SECTION VTL
VENTILATION SYSTEM

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000014391997

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. 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, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper repair, 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 Air Bag Diagnosis Sensor Unit or other Air Bag 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 or batteries, and wait at least three minutes before performing any service.**

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

INFOID:0000000014391998

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-17, "Description". 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.**

Precaution for Service Equipment

INFOID:0000000014391999

RECOVERY/RECYCLING EQUIPMENT

Follow the manufacturer's instructions for machine operation and machine maintenance. Do not introduce any refrigerant other than that specified into the machine.

ELECTRONIC LEAK DETECTOR

Follow the manufacturer's instructions for tester operation and tester maintenance.

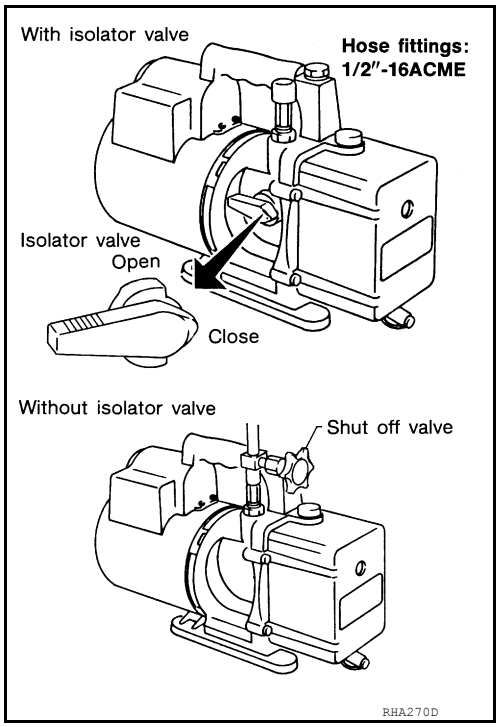
VACUUM PUMP

The oil contained inside the vacuum pump is not compatible with the specified oil for HFC-134a (R-134a) A/C systems. The vent side of the vacuum pump is exposed to atmospheric pressure so the vacuum pump oil may migrate out of the pump into the service hose. This is possible when the pump is switched off after evacuation (vacuuming) and hose is connected to it.

To prevent this migration, use a manual valve situated near the hose-to-pump connection, as follows.

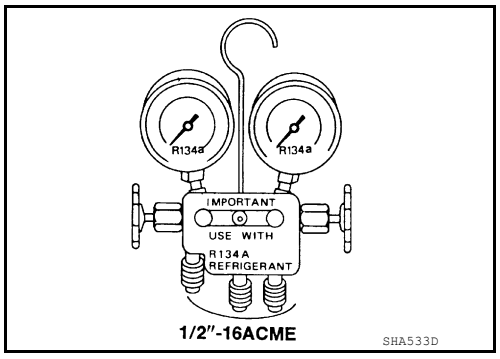
- Usually vacuum pumps have a manual isolator valve as part of the pump. Close this valve to isolate the service hose from the pump.
- For pumps without an isolator, use a hose equipped with a manual shut-off valve near the pump end. Close the valve to isolate the hose from the pump.
- If the hose has an automatic shut off valve, disconnect the hose from the pump: as long as the hose is connected, the valve is open and oil may migrate.

Some one-way valves open when vacuum is applied and close under a no vacuum condition. Such valves may restrict the pump's ability to pull a deep vacuum and are not recommended.



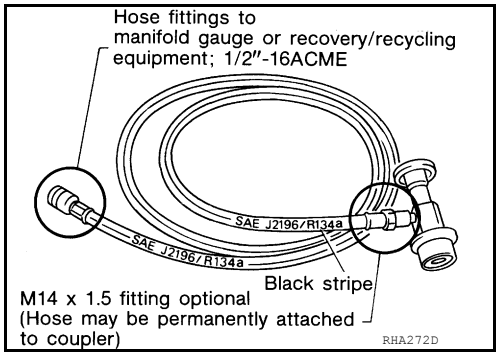
MANIFOLD GAUGE SET

Be certain that the gauge face indicates R-134a or 134a. Make sure the gauge set has 1/2″-16 ACME threaded connections for service hoses. Confirm the set has been used only with refrigerant HFC-134a (R-134a) along with specified oil.



SERVICE HOSES

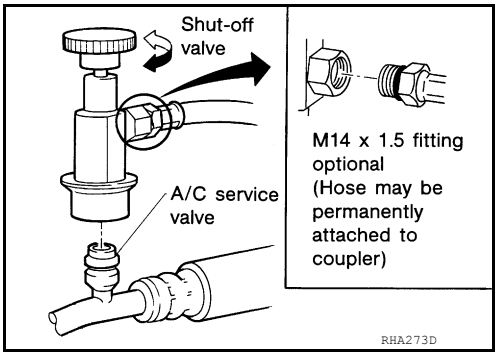
Be certain that the service hoses display the markings described (colored hose with black stripe). All hoses must include positive shut-off devices (either manual or automatic) near the end of the hoses opposite the manifold gauge.



SERVICE COUPLERS

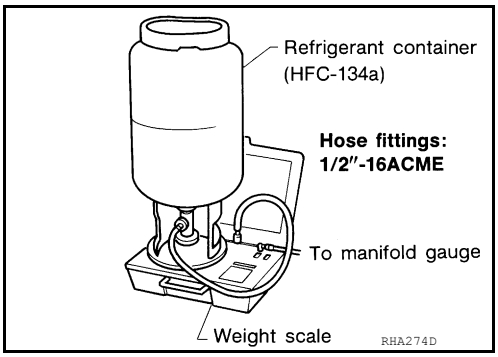
Do not attempt to connect HFC-134a (R-134a) service couplers to a CFC-12 (R-12) A/C system. The HFC-134a (R-134a) couplers will not properly connect to the CFC-12 (R-12) system. However, if an improper connection is attempted, discharging and contamination may occur.

Shut-off valve rotation	A/C service valve
Clockwise	Open
Counterclockwise	Close



REFRIGERANT WEIGHT SCALE

Verify that no refrigerant other than HFC134a (R-134a) and specified oils have been used with the scale. If the scale controls refrigerant flow electronically, the hose fitting must be 1/2”-16 ACME.



CHARGING CYLINDER

Using a charging cylinder is not recommended. Refrigerant may be vented into air from cylinder's top valve when filling the cylinder with refrigerant. Also, the accuracy of the cylinder is generally less than that of an electronic scale or of quality recycle/recharge equipment.

Precaution for Work

INFOID:0000000014392000

- 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 a 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, wring the water out of the cloth and wipe the dirty area.
- Then rub with a soft, 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, wring the water out of the cloth and wipe the detergent off.
- Then rub with a soft, dry cloth.

- Do not use organic solvent such as thinner, benzene, alcohol or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

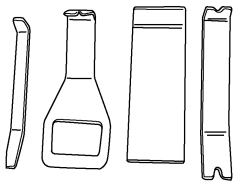
PREPARATION

PREPARATION

Special Service Tool

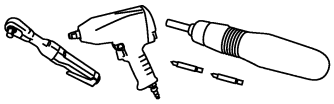
INFOID:0000000014392001

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set  AWJIA0483ZZ	Removing trim components

Commercial Service Tool

INFOID:0000000014392002

Tool name	Description
Power tool  PIIB1407E	Loosening nuts, screws and bolts

SYSTEM DESCRIPTION

VENTILATION SYSTEM

System Description

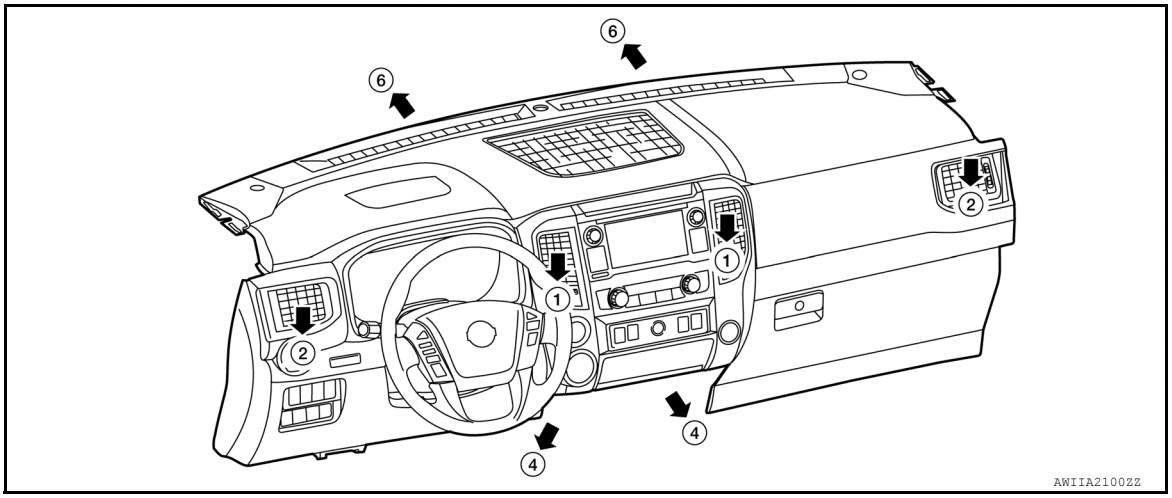
INFOID:0000000014392003

OUTLINE

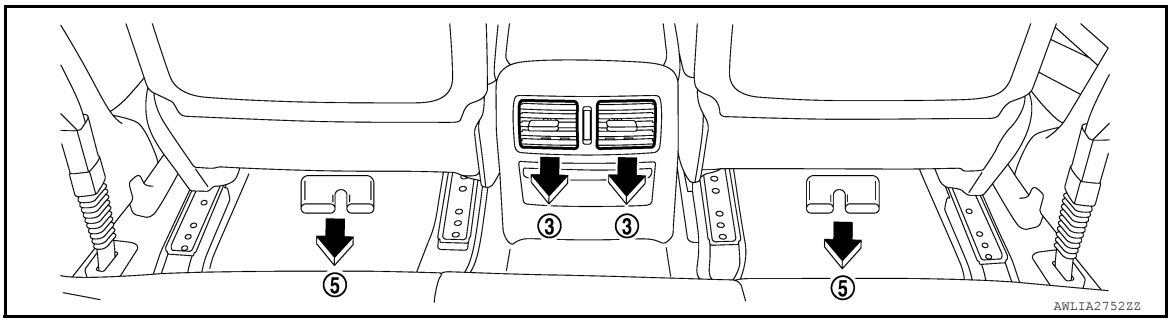
Ventilation system is controlled by A/C auto amp. For details of automatic air conditioner system, refer to HAC-15, "A/C Auto Amp.".

AIR FLOW

Front



Rear



×: Applicable

MODE/DEF setting position	Discharge air flow					
	Air outlet/distribution					
	Ventilator			Foot		Defroster (6)
	Front		Rear (3)	Front (4)	Rear (5)	
	Center (1)	Side (2)				
	×	×	×	—	—	—
	×	×	×	×	×	—
	—	×	×	×	×	×
	—	×	×	×	×	×
	—	×	×	—	—	×

PERIODIC MAINTENANCE

IN-CABIN MICROFILTER

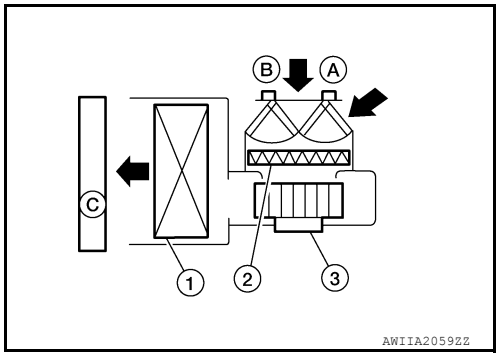
Description

INFOID:0000000014392004

FUNCTION

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

(1) : Evaporator
(2) : In-cabin microfilter
(3) : Blower motor
(A) : Recirculation air
(B) : Fresh air
(C) : Purified air



REPLACEMENT TIMING

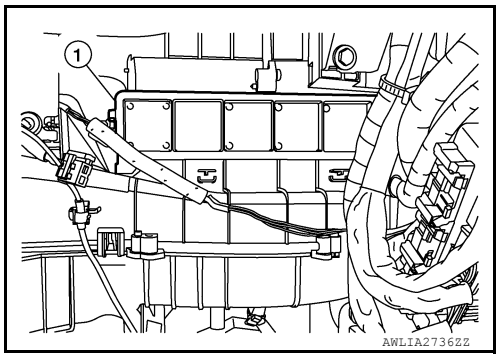
Replacement of the in-cabin microfilter is recommended on a regular interval depending on the driving conditions. Refer to MA-9, "Introduction of Periodic Maintenance" (for VK56VD) or MA-58, "Introduction of Periodic Maintenance" (for CUMMINS 5.0L). It may also be necessary to replace the in-cabin microfilter as part of a component replacement if it is damaged.

Removal and Installation

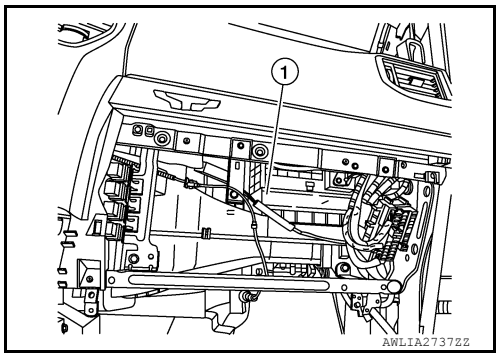
INFOID:0000000014392005

REMOVAL

1. Remove glove box assembly. Refer to IP-21, "Removal and Installation".
2. Release in-cabin microfilter cover tab and remove the cover (1) from under the RH side of the instrument panel.
   CAUTION:
   Use care when lifting up on the in-cabin microfilter tab to avoid damaging it.



3. Remove in-cabin microfilter (1).
   CAUTION:
   If the in-cabin microfilter is deformed/damaged when removing, replace it with a new one. A deformed or damaged in-cabin microfilter may affect the dust collecting performance.



INSTALLATION

Installation is in reverse order of removal.
CAUTION:

When installing, handle the in-cabin microfilter with care to avoid deformation or damage.
NOTE:
The in-cabin microfilter is marked with the word NISSAN. The end of the in-cabin microfilter with the word NISSAN should face the passenger side of the vehicle. The word NISSAN should be right side up.

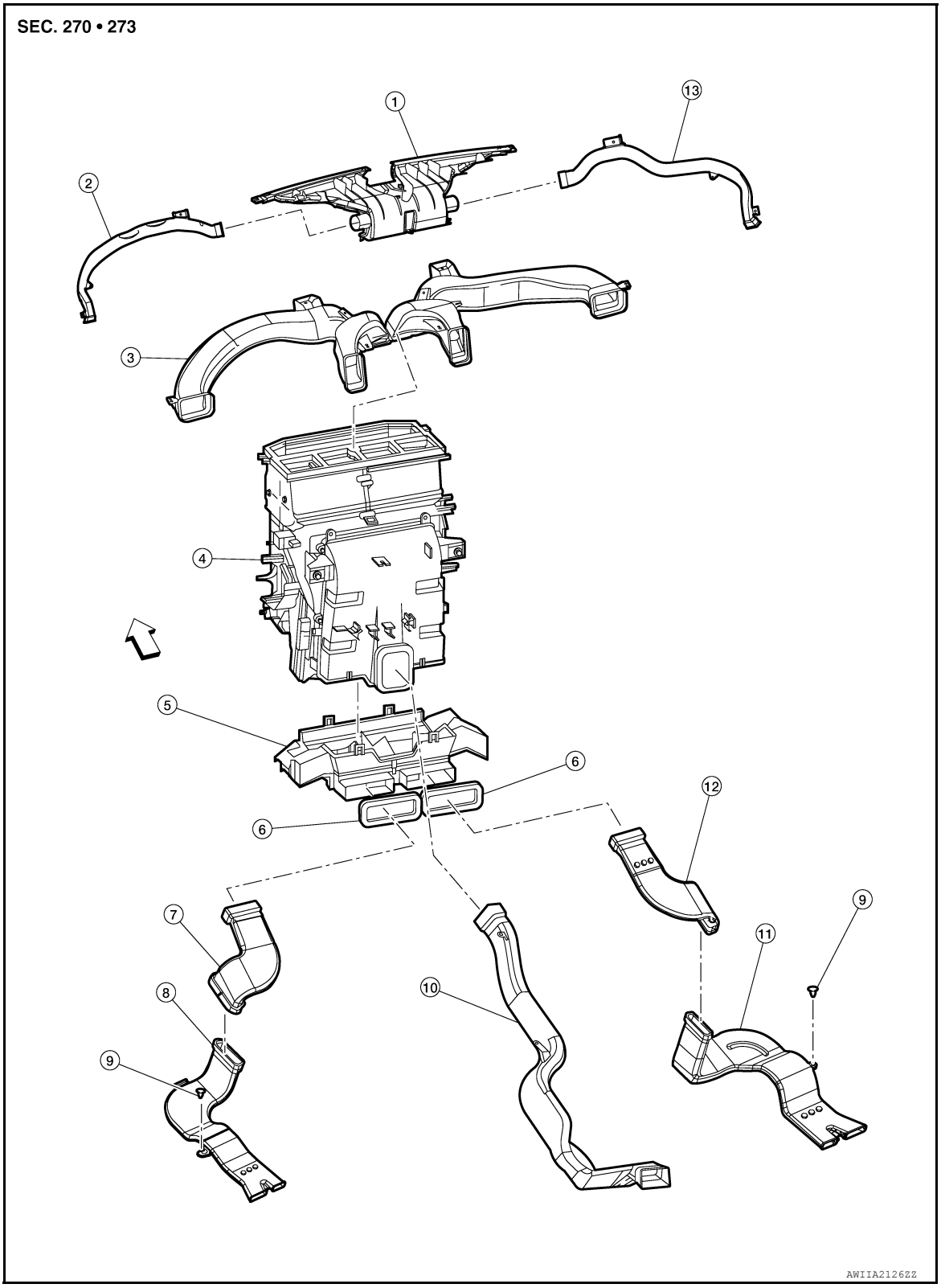
REMOVAL AND INSTALLATION

DUCTS AND GRILLES

Exploded View

INFOID:0000000014392006

Ducts



1. Defroster nozzle
2. Side defroster duct (LH)
3. Center ventilator duct
4. Heating and cooling unit assembly
5. Foot duct
6. Duct seal (RH/LH)
7. Front floor connecting duct (LH)
8. Front floor duct (LH)
9. Clip
10. Rear center ventilator duct
11. Front floor duct (RH)
12. Front floor connecting duct (RH)
13. Side defroster duct (RH)

⇦ Front

DEFROSTER NOZZLE

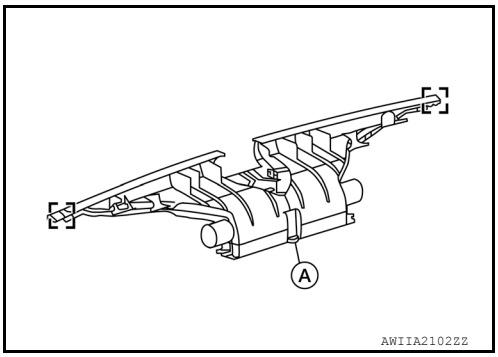
DEFROSTER NOZZLE : Removal and Installation

INFOID:0000000014392007

REMOVAL

1. Remove side defroster ducts (LH/RH). Refer to VTL-11, "SIDE DEFROSTER DUCT : Removal and Installation".
2. Remove screws (A) from defroster nozzle.
3. Release defroster nozzle clips using a suitable tool and remove defroster nozzle.

△ :Clip



4. Remove defroster nozzle.

INSTALLATION

Installation is in reverse order of removal.

CENTER VENTILATOR DUCT

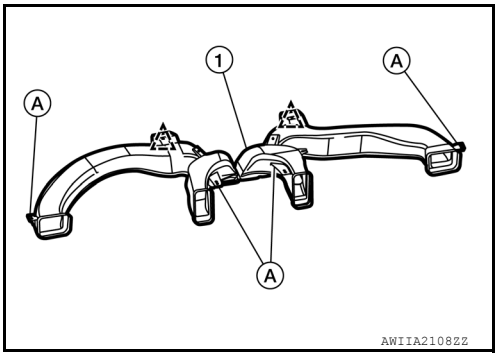
CENTER VENTILATOR DUCT : Removal and Installation

INFOID:0000000014392008

REMOVAL

1. Remove instrument panel assembly. Refer to IP-14, "Removal and Installation".
2. Remove screws (A) from center ventilator duct (1).
3. Release center ventilator duct clips using a suitable tool and remove center ventilator duct.

△ : Clip



INSTALLATION

Installation is in reverse order of removal.

SIDE DEFROSTER DUCT

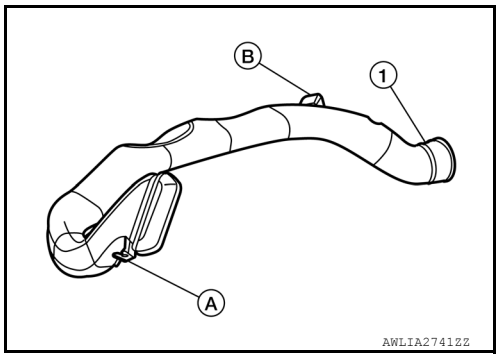
SIDE DEFROSTER DUCT : Removal and Installation

INFOID:0000000014392009

REMOVAL

NOTE:
LH shown; RH similar.

1. Remove center ventilator duct. Refer to VTL-10, "CENTER VENTILATOR DUCT : Removal and Installation".
2. Remove screw (A) and clip (B), then remove side defroster duct [(LH) (1)].



INSTALLATION

Installation is in reverse order of removal.

FOOT DUCT

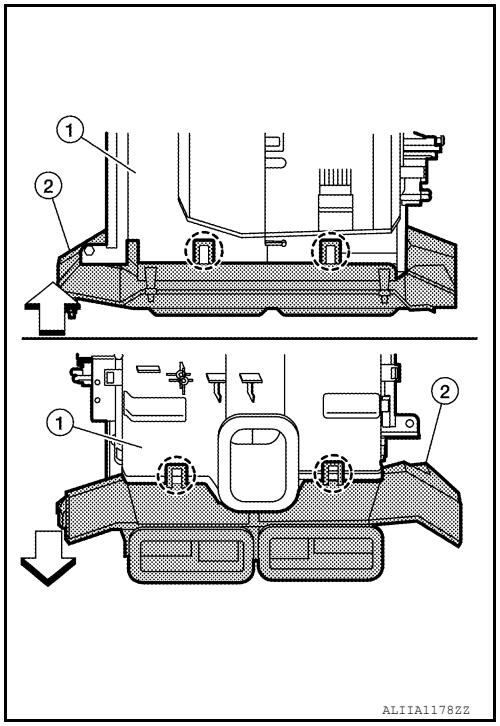
FOOT DUCT : Removal and Installation

INFOID:0000000014392010

REMOVAL

1. Remove heating and cooling unit assembly. Refer to HA-49, "HEATING AND COOLING UNIT ASSEMBLY : Removal and Installation".
2. Release pawls and remove foot duct (2) from heating and cooling unit assembly (1).

: Pawl
: Front



INSTALLATION

Installation is in the reverse order of removal.

FRONT FLOOR DUCT

FRONT FLOOR DUCT : Removal and Installation - Front Floor Connecting Duct (LH/

RH)

INFOID:0000000014392011

REMOVAL

1. For models not equipped with front center seat, remove center console. Refer to IP-24, "Removal and Installation".
2. Remove front seat. Refer to SE-100, "Removal and Installation - Captain Seats".
3. Remove center pillar lower finisher. Refer to INT-23, "CENTER PILLAR LOWER FINISHER : Removal and Installation".
4. Partially remove floor trim and place aside.
5. Remove front floor connecting duct (LH/RH).

INSTALLATION

Installation is in reverse order of removal.

FRONT FLOOR DUCT : Removal and Installation - Front Floor Duct (LH/RH)

INFOID:0000000014392012

REMOVAL

1. Remove front floor connecting duct (LH/RH). Refer to VTL-11, "FRONT FLOOR DUCT : Removal and Installation - Front Floor Connecting Duct (LH/RH)".
2. Release clip and remove front floor duct (LH/RH).

INSTALLATION

Installation is in reverse order of removal.

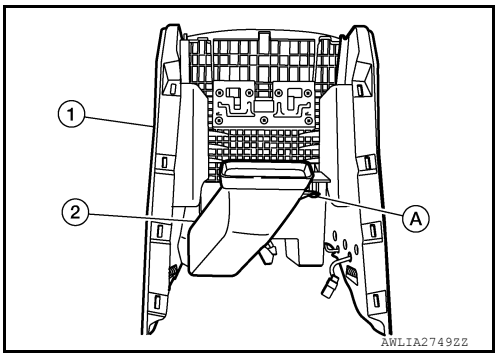
REAR CENTER VENTILATOR DUCT

REAR CENTER VENTILATOR DUCT : Removal and Installation

INFOID:0000000014392013

REMOVAL

1. Remove center console. Refer to IP-24, "Removal and Installation".
2. Remove the center console rear finisher. Refer to IP-23, "Exploded View".
3. Remove the screw (A) and rear center ventilator duct (2) from center console (1).

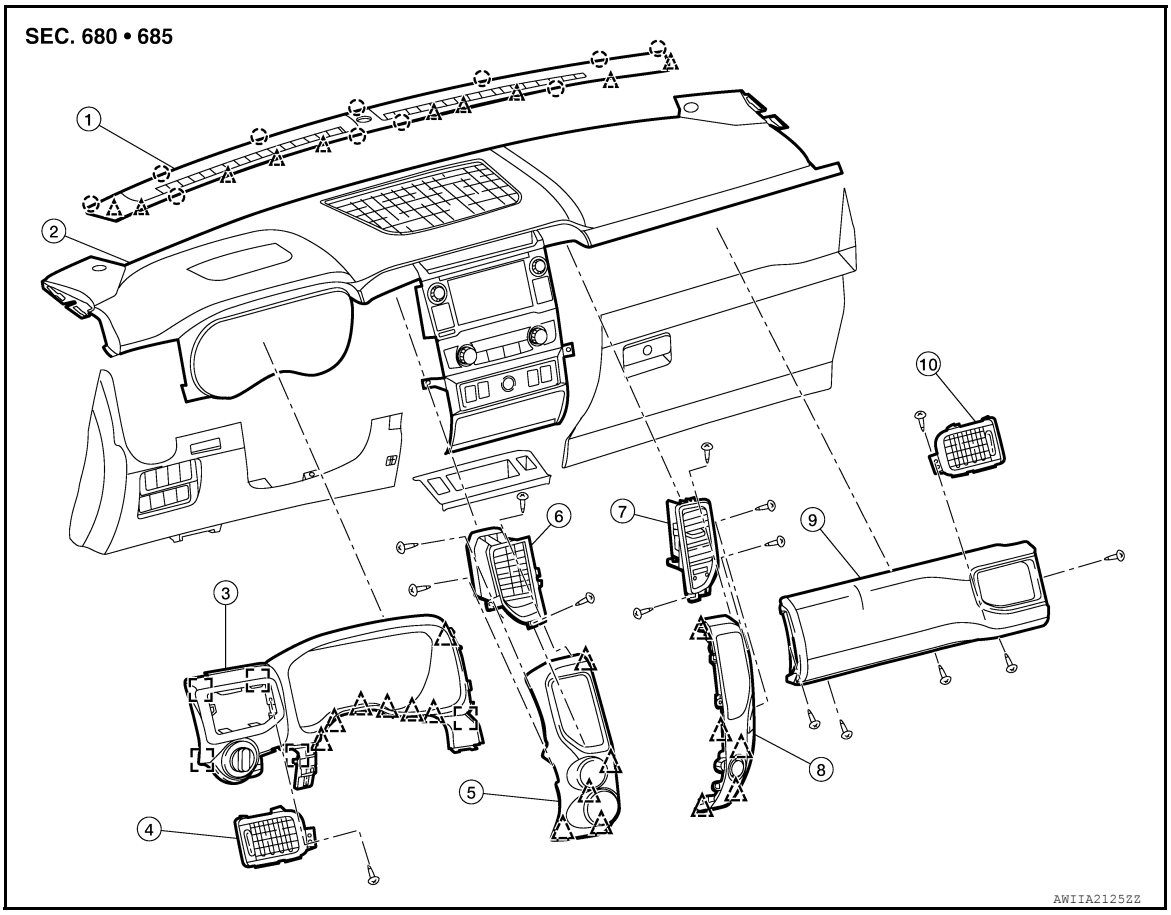


INSTALLATION

Installation is in the reverse order of removal.

Exploded View

INFOID:0000000014392014



1. Front defroster grille	2. Instrument panel assembly	3. Cluster lid A
4. Side ventilator grille (LH)	5. Cluster lid C finisher (LH)	6. Center ventilator grille (LH)
7. Center ventilator grille (RH)	8. Cluster lid C finisher (RH)	9. Instrument upper panel
10. Side ventilator grille (RH)	Clip	Metal Clip
Pawl		

FRONT DEFROSTER GRILLE

FRONT DEFROSTER GRILLE : Removal and Installation

INFOID:0000000014392015

REMOVAL

1. Partially remove front body side door welt (LH/RH).
2. Remove front pillar finishers (LH/RH). Refer to INT-20, "FRONT PILLAR FINISHER : Removal and Installation".
3. Remove sunload sensor (if equipped). Refer to HAC-125, "Removal and Installation".
4. Release front defroster grille clips and pawls using suitable tool and remove front defroster grille.

INSTALLATION

Installation is in reverse order of removal.

CENTER VENTILATOR GRILLES

CENTER VENTILATOR GRILLES : Removal and Installation

INFOID:0000000014392016

REMOVAL

1. Remove cluster lid C finisher (LH/RH).Refer to IP-16, "CLUSTER LID C FINISHER : Removal and Installation".
2. Remove screws and center ventilator grille (LH/RH).

INSTALLATION
Installation is in reverse order of removal.

SIDE VENTILATOR GRILLES

SIDE VENTILATOR GRILLES : Removal and Installation

INFOID:0000000014392017

REMOVAL

Side ventilator grille (LH)

1. Remove cluster lid A. Refer to IP-19, "Removal and Installation".
2. Remove screw, then remove side ventilator grille (LH).

INSTALLATION
Installation is in reverse order of removal.

REMOVAL

Side ventilator grille (RH)

1. Remove instrument upper panel. Refer to IP-14, "Removal and Installation".
2. Remove screw, then remove side ventilator grille (RH).

INSTALLATION
Installation is in reverse order of removal.

SIDE DEFROSTER GRILLES

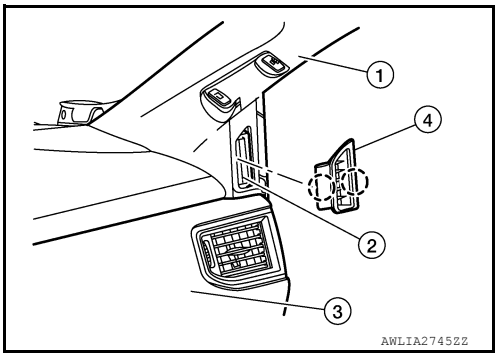
SIDE DEFROSTER GRILLES : Removal and Installation

INFOID:0000000014392018

REMOVAL
NOTE:
RH side shown; LH side similar.

1. Remove side defroster grille (RH).

(1) : Front pillar (RH)
(2) : Side defroster duct (RH)
(3) : Instrument upper panel
(4) : Side defroster grille (RH)



INSTALLATION
Installation is in the reverse order of removal.

REAR CENTER VENTILATOR GRILLE

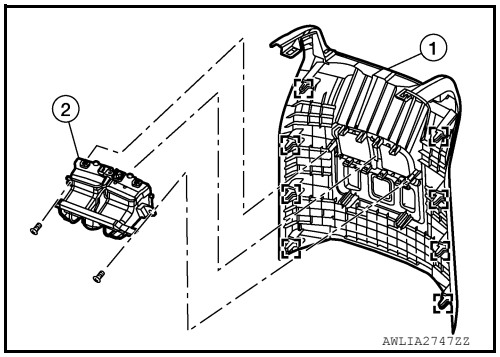
REAR CENTER VENTILATOR GRILLE : Removal and Installation

INFOID:0000000014392019

REMOVAL

1. Remove center console rear finisher (1). Refer to IP-23, "Exploded View".
2. Remove rear center ventilator grille (2).

: Metal clip



INSTALLATION

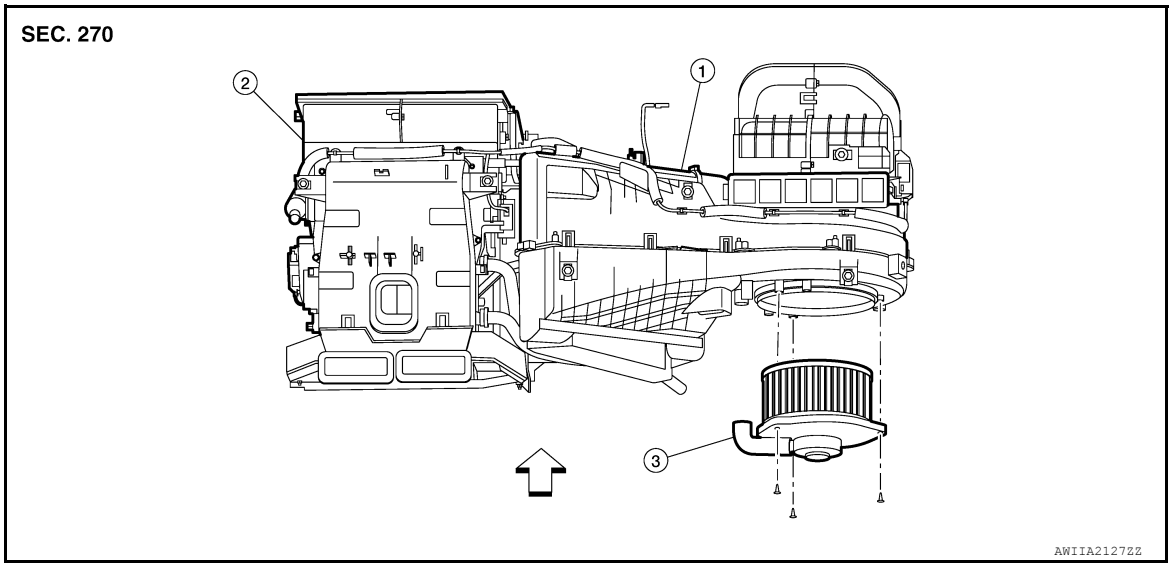
Installation is in reverse order of removal.

BLOWER UNIT

BLOWER UNIT

BLOWER UNIT : Exploded View

INFOID:0000000014392020



1. Blower unit
2. Heating and cooling unit assembly
3. Blower motor

⇦ Front

BLOWER UNIT : Removal and Installation

INFOID:0000000014392021

REMOVAL

1. Remove the heating and cooling unit assembly. Refer to HA-49, "HEATING AND COOLING UNIT ASSEMBLY : Removal and Installation".
2. Disconnect the harness connector from the blower motor.
3. Remove screws and separate blower unit from heating and cooling unit assembly.

INSTALLATION

Installation is in the reverse order of removal.

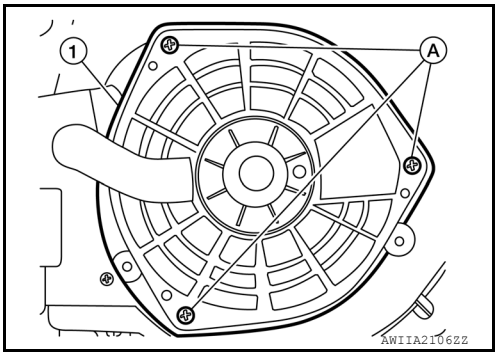
BLOWER MOTOR

BLOWER MOTOR : Removal and Installation

INFOID:0000000014392022

REMOVAL

1. Remove the glove box assembly. Refer to IP-21, "Removal and Installation".
2. Disconnect the harness connector from the blower motor (1).
3. Remove the blower motor screws (A), and the blower motor from the blower unit.
   NOTE:
   Do not disassemble the blower motor to replace individual components, replace as an assembly.



INSTALLATION

Installation is in the reverse order of removal.