

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. Cut off the high voltage.
(Refer to General Information - "High Voltage Cut-off Procedure")
3. Recover the refrigerant with a recovery / charging station.
(Refer to Air Conditioning System - "Repair procedures")

⚠ WARNING

Use dedicated recovery/charge station for filling R134a or R1234y and POE. If the POE is mixed with PAG oil, the compressor may defective or safety related accident may occur due to decreased volumetric resistivity.

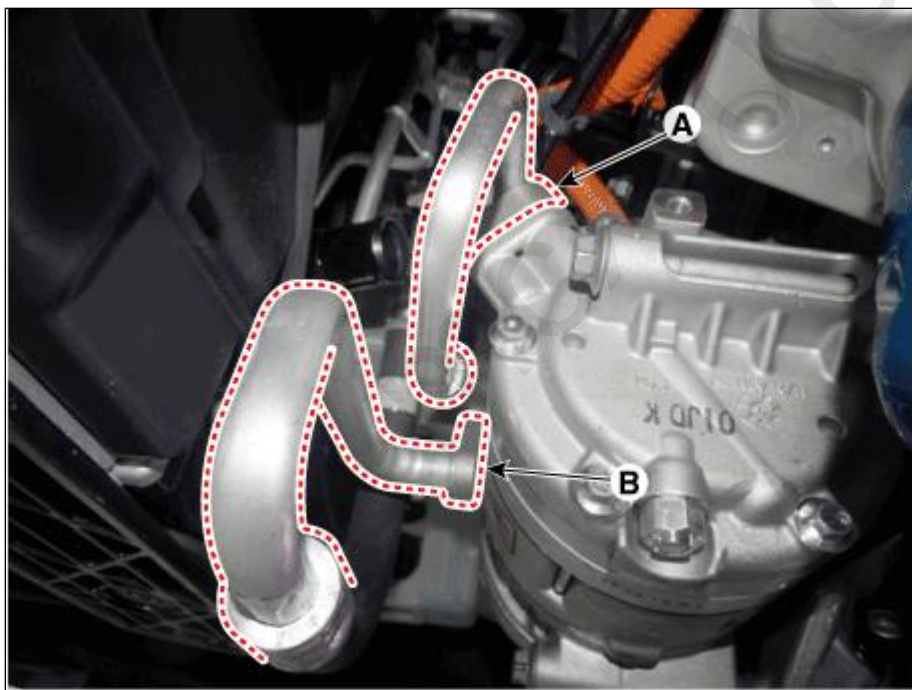
4. Remove the engine room under cover.
(Refer to Engine Mechanical System - "Engine Room Cover")
5. Remove the bolts, then disconnect the suction line (A) and discharge line (B) from the compressor.

Tightening torque :

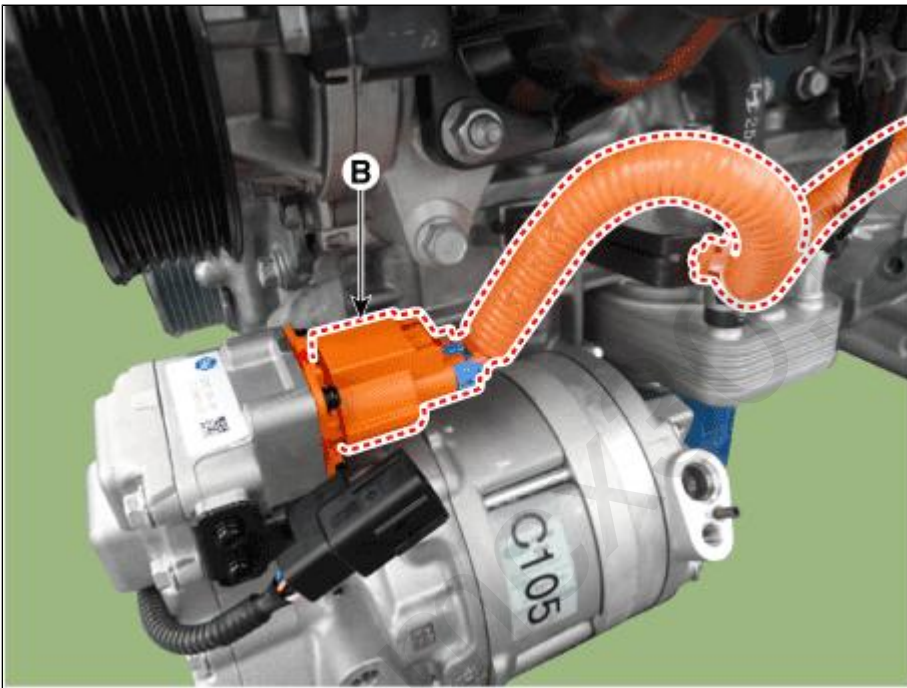
21.6 - 32.4 N.m (2.2 - 3.3 kgf.m, 15.9 - 23.9 lb-ft)

NOTICE

To protect the system from moisture and dust contamination, plug it in or cap it immediately after disconnecting it.



6. Disconnect the high voltage connector (A) and electric compressor connector (B)



7. Remove the compressor (A) by loosening the mounting bolts.

Tightening torque :

20.0 - 32.95 N.m (2.04 - 3.36 kgf.m, 14.75 - 24.30 lb-ft)

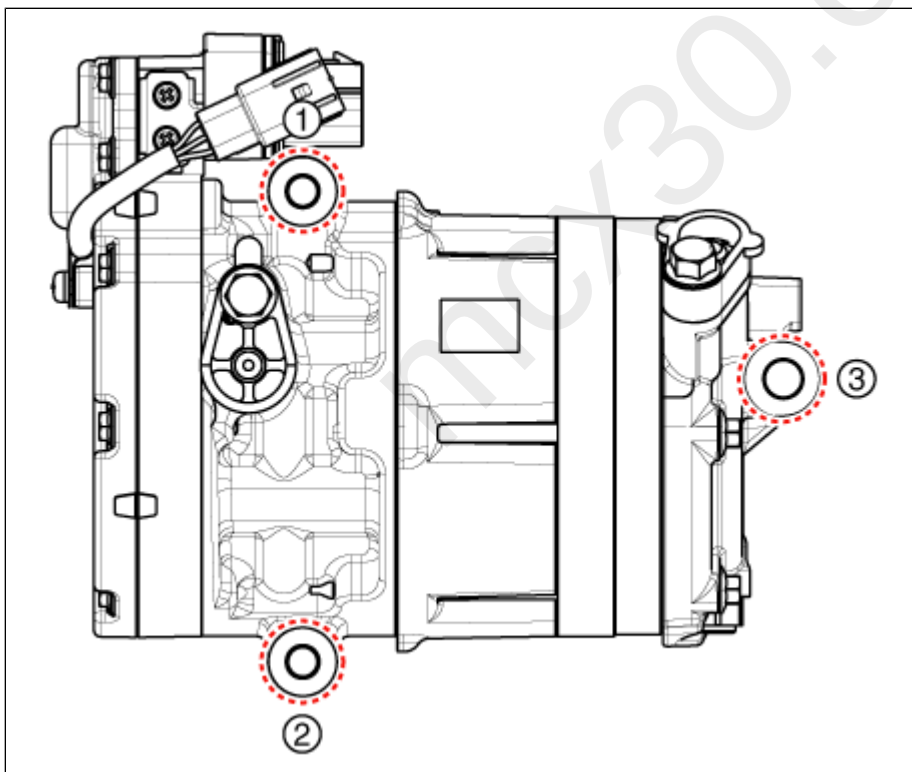


Installation

1. Make sure the compressor mounting bolt with the correct length is screwed in. Tighten the mounting bolts with the specified tightening order.

Tightening torque :

20.0 - 32.95 N.m (2.04 - 3.36 kgf.m, 14.75 - 24.30 lb-ft)



2. To install, reverse the removal procedure.

NOTICE

If you install a new compressor, drain all the refrigerant oil from the removed compressor and measure its volume. Subtract the volume of drained oil from the original capacity. The result is the amount of oilcompressor 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 or R-1234yf 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 on the container and seal it to avoid moisture absorption.

⚠ WARNING

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Replacement

[Inveter replacement]

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. Cut off the high voltage.
(Refer to General Information - "High Voltage Cut-off Procedure")
3. Recover the refrigerant with a recovery / charging station.
(Refer to Air Conditioning System - "Repair procedures")

⚠ WARNING

Use dedicated recovery/charge station for filling R134a or R1234y and POE. If the POE is mixed with PAG oil, the compressor may defective or safety related accident may occur due to decreased volumetric resistivity.

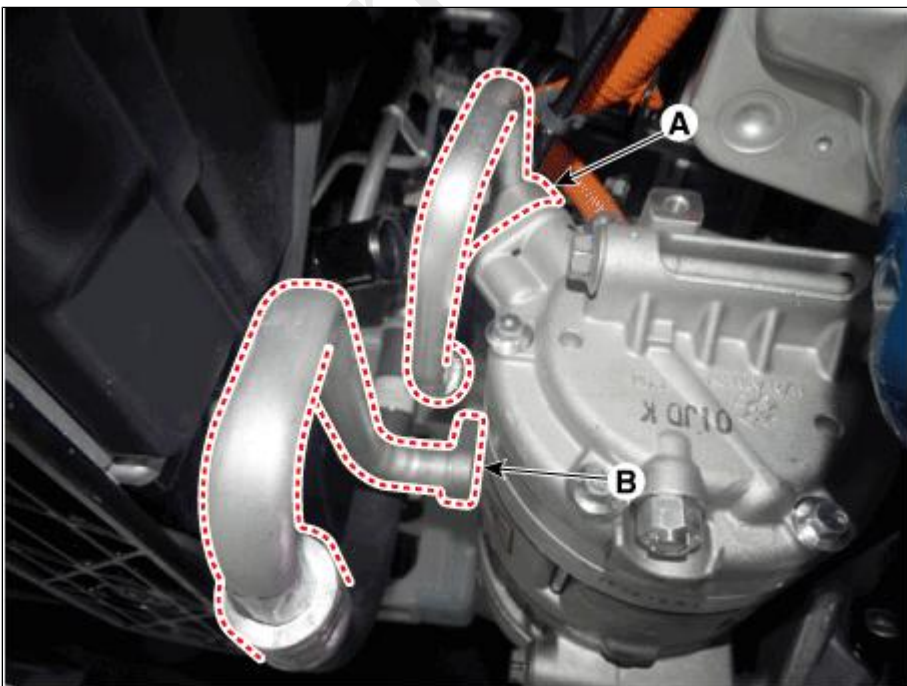
4. Remove the engine room under cover.
(Refer to Engine Mechanical System - "Engine Room Cover")
5. Remove the bolts, then disconnect the suction line (A) and discharge line (B) from the compressor.

Tightening torque :

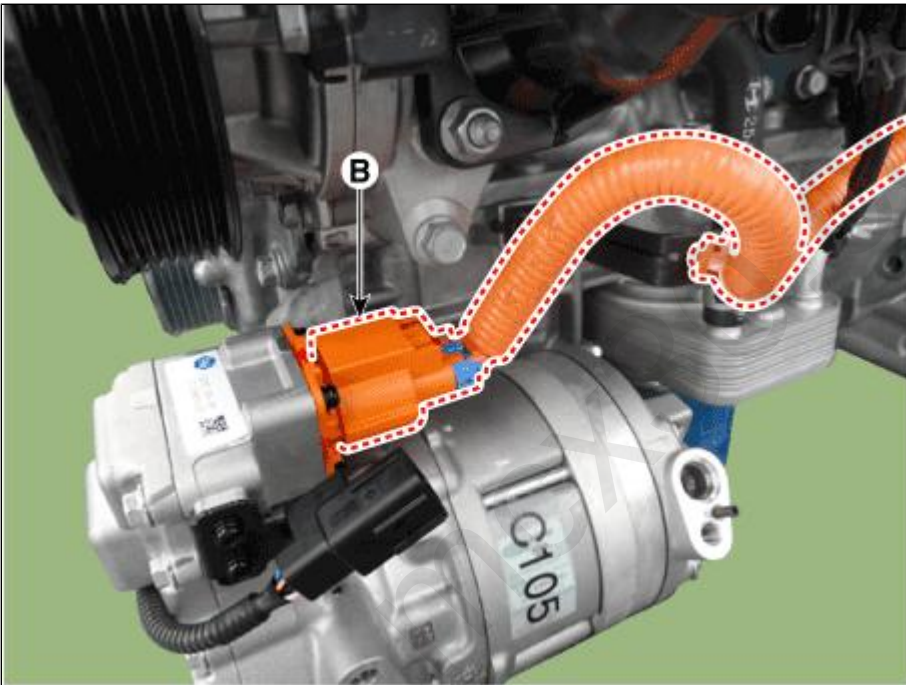
21.6 - 32.4 N.m (2.2 - 3.3 kgf.m, 15.9 - 23.9 Ib-ft)

⚠ CAUTION

To protect the system from moisture and dust contamination, plug it in or cap it immediately after disconnecting it.



6. Disconnect the high voltage connector (A) and electric compressor connector (B)

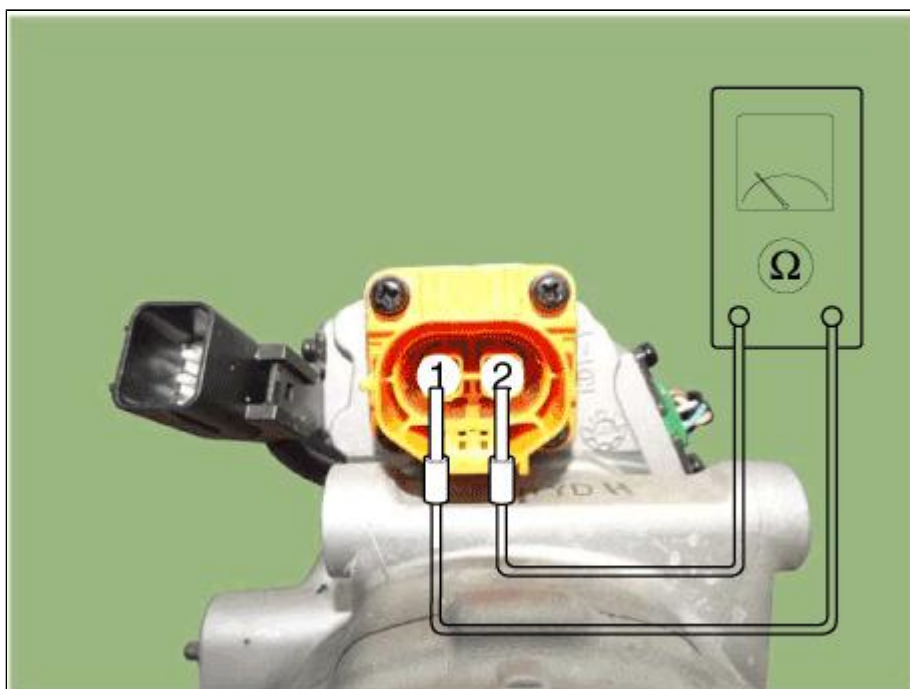


7. To check the compressor inverter, measure the resistance value of the compressor's high voltage pin, low voltage pin and insulation.

(1) High voltage pin

Normal resistance value : $100\ \Omega$ ↑

Abnormal resistance : $100\ \Omega$ ↓



Pin No	Function
1	High Voltage Power
2	High Voltage Ground
3	Interlock (-)
4	Interlock (+)

(2) Low voltage pin

- a. Measure CAN HIGH/LOW Resistance
- Measure terminals 2 and 5.

Normal : 120 Ω

Abnormal : inverter short-circuited ($\approx 0\Omega$)

- b. Measure CAN Ground Resistance
- Measure terminals 1 and 2 / 1 and 5.

Normal : 13~14 K Ω / 200~600 K Ω (High Performance DSP Specifications)

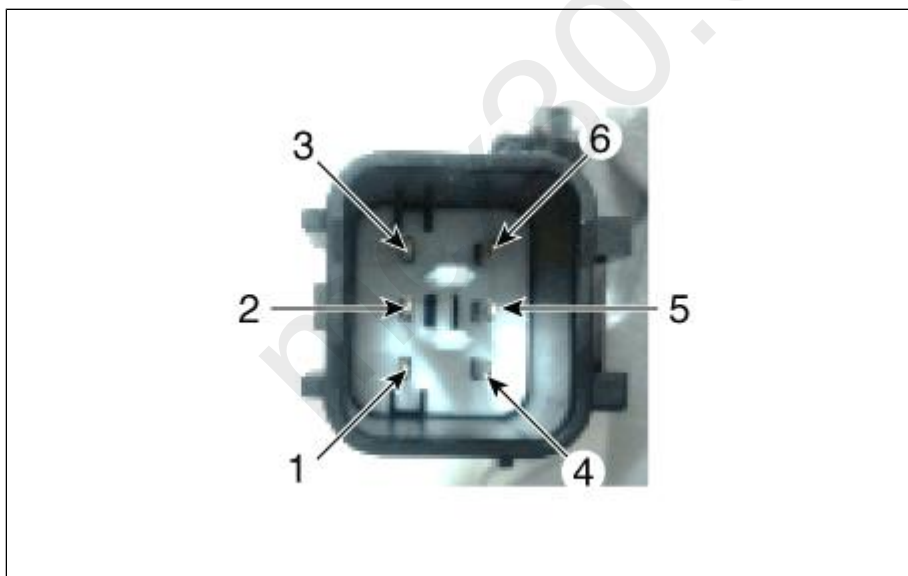
- c. Measure Interlock HIGH/LOW Resistance measure (Connect high voltage connector (A) and measure low voltage (B) 3 and 6 resistance.)

Normal : Below 1.0 Ω

Abnormal : M Ω



i Information



Pin No	Function	Pin No	Function
1	GND 12V	4	IG 12V
2	CAN LOW	5	CAN HIGH
3	Interlock (-)	6	Interlock (+)

(3) Compressor insulation resistance measurement.

Normal resistance value : check insulation resistance (Minimum : 100 MΩ) (@500 Vdc, no coolant)



8. If it is determined that the inverter is defective, loosen the mounting bolts and remove the electric compressor assembly (A) to replace the inverter.

Tightening torque :

20.0 - 32.95 N.m (2.04 - 3.36 kgf.m, 14.75 - 24.30 lb-ft)



9. The inverter / body kit is an electronic component and can be damaged by dust or humidity. It should be moved to the clean room.

⚠ CAUTION

To prevent the inverter/body kit from getting contaminated, remove dust or dirt from the exterior of the compressor.

Do not open the package until the inverter / body kit is installed, to prevent the inverter / body kit from getting contaminated.

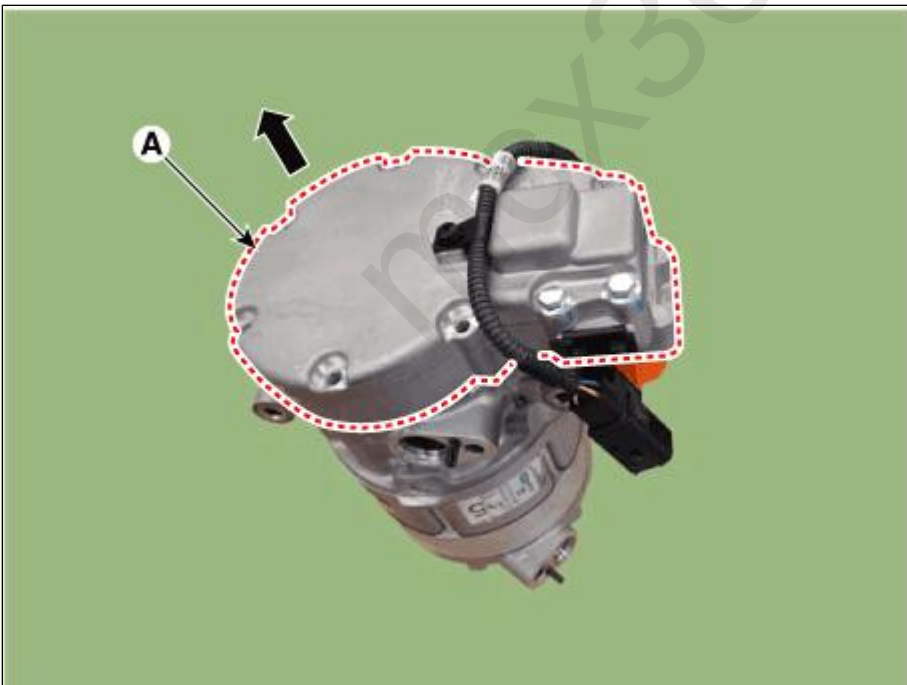
10. Remove the bolts from the inverter.

⚠ CAUTION

Do not re-use the inverter fastening bolt.
Never remove unmarked bolts.

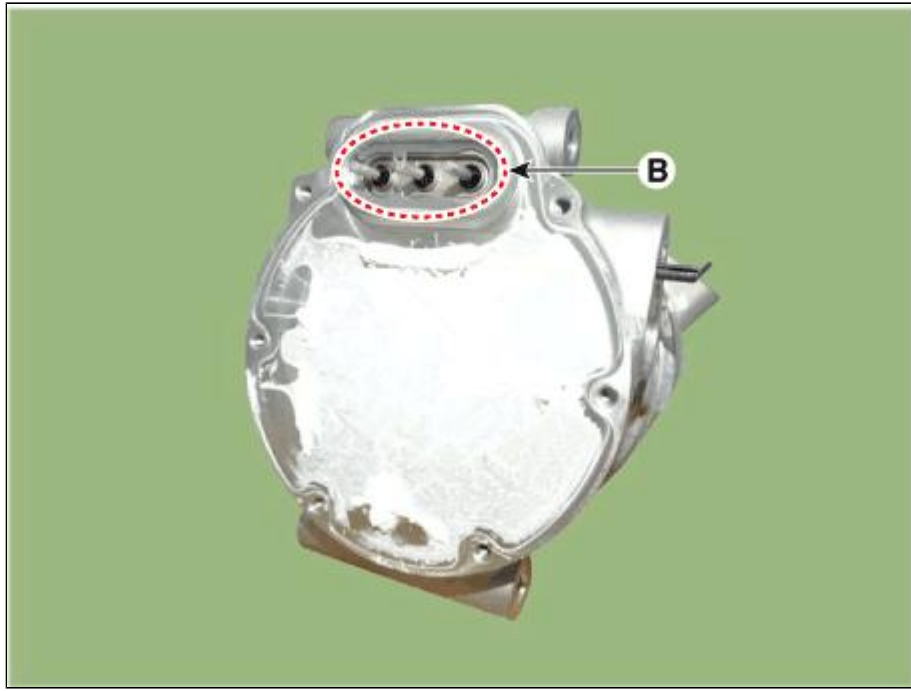


11. Remove the inverter (A).



⚠ CAUTION

When removing the inverter, be careful not to damage, twist or bend the 3-phase power pin (B).



12. Remove the inverter gasket (A).

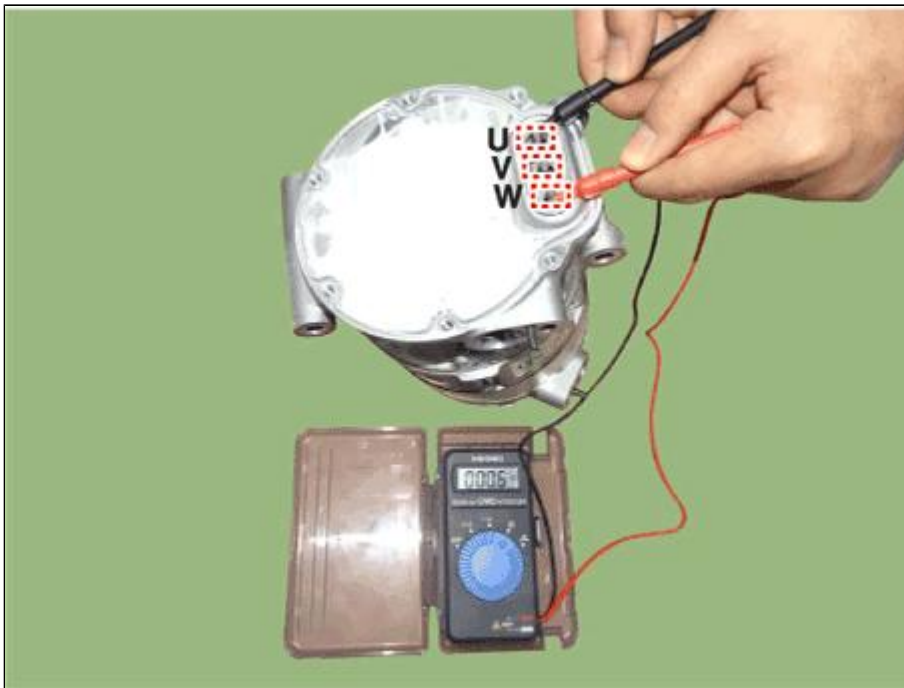
⚠ CAUTION

Do not re-use the inverter gasket (A).



13. To check the compressor motor, measure the resistance of the 3-phase power pin.
If the 3-phase resistance value is out of specification, it means motor malfunction. Replace the whole compressor assembly.

	U-V	V-W	U-W
Normal resistance	0.4 ~ 0.5Ω		
Abnormal resistance	0Ω		



14. Apply the thermal grease as in the following before replacing the inverter.

Applied amount : 3 ~ 4g (Body kit radiator)

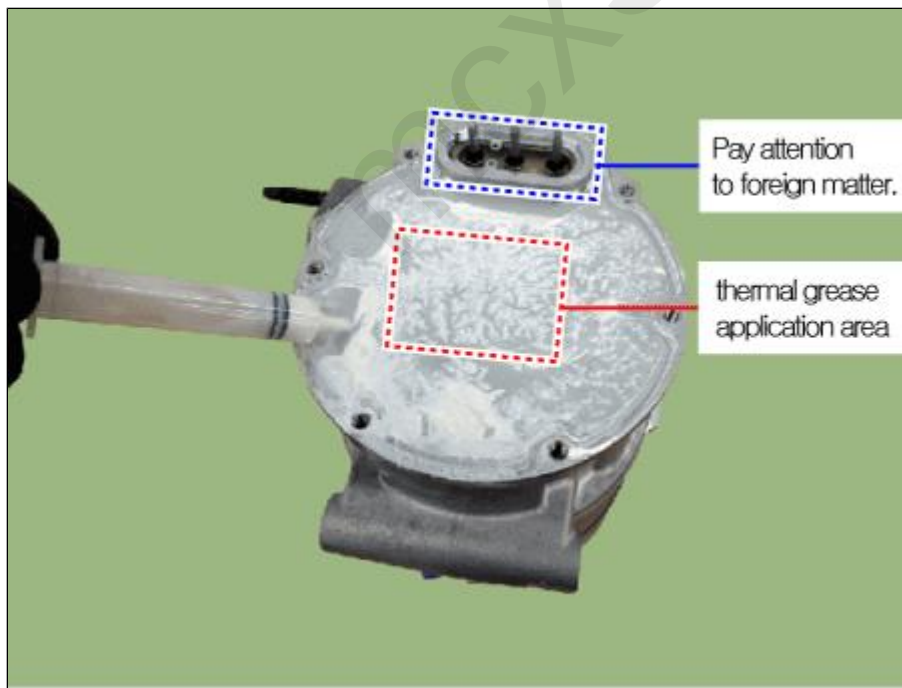
CAUTION

When replacing the inverter, be careful for static electricity and maintain a clean room (keep constant temperature and humidity : 22°C [71.6°F] - 23°C [73.4°F], 50%)

Make sure to use the provided thermal grease as generic grease is not allowed.

Remove the foreign material by using alcohol when applying thermal grease.

Do not open the package until the inverter is installed, to prevent the inverter from getting contaminated.



15. Install the inverter gasket (A).

CAUTION

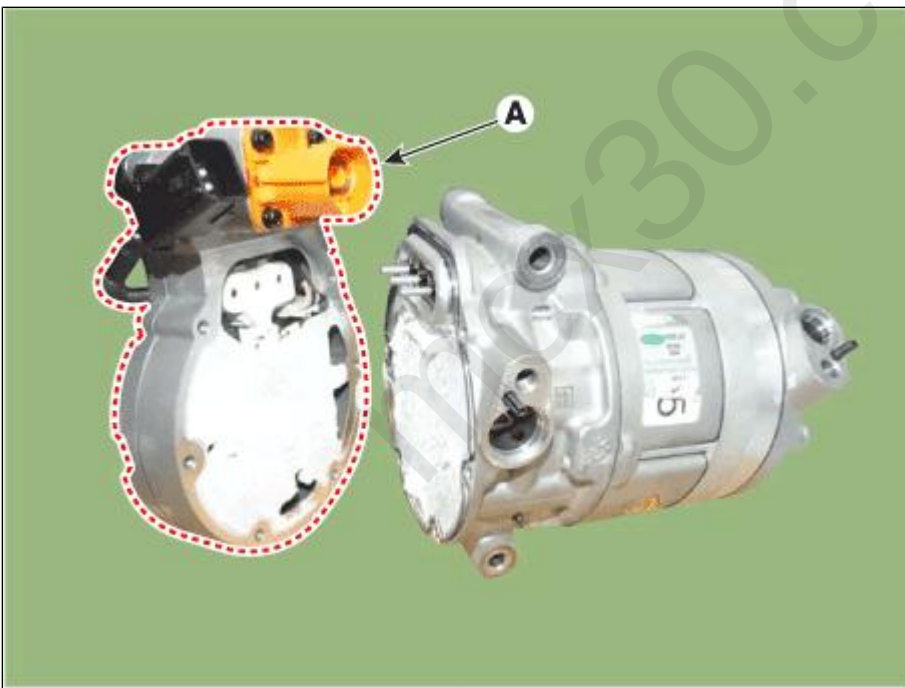
Do not re-use the inverter gasket (A).



16. Install the inverter (A) and compressor body (B) while being careful not to damage the 3-phase power pin.

⚠ CAUTION

When installing the inverter, be careful not to damage, twist or bend the 3-phase power pin.
Do not re-use the inverter fastening bolt and gasket.



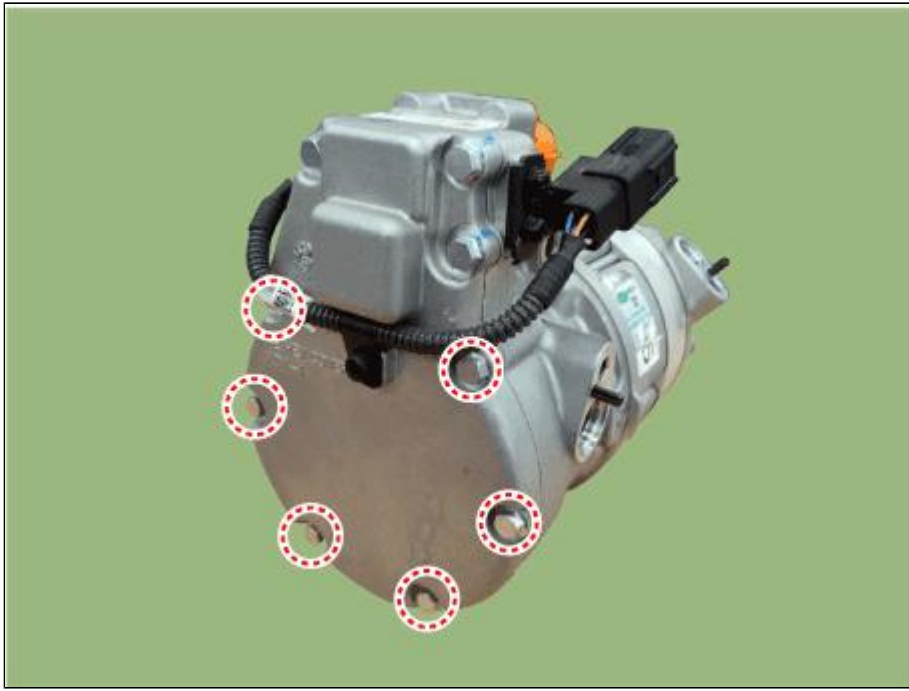
17. Assemble the inverter with new fastening bolts.

Tightening torque :

5.9 - 6.9 N·m (0.6 - 0.7 kgf·m, 4.3 - 5.1 lb·ft)

⚠ CAUTION

Excessive or insufficient torque may cause of PCB inside the inverter bending by engine vibration at inverter assemble.
Do not re-use the inverter fastening bolts.



18. To install, reverse the removal procedure.

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