SECTION MTC

MANUAL AIR CONDITIONER

CONTENTS

PRECAUTIONS

PFP:00001

Precautions for Supplemental Restraint System (SRS) “AIR BAG” and “SEAT BELT PRE-TENSIONER”

EJS005HO

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 SRS and SB section of this Service Manual.

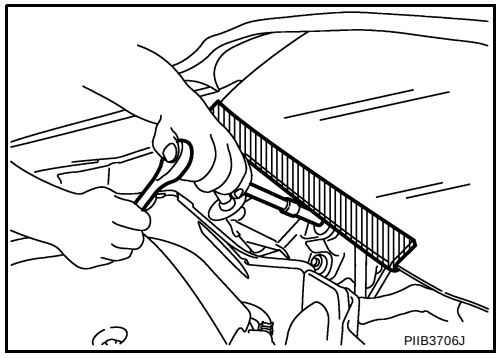
WARNING:

- **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 SRS 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 for Procedures without Cowl Top Cover

EJS0056V

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



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

EJS0056W

WARNING:

- **CFC-12 (R-12) refrigerant and HFC-134a (R-134a) refrigerant are not compatible. These refrigerants must never be mixed, even in the smallest amounts. If the refrigerants are mixed a compressor malfunction is likely to occur.**
- **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 malfunction 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. Use only approved recovery/recycling equipment to discharge HFC-134a (R-134a) refrigerant. 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.**

General Refrigerant Precautions

EJS0056X

WARNING:

- **Avoid breathing A/C refrigerant and oil vapor or mist. Exposure may irritate eyes, nose and throat. Use only approved recovery/recycling equipment to discharge HFC-134a (R-134a) refrigerant. 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 release refrigerant into the air. Use approved recovery/recycling equipment to capture the refrigerant every time an air conditioning system is discharged.**
- **Always wear eye and hand protection (goggles and gloves) when working with any refrigerant or air conditioning system.**
- **Do not store or heat refrigerant containers above 52°C (126° F).**
- **Do not heat a refrigerant container with an open flame; if container warming is required, place the bottom of the container in a warm pail of water.**
- **Do not intentionally drop, puncture, or incinerate refrigerant containers.**
- **Keep refrigerant away from open flames: poisonous gas will be produced if refrigerant burns.**
- **Refrigerant will displace oxygen, therefore be certain to work in well ventilated areas to prevent suffocation.**
- **Do not pressure test or leak test HFC-134a (R-134a) service equipment and/or vehicle air conditioning systems with compressed air during repair. Some mixtures of air and HFC-134a (R-134a) have been shown to be combustible at elevated pressures. These mixtures, if ignited, may cause injury or property damage. Additional health and safety information may be obtained from refrigerant manufacturers.**

Oil Precautions

EJS0056Y

- 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 malfunction 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.
  Use only approved recovery/recycling equipment to discharge HFC-134a (R-134a) refrigerant. 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.

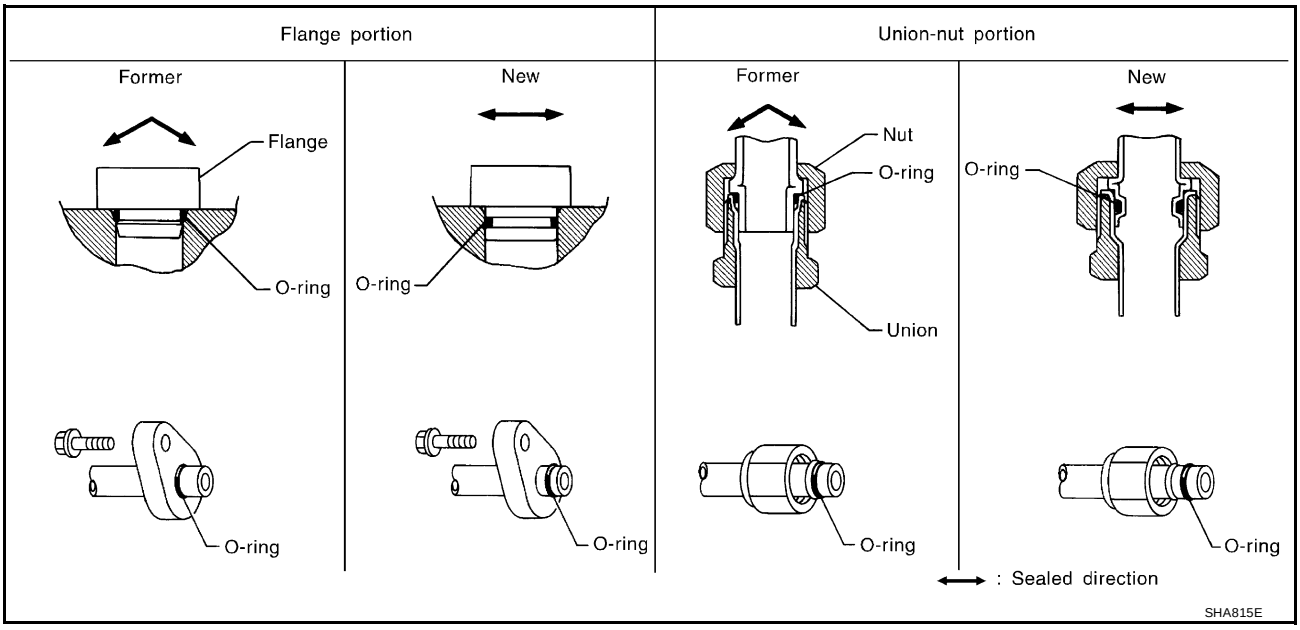
Precautions for Refrigerant Connection

EJS0056Z

A new type refrigerant connection has been introduced to all refrigerant lines except the following location.

- Expansion valve to evaporator
- Refrigerant pressure sensor to condenser

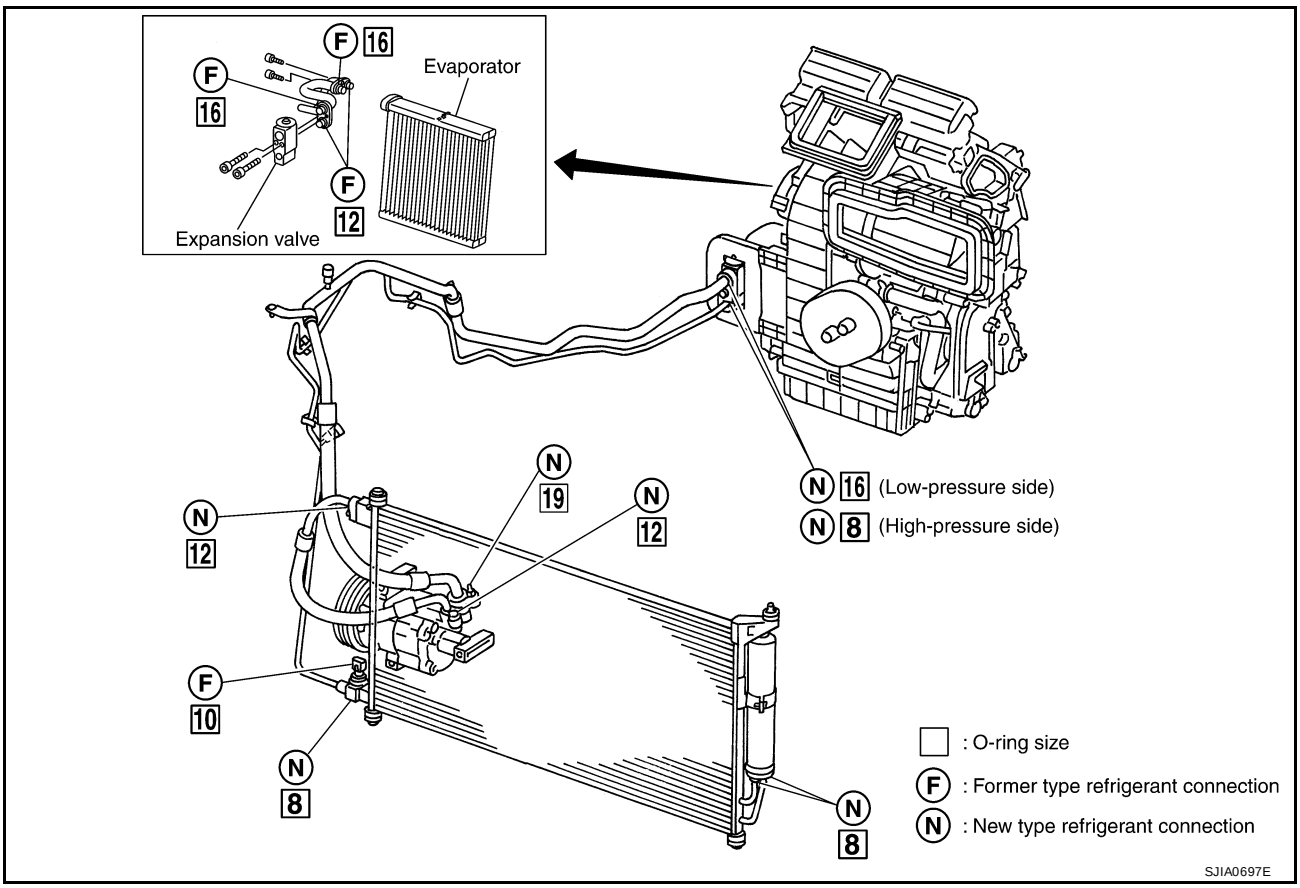
FEATURES OF NEW TYPE REFRIGERANT CONNECTION



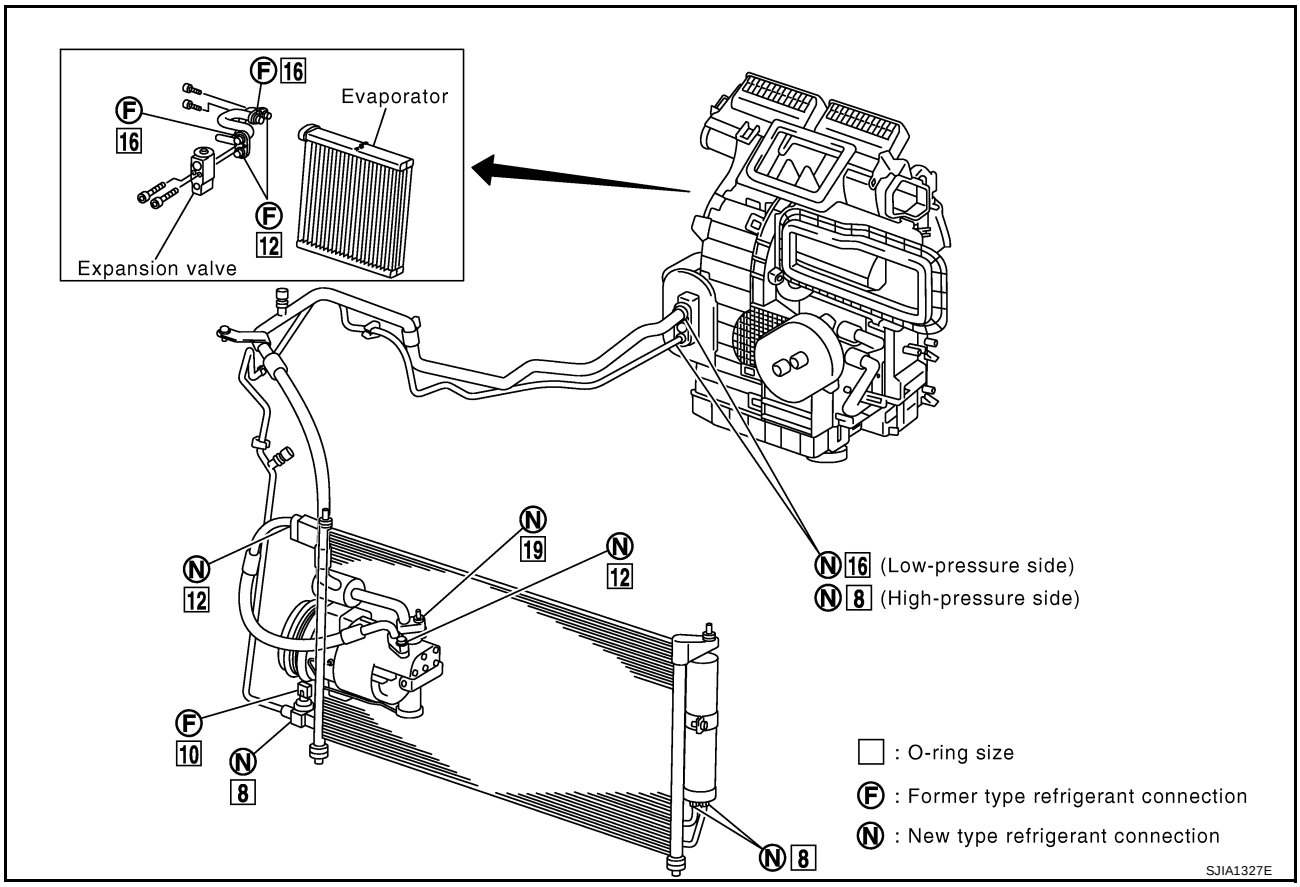
- The O-ring has been relocated. It has also been provided with a groove for proper installation. This eliminates the chance of the O-ring being caught in, or damaged by, the mating part. The sealing direction of the O-ring is now set vertically in relation to the contacting surface of the mating part to improve sealing characteristics.
- The reaction force of the O-ring will not occur in the direction that causes the joint to pull out, thereby facilitating piping connections.

O-RING AND REFRIGERANT CONNECTION

TYPE 1



TYPE 2



WARNING:

Make sure all refrigerant is discharged into the recycling equipment and the pressure in the system is less than atmospheric pressure. Then gradually loosen the discharge side hose fitting and remove it.

CAUTION:

The new and former refrigerant connections use different O-ring configurations. Do not confuse O-rings since they are not interchangeable. If a wrong O-ring is installed, refrigerant will leak at, or around, the connection.

O-Ring Part Numbers and Specifications

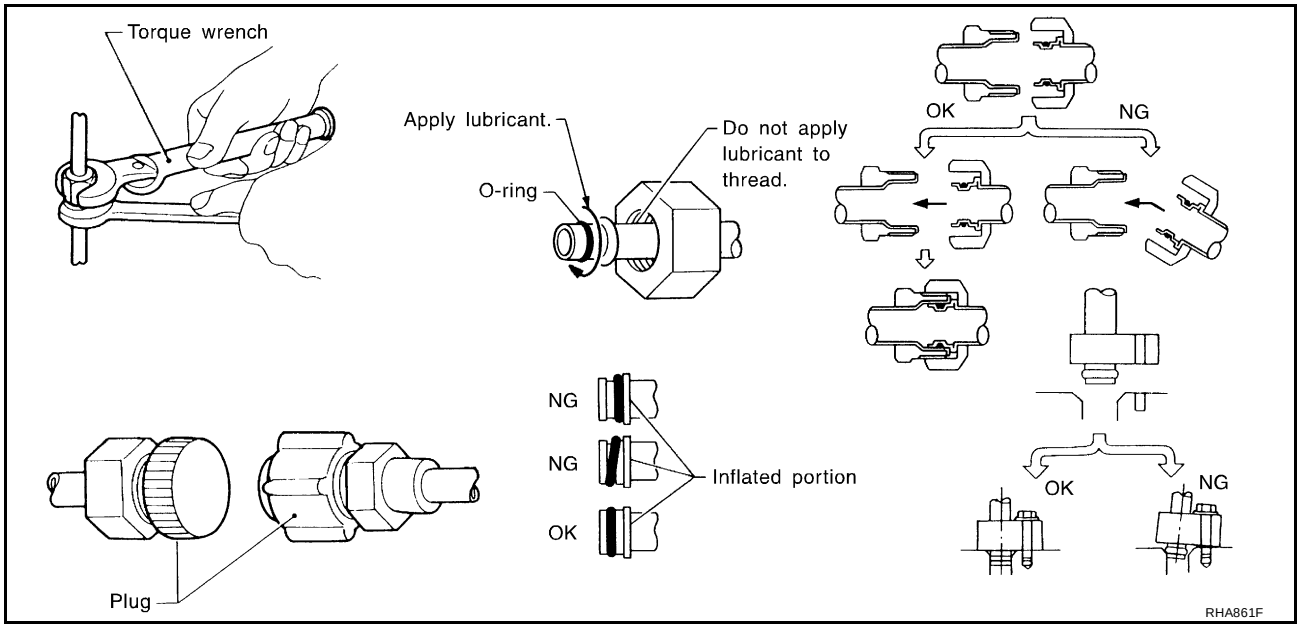
Connection type	Piping connection point		Part number	QTY	O-ring size
New	Condenser to high-pressure flexible hose		92472 N8210	1	12
	Condenser to high-pressure pipe		92471 N8210	1	8
	Low-pressure flexible hose to expansion valve		92473 N8210	1	16
	High-pressure pipe to expansion valve		92471 N8210	1	8
	Compressor to low-pressure flexible hose		92474 N8210	1	19
	Compressor to high-pressure flexible hose		92472 N8210	1	12
	Liquid tank to condenser pipe	Inlet	92471 N8210	1	8
		Outlet		1	
Former	Refrigerant pressure sensor to condenser		J2476 89956	1	10
	Expansion valve to evaporator	Inlet	92471 N8200	2	12
		Outlet	92473 N8200	2	16

CAUTION:

When replacing or cleaning refrigerant cycle components, observe the following.

- **When the compressor is removed, store it in the same position as it is when mounted on the vehicle. Doing so will cause oil to enter the low-pressure chamber.**
- **When connecting tubes, always use a torque wrench and a back-up wrench.**

- **After disconnecting tubes, immediately plug all openings to prevent entry of dirt and moisture.**
- **When installing an air conditioner in the vehicle, connect the pipes as the final stage of the operation. Do not remove the seal caps of pipes and other components until just before required for connection.**
- **Allow components stored in cool areas to warm to working area temperature before removing seal caps. This prevents condensation from forming inside A/C components.**
- **Thoroughly remove moisture from the refrigeration system before charging the refrigerant.**
- **Always replace used O-rings.**
- **When connecting tube, apply the specified A/C oil to circle of the O-rings as shown. Be careful not to apply oil to threaded portion. Refer to MTC-97, "Oil" .**
- **O-ring must be closely attached to dented portion of tube.**
- **When replacing the O-ring, be careful not to damage O-ring and tube.**
- **Connect tube until you hear it click, then tighten the nut or bolt by hand until snug. Make sure that the O-ring is installed to tube correctly.**
- **After connecting line, perform leak test and make sure that there is no leakage from connections. When the refrigerant leaking point is found, disconnect that line and replace the O-ring. Then tighten connections of seal seat to the specified torque.**



Precautions for Servicing Compressor

EJS00570

- **Plug all openings to prevent moisture and foreign matter from entering.**
- **When the compressor is removed, store it in the same position as it is when mounted on the car.**
- **When replacing or repairing compressor, follow “Maintenance of Oil Quantity in Compressor” exactly. Refer to MTC-18, "Maintenance of Oil Quantity in Compressor" .**
- **Keep friction surfaces between clutch and pulley clean. If the surface is contaminated, with oil, wipe it off by using a clean waste cloth moistened with thinner.**
- **After compressor service operation, turn the compressor shaft by hand more than five turns in both directions. This will equally distribute oil inside the compressor. After the compressor is installed, let the engine idle and operate the compressor for one hour.**
- **After replacing the compressor magnet clutch, apply voltage to the new one and check for usual operation.**

Precautions for Service Equipment

EJS00571

RECOVERY/RECYCLING EQUIPMENT

Be certain to follow the manufacturer’s instructions for machine operation and machine maintenance. Never introduce any refrigerant other than that specified into the machine.

ELECTRONIC LEAK DETECTOR

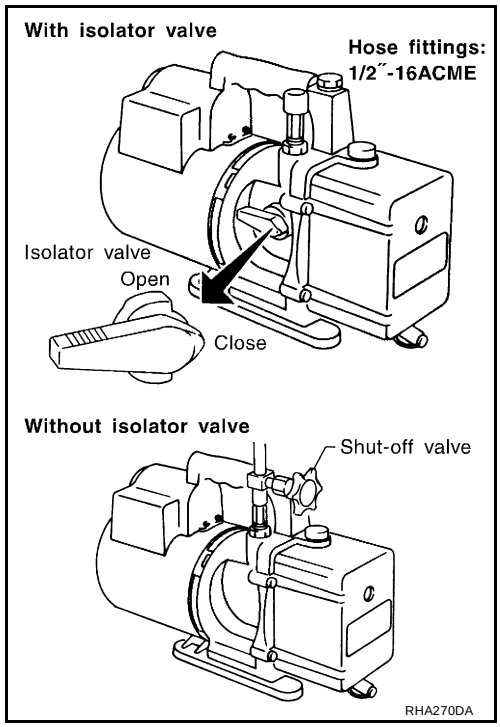
Be certain to follow the manufacturer's instructions for tester operation and tester maintenance.

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 placed near the hose-to-pump connection, as follows.

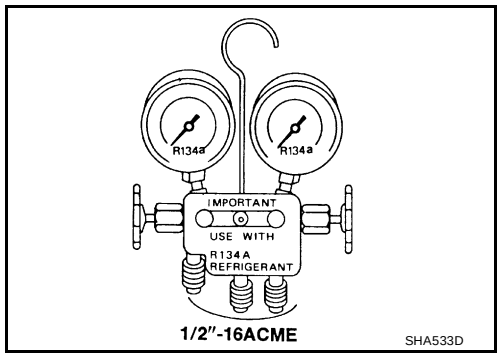
- Usually vacuum pumps have a manual isolator valve as part of the pump. Close this valve to isolate the service hose from the pump.
- For pumps without an isolator, use a hose equipped with a manual shut-off valve near the pump end. Close the valve to isolate the hose from the pump.
- If the hose has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



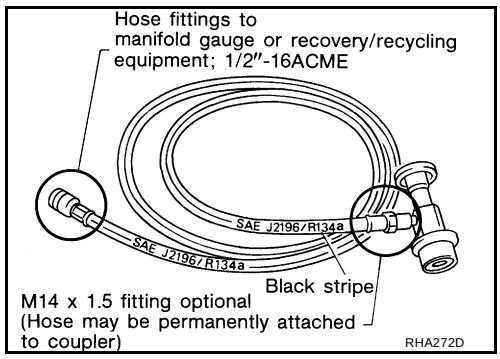
MANIFOLD GAUGE SET

Be certain that the gauge face indicates HFC-134a or R-134a. Be 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) and specified oils.



SERVICE HOSES

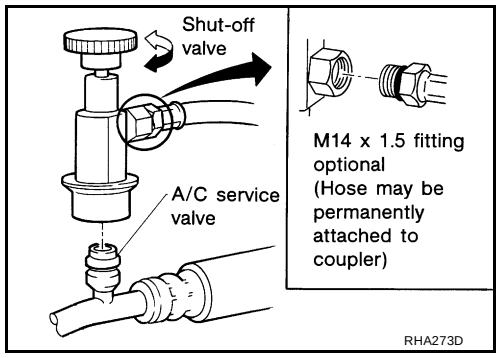
Be certain that the service hoses display the markings described (colored hose with black stripe). All hoses must include positive shut-off devices (either manual or automatic) near the end of the hoses opposite the manifold gauge.



SERVICE COUPLERS

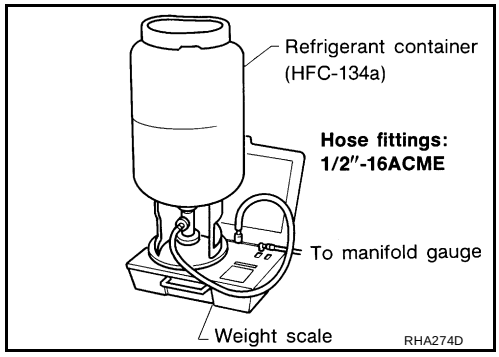
Never attempt to connect HFC-134a (R-134a) service couplers to a CFC-12 (R-12) A/C system. The HFC-134a (R-134a) couplers will not properly connect to the CFC-12 (R-12) system. However, if an improper connection is attempted, discharging and contamination may occur.

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



REFRIGERANT WEIGHT SCALE

Verify that no refrigerant other than HFC-134a (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.

Precautions for Leak Detection Dye

EJS00572

- The A/C system contains a fluorescent leak detection dye used for locating refrigerant leaks. An ultraviolet (UV) lamp is required to illuminate the dye when inspecting for leaks.
- Always wear fluorescence enhancing UV safety goggles to protect your eyes and enhance the visibility of the fluorescent dye.
- The fluorescent dye leak detector is not a replacement for an electronic refrigerant leak detector. The fluorescent dye leak detector should be used in conjunction with an electronic refrigerant leak detector to pinpoint refrigerant leaks.
- For your safety and your customer's satisfaction, read and follow all manufacture's operating instructions and precautions prior to performing the work.
- A compressor shaft seal should not be repaired because of dye seepage. The compressor shaft seal should only be repaired after confirming the leak with an electronic refrigerant leak detector.
- Always remove any remaining dye from the leak area after repairs are complete to avoid a misdiagnosis during a future service.
- Do not allow dye to come into contact with painted body panels or interior components. If dye is spilled, clean immediately with the approved dye cleaner. Fluorescent dye left on a surface for an extended period of time cannot be removed.
- Do not spray the fluorescent dye cleaning agent on hot surfaces (engine exhaust manifold, etc.).
- Do not use more than one refrigerant dye bottle (1/4 ounce /7.4 cc) per A/C system.
- Leak detection dyes for HFC-134a (R-134a) and CFC-12 (R-12) A/C systems are different. Do not use HFC-134a (R-134a) leak detection dye in CFC-12 (R-12) A/C system or CFC-12 (R-12) leak detector dye in HFC-134a (R-134a) A/C system or A/C system damage may result.
- The fluorescent properties of the dye will remain for over three (3) years unless a compressor malfunction occurs.

IDENTIFICATION LABEL FOR VEHICLE

Vehicles with factory installed fluorescent dye have this identification label on the front side of hood.

NOTE:
- Vehicles with factory installed fluorescent dye have a green label.
- Vehicles without factory installed fluorescent dye have a blue label.

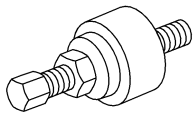
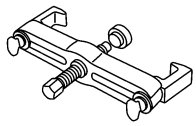
PREPARATION

PFP:00002

Special Service Tools

EJS0058Y

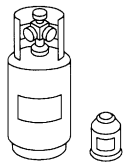
The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

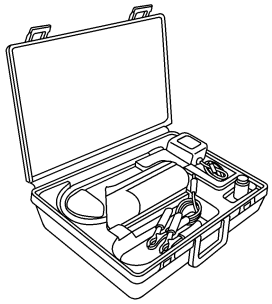
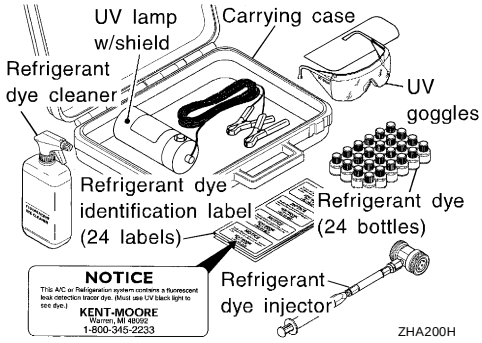
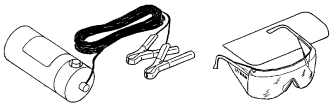
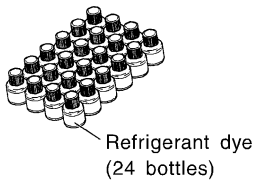
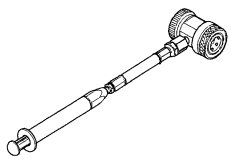
Tool number (Kent-Moore No.) Tool name		Description
— (J-38873-A) Pulley installer	 LHA171	Installing pulley
KV99233130 (J-29884) Pulley puller	 LHA172	Removing pulley

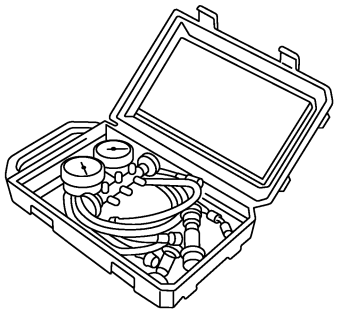
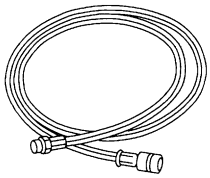
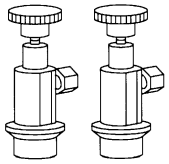
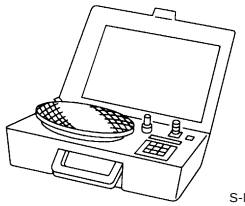
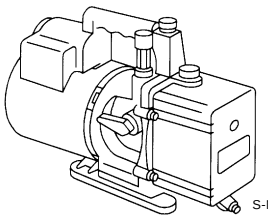
HFC-134a (R-134a) Service Tools and Equipment

EJS0058Z

Never mix HFC-134a refrigerant and/or its specified oil with CFC-12 (R-12) refrigerant and/or its oil.
Separate and non-interchangeable service equipment must be used for handling each type of refrigerant/oil.
Refrigerant container fittings, service hose fittings and service equipment fittings (equipment which handles refrigerant and/or oil) are different between CFC-12 (R-12) and HFC-134a (R-134a). This is to avoid mixed use of the refrigerants/oil.
Adapters that convert one size fitting to another must never be used refrigerant/oil contamination will occur and compressor failure will result.

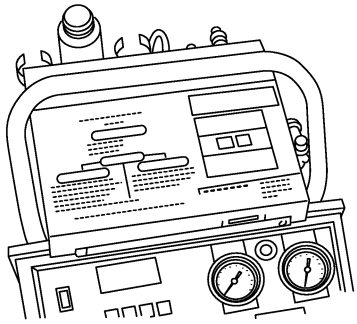
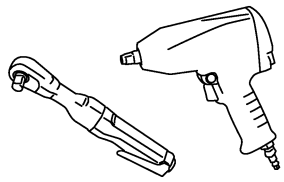
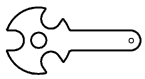
Tool number (Kent-Moore No.) Tool name		Description
HFC-134a (R-134a) (—) Refrigerant	 S-NT196	Container color: Light blue Container marking: HFC-134a (R-134a) Fitting size: Thread size ● large container 1/2”-16 ACME
— (—) NISSAN A/C System Oil Type S	 S-NT197	Type: Poly Alkylene glycol oil (PAG), type S Application: HFC-134a (R-134a) variable displacement swash plate compressors (NISSAN only)
— (—) NISSAN A/C System Oil Type R	 S-NT197	Type: Poly Alkylene glycol oil (PAG), type R Application: HFC-134a (R-134a) vane rotary compressors (NISSAN only)

Tool number (Kent-Moore No.) Tool name		Description
KV991J0130 (ACR2005-NI) ACR5 A/C Service Center	 WJIA0293E	Refrigerant recovery, recycling and recharging
— (J-41995) Electronic refrigerant leak detector	 AHA281A	Checking for refrigerant leaks Power supply: DC 12V (battery terminal)
— (J-43926) Refrigerant dye leak detection kit Kit includes: (J-42220) UV lamp and UV safety goggles (J-41459) Refrigerant dye injector (J-41447) Quantity 24, 1/4 ounce bottles of HFC-134a (R-134a) fluorescent leak detection dye (J-43872) Refrigerant dye cleaner	 ZHA200H	Leak detection dye Power supply: DC 12V (battery terminal)
— (J-42220) Fluorescent dye leak detector	 SHA438F	Checking for refrigerant leaks when fluorescent dye is installed in A/C system. Includes: UV lamp and UV safety goggles Power supply: DC 12V (battery terminal)
— (J-41447) HFC-134a (R-134a) fluorescent leak detection dye (Box of 24, 1/4 ounce bottles)	 SHA439F	Application: For HFC-134a (R-134a) PAG oil Container: 1/4 ounce (7.4cc) bottle (Includes self-adhesive dye identification labels for affixing to vehicle after charging system with dye.)
— (J-41459) HFC-134a (R-134a) Dye injector Use with (J-41447) 1/4 ounce bottles	 SHA440F	For injecting 1/4 ounce of fluorescent leak detection dye into A/C system.

Tool number (Kent-Moore No.) Tool name		Description
— (J-43872) Refrigerant dye cleaner	 SHA441F	For cleaning dye spills.
— (J-39183-C) Manifold gauge set (with hoses and couplers)	 RJIA0196E	Identification: ● The gauge face indicates R-134a. Fitting size: Thread size ● 1/2”-16 ACME
Service hoses: ● (J-39500-72B) High side hose ● (J-39500-72R) Low side hose ● (J-39500-72Y) Utility hose	 S-NT201	Hose colors: ● Low side hose: Blue with black stripe ● High side hose: Red with black stripe ● Utility hose: Yellow with black stripe or green with black stripe Hose fitting to gauge: ● 1/2”-16 ACME
Service couplers: ● (J-39500-20A) High side coupler ● (J-39500-24A) Low side coupler	 S-NT202	Hose fitting to service hose: ● M14 x 1.5 fitting is optional or permanently attached.
— (J-39699) Refrigerant weight scale	 S-NT200	For measuring of refrigerant Fitting size - thread size: ● 1/2” - 16 ACME
— (J-39649) Vacuum pump (Including the isolator valve)	 S-NT203	Capacity: ● Air displacement: 4 CFM ● Micron rating: 20 microns ● Oil capacity: 482 g (17 oz) Fitting size: Thread size ● 1/2”-16 ACME

Commercial Service Tools

EJS00590

(Kent-Moore No.) Tool name		Description
(J-41810-NI) Refrigerant identifier equipment (R-134a)	 RJIA0197E	For checking refrigerant purity and system contamination
Power tool	 PBIC0190E	Loosening bolts and nuts
(J-44614) Clutch disc holding tool	 WHA230	Clutch disc holding tool

REFRIGERATION SYSTEM

PFP:KA990

Refrigerant Cycle

EJS00576

REFRIGERANT FLOW

The refrigerant flows in the standard pattern, that is, through the compressor, the condenser with liquid tank, through the evaporator, and back to the compressor. The refrigerant evaporation through the evaporator is controlled by an externally equalized expansion valve, located inside the evaporator case.

FREEZE PROTECTION

Under usual operating conditions, when the A/C is switched ON, the compressor runs continuously, and the evaporator pressure, and temperature is controlled by the compressor to prevent freeze up.

Refrigerant System Protection

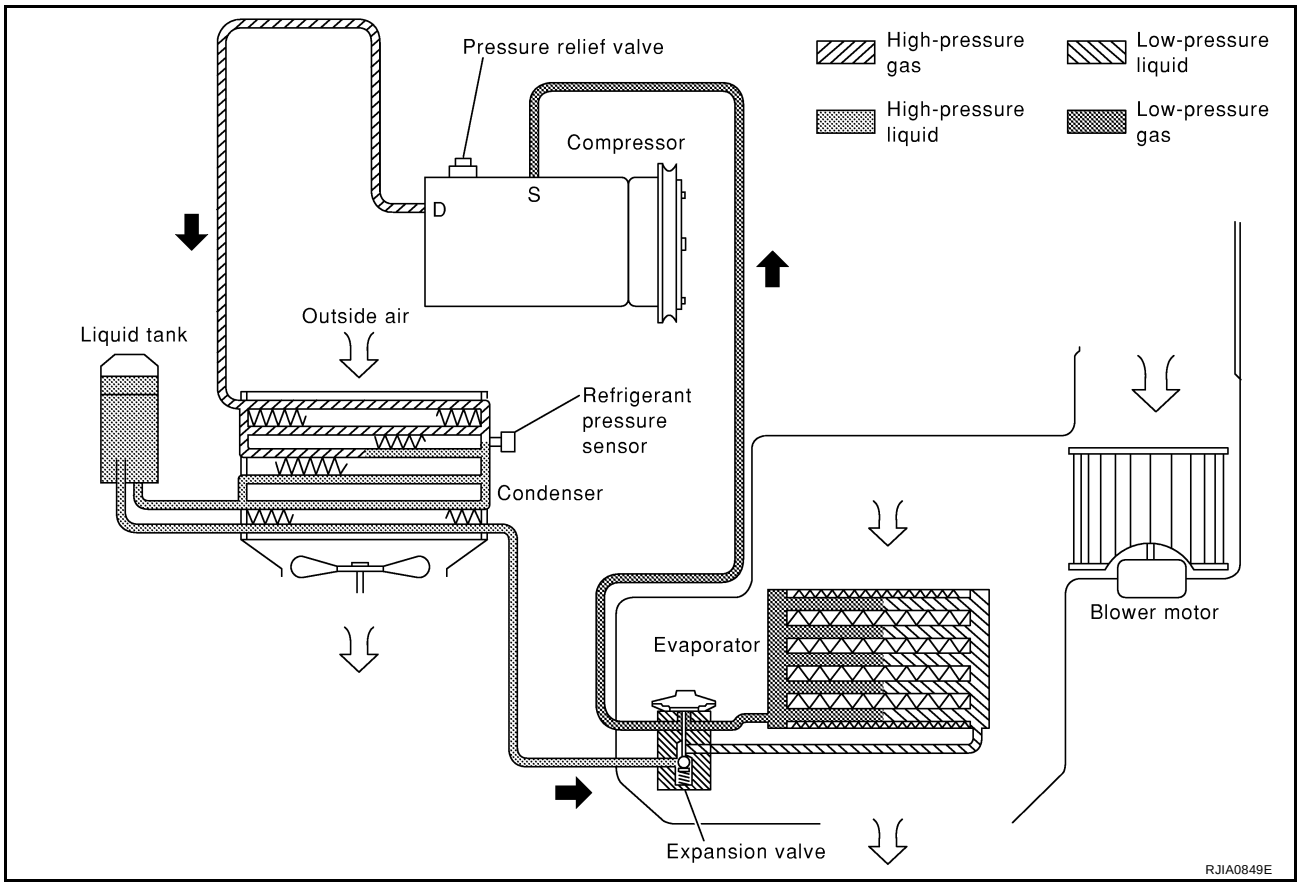
EJS00577

REFRIGERANT PRESSURE SENSOR

The refrigerant system is protected against excessively high or low pressures by the refrigerant pressure sensor, located on the condenser. If the system pressure rises above, or falls below the specifications, the refrigerant pressure sensor detects the pressure inside the refrigerant line and sends the voltage signal to the ECM. ECM makes the A/C relay go OFF and stops the compressor when pressure on the high-pressure side detected by refrigerant pressure sensor is over about 2,746 kPa (27.46 bar, 28.0 kg/cm^2 , 398 psi), or below about 134 kPa (1.34 bar, 1.4 kg/cm^2 , 20 psi).

PRESSURE RELIEF VALVE

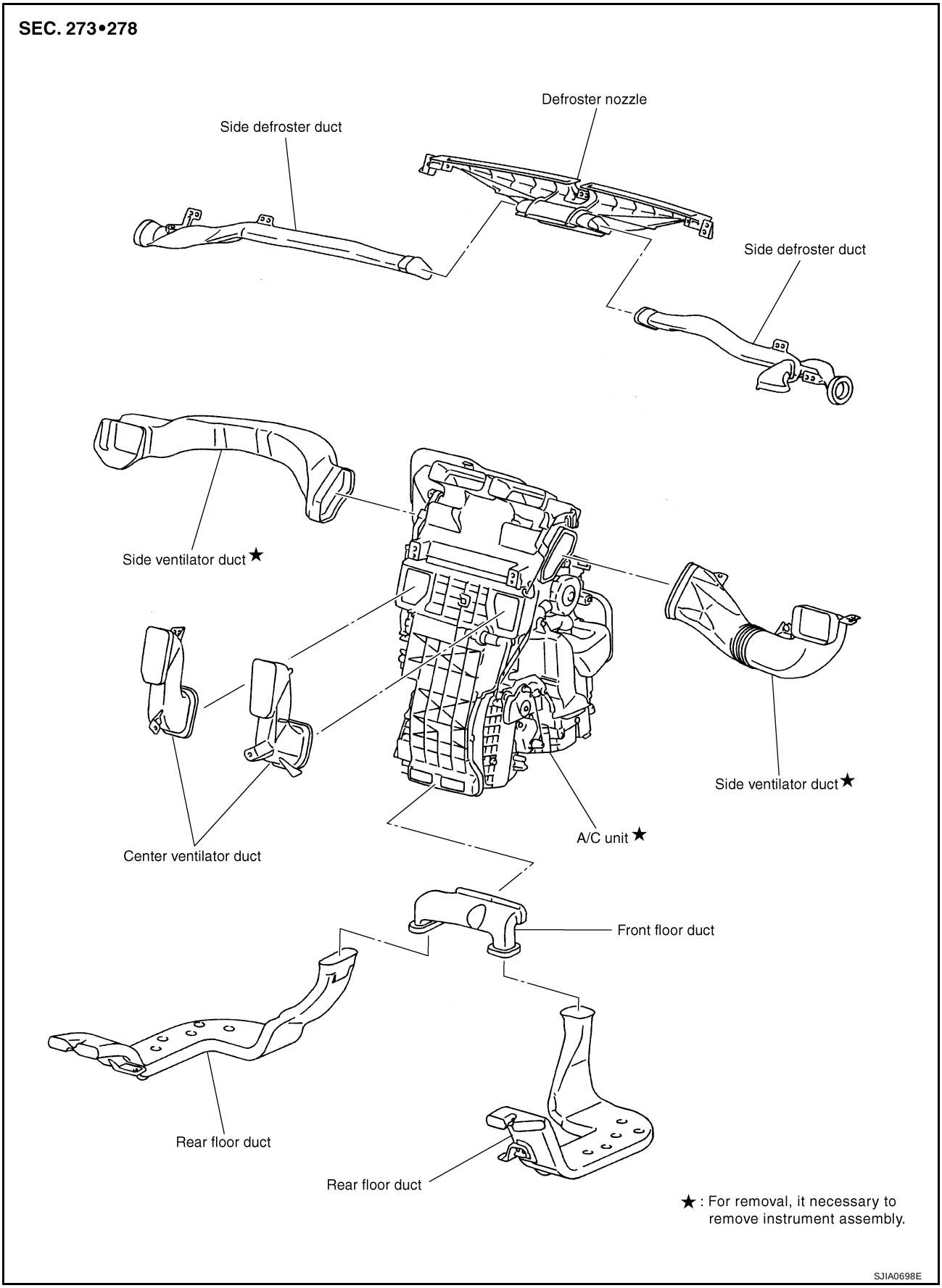
The refrigerant system is also protected by a pressure relief valve, located in the rear head of the compressor. When the pressure of refrigerant in the system increases to an unusual level [more than 3.8 MPa (38 bar, 38.76 kg/cm^2 , 551 psi)], the release port on the pressure relief valve automatically opens and releases refrigerant into the atmosphere.



Component Layout

EJS00578

SEC. 273•278



OIL

PFP:KLG00

Maintenance of Oil Quantity in Compressor

EJS00579

The oil in the compressor circulates through the system with the refrigerant. Add oil to compressor when replacing any component or after a large refrigerant leakage occurred. It is important to maintain the specified amount.
If oil quantity is not maintained properly, the following malfunctions may result:

- Lack of oil: May lead to a seized compressor.
- Excessive oil: Inadequate cooling (thermal exchange interference)

OIL

TYPE 1 Compressor (CR-10)	**: NISSAN A/C System Oil Type R**
TYPE 2 Compressor (CSV511)	**: NISSAN A/C System Oil Type S**

OIL RETURN OPERATION

Adjust the oil quantity according to the test group shown below.

1. CHECK OIL RETURN OPERATION

Can oil return operation be performed?

- A/C system works properly.
- There is no evidence of a large amount of oil leakage.

CAUTION:
If excessive oil leakage is noted, do not perform the oil return operation.

OK or NG

OK >> GO TO 2.
NG >> GO TO 3.

2. PERFORM OIL RETURN OPERATION, PROCEEDING AS FOLLOWS

1. Start engine, and set the following conditions:
   - Engine speed: Idling to 1,200 rpm
   - A/C blower switch: ON
   - Blower speed: Max. position
   - Temp. control: Optional [Set so that intake air temperature is 25° to 30°C (77° to 86° F)].
   - Intake position: Recirculation (REC)
2. Perform oil return operation for about 10 minutes.
3. Stop engine.

>> GO TO 3.

3. CHECK REPLACEMENT PART

Should the compressor be replaced?

YES >> GO TO MTC-19, "OIL ADJUSTING PROCEDURE FOR COMPRESSOR REPLACEMENT" .
NO >> GO TO MTC-19, "OIL ADJUSTING PROCEDURE FOR COMPONENTS REPLACEMENT EXCEPT COMPRESSOR" .

OIL ADJUSTING PROCEDURE FOR COMPONENTS REPLACEMENT EXCEPT COMPRESSOR

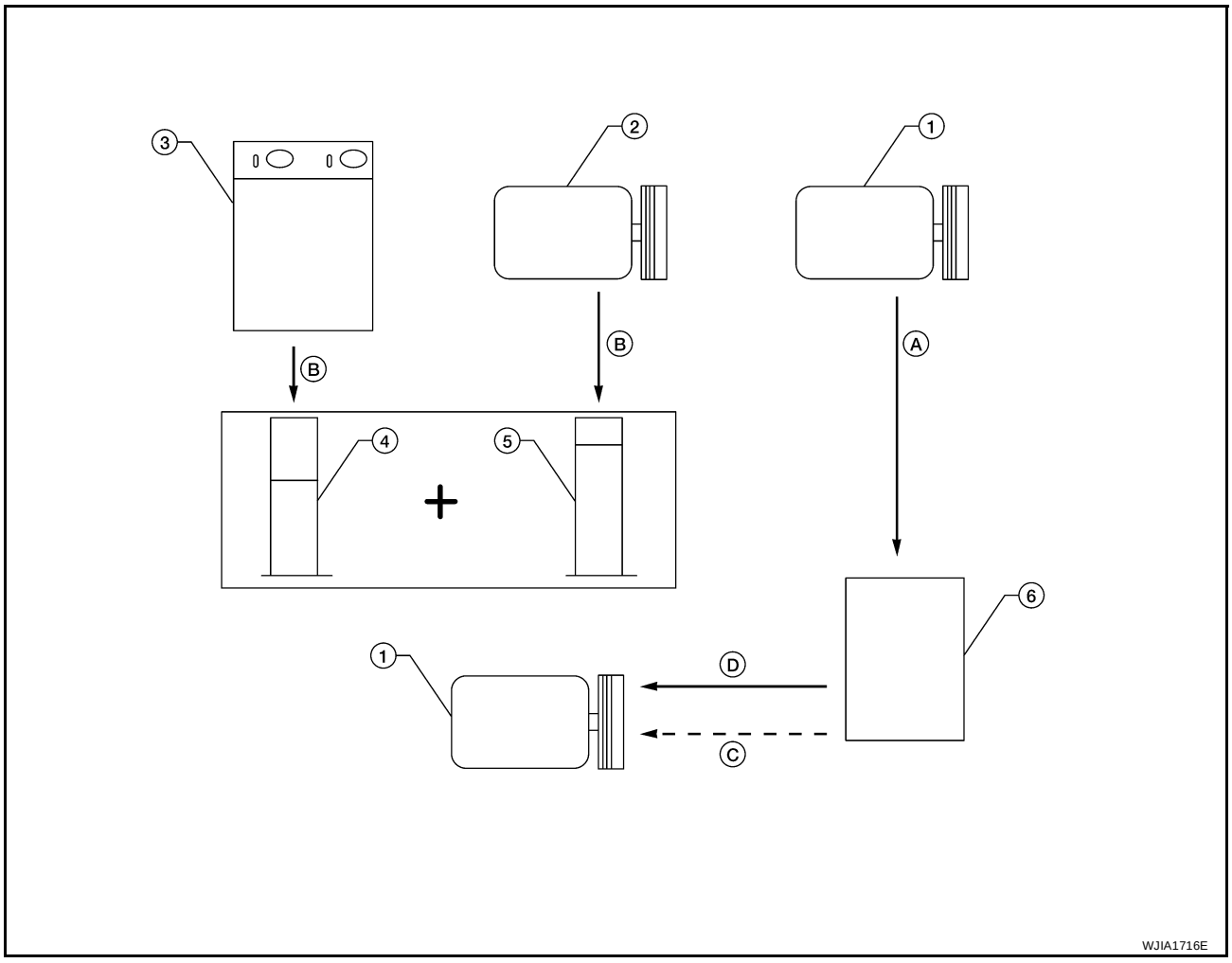
After replacing any of the following major components, add the correct amount of oil to the system.

Amount Of Oil To Be Added

Part replaced	Oil to be added to system	Remarks
	Amount of oil m ℓ (US fl oz, Imp fl oz)	
Evaporator	35 (1.2, 1.2)	-
Condenser	15 (0.5, 0.5)	-
Liquid tank	5 (0.2, 0.2)	-
In case of refrigerant leak	30 (1.0, 1.1)	Large leak
	None *1	Small leak *1

*1: If refrigerant leak is small, no addition of oil is needed.

OIL ADJUSTING PROCEDURE FOR COMPRESSOR REPLACEMENT



1. New compressor
2. Old compressor
3. Recovery/recycling equipment
4. Measuring cup X
5. Measuring cup Y
6. New oil
A. Drain oil from the new compressor into clean container
B. Record amount of oil recovered
C. Add an additional 5 m ℓ (0.2 US fl oz, 0.2 Imp fl oz) of new oil when replacing liquid tank
D. Install new oil equal to recorded amounts in measuring cups X plus Y

1. Before connecting recovery/recycling equipment to vehicle, check recovery/recycling equipment gauges. No refrigerant pressure should be displayed. If NG, recover refrigerant from equipment lines.

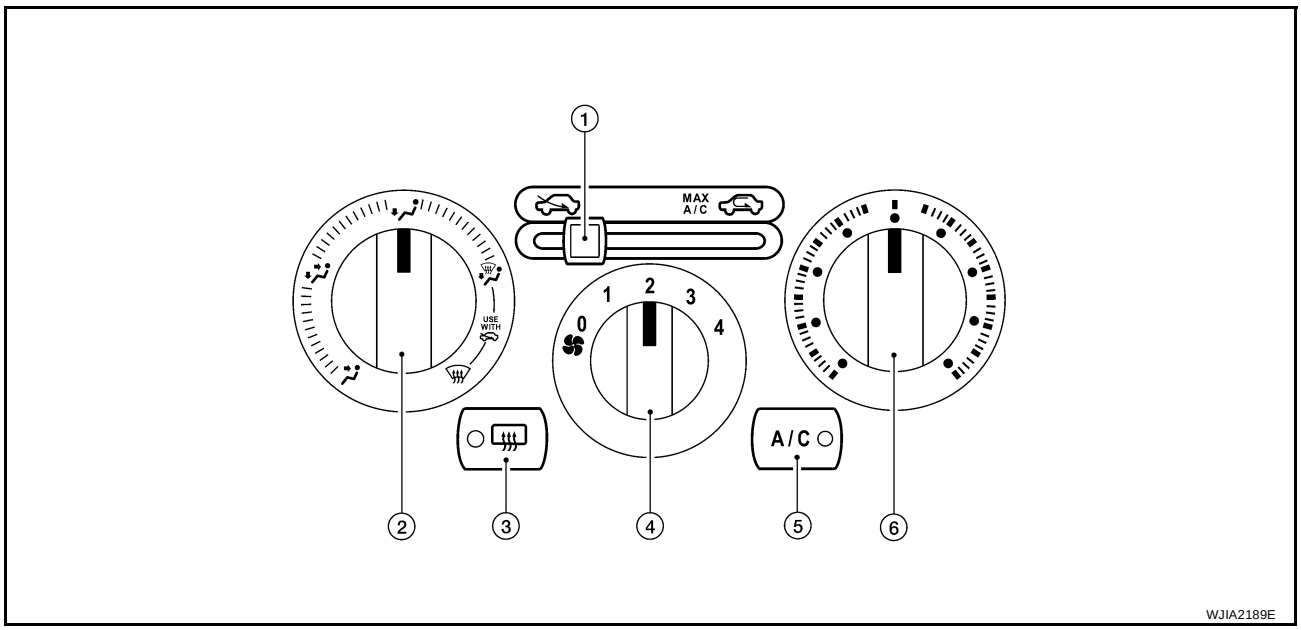
2. Discharge refrigerant into the refrigerant recovery/recycling equipment. Measure oil discharged into the recovery/recycling equipment.
3. Drain the oil from the old (removed) compressor into a graduated container and recover the amount of oil drained.
4. Drain the oil from the new compressor into a separate, clean container.
5. Measure an amount of new oil installed equal to amount drained from old compressor. Add this oil to new compressor through the suction port opening.
6. Measure an amount of new oil equal to the amount recovered during discharging. Add this oil to new compressor through the suction port opening.
7. If the liquid tank also needs to be replaced, add another 5 mℓ (0.2 US fl oz, 0.2 Imp fl oz.) of oil at this time.
   Add this 5 mℓ (0.2 US fl oz, 0.2 Imp fl oz.) of oil only when replacing the compressor.

AIR CONDITIONER CONTROL

PFP:27500

Control Operation

EJS0057A



1. Intake door lever
2. Mode door control dial
3. Rear window defogger switch
4. Blower control dial
5. A/C switch (if equipped)
6. Temperature control dial

BLOWER CONTROL DIAL

This dial turns the fan ON and OFF, and controls fan speed.

TEMPERATURE CONTROL DIAL

This dial allows you to adjust the temperature of the discharge air.

MODE DOOR CONTROL DIAL

This dial controls the outlet air flow.

INTAKE DOOR LEVER

- Recirculation (REC) position: Interior air is recirculated inside the vehicle.
- Fresh (FRE) position: Outside air is drawn into the passenger compartment.

REAR WINDOW DEFOGGER SWITCH

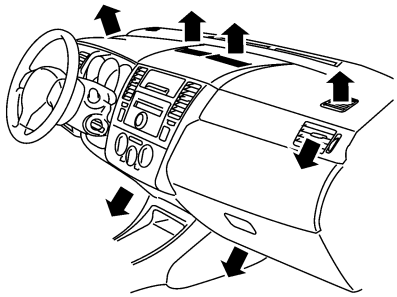
When illumination is ON, rear window is defogged.

A/C SWITCH (IF EQUIPPED)

The A/C switch controls the air conditioner system. When the switch is depressed with the fan ON, the compressor will turn ON. The indicator lamp also illuminates.

Discharge Air Flow

EJS00591



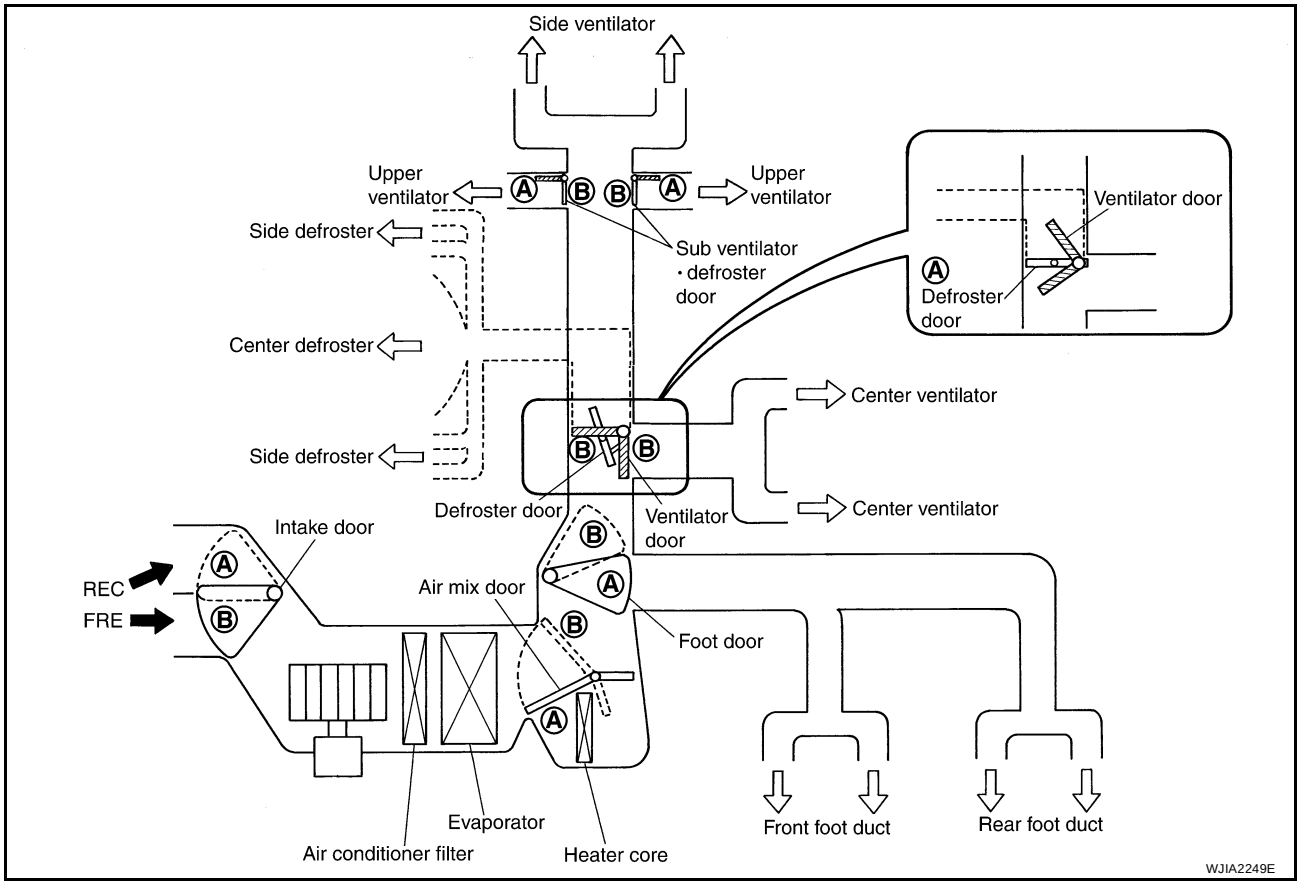
WJIA2190E

Mode door position	Air outlet/distribution		
	Vent	Foot	Defroster
	100%	—	—
	56%	44%	—
	16%	64%	20%
	16%	53%	31%
	17%	—	83%
Airflow always present at driver and passenger side demisters			

System Description

EJS0057C

SWITCHES AND THEIR CONTROL FUNCTION



Door \ Mode control dial	MODE Position					Intake door lever		Temperature control dial		
	VENT	B/L	FOOT	D/F	DEF	FRE	REC	Full cold	← →	Full hot
Ventilator door	Ⓐ	Ⓐ	Ⓑ *1	Ⓑ *1	Ⓑ *1	—		—		
Sub ventilator door	Ⓐ	Ⓐ	Ⓑ	Ⓑ	Ⓑ	—		—		
Defroster door	Ⓐ	Ⓐ	*2 Ⓐ ~ Ⓑ	*3 Ⓐ ~ Ⓑ	Ⓑ	—		—		
Foot door	Ⓐ	Ⓐ ~ Ⓑ	Ⓑ *1	Ⓐ ~ Ⓑ	Ⓐ	—		—		
Intake door	—					Ⓑ	Ⓐ	—		
Air mix door	—					—		Ⓐ	Ⓐ ~ Ⓑ	Ⓑ

*1 In the Ⓑ position, the ventilator and foot doors are not completely closed.
*2 In the Ⓐ ~ Ⓑ position, the foot door is 60% open.
*3 In the Ⓐ ~ Ⓑ position, the defroster is 75% open.

WJIA2234E

CAN Communication System Description

EJS0057D

Refer to LAN-4, "SYSTEM DESCRIPTION" .

TROUBLE DIAGNOSIS

PFP:00004

CONSULT-II Function (BCM)

EJS0057E

CONSULT-II can display each diagnostic item using the diagnostic test modes shown following.

BCM diagnostic test item	Diagnostic mode	Description
Inspection by part	WORK SUPPORT	Supports inspections and adjustments. Commands are transmitted to the BCM for setting the status suitable for required operation, input/output signals are received from the BCM and received data is displayed.
	DATA MONITOR	Displays BCM input/output data in real time.
	ACTIVE TEST	Operation of electrical loads can be checked by sending drive signal to them.
	SELF-DIAG RESULTS	Displays BCM self-diagnosis results.
	CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.
	ECU PART NUMBER	BCM part number can be read.
	CONFIGURATION	Performs BCM configuration read/write functions.

CONSULT-II START PROCEDURE

Refer to GI-38, "CONSULT-II Start Procedure" .

DATA MONITOR

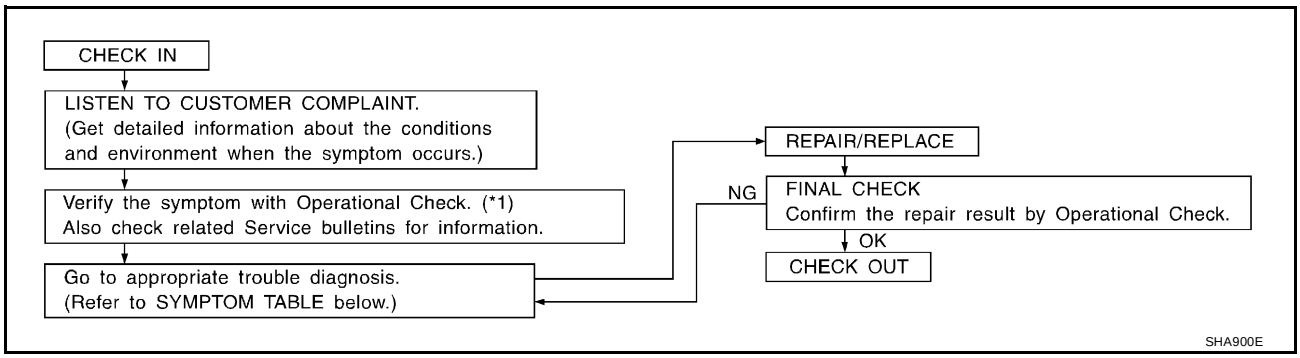
Display Item List

Monitor item name “operation or unit”		Contents
IGN ON SW	“ON/OFF”	Displays “IGN Position (ON)/OFF, ACC Position (OFF)” status as judged from ignition switch signal through the CAN communication.
FAN ON SIG	“ON/OFF”	Displays “FAN (ON)/FAN (OFF)” status as judged from blower fan motor switch signal through CAN communication.
AIR COND SW	“ON/OFF”	Displays “COMP (ON)/COMP (OFF)” status as judged from air conditioner switch signal through the CAN communication.

How to Perform Trouble Diagnosis for Quick and Accurate Repair

EJS0057F

WORK FLOW



*1 MTC-33, "Operational Check"

SYMPTOM TABLE

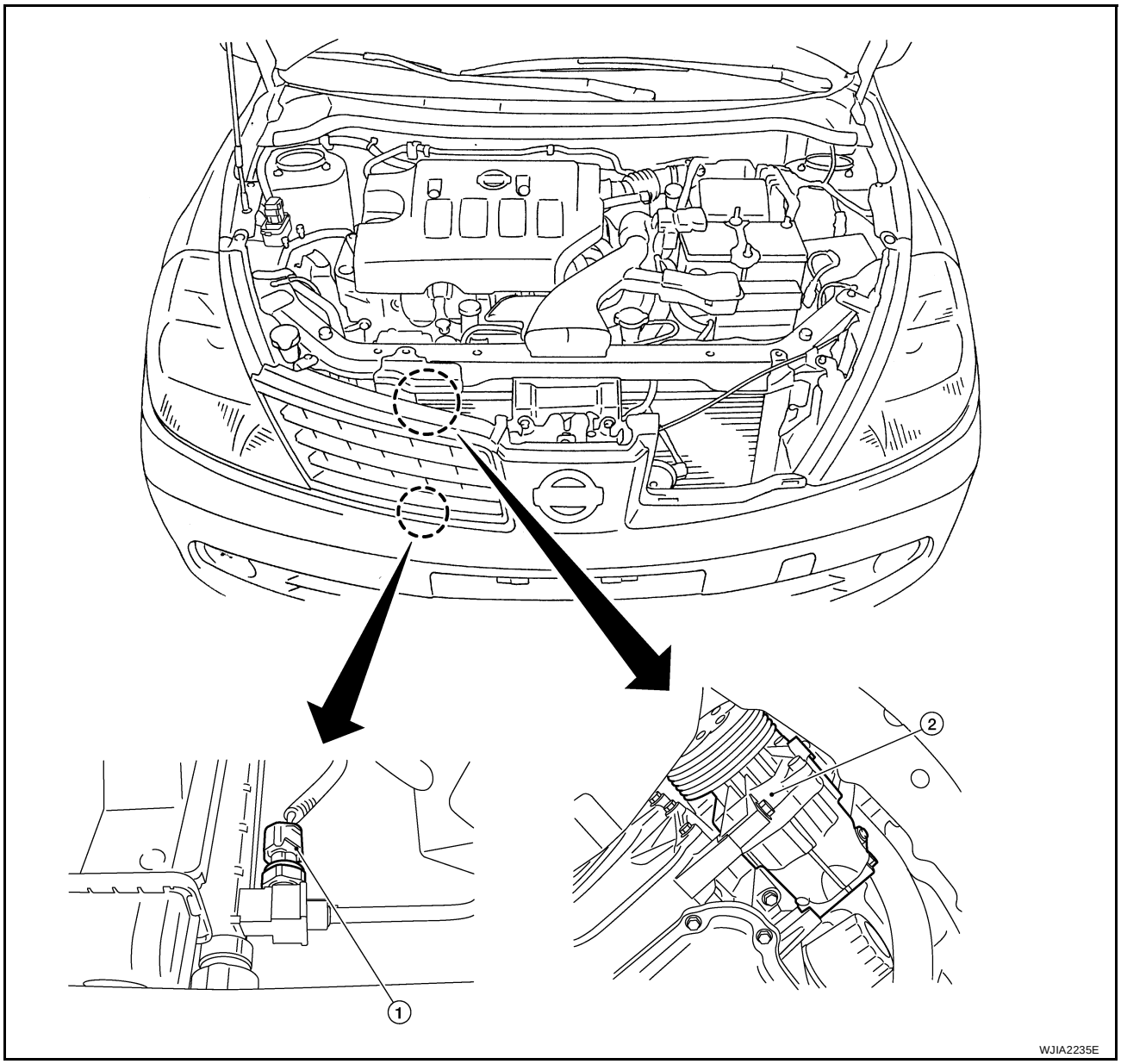
Symptom	Reference Page	
Air outlet does not change.	Go to Trouble Diagnosis Procedure for Mode Door.	MTC-34
Discharge air temperature does not change.	Go to Trouble Diagnosis Procedure for Air Mix Door.	MTC-35
Intake door does not change.	Go to Trouble Diagnosis Procedure for Intake Door.	MTC-36
Blower motor operation is malfunctioning.	Go to Trouble Diagnosis Procedure for Blower Motor.	MTC-37
Magnet clutch does not engage in A/C, defrost/foot, or defrost mode.	Go to Trouble Diagnosis Procedure for Magnet Clutch.	MTC-42

Symptom	Reference Page	
Insufficient cooling	Go to Trouble Diagnosis Procedure for Insufficient Cooling.	MTC-51
Insufficient heating	Go to Trouble Diagnosis Procedure for Insufficient Heating.	MTC-59
Noise	Go to Trouble Diagnosis Procedure for Noise.	MTC-61

Component Parts and Harness Connector Location

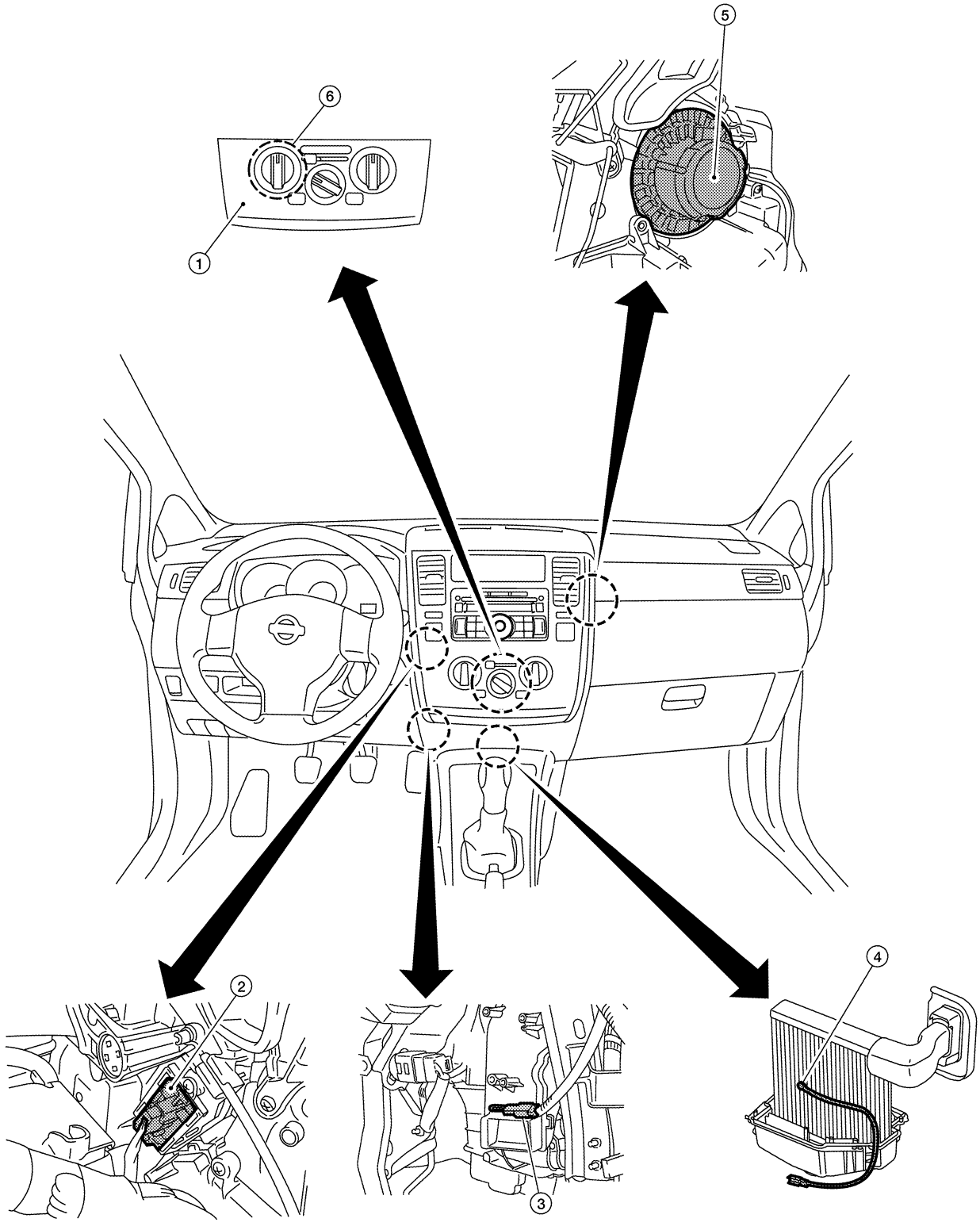
EJS0057G

ENGINE COMPARTMENT



1. Refrigerant pressure sensor E17
2. A/C compressor F3

PASSENGER COMPARTMENT

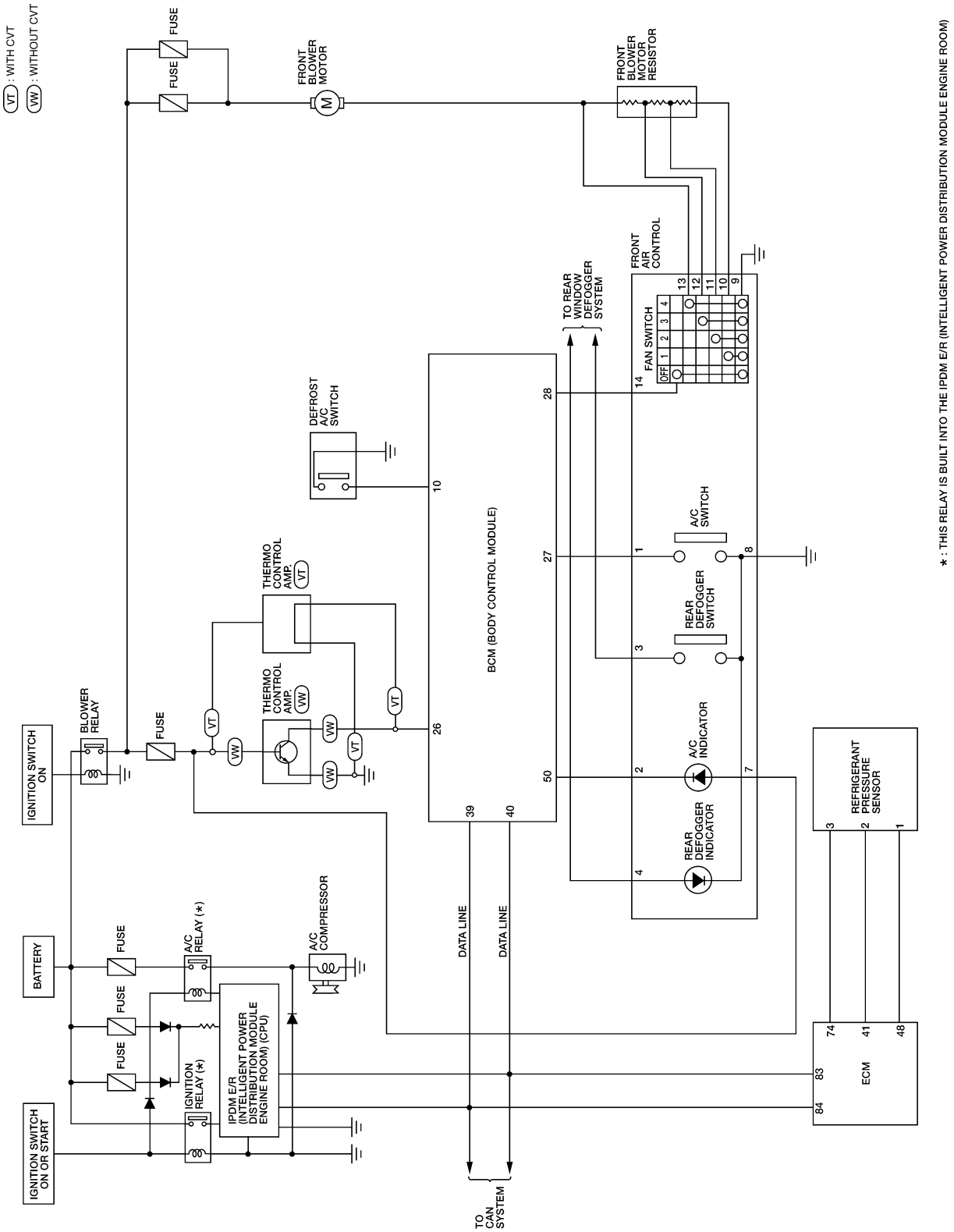


WJIA2302E

1. Front air control M33
2. Front blower motor resistor M151
3. Thermo control amp. jumper connector (with CVT)
4. Thermo control amp. M42 (without CVT)
5. Front blower motor M62
6. Defrost A/C switch M41 (located on back side of front air control)

Schematic

EJS0057H

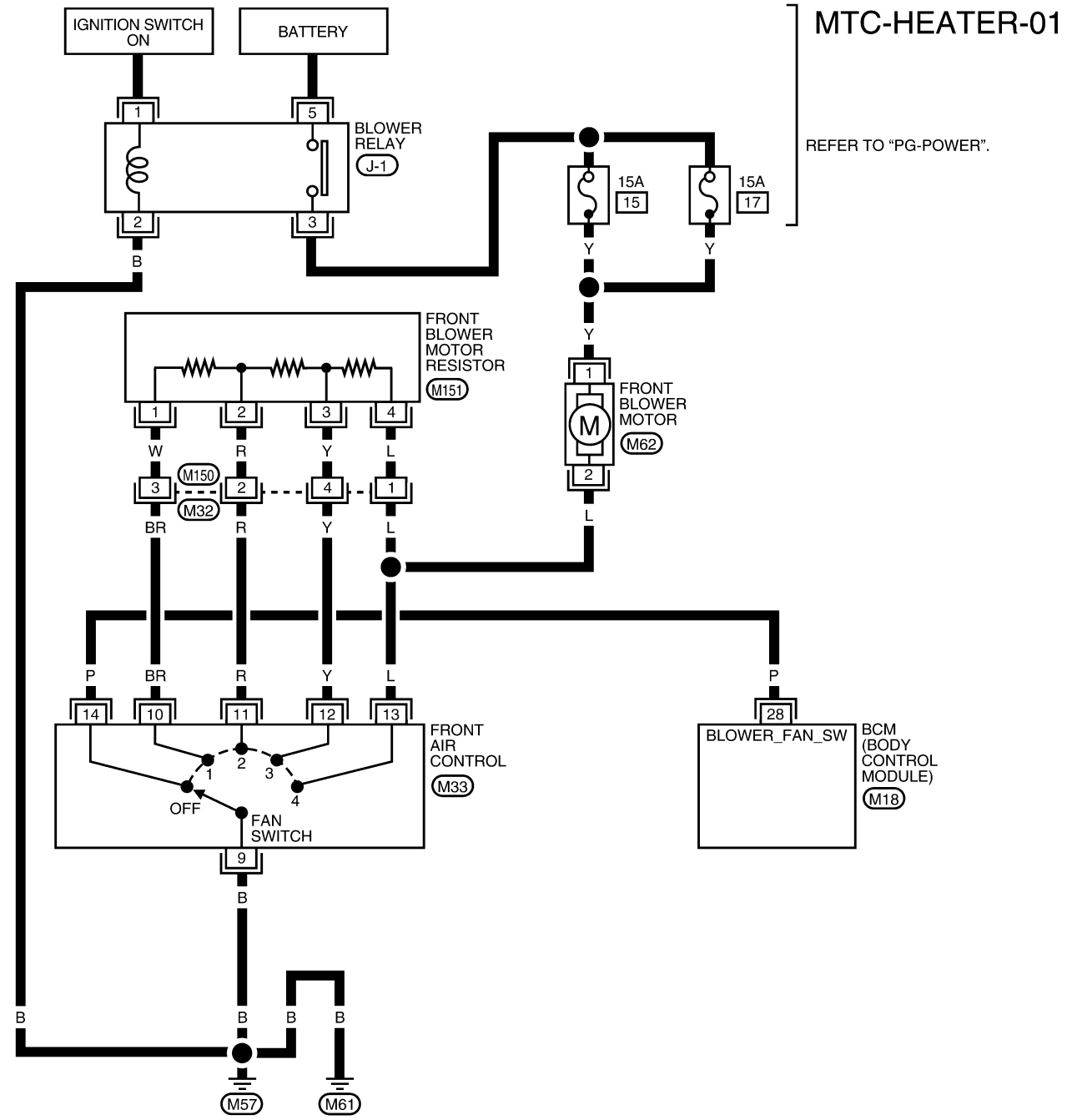


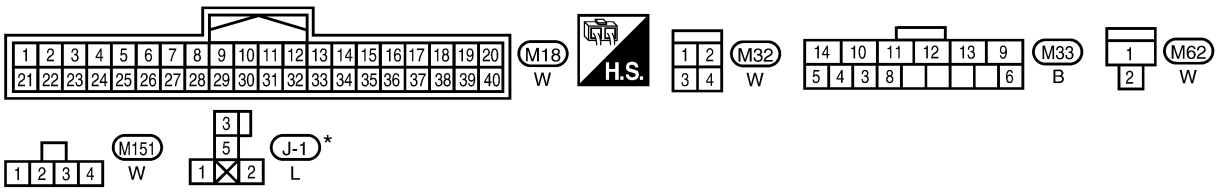
WJWA0487E

Wiring Diagram — Heater —

EJS0057I

WITHOUT A/C



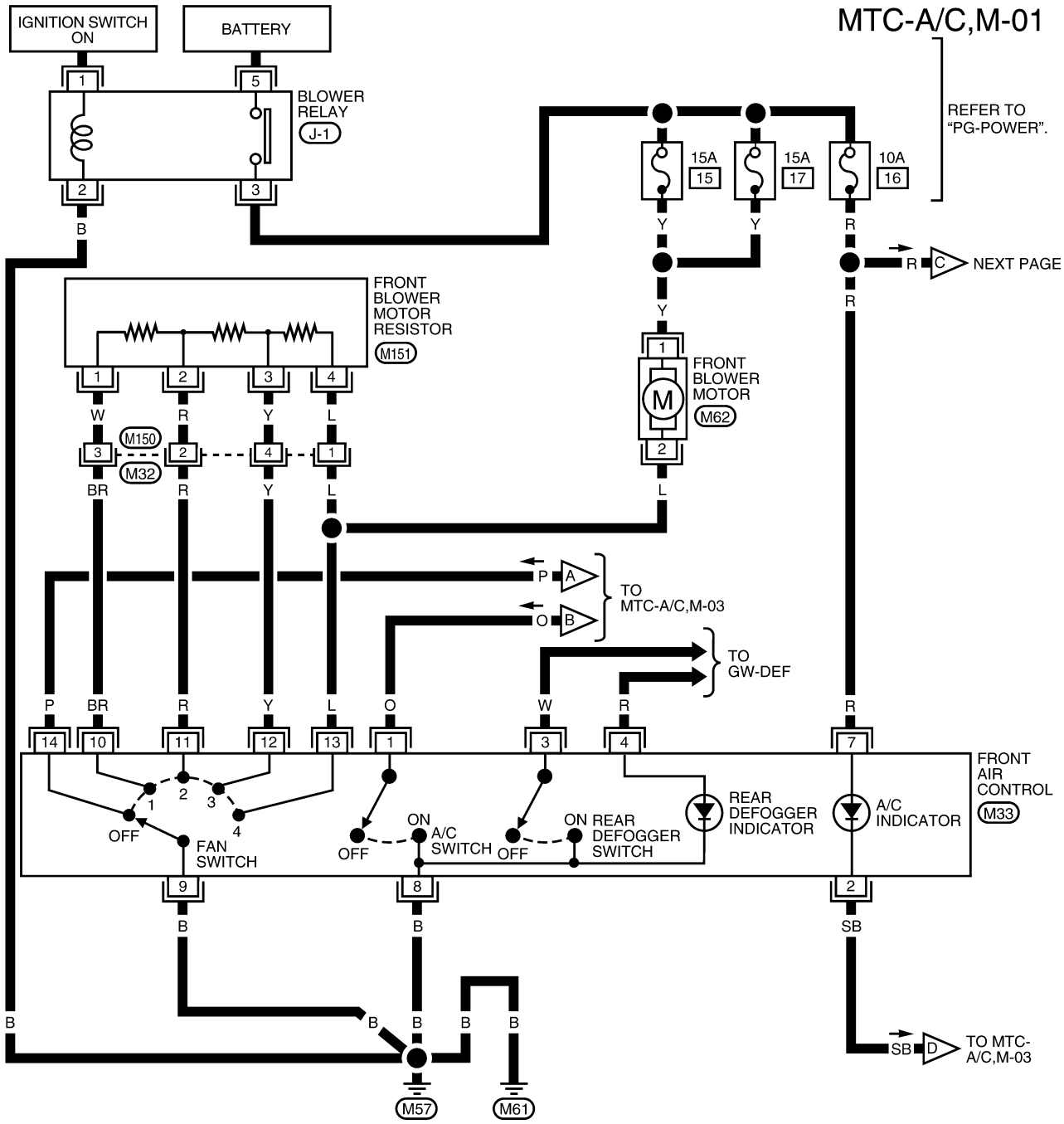


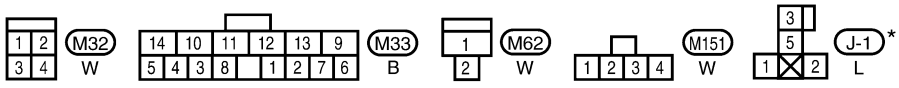
*: THIS CONNECTOR IS NOT SHOWN IN “HARNESS LAYOUT” OF PG SECTION.

WJWA0485E

Wiring Diagram — A/C,M —

EJS00595



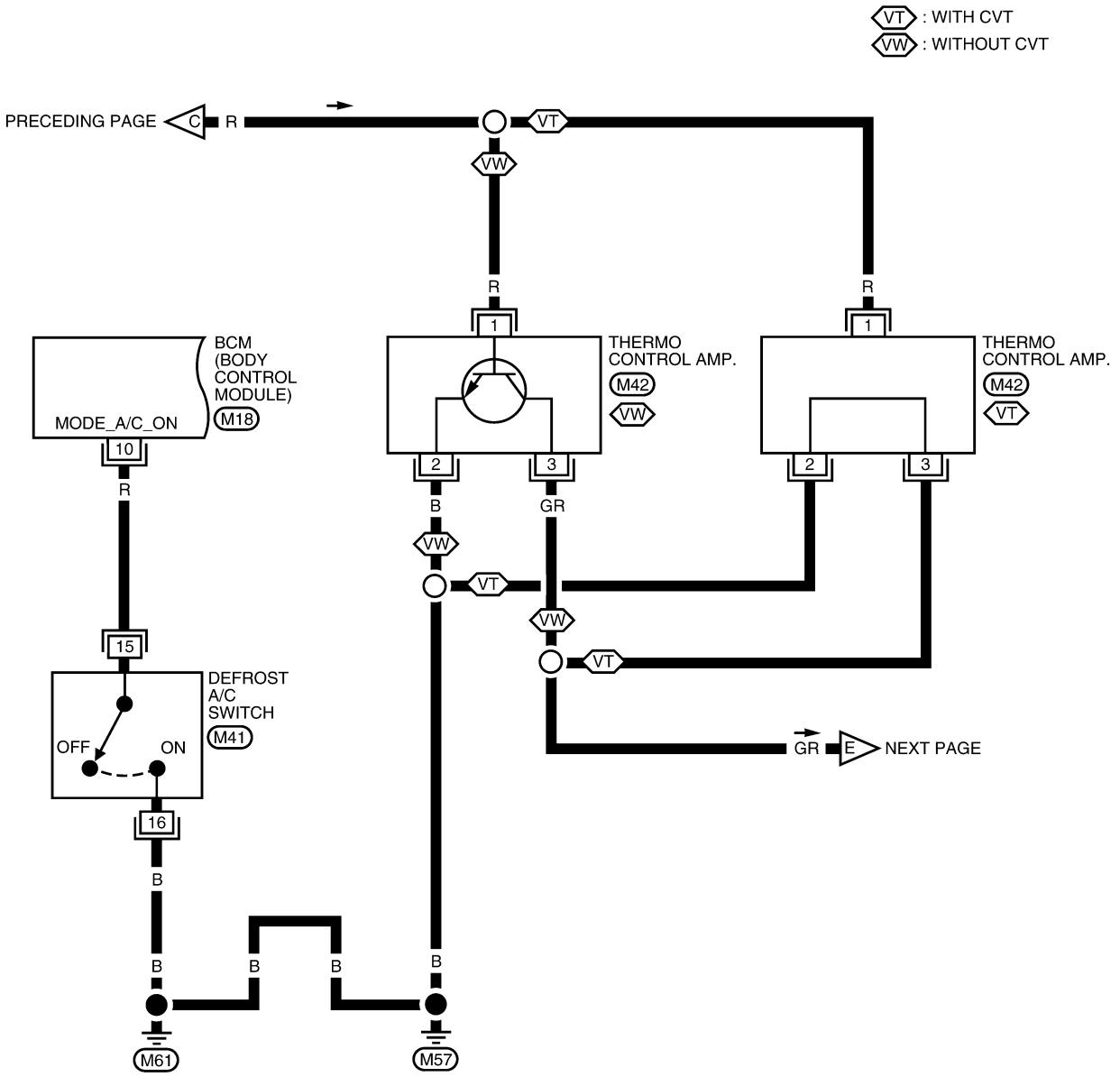


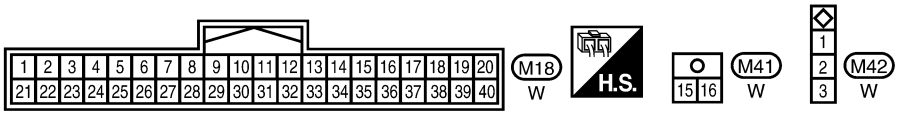
REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT" OF PG SECTION.

WJWA0484E

MTC-A/C,M-02



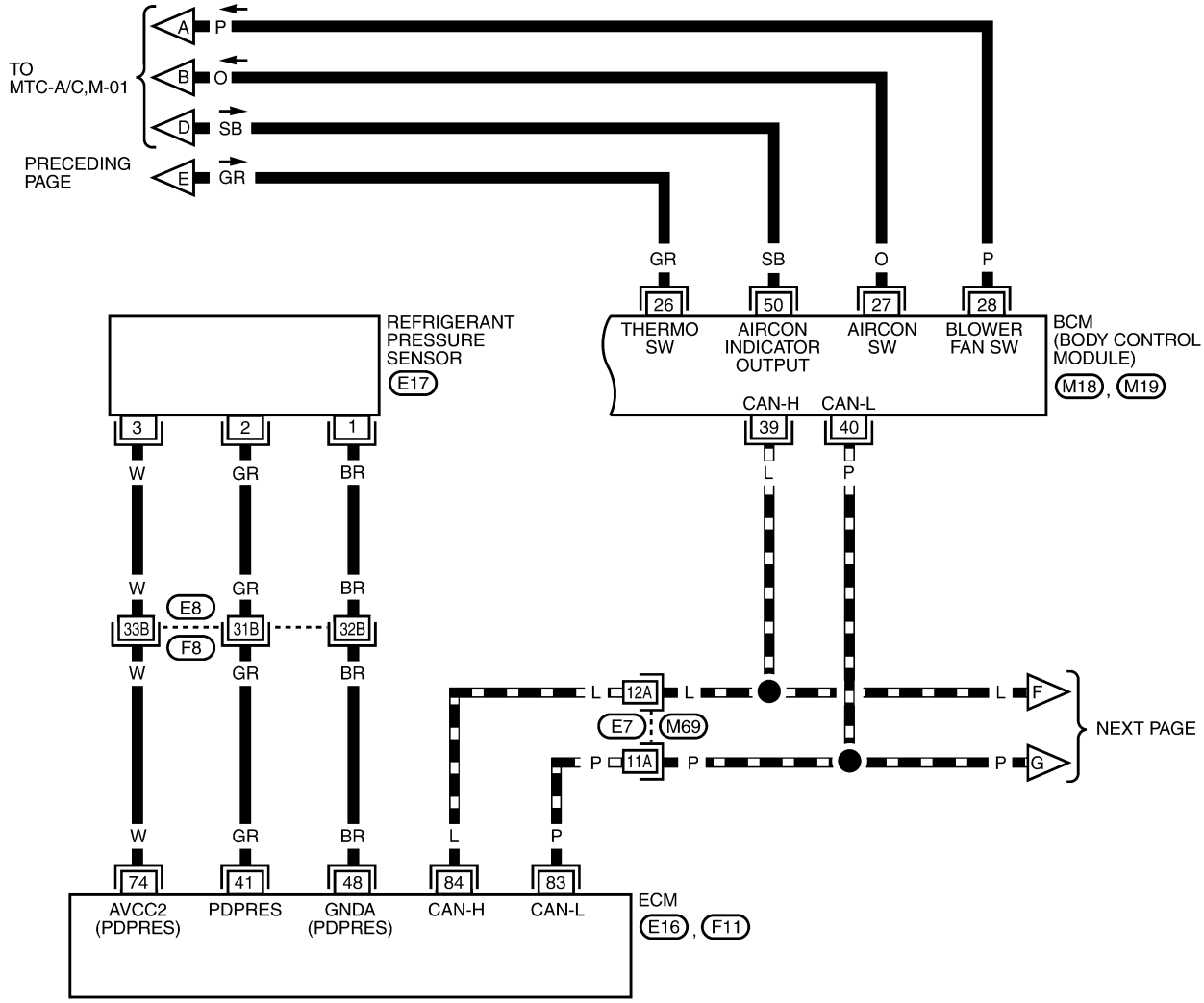


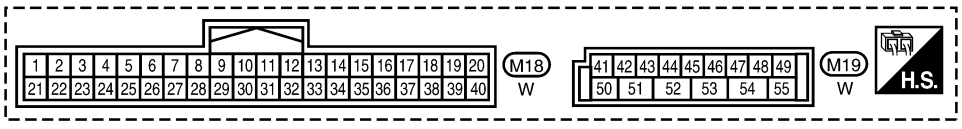
REFER TO THE FOLLOWING.
M31 - SUPER MULTIPLE JUNCTION (SMJ)

WJWA0486E

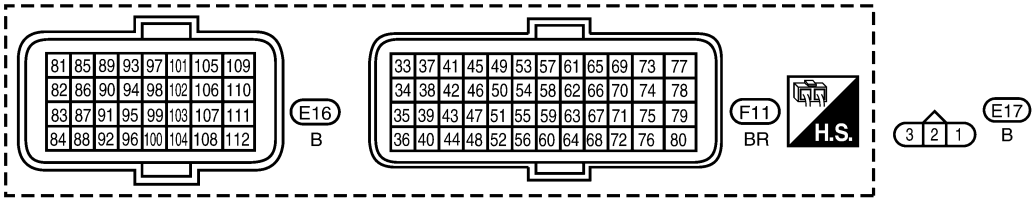
MTC-A/C,M-03

: DATA LINE



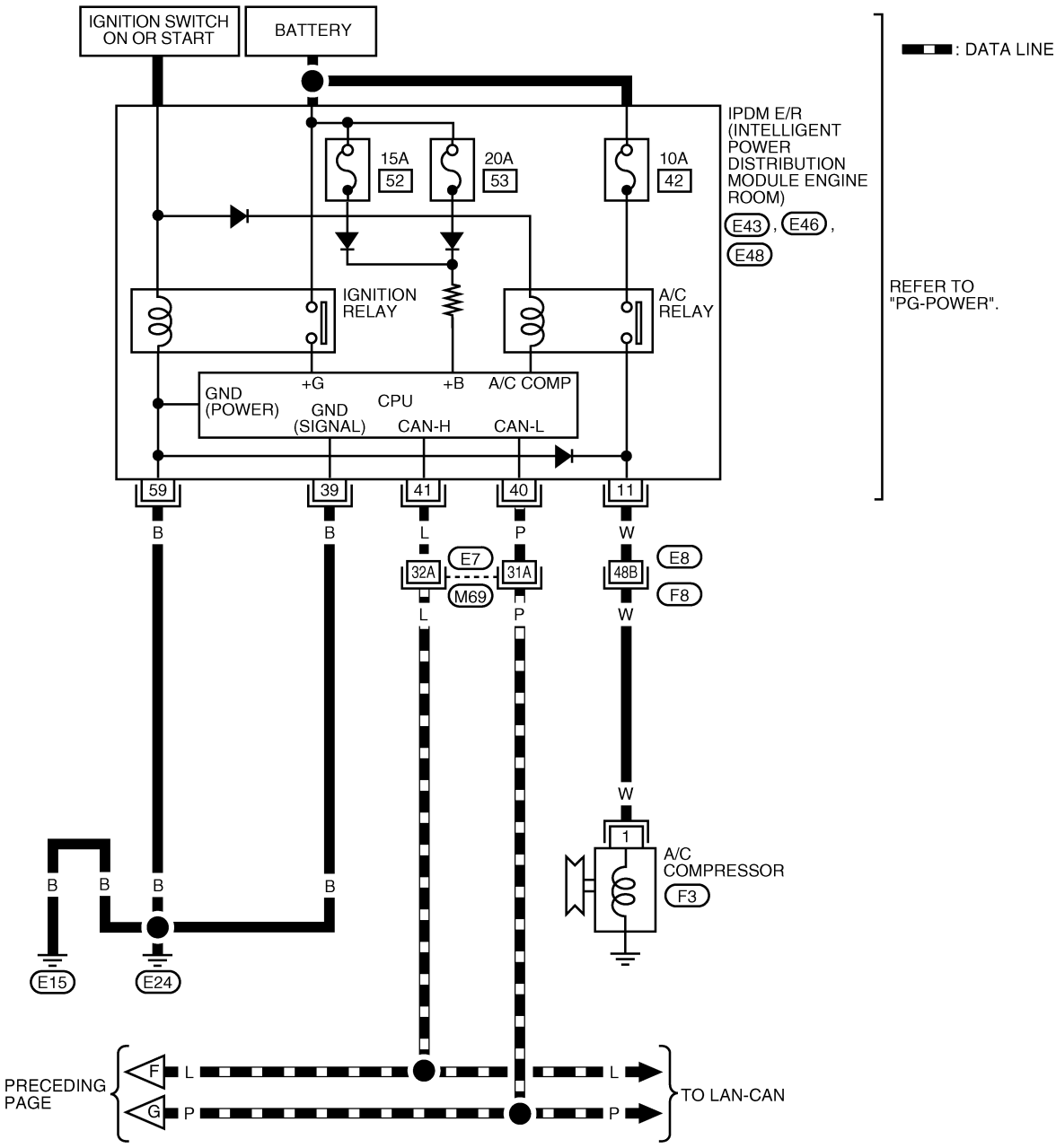


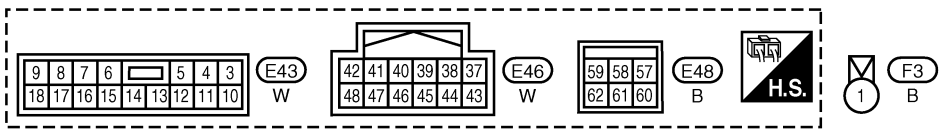
REFER TO THE FOLLOWING
M69, F8 - SUPER MULTIPLE JUNCTION (SMJ)



WJWA0488E

MTC-A/C,M-04





REFER TO THE FOLLOWING
M69 , F8 - SUPER MULTIPLE JUNCTION (SMJ)

LJWA0021E

Operational Check

EJS0057J

The purpose of the operational check is to confirm that the system operates properly.

Conditions : Engine running at normal operating temperature

CHECKING BLOWER

1. Turn blower control dial clockwise to "1" position. Blower should operate on low speed.
2. Turn blower control dial clockwise to "2" position, and continue checking blower speed until all speeds are checked.
3. Leave blower on Maximum speed.

If NG, go to trouble diagnosis procedure for MTC-37, "Blower Motor Circuit" .
If OK, continue the check.

CHECKING DISCHARGE AIR

1. Turn mode door control dial to each position.
2. Confirm that discharge air comes out according to the air distribution table. Refer to MTC-22, "Discharge Air Flow" .

If NG, go to trouble diagnosis procedure for MTC-34, "Mode Door" .
If OK, continue the check.

CHECKING RECIRCULATION

1. Set intake door lever to REC position.
2. Operate intake door lever to FRE position.
3. Listen for intake door position change (you should hear blower sound change slightly).

If NG, go to trouble diagnosis procedure for MTC-36, "Intake Door" .
If OK, continue the check.

CHECKING TEMPERATURE DECREASE

1. Turn temperature control dial counterclockwise to full cold position.
2. Check for cold air at discharge air outlets.

If NG, go to trouble diagnosis procedure for MTC-51, "Insufficient Cooling" .
If OK, continue the check.

CHECKING TEMPERATURE INCREASE

1. Turn temperature control dial clockwise to full hot position.
2. Check for hot air at discharge air outlets.

If NG, go to trouble diagnosis procedure for MTC-59, "Insufficient Heating" .
If OK, continue the check.

CHECKING A/C SWITCH (IF EQUIPPED)

1. Turn fan control dial to the desired (1 to 4 speed) position.
2. Press A/C switch.
3. A/C switch indicator will turn ON.
   - Confirm that the compressor clutch engages (sound or visual inspection).

If NG, go to trouble diagnosis procedure for MTC-42, "Magnet Clutch Circuit (If Equipped)" .
If OK, continue the check.

CHECKING DEFROST A/C SWITCH (IF EQUIPPED)

1. Turn fan control dial to the desired (1 to 4 speed) position.
2. Turn mode dial to ( ) DEF.
3. Confirm that the compressor clutch engages (sound or visual inspection).

If NG, go to trouble diagnosis procedure for MTC-42, "Magnet Clutch Circuit (If Equipped)" .
If all operational checks are OK (symptom cannot be duplicated), go to MTC-24, "How to Perform Trouble Diagnosis for Quick and Accurate Repair" and perform tests as outlined. If symptom appears, refer to MTC-24, "SYMPTOM TABLE" and perform applicable trouble diagnosis procedures.

Mode Door

EJS0057K

SYMPTOM: Air outlet does not change.

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATIONAL CHECK - DISCHARGE AIR

1. Rotate the mode door control dial to each position.
2. Confirm that discharge air comes out according to the air distribution table. Refer to MTC-22, "Discharge Air Flow" .

   NOTE:
   Confirm that the compressor clutch (with A/C) is engaged (visual inspection) when DEF ( ) or D/F ( ) is selected.

Can a symptom be duplicated?

YES >> GO TO 3.
NO >> GO TO 2.

2. PERFORM COMPLETE OPERATIONAL CHECK

Perform a complete operational check and check for any symptoms. Refer to MTC-33, "Operational Check" .

Can a symptom be duplicated?

YES >> Refer to MTC-24, "SYMPTOM TABLE" .
NO >> System OK.

3. CHECK FOR SERVICE BULLETINS

Check for any service bulletins.

>> GO TO 4.

4. CHECK MODE DOOR CONTROL CABLE

Check and verify mode door mechanism for smooth operation in each mode.

OK or NG

OK >> If the symptom still exists, perform a complete operational check and check for other symptoms. Refer to MTC-33, "Operational Check" . If other symptoms exist, refer to MTC-24, "SYMPTOM TABLE" .
NG >> Repair or adjust mode door control cable. Refer to MTC-72, "Mode Door Cable Adjustment" .

Air Mix Door

EJS0057L

SYMPTOM: Air mix door does not change.

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATIONAL CHECK - TEMPERATURE INCREASE

1. Turn the temperature control dial clockwise until maximum heat.
2. Check for hot air at discharge air outlets.

>> GO TO 2.

2. CONFIRM SYMPTOM BY PERFORMING OPERATIONAL CHECK - TEMPERATURE DECREASE

1. Turn the temperature control dial counterclockwise until maximum cold.
2. Check for cold air at discharge air outlets.

Can a symptom be duplicated?

YES >> GO TO 4.
NO >> GO TO 3.

3. PERFORM COMPLETE OPERATIONAL CHECK

Perform a complete operational check and check for any symptoms. Refer to MTC-33, "Operational Check" .

Can a symptom be duplicated?

YES >> Refer to MTC-24, "SYMPTOM TABLE" .
NO >> System OK.

4. CHECK FOR SERVICE BULLETINS

Check for any service bulletins.

>> GO TO 5.

5. CHECK AIR MIX DOOR CONTROL LINKAGE

Check and verify air mix door mechanism for smooth operation.

OK or NG

OK >> If the symptom still exists, perform a complete operational check. Refer to MTC-33, "Operational Check" If other symptoms exist, refer to MTC-24, "SYMPTOM TABLE" .
NG >> Repair or adjust air mix door control linkage. Refer to MTC-71, "Air Mix Door Cable Adjustment" .

Intake Door

EJS0057M

SYMPTOM:

- Intake door does not change.

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATIONAL CHECK - REC ( )

1. Slide the intake door lever to the REC ( ) position.
2. Turn the blower motor to maximum speed.
3. Slide the intake door lever to the FRE position.
4. Listen for intake door position change (you should hear blower sound change slightly).

Can a symptom be duplicated?

YES >> GO TO 3.
NO >> GO TO 2.

2. PERFORM COMPLETE OPERATIONAL CHECK

Perform a complete operational check and check for any symptoms. Refer to MTC-33, "Operational Check" .

Can a symptom be duplicated?

YES >> Refer to MTC-24, "SYMPTOM TABLE" .
NO >> System OK.

3. CHECK FOR SERVICE BULLETINS

Check for any service bulletins.

>> GO TO 4.

4. CHECK INTAKE DOOR CONTROL LINKAGE

Check intake door control linkage mechanism for smooth operation.

OK or NG

OK >> If the symptom still exists, perform a complete operational check. Refer to MTC-33, "Operational Check" . If other symptoms exist, refer to MTC-24, "SYMPTOM TABLE" .
NG >> Repair or adjust control linkage. Refer to MTC-70, "Intake Door Cable Adjustment" .

Blower Motor Circuit

EJS0057N

SYMPTOM: Front blower motor operation is malfunctioning.

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATIONAL CHECK - FRONT BLOWER

1. Turn blower control dial to "1" position. Blower should operate on low speed.
2. Turn the blower control dial to "2" position, and continue checking blower speed until all speeds are checked.

Can the symptom be duplicated?

YES >> GO TO 3.
NO >> GO TO 2.

2. PERFORM COMPLETE OPERATIONAL CHECK

Perform a complete operational check and check for any symptoms. Refer to MTC-33, "Operational Check" .

Can a symptom be duplicated?

YES >> Refer to MTC-24, "SYMPTOM TABLE" .
NO >> System OK.

3. CHECK FOR SERVICE BULLETINS

Check for any service bulletins.

>> GO TO 4.

4. CHECK FRONT BLOWER MOTOR CIRCUIT

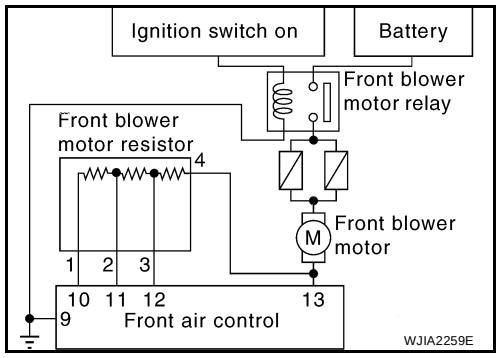
Check front blower motor circuit. Refer to MTC-38, "DIAGNOSTIC PROCEDURE FOR FRONT BLOWER MOTOR" .

OK or NG?

OK >> If the symptom still exists, perform a complete operational check. Refer to MTC-33, "Operational Check" . If other symptoms exist, refer to MTC-24, "SYMPTOM TABLE" .
NG >> Repair as necessary.

DIAGNOSTIC PROCEDURE FOR FRONT BLOWER MOTOR

SYMPTOM: Blower motor operation is malfunctioning.



1. CHECK FRONT BLOWER MOTOR OPERATION

1. Turn ignition switch ON.
2. Check front blower motor operation at each fan speed.

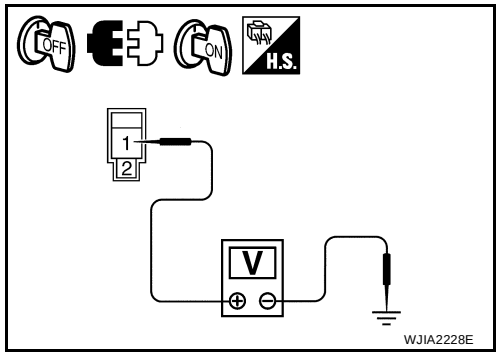
OK or NG

OK >> Inspection End.

NG >>
- Front blower motor does not operate at any speed, GO TO 2
- Front blower motor does not operate at one or more of the four speeds, GO TO 11.

2. CHECK POWER SUPPLY FOR FRONT BLOWER MOTOR

1. Turn ignition switch OFF.
2. Disconnect front blower motor connector.
3. Turn ignition switch ON.
4. Check voltage between front blower motor harness connector M62 terminal 1 and ground.



Terminals			Voltage (Approx.)
(+)		(–)	
Connector	Terminal	Ground	
Front blower motor: M62	1		Battery voltage

OK or NG

OK >> GO TO 6.

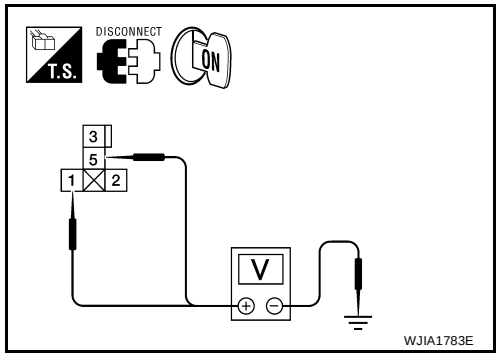
NG >> Check power supply circuit and 15A fuses [Nos. 15 and 17, located in the fuse block (J/B)]. Refer to PG-81, "FUSE BLOCK-JUNCTION BOX (J/B)" .
- If fuses are OK, GO TO 3.
- If fuses are NG, replace fuse and check harness for short circuit. Repair or replace if necessary.

3. CHECK BLOWER MOTOR RELAY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect blower motor relay connector.
3. Turn ignition switch ON.
4. Check voltage between blower motor relay harness connector J-1 terminal 1, 5 and ground.

1 - Ground **Battery voltage should exist.**

5 - Ground **Battery voltage should exist.**



OK or NG

OK >> GO TO 4.

NG >> Repair harness or connector.

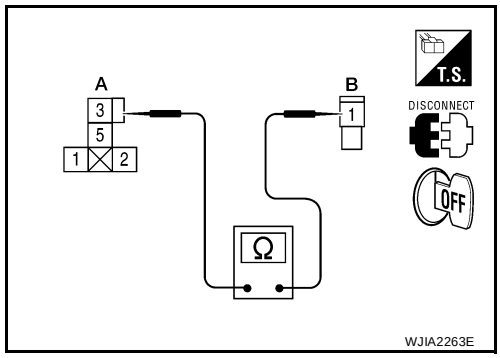
4. CHECK BLOWER MOTOR RELAY (SWITCH SIDE) CIRCUIT FOR OPEN

1. Turn ignition switch OFF.
2. Check continuity between blower motor relay harness connector J-1 (A) terminal 3 and front blower motor harness connector M62 (B) terminal 1.

Continuity should exist.

OK or NG

OK >> GO TO 5.
NG >> Repair harness or connector.



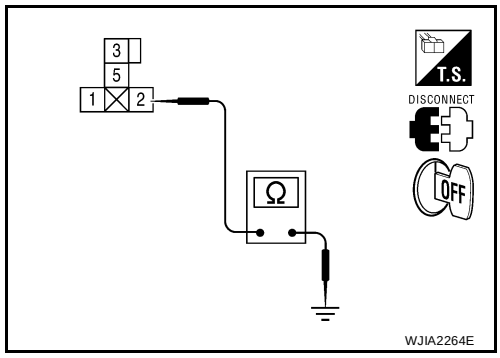
5. CHECK BLOWER MOTOR RELAY GROUND CIRCUIT

Check continuity between blower motor relay harness connector J-1 terminal 2 and ground.

Continuity should exist.

OK or NG

OK >> Replace blower motor relay.
NG >> Repair harness or connector.



6. CHECK FRONT BLOWER MOTOR

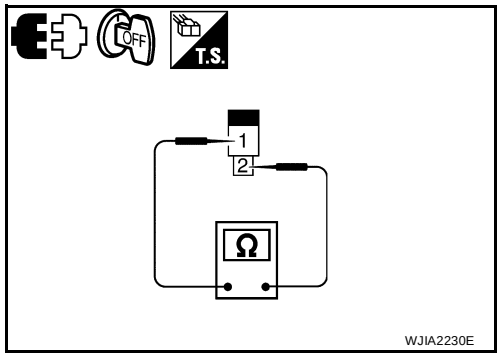
Check continuity between front blower motor terminals 1 and 2.

NOTE:
Ensure that there are no foreign particles inside the A/C unit assembly for a smooth rotation of the front blower motor.

1 - 2 : Continuity should exist.

OK or NG

OK >> GO TO 7.
NG >> Replace front blower motor. Refer to MTC-69, "BLOWER MOTOR" .



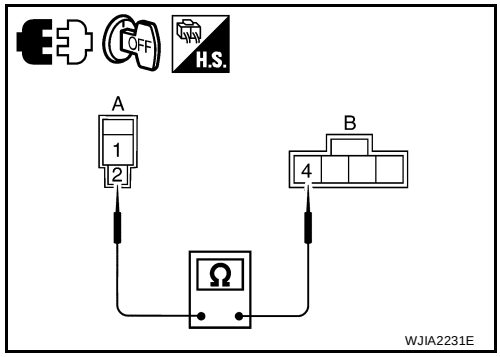
7. CHECK CIRCUIT CONTINUITY BETWEEN FRONT BLOWER MOTOR AND FRONT BLOWER MOTOR RESISTOR

1. Disconnect front blower motor resistor connector.
2. Check continuity between front blower motor harness connector M62 (A) terminal 2 and front blower motor resistor harness connector M151 (B) terminal 4.

2 - 4 : Continuity should exist.

OK or NG

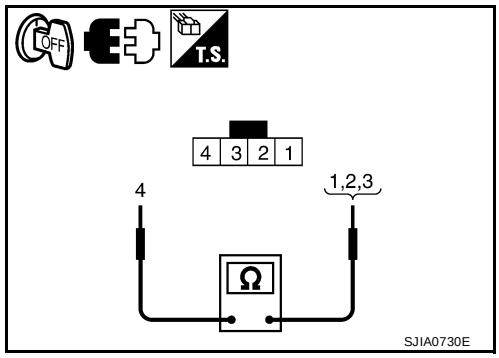
OK >> GO TO 8.
NG >> Repair harness or connector.



8. CHECK FRONT BLOWER MOTOR RESISTOR

1. Disconnect front blower motor resistor connector.
2. Check resistance between front blower motor resistor terminal 4 and 1, 2, 3.

Terminals		Resistance (Approx.)
4	1	2.15Ω
	2	1.10Ω
	3	0.46Ω



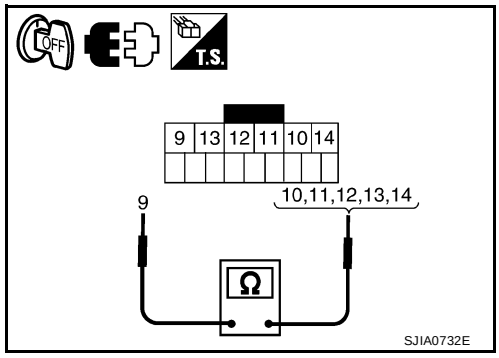
OK or NG

OK >> GO TO 9.
NG >> Replace front blower motor resistor. Refer to MTC-73, "BLOWER FAN RESISTOR" .

9. CHECK FAN SWITCH

1. Disconnect front air control connector.
2. Check continuity between front air control terminal 9 and 10, 11, 12, 13, 14.

Terminals		Condition	Continuity
9	14	Fan control dial: OFF	Yes
	10	Fan control dial: 1-speed	
	11	Fan control dial: 2-speed	
	12	Fan control dial: 3-speed	
	13	Fan control dial: 4-speed	



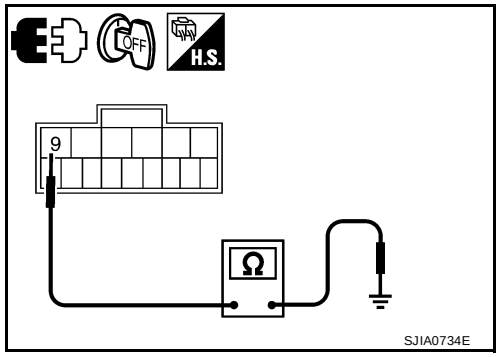
OK or NG

OK >> GO TO 10.
NG >> Replace front air control. Refer to MTC-62, "CONTROLLER" .

10. CHECK FAN SWITCH GROUND CIRCUIT

Check continuity between front air control harness connector M33 terminal 9 and ground.

Continuity should exist.

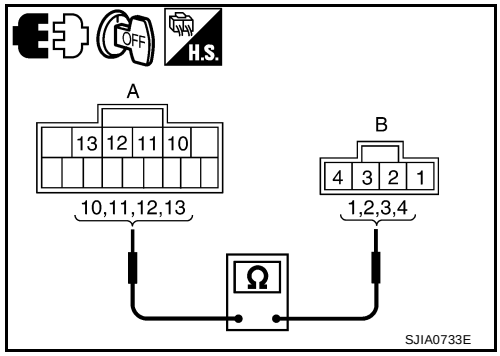


OK or NG

OK >> Inspection End.
NG >> Repair harness or connector.

11. CHECK CIRCUIT CONTINUITY BETWEEN FRONT AIR CONTROL AND FRONT BLOWER MOTOR RESISTOR

1. Turn ignition switch OFF.
2. Disconnect front blower motor resistor and front air control connectors.
3. Check continuity between front air control harness connector M33 (A) terminals and front blower motor resistor harness connector M151 (B) terminals.



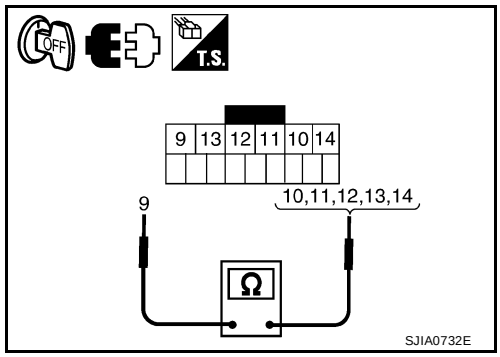
A		B		Continuity
Connector	Terminal	Connector	Terminal	
Front air control: M33	10	Front blower motor resistor: M151	1	Yes
	11		2	
	12		3	
	13		4	

OK or NG

OK >> GO TO 12.
NG >> Repair harness or connector.

12. CHECK FAN SWITCH

Check continuity between front air control terminal 9 and 10, 11, 12, 13, 14.



Terminals		Condition	Continuity
9	14	Fan control dial: OFF	Yes
	10	Fan control dial: 1-speed	
	11	Fan control dial: 2-speed	
	12	Fan control dial: 3-speed	
	13	Fan control dial: 4-speed	

OK or NG

OK >> Replace the front blower motor resistor. Refer to MTC-73, "BLOWER FAN RESISTOR" .
NG >> Replace front air control. Refer to MTC-62, "CONTROLLER" .

Magnet Clutch Circuit (If Equipped)

EJS0057O

SYMPTOM: Magnet clutch does not engage.

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATIONAL CHECK - MAGNET CLUTCH

1. Turn ignition switch ON.
2. Turn blower control dial to the desired (1 to 4 speed) position.
3. Press the A/C switch. A/C indicator will turn on.
4. Confirm that the compressor clutch engages (sound or visual inspection).

Can the symptom be duplicated?

YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK FOR ANY SYMPTOMS

Perform a complete operational check for any symptoms. Refer to MTC-33, "Operational Check" .

Does another symptom exist?

YES >> Refer to MTC-24, "SYMPTOM TABLE" .
NO >> System OK.

3. CHECK FOR SERVICE BULLETINS

Check for any service bulletins.

>> GO TO 4.

4. CHECK COMPRESSOR BELT TENSION

Check compressor belt tension. Refer to EM-13, "Checking Drive Belts" .

OK or NG

OK >> GO TO 5.
NG >> Adjust or replace A/C compressor belt.

5. CHECK REFRIGERANT PRESSURE

Check refrigerant pressure with manifold gauge connected. Refer to MTC-55, "Test Reading" .

OK or NG

OK >> GO TO 6.
NG >> Perform trouble diagnosis for unusual pressure. Refer to MTC-56, "TROUBLE DIAGNOSIS FOR UNUSUAL PRESSURE" .

6. CHECK MAGNET CLUTCH CIRCUIT

Perform diagnostic procedure for the magnetic clutch. Refer to MTC-43, "DIAGNOSTIC PROCEDURE FOR MAGNET CLUTCH" .

OK or NG

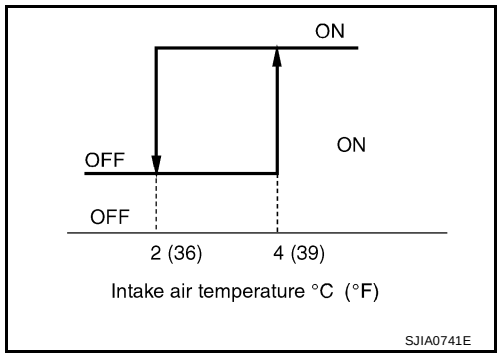
OK >> If the symptom still exists, perform a complete operational check. Refer to MTC-33, "Operational Check" . If other symptoms exist, refer to MTC-24, "SYMPTOM TABLE" .
NG >> Repair as necessary.

SYSTEM DESCRIPTION

Thermo control amp. controls A/C compressor operation by intake air temperature and signal from ECM.
The defrost A/C switch controls A/C compressor operation by the BCM when the mode switch is turned to the (DEF) position.

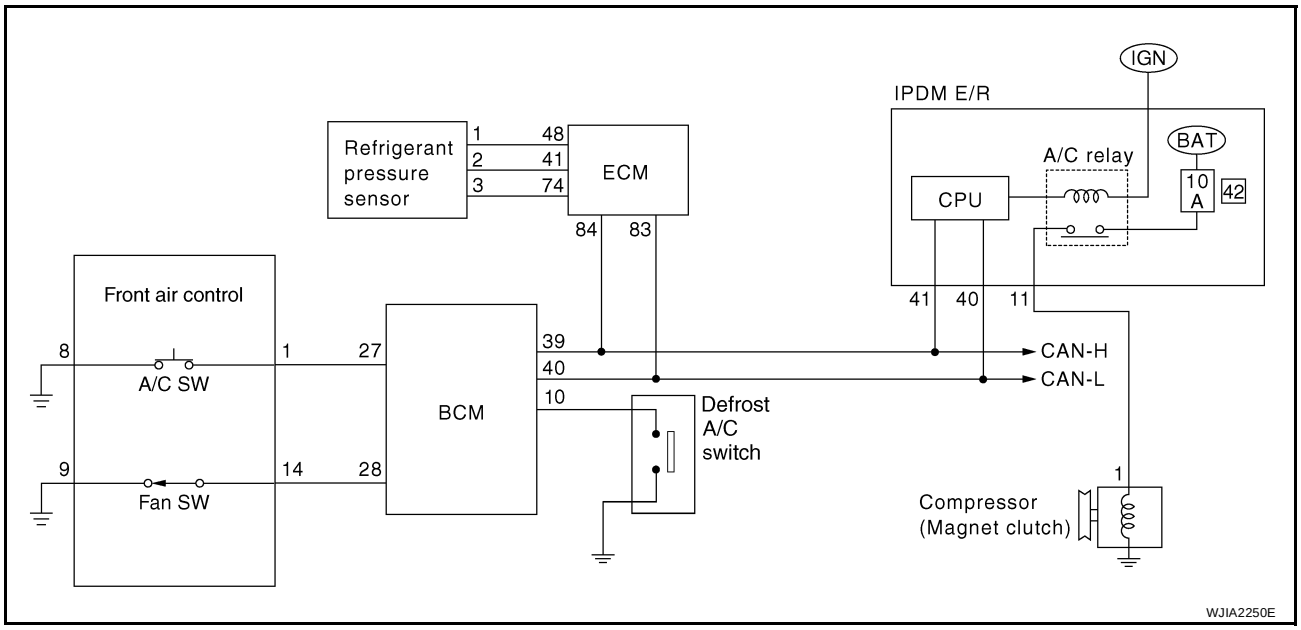
Low Temperature Protection Control

When intake air temperatures are higher than 4°C (39°F), the compressor turns ON. The compressor turns OFF when intake air temperatures are lower than 2°C (36°F).



DIAGNOSTIC PROCEDURE FOR MAGNET CLUTCH

SYMPTOM: Magnet clutch does not engage in A/C, defrost/foot, or defrost mode.



1. PERFORM AUTO ACTIVE TEST

Refer to PG-21, "Auto Active Test" .

Does the magnet clutch operate?

YES >> GO TO 5.
NO >> Check 10A fuse (No. 42, located in the IPDM E/R). Refer to PG-25, "IPDM E/R Terminal Arrangement" .

- If fuse is OK, GO TO 2.
- If fuse is NG, replace fuse and check harness for short circuit. Repair or replace if necessary.

2. CHECK POWER SUPPLY FOR IPDM E/R

Check power supply to 10A fuse (No. 42 located in the IPDM E/R).

:Battery voltage should exist

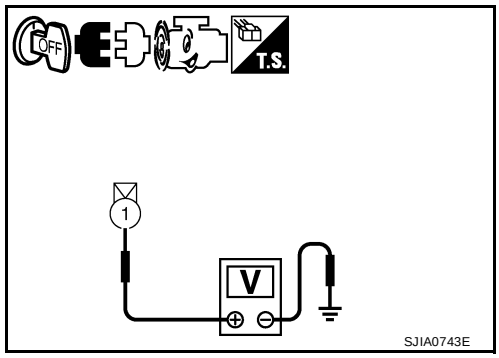
OK or NG

OK >> GO TO 3.
NG >> Check harness for open circuit. Repair or replace if necessary.

3. CHECK POWER SUPPLY FOR A/C COMPRESSOR

1. Disconnect A/C compressor connector.
2. Start the engine.
3. Turn blower control dial and A/C switch ON.
4. Check voltage between A/C compressor harness connector F3 terminal 1 and ground.

1 - Ground **:Battery voltage**



OK or NG

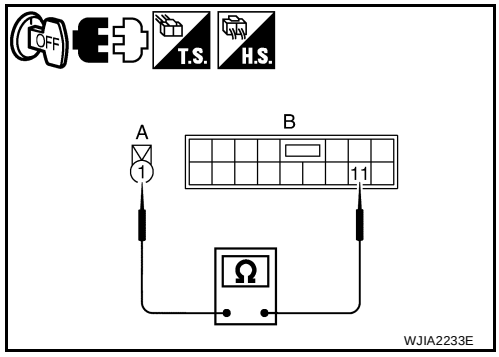
OK >> Replace magnet clutch. Refer to MTC-85, "Removal and Installation of Compressor"

NG >> GO TO 4.

4. CHECK CIRCUIT CONTINUITY BETWEEN IPDM E/R AND COMPRESSOR

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector.
3. Check continuity between A/C compressor harness connector F3 (A) terminal 1 and IPDM E/R harness connector E43 (B) terminal 11.

1 - 11 **:Continuity should exist**



OK or NG

OK >> Replace IPDM E/R. Refer to PG-30, "Removal and Installation of IPDM E/R"

NG >> Repair harness or connector.

5. CHECK DEFROST A/C SWITCH

1. Start the engine.
2. Turn the mode control dial to (DEF) position.

Does the magnet clutch operate

OK >> GO TO 6.

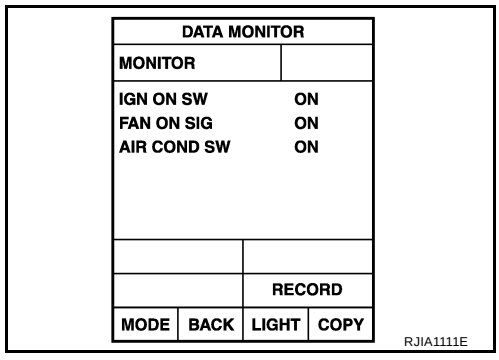
NG >> GO TO 23.

6. CHECK BCM INPUT (COMPRESSOR ON) SIGNAL

1. Turn ignition switch OFF.
2. Check compressor ON/OFF signal. Refer to MTC-24, "CONSULT-II Function (BCM)" .

A/C SW ON **: AIR COND SW ON**

A/C SW OFF **: AIR COND SW OFF**



OK or NG

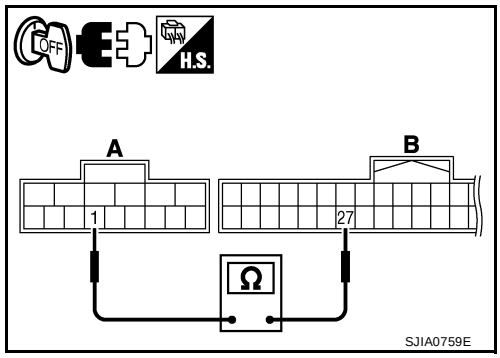
OK >> GO TO 8.

NG >> GO TO 7.

7. CHECK CIRCUIT CONTINUITY BETWEEN FRONT AIR CONTROL AND BCM

1. Turn ignition switch OFF.
2. Disconnect front air control and BCM connector.
3. Check continuity between front air control harness connector M33 (A) terminal 1and BCM harness connector M18 (B) terminal 27.

1 - 27 :Continuity should exist



OK or NG

OK >> GO TO 8.
NG >> Repair harness or connector.

8. CHECK REFRIGERANT PRESSURE SENSOR

1. Reconnect front air control connector and BCM connector.
2. Check refrigerant pressure sensor. Refer to EC-591, "REFRIGERANT PRESSURE SENSOR" .

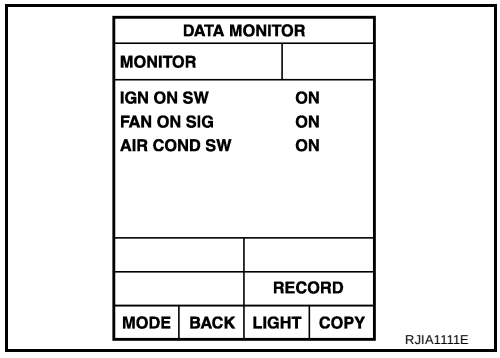
.OK or NG

OK >> ● WITH CONSULT-II
GO TO 9.
● WITHOUT CONSULT-II
GO TO 10.
NG >> Replace as necessary.

9. CHECK BCM INPUT (FAN ON) SIGNAL

Check FAN ON/OFF signal. Refer to MTC-24, "CONSULT-II Function (BCM)" .

FAN CONTROL DIAL ON : FAN ON SIG ON
FAN CONTROL DIAL OFF : FAN ON SIG OFF

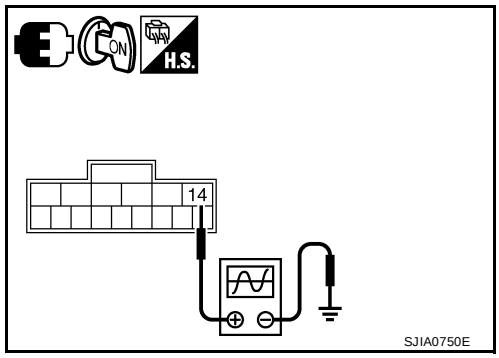


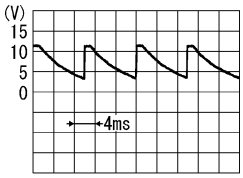
OK or NG

OK >> GO TO 12.
NG >> GO TO 10.

10. CHECK BCM INPUT (FAN ON) SIGNAL

1. Turn ignition switch ON.
2. Turn blower control dial to "1" position.
3. Confirm fan on signal between front air control harness connector M33 terminal 14 and ground using oscilloscope.



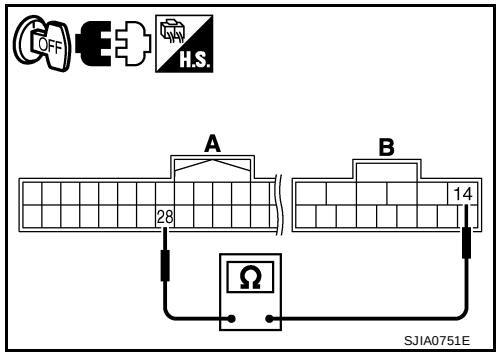
Terminals			Voltage (Approx.)
(+)		(-)	
Connector	Terminal		
Front air control: M33	14	Ground	

OK or NG

OK >> GO TO 12.
NG >> GO TO 11.

11. CHECK CIRCUIT CONTINUITY BETWEEN BCM AND FRONT AIR CONTROL

1. Turn ignition switch OFF.
2. Disconnect front air control connector and BCM connector.
3. Check continuity between BCM harness connector M18 (A) terminal 28 and front air control harness connector M33 (B) terminal 14.



A		B		Continuity
Connector	Terminal	Connector	Terminal	
BCM: M18	28	Front air control: M33	14	Yes

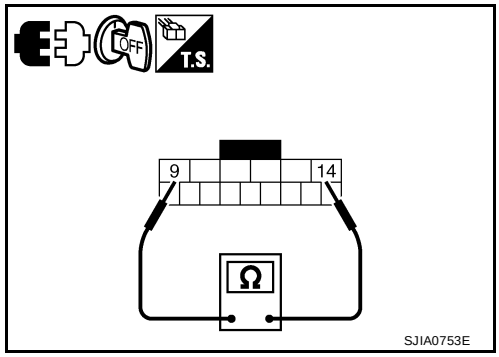
OK or NG

OK >> GO TO 12.
NG >> Repair harness or connector.

12. CHECK FAN SWITCH CIRCUIT

1. Turn blower control dial to the OFF position.
2. Check continuity between front air control terminals 9 and 14.

9 - 14 :Continuity should exist



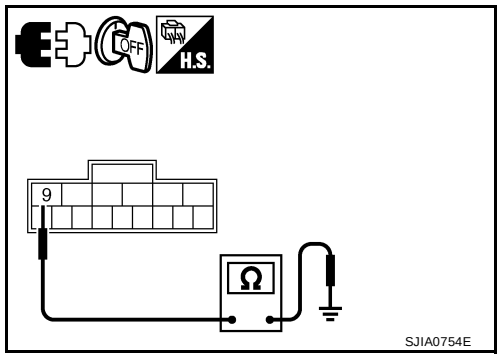
OK or NG

OK >> GO TO 13.
NG >> Replace front air control. Refer to MTC-62, "CONTROLLER" .

13. CHECK FRONT AIR CONTROL GROUND CIRCUIT

Check continuity between front air control harness connector M33 terminal 9 and ground.

9 - Ground **:Continuity should exist**

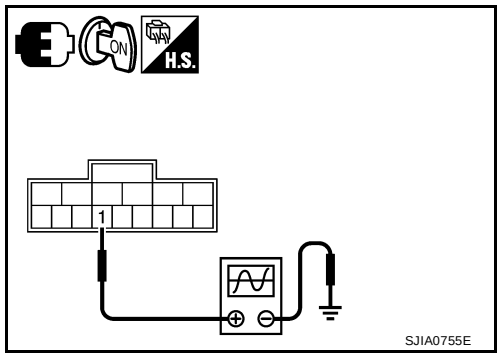


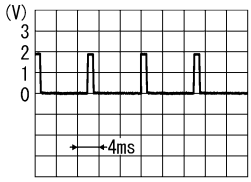
OK or NG

OK >> GO TO 14.
NG >> Repair harness or connector.

14. CHECK BCM INPUT (COMPRESSOR ON) SIGNAL

1. Reconnect BCM connector and front air control connectors.
2. Turn ignition switch ON.
3. Turn blower control dial clockwise to position "1".
4. Confirm compressor on signal between front air control harness connector M33 terminal 1 and ground using oscilloscope.



Terminals			Voltage (Approx.)
(+)		(-)	
Connector	Terminal		
Front air control: M33	1	Ground	

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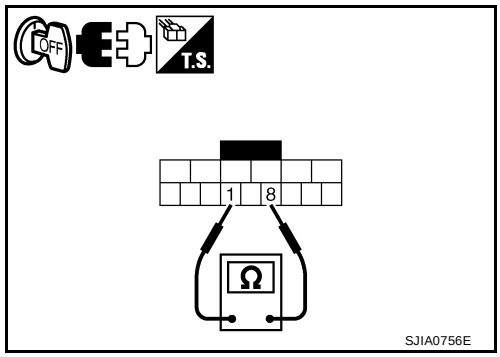
OK or NG

OK >> GO TO 15.
NG >> GO TO 17.

15. CHECK A/C SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect front air control connector.
3. While pressing the A/C switch, check continuity between front air control terminals 1 and 8.

1 - 8 **:Continuity should exist**



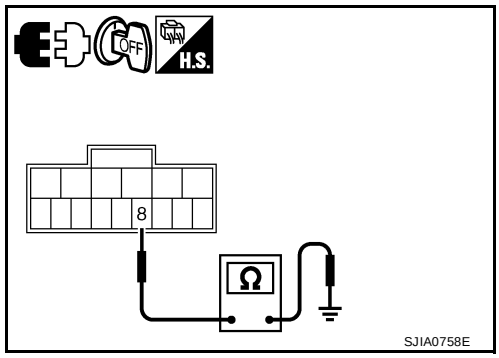
OK or NG

OK >> GO TO 16.
NG >> Replace front air control. Refer to MTC-62, "CONTROLLER" .

16. CHECK FRONT AIR CONTROL GROUND CIRCUIT

Check continuity between front air control harness connector M33 terminal 8 and ground.

8 - Ground :Continuity should exist

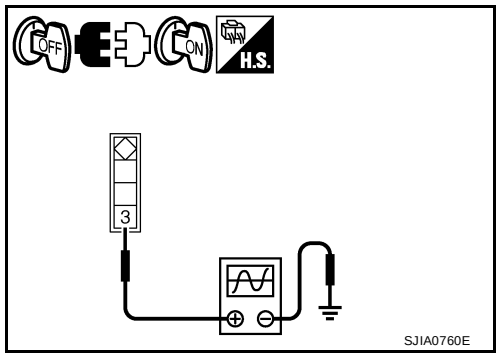


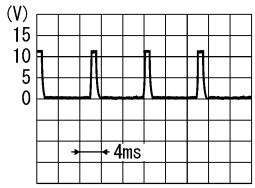
OK or NG

OK >> GO TO 17.
NG >> Repair harness or connector.

17. CHECK POWER SUPPLY FOR THERMO CONTROL AMP.

1. Turn ignition switch OFF.
2. Disconnect thermo control amp. connector.
3. Turn ignition switch ON.
4. Confirm thermo amp signal between thermo control amp. harness connector M42 terminal 3 and ground using oscilloscope.



Terminals			Voltage (Approx.)
(+)		(-)	
Connector	Terminal		
Thermo control amp.: M42	3	Ground	

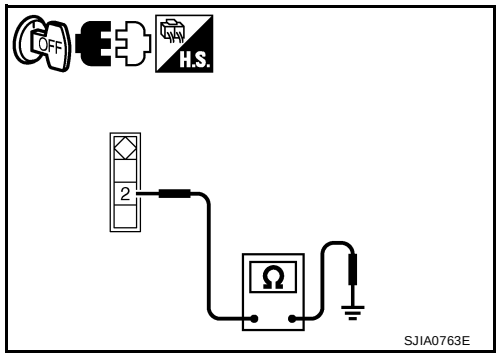
OK or NG

OK >> ● GO TO 18 (with CVT).
● GO TO 19 (without CVT).
NG >> GO TO 21.

18. CHECK THERMO CONTROL AMP. GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between thermo control amp. harness connector M42 terminal 2 and ground.

2 - Ground :Continuity should exist



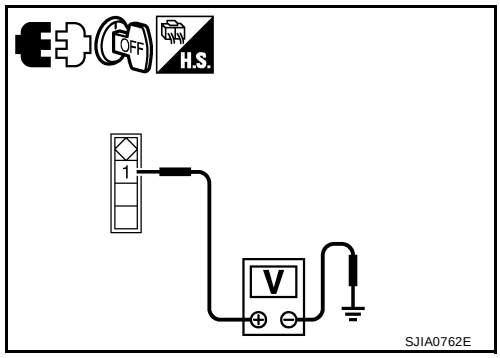
OK or NG

OK >> Repair thermo control amp. jumper as necessary.
NG >> Repair harness or connector.

19. CHECK POWER SUPPLY FOR THERMO CONTROL AMP.

Check voltage between thermo control amp. harness connector M42 terminal 1 and ground.

1 - Ground **:Battery voltage**



OK or NG

OK >> GO TO 20.

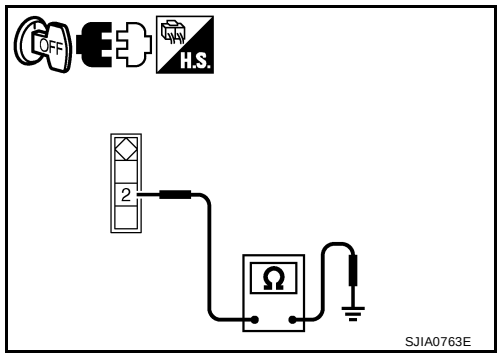
NG >> Check power supply circuit and 10A fuse [No. 16, located in the fuse block (JB)]. Refer to PG-81, "FUSE BLOCK-JUNCTION BOX (J/B)" .

- If fuse is OK, check harness for open circuit. Repair or replace if necessary.
- If fuse is NG, replace fuse and check harness for short circuit. Repair or replace if necessary.

20. CHECK THERMO CONTROL AMP. GROUND CIRCUIT

1. Turn ignition switch OFF.
2. Check continuity between thermo control amp. harness connector M42 terminal 2 and ground.

2 - Ground **:Continuity should exist**



OK or NG

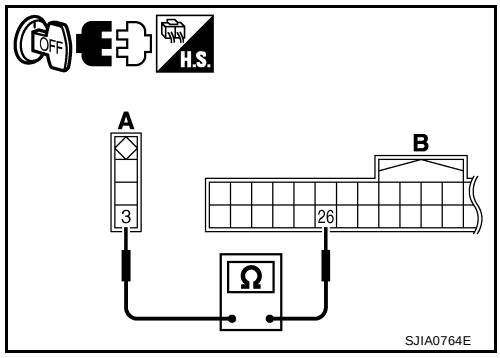
OK >> Replace thermo control amp. Refer to MTC-64, "THERMO CONTROL AMPLIFIER" .

NG >> Repair harness or connector.

21. CHECK CIRCUIT CONTINUITY BETWEEN THERMO CONTROL AMP. AND BCM

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Check continuity between thermo control amp. harness connector M42 (A) terminal 3 and BCM harness connector M18 (B) terminal 26.

3 - 26 **:Continuity should exist**



OK or NG

OK >> GO TO 22.

NG >> Repair harness or connector.

22. CHECK CAN COMMUNICATION

Check CAN communication. Refer to LAN-44, "TROUBLE DIAGNOSIS" .

- BCM – ECM
- ECM – IPDM E/R

OK or NG

OK >> Replace BCM. Refer to BCS-27, "Removal and Installation of BCM" .

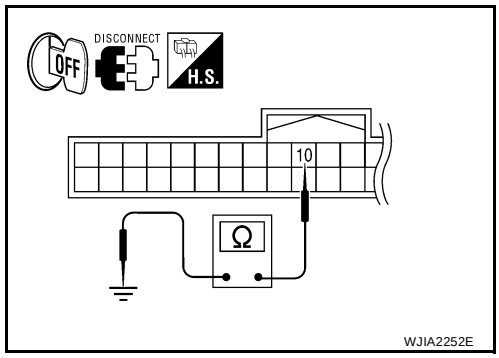
NG >> Repair or replace malfunctioning part(s).

23. CHECK DEFROST A/C SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM connector.
3. Press the defrost A/C switch.

   NOTE:
   The defrost A/C switch is located on back side of the front air control.
4. Check continuity between BCM harness connector M18 terminal 10 and ground.

10 - Ground :Continuity should exist



OK or NG

OK >> Replace BCM. Refer to BCS-27, "Removal and Installation of BCM" .
NG >> GO TO 24.

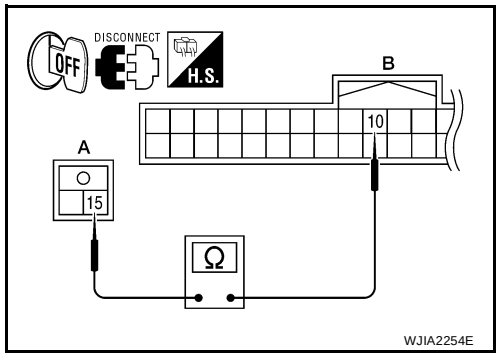
24. CHECK CIRCUIT CONTINUITY BETWEEN DEFROST A/C SWITCH AND BCM

1. Disconnect defrost A/C switch connector.
2. Check continuity between BCM harness connector M18 (B) terminal 10 and defrost A/C switch harness connector M41 (A) terminal 15.

10 - 15 :Continuity should exist

OK or NG

OK >> GO TO 25.
NG >> Repair harness or connector.



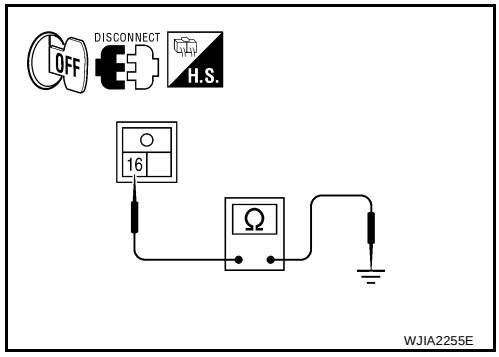
25. CHECK CIRCUIT CONTINUITY BETWEEN DEFROST A/C SWITCH AND GROUND

Check continuity between A/C defrost switch harness connector M41 terminal 16 and ground.

16 - Ground :Continuity should exist

OK or NG

OK >> Replace defrost A/C switch.
NG >> Repair harness or connector.



Insufficient Cooling

EJS0057P

SYMPTOM: Insufficient cooling

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATIONAL CHECK - TEMPERATURE DECREASE

1. Turn temperature control dial counterclockwise to maximum cold position.
2. Check for cold air at discharge air outlets.

Can the symptom be duplicated?

YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK FOR ANY SYMPTOMS

Perform a complete operational check for any symptoms. Refer to MTC-33, "Operational Check" .

Does another symptom exist?

YES >> Refer to MTC-24, "SYMPTOM TABLE" .
NO >> System OK.

3. CHECK FOR SERVICE BULLETINS

Check for any service bulletins.

>> GO TO 4.

4. CHECK COMPRESSOR DRIVE BELT TENSION

Check compressor belt tension. Refer to EM-13, "Checking Drive Belts" .

OK or NG

OK >> GO TO 5.
NG >> Adjust or replace compressor belt. Refer to EM-13, "Removal and Installation" .

5. CHECK AIR MIX DOOR CABLE

Check and verify air mix door cable operation. Refer to MTC-71, "Air Mix Door Cable Adjustment" .

Does air mix door operate correctly?

YES >> GO TO 6.
NO >> Repair or replace as necessary.

6. CHECK COOLING FAN MOTOR OPERATION

Check and verify cooling fan motor for smooth operation. Refer to EC-448, "System Description" .

Does cooling fan motor operate correctly?

YES >> GO TO 7.
NO >> Check cooling fan motor. Refer to EC-448, "DTC P1217 ENGINE OVER TEMPERATURE" .

7. CHECK FOR EVAPORATOR FREEZE UP

Start engine and run A/C. Check for evaporator freeze up.

Does evaporator freeze up?

YES >> Perform performance test diagnoses. Refer to MTC-53, "PERFORMANCE TEST DIAGNOSIS" .
NO >> GO TO 8.

8. CHECK REFRIGERANT PRESSURE

Check refrigerant pressure with manifold gauge connected. Refer to MTC-55, "Test Reading" .

OK or NG

OK >> GO TO 9.
NG >> Perform performance test diagnoses. Refer to MTC-53, "PERFORMANCE TEST DIAGNOSIS" .

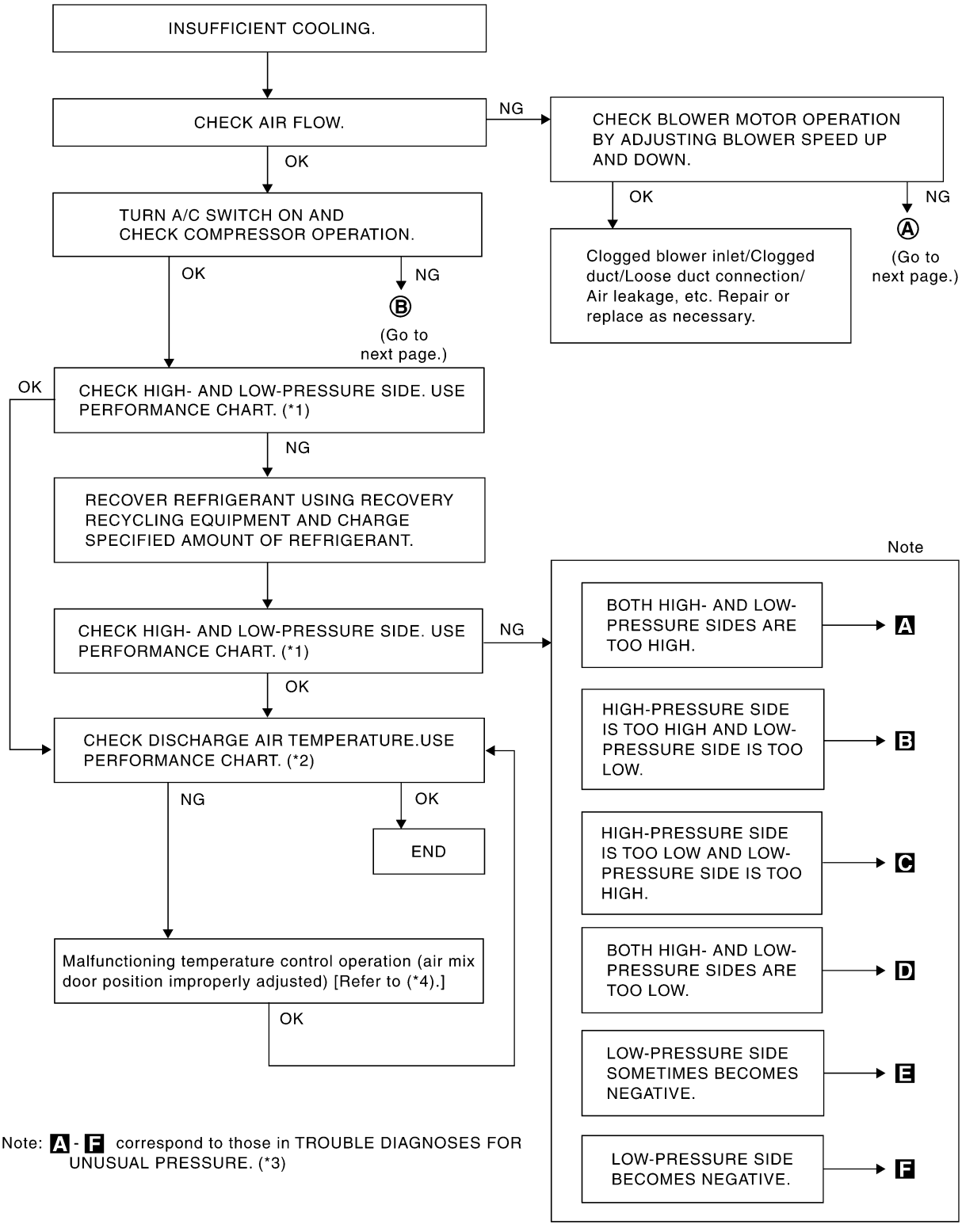
9. CHECK AIR DUCTS

Check ducts for air leaks.

OK or NG

OK >> If the symptom still exists, perform a complete operational check. Refer to MTC-33, "Operational Check" . If other symptoms exist, refer to MTC-24, "SYMPTOM TABLE" .
NG >> Repair air leaks.

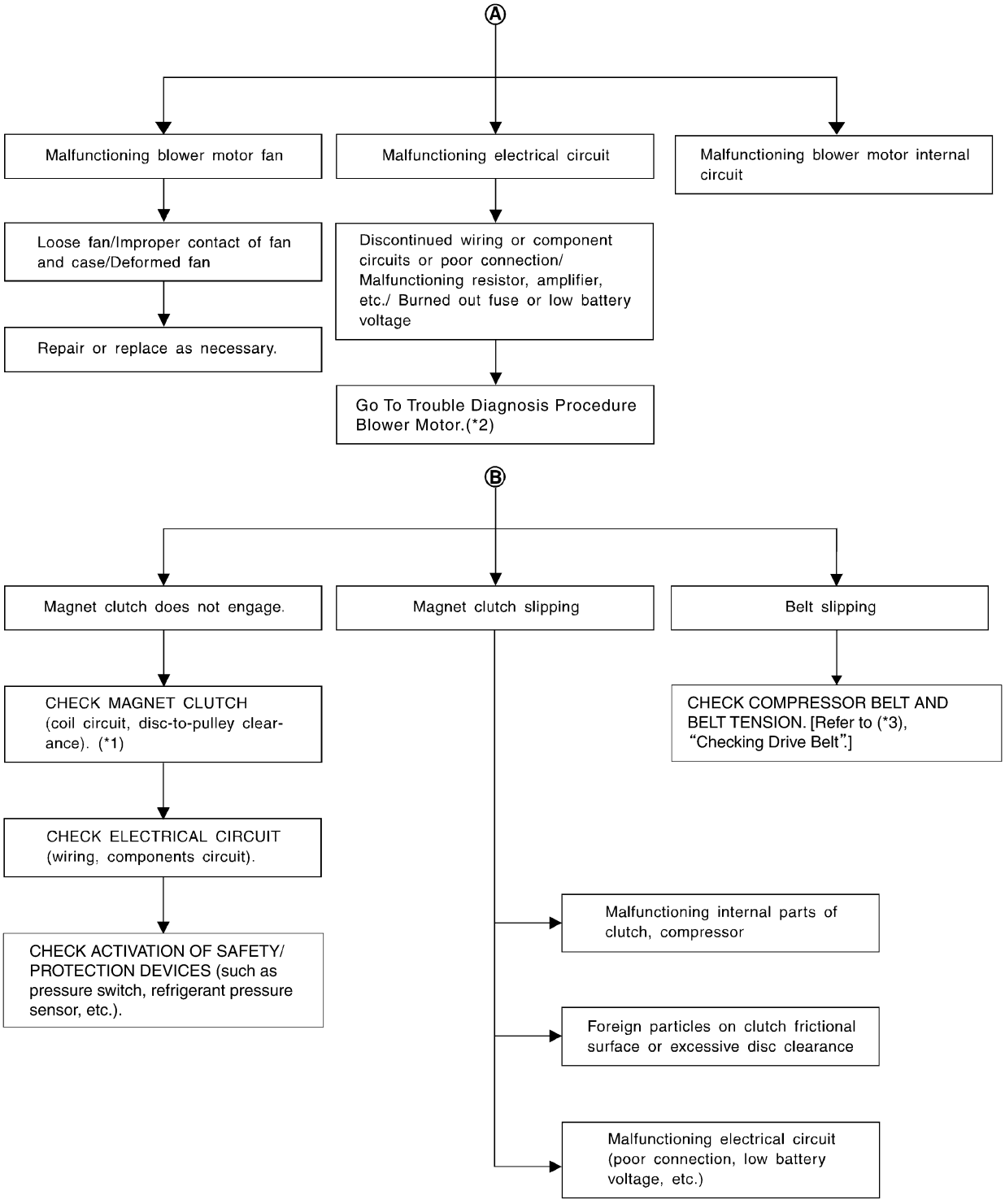
PERFORMANCE TEST DIAGNOSIS



*1 MTC-55, "PERFORMANCE CHART" *2 MTC-55, "Test Reading"

*3 MTC-56, "TROUBLE DIAGNOSIS FOR UNUSUAL PRESSURE"

*4 MTC-71, "Air Mix Door Cable Adjustment"



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*1 MTC-86, "INSPECTION FOR CLUTCH DISC TO PULLEY CLEARANCE"

*2 MTC-37, "Blower Motor Circuit"

*3 EM-13, "Checking Drive Belts"

PERFORMANCE CHART

Test Condition

Testing must be performed as follows:

Vehicle condition	Indoors or in the shade (in a well-ventilated place)
Doors	Closed
Door window	Open
Hood	Open
TEMP.	Max. COLD
Mode control dial	(Ventilation) set
Intake door lever	(Recirculation) set
Blower speed	Max. speed set
Engine speed	Idle speed
Operate the air conditioning system for 10 minutes before taking measurements.	

Test Reading

Recirculating-to-discharge Air Temperature Table

Inside air (Recirculating air) at blower assembly inlet		Discharge air temperature at center ventilator °C (°F)
Relative humidity %	Air temperature °C (°F)	
50 - 60	20 (68)	7.2 - 9.1 (45 - 48)
	25 (77)	11.4 - 13.8 (53 - 57)
	30 (86)	15.5 - 18.4 (60 - 65)
	35 (95)	20.3 - 23.7 (69 - 75)
60 - 70	20 (68)	9.1 - 10.9 (48 - 52)
	25 (77)	13.8 - 16.2 (57 - 61)
	30 (86)	18.4 - 21.3 (65 - 70)
	35 (95)	23.7 - 27.1 (75 - 81)

Ambient Air Temperature-to-operating Pressure Table

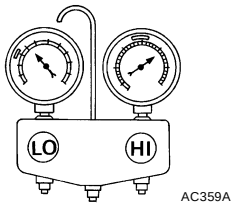
Ambient air		High-pressure (Discharge side) kPa (bar, kg/cm^2 , psi)	Low-pressure (Suction side) kPa (bar, kg/cm^2 , psi)
Relative humidity %	Air temperature °C (°F)		
50 - 70	20 (68)	843 - 1,036 *1 (11.08 - 13.63, 8.6 - 10.6, 122 - 150)	159.0 - 194.0 (1.59 - 1.94, 1.62 - 1.98, 23.1 - 28.1)
	25 (77)	1,094 - 1,338 *1 (10.94 - 13.38, 11.2 - 13.6, 159 - 194)	196.3 - 240.0 (1.96 - 2.40, 2.00 - 2.45, 28.5 - 34.8)
	30 (86)	1,298 - 1,590 *1 (12.98 - 15.90, 13.2 - 16.2, 188 - 231)	248.0 - 302.7 (2.48 - 3.03, 2.53 - 3.09, 36.0 - 43.9)
	35 (95)	1,383 - 1,688 *2 (13.83 - 16.88, 14.1 - 17.2, 201 - 245)	308.8 - 377.4 (3.09 - 3.77, 3.15 - 3.85, 44.8 - 54.7)
	40 (104)	1,628 - 1,988 *2 (16.28 - 19.88, 16.6 - 20.3, 236 - 288)	377.4 - 461.2 (3.77 - 4.61, 3.85 - 4.70, 54.7 - 66.8)

*1: With blower control dial in the "1" position
*2: With blower control dial in the "4" position.

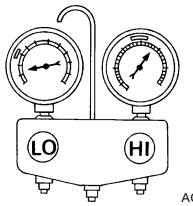
TROUBLE DIAGNOSIS FOR UNUSUAL PRESSURE

Whenever system's high and/or low side pressure(s) is/are unusual, diagnose using a manifold gauge. The marker above the gauge scale in the following tables indicates the standard (usual) pressure range. Since the standard (usual) pressure, however, differs from vehicle to vehicle, refer to above table (Ambient air temperature-to-operating pressure table).

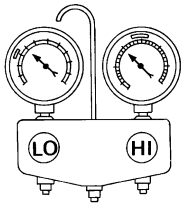
Both High- and Low-pressure Sides are Too High

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Both high- and low-pressure sides are too high.  AC359A	Pressure is reduced soon after water is splashed on condenser.	Excessive refrigerant charge in refrigeration cycle.	Reduce refrigerant until specified pressure is obtained.
	Air suction by cooling fan is insufficient.	Insufficient condenser cooling performance. ↓ 1. Condenser fins are clogged. 2. Improper fan rotation of cooling fan.	● Clean condenser. ● Check and repair cooling fan if necessary.
	● Low-pressure pipe is not cold. ● When compressor is stopped high-pressure value quickly drops by approximately 196 kPa (1.96 bar, 2 kg/cm^2 , 28 psi). It then decreases gradually thereafter.	Poor heat exchange in condenser (After compressor operation stops, high-pressure decreases too slowly.). ↓ Air in refrigeration cycle.	Evacuate repeatedly and recharge system.
	Engine tends to overheat.	Engine cooling systems malfunction.	Check and repair each engine cooling system.
	● An area of the low-pressure pipe is colder than areas near the evaporator outlet. ● Plates are sometimes covered with frost.	● Excessive liquid refrigerant on low-pressure side. ● Excessive refrigerant discharge flow. ● Expansion valve is open a little compared with the specification. ↓ Improper expansion valve adjustment.	Replace expansion valve.

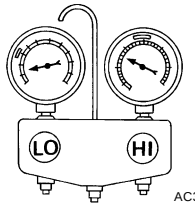
High-pressure Side is Too High and Low-pressure Side is Too Low

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
High-pressure side is too high and low-pressure side is too low.  AC360A	Upper side of condenser and high-pressure side are hot, however, liquid tank is not so hot.	High-pressure tube or parts located between compressor and condenser are clogged or crushed.	● Check and repair or replace malfunctioning parts. ● Check oil for contamination.

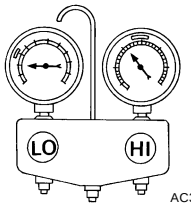
High-pressure Side is Too Low and Low-pressure Side is Too High

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
High-pressure side is too low and low-pressure side is too high.  AC356A	High- and low-pressure sides become equal soon after compressor operation stops.	Compressor pressure operation is improper. ↓ Damaged inside compressor packings.	Replace compressor.
	No temperature difference between high- and low-pressure sides.	Compressor pressure operation is improper. ↓ Damaged inside compressor packings.	Replace compressor.

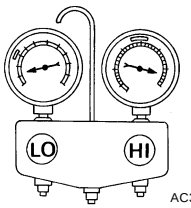
Both High- and Low-pressure Sides are Too Low

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Both high- and low-pressure sides are too low.  AC353A	● There is a big temperature difference between liquid tank outlet and inlet. Outlet temperature is extremely low. ● Liquid tank inlet and expansion valve are frosted.	Liquid tank inside is slightly clogged.	● Replace liquid tank. ● Check oil for contamination.
	● Temperature of expansion valve inlet is extremely low as compared with areas near liquid tank. ● Expansion valve inlet may be frosted. ● Temperature difference occurs somewhere in high-pressure side.	High-pressure pipe located between liquid tank and expansion valve is clogged.	● Check and repair malfunctioning parts. ● Check oil for contamination.
	Expansion valve and liquid tank are warm or only cool when touched.	Low refrigerant charge. ↓ Leaking fittings or components	Check refrigerant for leaks. Refer to MTC-93, "Checking for Refrigerant Leaks" .
	There is a big temperature difference between expansion valve inlet and outlet while the valve itself is frosted.	Expansion valve closes a little compared with the specification. ↓ 1. Improper expansion valve adjustment. 2. Malfunctioning expansion valve. 3. Outlet and inlet may be clogged.	● Remove foreign particles by using compressed air. ● Replace expansion valve. ● Check oil for contamination.
	An area of the low-pressure pipe is colder than areas near the evaporator outlet.	Low-pressure pipe is clogged or crushed.	● Check and repair malfunctioning parts. ● Check oil for contamination.
	Air flow volume is not enough or is too low.	Evaporator is frozen.	● Check thermo control amp. Refer to MTC-42, "Magnet Clutch Circuit (If Equipped)" . ● Replace compressor. ● Repair evaporator fins. ● Replace evaporator. ● Refer to MTC-37, "Blower Motor Circuit" .

Low-pressure Side Sometimes Becomes Negative

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Low-pressure side sometimes becomes negative.  AC354A	● Air conditioning system does not function and does not cyclically cool the compartment air. ● The system constantly functions for a certain period of time after compressor is stopped and restarted.	Refrigerant does not discharge cyclically. ↓ Moisture is frozen at expansion valve outlet and inlet. ↓ Water is mixed with refrigerant.	● Drain water from refrigerant or replace refrigerant. ● Replace liquid tank.

Low-pressure Side Becomes Negative

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
Low-pressure side becomes negative.  AC362A	Liquid tank or front/rear side of expansion valve's pipe is frosted or dewed.	High-pressure side is closed and refrigerant does not flow. ↓ Expansion valve or liquid tank is frosted.	Leave the system at rest until no frost is present. Start it again to check whether or not the malfunction is caused by water or foreign particles. ● If water is the cause, initially cooling is okay. Then the water freezes causing a blockage. Drain water from refrigerant or replace refrigerant. ● If due to foreign particles, remove expansion valve and remove the particles with dry and compressed air (not shop air). ● If either of the above methods cannot correct the malfunction, replace expansion valve. ● Replace liquid tank. ● Check oil for contamination.

Insufficient Heating

EJS0057Q

SYMPTOM: Insufficient heating

INSPECTION FLOW

1. CONFIRM SYMPTOM BY PERFORMING OPERATIONAL CHECK - TEMPERATURE DECREASE

1. Turn temperature control dial clockwise to maximum heat position.
2. Check for hot air at discharge air outlets.

Can the symptom be duplicated?

YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK FOR ANY SYMPTOMS

Perform a complete operational check for any symptoms. Refer to MTC-33, "Operational Check" .

Does another symptom exist?

YES >> Refer to MTC-24, "SYMPTOM TABLE" .
NO >> System OK.

3. CHECK FOR SERVICE BULLETINS

Check for any service bulletins.

>> GO TO 4.

4. CHECK COOLANT SYSTEM

1. Check engine coolant level. Refer to CO-8, "ENGINE COOLANT" .
2. Check hoses for leaks or kinks.
3. Check Radiator cap. Refer to CO-13, "Checking Radiator Cap" .

OK or NG

OK >> GO TO 5.
NG >> Repair/replace as necessary.

5. CHECK AIR MIX DOOR CABLE

Check air mix door cable operation. Refer to MTC-71, "Air Mix Door Cable Adjustment" .

OK or NG

YES >> GO TO 6.
NO >> Adjust or replace air mix door cable. Refer to MTC-71, "Air Mix Door Cable Adjustment" .

6. CHECK AIR DUCTS

Check ducts for air leaks.

OK or NG

OK >> GO TO 7.
NG >> Repair air leaks.

7. CHECK HEATER HOSE TEMPERATURES

1. Start engine and warm it up to normal operating temperature.
2. Touch both the inlet and outlet heater hoses.

Is the inlet hose hot and the outlet hose warm?

YES >> GO TO 8.
NO >> Both hoses warm: GO TO 9.

8. CHECK ENGINE COOLANT TEMPERATURE SENSOR

Check engine control temperature sensor. Refer to EC-200, "DTC P0117, P0118 ECT SENSOR" .

OK or NG

OK >> System OK.
NG >> Repair or replace as necessary. Retest.

9. CHECK HEATER HOSES

Check heater hoses for proper installation.

OK or NG

OK >> GO TO 10.
NG >> Repair /replace as necessary. Retest GO TO 7.

10. BACK FLUSH HEATER CORE

1. Back flush heater core.
2. Drain the water from the system.
3. Refill system with new engine coolant. Refer to CO-8, "Changing Engine Coolant" .
4. Start engine and warm it up to normal operating temperature.
5. Touch both the inlet and outlet heater hoses.

Is the inlet hose hot and the outlet hose warm? YES or NO

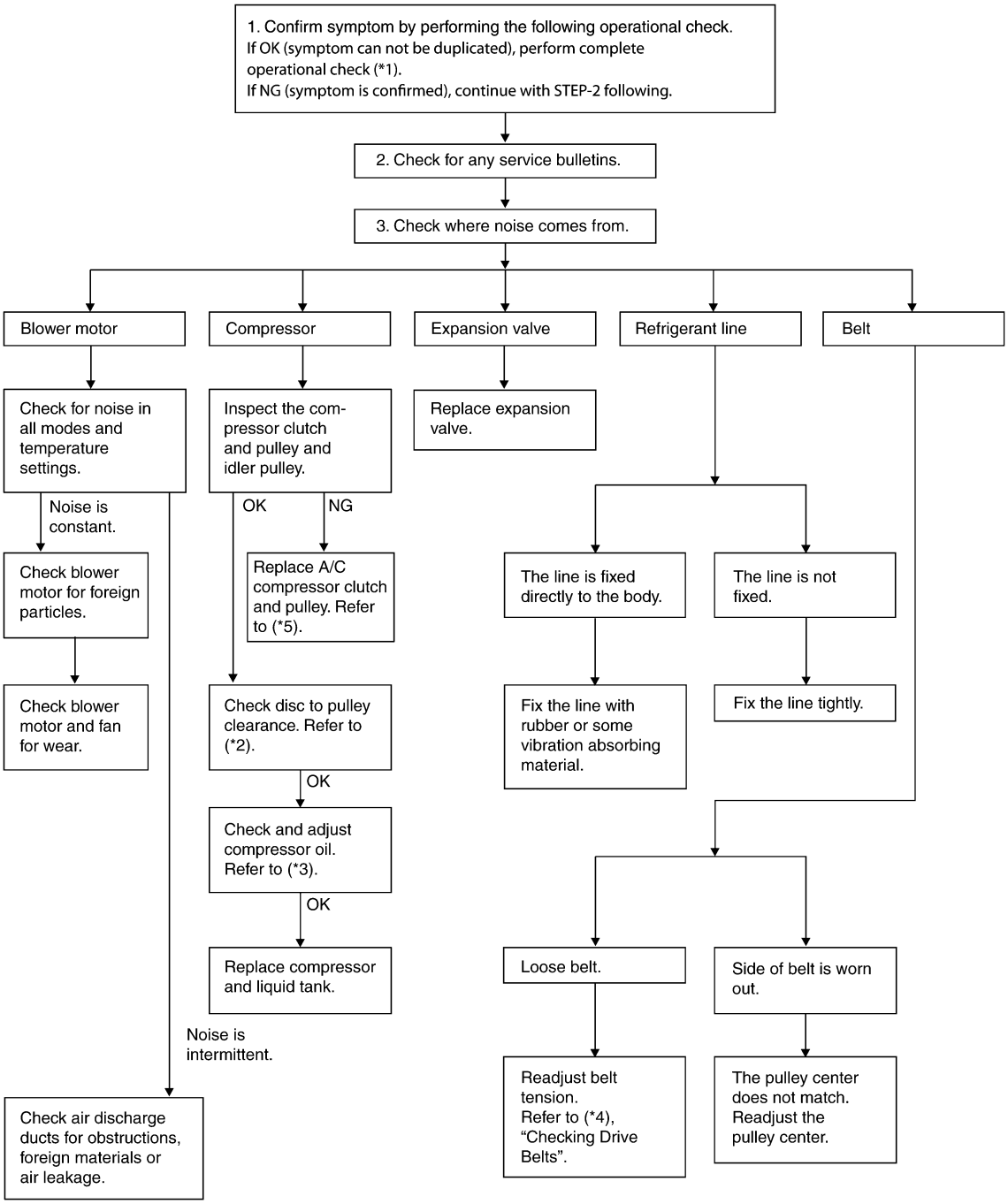
YES >> System OK.
NO >> Replace heater core and refill engine coolant. Refer to MTC-74, "HEATER CORE" .

Noise

EJS0057R

SYMPTOM: Noise

INSPECTION FLOW



WJIA2226E

*1. MTC-33, "Operational Check"

*2. MTC-86, "INSPECTION FOR CLUTCH DISC TO PULLEY CLEARANCE"

*3. MTC-18, "Maintenance of Oil Quantity in Compressor"

*4. EM-13, "Checking Drive Belts"

*5. MTC-85, "REMOVAL"

CONTROLLER

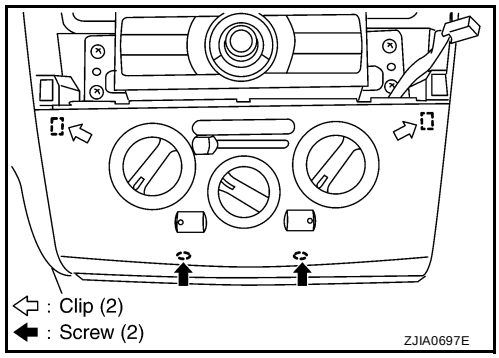
PFP:28074

Removal and Installation

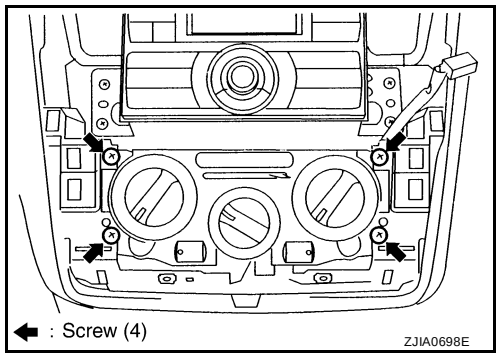
EJS00580

REMOVAL

1. Remove cluster lid C and instrument finisher D. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove intake door lever knob. Refer to MTC-63, "Disassembly and Assembly" .
3. Remove mounting screws and clips, and then remove controller finisher.



4. Remove mounting screws, and then pull out controller.



5. Remove instrument panel and pad. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
6. Remove air mix door cable, mode door cable and intake door cable from A/C unit assembly.
7. Disconnect connector, and then remove controller.

INSTALLATION

Installation is in the reverse order of removal.

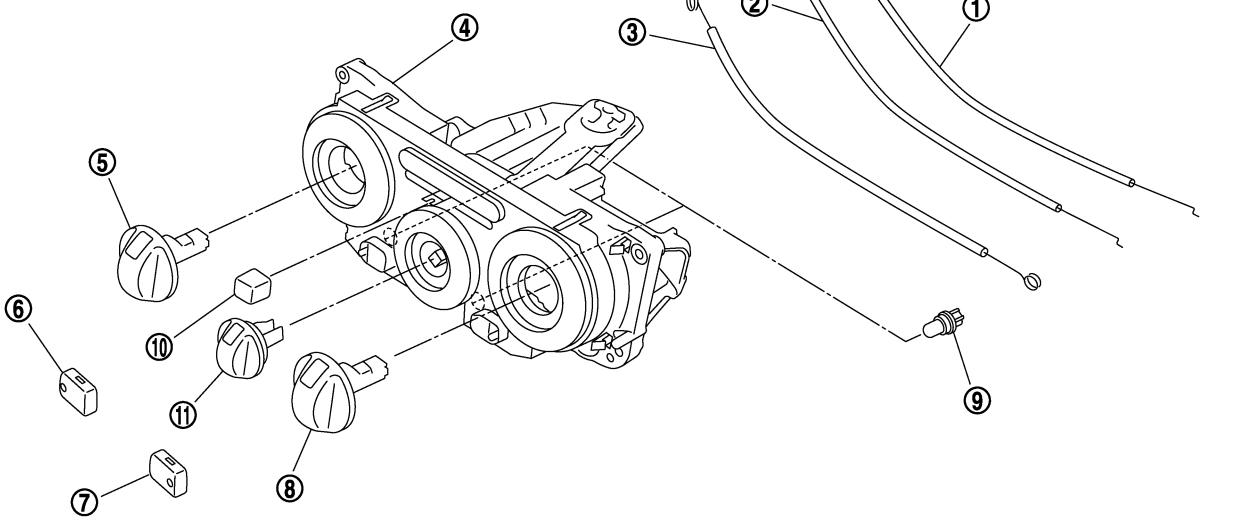
CAUTION:

Adjust the door cables during installation. Refer to MTC-70, "Intake Door Cable Adjustment" , MTC-72, "Mode Door Cable Adjustment" and MTC-71, "Air Mix Door Cable Adjustment" .

Disassembly and Assembly

EJS00581

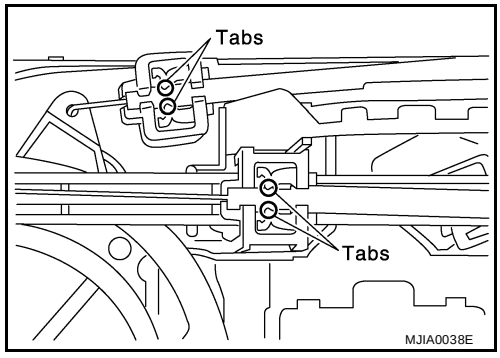
SEC. 272



1. Air mix door cable	2. Intake door cable	3. Mode door cable
4. A/C controller assembly	5. Mode control dial	6. Rear DEF button
7. A/C button	8. Temperature control dial	9. Illumination bulb
10. Intake door lever knob	11. Fan control dial	

CAUTION:

Install inner cable of each door cable to the corresponding lever, as shown in the figure. Press outer cable until it hooks on the tabs and becomes secure.



THERMO CONTROL AMPLIFIER

PFP:27675

Removal and Installation

EJS00582

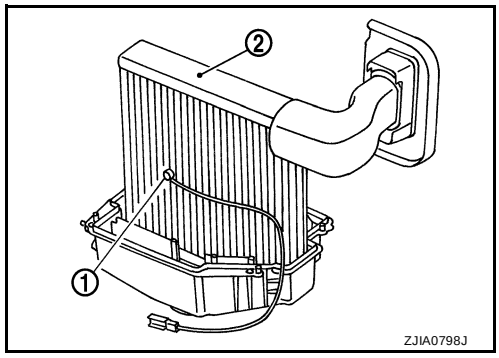
NOTE:
Only TYPE 1 systems are equipped with a thermo control amplifier.

REMOVAL

1. Remove evaporator. Refer to MTC-91, "Removal and Installation of Evaporator" .

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

2. Remove thermo control amp. (1) from evaporator (2).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

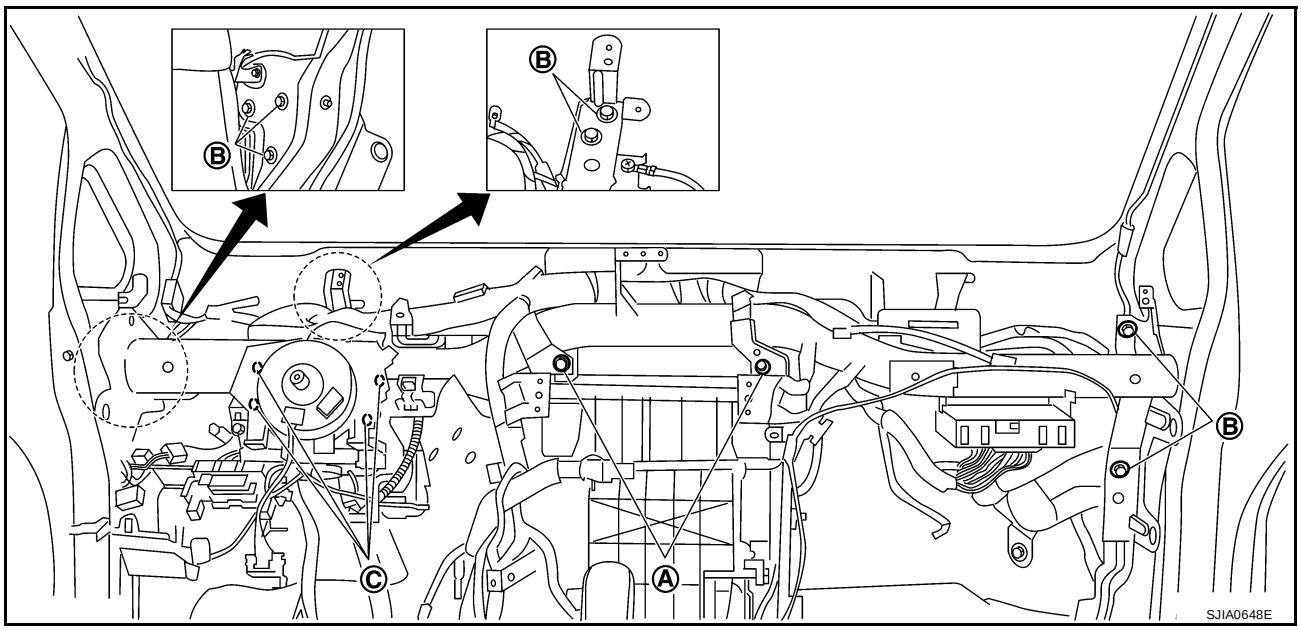
- **Replace O-rings for A/C piping with new ones, and apply compressor oil when installing.**
- **Mark the mounting position of thermo control amp.**
- **When recharging refrigerant, check for leaks.**

A/C UNIT ASSEMBLY

PFP:27110

Removal and Installation

EJS00583

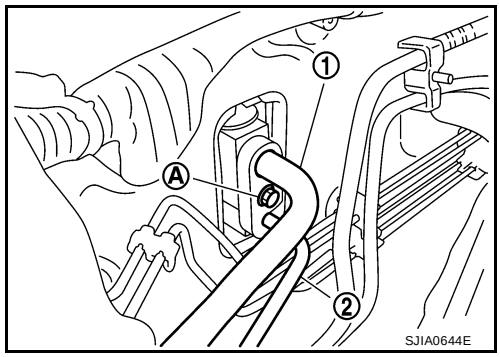


A. A/C unit assembly bolts B. Steering member bolts C. Steering column nuts

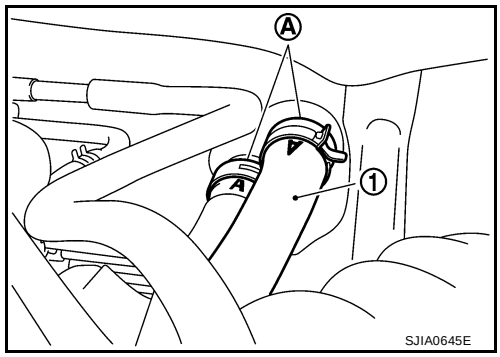
REMOVAL

1. Use a recovery/recycling equipment (for HFC-134a) to discharge refrigerant.
2. Drain coolant from cooling system. Refer to CO-8, "Changing Engine Coolant" .
3. Remove cowl top cover. Refer to EI-22, "COWL TOP" .
4. Remove lower dash insulator.
5. Remove bolt (A), and then disconnect low-pressure flexible hose (1) and high-pressure pipe (2) from evaporator.

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

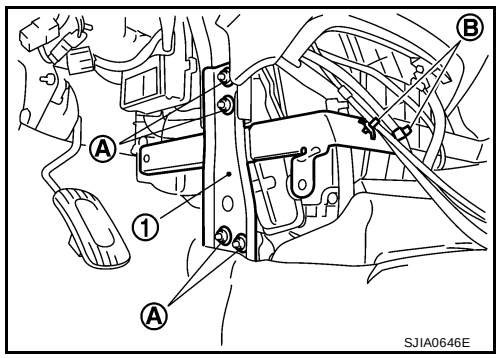


6. Remove clamps (A), and then disconnect heater hoses (1) from heater core.

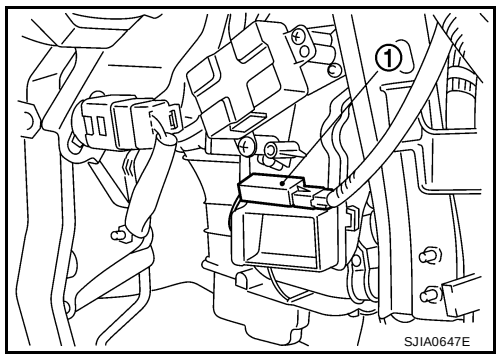


7. Remove console box assembly. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .

8. Remove instrument stay nuts (A) and harness clamps (B), and then remove instrument stay (1).



9. Disconnect thermo control amp. connector (1) for TYPE 1 systems as shown. Disconnect the thermo control amp. short connector for TYPE 2 systems.



10. Remove instrument panel and pad. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
11. Remove side ventilator ducts. Refer to MTC-78, "Removal" .
12. Remove center ventilator ducts. Refer to MTC-79, "Removal" .
13. Remove side kicking plates. Refer to EI-38, "BODY SIDE TRIM" .
14. Disconnect the fuel filler door cable and the rear hatch door cable.
15. Remove A/C unit assembly bolts, steering member bolts, steering column nuts and harness clips.
16. Remove steering member, and then remove A/C unit assembly.

INSTALLATION

Installation is in the reverse order of removal.

- When filling radiator with coolant, refer to CO-8, "Changing Engine Coolant" .
- Recharge the refrigerant.

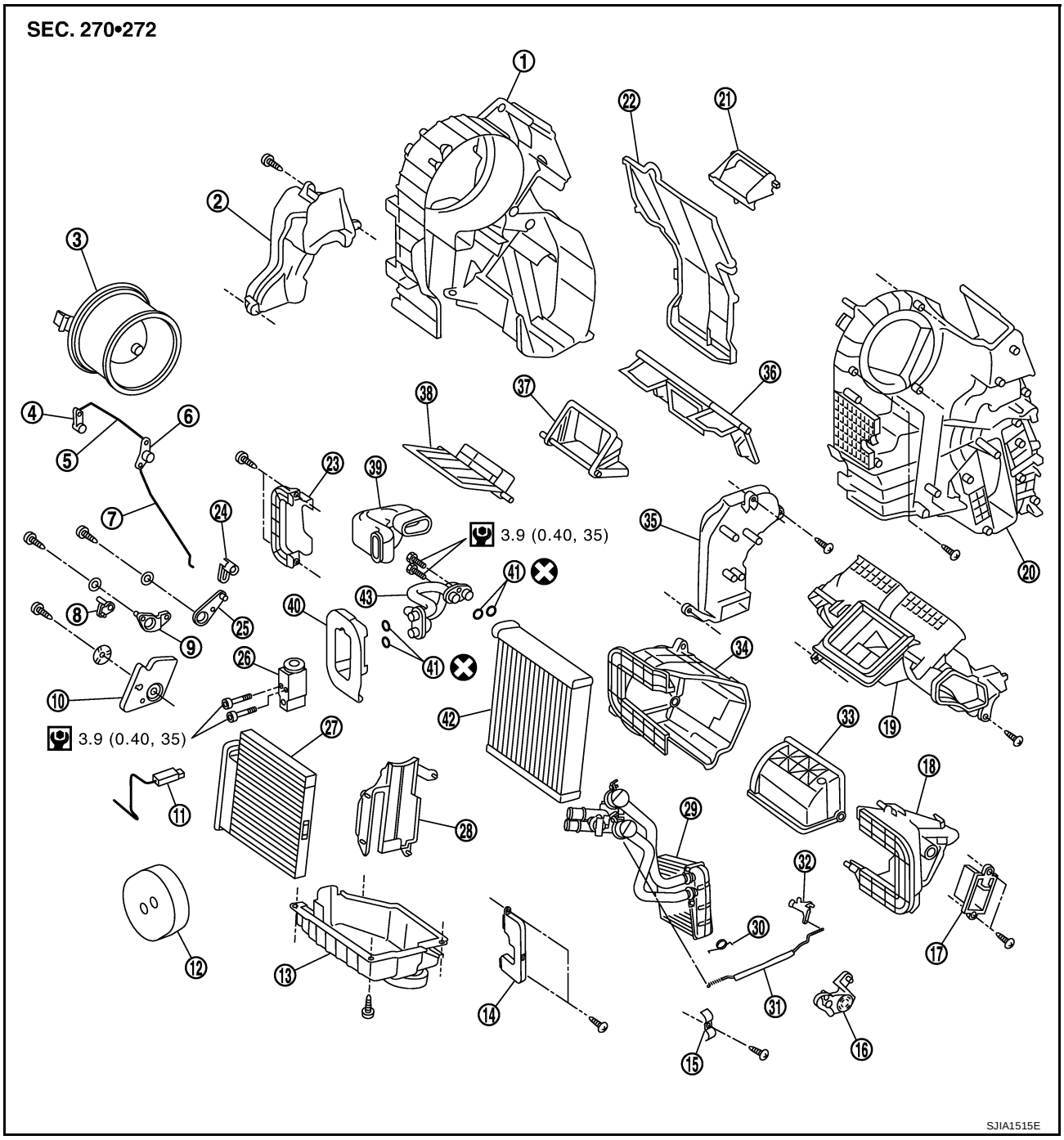
A/C unit assembly bolt	**: 6.9 N·m (0.7 kg-m, 61 in-lb)**
Steering member bolt	**: 12 N·m (1.25 kg-m, 9 ft-lb)**
Steering column nut	**: Refer to PS-9, "STEERING COLUMN" .**

CAUTION:

- **Replace O-rings for A/C piping with new ones, and apply compressor oil when installing.**
- **When recharging refrigerant, check for leaks.**

Disassembly and Assembly

EJS00584



1. Blower case (right)
2. Foot duct (right)
3. Blower motor
4. Sub ventilator·defroster door lever
5. Sub ventilator·defroster door rod
6. Ventilator·defroster door lever
7. Ventilator·defroster door rod
8. Intake door lever
9. Ventilator·defroster door link
10. Main link
11. Thermo control amp. (TYPE 1*)
12. Heater pipe packing
13. Lower blower case
14. Heater pipe cover
15. Heater pipe clip
16. Intake door link
17. Blower fan resistor
18. Intake case (left)
19. Center defroster duct
20. Blower case (left)
21. Cover
22. Cover
23. Expansion valve cover
24. Foot door lever
25. Foot door link
26. Expansion valve
27. Air conditioner filter
28. Evaporator cover
29. Heater core
30. Spring
31. Water valve rod
32. Air mix door lever
33. Intake door
34. Intake case (right)
35. Foot duct (left)
36. Ventilator·defroster door

37. Foot door
38. Air mix door
39. Seal
40. Expansion valve grommet
41. O-ring
42. Evaporator
43. Cooler pipe assembly

BLOWER MOTOR

PFP:27226

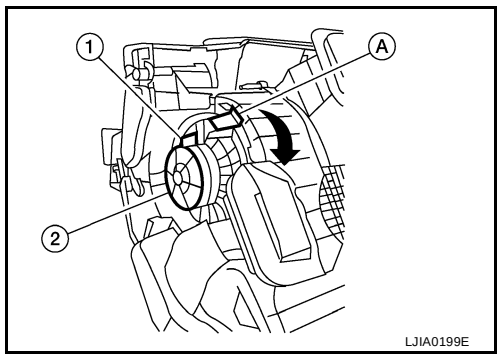
Removal and Installation

EJS00585

REMOVAL

1. Remove instrument panel and pad. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove side ventilator duct (right). Refer to MTC-78, "Removal" .
3. Disconnect blower motor connector (1).
4. Push the flange holding hook (A) toward the blower motor (2), then rotate the blower motor (2) clockwise and remove it from the A/C unit assembly.

   CAUTION:
   When blower fan and blower motor are assembled, the balance is adjusted, do not disassemble to replace the individual parts.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:
Rotate the blower motor until the blower motor flange holding hook locks securely in A/C unit assembly.

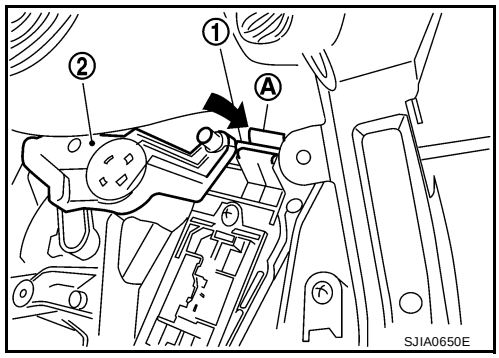
INTAKE DOOR

PFP:27245

Intake Door Cable Adjustment

EJS00586

1. Remove instrument lower finisher. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove outer cable of intake door cable (1) from clamp (A).
3. Set intake door lever to REC position.
4. Push intake door link (2) in the direction shown by the arrow, and then carefully pull outer cable to controller side, and install clamp (A).
5. Operate intake door lever to insure that inner cable moves smoothly.



CAUTION:

When clamping the outer cable, do not move the inner cable.

AIR MIX DOOR

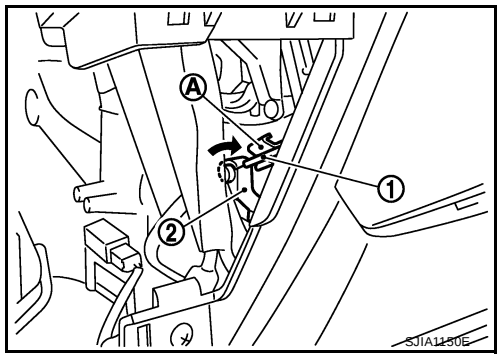
PFP:27180

Air Mix Door Cable Adjustment

EJS00587

1. Remove steering member. Refer to MTC-65, "A/C UNIT ASSEMBLY" .
2. Remove outer cable of air mix door cable (1) from clamp (A).
3. Set temperature control dial to full cold position.
4. Push air mix door lever (2) in the direction shown by arrow, and then carefully pull outer cable toward controller side, and install clamp (A).
5. Operate temperature control dial to insure that inner cable moves smoothly.

CAUTION:
When clamping the outer cable, do not move the inner cable.



MODE DOOR

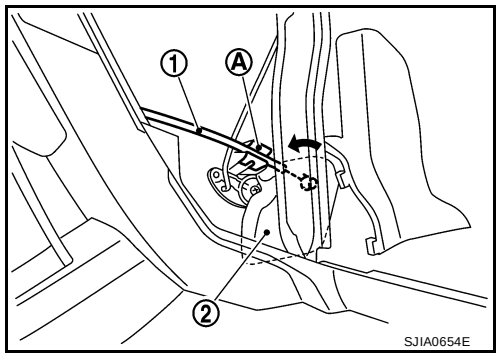
PFP:27181

Mode Door Cable Adjustment

EJS00588

1. Remove glove box assembly and instrument lower cover (RH). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove outer cable of mode door cable (1) from clamp (A).
3. Set mode control dial to VENT position.
4. Push main link (2) in the direction shown by the arrow, and then carefully pull outer cable to controller side, and install clamp (A).
5. Operate mode control dial to insure that inner cable moves smoothly.

   CAUTION:
   When clamping the outer cable, do not move the inner cable.



6. Turn mode control dial to each position.
7. Confirm that discharge air comes out according to the air distribution table. Refer to MTC-22, "Discharge Air Flow" .

BLOWER FAN RESISTOR

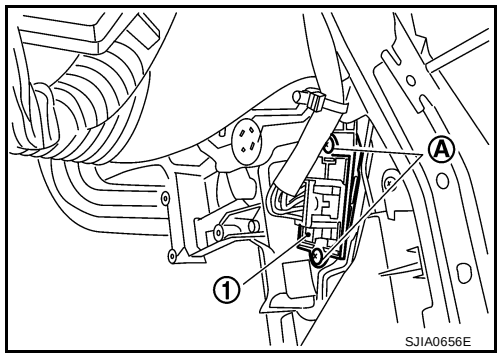
PFP:27150

Removal and Installation

EJS00589

REMOVAL

1. Remove the instrument lower finisher. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove the console side cover. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
3. Remove the brake pedal assembly. Refer to BR-6, "BRAKE PEDAL" .
4. Disconnect the blower fan resistor connector.
5. Remove the blower fan resistor screws (A), then remove the blower fan resistor (1).



INSTALLATION

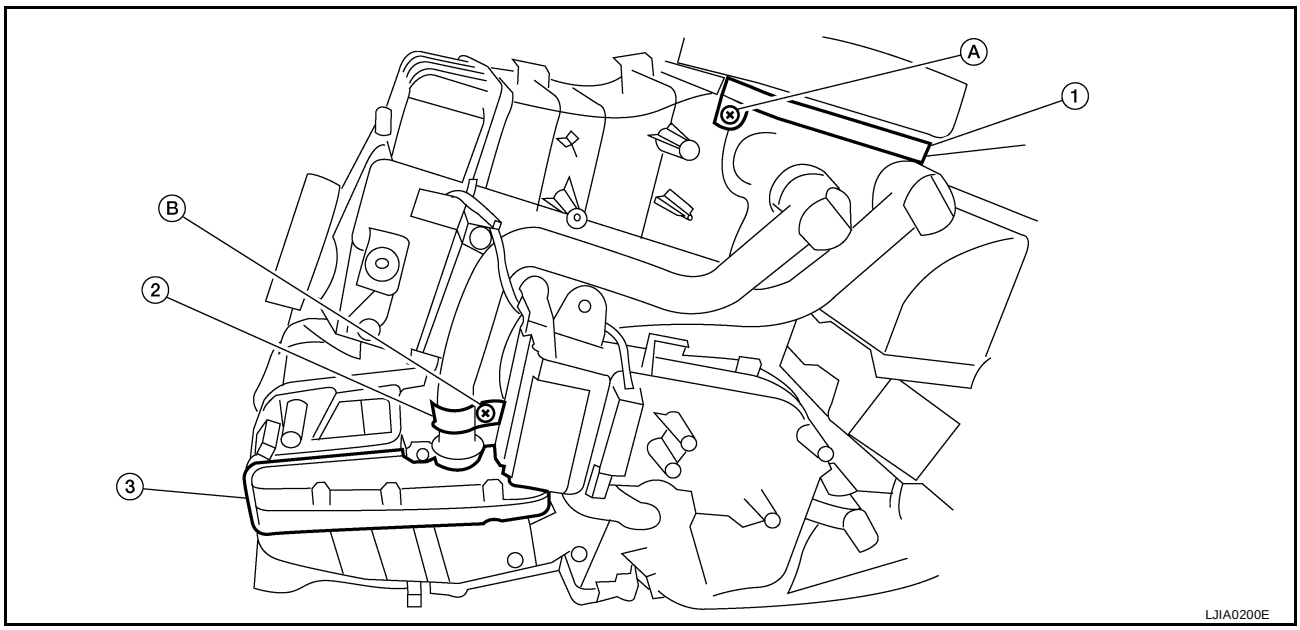
Installation is in the reverse order of removal.

HEATER CORE

PFP:27140

Removal and Installation

EJS0058A



1. Heater pipe cover
2. Heater pipe clip
3. Heater core
A. Heater pipe cover screw
B. Heater pipe clip screw

REMOVAL

1. Remove the A/C unit assembly. Refer to MTC-65, "A/C UNIT ASSEMBLY" .
2. Remove the foot duct (left). Refer to MTC-79, "Removal" .
3. Remove the heater pipe cover screw, then remove the heater pipe cover.
4. Remove the heater pipe clip screw, then remove the heater pipe clip.
5. Slide the heater core out of the A/C unit assembly.

INSTALLATION

Installation is in the reverse order of removal.

AIR CONDITIONER FILTER

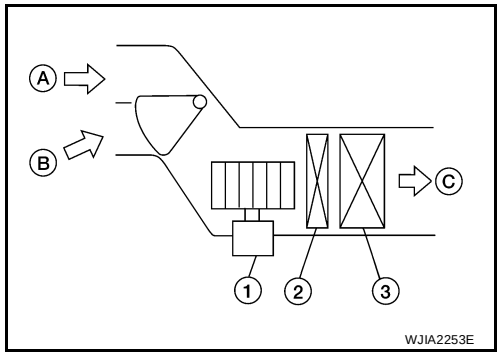
PFP:27277

Removal and Installation

EJS0058B

FUNCTION

The fresh air (A) and the recirculated air (B) drawn inside the passenger compartment by the blower fan (1) is kept clean (C) on either mode by the air conditioner filter (2), located before the evaporator (3), in the A/C unit assembly.



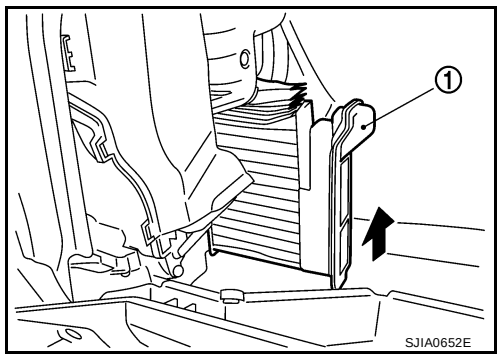
REPLACEMENT TIMING

Replace the air conditioner filter according to the maintenance schedules. Refer to MA-7, "PERIODIC MAINTENANCE" .

NOTE:
The air conditioner filter caution label is located inside the glove box door.

REPLACEMENT PROCEDURES

1. Remove the glove box assembly. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Compress the air conditioner filter (1) downward while sliding it to the RH side of the vehicle to release the upper pawl.
3. Move the bottom of air conditioner filter (1) upward as shown to release the bottom tab, then remove it.



4. Replace the air conditioner filter with new one and install the new filter in the A/C unit assembly.

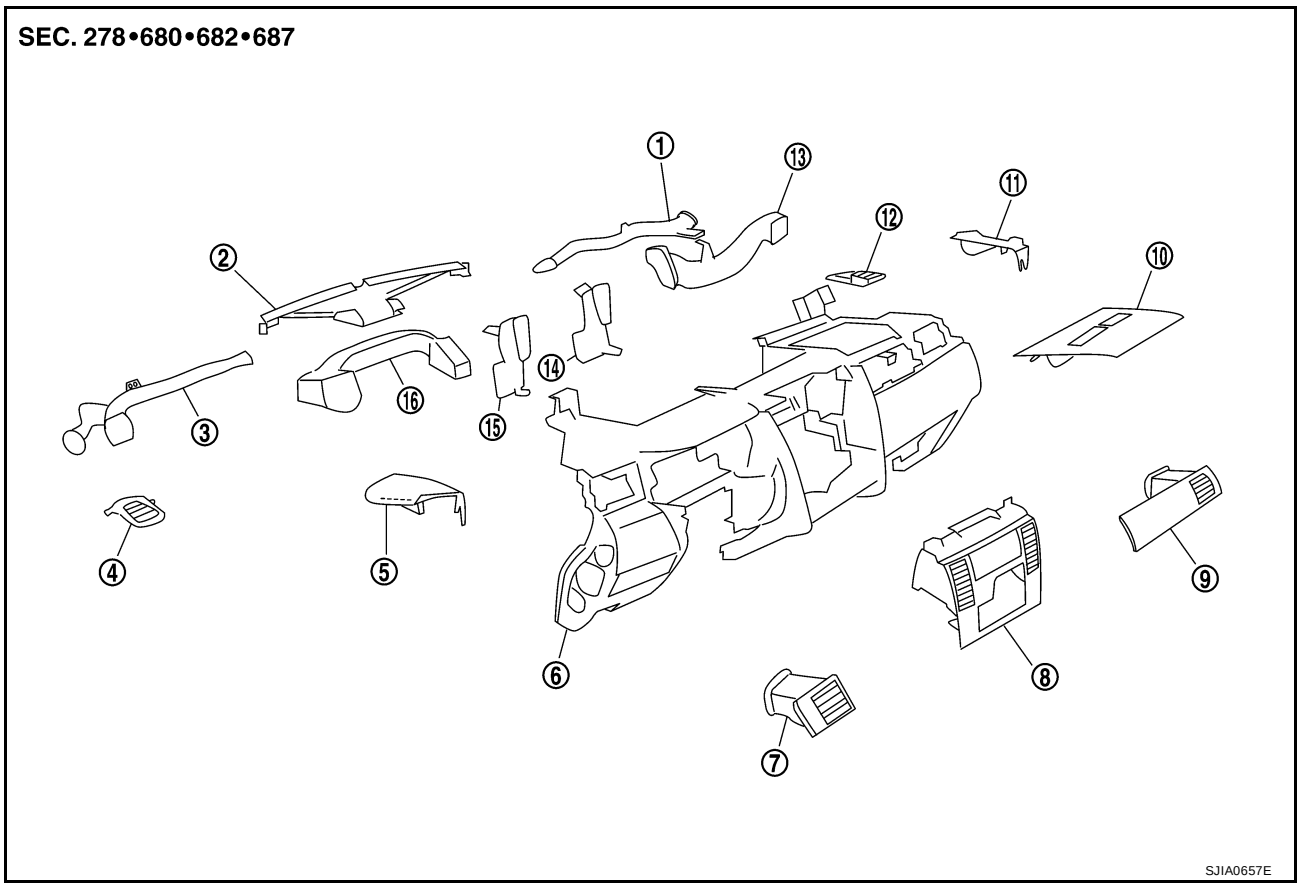
   CAUTION:
   Make sure that the air conditioner filter lower tab is fully seated, and that the air conditioner upper pawl is locked into place securing the new filter into the A/C unit assembly.
5. Install the glove box assembly. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .

DUCTS AND GRILLES

PFP:27860

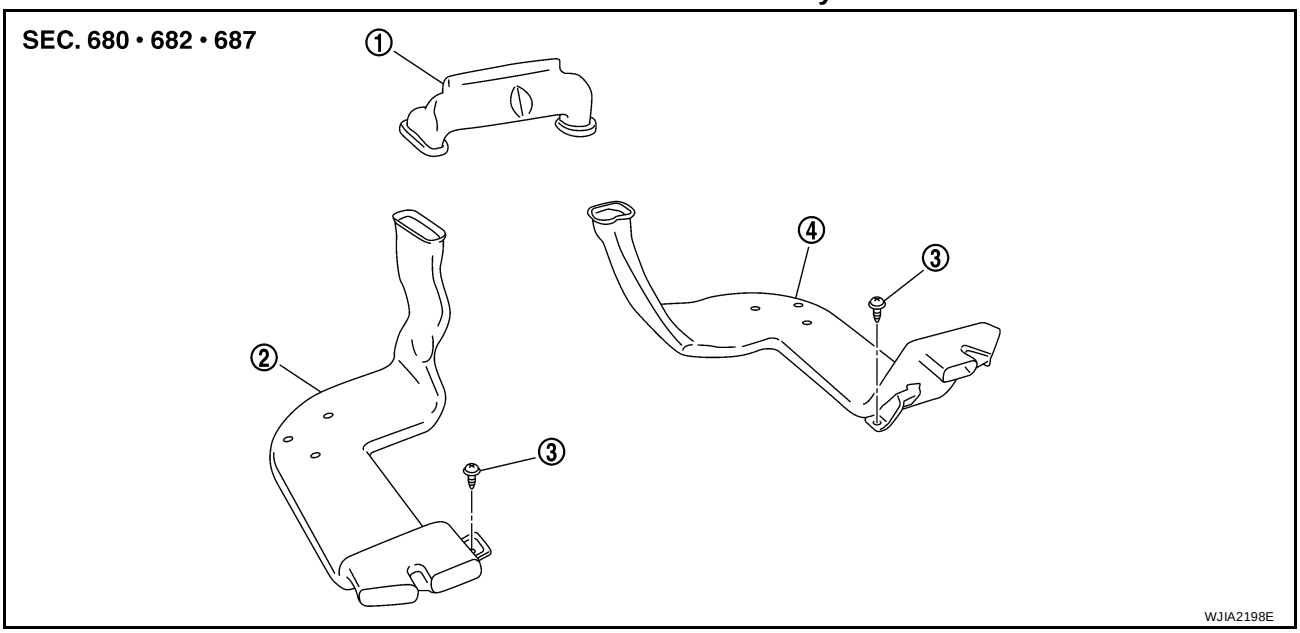
Removal and Installation

EJS0058C



1. Side defroster duct (right)
2. Defroster nozzle
3. Side defroster duct (left)
4. Side defroster grille (left)
5. Instrument side panel (left)
6. Instrument panel and pad
7. Side ventilator assembly (left)
8. Cluster lid C
9. Side ventilator assembly (right)
10. Instrument finisher E
11. Instrument side panel (right)
12. Side defroster grille (right)
13. Side ventilator duct (right)
14. Center ventilator duct (right)
15. Center ventilator duct (left)
16. Side ventilator duct (left)

Floor Ducts - Canada Only

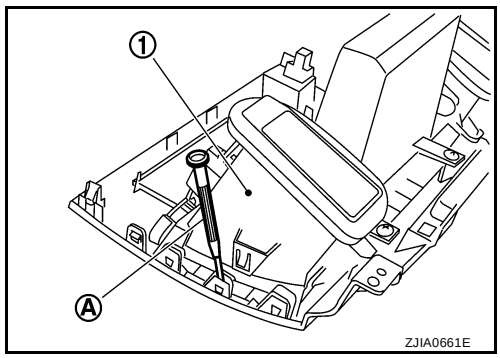


1. Front floor duct
2. Rear floor duct (left)
3. Clip
4. Rear floor duct (right)

CENTER VENTILATOR GRILLES

Removal

1. Remove cluster lid C. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove center ventilator grills (1) from cluster lid C using suitable tool (A).



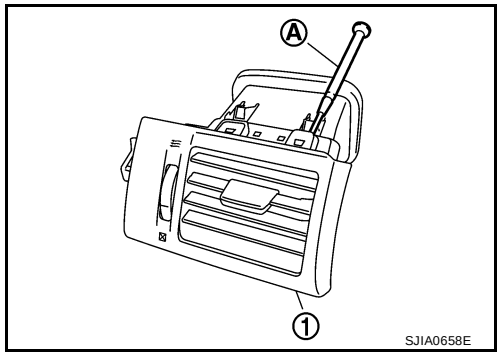
Installation

Installation is in the reverse order of removal.

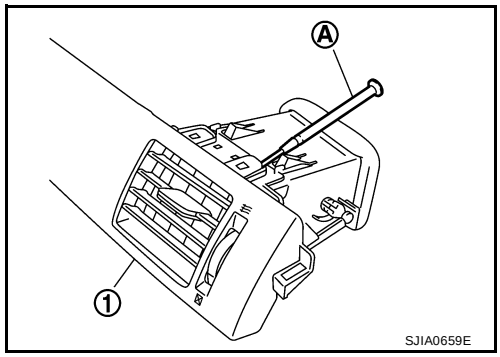
SIDE VENTILATOR GRILLES (LH/RH)

Removal

1. Remove side ventilator assembly (LH). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove side ventilator grille (LH) (1) using suitable tool (A).



3. Remove side ventilator assembly (RH). Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
4. Remove side ventilator grille (RH) (1) using suitable tool (A).

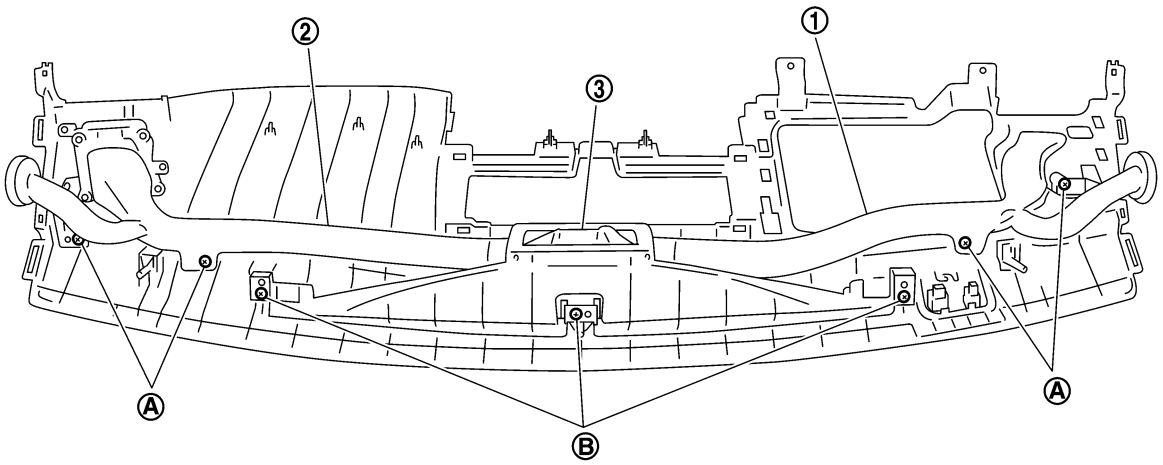


Installation

Installation is in the reverse order of removal.

DEFROSTER NOZZLE AND SIDE DEFROSTER DUCTS (LH/RH)

SEC. 680 • 682 • 687



WJIA2199E

1. Side defroster duct (RH)
2. Side defroster duct (LH)
3. Defroster nozzle
A. Side defroster duct screw
B. Defroster nozzle screw

Removal

1. Remove instrument upper finisher. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove screws and then remove side defroster duct (RH) and side defroster duct (LH).
3. Remove screws, and then remove defroster nozzle.

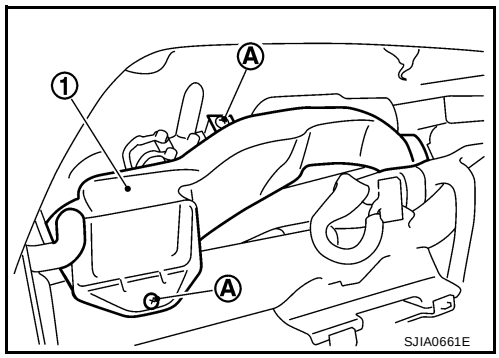
Installation

Installation is in the reverse order of removal.

SIDE VENTILATOR DUCTS

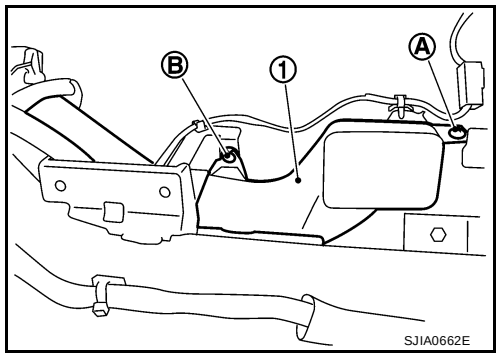
Removal

1. Remove instrument panel and pad. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove screws (A), and then remove side ventilator duct (left) (1).



SJIA0661E

3. Remove screw (A) and clip (B), and then remove side ventilator duct (right) (1).



SJIA0662E

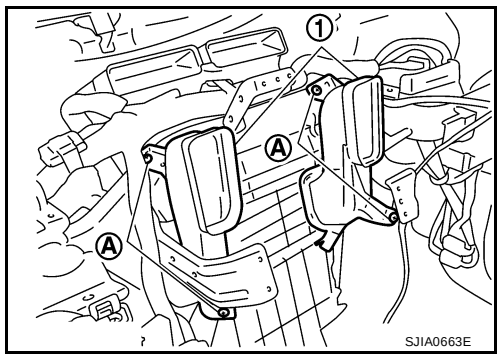
Installation

Installation is in the reverse order of removal.

CENTER VENTILATOR DUCTS

Removal

1. Remove instrument panel & pad. Refer to IP-10, "INSTRUMENT PANEL ASSEMBLY" .
2. Remove screws (A), and then remove center ventilator ducts (1).



Installation

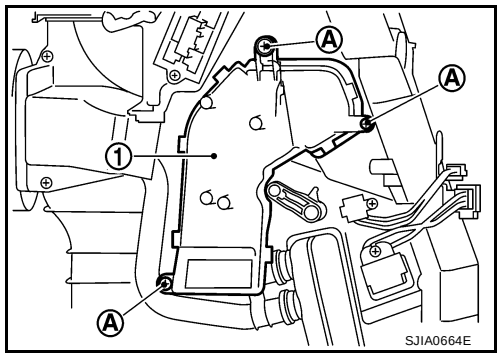
Installation is in the reverse order of removal.

SIDE FOOT DUCTS

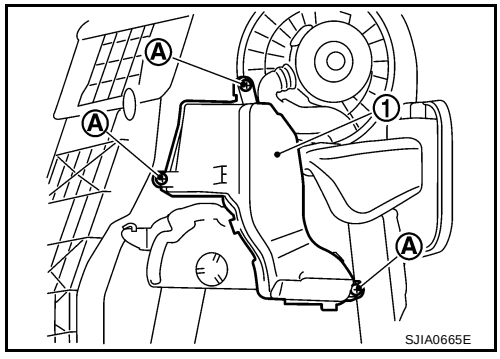
NOTE:
The side foot ducts are part of the A/C unit assembly case.

Removal

1. Remove A/C unit assembly. Refer to MTC-65, "A/C UNIT ASSEMBLY" .
2. Remove screws (A), and then remove side foot duct (LH) (1).



3. Remove screws (A), and then remove side foot duct (RH) (1).



Installation

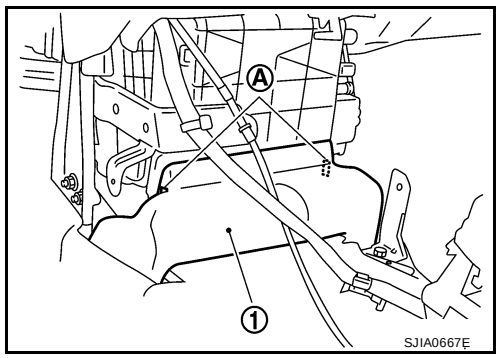
Installation is in the reverse order of removal.

FLOOR DUCTS

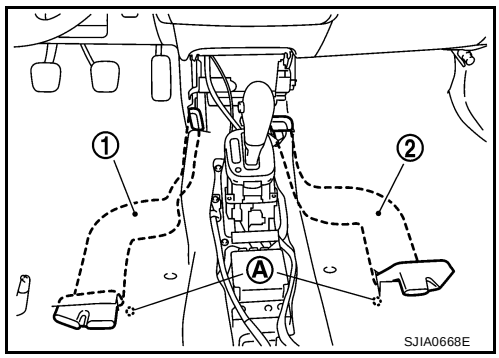
Removal

1. Remove front seats and center console assembly. Refer to SE-10, "FRONT SEAT" and IP-10, "INSTRUMENT PANEL ASSEMBLY" .

2. Disengage claws (A), and then remove front floor duct (1).



3. Peel back floor trim to a point where floor duct is visible.
4. Remove clips (A), and then remove rear floor duct (left) (1) and rear floor duct (right) (2).



Installation

Installation is in the reverse order of removal.

REFRIGERANT LINES

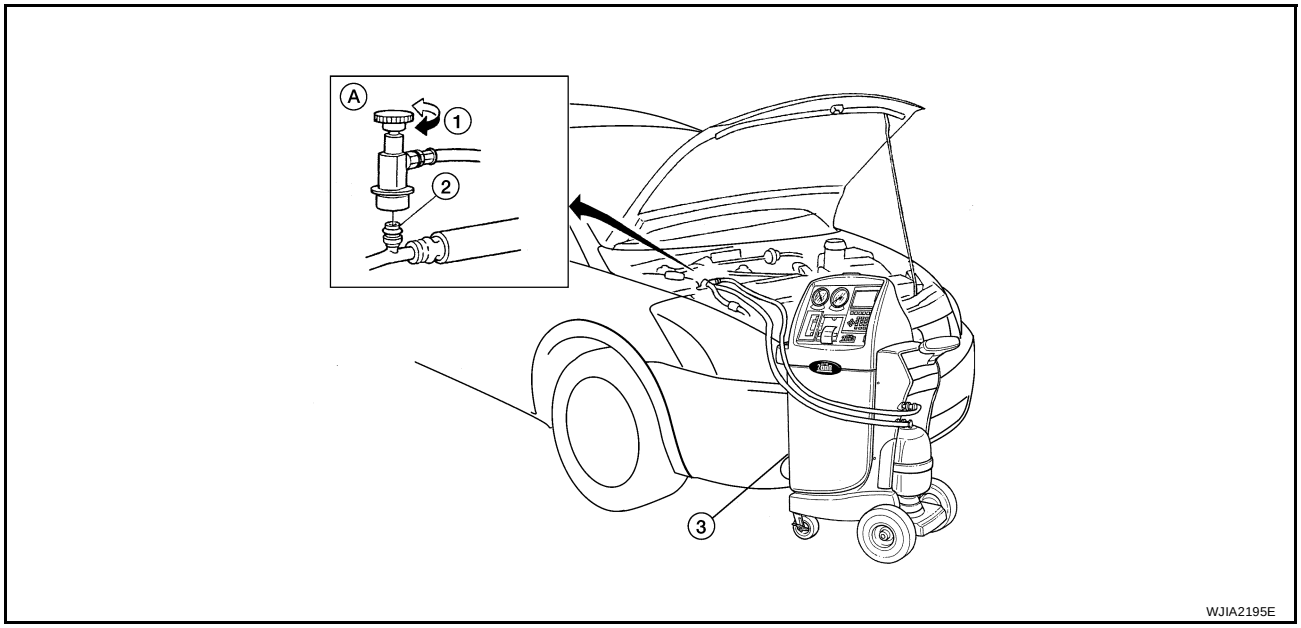
PFP:92600

HFC-134a (R-134a) Service Procedure

EJS0058D

SETTING OF SERVICE TOOLS AND EQUIPMENT

Discharging Refrigerant



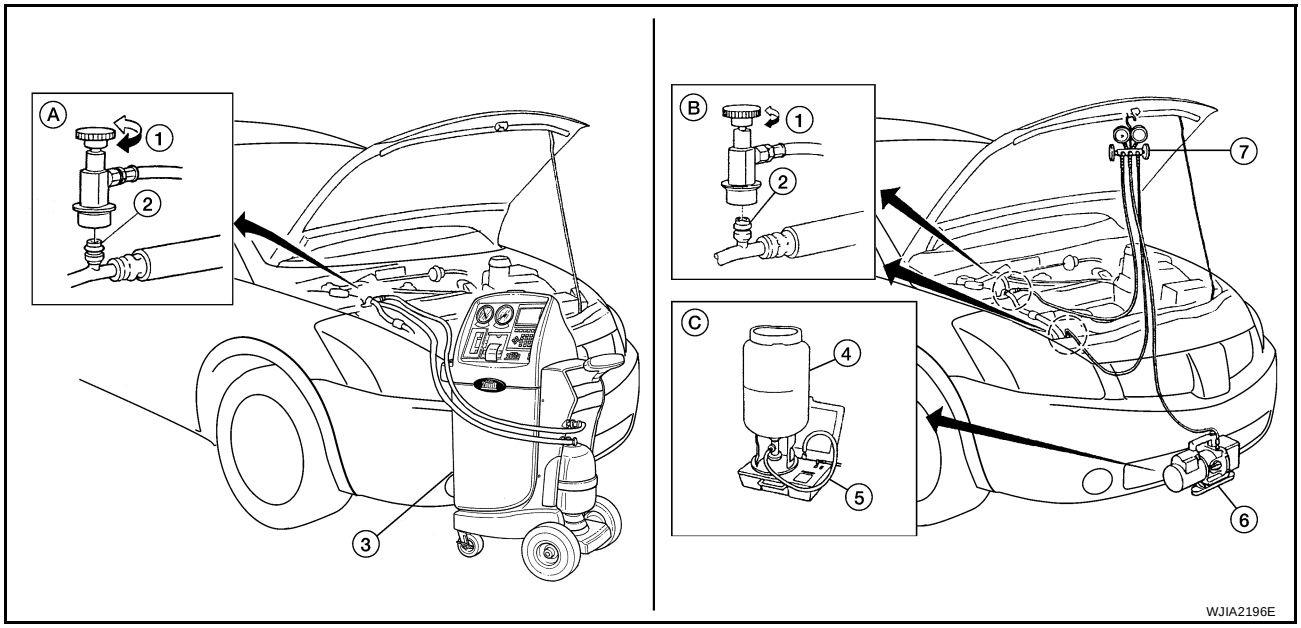
1. Shut-off valve
2. A/C service valve
3. Recovery/recycling equipment

A. Preferred (best) method

WARNING:

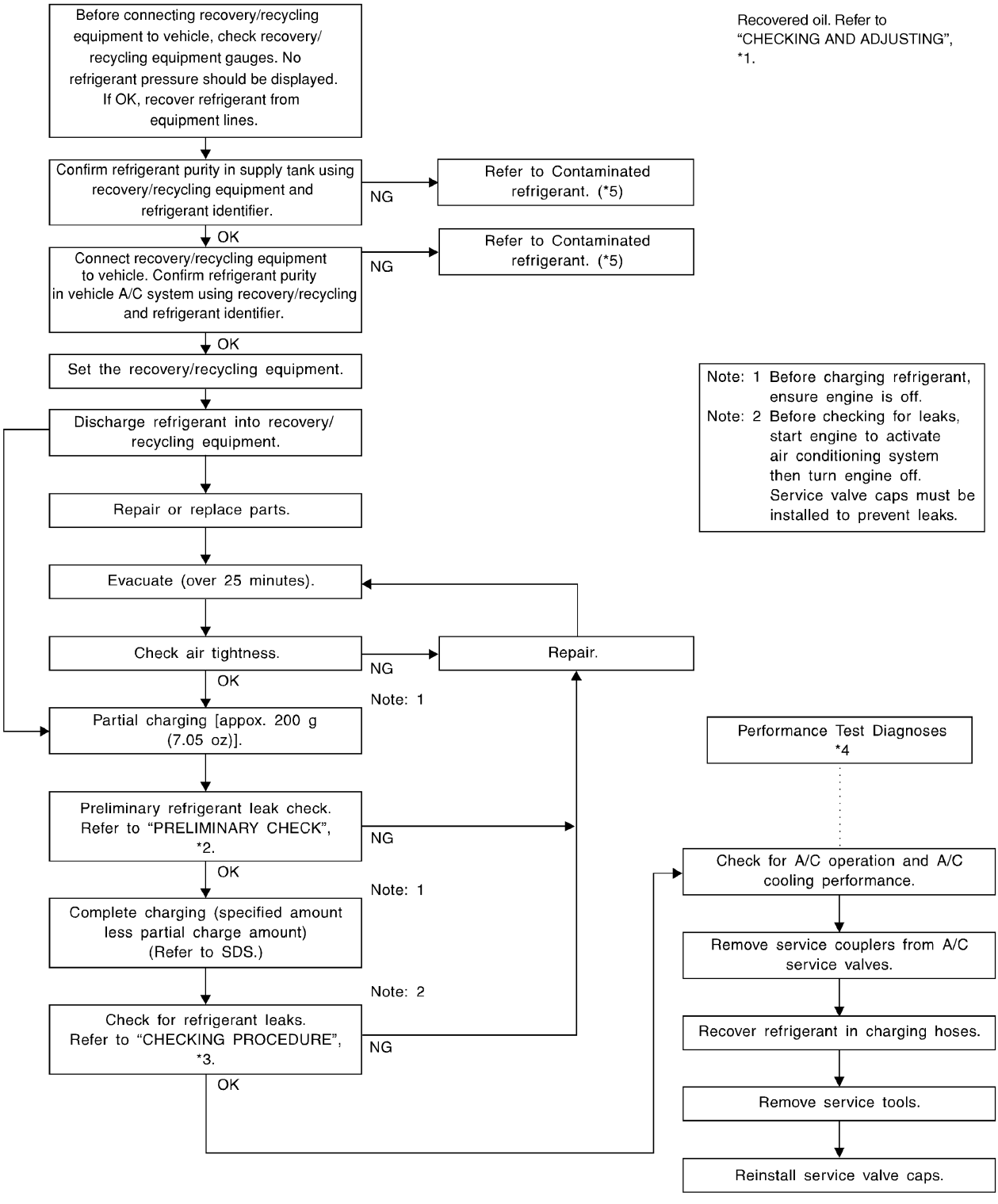
Avoid breathing A/C refrigerant and oil vapor or mist. Exposure may irritate eyes, nose and throat. Remove HFC-134a (R-134a) refrigerant from the A/C system using certified service equipment meeting requirements of SAE J2210 HFC-134a (R-134a) recycling equipment or SAE J2201 HFC-134a (R-134a) recovery equipment. If an accidental system discharge occurs, ventilate the work area before resuming service. Additional health and safety information may be obtained from the refrigerant and oil manufacturers.

Evacuating System and Charging Refrigerant



1. Shut-off valve
2. A/C service valve
3. Recovery/recycling equipment
4. Refrigerant container (HFC-134a)
5. Weight scale (J-39650)
6. Evacuating vacuum pump (J-39699)

7. Manifold gauge set (J-39183) A. Preferred (best) method B. Alternative method
C. For charging

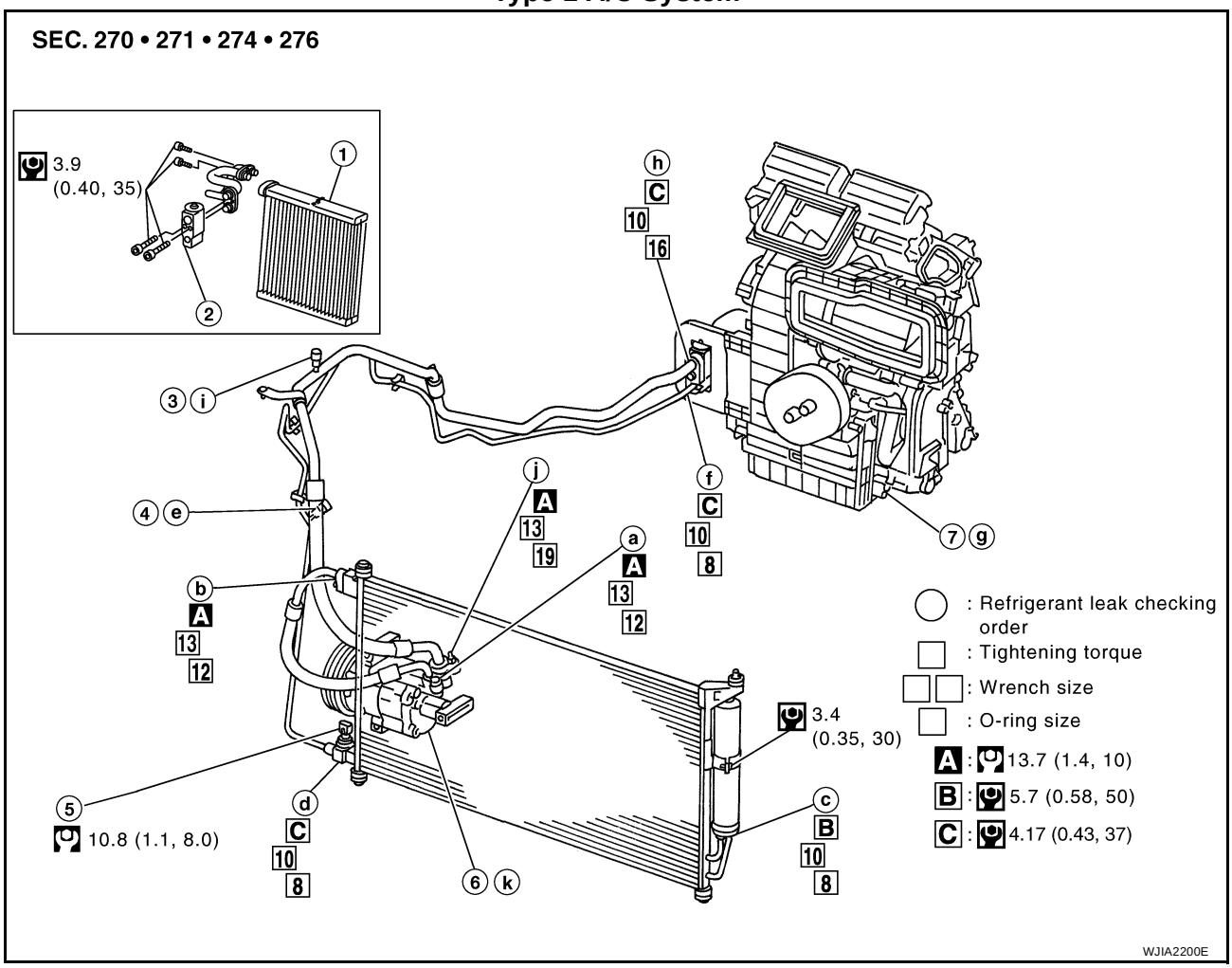


*1 MTC-18, "OIL RETURN OPERATION"
*2 MTC-93, "Checking for Refrigerant Leaks"
*3 MTC-95, "CHECKING PROCEDURE"
*4 MTC-53, "PERFORMANCE TEST DIAGNOSIS"

Components

EJS0058E

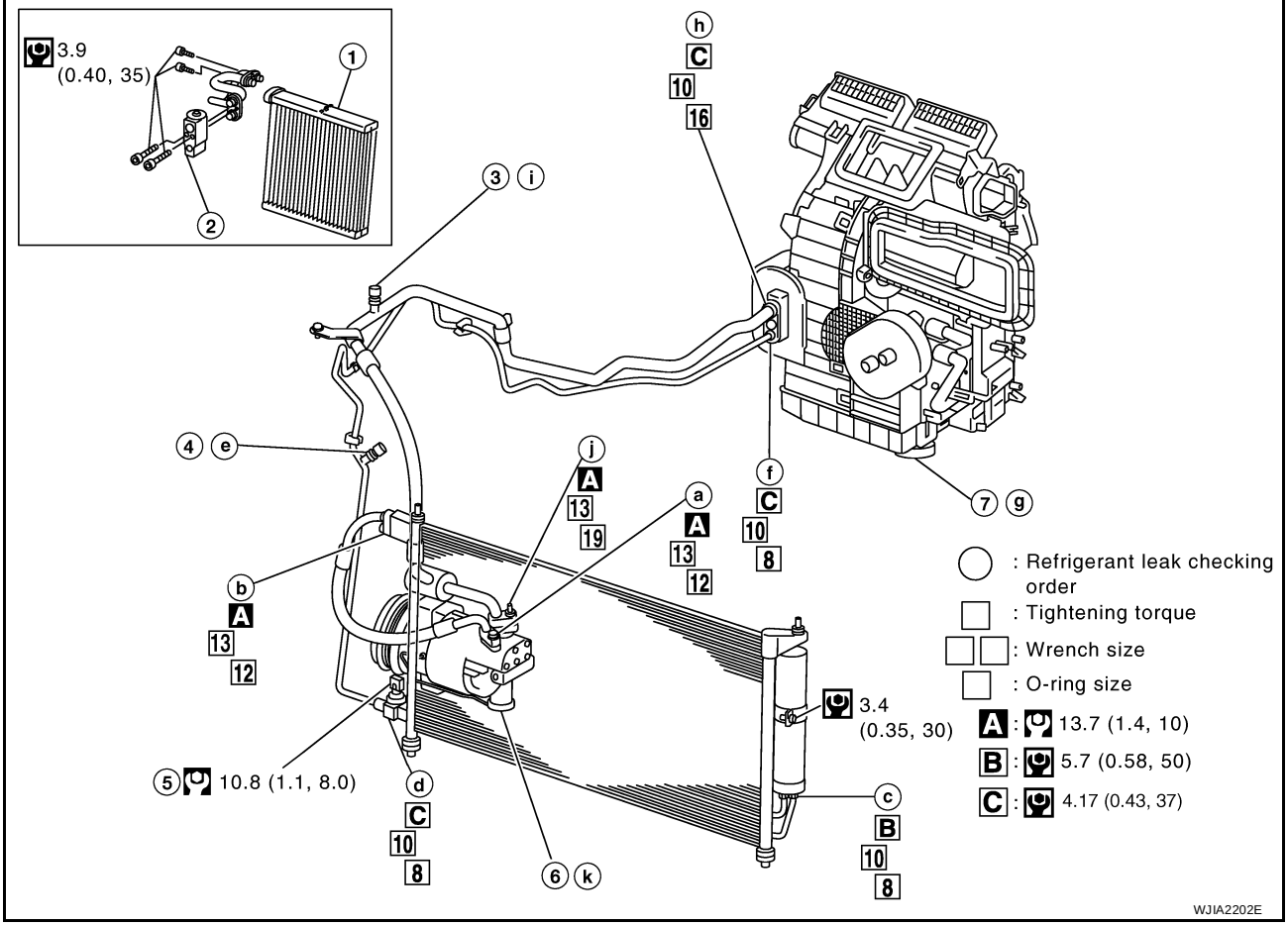
Type 1 A/C System



1. Evaporator
2. Expansion valve
3. Low-pressure service valve
4. High-pressure service valve
5. Refrigerant pressure sensor
6. Shaft seal
7. Drain hose

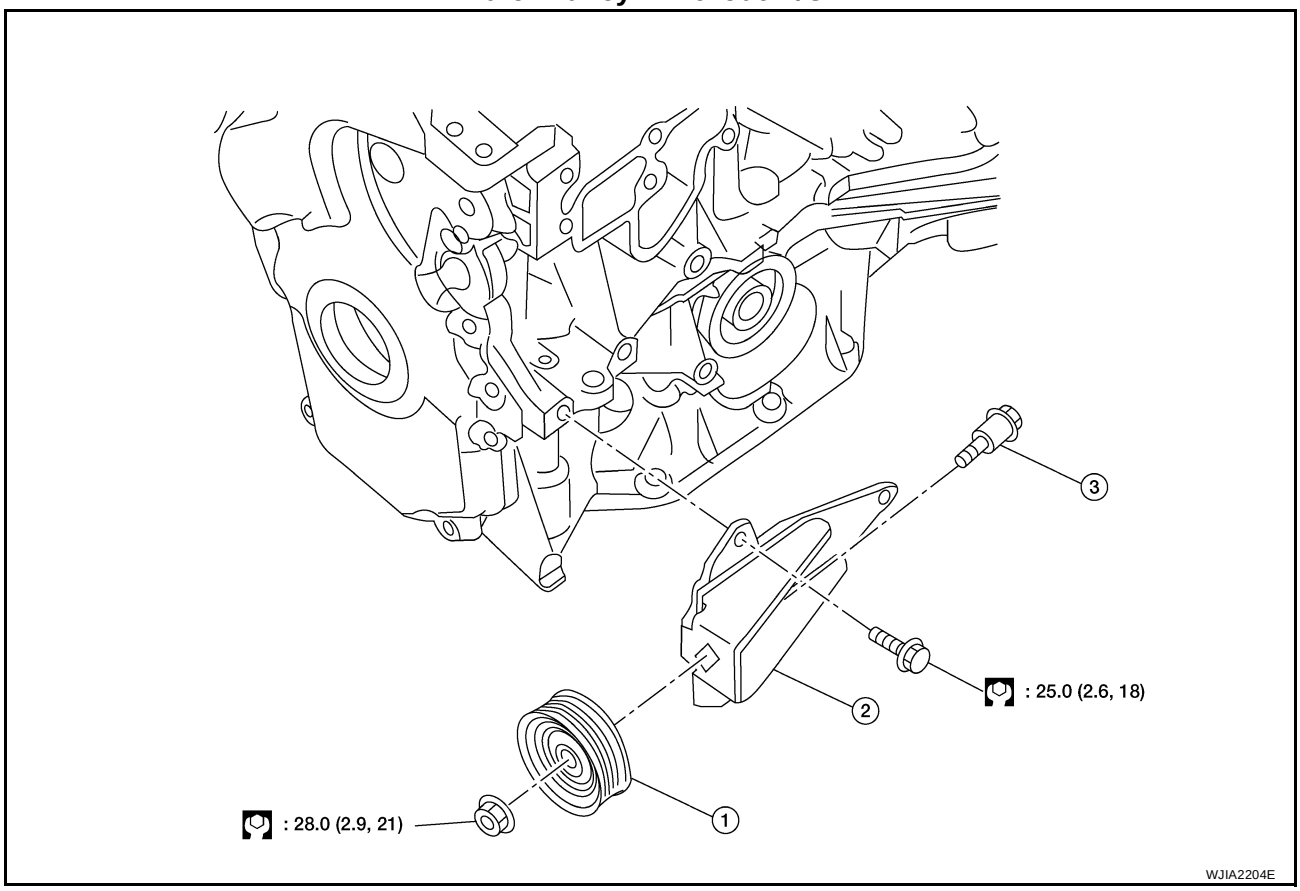
Type 2 A/C System

SEC. 270 • 271 • 274 • 276



1. Evaporator
2. Expansion valve
3. Low-pressure service valve
4. High-pressure service valve
5. Refrigerant pressure sensor
6. Shaft seal
7. Drain hose

Idler Pulley - Without A/C



1. Idler pulley
2. Bracket
3. Shaft

Refer to MTC-5, "Precautions for Refrigerant Connection" .

Removal and Installation of Compressor

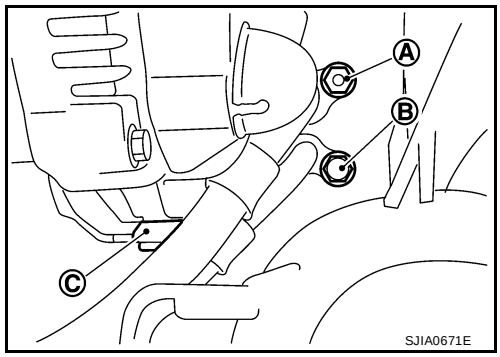
EJS0058F

REMOVAL

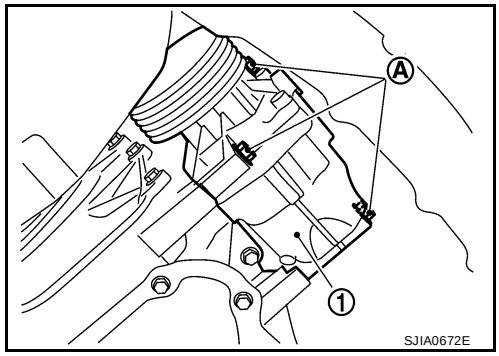
1. Use the recovery/recycling equipment to evacuate the refrigerant.
2. Remove the two engine undercovers, using power tools.
3. Remove low-pressure flexible hose nut (A) and high-pressure flexible hose bolt (B) from compressor.

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

   NOTE:
   Type 1 shown, type 2 is similar.
4. Remove A/C compressor belt. Refer to EM-13, "DRIVE BELTS" .
5. Disconnect compressor connector (C).



6. Remove bolts (A) from compressor (1), using power tools.
7. Remove compressor (1) downward from the engine compartment.

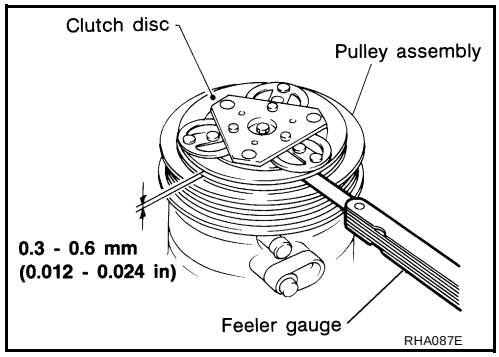


INSPECTION FOR CLUTCH DISC TO PULLEY CLEARANCE

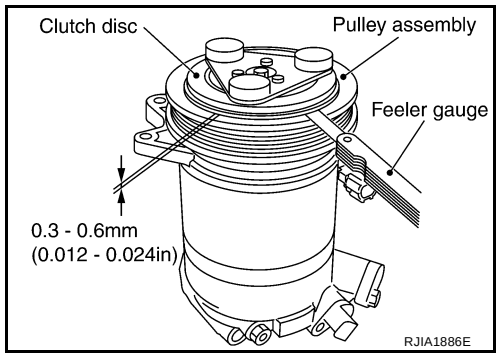
1. Check the clearance around the entire periphery of the clutch disc.

Clutch disc to pulley clearance : 0.3 - 0.6 mm (0.012 - 0.024 in)

- Measure the clearance for the type 1 compressor as shown.



- Measure the clearance for the type 2 compressor as shown.



2. If specified clearance is not obtained, replace compressor.

INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Replace O-rings of low-pressure flexible hose and high-pressure flexible hose with a new ones, and apply compressor oil when installing.**
- **When recharging refrigerant, check for leaks.**

Compressor bolts : 25 N·m (2.6 kg-m, 18 ft-lb)

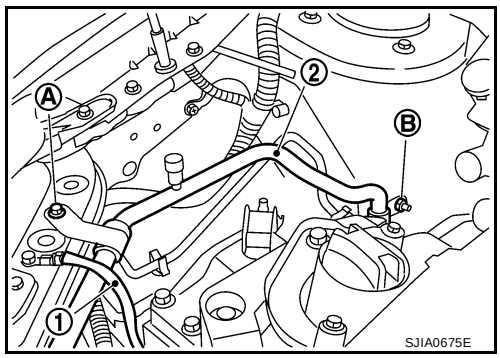
Removal and Installation of Low-pressure Flexible Hose

EJS0058G

REMOVAL

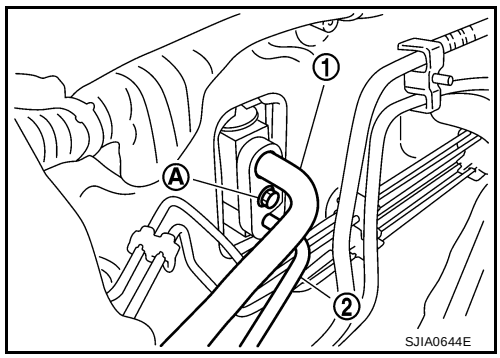
1. Use the recovery/recycling equipment to evacuate the refrigerant.
2. Remove engine cover. Refer to EM-18, "INTAKE MANIFOLD" .
3. Remove cowl top cover. Refer to EI-22, "COWL TOP" .
4. Remove lower dash insulator.

5. Remove ground wire harness (1).
6. Remove bolt (A) and nut (B) from low-pressure flexible hose (2) bracket.



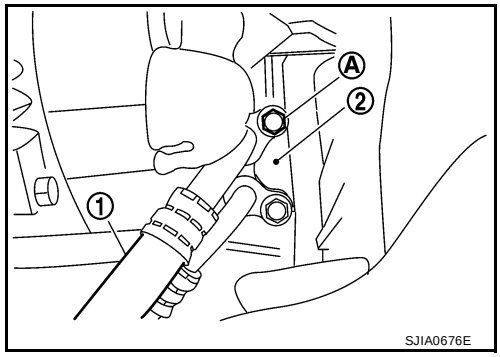
7. Remove bolt (A), and then disconnect low-pressure flexible hose (1) and high-pressure pipe (2).

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



8. Remove nut (A), and then remove low-pressure flexible hose (1) from compressor (2).

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



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

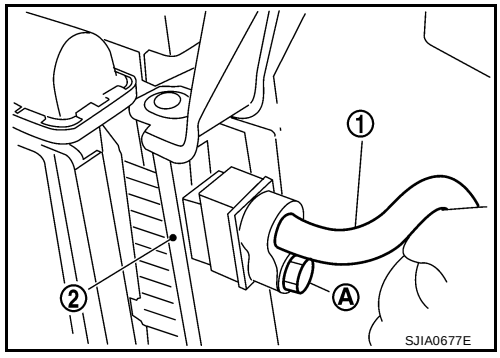
- **Replace O-rings for A/C piping with new ones, and apply compressor oil when installing.**
- **When recharging refrigerant, check for leaks.**

Removal and Installation of High-pressure Flexible Hose

EJS0058H

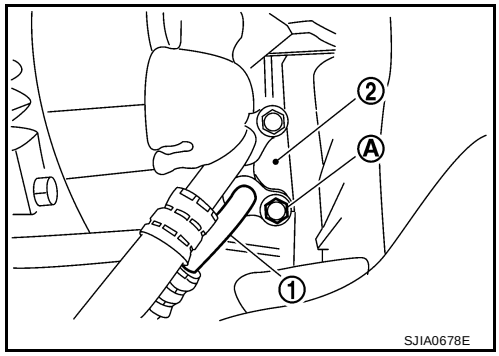
REMOVAL

1. Use the recovery/recycling equipment to evacuate the refrigerant.
2. Remove high-pressure flexible hose (1) bolt (A) from condenser (2).



3. Remove bolt (A), and then remove high-pressure flexible hose (1) from compressor (2).

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



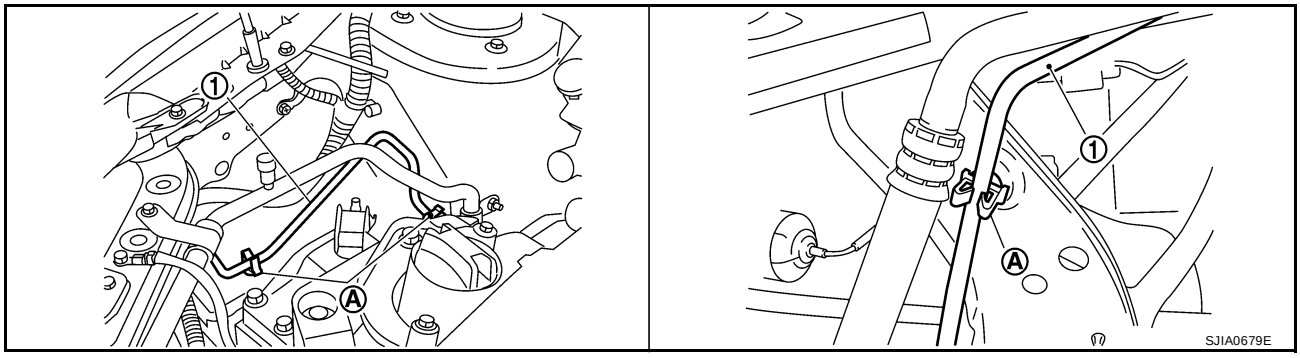
INSTALLATION

Installation is in the reverse order of removal.

CAUTION:
- **Replace O-rings of high-pressure flexible hose with a new ones, and apply compressor oil when installing.**
- **When recharging refrigerant, check for leaks.**

Removal and Installation of High-pressure Pipe

EJS0058I

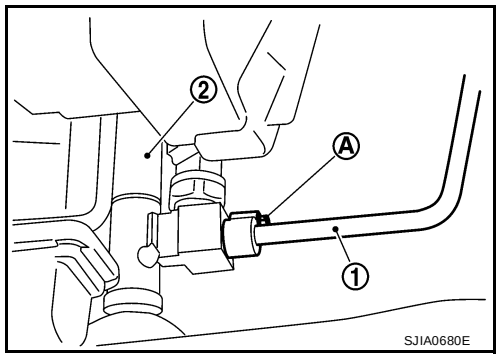


1. High-pressure pipe
A. High-pressure pipe clips

REMOVAL

1. Remove low-pressure flexible hose. Refer to MTC-86, "Removal and Installation of Low-pressure Flexible Hose" .
2. Remove high-pressure pipe from the clips.
3. Remove high-pressure pipe bolt (A), and then remove high-pressure pipe (1) from condenser (2).

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



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:
- **Replace O-rings of high-pressure pipe with a new ones, and apply compressor oil when installing.**
- **When recharging refrigerant, check for leaks.**

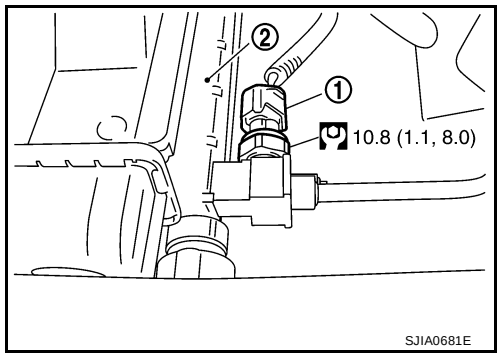
Removal and Installation of Refrigerant Pressure Sensor

EJS0058J

REMOVAL

1. Use the recovery/recycling equipment to evacuate the refrigerant.
2. Disconnect connector, and then remove refrigerant pressure sensor (1) from condenser (2).

   CAUTION:
   When working, be careful not to damage the condenser fins.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Replace O-rings of refrigerant pressure sensor with a new one, and apply compressor oil when installing.**
- **When recharging refrigerant, check for leaks.**

Removal and Installation of Condenser

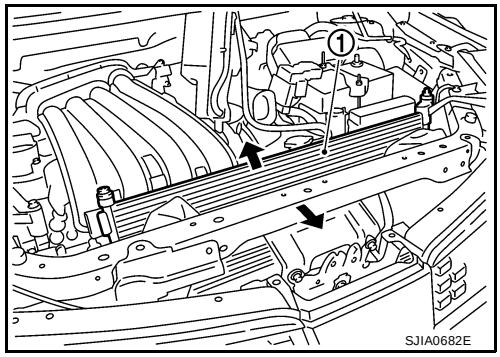
EJS0058K

REMOVAL

1. Remove the three upper headlamp bolts to reposition the headlamps out of the way
2. Remove the radiator core support upper. Refer to BL-20, "RADIATOR CORE SUPPORT" .
3. Remove high-pressure flexible hose and high-pressure pipe from condenser. Refer to MTC-87, "Removal and Installation of High-pressure Flexible Hose" and MTC-88, "Removal and Installation of High-pressure Pipe" .

   CAUTION:
   Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.
4. Disconnect refrigerant pressure sensor connector.
5. Tilt radiator toward rear of vehicle, and then remove condenser (1) from between radiator and radiator core support upper.

   CAUTION:
   Be careful not to damage the core surface of condenser and radiator.



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Replace O-rings for A/C piping with new ones, and apply compressor oil when installing.**
- **When recharging refrigerant, check for leaks.**

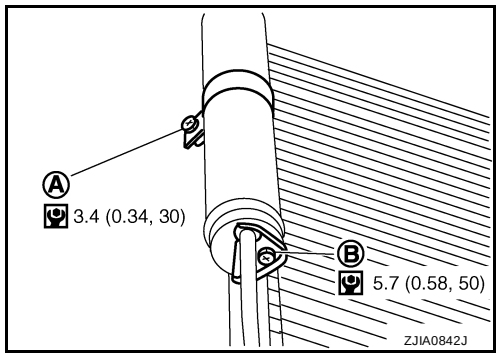
Removal and Installation of Liquid Tank

EJS0058L

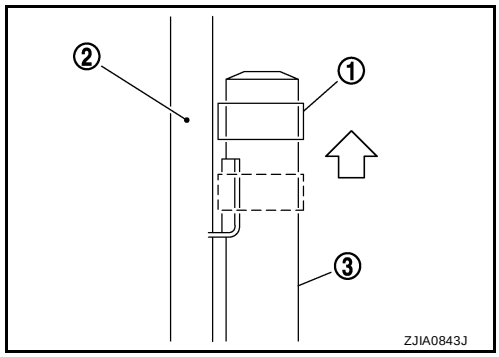
REMOVAL

1. Remove the condenser. Refer to MTC-89, "Removal and Installation of Condenser" .
2. Clean liquid tank and its surrounding area, and remove dirt and rust from liquid tank.

   CAUTION:
   Be sure to clean carefully.
3. Remove bolts (A) and (B) from liquid tank.



4. Remove liquid tank bracket (1) from protruding part of condenser (2).
5. Slide liquid tank (3) upward, and then remove liquid tank (3).

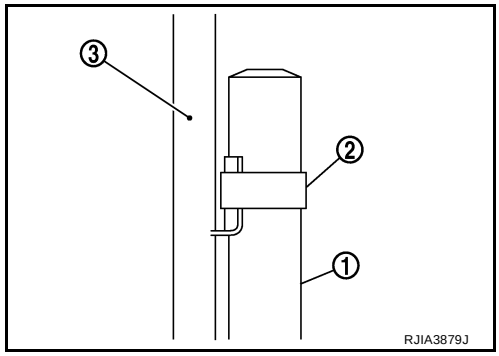


INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Make sure liquid tank bracket (2) is securely installed at protrusion of condenser (3). [Make sure liquid tank bracket (2) does not move to a position below center of liquid tank (1).]**
- **Replace O-rings for A/C piping with new ones, and apply compressor oil when installing.**
- **When recharging refrigerant, check for leaks. Refer to MTC-93, "Checking for Refrigerant Leaks" .**



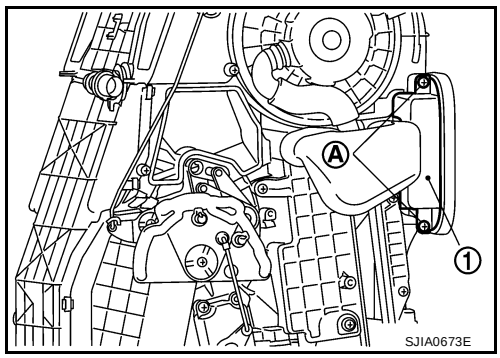
Removal and Installation of Evaporator

EJS0058M

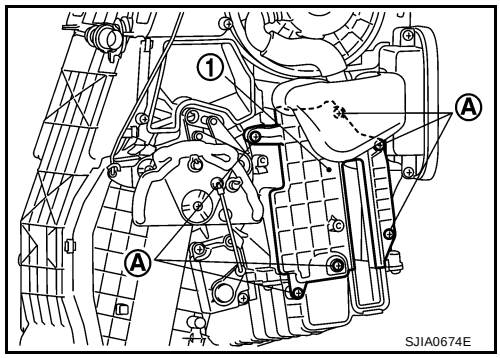
REMOVAL

1. Remove A/C unit assembly. Refer to MTC-65, "A/C UNIT ASSEMBLY" .

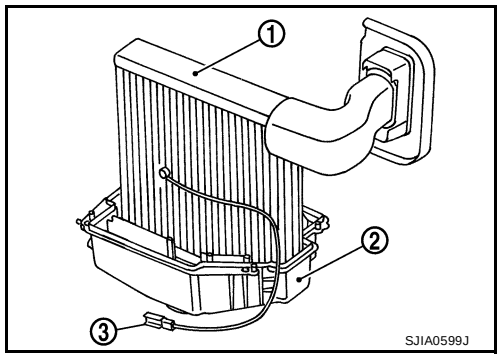
   CAUTION:
   Cap or wrap the joint of the pipe with suitable material such as vinyl tape to avoid the entry of air.
2. Remove air conditioner filter. Refer to MTC-75, "AIR CONDITIONER FILTER" .
3. Remove foot duct (right). Refer to MTC-79, "Removal" .
4. Remove screws (A), and then remove expansion valve cover (1).



5. Remove screws (A), and then remove evaporator cover (1).



6. Remove evaporator (1) with lower blower case (2) from A/C unit assembly.
7. Remove thermo control amp. (3) from evaporator (1), if equipped (TYPE 1 systems).
8. Remove evaporator (1) from lower blower case (2).



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Replace O-rings for A/C piping with new ones, and apply compressor oil when installing.**
- **Mark the position of the thermo control amp., if equipped (TYPE 1 systems).**
- **When recharging refrigerant, check for leaks.**

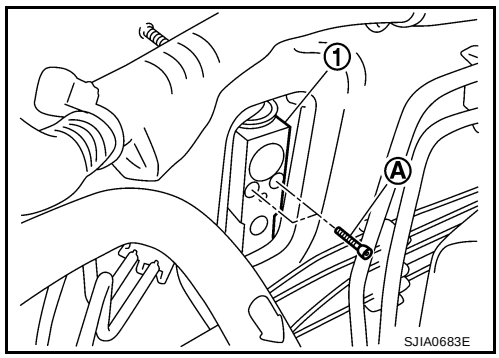
Removal and Installation of Expansion Valve

EJS0058N

REMOVAL

1. Use the recovery/recycling equipment to evacuate the refrigerant.
2. Remove cowl top cover. Refer to EI-22, "COWL TOP" .
3. Remove lower dash insulator.
4. Disconnect low-pressure flexible hose and high-pressure pipe from evaporator. Refer to MTC-65, "A/C UNIT ASSEMBLY" .
5. Remove expansion valve bolts (A), and then remove expansion valve (1).

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



INSTALLATION

Installation is in the reverse order of removal.

CAUTION:

- **Replace O-rings of evaporator with new ones, and apply compressor oil when installing.**
- **When recharging refrigerant, check for leaks.**

Checking for Refrigerant Leaks

EJS0058O

Perform a visual inspection of all refrigeration parts, fittings, hoses and components for signs of A/C oil leakage, damage and corrosion. A/C oil leakage may indicate an area of refrigerant leakage. Allow extra inspection time in these areas when using either an electronic refrigerant leak detector or fluorescent dye leak detector.
If dye is observed, confirm the leak with an electronic refrigerant leak detector. It is possible a prior leak was repaired and not properly cleaned.
When searching for leaks, do not stop when one leak is found but continue to check for additional leaks at all system components and connections.
When searching for refrigerant leaks using an electronic leak detector, move the probe along the suspected leak area at 25 to 50 mm (1 to 2 in) per second and no further than 1/4 inch from the component.

CAUTION:
Moving the electronic leak detector probe slower and closer to the suspected leak area will improve the chances of finding a leak.

Checking System for Leaks Using the Fluorescent Leak Detector

EJS0058P

1. Check A/C system for leaks using the UV lamp and safety goggles J-42220 in a low sunlight area (area without windows preferable). Illuminate all components, fittings and lines. The dye will appear as a bright green/yellow area at the point of leakage. Fluorescent dye observed at the evaporator drain opening indicates an evaporator core assembly (tubes, core or expansion valve) leak.
2. If the suspected area is difficult to see, use an adjustable mirror or wipe the area with a clean shop rag or cloth, with the UV lamp for dye residue.
3. After the leak is repaired, remove any residual dye using dye cleaner J-43872 to prevent future misdiagnosis.
4. Perform a system performance check and verify the leak repair with an approved electronic refrigerant leak detector.

NOTE:
Other gases in the work area or substances on the A/C components, for example, anti-freeze, windshield washer fluid, solvents and oils, may falsely trigger the leak detector. Make sure the surfaces to be checked are clean.
Clean with a dry cloth or blow off with shop air.
Do not allow the sensor tip of the detector to contact with any substance. This can also cause false readings and may damage the detector.

Dye Injection

EJS0058Q

(This procedure is only necessary when recharging the system or when the compressor has seized and was replaced.)

1. Check A/C system static (at rest) pressure. Pressure must be at least 345 kPa (3.45 bar, 3.52 kg/cm^2 , 50 psi).
2. Pour one bottle (1/4 ounce / 7.4 cc) of the A/C refrigerant dye into the injector tool J-41459.
3. Connect the injector tool to the A/C low-pressure side service fitting.
4. Start engine and switch A/C ON.
5. When the A/C operating (compressor running), inject one bottle (1/4 ounce / 7.4 cc) of fluorescent dye through the low-pressure service valve using dye injector tool J-41459 (refer to the manufacture's operating instructions).
6. With the engine still running, disconnect the injector tool from the service fitting.

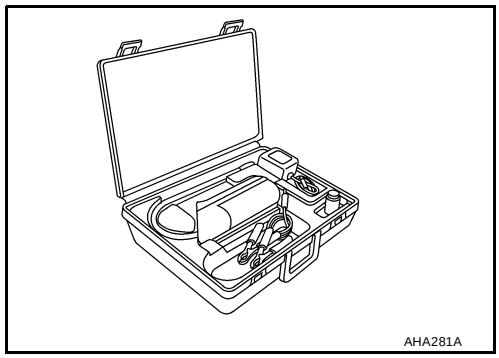
   CAUTION:
   Be careful the A/C system or replacing a component, pour the dye directly into the open system connection and proceed with the service procedures.
7. Operate the A/C system for a minimum of 20 minutes to mix the dye with the system oil. Depending on the leak size, operating conditions and location of the leak, it may take from minutes to days for the dye to penetrate a leak and become visible.

Electronic Refrigerant Leak Detector

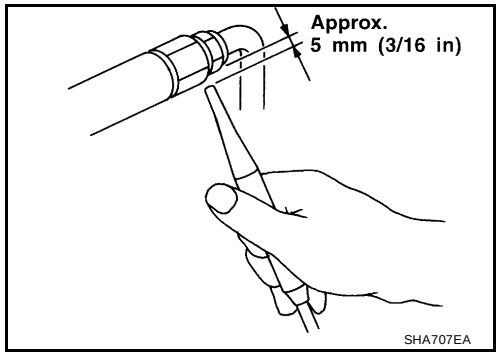
EJS0058R

PRECAUTIONS FOR HANDLING LEAK DETECTOR

When performing a refrigerant leak check, use an A/C electrical leak detector (SST) or equivalent. Ensure that the instrument is calibrated and set properly per the operating instructions.
The leak detector is a delicate device. In order to use the leak detector properly, read the operating instructions and perform any specified maintenance.

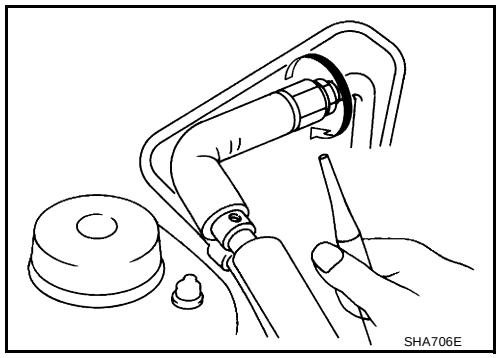

AHA281A

1. Position probe approximately 5 mm (3/16 in) away from point to be checked.

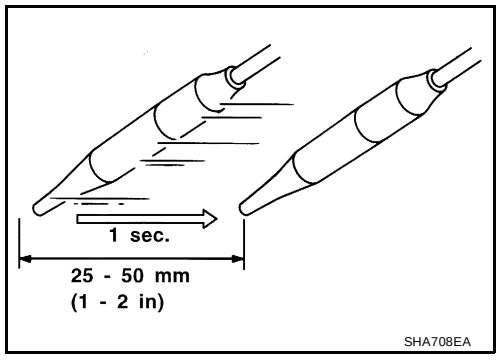


SHA707EA

2. When testing, circle each fitting completely with probe.


SHA706E

3. Move probe along component approximately 25 to 50 mm (1 to 2 in) per second.



SHA708EA

CHECKING PROCEDURE

To prevent inaccurate or false readings, make sure there is no refrigerant vapor, shop chemicals, or cigarette smoke in the vicinity of the vehicle. Perform the leak test in calm area (low air/wind movement) so that the leaking refrigerant is not dispersed.

1. Turn engine OFF.
2. Connect a suitable A/C manifold gauge set to the A/C service ports.
3. Check if the A/C refrigerant pressure is at least 345 kPa (3.45 bar, 3.52 kg/cm^2 , 50 psi) above 16°C. If less than specification, recover/evacuate and recharge the system with the specified amount of refrigerant.

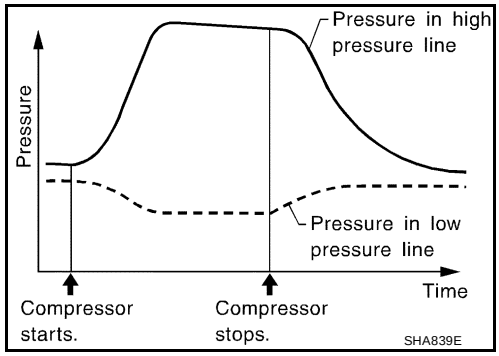
   NOTE:
   At temperatures below 16°C, leaks may not be detected since the system may not reach 345 kPa (3.45 bar, 3.52 kg/cm^2 , 50 psi).
4. Perform the leak test from the high-pressure side (compressor discharge a to evaporator inlet f) to the low-pressure side (evaporator drain hose g to shaft seal k). Refer to MTC-83, "Components" . Perform a leak check for the following areas carefully. Clean the component to be checked and move the leak detected probe completely around the connection/component.
   - Compressor
     Check the fitting of high- and low-pressure flexible hoses, relief valve and shaft seal.
   - Condenser
     Check the fitting of high-pressure flexible hose and pipe, refrigerant pressure sensor.
   - Liquid tank
     Check the refrigerant connection.
   - Service valves
     Check all around the service valves. Ensure service valve caps are secured on the service valves (to prevent leaks).

     NOTE:
     After removing A/C manifold gauge set from service valves, wipe any residue from valves to prevent any false readings by leak detector.
   - Cooling unit (Evaporator)
     With engine OFF, turn blower fan on “High” for at least 15 seconds to dissipate any refrigerant trace in the cooling unit. Wait a minimum of 10 minutes accumulation time (refer to the manufacturer’s recommended procedure for actual wait time) before inserting the leak detector probe into the drain hose.
     Keep the probe inserted for at least 10 seconds. Use caution not to contaminate the probe tip with water or dirt that may be in the drain hose.
5. If a leak detector detects a leak, verify at least once by blowing compressed air into area of suspected leak, then repeat check as outlined above.
6. Do not stop when one leak is found. Continue to check for additional leaks at all system components.
   If no leaks are found, perform steps 7-10.
7. Start engine.
8. Set the heater A/C control as follows;

a. A/C switch: ON
b. Mode control dial position: VENT (Ventilation)
c. Intake door lever position: Recirculation
d. Max. cold temperature
e. Fan speed: High

9. Run engine at 1,500 rpm for at least 2 minutes.

10. Turn engine off and perform leak check again following steps 4 through 6 above.
    Refrigerant leaks should be checked immediately after stopping the engine. Begin with the leak detector at the compressor. The pressure on the high-pressure side will gradually drop after refrigerant circulation stops and pressure on the low-pressure side will gradually rise, as shown in the graph. Some leaks are more easily detected when pressure is high.



11. Before connecting recovery/recycling equipment to vehicle, check recovery/recycling equipment gauges. No refrigerant pressure should be displayed. If pressure is displayed, recover refrigerant from equipment lines.
12. Discharge A/C system using approved refrigerant recovery/recycling equipment. Repair the leaking fitting or component if necessary.
13. Evacuate and recharge A/C system and perform the leak test to confirm no refrigerant leaks.
14. Perform A/C performance test to ensure system works properly.

SERVICE DATA AND SPECIFICATIONS (SDS)

PFP:00030

Compressor

EJS0058S

Service information		TYPE 1	TYPE 2
Model		Calsonic Kansei make CR-10	Calsonic Kansei make CSV511
Type		Vane rotary	Variable displacement swash plate
Displacement cm^3 (in^3) / revolution	maximum	96 (5.86)	105 (6.41)
Cylinder bore × stroke mm (in)	maximum	—	34.8 (1.37) × 22.1 (0.87)
Direction of rotation		Clockwise (viewed from drive end)	
Drive belt		Poly-V Ribbed 6-Groove	

Oil

EJS0058T

Service information		TYPE 1	TYPE 2
Compressor model		Calsonic Kansei make CR-10	Calsonic Kansei make CSV511
Type		NISSAN A/C System Oil Type R	NISSAN A/C System Oil Type S
Capacity m ℓ (US fl oz, lmp fl oz)	Total in system	120 (4.1, 4.2)	100 (3.4, 3.5)
	Compressor (service part) charging amount	Refer to MTC-19, "OIL ADJUSTING PROCEDURE FOR COMPRESSOR REPLACEMENT" .	Refer to MTC-19, "OIL ADJUSTING PROCEDURE FOR COMPRESSOR REPLACEMENT" .

Refrigerant

EJS0058U

Type	HFC-134a (R-134a)
Capacity kg (lb)	0.45 ± 0.05 (0.99 ± 0.11)

Engine Idling Speed

EJS0058V

Refer to EC-75, "Idle Speed and Ignition Timing Check" .

Belt Tension

EJS0058W

Refer to EM-13, "DRIVE BELTS" .