

SECTION **VTL** VENTILATION SYSTEM

CONTENTS

PRECAUTION	2	INTAKE SENSOR	11
PRECAUTIONS	2	Removal and Installation	11
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"	2	BLOWER MOTOR	12
Precaution for Working with HFC-134a (R-134a).....	2	Removal and Installation	12
Precaution for Procedure without Cowl Top Cover.....	3	HEATER & COOLING UNIT ASSEMBLY	13
PREPARATION	4	Removal and Installation	13
PREPARATION	4	HEATER CORE	15
Commercial Service Tool	4	Removal and Installation	15
FUNCTION DIAGNOSIS	5	DEFROSTER DOOR MOTOR	17
IN-CABIN MICROFILTER	5	Removal and Installation	17
Description	5	INTAKE DOOR MOTOR	18
ON-VEHICLE MAINTENANCE	6	Removal and Installation	18
IN-CABIN MICROFILTER	6	MODE DOOR MOTOR	19
Removal and Installation	6	Removal and Installation	19
ON-VEHICLE REPAIR	8	AIR MIX DOOR MOTOR	20
CONTROL UNIT	8	Removal and Installation	20
Removal and Installation	8	VARIABLE BLOWER CONTROL	22
IN-VEHICLE SENSOR	9	Removal and Installation	22
Removal and Installation	9	BLOWER FAN RESISTOR	23
OPTICAL SENSOR	10	Removal and Installation	23
Removal and Installation	10	DUCTS AND GRILLES	24
		Component	24
		Removal and Installation	25
		EVAPORATOR	27
		Removal and Installation for Evaporator	27

A
B
C
D
E
F
G
H
VTL
J
K
L
M
N
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P

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000005714105

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:000000005385042

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.

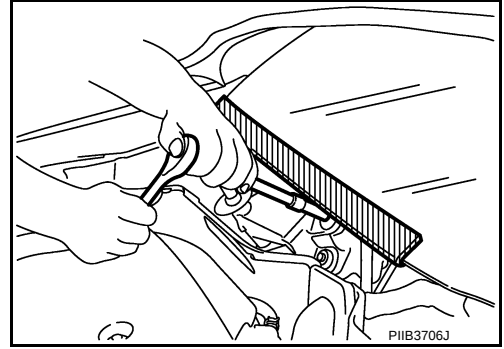
PRECAUTIONS

< PRECAUTION >

Precaution for Procedure without Cowl Top Cover

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



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PREPARATION

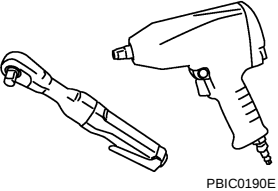
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PREPARATION

PREPARATION

Commercial Service Tool

INFOID:000000005385044

Tool name	Description
Power tool  PBIC0190E	Loosening bolts and nuts

IN-CABIN MICROFILTER

< FUNCTION DIAGNOSIS >

FUNCTION DIAGNOSIS

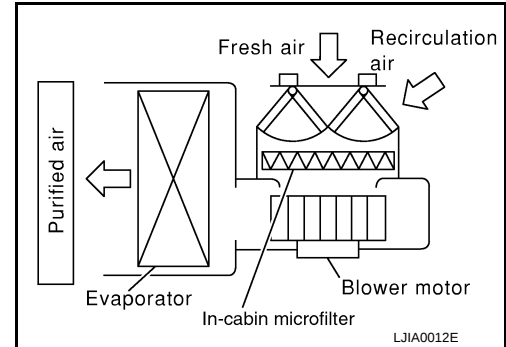
IN-CABIN MICROFILTER

Description

INFOID:000000005385045

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 [MA-6. "Introduction of Periodic Maintenance"](#). 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

< ON-VEHICLE MAINTENANCE >

ON-VEHICLE MAINTENANCE

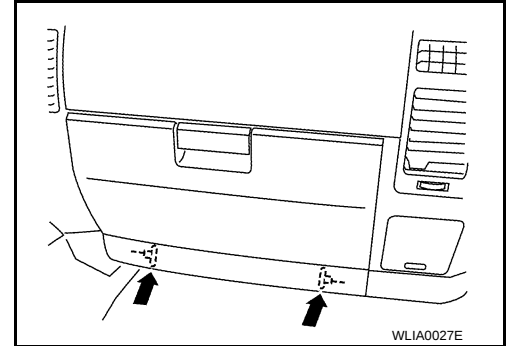
IN-CABIN MICROFILTER

Removal and Installation

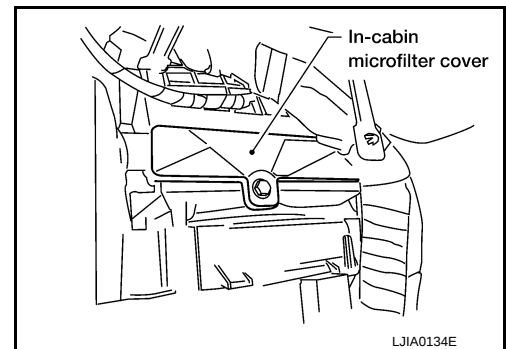
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REPLACEMENT PROCEDURE

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.



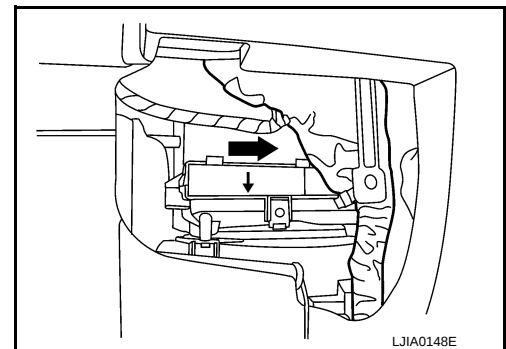
2. Remove the screw and remove the in-cabin microfilter cover.
3. Remove the in-cabin microfilters from the heater and cooling unit assembly housing.



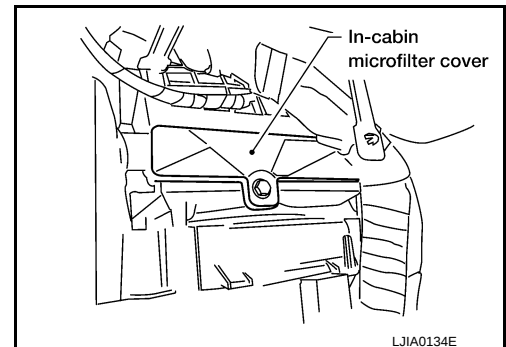
4. Insert the first new in-cabin microfilter into the heater and cooling unit assembly housing and slide it over to the right. Insert the second new in-cabin microfilter into the heater and cooling unit assembly housing.

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.



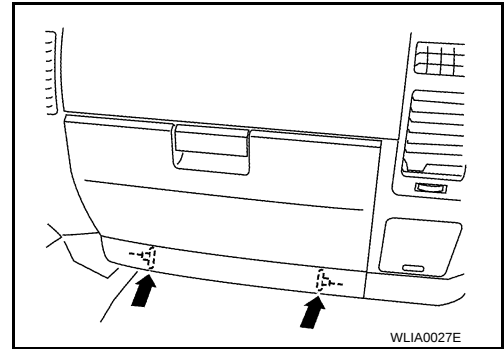
5. Install the in-cabin microfilter cover.



IN-CABIN MICROFILTER

< ON-VEHICLE 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

< ON-VEHICLE REPAIR >

ON-VEHICLE REPAIR

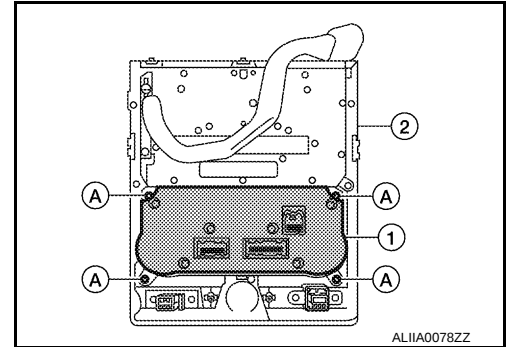
CONTROL UNIT

Removal and Installation

INFOID:000000005385047

REMOVAL

1. Remove the control knobs from the front air control unit.
2. Remove the cluster lid D. Refer to [IP-14, "Removal and Installation"](#).
3. Remove the four screws (A) securing the front air control unit (1) to cluster lid D (2).
4. Remove the front air control unit (1).



INSTALLATION

Installation is in the reverse order of removal.

IN-VEHICLE SENSOR

< ON-VEHICLE REPAIR >

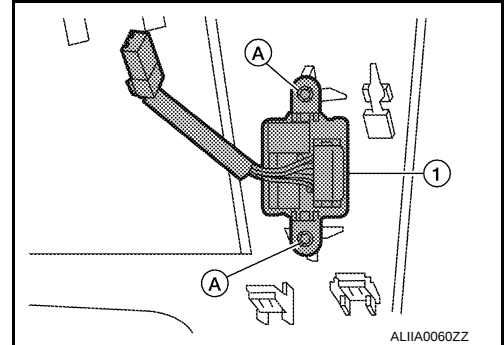
IN-VEHICLE SENSOR

Removal and Installation

INFOID:000000005385048

REMOVAL

1. Remove the lower instrument panel LH. Refer to [IP-16. "Removal and Installation"](#).
2. Remove the two screws (A) and remove the in-vehicle sensor (1).



INSTALLATION

Installation is in the reverse order of removal.

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OPTICAL SENSOR

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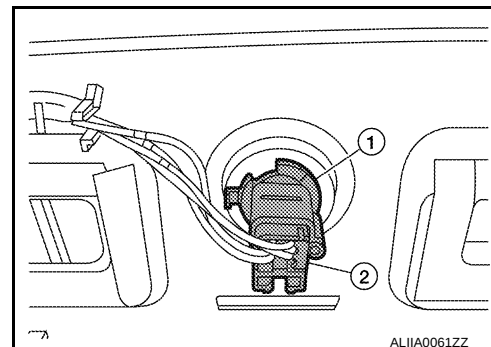
OPTICAL SENSOR

Removal and Installation

INFOID:000000005385049

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

< ON-VEHICLE REPAIR >

INTAKE SENSOR

Removal and Installation

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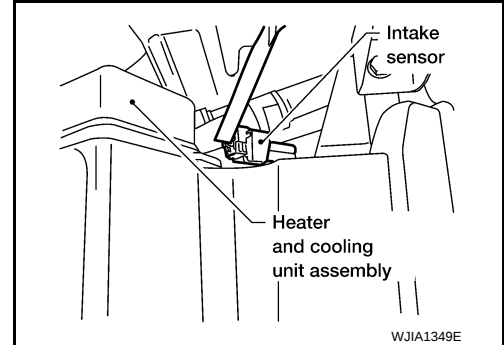
REMOVAL

1. Remove the instrument lower panel RH and glove box. Refer to [IP-15. "Removal and Installation"](#).
2. Disconnect the intake sensor electrical connector.

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

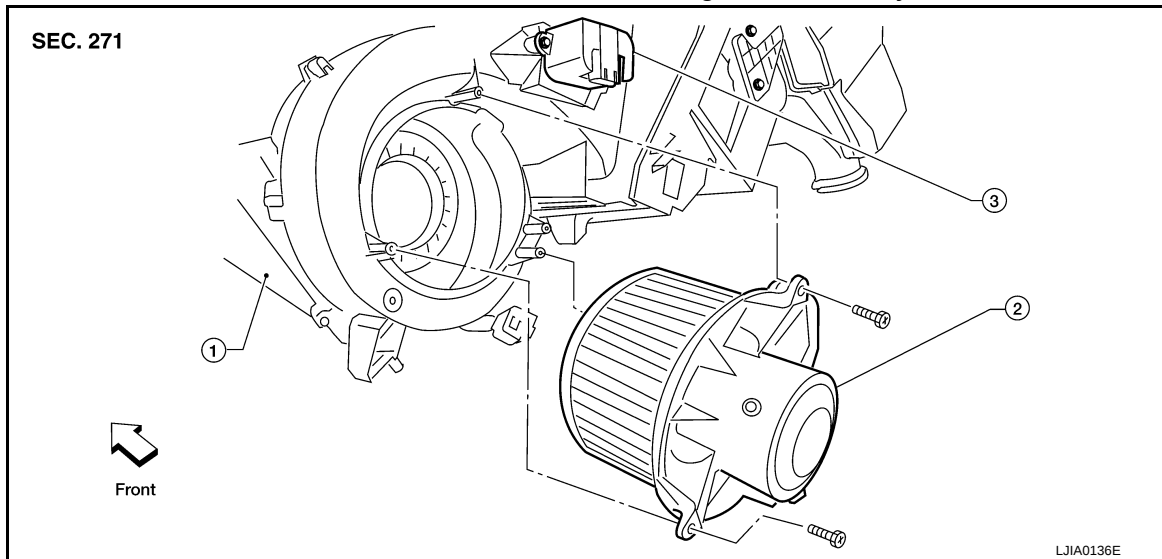
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BLOWER MOTOR

Removal and Installation

INFOID:000000005714102

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 if equipped

REMOVAL

1. Remove the glove box assembly. Refer to [IP-15, "Removal and Installation"](#).
2. Disconnect the blower motor electrical connector.
3. Remove the three screws and remove 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

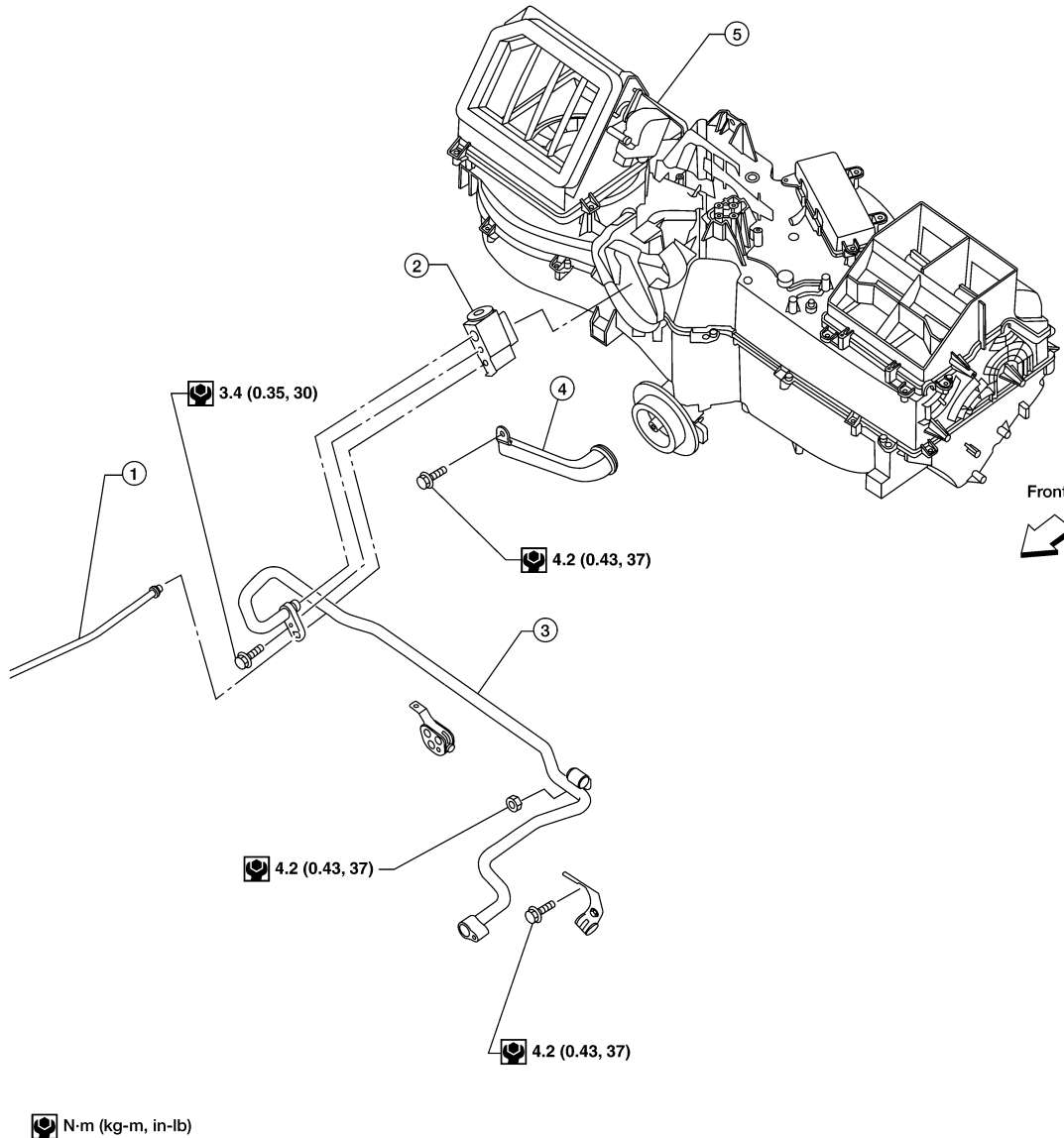
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HEATER & COOLING UNIT ASSEMBLY

Removal and Installation

INFOID:000000005714103

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- | | | |
|---------------------------|-------------------------------------|--------------------------|
| 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 | |

REMOVAL

1. Move the two front seats to the rearmost 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.
6. Disconnect the high/low pressure pipes from the expansion valve.
7. Remove the instrument panel and console panel. Refer to [IP-11. "Removal and Installation"](#).

HEATER & COOLING UNIT ASSEMBLY

< ON-VEHICLE REPAIR >

8. Disconnect the instrument panel wire harness at the RH and LH in-line connector brackets, and the fuse block (J/B) electrical connectors.
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.

CAUTION:

- Replace the O-rings of the low-pressure pipe and high-pressure pipe with new ones, then apply compressor oil to them when installing them.
- After charging the refrigerant, check for leaks.

NOTE:

- 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"](#).

HEATER CORE

< ON-VEHICLE REPAIR >

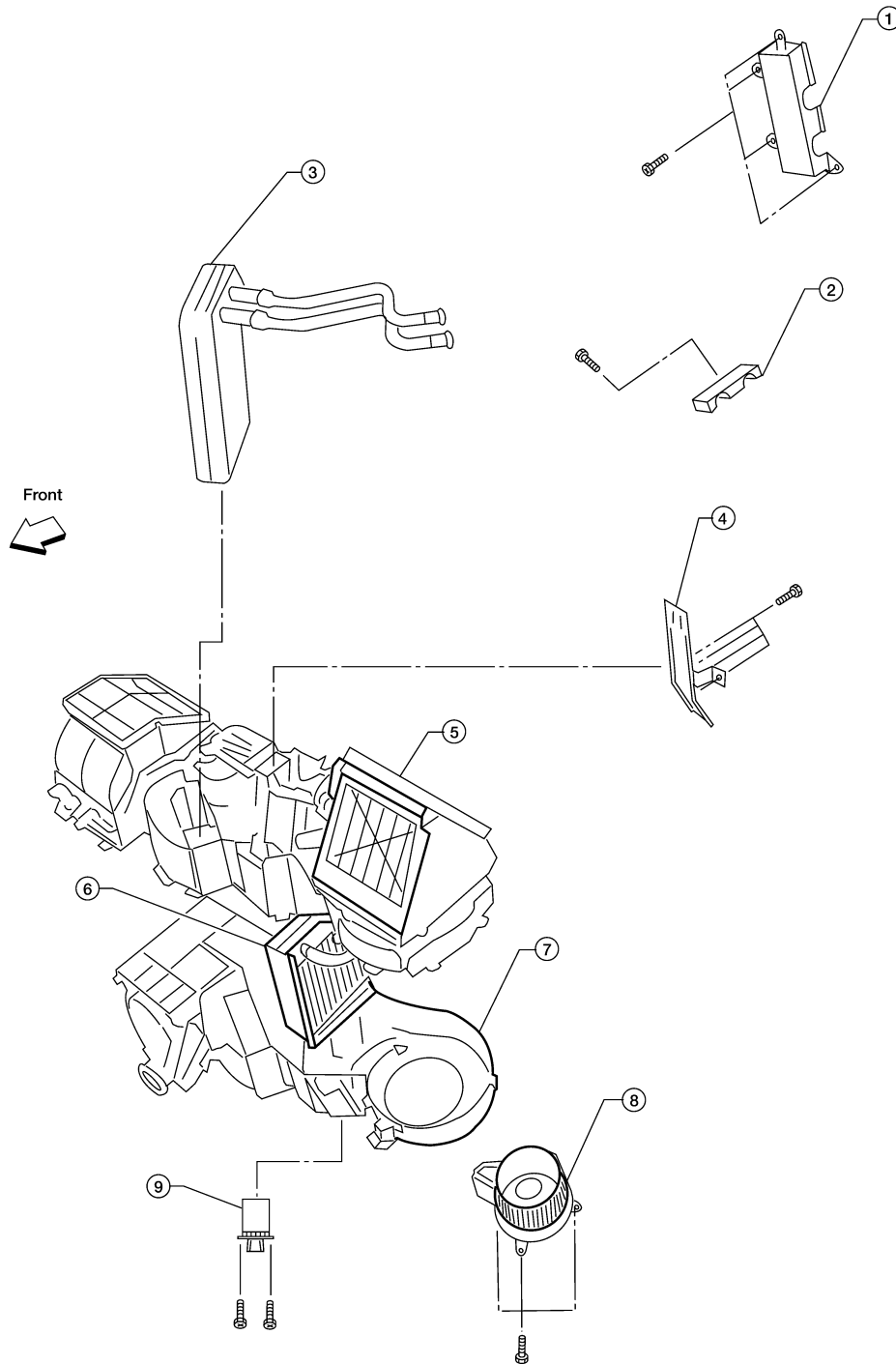
HEATER CORE

Removal and Installation

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Heater and Cooling Unit Assembly

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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. A/C evaporator |
| 7. Lower heater and cooling unit case | 8. Blower motor | 9. Variable blower control or front blower motor resistor if equipped |

REMOVAL

1. Remove the heater and cooling unit assembly. Refer to [VTL-13, "Removal and Installation"](#).

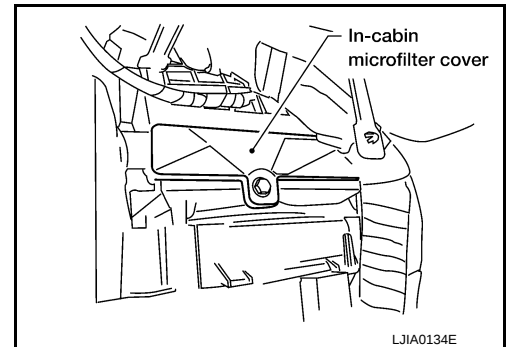
HEATER CORE

< ON-VEHICLE REPAIR >

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

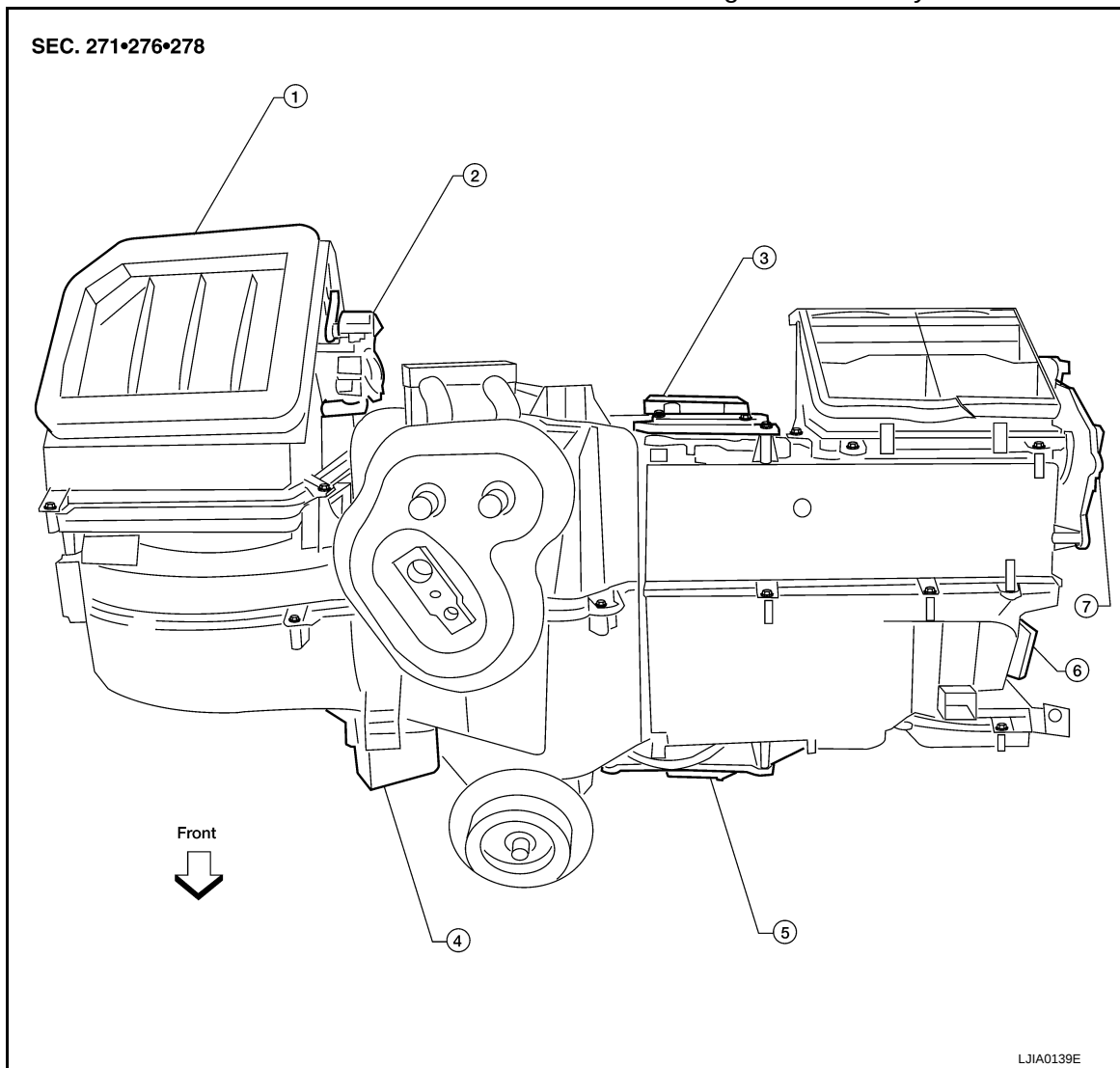
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DEFROSTER DOOR MOTOR

Removal and Installation

INFOID:000000005385054

Defroster Door Motor - Heater and Cooling Unit Assembly



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|---|-----------------------------------|--------------------------------|
| 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 if equipped | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | | |

REMOVAL

1. Remove the BCM. Refer to [BCS-53, "Removal and Installation"](#).
2. Remove the audio amplifier, if equipped. Refer to [AV-315, "Removal and Installation"](#).
3. Disconnect the defroster door motor electrical connector.
4. Remove the three screws and remove the defroster door motor.

INSTALLATION

Installation is in the reverse order of removal.

INTAKE DOOR MOTOR

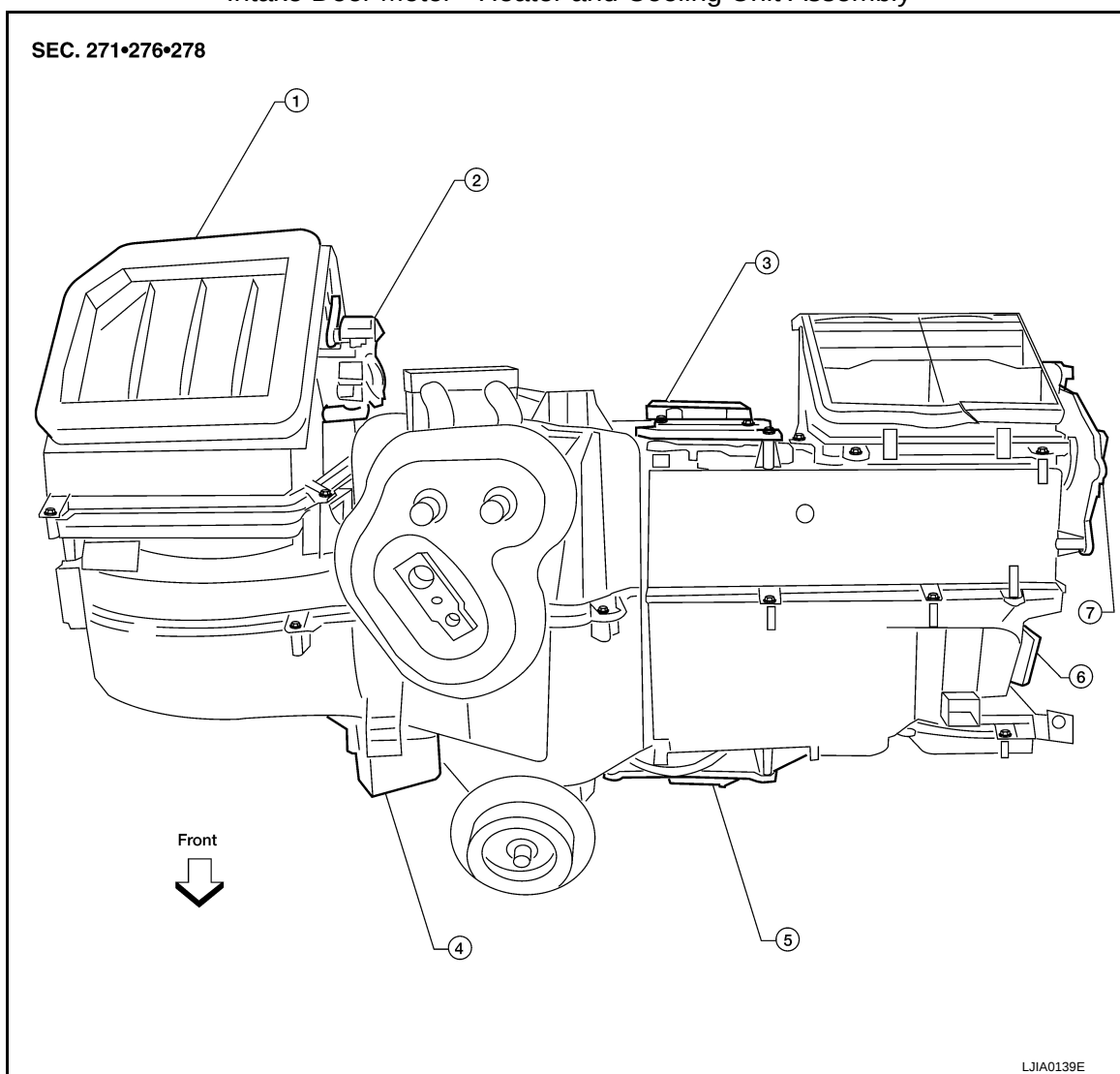
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INTAKE DOOR MOTOR

Removal and Installation

INFOID:000000005385055

Intake Door Motor - Heater and Cooling Unit Assembly



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|---|-----------------------------------|--------------------------------|
| 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 if equipped | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | | |

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 intake door motor electrical connector.
4. Remove the three screws and remove the intake door motor.

INSTALLATION

Installation is in the reverse order of removal.

MODE DOOR MOTOR

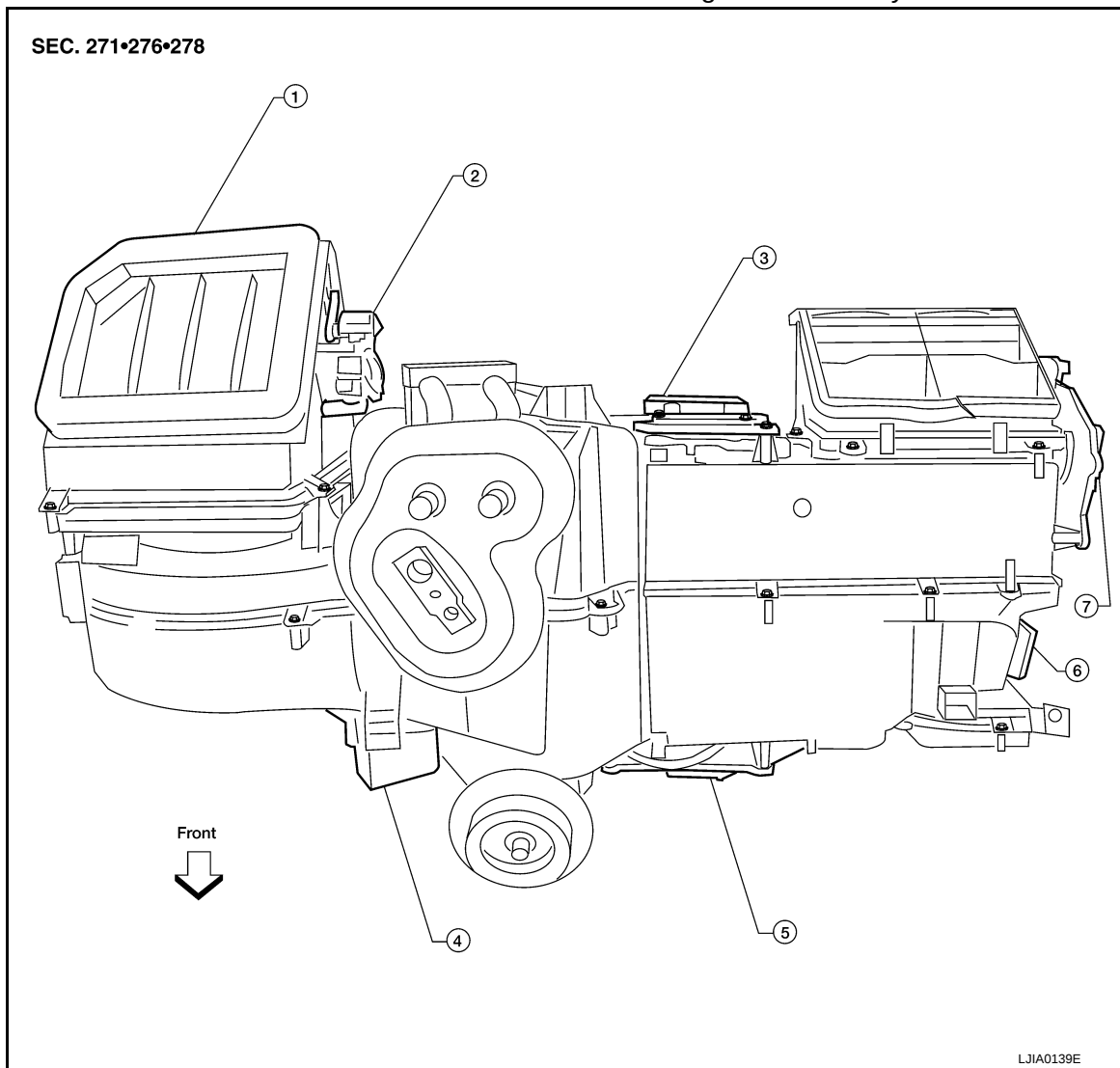
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MODE DOOR MOTOR

Removal and Installation

INFOID:000000005714104

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 if equipped | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | | |

REMOVAL

1. Remove the instrument lower panel LH. Refer to [IP-16, "Removal and Installation"](#).
2. Remove the accelerator pedal. Refer to [ACC-3, "Removal and Installation"](#).
3. Remove the BCM. Refer to [BCS-53, "Removal and Installation"](#).
4. Remove the audio amp. (if equipped) Refer to [AV-163, "Removal and Installation"](#).
5. Remove the center console lower cover LH. Refer to [IP-18, "Removal and Installation"](#).
6. Disconnect the mode door motor electrical connector.
7. Remove the two screws and remove the mode door motor.

INSTALLATION

Installation is in the reverse order of removal.

AIR MIX DOOR MOTOR

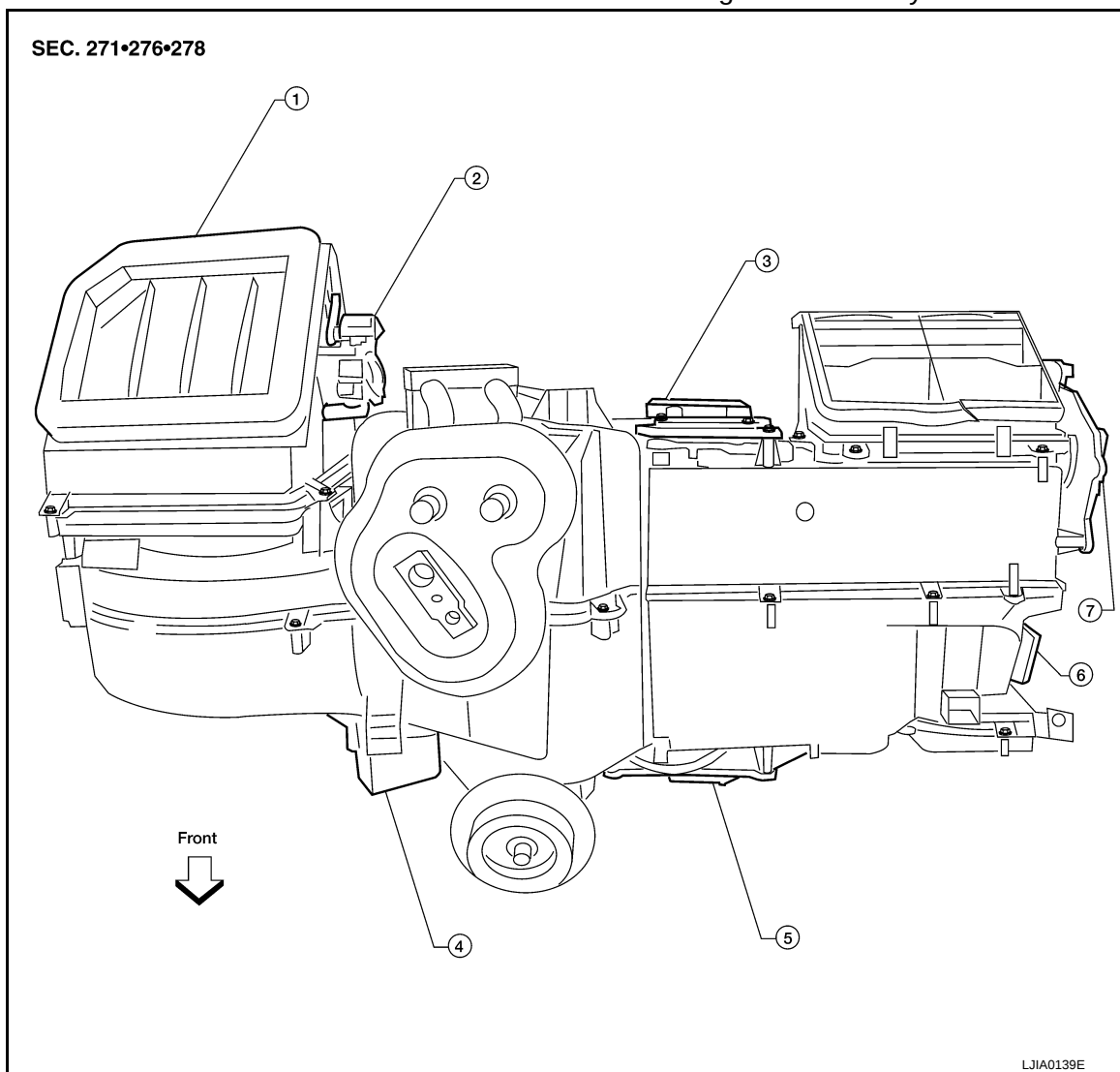
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AIR MIX DOOR MOTOR

Removal and Installation

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Air Mix Door Motors - Heater and Cooling Unit Assembly



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|---|-----------------------------------|--------------------------------|
| 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 if equipped | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | | |

AIR MIX DOOR MOTOR (DRIVER)

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 air mix door motor electrical connector.
4. Remove the three screws and remove the air mix door motor.

Installation

Installation is in the reverse order of removal.

AIR MIX DOOR MOTOR (PASSENGER)

Removal

AIR MIX DOOR MOTOR

< ON-VEHICLE REPAIR >

1. Remove the center console lower cover LH. Refer to [IP-18, "Removal and Installation"](#).
2. Disconnect the air mix door motor electrical connector.
3. Remove the three screws and remove the air mix door motor.

Installation

Installation is in the reverse order of removal.

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VARIABLE BLOWER CONTROL

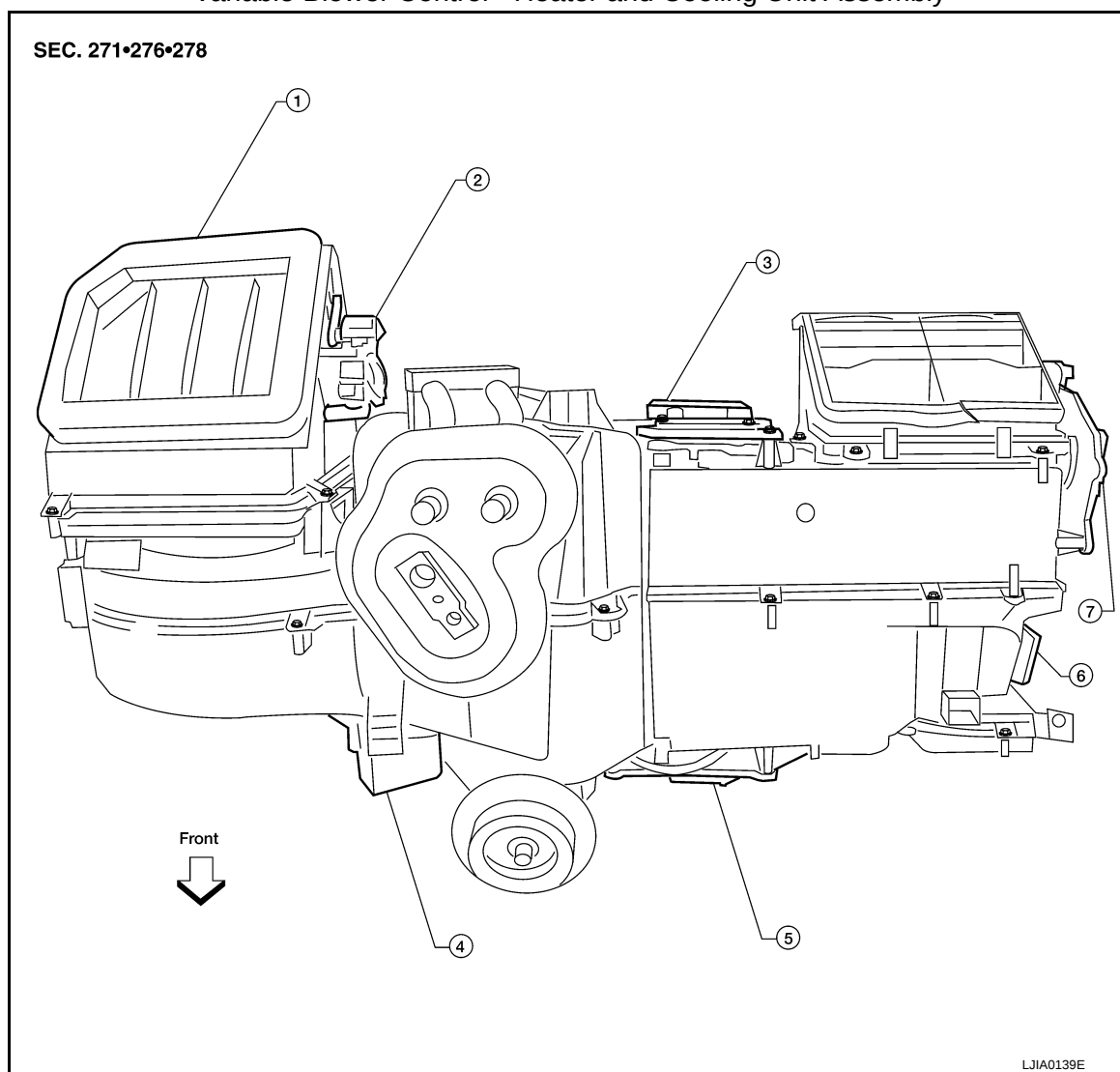
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VARIABLE BLOWER CONTROL

Removal and Installation

INFOID:000000005385058

Variable Blower Control - Heater and Cooling Unit Assembly



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|---|-----------------------------------|--------------------------------|
| 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 if equipped | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | | |

REMOVAL

1. Remove the glove box assembly. Refer to [IP-15. "Removal and Installation"](#).
2. Disconnect the variable blower control electrical connector.
3. Remove the two screws and remove the variable blower control.

INSTALLATION

Installation is in the reverse order of removal.

BLOWER FAN RESISTOR

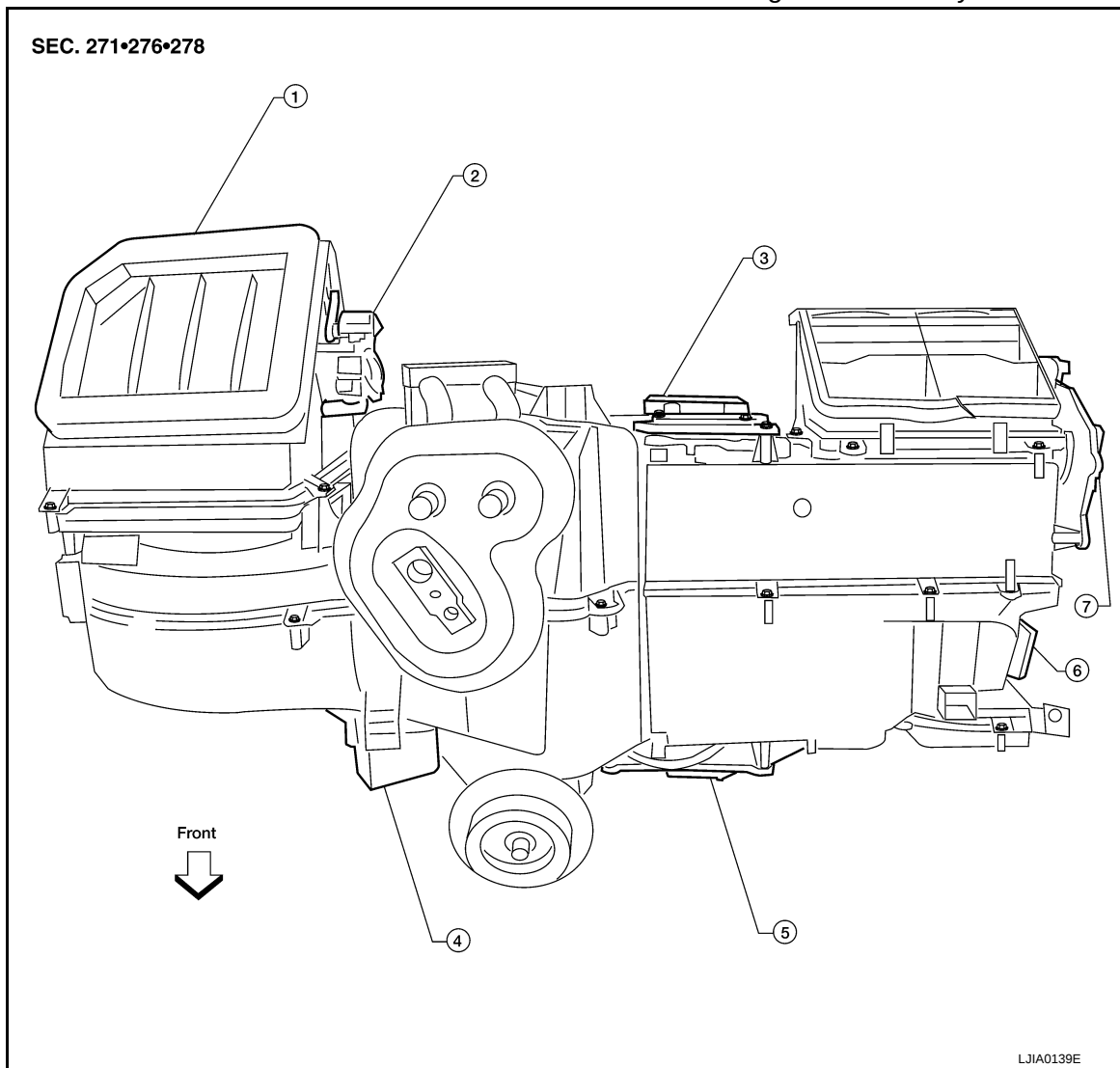
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BLOWER FAN RESISTOR

Removal and Installation

INFOID:000000005385059

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 if equipped | 5. Air mix door motor (passenger) | 6. Mode door motor |
| 7. Defroster door motor | | |

REMOVAL

1. Remove the glove box assembly. Refer to [IP-15, "Removal and Installation"](#).
2. Disconnect the front blower motor resistor electrical connector.
3. Remove the two screws and remove the front blower motor resistor.

INSTALLATION

Installation is in the reverse order of removal.

DUCTS AND GRILLES

< ON-VEHICLE REPAIR >

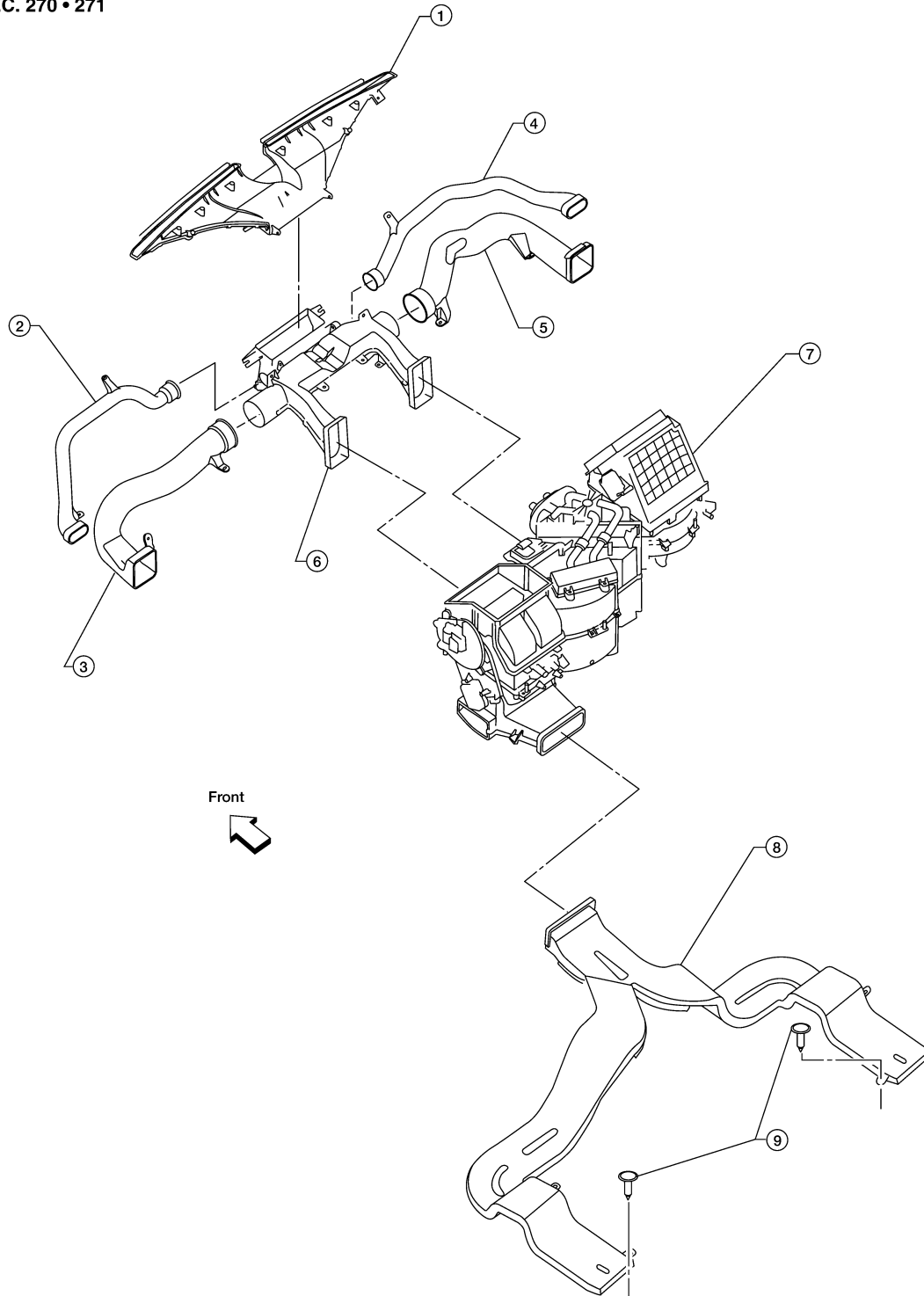
DUCTS AND GRILLES

Component

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Ducts - Heater and Cooling Unit Assembly

SEC. 270 • 271



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1. Defroster nozzle
4. RH side demister duct
7. Heater and cooling unit assembly

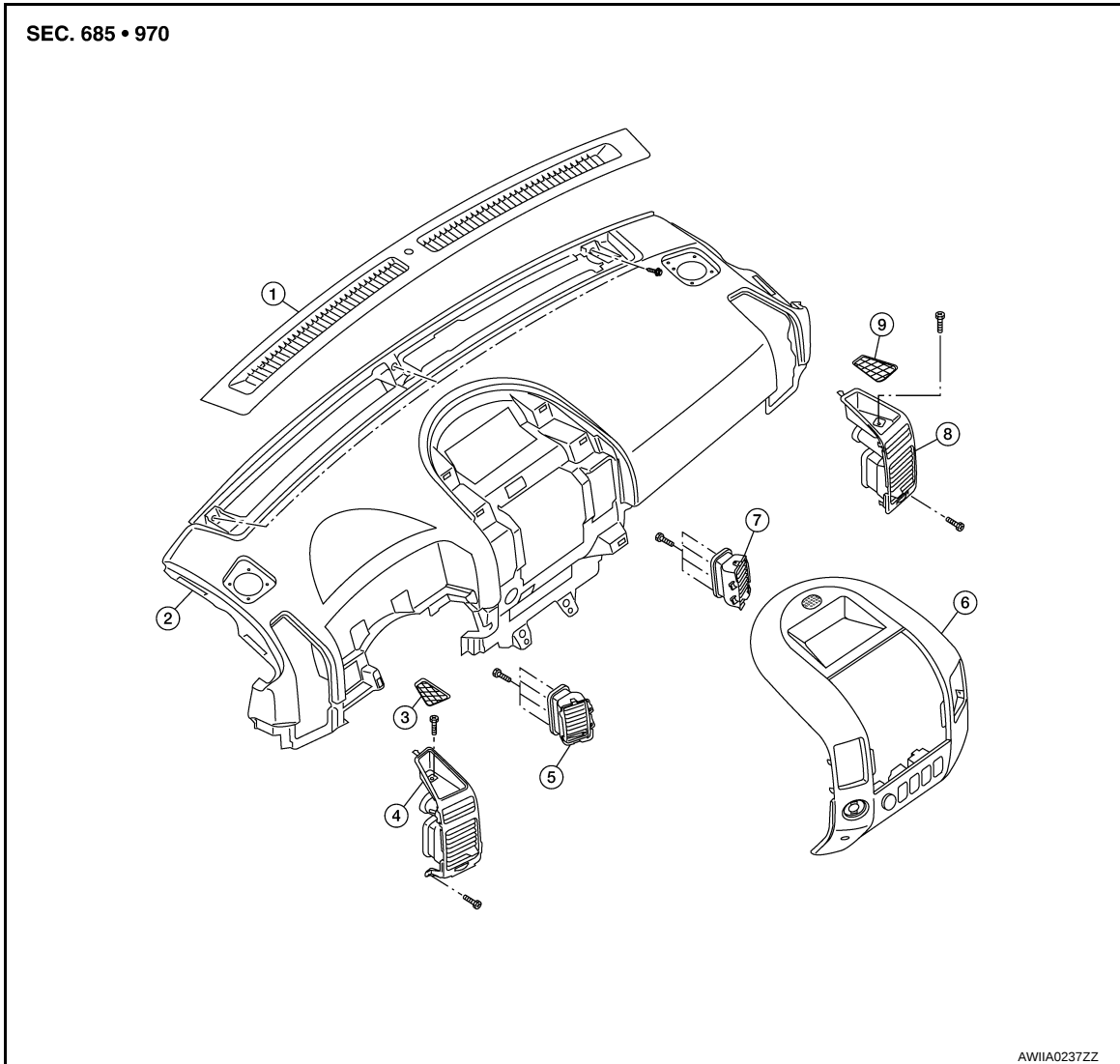
2. LH side demister duct
5. RH ventilator duct
8. Floor duct

3. LH ventilator duct
6. Center ventilator duct
9. Clips

DUCTS AND GRILLES

< ON-VEHICLE REPAIR >

Grilles



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

Removal and Installation

INFOID:000000005385061

DEFROSTER NOZZLE

Removal

1. Remove the instrument panel trim. 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 trim. 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 side demister duct.

DUCTS AND GRILLES

< ON-VEHICLE REPAIR >

Installation

Installation is in the reverse order of removal.

RH AND LH VENTILATOR DUCT

Removal

1. Remove the instrument panel trim. 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 trim. 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

< ON-VEHICLE REPAIR >

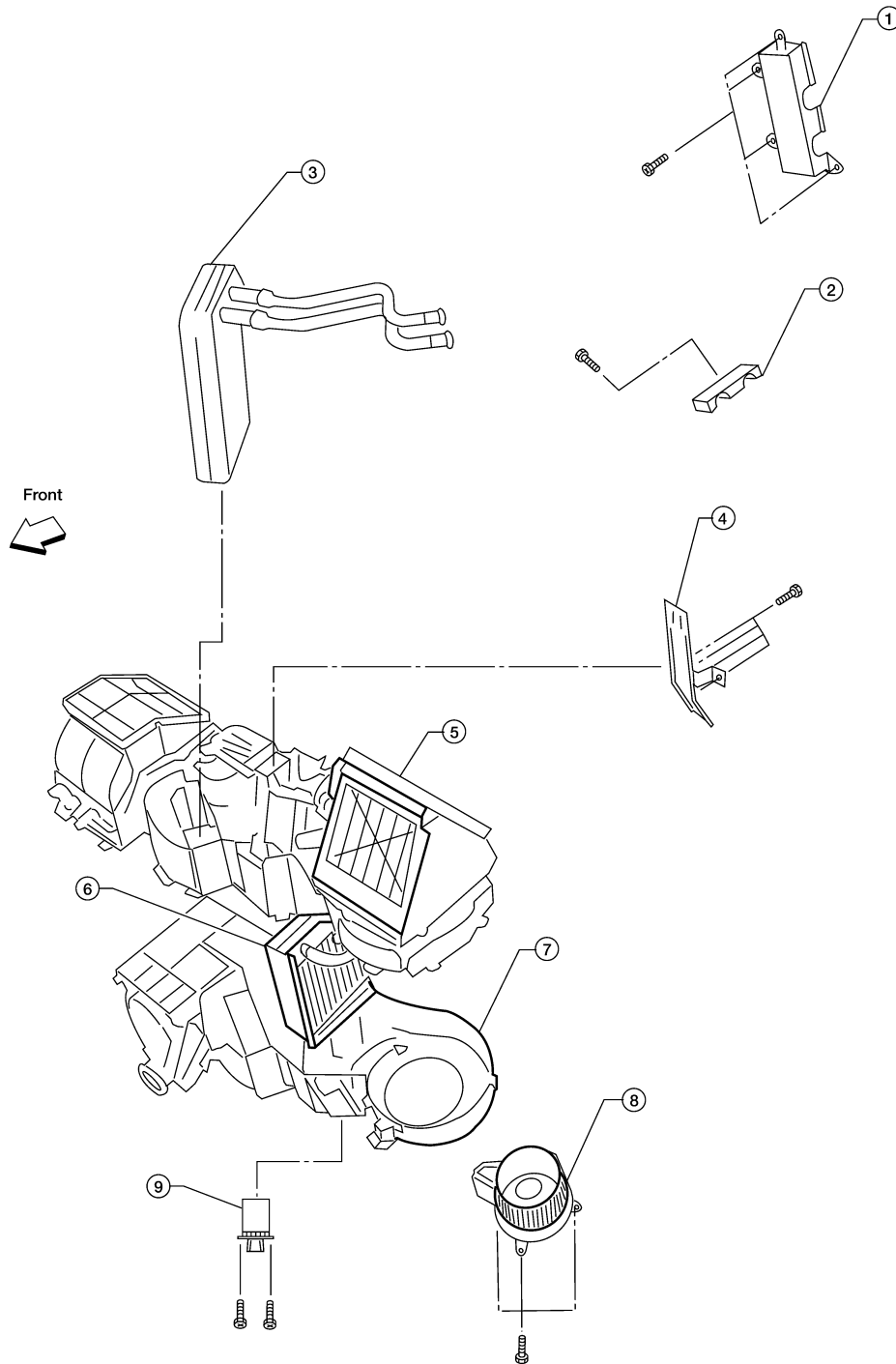
EVAPORATOR

Removal and Installation for Evaporator

INFOID:000000005385062

Heater and Cooling Unit Assembly

SEC. 271



LJ1A0138E

- | | | |
|---------------------------------------|---------------------------------------|---|
| 1. Heater core cover | 2. Heater core pipe bracket | 3. Heater core |
| 4. Upper bracket | 5. Upper heater and cooling unit case | 6. A/C evaporator |
| 7. Lower heater and cooling unit case | 8. Blower motor | 9. Variable blower control or front blower motor resistor if equipped |

REMOVAL

1. Remove the heater core. Refer to [VTL-15. "Removal and Installation"](#).

EVAPORATOR

< ON-VEHICLE REPAIR >

2. Remove the defroster mode door arm.
3. Separate the heater core and cooling unit case.
4. Remove the evaporator.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

Replace the O-rings on the low-pressure flexible hose and the high-pressure pipe with new ones, then apply compressor oil to them when installing them.