

HEATING AND AIR CONDITIONING

SECTION 1A HEATING AND VENTILATION

Caution:

When fasteners are removed, always reinstall them at the same location from which they were removed. If a fastener needs to be replaced, use the correct part number fastener for that application. If the correct part number fastener is not available, a fastener of equal size and strength (or stronger) may be used.

Fasteners that are not reused, and those requiring thread locking compound, will be called out. The correct torque values must be used when installing fasteners that require it. If the above conditions are not followed, parts or system damage could result.

Contents

GENERAL DESCRIPTION	1A-2
Heater	1A-2
Control Lever Assembly	1A-3
Ventilation	1A-4
Air Select Lever	1A-4
Air Source Select Lever	1A-4
Fan Switch Lever	1A-4
Temperature Control Lever	1A-5
ON-VEHICLE SERVICE	1A-6
Heater Unit/Heater Core	1A-6
Heater Temperature Control Link Unit/Air Mix Door ..	1A-8
Heater Mode Control Link Unit/Mode Door	1A-9
Blower Assembly	1A-10
Blower Link Unit/Mode Door	1A-13
Blower Motor	1A-14
Blower Filter	1A-16
Ventilation Grille	1A-17
Defroster Nozzle/Ventilation Duct	1A-19
Control Lever Assembly	1A-20
Control Panel Illumination Bulb	1A-23
Resistor	1A-24

GENERAL DESCRIPTION

Heater

When the engine warming up, the warmed engine coolant is sent out into the heater core. The heater system supplies warm air into the passenger compartment to warm it up.

Outside air is circulated through the heater core of the heater unit and then back into the passenger compartment. By controlling the mixture of outside air and heater core air, the most comfortable passenger compartment temperature can be selected and maintained.

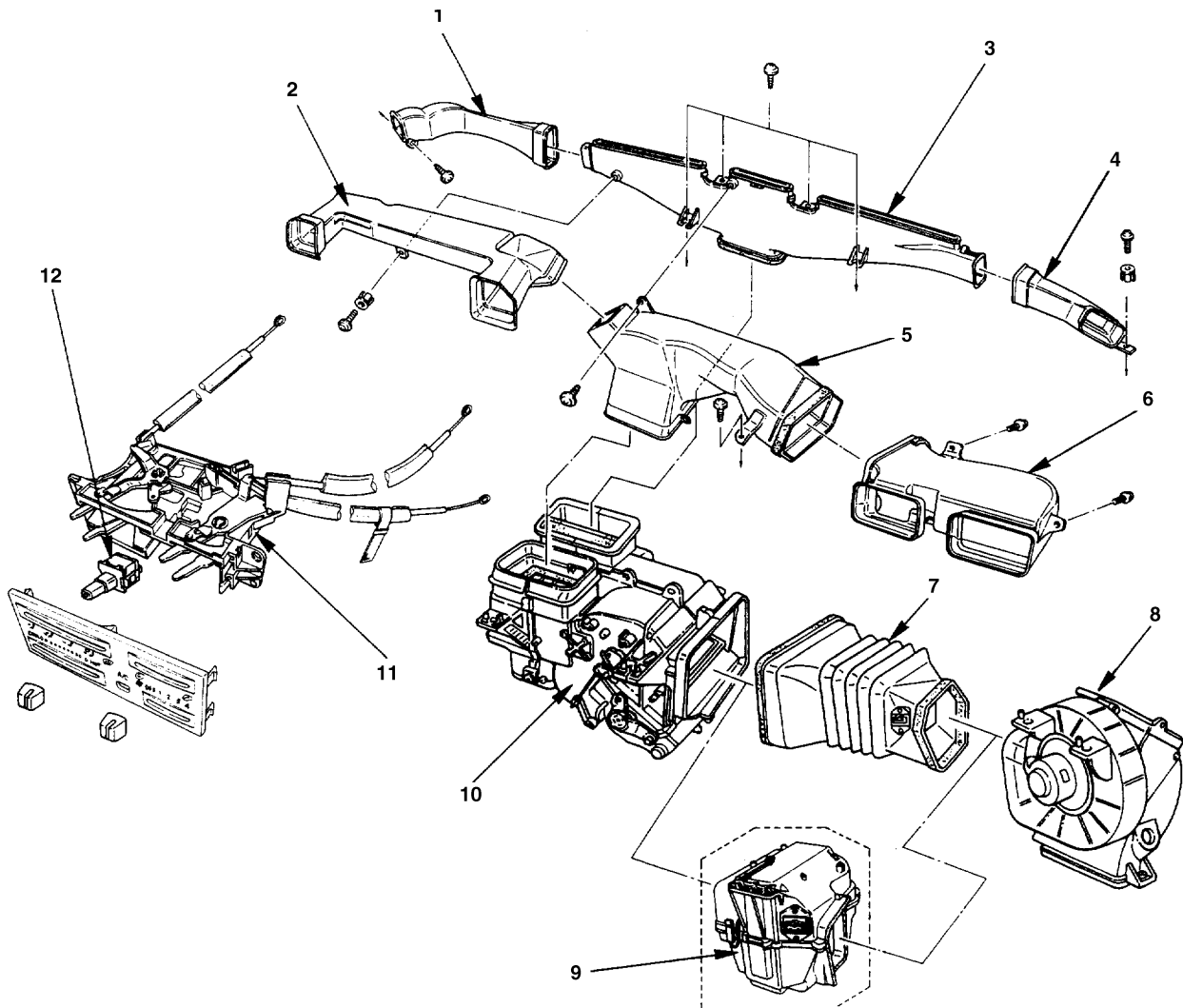
The temperature of warm air sent to the passenger compartment is controlled by the temperature control lever. This lever acts to open and close the air mix door, thus controlling the amount of air passed through the heater core.

The air select lever, with its different modes, also allows you to select and maintain the most comfortable passenger compartment temperature.

The air source select lever is used to select either "FRESH" for the introduction of the outside air, or "CIRC" for the circulation of the inside air. When the lever is set to "FRESH", the outside air is always taken into the passenger compartment.

When setting the lever to "CIRC" position, the circulation of air is restricted only to the inside air with no introduction of the outside air and the air in the passenger compartment gets warm quickened. However, the lever is normally set to "FRESH" to prevent the windshield from clouding.

This illustration is based on LHD



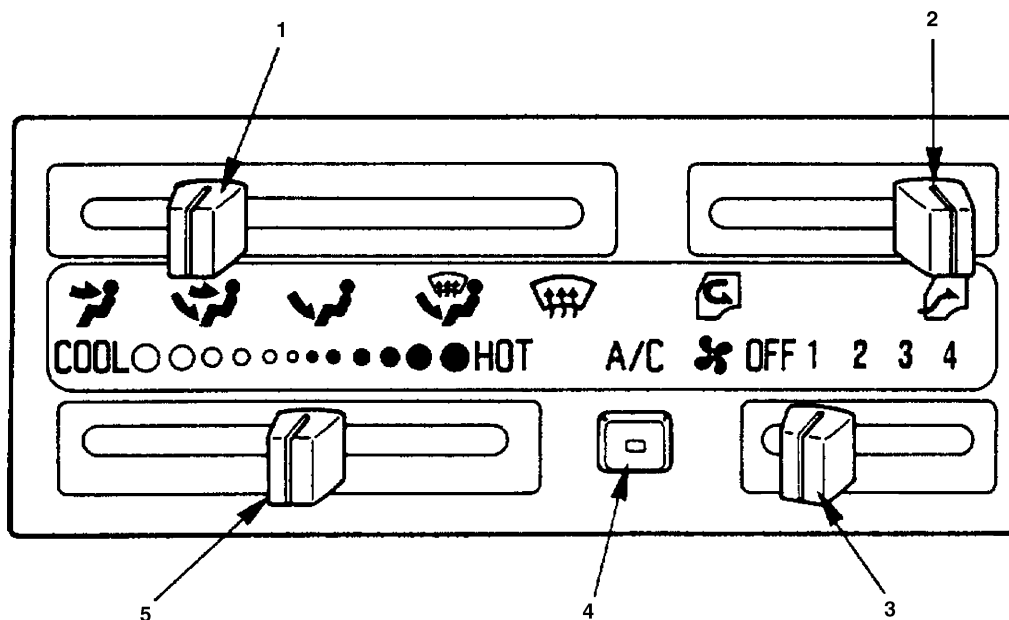
Legend

- | | |
|-------------------------------|--------------------------------|
| 1. Side defroster nozzle (LH) | 7. Duct |
| 2. Ventilation duct (LH) | 8. Blower assembly |
| 3. Defroster nozzle | 9. Evaporator assembly (W/A/C) |
| 4. Side defroster nozzle (RH) | 10. Heater unit |
| 5. Ventilation duct (Center) | 11. Control lever assembly |
| 6. Ventilation duct (RH) | 12. A/C switch |

Control Lever Assembly

The vehicle has cable-control-type to control by cable the mode and temperature of the heater unit and the mode door for the air source of the blower assembly.

The fan control is used to control the amount of air sent out by the resistor at four levels from "LOW" to "HIGH".



N1A0017E

Legend

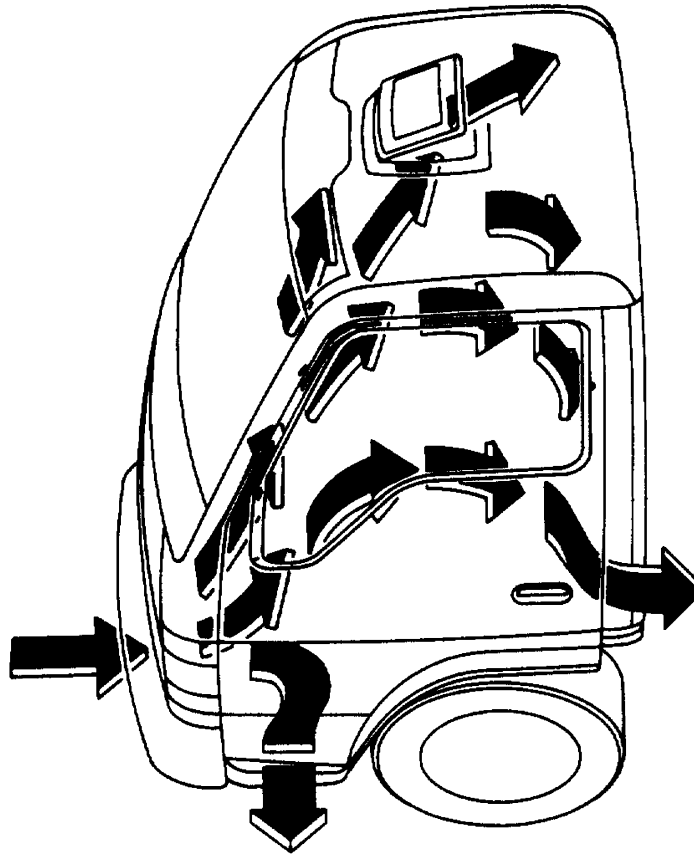
- | | |
|----------------------------|------------------------------|
| 1. Air select lever | 4. A/C switch (W/A/C) |
| 2. Air source select lever | 5. Temperature control lever |
| 3. Fan switch lever | |

1A-4 HEATING AND VENTILATION

Ventilation

Set "AIR SOURCE SELECT LEVER" to "FRESH" position and turn on the blower fan. Heating can be done in this lever position, sending in fresh air from outside.

The blower fan also serves to deliver fresh outside air to the vehicle interior to assure adequate ventilation.



N1A0018E

Air Select Lever

The air selector lever allows you to direct heated air into the passenger compartment through different outlets.

1. **Vent** - In this position, air is discharged from the upper air outlet. Air quantity is controlled by the fan control knob.
2. **Bi-Level** - In this position, air flow is divided between the upper air outlets and the foot air outlets, with warmer air delivered to the floor outlets than the air delivered to the upper air outlets.
3. **Foot** - In this position, air flow is delivered to the foot only.
4. **Def/Foot** - In this position, air flow is delivered to the foot, while sending approx. 30% of total amount of air to the windshield.
5. **Defrost** - In this position, most of the air is delivered to the windshield and a small amount is delivered to the side windows.

Air Source Select Lever

The intake of outside air and the circulation of inside air are controlled by sliding this lever left or right.

Moving the air source select lever to the "CIRC" position provides quickest heat delivery by closing the blower assembly mode door. In this position, outside air is not delivered to the passenger compartment.

Fan Switch Lever

This lever controls the blower motor speed to regulate the amount of air delivered to the defrost, foot, and ventilation ducts:

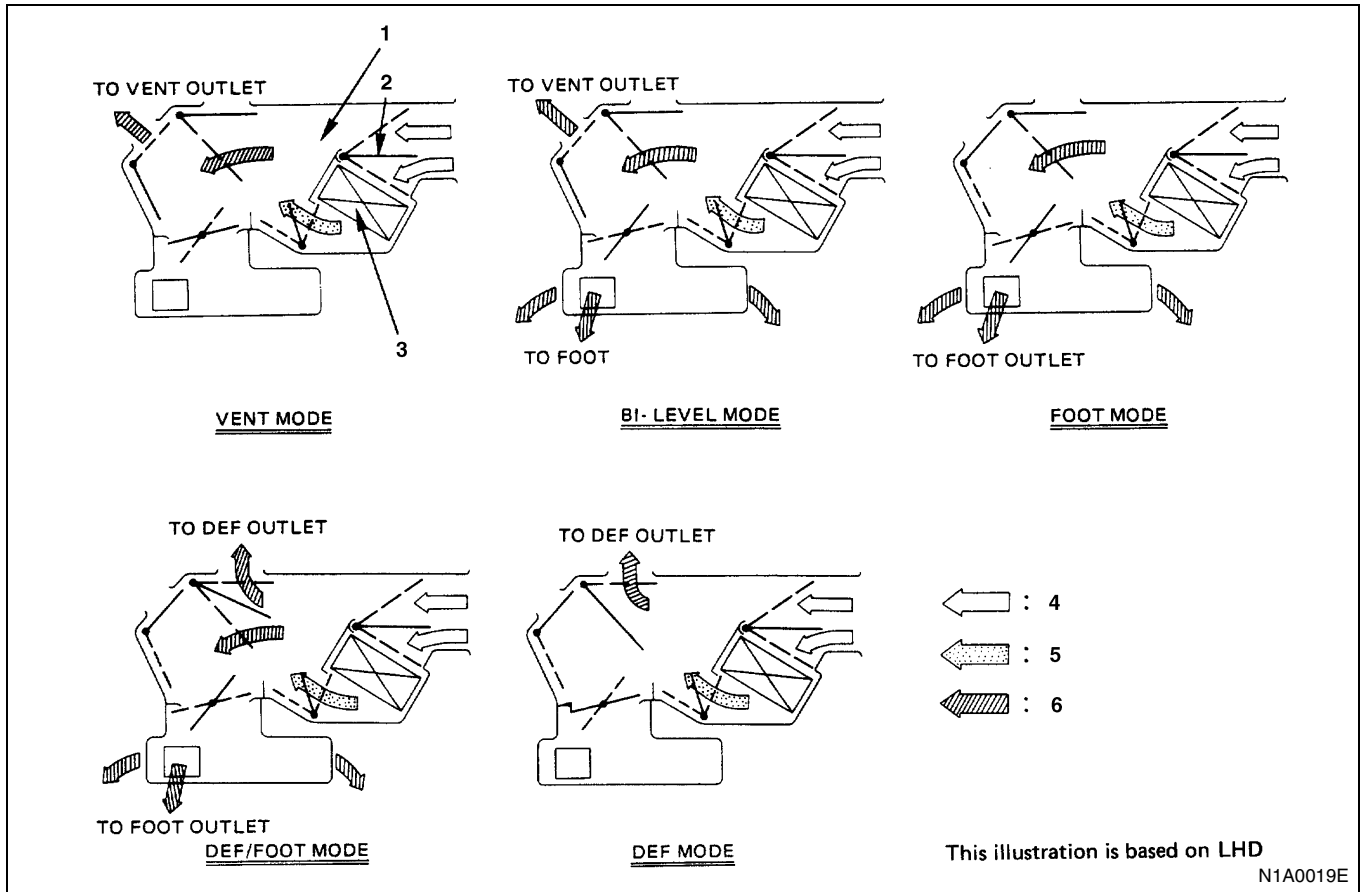
1. Low
2. Medium Low
3. Medium High
4. High

Temperature Control Lever

When the temperature control lever is in the "COLD" position, the air mix door closes to block the flow of air to the heater core.

When the temperature control lever is in the "HOT" position, the air mix door opens to allow air to pass through the heater core and heat the passenger compartment.

Placing the lever in an intermediate position will cause a lesser or greater amount of air to reach the heater core. In this mode the passenger compartment temperature can be regulated.

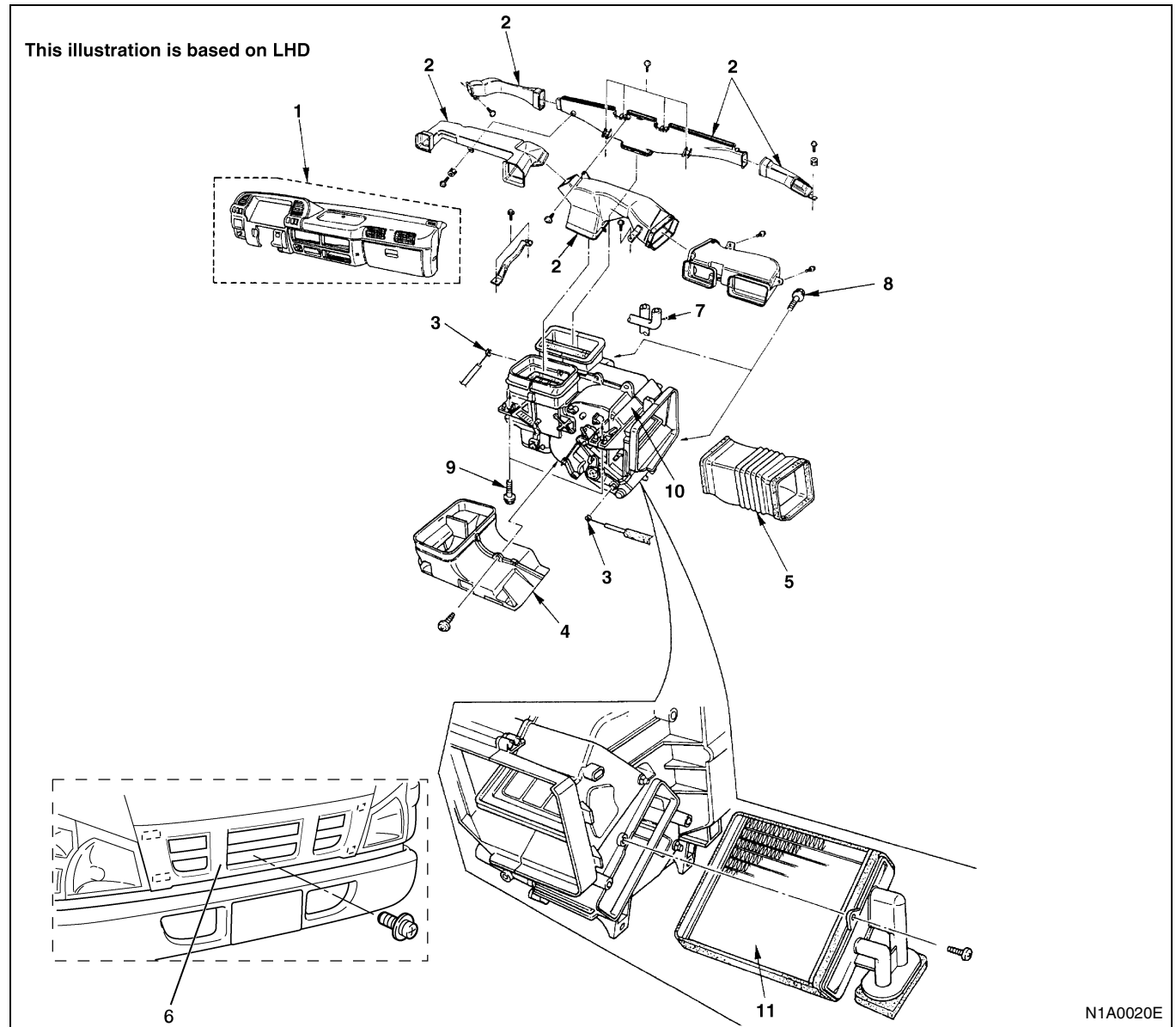


Legend

- | | |
|-----------------|-------------------------------|
| 1. Heater unit | 4. Cold air |
| 2. Air mix door | 5. Hot air |
| 3. Heater core | 6. Temperature controlled air |

ON-VEHICLE SERVICE

Heater Unit/Heater Core



Legend

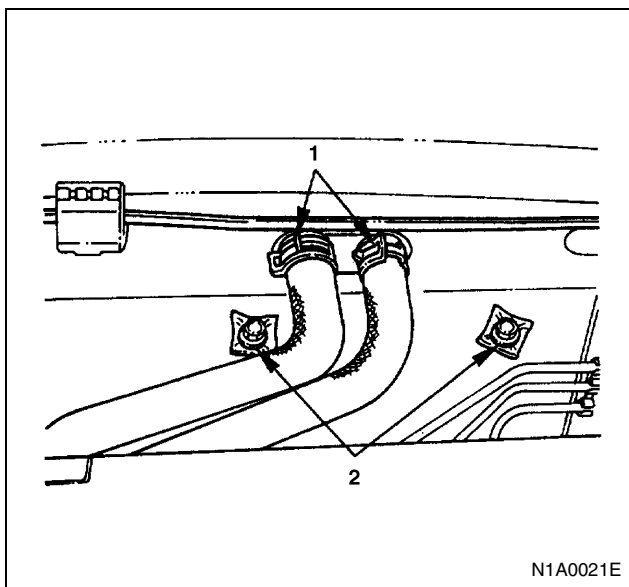
- | | |
|--|-----------------------------------|
| 1. Instrument panel assembly | 7. Water hose |
| 2. Defroster nozzle and ventilation duct | 8. Bolt (Panel - Heater unit) |
| 3. Heater control cable | 9. Bolt (Heater unit - Reinforce) |
| 4. Foot duct | 10. Heater unit |
| 5. Duct (NPR only) | 11. Heater core |
| 6. Front grille | |

Removal

Preparation:

Disconnect the battery ground cable.

1. Instrument Panel Assembly
Refer to Section 2 "CAB AND FRAME" for Instrument Panel Assembly removal procedure.
2. Defroster Nozzle and Ventilation Duct
Refer to "DEFROSTER NOZZLE / VENTILATION DUCT" removal procedure in this section.
3. Heater Control Cable
Disconnect the cables from the heater unit.
4. Foot Duct
5. Duct (NPR only)
6. Front Grille
7. Water Hose
 - Loosen the water hose clips and disconnect the water hoses from the heater unit.
 - Put caps to the openings of the heater unit and the water hoses to prevent a lot of engine coolant from spilling out of them.
8. Bolt (Panel - Heater Unit)

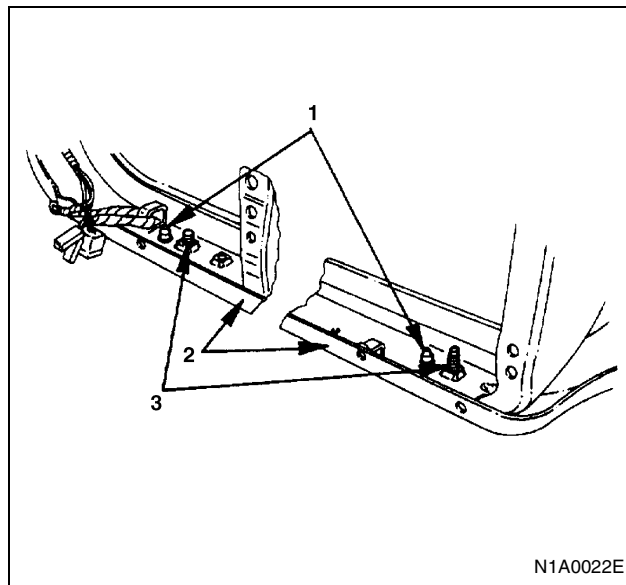


Legend

1. Water hose clip
2. Bolt

9. Bolt (Heater Unit - Reinforce)
10. Heater Unit

- Drop the heater unit positioning pins from the reinforce, and remove the heater unit while sliding the engaged section between the evaporator and the heater unit.



Legend

1. Pin
2. Reinforce
3. Fixing bolt (Heater unit - Reinforce)

11. Heater Core

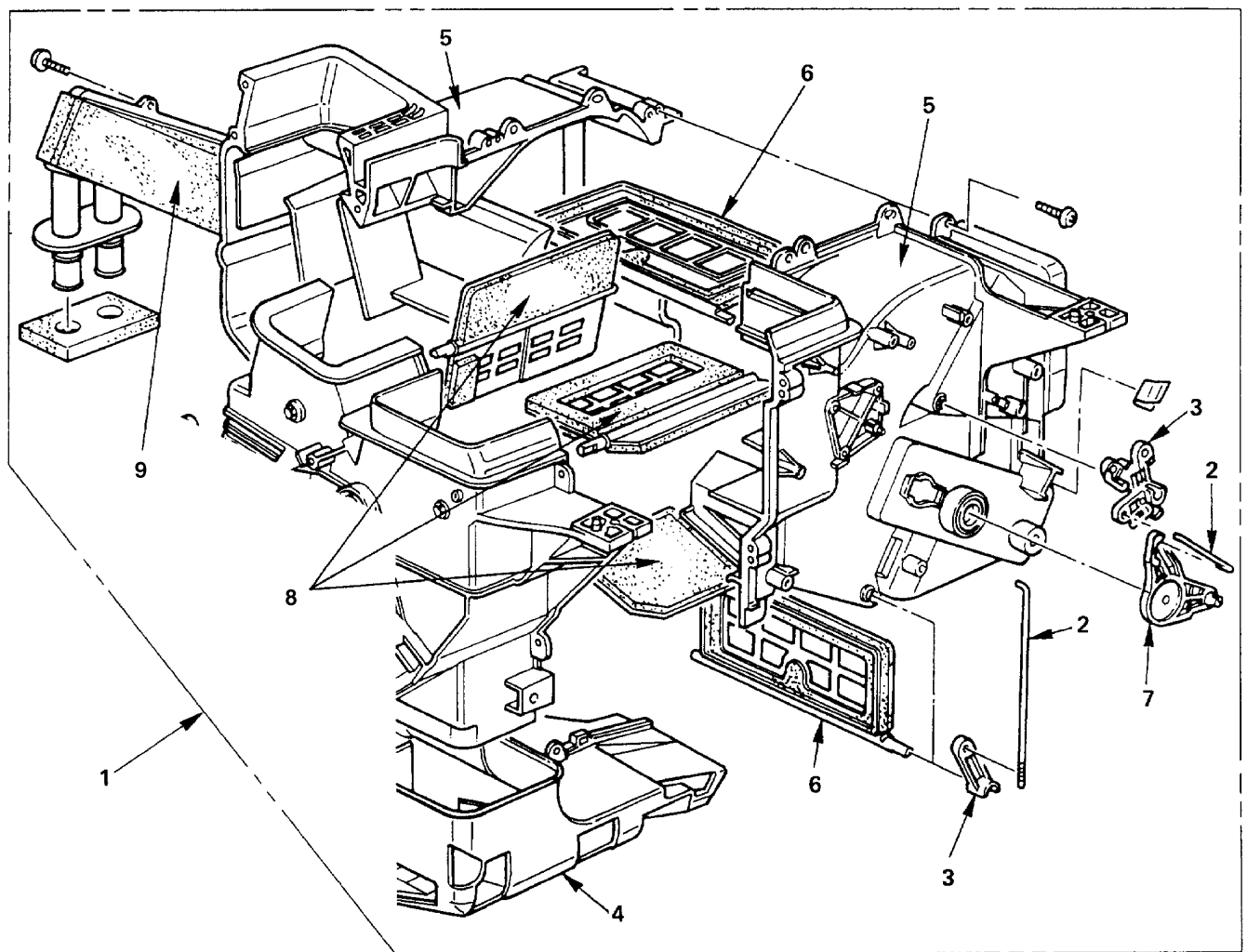
Installation

To install, follow the removal steps in the reverse order, noting the following points.

1. Adjust the heater control cable.
Refer to "CONTROL LEVER ASSEMBLY" installation procedure in this section.
2. When installing the heater unit, defroster nozzles and ventilation ducts, be sure that proper seal is made, without any gap between them.
3. Check the engine coolant level. When the level is below the specified amount, replenish engine coolant to the proper level.

Heater Temperature Control Link Unit/Air Mix Door

This illustration is based on LHD



N1A0023E

Legend

- | | |
|----------------|------------------|
| 1. Heater unit | 6. Air mix door |
| 2. Rod | 7. Mix sub lever |
| 3. Door lever | 8. Mode door |
| 4. Foot duct | 9. Heater core |
| 5. Upper case | |

Removal

Preparation:

Disconnect the battery ground cable.

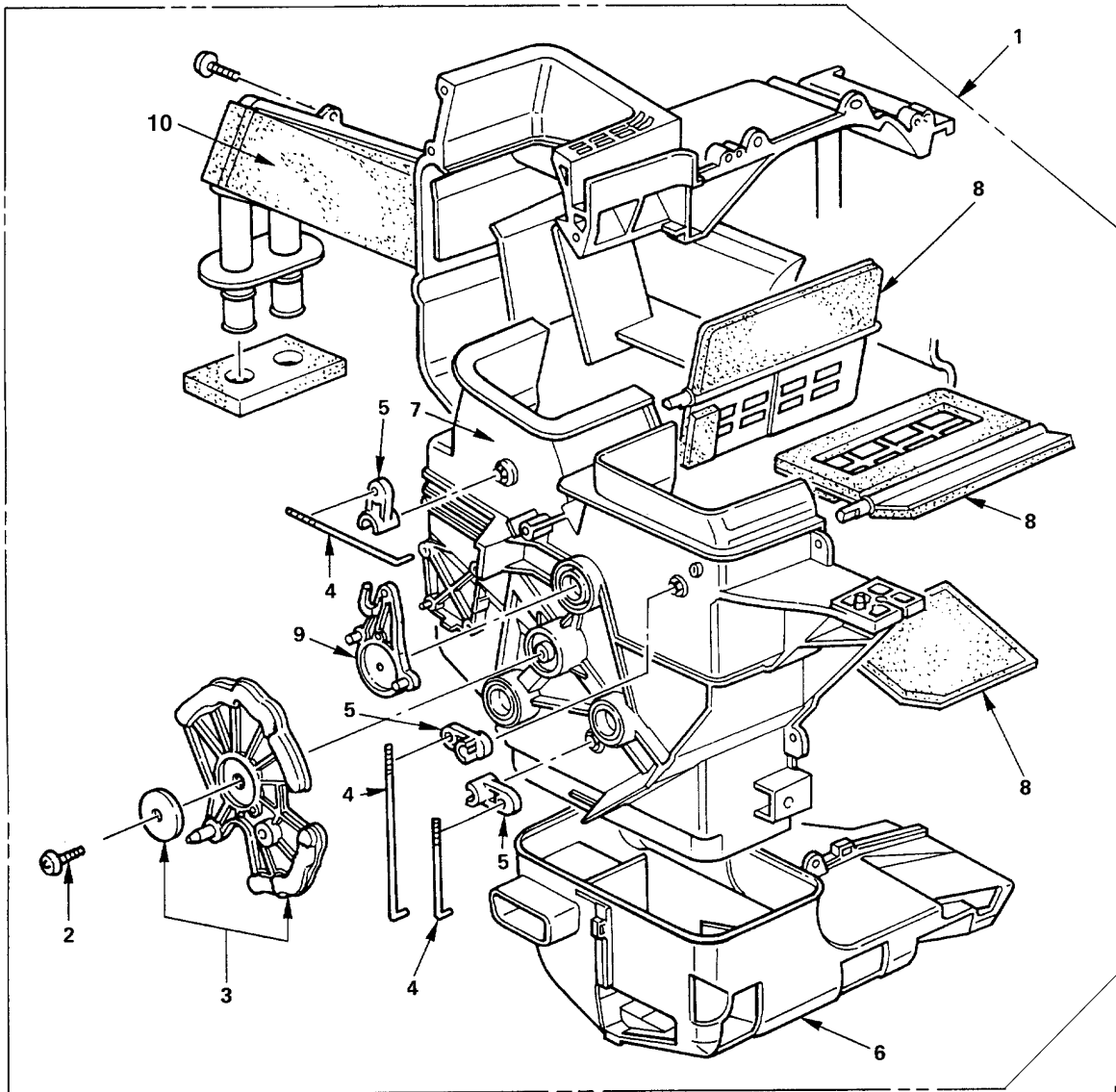
- | | |
|--|--|
| 1. Heater Unit
Refer to "HEATER UNIT" removal procedure in this section. | 5. Upper Case
Separate two halves of the upper case. |
| 2. Rod | 6. Air Mix Door |
| 3. Door Lever
Pull out the door lever while raising up the catch of the door lever. | 7. Mix Sub Lever
Press the tab of the sub lever inward, and take out the sub lever. |
| 4. Foot Duct | |

Installation

To install, follow the removal steps in the reverse order.

Heater Mode Control Link Unit/Mode Door

This illustration is based on LHD



N1A0024E

Legend

- | | |
|-------------------------------|-------------------|
| 1. Heater unit | 6. Foot duct |
| 2. Screw | 7. Upper case |
| 3. Washer and mode main lever | 8. Mode door |
| 4. Rod | 9. Mode sub lever |
| 5. Door lever | 10. Heater core |

Removal

Preparation:

Disconnect the battery ground cable.

1. Heater Unit
Refer to "HEATER UNIT" removal procedure in this section.
2. Screw
3. Washer and Mode Main Lever
4. Rod
5. Door Lever

Pull out the door lever while raising up the catch of the door lever.

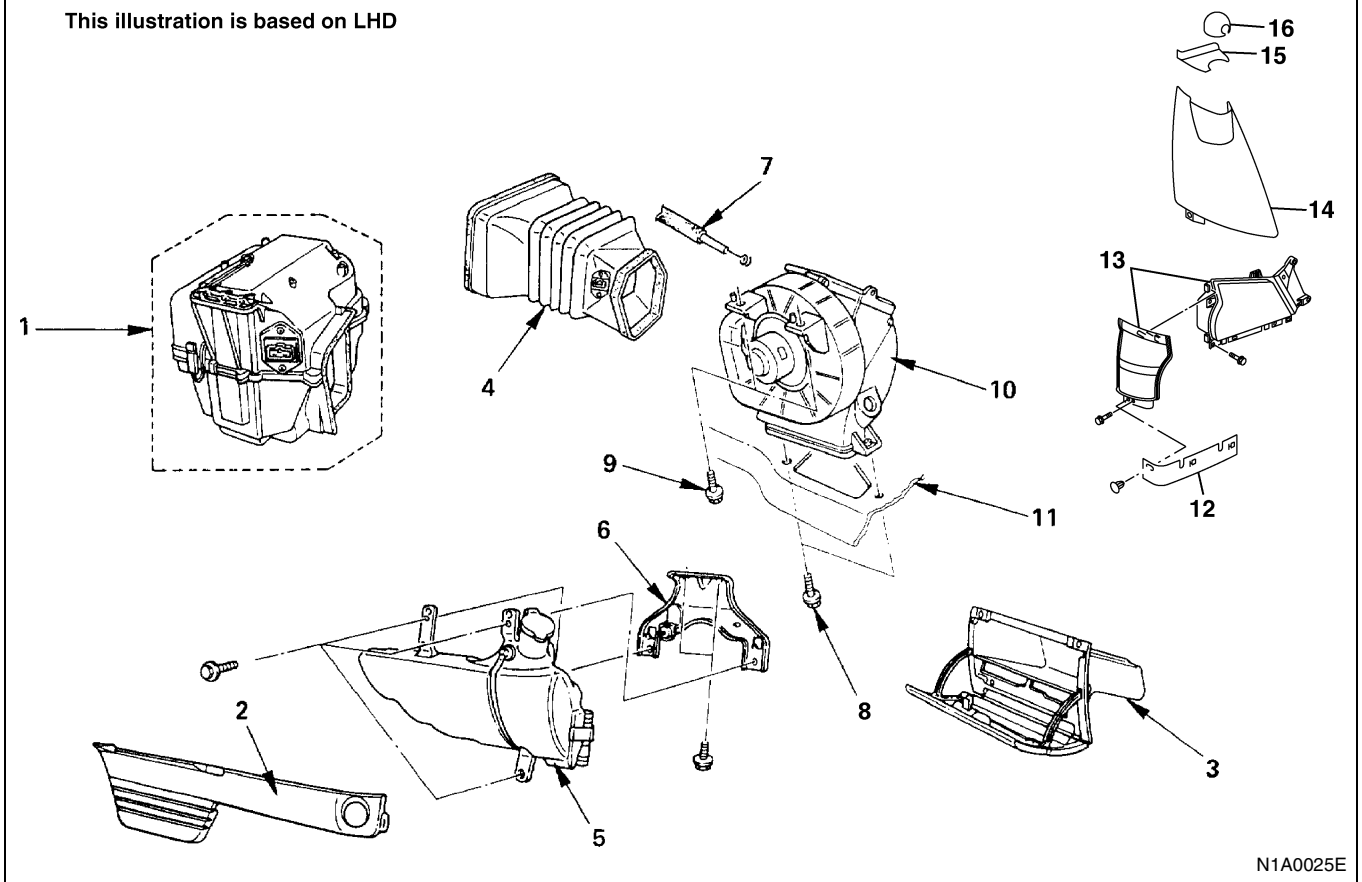
6. Foot Duct
7. Upper Case
8. Mode Door
9. Mode Sub Lever
Press the tab of the sub lever inward, and take out the sub lever.

Installation

To install, follow the removal steps in the reverse order.

Blower Assembly

This illustration is based on LHD



N1A0025E

Legend

- | | |
|-----------------------------------|---|
| 1. Evaporator assembly (A/C only) | 9. Bolt (Blower assembly - Reinforce) |
| 2. Under cover (Without A/C) | 10. Blower assembly |
| 3. Glove box (Without A/C) | 11. Floor panel |
| 4. Duct (Without A/C) | 12. Headlight grill cover |
| 5. Washer tank (Without A/C) | 13. Headlight assembly and combination light (RH) |
| 6. Washer tank bracket | 14. Front side panel |
| 7. Blower control cable | 15. Outside mirror cover |
| 8. Bolt (Panel-Blower assembly) | 16. Mirror stay cap |

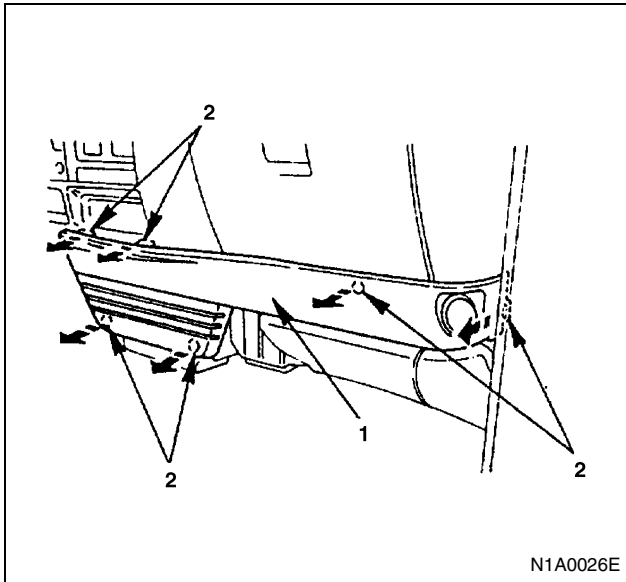
Removal

Preparation:

Disconnect the battery ground cable.

Discharge and recover refrigerant (A/C only).

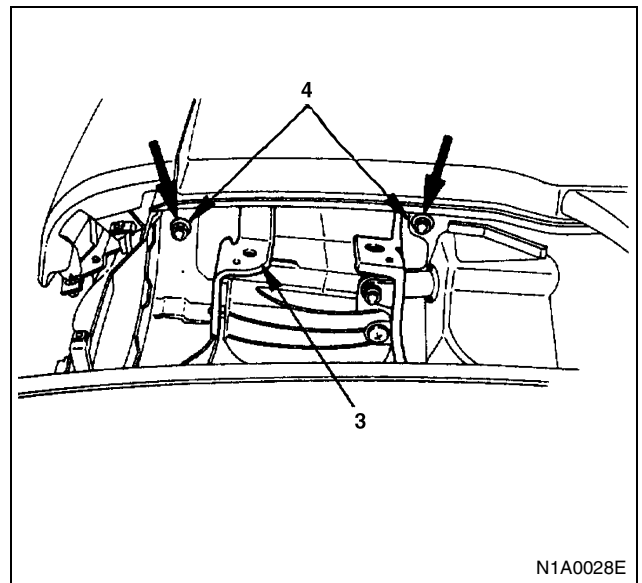
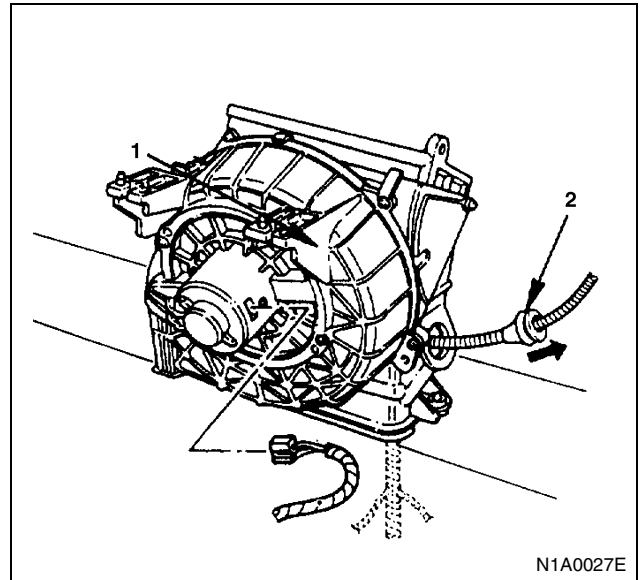
1. Glove Box (Without A/C)
Open the glove box and remove the fixing screws.
2. Under Cover (Without A/C)
While pulling the under cover (1) with care, remove the clips (2) on the backside of the cover.



3. Washer Tank (Without A/C)
Remove the washer tank fixing three bolts (Upper: two, Lower: one) and disconnect the connector.
4. Washer Tank Bracket
Disconnect the harness connection connector and remove the fixing bolts.
5. Blower Control Cable
Disconnect the blower control cable from the blower assembly.
6. Evaporator Assembly
Refer to Section 1B "AIR CONDITIONING" for Evaporator Assembly removal procedure.
7. Duct (Without A/C)
8. Mirror Stay Cap
Spread the stay fixing part by fingers to remove the mirror stay cap. Be careful not to break the two inside claws.
9. Outside Mirror Cover
Insert a screwdriver to the front ends of cover to remove the outside mirror cover.
10. Front Side Panel
Remove five clips and a bolt.
11. Headlight Grill Cover
Remove the headlight grill cover from the claw part of headlight assembly at first, and then remove a clip.
12. Headlight Assembly and Combination Light (RH)
 - Refer to Section 8 "CAB AND CHASSIS ELECTRICAL" for Headlight removal procedure.

- Remove the ground point bolts of headlight bracket (RH) (3) and right frame (front).
- Remove the grommet (2) provided at the lower right side of the blower assembly (1), and pull in the harness to the room through the blower hole.

13. Bolt (Panel - Blower Assembly)

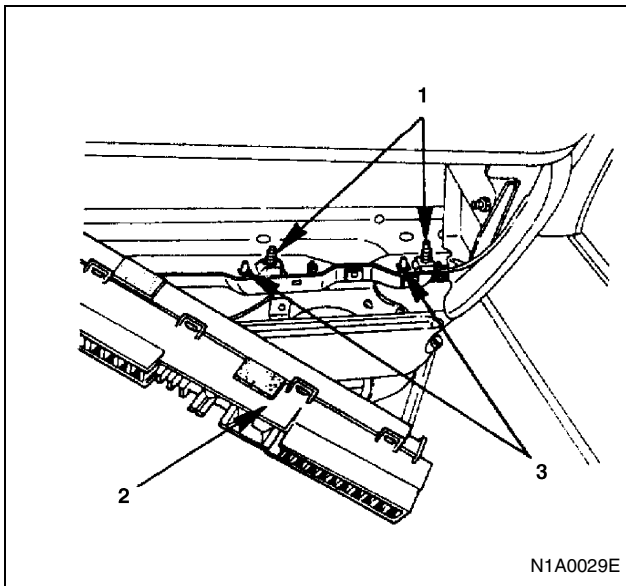


Legend

3. Headlight bracket (RH)
4. Bolt (Panel-Blower assembly)

1A-12 HEATING AND VENTILATION

14. Bolt (Blower Assembly - Reinforce)



Legend

- 1. Bolt (Blower assembly - Reinforce)
- 2. Fuse box
- 3. Pin

15. Blower Assembly

- Remove the blower fixing bolts.
- Drop the blower positioning pins from the reinforce to remove them.

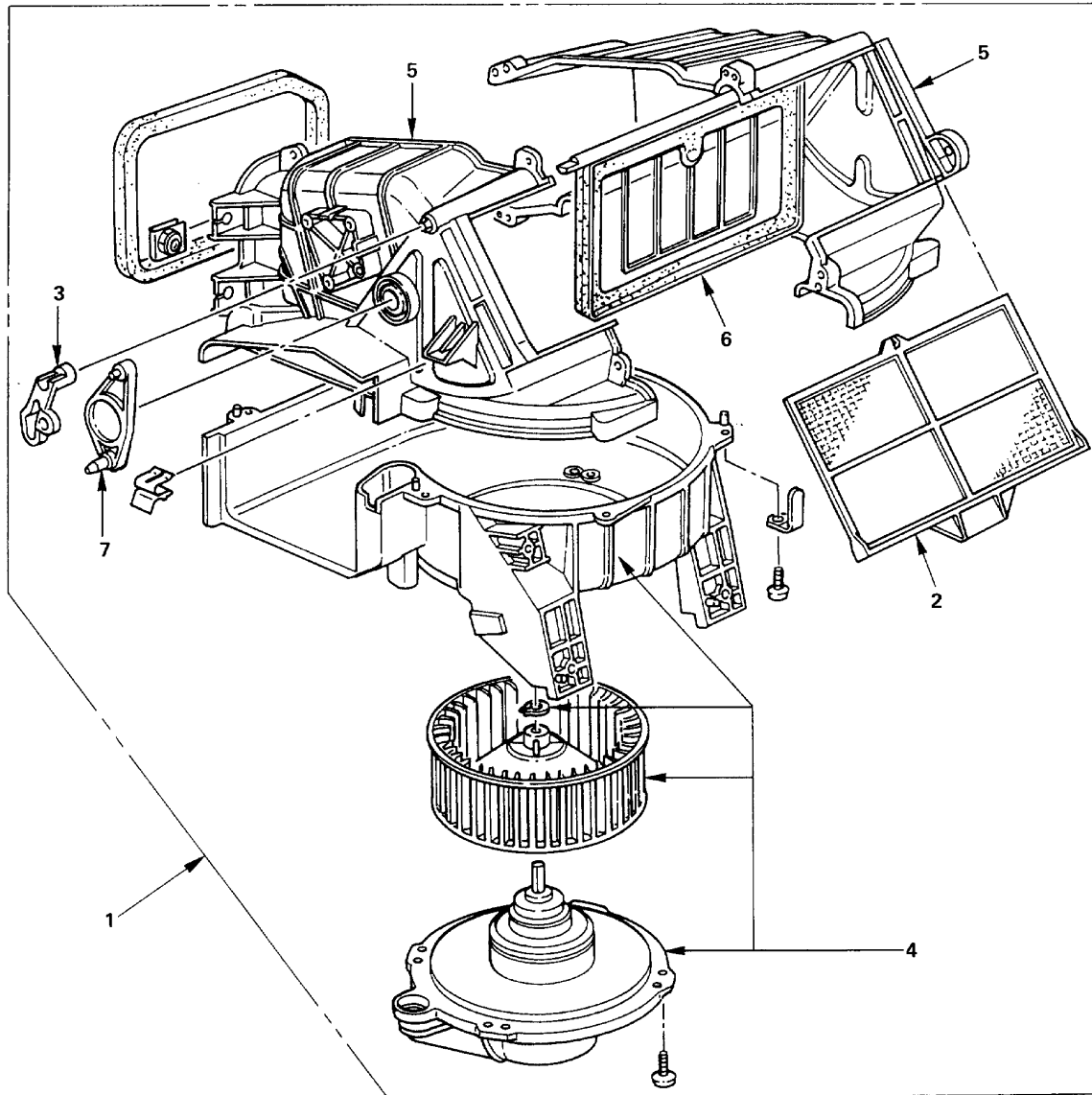
Installation

To install, follow the removal steps in the reverse order, noting the following point.

1. Adjust the blower control cable.
Refer to "CONTROL LEVER ASSEMBLY" installation procedure in this section.

Blower Link Unit/Mode Door

This illustration is based on LHD



N1A0030E

Legend

- | | |
|--------------------|-------------------|
| 1. Blower assembly | 5. Upper case |
| 2. Blower filter | 6. Mode door |
| 3. Door lever | 7. Mode sub lever |
| 4. Lower case | |

Removal**Preparation:**

Disconnect the battery ground cable.

1. Blower Assembly
Refer to "BLOWER ASSEMBLY" removal procedure in this section.
2. Blower Filter
3. Door Lever
Pull out the door lever while raising up the catch of the door lever.
4. Lower Case

5. Upper Case

Separate two halves of the upper case.

6. Mode Door

7. Mode Sub Lever

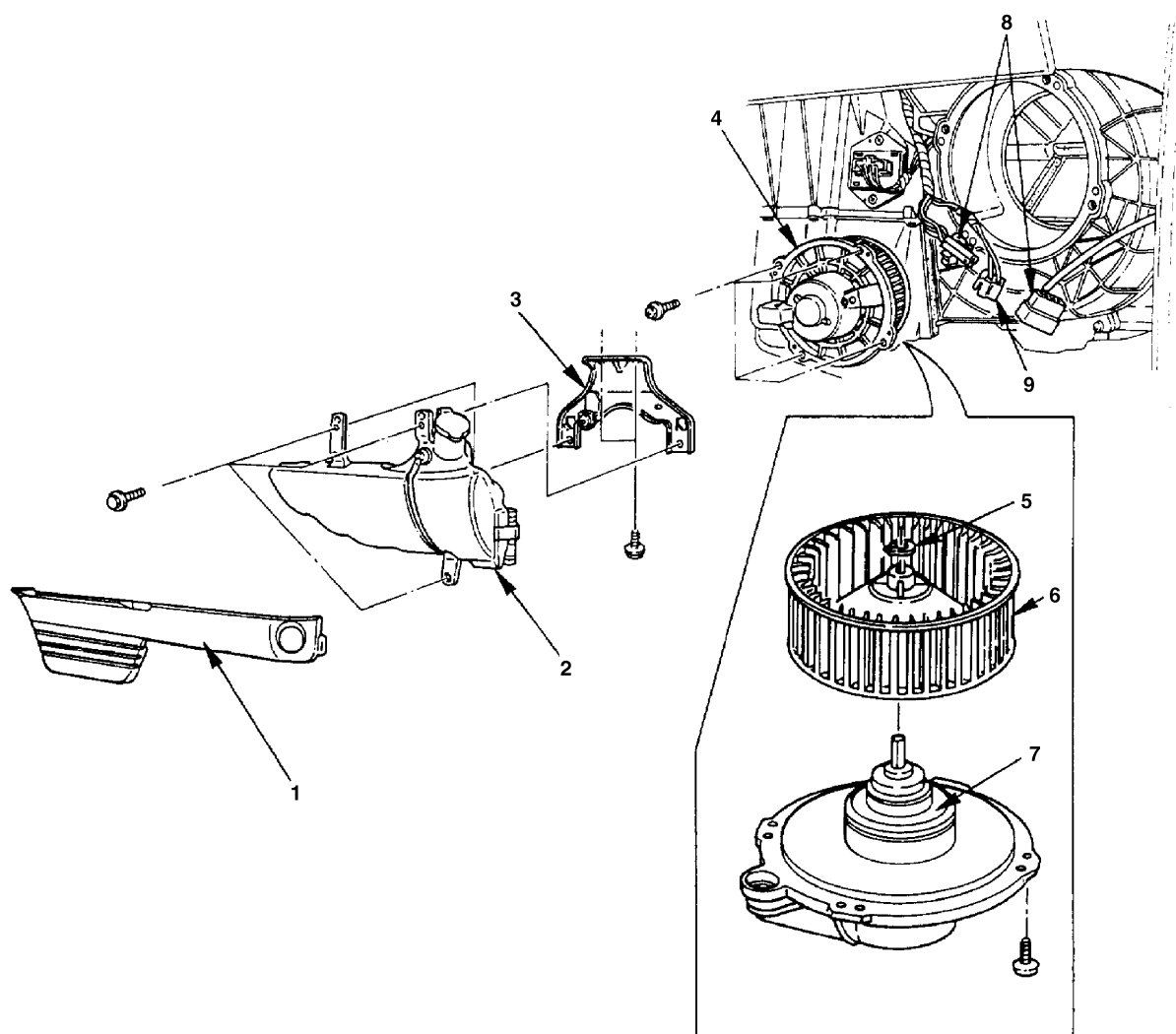
Press the tab of the sub lever inward, and take out the sub lever.

Installation

To install, follow the removal steps in the reverse order.

Blower Motor

This illustration is based on LHD



N1A0031E

Legend

- | | |
|--------------------------|---------------------------------|
| 1. Under cover | 6. Fan |
| 2. Washer tank | 7. Blower motor |
| 3. Washer tank bracket | 8. Harness connection connector |
| 4. Blower motor assembly | 9. Blower motor connector |
| 5. Clip | |

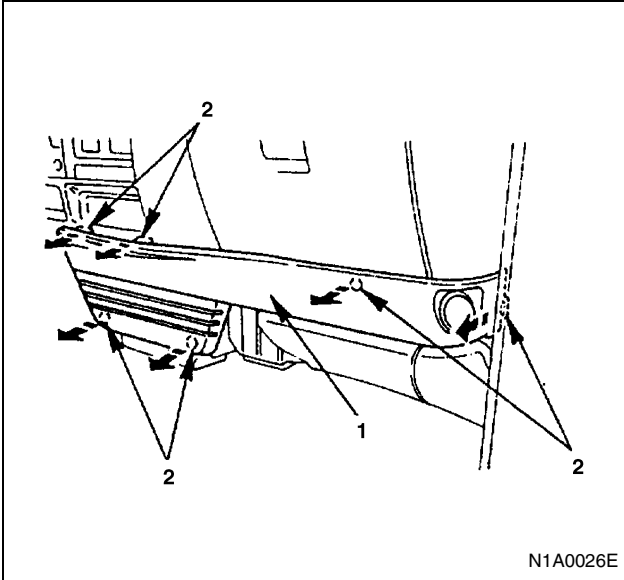
Removal

Preparation:

Disconnect the battery ground cable.

1. Under Cover

While pulling the under cover (1) with care, remove the clips (2) on the back side of the cover.



2. Washer Tank

Remove the washer tank fixing three bolts (Upper: two, Lower: one) and disconnect the connector.

3. Washer Tank Bracket

Disconnect the harness connection connector and remove the fixing bolts.

4. Blower Motor Assembly

Disconnect the motor connector.

5. Clip

6. Fan

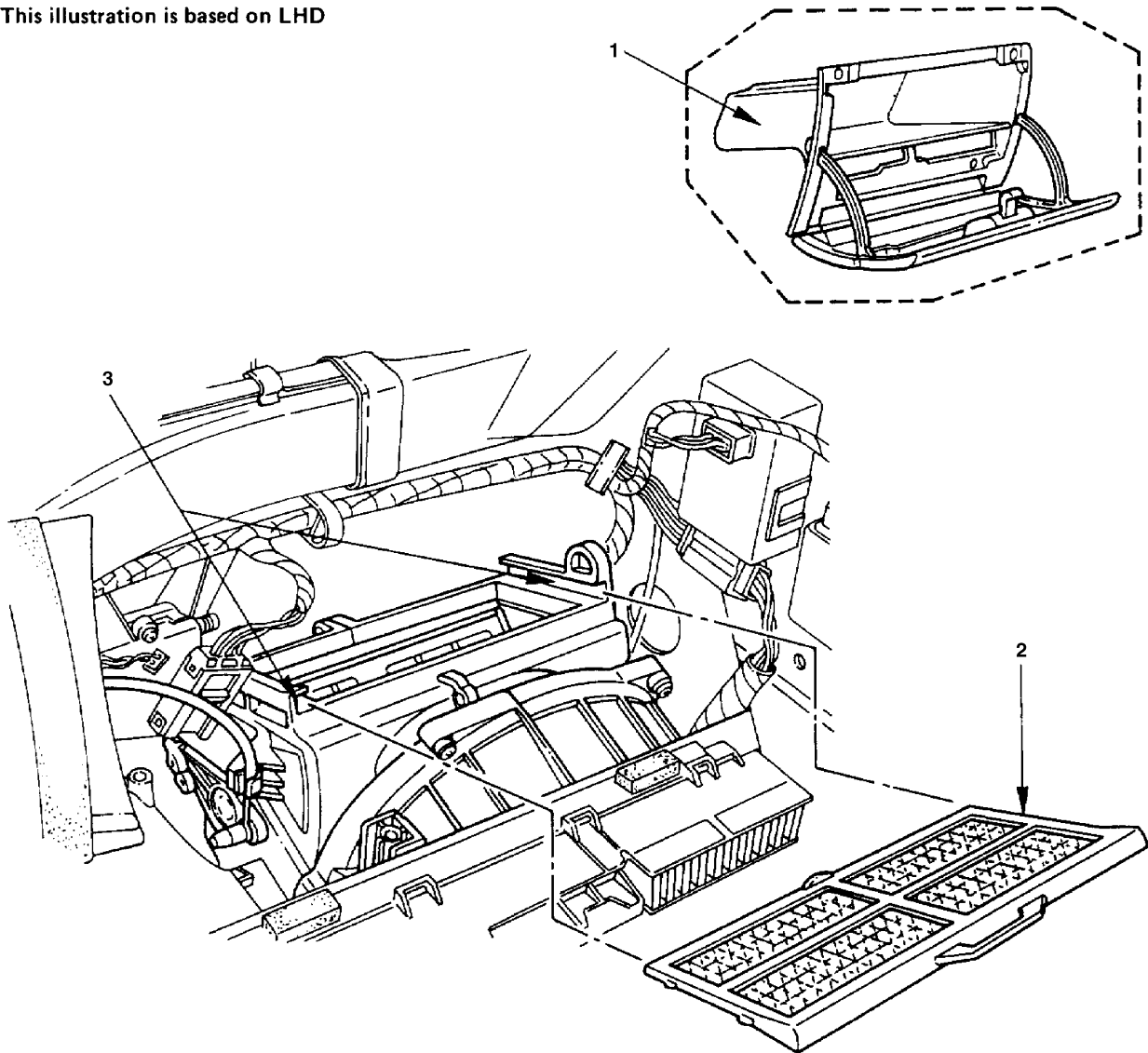
7. Blower Motor

Installation

To install, follow the removal steps in the reverse order.

Blower Filter

This illustration is based on LHD



N1A0033E

Legend

- 1. Glove box
- 2. Blower filter
- 3. Slit

Removal

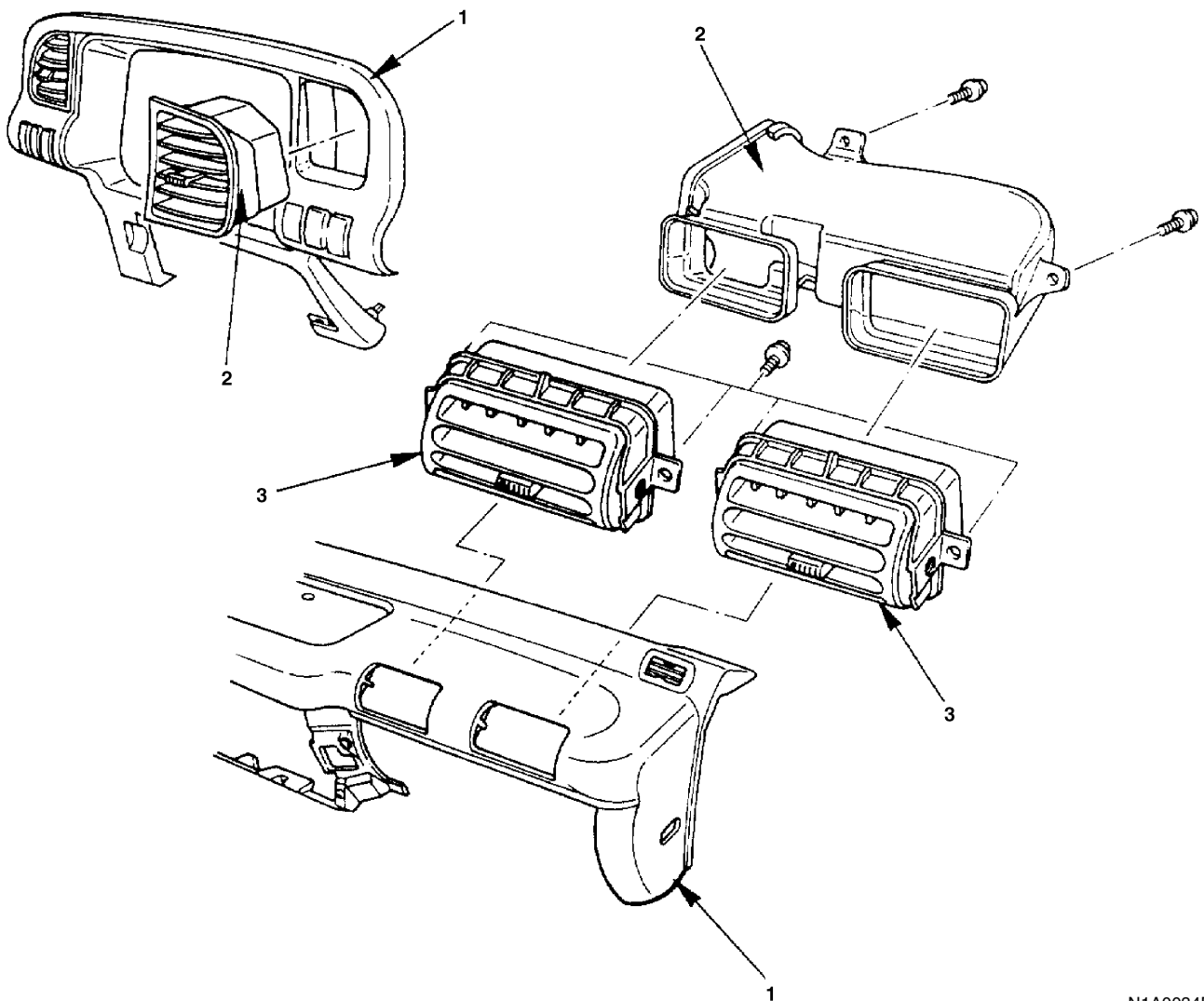
1. Glove Box
Open the glove box and remove the fixing screws.
2. Blower Filter
Pull out the blower filter from the blower upper slit.

Installation

To install, follow the removal steps in the reverse order.

Ventilation Grille

This illustration is based on LHD



N1A0034E

Legend

[Driver Side]

- 1. Meter cluster
- 2. Ventilation grille

[Passenger Side]

- 1. Instrument panel assembly
- 2. Ventilation duct
- 3. Ventilation grille

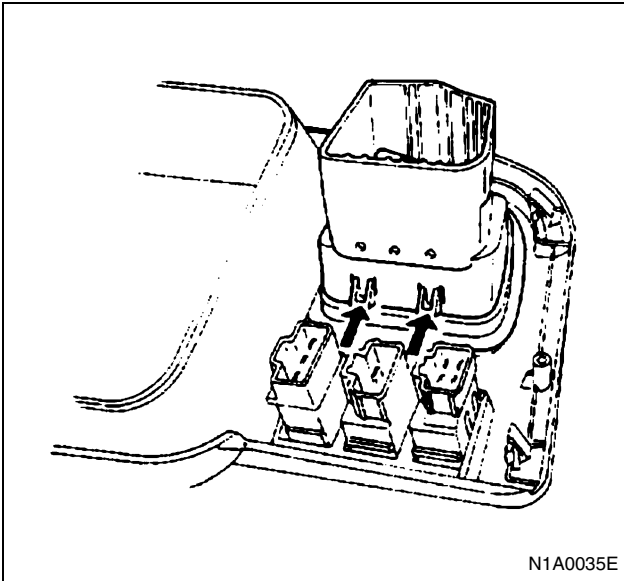
Removal

Preparation:

Disconnect the battery ground cable.

[Driver Side]

1. Meter Cluster
Refer to Section 2 "CAB AND FRAME" for Meter Cluster removal procedure.
2. Ventilation Grille
Push the catches of the grille on the backside of the cluster to the inside, and remove the ventilation grille.



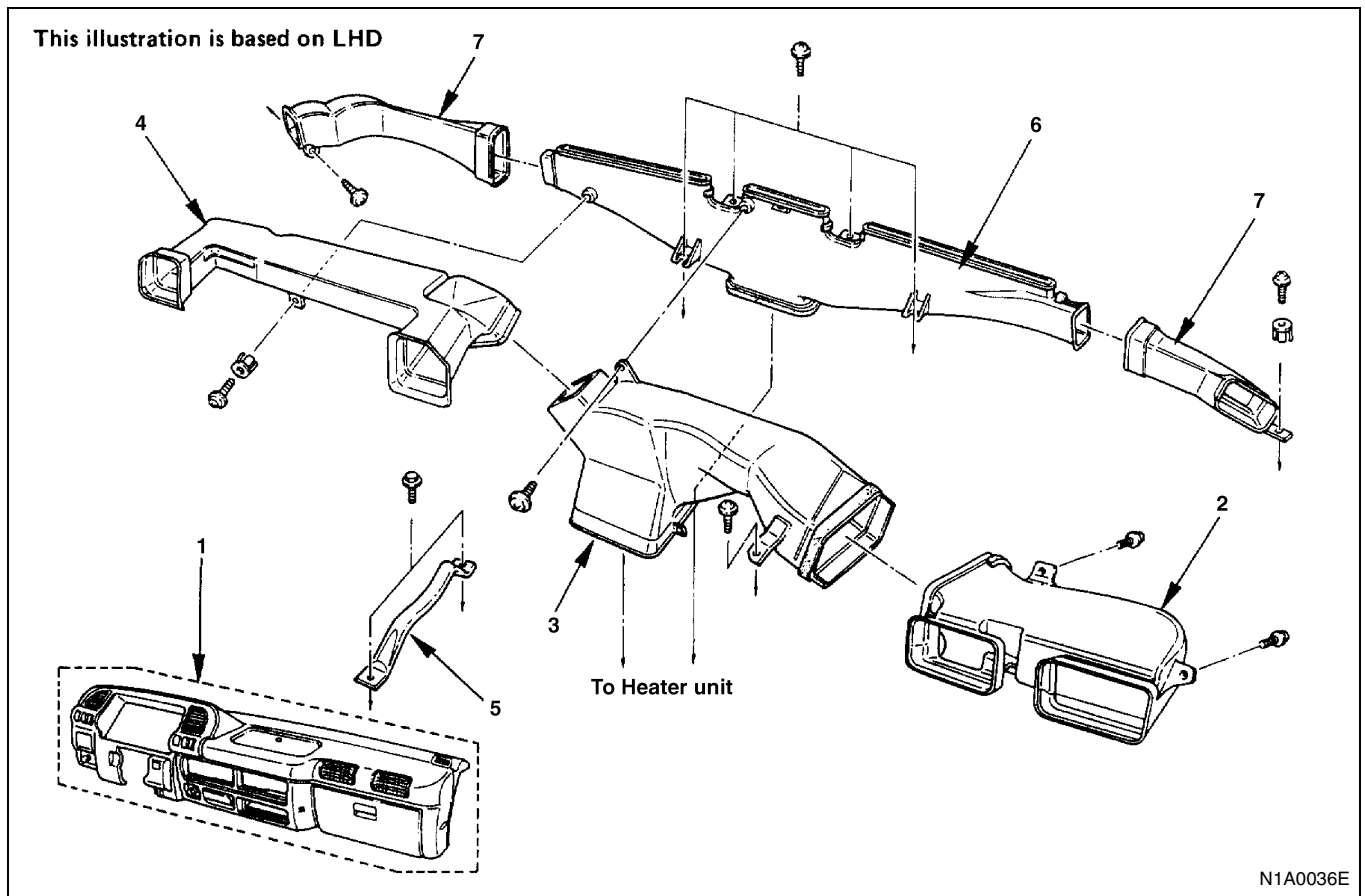
[Passenger Side]

1. Instrument Panel Assembly
Refer to Section 2 "CAB AND FRAME" for Instrument Panel removal procedure.
2. Ventilation Duct
3. Ventilation Grille

Installation

To install, follow the removal steps in the reverse order.

Defroster Nozzle/Ventilation Duct



Legend

- | | |
|------------------------------|---|
| 1. Instrument panel assembly | 6. Defroster nozzle (It is not installed on the vehicle with forged air ventilation as an optional equipment.) |
| 2. Ventilation duct (RH) | 7. Side defroster nozzle (It is not installed on the vehicle with forged air ventilation as an optional equipment.) |
| 3. Ventilation duct (CTR) | |
| 4. Ventilation duct (LH) | |
| 5. Reinforcement stay | |

Removal

Preparation:

Disconnect the battery ground cable.

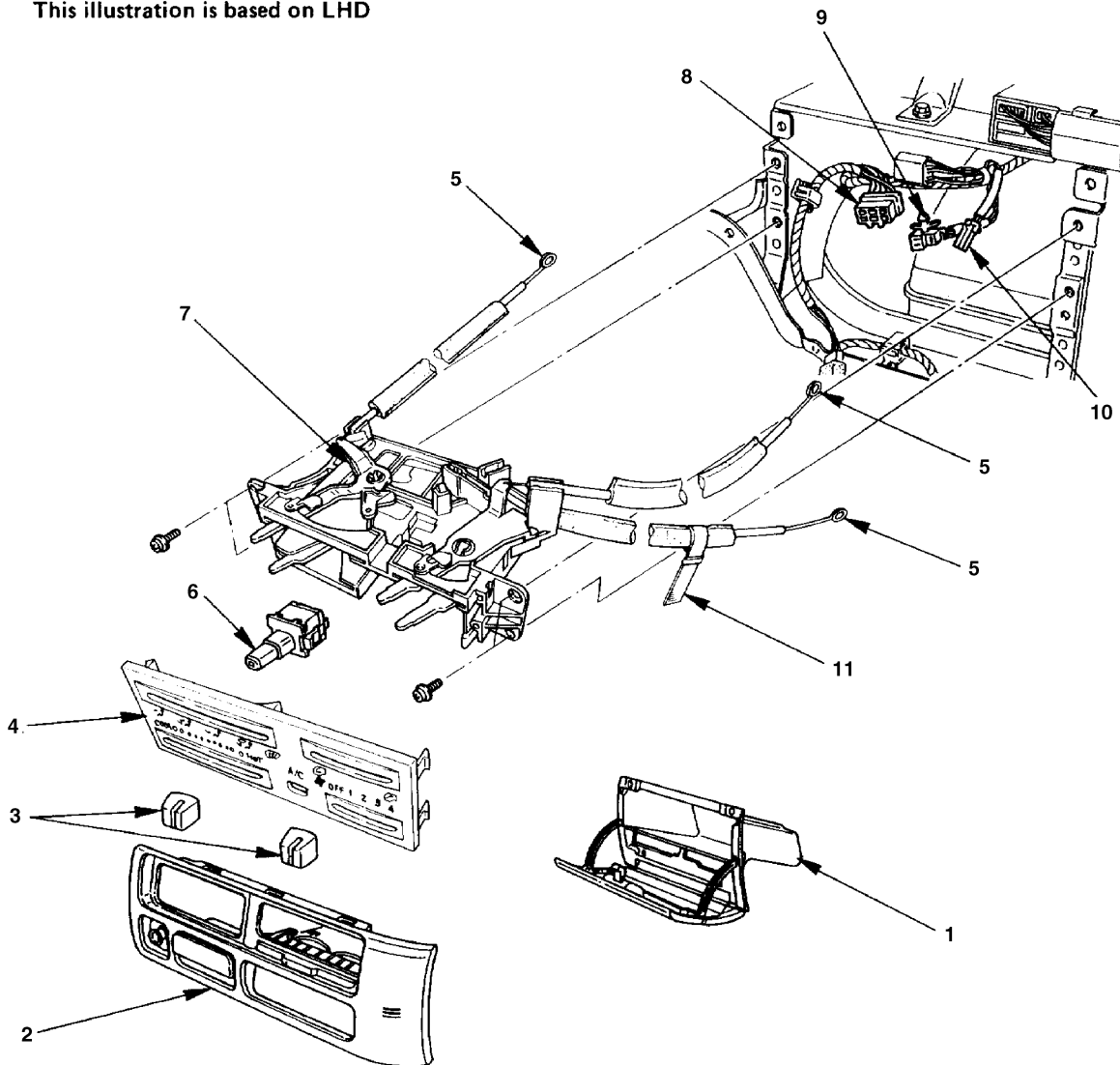
1. Instrument Panel Assembly
Refer to Section 2 "CAB AND FRAME" for Instrument Panel removal procedure.
2. Ventilation Duct (RH)
3. Ventilation Duct (CTR)
4. Ventilation Duct (LH)
5. Reinforcement Stay
6. Defroster Nozzle
7. Side Defroster Nozzle

Installation

To install, follow the removal steps in the reverse order.

Control Lever Assembly

This illustration is based on LHD



N1A0037E

Legend

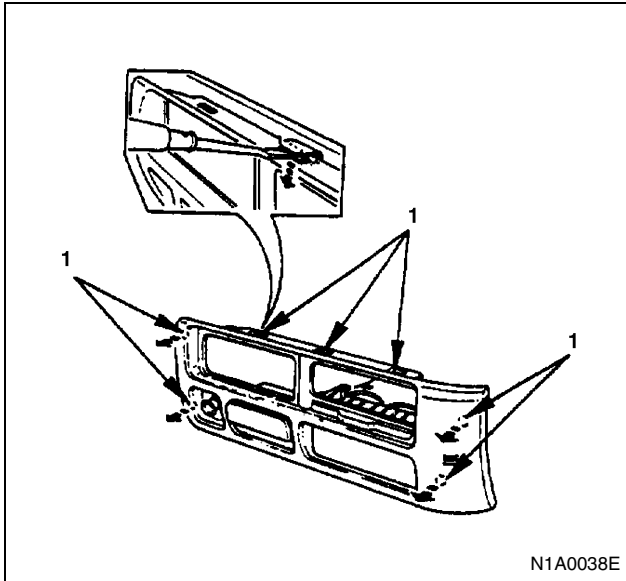
- | | |
|--------------------------|---------------------------------|
| 1. Glove box | 7. Control lever assembly |
| 2. Center cluster | 8. Fan switch connector |
| 3. Knob | 9. A/C switch connector |
| 4. Control panel bezel | 10. Illumination bulb connector |
| 5. Control cable | 11. Clip |
| 6. A/C switch (A/C only) | |

Removal

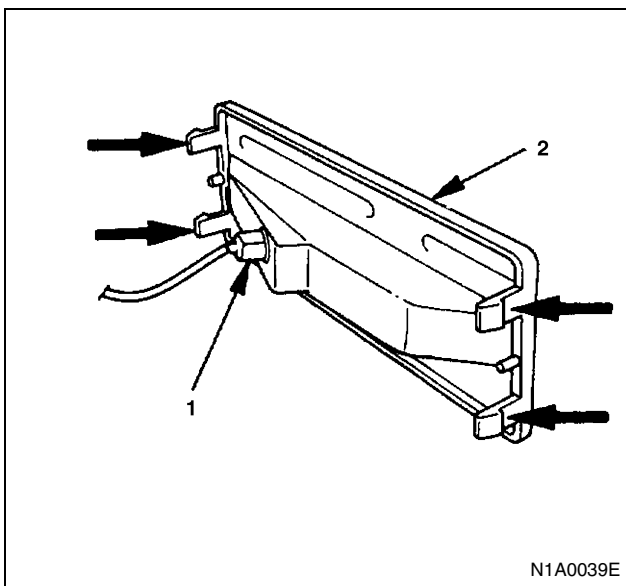
Preparation:

Disconnect the battery ground cable.

1. Glove Box
Open the glove box and remove the fixing screws.
2. Center Cluster
 - While pulling the cluster with care, remove the upper and the back side clips (1) of the cluster.
 - Disconnect the cigar lighter and illumination connectors.

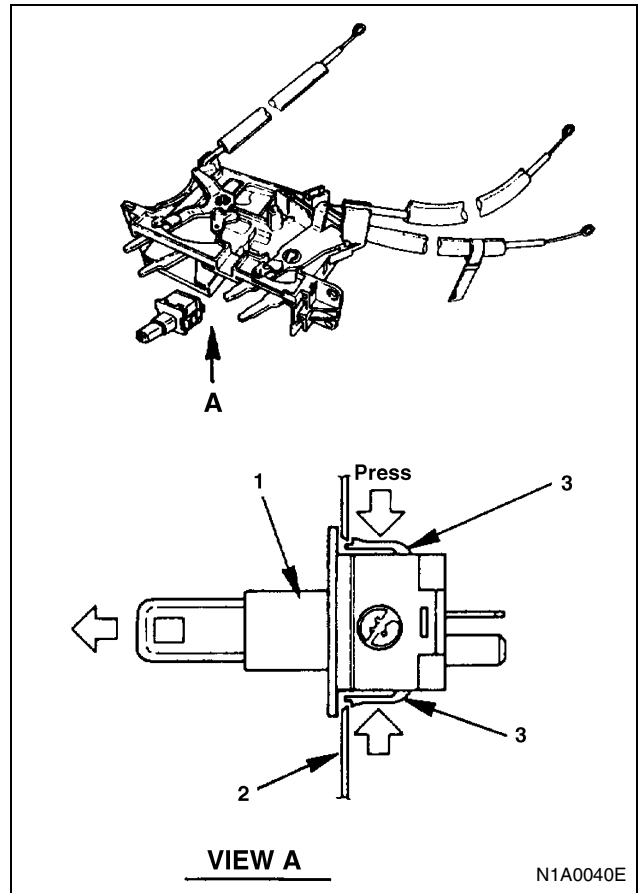


3. Knob
4. Control Panel Bezel
Push the four catches at both sides of the bezel to the inside, and remove the illumination bulb (1) from the bezel (2).



5. Control Cable
Disconnect the control cables from the heater and blower units.

6. A/C Switch
Push the catches at both sides of the A/C switch to the inside, and remove the A/C switch by pulling it out.



Legend

1. A/C switch
2. Control lever
3. Catch

7. Control Lever Assembly
 - Remove the lever fixing bolts and pull the lever assembly out.
 - Disconnect the A/C switch connector clip and fan switch connector from the lever assembly.
 - Remove the control cable fixing clip.

Installation

To install, follow the removal steps in the reverse order, noting the following points:

1. Adjust the control cables.
 - Air source control cable
 - 1) Slide the control lever to the left ("CIRC" position).
 - 2) Connect the control cable at the "CIRC" position of the link unit of blower assembly and fix it with the clip.
 - Temperature control cable
 - 1) Slide the control lever to the left/right ("MAX COLD"/"MAX HOT" position).

1A-22 HEATING AND VENTILATION

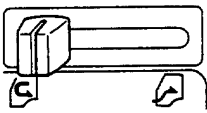
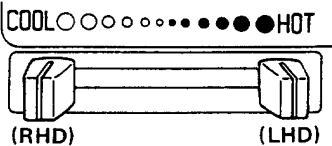
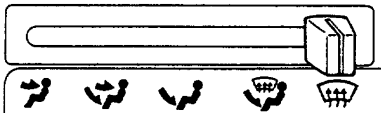
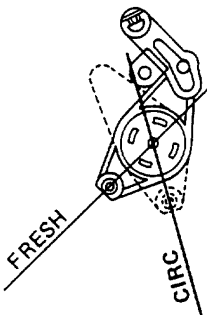
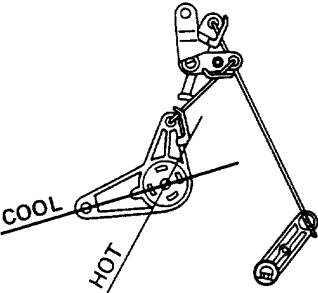
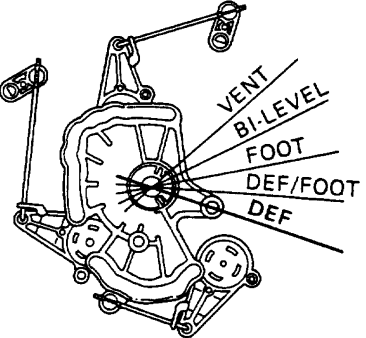
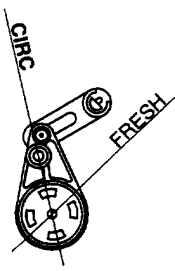
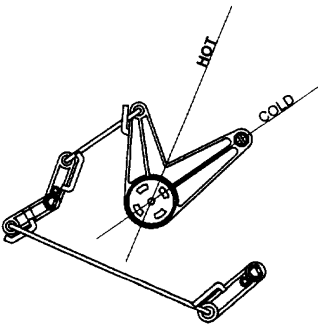
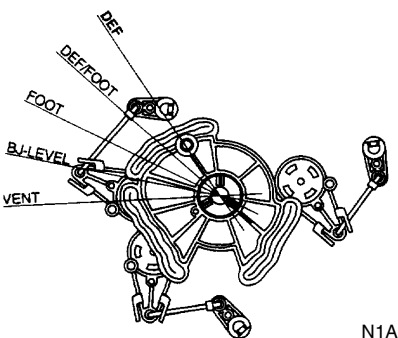
2) Connect the control cable at the “COLD”/“HOT” position of the temperature control link of the heater unit and fix it with the clip.

Air select control cable

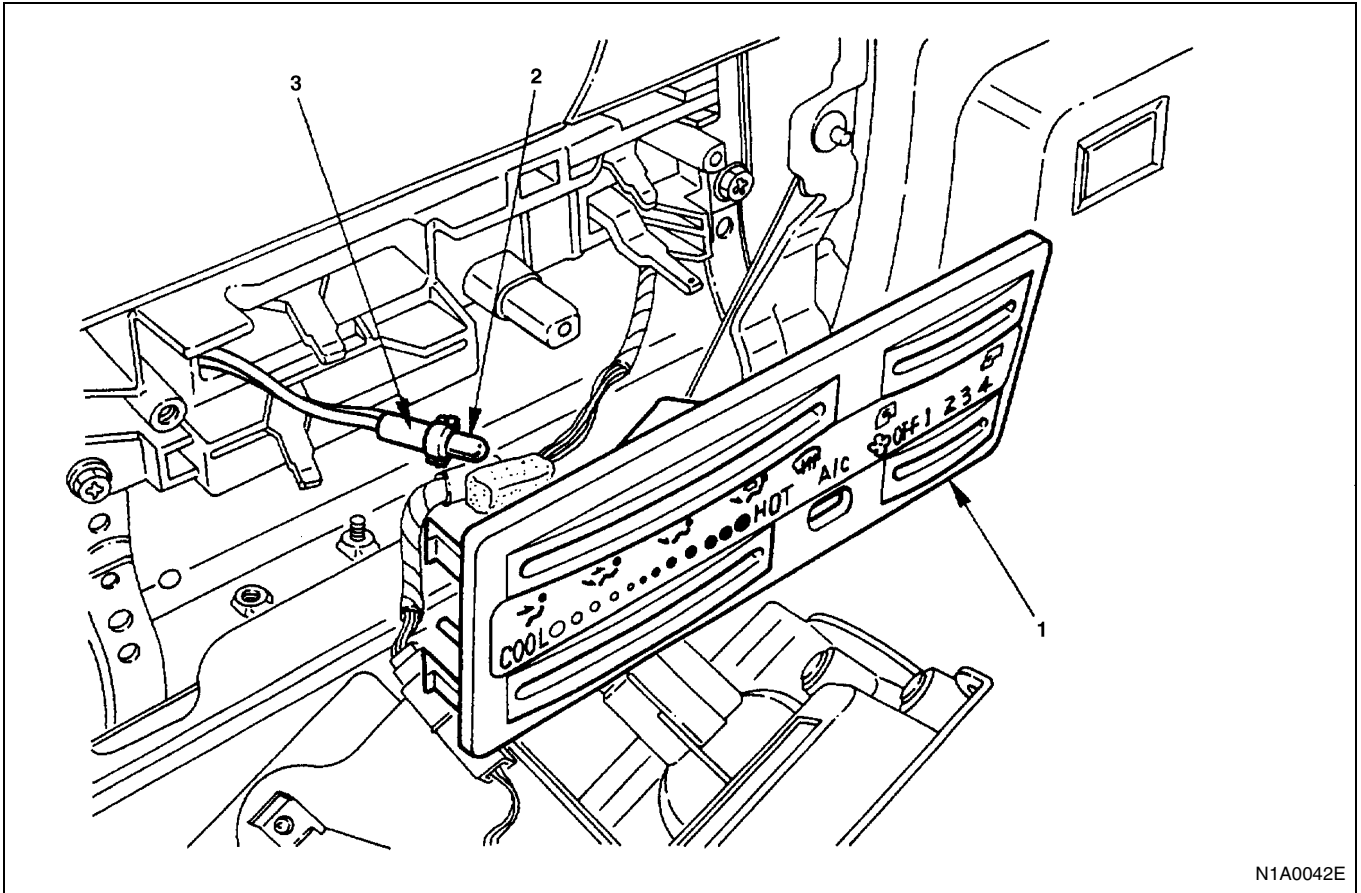
1) Slide the control lever to the right (“DEFROST” position).

2) Connect the control cable at the “DEFROST” position of the mode control link of the heater unit and fix it with the clip.

2. Check control cable operation.

			
R H D			
L H D			

N1A0041E

Control Panel Illumination Bulb**Legend**

- | | |
|------------------------------------|-----------|
| 1. Control panel bezel | 3. Socket |
| 2. Control panel illumination bulb | |

Removal**Preparation:**

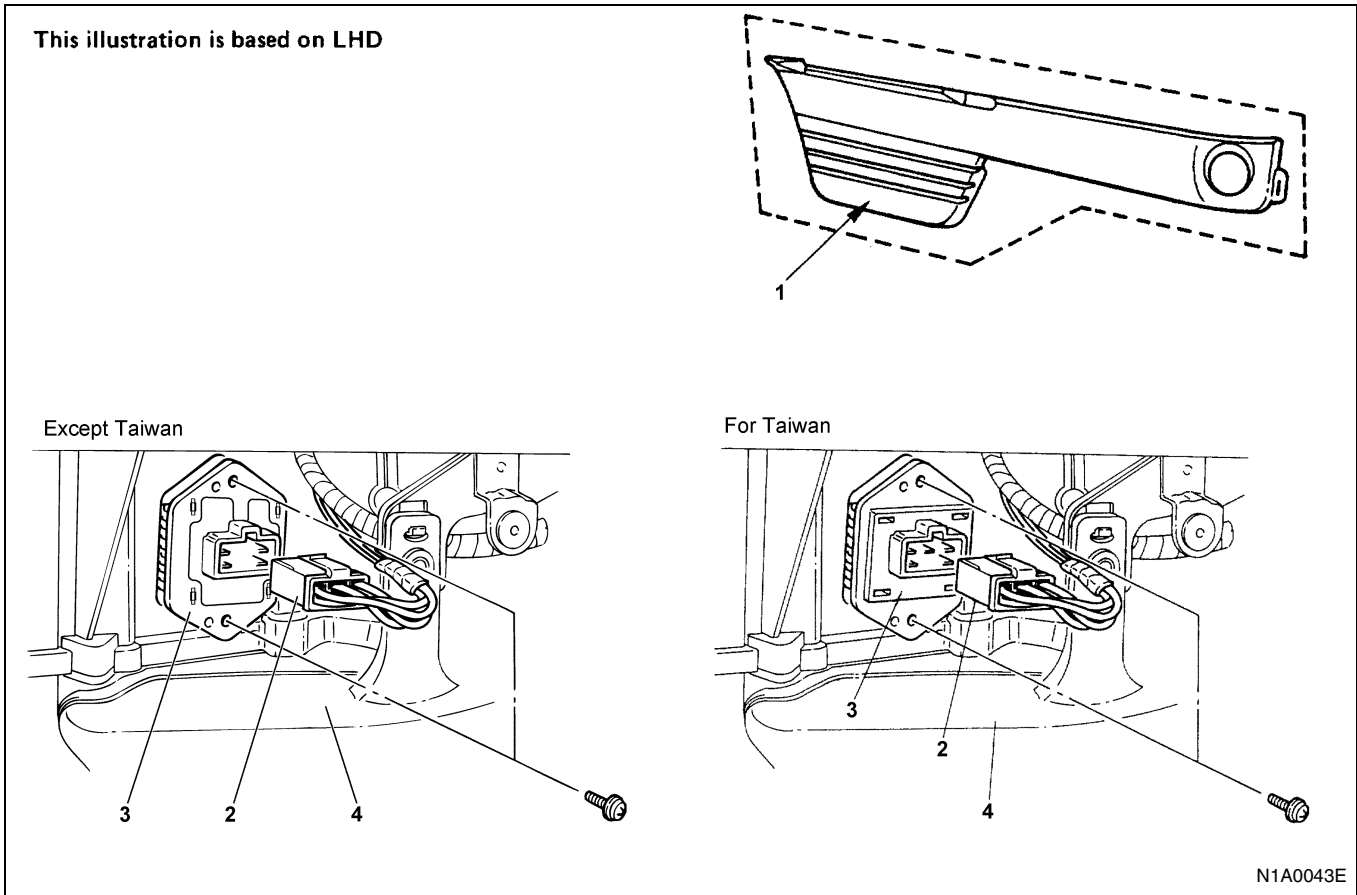
Disconnect the battery ground cable.

1. Control Panel Bezel
Refer to "CONTROL LEVER ASSEMBLY" removal procedure.
2. Control Panel Illumination Bulb
Pull the bulb from the bulb socket.

Installation

To install, follow the removal steps in the reverse order.

Resistor



Legend

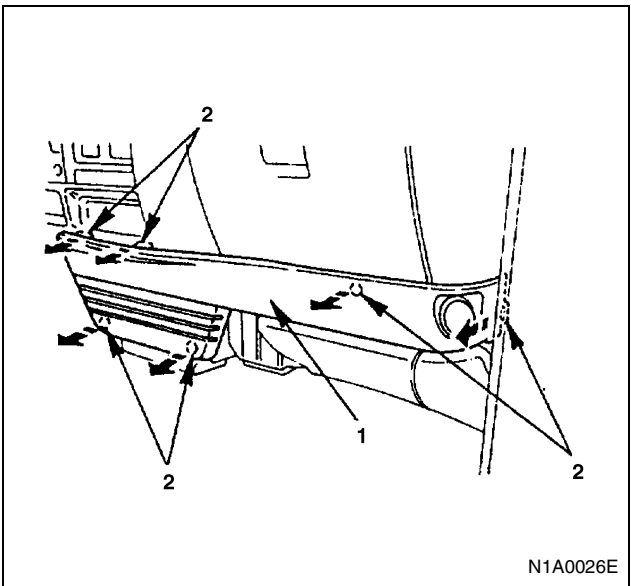
- | | |
|-----------------------|----------------|
| 1. Under cover | 3. Resistor |
| 2. Resistor connector | 4. Washer tank |

Removal

Preparation:

Disconnect the battery ground cable.

1. Under Cover
While pulling the under cover (1) with care, remove the clips (2) on the backside of the cover.



- | |
|-----------------------|
| 2. Resistor Connector |
| 3. Resistor |

Installation

To install, follow the removal steps in the reverse order.