole in the shock absorber body.

**Drill size: 2—3mm (0.08—0.12 in)**

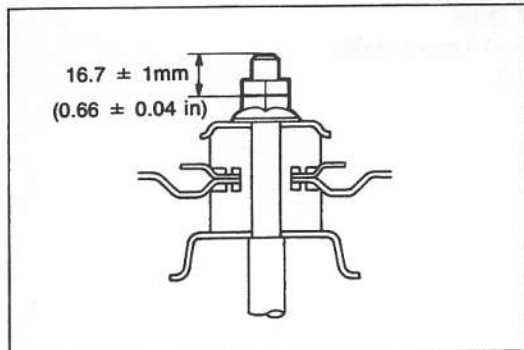


01E0RX-043

3. Allow the gas to escape from the shock absorber.
4. Discard the shock absorber.



01E0RX-044



01E0RX-045

**Installation note****Damper bushing (upper), Retainer, Nut**

1. Align the shock piston to the hole in the vehicle body.
2. Jack up the torsion beam axle below the shock absorber to pass the piston through the hole.
3. Install the damper bushing (upper) and the retainer, and loosely tighten the nuts.

4. Tighten the lower nut so that  $16.7 \pm 1\text{mm}$  ( $0.66 \pm 0.04\text{ in}$ ) of threads is exposed at the end of the stud.
5. Holding the lower nut, tighten the upper nut to the specified torque.

**Tightening torque:**

**16—24 N·m (1.6—2.4 m·kg, 12—17 ft·lb)**

6. Lower the torsion beam axle.

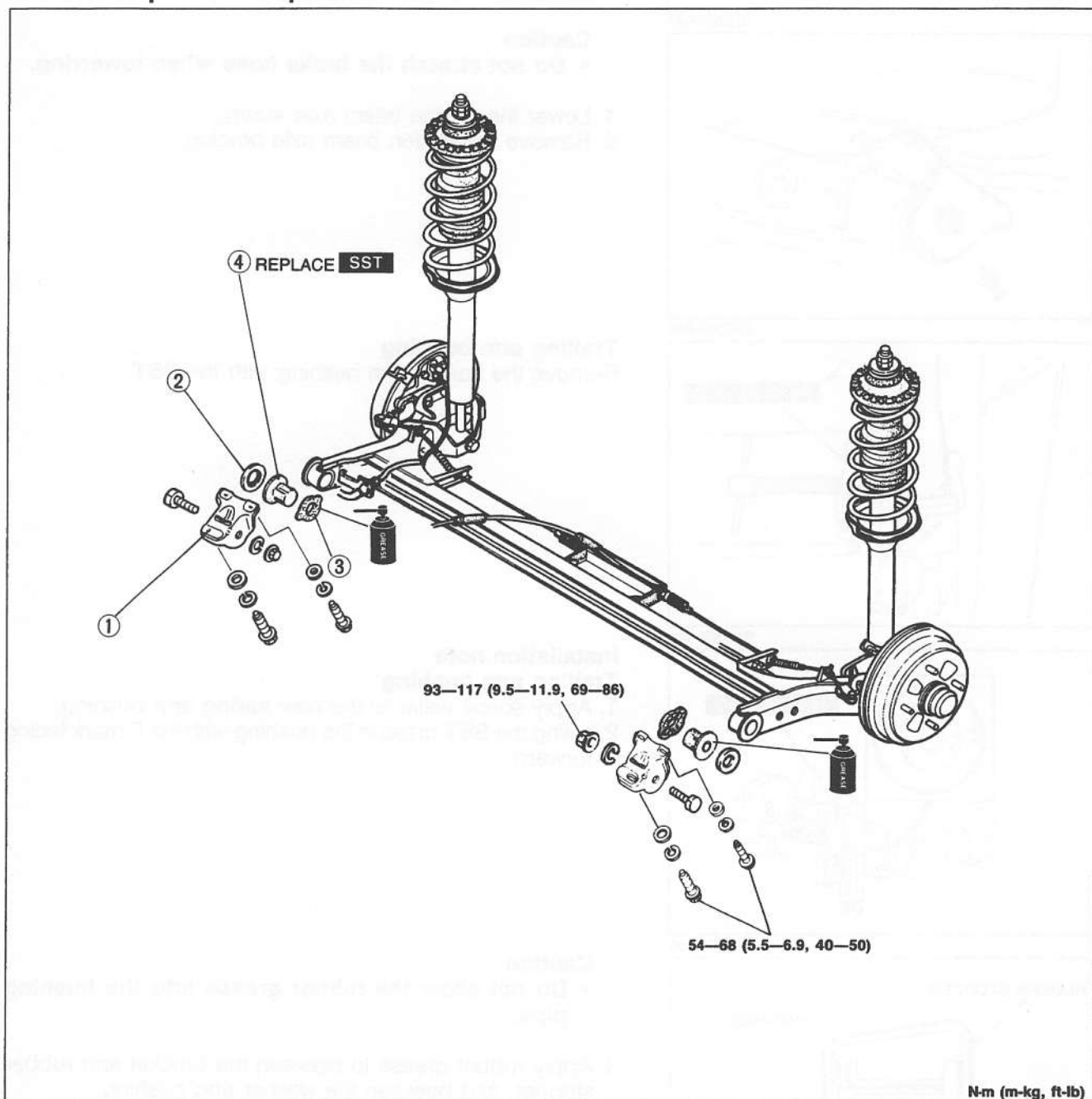
## TRAILING ARM BUSHING

### Removal / Installation

1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheels and tires.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Inspect all parts and replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.

### Caution

- Loosely tighten the torsion beam axle bracket fasteners. Lower the vehicle and tighten them to the specified torques with the vehicle unladen.



N-m (m-kg, ft-lb)

01E0RX-046

1. Torsion beam axle bracket

Removal note ..... page R-24

Installation note ..... page R-25

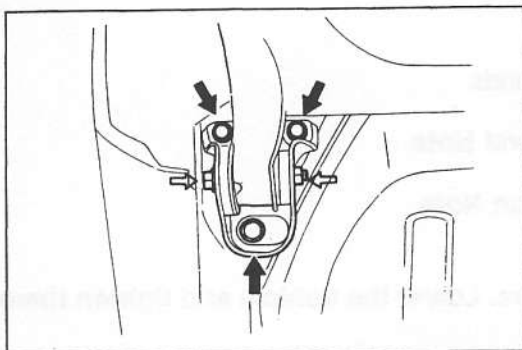
2. Washer

3. Rubber stopper

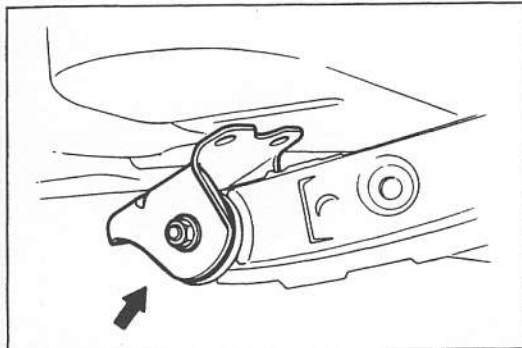
4. Trailing arm bushing

Removal note ..... page R-24

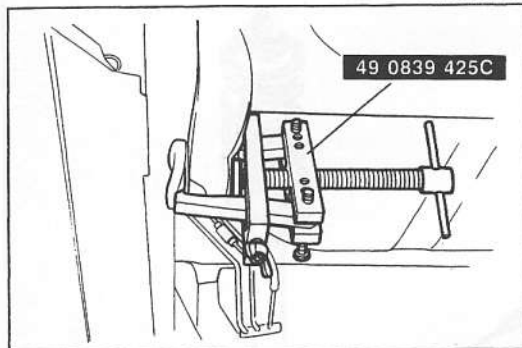
Installation note ..... page R-24



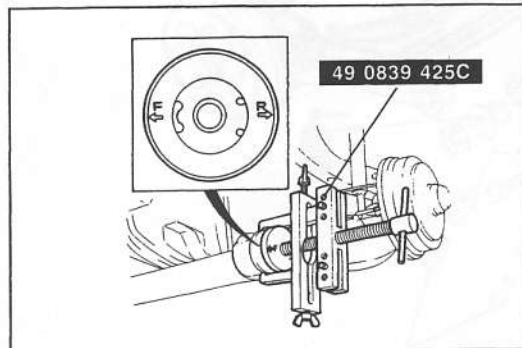
01E0RX-047



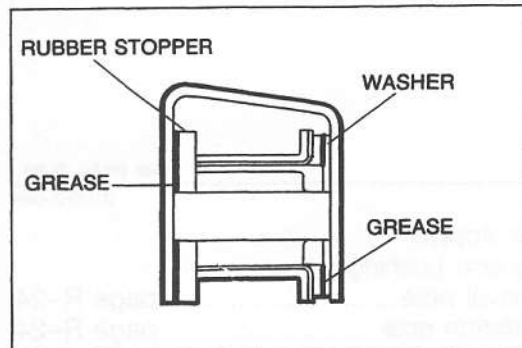
01E0RX-048



01E0RX-049



01E0RX-050



01E0RX-051

**Removal note****Torsion beam axle bracket**

1. Loosen the torsion beam axle bracket bolts and nuts.
2. Jack up the torsion beam axle slowly.
3. Remove the bolts.

**Caution**

- Do not stretch the brake hose when lowering.

4. Lower the torsion beam axle slowly.
5. Remove the torsion beam axle bracket.

**Trailing arm bushing**

Remove the trailing arm bushing with the **SST**.

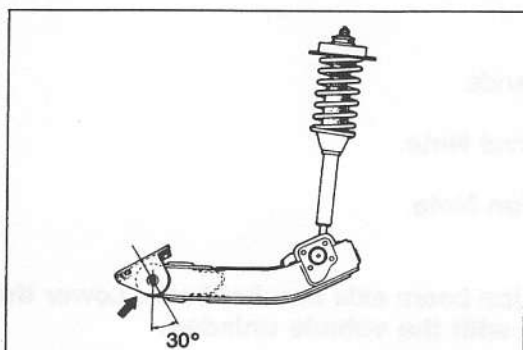
**Installation note****Trailing arm bushing**

1. Apply soapy water to the new trailing arm bushing.
2. Using the **SST** press in the bushing with the F mark facing forward.

**Caution**

- Do not allow the rubber grease into the bushing pipe.

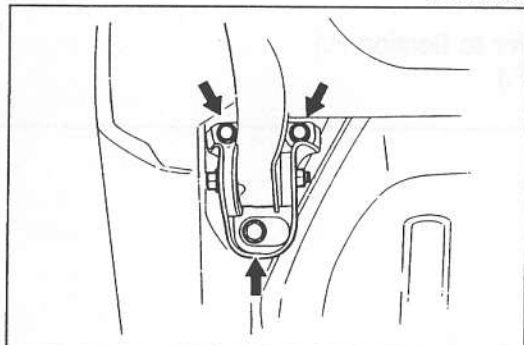
3. Apply rubber grease to between the bracket and rubber stopper, and between the washer and bushing.



01E0RX-052

## Torsion beam axle bracket

1. Set the torsion beam axle bracket as shown and loosely tighten the bushing bolt.



01E0RX-053

2. Jack up the torsion beam axle.
3. Loosely tighten the torsion beam axle bracket bolts.
4. Lower the torsion beam axle.
5. Lower the vehicle and tighten the fusteners to the specified torques. (Refer to page R-23.)



**TORSION BEAM AXLE****Removal / Inspection / Installation**

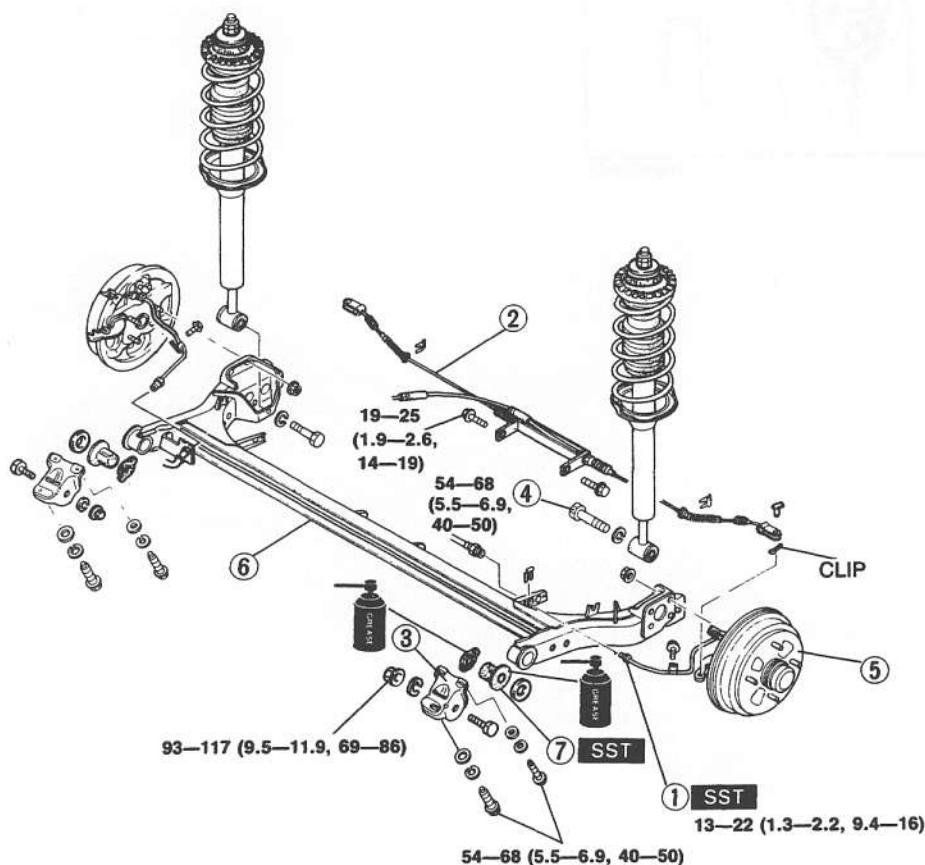
1. Jack up the rear of the vehicle and support it with safety stands.
2. Remove the wheels and tires.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Inspect all parts and replace as necessary.
5. Install in the reverse order of removal, referring to **Installation Note**.

**Caution**

- Loosely tighten the shock absorber bolts and the torsion beam axle bracket bolts. Lower the vehicle and tighten all bolts to the specified torques with the vehicle unladen.

## 6. After installation:

- (1) Check for the brake fluid leakage and bleed the air. (Refer to Section P.)
- (2) Adjust the parking brake lever stroke. (Refer to Section P.)
- (3) Check the rear wheel alignment. (Refer to page R-8.)



N-m (m-kg, ft-lb)

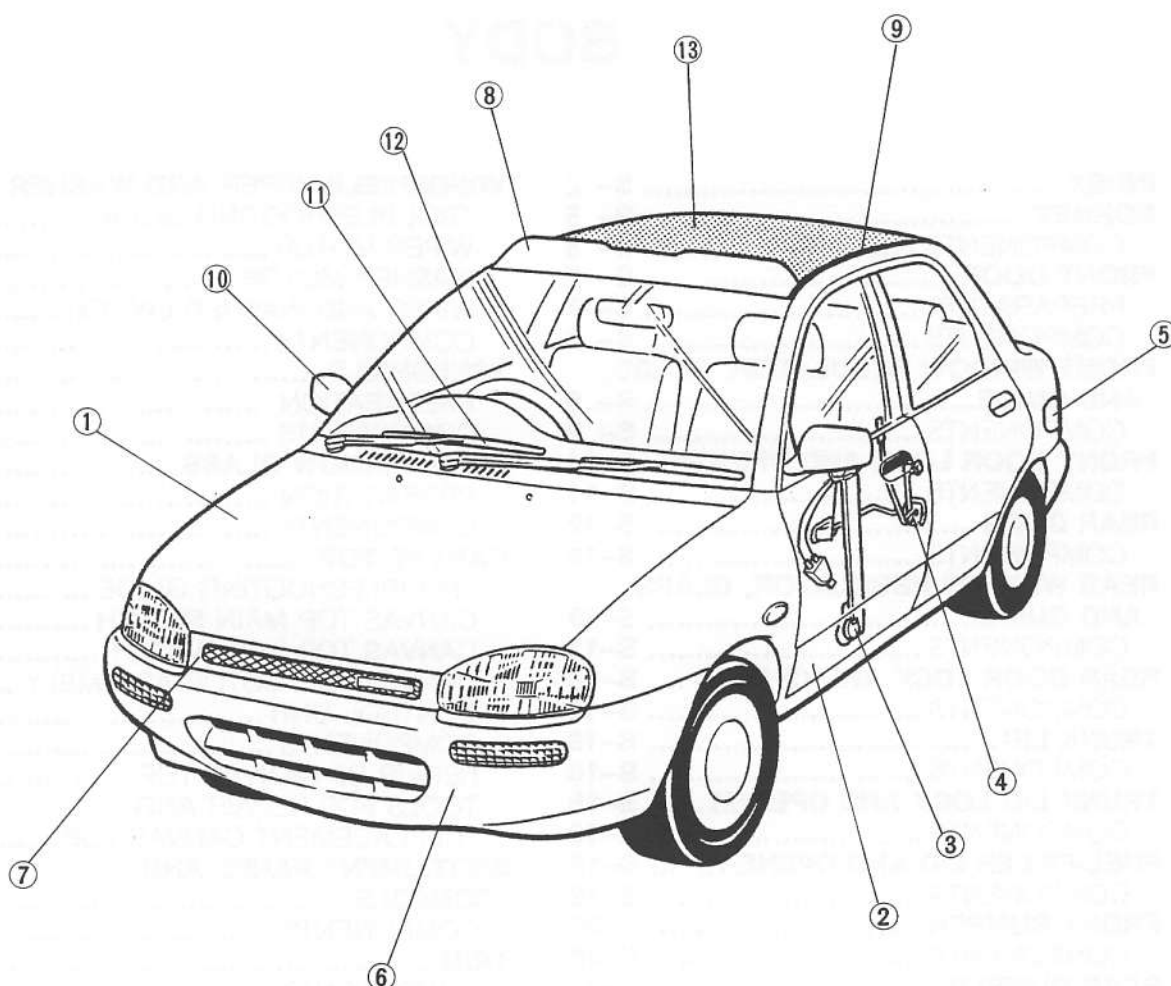
01E0RX-054

- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| 1. Brake pipe                     | 5. Spindle and drum assembly      |
| Service ..... Section P           | Service..... Section M            |
| 2. Parking brake cable            | 6. Torsion beam axle              |
| Service ..... Section P           | Inspect for damage and cracks     |
| 3. Torsion beam axle bracket      | 7. Trailing arm bushing           |
| Removal note ..... page R-24      | Removal note ..... page R-24      |
| Installation note ..... page R-25 | Installation note ..... page R-24 |
| 4. Shock absorber bolt            |                                   |

## BODY

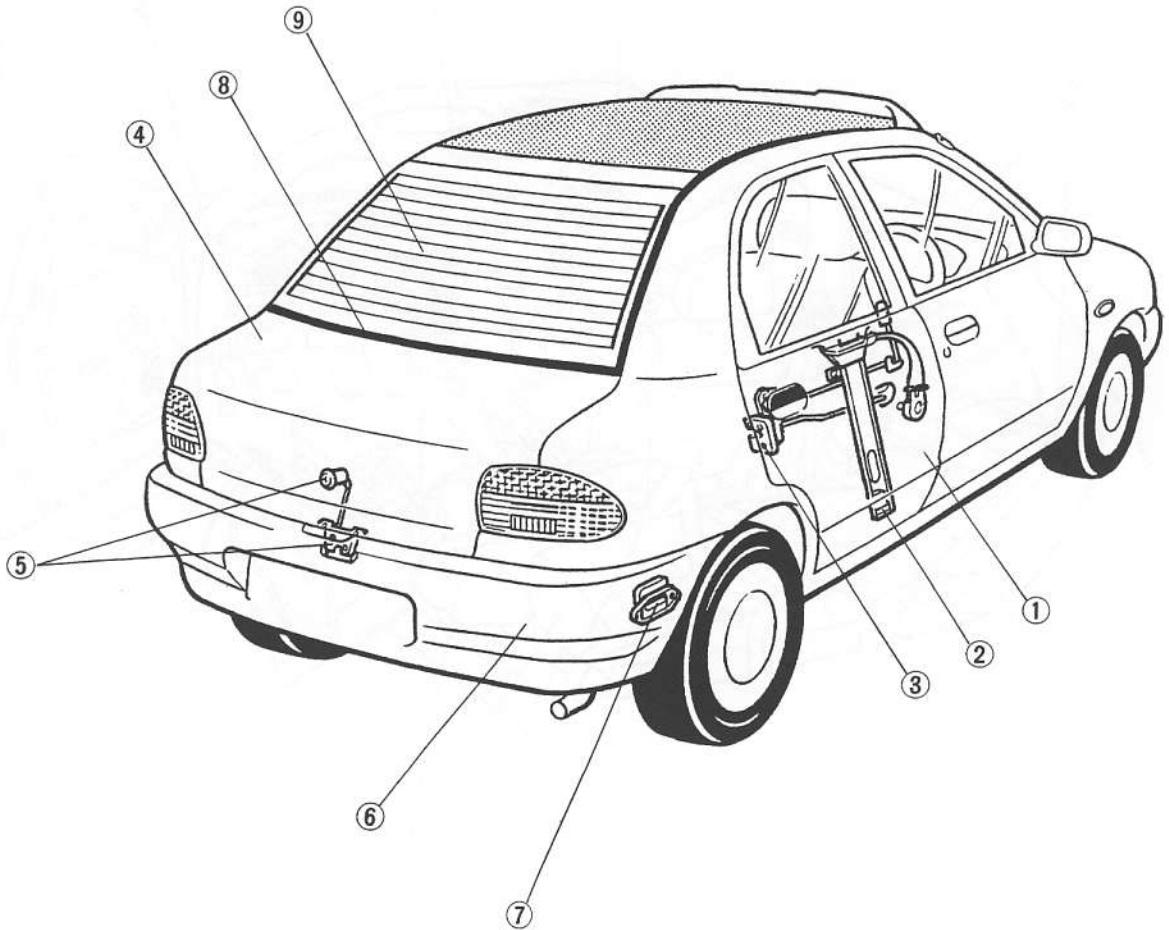
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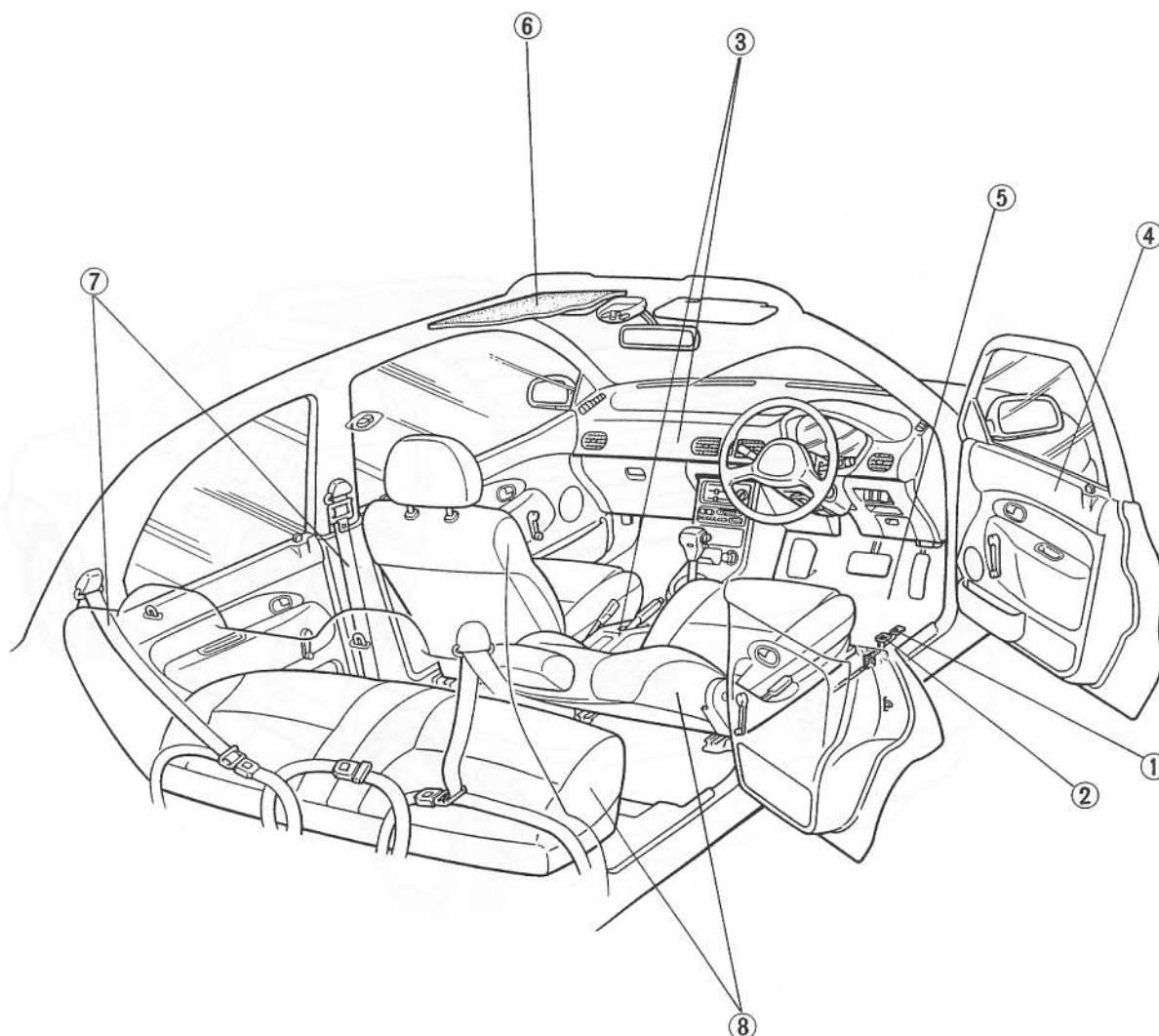
01A0SX-002

- |   |           |                                   |           |
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| Removal / Installation .....                | page S-23 | Adjustment.....                   | page S-58 |
| 9. Molding                                  |           | Repair of canvas top.....         | page S-59 |
| Removal / Installation .....                | page S-24 |                                   |           |



01A0SX-003

- |  |  |
|--|--|
| 1. Rear door                               | 5. Trunk lid lock and opener           |
| Removal / Installation ..... page S-12     | Removal / Installation ..... page S-18 |
| 2. Rear window regulator, glass, and guide | 6. Rear bumper                         |
| Removal / Installation ..... page S-13     | Removal / Installation ..... page S-21 |
| 3. Rear door lock and opener               | 7. Extractor chamber                   |
| Removal / Installation ..... page S-15     | Removal / Installation ..... page S-22 |
| 4. Trunk lid                               | 8. Molding                             |
| Removal / Installation ..... page S-16     | Removal / Installation ..... page S-24 |
| Adjustment ..... page S-17                 | 9. Rear window glass                   |
|  | Removal / Installation ..... page S-45 |



01A0SX-004

1. Trunk lid lock and opener  
Removal / Installation ..... page S-18
2. Fuel-filler lid and opener  
Removal / Installation ..... page S-19
3. Instrument panel and console  
Removal / Installation ..... page S-61
4. Trim  
Removal / Installation ..... page S-64
5. Floor mat  
Removal / Installation ..... page S-67

6. Headliner  
Removal / Installation  
(normal roof) ..... page S-68  
Removal / Installation  
(canvas top) ..... page S-69
7. Seat belt  
Removal / Installation ..... page S-72  
Inspection ..... page S-73
8. Seat  
Removal / Installation ..... page S-74  
Disassembly / Assembly ..... page S-76

# BONNET

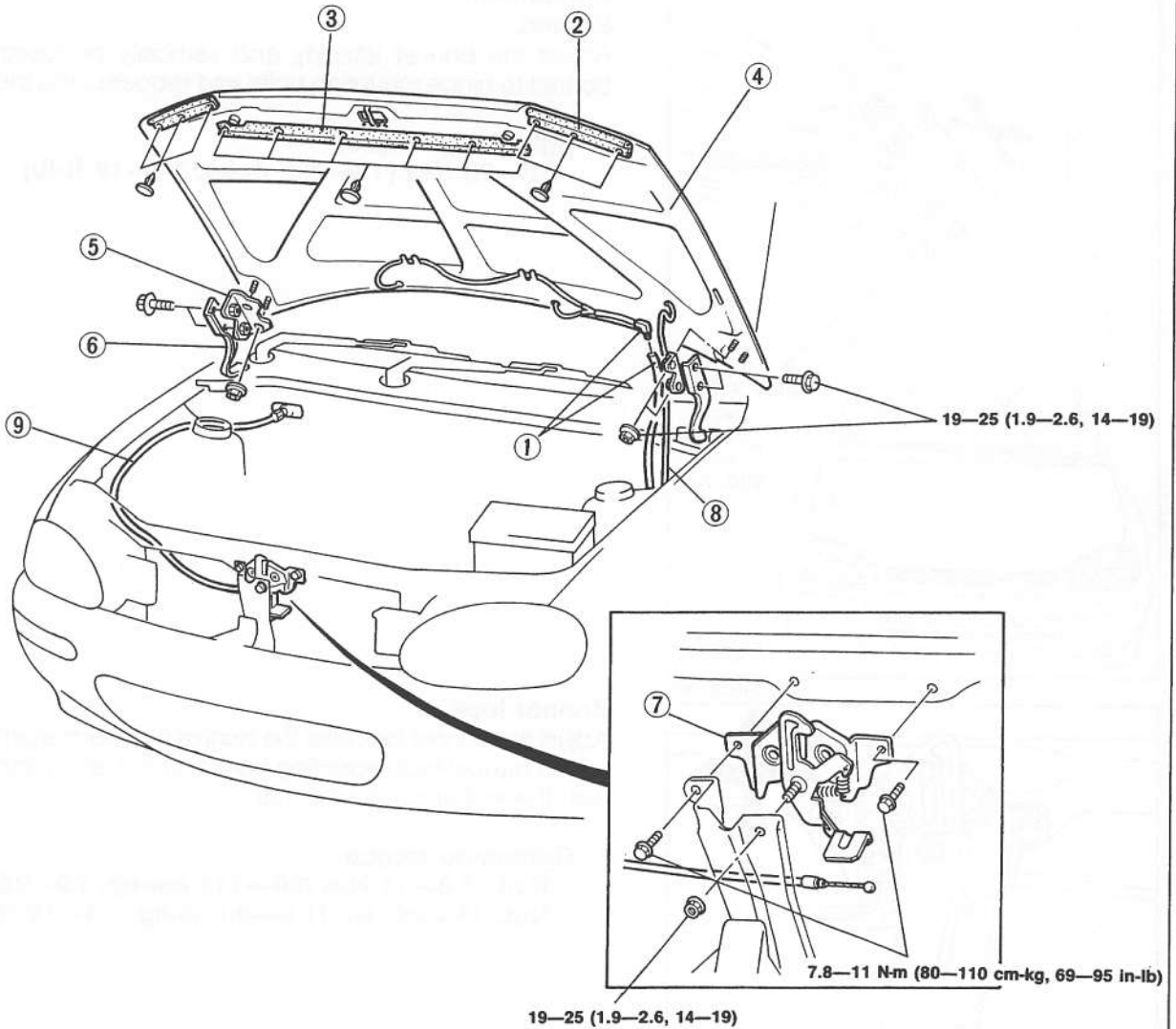
## COMPONENTS

### Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal.

### Note

- Remove the radiator grille for removal of the bonnet lock. (Refer to page S-22.)



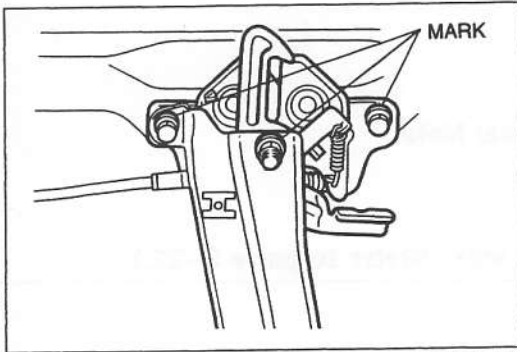
N-m (m-kg, ft-lb)

01A0SX-005

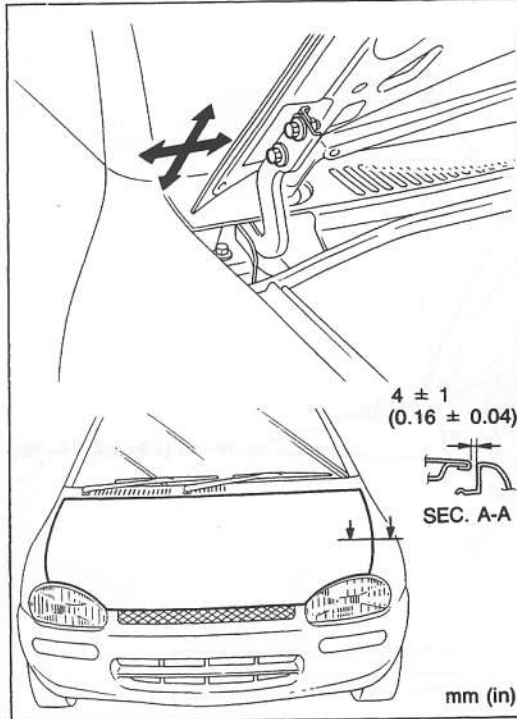
1. Washer pipe
2. Surround seal weatherstrip
3. Bonnet deflector
4. Bonnet
- Adjustment..... page S- 6
5. Bonnet hinge bracket

6. Bonnet hinge
7. Bonnet lock
- Removal Note..... page S- 6
- Adjustment..... page S- 6
8. Bonnet stay
9. Release cable

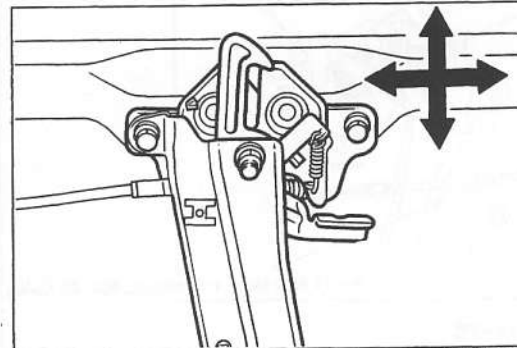




01E0SX-006



01E0SX-007



01E0SX-008

**Removal Note****Bonnet lock**

Mark around the bonnet lock mounting bolts and nut with paint for proper reassembly.

**Adjustment****Bonnet**

Adjust the bonnet laterally and vertically by loosening the bonnet-to-hinge mounting bolts and repositioning the bonnet.

**Tightening torque:**

**19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)**

**Bonnet lock**

Adjust the bonnet lock after the bonnet has been aligned. Loosen the bonnet lock mounting bolts and nut, and align the lock with the striker on the bonnet.

**Tightening torque**

**Bolt: 7.8—11 N·m (80—110 cm·kg, 69—95 in·lb)**

**Nut: 19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)**



## FRONT DOOR

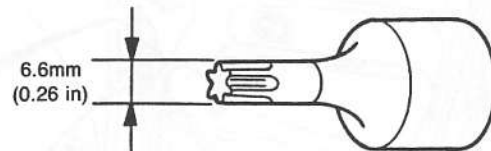
## PREPARATION

Torx tool (T40)	For installation / removal of door lock striker
-----------------	---

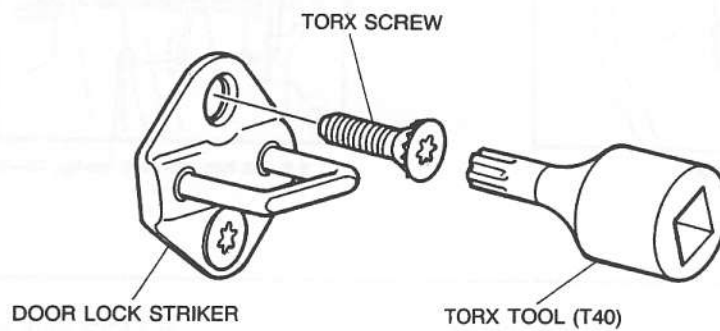
01E0SX-009

## TORX TOOL (T40)

## 1. ILLUSTRATION



## 2. LOCATION TORX TOOL MUST BE USED



95A0SX-009

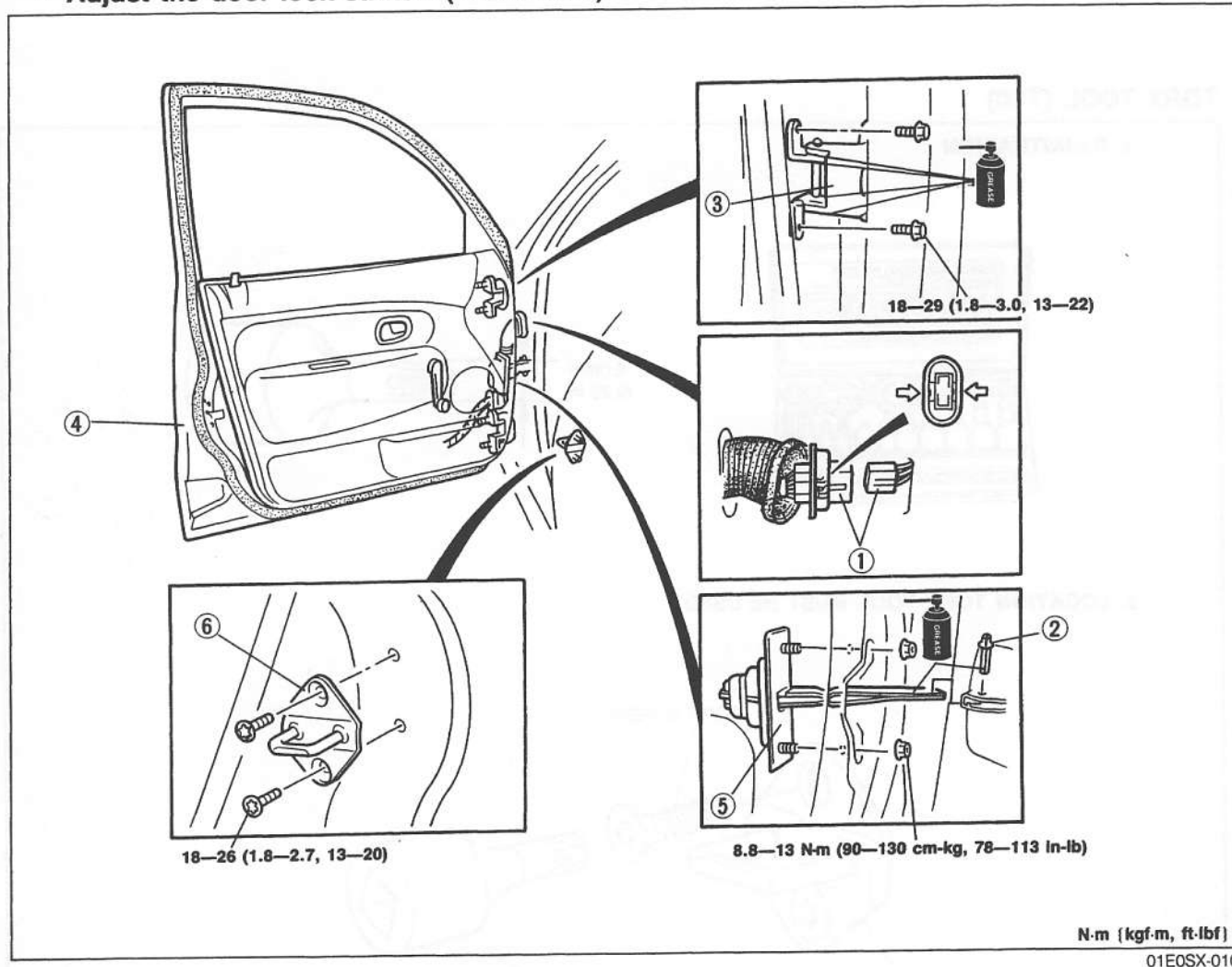
## COMPONENTS

## Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

## Note

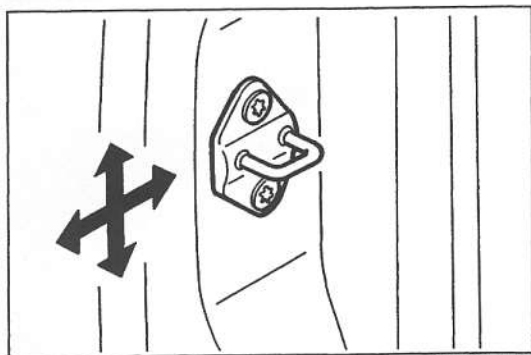
- Remove the trim and door screen for removal of the door checker. (Refer to page S-9.)
- Remove the door screen carefully so that it may be reused.
- Adjust the door lock striker. (See below.)



1. Harness connector  
(if equipped)
2. Checker pin

3. Door hinge
4. Front door
5. Checker

6. Door lock striker  
Adjustment..... below



01E0SX-185

## Adjustment

## Door lock striker

1. Verify that the door can be closed easily and that there is no looseness. If there is a problem, loosen the striker mounting screws and adjust by moving the striker horizontally and vertically.
2. Verify the rear offset of the door to the body. If there is a problem, adjust by moving the door lock striker horizontally.

## Tightening torque:

18-26 N-m (1.8-2.7 m-kg, 13-20 ft-lb)

## FRONT WINDOW REGULATOR, GLASS, AND GUIDE

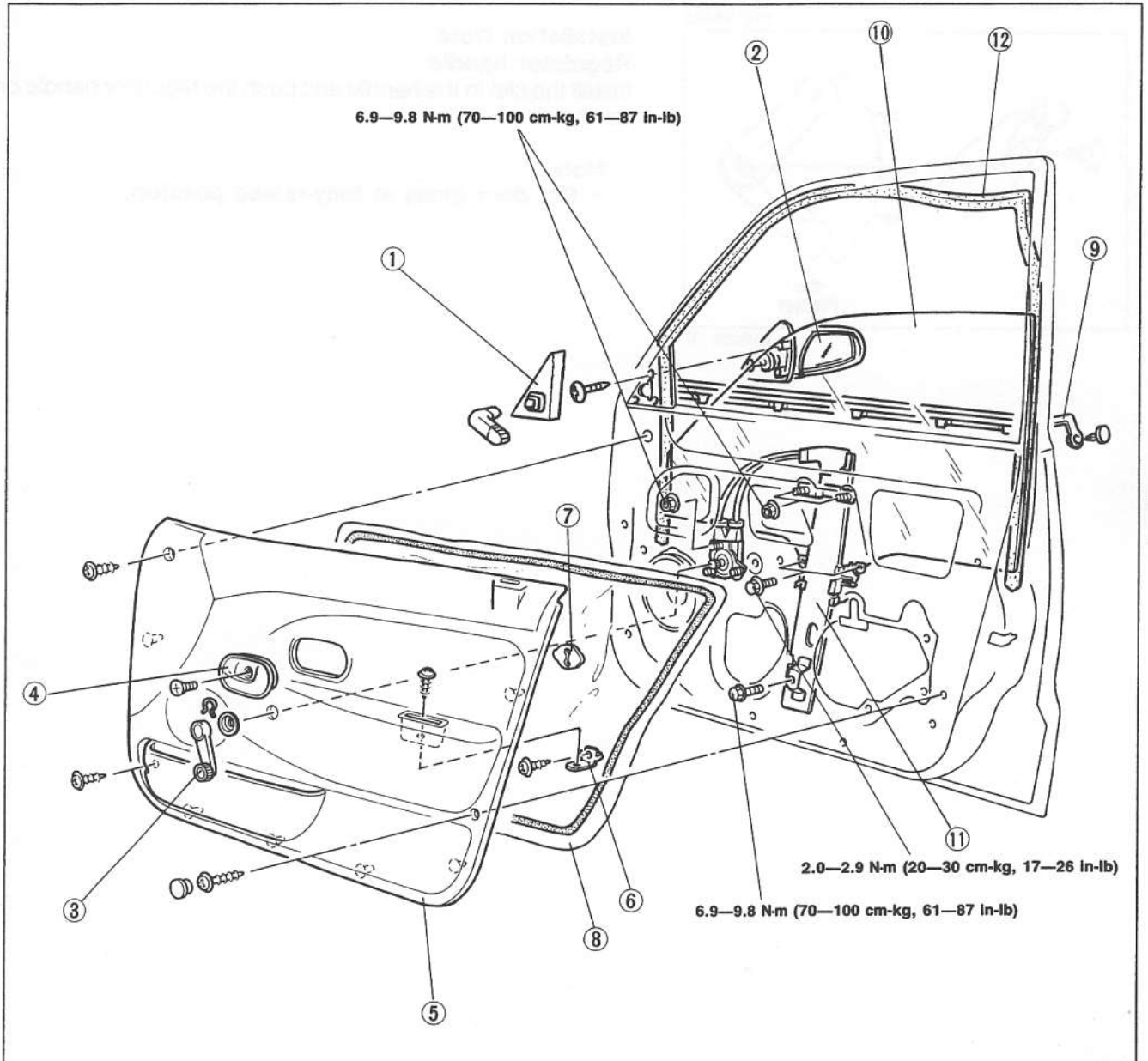
### COMPONENTS

#### Removal / Installation

1. Raise the front door glass about **100mm (3.9 in)** from the fully-lowered position.
2. Disconnect the negative battery cable.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.

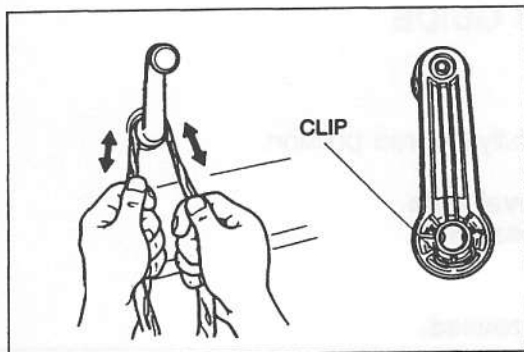
#### Caution

- Remove the door screen carefully so that it may be reused.



01A0SX-006

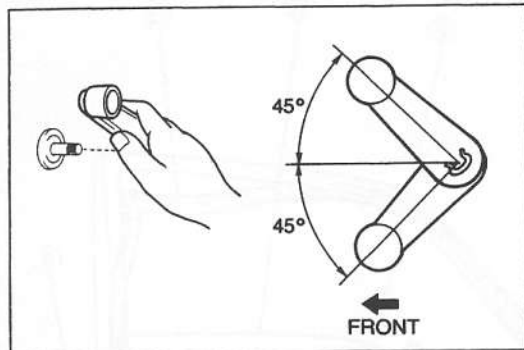
- |  |  |  |
|--|--|--|
| 1. Inner garnish<br>Removal /<br>Installation ..... page S-32                            | 4. Inner handle<br>5. Front door trim<br>Removal /<br>Installation ..... page S-64 | 9. Front beltline molding<br>Removal /<br>Installation ..... page S-24 |
| 2. Door mirror   | 6. Bracket   | 10. Front door glass   |
| 3. Regulator handle<br>Removal Note .. page S-10<br>Installation<br>Note ..... page S-10 | 7. Sealing pad<br>8. Door screen   | 11. Manual window regulator  |
|  |  | 12. Glass run channel  |



01E0SX-186

### Removal Note Regulator handle

Remove the regulator handle clip with a rag as shown.



01E0SX-187

### Installation Note Regulator handle

Install the clip in the handle and push the regulator handle on as shown.

### Note

- Set door glass at fully-raised position.

## FRONT DOOR LOCK AND OPENER

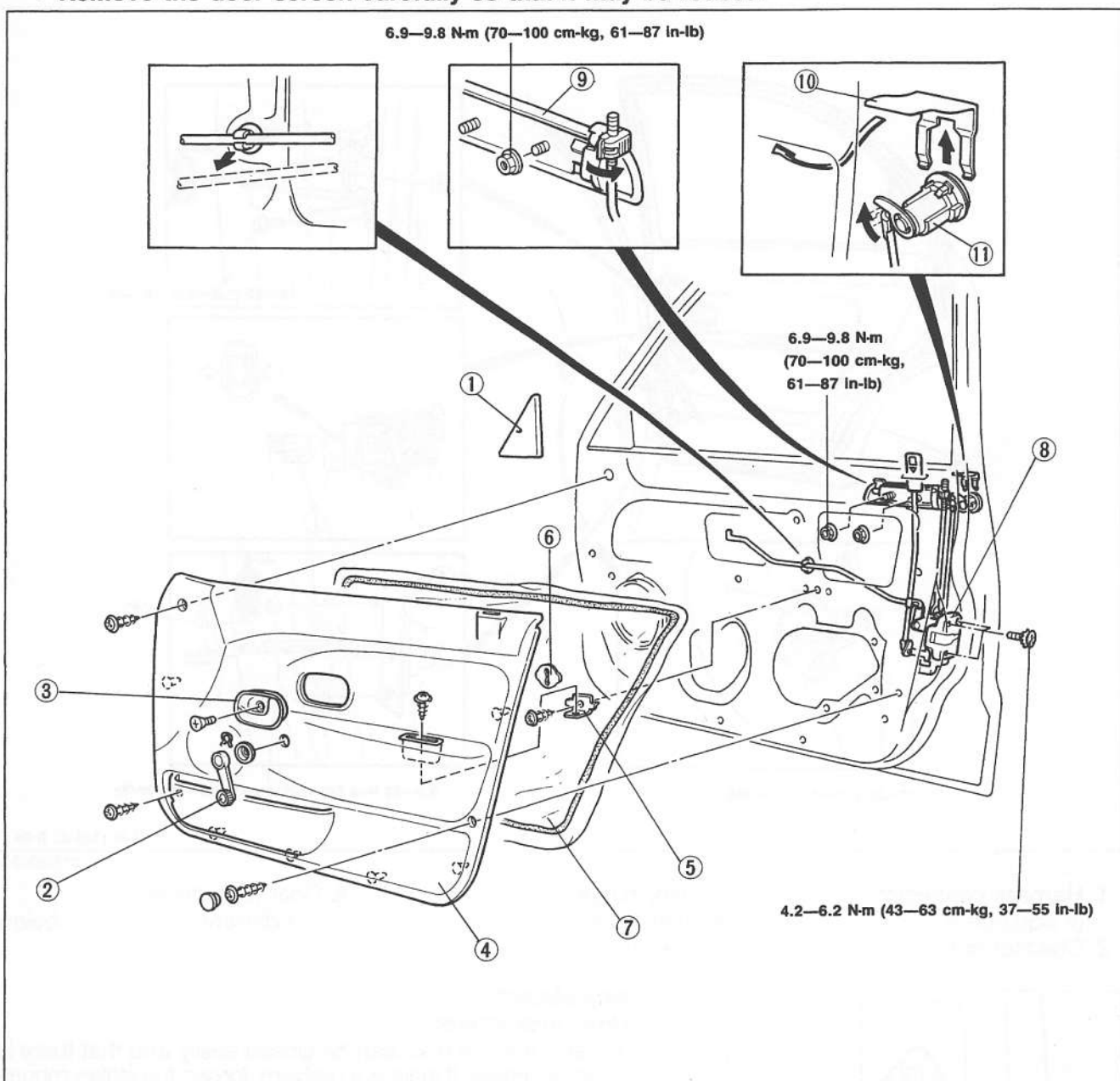
### COMPONENTS

#### Removal / Installation

1. Raise the front door glass fully.
2. Disconnect the negative battery cable.
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.

#### Caution

- Remove the door screen carefully so that it may be reused.



01A0SX-007

1. Inner garnish  
Removal /  
Installation ..... page S-32
2. Regulator handle  
Removal Note .. page S-10  
Installation Note page S-10

3. Inner handle  
Removal /  
Installation ..... page S-64
4. Front door trim  
Removal /  
Installation ..... page S-64
5. Bracket
6. Sealing pad

7. Door screen
8. Front door lock assembly
9. Outer handle
10. Lock cylinder retainer
11. Lock cylinder

## REAR DOOR

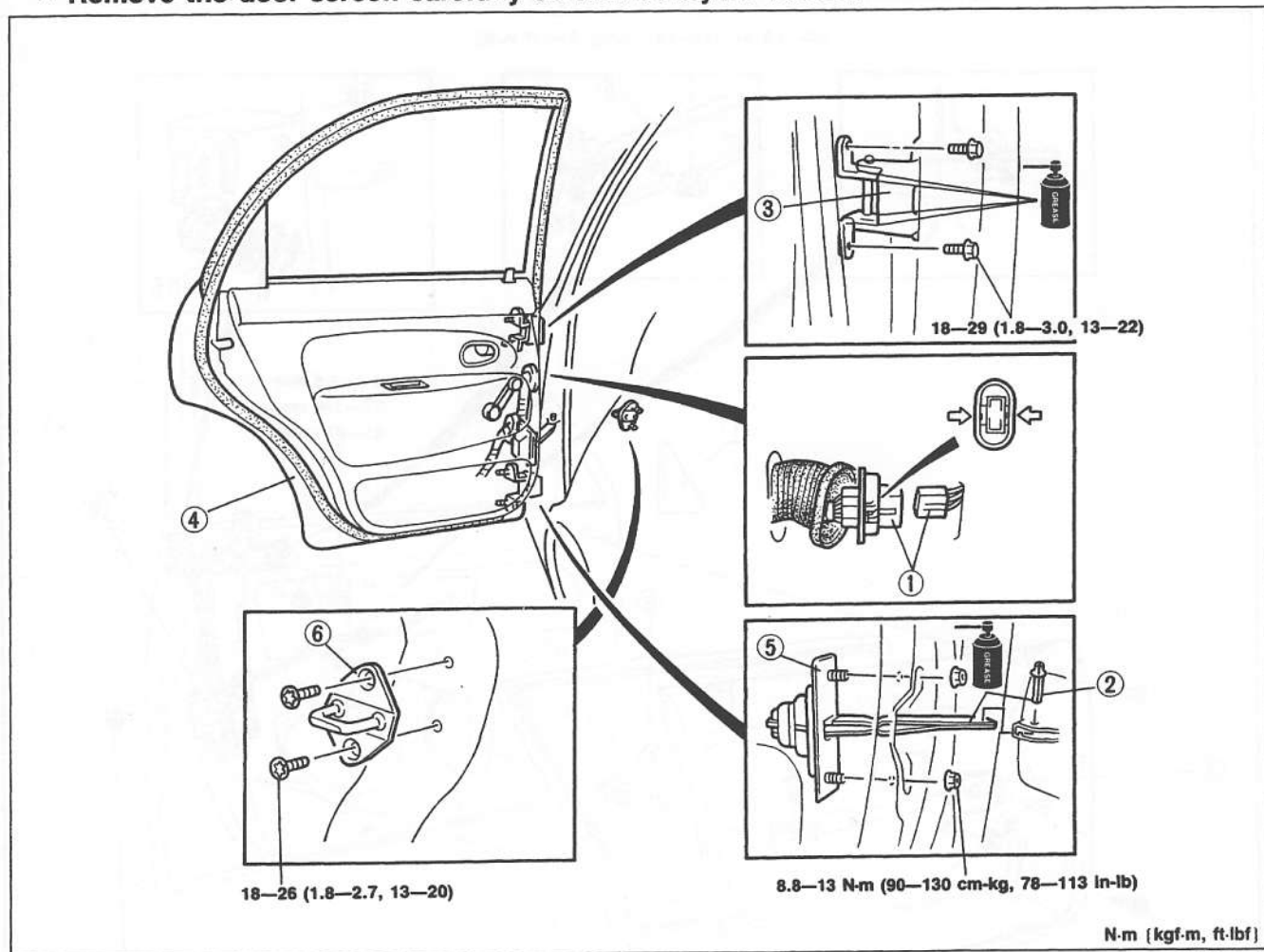
## COMPONENTS

## Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

## Note

- Remove the trim and door screen for removal of the door checker. (Refer to page S-13.)
- Remove the door screen carefully so that it may be reused.

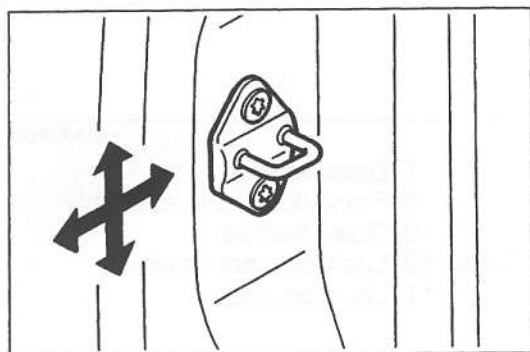


01E0SX-013

1. Harness connector (if equipped)
2. Checker pin

3. Door hinge
4. Rear door
5. Checker

6. Door lock striker  
Adjustment..... below



01E0SX-188

## Adjustment

## Door lock striker

1. Verify that the door can be closed easily and that there is no looseness. If there is a problem, loosen the striker mounting screws and adjust by moving the striker horizontally and vertically.
2. Verify the rear offset of the door to the body. If there is a problem, adjust by moving the door lock striker horizontally.

## Tightening torque:

18—26 N·m (1.8—2.7 m·kg, 13—20 ft·lb)

## REAR WINDOW REGULATOR, GLASS, AND GUIDE

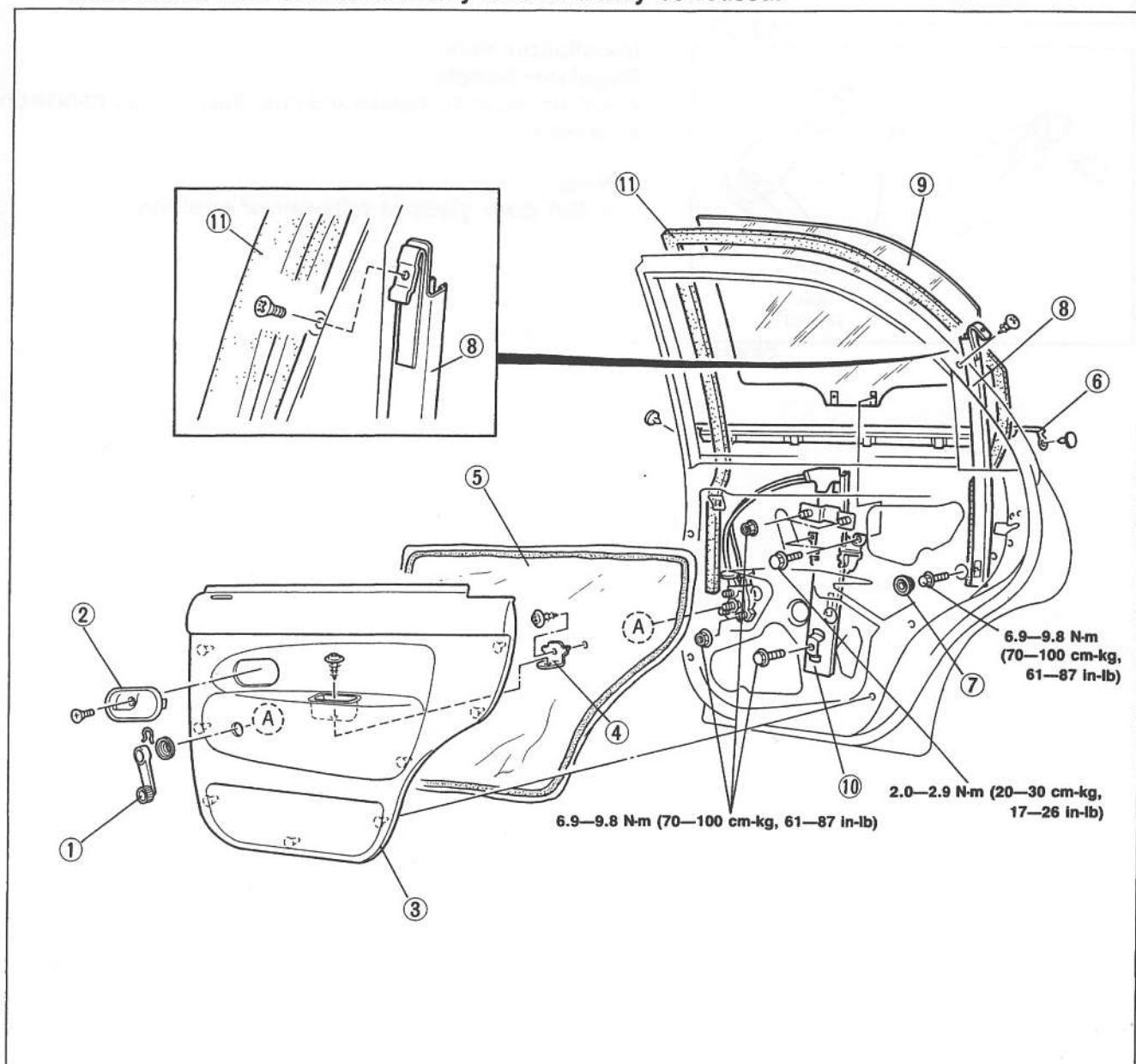
### COMPONENTS

#### Removal / Installation

1. Raise the rear door glass about **160mm (6.3 in)** from fully-lowered position.
2. Disconnect the negative battery cable.
3. Remove in the order shown in the figure, referring to **Removal Note**.
4. Install in the reverse order of removal, referring to **Installation Note**.

#### Caution

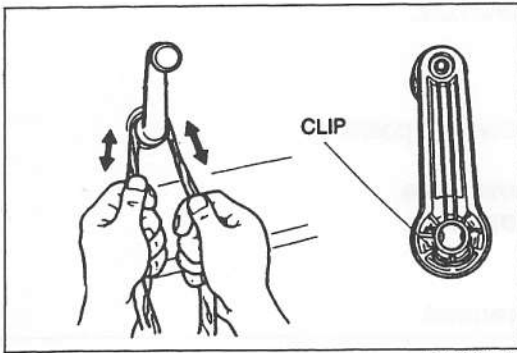
- Remove the door screen carefully so that it may be reused.



01A0SX-008

- |   |   |  |
|---|---|--|
| 1. Regulator handle<br>Removal Note... page S-14<br>Installation Note page S-14 | 4. Bracket<br>5. Sealing pad<br>6. Door screen                        | 8. Hole cover<br>9. Glass guide<br>10. Rear door glass |
| 2. Inner handle   | 7. Rear beltline molding<br>Removal /<br>Installation ..... page S-24 | 11. Manual window regulator<br>12. Glass run channel   |
| 3. Rear door trim<br>Removal /<br>Installation ..... page S-64                  |   |  |

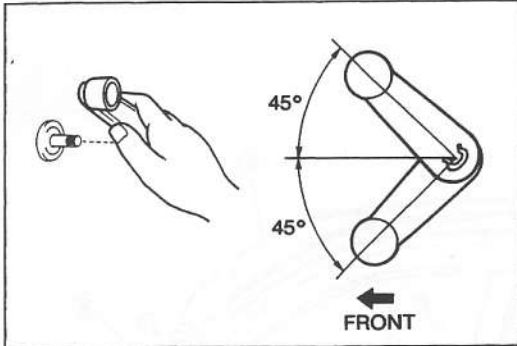




01E0SX-189

### Removal Note Regulator handle

Remove the regulator handle clip with a rag as shown.



01E0SX-190

### Installation Note Regulator handle

Install the clip in the handle and push the regulator handle on as shown.

### Note

- Set door glass at fully-raised position.

## REAR DOOR LOCK AND OPENER

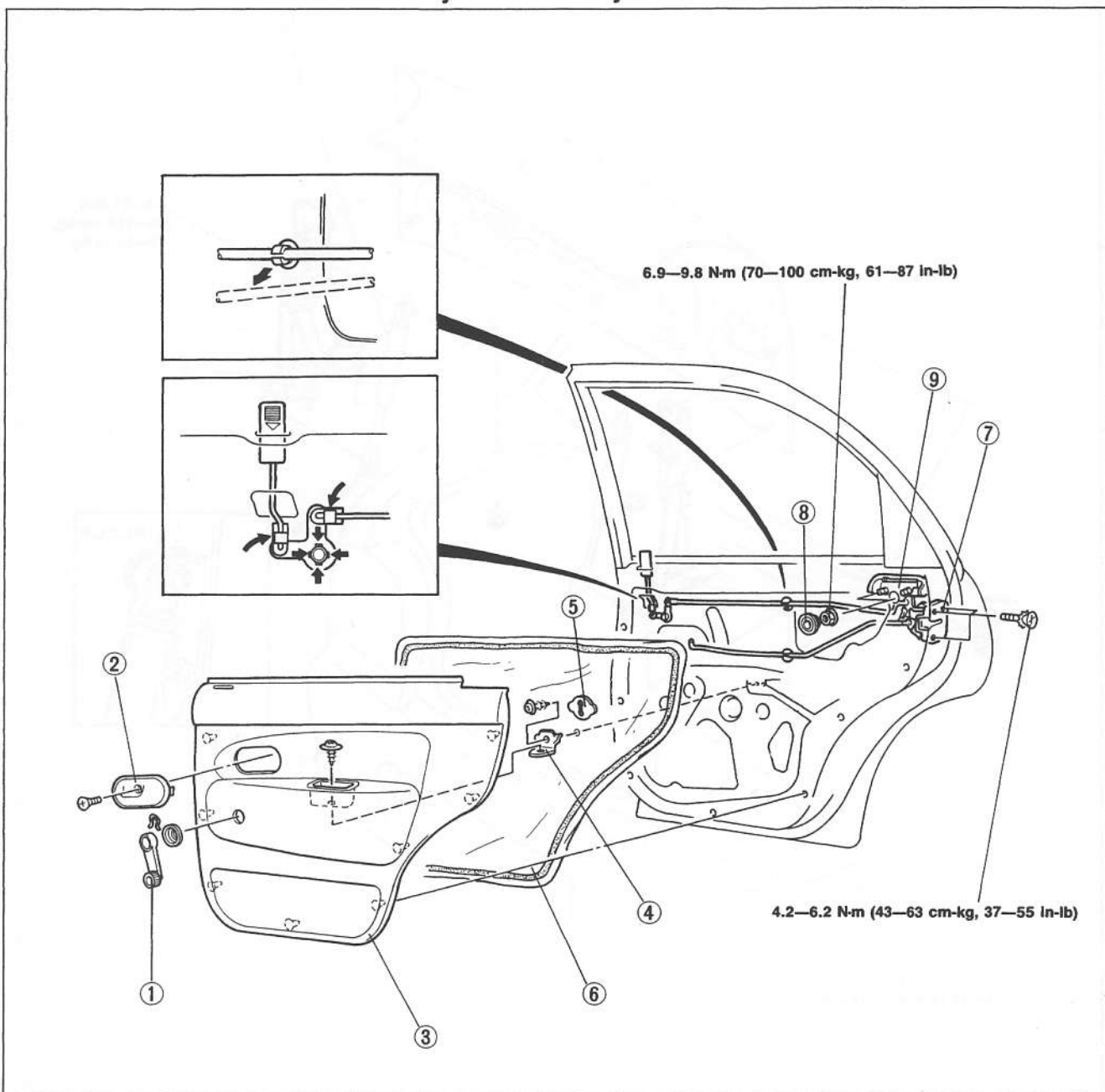
### COMPONENTS

#### Removal / Installation

1. Raise the rear door glass fully.
2. Disconnect the negative battery cable.
3. Remove in the order shown in the figure.
4. Install in the reverse order of removal.

#### Caution

- Remove the door screen carefully so that it may be reused.



01A0SX-009

1. Regulator handle  
Removal Note .. page S-14  
Installation Note page S-14
2. Inner handle

3. Rear door trim  
Removal /  
Installation ..... page S-64
4. Bracket
5. Sealing pad

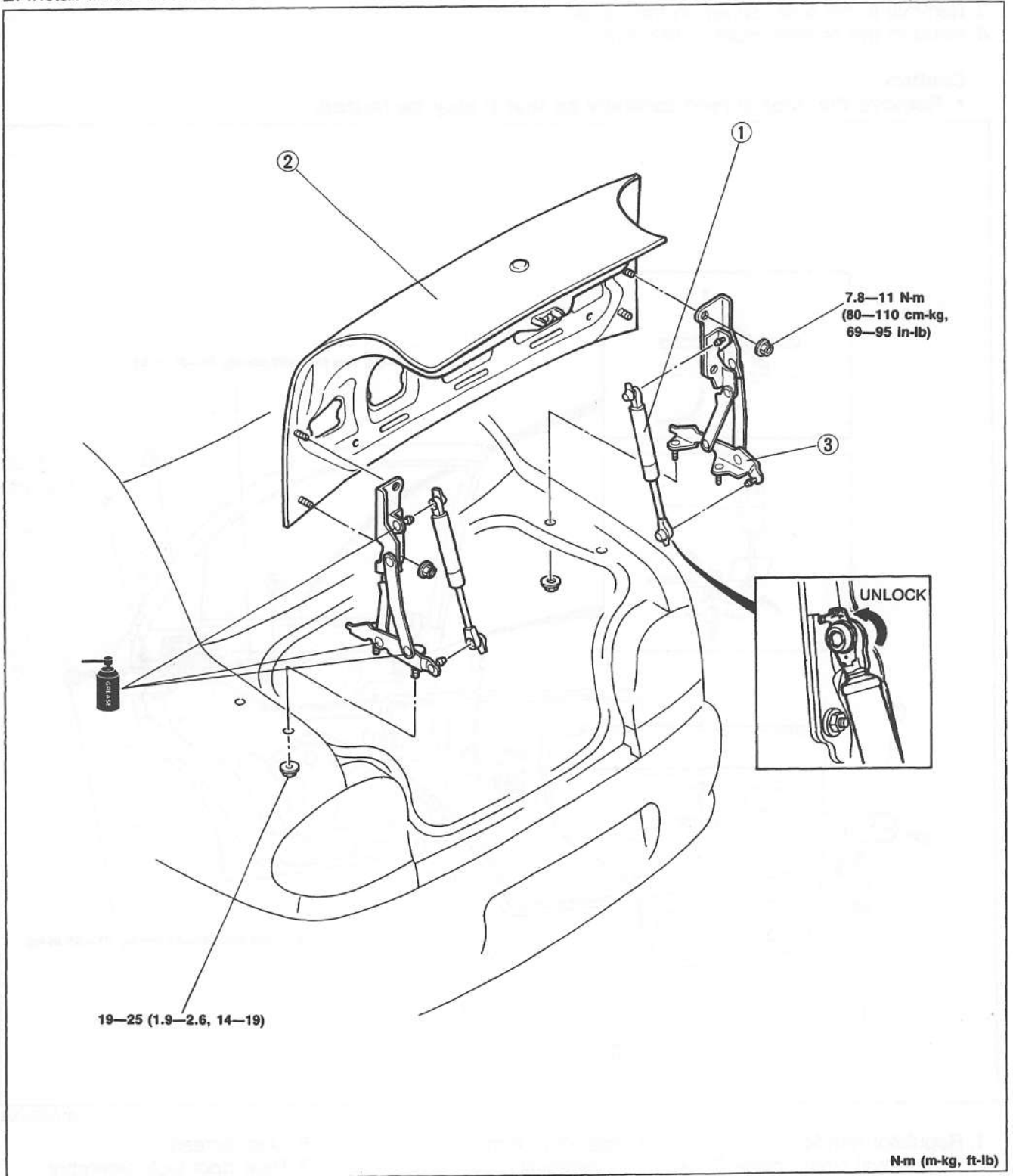
6. Door screen
7. Rear door lock assembly
8. Hole cover
9. Outer handle

## TRUNK LID

## COMPONENTS

## Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



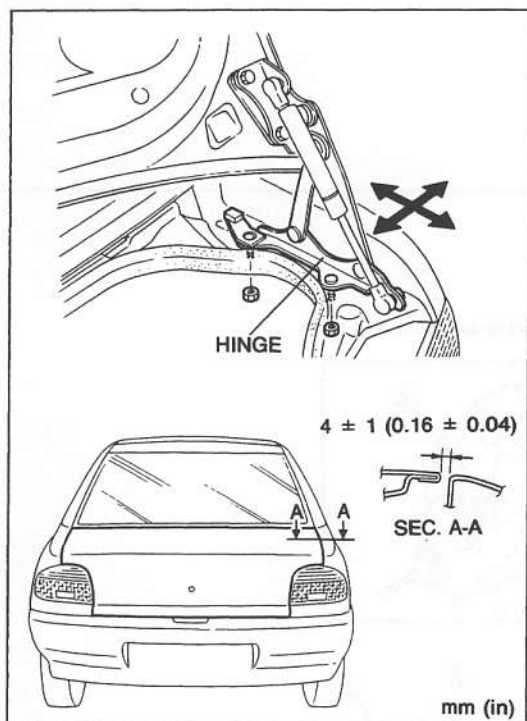
01E0SX-016

1. Stay damper

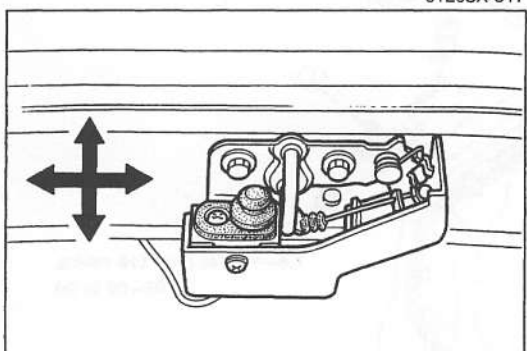
2. Trunk lid  
Adjustment ..... page S-17

3. Trunk lid hinge

## TRUNK LID



01E0SX-017



01E0SX-018

### Adjustment

#### Trunk lid

Loosen the trunk lid hinge mounting nuts and adjust as shown.

#### Tightening torque:

19—25 N·m (1.9—2.6 m·kg, 14—19 ft·lb)

### Trunk lid striker

Adjust the trunk lid striker after the trunk lid has been aligned. Loosen the trunk lid striker mounting bolts and align the striker with the lock assembly.

#### Tightening torque:

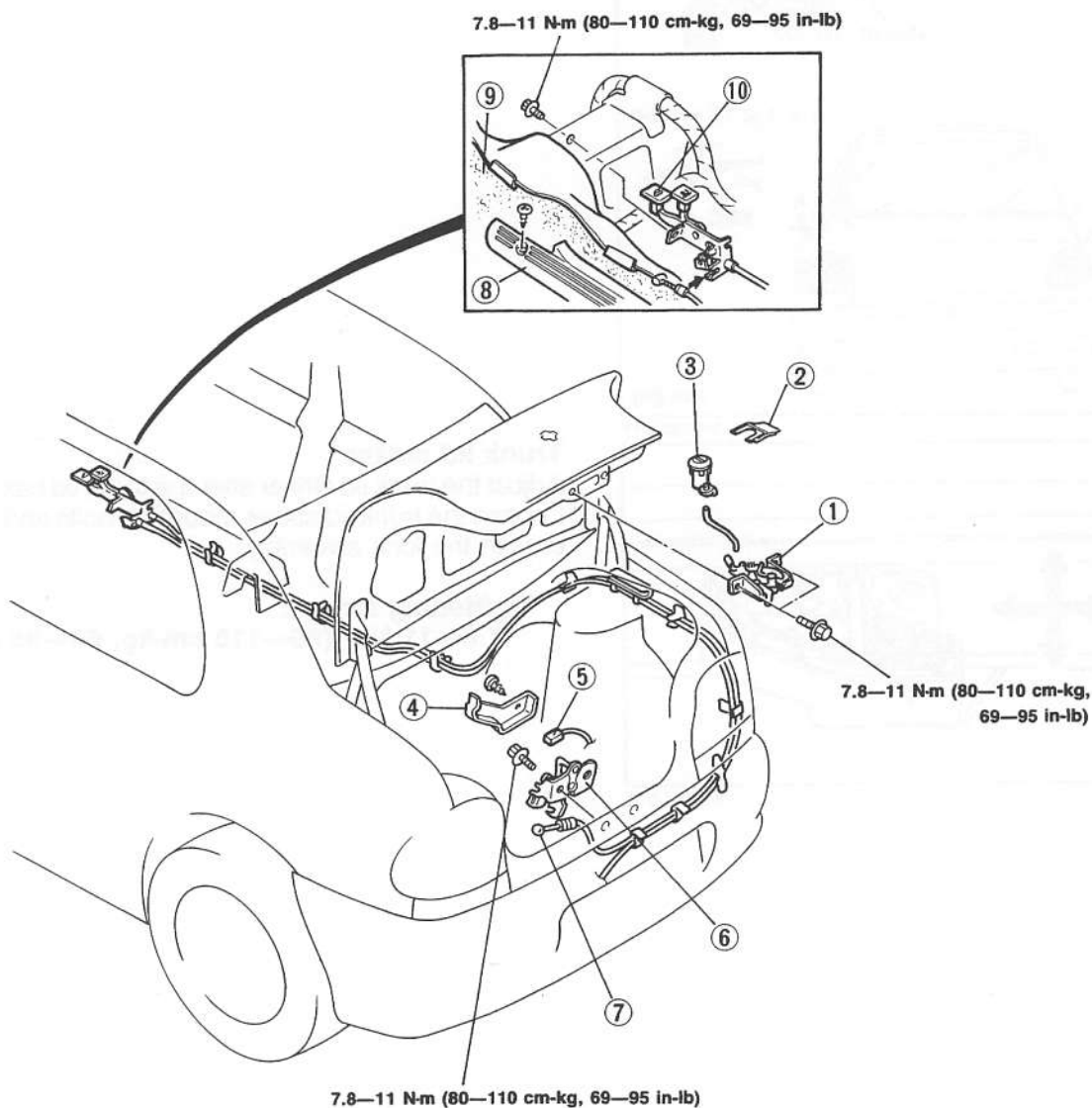
7.8—11 N·m (80—110 cm·kg, 69—95 in·lb)

## TRUNK LID LOCK AND OPENER

## COMPONENTS

## Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



01A0SX-010

**Trunk lid lock**

1. Trunk lid lock
2. Retainer
3. Lock cylinder

**Trunk lid striker**

4. Lock protector
5. Trunk compartment lamp connector
6. Trunk lid striker  
Adjustment ..... page S-17
7. Opener cable

**Opener lever**

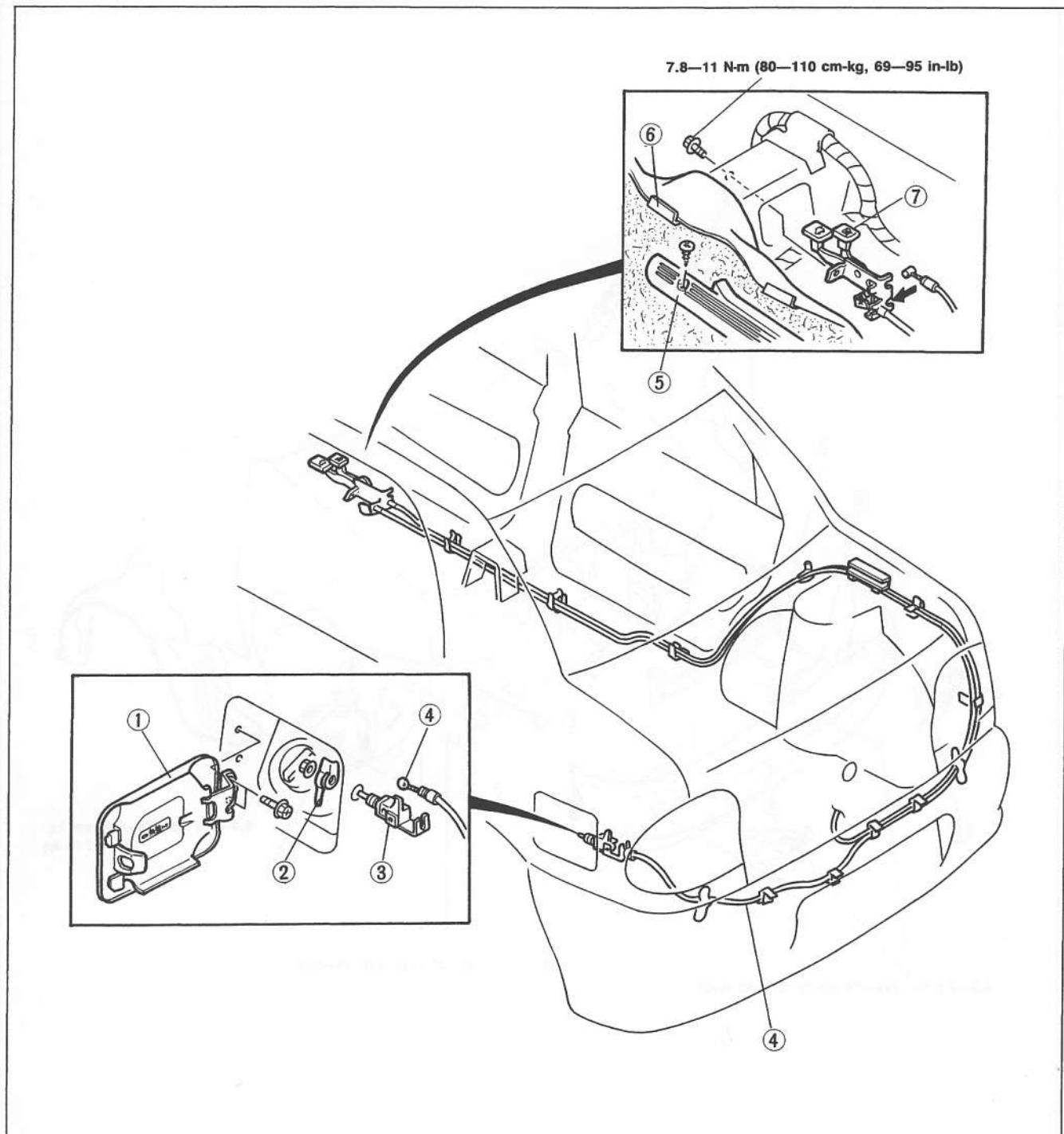
8. Front scuff plate  
Removal /  
Installation ..... page S-64
9. Floor mat
10. Opener lever

## FUEL-FILLER LID AND OPENER

### COMPONENTS

#### Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



01A0SX-011

#### Filler lid

1. Filler lid

#### Filler lid opener

2. Lift spring
3. Filler lid opener
4. Opener cable

#### Opener lever

5. Front scuff plate

Removal / Installation ..... page S-64

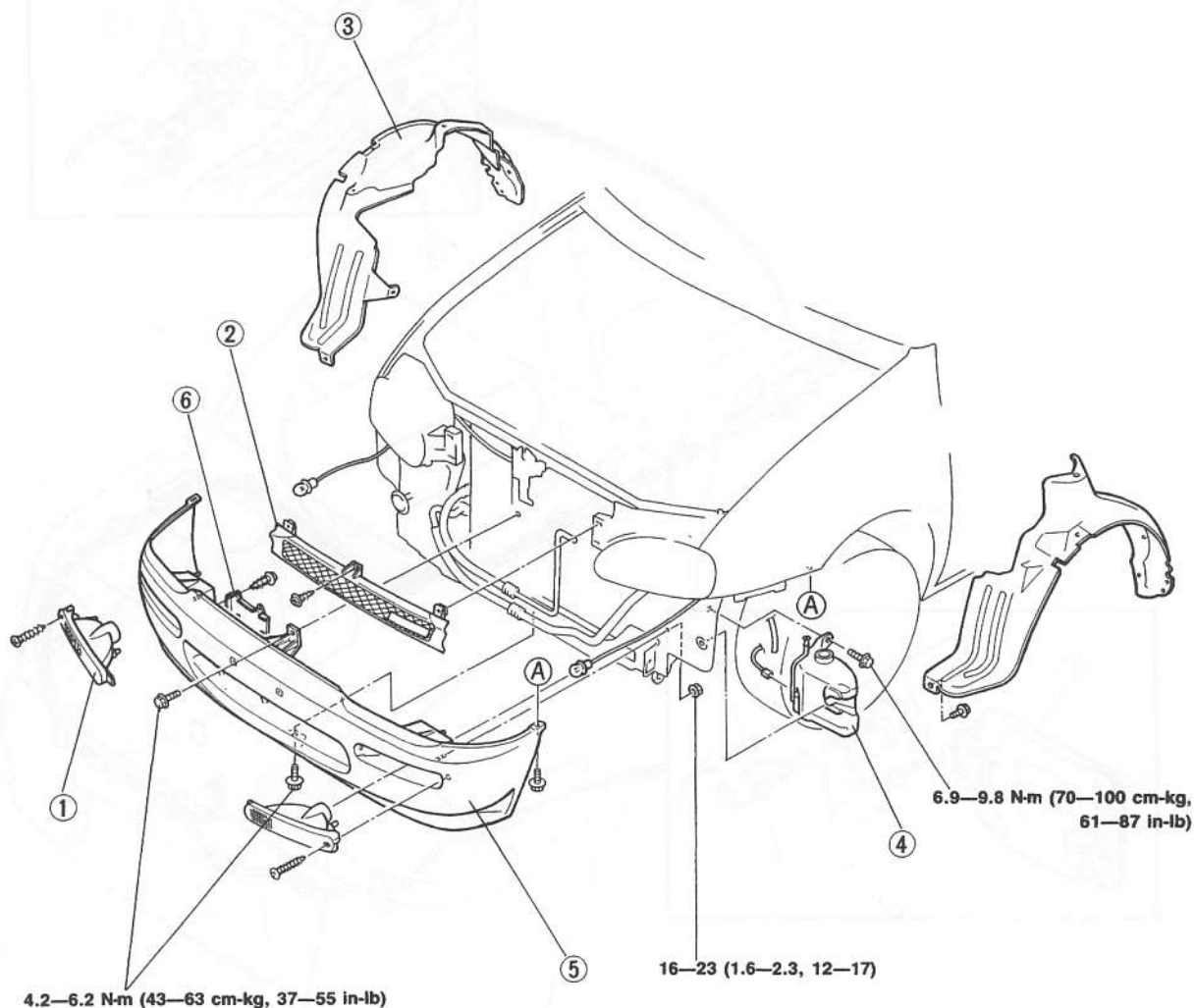
6. Floor mat
7. Opener lever

## FRONT BUMPER

## COMPONENTS

## Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



N·m (m·kg, ft·lb)

01A0SX-012

1. Front combination light  
Removal / Installation ..... Section T
2. Radiator grille  
Removal / Installation ..... page S-22
3. Mud guard

4. Washer tank  
Removal / Installation ..... page S-38
5. Front bumper
6. Bumper cover

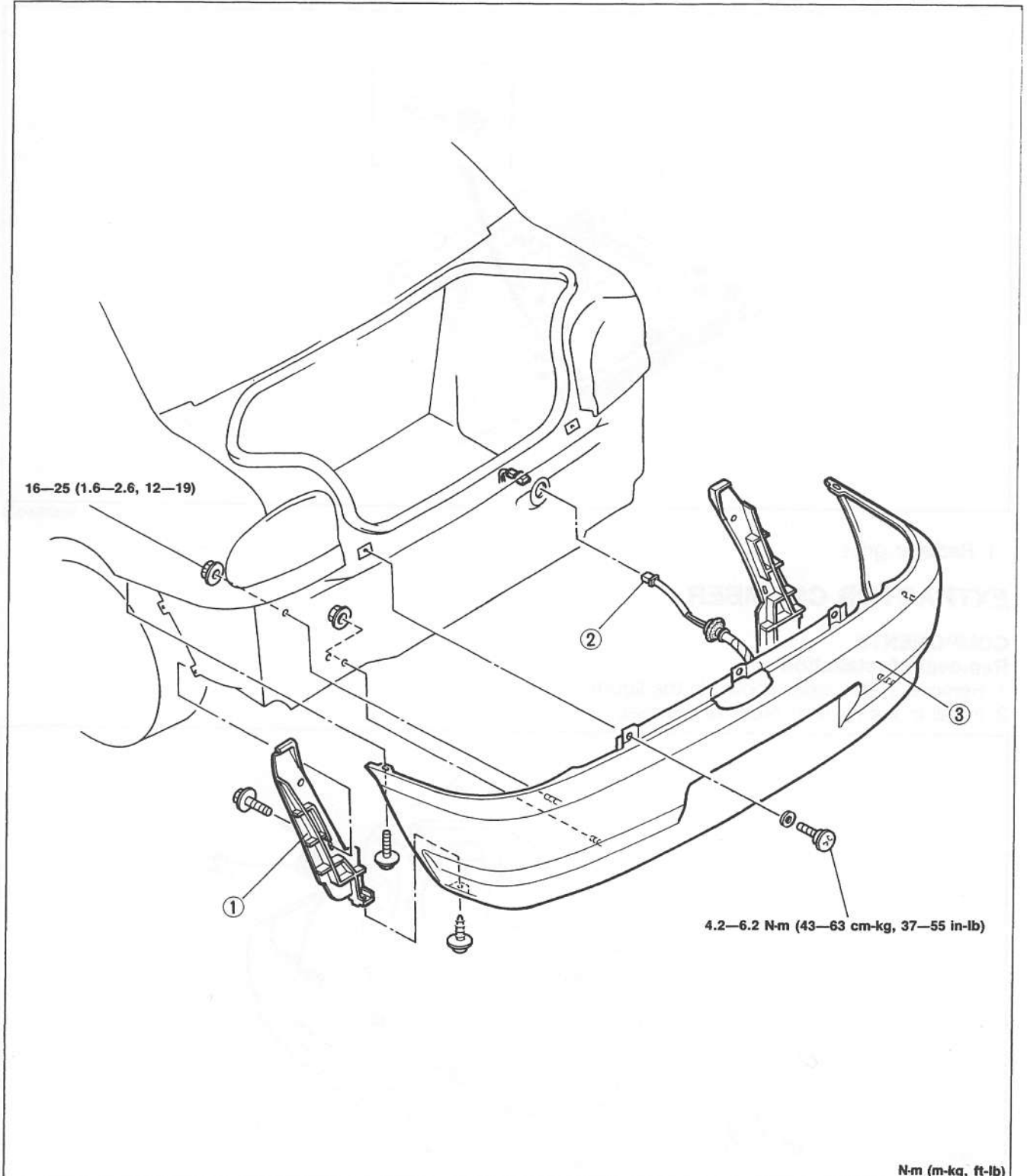


## REAR BUMPER

### COMPONENTS

#### Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



N·m (m·kg, ft·lb)

01E0SX-037

1. Splash shield
2. License light connector

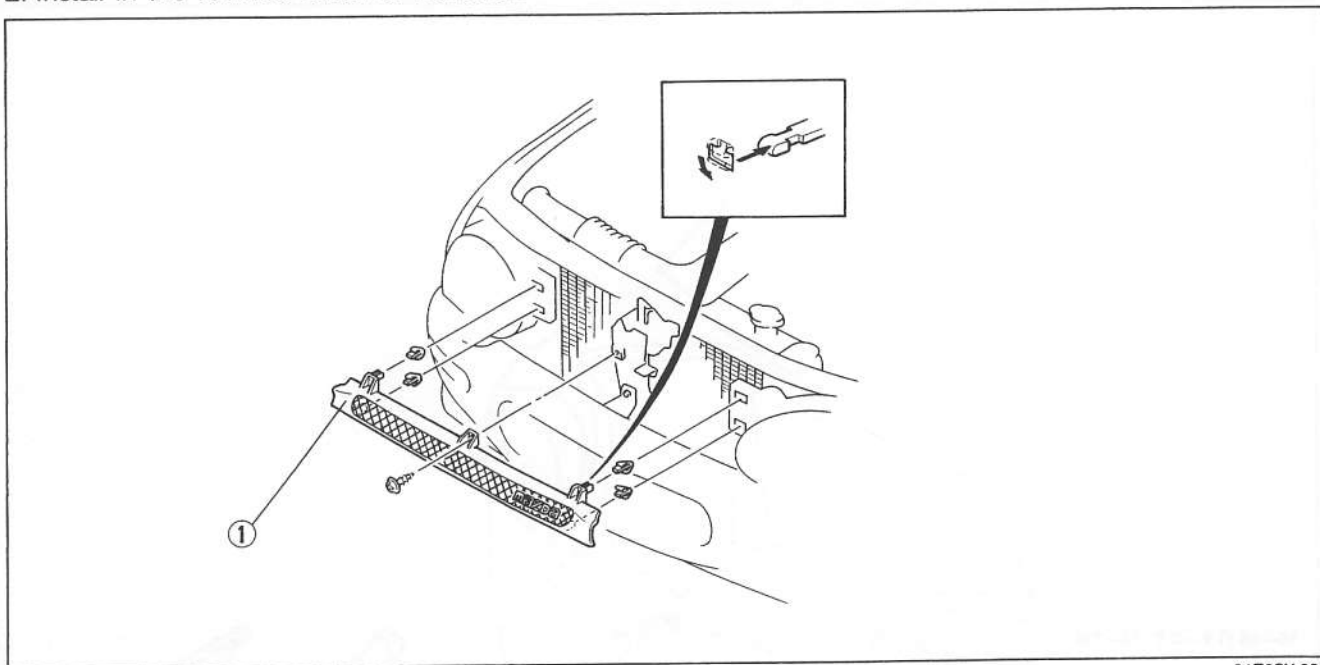
3. Rear bumper

## RADIATOR GRILLE

### COMPONENTS

#### Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



01E0SX-038

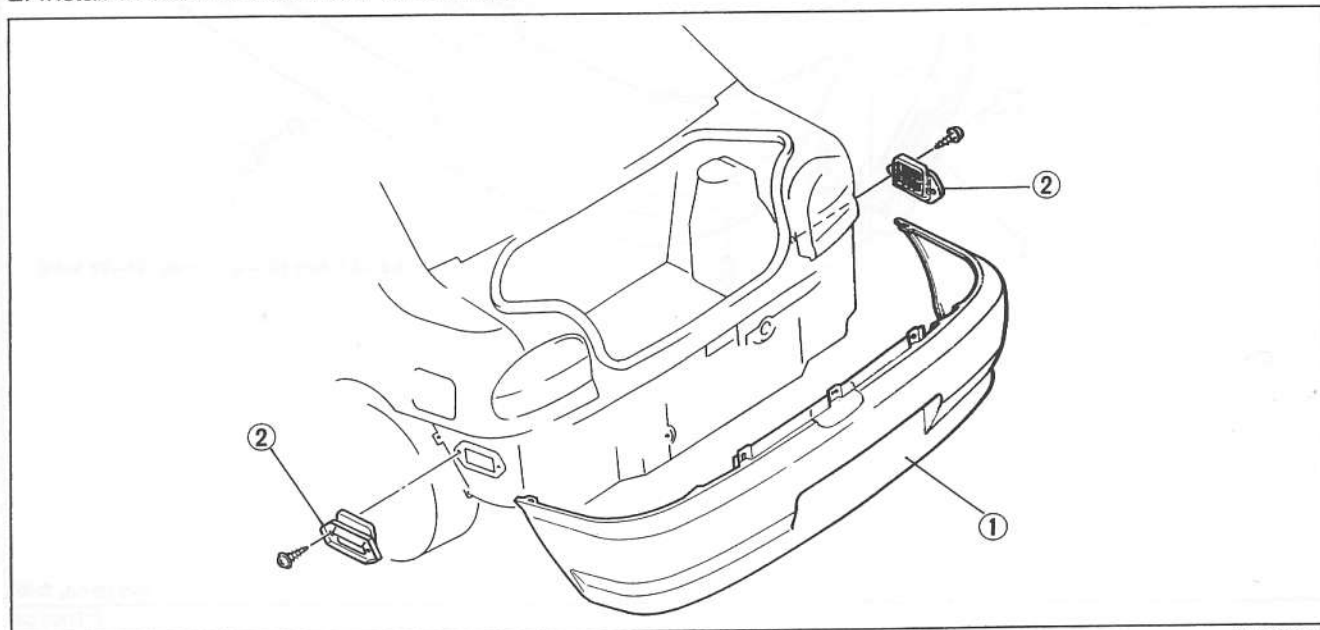
1. Radiator grille

## EXTRACTOR CHAMBER

### COMPONENTS

#### Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



01A0SX-013

1. Rear bumper  
Removal / Installation ..... page S-21

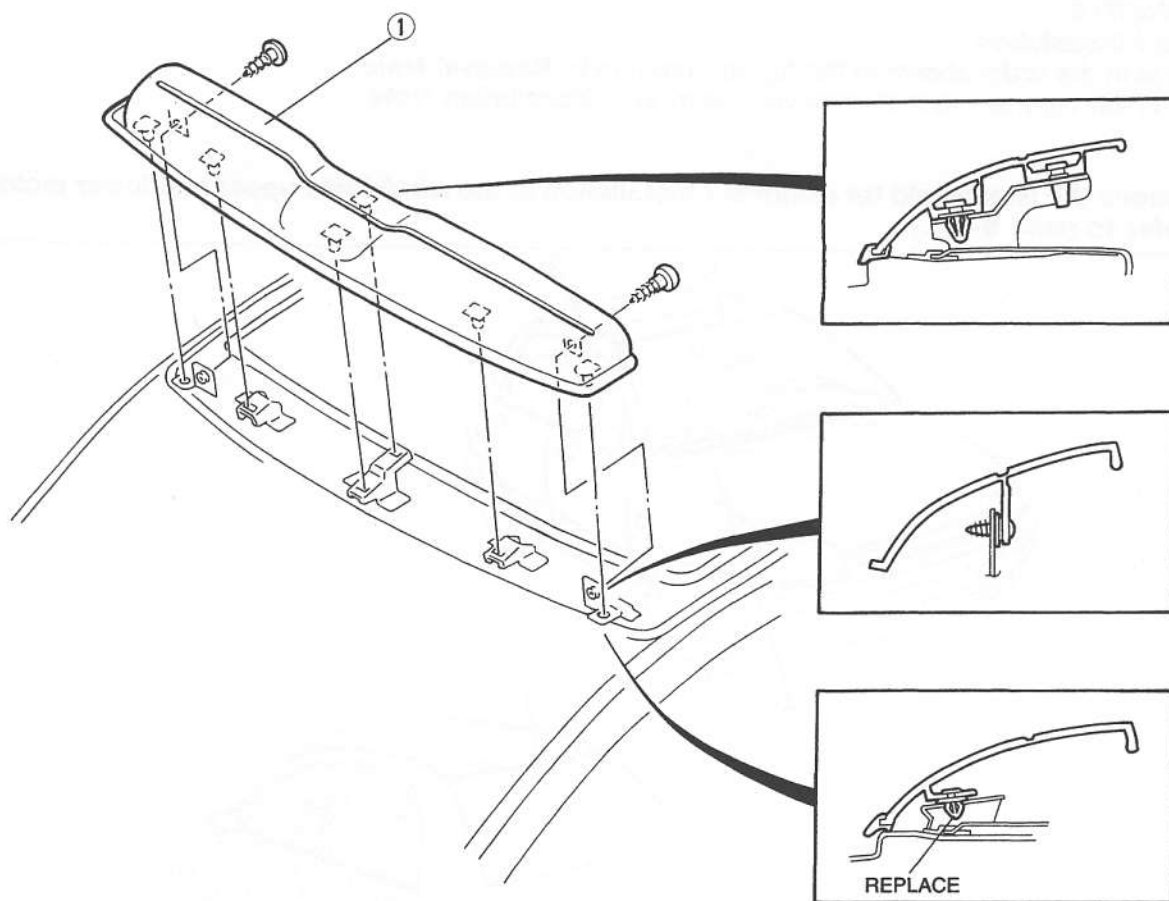
2. Extractor chamber

## ROOF DEFLECTOR

### COMPONENTS

#### Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.





01E0SX-040

1. Roof deflector

## MOLDING

## PREPARATION

## SST

49 0305 870A Tool set, window 	For installation of rear window upper molding	49 G050 1A0 Remover, sealant 	For removal of sealant
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01E0SX-042

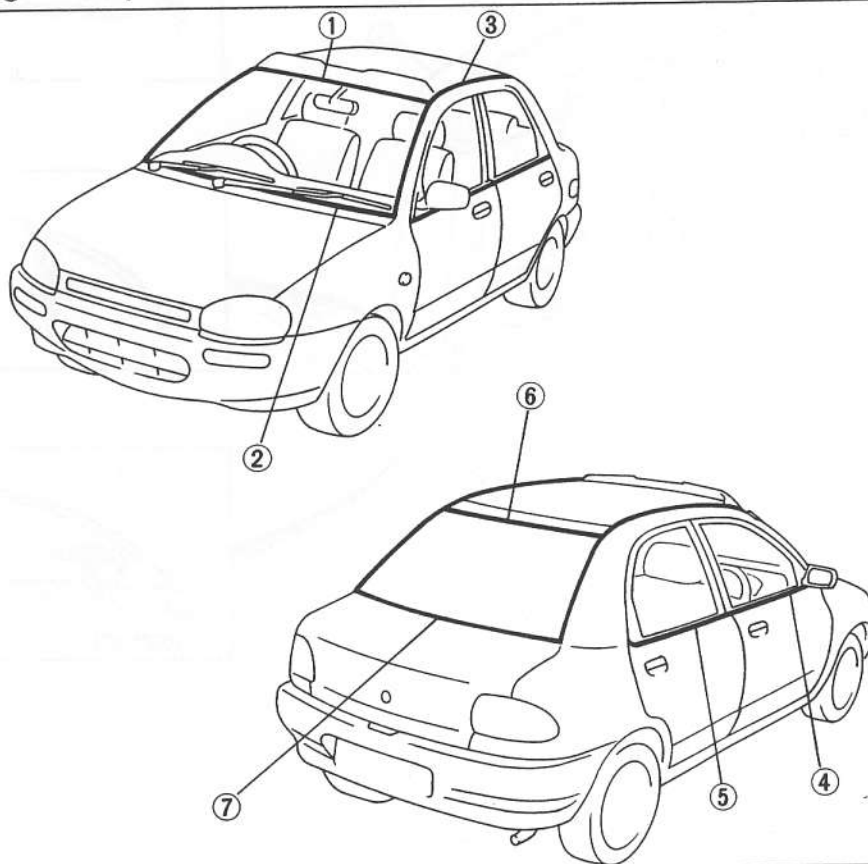
## COMPONENTS

## Removal / Installation

1. Remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal, referring to **Installation Note**.

## Note

- Remove the windshield for removal / installation of the windshield upper and lower molding.  
(Refer to page S-41.)



01A0SX-014

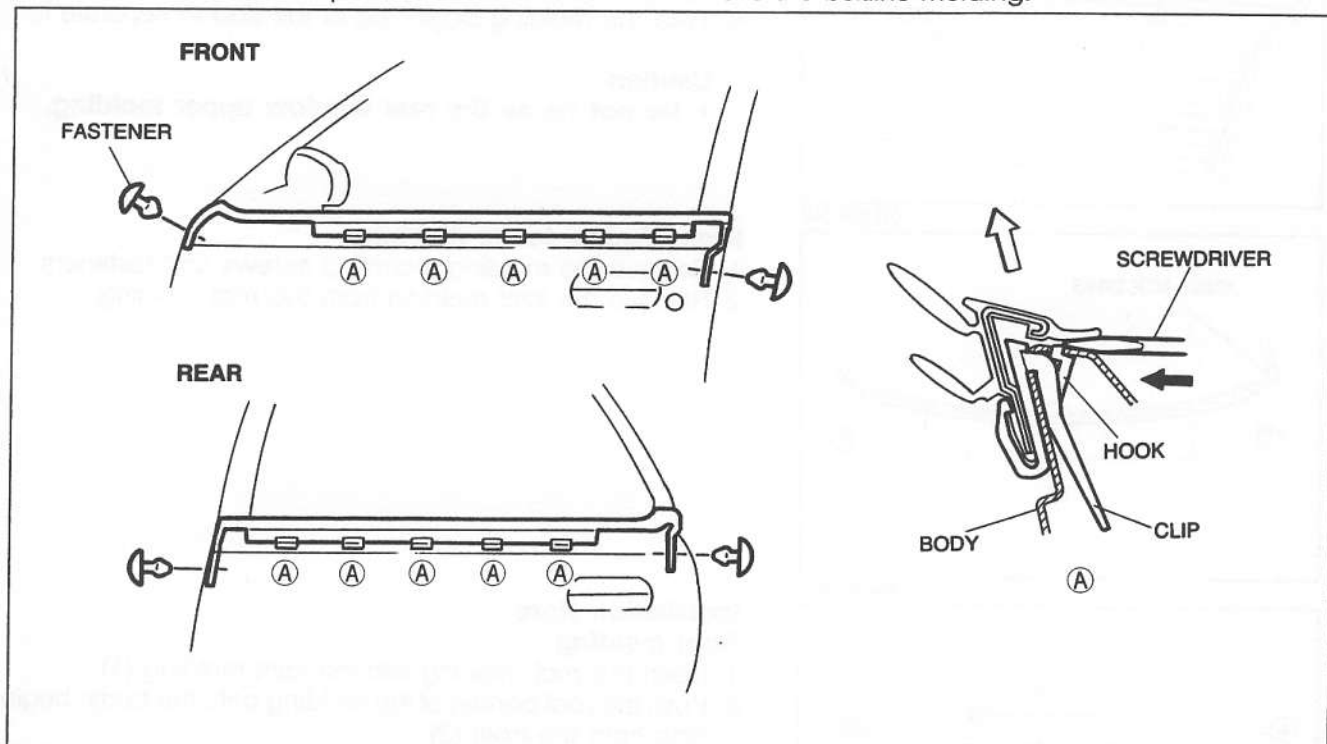
1. Windshield upper molding  
Removal / Installation ..... page S-41
2. Windshield lower molding  
Removal / Installation ..... page S-41
3. Roof molding  
Removal Note ..... page S-25  
Installation Note ..... page S-26
4. Front beltline molding  
Removal Note ..... page S-25

5. Rear beltline molding  
Removal Note ..... page S-25
6. Rear window upper molding  
Removal Note ..... page S-26  
Installation Note ..... page S-26
7. Rear window lower molding  
Removal Note ..... page S-26

## Removal Note

### Front and rear beltline molding

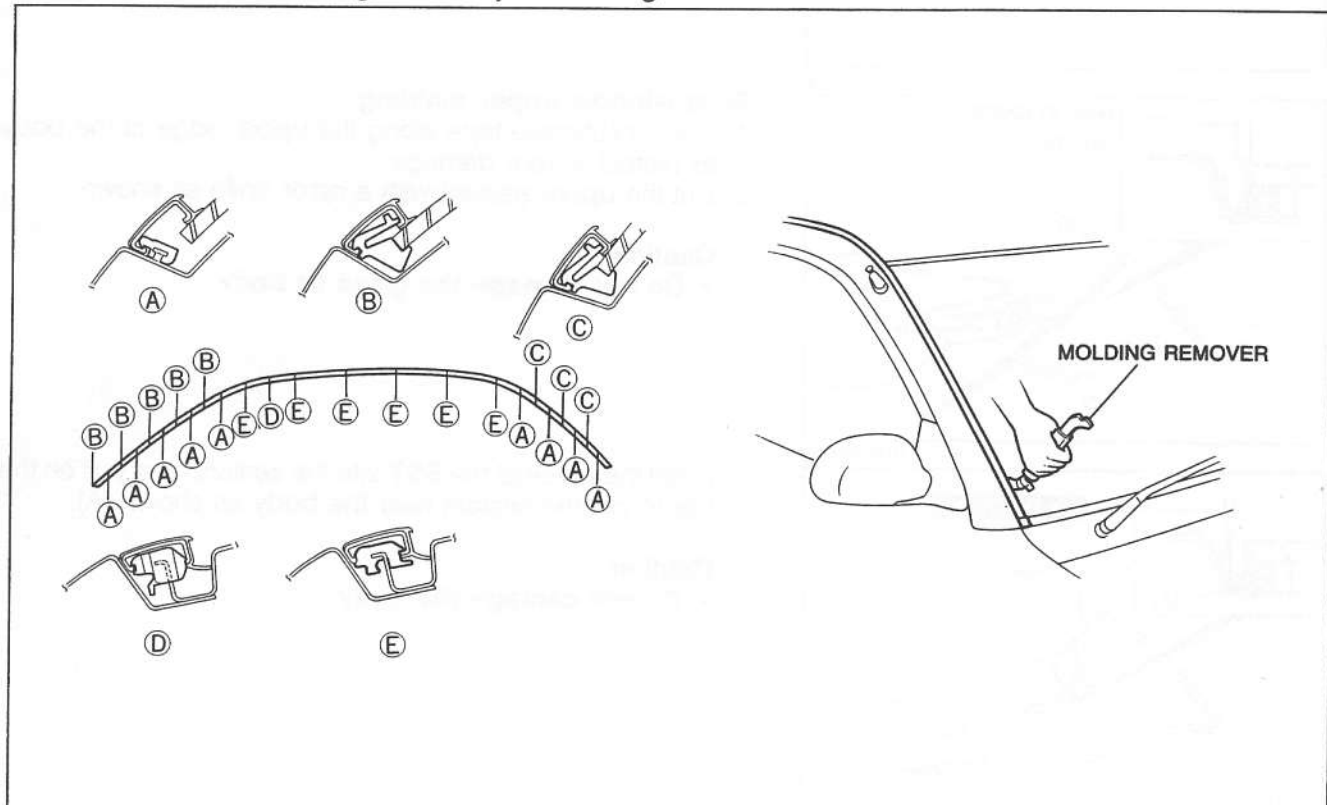
1. Remove the door mirror. (Refer to page S-32.)
2. Remove the beltline molding mounting fasteners.
3. Push the hook with a protected screwdriver and remove the beltline molding.



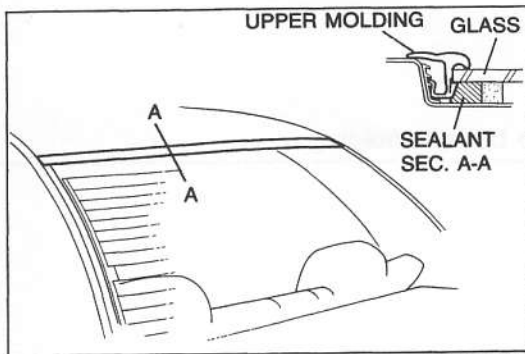
01A0SX-015

## Roof molding

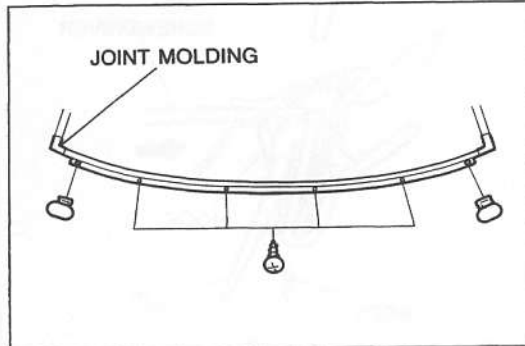
1. Remove the roof molding from the body with a protected molding remover.
2. Remove the roof molding from the joint molding.



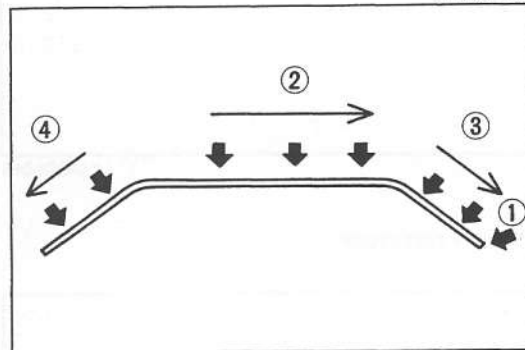
01E0SX-045



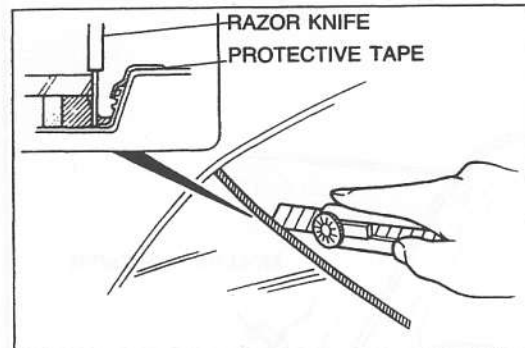
01E0SX-046



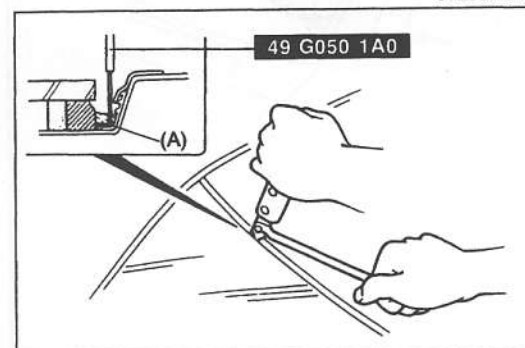
01E0SX-047



01E0SX-048



01E0SX-049



01E0SX-191

### Rear window upper molding

1. Remove the rear window lower molding. (see below)
2. Remove the roof molding at the C-pillars.
3. The upper molding is adhered to the rear window by sealant as shown.
4. Twist the molding beginning at the end to separate it.

#### Caution

- Do not reuse the rear window upper molding.

### Rear window lower molding

1. Remove the molding mounting screws and fasteners.
2. Remove the joint molding from the roof molding.

### Installation Note

#### Roof molding

1. Insert the roof molding into the joint molding (1).
2. Push the roof portion of the molding onto the body, beginning from the front (2).
3. Push the rear portion of the molding onto the body, beginning from the top (3).
4. Push the front portion of the molding onto the body, beginning from the top (4).

### Rear window upper molding

1. Apply protective tape along the upper edge of the body to protect it from damage.
2. Cut the upper sealant with a razor knife as shown.

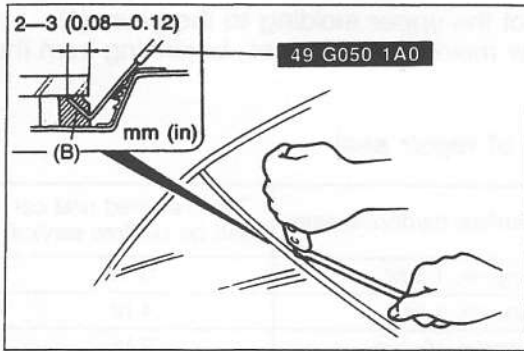
#### Caution

- Do not damage the glass or body.

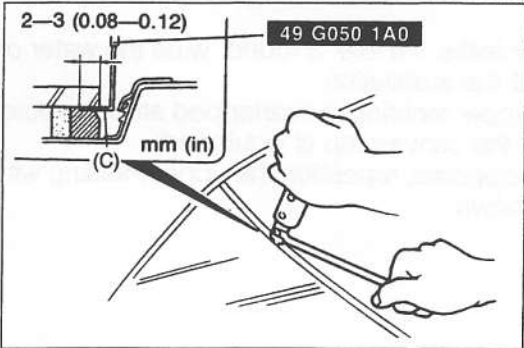
3. Insert the blade of the **SST** into the sealant, and pull on the bar to cut the sealant near the body as shown (A).

#### Caution

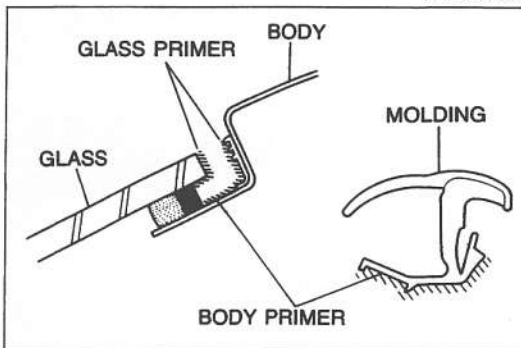
- Do not damage the body.



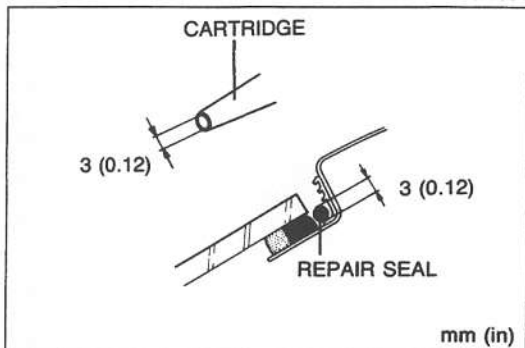
01E0SX-192



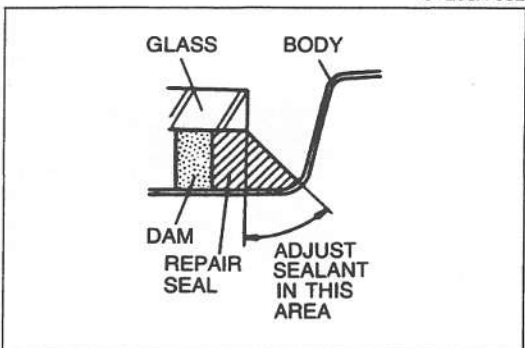
01E0SX-050



01E0SX-051



01E0SX-052



01E0SX-053

4. Insert the blade of the **SST** into the sealant, and pull on the bar to cut the sealant near the glass as shown (B).

## Caution

- Do not damage the glass.

5. Cut the sealant near the glass (C).

## Caution

- Do not damage the glass or body.

6. Remove as much sealant as possible from between the body and glass.
7. Carefully clean around the edge of the glass and the adhesion surface at the body.

8. Apply primer with a brush to the bonding area of the glass, the body and the new rear window upper molding, and allow it to dry for **approx. 30 minutes**.

## Caution

- Keep the area free of dirt and grease. Do not touch the surface.
- If primer gets on the skin, remove it immediately.

## Note

- Use only the glass primer at the glass and the body primer at the body and molding.

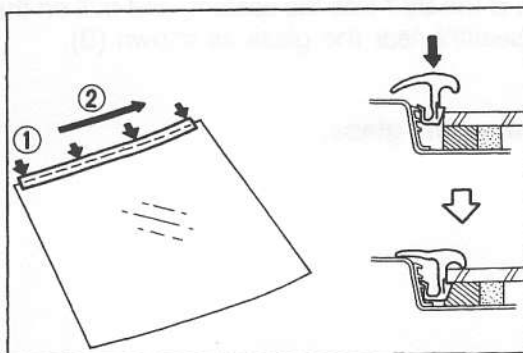
9. Apply a bead of repair seal to a height of **3mm (0.12 in)** between the glass and the body.

## Note

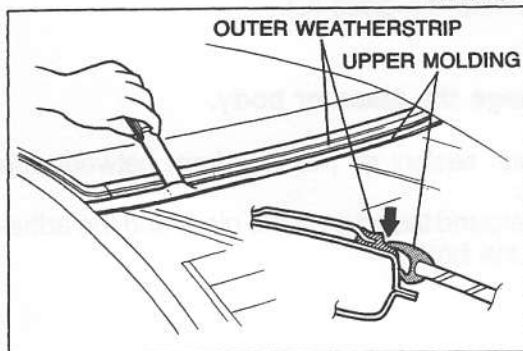
- With the repair seal cartridge prepared as shown, use a piece of wire to break through the seal film, and then apply the seal.

10. Reshape the repair seal as shown.





01E0SX-054



01E0SX-055

11. Align the end of the upper molding to the glass (1).
12. Install the upper molding to the glass, beginning from the outside (2).

#### Hardening time of repair seal

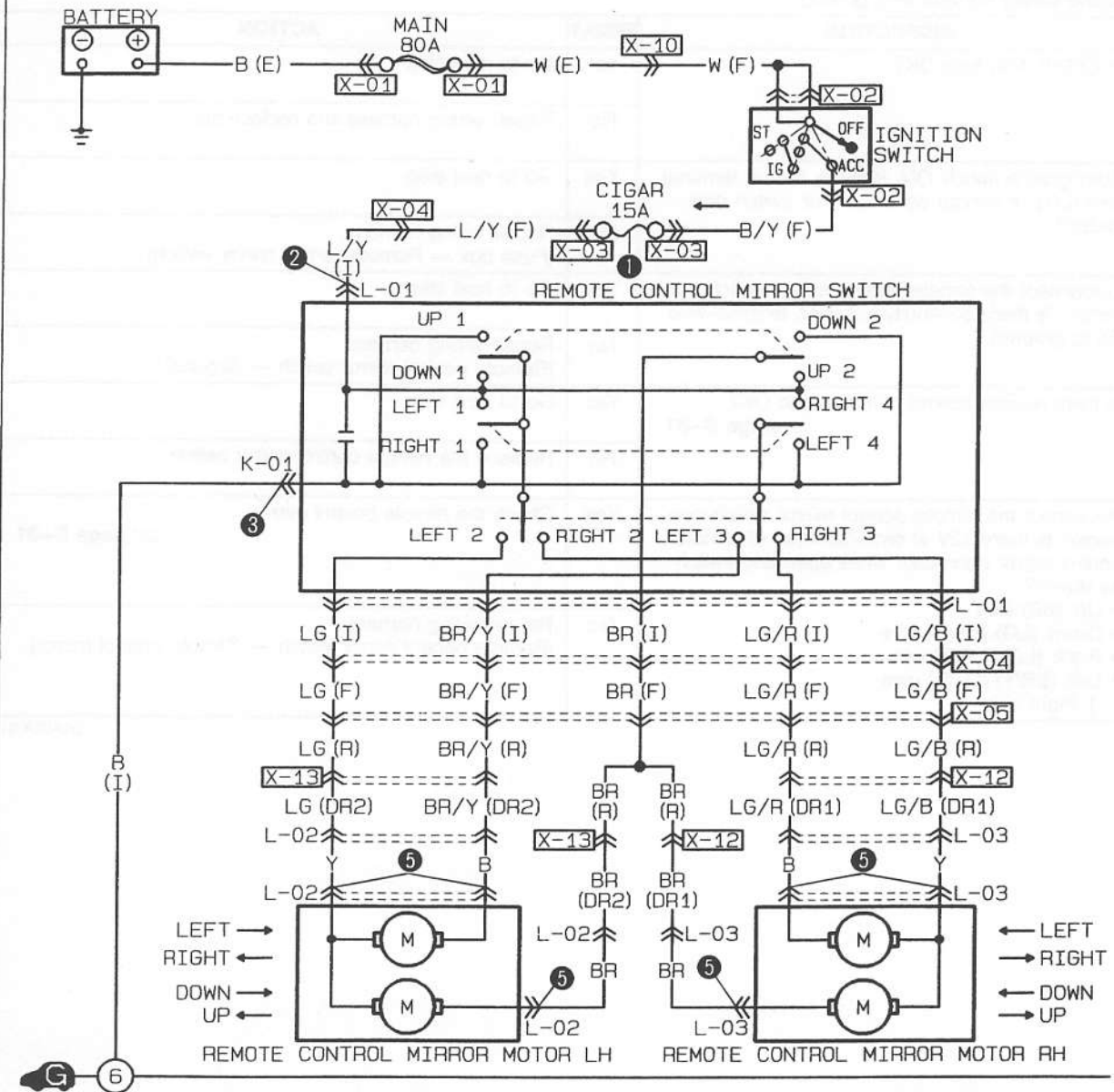
Temperature	Surface hardening time	Time required until car can be put into service
5°C (41°F)	Approx. 1.5 hr	12 hr
20°C (68°F)	Approx. 1 hr	4 hr
35°C (95°F)	Approx. 10 min	2 hr

13. Check for water leaks. If a leak is found, wipe the water off well and repeat the installation.
14. Verify that the upper molding is overlapped atop the outer weatherstrip of the canvas top (if equipped). If the overlap is opposite, reposition the upper molding with a scraper as shown.

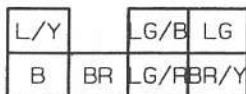
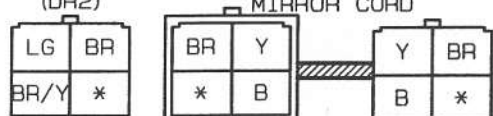
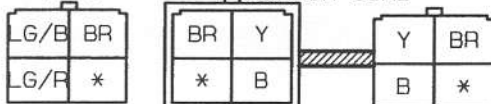
## DOOR MIRROR

TROUBLESHOOTING GUIDE  
Circuit Diagram

NUMBER SHOW STEP NUMBER

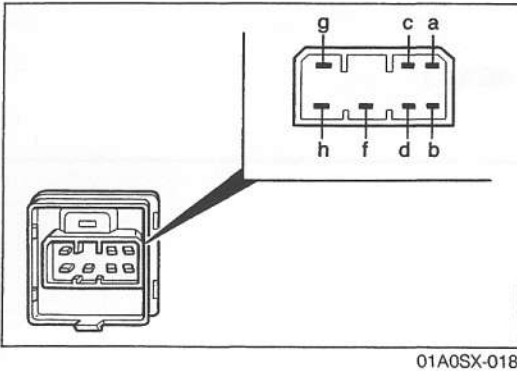


L-01 REMOTE CONTROL MIRROR SWITCH (I)

L-02 REMOTE CONTROL MIRROR MOTOR LH (DR2)  
REMOTE CONTROL MIRROR CORDL-03 REMOTE CONTROL MIRROR MOTOR RH (DR1)  
REMOTE CONTROL MIRROR CORD

SYMPTOM REMOTE CONTROL MIRROR DOES NOT OPERATE			
POSSIBLE CAUSE <ul style="list-style-type: none"> <li>• CIGAR 15A fuse is burned out</li> <li>• Defective remote control mirror switch</li> <li>• Defective remote control mirror</li> <li>• Defective wiring harness and ground</li> </ul>			
STEP	INSPECTION	RESULT	ACTION
1	Is CIGAR 15A fuse OK?	Yes	Go to next step
		No	Repair wiring harness and replace fuse
2	Turn ignition switch ON; Is there 12V at terminal-wire (L/Y) of remote control mirror switch connector?	Yes	Go to next step
		No	Repair wiring harness (Fuse box — Remote control mirror switch)
3	Disconnect the remote control mirror switch connector; Is there continuity between terminal-wire (B) to ground?	Yes	Go to next step
		No	Repair wiring harness (Remote control mirror switch — Ground)
4	Is there remote control mirror switch OK? ☞ page S-31	Yes	Go to next step
		No	Replace the remote control mirror switch
5	Reconnect the remote control mirror switch connector; Is there 12V at terminal-wires of remote control mirror connector while operating switch as shown? <ul style="list-style-type: none"> <li>• Up: (BR) wire</li> <li>• Down: (LG) [LG/B] wire</li> <li>• Right: (LG) [LG/B] wire</li> <li>• Left: (BR/Y) [LG/B] wire</li> <li>[ ]: Right side</li> </ul>	Yes	Check the remote control mirror ☞ page S-31
		No	Repair wiring harness (Remote control mirror switch — Remote control mirror)

01A0SX-017



01A0SX-018

## REMOTE CONTROL MIRROR SWITCH

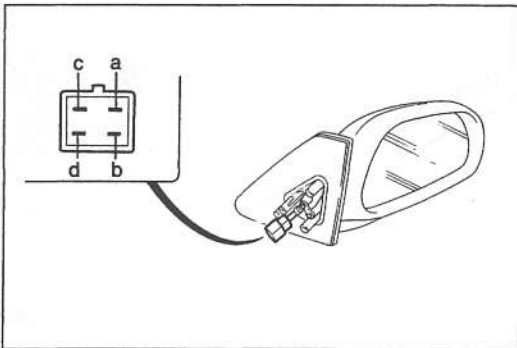
### Inspection

1. Remove the remote control mirror switch.
2. Check continuity between terminals of switch.

Terminal		g	h	a	b	f	d	c
Switch condition								
Left	UP	○	○	○	○	○		
	DOWN	○	○	○	○	○		
	LEFT	○	○	○	○	○		
	RIGHT	○	○	○	○	○		
Right	UP	○	○			○	○	○
	DOWN	○	○			○	○	○
	LEFT	○	○			○	○	○
	RIGHT	○	○			○	○	○

○—○: Indicates continuity

3. If not as specified, replace the switch.



01A0SX-019

## REMOTE CONTROL MIRROR

### Inspection

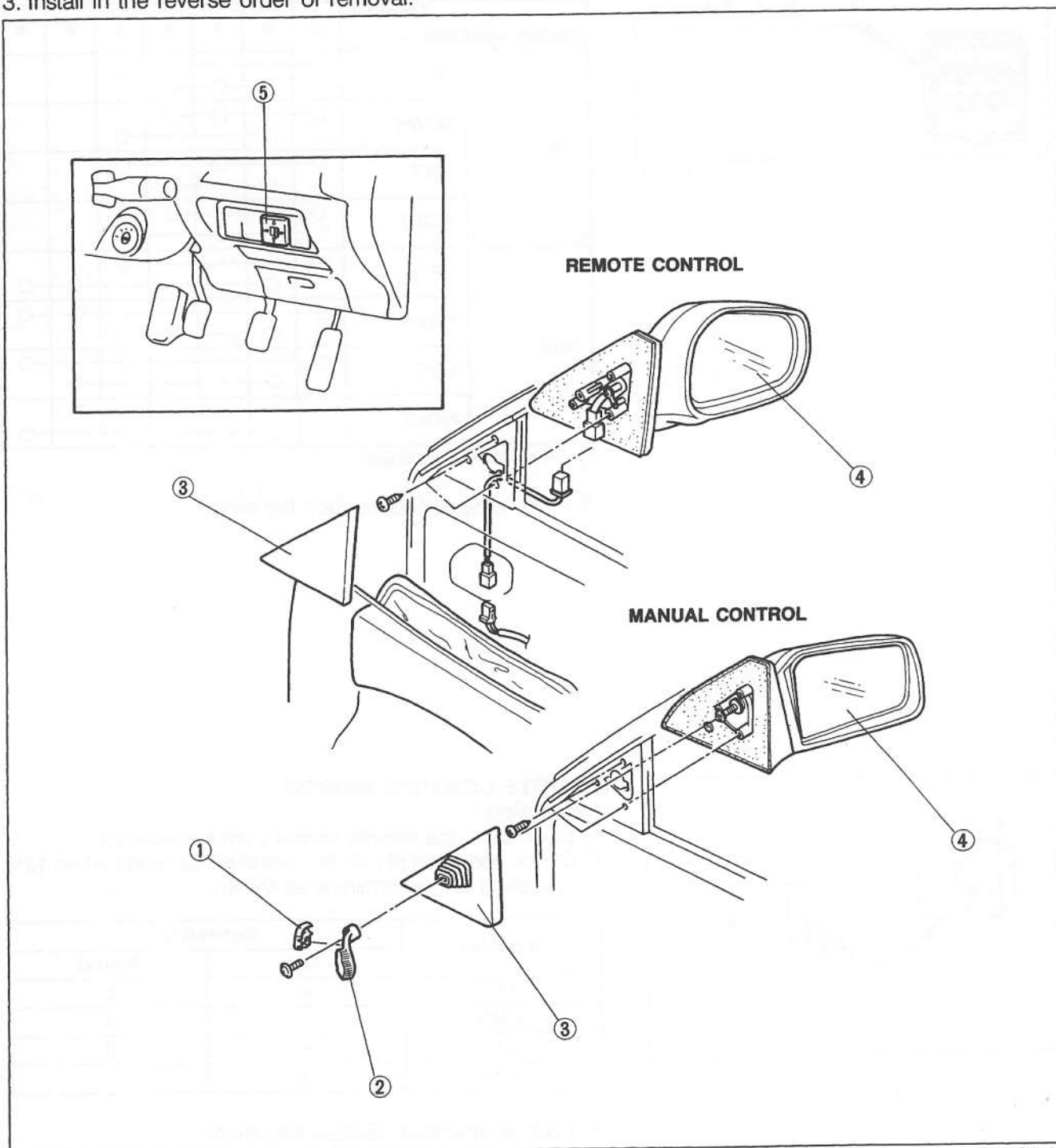
1. Disconnect the remote control mirror connector.
2. Check operation of remote control mirror motor when 12V is applied to the terminals as shown.

Operation	Connect to	
	12V	Ground
UP	a	c
DOWN	c	a
LEFT	c	d
RIGHT	d	c

3. If not as specified, replace the mirror.

**COMPONENTS****Removal / Installation**

1. Disconnect the negative battery cable. (With remote control mirror.)
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.



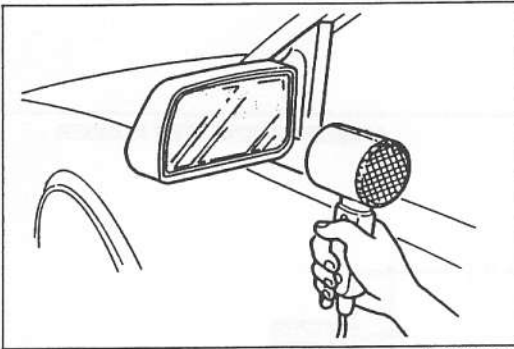
01A0SX-020

**Rearview mirror**

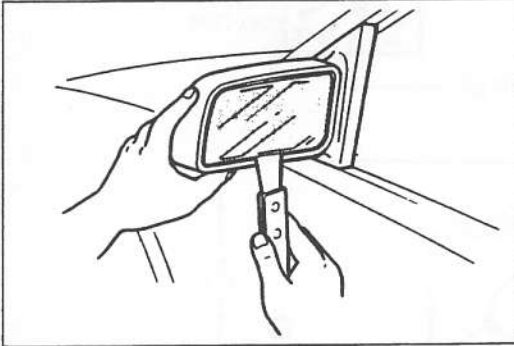
1. Knob cover
  2. Knob
  3. Inner garnish
  4. Door mirror
- Inspection (Remote control)..... page S-31  
 Replace (Mirror glass) ..... page S-33

**Remote control mirror switch**

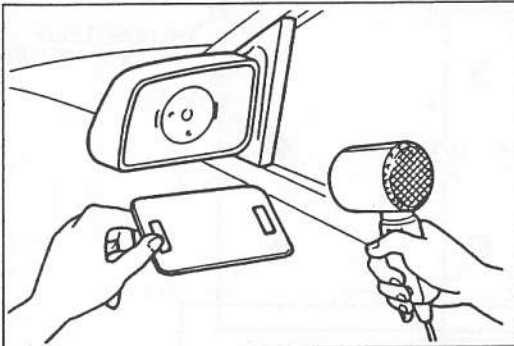
5. Remote control mirror switch
- Inspection ..... page S-31



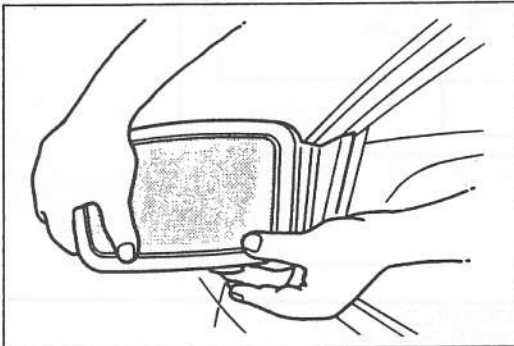
01E0SX-057



01E0SX-058



01E0SX-059



01E0SX-060

**Replacement of Mirror Glass**

1. Warm the frame and the mirror glass with a hot air blower.

2. Insert a scraper between the mirror glass and the frame, and pry the glass loose.

3. Remove the remaining adhesive.

4. Warm the adhesive surface of the frame and the mirror with a hot air blower.

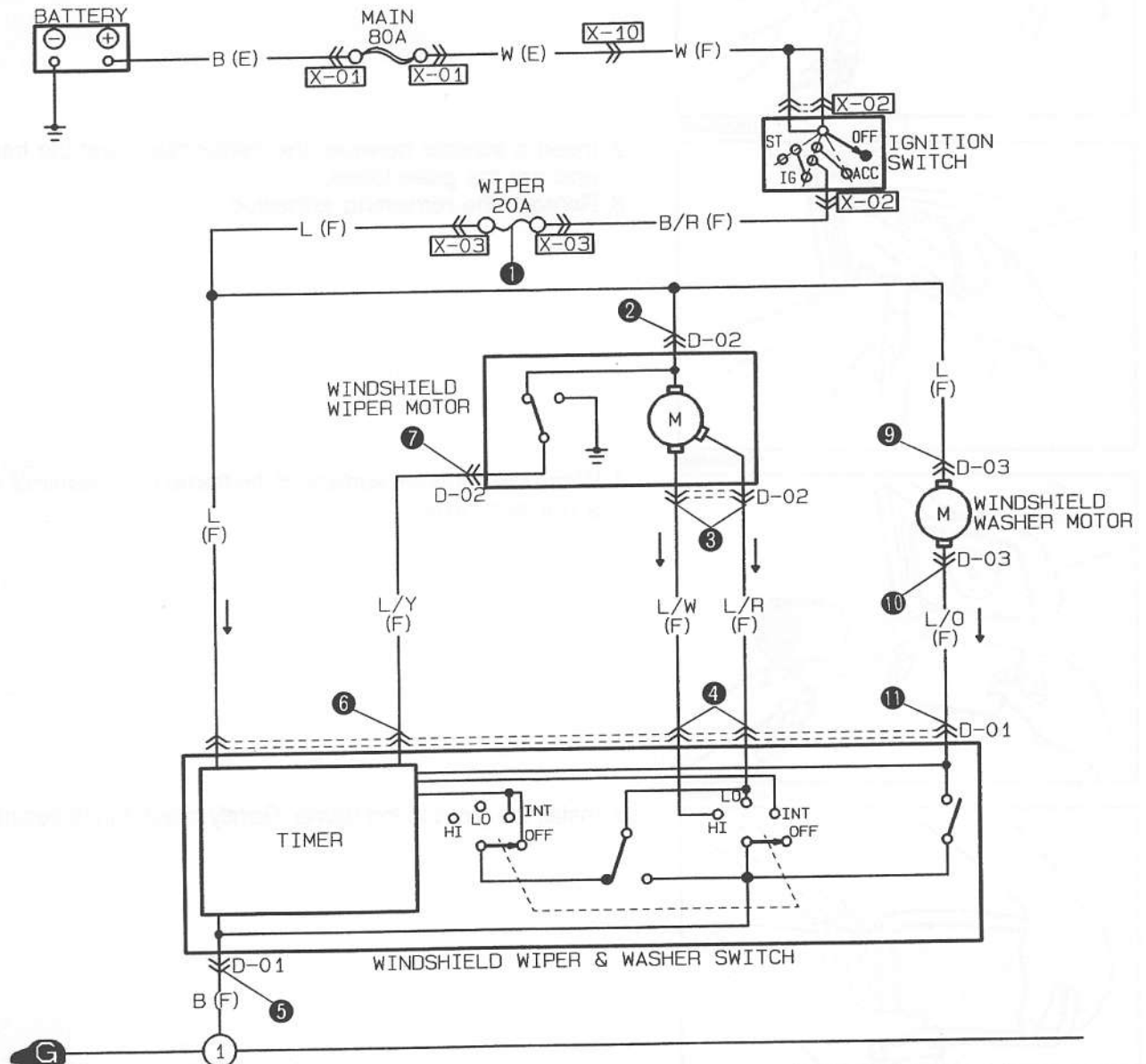
5. Install the glass in the frame. Gently press it in to secure it.

## WINDSHIELD WIPER AND WASHER

## TROUBLESHOOTING GUIDE

## Circuit Diagram

NUMBER SHOW STEP NUMBER



D-01 WINDSHIELD WIPER &amp; WASHER SWITCH (F)

B	L	L/O
L/R	L/Y	L/W

D-02 WINDSHIELD WIPER MOTOR (F)

L/R	L/W
L/Y	L

D-03 WINDSHIELD WASHER MOTOR (F)

L/O
L



SYMPTOM WIPERS DO NOT OPERATE IN ANY POSITION			
POSSIBLE CAUSE <ul style="list-style-type: none"> <li>• WIPER 20A fuse is burned out</li> <li>• Defective windshield wiper motor</li> <li>• Defective windshield wiper switch</li> <li>• Defective wiring harness or ground</li> </ul>			
STEP	INSPECTION	RESULT	ACTION
1	Is WIPER 20A fuse OK?	Yes	Go to next step
		No	Repair wiring harness and replace fuse
2	Turn ignition switch ON; is there 12V at terminal-wire (L) of wiper motor connector?	Yes	Go to next step
		No	Repair wiring harness (Fuse box — Wiper motor)
3	Is there 12V at terminal-wires of wiper motor connector with switch as shown? <ul style="list-style-type: none"> <li>• INT and LO: (L/R) 12V</li> <li>• HI: (L/W) 12V</li> </ul>	Yes	Go to next step
		No	Check wiper motor <span style="float: right;">☞ page S-36</span>
4	Is there 12V at terminal-wires of wiper switch connector with switch as shown? <ul style="list-style-type: none"> <li>• INT and LO: (L/R) 12V</li> <li>• HI: (L/W) 12V</li> </ul>	Yes	Go to next step
		No	Repair wiring harness (Wiper motor — Wiper switch)
5	Disconnect the wiper switch connector; is there continuity between terminal-wire (B) to ground?	Yes	Check wiper switch <span style="float: right;">☞ page S-37</span>
		No	Repair wiring harness (Wiper switch — Ground)

01A0SX-021

SYMPTOM WIPER PARK FUNCTION DOES NOT WORK			
POSSIBLE CAUSE <ul style="list-style-type: none"> <li>• Defective wiper switch</li> <li>• Defective wiring harness</li> <li>• Defective ground of wiper motor</li> </ul>			
STEP	INSPECTION	RESULT	ACTION
6	Turn ignition switch ON; is there 12V at terminal-wire (L/Y) of wiper switch connector?	Yes	Go to next step
		No	Check wiper switch <span style="float: right;">☞ page S-37</span>
7	Is there 12V at terminal-wire (L/Y) of wiper motor connector?	Yes	Repair wiring harness (Wiper motor — Ground)
		No	Repair wiring harness (Wiper switch — Wiper motor)

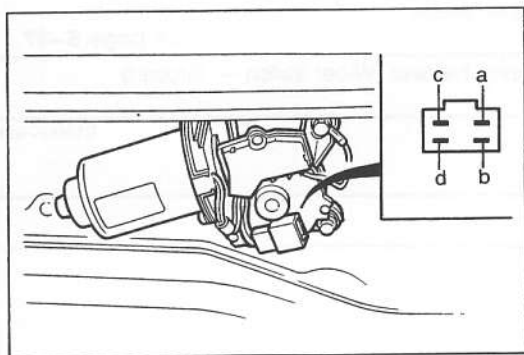
01A0SX-022

SYMPTOM ONE TOUCH FUNCTION (MIST) DOES NOT OPERATE			
POSSIBLE CAUSE <ul style="list-style-type: none"> <li>• Defective wiper switch</li> </ul>			
STEP	INSPECTION	RESULT	ACTION
8	Is wiper switch OK? <span style="float: right;">☞ page S-37</span>	No	Replace wiper switch <span style="float: right;">☞ Section T</span>

01A0SX-023

SYMPTOM WASHER DOES NOT OPERATE (WIPERS OPERATE OK)			
POSSIBLE CAUSE • Defective washer motor • Defective washer switch • Defective wiring harness			
STEP	INSPECTION	RESULT	ACTION
9	Turn ignition switch ON; is there 12V at terminal-wire (L) of washer motor connector?	Yes	Go to next step
		No	Repair wiring harness (Fuse box — Washer motor)
10	Is there 12V at terminal-wire (L/O) of washer motor connector?	Yes	Go to next step
		No	Check washer motor (See below)
11	Is there 12V at terminal-wire (L/O) of washer switch connector?	Yes	Check washer switch <span style="float: right;">☞ page S-37</span>
		No	Repair wiring harness (Washer motor — Washer switch)

01A0SX-024



01E0SX-066

**WIPER MOTOR****Inspection**

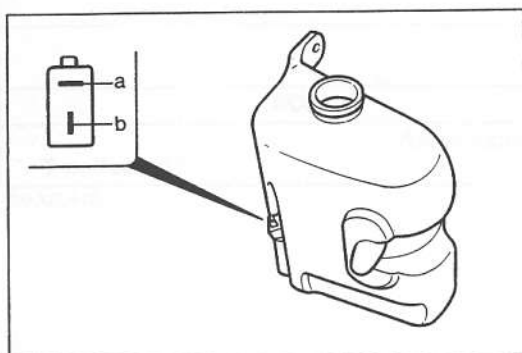
1. Disconnect the wiper motor connector.
2. Check continuity between terminals of the motor connector with the wiper in parked position.

Terminal	Continuity	Terminal	Continuity
a—b	Yes	b—c	Yes
a—c	Yes	b—d	Yes
a—d	Yes	c—d	Yes

3. Check operation by applying 12V and a ground to the terminals of the motor connector.

Terminal		Operation speed
12V	Ground	
b	a	Low
	c	High

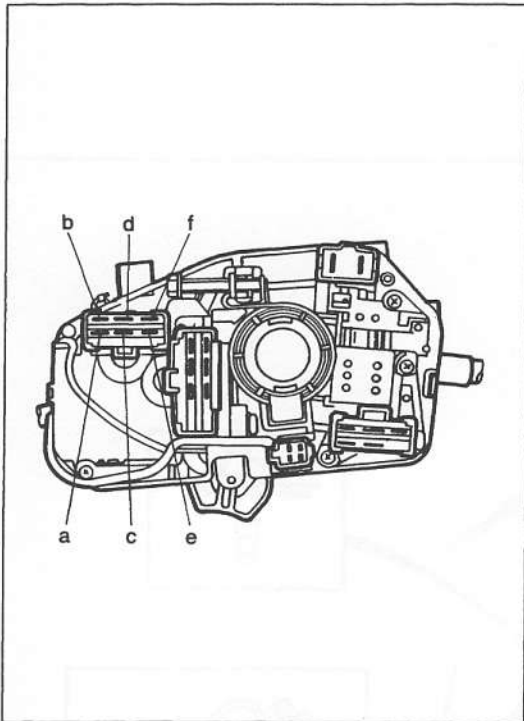
4. If not as specified, replace the wiper motor.



01A0SX-025

**WASHER MOTOR****Inspection**

1. Remove the washer tank. (Refer to page S-38.)
2. Connect 12V to terminal a and a ground to terminal b, and verify that the motor operates.
3. If not as specified, replace the washer motor.



01E0SX-068

**WIPER AND WASHER SWITCH****Inspection**

1. Remove the combination switch. (Refer to Section T.)
2. Check continuity between terminals of the wiper and washer switch connector.

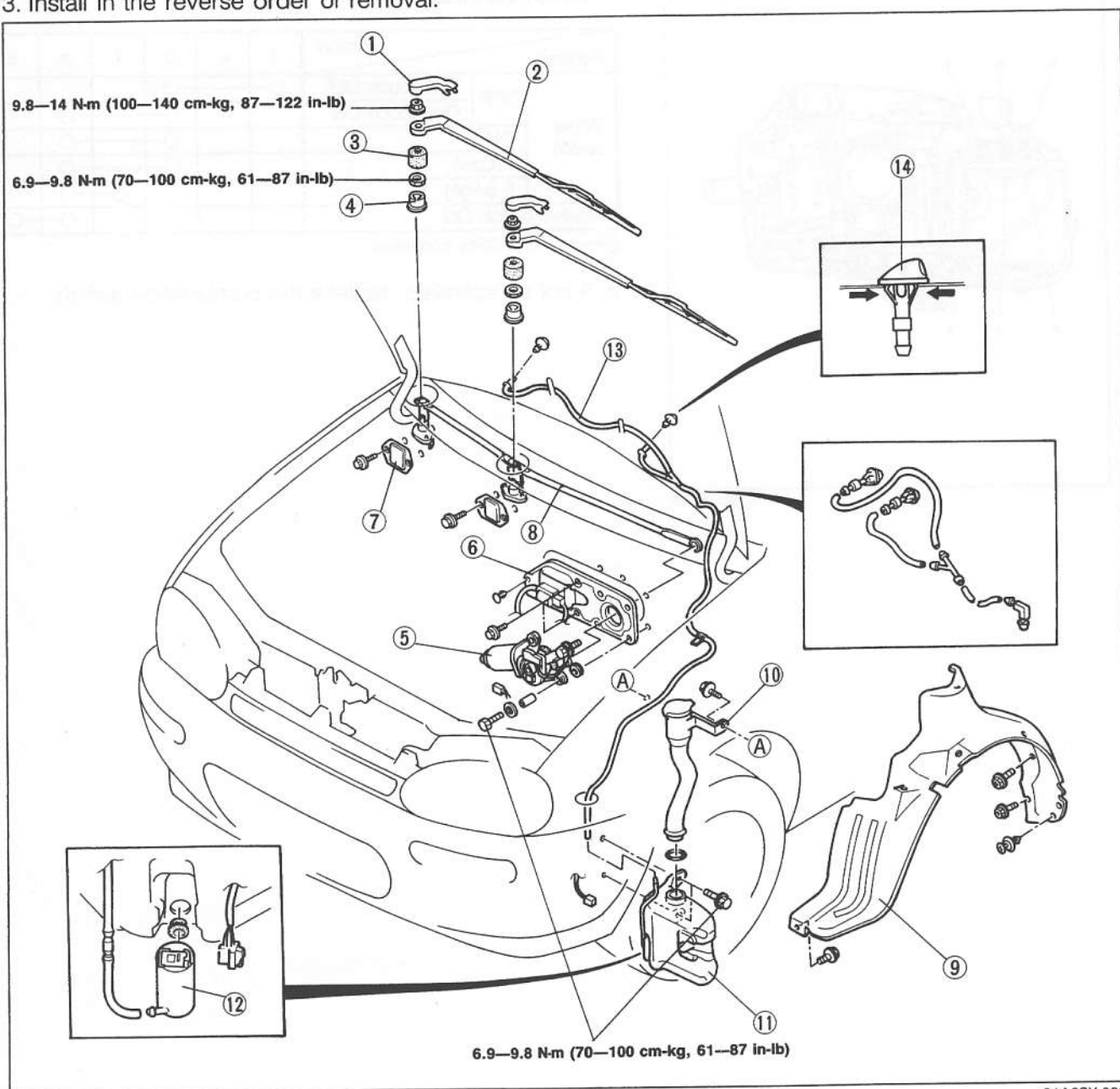
Position		Terminal	d	c	b	f	e	a
Wiper switch	OFF	One touch OFF	○		○			
		One touch ON			○		○	
	INT				○		○	
	I (Low)				○		○	
	II (High)					○	○	
Washer switch ON							○	○

○—○: Indicates continuity

3. If not as specified, replace the combination switch.

**COMPONENTS****Removal / Installation**

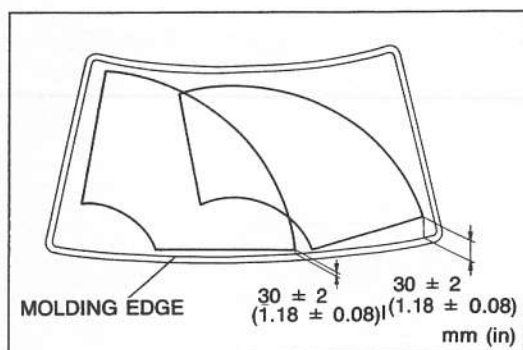
1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

**Wiper**

1. Wiper arm cover
2. Wiper arm and blade  
Adjustment..... page S-39
3. Seal cap
4. Bushing
5. Wiper motor  
Inspection ..... page S-36  
Disassembly / Assembly ..... page S-40
6. Panel cover
7. Seal cover
8. Wiper link

**Washer**

9. Mud guard (if necessary)
10. Cup
11. Washer tank
12. Washer motor  
Inspection ..... page S-36
13. Washer pipe
14. Washer nozzle  
Adjustment..... page S-39



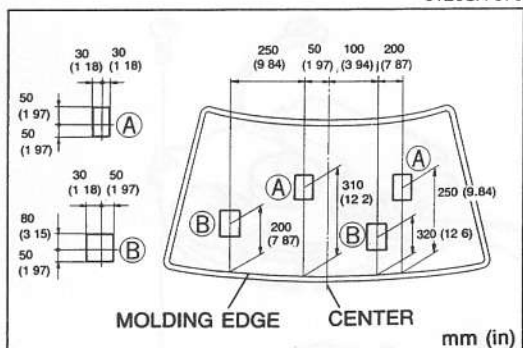
01E0SX-070

**Adjustment****Arm height**

1. Turn ignition switch ON and turn the wiper switch ON to operate the wipers.
2. Turn the wiper switch OFF to set the wipers in the park position.
3. Set the arm height as shown.

**Tightening torque:**

**9.8—14 N·m (100—140 cm·kg, 87—122 in·lb)**



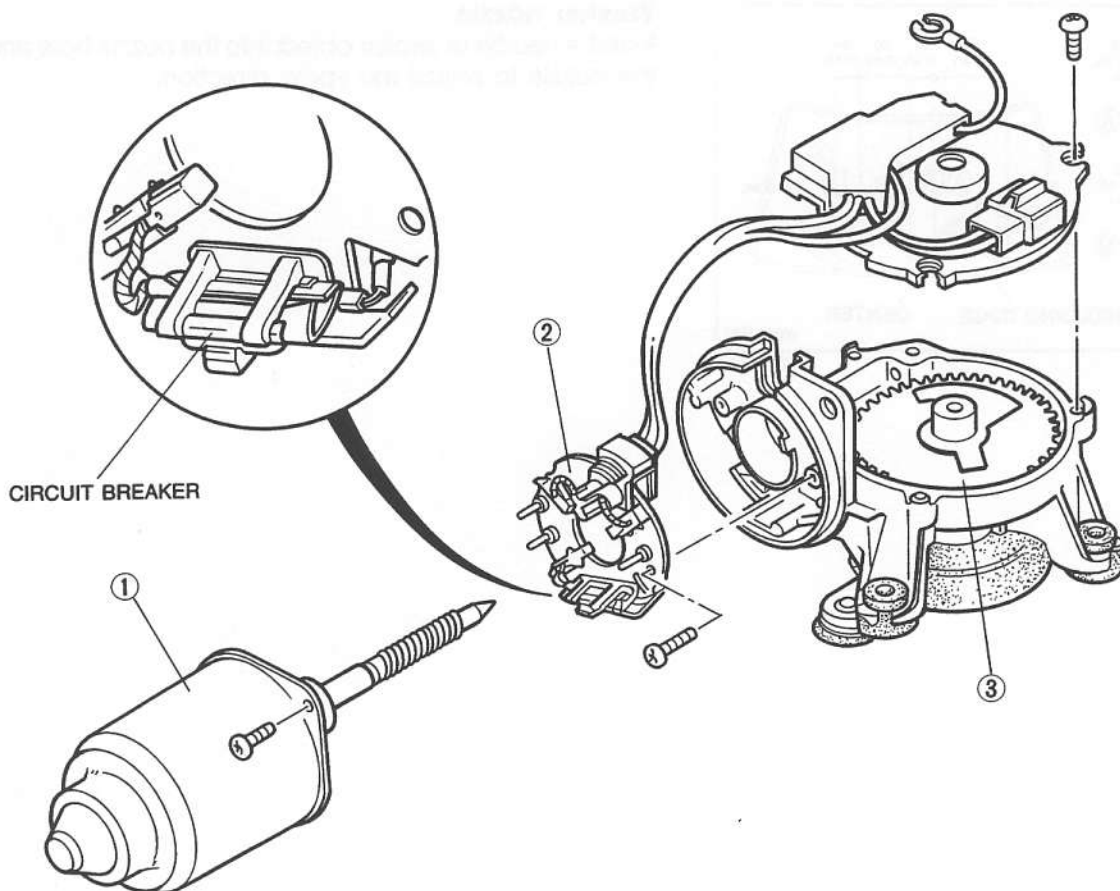
01E0SX-071

**Washer nozzle**

Insert a needle or similar object into the nozzle hole and move the nozzle to adjust the spray direction.

**Disassembly / Assembly**

1. Disassemble in the order shown in the figure.
2. Assemble in the reverse order of disassembly.



01E0SX-072

1. Wiper motor
2. Brush plate holder

3. Motor gear shaft

## WINDSHIELD

PREPARATION  
SST

49 0305 870A

Tool set, window

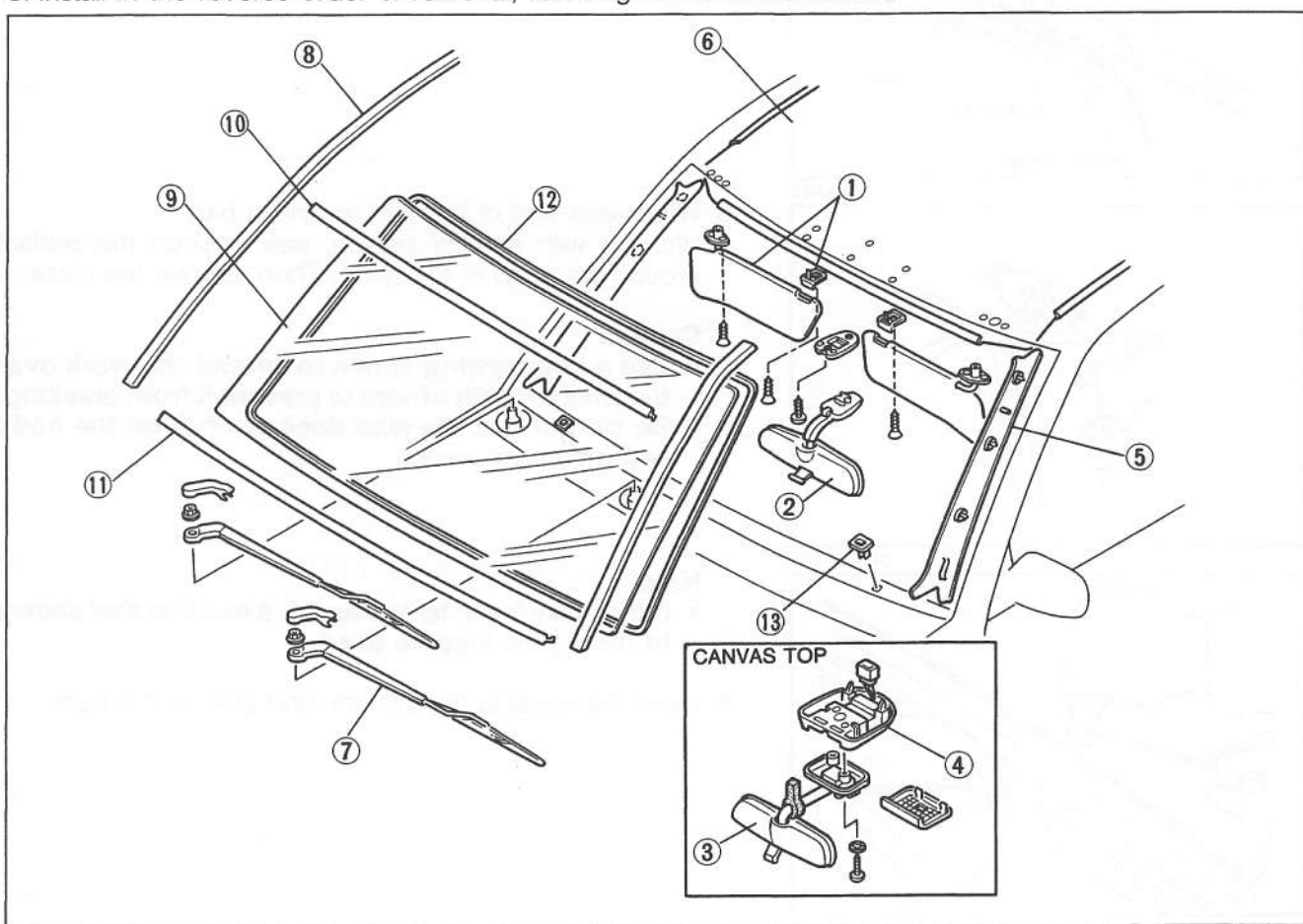
For  
removal /  
installation of  
windshield

01E0SX-078

## COMPONENTS

## Removal / Installation

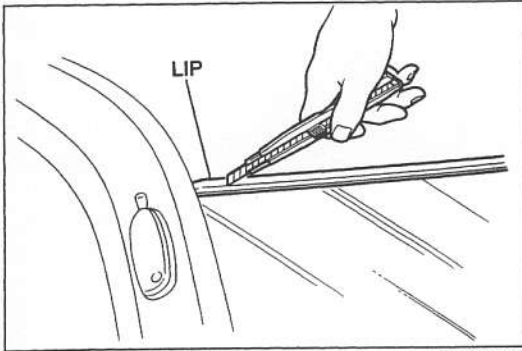
1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.



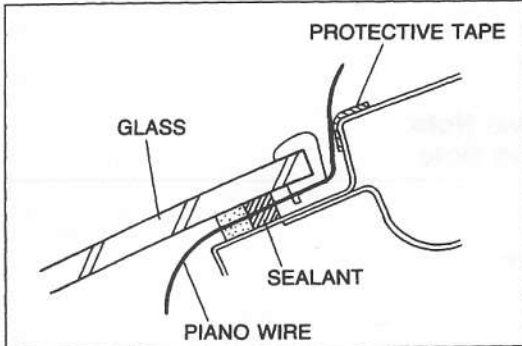
01A0SX-027

- |  |  |
|--|--|
| 1. Sunvisor and adaptor                              | 8. Roof molding                        |
| 2. Rearview mirror                                   | Removal / Installation ..... page S-24 |
| 3. Rearview mirror and interior lamp<br>(canvas top) | 9. Windshield                          |
| 4. Overhead console (canvas top)                     | Removal Note ..... page S-42           |
| 5. A-pillar trim                                     | Installation Note ..... page S-43      |
| Removal / Installation ..... page S-64               | 10. Windshield upper molding           |
| 6. Headliner   | 11. Windshield lower molding           |
| 7. Wiper arm and blade                               | 12. Dam                                |
| Adjustment ..... page S-39                           | 13. Spacer                             |

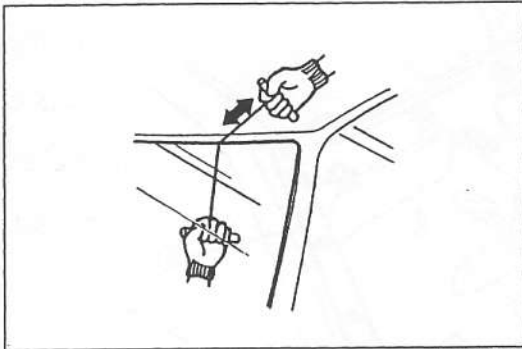




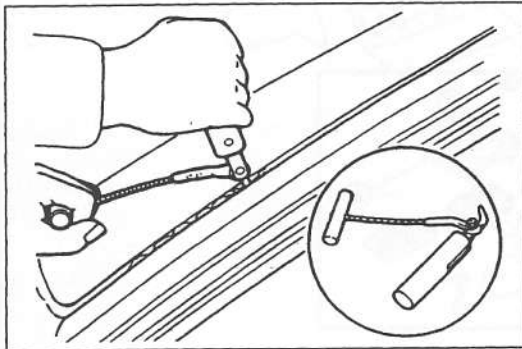
01A0SX-028



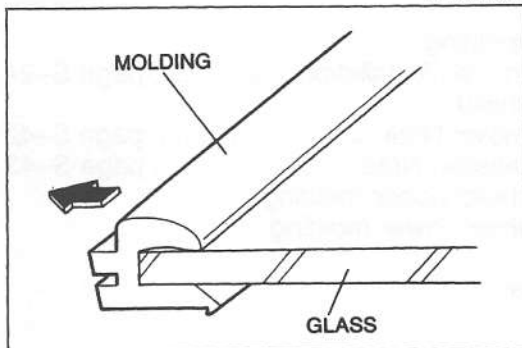
01E0SX-081



01E0SX-082



01E0SX-083



01E0SX-084

### Removal Note Windshield

1. Remove the roof deflector (if equipped).  
(Refer to page S-23.)
2. Cut the lip of the windshield upper and lower molding with a razor knife as shown.

### Caution

- Do not damage the glass or body.

3. Apply protective tape along the edge of the body to protect it from damage.
4. Using an awl, make a hole through the sealant from the inside of the vehicle.
5. Pass piano wire through the hole.

6. Wind each end of the wire around a bar.
7. Working with another person, saw through the sealant around the edge of the glass. Then remove the glass.

### Caution

- Use a long sawing action to spread the work over the whole length of wire to prevent it from breaking.
- Be careful that the wire does not rub on the body or instrument panel.

### Note

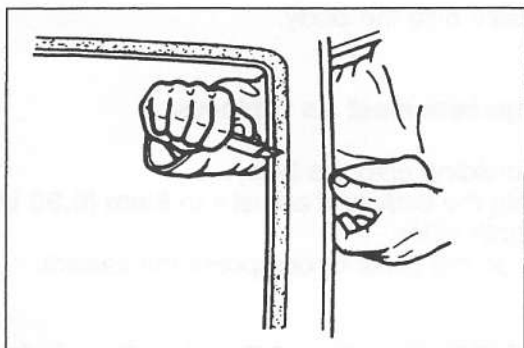
- If the glass is not to be reused, a tool like that shown in the figure may be used.

8. Insert the blade in the sealant, and pull on the bars.

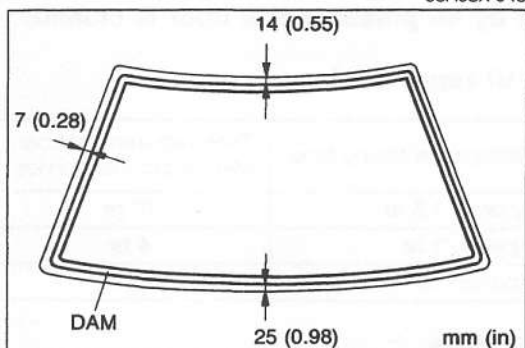
9. Pull the upper and lower molding away from the windshield.

### Caution

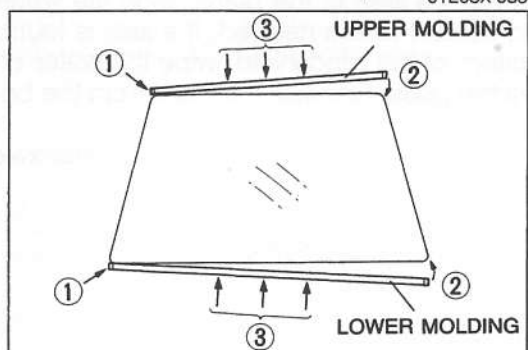
- Do not damage the glass.
- Do not reuse the windshield upper and lower molding.



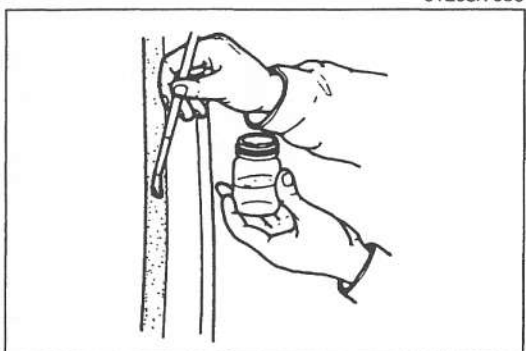
95A0SX-045



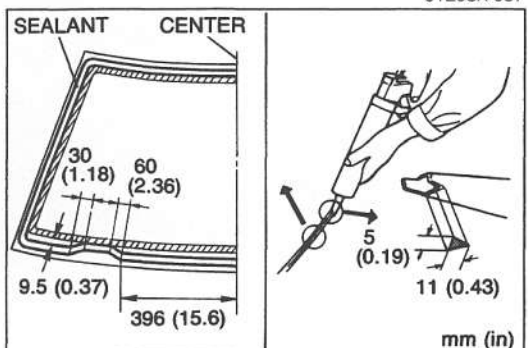
01E0SX-085



01E0SX-086



01E0SX-087



01E0SX-088

### Installation Note Windshield

1. Cut away the old sealant with a razor knife so that **1 to 2mm (0.04 to 0.08 in)** thickness of sealant remains around the circumference of the frame. If all the sealant has come off in any one place, apply some primer after degreasing, and allow it **30 minutes** to dry. Then put on new sealant to create a **2mm (0.08 in)** layer.
2. Carefully clean an area **5 cm (1.97 in)** wide around the circumference of the glass and the bonding area on the body.
3. Bond new dam along the circumference of the glass as shown.

### Caution

- Bond the dam securely and allow it to dry.

### Caution

- Use new windshield upper and lower moldings.

4. Press the left end of the molding onto the corner of the glass (1).
5. Press the right end of the molding onto the corner of the glass (2).
6. Press lightly onto the glass to compress the sealant (3).
7. Apply primer with a brush to the bonding area of the glass and the body, and allow it to dry for **approx. 30 minutes**.

### Caution

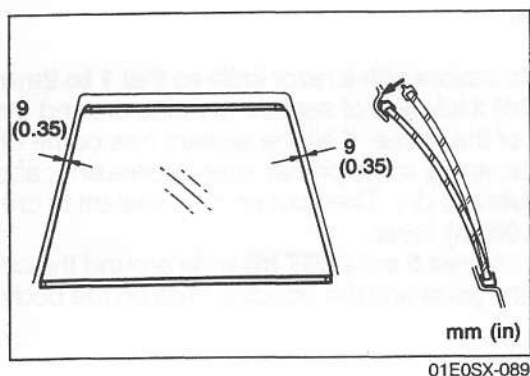
- Keep the area free of dirt and grease. Do not touch the surface.
- If primer gets on the skin, remove it immediately.

### Note

- Use only the glass primer at the glass and the body primer at the body.

8. Prepare the nozzle of the sealant tube so that it has a flange that can run along the edge of the glass and a V from which the sealant can flow. Once the primer is dry, apply repair seal around the entire circumference to fill the gap between the dam and the edge of the glass with a ridge of sealant **11mm (0.43 in)** high.

Keep the bead of sealant smooth and even, reshaping it where necessary with a spatula.



9. Install the spacers onto the body.

#### Caution

- Damaged spacers must be replaced.

10. Put the lower molding onto the body.  
 11. Set the glass into the body and adjust it to **9mm (0.35 in)** clearance on both sides.  
 12. Press firmly in on the glass to compress the sealant.

#### Caution

- Open the windows to prevent the glass from being pushed out by air pressure if a door is closed.

#### Hardening time of repair seal


Temperature	Surface hardening time	Time required until car can be put into service
5°C (41°F)	Approx. 1.5 hr	12 hr
20°C (68°F)	Approx. 1 hr	4 hr
35°C (95°F)	Approx. 10 min	2 hr

13. Check for water leaks.  
 14. If a leak is found at the side of the glass, wipe the water off well and add sealant where needed. If a leak is found at the top or bottom of the windshield, wipe the water off well and remove the glass. Reinstall the glass from the beginning.

01E0SX-090

## REAR WINDOW GLASS

### PREPARATION SST

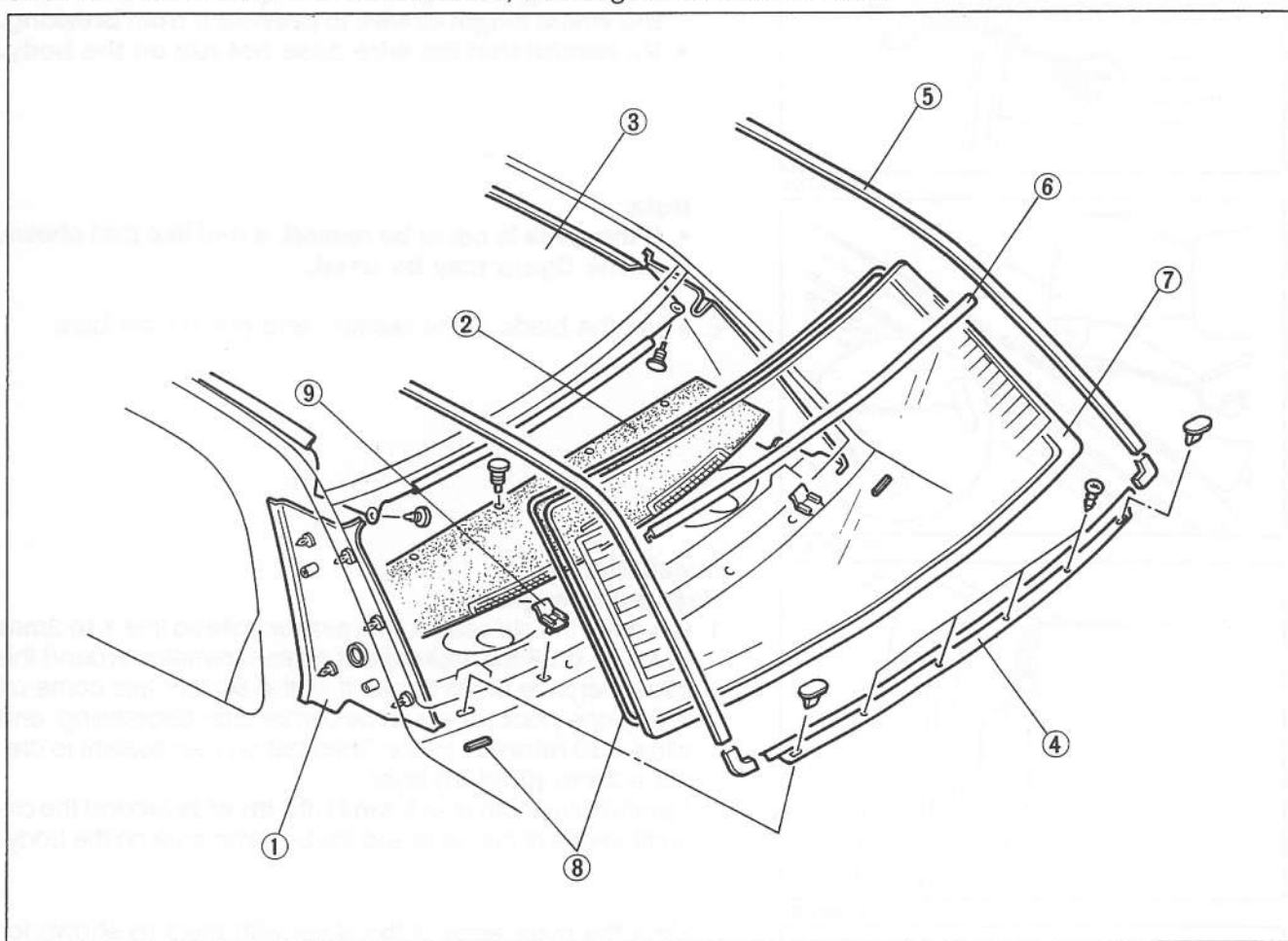
49 0305 870A		For removal / installation of rear window glass
Tool set, window		

01E0SX-091

### COMPONENTS

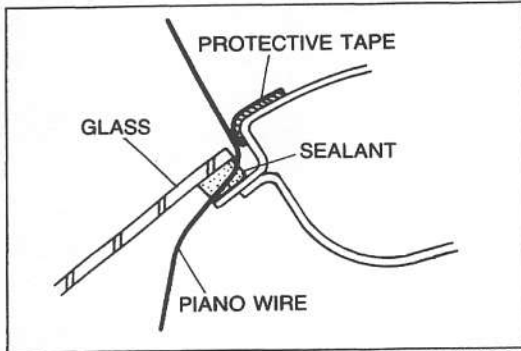
#### Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.

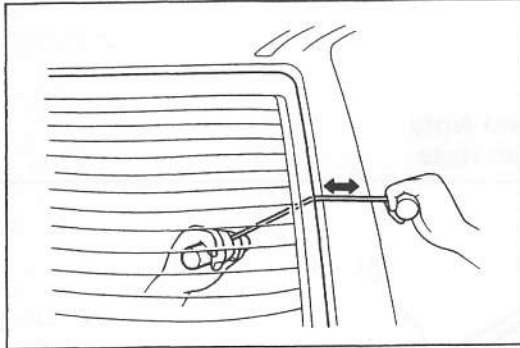


01A0SX-029

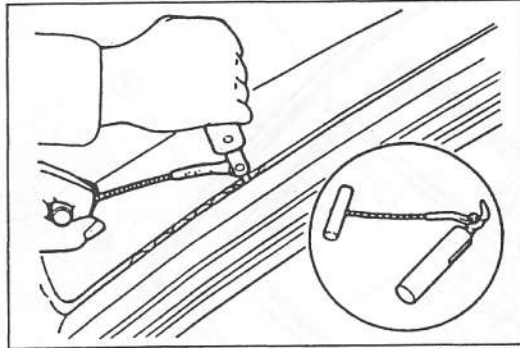
- |  |  |
|--|--|
| 1. C-pillar trim                       | 6. Rear window upper molding           |
| Removal / Installation ..... page S-64 | Removal / Installation ..... page S-24 |
| 2. Rear package trim                   | 7. Rear window glass                   |
| Removal / Installation ..... page S-64 | Removal Note..... page S-46            |
| 3. Headliner                           | Installation Note ..... page S-46      |
| 4. Rear window lower molding           | 8. Dam                                 |
| Removal / Installation ..... page S-24 | 9. Spacer                              |
| 5. Roof molding                        |  |
| Removal / Installation ..... page S-24 |  |



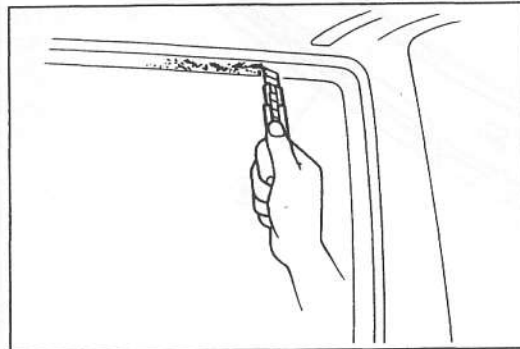
01E0SX-093



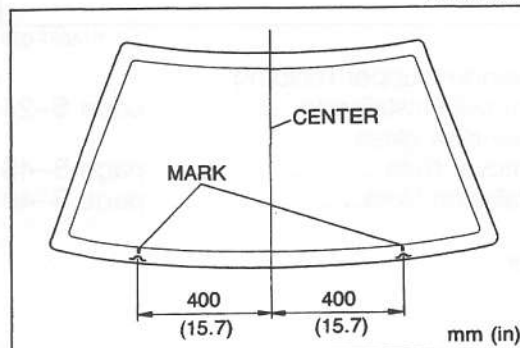
01E0SX-094



05U0SX-613



01E0SX-095



01E0SX-096

**Removal Note****Rear window glass**

1. Apply protective tape along the edge of the body to protect it from damage.
2. Using an awl, make a hole through the sealant from the inside of the vehicle.
3. Pass piano wire through the hole.

4. Wind each end of the wire around a bar.

5. Working with another person, saw through the sealant around the edge of the glass. Then remove the glass.

**Caution**

- Use a long sawing action to spread the work over the whole length of wire to prevent it from breaking.
- Be careful that the wire does not rub on the body.

**Note**

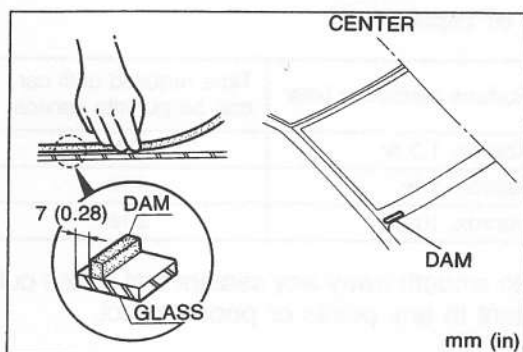
- If the glass is not to be reused, a tool like that shown in the figure may be used.

6. Insert the blade in the sealant, and pull on the bars.

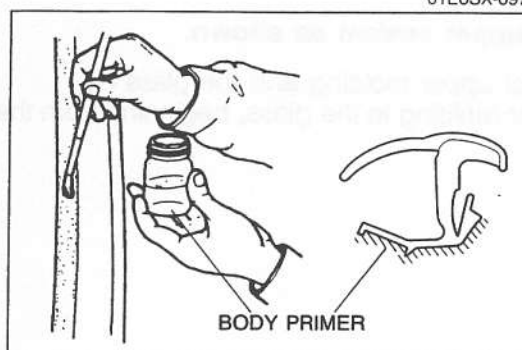
**Installation Note****Rear window glass**

1. Cut away the old sealant with a razor knife so that **1 to 2mm (0.04 to 0.08 in)** thickness of sealant remains around the circumference of the frame. If all the sealant has come off in any one place, apply some primer after degreasing, and allow it **30 minutes** to dry. Then put on new sealant to create a **2mm (0.08 in)** layer.
2. Carefully clean an area **5 cm (1.97 in)** wide around the circumference of the glass and the bonding area on the body.

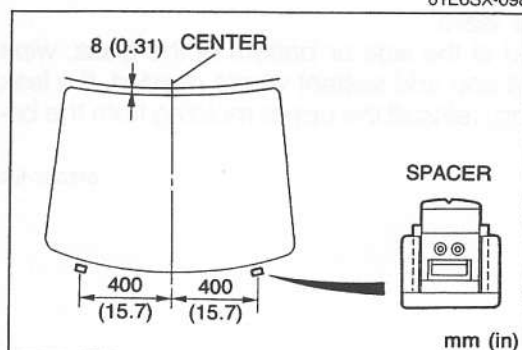
3. Mark the outer edge of the glass with paint as shown for proper reinstallation.



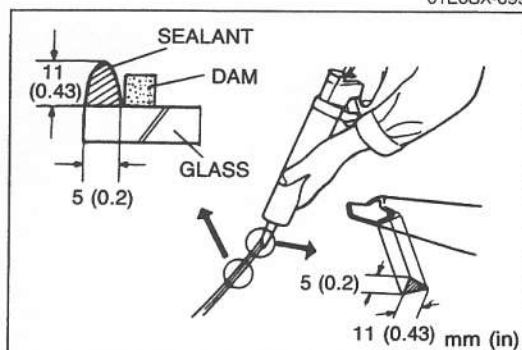
01E0SX-097



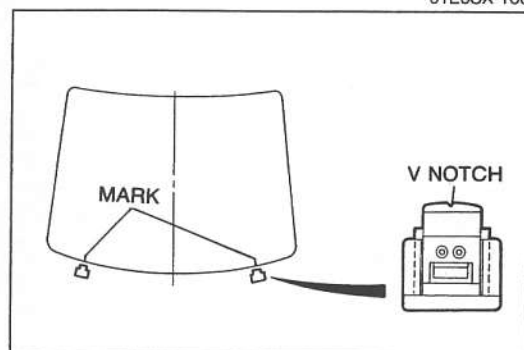
01E0SX-098



01E0SX-099



01E0SX-100



01E0SX-101

4. Bond new dam along the circumference of the glass **7mm (0.28 in)** from the edge.
5. Bond new dams onto the body as shown.

## Caution

- Bond the dams securely and allow them to dry.

6. Apply primer with a brush to the bonding area of the glass, the new rear window upper molding, and the body, and allow it to dry for **approx. 30 minutes**.

## Caution

- Keep the area free of dirt and grease. Do not touch the surface.
- If primer gets on the skin, remove it immediately.

## Note

- Use only the glass primer at the glass and the body primer at the body and molding.

7. Install the spacers onto the body as shown.

## Caution

- Damaged spacers must be replaced.

8. Set the glass into the body and adjust the clearance between the top of the glass and the body to **8mm (0.31 in)** by moving the spacers up or down.
9. Remove the glass from the body.

10. Prepare the nozzle of the sealant tube so that it has a flange that can run along the edge of the glass and a V from which the sealant can flow. Once the primer is dry, apply repair seal around the entire circumference to fill the gap between the dam and the edge of the glass with a ridge of sealant **11mm (0.43 in)** high.

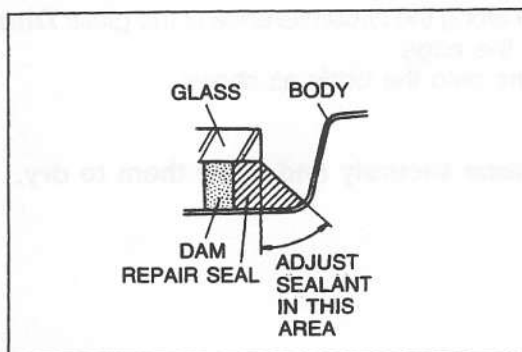
Keep the bead of sealant smooth and even, reshaping it where necessary with a spatula.

11. Align the glass marks with the V notches in spacers and install the glass into the body.
12. Press firmly in on the glass to compress the sealant.

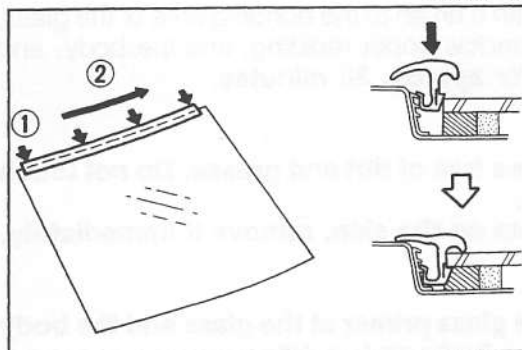
## Caution

- Verify that the clearance is between the top of the glass and the body **8mm (0.31 in)**.
- Open the windows to prevent the glass from being pushed out by air pressure if a door is closed.





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01E0SX-103

**Hardening time of repair seal**

Temperature	Surface hardening time	Time required until car can be put into service
5°C (41°F)	Approx. 1.5 hr	12 hr
20°C (68°F)	Approx. 1 hr	4 hr
35°C (95°F)	Approx. 10 min	2 hr

13. Use a scraper to smooth away any sealant that oozes out. Add more sealant to any points of poor contact.

**Caution**

- **Adjust the upper sealant as shown.**

14. Align the end of upper molding and the glass (1).  
15. Install the upper molding to the glass, beginning from the outside (2).

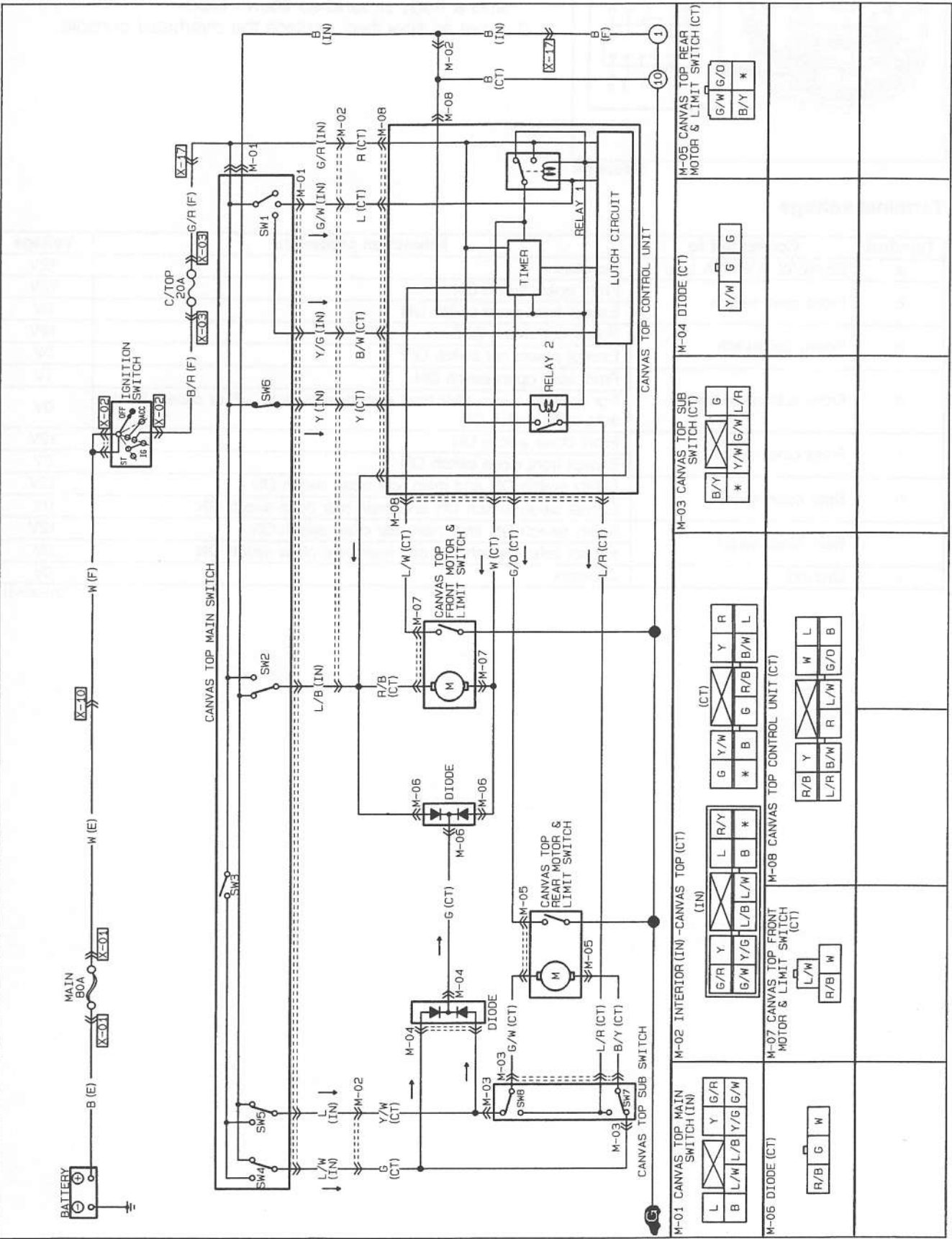
16. Check for water leaks.  
17. If a leak is found at the side or bottom of the glass, wipe the water off well and add sealant where needed. If a leak is found at the top, reinstall the upper molding from the beginning.

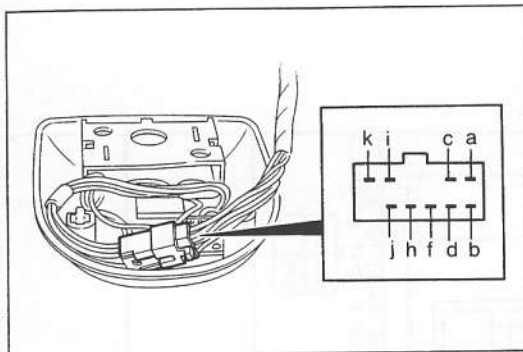
01E0SX-104



CANVAS TOP

TROUBLESHOOTING GUIDE  
Circuit Diagram





01E0SX-106

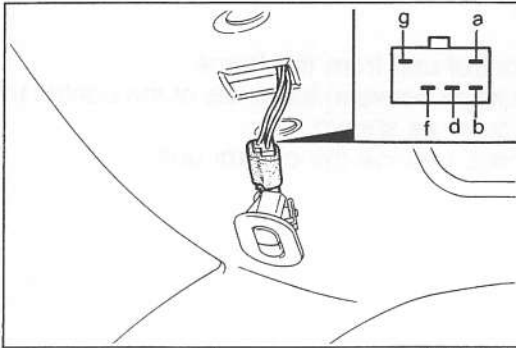
**CANVAS TOP MAIN SWITCH****Inspection**

1. Remove the overhead console from the body.
2. Measure the voltage between terminals of the main switch and a body ground as shown below.
3. If not as specified, replace the overhead console.

**Terminal voltage**

Terminal	Connected to	Inspection procedure	Voltage
a	CANVAS TOP 20A fuse	Constant	12V
b	Front open switch	Front open switch ON	12V
		Except front open switch ON	0V
c	Power cut switch	Power cut switch OFF	12V
		Except power cut switch OFF	0V
d	Front auto open switch	Front auto open switch ON	1V
		For approx. 1 sec. after front auto open switch OFF or except front auto open switch ON	0V
f	Front close switch	Front close switch ON	12V
		Except front close switch ON	0V
h	Rear open switch	Safety switch ON and main rear open switch ON	12V
		Except safety switch ON and main rear open switch ON	0V
i	Rear close switch	Safety switch ON and main rear close switch ON	12V
		Except safety switch ON and main rear close switch ON	0V
j	Ground	Constant	0V

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01E0SX-108

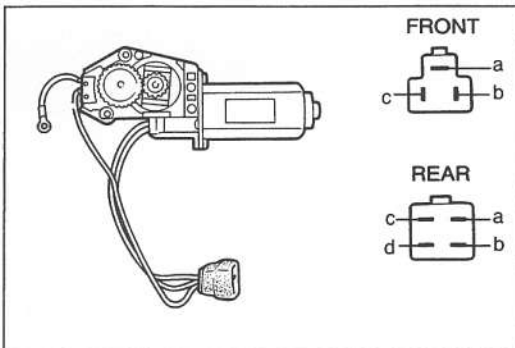
**CANVAS TOP SUB SWITCH****Inspection**

1. Remove the sub switch from the motor cover.
2. Measure the voltage between terminals of the sub switch and a body ground as shown below.
3. If not as specified, replace the sub switch.

**Terminal voltage**

Terminal	Connected to	Inspection procedure	Voltage
a	Sub rear open switch	Main rear open switch ON	12V
		Except main rear open switch ON	0V
b	Power cut relay	Power cut switch OFF	12V
		Except power cut switch OFF	0V
d	Sub rear close switch	Sub rear close switch ON	12V
		Except sub rear close switch ON	0V
f	Sub rear close switch	Main rear close switch ON	12V
		Except main rear close switch ON	0V
g	Sub rear open switch	Sub rear open switch ON	12V
		Except sub rear open switch ON	0V

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01E0SX-110

**CANVAS TOP MOTOR ASSEMBLY****Inspection****Motor**

1. Disconnect the motor connector.
2. Check operation by applying 12V and a ground to the terminals of the motor connector.

Motor Operation	Front		Rear	
	12V	Ground	12V	Ground
Open	b	c	d	c
Close	c	b	c	d

3. If not as specified, replace the motor.

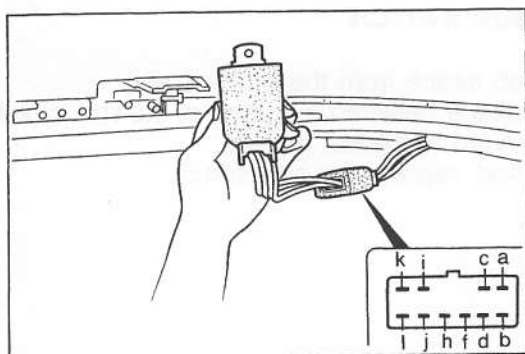
**Limit switch**

1. Remove the motor from the frame.
2. Check continuity between terminals of the motor connector as shown.

Limit switch Terminal	Front				Rear				
	a	b	c	e	a	b	c	d	e
ON	○	—	—	○					
OFF					○	—	—	○	

○—○: Indicates continuity

3. If not as specified, replace the motor.



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**CONTROL UNIT****Inspection**

1. Remove the control unit from the frame.
2. Measure the voltage between terminals of the control unit and a body ground as shown.
3. If not as specified, replace the control unit.

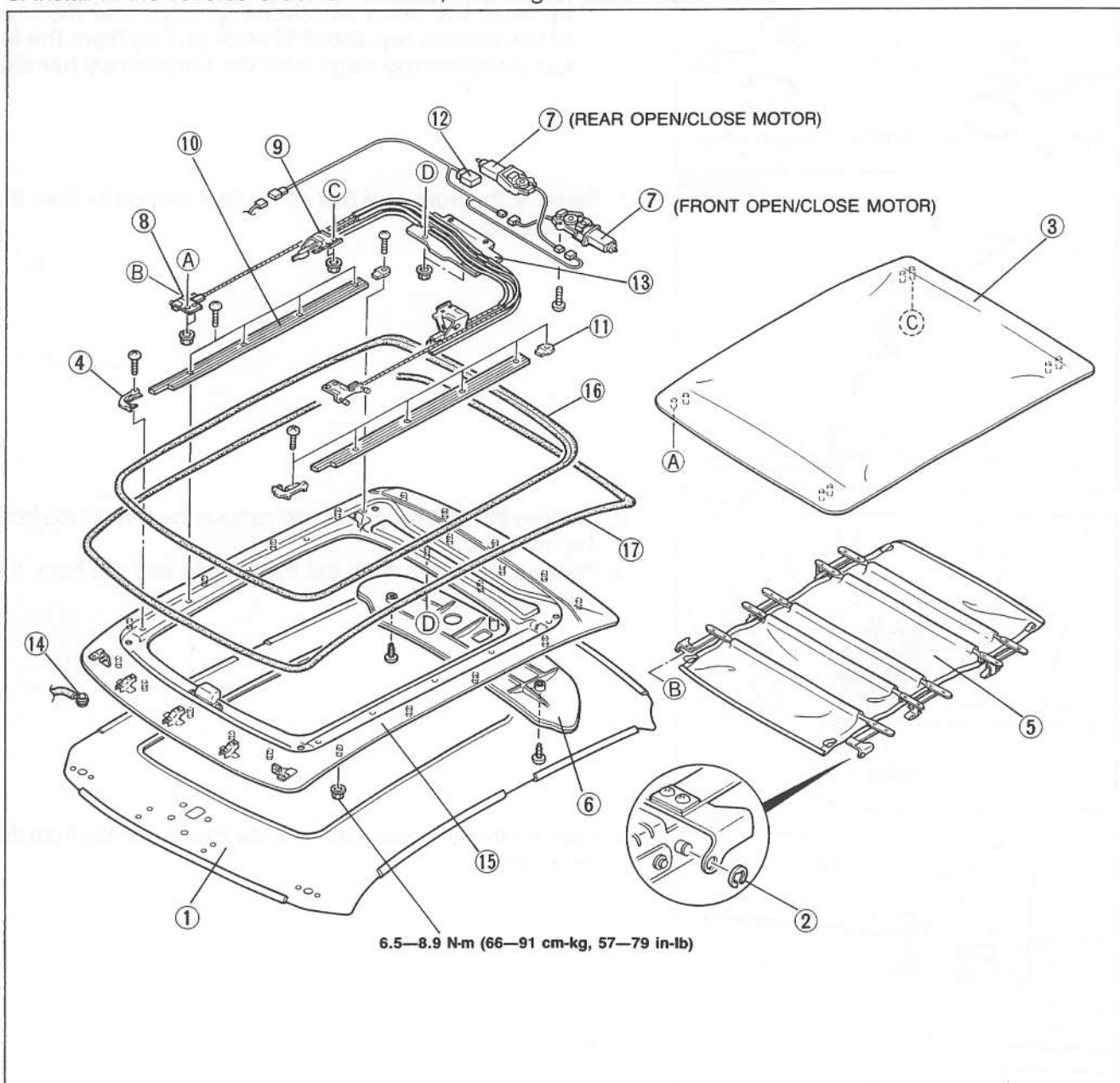
**Terminal voltage**

Terminal	Connected to	Inspection procedure	Voltage
a	Front open switch	Front open switch ON	12V
		Except front open switch ON	0V
b	Ground	Constant	0V
c	Front motor	Front open or auto open switch ON	12V
		Except front open or auto open switch ON	0V
d	Limit switch (within rear motor)	Rear of top open more than 10mm (0.39 in)	0V
		Except rear of top open more than 10mm (0.39 in)	12V
f	Limit switch (within front motor)	Front of top fully open	0V
		Except front of top fully open	12V
h	CANVAS TOP 20A fuse	Constant	12V
i	Power cut switch	Power cut switch OFF	12V
		Except power cut switch OFF	0V
j	Front auto open switch	Front auto open switch ON	1V
		For approx. 1 sec. after front auto open switch OFF or except front auto open switch ON	0V
k	Front close switch	Front close switch ON	12V
		Except front close switch ON	0V
l	Sub switch	Power cut switch OFF	12V
		Except power cut switch OFF	0V

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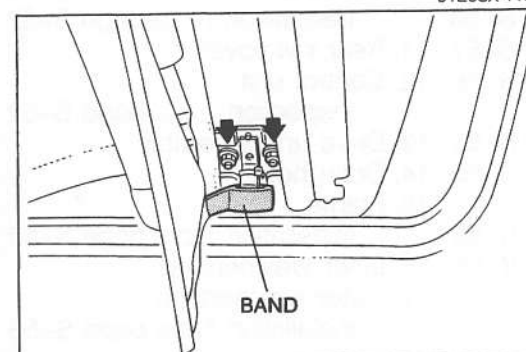
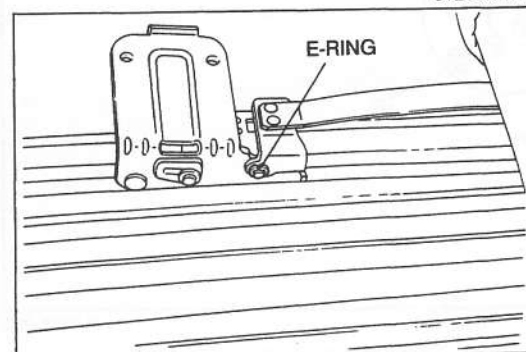
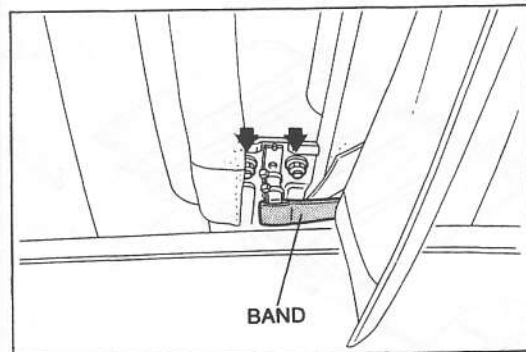
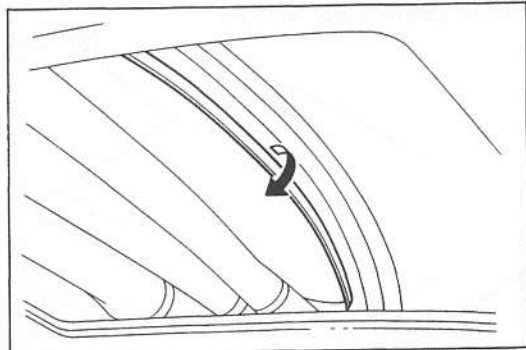
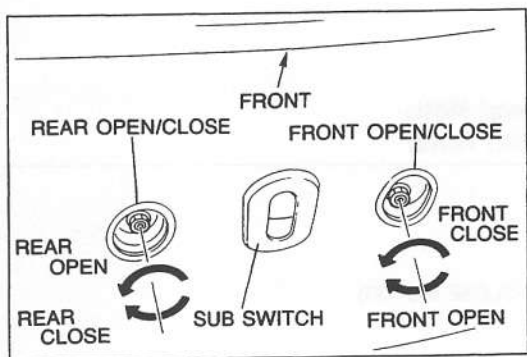
**COMPONENTS****Removal / Installation**

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.



01A0SX-030

- |   |  |   |
|---|--|---|
| 1. Headliner<br>Removal /<br>Installation ..... page S-69 | 7. Canvas top motor assembly<br>Installation Note page S-58<br>Inspection..... page S-51<br>Adjustment ..... page S-58 | 10. Guide rail<br>Installation Note page S-57         |
| 2. E-ring   | 8. Front guide assembly<br>Removal Note .. page S-55<br>Installation Note page S-56                                    | 11. Rear rail cover                                   |
| 3. Canvas top<br>Removal Note .. page S-54                | 9. Rear guide assembly<br>Removal Note .. page S-55<br>Installation Note page S-56                                     | 12. Control unit<br>Inspection..... page S-52         |
| 4. Front rail cover                                       |  | 13. Drive unit assembly                               |
| 5. Liner assembly<br>Removal Note .. page S-55            |  | 14. Drain hose  |
| 6. Motor cover  |  | 15. Frame<br>Installation Note page S-56              |
|   |  | 16. Inner weatherstrip<br>Installation Note page S-56 |
|   |  | 17. Outer weatherstrip<br>Installation Note page S-56 |



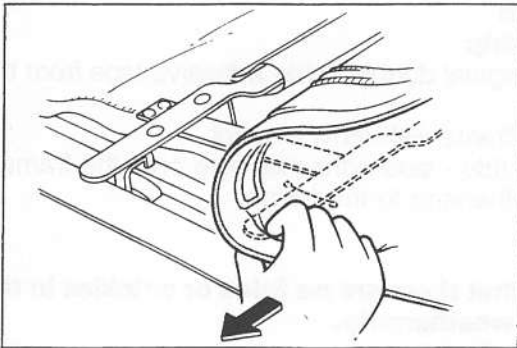
### Removal Note Canvas top

#### Note

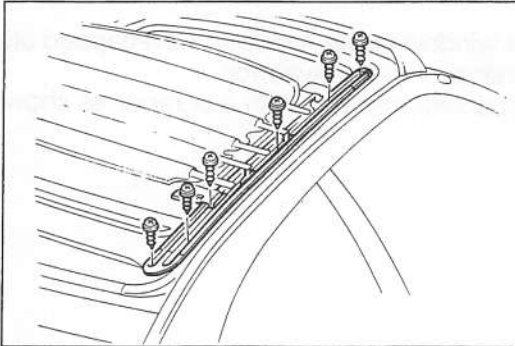
- Open the front of the canvas top about 290mm (11.4 in) from the inner weatherstrip edge and the rear of the canvas top about 170mm (6.7 in) from the inner weatherstrip edge with the emergency handle.

1. Remove the front and rear of the liner assembly from the canvas top.
2. Remove the mounting nuts and remove the canvas top from the front guide.
3. Remove the band from the front guide and roll back the canvas top.
4. Remove the E-ring and remove the liner assembly from the front guide.
5. Remove the mounting nuts and remove the canvas top from the rear guide.
6. Remove the band from the rear guide and roll forward the canvas top.

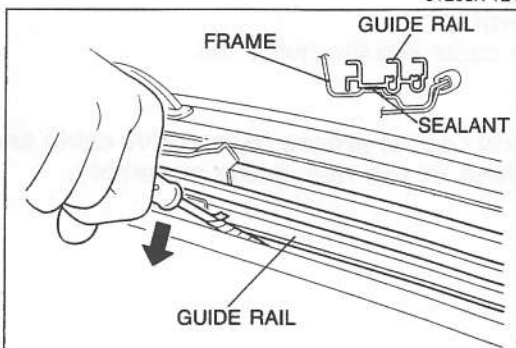




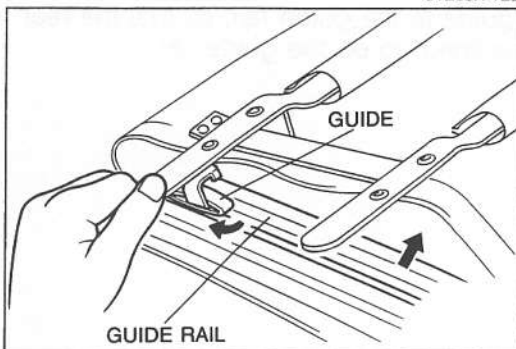
01E0SX-120



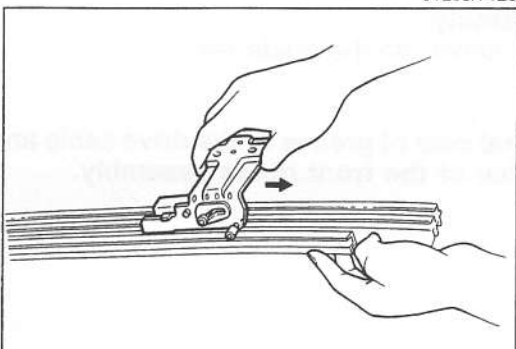
01E0SX-121



01E0SX-122



01E0SX-123



01E0SX-124

7. Pull the canvas top off the liner assembly ribs.

### Liner assembly

1. Remove the front and rear rail cover mounting screws.
2. Remove the guide rail mounting screws.

### Note

- The guide rails are adhered to the frame by sealant as shown.

3. Insert a protective screwdriver between the guide rail and the frame, and push it down to separate the guide rail from the frame.

### Caution

- Do not damage the guide rail or frame.

4. Remove the front rail cover from the guide rail.
5. Remove the guides of the liner assembly from the guide rail, moving the guide rail inward.

### Caution

- Do not damage the rear rail cover.

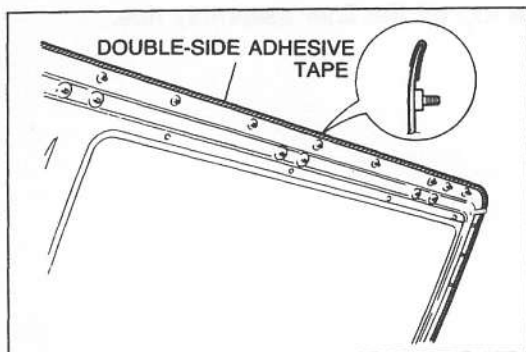
### Front and rear guide assembly

1. Remove the motors from the frame.
2. Slide the front guide from the guide rail.
3. Slide the rear guide from the guide rail.

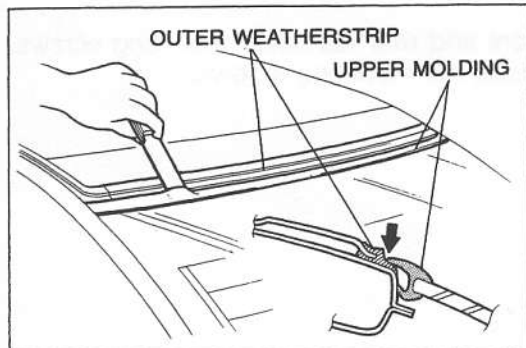
### Caution

- Do not disassemble the front or rear guide assembly.

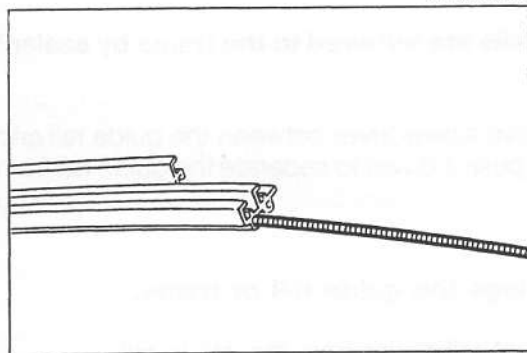




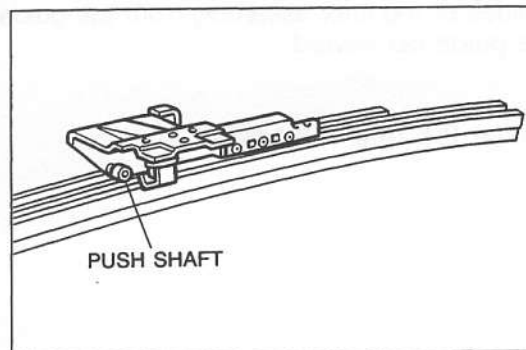
01E0SX-125



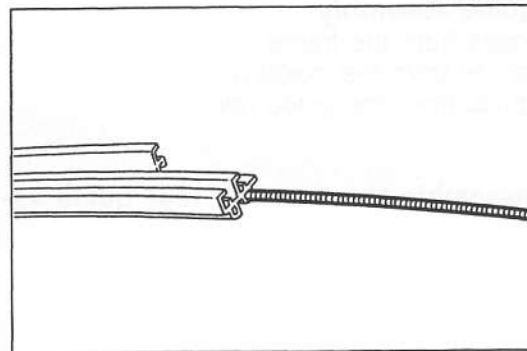
01E0SX-126



01E0SX-127



01E0SX-128



01E0SX-129

### Installation Note

#### Outer weatherstrip

1. Remove the original double - side adhesive tape from the frame.
2. Degrease the frame with ethyl alcohol.
3. Install new double - side adhesive tape onto the frame.
4. Install the weatherstrip to the frame.

#### Note

- Take care that there are no folds or wrinkles in the top or the weatherstrip.

#### Frame

Verify that the rear window upper molding is overlapped atop the outer weatherstrip of the canvas top.

If the overlap is opposite, repair it with a scraper as shown.

#### Rear guide assembly

1. Insert the drive cable into the guide rail.

#### Note

- Apply a liberal coat of grease to the drive cable and friction surface of the rear guide assembly.

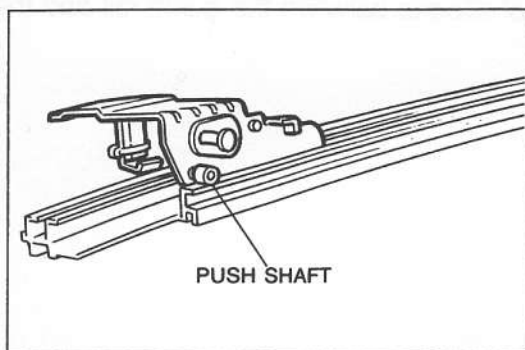
2. Install the rear guide to the guide rail, so that the rear of the push shaft is lined up on the guide rail.

#### Front guide assembly

1. Insert the drive cable into the guide rail.

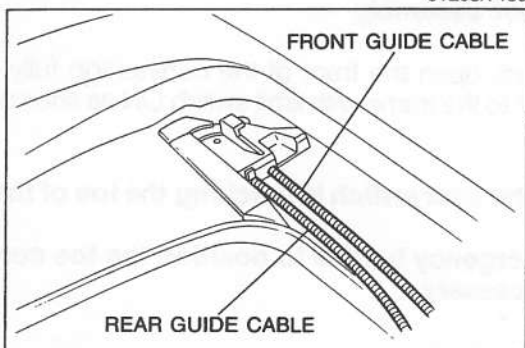
#### Note

- Apply a liberal coat of grease to the drive cable and friction surface of the front guide assembly.



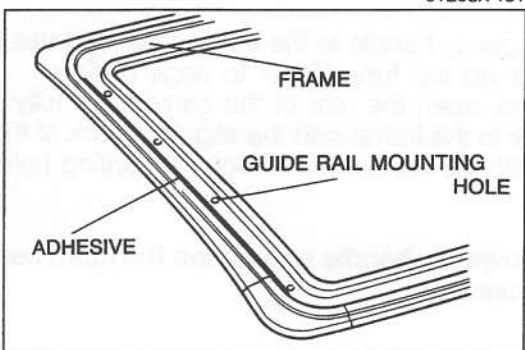
01E0SX-130

2. Install the front guide to the guide rail, so that the front end of the push shaft is lined up on the guide rail.



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3. Insert the drive cable of the front and rear guide into the tube of drive unit.



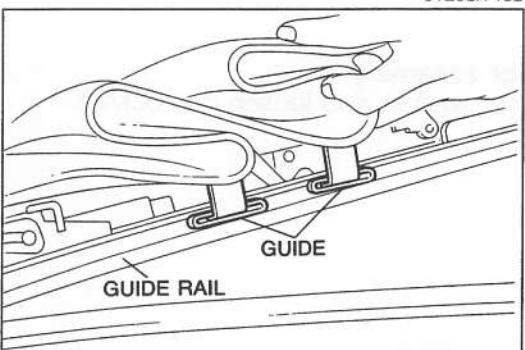
01E0SX-132

#### Guide rail

1. Install the liner assembly to the canvas top.
2. Degrease the frame and guide rail with ethyl alcohol.
3. Apply **0.2mm (0.08 in)** bead of adhesive to the frame.

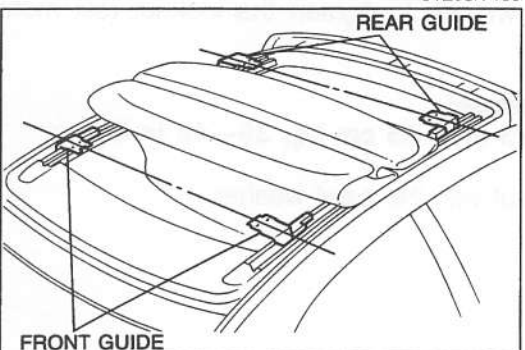
#### Note

- Apply also the outer guide rail adhesive mounting hole of the frame.



01E0SX-133

4. Insert the guides of the liner assembly to the grooves of the guide rail.
5. Install the guide rails onto the frame.



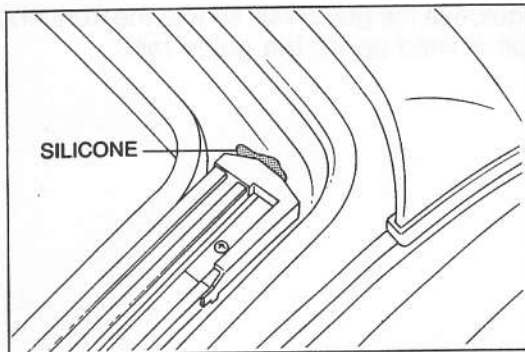
01E0SX-134

6. Align the right and left sides of the front and rear guides.

#### Note

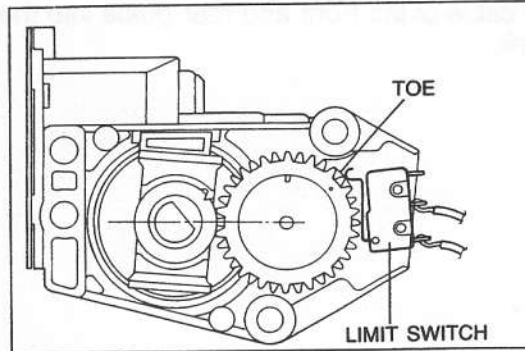
- Pull forward and line up.

7. Install the canvas top to the front and rear guides.



01E0SX-135

8. Apply a bead of silicone between the guide rail and the frame.



01E0SX-136

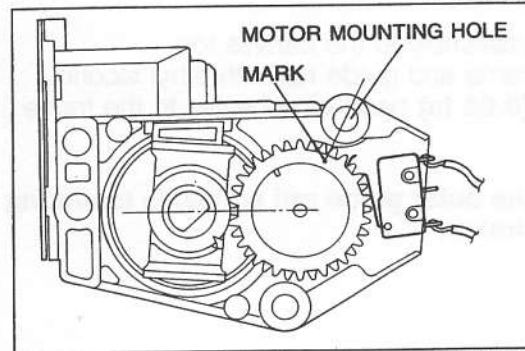
### Canvas top motor assembly

#### Front motor

1. Moving by hand, open the front of the canvas top fully.
2. Install the motor to the frame with limit switch ON as shown.

#### Note

- Verify that the limit switch is touching the toe of the gear.
- Use the emergency handle to position the toe correctly if necessary.



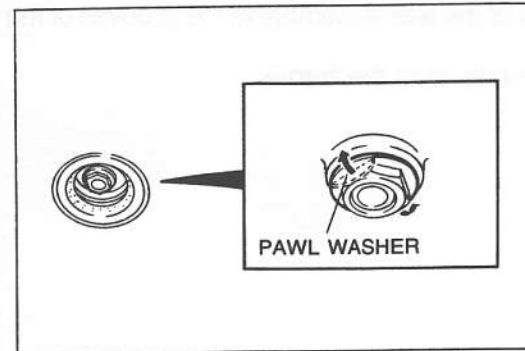
01A0SX-031

#### Rear motor

1. Insert the emergency handle to the front motor and use it to close the canvas top fully. (Refer to page S-54.)
2. Moving by hand, open the rear of the canvas top fully.
3. Install the motor to the frame with the aligning mark of the gear aligned with the center of the motor mounting hole.

#### Note

- Use the emergency handle to position the mark correctly if necessary.

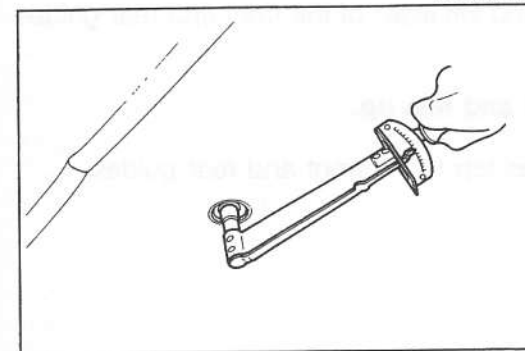


01E0SX-138

### Adjustment

#### Canvas top motor assembly

1. Uncrimp the pawl washer and loosen the locknut.



91G0SX-011

2. Use a torque wrench to tighten the locknut (set motor torque).

#### Tightening torque:

4.4—5.4 N·m (45—55 cm·kg, 39—48 in·lb)

3. Lock the locknut with the pawl washer.

## REPAIR OF CANVAS TOP

## Note

- Repairing a hole in the canvas top differs from repairing a tear in the canvas top. Refer to page S-60 for tear repair.

## Repair of Hole in Canvas Top

1. Place the **repair sheet** (B2Y5 R1 211) over the damaged section. Cut a section out of both the canvas top and the repair sheet with a razor knife and a straightedge.

2. Cut another piece of repair sheet larger than the first for use as a back repair sheet.

3. Trim the canvas top and the repair sheets with scissors.

4. Degrease the repair sheets with ethyl alcohol.

5. Apply **adhesive agent** (K180 W0 313) or equivalent to the section being repaired, the repair sheet, and the back repair sheet.

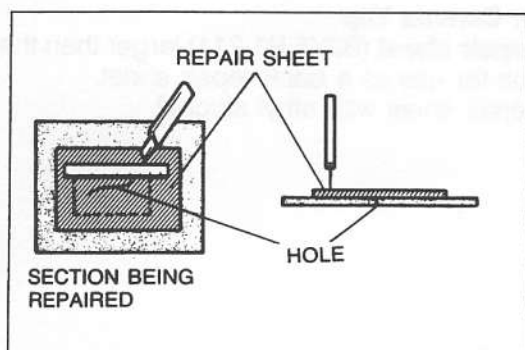
## Note

- Apply a substantial amount of the adhesive agent to the cloth.
- Let stand for a few minutes.

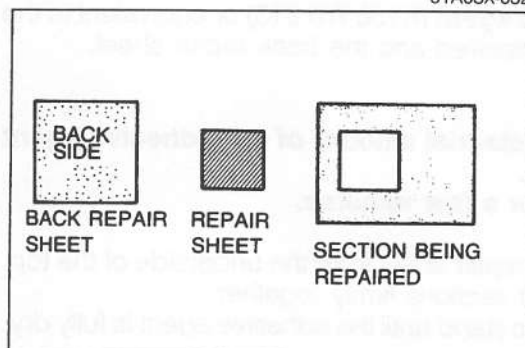
6. Insert the repair sheet squarely into the section of the canvas top being repaired. Then install the back repair sheet from the underside of the top.

7. Press the repair sheets firmly together.

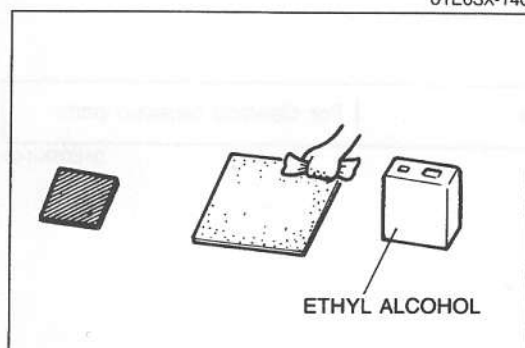
8. Let the canvas top stand until the adhesive agent is fully dry.



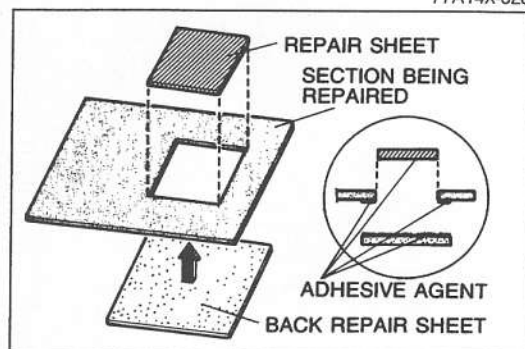
01A0SX-032



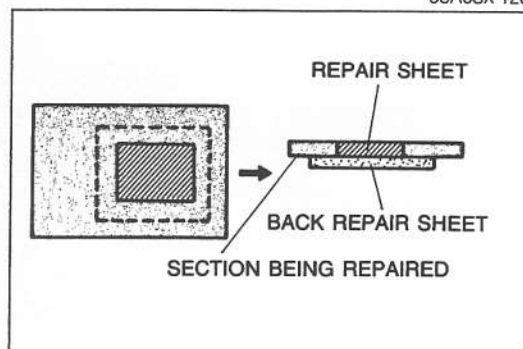
01E0SX-140



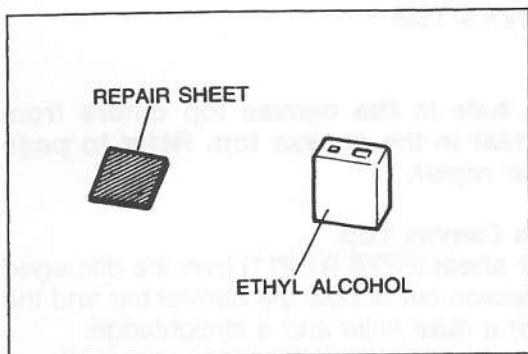
77A14X-028



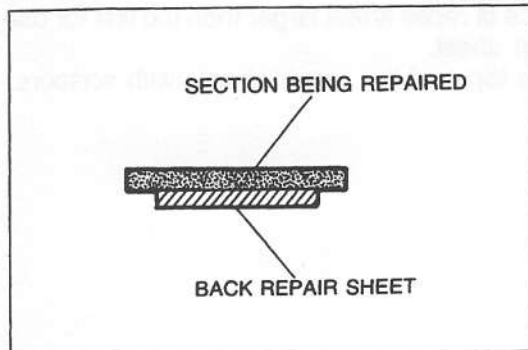
95A0SX-126



01E0SX-141



01E0SX-142



95A0SX-128

### Repair of Tear in Canvas Top

1. Cut a piece of **repair sheet** (B2Y5 R1 211) larger than the damaged section for use as a back repair sheet.
2. Degrease the repair sheet with ethyl alcohol.

3. Apply **adhesive agent** (K180 W0 313) or equivalent to the section being repaired and the back repair sheet.

#### Note

- Apply a substantial amount of the adhesive agent to the cloth.
- Let stand for a few minutes.

4. Install the back repair sheet from the underside of the top.
5. Press the repair sections firmly together.
6. Let the top fabric stand until the adhesive agent is fully dry.

### TOOLS FOR REPAIR AND REPLACEMENT CANVAS TOP

Adhesive agent K180 W0 313	For repairing canvas top	Ethyl alcohol	For cleaning repaired parts
Repair sheet B2Y5 R1 211	For repairing canvas top		

01E0SX-143

## INSTRUMENT PANEL AND CONSOLE

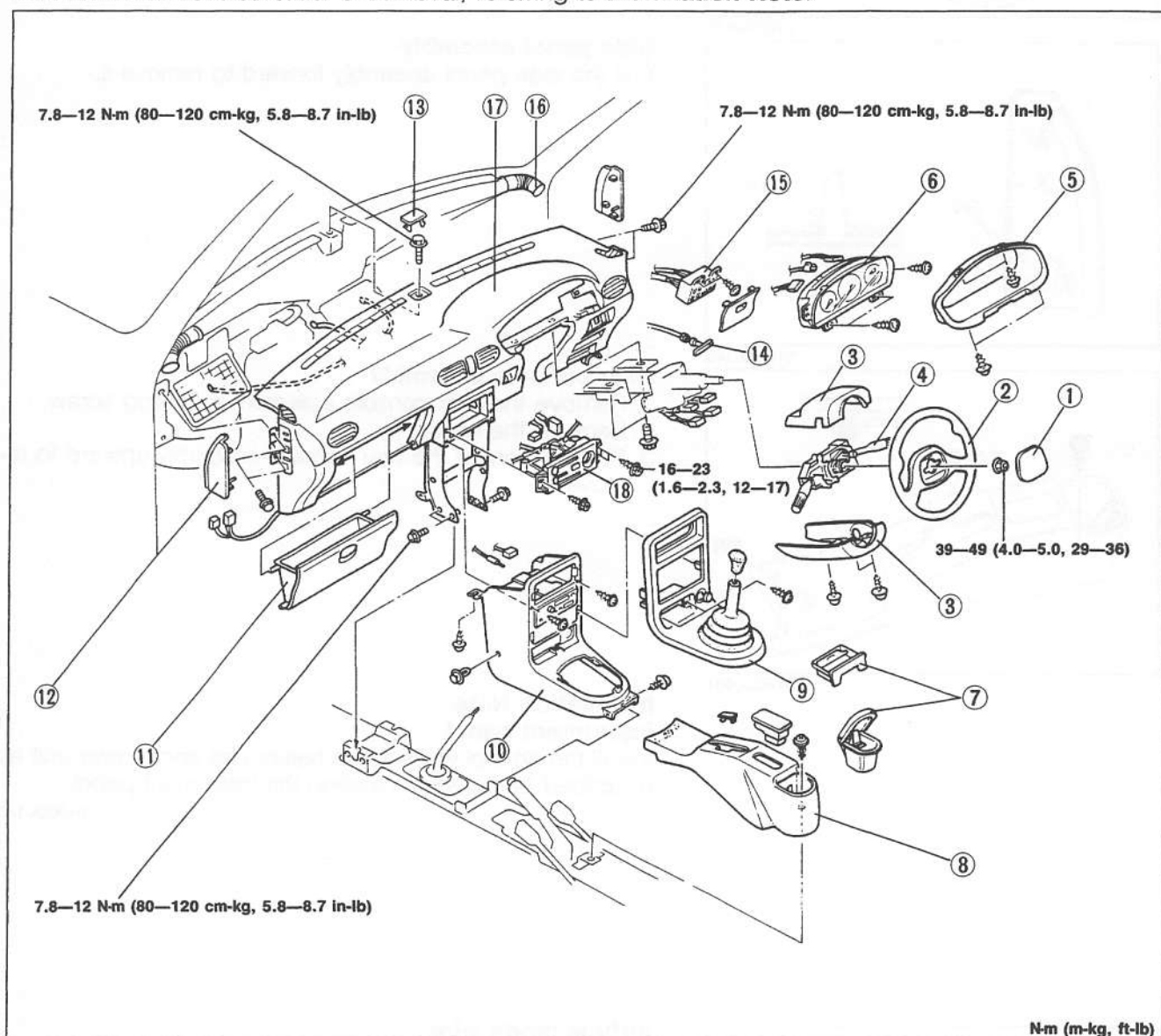
### COMPONENTS

#### Removal / Installation

#### Note

- Remove the control wires of the heater unit and blower unit for removal of the instrument panel.

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure, referring to **Removal Note**.
3. Install in the reverse order of removal, referring to **Installation Note**.

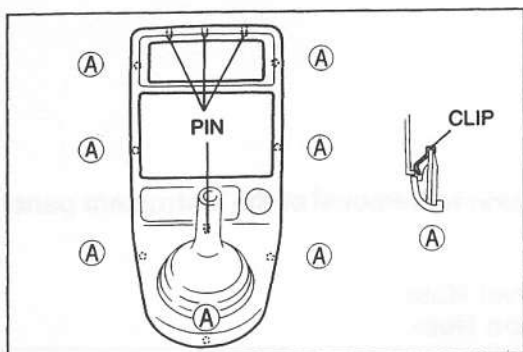


N-m (m-kg, ft-lb)

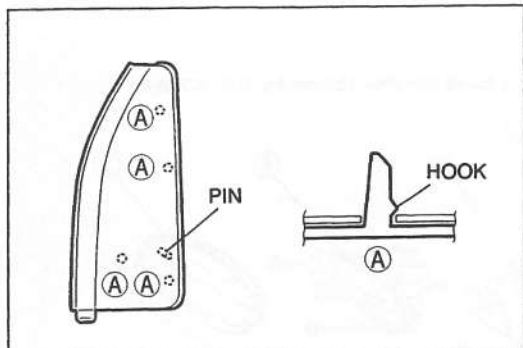
01A0SX-033

- |                              |                                  |                             |
|------------------------------|----------------------------------|-----------------------------|
| 1. Horn cap                  | 6. Instrument cluster            | 12. Side panel assembly     |
| 2. Steering wheel            | 7. Ashtray                       | Removal Note .. page S-62   |
| Removal /                    | 8. Rear console assembly         | 13. Center hole cover       |
| Installation..... Section N  | Removal Note .. page S-62        | 14. Bonnet release knob     |
| 3. Column cover              | 9. Center panel assembly         | 15. Fuse box                |
| 4. Combination switch        | Removal Note .. page S-62        | 16. Side demister duct      |
| Removal /                    | 10. Front console assembly       | 17. Instrument panel        |
| Installation ..... Section T | 11. Glove box assembly           | Installation Note page S-62 |
| 5. Meter hood assembly       | 18. Heater control unit assembly |                             |

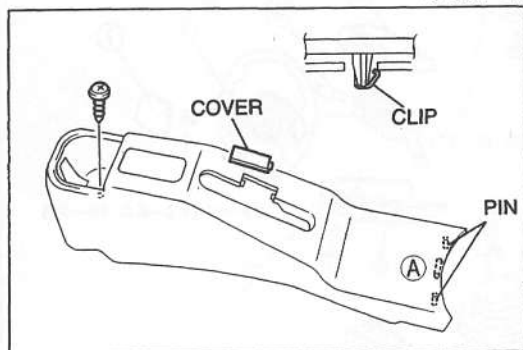




01E0SX-145



01E0SX-146



01A0SX-034

**Removal Note****Center panel assembly**

1. Remove the center panel assembly mounting screws.
2. Pull the center panel assembly forward to remove it.
3. Disconnect the cigar lighter harness connector.

**Side panel assembly**

Pull the side panel assembly forward to remove it.

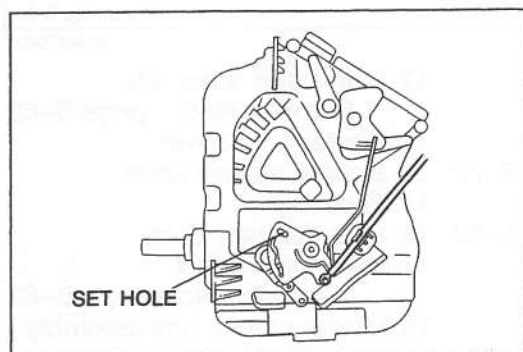
**Rear console assembly**

1. Remove the rear console assembly mounting screw.
2. Remove the cover.
3. Pull the front of the rear console assembly upward to remove it.

**Installation Note****Instrument panel**

Install the control wires to the heater unit and blower unit as described below after installing the instrument panel.

01E0SX-148



01E0SX-149

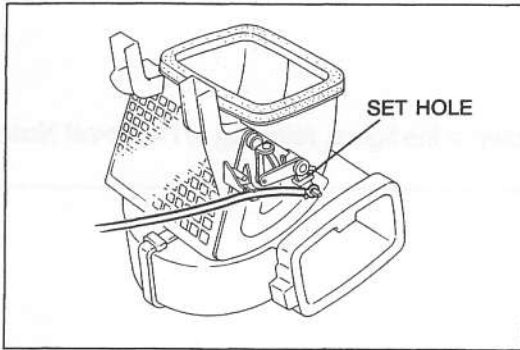
**Airflow mode wire**

1. Set the airflow mode control lever to VENT position.
2. Insert **0.6mm (0.24 in)** diameter screwdriver into the set hole and connect and clamp the wire with the shutter lever on the heater unit at its closest point.

**Caution**

- After installation, move the airflow mode control lever to verify that the wire is securely attached, and that it moves the full stroke from Defrost to Vent.





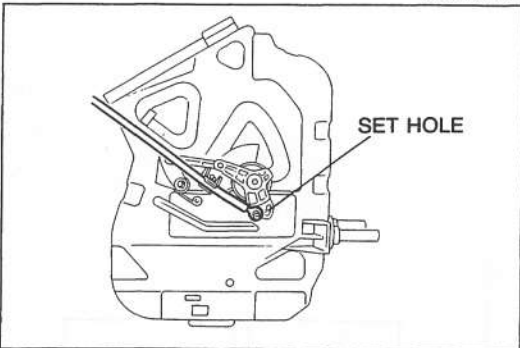
01E0SX-150

## REC-FRESH wire

1. Set the selector lever to Fresh position.
2. Insert **0.6mm (0.24 in)** diameter screwdriver into the set hole and connect and clamp the wire with the shutter lever on the blower unit at its closest point.

### Caution

- After installation, move the Rec-Fresh lever to verify that the wire is securely attached, and that it moves the full stroke from Recirculation to Fresh.



01E0SX-151

## Temperature blend wire

1. Set the temperature blend lever to Max-Hot position.
2. Insert **0.6mm (0.24 in)** diameter screwdriver into the set hole and connect and clamp the wire with the shutter lever on the heater unit fully to the right.

### Caution

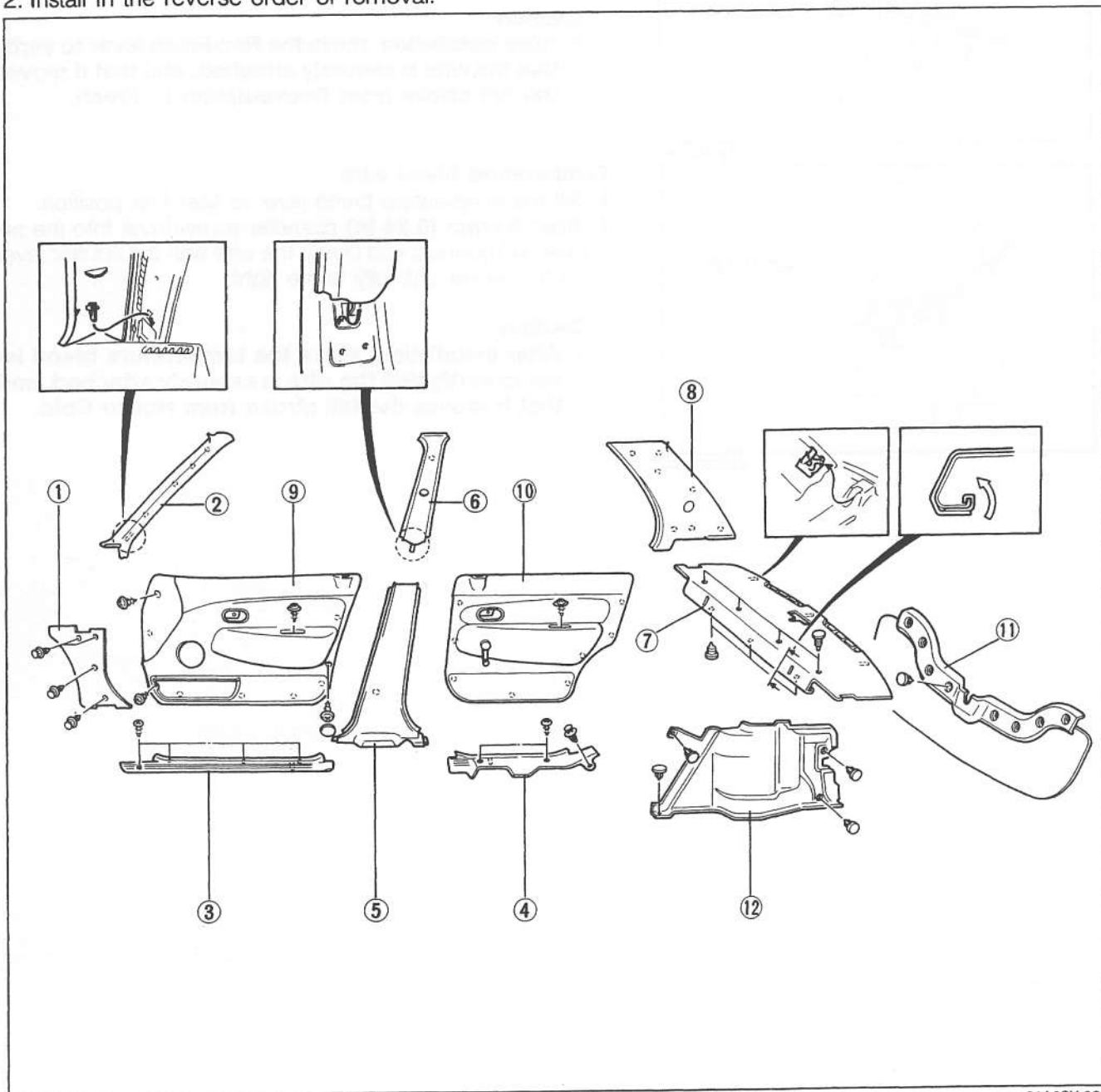
- After installation, move the temperature blend lever to verify that the wire is securely attached, and that it moves the full stroke from Hot to Cold.

## TRIM

## COMPONENTS

## Removal / Installation

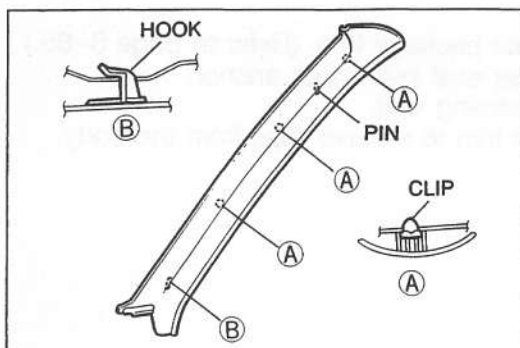
1. Remove the trim clips and fasteners, and remove in the order shown in the figure, referring to **Removal Note**.
2. Install in the reverse order of removal.



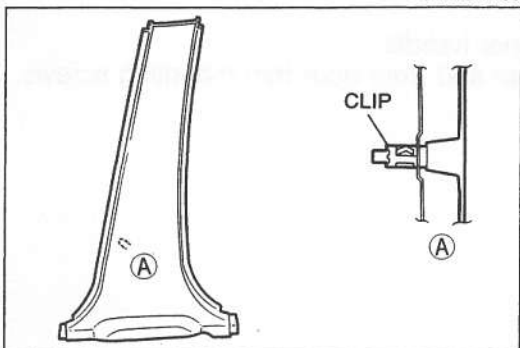
01A0SX-035

1. Front side trim
2. A-pillar trim  
Removal Note..... page S-65
3. Front scuff plate
4. Rear scuff plate
5. B-pillar lower trim  
Removal Note..... page S-65
6. B-pillar upper trim  
Removal Note..... page S-65

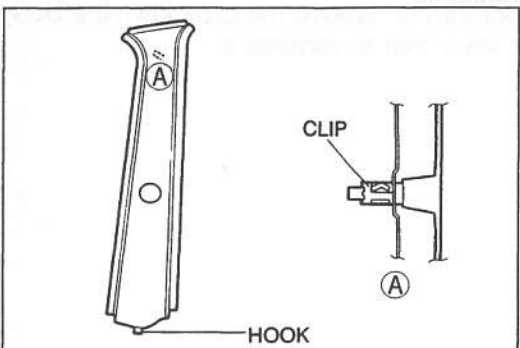
7. Rear package trim  
Removal Note..... page S-65
8. C-pillar trim  
Removal Note..... page S-66
9. Front door trim  
Removal Note..... page S-66
10. Rear door trim  
Removal Note..... page S-66
11. Trunk end trim
12. Trunk side trim



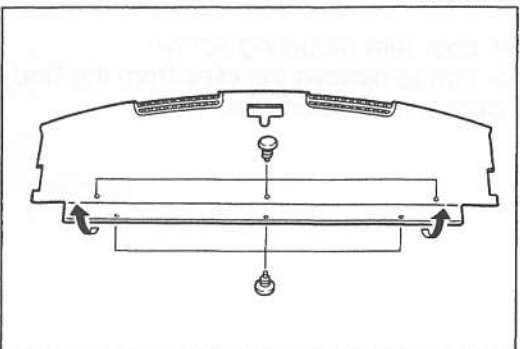
01E0SX-153



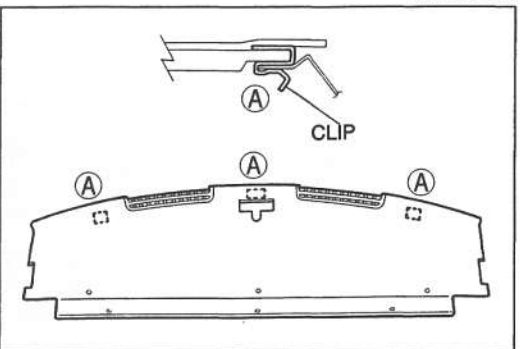
01E0SX-154



01E0SX-155



01A0SX-036



01E0SX-157

## Removal Note

### A-pillar trim

1. Remove the seaming welt.
2. Pull the A-pillar trim to remove the clips from the body.
3. Pull the A-pillar trim upward to remove the hook from the body.

### B-pillar lower trim

1. Remove the front and rear scuff plate.
2. Remove the seaming welt.
3. Pull the B-pillar lower trim to remove it.

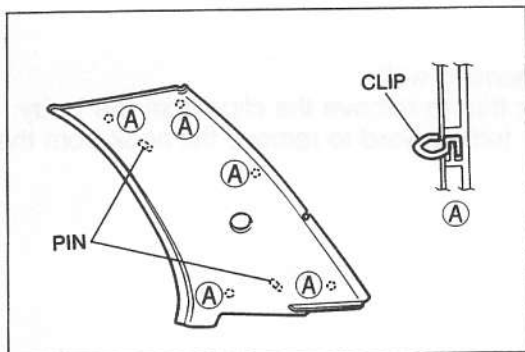
### B-pillar upper trim

1. Remove the B-pillar lower trim. (See above.)
2. Remove the front seat belt upper anchor.
3. Pull the B-pillar upper trim to remove the clip from the body.
4. Pull the B-pillar upper trim upward to remove the hook from the body.

### Rear package trim

1. Remove the rear seat cushion. (Refer to page S-75.)
2. Remove the rear seat side back. (Refer to page S-75.)
3. Lower the rear seat back.
4. Remove the high mount stoplight. (Refer to Section T.)
5. Remove the rear package trim mounting fasteners.
6. Remove the front of the rear package trim from the body.

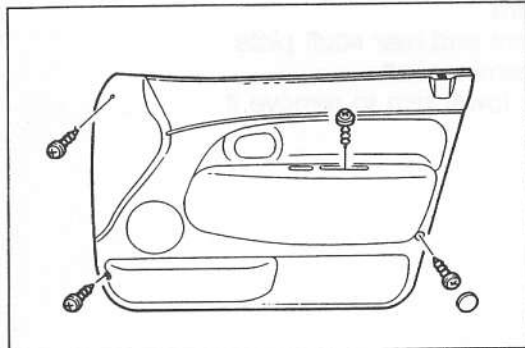
7. Pull the rear package trim forward to remove the clips from the body.



01A0SX-037

**C-pillar trim**

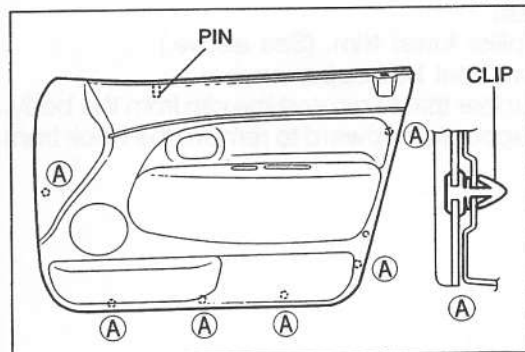
1. Remove the rear package trim. (Refer to page S-65.)
2. Remove the rear seat belt upper anchor.
3. Remove the seaming welt.
4. Pull the C-pillar trim to remove clips from the body.



01E0SX-159

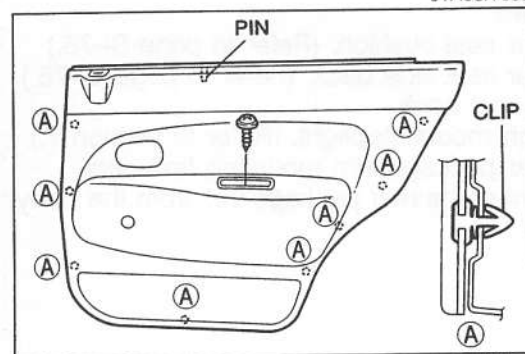
**Front door trim**

1. Remove the inner handle.
2. Remove the cap and front door trim mounting screws.



01A0SX-038

3. Pull the front door trim to remove the clips from the body.
4. Lift up the front door trim to remove it.



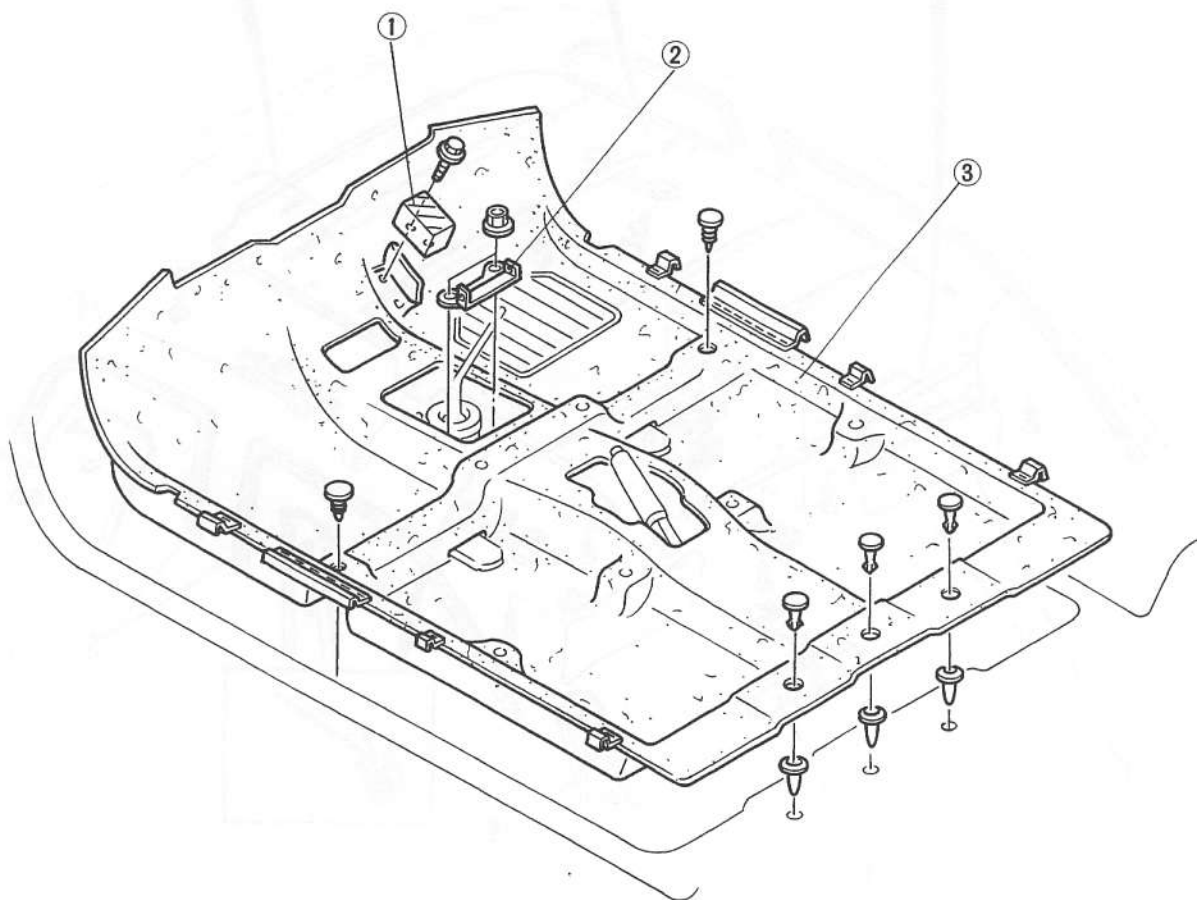
01E0SX-161

**Rear door trim**

1. Remove the rear door trim mounting screw.
2. Pull the rear door trim to remove the clips from the body.
3. Lift up the rear door trim to remove it.

**FLOOR MAT****COMPONENTS****Removal / Installation**

1. Disconnect the negative battery cable.
2. To remove the floor mat, first remove;
  - a. Rear console. (Refer to page S-61.)
  - b. Front seats and rear seat cushion. (Refer to pages S-74, 75.)
  - c. Center panel and front console. (Refer to page S-61.)
  - d. Front side trim, scuff plates, and B-pillar lower trim. (Refer to page S-64.)
  - e. Front seat belt lower anchor. (Refer to page S-72.)
3. Remove the remaining parts in the order shown in the figure.
4. Install in the reverse order of removal.



01A0SX-039

1. Footrest (if equipped)
2. Bracket

3. Floor mat

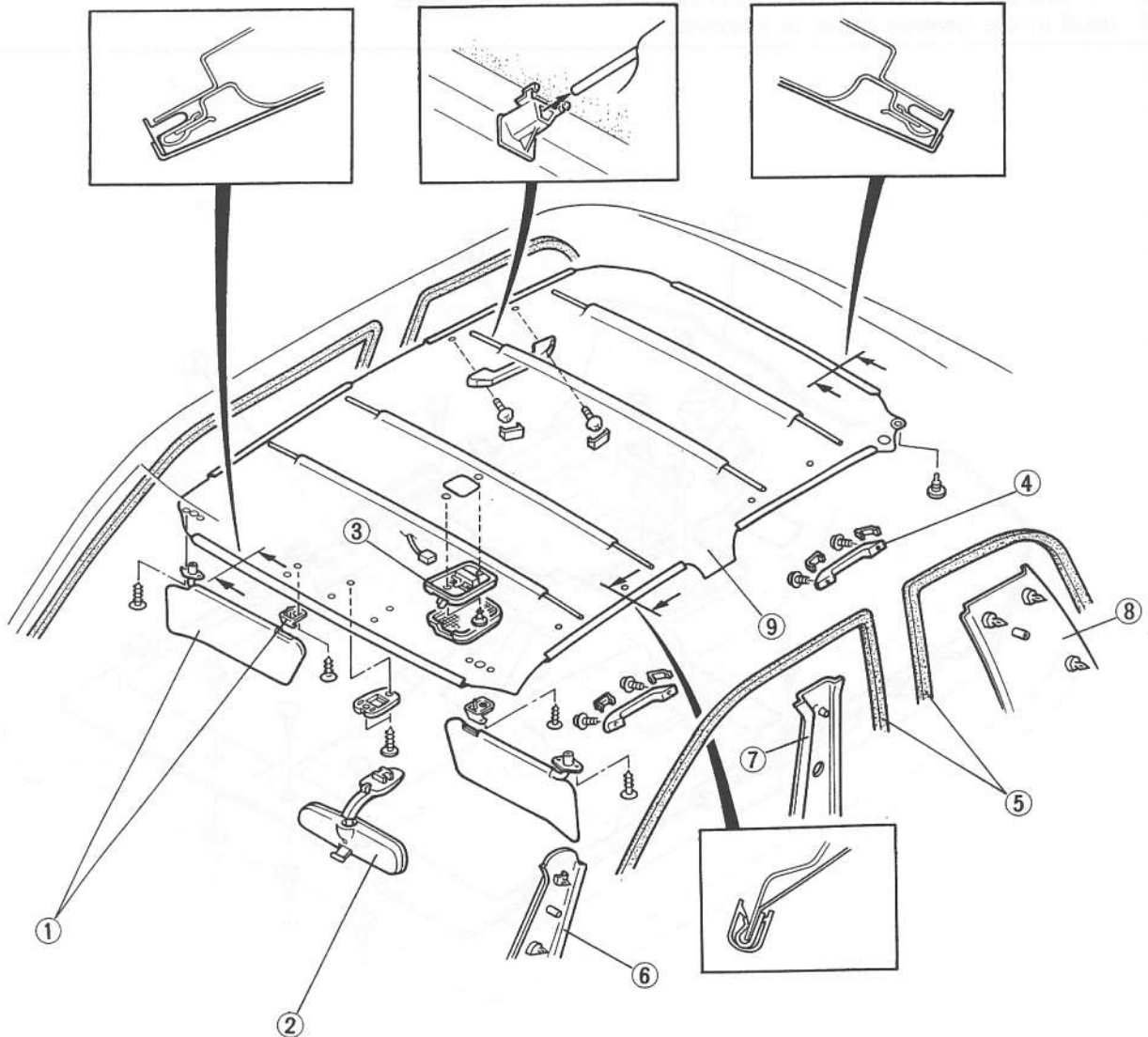
## HEADLINER

## COMPONENTS

## Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal, referring to **Installation Note**.

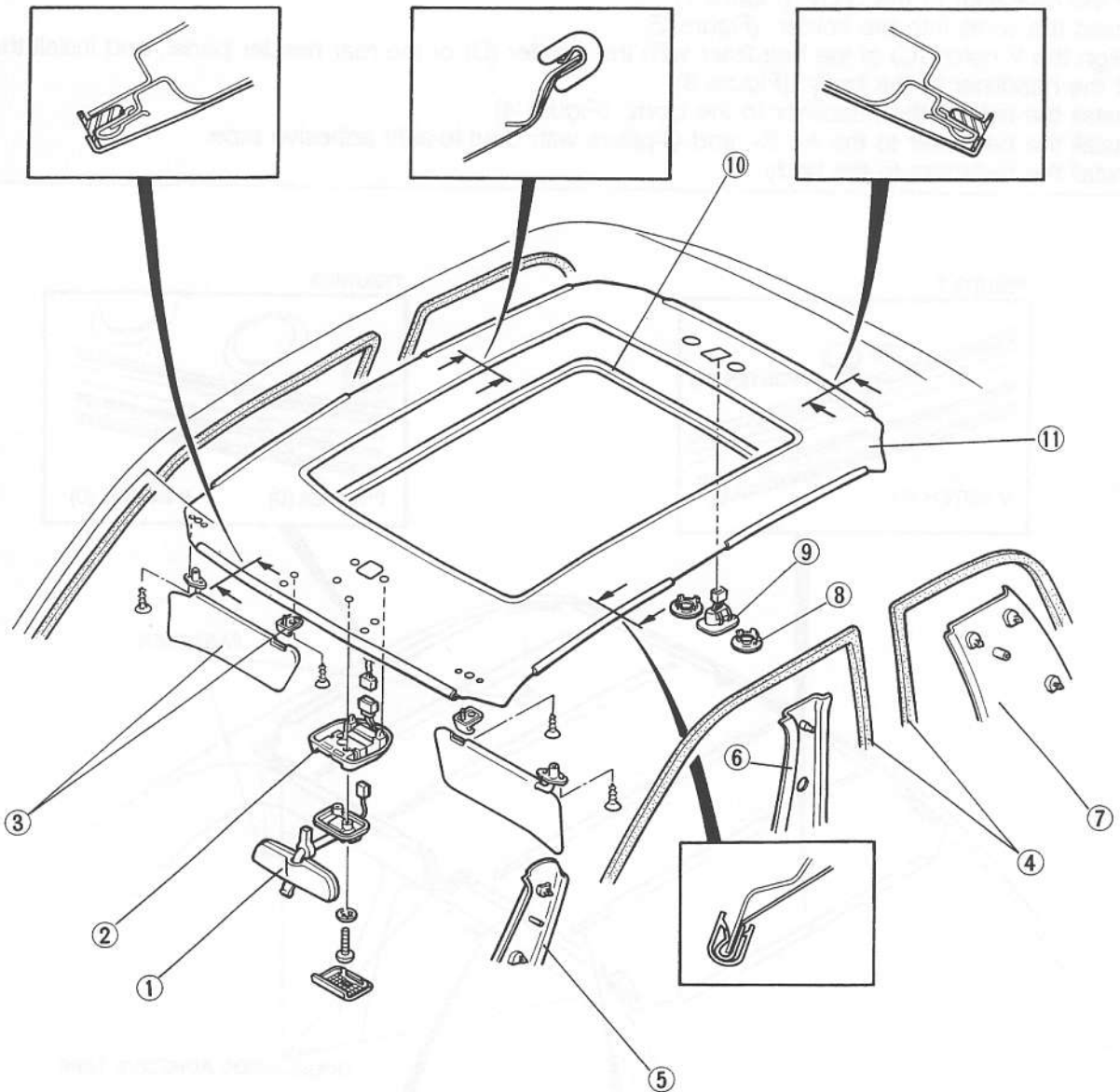
## NORMAL ROOF



01A0SX-040

- |  |  |
|--|--|
| 1. Sunvisor and adapter                | 7. B-pillar upper trim                 |
| 2. Rearview mirror                     | Removal / Installation ..... page S-64 |
| 3. Interior lamp                       | 8. C-pillar trim                       |
| 4. Assist handle                       | Removal / Installation ..... page S-64 |
| 5. Seaming welt                        | 9. Headliner                           |
| 6. A-pillar trim                       | Installation Note ..... page S-70      |
| Removal / Installation ..... page S-64 |  |

## CANVAS TOP



01A0SX-041

- |  |  |
|--|--|
| 1. Interior lamp and rearview mirror   | 7. C-pillar trim                       |
| 2. Overhead console                    | Removal / Installation ..... page S-64 |
| 3. Sunvisor and adapter                | 8. Motor cover                         |
| 4. Seaming welt (door)                 | 9. Canvas top sub switch               |
| 5. A-pillar trim                       | 10. Seaming welt (canvas top)          |
| Removal / Installation ..... page S-64 | 11. Headliner                          |
| 6. B-pillar upper trim                 | Installation Note ..... page S-71      |
| Removal / Installation ..... page S-64 |  |



**Removal Note****Headliner (Normal roof)**

1. Degrease the body with ethyl alcohol where the double-side adhesive tape was installed.
2. Remove the original double-side adhesive tape from the headliner, and degrease it with ethyl alcohol (when reused).
3. Install new double-side adhesive tape onto the headliner (when reused).
4. Align the V notch (A) of the headliner with the pointer (B) of the front header panel, and install the front of the headliner to the body. (Figure 1)
5. Insert the wires into the holder. (Figure 2)
6. Align the V notch (C) of the headliner with the pointer (D) of the rear header panel, and install the rear of the headliner to the body. (Figure 3)
7. Install the side of the headliner to the body. (Figure 4)
8. Install the headliner to the A-, B-, and C-pillars with double-side adhesive tape.
9. Install the fasteners to the body.

FIGURE 1

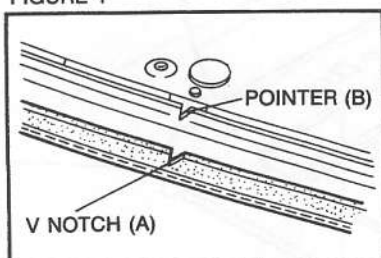


FIGURE 3

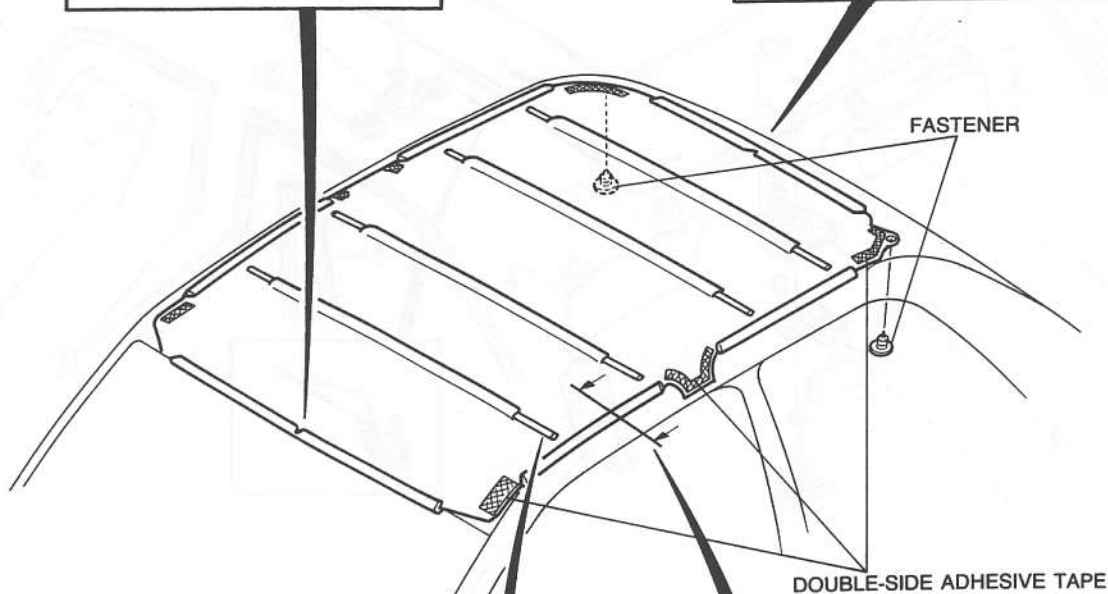
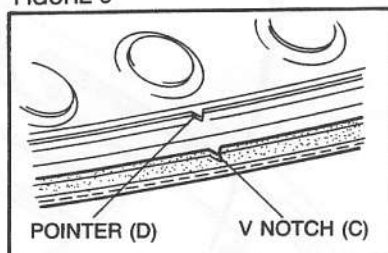


FIGURE 2

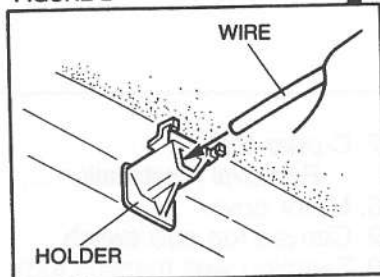
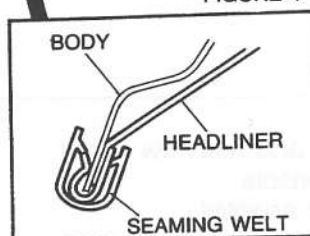


FIGURE 4



## Headliner (Canvas top)

1. Degrease the body with ethyl alcohol where the double-side adhesive tape was installed.
2. Remove the original double-side adhesive tape from the headliner, and degrease it with ethyl alcohol (when reused).
3. Install new double-side adhesive tape onto the headliner (when reused).
4. Align the V notch (A) of the headliner with the pointer (B) of the front header panel, and install the front of the headliner to the body. (Figure 1)
5. Align the mark (C) of the headliner with the V notch (D) of the body, and install the headliner to the body. (Figure 2)
6. Align the V notch (C) of the headliner with the pointer (F) of the rear header panel, and install the rear of the headliner to the body. (Figure 3)
7. Install the side of the headliner on the body. (Figure 4)
8. Install the headliner to the A-, B-, and C-pillars with double-side adhesive tape.
9. Install the fasteners to the body.

FIGURE 1

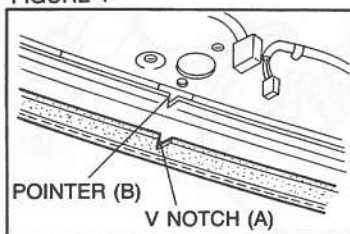


FIGURE 2

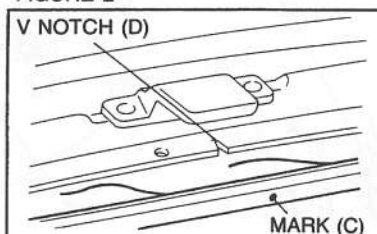


FIGURE 3

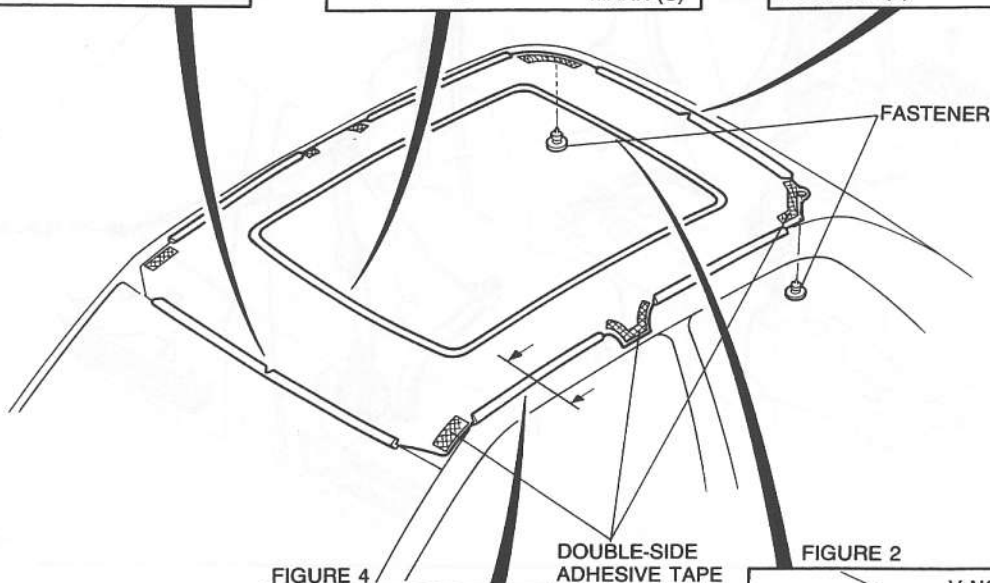
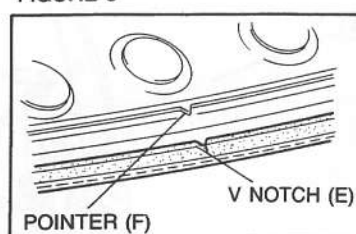
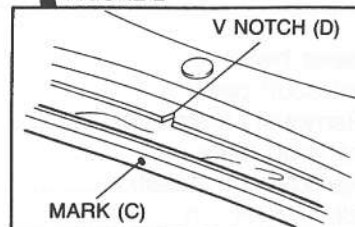


FIGURE 4



FIGURE 2



## SEAT BELT

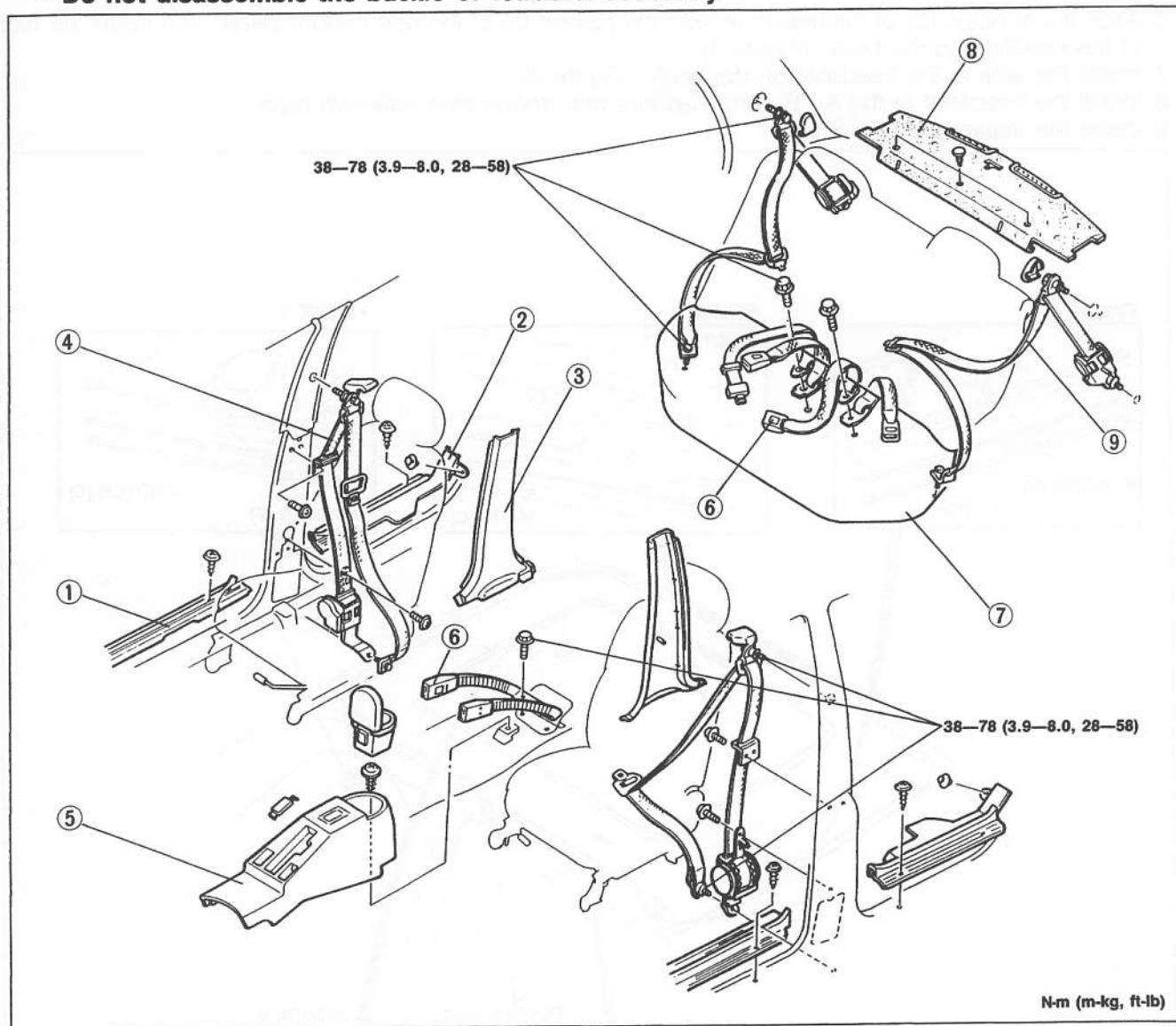
## COMPONENTS

## Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.

## Caution

- Do not disassemble the buckle or retractor assembly.



N-m (m-kg, ft-lb)

01A0SX-042

## Front seat belt

1. Front scuff plate  
Removal / Installation ..... page S-64
2. Rear scuff plate  
Removal / Installation ..... page S-64
3. B-pillar lower trim  
Removal / Installation ..... page S-64
4. Front seat belt  
Inspection ..... page S-73
5. Rear console  
Removal / Installation ..... page S-61
6. Buckle

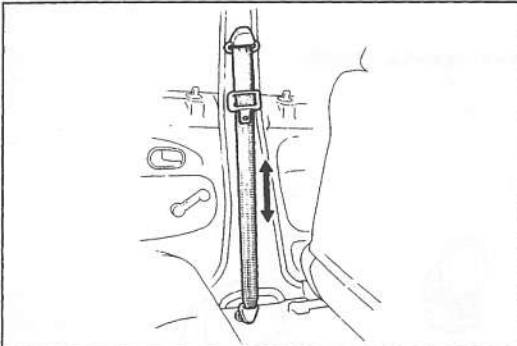
## Rear seat belt

7. Rear seat cushion  
Removal / Installation ..... page S-75
8. Rear package trim  
Removal / Installation ..... page S-64
9. Rear seat belt  
Inspection ..... page S-73

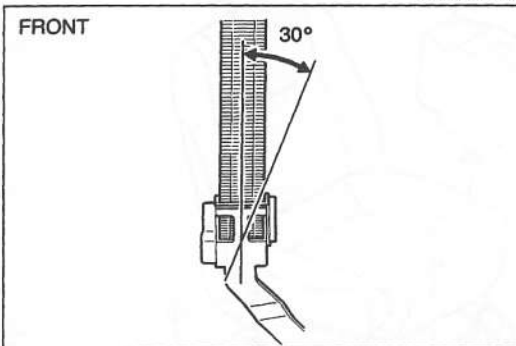
### SEAT BELT Inspection Webbing

1. Inspect the webbing for scars, tears, and wear and for deformation of the fittings.
2. If any problem is found, replace the seat belt assembly.

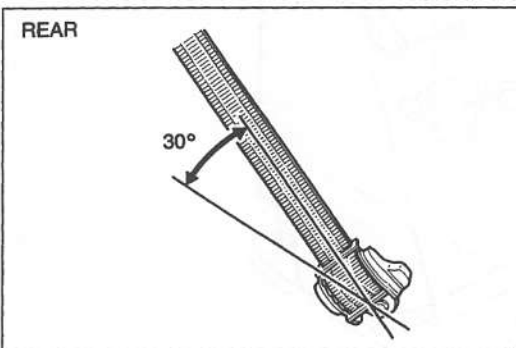
01E0SX-168



01E0SX-169



01E0SX-170



### Emergency locking retractor

1. Verify that the belt can be pulled out smoothly, and that it moves smoothly when worn.
2. Verify that the retractor locks when the belt is quickly pulled.

3. Remove the retractor.
4. Hold the retractor as it would be installed.
5. Slowly incline the retractor while pulling out the belt.
6. Verify that the retractor locks at **approx. 30 degrees** inclination.
7. If not as specified, replace the seat belt assembly.

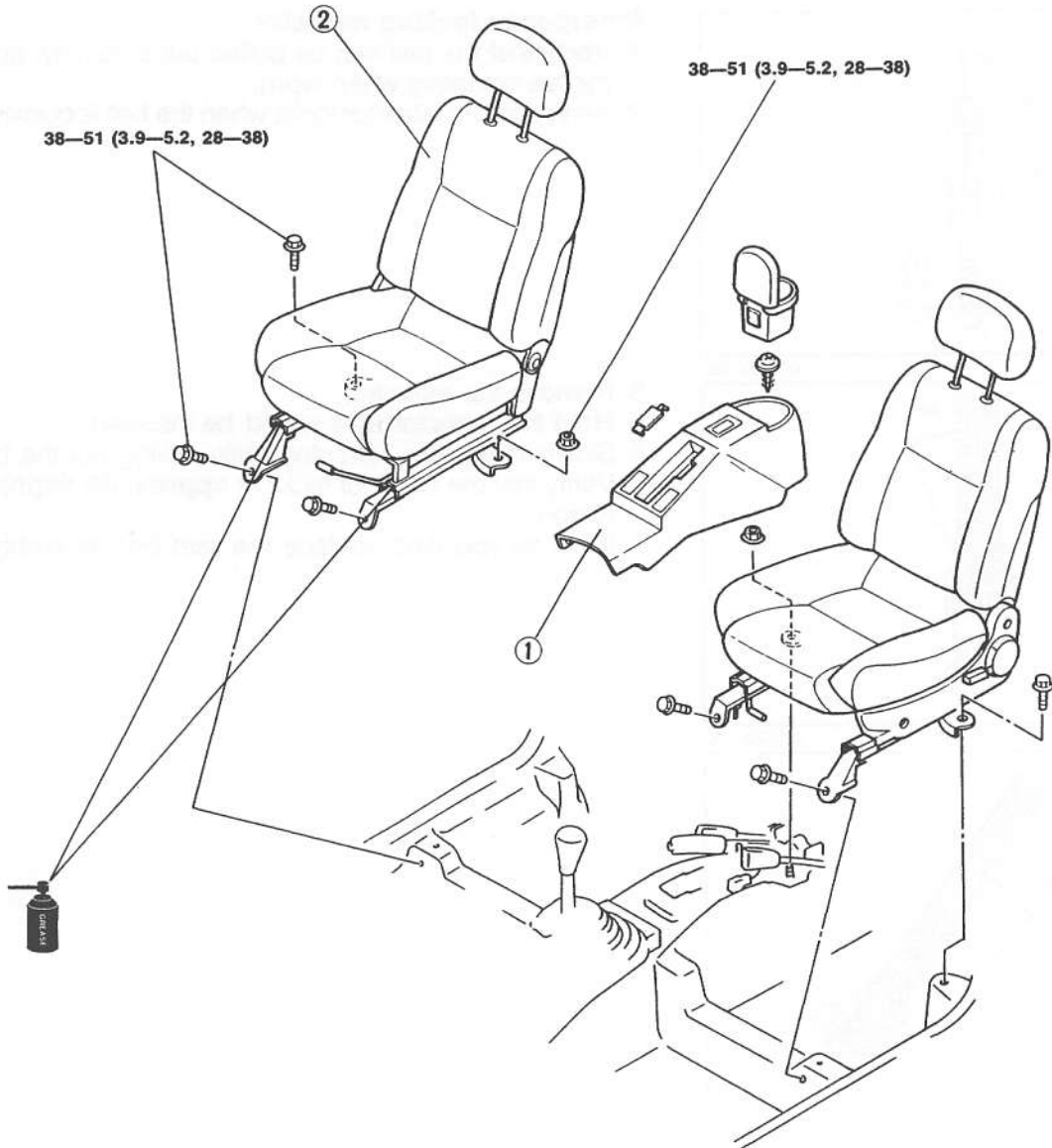
## SEAT

## COMPONENTS

## Removal / Installation

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.

## FRONT SEAT



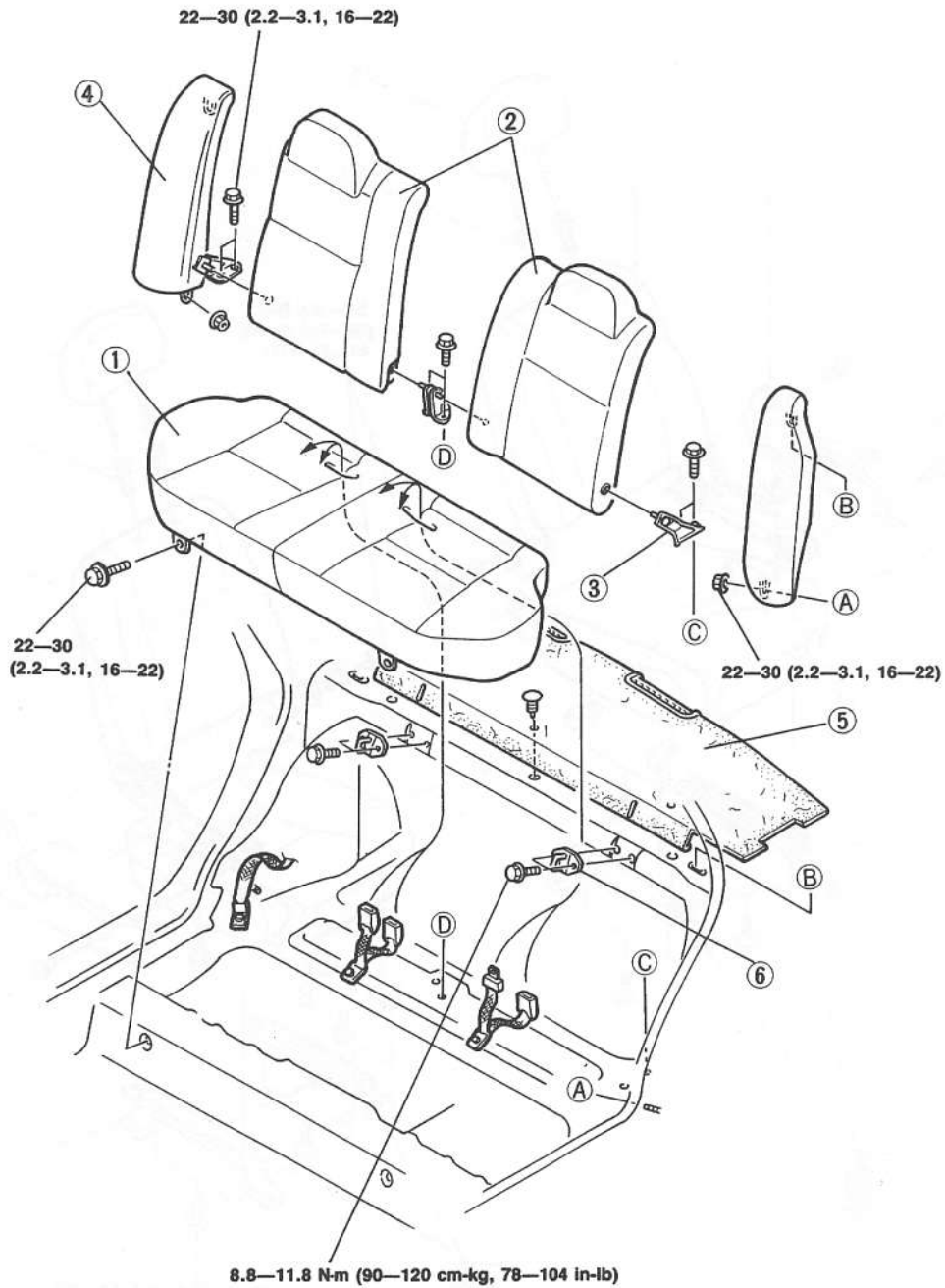
N-m (m-kg, ft-lb)

01A0SX-043

1. Rear console  
Removal / Installation ..... page S-61

2. Front seat  
Disassembly / Assembly ..... page S-76

## REAR SEAT



N-m (m-kg, ft-lb)

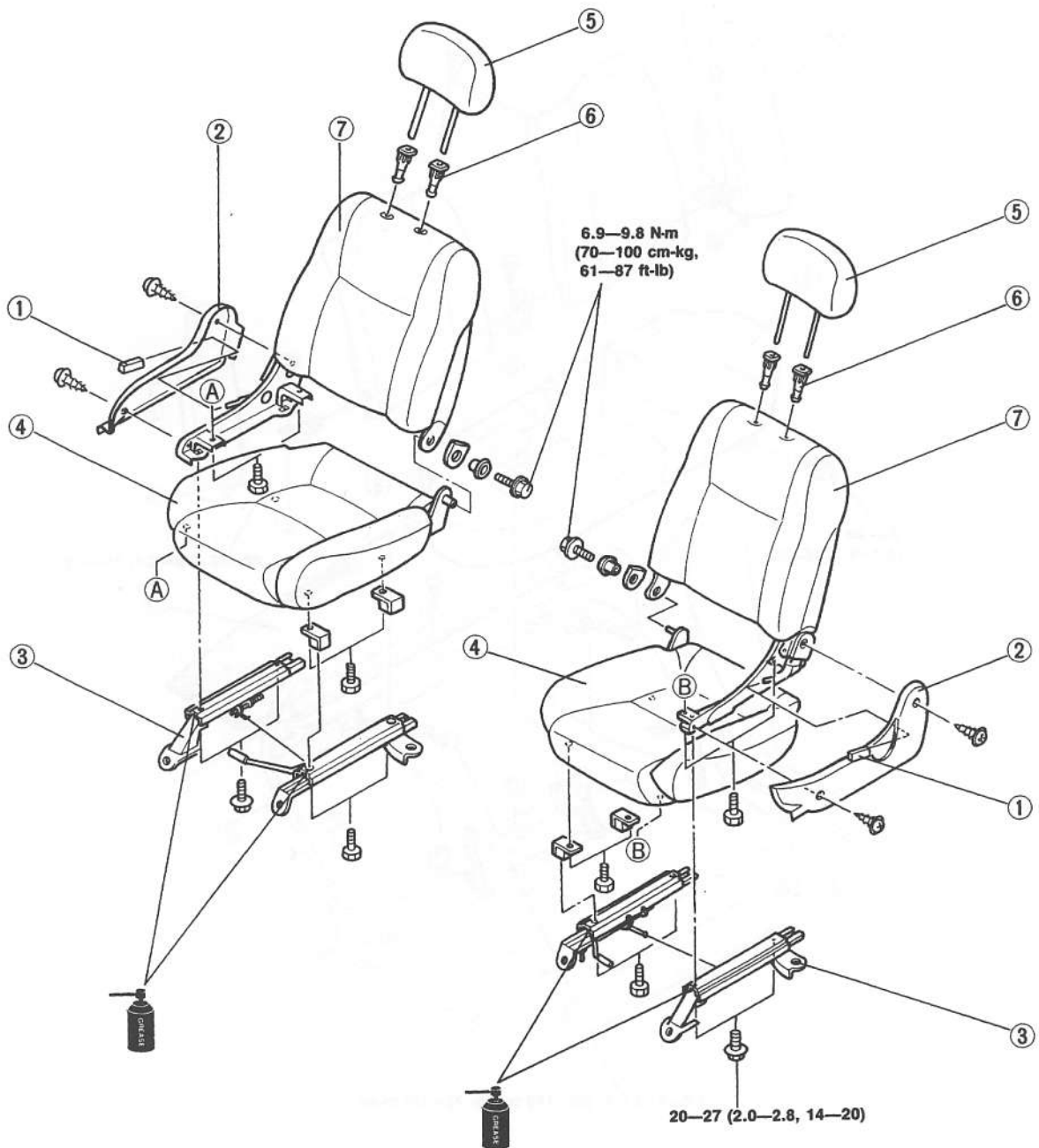
01A0SX-044

1. Rear seat cushion
2. Rear seat back
3. Hinge
4. Rear seat side back

5. Rear package trim  
Removal / Installation ..... page S-64
6. Striker

**Disassembly / Assembly**

1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
2. Assemble in the reverse order of disassembly.



N-m (m-kg, ft-lb)

01A0SX-045

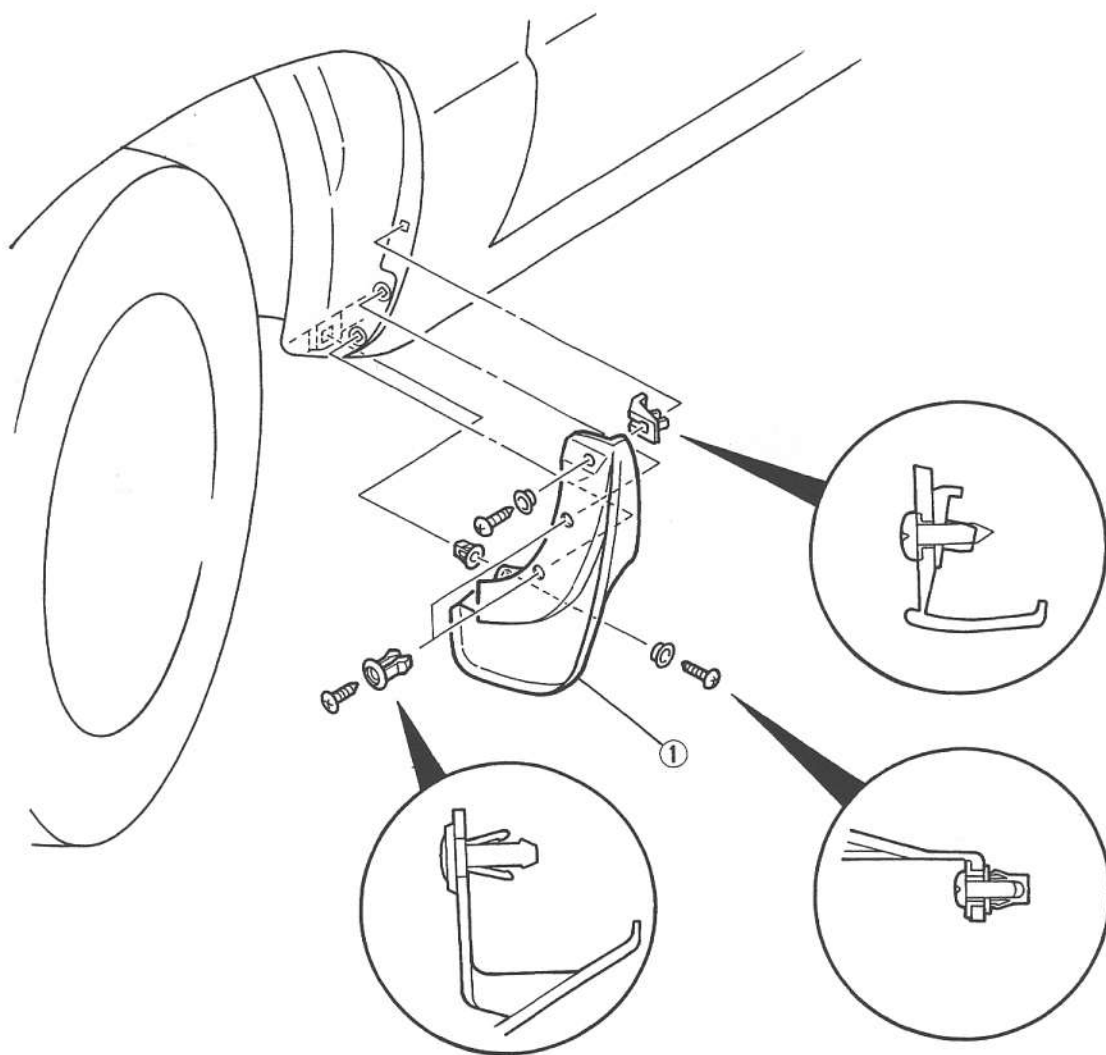
1. Reclining knob
2. Side cover
3. Seat slide
4. Seat cushion

5. Headrest
6. Headrest guide
7. Seat back



**FRONT FLAP****COMPONENTS****Removal / Installation**

1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



01E0SX-193

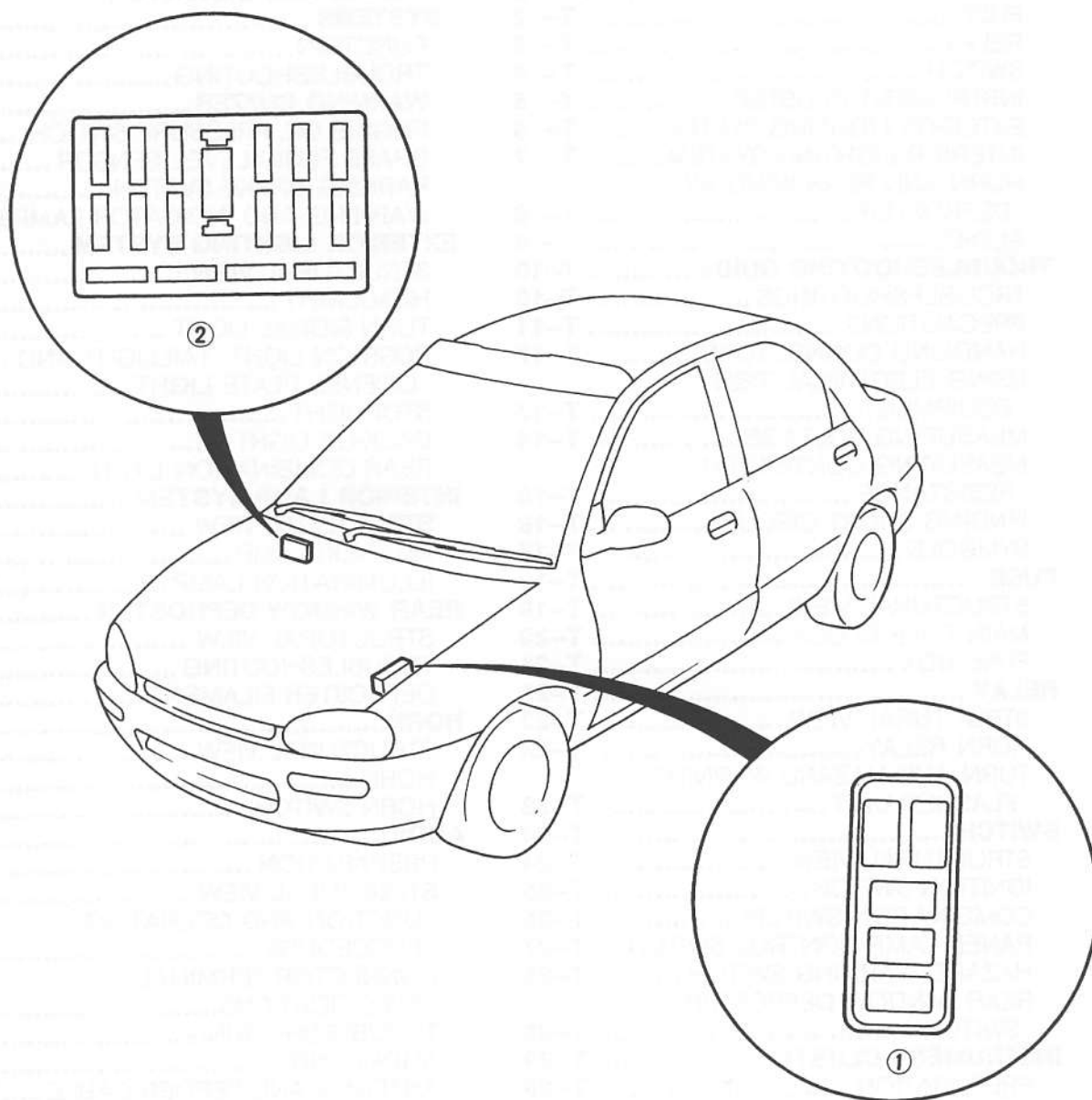
1. Front flap

# BODY ELECTRICAL SYSTEM

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## FUSE

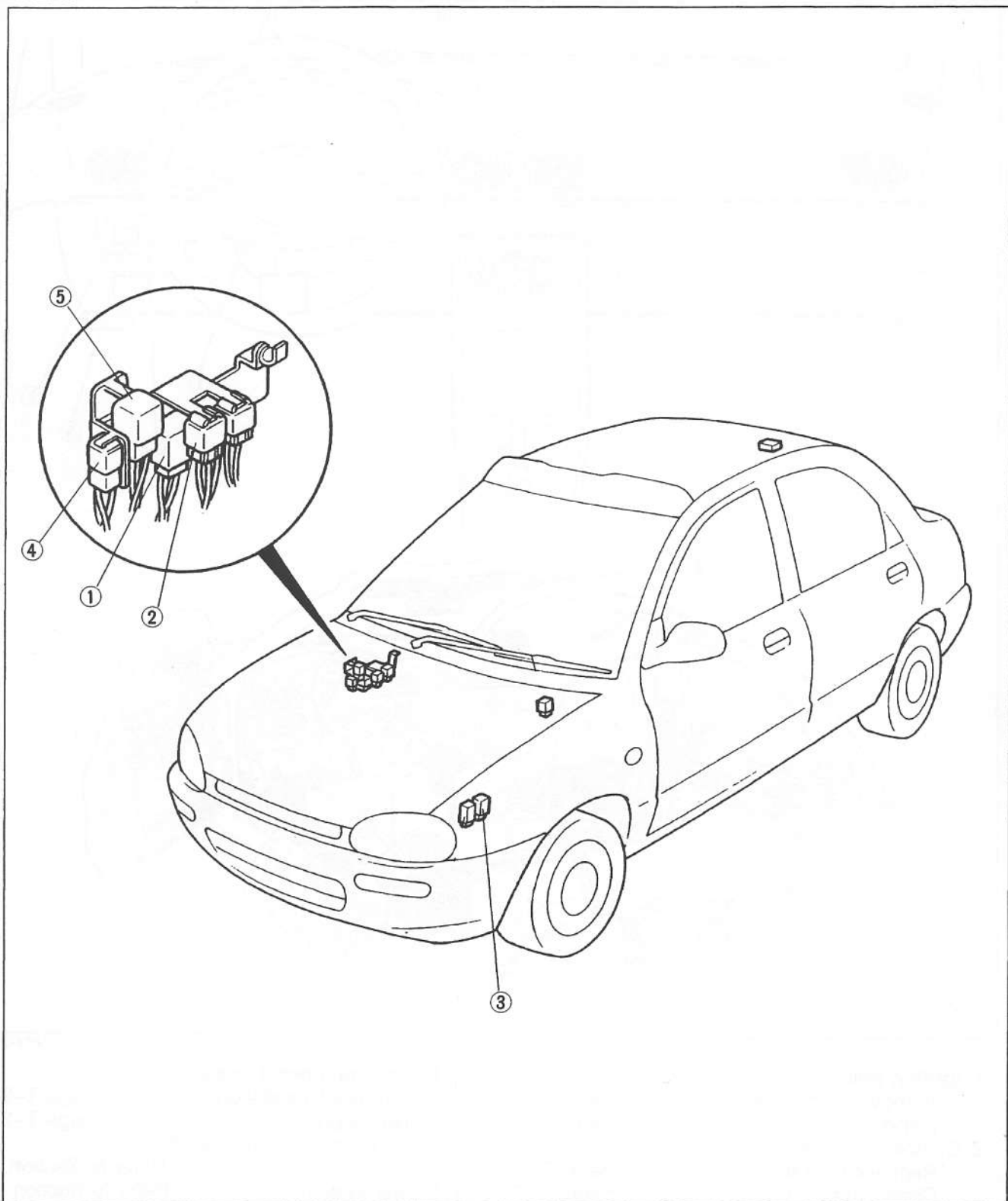


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# RELAY

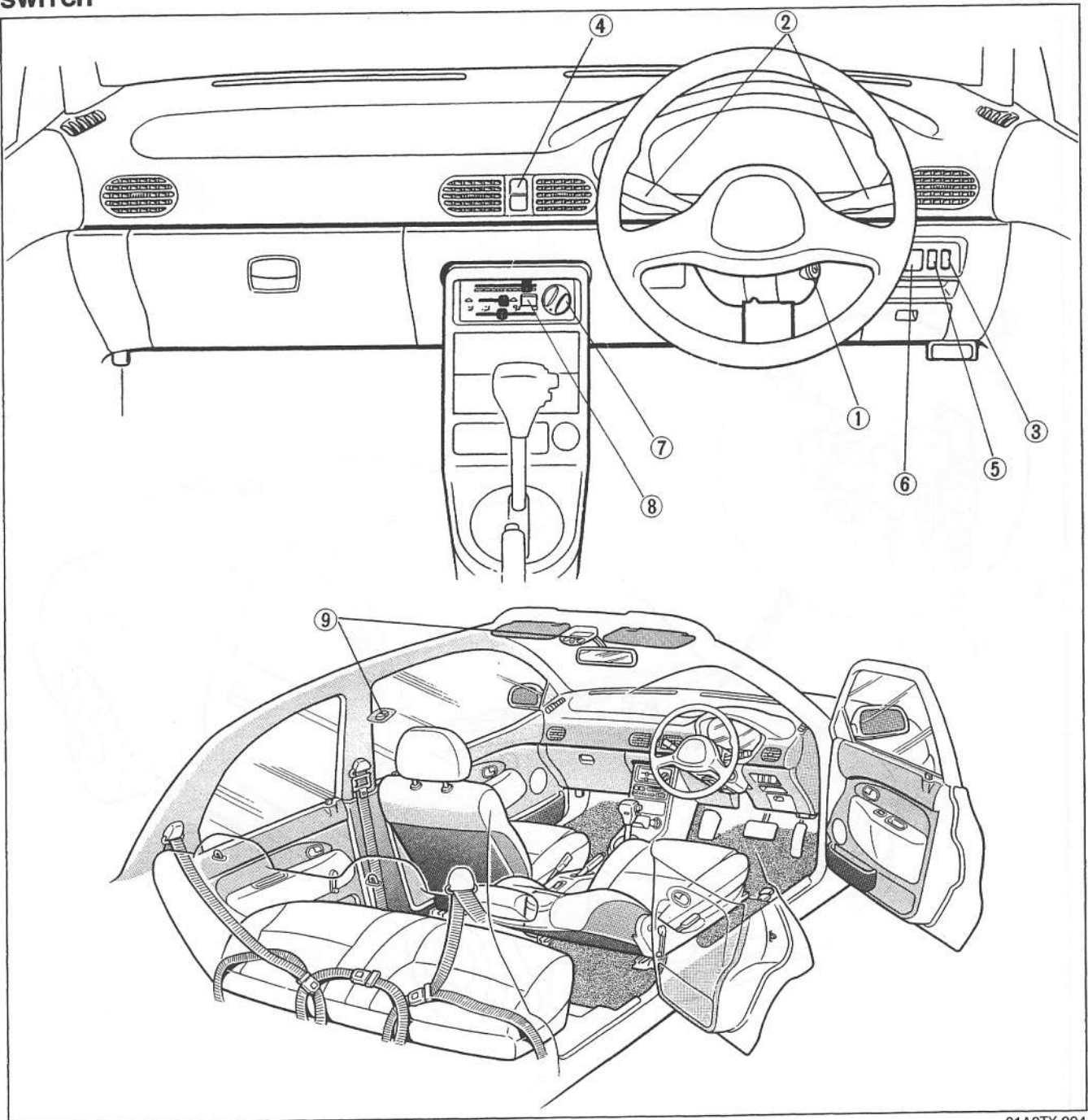


01A0TX-003

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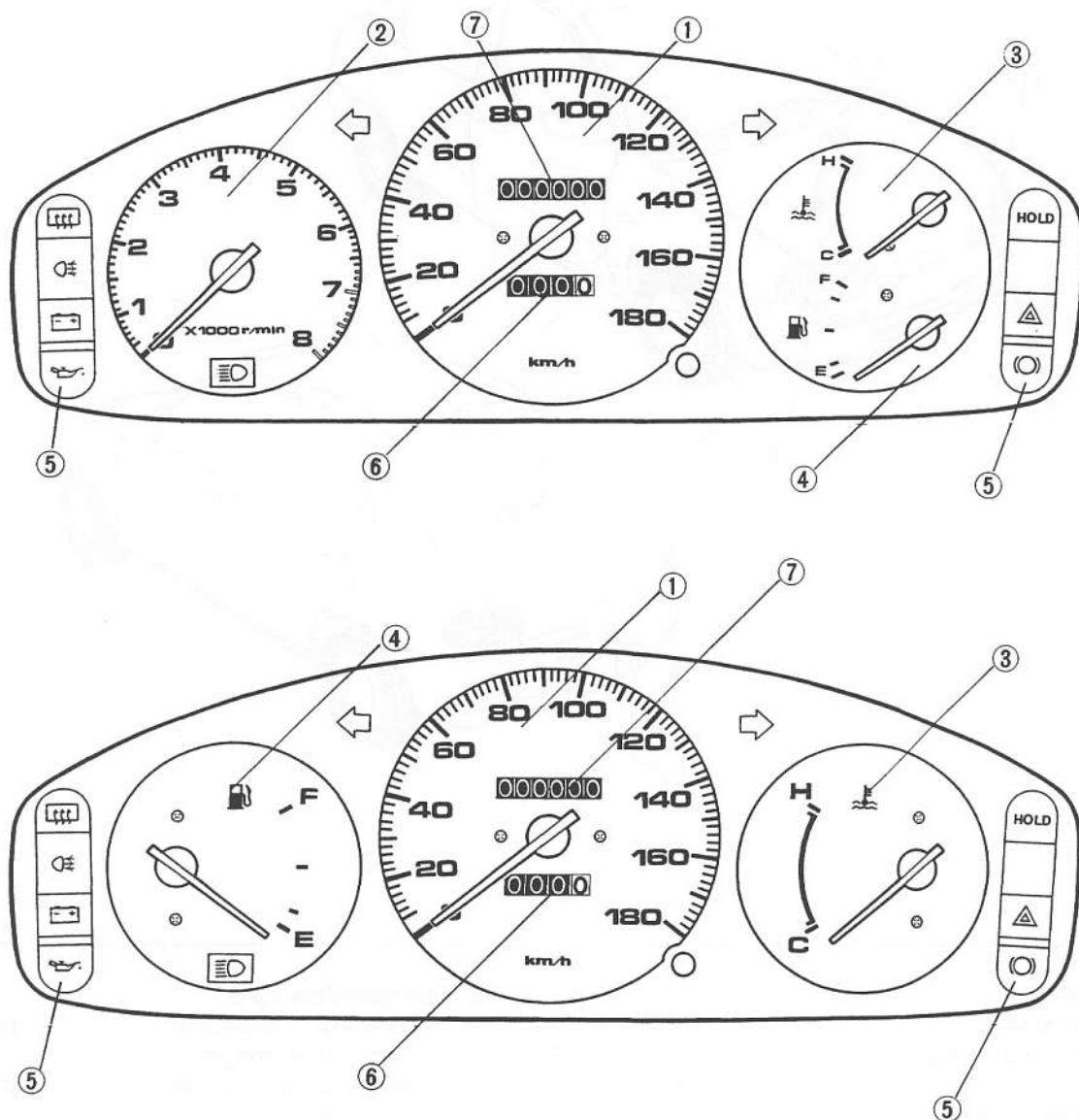
## SWITCH



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## INSTRUMENT CLUSTER

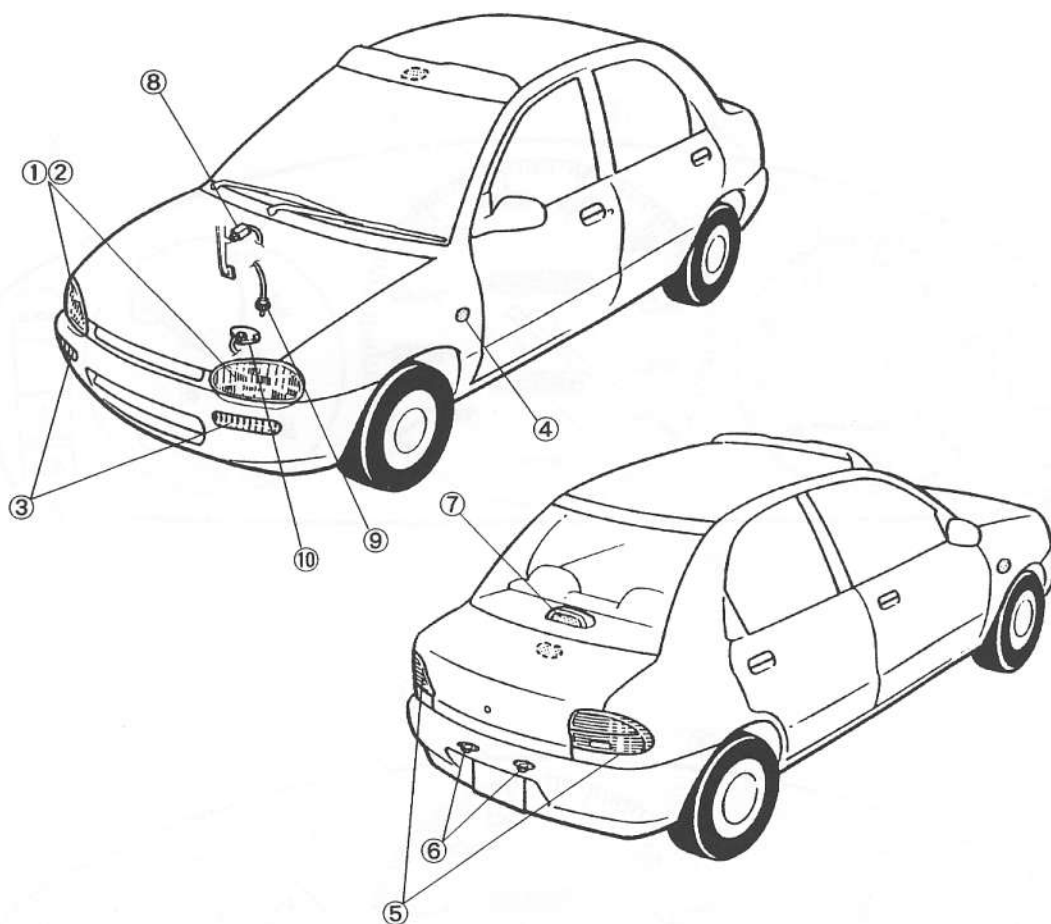


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## EXTERIOR LIGHTING SYSTEM

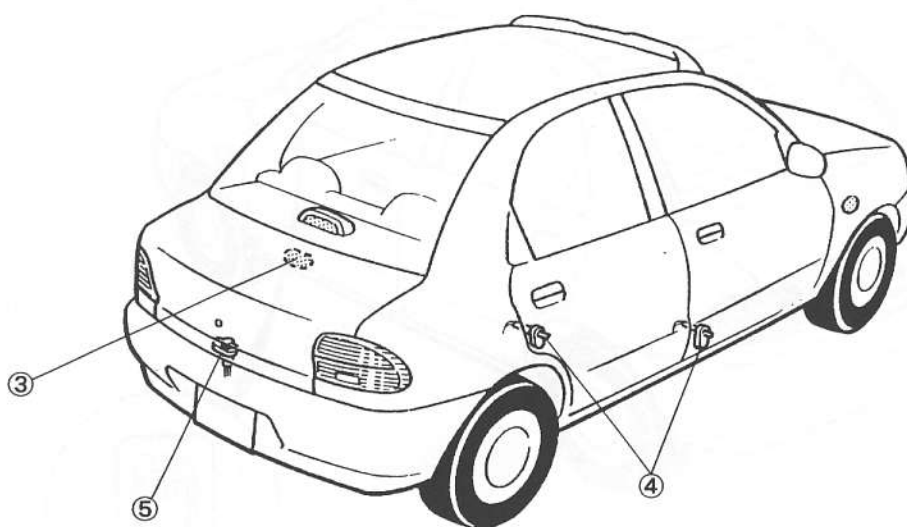
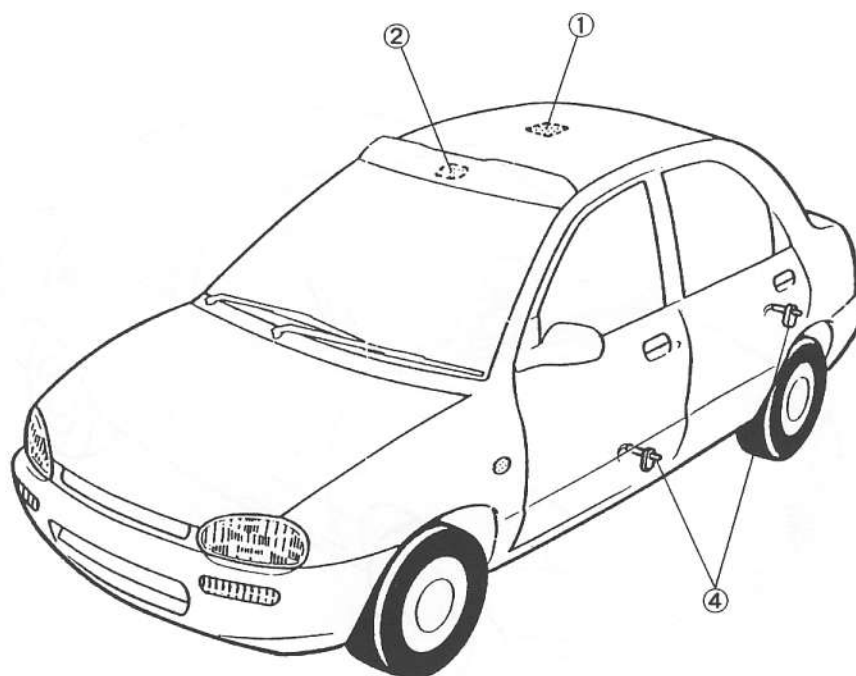


01A0TX-006

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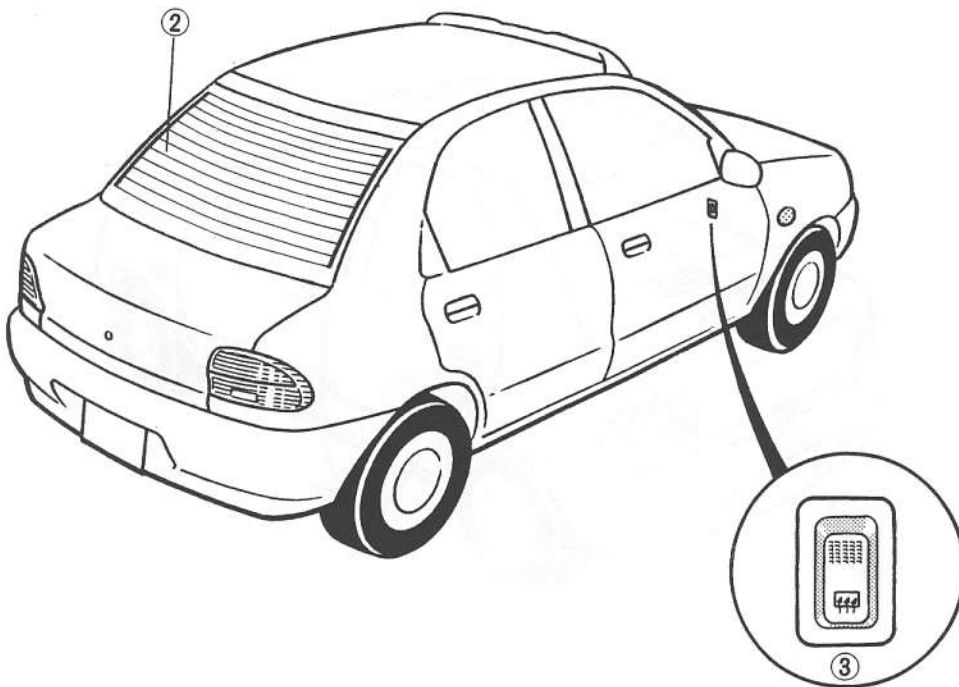
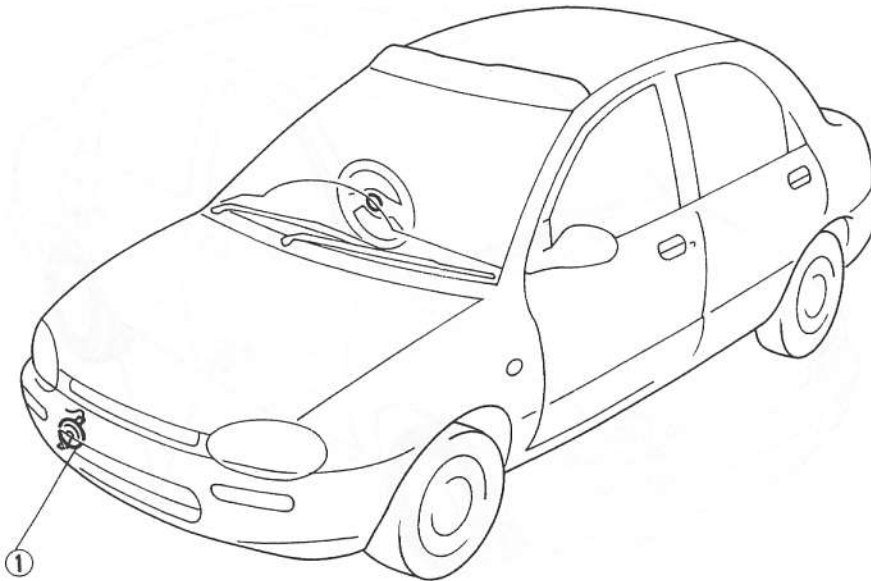
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01A0TX-007

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## HORN AND REAR WINDOW DEFROSTER

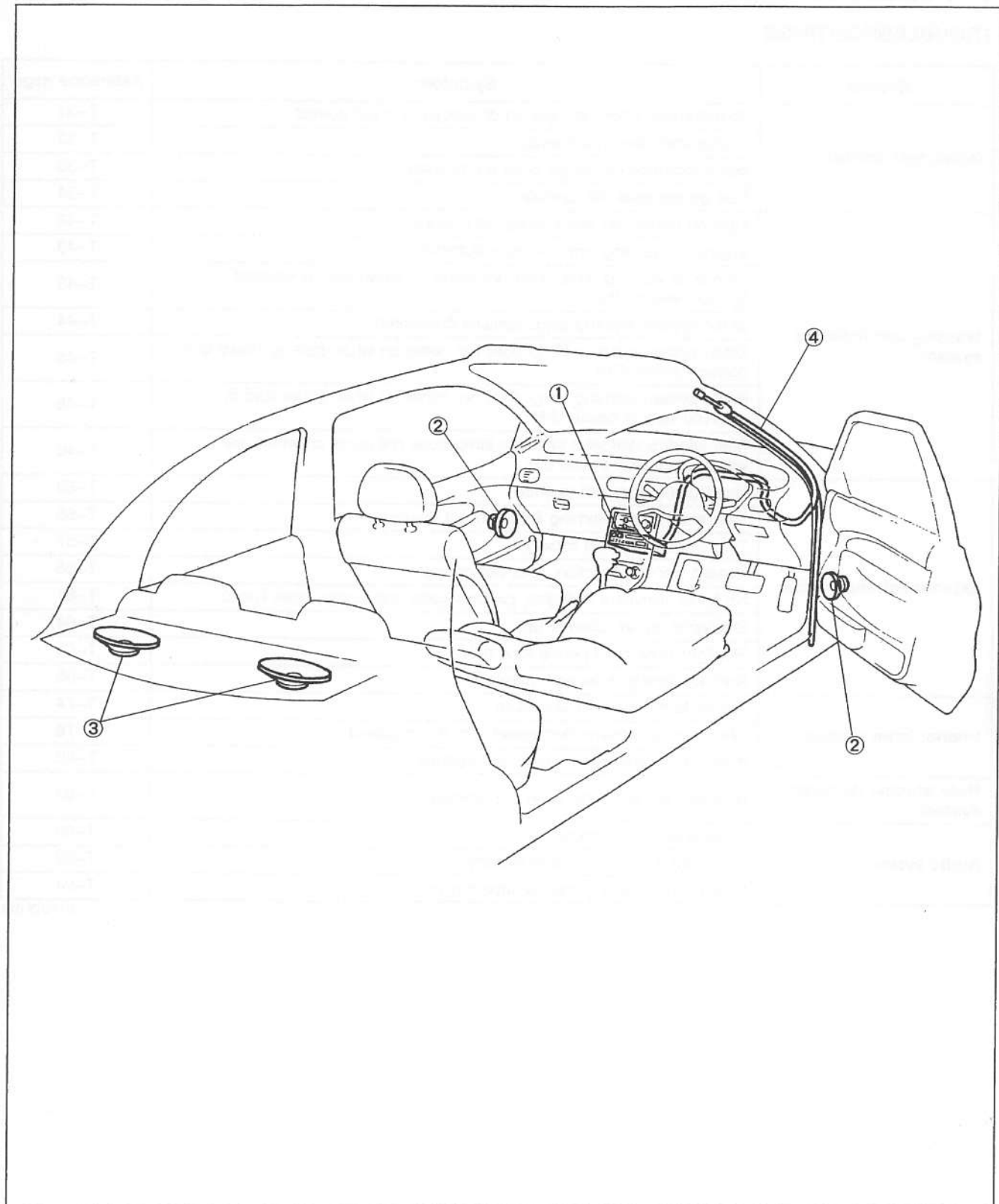


01A0TX-008

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## TROUBLESHOOTING GUIDE

## TROUBLESHOOTINGS

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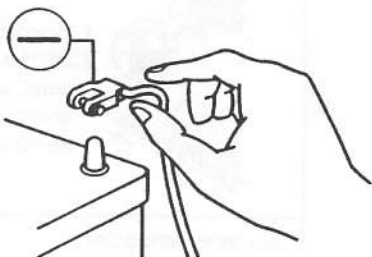
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**PRECAUTIONS**

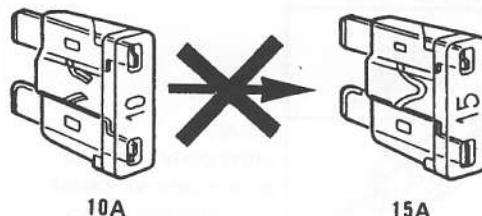
Note the following items when servicing the electrical system.

Do not alter the wiring or electrical equipment in any way; this may damage the vehicle or cause a fire from short-circuiting a circuit or overloading it.

- Always disconnect the negative (-) battery cable first and reconnect it last when disconnecting the battery.



- Replace blown fuses with ones having the same designated capacity.

**Caution**

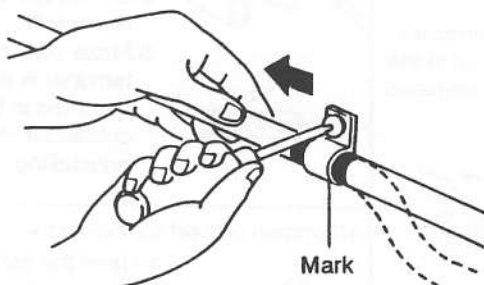
- Be sure that the ignition and other switches are off before disconnecting or connecting the battery terminals.

Failure to do so may damage the semiconductor components.

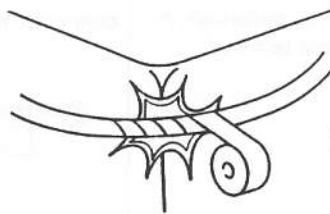
**Caution**

- Replacing a fuse with one of a larger capacity than designated may damage components or cause a fire.

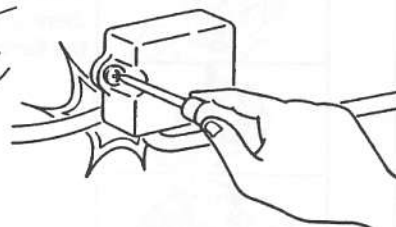
- Secure harnesses with provided clamps to take up slack.



- Tape areas of the harness that may rub or bump against sharp edges to protect it from damage.



- When mounting components, be sure the harness is not caught or damaged.

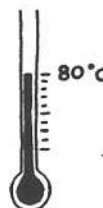
**Caution**

- Clamp all harnesses near vibrating components (for example, the engine) to remove slack and to prevent contact resulting from vibration.

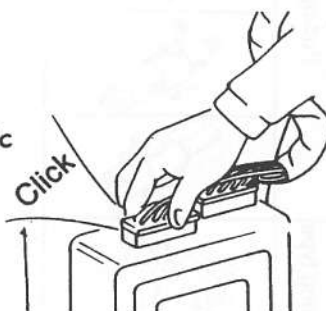
- Do not handle electrical components roughly or drop them.



- Disconnect heat-sensitive parts (for example, relays and ECUs) when performing maintenance (such as welding) where temperatures may exceed 80°C (176°F).





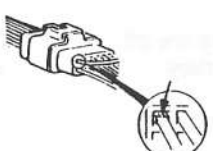
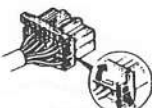

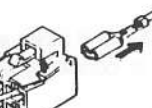
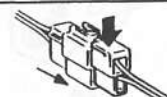



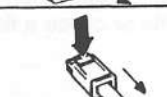

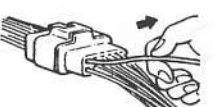


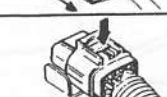

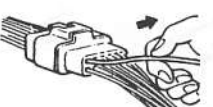





- Make sure that the connectors are securely connected when installed.



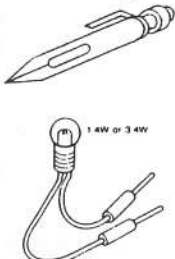
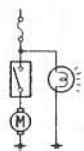

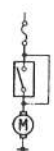
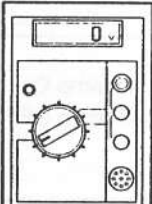
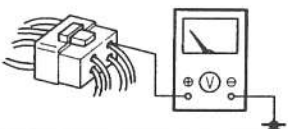

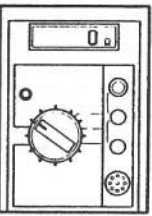

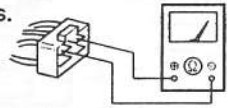
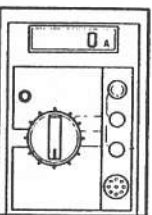
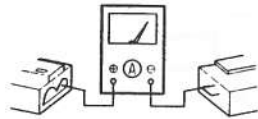
## HANDLING CONNECTORS

**Caution**

- Be sure to grasp the connectors, not the wires, when disconnecting them.

Connector removal		Checking connector contacts	Checking for loose terminals	Repairing terminals	
Push type	 Remove	  Caution Improperly engaged connectors will cause poor terminal contact.	  Caution A loose terminal will cause poor terminal contact.	<CPU connector>  1. Open the rear cover. 2. Lift the tab with a small screwdriver and remove the terminal.	
				<General connector>  Lift the tab with a small screwdriver and remove the terminal.	
				<Round connectors>  1. Open the cover. 2. Lift the terminal to remove it. 3. Make sure the terminal is securely mounted in the connector when reinstalling.	
				<Common ground connectors>  1. Open the cover. 2. Remove A. 3. Lift the tab with a small screwdriver and remove the terminal.	
				  Make sure the terminals are not pushed out of the connector when engaged.	  Lightly pull each wire to make sure the terminal does not pull out of the connector.
					
					
					
Pull-up type		  Lightly pull each wire to make sure the terminal does not pull out of the connector.			
					
					
					
Spring type					

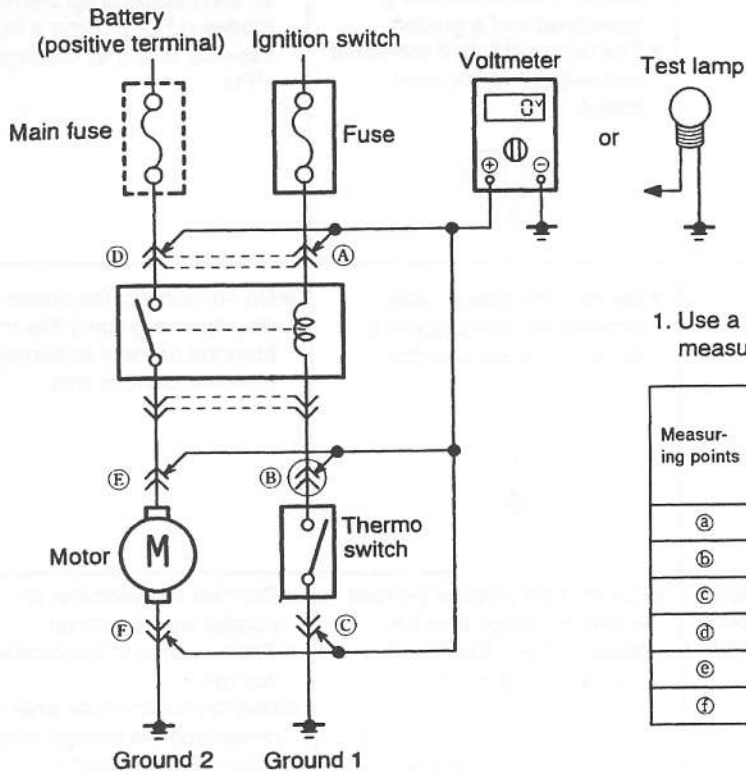
## USING ELECTRICAL TEST EQUIPMENT

Equipment	Use	Operation	Handling precautions
<b>Test lamp</b> 	Test to find open or shorted circuits.	<ul style="list-style-type: none"> <li>● Connect the test lamp between the circuit being measured and a ground.</li> <li>● The lamp will light if the circuit is energized to the point tested.</li> </ul> 	<ul style="list-style-type: none"> <li>● Test lamps use 12V 1.4W or 3.4W bulbs or light-emitting diodes (LEDs). Using a large-capacity bulb may damage the CPU.</li> </ul>
<b>Jumper wire</b> 	Used to create a temporary circuit.	<ul style="list-style-type: none"> <li>● Connect the jumper wire between the terminals of a circuit to bypass a switch.</li> </ul> 	<ul style="list-style-type: none"> <li>● Do not connect the power side directly to a ground; this may burn the harness or damage electrical components.</li> </ul>
<b>Voltmeter</b> 	Used for measuring the voltage of a circuit to find possible opens or shorts.	<ul style="list-style-type: none"> <li>● Connect the positive (+) lead to where voltage is to be measured and the negative (-) lead to a ground.</li> </ul> 	<ul style="list-style-type: none"> <li>● Connect the voltmeter in parallel with the circuit.</li> <li>● Set the range to the desired voltage.</li> <li>● Use the service hole when measuring the voltage at the diagnosis connector.</li> </ul>  <ul style="list-style-type: none"> <li>● Tie a thin wire to the positive (+) lead to access narrow terminals.</li> </ul>
<b>Ohmmeter</b> 	Used to find opens and shorts in the circuit, to confirm continuity of switches, and to check sensor resistance.	<ul style="list-style-type: none"> <li>● Zero the ohmmeter.</li> <li>● Verify that current is not flowing through the circuit.</li> <li>● Touch the leads to the check points.</li> </ul>  	<ul style="list-style-type: none"> <li>● Zero the meter after switching to the measuring range.</li> <li>● Before using the ohmmeter, make sure the ignition switch is off or the negative (-) battery cable is disconnected to prevent burning the ohmmeter.</li> </ul>
<b>Ammeter</b> 	Used to check alternator output, current supplied to the starter, and dark current within a circuit.  <b>Note</b> Dark current is the current flowing through the circuit when the ignition switch is OFF.	<ul style="list-style-type: none"> <li>● Connect the ammeter in series with the circuit by touching the positive (+) lead to the power-side terminal and the negative (-) lead to the ground-side terminal.</li> </ul> 	<ul style="list-style-type: none"> <li>● Set the range to the desired amperage.</li> <li>● Connect the ammeter in series with the circuit. The ammeter may be burned if it is connected in parallel.</li> </ul>



## MEASURING VOLTAGE

## Checks



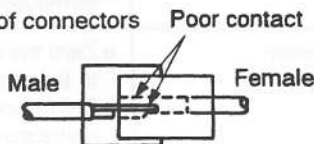
1. Use a voltmeter or test lamp to ascertain voltage at the measuring points.

Measuring points	Circuit operation		
	Ignition switch: OFF	Ignition switch: ON	
		Thermo switch: OFF	Thermo switch: ON
(a)	0V ×	12V ○	12V ○
(b)	0V ×	12V ○	0V ×
(c)	0V ×	0V ×	0V ×
(d)	12V ○	12V ○	12V ○
(e)	0V ×	0V ×	12V ○
(f)	0V ×	0V ×	0V ×

○ : Test lamp ON  
× : Test lamp OFF

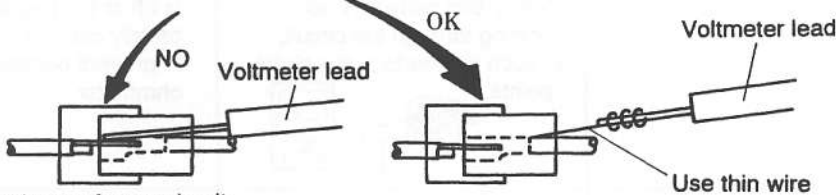
## Precautions during checks

Measuring voltage of connectors

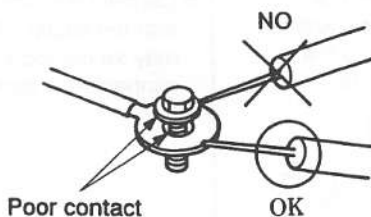


A voltmeter lead may momentarily connect a terminal when inserted into the connector and give an erroneous reading when checking for improperly engaged connectors, poor terminal contacts, or loose terminals.

Measuring voltage of ground unit

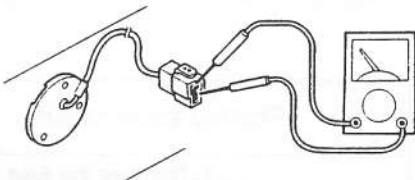


Touch the voltmeter lead to the ground wire when checking the ground circuit.



## MEASURING CONTINUITY/RESISTANCE

## Checking switches

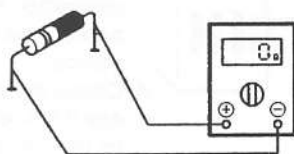


Touch the ohmmeter leads to the switch terminals to check continuity.

## Caution

Verify the operating state of the switch before checking continuity because readings vary accordingly.

## Checking diodes



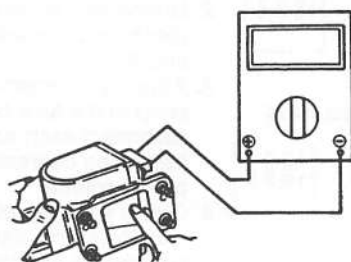
## Remark

The negative (-) lead of the ohmmeter is connected to the positive terminal of the internal ohmmeter battery, the positive (+) lead to the negative terminal of the battery.

Continuity is checked according to the direction of the positive (+) and negative (-) leads of the ohmmeter in the circuit containing the diode.

Connection	Continuity
	Yes
	No

## Checking sensors and solenoid valves

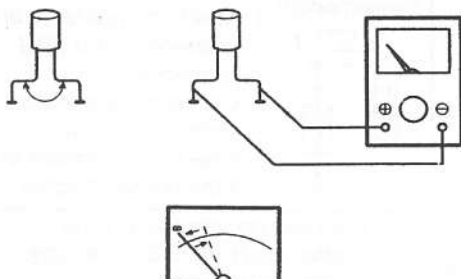


Connect the ohmmeter leads to the sensor or solenoid valve terminals to check resistance.

## Caution

Verify the operating state of the sensor before checking resistance because readings vary accordingly.

## Checking condensers



1. Short between the terminals with a jumper wire to discharge the capacitor.
2. Set the ohmmeter range to  $\times 10k \Omega$  and connect it to the capacitor terminals.
3. The capacitor is good if the needle of the ohmmeter swings once and returns to its original position.

## FINDING SHORT CIRCUITS

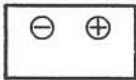
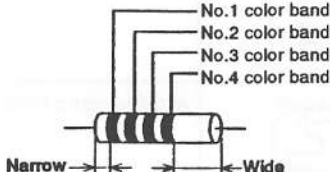
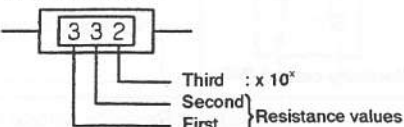
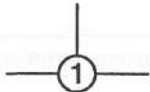


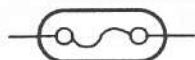

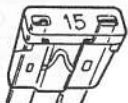
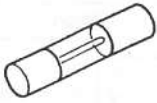
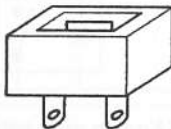
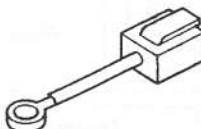
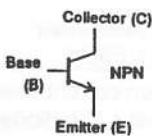

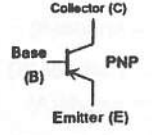
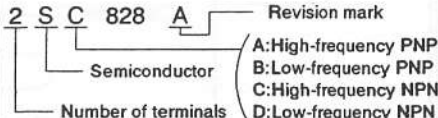



Shorts occur between the power (positive) and ground (negative) sides of a circuit. Therefore, finding a short circuit requires determining how the circuit is routed.

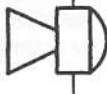








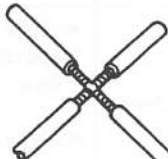

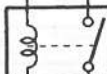
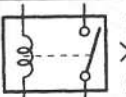
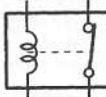
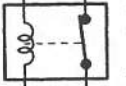
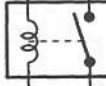
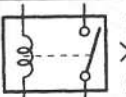
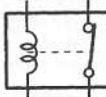
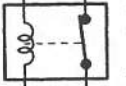
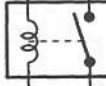
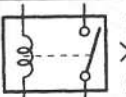
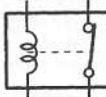
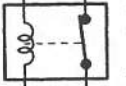
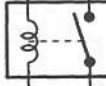
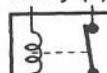
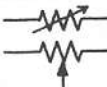



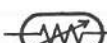


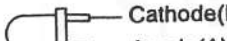
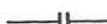

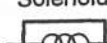
	Examples		Finding short circuit
	Short location	Indication	
	Short (A)	<ul style="list-style-type: none"> <li>● Fuse melts.</li> </ul>	<ol style="list-style-type: none"> <li>1. Remove the fuse and main fuse of the circuit.</li> <li>2. Disconnect all connectors of electrical components in the circuit.</li> <li>3. Attach a voltmeter or test lamp to the fuse box and reconnect each connector, beginning nearest the power source.</li> <li>4. Check the voltmeter or see if the test lamp lights as the connectors are connected.</li> </ol> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> A short has occurred where the voltmeter reading changes or the test lamp lights. </div>
	Short (B)	<ul style="list-style-type: none"> <li>● Main fuse melts.</li> </ul>	
	Short (C)	<ul style="list-style-type: none"> <li>● The motor operates regardless of whether the thermostatic switch is ON or OFF when the ignition switch is ON.</li> <li>● The fuse is not melted.</li> </ul>	
	Short (D)	<ul style="list-style-type: none"> <li>● The main fuse melts when the ignition switch and thermostatic switch are ON and the relay is operating.</li> </ul>	

## Circuits connected to control unit

	Examples		Finding short circuit
	Short location	Indication	
	Short (A)	<ul style="list-style-type: none"> <li>● Fuse melts.</li> </ul>	<ol style="list-style-type: none"> <li>1. Remove the fuse and main fuse of the circuit.</li> <li>2. Disconnect all connectors of electrical components in the circuit.</li> <li>3. Attach a voltmeter or test lamp to the fuse box and reconnect each connector, beginning nearest to the power source.</li> <li>4. Check the voltmeter or see if the test lamp lights as the connectors are connected.</li> </ol> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> A short has occurred where the voltmeter reading changes or the test lamp lights. </div>
	Short (B)	<ul style="list-style-type: none"> <li>● Solenoid A operates normally when the ignition switch is ON.</li> </ul>	
	Short (C)	<ul style="list-style-type: none"> <li>● The CPU transistor burns out when the ignition switch is turned ON.</li> </ul>	
	Short (D)	<ul style="list-style-type: none"> <li>● The CPU thinks the switch is ON because the same conditions exist as when the switch is ON.</li> </ul>	<ol style="list-style-type: none"> <li>1. Attach the test lamp or voltmeter to the CPU connector.</li> <li>2. Connect to the switch/sensor connector.</li> <li>3. Check the voltmeter or see if the test lamp lights.</li> </ol> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> A short has occurred where the voltmeter reads 0V or the test lamp goes out. </div>
	Short (E)	<ul style="list-style-type: none"> <li>● The CPU senses the sensor to be 0 <math>\Omega</math> because the same conditions exist as when the resistance value is 0 <math>\Omega</math>.</li> <li>● The CPU equipped with the self-diagnosis function outputs the malfunction code.</li> </ul>	

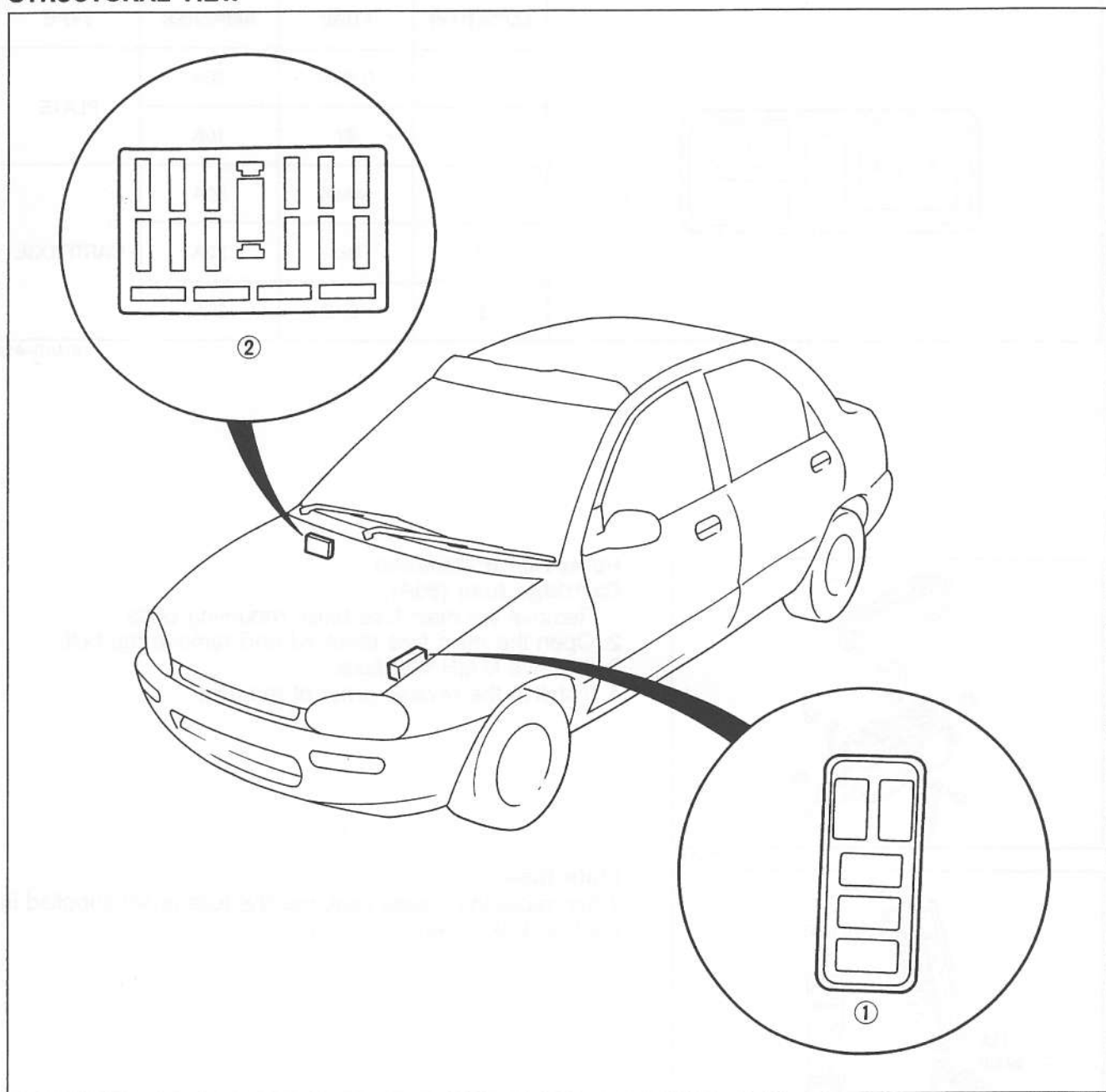
## SYMBOLS

Symbol	Meaning	Symbol	Meaning																																																																										
Battery 	<ul style="list-style-type: none"><li>Generates electricity through chemical reaction.</li><li>Supplies direct current to circuits.</li></ul>	Resistance	<ul style="list-style-type: none"><li>A resistor with a constant value.</li><li>Mainly used to protect electrical components in circuits by maintaining rated voltage.</li></ul> <ul style="list-style-type: none"><li>Reading resistance values.</li></ul> <p>&lt;Colored &gt;</p> <div></div> <table><thead><tr><th rowspan="2">Color</th><th>No.1</th><th>No.2</th><th>No.3</th><th>No.4</th></tr><tr><th colspan="2">Resistance values</th><th>Multiplier</th><th>Tolerance</th></tr></thead><tbody><tr><td>Black</td><td>0</td><td>0</td><td><math>\times 10^0</math></td><td></td></tr><tr><td>Brown</td><td>1</td><td>1</td><td><math>\times 10^1</math></td><td></td></tr><tr><td>Red</td><td>2</td><td>2</td><td><math>\times 10^2</math></td><td></td></tr><tr><td>Orange</td><td>3</td><td>3</td><td><math>\times 10^3</math></td><td></td></tr><tr><td>Yellow</td><td>4</td><td>4</td><td><math>\times 10^4</math></td><td></td></tr><tr><td>Green</td><td>5</td><td>5</td><td><math>\times 10^5</math></td><td></td></tr><tr><td>Blue</td><td>6</td><td>6</td><td><math>\times 10^6</math></td><td></td></tr><tr><td>Purple</td><td>7</td><td>7</td><td><math>\times 10^7</math></td><td></td></tr><tr><td>Grey</td><td>8</td><td>8</td><td><math>\times 10^8</math></td><td></td></tr><tr><td>White</td><td>9</td><td>9</td><td><math>\times 10^9</math></td><td></td></tr><tr><td>Gold</td><td></td><td></td><td><math>\times 10^{-1}</math></td><td><math>\pm 5\%</math></td></tr><tr><td>Silver</td><td></td><td></td><td><math>\times 10^{-2}</math></td><td><math>\pm 10\%</math></td></tr><tr><td>-</td><td></td><td></td><td></td><td><math>\pm 20\%</math></td></tr></tbody></table> <p>&lt;Numerical&gt;</p> <div></div>	Color	No.1	No.2	No.3	No.4	Resistance values		Multiplier	Tolerance	Black	0	0	$\times 10^0$		Brown	1	1	$\times 10^1$		Red	2	2	$\times 10^2$		Orange	3	3	$\times 10^3$		Yellow	4	4	$\times 10^4$		Green	5	5	$\times 10^5$		Blue	6	6	$\times 10^6$		Purple	7	7	$\times 10^7$		Grey	8	8	$\times 10^8$		White	9	9	$\times 10^9$		Gold			$\times 10^{-1}$	$\pm 5\%$	Silver			$\times 10^{-2}$	$\pm 10\%$	-				$\pm 20\%$
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Ground (1) 	<ul style="list-style-type: none"><li>Connecting point to vehicle body or other ground wire where current flows from positive to negative terminal of battery.</li><li>Ground (1) indicates a ground point to body through wire harness.</li><li>Ground (2) indicates point where component is grounded directly to body.</li></ul>																																																																												
Ground (2) 	Remarks <ul style="list-style-type: none"><li>Current will not flow through a circuit if ground is faulty.</li></ul>																																																																												
Fuse (1) 	<ul style="list-style-type: none"><li>Melts when current flow exceeds that specified for circuit, stopping current flow.</li></ul>																																																																												
(box) Fuse (2) 	Precautions <ul style="list-style-type: none"><li>Do not replace with fuses exceeding specified capacity.</li></ul>																																																																												
(Cartridge) Main fuse/Fusible link 	<p>&lt;Box type&gt;</p>  <p>&lt;Cartridge type&gt;</p>  <p>&lt;Main fuse&gt;</p>  <p>&lt;Fusible link&gt;</p> 																																																																												
Transistor (1) 	<ul style="list-style-type: none"><li>Electrical switching component.</li><li>Turns on when voltage is applied to the base(B).</li></ul>	Motor 	<ul style="list-style-type: none"><li>Converts electrical energy into mechanical energy.</li></ul>																																																																										
Transistor (2) 	<ul style="list-style-type: none"><li>Reading code.</li></ul> <div></div>	Pump 	<ul style="list-style-type: none"><li>Pulls in and expels gases and liquids.</li></ul>																																																																										
Lamp 	<ul style="list-style-type: none"><li>Emits light and generates heat when current flows through filament.</li></ul>	Cigarette lighter 	<ul style="list-style-type: none"><li>Electrical coil that generates heat.</li></ul>																																																																										

Symbol	Meaning	Symbol	Meaning									
Horn 	● Generates sound when current flows.	Switch (1)  Normally open (NO)	● Allows or breaks current flow by opening and closing circuits.									
Speaker 		Switch (2)  Normally closed (NC)										
Heater 	● Generates heat when current flows.	Harness   (Not connected)	● Unconnected intersecting harness. 									
Speed sensor 	● Movement of magnet in speedometer turns contact within sensor on and off.	  (Connected)	● Connected intersecting harness. 									
Ignition switch 	● Turning ignition key operates switch contacts to complete various circuits.											
Relay (1)  Normally closed (NC)	● Current flowing through coil produces electromagnetic force causing contact to open or close.	<table><tr><td></td><td>Open</td><td>Closed</td></tr><tr><td>Normally open relay (NO)</td><td> No flow</td><td> Closed</td></tr><tr><td>Normally closed relay (NC)</td><td> Flow</td><td> No flow</td></tr></table>			Open	Closed	Normally open relay (NO)	 No flow	 Closed	Normally closed relay (NC)	 Flow	 No flow
		Open	Closed									
Normally open relay (NO)	 No flow	 Closed										
Normally closed relay (NC)	 Flow	 No flow										
Relay (2)  Normally closed (NC)												
Sensor (variable) 	● Resistor whose resistance changes with operation of other components.	Diode 	● Known as a semiconductor rectifier, the diode allows current flow in one direction only. Cathode(K)  Anode(A) ← Flow of electric current K  A									
Sensor (thermistor) 	● Resistor whose resistance changes with temperature.	Light-emitting diode (LED) 	● A diode that lights when current flows. ● Unlike ordinary light bulbs, the diode does not generate heat when lit. Cathode(K)  Anode(A)  Flow of electric current									
Capacitor 	● Component that temporarily stores electrical charge.	Reference diode (Zener diode) 	● Allows current to flow in one direction up to a certain voltage; allows current to flow in the other direction once that voltage is exceeded.									
Solenoid 	● Current flowing through coil generates electromagnetic force to operate plungers.											

# FUSE

## STRUCTURAL VIEW



01A0TX-011

1. Main fuse block  
 Specifications ..... page T-20  
 Removal / Installation ..... page T-20

2. Fuse box  
 Specifications ..... page T-21  
 Removal / Installation ..... page T-21

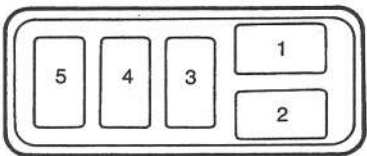
## Fuse Color Code

Fuse amperage	Color code	Location
10A	Red	Fuse box
15A	Blue	
20A	Yellow	
30A	Light green	
30A	Pink	Main fuse block
80A	Black	

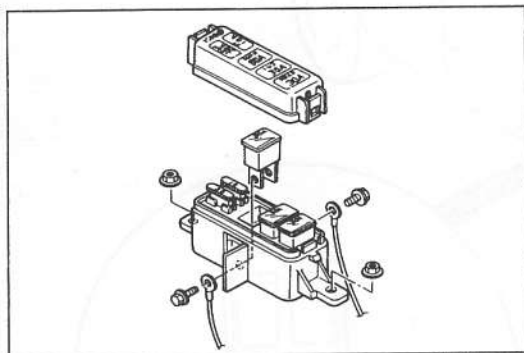
01A0TX-012



# MAIN FUSE BLOCK Specifications

	LOCATION	FUSE	AMPERES	TYPE
	1	C.FAN	20A	PLATE
	2	ST	10A	
	3	MAIN	80A	CARTRIDGE
	4	INJ	30A	
	5	HEAD	30A	

01A0TX-013

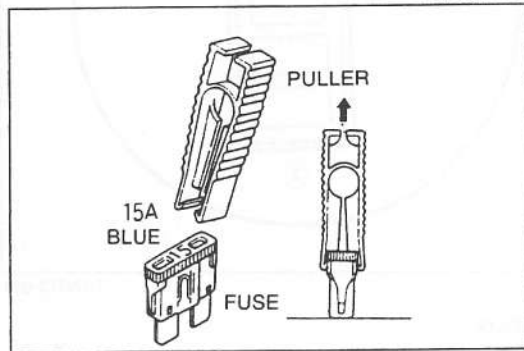


01E0TX-021

## Removal / Installation

### Cartridge fuse (80A)

1. Remove the main fuse block mounting bolts.
2. Open the main fuse block lid and remove the bolt.
3. Remove MAIN 80A fuse.
4. Install in the reverse order of removal.



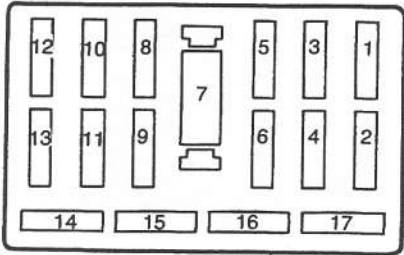
01E0TX-022

### Plate fuse

When replacing a plate fuse, use the fuse puller supplied in the fuse box cover.

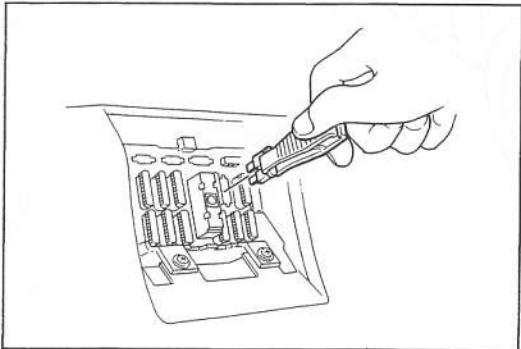


FUSE BOX  
Specifications

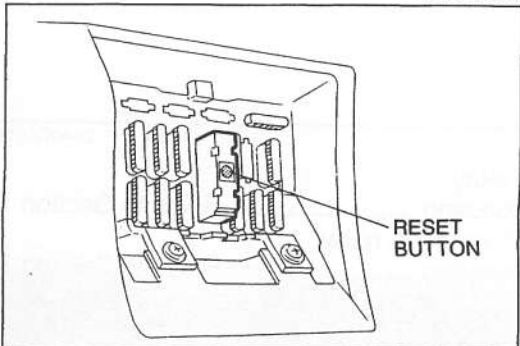


LOCATION	FUSE	AMPERES
1	ADD. FAN	20A
2	TAIL	10A
3	(D. LOCK)	20A
4	STOP	20A
5	HAZARD	15A
6	ROOM	15A
7	BLOWER (CIRCUIT BREAKER)	30A
8	DEFOG	20A
9	(P. WINDOW)	30A
10	METER	15A
11	WIPER	20A
12	ENGINE	15A
13	*	—
14	*	—
15	*	—
16	C/TOP	20A
17	CIGAR	15A

01A0TX-014



01E0TX-024



01E0TX-025

Removal / Installation  
Plate fuse

When replacing a fuse, use the fuse puller supplied in the fuse box cover.

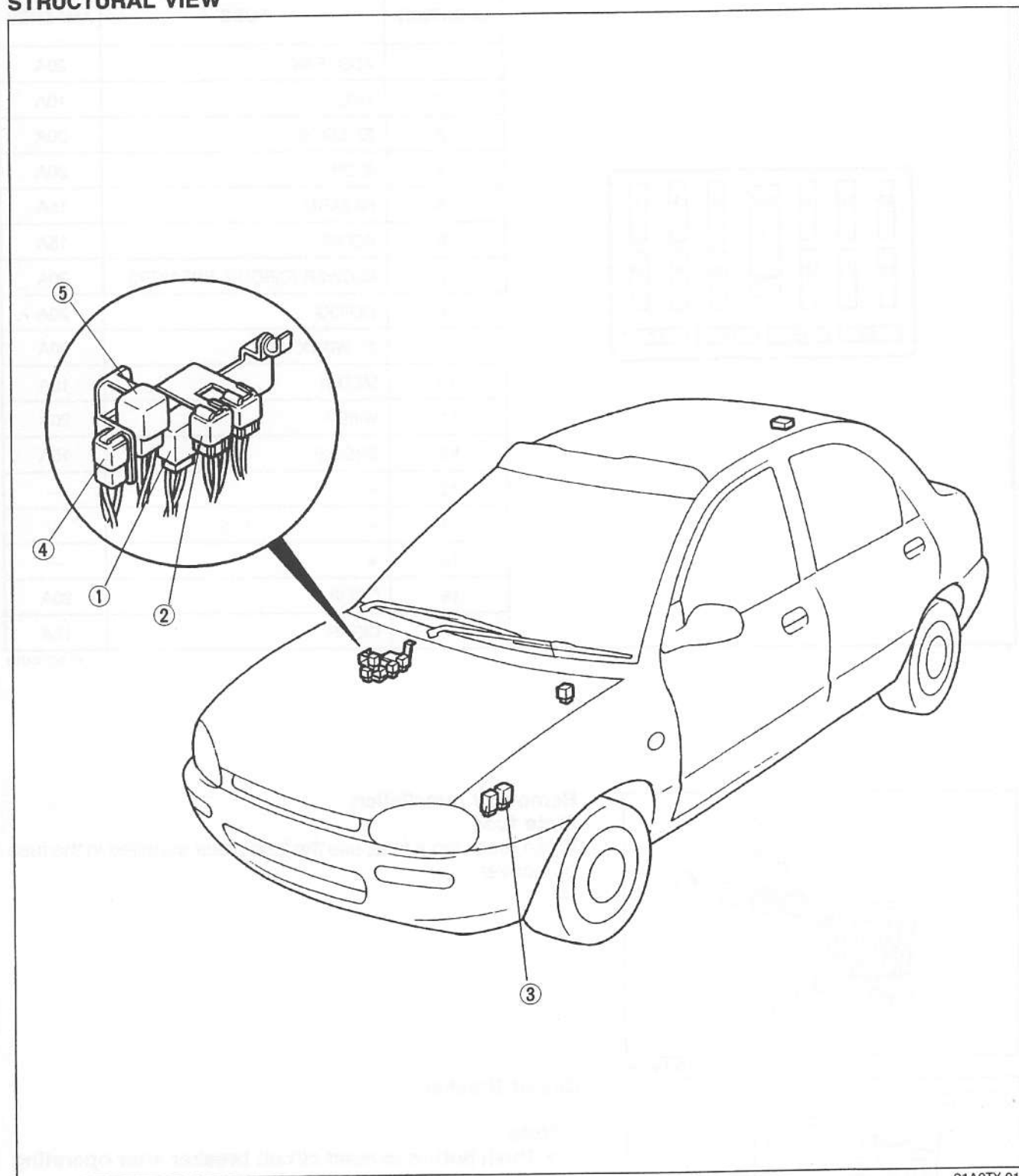
Circuit Breaker

Note

- Push button to reset circuit breaker after operating diagnosis of malfunction.

## RELAY

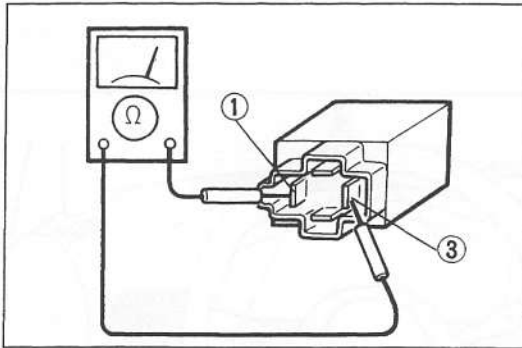
## STRUCTURAL VIEW



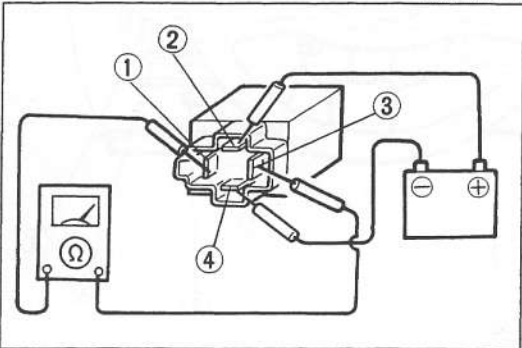
01A0TX-015

1. Turn and hazard warning flasher unit  
Inspection ..... page T-23
2. Horn relay  
Inspection ..... page T-23
3. Cooling fan relay  
Inspection ..... Refer to Section E

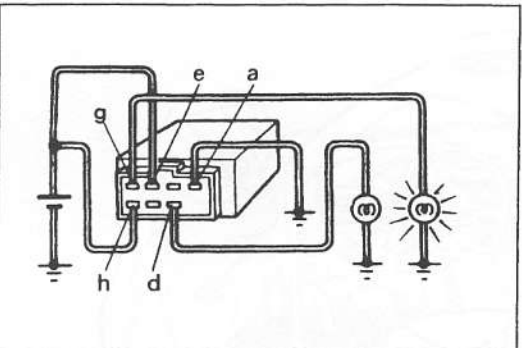
4. Main relay  
Inspection ..... Refer to Section F
5. Circuit opening relay  
Inspection ..... Refer to Section F



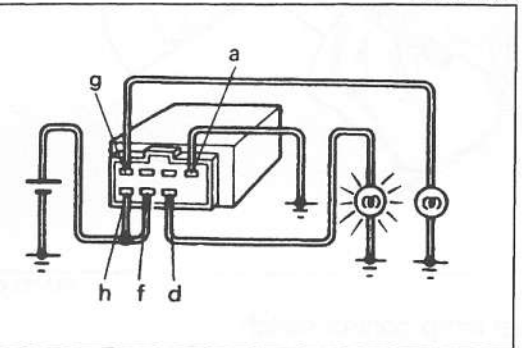
95A0TX-013



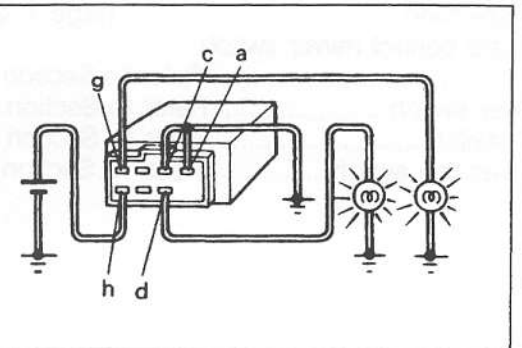
05U0TX-277



95A0TX-010



95A0TX-011



95A0TX-012

## HORN RELAY Inspection

1. Check continuity between terminals 1 and 3.

Terminal	Continuity
1—3	No

2. If not as specified, replace the relay.
3. If correct, go to Step 4.

4. Apply 12V to terminal 2 and ground terminal 4. Check for continuity between terminals 1 and 3.

Terminal	Continuity
1—3	Yes

5. If not as specified, replace the relay.

## TURN AND HAZARD WARNING FLASHER UNIT Inspection

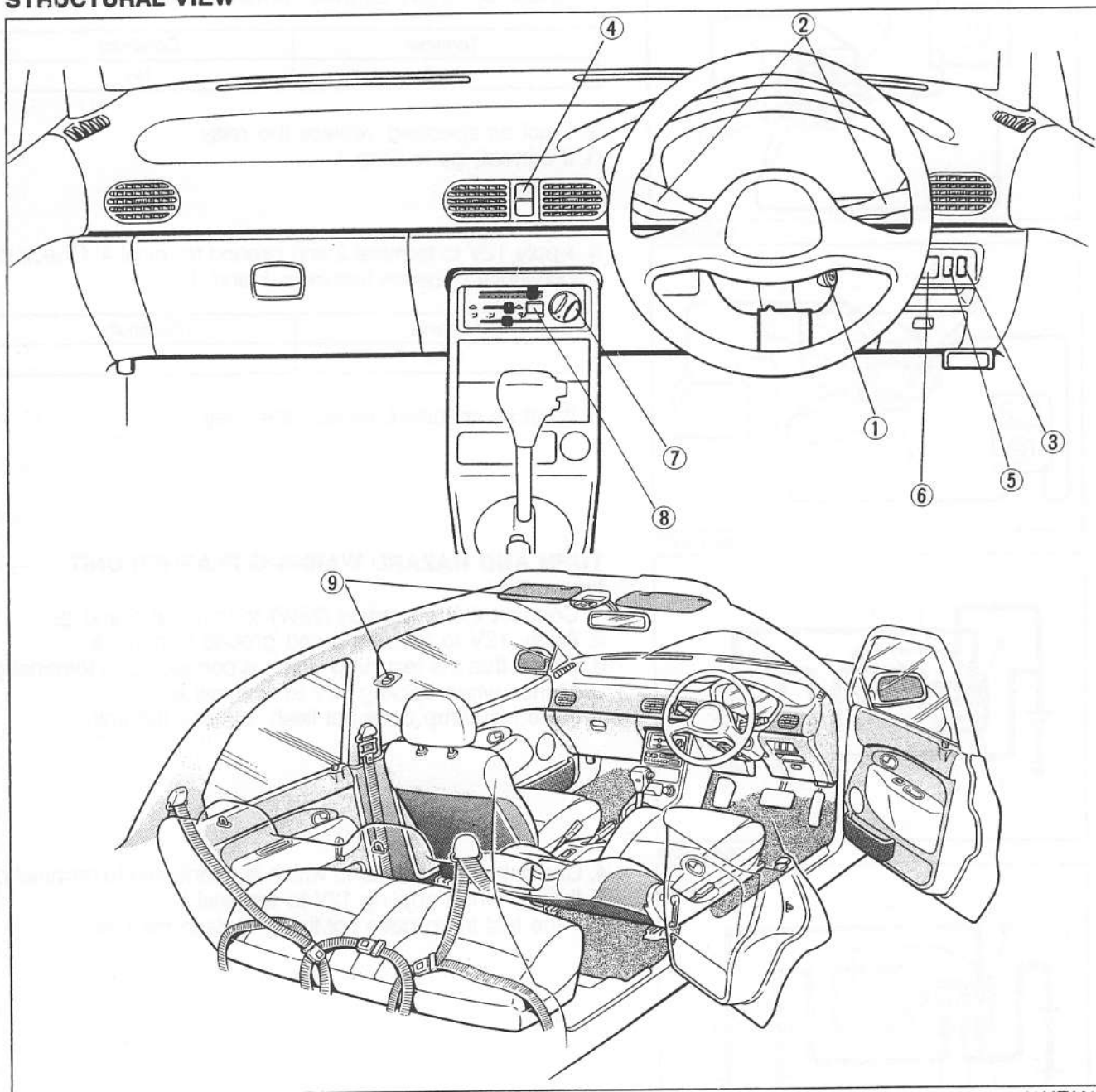
1. Connect the test lamps (23W) to terminal d and g.
2. Apply 12V to terminal h and ground terminal a.
3. Check that the test lamp which is connected to terminal g flashes when applying 12V to terminal e.  
If the test lamp does not flash, replace the unit.

4. Check that the test lamp which is connected to terminal d flashes when applying 12V to terminal f.  
If the test lamp does not flash, replace the unit.

5. Check that both test lamps flashes, when grounding terminal c.  
If the test lamps do not flash, replace the unit.

## SWITCH

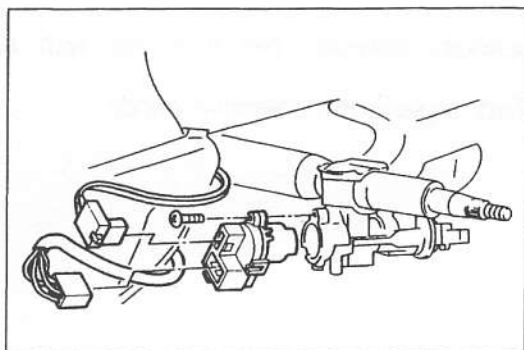
## STRUCTURAL VIEW



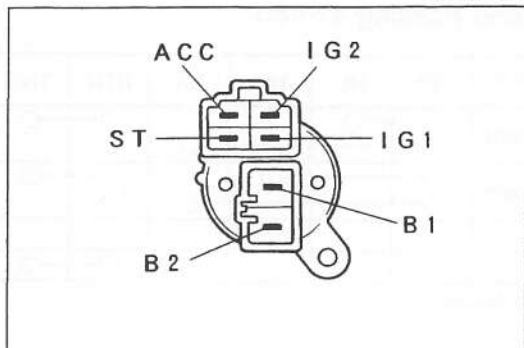
01A0TX-016

- |                                 |                    |
|---------------------------------|--------------------|
| 1. Ignition switch              |                    |
| Removal / Installation .....    | page T-25          |
| Inspection .....                | page T-25          |
| 2. Combination switch           |                    |
| Removal / Installation .....    | page T-25          |
| Disassembly / Assembly .....    | page T-27          |
| Inspection .....                | page T-26          |
| 3. Rear window defroster switch |                    |
| Removal / Installation .....    | page T-28          |
| Inspection .....                | page T-28          |
| 4. Hazard warning switch        |                    |
| Removal / Installation .....    | page T-28          |
| Inspection .....                | page T-28          |
| 5. Panel lamp control switch    |                    |
| Removal / Installation .....    | page T-27          |
| Inspection .....                | page T-27          |
| 6. Remote control mirror switch |                    |
| .....                           | Refer to Section S |
| 7. Blower switch.....           | Refer to Section U |
| 8. A/C switch.....              | Refer to Section U |
| 9. Canvas top switch.....       | Refer to Section S |

## SWITCH



01E0TX-031



01E0TX-032

### IGNITION SWITCH

#### Removal / Installation

1. Disconnect the negative battery cable.
2. Remove the steering column cover.
3. Remove the screw and ignition switch.
4. Install in the reverse order of removal.

#### Inspection

1. Check for continuity between the terminals with an ohmmeter.
2. If not as specified, replace the ignition switch.

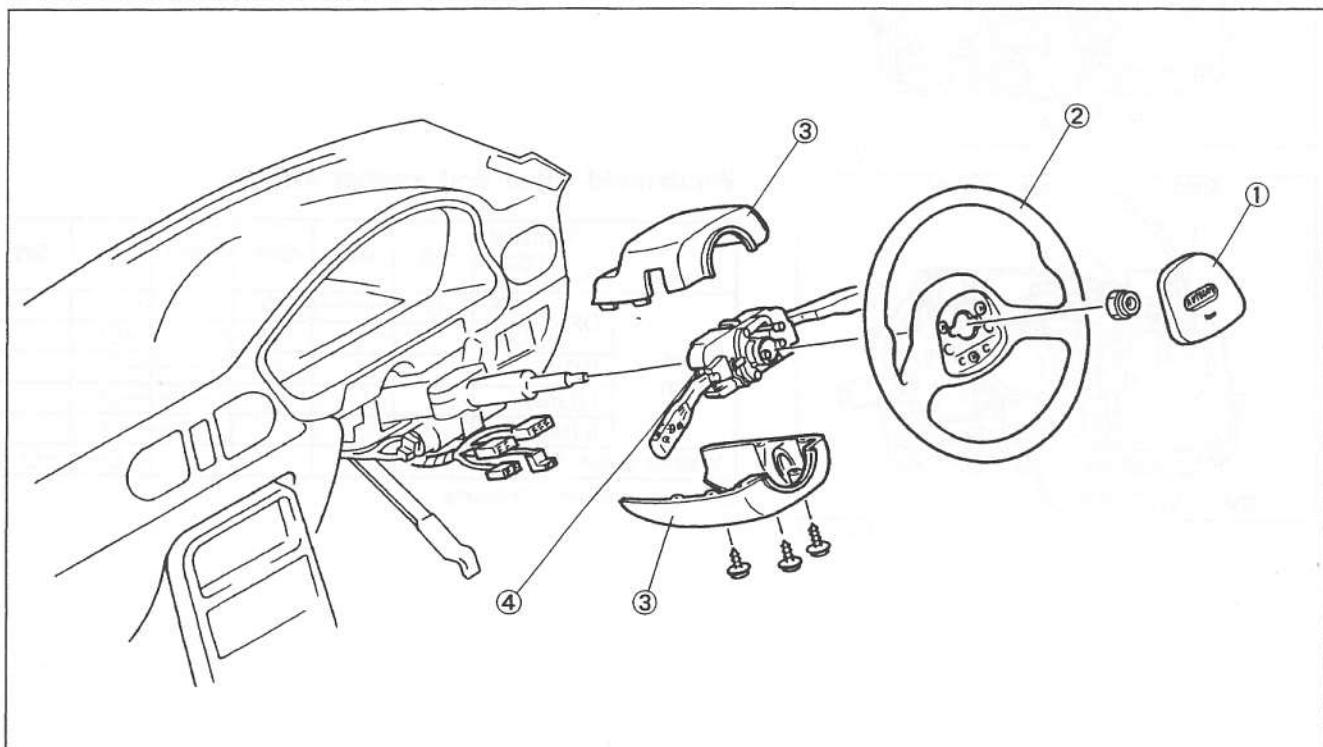
Switch	Terminals					
	B1	B2	ACC	IG1	IG2	ST
LOCK						
ACC	○		○			
ON	○	○	○	○	○	
START	○	○		○		○

○—○. Indicates continuity

### COMBINATION SWITCH

#### Removal / Installation

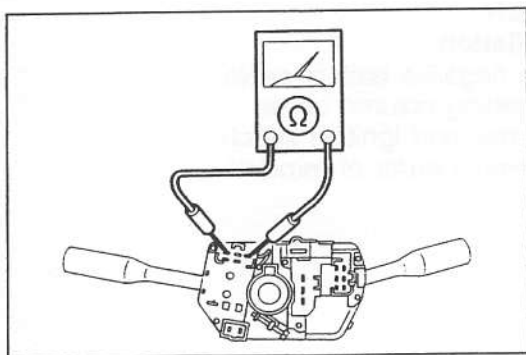
1. Remove in the order shown in the figure.
2. Install in the reverse order of removal.



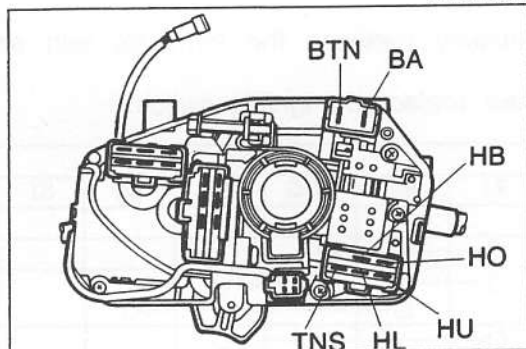
01A0TX-017

1. Horn cap
2. Steering wheel
3. Steering column cover

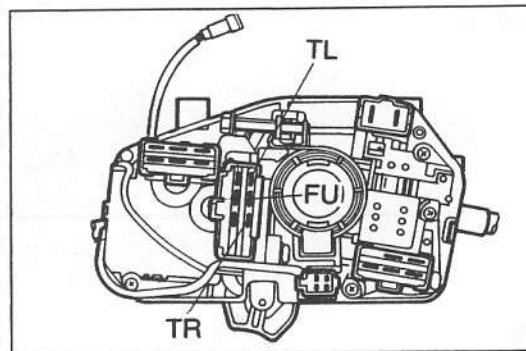
4. Combination switch  
Disassembly / Assembly ..... page T-27  
Inspection ..... page T-26



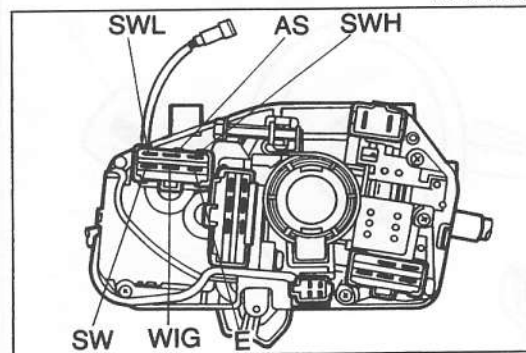
01E0TX-034



01E0TX-035



01E0TX-036



01E0TX-037

**Inspection**

1. Check for continuity between the terminals with an ohmmeter.
2. If not as specified, replace the defective switch.

**Light, dimmer, and passing switch**

Terminal		HB	HL	HU	BA	BTN	TNS
Position	Low beam	○	○		○	○	○
	High beam	○		○	○	○	○
Passing				○	○		
Tail, parking						○	○

○—○: indicates continuity

**Turn signal switch**

Terminal		FU	TL	TR
Position	Left	○	○	
	Right	○		○

○—○: indicates continuity

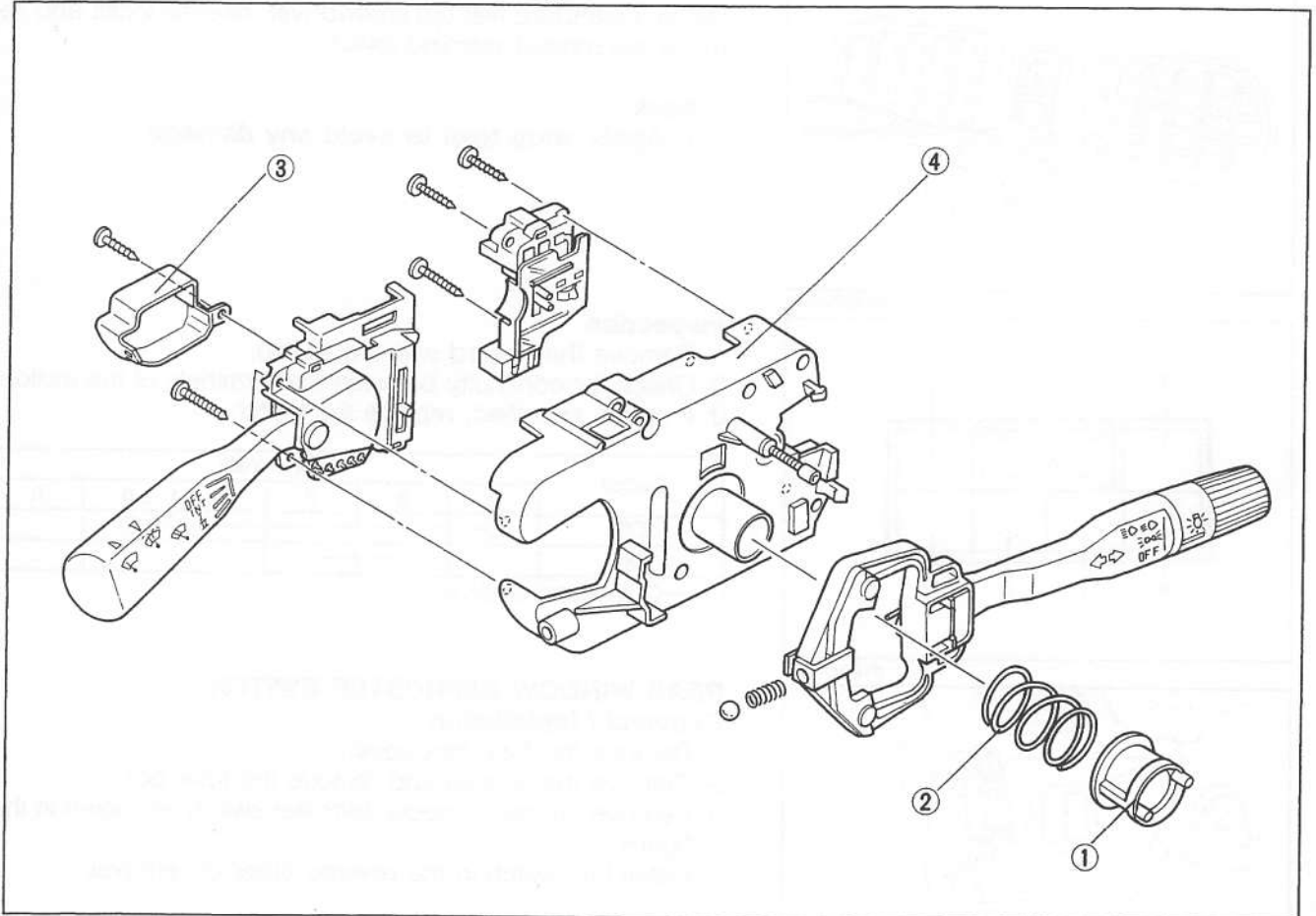
**Windshield wiper and washer switch**

Terminal		AS	WIG	SWL	SWH	E	SW
Position	One touch	AS	WIG	SWL	SWH	E	SW
	OFF	○		○			
Wiper switch	ON			○		○	
	INT			○		○	
	I (Low)			○		○	
	II (High)				○	○	
Washer switch ON						○	○

○—○: indicates continuity

## Disassembly / Assembly

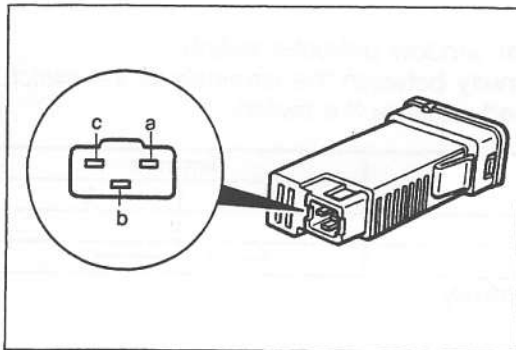
Disassemble / Assemble as shown in the figure.



01E0TX-038

- 1. Cancel cam
- 2. Spring

- 3. Cover
- 4. Printed circuit



01A0TX-018

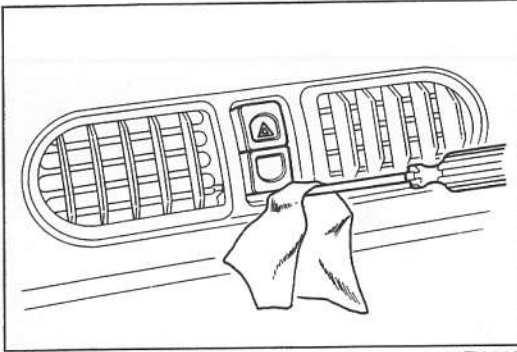
### PANEL LAMP CONTROL SWITCH

1. Remove the panel lamp control switch.
2. Apply 12V to terminal c and ground terminal b.
3. Check that the voltage at terminal a changes linearly when turning the control switch.

Switch	Voltage
Min. position	10V
Max. position	0V

4. If not as specified, replace the panel lamp control switch.





01A0TX-019

### HAZARD WARNING SWITCH

#### Removal / Installation

Using a standard (flat tip) screwdriver, release locks and remove the hazard warning switch.

#### Note

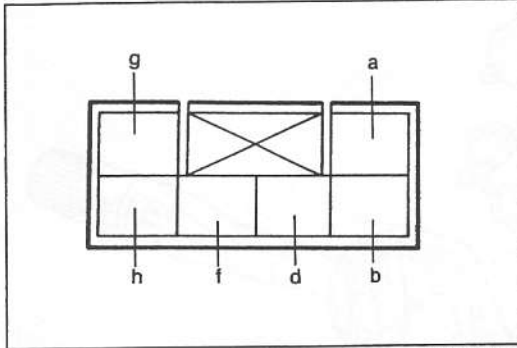
- Apply shop towel to avoid any damage.

#### Inspection

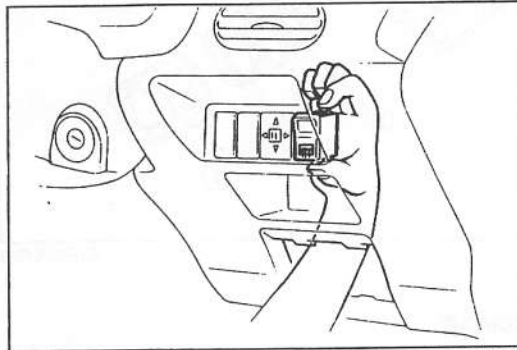
1. Remove the hazard warning switch.
2. Check for continuity between the terminals of the switch.
3. If not as specified, replace the switch.

Switch	Terminals					
	a	b	d	f	g	h
Off	○				○	
On		○	○			

○—○: Indicates continuity



01A0TX-020



01E0TX-041

### REAR WINDOW DEFROSTER SWITCH

#### Removal / Installation

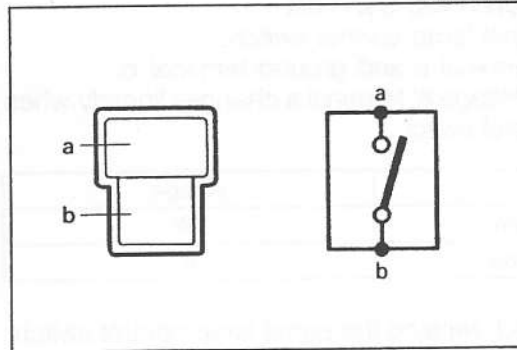
1. Remove the fuse box cover.
2. Remove the screws and remove the fuse box.
3. Remove the rear window defroster switch as shown in the figure.
4. Install the switch in the reverse order of removal.

#### Inspection

1. Remove the rear window defroster switch.
2. Check for continuity between the terminals of the switch.
3. If not as specified, replace the switch.

Switch	Terminals	
	a	b
Off		
On	○	○

○—○: Indicates continuity



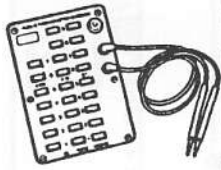
01E0TX-042

## INSTRUMENT CLUSTER

### PREPARATION SST

49 0839 285

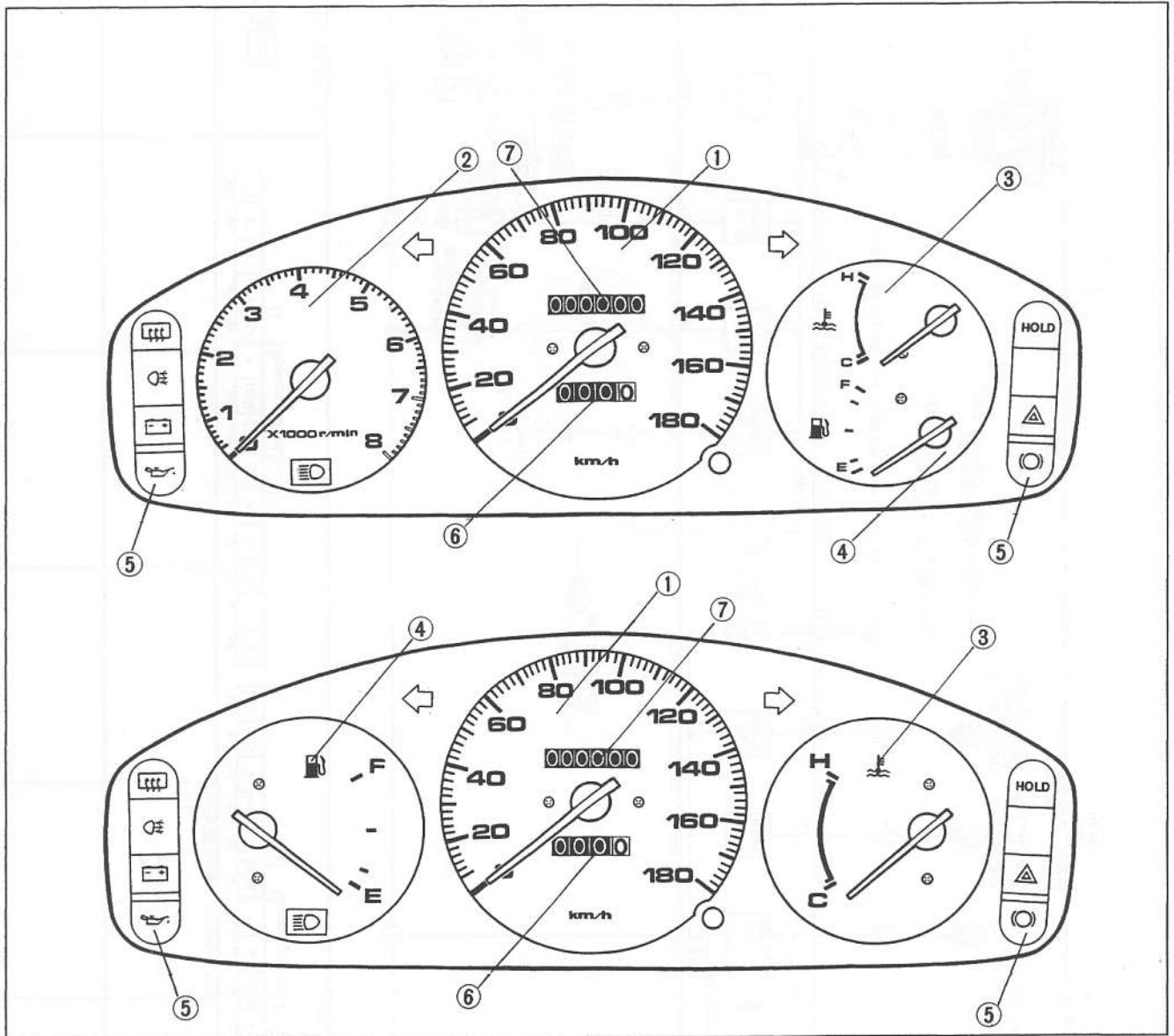
Checker, fuel  
thermometer



For  
inspection of fuel  
and thermometer

01E0TX-045

### STRUCTURAL VIEW

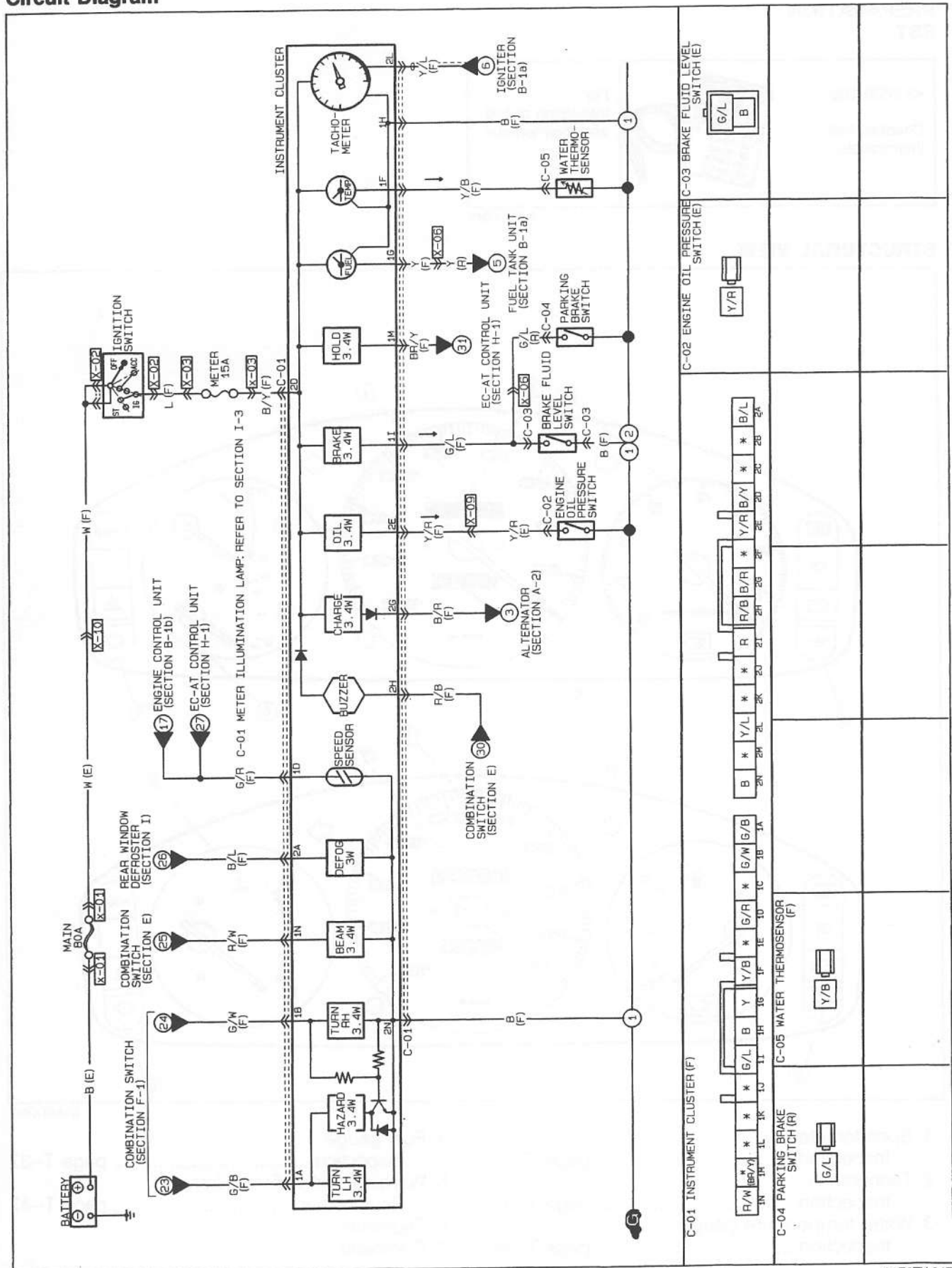


01A0TX-021

1. Speedometer  
Inspection ..... page T-37
2. Tachometer  
Inspection ..... page T-37
3. Water temperature gauge  
Inspection ..... page T-38

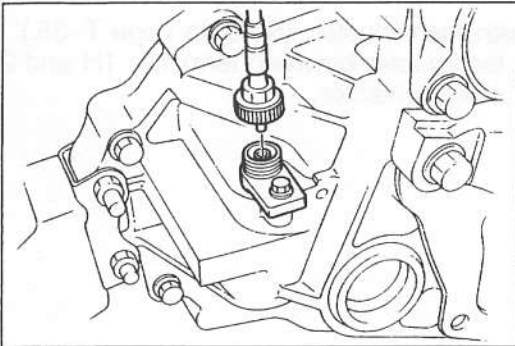
4. Fuel gauge  
Inspection ..... page T-37
5. Warning and indicator lamps  
Replacement..... page T-47
6. Tripmeter
7. Odometer

# TROUBLESHOOTING Circuit Diagram



**Symptom: Speedometer does not operate or indication is not correct.**

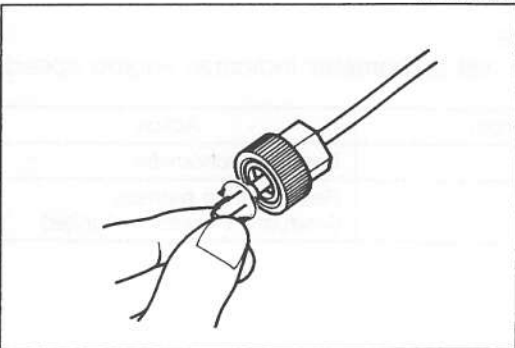
9MU0TX-066



01E0TX-048

## Step 1 — Check speedometer cable connection

Verify that the speedometer cable is connected properly. If the connections are OK, go to Step 2.



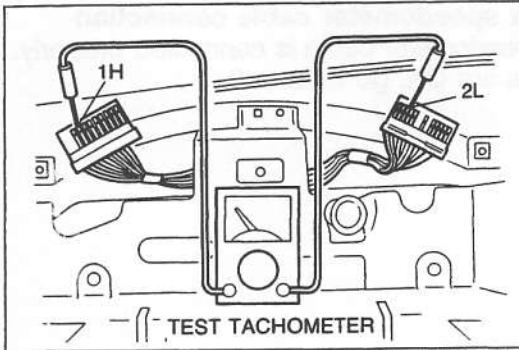
01E0TX-049

## Step 2 — Check speedometer cable

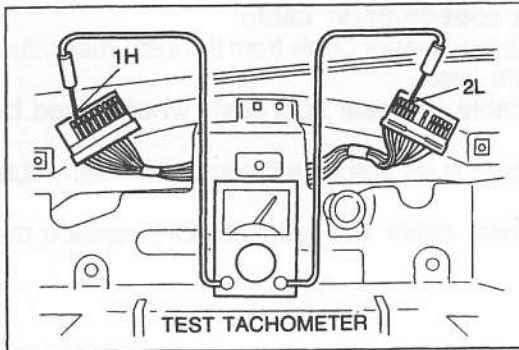
1. Disconnect the speedometer cable from the instrument cluster and transaxle case.
2. Verify that the cable and gear spin easily when turned by hand.
3. If the cable or gear is stiff, replace the speedometer cable or gear.
4. If the speedometer cable and gear are OK, replace the speedometer.

**Symptom: Tachometer does not operate.**

01E0TX-050



01A0TX-022



9MU0TX-071

**Step 1**

1. Remove the instrument cluster. (Refer to page T-35.)
2. Connect a test tachometer between terminals 1H and 2L of the harness side connector.

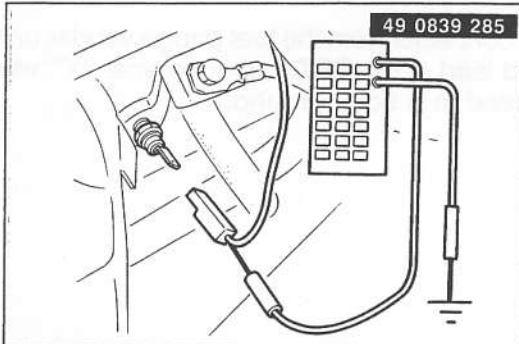
**Step 2**

1. Start the engine.
2. Check that the test tachometer indicates engine speed.

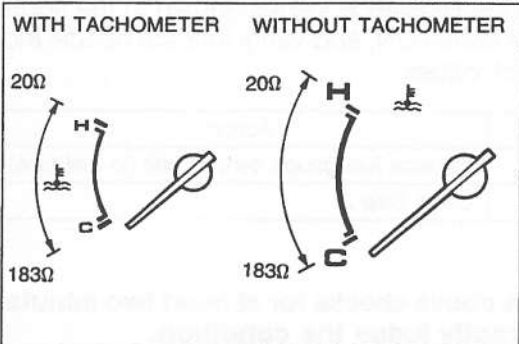
Indicates rpm	Action
Yes	Replace tachometer
No	Repair wiring harness (Instrument cluster — Igniter)

**Symptom: Water temperature gauge does not operate.**

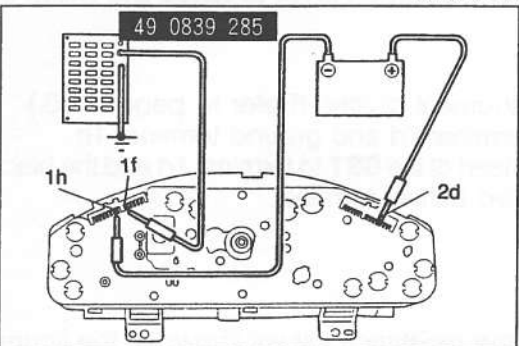
01E0TX-052



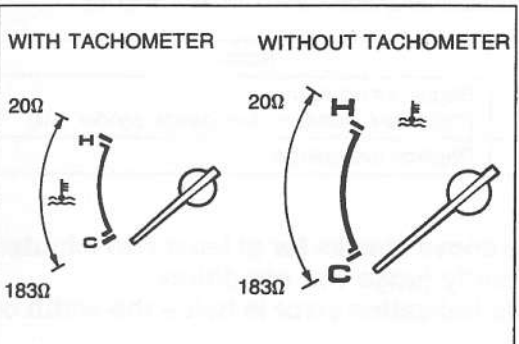
9MU0TX-073



03U0TX-110



01A0TX-023



9MU0TX-076

## Step 1

1. Disconnect the connector from the water thermosensor.
2. Connect the red lead of the **SST** to the connector and the black lead to a body ground.
3. Set the **SST** to the resistance values shown in the figure.
4. Turn the ignition switch ON, and check that the needle indicates the correct values.

Gauge displays correct	Action
Yes	Replace water thermosensor
No	Go to Step 2

## Caution

- Continue the above checks for at least two minutes each to correctly judge the condition.
- The allowable indication error is twice the width of the needle.

## Step 2

1. Remove the instrument cluster. (Refer to page T-35.)
2. Apply 12V to terminal 2d and ground terminal 1h.
3. Connect the red lead of the **SST** to terminal 1f and the black lead to a negative battery terminal.

4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct values.

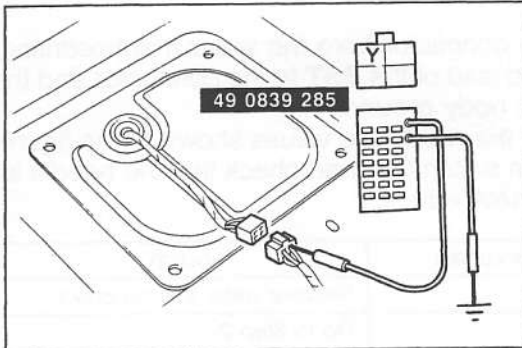
Indicates correct	Action
Yes	Repair wiring harness (Instrument cluster — Water thermosensor)
No	Replace water temperature gauge

## Caution

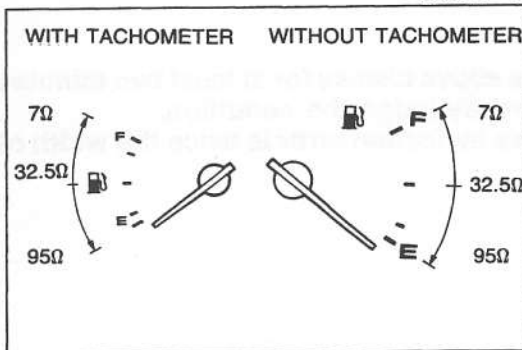
- Continue the above checks for at least two minutes each to correctly judge the condition.
- The allowable indication error is twice the width of the needle.

**Symptom: Fuel gauge does not operate.**

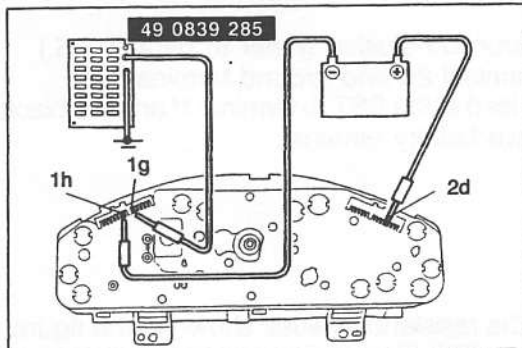
01E0TX-054



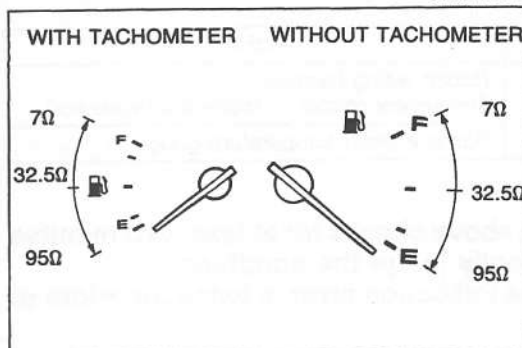
93G0TX-148



9MU0TX-079



01A0TX-024



01A0TX-025

### Step 1

1. Disconnect the connector from the fuel gauge sender unit.
2. Connect the red lead of the **SST** to the terminal "Y" wire and the black lead to a body ground.

3. Set the **SST** to the resistance values shown in the figure.
4. Turn the ignition switch ON, and verify that the needle indicates the correct values.

Indicates correct	Action
Yes	Replace fuel gauge sender unit (in fuel tank)
No	Go to Step 2

### Caution

- Continue the above checks for at least two minutes each to correctly judge the condition.
- The allowable indication error is twice the width of the needle.

### Step 2

1. Remove the instrument cluster. (Refer to page T-35.)
2. Apply 12V to terminal 2d and ground terminal 1h.
3. Connect the red lead of the **SST** to terminal 1g and the black lead to a negative battery terminal.

4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct values.

Indicates correct	Action
Yes	Repair wiring harness (Instrument cluster — fuel gauge sender unit)
No	Replace fuel gauge

### Caution

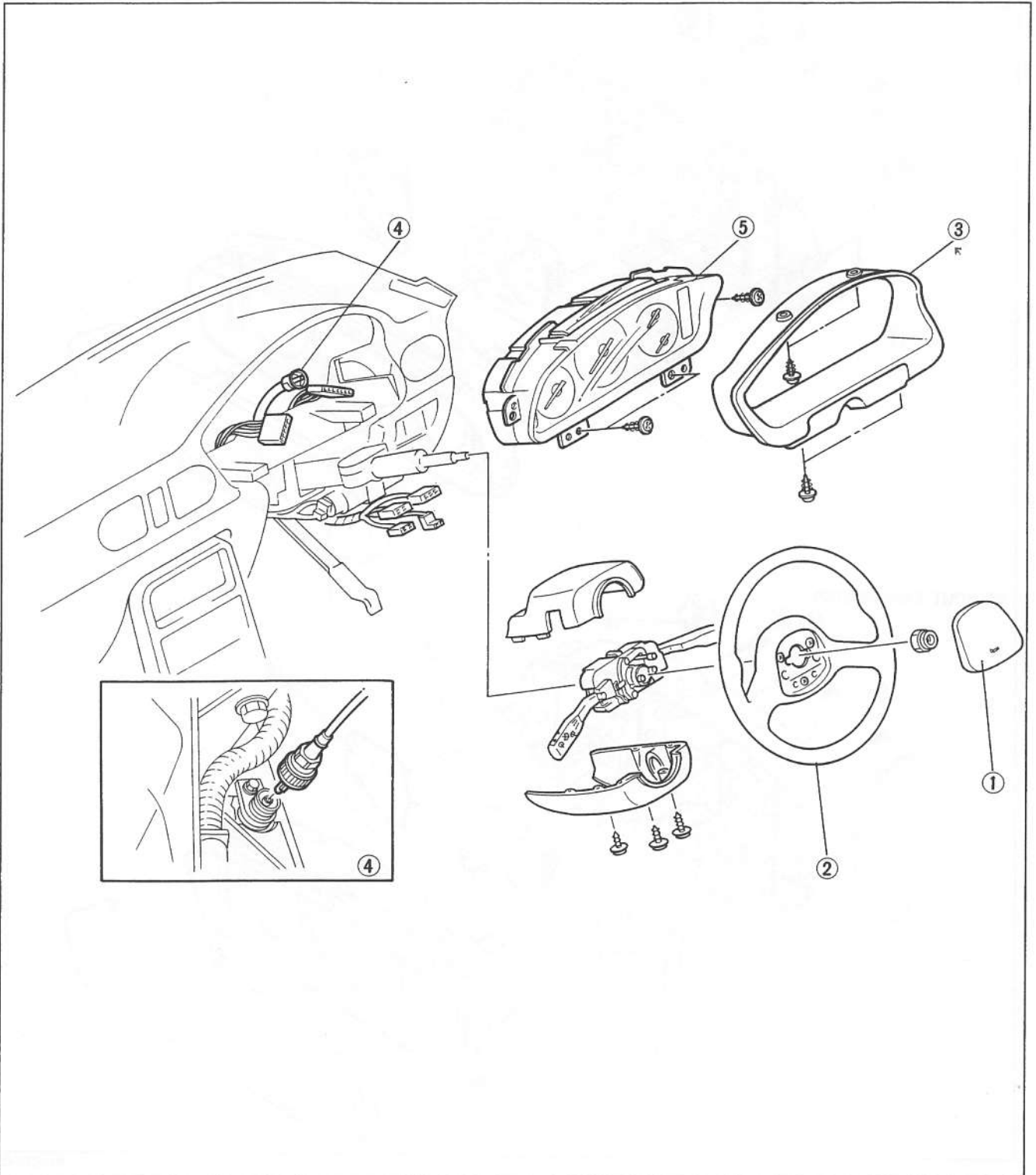
- Continue the above checks for at least two minutes each to correctly judge the condition.
- The allowable indication error is twice the width of the needle.



## INSTRUMENT CLUSTER

### Removal / Installation

1. Remove in the order as shown in the figure.
2. Install in the reverse order of removal.



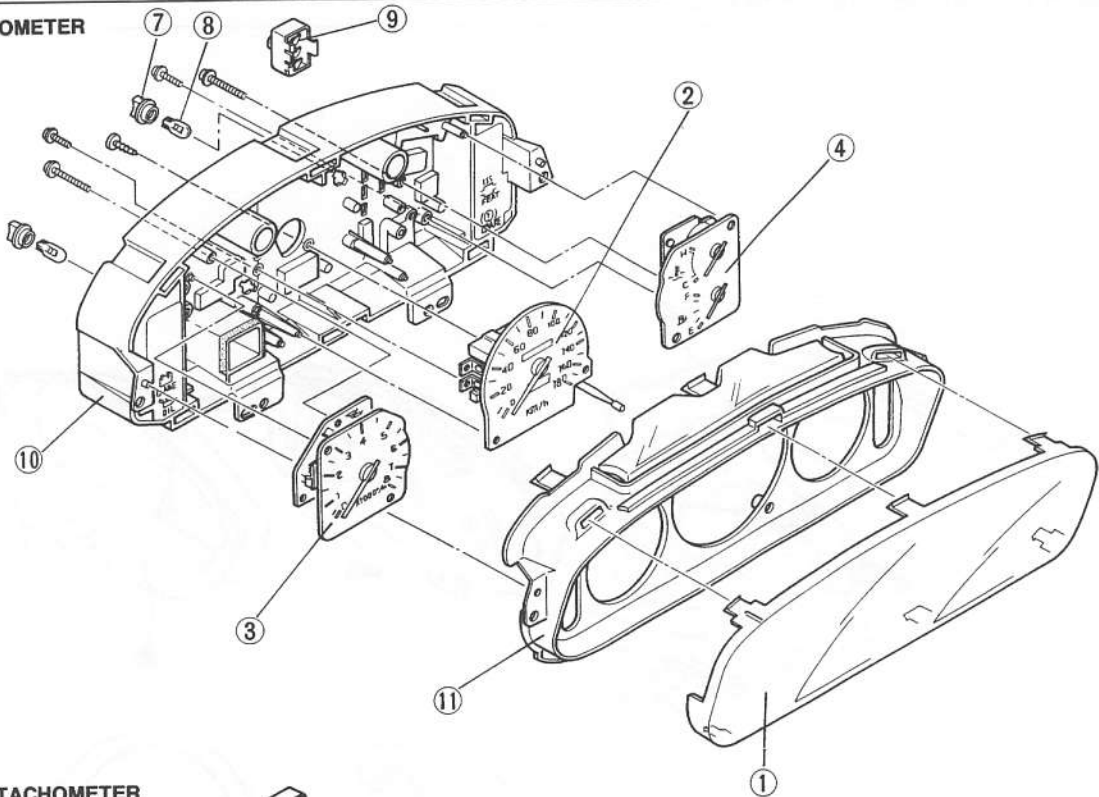
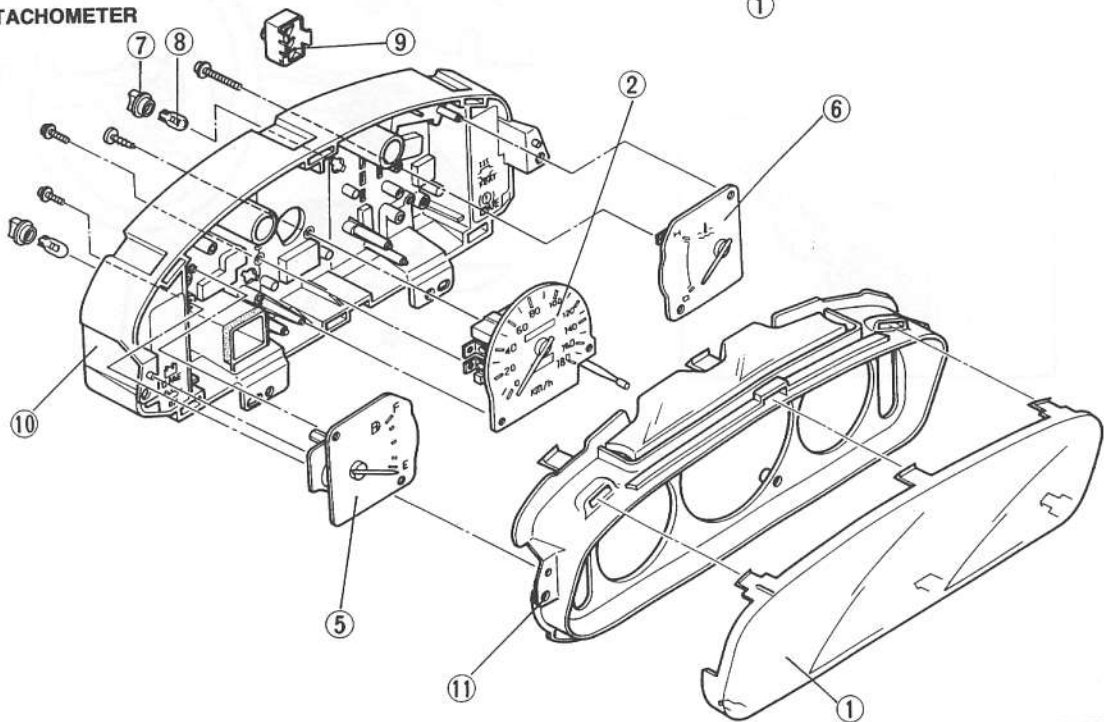
01A0TX-026

1. Horn cap
2. Steering wheel
3. Meter hood
4. Speedometer cable  
Inspection ..... page T-39

5. Instrument cluster  
Disassembly / Assembly ..... page T-36  
Inspection ..... page T-37

**Disassembly / Assembly**

1. Disassemble in the order as shown in the figure.
2. Assemble in the reverse order of disassembly.

**WITH TACHOMETER****WITHOUT TACHOMETER**

01A0TX-027

- |   |                            |
|---|----------------------------|
| 1. Wind plate   | 6. Water temperature gauge |
| 2. Speedometer  | 7. Socket                  |
| 3. Tachometer   | 8. Bulb                    |
| 4. Combination gauge<br>(Fuel and water temperature gauges) | 9. Buzzer                  |
| 5. Fuel gauge   | 10. Printed circuit        |
|   | 11. Case                   |

Standard indication (km/h)	Allowable range (km/h)
40	40— 43
80	80— 84
120	120—126

Standard indication (mph)	Allowable range (mph)
30	30—32
60	60—63
90	90—95

93G0TX-154

Standard Indication (rpm)	Allowable range (rpm)
1,000	850—1,090
2,000	1,940—2,180
3,000	2,910—3,270
4,000	3,880—4,360
5,000	4,850—5,450
6,000	5,820—6,540

01E0TX-058

## Inspection Speedometer

1. Using a speedometer tester, check the speedometer for allowable indication error, and check the operation of the odometer. Replace if necessary.
2. Check the speedometer for fluctuation and/or abnormal noise.

## Caution

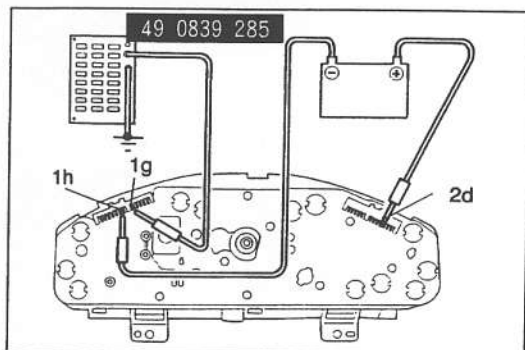
- If significant fluctuation occurs or the speedometer does not move at all, remove the speedometer cable. If it is normal, replace the speedometer assembly.
- Tire wear and improper inflation will increase speedometer error.

## Tachometer

1. Connect a test tachometer to the engine, and start the engine.
2. Check the tachometer for allowable indication error. Replace if necessary.

## Caution

- When removing or installing the tachometer, do not drop it or subject it to sharp shocks.



01A0TX-028

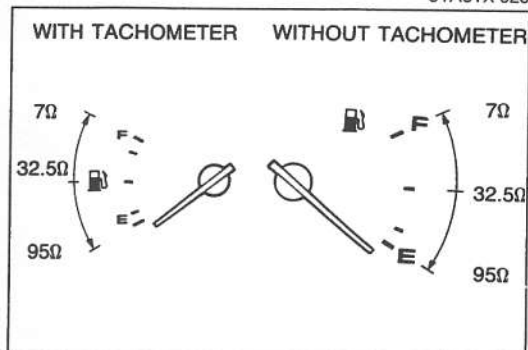
## Fuel gauge

1. Remove the instrument cluster. (Refer to page T-35.)
2. Apply 12V to terminal 2d and ground terminal 1h.
3. Connect the red lead of the **SST** to terminal 1g and the black lead to a negative battery terminal.

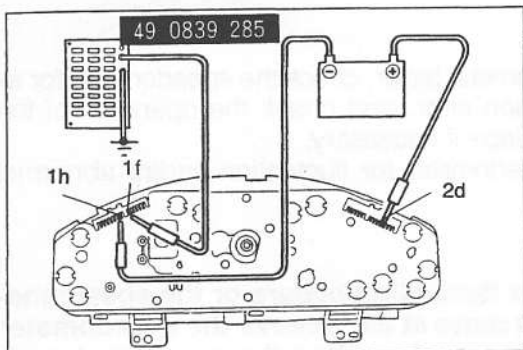
4. Set the **SST** to the resistance values shown in the figure.
5. Verify that the needle indicates the correct values.

## Caution

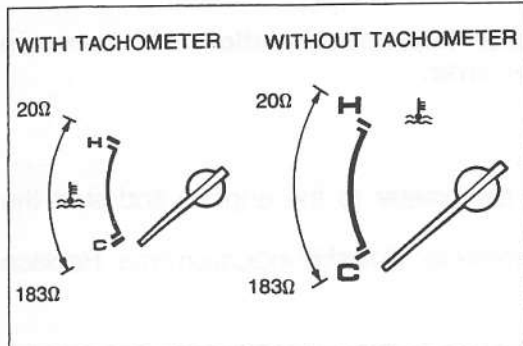
- Continue the above checks for at least two minutes each to correctly judge the condition.
- The allowable indication error is twice the width of the needle.



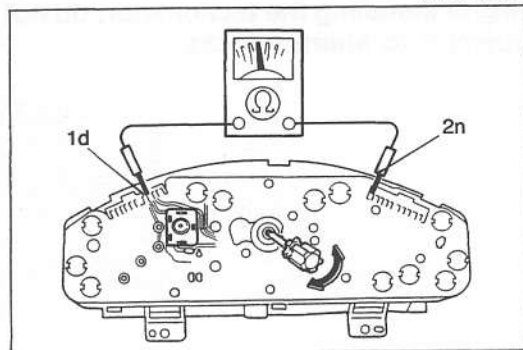
9MU0TX-087



01A0TX-029



9MU0TX-089



01A0TX-113

**Water temperature gauge**

1. Remove the instrument cluster. (Refer to page T-35.)
2. Apply 12V to terminal 2d and ground terminal 1h.
3. Connect the red lead of the **SST** to terminal 1f and the black lead to a negative battery terminal.

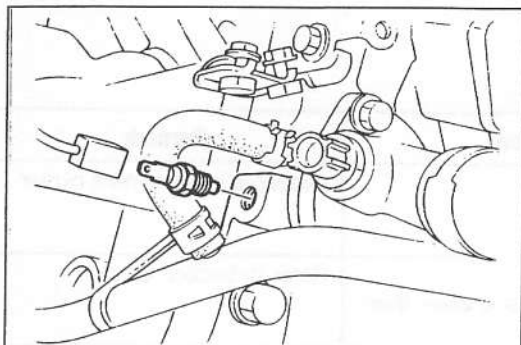
4. Set the **SST** to the resistance values shown in the figure.
5. Turn the ignition switch ON, and verify that the needle indicates the correct values.

**Caution**

- Continue the above checks for at least two minutes each to correctly judge the condition.
- The allowable indication error is twice the width of the needle.

**Speed sensor**

1. Remove the instrument cluster. (Refer to page T-35.)
2. Check continuity between terminals 2n and 1d while rotating the speedometer cable shaft.
3. If there are not four pulses per shaft rotation, replace the speedometer. (Refer to page T-36.)

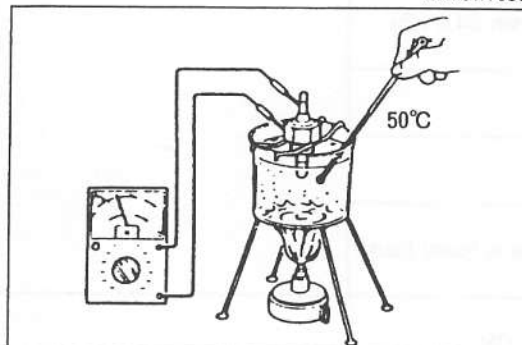


01A0TX-030

## WATER THERMOSENSOR

### Removal / Installation

1. Disconnect the connector.
2. Remove the thermosensor.
3. Install in the reverse order of removal.



01E0TX-061

### Inspection

1. Remove the sensor.
2. Place the sensor in water.
3. Heat the water gradually, and check the resistance of the sensor with an ohmmeter.
4. If the resistance is not as specified, replace the sensor.

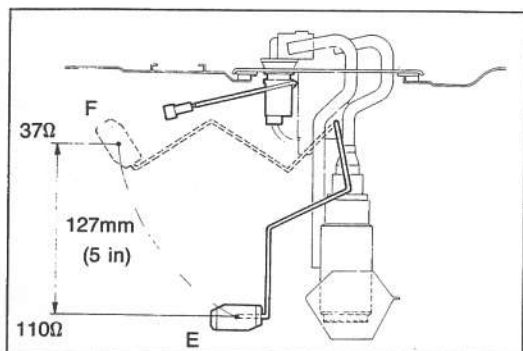
**Resistance: 192—260Ω at 50°C (122°F)**

## FUEL GAUGE SENDER UNIT

### Removal / Installation

Refer to Section F.

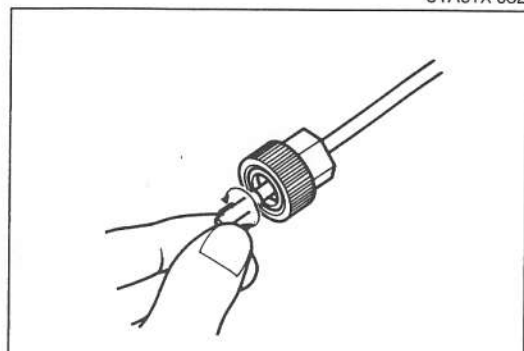
01A0TX-031



01A0TX-032

### Inspection

1. Remove the fuel tank gauge unit. (Refer to Section F.)
2. Disconnect the fuel gauge sender unit connector.
3. Check resistance while slowly moving the unit arm from point F to point E.
4. If not correct, replace the fuel gauge sender unit.



01E0TX-063

## SPEEDOMETER CABLE

### Inspection

1. Disconnect the speedometer cable from the instrument cluster and transaxle case.
2. Verify that the cable and gear spin easily when turned by hand.
3. If the cable or gear is stiff, replace the speedometer cable.

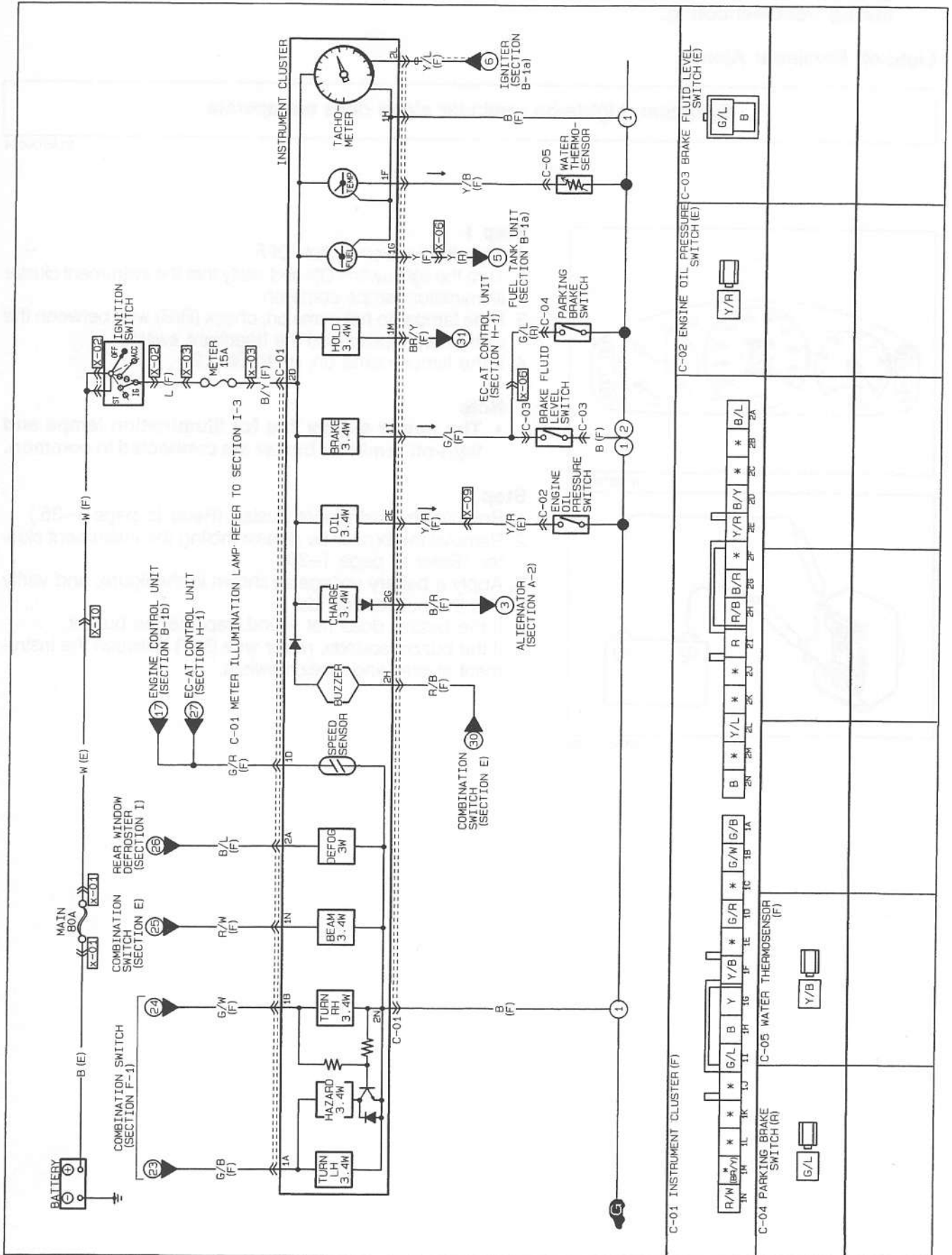
## WARNING AND INDICATOR SYSTEMS

## FUNCTION

Item		Operative condition	Remark
Warning buzzer	Light-off remainder alarm	<ul style="list-style-type: none"> <li>Ignition switch OFF</li> <li>Headlight switch ON (First or second position)</li> </ul>	Buzzer is in instrument cluster
Warning lamp	Alternator warning	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Voltage at alternator L terminal is lower than battery voltage</li> </ul>	Refer to Section G
	Engine oil warning	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Engine oil pressure is lower than 24.5 kPa (0.25 kg/cm<sup>2</sup>, 3.56 psi)</li> </ul>	—
	Brake system warning	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Parking brake switch ON</li> </ul>	
		<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Brake level sensor ON</li> </ul>	
Indicator lamp	Rear window defroster indicator	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Rear window defroster switch ON</li> </ul>	—
	Hold indicator (ATX)	<ul style="list-style-type: none"> <li>Ignition switch ON</li> <li>Hold switch ON</li> </ul>	Refer to Section K

01A0TX-033

## TROUBLESHOOTING Circuit Diagram





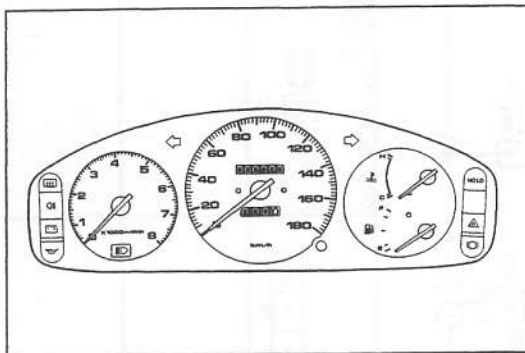
**Note**

- Check the meter 15A fuse in the fuse box before troubleshooting. If normal, refer to the following troubleshooting.

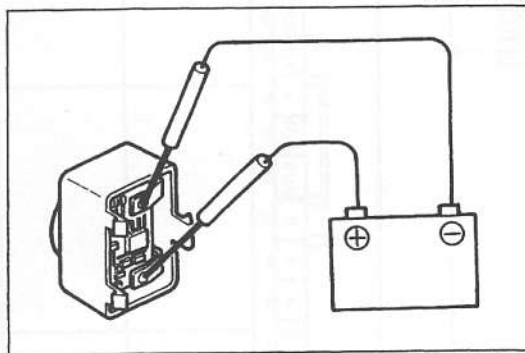
**Light-off Reminder Alarm**

**Symptom: Lights-on reminder alarm does not operate**

01A0TX-034



01A0TX-035



01A0TX-036

**Step 1**

1. Turn the ignition switch OFF.
2. Turn the light switch ON and verify that the instrument cluster illumination lamps come on.
3. If the lamps do not come on, check (R/B) wire between the instrument cluster and the headlight switch.
4. If the lamps come on, go to Step 2.

**Note**

- The power supply line for illumination lamps and light-off reminder buzzer are connected in common.

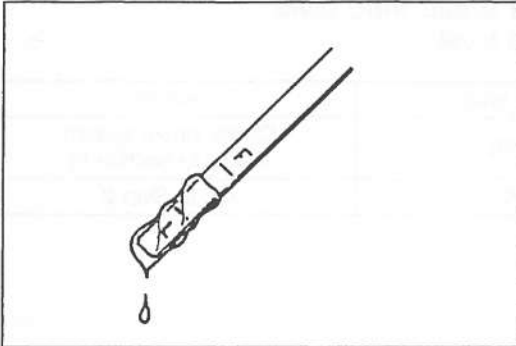
**Step 2**

1. Remove the instrument cluster. (Refer to page T-35.)
2. Remove the buzzer by disassembling the instrument cluster. (Refer to page T-36.)
3. Apply a battery voltage as shown in the figure, and verify that the buzzer sounds.
4. If the buzzer does not sound, replace the buzzer.
5. If the buzzer sounds, repair wire (B/Y) between the instrument cluster and ignition switch.

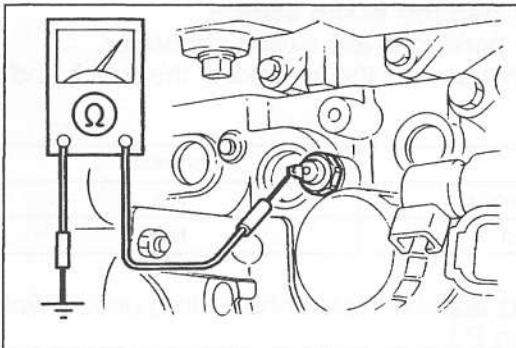
## Engine Oil Warning Lamp

**Symptom: Engine oil warning lamp remains illuminated**

01E0TX-069



01E0TX-070



01E0TX-071

### Step 1 — Check engine oil level

Check engine oil level.

Engine oil level	Action
Below L	Pour engine oil and adjust oil level
Above L	Go to Step 2

### Step 2 — Check engine oil pressure switch

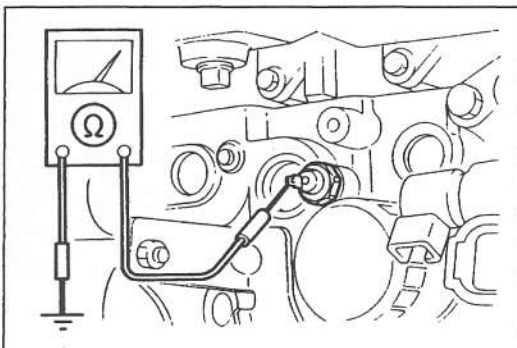
1. Connect an ohmmeter between the engine oil pressure switch and a body ground.
2. Check the continuity of the switch under below condition.

Condition	Continuity
Engine stopped	Yes
Engine run	No

3. If the continuity is not as specified, check the lubrication system. (Refer to Section D.)
4. If correct, repair wire (Y/R) between the engine oil pressure switch and the instrument cluster.

**Symptom: Engine oil warning lamp does not come on when engine stopped (Ignition switch ON)**

01E0TX-072



01A0TX-037

### Remedy

1. Connect an ohmmeter between the engine oil pressure switch and a body ground.
2. Check for continuity of the switch when the engine stopped.

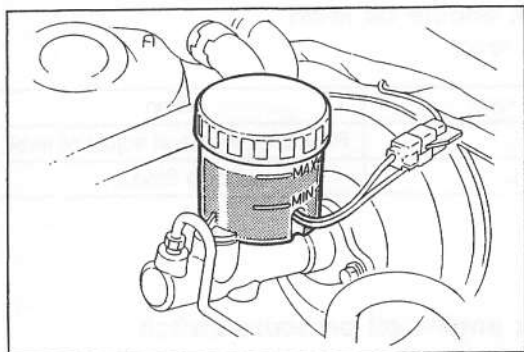
Condition	Continuity
Engine stopped	Yes

3. If not as specified, replace the engine oil pressure switch.
4. If correct, repair wire (Y/R) between the engine oil pressure switch and instrument cluster.

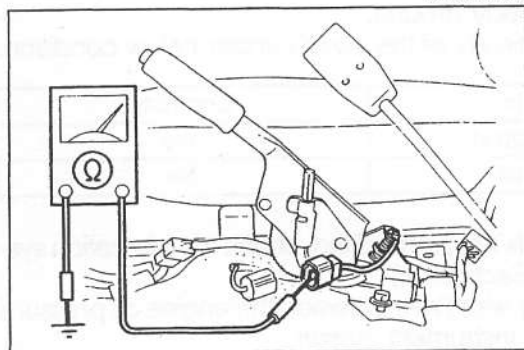
## Brake System Warning Lamp

**Symptom: Brake system warning lamp remains illuminated.**

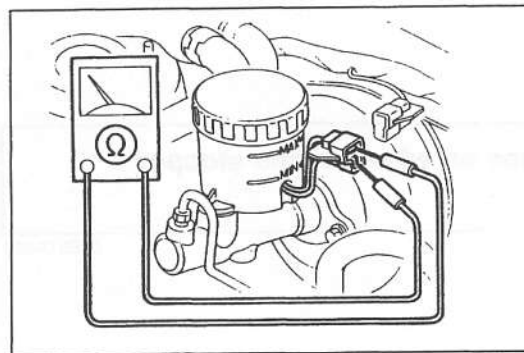
01E0TX-074



05U0TX-289



05U0TX-075



05U0TX-290

**Step 1 — Check brake fluid level**

Check brake fluid level.

Brake fluid level	Action
Below MIN	Check brake system (Refer to Section P)
Above MIN	Go to Step 2

**Step 2 — Check parking brake switch**

1. Disconnect the parking brake switch connector.
2. Check continuity between the terminal of the switch and a body ground.

Lever	Continuity
Pulled one notch	Yes
Released	No

3. If not as specified, adjust or replace the parking brake switch.  
(Refer to Section P.)
4. If the switch is OK, go to Step 3.

**Step 3 — Check brake fluid level sensor**

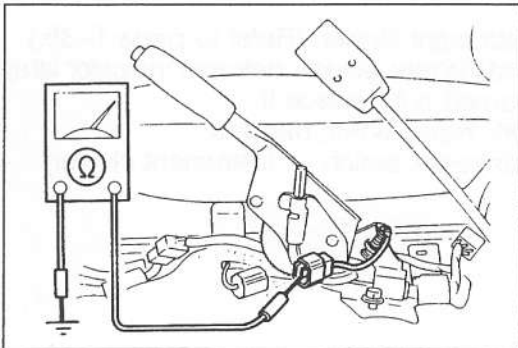
1. Check continuity of the sensor.

Brake fluid level	Continuity
Below MIN	Yes
Above MIN	No

2. If not as specified, replace the level sensor.
3. If the sensor is OK, repair the wiring harness.

**Symptom: Brake system warning lamp does not come on when parking brake is on.  
(Ignition switch ON.)**

01E0TX-075



05U0TX-291

## Remedy

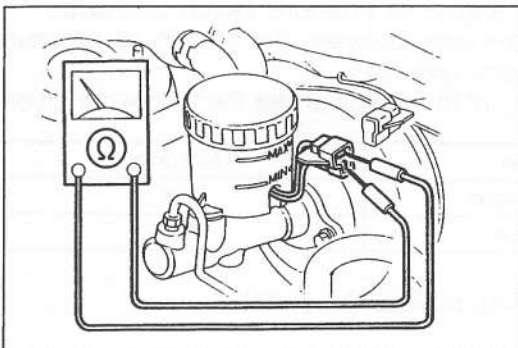
1. Disconnect the parking brake switch connector.
2. Check continuity between the terminal of the switch and a body ground.

Lever	Continuity
Pulled one notch	Yes
Released	No

3. If not as specified, adjust or replace the parking brake switch.
4. If the switch is OK, repair the wiring harness.

**Symptom: Brake system warning lamp does not come on when brake fluid in reservoir tank is below MIN.**

01E0TX-076



05U0TX-293

## Remedy

1. Disconnect the brake fluid level sensor connector.
2. Check continuity of the brake fluid level sensor.

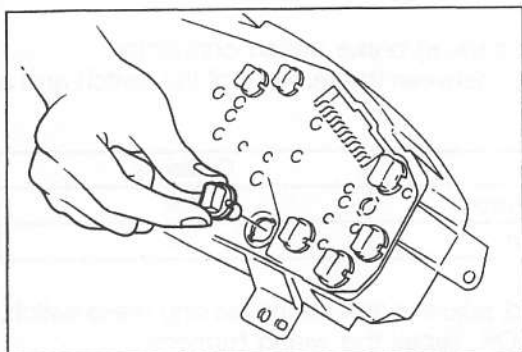
Brake fluid level	Continuity
Below MIN	Yes
Above MIN	No

3. If not as specified, replace the level sensor.
4. If the sensor is OK, repair the wiring harness.

## Rear Window Defroster Indicator Lamp

**Symptom: Rear window defroster indicator lamp does not come on when rear window defroster switch ON.**  
**(Rear window defroster system operates normally)**

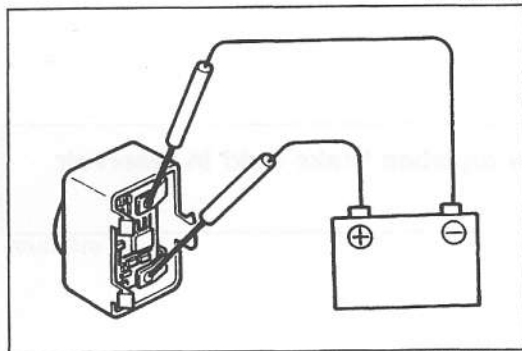
01E0TX-077



01A0TX-038

**Remedy**

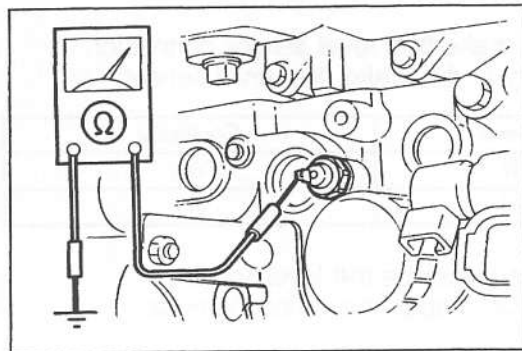
1. Remove the instrument cluster. (Refer to page T-35.)
2. Check the bulb of the rear window defroster indicator lamp.
3. If the bulb is burned out, replace it.
4. If the bulb is OK, repair wiring harness.  
 (Rear window defroster switch — Instrument cluster)



01A0TX-039

**WARNING BUZZER****Inspection**

1. Remove the instrument cluster. (Refer to page T-35.)
2. Remove the warning buzzer by disassembling the instrument cluster. (Refer to page T-36.)
3. Apply a battery voltage as shown in the figure, and verify that the buzzer sounds.
4. If the buzzer does not sound, replace the buzzer.



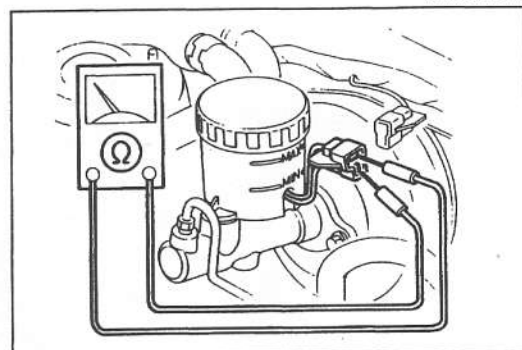
01A0TX-040

**ENGINE OIL PRESSURE SWITCH****Inspection**

1. Disconnect the engine oil pressure switch connector.
2. Connect an ohmmeter between the engine oil pressure switch and a body ground.
3. Check continuity of the switch under the below condition.

Condition	Continuity
Engine stopped	Yes
Engine run	No

4. If not as specified, replace the switch.



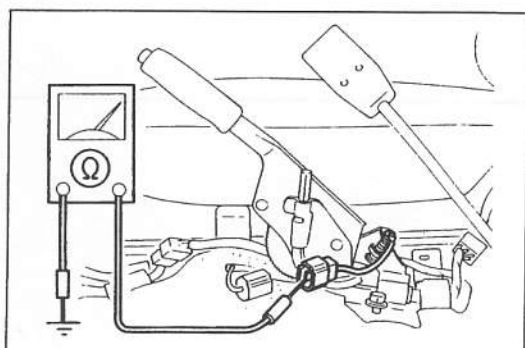
05U0TX-080

**BRAKE FLUID LEVEL SENSOR****Inspection**

1. Check continuity of the sensor.

Float level	Continuity
Below MIN	Yes
Above MIN	No

2. If continuity is not as specified, replace the level sensor.



05U0TX-081

## PARKING BRAKE SWITCH

### Inspection

1. Disconnect the parking brake switch connector.
2. Check for continuity between the switch connector and a body ground.

Lever	Continuity
Pulled one notch	Yes
Released	No

3. If continuity is not as specified, adjust or replace the parking brake switch.

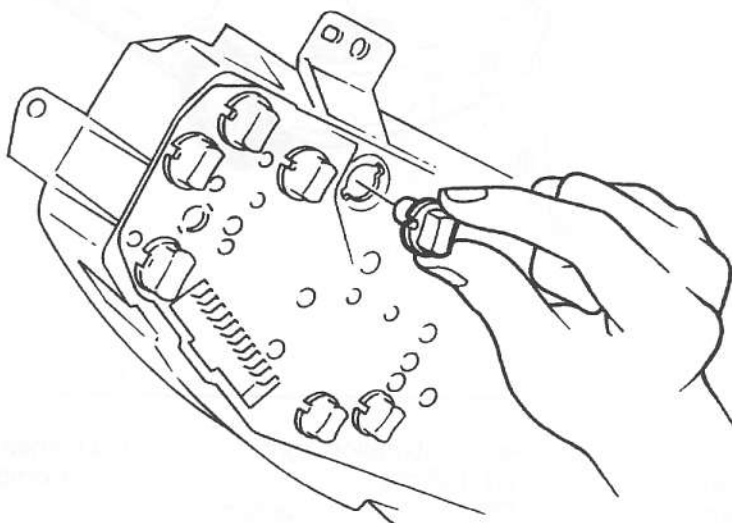
## WARNING AND INDICATOR LAMPS

### Replacement

1. Remove the instrument cluster. (Refer to page T-35.)
2. Replace the faulty bulbs as shown in the figure.

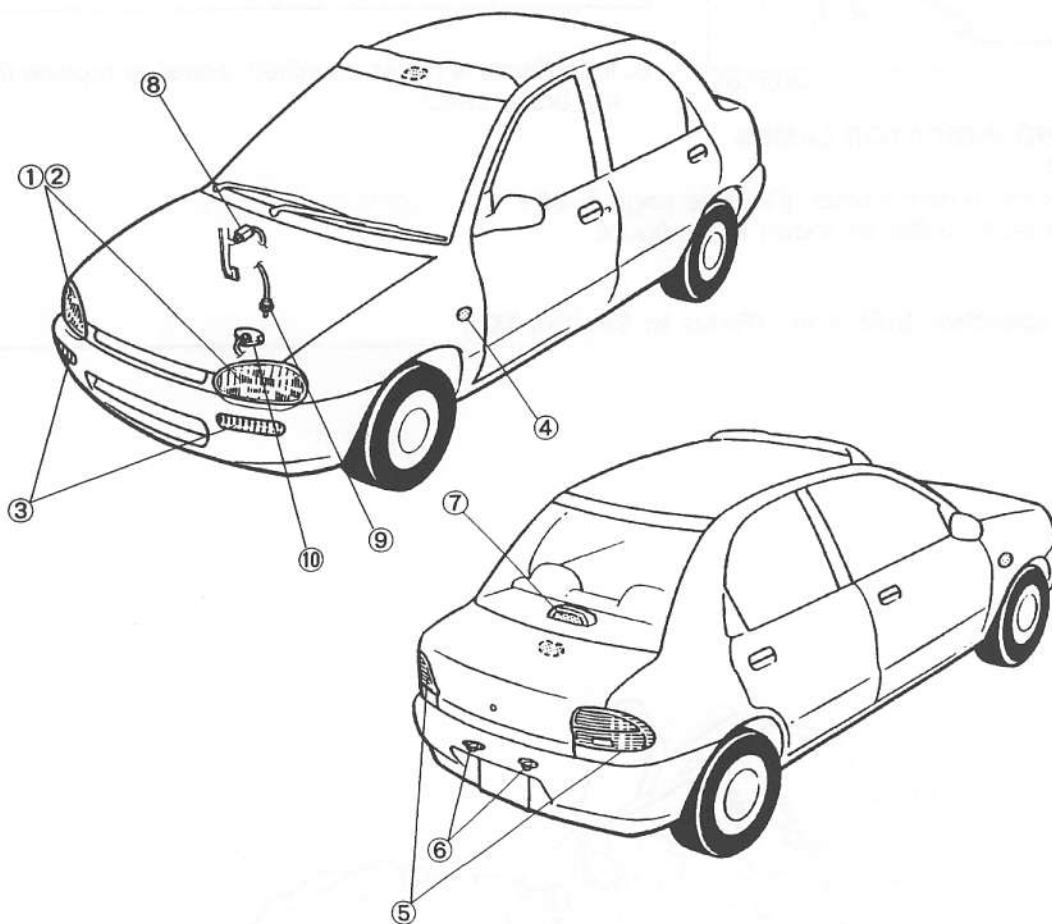
### Caution

- Use the specified bulb only. (Refer to Section TD.)



## EXTERIOR LIGHTING SYSTEM

## STRUCTURAL VIEW

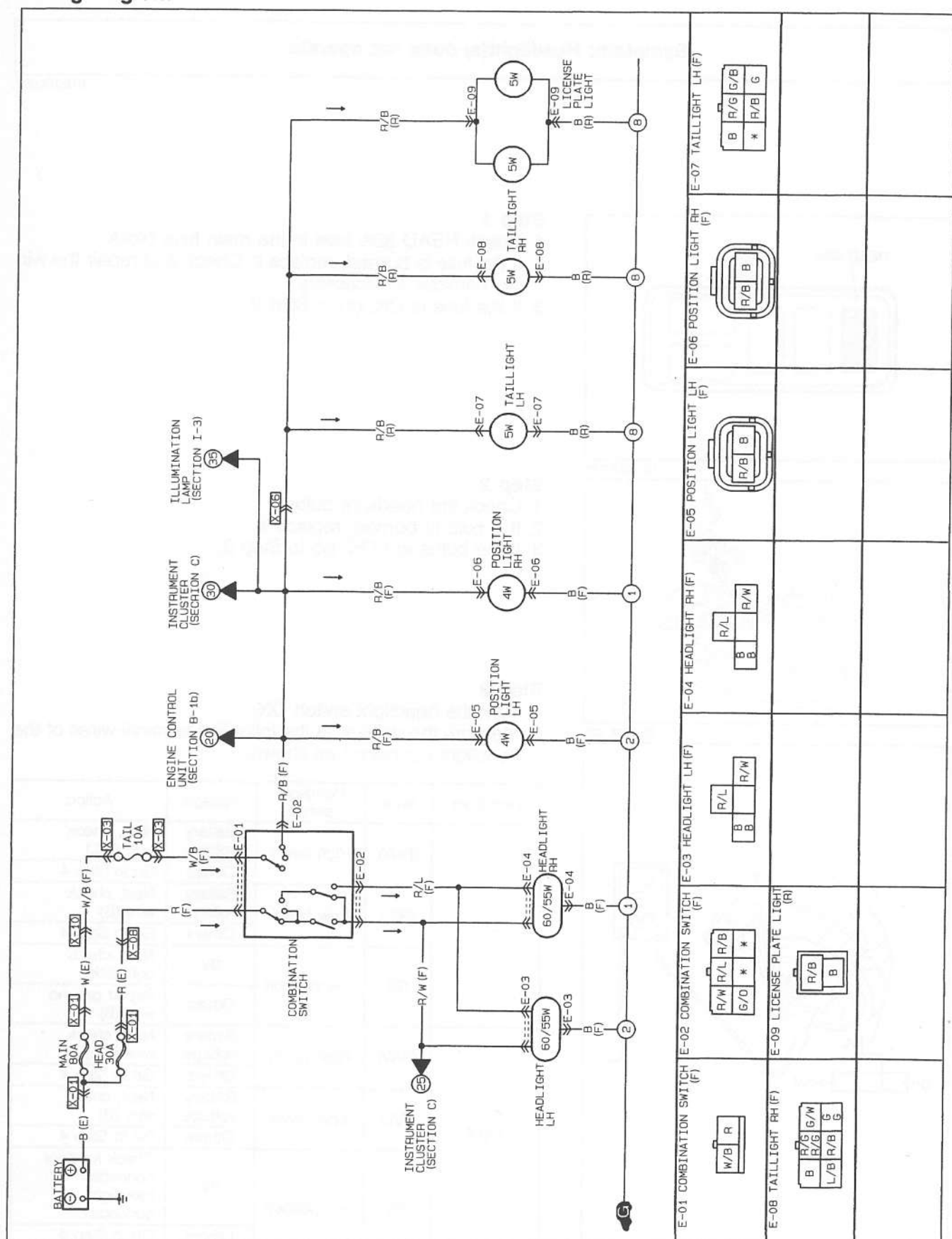


01A0TX-042

- |                            |                            |                            |
|----------------------------|----------------------------|----------------------------|
| 1. Headlight               | 5. Rear combination light  | 6. License plate light     |
| Aiming ..... page T-53     | (1) Taillight              | Removal / Installation     |
| Removal / Installation     | (2) Rear turn signal light | ..... page T-62            |
| ..... page T-52            | (3) Stoplight              | 7. High-mount stoplight    |
| Replacement .... page T-53 | (4) Back-up light          | Removal / Installation     |
| 2. Position light          | Removal / Installation     | ..... page T-66            |
| Removal / Installation     | ..... page T-70            | 8. Stoplight switch        |
| ..... page T-52            | Replacement .... page T-70 | Inspection ..... page T-65 |
| 3. Front turn signal light | Disassembly / Assembly     | 9. Back-up light switch    |
| Removal / Installation     | ..... page T-71            | Inspection ..... page T-69 |
| ..... page T-59            |                            | 10. Inhibitor switch       |
| 4. Side turn signal light  |                            | Inspection ..... page T-69 |
| Removal / Installation     |                            |                            |
| ..... page T-59            |                            |                            |

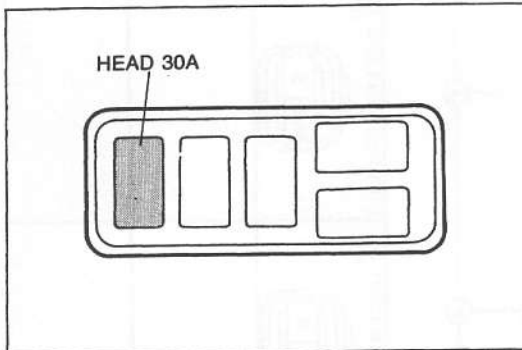


## HEADLIGHT Troubleshooting Wiring diagram

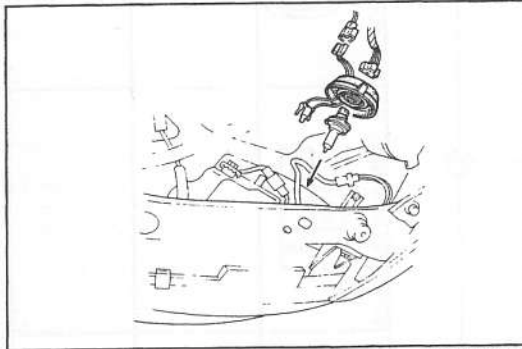


**Symptom: Headlight(s) does not operate.**

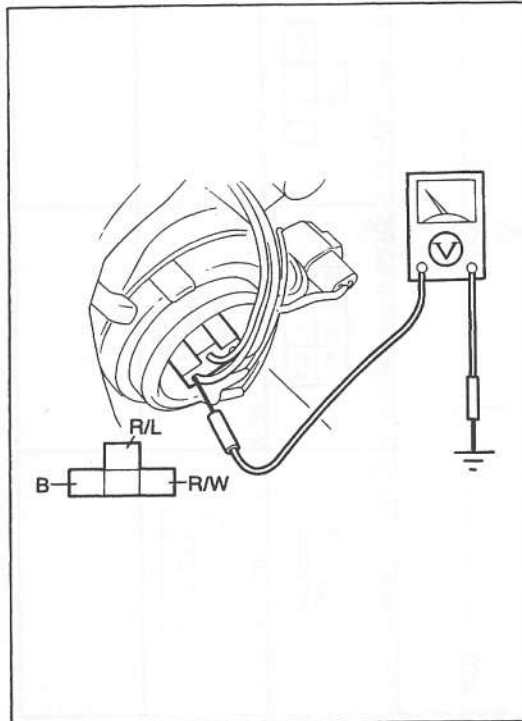
01E0TX-097



05U0TX-296



05U0TX-297



01A0TX-044

### Step 1

1. Check HEAD 30A fuse in the main fuse block.
2. If the fuse is burned, replace it. Check and repair the wiring harness, if necessary.
3. If the fuse is OK, go to Step 2.

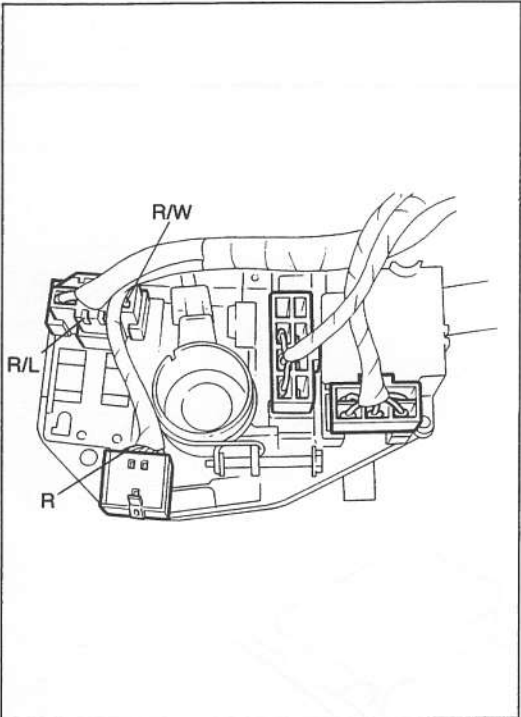
### Step 2

1. Check the headlight bulbs.
2. If a bulb is burned, replace it.
3. If the bulbs are OK, go to Step 3.

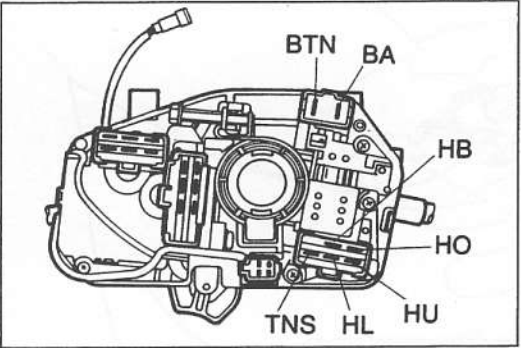
### Step 3

1. Turn the headlight switch ON.
2. Measure the voltage at the following terminal-wires of the headlight connector as shown.

Headlight	Wire	Headlight switch	Voltage	Action
Left	(R/W)	High beam	Battery voltage	Next, check wire (R/L)
			Others	Go to Step 4
	(R/L)	Low beam	Battery voltage	Next, check wire (B)
			Others	Go to Step 4
	(B)	Any position	0V	Next, check right side
			Others	Repair ground wire (B)
Right	(R/W)	High beam	Battery voltage	Next, check wire (R/L)
			Others	Go to Step 4
	(R/L)	Low beam	Battery voltage	Next, check wire (B)
			Others	Go to Step 4
	(B)	Any position	0V	Check for poor connection of headlight connector
			Others	Go to Step 4



01A0TX-045



01E0TX-100

Step 4

- 1. Remove the column cover.
- 2. Measure the voltage at the following terminal-wires of the headlight switch connectors (in the combination switch) as shown.

Wire	Headlight switch	Voltage	Action
(R)	Any position	Battery voltage	Next, check wire (R/W)
		Others	Repair wire (R) (HEAD 30A fuse—Headlight switch)
(R/W)	ON (High beam)	Battery voltage	Next, check wire (R/L)
		Others	Go to Step 5
(R/L)	ON (Low beam)	Battery voltage	Check for poor connection of headlight switch connector
		Others	Go to Step 5

Step 5 — Headlight switch inspection

- 1. Disconnect the headlight switch connectors.
- 2. Check for continuity between terminals as shown with an ohmmeter.

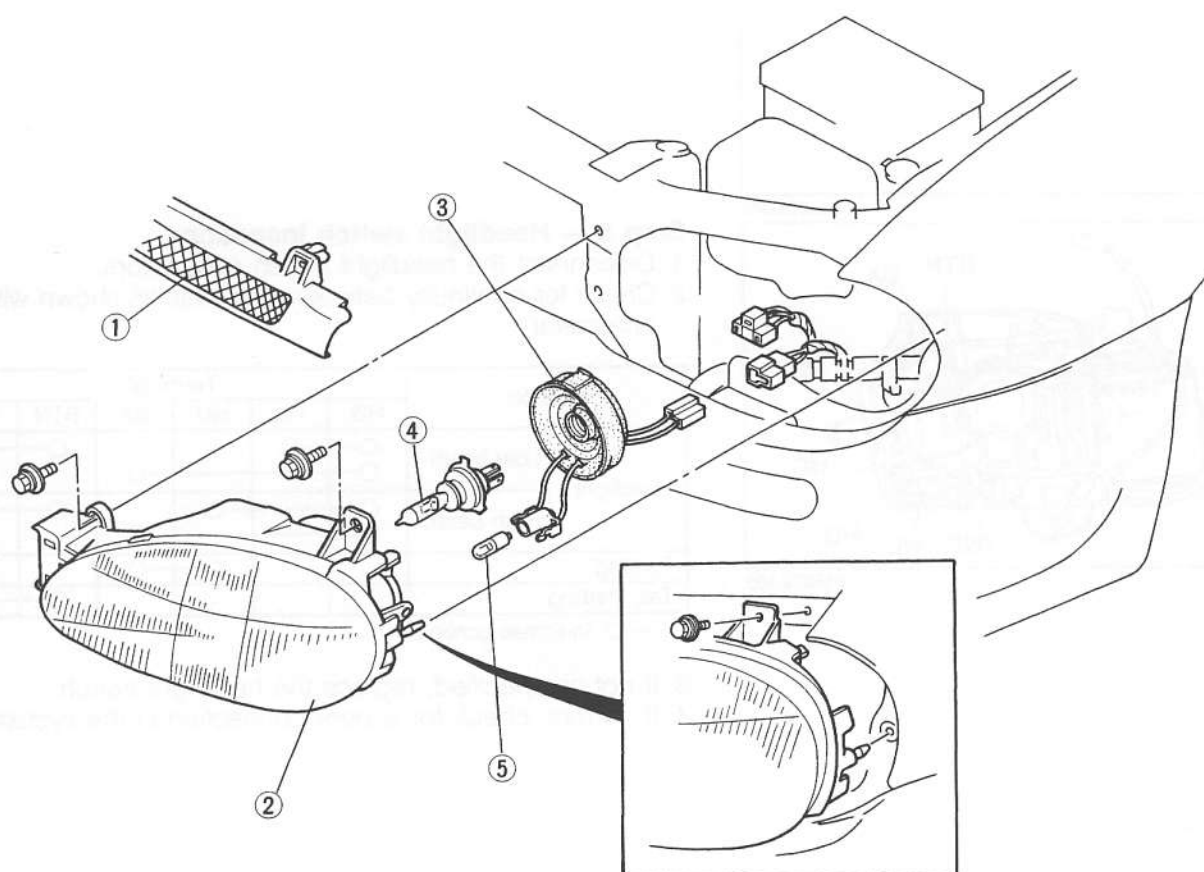
Position		Terminal					
		HB	HL	HU	BA	BTN	TNS
Headlight	Low beam	○—○			○	○—○	
	High beam	○	○—○	○	○	○—○	
Parking				○—○	○		
Tail, Parking						○—○	

○—○: Indicates continuity

- 3. If not as specified, replace the headlight switch.
- 4. If correct, check for a poor connection in the system.

**Removal / Installation**

1. Remove the headlight as shown in the figure.
2. Install the headlight in the reverse order of removal.



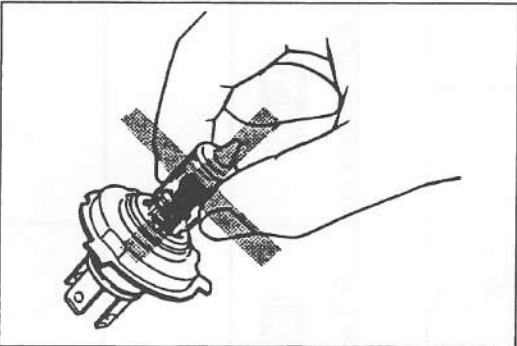
01E0TX-101

1. Radiator grille
2. Headlight unit
3. Cover

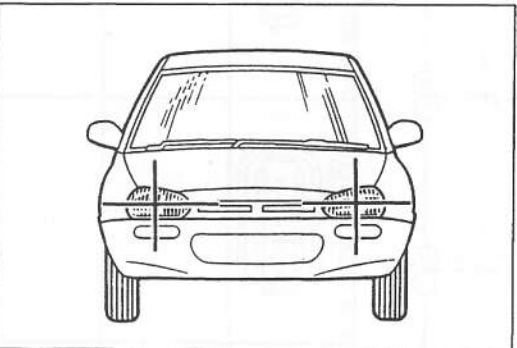
4. Headlight bulb
5. Position light bulb



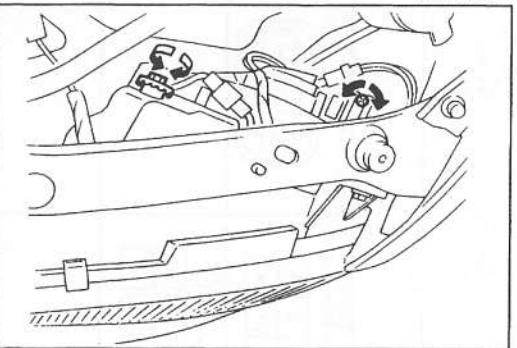
01E0TX-102



01A0TX-046



01A0TX-047



01A0TX-048

## Bulb Replacement

1. Disconnect the headlight connector.
2. Remove a cover and the headlight bulb.
3. Install the headlight bulb in the reverse order of removal.

## Caution

- Do not touch the glass portion of the bulb. Always hold the base.

## Aiming

1. Adjust the tire air pressure to specification.
2. Position the unloaded vehicle on a flat level surface.
3. Adjust the headlights to meet local regulations by turning the adjusting screws.

## Inspection

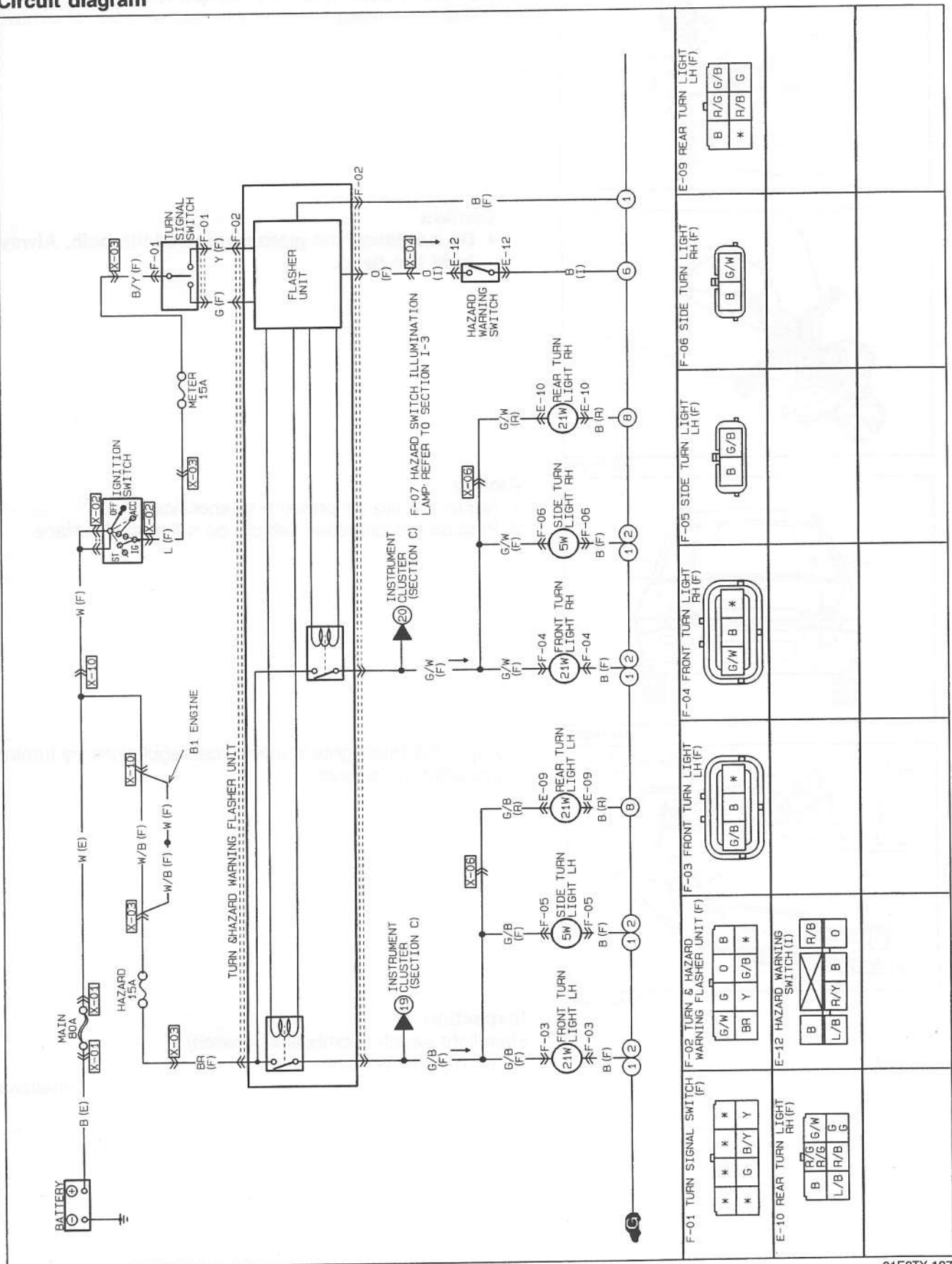
Headlight switch (Combination switch)  
Refer to page T-26.

01A0TX-049

# TURN SIGNAL LIGHT

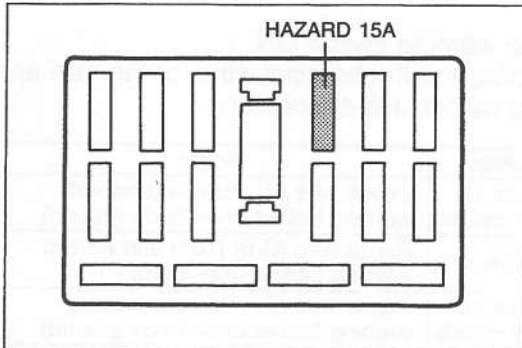
## Troubleshooting

### Circuit diagram

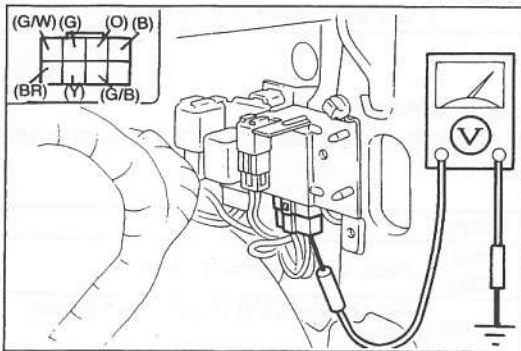


**Symptom: Turn and hazard warning lights do not operate.**

95A0TX-042



01A0TX-050



01A0TX-051

## Step 1

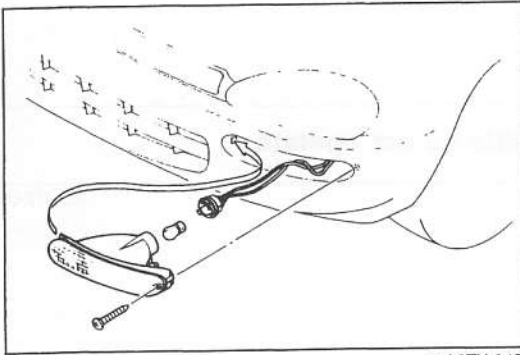
1. Check the following fuse.
  - HAZARD 15A
2. If the fuse is burned, replace it. Check and repair the wire harness, if necessary.
3. If the fuse is OK, go to Step 2.

## Step 2

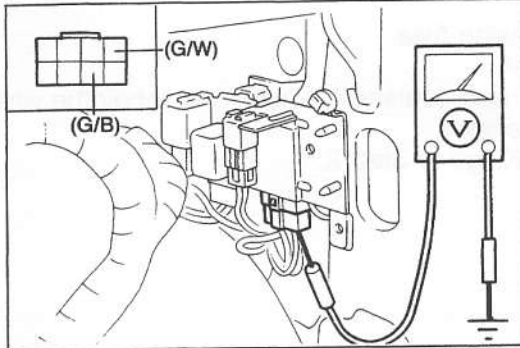
Measure the voltage at the terminal-wires of the turn and hazard warning flasher unit connector.

Wire	Condition	Voltage	Action
(BR)	Constant	Battery voltage	Next, check wire (B)
		Others	Repair wire (BR) (Fuse—Turn and hazard warning flasher unit)
(B)	Constant	0V	Next, check wire (O)
		Others	Repair wire (B) (Turn and hazard warning flasher unit—Body ground)
(O)	Hazard warning switch. ON	0V	Next, check wire (Y)
		Others	Go to Step 6
(Y)	Turn signal switch. Left	Battery voltage	Next, check wire (G)
		Others	Go to Step 5
(G)	Turn signal switch. Right	Battery voltage	Next, check wires (G/B) and (G/W)
		Others	Go to Step 5
(G/B)	Turn signal switch. Left	Appear battery voltage and 0V mutually	Go to Step 3
		Others	Replace turn and hazard warning flasher unit
(G/W)	Turn signal switch. Right	Appear battery voltage and 0V mutually	Go to Step 3
		Others	Replace turn and hazard warning flasher unit

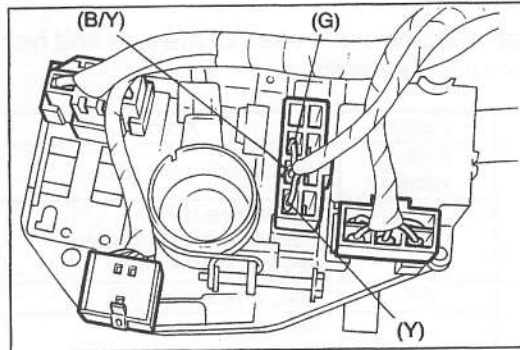




95A0TX-045



01A0TX-052



01A0TX-053

**Step 3**

1. Check the bulbs.
2. If a bulb is burned, replace it.
3. If the bulbs are OK, go to Step 4.

**Step 4**

1. Turn the hazard warning switch ON.
2. Measure the voltage at the terminal-wires of the turn and hazard warning flasher unit connector.

Light	Wire	Voltage	Action
Front LH Side LH Rear LH	(G/B)	Appear 12V and 0V mutually	Repair wire (B) (Turn and hazard warning flasher unit—Body ground)
		Others	Repair wire (G/B) (Turn and hazard warning flasher unit—Bulb)
Front RH Side RH Rear RH	(G/W)	Appear 12V and 0V mutually	Repair wire (B) (Turn and hazard warning flasher unit—Body ground)
		Others	Repair wire (G/W) (Turn and hazard warning flasher unit—Bulb)

**Step 5**

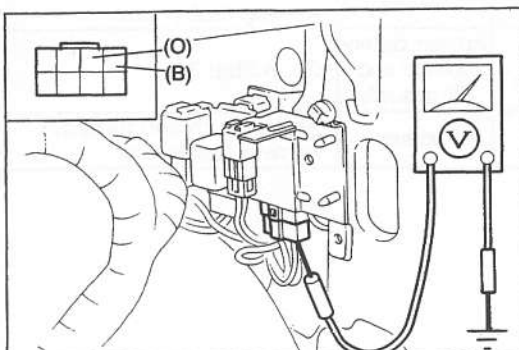
1. Remove the column cover.
2. Measure the voltage at the terminal-wires of the turn signal switch connector.

Wire	Condition	Voltage	Action
(B/Y)	Constant	Battery voltage	Next, check wires (Y) and (G)
		Others	Repair wire (B/Y) (Fuse—Turn signal switch)
(Y)	Turn signal switch: Left	Battery voltage	Repair wire (Y) (Turn signal switch—Turn and hazard flasher unit)
		Others	Replace combination switch
(G)	Turn signal switch: Right	Battery voltage	Repair wire (G) (Turn signal switch—Turn and hazard flasher unit)
		Others	Replace combination switch

**Step 6**

Measure the voltage at the terminal-wires of the turn and hazard flasher unit connector.

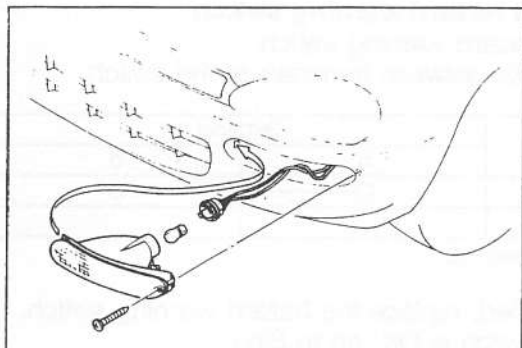
Wire	Condition	Voltage	Action
(B)	Hazard warning switch ON	Battery voltage	Repair wire (B) (Hazard warning switch—Body ground)
		Others	Next, check wire (O)
(O)		0V	Replace hazard warning switch
		Others	Repair wire (O) (Turn and hazard warning flasher unit—Hazard warning switch)



01A0TX-054

**Symptom: Turn signal(s) flashes rapidly.**

9MU0TX-175



9MU0TX-176

**Remedy**

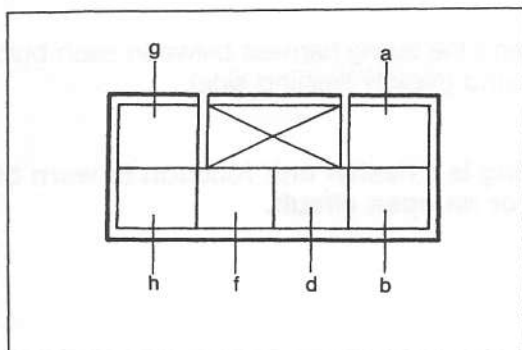
Check the bulbs and the wiring harness between each bulb and the body ground (rapidly flashing side).

**Note**

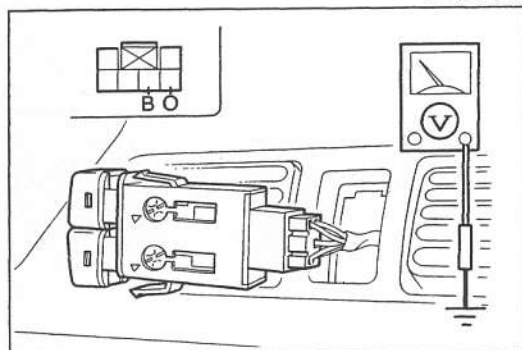
- **Rapid flashing is a flasher unit function to warn of a bad bulb or an open circuit.**

**Symptom: Hazard warning function does not operate.**  
**(Turn signals function normally.)**

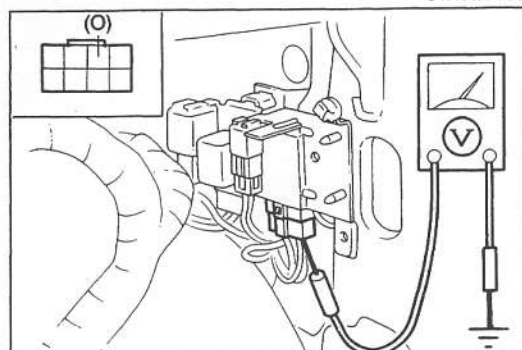
05U0TX-310



01A0TX-055



01A0TX-056



01A0TX-057

### Step 1 — Check hazard warning switch.

1. Remove the hazard warning switch.
2. Check continuity between terminals of the switch.

Switch	Terminal	
	b	d
ON	○	○
OFF		

○—○: Indicates continuity

3. If not as specified, replace the hazard warning switch.
4. If the cluster switch is OK, go to Step 2.

### Step 2

Measure the voltage at the terminal-wires of the hazard warning switch connector as shown.

Wire	Voltage	Action
(O)	Battery voltage	Next, check wire (B)
	Others	Go to Step 3
(B)	Others	Repair wire harness (Hazard warning switch — Body ground)
	0V	Replace turn and hazard flasher unit

### Step 3

Check the voltage at terminal-wire (O) of the turn and hazard flasher unit connector.

Wire	Voltage	Action
(O)	Battery voltage	Repair wire harness (Flasher unit — Hazard warning switch)
	Others	Replace turn and hazard flasher unit

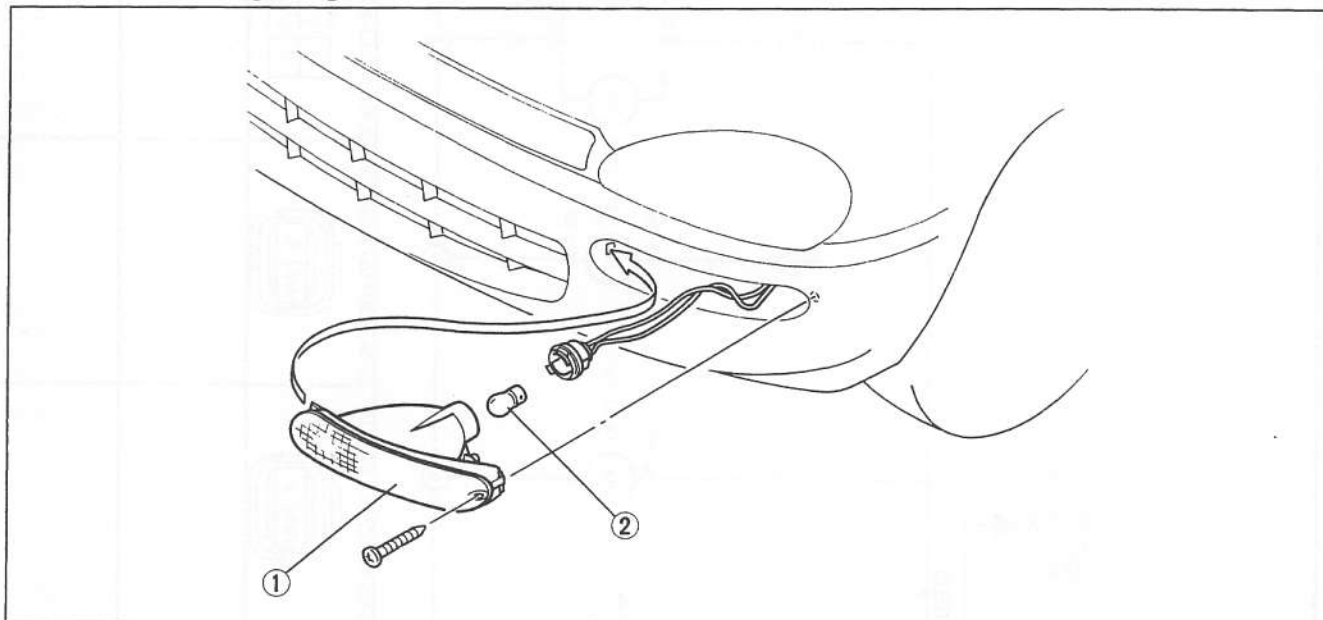
## Removal / Installation

### Rear turn signal light (Rear combination light)

Refer to page T-70.

### Front turn signal light

1. Remove the turn signal light as shown in the figure.
2. Install the turn signal light in the reverse order of removal.



01A0TX-058

1. Housing

2. Turn signal light bulb

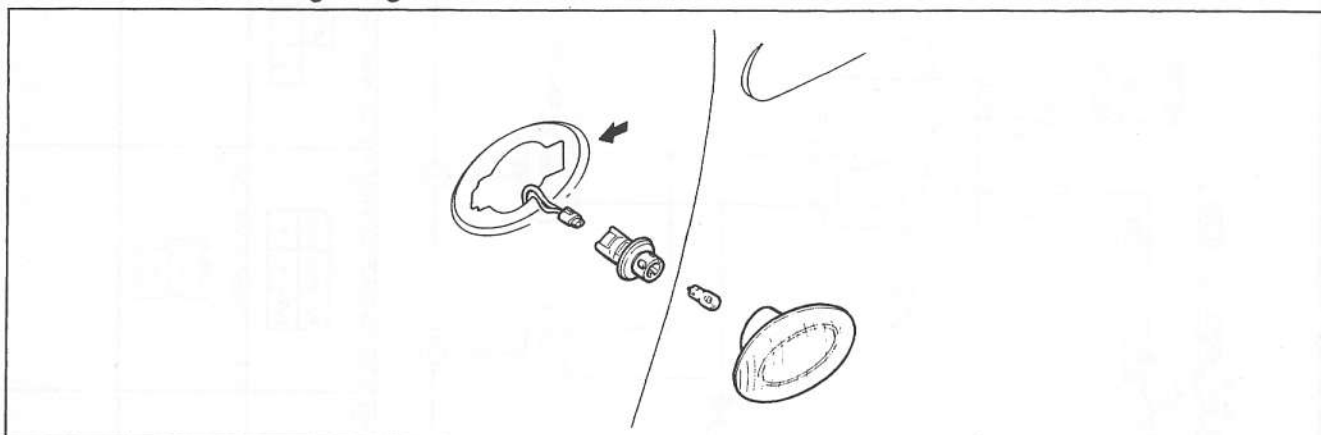
### Side turn signal light

1. Using a standard (flat tip) screwdriver, remove the side turn signal light housing.

#### Caution

- Apply shop towel to avoid any body damage.

2. Remove the side turn signal light bulb.
3. Install the side turn signal light in the reverse order of removal.



01A0TX-059

## Inspection

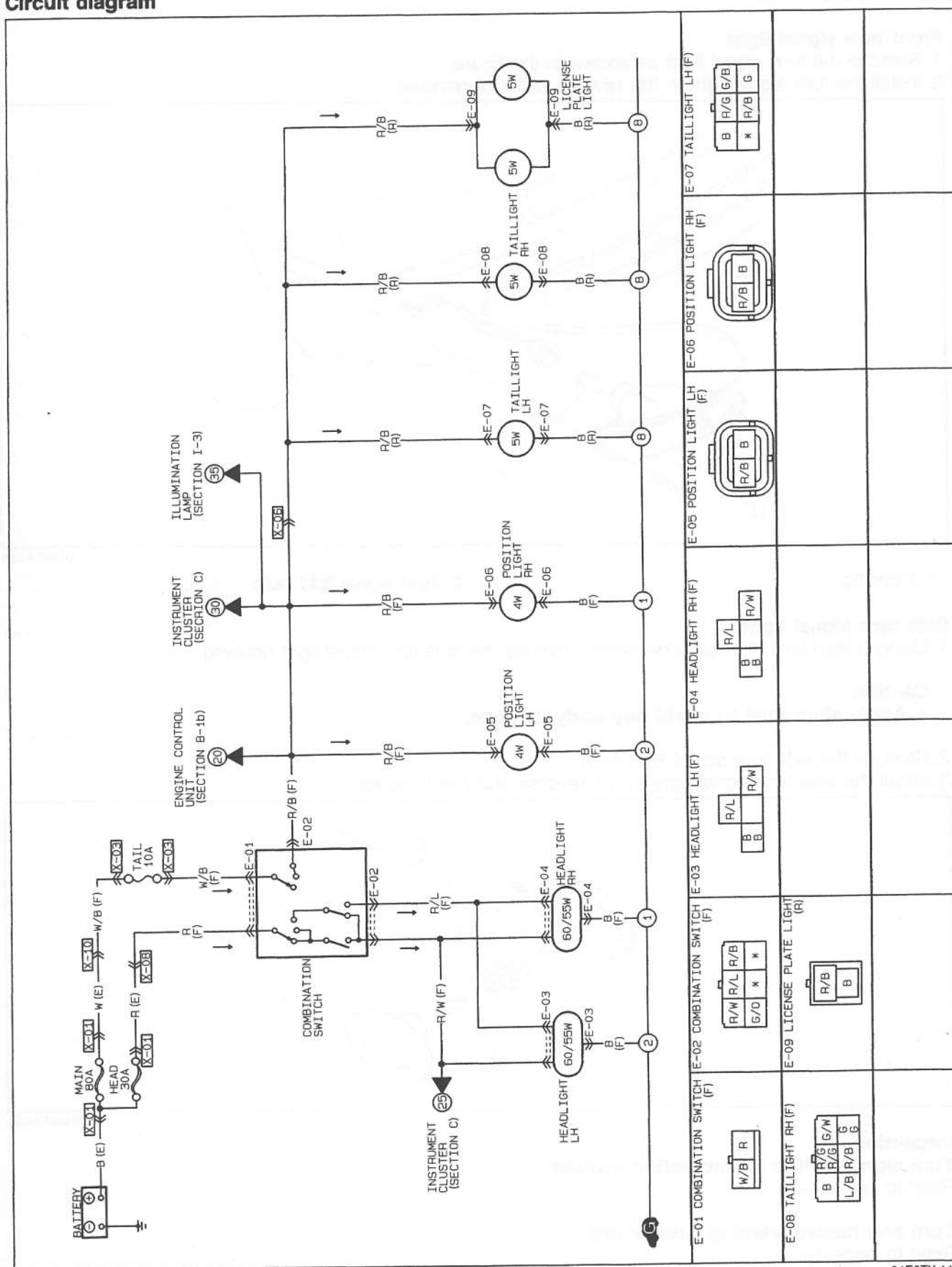
### Turn signal switch (Combination switch)

Refer to page T-26.

### Turn and hazard warning flasher unit

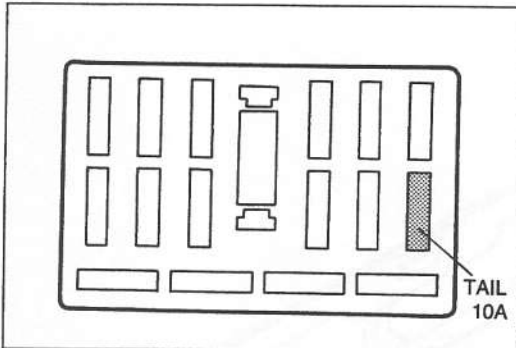
Refer to page T-23.

# POSITION LIGHT, TAILLIGHT AND LICENSE PLATE LIGHT Troubleshooting Circuit diagram

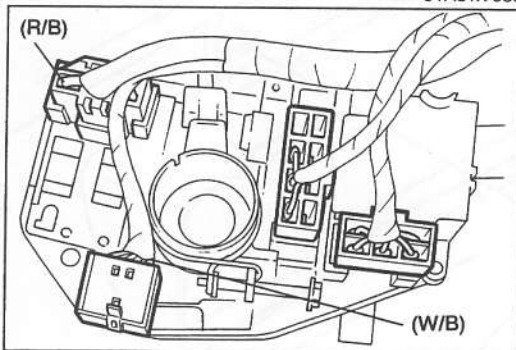


**Symptom: No lights illuminate (taillights parking lights and license plate lights).**

95E0TX-079



01A0TX-060



01A0TX-061

## Step 1

1. Check TAIL 10A fuse.
2. If the fuse is burned, replace it. Check and, if necessary, repair the wiring harness.
3. If the fuses are OK, go to Step 2.

## Step 2

1. Turn the headlight switch ON.
2. Measure the voltage at the following terminal-wires of the combination switch connector.

Wire	Voltage	Action
(W/B)	Battery voltage	Check next wire
	Others	Repair wire harness (W/B)
(R/B)	Battery voltage	Repair the wiring harness (Combination switch — body ground of each light)
	Others	Replace headlight switch

**Removal / Installation****Position light**

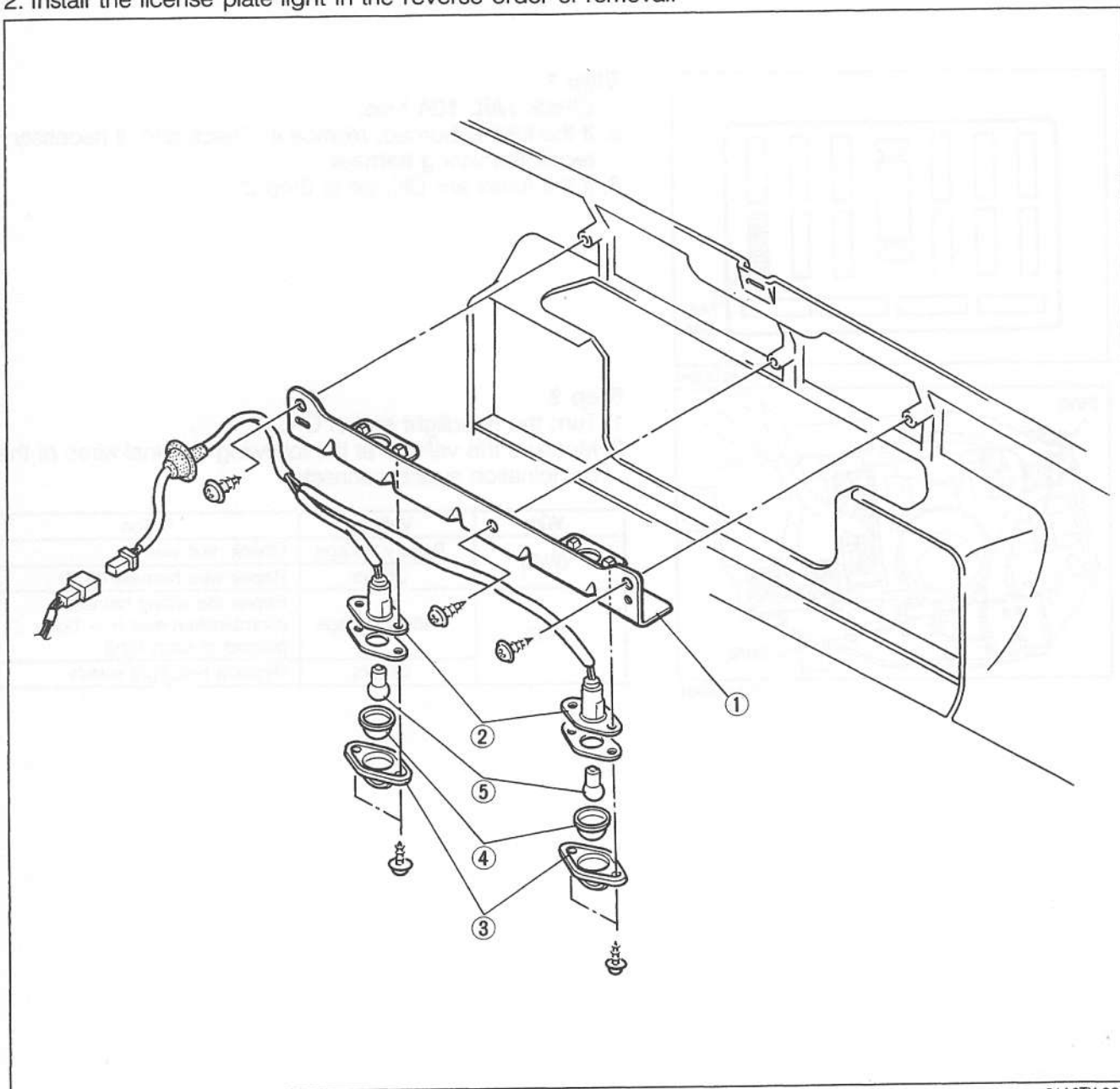
Refer to page T-52.

**Taillight (Rear combination light)**

Refer to page T-70.

**License plate light**

1. Remove the license plate light as shown in the figure.
2. Install the license plate light in the reverse order of removal.



01A0TX-062

1. License plate light bracket
2. Bulb assembly
3. Cover

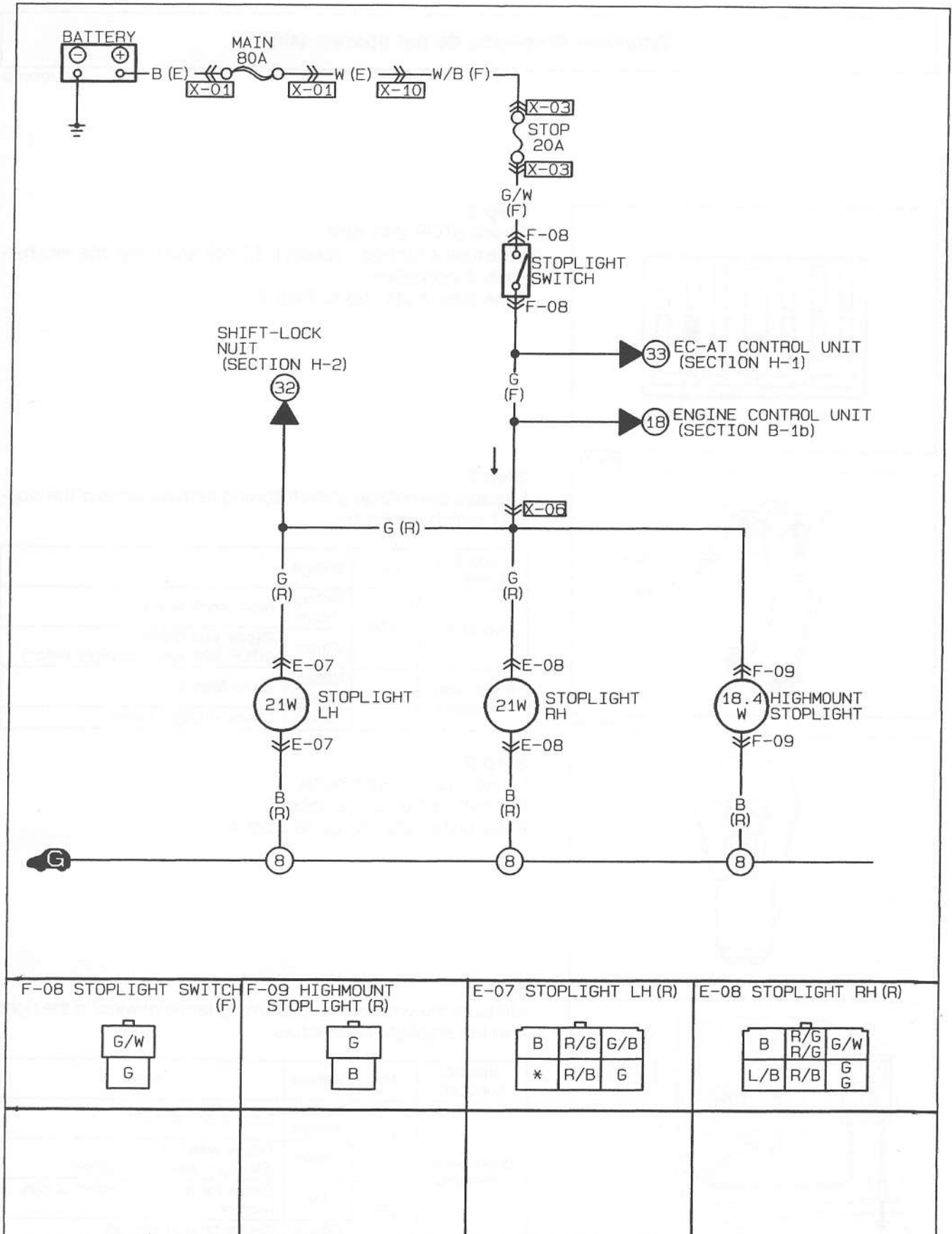
4. Lens
5. Bulb

**Inspection****Headlight switch**

Refer to page T-26.

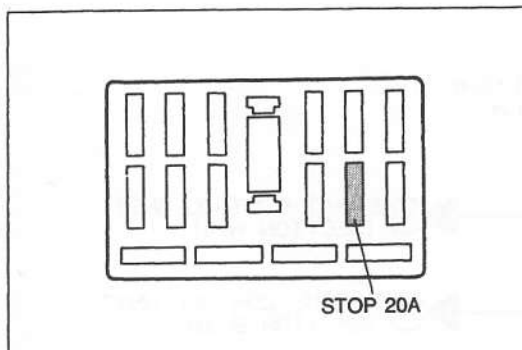


## STOPLIGHT Troubleshooting Circuit diagram

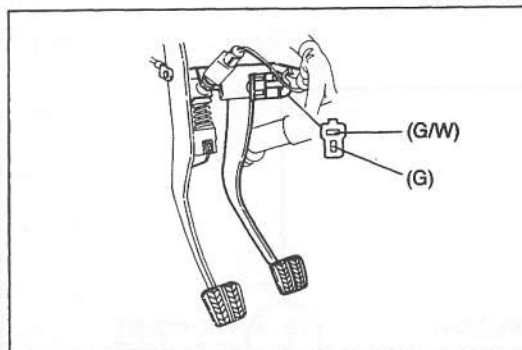


**Symptom: Stoplights do not operate (all).**

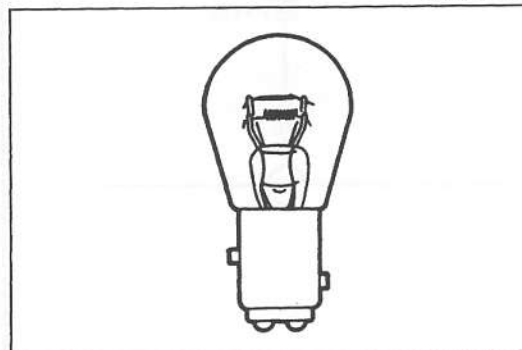
01A0TX-063



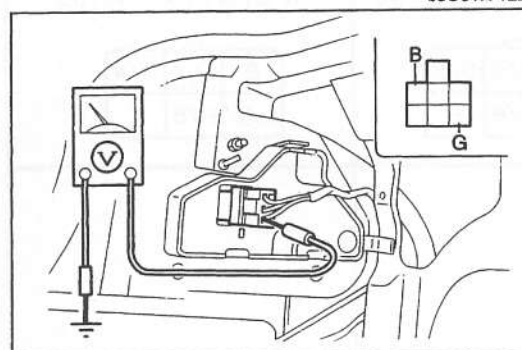
01A0TX-114



01A0TX-064



05U0TX-122



01A0TX-065

### Step 1

Check STOP 20A fuse.

If the fuse is burned, replace it. Check and repair the wire harness, if necessary.

If the fuse is OK, go to Step 2.

### Step 2

Measure the voltage at the following terminal-wires of the stoplight switch connector.

Inspection condition	Wire	Voltage	Action
Constant	(G/W)	Battery voltage	Next check wire (G)
		Others	Repair wire (G/W) (STOP 20A fuse—Stoplight switch)
Brake pedal depressed	(G)	Battery voltage	Go to Step 3
		Others	Check stoplight switch

### Step 3

Check the stoplight bulbs.

If a bulb is burned replace it.

If the bulbs are OK, go to Step 4.

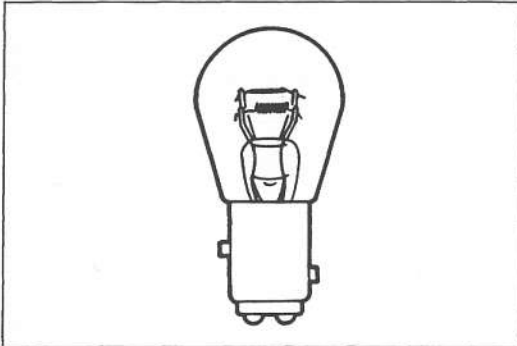
### Step 4

Measure the voltage at the following terminal-wires of the right and left stoplight connectors.

Inspection condition	Wire	Voltage	Action
Brake pedal depressed	(G)	Battery voltage	Next check wire (B)
		Others	Repair wire (G) (Stoplight switch—Stoplight)
	(B)	0V	Check for poor connection of connectors
		Others	Repair ground wire (B)

**Symptom: Stoplight does not operate (one only).**

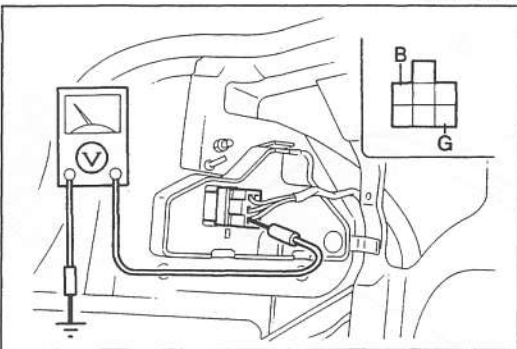
01E0TX-123



05U0TX-125

## Step 1

Check the stoplight bulb of the faulty side.  
If a bulb is burned replace it.  
If the bulb is OK, go to Step 2.

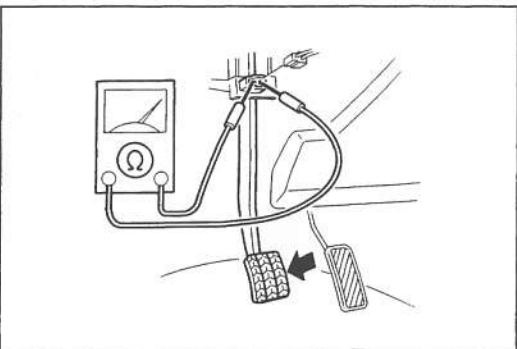


01A0TX-066

## Step 2

Measure the voltage at the following terminal-wires of the faulty stoplight connector.

Inspection condition	Wire	Voltage	Action
Brake pedal depressed	(G)	Battery voltage	Next check wire (B)
		Others	Repair wire (G) (Stoplight switch—Stoplight)
	(B)	0V	Check for poor connection of connectors
		Others	Repair ground wire (B)



01E0TX-124

## Inspection

### Stoplight switch

1. Disconnect the stoplight switch connector.
2. Check the continuity between the terminals of the stoplight switch.

Condition	Continuity
Pedal depressed	Yes
Pedal released	No

3. If not specified, replace the stoplight switch.

**Removal / Installation****Stoplight (Rear combination light)**

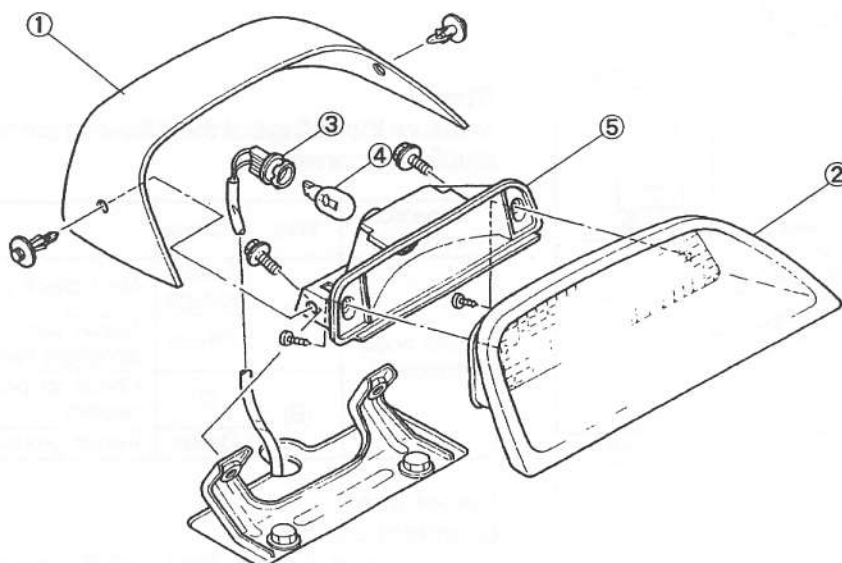
Refer to page T-70.

01A0TX-067

**High-mount stoplight****Removal / Installation**

Remove the high-mount stoplight as shown in the figure.

Install the high-mount stoplight in the reverse order of removal.

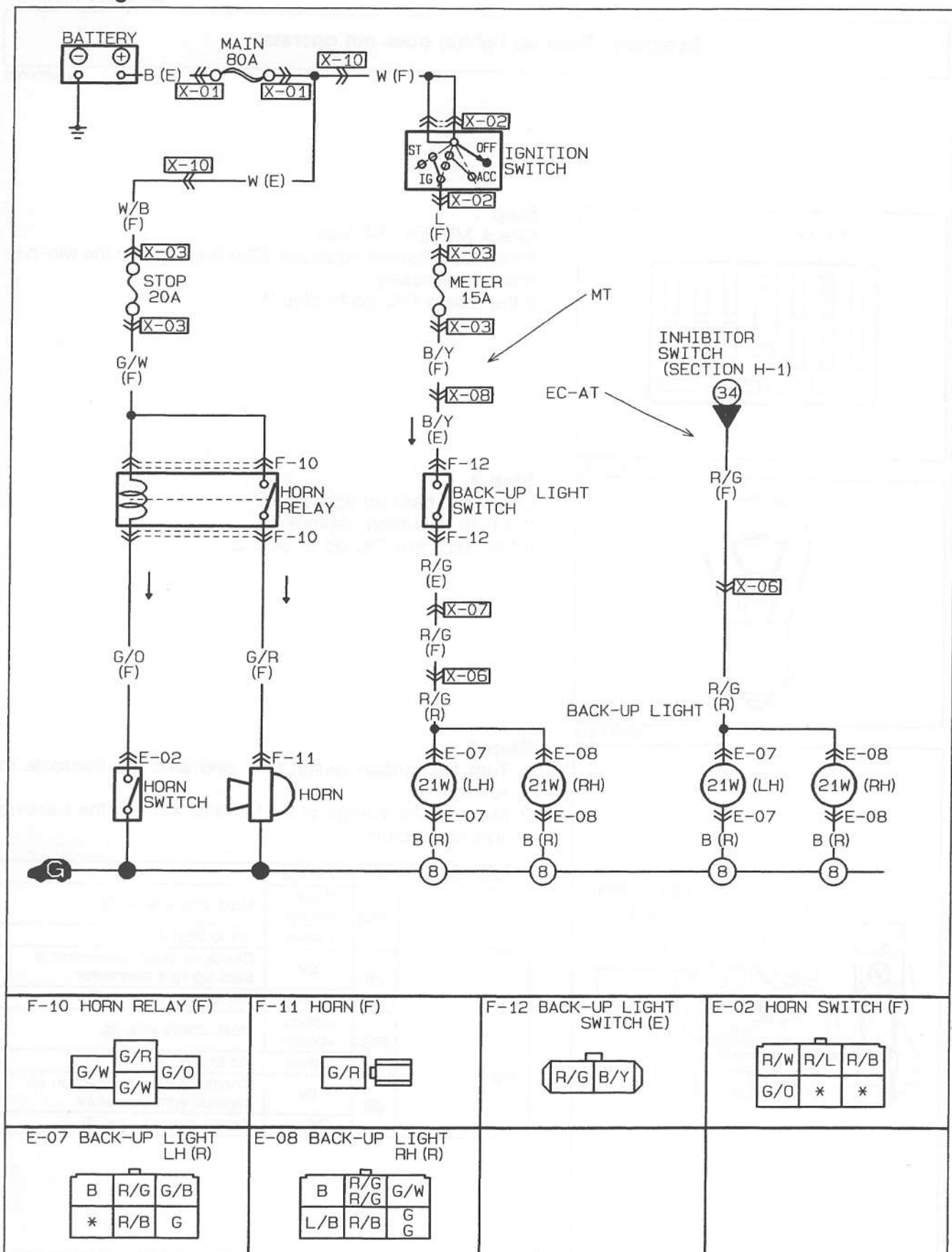


01A0TX-068

- 1. Cover
- 2. Lens
- 3. Socket

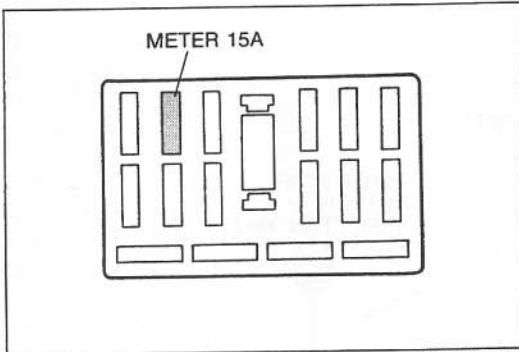
- 4. Bulb
- 5. Light body

## BACK-UP LIGHT Troubleshooting Circuit diagram

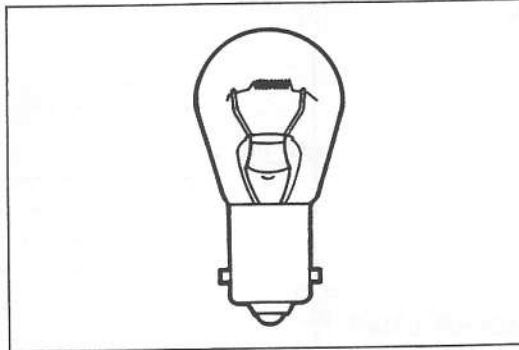


**Symptom: Back-up light(s) does not operate.**

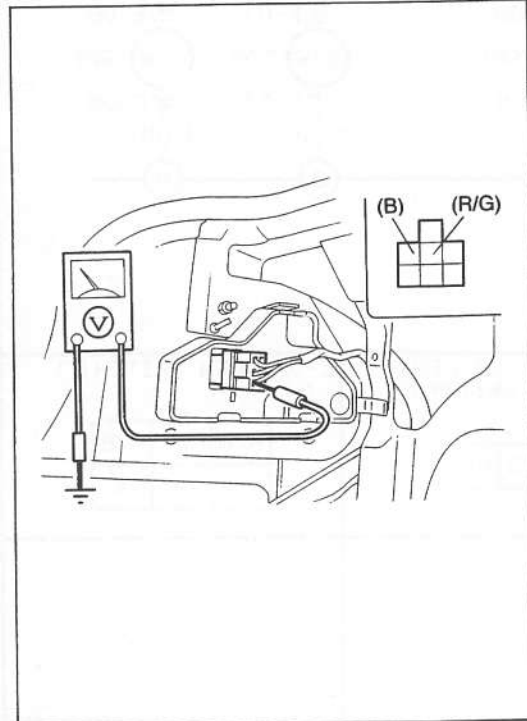
95A0TX-050



01E0TX-127



05U0TX-313



01A0TX-069

### Step 1

Check METER 15A fuse.

If the fuse is burned, replace it. Check and repair the wire harness, if necessary.

If the fuse is OK, go to Step 2.

### Step 2

Check the back-up light bulbs.

If a bulb is burned, replace it.

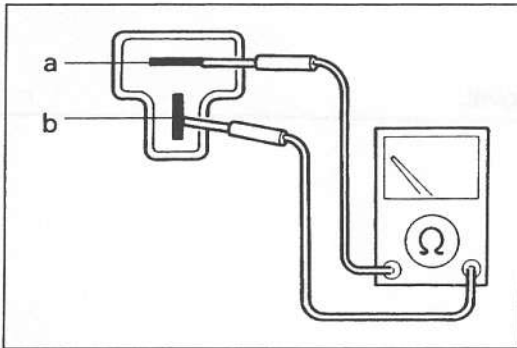
If the bulbs are OK, go to Step 3.

### Step 3

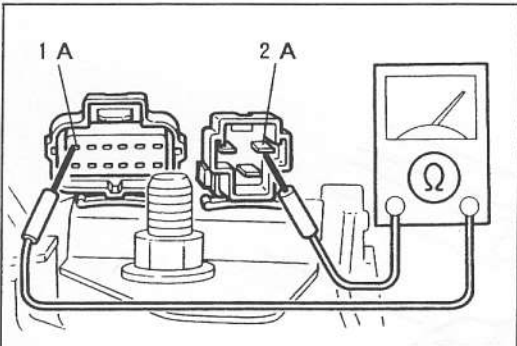
1. Turn the ignition switch ON, and shift the transaxle to reverse.

2. Measure the voltage at the terminal-wires of the back-up light connectors.

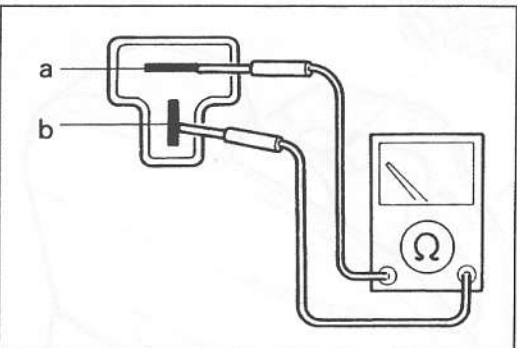
Back-up light	Wire	Voltage	Action
Left	(R/G)	Battery voltage	Next, check wire (B)
		Others	Go to Step 4
	(B)	0V	Check for poor connection of back-up light connector
		Others	Repair ground wire (B)
Right	(R/G)	Battery voltage	Next, check wire (B)
		Others	Go to Step 4
	(B)	0V	Check for poor connection of back-up light connector
		Others	Repair ground wire (B)



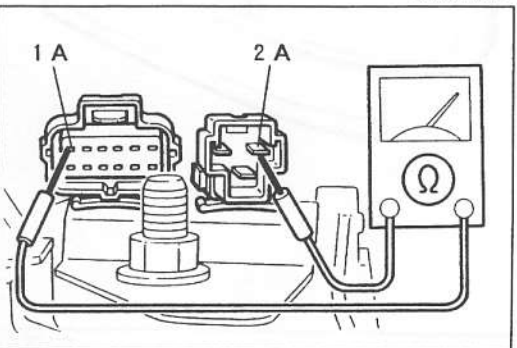
01A0TX-070



01E0TX-130



01A0TX-071



01E0TX-132

## Step 4 (MTX)

1. Disconnect the back-up light switch connector.
2. Check continuity between terminals of the switch with the transaxle in reverse.

Continuity	Action
Yes	Repair wire harness (METER 15A fuse — Back-up light switch — Back-up light)
No	Replace switch

## (ATX)

1. Disconnect the inhibitor switch connector.
2. Check continuity between the terminals of the switch with the transaxle in reverse.

Continuity	Action
Yes	Repair wire harness (METER 15A fuse — Inhibitor switch — Back-up light)
No	Replace inhibitor switch

## Inspection

### Back-up light switch (MTX)

1. Disconnect the back-up light switch connector.
2. Check continuity between the terminals of the back-up light switch connector.

Transaxle condition	Continuity
Reverse	Yes
Others	No

3. If not as specified, replace the back-up light switch.

### Inhibitor switch (ATX)

1. Disconnect the inhibitor switch connectors.
2. Check the continuity between the terminals of the inhibitor switch connectors.

Transaxle condition	Continuity
Reverse	Yes
Others	No

3. If not as specified, replace the inhibitor switch.

## Removal / Installation

### Back-up light (Rear combination light)

Refer to page T-70.

### Back-up light switch

Refer to Section J.

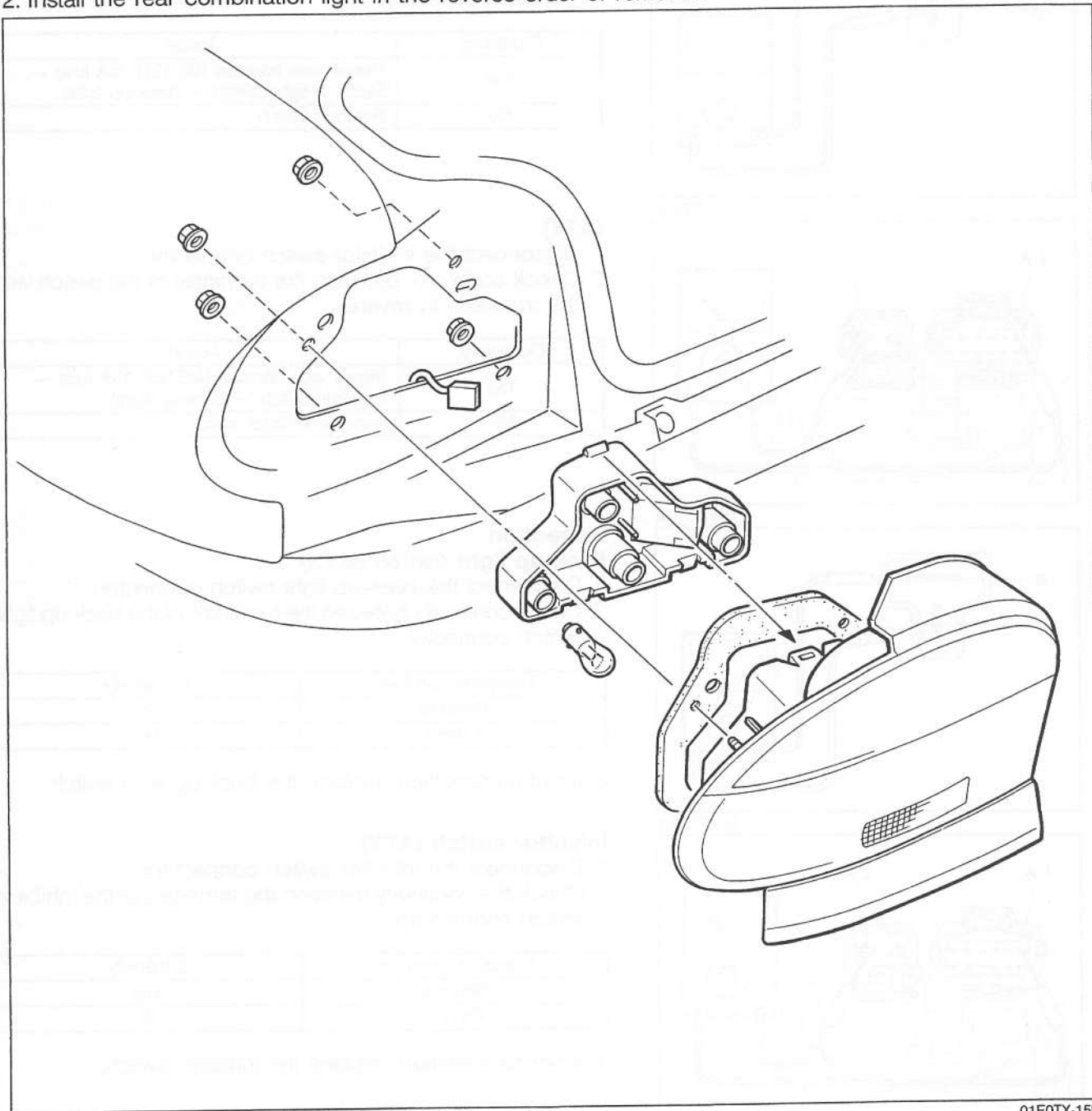
### Inhibitor switch

Refer to Section K.

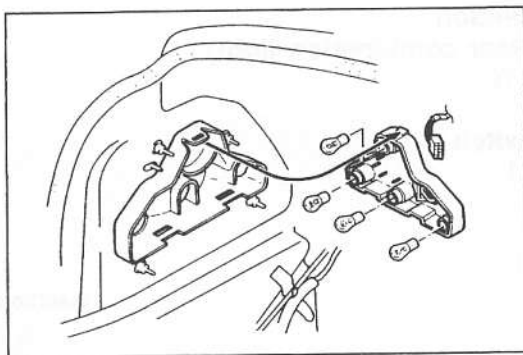


**REAR COMBINATION LIGHT****Removal / Installation**

1. Remove the rear combination light as shown in the figure.
2. Install the rear combination light in the reverse order of removal.



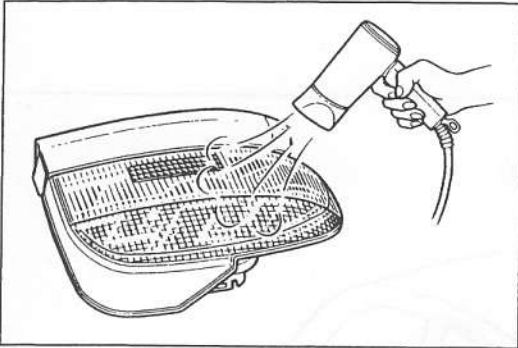
01E0TX-159



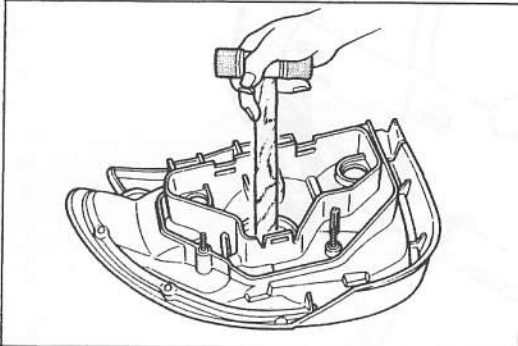
01E0TX-160

**Replacement**

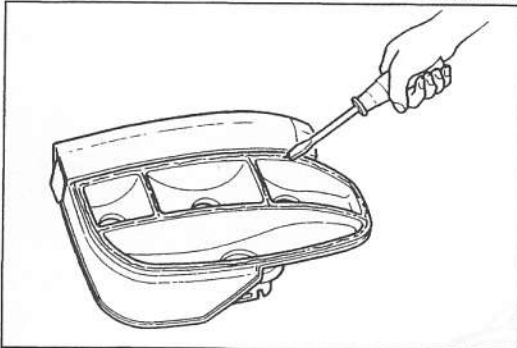
1. Open the trunk lid, and remove the bulbs as shown in the figure.
2. Install the bulbs in the reverse order of removal.



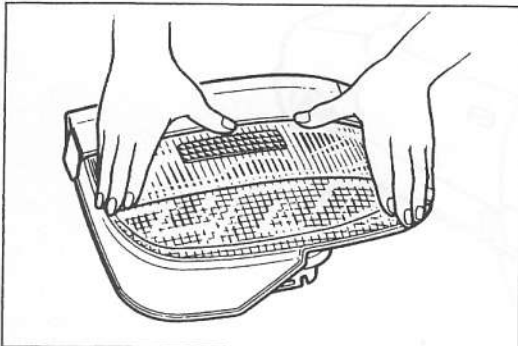
03U0TX-065



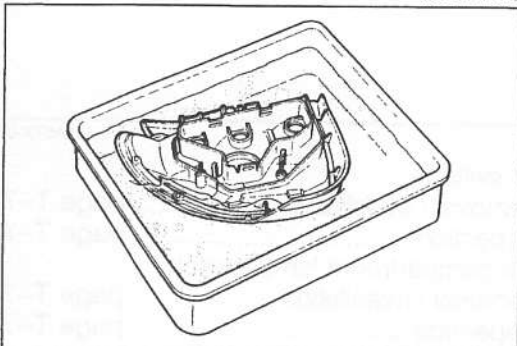
03U0TX-066



03U0TX-067



03U0TX-068



03U0TX-069

## Disassembly

1. Use a hot air blower to soften the "hot melt" (bonding agent) around the lens.

2. Remove the lens from the light housing by pushing the rear of the lens with a hammer handle or round bar.

## Note

- Remove the "hot melt" in the light housing when the new hot melt is used.

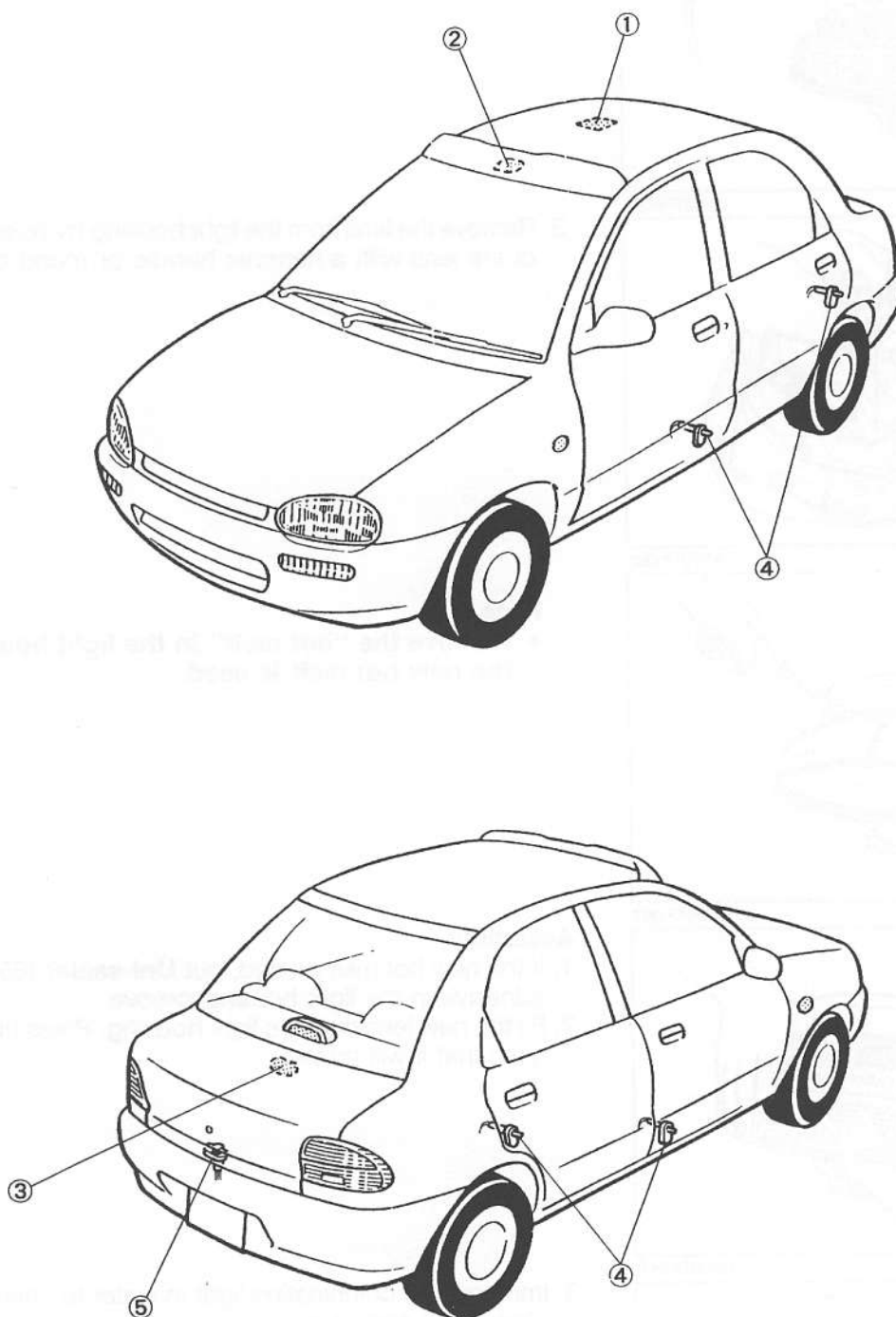
## Assembly

1. If the new hot melt is used, put **Uni-sealer** (8531 77 739) adhesive in the light housing groove.
2. Fit the new lens onto the light housing. Press the lens firmly so that it will adhere.

3. Immerse the combination light in water to check for leaks after about one hour.

## INTERIOR LAMP SYSTEM

## STRUCTURAL VIEW

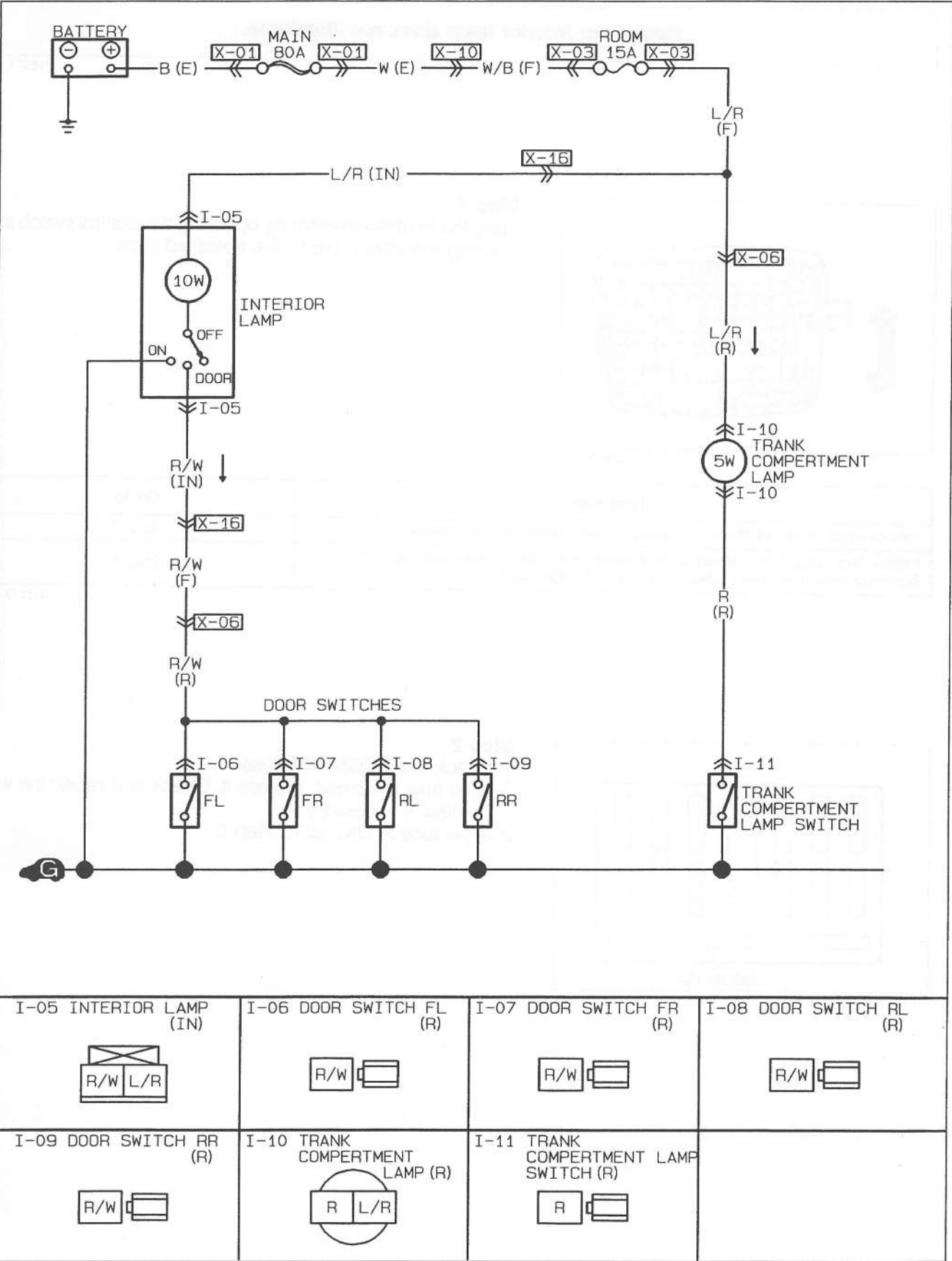


01A0TX-073

- 1. Interior lamp (without canvas top)  
Removal / Installation ..... page T-77
- 2. Interior lamp (with canvas top)  
Removal / Installation ..... page T-77
- 3. Trunk compartment lamp  
Removal / Installation ..... page T-77

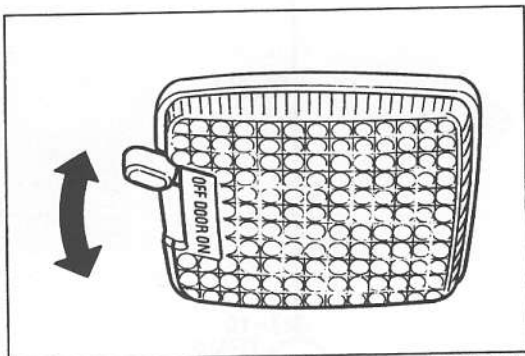
- 4. Door switch  
Removal / Installation ..... page T-78  
Inspection ..... page T-78
- 5. Trunk compartment lamp switch  
Removal / Installation ..... page T-78  
Inspection ..... page T-78

## INTERIOR LAMP Troubleshooting Circuit diagram



**Symptom: Interior lamp does not illuminate.**

01E0TX-163



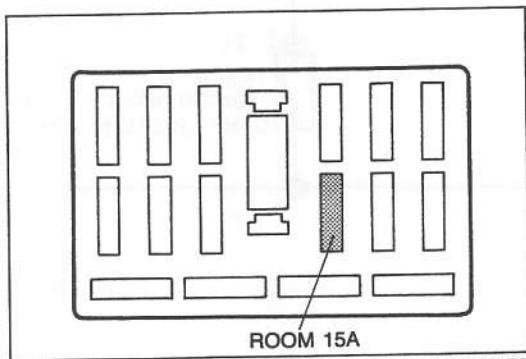
05U0TX-177

### Step 1

Verify the trouble symptom by operating the control switch and opening the doors. Go to the specified Step.

Symptom	Go to
Interior lamp does not illuminate when control switch is in any position	Step 2
Interior lamp illuminates when control switch is in ON position, but does not illuminate with door open when switch is in DOOR position	Step 5

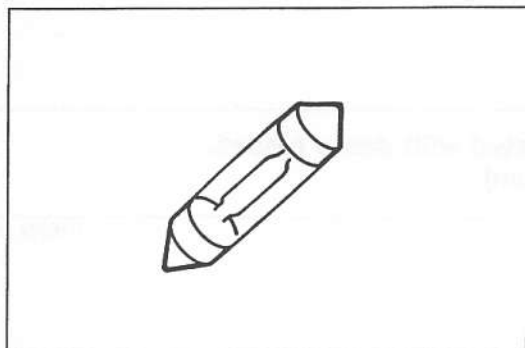
01E0TX-164



01A0TX-075

### Step 2

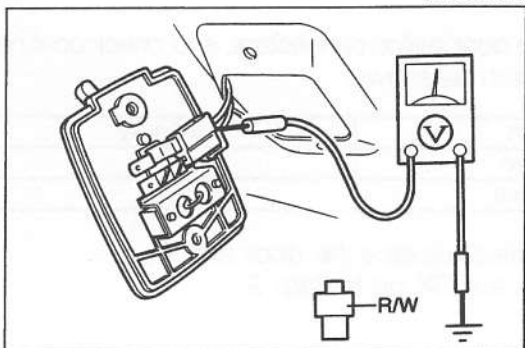
1. Check the ROOM 15A fuse.
2. If the fuse is burned, replace it. Check and repair the wire harness if necessary.
3. If the fuse is OK, go to Step 3.



01A0TX-076

## Step 3

1. Check the bulb of the interior lamp.
2. If a bulb is burned, replace it.
3. If the bulb is OK, go to Step 4.

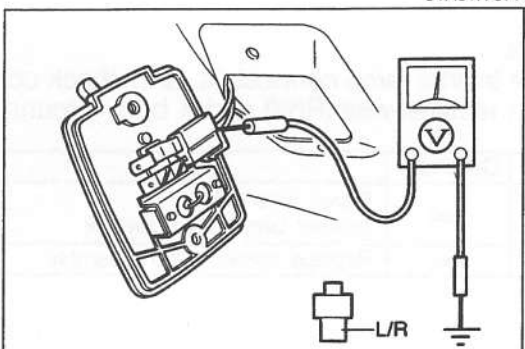


01A0TX-077

## Step 4

1. Set the control switch to ON position.
2. Measure the voltage at the terminal-wire (L/R) of the interior lamp connector.

Wire	Voltage	Action
(L/R)	Battery voltage	Replace the interior lamp body
	Others	Repair wire (L/R) (ROOM fuse—Interior lamp)

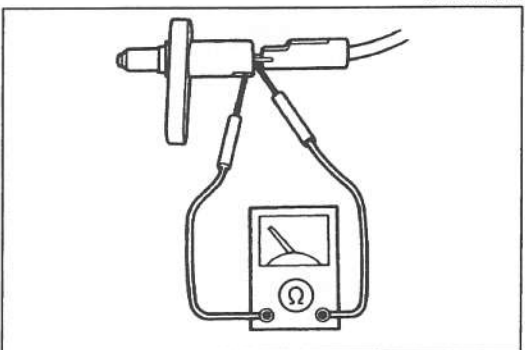


01A0TX-078

## Step 5

1. Open all doors, and set the control switch to DOOR position.
2. Measure the voltage at terminal-wire (R/W) of the interior lamp connector.

Wire	Voltage	Action
(R/W)	Battery voltage	Go to Step 6
	Others	Replace interior lamp body



05U0TX-183

## Step 6

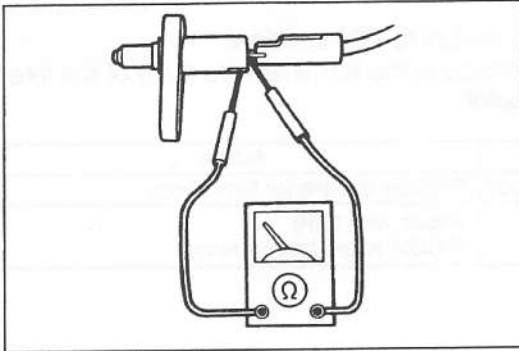
1. Disconnect the door switch connector, and check continuity of each switch.

Switch	Continuity
Pushed	No
Released	Yes

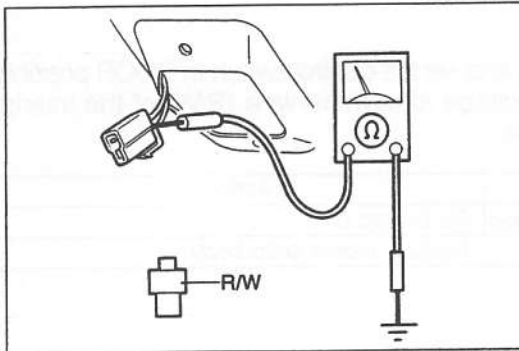
2. If not as specified, replace the door switch.
3. If the switches are OK, repair wire (R/W). (Interior lamp-Door switch)

**Symptom: Interior lamp remains illuminated with doors closed.  
(Control switch: DOOR position)**

01E0TX-168



05U0TX-186



01E0TX-169

### Step 1

1. Disconnect the door switch connectors, and check continuity of each switch as shown.

Switch	Continuity
Pushed	No
Released	Yes

2. If not as specified, replace the door switch.
3. If the switches are OK go to Step 2.

### Step 2

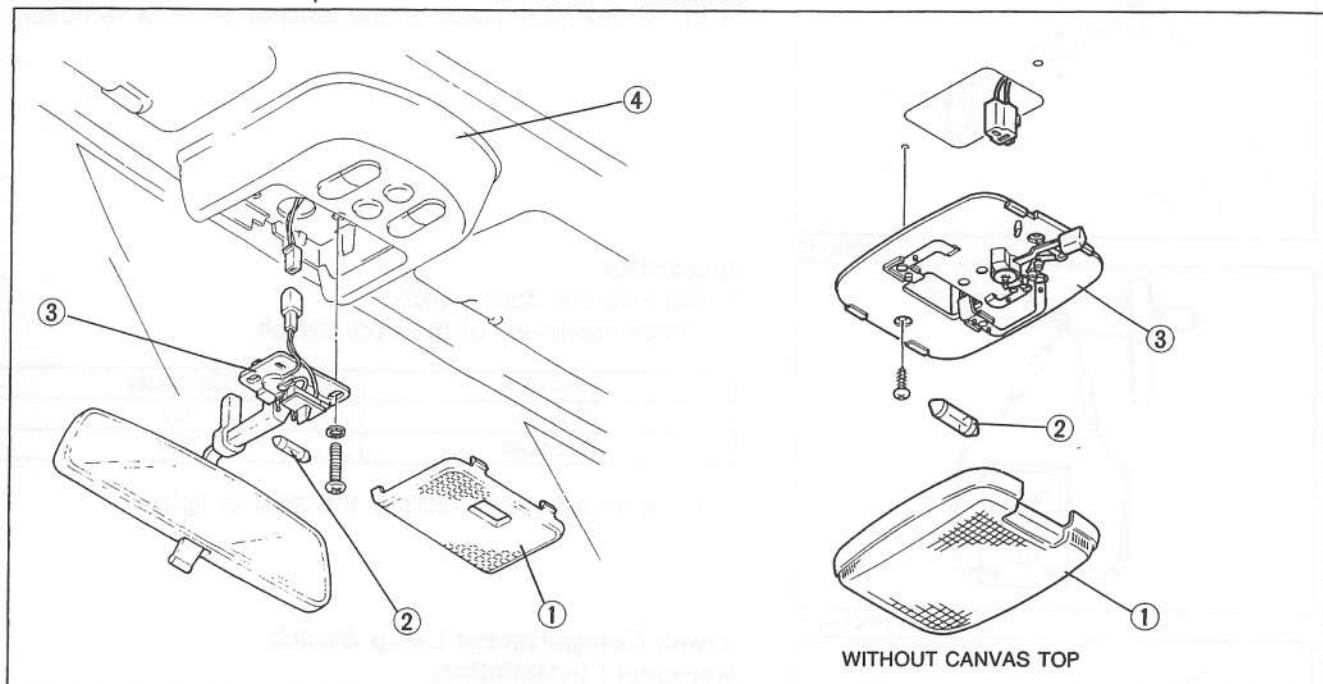
1. Close all doors.
2. Disconnect the interior lamp connectors, and check continuity between terminal-wire (R/W) and a body ground.

Wire	Continuity	Action
(R/W)-Body ground	Yes	Repair wire (R/W) (Interior lamp—Door switch)
	No	Replace interior lamp assembly



## Interior Lamp Removal / Installation

1. Remove the interior lamp as shown in the figure.
2. Install the interior lamp in the reverse order of removal.



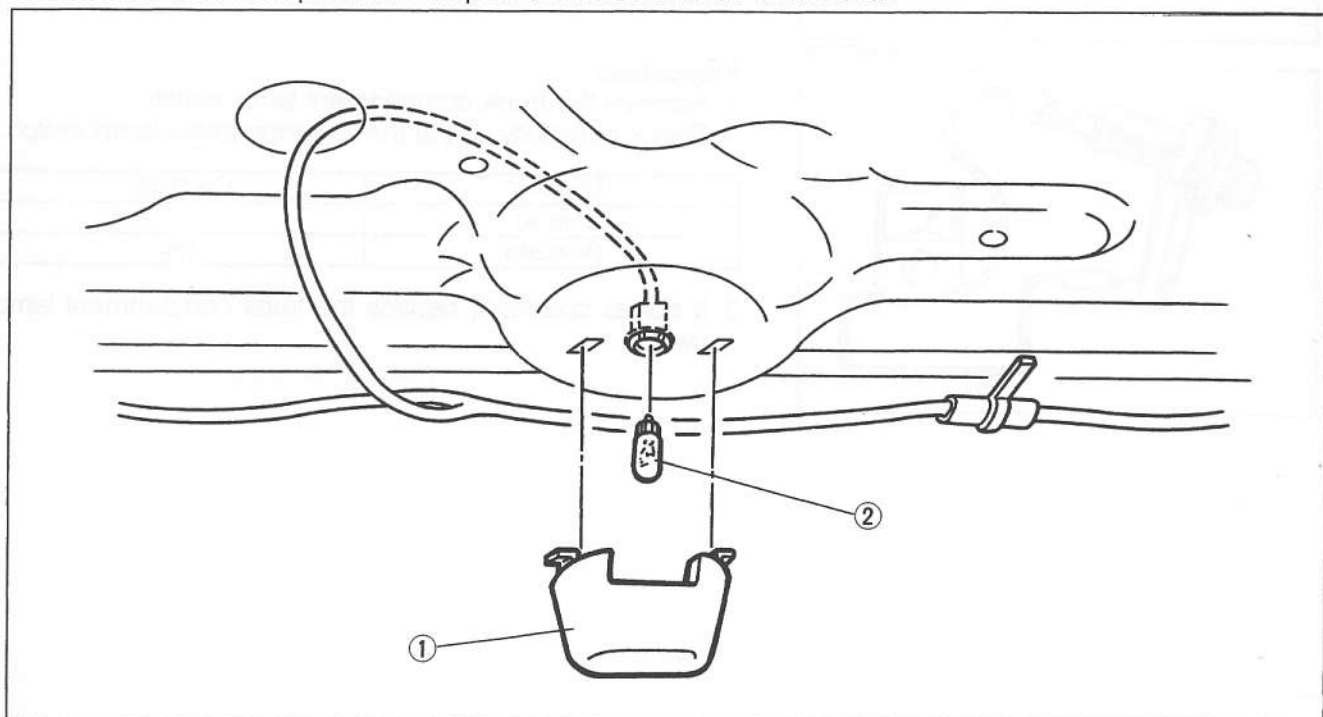
01A0TX-115

1. Lens
2. Bulb (10 W)

3. Lamp body
4. Over-head console

## Trunk Compartment Lamp Removal / Installation

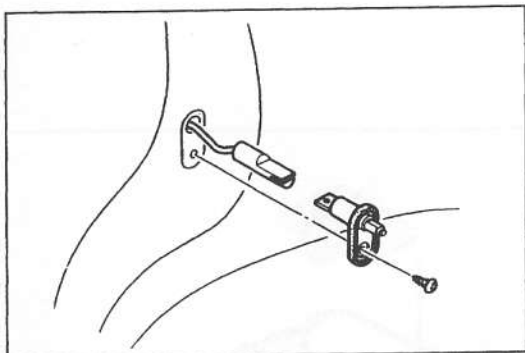
1. Remove the trunk compartment lamp as shown in the figure.
2. Install the trunk compartment lamp in the reverse order of removal.



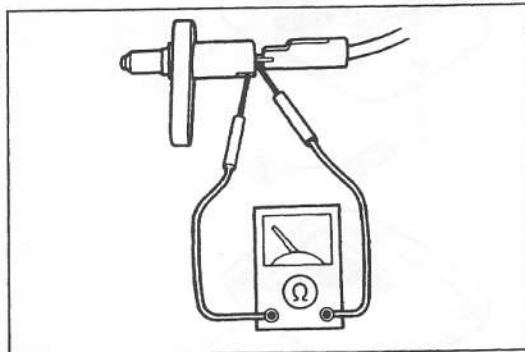
01A0TX-116

1. Lens

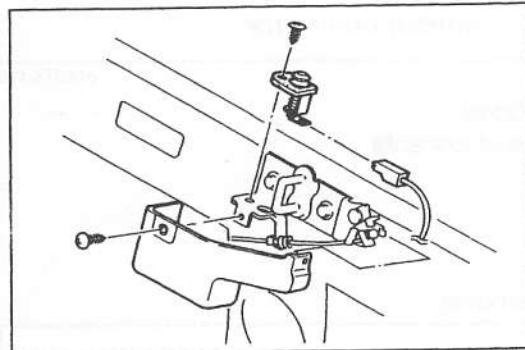
2. Bulb (5 W)



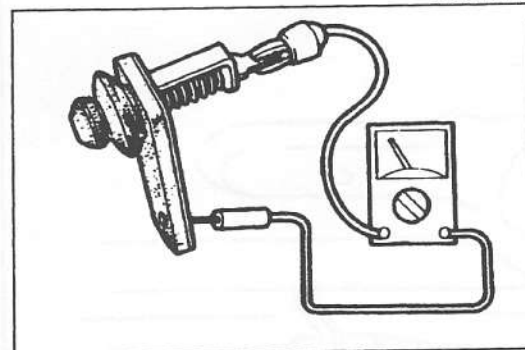
01A0TX-117



01A0TX-079



01A0TX-118



01A0TX-080

**Door Switch****Removal / Installation**

1. Remove a screw and pull out the door switch.
2. Disconnect a connector and remove the door switch.
3. Install the door switch in the reverse order of removal.

**Inspection**

1. Remove the door switch.
2. Check continuity of the door switch.

Condition	Continuity
Pushed	No
Released	Yes

3. If not as specified, replace the door switch.

**Trunk Compartment Lamp Switch****Removal / Installation**

1. Remove a protector.
2. Remove a screw and the trunk compartment lamp switch.
3. Install the trunk compartment lamp switch in the reverse order of removal.

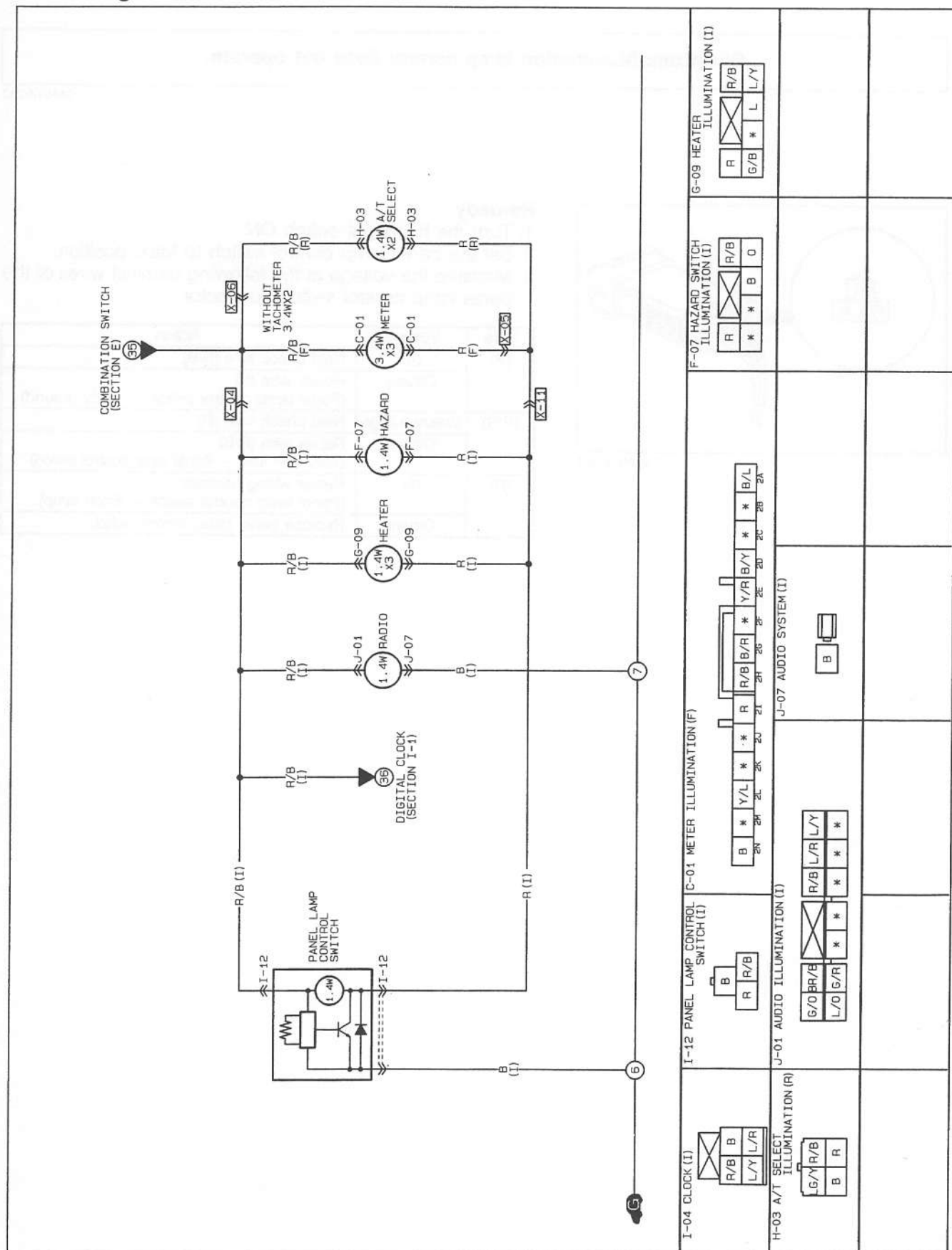
**Inspection**

1. Remove the trunk compartment lamp switch.
2. Check continuity of the trunk compartment lamp switch.

Condition	Continuity
Pushed	No
Released	Yes

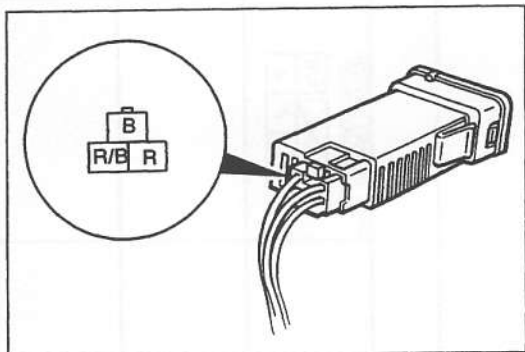
3. If not as specified, replace the trunk compartment lamp switch.

### ILLUMINATION LAMP



**Symptom: Illumination lamp control does not operate.**

01A0TX-082



01A0TX-083

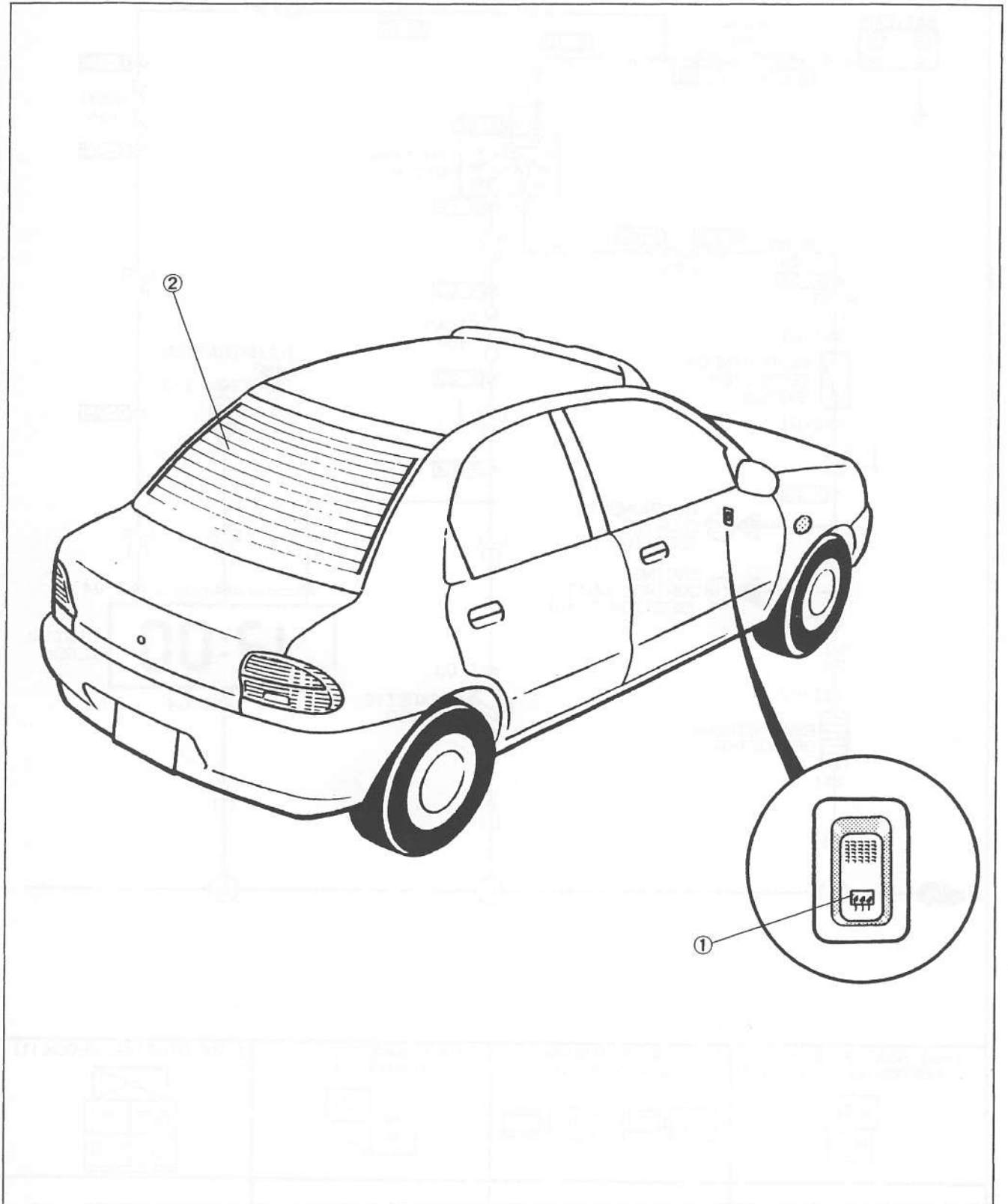
### Remedy

1. Turn the headlight switch ON.
2. Set the panel lamp control switch to Max. position.
3. Measure the voltage at the following terminal wires of the panel lamp control switch connector.

Wire	Voltage	Action
(B)	0V	Next check wire (R/B)
	Others	Repair wire (B) (Panel lamp control switch — Body ground)
(R/B)	Battery voltage	Next check wire (R)
	Others	Repair wire (R/B) (TAIL 10A fuse — Panel lamp control switch)
(R)	0V	Repair wiring harness (Panel lamp control switch — Each lamp)
	Others	Replace panel lamp control switch

## REAR WINDOW DEFROSTER

### STRUCTURAL VIEW

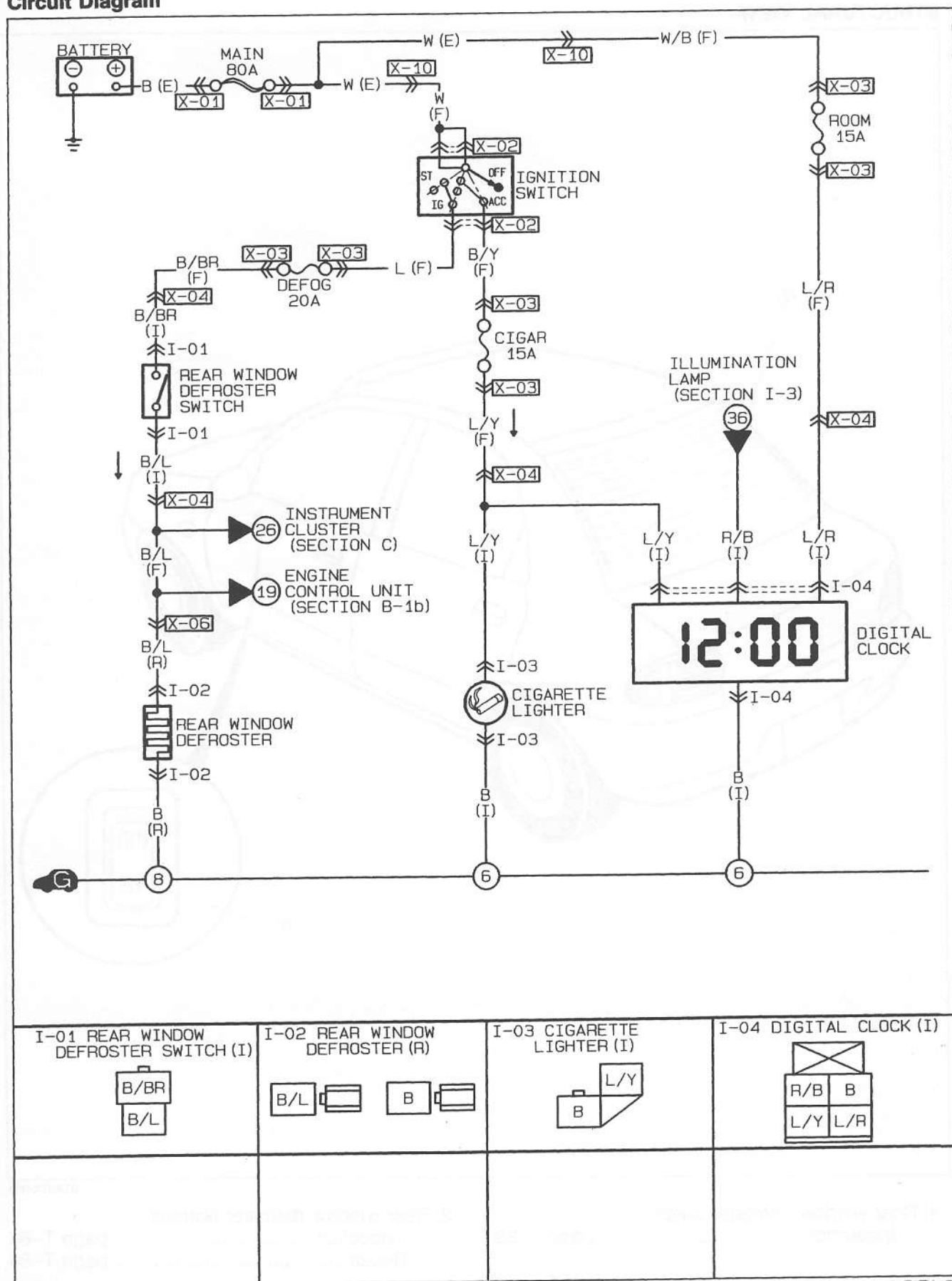


01A0TX-084

1. Rear window defroster switch  
 Inspection ..... page T-28

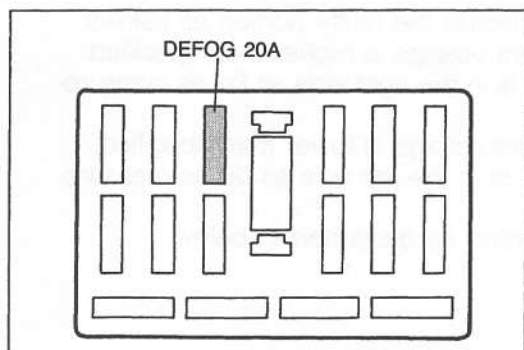
2. Rear window defroster filament  
 Inspection ..... page T-84  
 Repair ..... page T-84

# TROUBLESHOOTING Circuit Diagram

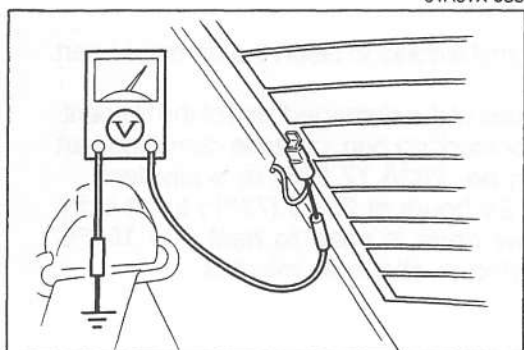


## Symptom: Rear window defroster does not operate

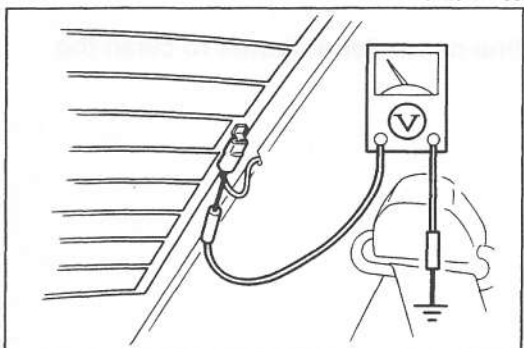
01E0TX-178



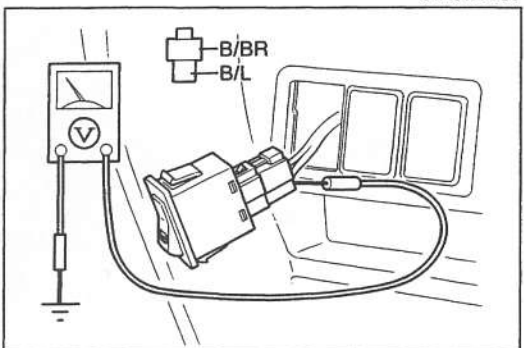
01A0TX-085



01E0TX-180



01A0TX-086



01A0TX-087

### Step 1

Check DEFOG 20A fuse in the fuse box.

Fuse	Condition	Action
DEFOG 20A	OK	Go to Step 2
	Burned out	Check wiring harness then replace fuse

### Step 2

1. Turn the rear window defroster switch ON
2. Measure the voltage at the terminal-wire (B/L) of the defroster filament connector (right side).

Terminal-wire	Voltage	Action
(B/L)	Battery voltage	Go to Step 3
	Others	Go to Step 4

### Step 3

1. Turn the rear window defroster switch ON.
2. Measure the voltage at the terminal-wire (B) of the defroster filament connector (left side).

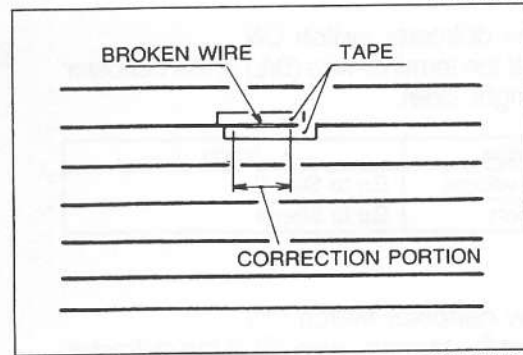
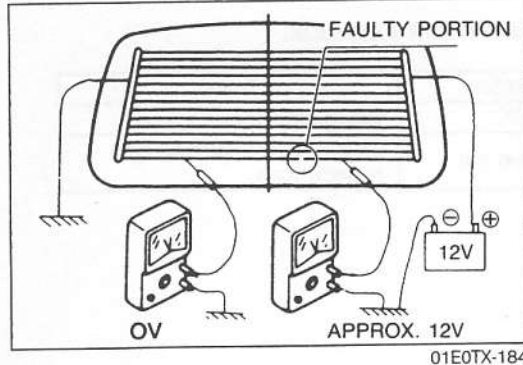
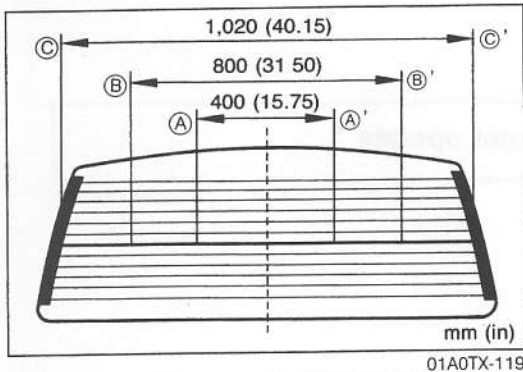
Terminal-wire	Voltage	Action
(B)	0V	Check defroster filament (Refer to page T-84)
	Others	Repair wiring harness (Defroster filament — Body ground)

### Step 4

1. Turn the rear window defroster switch ON.
2. Measure the voltage at the terminal-wire (B/Br) and (B/L) of the rear window defroster switch connector.

Terminal-wire	Voltage	Action
(B/BR)	Battery voltage	Next, measure terminal-wire (B/L)
	Other	Repair wiring harness (DEFOG 20A fuse — Rear window defroster switch)
(B/L)	Battery voltage	Repair wiring harness (Rear window defroster switch — Defroster filament)
	Other	Check rear window defroster switch (Refer to page T-28)





## DEFROSTER FILAMENT

### Inspection

1. Turn the rear window defroster switch ON.
2. Measure the voltage at the following points on the defroster filament.

Measurement point	Voltage
(A) — (A')	6—7 V
(B) — (B')	10—12 V
(C) — (C')	Battery voltage

3. If not as specified, decide the faulty portion as follows:
  - 1) If the measurement voltage is higher than specified.  
The faulty portion is in the right side as far as measurement point.
  - 2) If the measurement voltage is lower than specified.  
The faulty portion is in the left side as far as measurement point.
4. Repair the faulty portion as described in below.

### Repairing

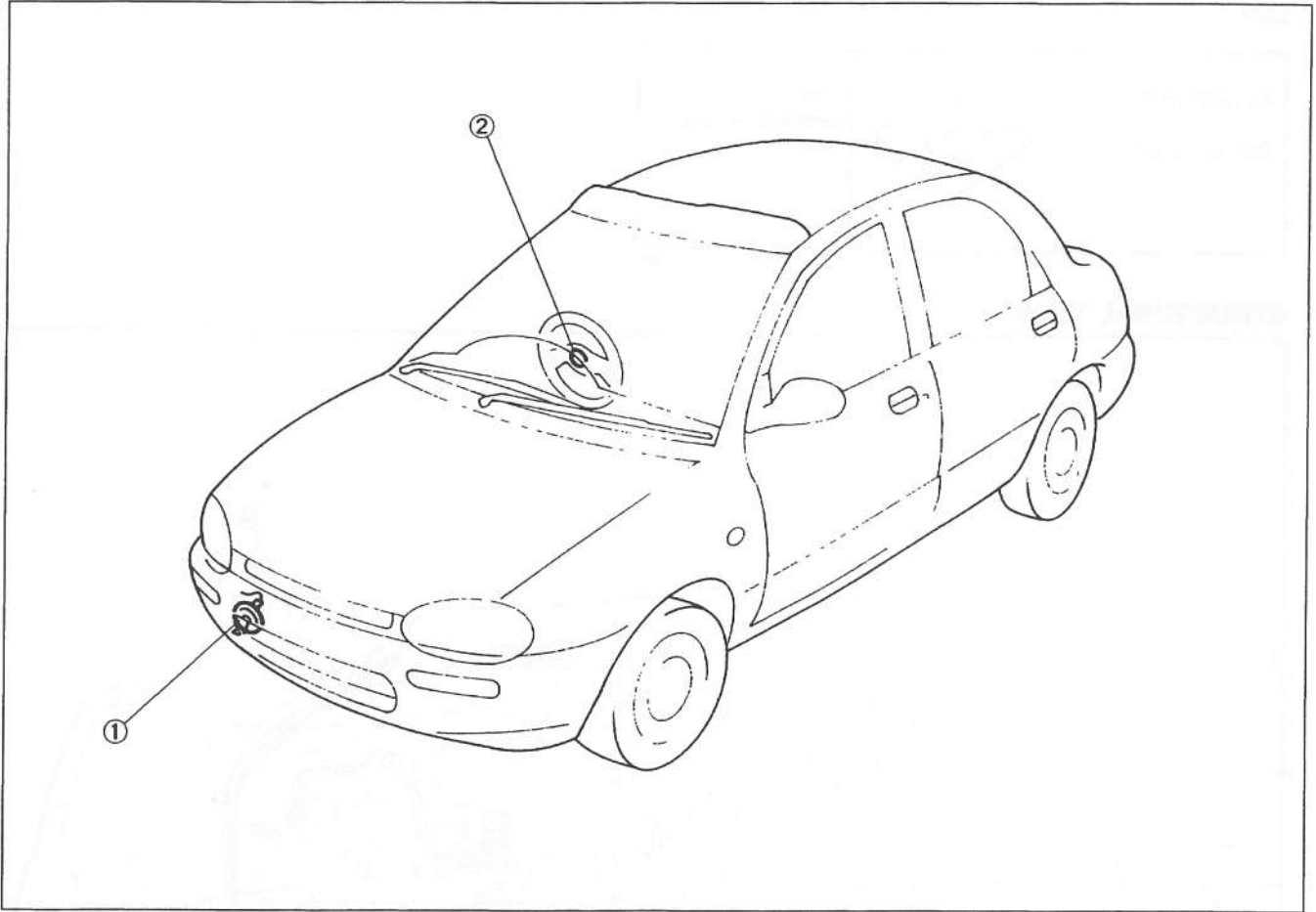
1. Use paint thinner or ethyl alcohol to clean the damaged part of the filament.
2. Attach tape to both sides of the damaged part of the filament.
3. Using a small brush or marking pen, coat the damaged part with silver paint (part no. 2835 77 600) or equivalent.
4. Let the paint set for 24 hours at 25°C (77°F) to let it dry completely. (If a blow dryer is used to heat it to 150°C (302°F), it can be dried in about 30 minutes.

### Note

- Do not use the rear window defroster until the paint is dry.
- Do not use gasoline or similar solvents to clean the damaged part.

## HORN

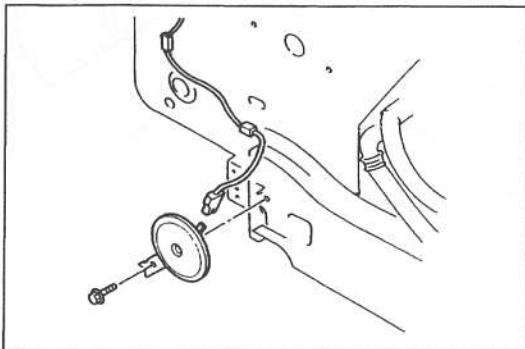
## STRUCTURAL VIEW



01E0TX-185

1. Horn

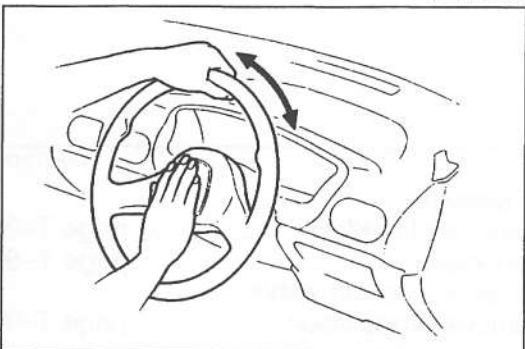
2. Horn switch



01E0TX-186

**HORN****Removal / Installation**

1. Remove the horn(s) as shown in the figure.
2. Install the horn in the reverse order of removal.



01E0TX-187

**HORN SWITCH****On-vehicle Inspection**

1. Confirm that the horn(s) sound if the horn switch is pressed with steering wheel any position.
2. If horn(s) do not sound, check the horn(s), combination switch and wiring harness.

## AUDIO

## PREPARATION

## SST

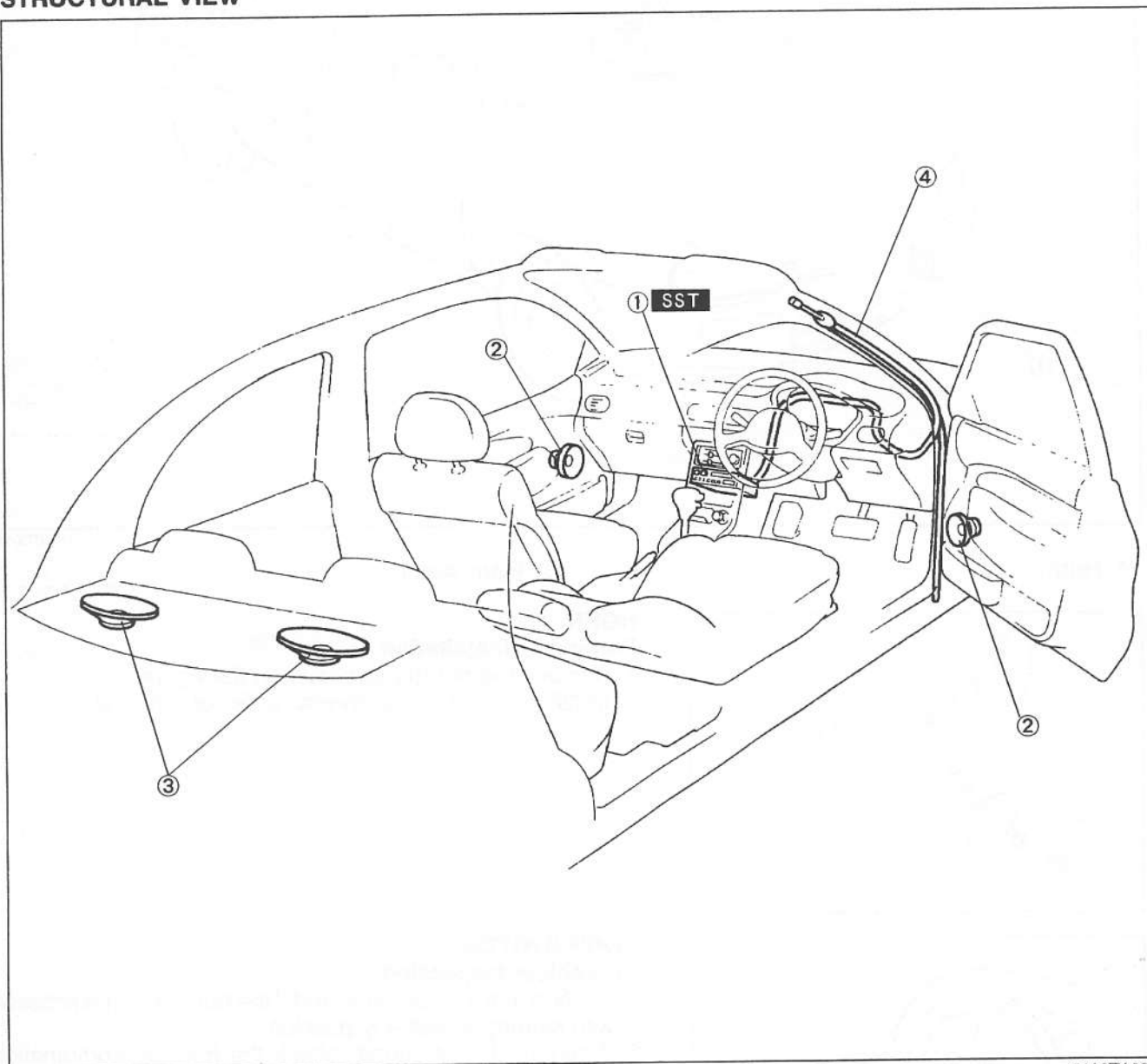
49 D066 801

Removing tool

For  
removal of audio  
unit

01A0TX-088

## STRUCTURAL VIEW

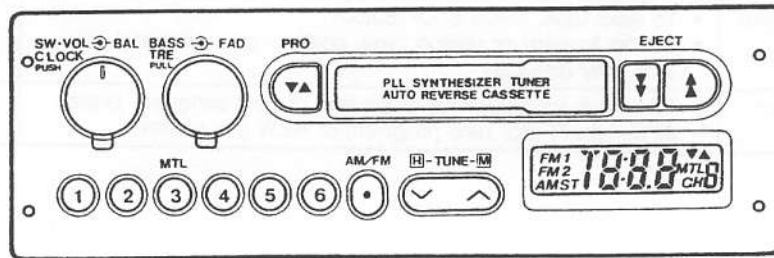


01A0TX-089

1. Audio unit  
Removal / Installation ..... page T-95
2. Door speaker  
Removal / Installation ..... page T-96  
Inspection ..... page T-96

3. Rear speaker  
Removal / Installation ..... page T-96  
Inspection ..... page T-96
4. Antenna and feeder cable  
Removal / Installation ..... page T-95

## FUNCTION AND OPERATING PROCEDURE



01A0TX-090

**Note**

- Ten seconds after completing an operation that is shown on the display, the indicator returns to clock mode.

**Radio**

Function	Operation and procedure	Display
To turn radio ON or OFF	<ul style="list-style-type: none"> <li>• Press VOLUME to turn ON</li> <li>• Press VOLUME again to turn OFF</li> </ul>	AM, FM1, or FM2 and frequency will be displayed
To adjust volume	<ul style="list-style-type: none"> <li>• Turn VOLUME to adjust</li> </ul>	
Treble control	<ul style="list-style-type: none"> <li>• Pull BASS/TREBLE</li> <li>• For more highs, turn BASS/TREBLE clockwise</li> <li>• For less highs, turn BASS/TREBLE counterclockwise</li> </ul>	
Bass control	<ul style="list-style-type: none"> <li>• Press BASS/TREBLE</li> <li>• For more lows, turn BASS/TREBLE clockwise</li> <li>• For less lows, turn BASS/TREBLE counterclockwise</li> </ul>	
Balance control	<ul style="list-style-type: none"> <li>• To shift sound to left, turn BALANCE clockwise</li> <li>• To shift sound to right, turn BALANCE counterclockwise</li> </ul>	
Band selector	<ul style="list-style-type: none"> <li>• To choose either AM or FM, press AM/FM (Pressing AM/FM alternates AM, FM1 and FM2)</li> </ul>	AM, FM1 or FM2 and frequency will be displayed
Manual tuning	<ul style="list-style-type: none"> <li>• To manually tune station, press <math>\wedge</math> for higher frequency and press <math>\vee</math> for lower frequency</li> </ul>	
Seek tuning	<ul style="list-style-type: none"> <li>• To seek tune station, press <math>\Delta</math> or <math>\nabla</math> for more than 0.5 second</li> </ul>	
Channel preset tuning	To set frequency <ul style="list-style-type: none"> <li>• To select band, press AM/FM</li> <li>• To set station, press one channel number, and hold it for more than 1.5 seconds</li> </ul> To tune preset channel <ul style="list-style-type: none"> <li>• Press desired channel preset button</li> </ul>	

01A0TX-091

## Cassette Tape Player

Function	Operation and procedure	Display
Playing tape	<ul style="list-style-type: none"> <li>Insert cassette tape through cassette slot, open-edge to right (System automatically switches to tape operation)</li> <li>At end of tape, system will automatically reverse tape play</li> </ul>	
Ejecting tape/Fast forward/Rewind	<ul style="list-style-type: none"> <li>To eject tape, press STOP/EJECT</li> <li>To fast forward or rewind tape, push or depend on tape play direction</li> </ul>	
APC (Automatic program control)	<ul style="list-style-type: none"> <li>To search for beginning of present or next program, press APC then FF (for next program) or REW (for present)</li> </ul>	

01A0TX-092

## Clock

## Note

- The clock can be set while radio or tape/CD player is ON.

Function	Operation and procedure
Time display	Time is normally displayed. Pushing CLOCK will automatically display current radio frequency or mode for approx. five seconds before reverting to time mode.
Setting clock	To adjust time, press CLOCK for approx. two seconds, current time will flash To advance hours, press H, to advance minutes, press M To resume normal display, press CLOCK again

01A0TX-093

## CONNECTOR TERMINAL SPECIFICATION

Component	Connector	Terminal
Audio unit		a : Speaker rear left ⊕ b : Speaker rear left ⊖ c : NC d : NC f : Speaker rear right ⊕ h : Speaker rear right ⊖ i : NC j : NC
		a : ACC b : NC c : +B d : NC e : TNS (for illumination lamps) f : NC h : NC j : NC k : Speaker front left ⊕ l : Speaker front left ⊖ m : Speaker front right ⊕ n : Speaker front right ⊖
Door speaker		a : Input signal ⊖ b : Input signal ⊕
Rear speaker		a : Input signal ⊕ b : Input signal ⊖

01E0TX-189

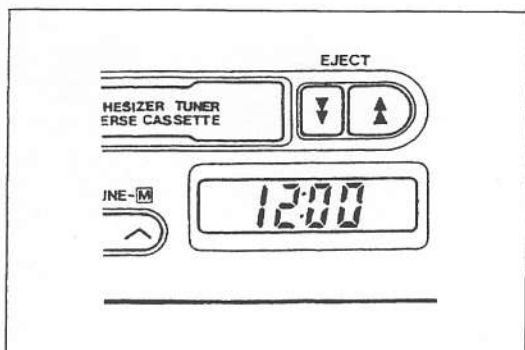
## TROUBLESHOOTING

Symptom: Speaker(s) do not sound

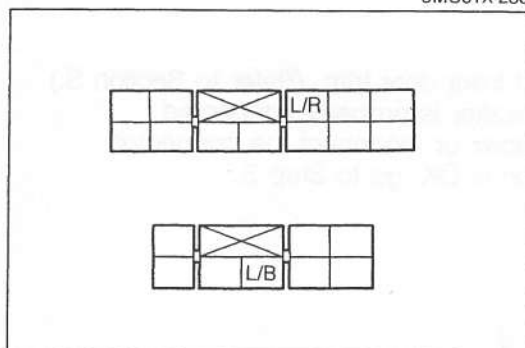
### Note

- Before troubleshooting, verify that the customer is using the audio system correctly. If not, advise or instruct in the proper operating procedures. (Refer to page T-87.)

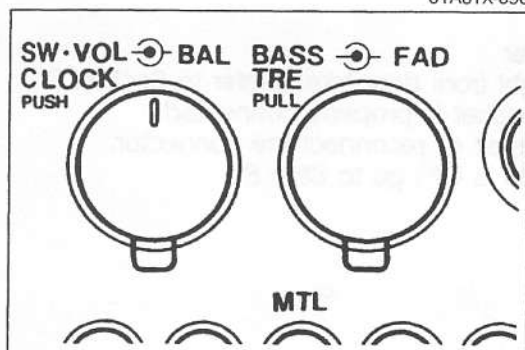
01A0TX-095



9MU0TX-286



01A0TX-096



01A0TX-097

### Step 1

- Turn the ignition switch ON.
- Check for illumination of the clock display.
- If the clock display does not come ON, go to Step 2.
- If the clock display comes ON, go to Step 3.

### Step 2

- Remove the audio unit. (Refer to page T-95.)
- Turn the ignition switch to ACC.
- Check voltage at the following terminal-wires of the audio unit connector.

Wire	Voltage	Action
(L/B)	Battery voltage	Next, check wire (L/R)
	0V	Check CIGAR 15A fuse If CIGAR 15A fuse OK, repair wire harness (CIGAR 15A fuse—Audio unit)
(L/R)	12V	Replace audio unit
	0V	Check ROOM 15A fuse If ROOM 15A fuse OK, repair wire harness (ROOM 15A fuse—Audio unit)

### Step 3

Locate the faulty speaker(s) by using the fader, tone, and balance controls.

- Turn the ignition switch to ACC.
- Play a prerecorded tape, and set the volume to the center position.
- Set the fader and balance controls as shown in Table 1. Check operation of each speaker.
- From results of Table 1 testing, go to the next step, referring to Table 2.

Table 1

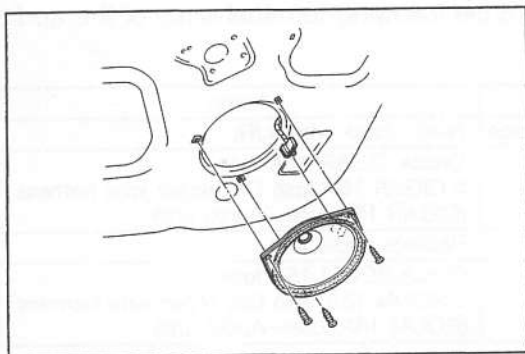
Speaker	Fader	Balance	Speaker operates	Judgement
Left door	Front	Left	Yes	Left door speaker OK
			No	Left door speaker circuit faulty
Right door	Front	Right	Yes	Right door speaker OK
			No	Right door speaker circuit faulty
Left rear	Rear	Left	Yes	Left rear speaker OK
			No	Left rear speaker circuit faulty
Right rear	Rear	Right	Yes	Right rear speaker OK
			No	Right rear speaker circuit faulty

01A0TX-098

Table 2

No operation	Next Step
Left door speaker	Step 4
Right door speaker	Step 5
Left rear speaker	Step 6
Right rear speaker	Step 7

01A0TX-099

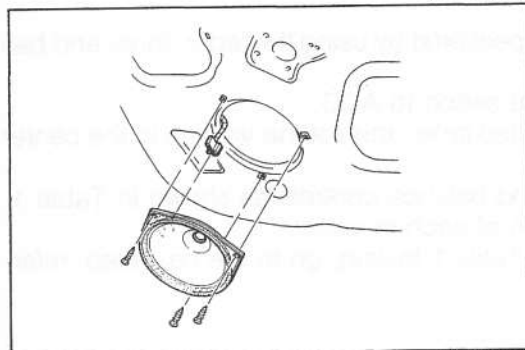


01A0TX-100

**Step 4**

Left door speaker

1. Remove the left front door trim. (Refer to Section S.)
2. Check if the speaker is properly connected.
3. If necessary, repair or reconnect the connector.
4. If the connection is OK, go to Step 8.

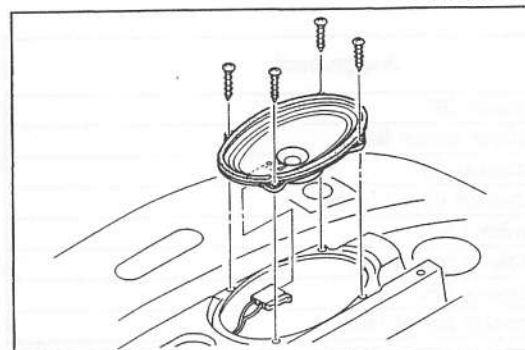


01A0TX-101

**Step 5**

Right door speaker

1. Remove the right front door trim. (Refer to Section S.)
2. Check if the speaker is properly connected.
3. If necessary, repair or reconnect the connector.
4. If the connection is OK, go to Step 8.



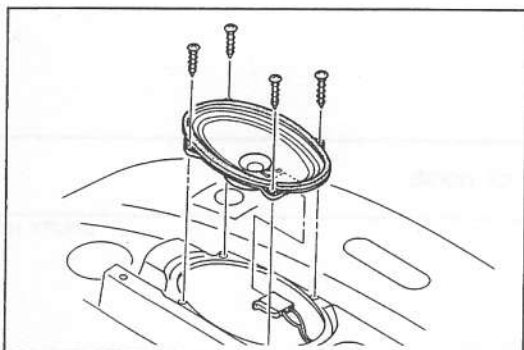
01A0TX-102

**Step 6**

Left rear speaker

1. Remove the package trim. (Refer to Section S.)
2. Check if the speaker is properly connected.
3. If necessary, repair or reconnect the connector.
4. If the connection is OK, go to Step 8.



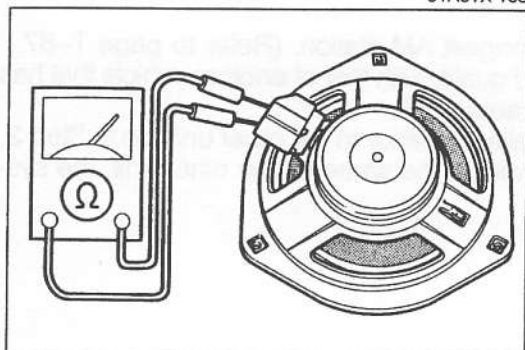


01A0TX-103

**Step 7**

Right rear speaker

1. Remove the package trim. (Refer to Section S.)
2. Check if the speaker is properly connected.
3. If necessary, repair or reconnect the connector.
4. If the connection is OK, go to Step 8.



01A0TX-104

**Step 8**

1. Disconnect the connector from the suspected faulty speakers.
2. Measure resistance between terminals of the speaker.

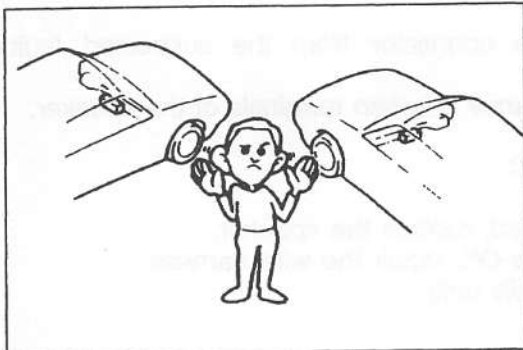
**Resistance: 4Ω**

3. If not as specified, replace the speaker.
4. If the speaker is OK, repair the wire harness.  
(Speakers—Audio unit)

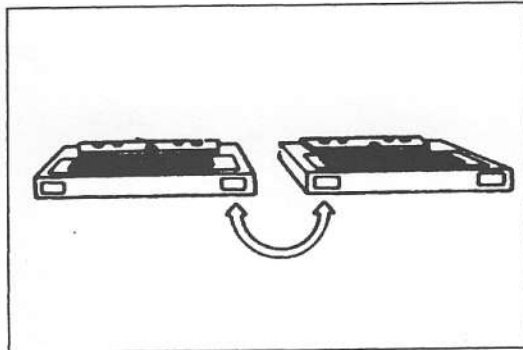
## Radio

Symptom: Poor sound quality or noise

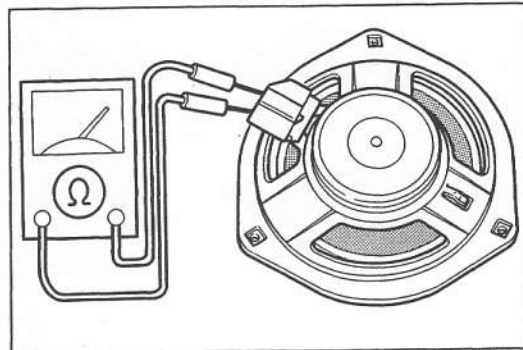
01A0TX-105



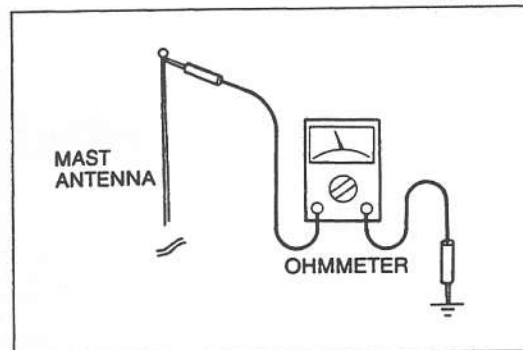
01A0TX-106



9MU0TX-391



0MU0TX-207



01A0TX-107

**Step 1**

1. Tune to the strongest AM station. (Refer to page T-87.)
2. Compare sound quality with that of another vehicle that has the same type audio unit.
3. If the sound quality is inferior to the other unit, go to Step 2.
4. If the sound quality is the same as the other unit, the system is OK.

**Step 2**

1. Play a known good cassette tape, and compare the sound quality with another vehicle that has the same type audio unit.
2. If the sound quality is inferior to the other unit, the malfunction may be in the speaker circuit. Go to Step 3.
3. If the sound quality is same as the other unit, the malfunction may be in the antenna circuit. Go to Step 4.

**Step 3**

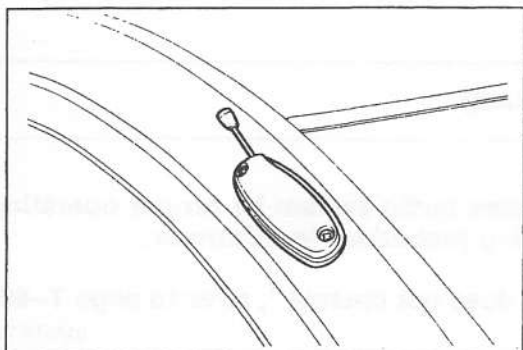
1. Check for damage to the speakers.
2. Check for proper connection of speaker connectors.
3. Disconnect the speaker connectors, and measure resistance of each speaker.

**Resistance:  $4\Omega$** 

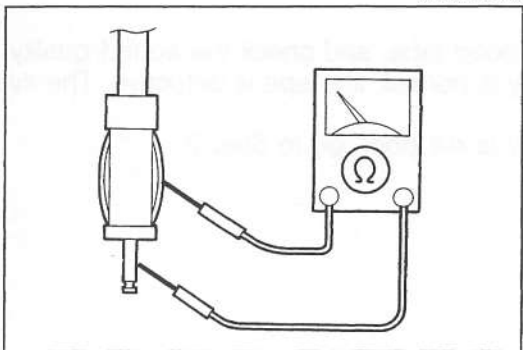
4. If a speaker has incorrect resistance or is damaged, replace it.
5. If the speakers are OK, replace the audio unit.

**Step 4**

1. Check that there is no continuity (infinite ohms) between the antenna and a body ground.
2. If there is continuity, replace the antenna.
3. If there is no continuity, go to Step 5.



01A0TX-108



01A0TX-109

**Step 5**

1. Check for proper installation of the antenna mast.
2. If the installation is loose, tighten it.
3. If the installation is OK, go to Step 6.

**Step 6**

1. Remove the audio unit. (Refer to page T-95.)
2. Check for no continuity of the feeder cable as shown.
3. If the no continuity is OK, replace audio unit.

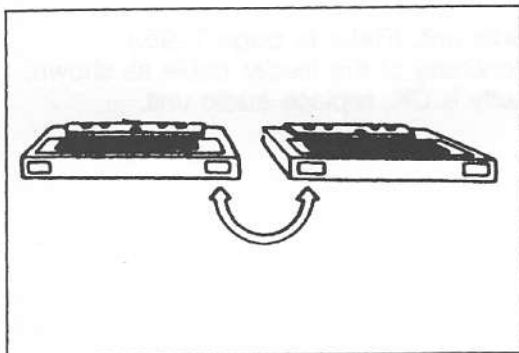
## Cassette Tape Player

Symptom: Poor sound quality

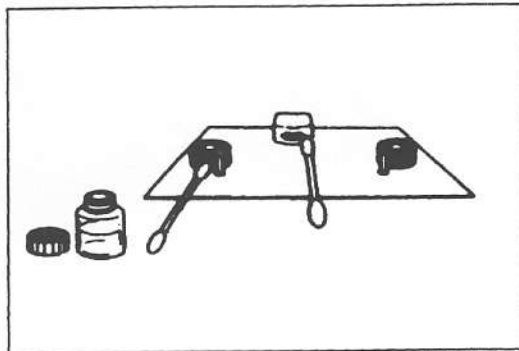
**Note**

- Before troubleshooting, confirm that the customer uses audio system by proper operating procedure. If not, advise or teach the proper operating procedure to customer. (Refer to page T-87.)
- If a speaker(s) does not operate, refer to "Speaker(s) does not operate", refer to page T-89.

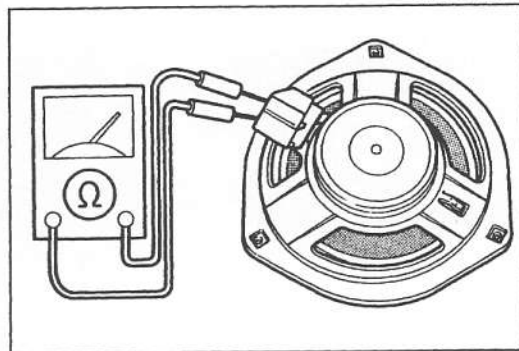
01A0TX-110



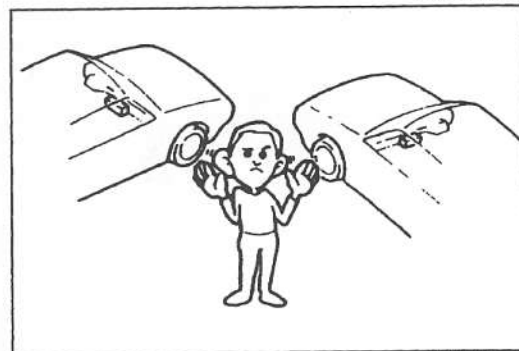
9MU0TX-379



9MU0TX-380



0MU0TX-202



9MU0TX-382

**Step 1**

1. Play a known good tape, and check the sound quality.
2. If sound quality is normal, the tape is defective. The system is OK.
3. If sound quality is still poor, go to Step 2.

**Step 2**

1. Check for oxide or dirt on the head, capstan, and pinch roller.
2. If oxide or dirt is found, clean the parts with a head cleaner.
3. If there is no oxide or dirt, go to Step 3.

**Step 3**

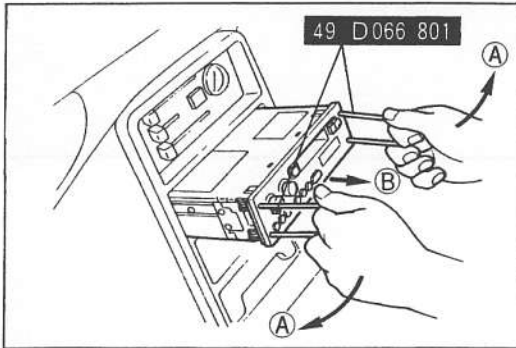
1. Check for damage to the speakers.
2. Check for proper connection of the speaker connectors.
3. Disconnect all speaker connectors, and measure resistance of each speaker.

**Resistance: 4Ω**

4. If a speaker has incorrect resistance or is damaged, replace it.
5. If the speakers are OK, go to Step 4.

**Step 4**

1. Compare sound quality with that of another vehicle that has the same type of audio system.
2. If the sound quality is inferior to the other unit, replace the audio unit.



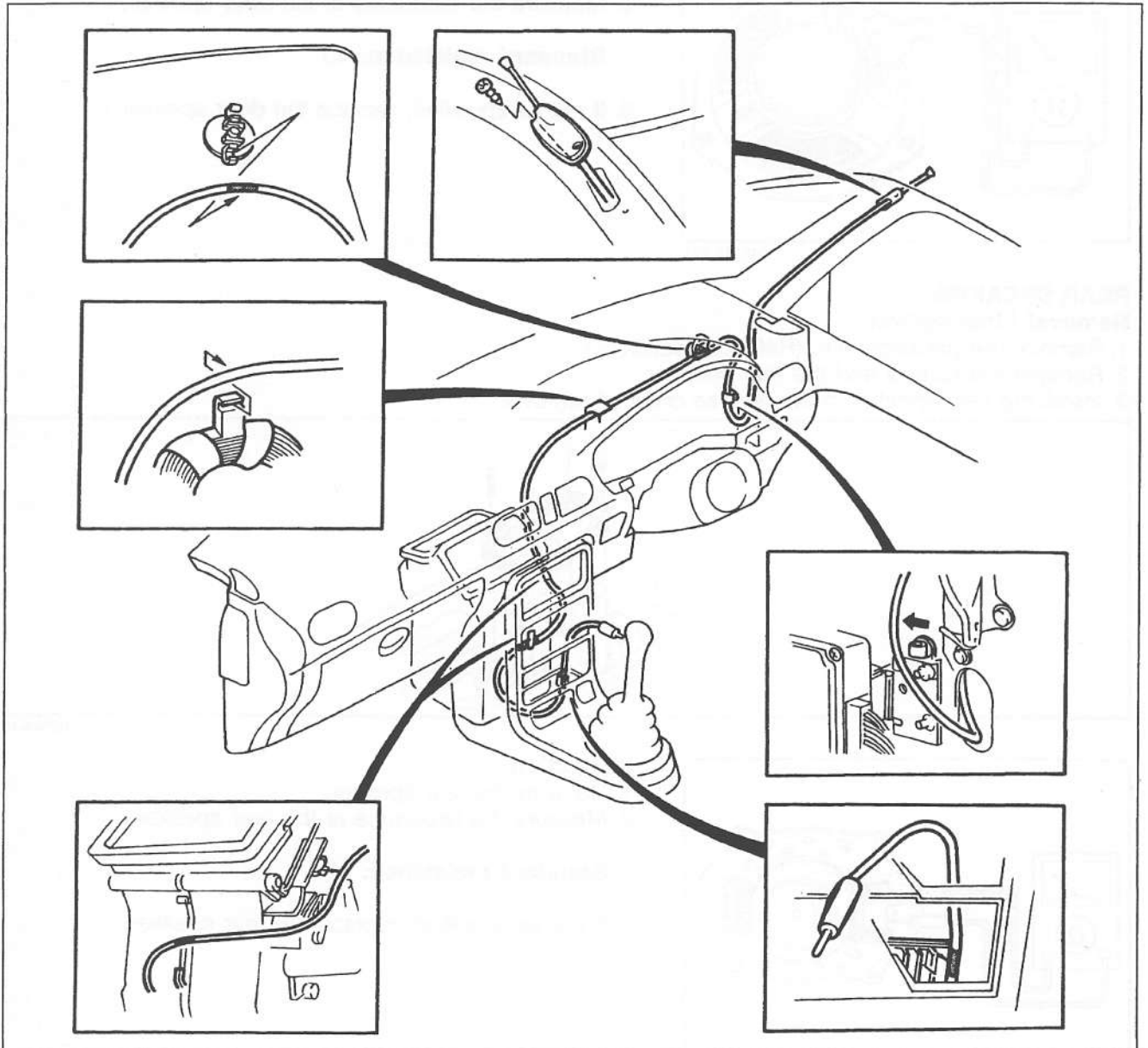
01A0TX-111

**AUDIO UNIT****Removal / Installation**

1. Insert the **SST** into the holes of the audio unit.
2. Pull the **SST** apart **(A)** and slide out the audio unit **(B)** as shown in the figure.
3. Disconnect the connectors and feeder cable, then remove the audio unit.
4. To install the audio unit connect the connectors and feeder cable, then push the audio unit into the slot.

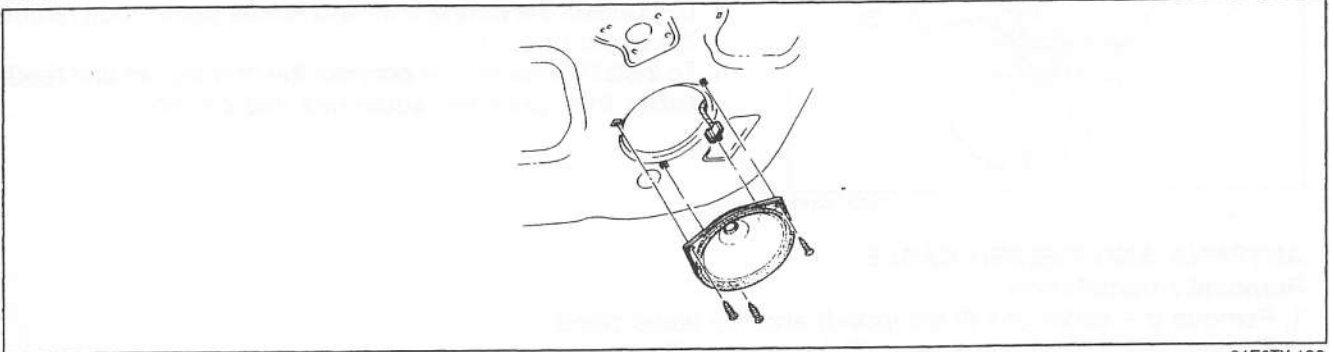
**ANTENNA AND FEEDER CABLE****Removal / Installation**

1. Remove the audio unit (if equipped) and the audio panel.
2. Remove the instrument cluster. (Refer to page T-35.)
3. Remove the front side trim. (Refer to Section S.)
4. Remove the antenna and feeder cable as shown in the figure.
5. Install the antenna and feeder cable in the reverse order of removal.

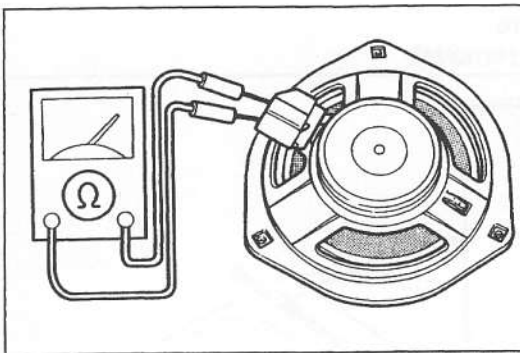


**DOOR SPEAKER****Removal / Installation**

1. Remove the door trim. (Refer to Section S.)
2. Remove the screws and the door speaker.
3. Install the door speaker in the reverse order of removal.



01E0TX-190



01E0TX-191

**Inspection**

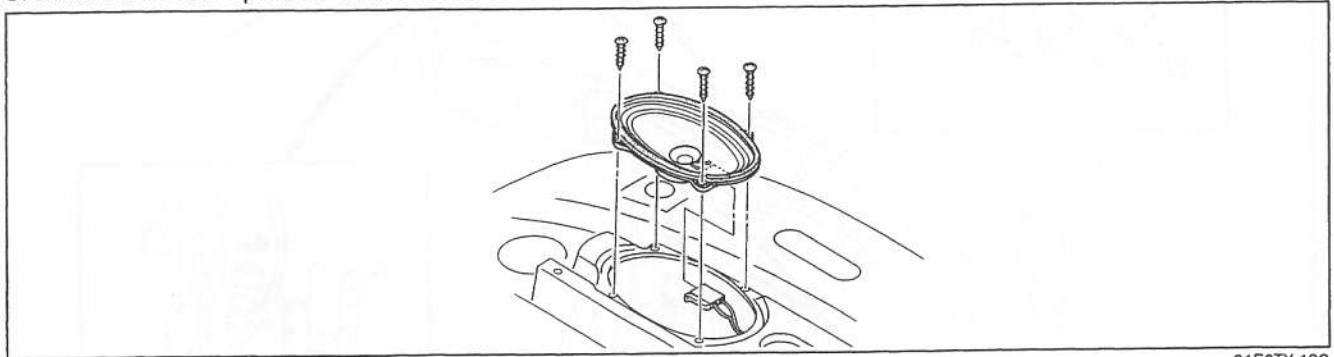
1. Remove the door speaker.
2. Measure the resistance of the door speaker.

**Standard resistance: 4Ω**

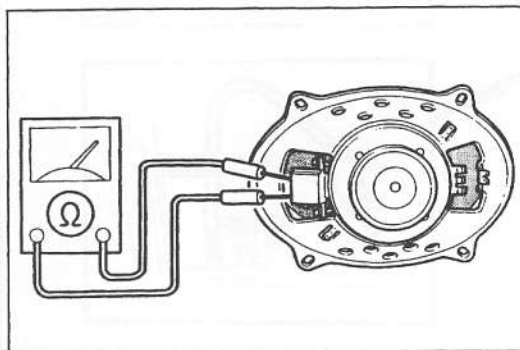
3. If not as specified, replace the door speaker.

**REAR SPEAKER****Removal / Installation**

1. Remove the package trim. (Refer to Section S.)
2. Remove the screws and the rear speaker.
3. Install the rear speaker in the reverse order of removal.



01E0TX-192



01E0TX-193

**Inspection**

1. Remove the rear speaker.
2. Measure the resistance of the rear speaker.

**Standard resistance: 4Ω**

3. If not as specified, replace the rear speaker.

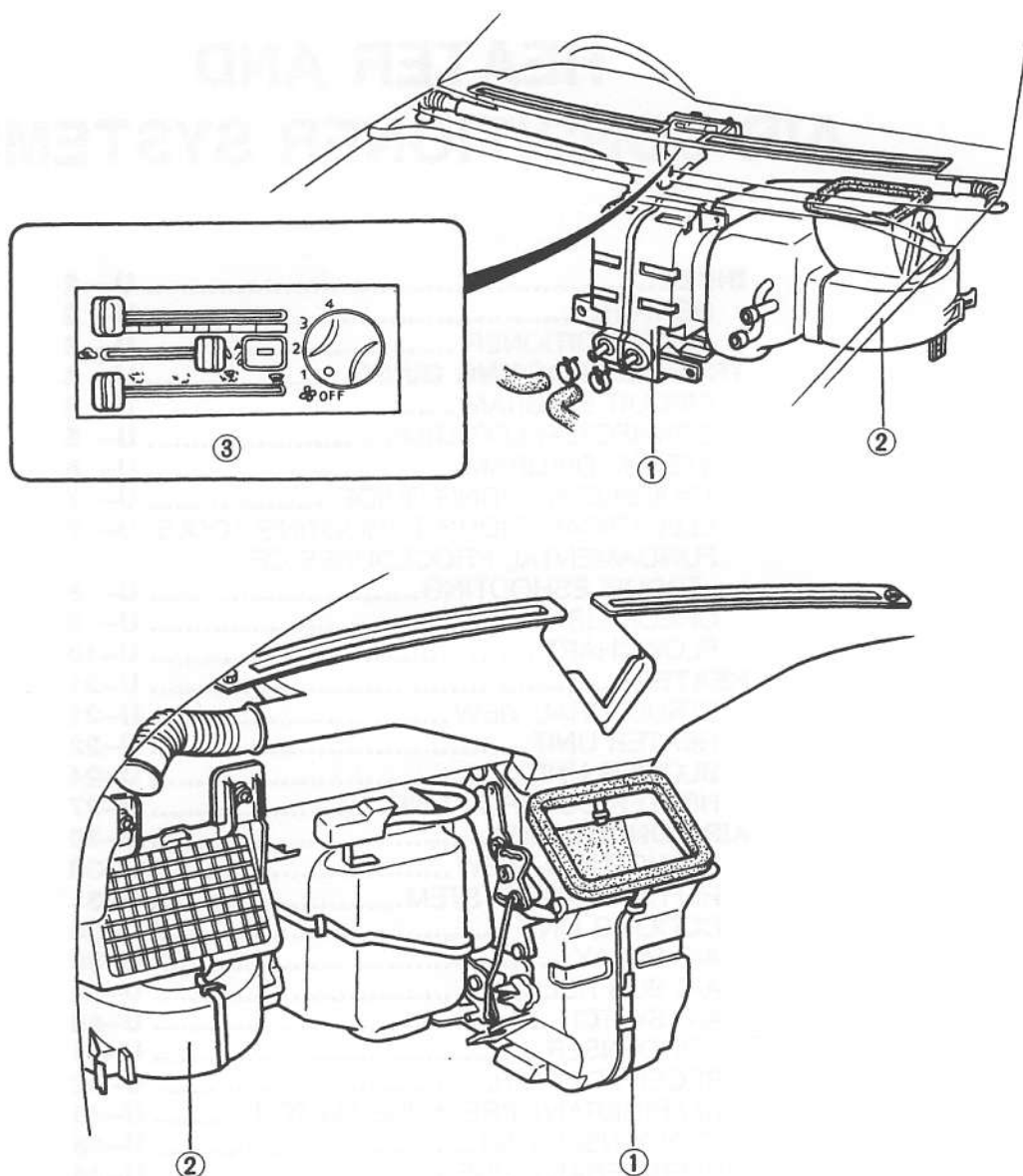
# HEATER AND AIR CONDITIONER SYSTEMS

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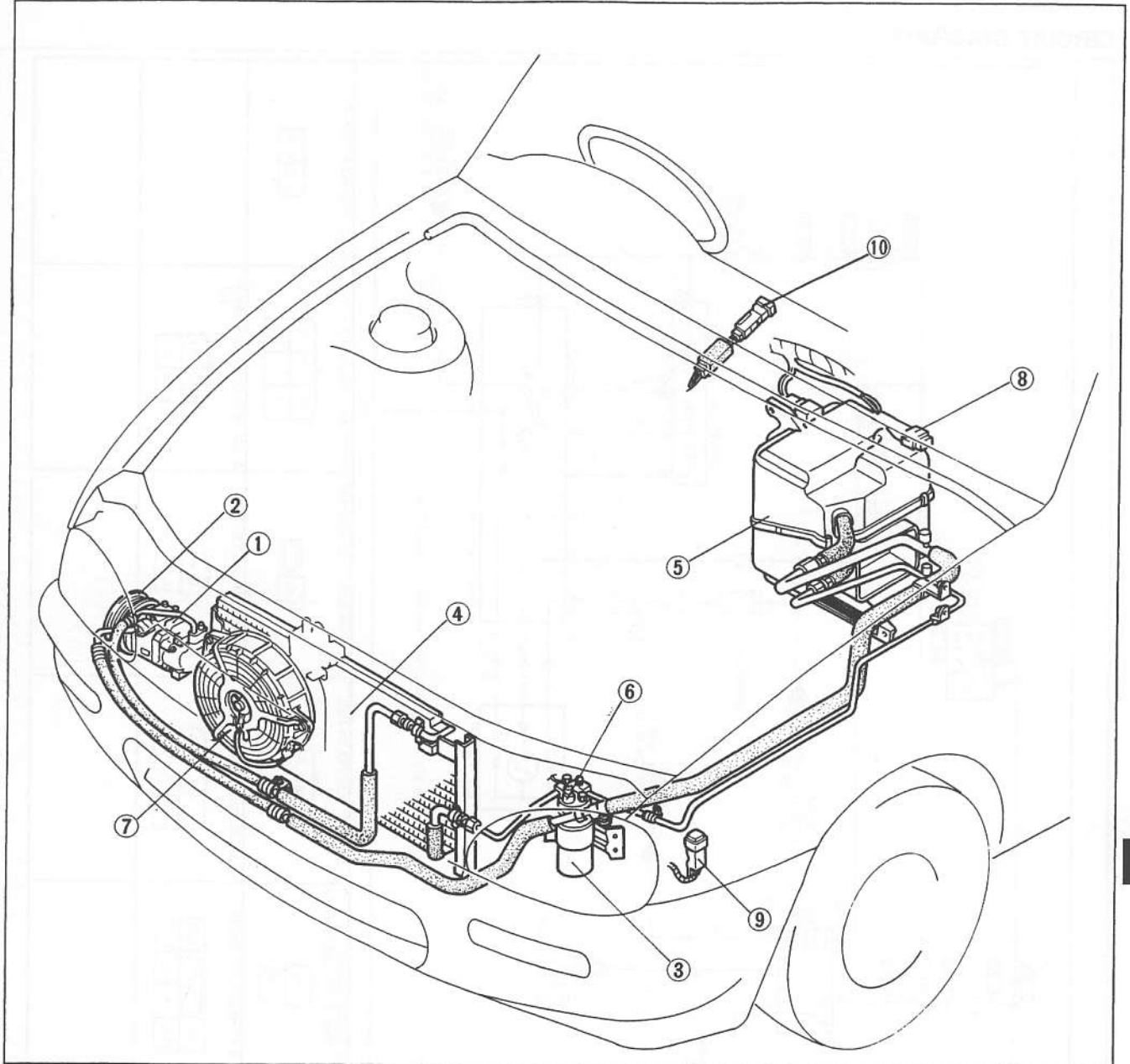
## HEATER



01G0UX-002

- |                                       |                                       |
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| 1. Heater unit                        | 3. Heater control unit                |
| Removal / Installation..... page U-22 | Removal / Installation..... page U-27 |
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| 2. Blower unit                        | Blower switch                         |
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# AIR CONDITIONER

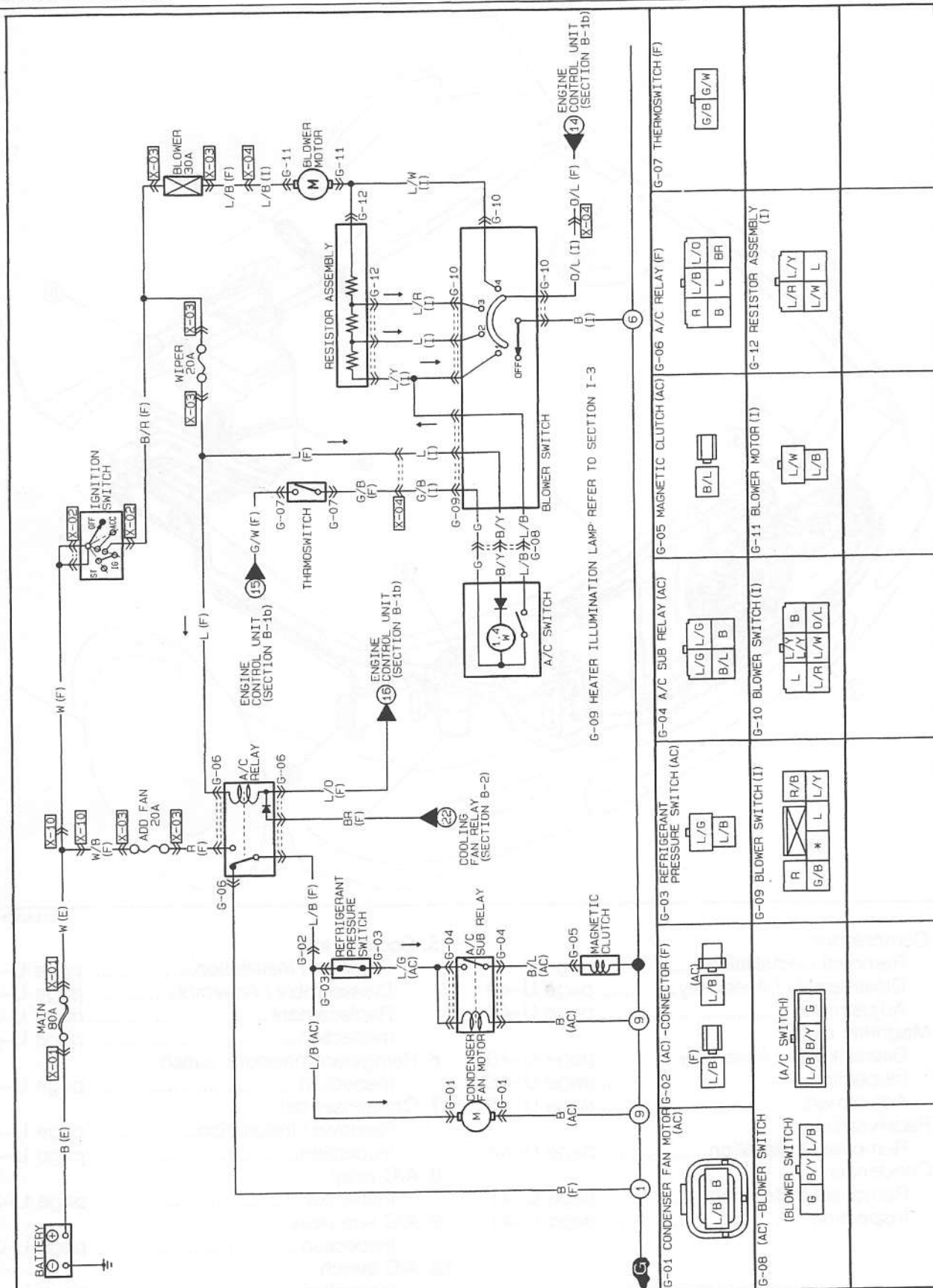


01A0UX-018

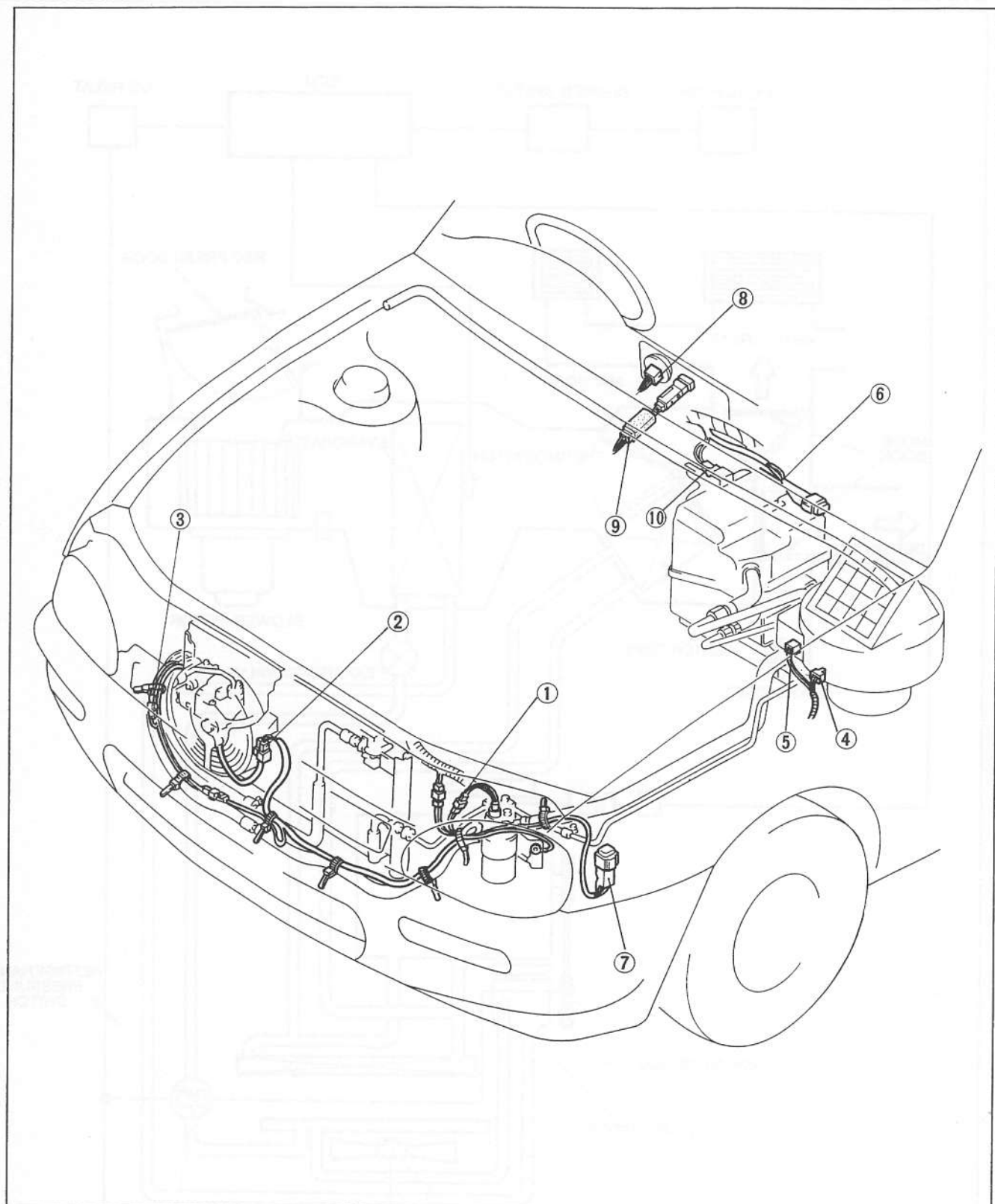
- |                                |           |
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| 1. Compressor                  |           |
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| Disassembly / Assembly.....    | page U-49 |
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| 8. A/C relay                   |           |
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| 9. A/C sub relay               |           |
| Inspection.....                | page U-39 |
| 10. A/C switch                 |           |
| Inspection.....                | page U-40 |

# TROUBLESHOOTING GUIDE

## CIRCUIT DIAGRAM



## CONNECTOR LOCATION

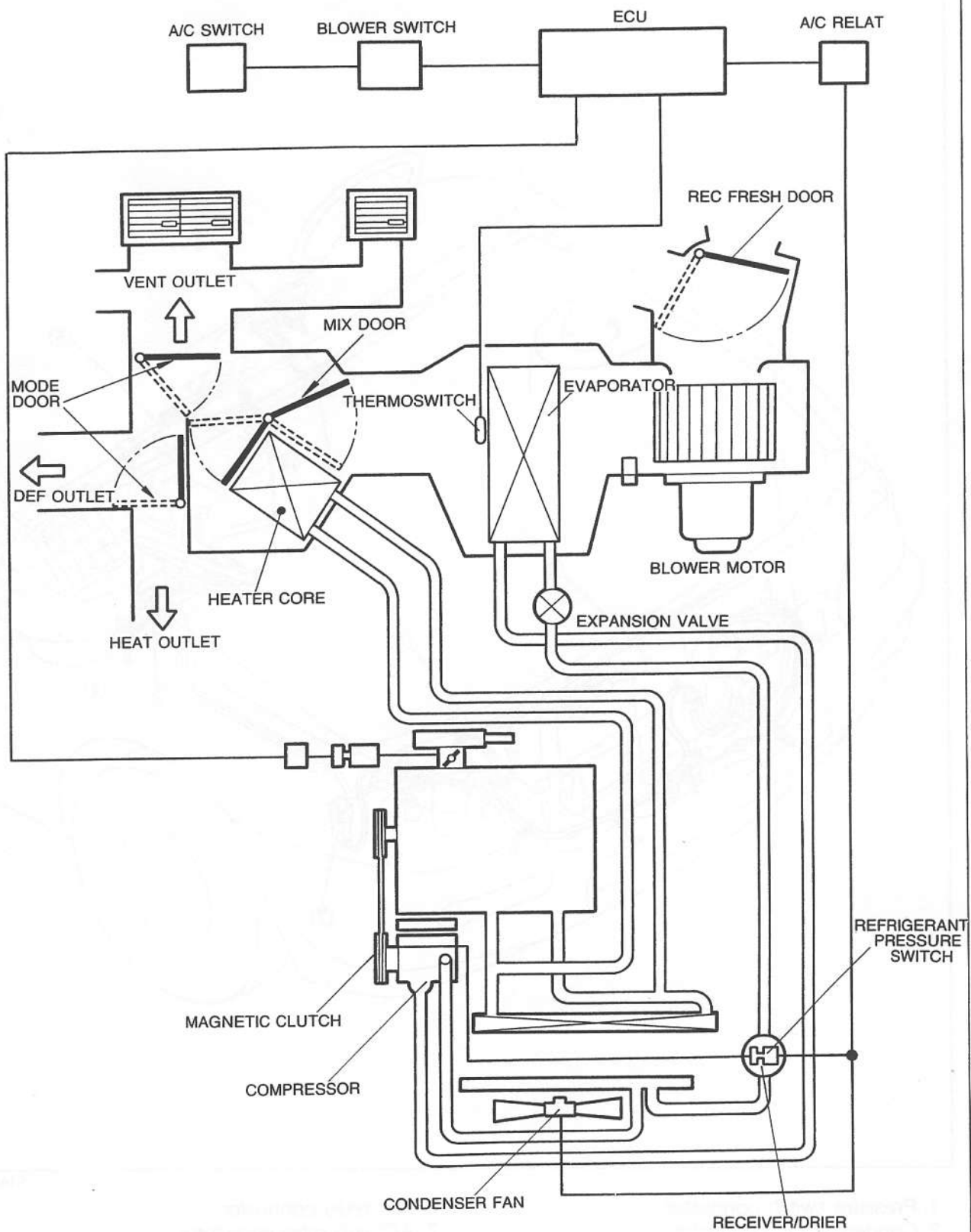


01A0UX-002

1. Pressure switch connector
2. Condenser fan connector
3. Magnetic clutch connector
4. Blower motor connector
5. Resistor assembly connector

6. A/C relay connector
7. A/C sub relay connector
8. Blower switch connector
9. A/C switch connector
10. Thermoswitch connector

### SYSTEM DIAGRAM

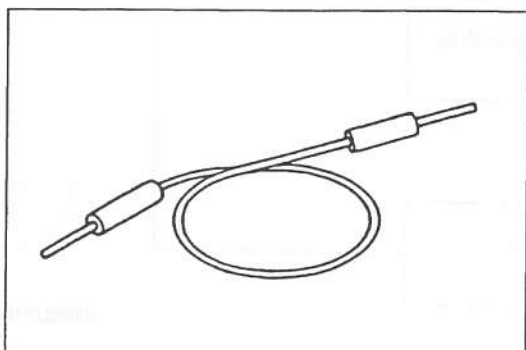


## TROUBLESHOOTING GUIDE

## Troubleshooting Points

- It is sometimes difficult to discover, due to the ambient temperature, the cause of a problem of the heater or air conditioner, and for that reason it is important to check and confirm the operation of the system. It is therefore suggested that a sequence be established to check the operation so that the symptoms of the problem can be accurately determined.
- Because an air conditioner is composed of two systems: the refrigerant system and the electrical system, it is first necessary to separate these two systems when following the checking and inspection procedures. Because the replacement of components of the refrigerant system is done in conjunction with the evacuation of the refrigerant gas, it is in general preferable to check the refrigerant system after checking the electrical system.

93G0UX-004



9MU0UX-008

## ELECTRICAL TROUBLESHOOTING TOOLS

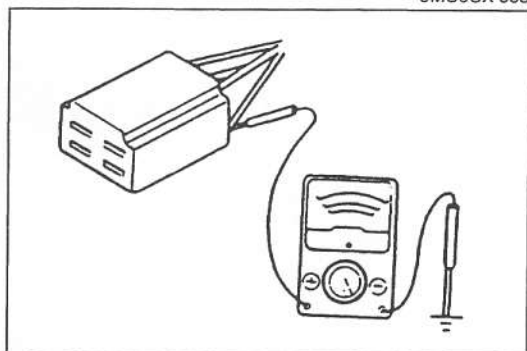
## Jumper Wire

The jumper wire is used for testing by short-circuiting switch terminals and to verify the condition of ground connections.

## Caution

- **Do not connect the jumper wire between a power source and a body ground. This may cause burning or other damage to harnesses and electronic components.**

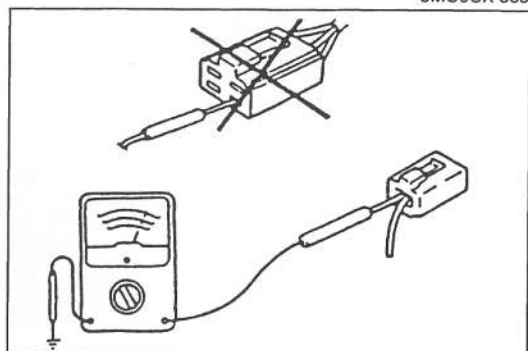
U



9MU0UX-009

## Voltmeter

The DC voltmeter is used for measurement of circuit voltage. A voltmeter with a range of 15V or more must be used. It is used by connecting the positive (+) probe (red lead) to the point where voltage is to be measured and connecting the negative (-) probe (black lead) to a body ground.



9MU0UX-010

## Ohmmeter

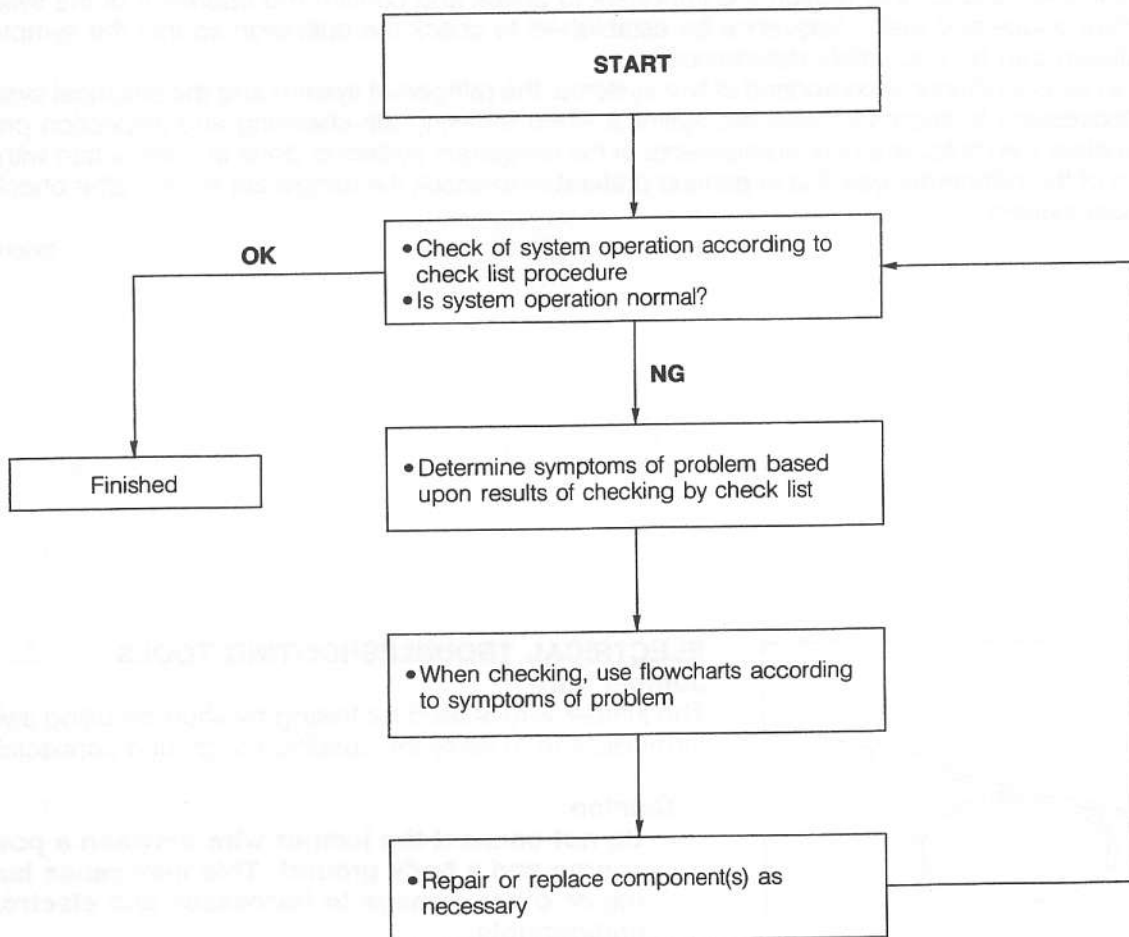
The ohmmeter is used to measure the resistance between two points in a circuit, to check for continuity, and to diagnose short circuits.

## Caution

- **Never connect the ohmmeter to any circuit to which voltage is applied. Doing so may burn or otherwise damage the ohmmeter.**

**FUNDAMENTAL PROCEDURES OF TROUBLESHOOTING**

Proceed with troubleshooting of the heater and air conditioner by following the steps below.



01G0UX-006



## CHECK LIST

### How to Use Check List

For each step of the checking procedure, operation of each component of the system should be inspected visually and, in addition, the operation sound, volume, and temperature of the air being emitted from the air outlets should also be checked. If an abnormal condition is discovered, refer to the flowchart number for the symptom at the right side of the page. Go to that flow chart to check the system further.

#### Note

- Unless otherwise specified, each switch or lever activated should remain as is for the next step.

93G0UX-006

### Heater / Air Conditioner

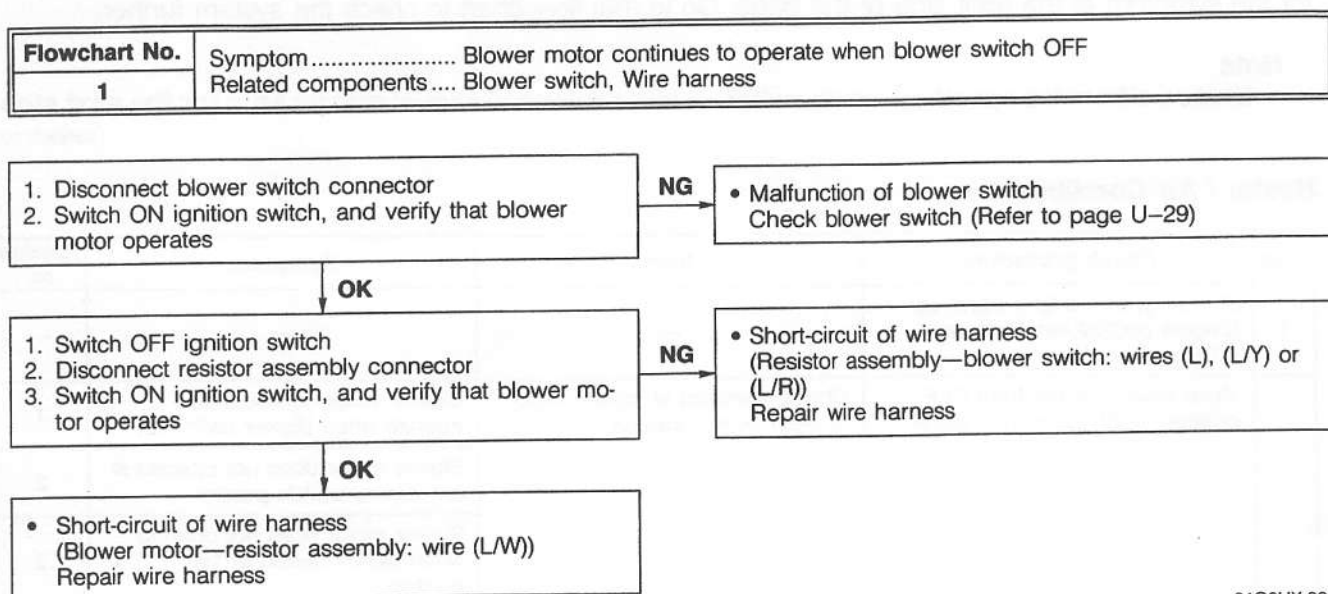
Step	Check procedure	Item	Symptom	Flowchart no.
1	Start engine and let it warm up. (Engine coolant temperature: 40°C or higher)	—	—	—
2	Move blower switch from OFF position to 4th position in steps.	Check operation of blower motor at each switch position.	Blower motor continues to operate when blower switch OFF.	1
			Blower motor does not operate at any blower switch position.	2
			Blower motor does not operate when blower switch at 1st position.	3
			Blower motor does not operate when blower switch at 2nd position.	4
			Blower motor does not operate when blower switch at 3rd position.	5
			Blower motor does not operate when blower switch at 4th position.	6
3	Set blower switch to 4th position	—	—	—
4	Move mode lever in sequence from VENT position to DEF position.	Check for changes at air outlets when mode lever moved.	No change at air outlets.	7
5	Move mode lever to VENT position.	—	—	—
6	Move mix lever in sequence from MAX HOT position to MAX COOL position.	Check for changes of temperature of airflow from air outlets.	Temperature of air from air outlets does not change.	8
7	Move REC-FRESH lever in sequence from MAX-REC position to MAX-FRESH position	Check for changes at REC-FRESH when REC-FRESH lever moved	No change at REC-FRESH air	9
8	Move mix lever to MAX COOL position.	—	—	—
9	Switch ON air conditioner switch.	Check operation of condenser fan and magnetic clutch.	Condenser fan and magnetic clutch do not operate.	10
			Condenser fan and magnetic clutch remain on.	11
			Condenser fan does not operate.	12
			Magnetic clutch does not operate	13
10	—	Check for outflow of cool air.	No outflow of cool air.	14, 15

01A0UX-003

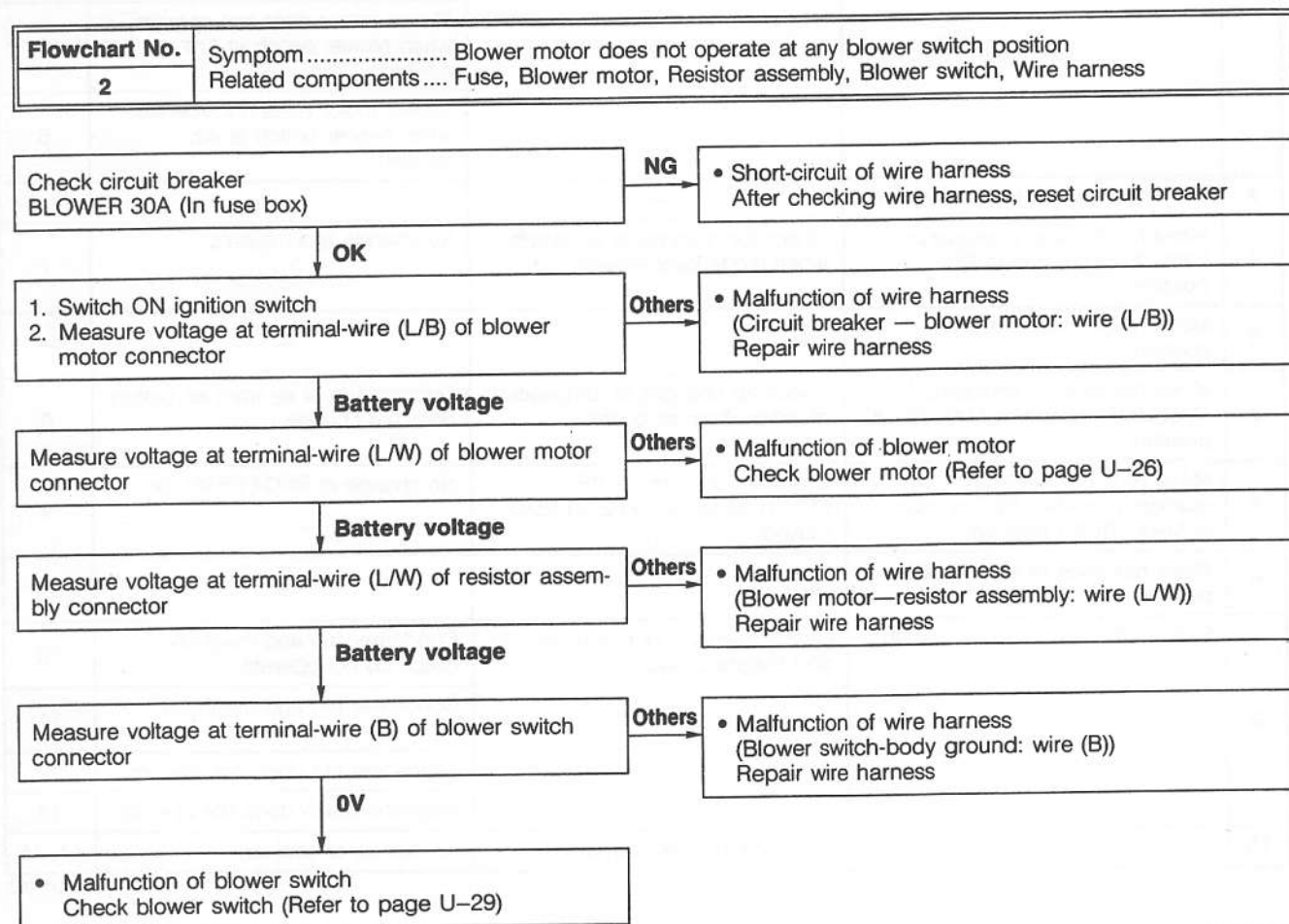
## FLOWCHART

## Note

- Unless otherwise specified, each switch or lever activated should remain as is for the next step.

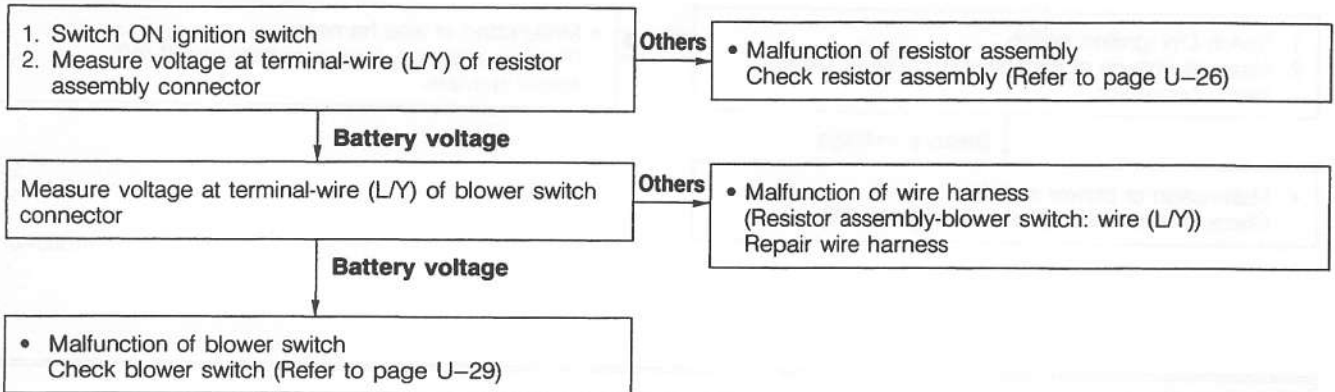


01G0UX-008



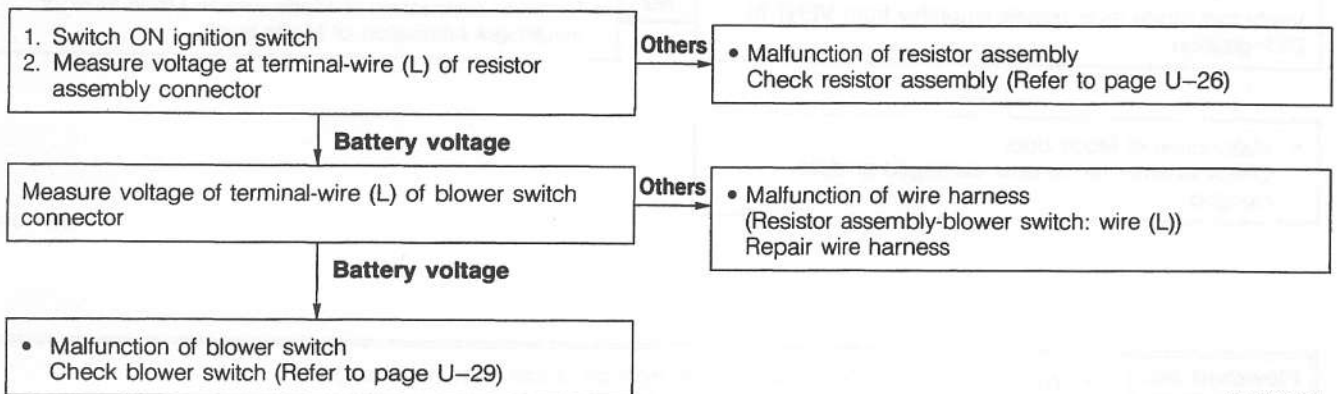
01A0UX-004

<b>Flowchart No.</b>	Symptom..... Blower motor does not operate when blower switch at 1st position
<b>3</b>	Related components.... Resistor assembly, Blower switch, Wire harness



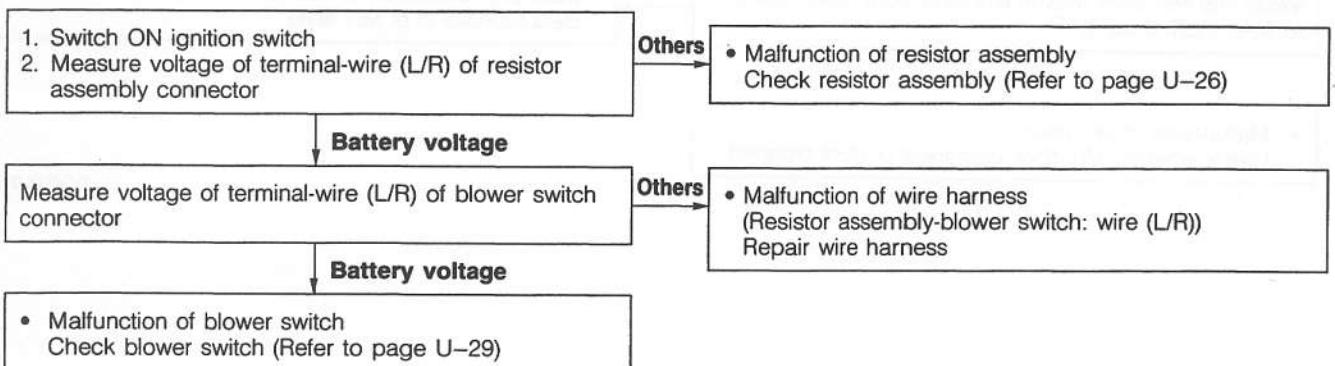
01G0UX-010

<b>Flowchart No.</b>	Symptom..... Blower motor does not operate when blower switch at 2nd position
<b>4</b>	Related components.... Resistor assembly, Blower switch, Wire harness



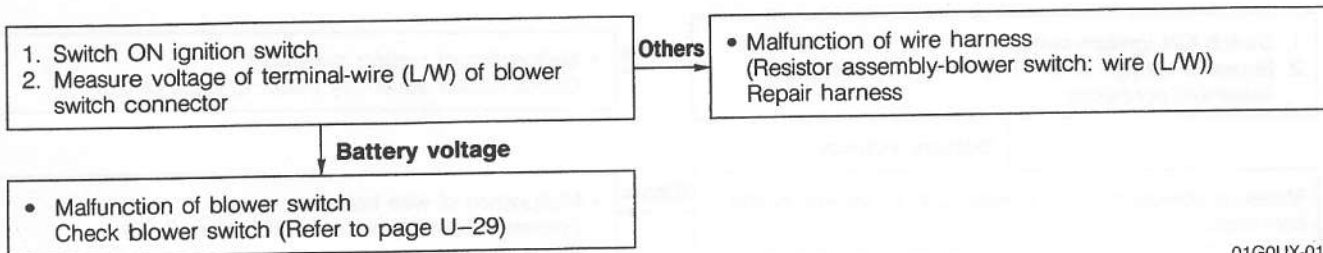
01G0UX-011

<b>Flowchart No.</b>	Symptom..... Blower motor does not operate when blower switch at 3rd position
<b>5</b>	Related components.... Resistor assembly, Blower switch, Wire harness



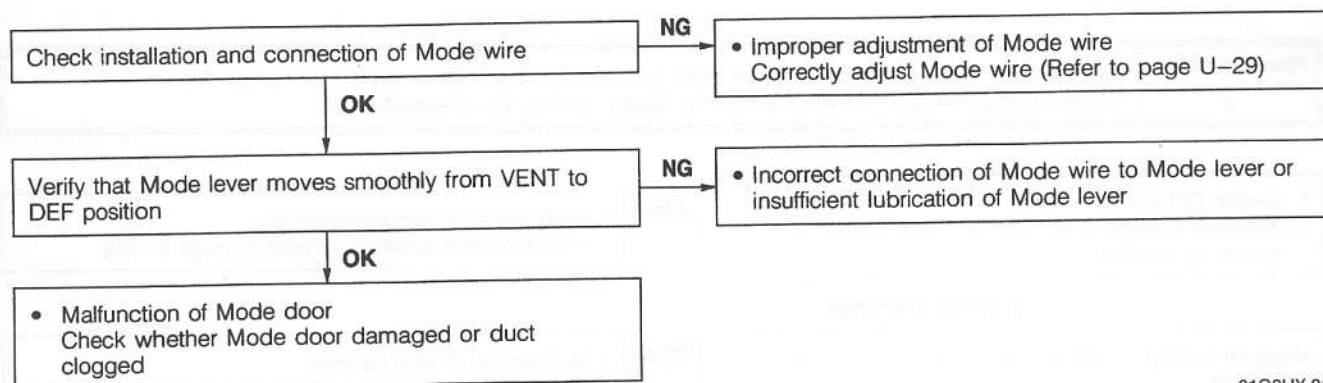
01A0UX-005

Flowchart No.	Symptom..... Blower motor does not operate when blower switch at 4th position Related components..... Resistor assembly, Blower switch, Wire harness
6	



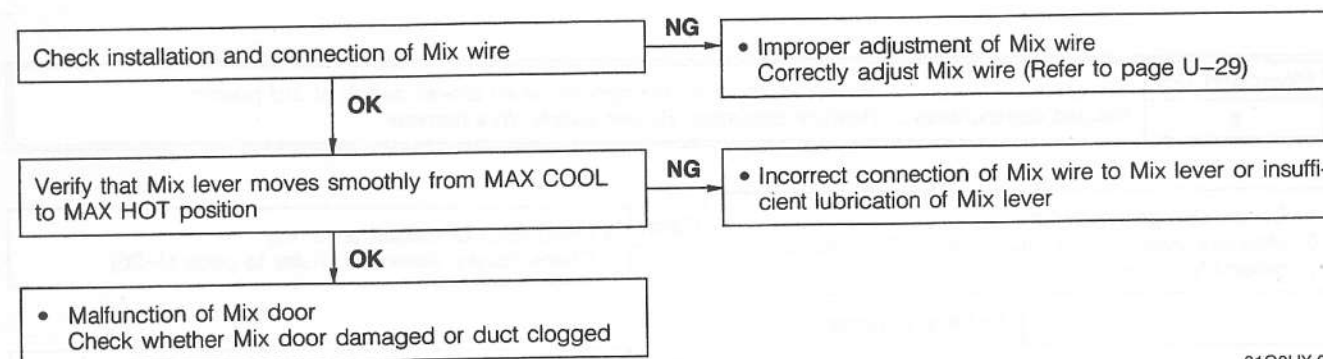
01G0UX-013

Flowchart No.	Symptom..... No change at air outlets Related components..... Mode wire, Mode door, Mode lever
7	



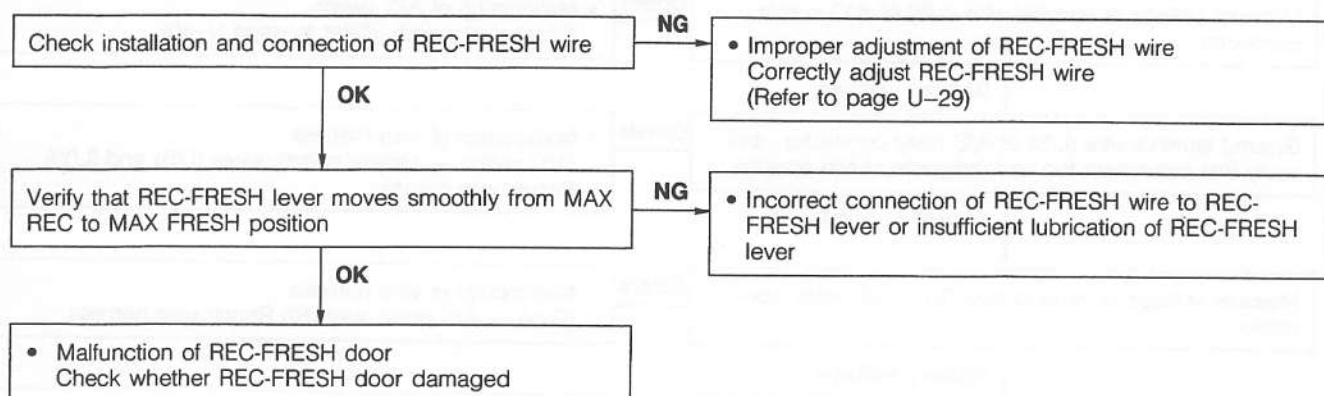
01G0UX-014

Flowchart No.	Symptom..... Temperature of air from air outlets does not change Related components..... Mix wire, Mix door, Mix lever
8	



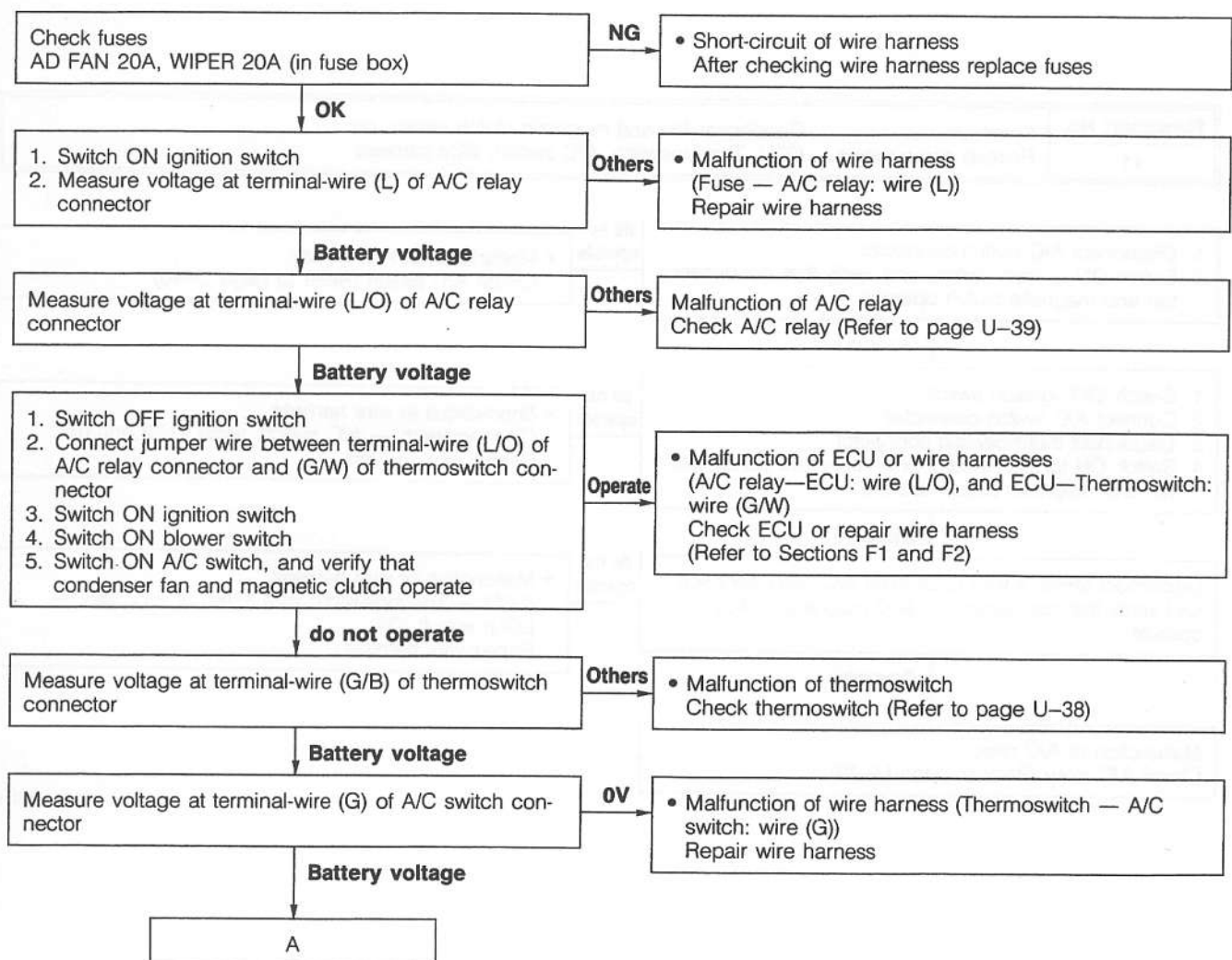
01G0UX-015

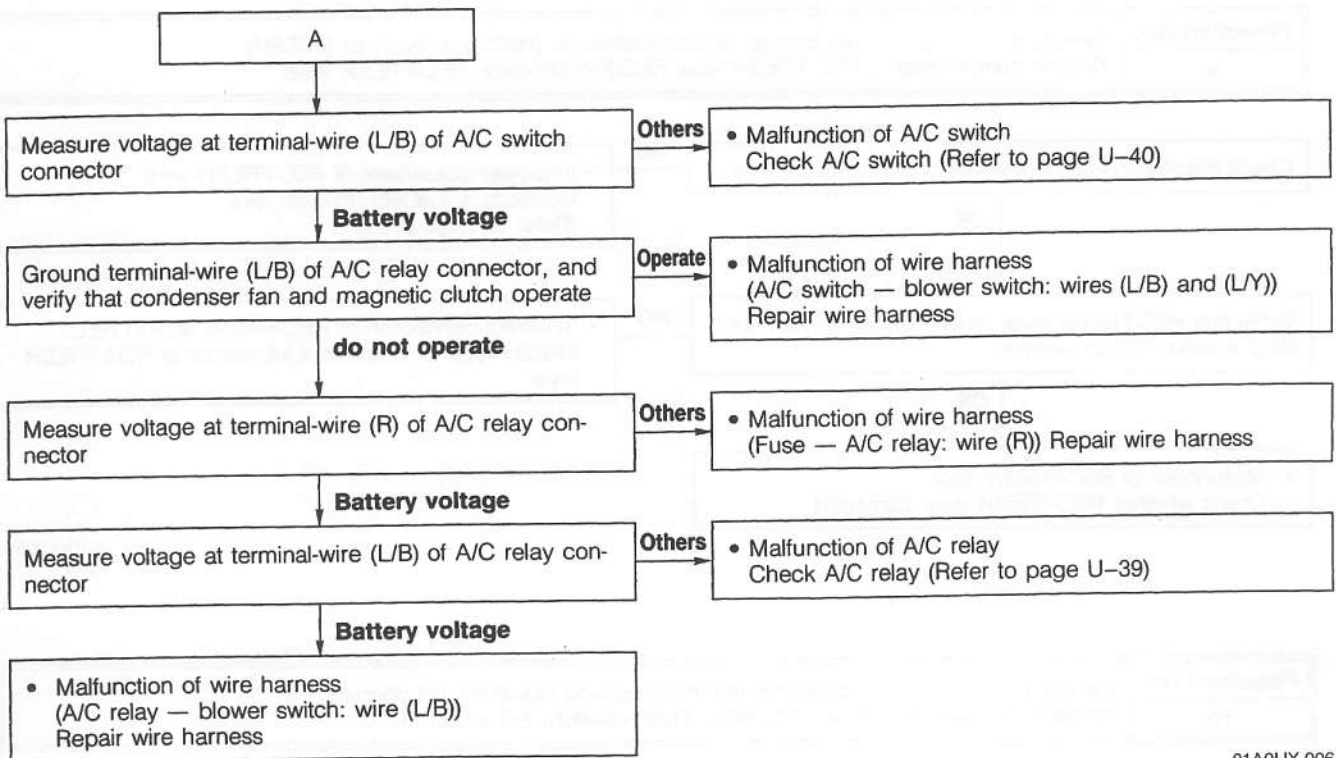
<b>Flowchart No.</b>	Symptom..... No change at recirculation air (REC) and fresh air (FRESH)
<b>9</b>	Related components.... REC-FRESH wire, REC-FRESH door, REC-FRESH lever



01G0UX-016

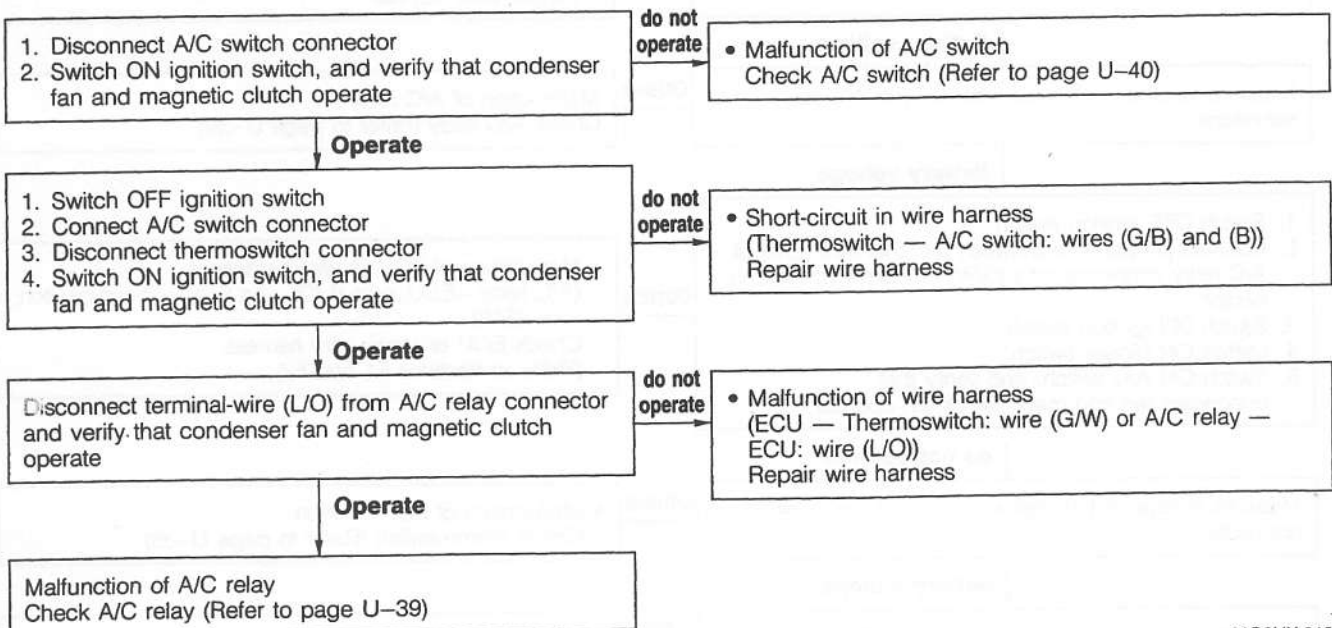
<b>Flowchart No.</b>	Symptom..... Condenser fan and magnetic clutch do not operate
<b>10</b>	Related components.... Fuse, A/C relay, Thermostat, A/C switch, ECU





01A0UX-006

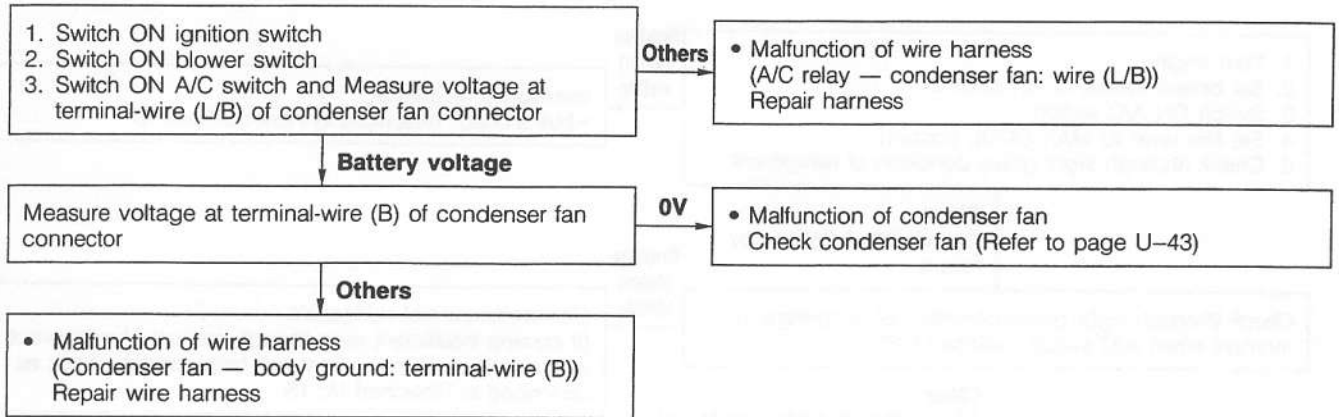
Flowchart No.	Symptom..... Condenser fan and magnetic clutch remain on Related components.... ECU, Thermoswitch, A/C switch, Wire harness
11	



01G0UX-018

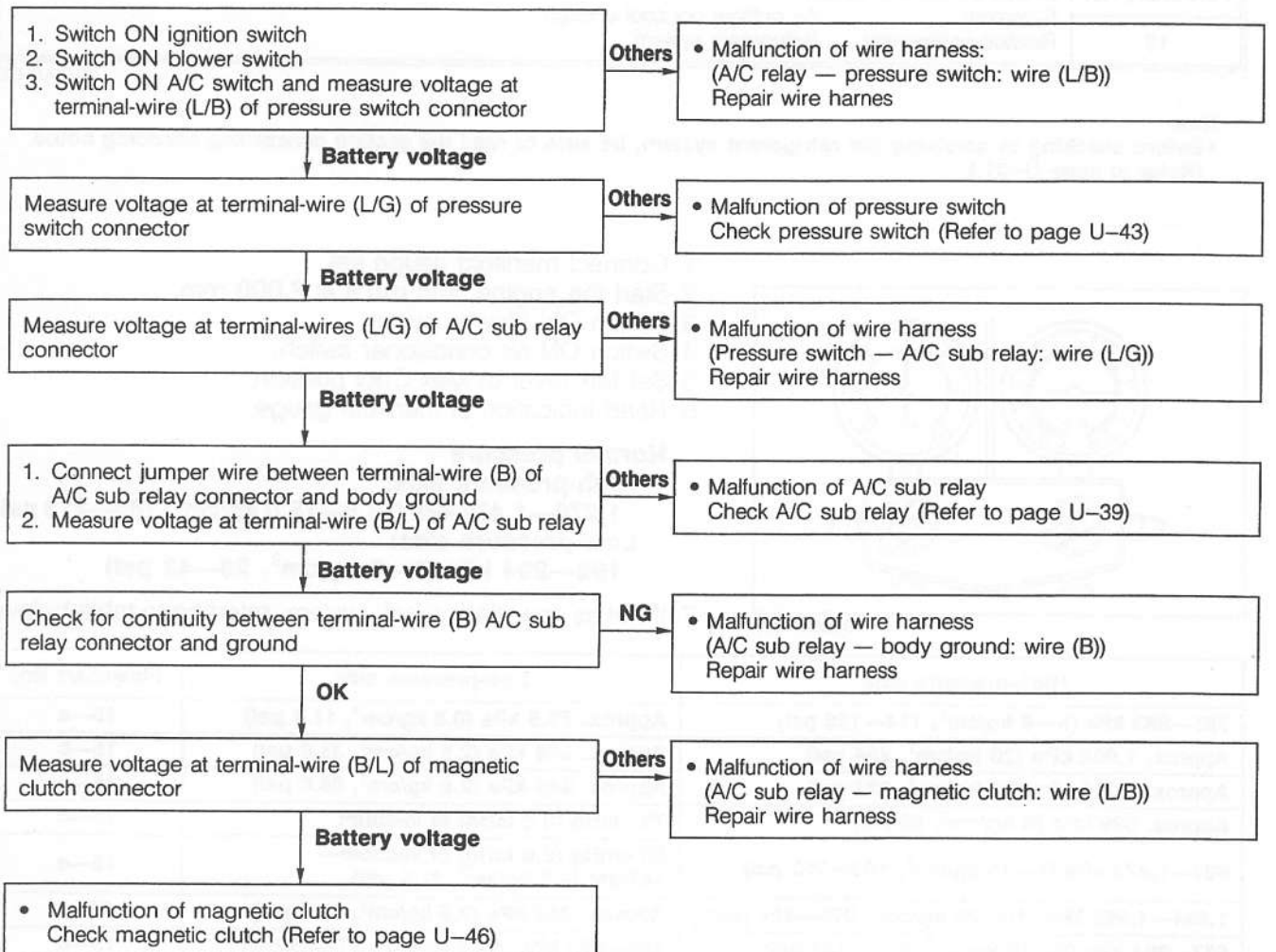


<b>Flowchart No.</b>	Symptom..... Condenser fan does not operate. Related components.... Condenser fan, Wire harness
<b>12</b>	



01A0UX-007

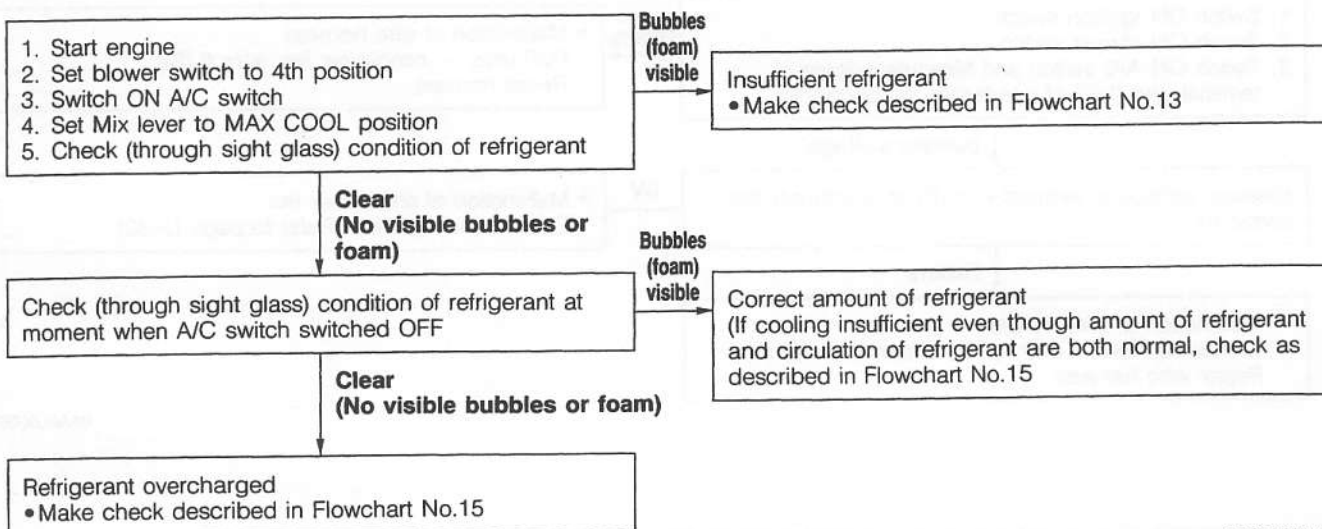
<b>Flowchart No.</b>	Symptom..... Magnetic clutch does not operate Related components.... Pressure switch, Magnetic clutch, A/C sub relay, Wire harness
<b>13</b>	



01A0UX-008



<b>Flowchart No.</b>	Check (through sight glass) amount of refrigerant and refrigerant circulation
<b>14</b>	Symptom..... No outflow of cool air Related component..... Refrigerant system



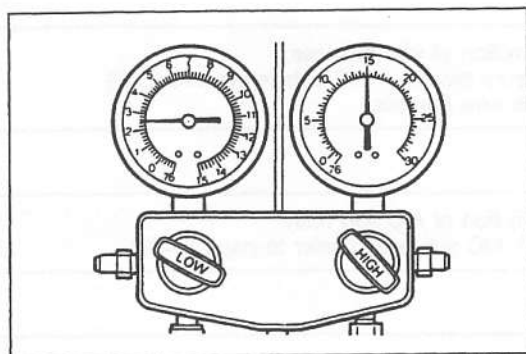
01G0UX-021

<b>Flowchart No.</b>	Check pressure of system
<b>15</b>	Symptom..... Air outflow not cool enough Related component..... Refrigerant system

01G0UX-022

**Note**

- Before checking or servicing the refrigerant system, be sure to read the section concerning servicing notes. (Refer to page U-31.)



93G0UX-023

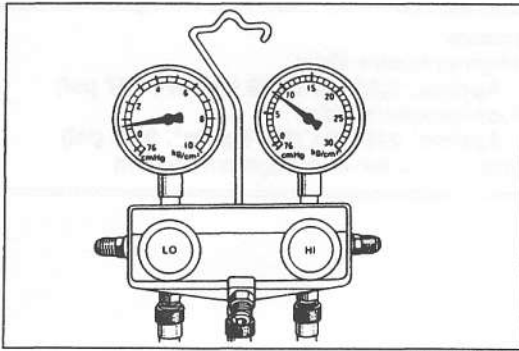
1. Connect manifold gauge set.
2. Start the engine, and run it at 2,000 rpm.
3. Switch ON blower switch.
4. Switch ON air conditioner switch.
5. Set Mix lever to Max Cool position.
6. Read indication of manifold gauge.

**Normal pressure****High-pressure side:**1,275—1,472 kPa (13.0—15.0 kg/cm<sup>2</sup>, 185—213 psi)**Low-pressure side:**196—294 kPa (2—3 kg/cm<sup>2</sup>, 28—43 psi)

7. If not as specified, check system, referring to table below.

High-pressure side	Low-pressure side	Flowchart No.
785—883 kPa (8—9 kg/cm <sup>2</sup> , 114—128 psi)	Approx. 78.5 kPa (0.8 kg/cm <sup>2</sup> , 11.4 psi)	15—a
Approx. 1,962 kPa (20 kg/cm <sup>2</sup> , 284 psi)	Approx. 245 kPa (2.5 kg/cm <sup>2</sup> , 35.6 psi)	15—b
Approx. 2,256 kPa (23 kg/cm <sup>2</sup> , 327 psi)	Approx. 245 kPa (2.5 kg/cm <sup>2</sup> , 35.6 psi)	15—c
Approx. 589 kPa (6 kg/cm <sup>2</sup> , 85 psi)	76 cmHg (3.0 inHg) of vacuum	15—d
687—1,472 kPa (7—15 kg/cm <sup>2</sup> , 100—213 psi)	50 cmHg (2.0 inHg) of vacuum— 147 kPa (1.5 kg/cm <sup>2</sup> , 21.3 psi)	15—e
1,864—1,962 kPa (19—20 kg/cm <sup>2</sup> , 270—284 psi)	Approx. 245 kPa (2.5 kg/cm <sup>2</sup> , 35.6 psi)	15—f
687—981 kPa (7—10 kg/cm <sup>2</sup> , 100—142 psi)	392—589 kPa (4—6 kg/cm <sup>2</sup> , 57—85 psi)	15—g

01G0UX-023



01G0UX-024

Flowchart No.	<b>Pressure</b>
	<b>High-pressure side:</b> 785—883 kPa (8—9 kg/cm <sup>2</sup> , 114—128 psi) <b>Low-pressure side:</b> Approx. 78.5 kPa (0.8 kg/cm <sup>2</sup> , 11.4 psi) <b>Cause..... Insufficient refrigerant</b>
15—a	

Verify no oil stains or contamination at piping connections

NG

Gas leakage from piping connection  
 • Check O-ring at connection, replace if necessary  
 (Refer to page U-44)

OK

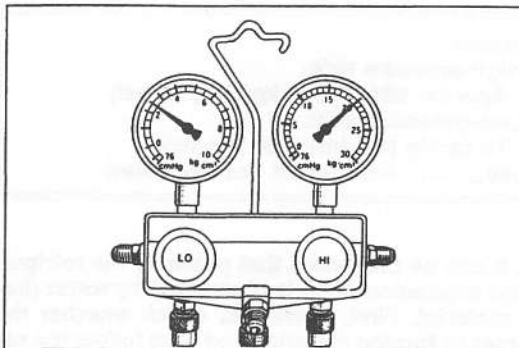
Using gas-leak tester, verify no leakage at piping and components of refrigerant system

NG

Gas leakage from piping or system component  
 • Replace O-ring at piping connection or replace component

OK

System normal (Gas leakage due to age)  
 • Charge with refrigerant



01A0UX-009

Flowchart No.	<b>Pressure</b>
	<b>High-pressure side:</b> Approx. 1,962 kPa (20 kg/cm <sup>2</sup> , 284 psi) <b>Low-pressure side:</b> Approx. 245 kPa (2.5 kg/cm <sup>2</sup> , 35.6 psi) <b>Cause..... Excessive refrigerant or poor cooling of condenser</b>
15—b	

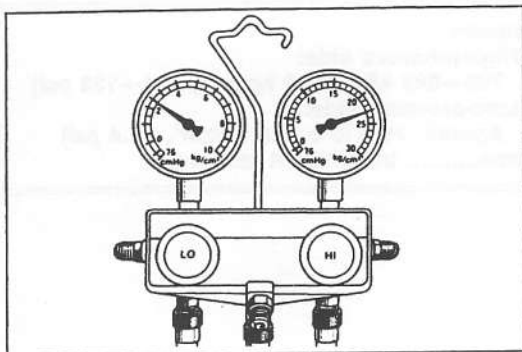
Verify no deformation and/or contamination of condenser's fins

NG

Clean, repair or replace condenser  
 (Refer to page U-41)

OK

Excessive refrigerant

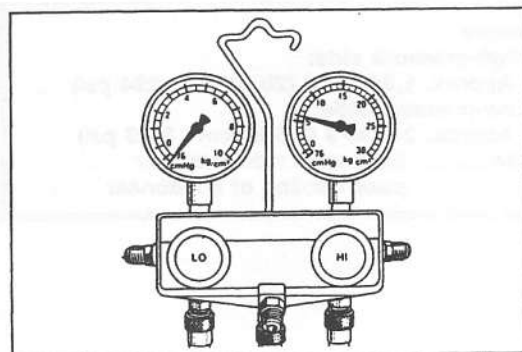


01G0UX-026

Flowchart No.	Pressure
	High-pressure side: Approx. 2,256 kPa (23 kg/cm <sup>2</sup> , 327 psi) Low-pressure side: Approx. 245 kPa (2.5 kg/cm <sup>2</sup> , 35.6 psi) Cause..... Air in refrigerant system
15—c	

Evacuate refrigerant system (Refer to page U-33)

Charge with refrigerant (Refer to page U-33)



01G0UX-027

Flowchart No.	Pressure
	High-pressure side: Approx. 589 kPa (6 kg/cm <sup>2</sup> , 85 psi) Low-pressure side: 76 cmHg (3.0 inHg) of Vacuum Cause..... Refrigerant not circulated
15—d	

#### Reference note:

- In this instance, it can be presumed that probably the refrigerant passage of the expansion valve is obstructed by water (frozen) or foreign material. First, therefore, check whether the obstruction is water or foreign material, and then follow the appropriate procedures to clear away the obstruction.

1. Connect manifold gauge
2. Start engine
3. Switch ON blower switch (A/C switch ... OFF)
4. Leave as is for approx. ten minutes (If cause is water, ice inside expansion valve will melt)
5. Switch ON A/C switch and measure pressure

#### Normal pressure

High-pressure side: 13.0—15.0 kg/cm<sup>2</sup>  
Low-pressure side: 2—3 kg/cm<sup>2</sup>

NG

Foreign material mixed in system  
• Replace expansion valve

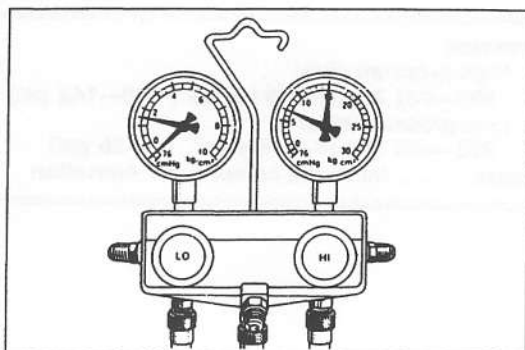
OK

Moisture in system

- Evacuate refrigerant in system (Refer to page U-33)

#### Note:

- If the same problem is apparent after a vacuum is created, replace the receiver/drier (Malfunction of receiver/drier)



01G0UX-028

Flowchart No.	Pressure
	High-pressure side: 687—1,472 kPa (7—15 kg/cm <sup>2</sup> , 100—213 psi) Low-pressure side: 50 cmHg (2.0 inHg) of Vacuum— 147 kPa (1.5 kg/cm <sup>2</sup> , 21.3 psi) Cause..... Refrigerant not circulated
15—e	

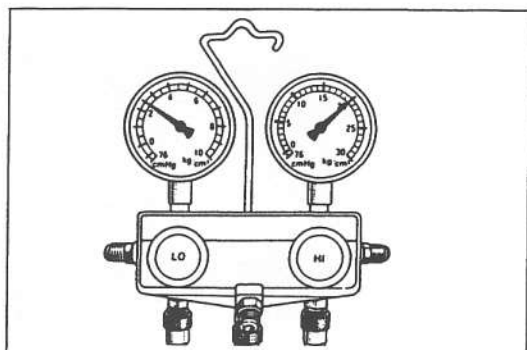
**Note**

- Moisture in the refrigerant system, freezing the expansion valve and obstructing the circulation of the refrigerant.
- When the ice melts, the refrigerant pressure will indicate an approximately normal pressure, so a pressure check should be carefully made.

Evacuate refrigerant system (Refer to page U-33)

Charge with refrigerant (Refer to page U-33)

Check pressures  
If same problem occurs, replace receive/drier



01G0UX-029

Flowchart No.	Pressure
	High-pressure side: 1,864—1,962 kPa (19—20 kg/cm <sup>2</sup> , 270—284 psi) Low-pressure side: Approx. 245 kPa (2.5 kg/cm <sup>2</sup> , 35.6 psi) Cause..... Malfunction of the expansion valve or improper installation of capillary tube
15—f	

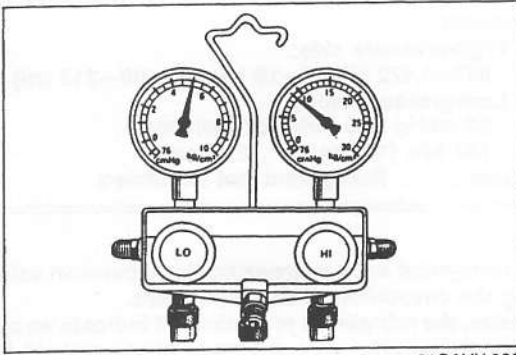
Verify installation of capillary tube (Refer to page U-38)

NG

Reinstall capillary tube (Refer to page U-38)

OK

Replace expansion valve (Refer to page U-37)



01G0UX-030

Flowchart No.	Pressure
	High-pressure side: 687—981 kPa (7—10 kg/cm <sup>2</sup> , 100—142 psi) Low-pressure side: 392—589 kPa (4—6 kg/cm <sup>2</sup> , 57—85 psi) Cause..... Incorrect compressor operation
15—g	

1. Start engine
2. Switch ON blower switch
3. Switch ON A/C switch
4. Verify that magnetic clutch activated

NG

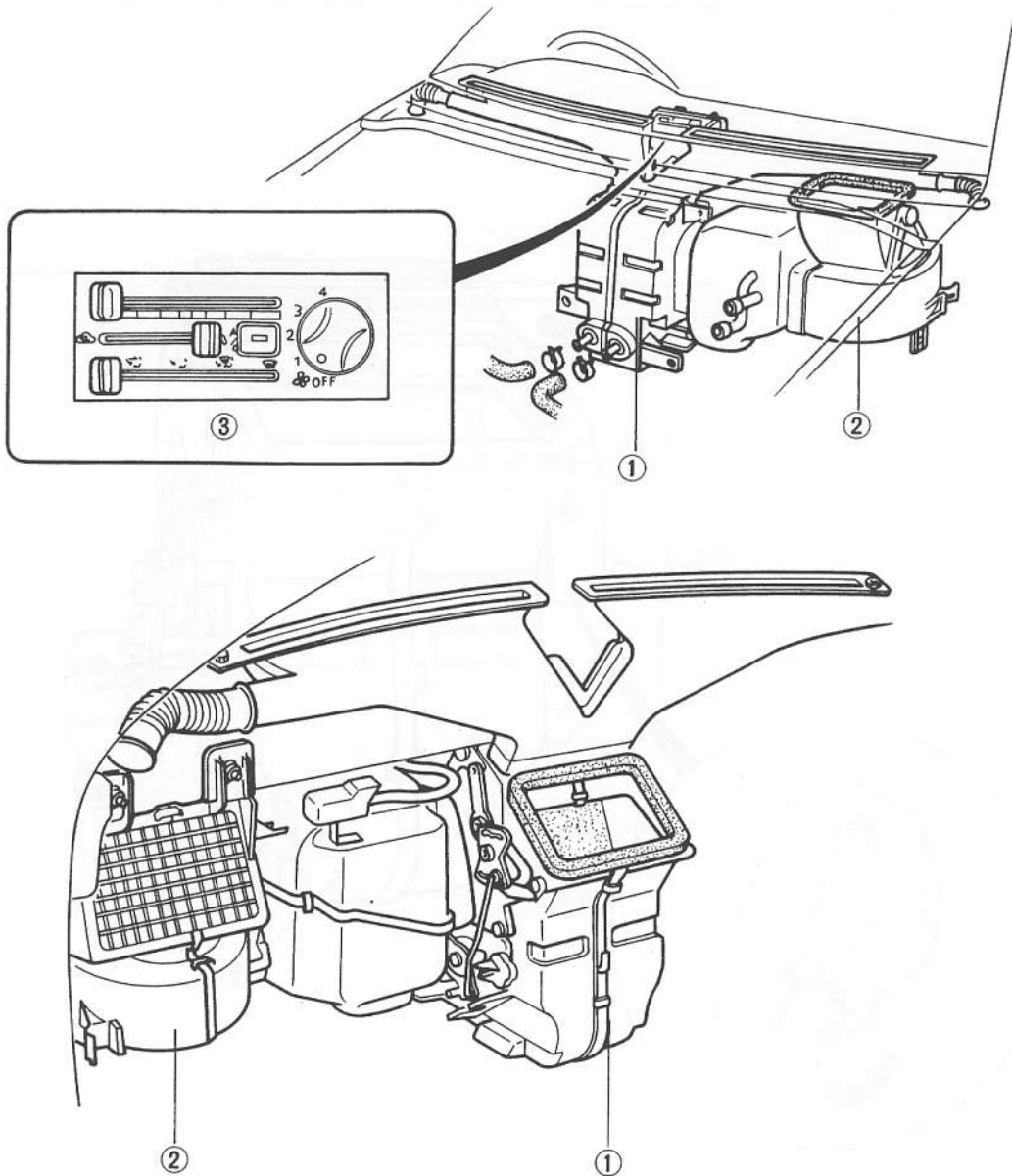
Malfunction of magnetic clutch  
• Check as described in Flowchart No.13

OK

Malfunction of compressor  
• Replace compressor (Refer to page U-47)

## HEATER

### STRUCTURAL VIEW

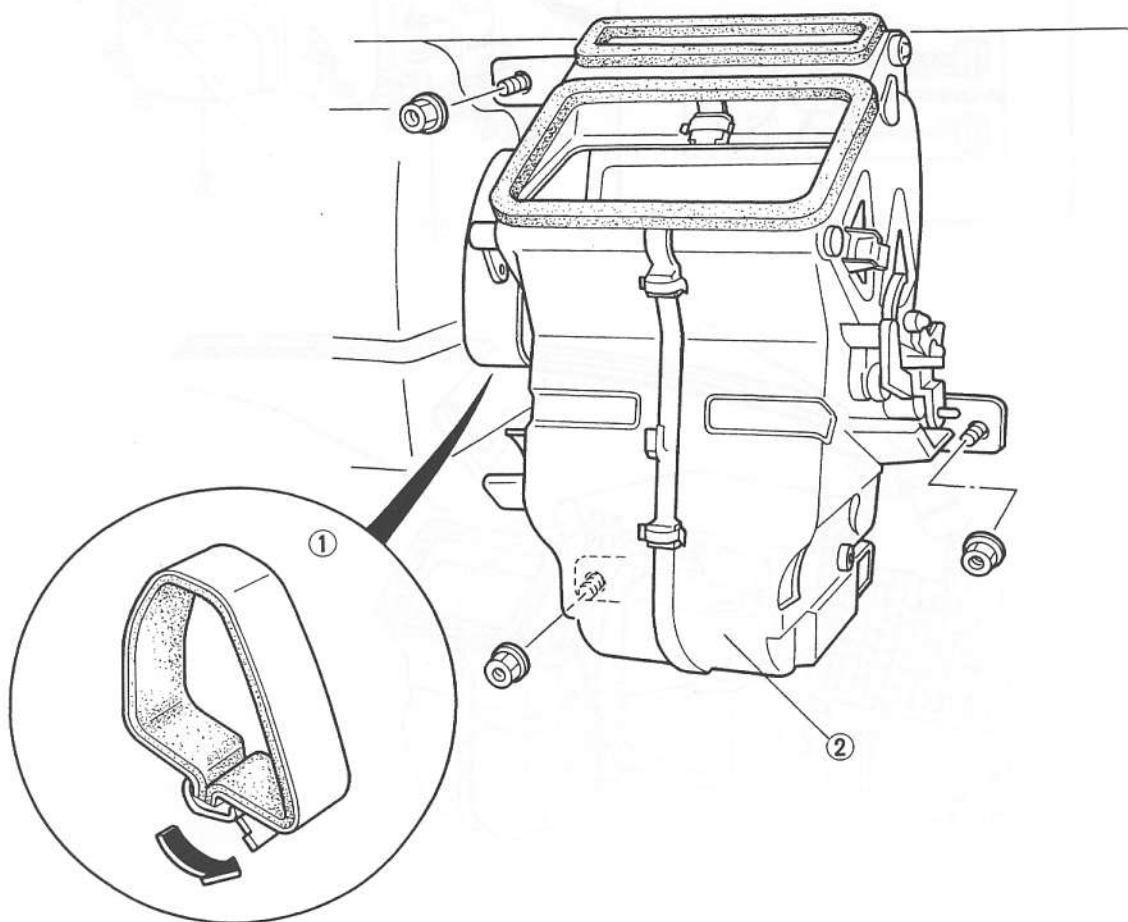


01G0UX-031

1. Heater unit	3. Heater control unit
Removal / Installation..... page U-22	Removal / Installation..... page U-27
Disassembly / Assembly..... page U-23	Disassembly / Assembly..... page U-28
2. Blower unit	Inspection..... page U-29
Removal / Installation..... page U-24	Adjustment ..... page U-29
Disassembly / Assembly..... page U-25	
Inspection..... page U-26	

**HEATER UNIT****Removal / Installation**

1. Drain the engine coolant.
2. Remove the dashboard. (Refer to Section S.)
3. Remove as shown in the figure.
4. Install in the reverse order of removal.
5. Adjust the Mix and Mode wires. (Refer to page U-29.)



01A0UX-010

**Note**

- Release the clamp, and remove the seal plate together with the heater unit.

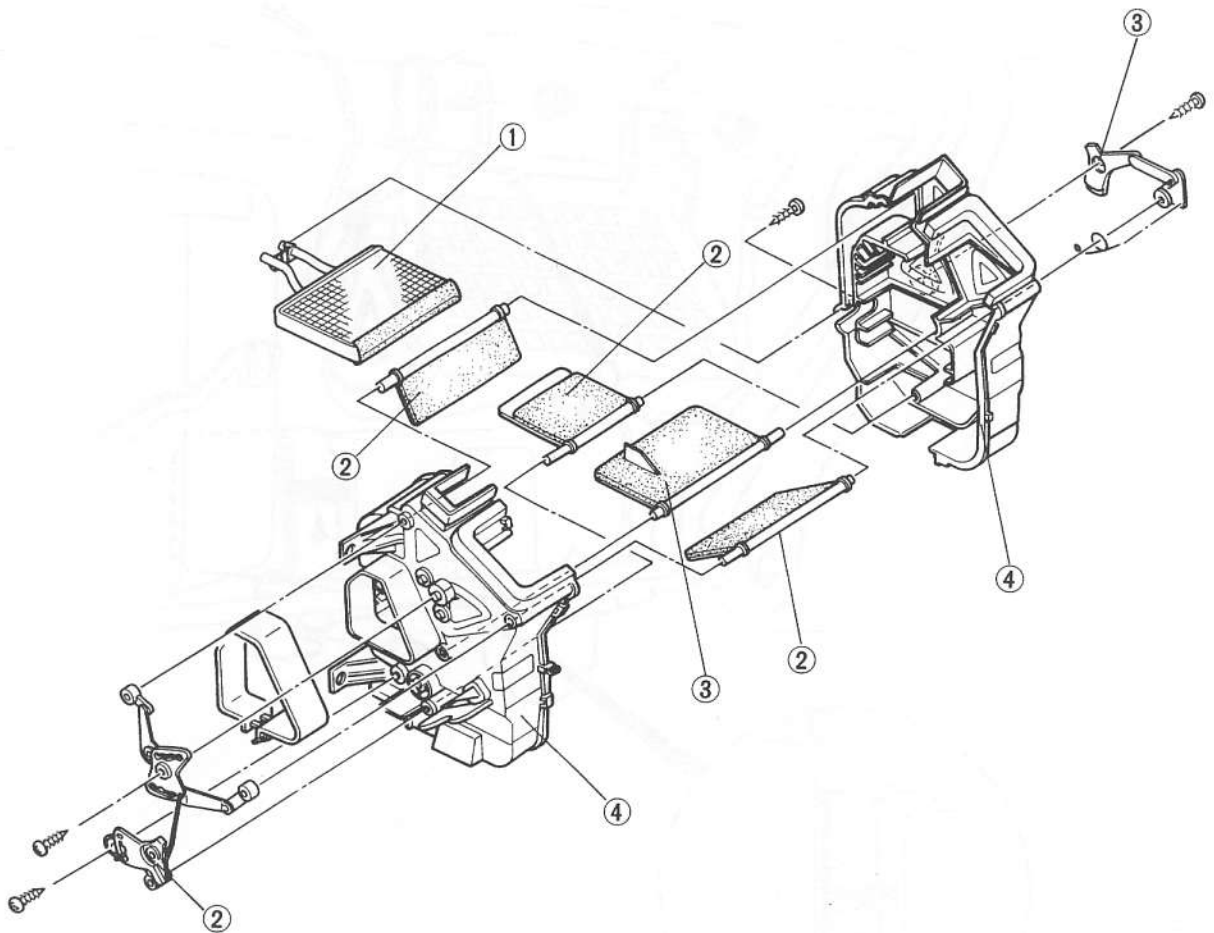
1. Seal plate

2. Heater unit



## Disassembly / Assembly

1. Disassemble in the order shown in the figure.
2. Check for the following and repair or replace the heater core as necessary.
  - ① Cracks, damage, and water leakage.
  - ② Bent fins.
  - ③ Distorted and bent inlet.
3. Assemble in the reverse order of disassembly.



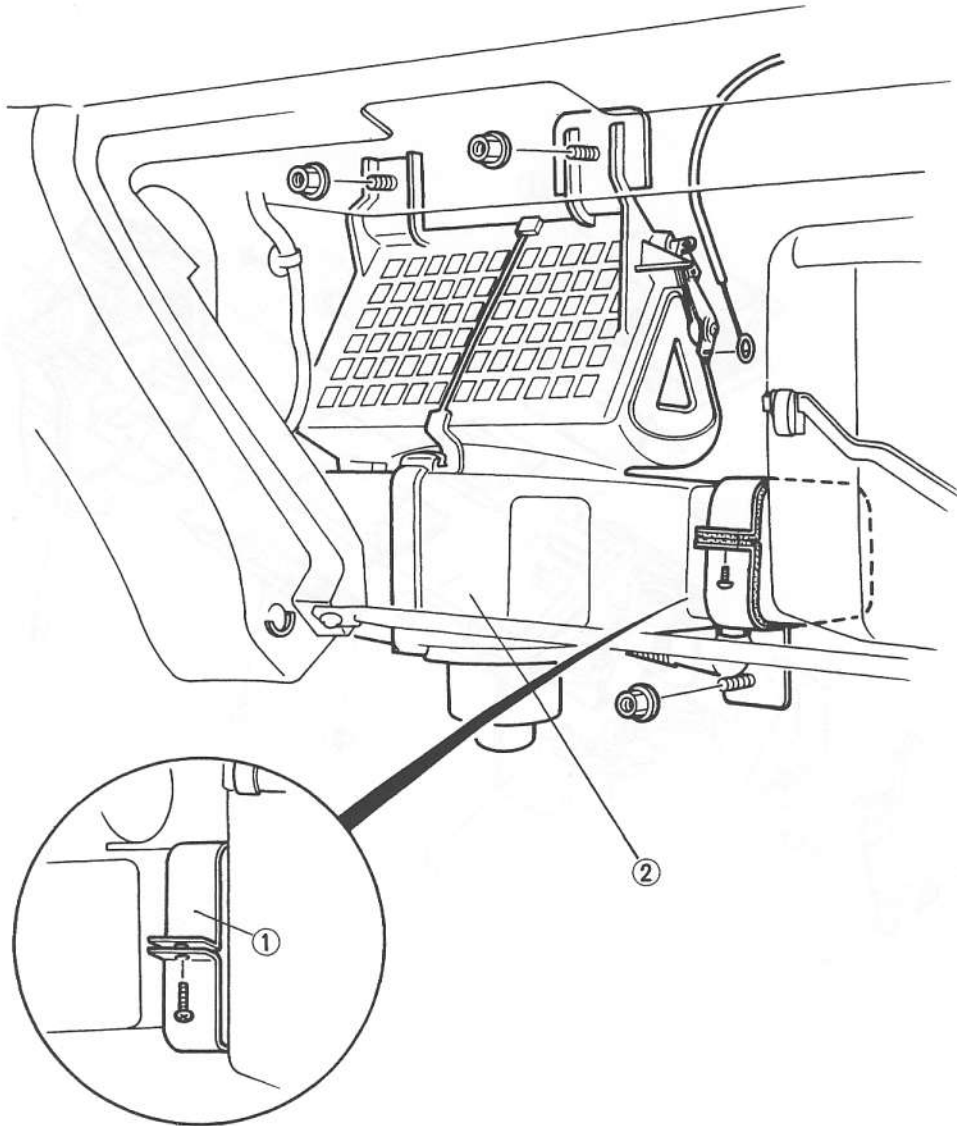
03U0UX-040

1. Heater core
2. Mode door assembly

3. Mix door assembly
4. Heater unit case

**BLOWER UNIT****Removal / Installation**

1. Remove the glove box. (Refer to Section S.)
2. Remove as shown in the figure.
3. Install in the reverse order of removal.
4. Adjust the Rec-Fresh wire. (Refer to page U-29.)



01G0UX-033

**Note**

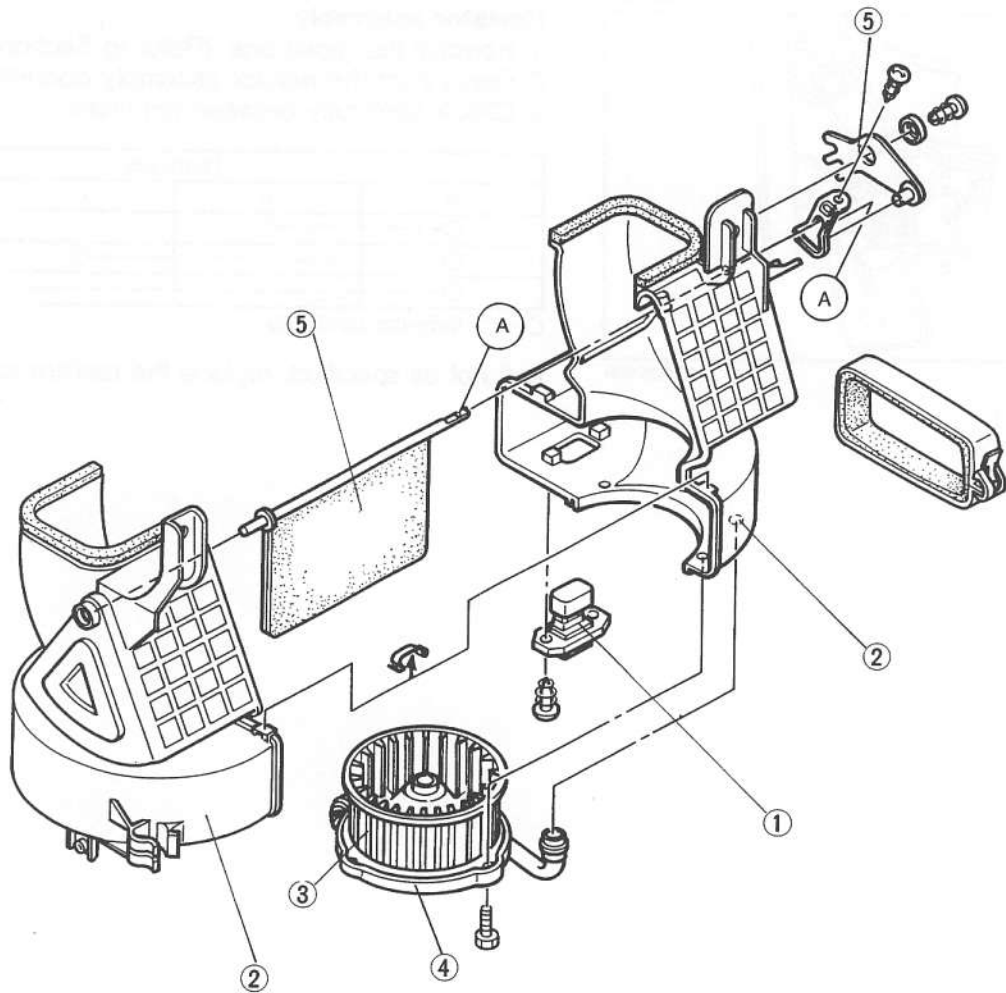
- Remove the screw, and remove the seal plate together with the blower unit.

1. Seal plate

2. Blower unit case

## Disassembly / Assembly

Disassemble and assemble the blower unit as shown in the figure.

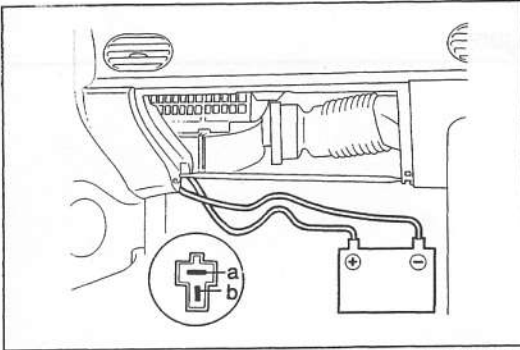


01G0UX-034

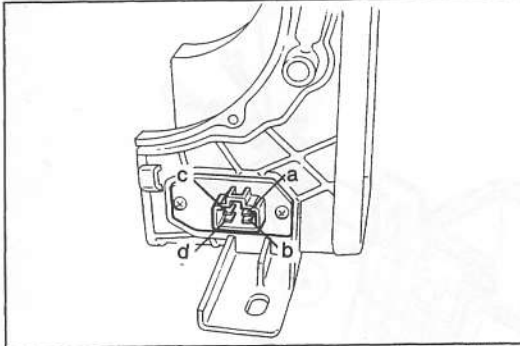
1. Resistor assembly  
Inspection ..... page U-26
2. Blower unit case

3. Blower fan
4. Blower motor  
Inspection ..... page U-26

5. Rec-Fresh door assembly



01G0UX-035



01G0UX-036

**Inspection****Blower motor**

1. Remove the glove box. (Refer to Section S.)
2. Disconnect the blower motor connectors.
3. Verify that the blower motor runs when connecting battery voltage to terminal a and grounding terminal b.
4. If not as specified, replace the blower motor.

**Resistor assembly**

1. Remove the glove box. (Refer to Section S.)
2. Disconnect the resistor assembly connectors.
3. Check continuity between terminals.

Terminals			
a	b	c	d
○	○		
○		○	
○			○

○—○: Indicates continuity

4. If not as specified, replace the resistor assembly.

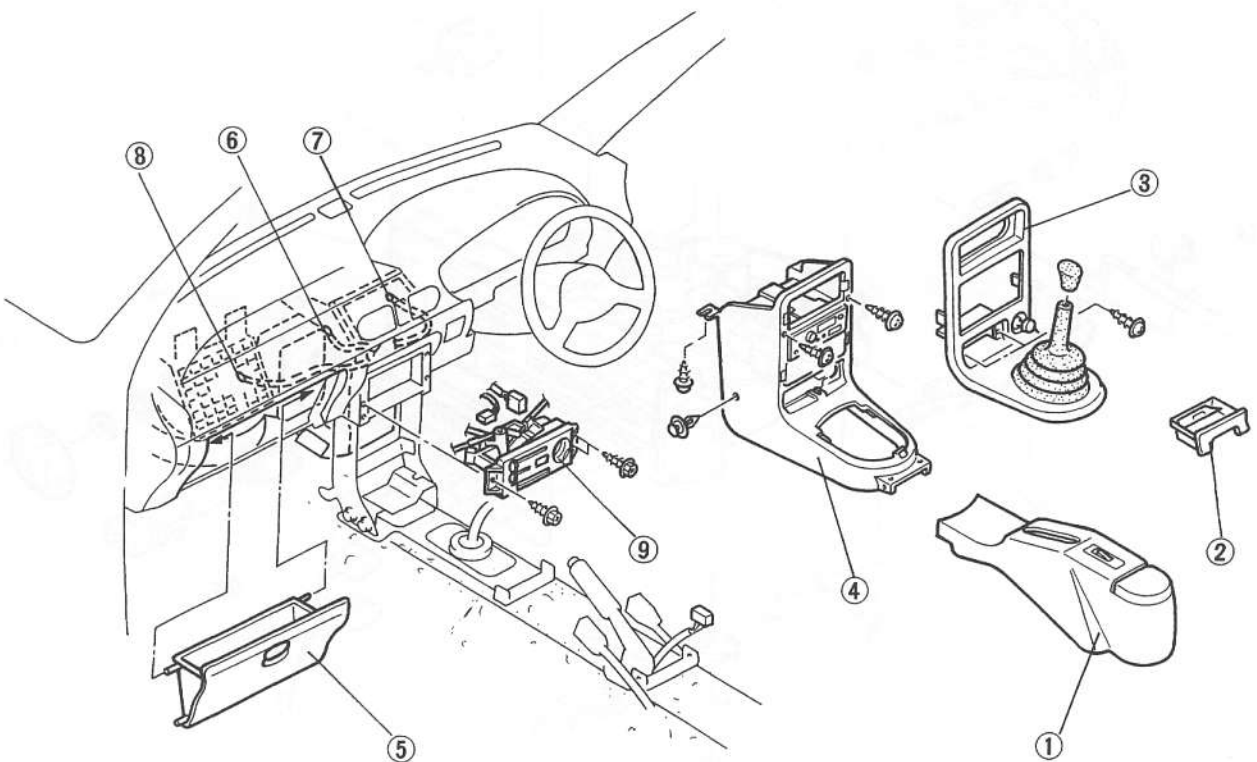
## HEATER CONTROL UNIT

### Removal / Installation

1. Disconnect the negative battery cable.
2. Remove in the order shown in the figure.
3. Install in the reverse order of removal.

#### Note

- After installing the Mix, Mode, and Rec-Fresh wires, adjust each wires. (Refer to page U-29.)



01A0UX-011

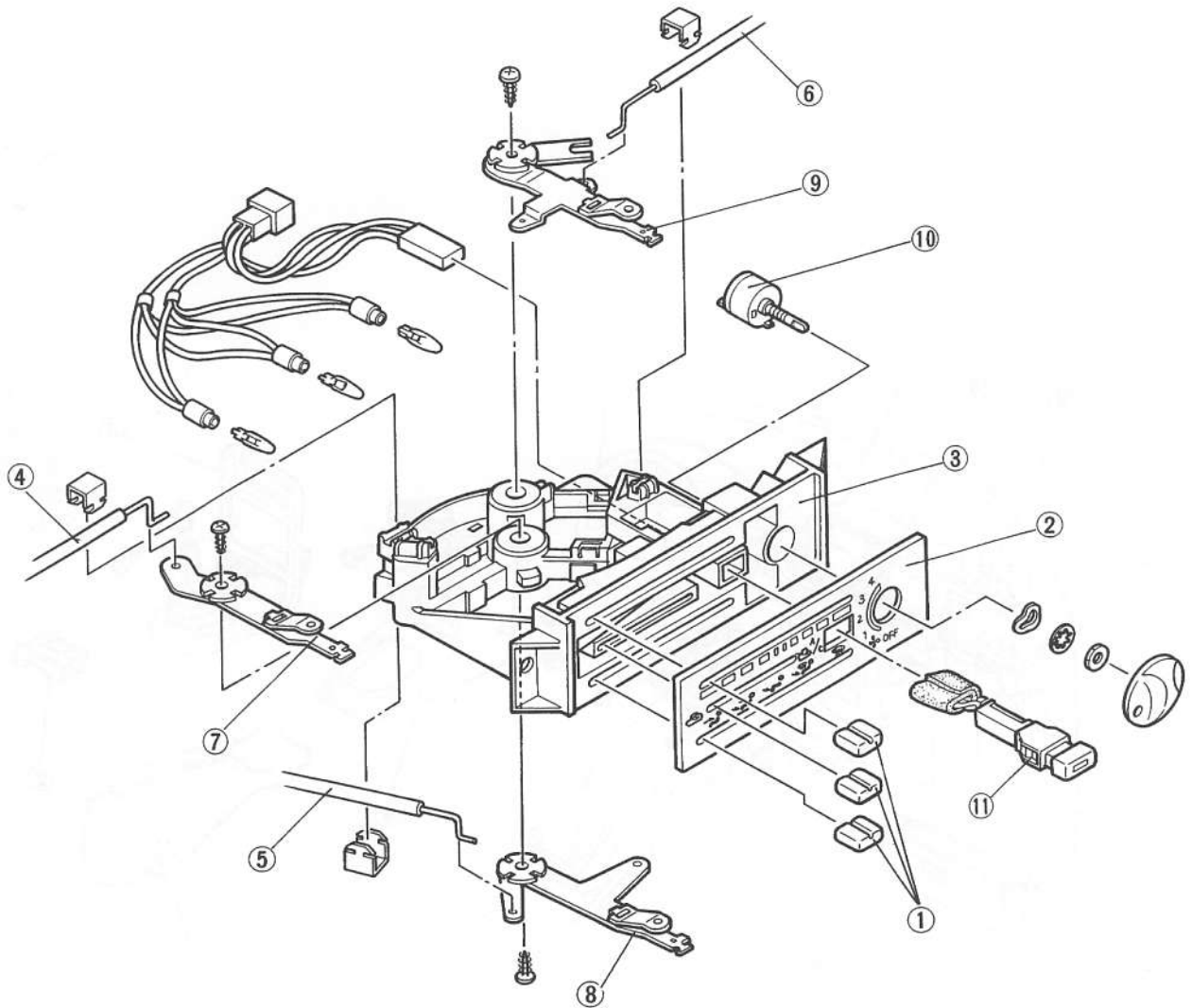
1. Rear consol
2. Asytray
3. Center panel

4. Front consol
5. Glove box
6. Mode wire

7. Mix wire
8. Rec-Fresh wire
9. Heater control assembly

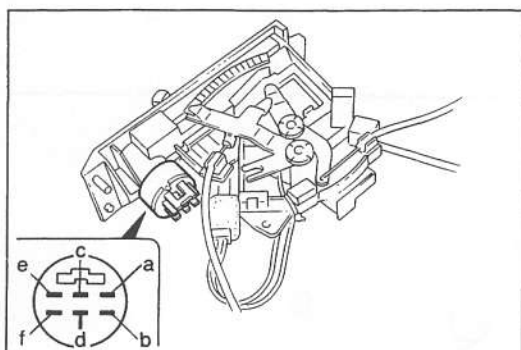
### Disassembly / Assembly

Disassemble and assemble the heater control unit as shown in the figure.



01G0UX-038

- |                           |                           |                            |
|---------------------------|---------------------------|----------------------------|
| 1. Knob                   | 5. Mode wire              | 8. Mode lever              |
| 2. Switch panel           | Adjustment..... page U-29 | 9. Mix lever               |
| 3. Switch body            | 6. Mix wire               | 10. Blower switch          |
| 4. Rec-Fresh wire         | Adjustment..... page U-29 | Inspection ..... page U-29 |
| Adjustment..... page U-29 | 7. Rec-Fresh lever        | 11. A/C switch             |



01G0UX-039

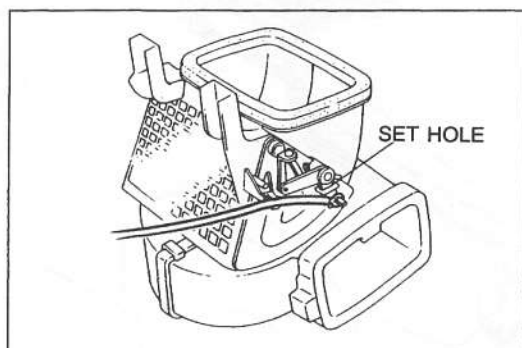
## Inspection Blower switch

1. Check continuity between terminals of the blower switch.

Switch	Terminal					
	a	b	c	d	e	f
OFF						
1	○	○	○			
2	○	○			○	
3	○	○				○
4	○	○		○		

○—○: Indicates continuity

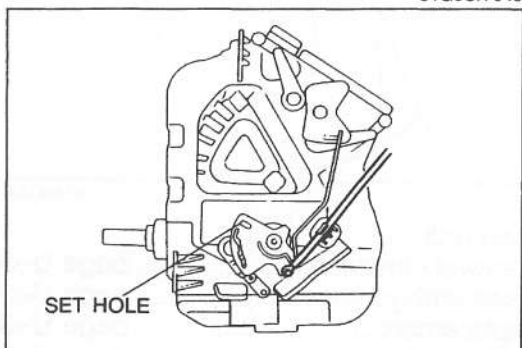
2. If not as specified, replace the blower switch.



01G0UX-040

## Adjustment Rec-fresh wire

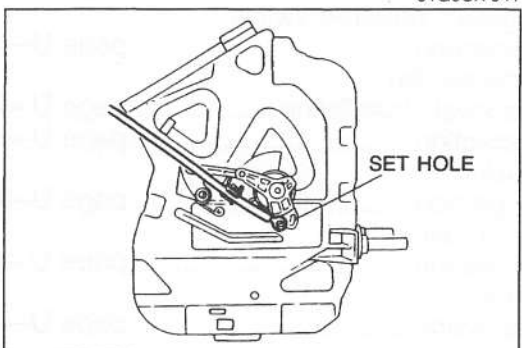
1. Set the Rec-Fresh lever to FRESH position.
2. Connect the Rec-Fresh wire to the Rec-Fresh door.
3. Insert a 0.6mm (0.24 in) diameter screw driver into set hole and clamp the wire into place.
4. Verify that the Rec-Fresh lever moves its full stroke.



01G0UX-041

## Mode wire

1. Set the Mode lever to VENT position.
2. Connect the Mode wire to the Mode door.
3. Insert a 0.6mm (0.24 in) diameter screw driver into set hole and clamp the wire into place.
4. Verify that the Mode lever moves its full stroke.



01G0UX-042

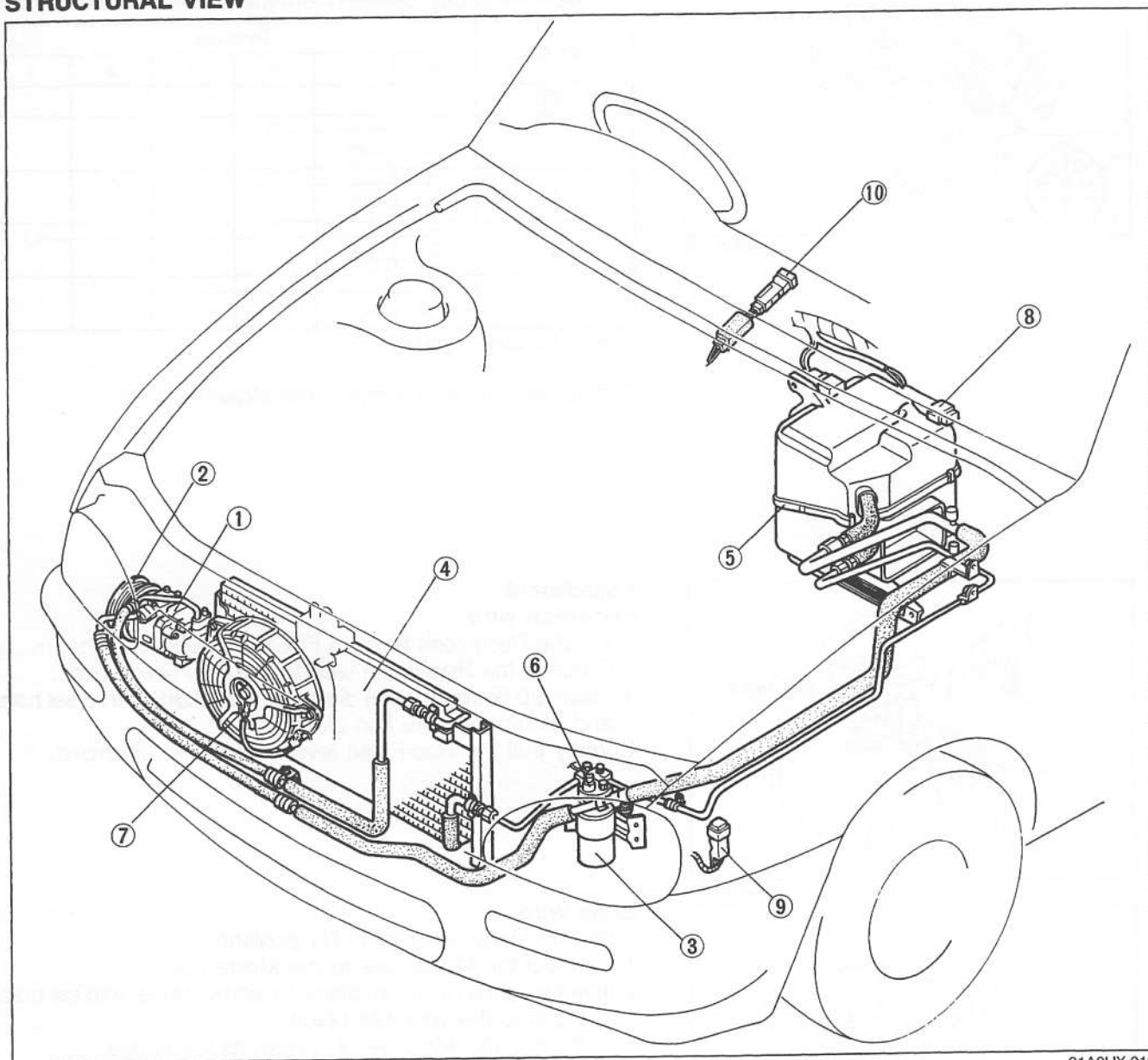
## Mix wire

1. Set the Mix lever to HOT position.
2. Connect the Mix wire to the Mix door.
3. Insert a 0.6mm (0.24 in) diameter screw driver into set hole and clamp the wire into place.
4. Verify that the Mix lever moves its full stroke.



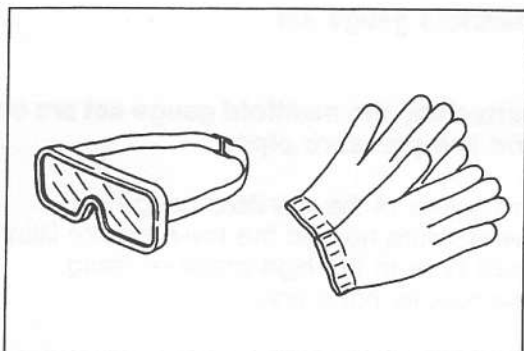
## AIR CONDITIONER

## STRUCTURAL VIEW



01A0UX-019

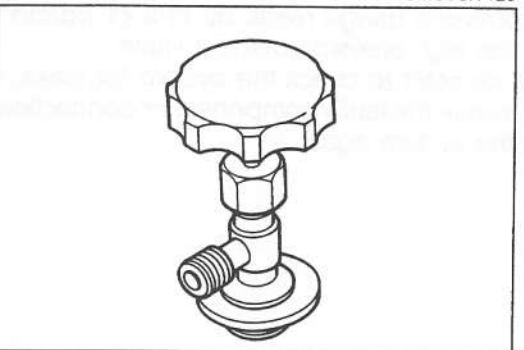
- |                             |           |                                |           |
|-----------------------------|-----------|--------------------------------|-----------|
| 1. Compressor               |           | 5. Cooling unit                |           |
| Removal / Installation..... | page U-47 | Removal / Installation.....    | page U-36 |
| Disassembly / Assembly..... | page U-49 | Disassembly / Assembly.....    | page U-37 |
| Adjustment.....             | page U-46 | Replacement.....               | page U-37 |
| 2. Magnetic clutch          |           | Inspection.....                | page U-38 |
| Disassembly / Assembly..... | page U-46 | 6. Refrigerant pressure switch |           |
| Inspection.....             | page U-46 | Inspection.....                | page U-43 |
| Adjustment.....             | page U-46 | 7. Condenser fan               |           |
| 3. Receiver/Drier           |           | Removal / Installation.....    | page U-43 |
| Removal / Installation..... | page U-42 | Inspection.....                | page U-43 |
| 4. Condenser                |           | 8. A/C relay                   |           |
| Removal / Installation..... | page U-41 | Inspection.....                | page U-39 |
| Inspection.....             | page U-41 | 9. A/C sub relay               |           |
|                             |           | Inspection.....                | page U-39 |
|                             |           | 10. A/C switch                 |           |
|                             |           | Inspection.....                | page U-40 |



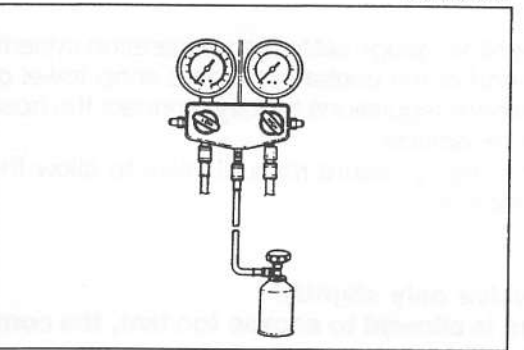
93G0UX-035



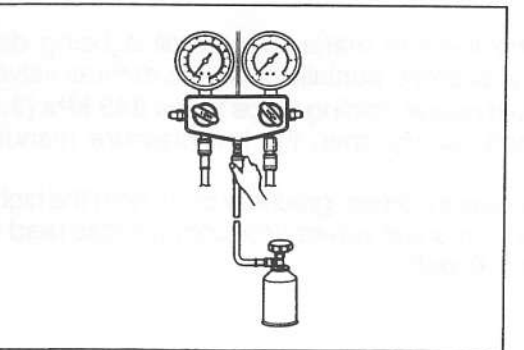
9MU0UX-126



03U0UX-114



9MU0UX-128



01G0UX-044

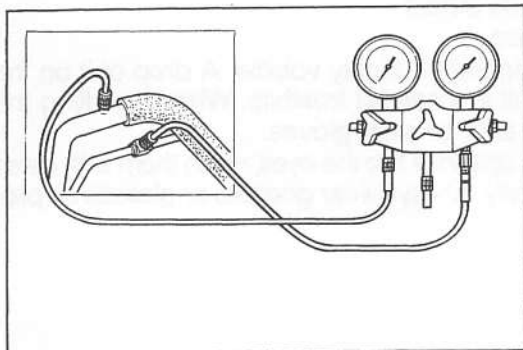
## REFRIGERANT SYSTEM

### Safety Precaution

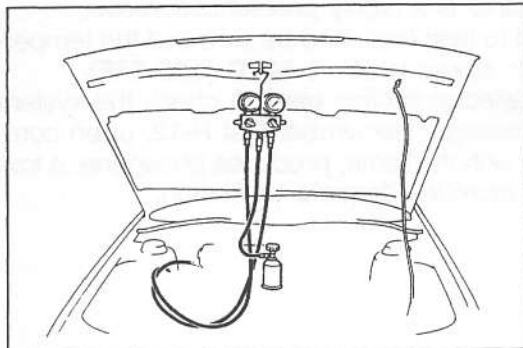
1. R-12 liquid refrigerant is highly volatile. A drop of it on the skin could result in localized frostbite. When handling the refrigerant, be sure to wear gloves.
2. If the refrigerant splashes into the eyes, wash them with clean water immediately. Always wear goggles or glasses as protection.
3. The R-12 container is a highly pressurized vessel. Never subject it to high heat, and be sure that the temperature where it is stored is below **52°C (125.6°F)**.
4. A halide leak detector is often used to check the system for refrigerant leakage. Remember that R-12, upon coming into contact with the flame, produces phosgene, a toxic gas. Always provide adequate ventilation.

### Refrigerant System Service Basics Refrigerant container service valve

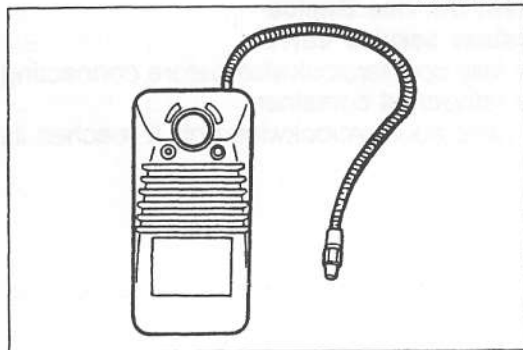
1. Turn the handle fully counterclockwise before connecting the valve to the refrigerant container.
2. Turn the outlet valve counterclockwise until it reaches its highest position.
3. Turn the outlet valve fully clockwise by hand. Connect the center hose to the valve fitting.
4. Turn the handle clockwise to puncture the sealed can.
5. Turn the handle fully counterclockwise to fill the center hose. Do not open the high- or low-pressure manual valves.
6. Loosen the hose nut connected to the center fitting of the manifold gauge. Allow air to escape then retighten the nut.



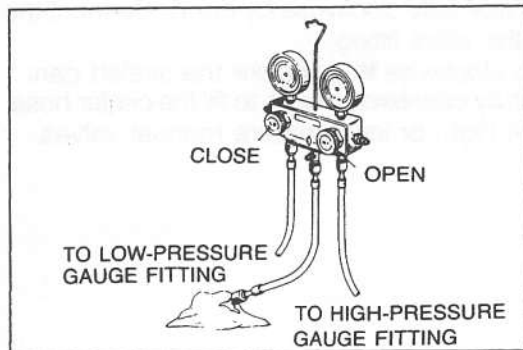
93G0UX-036



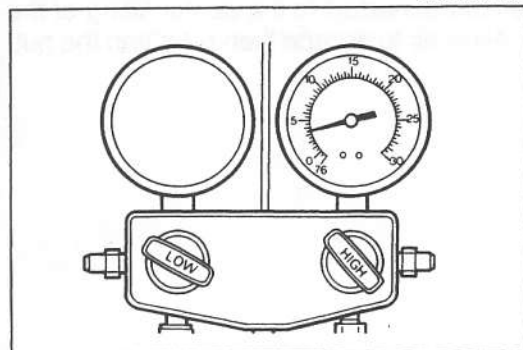
01G0UX-045



9MU0UX-253



93G0UX-087



96U16X-091

## Installation of manifold gauge set

### Note

- Fittings for attaching the manifold gauge set are on the high- and low-pressure pipes.

1. Close both hand valves of the manifold gauge set.
2. Connect the low-pressure hose to the low-pressure fitting and high-pressure hose to the high-pressure fitting.
3. Tighten the hose nuts by hand only.

### Leak test

After evacuating the system (refer to page U-33), check for leaks.

1. Connect a full refrigerant container to the service valve.
2. Open the high-pressure manual valve to charge the system with refrigerant gas.

3. When the low-pressure gauge reads **98 kPa (1 kg/cm<sup>2</sup>, 14 psi)**, close the high-pressure manual valve.
4. Use a gas leak detector to check the system for leaks. If a leak is found, repair the faulty component or connection; then evacuate the system again.

### Discharging

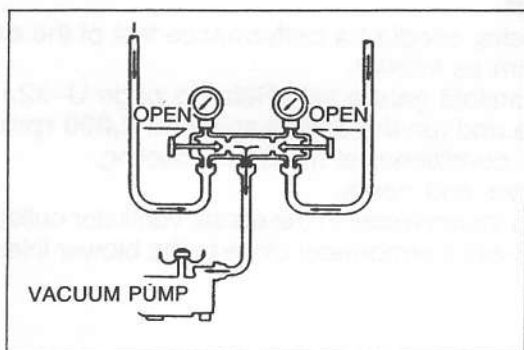
1. Connect the manifold gauge set to the refrigeration system.
2. Place the free end of the center hose on a shop towel or (preferably or where regulations specify) connect the hose to a freon gas receptacle.
3. Slowly open the high-pressure manual valve to allow the refrigerant to escape.

### Caution

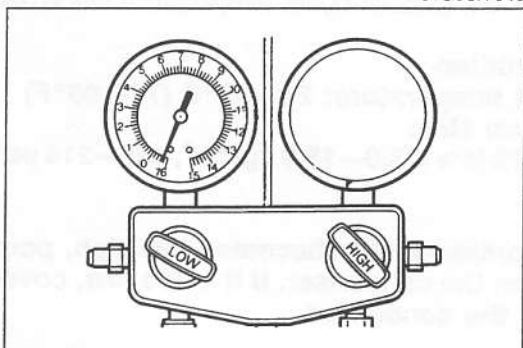
- Open the valve only slightly.

**If refrigerant is allowed to escape too fast, the compressor oil will be drawn out of the system.**

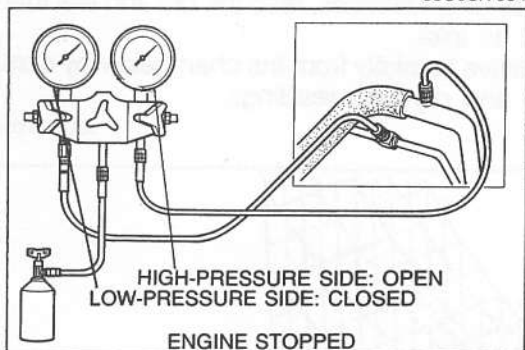
4. Check the shop towel to make sure no oil is being discharged. If oil is present, partially close the manual valve.
5. After the manifold gauge reading drops below **343 kPa (3.5 kg/cm<sup>2</sup>, 50 psi)**, slowly open the low-pressure manual valve.
6. As the system pressure drops, gradually open both the high- and low-pressure manual valves until both gauges read **0 kPa (0 kg/cm<sup>2</sup>, 0 psi)**.



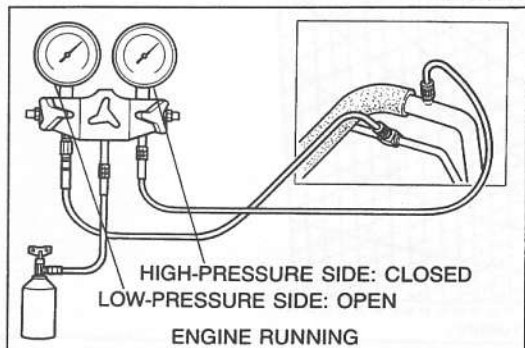
01G0UX-046



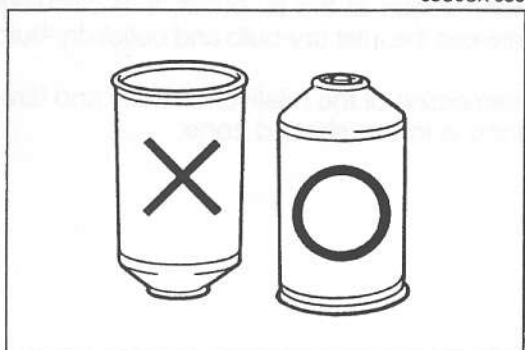
03U0UX-054



01G0UX-047



03U0UX-056



01A0UX-012

## Evacuation

Whenever the refrigeration system has been exposed to the atmosphere, it must be purged of moisture and air.

1. Connect the manifold gauge set. (Refer to page U-32.)
2. Connect the center hose of the gauge set to the vacuum pump inlet.
3. Start the vacuum pump and open both manual valves.

4. When the low-pressure gauge indicates approximately **760 mmHg (29.9 inHg)**, close both manual valves and stop the vacuum pump.
5. Verify that the pressure remains the same for **5 minutes** or more. If the pressure changes, check the system for leaks, and repair as necessary.
6. If no leaks are found, close both manual valves and stop the vacuum pump.
7. Disconnect the hose from the vacuum pump.

## Charging

1. Discharge the refrigeration system.
2. Connect the refrigerant container to the center hose of the manifold gauge set.
3. Open the high-pressure side manual valve to charge the system with the specified amount of refrigerant gas.

### First charge

**Refrigerant amount: 500 g (17.65 oz)**

4. Close the high-pressure side manual valve of the manifold gauge set.
5. Start the engine and operate the compressor.

### Caution

- **Be sure to keep the container in the upright position to prevent liquid refrigerant from being charged into the system through the suction side, possibly damaging the compressor.**
- **Never open the high-pressure side manual valve while charging the system with the A/C ON. Doing so may cause the refrigerant can to explode.**
- **While charging, it is not abnormal that a chattering sound will be heard.**

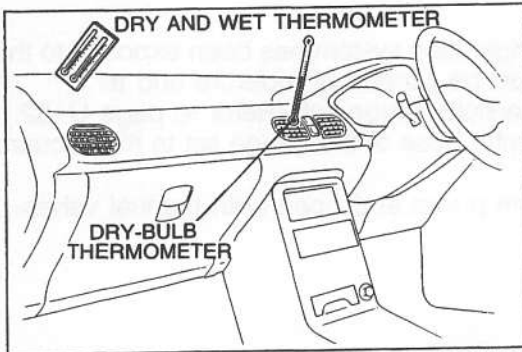
6. Open the low-pressure side manual valve of the manifold gauge.
7. Charge the system with the specified amount of refrigerant.

### Second charge

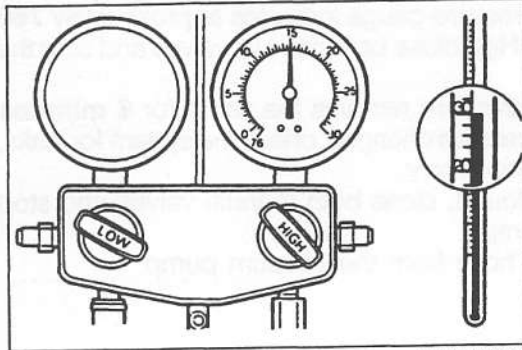
**Refrigerant amount : 200 g (7.06 oz)**

**Total refrigerant amount: 700 g (24.71 oz)**

8. Close the low-pressure side manual valve and the service valve of the refrigerant container.
9. Stop the engine.
10. Remove the manifold gauge set.



01G0UX-049



93G0UX-041

### Performance test

After finishing repairs, conduct a performance test of the air conditioning system as follows.

1. Connect the manifold gauge set. (Refer to page U-32.)
2. Start the engine and run the engine speed at **2,000 rpm**.
3. Operate the air conditioner at maximum cooling.
4. Open all windows and doors.
5. Place a dry-bulb thermometer in the center ventilator outlet.
6. Place a dry-and-wet thermometer close to the blower inlet.

7. Wait until the air conditioner outlet temperature stabilizes.

### Stabilized condition

**Blower inlet temperature: 25—35°C (77—95°F)**

**High-pressure side:**

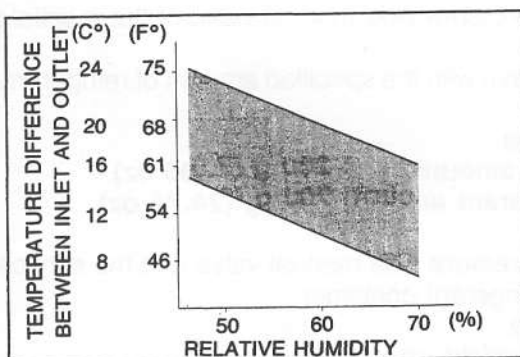
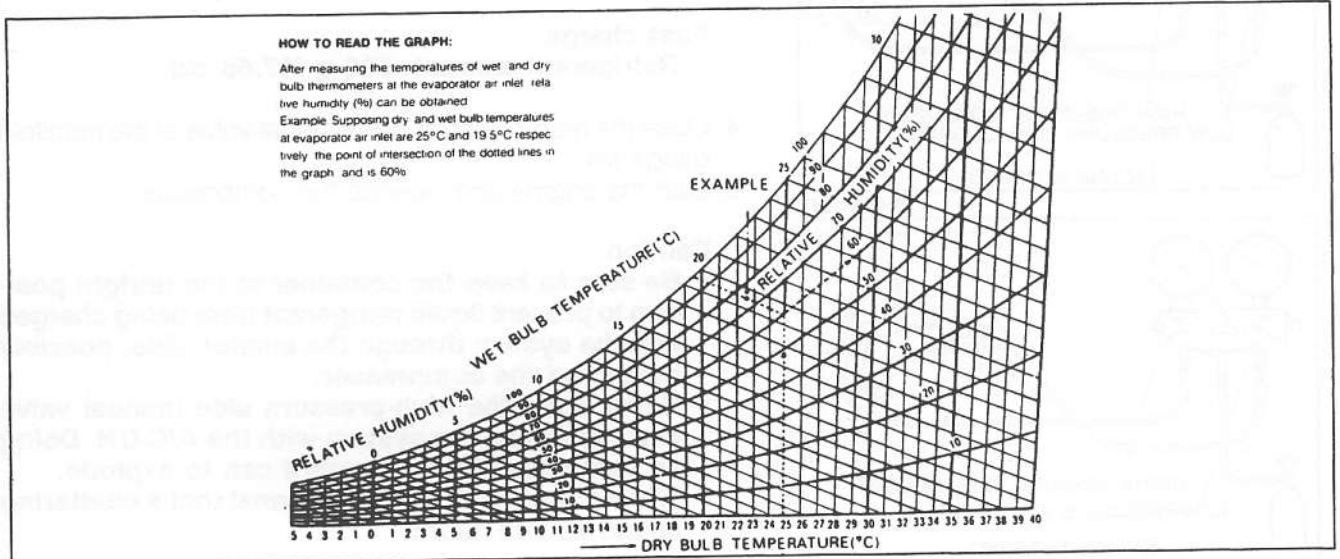
**1,275—1,472 kPa (13.0—15.0 kg/cm<sup>2</sup>, 185—214 psi)**

### Note

- If the high-pressure side becomes too high, pour cool water on the condenser. If it is too low, cover the front of the condenser.

8. After the air conditioner stabilizes, read the dry and wet thermometer at the air inlet.
9. Calculate the relative humidity from the chart below by comparing the wet- and dry-bulb readings.

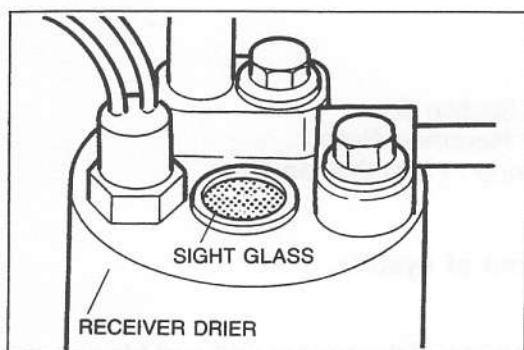
05U0UX-051



96U16X-103

10. Read the dry thermometer at the air outlet, and calculate the difference between the inlet dry-bulb and outlet dry-bulb temperatures.
11. Verify that the intersection of the relative humidity and temperature difference is in the shaded zone.





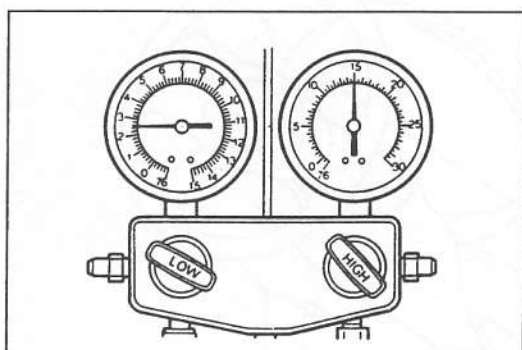
9MU0UX-139

## Checking refrigerant charge

1. Run the engine at a fast idle.
2. Operate the air conditioner at maximum cooling for a few minutes.
3. Determine the amount of refrigerant as shown below by observing the sight glass.

Item	Symptom	Amount of refrigerant	Action
1	Bubbles present in sight glass	Insufficient refrigerant	Check refrigerant pressure
2	No bubbles present in sight glass	Too much or proper amount of refrigerant	Turn air conditioner OFF, and watch bubbles (Refer to Items 3 and 4)
3	Immediately after air conditioner turned OFF, refrigerant in sight glass stays clear	Too much refrigerant	Check refrigerant pressure
4	When air conditioner turned OFF, refrigerant foams, and then sight glass becomes clear	Proper amount of refrigerant	Refrigerant amount normal

9MU0UX-140



01G0UX-050

## Checking refrigerant pressure

1. Connect the manifold gauge set. (Refer to page U-32.)
2. Operate the engine at 2,000 rpm and set the air conditioner to maximum cooling.
3. Measure the low- and high-pressure sides.

### Normal pressure

**Low-pressure side: 147—294 kPa  
(1.5—3.0 kg/cm<sup>2</sup>, 21—43 psi)**

**High-pressure side: 1,275—1,472 kPa  
(13.0—15.0 kg/cm<sup>2</sup>, 185—214 psi)**

**COOLING UNIT****Removal / Installation**

1. Discharge the refrigeration system. (Refer to page U-32.)
2. Remove the glove box and instrument panel stay. (Refer to Section S.)
3. Remove the cooling unit as shown in the figure, referring to **Removal Note**.
4. Install the cooling unit in the reverse order of removal, referring to **Installation Note**.

**Removal Note**

- Immediately plug all open fittings to keep moisture out of system.

**Installation Note**

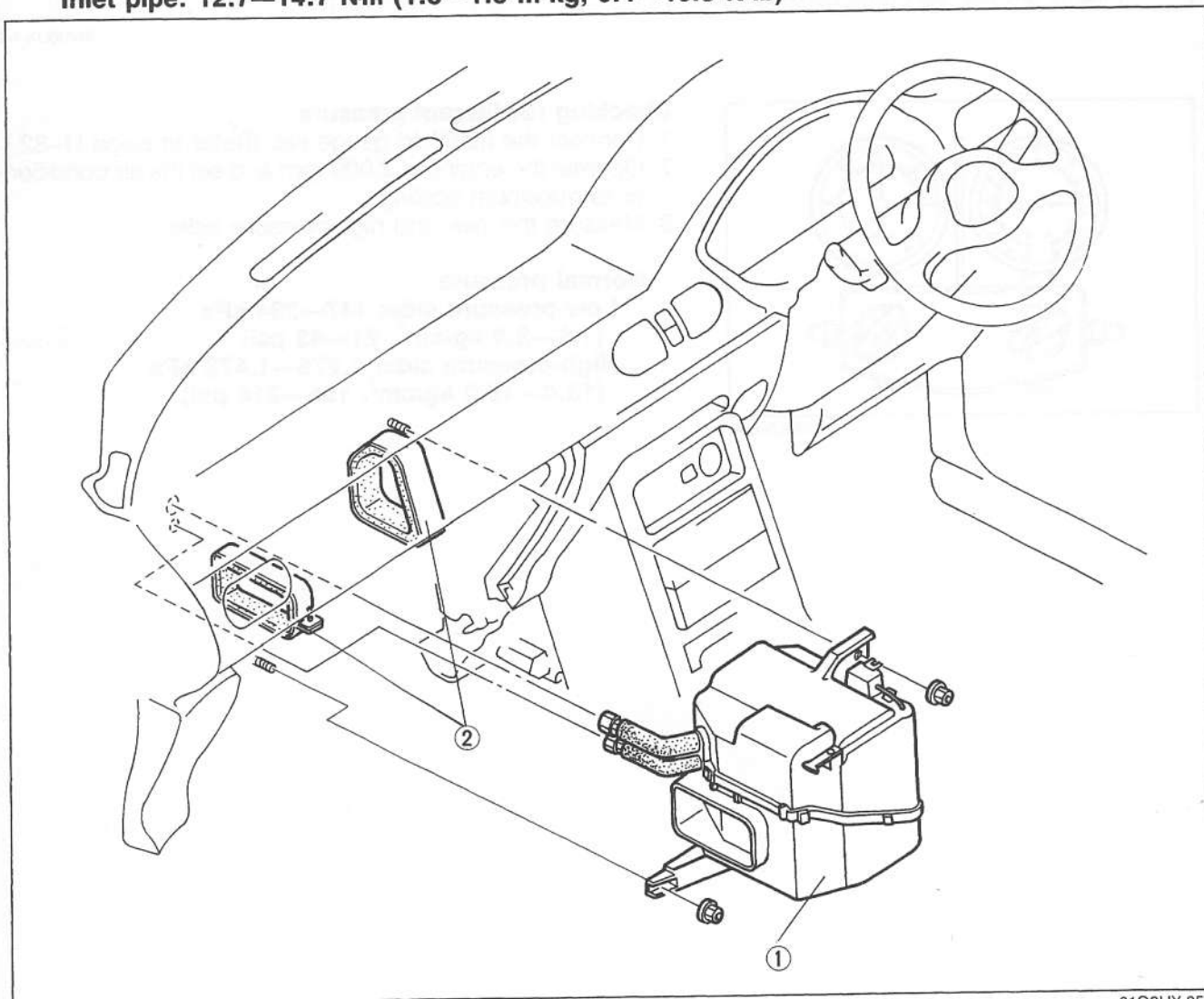
- Position the cooling unit so that its connections match those of the heater unit and blower unit.
- Apply clean compressor oil to the new O-rings before connecting the fittings.
- Do not apply compressor oil to the fitting nuts.
- When installing a new cooling unit, add compressor oil through the high-pressure pipe port of the compressor.

Compressor oil: 50 cc (3.05 cu in)

**Tightening torque**

Outlet pipe: 30.4—34.3 N·m (3.1—3.5 m·kg, 22.3—25.2 ft·lb)

Inlet pipe: 12.7—14.7 N·m (1.3—1.5 m·kg, 9.4—10.8 ft·lb)



1. Cooling unit  
Disassembly / Assembly..... page U-37

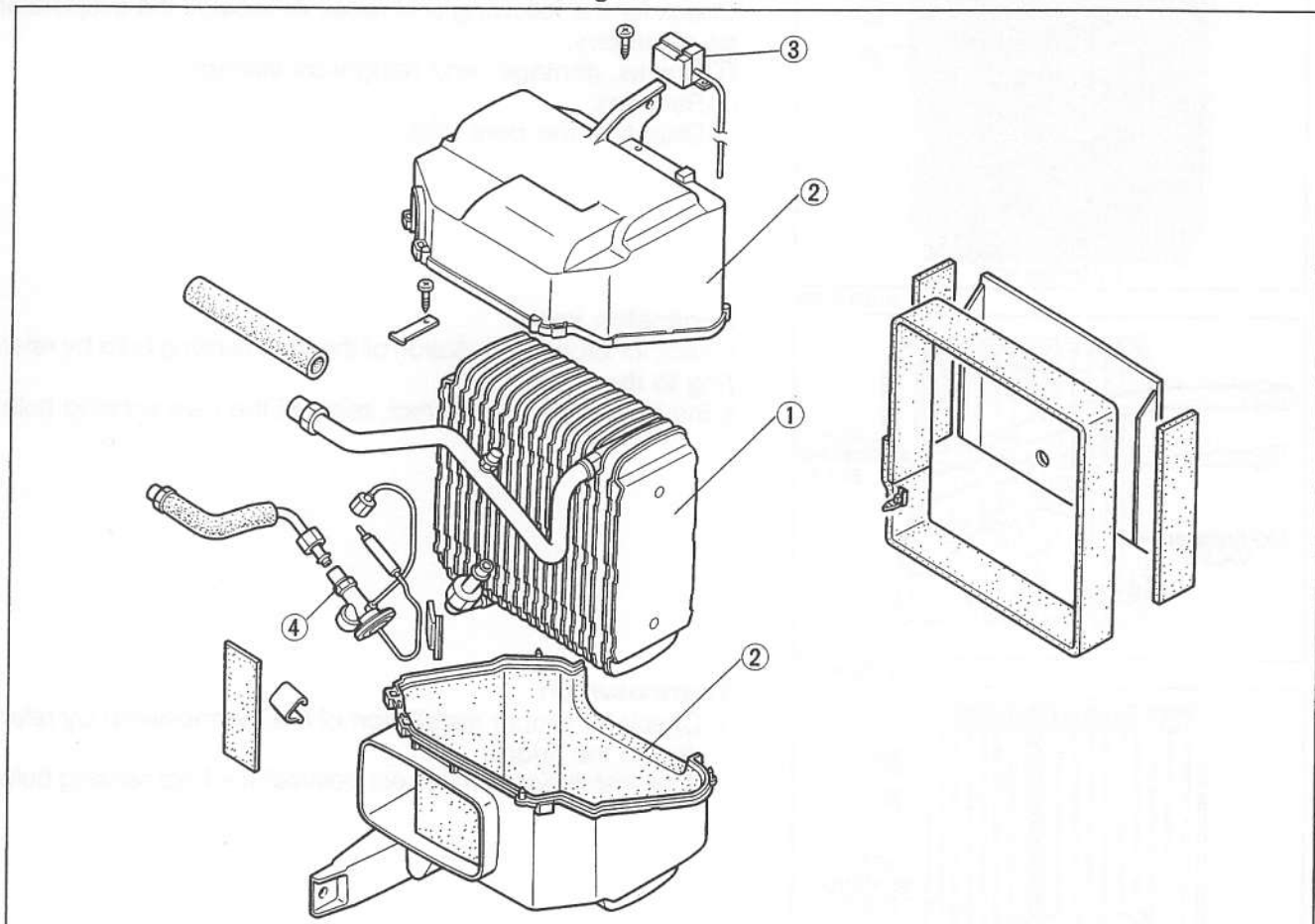
2. Seal plate

01G0UX-051



## Disassembly / Assembly

Disassemble and assemble as shown in the figure.

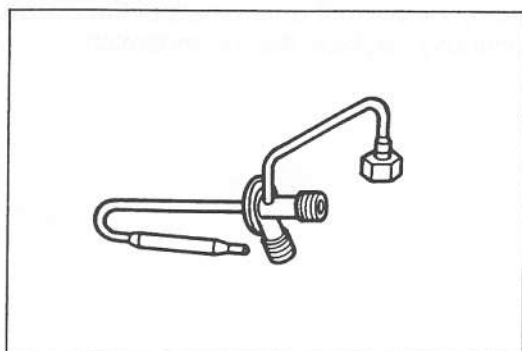


01G0UX-052

1. Evaporator  
2. Cooling unit case

3. Thermoswitch

4. Expansion valve



01G0UX-053

## Replacement Expansion valve

### Note

- Before replacement of the expansion valve, carefully check the refrigeration system, referring to the troubleshooting information on page U-16.

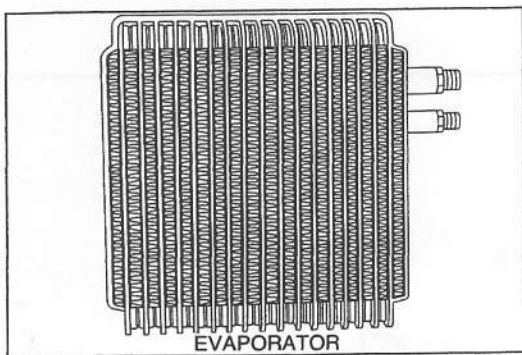
1. Remove the cooling unit. (Refer to page U-36.)
2. Disassemble the cooling unit. Remove the evaporator and expansion valve as an assembly.
3. Disconnect the inlet and outlet pipes.
4. Remove the capillary tube from the outlet pipe and remove the expansion valve.
5. Install in the reverse order of removal, noting the following.

### Note

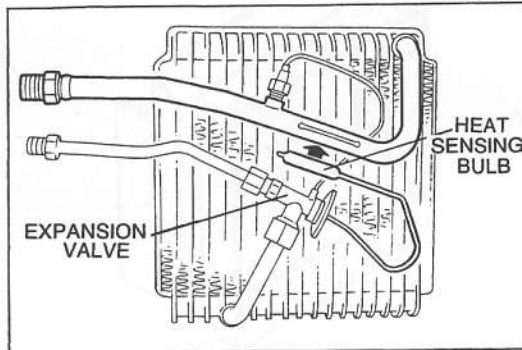
- Apply clean compressor oil to the O-rings before connecting the fittings.

### Tightening torque

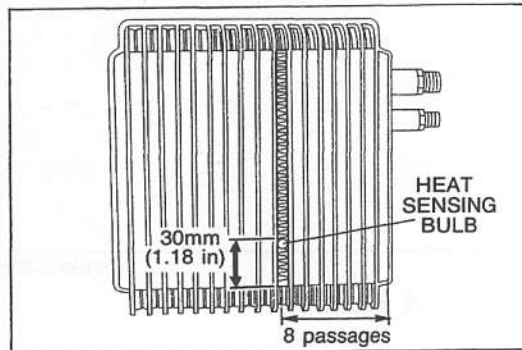
- Inlet pipe : 12—15 N·m (1.2—1.5 m·kg, 9—11 ft·lb)  
Outlet pipe: 22—25 N·m (2.2—2.6 m·kg, 16—19 ft·lb)



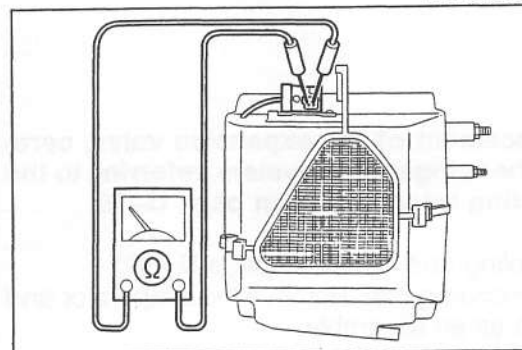
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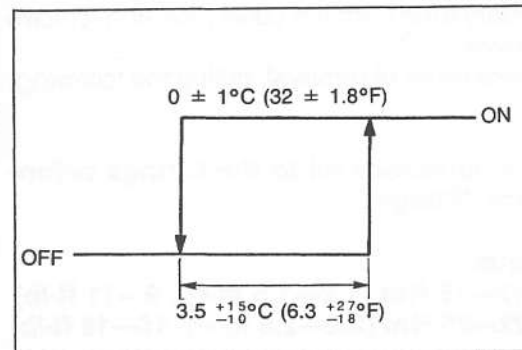
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01G0UX-056



01G0UX-057



01G0UX-058

### Inspection Evaporator

Check for the following and repair or replace the evaporator as necessary.

- ① Cracks, damage, and refrigerant leakage.
- ② Bent fins.
- ③ Distorted and bent inlet.

### Expansion valve

Check for proper installation of the heat sensing bulb by referring to the figure.

If the installation is incorrect, reinstall the heat sensing bulb.

### Thermoswitch

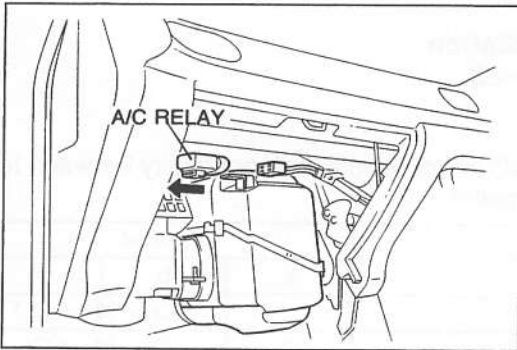
1. Check for proper installation of the thermoswitch by referring to the figure.

If the installation is incorrect, reinstall the heat sensing bulb.

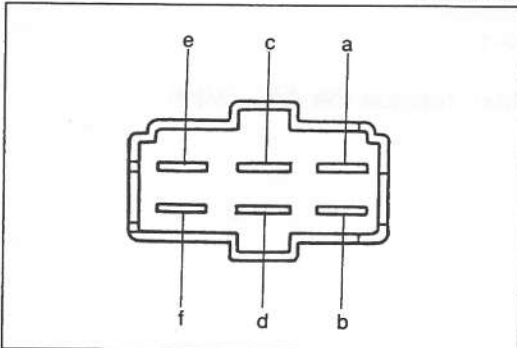
2. Check for continuity between the terminals of the switch. If there is no continuity, replace the thermoswitch.

### Note

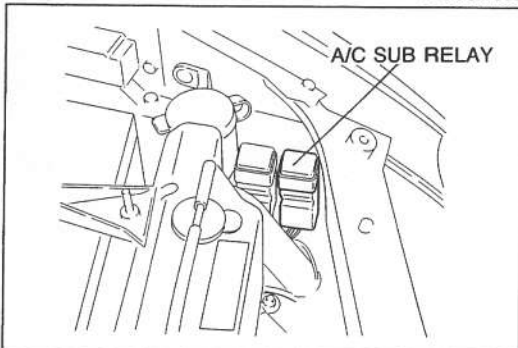
- The operation of the thermoswitch is shown in the figure.



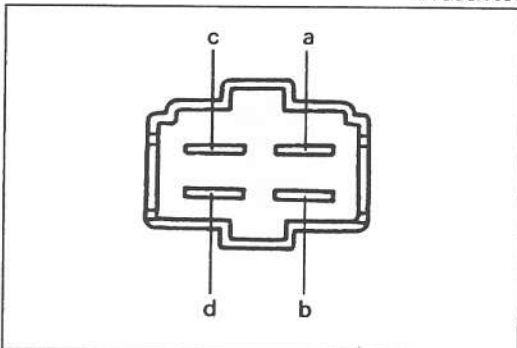
01G0UX-059



01G0UX-060



01G0UX-061



01G0UX-062

## A/C RELAY

### Removal / Installation

1. Remove the glove box (Refer to Section S.)
2. Disconnect the A/C relay connector and remove the A/C relay from cooling unit.
3. Install the A/C relay in the reverse order of removal.

### Inspection

1. Disconnect the A/C relay connector, and check continuity between terminals of the relay.

Battery		Terminal					
+	-	d	a	b	e	c	f
d	a	○	▶	○	○	◀	○
					○	○	

○—○: Indicates continuity

○▶○: Indicates diode

2. If not as specified, replace the A/C relay.

## A/C SUB RELAY

### Removal / Installation

1. Disconnect the A/C sub relay connector and remove the A/C sub relay.
2. Install the A/C relay in the reverse order of the removal.

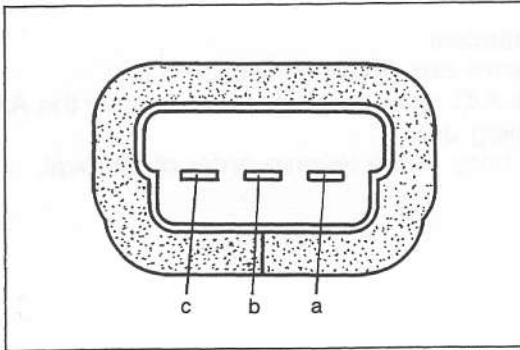
### Inspection

1. Disconnect the A/C sub relay connector, and check continuity between terminals of the relay.

Battery		Terminal			
+	-	a	b	c	d
a	b	○	○		
				○	○

○—○: Indicates continuity

2. If not as specified, replace the A/C relay sub relay.



01G0UX-063

### A/C SWITCH

#### Removal / Installation

Refer to page U-28

#### Inspection

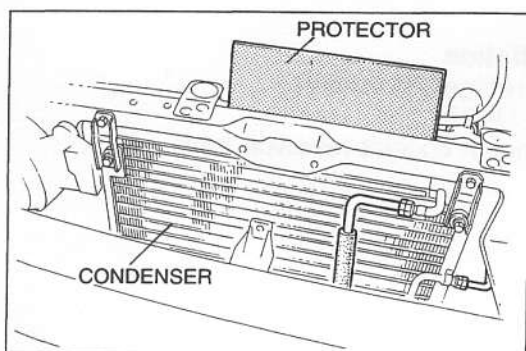
1. Remove the A/C switch and check continuity between terminals of the switch.

Switch	Terminal		
	a	b	c
OFF		○ — >— ○	○ — >— ○
ON	○ — >— ○	○ — >— ○	○ — >— ○

○ —|>— ○: Indicates continuity

○ —|>— ○: Indicates diode

2. If not as specified, replace the A/C switch.



01G0UX-064

## CONDENSER

### Removal / Installation

1. Discharge the refrigeration system. (Refer to page U-32.)
2. Remove the radiator grille. (Refer to Section S.)
3. Remove the receiver/drier. (Refer to page U-42.)
4. Mark the position of the hood lock stay for proper reassembly, then remove the hood lock stay.
5. Remove the condenser as shown in the figure, referring to **Removal Note**.
6. Install the condenser in the reverse order of removal, referring to **Installation Note**.

### Removal Note

- Insert a protector such as cardboard between the condenser and the radiator.
- Immediately plug the open fittings to keep moisture out of the system.

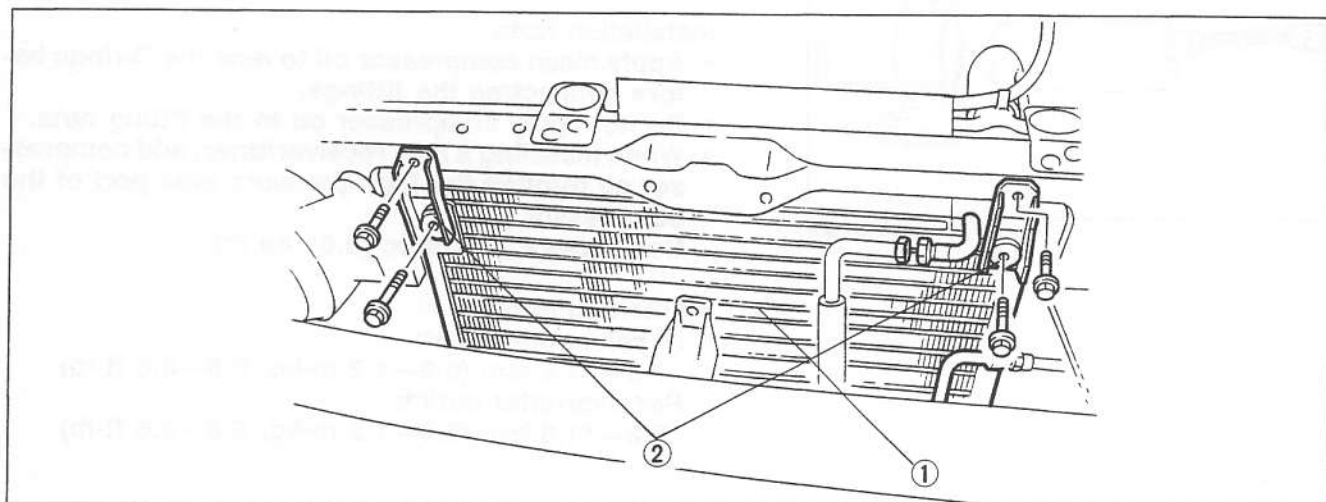
### Installation Note

- Apply clean compressor oil to the new O-rings before connecting the fittings.
  - Do not apply compressor oil to the fitting nuts.
  - Remove the protector before installing the radiator brackets.
  - When installing a new condenser, add compressor oil through the high-pressure pipe port of the compressor.
- Compressor oil: 30 cc (1.83 cu in)

### Tightening torque

Condenser inlet: 20.6—24.5 N·m (2.1—2.5 m·kg, 15—18 ft·lb)

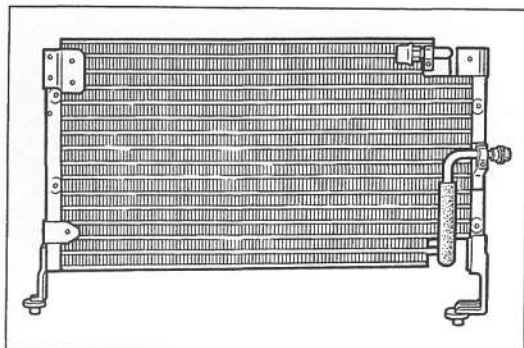
Condenser outlet: 7.8—11.8 N·m (0.8—1.2 m·kg, 5.8—8.6 ft·lb)



01G0UX-065

1. Condenser

2. Condenser bracket

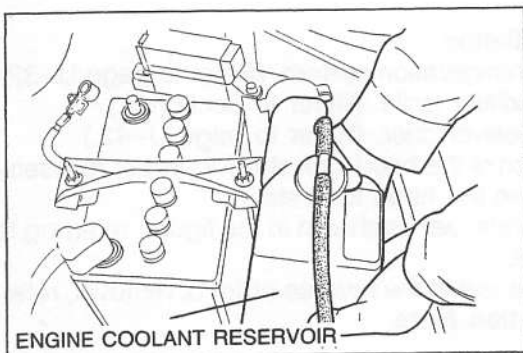


03U0UX-094

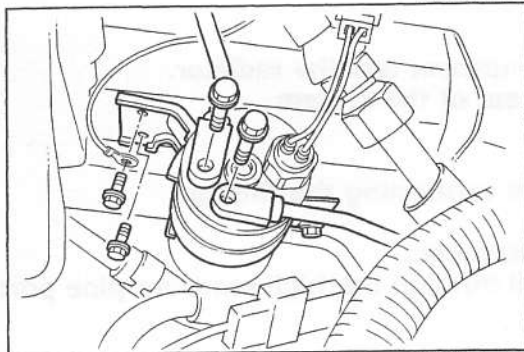
## Inspection

Check for the following and repair or replace the condenser as necessary.

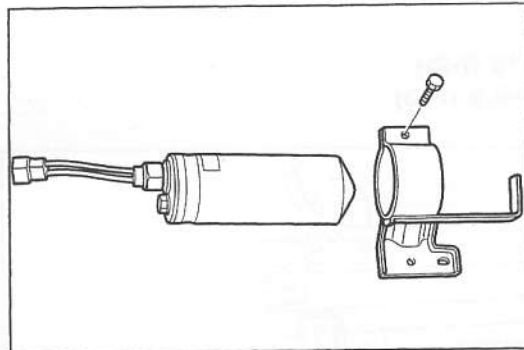
1. Cracks, damage, or refrigerant leakage.
2. Bent fins.
3. Distorted or damaged condenser inlet or outlet.



01G0UX-066



01G0UX-067



01G0UX-068

### Receiver/Drier Removal / Installation

1. Discharge the refrigeration system.  
(Refer to page U-32.)
2. Remove the engine coolant reservoir tank.

3. Disconnect the pressure switch connector.

#### Note

- Immediately plug the open fittings to keep moisture out of the system.

4. Remove the receiver/drier and bracket as an assembly.

5. Remove the receiver/drier from bracket.
6. Install the receiver/drier in the reverse order of removal, referring to **Installation Note**.
7. Evacuate charge, and test the refrigeration system.

#### Installation Note

- Apply clean compressor oil to new the O-rings before connecting the fittings.
- Do not apply compressor oil to the fitting nuts.
- When installing a new receiver/drier, add compressor oil through the high-pressure pipe port of the compressor.

Compressor oil: 10 cc (0.61 cu in)

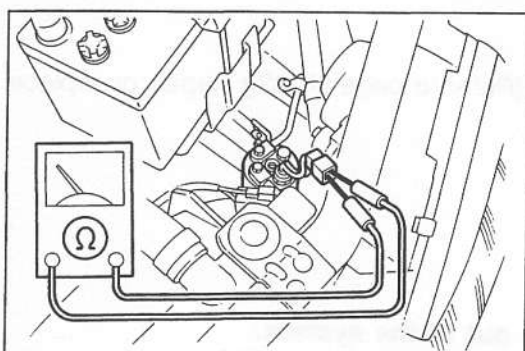
#### Tightening torque

##### Receiver/drier inlet:

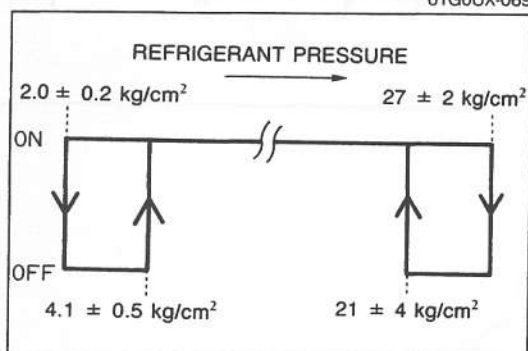
7.8—11.8 N·m (0.8—1.2 m·kg, 5.8—8.6 ft·lb)

##### Receiver/drier outlet:

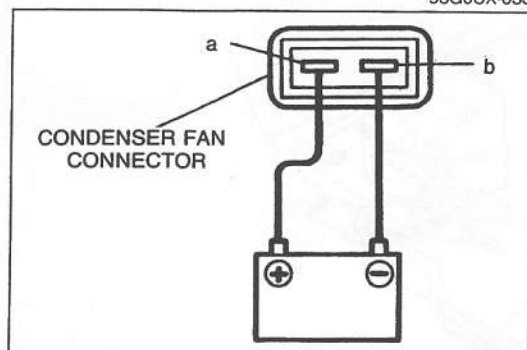
7.8—11.8 N·m (0.8—1.2 m·kg, 5.8—8.6 ft·lb)



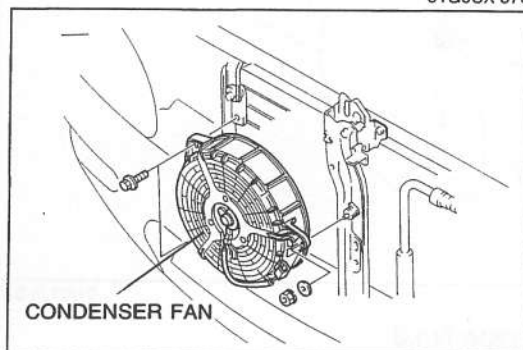
01G0UX-069



93G0UX-053



01G0UX-070



01G0UX-071

## REFRIGERANT PRESSURE SWITCH

### Inspection

1. Connect the manifold gauge set. (Refer to page U-32.)
2. Verify that the high-pressure side pressure is 206—2,060 kPa (2.1—21 kg/cm<sup>2</sup>, 30—299 psi).
3. After disconnecting the pressure switch connector, verify that there is continuity between the pressure switch terminals.
4. Replace the pressure switch with receiver/drier as an assembly, if not as specified.

### Note

- If certain troubles occur in the refrigeration system, electrical power to the magnetic clutch is interrupted to protect the compressor.
- The operation of the refrigerant pressure switch is shown in the figure.

## CONDENSER FAN

### Inspection

1. Disconnect the condenser fan connector.
2. Apply 12V to terminal **a** and ground terminal **b**. Verify that the condenser fan operates.
3. If not as specified, replace the condenser fan.

### Removal / Installation

1. Remove the radiator grille. (Refer to Section S.)
2. Disconnect the condenser fan connector.
3. Remove the bolts and remove the condenser fan.
4. Install in the reverse order to removal.



**REFRIGERANT LINES****On-vehicle Inspection**

Check for leakage at connections by using a gas leak tester. (Refer to page U-32.) Repair or replace if necessary.

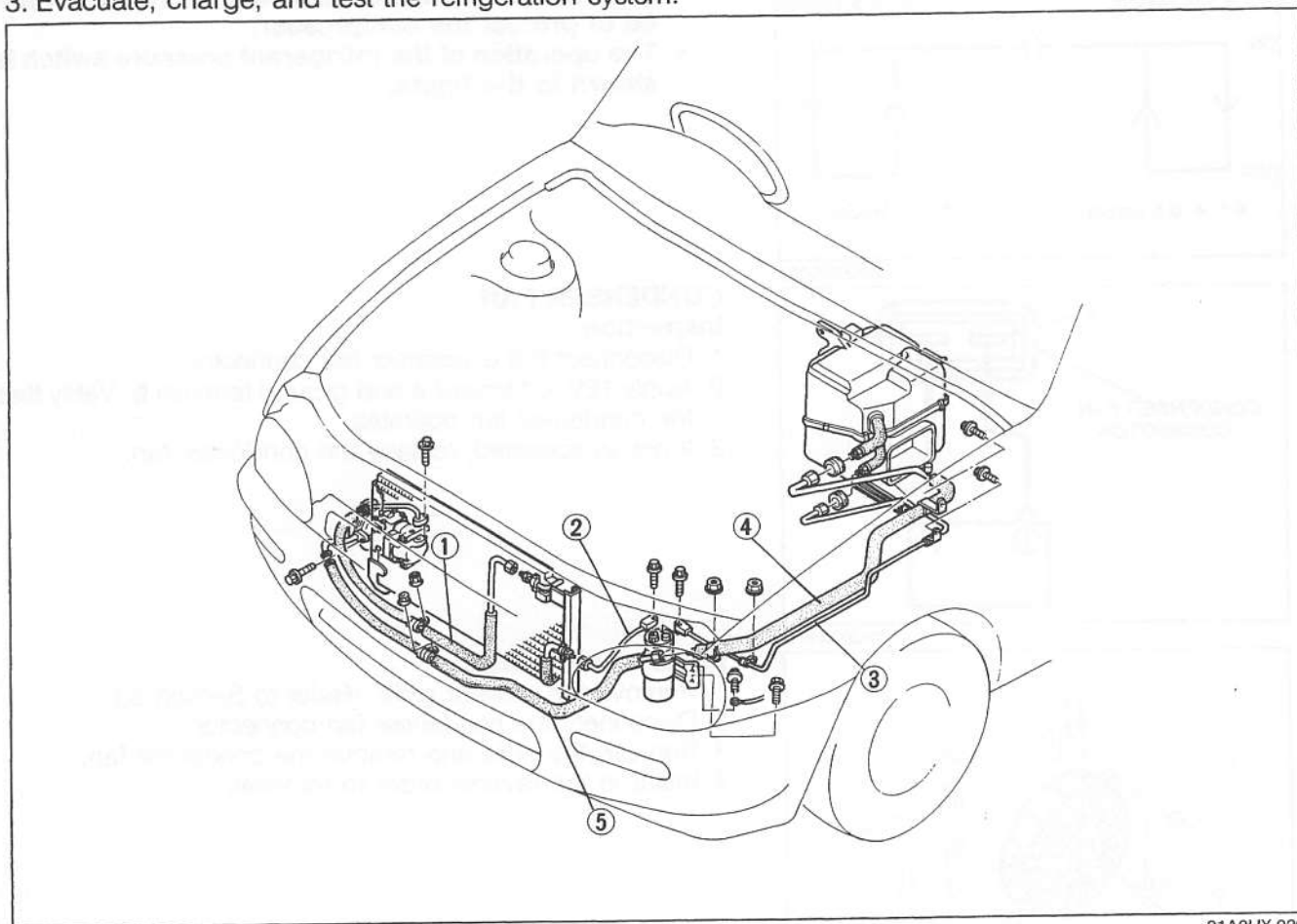
**Replacement**

1. Discharge the refrigeration system. (Refer to page U-32.)
2. Replace the faulty pipe or hose.

**Note**

- Immediately plug the open fittings to keep moisture out of the system.
- Apply clean compressor oil to the new O-rings before connecting the fittings.
- Do not apply compressor oil to the fitting nuts.

3. Evacuate, charge, and test the refrigeration system.



01A0UX-020

1. Flexible hose H
2. Cooler pipe No.1
3. Cooler pipe No.2

4. Cooler pipe No.3
5. Flexible hose L

**Tightening torque (fittings):**

Location	Tightening torque
(A)	12.7—14.7 N·m (1.3—1.5 m·kg, 9.4—10.8 ft·lb)
(B)	20.6—24.5 N·m (2.1—2.5 m·kg, 16.1—18 ft·lb)
(C)	30.4—34.3 N·m (3.1—3.5 m·kg, 23—25 ft·lb)
(D)	19.6—29.4 N·m (2.0—3.0 m·kg, 15—21 ft·lb)
(E)	7.8—11.8 N·m (0.8—1.2 m·kg, 5.8—8.6 ft·lb)

## MAGNETIC CLUTCH

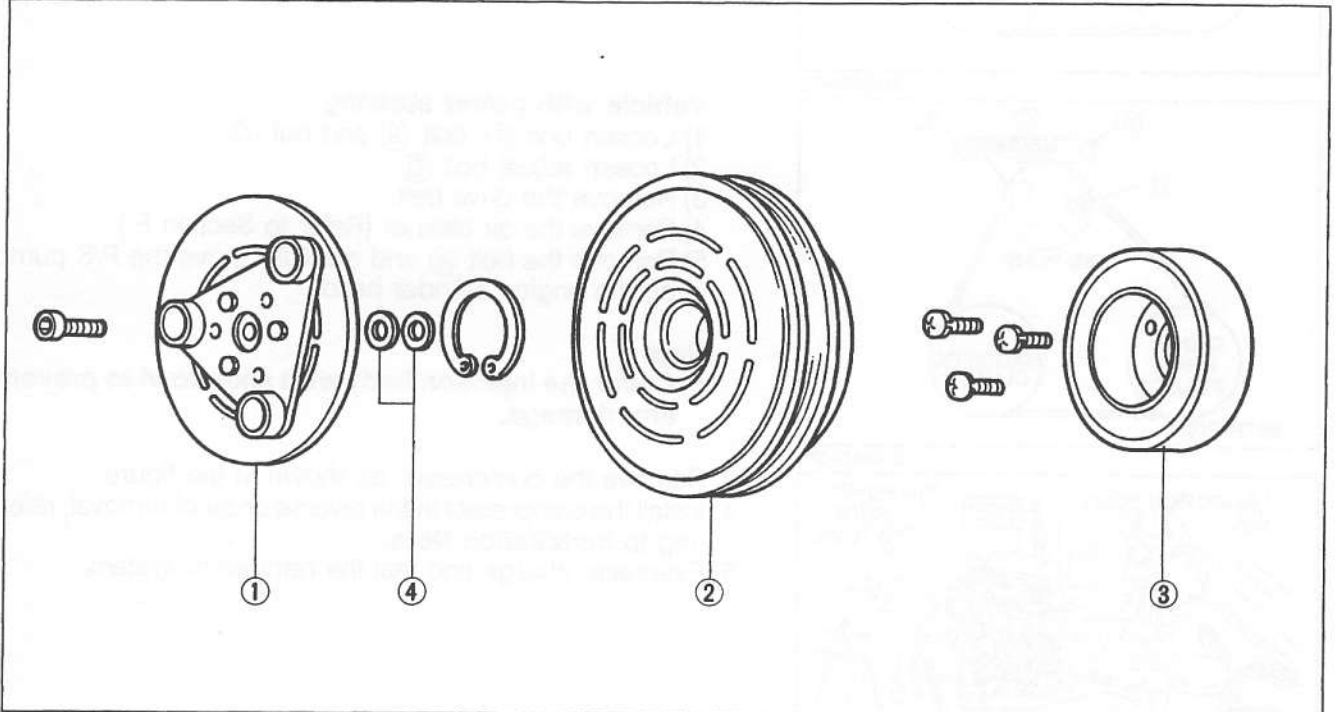
### Disassembly / Assembly

1. Disassemble the magnetic clutch as shown in the figure.
2. Assemble the magnetic clutch in the reverse order of removal.

### Assembling note

- Install the pressure plate according to tightening torque.

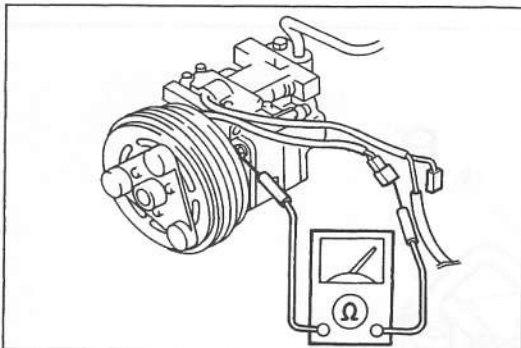
**Tightening torque: 14.7 N·m (1.5 m·kg, 10.8 ft·lb)**



93G0UX-086

1. Pressure plate
2. Rotor pulley

3. Stator
4. Shim



03U0UX-090

### Inspection

#### Stator

1. Verify continuity between the stator terminals.

#### Note

- Set the ohmmeter to x1,000 range.

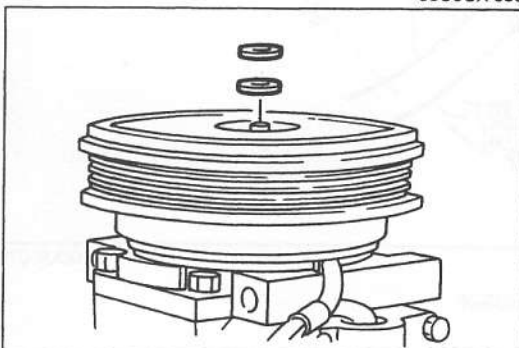
2. If there is no continuity, replace the stator.

### Adjustment

#### Magnetic clutch clearance

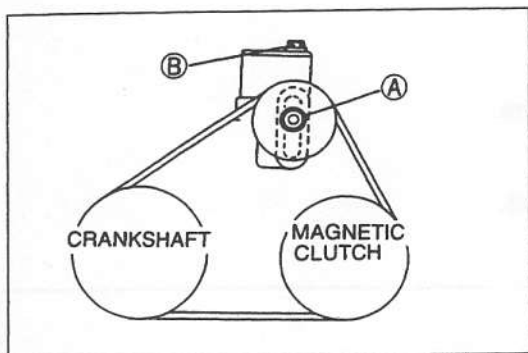
Adjust the clearance between the pressure plate and the rotor pulley by selecting and installing the proper shim(s).

**Clearance: 0.4—0.5mm (0.016—0.020 in)**

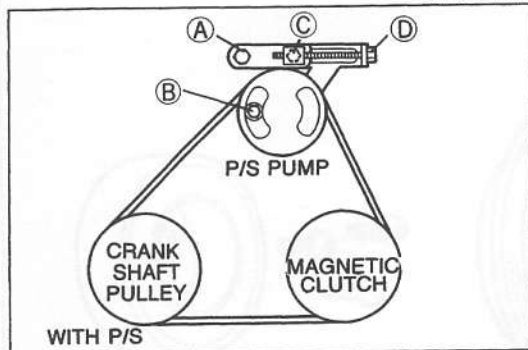


03U0UX-091

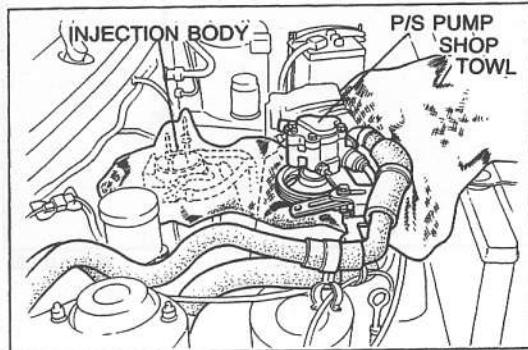
Part number	Thickness mm (in)
B455 61 L15	0.2 (0.008)
B456 61 L15	0.5 (0.020)



01A0UX-013



01G0UX-074



01G0UX-075

### COMPRESSOR Removal / Installation

1. Discharge the refrigeration system.  
(Refer to page U-32.)
2. Remove the drive belt as follows.

#### Vehicle without power steering.

- 1) Loosen nut A.
- 2) Loosen bolt B.
- 3) Remove the drive belt.

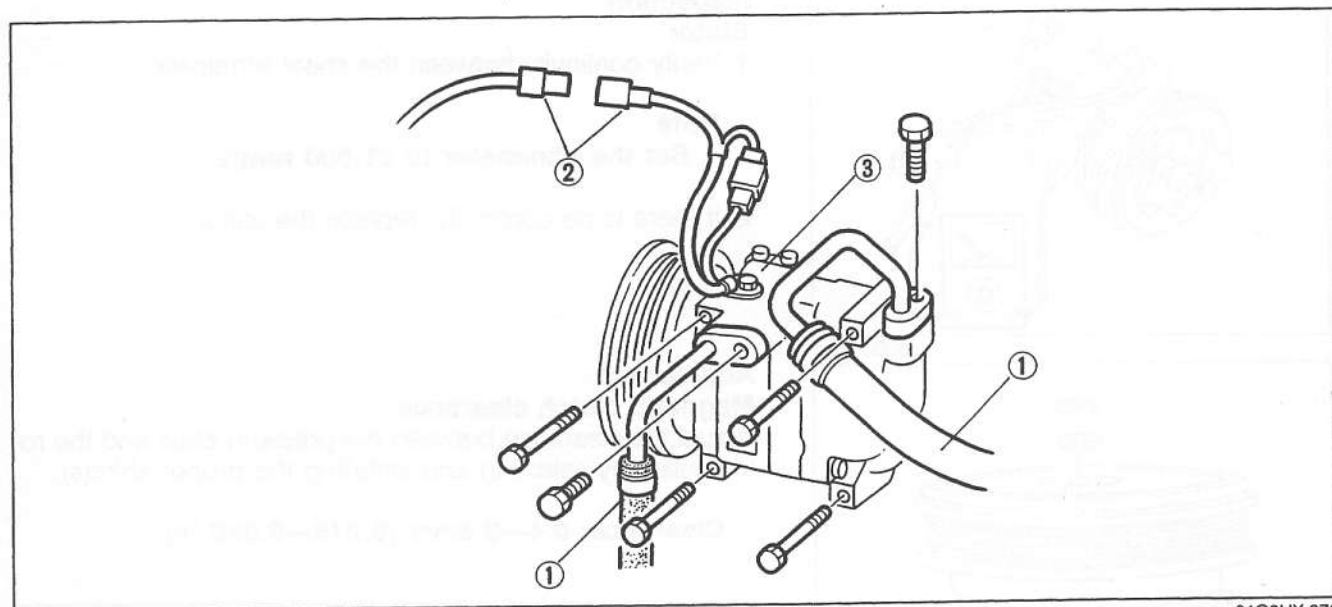
#### Vehicle with power steering

- 1) Loosen bolt (A), bolt (B) and nut (C).
- 2) Loosen adjust bolt (D).
- 3) Remove the drive belt.
- 4) Remove the air cleaner (Refer to Section F.)
- 5) Remove the bolt (A) and carefully move the P/S pump on the engine cylinder head.

#### Note

- Cover the injection body with shop towel to prevent any damage.

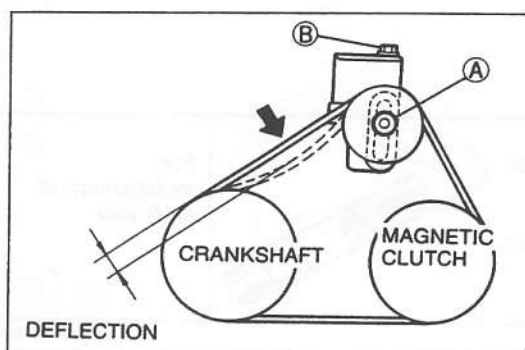
3. Remove the compressor as shown in the figure.
4. Install the compressor in the reverse order of removal, referring to **Installation Note**.
5. Evacuate, charge and test the refrigerant system.



01G0UX-076

1. Flexible hose
2. Magnetic clutch connector

3. Compressor



01A0UX-014

## Installation Note

- Replace the O-rings.
- Apply clean compressor oil to the new O-rings before connecting the fittings.
- Adjust the deflection of the drive belt as follows.

## Vehicle without power steering

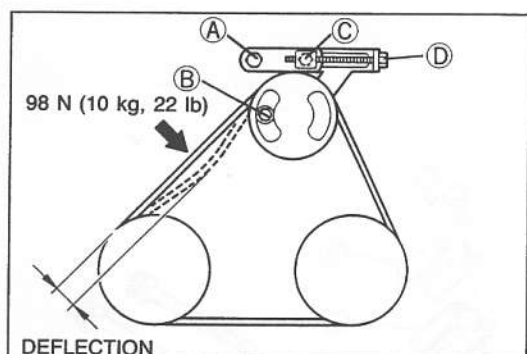
- 1) Loosen nut A.
- 2) Turn adjusting bolt B and adjust the deflection of the drive belt to within specification.

Belt	Deflection: When applying moderate pressure 98 N (10 kg, 22 lb)
New	8—9mm (0.31—0.35 in)
Used	9—10mm (0.35—0.39 in)

- 3) Tighten nut A.

## Tightening torque

Nut **A**: 32—51 N·m (3.2—5.3 m·kg, 24—38 ft·lb)



01A0UX-015

## Vehicle with power steering

- 1) Loosen bolt **A**, bolt **B** and nut **C**.
- 2) Turn the adjusting bolt **D** and adjust the deflection of the drive belt to within specification.

Belt	Deflection: When applying moderate pressure 98 N (10 kg, 22 lb)
New	8—9mm (0.31—0.35 in)
Used	9—10mm (0.35—0.39 in)

- 3) Tighten bolt **A**, bolt **B** and nut **C**.

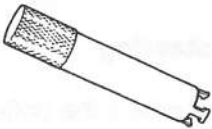
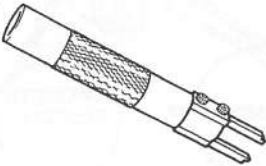
## Tightening torque

Bolt **A**: 37—53 N·m (3.7—5.5 m·kg, 27—39 ft·lb)

Bolt **B**: 37—53 N·m (3.7—5.5 m·kg, 27—39 ft·lb)

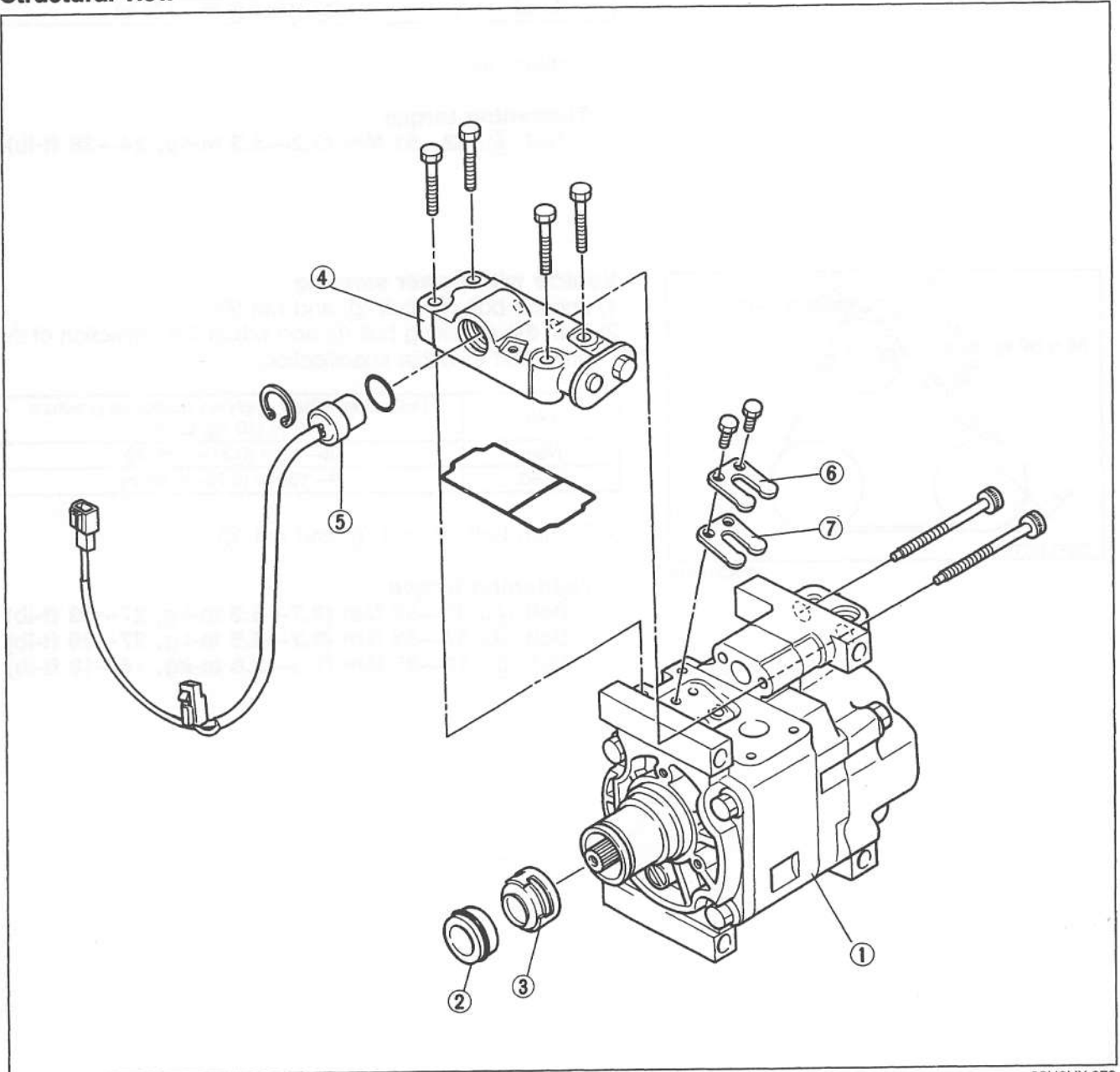
Nut **C**: 19—25 N·m (1.9—2.6 m·kg, 14—18 ft·lb)

### Disassembly / Assembly Preparation SST

<p>49 B061 005</p> <p>Replacer, seal plate</p> 	<p>For replacement of shaft seal plate</p>	<p>49 B061 006</p> <p>Remover &amp; installer, seal</p> 	<p>For replacement of shaft seal</p>
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93G0UX-044

### Structural view

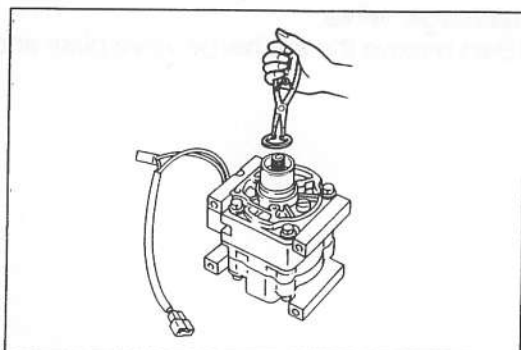


03U0UX-073

1. Compressor body
2. Shaft seal plate
3. Shaft seal

4. Discharge valve body
5. Thermal protector

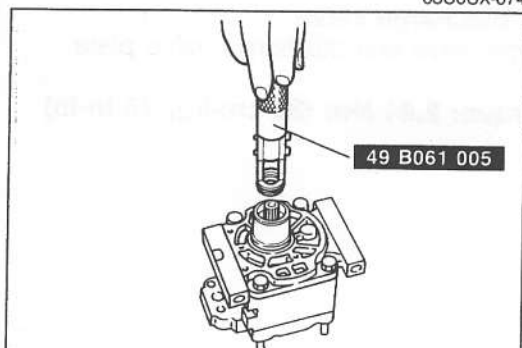
6. Discharge valve plate
7. Discharge valve



03U0UX-074

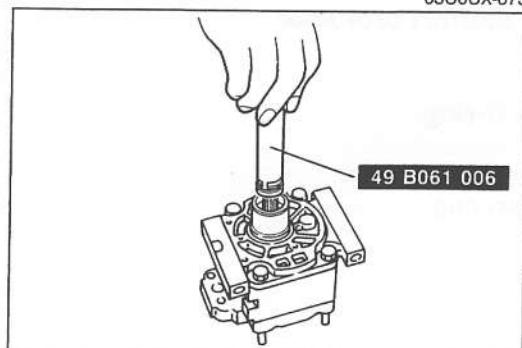
## 1. Removal of shaft seal plate

1) Remove the snap ring.



03U0UX-075

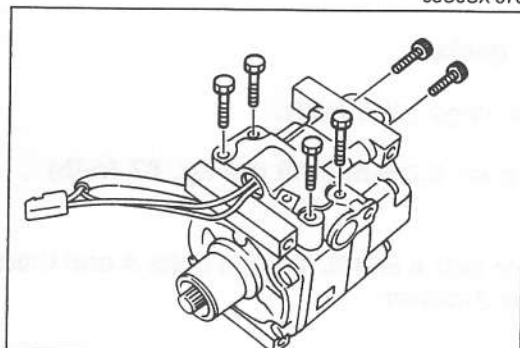
2) Remove the shaft seal plate using the **SST**.



03U0UX-076

## 2. Removal of shaft seal

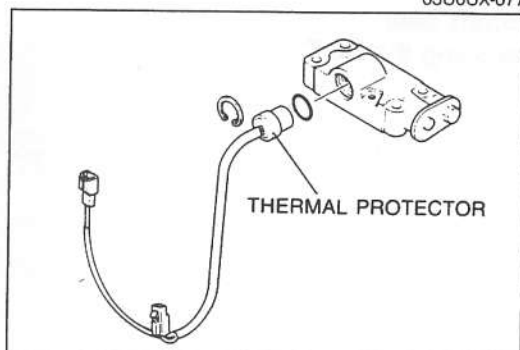
Remove the shaft seal using the **SST**.



03U0UX-077

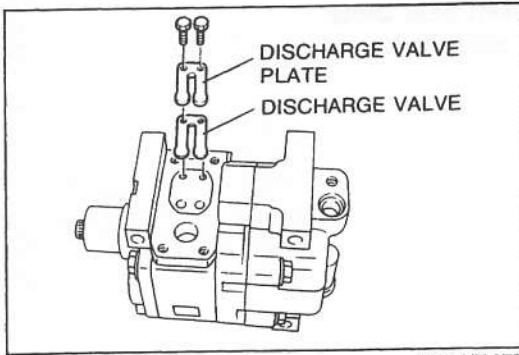
## 3. Removal of thermal protector

1) Remove the bolts and remove the discharge valve body.

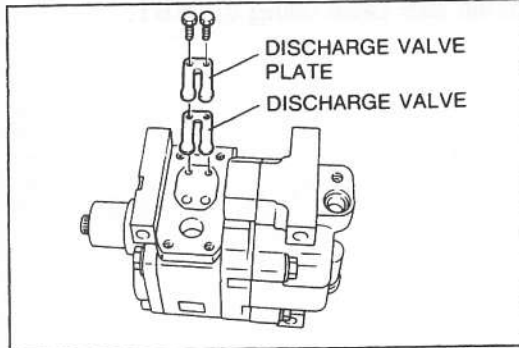


03U0UX-078

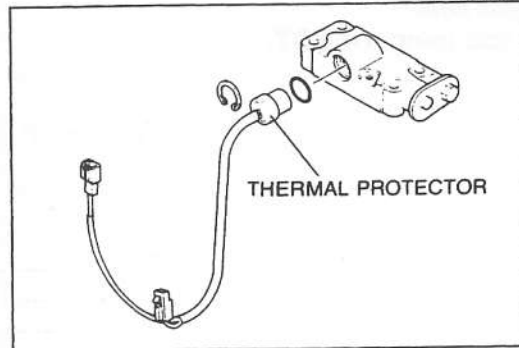
2) Remove the snap ring and the thermal protector.



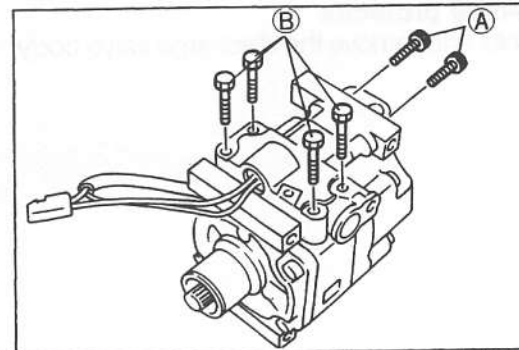
03U0UX-079



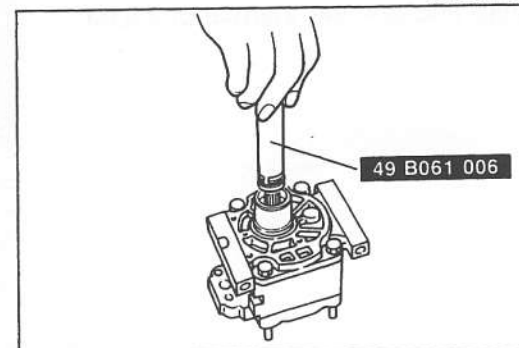
03U0UX-080



03U0UX-081



03U0UX-082



03U0UX-083

#### 4. Removal of discharge valve

Remove the bolts then remove the discharge valve plate and discharge valve.

#### 5. Installation of discharge valve

Install the discharge valve and discharge valve plate.

**Tightening torque: 2.94 N·m (30 cm·kg, 26 in·lb)**

#### 6. Installation of thermal protector

##### Caution

- Replace the O-ring.

- 1) Install the thermal protector.
- 2) Install the snap ring.

##### Caution

- Replace the gasket.

- 3) Install the discharge valve body.

**Tightening torque: 9.8 N·m (100 cm·kg, 87 in·lb)**

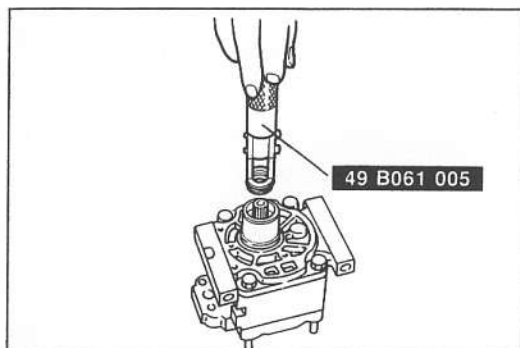
##### Caution

- Snugly tighten bolt A and B. Torque bolts A and then bolts B in an X-pattern.

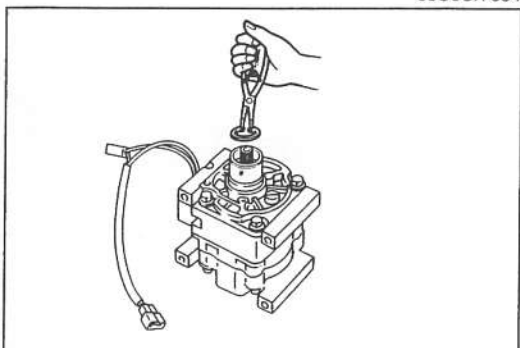
#### 7. Installation of shaft seal

Install the shaft seal using the SST.

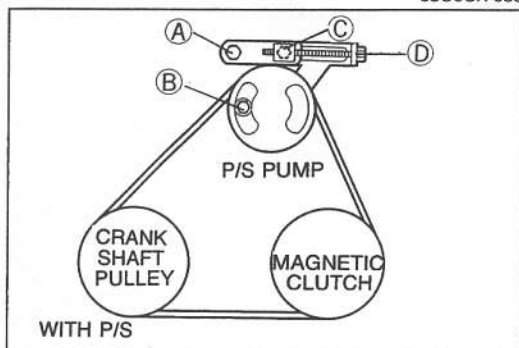




03U0UX-084



03U0UX-085



01A0UX-016

## 8. Installation of shaft seal plate

- 1) Install the shaft seal plate using the **SST**.

- 2) Install the snap ring.

## Adjustment

### Drive belt

#### Vehicle with power steering

1. Loosen bolt A, bolt B and nut C.
2. Turn adjusting bolt D and adjust the deflection of the drive belt to within specification.

Belt	Deflection: When applying moderate pressure 98 N (10 kg, 22 lb)
New	8—9mm (0.31—0.35 in)
Used	9—10mm (0.35—0.39 in)

3. Tighten bolt A bolt B and nut C.

### Tightening torque:

**Bolt A:** 37—53 N·m (3.7—5.5 m·kg, 27—39 ft·lb)

**Nut B :** 37—53 N·m (3.7—5.5 m·kg, 27—39 ft·lb)

**Nut C :** 19—25 N·m (1.9—2.6 m·kg, 14—18 ft·lb)

### Vehicle without power steering

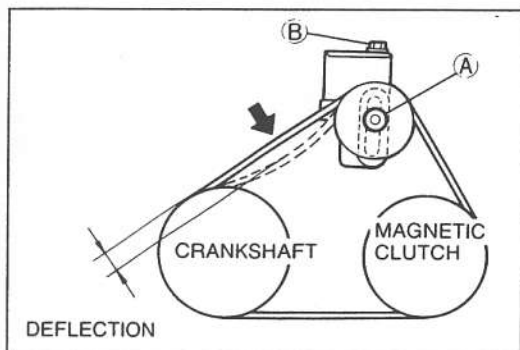
1. Loosen nut A.
2. Turn adjusting bolt B and adjust the deflection of the drive belt to within specification.

Belt	Deflection: When applying moderate pressure 98 N (10 kg, 22 lb)
New	8—9mm (0.31—0.35 in)
Used	9—10mm (0.35—0.39 in)

3. Tighten nut A.

### Tightening torque:

**32—51 N·m (3.2—5.3 m·kg, 24—38 ft·lb)**



01A0UX-017

## TECHNICAL DATA

ENGINE.....	TD- 2
LUBRICATION SYSTEM.....	TD- 5
COOLING SYSTEM.....	TD- 6
FUEL AND EMISSION CONTROL SYSTEMS (EGI-S) .....	TD- 7
ENGINE ELECTRICAL SYSTEM .....	TD- 8
CLUTCH.....	TD- 8
MANUAL TRANSAXLE.....	TD- 9
AUTOMATIC TRANSAXLE .....	TD- 9
FRONT AND REAR AXLES.....	TD-13
STEERING SYSTEMS .....	TD-13
BRAKING SYSTEMS.....	TD-14
WHEELS AND TIRES.....	TD-15
SUSPENSION .....	TD-16
BODY ELECTRICAL SYSTEMS.....	TD-17
HEATER AND AIR CONDITIONER SYSTEMS.....	TD-17
STANDARD BOLT AND NUT TIGHTENING TORQUE.....	TD-17

01ATDX-001

## B. ENGINE

Engine			B3
Type			Gasoline, 4-cycle
Cylinder arrangement and number			In-line 4-cylinder
Combustion chamber			Pentroof
Valve system			OHC, belt-driven 16 valves
Bore × Stroke mm (in)			71 × 83.6 (2.80 × 3.29)
Total piston displacement cc (cu in)			1323 (80.7)
Compression ratio			9.4
Compression pressure kPa (kg/cm <sup>2</sup> , psi)-rpm	Standard		1412 (14.4, 204)-300
	Minimum		952 (9.7, 138)-300
	Maximum difference between cylinders		196 (2.0, 28)
Valve timing	IN	Open BTDC	5°
		Close ABDC	40°
	EX	Open BBDC	40°
		Close ATDC	5°
Valve clearance (Warm engine) mm (in)	IN	0.3 (0.012)	
	EX	0.3 (0.012)	
<b>Cylinder head</b>			
Height mm (in)			107.4—107.6 (4.228—4.236)
Distortion mm (in)			0.15 (0.006) max.
Grinding mm (in)			0.20 (0.008) max.
<b>Valve and valve guide</b>			
Valve head diameter mm (in)	IN	25.4—25.6 (0.999—1.008)	
	EX	21.35—21.65 (0.841—0.852)	
Valve head thickness (margin) mm (in)	IN	1.1 (0.043)	
	EX	1.2 (0.047)	
Valve face angle	IN	45°	
	EX	45°	
Valve length mm (in)	IN	Standard	108.24 (4.261)
		Minimum	107.74 (4.241)
	EX	Standard	109.34 (4.304)
		Minimum	108.84 (4.285)
Valve stem diameter mm (in)	IN	5.970—5.985 (0.2350—0.2356)	
	EX	5.965—5.980 (0.2348—0.2354)	
Guide inner diameter mm (in)			6.01—6.03 (0.2366—0.2374)
Valve stem-to-guide clearance mm (in)	IN	0.025—0.060 (0.0010—0.0024)	
	EX	0.030—0.065 (0.0011—0.0026)	
	Maximum	0.20 (0.008)	
Guide projection mm (in)	IN	16.8—17.4 (0.031—0.055)	
	EX	16.8—17.4 (0.031—0.055)	
<b>Valve seat</b>			
Seat angle	IN	45°	
	EX	45°	
Seat contact width mm (in)	IN	0.8—1.4 (0.031—0.055)	
	EX	0.8—1.4 (0.031—0.055)	
Seat sinking mm (in)	IN	Standard	41.05—41.95 (1.616—1.652)
		Maximum	43.0 (1.693)
	EX	Standard	41.05—41.95 (1.616—1.652)
		Maximum	43.0 (1.693)

Item		Engine		B3
Valve spring				
Free length	IN	Standard	mm (in)	40.7 (1.602)
		Minimum	N (kg, lb)/mm (in)	133.2—150.7 (13.58—13.37, 29.88—33.81)/36.0 (1.417)
	EX	Standard	mm (in)	40.7 (1.602)
		Minimum	N (kg, lb)/mm (in)	133.2—150.7 (13.58—13.37, 29.88—33.81)/36.0 (1.417)
Out-of-square			mm (in)	1.42 (0.055)
Camshaft				
Lobe height	mm (in)	IN	Standard	36.527 (1.4380)
			Wear limit	36.327 (1.4301)
	EX	Standard	36.333 (1.4304)	
		Wear limit	36.133 (1.4225)	
Journal diameter	mm (in)		No.1, 5	43.440—43.465 (1.710—1.711)
			No.2, 4	43.425—43.450 (1.709—1.710)
			No.3	43.410—43.435 (1.709—1.710)
			Out-of-round	0.05 (0.0020) max.
Camshaft bearing oil clearance	mm (in)		No.1, 5	0.040—0.085 (0.0016—0.0033)
			No.2, 4	0.050—0.100 (0.0020—0.0031)
			No.3	0.065—0.115 (0.0025—0.0045)
			Maximum	0.15 (0.006) max.
Camshaft runout			mm (in)	0.03 (0.0012) max.
Camshaft end play	mm (in)	Standard	0.04—0.13 (0.0016—0.0051)	
		Maximum	0.15 (0.006)	
Rocker arm and rocker arm shaft				
Rocker arm inner diameter			mm (in)	19.000—19.033 (0.7480—0.7493)
Rocker arm shaft diameter			mm (in)	18.959—18.980 (0.7464—0.7472)
Rocker arm to shaft clearance	mm (in)	Standard	0.020—0.074 (0.0008—0.0029)	
		Maximum	0.10 (0.004)	
Cylinder block				
Height			mm (in)	221.5 (8.720)
Distortion			mm (in)	0.15 (0.006) max.
Grinding			mm (in)	0.20 (0.008) max.
Cylinder bore diameter	mm (in)	Standard size	71.006—71.013 (2.7955—2.7958)	
		0.25 (0.010) oversize	71.256—71.263 (2.8053—2.8056)	
		0.50 (0.020) oversize	71.506—71.513 (2.8152—2.8155)	
		0.75 (0.030) oversize	71.756—71.763 (2.8250—2.8253)	
		1.00 (0.04) oversize	72.006—72.013 (2.8349—2.8352)	
Cylinder bore taper and out-of-round			mm (in)	0.019 (0.0007)
Piston				
Piston diameter Measured at 90° to pin bore axis and 16.5mm (0.650 in) below oil ring groove	mm (in)	Standard size	70.961—70.967 (2.7937—2.7939)	
		0.25 (0.010) oversize	71.211—71.217 (2.8036—2.8028)	
		0.50 (0.020) oversize	71.461—71.467 (2.8134—2.8137)	
		0.75 (0.030) oversize	71.711—71.717 (2.8233—2.8235)	
		1.00 (0.04) oversize	71.961—71.967 (2.8331—2.8333)	
Piston-to-cylinder clearance	mm (in)	Standard	0.039—0.052 (0.0015—0.0020)	
		Maximum	0.15 (0.006)	

Engine			B3
Piston ring			
Thickness	mm (in)	Top	1.17—1.19 (0.0461—0.0469)
		Second	1.47—1.49 (0.0579—0.0587)
End gap (Measured in cylinder)	mm (in)	Top	0.15—0.30 (0.006—0.012)
		Second	0.15—0.30 (0.006—0.012)
		Oil (rail)	0.20—0.70 (0.008—0.028)
		Maximum	1.0 (0.039)
Ring groove width in piston	mm (in)	Top	1.220—1.240 (0.0480—0.0488)
		Second	1.520—1.540 (0.0598—0.0606)
		Oil	3.020—3.040 (0.1189—0.1197)
Piston ring-to-ring groove clearance	mm (in)	Top	0.030—0.070 (0.0012—0.0028)
		Second	0.030—0.070 (0.0012—0.0028)
		Maximum	0.15 (0.006)
Piston pin			
Diameter	mm (in)	19.974—19.980 (0.7864—0.7866)	
Interference in connecting rod	mm (in)	0.013—0.037 (0.0005—0.0015)	
Installing pressure	N (kg, lb)	4.905—14.715 (500—1,500, 1,100—3,300)	
Connecting rod and connecting rod bearing			
Length (Center to center)	mm (in)	135.95—136.05 (5.352—5.356)	
Bending	mm (in)	0.075 (0.0030) max./50 (1.97)	
Small end bore	mm (in)	19.943—19.961 (0.7852—0.7859)	
Big end bore	mm (in)	43.000—43.016 (1.6929—1.6935)	
Big end width	mm (in)	21.838—21.890 (0.8598—0.8618)	
Connecting rod side clearance	mm (in)	Standard	0.110—0.262 (0.0043—0.0103)
		Maximum	0.30 (0.0118)
Crankshaft			
Crankshaft runout	mm (in)	0.04 (0.0016) max.	
Main journal diameter	mm (in)	Standard size	49.938—49.956 (1.9661—1.9668)
		Standard	49.904 (1.9647)
		0.25 (0.010) undersize	49.704—49.708 (1.9568—1.9570)
		Minimum	49.652 (1.9548)
		0.50 (0.020) undersize	49.454—49.458 (1.9470—1.9472)
		Minimum	49.402 (1.9450)
0.75 (0.030) undersize	Standard	49.204—49.208 (1.9372—1.9373)	
	Minimum	49.152 (1.9351)	
Main journal taper and out-of-round	mm (in)	0.05 (0.020) max.	
Crankpin diameter	mm (in)	Standard size	39.940—39.956 (1.5724—1.5731)
		Standard	39.908 (1.5712)
		0.25 (0.010) undersize	39.690—39.706 (1.5626—1.5632)
		Minimum	39.658 (1.5613)
		0.50 (0.020) undersize	39.440—39.456 (1.5528—1.5534)
		Minimum	39.408 (1.5515)
0.75 (0.030) undersize	Standard	39.190—39.206 (1.5429—1.5435)	
	Minimum	39.158 (1.5417)	
Crankpin taper and out-of-round	mm (in)	0.05 (0.020) max.	
Main bearing			
Main journal bearing oil clearance	mm (in)	Standard	0.018—0.036 (0.0007—0.0014)
		Maximum	0.10 (0.004)
Available undersized bearing	mm (in)	0.25 (0.010), 0.50 (0.020), 0.75 (0.030)	
Crankpin bearing			
Crankpin bearing oil clearance	mm (in)	Standard	0.028—0.068 (0.0011—0.0027)
		Maximum	0.10 (0.004)
Available undersized bearing	mm (in)	0.25 (0.010), 0.50 (0.020), 0.75 (0.030)	

Item		Engine	B3	
Thrust bearing				
Crankshaft end play		mm (in)	Standard	0.080—0.282 (0.0031—0.0111)
			Maximum	0.30 (0.012)
Bearing width	mm (in)	Standard size		2.500—2.550 (0.0984—0.1004)
		0.25 (0.010) oversize		2.625—2.675 (0.1033—0.1053)
		0.50 (0.020) oversize		2.750—2.800 (0.1083—0.1102)
		0.75 (0.030) oversize		2.875—2.925 (0.1132—0.1152)
Timing belt				
Belt deflection		mm (in)/98 N (10 kg, 22 lb)		11.0—13.0 (0.43—0.51)

## D. LUBRICATION SYSTEM

Item		Engine	B3
Lubricating method			Force-fed
Oil pump			
Type			Trochoid gear
Relief pressure		kPa (kg/cm <sup>2</sup> , psi)	343—441 (3.5—4.5, 50—64)
Regulated pressure		kPa (kg/cm <sup>2</sup> , psi)-rpm	294—392 (3.0—4.0, 43—57)-3,000
Inner rotor tooth tip to outer rotor clearance	mm (in)	Standard	0.02—0.16 (0.0008—0.0063)
		Maximum	0.20 (0.0078)
Outer rotor to body clearance	mm (in)	Standard	0.09—0.18 (0.0035—0.0071)
		Maximum	0.22 (0.0087)
Side clearance	mm (in)	Standard	0.03—0.11 (0.0012—0.0043)
		Maximum	0.14 (0.0055)
Oil filter			
Type			Full-flow, paper element
Relief pressure differential		kPa (kg/cm <sup>2</sup> , psi)	78—118 (0.8—1.2, 11—17)
Engine oil			
Capacity liters (US qt, Imp qt)	Total (dry engine)		3.4 (3.6, 3.0)
	Oil pan		3.0 (3.2, 2.6)
	Oil filter		0.17 (0.18, 0.15)
Grade		API Service	SD, SE or SF
Viscosity number	Above 30°C (86°F)		SAE40
	0°C—40°C (32°F—104°F)		SAE30
	−10°C—20°C (14°F—68°F)		SAE20W-20
	Above −10°C (14°F)		SAE20W-40 or 20W-50
	−25°C—30°C (−13°F—86°F)		SAE10W-30
	Above −25°C (−13°F)		SAE10W-40 or 10W-50
	Below 0°C (32°F)		SAE5W-30
	Below −20°C (−4°F)		SAE5W-20

TD



## E. COOLING SYSTEM

Engine/Transaxle		B3			
Item		MTX	ATX		
Cooling method		Water-cooled, forced circulation			
<b>Water pump</b>					
Type		Centrifugal, V-belt driven			
Impeller diameter	mm (in)	70 (2.76)			
Number of impeller blades		6			
Speed ratio		1 : 1.05			
Water seal type		Unified mechanical seal			
<b>Thermostat</b>					
Type		Wax			
Opening temperature	°C (°F)	86.5—89.5 (187—193)			
Full-open temperature	°C (°F)	100 (212)			
Full-open lift	mm (in)	8.5 (0.335) or more			
<b>Radiator</b>					
Type		Corrugated fin			
Cap valve opening pressure	kPa (kg/cm <sup>2</sup> , psi)	74—103 (0.75—1.05, 11—15)			
Cooling circuit checking pressure	kPa (kg/cm <sup>2</sup> , psi)	103 (1.05, 15)			
<b>Cooling fan</b>					
Type		Electric			
Number of blades		4			
Outer diameter	mm (in)	300 (11.9)			
Capacity	W-V	80-12			
Current	A	6.6 ± 1			
<b>Water thermostwitch</b>					
OFF→ON	°C (°F)	97 (2.07)			
<b>Coolant</b>					
Capacity	liters (US qt, Imp qt)	5.0 (5.3, 4.4)	6.0 (6.3, 5.3)		
Antifreeze solution	Coolant protection	Volume percentage %		Specific gravity at 20°C (68°F)	
		Water	Coolant		
		Above -16°C (3°F)	65		35
		Above -26°C (-15°F)	55		45
		Above -40°C (-40°F)	45		55



## F. FUEL AND EMISSION CONTROL SYSTEM (EGI-S)

Item		Transaxle	MTX	ATX
Idle speed		rpm	750 $\begin{smallmatrix} +50 \\ -0 \end{smallmatrix}$ (Neutral)	1,100 $\begin{smallmatrix} +50 \\ -0 \end{smallmatrix}$ (P range)
Ignition timing*		BTDC	16 $\pm$ 1°	
Fuel pump				
Maximum output pressure		kPa (kg/cm <sup>2</sup> , psi)	Below 638 (6.5, 92)	
Fuel filter				
Type	Low-pressure side		Nylon element (built in fuel pump)	
	High-pressure side		Paper element	
Pressure regulator				
Regulating pressure		kPa (kg/cm <sup>2</sup> , psi)	235—275 (2.4—2.8, 34—40)	
Injector				
Type of drive			Current	
Resistance		$\Omega$	1.4	
Air bypass solenoid valve ①				
Resistance		$\Omega$	22—28	
Air bypass solenoid valve ②				
Resistance		$\Omega$	29—35	
Air bypass solenoid valve ③				
Resistance		$\Omega$	29—35	
Solenoid valve (Purge control)				
Resistance		$\Omega$	29—41	
Water thermosensor				
Resistance	k $\Omega$	−20°C (−4°F)	14.6—17.8	
		20°C (68°F)	2.21—2.69	
		40°C (104°F)	1.0—1.3	
		80°C (176°F)	0.29—0.35	
Airflow sensor				
Type			Bypass type of hot-wire	
Resistance (HWN-HWP)		k $\Omega$	3—5	
Fuel tank				
Capacity		liters (US qt, Imp qt)	40 (10.6, 8.8)	
Air cleaner				
Element type			Oil permeated	
Fuel				
Specification			Unleaded (RON 90 or higher)	

\*TEN terminal of diagnosis connector grounded

## G. ENGINE ELECTRICAL SYSTEM

Engine			B3
Battery	Voltage V		12
	Type and capacity (20-hour rate)		34B19L-S(33AH), 46B24L(45AH), 50D20L(50AH)
Dark current*		mA	Max. 20
Alternator	Type		A.C.
	Output V-A		12-65
	Regulator type		Transistorized (built-in IC regulator)
	Regulated voltage V		14.1—14.7
	Brush length mm (in)	Standard	25 (0.98)
		Minimum	6 (0.24)
	Drive belt deflection	New	5.5—7.0 (0.21—0.28)
Used		6.0—7.5 (0.23—0.30)	
Starter	Type		Direct
	Output V-kW		12-0.85...(MTX), 12-0.95...(ATX)
	Brush length mm (in)	Standard	17 (0.65)
		Minimum	11.5 (0.45)
Distributor	Spark advance type		ESA
Ignition timing (TEN terminal of diagnosis connector grounded)		BTDC	16 ± 1°
Ignition coil	Resistance (20°C [68°F])	Primary coil winding	0.68—0.84Ω
		Secondary coil winding	9.6—14.4 kΩ
Spark plug	Type	Unleaded fuel	NGK BKR5E-11 BKR6E-11
			NIPPONDENSO K16PR-U11 K20PR-U11
	Plug gap mm (in)		1.0—1.1 (0.039—0.043)
Firing order			1—3—4—2

## H. CLUTCH

Engine/Transaxle				B3
Item				B5M-R
Clutch control				Mechanical
Clutch cover	Type			Flat
	Set load N (kg, lb)			2,943 (300, 660)
Clutch disc	Outer diameter mm (in)			180 (7)
	Inner diameter mm (in)			125 (4.92)
	Thickness	Pressure plate mm (in)		3.2 (0.126)
		Flywheel side mm (in)		3.0 (0.118)
Clutch pedal	Type			Suspended
	Pedal ratio			5.83
	Full stroke mm (in)			138 (5.433)
	Height (With carpet)			196—207 (7.72—8.15)

## J. MANUAL TRANSAXLE (B5M-R)

Engine/Transaxle			B3
Item			B5M-R
Transaxle control			Floor shift
Synchromesh system			Forward: Synchromesh Reverse: Selective sliding
Gear ratio	1st		3.454
	2nd		1.944
	3rd		1.392
	4th		1.030
	5th		0.810
	Reverse		3.583
Final gear ratio			4.058
Oil	Grade		API service GL-4
	Viscosity	All season	Dexron®II, M2C33-F
		Above -18°C (0°F)	SAE75W-80
	Capacity	liters (US qt, Imp qt)	2.5 (2.64, 2.2)

## K. AUTOMATIC TRANSAXLE

Engine/Transaxle			B3 EGI-S
Item			F4A-EL
Torque converter stall torque ratio			2.800 : 1
Gear ratio	1st		2.800
	2nd		1.540
	3rd		1.000
	OD		0.700
	Reverse		2.333
Final gear ratio			3.736
Automatic transaxle fluid (ATF)	Type		Dexron®II or M-III
	Capacity liters (US qt, Imp qt)		6.3 (6.7, 5.5)
Engine stall speed	rpm	D, S, L and R ranges	2,300—2,600
Time lag	sec.	N→D range	0.5—0.6
		N→R range	0.6—0.7
Line pressure kPa (kg/cm <sup>2</sup> , psi)	At idle	D, S and L ranges	432—559 (4.4—5.7, 63—81)
		R range	716—863 (7.3—8.8, 104—125)
	At stall	D, S and L ranges	863—1,001 (8.8—10.2, 125—145)
		R range	1,409—1,632 (14.36—16.64, 204—237)
Throttle pressure kPa (kg/cm <sup>2</sup> , psi)	At idle	D range	74—132 (0.75—1.35, 11—19)
	At stall	D range	417—535 (4.25—5.45, 60—77)
Oil pump	Outer and inner rotor clearance mm (in)	Standard	0.02—0.04 (0.00079—0.00157)
		Maximum	0.05 (0.00197)
	Outer rotor clearance mm (in)	Standard	0.09—0.15 (0.00354—0.00591)
		Maximum	0.170 (0.0669)
	Inner rotor inner diameter mm (in)	Standard	0.04—0.115 (0.00157—0.00453)
		Maximum	0.125 (0.00492)
3-4 clutch	Number of drive/driven plates		4/4
	Drive plate thickness mm (in)	Standard	1.6 (0.063)
		Minimum	1.4 (0.055)
	3-4 clutch clearance mm (in)		1.3—1.6 (0.051—0.063)
	Snap ring size mm (in)		1.4 (0.055), 1.6 (0.063), 1.8 (0.071), 2.0 (0.079), 2.2 (0.087), 2.4 (0.094)
Forward clutch	Number of drive/driven plates		3/3
	Drive plate thickness mm (in)	Standard	1.6 (0.063)
		Minimum	1.4 (0.055)
	Forward clutch clearance mm (in)		1.0—1.2 (0.039—0.047)
	Snap ring size mm (in)		1.8 (0.071), 2.0 (0.079), 2.2 (0.087), 2.4 (0.094), 2.6 (0.102), 2.8 (0.110)

Engine/Transaxle			B3 EGI-S
Item			F4A-EL
Coasting clutch	Number of drive/driven plates		2/2
	Drive plate thickness mm (in)	Standard	1.6 (0.063)
		Minimum	1.4 (0.055)
	Coasting clutch clearance mm (in)		1.0—1.2 (0.039—0.047)
	Snap ring size mm (in)		1.6 (0.063), 1.75 (0.069), 1.90 (0.075), 2.05 (0.081), 2.2 (0.087), 2.35 (0.093), 2.50 (0.098), 2.65 (0.104)
Reverse clutch	Number of drive/driven plates		2/2
	Drive plate thickness mm (in)	Standard	1.6 (0.063)
		Minimum	1.4 (0.055)
	Reverse clutch clearance mm (in)		1.0—1.3 (0.039—0.051)
	Snap ring size mm (in)		2.0 (0.079), 2.2 (0.087), 2.4 (0.094), 2.6 (0.102), 2.8 (0.110), 3.0 (0.118)
Low and reverse brake	Number of drive/driven plates		4/4
	Drive plate thickness mm (in)	Standard	1.6 (0.063)
		Minimum	1.4 (0.055)
	Low and reverse brake clearance mm (in)		2.1—2.4 (0.083—0.094)
	Snap ring size mm (in)		2.0 (0.079), 2.2 (0.087), 2.4 (0.094), 2.6 (0.102), 2.8 (0.110), 3.0 (0.118)
Carrier hub	Clearance between pinion washer and planet carrier mm (in)	Maximum	0.2—0.7 (0.008—0.028)
Sun gear drum	Bushing inner diameter mm (in)	Maximum	30.425 (1.198)
Small sun gear	Bushing inner diameter mm (in)	Maximum	21.021 (0.828)
<b>Gear assembly</b>			
Total end play mm (in)			0.25—0.50 (0.010—0.020)
End play adjust race mm (in)			1.2 (0.047), 1.4 (0.055), 1.6 (0.063), 1.8 (0.071), 2.0 (0.079), 2.2 (0.087)
Idle gear bearing preload N-m (cm-kg, in-lb)			0.03—0.9 (0.3—9.0, 0.26—7.81)
Preload adjust shims mm (in)			3.80 (0.150), 3.85 (0.152), 3.90 (0.154), 3.95 (0.156), 4.00 (0.157), 4.05 (0.159), 4.10 (0.161), 4.15 (0.163), 4.20 (0.165), 4.25 (0.167), 4.30 (0.169), 4.35 (0.171), 4.40 (0.173), 4.45 (0.175), 4.50 (0.177), 4.55 (0.179), 4.60 (0.181), 4.65 (0.183), 4.70 (0.185), 4.75 (0.187)
Output gear bearing preload N-m (cm-kg, in-lb)			0.03—0.9 (0.3—9.0, 0.26—7.8)
Preload adjust shims mm (in)			0.50 (0.020), 0.55 (0.022), 0.60 (0.024), 0.65 (0.026), 0.70 (0.028), 0.75 (0.030), 0.80 (0.031), 0.85 (0.033), 0.90 (0.035), 0.95 (0.037), 1.00 (0.039), 1.05 (0.041), 1.10 (0.043), 1.15 (0.045), 1.20 (0.047), 1.25 (0.049), 1.30 (0.051), 1.35 (0.053), 1.40 (0.055), 1.45 (0.057)
<b>Differential</b>			
Bearing preload N-m (cm-kg, in-lb)			2.9—3.9 (30—40, 26—35)
Preload adjust shims mm (in)			0.50 (0.020), 0.55 (0.022), 0.60 (0.024), 0.65 (0.026), 0.70 (0.028), 0.75 (0.030), 0.80 (0.031), 0.85 (0.033), 0.90 (0.035), 0.95 (0.037), 1.00 (0.039), 1.05 (0.041), 1.10 (0.043), 1.15 (0.045), 1.20 (0.047), 1.25 (0.049), 1.30 (0.051), 1.35 (0.053), 1.40 (0.055), 1.45 (0.057)
Backlash of side gear and pinion mm (in)		Standard	0.025—0.1 (0.001—0.004)
		Maximum	0.5 (0.020)
<b>Torque converter</b>			
Bushing inner diameter mm (in)		Standard	53.030 (2.088)
		Maximum	53.075 (2.090)

Spring Specification

	Spring name	Outer diameter mm (in)	Free length mm (in)	No. of coil	Wire diameter mm (in)
Upper control valve body	Throttle modulator spring	8.1 (0.319)	41.6 (1.638)	10.5	0.8 (0.031)
	Throttle spring	5.4 (0.213)	46.2 (1.819)	29.0	0.88 (0.035)
	Throttle assist spring	5.15 (0.203)	26.88 (1.058)	16.2	0.6 (0.024)
Main control valve body	Pressure regulator spring	11.5 (0.453)	34.2 (1.346)	9.5	1.0 (0.039)
	1-2 shift spring	7.4 (0.291)	36.6 (1.441)	12.0	0.8 (0.031)
	Low reducing spring	7.9 (0.311)	34.5 (1.358)	11.0	0.8 (0.031)
	2-3 timing spring	8.0 (0.315)	27.84 (1.096)	10.0	0.8 (0.031)
	3-2 timing spring	8.0 (0.315)	29.98 (1.180)	10.0	0.8 (0.031)
	3-4 shift spring	7.4 (0.291)	36.6 (1.441)	12.0	0.8 (0.031)
	Bypass spring	4.9 (0.193)	27.6 (1.087)	23.0	0.55 (0.022)
Pre-main control valve body	2-3 shift spring	7.4 (0.291)	36.6 (1.441)	12.0	0.8 (0.031)
	Converter relief spring	8.6 (0.339)	68.4 (2.693)	27.5	1.2 (0.047)
	Lockup control spring	5.0 (0.197)	30.1 (1.185)	21.5	0.55 (0.022)
Oil pump	Spring	13.0 (0.512)	53.0 (2.087)	12.0	1.2 (0.047)
Accumulator	1-2 accumulator small spring	11.2 (0.441)	91.7 (3.610)	24.5	1.3 (0.051)
	1-2 accumulator large spring	16.0 (0.630)	91.7 (3.610)	21.0	1.9 (0.075)
	2-3 accumulator small spring	10.0 (0.394)	71.8 (2.827)	24.2	1.4 (0.055)
	2-3 accumulator large spring	15.0 (0.591)	71.8 (2.827)	15.8	2.0 (0.079)
	N-D Accumulator small spring	10.8 (0.425)	101.2 (3.984)	28.2	1.2 (0.047)
	N-D Accumulator large spring	15.0 (0.591)	94.2 (3.709)	16.5	1.6 (0.063)
	N-R Accumulator front spring	8.1 (0.319)	88.0 (3.465)	31.0	1.3 (0.051)
	N-R Accumulator rear spring	14.0 (0.551)	88.2 (3.472)	20.3	1.9 (0.075)
3-4 clutch	Return spring	74.4 (2.929)	40.5 (1.594)	1.0	5.0 (0.197)
Coasting clutch	Return spring	7.3 (0.287)	20.45 (0.805)	10.0	1.0 (0.039)
Low and reverse brake	Return spring	5.55 (0.219)	14.3 (0.563)	12.0	0.75 (0.030)
Servo	Return spring	27.7 (1.091)	43.25 (1.703)	4.5	3.2 (0.126)



Vehicle Speed at Shiftpoint Table

Mode	Range	Throttle condition (Throttle sensor voltage)	Shift	Drum speed rpm	Vehicle speed km/h (mph)
NORMAL	D	Fully open (4.0V)	D1 → D2	5,150—5,750	51—57 (32—35)
			D2 → D3	5,100—5,550	92—100 (57—62)
			D3 → OD	5,150—5,550	143—153 (89—95)
		Half throttle (1.6—2.2V)	D1 → D2	2,850—3,750	28—37 (17—23)
			D2 → D3	2,750—3,600	49—65 (30—40)
			D3 → OD	2,800—3,750	77—103 (48—64)
			Lock-up ON (OD)	2,650—3,400	104—135 (64—84)
		Fully closed (0.5V)	OD → D3	800—950	31—37 (19—23)
			D3 → D1	300—500	8—14 (5—9)
		Kickdown	OD → D3	3,200—3,400	131—141 (81—87)
			D3 → D2	2,900—3,200	80—88 (50—55)
			D2 → D1	2,300—2,600	43—49 (27—30)
	S	Fully open (4.0V)	D1 → D2	5,150—5,750	51—57 (32—35)
			D2 → D3	5,100—5,550	92—100 (57—62)
		Half throttle (1.6—2.2V)	D1 → D2	2,850—3,750	28—37 (17—23)
			D2 → D3	2,750—3,600	49—65 (30—40)
		Fully closed (0.5V)	OD → D3	3,600—3,750	143—149 (89—92)
			D3 → D1	300—500	8—14 (5—9)
		Kickdown	D3 → D2	2,900—3,200	80—88 (50—55)
			D2 → D1	2,150—2,500	39—45 (24—28)
	L	Fully open (4.0V)	D1 → D2	5,150—5,750	51—57 (32—35)
		Half throttle (1.6—2.2V)	D1 → D2	2,850—3,750	28—37 (17—23)
		Kickdown	D2 → D1	2,150—2,500	39—45 (24—28)
			D1 → D2	2,750—3,350	27—33 (17—20)
HOLD	D	—	D1 → D2	2,750—3,350	27—33 (17—20)
			D2 → D3	2,150—2,650	40—50 (25—31)
	S	—	OD → D3	3,600—3,750	143—149 (89—92)
			D3 → D2	3,350—3,550	92—98 (57—61)
	L	—	D2 → D1	2,400—2,750	43—49 (27—30)

## M. FRONT AND REAR AXLES

Item		Transaxle	MTX	ATX
Front axle				
Bearing play axial direction		mm (in)	0 (0)	
Bearing preload* <sup>1</sup>		N-m (cm-kg, in-lb)	0.25—1.18 (2.5—12, 2.17—10.42)	
Rear axle				
Bearing play axial direction		mm (in)	0.05 (0.002)	
Drive shaft				
Shaft length* <sup>2</sup>	mm (in)	Right side	908.4 ± 5 (35.76 ± 0.20)	906 ± 5 (35.67 ± 0.20)
		Left side	634.4 ± 5 (24.98 ± 0.20)	634 ± 5 (24.96 ± 0.20)
Shaft diameter		mm (in)	20 (0.79)	21 (0.83)
Grease amount	g (oz)	Transaxle side	115 ± 10 (4.06 ± 0.35)	115 ± 10 (4.06 ± 0.35)
		Wheel side	60 ± 10 (2.12 ± 0.35)	80 ± 10 (2.82 ± 0.35)

\*<sup>1</sup> Without oil seal\*<sup>2</sup> Before measuring the drive shaft length, lift the boot to equalize the pressure within it.

## N. STEERING SYSTEM

Item		Type	Manual steering	Power steering
<b>Steering wheel</b>				
Outer diameter		mm (in)	370 (14.57)	
Free play		mm (in)	0—30 (0—1.18)	
Operation force		N (kg, lb)	118 (12, 26.4) or less	29 (3, 6.6) or less
Lock-to-lock			3.8	3.3
<b>Steering gear</b>				
Type			Rack and pinion	
Steering gear ratio			Infinite (∞)	
Backlash between rack and pinion		mm (in)	0 (0)	
Power assist type			—	Engine speed sensing
Power steering fluid			—	ATF Dexron®II or M-III
Fluid capacity		liters (US qt, Imp qt)	—	0.6 (0.63, 0.53)
Pinion preload	Measured by torque wrench	N-m (cm-kg, in-lb)	0.9—1.3 (9—13, 7.7—11.3)	0.8—1.3 (8—13, 6.9—11.3)
	Measured by pull scale with attachment	g (oz)	900—1,300 (31.7—45.9)	800—1,300 (28.2—45.9)
Limit of rack housing movement		mm (in)	1.5 (0.06)	
Distance between left and right brackets		mm (in)	330.0 (12.99)	
Rack stroke		mm (in)	136 $\begin{smallmatrix} +0 \\ -2 \end{smallmatrix}$ (5.35 $\begin{smallmatrix} +0 \\ -0.08 \end{smallmatrix}$ )	



## P. BRAKING SYSTEM

Item			Specifications
Brake pedal			
Type			Suspended
Height (with carpet)		mm (in)	198—209 (7.80—8.23)
Free play		mm (in)	4—7 (0.16—0.28)
Reserve travel		mm (in)	60 (2.37) min.
Clearance when pedal depressed at 589 N (60 kg, 132 lb)			
Master cylinder			
Type			Tandem
Bore		mm (in)	20.64 (0.81)
Fluid type			SAE J1703 or FMVSS116 DOT-3
Front disc brake			
Type			Solid
Thickness of pad		mm (in)	Standard
			Minimum
Thickness of disc plate		mm (in)	Standard
			Minimum
Runout of disc plate		mm (in)	0.1 (0.004)
Rear drum brake			
Type			Leading & Trailing
Thickness of lining		mm (in)	Standard
			Minimum
Drum inside diameter		mm (in)	Standard
			Maximum
Parking brake			
Type			Mechanical two-rear-wheel control
Parking brake lever notches When lever is pulled at 98 N (10 kg, 22 lb)			6—8
Power brake unit			
Type			Vacuum multiplier
Fluid pressure when pedal force at 196 N (20 kg, 44 lb) kPa (kg/cm <sup>2</sup> , psi)	Vacuum at 0 mmHg (0 inHg)		1275 (13, 185) min.
	Vacuum at 500 mmHg (19.7 inHg)	ATX	7260 (74, 1053) min.
		MTX	5690 (58, 825) min.
Rear wheel hydraulic control system			
Type			Dual proportioning valve
Fluid output pressure kPa (kg/cm <sup>2</sup> , psi)	When input pressure at 2943 kPa (30 kg/cm <sup>2</sup> , 427 psi)		2943 ± 196 (30 ± 2, 427 ± 28)
	When input pressure at 5886 kPa (60 kg/cm <sup>2</sup> , 853 psi)		ATX: 3532 ± 294 (36 ± 3, 512 ± 43) MTX: 3826 ± 294 (39 ± 3, 555 ± 43)

# Q. WHEELS AND TIRES

## Standard tire

Item			Specifications
Wheel	Size		14 × 5 1/2JJ
	Offset	mm (in)	45 (1.77)
	Pitch circle diameter	mm (in)	100 (3.94)
	Material		Aluminum alloy
Tire	Size		175/60R14 78H
	Air pressure kPa (kgf/cm <sup>2</sup> , psi)	Front	180 (1.8, 26)
		Rear	

## Temporary spare tire

Item			Specifications
Wheel	Size		14 × 4T
	Offset	mm (in)	45 (1.77)
	Pitch circle diameter	mm (in)	100 (3.94)
	Material		Steel
Tire	Size		T105/70D14
	Air pressure kPa (kgf/cm <sup>2</sup> , psi)	Front	412 (4.2, 60)
		Rear	

## Wheel and tire

Item		Specifications
Runout limit	mm (in)	Horizontal
		Vertical
Unbalance limit (at rim edge)		g (oz)

## R. SUSPENSION

Item			Type	ATX	MTX
Front suspension					
Type				Strut	
Coil spring	Identification mark color	M * <sup>1</sup>	Light green	White	
		A * <sup>2</sup>	Orange	—	
	Wire diameter	mm (in)	10.2 (0.40)	10.0 (0.39)	
	Coil center diameter	mm (in)	95.0 (3.74)	95.0 (3.74)	
	Free length	mm (in)	385.6 (15.18)	373.5 (14.70)	
	Coil number	turns	7.89	7.24	
Shock absorber	Type		Cylindrical, double-acting (oil-filled)		
Stabilizer	Type		Torsion bar		
	Diameter mm (in)		24 (0.94)		
Wheel alignment (Unladen * <sup>3</sup> )	Maximum steering angle	Inner	41° ± 2°		
		Outer	34° ± 2°		
	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)		
		degree	0°10' ± 10'		
	Camber angle		0°50' ± 45'		
	Caster angle		1°40' ± 45'		
	Kingpin angle		14°25'		
Rear suspension					
Type				Torsion beam axle	
Coil spring	Identification mark color	M * <sup>1</sup>	Yellow		
		A * <sup>2</sup>	Orange		
	Wire diameter	mm (in)	9.1 (0.36)		
	Coil center diameter	mm (in)	90.0 (3.54)		
	Free length	mm (in)	334.0 (13.15)		
	Coil number	turns	6.49		
Shock absorber	Type		Cylindrical, double-acting (low-pressure gas charged)		
Stabilizer	Type		Torsion bar		
	Diameter mm (in)		15 (0.59)		
Wheel alignment (Unladen * <sup>3</sup> )	Total toe-in	mm (in)	3 ± 3 (0.12 ± 0.12)		
		degree	0°10' ± 10'		
	Camber angle		-0°15' ± 45'		

<sup>\*1</sup> Main identification mark color: On second coil from bottom.

<sup>\*2</sup> Auxiliary identification mark color: On third coil from bottom.

<sup>\*3</sup> Fuel tank full; radiator coolant and engine oil at specified levels; and spare tire, jack, and tools in designated positions.

**T. BODY ELECTRICAL SYSTEM**

Item		Specifications (W)
Exterior lamps	Headlight	60/55
	Front turn signal	21
	Position light	4
	Front side turn light	5
	Stop/Taillight	21/5
	Rear turn signal light	21
	Back-up light	21
	License plate light	7.5
Interior lamps	Interior lamp	10
	Trunk compartment lamp	5
Indicator and warning lamps	High beam	3.4
	Turn light	3.4
	Brake	3.4
	Hold	3.4
	Charge	3.4
	Oil pressure	3.4
	Rear window defroster	3.4
	Rear fog	1.4
	Illumination	3.4
	Parking brake	1.4

**U. HEATER AND AIR CONDITIONER SYSTEMS**

Item	Specification
Refrigerant amount	700 g (24.71 oz)
Refrigerant pressure	High pressure: 1276—1471 kPa (13.0—15.0 kg/cm <sup>2</sup> , 185—213 psi) Low pressure: 197—294 kPa (2.0—3.0 kg/cm <sup>2</sup> , 28.5—42.6 psi)

**STANDARD BOLT AND NUT TIGHTENING TORQUE**

Diameter mm (in)	Pitch mm (in)	4T			6T			8T		
		N-m	m-kg	ft-lb	N-m	m-kg	ft-lb	N-m	m-kg	ft-lb
6 (0.236)	1 (0.039)	4.2—6.2	0.43—0.63	3.1—4.6	6.9—9.8	0.7—1.0	5.0—7.2	7.8—11.8	0.8—1.2	5.8—8.8
8 (0.315)	1.25 (0.049)	9.8—14.7	1.0—1.5	7.2—10.8	16—23	1.6—2.3	12—17	18—26	1.8—2.7	13—20
10 (0.394)	1.25 (0.049)	20—28	2.0—2.9	14—21	31—46	3.2—4.7	23—34	36—54	3.7—5.5	27—40
12 (0.472)	1.5 (0.059)	34—50	3.5—5.1	25—37	55—80	5.6—8.2	41—59	63—93	6.4—9.5	46—69
14 (0.551)	1.5 (0.059)	—	—	—	75—103	7.7—10.5	56—76	102—137	10—14	75—101
16 (0.630)	1.5 (0.059)	—	—	—	116—157	12—16	85—116	156—211	16—22	115—156
18 (0.709)	1.5 (0.059)	—	—	—	167—225	17—23	123—166	221—299	23—31	163—221
20 (0.787)	1.5 (0.059)	—	—	—	231—314	24—32	171—231	308—417	31—43	227—307
22 (0.866)	1.5 (0.059)	—	—	—	314—423	32—43	231—312	417—564	43—58	307—416
24 (0.945)	1.5 (0.059)	—	—	—	475—546	41—56	298—403	536—726	55—74	396—536

# SPECIAL TOOLS

GENERAL INFORMATION .....	ST- 2
ENGINE.....	ST- 3
CLUTCH AND MANUAL TRANSAXLE.....	ST- 4
AUTOMATIC TRANSAXLE.....	ST- 5
BRAKE AND AXLE .....	ST- 7
STEERING AND SUSPENSION.....	ST- 8
CHECKER AND OTHER EQUIPMENT.....	ST- 9
AIR CONDITIONER.....	ST-10

01ASTX-001

**GENERAL INFORMATION**

The letters A and B in the priority column indicate the degree of importance of each tool.

A.....Indispensable

The tools ranked A in this list are indispensable for performing operations satisfactorily, easily, safely, and efficiently. It is, therefore advisable that all service shops have these tools.

B.....Selective

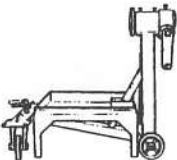

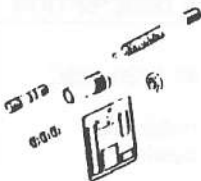
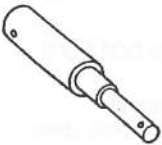
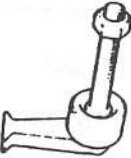


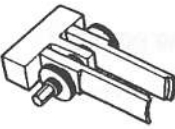
The tools in this list are not as necessary as tools ranked A, but all service shops should have these tools to perform repairs more easily and more efficiently.



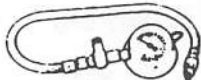
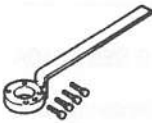


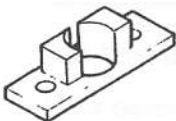
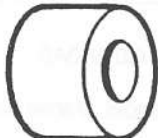
**Note**

- **When ordering tool sets that consist of several tools, check the List in the Parts Catalogue to make sure that some tools are not duplicated in other sets you may already have. If they are, instead of ordering the set, order only those new tools that are needed.**

9MUSTX-002

## ENGINE

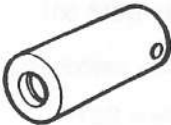
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0107 680A Engine stand	A	
49 0636 100B Valve spring lifter arm	A	
49 L012 0A0 Installer set, valve seal & valve guide	A	
49 D011 003 Installer, piston pin	A	
49 E301 060 Brake, ring gear	A	
49 D015 0A0 Radiator tester adapter <b>New SST</b>	A	
49 L010 1A0 Hanger set, engine stand	A	
49 B012 0A2 Pivot	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 D015 001 Box wrench <b>New SST</b>	A	
49 B012 005 Remover and installer, valve guide	A	
49 0187 280 Oil pressure gauge	A	
49 D011 102 Lock tool, crankshaft <b>New SST</b>	A	
49 9200 020 Tension gauge, V-ribbed belt	B	
49 D011 001 Support block body	A	
49 H011 001B Support block head	A	
49 8134 045 Piston pin guide	A	

ST


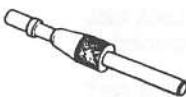


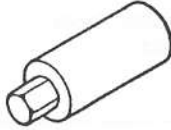



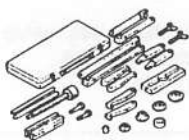

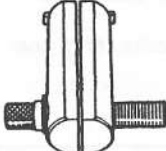
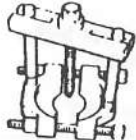
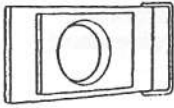
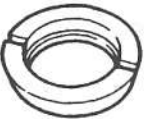
## ENGINE (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 8134 044 Piston pin guide	A	

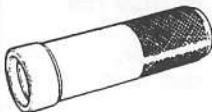



TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
—	—	—




## CLUTCH AND MANUAL TRANSAXLE

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 G017 5A0 Engine support	A	
49 SE01 310A Centering tool, clutch disc <b>New SST</b>	A	
49 F401 337A Attachment C	A	
49 D017 2A2A Shim selector set	A	
49 D017 101 Preload adapter	A	
49 G019 0A0 Hanger, transaxle	A	

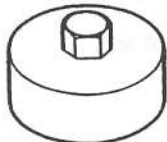

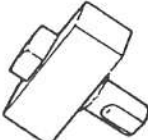
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0839 425C Puller set, bearing	A	
49 D027 001 Holder, diff. side gear	A	
49 FT01 361 Remover, bearing	A	
49 0710 520 Puller, bearing	A	
49 F401 366A Plate	A	
49 B092 371 Attachment E	A	

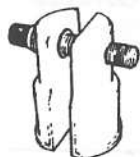
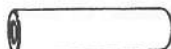
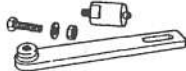
## CLUTCH AND MANUAL TRANSAXLE (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 F401 331 Body	A	
49 G030 795 Installer, oil seal	A	
49 1285 071 Puller, bearing	A	
49 D027 002 Attachment L	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 D017 201 Attachment	A	
49 0187 520 Puller, rear axle shaft bearing	A	
49 0636 145 Puller, fan pulley boss	A	
—	—	—

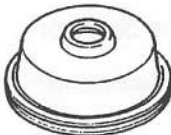



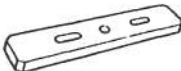
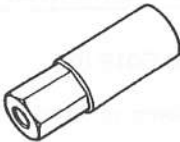

## AUTOMATIC TRANSAXLE


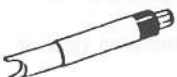





TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 B019 007 Adapter, preload	A	
49 D019 001 Bolt	A	
49 FT01 439 Holder, idle gear shaft	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 G019 013 Remover, bearing	A	
49 FT01 384 Collar	A	
49 G019 0A2 Holder, turbine shaft	A	


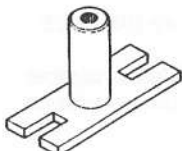
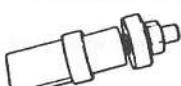


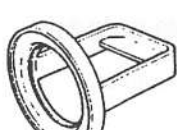


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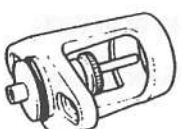
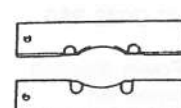



## AUTOMATIC TRANSAXLE (CONT'D)

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 B019 006 Adapter	A	
49 0378 400A Gauge set, oil pressure	A	
49 H019 002 Adapter	A	
49 B019 008 Leak checker	A	
49 G019 026 Plate	A	
49 G019 029 Nut	A	
49 G019 017 Installer, oil seal	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 S120 785 Installer, dust boot	A	
49 FT01 515A Preload adapter	A	
49 B019 002 Body	A	
49 G019 025 Body B	A	
49 G019 027 Attachment A	A	
49 G019 021 Bolt set	A	
49 B019 9A2 Gauge set, oil pressure	A	


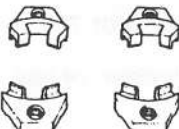
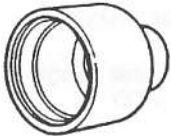
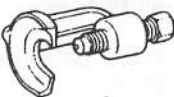




## BRAKE AND AXLE


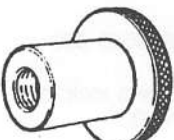

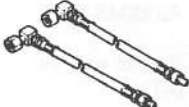
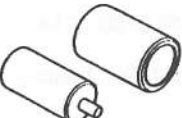

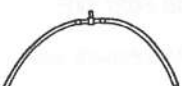
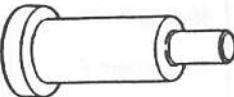
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0259 770B Wrench, flare nut	A	
49 B043 003 Tuning lock tool (ATX)	A	
49 B001 727 Spacer selector	A	
49 B043 004 Socket wrench (ATX)	A	
49 0180 321A Installer, bearing	A	
49 G025 001 Installer, sensor rotor	A	
49 F027 005 Attachment $\phi 62$	A	
49 B092 372 Attachment F	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0221 600C Expand tool, disc brake	B	
49 B001 795 Installer, oil seal	A	
49 F043 001 Adjust gauge (MTX)	A	
49 B043 001 Adjust gauge (ATX)	A	
49 F026 103 Puller, wheel hub	A	
49 G033 102 Handle	A	
49 G030 727 Attachment A	A	
49 0727 575 Puller, ball joint	A	

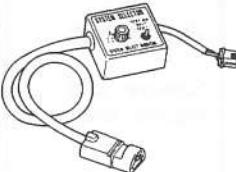
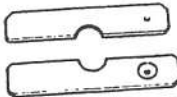
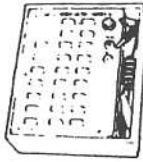
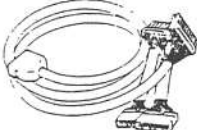

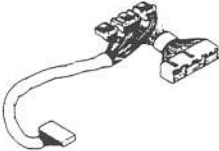
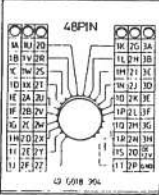
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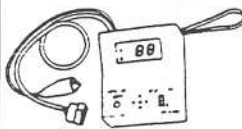
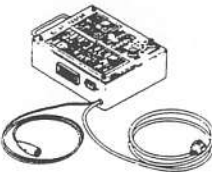
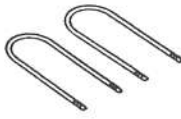

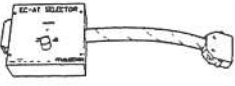
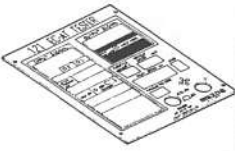
## STEERING AND SUSPENSION

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0180 510B Preload attachment	B	
49 0223 640B Compressor arm, coil spring	A	
49 8038 785 Installer, dust boot	A	
49 0118 850C Puller, ball joint	A	
49 D032 3A0 Power steering repair set	A	
49 D034 201 Installer, dust boot	A	
49 1232 670A Power steering gauge set	A	
49 B032 304 Adaptor	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0370 641 Compressor screw, coil spring	A	
49 B001 605 Caster camber gauge adapter	A	
49 0208 701A Air out tool, boot	B	
49 H002 671 Adapter	A	
49 D034 2A0 Puller & installer set, lower arm bush	A	
49 G032 319 Adaptor	A	
49 G032 317 Hose	A	
49 B032 305 Holder, power steering pump	A	

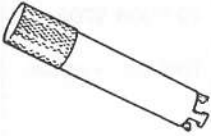
## CHECKER AND OTHER EQUIPMENT

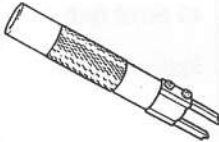
TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 B019 9A0 System selector	A	
49 E301 144 Removing plate	A	
49 0839 285 Checker, fuel thermometer	A	
49 F019 901 Harness	A	
49 9200 162 Engine signal monitor	A	
49 G018 903 Adapter harness	A	
49 G018 904 Sheet	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 0305 870A Tool set, window	A	
49 H018 9A1 Self-diagnosis checker	A	
49 G019 901A EC-AT tester	A	
49 D066 801 Removing tool <b>New SST</b>	A	
49 G050 1A0 Sealant remover	A	
49 B019 9A1 EC-AT selector	A	
49 D019 901 Panel <b>New SST</b>	A	

ST

## AIR CONDITIONER

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 B061 005  Replacer, seal place	A	

TOOL NUMBER & DESCRIPTION	PRIORITY	ILLUSTRATION
49 B061 006  Remover and installer, seal	A	



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