

SECTION **HA**

HEATER & AIR CONDITIONING SYSTEM

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000001162073

DETAILED FLOW

1. LISTEN TO CUSTOMER COMPLAINT

Listen to customer complaint. (Get detailed information about the conditions and environment when the symptom occurs.)

>> GO TO 2.

2. VERIFY THE SYMPTOM WITH OPERATIONAL CHECK

Verify the symptom with operational check. Refer to [HAC-5, "Description & Inspection"](#).

>> GO TO 3.

3. GO TO APPROPRIATE TROUBLE DIAGNOSIS

Go to appropriate trouble diagnosis (Refer to [HAC-179, "Diagnosis Chart By Symptom"](#) below).

>> GO TO 4.

4. REPAIR OR REPLACE

Repair or replace the specific parts.

>> GO TO 5.

5. FINAL CHECK

Final check.

Is the inspection result normal?

YES >> CHECK OUT

NO >> GO TO 3.

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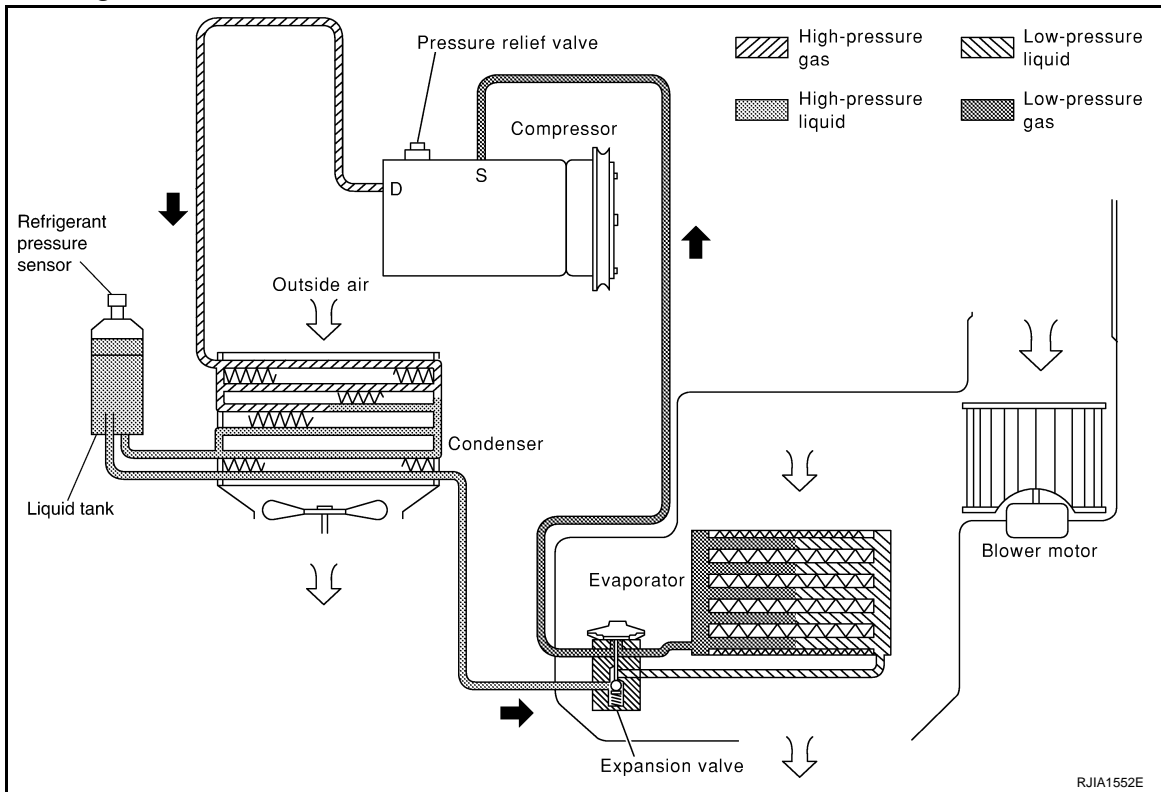
REFRIGERATION SYSTEM

< FUNCTION DIAGNOSIS >

FUNCTION DIAGNOSIS

REFRIGERATION SYSTEM

System Diagram



System Description

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REFRIGERANT CYCLE

Refrigerant Flow

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

Freeze Protection

To prevent evaporator from freezing up, the evaporator air temperature is monitored, and the voltage signal to the auto amp. makes the A/C relay go OFF and stop the compressor.

REFRIGERANT SYSTEM PROTECTION

Refrigerant Pressure Sensor

The refrigerant system is protected against excessively high- or low-pressures by the refrigerant pressure sensor, located on the condenser. The refrigerant pressure sensor detects the pressure inside the refrigerant line and sends the voltage signal to the ECM if the system pressure rises above, or falls below the specifications. 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 approximately 3,119 kPa (31.19 bar, 31.8 kg/cm², 452 psi), or below approximately 118 kPa (1.18 bar, 1.2 kg/cm², 17 psi).

Pressure Relief Valve

The refrigerant system is also protected by a pressure relief valve, located in the rear head of the compressor. The release port on the pressure relief valve automatically opens and releases refrigerant into the atmosphere when the pressure of refrigerant in the system increases to an unusual level [more than 3.6 MPa (36 bar, 36.7 kg/cm², 522 psi)].

LUBRICANT

REFRIGERATION SYSTEM

< FUNCTION DIAGNOSIS >

Maintenance of Lubricant Quantity in Compressor

The lubricant in the compressor circulates through the system with the refrigerant. Add lubricant to compressor when replacing any component or after a large refrigerant leakage occurred. It is important to maintain the specified amount.

The following malfunctions may result if lubricant quantity is not maintained normally:

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

Lubricant

Name : Nissan A/C System Oil Type S

Component Parts Location

INFOID:000000001162076

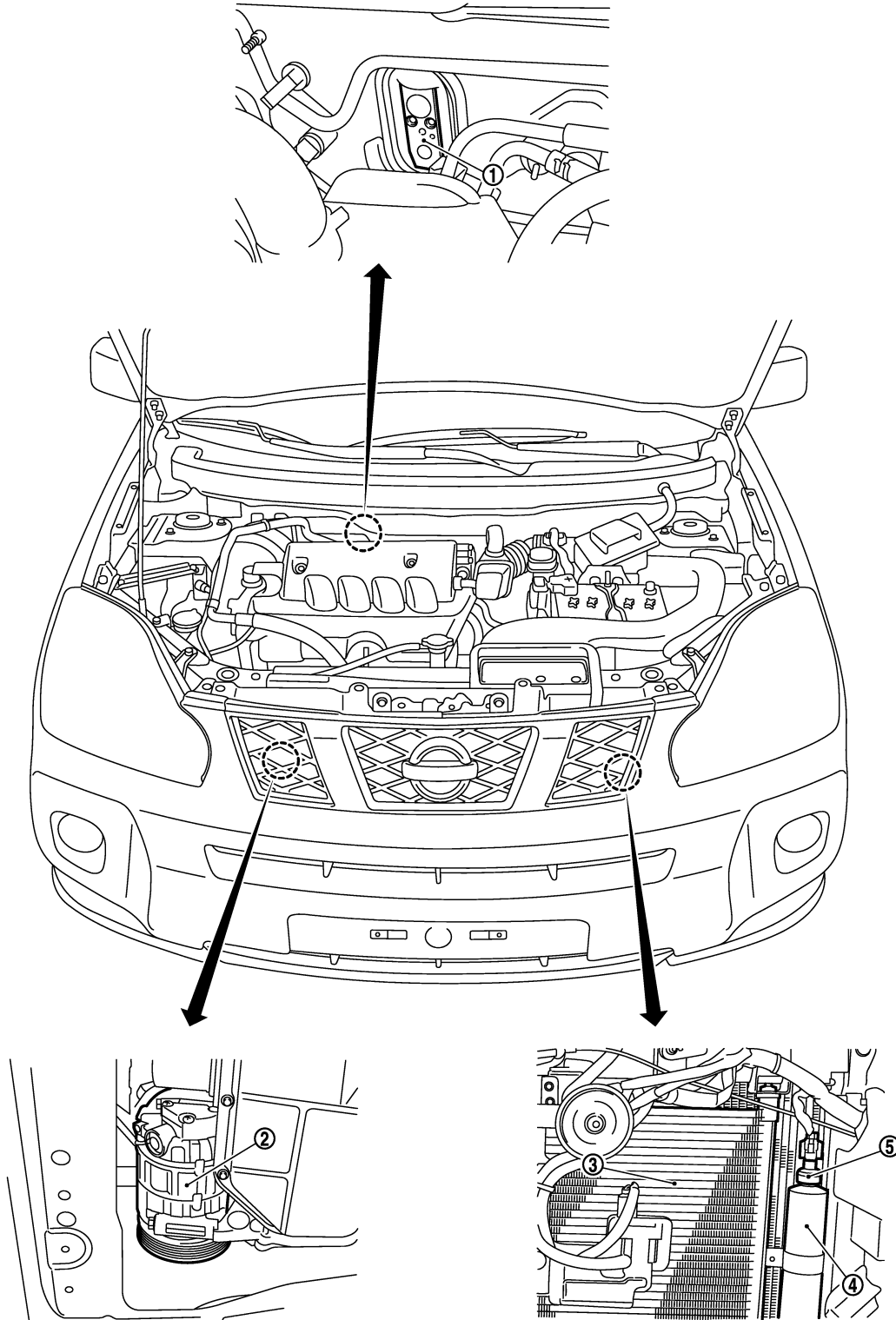
ENGINE COMPARTMENT

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REFRIGERATION SYSTEM

< FUNCTION DIAGNOSIS >



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- 1. Expansion valve
- 4. Liquid tank

- 2. Compressor
- 5. Refrigerant pressure sensor

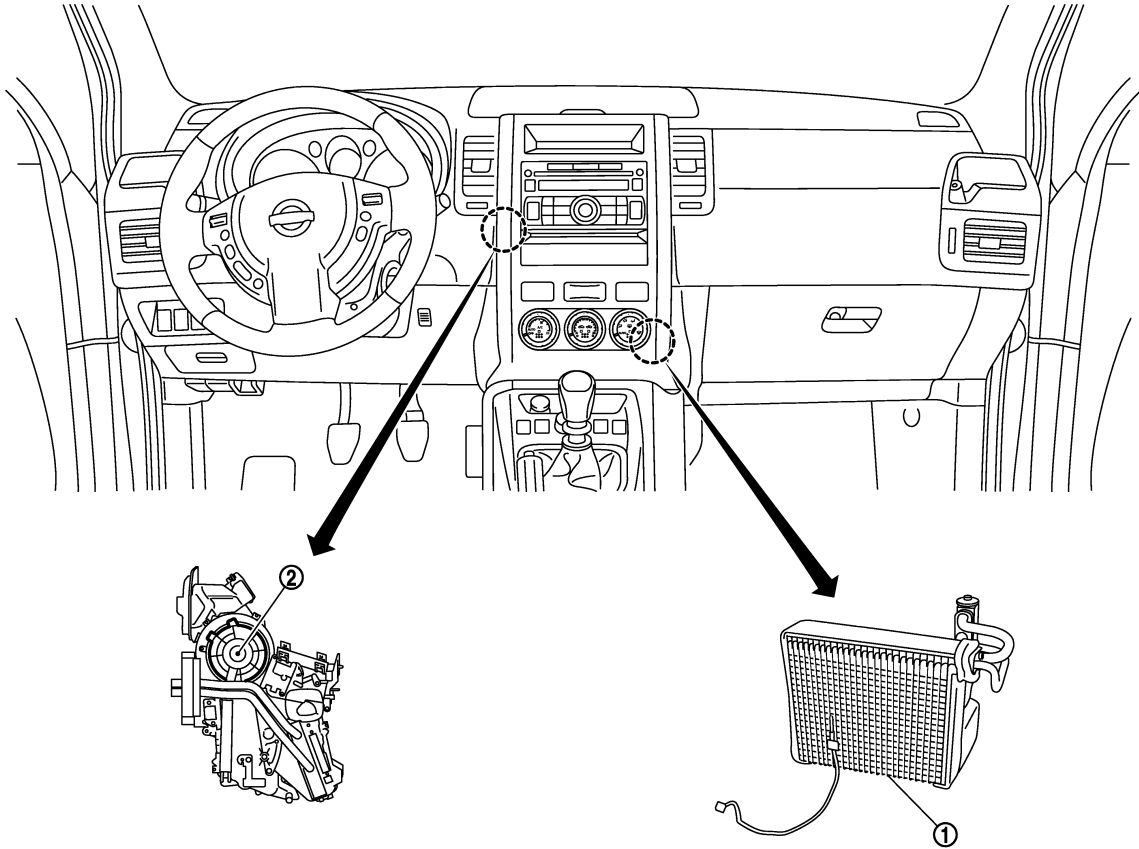
- 3. Condenser

PASSENGER COMPARTMENT

LHD models

REFRIGERATION SYSTEM

< FUNCTION DIAGNOSIS >



1. Evaporator

2. Blower motor

RHD models

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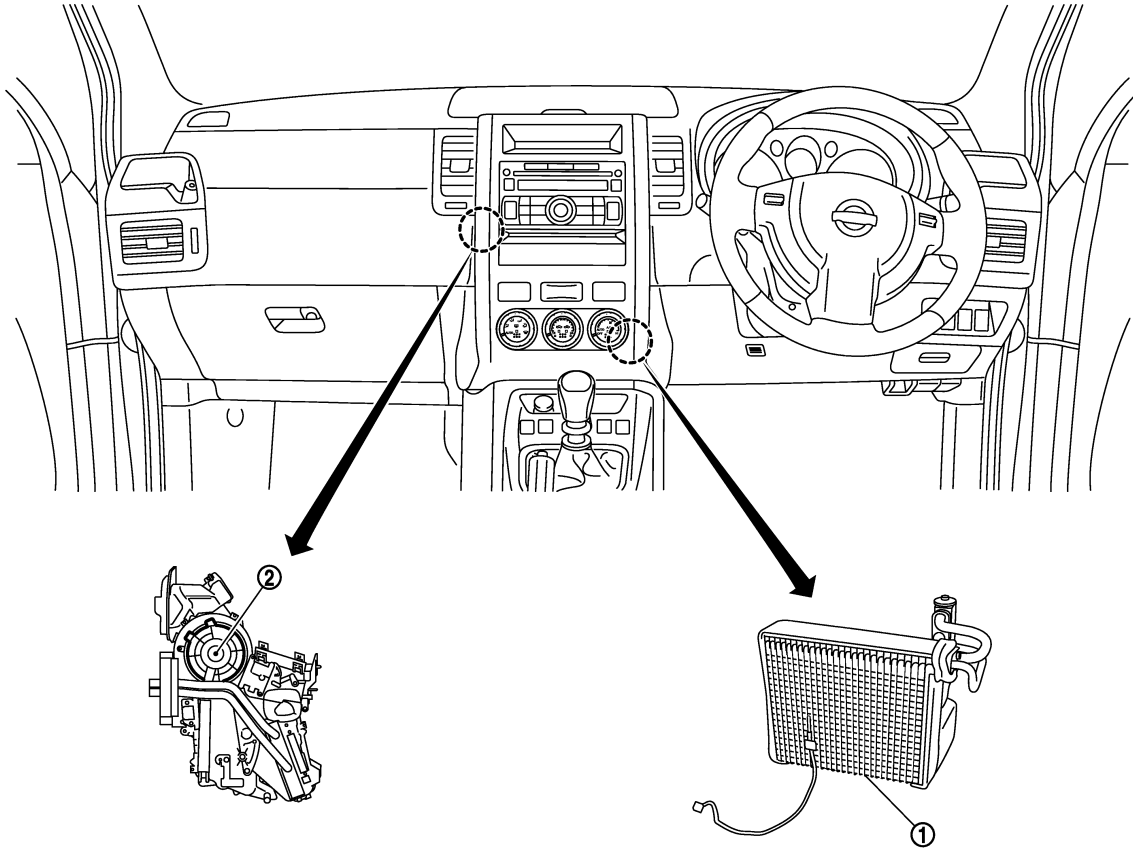
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REFRIGERATION SYSTEM

< FUNCTION DIAGNOSIS >



JSIIA0461ZZ

1. Evaporator

2. Blower motor

Component Description

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Component	Description
Compressor	Intakes, compresses, and discharges refrigerant, to circulate refrigerant inside the refrigerant cycle.
Condenser	Cools refrigerant discharged from compressor, and transforms it to liquid refrigerant.
Liquid tank	Eliminates foreign matter in refrigerant, and stores temporarily liquid refrigerant.
Refrigerant pressure sensor	Refer to HAC-65, "MR20DE/QR25DE : Component Inspection" (MR20DE/QR25DE) or HAC-70, "M9R : Component Inspection" (M9R).
Expansion valve	Transforms high-pressure liquid refrigerant to mist form low-pressure liquid refrigerant by drawing function.
Evaporator	The mist form liquid refrigerant transforms to gas by evaporation by the air conveyed from blower motor. The air is cooled by the heat by evaporation.
Blower motor	Takes in air in the vehicle or fresh outside air, provides it forcedly to the air conditioner, and conveys it inside the vehicle.

REFRIGERATION SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

REFRIGERATION SYSTEM SYMPTOMS

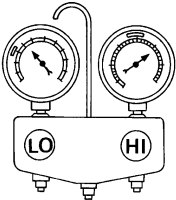
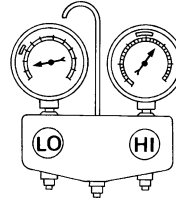
Trouble Diagnosis For Unusual Pressure

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

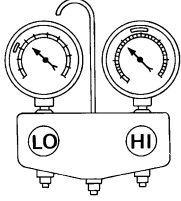
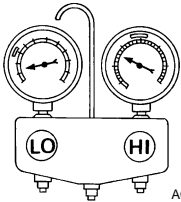
Symptom Table

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Gauge indication	Refrigerant cycle	Probable cause	Corrective action
<p>Both high- and low-pressure sides are too high.</p>  <p>AC359A</p>	<p>The pressure returns to normal is reduced soon after water is splashed on condenser.</p>	<p>Excessive refrigerant charge in refrigeration cycle.</p>	<p>Reduce refrigerant until specified pressure is obtained.</p>
	<p>Air suction by cooling fan is insufficient.</p>	<p>Insufficient condenser cooling performance. ↓ 1. Condenser fins are clogged. 2. Improper fan rotation of cooling fan.</p>	<ul style="list-style-type: none"> Clean condenser. Check and repair cooling fan if necessary.
	<ul style="list-style-type: none"> Low-pressure pipe is not cold. When compressor is stopped high-pressure reading quickly drops by approximately 196 kPa (1.96 bar, 2 kg/cm², 28 psi). It then decreases gradually thereafter. 	<p>Poor heat exchange in condenser (After compressor operation stops, high-pressure decreases too slowly). ↓ Air in refrigeration cycle.</p>	<p>Evacuate repeatedly and re-charge system.</p>
	<p>Engine tends to overheat.</p>	<p>Engine cooling systems malfunction.</p>	<p>Check and repair each engine cooling system.</p>
	<ul style="list-style-type: none"> An area of the low-pressure pipe is colder than areas near the evaporator outlet. Low-pressure pipe is sometimes covered with frost. 	<ul style="list-style-type: none"> Excessive liquid refrigerant on low-pressure side. Excessive refrigerant discharge flow. Expansion valve is open a little compared with the specification. <p>↓ Improper expansion valve adjustment.</p>	<p>Replace expansion valve.</p>
<p>High-pressure side is too high and low-pressure side is too low.</p>  <p>AC360A</p>	<p>Upper side of condenser and high-pressure side are hot, however, liquid tank is not so hot.</p>	<p>High-pressure tube or parts located between compressor and condenser are clogged or crushed.</p>	<ul style="list-style-type: none"> Check and repair or replace malfunctioning parts. Check lubricant for contamination.

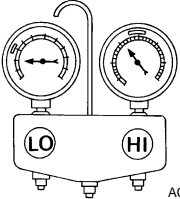
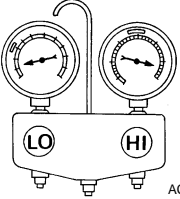
REFRIGERATION SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
High-pressure side is too low and low-pressure side is too high. 	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. 	<ul style="list-style-type: none"> 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.	<ul style="list-style-type: none"> Replace liquid tank. Check lubricant for contamination.
	<ul style="list-style-type: none"> Expansion valve inlet temperature is extremely low as compared with areas near liquid tank. Expansion valve inlet is frosted. Temperature difference occurs somewhere in high-pressure side. 	High-pressure pipe located between liquid tank and expansion valve is clogged.	<ul style="list-style-type: none"> Check and repair malfunctioning parts. Check lubricant for contamination.
	Expansion valve and liquid tank are warm or slightly cool when touched.	Low refrigerant charge. ↓ Leaking fittings or components.	Check refrigerant for leaks. Refer to HA-28, "MR20DE/QR25DE : Refrigerant Leakages" (MR20DE/QR25DE) or HA-30, "M9R : Refrigerant Leakages" (M9R).
	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.	<ul style="list-style-type: none"> Remove foreign particles by using compressed air. Replace expansion valve. Check lubricant for contamination.
	An area of the low-pressure pipe is colder than areas near the evaporator outlet.	Low-pressure pipe is clogged or crushed.	<ul style="list-style-type: none"> Check and repair malfunctioning parts. Check lubricant for contamination.
	Air flow volume is not enough or is too low.	Evaporator is frozen.	<ul style="list-style-type: none"> Check intake sensor circuit. Refer to HAC-96, "MR20DE/QR25DE : Diagnosis Procedure" (MR20DE/QR25DE) or HAC-99, "M9R : Diagnosis Procedure" (M9R). Replace compressor. Repair evaporator fins. Replace evaporator. Refer to HAC-54, "MR20DE/QR25DE : Diagnosis Procedure" (MR20DE/QR25DE) or HAC-58, "M9R : Diagnosis Procedure" (M9R).

REFRIGERATION SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

Gauge indication	Refrigerant cycle	Probable cause	Corrective action
<p>Low-pressure side sometimes becomes negative.</p>  <p style="text-align: right; font-size: small;">AC354A</p>	<ul style="list-style-type: none"> • Air conditioning system does not function and does not cyclically cool the compartment air. • The system constantly functions for a period of time after compressor is stopped and restarted. 	<p>Refrigerant does not discharge cyclically.</p> <p>↓</p> <p>Moisture is frozen at expansion valve outlet and inlet.</p> <p>↓</p> <p>Water is mixed with refrigerant.</p>	<ul style="list-style-type: none"> • Drain water from refrigerant or replace refrigerant. • Replace liquid tank.
<p>Low-pressure side becomes negative.</p>  <p style="text-align: right; font-size: small;">AC362A</p>	<p>Liquid tank or front/rear side of expansion valve's pipe is frosted or wet with dew.</p>	<p>High-pressure side is closed and refrigerant does not flow.</p> <p>↓</p> <p>Expansion valve or liquid tank is frosted.</p>	<p>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.</p> <ul style="list-style-type: none"> • Cooling is initially okay if water is the cause. Then the water freezes causing a blockage. Drain water from refrigerant or replace refrigerant. • Remove expansion valve and remove the particles with dry and compressed air (not shop air) if due to foreign particles. • Replace expansion valve if either of the above methods cannot correct the malfunction. • Replace liquid tank. • Check lubricant for contamination.

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COMPRESSOR SYSTEM SYMPTOMS

< SYMPTOM DIAGNOSIS >

COMPRESSOR SYSTEM SYMPTOMS

Symptom Table

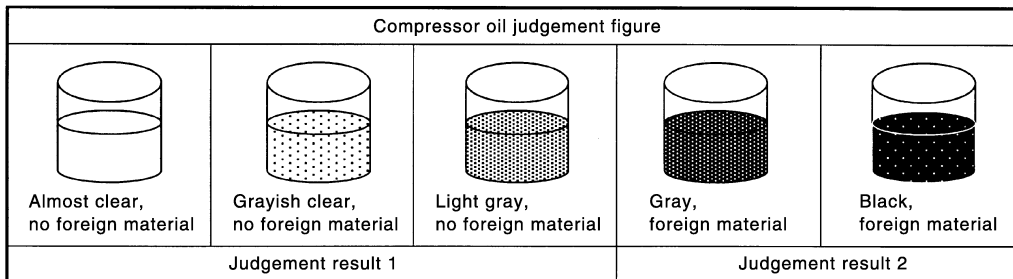
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Follow the next table and perform trouble diagnosis if there is a compressor unit malfunction (internal noise, insufficient cooling).

Symptom	Inspection method	Check list	Result	Action
Noise from compressor unit When A/C is ON. (rattling or rolling sound)	Cooker system internal pressure	Check with manifold gauge	Both high- and low-pressure sides are high.*2	Recharge with proper amount of refrigerant.
			High/low-pressures hunt.*2	Replace compressor only.
	Check compressor oil condition.	Sample compressor oil and judge.		
Insufficient cooling*1	Compressor body	Check rotation of compressor. If sized or stuck, sample compressor oil and judge.	Refer to the criteria shown in compressor lubricant.	Diagnostic result 1: Replace compressor only.
	Cooler system internal pressure	Check with a manifold gauge. Sample compressor oil and judge if the difference between high-pressure and low-pressure is small or if they are almost the same.		Diagnostic result 2: Replace compressor and liquid tank.
Outlet air temperature rises temporarily while driving.*2	—	—	—	Replace compressor only.

*1: First conduct inspection according to trouble diagnosis for each malfunction.

*2: Applicable to variable capacity compressor only.



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PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000001557127

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the "SRS AIRBAG" and "SEAT BELT" 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 AIRBAG".
- 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.

Precaution Necessary for Steering Wheel Rotation After Battery Disconnect

INFOID:000000001557128

NOTE:

- This Procedure is applied only to models with Intelligent Key system and NATS (NISSAN ANTI-THEFT SYSTEM).
- Remove and install all control units after disconnecting both battery cables with the ignition knob in the "LOCK" position.
- Always use CONSULT-III to perform self-diagnosis as a part of each function inspection after finishing work. If DTC is detected, perform trouble diagnosis according to self-diagnostic results.

For models equipped with the Intelligent Key system and NATS, an electrically controlled steering lock mechanism is adopted on the key cylinder.

For this reason, if the battery is disconnected or if the battery is discharged, the steering wheel will lock and steering wheel rotation will become impossible.

If steering wheel rotation is required when battery power is interrupted, follow the procedure below before starting the repair operation.

OPERATION PROCEDURE

1. Connect both battery cables.

NOTE:

Supply power using jumper cables if battery is discharged.

2. Use the Intelligent Key or mechanical key to turn the ignition switch to the "ACC" position. At this time, the steering lock will be released.
3. Disconnect both battery cables. The steering lock will remain released and the steering wheel can be rotated.
4. Perform the necessary repair operation.
5. When the repair work is completed, return the ignition switch to the "LOCK" position before connecting the battery cables. (At this time, the steering lock mechanism will engage.)
6. Perform a self-diagnosis check of all control units using CONSULT-III.

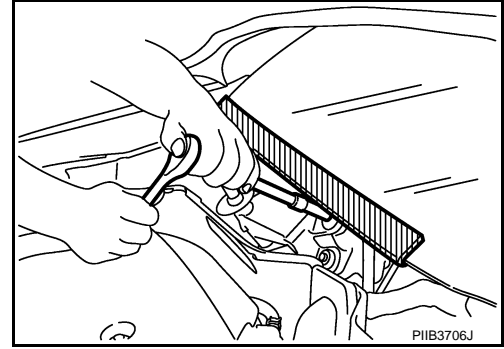
PRECAUTIONS

< PRECAUTION >

Precaution for Procedure without Cowl Top Cover

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



Precautions For Xenon Headlamp Service

INFOID:000000001557130

WARNING:

Comply with the following warnings to prevent any serious accident.

- Disconnect the battery cable (negative terminal) or the power supply fuse before installing, removing, or touching the xenon headlamp (bulb included). The xenon headlamp contains high-voltage generated parts.
- Never work with wet hands.
- Check the xenon headlamp ON-OFF status after assembling it to the vehicle. Never turn the xenon headlamp ON in other conditions. Connect the power supply to the vehicle-side connector. (Turning it ON outside the lamp case may cause fire or visual impairments.)
- Never touch the bulb glass immediately after turning it OFF. It is extremely hot.

CAUTION:

Comply with the following cautions to prevent any error and malfunction.

- Install the xenon bulb securely. (Insufficient bulb socket installation may melt the bulb, the connector, the housing, etc. by high-voltage leakage or corona discharge.)
- Never perform HID circuit inspection with a tester.
- Never touch the xenon bulb glass with hands. Never put oil and grease on it.
- Dispose of the used xenon bulb after packing it in thick vinyl without breaking it.
- Never wipe out dirt and contamination with organic solvent (thinner, gasoline, etc.).

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

INFOID:000000001279225

CAUTION:

- 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. Compressor malfunction is likely occur if the refrigerants are mixed.
- Use only specified lubricant for the HFC-134a (R-134a) A/C system and HFC-134a (R-134a) components. Compressor malfunction is likely to occur if lubricant other than that specified is used.
- The specified HFC-134a (R-134a) lubricant rapidly absorbs moisture from the atmosphere. The following handling precautions must be observed:
 - Cap (seal) immediately the component to minimize the entry of moisture from the atmosphere when removing refrigerant components from a vehicle.
 - Never remove the caps (unseal) until just before connecting the components when installing refrigerant components to a vehicle. Connect all refrigerant loop components as quickly as possible to minimize the entry of moisture into system.
 - Use only the specified lubricant from a sealed container. Reseal immediately containers of lubricant. Lubricant becomes moisture saturated and should not be used without proper sealing.
 - Never allow lubricant (Nissan A/C System Oil Type S) to come in contact with styrene foam parts. Damage may result.

General Refrigerant Precaution

INFOID:000000001279226

WARNING:

- Never breath A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose and throat. Use only approved recovery/recycling equipment to discharge HFC-134a (R-134a) refrigerant.

PRECAUTIONS

< PRECAUTION >

- Ventilate work area before resuming service if accidental system discharge occurs. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.
- Never release refrigerant into the air. Use approved recovery/recycling equipment to capture the refrigerant each time an air conditioning system is discharged.
 - Wear always eye and hand protection (goggles and gloves) when working with any refrigerant or air conditioning system.
 - Never store or heat refrigerant containers above 52°C (126°F).
 - Never heat a refrigerant container with an open flame; Place the bottom of the container in a warm pail of water if container warming is required.
 - Never intentionally drop, puncture, or incinerate refrigerant containers.
 - Keep refrigerant away from open flames: poisonous gas is produced if refrigerant burns.
 - Refrigerant displaces oxygen, therefore be certain to work in well ventilated areas to prevent suffocation.
 - Never pressure test or leakage 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.

Refrigerant Connection

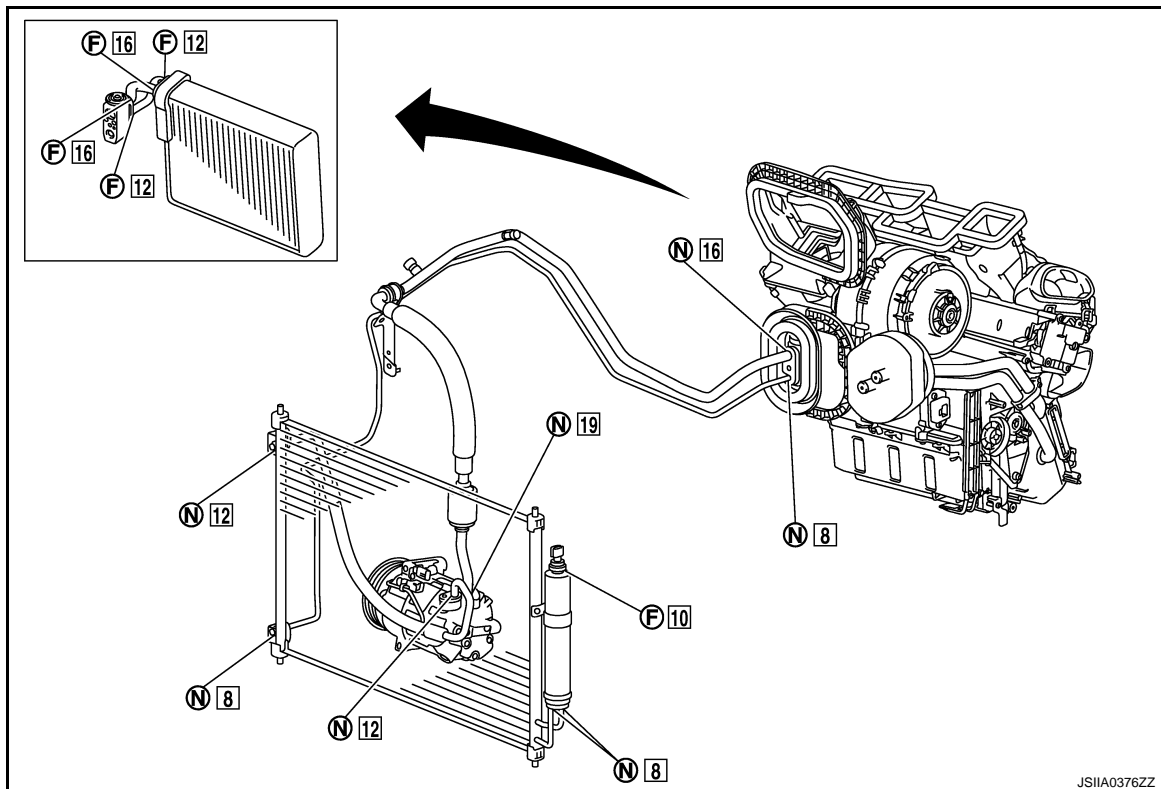
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A new type refrigerant connection has been introduced to all refrigerant lines except the following location.

- Expansion valve to evaporator
- Refrigerant pressure sensor to liquid tank

O-RING AND REFRIGERANT CONNECTION

MR20DE/QR25DE



JS11A0376ZZ

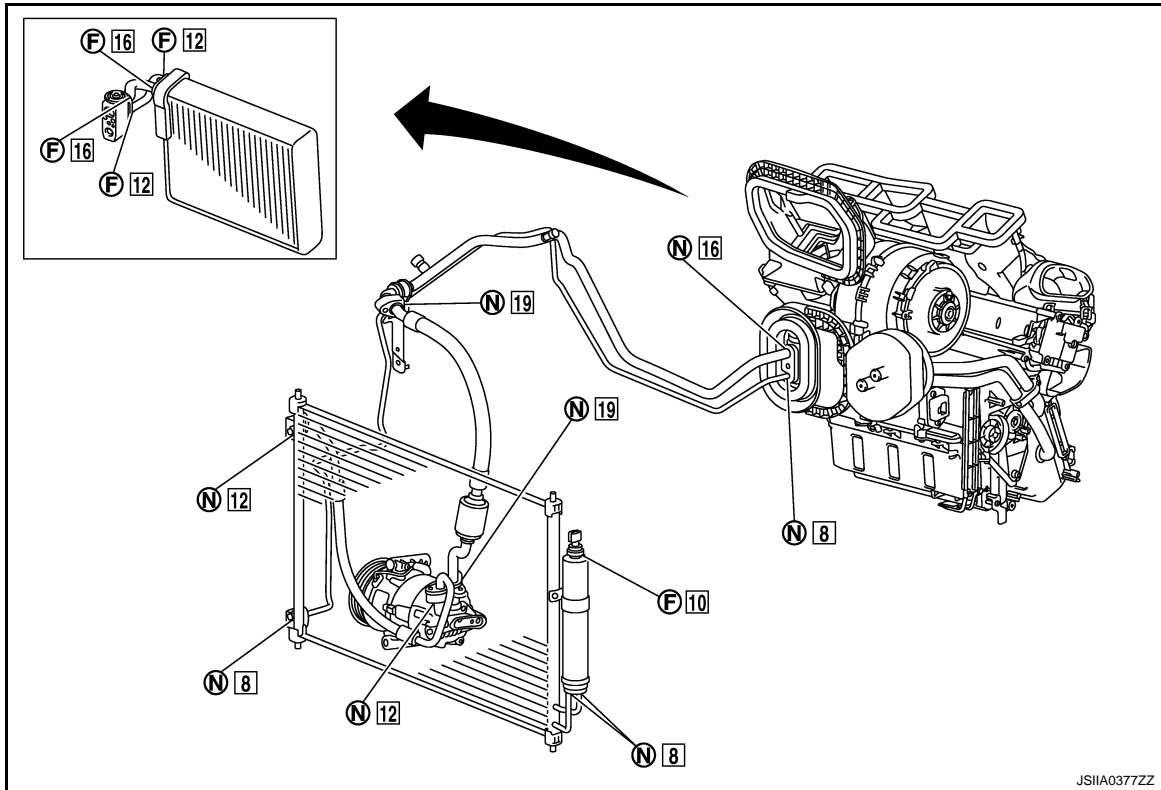
F. Former type refrigerant connection N. New type refrigerant connection

□: O-ring size

PRECAUTIONS

< PRECAUTION >

M9R



F. Former type refrigerant connection N. New type refrigerant connection

□: O-ring size

CAUTION:

The new and former refrigerant connections use different O-ring configurations. Never confuse O-rings since they are not interchangeable. Refrigerant may leak at the connection if a wrong O-ring is installed.

O-Ring Part Numbers and Specifications

Connection type	Piping connection point		Part number	QTY	O-ring size
New	Low-pressure flexible hose to expansion valve		92473 N8210	1	16
	Low-pressure flexible hose to low-pressure pipe (M9R)		92474 N8210	1	19
	Low-pressure pipe to expansion valve (M9R)		92473 N8210	1	16
	Compressor to low-pressure flexible hose		92474 N8210	1	19
	Compressor to high-pressure flexible hose		92472 N8210	1	12
	Condenser to high-pressure flexible hose		92472 N8210	1	12
	Condenser to high-pressure pipe		92471 N8210	1	8
	High-pressure pipe to expansion valve		92471 N8210	1	8
Former	Liquid tank to condenser	Inlet	92471 N8210	1	8
		Outlet		1	
	Refrigerant pressure sensor to liquid tank		J2476 89956	1	10
	Cooler pipe assembly	High-pressure side	92475 71L00	1	12
Low-pressure side		92475 72L00	1	16	

WARNING:

Check that 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:

PRECAUTIONS

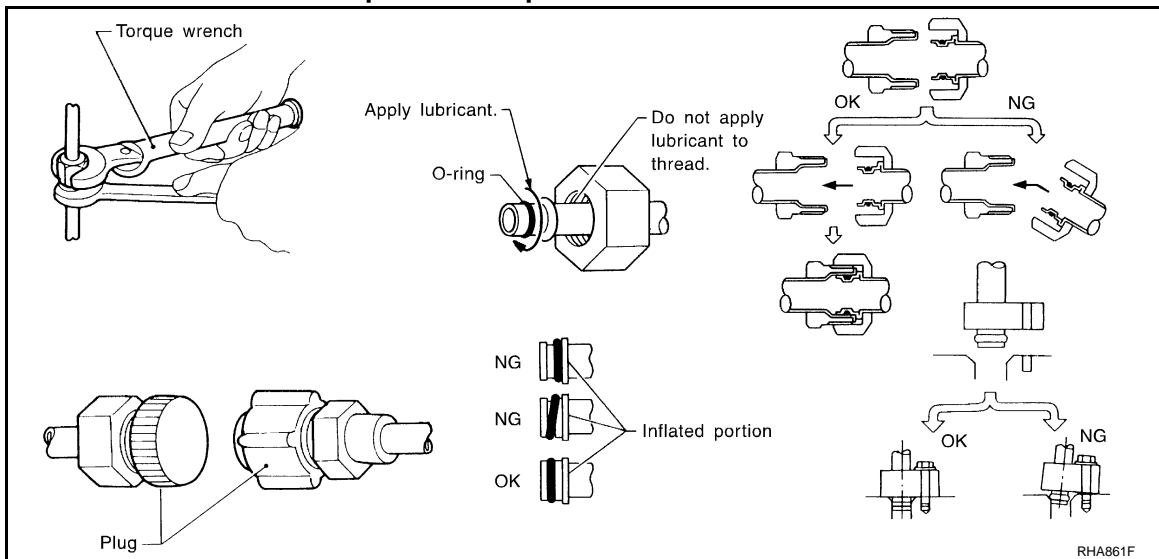
< PRECAUTION >

Observe the following when replacing or cleaning refrigerant cycle components.

- Store it in the same way as it is when mounted on the car when the compressor is removed. Failure to do so causes lubricant to enter the low-pressure chamber.
- Use always a torque wrench and a back-up wrench when connecting tubes.
- Plug immediately all openings to prevent entry of dust and moisture after disconnecting tubes.
- Connect the pipes at the final stage of the operation when installing an air conditioner in the vehicle. Never 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.
- Remove thoroughly moisture from the refrigeration system before charging the refrigerant.
- Replace always used O-rings.
- Apply lubricant to circle of the O-rings shown in illustration when connecting tube. Be careful not to apply lubricant to threaded portion.

Name : Nissan A/C System Oil Type S

- O-ring must be closely attached to the groove portion of tube.
- Be careful not to damage O-ring and tube when replacing the O-ring.
- Connect tube until a click can be heard. Then tighten the nut or bolt by hand. Check that the O-ring is installed to tube correctly.
- Perform leakage test and make sure that there is no leakage from connections after connecting line. Disconnect that line and replace the O-ring when the refrigerant leaking point is found. Then tighten connections of seal seat to the specified torque.



Service Equipment

INFOID:000000001279228

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.

ELECTRICAL LEAK DETECTOR

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

VACUUM PUMP

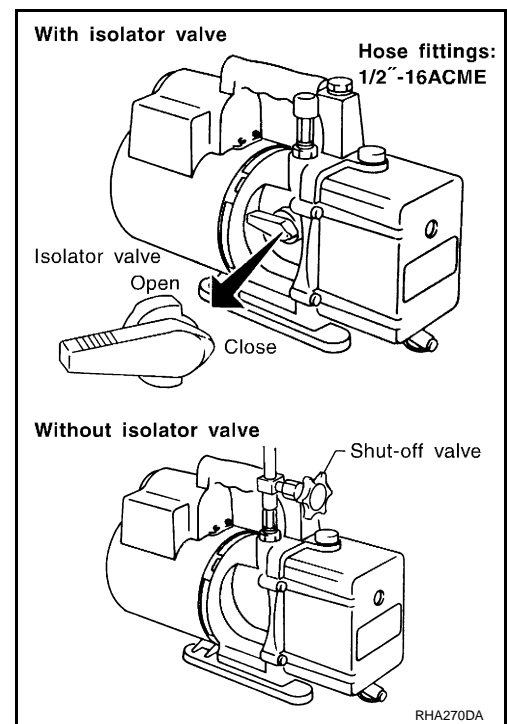
PRECAUTIONS

< PRECAUTION >

The lubricant contained inside the vacuum pump is not compatible with the specified lubricant for HFC-134a (R-134a) A/C systems. The vent side of the vacuum pump is exposed to atmospheric pressure. So the vacuum pump lubricant 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 per the following.

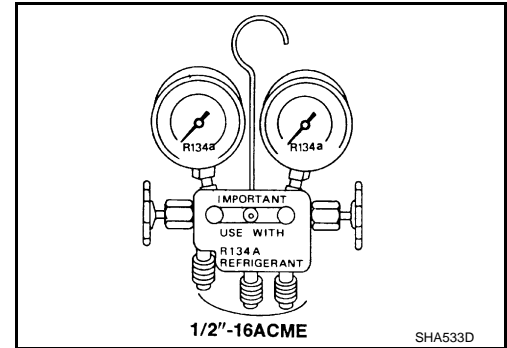
- Vacuum pumps usually have a manual isolator valve as part of the pump. Close this valve to isolate the service hose from the pump.
- Use a hose equipped with a manual shut-off valve near the pump end for pumps without an isolator. Close the valve to isolate the hose from the pump.
- Disconnect the hose from the pump if the hose has an automatic shut-off valve. 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 no vacuum condition. Such valves may restrict the pump's ability to pull a deep vacuum and are not recommended.



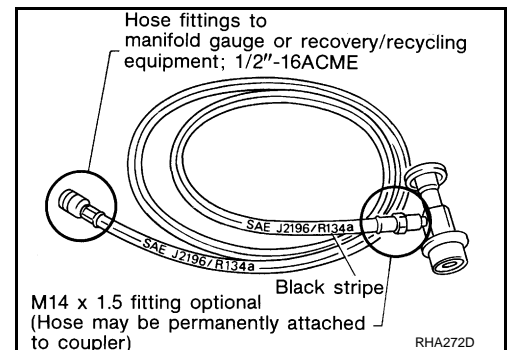
MANIFOLD GAUGE SET

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 lubricants.



SERVICE HOSES

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



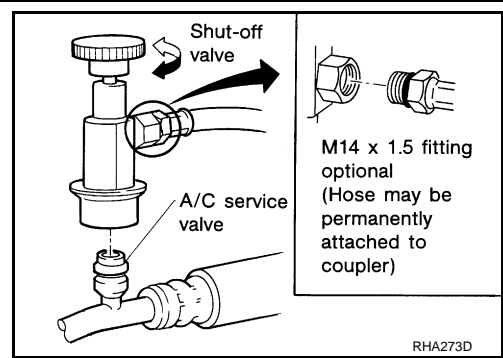
SERVICE COUPLERS

PRECAUTIONS

< PRECAUTION >

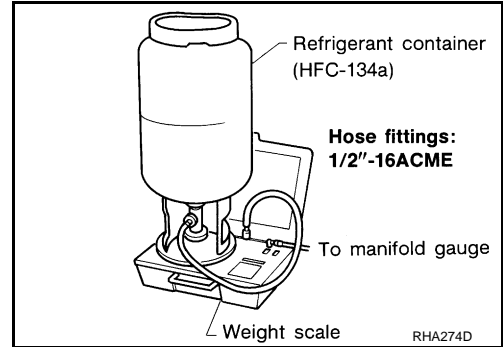
Never attempt to connect HFC-134a (R-134a) service couplers to a CFC-12 (R-12) A/C system. The HFC-134a (R-134a) couplers do not properly connect to the CFC-12 (R-12) system. However, if an improper connection is attempted, discharging and contamination may occur.

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 lubricants have been used with the scale. The hose fitting must be 1/2"-16 ACME if the scale controls refrigerant flow electronically.



CALIBRATING ACR4 WEIGHT SCALE

Calibrate the scale each three month.

To calibrate the weight scale on the ACR4:

1. Press "**Shift/Reset**" and "**Enter**" at the same time.
2. Press "**8787**". "**A1**" is displayed.
3. Remove all weight from the scale.
4. Press "**0**", then press "**Enter**". "**0.00**" is displayed and change to "**A2**".
5. Place a known weight (dumbbell or similar weight), between 4.5 and 8.6 kg (10 and 19 lb.) on the center of the weight scale.
6. Enter the known weight using four digits. (Example 10 lb. = 10.00, 10.5 lb. = 10.50)
7. Press "**Enter**"— the display returns to the vacuum mode.
8. Press "**Shift/Reset**" and "**Enter**" at the same time.
9. Press "**6**"— the known weight on the scale is displayed.
10. Remove the known weight from the scale. "**0.00**" is displayed.
11. Press "**Shift/Reset**" to return the ACR4 to the program mode.

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.

COMPRESSOR

< PRECAUTION >

COMPRESSOR

General Precautions

INFOID:000000001279229

CAUTION:

- Plug all openings to prevent moisture and foreign matter from entering.
- Store it in the same way as it is when mounted on the car when the compressor is removed.
- Follow "LUBRICANT ADJUSTING PROCEDURE FOR COMPRESSOR REPLACEMENT" exactly when replacing or repairing compressor. Refer to [HA-25, "Adjustment"](#).
- Keep friction surfaces between clutch and pulley clean. Wipe it off by using a clean waste cloth moistened with thinner if the surface is contaminated with lubricant.
- Turn the compressor shaft by hand more than five turns in both directions after compressor service operation. This distributes equally lubricant inside the compressor. Let the engine idle and operate the compressor for one hour after the compressor is installed.
- Apply voltage to the new one and check for normal operation after replacing the compressor magnet clutch.

FLUORESCENT LEAK DETECTOR

< PRECAUTION >

FLUORESCENT LEAK DETECTOR

General Precautions

INFOID:000000001279230

CAUTION:

- The A/C system contains a fluorescent leak detection dye used for locating refrigerant leakages. An ultraviolet (UV) lamp is required to illuminate the dye when inspecting for leakages.
- Wear always fluorescence enhancing UV safety goggles to protect eyes and enhance the visibility of the fluorescent dye.
- The fluorescent dye leak detector is not a replacement for an electrical leak detector (SST). The fluorescent dye leak detector should be used in conjunction with an electrical leak detector (SST) to pinpoint refrigerant leakages.
- Read and follow all manufacture's operating instructions and precautions prior to performing the work for the purpose of safety and customer's satisfaction.
- A compressor shaft seal should not necessarily be repaired because of dye seepage. The compressor shaft seal should only be repaired after confirming the leakage with an electrical leak detector (SST).
- Remove always any remaining dye from the leakage area after repairs are completed to avoid a misdiagnosis during a future service.
- Never allow dye to come into contact with painted body panels or interior components. Clean immediately with the approved dye cleaner if dye is spilled. Fluorescent dye left on a surface for an extended period of time cannot be removed.
- Never spray the fluorescent dye cleaning agent on hot surfaces (engine exhaust manifold, etc.).
- Never 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. Never use HFC-134a (R-134a) leak detection dye in CFC-12 (R-12) A/C system, or CFC-12 (R-12) leak detection dye in HFC-134a (R-134a) A/C system, or A/C system damage may result.
- The fluorescent properties of the dye remains for three years or a little over unless a compressor malfunction occurs.

IDENTIFICATION

NOTE:

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

IDENTIFICATION LABEL FOR VEHICLE

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

A

B

C

D

E

F

G

H

HA

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L

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P

PREPARATION

< PREPARATION >

PREPARATION

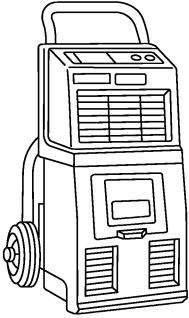
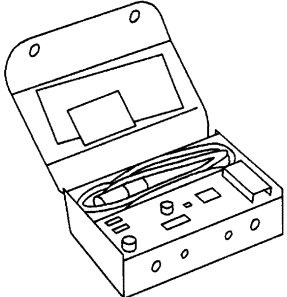
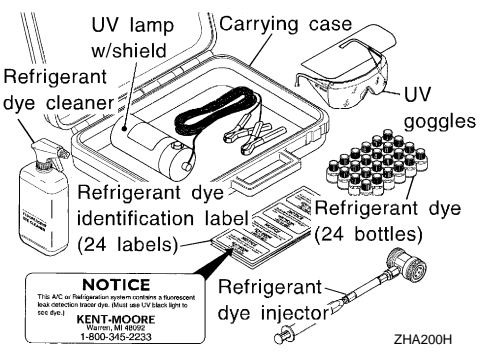
PREPARATION

Special Service Tool

INFOID:000000001279231

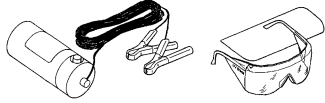

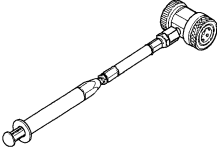

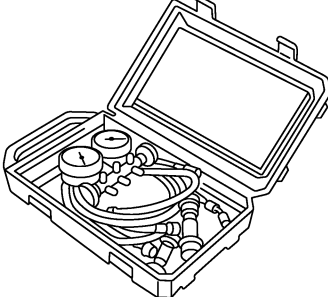
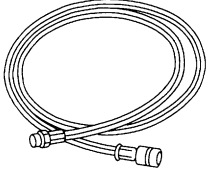
HFC-134a (R-134a) Service Tool and Equipment

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

Tool number Tool name	Description
<p>Recovery/recycling/recharging equipment (ACR4)</p>  <p style="text-align: right;">RJIA0195E</p>	<p>Function: Refrigerant recovery, recycling and recharging</p>
<p>Electrical leak detector</p>  <p style="text-align: center;">A/C leak detector</p> <p style="text-align: right;">SHA705EB</p>	<p>Power supply: DC 12 V (Cigarette lighter)</p>
<p>(J-43926) Refrigerant dye leak detection kit Kit includes: (J-42220) UV lamp and UV safety goggles (J-41459) HFC-134a (R-134a) dye injector Use with J-41447, 1/4 ounce bottle (J-41447) HFC-134a (R-134a) fluorescent leak detection dye (Box of 24, 1/4 ounce bottles) (J-43872) Refrigerant dye cleaner</p>  <p style="text-align: right;">ZHA200H</p>	<p>Power supply: DC 12 V (Battery terminal)</p>

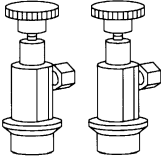
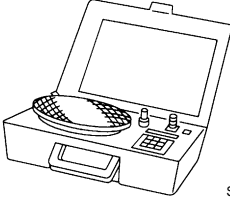
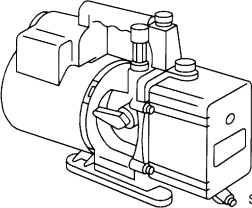
PREPARATION

< PREPARATION >

Tool number Tool name	Description	
<p>(J-42220) UV lamp and UV safety goggles</p>  <p style="text-align: center;">SHA438F</p>	<p>Power supply: DC 12 V (Battery terminal) For checking refrigerant leakage when fluorescent dye is equipped in A/C system Includes: UV lamp and UV safety goggles</p>	<p>A B C</p>
<p>(J-41447) HFC-134a (R-134a) fluorescent leak detection dye (Box of 24, 1/4 ounce bottles)</p>  <p style="text-align: center;">Refrigerant dye (24 bottles) SHA439F</p>	<p>Application: For HFC-134a (R-134a) PAG oil Container: 1/4 ounce (7.4 cc) bottle (Includes self-adhesive dye identification labels for affixing to vehicle after charging system with dye.)</p>	<p>D E F</p>
<p>(J-41459) HFC-134a (R-134a) dye injector Use with J-41447, 1/4 ounce bottle</p>  <p style="text-align: center;">SHA440F</p>	<p>For injecting 1/4 ounce of fluorescent leak detection dye into A/C system</p>	<p>G H</p>
<p>(J-43872) Refrigerant dye cleaner</p>  <p style="text-align: center;">SHA441F</p>	<p>For cleaning dye spills</p>	<p>HA J</p>
<p>Manifold gauge set (with hoses and couplers)</p>  <p style="text-align: center;">RJIA0196E</p>	<p>Identification:</p> <ul style="list-style-type: none"> The gauge face indicates HFC-134a (R-134a). <p>Fitting size: Thread size</p> <ul style="list-style-type: none"> 1/2" -16 ACME 	<p>K L M N</p>
<p>Service hoses</p> <ul style="list-style-type: none"> High-pressure side hose Low-pressure side hose Utility hose  <p style="text-align: center;">S-NT201</p>	<p>Hose color:</p> <ul style="list-style-type: none"> Low-pressure side hose: Blue with black stripe High-pressure side hose: Red with black stripe Utility hose: Yellow with black stripe or green with black stripe <p>Hose fitting to gauge:</p> <ul style="list-style-type: none"> 1/2" -16 ACME 	<p>O P</p>

PREPARATION

< PREPARATION >

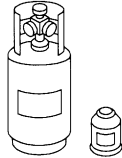

Tool number Tool name	Description
<p>Service couplers</p> <ul style="list-style-type: none"> • High-pressure side coupler • Low-pressure side coupler  <p style="text-align: right;">S-NT202</p>	<p>Hose fitting to service hose: M14 x 1.5 fitting is optional or permanently attached.</p>
<p>Refrigerant weight scale</p>  <p style="text-align: right;">S-NT200</p>	<p>For measuring of refrigerant Fitting size: Thread size 1/2" -16 ACME</p>
<p>Vacuum pump (Including the isolator valve)</p>  <p style="text-align: right;">S-NT203</p>	<p>Capacity:</p> <ul style="list-style-type: none"> • Air displacement: 4 CFM • Micron rating: 20 microns • Oil capacity: 482 g (17 oz.) <p>Fitting size: Thread size</p> <ul style="list-style-type: none"> • 1/2" -16 ACME

Sealant or/and Lubricant

INFOID:000000001279233

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

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

Tool name	Description
<p>HFC-134a (R-134a) refrigerant</p>  <p style="text-align: right;">S-NT196</p>	<p>Container color: Light blue Container marking: HFC-134a (R-134a) Fitting size: Thread size</p> <ul style="list-style-type: none"> • Large container 1/2" -16 ACME
<p>Nissan A/C System Oil Type S (DH-PS)</p>  <p style="text-align: right;">S-NT197</p>	<p>Type: Polyalkylene glycol oil (PAG), type S (DH-PS) Application: HFC-134a (R-134a) swash plate compressors (Nissan only) Capacity: 40 mℓ (1.4 Imp fl oz.)</p>

LUBRICANT

< ON-VEHICLE MAINTENANCE >

ON-VEHICLE MAINTENANCE

LUBRICANT

Adjustment

INFOID:000000001162100

LUBRICANT RETURN OPERATION

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

1. CHECK LUBRICANT RETURN OPERATION

Can lubricant return operation be performed?

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

CAUTION:

Never perform the lubricant return operation if excessive lubricant leakage is noted.

Is it successful?

YES >> GO TO 2.

NO >> GO TO 3.

2. PERFORM LUBRICANT RETURN OPERATION, PROCEEDING AS PER THE FOLLOWING

1. Start the engine, and set to the following conditions:
 - Engine speed: Idling to 1,200 rpm
 - A/C switch: ON
 - Blower speed: Max. position
 - Temp. control: Optional [Set so that intake air temperature is 22 to 26°C (72 to 79°F).]
 - Intake position: Recirculation (REC)
2. Perform lubricant return operation for approximately 10 minutes.
3. Stop the engine.

>> GO TO 3.

3. CHECK REPLACEMENT PART

Should the compressor be replaced?

YES >> Refer to "LUBRICANT ADJUSTING PROCEDURE FOR COMPRESSOR REPLACEMENT".

NO >> Refer to "LUBRICANT ADJUSTING PROCEDURE FOR COMPONENTS REPLACEMENT EXCEPT COMPRESSOR".

LUBRICANT ADJUSTING PROCEDURE FOR COMPONENTS REPLACEMENT EXCEPT COMPRESSOR

Add the correct amount of lubricant to the system after replacing any of the following major components.

Amount of lubricant to be added:

Part replaced	Lubricant to be added to system	
	Amount of lubricant mℓ (Imp fl oz.)	Remarks
Evaporator	75 (2.6)	—
Condenser	35 (1.2)	—
Liquid tank	10 (0.4)	—
In case of refrigerant leakage	30 (1.1)	Large leakage
	—	Small leakage *1

*1: No addition of lubricant is needed if the refrigerant leakage is small.

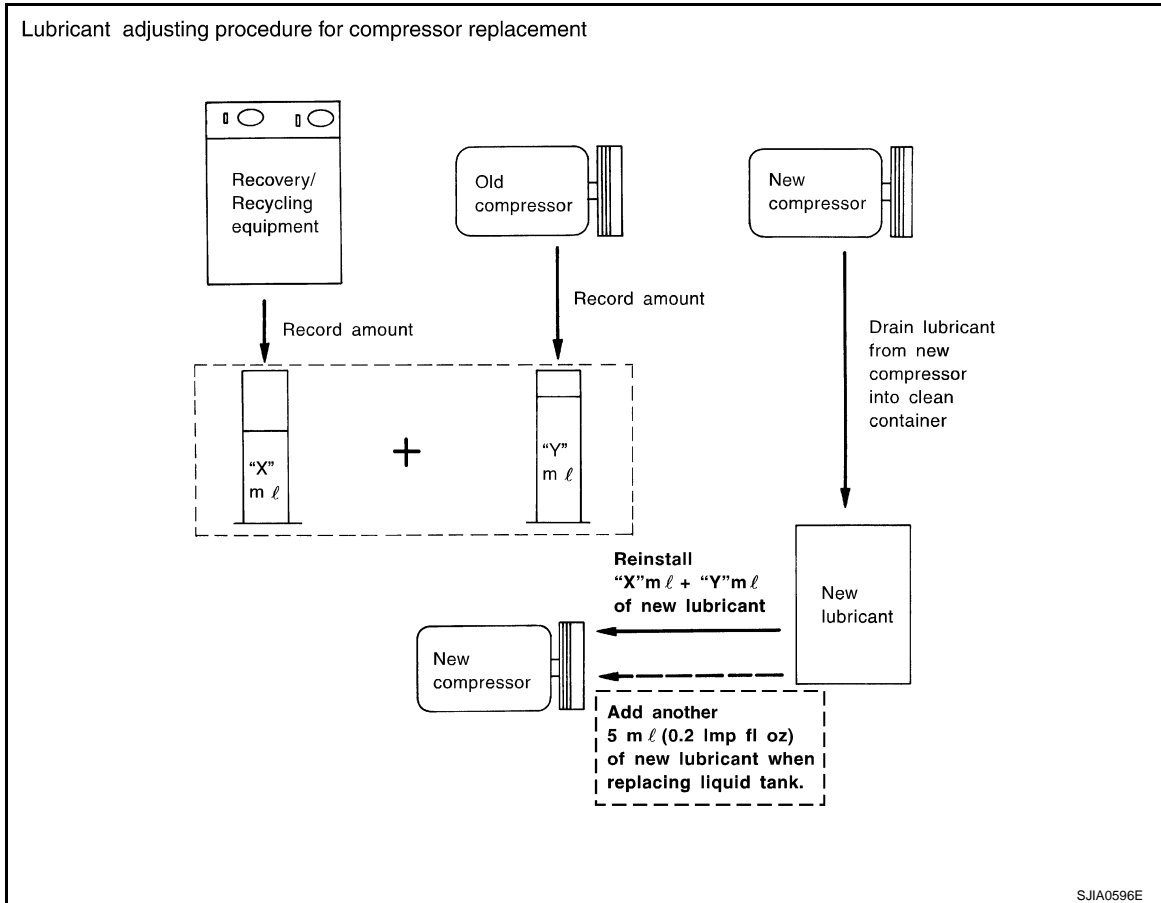
LUBRICANT ADJUSTING PROCEDURE FOR COMPRESSOR REPLACEMENT

1. Check ACR4 gauges before connecting ACR4 to vehicle. No refrigerant pressure should be displayed. Recover refrigerant from the equipment lines if NG.

LUBRICANT

< ON-VEHICLE MAINTENANCE >

2. Discharge refrigerant into the refrigerant recovery/recycling equipment. Measure lubricant discharged into the recovery/recycling equipment.
3. Drain the lubricant from the old (removed) compressor into a graduated container and recover the amount of lubricant drained.
4. Drain the lubricant from the new compressor into a separate. Then clean container.
5. Measure an amount of new lubricant installed equal to amount drained from old compressor. Add this lubricant to new compressor through the suction port opening.
6. Measure an amount of new lubricant equal to the amount recovered during discharging. Add this lubricant to new compressor through the suction port opening.
7. Add another 5 mℓ (0.2 Imp fl oz.) of lubricant at this time if the liquid tank also needs to be replaced. Do not add this 5 mℓ (0.2 Imp fl oz.) of lubricant when replacing the compressor only.



REFRIGERATION SYSTEM

< ON-VEHICLE MAINTENANCE >

REFRIGERATION SYSTEM

MR20DE/QR25DE

MR20DE/QR25DE : Inspection

INFOID:000000001162101

1. CHECK BLOWER MOTOR OPERATION

Check blower motor operation. Refer to [HAC-54, "MR20DE/QR25DE : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the parts according to the inspection results.

2. CHECK COMPRESSOR OPERATION

Check compressor operation. Refer to [HAC-62, "MR20DE/QR25DE : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the parts according to the inspection results.

3. CHECK REFRIGERANT CYCLE PRESSURE

Connect ACR4 to the vehicle and perform the diagnosis with the gauge pressure. Refer to [HA-9, "Trouble Diagnosis For Unusual Pressure"](#).

Is the inspection result normal?

YES >> Perform the performance test. Refer to [HA-27, "MR20DE/QR25DE : Performance Chart"](#).




NO >> Repair or replace the parts according to the inspection results.

MR20DE/QR25DE : Performance Chart

INFOID:000000001162102

TEST CONDITION

Testing must be performed as per the following:

Vehicle condition	Indoors or in the shade (in a well-ventilated place)
Doors	Closed
Door windows	Open
Hood	Open
TEMP.	Max. COLD
Mode switch	 (Ventilation) set
Intake switch	 (Recirculation) set
 Fan (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 A/C unit assembly inlet		Discharge air temperature at center ventilator °C (°F)
Relative humidity %	Air temperature °C (°F)	
50 - 60	20 (68)	5.1 - 7.1 (41 - 45)
	25 (77)	8.8 - 11.2 (48 - 52)
	30 (86)	13.0 - 16.0 (55 - 61)
	35 (95)	17.8 - 21.2 (64 - 70)
	40 (104)	23.1 - 27.1 (74 - 81)

REFRIGERATION SYSTEM

< ON-VEHICLE MAINTENANCE >

Inside air (Recirculating air) at A/C unit assembly inlet		Discharge air temperature at center ventilator °C (°F)
Relative humidity %	Air temperature °C (°F)	
60 - 70	20 (68)	7.1 - 9.1 (45 - 48)
	25 (77)	11.2 - 13.8 (52 - 57)
	30 (86)	16.0 - 19.0 (61 - 66)
	35 (95)	21.2 - 24.8 (70 - 77)
	40 (104)	27.1 - 30.9 (81 - 88)

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)	1,045 - 1,280 (10.45 - 12.80, 10.7 - 13.1, 151.6 - 185.6)	160 - 198 (1.60 - 1.98, 1.6 - 2.0, 23.2 - 28.7)
	25 (77)	1,198 - 1,465 (11.98 - 14.65, 12.2 - 14.9, 173.8 - 212.5)	195 - 238 (1.95 - 2.38, 2.0 - 2.4, 28.3 - 34.5)
	30 (86)	1,353 - 1,652 (13.53 - 16.52, 13.8 - 16.8, 196.2 - 239.6)	233 - 284 (2.33 - 2.84, 2.4 - 2.9, 33.8 - 41.2)
	35 (95)	1,508 - 1,848 (15.08 - 18.48, 15.4 - 18.8, 218.7 - 268.0)	277 - 340 (2.77 - 3.40, 2.8 - 3.5, 40.2 - 49.3)
	40 (104)	1,670 - 2,040 (16.70 - 20.40, 17.0 - 20.8, 242.2 - 295.9)	328 - 401 (3.28 - 4.01, 3.3 - 4.1, 47.6 - 58.2)

MR20DE/QR25DE : Refrigerant Leakages

INFOID:000000001162103

Perform a visual inspection of all refrigeration parts, fittings, hoses and components for signs of A/C lubricant leakage, damage and corrosion. A/C lubricant leakage may indicate an area of refrigerant leakage. Allow extra inspection time in these areas when using either an electrical leak detector or fluorescent dye leak detector (SST: J-42220).

Confirm the leakage with an electrical leak detector if dye is observed. It is possible a prior leakage was repaired and not properly cleaned.

Do not stop when one leakage is found but continue checking for additional leakages at all system components and connections when searching for leakages.

Move the probe along the suspected leakage area at 1 to 2 inches per second and no further than 1/4 inch from the component when searching for refrigerant leakages using an electrical leak detector.

CAUTION:

Moving the electrical leak detector probe slower and closer to the suspected leakage area improves the chances of finding a leakage.

M9R

M9R : Inspection

INFOID:000000001366231

1. CHECK BLOWER MOTOR OPERATION

Check blower motor operation. Refer to [HAC-58, "M9R : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace the parts according to the inspection results.

2. CHECK COMPRESSOR OPERATION

Check compressor operation. Refer to [HAC-66, "M9R : Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace the parts according to the inspection results.

REFRIGERATION SYSTEM

< ON-VEHICLE MAINTENANCE >

3. CHECK REFRIGERANT CYCLE PRESSURE

Connect ACR4 to the vehicle and perform the diagnosis with the gauge pressure. Refer to [HA-9, "Trouble Diagnosis For Unusual Pressure"](#).

Is the inspection result normal?

YES >> Perform the performance test. Refer to [HA-29, "M9R : Performance Chart"](#).




NO >> Repair or replace the parts according to the inspection results.

M9R : Performance Chart

INFOID:000000001366232

TEST CONDITION

Testing must be performed as per the following:

Vehicle condition	Indoors or in the shade (in a well-ventilated place)
Doors	Closed
Door windows	Open
Hood	Open
TEMP.	Max. COLD
Mode switch	 (Ventilation) set
Intake switch	 (Recirculation) set
 Fan (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 A/C unit assembly inlet		Discharge air temperature at center ventilator °C (°F)
Relative humidity %	Air temperature °C (°F)	
50 - 60	20 (68)	5.8 - 8.2 (42 - 47)
	25 (77)	9.8 - 12.3 (50 - 54)
	30 (86)	13.8 - 16.8 (57 - 62)
	35 (95)	18.0 - 21.3 (64 - 70)
	40 (104)	22.5 - 26.4 (73 - 80)
60 - 70	20 (68)	8.2 - 10.1 (47 - 50)
	25 (77)	12.3 - 14.8 (54 - 59)
	30 (86)	16.8 - 19.8 (62 - 68)
	35 (95)	21.3 - 25.2 (70 - 77)
	40 (104)	26.4 - 30.5 (80 - 87)

REFRIGERATION SYSTEM

< ON-VEHICLE MAINTENANCE >

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)	885 - 1,085 (8.85 - 10.85, 9.0 - 11.1, 128.4 - 157.4)	190 - 231 (1.90 - 2.31, 1.9 - 2.4, 27.6 - 33.5)
	25 (77)	815 - 1,000 (8.15 - 10.00, 8.3 - 10.2, 118.2 - 145.0)	210 - 258 (2.10 - 2.58, 2.1 - 2.6, 30.5 - 37.4)
	30 (86)	912 - 1,117 (9.12 - 11.17, 9.3 - 11.4, 132.3 - 162.0)	230 - 281 (2.30 - 2.81, 2.3 - 2.9, 33.4 - 40.8)
	35 (95)	1,040 - 1,275 (10.40 - 12.75, 10.6 - 13.0, 150.8 - 184.9)	262 - 322 (2.62 - 3.22, 2.7 - 3.3, 38.0 - 46.7)
	40 (104)	1,202 - 1,470 (12.02 - 14.70, 12.3 - 15.0, 174.3 - 213.2)	310 - 379 (3.10 - 3.79, 3.2 - 3.9, 45.0 - 55.0)

M9R : Refrigerant Leakages

INFOID:000000001366233

Perform a visual inspection of all refrigeration parts, fittings, hoses and components for signs of A/C lubricant leakage, damage and corrosion. A/C lubricant leakage may indicate an area of refrigerant leakage. Allow extra inspection time in these areas when using either an electrical leak detector or fluorescent dye leak detector (SST: J-42220).

Confirm the leakage with an electrical leak detector if dye is observed. It is possible a prior leakage was repaired and not properly cleaned.

Do not stop when one leakage is found but continue checking for additional leakages at all system components and connections when searching for leakages.

Move the probe along the suspected leakage area at 1 to 2 inches per second and no further than 1/4 inch from the component when searching for refrigerant leakages using an electrical leak detector.

CAUTION:

Moving the electrical leak detector probe slower and closer to the suspected leakage area improves the chances of finding a leakage.

FLUORESCENT LEAK DETECTOR

< ON-VEHICLE MAINTENANCE >

FLUORESCENT LEAK DETECTOR

Inspection

INFOID:000000001162104

CHECKING SYSTEM FOR LEAKAGES USING THE FLUORESCENT LEAK DETECTOR

1. Check A/C system for leakages using the UV lamp and safety goggles (SST: J-42220) in a low sunlight area (area without windows preferable). Illuminate all components, fittings and lines. The dye appears 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) leakage.
2. Use an adjustable mirror or wipe the area with a clean shop rag or cloth, with the UV lamp for dye residue if the suspected area is difficult to see.
3. Remove any residual dye using dye cleaner (SST: J-43872) to prevent future misdiagnosis after the leakage is repaired.
4. Perform a system performance check and verify the leakage repair with an approved electrical 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 lubricants, 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 may also cause false readings and may damage the detector.

DYE INJECTION

(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/cm², 50 psi).
2. Pour one bottle (1/4 ounce / 7.4 cc) of the A/C refrigerant dye into the injector tool (SST: J-41459).
3. Connect the injector tool to the A/C low-pressure side service valve.
4. Start the engine. Then switch A/C ON.
5. Inject one bottle (1/4 ounce / 7.4 cc) of fluorescent dye through the low-pressure service valve using dye injector tool (SST: J-41459) (refer to the manufacture's operating instructions) when the A/C operating (compressor running).
6. Disconnect the injector tool from the service valve with the engine still running.

CAUTION:

Be careful when replacing the A/C system or 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 leakage size, operating conditions and location of the leakage, it may take from minutes to days for the dye to penetrate a leakage and become visible.
8. Attach a blue label if necessary.

ELECTRICAL LEAK DETECTOR

< ON-VEHICLE MAINTENANCE >

ELECTRICAL LEAK DETECTOR

MR20DE/QR25DE

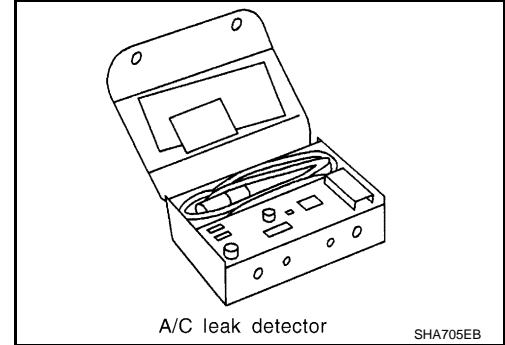
MR20DE/QR25DE : Inspection

INFOID:000000001162105

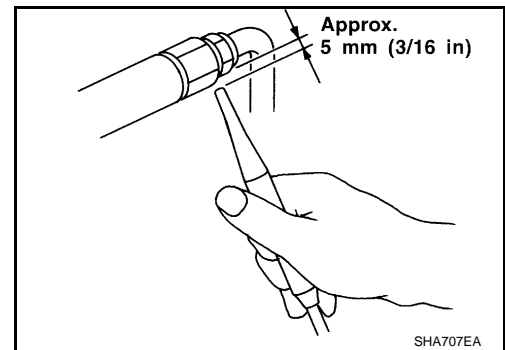
PRECAUTIONS FOR HANDLING LEAK DETECTOR

Use an electrical leak detector (SST) or equivalent when performing a refrigerant leakage check. Ensure that the instrument is calibrated and set properly per the operating instructions.

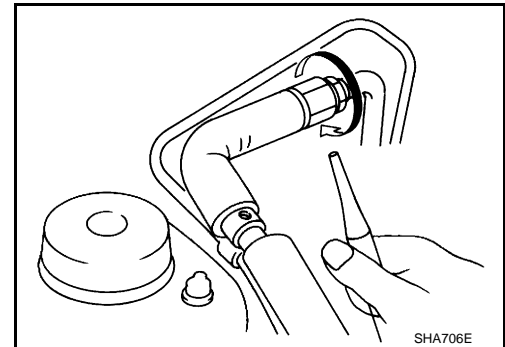
The leak detector is a delicate device. Read the operating instructions and perform any specified maintenance for using the leakage detector properly.



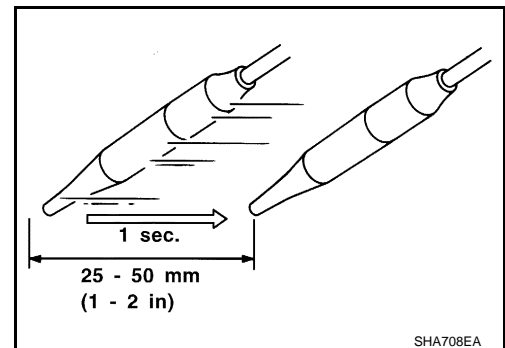
1. Position probe approximately 5 mm (3/16 in) away from point to be checked.



2. Circle each fitting completely with probe when testing.



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



CHECKING PROCEDURE

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

ELECTRICAL LEAK DETECTOR

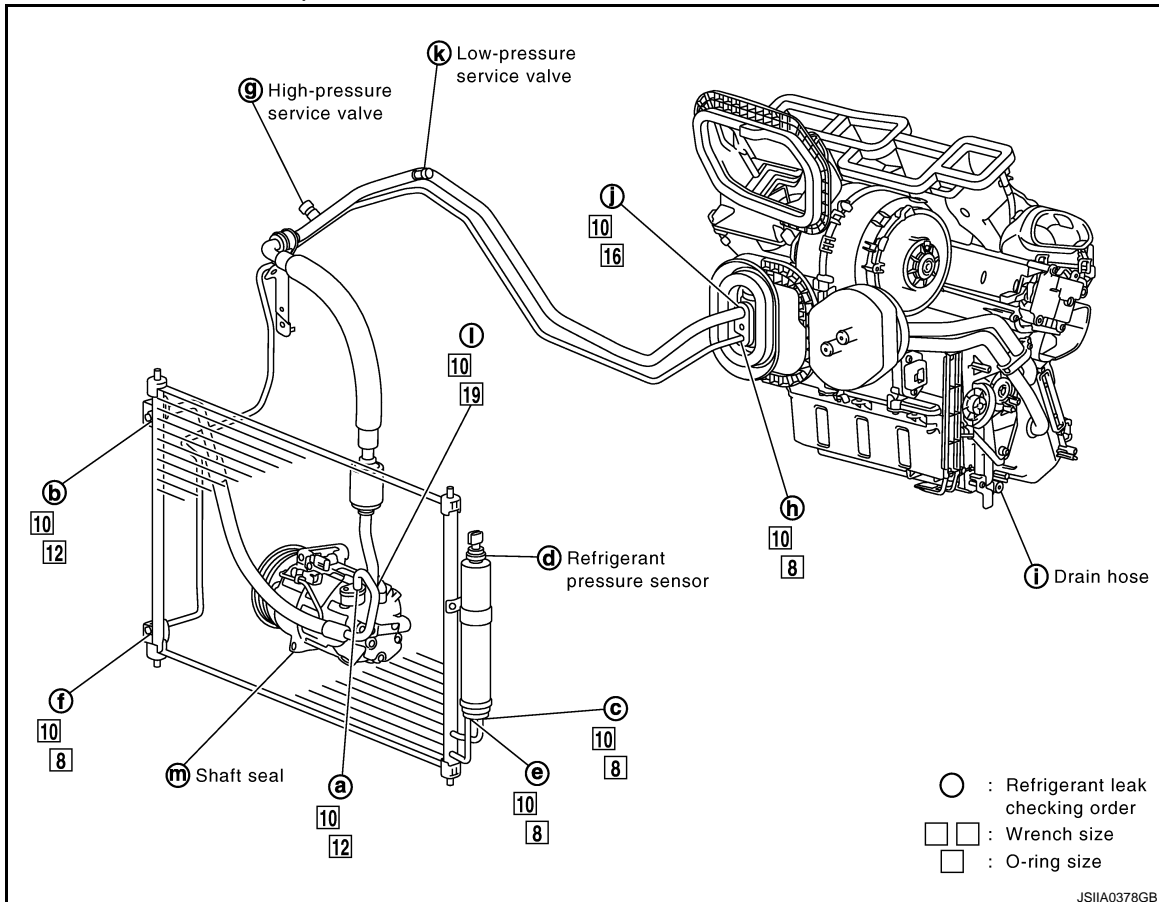
< ON-VEHICLE MAINTENANCE >

1. Stop the engine.
2. Connect a suitable A/C manifold gauge set (SST) to the A/C service valves.
3. Check if the A/C refrigerant pressure is at least 345 kPa (3.45 bar, 3.52 kg/cm², 50 psi) above 16°C (61°F). Recover/evacuate and recharge the system with the specified amount of refrigerant if less than specification.

NOTE:

Leakages may not be detected since the system may not reach 345 kPa (3.45 bar, 3.52 kg/cm², 50 psi) at temperatures below 16°C (61°F).

4. Perform the leakage test from the high-pressure side (compressor discharge a to evaporator inlet h) to the low-pressure side (evaporator drain hose i to shaft seal m). Perform a leakage check for the following areas carefully. Clean the component to be checked and move the leakage 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.

Liquid tank

Check the fitting of condenser and refrigerant pressure sensor.

Service valves

Check all around the service valves. Ensure service valve caps are secured on the service valves (to prevent leakages).

NOTE:

Wipe any residue from valves to prevent any false readings by leak detector after removing A/C manifold gauge set from service valves.

Cooling unit (Evaporator)

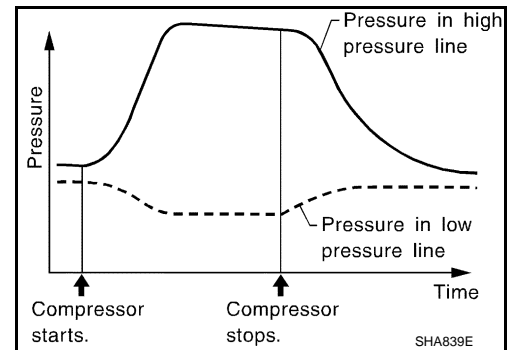
Turn blower fan on "High" for at least 15 seconds to dissipate any refrigerant trace in the cooling unit with engine OFF. Wait a minimum of 10 minutes accumulation time (refer to the manufacturer's recommended procedure for actual wait time) before inserting the leak detector probe into the drain hose.

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.

ELECTRICAL LEAK DETECTOR

< ON-VEHICLE MAINTENANCE >

5. Verify at least once by blowing compressed air into area of suspected leakage, then repeat check as outlined above if a leak detector detects a leakage.
6. Do not stop when one leakage is found. Continue checking for additional leakages at all system components.
Perform steps 7 - 10 if no leakages is found.
7. Start the engine.
8. Set the A/C control as per the following;
 - a. A/C switch: ON
 - b. MODE door position: VENT (Ventilation)
 - c. Intake door position: Recirculation
 - d. Temperature setting: Max. cold
 - e. Fan speed: High
9. Run engine at 1,500 rpm for at least 2 minutes.
10. Stop the engine and perform leakage check again following steps 4 through 6 above.
Refrigerant leakages should be checked immediately after stopping the engine. Begin with the leak detector at the compressor. The pressure on the high-pressure side drops gradually after refrigerant circulation stops and pressure on the low-pressure side rises gradually, as shown in the graph. Some leakages is more easily detected when pressure is high.



11. Check ACR4 gauges before connecting ACR4 to vehicle. No refrigerant pressure should be displayed. Recover refrigerant from equipment lines if pressure is displayed.
12. Discharge A/C system using approved refrigerant recovery equipment. Repair the leaking fitting or component if necessary.
13. Evacuate and recharge A/C system and perform the leakage test to confirm no refrigerant leakages.
14. Perform A/C performance test to ensure system works normally.

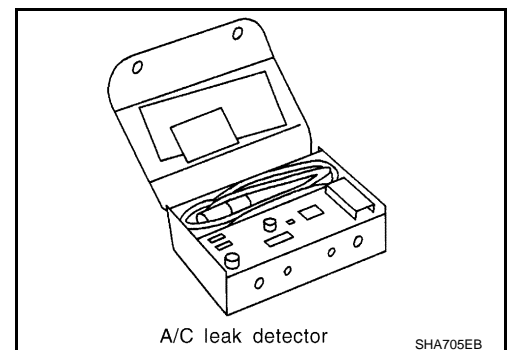
M9R

M9R : Inspection

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PRECAUTIONS FOR HANDLING LEAK DETECTOR

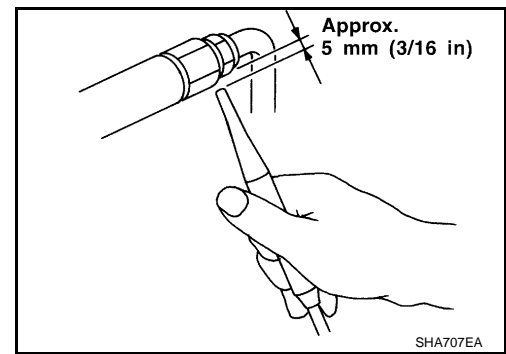
When performing a refrigerant leakage check, use an electrical leak detector (SST) or equivalent. Ensure that the instrument is calibrated and set properly per the operating instructions. The leak detector is a delicate device. Read the operating instructions and perform any specified maintenance for using the leak detector properly.



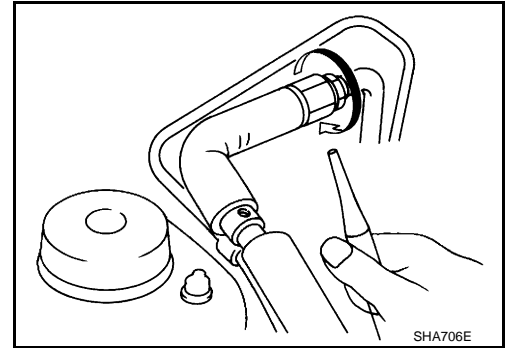
ELECTRICAL LEAK DETECTOR

< ON-VEHICLE MAINTENANCE >

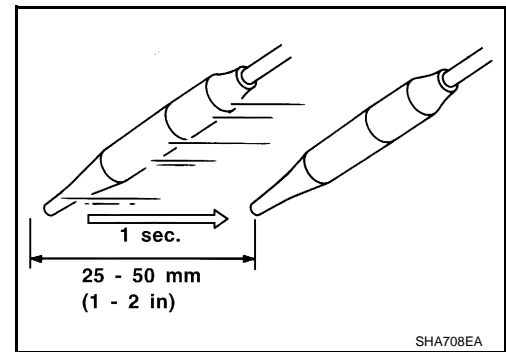
1. Position probe approximately 5 mm (3/16 in) away from point to be checked.



2. Circle each fitting completely with probe when testing.



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



CHECKING PROCEDURE

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

1. Stop the engine.
2. Connect a suitable A/C manifold gauge set (SST) to the A/C service valves.
3. Check if the A/C refrigerant pressure is at least 345 kPa (3.45 bar, 3.52 kg/cm², 50 psi) above 16°C (61°F). Recover/evacuate and recharge the system with the specified amount of refrigerant if less than specification.

NOTE:

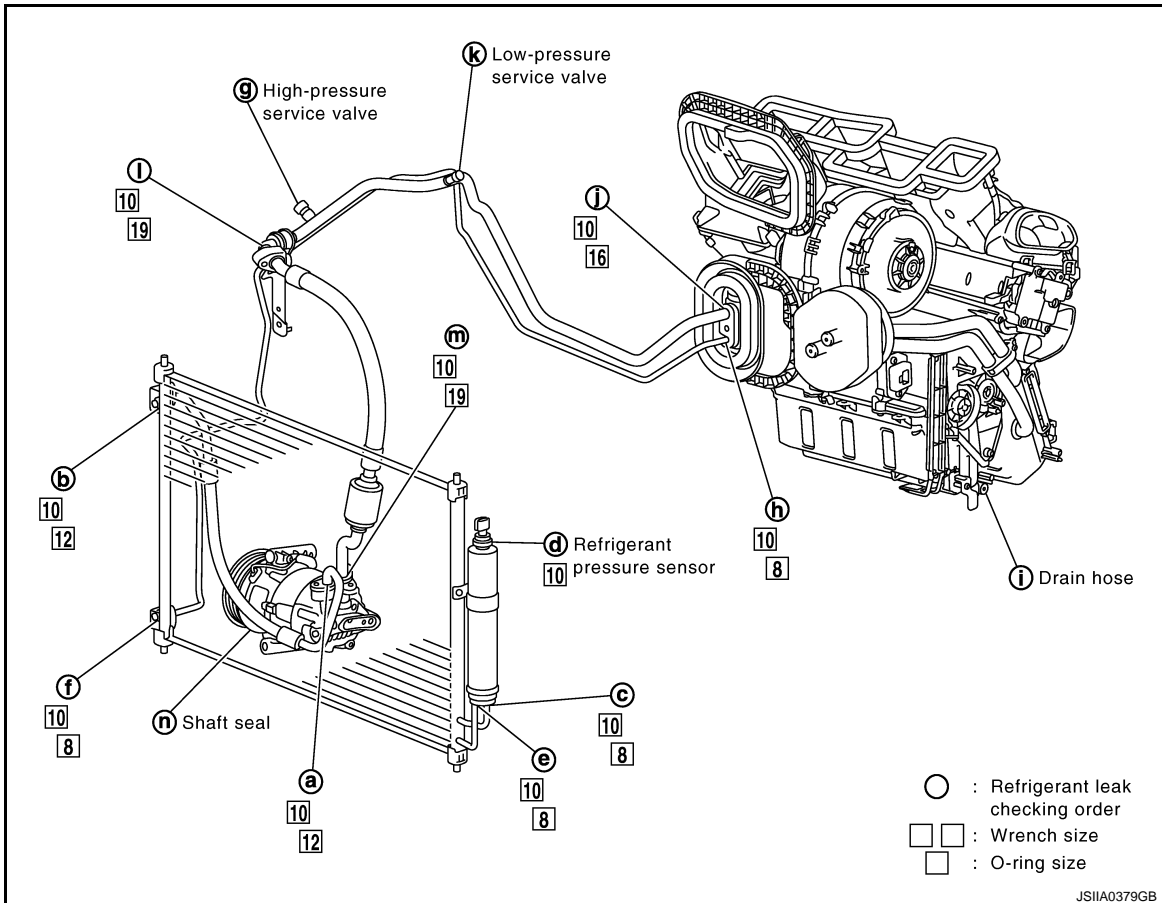
Leakages may not be detected since the system may not reach 345 kPa (3.45 bar, 3.52 kg/cm², 50 psi) at temperatures below 16°C (61°F).

4. Perform the leakage test from the high-pressure side (compressor discharge a to evaporator inlet h) to the low-pressure side (evaporator drain hose i to shaft seal n). Perform a leakage check for the following

ELECTRICAL LEAK DETECTOR

< ON-VEHICLE MAINTENANCE >

areas carefully. Clean the component to be checked and move the leakage 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.

Liquid tank

Check the fitting of condenser and refrigerant pressure sensor.

Service valves

Check all around the service valves. Ensure service valve caps are secured on the service valves (to prevent leakages).

NOTE:

Wipe any residue from valves to prevent any false readings by leak detector after removing A/C manifold gauge set from service valves.

Cooling unit (Evaporator)

Turn blower fan on "High" for at least 15 seconds to dissipate any refrigerant trace in the cooling unit with engine OFF. 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.

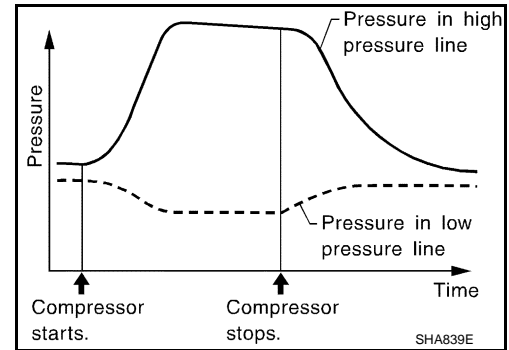
5. Verify at least once by blowing compressed air into area of suspected leakage, then repeat check as outlined above if a leak detector detects a leakage.
6. Do not stop when one leakage is found. Continue checking for additional leakages at all system components.
Perform steps 7 - 10 if no leakages is found.
7. Start the engine.
8. Set the A/C control as per the following;
 - a. A/C switch: ON
 - b. MODE door position: VENT (Ventilation)
 - c. Intake door position: Recirculation

ELECTRICAL LEAK DETECTOR

< ON-VEHICLE MAINTENANCE >

- d. Temperature setting: Max. cold
- e. Fan speed: High
9. Run engine at 1,500 rpm for at least 2 minutes.
10. Stop the engine and perform leakage check again following steps 4 through 6 above.

Refrigerant leakages should be checked immediately after stopping the engine. Begin with the leak detector at the compressor. The pressure on the high-pressure side drops gradually after refrigerant circulation stops and pressure on the low-pressure side rises gradually, as shown in the graph. Some leakages is more easily detected when pressure is high.



11. Check ACR4 gauges before connecting ACR4 to vehicle. No refrigerant pressure should be displayed. Recover refrigerant from equipment lines if pressure is displayed.
12. Discharge A/C system using approved refrigerant recovery equipment. Repair the leaking fitting or component if necessary.
13. Evacuate and recharge A/C system and perform the leakage test to confirm no refrigerant leakages.
14. Perform A/C performance test to ensure system works normally.

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REFRIGERATION SYSTEM

< ON-VEHICLE REPAIR >

ON-VEHICLE REPAIR

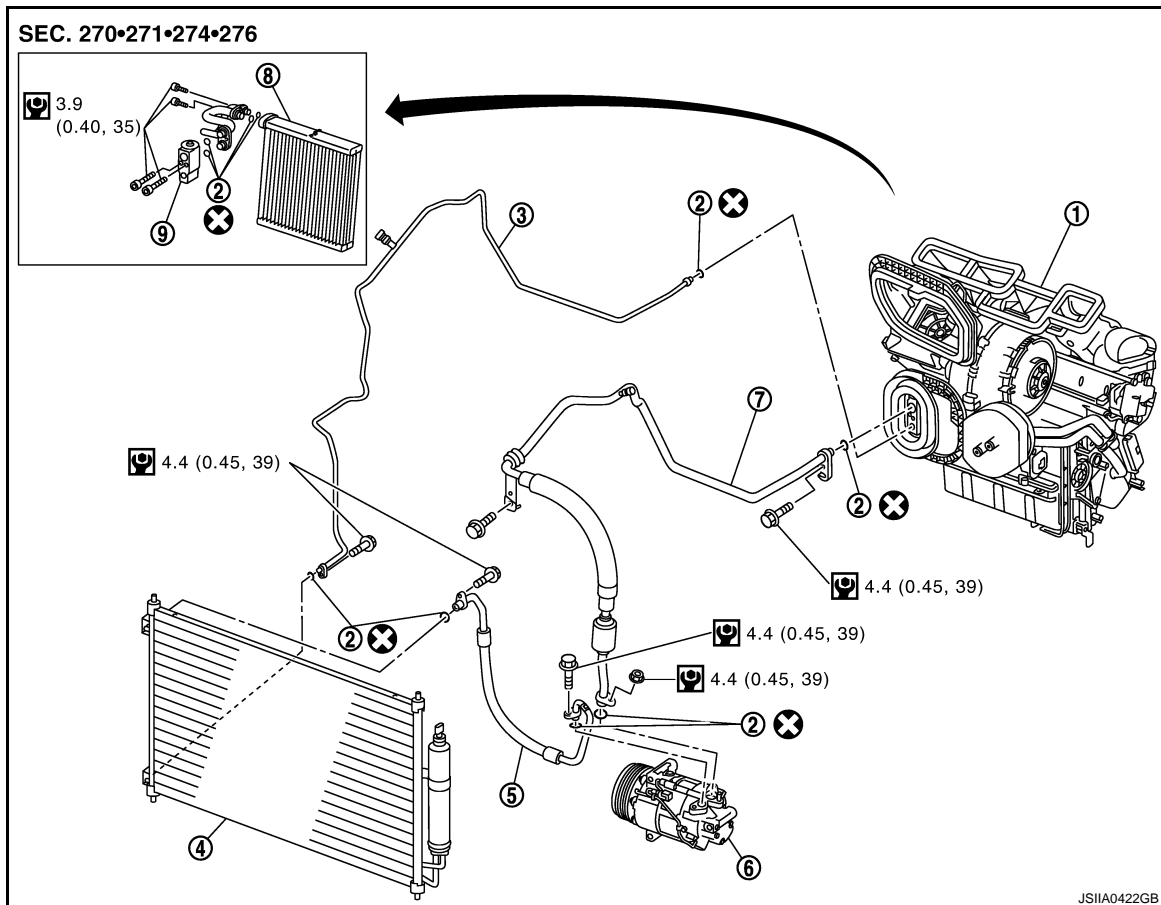
REFRIGERATION SYSTEM

MR20DE/QR25DE

MR20DE/QR25DE : Exploded View

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Refer to [HA-15. "Refrigerant Connection"](#).



- | | | |
|-------------------------------|--------------------------------|-----------------------|
| 1. A/C unit assembly | 2. O-ring | 3. High-pressure pipe |
| 4. Condenser | 5. High-pressure flexible hose | 6. Compressor |
| 7. Low-pressure flexible hose | 8. Evaporator | 9. Expansion valve |

Refer to [GI-4. "Components"](#) for symbols in the figure.

MR20DE/QR25DE : Inspection After Installation

INFOID:000000001162107

SETTING OF SERVICE TOOLS AND EQUIPMENT

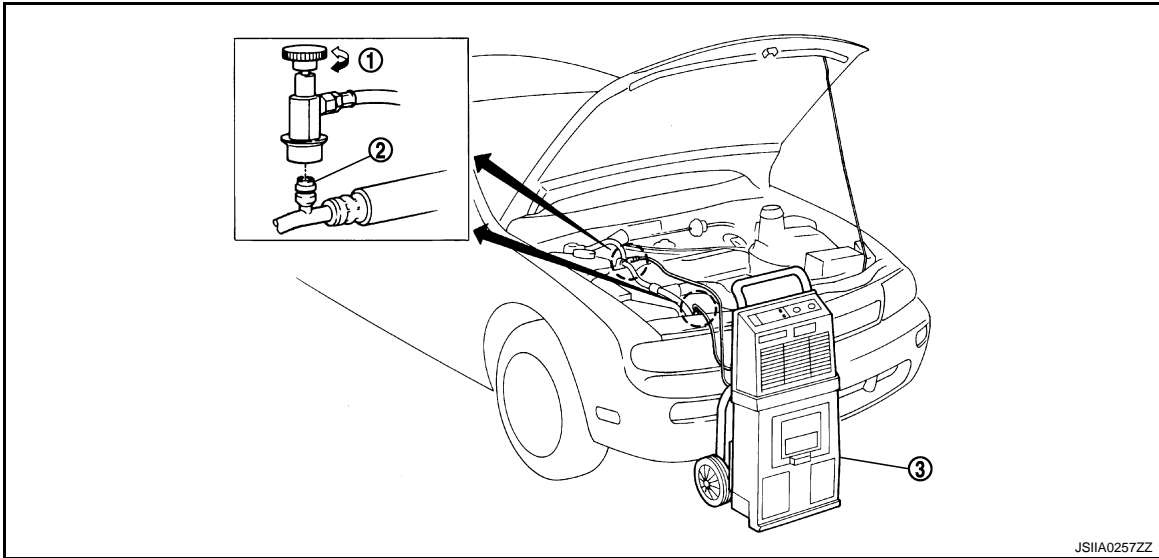
Discharging Refrigerant

WARNING:

Never breath A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose and throat. Use only approved recovery/recycling equipment to discharge HFC-134a (R-134a) refrigerant. Ventilate work area before resuming service if accidental system discharge occurs. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.

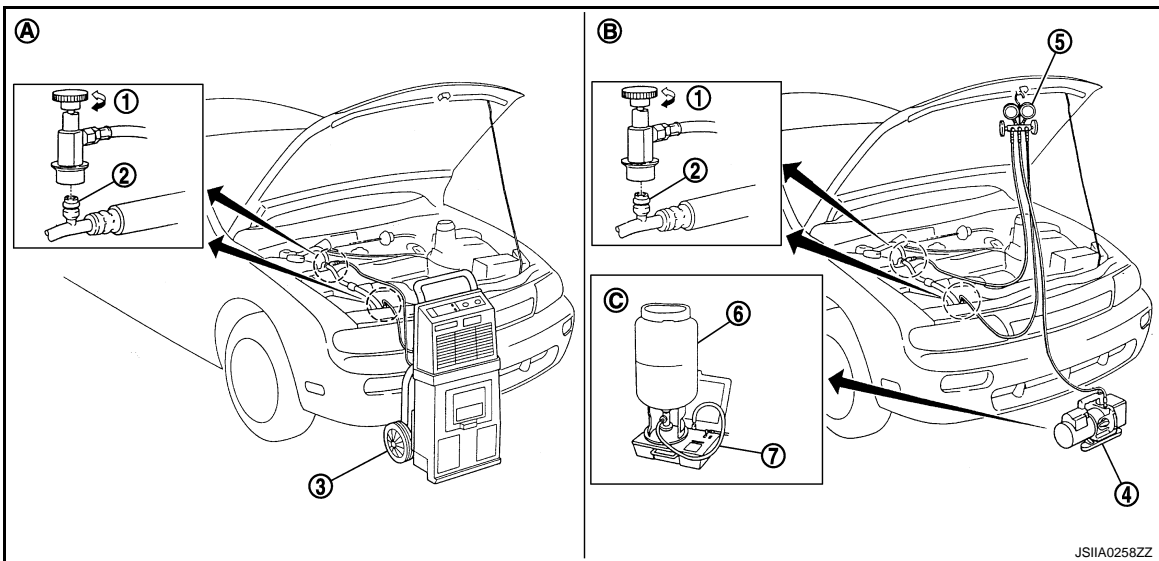
REFRIGERATION SYSTEM

< ON-VEHICLE REPAIR >



- 1. Shut-off valve
- 2. A/C service valve
- 3. Recovery/Recycling/Recharging equipment (ACR4)

Evacuating System and Charging Refrigerant

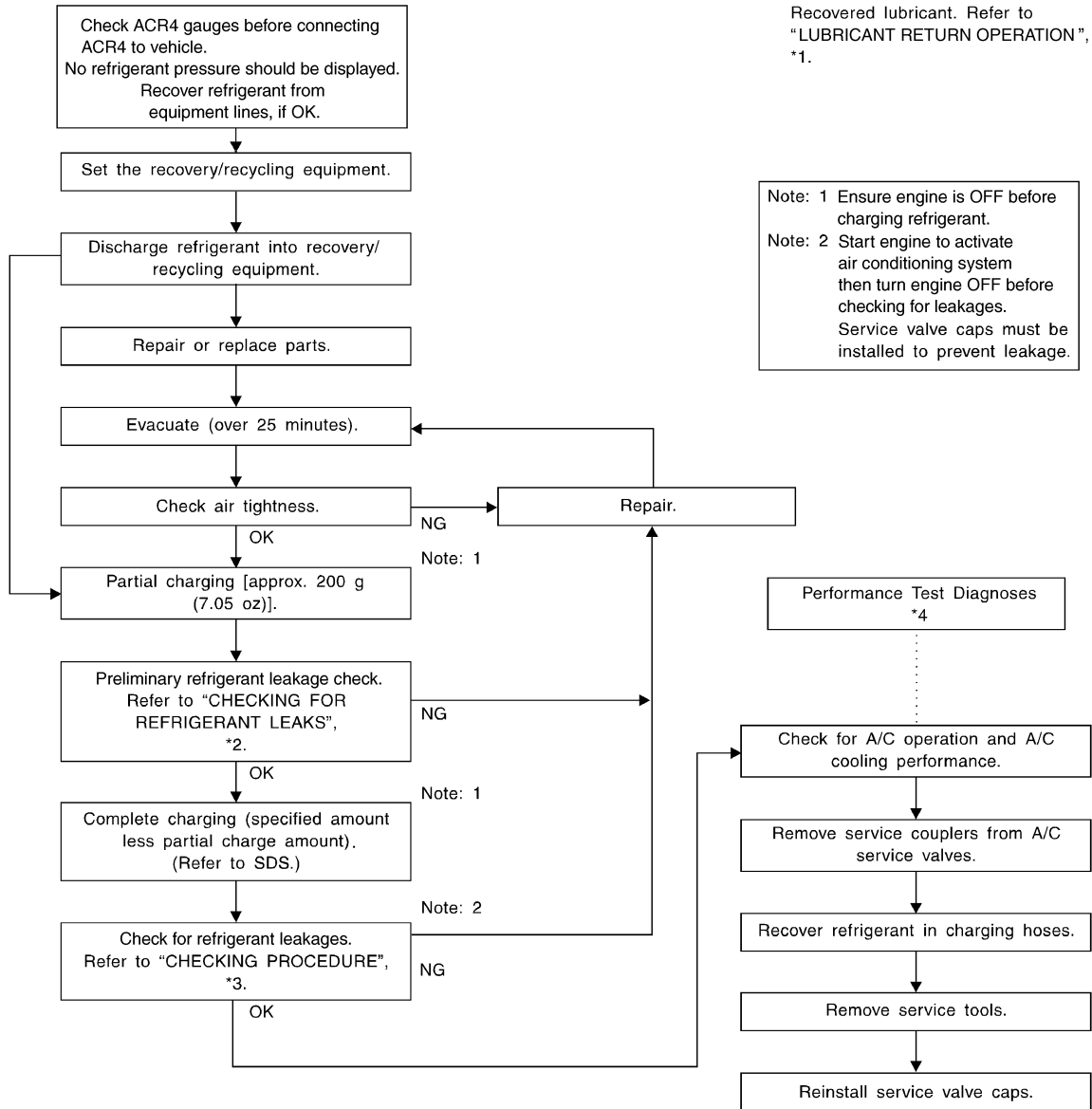


- 1. Shut-off valve
 - 2. A/C service valve
 - 3. Recovery/Recycling/Recharging equipment (ACR4)
 - 4. Vacuum pump
 - 5. Manifold gauge set
 - 6. Refrigerant container (HFC-134a)
 - 7. Weight scale
- A. Preferred (best) method B. Alternative method C. For charging

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REFRIGERATION SYSTEM

< ON-VEHICLE REPAIR >



JSIIA0533GB

*1 [HA-25, "Adjustment"](#)

*2 [HA-28, "MR20DE/QR25DE : Refrigerant Leakages"](#)

*3 [HA-32, "MR20DE/QR25DE : Inspection"](#)

*4 [HA-27, "MR20DE/QR25DE : Inspection"](#)

M9R

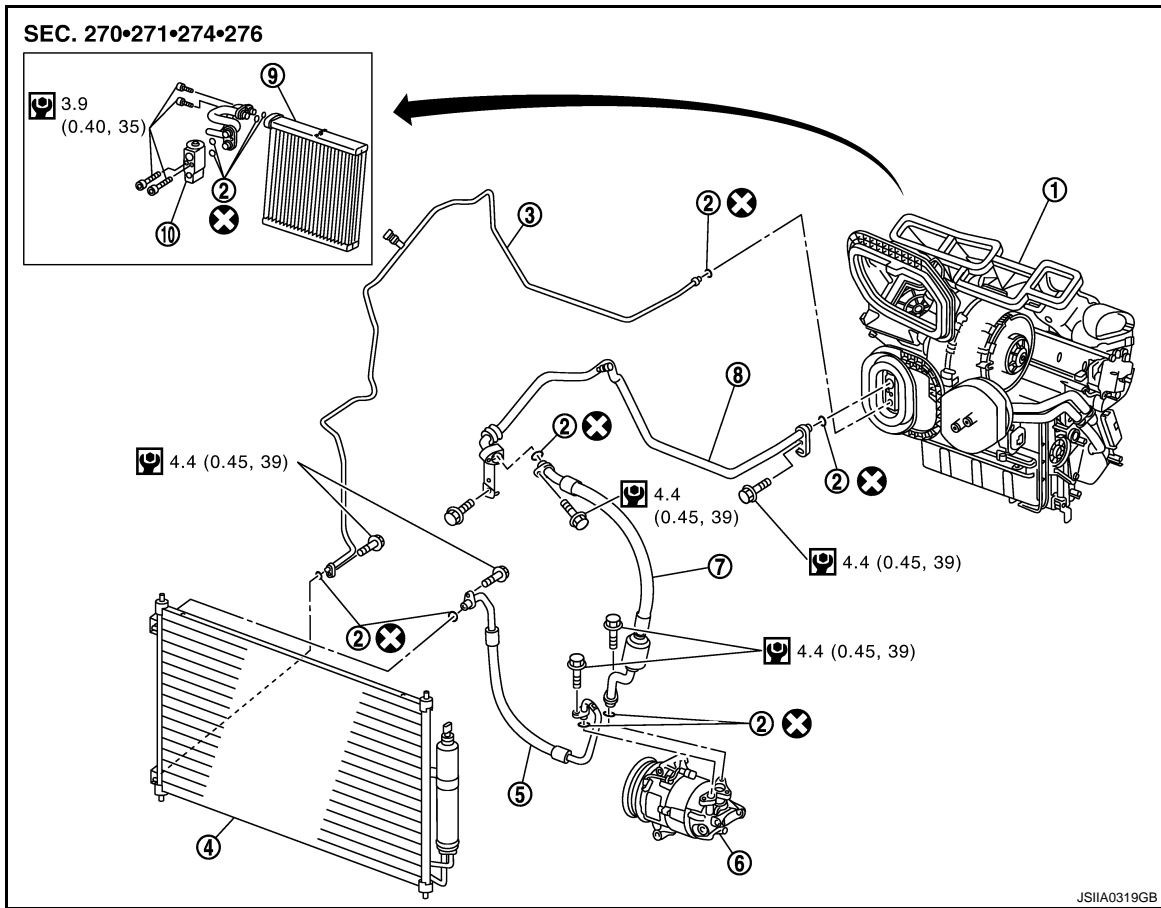
M9R : Exploded View

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Refer to [HA-15, "Refrigerant Connection"](#).

REFRIGERATION SYSTEM

< ON-VEHICLE REPAIR >



- | | | |
|-------------------------------|--------------------------------|-----------------------|
| 1. A/C unit assembly | 2. O-ring | 3. High-pressure pipe |
| 4. Condenser | 5. High-pressure flexible hose | 6. Compressor |
| 7. Low-pressure flexible hose | 8. Low-pressure pipe | 9. Evaporator |
| 10. Expansion valve | | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

M9R : Inspection After Installation

INFOID:000000001280710

SETTING OF SERVICE TOOLS AND EQUIPMENT

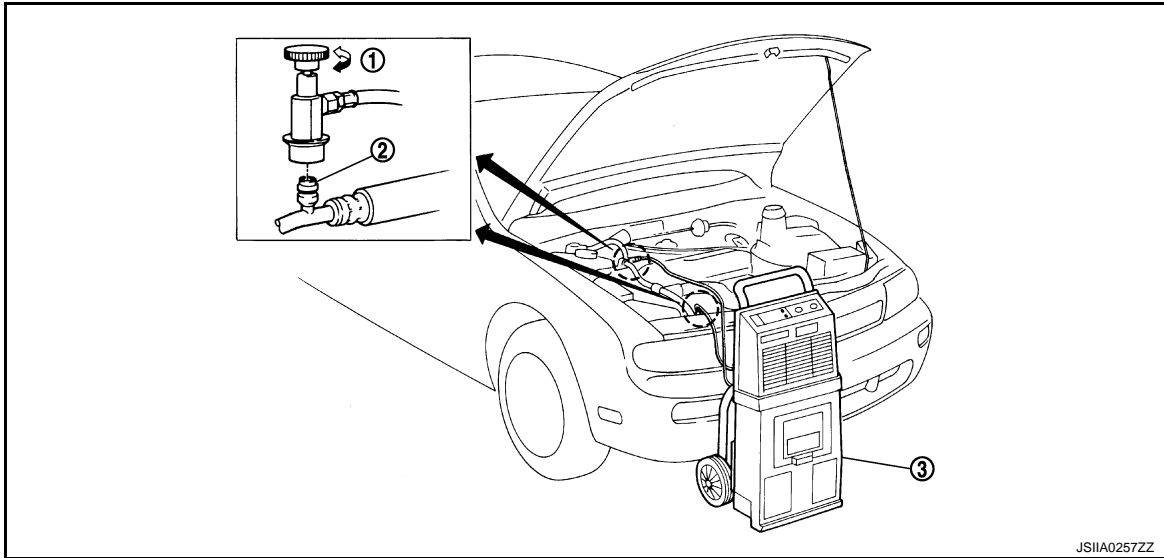
Discharging Refrigerant

WARNING:

Never breath A/C refrigerant and lubricant vapor or mist. Exposure may irritate eyes, nose and throat. Use only approved recovery/recycling equipment to discharge HFC-134a (R-134a) refrigerant. Ventilate work area before resuming service if accidental system discharge occurs. Additional health and safety information may be obtained from refrigerant and lubricant manufacturers.

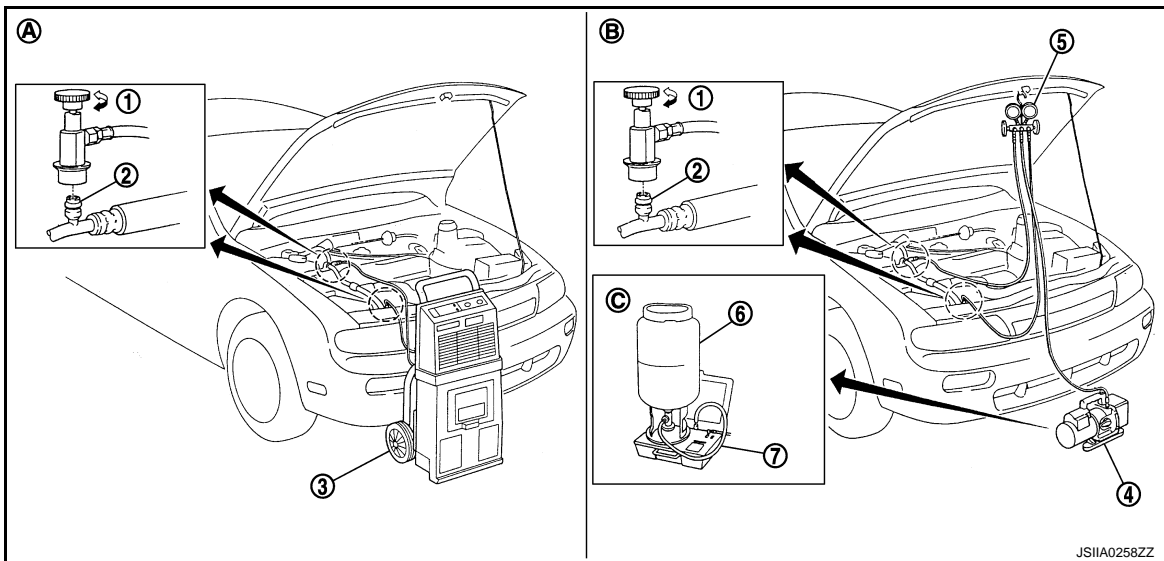
REFRIGERATION SYSTEM

< ON-VEHICLE REPAIR >



- 1. Shut-off valve
- 2. A/C service valve
- 3. Recovery/Recycling/Recharging equipment (ACR4)

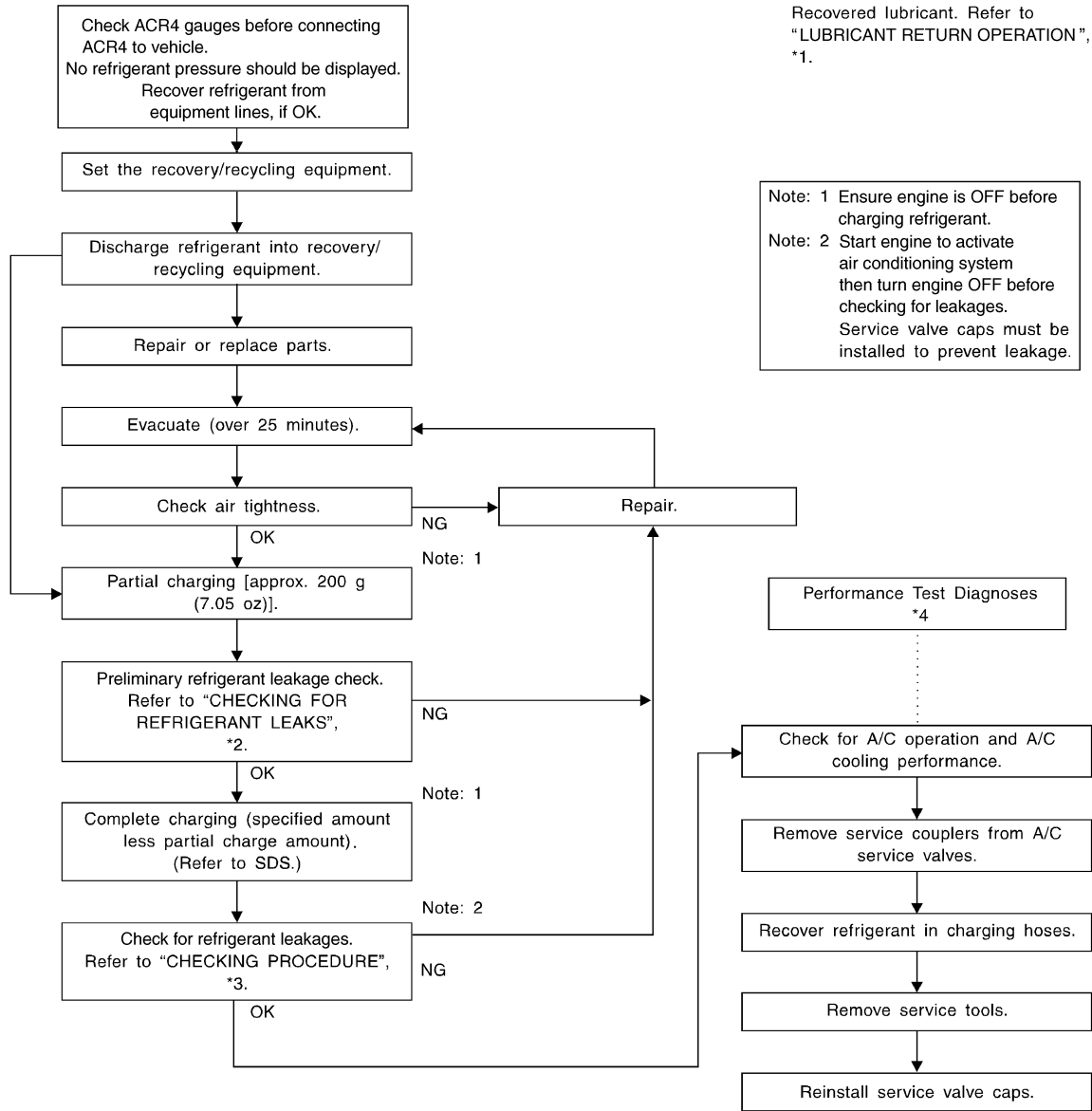
Evacuating System and Charging Refrigerant



- 1. Shut-off valve
 - 2. A/C service valve
 - 3. Recovery/Recycling/Recharging equipment (ACR4)
 - 4. Vacuum pump
 - 5. Manifold gauge set
 - 6. Refrigerant container (HFC-134a)
 - 7. Weight scale
- A. Preferred (best) method B. Alternative method C. For charging

REFRIGERATION SYSTEM

< ON-VEHICLE REPAIR >



*1 [HA-25, "Adjustment"](#)

*2 [HA-30, "M9R : Refrigerant Leakages"](#) *3 [HA-28, "M9R : Inspection"](#)

*4 [HA-28, "M9R : Inspection"](#)

JSIIA0533GB

COMPRESSOR

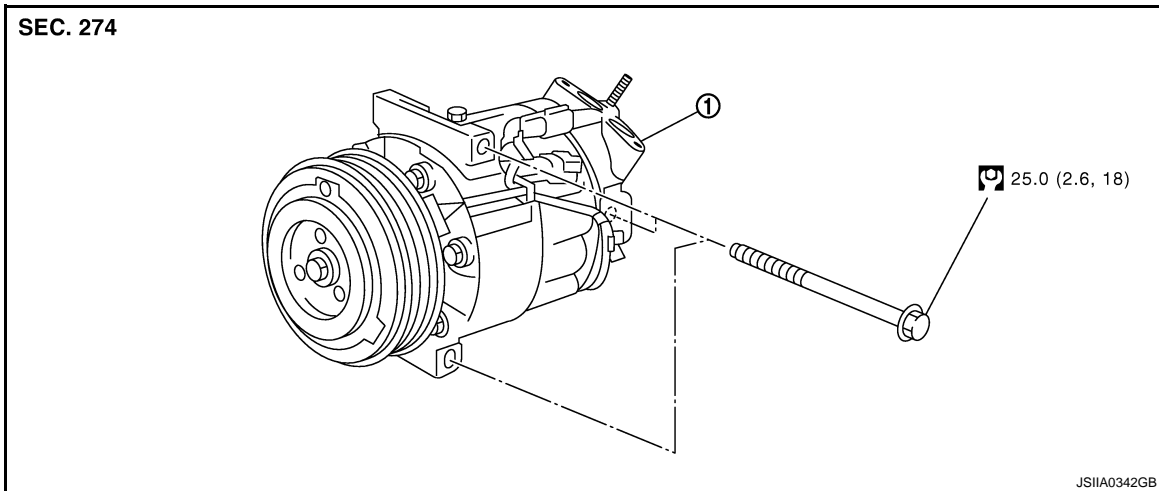
< ON-VEHICLE REPAIR >

COMPRESSOR

MR20DE

MR20DE : Exploded View

INFOID:000000001162108



1. Compressor

Refer to [GI-4, "Components"](#) for symbols in the figure.

MR20DE : Removal and Installation

INFOID:000000001162109

REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove drive belt. Refer to [EM-15, "Exploded View"](#).
3. Remove mounting nut (A) from low-pressure flexible hose (1).

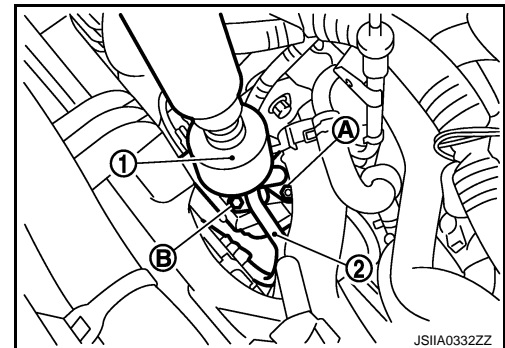
CAUTION:

Cap or wrap the joint of the A/C piping and compressor with suitable material such as vinyl tape to avoid the entry of air.

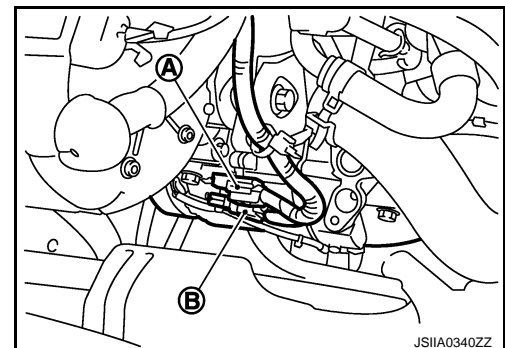
4. Remove mounting bolt (B) from high-pressure flexible hose (2).

CAUTION:

Cap or wrap the joint of the A/C piping and compressor with suitable material such as vinyl tape to avoid the entry of air.



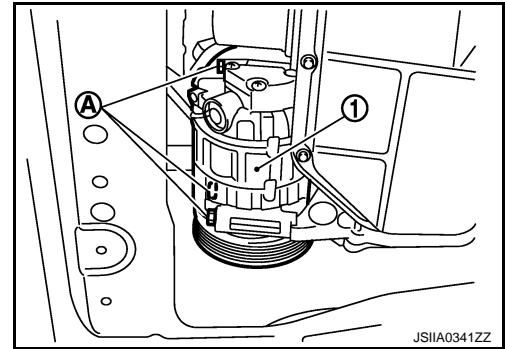
5. Disconnect compressor (magnet clutch) connector (A).
6. Disconnect compressor (ECV) connector (B).



COMPRESSOR

< ON-VEHICLE REPAIR >

7. Remove mounting bolts (A) from compressor (1).
8. Remove compressor downward of vehicle.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

MR20DE : Inspection

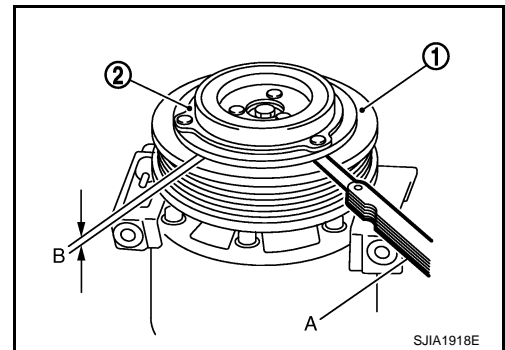
INFOID:000000001162110

CHECK DISC TO PULLEY CLEARANCE

Check the clearance (B) between pulley assembly (1) and clutch disc (2) along the entire periphery with a feeler gauge (A).

Standard : Refer to [HA-74, "MR20DE/QR25DE : Compressor"](#).

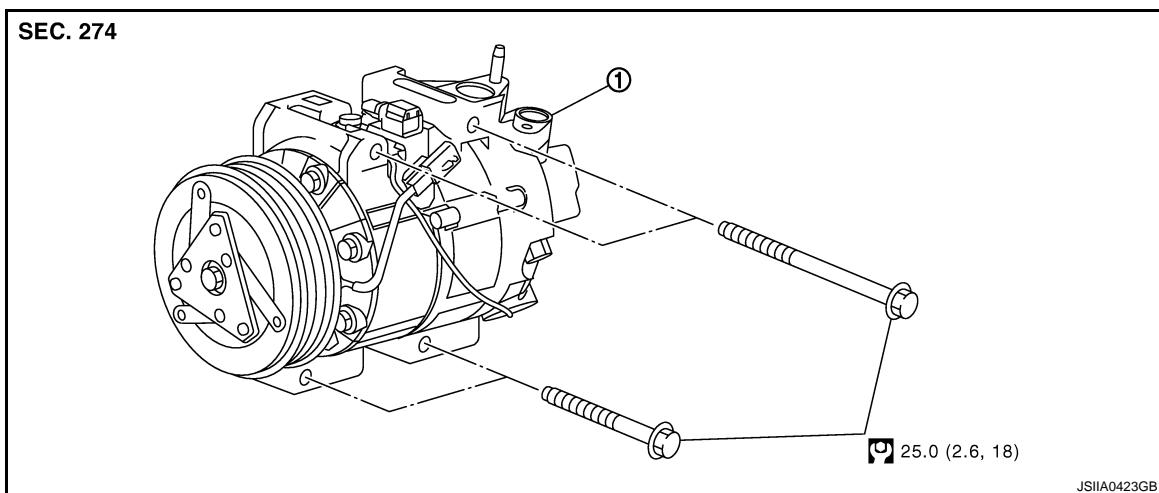
Replace compressor if specified clearance is not obtained.



QR25DE

QR25DE : Exploded View

INFOID:000000001298722



1. Compressor

Refer to [GI-4, "Components"](#) for symbols in the figure.

QR25DE : Removal and Installation

INFOID:000000001298723

REMOVAL

COMPRESSOR

< ON-VEHICLE REPAIR >

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove drive belt. Refer to [EM-138, "Removal and Installation"](#).
3. Remove mounting nut (A) from low-pressure flexible hose (1).

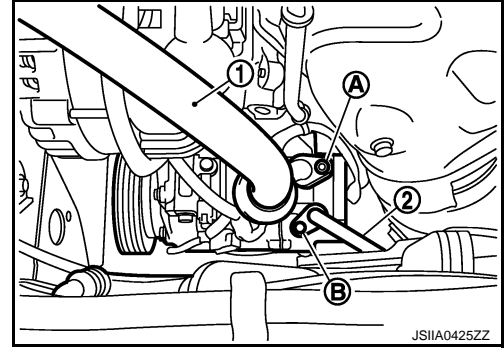
CAUTION:

Cap or wrap the joint of the A/C piping and compressor with suitable material such as vinyl tape to avoid the entry of air.

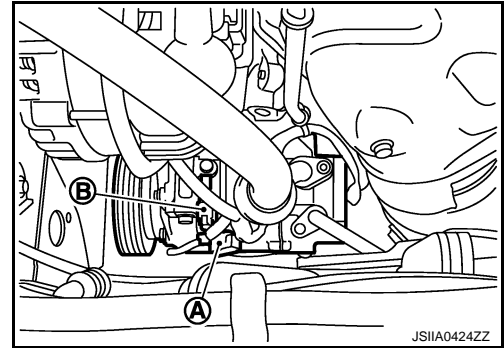
4. Remove mounting bolt (B) from high-pressure flexible hose (2).

CAUTION:

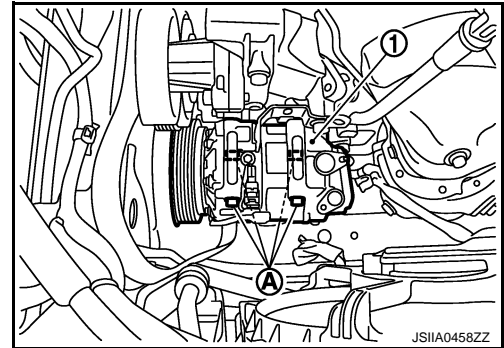
Cap or wrap the joint of the A/C piping and compressor with suitable material such as vinyl tape to avoid the entry of air.



5. Disconnect compressor (magnet clutch) connector (A).
6. Disconnect compressor (ECV) connector (B).



7. Remove alternator. [CHG-30, "QR25DE MODELS : Exploded View"](#)
8. Remove mounting bolts (A) from compressor (1).
9. Remove compressor from top of the vehicle.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

QR25DE : Inspection

INFOID:000000001298724

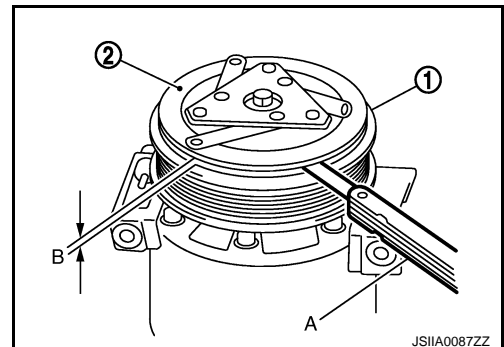
CHECK DISC TO PULLEY CLEARANCE

Check the clearance (B) between pulley assembly (1) and clutch disc (2) along the entire periphery with a feeler gauge (A).

Standard

: Refer to [HA-74, "MR20DE/QR25DE : Compressor"](#).

Replace compressor if specified clearance is not obtained.



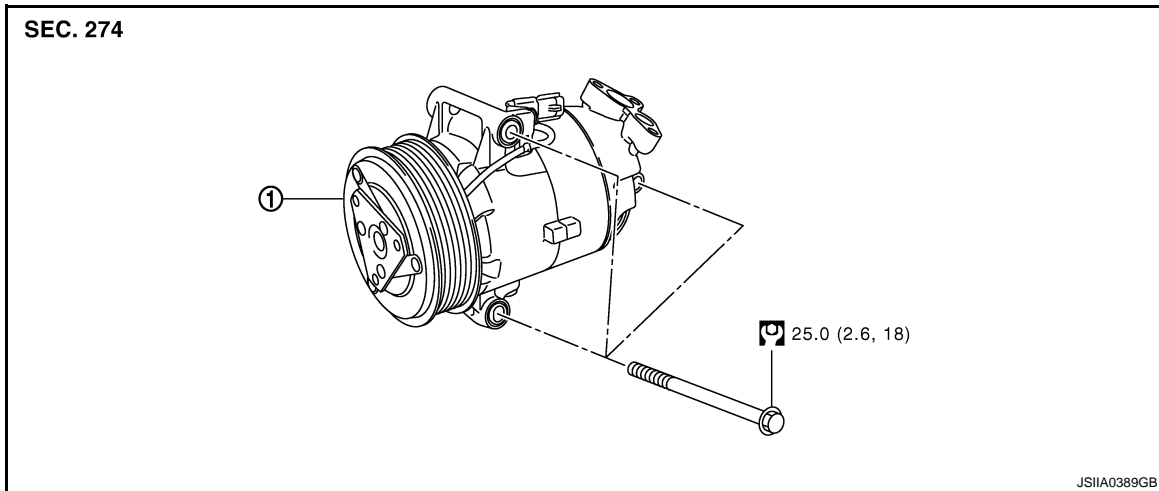
COMPRESSOR

< ON-VEHICLE REPAIR >

M9R

M9R : Exploded View

INFOID:000000001180780



1. Compressor

Refer to [GI-4, "Components"](#) for symbols in the figure.

M9R : Removal and Installation

INFOID:000000001180781

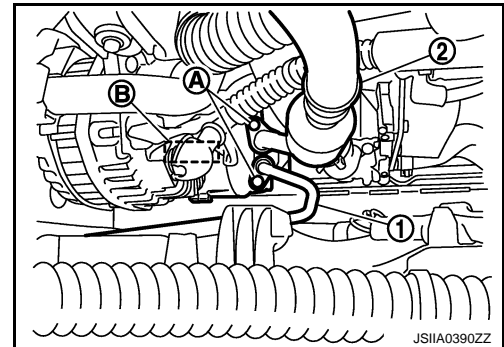
REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove front fender protector. Refer to [EXT-21, "Exploded View"](#).
3. Remove drive belt. Refer to [EM-257, "Exploded View"](#).
4. Remove mounting bolts (A) from high-pressure flexible hose (1) and low-pressure flexible hose (2).

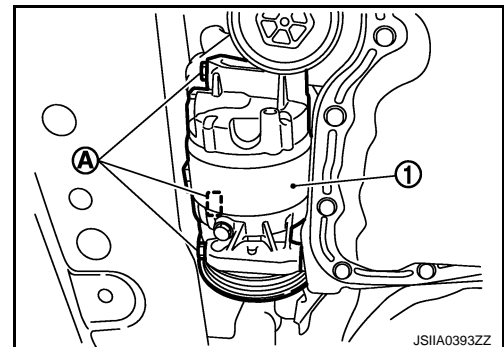
CAUTION:

Cap or wrap the joint of the A/C piping and compressor with suitable material such as vinyl tape to avoid the entry of air.

5. Disconnect compressor (magnet clutch) connector (B).



6. Remove mounting bolts (A) from compressor (1).
7. Remove compressor from right side of the vehicle.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.

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

COMPRESSOR

< ON-VEHICLE REPAIR >

- Check for leakages when recharging refrigerant.

M9R : Inspection

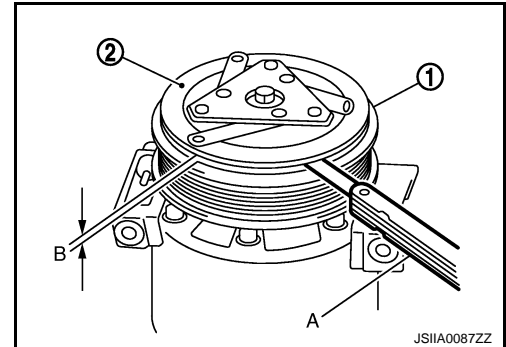
INFOID:000000001180782

CHECK DISC TO PULLEY CLEARANCE

Check the clearance (B) between pulley assembly (1) and clutch disc (2) along the entire periphery with a feeler gauge (A).

Standard : Refer to [HA-74, "M9R : Compressor"](#).

Replace compressor if specified clearance is not obtained.



LOW-PRESSURE FLEXIBLE HOSE

< ON-VEHICLE REPAIR >

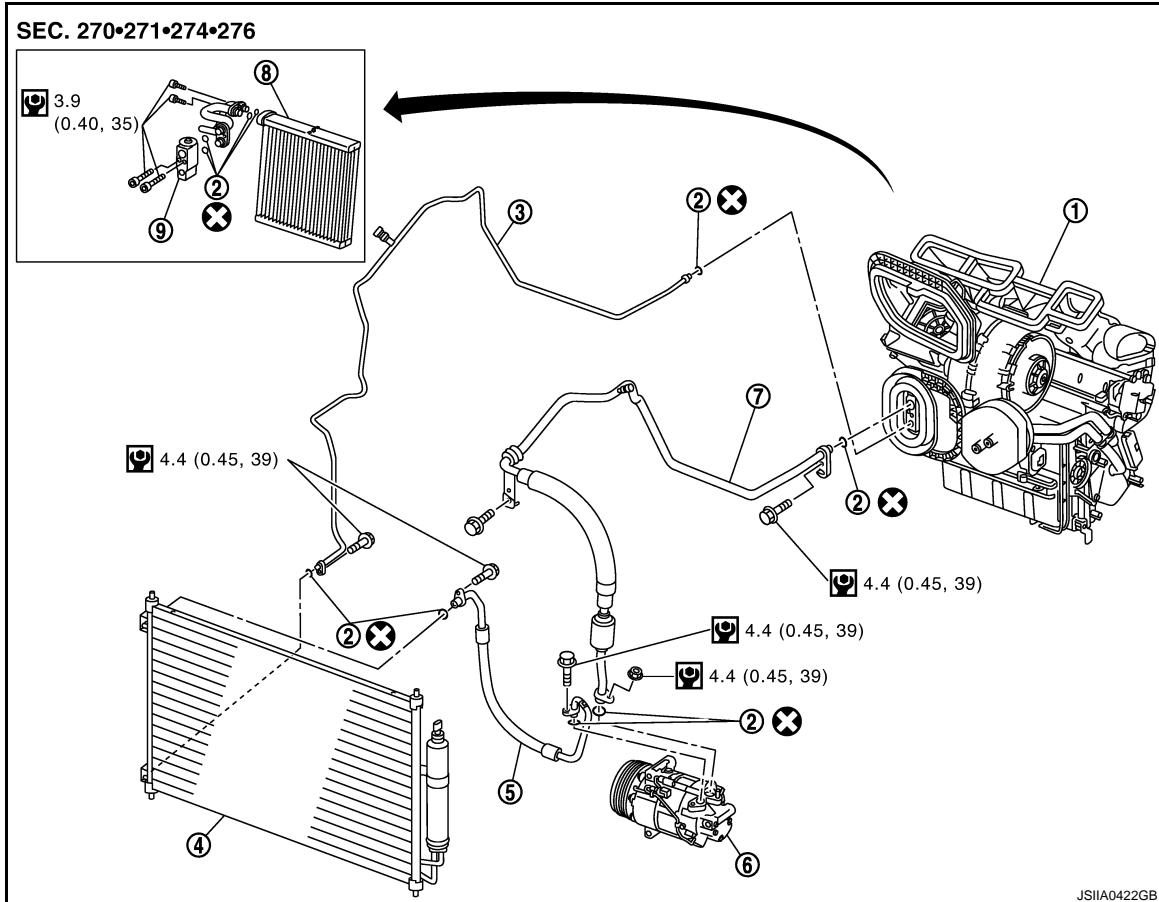
LOW-PRESSURE FLEXIBLE HOSE

MR20DE/QR25DE

MR20DE/QR25DE : Exploded View

INFOID:000000001301404

Refer to [HA-15, "Refrigerant Connection"](#).



- | | | |
|-------------------------------|--------------------------------|-----------------------|
| 1. A/C unit assembly | 2. O-ring | 3. High-pressure pipe |
| 4. Condenser | 5. High-pressure flexible hose | 6. Compressor |
| 7. Low-pressure flexible hose | 8. Evaporator | 9. Expansion valve |

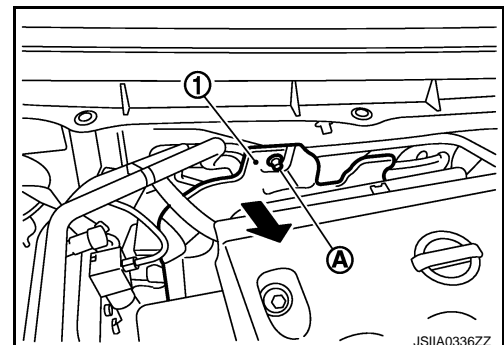
Refer to [GI-4, "Components"](#) for symbols in the figure.

MR20DE/QR25DE : Removal and Installation

INFOID:0000000001162112

REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove cowl top cover (QR25DE). Refer to [EXT-19, "Exploded View"](#).
3. Remove mounting nut (A), and lower dash insulator (1) a position without the hindrance for work.



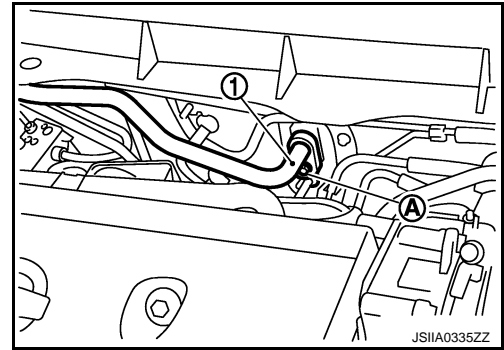
LOW-PRESSURE FLEXIBLE HOSE

< ON-VEHICLE REPAIR >

4. Remove mounting bolt (A) from low-pressure flexible hose (1).

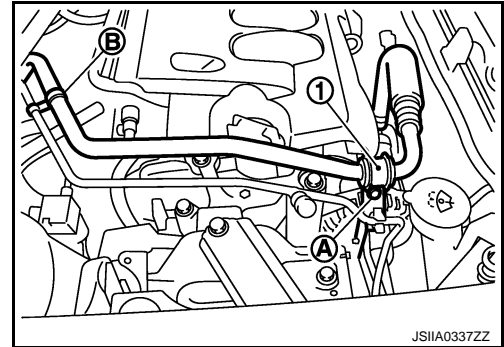
CAUTION:

Cap or wrap the joint of the A/C piping and expansion valve with suitable material such as vinyl tape to avoid the entry of air.



5. Remove mounting bolt (A) from low-pressure flexible hose bracket (1).

6. Remove clip (B)

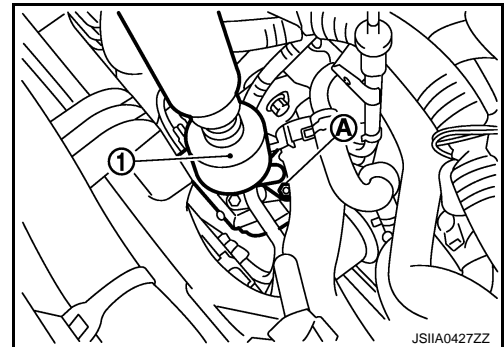


7. Remove mounting nut (A) from low-pressure flexible hose (1).

CAUTION:

Cap or wrap the joint of the A/C piping and compressor with suitable material such as vinyl tape to avoid the entry of air.

8. Remove low-pressure flexible hose.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

M9R

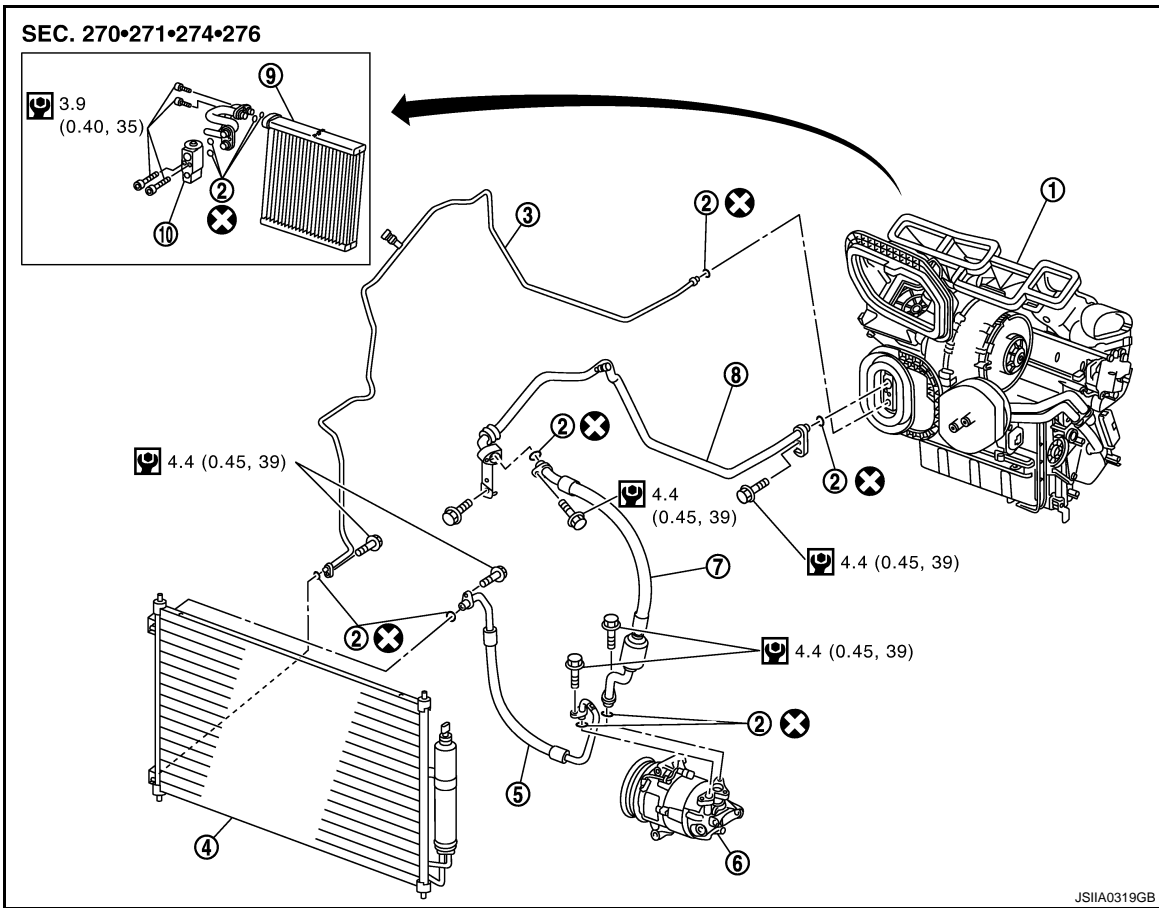
M9R : Exploded View

INFOID:000000001301405

Refer to [HA-15, "Refrigerant Connection"](#).

LOW-PRESSURE FLEXIBLE HOSE

< ON-VEHICLE REPAIR >



- | | | |
|-------------------------------|--------------------------------|-----------------------|
| 1. A/C unit assembly | 2. O-ring | 3. High-pressure pipe |
| 4. Condenser | 5. High-pressure flexible hose | 6. Compressor |
| 7. Low-pressure flexible hose | 8. Low-pressure pipe | 9. Evaporator |
| 10. Expansion valve | | |

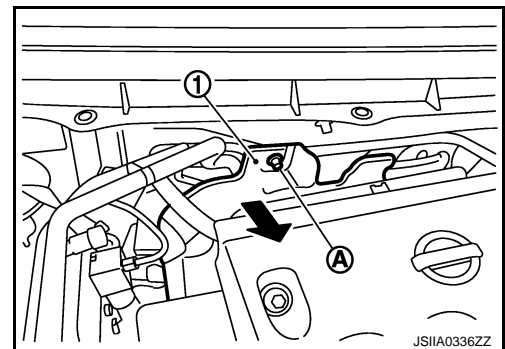
Refer to [GI-4, "Components"](#) for symbols in the figure.

M9R : Removal and Installation

INFOID:000000001180784

REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove engine cover. Refer to [EM-265, "Exploded View"](#).
3. Remove mounting nut (A), and lower dash insulator (1) a position without the hindrance for work.



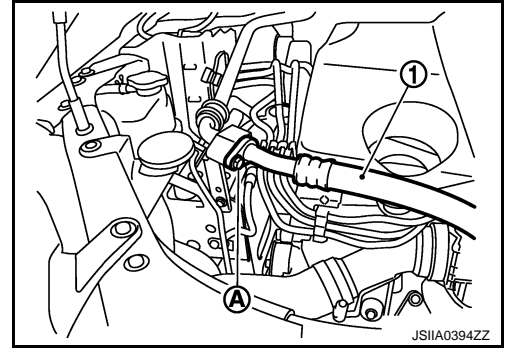
LOW-PRESSURE FLEXIBLE HOSE

< ON-VEHICLE REPAIR >

4. Remove mounting bolt (A) from low-pressure flexible hose (1).

CAUTION:

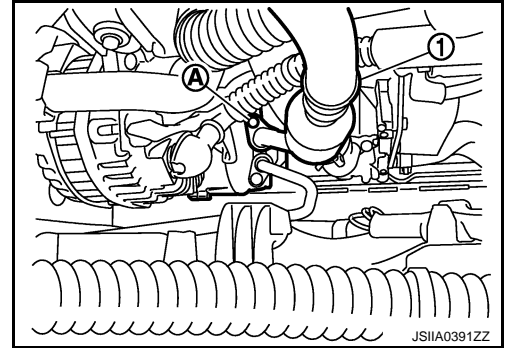
Cap or wrap the joint of the A/C piping with suitable material such as vinyl tape to avoid the entry of air.



5. Remove mounting bolt (A), and then remove low-pressure flexible hose (1).

CAUTION:

Cap or wrap the joint of the A/C piping and compressor with suitable material such as vinyl tape to avoid the entry of air.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

LOW-PRESSURE PIPE

< ON-VEHICLE REPAIR >

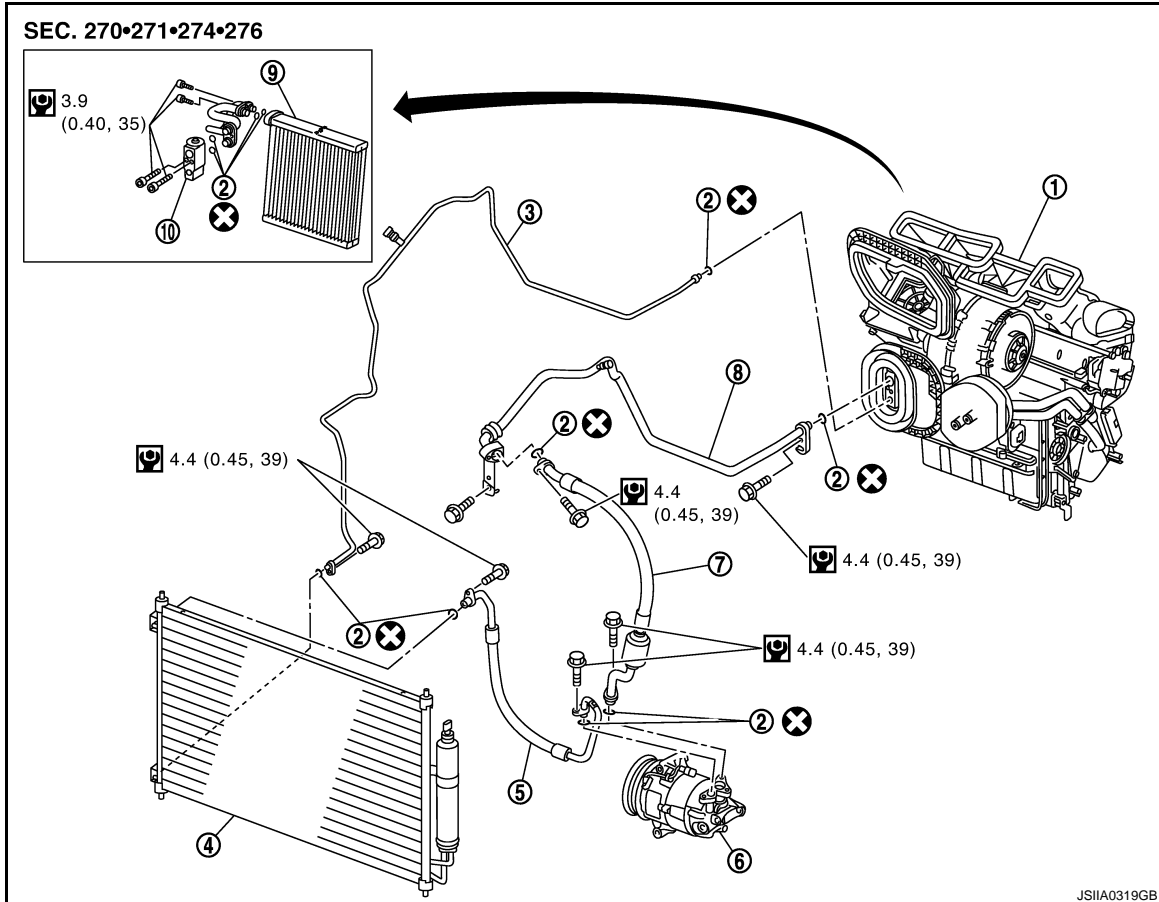
LOW-PRESSURE PIPE

M9R

M9R : Exploded View

INFOID:000000001301406

Refer to [HA-15, "Refrigerant Connection"](#).



- | | | |
|-------------------------------|--------------------------------|-----------------------|
| 1. A/C unit assembly | 2. O-ring | 3. High-pressure pipe |
| 4. Condenser | 5. High-pressure flexible hose | 6. Compressor |
| 7. Low-pressure flexible hose | 8. Low-pressure pipe | 9. Evaporator |
| 10. Expansion valve | | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

M9R : Removal and Installation

INFOID:000000001301423

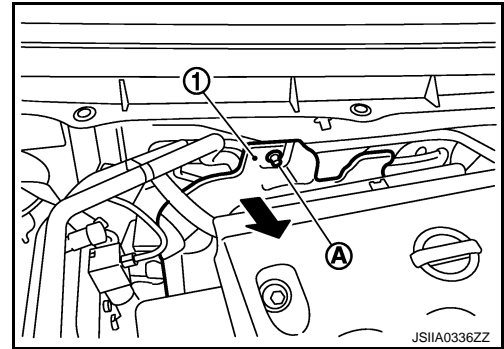
REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove engine cover. Refer to [EM-265, "Exploded View"](#).

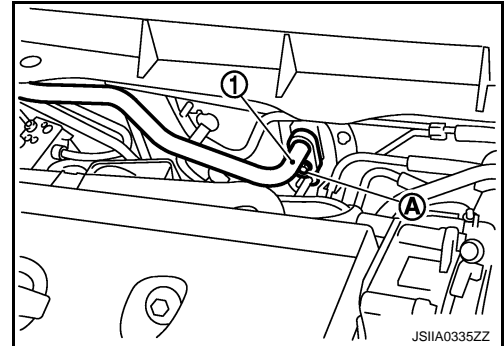
LOW-PRESSURE PIPE

< ON-VEHICLE REPAIR >

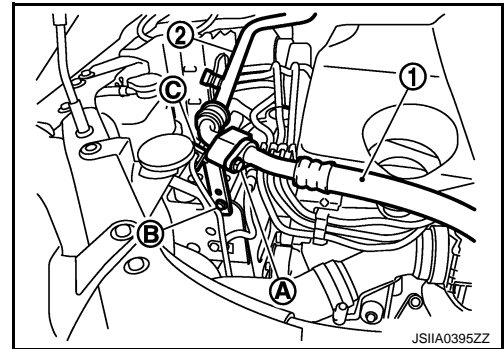
3. Remove mounting nut (A), and lower dash insulator (1) a position without the hindrance for work.



4. Remove mounting bolt (A) from low-pressure flexible hose (1).
CAUTION:
Cap or wrap the joint of the A/C piping and expansion valve with suitable material such as vinyl tape to avoid the entry of air.



5. Remove mounting bolt (A) from low-pressure flexible hose (1).
CAUTION:
Cap or wrap the joint of the A/C piping with suitable material such as vinyl tape to avoid the entry of air.
6. Remove mounting bolt (B) from low-pressure pipe (2).
7. Remove clip (C), and then remove low-pressure pipe.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

HIGH-PRESSURE FLEXIBLE HOSE

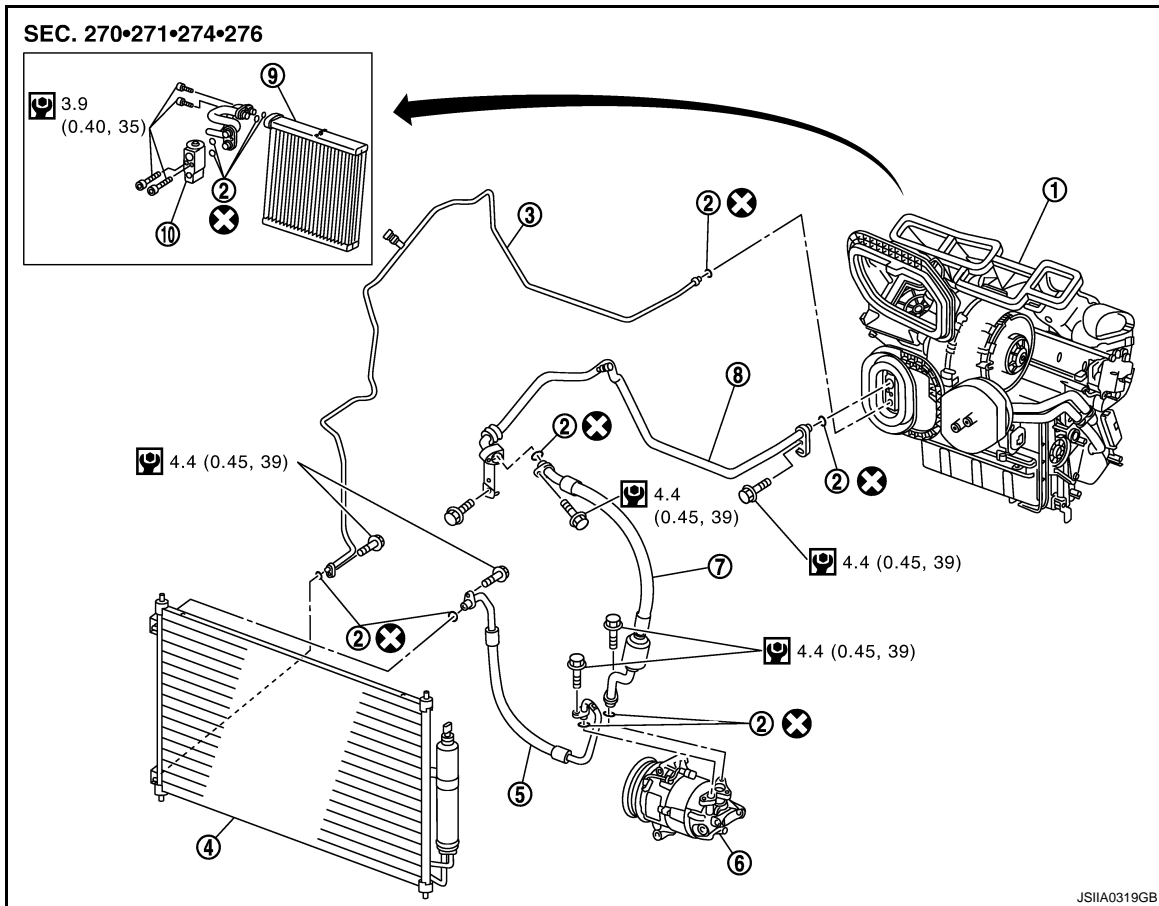
< ON-VEHICLE REPAIR >

HIGH-PRESSURE FLEXIBLE HOSE

Exploded View

INFOID:000000001301407

Refer to [HA-15, "Refrigerant Connection"](#).



- | | | |
|-------------------------------|--------------------------------|-----------------------|
| 1. A/C unit assembly | 2. O-ring | 3. High-pressure pipe |
| 4. Condenser | 5. High-pressure flexible hose | 6. Compressor |
| 7. Low-pressure flexible hose | 8. Low-pressure pipe | 9. Evaporator |
| 10. Expansion valve | | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

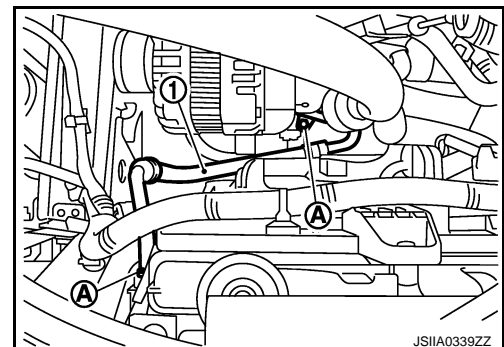
INFOID:000000001162114

REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove mounting bolts (A), and then remove high-pressure flexible hose (1).

CAUTION:

Cap or wrap the joint of the A/C piping, condenser and compressor with suitable material such as vinyl tape to avoid the entry of air.



HIGH-PRESSURE FLEXIBLE HOSE

< ON-VEHICLE REPAIR >

INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

HIGH-PRESSURE PIPE

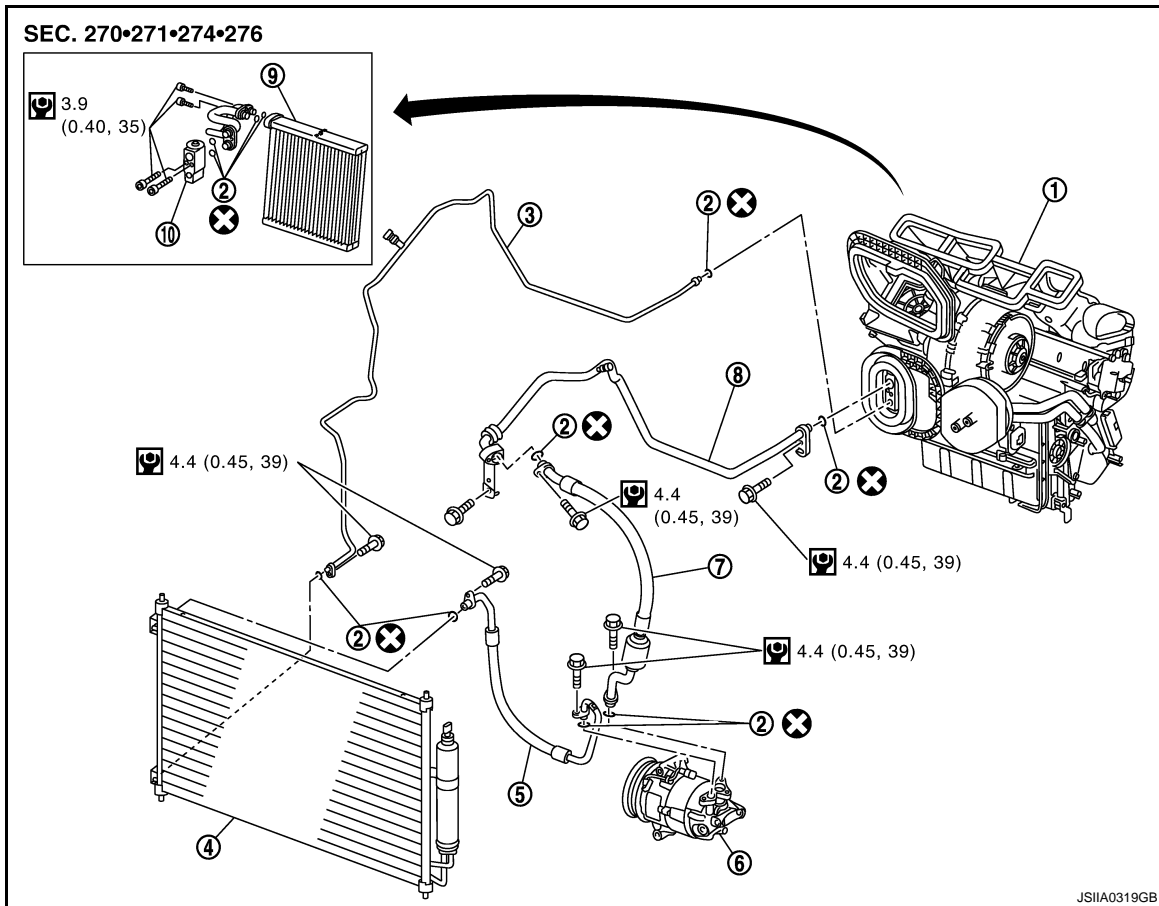
< ON-VEHICLE REPAIR >

HIGH-PRESSURE PIPE

Exploded View

INFOID:000000001301408

Refer to [HA-15, "Refrigerant Connection"](#).



- | | | |
|-------------------------------|--------------------------------|-----------------------|
| 1. A/C unit assembly | 2. O-ring | 3. High-pressure pipe |
| 4. Condenser | 5. High-pressure flexible hose | 6. Compressor |
| 7. Low-pressure flexible hose | 8. Low-pressure pipe | 9. Evaporator |
| 10. Expansion valve | | |

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000001162116

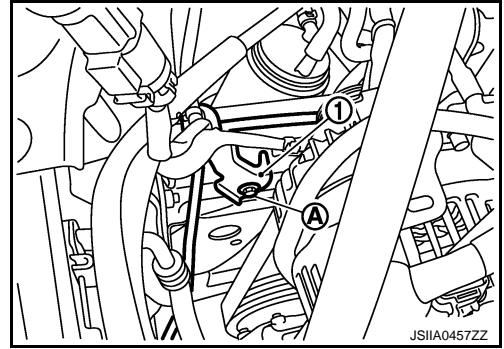
REMOVAL

1. Remove low-pressure flexible hose. Refer to [HA-49, "MR20DE/QR25DE : Exploded View"](#) (MR20DE/QR25DE) or [HA-50, "M9R : Exploded View"](#) (M9R).
2. Remove low-pressure pipe (M9R). Refer to [HA-53, "M9R : Exploded View"](#).

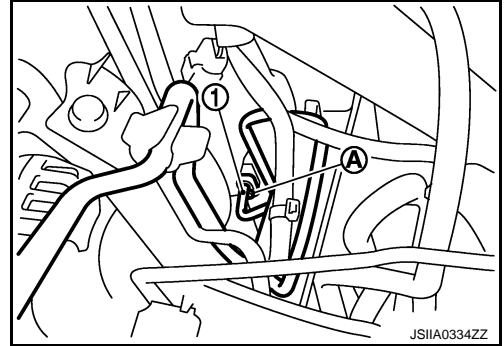
HIGH-PRESSURE PIPE

< ON-VEHICLE REPAIR >

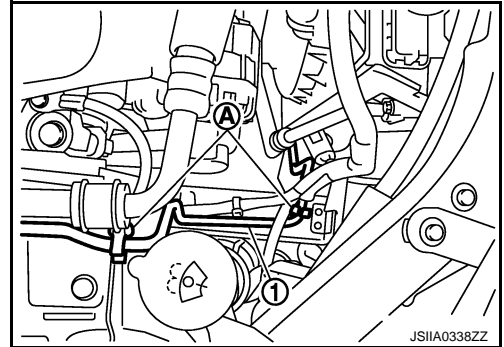
3. Remove mounting bolt (A) from harness bracket (1) [except MR20 (M/T)].



4. Remove mounting bolt (A) from high-pressure pipe (1).
CAUTION:
Cap or wrap the joint of the A/C piping and condenser with suitable material such as vinyl tape to avoid the entry of air.



5. Remove high-pressure pipe (1) from vehicle clips (A), and then remove high-pressure pipe.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

CONDENSER

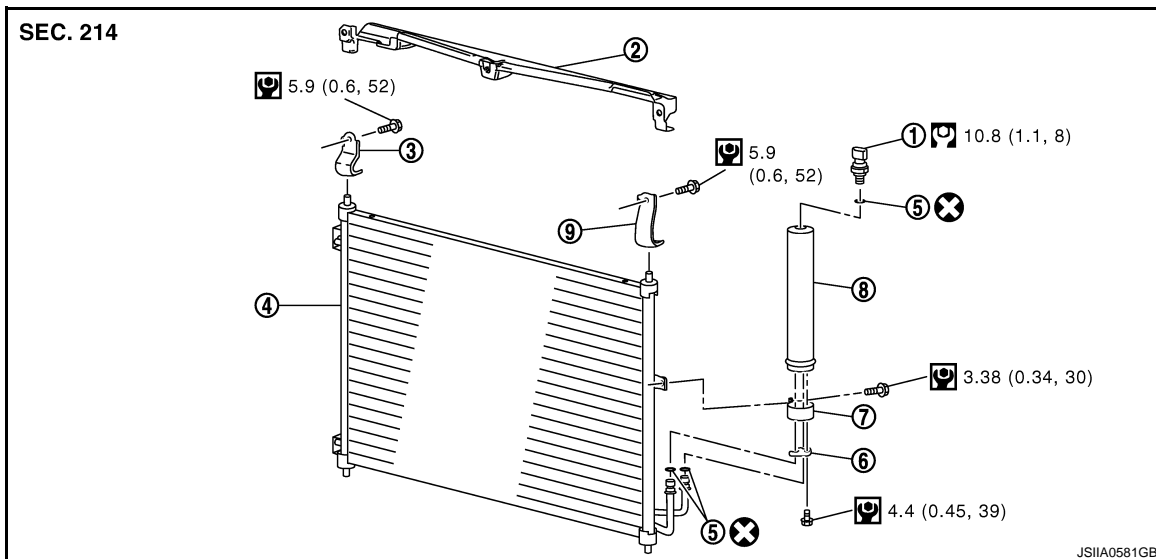
< ON-VEHICLE REPAIR >

CONDENSER

MR20DE (M/T)

MR20DE (M/T) : Exploded View

INFOID:000000001162119



- | | | |
|--------------------------------|--------------------|-------------------------------|
| 1. Refrigerant pressure sensor | 2. Air guide upper | 3. Condenser upper bracket RH |
| 4. Condenser | 5. O-ring | 6. Bracket |
| 7. Liquid tank bracket | 8. Liquid tank | 9. Condenser upper bracket LH |

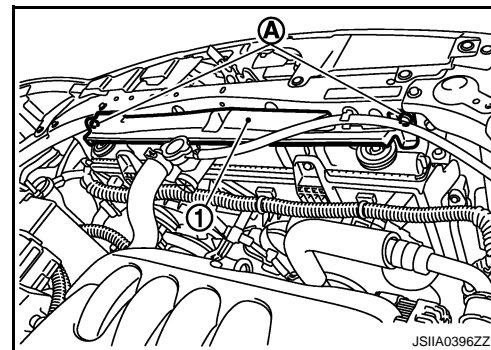
Refer to [GI-4, "Components"](#) for symbols in the figure.

MR20DE (M/T) : Removal and Installation

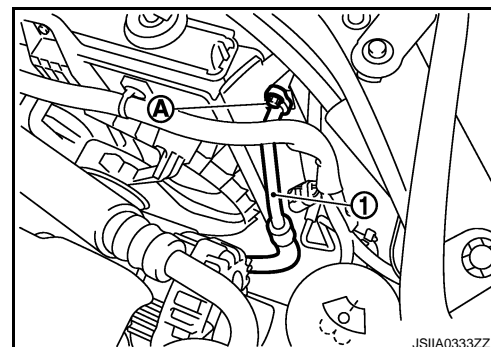
INFOID:000000001162120

REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove clips (A), and then remove air guide upper (1).



3. Remove mounting bolt (A) from high-pressure flexible hose (1).
CAUTION:
 Cap or wrap the joint of the A/C piping and condenser with suitable material such as vinyl tape to avoid the entry of air.



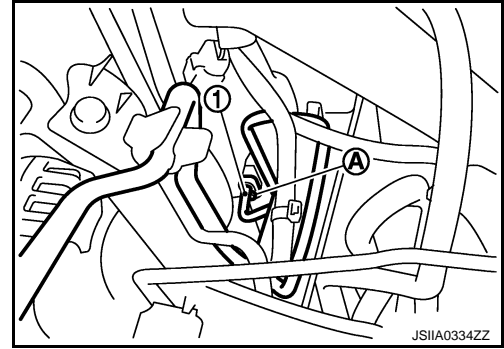
CONDENSER

< ON-VEHICLE REPAIR >

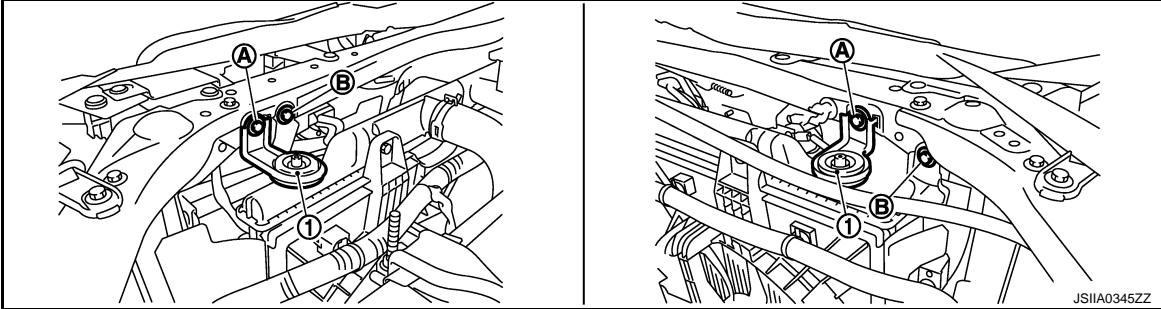
4. Remove mounting bolt (A) from high-pressure pipe (1).

CAUTION:

Cap or wrap the joint of the A/C piping and condenser with suitable material such as vinyl tape to avoid the entry of air.

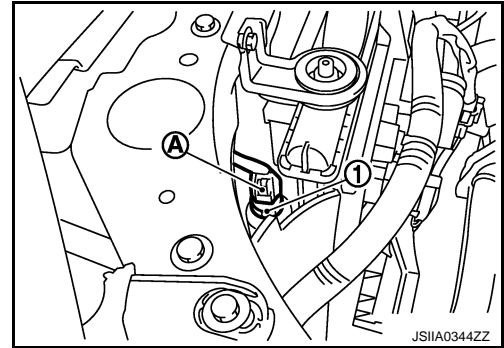


5. Remove mounting bolts (A), and then remove mount brackets (1).



6. Remove mounting bolts (B) from condenser upper bracket.

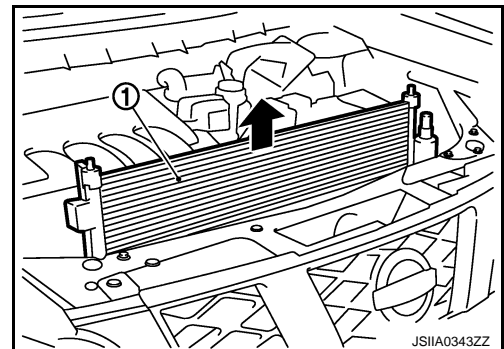
7. Disconnect connector (A) from refrigerant pressure sensor (1).



8. Remove condenser (1) between radiator and radiator core support (as shown in the figure).

CAUTION:

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



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

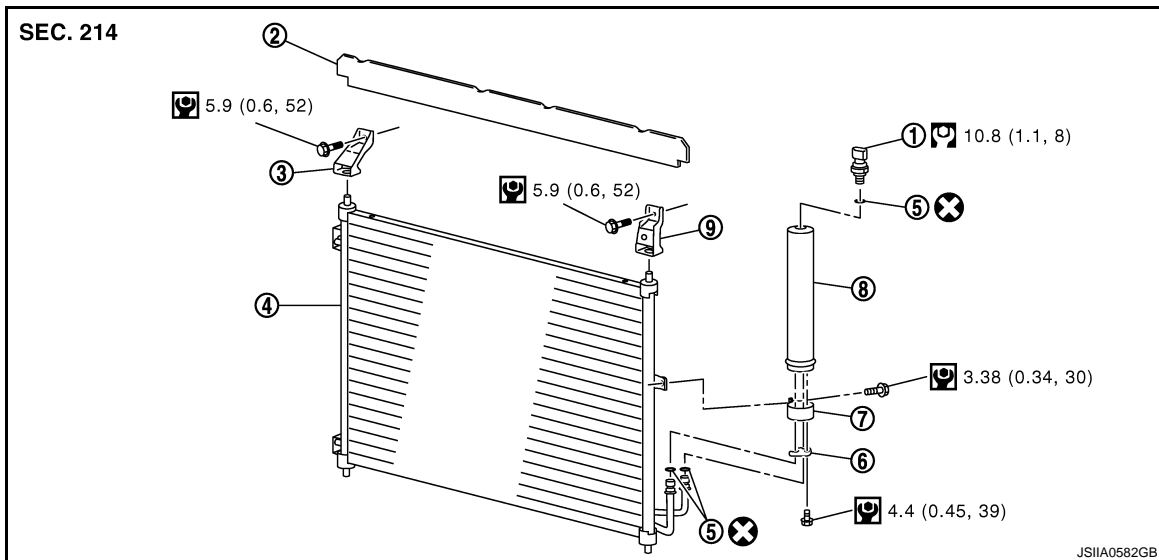
MR20DE (CVT)

CONDENSER

< ON-VEHICLE REPAIR >

MR20DE (CVT) : Exploded View

INFOID:000000001301448



- | | | |
|--------------------------------|--------------------|-------------------------------|
| 1. Refrigerant pressure sensor | 2. Air guide upper | 3. Condenser upper bracket RH |
| 4. Condenser | 5. O-ring | 6. Bracket |
| 7. Liquid tank bracket | 8. Liquid tank | 9. Condenser upper bracket LH |

Refer to [GI-4, "Components"](#) for symbols in the figure.

MR20DE (CVT) : Removal and Installation

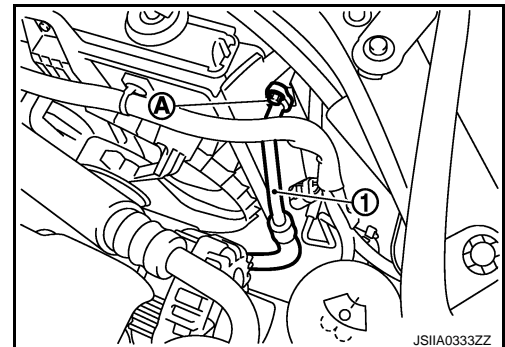
INFOID:000000001301449

REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove mounting bolt (A) from high-pressure flexible hose (1).

CAUTION:

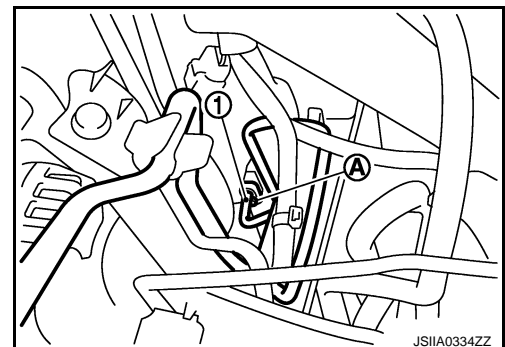
Cap or wrap the joint of the A/C piping and condenser with suitable material such as vinyl tape to avoid the entry of air.



3. Remove mounting bolt (A) from high-pressure pipe (1).

CAUTION:

Cap or wrap the joint of the A/C piping and condenser with suitable material such as vinyl tape to avoid the entry of air.

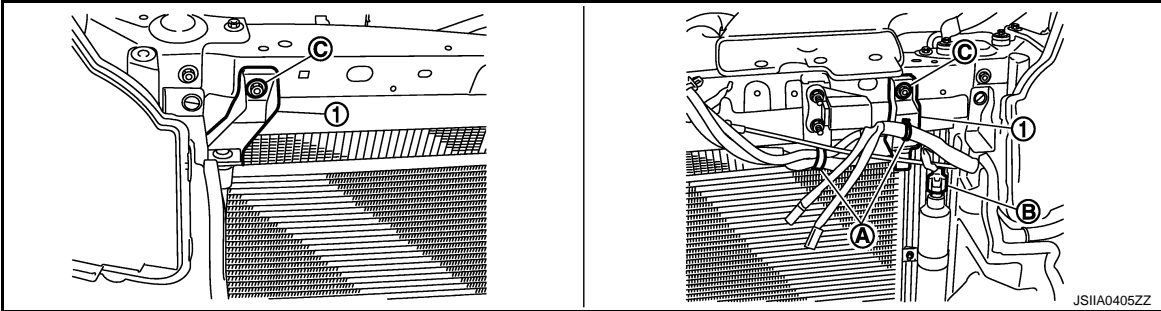


4. Remove hood lock support stay assembly. Refer to [DLK-256, "Exploded View"](#) (WITH I-KEY, WITHOUT SUPER LOCK), [DLK-549, "Exploded View"](#) (WITH I-KEY & SUPER LOCK), [DLK-717, "Exploded View"](#) (WITHOUT I-KEY & SUPER LOCK) or [DLK-886, "Exploded View"](#) (WITHOUT I-KEY, WITH SUPER LOCK).

CONDENSER

< ON-VEHICLE REPAIR >

5. Remove harness clips (A).



6. Disconnect connector (B) from refrigerant pressure sensor.
7. Remove mounting nuts (C), and then remove condenser brackets (1).
8. Remove crash zone sensor. Refer to [SR-15, "Exploded View"](#).
9. Remove condenser.

INSTALLATION

Installation is basically the reverse order of removal.

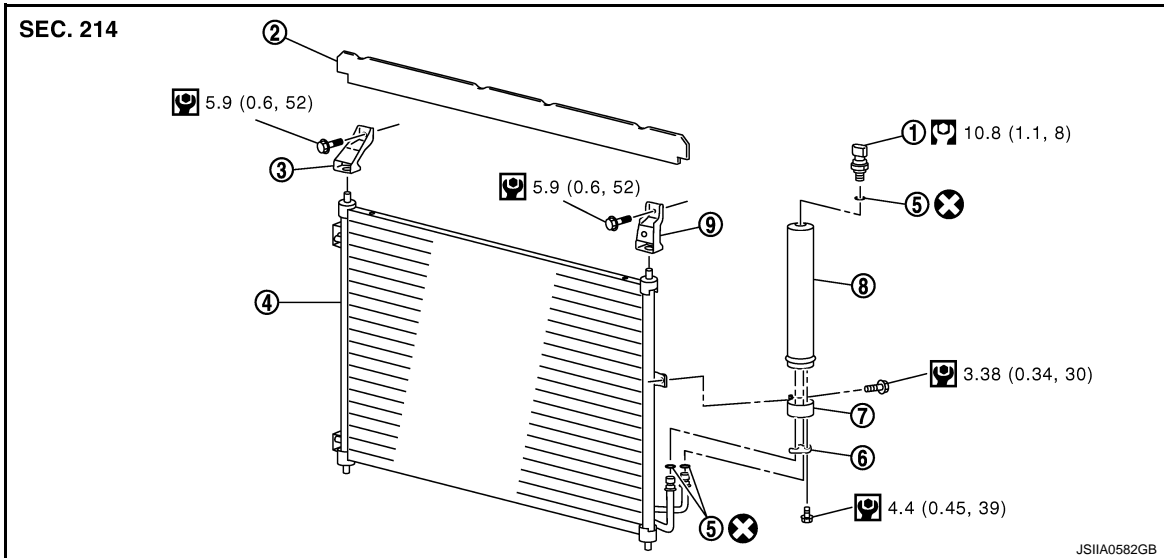
CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

QR25DE

QR25DE : Exploded View

INFOID:000000001470326



- | | | |
|--------------------------------|--------------------|-------------------------------|
| 1. Refrigerant pressure sensor | 2. Air guide upper | 3. Condenser upper bracket RH |
| 4. Condenser | 5. O-ring | 6. Bracket |
| 7. Liquid tank bracket | 8. Liquid tank | 9. Condenser upper bracket LH |

Refer to [GI-4, "Components"](#) for symbols in the figure.

QR25DE : Removal and Installation

INFOID:000000001301451

REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.

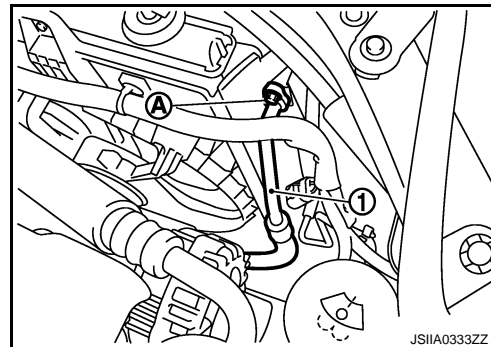
CONDENSER

< ON-VEHICLE REPAIR >

2. Remove mounting bolt (A) from high-pressure flexible hose (1).

CAUTION:

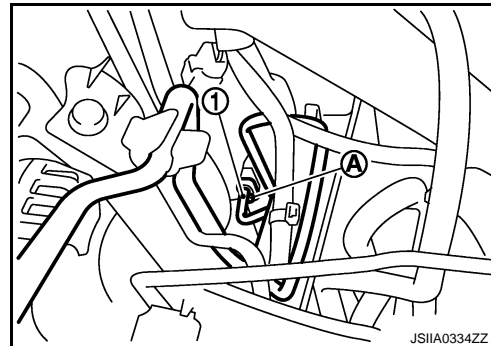
Cap or wrap the joint of the A/C piping and condenser with suitable material such as vinyl tape to avoid the entry of air.



3. Remove mounting bolt (A) from high-pressure pipe (1).

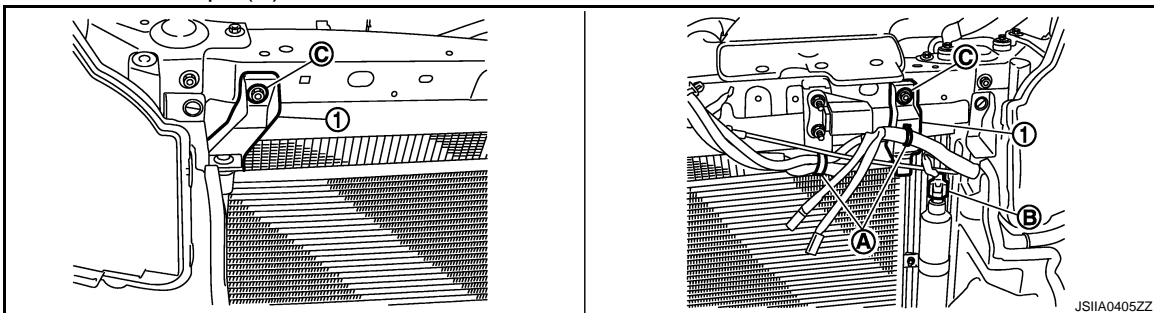
CAUTION:

Cap or wrap the joint of the A/C piping and condenser with suitable material such as vinyl tape to avoid the entry of air.



4. Remove hood lock support stay assembly. Refer to [DLK-254, "HOOD LOCK CONTROL : Exploded View"](#) (WITH I-KEY, WITHOUT SUPER LOCK), [DLK-549, "Exploded View"](#) (WITH I-KEY & SUPER LOCK), [DLK-717, "Exploded View"](#) (WITHOUT I-KEY & SUPER LOCK) or [DLK-886, "Exploded View"](#) (WITHOUT I-KEY, WITH SUPER LOCK).

5. Remove harness clips (A).



6. Disconnect connector (B) from refrigerant pressure sensor.
7. Remove mounting nuts (C), and then remove condenser brackets (1).
8. Remove crash zone sensor. Refer to [SR-15, "Exploded View"](#).
9. Remove condenser.

INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

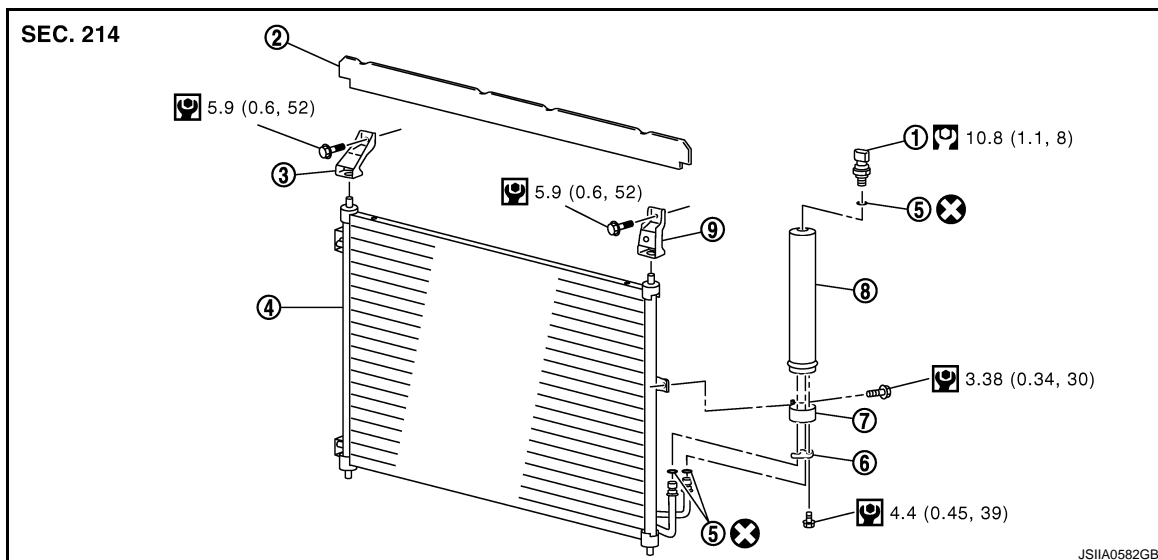
M9R

CONDENSER

< ON-VEHICLE REPAIR >

M9R : Exploded View

INFOID:000000001470327



- | | | |
|--------------------------------|--------------------|-------------------------------|
| 1. Refrigerant pressure sensor | 2. Air guide upper | 3. Condenser upper bracket RH |
| 4. Condenser | 5. O-ring | 6. Bracket |
| 7. Liquid tank bracket | 8. Liquid tank | 9. Condenser upper bracket LH |

Refer to [GI-4, "Components"](#) for symbols in the figure.

M9R : Removal and Installation

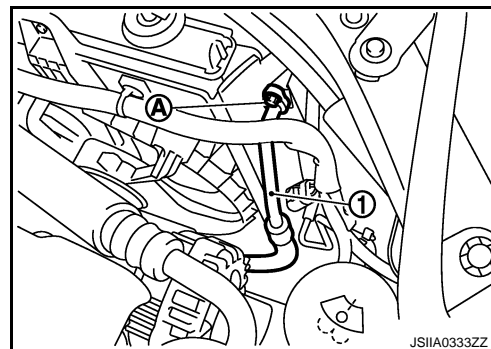
INFOID:000000001301453

REMOVAL

1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove mounting bolt (A) from high-pressure flexible hose (1).

CAUTION:

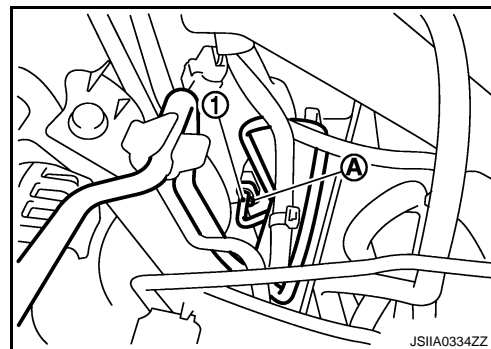
Cap or wrap the joint of the A/C piping and condenser with suitable material such as vinyl tape to avoid the entry of air.



3. Remove mounting bolt (A) from high-pressure pipe (1).

CAUTION:

Cap or wrap the joint of the A/C piping and condenser with suitable material such as vinyl tape to avoid the entry of air.

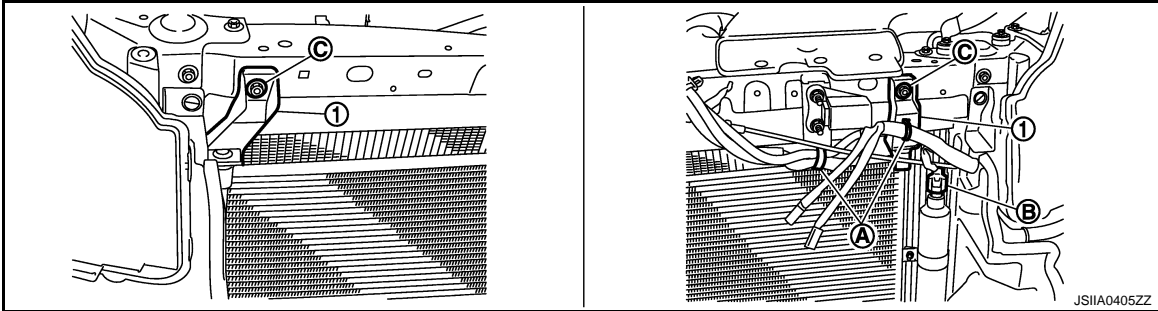


4. Remove hood lock support stay assembly. Refer to [DLK-254, "HOOD LOCK CONTROL : Exploded View"](#) (WITH I-KEY, WITHOUT SUPER LOCK), [DLK-549, "Exploded View"](#) (WITH I-KEY & SUPER LOCK), [DLK-717, "Exploded View"](#) (WITHOUT I-KEY & SUPER LOCK) or [DLK-886, "Exploded View"](#) (WITHOUT I-KEY, WITH SUPER LOCK).

CONDENSER

< ON-VEHICLE REPAIR >

5. Remove harness clips (A).



6. Disconnect connector (B) from refrigerant pressure sensor.
7. Remove mounting nuts (C), and then remove condenser brackets (1).
8. Remove crash zone sensor. Refer to [SR-15. "Exploded View"](#).
9. Remove condenser.

INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

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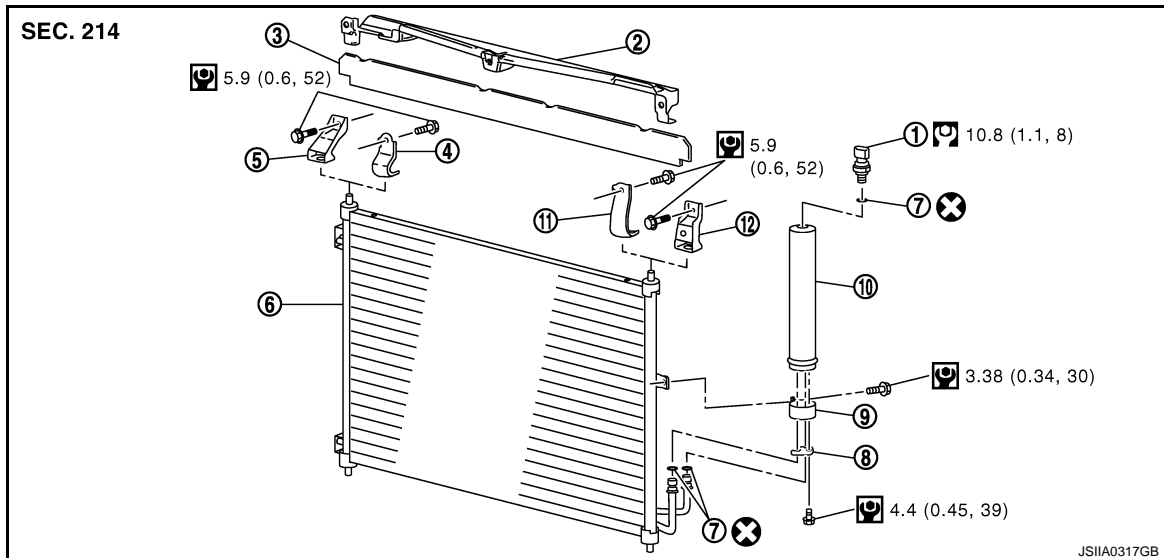
LIQUID TANK

< ON-VEHICLE REPAIR >

LIQUID TANK

Exploded View

INFOID:000000001298727



- | | | |
|---------------------------------|----------------------------------|----------------------------------|
| 1. Refrigerant pressure sensor | 2. Air guide upper*1 | 3. Air guide upper*2 |
| 4. Condenser upper bracket RH*1 | 5. Condenser upper bracket RH*2 | 6. Condenser |
| 7. O-ring | 8. Bracket | 9. Liquid tank bracket |
| 10. Liquid tank | 11. Condenser upper bracket LH*1 | 12. Condenser upper bracket LH*2 |

*1 MR20DE (M/T)

*2 Except MR20DE (M/T)

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

INFOID:000000001162124

REMOVAL

1. Remove condenser. Refer to [HA-59, "MR20DE \(M/T\) : Exploded View"](#) [MR20DE (M/T)], [HA-61, "MR20DE \(CVT\) : Exploded View"](#) [MR20DE (CVT)], [HA-62, "QR25DE : Exploded View"](#) (QR25DE) or [HA-64, "M9R : Exploded View"](#) (M9R).

2. Clean liquid tank and its surrounding area. Then remove dust and rust from liquid tank.

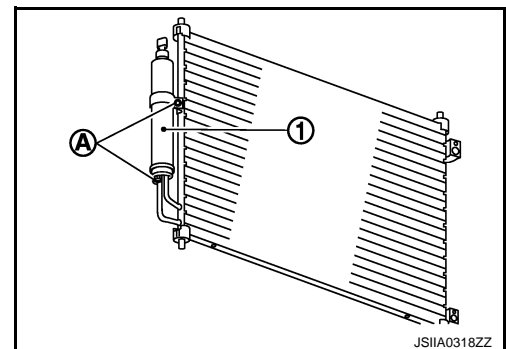
CAUTION:

Be sure to clean carefully.

3. Remove mounting bolts (A), and then remove liquid tank (1).

CAUTION:

Cap or wrap the joint of condenser and liquid tank with suitable material such as vinyl tape to avoid the entry of air.



INSTALLATION

Install liquid tank, and then install liquid tank bracket on condenser.

CAUTION:

- Check that liquid tank bracket is securely installed at protrusion of condenser. (Check that liquid tank bracket does not move to a position below center of liquid tank.)

LIQUID TANK

< ON-VEHICLE REPAIR >

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

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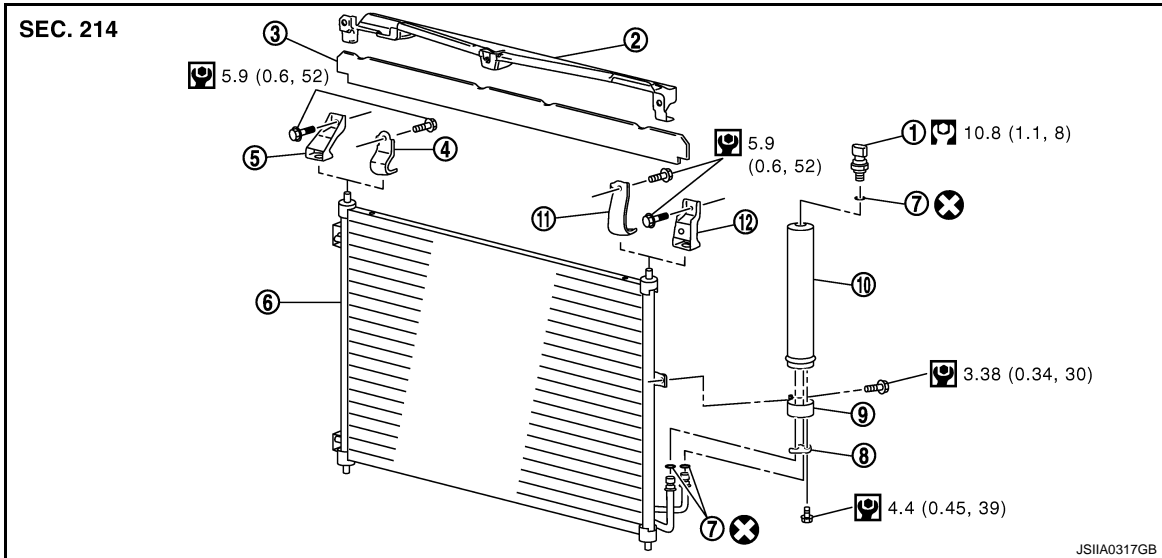
REFRIGERANT PRESSURE SENSOR

< ON-VEHICLE REPAIR >

REFRIGERANT PRESSURE SENSOR

Exploded View

INFOID:000000001298728



- | | | |
|---|--|--|
| 1. Refrigerant pressure sensor | 2. Air guide upper* ¹ | 3. Air guide upper* ² |
| 4. Condenser upper bracket RH* ¹ | 5. Condenser upper bracket RH* ² | 6. Condenser |
| 7. O-ring | 8. Bracket | 9. Liquid tank bracket |
| 10. Liquid tank | 11. Condenser upper bracket LH* ¹ | 12. Condenser upper bracket LH* ² |

*¹ MR20DE (M/T)

*² Except MR20DE (M/T)

Refer to [GI-4, "Components"](#) for symbols in the figure.

Removal and Installation

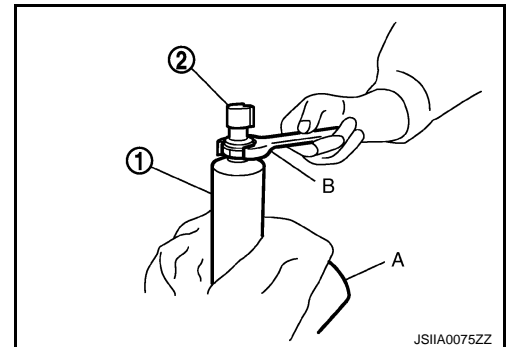
INFOID:000000001162126

REMOVAL

1. Remove liquid tank. Refer to [HA-66, "Exploded View"](#).
2. Fix the liquid tank (1) with a vise (A). Remove the refrigerant pressure sensor (2) with a wrench (B).

CAUTION:

Be careful not to damage liquid tank.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Apply compressor oil to O-ring of refrigerant pressure sensor when installing.
- Check for leakages when recharging refrigerant.

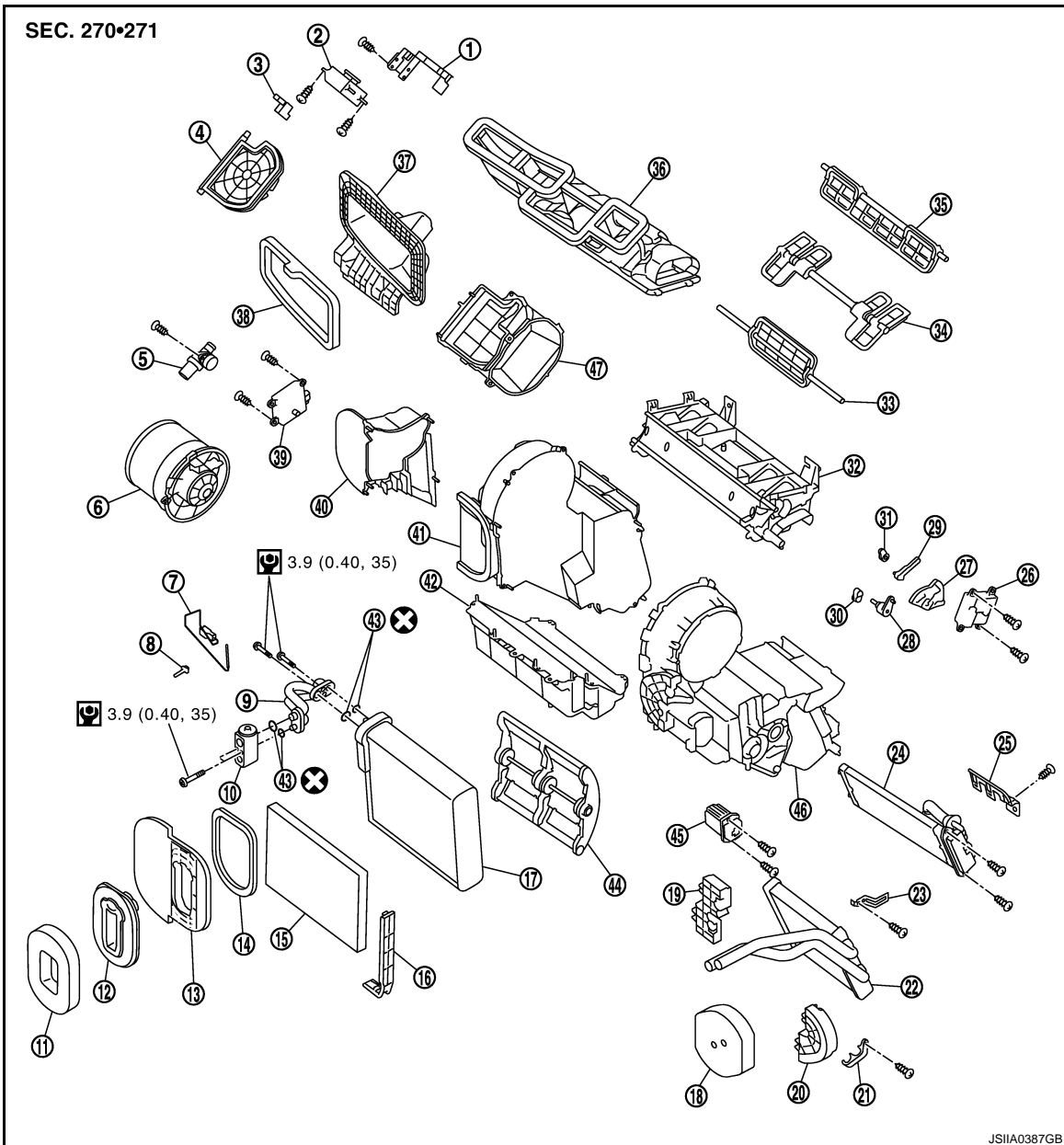
EVAPORATOR

< ON-VEHICLE REPAIR >

EVAPORATOR

Exploded View

INFOID:000000001298729



- | | | |
|----------------------------------|-----------------------------|-----------------------------|
| 1. Intake door motor bracket | 2. Intake door motor | 3. Intake door lever |
| 4. Intake door | 5. Aspirator | 6. Blower motor |
| 7. Intake sensor | 8. Intake sensor bracket | 9. Pipe assembly |
| 10. Expansion valve | 11. Expansion valve packing | 12. Expansion valve grommet |
| 13. Grommet adaptor | 14. Adaptor packing | 15. Air conditioner filter |
| 16. Air conditioner filter cover | 17. Evaporator | 18. Heater packing |
| 19. Heater adapter | 20. Heater pipe flange | 21. Heater pipe clamp |
| 22. Heater core | 23. Case bracket | 24. PTC heater (M9R) |
| 25. PTC harness bracket (M9R) | 26. Mode door motor | 27. Main link |
| 28. Ventilator door lever | 29. Foot door link | 30. Defroster door lever |
| 31. Foot door lever | 32. Distributor module case | 33. Defroster door |
| 34. Ventilator door | 35. Foot door | 36. Adaptor duct |

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EVAPORATOR

< ON-VEHICLE REPAIR >

- | | | |
|----------------------|-------------------------------|------------------------|
| 37. Attachment panel | 38. Attachment panel packing | 39. Air mix door motor |
| 40. Side case | 41. Main case RH | 42. Lower case |
| 43. O-ring | 44. Air mix door (Slide door) | 45. Fan control amp. |
| 46. Main case LH | 47. Intake box case | |

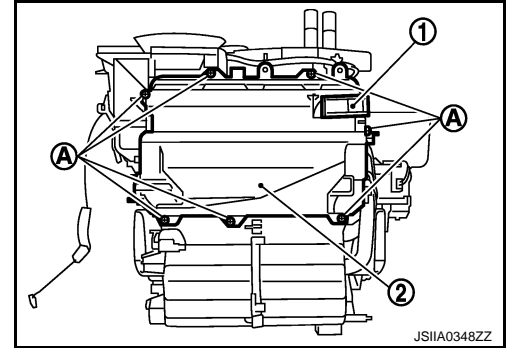
Refer to [GI-4. "Components"](#) for symbols in the figure.

Removal and Installation

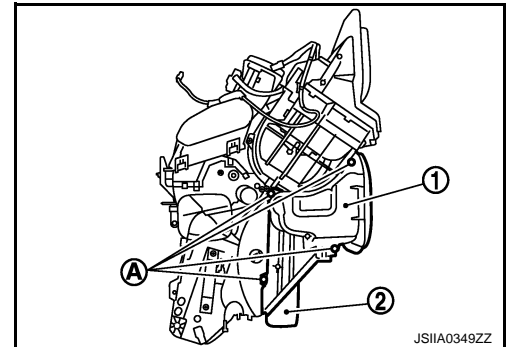
INFOID:000000001301472

REMOVAL

1. Remove A/C unit assembly. Refer to [VTL-29. "Exploded View"](#) (LHD models) or [VTL-75. "Exploded View"](#) (RHD models).
2. Remove air conditioner filter cover (1).
3. Remove mounting screws (A), and then remove lower case (2).



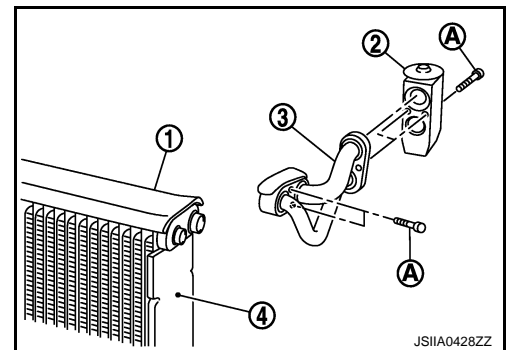
4. Remove mounting screws (A), and then remove side case (1).
5. Remove evaporator (2).



6. Cut upper insulator (1) and remove mounting bolts (A), expansion valve (2) and pipe assembly (3), from evaporator (4).

CAUTION:

Cap or wrap the joint of A/C piping, evaporator and expansion valve with suitable material such as vinyl tape to avoid the entry of air.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings with new ones. Then apply compressor oil to them when installing.
- O-rings differ from high-pressure pipe (low-pressure pipe or low-pressure flexible hose) and pipe assembly.
- Mark the mounting position of intake sensor bracket prior to removal so that the reinstalled sensor can be located in the same position.
- Check for leakages when recharging refrigerant.

NOTE:

EVAPORATOR

< ON-VEHICLE REPAIR >

Refer to [CO-11. "Refilling"](#) (MR20DE), [CO-42. "Refilling"](#) (QR25DE) or [CO-77. "Inspection"](#) (M9R) when filling radiator with engine coolant.

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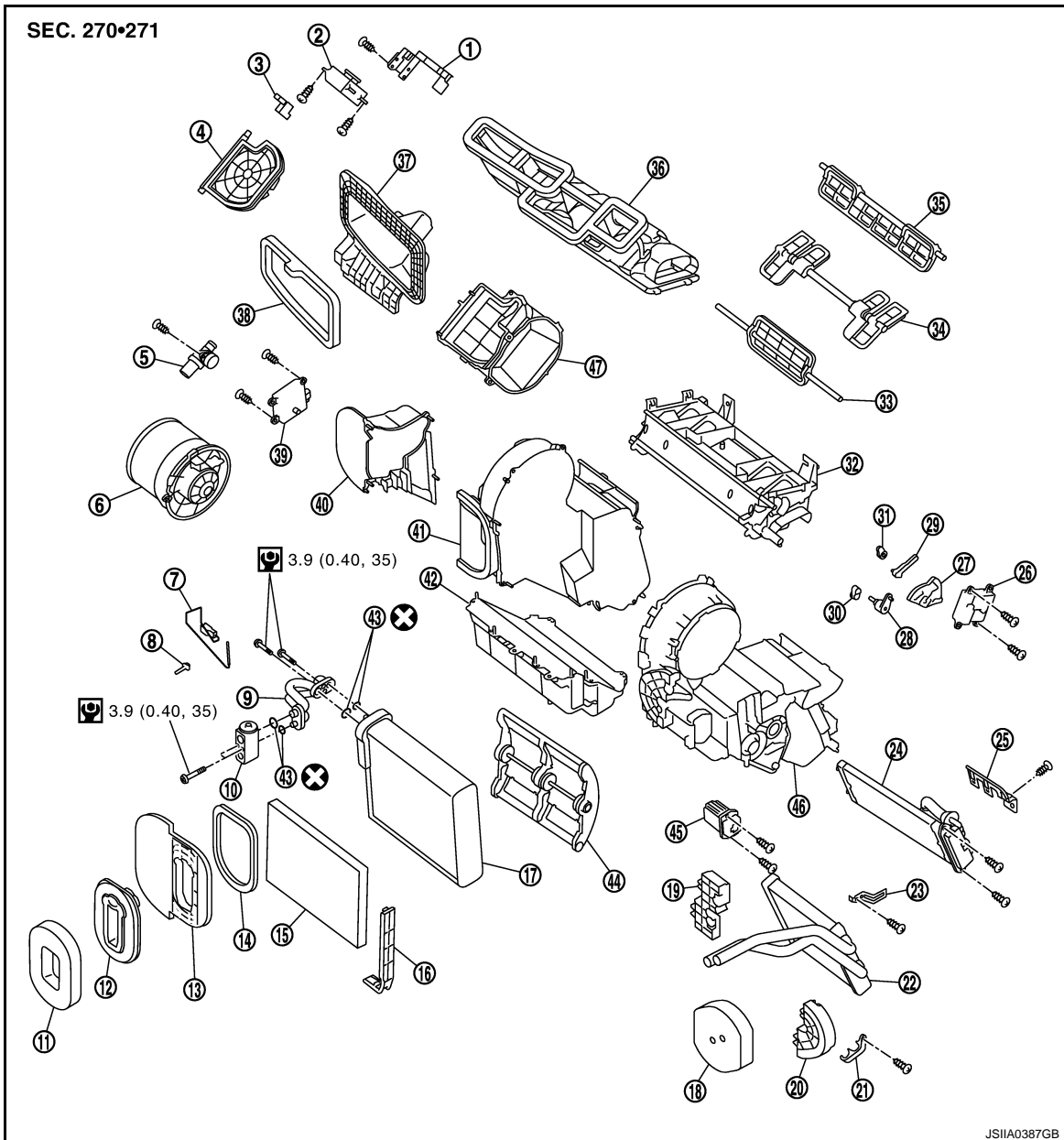
EXPANSION VALVE

< ON-VEHICLE REPAIR >

EXPANSION VALVE

Exploded View

INFOID:000000001298750



- | | | |
|----------------------------------|-----------------------------|-----------------------------|
| 1. Intake door motor bracket | 2. Intake door motor | 3. Intake door lever |
| 4. Intake door | 5. Aspirator | 6. Blower motor |
| 7. Intake sensor | 8. Intake sensor bracket | 9. Pipe assembly |
| 10. Expansion valve | 11. Expansion valve packing | 12. Expansion valve grommet |
| 13. Grommet adaptor | 14. Adaptor packing | 15. Air conditioner filter |
| 16. Air conditioner filter cover | 17. Evaporator | 18. Heater packing |
| 19. Heater adapter | 20. Heater pipe flange | 21. Heater pipe clamp |
| 22. Heater core | 23. Case bracket | 24. PTC heater (M9R) |
| 25. PTC harness bracket (M9R) | 26. Mode door motor | 27. Main link |
| 28. Ventilator door lever | 29. Foot door link | 30. Defroster door lever |
| 31. Foot door lever | 32. Distributor module case | 33. Defroster door |
| 34. Ventilator door | 35. Foot door | 36. Adaptor duct |

EXPANSION VALVE

< ON-VEHICLE REPAIR >

- | | | |
|----------------------|-------------------------------|------------------------|
| 37. Attachment panel | 38. Attachment panel packing | 39. Air mix door motor |
| 40. Side case | 41. Main case RH | 42. Lower case |
| 43. O-ring | 44. Air mix door (Slide door) | 45. Fan control amp. |
| 46. Main case LH | 47. Intake box case | |

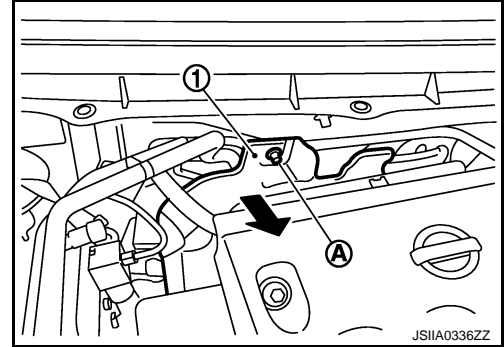
Refer to [GI-4. "Components"](#) for symbols in the figure.

Removal and Installation

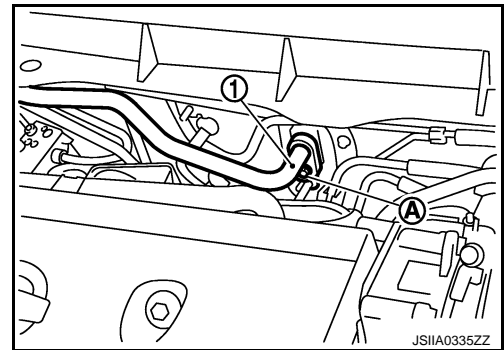
INFOID:000000001301473

REMOVAL

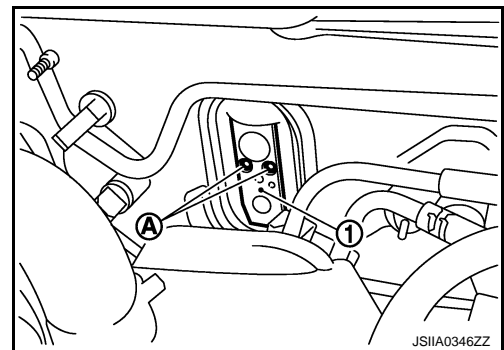
1. Use a refrigerant collecting equipment (for HFC-134a) to discharge the refrigerant.
2. Remove cowl top cover (QR25DE). Refer to [EXT-19. "Exploded View"](#).
3. Remove mounting nut (A), and lower dash insulator (1) a position without the hindrance for work.



4. Remove mounting bolt (A) from low-pressure flexible hose (1).
CAUTION:
Cap or wrap the joint of the A/C piping and expansion valve with suitable material such as vinyl tape to avoid the entry of air.



5. Remove mounting bolts (A), and then remove expansion valve (1).
CAUTION:
Cap or wrap the joint of the A/C piping and expansion valve with suitable material such as vinyl tape to avoid the entry of air.



INSTALLATION

Installation is basically the reverse order of removal.

CAUTION:

- Replace O-rings new ones. Then apply compressor oil to them when installing.
- Check for leakages when recharging refrigerant.

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SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

MR20DE/QR25DE

MR20DE/QR25DE : Compressor

INFOID:0000000001162131

Model	VALEO THERMAL SYSTEMS JAPAN make DCS-17EC	
Type	Variable displacement swash plate	
Displacement cm ³ (cu in)/rev	Max.	171 (10.4)
Cylinder bore × stroke (Max.) mm (in.)	32 (1.26) × 30.5 (1.20)	
Direction of rotation	Clockwise (viewed from clutch)	
Drive belt	Poly V	
Disc to pulley clearance	Standard	0.3 - 0.6 mm (0.012 - 0.024 in)

MR20DE/QR25DE : Lubricant

INFOID:0000000001162132

Model	VALEO THERMAL SYSTEMS JAPAN make DCS-17EC	
Name	Nissan A/C System Oil Type S (DH-PS)	
Capacity m ℓ (Imp fl oz)	Total in system	150 (5.3)
	Compressor (service part) charging amount	150 (5.3)

MR20DE/QR25DE : Refrigerant

INFOID:0000000001162133

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

MR20DE/QR25DE : Engine Idling Speed

INFOID:0000000001162134

Refer to [ECM-352, "Idle Speed"](#) (MR20DE) or [ECQ-358, "Idle Speed"](#) [QR25DE (WITH EURO-OBD)].

MR20DE/QR25DE : Belt Tension

INFOID:0000000001162135

Refer to [EM-119, "Drive Belt"](#) (MR20DE) or [EM-235, "Drive belt"](#) (QR25DE).

M9R

M9R : Compressor

INFOID:0000000001280382

Model	CALSONICKANSEI make	
Type	Variable displacement swash plate	
Displacement cm ³ (cu in)/rev	Max.	120 (7.32)
Cylinder bore × stroke (Max.) mm (in.)	32 (1.26) × 29 (1.14)	

SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

Direction of rotation		Clockwise (viewed from clutch)
Drive belt		Poly V
Disc to pulley clearance	Standard	0.3 - 0.6 mm (0.012 - 0.024 in)

M9R : Lubricant

INFOID:000000001280383

Model		CALSONICKANSEI make
Name		Nissan A/C System Oil Type S (DH-PS)
Capacity m ℓ (Imp fl oz)	Total in system	150 (5.3)
	Compressor (service part) charging amount	150 (5.3)

M9R : Refrigerant

INFOID:000000001280384

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

M9R : Engine Idling Speed

INFOID:000000001280385

Refer to [ECR-333. "Idle Speed"](#).

M9R : Belt Tension

INFOID:000000001280386

Refer to [EM-329. "Drive Belts"](#).