

AIR CONDITIONING

GENERAL INFORMATION	30-3	Inner/Outer Circulation Damper Servo Motor (for Manual A/C)	30-35
Description	30-3	Removal	30-35
Specifications	30-5	Inspection	30-35
Tools	30-7	Installation	30-36
Circuit Diagram	30-8	Inner/Outer Circulation Damper Servo Motor (for Power A/C)	30-37
DIAGNOSIS & TESTING	30-15	Removal	30-37
Problem Symptoms Table	30-15	Inspection	30-37
A/C System Function	30-17	Installation	30-38
Ground Inspection	30-18	Mix Damper Servo Motor (for Power A/C)	30-39
ON-VEHICLE SERVICE	30-19	Removal	30-39
On-vehicle Inspection	30-19	Inspection	30-39
Compressor Assembly Noise Inspection	30-19	Installation	30-40
Refrigerant Leakage Inspection	30-20	Mode Damper Servo Motor (for Power A/C)	30-41
Refrigerant Recovering/Draining	30-22	Removal	30-41
Vacuum Pumping	30-23	Inspection	30-41
Refrigerant Recharging	30-23	Installation	30-42
Refrigerant Oil Recovering	30-24	HVAC Assembly	30-43
Refrigerant Oil Charging	30-25	Removal	30-43
Center Control Integration Panel Assembly (for Manual A/C)	30-26	Disassembly	30-45
Removal	30-26	Inspection	30-53
Inspection	30-27	Assembly	30-54
Installation	30-27	Installation	30-55
Center Control Integration Panel Assembly (for Power A/C)	30-28	A/C Low Pressure Line	30-56
Removal	30-28	Removal	30-56
Inspection	30-29	Installation	30-57
Installation	30-29	A/C High Pressure Line	30-58
A/C Element	30-30	Removal	30-58
Removal	30-30	Installation	30-60
Installation	30-30	Compressor Assembly	30-61
Blower Assembly	30-31	Removal	30-61
Removal	30-31	Installation	30-62
Inspection	30-31	Condenser Assembly (w/ Receiver Drier)	30-63
Installation	30-32	Removal	30-63
Blower Speed Resistor	30-33	Inspection	30-64
Removal	30-33	Installation	30-64
Inspection	30-34		
Installation	30-34		

دیجیتال خودرو

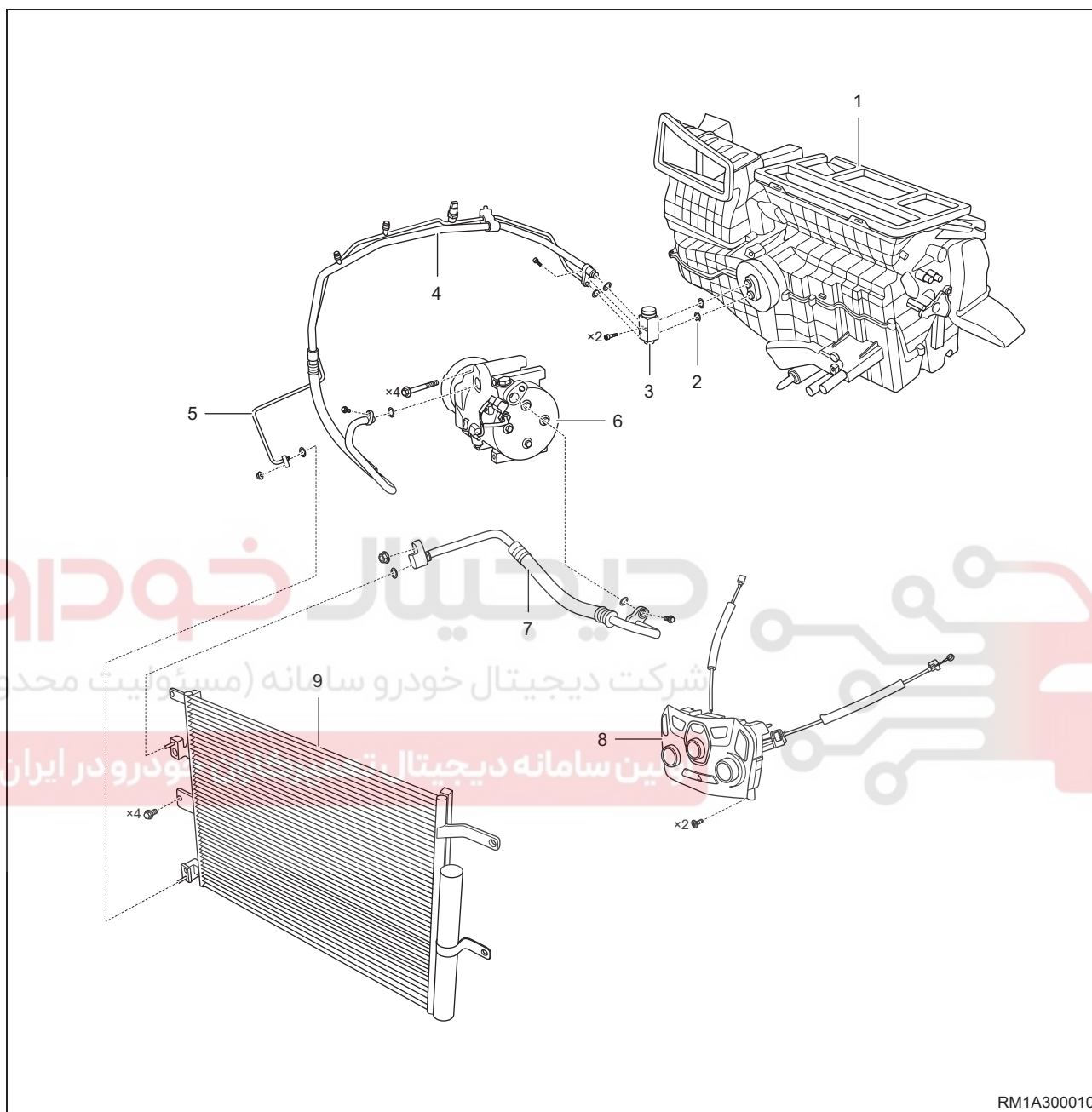
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



GENERAL INFORMATION

Description



RM1A300010

1 - HVAC Assembly	2 - O-ring
3 - Expansion Valve	4 - Evaporator to Compressor Line Assembly
5 - Condenser to Evaporator Line Assembly	6 - Compressor Assembly
7 - Compressor to Condenser Line Assembly	8 - Center Control Integration Panel Assembly
9 - Condenser Assembly (w/ Receiver Drier)	

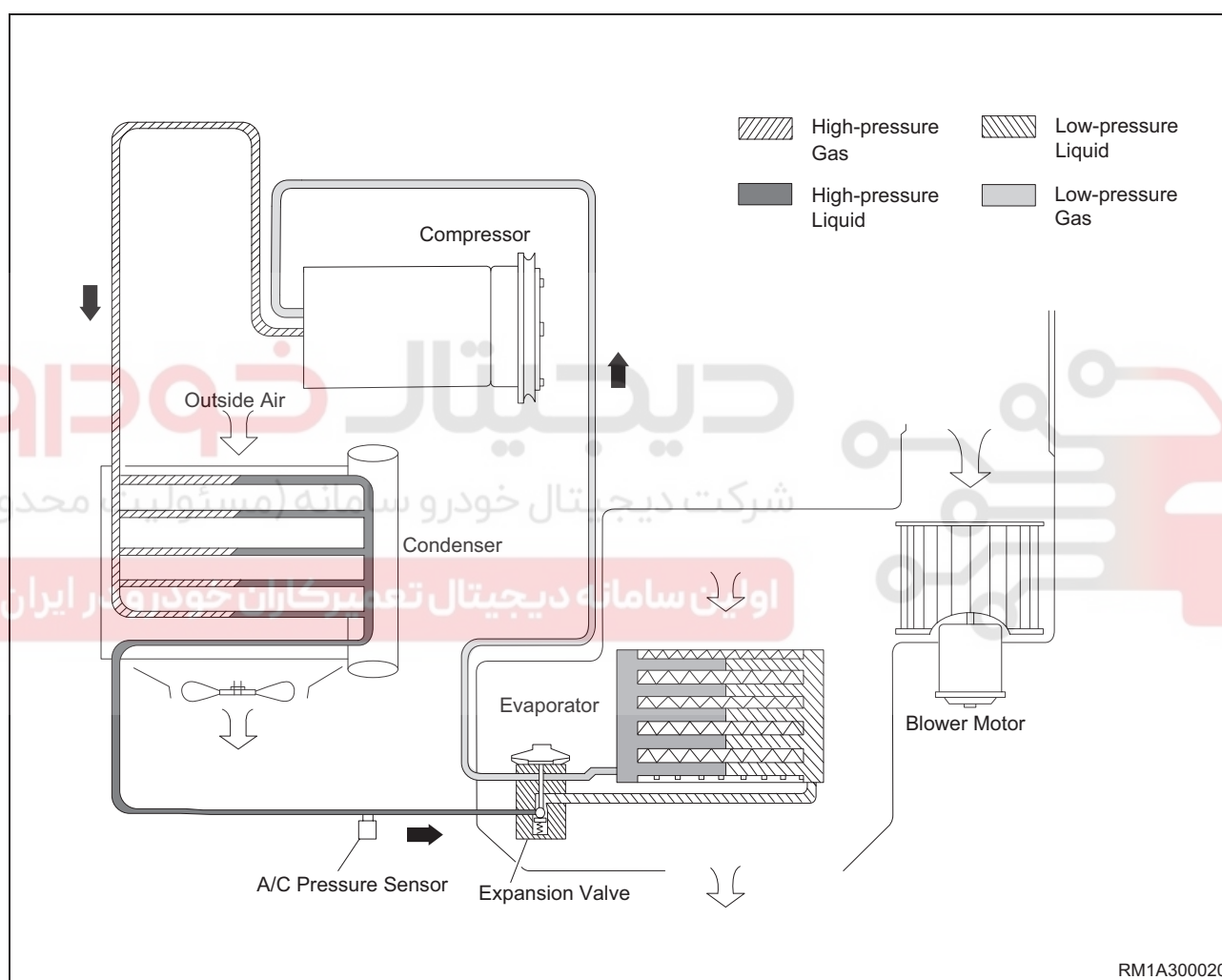
System composition

Manual or power A/C is available for this model. A/C system consists of following four parts:

- Air conditioning and distribution system: air mix and distributor part of HVAC, inner/outer circulation inlet, outlet and air filter.
- Control system: center control integration panel assembly, inner/outer circulation damper servo motor, blower, blower speed resistor, A/C pressure sensor 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 core assembly and A/C high/low pressure line.

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Operation



Outside fresh air enters air inlet filter assembly through cowl top opening at bottom right side of windshield. Fresh air flows through evaporator core and heater core, and then enters vehicle through outlets on instrument panel and floor. Intake air volume can be adjusted by blower speed switch on center control integration panel assembly. By pressing A/C switch on center control integration panel assembly, compressor assembly is energized to compress refrigerant into high-temperature high-pressure gas and transmit it to condenser in which the gas turns into high-pressure liquid and filtered and dried by receiver drier (integrated with condenser), then it is transmitted to expansion valve and becomes low-pressure liquid through throttling and depressurization. Finally the liquid enters evaporator in vehicle and absorbs heat to evaporate, thus refrigeration is achieved. A/C heating is realized by engine coolant circulation system. Heater core is a main component of heating system. With engine running, engine coolant flows from engine water pump to heater core, and the heater core transmits heat from engine coolant to the air that flows through heater core. At this time, A/C switch is off. The air flowing through heater core becomes hot wind through heat exchanging, thus

providing heating. Temperature adjustment control mechanism can be controlled by rotating temperature adjustment knob. Mix damper closes when temperature adjustment knob is rotated counterclockwise to MAX COOL position. If airflow does not flow through heater core, heat transmission will not occur. When rotating temperature adjustment knob clockwise from MAX COOL position, the mix damper will open slowly, allowing air to flow through gap of heater core. Most of airflow is heated in this way and discharged air becomes warmer. When temperature adjustment knob is rotated counterclockwise to MAX HOT position, the mix damper is fully opened and all air flows through heat core, thus air is heated. Mode knob on A/C control panel is used to direct air with temperature adjusted through selected outlets.

Specifications

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Torque Specifications

Description	Torque (N·m)
Center Control Integration 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
Inner/Outer Circulation Damper Servo Motor Fixing Screw	1.5 ± 0.5
Coupling Bolt Between A/C High/Low Pressure Line and Expansion Valve	9 ± 1.5
Fixing Nut Between HVAC Assembly and Body	5 ± 1
Fixing Bolt Between HVAC Assembly and Body	5 ± 1
A/C Wire Harness Assembly Ground Nut	7 ± 1.5
Air Inlet Assembly Front Fixing Screw	1.5 ± 0.5
Air Inlet Assembly Rear Fixing Screw	1.5 ± 0.5
Left Foot Fan Shield Fixing Screw	1.5 ± 0.5
Right Foot Fan Shield Fixing Screw	1.5 ± 0.5
Heater Core Line Pressure Plate Fixing Screw	1.5 ± 0.5
Heater Core Line Cover Plate Fixing Screw	1.5 ± 0.5
Coupling Bolt Between Expansion Valve and Expansion Valve Mounting Pressure Plate	7 ± 1
Evaporator Core Assembly Line Pressure Plate Fixing Screw	1.5 ± 0.5
Upper Fixing Screw Between Distributor Housing Assembly and Evaporator Housing Assembly	1.5 ± 0.5
Left Fixing Screw Between Distributor Housing Assembly and Evaporator Housing Assembly	1.5 ± 0.5
Lower Fixing Screw Between Distributor Housing Assembly and Evaporator Housing Assembly	1.5 ± 0.5
Evaporator Assembly Front Fixing Screw	1.5 ± 0.5
Evaporator Assembly Rear Fixing Screw	1.5 ± 0.5
Evaporator Assembly Lower Fixing Screw	1.5 ± 0.5
Coupling Nut Between A/C High/Low Pressure Line Set Bracket and Body	9 ± 1.5

30 - AIR CONDITIONING

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Description	Torque (N·m)
Coupling Bolt Between A/C High/Low Pressure Line Set Bracket and Body	9 ± 1.5
Fixing Bolt Between A/C Low Pressure Line and Compressor Assembly	25 ± 4
Fixing Bolt Between A/C High Pressure Line I and Condenser Assembly	9 ± 1.5
Fixing Bolt Between A/C High Pressure Line II and Condenser Assembly	9 ± 1.5
Fixing Bolt Between A/C High Pressure Line II and Compressor Assembly	25 ± 4
Fixing Bolt Between Compressor Mounting Bracket and Engine	40 ± 5
Fixing Bolt Between Radiator Assembly and Condenser Assembly	7 ± 1

Refrigerant Charging Specification

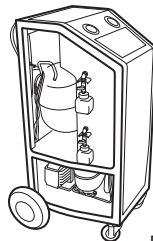
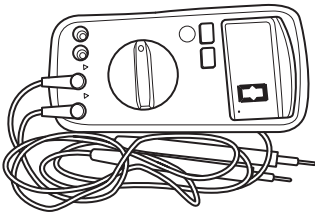
Description	Charging Capacity (g)
R134a Refrigerant	500 ± 10

Refrigerant Oil Charging Specifications

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

Tools

General Tools

Refrigerant Recycling Machine	 RCH0000046
Digital Multimeter	 RCH0000002

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

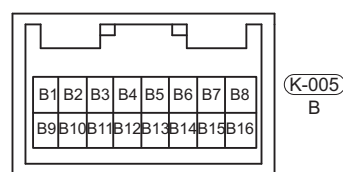
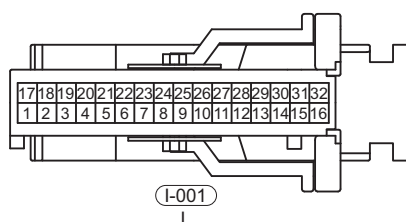
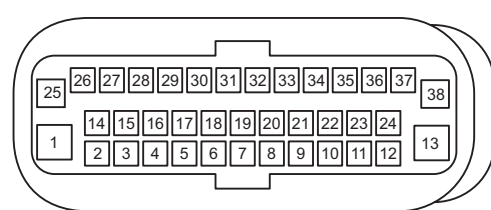
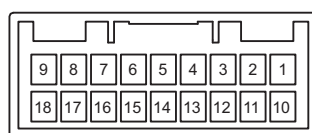
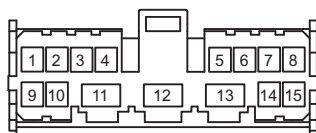
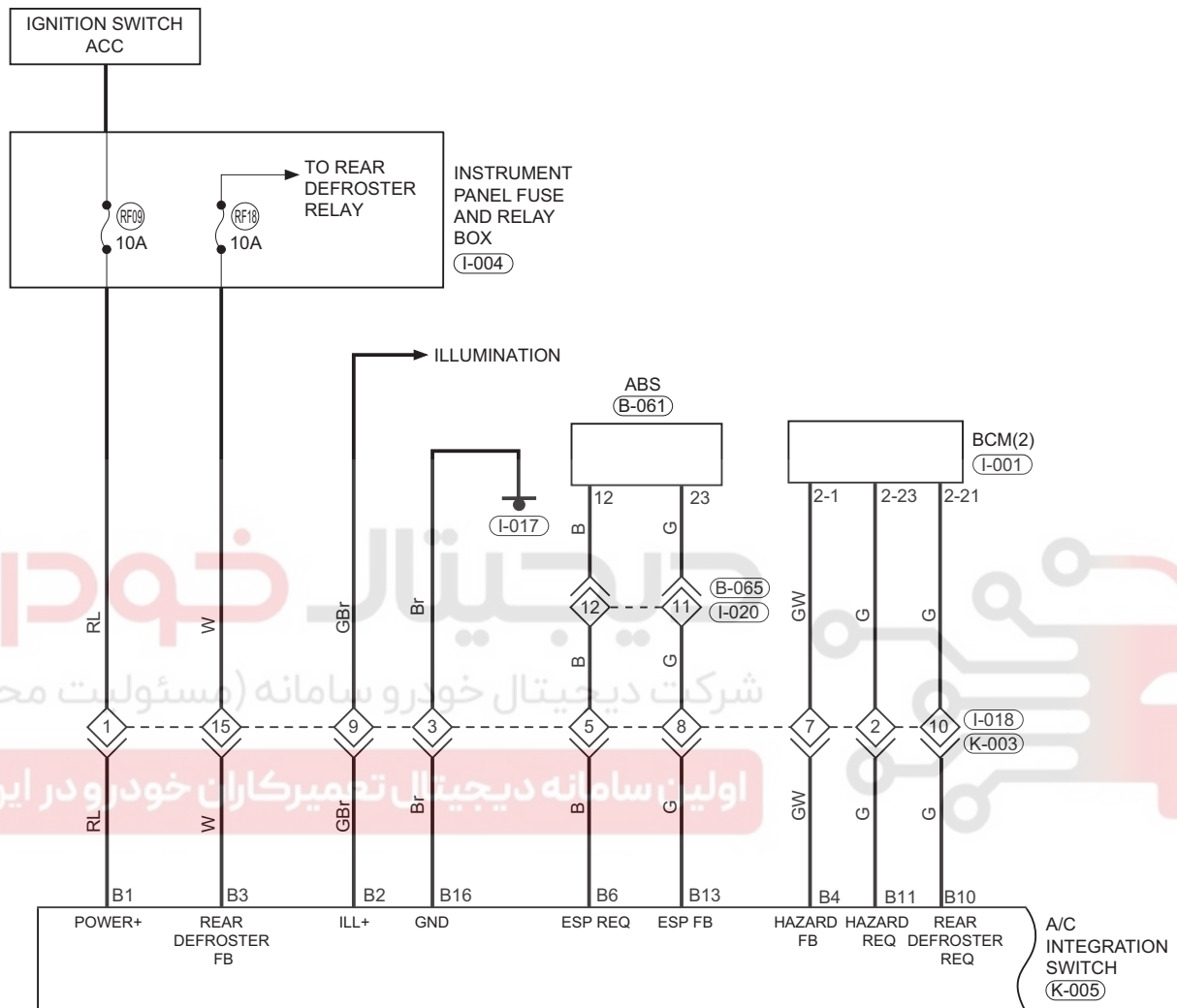
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



Circuit Diagram

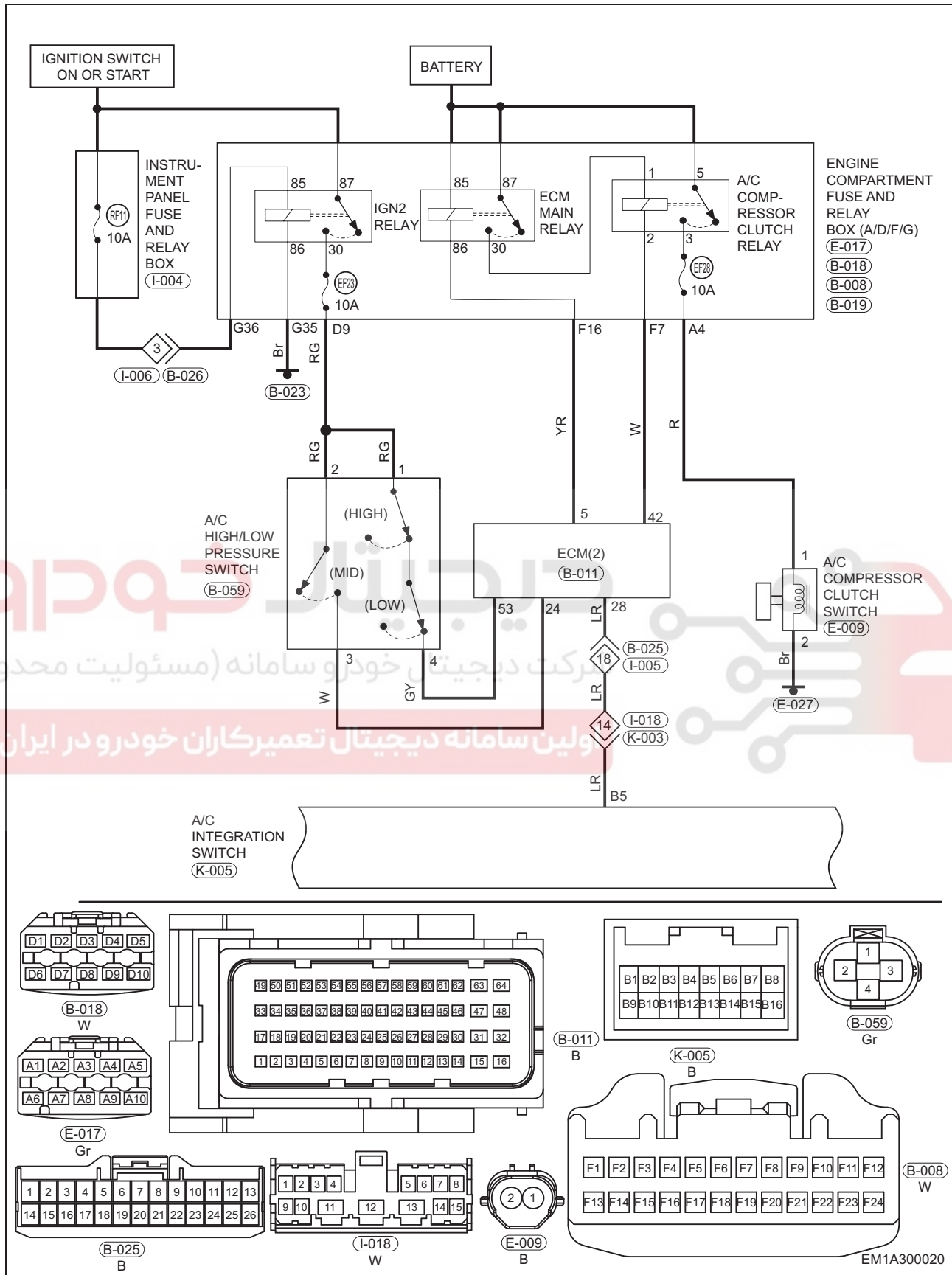
Manual A/C system (Page 1 of 3)

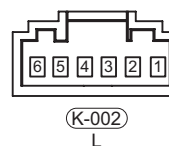
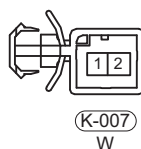
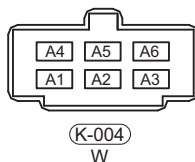
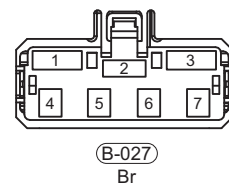
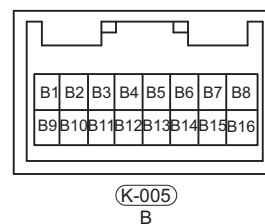
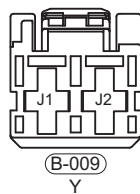
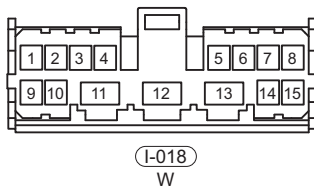
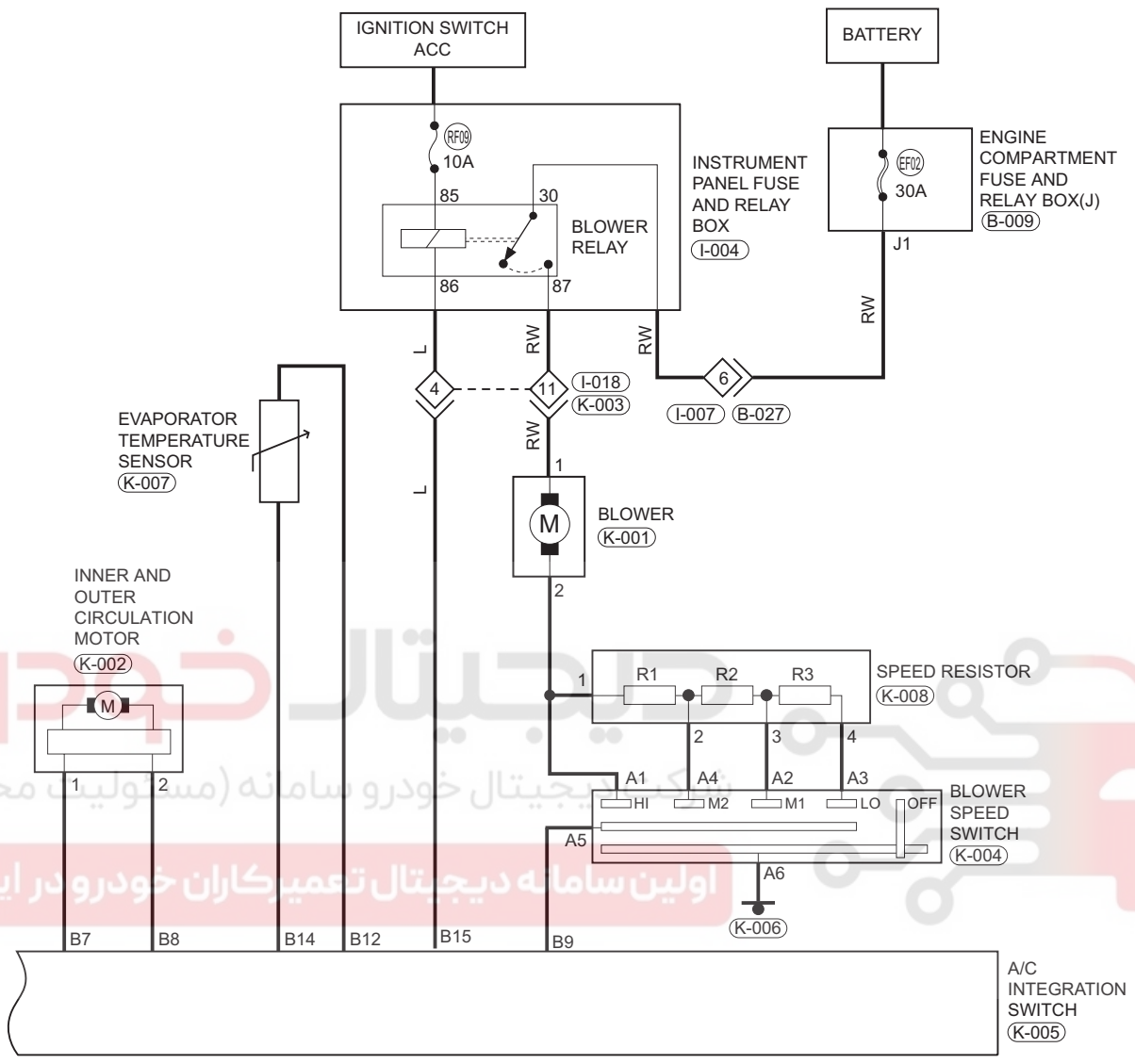
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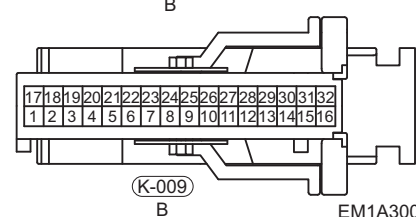
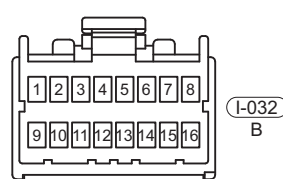
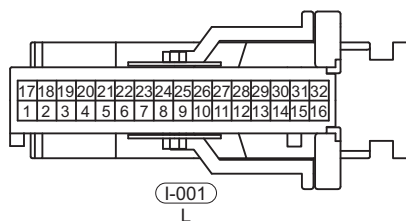
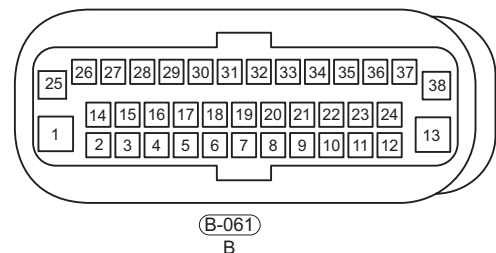
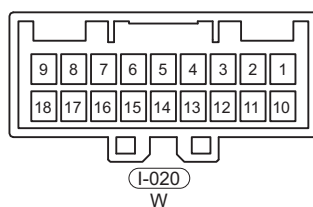
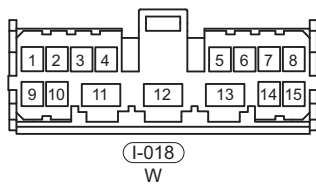
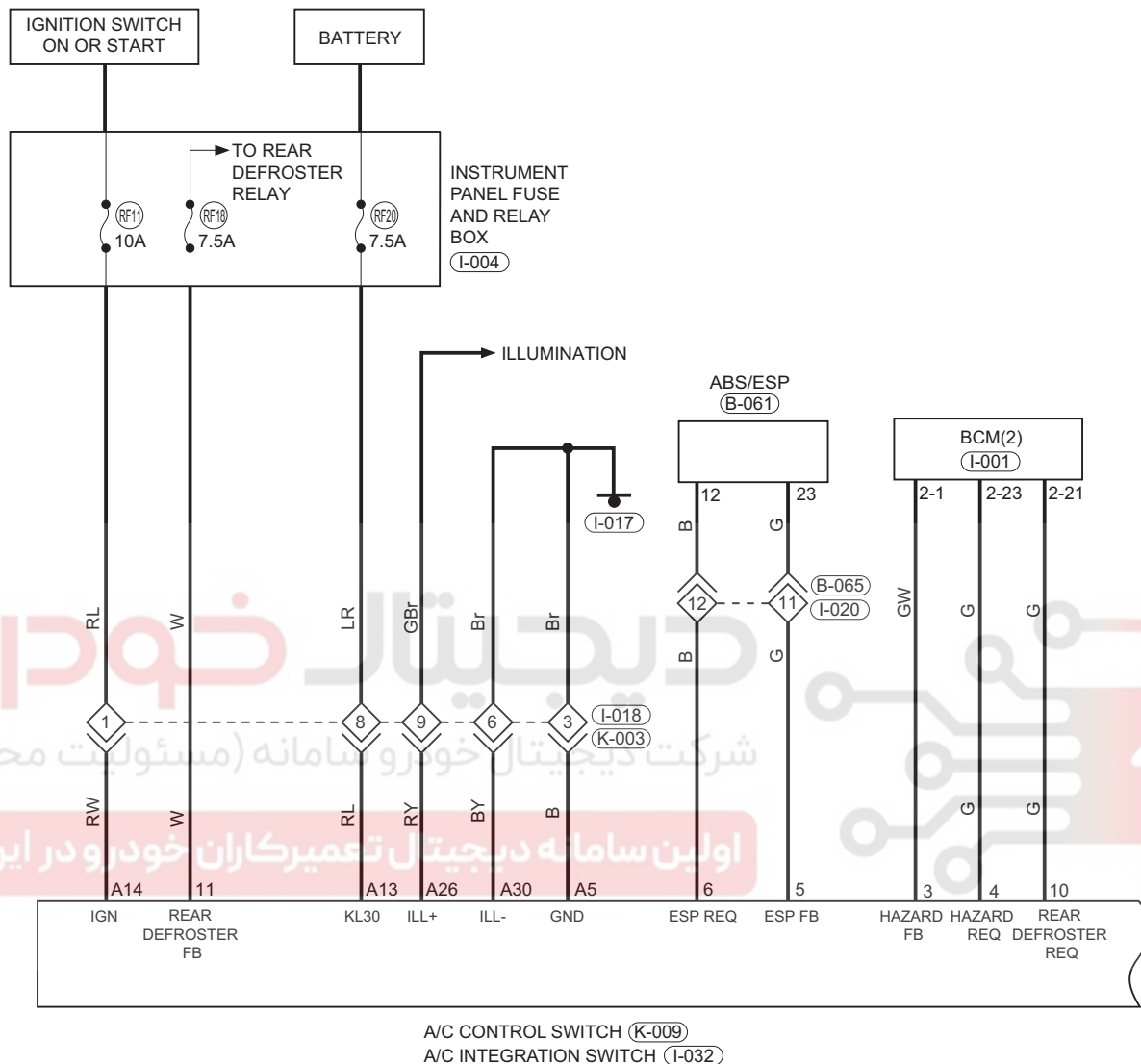
Manual A/C system (Page 2 of 3)





Power A/C System (Page 1 of 4)

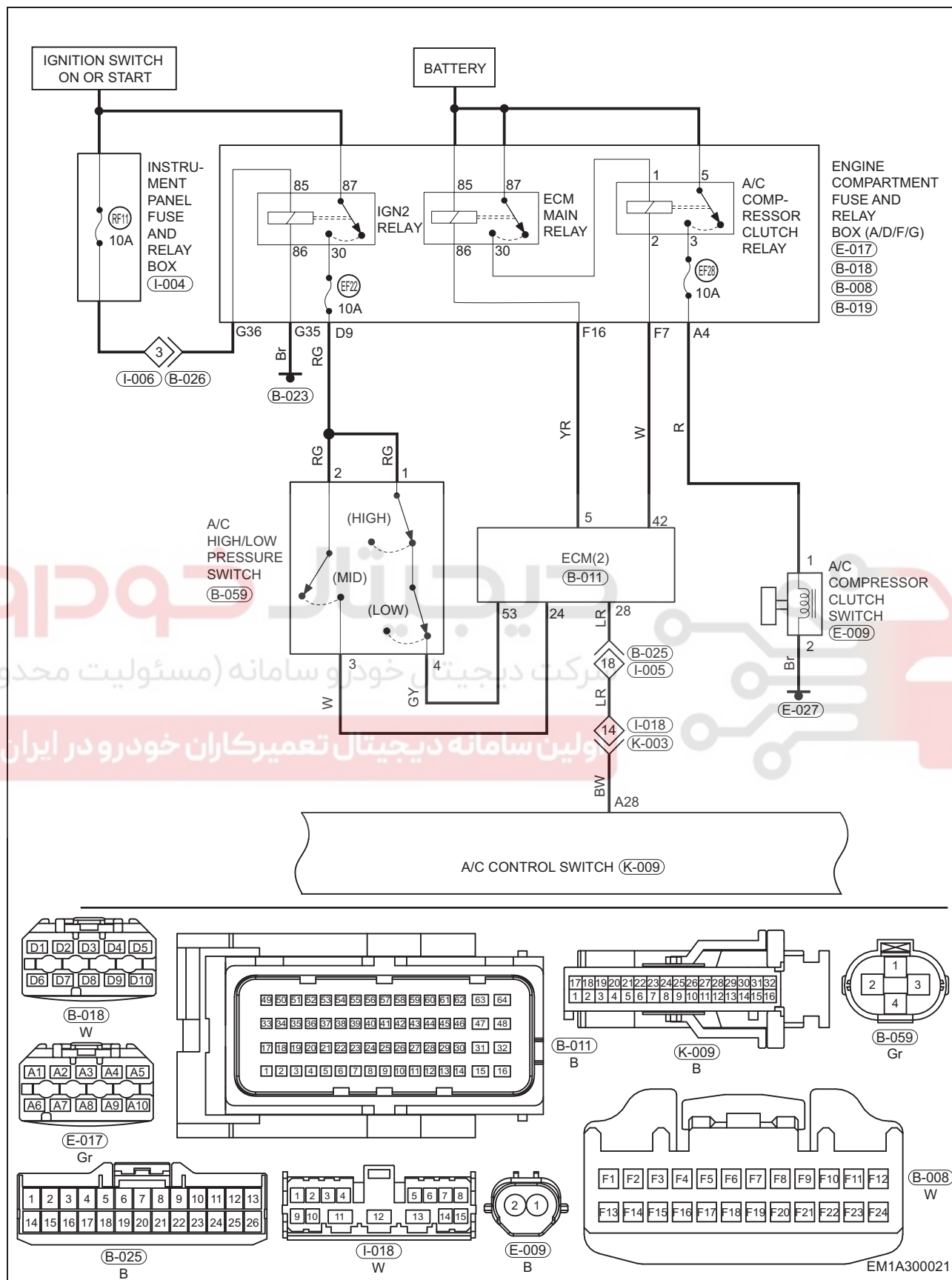
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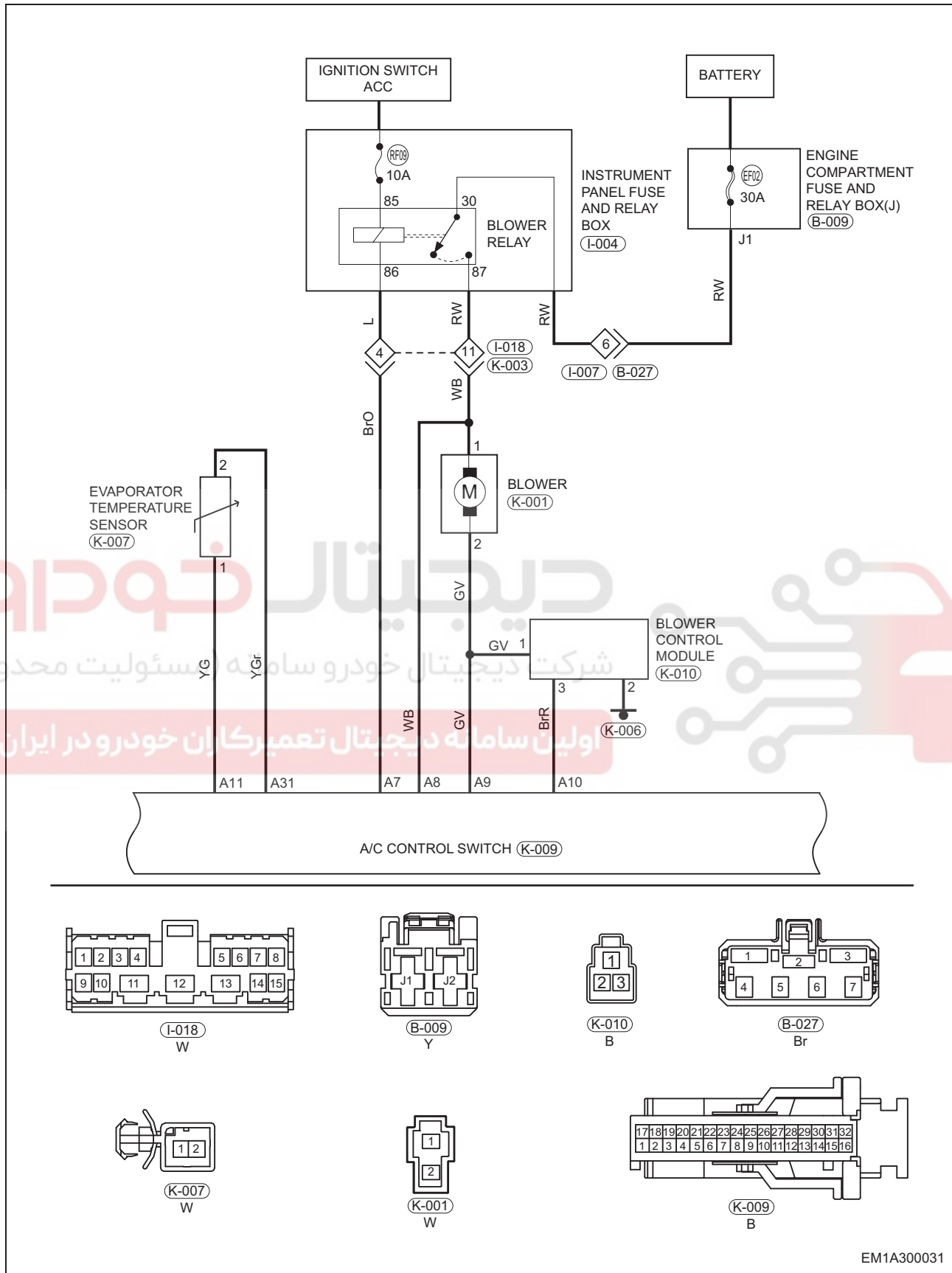
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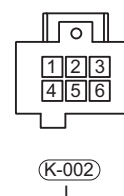
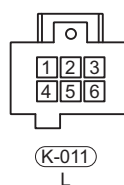
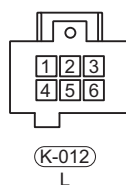
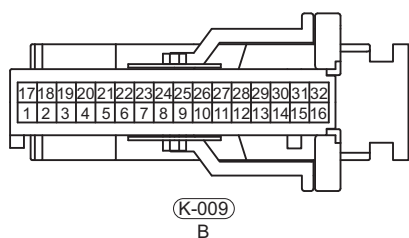
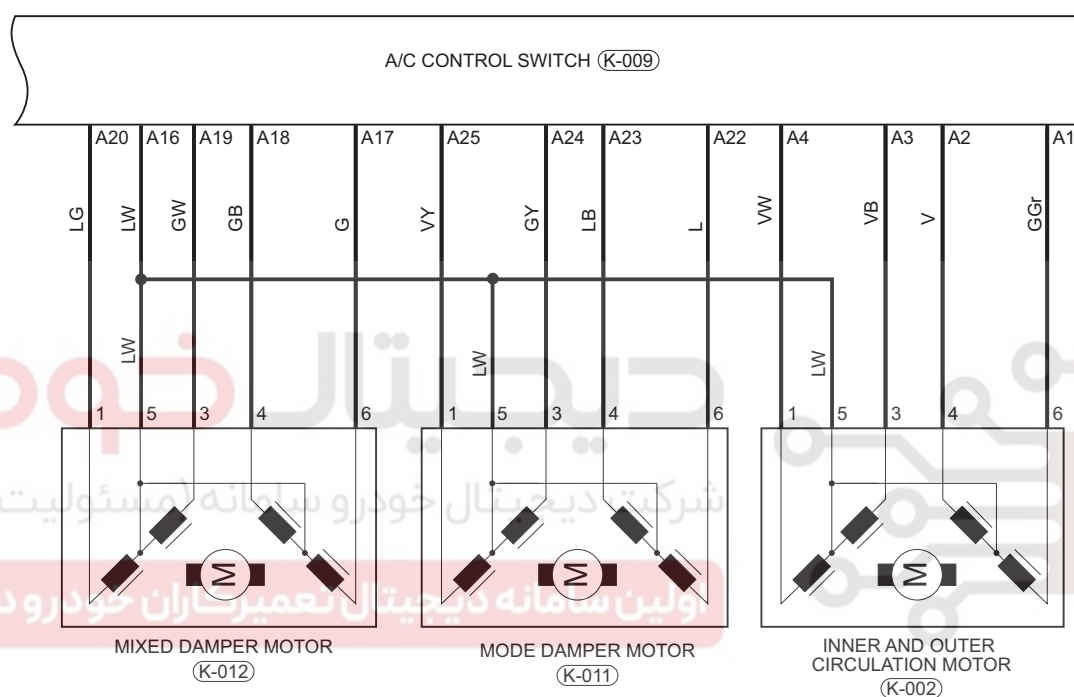
Power A/C System (Page 2 of 4)

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Power A/C System (Page 3 of 4)





DIAGNOSIS & TESTING

Problem Symptoms Table

HINT:

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

Symptom	Suspected Area	See page
A/C no heating	Blower fuse (damaged)	54-32
	Blower relay (damaged)	54-32
	Blower speed switch (damaged)	30-26 30-28
	Blower motor (damaged)	30-31
	Mix damper control mechanism (stuck or damaged)	30-45
	Mix damper control knob (stuck or damaged)	30-26 30-28
	Heating pipe (blocked or damaged)	30-43
	Heater core assembly (blocked or damaged)	30-45
	Wire harness or connector (open or short)	-
A/C no cooling	Leak in system	30-20
	Refrigerant (overcharged)	30-22
	A/C pressure sensor (damaged)	30-58
	Evaporator temperature sensor (damaged)	30-45
	A/C switch (damaged)	30-26 30-28
	Compressor assembly fuse (damaged)	54-32
	Compressor assembly relay (damaged)	54-32
	Compressor assembly belt (loose)	07-24
	Compressor assembly (damaged)	30-61
	Condenser assembly (blocked or damaged)	30-63
	Expansion valve (blocked or frosted)	30-43
	Evaporator core assembly (blocked or damaged)	30-43
	Wire harness or connector (open or short)	-
A/C intermittent cooling	Moisture in system	30-23
	Refrigerant (overcharged)	30-22

30 - AIR CONDITIONING

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Symptom	Suspected Area	See page
A/C insufficient cooling	Leak in system	30-20
	Refrigerant (insufficient)	30-23
	Refrigerant (overcharged)	30-22
	Air in refrigerant	30-23
	Moisture in refrigerant	30-23
	Condenser (dirty or blocked)	30-63
	Expansion valve (dirty or blocked)	30-45
	Evaporator core (dirty or blocked)	30-45
	A/C high/low pressure line (dirty or blocked)	30-56
	Blower speed switch (damaged)	30-26 30-28
	Blower motor (damaged)	30-31
	Compressor assembly belt (loose)	07-24
Too much noise in system	Compressor assembly belt (slip)	07-24
	Compressor assembly clutch bearing (worn and excessive clearance)	-
	Compressor assembly solenoid coil (faulty or loose joint)	-
	Compressor assembly belt (over tight)	07-24
	Compressor assembly mounting bolt (loose)	30-61
	Cooling fan blade (distorted)	-
	Refrigerant oil (insufficient)	30-25
Pressure at low pressure side switches between normal and vacuum during operation	Moisture in refrigerant (excessive)	30-23
Pressures at low pressure side and high pressure side are low, and cooling performance is insufficient	A/C system (leaked)	30-20
	Refrigerant (insufficient)	30-23
Pressure at low pressure side and high pressure side is low, frost exists on line from condenser to A/C unit	Condenser (dirty or blocked)	30-63
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)	30-23
	Expansion valve (dirty or blocked)	30-45
	A/C line (leaked)	30-56
	Condenser (dirty or blocked)	30-63
Pressures at low pressure side and high pressure side are too high	Expansion valve (faulty)	-
	Refrigerant oil (excessive)	30-24

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)	30-63
	Cooling fan (not operating)	-
	Refrigerant (overcharged)	30-22
	Air in refrigerant	30-23
	Engine (overheating)	-
Pressure at low pressure side is too high and pressure at high pressure side is too low	Compressor assembly belt (slip)	07-24
	Compressor assembly (faulty)	30-61
Pressure at low pressure side is too low, and pressure at high pressure side is too high	A/C high pressure line (blocked)	30-58
	Expansion valve (faulty)	-

A/C System Function

Self-diagnosis Function (for Power A/C)

1. Self-diagnosis operation:

- Turn ignition switch to ON, and turn on blower at the same time.
- Press inner circulation and A/C buttons for 5 seconds, then A/C enters self-diagnosis mode.
 - All button indicators are displayed for 3 seconds first;
 - In face mode, inner circulation, air speed at 1st band, and mix damper at MAX COOL position;
 - In face and foot mode, outer circulation, air speed increases from 1st band to 3rd band, and mix damper at MAX HOT position;
 - In foot mode, outer circulation, air speed increases to highest band;
 - Malfunction information is displayed (After displayed that all indicators blinks 3 times (one time per second)).

2. Malfunction information on control panel is shown as follows:

- No malfunctions: All indicators are off.
- Blower malfunction (adjustment failed): Face indicator comes on.
- Mix damper malfunction (adjustment failed, open, short): Face and foot indicators come on.
- Mode damper malfunction (adjustment failed, open, short): Foot indicator comes on.
- Inner/Outer circulation damper malfunction (adjustment failed, open, short): Foot and defrost indicators come on.
- Evaporator temperature sensor malfunction (open or short): Defroster indicator comes on.

3. After above information is displayed for 6 seconds, system will automatically exit and memorize the conditions of mode damper, inner/outer circulation and A/C before diagnosis, while temperature damper and air amount are updated to current indication conditions.

4. Air speed adjustment knob operation is invalid during self-diagnosis (self-diagnosis mode exits only when knob is rotated to OFF, and switching from 1st to 7th band is invalid), other button and knob operations are invalid and system will not exit self-diagnosis mode.

5. Forced exit: When turning air speed adjustment knob to OFF, system will exit self-diagnosis function, and memorize the conditions of mode damper, inner/outer circulation and A/C before diagnosis, while temperature damper and air amount are updated to current indication conditions.

30 - AIR CONDITIONING

Detailed definition for each malfunction symbol is as follows:

Symbols	Definition
	Blower malfunction (adjustment failed)
	Mix damper malfunction (adjustment failed, open, short)
	Mode damper malfunction (adjustment failed, open, short)
	Inner/Outer circulation damper malfunction (adjustment failed, open, short)
	Evaporator temperature sensor malfunction (open or short)

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Ground Inspection

Ground points are very important to proper operation of circuits. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) may increase load resistance. This situation may change the way in which a circuit works.

Circuits are very sensitive to proper grounding. A loose or corroded ground can affect the control circuit. Check the ground points as follows:

1. Remove ground bolt or nut.
2. Check all contact surfaces for tarnish, dirt and rust, etc.
3. Clean as necessary to ensure that contacting is in good condition.
4. Reinstall ground bolt or nut securely.
5. Check if add-on accessories interfere with ground circuit.
6. If several wire harnesses are crimped into one ground terminal, check if they are installed correctly. Make sure all wire harnesses are clean, securely fastened and providing a good ground path.

ON-VEHICLE SERVICE

On-vehicle Inspection

HINT:

- A/C refrigerant lines and hoses are used to transfer refrigerant among A/C system components. Any twist or bend in refrigerant lines and hoses will reduce performance of A/C system and refrigerant flow in system.
- There remains high pressure in refrigerant when A/C compressor assembly is operating. It is necessary to ensure that each connecting part in A/C system is sealed well. Check all system lines at least once a year to ensure that they are in good condition and properly routed. Refrigerant lines and hoses cannot be repaired and must be replaced if leakage or damage exists.

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1. General inspection

- Check if there exists any oil or dust in each joint of A/C line. If this occurs, there may be leakage.
- Check if condenser surface is dirty and if fins are deformed.
- Check if there are harsh noises while compressor assembly is operating normally.
- Temperature difference should be noticeable by touching inlet and outlet pipes of compressor assembly with hand. Normally, temperature of inlet pipe is relatively low and temperature of outlet pipe is relatively high. If you feel the temperature of inlet and outlet pipes of condenser with hand, under normal conditions, temperature of inlet pipe is higher than that of outlet pipe. If you feel the temperature difference between expansion valve inlet and outlet lines with hand, under normal conditions, temperature of expansion valve inlet line is relatively high and temperature of outlet line is relatively low, and the temperature difference between them is noticeable.

2. Using pressure gauge set, check refrigerant pressure.

- Connect the manifold pressure gauge set. After following conditions are met, read pressure values on pressure gauge. Measurement Condition:

- Inner/Outer circulation switch is in outer circulation position.
- Engine runs at approximately 2000 rpm.
- Adjust temperature control knob to MAX COOL.
- Set blower speed control switch to highest band.
- Turn on A/C switch.

Observe pressure values on pressure gauge. In normal condition, low pressure value is 0.15 to 0.20 MPa and high pressure value is 1.3 to 1.7 MPa.

Compressor Assembly Noise Inspection

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

CAUTION

- A/C compressor assembly must be replaced, if any abnormal noise is heard from compressor assembly.
- Noise may occur from drive belt at different engine speeds, and you may mistake it for a noise from A/C compressor assembly.

- Select a quiet place for testing.
- Duplicate customer's feedback information as much as possible.
- Turn A/C on and off several times to clearly identify compressor assembly noise.
- Check condition of compressor assembly belt.

30 - AIR CONDITIONING

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5. Check compressor assembly hub, pulley and bearing assembly. Make sure hub and pulley are aligned correctly, and pulley bearing is securely installed to A/C compressor assembly.
6. Check if refrigerant line routes incorrectly, and if it is damaged or has an interference that could result in an abnormal noise. Also, check refrigerant line for twist or bend, as this may block the flow of refrigerant and cause a noise.
7. Loosen all compressor assembly tightening bolts and retighten them.
8. If noise occurs when liquid refrigerant in A/C suction line is under a slugging condition, replace condenser and check refrigerant oil level and charging condition for refrigerant.
9. If slugging condition still exists after replacing condenser, replace A/C compressor assembly.

⚠ WARNING

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

Refrigerant Leakage Inspection**⚠ WARNING**

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

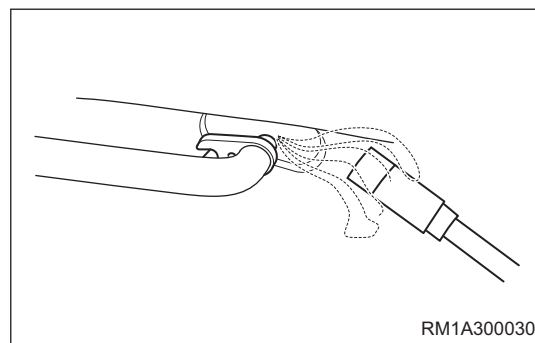
👁 CAUTION

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

Check the refrigerant for leakage.

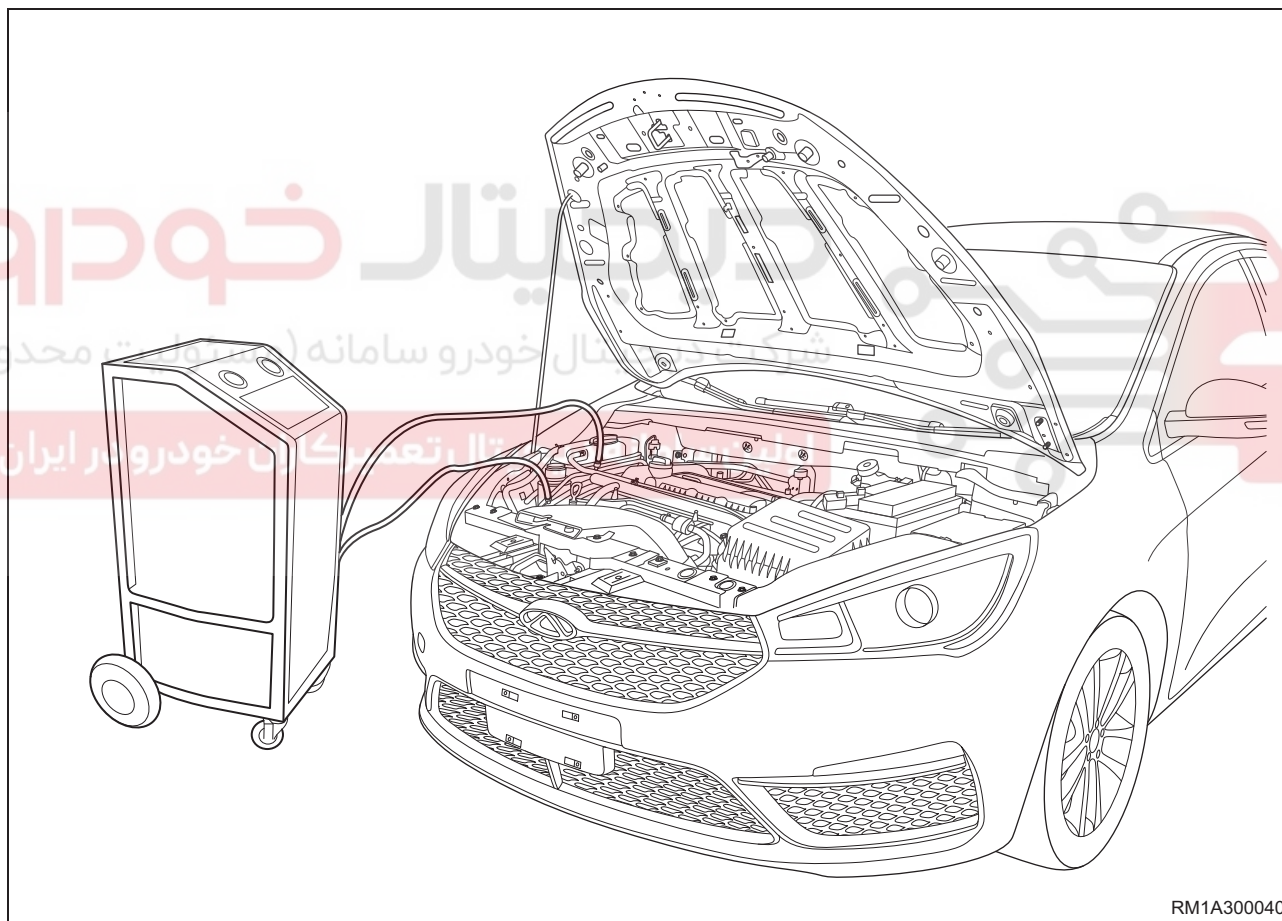
1. After recharging refrigerant, use gas leak detector to check refrigerant gas for leakage.
2. Perform operations under following conditions:
 - Stop the engine.
 - Ensure that ventilation is well (gas leak detector may react to volatile gases which are not from refrigerant, such as gasoline vapor or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

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



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4. Disconnect A/C pressure sensor connector, and use same procedures to check A/C pressure sensor for leakage. Replace A/C pressure sensor as necessary.
5. Insert gas leak detector into evaporator tank assembly, and use same procedures to check evaporator for leakage. Clean or replace evaporator core assembly as necessary.
6. Use same procedures to check condenser for leakage. Clean or replace condenser assembly as necessary.



Refrigerant Recovering/Draining

⚠ WARNING

- Take extra care when servicing A/C system under high pressure.
- There is refrigerant under high pressure in A/C system. Service should always be carried out by professional technician. Otherwise, a wrong service procedure may cause a serious danger or fatal injury.
- If A/C system is released unexpectedly, ventilate work place before servicing. In a closed work place, if a large amount of refrigerant is discharged, it may cause oxygen reduction and result in smothering, causing a serious or fatal injury.

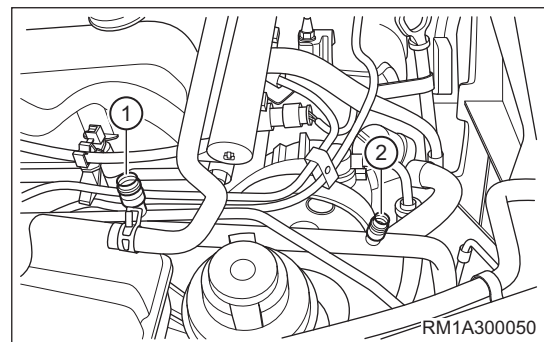
👁 CAUTION

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

♻ ENVIRONMENTAL PROTECTION

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

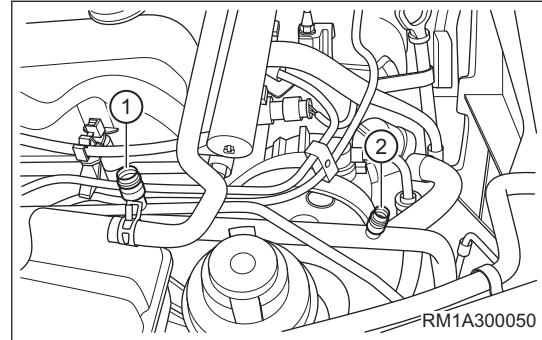
1. Open hood and loosen joint cover of A/C high/low pressure line.
2. Connect refrigerant recycling machine to A/C high/low pressure line joint.
 - a. Connect red connector to A/C high pressure line joint (1).
 - b. Connect blue connector to A/C low pressure line joint (2).



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

Vacuum Pumping

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



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

Refrigerant Recharging

CAUTION

- Recovering and draining refrigerant may cause small loss of refrigerant oil in A/C system. Be sure to supplement the reduced amount of refrigerant oil during recovery when recharging A/C system.
- DO NOT charge excessive refrigerant. Otherwise, it will cause excessive pressure to compressor assembly, resulting in compressor assembly noise and A/C system failure.
- Always perform vacuum pumping before recharging refrigerant.

1. Perform vacuum pumping with a 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 "charging" item on machine and set the amount of charging to specified value, then choose "OK" to start.
5. Open suction valve and close discharge valve, and then open the charging valve to allow refrigerant to flow into system.
6. When delivery of refrigerant has stopped, close charging valve.
7. If charged refrigerant is not delivered as specified, start engine to operate A/C compressor assembly.
8. Open charging valve to deliver remaining refrigerant to A/C system.

WARNING

- DO NOT open discharge (high pressure) valve at this time. Failure to do so may result in personal injury or even death.

30 - AIR CONDITIONING

9. Perform A/C system pressure test after charging is completed.
10. Remove connecting pipe for refrigerant charging after test is completed.
11. Reinstall covers onto A/C line joints.

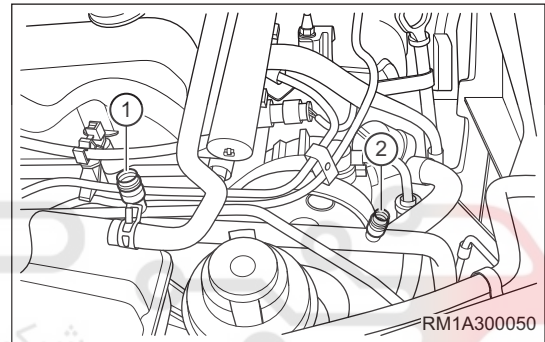
Refrigerant Oil Recovering

CAUTION

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

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



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

Refrigerant Oil Charging

Refrigerant Oil Charging Amount Specifications

Item	A/C Compressor Assembly Replacement	Condenser Replacement	Evaporator Replacement	Line Replacement
Refrigerant Oil Charging Amount	It is necessary to pour out 50 ml of refrigerant oil from new compressor assembly	30 ml	30 ml	10 ml

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

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

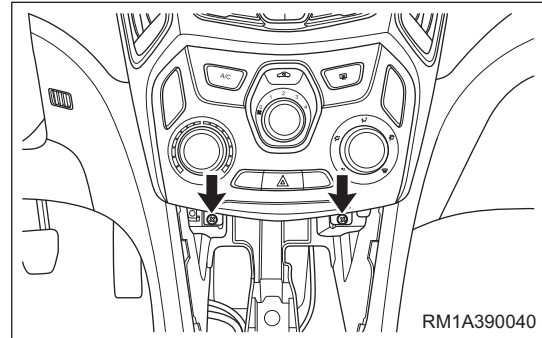
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



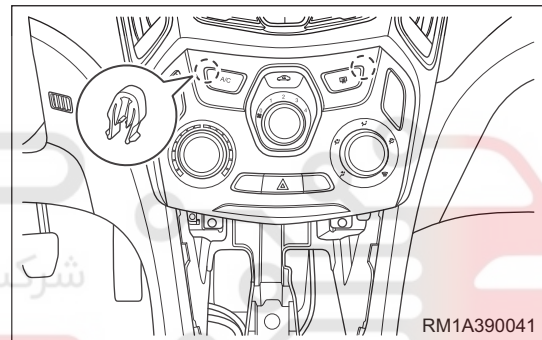
Center Control Integration Panel Assembly (for Manual A/C)

Removal

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the lower center storage box assembly (See page 46-8).
4. Remove the center control integration panel assembly.
 - a. Remove 2 fixing screws (arrow) from center control integration panel assembly.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)

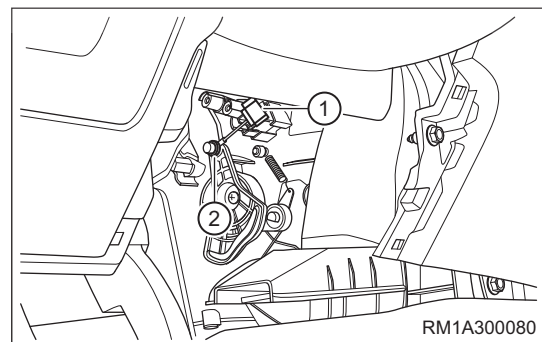


- b. Using a flat tip screwdriver wrapped with protective tape, pry off clips from center control integration panel assembly.



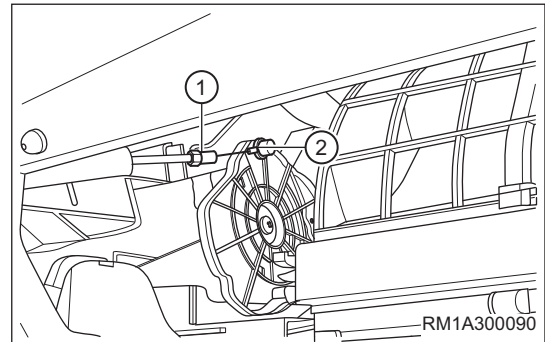
- c. Remove cables between inner/outer circulation and mix damper servos.

- i. Remove the instrument panel lower left protector assembly (See page 46-13).
 - ii. Pry off cable holder (1) from inner/outer circulation servo, press servo end and remove connector (2).



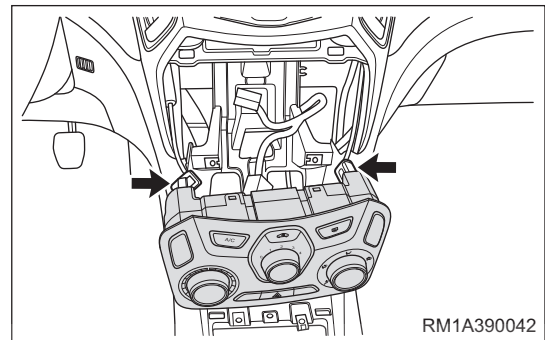
- iii. Remove the glove box assembly (See page 46-13).

- iv. Pry off cable holder (1) from mix damper servo, press servo end and remove connector (2).



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- d. Disconnect connectors (arrow) from center control integration panel assembly.

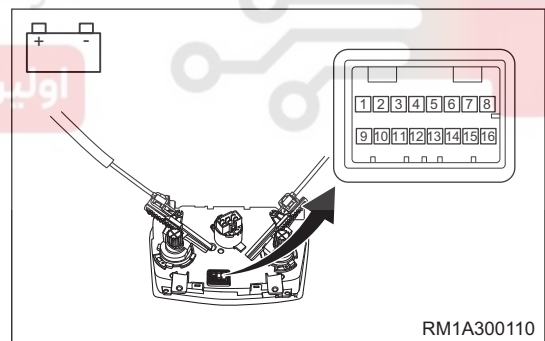


- e. Remove the center control integration panel assembly.

Inspection

1. Check the center control integration panel assembly.
 - a. Remove the center control integration panel assembly.
 - b. Connect positive (+) battery lead to terminal B2 and negative (-) lead to terminal B16, then check if center control integration panel assembly switch backlight comes on.

OK: Light comes on



If result is not as specified, replace center control integration panel assembly.

Installation

Installation is in the reverse order of removal.

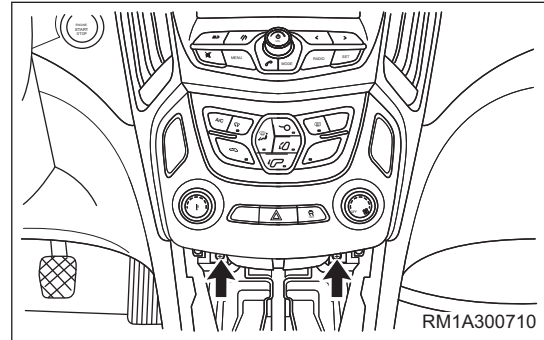
CAUTION

- Be sure to install fixing clips on upper part of center control integration panel assembly in place during installation.
- Be sure to align dowel pin on upper part of center control integration panel assembly with positioning hole on instrument panel when installing.

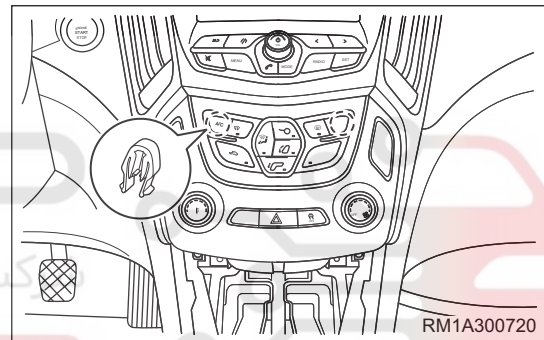
Center Control Integration Panel Assembly (for Power A/C)

Removal

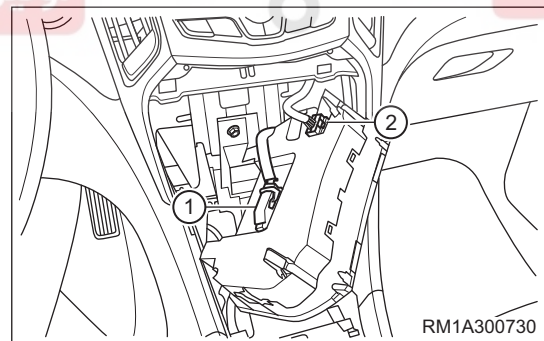
1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the lower center storage box assembly (See page 46-8).
4. Remove the center control integration panel assembly.
 - a. Remove 2 fixing screws (arrow) from center control integration panel assembly.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- b. Using a flat tip screwdriver wrapped with protective tape, pry off clips on center control integration panel assembly.



- c. Disconnect center control integration panel assembly connectors (1) and (2).

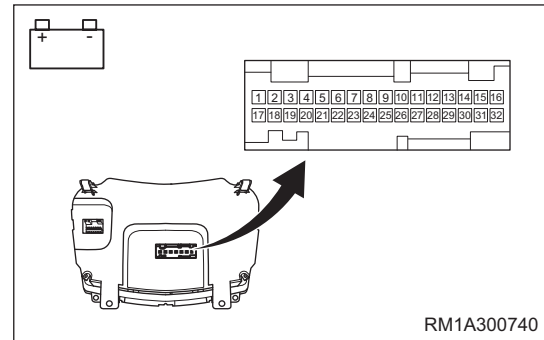


- d. Remove the center control integration panel assembly.

Inspection

1. Check the center control integration panel assembly.
 - a. Remove the center control integration panel assembly.
 - b. Connect positive (+) battery lead to terminal A26 and negative (-) lead to terminal A30, then check if center control integration panel assembly switch backlight comes on.

OK: Light comes on



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If result is not as specified, replace center control integration panel assembly.

Installation

Installation is in the reverse order of removal.

CAUTION

- Be sure to install fixing clips on upper part of center control integration panel assembly in place during installation.
- Be sure to align dowel pin on upper part of center control integration panel assembly with positioning hole on instrument panel when installing.

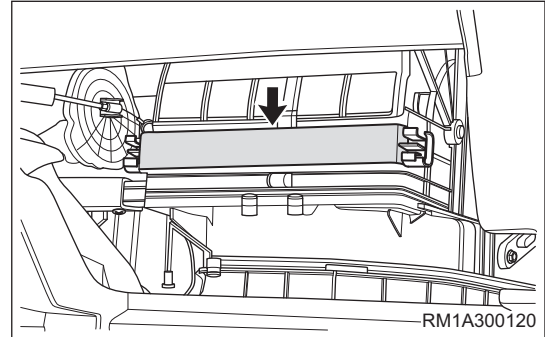
شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

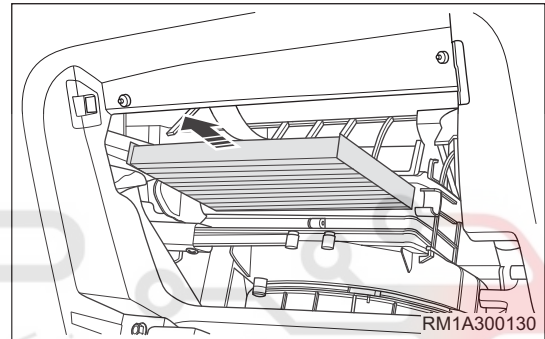
A/C Element

Removal

1. Remove the glove box assembly (See page 46-13).
2. Remove the A/C element.
 - a. Detach claws on both sides of A/C element cover, and remove A/C element cover (arrow) from air inlet assembly.



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



Installation

Installation is in the reverse order of removal.

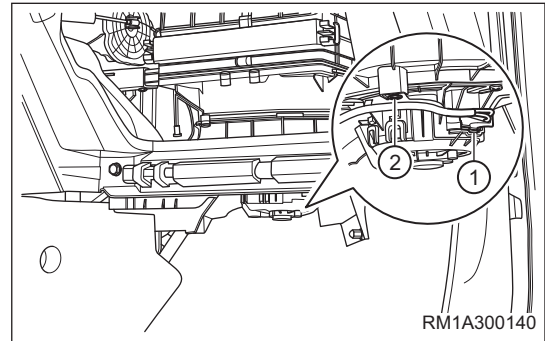
CAUTION

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

Blower Assembly

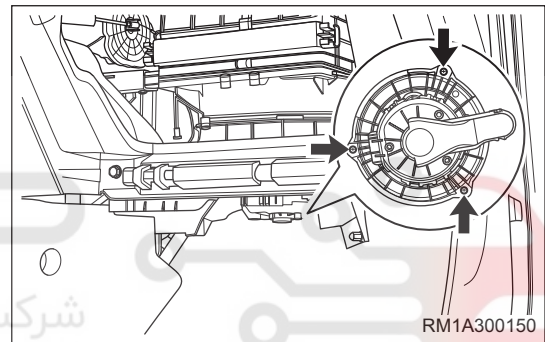
Removal

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the blower assembly.
 - a. Disconnect blower assembly connector (1), and remove wire harness fixing screw (2).



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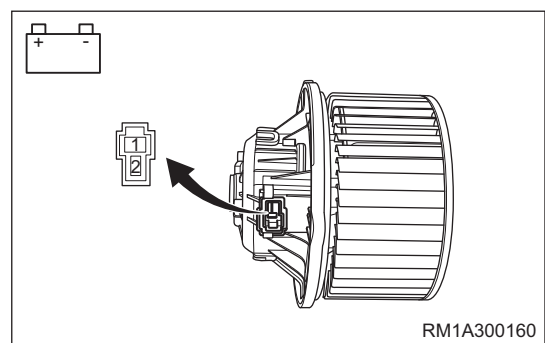
- b. Remove 3 fixing screws (arrow) from blower assembly.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- c. Remove the blower assembly.

Inspection

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



If operation is not as specified, replace blower assembly.

Installation

Installation is in the reverse order of removal.

CAUTION

- Tighten fixing screws to specified torque.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



Blower Speed Resistor

Removal

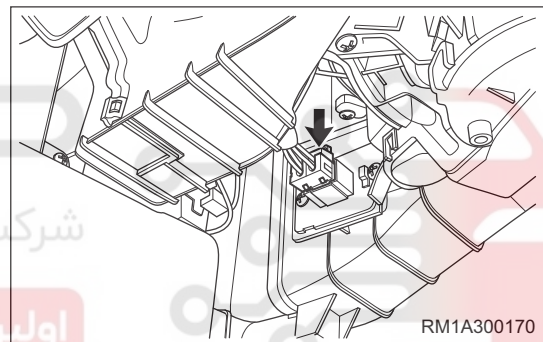
WARNING

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

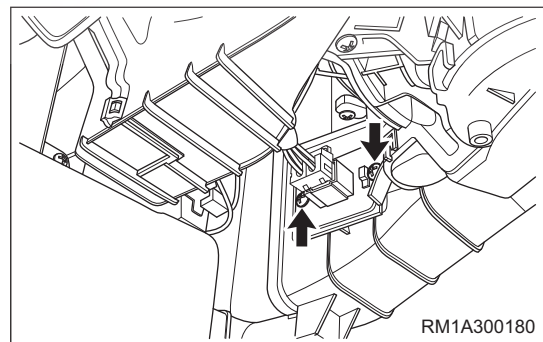
CAUTION

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

- Turn off all electrical equipment and the 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 blower speed resistor.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- Remove the blower speed resistor.

30 - AIR CONDITIONING

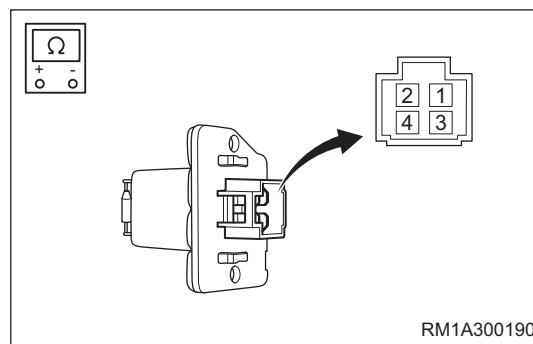
Inspection

1. Check the blower speed resistor (for manual A/C).
 - a. Remove the blower speed resistor.
 - b. Using the ohm band of digital multimeter, measure resistance between terminals as shown in table.

Standard Resistance

Multimeter Connection	Specified Condition
Terminal 1 - Terminal 2	Approximately 0.5 Ω
Terminal 1 - Terminal 3	Approximately 1.6 Ω
Terminal 1 - Terminal 4	Approximately 3.6 Ω
Terminal 2 - Terminal 3	Approximately 0.8 Ω
Terminal 2 - Terminal 4	Approximately 1.0 Ω
Terminal 3 - Terminal 4	Approximately 2.5 Ω

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

**Installation**

Installation is in the reverse order of removal.

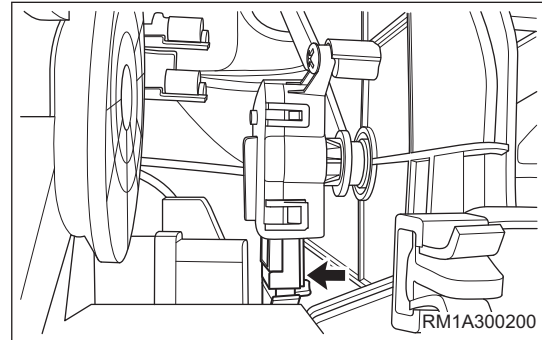
CAUTION

- Tighten fixing screws to specified torque.

Inner/Outer Circulation Damper Servo Motor (for Manual A/C)

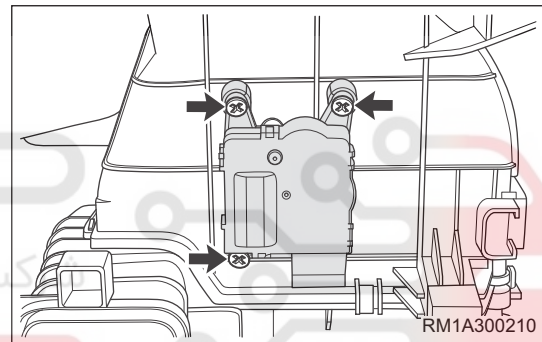
Removal

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the glove box assembly (See page 46-13).
4. Remove the inner/outer circulation damper servo motor.
 - a. Disconnect the inner/outer circulation damper servo motor connector (arrow).



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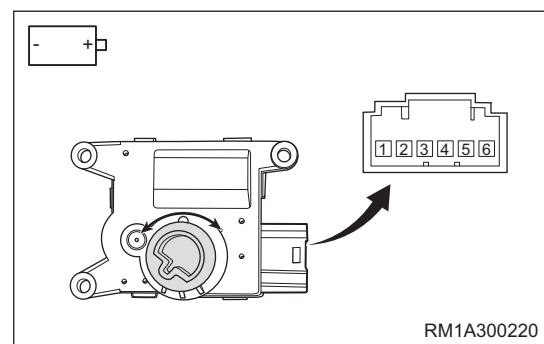
- b. Remove 3 fixing screws (arrow) from inner/outer circulation damper servo motor. (Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- c. Detach inner/outer circulation damper adjustment set, and remove inner/outer circulation damper servo motor.

Inspection

1. Check the inner/outer circulation damper servo motor.
 - a. Connect a few dry batteries (approximately 5 V) in series. Connect positive (+) battery lead to terminal 1 and negative (-) lead to terminal 2. Check that inner/outer circulation damper motor operates smoothly clockwise.
 - b. Connect a few dry batteries (approximately 5 V) in series. Connect positive (+) battery lead to terminal 2 and negative (-) lead to terminal 1. Check that inner/outer circulation damper motor operates smoothly counterclockwise.



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

Installation

Installation is in the reverse order of removal.

CAUTION

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

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

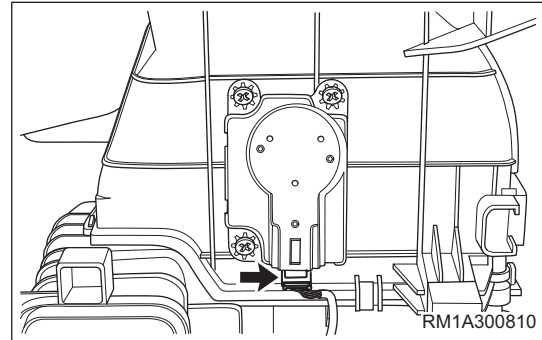
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



Inner/Outer Circulation Damper Servo Motor (for Power A/C)

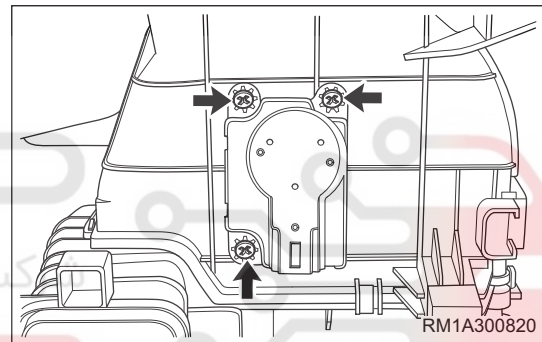
Removal

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the instrument panel assembly (See page 46-13).
4. Remove the inner/outer circulation damper servo motor.
 - a. Disconnect the inner/outer circulation damper servo motor connector (arrow).



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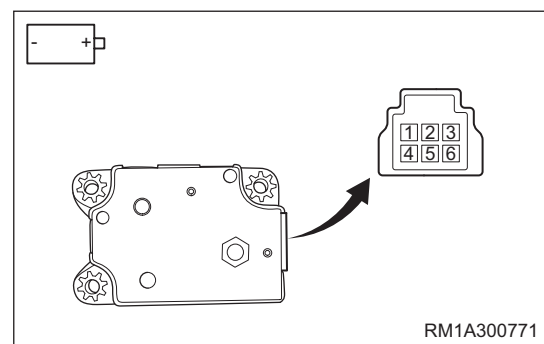
- b. Remove 3 fixing screws (arrow) from inner/outer circulation damper servo motor. (Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- c. Detach inner/outer circulation damper adjustment set, and remove inner/outer circulation damper servo motor.

Inspection

1. Check the inner/outer circulation damper servo motor.
 - a. Connect a few dry batteries (approximately 5 V) in series. Connect positive (+) battery lead to terminal 6 and negative (-) lead to terminal 4. Check that inner/outer circulation damper motor operates smoothly clockwise.
 - b. Connect a few dry batteries (approximately 5 V) in series. Connect positive (+) battery lead to terminal 4 and negative (-) lead to terminal 6. Check that inner/outer circulation damper motor operates smoothly counterclockwise.



Installation

Installation is in the reverse order of removal.

CAUTION

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

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

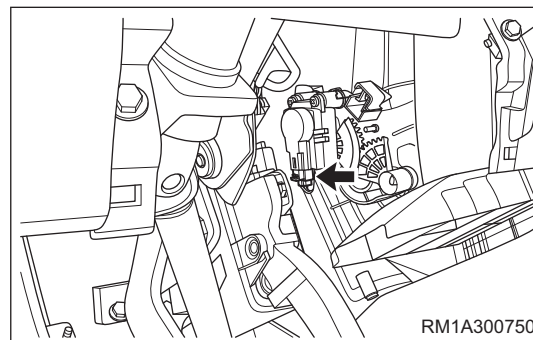
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



Mix Damper Servo Motor (for Power A/C)

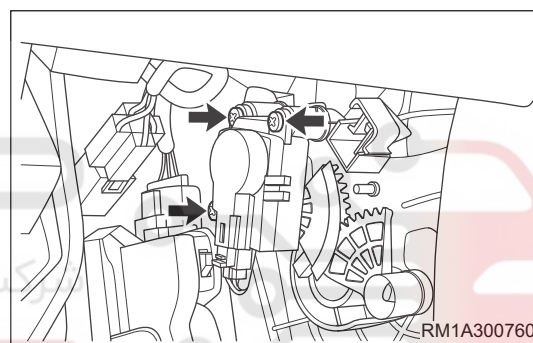
Removal

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the instrument panel lower left protector assembly (See page 46-13).
4. Remove the mix damper servo motor.
 - a. Disconnect the mix damper servo motor connector (arrow).



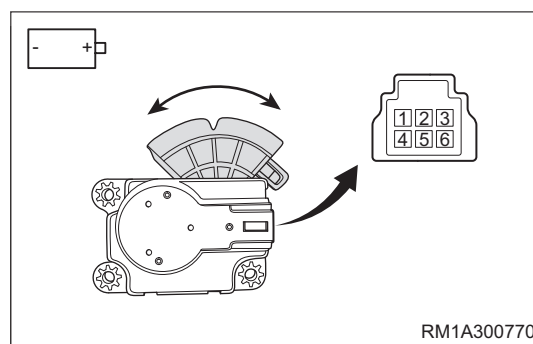
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- b. Remove 3 fixing screws (arrow) from mix damper servo motor, and remove mix damper servo motor. (Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



Inspection

1. Check the mix damper servo motor.
 - a. Connect a few dry batteries (approximately 5 V) in series. Connect positive (+) battery lead to terminal 6 and negative (-) lead to terminal 4. Check that mix damper servo motor operates smoothly clockwise.
 - b. Connect a few dry batteries (approximately 5 V) in series. Connect positive (+) battery lead to terminal 4 and negative (-) lead to terminal 6. Check that mix damper servo motor operates smoothly counterclockwise.



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

Installation

Installation is in the reverse order of removal.

CAUTION

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

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

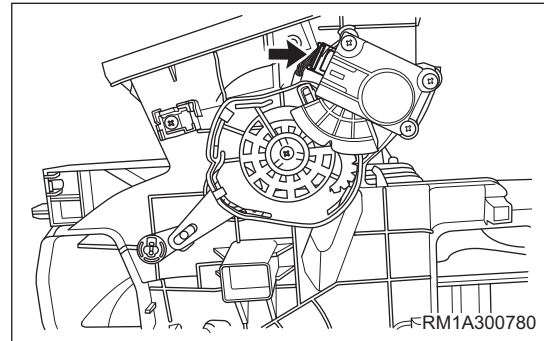
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



Mode Damper Servo Motor (for Power A/C)

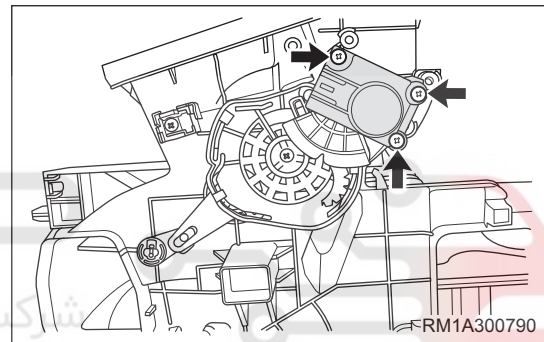
Removal

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



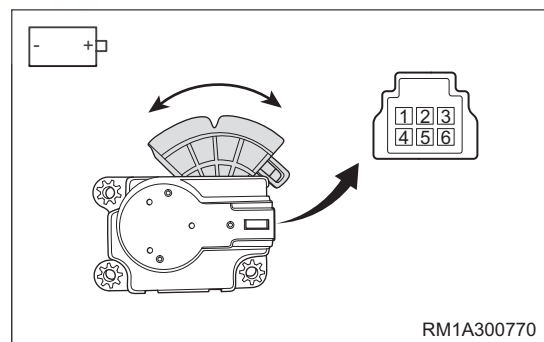
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- b. Remove 3 fixing screws (arrow) from mode damper servo motor, and remove mode damper servo motor. (Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



Inspection

1. Check the mode damper servo motor.
 - a. Connect a few dry batteries (approximately 5 V) in series. Connect positive (+) battery lead to terminal 6 and negative (-) lead to terminal 4. Check that mode damper servo motor operates smoothly clockwise.
 - b. Connect a few dry batteries (approximately 5 V) in series. Connect positive (+) battery lead to terminal 4 and negative (-) lead to terminal 6. Check that mode damper servo motor operates smoothly counterclockwise.



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

Installation

Installation is in the reverse order of removal.

CAUTION

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

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



HVAC Assembly

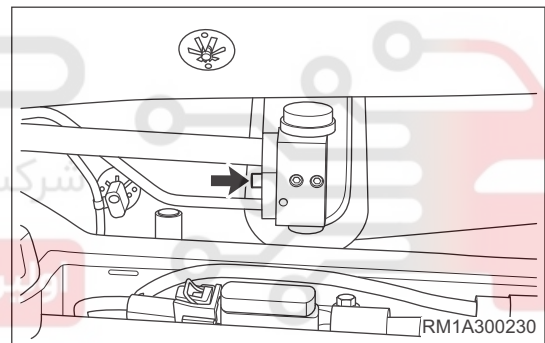
Removal

CAUTION

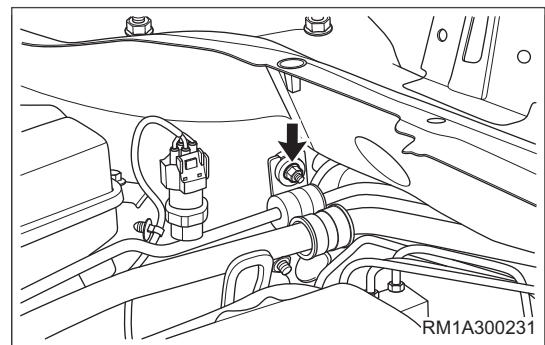
- Special service equipment for R134a refrigerant must be used to recover/charge refrigerant.
- Be careful not to damage hoses during removal and installation.
- Always keep work area in good ventilation.
- Disconnected A/C line and connecting part should be sealed to prevent foreign matter from entering.

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1. Recover refrigerant from A/C system (See page 30-22).
2. Turn off all electrical equipment and the ignition switch.
3. Disconnect the negative battery cable.
4. Remove the steering wheel assembly (See page 28-10).
5. Remove the steering column (See page 28-15).
6. Remove the instrument panel assembly (See page 46-13).
7. Remove the instrument panel crossmember assembly (See page 46-21).
8. Remove the HVAC assembly.
 - a. Remove fixing bolt (arrow) between A/C high/low pressure line and expansion valve.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



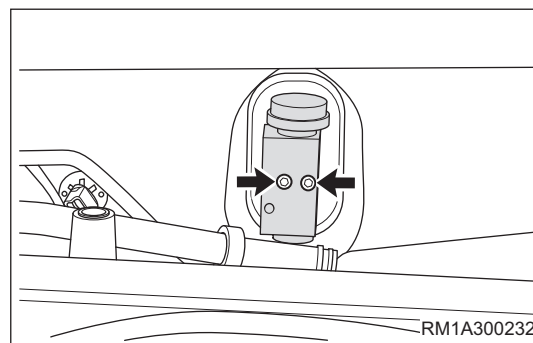
- b. Remove coupling nut (arrow) between A/C high/low pressure line set bracket and body, and detach A/C high/low pressure line.



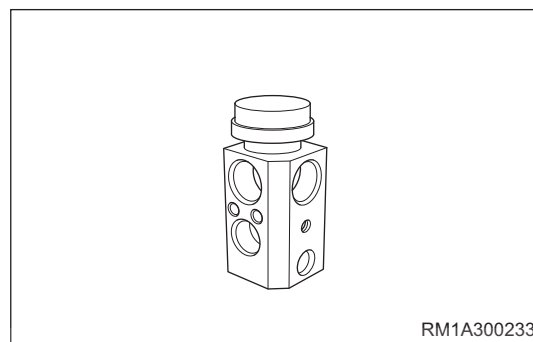
30 - AIR CONDITIONING

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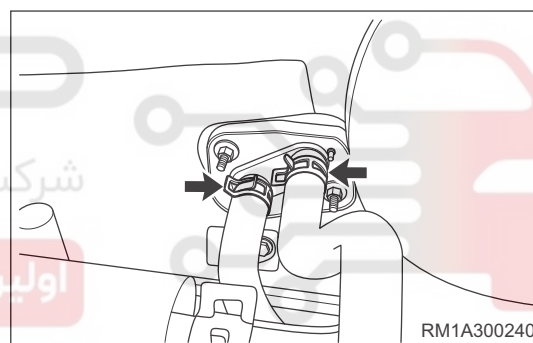
- c. Remove 2 fixing bolts (arrow) between expansion valve and expansion valve mounting pressure plate.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



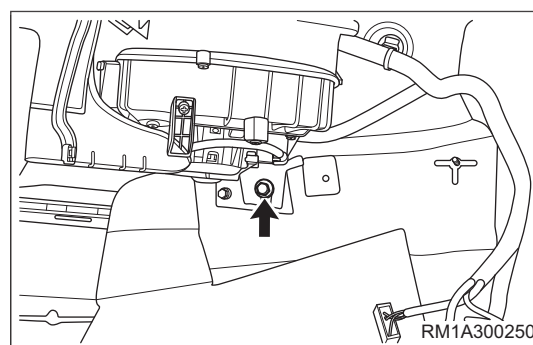
- d. Detach A/C high/low pressure line and remove expansion valve carefully.



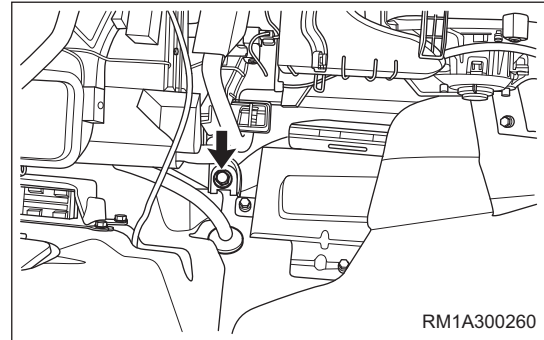
- e. Using snap spring calipers, detach fixing clamps (arrow) from heating inlet and outlet hoses to separate inlet and outlet hoses.



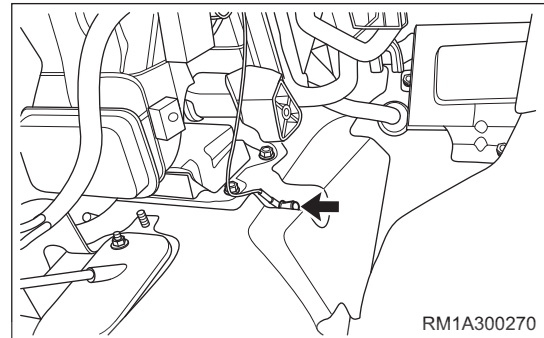
- f. Remove fixing nut (arrow) between upper right of HVAC assembly and body.
(Tightening torque: $5 \pm 1 \text{ N}\cdot\text{m}$)



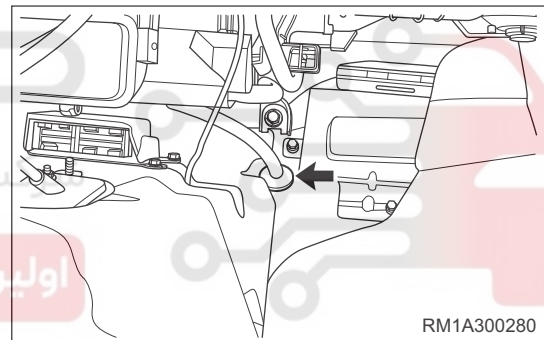
- g. Remove fixing nut (arrow) between lower center of HVAC assembly and body.
(Tightening torque: 5 ± 1 N·m)



- h. Remove fixing nut (arrow) between A/C wire harness assembly ground wire and body, and detach ground wire.
(Tightening torque: 7 ± 1.5 N·m)



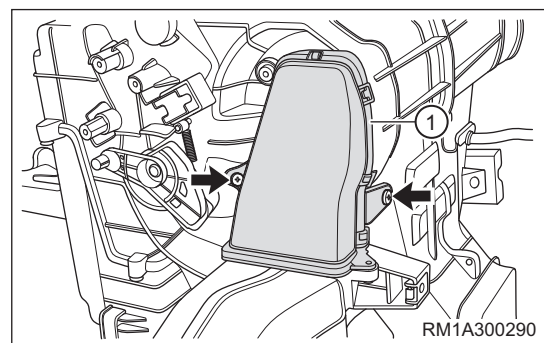
- i. Detach A/C drain pipe (arrow) from body positioning hole.



- j. Carefully remove HVAC assembly from cabin.

Disassembly

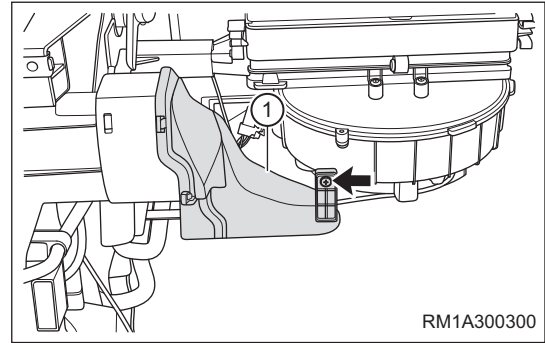
1. Remove the A/C element (See page 30-30).
2. Remove the blower assembly (See page 30-31).
3. Remove the blower speed resistor (See page 30-33).
4. Remove the inner/outer circulation damper servo motor (See page 30-35, 30-37).
5. Remove the left foot fan shield.
 - a. Remove 2 fixing screws (arrow), and detach left foot fan shield (1) from HVAC assembly.
(Tightening torque: 1.5 ± 0.5 N·m)



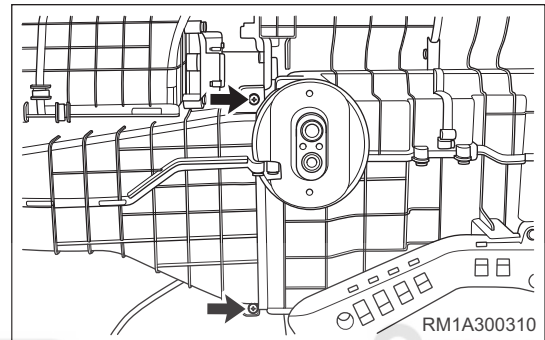
30 - AIR CONDITIONING

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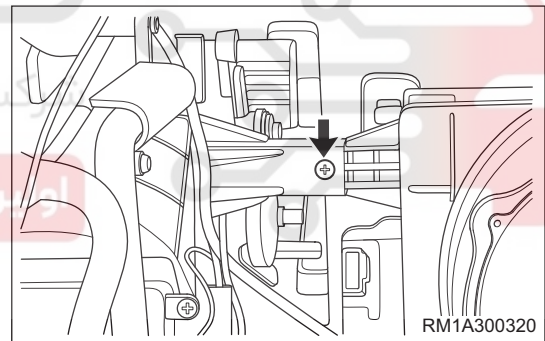
6. Remove the right foot fan shield.
 - a. Remove fixing screw (arrow), and detach right foot fan shield (1) from HVAC assembly.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



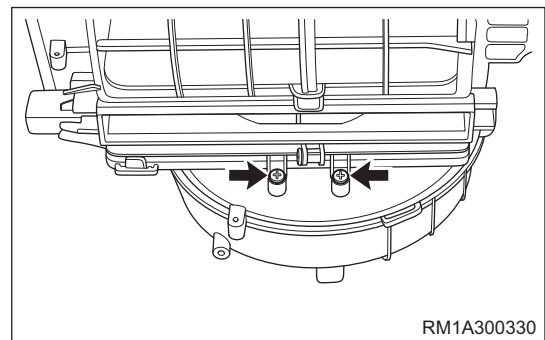
7. Separate evaporator housing assembly and blower housing assembly.
 - a. Remove 2 fixing screws (arrow) between evaporator housing assembly and blower housing assembly (rear part).
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



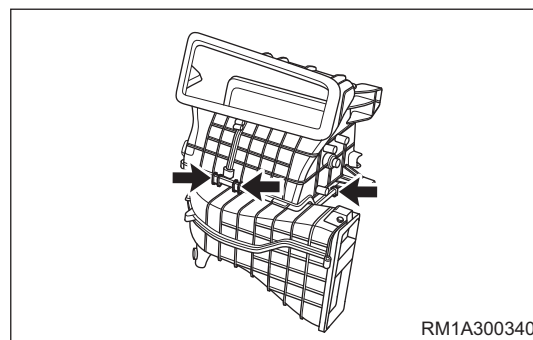
- b. Remove fixing screw (arrow) between evaporator housing assembly and blower housing assembly (center part).
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



- c. Separate blower housing assembly and evaporator housing assembly.
8. Separate blower housing assembly and air inlet housing assembly.
 - a. Remove 2 fixing screws between blower housing assembly and air inlet housing assembly (front part).



- b. Remove clips (arrow) between blower housing assembly and air inlet housing assembly (rear part).

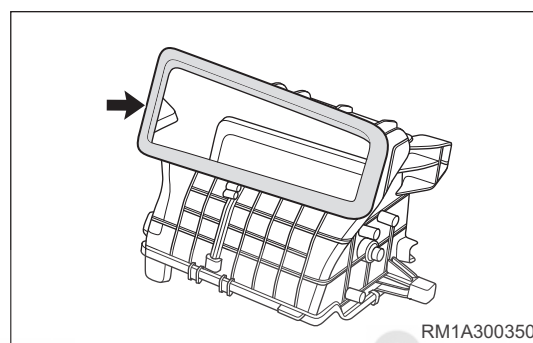


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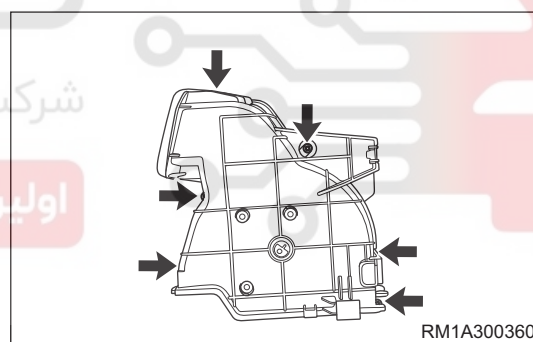
- c. Separate blower housing assembly and air inlet housing assembly.

9. Remove the inner/outer circulation damper set.

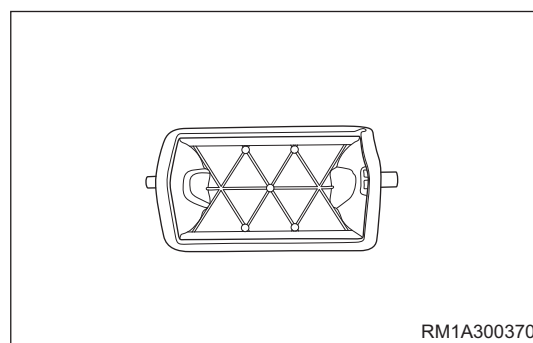
- a. Remove the air inlet weatherstrip (arrow).



- b. Remove 3 fixing screws and 3 clips (arrow) from air inlet housing assembly.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)



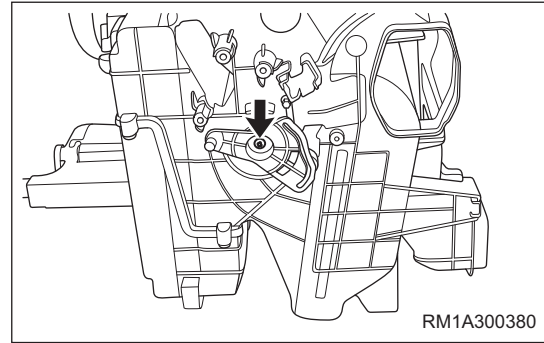
- c. Detach fixing claw and separate air inlet housing assembly, then remove inner/outer circulation damper set.



30 - AIR CONDITIONING

10. Remove the temperature damper adjustment mechanism.

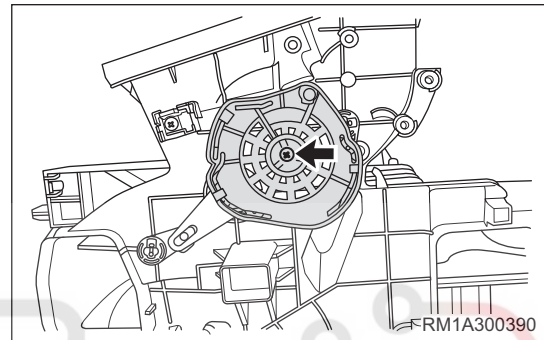
- a. Remove fixing screw (arrow) from temperature damper adjustment mechanism.
(Tightening torque: 1.5 ± 0.5 N·m)



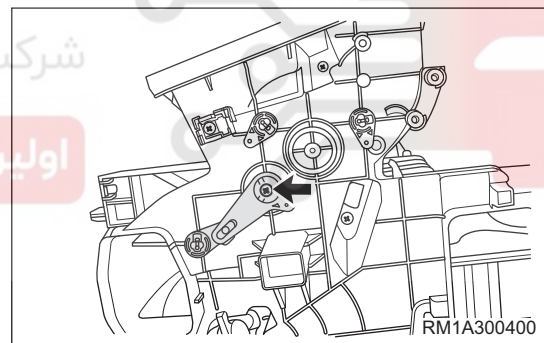
- b. Remove temperature damper adjustment mechanism from evaporator tank assembly.

11. Remove the mode damper adjustment mechanism set.

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

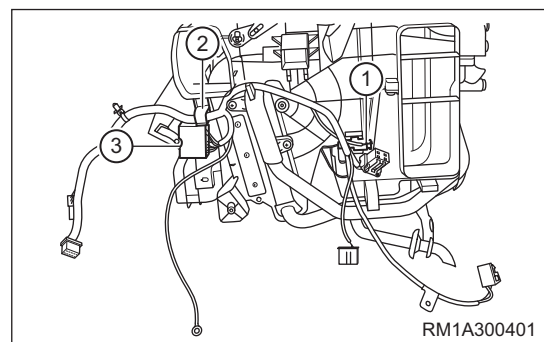


- b. Remove fixing screw (arrow) and mode damper adjustment mechanism set.
(Tightening torque: 1.5 ± 0.5 N·m)



12. Remove the A/C wire harness assembly.

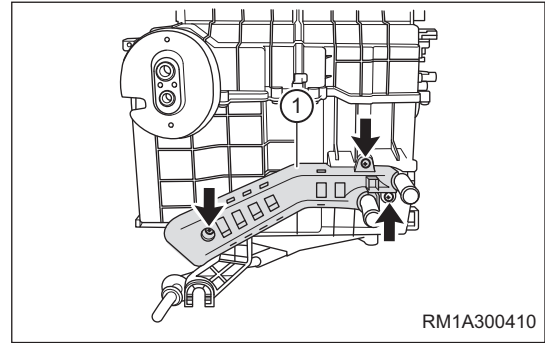
- a. Disconnect evaporator temperature sensor connector (1), and detach A/C wire harness assembly connector (3) from distributor housing assembly.
- b. Detach A/C wire harness assembly fixing clip (2) from distributor housing assembly.



- c. Remove the A/C wire harness assembly.

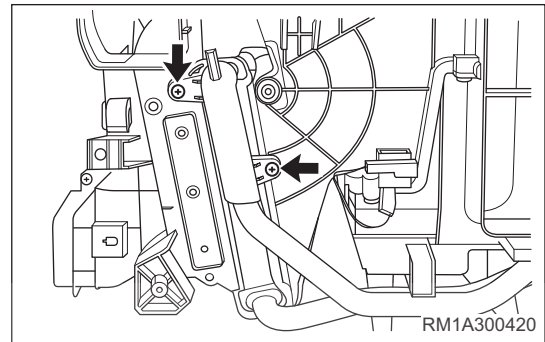
13. Remove the heater core.

- a. Remove 3 fixing screws (arrow) from heater core line pressure plate, and remove pressure plate (1).
(Tightening torque: 1.5 ± 0.5 N·m)

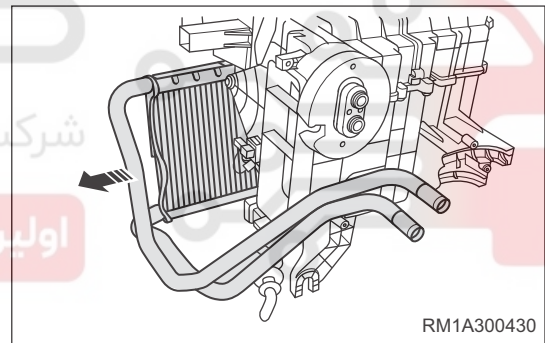


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- b. Remove fixing screws (arrow) from heater core line cover plate and detach fixing claw.
(Tightening torque: 1.5 ± 0.5 N·m)

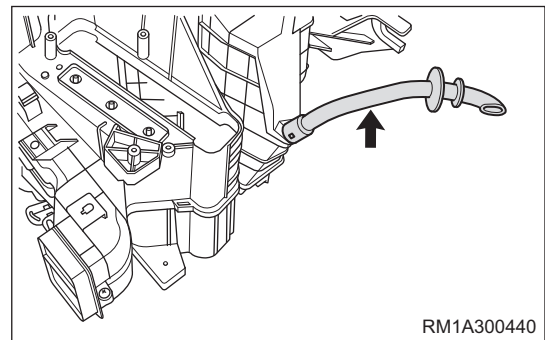


- c. Carefully remove the heater core.



14. Remove the A/C drain pipe.

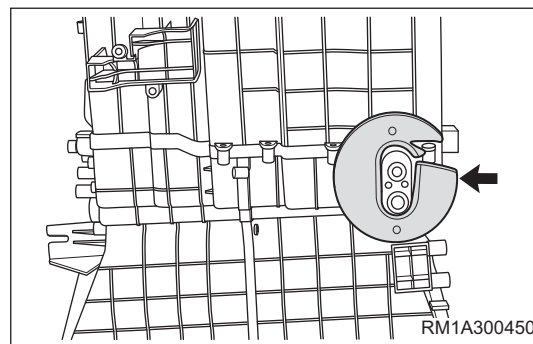
- a. Remove A/C drain pipe (arrow) from bottom of evaporator tank assembly.



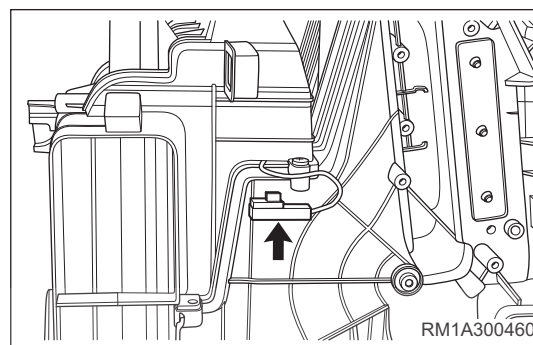
30 - AIR CONDITIONING

15. Remove the evaporator core.

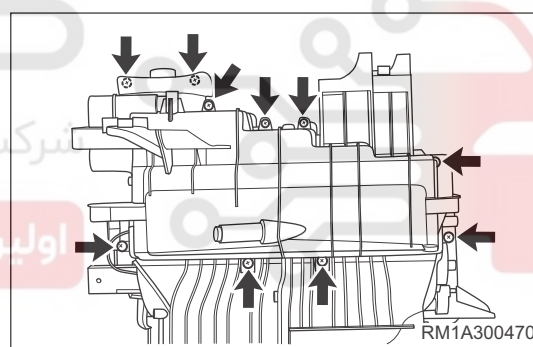
- a. Remove the evaporator core line gasket (arrow).



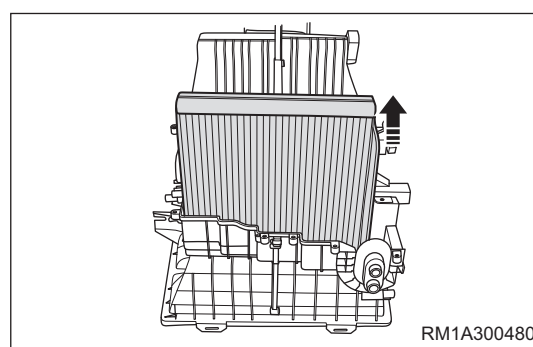
- b. Disconnect clip (arrow) between evaporator temperature sensor connector and evaporator tank case.



- c. Remove 10 fixing screws (arrow) from upper part of evaporator tank assembly.
(Tightening torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$)

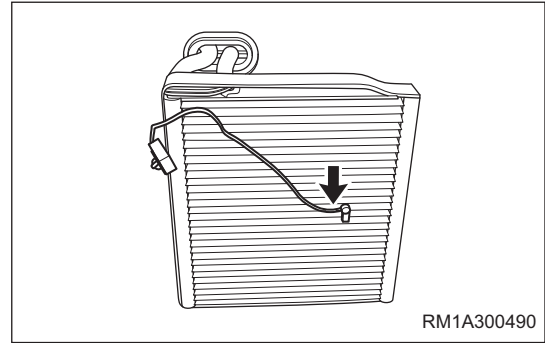


- d. Carefully remove evaporator core (arrow) from evaporator tank assembly.



16. Remove the evaporator temperature sensor.

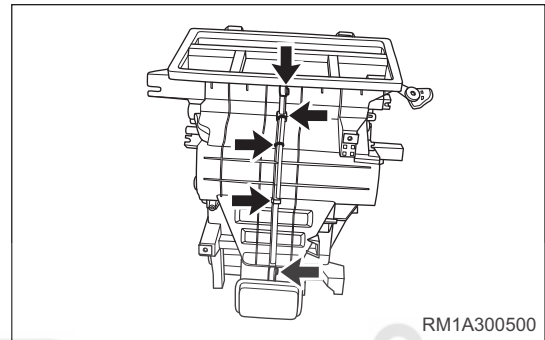
- a. Remove evaporator temperature sensor (arrow) from evaporator core.



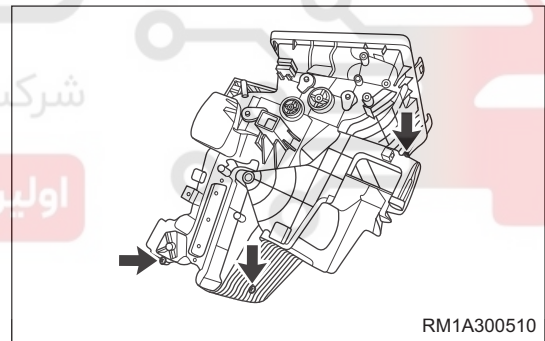
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17. Remove the temperature/face/defrost/foot damper set.

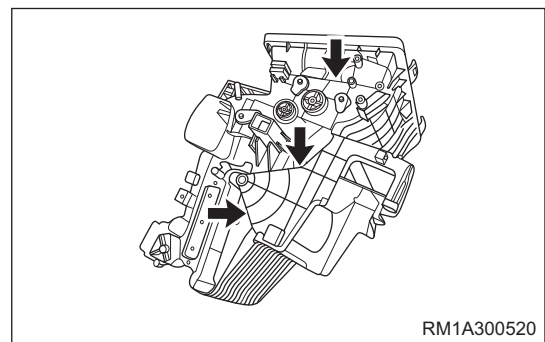
- a. Remove 2 fixing screws (arrow) and 3 fixing claws (arrow) from upper part of evaporator tank assembly. (Tightening torque: 1.5 ± 0.5 N·m)



- b. Remove 3 fixing screws (arrow) from rear part of evaporator tank assembly. (Tightening torque: 1.5 ± 0.5 N·m)

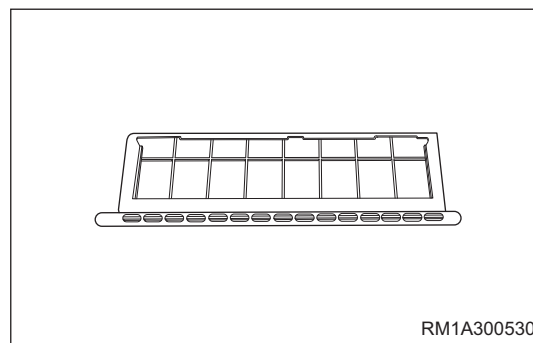


- c. Remove 3 fixing screws (arrow) from center part of evaporator tank assembly. (Tightening torque: 1.5 ± 0.5 N·m)

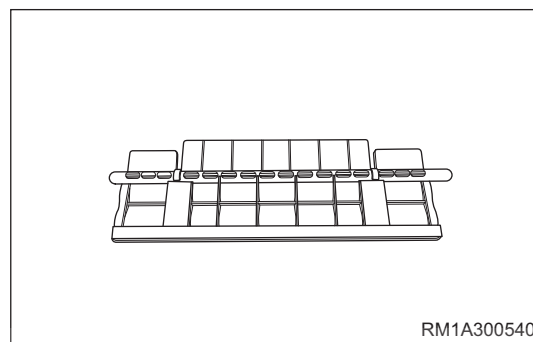


30 - AIR CONDITIONING

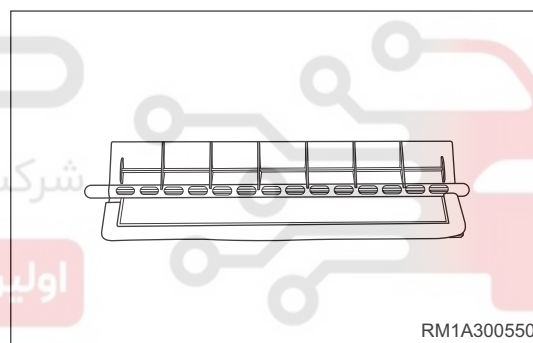
- d. Detach fixing clip and disengage evaporator tank case, and remove temperature damper set.



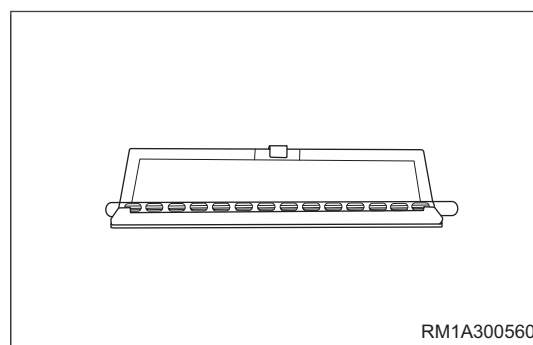
- e. Remove the face damper set.



- f. Remove the defrost damper set.



- g. Remove the foot damper set.



Inspection

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

Standard Resistance

Multimeter Connection	Temperature (°C)	Specified Condition (KΩ)
Terminal 1 - Terminal 2	-5	8.6577
Terminal 1 - Terminal 2	0	6.6500
Terminal 1 - Terminal 2	5	5.1501
Terminal 1 - Terminal 2	10	4.0207
Terminal 1 - Terminal 2	15	3.1630
Terminal 1 - Terminal 2	20	2.5065

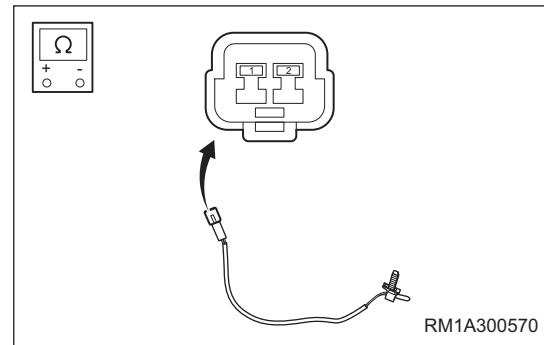
HINT:

Resistance decreases as temperature increases.

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

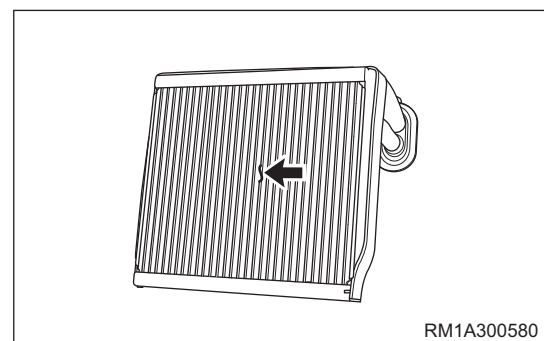
CAUTION

- Resistance value may change even if sensor is touched slightly. Make sure sensor connector is secured firmly.
- During measurement, sensor temperature must be almost the same as ambient temperature.



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2. Check the evaporator core assembly.
 - a. Check if evaporator core assembly is cracked, damaged or leaked.
If any problem is found, replace evaporator core assembly.
 - b. Check fins for bends.
If any fin is bent, carefully straighten it with screwdriver or pliers.

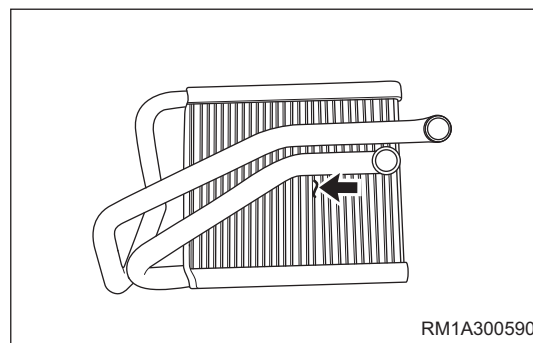


3. Check the heater core assembly.
 - a. Check if heater core assembly is cracked, damaged or leaked.
If any problem is found, replace heater core assembly.

30 - AIR CONDITIONING

b. Check fins for bends.

If any fin is bent, carefully straighten it with screwdriver or pliers.



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4. Check the damper control mechanism assembly.

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

Assembly

Assembly is in the reverse order of disassembly.

CAUTION

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

Installation

Installation is in the reverse order of removal.

CAUTION

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

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



A/C Low Pressure Line

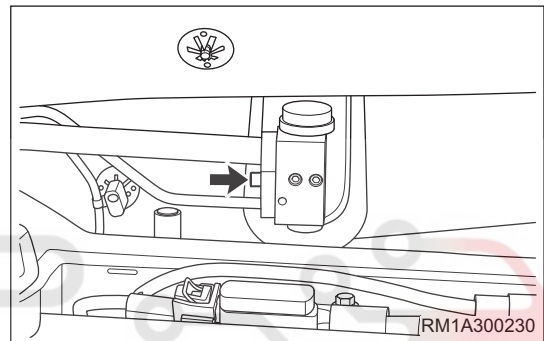
Removal

CAUTION

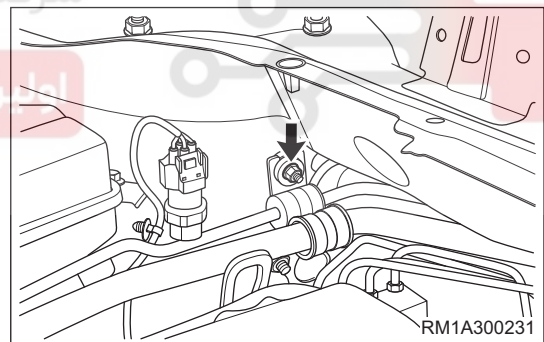
- Special service equipment for R134a refrigerant must be used to recover/charge refrigerant.
- Always keep work area in good ventilation.
- Disconnected A/C line and connecting part should be sealed to prevent foreign matter from entering.

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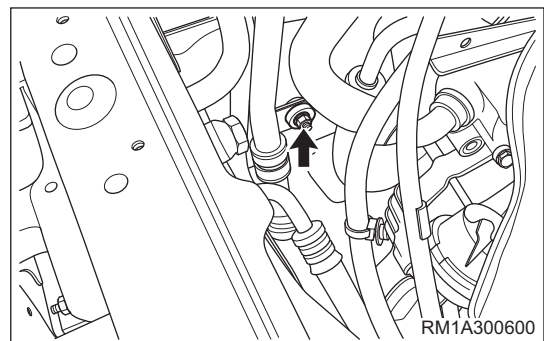
1. Recover refrigerant from A/C system (See page 30-22).
2. Turn off all electrical equipment and the ignition switch.
3. Disconnect the negative battery cable.
4. Remove the A/C low pressure line (compressor to evaporator).
 - a. Remove fixing bolt (arrow) between A/C high/low pressure line and expansion valve, and detach A/C high/low pressure line.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



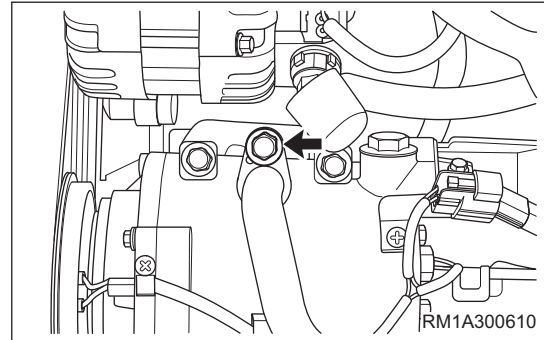
- b. Remove coupling bolt (arrow) between A/C high/low pressure line set bracket and body, and detach A/C low pressure line.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



- c. Remove coupling nut (arrow) between A/C high/low pressure line set bracket and body, and detach A/C low pressure line.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



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



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

Installation

Installation is in the reverse order of removal.

CAUTION

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

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران

A/C High Pressure Line

Removal

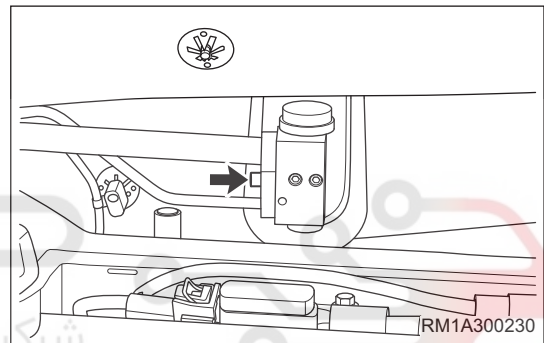
CAUTION

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

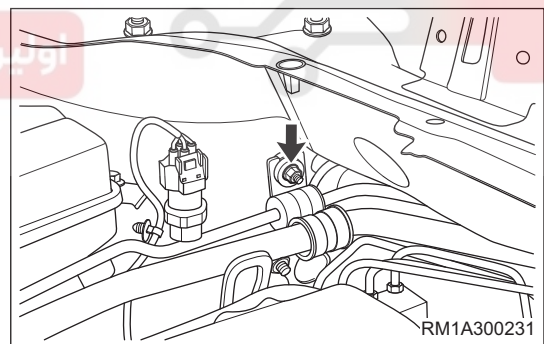
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1. Recover refrigerant from A/C system (See page 30-22).
2. Turn off all electrical equipment and the ignition switch.
3. Disconnect the negative battery cable.
4. Remove the front bumper assembly (See page 49-8).
5. Remove the A/C high pressure line I (condenser to evaporator).

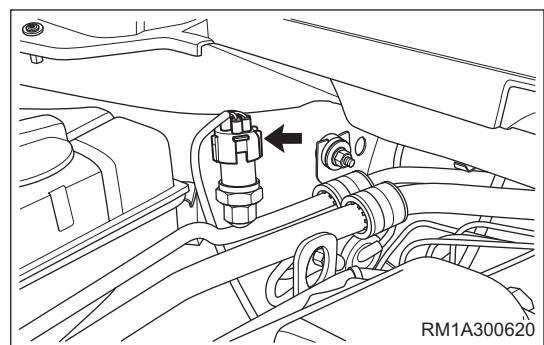
- a. Remove fixing bolt (arrow) between A/C high/low pressure line and expansion valve, and detach A/C high/low pressure line.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



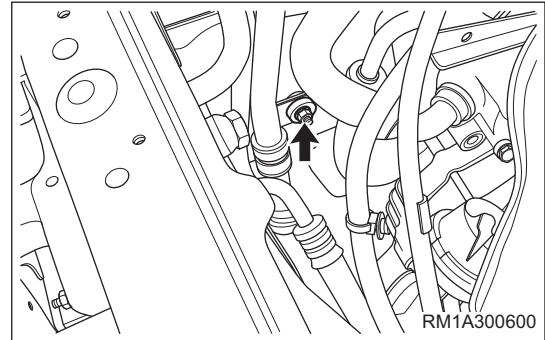
- b. Remove coupling bolt (arrow) between A/C high/low pressure line set bracket and body, and detach A/C high pressure line I.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



- c. Disconnect the A/C pressure sensor wire harness connector (arrow).

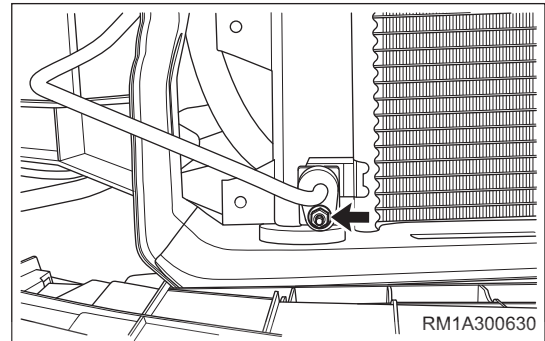


- d. Remove coupling nut (arrow) between A/C high/low pressure line set bracket and body, and detach A/C high pressure line I.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



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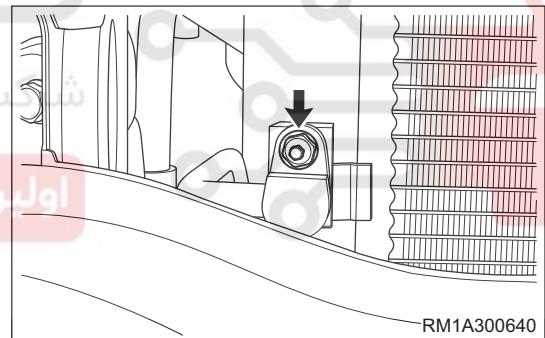
- e. Remove fixing bolt (arrow) between A/C high pressure line I and condenser assembly, and detach A/C high pressure line I from condenser assembly.
(Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



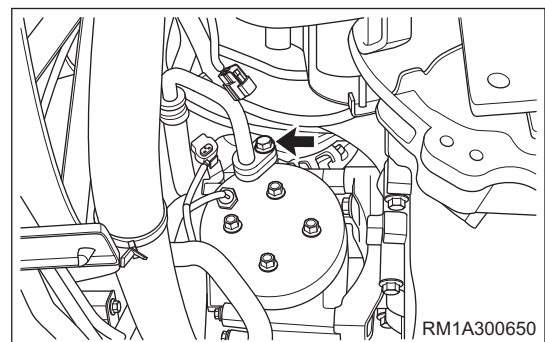
- f. Remove the A/C high pressure line I (condenser to evaporator).

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

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



- b. Remove fixing bolt (arrow) between A/C high pressure line II and compressor assembly, and detach A/C high pressure line II from 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 fixing bolts and nuts to specified torques.
- It is necessary to replace refrigerant line O-ring, when installing refrigerant line. Failure to do so may result in refrigerant leaks.
- Lubricate new rubber O-ring with clean refrigerant oil and install it to refrigerant line joint.
- Only use specified O-ring, as it is made of special materials for R134a system.
- Only use recommended refrigerant oil which is applicable to A/C compressor assembly on vehicle.
- Perform recharging for A/C system and check for refrigerant leakage.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



Compressor Assembly

⚠ WARNING

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

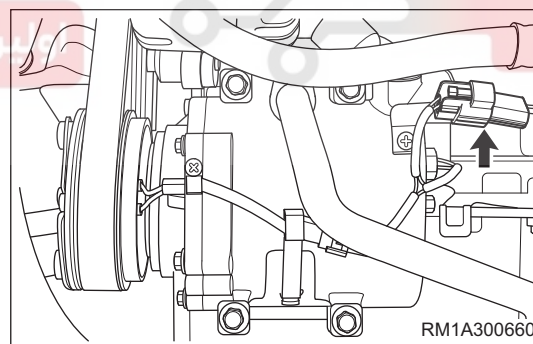
👁 CAUTION

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

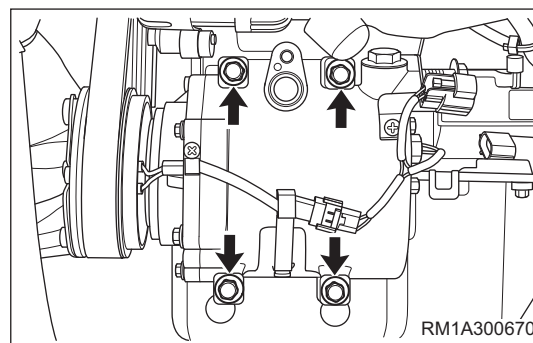
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Removal

1. Recover refrigerant from A/C system (See page 30-22).
2. Turn off all electrical equipment and the ignition switch.
3. Disconnect the negative battery cable.
4. Remove the front bumper lower protector assembly (See page 49-20).
5. Remove the accessory drive belt (See page 07-24).
6. Remove the compressor assembly.
 - a. Disconnect the compressor assembly wire harness connector (arrow).

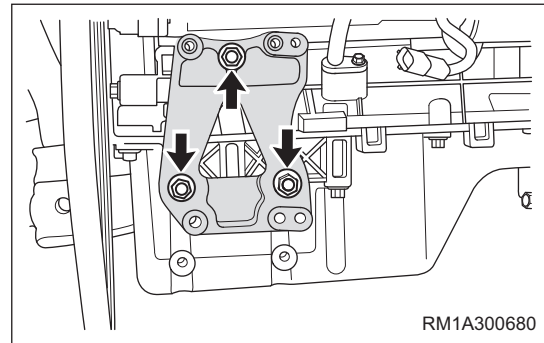


- b. Remove 2 fixing bolts (arrow) between A/C high/low pressure line and compressor assembly, and detach A/C high/low pressure line from compressor assembly.
- c. Remove 4 fixing bolts (arrow) between compressor assembly and mounting bracket. (Tightening torque: 25 ± 4 N·m)



30 - AIR CONDITIONING

- d. Carefully remove compressor assembly from below.
7. Remove the compressor assembly mounting bracket.
 - a. Remove 3 fixing bolts (arrow) between compressor mounting bracket and engine.
(Tightening torque: $40 + 5 \text{ N}\cdot\text{m}$)



- b. Remove the compressor assembly mounting bracket.

Installation

Installation is in the reverse order of removal.

CAUTION

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

Condenser Assembly (w/ Receiver Drier)

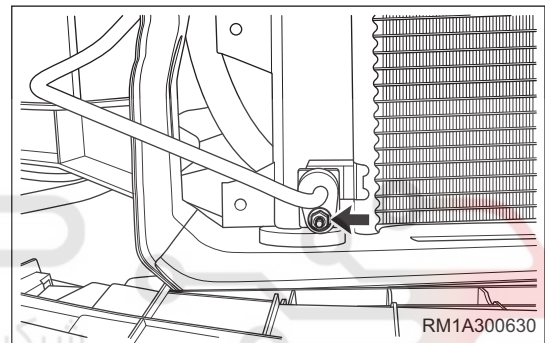
Removal

CAUTION

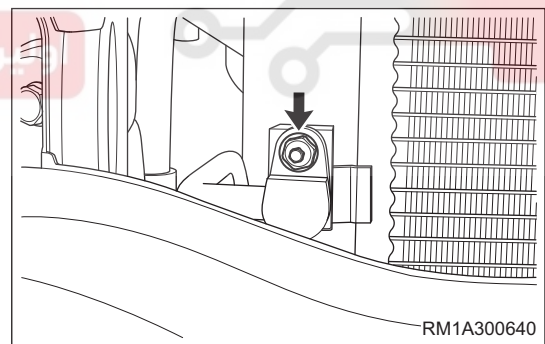
- Special service equipment for R134a refrigerant must be used to recover/charge refrigerant.
- Always keep work area in good ventilation.
- Disconnected A/C line and connecting part should be sealed to prevent foreign matter from entering.

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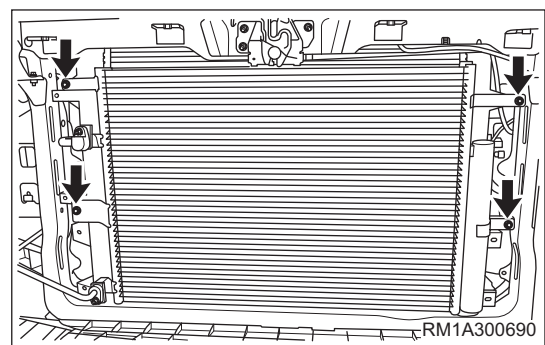
1. Recover refrigerant from A/C system (See page 30-22).
2. Turn off all electrical equipment and the ignition switch.
3. Disconnect the negative battery cable.
4. Remove the front bumper assembly (See page 49-8).
5. Remove the condenser assembly (w/ receiver drier).
 - a. Remove fixing bolt (arrow) between A/C high pressure line I and condenser assembly, and detach A/C high pressure line I from condenser assembly. (Tightening torque: $9 \pm 1.5 \text{ N}\cdot\text{m}$)



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



- c. Remove 4 fixing bolts (arrow) between radiator assembly and condenser assembly. (Tightening torque: $7 \pm 1 \text{ N}\cdot\text{m}$)



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

30 - AIR CONDITIONING

Inspection

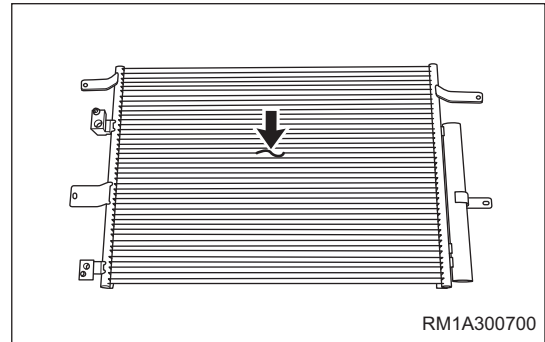
1. Check the condenser fins.
 - a. If condenser fins are dirty, wash them with water. Then dry fins with compressed air.

CAUTION

- DO NOT damage condenser fins.

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

**Installation**

Installation is in the reverse order of removal.

CAUTION

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