General Information

Specification

Air Conditioner

Item		Specification
Compressor	Type	6VSX16
	Oil type & Capacity	PAG OIL 100±10
	Pulley type	6PK-TYPE
	Displacement	160cc/rev
Condenser	Heat rejection	14,400 ±5% kcal/hr
A/C Pressure transducer	The method to measure the pressure	Voltage= 0.00878835 * Pressure (psig) + 0.37081095
Expansion valve	Type	Block type
Refrigerant	Type	R-134a
	Capacity [oz.(g)]	19.4 ± 0.88 oz. (550 ± 25g)

Blower Unit

Item		Specification
Fresh and recirculation	Operating method	Actuator
Blower	Type	Sirocco
	Speed step	Auto + 8 speed (Automatic), 1~4speed (Manual)
	Speed control	Power mosfet (Auto) , Resistor (Manual)
Air filter	Type	Particle filter

Heater And Evaporator Unit

Item		Specification
Heater	Type	Pin & Tube type
	Heating capacity	4,850 - 5% kcal/hr
	Mode operating method	Actuator
	Temperature operating method	Actuator
Evaporator	Temperature control type	Evaporator temperature sensor
	A/C ON/OFF [℃(˚F)]	ON : 3.0 ± 0.5 (39.4 ± 32.9), OFF: 0 ± 0.3 (32.0 ± 32.9)

Troubleshooting

Problem Symptoms Table

Before replacing or repairing air conditioning components, first determine if the malfunction is due to the refrigerant charge, air flow or compressor.

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

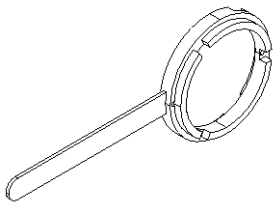
After correcting the malfunction, check the complete system to ensure that performance is satisfactory.

Standard :

Symptom	Suspect Area
No blower operation	1. Blower fuse
	2. Blower relay
	3. Blower motor
	4. Power mosfet
	5. Blower speed control switch
	6. Wire harness
No air temperature control	1. Engine coolant capacity
	2. Heater control assembly
No compressor operation	1. Refrigerant capacity
	2. A/C Fuse
	3. Compressor
	4. A/C pressure transducer
	5. A/C switch
	6. Evaporator temperature sensor
	7. Wire harness
No cool comes out	1. Refrigerant capacity
	2. Refrigerant pressure
	3. Drive belt.
	4. Compressor
	5. A/C pressure transducer
	6. Evaporator temperature sensor.
	7. A/C switch.
	8. Heater control assembly
	9. Wire harness

Symptom	Suspect Area
Insufficient cooling	1. Refrigerant capacity
	2. Drive belt
	3. Compressor
	4. Condenser
	5. Expansion valve
	6. Evaporator
	7. Refrigerant lines
	8. A/C pressure transducer
	9. Heater control assembly
No engine idle-up when A/C switch ON	1. Engine ECM
	2. Wire harness
No air inlet control	1. Heater control assembly
	2. Intake actuator
No mode control	1. Heater control assembly
	2. Mode actuator
No cooling fan operation	1. Cooling fan fuse
	2. Fan motor
	3. Engine ECM
	4. Wire harness

Special Service Tools

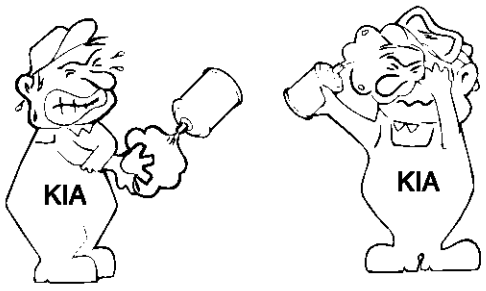
Tool (Number and name)	Illustration	Use
09977-3R000 Disc & hub assembly bolt remover	 SYFHA0020L	Removal and installation of limiter assembly.

Air Conditioning System

Instructions

When Handling Refrigerant

1. R-134a liquid refrigerant is highly volatile. A drop on the skin of your hand could result in localized frostbite. When handling the refrigerant, be sure to wear gloves.
2. It is standard practice to wear goggles or glasses to protect your eyes, and gloves to protect your hands. If the refrigerant splashes into your eyes, wash them with clean water immediately.
3. The R-134a container is highly pressurized. Never leave it in a hot place, and check storage temperature is below 52℃ (126˚F).
4. An electronic leak detector should be used to check the system for refrigerant leakage. Bear in mind that the R-134a, upon coming into contact with flame, produces phosgene, a highly toxic gas.
5. Use only recommended lubricant for R-134a systems. If lubricants other than the recommended one used, system failure may occur.
6. PAG lubricant absorbs moisture from the atmosphere at a rapid rate, therefore the following precautions must be observed:
   - When removing refrigerant components from a vehicle, cap the components immediately to prevent entry of moisture.
   - When installing refrigerant components to a vehicle, do not remove the cap until just before connecting the components.
   - Complete the connection of all refrigerant tubes and hoses without delay to prevent the A/C system from taking on moisture.
   - Use the recommended lubricant from a sealed container only.
7. If an accidental discharge in the system occurs, ventilate the work area before resum of service.



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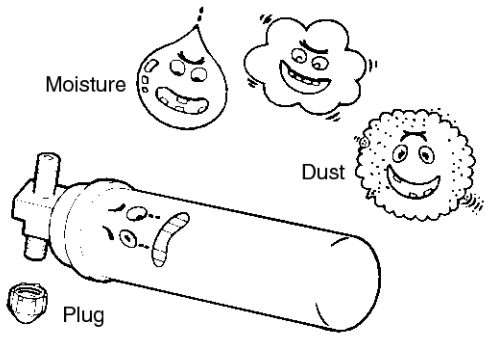
When replacing parts ON A/C system

1. Never open or loosen a connection before discharging the system.
2. Seal the open fittings of components with a cap or plug immediately to prevent intrusion of moisture or dust.
3. Do not remove the sealing caps from a Replacement component until it is ready to be installed.
4. Before connecting an open fitting, always install a new sealing ring. Coat the fitting and seal with refrigerant oil before making the connection.



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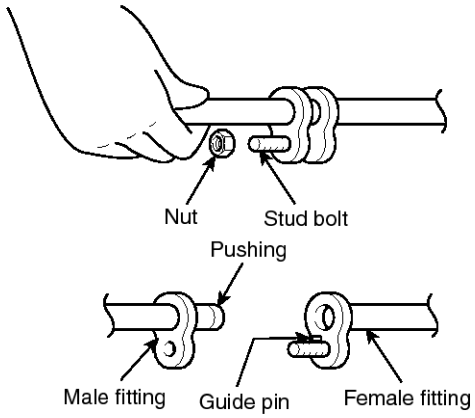
When Installing Connecting Parts

Flange With Guide Pin

Check the new O-ring for damage (use only the specified) and lubricate it using compressor oil. Tighten the nut to specified torque.



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Size	Tightening torque N.m (Kgf.m, lb-ft))	
	Bolt, Nut	
	Bolt(4T), Nut(4T)	Bolt(8T), Nut(6T)
M6	3.9-5.8(0.4 - 0.6,2.8-4.3)	7.8-11.7(0.8 - 1.2,5.7-8.6)
M8	8.8-13.7(0.9 - 1.4,6.5-10.1)	19.6-29.4(2.0 - 3.0,14.4-21.6)
M10	18.6-27.4(1.9 – 2.8,13.7-20.2)	44.1-58.8(4.5 - 6.0,32.5-43.3)
Size	**Flange Bolt, Nut**	
	Bolt(4T), Nut(4T)	**Bolt(8T), Nut(6T)**
M6	3.9-5.8(0.4 - 0.6,2.8-4.3)	8.8-13.7(0.9 - 1.4,6.5-10.1)
M8	9.8-14.7(1.0 - 1.5,7.2-10.8)	21.5-32.3(2.2 - 3.3,15.9-23.8)
M10	20.5-30.4(2.1 - 3.1,15.1-22.4)	49.0-63.7(5.0 - 6.5,36.1-47.0)

NOTICE

- *T means tensile intensity, which is stamped on the head of bolt only numeral.*

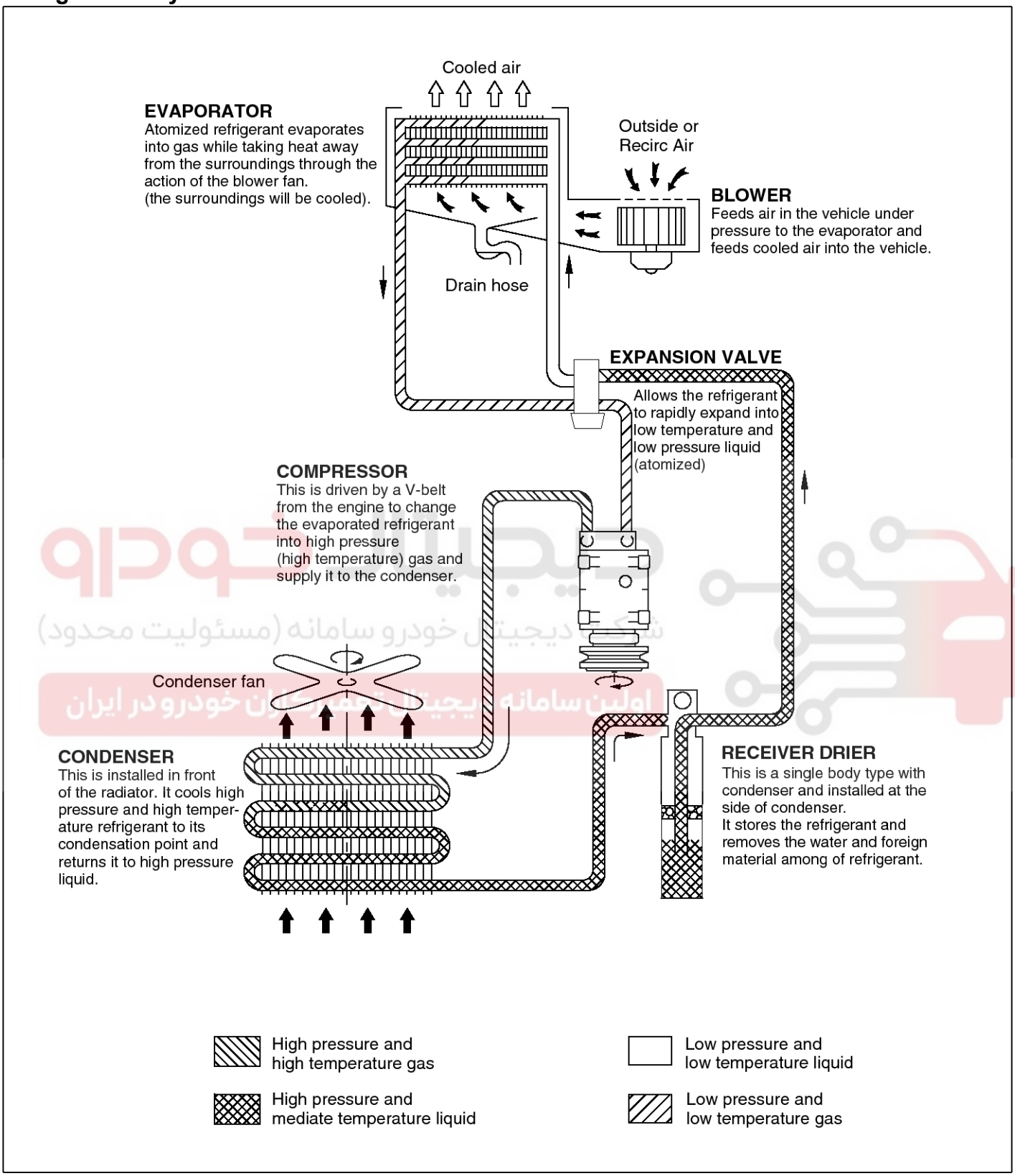
Handling tubing and fittings

The internal parts of the refrigeration system will remain in a state of chemical stability as long as pure moisture-free refrigerant and refrigerant oil are used. Abnormal amounts of dirt, moisture or air can upset the chemical stability and cause problems or serious damage.

The Following precautions must be observed

1. When it is necessary to open the refrigeration system, have everything you will need to service the system ready so the system will not be left open any longer than necessary.
2. Cap or plug all lines and fittings as soon as they are opened to prevent the entrance of dirt and moisture.
3. All lines and components in parts stock should be capped or sealed until they are ready to be used.
4. Never attempt to rebind formed lines to fit. Use the correct line for the installation you are servicing.
5. All tools, including the refrigerant dispensing manifold, the gauge set manifold and test hoses, should be kept clean and dry.

Refrigeration Cycle



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Refrigerant System Service Basics

Refrigerant Recovery

Use only service equipment that is U.L-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a(R-134a) from the air conditioning system.

⚠CAUTION

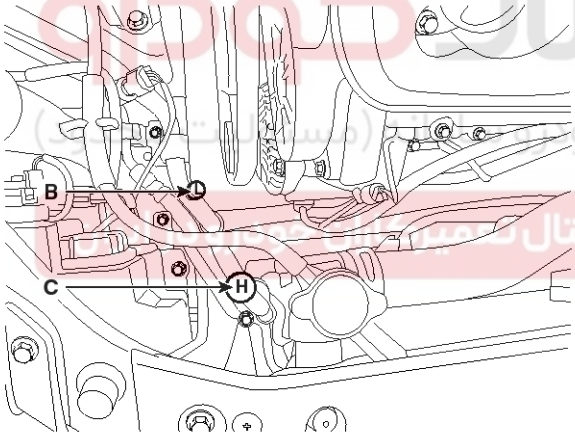
- **Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.**
- **Be careful when connecting service equipment.**
- **Do not breathe refrigerant or vapor.**

If accidental system discharge occurs, ventilate work area before resume of service.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. 1.Connect an R-134a refrigerant

   Recovery/Recycling/Charging System (A) to the high-pressure service port (C) and the low-pressure service port (B) as shown, following the equipment manufacturer's instructions.



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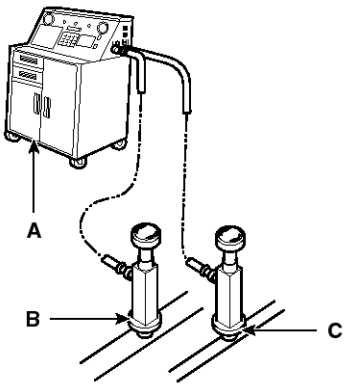

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2. Measure the amount of refrigerant oil removed from the A/C system after the recovery process is completed. Be sure to install the same amount of new refrigerant oil back into the A/C system before charging.

System Evacuation

Use only service equipment that is U.L-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a(R-134a) from the air conditioning system.

⚠CAUTION

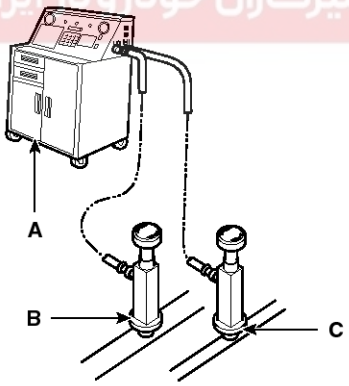
- **Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.**
- **Be careful when connecting service equipment.**
- **Do not breathe refrigerant or vapor.**

If accidental system discharge occurs, ventilate work area before resume of service.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. When an A/C System has been opened to the atmosphere, such as during installation or repair, it must be evacuated using an R-134a refrigerant Recovery/Recycling/Charging System. (If the system has been open for several days, the receiver/dryer should be replaced, and the system should be evacuated for several hours.)
2. Connect an R-134a refrigerant

   Recovery/Recycling/Charging System (A) to the high-pressure service port (B) and the low-pressure service port (C) as shown, following the equipment manufacturer's instructions.



EQKE004A

3. If the low-pressure does not reach more than 93.3 kPa (700 mmHg, 27.6 in.Hg) in 10 minutes, there is probably a leak in the system. Partially charge the system, and check for leaks (see Leak Test.).
4. Remove the low pressure valve from the low-pressure service port.

System Charging

Use only service equipment that is U.L-listed and is certified to meet the requirements of SAE J2210 to remove HFC-134a(R-134a) from the air conditioning system.

⚠CAUTION

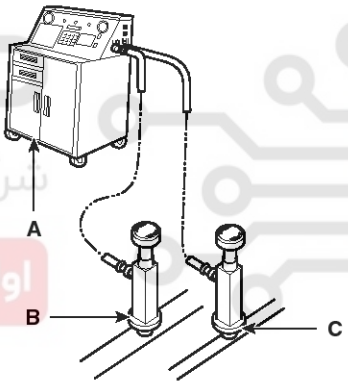
- **Air conditioning refrigerant or lubricant vapor can irritate your eyes, nose, or throat.**
- **Be careful when connecting service equipment.**
- **Do not breathe refrigerant or vapor.**

If accidental system discharge occurs, ventilate work area before resume of service.

Additional health and safety information may be obtained from the refrigerant and lubricant manufacturers.

1. Connect an R-134a refrigerant

   Recovery/Recycling/Charging System (A) to the high-pressure service port (B) as shown, following the equipment manufacturer's instructions.



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2. Add the same amount of new refrigerant oil to system that was removed during recovery. Use only specified refrigerant oil. Charge the system with 19.4 ± 0.88 oz. (550 ± 25g) of R-134a refrigerant. Do not overcharge the system the compressor will be damaged.

Refrigerant Leak Test

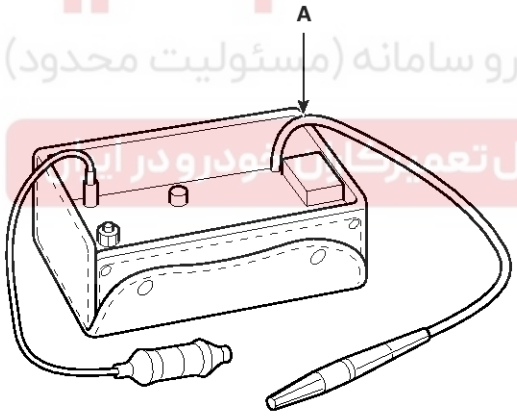
Always conduct a leak test with an electronic leak detector whenever leakage or refrigerant is suspected and when conducting service operations which are accompanied by disassembly or loosening or connection fittings.

NOTICE

In order to use the leak detector properly, read the manual supplied by the manufacturer.

If a gas leak is detected, proceed as follows :

1. Check the torque on the connection fittings and, if too loose, tighten to the proper torque. Check for gas leakage with a leak detector (A).
2. If leakage continues even after the fitting has been tightened, discharge the refrigerant from the system, disconnect the fittings, and check their seating faces for damage. Always replace, even if the damage is slight.
3. Check the compressor oil and add oil if required.
4. Charge the system and recheck for gas leaks. If no leaks are found, evacuate and charge the system again.



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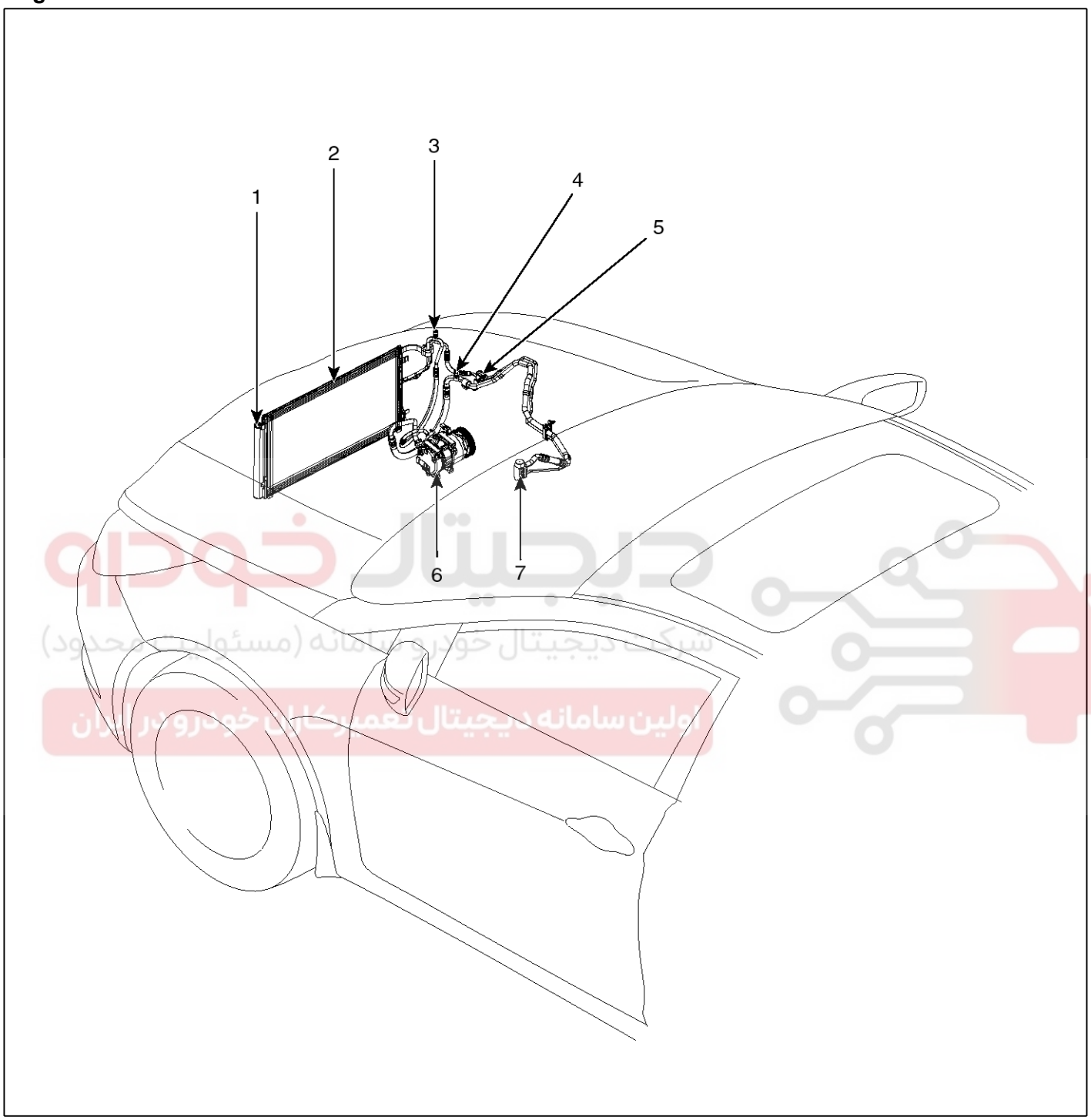
Component Location Index

Engine Room



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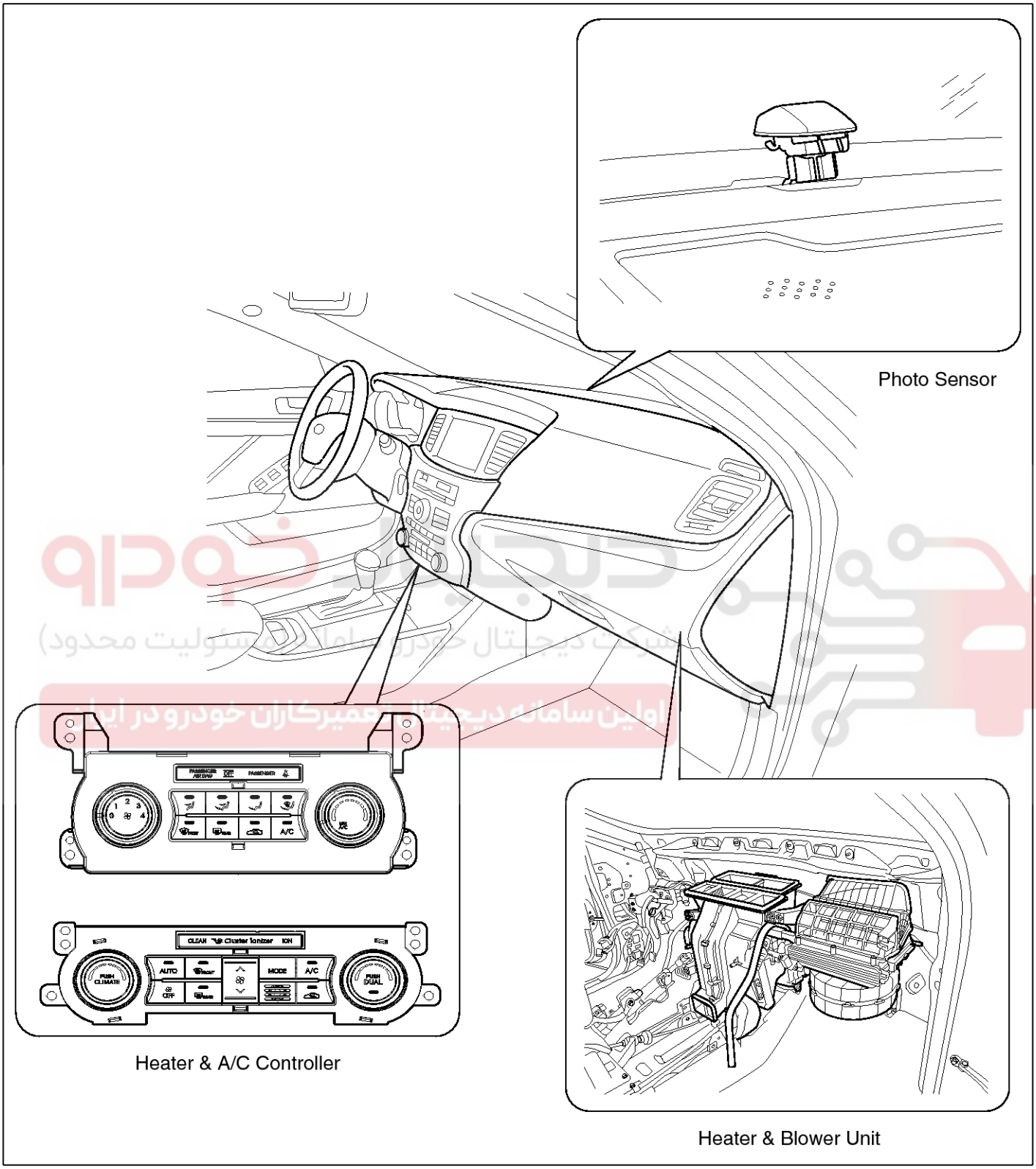
1. Receiver Drier
2. Condenser
3. Service Port (High Pressure)
4. Service Port (Low Pressure)
5. APT
6. Compressor
7. Expension Valve

Interior



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Compressor Oil

Oil Specification

1. The HFC-134a system requires synthetic (PAG) compressor oil whereas the R-12 system requires mineral compressor oil. The two oils must never be mixed.
2. Compressor (PAG) oil varies according to compressor model. Be sure to use oil specified for the model of compressor.

Handling of Oil

1. The oil should be free from moisture, dust, metal powder, etc.
2. Do not mix with other oil.
3. The water content in the oil increases when exposed to the air. After use, seal oil from air immediately. (HFC-134a Compressor Oil absorbs moisture very easily.)
4. The compressor oil must be stored in steel containers, not in plastic containers.

Compressor Oil Check

The oil used to lubricate the compressor is circulating with the refrigerant.

Whenever replacing any component of the system or a large amount of gas leakage occurs, add oil to maintain the original amount of oil.

Oil total volume in system

PAG OIL : 100 ± 10 cc (3.52 ± 0.35 oz.)

Oil Return Operation

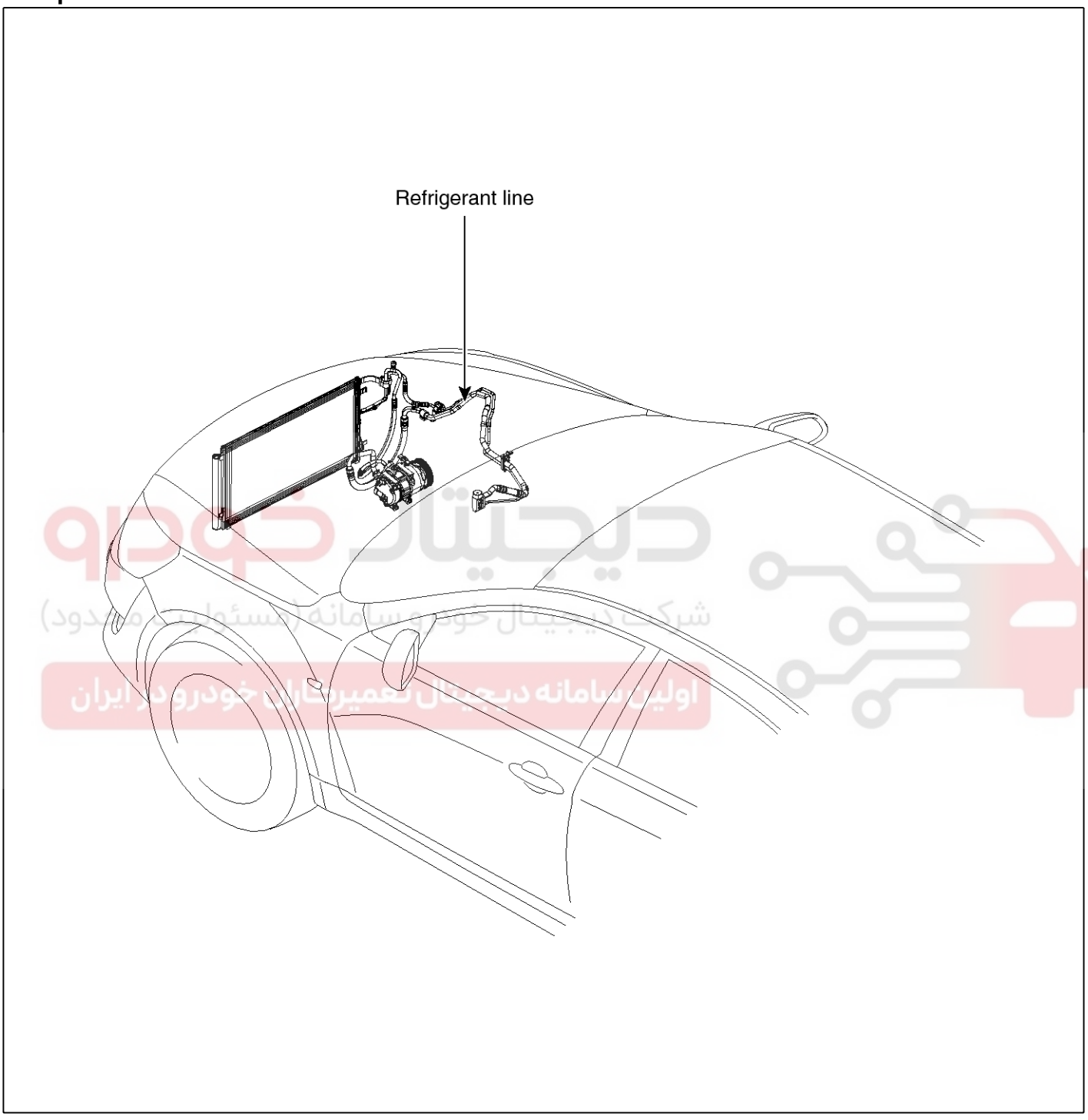
There is close affinity between the oil and the refrigerant.

During normal operation, part of the oil recirculation with the refrigerant in the system. When checking the amount of oil in the system, or replacing any component of the system, the compressor must be run in advance for oil return operation. The procedure is as follows :

1. Open all the doors and the engine hood.
2. Start the engine and air conditioning switch to "ON" and set the blower motor control knob at its highest position.
3. Run the compressor for more than 20 minutes between 800 and 1,000 rpm in order to operate the system.
4. Stop the engine.

Refrigerant line

Component Location



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Replacement

1. Discharge refrigerant from refrigeration system.
2. Replace faulty tube or hose.

   ⚠CAUTION
   Cap the open fittings immediately to keep moisture or dirt out of the system.
3. Tighten joint of bolt or nut to specified torque.

   ⚠CAUTION
   Connections should not be torque tighter than the specified torque.

Part tightened	N.m	Kgf.m	lbf-ft
Condenser - Discharge hose	7.8~11.7	0.8 ~ 1.2	5.7~8.6
Condenser - Liquid tube			
Compressor - Discharge hose	7.8~11.7	0.8 ~ 1.2	5.7~8.6
Compressor - Suction hose			
Expansion valve - Evaporator	7.8~11.7	0.8 ~ 1.2	5.7~8.6

4. Evacuate air in refrigeration system and charge system with refrigerant.

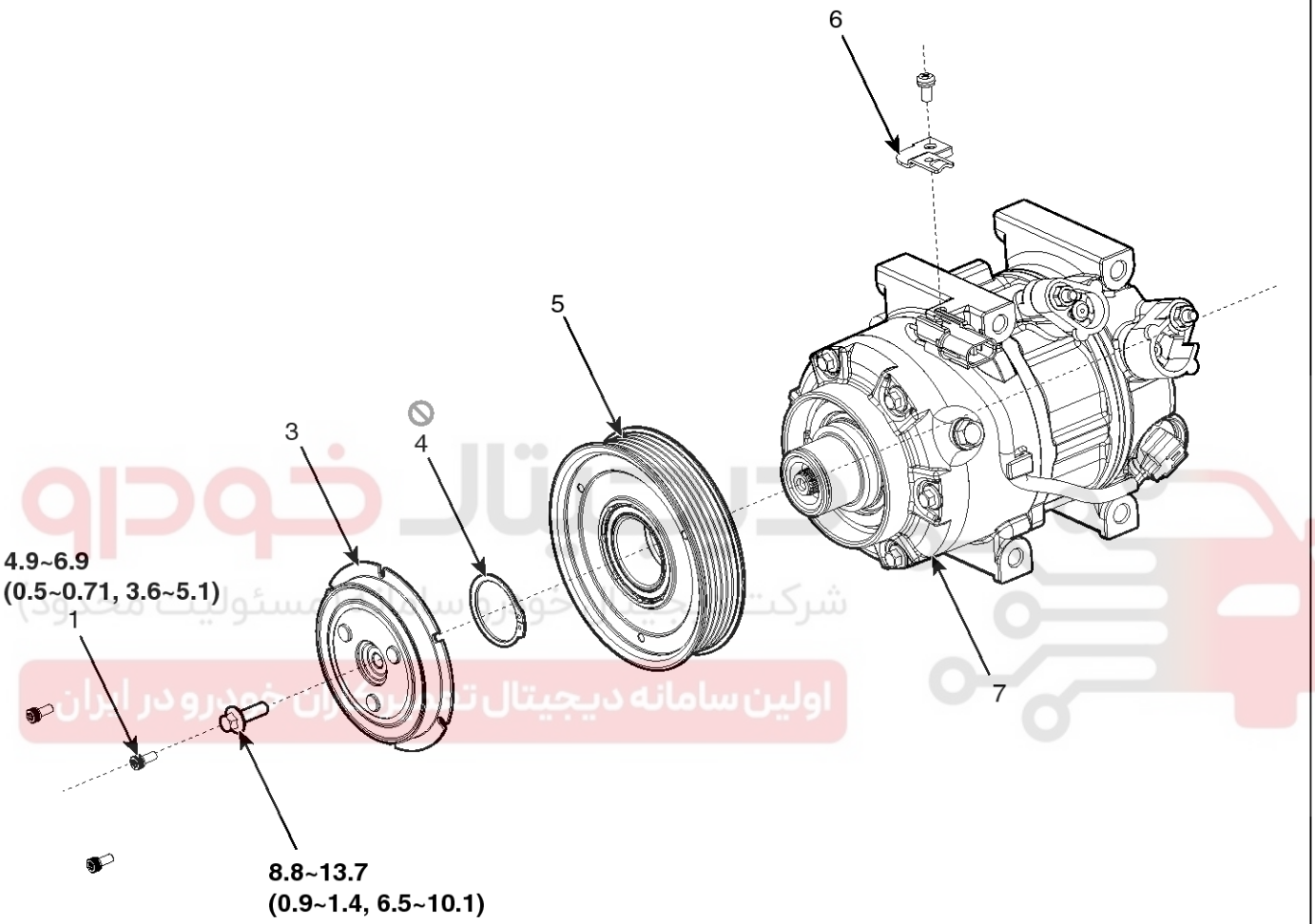
Specified amount : 19.4 ± 0.88 oz.(550 ± 25g)

5. Inspect for leakage of refrigerant.

   Using a gas leak detector, check for leakage of refrigerant.
6. Inspect A/C operation.

Compressor

Components



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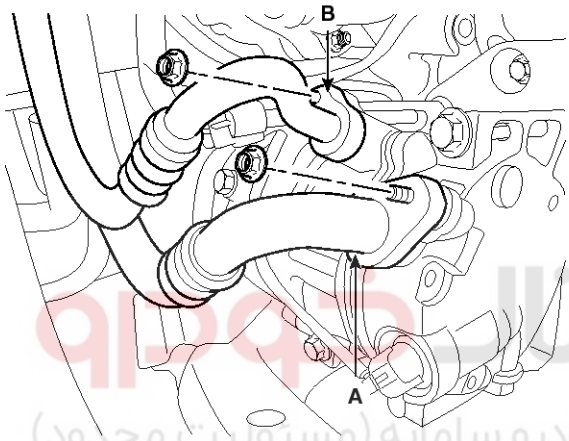
1. Screw
2. Blot
3. Limiter Assembly
4. Retainer Ring
5. Pulley
6. Connector Bracket
7. Compressor Assembly

Removal

1. If the compressor is marginally operable, run the engine at idle speed, and let the air conditioning work for a few minutes, then shut the engine off.
2. Disconnect the negative cable from the battery.
3. Recover the refrigerant with a recovery/charging station.
4. Loosen the drive belt.(Refer to EM group-Drive belt)
5. Remove the bolts, then disconnect the suction line (A) and discharge line (B) from the compressor.

   Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.



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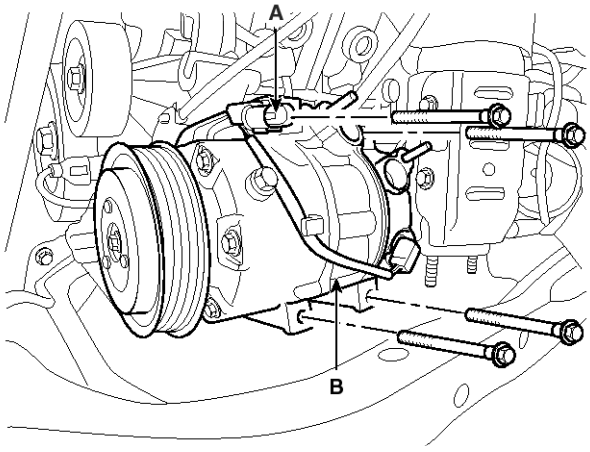
6. 6. Disconnect the compressor clutch connector (A), and then remove 4 mounting bolts and the compressor(B).



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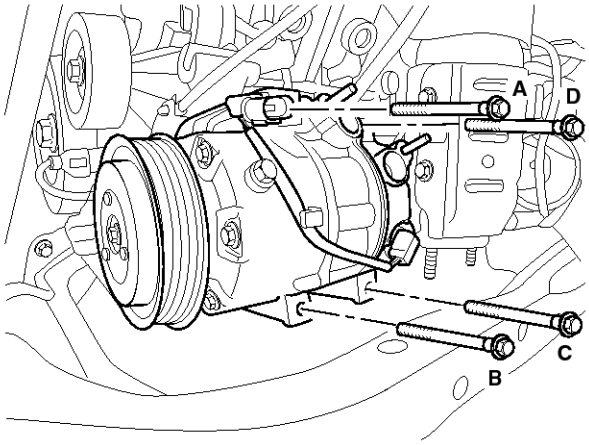
Installation

1. Make sure of the length of compressor mounting bolts, and then tighten it A→B→C→D order.

Tightening torque :
20.0~32.9N.m (2.04~3.36kgf.m, 14.7~24.3 lb-ft)



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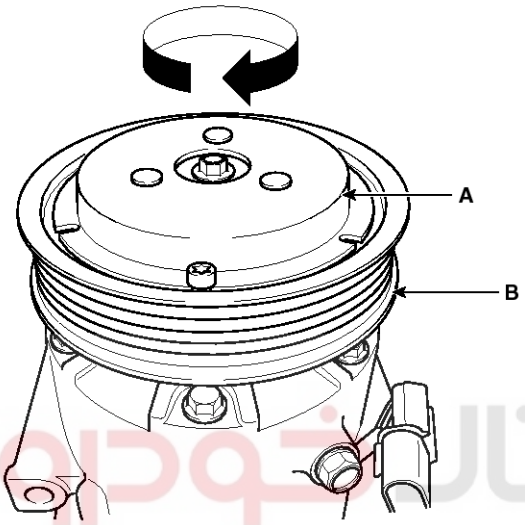
2. Install in the reverse order of removal, and note these items
   - If you're installing a new compressor, drain all the refrigerant oil from the removed compressor, and measure its volume, Subtract the volume of drained oil from 120cc(4.20 oz.) the result is the amount of oil you should drain from the new compressor (through the suction fitting).
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the right O-rings for R-134a to avoid leakage.
   - To avoid contamination, do not return the oil to the container once dispensed, and never mix it with other refrigerant oils.
   - Immediately after using the oil, replace the cap

Inspection

1. Check the plated parts of the limiter assembly (A) for color changes, peeling or other damage. If there is damage, replace the limiter assembly.
2. Check the pulley (B) bearing play and drag by rotating the pulley by hand. Replace the limiter assembly with a new one if it is noisy or has excessive play/drag.



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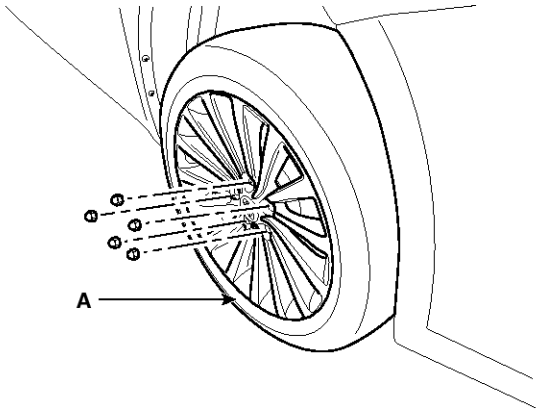
- Do not spill the refrigerant oil on the vehicle; it may damage the paint; if the refrigerant oil contacts the paint, wash it off immediately.
- Adjust the drive belt.
- Charge the system and test its performance.

Disassembly

1. Disconnect the negative cable from the battery.
2. Remove the front right tire(A) from front hub.

Tightening torque:
88.2~107.8N.m (9.0~11.0kgf.m, 65.0~79.5 lb-ft)



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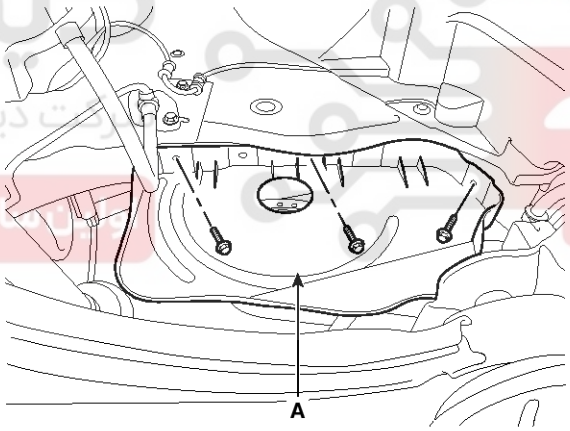
3. Remove the side cover(A).



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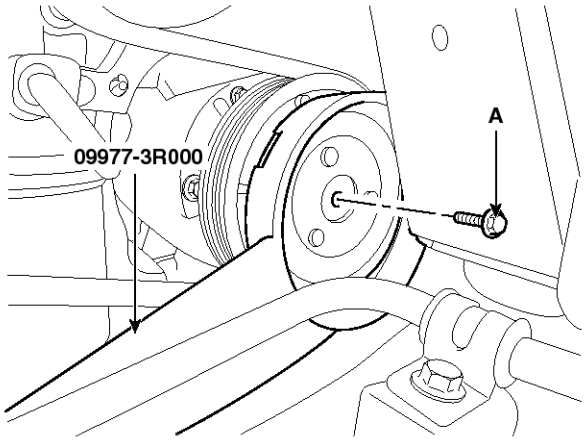
4. Remove the center bolt (A) while holding the limiter assembly with a commercially available limiter assembly bolt remover, Special tool number 09977-3R000.

Tightening torque:
8.8~13.7N.m (0.9~1.4kgf.m, 6.5~10.1 lbf.ft)



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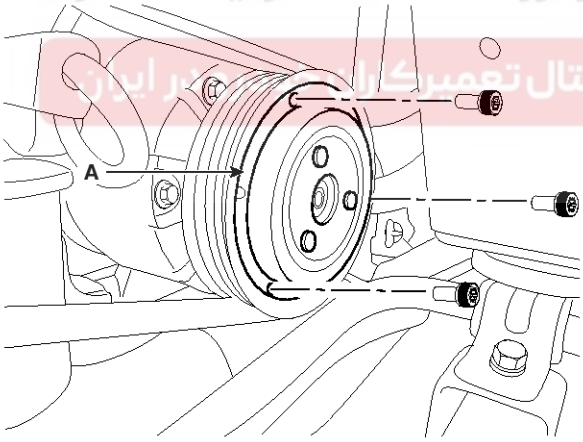
5. Remove the dlimuter assembly (A) and shim (gap washer), taking care not to lose the shims.

Tightening torque:
4.9~6.9N.m (0.5~0.71kgf.m, 3.6~5.1 lbf.ft)



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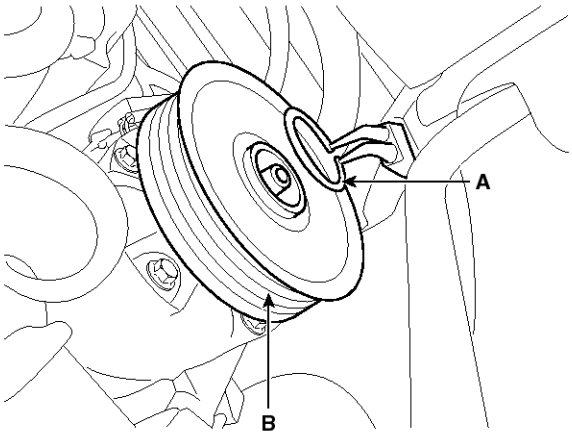
6. Remove the drive belt.
   (Refer to EM group - "Timing Chain")
7. Remove retainer ring (A) with retainer ring pliers and then remove the pulley(B).



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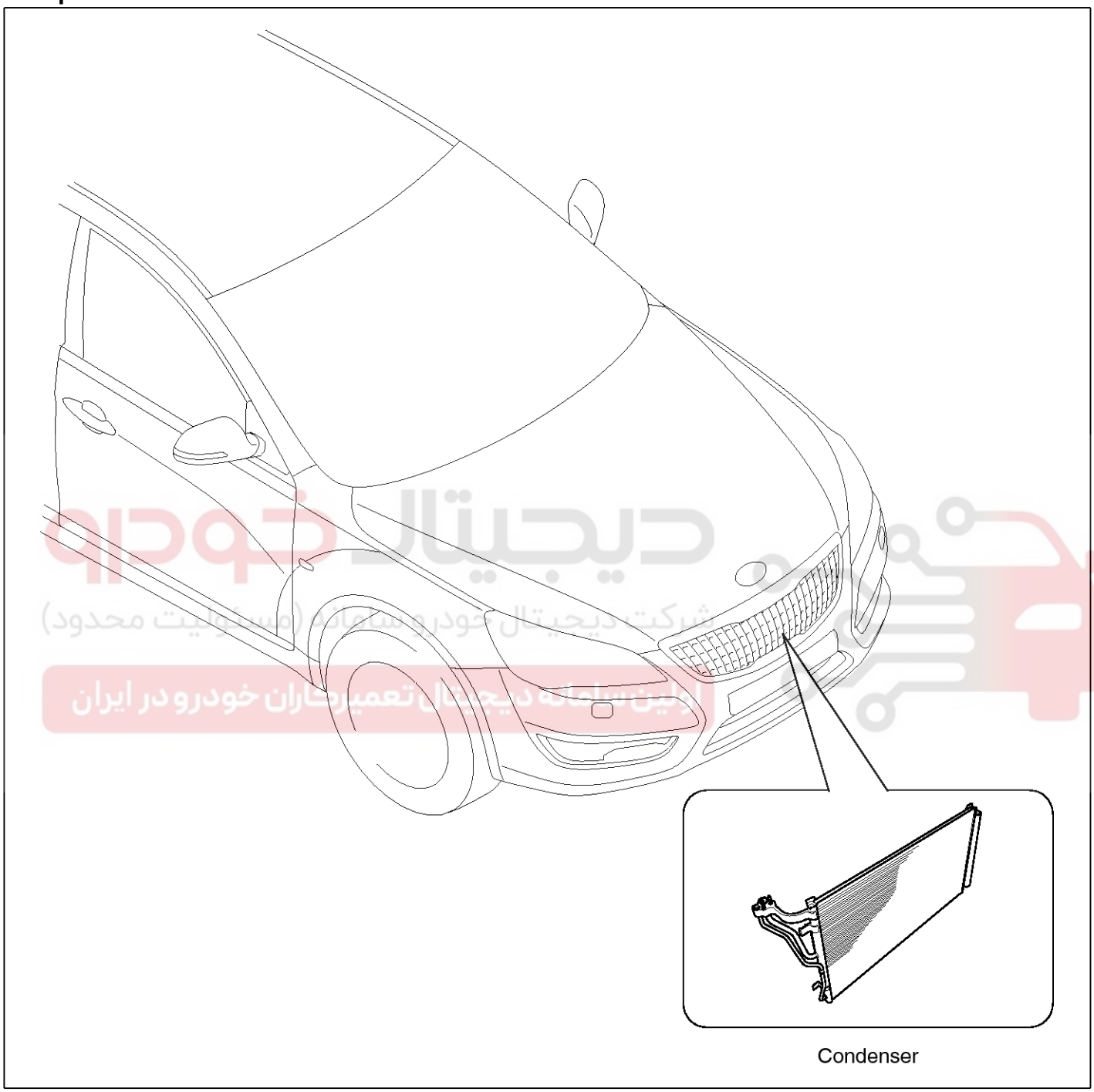
NOTICE

- *Be careful not to damage the pulley (B) and compressor during removal/installation.*
- *Once retainer ring (A) is removed, replace it with a new one.*

8. Reassemble the compressor clutch in the reverse order of disassembly, and note these items :
   - Clean the pulley and compressor sliding surfaces with non-petroleum solvent.
   - Install new retainer rings, and make sure they are fully seated in the groove.
   - Make sure that the pulley turns smoothly after its reassembled.

Condenser

Component Location



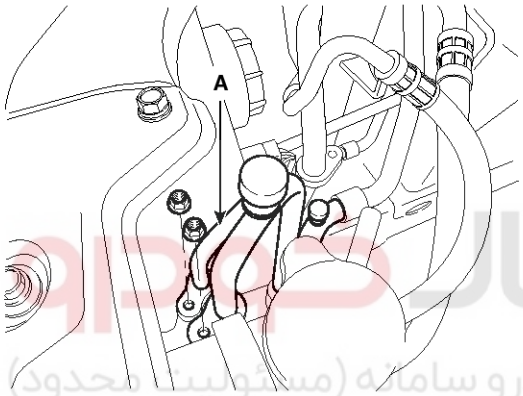
SVGHA0005L

Inspection

1. Check the condenser fins for clogging and damage. If clogged, clean them with water, and blow them with compressed air. If bent, gently bend them using a screwdriver or pliers.
2. Check the condenser connections for leakage, and repair or replace it, if required.

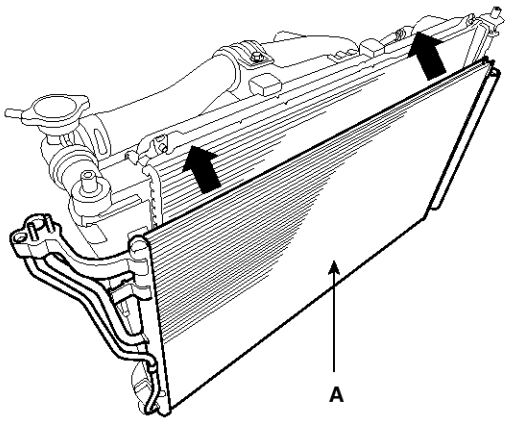
Replacement

1. Recover the refrigerant with a recovery/ recycling/ charging station.
2. Disconnect the negative (-) battery terminal.
3. Remove the discharge line and liquid line (A) from the condenser.



SYFHA0014D

4. Remove the radiator. (Refer to EM group-radiator).
5. Remove the condenser (A) by lifting it up. Be careful not to damage the radiator and condenser fins when removing the condenser.



SVGHA0017D

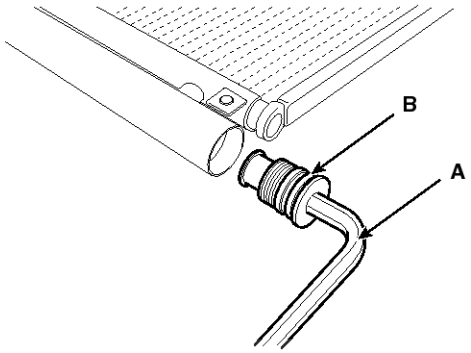
6. Install in the reverse order of removal, and note these items :
   - If you're installing a new condenser, add refrigerant oil ND-OIL8.
   - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the right O-rings for R-134a to avoid leakage.
   - Be careful not to damage the radiator and condenser fins when installing the condenser.
   - Be sure to install the lower mount cushions of condenser securely into the holes.
   - Charge the system, and test its performance.

Receiver-Drier

Replacement

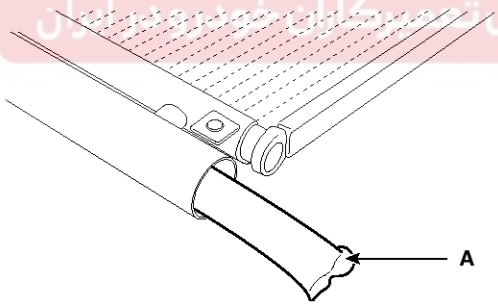
1. Remove the condenser, and then remove the bottom cap (B) with L wrench (A) from the condenser.

Tightening torque :
9.8~14.7N.m (1.0~1.5kgf.m, 7.2~10.8 lb-ft)



KQRE108D

2. Remove the desiccant (A) from condenser using a long nose plier. Check for crumbled desiccant and clogged bottom cap filter.



KQRE108E

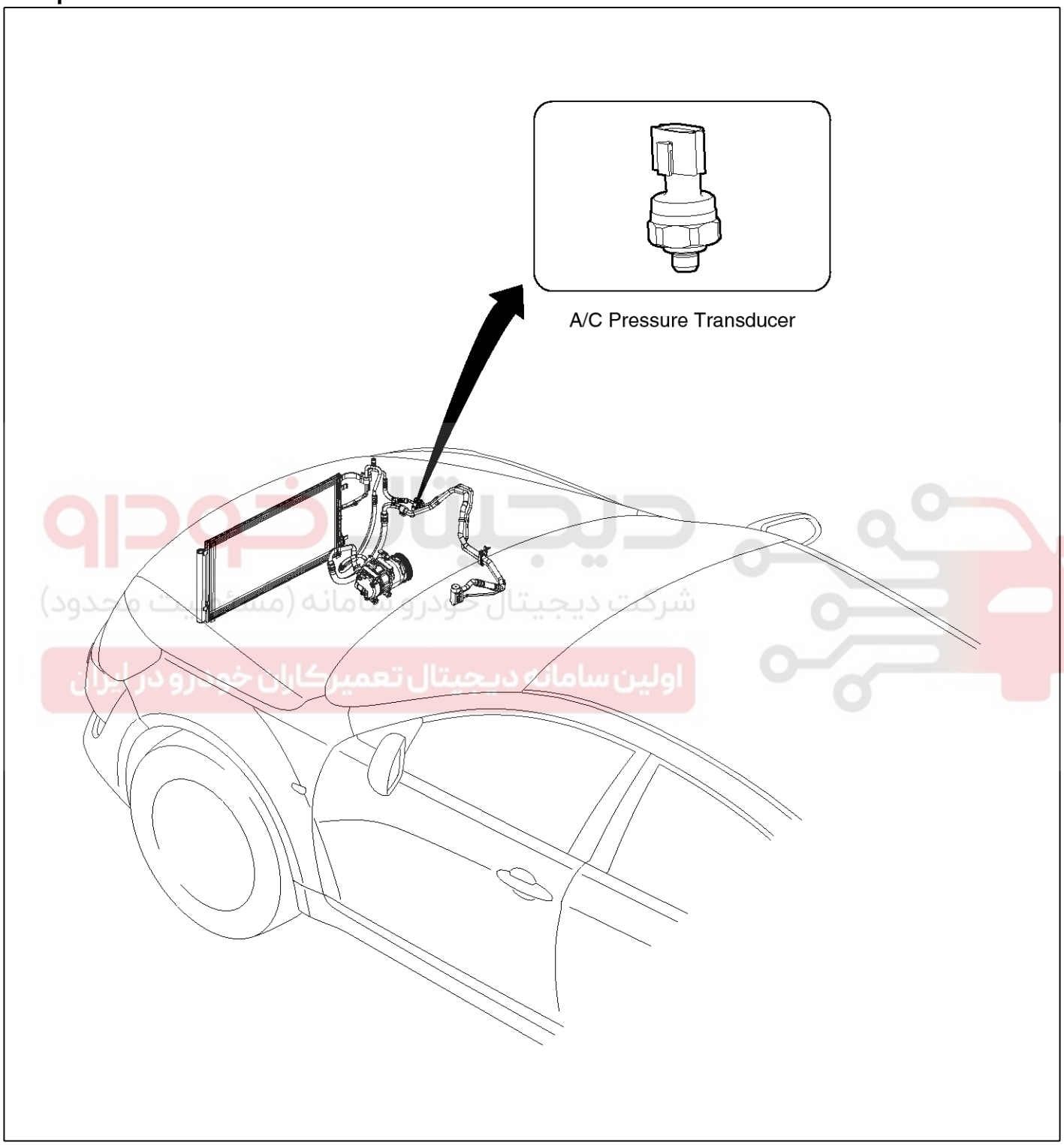
3. Apply air conditioning compressor oil along the O-rings and threads of the new bottom cap.
4. Insert the new desiccant into the receiver drier tank. The desiccant must be sealed in vacuum before it is exposed to air for use.
5. Install the new bottom cap to the condenser.

NOTICE

- *Always replace the desiccant and bottom cap at the same time.*
- *Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the right O-rings for R-134a to avoid leakage.*
- *Be careful not to damage the radiator and condenser fins when installing the condenser.*
- *Be sure to install the lower mount cushions of condenser securely into the holes.*
- *Charge the system, and test its performance.*

A/C Pressure Transducer

Component Location



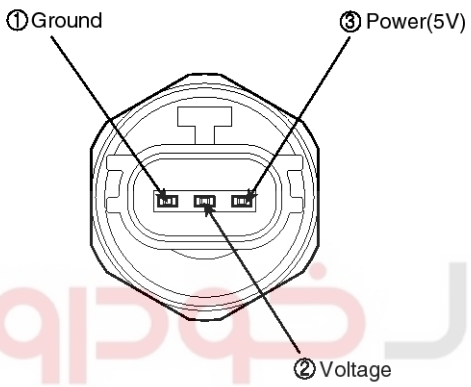
SVGHA0006L

Description

A/C pressure transducer convert the pressure value of high pressure line into voltage value after measure it. By converted voltage value, engine ECU controls cooling fan by operating it high speed or low speed. Engine ECU stop the operation of compressor when the temperature of refrigerant line is so high or so low irregularly to optimize air conditioning system.

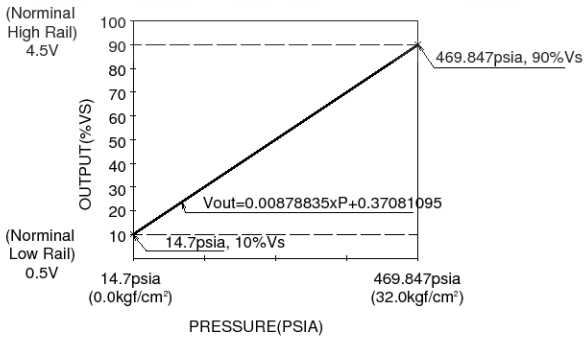
Inspection

1. Measure the pressure of high pressure line by measuring voltage output between NO.1 and NO.2 terminals.



EQRF116B

2. Inspect the voltage value whether it is sufficient to be regular value or not.



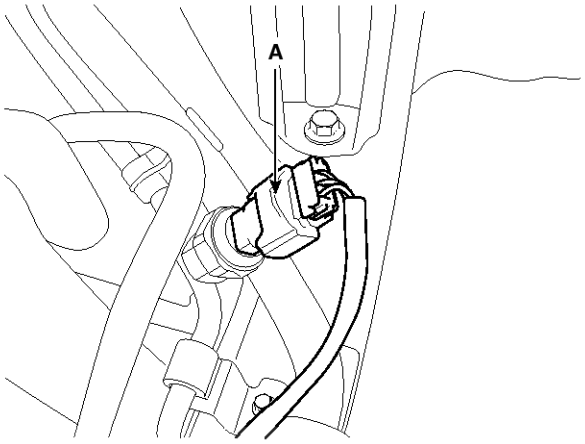
SYFHA0020D

Voltage = 0.00878835 * Pressure + 0.37081095 [PSIA]

3. If the measured voltage value is not specification, replace the A/C pressure transducer.

Replacement

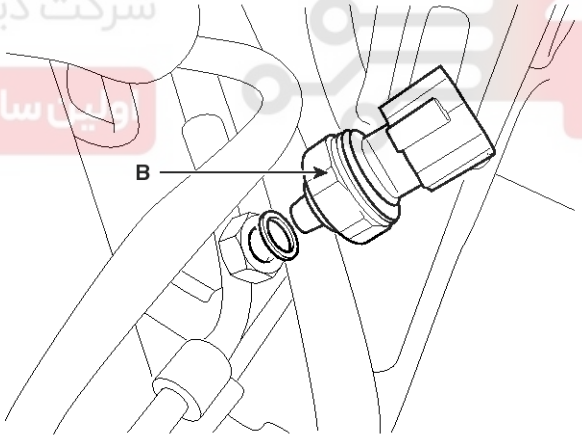
1. Disconnect the negative (-) battery terminal.
2. Recover the refrigerant with a recovery/charging station.
3. Disconnect the A/C pressure transducer connector (A).



SVGHA0019D

4. Remove the A/C pressure transducer (B).

Tightening torque:
10~12N.m (1.0~1.2kgf.m, 7.4~8.8 lbf.ft)



SVGHA0020D

⚠CAUTION
Take care that liquid & suction pipe are not bent.

5. Installation is the reverse order of removal.

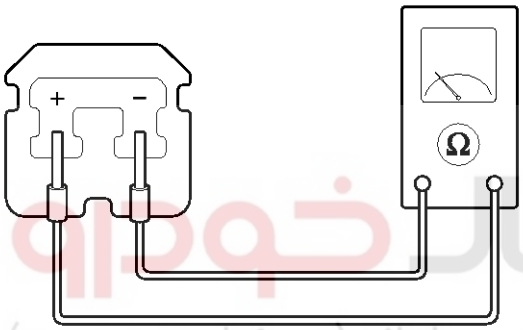
Evaporator unit

Description

The evaporator temperature sensor will detect the evaporator core temperature and interrupt compressor relay power in order to prevent evaporator freezing by excessive cooling.

Inspection

1. Ignition "OFF".
2. Disconnect evaporator temperature sensor.
3. Using the multi-tester, Measure resistance between terminal "1" and "2" of evaporator temperature sensor.



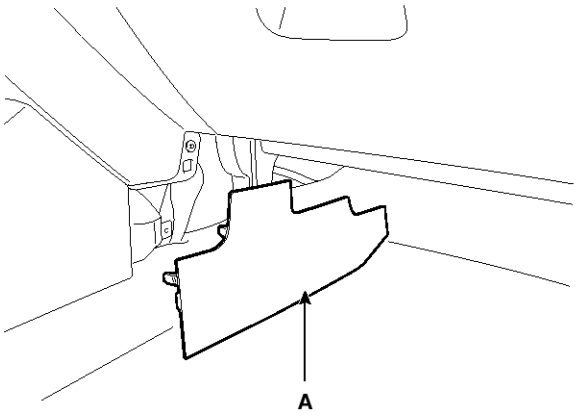
AQJF206B

Specification

Evaporator core temperature [˚C(˚F)]	Resistance[KΩ]	Voltage[V]
-20(-4)	70.04	3.50
-10(14)	43.35	2.96
0(32)	27.62	2.40
10(50)	18.07	1.88
20(68)	12.11	1.44
30(86)	8.30	1.08
40(104)	5.81	0.81
50(122)	4.15	0.61

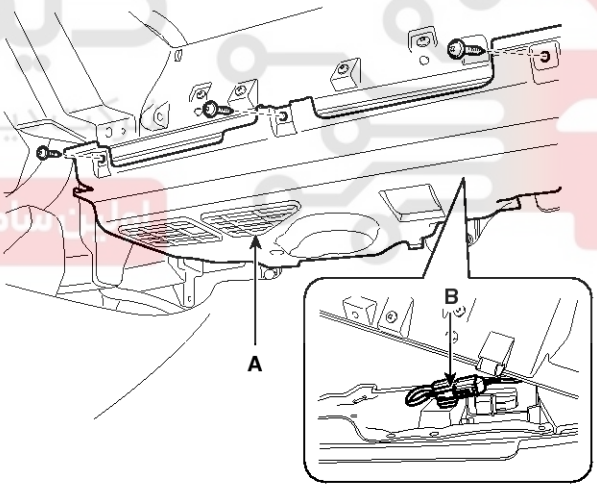
Replacement

1. Remove the console extension cover (A).



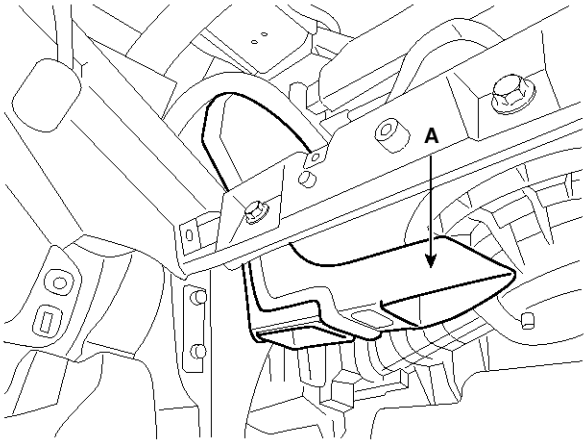
SVGHA0021D

2. Remove the crash pad lower cover (A) and then disconnect the connector (B).



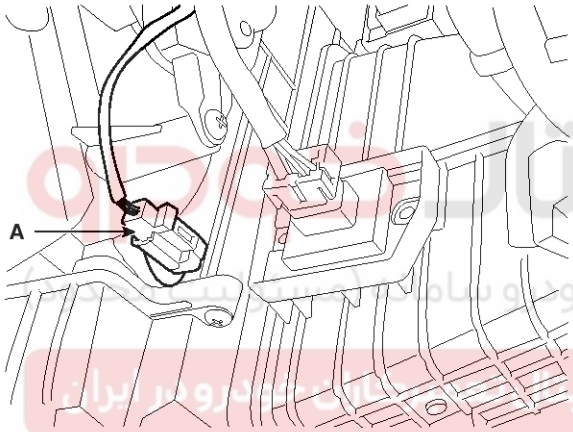
SVGHA0022D

3. Remove the shower duct(A).



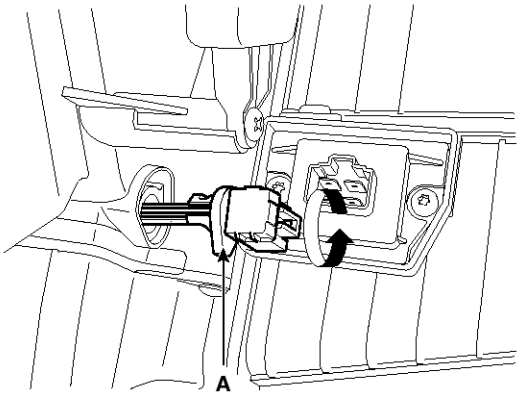
SVGHA0024D

4. Disconnect the evaporator temp connector (A).



SYFHA0026D

5. Remove the evaporator temperature sensor (A), by pulling it after rotating 90˚ in a counterclockwise direction.



SYFHA0027D

6. Installation is the reverse order of removal.

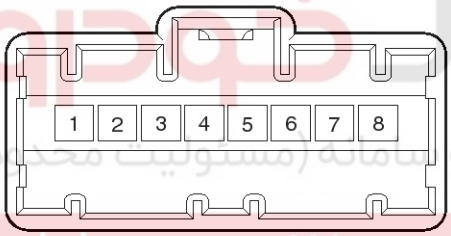
Photo Sensor

Description

1. The photo sensor is located at the center of defrost nozzle.
2. The photo sensor contains a photovoltaic (sensitive to sunlight) diode. The solar radiation received by its light receiving portion, generates an electromotive force in proportion to the amount of radiation received which is transferred to the automatic temperature control module so that the solar radiation compensation will be performed.

Inspection

1. Ignition "ON"
2. Using the scan tool.
3. Emit intensive light toward photo sensor using a lamp, and check the output voltage change.
4. The voltage will rise with higher intensive light and reduce with lower intensive light.

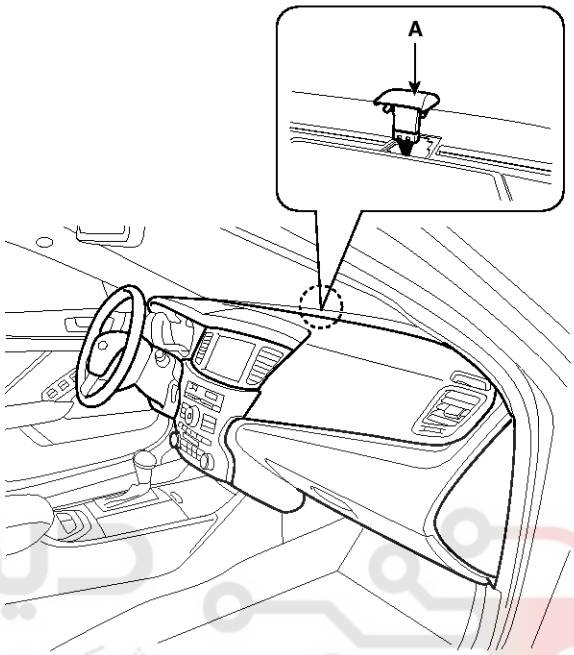


SYFHA0030D

1. Auto Light Signal
2. Auto Light GND
3. Photo Signal (RH)
4. Led power (BAT)
5. Led GND (To BCM)
6. Photo Signal
7. Photo Power (SW)
8. Auto Light Power (5V)

Replacement

1. Disconnect the negative (-) battery terminal.
2. With the (-) driver, remove the photo sensor (A) from the center of defrost nozzle.



SVGHA0026D

3. Install in the reverse order of removal.

Ambient Sensor

Description

1. The ambient temperature sensor is located at the front of the condenser and detects ambient air temperature. It is a negative type thermistor resistance will increase with lower temperature, and decrease with higher temperatures.
2. The sensor output will be used for discharge temperature control, temperature regulation door control, blower motor level control, mix mode control and in-car humidity control.

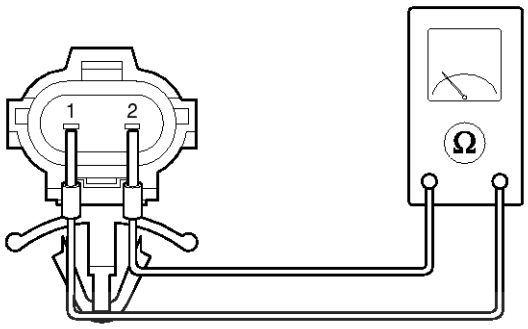
NOTICE

If the ambient temperature is below 0℃ (32.0°F), the A/C compressor will be stopped.

The compressor will be operated by manual operating.

Inspection

1. Ignition "OFF"
2. Disconnect ambient temperature sensor.
3. Check the resistance of ambient temperature sensor between terminals 1 and 2 whether it is changed by changing of the ambient temperature.



SYFHA0112D

1. Sensor Ground 2. Ambient Sensor Signal

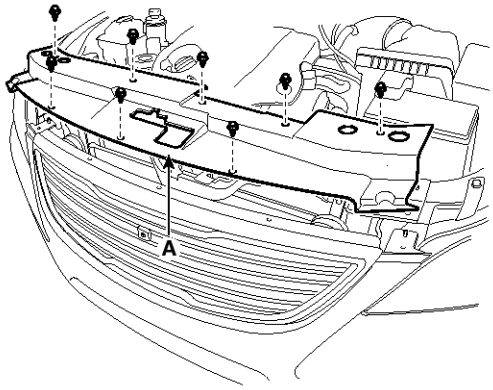
Specification

Ambient temperature [℃(°F)]	Resistance between terminals 1and 2 (kΩ)
-30(-22)	480.41
-20(-4)	271.21
-10(14)	158.18
0 (32)	95.10
10 (50)	58.80
20 (68)	37.32
30(86)	23.76
40(104)	16.13
50(122)	10.95

4. If the measured resistance is not specification, substitute with a known-good ambient temperature sensor and check for proper operation.
5. If the problem is corrected, replace the ambient temperature sensor.

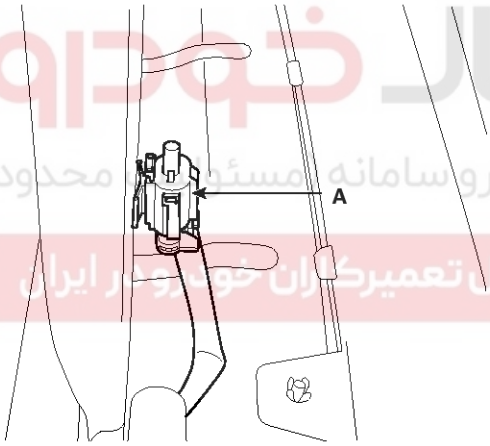
Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the front bumper upper cover(A).



SVGHA0027D

3. Disconnect the connector and then remove the ambient temperature sensor (A).



SVGHA0028D

4. Installation is the reverse order of removal.

Auto defoging sensor

Description

Achieve exclusion function on croaker before fogging occurrence. Senses vehicles rational moisture and proves watch security and amenities.

Inspection

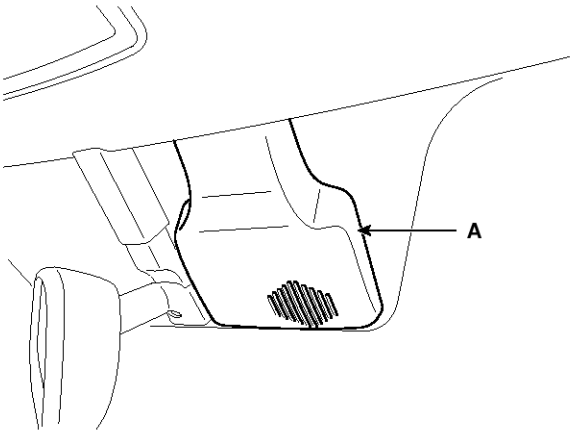
1. Press the OFF switch more then 4 times within 2 seconds while pressing the MODE switch.

Display	Fail description
00	Normal
23	Auto defog sensor OPEN
24	Auto defog sensor SHORT
43	Defog door potentiometer OPEN/SHO-RT
44	Defog door potentiometer

* Diagnostic procedure refer to DTC code.

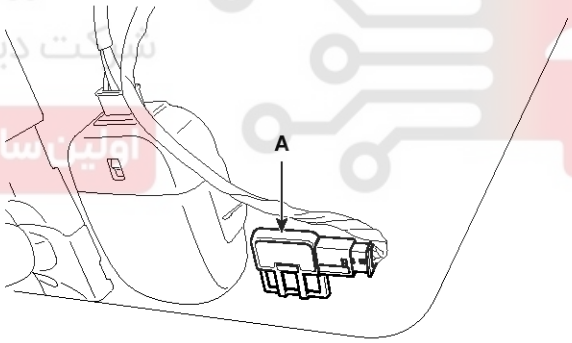
Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the auto defogging sensor cover(A).



SVIHA9024D

3. Disconnect the connector and then remove the auto defogging sensor(A).

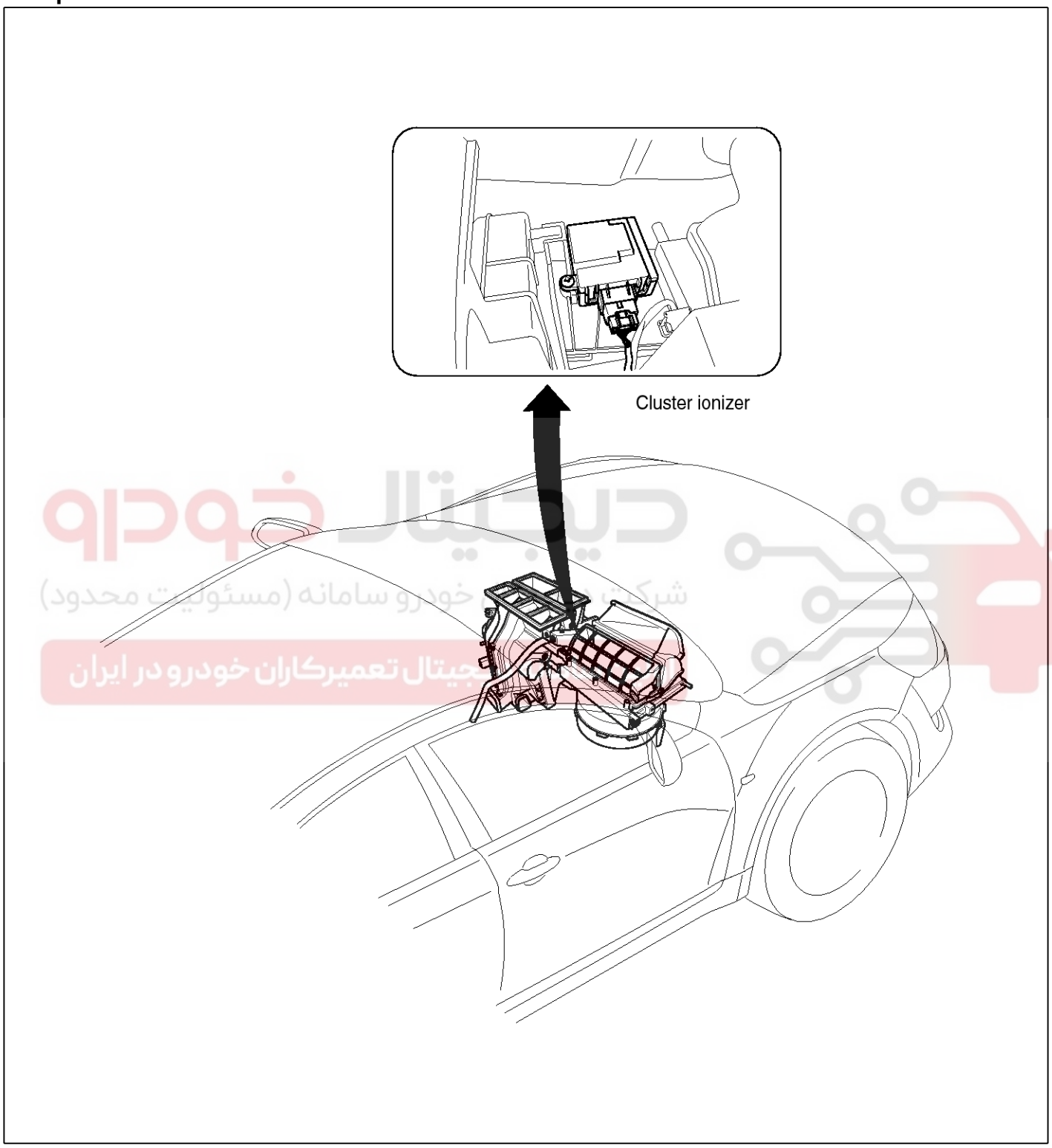


SVIHA9025D

4. Installation is the reverse order of removal.

Cluster ionizer

Component location



SVGHA0007L

Description

1. The function of cluster ion generator is cleaning air by sterilizing and dissolving of air conditioner.
2. The function of cluster ion generator is controlling mold caused by stench of air conditioner and external inflow of air.

Inspection

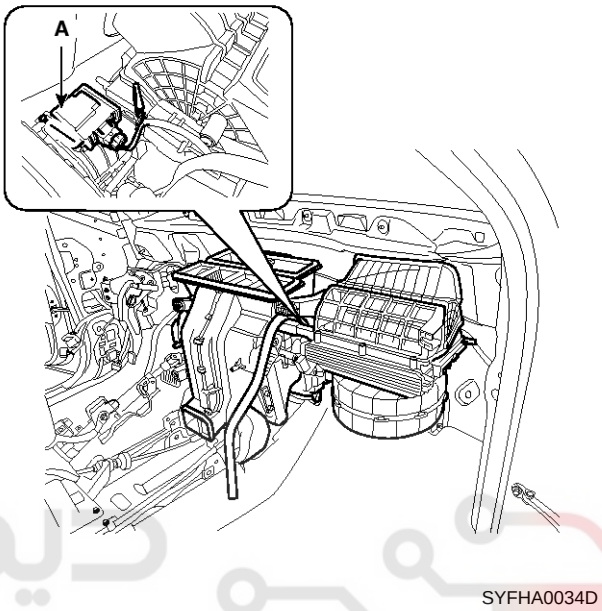
1. Press the OFF switch more then 4 times within 2 seconds while pressing the MODE switch.

Display	Fail description
00	Normal
50	Cluster ionizer fault

* Diagnostic procedure refer to DTC code.

Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the crash pad.
   (Refer to BD group - "Crash pad")
3. Loosen the screws and then remove the cluster ionizer (A).



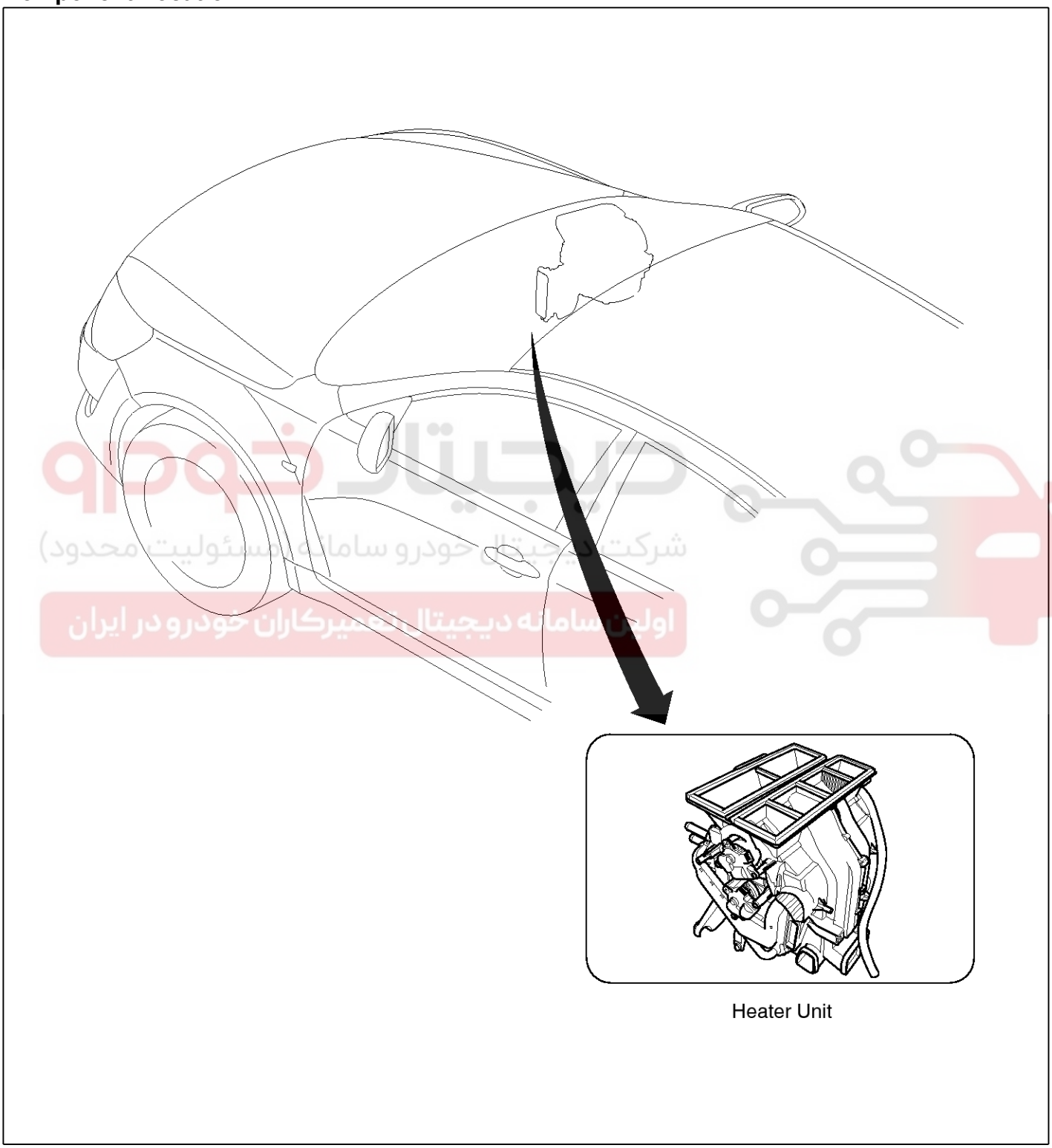
SYFHA0034D

4. Installation is the reverse order of removal.

Heater

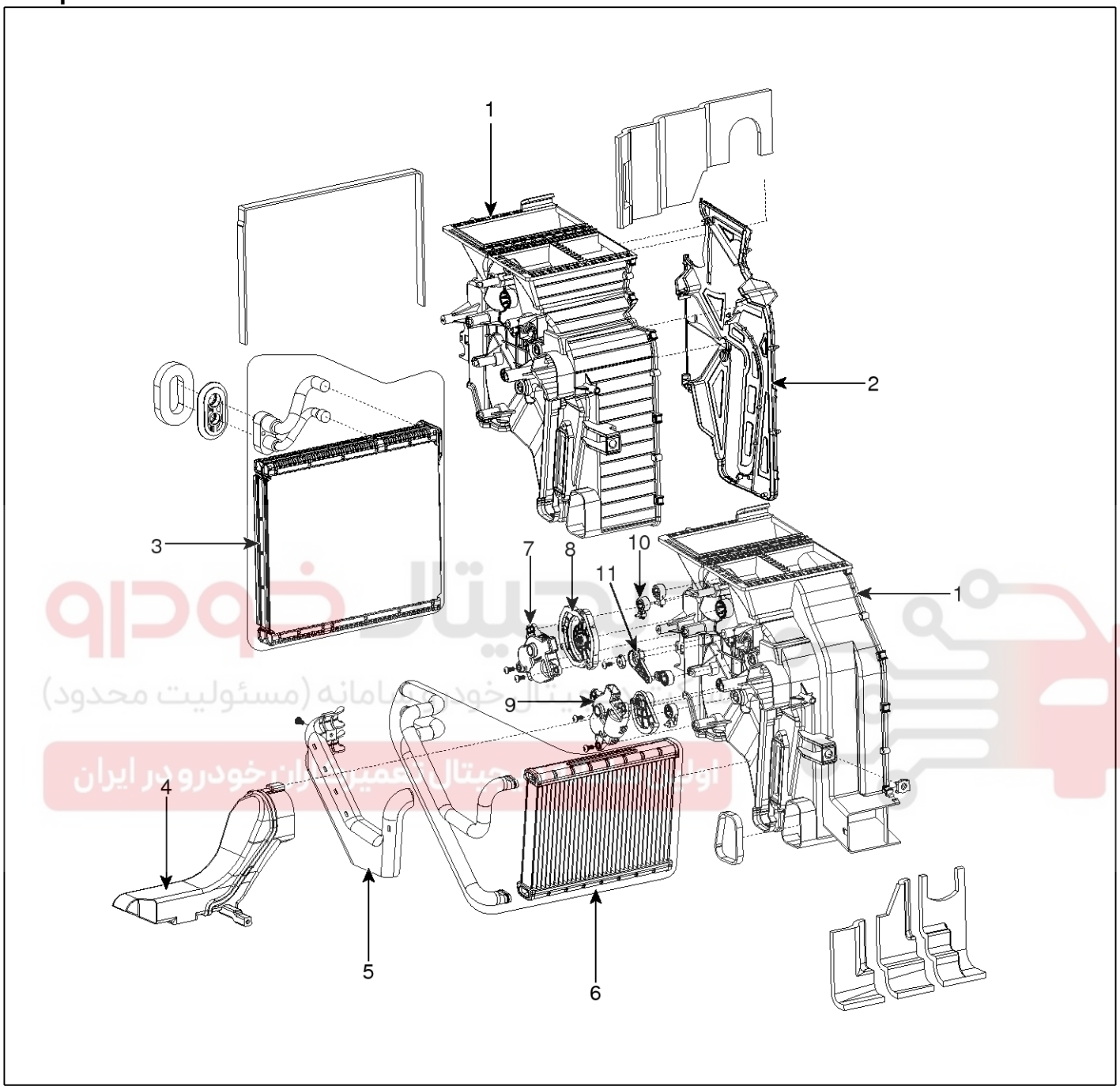
Heater Unit

Component Location



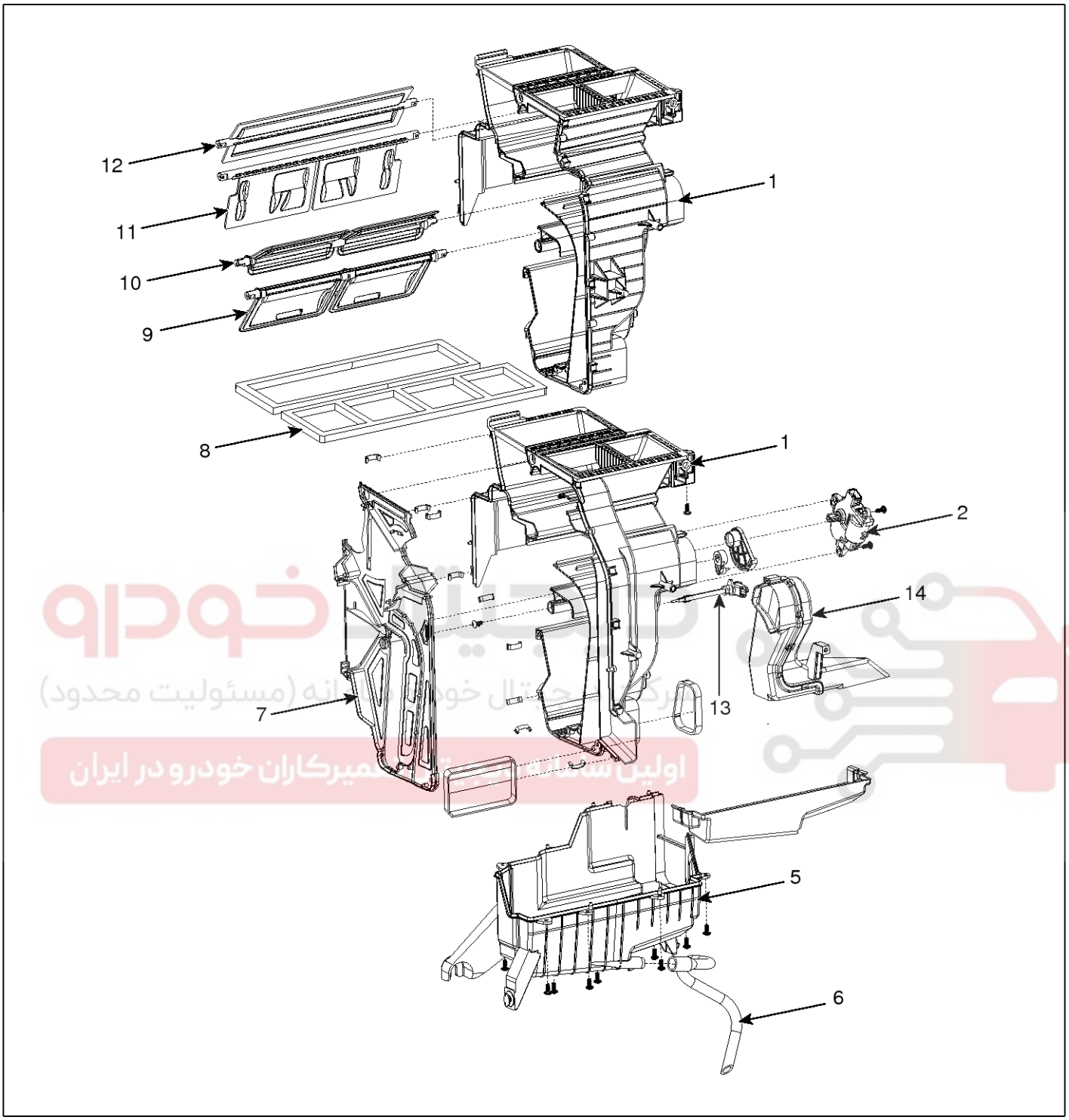
SVGHA0008L

Components



SYFHA0037D

1. Heater Case (LH)
2. Separator
3. Evaporator Core
4. Shower Duct (LH)
5. Heater Core Cover
6. Heater Core
7. Mode Actuator
8. Mode Cam
9. Temp Actuator (Drive)
10. Vent Door Arm
11. Floor Door Arm

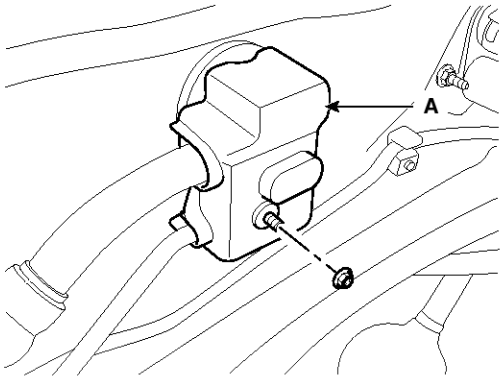


SVGHA0086D

1. Heater Case (RH)
2. Temp Actuator (Passenger)
3. Temp Door Lever
4. Evaporator Temp Sensor
5. Hearer Lower Case
6. Drain Hose
7. Separator
8. Insulator
9. Temp Door
10. Floor Door
11. Vent Door
12. Def Door
13. Evaporator sensor
14. Shower duct(RH)

Replacement

1. Disconnect the negative (-) battery terminal.
2. Recover the refrigerant with a recovery/ recycling/ charging station.
3. When the engine is cool, drain the engine coolant from the radiator.
4. Remove the expansion valve cover (A).

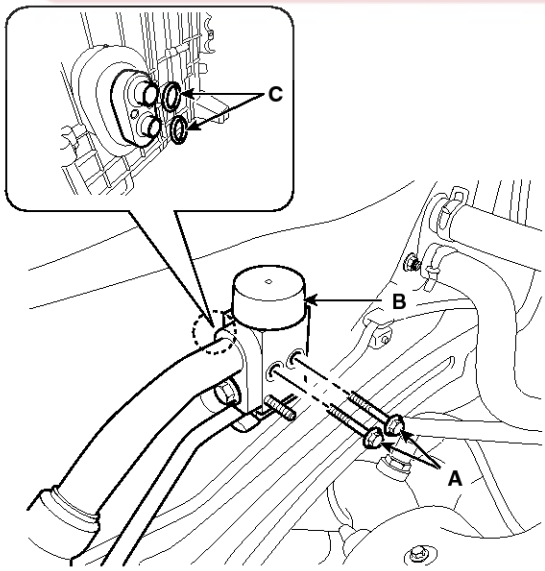


SYFHA0039D

5. Remove the bolts (A) and the expansion valve (B) from the evaporator core.

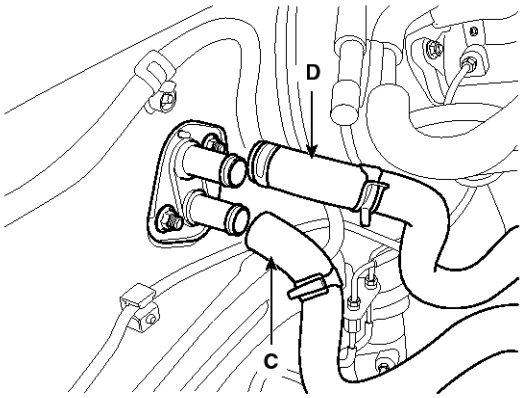
   Plug or cap the lines immediately after disconnecting them to avoid moisture and dust contamination.

Tightening torque :
7.8 ~ 11.7 N.m (0.8 ~ 1.2 kgf.m, 5.7 ~ 8.6 lb-ft)



SYFHA0040D

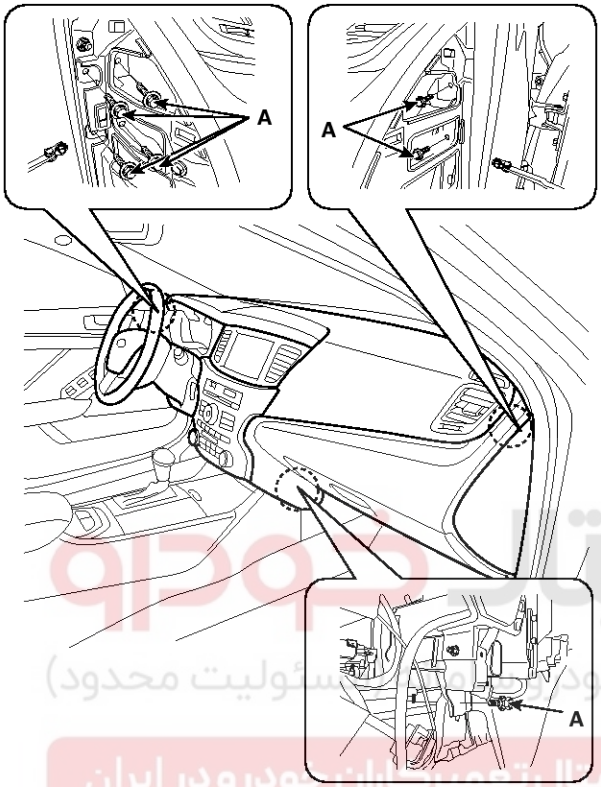
6. Disconnect the inlet (C) and outlet (D) heater hoses from the heater unit.



SYFHA0042D

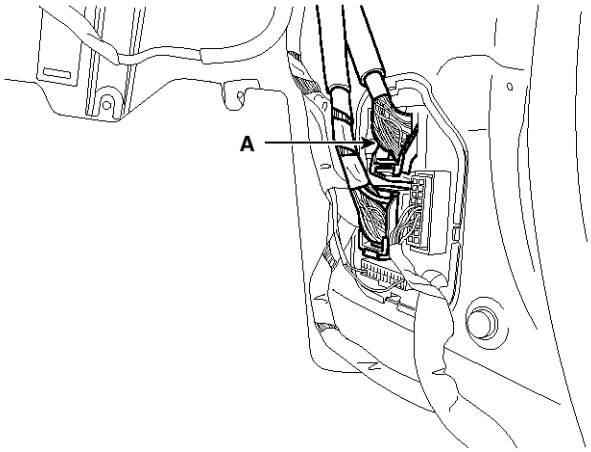
⚠CAUTION
Engine coolant will run out when the hoses are disconnected; drain it into a clean drip pan. Be sure not to let coolant spill on electrical parts or painted surfaces. If any coolant spills, rinse it off immediately.

7. Remove the center console assembly.
   (Refer to BD group - "center console")
8. Remove the steering wheel.
   (Refer to SS group - "steering column")
9. Loosen the cowl cross member mounting bolts(A).



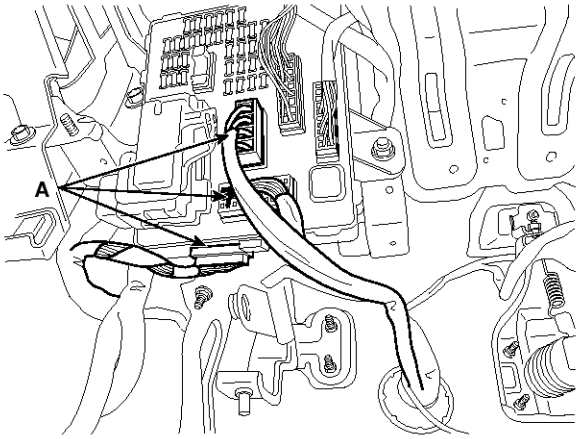
SVGHA0300D

10. Disconnect the right main harness connectors(A).



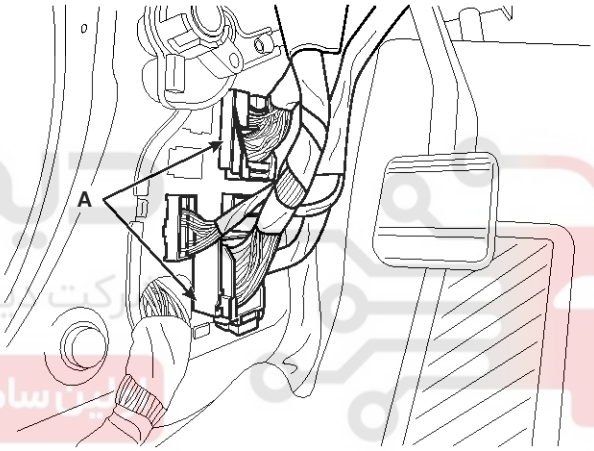
SVGHA0303D

11. Disconnect the lift junction box connectors(A).



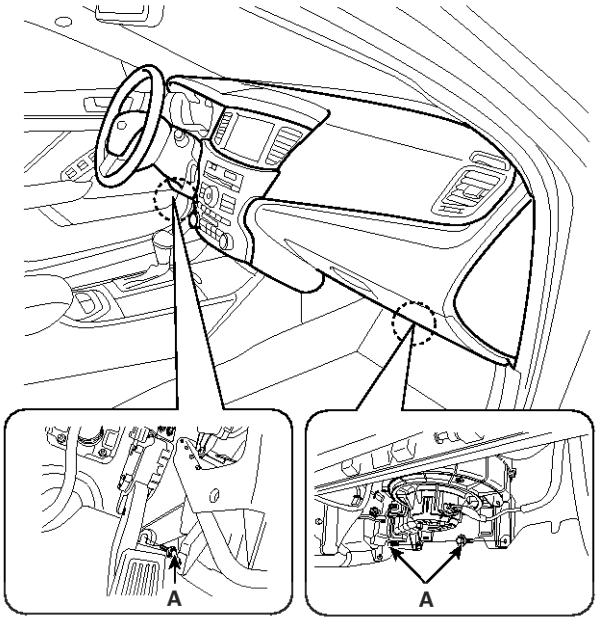
SVGHA0304D

12. Disconnect the left main connectors (A).



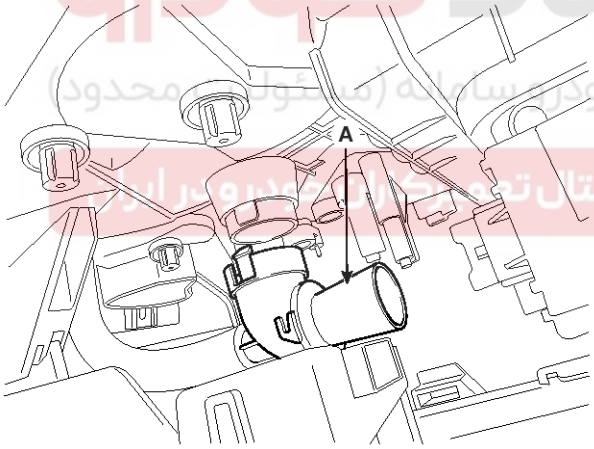
SVGHA0305D

13. Loosening the heater & blower unit mounting bolts(A) and then remove the heater & blower unit.



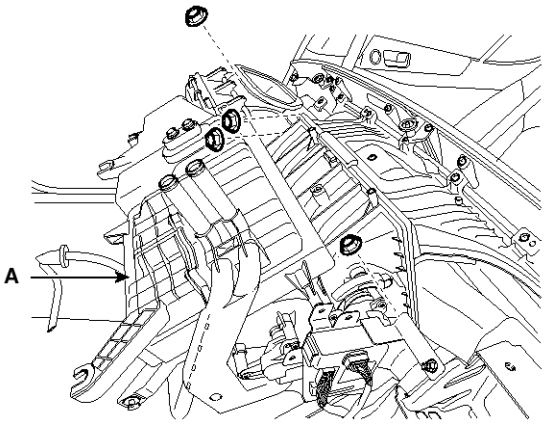
SVGHA0306D

14. Remove the incar sensor hose(A).



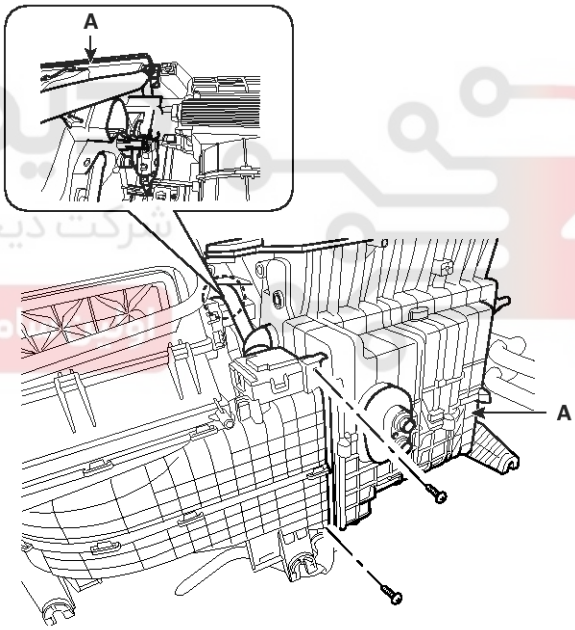
SVGHA0308D

15. Disconnect the heater & blower unit(A) from crash pad.



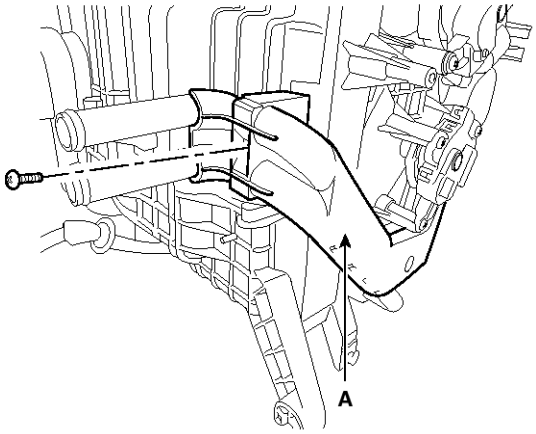
SVGHA0309D

16. Remove the blower unit from heater unit (A) after loosening 3 screws.



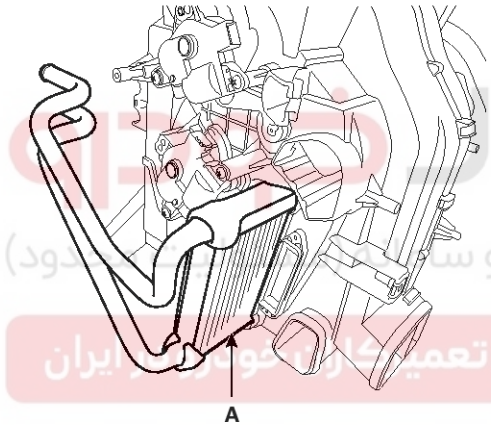
SYFHA0044D

17. Loosen the mounting screw and then remove the heater core cover(A).



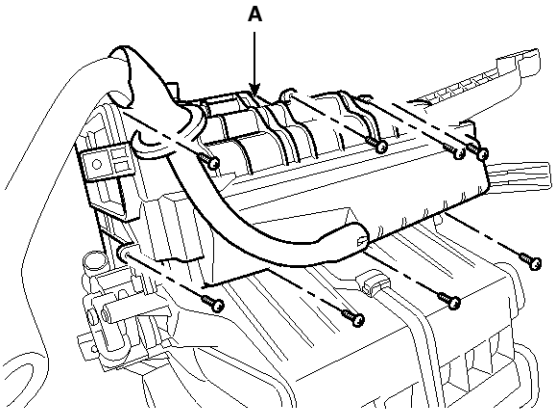
SVGHA0041D

18. Remove the heater core(A) from heater unit.



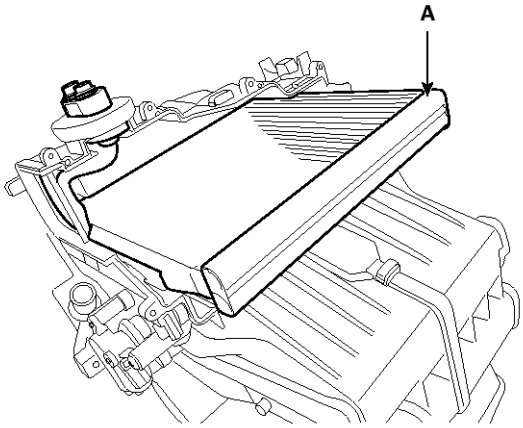
SYFHA0047D

19. Loosen the heater unit lower case mounting screws and then remove the heater unit lower case (A).



SYFHA0048D

20. Remove the evaporator core (A).

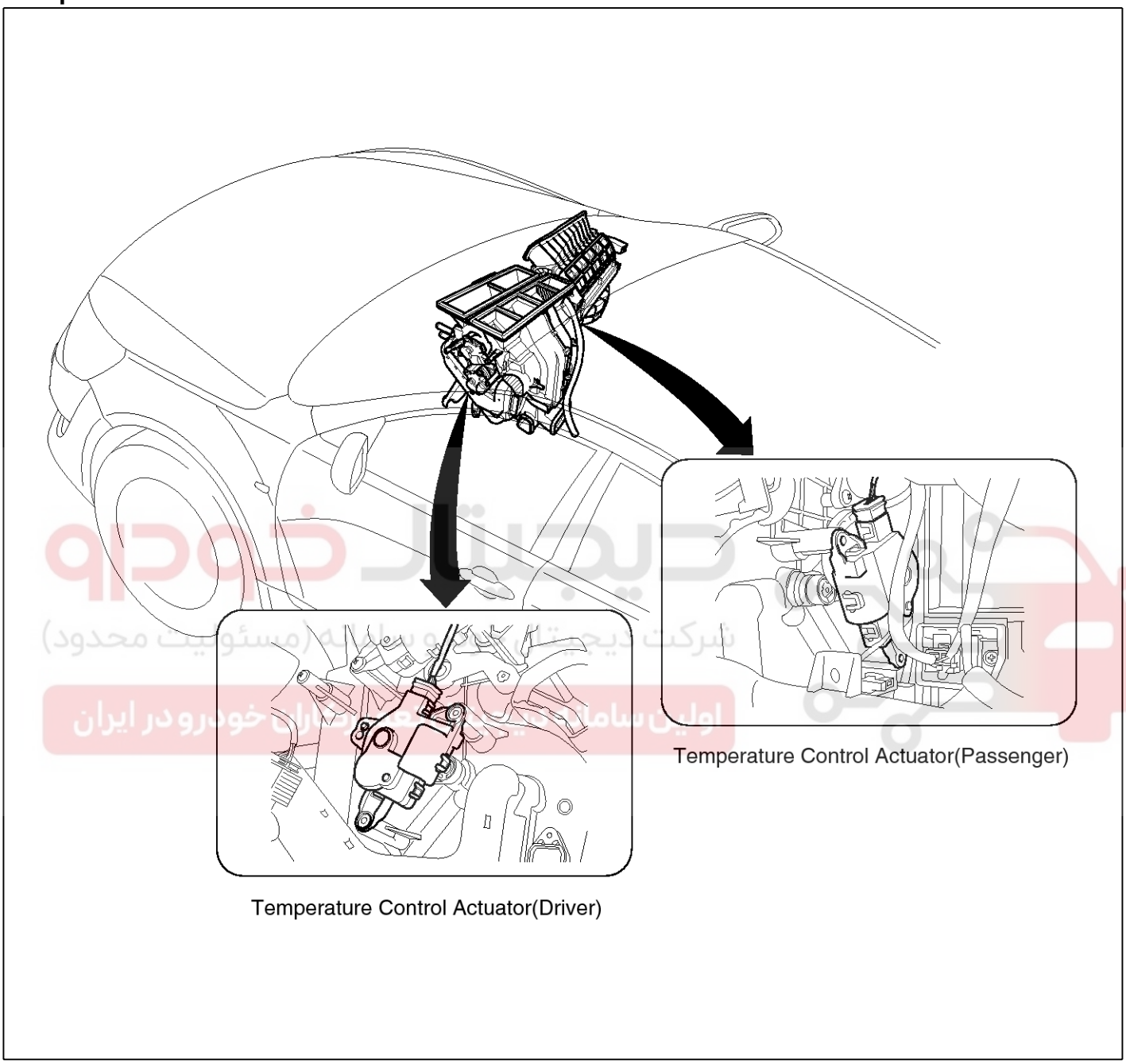


SYFHA0049D

21. Be careful that the inlet and outlet pipe are not bent during heater core removal, and pull out the heater core.
22. Installation is the reverse order of removal.
23. Installation is the reverse order of removal, and note these items :
    - If you're installing a new evaporator, add refrigerant oil (ND-OIL8).
    - Replace the O-rings with new ones at each fitting, and apply a thin coat of refrigerant oil before installing them. Be sure to use the right O-rings for R-134a to avoid leakage.
    - Immediately after using the oil, replace the cap on the container, and seal it to avoid moisture absorption.
    - Do not spill the refrigerant oil on the vehicle ; it may damage the paint ; if the refrigerant oil contacts the paint, wash it off immediately
    - Apply sealant to the grommets.
    - Make sure that there is no air leakage.
    - Charge the system and test its performance.
    - Do not interchange the inlet and outlet heater hoses and install the hose clamps securely.
    - Refill the cooling system with engine coolant

Temperature Control Actuator

Component Location



SVGHA0009L

Description

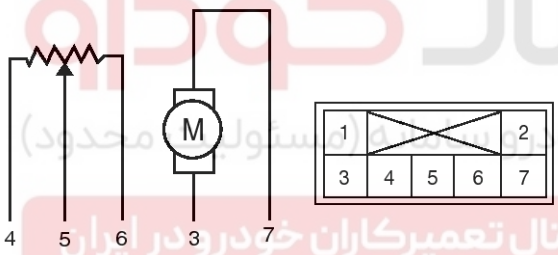
1. Heater unit includes mode control actuator and temperature control actuator.
2. Temperature control actuator is located at the heater unit. It regulates the temperature by the procedure as follows. Signal from control unit adjusts position of temperature door by operating temperature switch and then temperature will be regulated by the hot/cold air ratio decided by position of temperature door

Inspection

1. Ignition "OFF"
2. Disconnect the connector of temperature control actuator.
3. Verify that the temperature control actuator operates to the hot position when connecting 12V to the terminal 3 and grounding terminal 7.

   Verify that the temperature control actuator operates to the cool position when connecting in the reverse.

[Drive]



SYFHA0051D

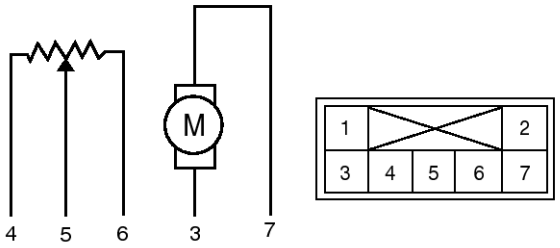
1. -
2. -
3. Cool position
4. 5V (Vcc)
5. Feedback signal
6. Sensor ground
7. Hot position

4. Check the voltage between terminals 5 and 6(Drive).

Specification

Door position	Voltage(5-6)	Error detecting
Max. cooling	0.3 ± 0.15V	Low voltage :0.1 V or less
Max. heating	4.7 ± 0.15V	High voltage :4.9 V or more

[Passenger]



SYFHA0051D

1. -
2. -
3. Cool position
4. 5V (Vcc)
5. Feedback signal
6. Sensor ground
7. Hot position

5. Check the voltage between terminals 5 and 6(Passenger).

Specification

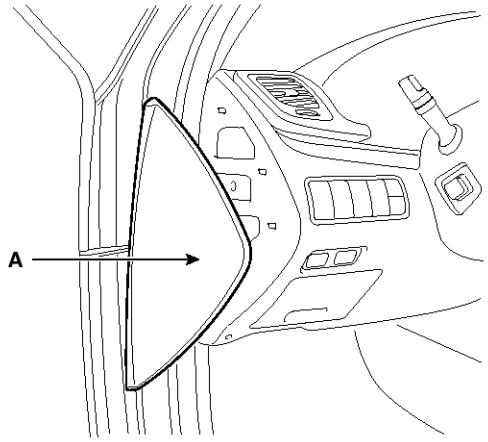
Door position	Voltage(5-6)	Error detecting
Max. cooling	0.3 ± 0.15V	Low voltage :0.1 V or less
Max. heating	4.7 ± 0.15V	High voltage :4.9 V or more

   It will feedback current position of actuator to controls.

6. If the measured voltage is not specification, substitute with a known-good temperature control actuator and check for proper operation.
7. If the problem is corrected, replace the temperature control actuator.

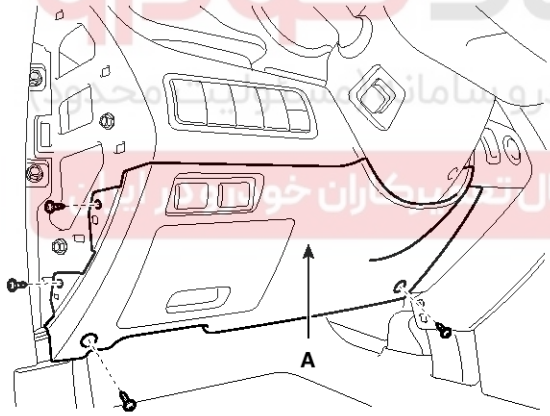
Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the crash pad left side cover (A).



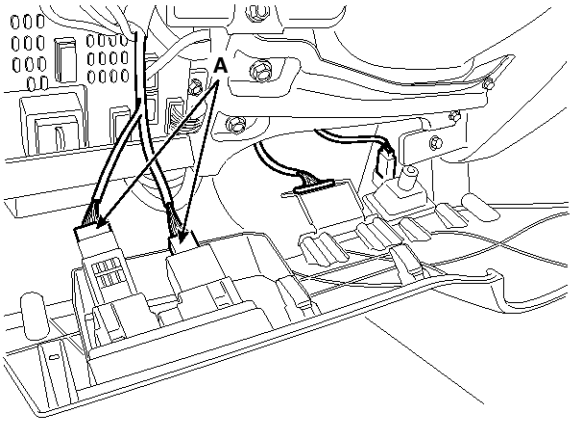
SVGHA0046D

3. Remove the left extension cover.
   (Refer to BD group - "Center Console")
4. Disconnect the connector(A) and then remove the crash pad lower cover.



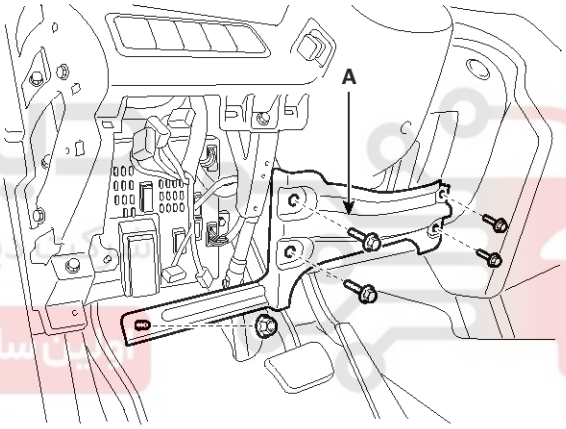
SVGHA0048D

5. Disconnect the diagnosis connectors (A) and then remove the crash pad lower cover.



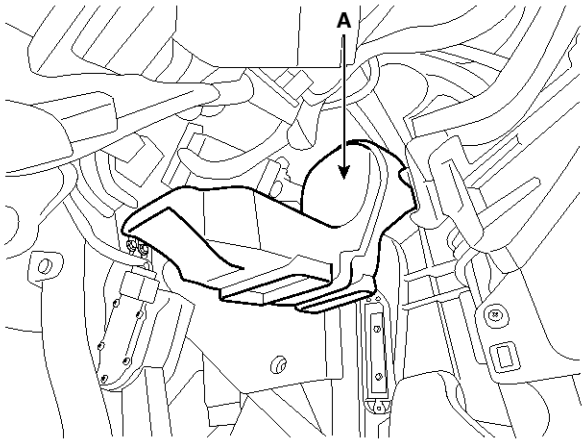
SVGHA0049D

6. Remove the reinforcing panel (A).



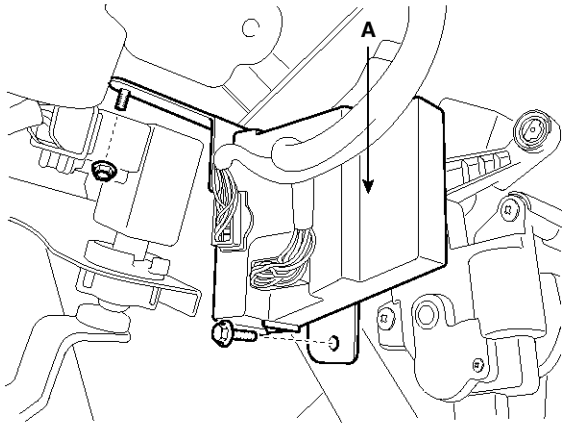
SVGHA0050D

7. Remove the shower duct (A).



SVGHA0051D

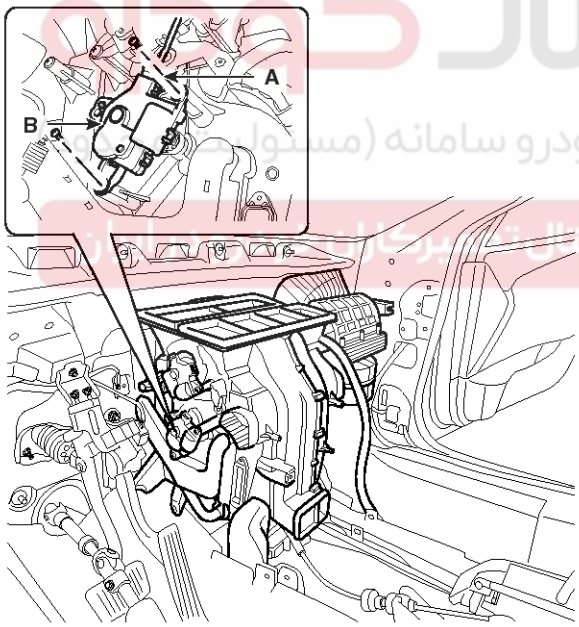
8. Remove the BCM(A).



SVGHA0052D

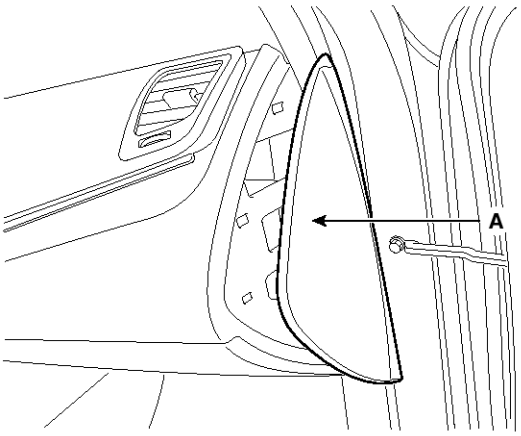
9. Disconnect the temperature control actuator connector (A)
10. Loosen the mounting screw and then remove the temperature control actuator (B).

[Drive]



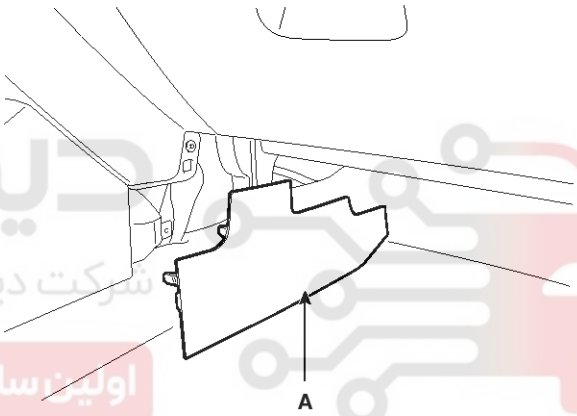
SVGHA0010L

11. Remove the side cover(A).



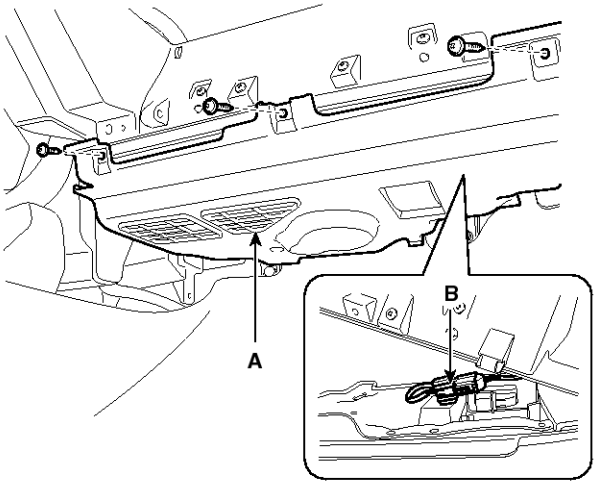
SVGHA0054D

12. Remove the right extension cover (A).



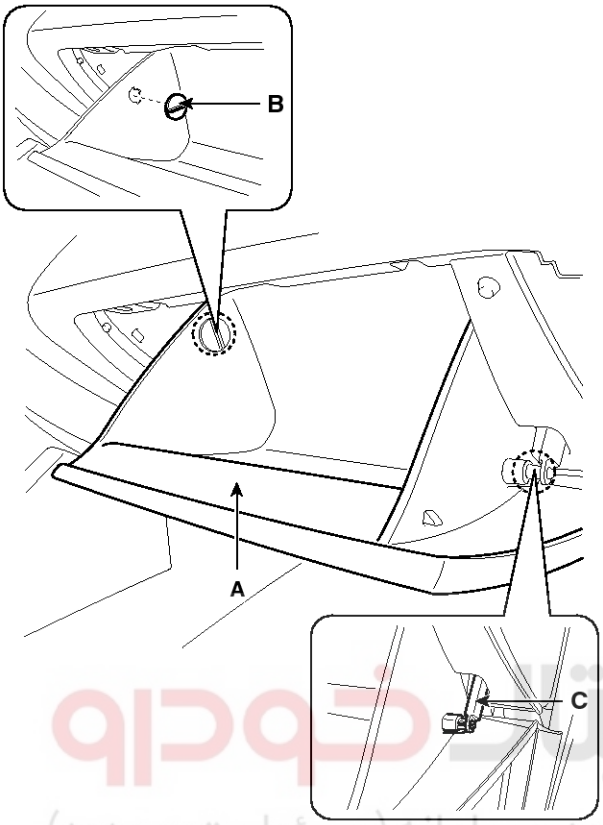
SVGHA0021D

13. Remove the crash pad lower cover (A) and then disconnect the connector (B).



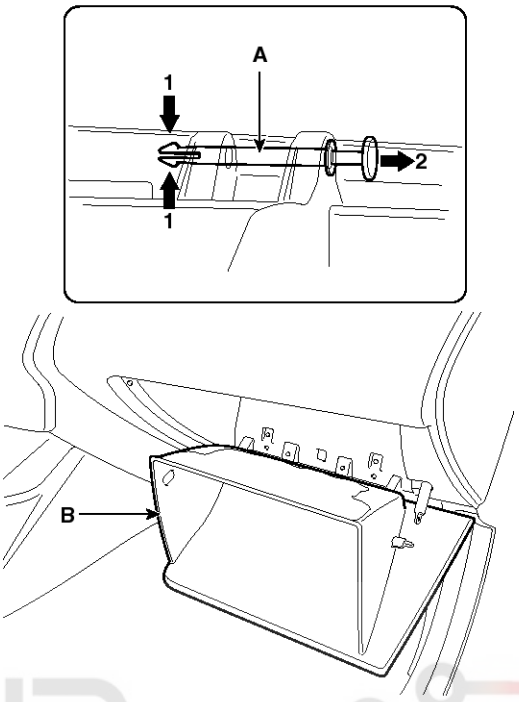
SVGHA0022D

14. Disconnect the damper (B) from the glove box (A) and then remove the glove box lift (C).



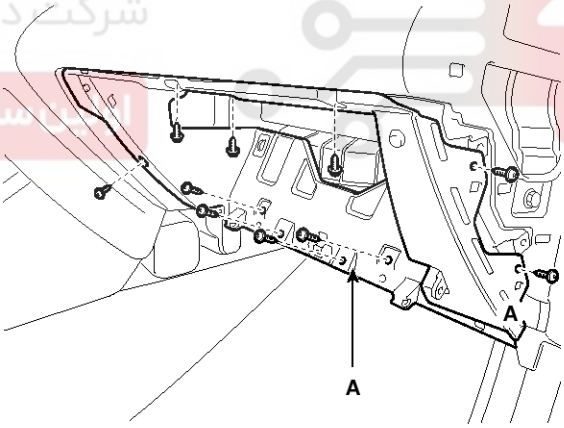
SVGHA0056D

15. Disconnect the pin (A), then remove the glove box (B).



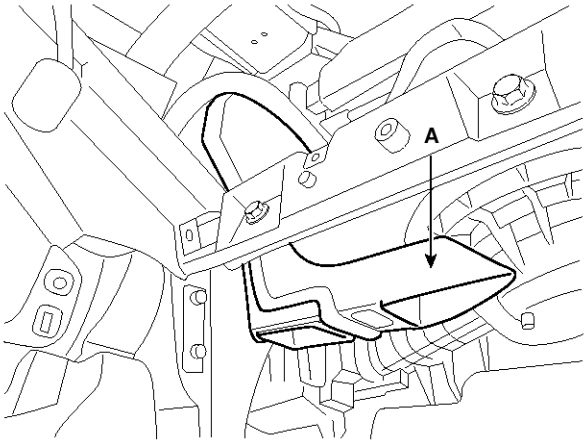
SVGBD0137D

16. Remove the glove box housing (A).



SVGHA0059D

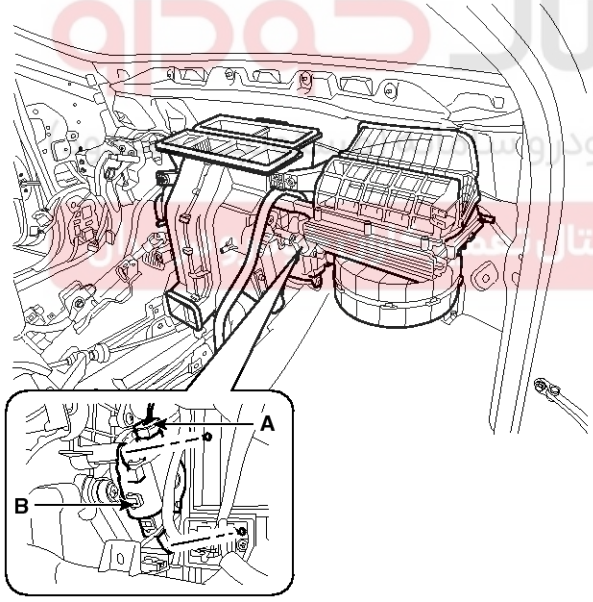
17. Remove the shower duct (A).



SVGHA0024D

18. Disconnect the temperature control actuator connector (A)
19. Loosen the mounting screw and then remove the temperature control actuator (B).

[Passenger]

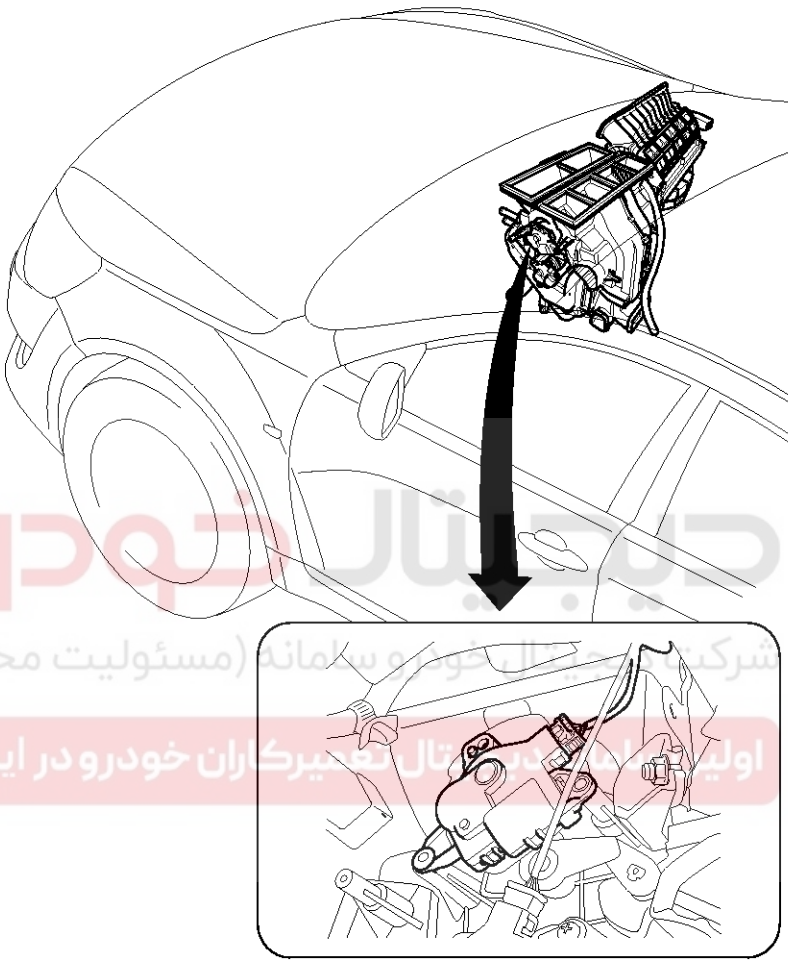


SYFHA0072D

20. Installation is the reverse order of removal.

Mode Control Actuator

Component Location



Mode Control Actuator

SVGHA0011L

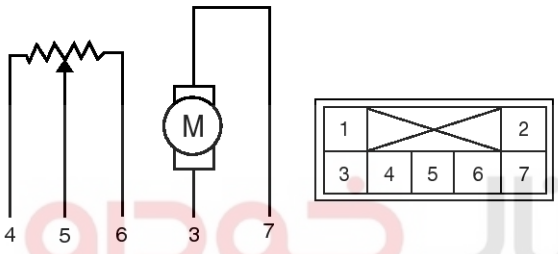
Description

The mode control actuator is located at the heater unit.

It adjusts position of mode door by operating mode control actuator based on signal of A/C control unit. Pressing mode select switch makes the mode control actuator shift in order of vent→ B/L → floor → mix.

Inspection

1. Ignition "OFF"
2. Disconnect the connector of mode control actuator.
3. Verify that the mode control actuator operates to the defrost mode when connecting 12V to the terminal 3and grounding terminal 7.
4. Verify that the mode control actuator operates to the vent mode when connecting in the reverse.



SYFHA0051D

1. -
2. -
3. Defrost mode
4. Sensor ground
5. Feedback signal
6. 5V(Vcc)
7. Vent mode

5. Check the voltage between terminals 4 and 5.

Specification

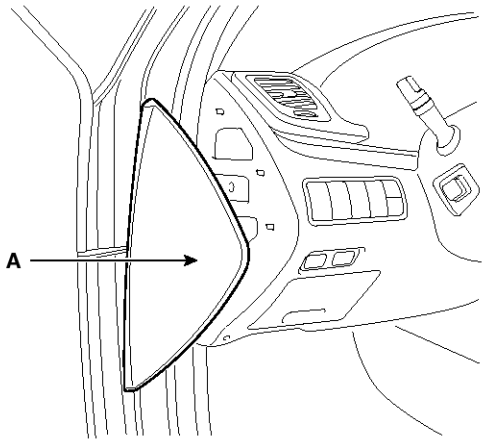
Door position	Voltage(4-5)	Error detecting
Max. cooling	0.3 ± 0.15V	Low voltage :0.1 V or less
Max. heating	4.7 ± 0.15V	High voltage :4.9 V or more

It will feedback current position of actuator to controls.

6. If the measured voltage is not specification, substitute with a known-good mode control actuator and check for proper operation.
7. If the problem is corrected, replace the mode control actuator.

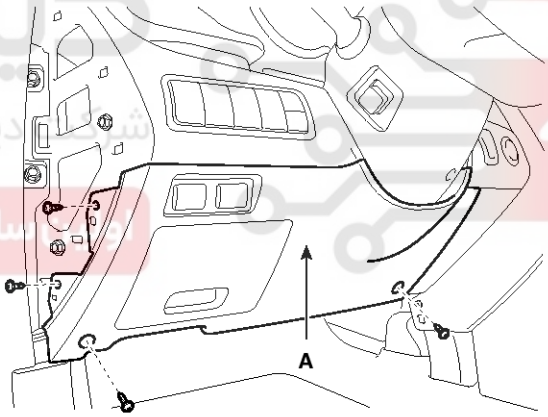
Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the crash pad left side cover (A).



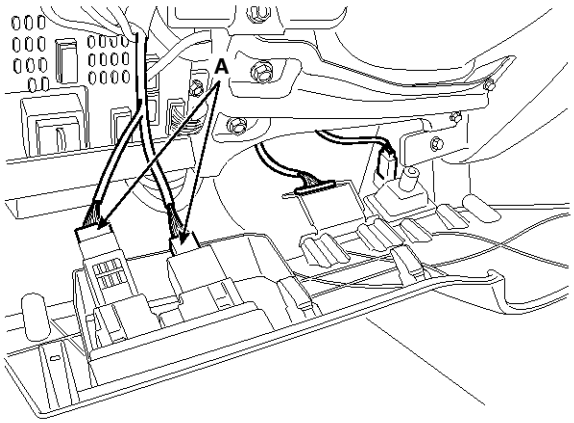
SVGHA0046D

3. Remove the left extension cover.
   (Refer to BD group – "Center Console")
4. Remove the crash pad lower cover (A).



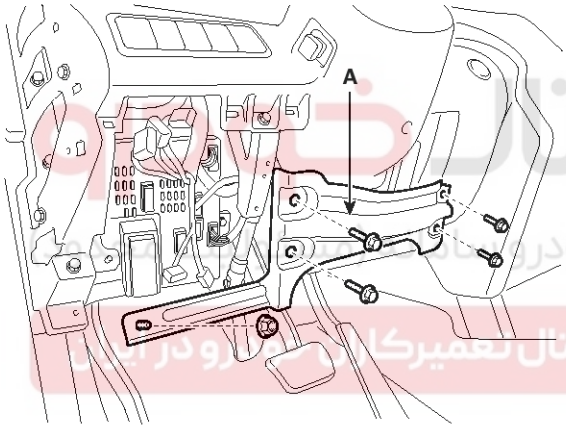
SVGHA0048D

5. Disconnect the diagnosis connector (A) and then remove the crash pad lower cover.



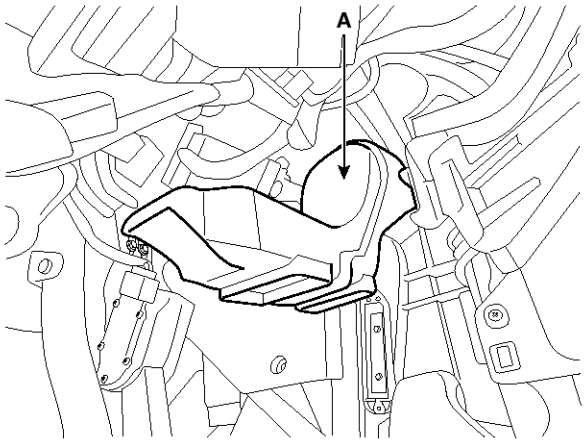
SVGHA0049D

6. Remove the reinforcing panel (A).



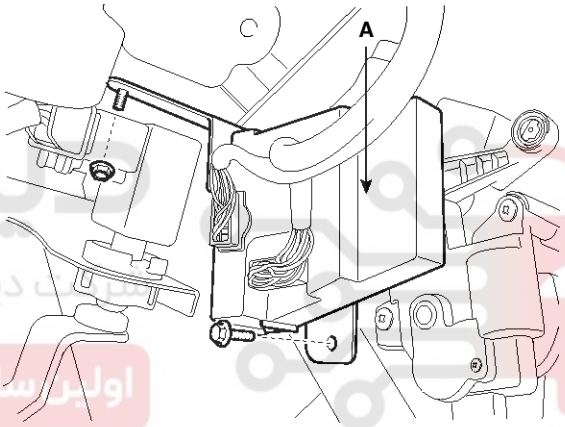
SVGHA0050D

7. Remove the left shower duct (A).



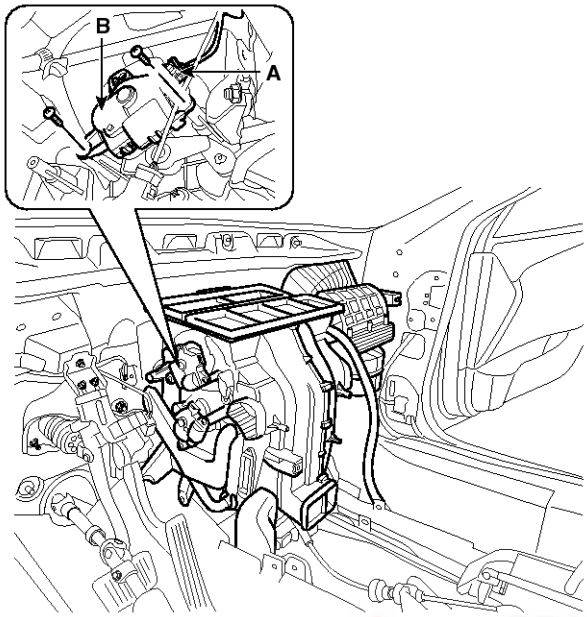
SVGHA0051D

8. Remove the BCM(A).



SVGHA0052D

9. Disconnect the mode control actuator connector (A).
10. Loosen the mounting screw and then remove the mode control actuator (B).

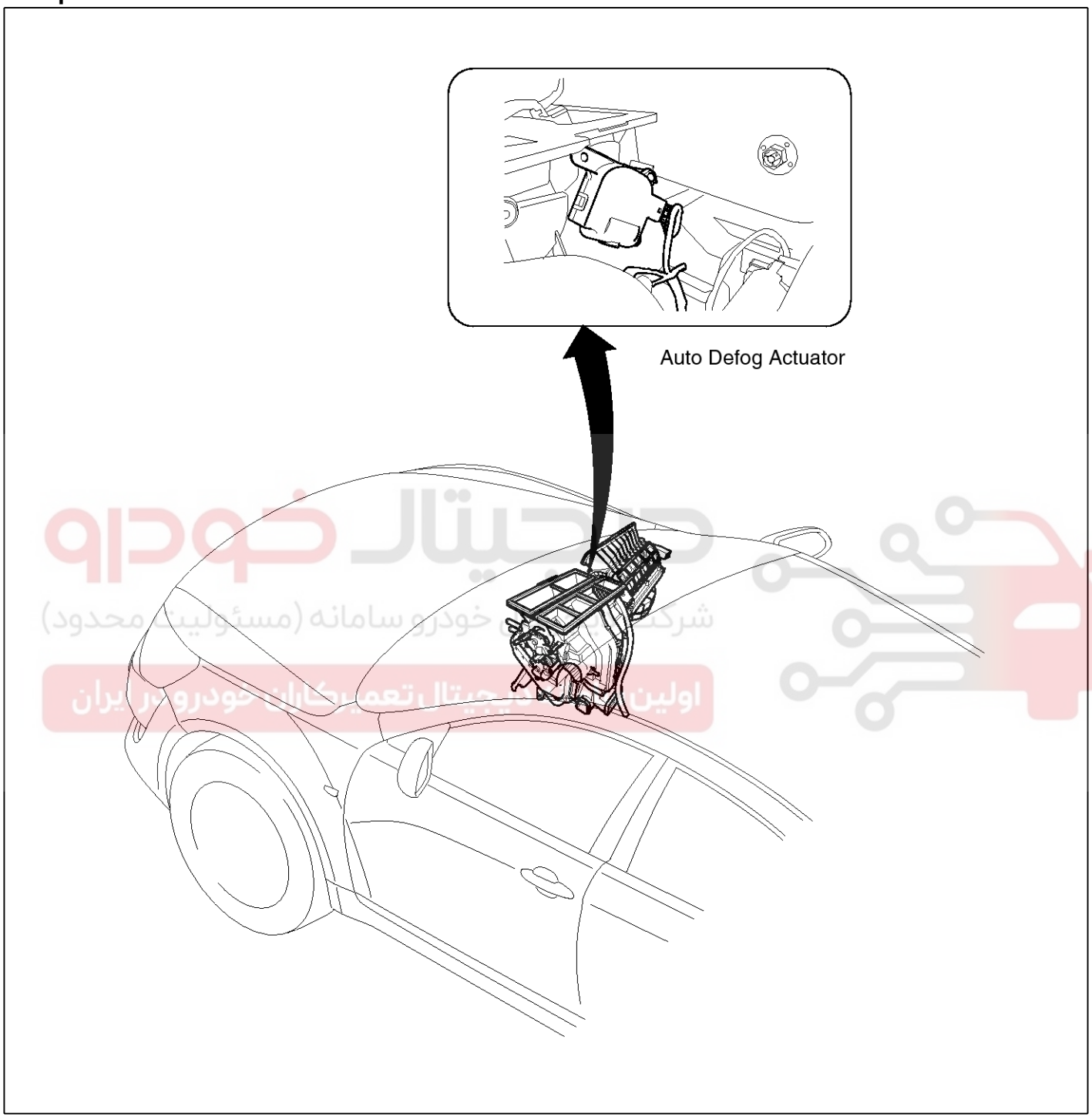


SYFHA0060D

11. Installation is the reverse order of removal.

Auto defoging actuator

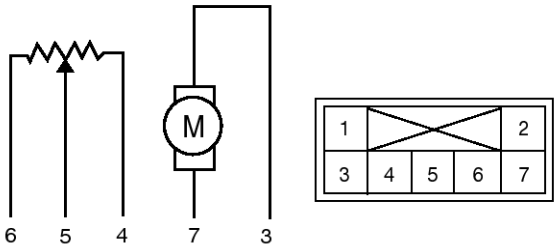
Component Location



SVGHA0012L

Inspection

1. Ignition "OFF".
2. Disconnect the connector of auto defog control actuator.
3. Verify that the auto defog control actuator operates to the defrost ON mode when connecting 12V to the terminal 3 and grounding terminal 7.
4. Verify that the auto defog control actuator operates to the defog OFF mode when connecting in the reverse.



SVGHA0062D

1. -
2. -
3. DEF (Open)
4. Sensor F\REF (+5V)
5. Feedback signal
6. Sensor GND
7. DEF (Close)

5. Check the voltage between terminals 5 and 6.

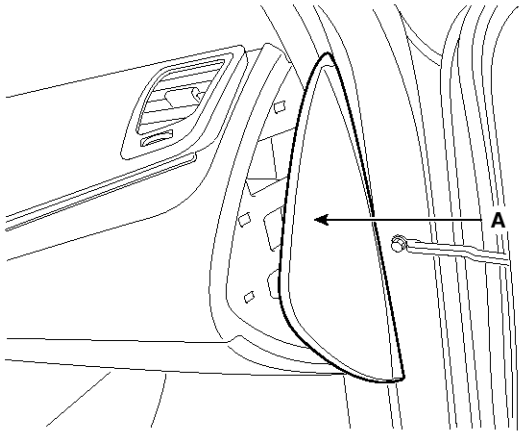
Door po - sition	Voltage (5-6)	Error detecting
Def(OFF)	0.3 ± 0.15V	Low voltage :0.1V or less
Def(ON)	4.7 ± 0.15V	High voltage :4.9V or more

It will feedback current position of actuator to controls.

6. If the measured voltage is not specification, substitute with a known-good auto defog actuator and check for proper operation.
7. If the problem is corrected, replace the auto defog actuator.

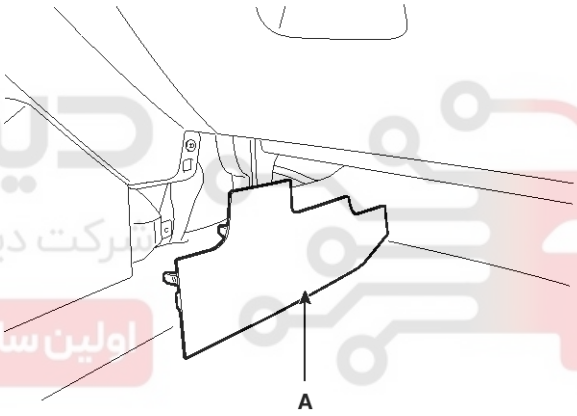
Replacement

1. Remove the side cover(A).



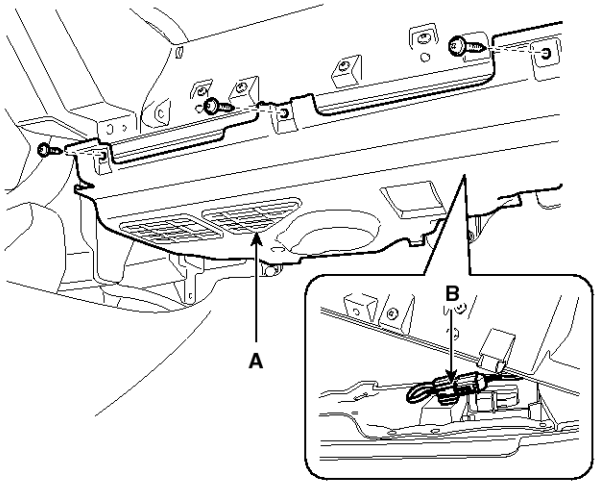
SVGHA0054D

2. Remove the right extension cover (A).



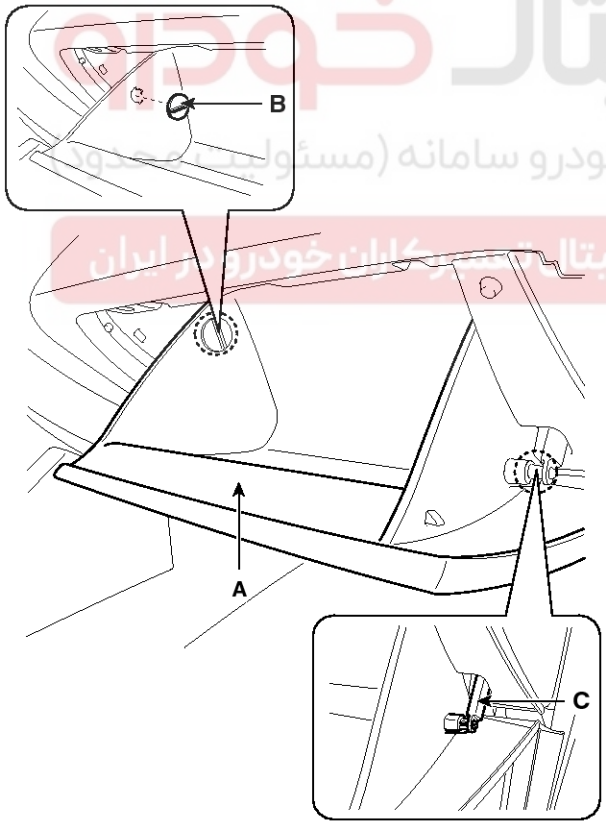
SVGHA0021D

3. Remove the crash pad lower cover (A) and then disconnect the connector (B).



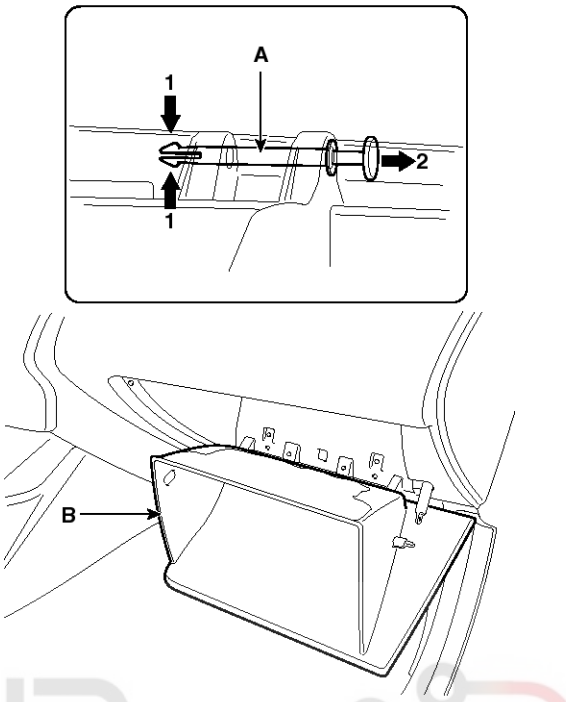
SVGHA0022D

4. Disconnect the damper (B) from the glove box (A) and then remove the glove box lift (C).



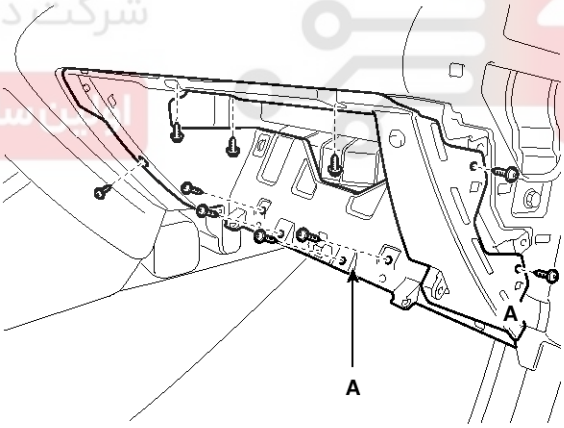
SVGHA0056D

5. Disconnect the pin (A), then remove the glove box (B).



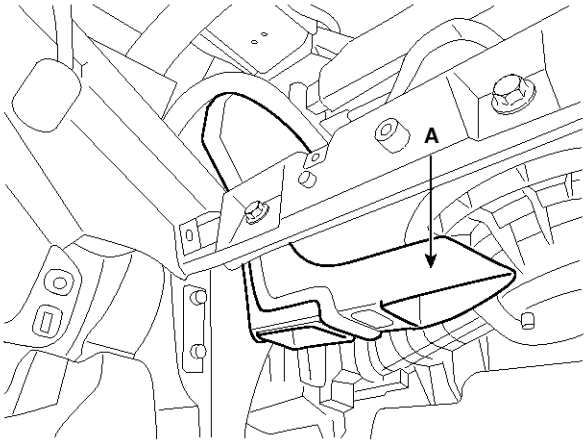
SVGBD0137D

6. Remove the glove box housing (A).



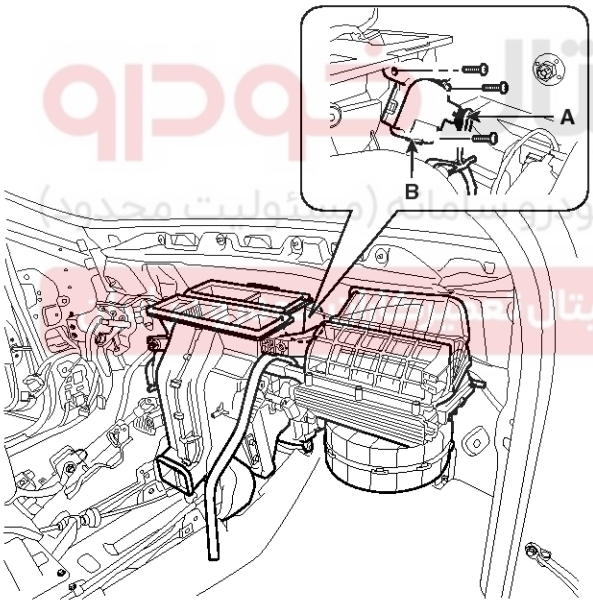
SVGHA0059D

7. Remove the shower duct (A).



SVGHA0024D

8. Disconnect the auto defogl actuator connector(A).
9. Loosen the mounting screws and then remove the console temp control actuator(B).



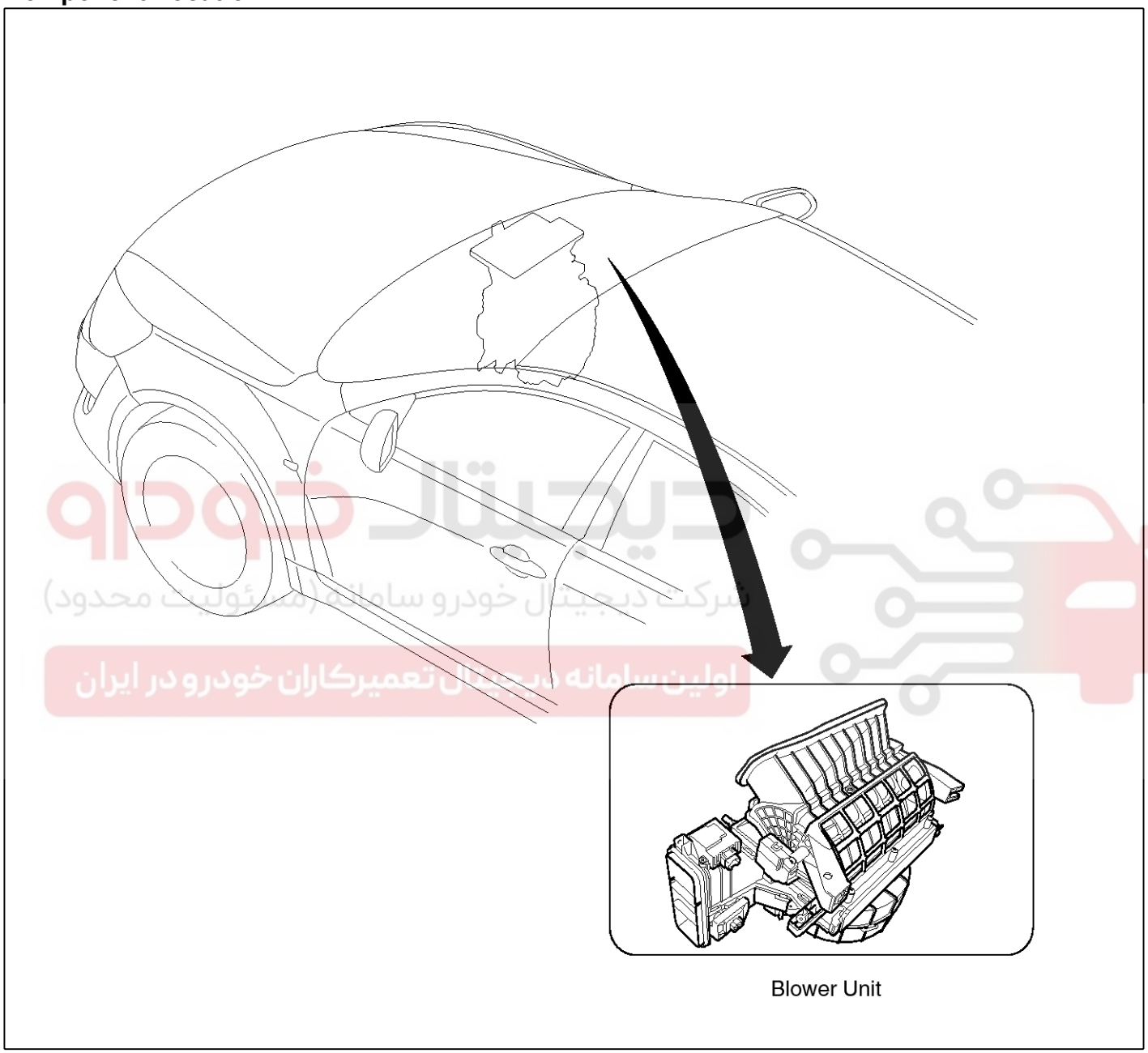
SVGHA0087D

10. Installation is the reverse order of removal.

Blower

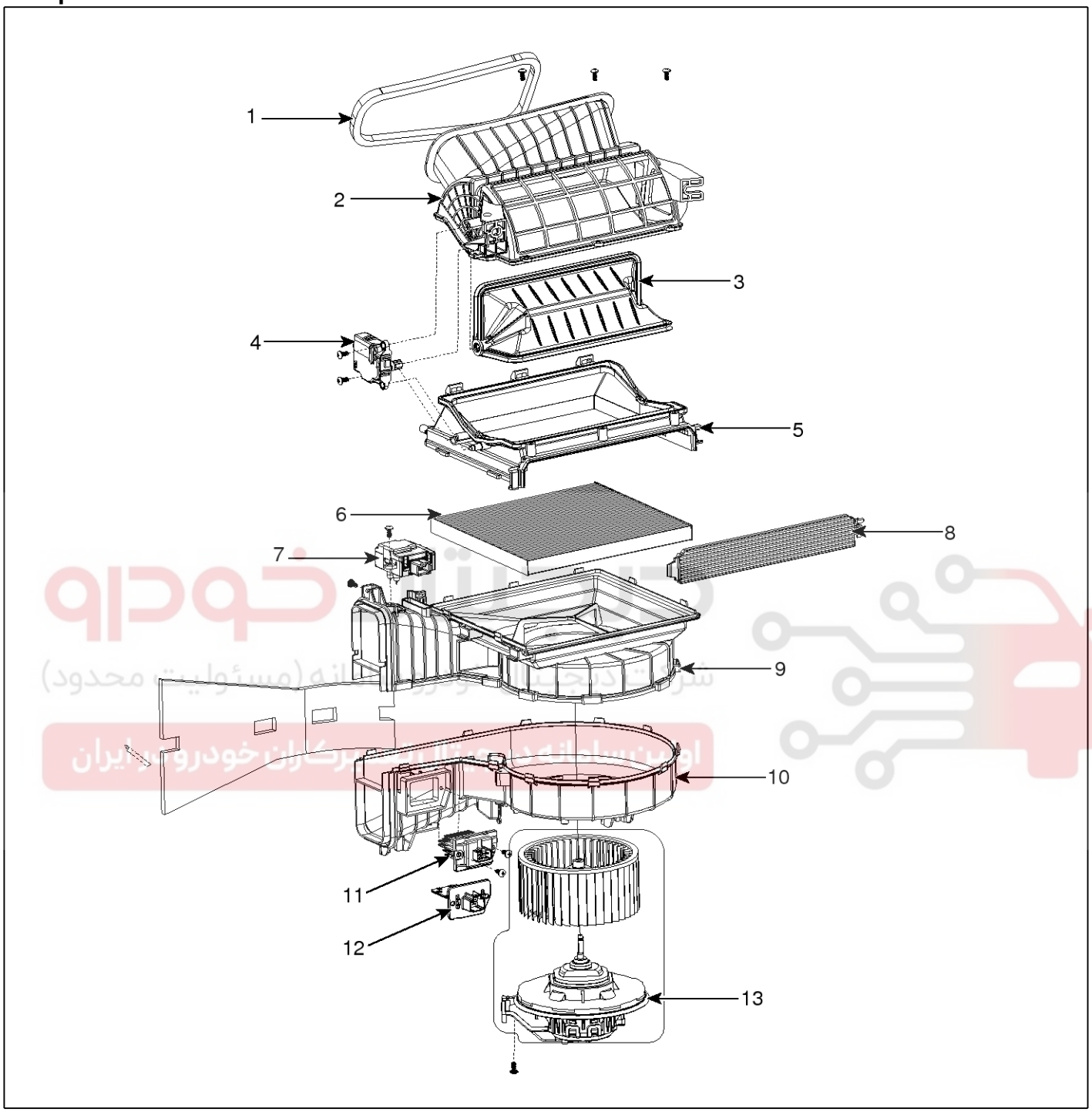
Blower Unit

Component Location



SVGHA0013L

Components

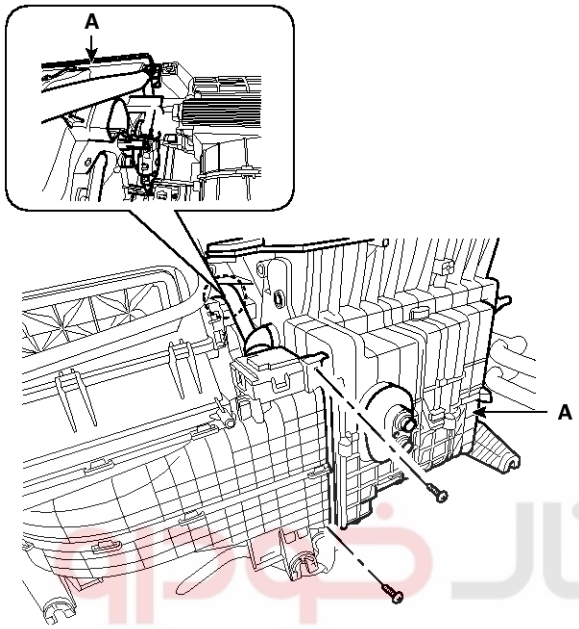


SYFHA0086D

1. Duct Seal
2. Duct Case
3. Inlet Door
4. Intake Actuator
5. Inlet Duct Case (A)
6. Climate control air filter
7. Cluster Ionizer
8. Climate control air filter Cover
9. Blower Upper Case
10. Blower Lower Case
11. FET
12. Resistor
13. Blower Motor

Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the heater and blower unit.(Refer to HA group – heater unit).
3. Remove the blower unit (A) from the heater unit after loosening a mounting bolt and 3 screws.



SYFHA0044D

NOTICE

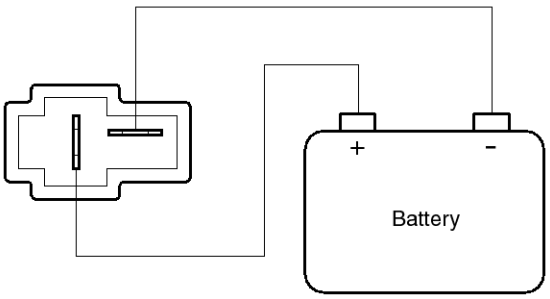
Make sure that there is no air leaking out of the blower and duct joints.

4. Installation is the reverse order of removal.

Blower Motor

Inspection

1. Connect the battery voltage and check the blower motor rotation.

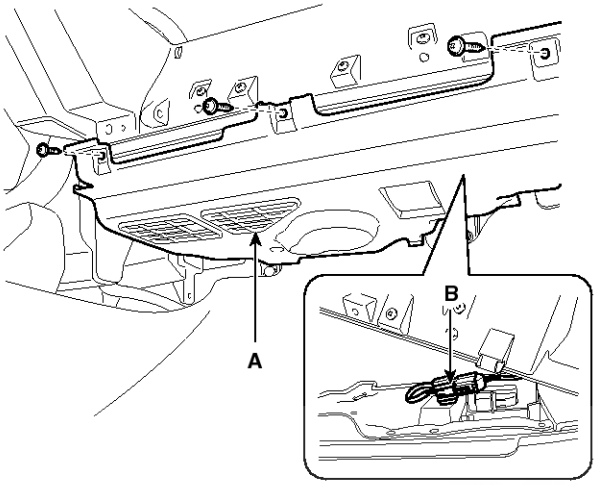


AQIE352C

2. If the blower motor voltage is not operated well, substitute with a known-good blower motor and check for proper operation.
3. If the problem is corrected, replace the blower motor.

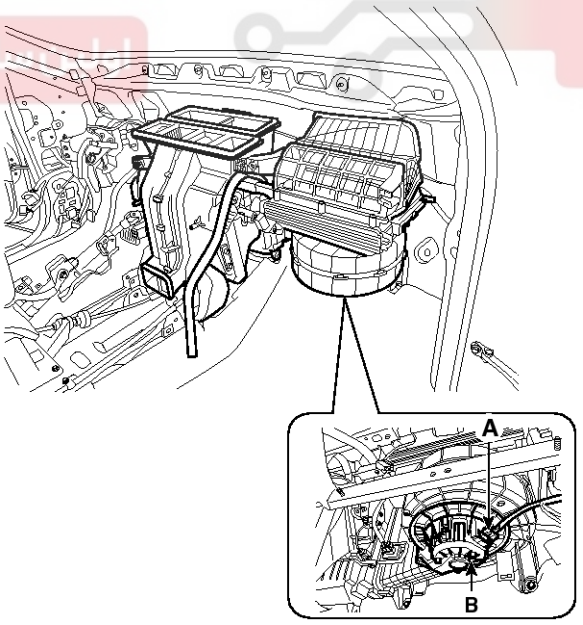
Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the crash pad lower cover (A) and then disconnect the connector (B).



SVGHA0022D

3. Disconnect the of the blower motor connector (A).
4. Remove the blower motor (B) by pulling it after rotating 90° in a counter clock wise direction.



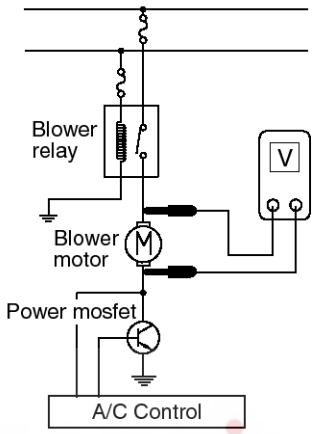
SYFHA0091D

5. Installation is the reverse order of removal.

Power Mosfet

Inspection

1. Ignition "ON"
2. Manually operate the control switch and measure the voltage of blower motor.
3. Select the control switch to raise voltage until high speed.



EQRF355C

Specification

Fan	Motor Voltage
	Manual
First speed	3.8 ±0.5V
Second speed	5.0 ±0.5V
Third speed	6.2 ±0.5V
Fourth speed	7.4 ±0.5V
Fifth speed	8.6 ±0.5V
Sixth speed	9.8 ±0.5V
Seventh speed	11.0 ±0.5V
eighth speed	Battery

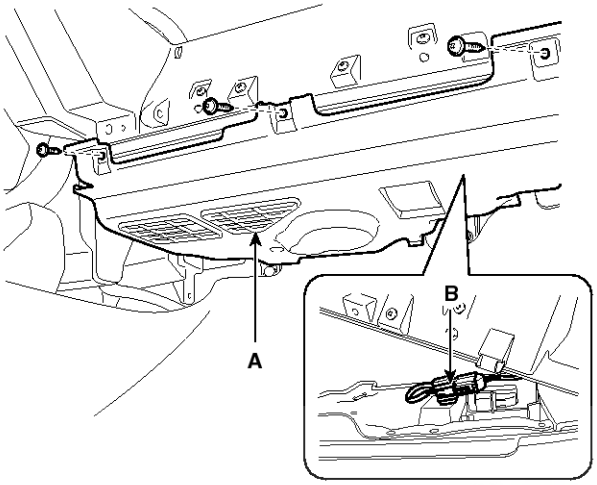
*AUTO COOLING: Auto speed (4.5V~B+)

*AUTO HEATING: Auto speed (4.5V~11.0V)

4. If the measured voltage is not specification, substitute with a known-good power mosfet and check for proper operation.
5. If the problem is corrected, replace the power mosfet.

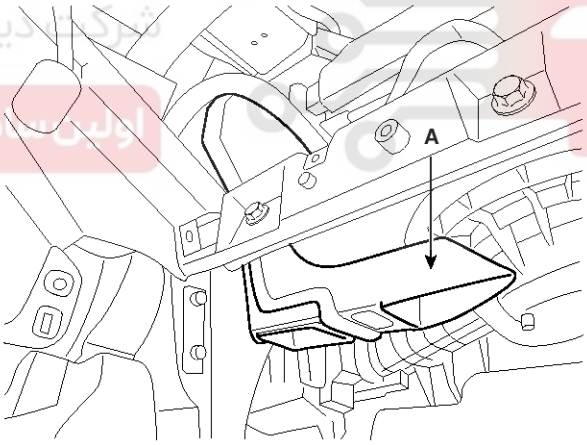
Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the crash pad lower cover (A) and then disconnect the connector (B).



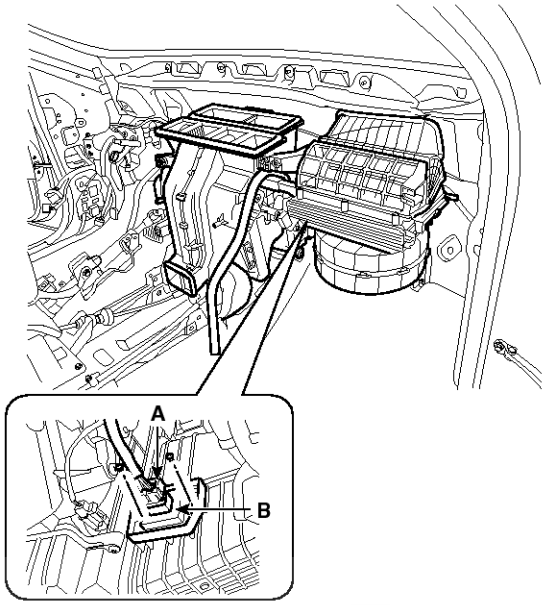
SVGHA0022D

3. Remove the shower duct(A).



SVGHA0024D

4. Disconnect the power mosfet connector (A) and then remove the power mosfet (B) after loosening the mounting screws.



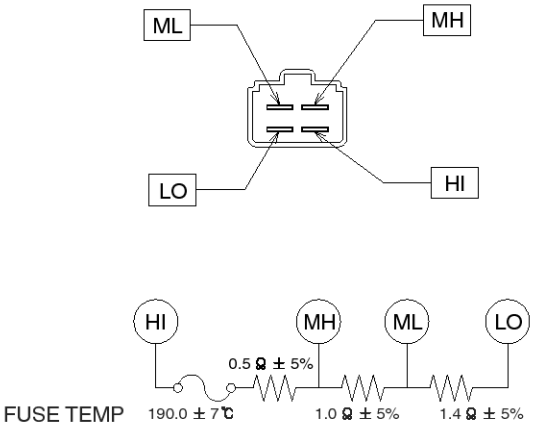
SYFHA0094D

5. Installation is the reverse order of removal.

Blower Resistor

Inspection

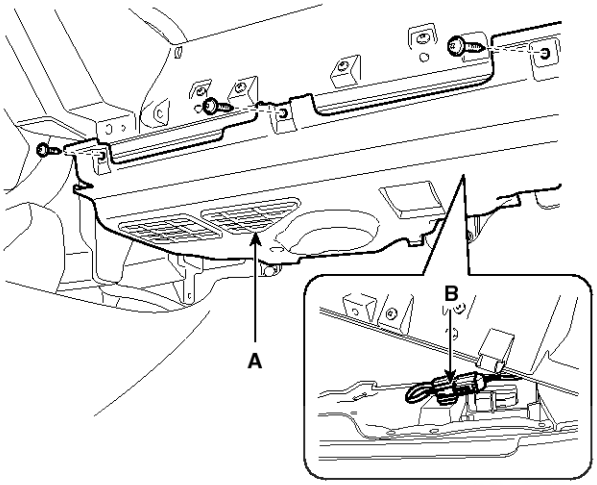
1. Measure terminal - to - terminal resistance of blower resistor.
2. If measure resistance isnot within specification, the blower resistor must be replaced.



SHDHA6080D

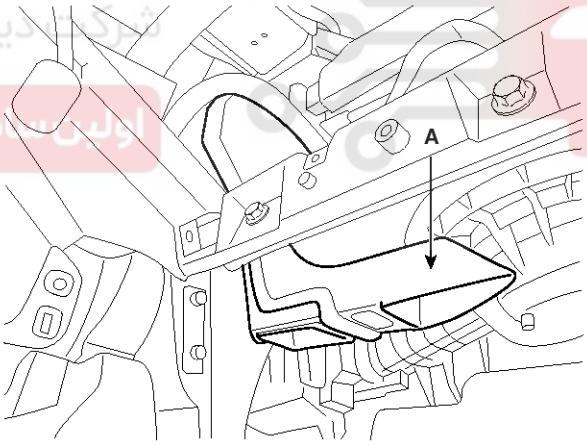
Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the crash pad lower cover (A) and then disconnect the connector (B).



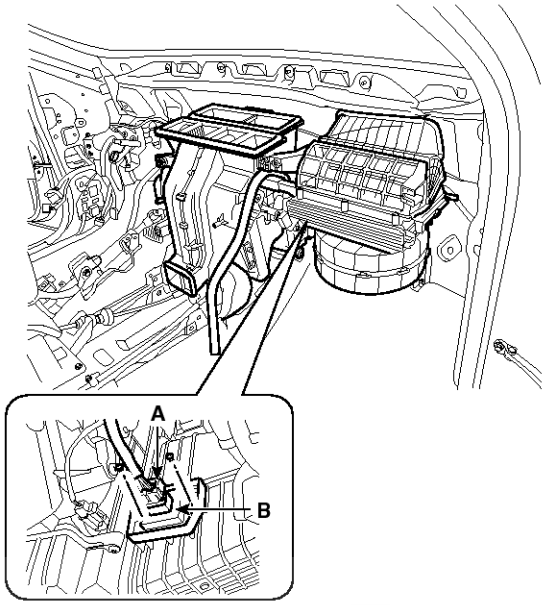
SVGHA0022D

3. Remove the shower duct(A).



SVGHA0024D

4. Disconnect the power mosfet connector (A) and then remove the power resistor (B) after loosening the mounting screws.



SYFHA0094D

5. Installation is the reverse order of removal.

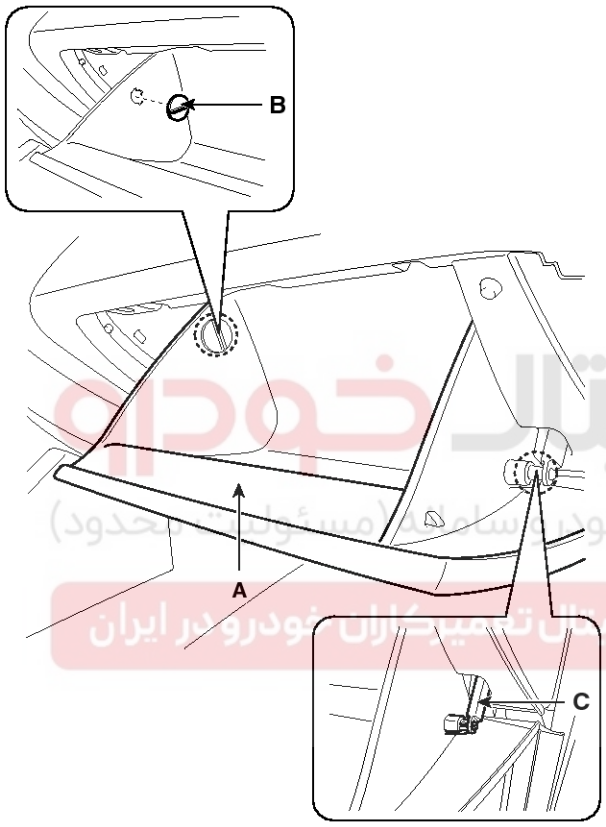
Climate Control Air Filtar

Description

This has particle filter which eliminates foreign materials and odor. The particle filter includes odor filter as well as conventional dust filter to ensure comfortable interior environment.

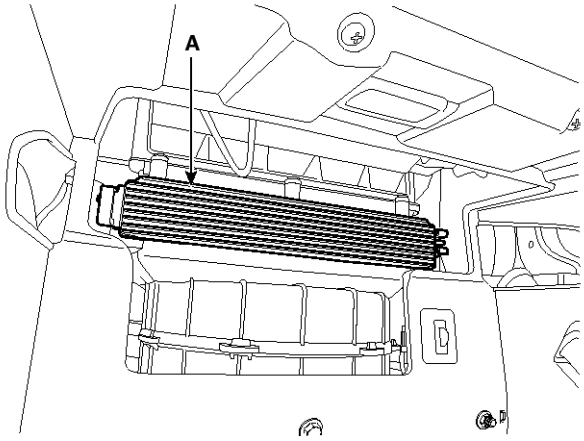
Replacement

1. Disconnect the damper (B) from the glove box (A) and then remove the glove box lift (C).



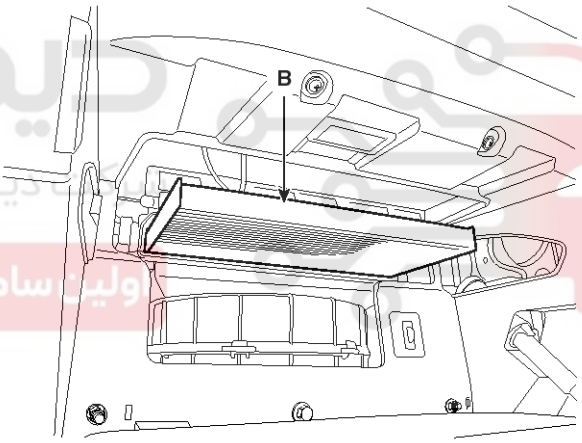
SVGHA0056D

2. Remove the filter cover (A) with pushing the knob.



SYFHA0097D

3. Replace the air filter (B), install it after making sure of the direction of air filter.



SYFHA0098D

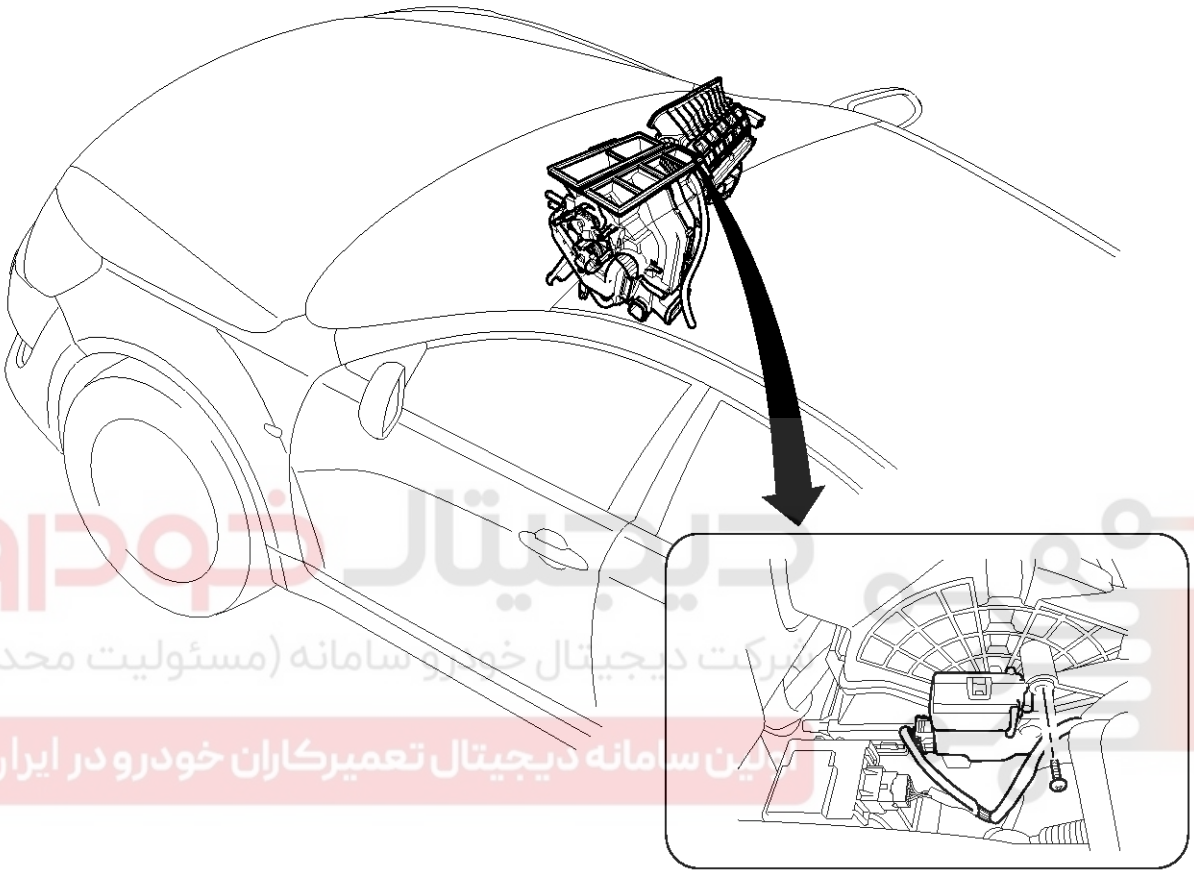
4. Installation is the reverse order of removal.

NOTICE

In case of driving in an air-polluted area or rugged terrain, check and replace the air filter as frequently as possible.

Intake Actuator

Component Location



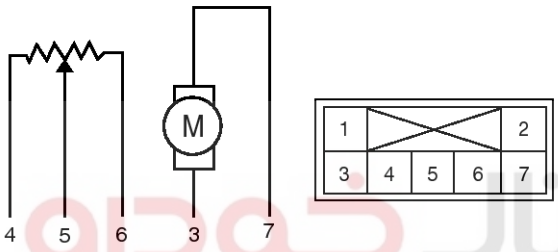
SVGHA0014L

Description

1. The intake actuator is located at the blower unit.
2. It regulates the intake door by signal from control unit.
3. Pressing the intake selection switch will shift between recirculation and fresh air modes.

Inspection

1. Ignition "OFF".
2. Disconnect the intake actuator connector.
3. Verify that the actuator operates to the recirculation position when connecting 12V to the terminal 3 and grounding terminal 7.
4. Verify that the intake actuator operates to the fresh position when connecting in the reverse.



SYFHA0051D

1. -
2. -
3. Fresh
4. 5V (Vcc)
5. Feedback Signal
6. Sensor Ground
7. Recirculation

5. Check the voltage between terminals 5 and 6.

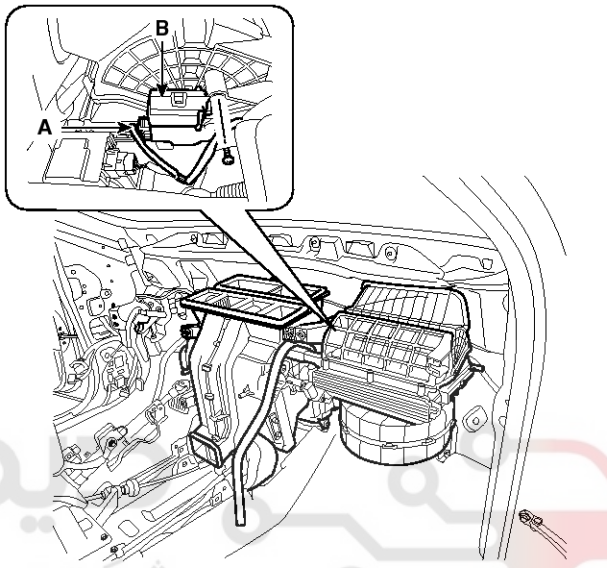
Specification

Door position	Voltage(5-6)	Error detecting
Recirculation	0.3 ± 0.15V	Low voltage :0.1V or less
Fresh	4.7 ± 0.15V	High voltage :4.9V or more

6. If the intake actuator is not operated well, substitute with a known-good intake actuator and check for proper operation.
7. If the problem is corrected, replace the intake actuator.

Replacement

1. Disconnect the negative (-) battery terminal.
2. Remove the crash pad.
   (Refer to BD group – "Crash pad")
3. Disconnect the Intake actuator connector (A).
4. Loosen the mounting screw and then remove the intake actuator (B).
5. Installation is the reverse order of removal.

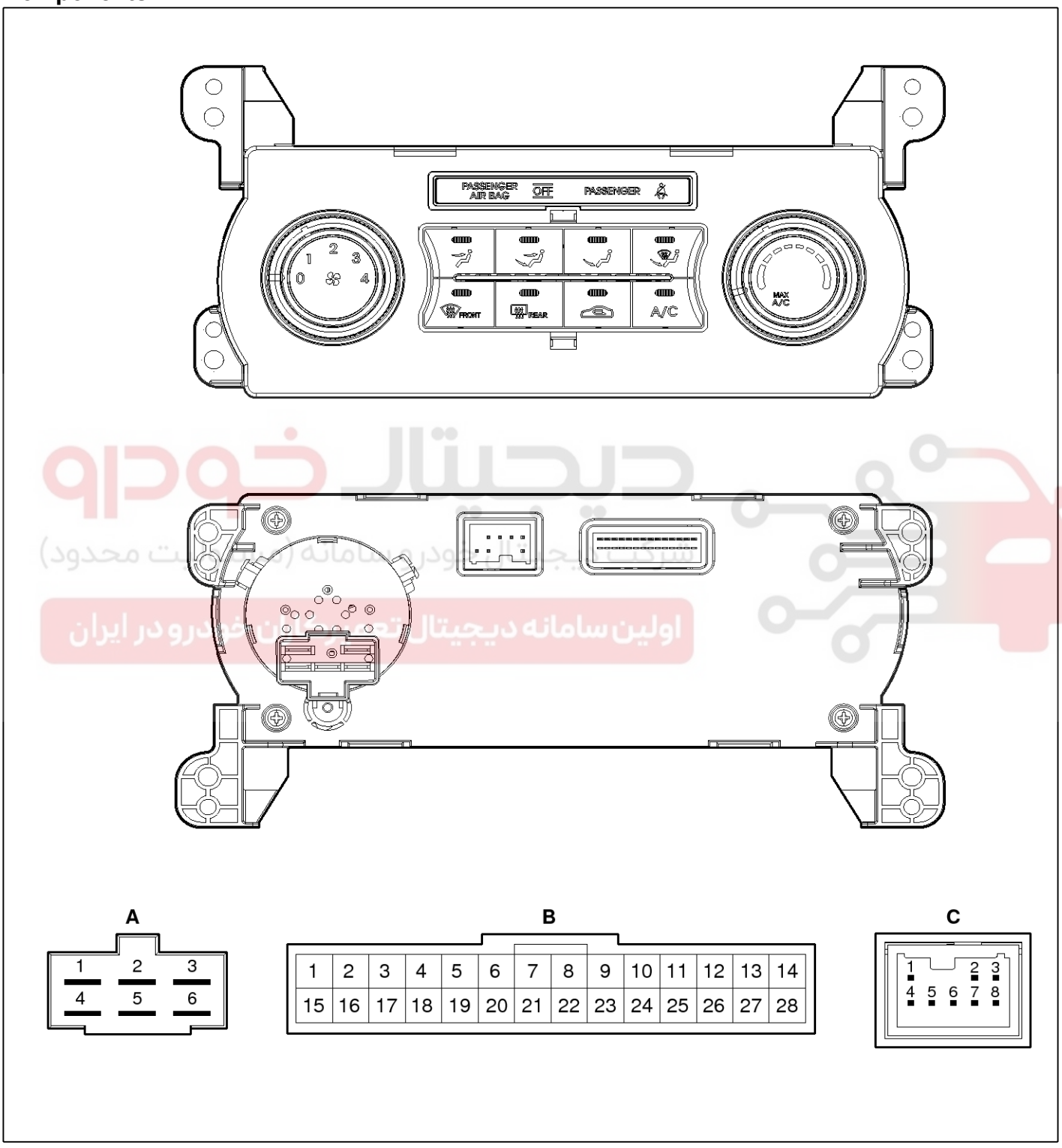


SVGHA0015L

Controller

Heater & A/C Control Unit(Manual)

Components



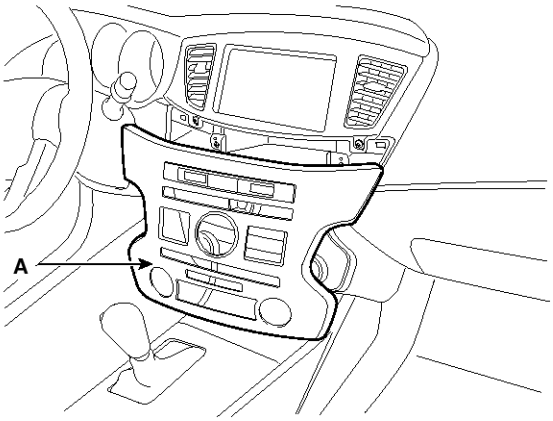
SVGHA0078D

Connector pin function

Connector	PIN No	Function	Connector	Pin No	Function
Connector(A)	1	High	Connector(C)	1	ECV (+)
	2	Middle Low		2	-
	3	GND		3	C_Can High
	4	Middle High		4	ECV (-) GND
	5	Low		5	Blower F/B
Connector(B)	1	IGN2		6	Clock Ref 5V
	2	Battery		7	Ambient Senor (+)
	3	Detent Out Signal		8	C_Can Low
	4	Blower ON Signal			
	5	Diagnosis			
	6	HTD			
	7	Mode Actuator (Vent)			
	8	Mode Actuator (Def)			
	9	Temp Actuator (Cool)			
	10	Temp Actuator (Warm)			
	11	Intake Actuator (Fresh)			
	12	Intake Actuator (Rec)			
	13	Rear Defog S/W			
	14	GND			
	15	Tail Lamp (+ILL)			
	16	-			
	17	Sensor REF (+5V)			
	18	Mode Actuator (F/B)			
	19	Temp Actuator (F/B)			
	20	Intake Actuator (F/B)			
	21	Evaporator Sensor (+)			
	22	Sensor GND			
	23	Clean Signal			
	24	Ion Signal			
	25	-			
	26	-			
	27	Temp Conversion Signal ON Clock			
	28	Rheostat (ILL-)			

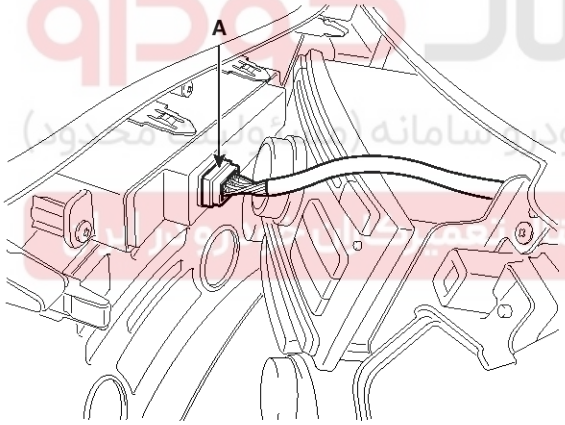
Replacement

1. Disconnect the negative (-) battery terminal.
2. Using the screwdriver, remove the center fascia panel(A).



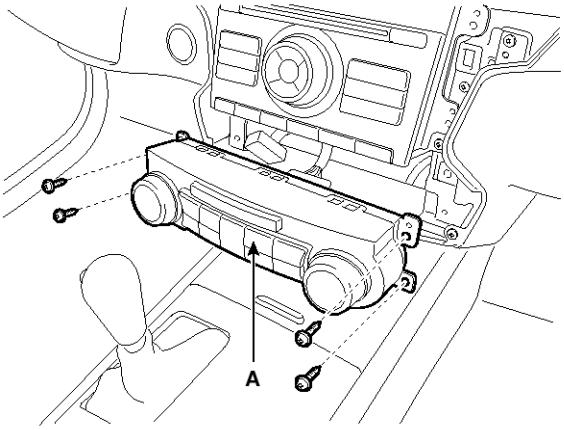
SVGHA0079D

3. Disconnect the connectors(A) and then remove the center fascia panel from the crash pad.



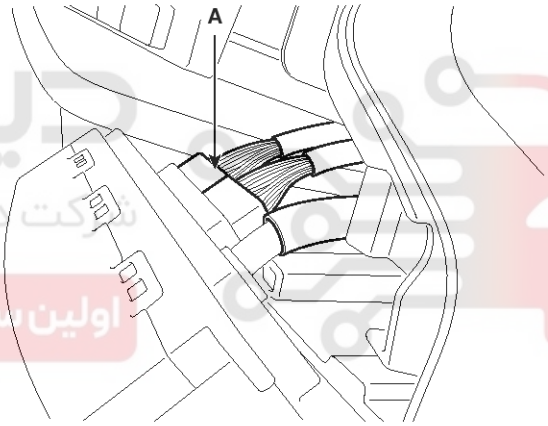
SVGHA0082D

4. Loosen the mounting screws and then remove the heater and A/C controller(A).



SVGHA0080D

5. Disconnect the connectors(A) and then remove the heater and A/C controller(A).

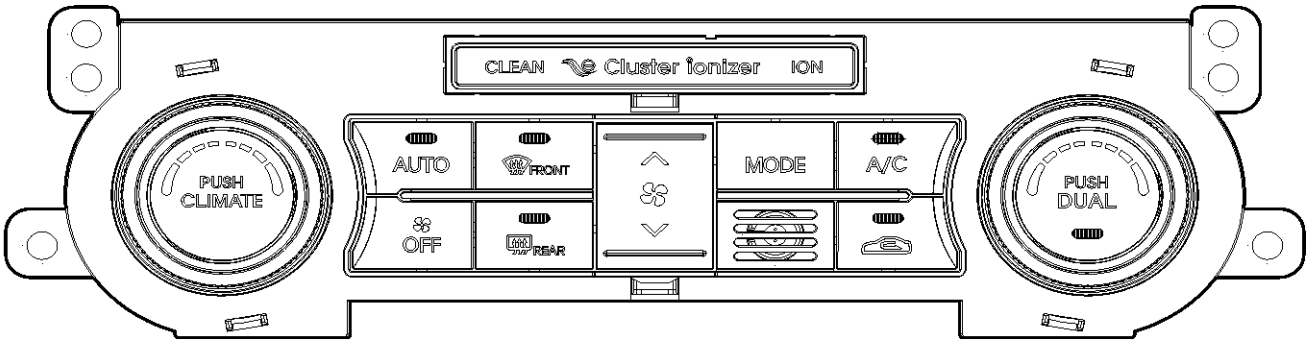


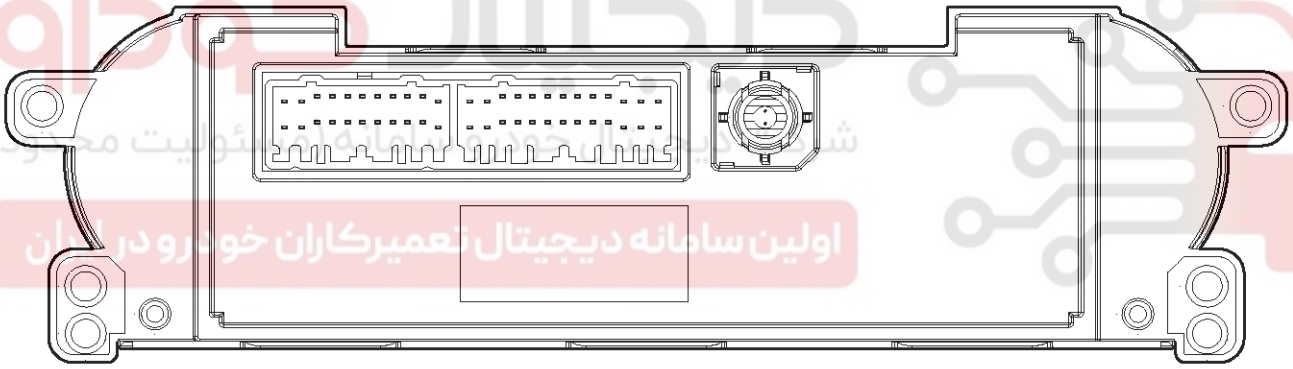
SVGHA0081D

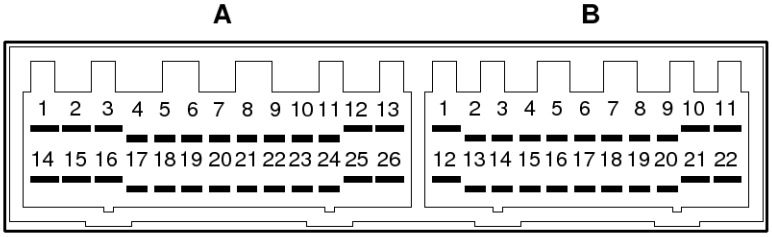
6. Installation is the reverse order of removal.

Heater & A/C Control Unit(Full Automatic)

Components







SVGHA0083D

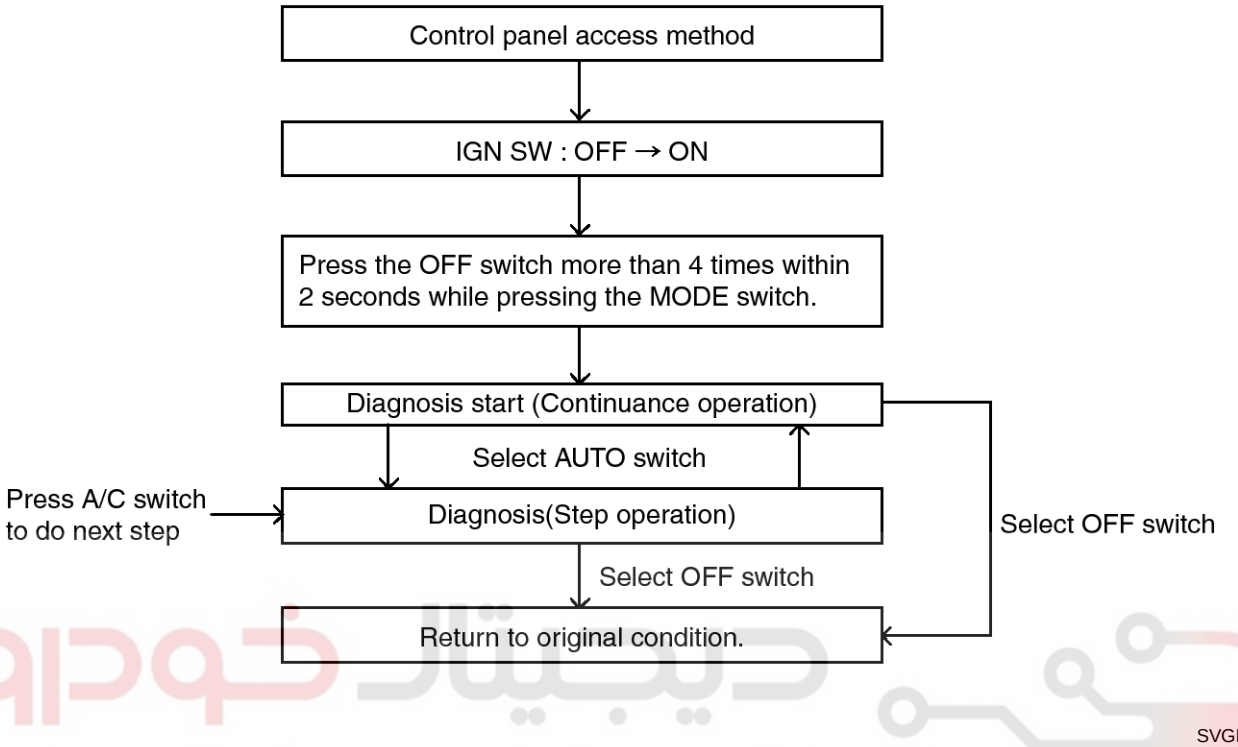
Connector pin function

Connector	PIN No	Function	Connector	PIN No	Function
Connector(A)	1	TAIL LAMP	Connector(B)	1	Sensor REF (+5V)
	2	BATTERY		2	Ambient Sensor (+)
	3	Def Actuator (CLOSE)		3	-
	4	Def Actuator (OPEN)		4	Evaporator Sensor (+)
	5	Can Low		5	Def Actuator F/B
	6	Can High		6	Detent Out Signal
	7	MM _ Can Low		7	Photo Sensor Left (-)
	8	MM _ Can High		8	Photo Sensor Right (-)
	9	HTD		9	FET (G)
	10	Rear Defog SW		10	FET (Drain F/B)
	11	K - Line		11	Sensor GND
	12	ECV (+)		12	Blower Motor (+)
	13	Rheostat		13	Temp Actuator DR (Cool)
	14	IG2		14	Temp Actuator DR (Warm)
	15	-		15	Temp Actuator DR F/B
	16	Temp Actuator PS (COOL)		16	Auto Defog Sensor
	17	Temp Actuator PS (WARM)		17	IGN1
	18	Temp Actuator PS F/B		18	PAB Cut OFF Signal
	19	Mode Actuator (VENT)		19	SBR Signal
	20	Mode Actuator (DEF)		20	Cluster Ionizer Signal
	21	Mode Actuator F/B		21	Ion Signal
	22	Intake Actuator (FRE)		22	Clean Signal
	23	Intake Actuator (REC)			
	24	Intake Actuator F/B			
	25	ECV (-) GND			
	26	GND			

Inspection

Self diagnosis

1. Self-diagnosis process



2. How to read self-diagnostic code.

   After the display panel flickers three times every 0.5 second, the corresponding fault code flickers on the setup temperature display panel every 0.5 second and will show two figures. Codes are displayed in numerical format

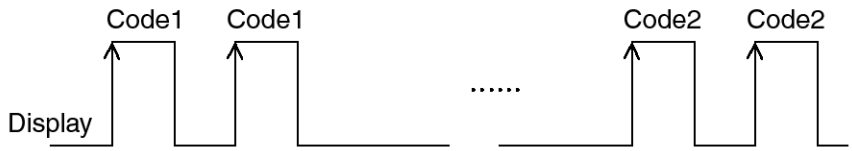
Fault code

Display	Fail description
00	Normal
11	In-car sensor open
12	In-car sensor short
13	Ambient sensor open
14	Ambient sensor short
17	Evaporator sensor open
18	Evaporator sensor short
19	Temp door potentiometer open/short- Drive
20	Temp door potentiometer fault- Drive
21	Mode door potentiometer open/short
22	Mode door potentiometer fault
25	Intake door potentiometer open
26	Intake door potentiometer short
32	Temp door potentiometer open/short - Passenger
33	Temp door potentiometer fault - Passenger
43	Auto defog potentiometer open/short
44	Auto defog potentiometer fault
45	APT CAN signal fault
46	-
47	RPM CAN signal fault
48	Vehicle speed CAN signal fault
49	Engine coolant temp CAN signal fault
50	Cluster ion generator fault
53	D/Clock reference High (above 3.75)-MTS, AVN Only
54	D/Clock reference Low (below 3.05)-MTS, AVN Only
55	Ambient Temperature Sensor Fault - MTS, AVN Only
56	Ambient Temperature Sensor Open/Short - MTS, AVN Only

3. Fault code display
   1) Continuance operation : DTC code is one.

BQKF500C

   2) Continuance operation : DTC code is more two.



BQKF500D

   3) STEP operation
      A. Normal or one fault code is same as a continuance operation.
      B. DTC code as more two.

BQKF500E

4. If fault codes are displayed during the check, Inspect malfunction causes by referring to fault codes.
5. Fail safe.
   1) In-car temperature sensor: Control with the value of 25˚C(77.0˚F).
   2) Ambient temperature sensor: Control with the value of 20˚C(67˚F).
   3) Evaporator temperature sensor: Control with the value of -2˚C(28.4˚F).
   4) Temperature control actuator (Air mix potentiometer) :

      If temperature setting 17˚C-24.5˚C, fix at maximum cooling position.

      If temperature setting 25˚C-32˚C, fix at maximum heating position.
   5) Mode control actuator (Direction potentiometer) :

      Fix vent position, while selecting vent mode.

      Fix defrost position, while selecting all except vent mode.
   6) Intake control actuator :

      Fix fresh position, while selecting fresh mode.

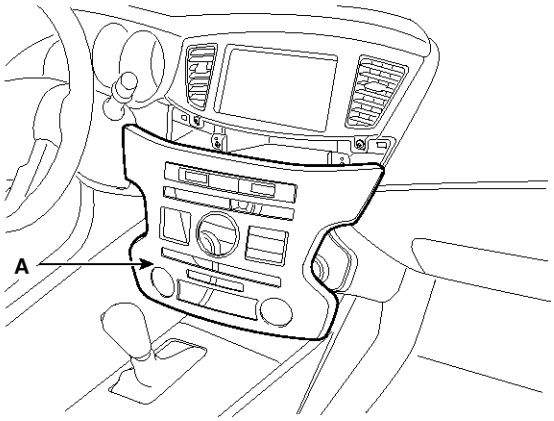
      Fix recirculation position, while selecting recirculation mode.
   7) Auto defog sensor : Control with the value of humidity 0%.
   8) Auto defog actuator :

      Fix Close mode, while selecting Vent bi mode.

      Fix Open, while selecting all except Vent bi mode.

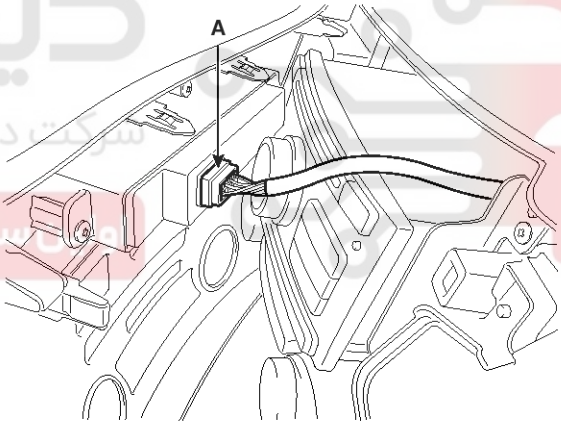
Replacement

1. Disconnect the negative (-) battery terminal.
2. Using the screwdriver, remove the center fascia panel(A).



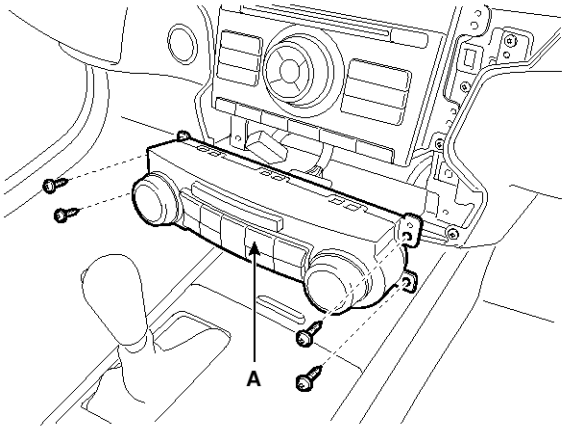
SVGHA0079D

3. Disconnect the connectors(A) and then remove the center fascia panel from the crash pad.



SVGHA0082D

4. Loosen the mounting screws and then remove the heater and A/C controller(A).



SVGHA0080D

5. Disconnect the connectors(A) and then remove the heater and A/C controller(A).
6. Installation is the reverse order of removal.