

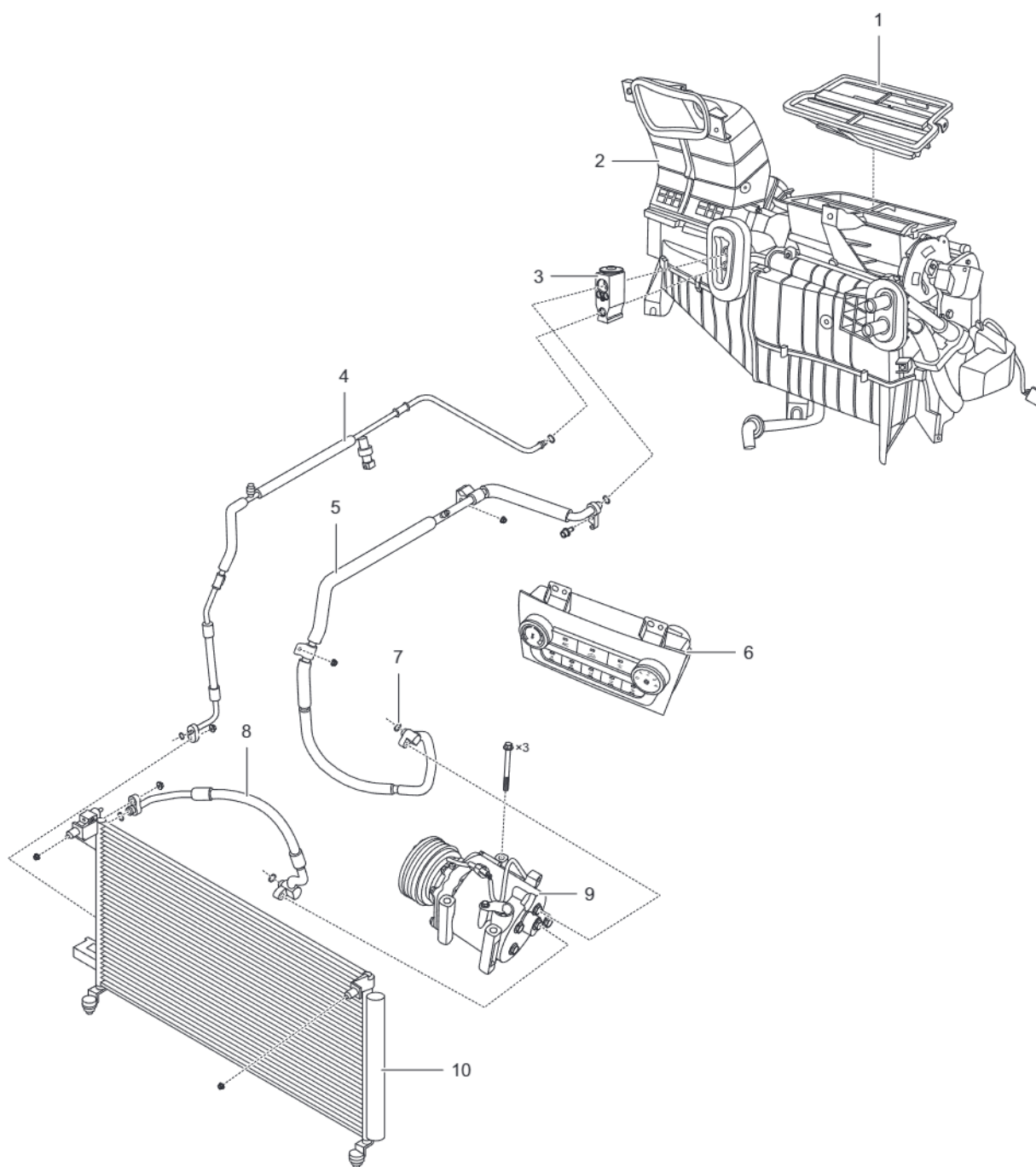
AIR CONDITIONING

GENERAL INFORMATION	29-3	Inspection	29-28
Description	29-3	Installation	29-28
Specifications	29-5	Inner/Outer Circulation Damper Motor	29-29
Tools	29-7	Removal	29-29
Circuit Diagram	29-8	Inspection	29-29
DIAGNOSIS & TESTING	29-12	Installation	29-30
Problem Symptoms Table	29-12	Mode Damper Servo Motor	29-31
ON-VEHICLE SERVICE	29-15	Removal	29-31
On-vehicle Inspection	29-15	Inspection	29-31
Compressor Assembly Noise Inspection	29-15	Installation	29-32
Refrigerant Leakage Inspection	29-16	HVAC Assembly	29-33
Refrigerant Recovering/Draining	29-18	Removal	29-33
Vacuum Pumping	29-19	Disassembly	29-36
Refrigerant Recharging	29-19	Inspection	29-45
Refrigerant Oil Recovering	29-20	Assembly	29-48
Refrigerant Oil Charging	29-21	Installation	29-48
A/C Control Panel Assembly	29-22	A/C Low Pressure Line	29-49
Removal	29-22	Removal	29-49
Inspection	29-23	Installation	29-50
Installation	29-24	A/C High Pressure Line	29-51
A/C Element	29-25	Removal	29-51
Removal	29-25	Installation	29-53
Installation	29-25	Compressor Assembly	29-54
Blower Assembly	29-26	Removal	29-54
Removal	29-26	Installation	29-55
Inspection	29-26	Condenser Assembly (w/Receiver Drier)	29-56
Installation	29-26	Removal	29-56
Blower Speed Resistor	29-27	Inspection	29-57
Removal	29-27	Installation	29-57

GENERAL INFORMATION

Description

29



RA19290010

1 - HVAC Transition Duct	2 - HVAC Assembly
3 - Expansion Valve	4 - Condenser To Evaporator Line Assembly
5 - Evaporator To Compressor Line Assembly	6 - A/C Control Panel Assembly
7 - O-ring	8 - Compressor To Condenser Line Assembly
9 - Compressor Assembly	10 - Condenser Assembly (w/Receiver Drier)

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1. System composition

The A/C system consists of the following four parts:

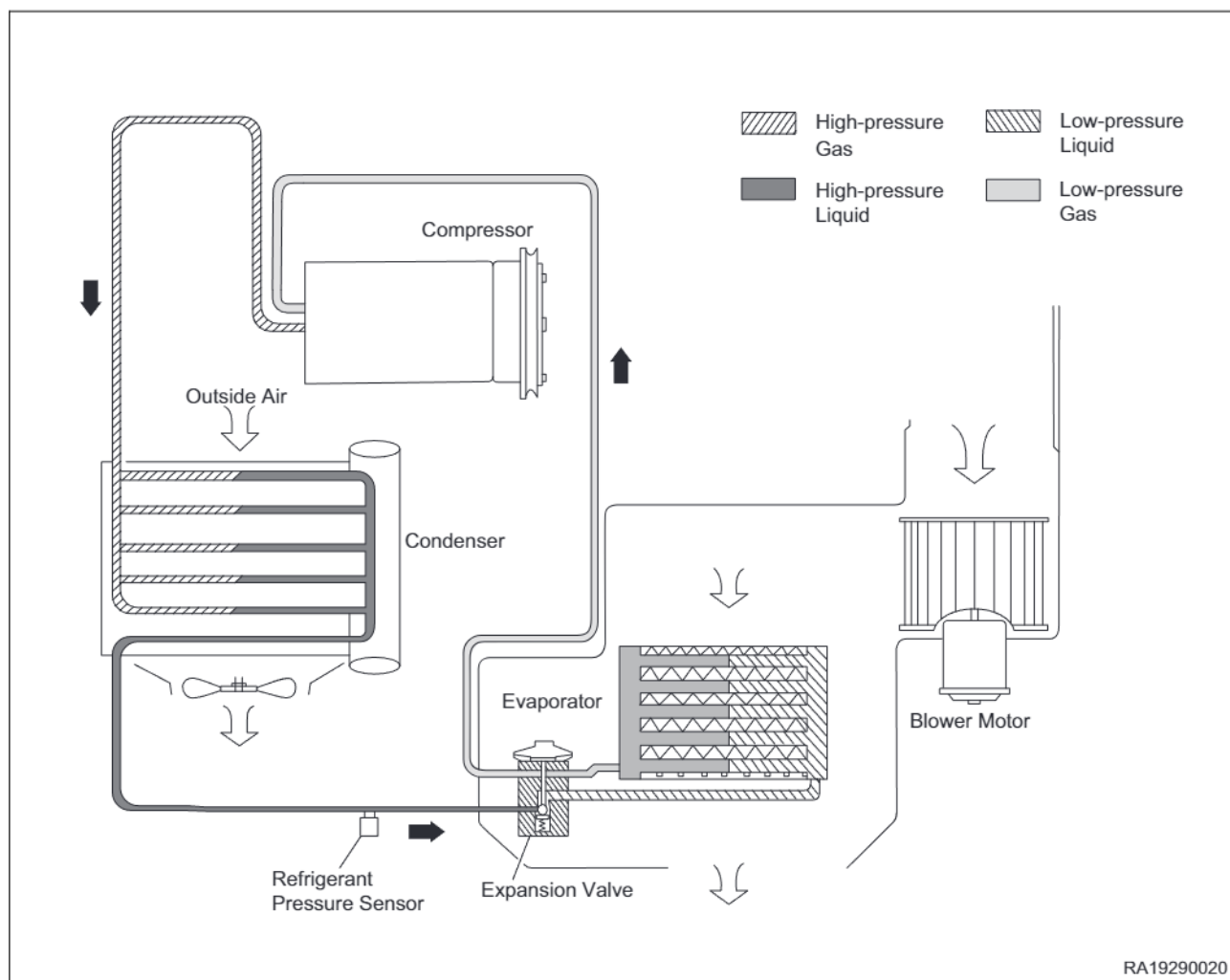
Air conditioning and distribution system: air mixing and distributor part of HVAC, inner/outer circulation inlet, outlet, air filter.

Control system: A/C control panel assembly, inner/outer circulation damper motor, mode damper servo motor, blower, blower speed resistor, A/C high/low pressure switch and evaporator temperature sensor.

Heating system: heater core assembly, heating inlet hose, heating outlet hose and engine cooling circulation system.

Cooling system: compressor assembly, condenser assembly (w/receiver drier), expansion valve, evaporator tank assembly and A/C high/low pressure line.

2. Operation



Outside fresh air enters the air inlet filter assembly through the cowl top opening at the right side of windshield base. The fresh air flows through the evaporator core and heater core, and then enters into the

vehicle through the outlets on the instrument panel and the floor. The intake air volume can be adjusted by the blower speed switch on the A/C control panel assembly. Turn on the compressor assembly by pressing the A/C switch on the A/C control panel assembly. The refrigerant is compressed by the compressor assembly and converted into high temperature - high pressure gas, which is then condensed into high pressure liquid in the condenser. Then the liquid is filtered and dried by the receiver drier and delivered to the expansion valve and becomes low-pressure liquid through throttling and depressurization. Finally the liquid enters the evaporator in the vehicle, absorbs the heat and evaporates, thus refrigeration is achieved. The A/C heating is realized by the engine coolant circulation system. The heater core is the main component of the heating system. With the engine running, engine coolant flows from the engine water pump to the heater core, the heater core transmits the heat from engine coolant to the air that flows through the heater core. At this time, the A/C switch is off. The air flowing through the heater core becomes hot wind through the heat exchanger, thus providing heating. The temperature adjustment control mechanism can be controlled by rotating the temperature adjustment knob, and the mix damper closes when temperature adjustment knob is rotated counterclockwise to MAX COOL position. If the airflow does not flow through the heater core, the heat transmission will not occur. When rotating the temperature adjustment knob clockwise from the MAX COOL position, the mix damper will open slowly, allowing air flows through the heater core. Most of the airflow is heated in this way and the discharged air becomes warmer. When the temperature adjustment knob is rotated counterclockwise to the MAX HOT position, the mix damper is opened fully and all the air flows through the heat core, thus the air is heated. Mode knob on the A/C control panel is used to direct the air with temperature adjusted through selected outlets.

Specifications

Torque Specifications

Description	Torque (N·m)
A/C Control Panel Assembly Fixing Screw	1.5 ± 0.5
Blower Assembly Fixing Screw	1.5 ± 0.5
Blower Speed Resistor Fixing Screw	1.5 ± 0.5
Coupling Nut Between A/C High/Low Pressure Line and Expansion Valve	9 ± 1.5
A/C Wire Harness Assembly Ground Point Fixing Nut	20 ± 3
Coupling Nut Between Upper Part of HVAC Assembly and Body	3.5 ± 0.5
Coupling Bolt Between Lower Part of HVAC Assembly and Body	3.5 ± 0.5
Coupling Bolt Between Expansion Valve and Expansion Valve Mounting Pressure Plate	9 ± 1.5
Left Foot Fan Shield Fixing Screw	1.5 ± 0.5
Right Foot Fan Shield Fixing Screw	1.5 ± 0.5
Inner/Outer Circulation Damper Motor Fixing Screw	1.5 ± 0.5
Air Inlet Housing Assembly Fixing Screw	1.5 ± 0.5
Blower Case Assembly Fixing Screw	1.5 ± 0.5
Evaporator Cover Plate Fixing Screw	1.5 ± 0.5
Evaporator Cover Housing Assembly Fixing Screw	1.5 ± 0.5
Temperature Damper Adjustment Mechanism Fixing Screw	1.5 ± 0.5
Mode Damper Servo Motor Fixing Screw	1.5 ± 0.5

Description	Torque (N·m)
Mode Damper Servo Motor Bracket Fixing Screw	1.5 ± 0.5
Mode Damper Adjustment Mechanism Set Fixing Screw	1.5 ± 0.5
Heater Core Line Pressure Plate Fixing Screw	1.5 ± 0.5
Coupling Nut Between A/C High/Low Pressure Line Set Bracket and Body	7 ± 1.5
Fixing Bolt Between A/C Low Pressure Line and Compressor Assembly	25 ± 4
Fixing Bolt Between A/C High Pressure Line and Compressor Assembly	25 ± 4
Fixing Nut Between A/C High Pressure Line I and Condenser Assembly	9 ± 1.5
Fixing Nut Between A/C High Pressure Line II and Condenser Assembly	9 ± 1.5
Fixing Bolt Between Compressor Assembly and Mounting Bracket	25 ± 4
Fixing Nut Between Condenser Assembly and Tank Upper Crossmember	5 ± 1

Refrigerant Charging Specification

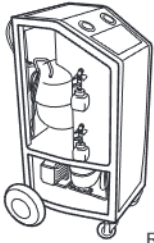
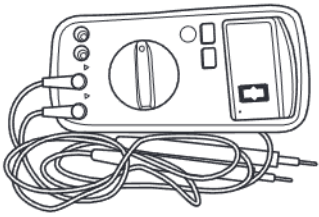
Description	Charging Capacity (g)
R134a Refrigerant	400 ± 10

Refrigerant Oil Charging Specifications

Description	Charging Capacity (ml)
Compressor Assembly Replacement	It is necessary to pour out 50 ml of refrigerant oil from the new compressor assembly
Condenser Replacement	40
Evaporator Replacement	30
A/C Line Replacement	10

Tools

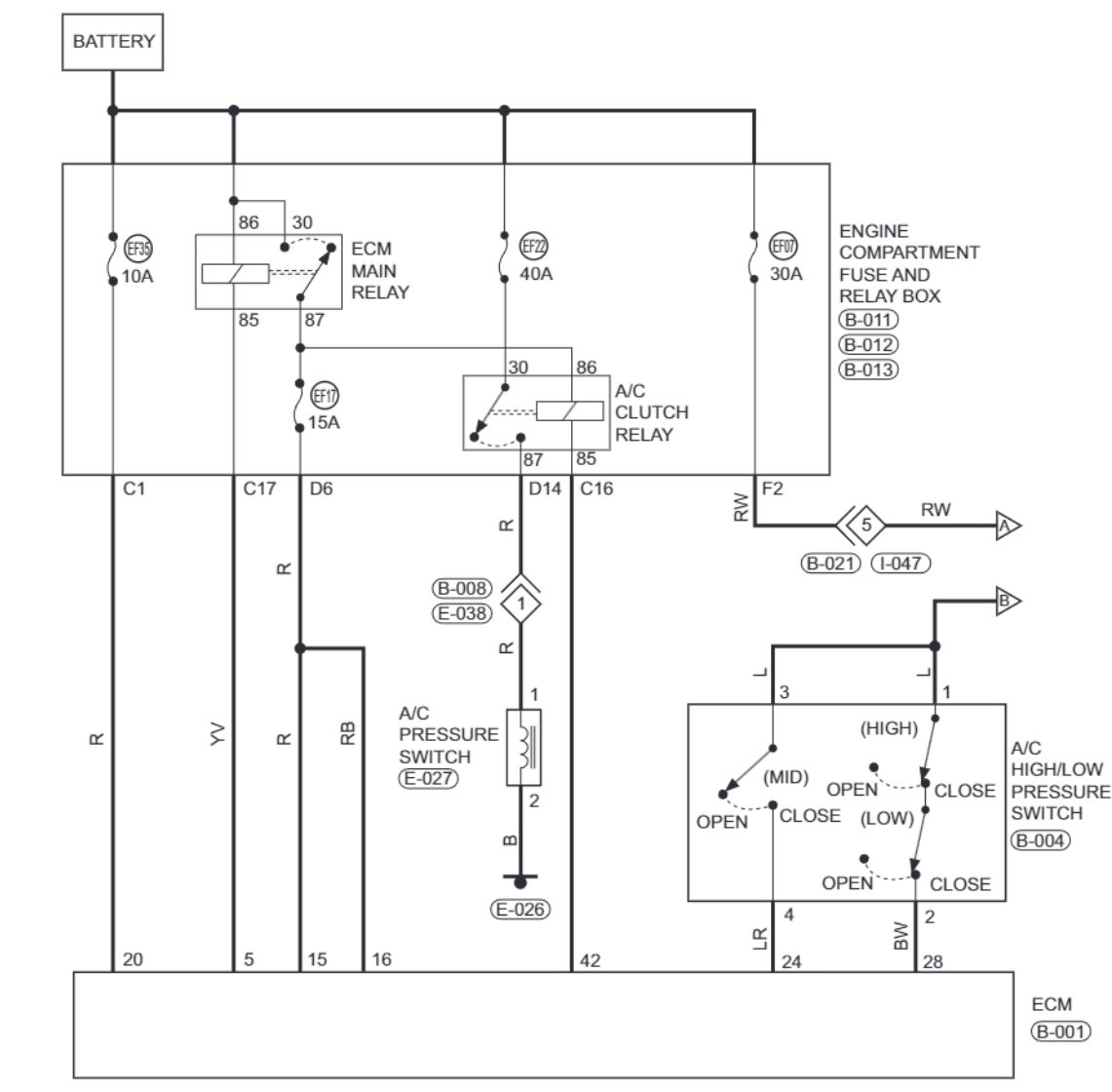
General Tools

Refrigerant Recycling Machine	 RCH0000046
Digital Multimeter	 RCH0000002

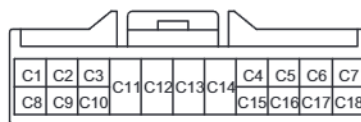
Circuit Diagram

A/C Control System (Page 1 of 4)

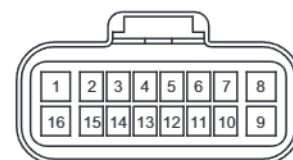
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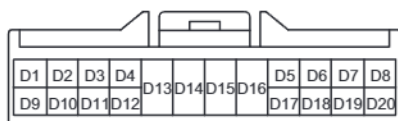
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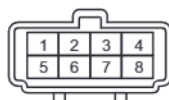
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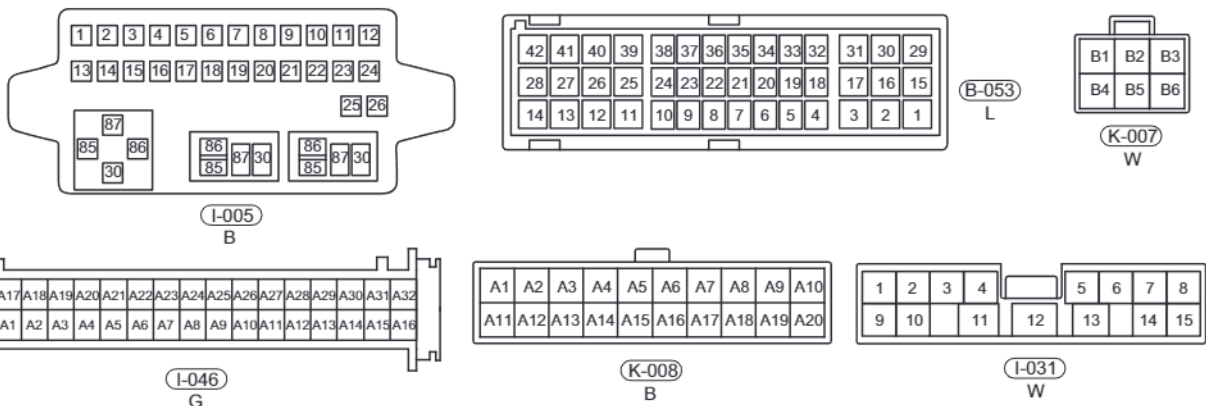
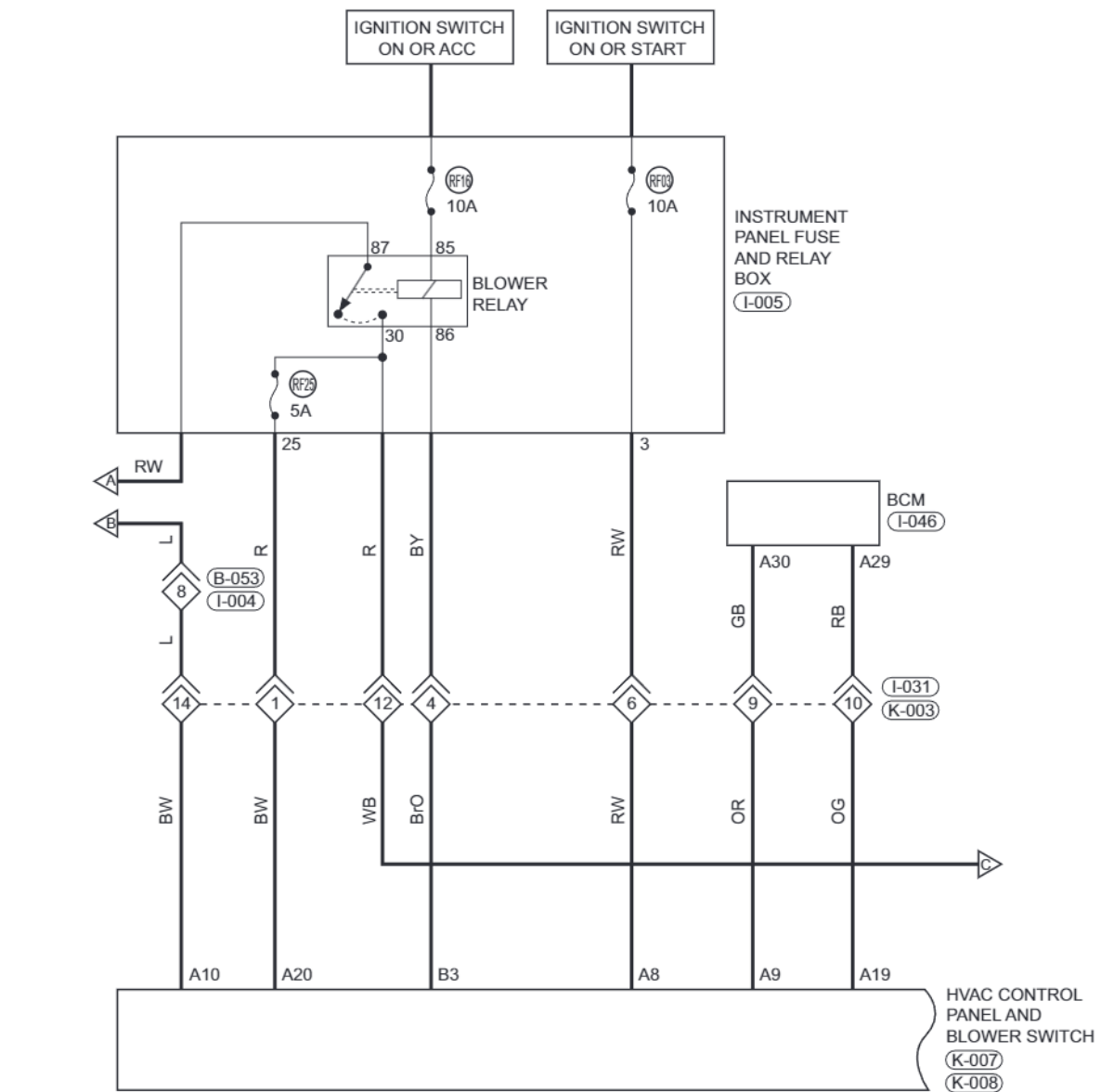


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A/C Control System (Page 2 of 4)

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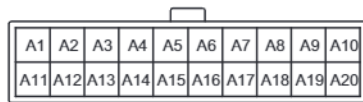
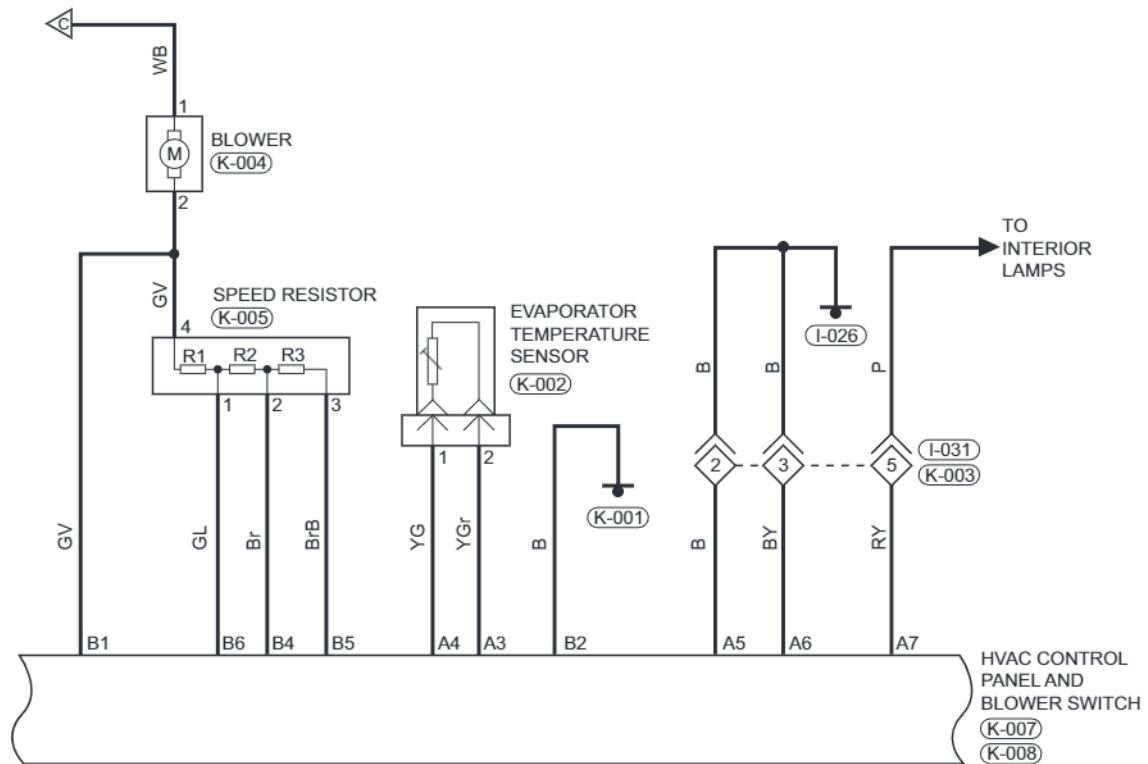


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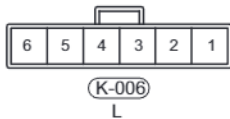
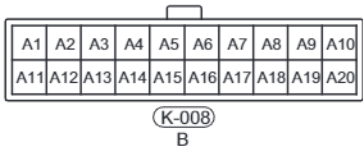
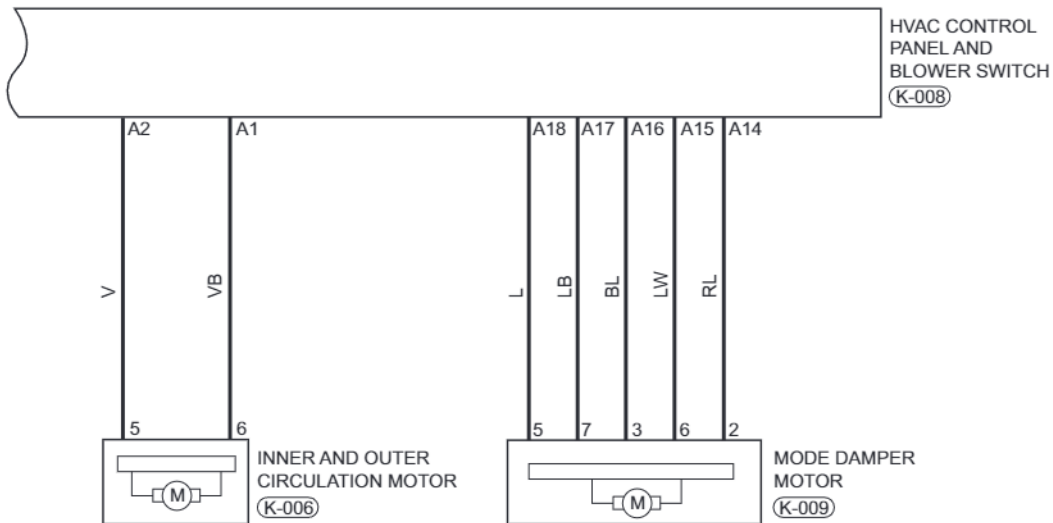
A/C Control System (Page 3 of 4)

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A/C Control System (Page 4 of 4)



EA19290040



DIAGNOSIS & TESTING

Problem Symptoms Table

HINT:

Use the table below to help determine the cause of problem symptoms. Check each suspected area in sequence. Repair or replace the faulty components, or adjust them as necessary.

29

Symptom	Suspected Area	See page
A/C no heating	Blower fuse (damaged)	49-27
	Blower relay (damaged)	49-27
	Blower speed switch (damaged)	29-23
	Blower motor (damaged)	29-26
	Mix damper control mechanism (stuck or damaged)	29-36
	Mix damper control knob (stuck or damaged)	29-22
	Warm air water pipe (blocked or damaged)	29-33
	Heater core assembly (blocked or damaged)	29-36
	Wire harness or connector (open or short)	-
A/C no cooling	Leak in system	29-16
	Refrigerant (overcharged)	29-18
	A/C high/low pressure switch (damaged)	-
	Evaporator temperature sensor (damaged)	29-36
	A/C switch (damaged)	29-22
	Compressor assembly fuse (damaged)	49-27
	Compressor assembly relay (damaged)	49-27
	Compressor assembly belt (loose)	-
	Compressor assembly (damaged)	29-54
	Condenser assembly (blocked or damaged)	29-56
	Expansion valve (blocked or frosted)	29-36
	Evaporator core assembly (blocked or damaged)	29-36
	Wire harness or connector (open or short)	-
A/C intermittent cooling	Moisture in system	-

Symptom	Suspected Area	See page
A/C insufficient cooling	Leak in system	29-16
	Refrigerant (insufficient)	29-18
	Refrigerant (overcharged)	29-18
	Air in refrigerant	-
	Moisture in refrigerant	-
	Condenser (dirty or blocked)	29-56
	Expansion valve (dirty or blocked)	29-36
	Evaporator core (dirty or blocked)	29-36
	A/C high/low pressure line (dirty or blocked)	29-49
	Blower speed switch (damaged)	29-23
	Blower motor (damaged)	29-26
	Compressor assembly belt (loose)	-
Too much noise in system	Compressor assembly belt (slip)	-
	Compressor assembly clutch bearing (worn and excessive clearance)	-
	Compressor assembly solenoid coil (faulty or loose joint)	-
	Compressor assembly belt (over tightened)	-
	Compressor assembly mounting bolt (loose)	29-54
	Cooling fan blade (distorted)	-
	Refrigerant oil (too low)	29-20
Pressure at low pressure side switches between normal and vacuum during operation	Moisture in refrigerant (excessive)	-
Pressure is too low for low pressure side and high pressure side, cooling performance is insufficient	A/C system (leaked)	29-16
	Refrigerant (insufficient)	29-18
Pressure is too low for low pressure side and high pressure side, frost exists on line from condenser to A/C unit	Condenser (dirty or blocked)	29-56
Vacuum occurs at low pressure side, and pressure at high pressure side is too low, frost exists on lines on both sides of condenser or expansion valve	Moisture in refrigerant (excessive)	-
	Expansion valve (dirty or blocked)	29-36
	A/C line (leaked)	29-49
	Condenser (dirty or blocked)	29-56
Pressure is too high for low pressure side and high pressure side	Expansion valve (faulty)	29-36
	Refrigerant oil (excessive)	29-20

Symptom	Suspected Area	See page
Pressure at low pressure side is normal or slightly low, and pressure at high pressure side is too high	Condenser surface (dirty)	29-56
	Cooling fan (not operating)	-
	Refrigerant (overcharged)	29-18
	Air in refrigerant	-
	Engine (overheating)	-
Pressure at low pressure side is too high, and pressure at high pressure side is too low	Compressor assembly belt (slip)	-
	Compressor assembly (faulty)	29-54
Pressure at low pressure side is too low, and pressure at high pressure side is too high	A/C high pressure line (blocked)	29-51
	Expansion valve (faulty)	29-36

ON-VEHICLE SERVICE

On-vehicle Inspection

HINT:

The A/C refrigerant lines and hoses are used to transfer the refrigerant among the A/C system components. Any twist or bent in the refrigerant lines and hoses will reduce the performance of A/C system and refrigerant flow in system.

There remains high pressure in refrigerant when the A/C compressor assembly is operating. It is necessary to ensure that each connecting part in A/C system is sealed well. Check all the system lines at least once a year to ensure that it is in good condition and properly routed. The refrigerant lines and hoses cannot be repaired and must be replaced if leakage or damage exists.

1. General inspection
 - a. Check if there exists any oil or dust in each joint of the A/C line. If this occurs, there may exist leak.
 - b. Check if the condenser surface is dirty and the fins are deformed.
 - c. Check if there are harsh noises while the compressor assembly is operating normally.
 - d. Temperature difference should be noticeable by touching the intake line and exhaust line of compressor assembly with hand. Normally, the intake line is cool while the exhaust line is hot. Feel the temperature of intake duct and exhaust duct of condenser with hand. Normally, the temperature of intake duct is higher than that of exhaust duct. Feel the temperature difference between expansion valve inlet and outlet line with hand. Normally, the expansion valve inlet line is hot while the outlet line is cool, and temperature difference is noticeable between the two.
2. Using the pressure gauge set, check the refrigerant pressure.
 - a. Connect the manifold pressure gauge set. After the following conditions are met, read the pressure on pressure gauge. Measurement conditions are as following:
 - Inner/Outer circulation switch is in outer circulation position.
 - Engine runs at approximately 2000 rpm.
 - Adjust temperature knob to Max. Cool.
 - Blower speed control switch is in highest band.
 - Turn on A/C switch.

Observe the pressure value on the pressure gauge. In normal condition, the pressure at low pressure side is 0.15 - 0.20 Mpa and the pressure at high pressure side is 1.5 - 1.8 Mpa.

Compressor Assembly Noise Inspection

When checking the noise related to the A/C system, you must first know the conditions under which the noise occurs. These conditions include: weather, vehicle speed, engine speed, engine temperature and any other special conditions. Louder noises during A/C operation can often mislead someone. For example, what sounds like a failed bearing, may be caused by loose bolts, mounting brackets or a loose compressor assembly.

CAUTION

- The A/C compressor assembly must be replaced if any abnormal compressor assembly noise is heard.
- Noise may occur from the drive belt at different engine speeds, and you may mistake it for a noise from A/C compressor assembly. The noise occurs when the compressor assembly operates at the maximum displacement, and it will not occur at the minimum displacement.

1. Select a quiet place for testing.
2. Duplicate the customer's feedback information as much as possible.
3. Turn the A/C system on and off several times to clearly identify the compressor assembly noise.

4. Listen to the operation sound of A/C compressor assembly while it is operating at maximum and minimum displacement positions.
5. Using an engine sound scope or a long screwdriver with handle, hold the A/C compressor assembly near your ear for detecting, in order to locate the noise source easier.
6. To duplicate a high temperature condition (high pressure), air is limited to flow through the A/C condenser. Install a manifold pressure gauge set to ensure that the discharge pressure is lower than 2550 kPa.
7. Check the condition of compressor assembly belt.
8. Check the compressor assembly hub, pulley and bearing assembly. Make sure that the hub and pulley are aligned correctly, and the pulley bearing is securely installed to the A/C compressor assembly.
9. Check if the refrigerant line routes incorrectly, is damaged or has an interference that could result in an abnormal noise. Also, check the refrigerant line for twist or bend, otherwise the refrigerant will be limited to flow, which will cause a noise.
10. Loosen all the compressor assembly tightening bolts and retighten them.
11. If noise occurs when the liquid refrigerant in the A/C suction line is under a slugging condition, replace the condenser and check the refrigerant oil level and the charging condition for refrigerant.
12. If the slugging condition still exists after replacing the condenser, replace the A/C compressor assembly.

⚠ WARNING

- DO NOT race the engine when the vacuum pump operates or vacuum exists in the A/C system. Failure to do so may result in a serious damage to the A/C compressor assembly.

Refrigerant Leakage Inspection**⚠ WARNING**

- DO NOT perform a pressure test or a leakage test to R134a service device or vehicle A/C system with compressed air. The air mixture and R134a is inflammable at high pressure. These mixtures have potential danger, and it may cause a fire or explosion, resulting in vehicle damage, personal injury or death.
- Avoid inhaling the vapor or moisture from the A/C refrigerant and refrigerant oil.
- Only use technical service device to discharge the R134a system. If the system discharges unexpectedly, ventilate the work place before servicing.

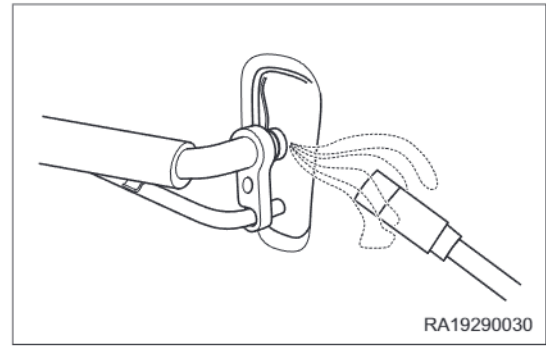
👁 CAUTION

- If the A/C refrigerant filling amount is empty or low, the A/C system may have leak. Check all the A/C lines, joints and parts for remaining oil. The remaining oil is the indication mark of A/C system leaking position.

Check the refrigerant for leakage.

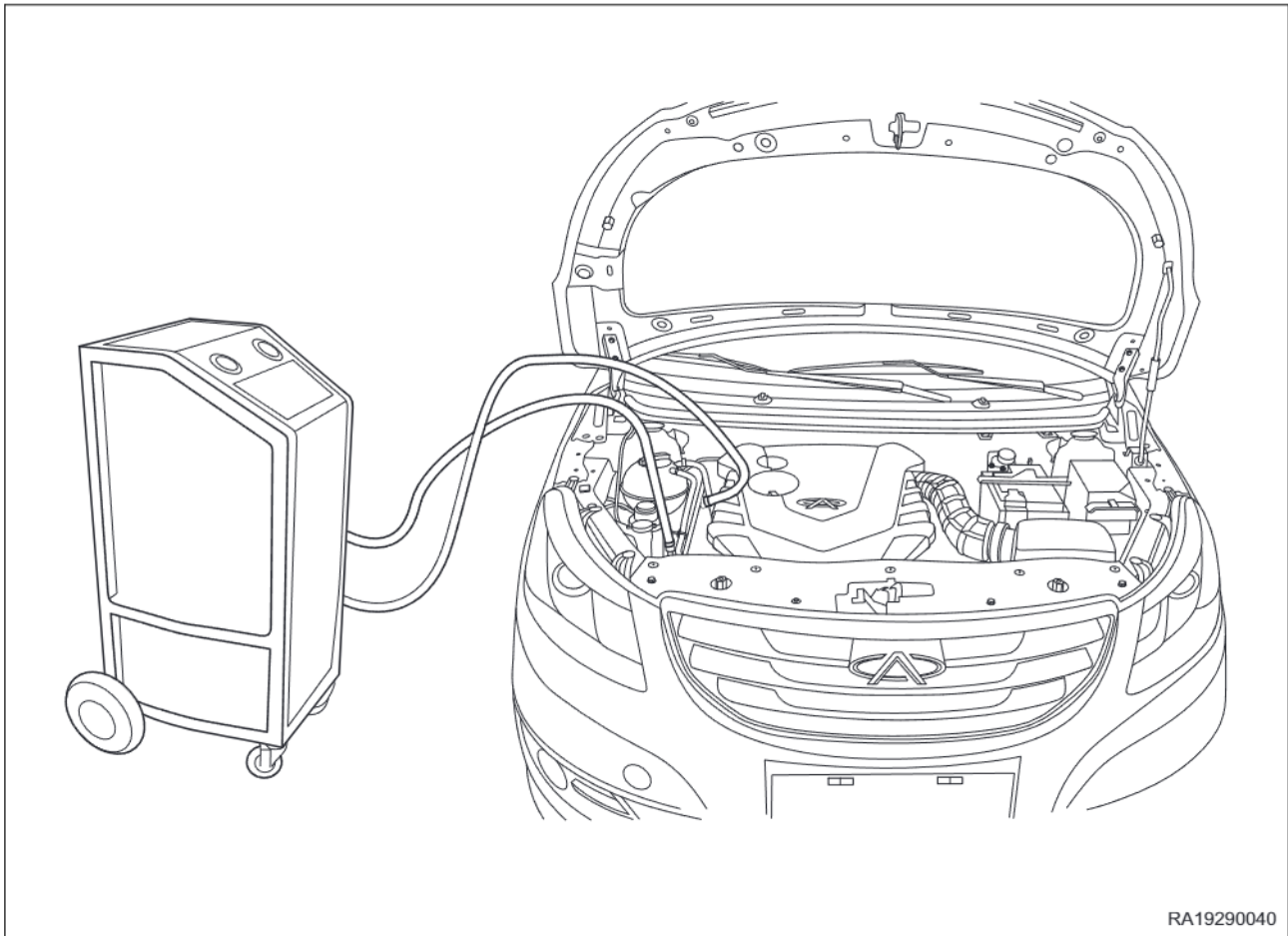
1. After recharging the refrigerant, use the gas leak detector to check the refrigerant gas for leakage.
2. Perform operations under the following conditions:
 - Stop the engine.
 - Ensure the ventilation is well (the gas leak detector may react to volatile gases which are not from refrigerant, such as gasoline vapor or exhaust gas).
 - Repeat the test for 2 or 3 times.
 - Make sure that there is some refrigerant remaining in the refrigeration system.

3. Place the air leakage tester near the joint of A/C line, and check the A/C line for leakage. If the air leakage tester makes a sound, it indicates that a leakage exists. Repair or replace the leakage A/C line as necessary.



29

4. Disconnect the A/C high/low pressure switch connector, use the same procedures to check the A/C high/low pressure switch for leakage. Replace the A/C high/low pressure switch as necessary.
5. Insert the air leakage tester into the evaporator tank assembly, use the same procedures to check the evaporator for leakage. Clean or replace the evaporator core assembly as necessary.
6. Use the same procedures to check the condenser for leakage. Clean or replace the condenser assembly as necessary.



Refrigerant Recovering/Draining

⚠ WARNING

- Take extra care when servicing the A/C system under high pressure.
- Because there is refrigerant under high pressure in the A/C system, it must be serviced by professional technician. Otherwise, a wrong service procedure may cause a serious danger or fatal injury.
- If the A/C system is released pressure unexpectedly, ventilate the work area before servicing. In a closed work place, a large amount of refrigerant is discharged, which may cause oxygen reduction and result in smothering, causing a serious or fatal injury.

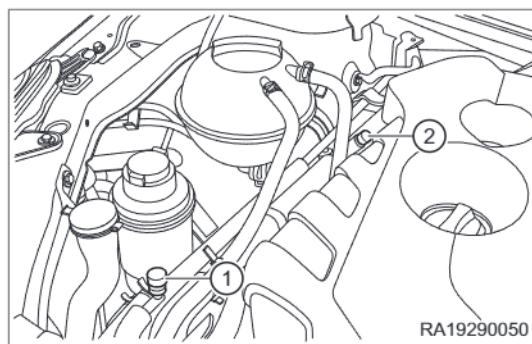
👁 CAUTION

- It is necessary to recover the refrigerant with R134a refrigerant special recycling machine.
- DO NOT work near the open flame.
- Always dispose of the recovered refrigerant as specified.
- Never charge R-12 to the refrigerant system which is designed to use R134a. These refrigerants are incompatible, which could damage the A/C system.
- DO NOT race the engine when the vacuum pump operates or vacuum exists in the A/C system. Otherwise, the A/C compressor assembly will be damaged seriously.

♻ ENVIRONMENTAL PROTECTION

- Never drain the refrigerant in the A/C system into the atmosphere directly, and avoid environmental contamination.

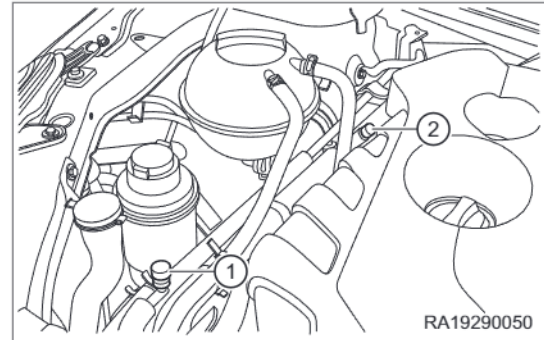
1. Open the hood and loosen the joint cover of A/C high/low pressure line.
2. Connect the refrigerant recycling machine to the A/C high/low pressure line joint.
 - a. Connect the red connector to the A/C high pressure line joint (1).
 - b. Connect the blue connector to the A/C low pressure line joint (2).



3. Open the high pressure valve and low pressure valve of refrigerant recycling machine.
4. Choose the "recovering" item on the machine and make it start to operate.
5. Check the low pressure value on the pressure gauge to ensure that the recycling is completed, and then turn the machine off.
6. Disconnect the connection between refrigerant recycling machine and A/C line joint.
7. Reinstall the cover onto the refrigerant line joint.

Vacuum Pumping

1. Open the hood and loosen the joint cover of A/C high/low pressure line.
2. Connect the refrigerant recycling machine to the A/C high/low pressure line joint.
 - a. Connect the red connector to the A/C high pressure line joint (1).
 - b. Connect the blue connector to the A/C low pressure line joint (2).



3. Open the high pressure valve and low pressure valve of refrigerant recycling machine.
4. Choose the "vacuum pumping" item on the machine and the time setting is 15 minutes, then choose "OK" and make it start to operate.
5. Wait for 10 minutes after completing the operation, check if there is any change in the A/C system vacuum. If there is any change, the A/C system leakage may exist, you should check and repair the A/C system. If there is no change, proceed to perform the refrigerant charging procedures.

Refrigerant Recharging

CAUTION

- A small amount of refrigerant oil in the A/C system will be discharged when recovering and draining the refrigerant. Be sure to supplement the lost refrigerant oil during recovering when filling the A/C system.
- DO NOT fill excessive refrigerant. Otherwise, it will cause excessive pressure to the compressor assembly, resulting in compressor assembly noise and A/C system failure.
- Always perform vacuum pumping before recharging refrigerant.

1. Perform vacuum pumping with the vacuum pump.
2. Add refrigerant oil after checking that there is no leakage in A/C system.
3. Perform vacuum pumping for 3 minutes again after adding refrigerant oil, then charge refrigerant.
4. Choose the "charging" item on the machine and set the amount of charging to the specified value, then choose "OK" and make it start to operate.
5. Open the suction valve and close the discharging valve, and then open the charging valve to allow the refrigerant to flow into the system.
6. When the delivery of refrigerant has stopped, close the charging valve.
7. If the charged refrigerant is not delivered to the specified position, start the engine to operate the A/C compressor assembly.
8. Open the charging valve to deliver the remaining refrigerant to A/C system.

WARNING

- At this time, do not open the exhaust (high pressure) valve. Failure to do so may result in personal injury or even death.

9. Perform the A/C system pressure test after charging.

10. Remove the connecting pipe for refrigerant charging after the test is completed.
11. Reinstall the cover onto the A/C line joint.

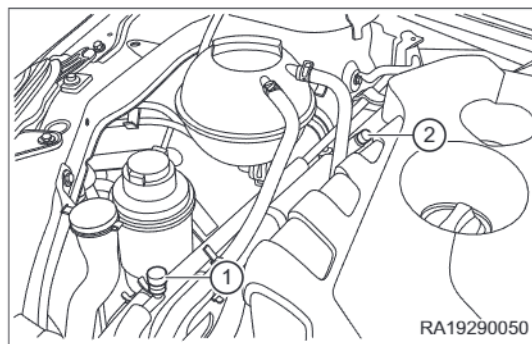
Refrigerant Oil Recovering

CAUTION

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- Special service equipment for R134a refrigerant must be used.
- Always keep the work area in good ventilation, because the A/C system is easy to leak.
- Always dispose of the recovered refrigerant as specified.
- The refrigerant oil must be charged after replacing the A/C system components or recovering the refrigerant.

1. Open the engine hood and loosen the joint cover of A/C high/low pressure line.
2. Connect the refrigerant recycling machine to the A/C high/low pressure line joint.
 - a. Connect the red connector to the A/C high pressure line joint (1).
 - b. Connect the blue connector to the A/C low pressure line joint (2).



3. Open the high pressure valve and low pressure valve of refrigerant recycling machine.
4. Recover the refrigerant oil according to the instructions on the machine.
5. Record the amount of recovered refrigerant oil.
6. Disconnect the connection between refrigerant recycling machine and A/C line joint.
7. Reinstall the joint cover onto the refrigerant line joint.

Refrigerant Oil Charging

Refrigerant Oil Charging Amount Specifications

Item	A/C Compressor Assembly Replacement	Condenser Replacement	Evaporator Replacement	Line Replacement
Charging Capacity (ml)	It is necessary to pour out 50 ml of refrigerant oil from the new compressor assembly	40	30	10

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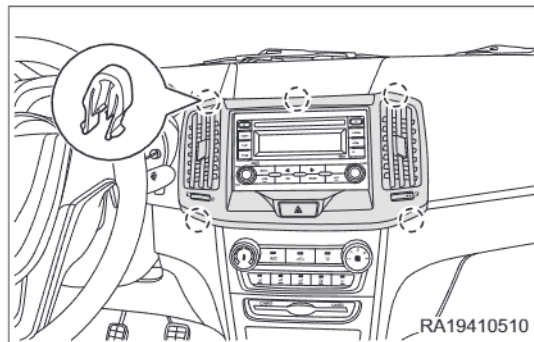
1. Perform vacuum pumping with the vacuum pump. Wait for 10 minutes after completing the operation, check if there is any change in the A/C system pressure. If there is any change, the A/C system leakage may exist, you should check and repair the A/C system. If there is no change, proceed to perform the refrigerant oil charging procedures.
2. Open the suction valve and close the exhaust valve, and then open the charging valve to allow the refrigerant oil to flow into the system.
3. Close the charging valve after the refrigerant oil charging is completed.
4. Perform the vacuum pumping again for 3 minutes.
5. Continue to perform refrigerant charging procedures after the operation is completed.

A/C Control Panel Assembly

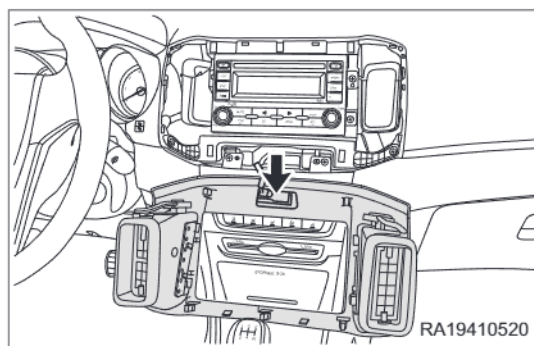
Removal

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the A/C control panel assembly.
 - a. Using a flat tip screwdriver wrapped with protective tape, pry off the console panel assembly carefully.

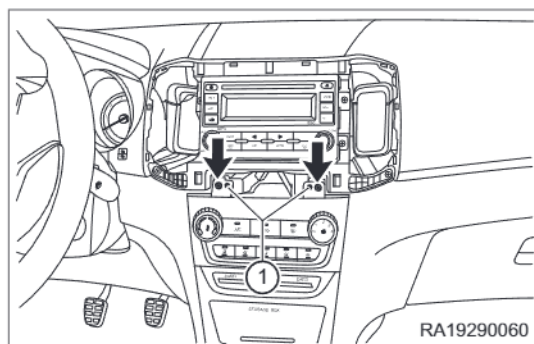
29



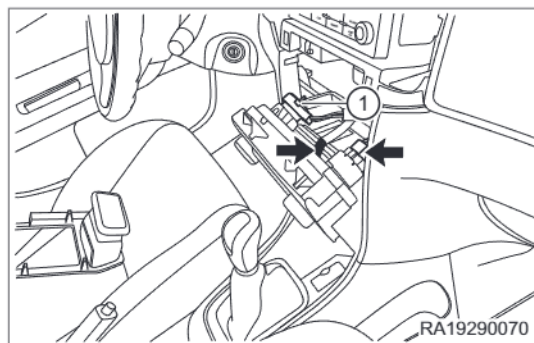
- b. Disconnect the hazard warning light connector (arrow).



- c. Remove 2 fixing screws (arrow) from the A/C control panel assembly, disengage the dowel pins (1) and the fixing clamps on the lower part.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



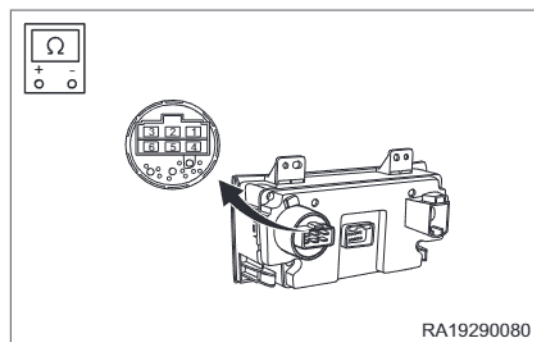
- d. Disconnect the A/C control panel assembly connectors (arrow), and disengage the temperature damper adjustment mechanism assembly (1).



- e. Remove the A/C control panel assembly.

Inspection

1. Check the blower speed switch.
 - a. Remove the A/C control panel assembly.
 - b. Using the ohm band of the digital multimeter, check for continuity between each terminal of blower speed switch according to the table below.



Standard Condition

Blower Speed Switch Condition	Multimeter Connection	Specified Condition
OFF	Terminal 2 - Terminal 3	No continuity
	Terminal 2 - Terminal 6	No continuity
	Terminal 3 - Terminal 6	No continuity
	Terminal 2 - Terminal 5	No continuity
	Terminal 3 - Terminal 5	No continuity
	Terminal 2 - Terminal 4	No continuity
	Terminal 3 - Terminal 4	No continuity
	Terminal 2 - Terminal 1	No continuity
1st	Terminal 3 - Terminal 1	No continuity
	Terminal 2 - Terminal 3	Continuity
	Terminal 2 - Terminal 6	Continuity
2nd	Terminal 3 - Terminal 6	Continuity
	Terminal 2 - Terminal 3	Continuity
	Terminal 2 - Terminal 5	Continuity
3rd	Terminal 3 - Terminal 5	Continuity
	Terminal 2 - Terminal 3	Continuity
	Terminal 2 - Terminal 4	Continuity
4th	Terminal 3 - Terminal 4	Continuity
	Terminal 2 - Terminal 3	Continuity
	Terminal 2 - Terminal 1	Continuity
	Terminal 3 - Terminal 1	Continuity

If the result is not as specified, replace the A/C control panel assembly.

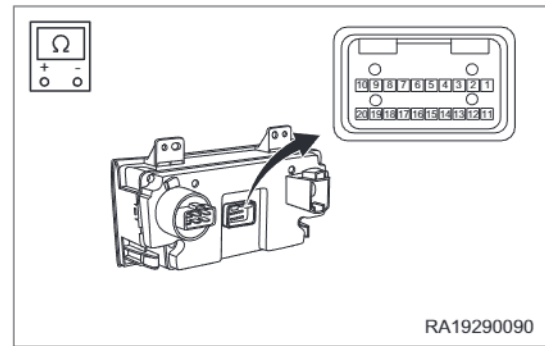
2. Check the A/C control panel assembly.
 - a. Remove the A/C control panel assembly.

- b. Using the ohm band of digital multimeter, check for continuity between each terminal according to the table below.

Standard Condition

Multimeter Connection	Condition	Specified Condition
Terminal 3 - Terminal 16	Always	Continuity

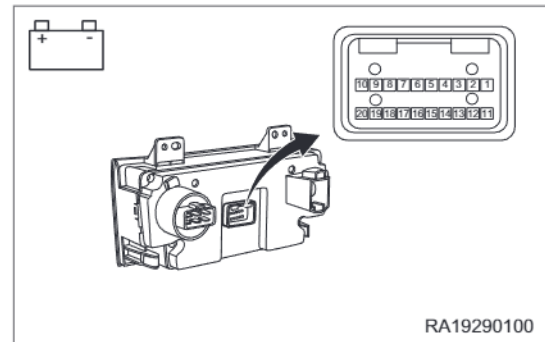
29



- c. Connect the positive (+) battery lead to terminal 7 and negative (-) lead to terminal 6, then check if the A/C control panel assembly switch backlight comes on.

OK: Light comes on.

If the result is not as specified, replace the A/C control panel assembly.



Installation

Installation is in the reverse order of removal.

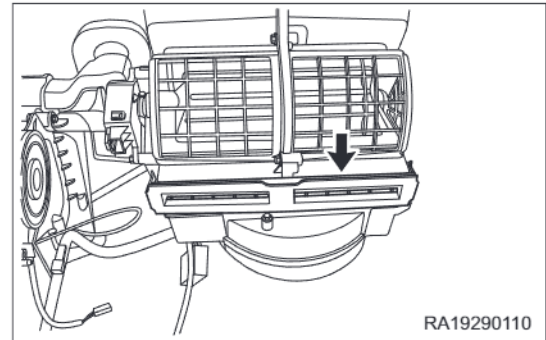
CAUTION

- Be sure to install the clamp on the lower part of A/C control panel assembly in place when installing.
- Be sure to align the positioning hole on the upper part of A/C control panel assembly with the dowel pin of instrument panel when installing.

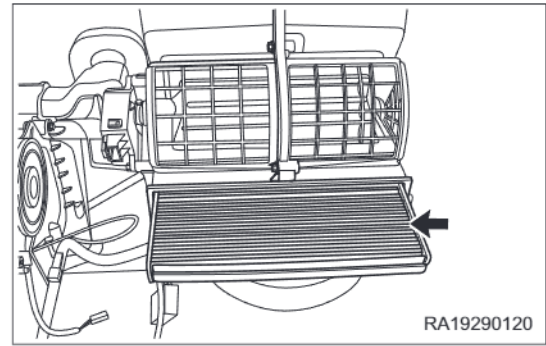
A/C Element

Removal

1. Remove the glove box assembly ([See page 43-16](#)).
2. Remove the A/C element.
 - a. Pull the claws on both sides of A/C element cover outward, and remove the A/C element cover (arrow) from the air inlet assembly.



- b. Pull out the A/C element (arrow) slowly from the air inlet assembly.



Installation

Installation is in the reverse order of removal.

CAUTION

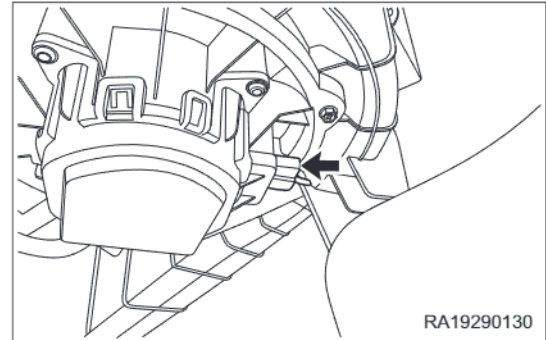
- Be sure to check the A/C element for dirt when installing. Clean it as necessary.
- If the A/C element is too dirty or damaged, replace it with a new one.

Blower Assembly

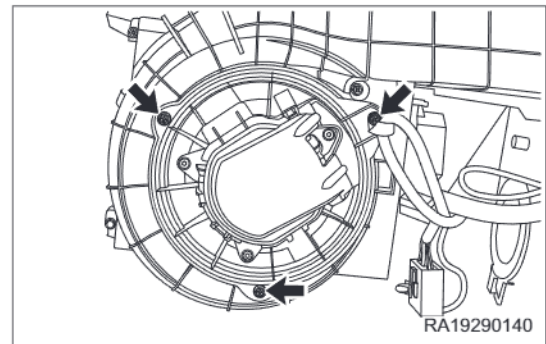
Removal

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the blower assembly.
 - a. Disconnect the blower assembly connector (arrow).

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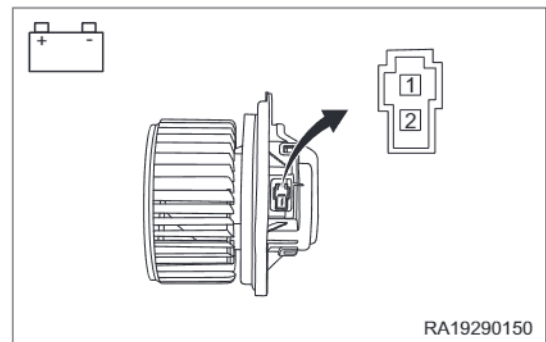
- b. Remove 3 fixing screws (arrow) from the blower assembly.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- c. Rotate it lightly to remove the blower assembly.

Inspection

1. Check the blower motor.
 - a. Remove the blower assembly.
 - b. Connect the positive (+) battery lead to terminal 1 and negative (-) battery lead to terminal 2. Check that the blower motor operates smoothly.



If the operation is not as specified, replace the blower assembly.

Installation

Installation is in the reverse order of removal.

Blower Speed Resistor

Removal

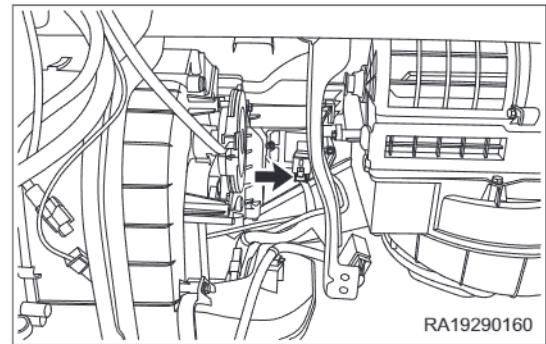
⚠ WARNING

- During normal operation, the blower speed resistor may be very hot. Turn off the blower and wait for a few minutes to cool the blower speed resistor before diagnosing or servicing, in order to avoid burns.

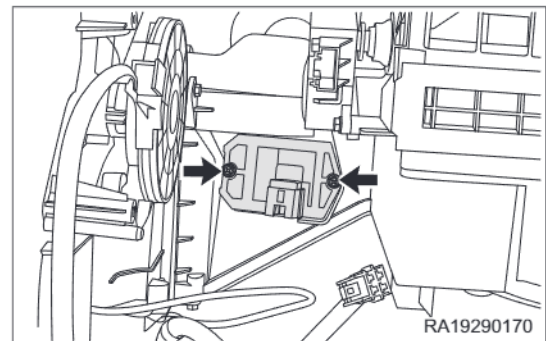
👁 CAUTION

- DO NOT operate the blower assembly when removing the blower speed resistor from the vehicle. Failure to do so may result in damage to the blower assembly.

- Turn off all the electrical equipment and ignition switch.
- Disconnect the negative battery cable.
- Remove the blower speed resistor.
 - Disconnect the blower speed resistor connector (arrow).



- Remove 2 fixing screws (arrow) from the blower speed resistor.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- Remove the blower speed resistor.

Inspection

1. Check the blower speed resistor.
 - a. Remove the blower speed resistor.
 - b. Using the ohm band of digital multimeter, measure the resistance value between each terminal according to the table below.

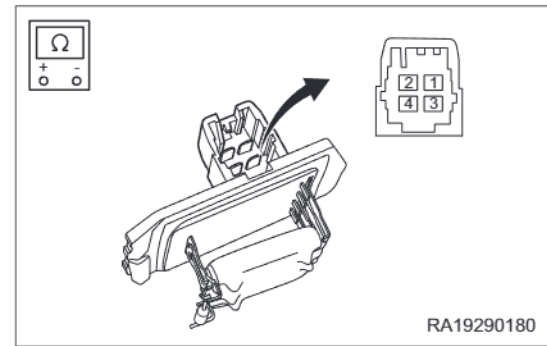
Standard Resistance

Multimeter Connection	Specified Condition
Terminal 1 - Terminal 2	Approximately 2.8 Ω
Terminal 1 - Terminal 3	Approximately 2.1 Ω
Terminal 1 - Terminal 4	Approximately 3.0 Ω
Terminal 2 - Terminal 3	Approximately 0.8 Ω
Terminal 2 - Terminal 4	Approximately 0.3 Ω
Terminal 3 - Terminal 4	Approximately 1.1 Ω

If the result is not as specified, replace the blower speed resistor.

Installation

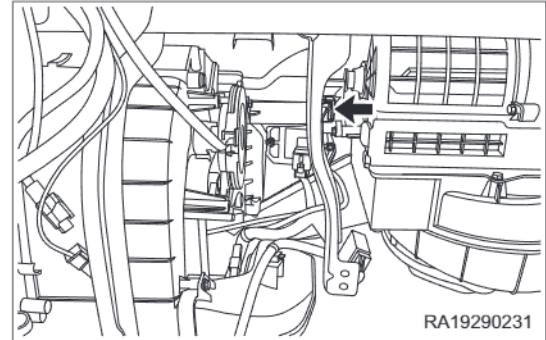
Installation is in the reverse order of removal.



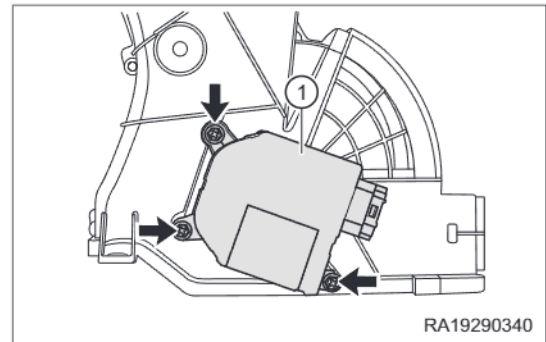
Inner/Outer Circulation Damper Motor

Removal

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the glove box assembly ([See page 43-16](#)).
4. Remove the inner/outer circulation damper motor.
 - a. Disconnect the inner/outer circulation damper motor connector (arrow).

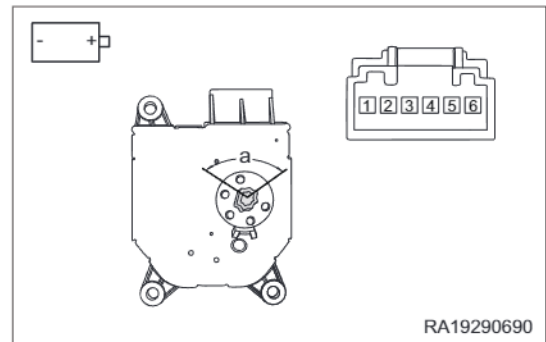


- b. Remove 3 fixing screws (arrow), and disengage the inner/outer circulation damper motor (1) from the air inlet housing assembly. (Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



Inspection

1. Check the inner/outer circulation damper motor.
 - a. Connect a few dry batteries (approximately 5 V) in series. Connect the positive (+) battery lead to terminal 5 and negative (-) lead to terminal 6. Check that the inner/outer circulation damper motor operates smoothly counterclockwise (rotation angle (a) is approximately 120 degrees).
 - b. Connect a few dry batteries (approximately 5 V) in series. Connect the positive (+) battery lead to terminal 6 and negative (-) lead to terminal 5. Check that the inner/outer circulation damper motor operates smoothly clockwise (rotation angle (a) is approximately 120 degrees).



If the operation is not as specified, replace the inner/outer circulation damper motor.

Installation

Installation is in the reverse order of removal.

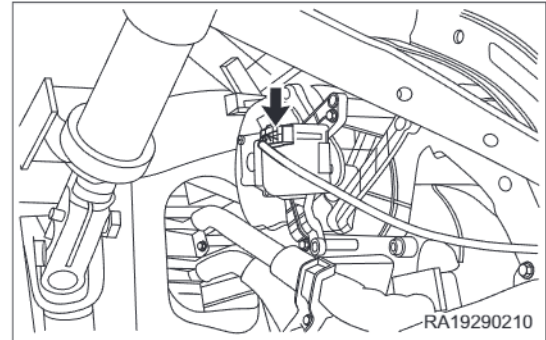
CAUTION

- Tighten the fixing screws to the specified torque.
- When installing, apply a small amount of grease to the contact surface of inner/outer circulation damper motor lever and the inner/outer circulation damper set to ensure the motor operates smoothly.

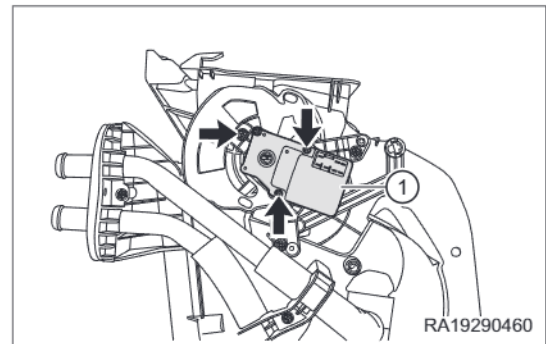
Mode Damper Servo Motor

Removal

1. Turn off all the electrical equipment and ignition switch.
2. Disconnect the negative battery cable.
3. Remove the mode damper servo motor.
 - a. Disconnect the mode damper servo motor connector (arrow).

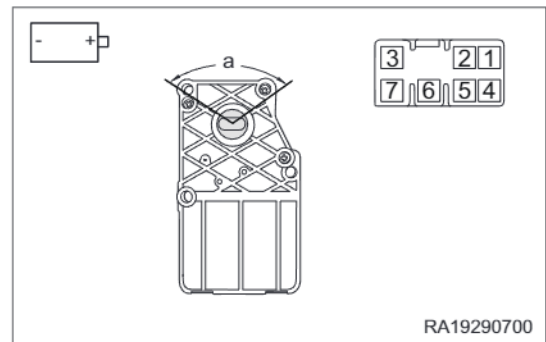


- b. Remove 3 fixing screws (arrow) from the mode damper servo motor, and remove the mode damper servo motor (1).
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



Inspection

1. Check the mode damper servo motor.
 - a. Connect a few dry batteries (approximately 5 V) in series. Connect the positive (+) battery lead to terminal 7 and negative (-) lead to terminal 5. Check that the mode damper servo motor operates smoothly counterclockwise (rotation angle (a) is approximately 120 degrees).
 - b. Connect a few dry batteries (approximately 5 V) in series. Connect the positive (+) battery lead to terminal 5 and negative (-) lead to terminal 7. Check that the mode damper servo motor operates smoothly clockwise (rotation angle (a) is approximately 120 degrees).



If the operation is not as specified, replace the mode damper servo motor.

Installation

Installation is in the reverse order of removal.

CAUTION

- Tighten the fixing screws to the specified torque.
- When installing, apply a small amount of grease to the contact surface of mode damper servo motor lever and the mode damper adjustment mechanism set to ensure the motor operates smoothly.

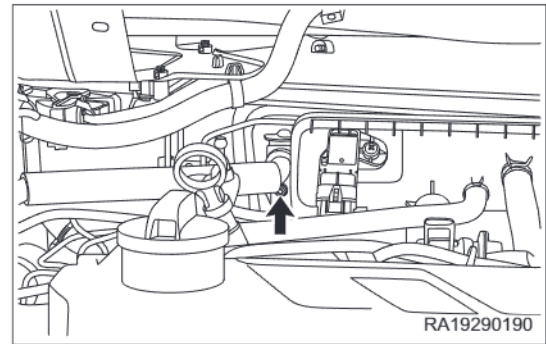
HVAC Assembly

Removal

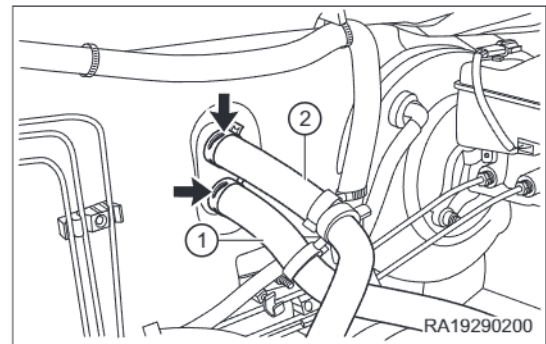
CAUTION

- Special service equipment for R134a refrigerant must be used to recover/charge the refrigerant.
- Be careful not to damage hoses during removal and installation.
- Always keep the work area in good ventilation.
- The disconnected A/C line and connecting part should be sealed to prevent foreign matter from entering.

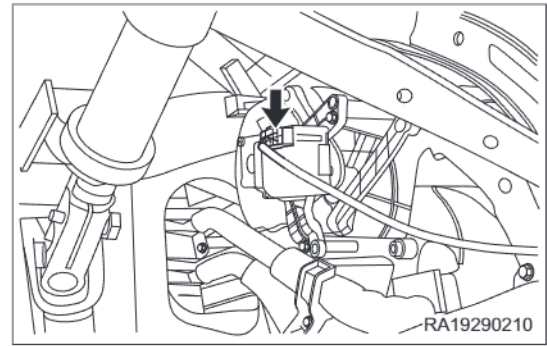
1. Drain the engine coolant (See page 12-14).
2. Recover the refrigerant from the A/C system (See page 29-18).
3. Turn off all the electrical equipment and ignition switch.
4. Disconnect the negative battery cable.
5. Remove the steering wheel assembly (See page 27-9).
6. Remove the steering column (See page 27-14).
7. Remove the instrument panel body assembly (See page 43-16, 43-26).
8. Remove the instrument panel crossmember assembly (See page 43-28).
9. Remove the HVAC assembly.
 - a. Remove the fixing bolt (arrow) between A/C high/low pressure line and expansion valve, and disengage the A/C high/low pressure line.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



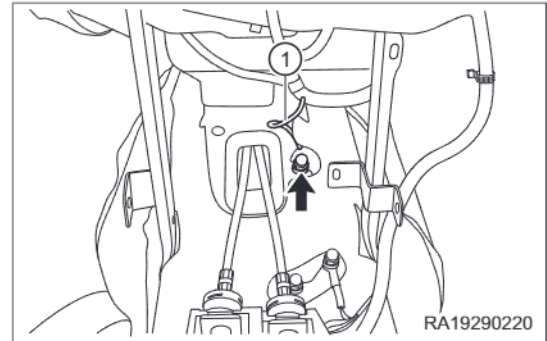
- b. Using snap spring calipers, disengage the fixing clamps (arrow) from the heating inlet and outlet hoses to detach the inlet hose (1) and outlet hose (2).



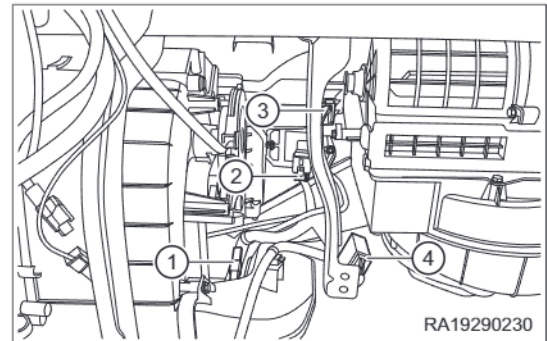
- c. Disconnect the mode damper servo motor connector (arrow).



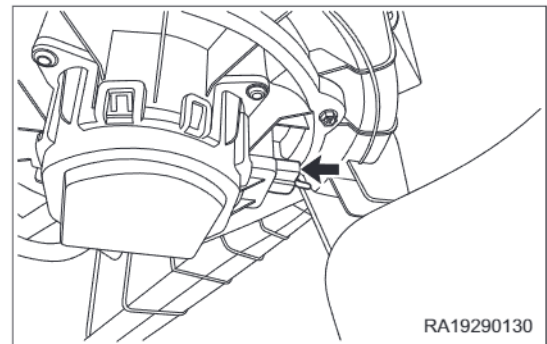
- d. Remove the A/C wire harness assembly ground point fixing nut (arrow) and disengage the ground wire (1) from the body.
(Tightening torque: 20 ± 3 N·m)



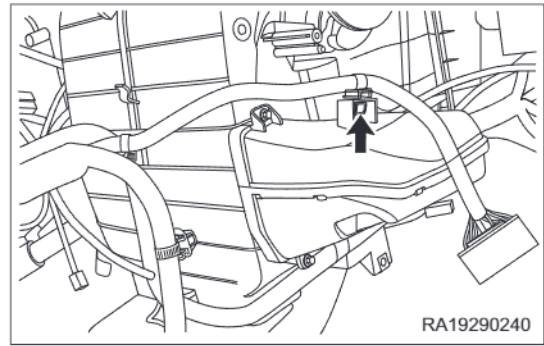
- e. Disconnect the evaporator temperature sensor connector (1), blower speed resistor connector (2), inner/outer circulation damper motor connector (3), connecting package (4) of A/C wire harness assembly and instrument panel wire harness assembly.



- f. Disconnect the blower assembly connector (arrow).

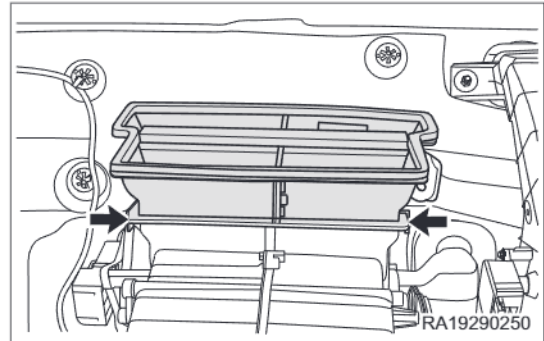


- g. Disengage the instrument panel wire harness assembly fixing clip (arrow) from the right foot fan shield.

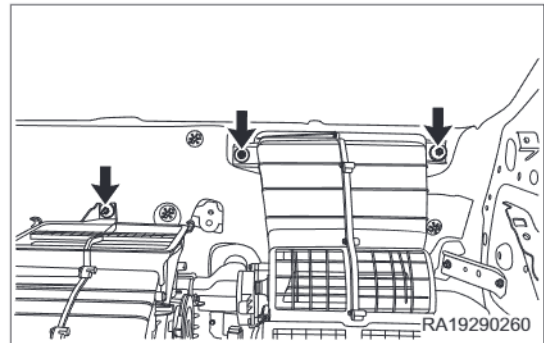


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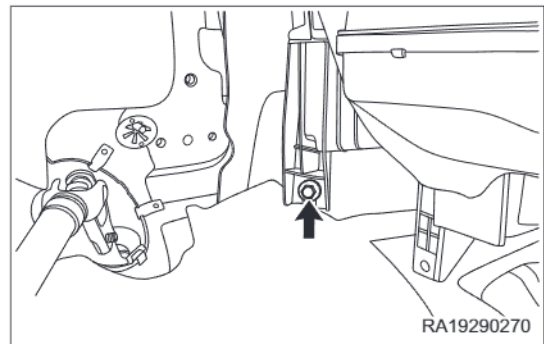
- h. Disengage the claws (arrow) on both sides of HVAC assembly transition duct and remove them from the HVAC assembly.



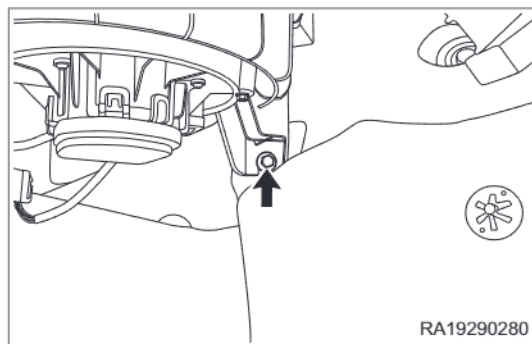
- i. Remove 3 fixing nuts (arrow) between the upper part of HVAC assembly and the body.
(Tightening torque: $3.5 \pm 0.5 \text{ N}\cdot\text{m}$)



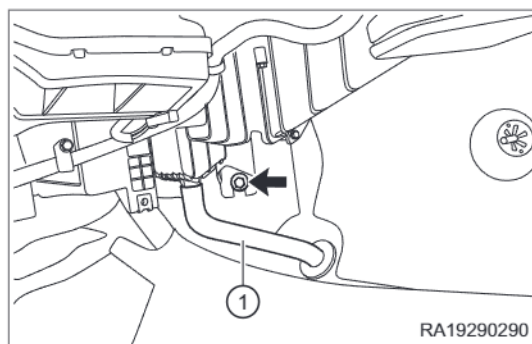
- j. Remove the fixing bolt (arrow) between the lower left of HVAC assembly and the body.
(Tightening torque: $3.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- k. Remove the fixing bolt (arrow) between the lower right of HVAC assembly and the body.
(Tightening torque: $3.5 \pm 0.5 \text{ N}\cdot\text{m}$)



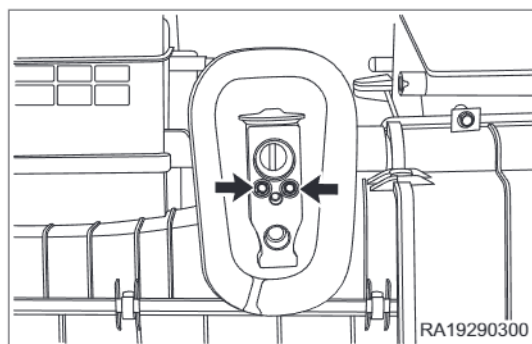
- l. Remove the fixing bolt (arrow) between the lower center of HVAC assembly and the body, and disengage the A/C drain pipe (1) from the body positioning hole.
(Tightening torque: $3.5 \pm 0.5 \text{ N}\cdot\text{m}$)



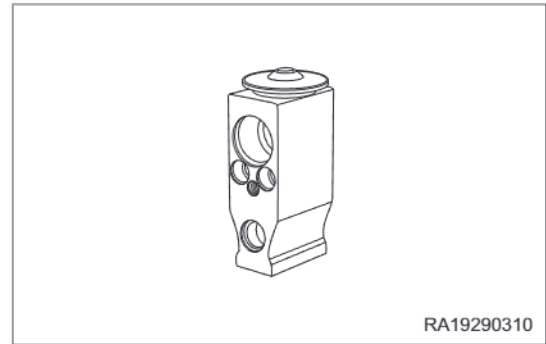
- m. Carefully take off the HVAC assembly from the cabin.

Disassembly

1. Remove the A/C element ([See page 29-25](#))
2. Remove the blower assembly ([See page 29-26](#))
3. Remove the blower speed resistor ([See page 29-27](#)).
4. Remove the inner/outer circulation damper motor ([See page 29-29](#)).
5. Remove the mode damper servo motor ([See page 29-31](#)).
6. Remove the expansion valve.
 - a. Remove 2 fixing bolts (arrow) between expansion valve and expansion valve mounting pressure plate.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)

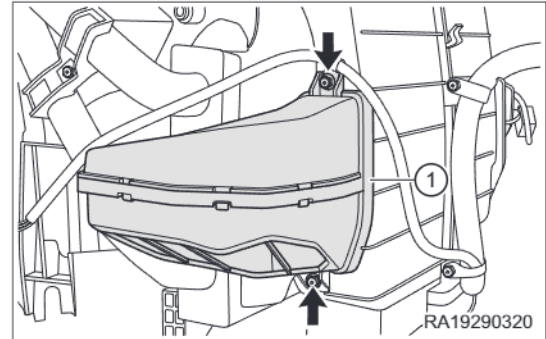


- b. Disengage the A/C high/low pressure line and remove the expansion valve carefully.

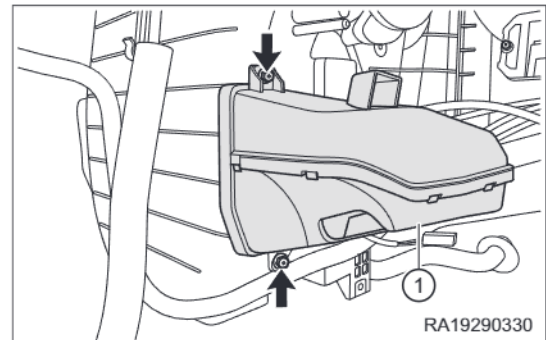


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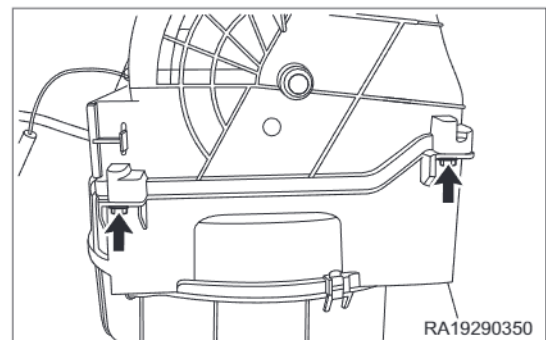
7. Remove the left foot fan shield.
- a. Remove 2 fixing screws (arrow), and disengage the left foot fan shield (1) from the HVAC assembly. (Tightening torque: 1.5 ± 0.5 N·m)



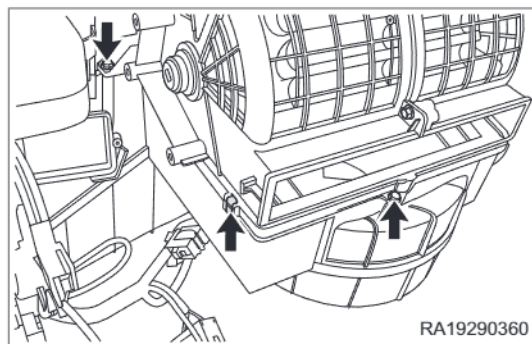
8. Remove the right foot fan shield.
- a. Remove 2 fixing screws (arrow), and disengage the right foot fan shield (1) from the HVAC assembly. (Tightening torque: 1.5 ± 0.5 N·m)



9. Remove the air inlet housing assembly.
- a. Remove 2 fixing screws (arrow) between air inlet housing assembly and blower case assembly (right side). (Tightening torque: 1.5 ± 0.5 N·m)



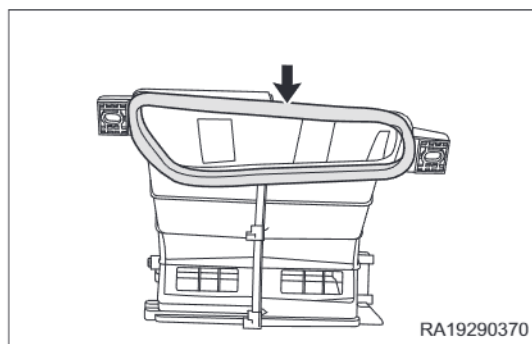
- b. Remove 2 fixing screws (arrow) between air inlet housing assembly and blower case assembly (left side) and disengage the fixing clip (arrow).
(Tightening torque: 1.5 ± 0.5 N·m)



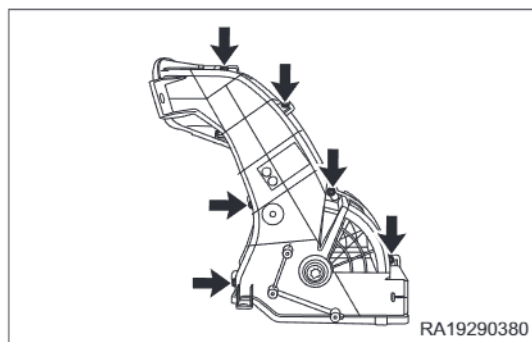
- c. Detach the blower case assembly from the air inlet housing assembly.

10. Remove the inner/outer circulation damper set.

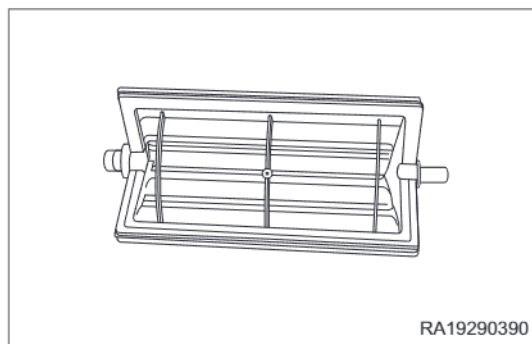
- a. Remove the air inlet weatherstrip (arrow).



- b. Remove 6 fixing screws (arrow) from the air inlet housing assembly.
(Tightening torque: 1.5 ± 0.5 N·m)

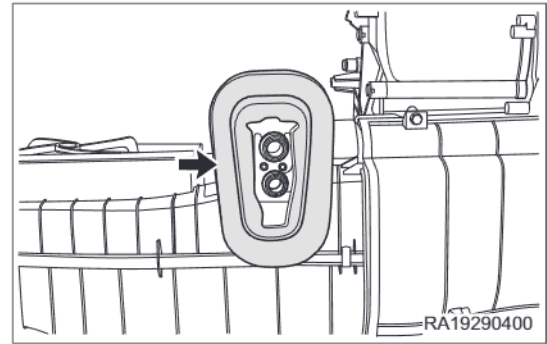


- c. Disengage the fixing claw and detach the air inlet housing assembly, then take out the inner/outer circulation damper set.

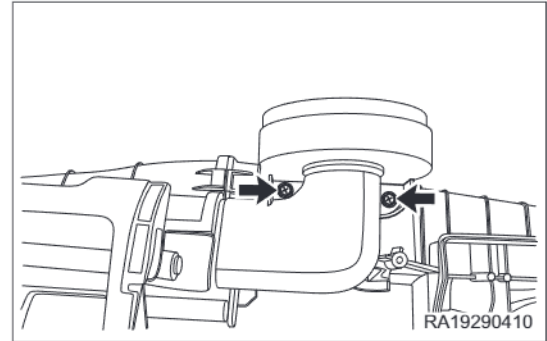


11. Remove the blower case assembly.

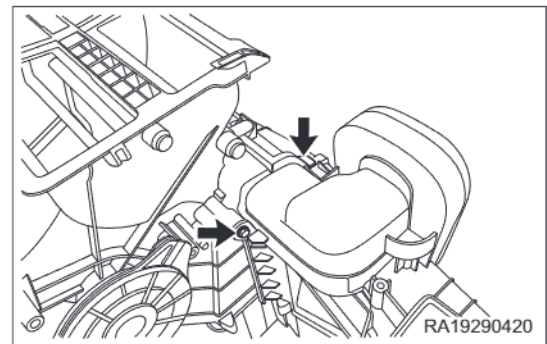
- a. Remove the evaporator core line weatherstrip (arrow).



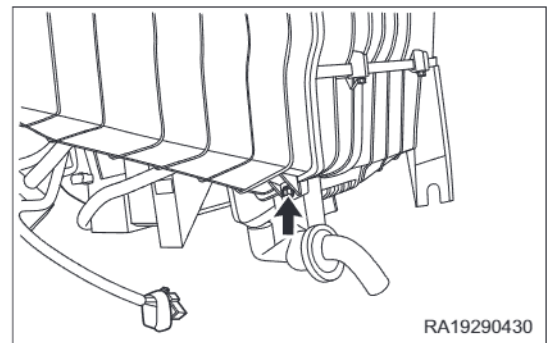
- b. Remove 2 fixing screws (arrow) from the evaporator cover plate.
(Tightening torque: 1.5 ± 0.5 N·m)



- c. Remove the upper fixing screw and clip (arrow) between blower case assembly and evaporator tank assembly.
(Tightening torque: 1.5 ± 0.5 N·m)



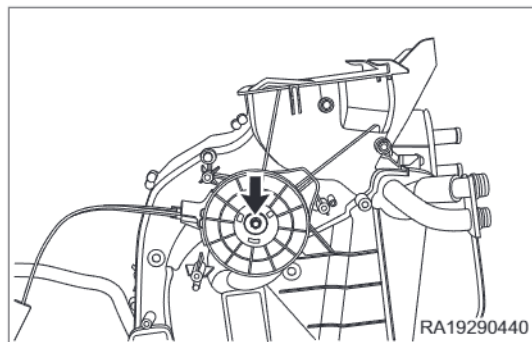
- d. Remove the lower fixing screw (arrow) between blower case assembly and evaporator tank assembly.
(Tightening torque: 1.5 ± 0.5 N·m)



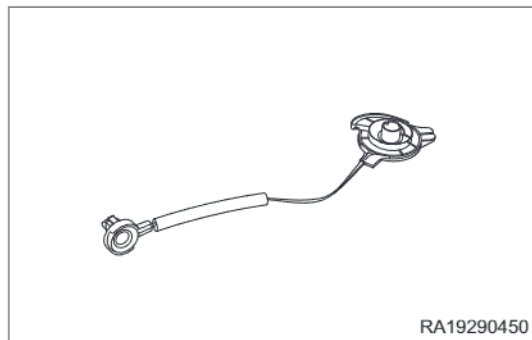
- e. Detach the blower case assembly from the evaporator tank assembly.

12. Remove the temperature damper adjustment mechanism.

- a. Remove the fixing screw (arrow) from the temperature damper adjustment mechanism.
(Tightening torque: 1.5 ± 0.5 N·m)

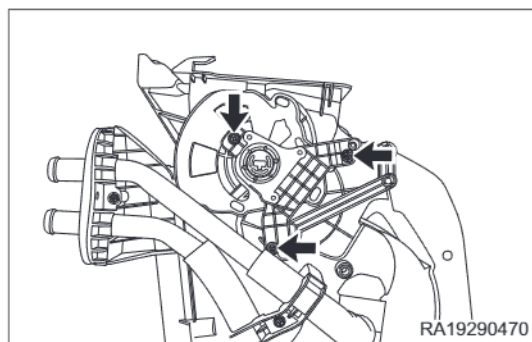


- b. Remove the temperature damper adjustment mechanism from the evaporator tank assembly.

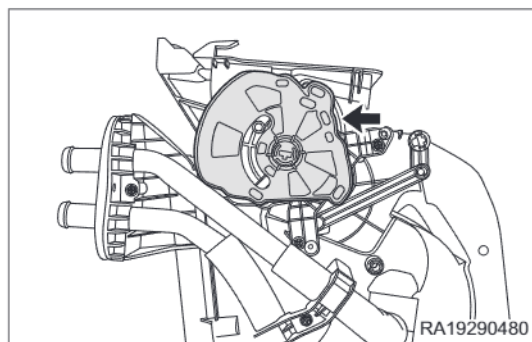


13. Remove the mode damper adjustment mechanism set.

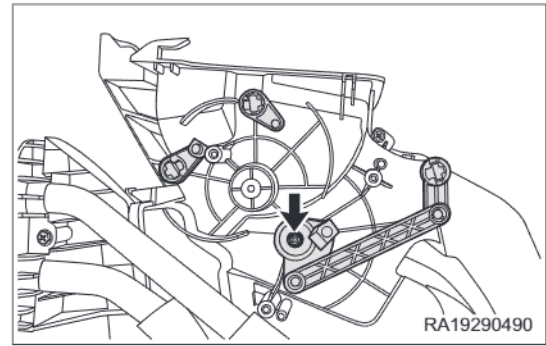
- a. Remove 3 fixing screws (arrow) from the mode damper servo motor set bracket.
(Tightening torque: 1.5 ± 0.5 N·m)



- b. Remove the mode damper adjustment mechanism set I (arrow).



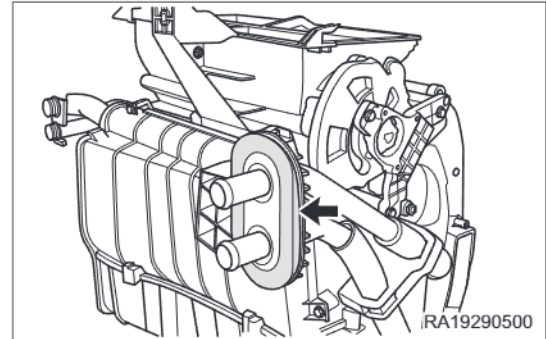
- c. Remove the fixing screw (arrow) and mode damper adjustment mechanism set II.
(Tightening torque: 1.5 ± 0.5 N·m)



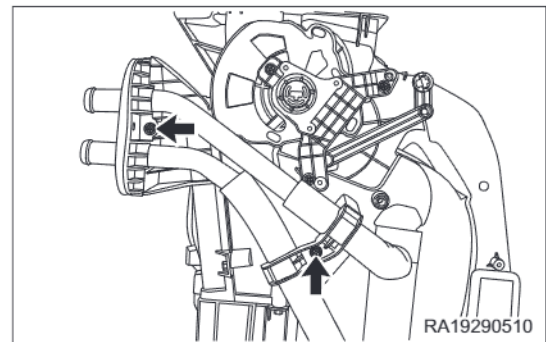
29

14. Remove the heater core.

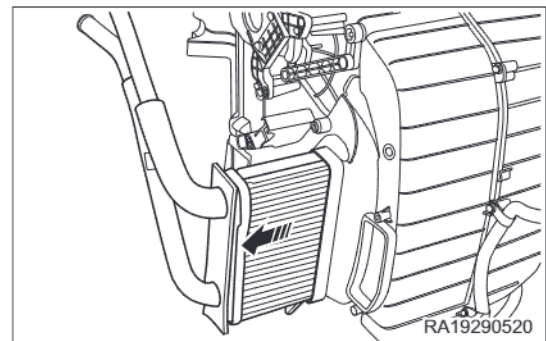
- a. Remove the heater core line grommet (arrow).



- b. Remove 2 fixing screws (arrow) from the heater core line pressure plate.
(Tightening torque: 1.5 ± 0.5 N·m)

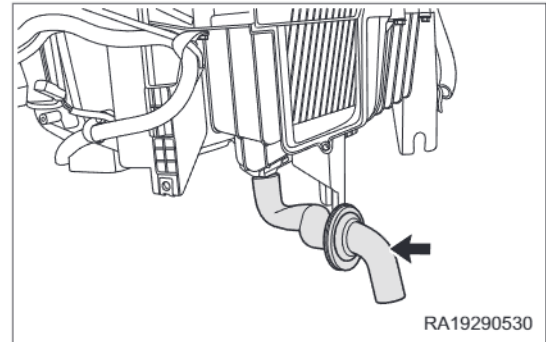


- c. Carefully take out the heater core in the direction of arrow.



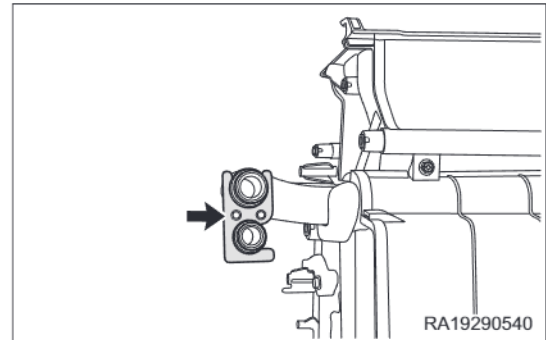
15. Remove the A/C drain pipe.

- a. Remove the A/C drain pipe (arrow) from the bottom of evaporator tank assembly.

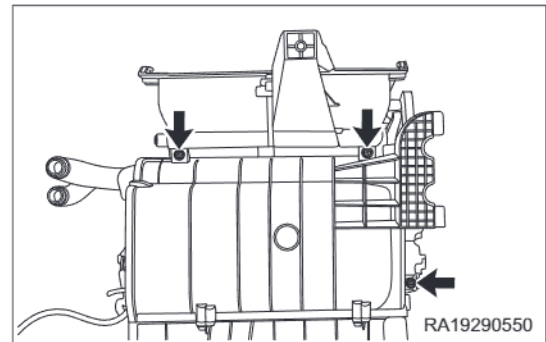


16. Remove the evaporator core.

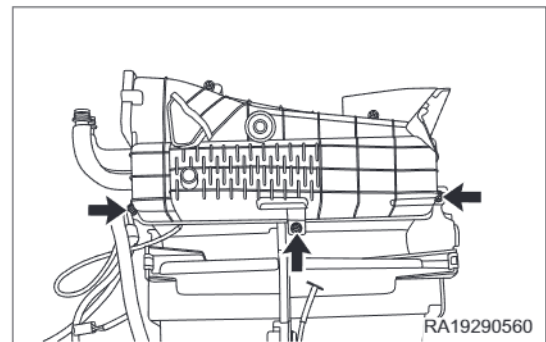
- a. Remove the expansion valve mounting pressure plate (arrow) from the evaporator core line.



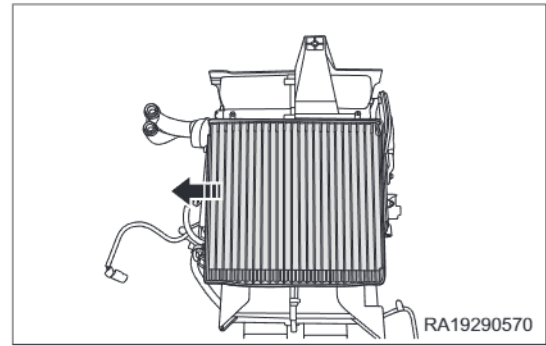
- b. Remove 3 fixing screws (arrow) from the upper part of evaporator tank assembly.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- c. Remove 3 fixing screws (arrow) from the lower part of evaporator tank assembly.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



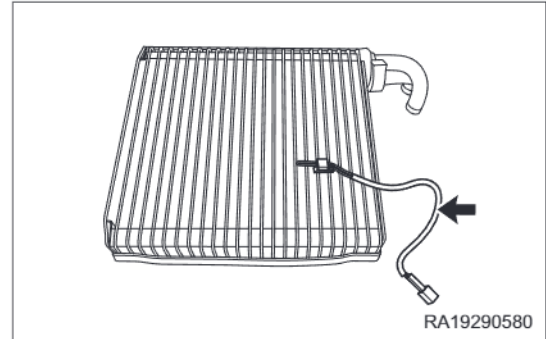
- d. Carefully take out the evaporator core (arrow) from the evaporator tank assembly.



29

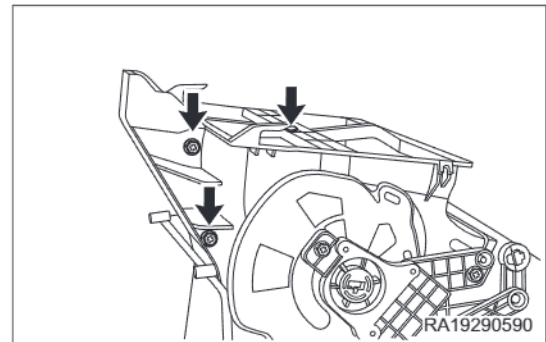
17. Remove the evaporator temperature sensor.

- a. Remove the evaporator temperature sensor (arrow) from the evaporator core.

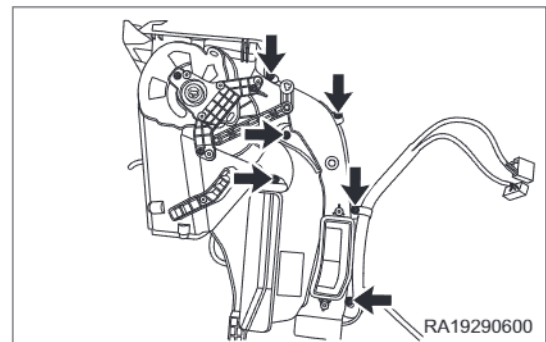


18. Remove the temperature/face/defrost/foot damper set.

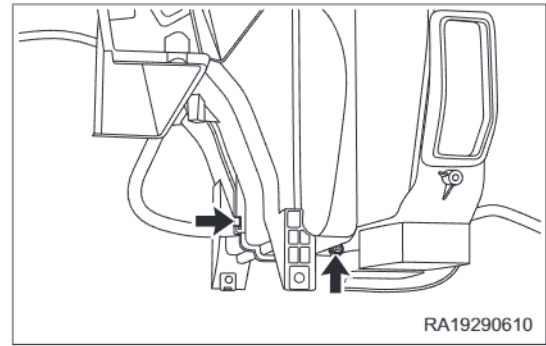
- a. Remove 2 fixing screws and fixing clip (arrow) from the upper part of evaporator tank assembly. (Tightening torque: 1.5 ± 0.5 N·m)



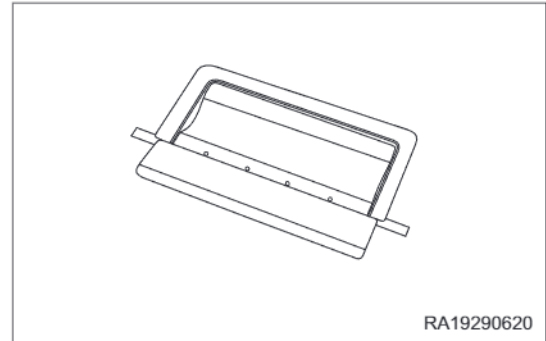
- b. Remove 6 fixing screws (arrow) from the center of evaporator tank assembly. (Tightening torque: 1.5 ± 0.5 N·m)



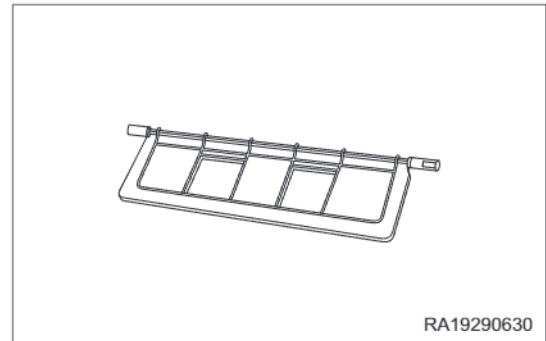
- c. Remove the fixing screw and fixing clip (arrow) from the lower part of evaporator tank assembly.
(Tightening torque: 1.5 ± 0.5 N·m)



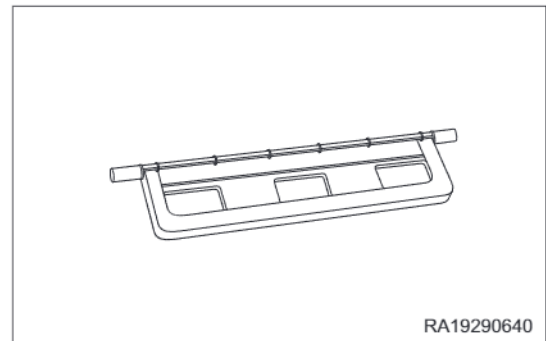
- d. Disengage the fixing clamp and detach the evaporator tank case, and remove the temperature damper set.



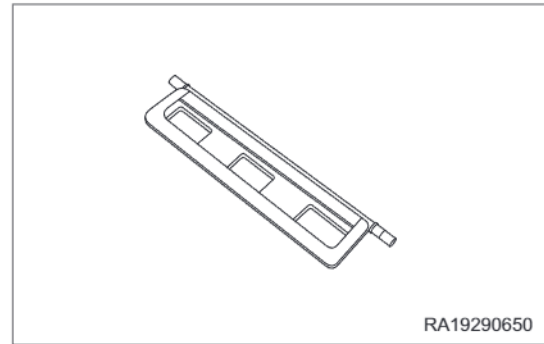
- e. Remove the face damper set.



- f. Remove the defrost damper set.



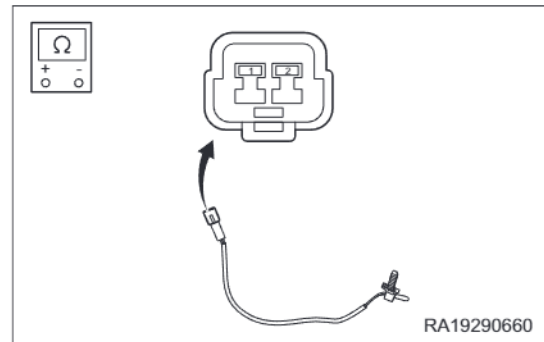
- g. Remove the foot damper set.



29

Inspection

1. Check the evaporator temperature sensor.
 - a. Using the ohm band of digital multimeter, measure the resistance of evaporator temperature sensor according to the table below.



Standard Resistance

Multimeter Connection	Temperature (°C)	Specified Condition (kΩ)
Terminal 1 - Terminal 2	-6	9.1362
Terminal 1 - Terminal 2	-5	8.6577
Terminal 1 - Terminal 2	-4	8.2071
Terminal 1 - Terminal 2	-3	7.7826
Terminal 1 - Terminal 2	-2	7.3826
Terminal 1 - Terminal 2	-1	7.0056
Terminal 1 - Terminal 2	0	6.6500
Terminal 1 - Terminal 2	1	6.3144
Terminal 1 - Terminal 2	2	5.9977
Terminal 1 - Terminal 2	3	5.6989
Terminal 1 - Terminal 2	4	5.4166
Terminal 1 - Terminal 2	5	5.1501
Terminal 1 - Terminal 2	6	4.8982
Terminal 1 - Terminal 2	7	4.6601
Terminal 1 - Terminal 2	8	4.4350
Terminal 1 - Terminal 2	9	4.2221
Terminal 1 - Terminal 2	10	4.0207
Terminal 1 - Terminal 2	11	3.8300

Multimeter Connection	Temperature (°C)	Specified Condition (kΩ)
Terminal 1 - Terminal 2	12	3.6495
Terminal 1 - Terminal 2	13	3.4785
Terminal 1 - Terminal 2	14	3.3165
Terminal 1 - Terminal 2	15	3.1630
Terminal 1 - Terminal 2	16	3.0175
Terminal 1 - Terminal 2	17	2.8795
Terminal 1 - Terminal 2	18	2.7486
Terminal 1 - Terminal 2	19	2.6244
Terminal 1 - Terminal 2	20	2.5065

HINT:

The resistance decreases as the temperature increases.

If the result is not as specified, replace the evaporator temperature sensor.

CAUTION

- The resistance value may change even if the sensor is touched slightly. Make sure that the connector of sensor is held firmly.
- During measurement, the sensor temperature must be almost the same as the ambient temperature.

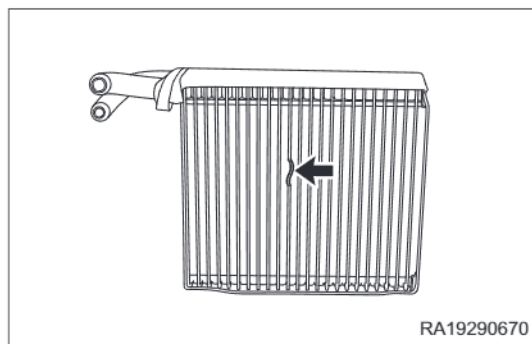
2. Check the evaporator core assembly.

a. Check if the evaporator core assembly is cracked, damaged and leaked.

- If any problem is found, replace the evaporator core assembly.

b. Check the fin for bends.

- If any fin (arrow) is bent, carefully straighten it with a screwdriver or pliers.

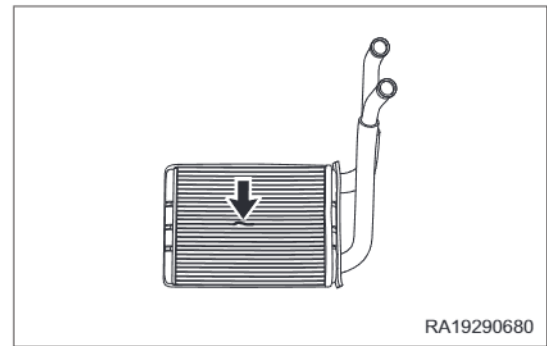


3. Check the heater core assembly.

a. Check if the heater core assembly is cracked, damaged or leaked.

- If any problem is found, replace the heater core assembly.

- b. Check the fin for bends.
- If any fin (arrow) is bent, carefully straighten it with a screwdriver or pliers.



4. Check the damper control mechanism assembly.
- a. Check if the inner/outer circulation damper adjustment mechanism is stuck, fell out, deformed or damaged. Replace it as necessary.
 - b. Check if the temperature damper adjustment mechanism is stuck, fell out, deformed or damaged. Replace it as necessary.
 - c. Check if the mode damper adjustment mechanism set is stuck, fell out, deformed or damaged. Replace it as necessary.
 - d. Check if the inner/outer circulation/temperature/face/defrost/foot damper set is stuck, fell out, deformed or damaged. Replace it as necessary.

Assembly

Assembly is in the reverse order of disassembly.

CAUTION

- If the evaporator core is to be reused, do not insert the evaporator temperature sensor into a location where the sensor was previously inserted. Insert it to a location that is 1 fin to the right or left of its previous location.
- During installation, apply a small amount of grease to the contact surface of inner/outer circulation damper adjustment mechanism to ensure that it can operate smoothly.
- During installation, apply a small amount of grease to the contact surface of mode damper adjustment mechanism set to ensure that it can operate smoothly.
- During installation, apply a small amount of grease to the contact surface of temperature damper adjustment mechanism to ensure that it can operate smoothly.
- Always check that the inner/outer circulation damper mechanism assembly operates normally after installation.
- Always check that the mode damper mechanism assembly operates normally after installation.
- Always check that the temperature damper mechanism assembly operates normally after installation.

Installation

Installation is in the reverse order of removal.

CAUTION

- Tighten the fixing bolts and fixing nuts to the specified torque.
- It is necessary to replace the refrigerant line O-ring when installing the refrigerant line. Failure to do so may result in refrigerant leaks.
- Lubricate the new rubber O-ring with clean refrigerant oil and install it to the refrigerant line joint.
- Only use the specified O-ring, as it is made of special materials for R134a system.
- Only use recommended refrigerant oil which is applicable to the A/C compressor assembly on vehicle.
- Be sure to recharge the refrigerant and check for refrigerant leakage after installation.
- Recharge the engine cooling system and check the coolant for leakage after installation.

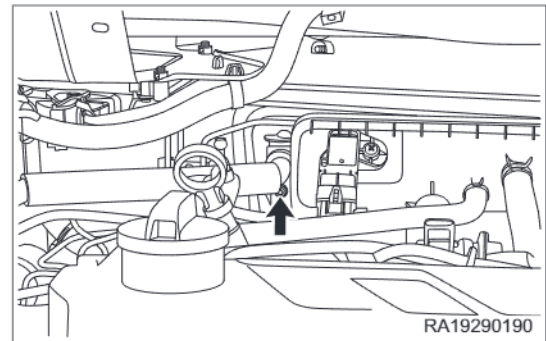
A/C Low Pressure Line

Removal

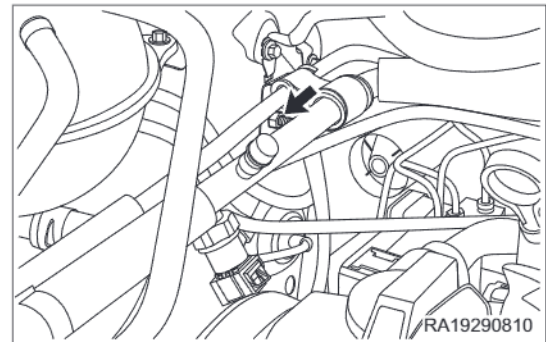
CAUTION

- Special service equipment for R134a refrigerant must be used to recover/charge the refrigerant.
- Always keep the work area in good ventilation.
- The disconnected A/C line and connecting part should be sealed to prevent foreign matter from entering.

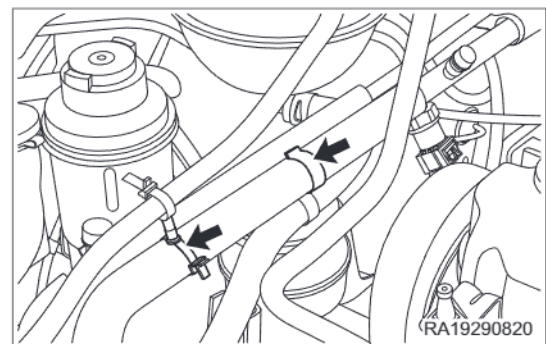
1. Recover the refrigerant from the A/C system (See page 29-18).
2. Turn off all the electrical equipment and ignition switch.
3. Disconnect the negative battery cable.
4. Remove the A/C low pressure line (compressor to evaporator).
 - a. Remove the fixing bolt (arrow) between A/C high/low pressure line and expansion valve, and disengage the A/C low pressure line.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



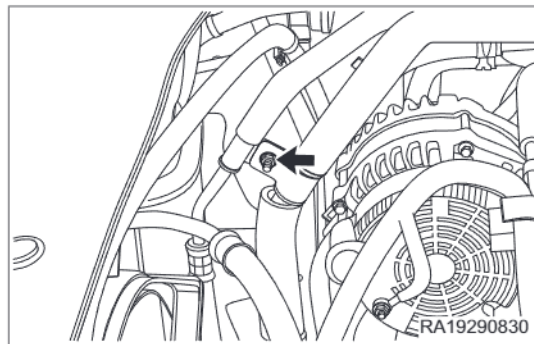
- b. Remove the coupling nut (arrow) between A/C high/low pressure line set bracket and body, and disengage the A/C low pressure line.
(Tightening torque: $7 \pm 1.5 \text{ N}\cdot\text{m}$)



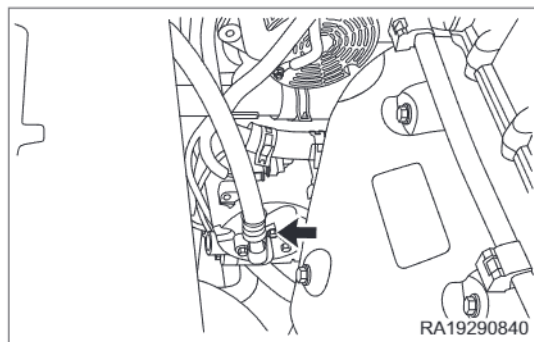
- c. Disengage the fixing clamps (arrow) between A/C low pressure line and other lines.



- d. Remove the coupling nut (arrow) between A/C high/low pressure line set bracket and body, and disengage the A/C low pressure line. (Tightening torque: 7 ± 1.5 N·m)



- e. Remove the fixing bolt (arrow) between A/C low pressure line and compressor assembly, and disengage the A/C low pressure line from the compressor assembly. (Tightening torque: 25 ± 4 N·m)



- f. Remove the A/C low pressure line (compressor to evaporator).

Installation

Installation is in the reverse order of removal.

CAUTION

- Tighten the fixing bolts and fixing nuts to the specified torque.
- It is necessary to replace the refrigerant line O-ring when installing the refrigerant line. Failure to do so may result in refrigerant leaks.
- Lubricate the new rubber O-ring with clean refrigerant oil and install it to the refrigerant line joint.
- Only use the specified O-ring, as it is made of special materials for R134a system.
- Only use recommended refrigerant oil which is applicable to the A/C compressor assembly on vehicle.
- Perform recharging for the A/C system and check for refrigerant leakage.

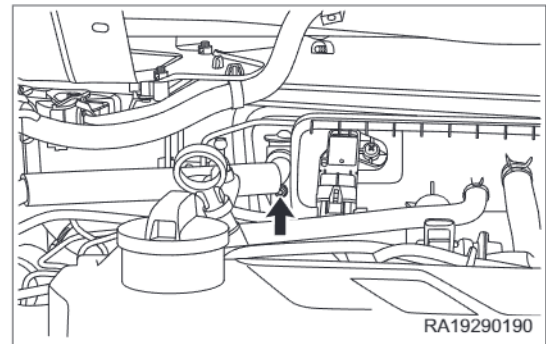
A/C High Pressure Line

Removal

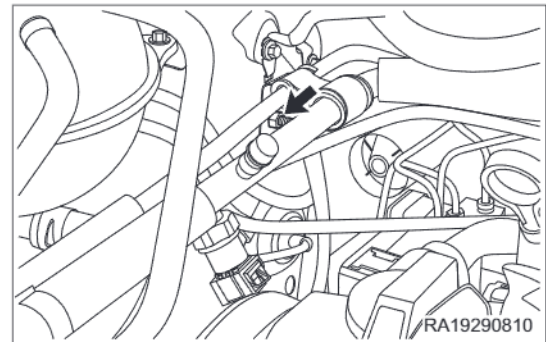
CAUTION

- Special service equipment for R134a refrigerant must be used to recover/charge the refrigerant.
- Always keep the work area in good ventilation.
- The disconnected A/C line and connecting part should be sealed to prevent foreign matter from entering.

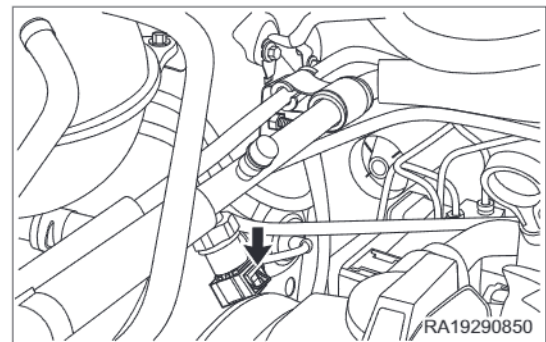
1. Recover the refrigerant from the A/C system ([See page 29-18](#)).
2. Turn off all the electrical equipment and ignition switch.
3. Disconnect the negative battery cable.
4. Remove the A/C high pressure line I (condenser to evaporator).
 - a. Remove the fixing bolt (arrow) between A/C high/low pressure line and expansion valve, and disengage the A/C high pressure line I.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



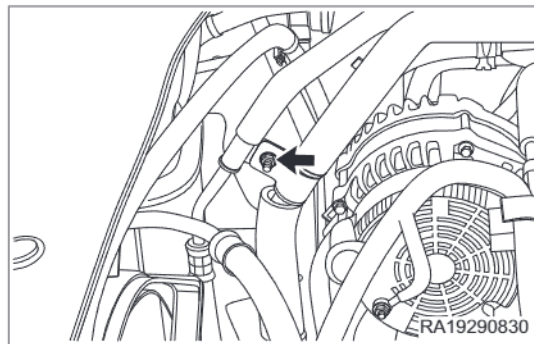
- b. Remove the coupling nut (arrow) between A/C high/low pressure line set bracket and body, and disengage the A/C high pressure line I.
(Tightening torque: $7 \pm 1.5 \text{ N}\cdot\text{m}$)



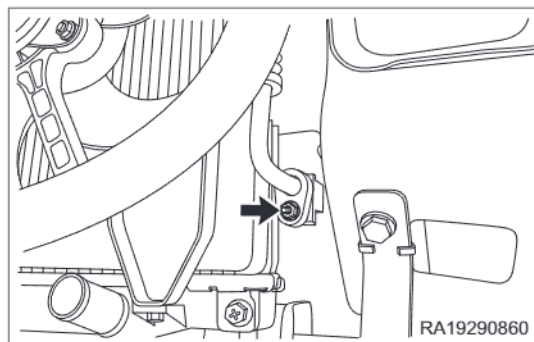
- c. Disconnect the A/C high/low pressure switch wire harness connector (arrow).



- d. Remove the coupling nut (arrow) between A/C high/low pressure line set bracket and body, and disengage the A/C high pressure line I. (Tightening torque: $7 \pm 1.5 \text{ N}\cdot\text{m}$)



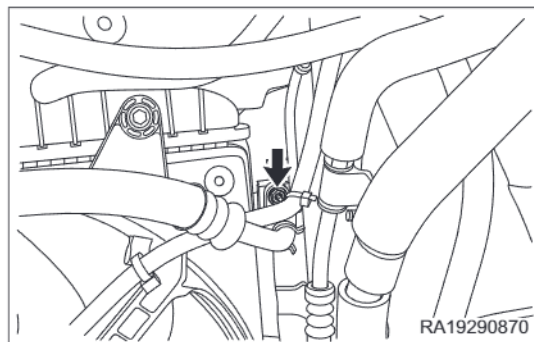
- e. Remove the fixing nut (arrow) between A/C high pressure line I and condenser assembly, and disengage the A/C high pressure line I from the condenser assembly. (Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



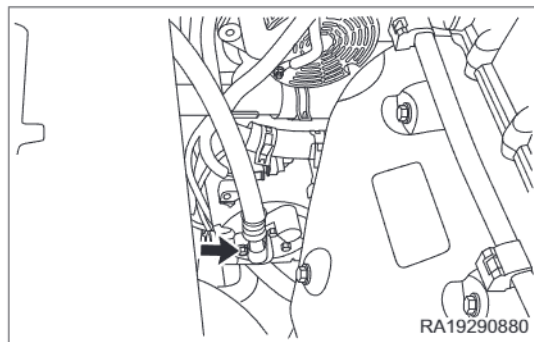
- f. Remove the A/C high pressure line I (condenser to evaporator).

5. Remove the A/C high pressure line II (compressor to condenser).

- a. Remove the fixing nut (arrow) between A/C high pressure line II and condenser assembly, and disengage the A/C high pressure line II from the condenser assembly. (Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



- b. Remove the fixing bolt (arrow) between A/C high pressure line II and compressor assembly, and disengage the A/C high pressure line II from the compressor assembly. (Tightening torque: $25 \pm 4 \text{ N}\cdot\text{m}$)



- c. Remove the A/C high pressure line II (compressor to condenser).

Installation

Installation is in the reverse order of removal.

CAUTION

- Tighten the fixing bolts and fixing nuts to the specified torque.
- It is necessary to replace the refrigerant line O-ring when installing the refrigerant line. Failure to do so may result in refrigerant leaks.
- Lubricate the new rubber O-ring with clean refrigerant oil and install it to the refrigerant line joint.
- Only use the specified O-ring, as it is made of special materials for R134a system.
- Only use recommended refrigerant oil which is applicable to the A/C compressor assembly on vehicle.
- Perform recharging for the A/C system and check for refrigerant leakage.

Compressor Assembly

Removal

WARNING

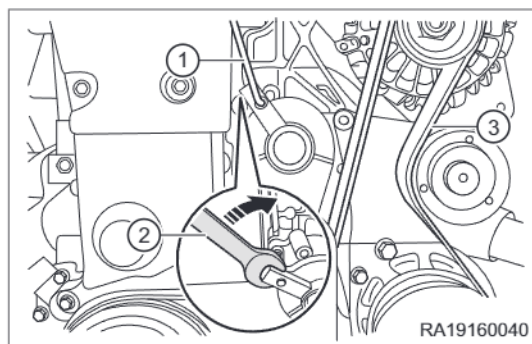
- Be sure to follow the safety precautions before performing the procedure. Failure to do so may result in serious personal injury or even death.

29

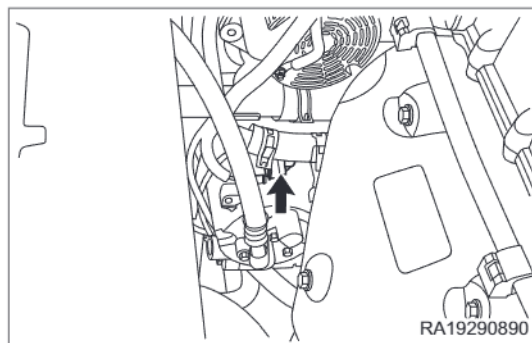
CAUTION

- Special service equipment for R134a refrigerant must be used to recover/charge the refrigerant.
- Always keep the work area in good ventilation.
- The disconnected A/C line and connecting part should be sealed to prevent foreign matter from entering.
- If the A/C compressor assembly has an internal malfunction, it is necessary to replace the A/C fluid line. Failure to do so may result in serious damage to the A/C compressor assembly after replacing.
- When replacing the compressor assembly, it is necessary to measure the refrigerant oil amount removed from the new A/C compressor assembly.

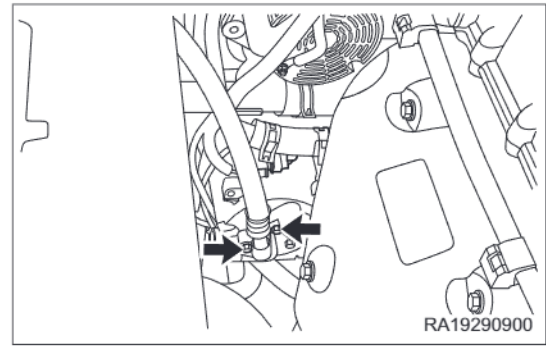
1. Recover the refrigerant from the A/C system ([See page 29-18](#)).
2. Turn off all the electrical equipment and ignition switch.
3. Disconnect the negative battery cable.
4. Remove the compressor assembly.
 - a. Turn the V-ribbed belt tensioner indicated by the arrow in the illustration with a wrench (2), and align the lock hole of tensioner with the lock hole of bracket. At the same time, insert the lock pin (1) to lock the tensioner.
 - b. Move away the V-ribbed belt (3).



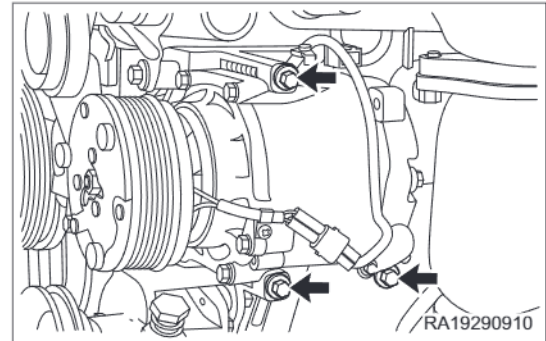
- c. Disconnect the compressor assembly wire harness connector (arrow).



- d. Remove 2 fixing bolts (arrow) between A/C high/low pressure line and compressor assembly, and disengage the A/C high/low pressure line from the compressor assembly.
(Tightening torque: 25 ± 4 N·m)



- e. Remove 3 fixing bolts (arrow) between compressor assembly and mounting bracket.
(Tightening torque: 25 ± 4 N·m)



- f. Carefully remove the compressor assembly from the engine compartment.

29

Installation

Installation is in the reverse order of removal.

CAUTION

- Tighten the fixing bolts to the specified torque.
- It is necessary to replace the refrigerant line O-ring when installing the refrigerant line. Failure to do so may result in refrigerant leaks.
- Lubricate the new rubber O-ring with clean refrigerant oil and install it to the refrigerant line joint.
- Only use the specified O-ring, as it is made of special materials for R134a system.
- Only use recommended refrigerant oil which is applicable to the A/C compressor assembly on vehicle.
- When installing a new compressor assembly, always remove a certain amount of refrigerant oil from the new A/C compressor assembly as specified.
- Perform recharging for the A/C system and check for refrigerant leakage.

Condenser Assembly (w/Receiver Drier)

Removal

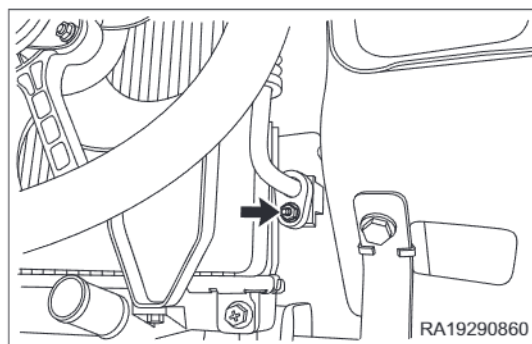
CAUTION

- Special service equipment for R134a refrigerant must be used to recover/charge the refrigerant.
- Always keep the work area in good ventilation.
- The disconnected A/C line and connecting part should be sealed to prevent foreign matter from entering.

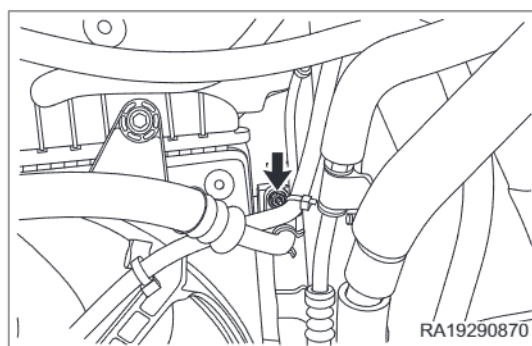
29

1. Recover the refrigerant from the A/C system (See page 29-18).
2. Turn off all the electrical equipment and ignition switch.
3. Disconnect the negative battery cable.
4. Remove the front bumper assembly (See page 46-7).
5. Remove the lower left deflector (See page 46-20).
6. Remove the lower right deflector (See page 46-20).
7. Remove the condenser assembly (w/ receiver drier).

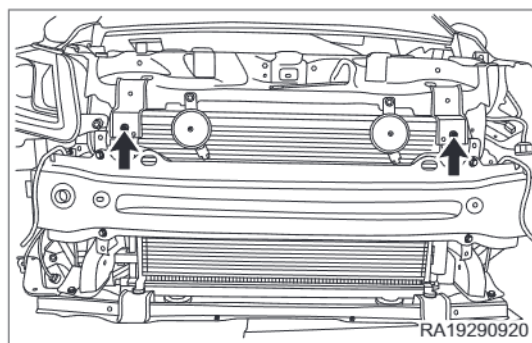
- a. Remove the fixing nut (arrow) between A/C high pressure line I and condenser assembly, and disengage the A/C high pressure line I from the condenser assembly.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



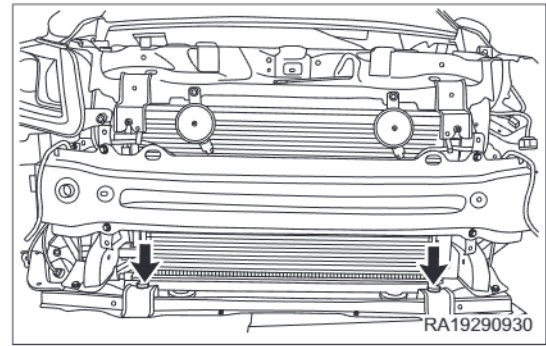
- b. Remove the fixing nut (arrow) between A/C high pressure line II and condenser assembly, and disengage the A/C high pressure line II from the condenser assembly.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



- c. Remove the 2 fixing nuts (arrow) between condenser assembly and tank upper crossmember, and disengage the upper part of condenser assembly from the hole of tank upper crossmember.
(Tightening torque: $5 \pm 1 \text{ N}\cdot\text{m}$)



- d. Disengage the lower part of condenser assembly from the positioning holes (arrow) of tank lower crossmember assembly.



29

- e. Carefully remove the condenser assembly (w/receiver drier) from below.

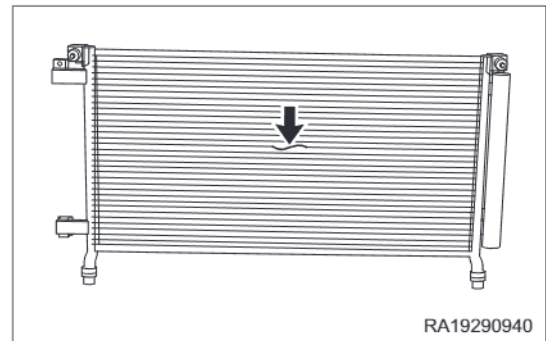
Inspection

1. Check the condenser fins.
 - a. If the condenser fins are dirty, wash it with water. And then dry the fins with compressed air.

CAUTION

- DO NOT damage the condenser fins.

- b. If the condenser fins are bent, straighten them with a screwdriver or pliers.



Installation

Installation is in the reverse order of removal.

CAUTION

- When installing the condenser assembly (w/receiver drier), be sure to align the upper part of it with the positioning hole of tank upper crossmember.
- When installing the condenser assembly (w/receiver drier), be sure to align the lower part of it with the positioning hole of tank lower crossmember.
- It is necessary to replace the refrigerant line O-ring when installing the refrigerant line. Failure to do so may result in refrigerant leaks.
- Lubricate the new rubber O-ring with clean refrigerant oil and install it to the refrigerant line joint.
- Only use the specified O-ring, as it is made of special materials for R134a system.
- Only use recommended refrigerant oil which is applicable to the A/C compressor assembly on vehicle.
- Perform recharging for the A/C system and check for refrigerant leakage.

