

SECTION **VTL**
VENTILATION SYSTEM

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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000007306327

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

Precaution for Working with HFC-134a (R-134a)

INFOID:000000007306328

WARNING:

- CFC-12 (R-12) refrigerant and HFC-134a (R-134a) refrigerant are not compatible. If the refrigerants are mixed compressor failure is likely to occur. Refer to [HA-4, "Contaminated Refrigerant"](#). To determine the purity of HFC-134a (R-134a) in the vehicle and recovery tank, use the recovery/recycling equipment and refrigerant identifier.
- Use only specified oil for the HFC-134a (R-134a) A/C system and HFC-134a (R-134a) components. If oil other than that specified is used, compressor failure is likely to occur.
- The specified HFC-134a (R-134a) oil rapidly absorbs moisture from the atmosphere. The following handling precautions must be observed:
 - When removing refrigerant components from a vehicle, immediately cap (seal) the component to minimize the entry of moisture from the atmosphere.
 - When installing refrigerant components to a vehicle, do not remove the caps (unseal) until just before connecting the components. Connect all refrigerant loop components as quickly as possible to minimize the entry of moisture into system.
 - Only use the specified oil from a sealed container. Immediately reseal containers of oil. Without proper sealing, oil will become moisture saturated and should not be used.
 - Avoid breathing A/C refrigerant and oil vapor or mist. Exposure may irritate eyes, nose and throat. Remove HFC-134a (R-134a) from the A/C system using certified service equipment meeting requirements of SAE J2210 [HFC-134a (R-134a) recycling equipment], or J2209 [HFC-134a (R-134a) recovery equipment]. If accidental system discharge occurs, ventilate work area before resuming service. Additional health and safety information may be obtained from refrigerant and oil manufacturers.
 - Do not allow A/C oil to come in contact with styrofoam parts. Damage may result.

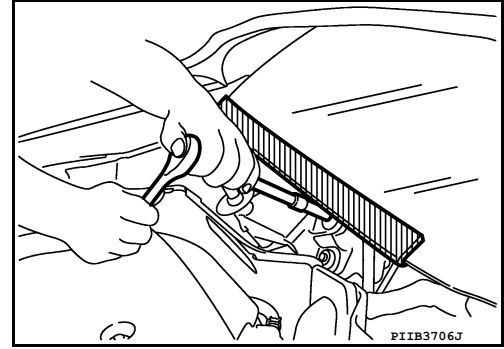
PRECAUTIONS

< PRECAUTION >

Precaution for Procedure without Cowl Top Cover

INFOID:000000007306329

When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc.



Precaution for Work

INFOID:000000007306330

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components.
 - Water soluble dirt: Dip a soft cloth into lukewarm water, and wring the water out of the cloth to wipe the dirty area.
Then rub with a soft and dry cloth.
 - Oily dirt: Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%), and wipe the dirty area.
Then dip a cloth into fresh water, and wring the water out of the cloth to wipe the detergent off. Then rub with a soft and dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol, or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

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PREPARATION

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PREPARATION

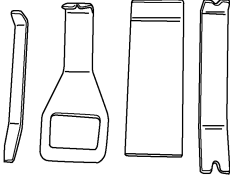
PREPARATION

Special Service Tool

INFOID:000000007306331

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

Tool number (Kent-Moore No.) Tool name	Description
— (J-46534) Trim Tool Set	Removing trim components




AWJIA0483ZZ

Commercial Service Tool

INFOID:000000007306332

Tool name	Description
Power tool	Loosening nuts, screws and bolts



PIIB1407E

IN-CABIN MICROFILTER

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION

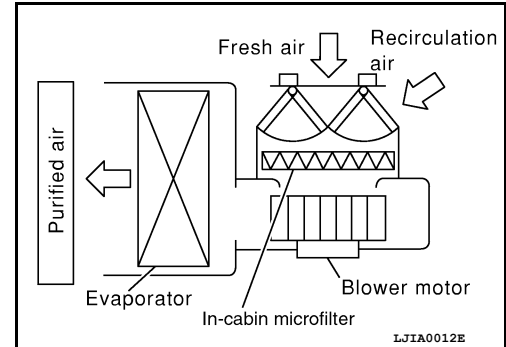
IN-CABIN MICROFILTER

Description

INFOID:000000007306333

FUNCTION

The air inside the passenger compartment is filtered by the in-cabin microfilters when the heater or A/C controls are set on either the recirculation or fresh mode. The two in-cabin microfilters are located in the heater and cooling unit assembly.



REPLACEMENT TIMING

Replacement of the two in-cabin microfilters is recommended on a regular interval depending on the driving conditions. Refer to For [MA-9. "FOR NORTH AMERICA : Introduction of Periodic Maintenance"](#) (United States and Canada) or [MA-12. "FOR MEXICO : Introduction of Periodic Maintenance"](#) (Mexico). It may also be necessary to replace the two in-cabin microfilters as part of a component replacement if the in-cabin microfilters are damaged.

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IN-CABIN MICROFILTER

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

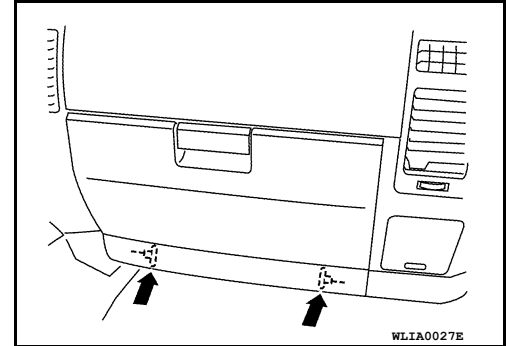
IN-CABIN MICROFILTER

Removal and Installation

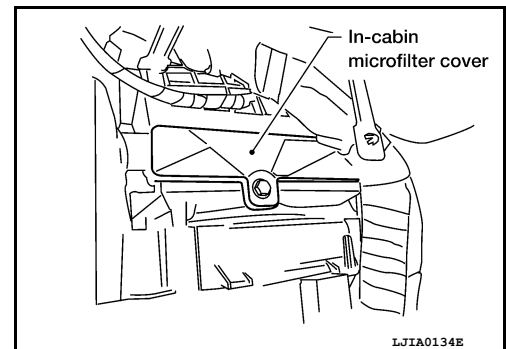
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REPLACEMENT PROCEDURE

1. Remove the two lower glove box hinge pins to remove the glove box from the instrument panel and let it hang from the cord.



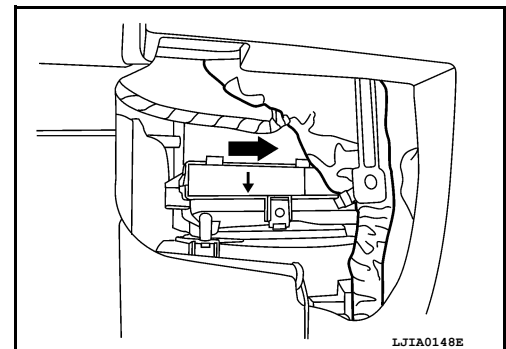
2. Remove the screw and remove the in-cabin microfilter cover.
3. Remove the in-cabin microfilters from the heater and cooling unit assembly housing.



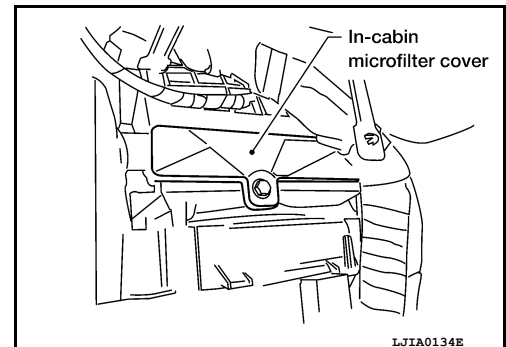
4. Insert the first new in-cabin microfilter into the heater and cooling unit assembly housing and slide it over to the right. Insert the second new in-cabin microfilter into the heater and cooling unit assembly housing.

NOTE:

The in-cabin microfilters are marked with air flow arrows. The end of the microfilter with the arrow should face the rear of the vehicle. The arrows should point downward.



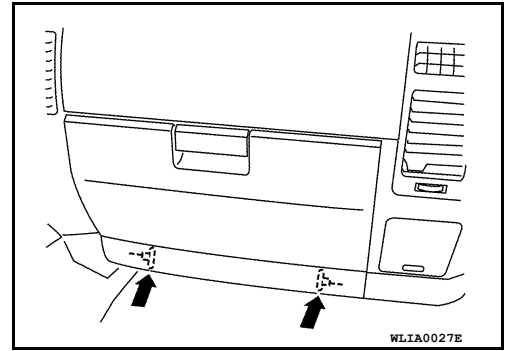
5. Install the in-cabin microfilter cover.



IN-CABIN MICROFILTER

< PERIODIC MAINTENANCE >

6. Install the lower glove box in the instrument panel and secure it with the two hinge pins.



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CONTROL UNIT

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

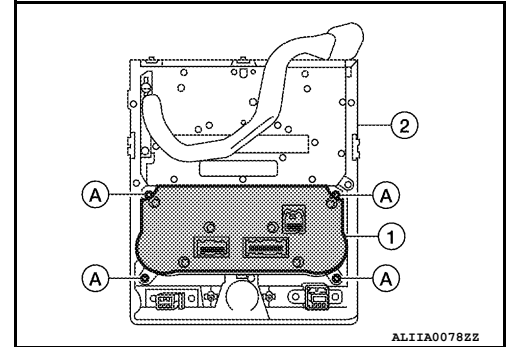
CONTROL UNIT

Removal and Installation

INFOID:000000007306335

REMOVAL

1. Remove the cluster lid C. Refer to [JP-15. "Removal and Installation"](#).
2. Remove the four screws (A) securing the front air control unit (1) to cluster lid D (2).
3. Remove the front air control unit (1).
4. Remove the control knobs from the front air control unit.



INSTALLATION

Installation is in the reverse order of removal.

IN-VEHICLE SENSOR

< REMOVAL AND INSTALLATION >

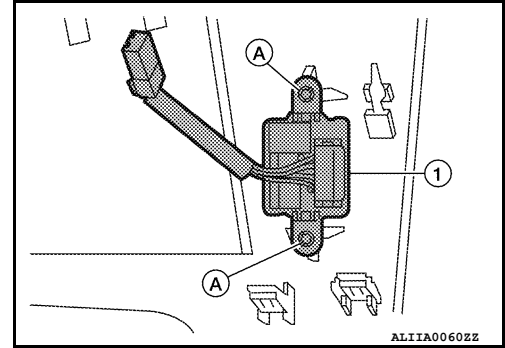
IN-VEHICLE SENSOR

Removal and Installation

INFOID:000000007306336

REMOVAL

1. Remove the lower instrument panel LH. Refer to [IP-17. "Removal and Installation"](#).
2. Remove the two screws (A).
3. Disconnect harness connector from in-vehicle sensor.
4. Remove the in-vehicle sensor (1).



INSTALLATION

Installation is in the reverse order of removal.

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OPTICAL SENSOR

< REMOVAL AND INSTALLATION >

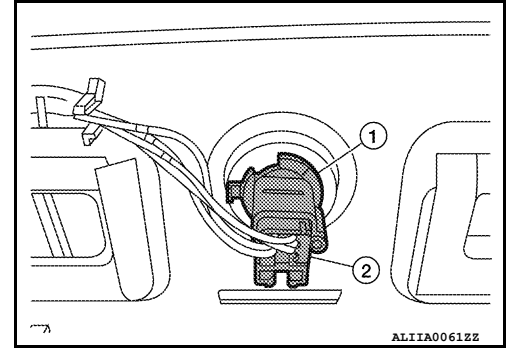
OPTICAL SENSOR

Removal and Installation

INFOID:000000007306337

REMOVAL

1. Remove the defroster grille from the instrument panel. Refer to [IP-10. "Exploded View"](#).
2. Disconnect the optical sensor connector (2).
3. Twist the optical sensor (1) counter clockwise to remove it from the defroster grille.



INSTALLATION

Installation is in the reverse order of removal.

INTAKE SENSOR

< REMOVAL AND INSTALLATION >

INTAKE SENSOR

Removal and Installation

INFOID:000000007306338

REMOVAL

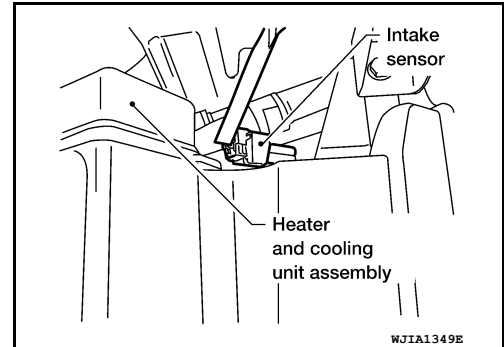
1. Remove the instrument lower panel RH and glove box. Refer to [IP-16. "Removal and Installation"](#).

2. Disconnect the harness connector from intake sensor.

NOTE:

The intake sensor is located on the top of the heater and cooling unit assembly next to the A/C evaporator cover.

3. Pull up on the intake sensor to remove the intake sensor from the heater and cooling unit assembly.



INSTALLATION

Installation is in the reverse order of removal.

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BLOWER MOTOR

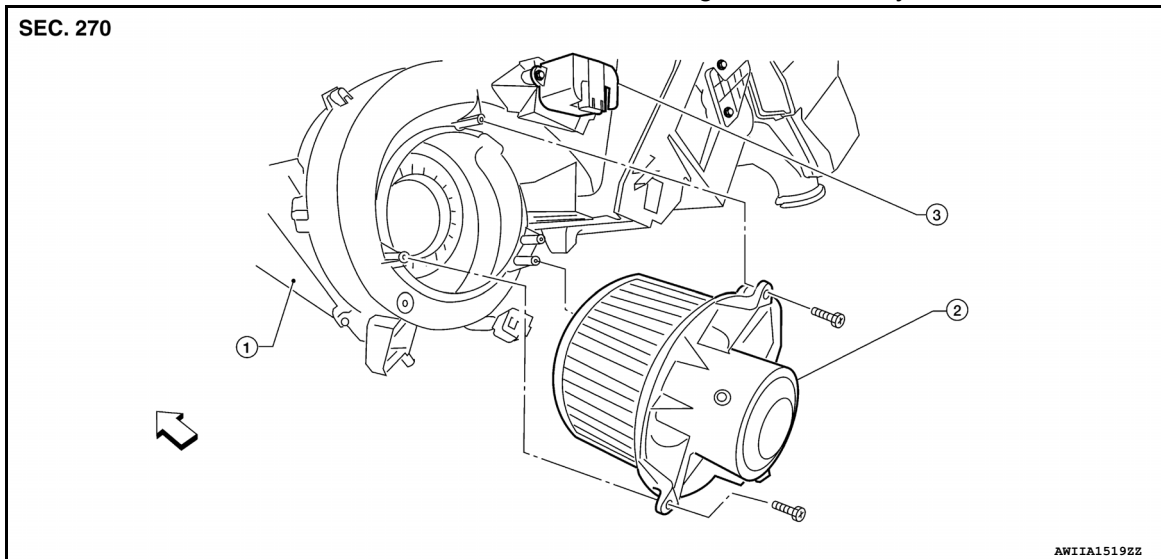
< REMOVAL AND INSTALLATION >

BLOWER MOTOR

Removal and Installation

INFOID:000000007306339

Blower Motor - Heater and Cooling Unit Assembly



1. Heater and cooling unit assembly 2. Blower motor 3. Variable blower control or front blower motor resistor

⇐ Front

REMOVAL

1. Remove the instrument lower panel RH and glove box assembly. Refer to [IP-16, "Removal and Installation"](#).
2. Disconnect the harness connector from blower motor.
3. Remove the three screws and the blower motor.
4. Remove the blower motor wheel as necessary to transfer to the new blower motor.

INSTALLATION

Installation is in the reverse order of removal.

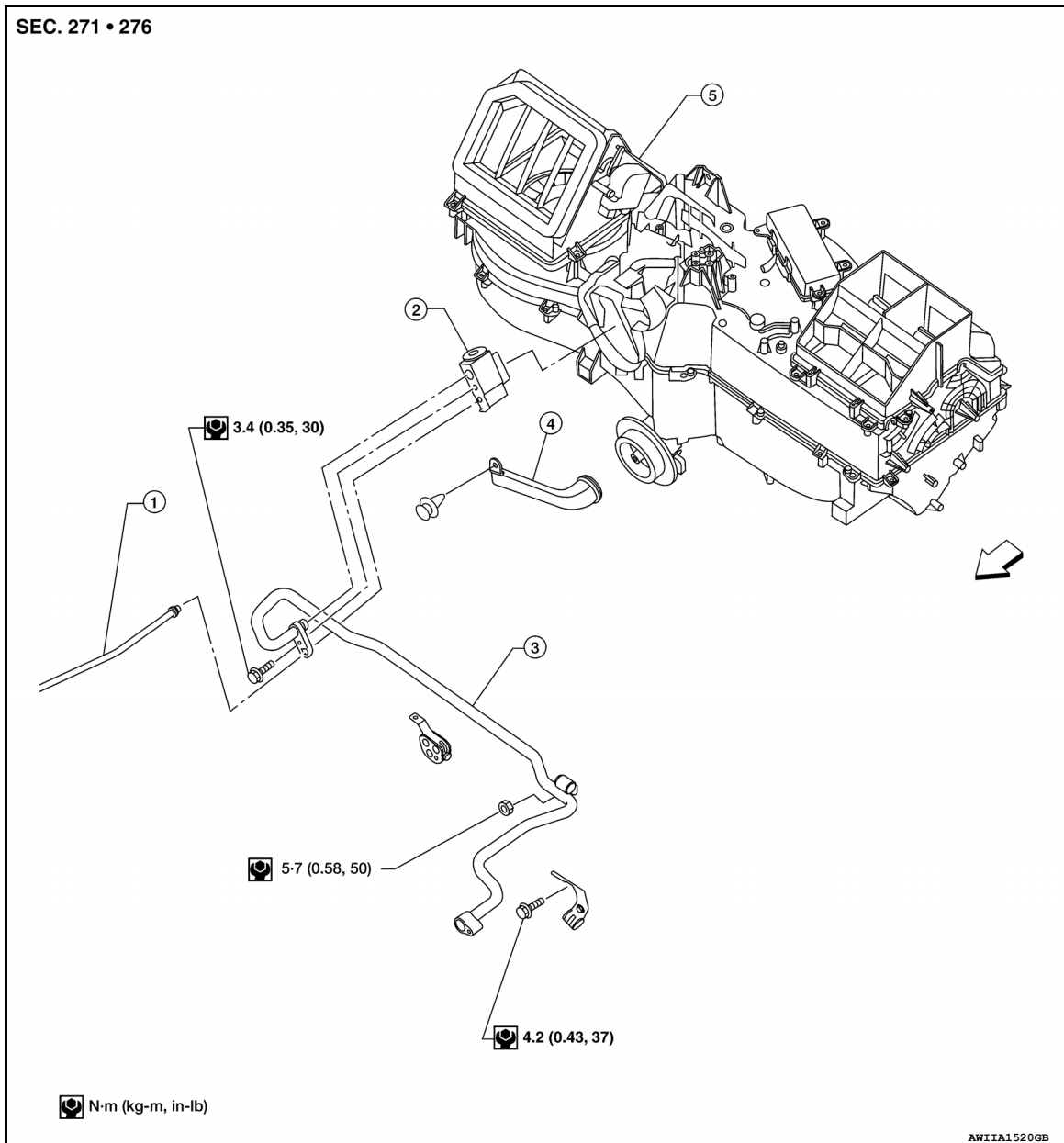
HEATER & COOLING UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

HEATER & COOLING UNIT ASSEMBLY

Removal and Installation

INFOID:000000007306340



- | | | |
|---------------------------|-------------------------------------|--------------------------|
| 1. High-pressure A/C pipe | 2. Expansion valve | 3. Low-pressure A/C pipe |
| 4. A/C drain hose | 5. Heater and cooling unit assembly | ↔ Front |

REMOVAL

NOTE:

When removing components such as hoses, tubes/lines, etc., cap or plug openings to prevent fluid from spilling.

1. Move the two front seats to the full rearward position on the seat track.
2. Disconnect the battery negative terminal and battery positive terminal.
3. Discharge the refrigerant from the A/C system. Refer to [HA-22. "HFC-134a \(R-134a\) Service Procedure"](#).
4. Drain the coolant from the engine cooling system. Refer to [CO-11. "Changing Engine Coolant"](#).
5. Disconnect the heater hoses from the heater core.

HEATER & COOLING UNIT ASSEMBLY

< REMOVAL AND INSTALLATION >

6. Disconnect the high/low pressure pipes from the expansion valve.

CAUTION:

Cap or wrap the joint of the pipes with suitable material such as vinyl tape to avoid entry of air.

7. Remove the instrument panel and console panel. Refer to [IP-11, "Removal and Installation"](#).
8. Disconnect the instrument panel wire harness at the RH and LH in-line connector brackets and the harness connectors from fuse block (J/B).
9. Disconnect the steering member from each side of the vehicle body.
10. Remove the heater and cooling unit assembly with it attached to the steering member from the vehicle.

CAUTION:

Use care not to damage the seats and interior trim panels when removing the heater and cooling unit assembly with it attached to the steering member.

11. Remove the heater and cooling unit assembly from the steering member.

INSTALLATION

Installation is in the reverse order of removal.

- Fill the engine cooling system with the specified coolant mixture. Refer to [CO-11, "Changing Engine Coolant"](#).
- Recharge the A/C system. Refer to [HA-22, "HFC-134a \(R-134a\) Service Procedure"](#).

CAUTION:

- **Do not reuse O-rings.**
- **Apply A/C oil to the O-rings of the low-pressure pipe and high-pressure pipe for installation.**
- **After charging the refrigerant, check for leaks.**

HEATER CORE

< REMOVAL AND INSTALLATION >

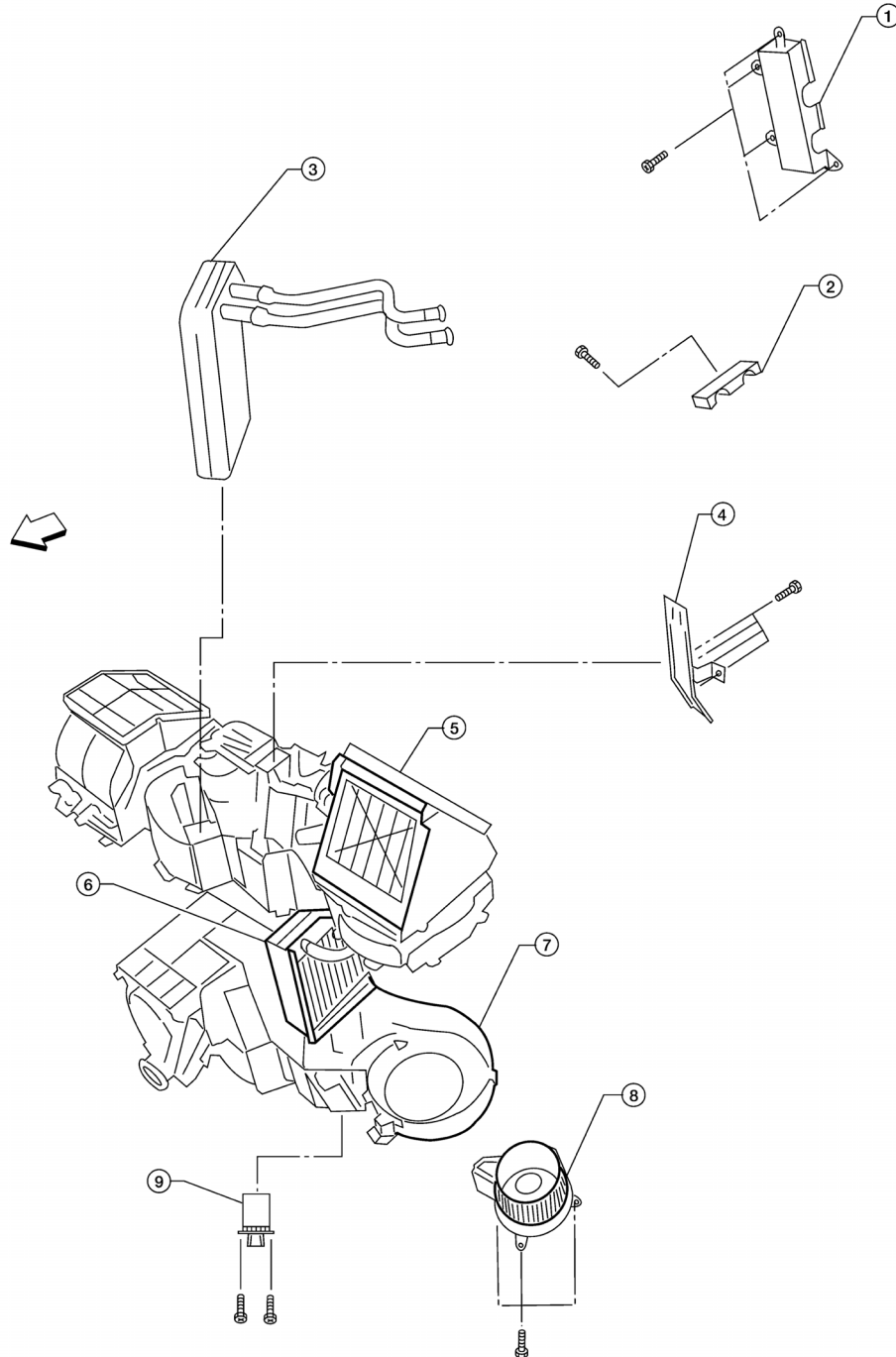
HEATER CORE

Removal and Installation

INFOID:000000007306341

Heater and Cooling Unit Assembly

SEC. 270



- | | | |
|---------------------------------------|---------------------------------------|---|
| 1. Heater core cover | 2. Heater core pipe bracket | 3. Heater core |
| 4. Upper bracket | 5. Upper heater and cooling unit case | 6. Evaporator and expansion valve assembly |
| 7. Lower heater and cooling unit case | 8. Blower motor | 9. Variable blower control or front blower motor resistor |

← Front

REMOVAL

Revision: August 2012

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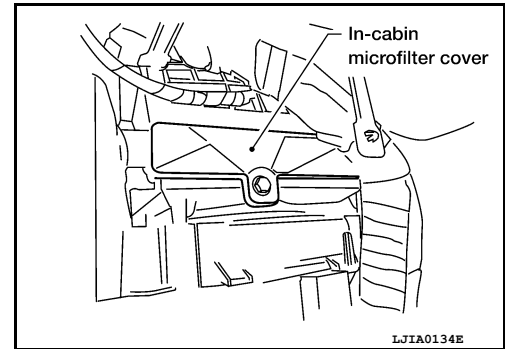
HEATER CORE

< REMOVAL AND INSTALLATION >

1. Remove the heater and cooling unit assembly. Refer to [VTL-13, "Removal and Installation"](#).
2. Remove the four screws and remove the upper bracket.
3. Remove the four screws and remove the heater core cover.
4. Remove the heater core pipe bracket.
5. Remove the heater core.

NOTE:

If the in-cabin microfilters are contaminated from coolant leaking from the heater core, replace the in-cabin microfilters with new ones before installing the new heater core.



INSTALLATION

Installation is in the reverse order of removal.

DEFROSTER DOOR MOTOR

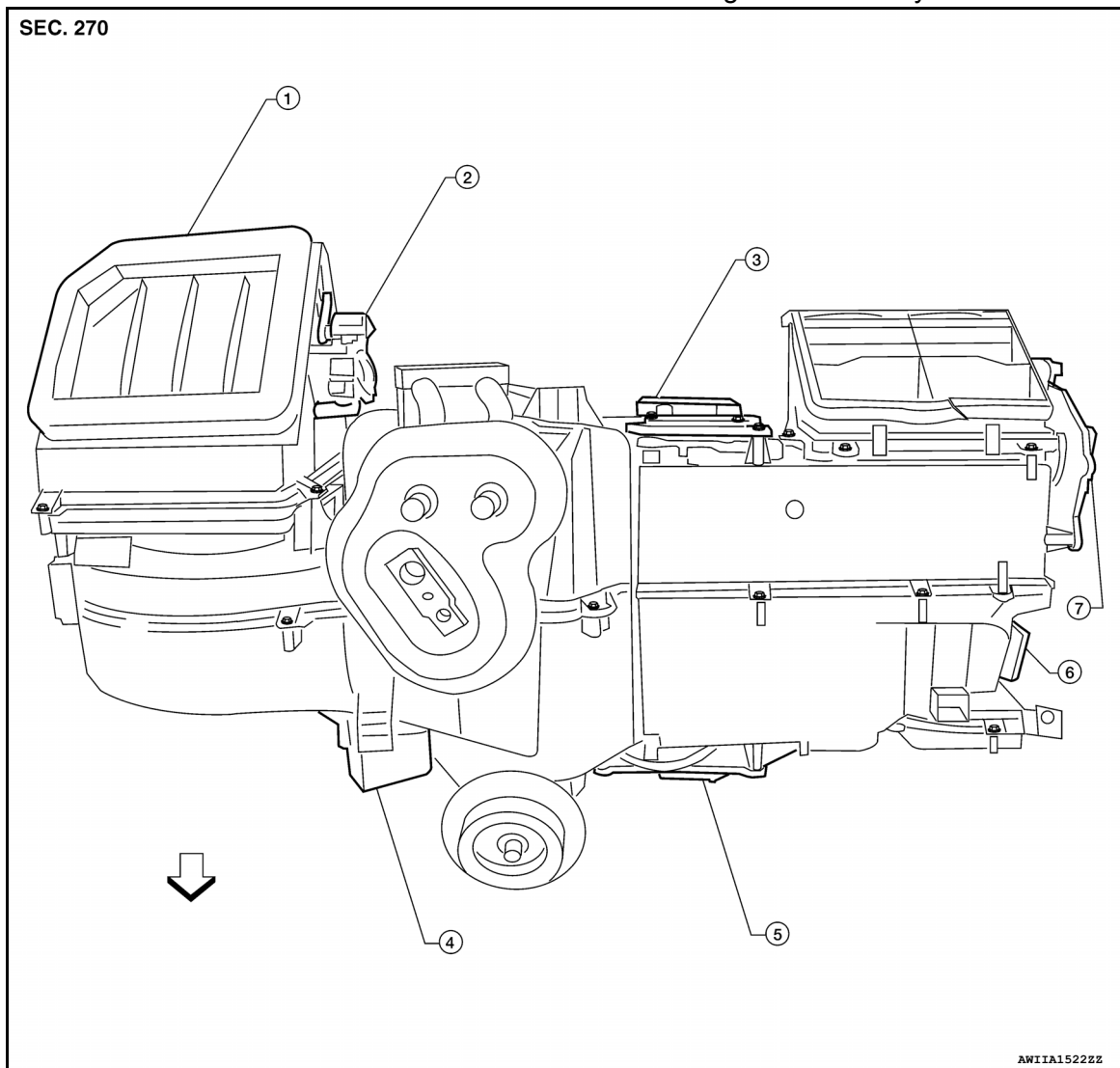
< REMOVAL AND INSTALLATION >

DEFROSTER DOOR MOTOR

Removal and Installation

INFOID:000000007306342

Defroster Door Motor - Heater and Cooling Unit Assembly



- | | | |
|---|-----------------------------------|--------------------------------|
| 1. Heater and cooling unit assembly | 2. Intake door motor | 3. Air mix door motor (driver) |
| 4. Variable blower control or front blower motor resistor | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | ← Front | |

REMOVAL

1. Remove the lower knee protector. Refer to [IP-10, "Exploded View"](#).
2. Remove the accelerator pedal. Refer to [ACC-3, "Removal and Installation"](#).
3. Remove the BCM. Refer to [BCS-51, "Removal and Installation"](#).
4. Remove the Bose speaker audio amplifier (if equipped). Refer to [AV-349, "Removal and Installation"](#).
5. Disconnect the harness connector from defroster door motor.
6. Remove the three screws and the defroster door motor.

INSTALLATION

Installation is in the reverse order of removal.

INTAKE DOOR MOTOR

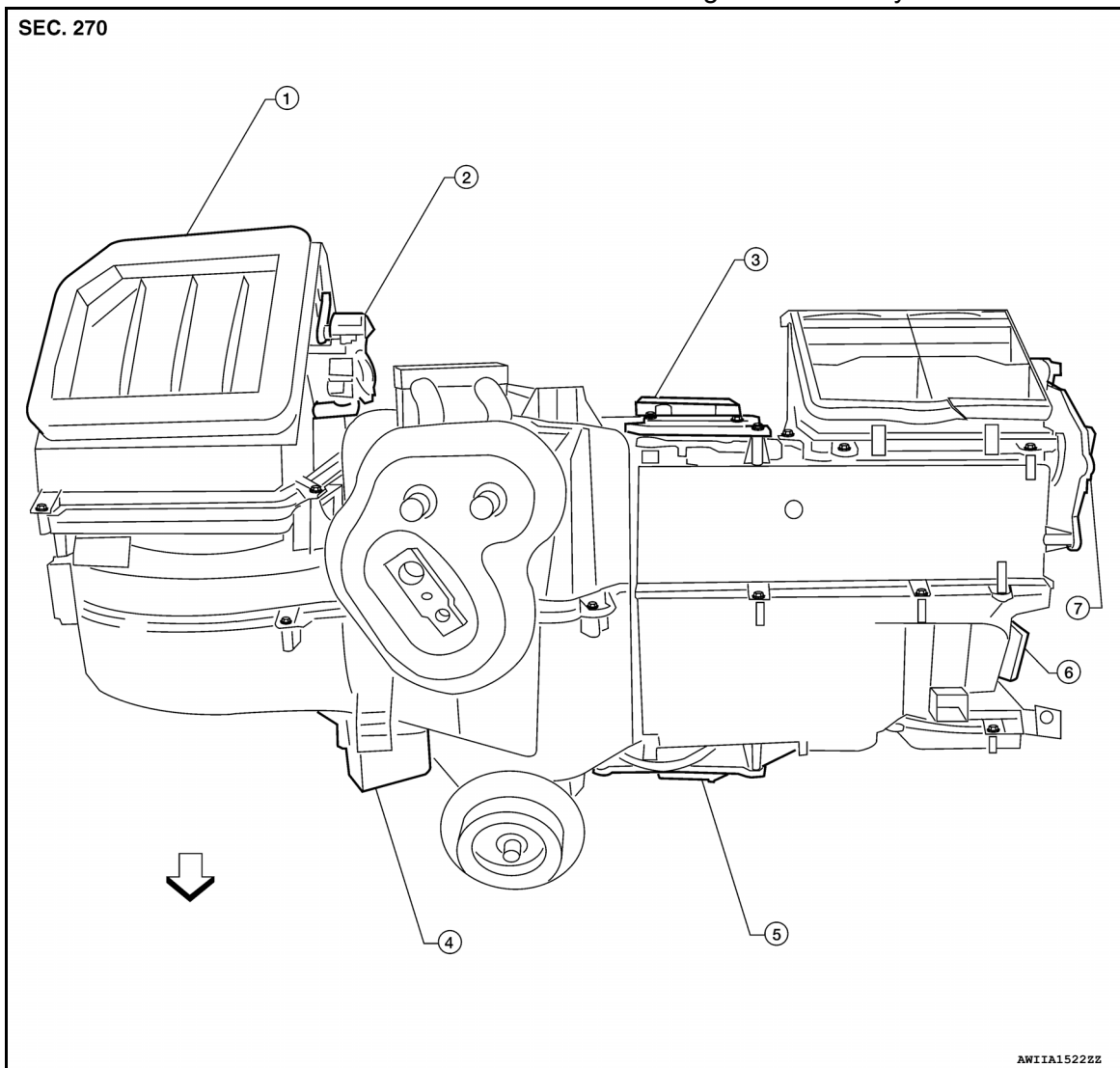
< REMOVAL AND INSTALLATION >

INTAKE DOOR MOTOR

Removal and Installation

INFOID:000000007306343

Intake Door Motor - Heater and Cooling Unit Assembly



- | | | |
|---|-----------------------------------|--------------------------------|
| 1. Heater and cooling unit assembly | 2. Intake door motor | 3. Air mix door motor (driver) |
| 4. Variable blower control or front blower motor resistor | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | ← Front | |

REMOVAL

1. Remove the heater and cooling unit assembly. Refer to [VTL-13, "Removal and Installation"](#).
2. Remove the steering member from the heater and cooling unit assembly.
3. Disconnect the harness connector from intake door motor.
4. Remove the three screws and remove the intake door motor.

INSTALLATION

Installation is in the reverse order of removal.

MODE DOOR MOTOR

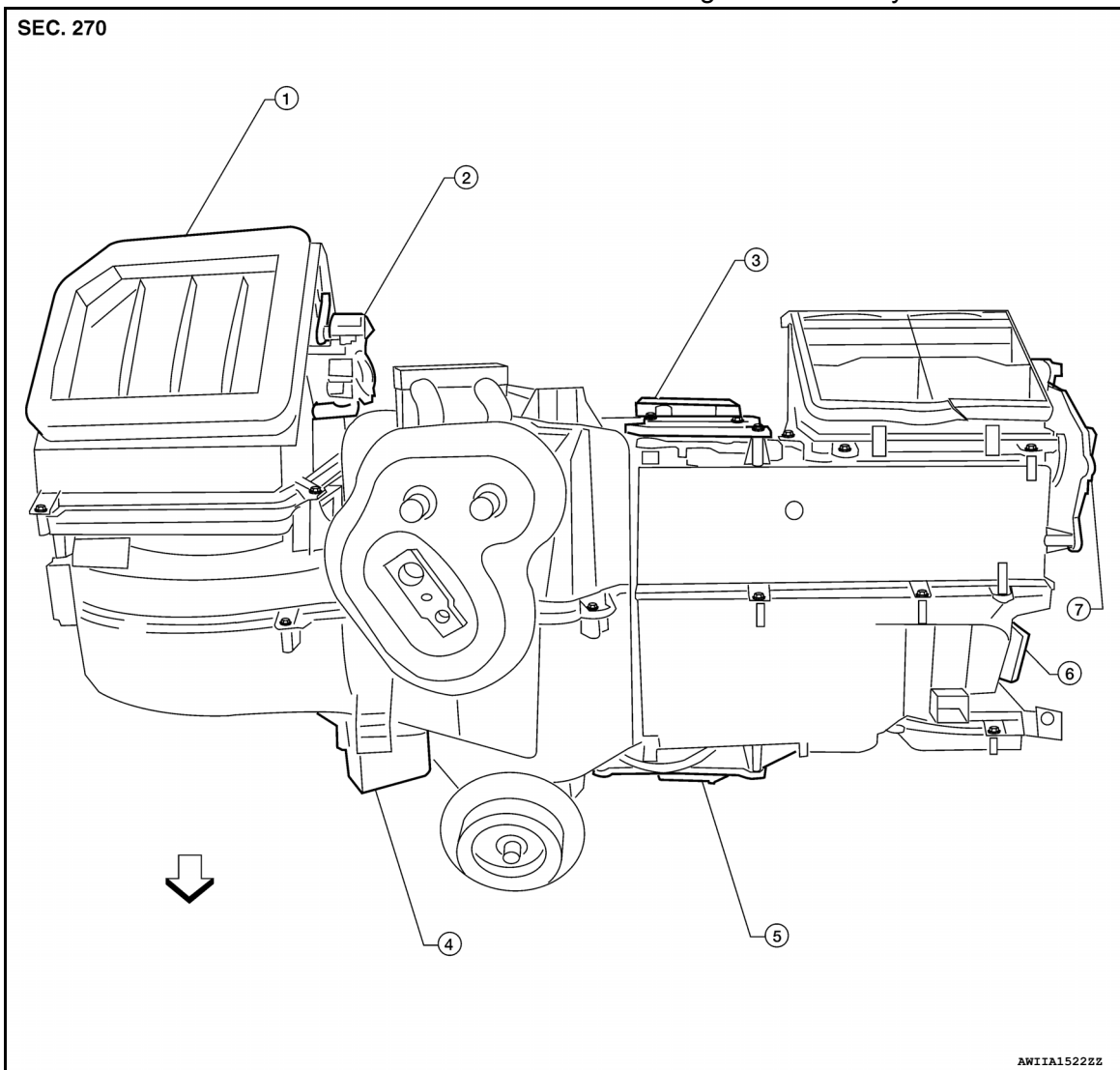
< REMOVAL AND INSTALLATION >

MODE DOOR MOTOR

Removal and Installation

INFOID:000000007306344

Mode Door Motor - Heater and Cooling Unit Assembly



- | | | |
|---|-----------------------------------|--------------------------------|
| 1. Heater and cooling unit assembly | 2. Intake door motor | 3. Air mix door motor (driver) |
| 4. Variable blower control or front blower motor resistor | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | ← Front | |

REMOVAL

1. Remove the center console lower cover LH. Refer to [IP-19, "Exploded View"](#).
2. Disconnect the harness connector from mode door motor .
3. Remove the two screws and the mode door motor.

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AIR MIX DOOR MOTOR

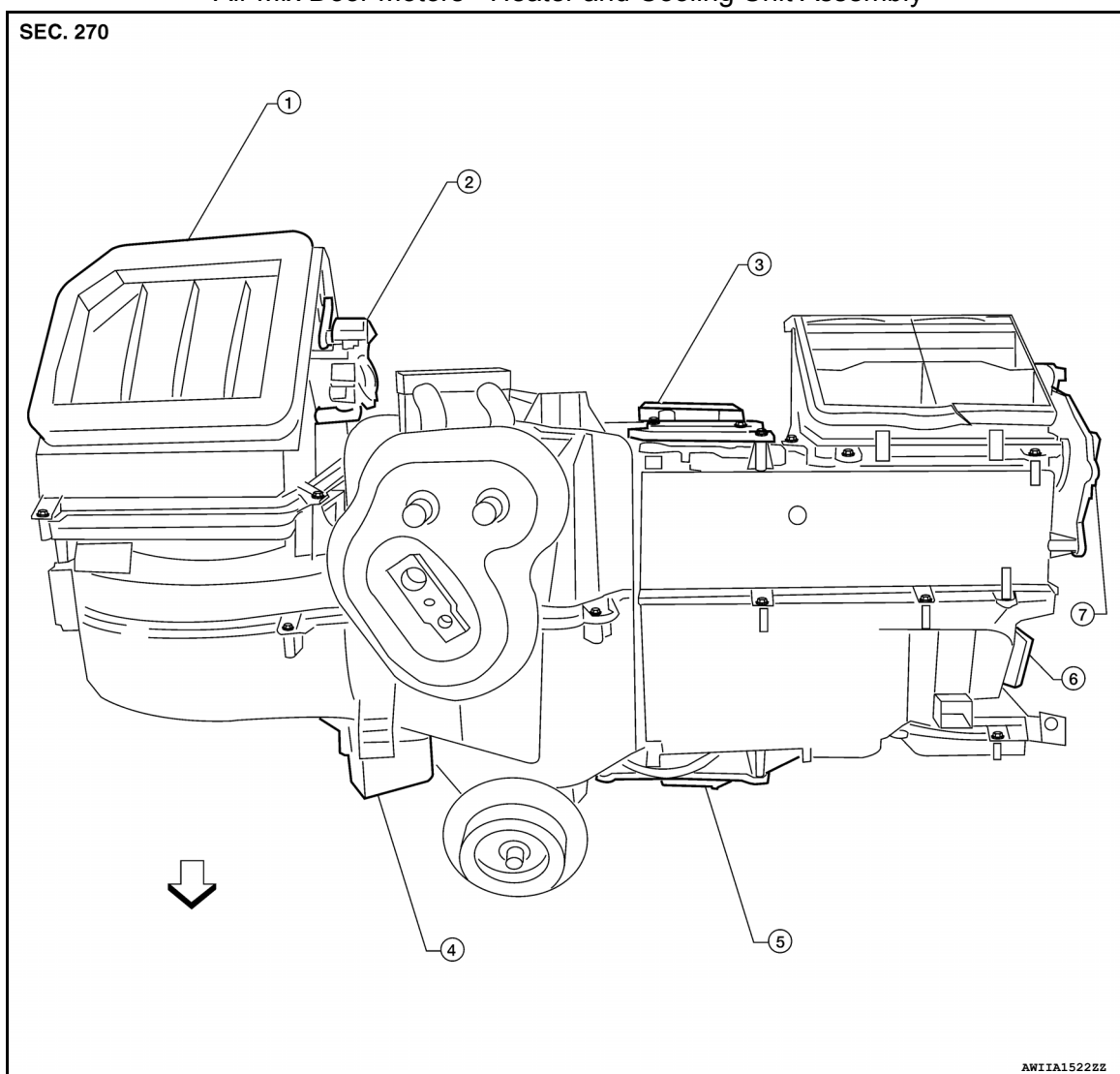
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AIR MIX DOOR MOTOR

Removal and Installation

INFOID:000000007306345

Air Mix Door Motors - Heater and Cooling Unit Assembly



- | | | |
|---|-----------------------------------|--------------------------------|
| 1. Heater and cooling unit assembly | 2. Intake door motor | 3. Air mix door motor (driver) |
| 4. Variable blower control or front blower motor resistor | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | ← Front | |

AIR MIX DOOR MOTOR (DRIVER)

Removal

1. Remove the instrument panel assembly. Refer to [IP-11, "Removal and Installation"](#).
2. Remove the RH side demister duct and RH ventilator duct. Refer to [VTL-24, "Component"](#).
3. Disconnect the harness connector from air mix door motor.
4. Remove the three screws and the air mix door motor.

Installation

Installation is in the reverse order of removal.

AIR MIX DOOR MOTOR (PASSENGER)

Removal

AIR MIX DOOR MOTOR

< REMOVAL AND INSTALLATION >

1. Remove the center console lower cover LH. Refer to [IP-19, "Exploded View"](#).
2. Disconnect the harness connector from air mix door motor.
3. Remove the three screws and the air mix door motor.

Installation

Installation is in the reverse order of removal.

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VARIABLE BLOWER CONTROL

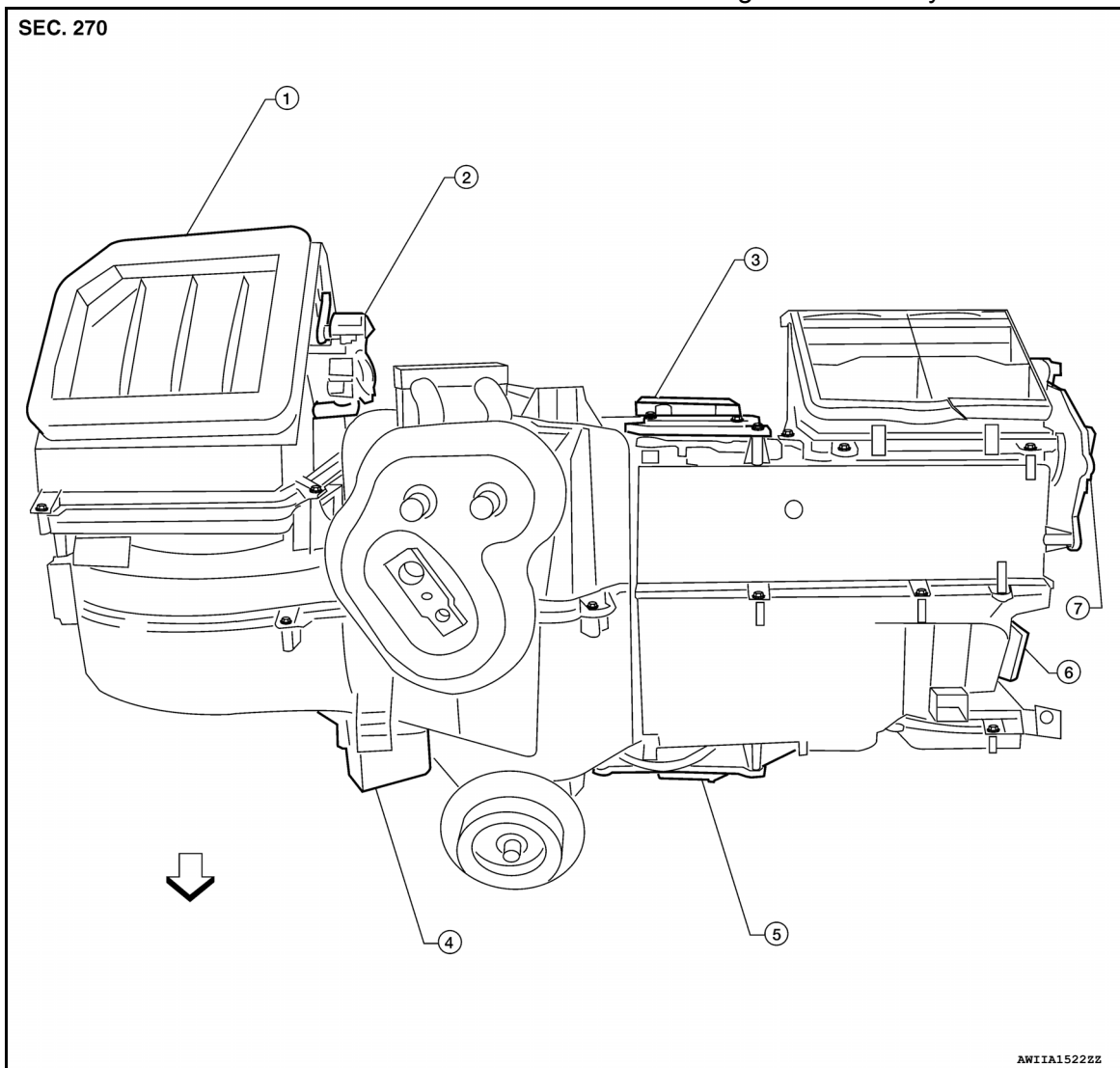
< REMOVAL AND INSTALLATION >

VARIABLE BLOWER CONTROL

Removal and Installation

INFOID:000000007306346

Variable Blower Control - Heater and Cooling Unit Assembly



- | | | |
|---|-----------------------------------|--------------------------------|
| 1. Heater and cooling unit assembly | 2. Intake door motor | 3. Air mix door motor (driver) |
| 4. Variable blower control or front blower motor resistor | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | ← Front | |

REMOVAL

1. Remove the glove box assembly. Refer to [JP-16. "Removal and Installation"](#).
2. Disconnect the harness connector from variable blower control.
3. Remove the two screws and the variable blower control.

INSTALLATION

Installation is in the reverse order of removal.

BLOWER FAN RESISTOR

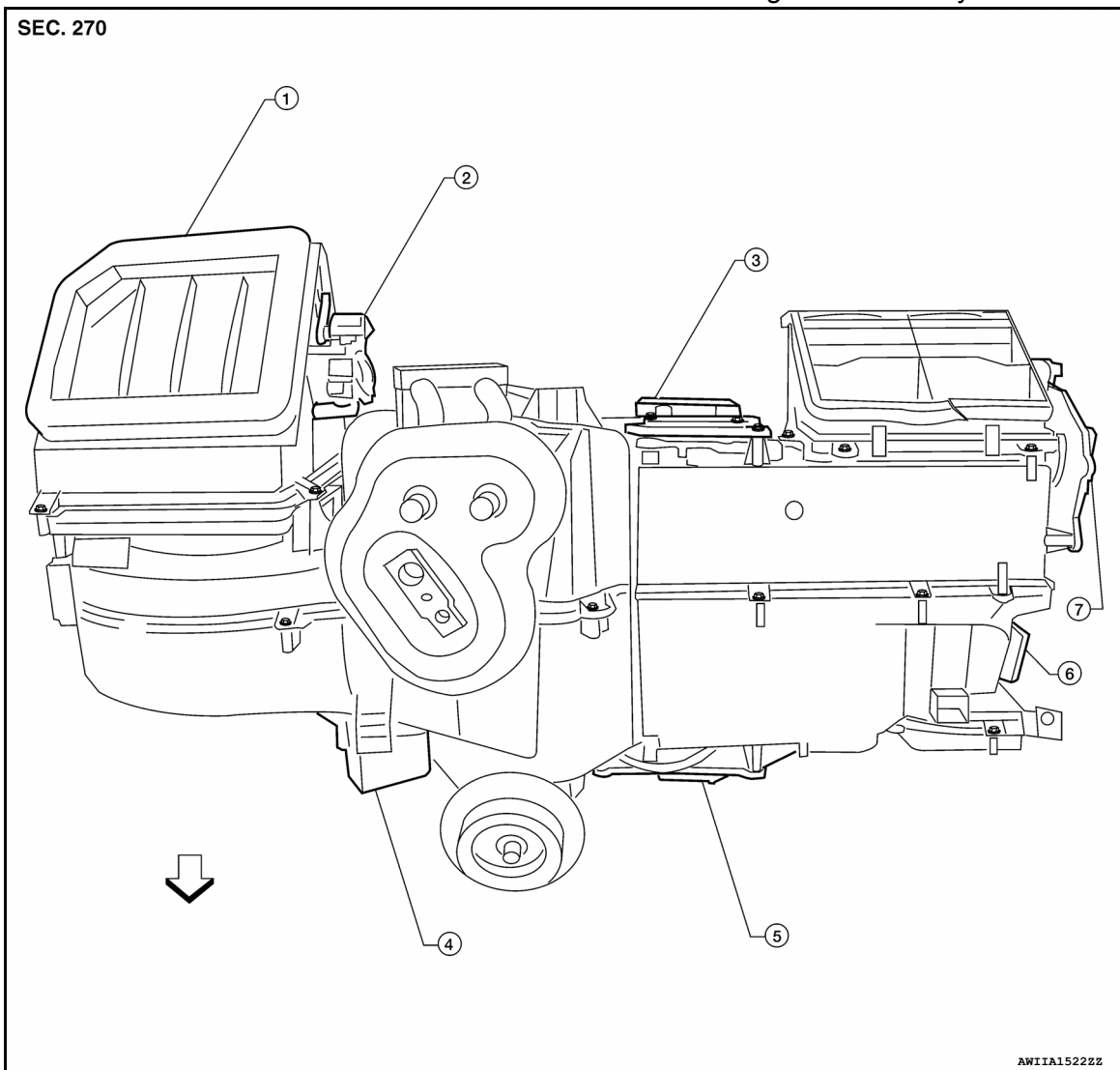
< REMOVAL AND INSTALLATION >

BLOWER FAN RESISTOR

Removal and Installation

INFOID:000000007306347

Front Blower Motor Resistor - Heater and Cooling Unit Assembly



- | | | |
|---|-----------------------------------|--------------------------------|
| 1. Heater and cooling unit assembly | 2. Intake door motor | 3. Air mix door motor (driver) |
| 4. Variable blower control or front blower motor resistor | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | ← Front | |

REMOVAL

1. Remove the glove box assembly. Refer to [IP-16. "Removal and Installation"](#).
2. Disconnect the harness connector from front blower motor resistor.
3. Remove the two screws and the front blower motor resistor.

INSTALLATION

Installation is in the reverse order of removal.

DUCTS AND GRILLES

< REMOVAL AND INSTALLATION >

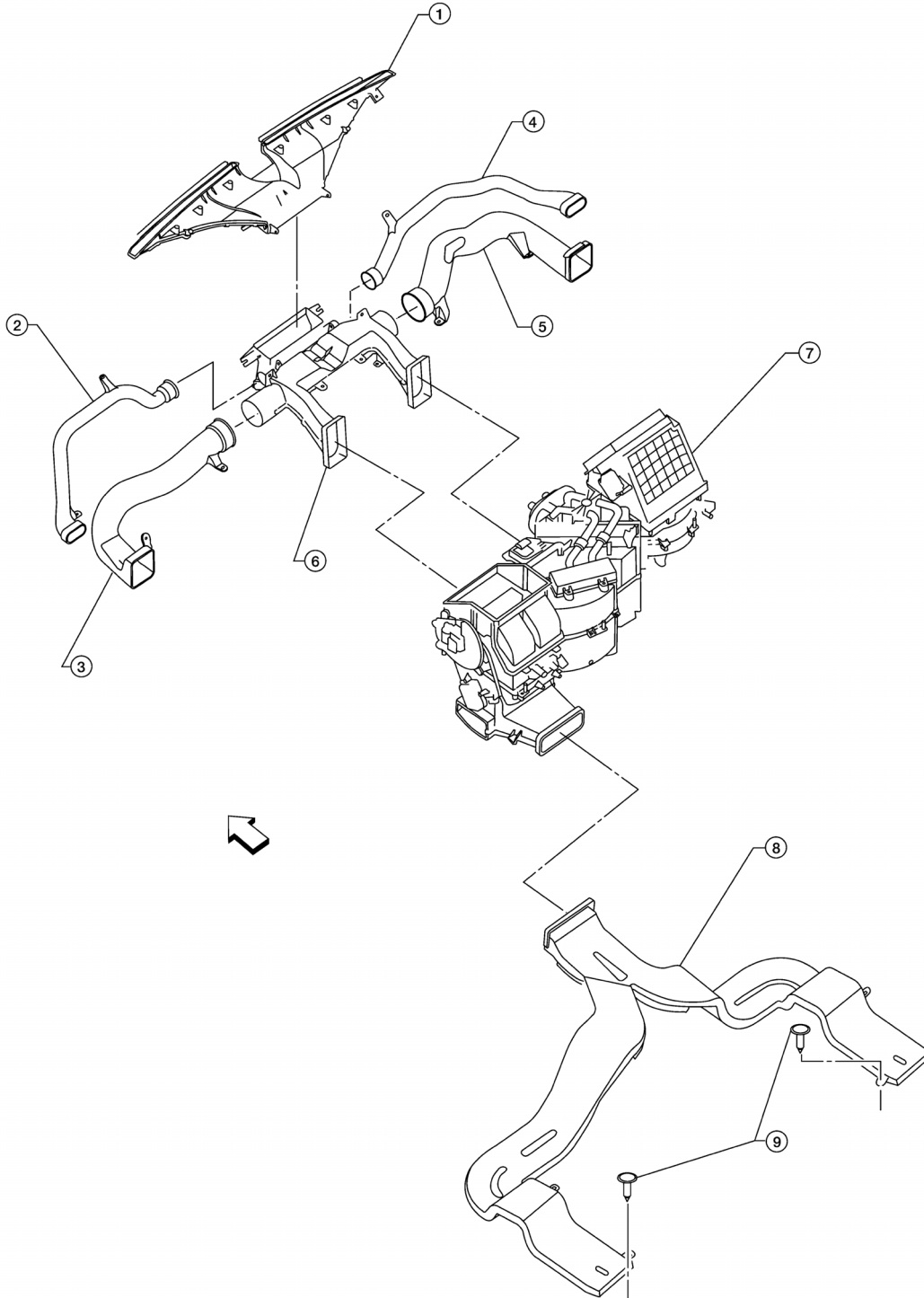
DUCTS AND GRILLES

Component

INFOID:000000007306348

Ducts - Heater and Cooling Unit Assembly

SEC. 270 . 273



AWIIA15232Z

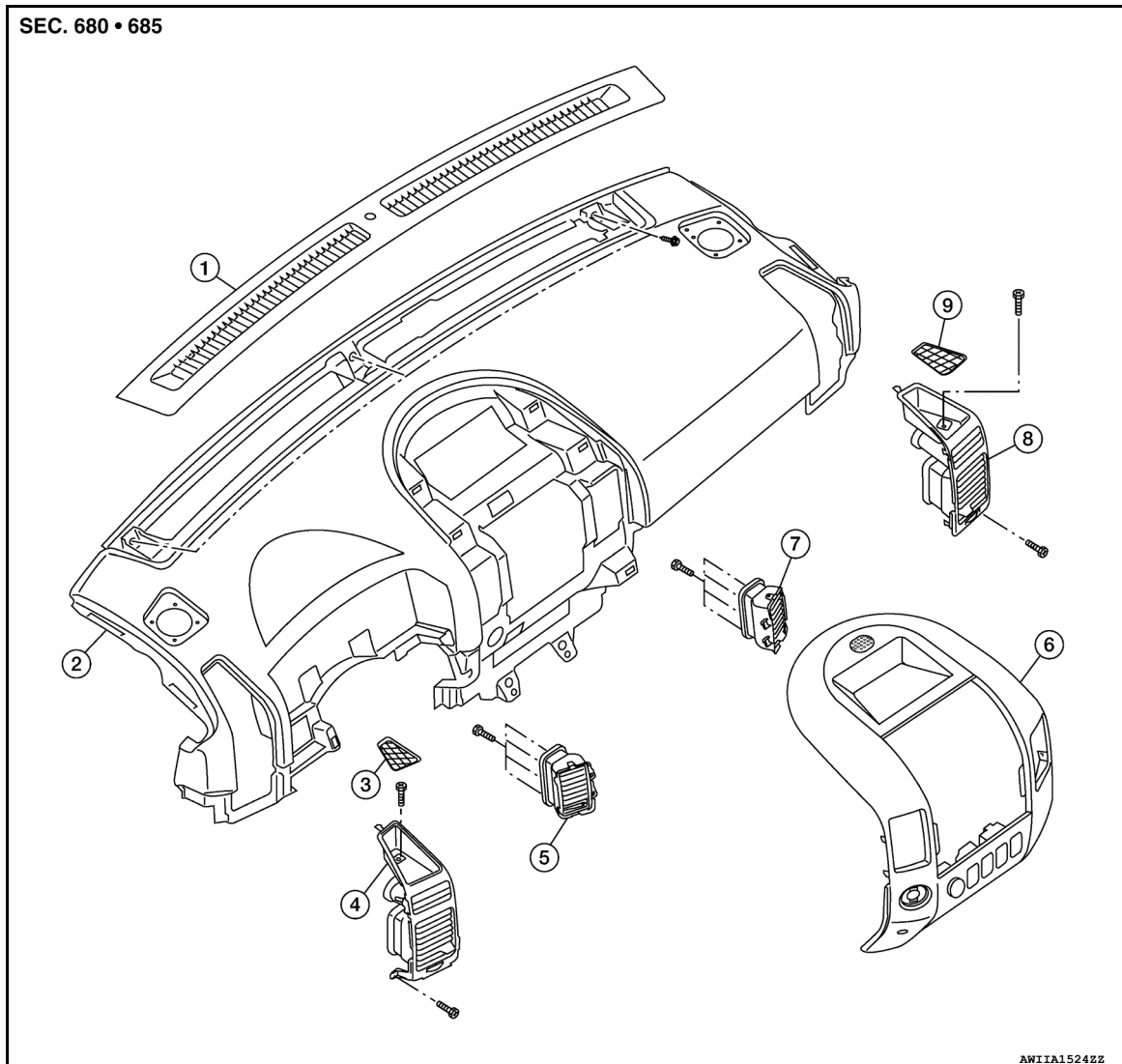
- | | | |
|--------------------------|---------------------------|---------------------------------------|
| 1. Defroster nozzle | 4. RH side demister duct | 7. Heater and cooling unit assembly |
| 2. LH side demister duct | 5. RH ventilator duct | 8. LH side demister duct (lower view) |
| 3. LH ventilator duct | 6. Center ventilator duct | 9. LH ventilator duct (lower view) |

DUCTS AND GRILLES

< REMOVAL AND INSTALLATION >

- 7. Heater and cooling unit assembly
- 8. Floor duct
- 9. Clips
- ⇐ Front

Grilles



- 1. Defroster grille
- 2. Instrument panel
- 3. Storage tray bottom cover (LH)
- 4. Side ventilator assembly LH
- 5. Cluster lid C ventilator LH
- 6. Cluster lid C
- 7. Cluster lid C ventilator RH
- 8. Side ventilator assembly RH
- 9. Storage tray bottom cover (RH)

Removal and Installation

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DEFROSTER NOZZLE

Removal

1. Remove the instrument panel. Refer to [IP-11, "Removal and Installation"](#).
2. Remove the heater and cooling unit assembly. Refer to [VTL-13, "Removal and Installation"](#).
3. Remove the defroster nozzle.

Installation

Installation is in the reverse order of removal.

RH AND LH SIDE DEMISTER DUCT

Removal

1. Remove the instrument panel. Refer to [IP-11, "Removal and Installation"](#).

DUCTS AND GRILLES

< REMOVAL AND INSTALLATION >

2. Remove the heater and cooling unit assembly. Refer to [VTL-13, "Removal and Installation"](#).
3. Remove the RH or LH side demister duct.
4. Remove the RH or LH ventilator duct.
5. Remove the defroster nozzle.

Installation

Installation is in the reverse order of removal.

RH AND LH VENTILATOR DUCT

Removal

1. Remove the instrument panel. Refer to [IP-11, "Removal and Installation"](#).
2. Remove the heater and cooling unit assembly. Refer to [VTL-13, "Removal and Installation"](#).
3. Remove the RH or LH ventilator duct.

Installation

Installation is in the reverse order of removal.

CENTER VENTILATOR DUCT

Removal

1. Remove the instrument panel. Refer to [IP-11, "Removal and Installation"](#).
2. Remove the heater and cooling unit assembly. Refer to [VTL-13, "Removal and Installation"](#).
3. Remove the defroster nozzle.
4. Remove the RH and LH side demister ducts.
5. Remove the RH and LH ventilator ducts.
6. Remove the center ventilator duct.

Installation

Installation is in the reverse order of removal.

FLOOR DUCT

Removal

1. Remove the floor carpet. Refer to [INT-19, "Removal and Installation"](#).
2. Remove the two clips and remove the floor duct.

Installation

Installation is in the reverse order of removal.

GRILLES

Removal

1. Remove the interior trim panels as necessary. Refer to [IP-11, "Removal and Installation"](#).
2. Remove the grille from the interior trim panel.

Installation

Installation is in the reverse order of removal.

EVAPORATOR

< REMOVAL AND INSTALLATION >

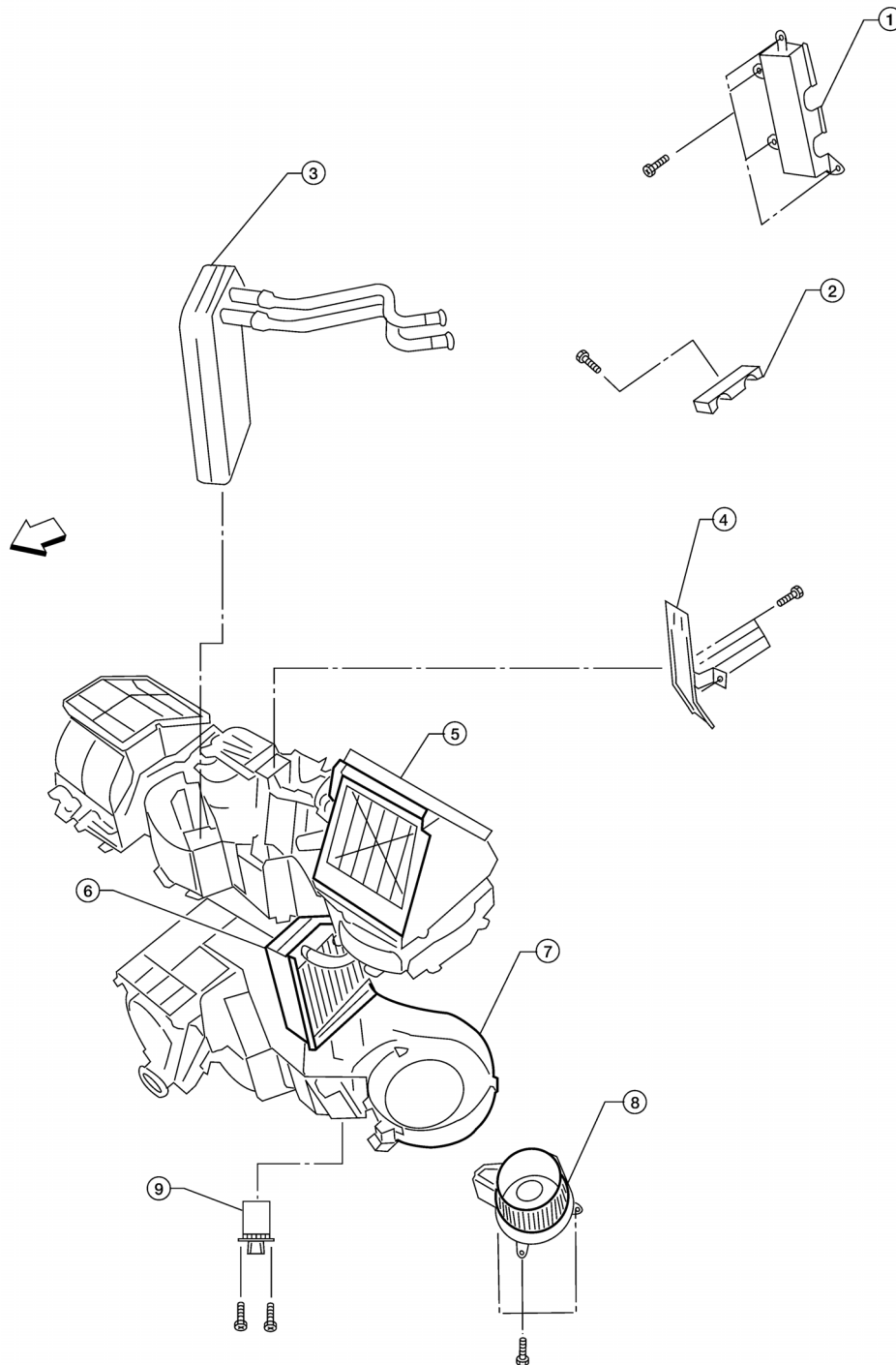
EVAPORATOR

Removal and Installation for Evaporator and Expansion Valve Assembly

INFOID:000000007306350

Heater and Cooling Unit Assembly

SEC. 270



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|---------------------------------------|---------------------------------------|---|
| 1. Heater core cover | 2. Heater core pipe bracket | 3. Heater core |
| 4. Upper bracket | 5. Upper heater and cooling unit case | 6. Evaporator and expansion valve assembly |
| 7. Lower heater and cooling unit case | 8. Blower motor | 9. Variable blower control or front blower motor resistor |

⇐ Front

REMOVAL

EVAPORATOR

< REMOVAL AND INSTALLATION >

1. Remove the heater core. Refer to [VTL-15. "Removal and Installation"](#).
2. Remove the defroster mode door arm.
3. Separate the heater core and cooling unit case.
4. Remove the evaporator and expansion valve assembly.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- Do not reuse O-rings.
- Apply A/C oil to the O-rings of the low-pressure flexible hose and high-pressure pipe for installation.
- After charging the A/C refrigerant, check for leaks.