

HEATERS AND AIR CONDITIONING

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N24AA-

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Air is Emitted but is Not Cool			
Cool Air Flow is Intermittent			
Insufficient Air Flow			
Insufficient Cooling			

HEATERS

SPECIFICATIONS

GENERAL SPECIFICATIONS

N24CA-A

Items	Specifications
Type	Selective recirculating, warm water type (air-mix type)
Performance kJ/h (kcal/h, B.T.U./h)	17,372 (4,150, 16,468)

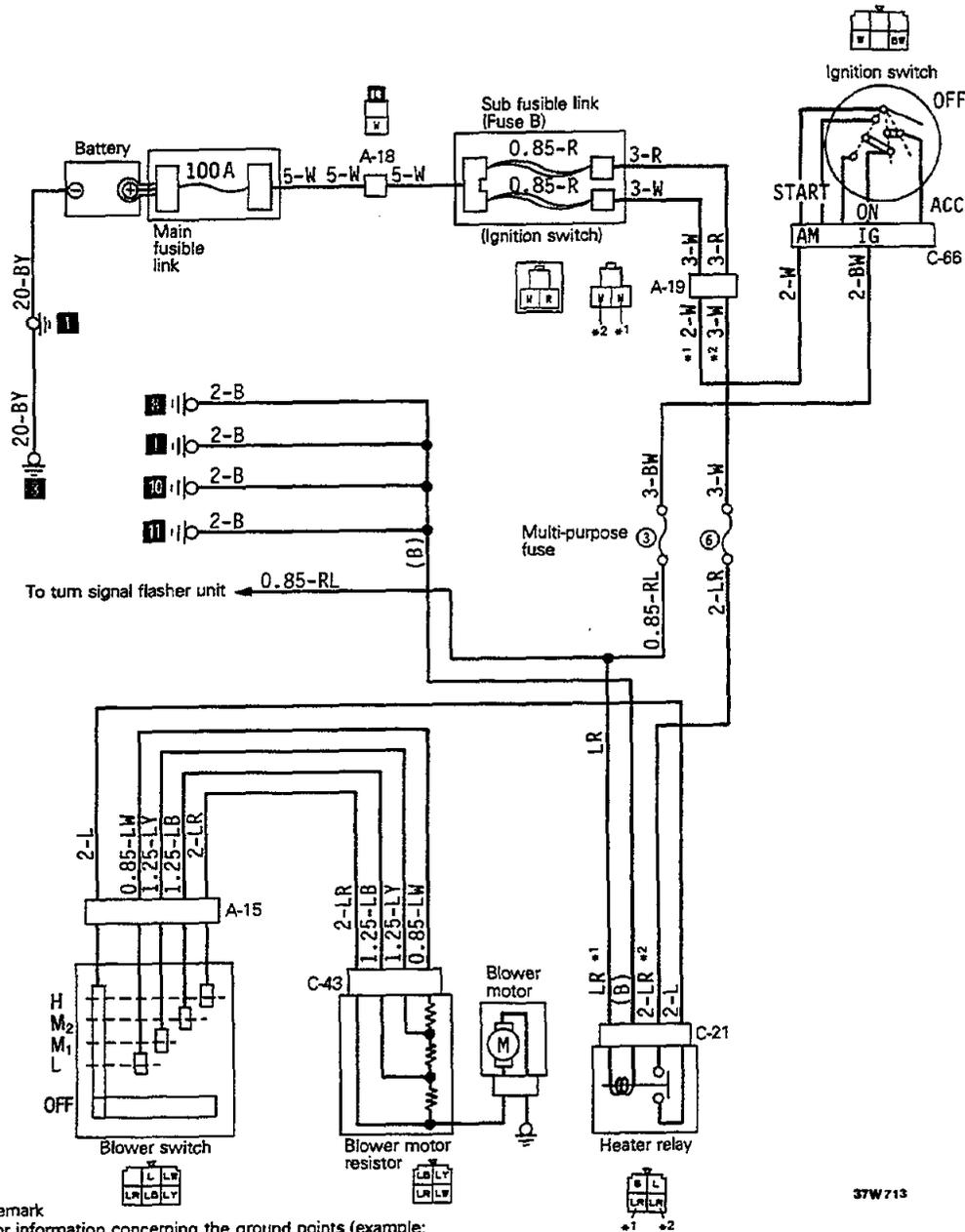
TROUBLESHOOTING

N24EAAJ

Symptom	Probable cause	Remedy
Improper heat	Obstructed floor outlets	Correct
	Changeover dampers improperly adjusted or binding	Correct
	Obstructed heaters hoses	Replace
	Improperly adjusted control cables	Adjust
	Plugged or partially plugged heater core	Clean or replace
No ventilation even when mode selection lever is operated	Incorrect adjustment of changeover dampers	Adjust
	Incorrect installation mode selection control wire	Adjust
	Ducts are incorrectly incompletely connected, crushed, bent or clogged.	Repair or replace

HEATER CIRCUIT

CIRCUIT DIAGRAM <2.6L Engine>



Remark
For information concerning the ground points (example: ), refer to GROUP 8-Electrical System Parts Location.

Wiring color code

B: Black Br: Brown G: Green Gr: Gray L: Blue Lg: Light green
 Ll: Light blue O: Orange P: Pink R: Red Y: Yellow W: White

37W 713

OPERATION

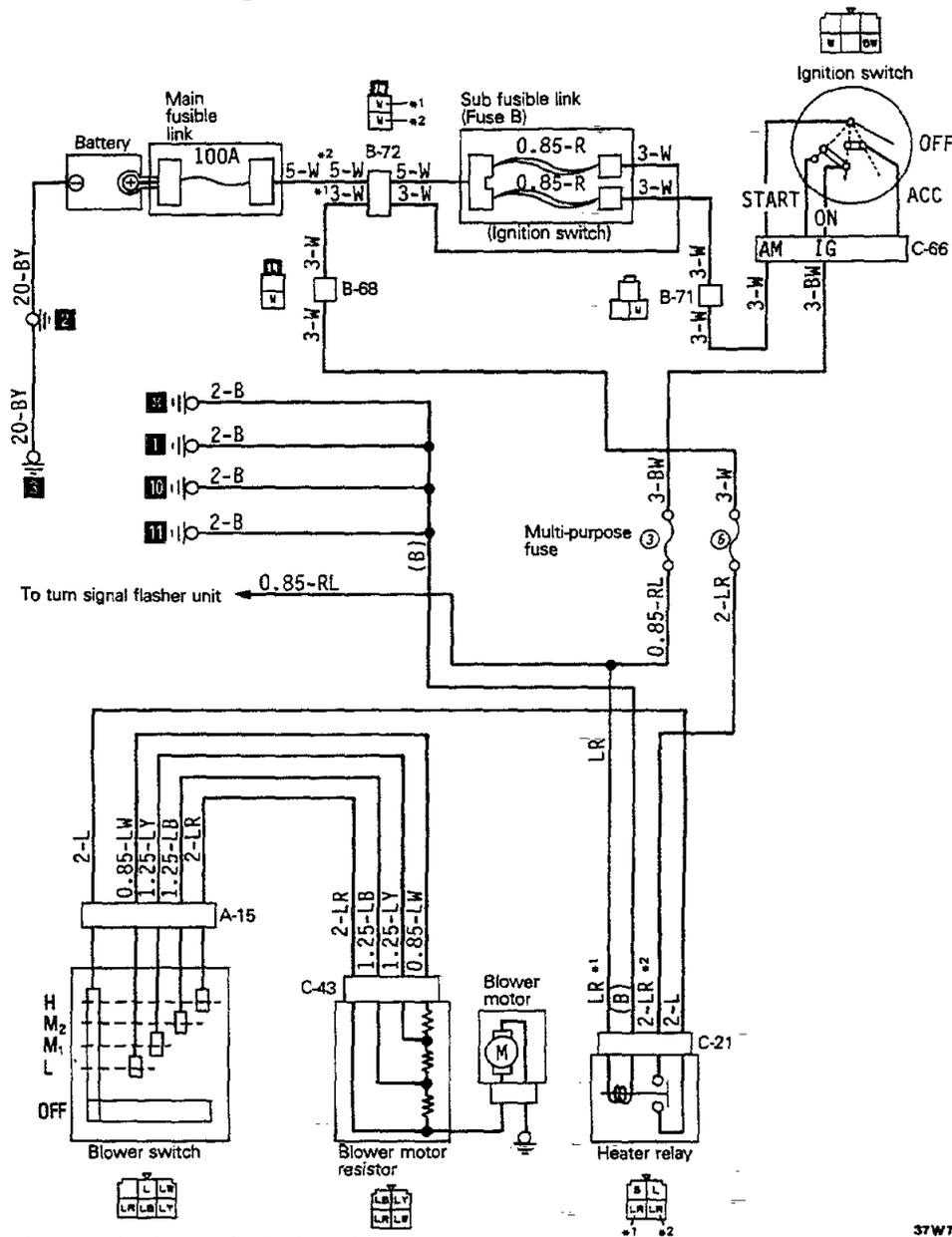
- When the ignition switch is at "ON", current flows through fuse No. 3, heater relay (coil), and ground, causing the heater relay contacts to close.
- Then when the blower switch is set at any of "L", "M1", "M2", or "H", current flows through fuse No. 6, heater relay (contacts), blower switch, resistor, blower motor, and ground, causing the blower motor to rotate.

TROUBLESHOOTING HINTS

- Blower motor turns only at high speed.
- Check resistor.

HEATER CIRCUIT

CIRCUIT DIAGRAM <3.0L Engine>



Remark

For information concerning the ground points (example: ) , refer to GROUP 8-Electrical System Parts Location.

Wiring color code

B: Black Br: Brown G: Green Gr: Gray L: Blue Lg: Light green
 Ll: Light blue O: Orange P: Pink R: Red Y: Yellow W: White

37W715

OPERATION

- When the ignition switch is at "ON", current flows through fuse No. 3, heater relay (coil), and ground, causing the heater relay contacts to close.
- Then when the blower switch is set at any of "L", "M1", "M2", or "H", current flows through fuse No. 6, heater relay (contacts), blower switch, resistor, blower motor, and ground, causing the blower motor to rotate.

TROUBLESHOOTING HINTS

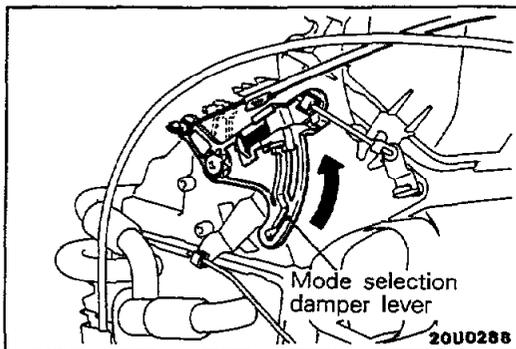
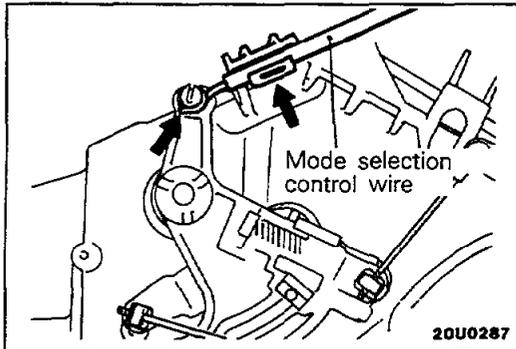
- Blower motor turns only at high speed.
- Check resistor.

SERVICE ADJUSTMENT PROCEDURES**TEMPERATURE CONTROL SYSTEM ADJUSTMENT**

N24FAAD

MODE SELECTION LEVER

1. Move the mode selection lever to each position and check the air flow with the blower operating.
2. If the air flow is not correct for any position of the mode selection lever, adjust the mode selection control wire. If this adjustment does not help, adjust the damper.

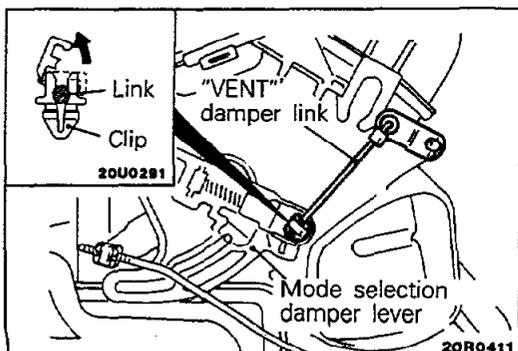
**Adjustment of the Mode Selection Control Wire**

1. Disconnect the defroster duct and the lap heater duct (B) at the driver's seat side from the heater unit.
2. Disconnect the mode selection control wire from the mode selection damper lever and the heater unit's clip.

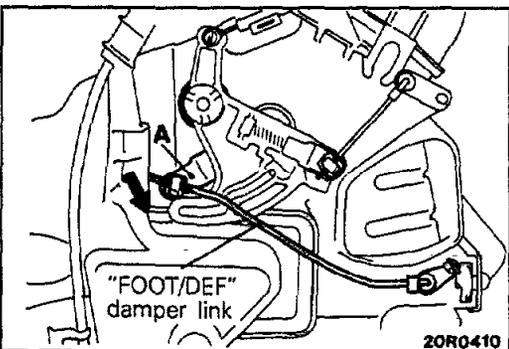
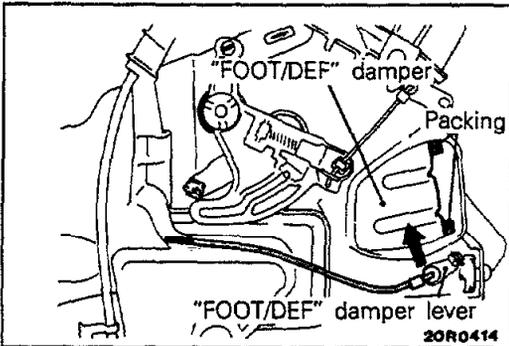
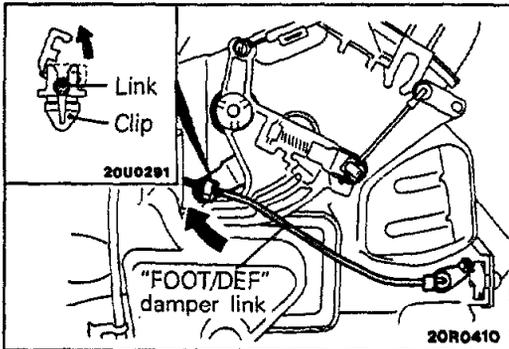
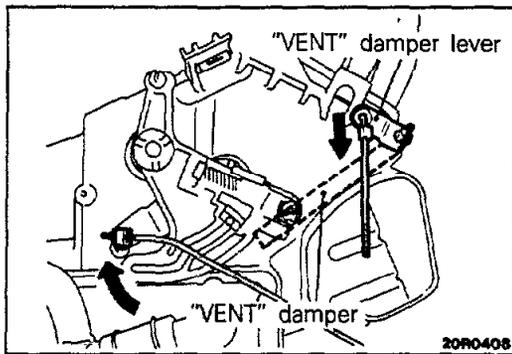
3. Set the mode selection lever of temperature control to the "VENT" position.
4. Turn the mode selection damper lever all the way in the direction of the arrow.
5. Connect the mode selection control wire to the mode selection damper lever, and to the clip part of the heater unit.

Caution**Be careful that the lever does not move when clipping.**

6. Check to be sure that the mode selection lever moves smoothly to each position and that the air flow is correct for each position.
7. If the air flow is not correct for any position of the mode selection lever even after the mode selection control wire has been adjusted, adjust the "VENT" damper and the "FOOT/DEF" damper.
8. Connect the driver's side defroster duct and lap heater duct (B) to the heater unit.

**Adjustment of the Damper**

1. Disconnect the mode selection control wire from the mode selection damper lever and the heater unit's clip.
2. Adjust the "VENT" damper as described below:
 - (1) Unfasten the clip of the mode selection damper lever, and disconnect the link for the "VENT" damper from the mode selection damper lever.



- (2) Turn the mode selection damper lever all the way in the direction of the arrow.
- (3) Pull the "VENT" damper lever completely downward and move the "VENT" damper to the position (not visible) shown in the figure.
- (4) Attach the end of the link for the "VENT" damper to the mode selection damper lever.

3. Adjust the "FOOT/DEF" damper as described below.
 - (1) Unfasten the clip of the mode selection damper lever, and disconnect the link for the "FOOT/DEF" damper from the mode selection damper lever.
 - (2) Turn the mode selection damper lever all the way in the direction of the arrow.

- (3) Pull the "FOOT/DEF" damper lever completely upward and move the "FOOT/DEF" damper to the position shown in the figure. (The packing should contact the case.)

NOTE

Confirmation can be made that the "FOOT/DEF" damper is raised upward through the defroster blower outlet of the heater unit (with defroster duct disconnected).

- (4) Attach the end of the link for the "FOOT/DEF" damper to the mode selection damper lever.

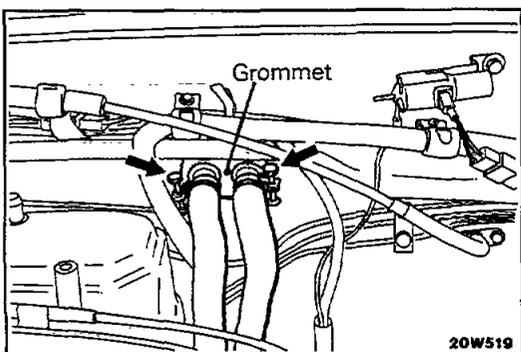
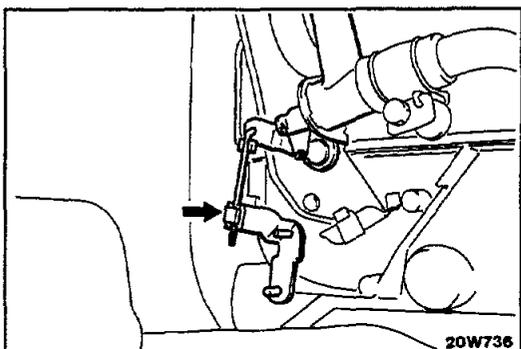
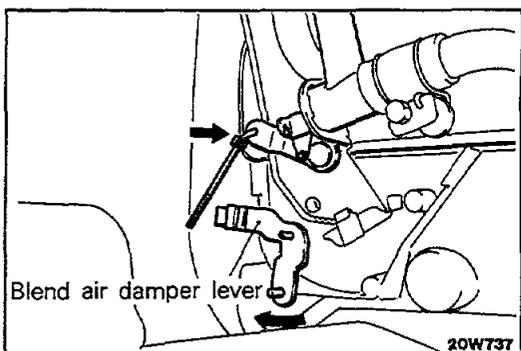
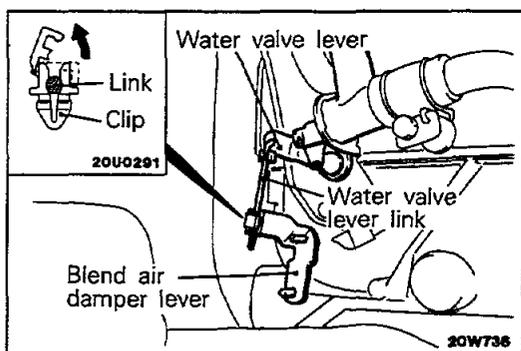
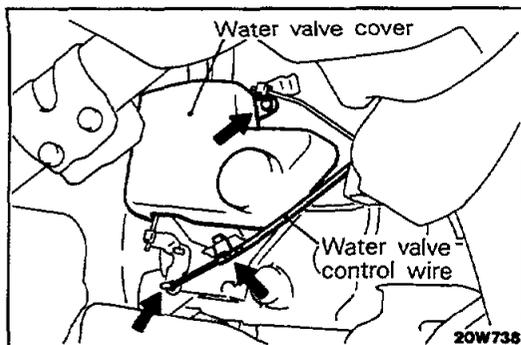
NOTE

When attaching it, pull the lever end (A in the figure) in the direction of the arrow.

4. Referring to the section which explains the adjustment of the mode selection control wire, connect the control wire to the mode selection damper lever.

TEMPERATURE CONTROL LEVER

1. Move the temperature control lever from its extreme left position to its extreme right position and check to be sure that it moves correctly and smoothly to each position.
2. Then move the temperature control lever to the extreme left position, and check to be sure that warm air does not come out when the blower is operated.
3. If the air flow is not correct in the above step, adjust the temperature control wire.

**Adjustment of the Blend Air Damper**

1. Move the warm water flow control lever to the extreme left position.
2. Disconnect the water valve control wire from the blend air damper lever and the heater unit's clip.
3. Remove the water valve cover.
4. Unfasten the clip of the blend air damper lever, and disconnect the link for water valve lever from the blend air damper lever.
5. Push the water valve lever all the way inward so that the water valve is at the closed position.
6. Turn the blend air damper lever all the way in the direction of the arrow so that the blend air damper is completely closed at the lower most position.
7. Attach the end of the link for the water valve lever to the blend air damper lever.
8. Install the water valve cover.
9. After connecting the water valve control wire to the blend air damper lever, connect to the clip part of the heater unit.

Caution

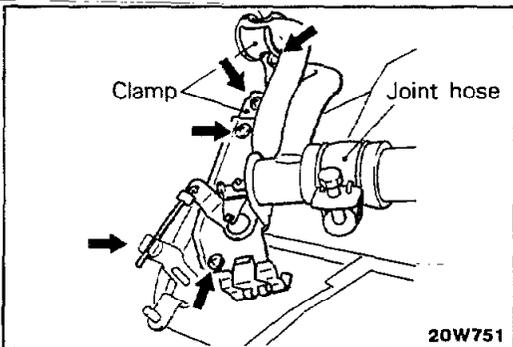
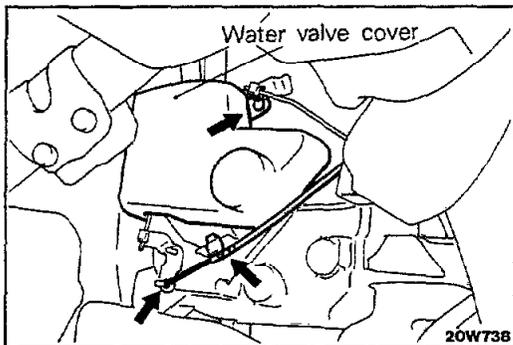
Be careful that the lever does not move when clipping.

10. Check to be sure that the temperature control lever operates smoothly at each position. Also check to be sure that the blend air damper is completely closed when the temperature control lever is moved to the extreme left position and the extreme right position.

WATER VALVE REPLACEMENT

N24FBAF

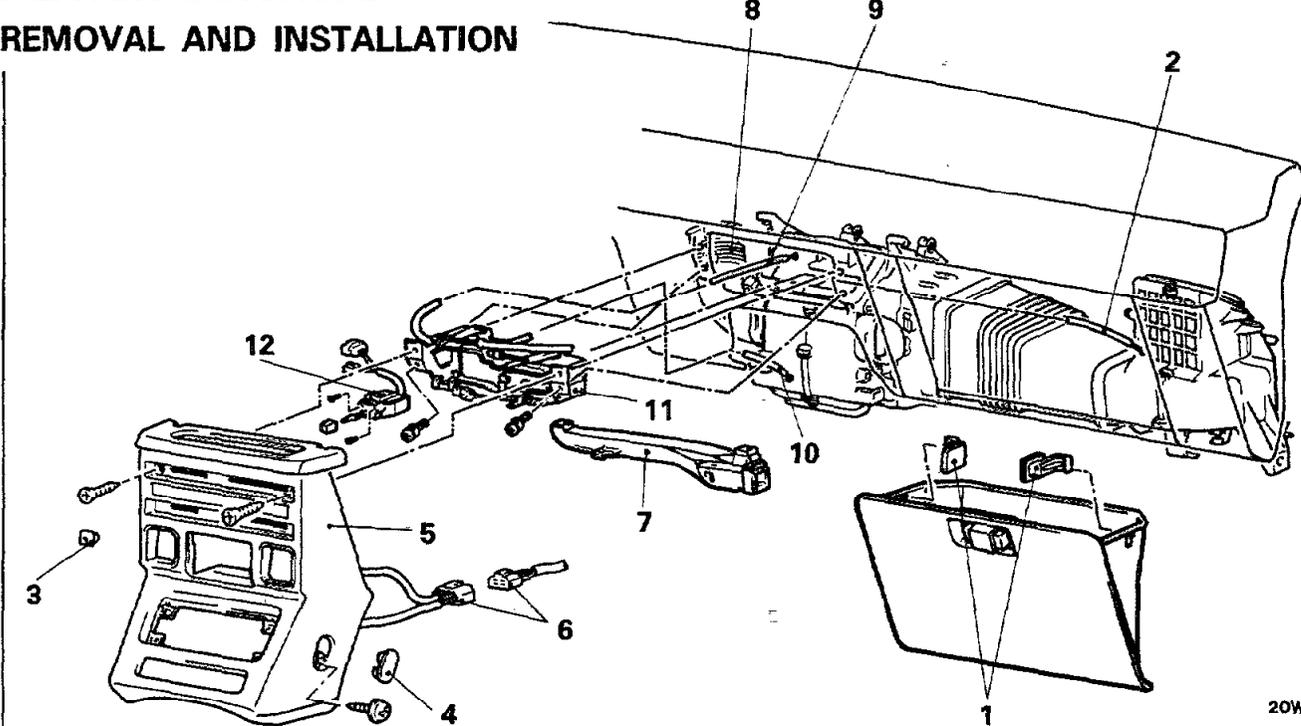
1. Set the temperature control lever to the extreme right position.
2. Remove the radiator drain plug, and then drain the engine coolant.
3. Remove the air cleaner <2.6L Engine>
4. Remove the air intake plenum <3.0L Engine> (Refer to GROUP 11–Air Intake Plenum)
5. Remove the heater hose clamp to disconnect the heater hose.



6. Disconnect the water valve control wire from the blend air damper lever and the heater unit's clip.
7. Remove the water valve cover.

8. Remove the piping clamp.
9. Unfasten the clip of blend air damper lever, and disconnect the link for the water valve lever from the blend air damper lever.
10. Remove the joint hose clamp.
11. Cut the joint hose.
12. Remove the water valve from the heater core.
13. Apply a coating of soapy water to the inside surface of the new joint hoses, and then connect them to the pipe part of the water valve and the heater core.
14. Connect the link, and then install the heater cover.
15. Close the radiator drain plug and refill the engine cooling system with coolant.
16. Check operation.

HEATER CONTROL REMOVAL AND INSTALLATION



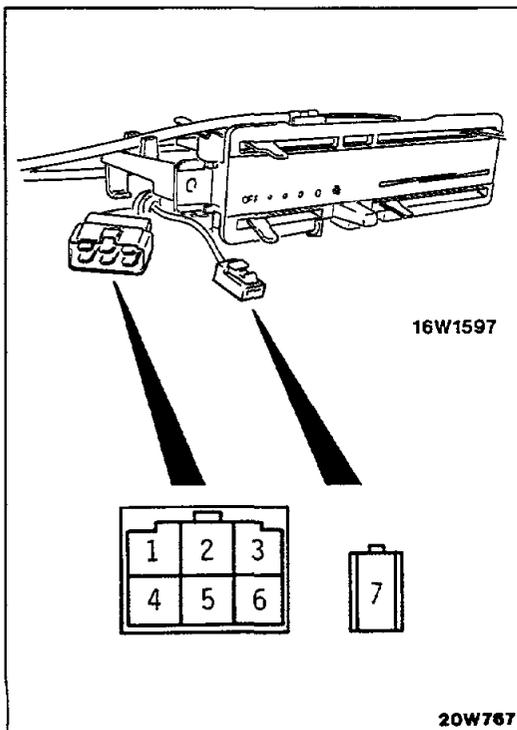
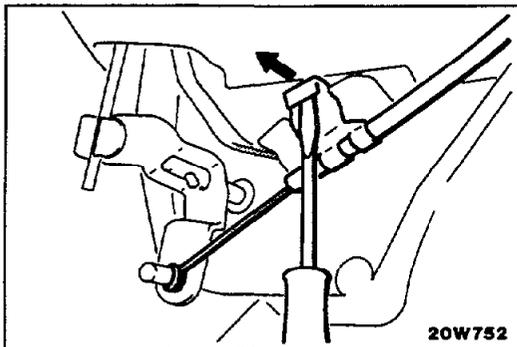
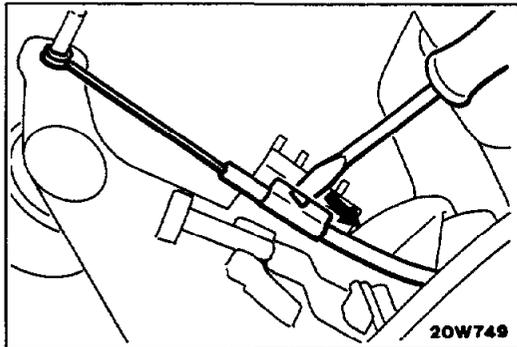
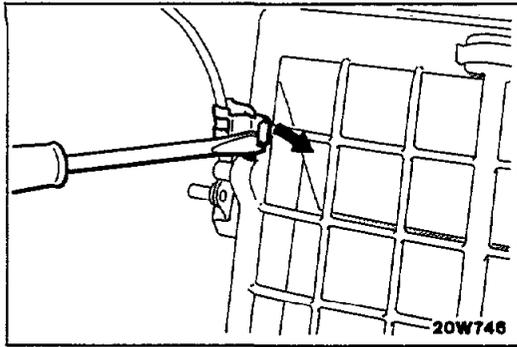
Removal steps

1. Glove box stoppers
2. Air selection control wire
3. Knobs
4. Plugs
5. Center panel
6. Connection of center panel wiring harness to front wiring harness connector
7. Lap heater duct (B)

8. Defroster duct
9. Mode selection control wire
10. Water valve control wire
11. Heater control assembly
12. Blower switch

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◀▶ : Refer to "Service Points of Removal".
- (3) ▶◀ : Refer to "Service Points of Installation".



SERVICE POINTS OF REMOVAL

N24GBAJ

2. REMOVAL OF AIR SELECTION CONTROL WIRE

- (1) Use a screwdriver to pry and remove the clip that holds the outer cable of the air selection control wire.
- (2) Disconnect the inner cable of the air selection control wire from the end of the recirculation/fresh-air change-over damper lever.

9. REMOVAL OF MODE SELECTION CONTROL WIRE

- (1) While using a screwdriver to pry the clip that holds the outer cable of the mode selection control wire, pull the outer cable to remove it from the clip.
- (2) Disconnect the inner cable of the mode selection control wire from the end of the mode selection damper lever.

10. REMOVAL OF WATER VALVE CONTROL WIRE

- (1) Use a screwdriver to pry and remove the clip that holds the outer cable of the water valve control wire.
- (2) Disconnect the inner cable of the water valve control wire from the end of the water valve control lever.

INSPECTION

BLOWER SWITCH

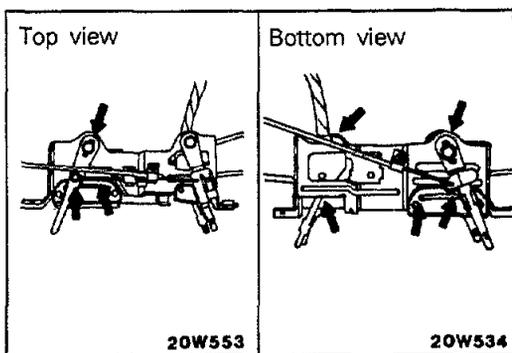
N24GCAC1

Operate the switch, and check the continuity between the terminals.

Terminal	2	1	4	5	6	7
Switch position						
OFF						
•	○	○				○
•	○		○			○
•	○			○		○
•	○				○	○

NOTE

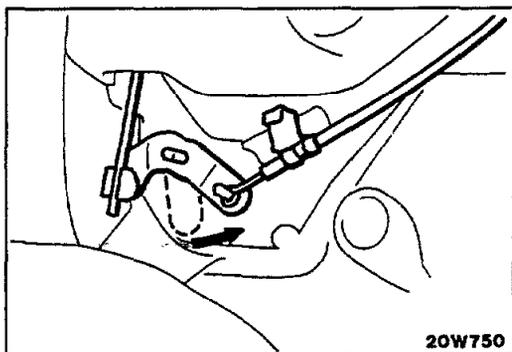
○-○ indicates that there is continuity between the terminals.

**SERVICE POINTS OF INSTALLATION**

N24GDAL

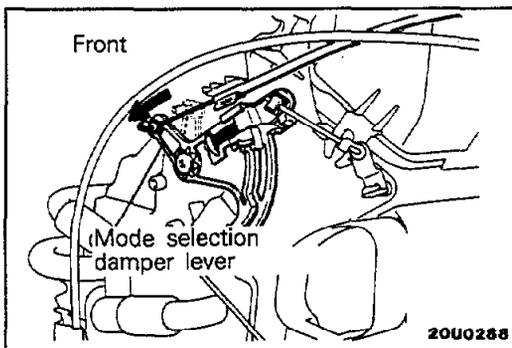
11. APPLICATION OF GREASE TO HEATER CONTROL ASSEMBLY

Apply the multipurpose grease to all the moving parts of the heater control assembly.

**10. INSTALLATION OF WATER VALVE CONTROL WIRE**

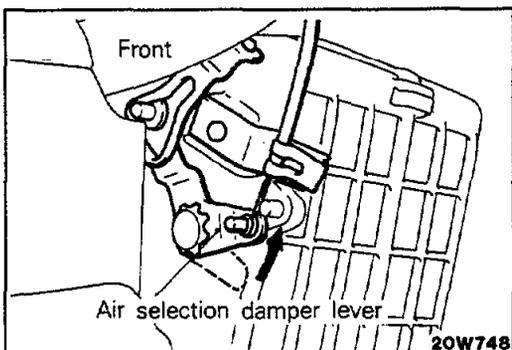
Connect the water valve control wire to the water valve control lever by following the steps below.

- (1) Move the temperature control lever to the extreme left position.
- (2) With the water-valve control lever pressed inward in the direction indicated by the arrow, connect the inner cable of the water-valve control wire to the end of the water-valve control lever, and then secure the outer cable by using a clip.

**9. INSTALLATION OF MODE SELECTION CONTROL WIRE**

Connect the mode selection control wire to the mode selection damper lever by following the steps below.

- (1) Move the mode selection lever to the  position.
- (2) With the mode selection damper lever pressed inward in the direction indicated by the arrow, connect the inner cable of the mode selection control wire to the end of the mode selection lever, and then secure the outer cable by using a clip.

**2. INSTALLATION OF AIR SELECTION CONTROL WIRE**

Connect the air selection control wire to the air selection damper lever by following the steps below.

- (1) Move the air selection control lever to the  position.
- (2) With the air selection damper lever pressed inward in the direction indicated by the arrow, connect the inner cable of the air selection control wire to the end of the air selection lever, and then secure the outer cable by using a clip.

HEATER UNIT REMOVAL AND INSTALLATION

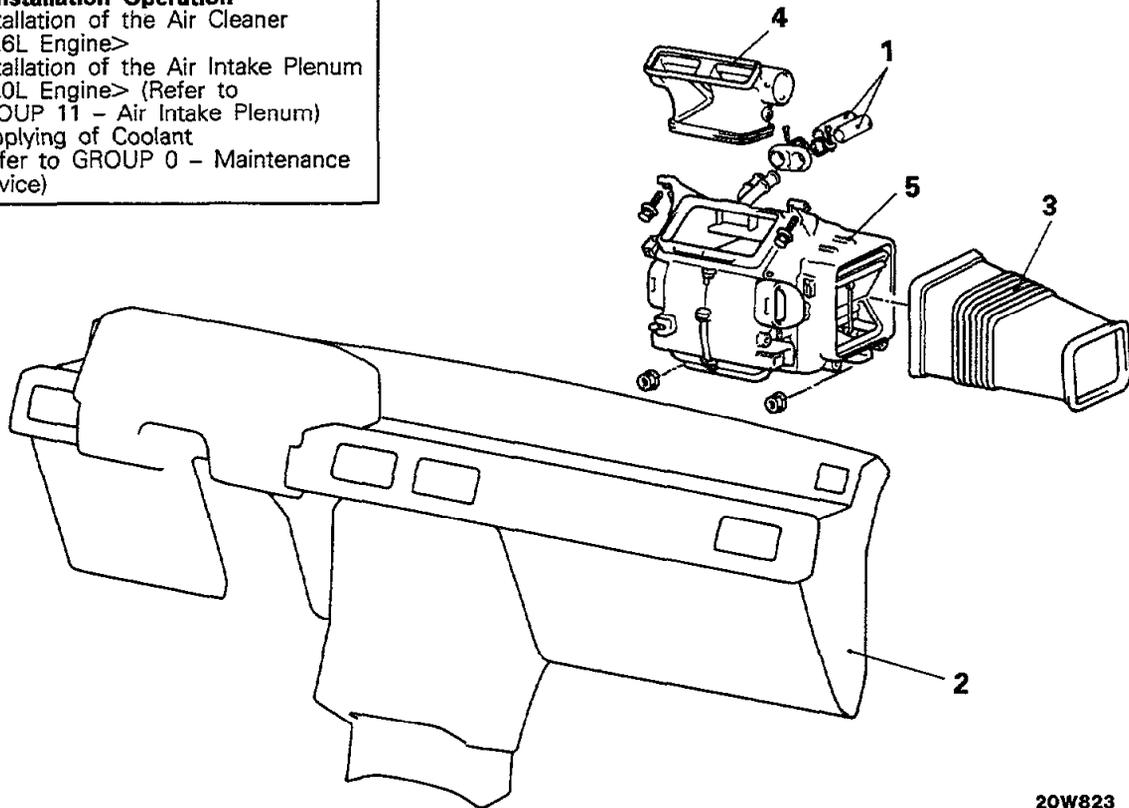
N24IA--

Pre-removal Operation

- Draining of Coolant
(Refer to GROUP 0 – Maintenance Service)
- Removal of the Air Cleaner
<2.6L Engine>
- Removal of the Air Intake Plenum
<3.0L Engine> (Refer to GROUP 11 – Air Intake Plenum)

Post-installation Operation

- Installation of the Air Cleaner
<2.6L Engine>
- Installation of the Air Intake Plenum
<3.0L Engine> (Refer to GROUP 11 – Air Intake Plenum)
- Supplying of Coolant
(Refer to GROUP 0 – Maintenance Service)



20W823

Removal steps

1. Heater hose connection
- ◄◄ 2. Instrument panel
3. Duct
4. Center ventilator duct
5. Heater unit

NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◄◄ : Refer to "Service Points of Removal"
- (3) ►► : Refer to "Service Points of Installation".

SERVICE POINTS OF REMOVAL

N24IBAN

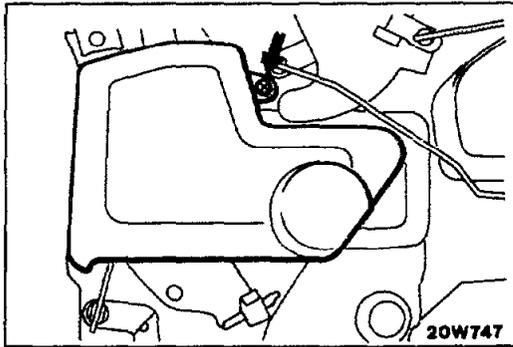
2. REMOVAL OF INSTRUMENT PANEL

Refer to GROUP 23 – Instrument Panel.

INSPECTION

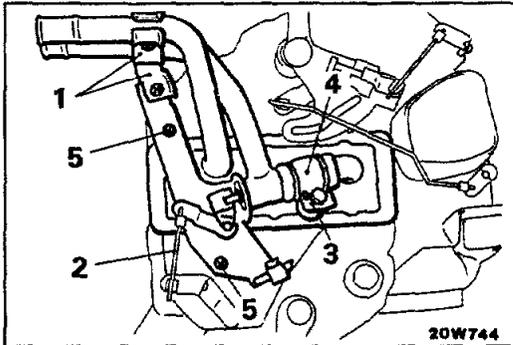
N24ICAA

- Check the damper and link mechanism for operation.
- Check the heater core for clogging or water leakage.
- Check the water valve for operation and clogging.

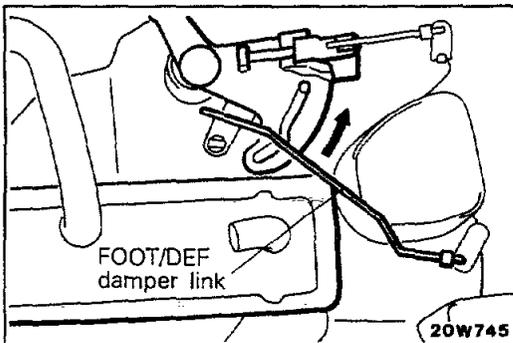
**HEATER CORE REPLACEMENT**

N24IDAD

1. Remove the water valve cover.



2. Remove the following parts to remove the water valve.
 - (1) Piping clamp
 - (2) Water valve link
 - (3) Joint hose clamp
 - (4) Joint hose
 - (5) Screw



3. Remove the FOOT/DEF damper link from the mode selection damper lever.
4. Move the damper lever to the position at which the mode selection damper lever does not protrude very much to the heater core side.
5. Remove the heater core. If at this time the damper lever and heater core are in contact, making removal difficult, remove the damper lever.

Caution

To prevent interference between the heater core and case, use care not to peel the heater core felt away when the heater core is removed.

6. After installing the heater core and water valve, install the link for each damper after referring to the "Service adjustment procedures" section.

SERVICE POINTS OF INSTALLATION

N24IEAD

2. INSTALLATION OF INSTRUMENT PANEL

Refer to GROUP 23 - Instrument Panel.

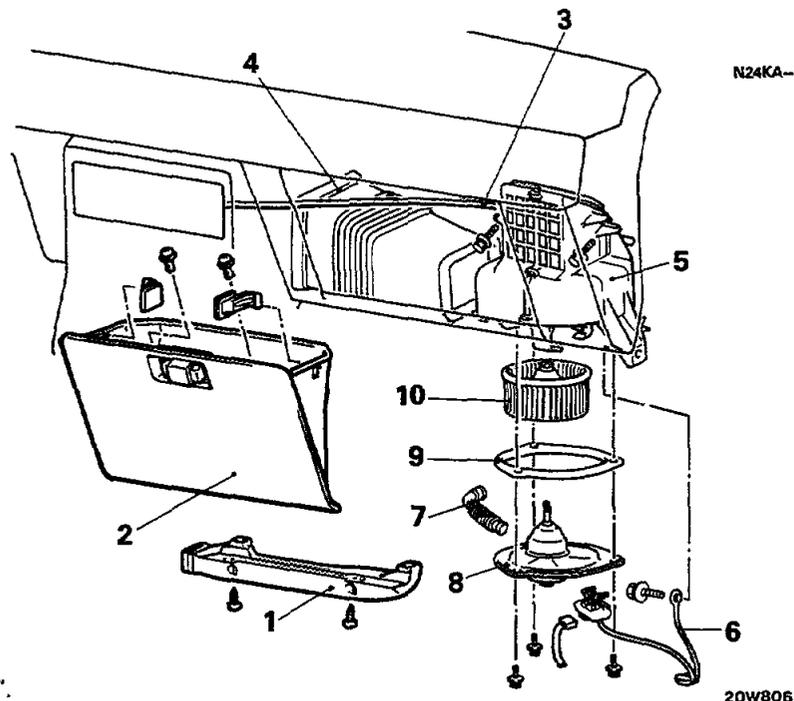
**BLOWER ASSEMBLY
REMOVAL AND INSTALLATION**

Removal steps

- 1. Lap heater duct (C)
- 2. Glove box
- 3. Air selection control wire
- 4. Duct
- 5. Blower assembly
- 6. Resistor
- 7. Hose
- 8. Blower motor
- 9. Packing
- 10. Fan

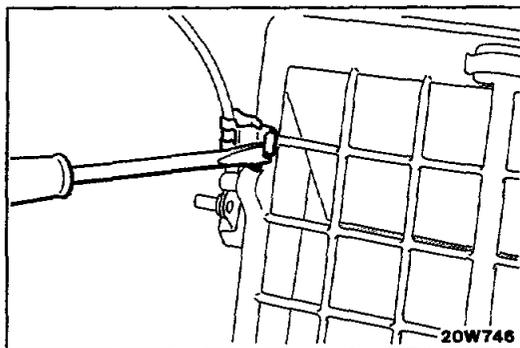
NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ◄◄ : Refer to "Service Points of Removal".
- (3) ►► : Refer to "Service Points of Installation".



N24KA-

20W806



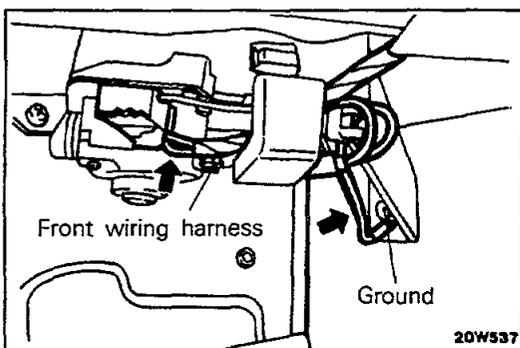
20W746

SERVICE POINTS OF REMOVAL

N24KBAI

3. REMOVAL OF AIR SELECTION CONTROL WIRE

- (1) Use a screwdriver to pry and remove the clip that holds the outer cable of the air selection control wire.
- (2) Disconnect the inner cable of the air selection control wire from the end of the air selection damper lever.



20W537

5. REMOVAL OF BLOWER ASSEMBLY

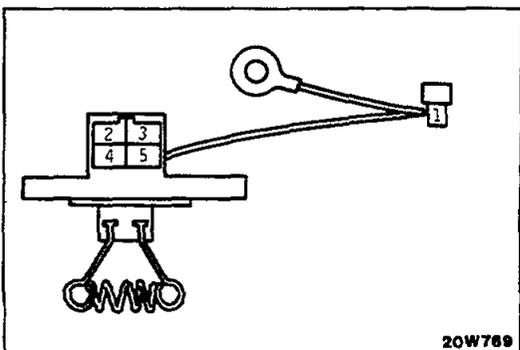
- (1) Disconnect the connector of the front wiring harness (connected to the resistor).
- (2) Remove the ground installation bolt. (Tightened together with the blower assembly.)
- (3) Remove the blower assembly installation bolt.

INSPECTION

N24KCAD

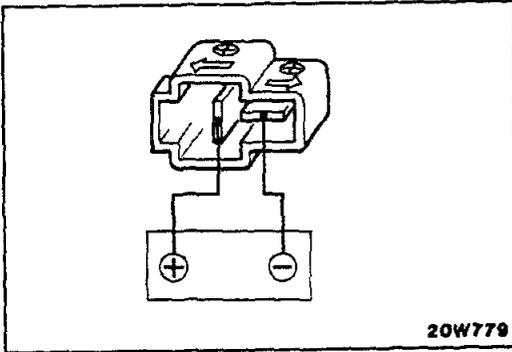
RESISTOR

Connect an ohmmeter to each terminal of the resistor and measure the resistance.



20W769

Terminal connections	Resistance
1 – 2 (M ₁)	Approx. 1.22Ω
1 – 3 (M ₂)	Approx. 0.41Ω
1 – 4 (Low)	Approx. 2.25Ω
1 – 5 (High)	Approx. 0Ω



BLOWER MOTOR

- (1) Connect the blower motor terminals directly to the battery and check that the blower motor operates smoothly.
- (2) Next, reverse the polarity and check that the blower motor operates smoothly in the reverse direction.

SERVICE POINTS OF INSTALLATION

N24KDAG

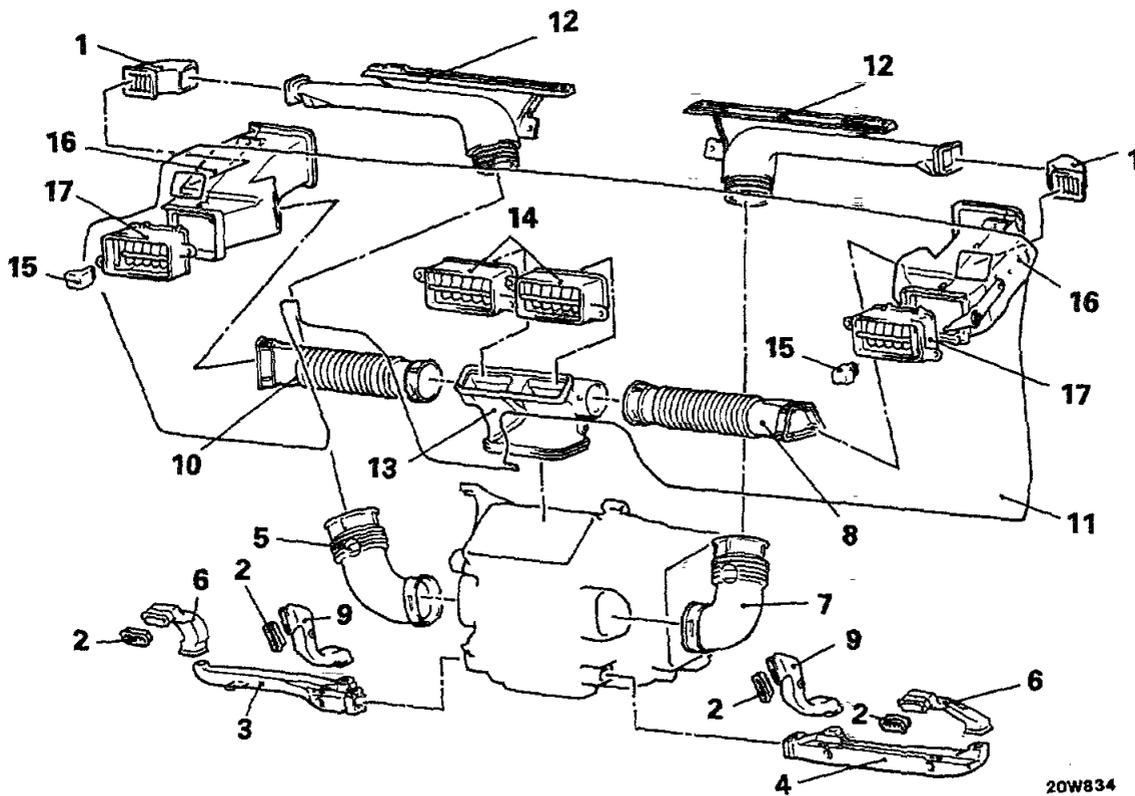
3. INSTALLATION OF AIR SELECTION CONTROL WIRE

Refer to P. 24-10.

VENTILATORS

REMOVAL AND INSTALLATION (Ventilators of instrument panel)

N24MA-A



Removal steps

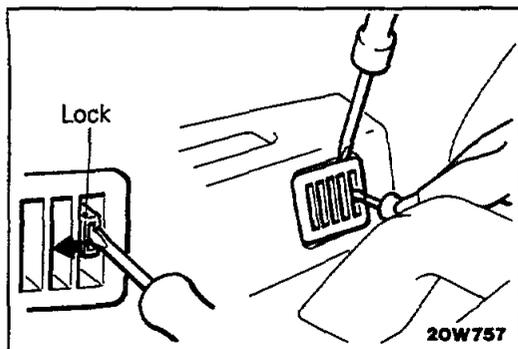
- ↔ 1. Demister grille
- ↔ 2. Lap heater garnish
- ↔ 3. Lap heater duct (B)
- ↔ 4. Lap heater duct (C)
- ↔ 5. Defroster duct (L.H.)
- ↔ 6. Lap heater duct (A)
- ↔ 7. Defroster duct (R.H.)
- ↔ 8. Air duct (R.H.) (Only vehicles with air conditioner)
- ↔ 9. Lap heater duct (A)
- ↔ 10. Air duct (L.H.) (Only vehicles with air conditioner)

- ↔ 11. Instrument panel
- ↔ 12. Defroster duct
- ↔ 13. Center ventilator duct
- ↔ 14. Center air outlet
- ↔ 15. Knob
- ↔ 16. Air duct
- ↔ 17. Side air outlet

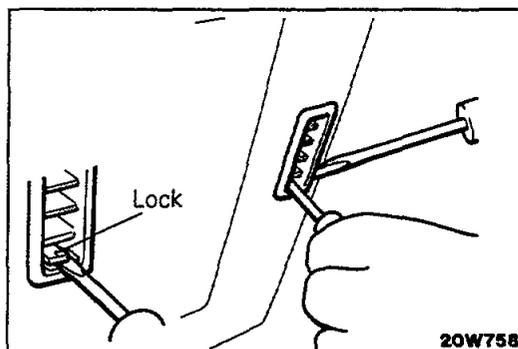
NOTE

- (1) Reverse the removal procedures to reinstall.
- (2) ↔ : Refer to "Service Points of Removal".

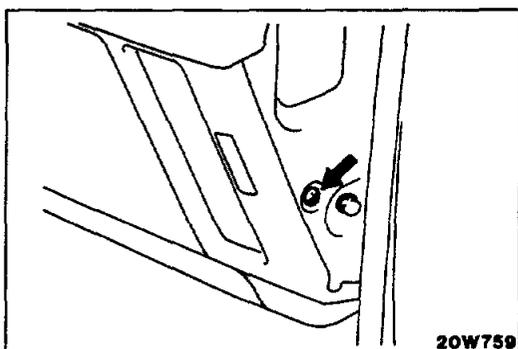
N24MBAGa

**SERVICE POINTS OF REMOVAL****1. REMOVAL OF DEMISTER GRILL**

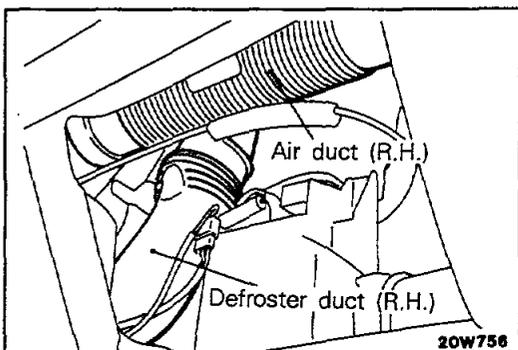
While using a screwdriver to pry the lock of the demister grill, use another screwdriver to pry the end of the demister grill to remove it.

**2. REMOVAL OF LAP HEATER GARNISH**

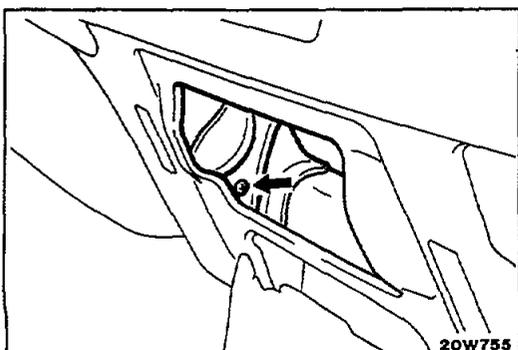
While using a screwdriver to pry the lock of the lap heater garnish, use another screwdriver to pry the end of the lap heater garnish to remove it.

**6. REMOVAL OF LAP HEATER DUCT (A)**

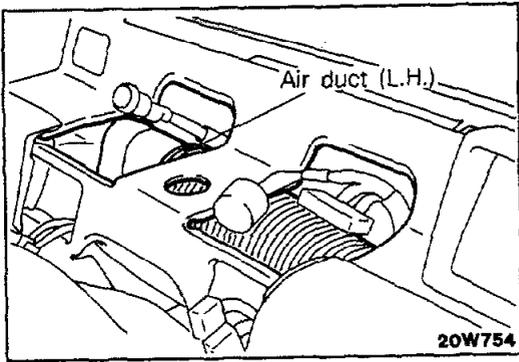
Remove the screw at the side of the instrument panel, and then remove the lap heater duct (A).

**7. REMOVAL OF DEFROSTER DUCT (R.H.)/8. AIR DUCT (R.H.)**

- (1) Open the glove box lid.
- (2) Remove the glove box stopper.
- (3) Pull the glove box outward.
- (4) Remove the defroster duct (R.H.)
- (5) Remove the air duct (R.H.)

**9. REMOVAL OF LAP HEATER DUCT (A)**

- (1) Remove the center panel. (Refer to GROUP 23 – Floor Console)
- (2) Remove the heater control assembly. (Refer to P.24-8.)
- (3) Insert a hand through the heater control assembly installation hole in the instrument panel, and remove the installation screw of the lap heater duct (A).



10. REMOVAL OF AIR DUCT (L.H.)

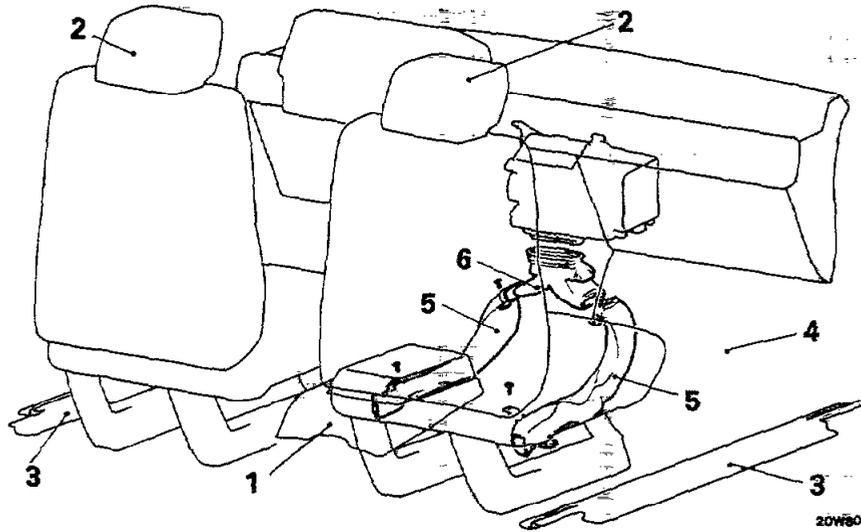
- (1) Remove the combination meter. (Refer to GROUP 8 - Meters and Gauges)
- (2) Remove the air duct (L.H.).

11. REMOVAL OF INSTRUMENT PANEL

Refer to GROUP 23 - Instrument Panel.

REMOVAL AND INSTALLATION (Rear heater ducts)

N24MA-B



Removal steps

1. Floor console
2. Front seat
3. Rail cover
4. Carpet
5. Rear heater duct (B)
6. Rear heater duct (A)

NOTE
Reverse the removal procedures to reinstall.