

ACCESSORIES & EQUIPMENT

Air Conditioning System (Service Information) - Sienna

REFRIGERANT

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

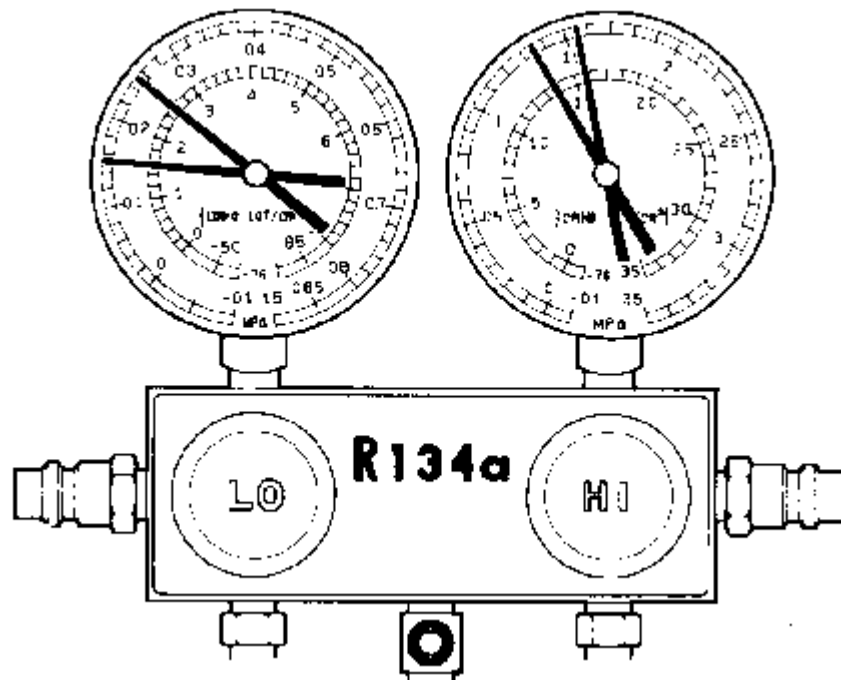
1. CHECK REFRIGERANT PRESSURE USING MANIFOLD GAUGE SET

- a. This is a method to identify trouble areas by using a manifold gauge set. Read the manifold gauge pressure under the following conditions.

Test conditions:

- Engine warm.
- All doors fully open.
- A/C switch on.
- Blower speed control switch at HI.
- Engine running at 1500 RPM.
- Air inlet mode damper set at RECIRC.
- Temperature control switch in MAX. COLD position.
- Air temperature at air inlet 30 to 35°C (86 to 95°F).

1. When the refrigerant volume is correct, the gauge reading indicates as follows:



E50573

Fig. 1: Checking A/C Refrigeration Pressure
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Gauge Reading

Pressure Side	Specified Condition
Low	0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm ² , 22 to 36 psi)
High	1.37 to 1.57 MPa (14 to 16 kgf/cm ² , 199 to 228 psi)

HINT:

Pressure varies in accordance with certain conditions (outside air temperature, sunlight and wind).

2. When there is moisture in the refrigeration system:

Condition: Air conditioning system periodically cools and then fails to cool.

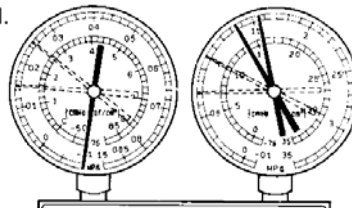


Fig. 2: Checking For Moisture In Refrigeration System
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Symptom	Probable Cause	Diagnosis	Corrective Action
During operation, pressure	Moisture in refrigeration system freezes at expansion valve	• Receiver dryer oversaturated • Moisture in	- Replace receiver dryer - Remove moisture

on low pressure side cycles between normal and vacuum	orifice, causing temporary interruption of cycle. However, when melted, returns to normal condition	refrigeration system freezes at expansion valve orifice and blocks refrigerant circulation	from cycle by repeatedly evacuating air c. Charge appropriate volume of new refrigerant
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3. When cooling is insufficient:

Condition: Air conditioning system does not function effectively.

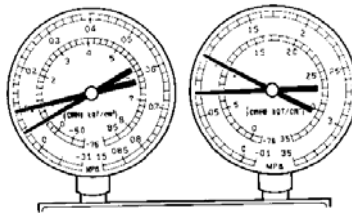


Fig. 3: Identifying Refrigerant Pressure (Insufficient Cooling)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Symptom	Probable Cause	Diagnosis	Corrective Action
• Pressure low on both low and high pressure sides • Cooling performance insufficient	Gas leakage from refrigeration system	• Insufficient refrigerant • Refrigerant leakage	a. Check for gas leakage using halogen leak detector, and repair if necessary b. Charge appropriate volume of new refrigerant c. If indicated pressure value close

			to 0 when connected to gauge, create vacuum after inspecting and repairing location of leakage
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4. When the circulation of the refrigerant is poor:

Condition: Air conditioning system does not function effectively.

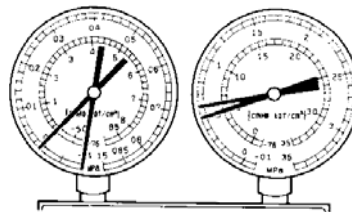


Fig. 4: Identifying Refrigerant Pressure (Poor Circulation Of Refrigerant)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Symptom	Probable Cause	Diagnosis	Corrective Action
- Pressure low on both low and high pressure sides - Frost exists on piping from condenser to A/C unit	Refrigerant flow obstructed by dirt in condenser	Condenser clogged	Replace condenser

5. When the refrigerant does not circulate:

Condition: Air conditioning system does not function or functions intermittently.

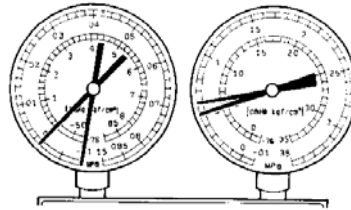


Fig. 5: Checking Refrigerant Pressure (When Refrigerant Does Not Circulate)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Symptom	Probable Cause	Diagnosis	Corrective Action
• Vacuum indicated on low pressure side, and extremely low pressure indicated on high pressure side • Frost or condensation seen on piping on both sides of condenser or expansion valve	• Refrigerant flow obstructed by moisture or dirt in refrigeration system • Refrigerant flow obstructed by gas leakage from expansion valve	Refrigerant does not circulate	a. Check expansion valve b. Clean expansion valve with compressed air c. Replace condenser d. Evacuate air and then charge appropriate volume of new refrigerant e. For gas leakage from expansion valve, replace expansion valve

6. When the refrigerant is overcharged or cooling of condenser is insufficient:

Condition: Air conditioning system does not function effectively.

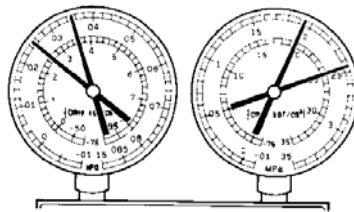
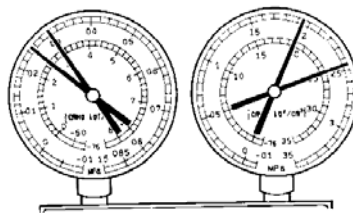


Fig. 6: Identifying Refrigerant Pressure (Refrigerant Overcharged)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Symptom	Probable Cause	Diagnosis	Corrective Action
• Pressure extremely high on both sides	• Excessive refrigerant • Cooling performance of condenser insufficient	• Excessive refrigerant • Cooling performance of condenser insufficient	a. Clean condenser fins b. Check condenser fan motor operation by switching A/C ON c. If 1 and 2 normal, check amount of refrigerant and charge appropriate volume of refrigerant

7. When there is air in the refrigeration system:

Condition: Air conditioning system does not function.



NOTE: These gauge indications occur when the refrigeration system opens and the refrigerant is supplied without performing vacuum purging.

Fig. 7: Identifying Refrigerant Pressure (Air In Refrigeration System)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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Symptom	Probable Cause	Diagnosis	Corrective Action
- Pressure extremely high on both low and high pressure sides - Low pressure piping too hot to touch	Air in refrigeration system	- Air in refrigeration system - Insufficient vacuum purging	- Check whether compressor oil dirty or insufficient - Evacuate air and charge new refrigerant

8. When the expansion valve malfunctions:

Condition: Air conditioning system does not function effectively.

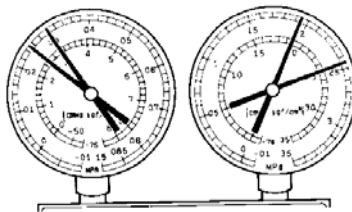


Fig. 8: Identifying Refrigerant Pressure (Expansion Valve Malfunctions)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Symptom	Probable Cause	Diagnosis	Corrective Action
- Pressure extremely high on both low and high pressure sides - Frost or condensation on piping on low pressure side	Expansion valve malfunction	- Excessive refrigerant in low pressure piping - Expansion valve opening too wide	Replace expansion valve

9. When the compressor is defective:

Condition: Air conditioning system does not function.

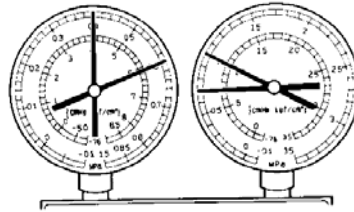


Fig. 9: Identifying Refrigerant Pressure (Compressor Defective)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Symptom	Probable Cause	Diagnosis	Corrective Action
- Pressure extremely high on both low and high pressure sides - Pressure extremely low on high pressure side	Internal leakage in compressor	- Compression failure of compressor - Leakage from damaged valve or broken sliding parts in compressor	Repair or replace compressor

2. INSPECT IDLING SPEED

- Warm up the engine.
- Inspect idling speed when these conditions are established.

Standard

for 2GR-FE

for 1AR-FE

Condition	Idling Speed
A/C switch off	600 to 700 RPM
A/C switch on (A/C Lo -- > Hi)	700 -- > 800 RPM

Condition	Idling Speed
A/C switch off	600 to 700 RPM
A/C switch on (A/C Lo -- > Hi)	680 -- > 800 RPM

If the idling speed is not as specified, check the idle control system.

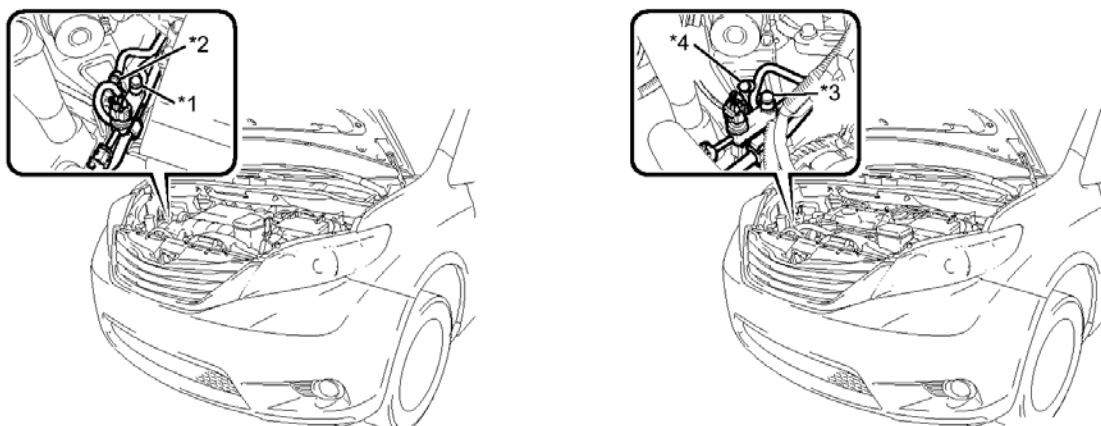
REPLACEMENT

REPLACEMENT

NOTE: When recharging refrigerant, collect the refrigerant remaining in the system, and then recharge and seal the refrigerant as described below. Do not overcharge.

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

- a. Start up the engine.
- b. A/C switch on.
- c. Turn the blower switch to on.
- d. Operate the cooler compressor with an engine speed of approximately 1000 RPM for 5 to 6 minutes to circulate the refrigerant and collect the remaining compressor oil from each component, in the cooler compressor.
- e. Stop the engine.
- f. Remove the caps from the service valves on the refrigerant line.



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Fig. 10: Identifying Refrigeration System Service Valves
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	High Pressure Service Valve (for 2GR- FE)	*2	Low Pressure Service Valve (for 2GR- FE)
*3	High Pressure Service Valve (for 1AR- FE)	*4	Low Pressure Service Valve (for 1AR- FE)

- g. Connect the refrigerant recovery unit.
- h. Recover the refrigerant from the air conditioning system using a refrigerant recovery unit.

HINT:

Use the refrigerant recovery unit in accordance with the manufacturer's instruction manual.

2. CHARGE REFRIGERANT

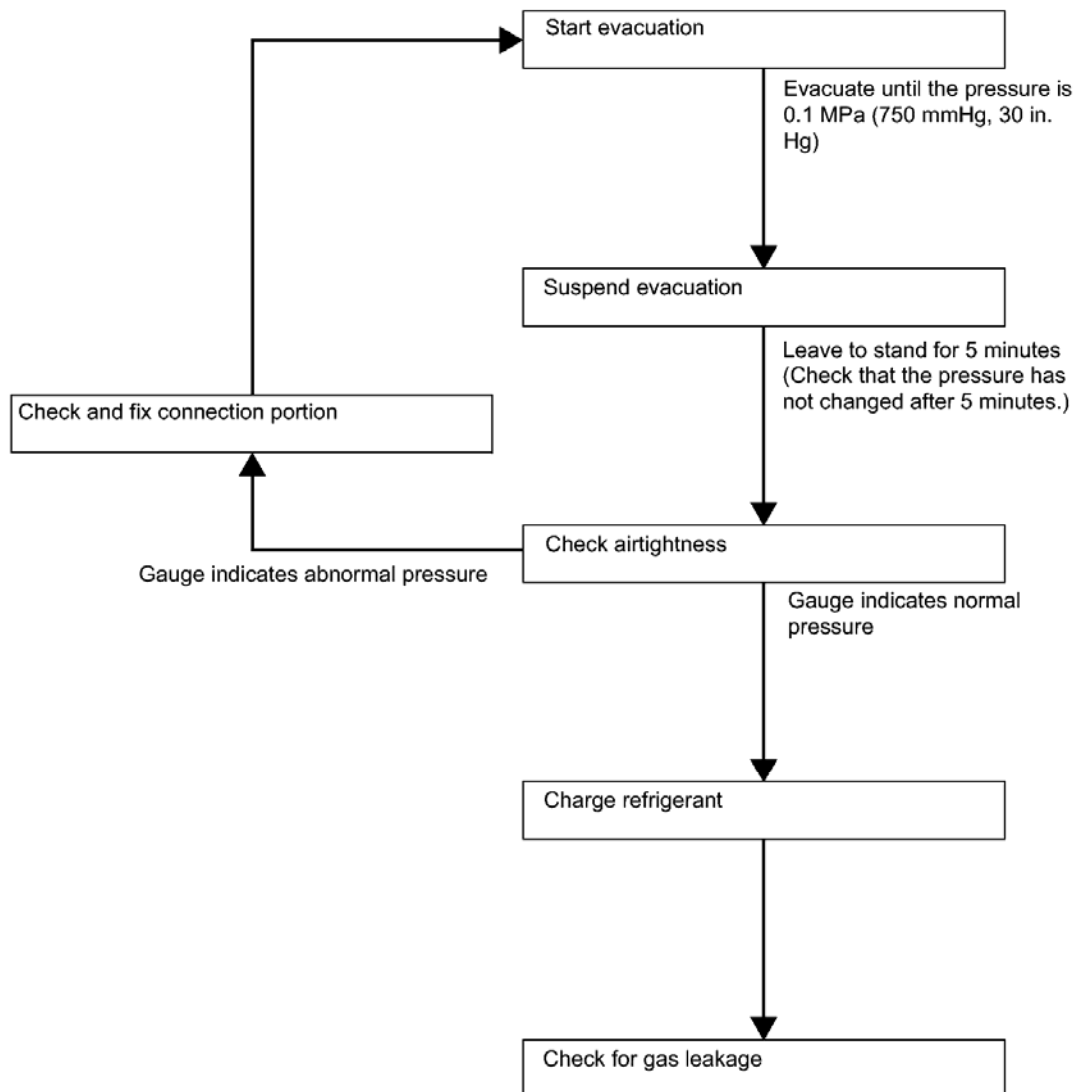


Fig. 11: Refrigerant Charging Flow Chart
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Charge refrigerant in accordance with the equipment manual.

- Perform vacuum purging using a vacuum pump.
- Charge refrigerant HFC-134a (R134a).

- **SST: 09985-20010**

09985-02010

09985-02050

09985-02060
09985-02070
09985-02080
09985-02090
09985-02110
09985-02130
09985-02140
09985-02150

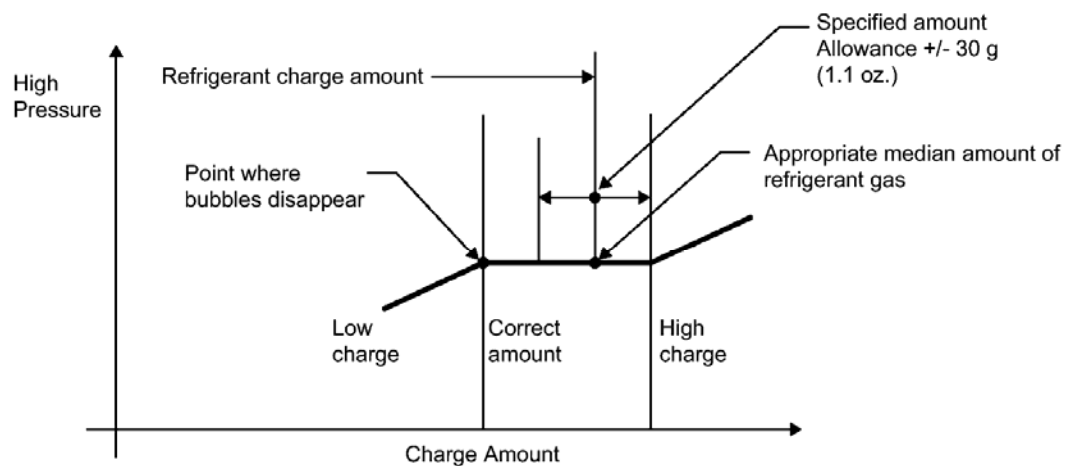
Standard

750 to 810 g (26.5 to 28.6 oz.)

NOTE: Do not start the engine before charging it with refrigerant as the cooler compressor does not work properly without sufficient refrigerant. This could cause the compressor to overheat.

HINT:

- The relationship between the refrigerant charge amount and the pressure is as follows.



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Fig. 12: Refrigerant Charge Amount Graph

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- High Charge Range:

If the refrigerant is overcharged, the pressure rises on the high-pressure side. High-pressure cut off frequently occurs. This causes insufficient cooling performance and also insufficient

compressor lubrication.

- Low Charge Range:

A shortage of refrigerant causes insufficient cooling performance and low circulation of refrigerant oil, which shortens the compressor life. Operation with insufficient coolant raises the refrigerant temperature and causes heat deterioration of the rubber seals and hoses. Cracking and subsequent refrigerant leakage may occur.

1. Install the caps onto the service valves on the refrigerant line.

3. WARM UP ENGINE

NOTE: Warm up the engine at less than 2000 RPM for 1 minute or more after charging it with refrigerant.

4. INSPECT FOR REFRIGERANT LEAK

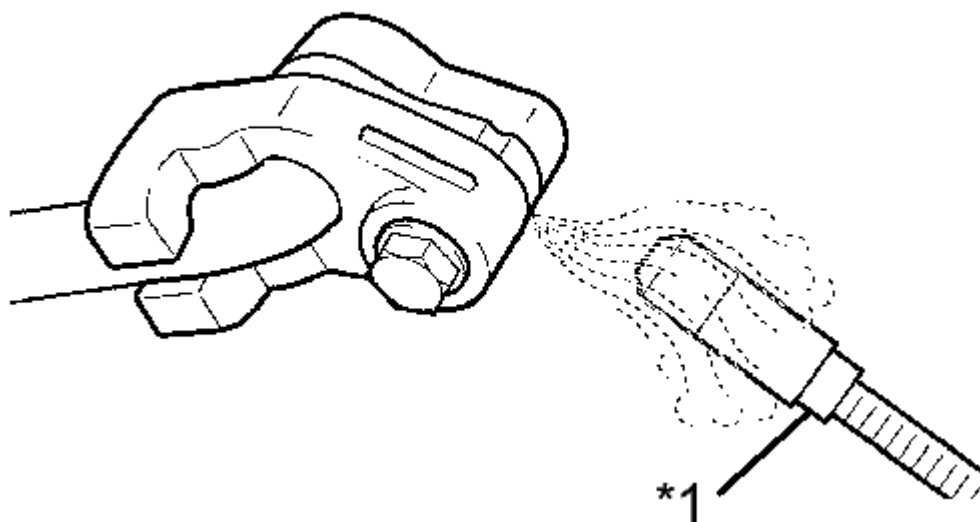
- a. After recharging the refrigerant gas, check for refrigerant gas leakage using a halogen leak detector.
- b. Perform the operation as follows:
 - Stop the engine.
 - Secure good ventilation (the halogen leak detector may react to volatile gases other than refrigerant, such as evaporated gasoline or exhaust gas).
 - Repeat the test 2 or 3 times.
 - Make sure that some refrigerant remains in the refrigeration system.

When the compressor is off: approximately 392 to 588 kPa (4 to 6 kgf/cm² , 57 to 85 psi)

HINT:

It is impossible for the above pressure to be maintained if there is leakage.

- c. Using the halogen leak detector, check the refrigerant line, especially at the connection points, for leakage.



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Fig. 13: Checking Refrigerant Line Using A Halogen Leak Detector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Halogen
*1	Leak
	Detector

- d. Bring the halogen leak detector close to the drain hose before performing the test.

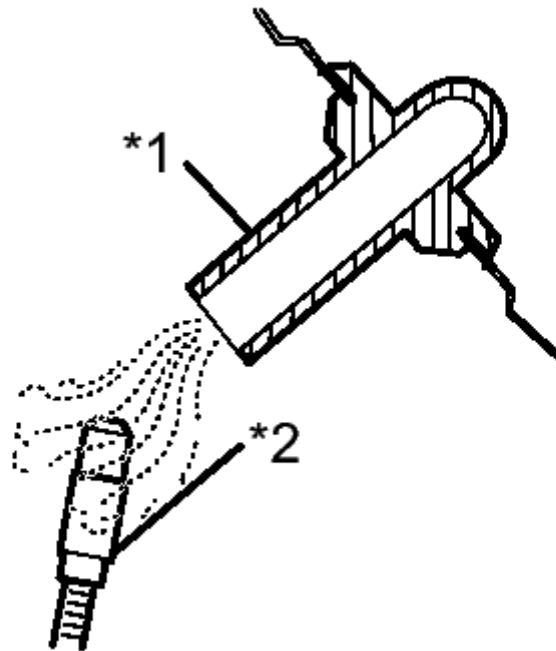


Fig. 14: Inspecting Drain Hose Using A Halogen Leak Detector
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Drain Hose
*2	Halogen Leak Detector

HINT:

- After the blower motor has stopped, leave the cooling unit for at least 15 minutes.
- Place the halogen leak detector sensor under the drain hose.
- When bringing the halogen leak detector close to the drain hose, make sure that the halogen leak detector does not react to other volatile gases.

If such a reaction is unavoidable, the vehicle must be lifted up.

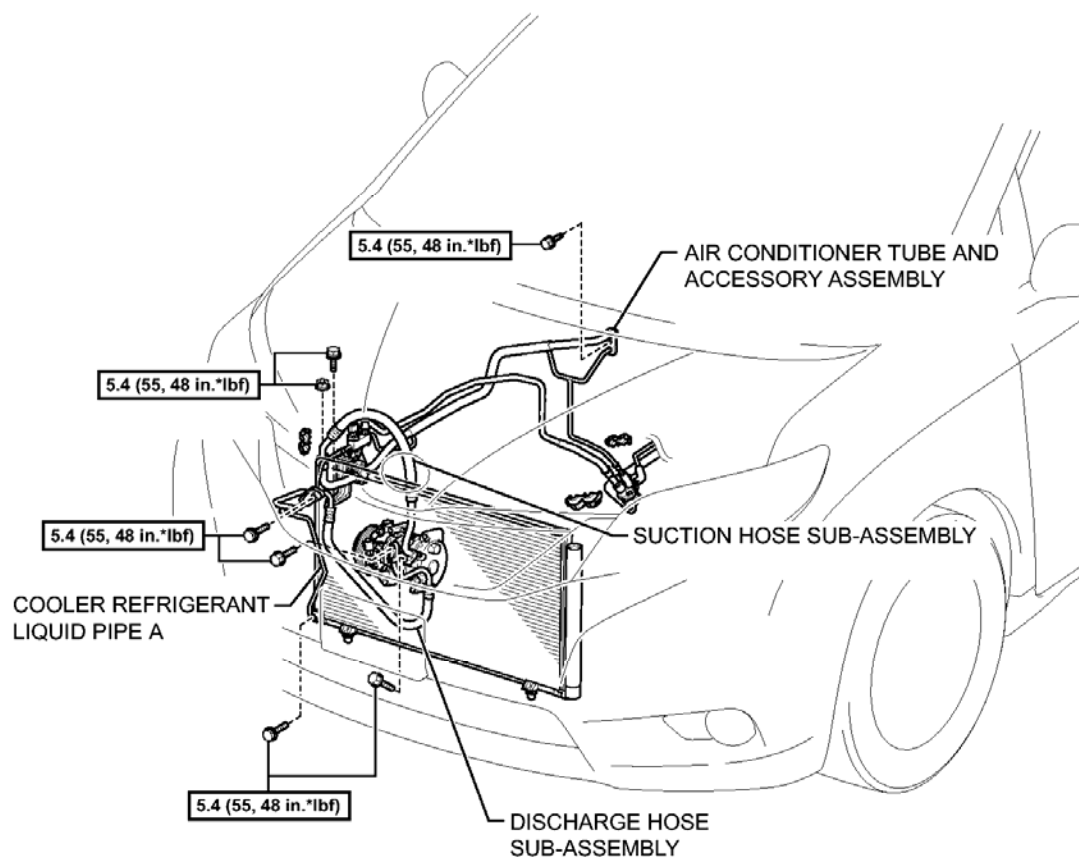
- If no gas leakage is detected from the drain hose, remove the blower motor from the cooling unit. Insert the halogen leak detector sensor into the unit and perform the test.
- Disconnect the pressure switch connector and leave it for approximately 20 minutes. Bring the halogen leak detector close to the pressure switch and perform the test.

REFRIGERANT LINE

COMPONENTS

ILLUSTRATION

for 2GR-FE:



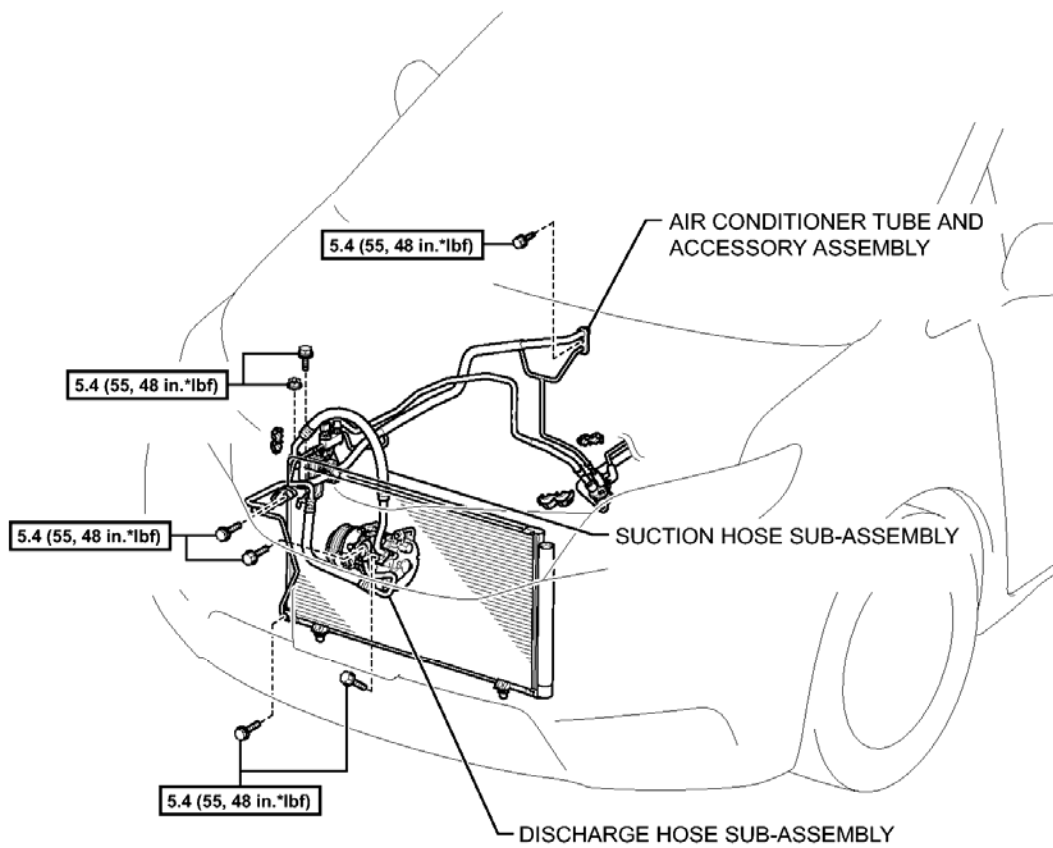
N*m (kgf*cm, ft.*lbf): Specified torque

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Fig. 15: Refrigerant Line Replacement Components With Torque Specifications (2GR-FE) (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

for 1AR-FE:

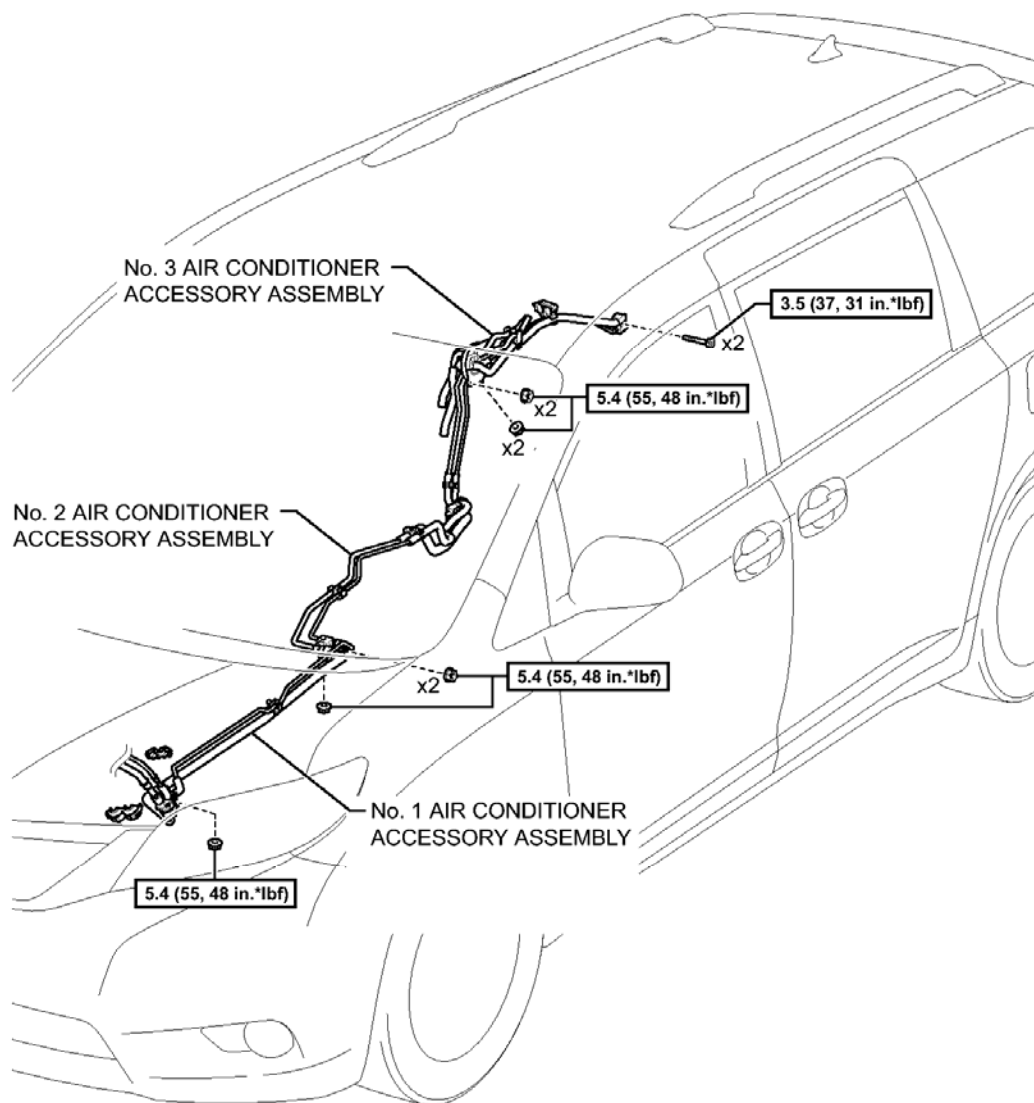


N*m (kgf*cm, ft.*lbf): Specified torque

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Fig. 16: Refrigerant Line Replacement Components With Torque Specifications (1AR-FE) (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



$\boxed{\text{N}^*\text{m (kgf}^*\text{cm, ft.}^*\text{lbf)}}$: Specified torque

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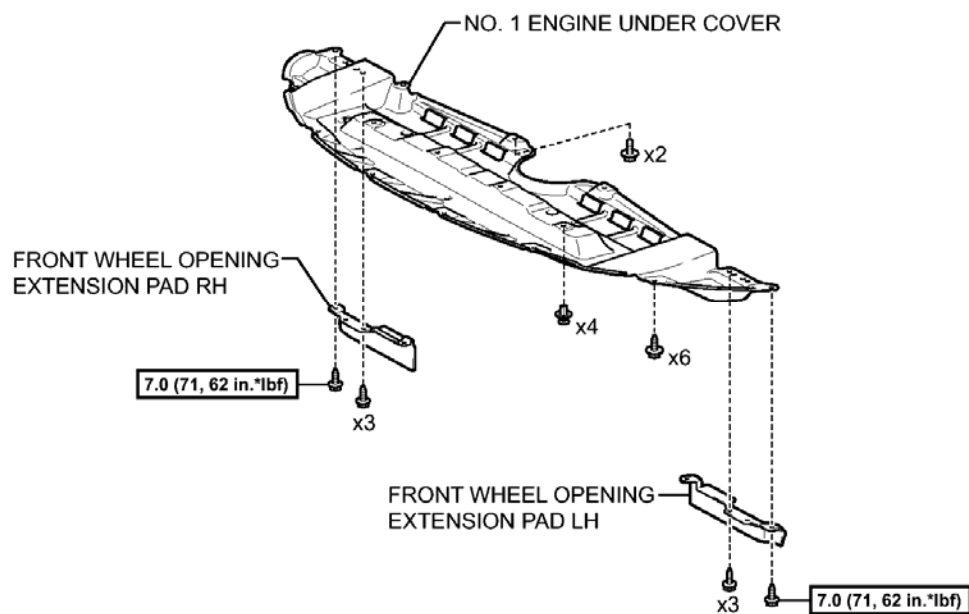
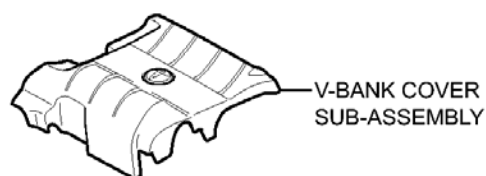
Fig. 17: Refrigerant Line Replacement Components With Torque Specifications (3 Of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

FRONT AIR CONDITIONING UNIT

COMPONENTS

ILLUSTRATION

for 2GR-FE:



N*m (kgf*cm, ft.*lbf): Specified torque

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Fig. 18: Front Air Conditioning Unit Replacement Components With Torque Specifications (2GR-FE) (1 Of 11)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

for 1AR-FE:

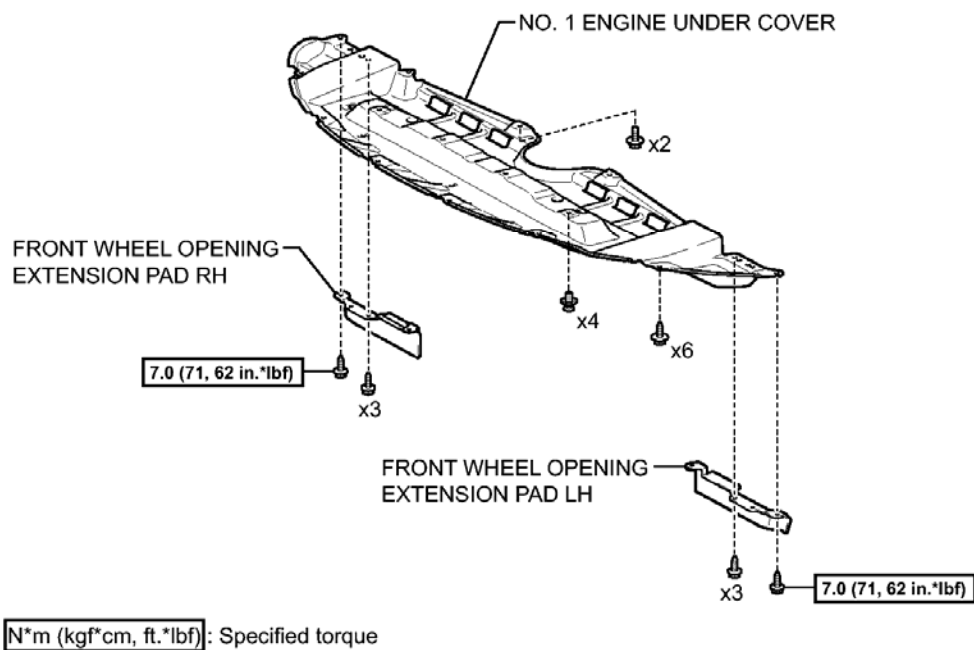
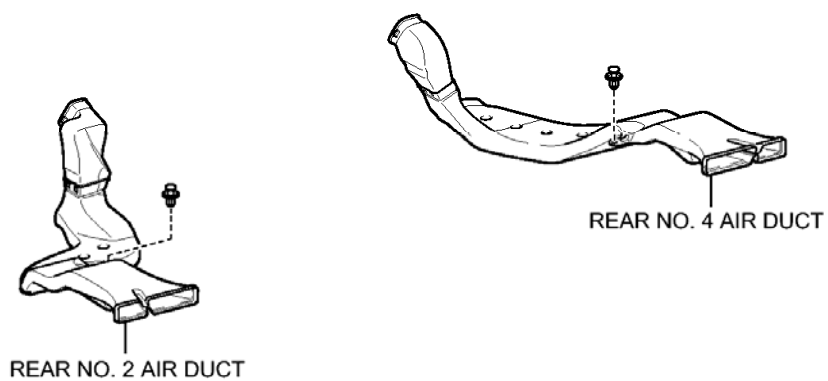


Fig. 19: Front Air Conditioning Unit Replacement Components With Torque Specifications (1AR-FE) (2 Of 11)

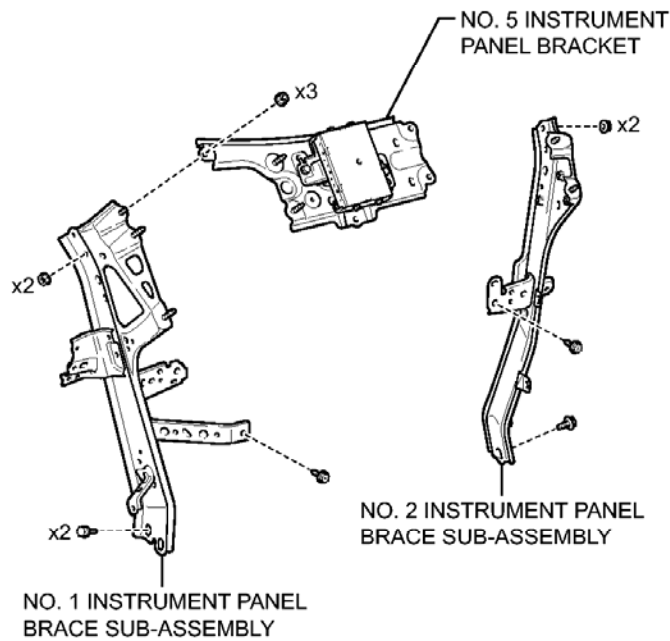
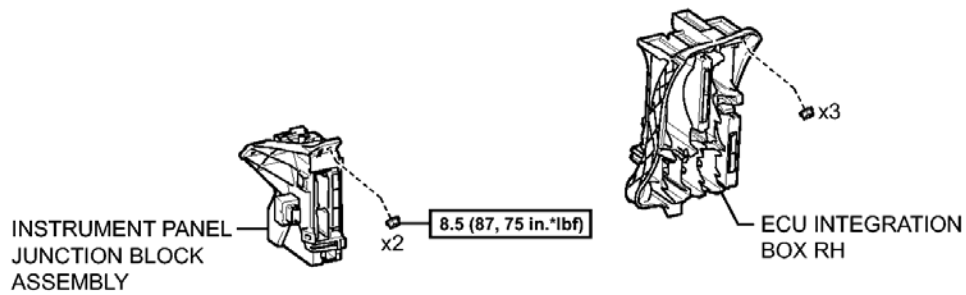
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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Fig. 20: Front Air Conditioning Unit Replacement Components (3 Of 11)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

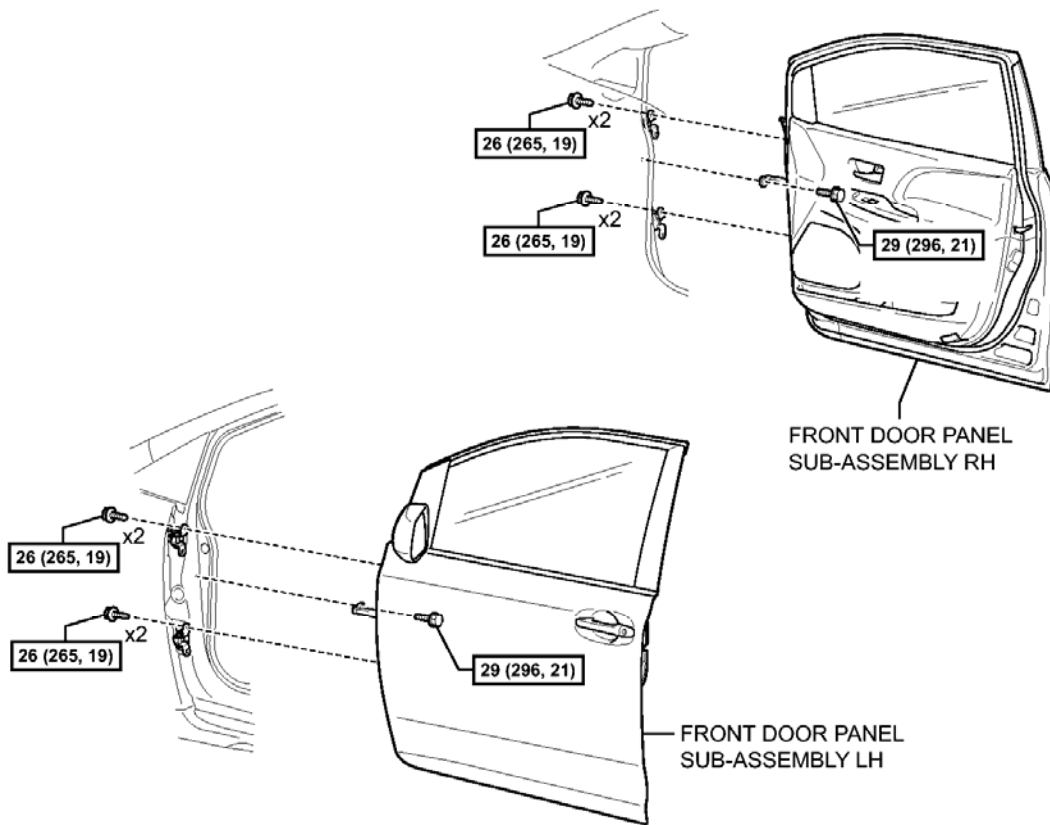


[N*m (kgf*cm, ft.*lbf)]: Specified torque

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Fig. 21: Front Air Conditioning Unit Replacement Components With Torque Specifications (4 Of 11)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

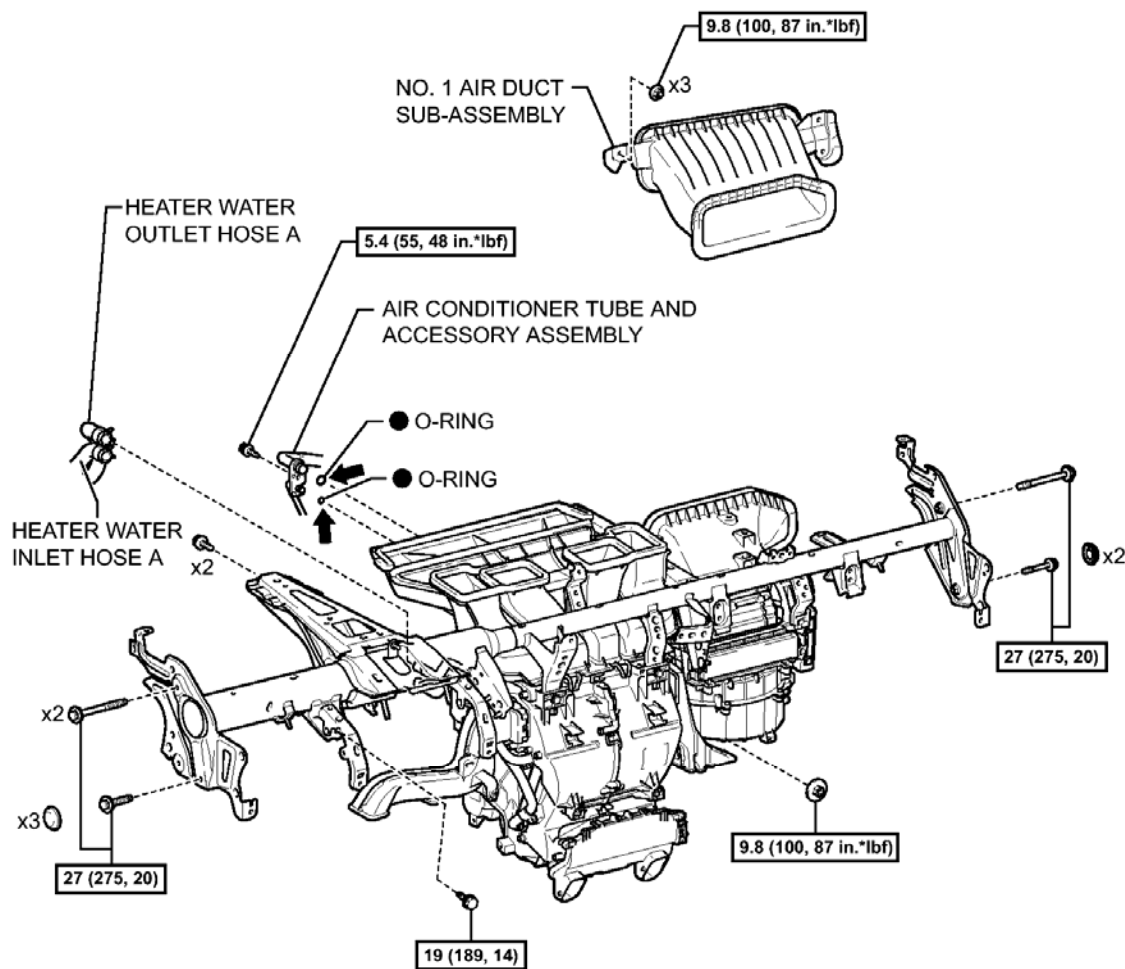


N*m (kgf*cm, ft.*lbf): Specified torque

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Fig. 22: Front Air Conditioning Unit Replacement Components With Torque Specifications (5 Of 11)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



N*m (kgf*cm, ft.*lbf): Specified torque

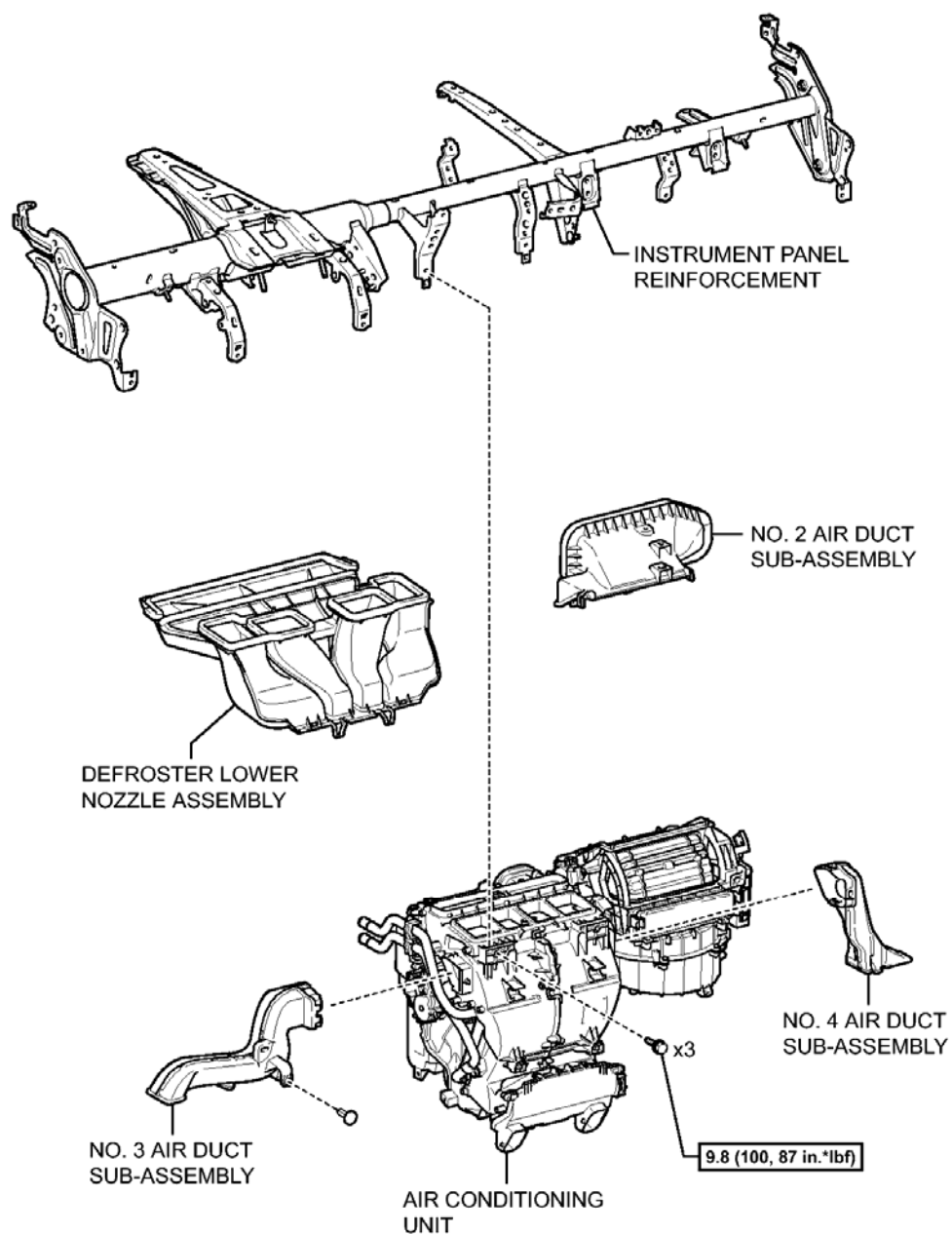
● Non-reusable part

➡ Compressor oil ND-OIL8 or equivalent

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Fig. 23: Front Air Conditioning Unit Replacement Components With Torque Specifications (6 Of 11)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

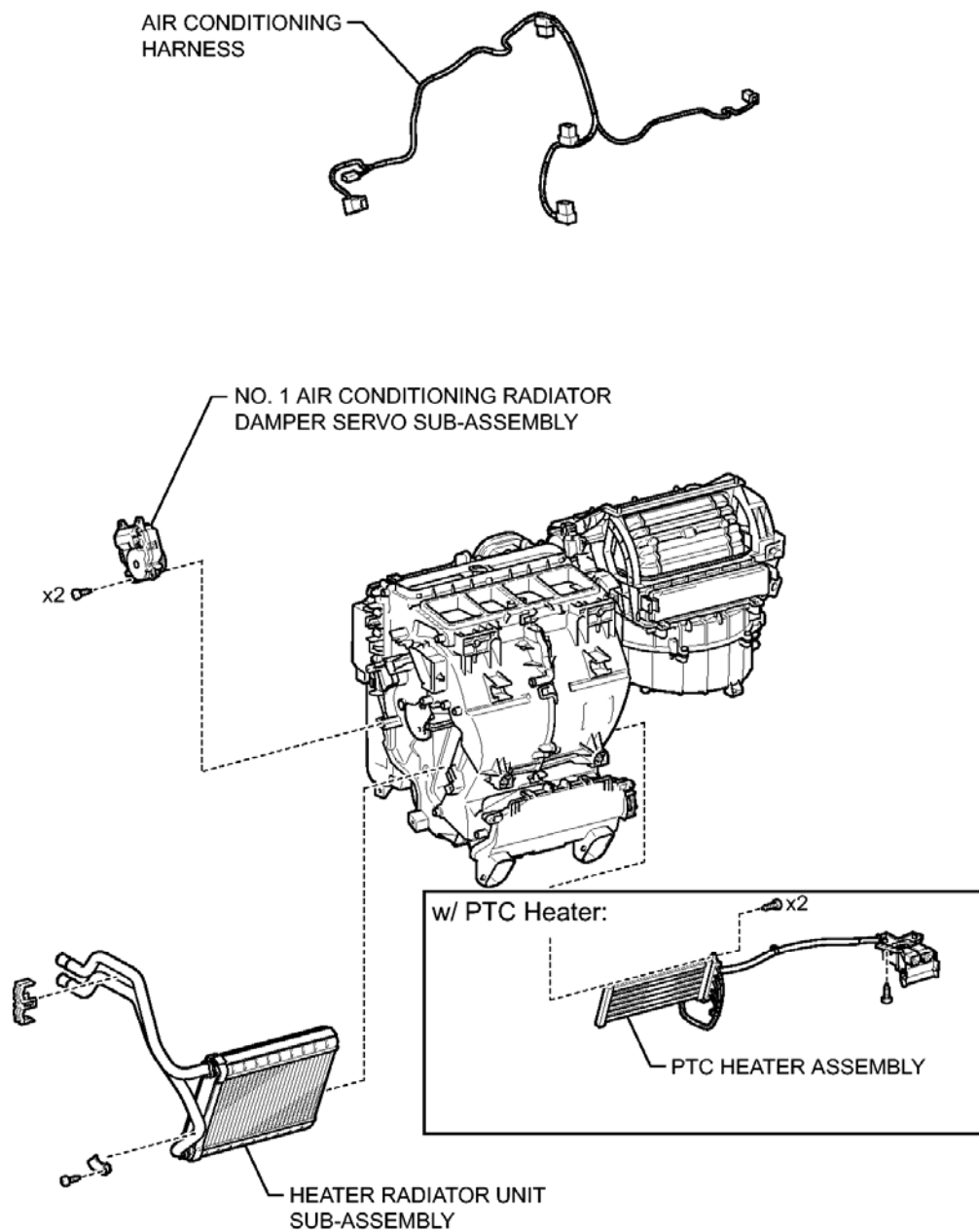


N*m (kgf*cm, ft.*lbf): Specified torque

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Fig. 24: Front Air Conditioning Unit Replacement Components With Torque Specifications (7 Of 11)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

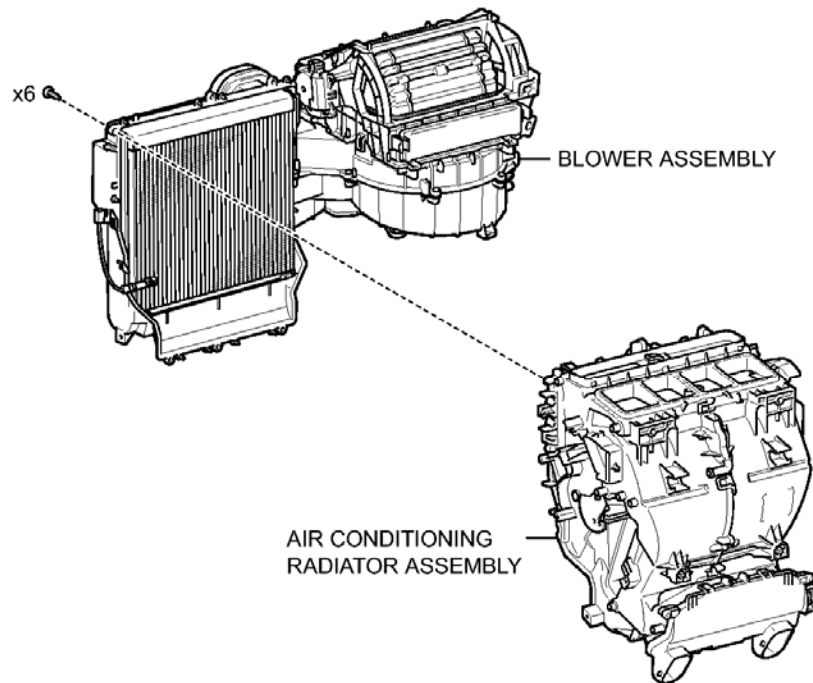
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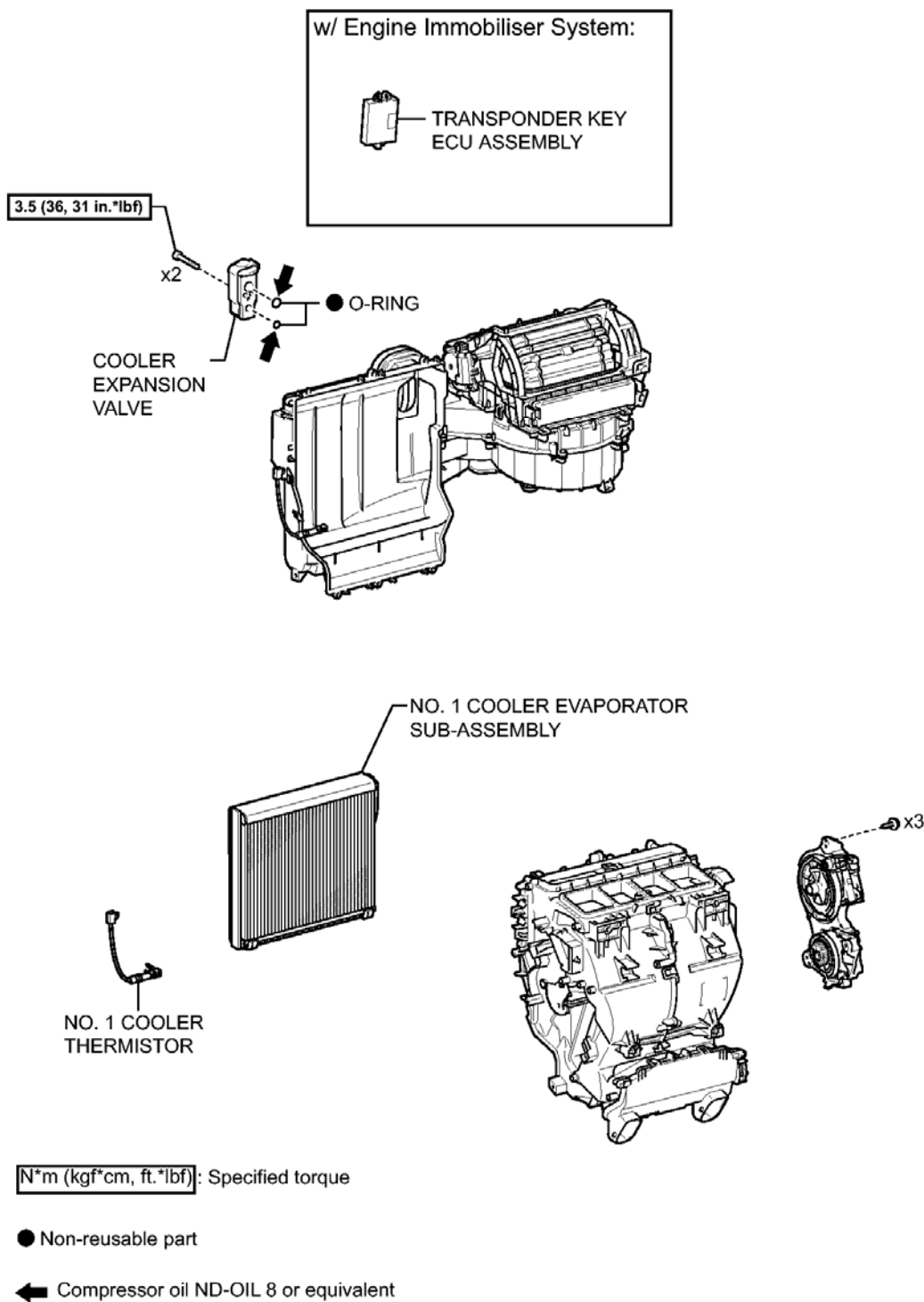
Fig. 25: Front Air Conditioning Unit Replacement Components (8 Of 11)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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Fig. 26: Front Air Conditioning Unit Replacement Components (9 Of 11)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

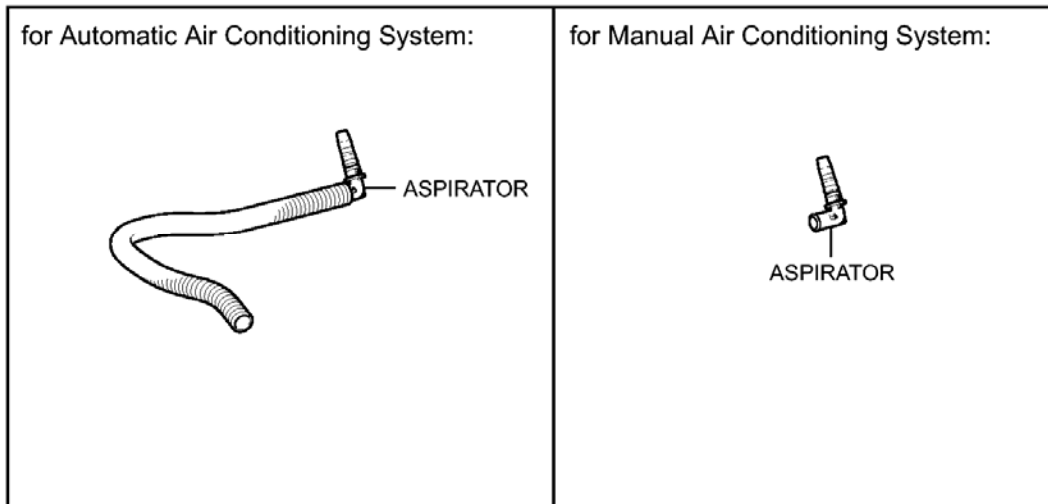
ILLUSTRATION



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Fig. 27: Front Air Conditioning Unit Replacement Components With Torque Specifications (10 Of 11)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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Fig. 28: Front Air Conditioning Unit Replacement Components (11 Of 11)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

WARNING:

- Some of these service operations affect the SRS airbag system. Read the precautionary notices concerning the SRS airbag system before servicing. Refer to **PRECAUTION** .
- Wear protective gloves. Sharp areas on the part may injure your hands.

1. **RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM** See step 1
2. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTE: When disconnecting the cable, some systems need to be initialized after

the cable is reconnected. Refer to INITIALIZATION .

3. **REMOVE V-BANK COVER SUB-ASSEMBLY (for 2GR-FE)** . Refer to REMOVAL - Step 24
4. **REMOVE NO. 1 ENGINE UNDER COVER (for 2GR-FE)** . Refer to REMOVAL - Step 4
5. **REMOVE NO. 1 ENGINE UNDER COVER (for 1AR-FE)** . Refer to REMOVAL - Step 4
6. **DRAIN ENGINE COOLANT (for 2GR-FE)** . Refer to REPLACEMENT - Step 3
7. **DRAIN ENGINE COOLANT (for 1AR-FE)** . Refer to REPLACEMENT - Step 2
8. **REMOVE INTAKE AIR SURGE TANK ASSEMBLY (for 2GR-FE)**

Refer to REMOVAL

9. **DISCONNECT HEATER WATER OUTLET HOSE A (for 2GR-FE)**

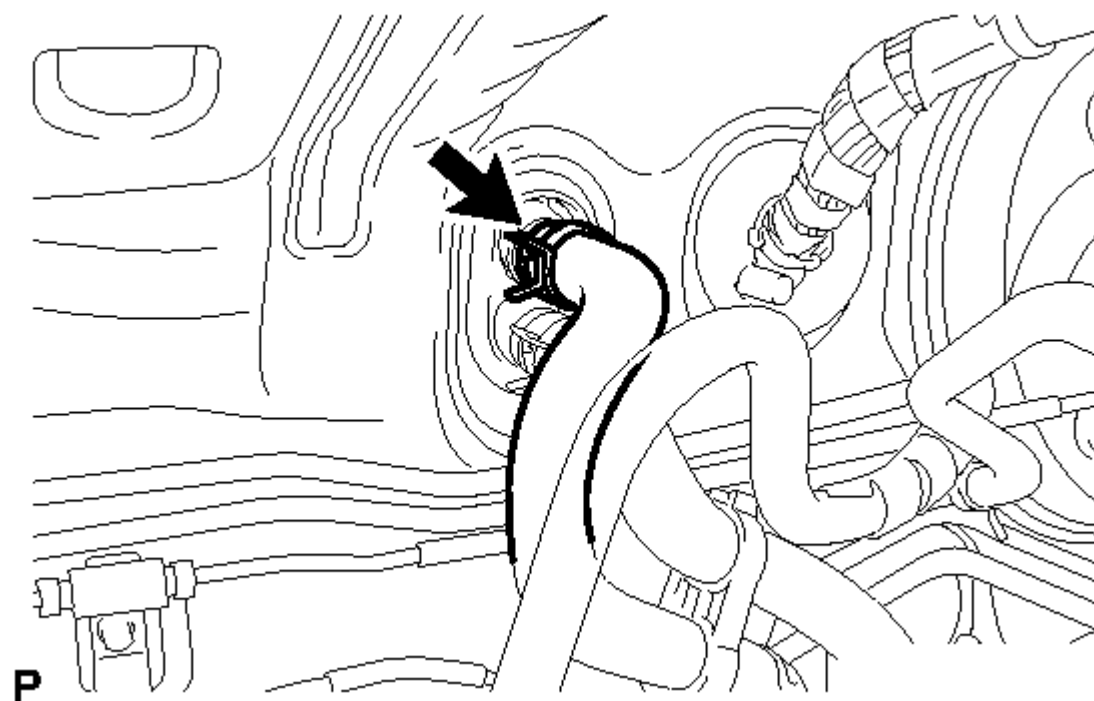


Fig. 29: Identifying Heater Water Outlet Hose A (2GR-FE)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Slide the clip and disconnect the heater water outlet hose from the air conditioning unit.
10. **DISCONNECT HEATER WATER INLET HOSE A (for 2GR-FE)**

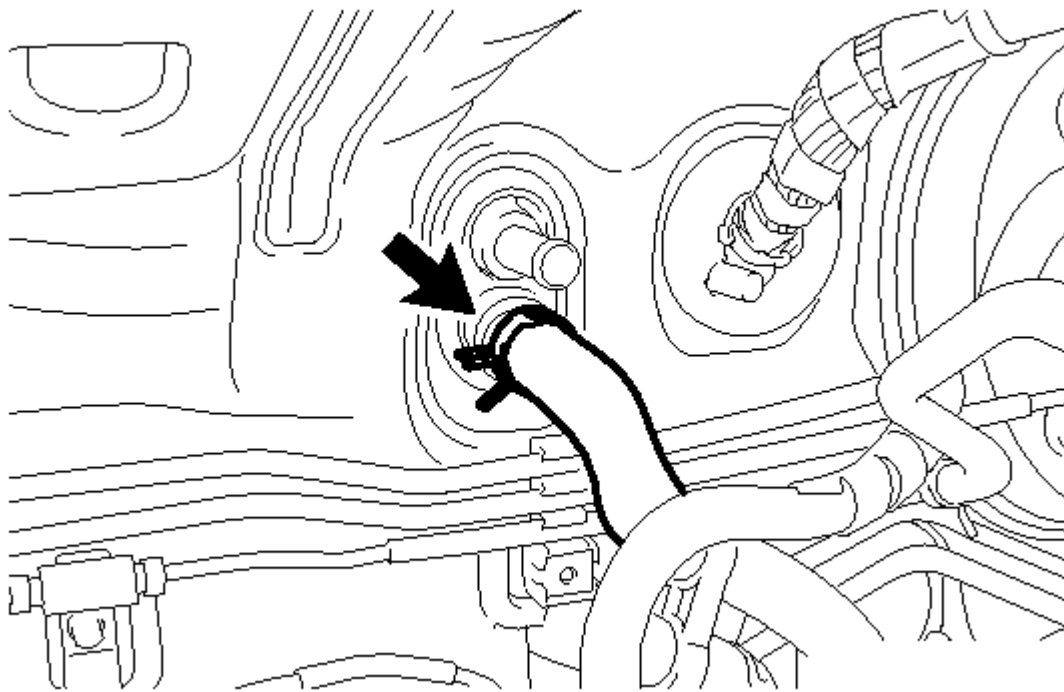


Fig. 30: Identifying Heater Water Inlet Hose A (2GR-FE)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Slide the clip and disconnect the heater water inlet hose from the air conditioning unit.

11. DISCONNECT HEATER WATER OUTLET HOSE A (for 1AR-FE)

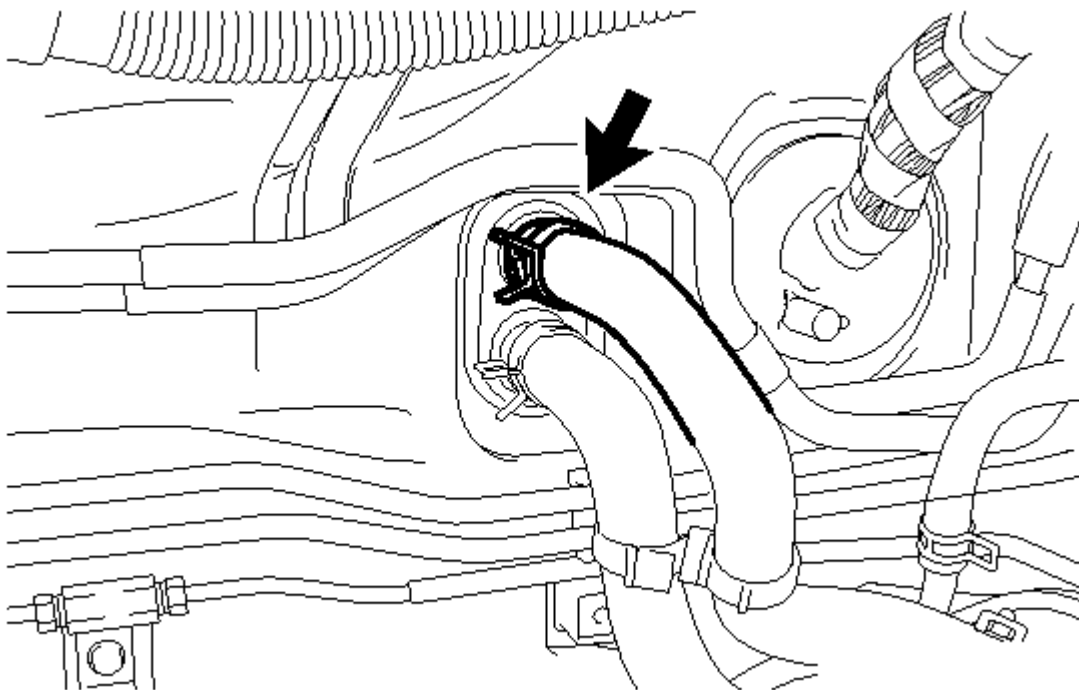


Fig. 31: Identifying Heater Water Outlet Hose A (1AR-FE)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Slide the clip and disconnect the heater water outlet hose from the air conditioning unit.

12. **DISCONNECT HEATER WATER INLET HOSE A (for 1AR-FE)**

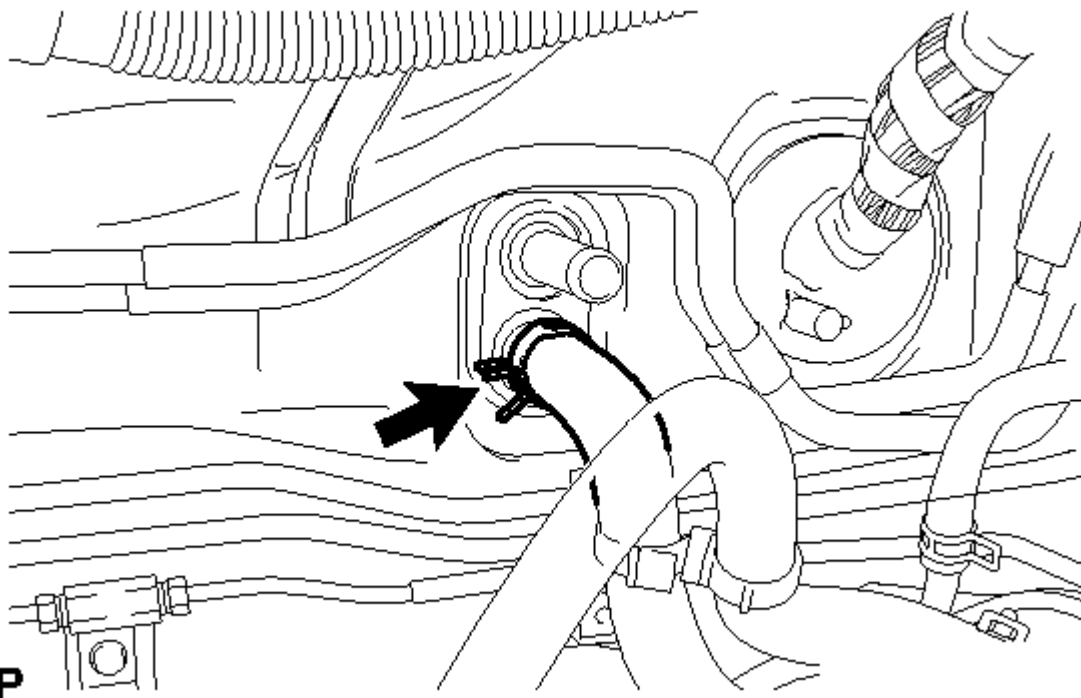
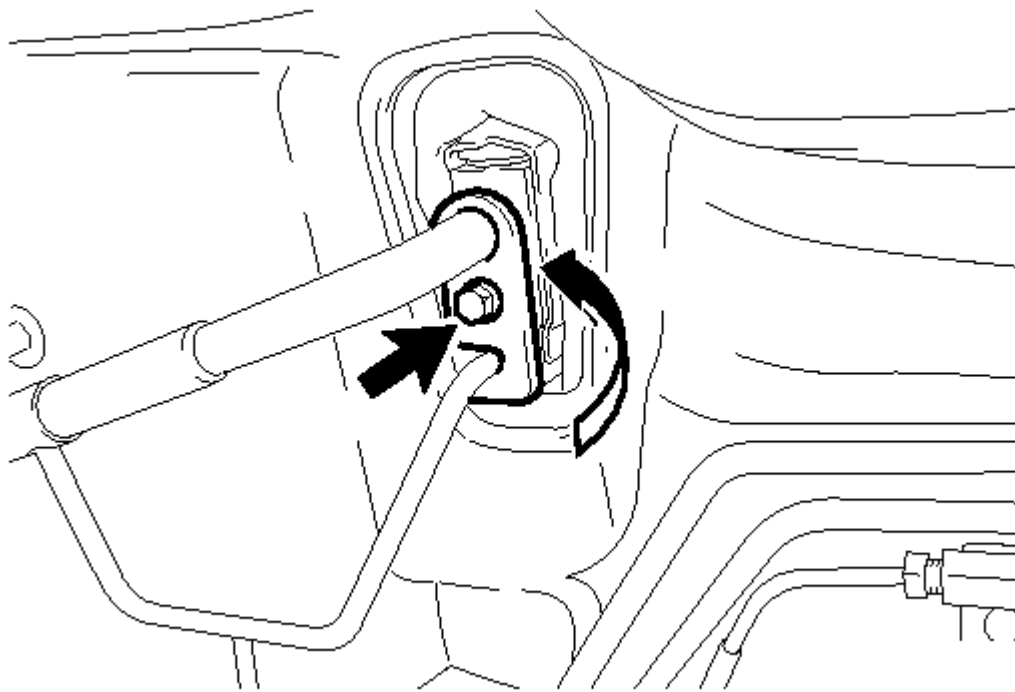


Fig. 32: Identifying Heater Water Inlet Hose A (1AR-FE)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Slide the clip and disconnect the heater water inlet hose from the air conditioning unit.

13. **DISCONNECT AIR CONDITIONER TUBE AND ACCESSORY ASSEMBLY**



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Fig. 33: Removing Air Conditioner Tube/Accessory Assembly & Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

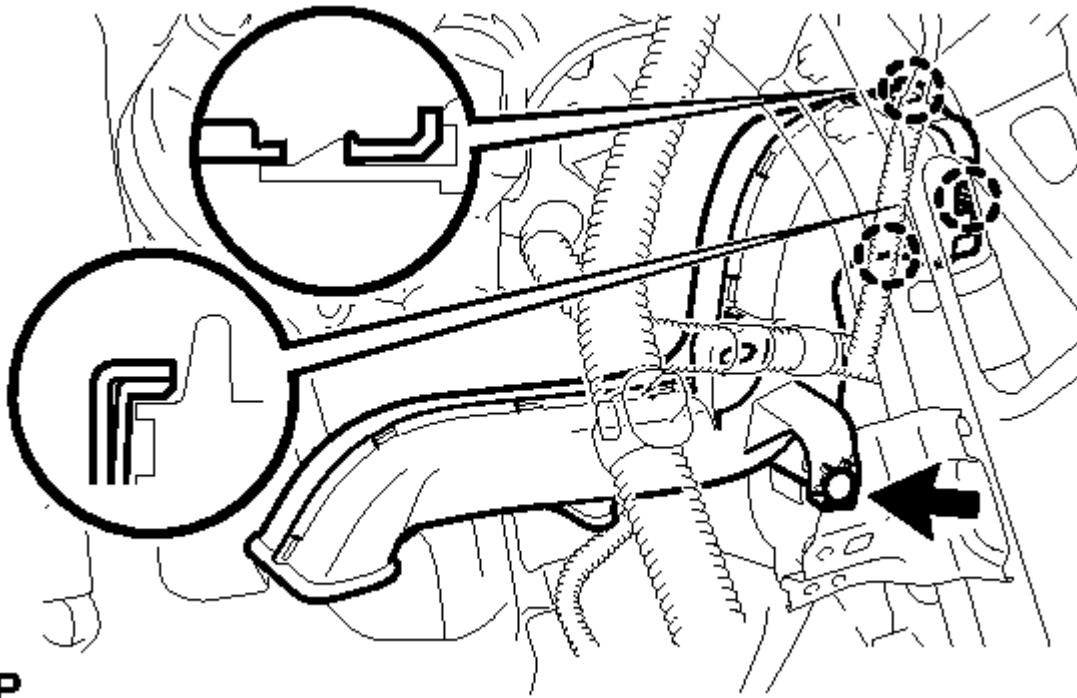
- a. Remove the bolt.
- b. Turn the hook connector counterclockwise and disconnect the suction tube.
- c. Remove the O-ring from the air conditioner tube and accessory.

NOTE: Seal the openings of the disconnected parts using vinyl tape to prevent the entry of moisture and foreign matter.

14. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY

Refer to **REMOVAL**

15. REMOVE NO. 3 AIR DUCT SUB-ASSEMBLY



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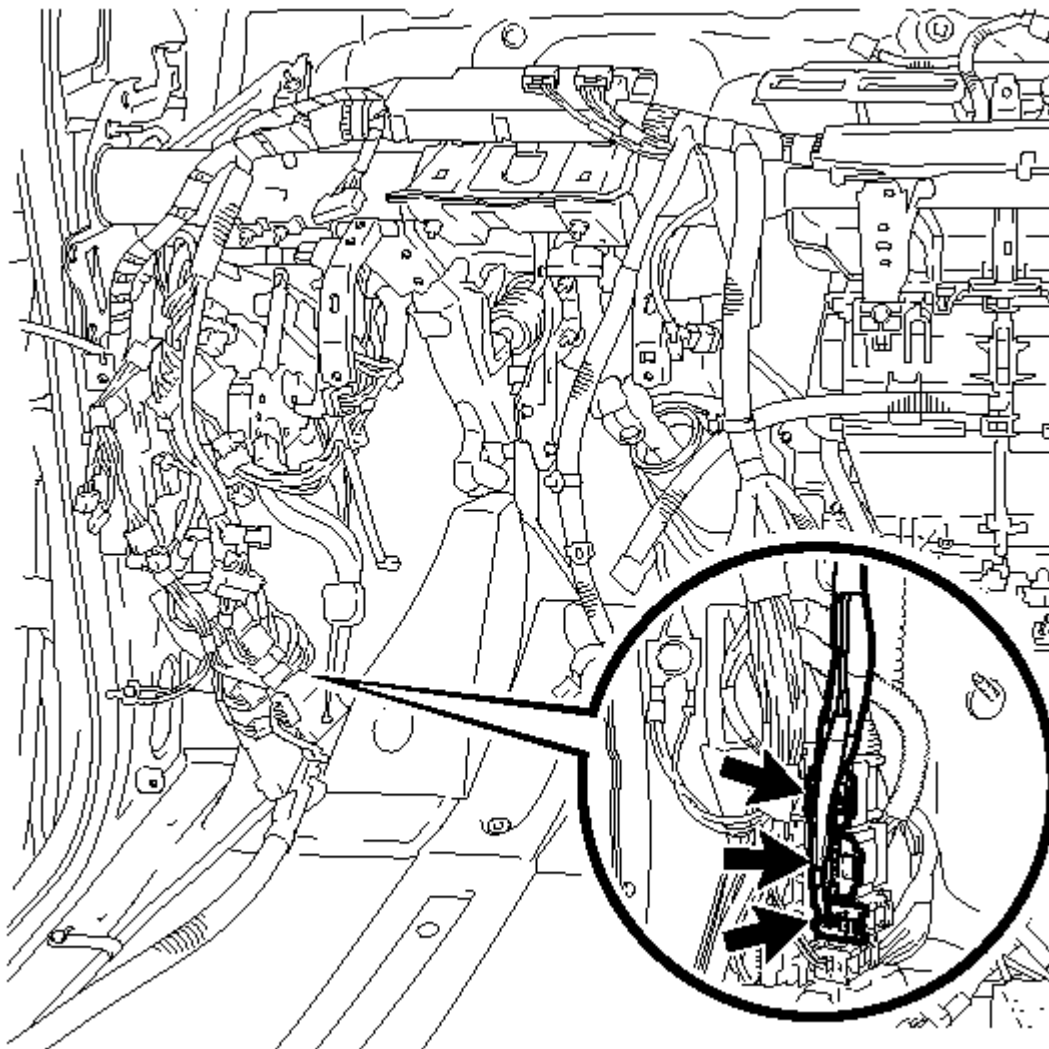
Fig. 34: Identifying No. 3 Air Duct Sub-Assembly & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the clip.
- b. Disengage the 3 claws and remove the No. 3 air duct.

16. REMOVE STEERING COLUMN ASSEMBLY

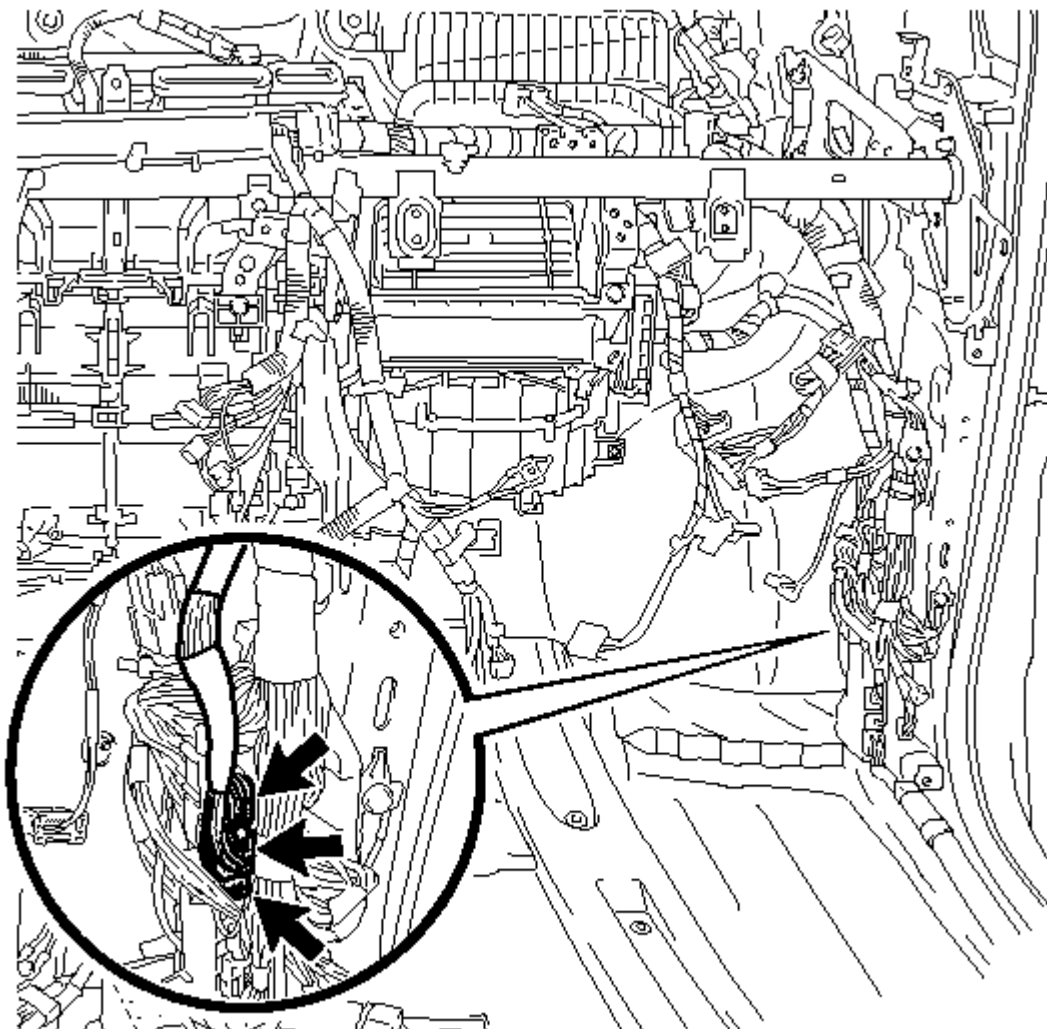
Refer to **REMOVAL**

17. **REMOVE ECU INTEGRATION BOX RH** . Refer to **REMOVAL - Step 6**
18. **REMOVE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY** . Refer to **REMOVAL - Step 2**
19. **REMOVE CENTER AIRBAG SENSOR ASSEMBLY** . Refer to **REMOVAL - Step 11**
20. **DISCONNECT FRONT DOOR WIRE LH**



P
Fig. 35: Identifying Front Door Wire LH & Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

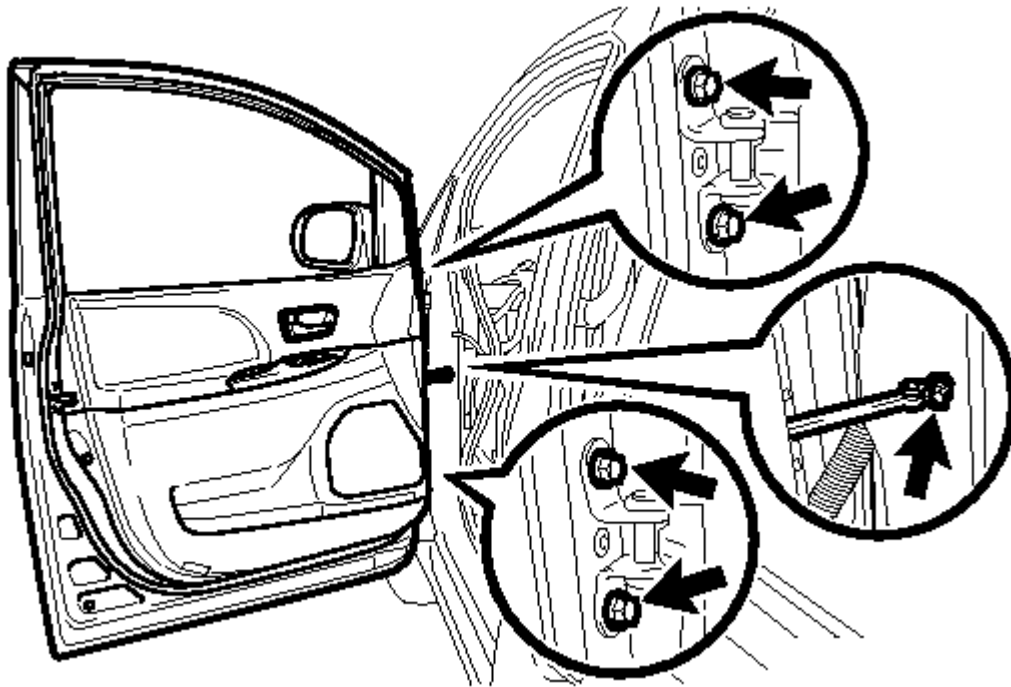
- a. Disconnect the 3 connectors.
21. **DISCONNECT FRONT DOOR WIRE RH**



P

Fig. 36: Identifying Front Door Wire RH & Connectors
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the 3 connectors.
- 22. REMOVE FRONT DOOR PANEL SUB-ASSEMBLY LH**



P

Fig. 37: Identifying Front Door Panel Sub-Assembly LH & Bolts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the bolt from the front door check.
- b. Remove the 2 bolts from the front door upper hinge.
- c. Remove the 2 bolts from the front door lower hinge, and then remove the front door panel from the vehicle.

NOTE: Be careful not to cut, break, or damage the front door wire.

23. REMOVE FRONT DOOR PANEL SUB-ASSEMBLY RH

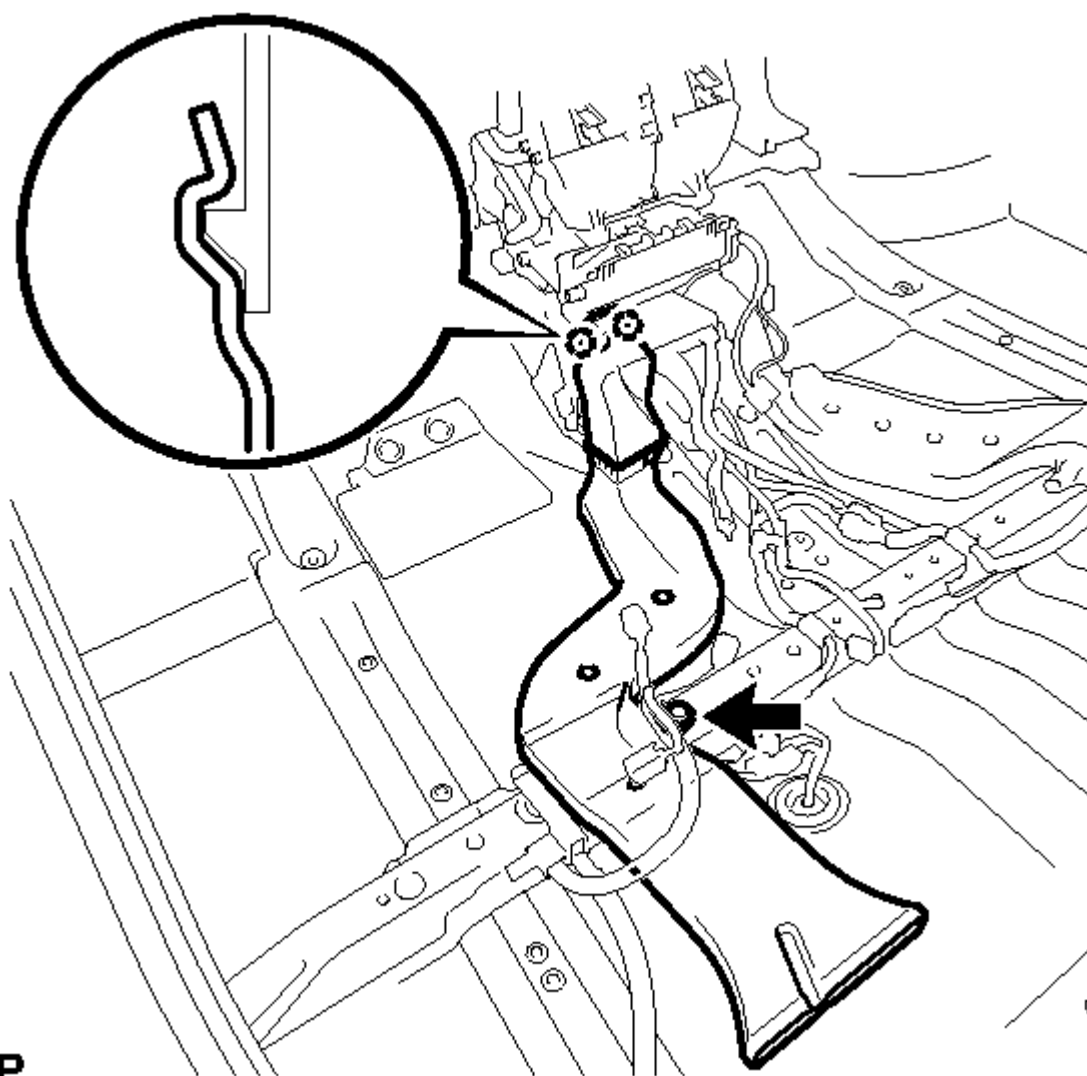
HINT:

Use the same procedure as for the LH side.

24. REMOVE FRONT FLOOR CARPET ASSEMBLY

Refer to **REMOVAL**

25. REMOVE REAR NO. 2 AIR DUCT



P

Fig. 38: Identifying Rear No. 2 Air Duct & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the clip.
- b. Disengage the 2 claws and remove the rear No. 2 air duct.

26. REMOVE REAR NO. 4 AIR DUCT

HINT:

Use the same procedure as for the No. 2 side.

27. REMOVE NO. 5 INSTRUMENT PANEL BRACKET

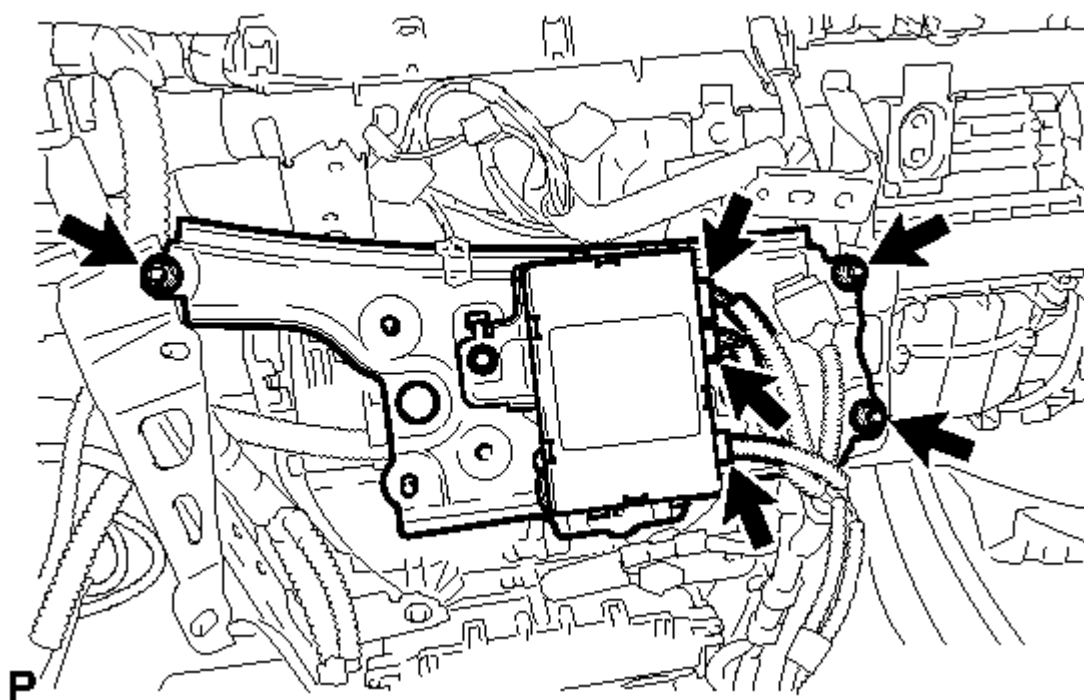


Fig. 39: Identifying No. 5 Instrument Panel Bracket, Connectors & Nuts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

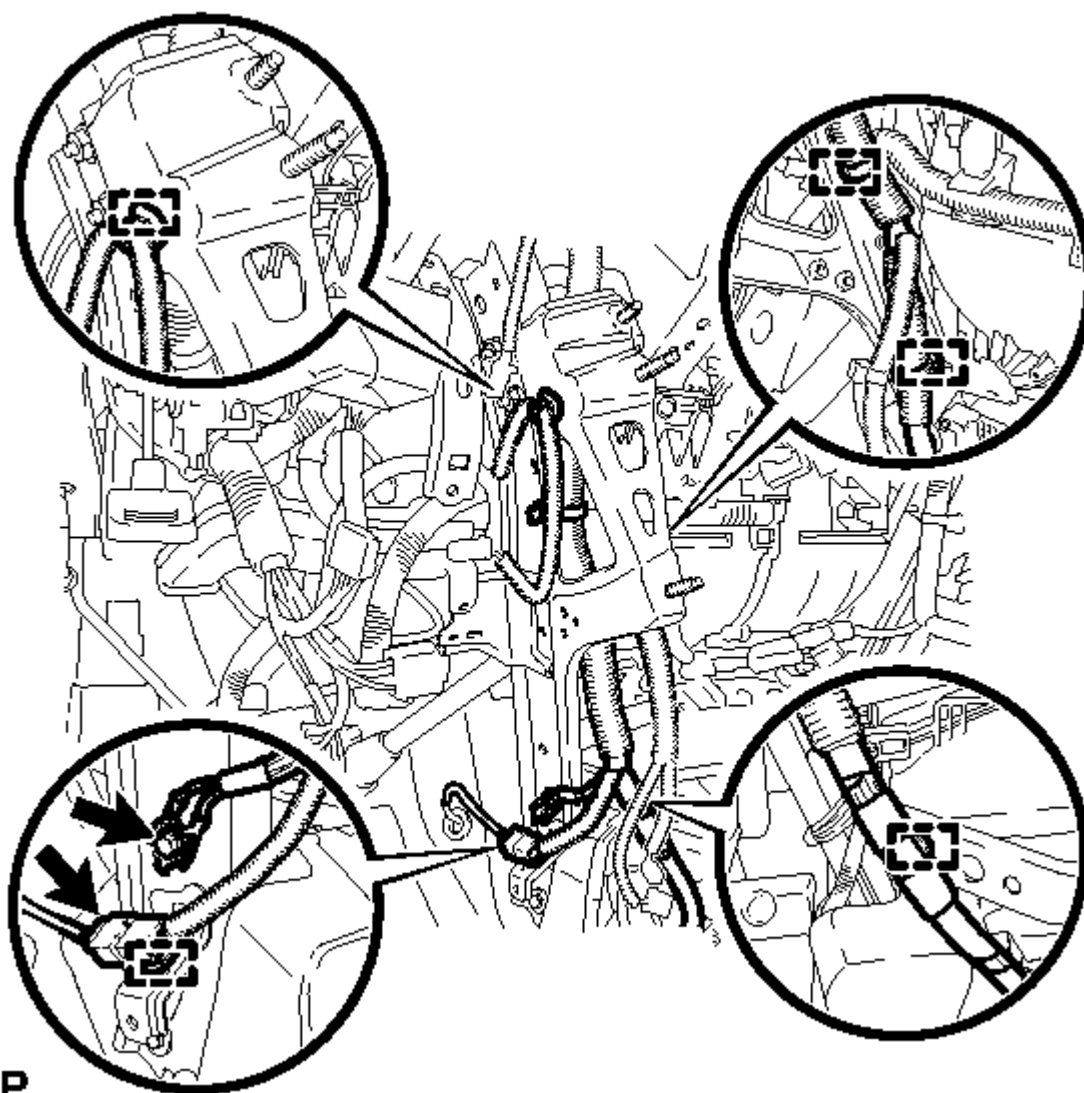
- a. Disconnect the 3 connectors.

HINT:

If the vehicle is equipped with USB audio system, disconnect the connectors.

- b. Remove the 3 nuts and the No. 5 instrument panel bracket.

28. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY

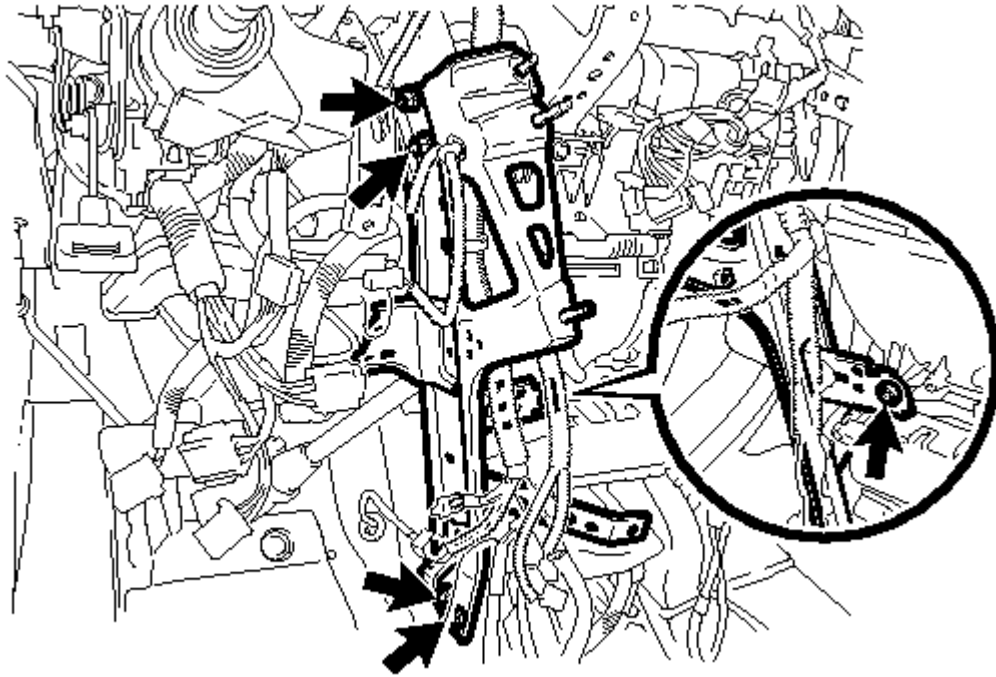


P

Fig. 40: Identifying No. 1 Instrument Panel Brace Sub-Assembly, Ground Wire With Bolt, Connectors & Clamps

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

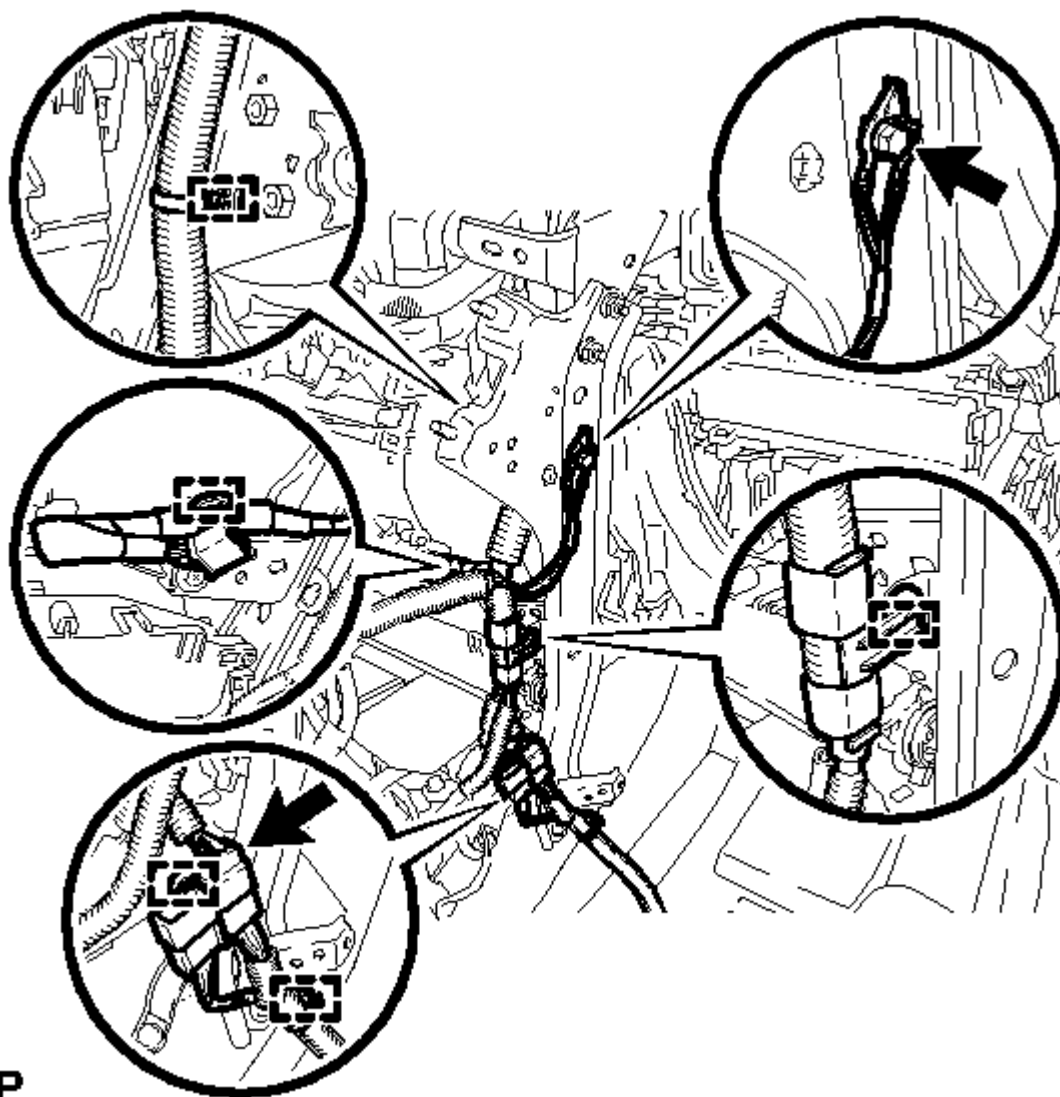
- a. Disconnect the connector.
- b. Disengage the 5 clamps.
- c. Remove the bolt and disconnect the ground wire.
- d. Remove the 2 bolts, 2 nuts, the screw, and then remove the No. 1 instrument panel brace.



P

Fig. 41: Identifying No. 1 Instrument Panel Brace Sub-Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

29. REMOVE NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY

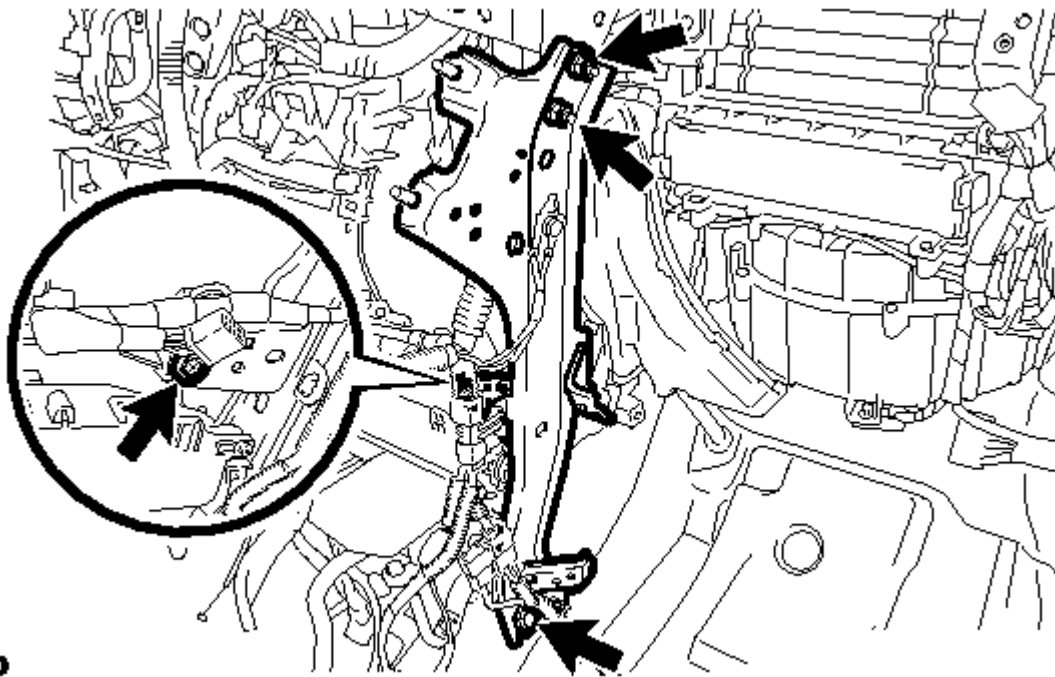


P

Fig. 42: Identifying No. 2 Instrument Panel Brace Sub-Assembly, Ground Wire With Bolt, Connector & Clamps

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

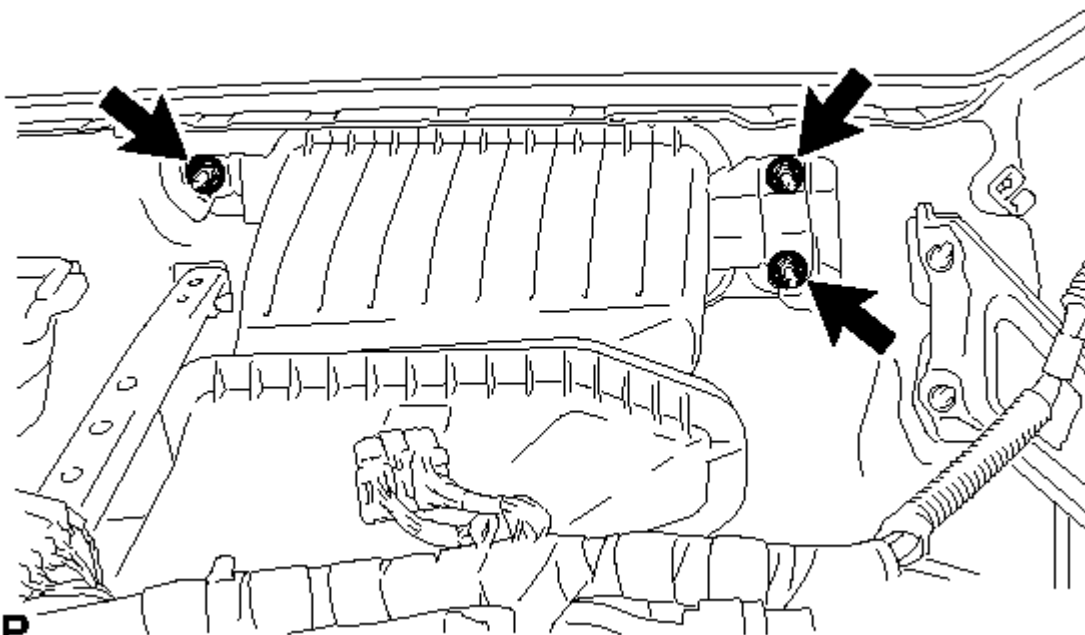
- a. Disconnect the connector.
- b. Disengage the 5 clamps.
- c. Remove the bolt and disconnect the ground wire.
- d. Remove the bolt, the 2 nuts, the screw, and then remove the No. 2 instrument panel brace.



P

Fig. 43: Identifying No. 2 Instrument Panel Brace Sub-Assembly & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

30. SEPARATE NO. 1 AIR DUCT SUB-ASSEMBLY



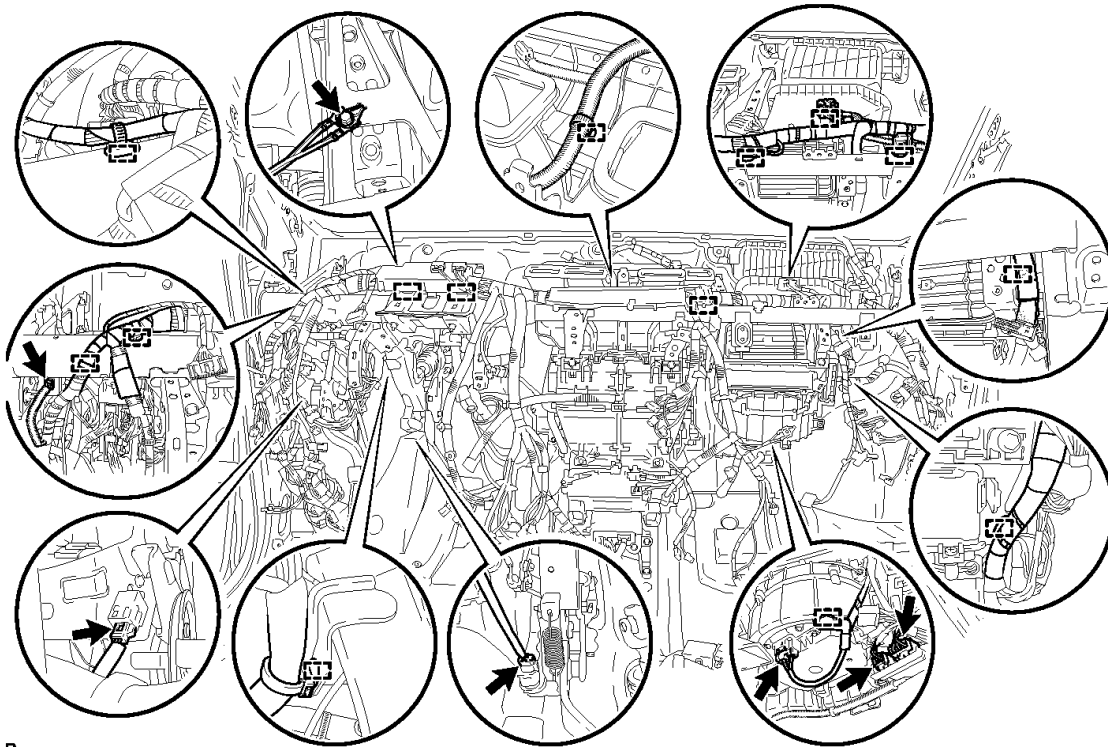
P

Fig. 44: Identifying No. 1 Air Duct Sub-Assembly & Nuts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 3 nuts.

31. SEPARATE INSTRUMENT PANEL WIRE

- a. Disconnect the connectors.
- b. Remove the bolt from the ground wire.
- c. Disengage the clamps and disconnect the instrument panel wire.

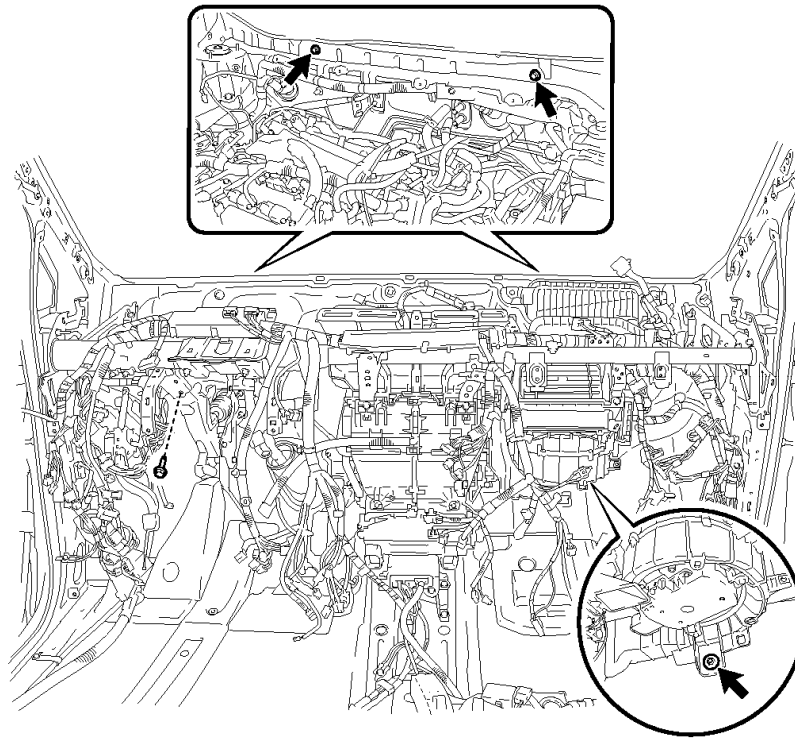


P

Fig. 45: Identifying Instrument Panel Wire Connectors, Ground Wire With Bolt & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

32. REMOVE INSTRUMENT PANEL REINFORCEMENT

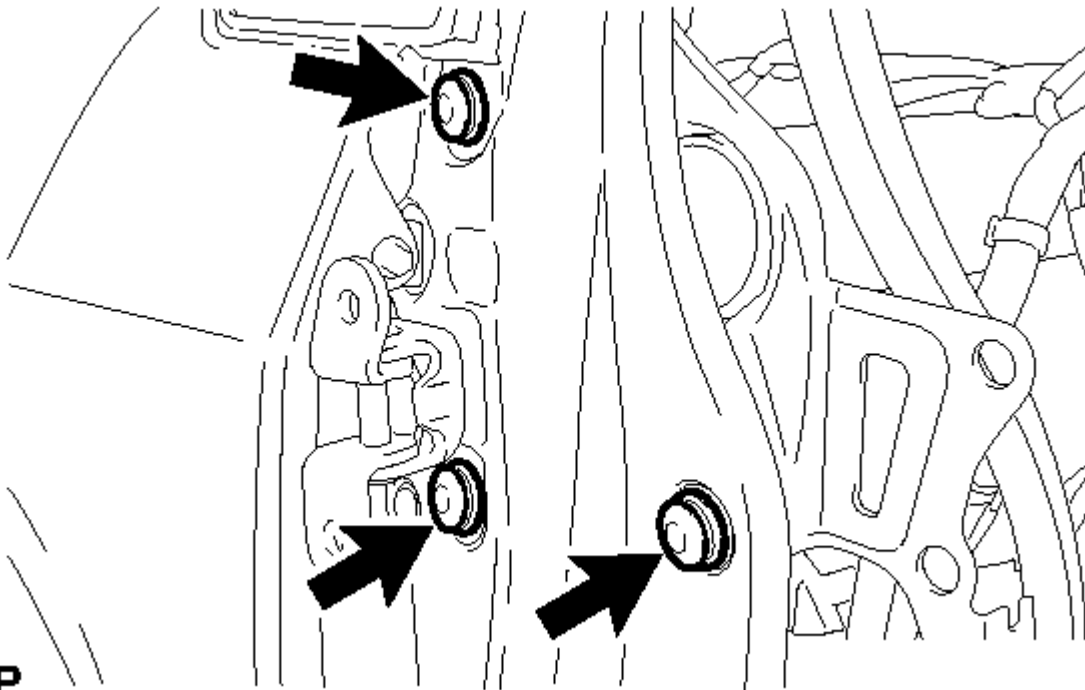
- a. Remove the 3 bolts and the nut.



P

Fig. 46: Identifying Instrument Panel Reinforcement & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the 3 caps.



P

Fig. 47: Identifying Instrument Panel Reinforcement Caps LH

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Remove the 2 caps.

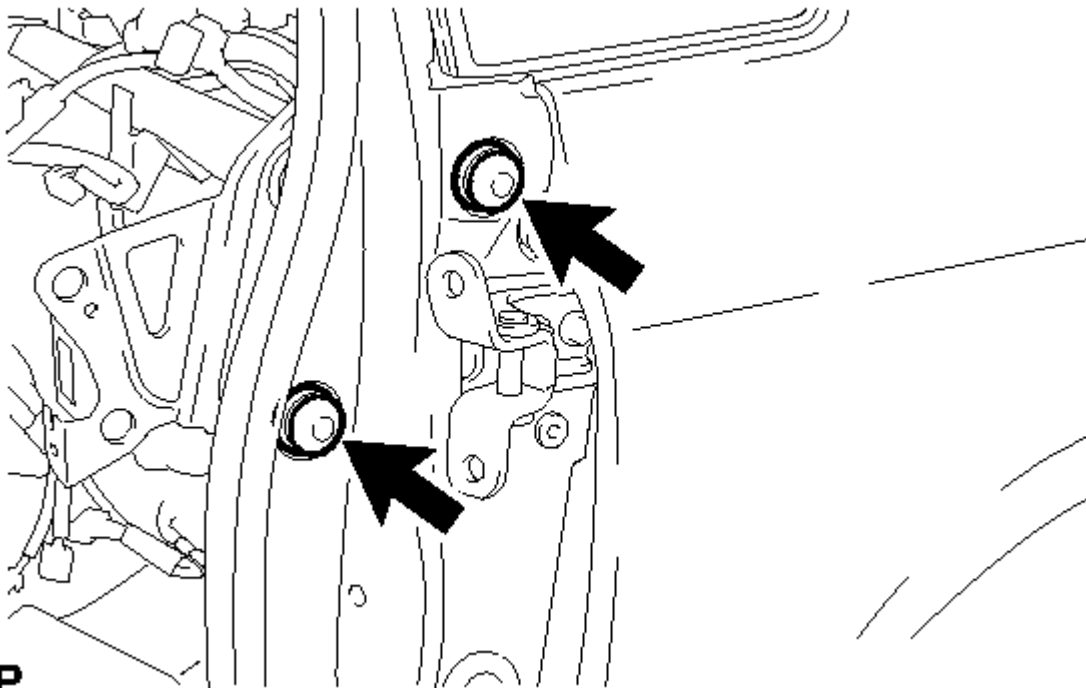
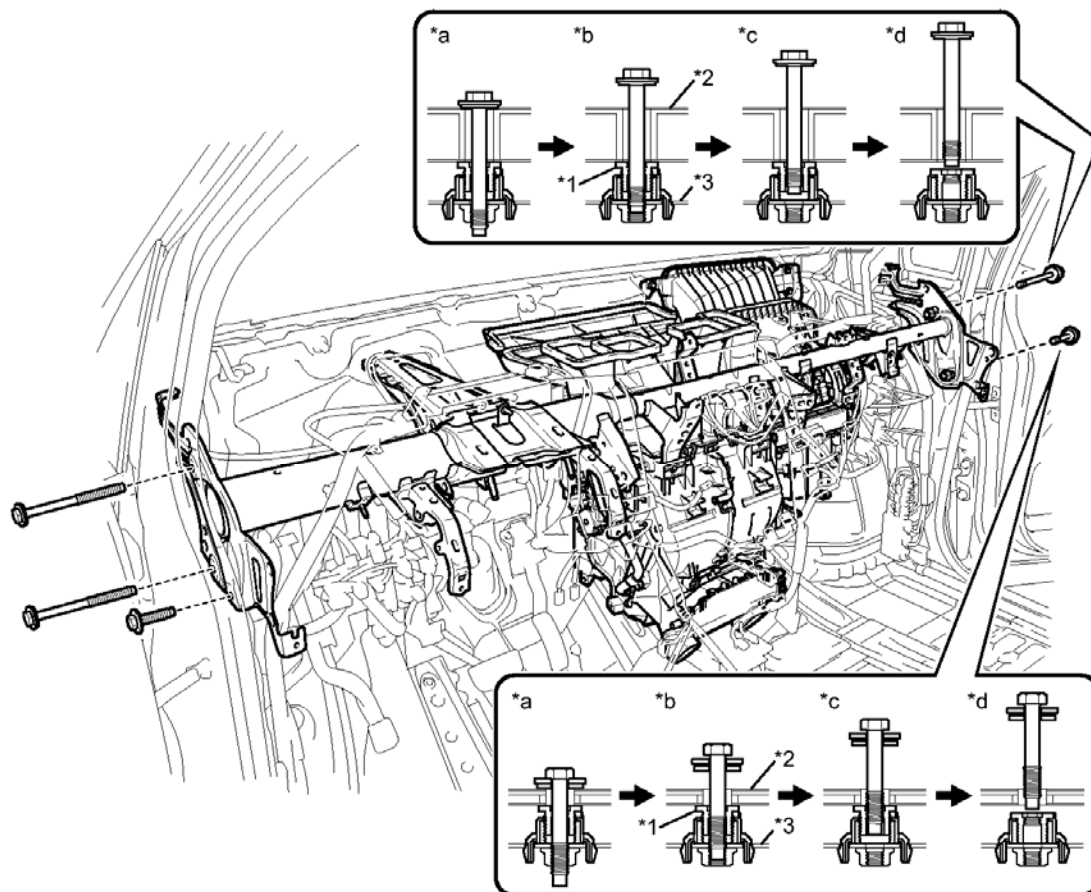


Fig. 48: Identifying Instrument Panel Reinforcement Caps RH
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Remove the 5 bolts as shown in the illustration.



P

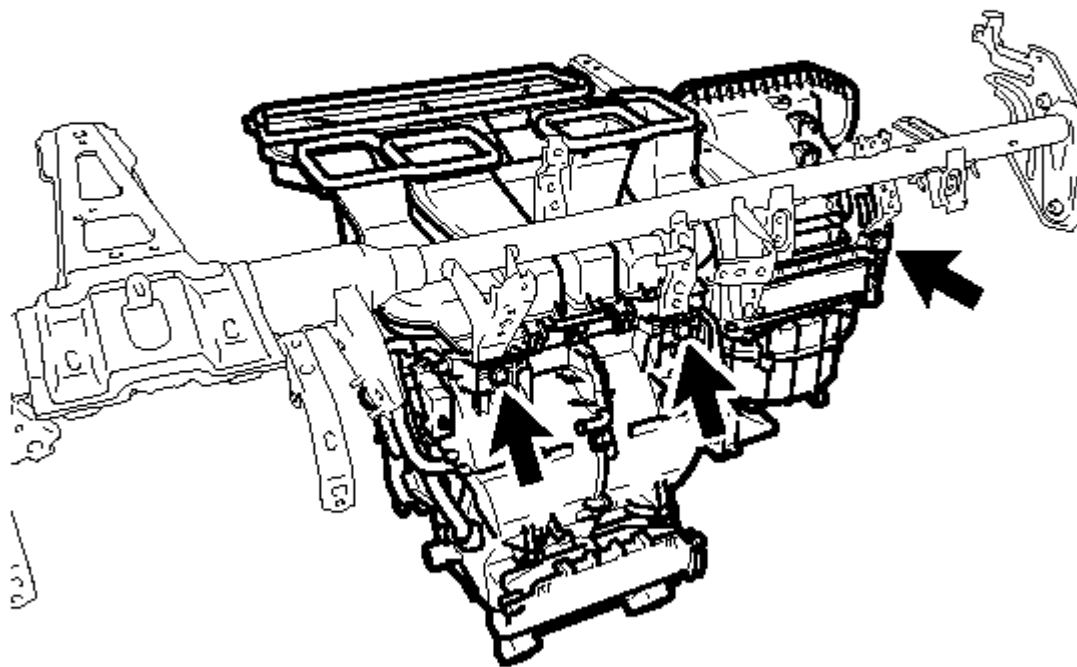
Fig. 49: Identifying Instrument Panel Reinforcement Bolts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Movable Collar	*2	Body
*3	Instrument Panel Reinforcement	-	-
*a	Step 1	*b	Step 2
*c	Step 3	*d	Step 4

- e. Remove the instrument panel reinforcement assembly with air conditioning unit assembly.

33. REMOVE AIR CONDITIONING UNIT



P

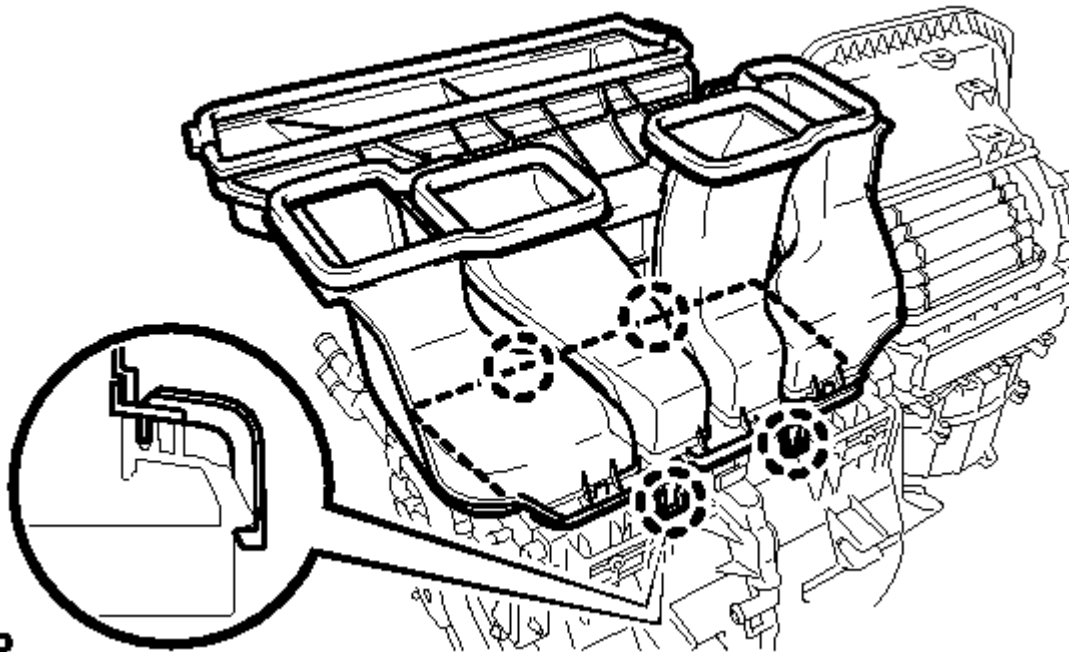
Fig. 50: Identifying Air Conditioning Unit & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 3 screws and air conditioning unit from the instrument panel reinforcement.

DISASSEMBLY

DISASSEMBLY

1. **REMOVE TRANSPONDER KEY ECU ASSEMBLY (w/ Engine Immobilizer System) . Refer to REMOVAL - Step 2**
2. **REMOVE DEFROSTER LOWER NOZZLE ASSEMBLY**



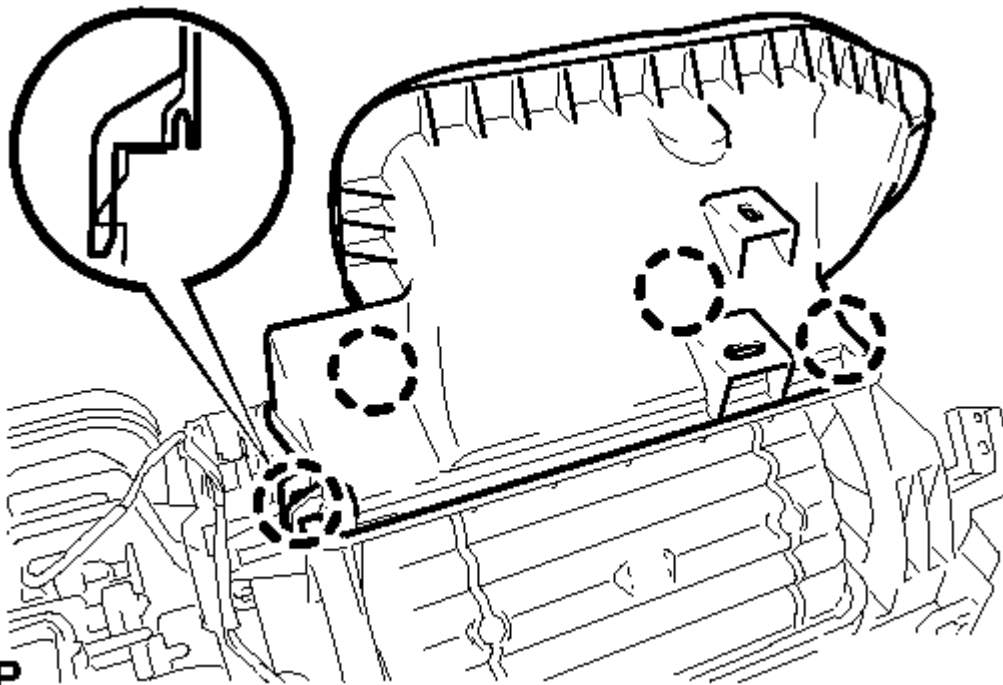
P

Fig. 51: Identifying Defroster Lower Nozzle Assembly & Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the 4 claws and remove the defroster lower nozzle.

3. REMOVE NO. 2 AIR DUCT SUB-ASSEMBLY



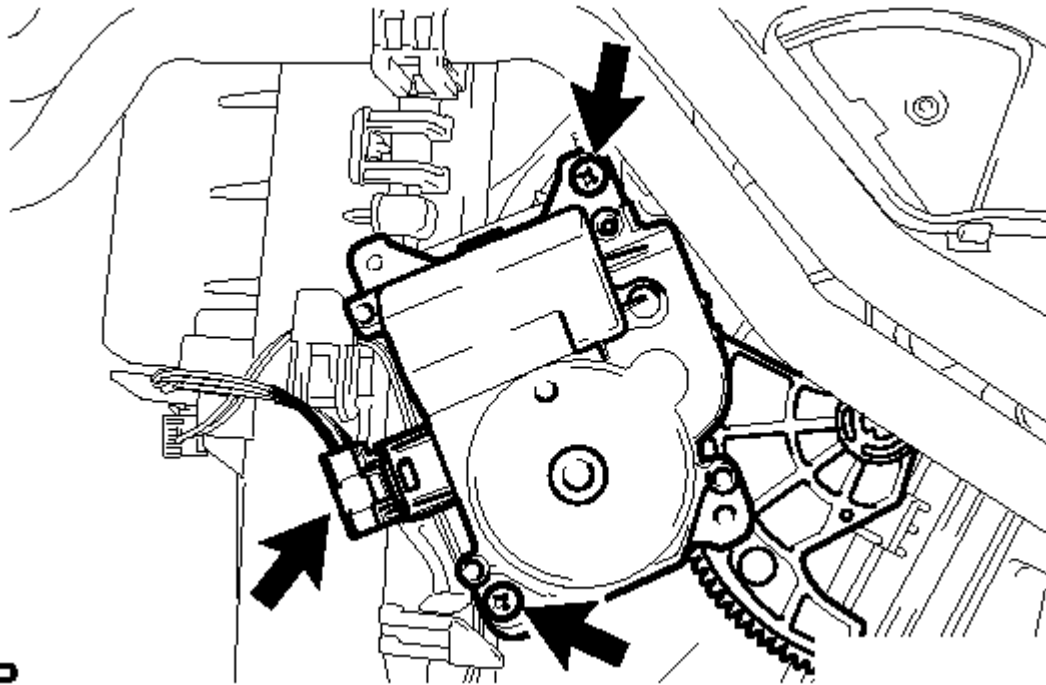
P

Fig. 52: Identifying No. 2 Air Duct Sub-Assembly & Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the 4 claws and remove the No. 2 air duct.

4. REMOVE NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY



P

Fig. 53: Identifying No. 1 Air Conditioning Radiator Damper Servo Sub-Assembly, Connector & Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Remove the 2 screws and No. 1 air conditioning radiator damper servo.

5. REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY

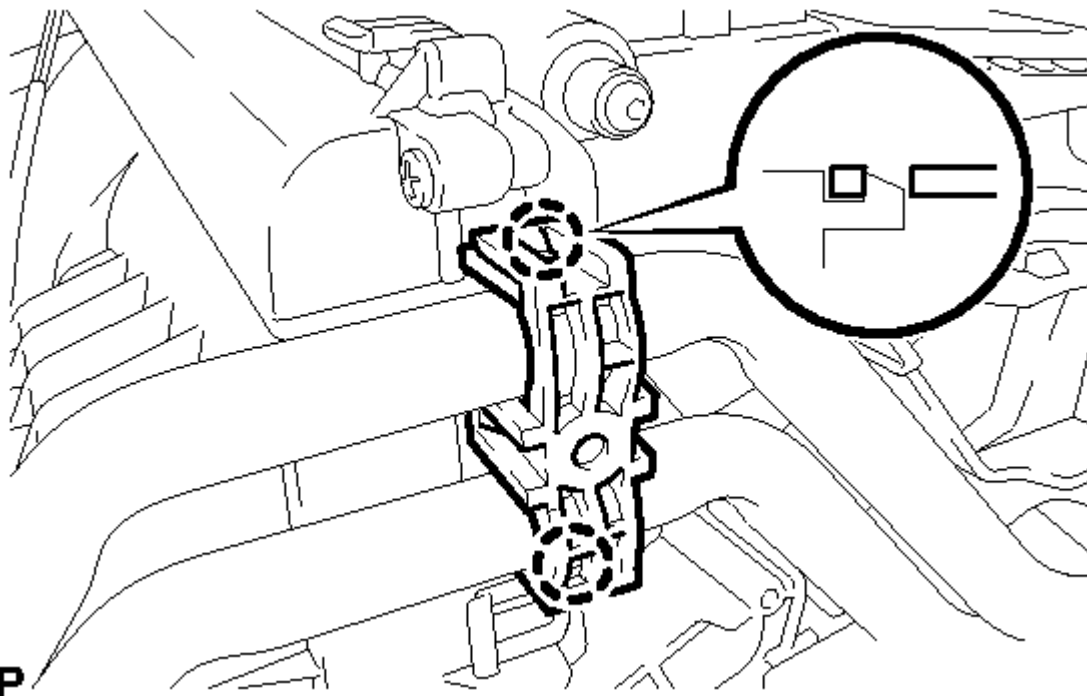


Fig. 54: Identifying Heater Radiator Unit Sub-Assembly Heater Clamp & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the 2 claws and remove the heater clamp.
- b. Remove the screw and piping clamp.

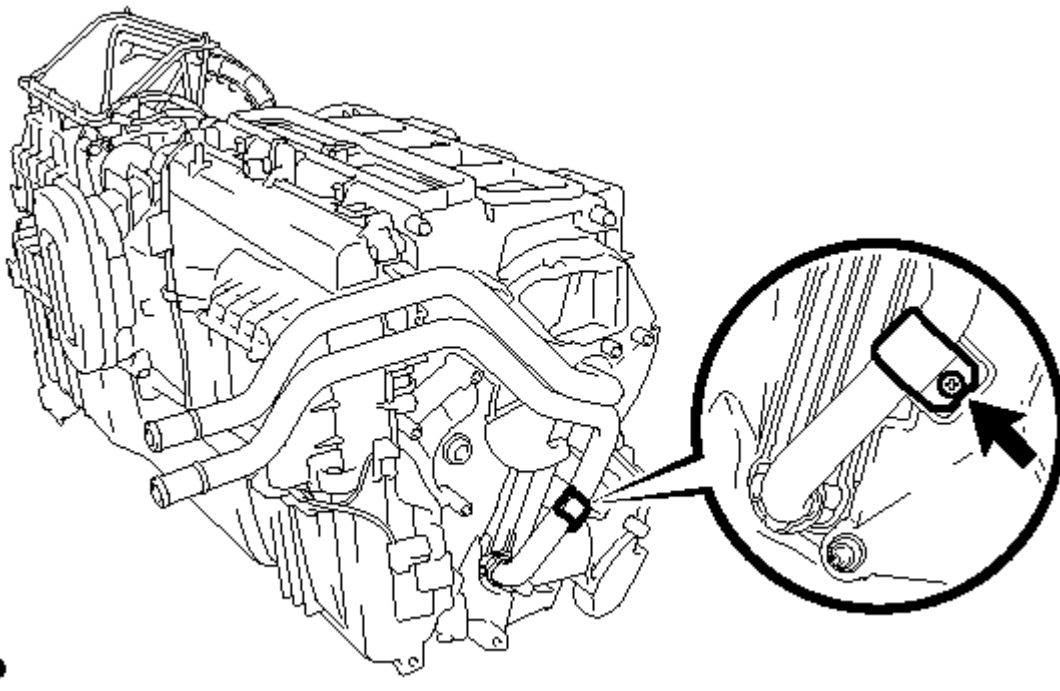
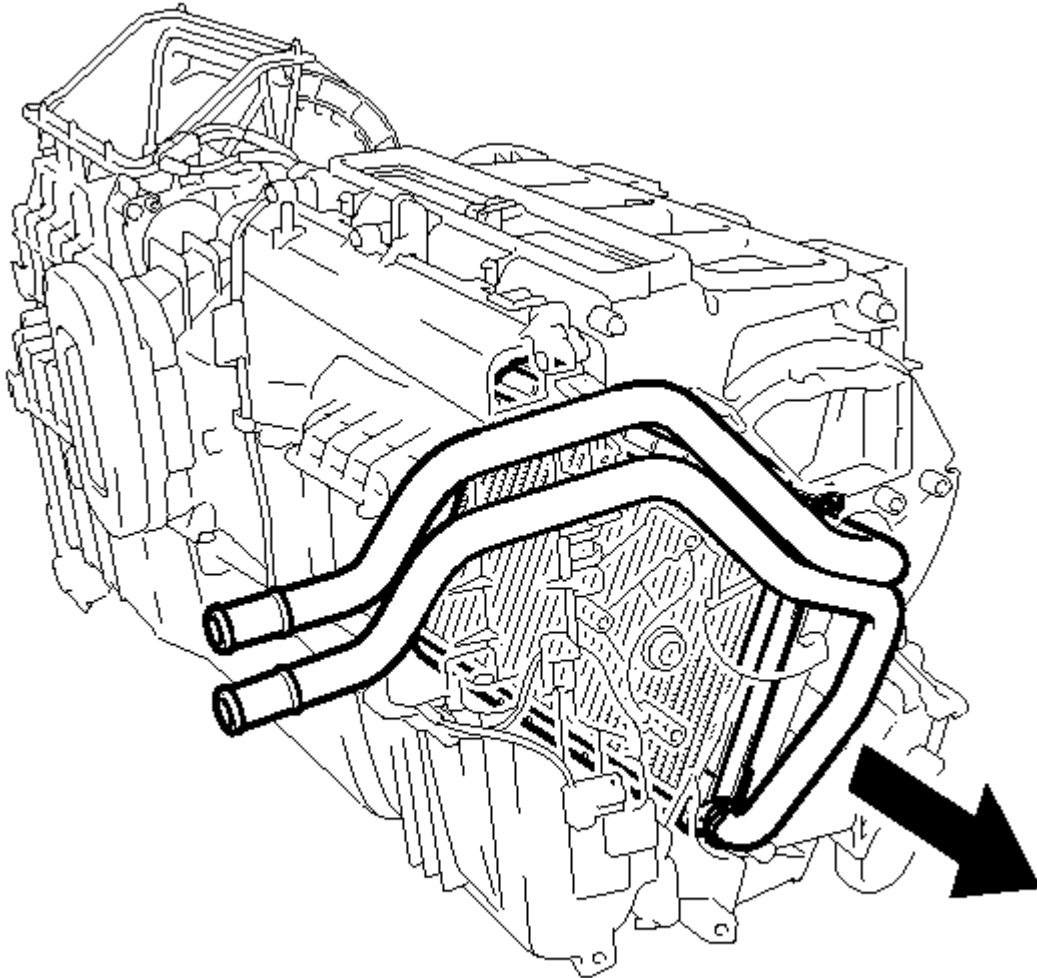


Fig. 55: Identifying Heater Radiator Unit Sub-Assembly Piping Clamp & Screw

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

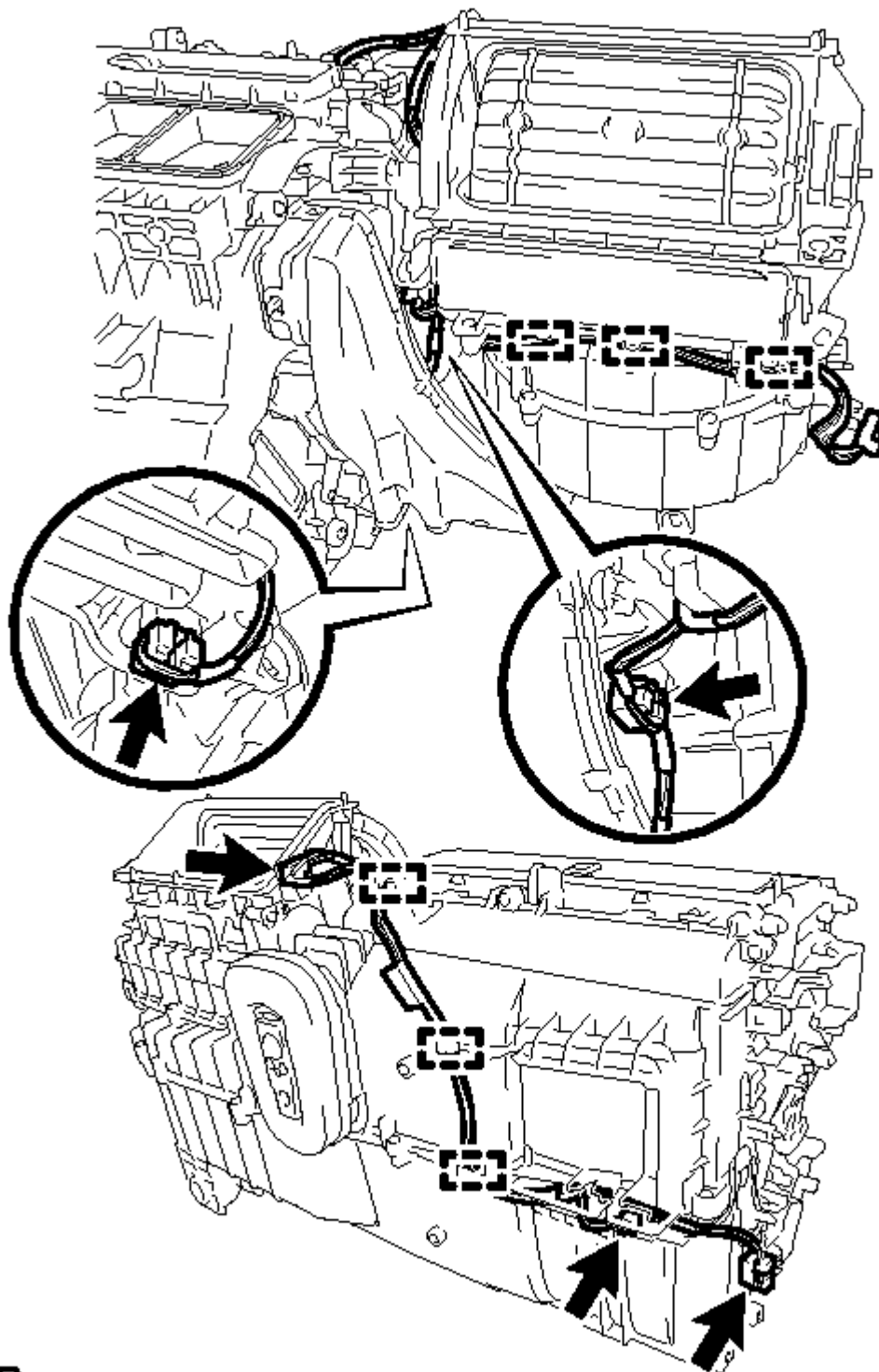
- c. Remove the heater radiator unit from the air conditioning radiator.



P

Fig. 56: Removing Heater Radiator Unit Sub-Assembly At Air Conditioning Radiator
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. REMOVE AIR CONDITIONING HARNESS



P

Fig. 57: Identifying Air Conditioning Harness, Connectors & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the 5 connectors.
- b. Disengage the 6 clamps and remove the air conditioning harness.

7. **REMOVE NO. 4 AIR DUCT SUB-ASSEMBLY** See step 2
8. **REMOVE PTC HEATER ASSEMBLY (w/ PTC Heater)**
 - a. Disengage the 3 clamps.

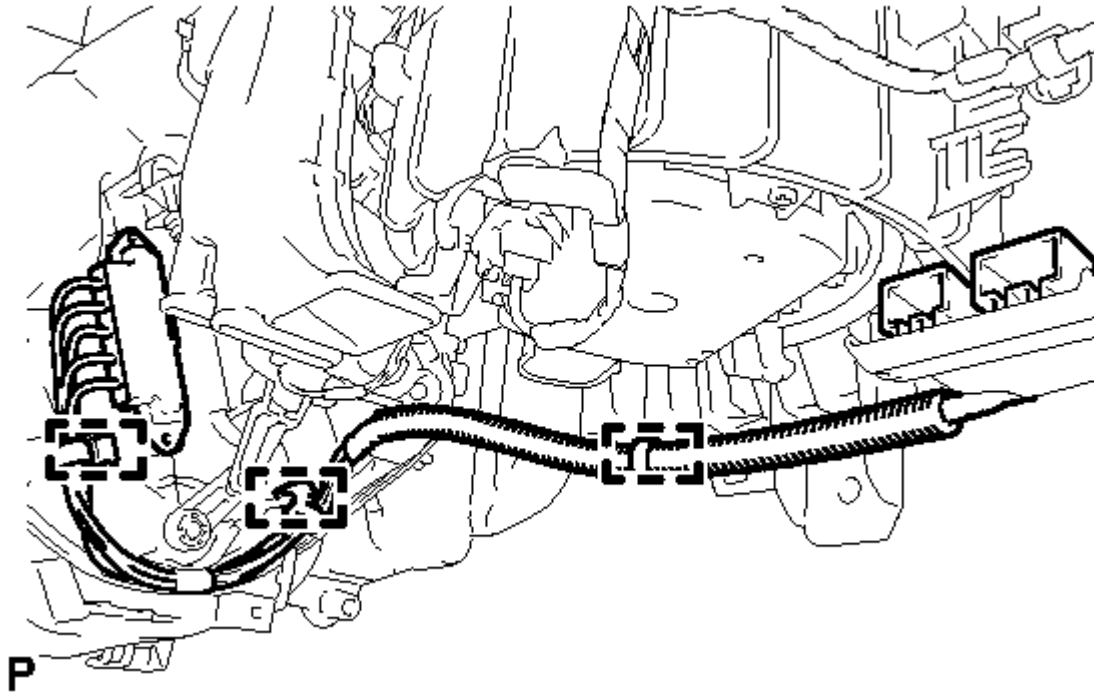


Fig. 58: Identifying PTC Heater Assembly & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the screw, then disengage the 3 guides and separate the cover plate.

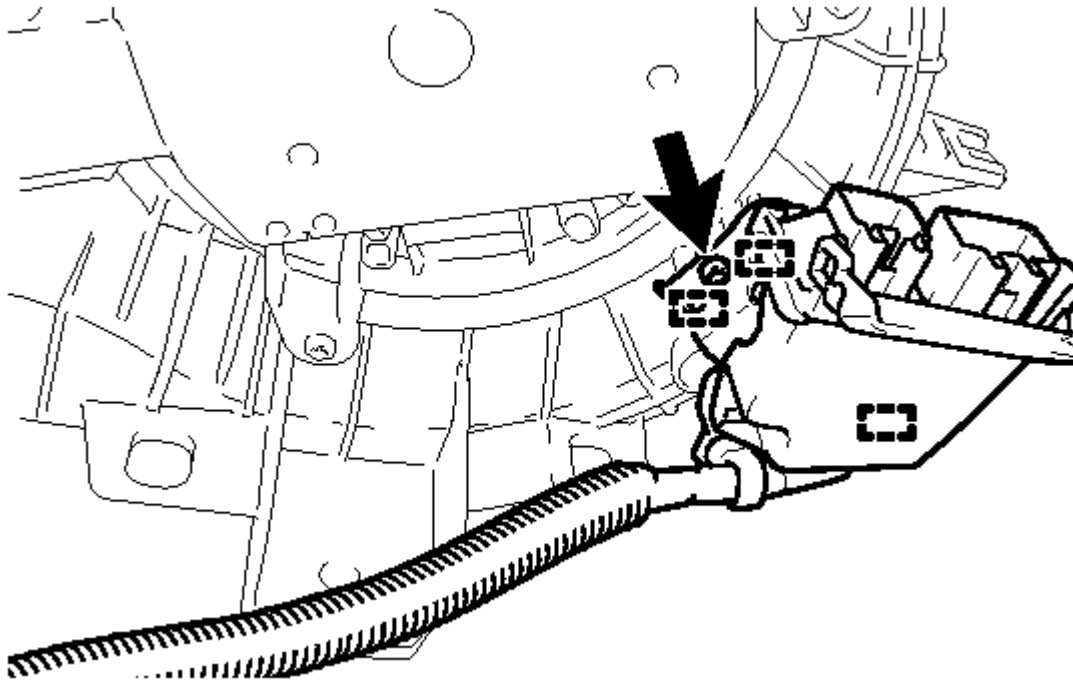
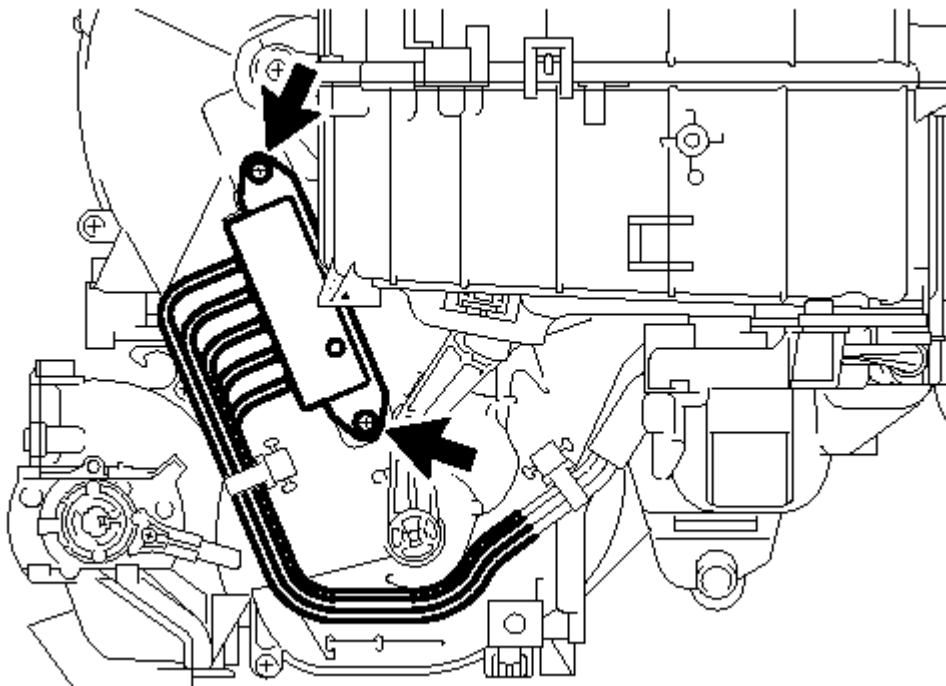


Fig. 59: Identifying PTC Heater Assembly Cover Plate & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Remove the 2 screws and PTC heater.

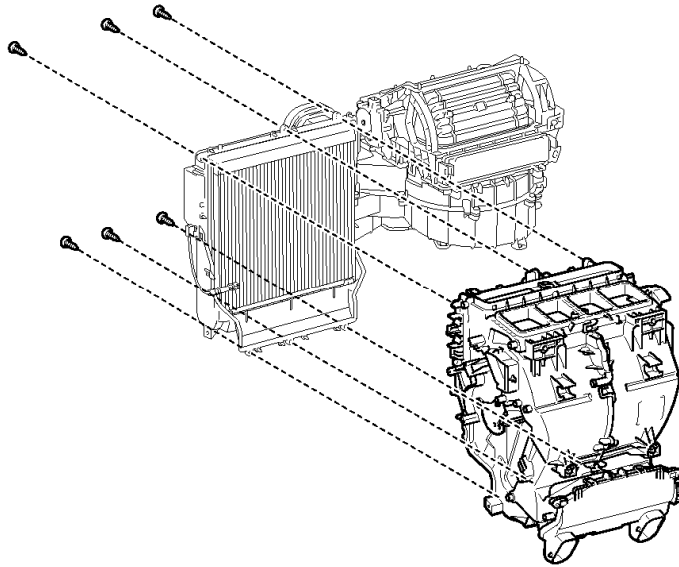


P

Fig. 60: Identifying PTC Heater & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. REMOVE AIR CONDITIONING RADIATOR ASSEMBLY

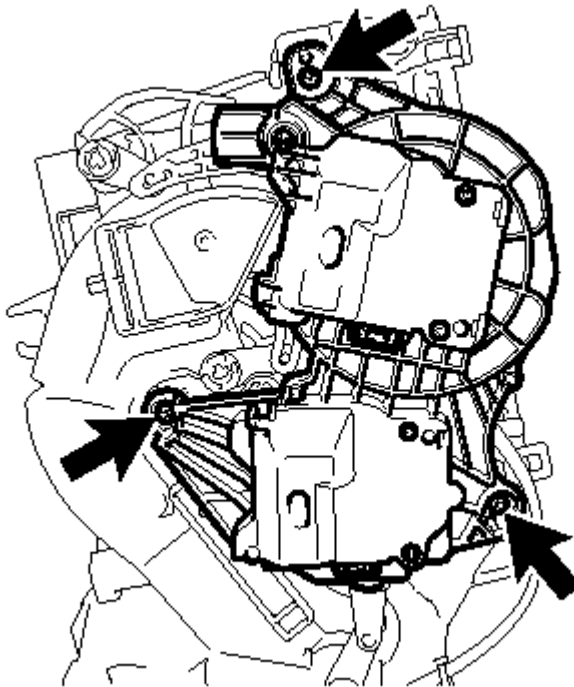
- a. Remove the 6 screws and air conditioning radiator assembly from the blower assembly with evaporator sub-assembly.



P

Fig. 61: Identifying Air Conditioning Radiator Assembly & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. REMOVE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY



P

Fig. 62: Identifying No. 2 Air Conditioning Radiator Damper Servo Sub-Assembly & Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 3 screws and No. 2 air conditioning radiator damper servo.

11. REMOVE COOLER EXPANSION VALVE

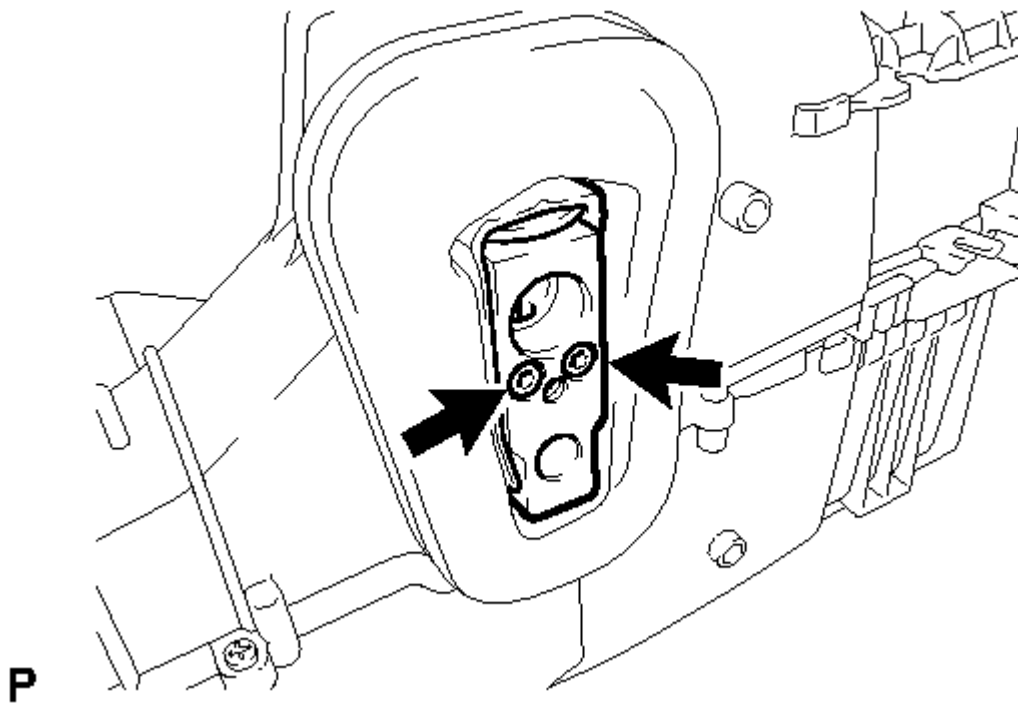
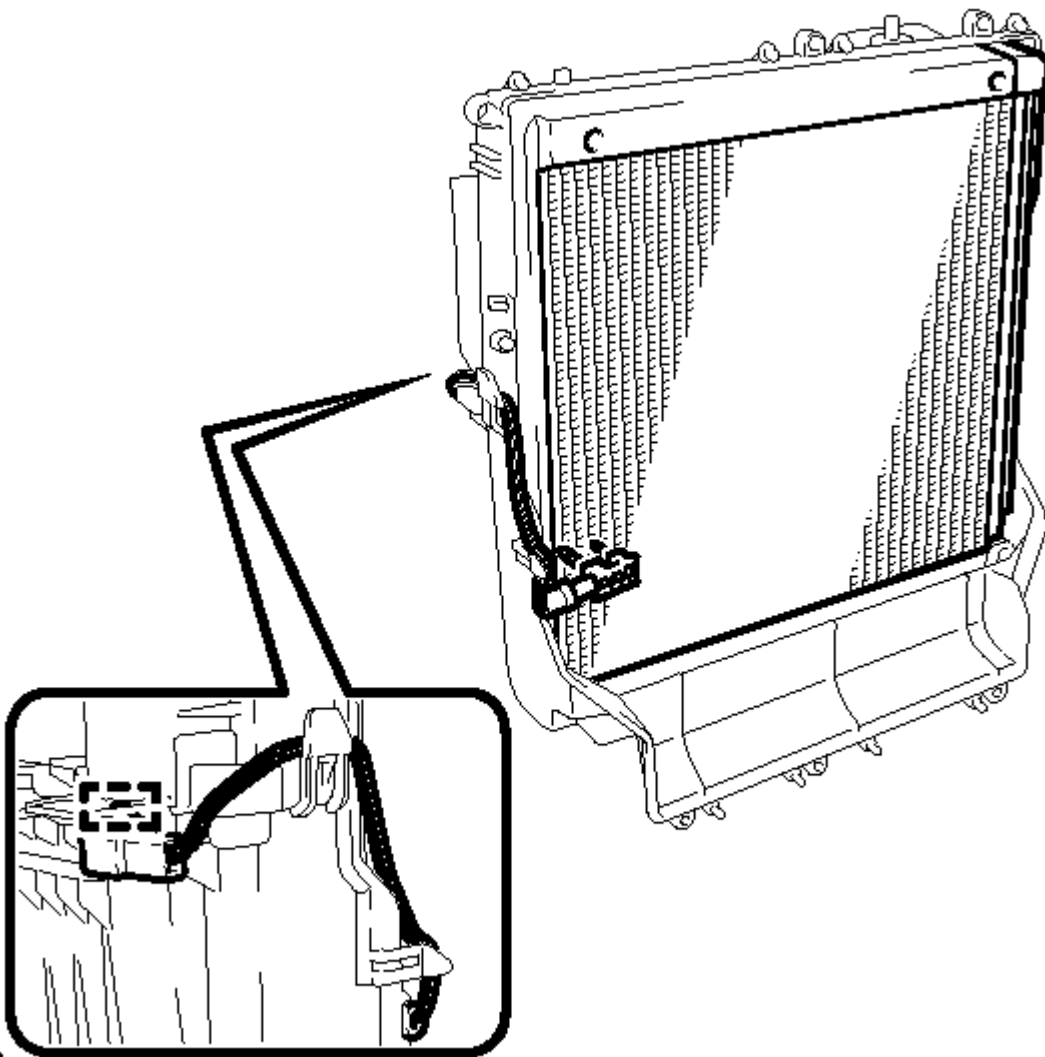


Fig. 63: Identifying Cooler Expansion Valve & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Using a 4 mm hexagon wrench, remove the 2 hexagon bolts and detach the cooler expansion valve.
- b. Remove the 2 O-rings from the cooler evaporator.

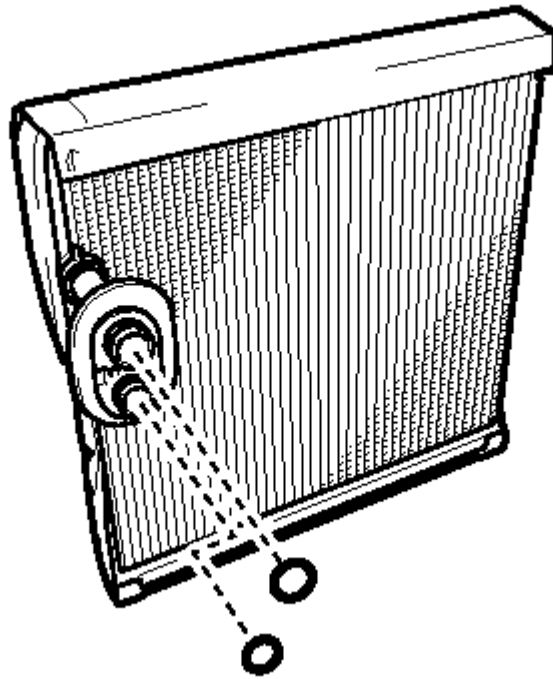
12. REMOVE NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY



P

Fig. 64: Identifying No. 1 Cooler Evaporator Sub-Assembly, Cooler Thermistor & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

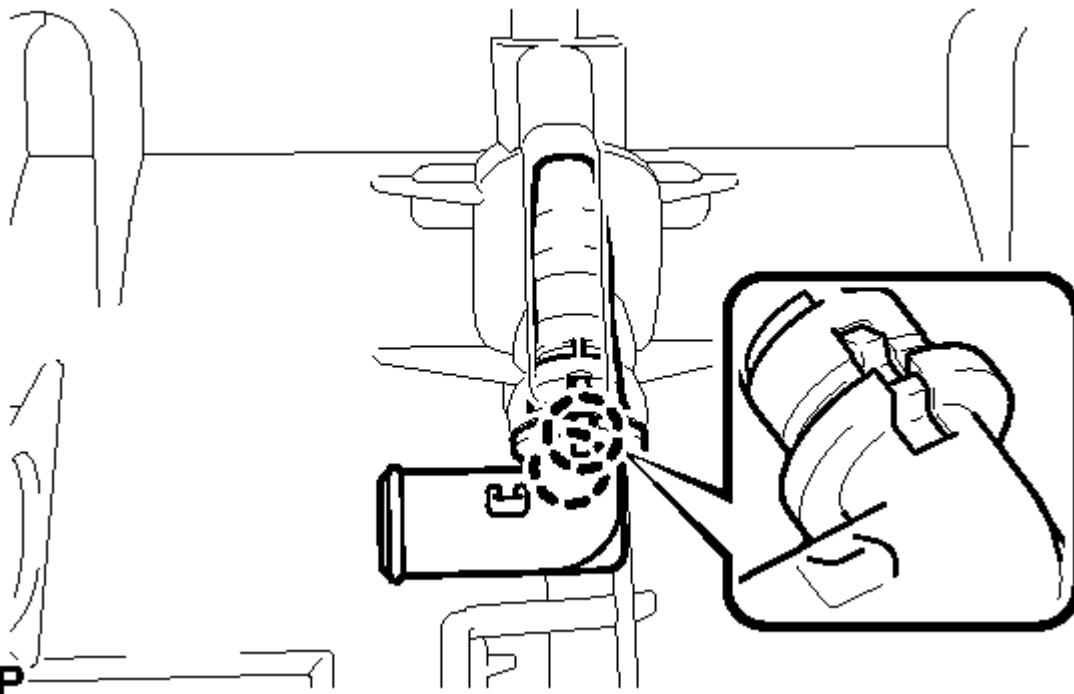
- a. Disengage the clamp and remove the No. 1 cooler evaporator with the cooler thermistor.
- b. Remove the 2 O-rings from the No. 1 cooler evaporator.



P

Fig. 65: Identifying Evaporator Sub-Assembly O-Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

13. **REMOVE NO. 1 COOLER THERMISTOR** See step 10
14. **REMOVE ASPIRATOR (for Manual Air Conditioning System)**



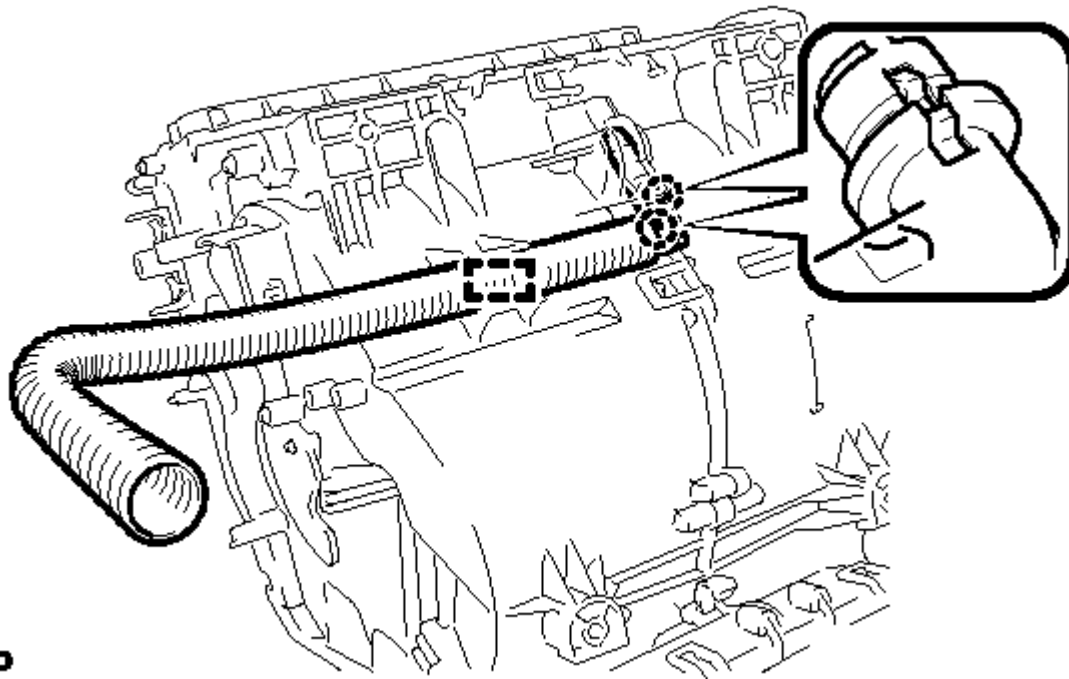
P

Fig. 66: Identifying Aspirator Pipe Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the 2 claws and remove the aspirator.

15. **REMOVE ASPIRATOR (for Automatic Air Conditioning System)**



P

Fig. 67: Identifying Aspirator Pipe Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the clamp.
- b. Disengage the 2 claws and remove the aspirator.

REASSEMBLY

REASSEMBLY

1. **INSTALL ASPIRATOR (for Manual Air Conditioning System)**

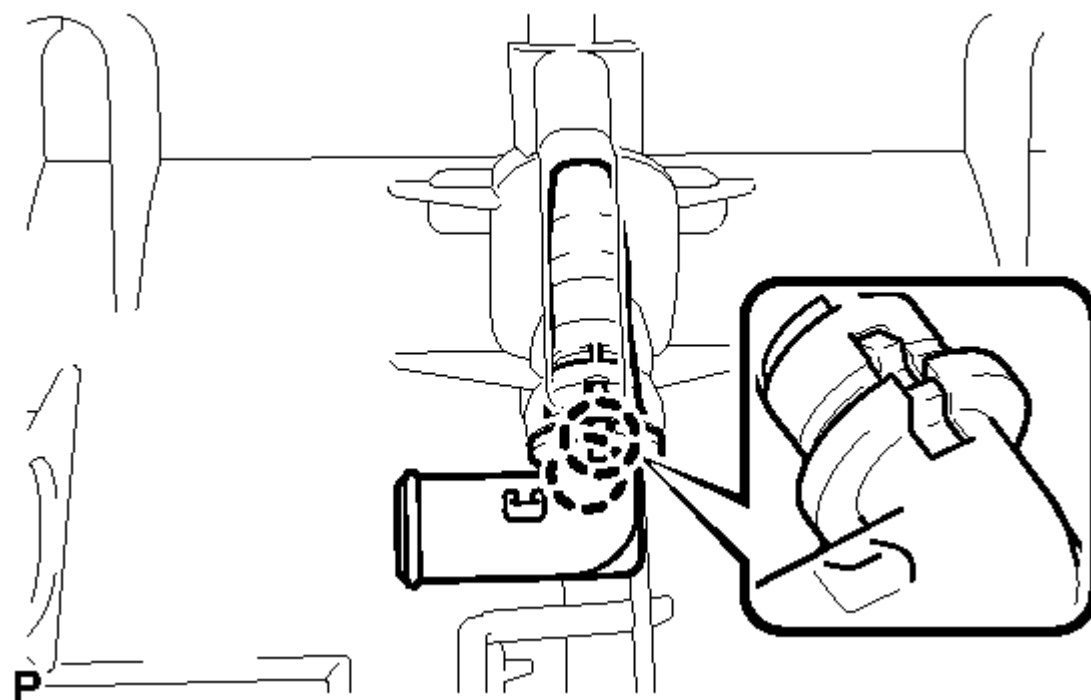


Fig. 68: Identifying Aspirator Pipe Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Engage the 2 claws to install the aspirator pipe.
2. **INSTALL ASPIRATOR (for Automatic Air Conditioning System)**

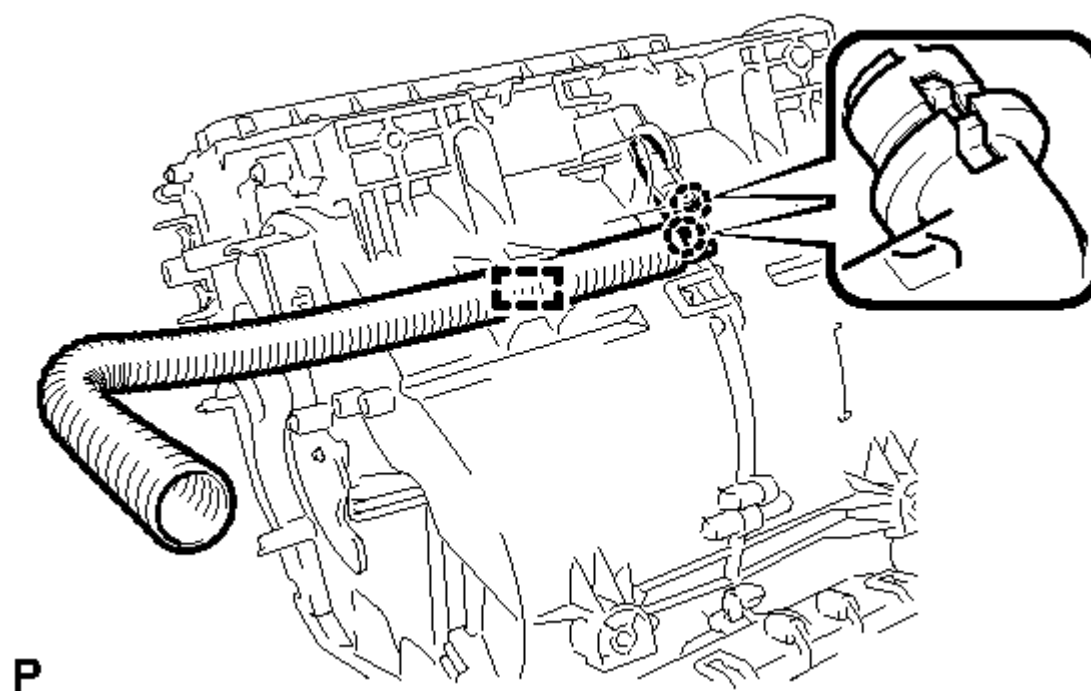


Fig. 69: Identifying Aspirator Pipe Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Engage the 2 claws and clamp to install the aspirator pipe.
3. **INSTALL NO. 1 COOLER THERMISTOR** See step 1
4. **INSTALL NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY**

HINT:

If a new cooler evaporator is installed, add compressor oil to the cooler evaporator as follows.

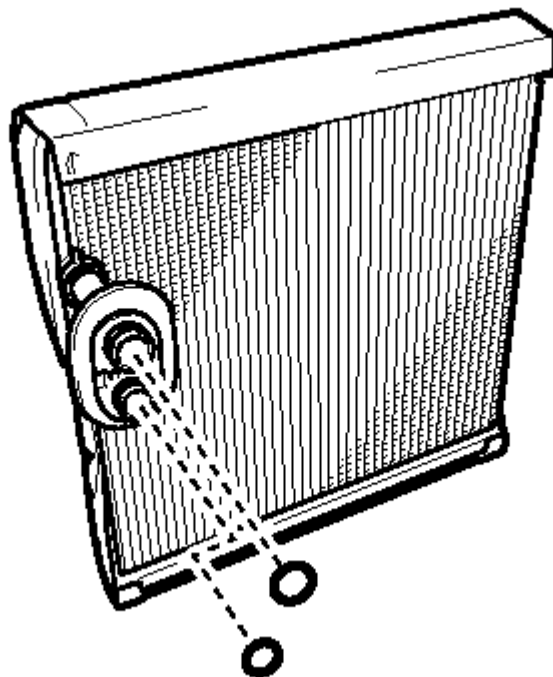
Capacity

Add 40 cc (1.35 fl. oz.)

Compressor oil

ND-OIL 8 or equivalent

- a. Sufficiently apply compressor oil to 2 new O-rings and the fitting surface of the No. 1 cooler evaporator.



P

Fig. 70: Identifying Evaporator Sub-Assembly O-Rings
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

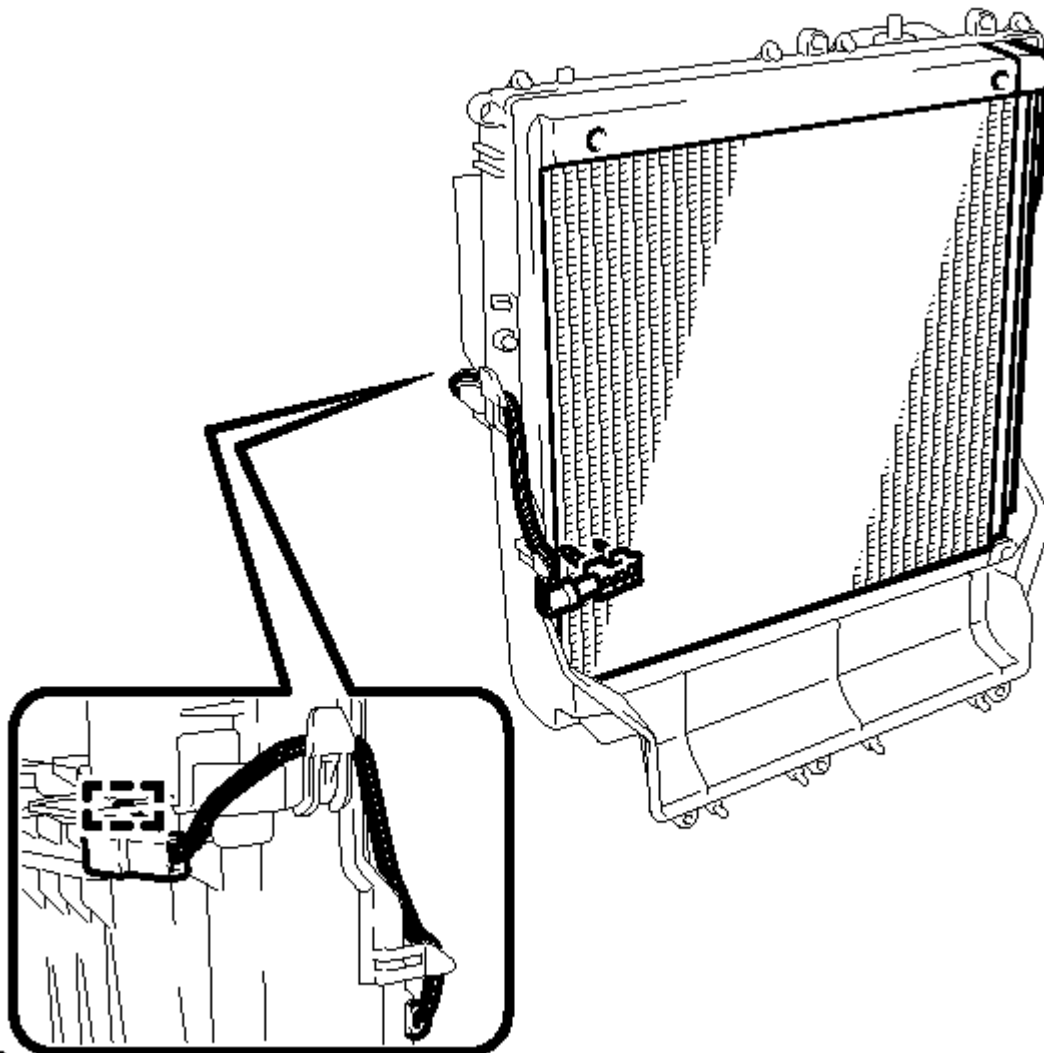
Compressor oil

ND-OIL 8 or equivalent

- b. Install the 2 O-rings to the No. 1 cooler evaporator.

NOTE: Keep the O-rings and O-ring fitting surfaces clean from dirt or any foreign objects.

- c. Engage the clamp and install the No. 1 cooler evaporator with the cooler thermistor.



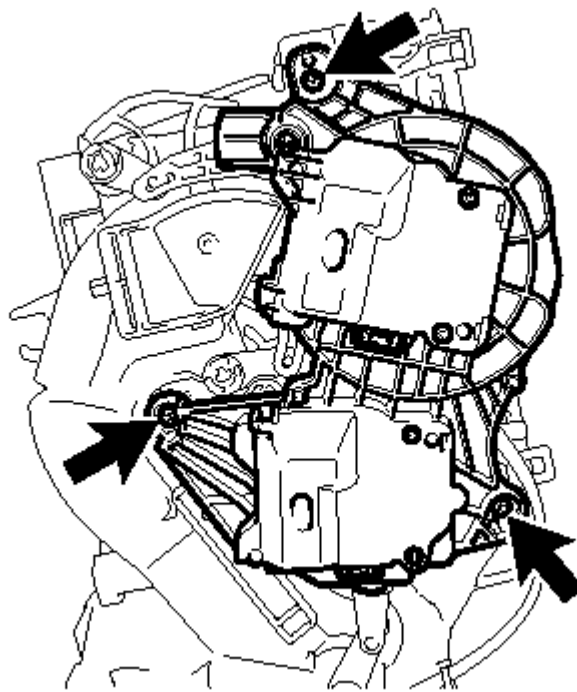
P

Fig. 71: Identifying No. 1 Cooler Evaporator Sub-Assembly, Cooler Thermistor & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Completely cover the tube with the grommet.

5. INSTALL NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY

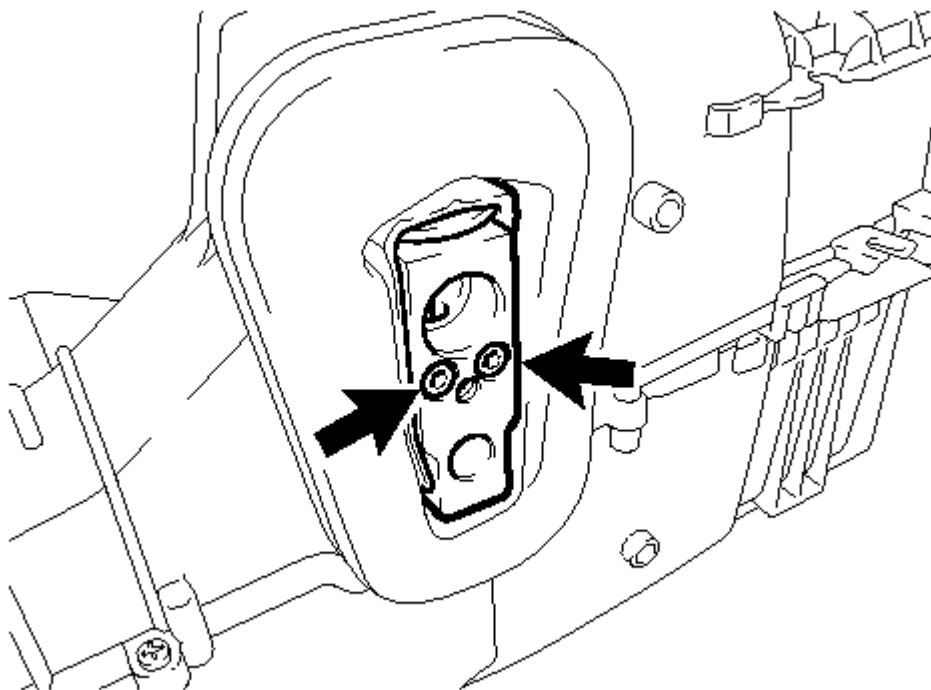


P

Fig. 72: Identifying No. 2 Air Conditioning Radiator Damper Servo Sub-Assembly & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the No. 2 air conditioning radiator damper servo with the 3 screws.

6. INSTALL COOLER EXPANSION VALVE



P

Fig. 73: Identifying Cooler Expansion Valve & Bolts

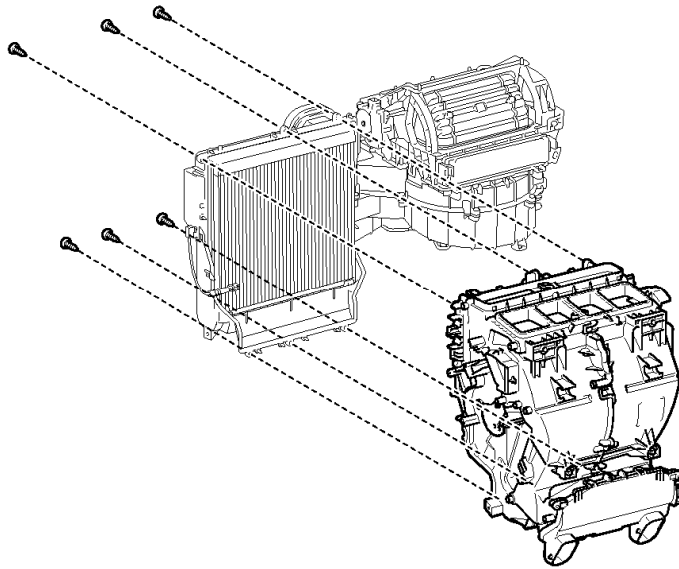
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Using a 4 mm hexagon wrench, install the cooler expansion valve with the 2 hexagon bolts.

Torque: 3.5 N*m (36 kgf*cm, 31 in.*lbf)

7. INSTALL AIR CONDITIONING RADIATOR ASSEMBLY

- a. Install the 6 screws and air conditioning radiator assembly to the blower assembly with the evaporator sub-assembly.

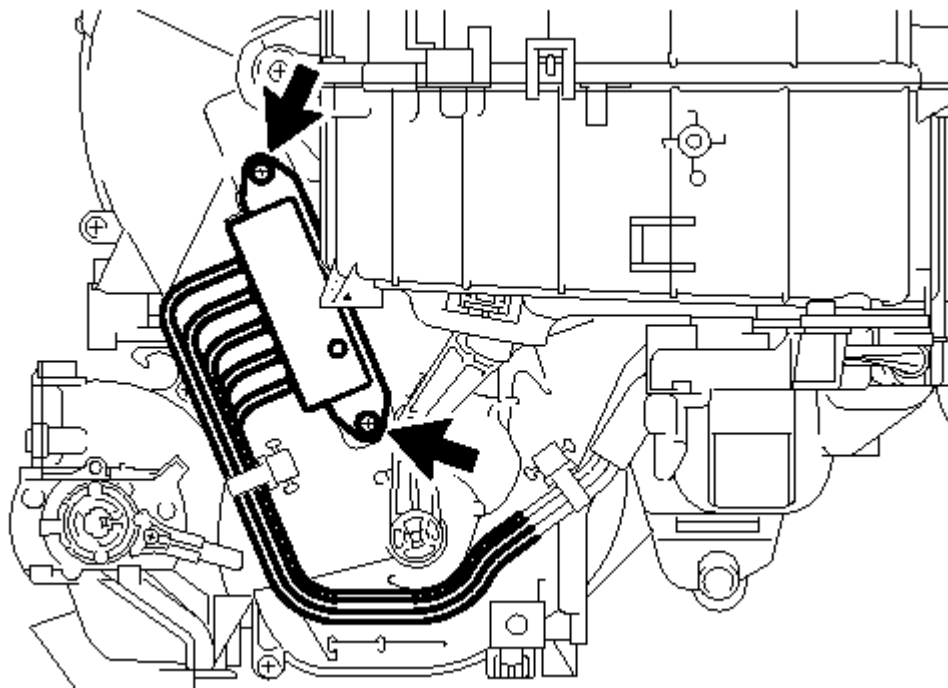


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Fig. 74: Identifying Air Conditioning Radiator Assembly & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

8. INSTALL PTC HEATER ASSEMBLY (w/ PTC Heater)

- a. Install the PTC heater with the 2 screws.



P

Fig. 75: Identifying PTC Heater & Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Engage the 3 guides and install the cover plate with the screw.

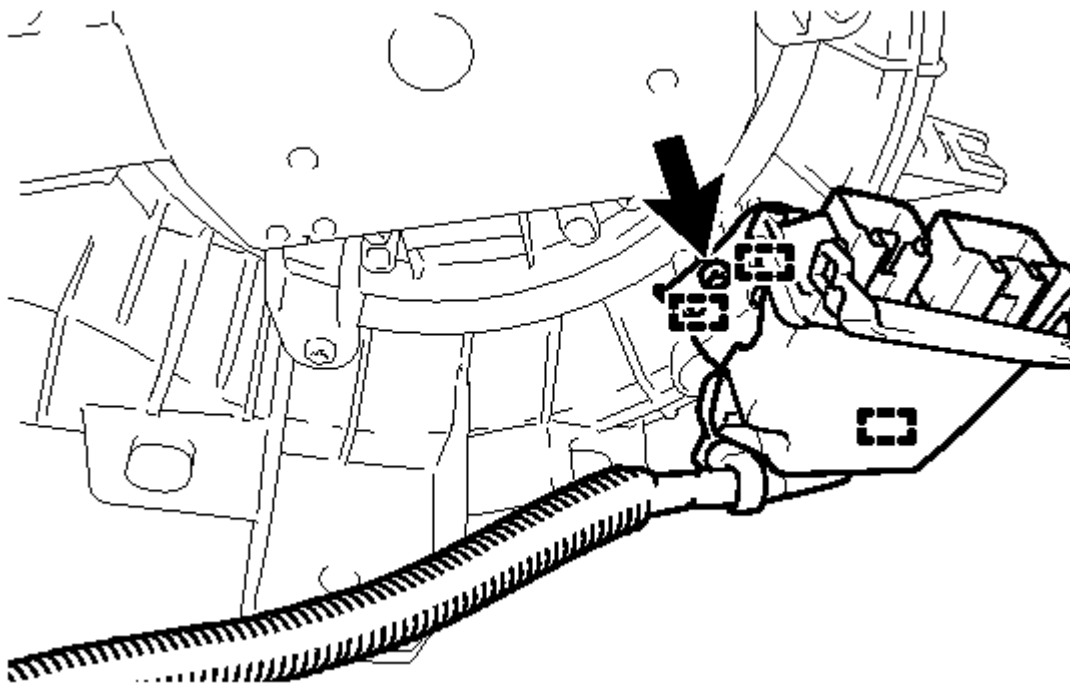


Fig. 76: Identifying PTC Heater Assembly Cover Plate & Fasteners

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Engage the 3 clamps.

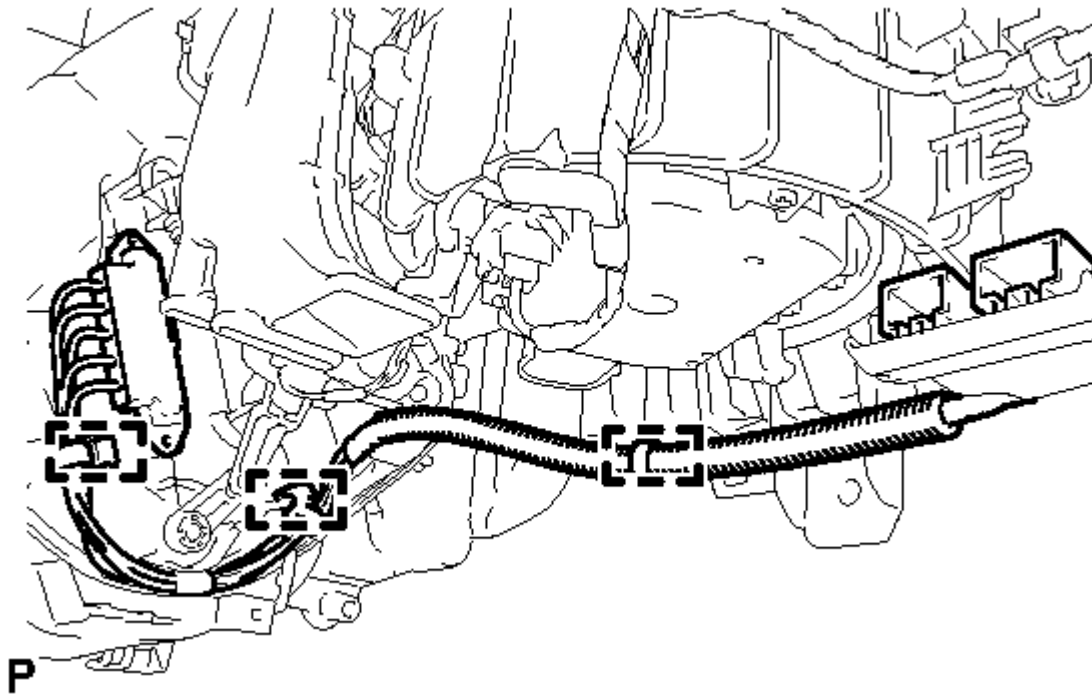
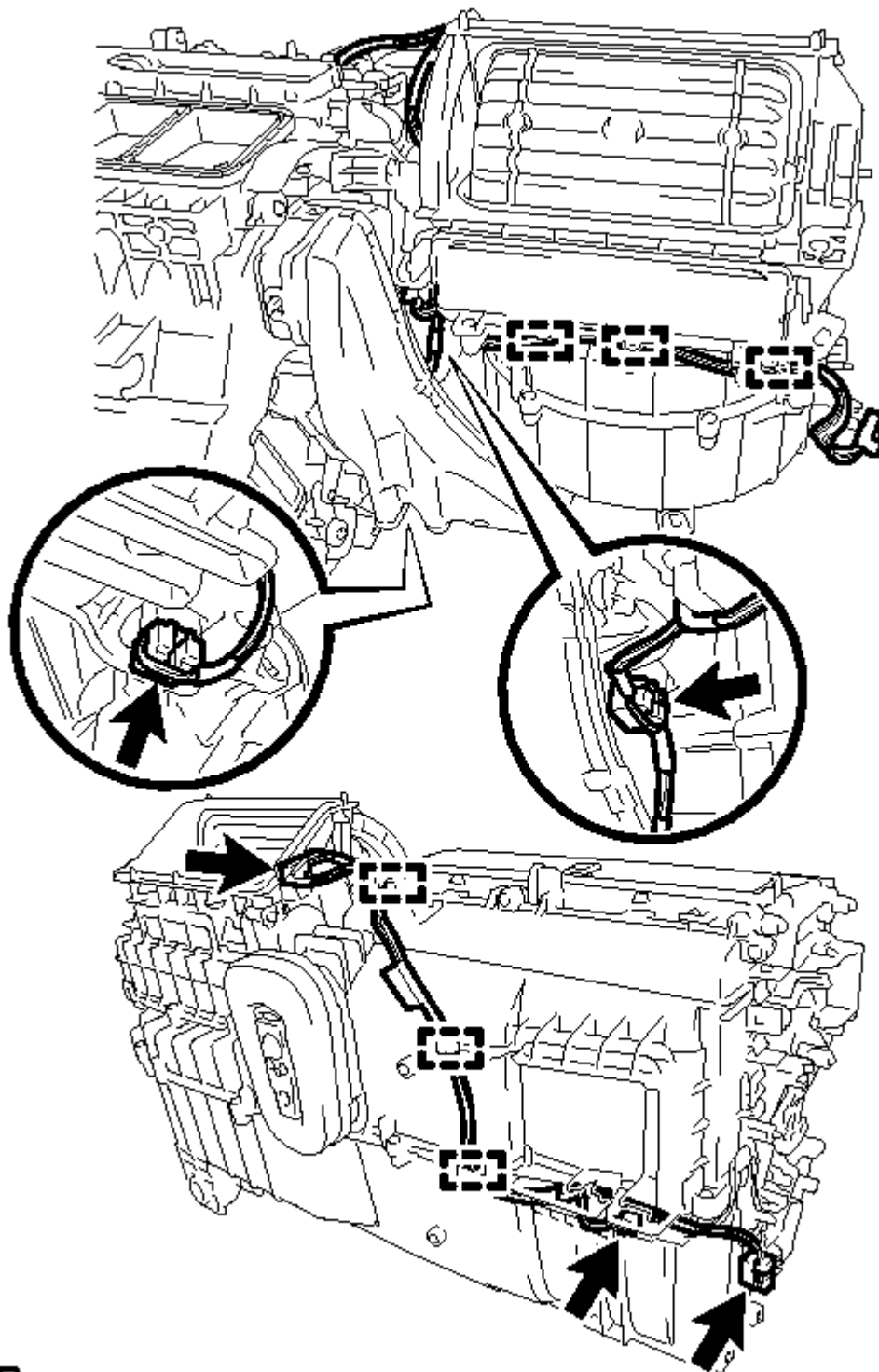


Fig. 77: Identifying PTC Heater Assembly & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. INSTALL NO. 4 AIR DUCT SUB-ASSEMBLY See step 5
10. INSTALL AIR CONDITIONING HARNESS

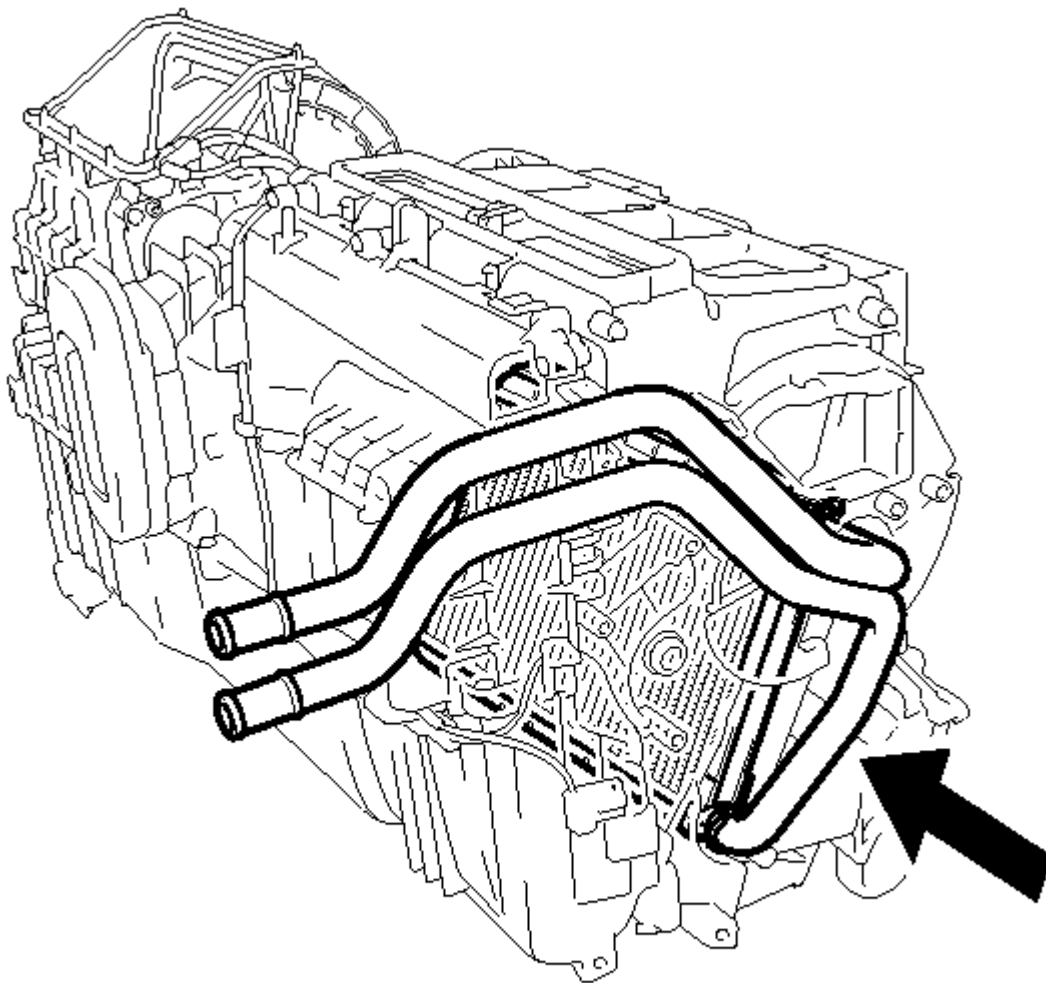


P

Fig. 78: Identifying Air Conditioning Harness, Connectors & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Engage the 6 clamps and install the air conditioning harness.
- b. Connect the 5 connectors.

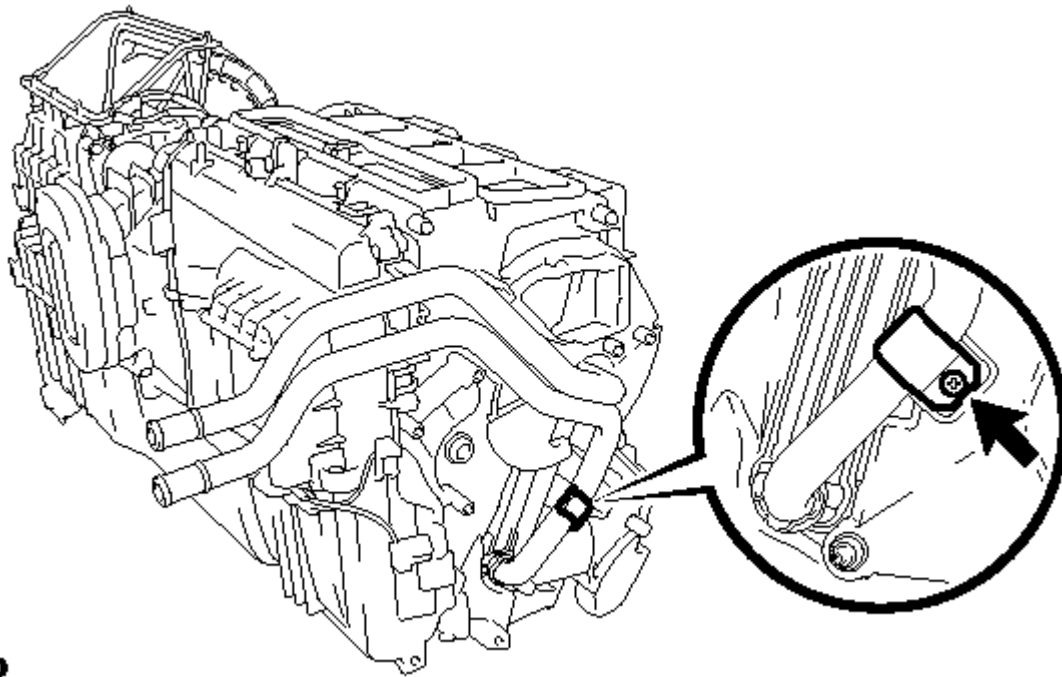
11. INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY



P

Fig. 79: Installing Heater Radiator Unit Sub-Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

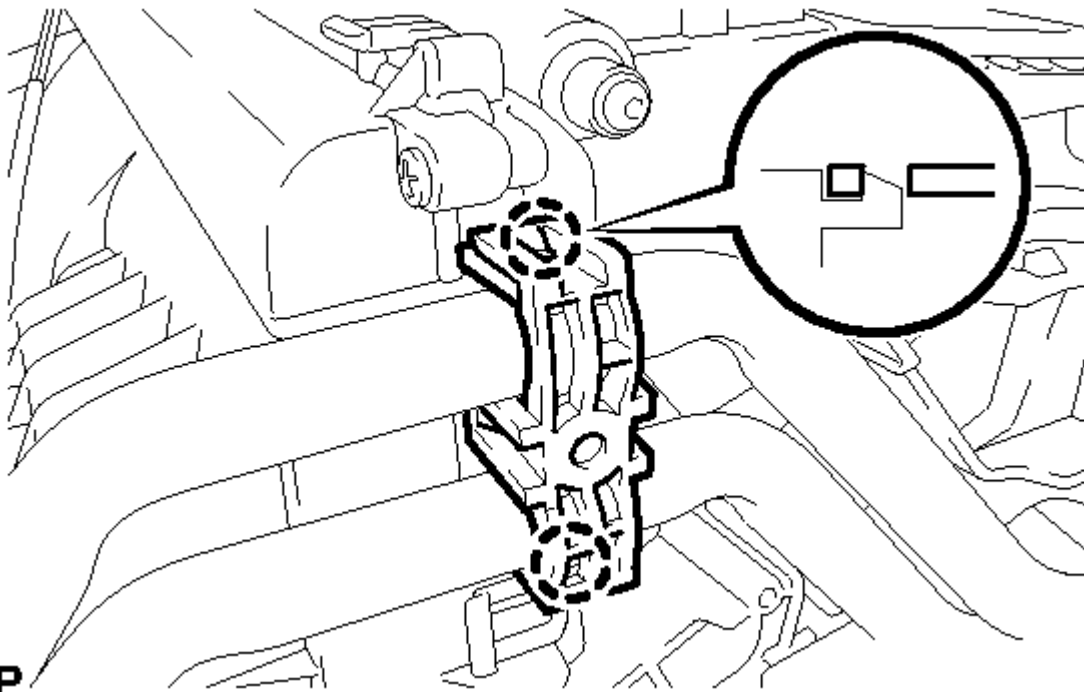
- a. Install the heater radiator unit into the air conditioning radiator.
- b. Install the piping clamp with the screw.



P

Fig. 80: Identifying Heater Radiator Unit Sub-Assembly Piping Clamp & Screw
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Engage the 2 claws and install the heater clamp.



P

Fig. 81: Identifying Heater Radiator Unit Sub-Assembly Heater Clamp & Claws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

12. INSTALL NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY

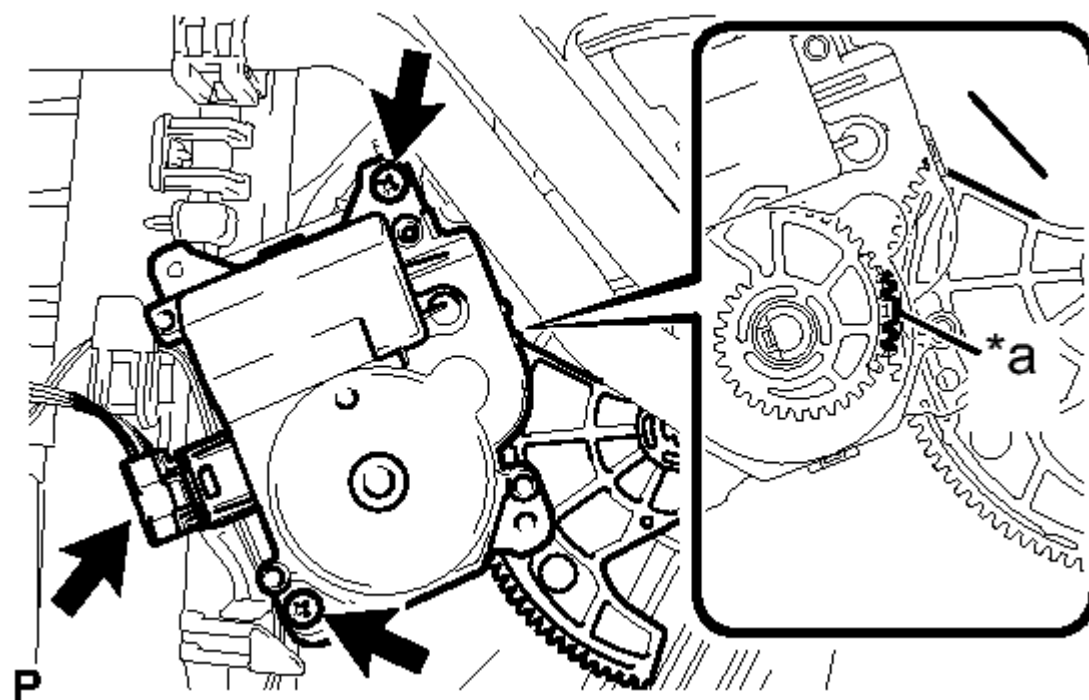


Fig. 82: Identifying No. 1 Air Conditioning Radiator Damper Servo, Connector, Reference Point & Screws

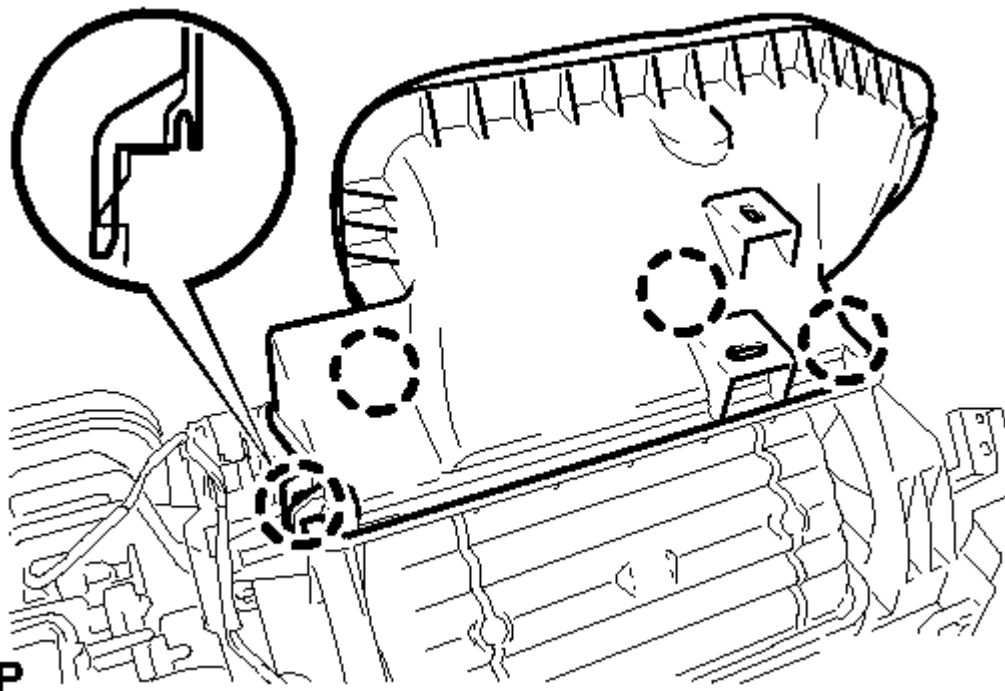
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Using the reference point, install the No. 1 air conditioning radiator damper servo with the 2 screws.

TEXT IN ILLUSTRATION

*a	Reference Point
----	--------------------

13. INSTALL NO. 2 AIR DUCT SUB-ASSEMBLY

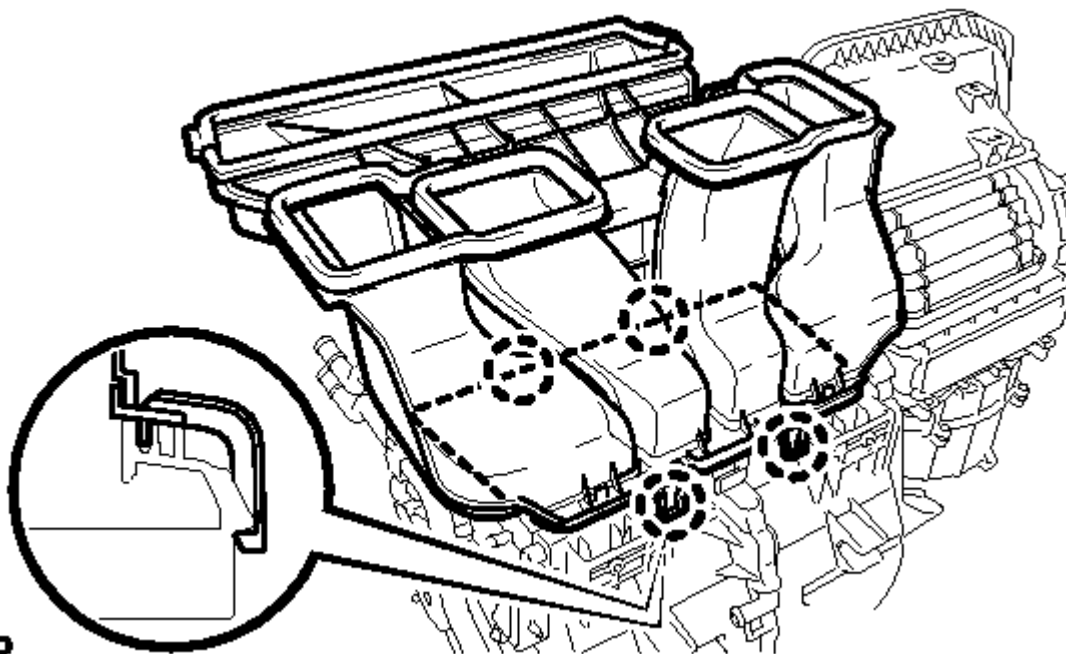


P

Fig. 83: Identifying No. 2 Air Duct Sub-Assembly & Claws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Engage the 4 claws and install the No. 2 air duct.

14. INSTALL DEFROSTER LOWER NOZZLE ASSEMBLY



P

Fig. 84: Identifying Defroster Lower Nozzle Assembly & Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Engage the 4 claws and install the defroster lower nozzle.

15. **INSTALL TRANSPONDER KEY ECU ASSEMBLY (w/ Engine Immobilizer System) . Refer to INSTALLATION - Step 1**

INSTALLATION

INSTALLATION

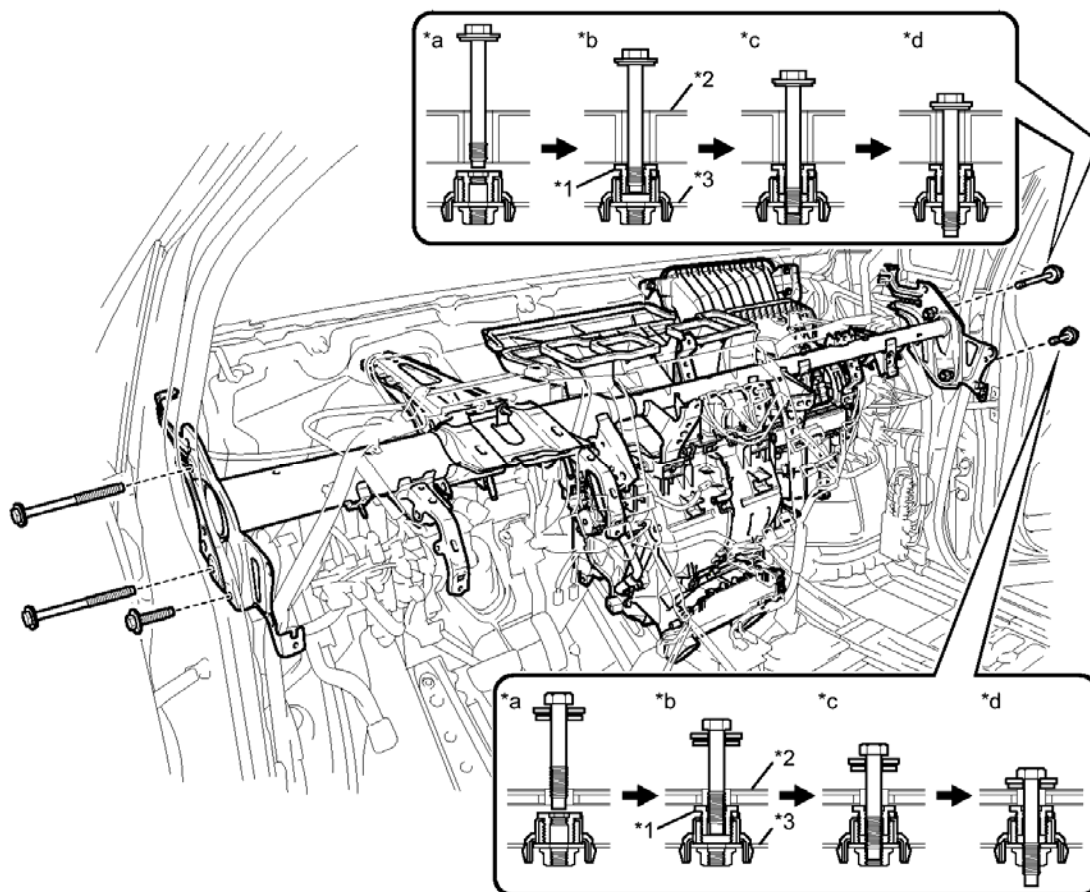
1. INSTALL AIR CONDITIONING UNIT

- a. Install the air conditioning unit with the 3 screws onto the instrument panel reinforcement.

Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)

2. INSTALL INSTRUMENT PANEL REINFORCEMENT

- a. Install the instrument panel reinforcement with air conditioning unit onto the vehicle.
- b. Tighten the 5 bolts as shown in the illustration.



P

Fig. 85: Identifying Instrument Panel Reinforcement Bolts

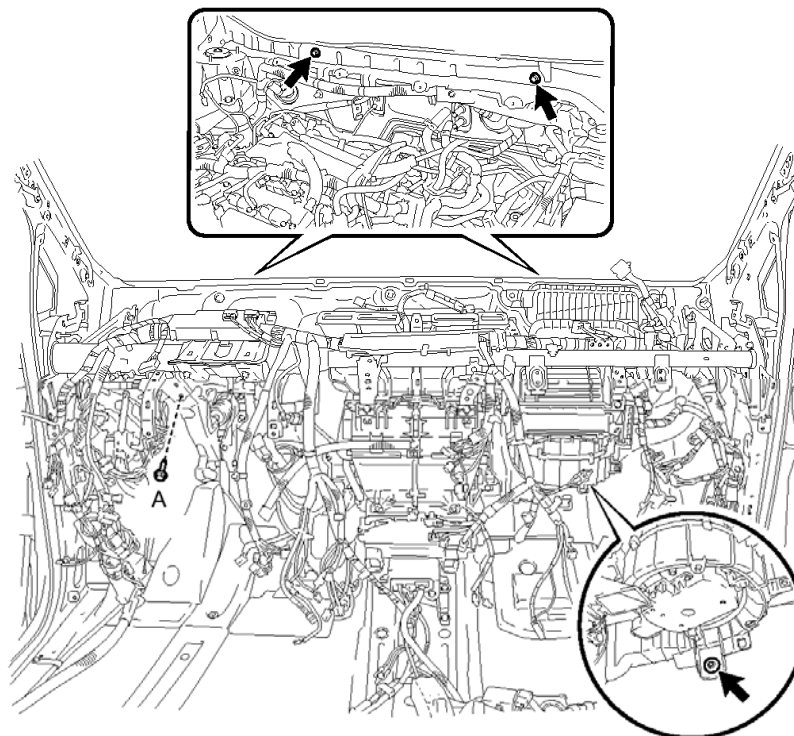
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Movable Collar	*2	Body
*3	Instrument Panel Reinforcement	-	-
*a	Step 1	*b	Step 2
*c	Step 3	*d	Step 4

Torque: 27 N*m (275 kgf*cm, 20 ft.*lbf)

- c. Install the 2 hole plugs.
- d. Tighten the 3 bolts and nut.



P

Fig. 86: Identifying Instrument Panel Reinforcement Hole Plugs & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 19 N*m (189 kgf*cm, 14 ft.*lbf)

for bolt A

Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)

for nut

3. INSTALL INSTRUMENT PANEL WIRE

- a. Engage the clamps and install the instrument panel wire.
- b. Install the ground wire with the bolt.

Torque: 8.5 N*m (87 kgf*cm, 75 in.*lbf)

- c. Connect the connectors.

4. INSTALL NO. 1 AIR DUCT SUB-ASSEMBLY

- a. Tighten the 3 nuts.

Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)

5. INSTALL NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY

- a. Install the No. 2 instrument panel brace with the bolt, 2 nuts and screw.
- b. Install the ground wire with the bolt.

Torque: 8.5 N*m (87 kgf*cm, 75 in.*lbf)

- c. Engage the 5 clamps.
- d. Connect the connector.

6. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY

- a. Install the No. 1 instrument panel brace with the 2 bolts, 2 nuts and screw.
- b. Install the ground wire with the bolt.

Torque: 8.5 N*m (87 kgf*cm, 75 in.*lbf)

- c. Engage the 5 clamps.
- d. Connect the connector.

7. INSTALL NO. 5 INSTRUMENT PANEL BRACKET

- a. Install the No. 5 instrument panel bracket with the 3 nuts.
- b. Connect the 3 connectors.

HINT:

If the vehicle is equipped with USB audio system, connect the connector.

8. INSTALL REAR NO. 2 AIR DUCT

- a. Engage the 2 claws and install the No. 2 air duct.
- b. Install the clip.

9. INSTALL REAR NO. 4 AIR DUCT

HINT:

Use the same procedure as for the No. 2 side.

10. INSTALL FRONT FLOOR CARPET ASSEMBLY

Refer to INSTALLATION

11. INSTALL FRONT DOOR PANEL SUB-ASSEMBLY LH

- a. Temporarily install the front door panel with the 4 bolts to the vehicle.
- b. Pass the front door wire through the opening in the body.
- c. Tighten the 4 bolts on the hinge side.

Torque: 26 N*m (265 kgf*cm, 19 ft.*lbf)

- d. Install the front door check with the bolt.

Torque: 29 N*m (296 kgf*cm, 21 ft.*lbf)

12. INSTALL FRONT DOOR PANEL SUB-ASSEMBLY RH

HINT:

Use the same procedure as for the No. 2 side.

13. CONNECT FRONT DOOR WIRE LH

- a. Connect the 3 connectors.

14. CONNECT FRONT DOOR WIRE RH

- a. Connect the 3 connectors.

15. INSTALL CENTER AIRBAG SENSOR ASSEMBLY . Refer to INSTALLATION - Step 2

16. INSTALL INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY . Refer to INSTALLATION - Step 2

17. INSTALL ECU INTEGRATION BOX RH . Refer to INSTALLATION - Step 2

18. INSTALL STEERING COLUMN ASSEMBLY

Refer to INSTALLATION

19. INSTALL NO. 3 AIR DUCT SUB-ASSEMBLY

- a. Engage the 3 claws and install the No. 3 air duct.
- b. Install the clip.

20. INSTALL INSTRUMENT PANEL SUB-ASSEMBLY

Refer to INSTALLATION

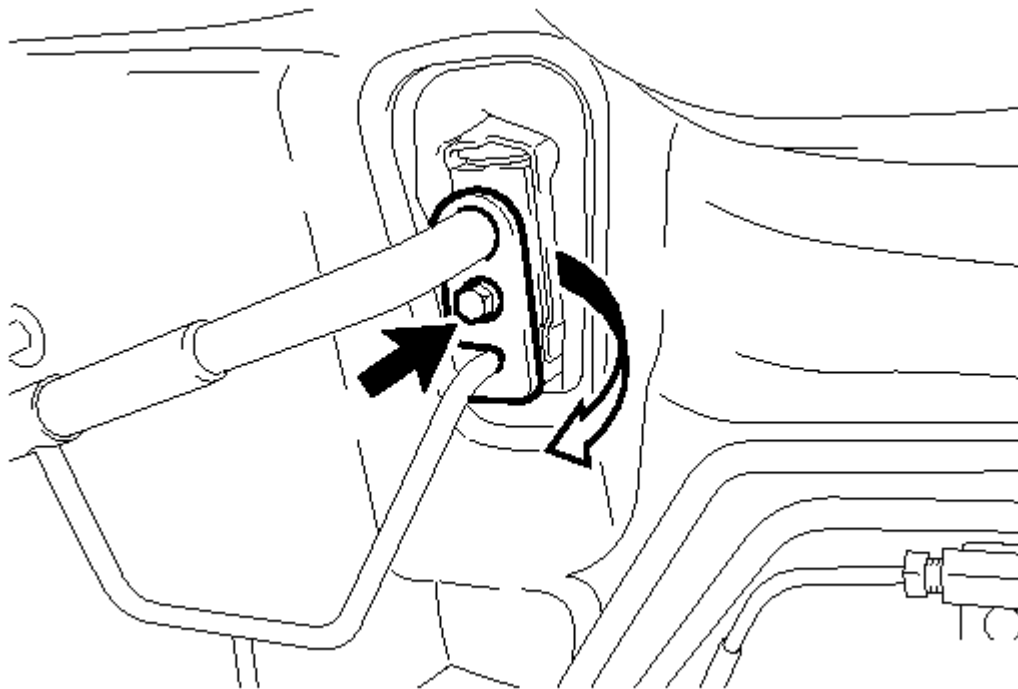
21. CONNECT AIR CONDITIONER TUBE AND ACCESSORY ASSEMBLY

- a. Remove the vinyl tape from air conditioner tube and accessory and the connecting portion of the unit.
- b. Sufficiently apply compressor oil to 2 new O-rings and the connecting part of the air conditioner tube and accessory.

Compressor oil

ND-OIL8 or equivalent

- c. Install the 2 O-rings onto the air conditioner tube and accessory.
- d. Turn the hook connector in the direction indicated by the arrow in the illustration.



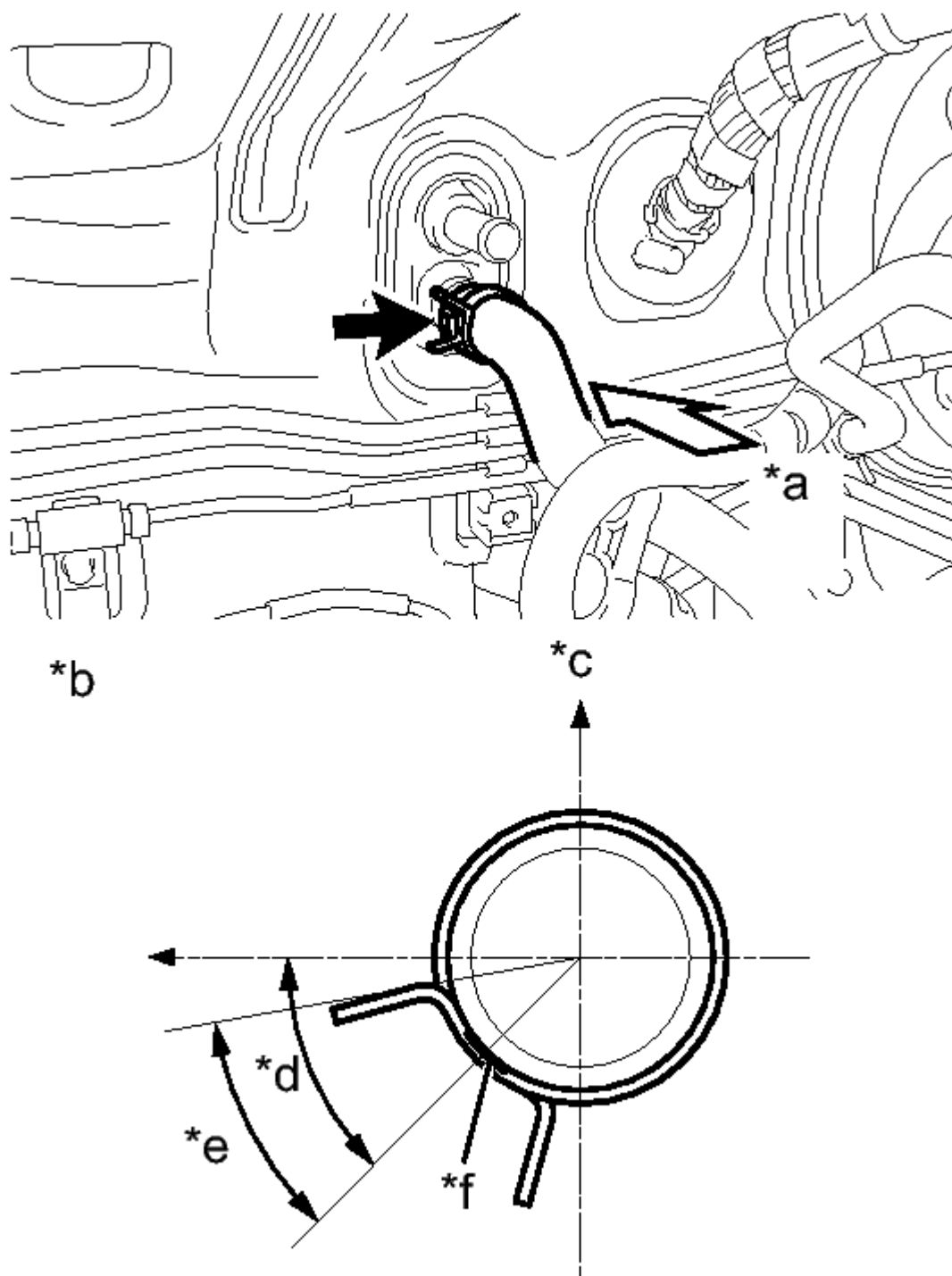
P

Fig. 87: Installing Air Conditioner Tube/Accessory Assembly & Screw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Insert the pipe joints securely into the fitting holes and tighten the bolt.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

22. CONNECT HEATER WATER INLET HOSE A (for 2GR-FE)



P

Fig. 88: Installing Heater Water Inlet Hose A (For 2GR-FE)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the heater water inlet hose onto the air conditioning unit.

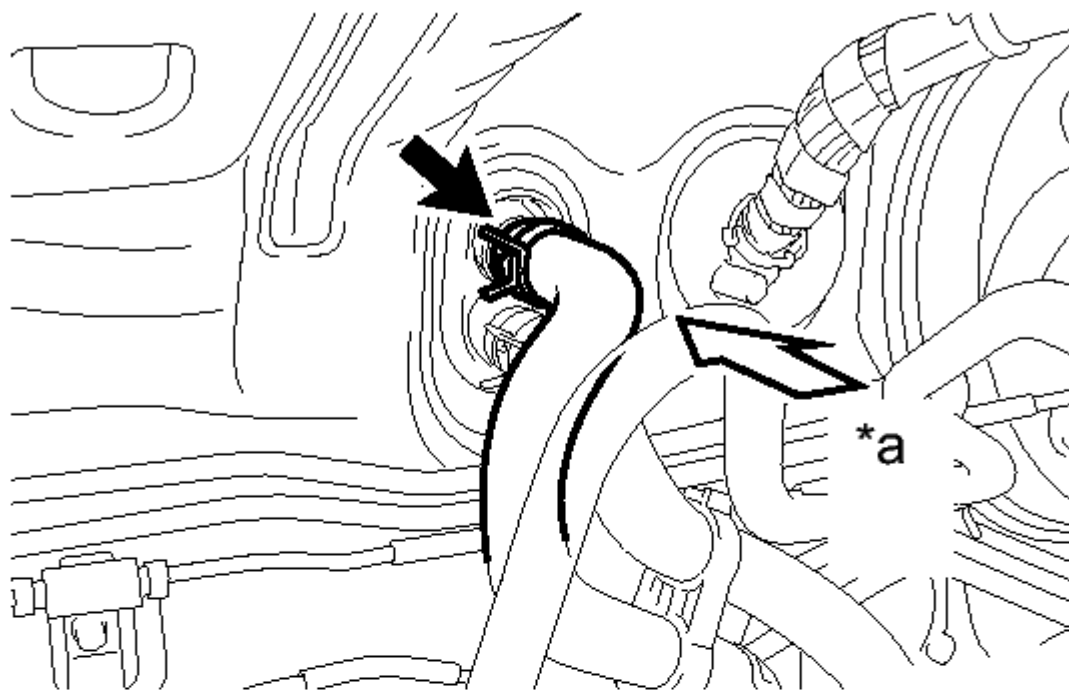
TEXT IN ILLUSTRATION

*a	A
*b	View A
*c	UP Side
*d	25 to 65 °
*e	-20 to 20 °
*f	White Paint Mark

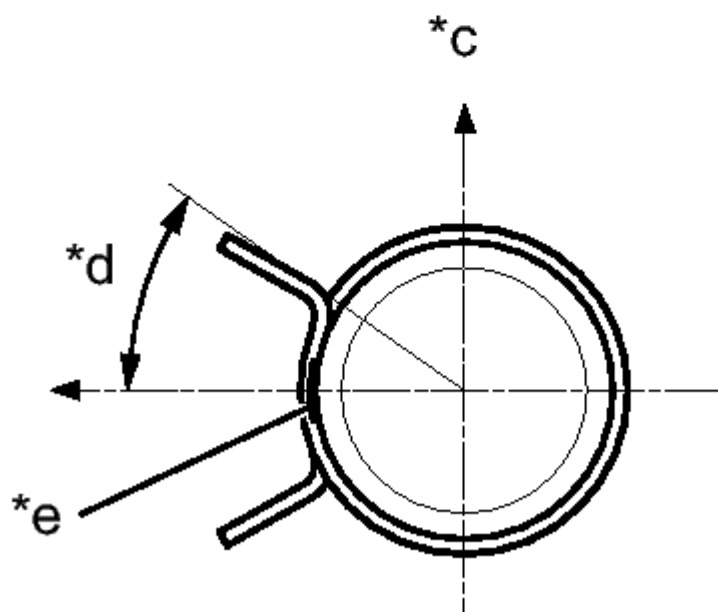
HINT:

Perform the installation with the hose clip and mark at the correct angle.

23. CONNECT HEATER WATER OUTLET HOSE A (for 2GR-FE)



*b



P

Fig. 89: Installing Heater Water Outlet Hose A (For 2GR-FE)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the heater water outlet hose onto the air conditioning unit.

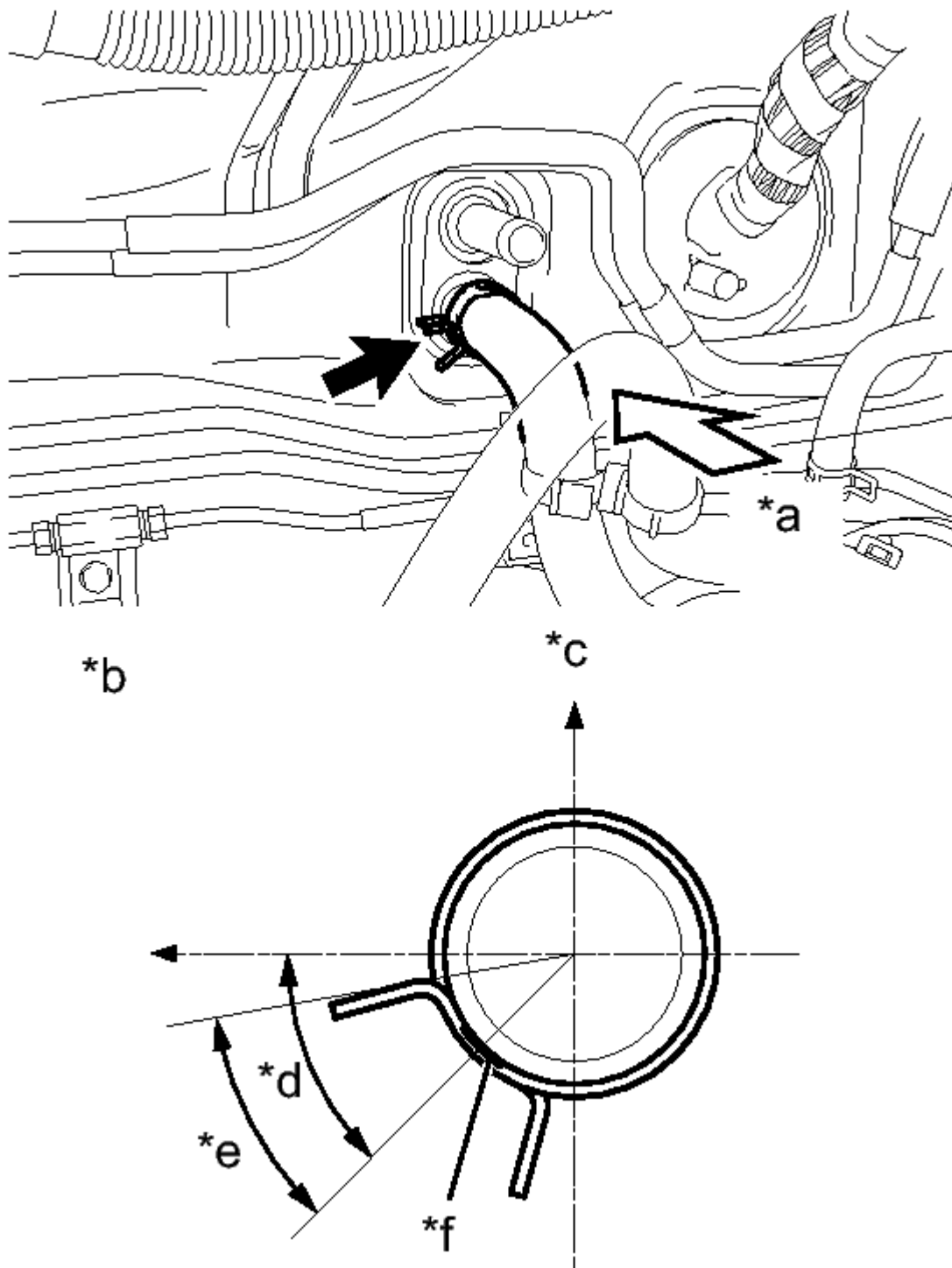
TEXT IN ILLUSTRATION

*a	A
*b	View A
*c	UP Side
*d	-20 to 20 °
*e	White Paint Mark

HINT:

Perform the installation with the hose clip and mark at the correct angle.

24. CONNECT HEATER WATER INLET HOSE A (for 1AR-FE)



P

Fig. 90: Installing Heater Water Inlet Hose A (For 1AR-FE)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the heater water inlet hose onto the air conditioning unit.

TEXT IN ILLUSTRATION

*a	A
*b	View A
*c	UP Side
*d	25 to 65 °
*e	-20 to 20 °
*f	White Paint Mark

HINT:

Perform the installation with the hose clip and mark at the correct angle.

25. CONNECT HEATER WATER OUTLET HOSE A (for 1AR-FE)

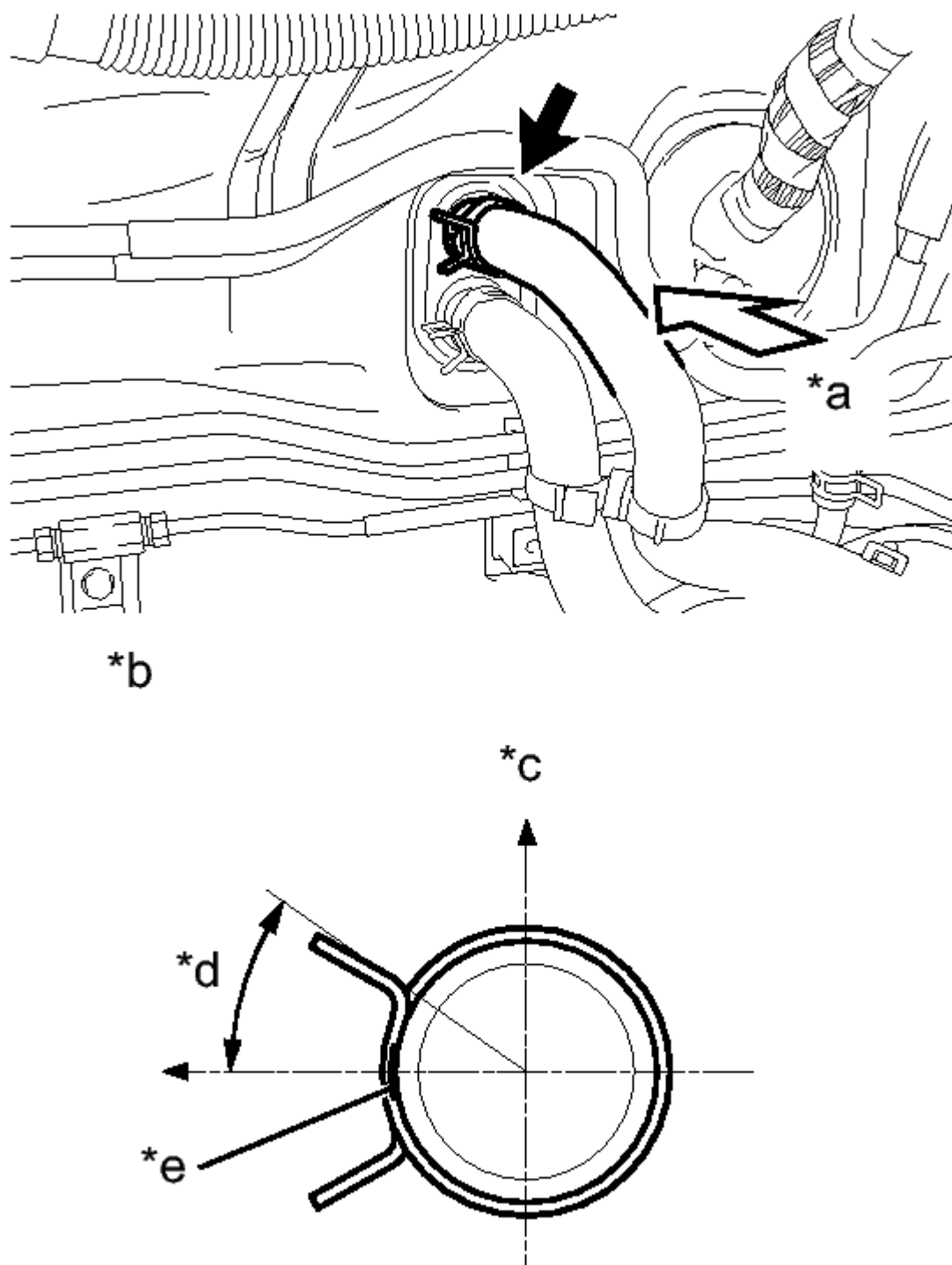


Fig. 91: Installing Heater Water Outlet Hose A (For 1AR-FE)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the heater water outlet hose onto the air conditioning unit.

TEXT IN ILLUSTRATION

*a	A
*b	View A
*c	UP Side
*d	-20 to 20 °
*e	Yellow Paint Mark

HINT:

Perform the installation with the hose clip and mark at the correct angle.

26. INSTALL INTAKE AIR SURGE TANK ASSEMBLY (for 2GR-FE)

Refer to INSTALLATION

27. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to INITIALIZATION .

28. ADD ENGINE COOLANT (for 2GR-FE) . Refer to REPLACEMENT - Step 4

29. ADD ENGINE COOLANT (for 1AR-FE) . Refer to REPLACEMENT - Step 3

30. INSPECT FOR COOLANT LEAK (for 2GR-FE) . Refer to ON-VEHICLE INSPECTION - Step 1

31. INSPECT FOR COOLANT LEAK (for 1AR-FE) . Refer to ON-VEHICLE INSPECTION - Step 1

32. CHARGE REFRIGERANT See step 2

33. WARM UP ENGINE See step 3

34. INSPECT FOR REFRIGERANT LEAK See step 4

35. INSTALL NO. 1 ENGINE UNDER COVER (for 2GR-FE) . Refer to INSTALLATION - Step 16

36. INSTALL V-BANK COVER SUB-ASSEMBLY (for 2GR-FE) . Refer to INSTALLATION - Step 95

37. INSTALL NO. 1 ENGINE UNDER COVER (for 1AR-FE) . Refer to INSTALLATION - Step 16

38. INSPECT FRONT DOOR PANEL SUB-ASSEMBLY LH

HINT:

Use the same procedure as for the RH side. Refer to ADJUSTMENT - Step 1 .

39. ADJUST FRONT DOOR PANEL SUB-ASSEMBLY LH

HINT:

Use the same procedure as for the RH side. Refer to ADJUSTMENT - Step 2 .

40. INSPECT FRONT DOOR PANEL SUB-ASSEMBLY RH . Refer to ADJUSTMENT - Step 1

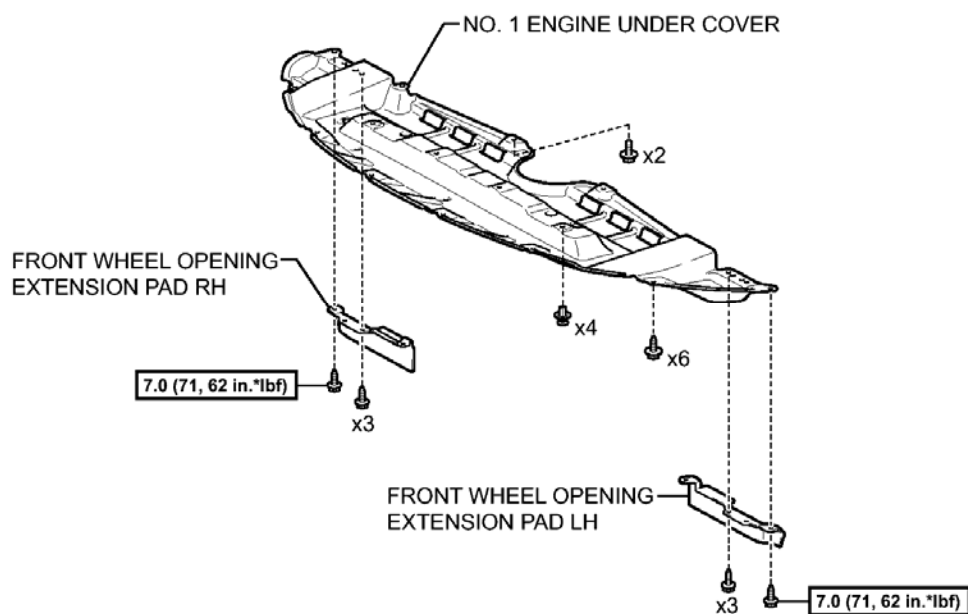
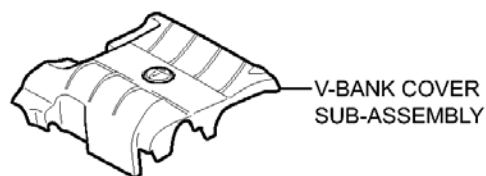
41. ADJUST FRONT DOOR PANEL SUB-ASSEMBLY RH . Refer to ADJUSTMENT - Step 2

REAR AIR CONDITIONING UNIT

COMPONENTS

ILLUSTRATION

for 2GR-FE:



7.0 (71, 62 in.*lbf): Specified torque

P

Fig. 92: Rear Air Conditioning Unit Replacement Components With Torque Specifications (2GR-FE) (1 Of 9)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

for 1AR-FE:

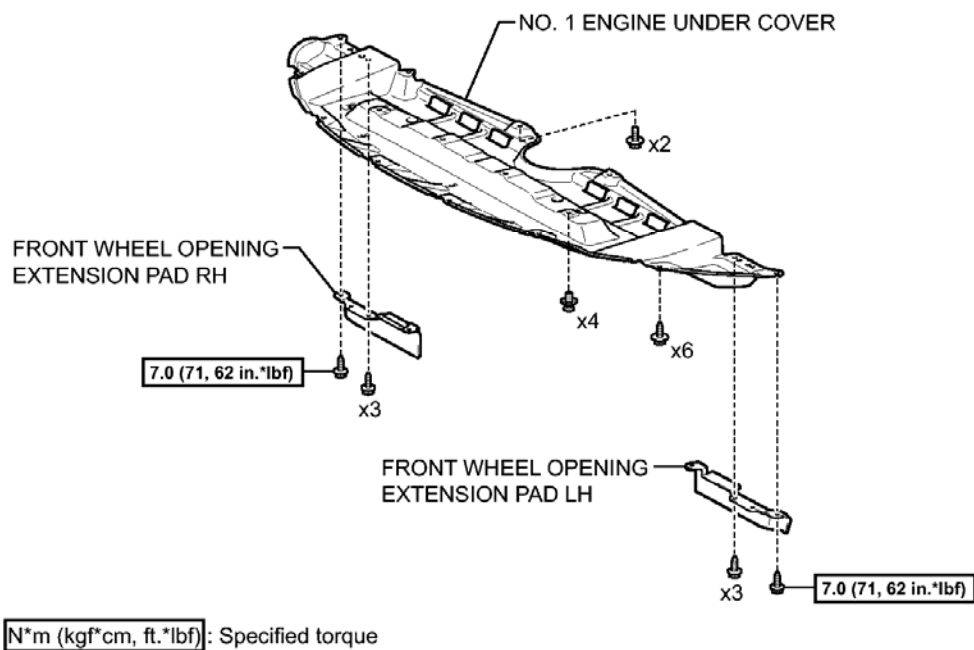
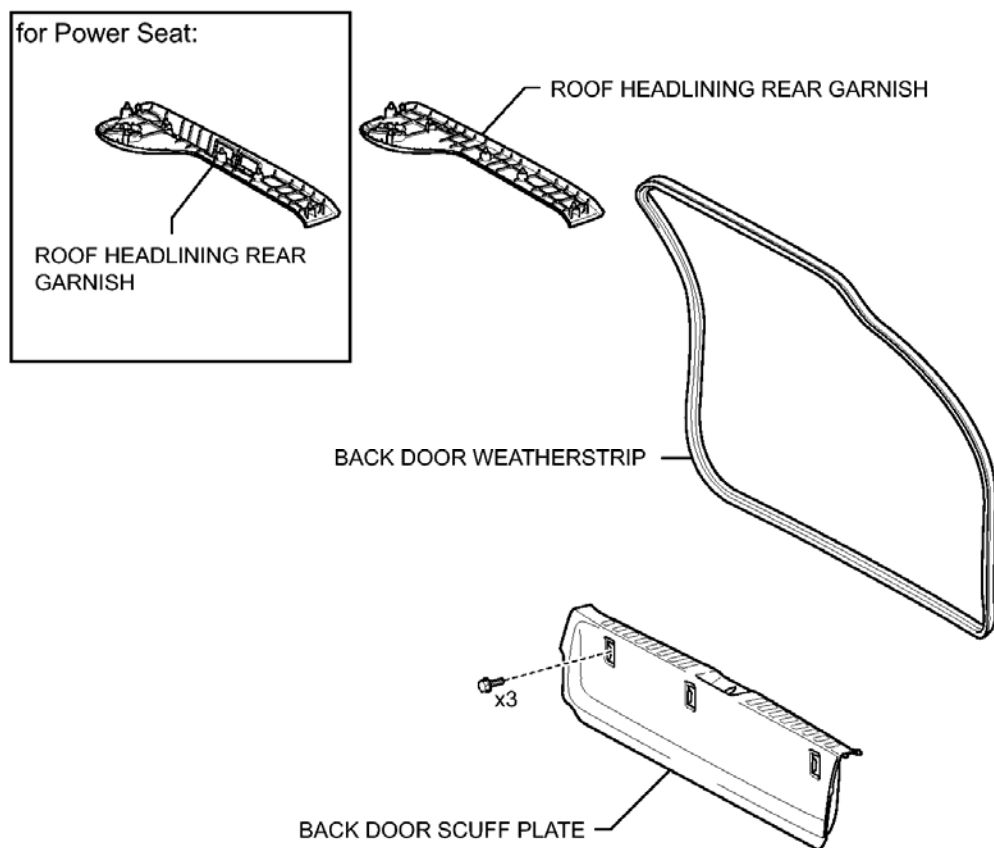


Fig. 93: Rear Air Conditioning Unit Replacement Components With Torque Specifications (1AR-FE) (2 Of 9)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

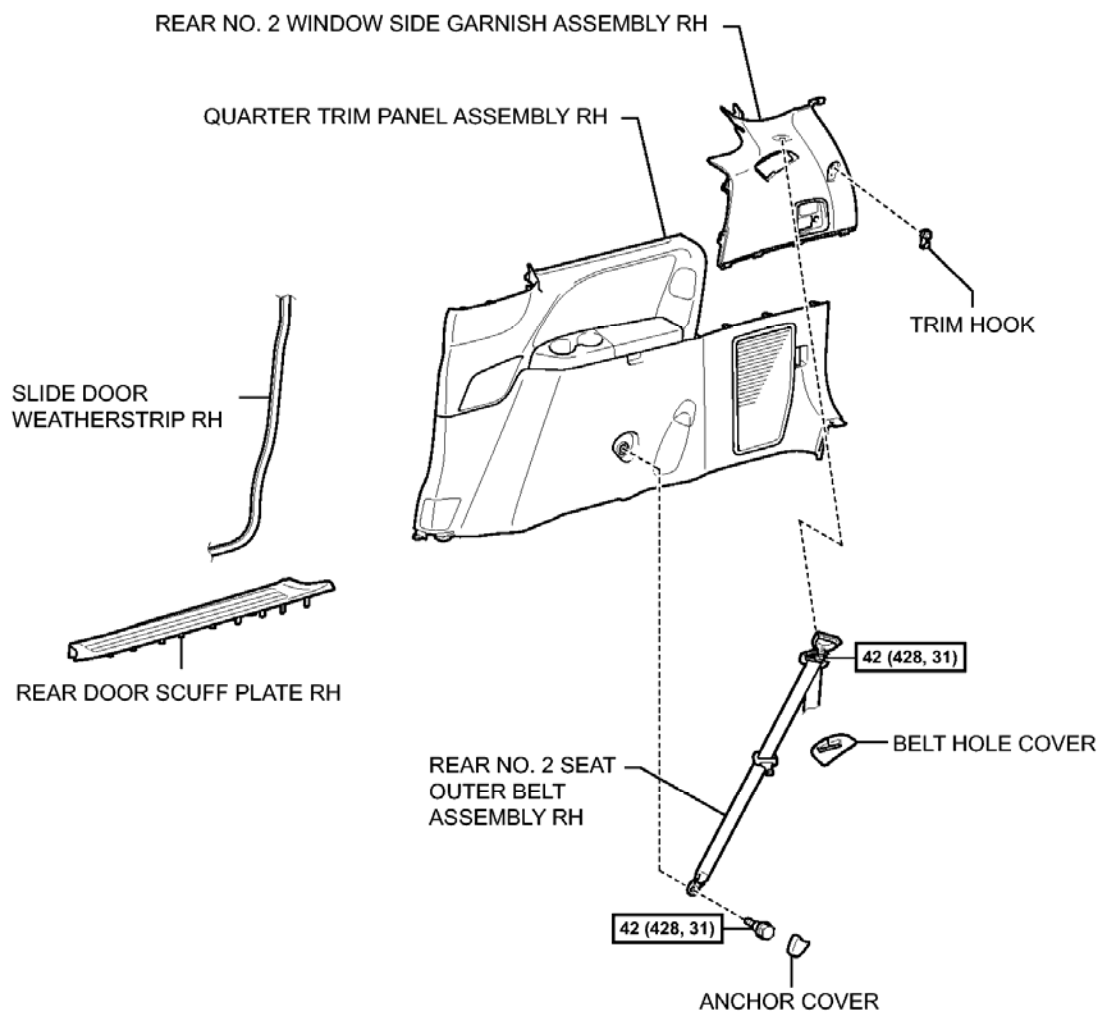
ILLUSTRATION



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Fig. 94: Rear Air Conditioning Unit Replacement Components (3 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

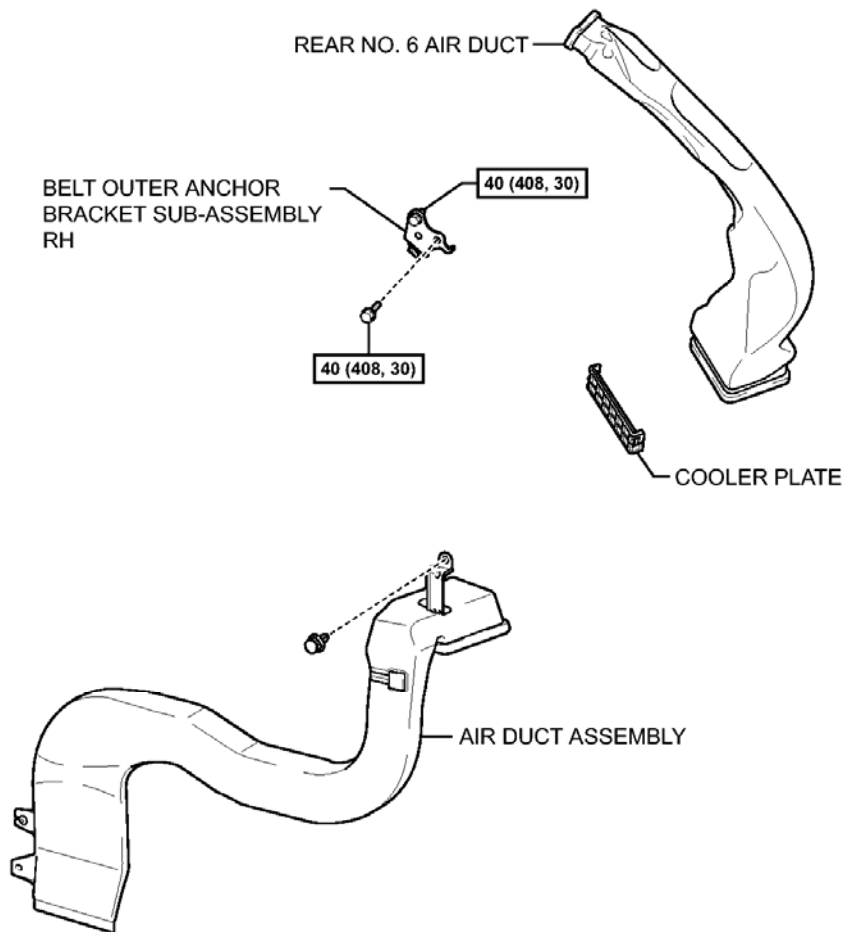
ILLUSTRATION



$\boxed{\text{N}\cdot\text{m} \text{ (kgf}\cdot\text{cm, ft}\cdot\text{lbf)}} : \text{Specified torque}$

Fig. 95: Rear Air Conditioning Unit Replacement Components With Torque Specifications (4 Of 9)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

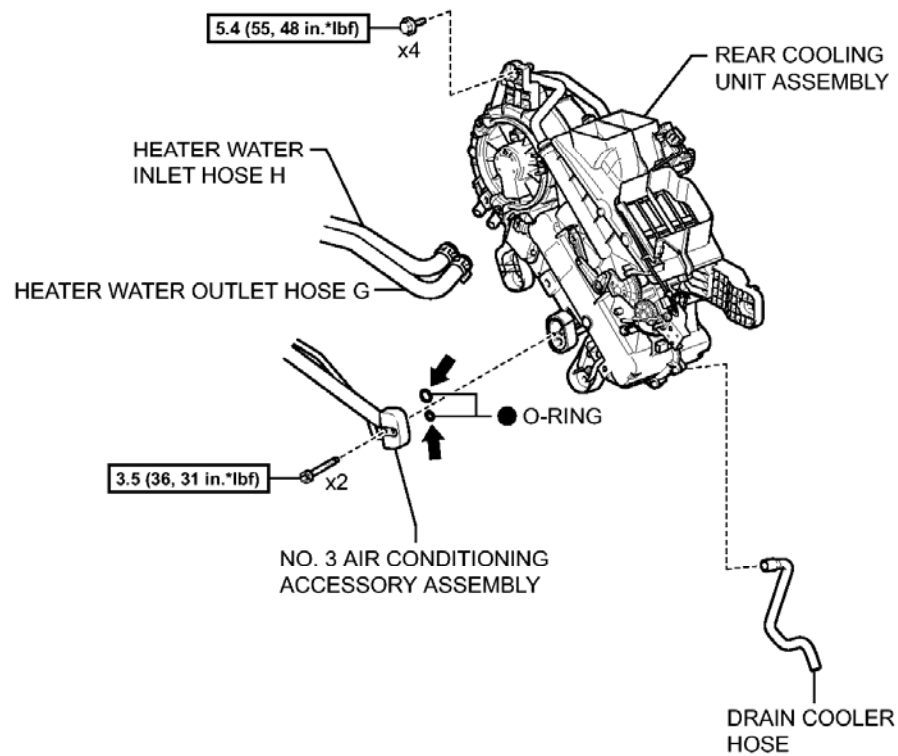


[N*m (kgf*cm, ft.*lbf)]: Specified torque

P

Fig. 96: Rear Air Conditioning Unit Replacement Components With Torque Specifications (5 Of 9)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



N*m (kgf*cm, ft.*lbf): Specified torque

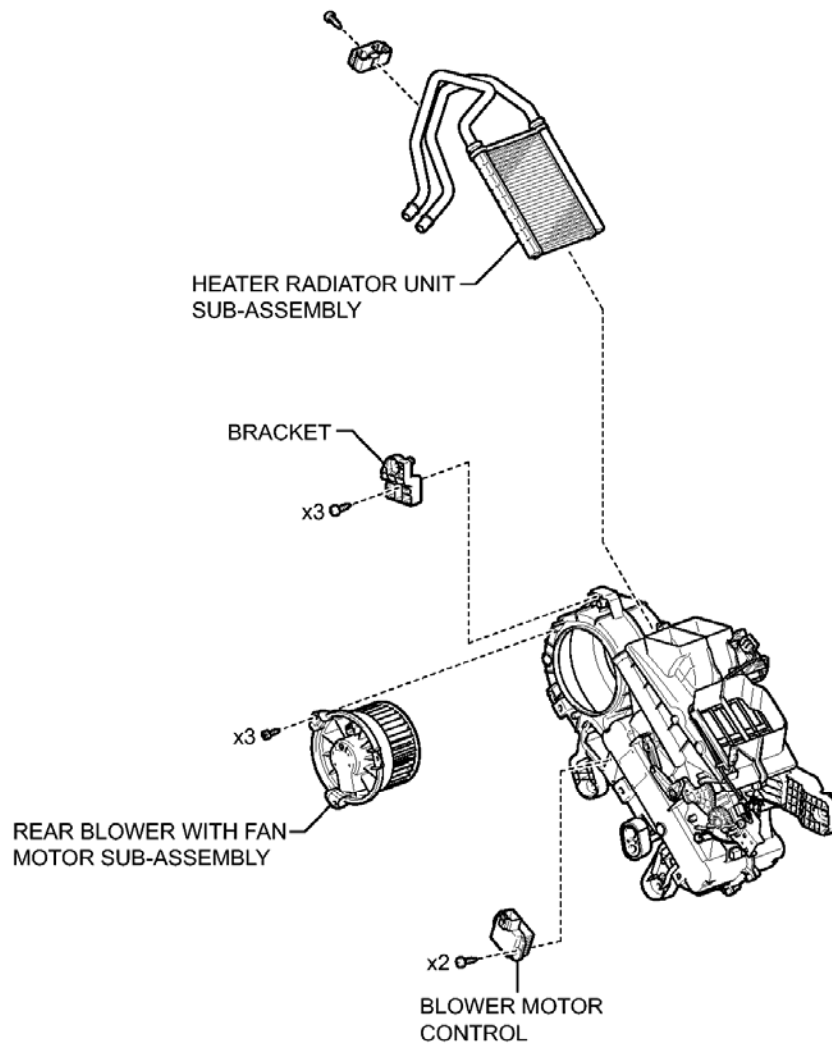
● Non-reusable part

← Compressor oil ND-OIL 8 or equivalent

P

Fig. 97: Rear Air Conditioning Unit Replacement Components With Torque Specifications (6 Of 9)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

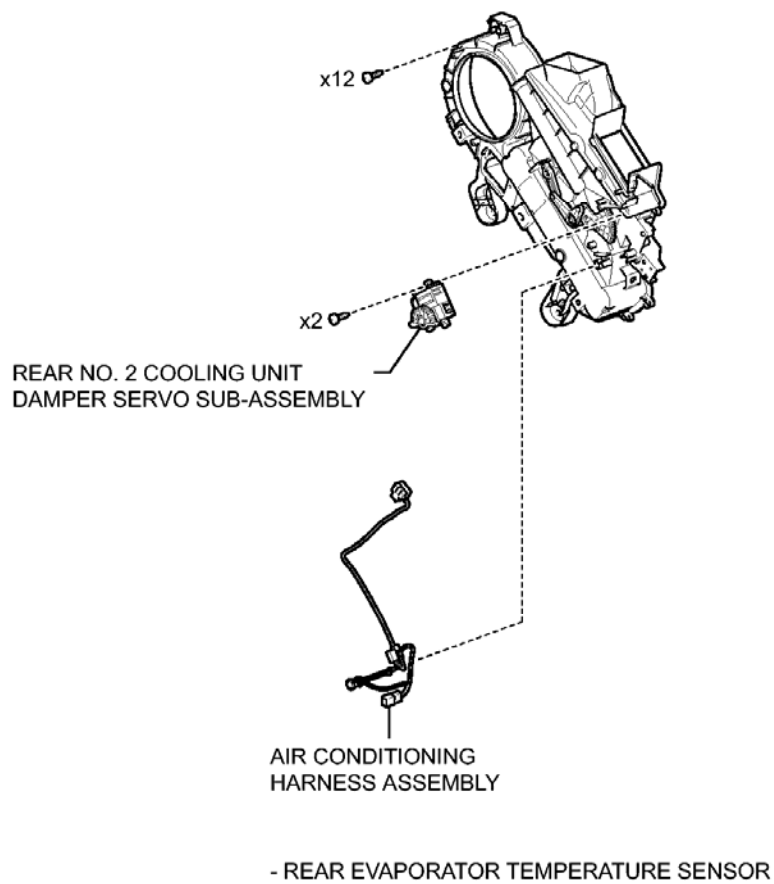
ILLUSTRATION



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Fig. 98: Rear Air Conditioning Unit Replacement Components (7 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

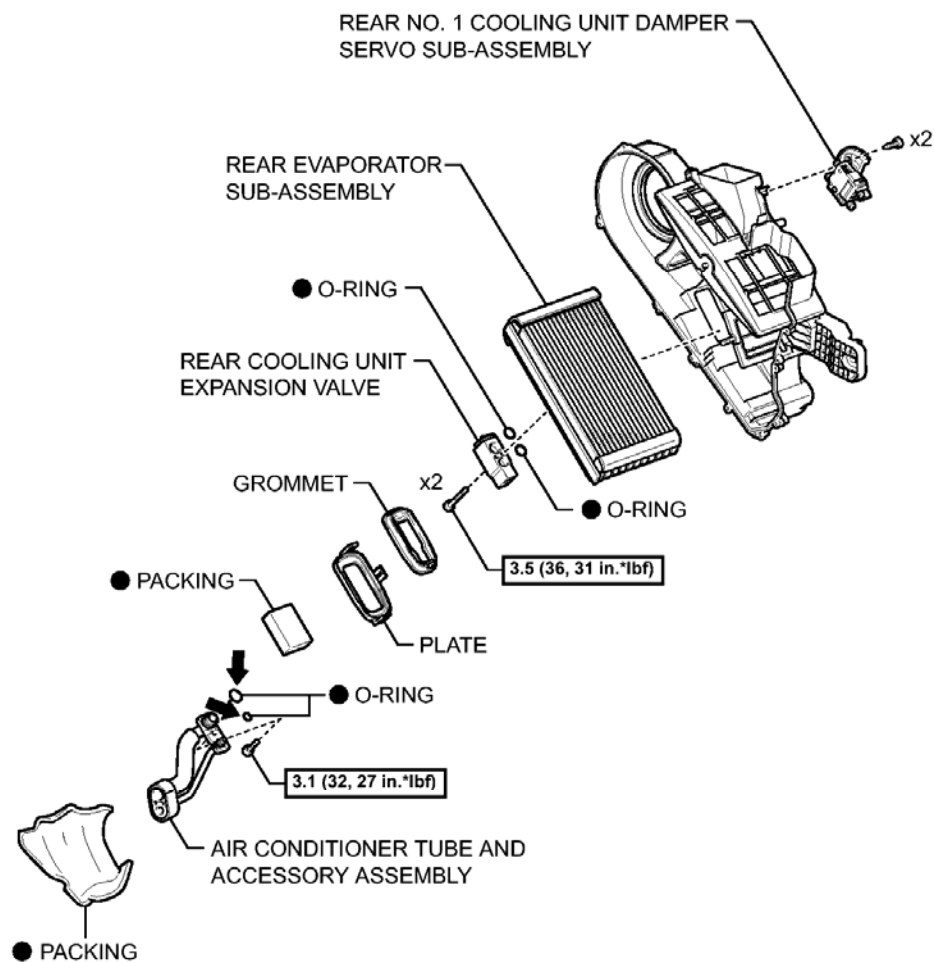
ILLUSTRATION



P

Fig. 99: Rear Air Conditioning Unit Replacement Components (8 Of 9)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

← Compressor oil ND-OIL 8 or equivalent

P

Fig. 100: Rear Air Conditioning Unit Replacement Components With Torque Specifications (9 Of 9)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM** See step 1
2. **REMOVE V-BANK COVER SUB-ASSEMBLY (for 2GR-FE)** . Refer to **REMOVAL - Step 24**
3. **REMOVE NO. 1 ENGINE UNDER COVER (for 2GR-FE)** . Refer to **REMOVAL - Step 4**
4. **REMOVE NO. 1 ENGINE UNDER COVER (for 1AR-FE)** . Refer to **REMOVAL - Step 1**
5. **DRAIN ENGINE COOLANT (for 2GR-FE)** . Refer to **REPLACEMENT - Step 3**
6. **DRAIN ENGINE COOLANT (for 1AR-FE)** . Refer to **REPLACEMENT - Step 2**
7. **REMOVE BACK DOOR WEATHERSTRIP**
8. **REMOVE BACK DOOR SCUFF PLATE** . Refer to **REMOVAL - Step 17**
9. **REMOVE ROOF HEADLINING REAR GARNISH** . Refer to **REMOVAL - Step 19**
10. **SEPARATE REAR NO. 2 SEAT OUTER BELT ASSEMBLY RH** . Refer to **REMOVAL - Step 24**
11. **REMOVE REAR DOOR SCUFF PLATE RH** . Refer to **REMOVAL - Step 13**
12. **SEPARATE SLIDE DOOR WEATHERSTRIP RH**
13. **REMOVE QUARTER TRIM PANEL ASSEMBLY RH** . Refer to **REMOVAL - Step 26**
14. **REMOVE REAR NO. 2 WINDOW SIDE GARNISH ASSEMBLY RH** . Refer to **REMOVAL - Step 28**
15. **REMOVE JACK ASSEMBLY**
16. **REMOVE BELT OUTER ANCHOR BRACKET SUB-ASSEMBLY RH**

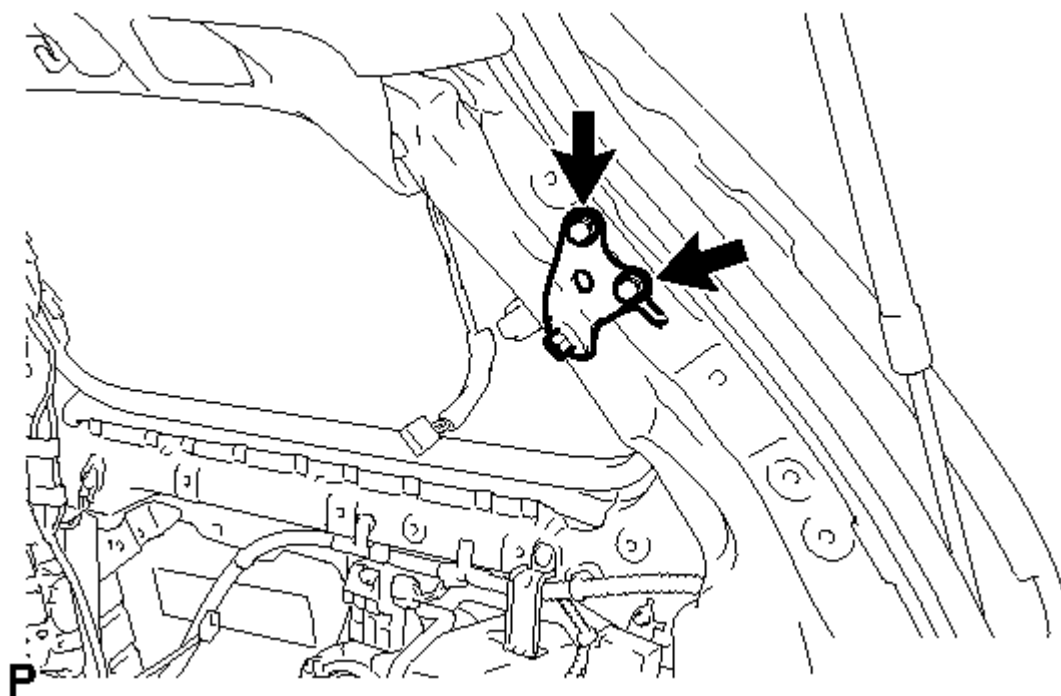


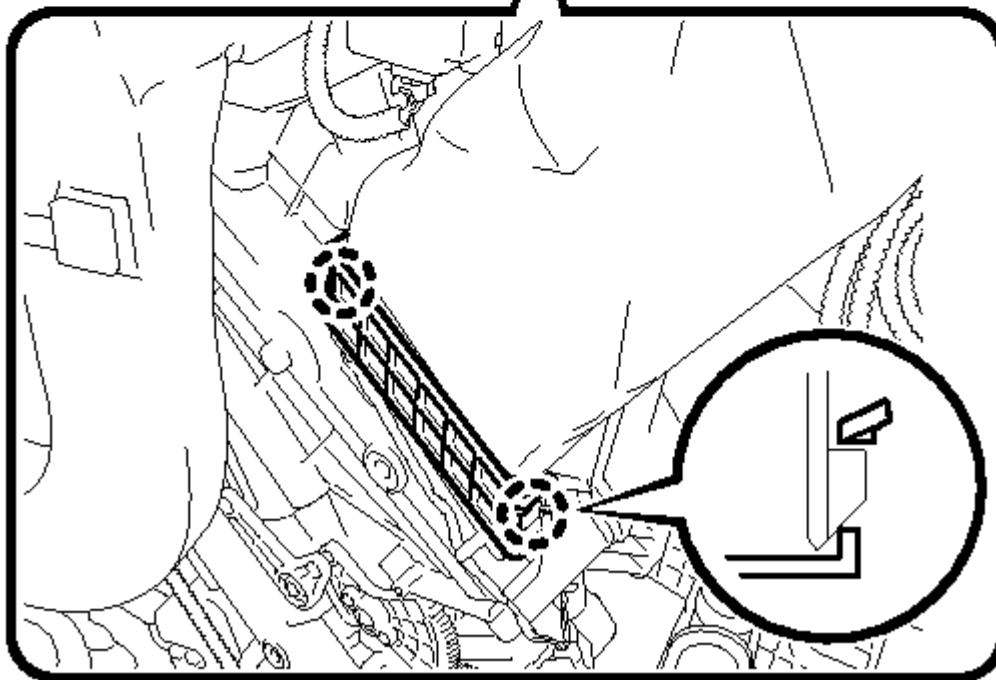
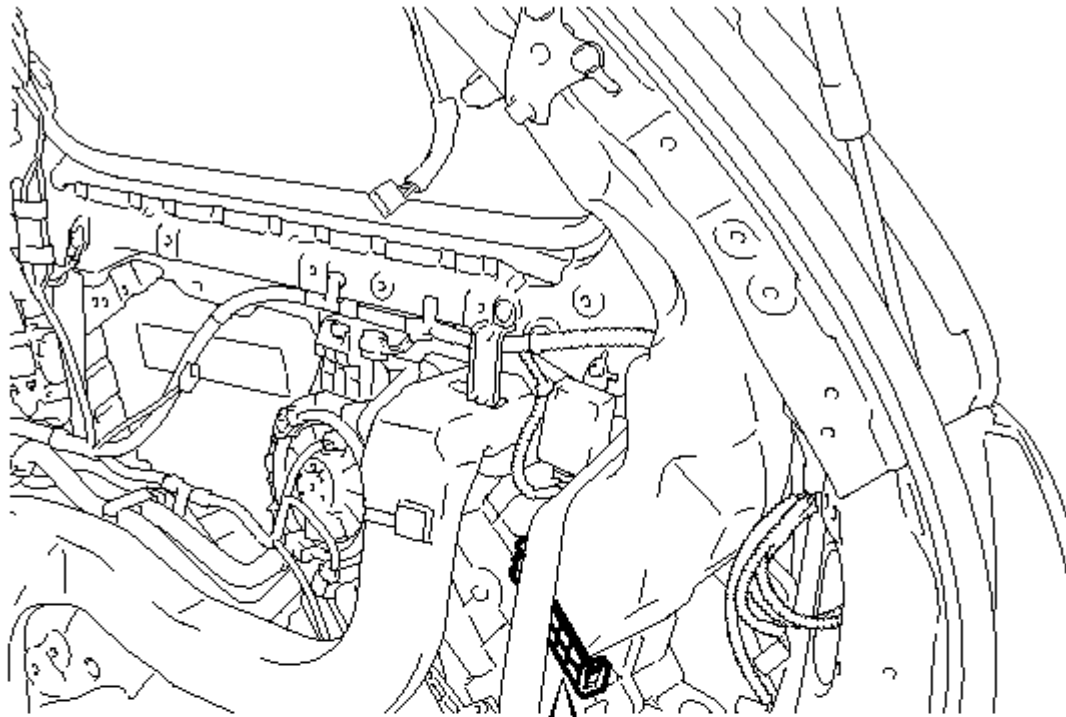
Fig. 101: Identifying Belt Outer Anchor Bracket Sub-Assembly RH & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 2 bolts and belt outer anchor bracket.

HINT:

Do not try to remove the bolt since it is integrated with the belt outer anchor bracket.

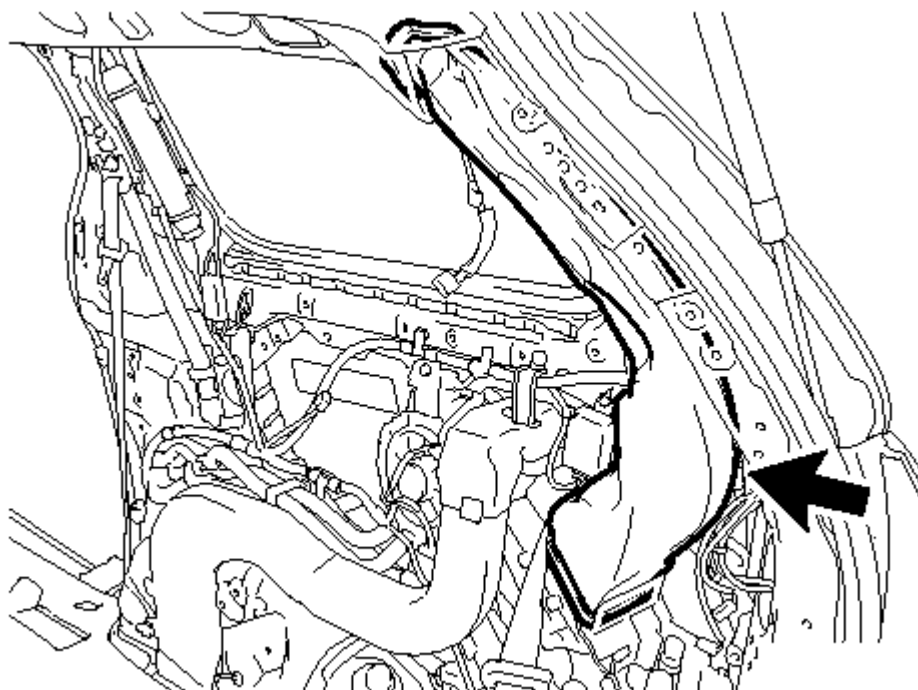
17. REMOVE REAR NO. 6 AIR DUCT



P

Fig. 102: Identifying Rear No. 6 Air Duct Cooler Plate & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the 2 claws and remove the cooler plate.
- b. Remove the rear No. 6 air duct.

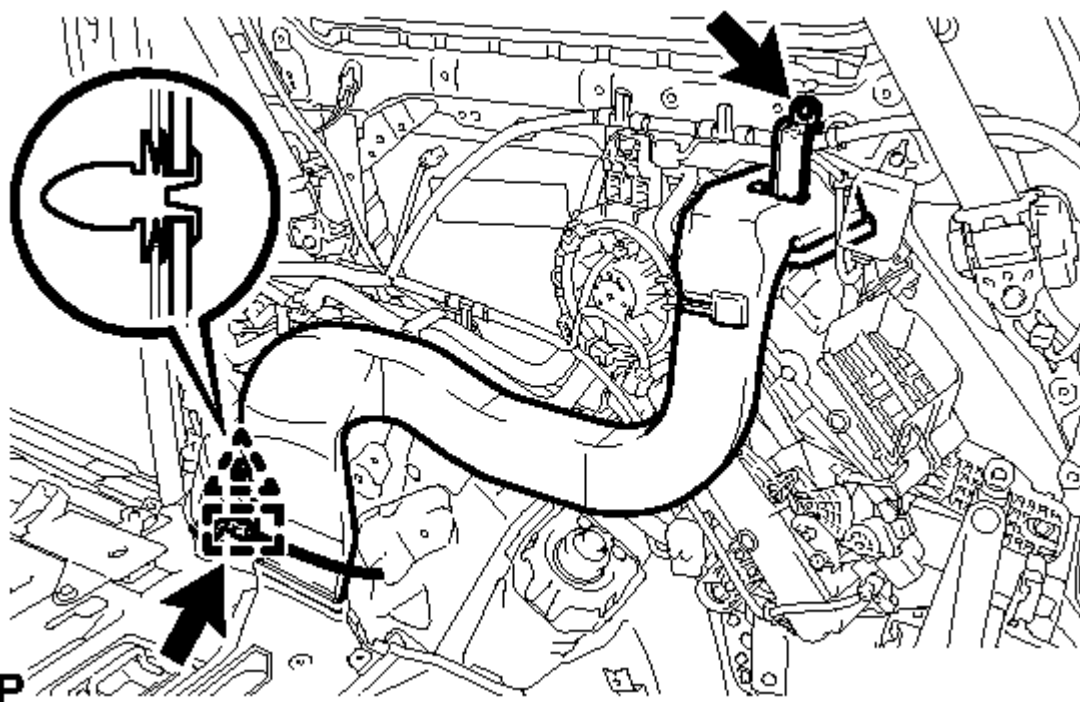


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Fig. 103: Identifying Rear No. 6 Air Duct

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

18. REMOVE AIR DUCT ASSEMBLY



P

Fig. 104: Identifying Air Duct Assembly, Connector & Fasteners

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the clip.
- b. Disengage the clamp and disconnect the connector.
- c. Disengage the clip and remove the air duct.

19. DISCONNECT NO. 3 AIR CONDITIONING ACCESSORY ASSEMBLY

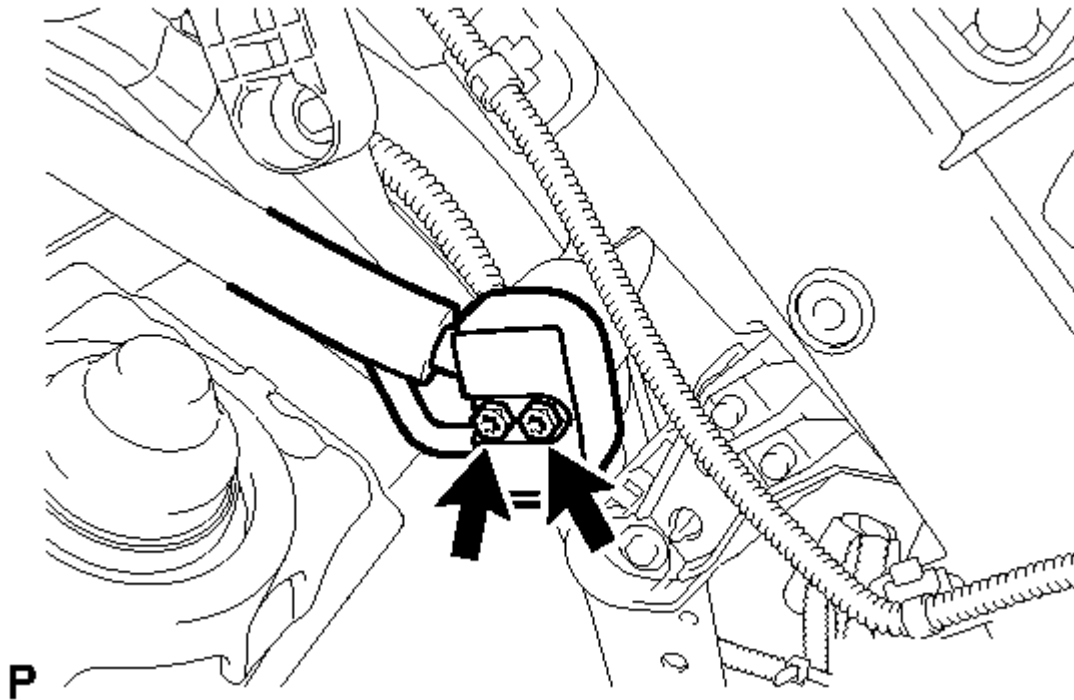
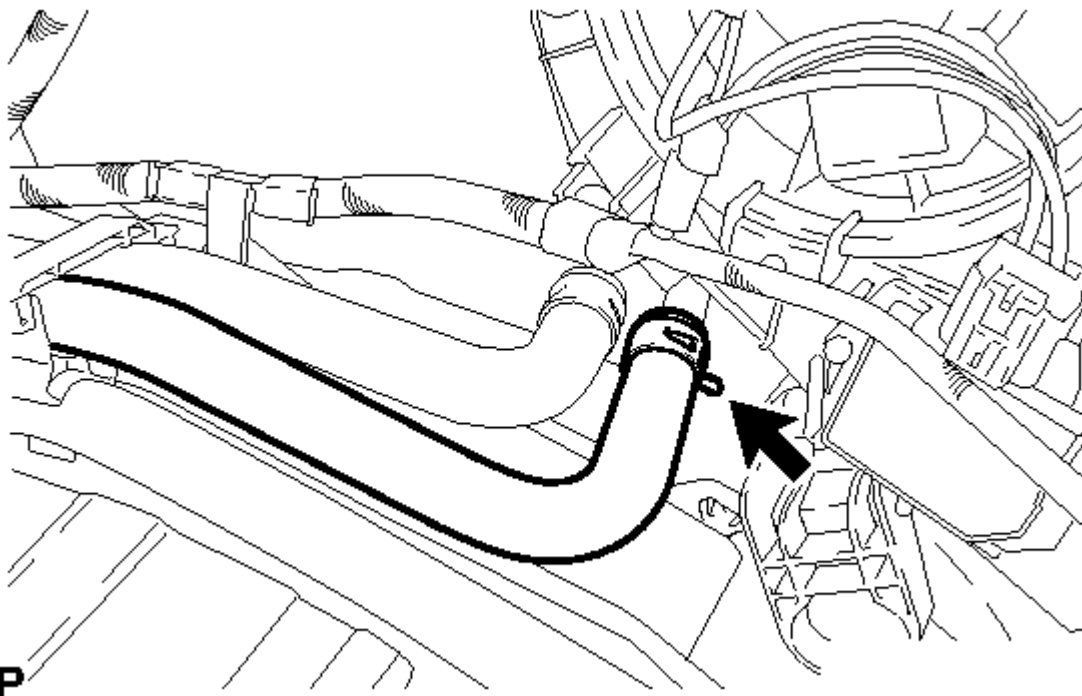


Fig. 105: Identifying No. 3 Air Conditioning Accessory & Bolts At Rear Cooling Unit
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 2 bolts and disconnect the No. 3 air conditioning accessory from the rear cooling unit.
- b. Remove the 2 O-rings from the No. 3 air conditioning accessory.

NOTE: **Seal the openings of the disconnected parts using vinyl tape to prevent the entry of moisture and foreign matter.**

20. REMOVE HEATER WATER OUTLET HOSE G

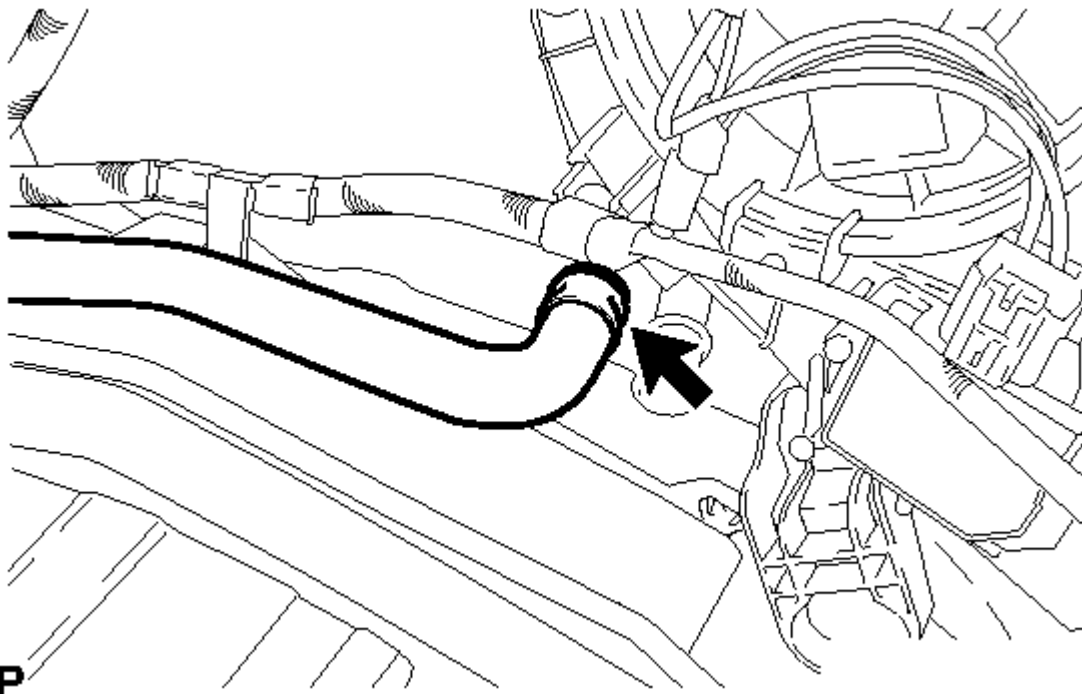


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Fig. 106: Identifying Heater Water Outlet Hose G & Clip
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Slide the clip and disconnect the heater water outlet hose from the heater radiator unit.

21. REMOVE HEATER WATER INLET HOSE H



P

Fig. 107: Identifying Heater Water Inlet Hose H & Clip

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Slide the clip and disconnect the heater water inlet hose from the heater radiator unit.

22. DISCONNECT NO. 2 FLOOR WIRE

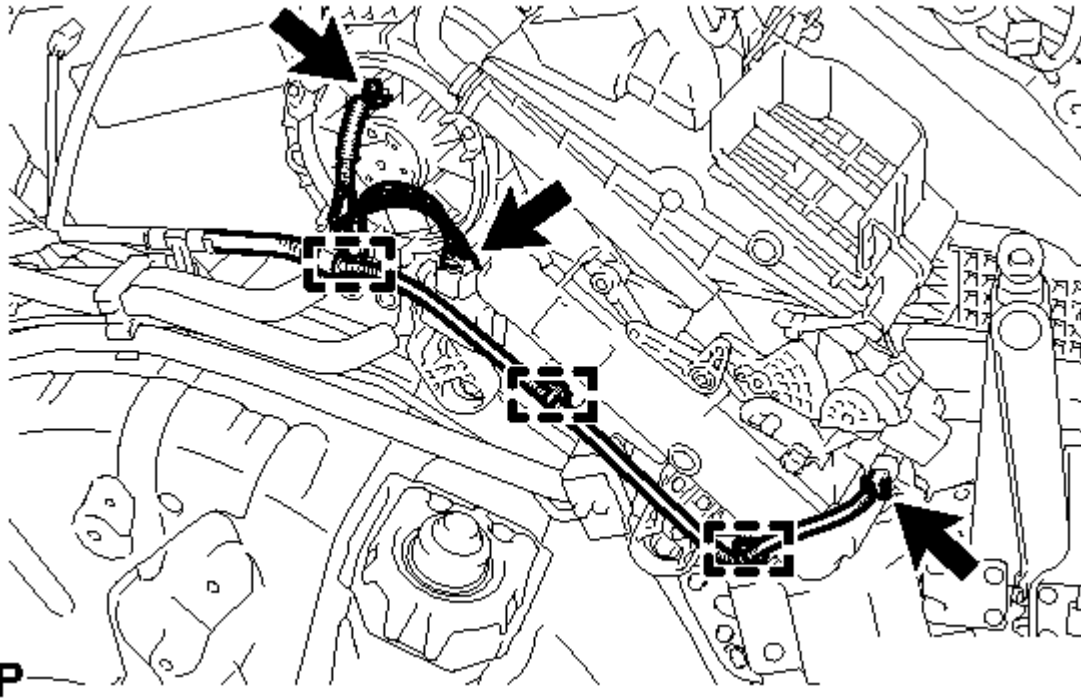


Fig. 108: Identifying No. 2 Floor Wire, Connectors & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the 3 connectors.
- b. Disengage the 3 clamps and separate the No. 2 floor wire.

23. REMOVE REAR COOLING UNIT ASSEMBLY

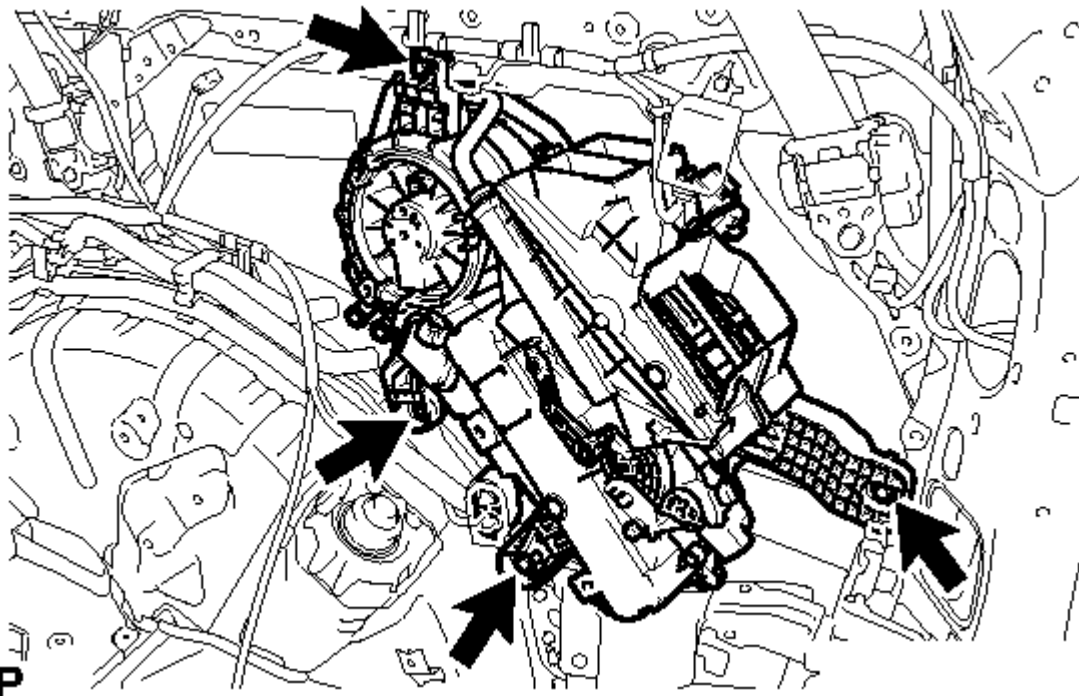


Fig. 109: Identifying Rear Cooling Unit Assembly & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 4 bolts and rear cooling unit.
- b. Disconnect the drain cooler hose.

24. REMOVE DRAIN COOLER HOSE

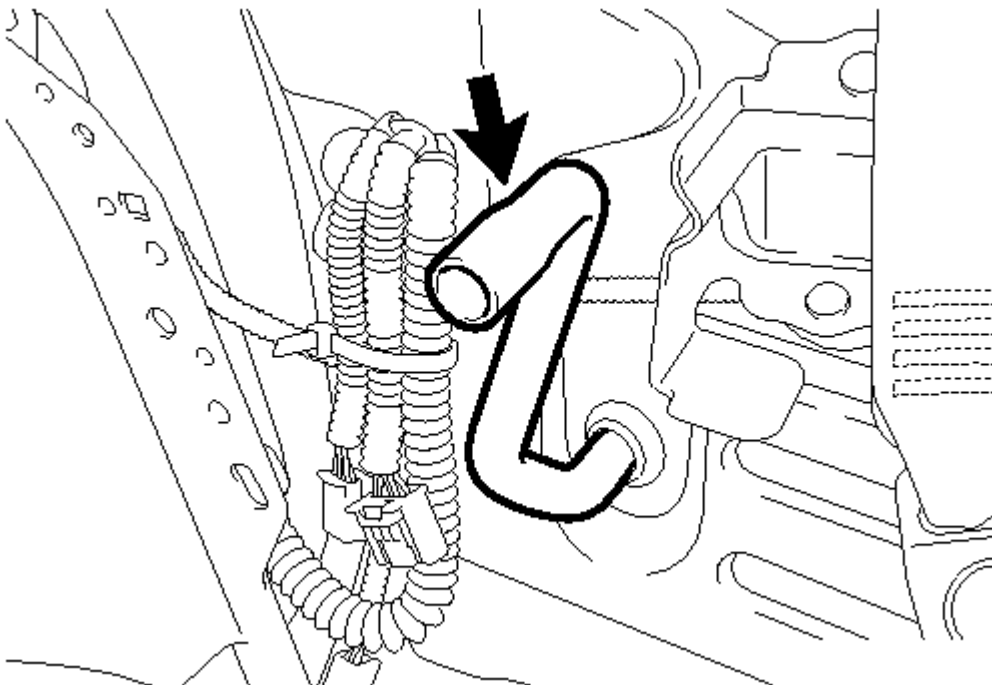


Fig. 110: Identifying Drain Cooler Hose

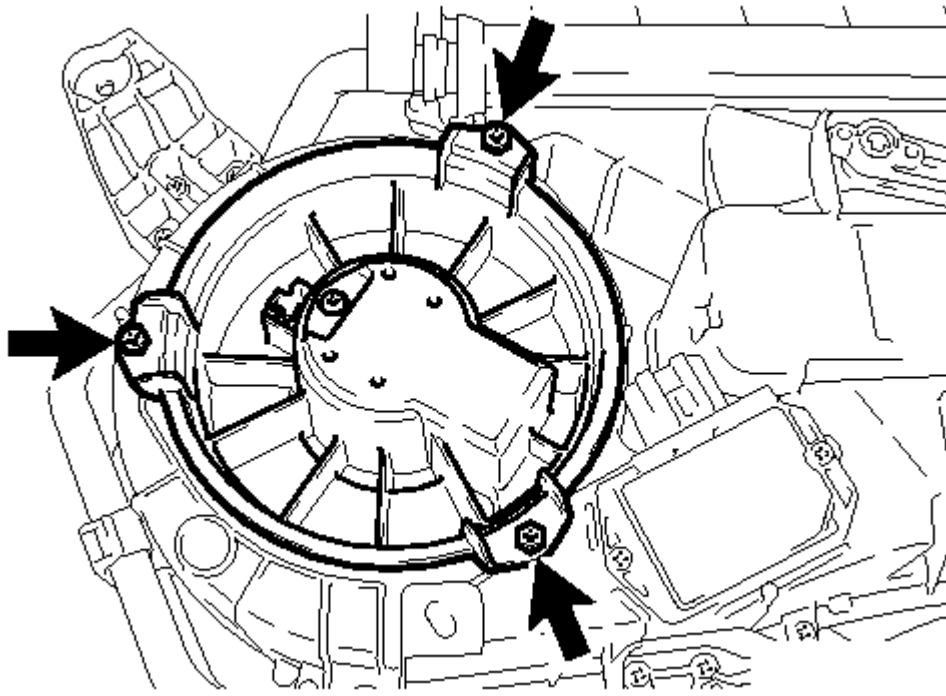
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the drain cooler hose.

DISASSEMBLY

DISASSEMBLY

1. REMOVE REAR BLOWER WITH FAN MOTOR SUB-ASSEMBLY



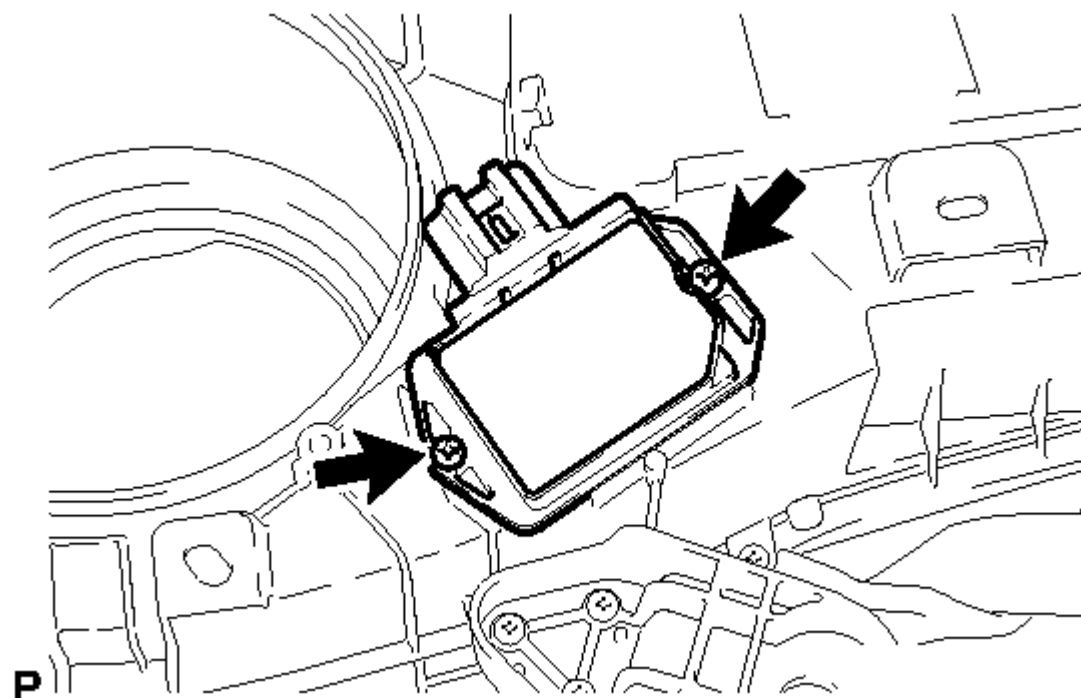
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Fig. 111: Identifying Rear Blower With Fan Motor Sub-Assembly & Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 3 screws and rear blower with fan motor.

2. REMOVE BLOWER MOTOR CONTROL



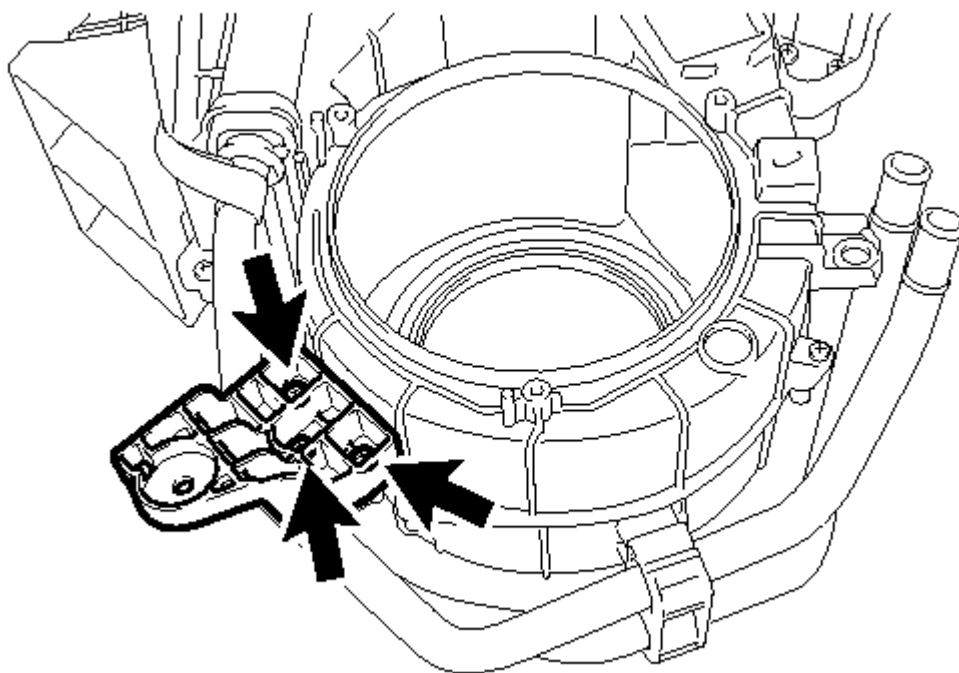
P

Fig. 112: Identifying Blower Motor Control & Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 2 screws and blower motor control.

3. REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY

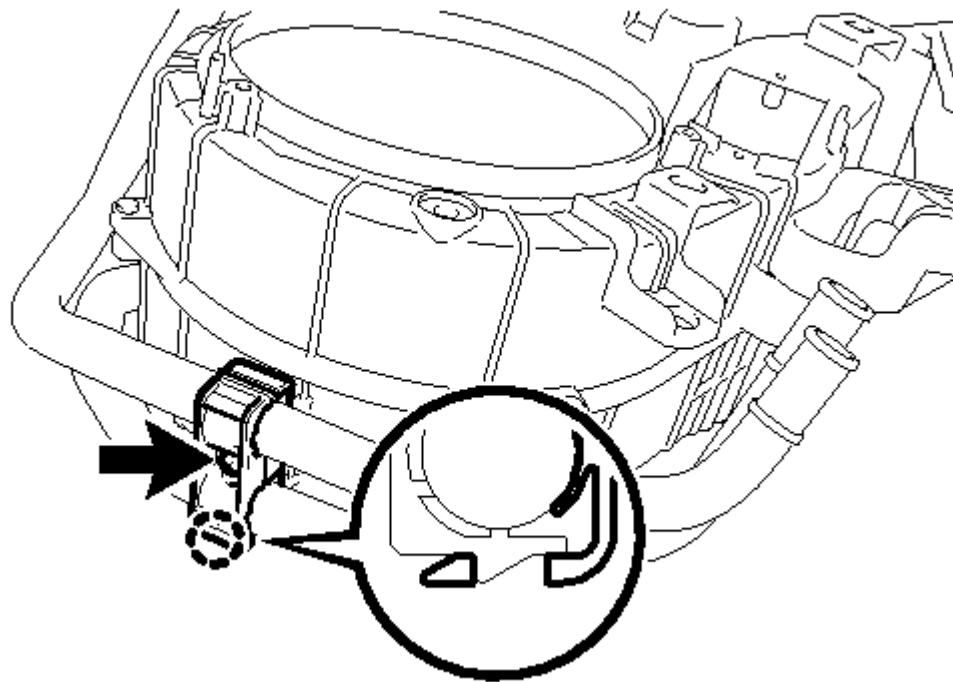


P

Fig. 113: Identifying Heater Radiator Unit Sub-Assembly Bracket & Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

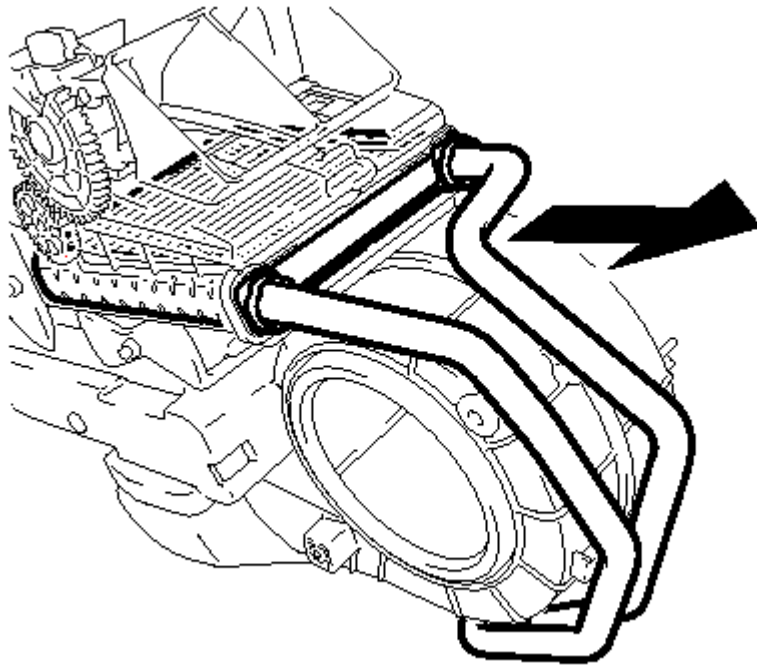
- a. Remove the 3 screws and bracket.
- b. Remove the screw.



P

Fig. 114: Identifying Heater Radiator Unit Sub-Assembly Heater Clamp & Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

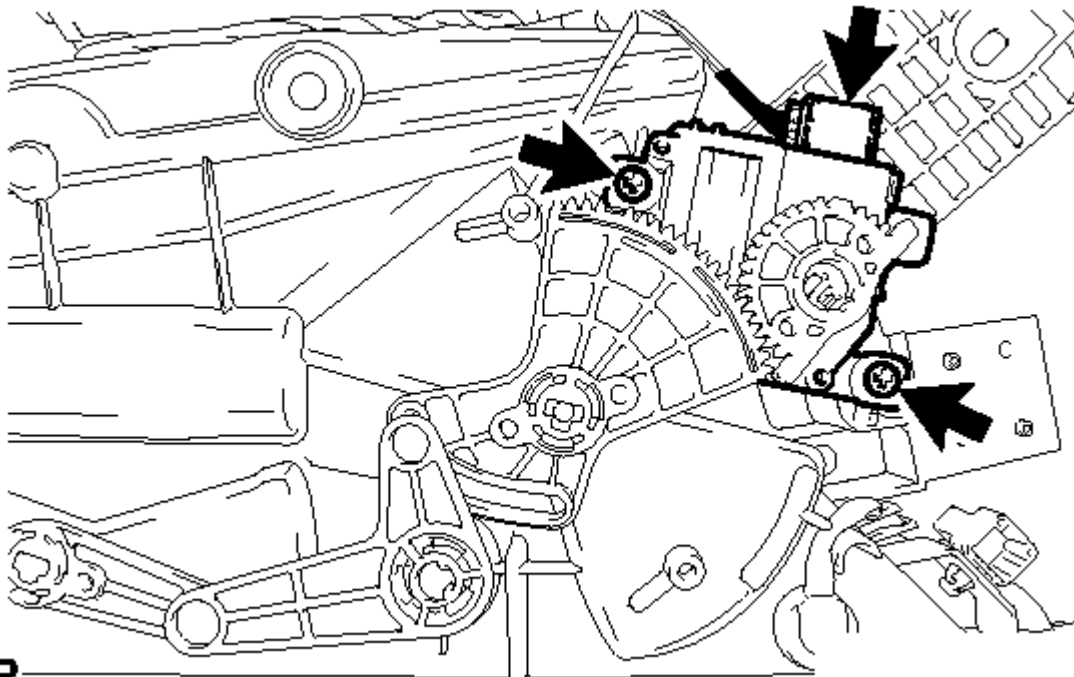
- c. Disengage the claw and remove the heater clamp.
- d. Remove the heater radiator unit from the rear cooling unit.



P

Fig. 115: Removing Heater Radiator Unit At Rear Cooling Unit
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. REMOVE REAR NO. 2 COOLING UNIT DAMPER SERVO SUB-ASSEMBLY

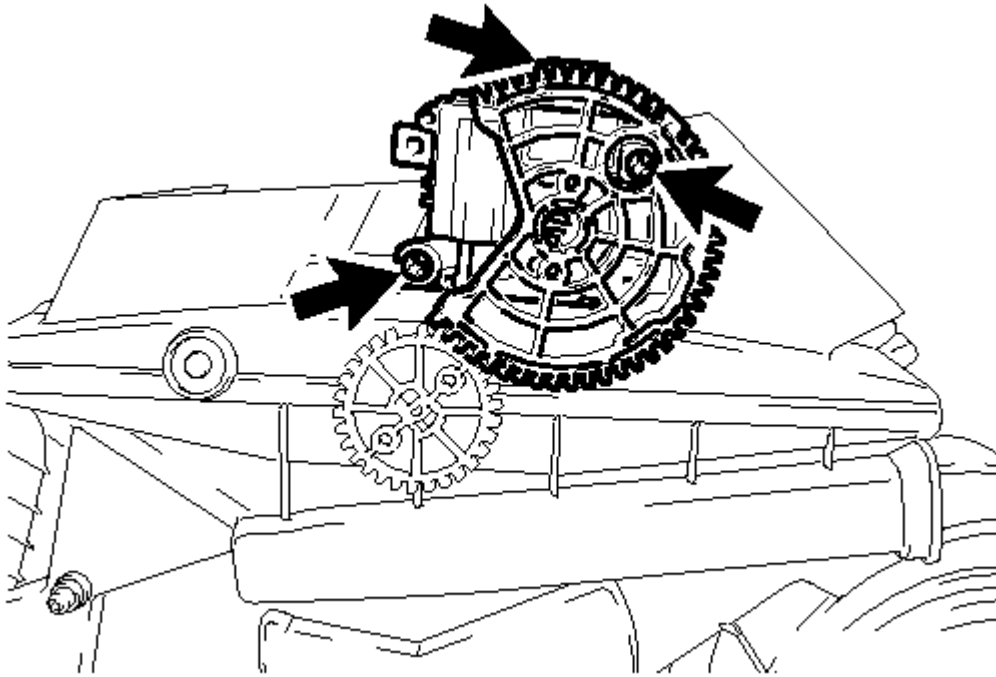


P

Fig. 116: Identifying Rear No. 2 Cooling Unit Damper Servo, Connector & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Remove the 2 screws and rear No. 2 cooling unit damper servo.

5. REMOVE REAR NO. 1 COOLING UNIT DAMPER SERVO SUB-ASSEMBLY

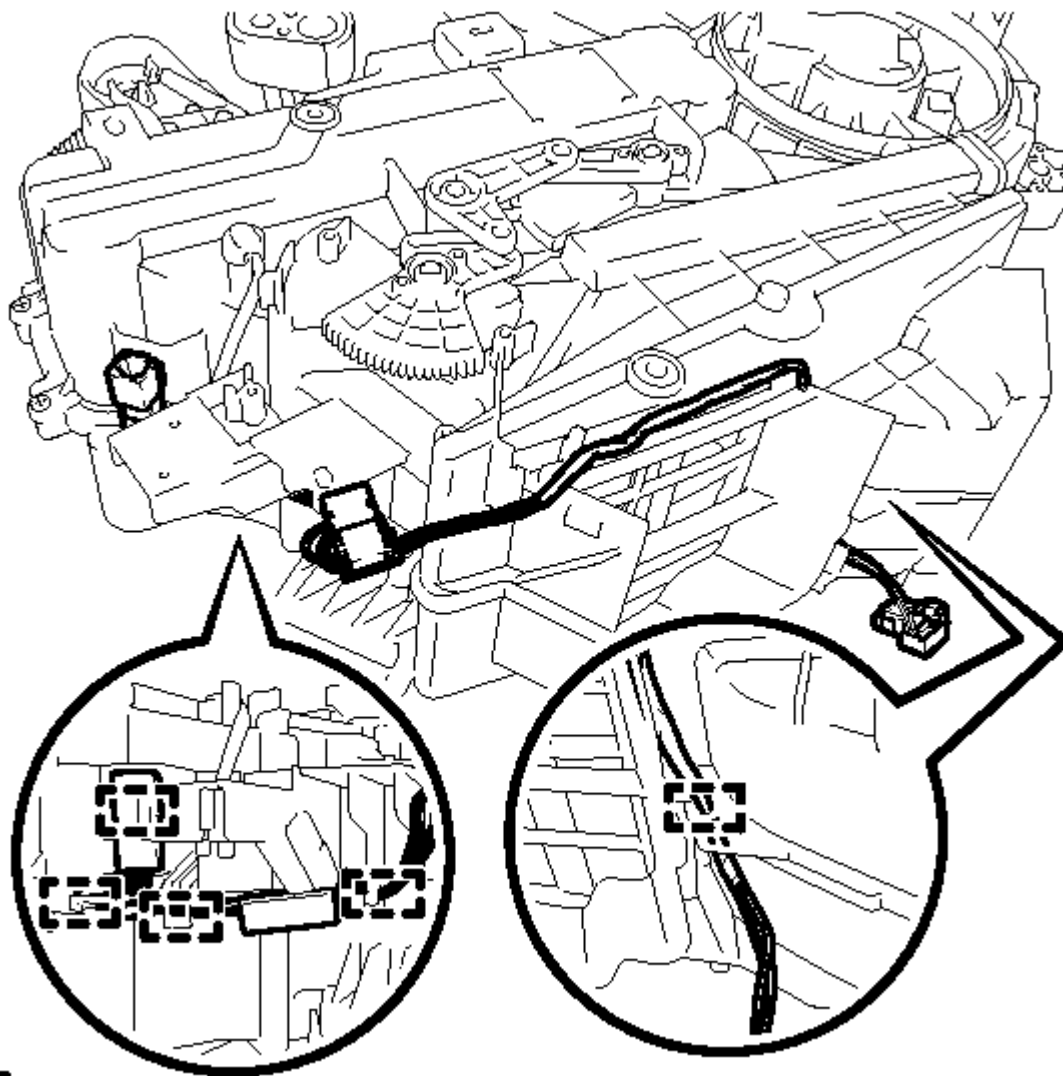


P

Fig. 117: Identifying Rear No. 1 Cooling Unit Damper Servo, Connector & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Remove the 2 screws and rear No. 1 cooling unit damper servo.

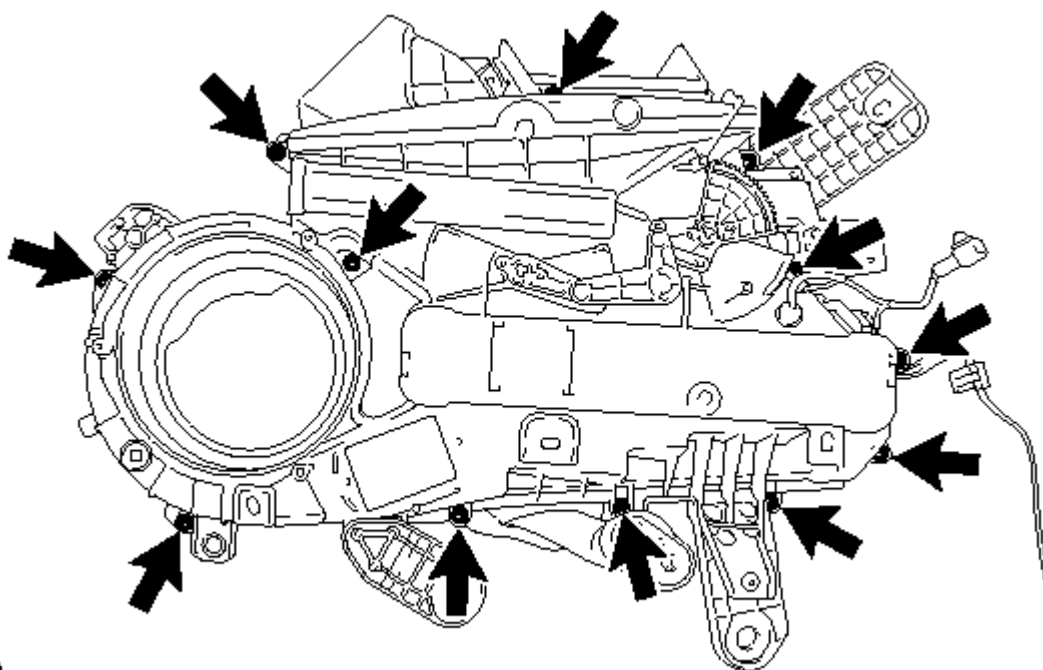
6. DISCONNECT AIR CONDITIONING HARNESS ASSEMBLY



P

Fig. 118: Identifying Air Conditioning Harness & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

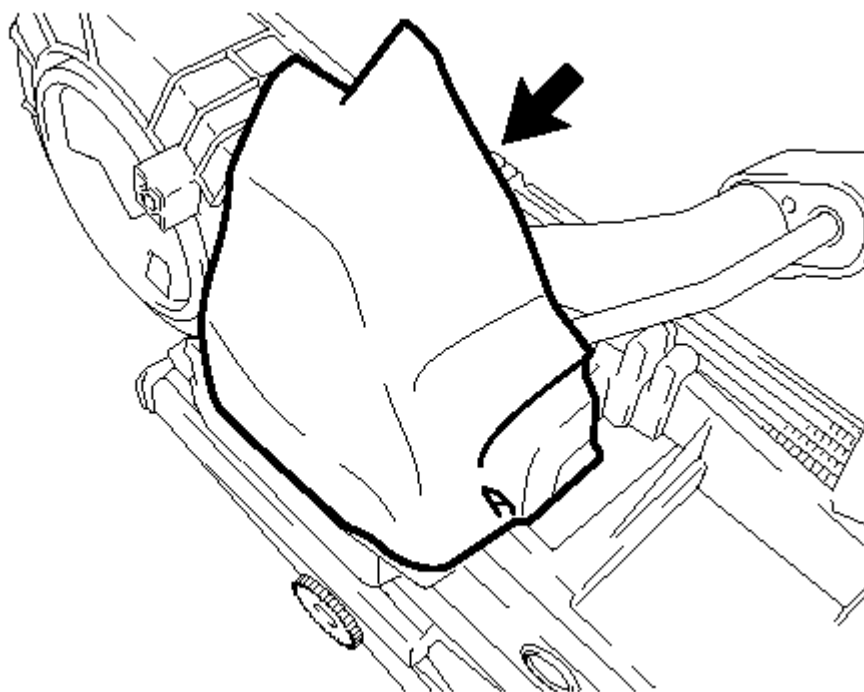
- a. Disengage the 5 clamps and remove the air conditioning harness.
- 7. REMOVE AIR CONDITIONER TUBE AND ACCESSORY ASSEMBLY**



P

Fig. 119: Identifying Air Conditioner Tube/Accessory Cooling Unit Case & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 12 screws and cooling unit case.
- b. Remove the packing.



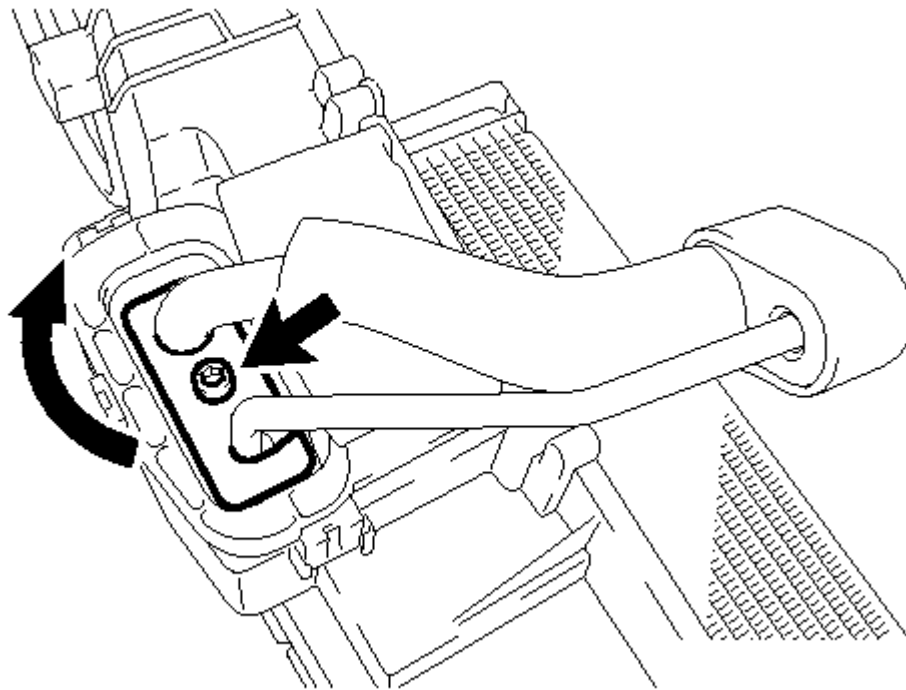
P

Fig. 120: Identifying Air Conditioner Tube/Accessory Packing

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Remove any tape remaining on the rear cooling unit.

- c. Using a 5 mm hexagon wrench, remove the hexagon bolt.

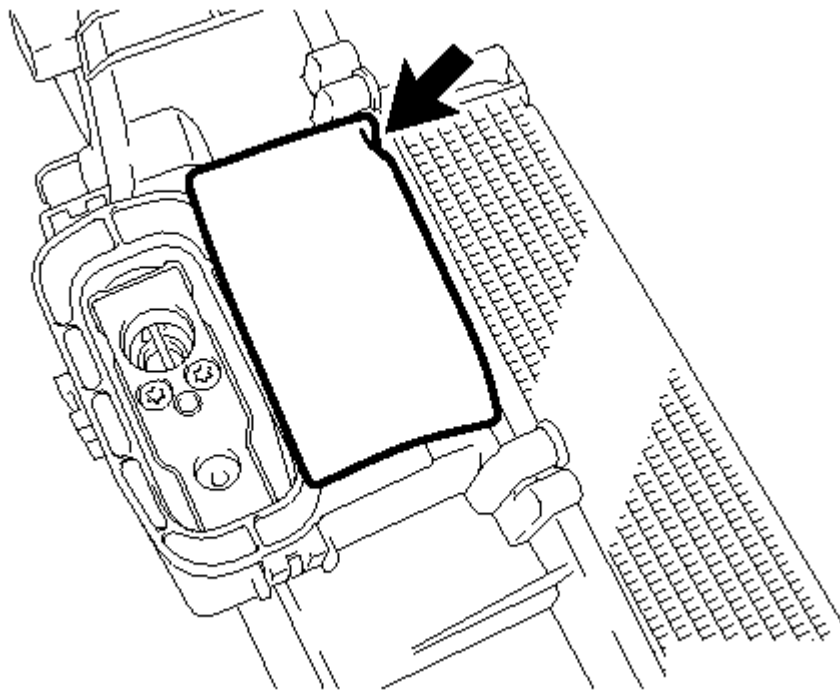


P

Fig. 121: Removing Air Conditioner Tube & Accessory Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Turn the hook connector clockwise and disconnect the air conditioner tube and accessory.
- e. Remove the 2 O-rings from the air conditioner tube and accessory.

8. REMOVE REAR COOLING UNIT EXPANSION VALVE



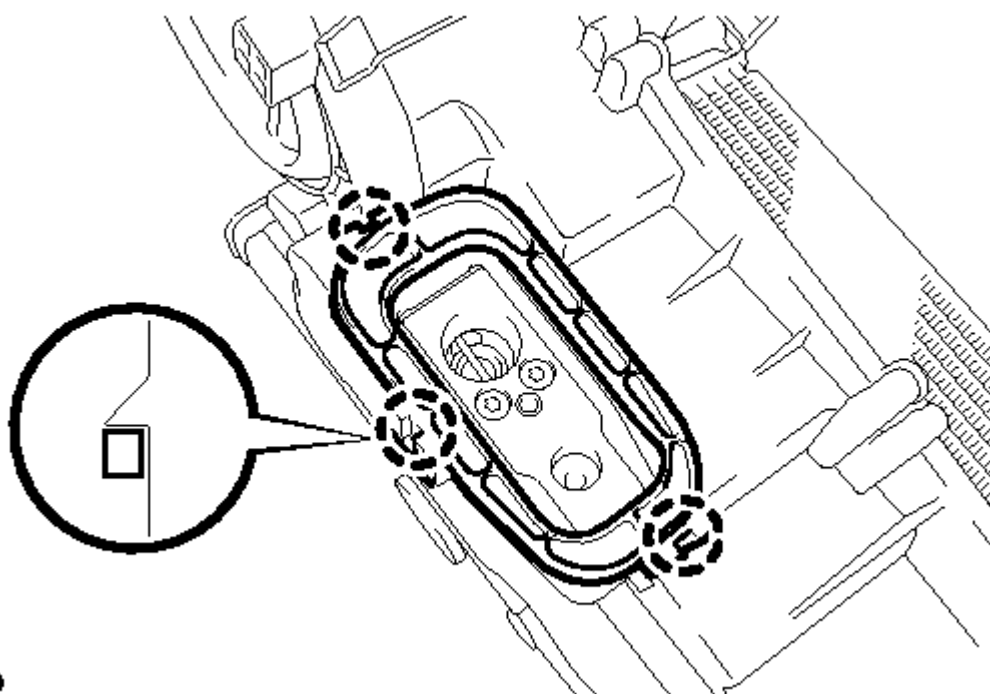
P

Fig. 122: Identifying Rear Cooling Unit Expansion Valve Packing
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the packing.

NOTE: Remove any tape remaining on the rear cooling unit.

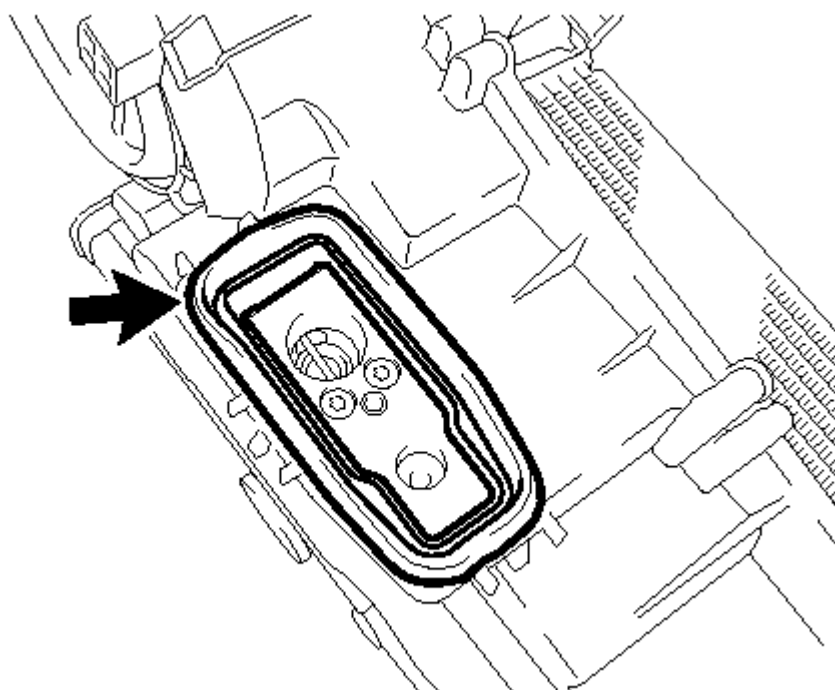
- b. Disengage the 3 claws and remove the plate.



P

Fig. 123: Identifying Rear Cooling Unit Expansion Valve Plate & Claws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

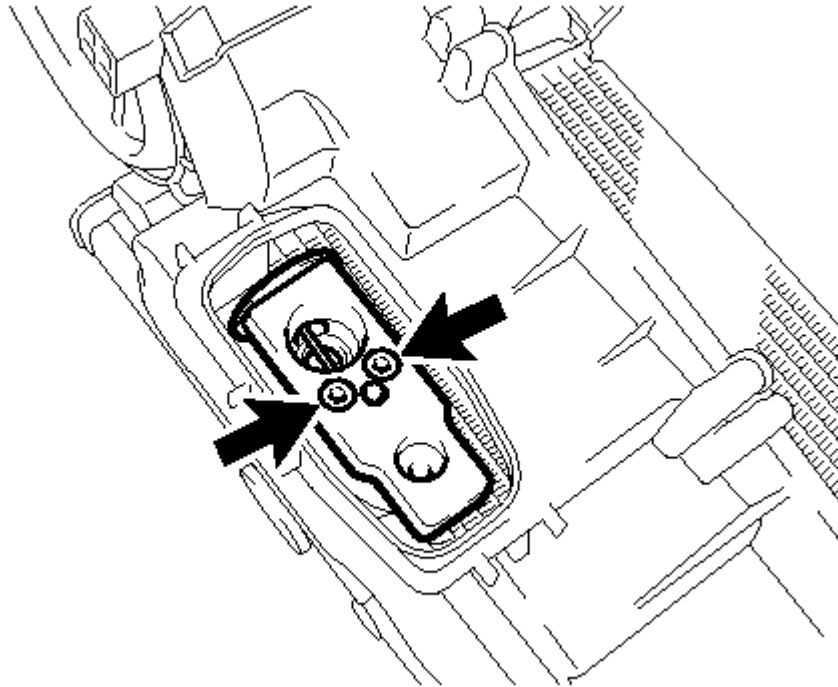
- c. Remove the grommet.



P

Fig. 124: Identifying Rear Cooling Unit Expansion Valve Grommet
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Using a 4 mm hexagon wrench, remove the 2 hexagon bolts and detach the rear cooling unit expansion valve.

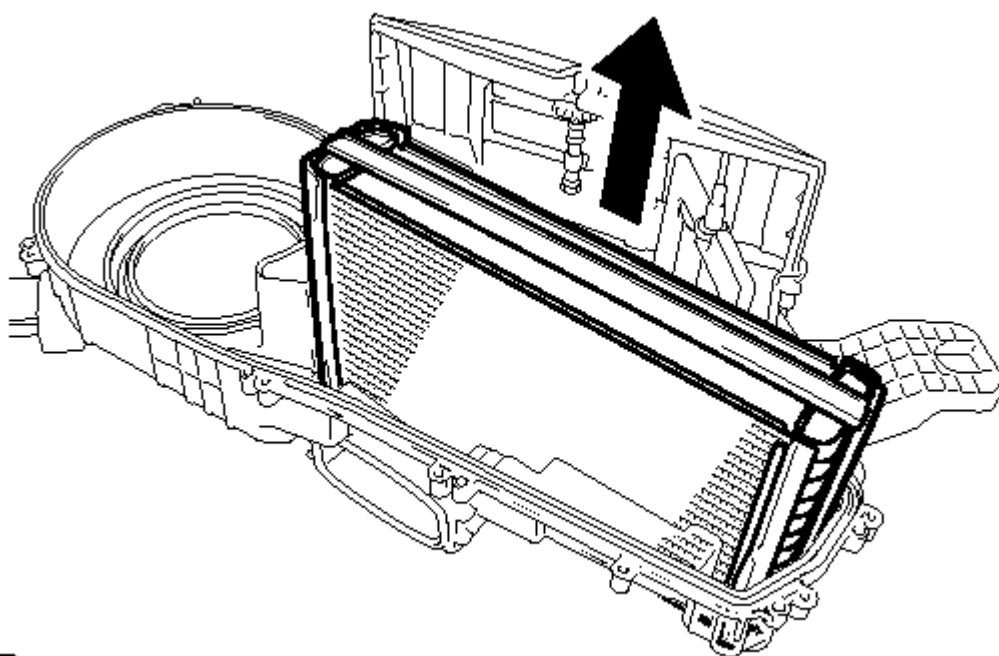


P

Fig. 125: Identifying Rear Cooling Unit Expansion Valve & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Remove the 2 O-rings from the rear cooling unit expansion valve.

9. REMOVE REAR EVAPORATOR SUB-ASSEMBLY

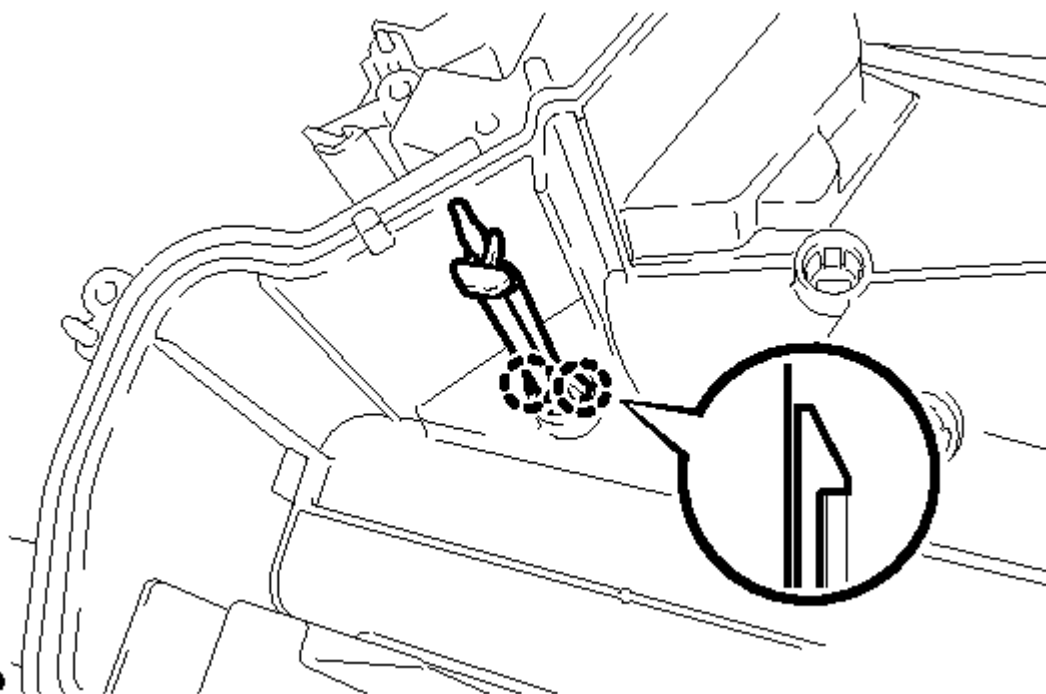


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Fig. 126: Removing Rear Evaporator Sub-Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the rear evaporator.

10. REMOVE REAR EVAPORATOR TEMPERATURE SENSOR



P

Fig. 127: Identifying Rear Evaporator Temperature Sensor & Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the 2 claws and rear evaporator temperature sensor.

REASSEMBLY

REASSEMBLY

1. INSTALL REAR EVAPORATOR TEMPERATURE SENSOR

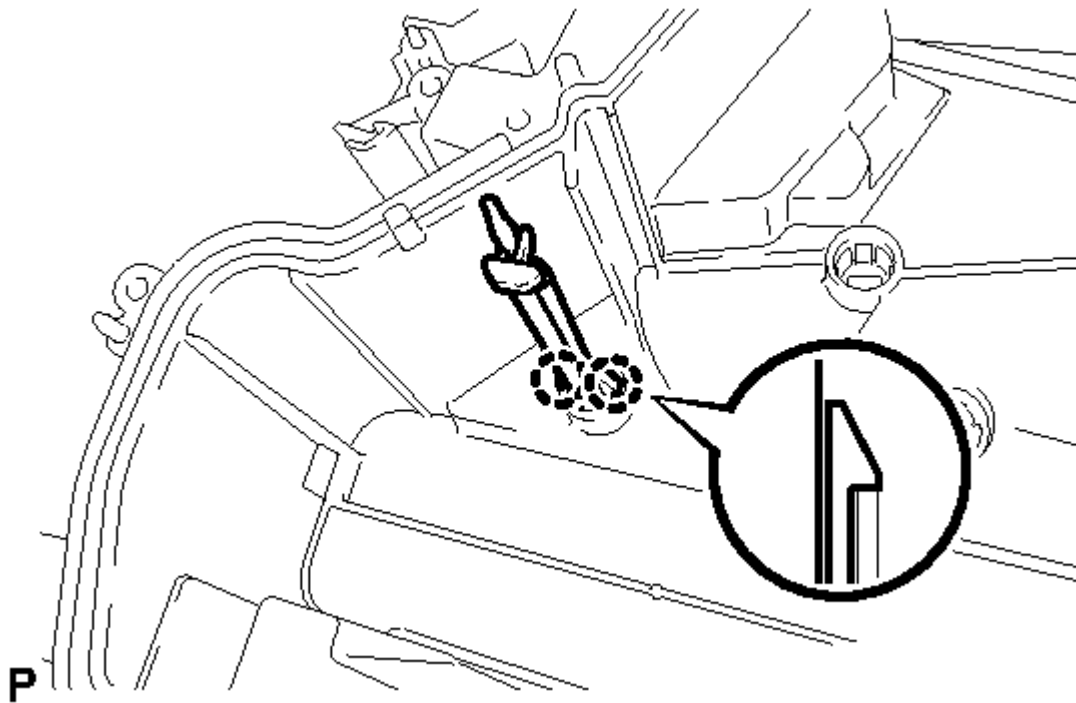
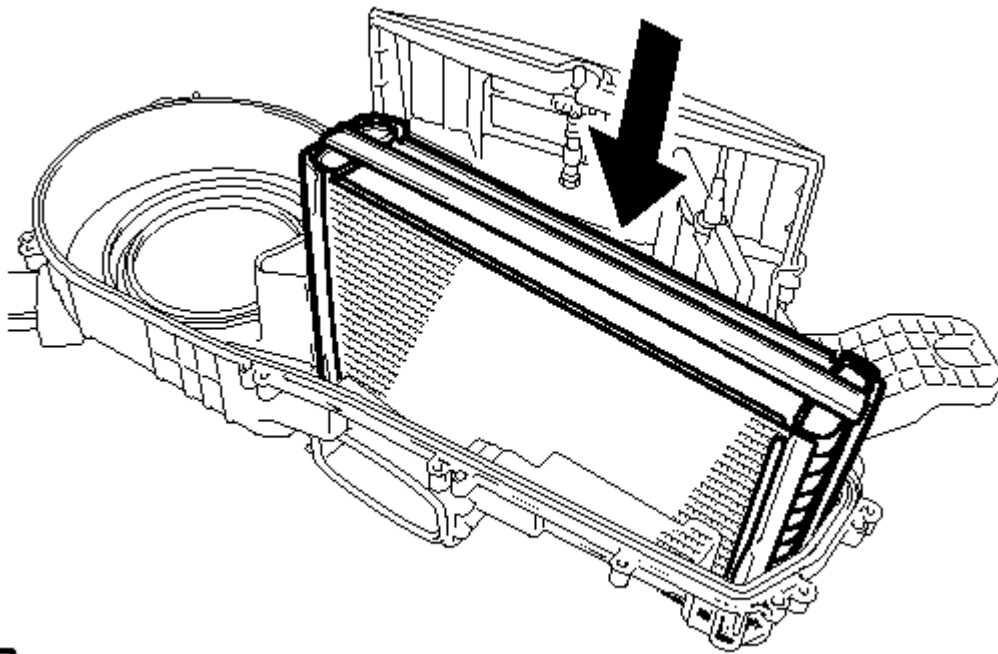


Fig. 128: Identifying Rear Evaporator Temperature Sensor & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

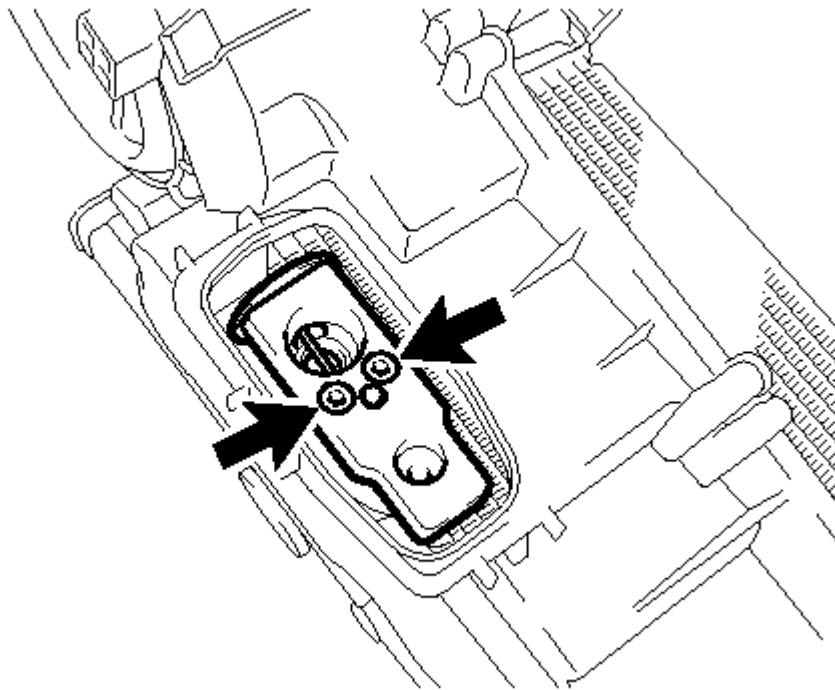
- a. Engage the 2 claws and install the rear evaporator temperature sensor.
- #### 2. INSTALL REAR EVAPORATOR SUB-ASSEMBLY



P

Fig. 129: Installing Rear Evaporator Sub-Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the rear evaporator.
3. **INSTALL REAR COOLING UNIT EXPANSION VALVE**



P

Fig. 130: Identifying Rear Cooling Unit Expansion Valve & Bolts

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Sufficiently apply compressor oil to 2 new O-rings and the fitting surfaces of the rear cooling unit expansion valve.

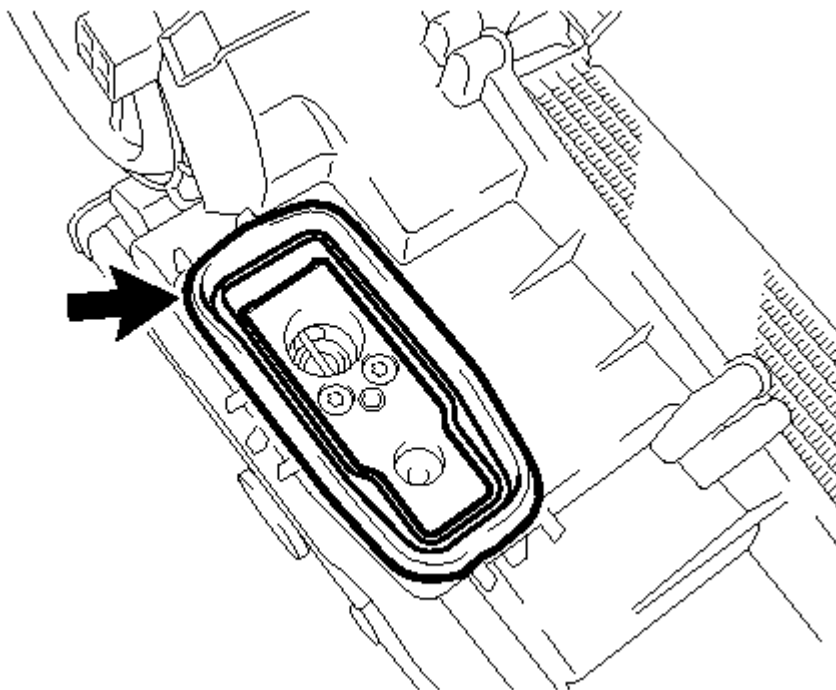
Compressor oil

ND-OIL8 or equivalent

- b. Install the 2 O-rings onto the cooler evaporator.
- c. Using a 4 mm hexagon wrench, install the rear cooling unit expansion valve with the 2 hexagon bolts.

Torque: 3.5 N*m (36 kgf*cm, 31 in.*lbf)

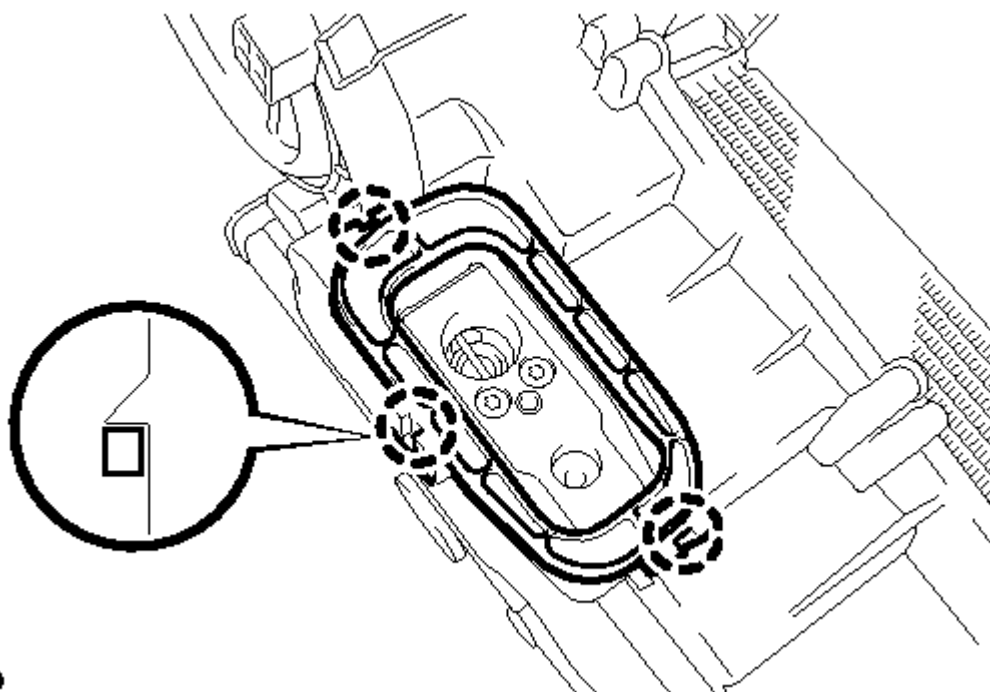
- d. Install the grommet.



P

Fig. 131: Identifying Rear Cooling Unit Expansion Valve Grommet
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

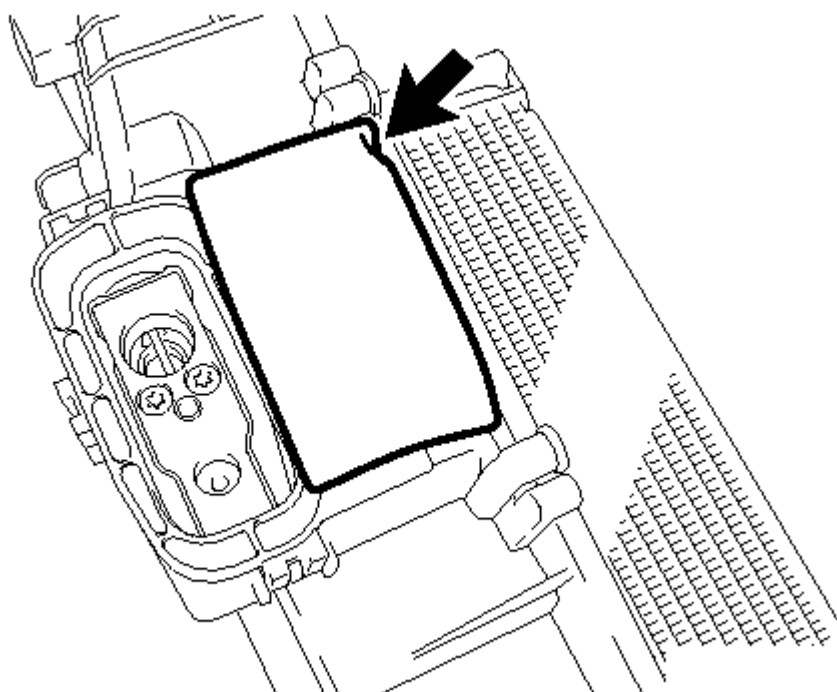
- e. Engage the 3 claws and install the plate.



P

Fig. 132: Identifying Rear Cooling Unit Expansion Valve Plate & Claws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

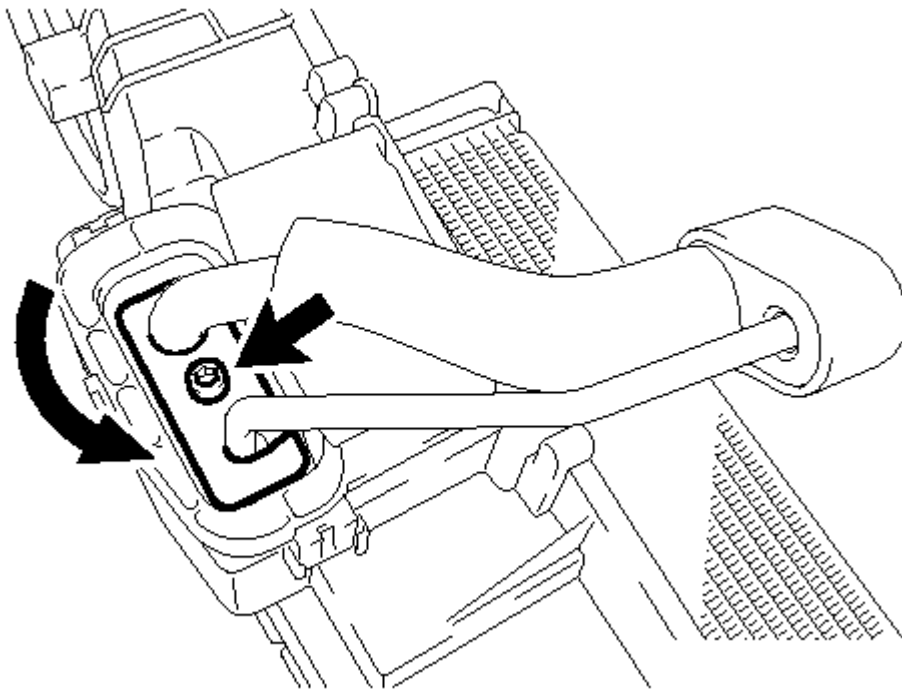
- f. Install a new packing.



P

Fig. 133: Identifying Rear Cooling Unit Expansion Valve Packing
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. INSTALL AIR CONDITIONER TUBE AND ACCESSORY ASSEMBLY



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Fig. 134: Installing Air Conditioner Tube/Accessory Pipe Joints & Bolt
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Sufficiently apply compressor oil to 2 new O-rings and the connecting part of the air conditioner tube and accessory.

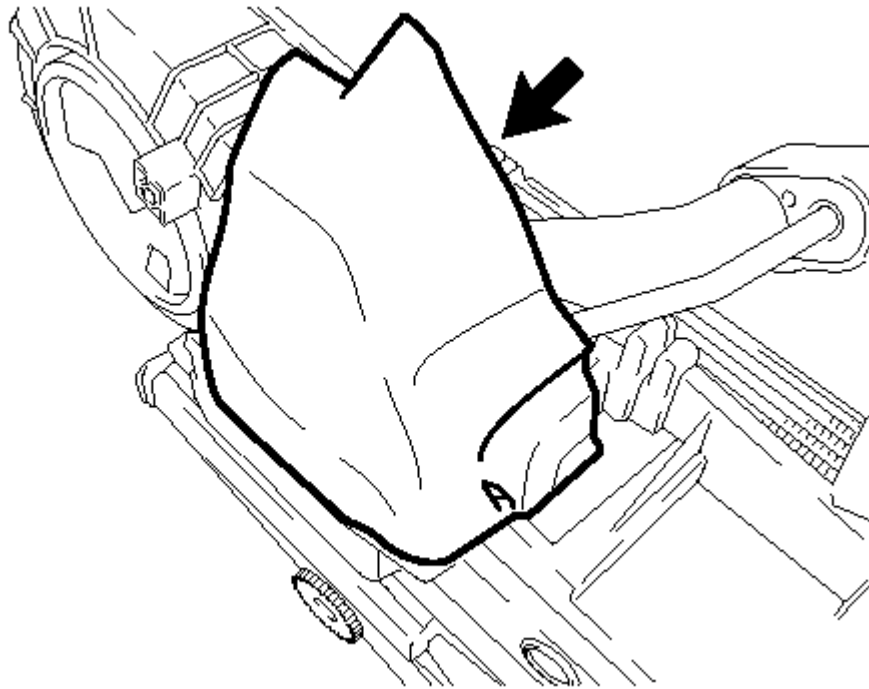
Compressor oil

ND-OIL8 or equivalent

- b. Install the 2 O-rings onto the air conditioner tube and accessory.
- c. Turn the hook connector in the direction indicated by the arrow in the illustration.
- d. Insert the pipe joints securely into the fitting holes and tighten the bolt.

Torque: 3.1 N*m (32 kgf*cm, 27 in.*lbf)

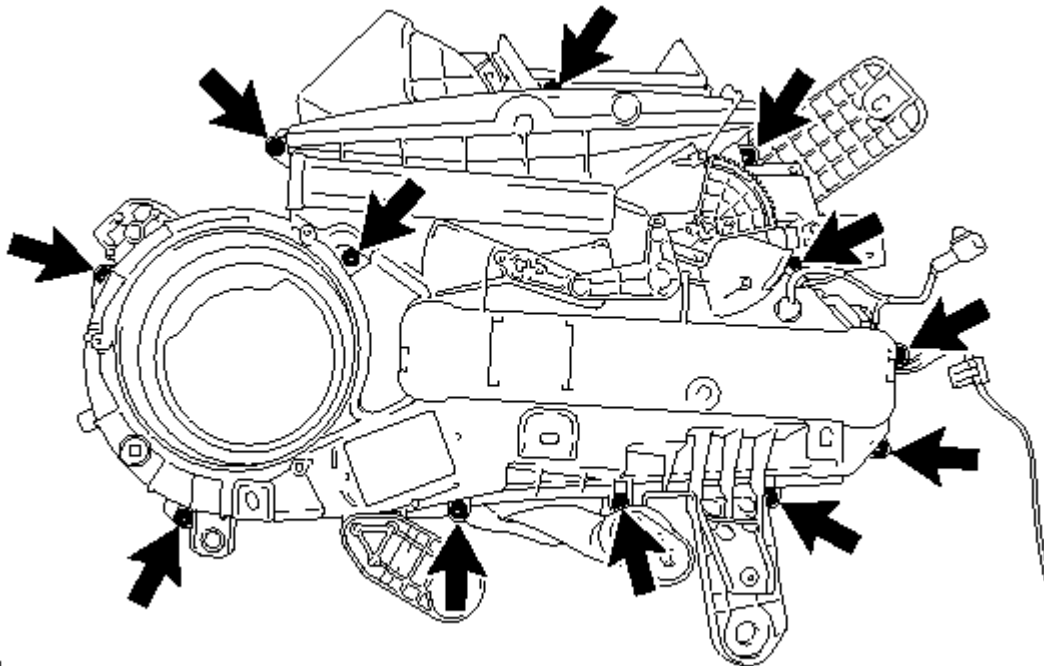
- e. Install a new packing.



P

Fig. 135: Identifying Air Conditioner Tube/Accessory Packing
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

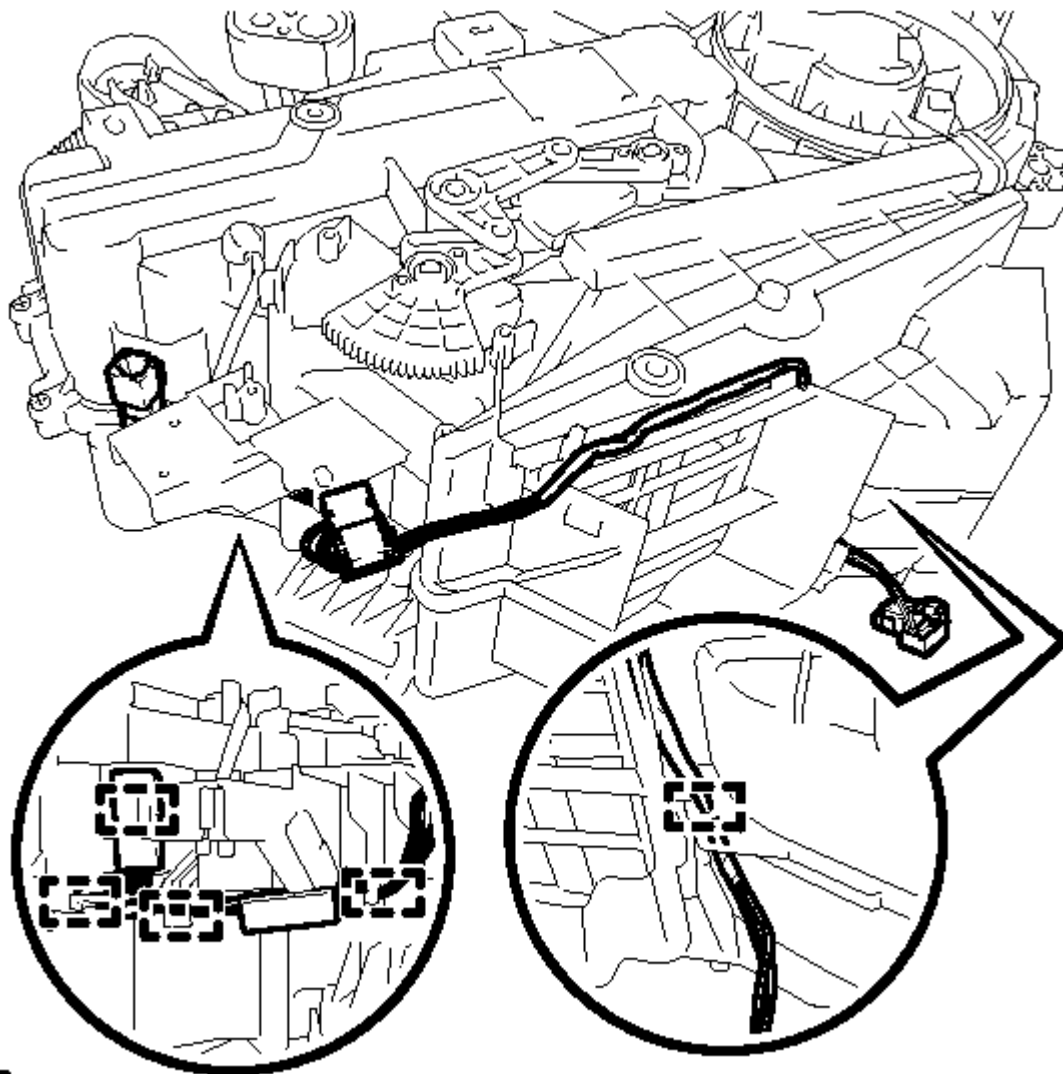
- f. Install the cooling unit case with the 12 screws.



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Fig. 136: Identifying Air Conditioner Tube/Accessory Cooling Unit Case & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. INSTALL AIR CONDITIONING HARNESS ASSEMBLY



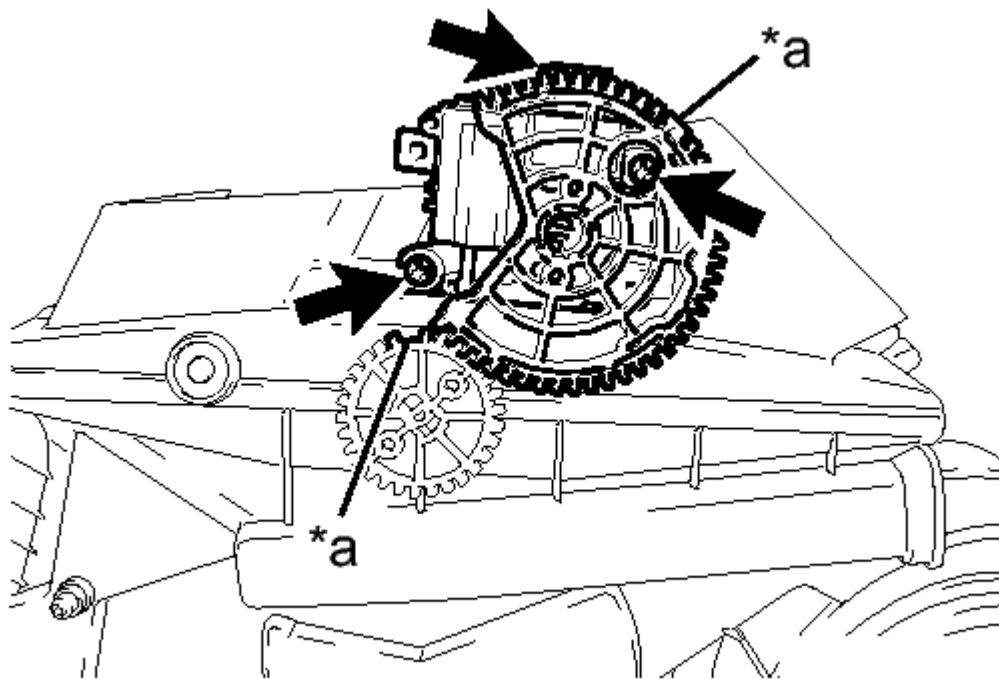
P

Fig. 137: Identifying Air Conditioning Harness & Clamps

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Engage the 5 clamps and install the air conditioning harness.

6. INSTALL REAR NO. 1 COOLING UNIT DAMPER SERVO SUB-ASSEMBLY



P

Fig. 138: Identifying Rear No. 1 Cooling Unit Damper Servo, Reference Point & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

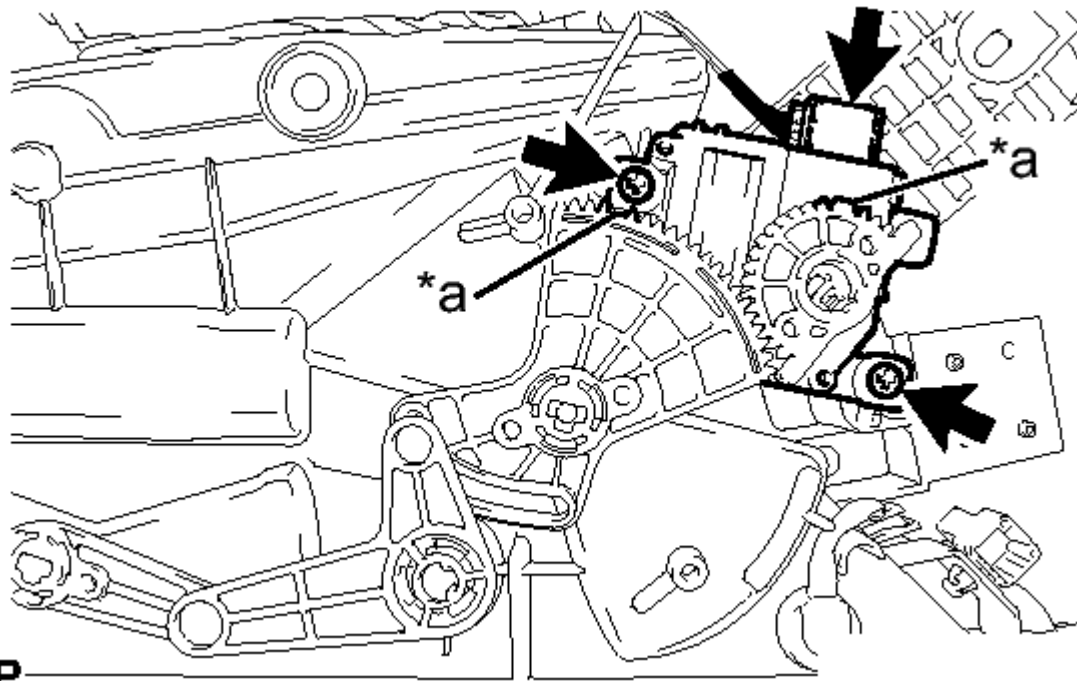
- a. Using the reference point, install the rear No. 1 cooling unit damper servo with the 2 screws.

TEXT IN ILLUSTRATION

*a	Reference Point
----	--------------------

- b. Connect the connector.

7. INSTALL REAR NO. 2 COOLING UNIT DAMPER SERVO SUB-ASSEMBLY



P

Fig. 139: Identifying Rear No. 2 Cooling Unit Damper Servo, Reference Point & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

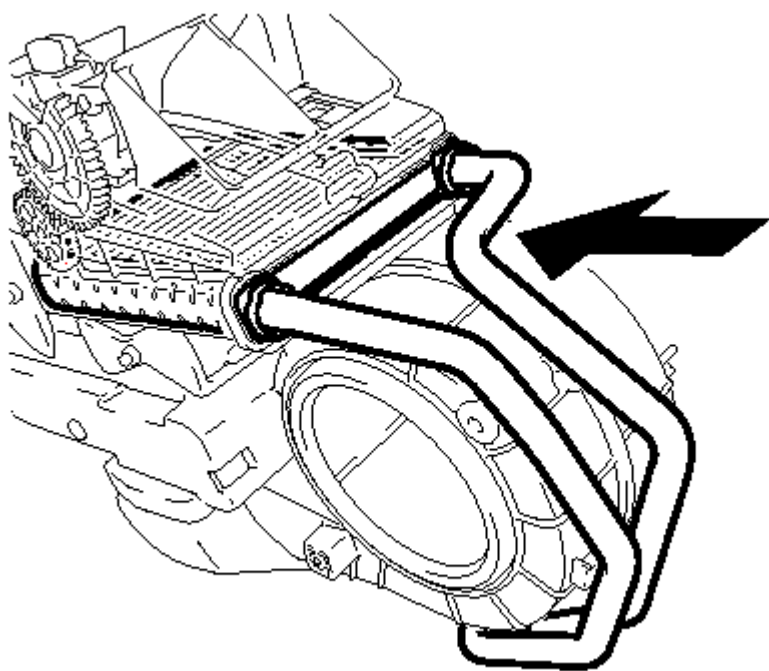
- a. Using the reference point, install the rear No. 2 cooling unit damper servo with the 2 screws.

TEXT IN ILLUSTRATION

*a	Reference Point
----	--------------------

- b. Connect the connector.

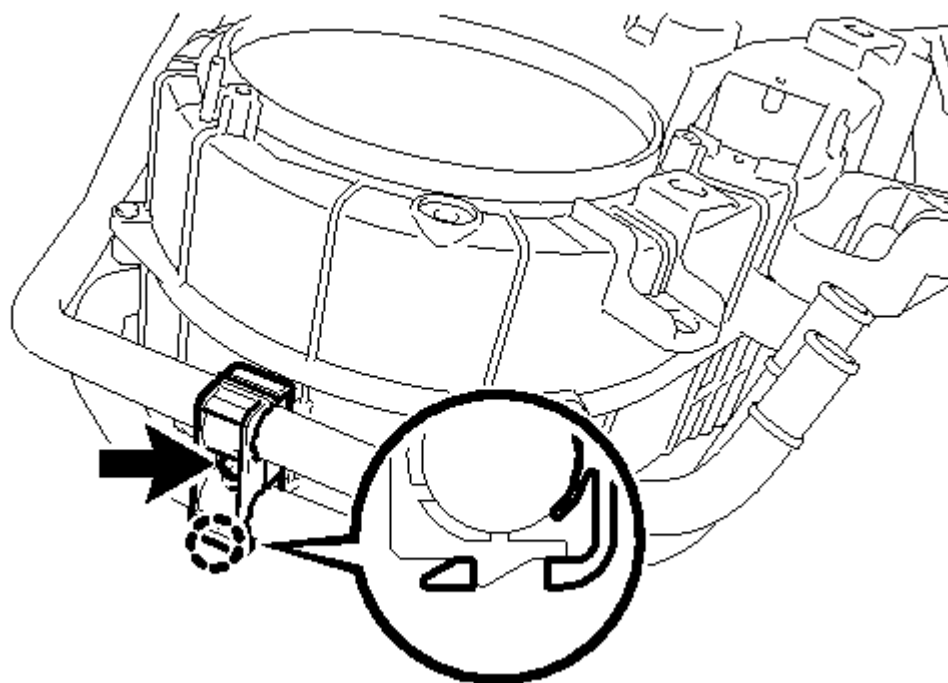
8. INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY



P

Fig. 140: Installing Heater Radiator Unit Sub-Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the heater radiator unit into the rear cooling unit.
- b. Engage the claw and install the heater clamp.

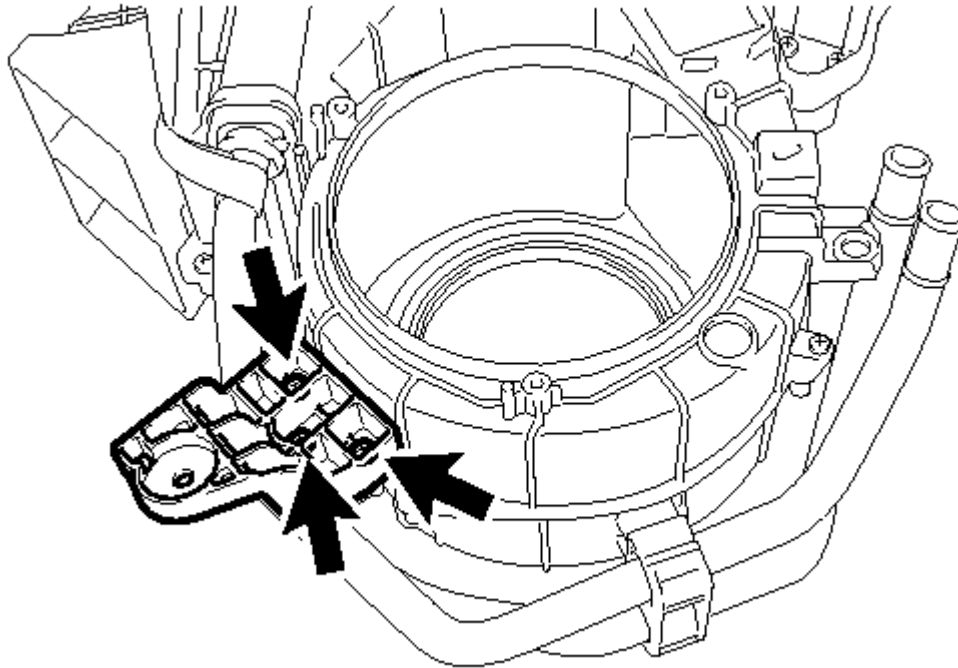


P

Fig. 141: Identifying Heater Radiator Unit Sub-Assembly Heater Clamp & Claw

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Tighten the screw.
- d. Install the bracket with the 3 screws.



P

Fig. 142: Identifying Heater Radiator Unit Sub-Assembly Bracket & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. INSTALL BLOWER MOTOR CONTROL

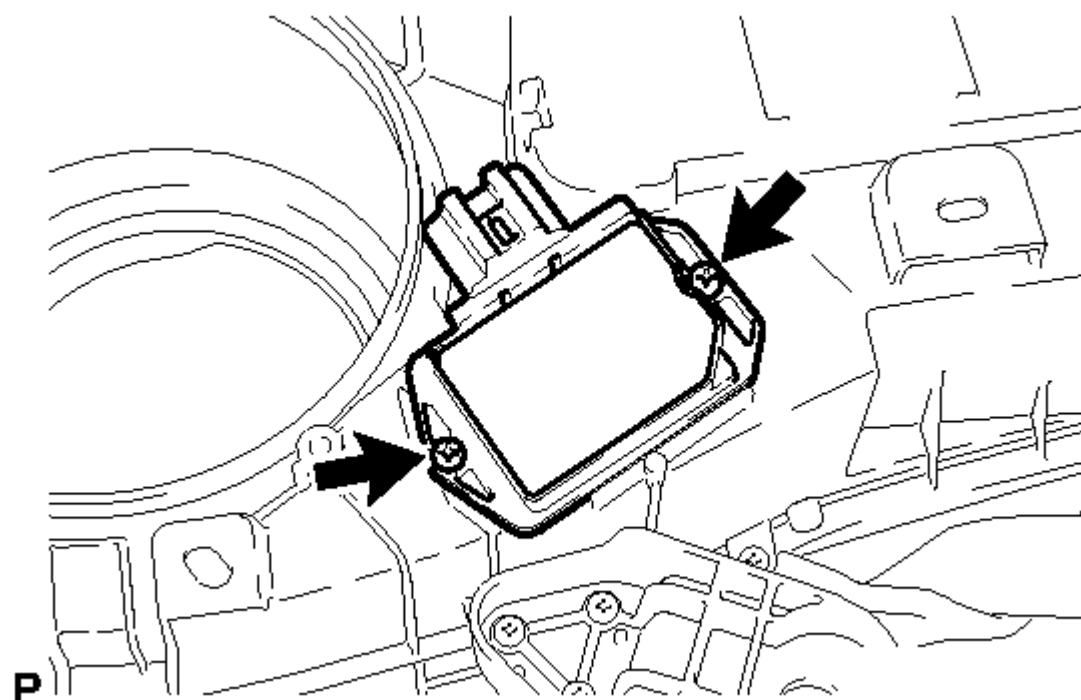


Fig. 143: Identifying Blower Motor Control & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the blower motor control with the 2 screws.

10. INSTALL REAR BLOWER WITH FAN MOTOR SUB-ASSEMBLY

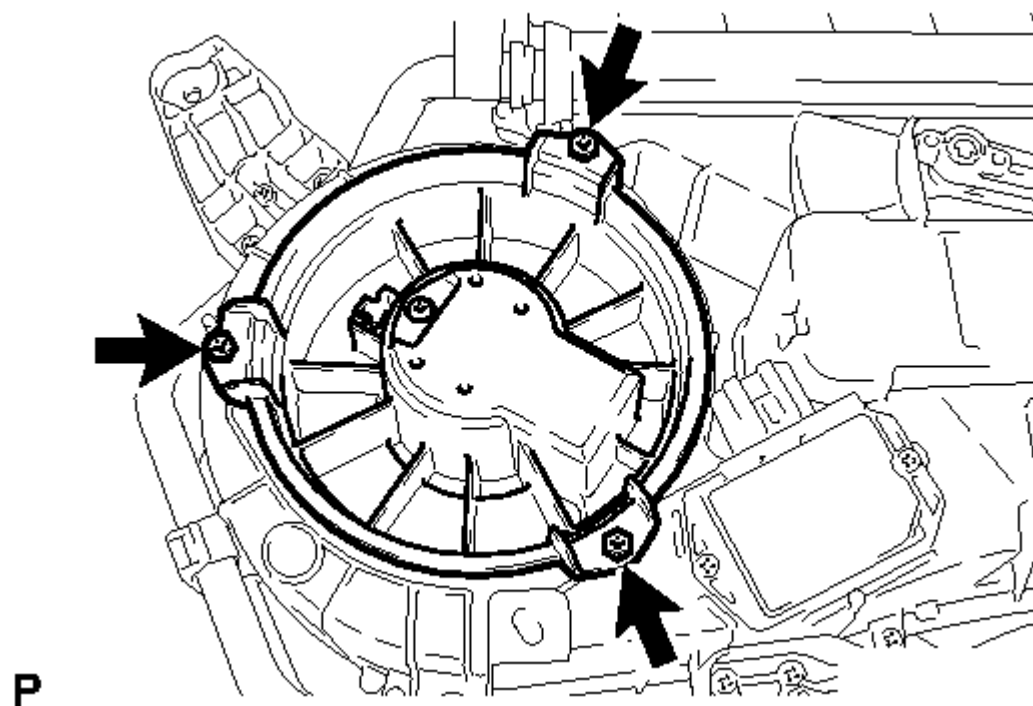


Fig. 144: Identifying Rear Blower With Fan Motor Sub-Assembly & Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the rear blower with fan motor with the 3 screws.

INSTALLATION

INSTALLATION

1. INSTALL DRAIN COOLER HOSE

- a. Install the drain cooler hose onto the body.

2. INSTALL REAR COOLING UNIT ASSEMBLY

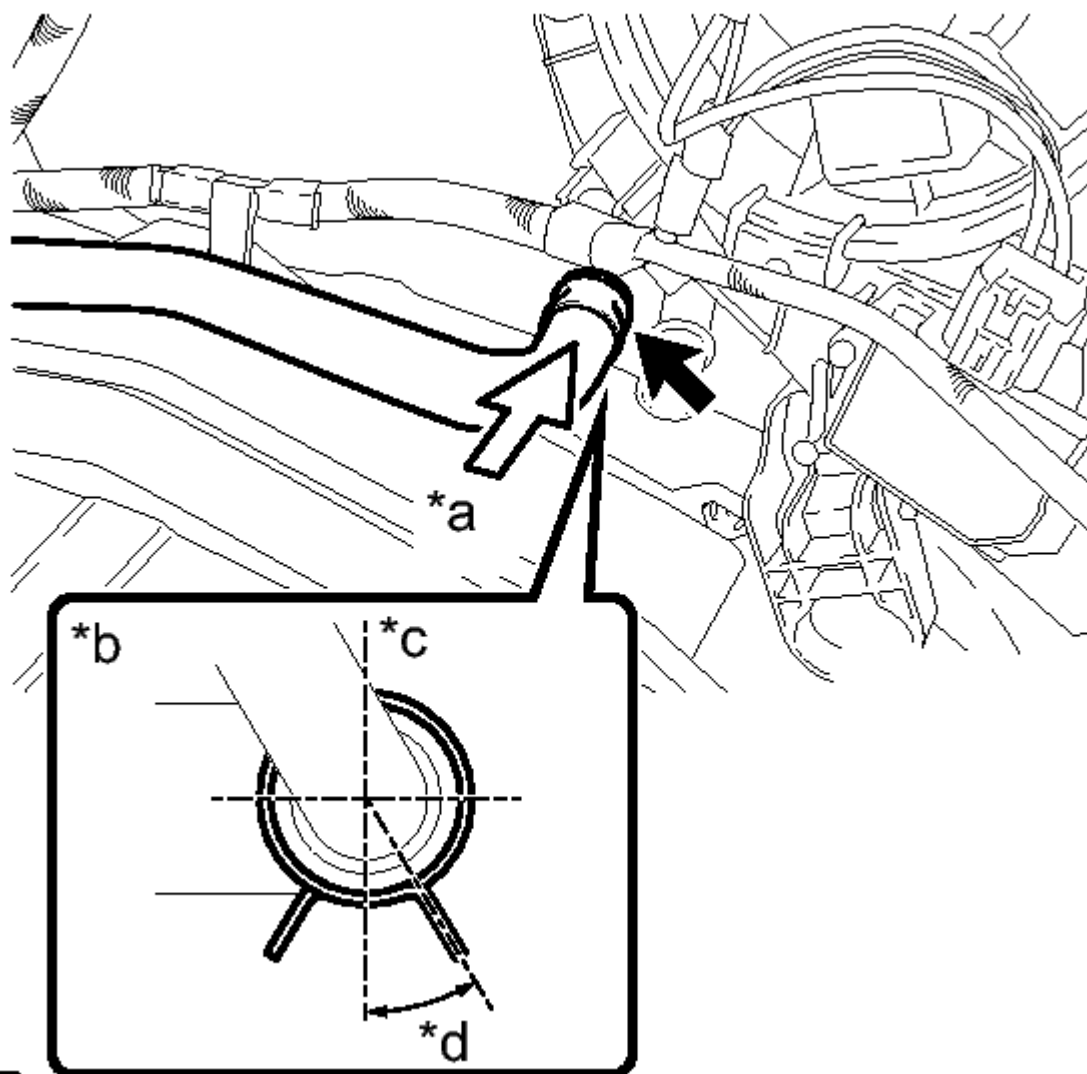
- a. Connect the drain cooler hose to the rear cooling unit.
- b. Install the rear cooling unit with the 4 bolts.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

3. INSTALL NO. 2 FLOOR WIRE

- a. Engage the 3 clamps and install the No. 2 floor wire.
- b. Connect the 3 connectors.

4. CONNECT HEATER WATER INLET HOSE H



P

Fig. 145: Installing Heater Water Inlet Hose H
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the heater water inlet hose onto the rear cooling unit.

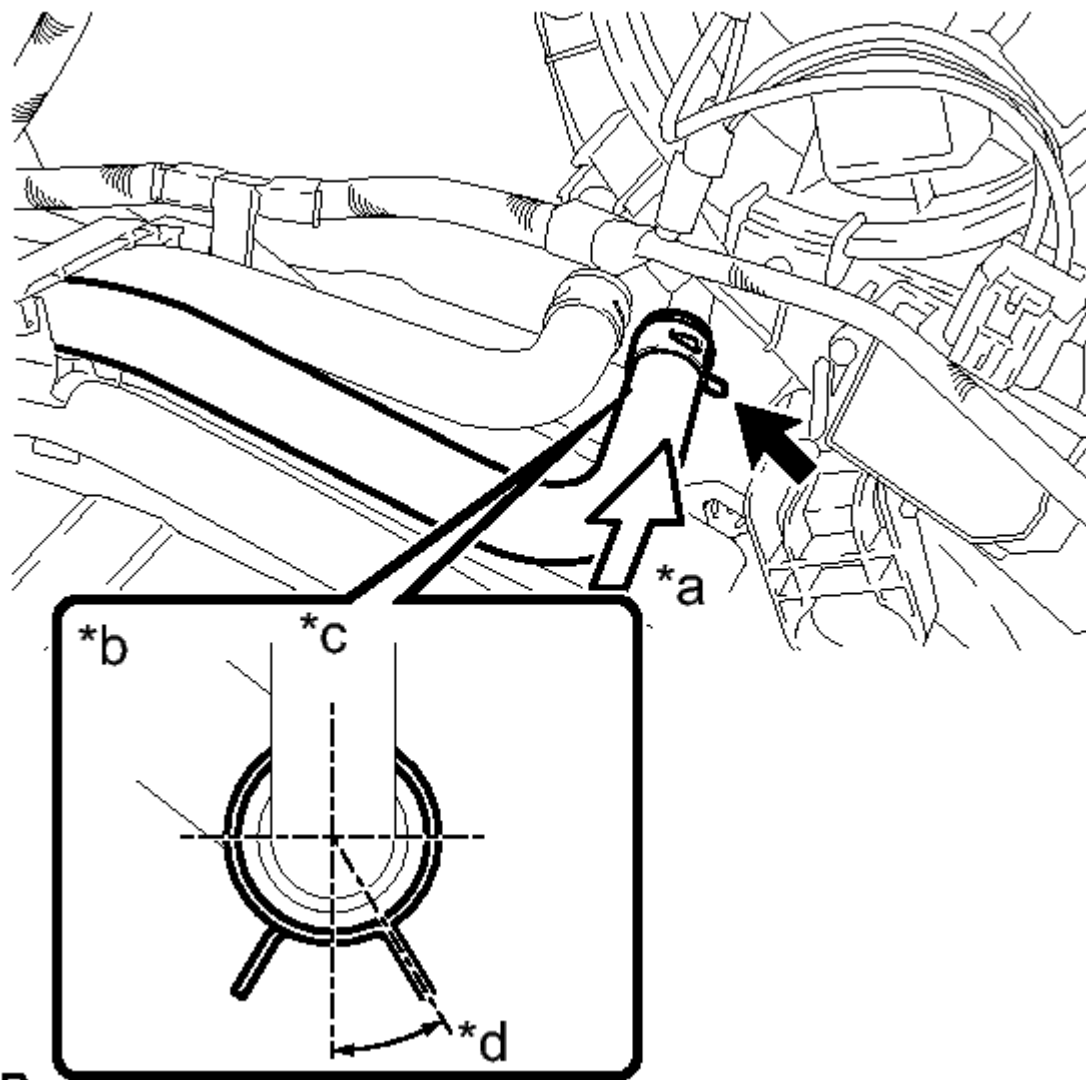
TEXT IN ILLUSTRATION

*a	A
*b	View A
*c	UP Side
*d	-20 to 20°

HINT:

Perform the installation with the hose clip at the correct angle.

5. CONNECT HEATER WATER OUTLET HOSE G



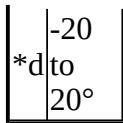
P

Fig. 146: Installing Heater Water Outlet Hose G
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the heater water outlet hose onto the rear cooling unit.

TEXT IN ILLUSTRATION

*a	A
*b	View A
*c	UP Side



HINT:

Perform the installation with the hose clip at the correct angle.

6. INSTALL NO. 3 AIR CONDITIONING ACCESSORY ASSEMBLY

- a. Remove the vinyl tape from the No. 3 air conditioning accessory and the connecting part of the unit.
- b. Sufficiently apply compressor oil to 2 new O-rings and the connecting part of the No. 3 air conditioning accessory.

Compressor oil

ND-OIL 8 or equivalent

- c. Install the 2 O-rings onto the No. 3 air conditioning accessory.
- d. Insert the pipe joints securely into the fitting holes and tighten the bolt.

Torque: 3.5 N*m (36 kgf*cm, 31 in.*lbf)

7. INSTALL AIR DUCT ASSEMBLY

- a. Engage the clip and install the air duct.
- b. Connect the connector and engage the clamp.
- c. Install the clip.

8. INSTALL REAR NO. 6 AIR DUCT

- a. Install the rear No. 6 air duct.
- b. Engage the 2 claws and install the cooler plate.

9. INSTALL BELT OUTER ANCHOR BRACKET SUB-ASSEMBLY RH

- a. Install the belt outer anchor bracket with the 2 bolts.

Torque: 40 N*m (408 kgf*cm, 30 ft.*lbf)

10. INSTALL JACK ASSEMBLY

11. INSTALL REAR NO. 2 WINDOW SIDE GARNISH ASSEMBLY RH . Refer to INSTALLATION - Step 12

12. INSTALL QUARTER TRIM PANEL ASSEMBLY RH . Refer to REMOVAL - Step 26

13. INSTALL SLIDE DOOR WEATHERSTRIP RH

14. INSTALL REAR DOOR SCUFF PLATE RH . Refer to INSTALLATION - Step 27

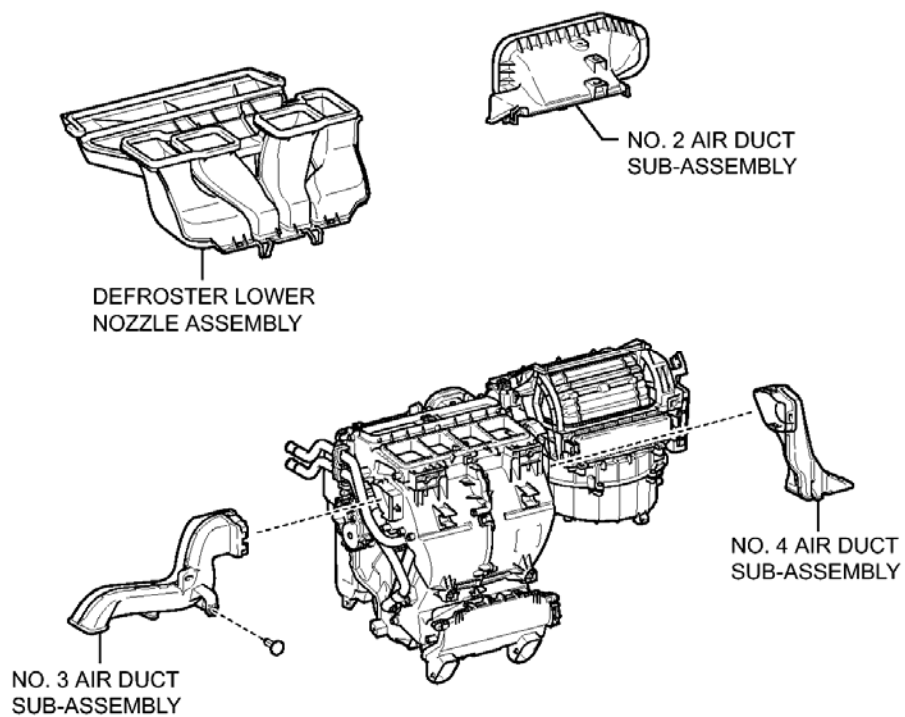
15. INSTALL REAR NO. 2 SEAT OUTER BELT ASSEMBLY RH . Refer to INSTALLATION - Step 16

16. **INSTALL ROOF HEADLINING REAR GARNISH** . Refer to **INSTALLATION - Step 22**
17. **INSTALL BACK DOOR SCUFF PLATE** . Refer to **INSTALLATION - Step 24**
18. **INSTALL BACK DOOR WEATHERSTRIP**
19. **ADD ENGINE COOLANT (for 2GR-FE)** . Refer to **REPLACEMENT - Step 4**
20. **ADD ENGINE COOLANT (for 1AR-FE)** . Refer to **REPLACEMENT - Step 3**
21. **INSPECT FOR COOLANT LEAK (for 2GR-FE)** . Refer to **ON-VEHICLE INSPECTION - Step 1**
22. **INSPECT FOR COOLANT LEAK (for 1AR-FE)** . Refer to **ON-VEHICLE INSPECTION - Step 1**
23. **CHARGE REFRIGERANT** See step 2
24. **WARM UP ENGINE** See step 3
25. **INSPECT FOR REFRIGERANT LEAK** See step 4
26. **INSTALL NO. 1 ENGINE UNDER COVER (for 2GR-FE)** . Refer to **INSTALLATION - Step 16**
27. **INSTALL V-BANK COVER SUB-ASSEMBLY (for 2GR-FE)** . Refer to **INSTALLATION - Step 95**
28. **INSTALL NO. 1 ENGINE UNDER COVER (for 1AR-FE)** . Refer to **INSTALLATION - Step 10**

BLOWER UNIT

COMPONENTS

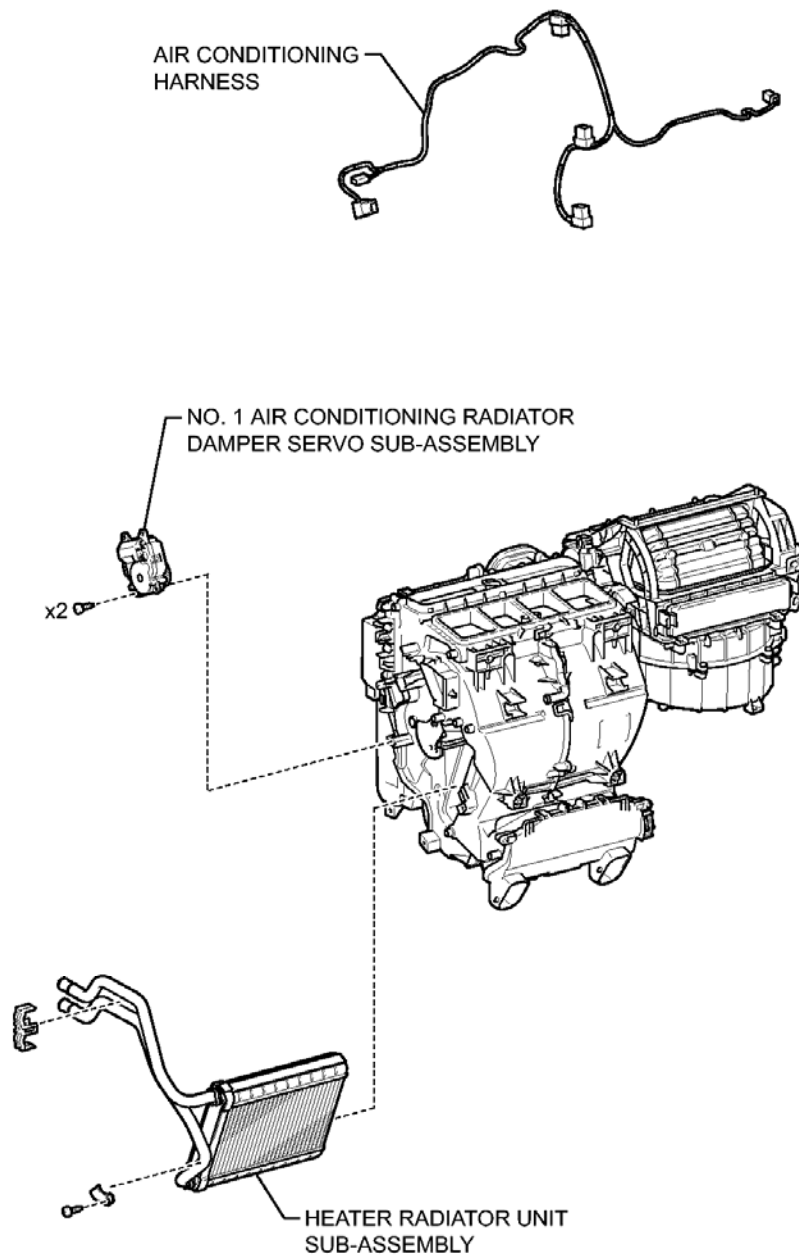
ILLUSTRATION



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Fig. 147: Blower Unit Replacement Components (1 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

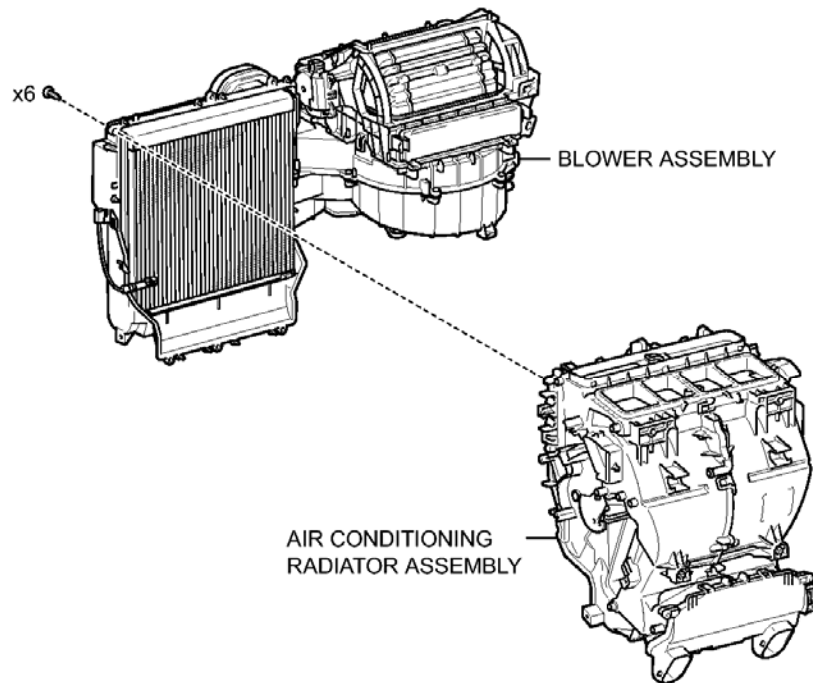
ILLUSTRATION



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Fig. 148: Blower Unit Replacement Components (2 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

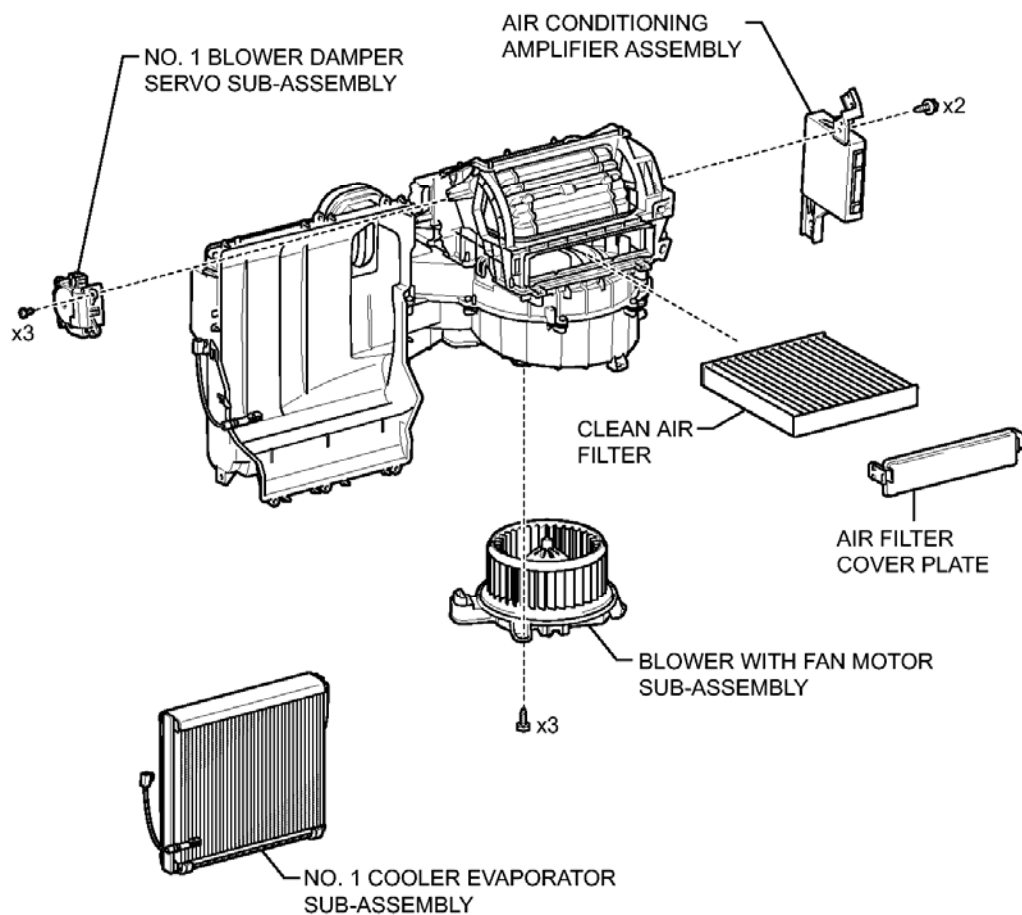
ILLUSTRATION



P

Fig. 149: Blower Unit Replacement Components (3 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P

Fig. 150: Blower Unit Replacement Components (4 Of 4)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

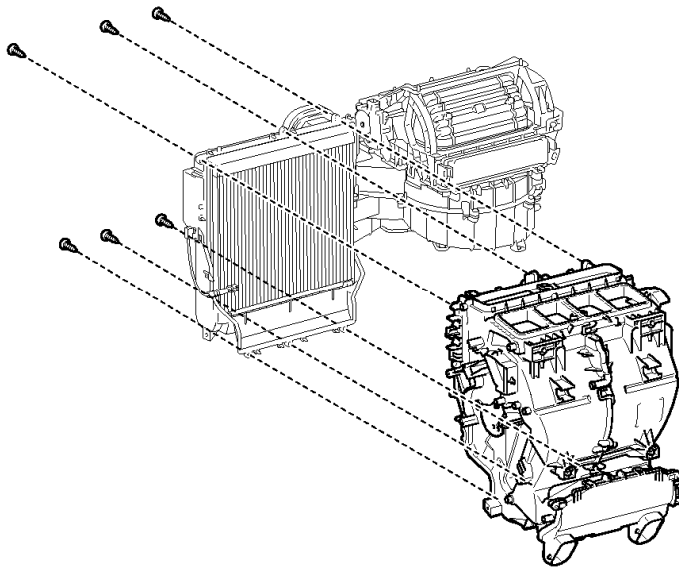
1. REMOVE AIR CONDITIONING UNIT

Refer to **REMOVAL**

2. REMOVE DEFROSTER LOWER NOZZLE ASSEMBLY See step 2

3. REMOVE NO. 2 AIR DUCT SUB-ASSEMBLY See step 3

4. **REMOVE NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY** See step 4
5. **REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY** See step 5
6. **REMOVE AIR CONDITIONING HARNESS** See step 6
7. **REMOVE BLOWER ASSEMBLY**



P

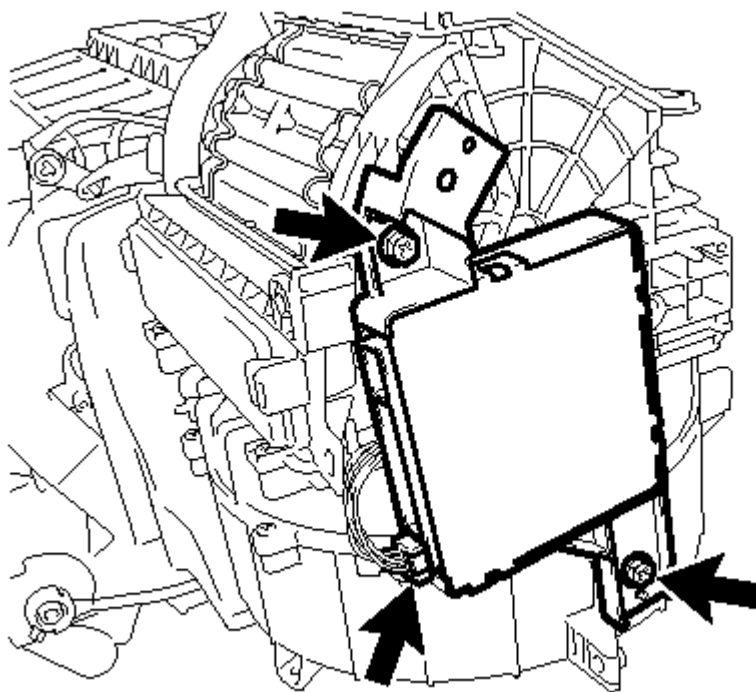
Fig. 151: Identifying Air Conditioning Radiator Assembly & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 6 screws and blower assembly from the air conditioning radiator assembly.
8. **REMOVE COOLER EXPANSION VALVE** See step 11
9. **REMOVE NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY** See step 12

DISASSEMBLY

DISASSEMBLY

1. **REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY**

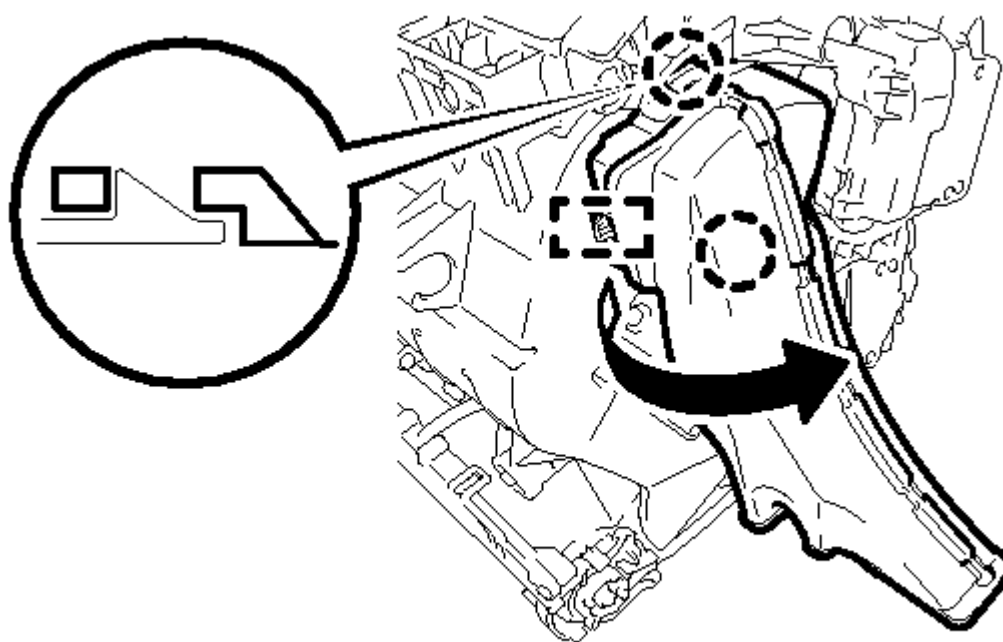


P

Fig. 152: Identifying Air Conditioning Amplifier, Connector & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Remove the 2 screws and air conditioning amplifier.

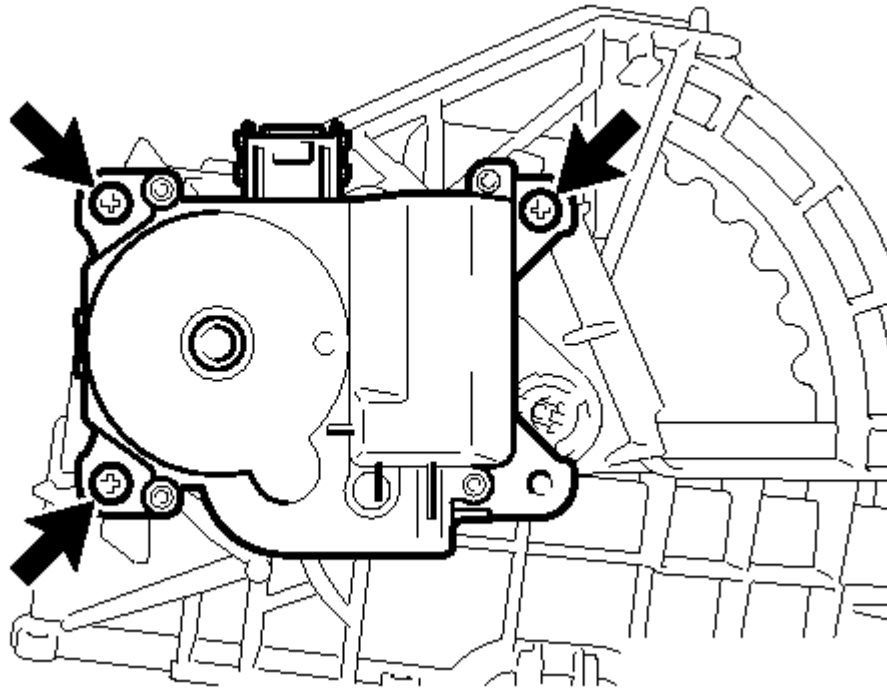
2. REMOVE NO. 4 AIR DUCT SUB-ASSEMBLY



P

Fig. 153: Removing No. 4 Air Duct, Claws & Guide
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

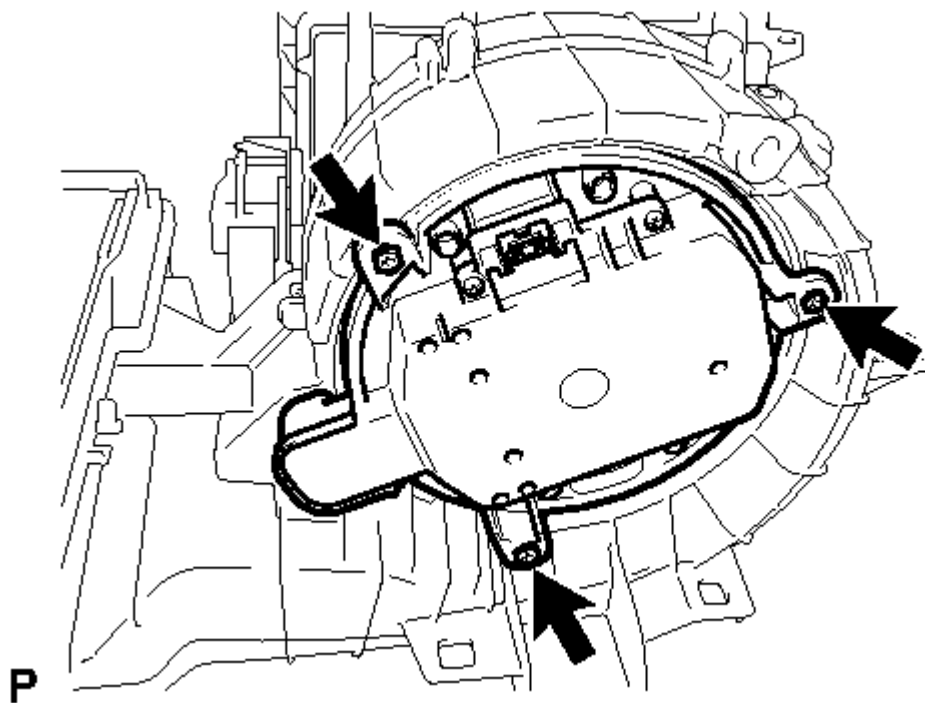
- a. Disengage the 2 claws and guide, and remove the No. 4 air duct as shown in the illustration
3. **REMOVE NO. 1 BLOWER DAMPER SERVO SUB-ASSEMBLY**



P

Fig. 154: Identifying No. 1 Blower Damper Servo & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 3 screws and No. 1 blower damper servo.
4. **REMOVE BLOWER WITH FAN MOTOR SUB-ASSEMBLY**

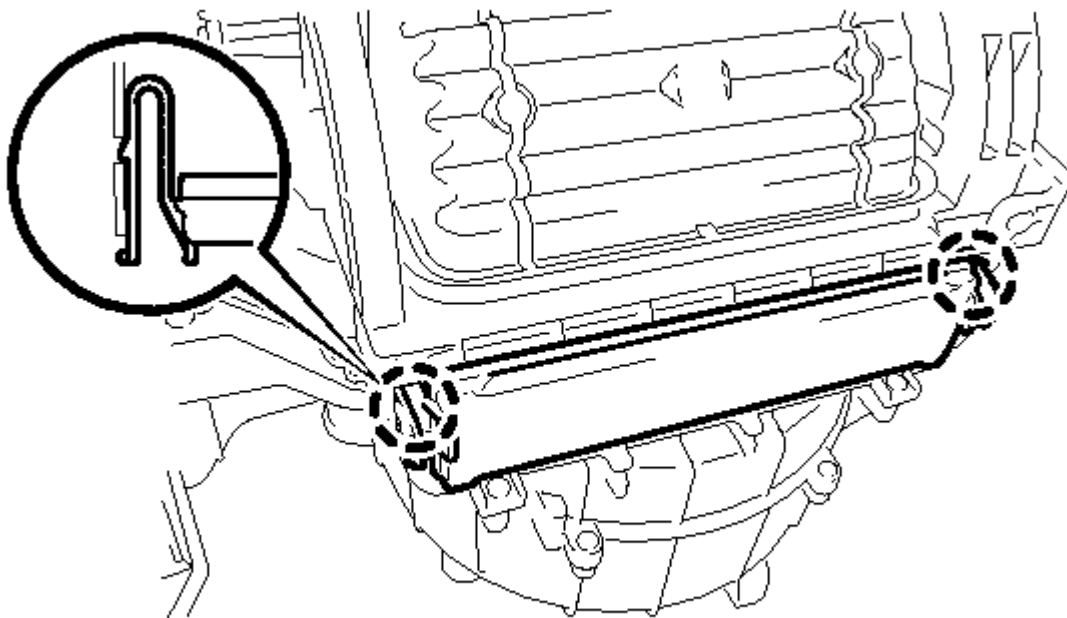


P

Fig. 155: Identifying Blower With Fan Motor & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 3 screws and blower with fan motor.

5. REMOVE AIR FILTER COVER PLATE



P

Fig. 156: Identifying Air Filter Cover Plate & Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the 2 claws and air filter cover plate.

6. REMOVE CLEAN AIR FILTER

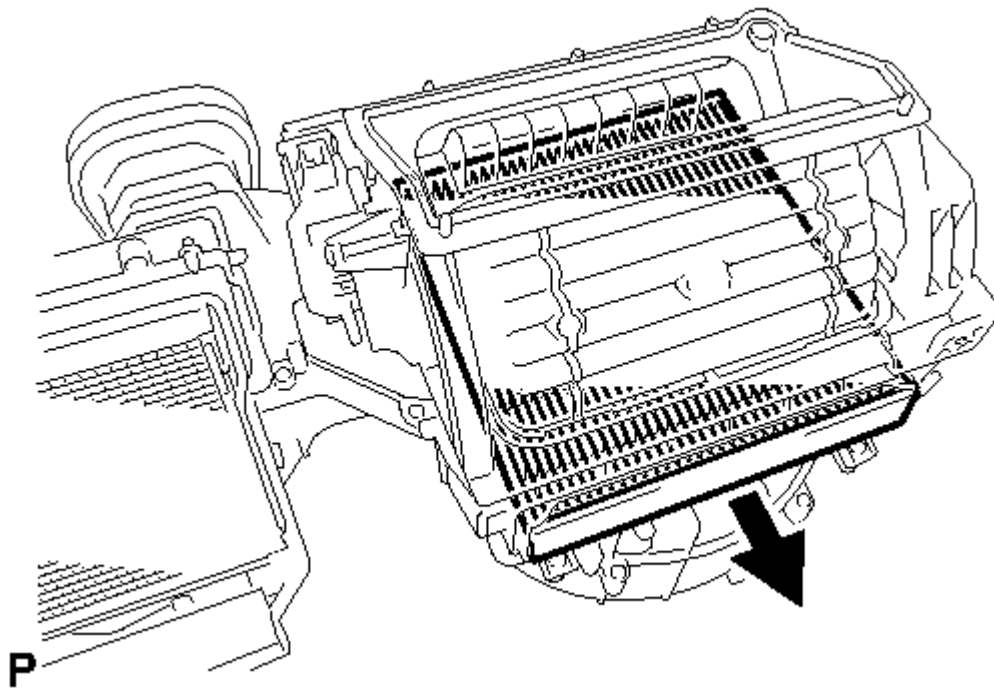


Fig. 157: Identifying Air Filter

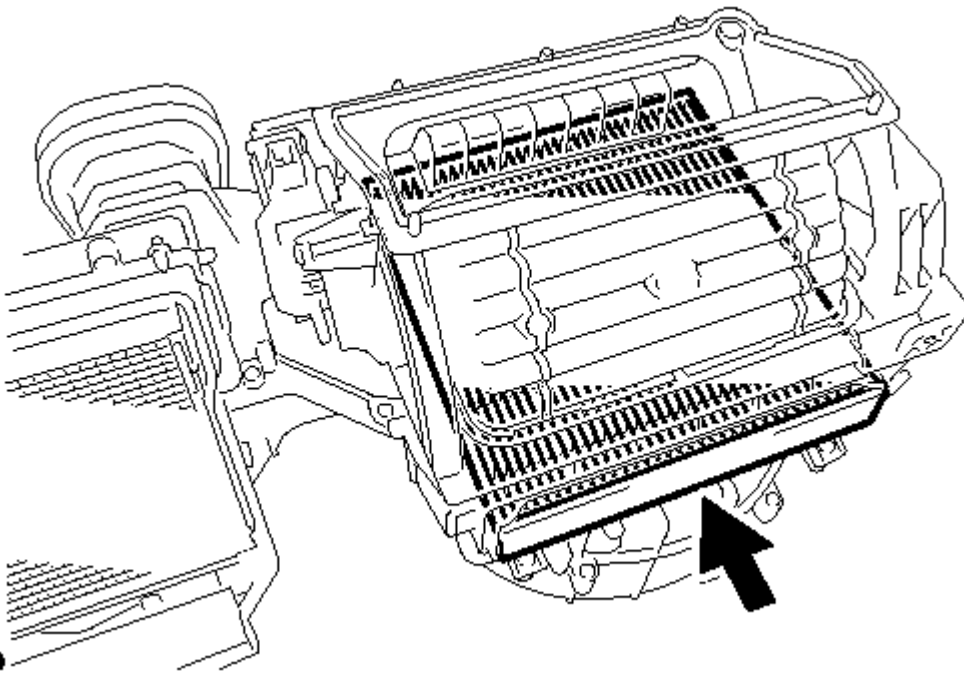
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the clean air filter.

REASSEMBLY

REASSEMBLY

1. INSTALL CLEAN AIR FILTER



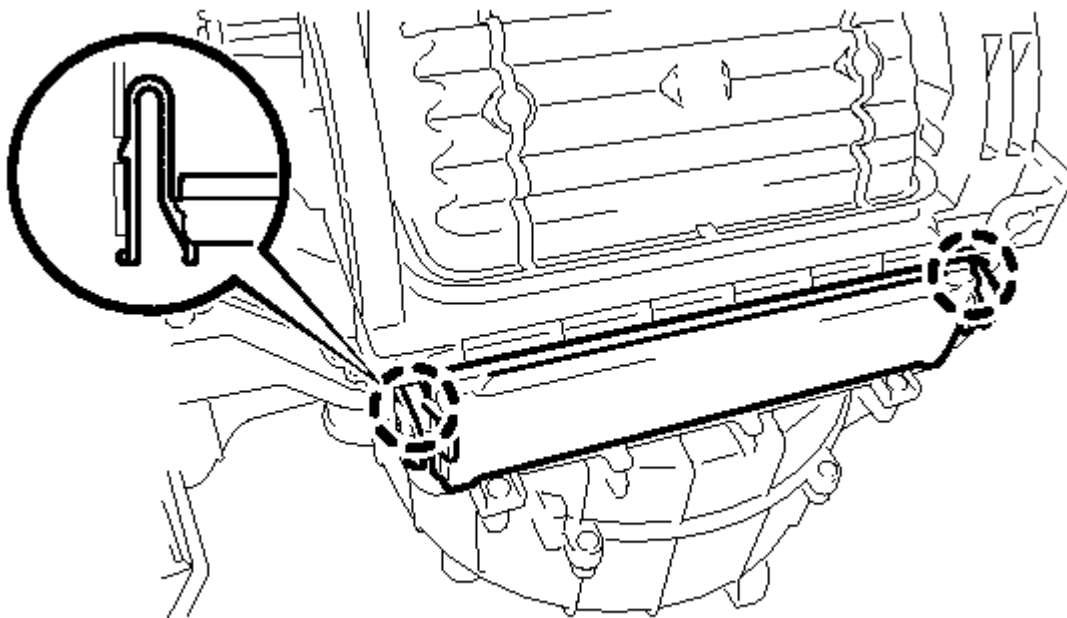
P

Fig. 158: Identifying Air Filter

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the clean air filter.

2. INSTALL AIR FILTER COVER PLATE



P

Fig. 159: Identifying Air Filter Cover Plate & Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Engage the 2 claws and install the air filter cover plate.

3. INSTALL BLOWER WITH FAN MOTOR SUB-ASSEMBLY

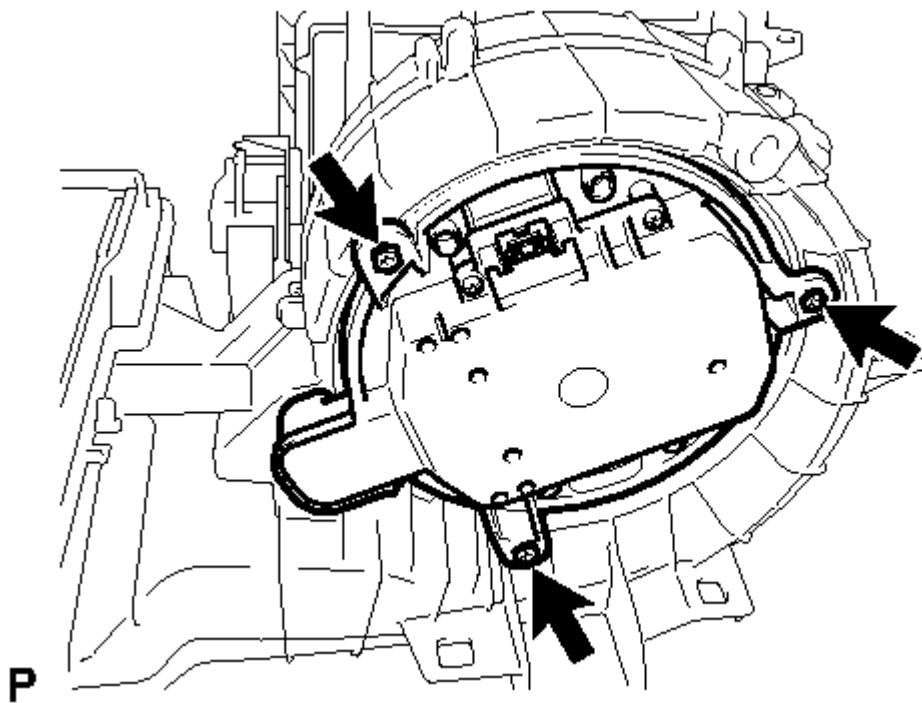
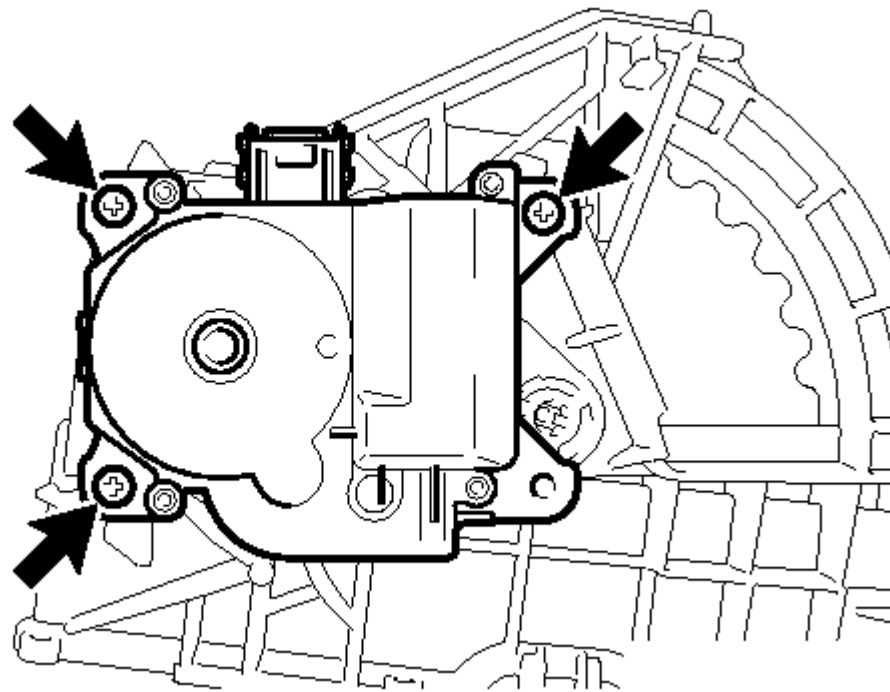


Fig. 160: Identifying Blower With Fan Motor & Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the blower with fan motor with the 3 screws.

4. INSTALL NO. 1 BLOWER DAMPER SERVO SUB-ASSEMBLY

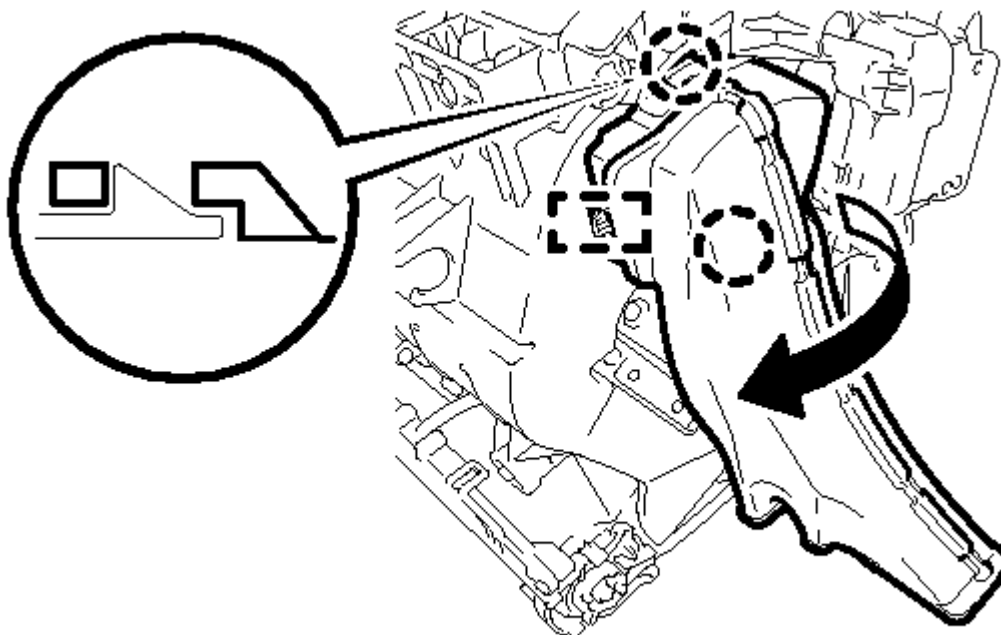


P

Fig. 161: Identifying No. 1 Blower Damper Servo & Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the No. 1 blower damper servo with the 3 screws.

5. INSTALL NO. 4 AIR DUCT SUB-ASSEMBLY



P

Fig. 162: Installing No. 4 Air Duct, Claws & Guide

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Engage the 2 claws and guide to install the No. 4 air duct as shown in the illustration.

6. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY

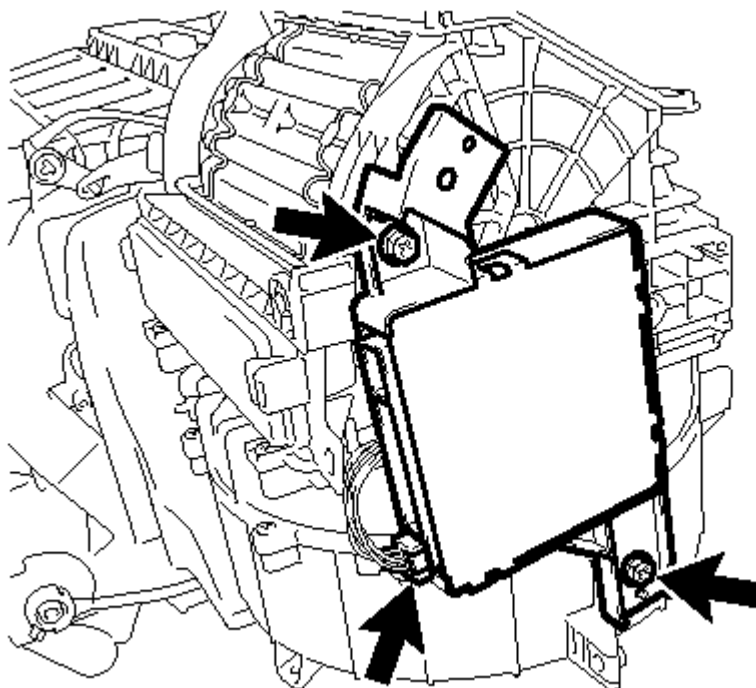


Fig. 163: Identifying Air Conditioning Amplifier, Connector & Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the air conditioning amplifier with the 2 screws.
- b. Connect the connector.

INSTALLATION

INSTALLATION

1. **INSTALL NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY** See step 4
2. **INSTALL COOLER EXPANSION VALVE** See step 6
3. **INSTALL BLOWER ASSEMBLY**
 - a. Install the 6 screws and blower assembly to the air conditioning radiator assembly.
4. **INSTALL AIR CONDITIONING HARNESS** See step 10
5. **INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY** See step 11
6. **INSTALL NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY** See step 12
7. **INSTALL NO. 2 AIR DUCT SUB-ASSEMBLY** See step 13
8. **INSTALL DEFROSTER LOWER NOZZLE ASSEMBLY** See step 14

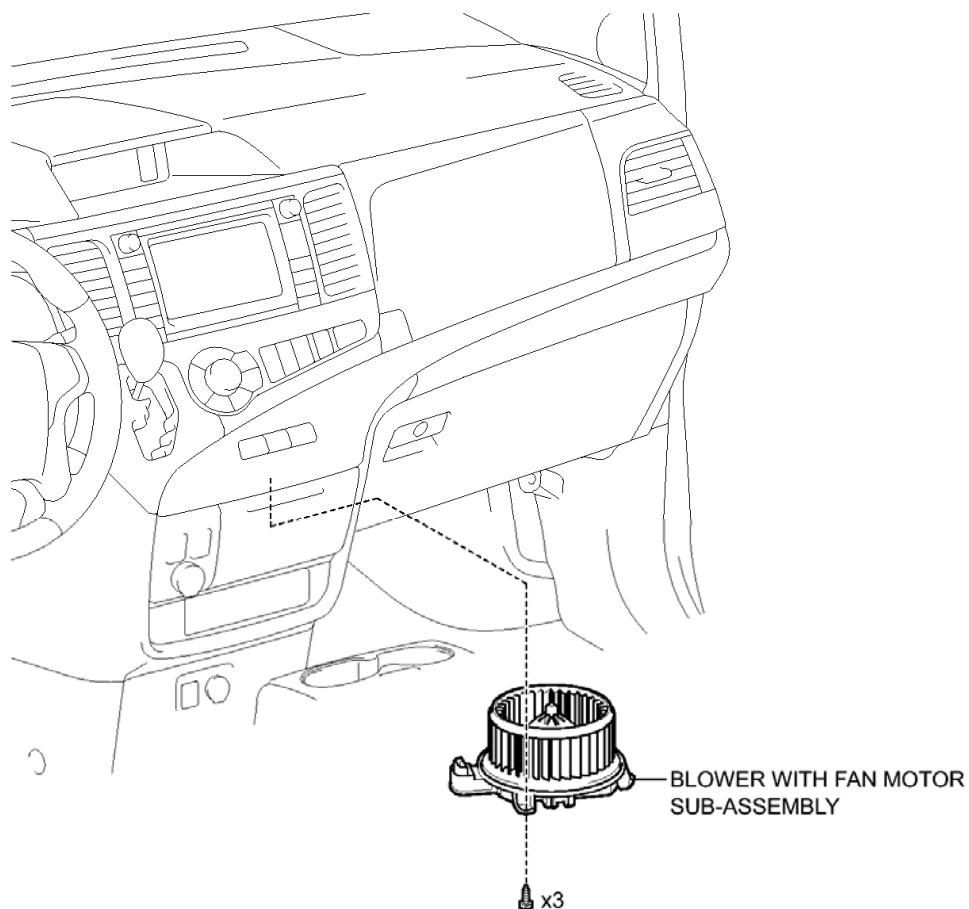
9. INSTALL AIR CONDITIONING UNIT

Refer to INSTALLATION

FRONT BLOWER MOTOR

COMPONENTS

ILLUSTRATION



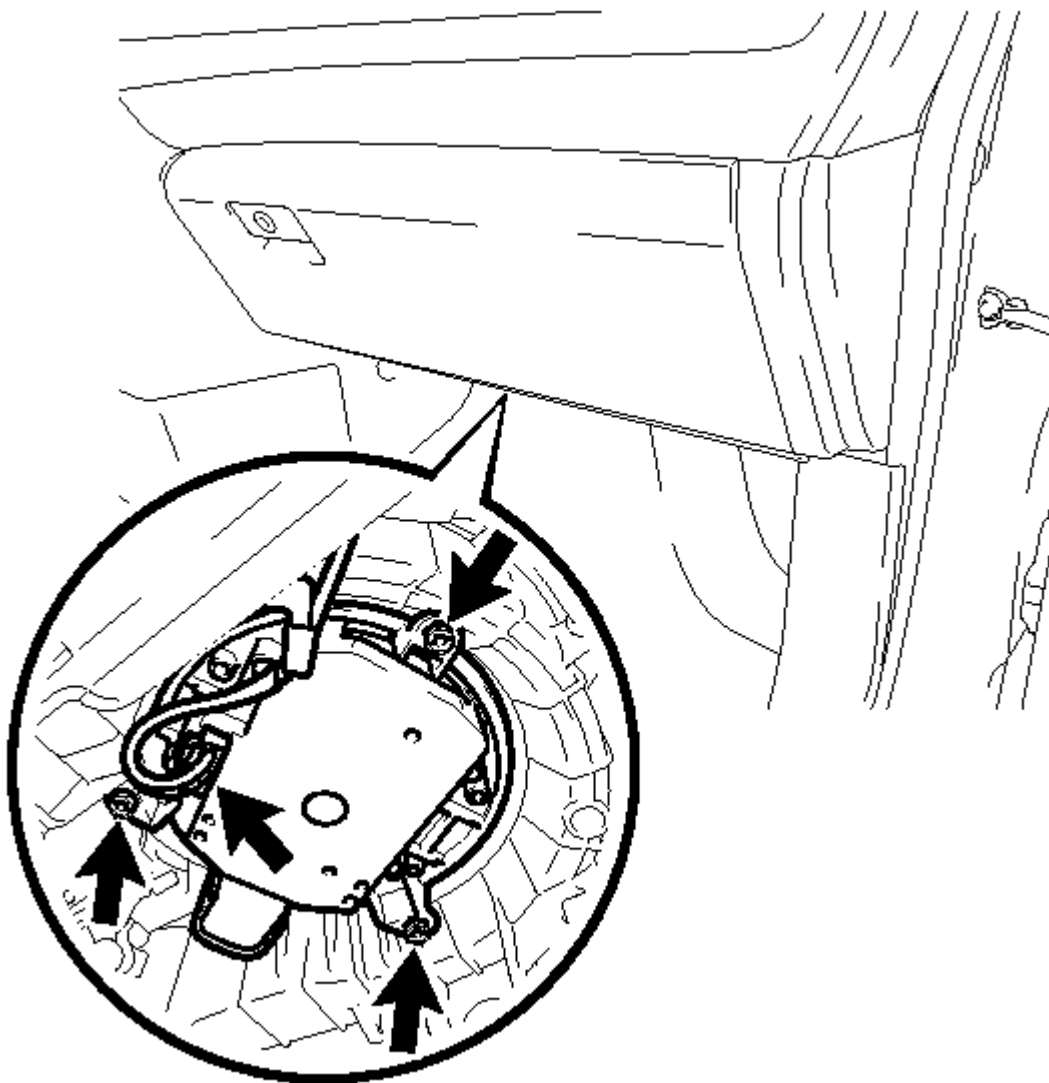
P

Fig. 164: Front Blower Motor Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE BLOWER WITH FAN MOTOR SUB-ASSEMBLY



P

Fig. 165: Identifying Blower With Fan Motor, Connector & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Remove the 3 screws and blower with fan motor.

INSTALLATION

INSTALLATION

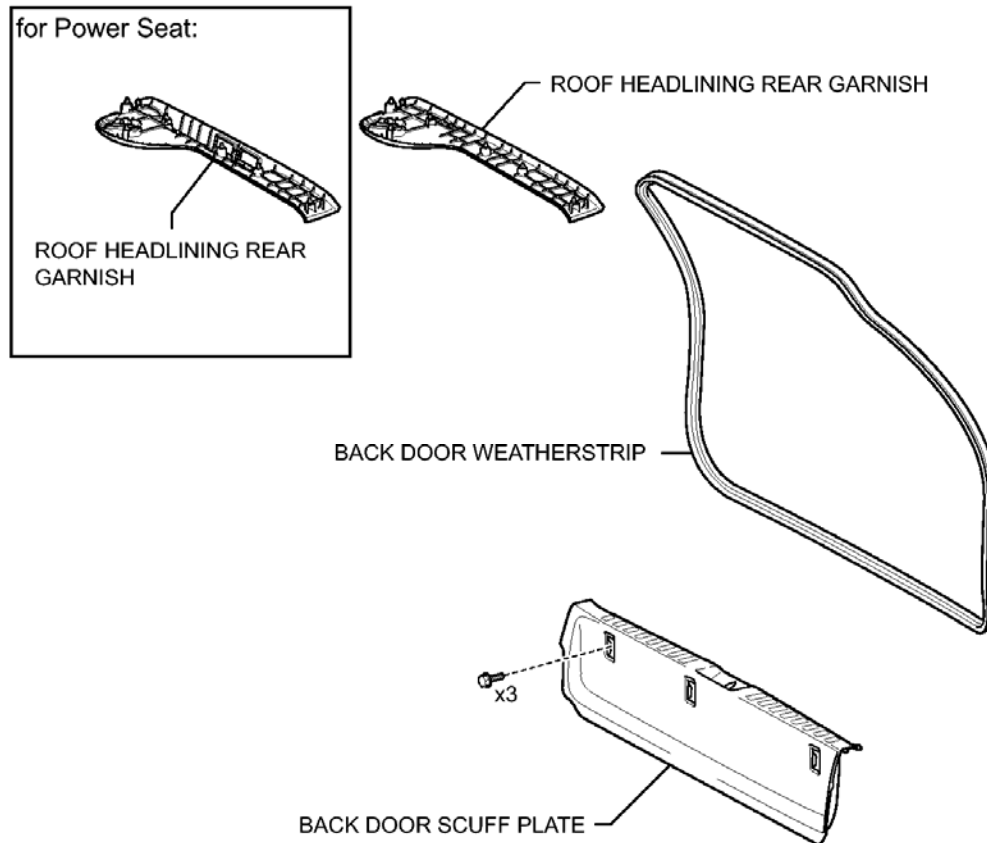
1. INSTALL BLOWER WITH FAN MOTOR SUB-ASSEMBLY

- a. Install the blower with fan motor with the 3 screws.
- b. Connect the connector.

REAR BLOWER MOTOR

COMPONENTS

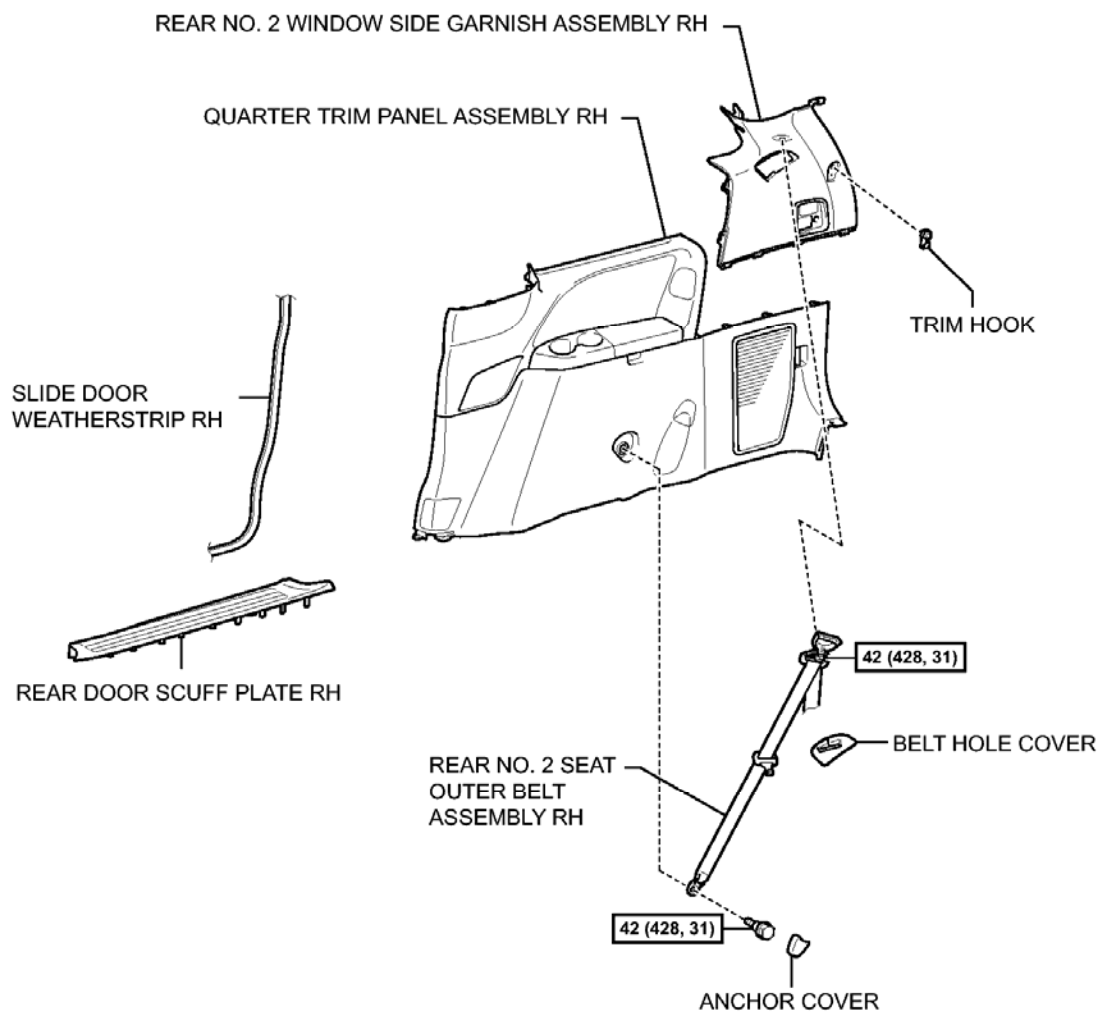
ILLUSTRATION



P

Fig. 166: Rear Blower Motor Replacement Components (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

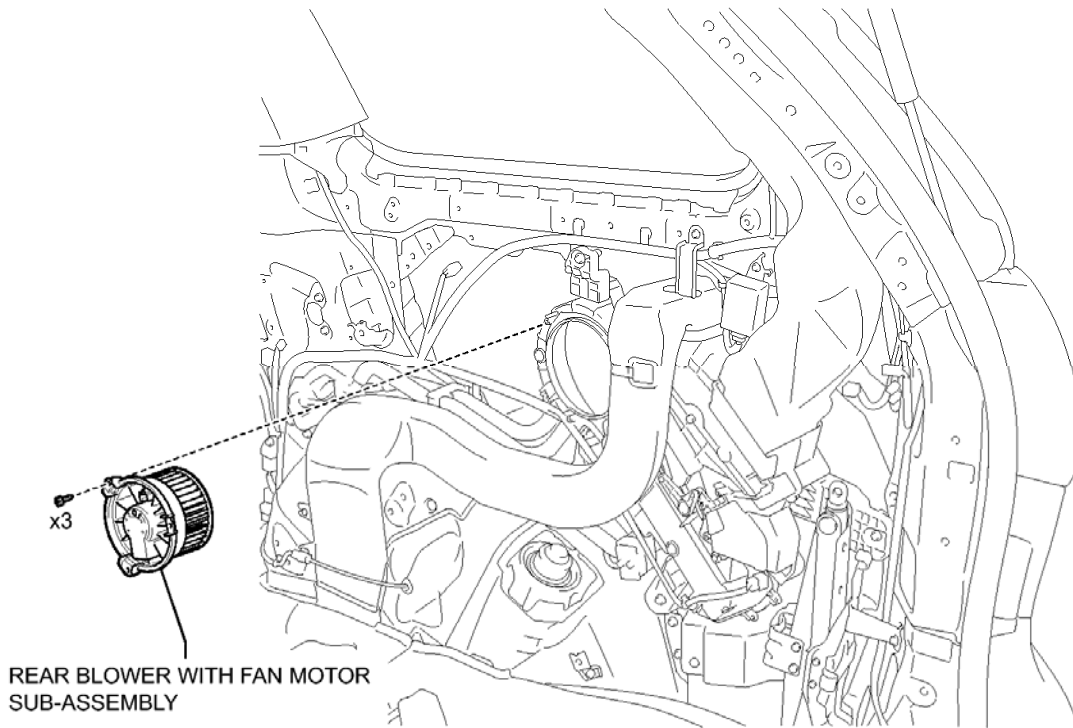
ILLUSTRATION



$\boxed{\text{N}\cdot\text{m (kgf}\cdot\text{cm, ft}\cdot\text{lbf)}}$: Specified torque

Fig. 167: Rear Blower Motor Replacement Components With Torque Specifications (2 Of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



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Fig. 168: Rear Blower Motor Replacement Components (3 Of 3)

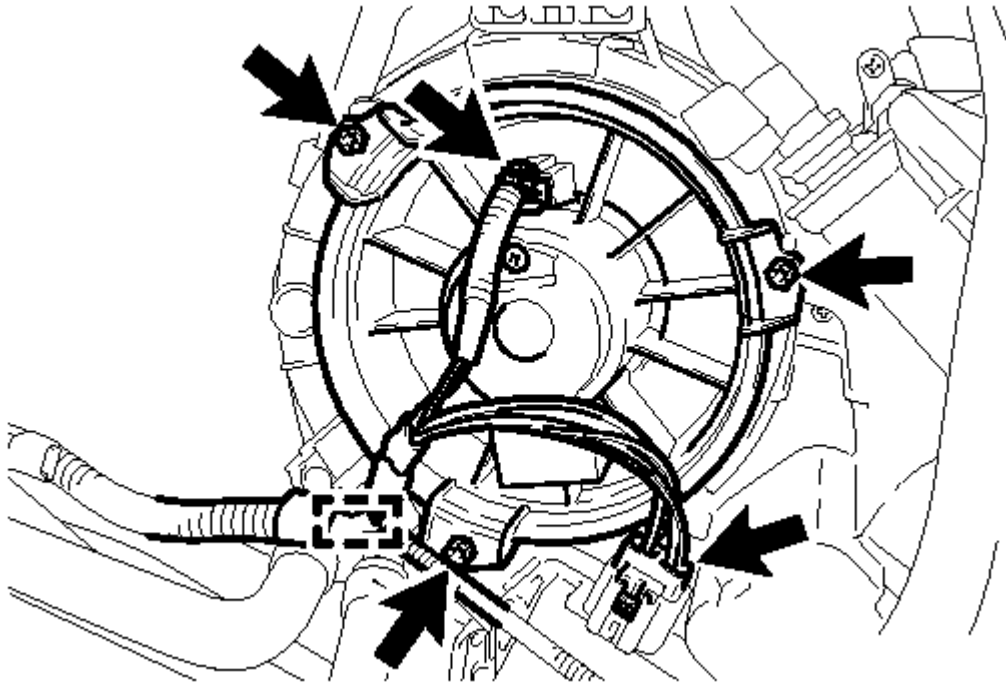
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE BACK DOOR WEATHERSTRIP**
2. **REMOVE BACK DOOR SCUFF PLATE** . Refer to **REMOVAL - Step 17**
3. **REMOVE ROOF HEADLINING REAR GARNISH** . Refer to **REMOVAL - Step 19**
4. **SEPARATE REAR NO. 2 SEAT OUTER BELT ASSEMBLY RH** . Refer to **REMOVAL - Step 24**
5. **REMOVE REAR DOOR SCUFF PLATE RH** . Refer to **REMOVAL - Step 13**
6. **SEPARATE SLIDE DOOR WEATHERSTRIP RH**
7. **REMOVE QUARTER TRIM PANEL ASSEMBLY RH** . Refer to **REMOVAL - Step 26**
8. **REMOVE REAR NO. 2 WINDOW SIDE GARNISH ASSEMBLY RH** . Refer to **REMOVAL - Step 28**

9. REMOVE REAR BLOWER WITH FAN MOTOR SUB-ASSEMBLY



P

Fig. 169: Identifying Rear Blower Motor With Fan Motor, Connectors & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the clamp and 2 connectors.
- b. Remove the 3 screws and rear blower with fan motor.

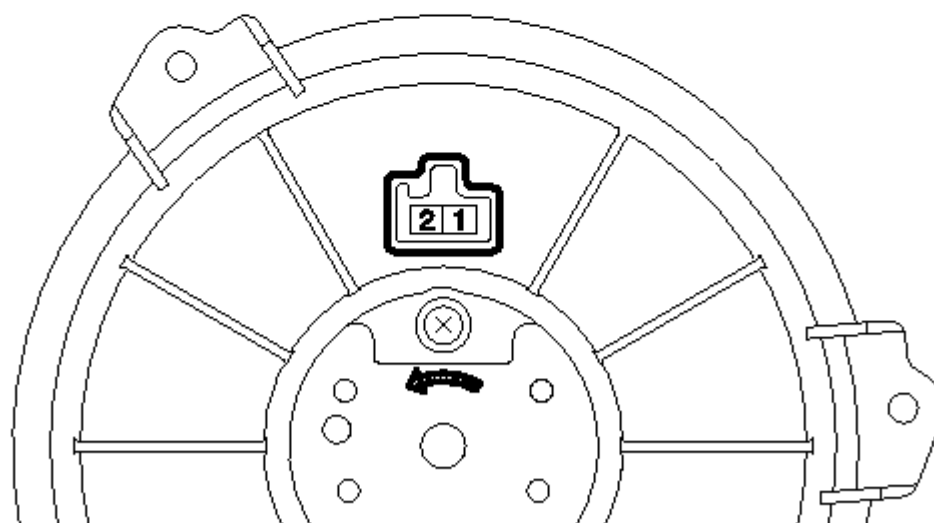
INSPECTION

INSPECTION

1. INSPECT REAR BLOWER WITH FAN MOTOR SUB-ASSEMBLY

- a. Check the operation.

*a



P

Fig. 170: Identifying Rear Blower Motor With Motor Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

	Component without harness connected
*a	(Rear blower w/fan Motor Sub- assembly)

1. Apply battery voltage to the blower motor and check the operation of the motor.

OK

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 2	The blower motor operates smoothly
Battery negative (-) --> Terminal 1	

If the result is not as specified, replace the rear blower with fan motor sub-assembly.

INSTALLATION

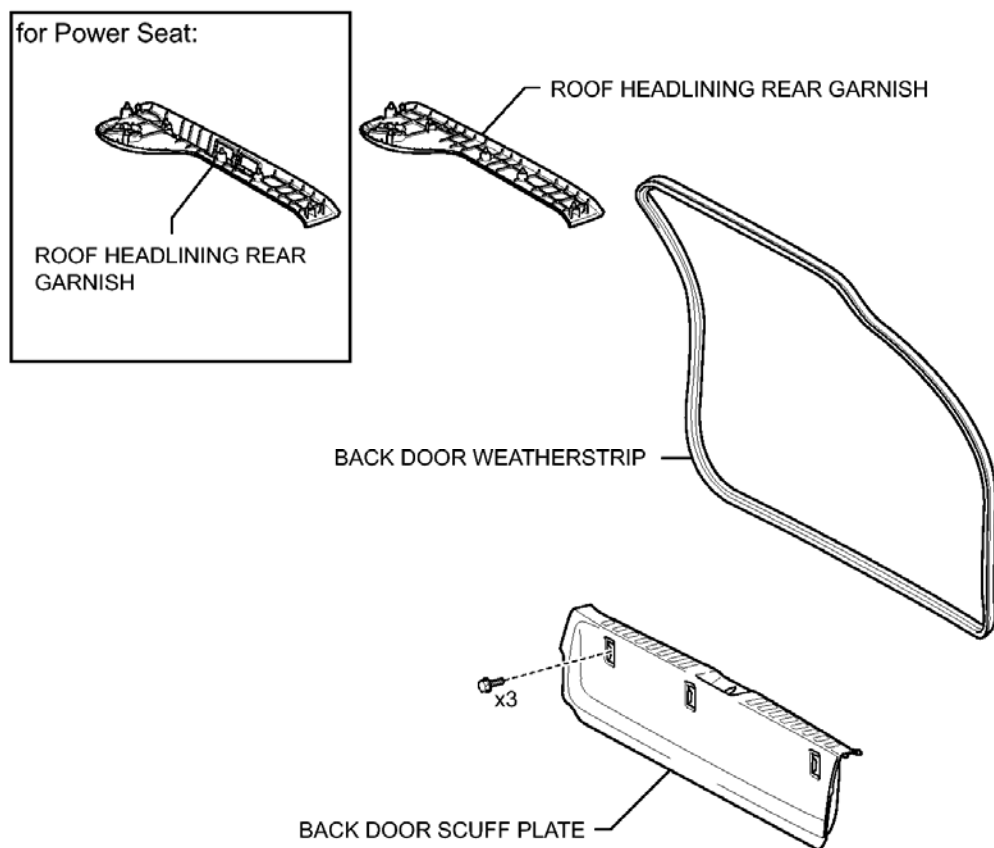
INSTALLATION

1. **INSTALL REAR BLOWER WITH FAN MOTOR SUB-ASSEMBLY**
 - a. Install the rear blower with fan motor with 3 screws.
 - b. Connect the 2 connectors and clamp.
2. **INSTALL REAR NO. 2 WINDOW SIDE GARNISH ASSEMBLY RH** . Refer to **INSTALLATION - Step 12**
3. **INSTALL QUARTER TRIM PANEL ASSEMBLY RH** . Refer to **REMOVAL - Step 26**
4. **INSTALL SLIDE DOOR WEATHERSTRIP RH**
5. **INSTALL REAR DOOR SCUFF PLATE RH** . Refer to **INSTALLATION - Step 27**
6. **INSTALL REAR NO. 2 SEAT OUTER BELT ASSEMBLY RH** . Refer to **INSTALLATION - Step 16**
7. **INSTALL ROOF HEADLINING REAR GARNISH** . Refer to **INSTALLATION - Step 22**
8. **INSTALL BACK DOOR SCUFF PLATE** . Refer to **INSTALLATION - Step 24**
9. **INSTALL BACK DOOR WEATHERSTRIP**

BLOWER MOTOR CONTROLLER (FOR REAR)

COMPONENTS

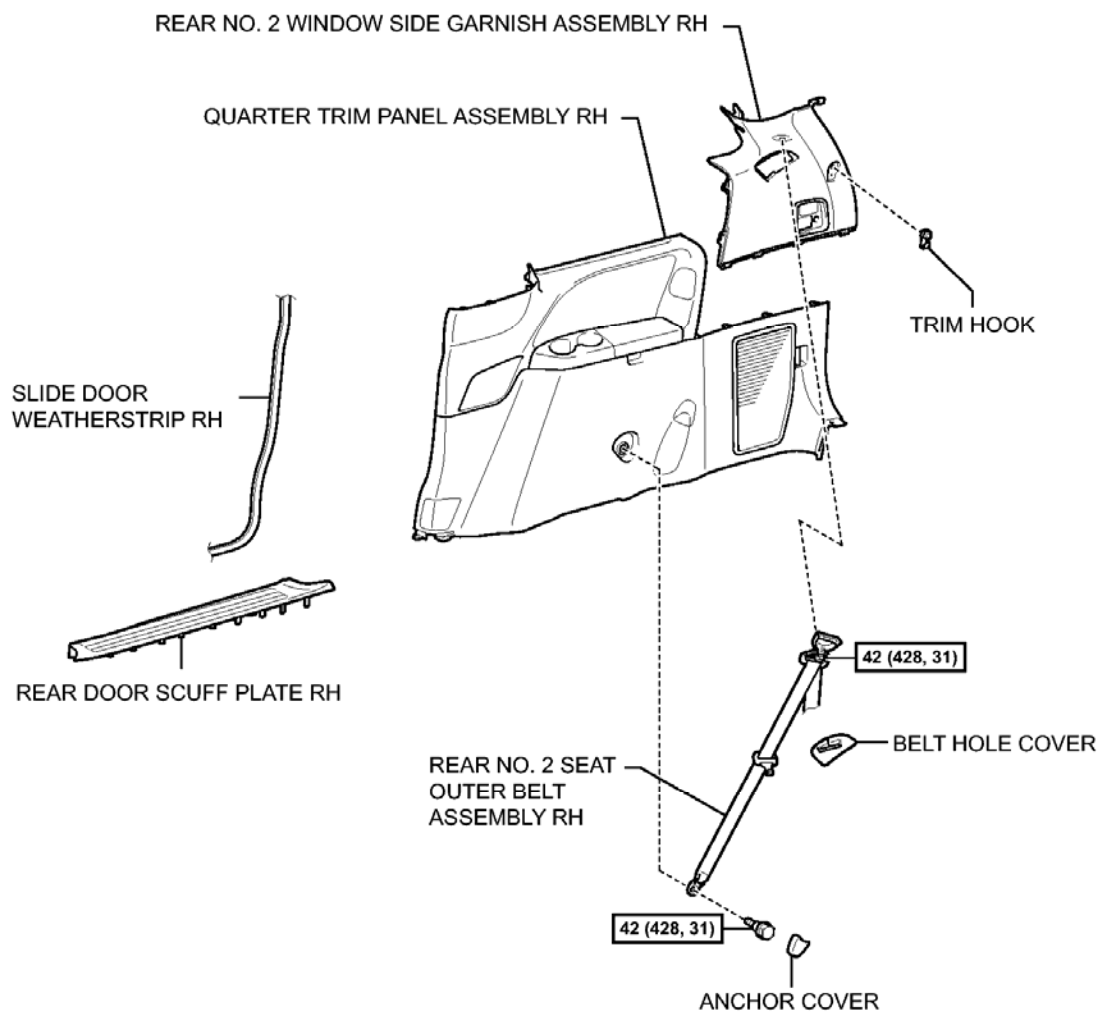
ILLUSTRATION



P

Fig. 171: Rear Blower Motor Controller Replacement Components (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

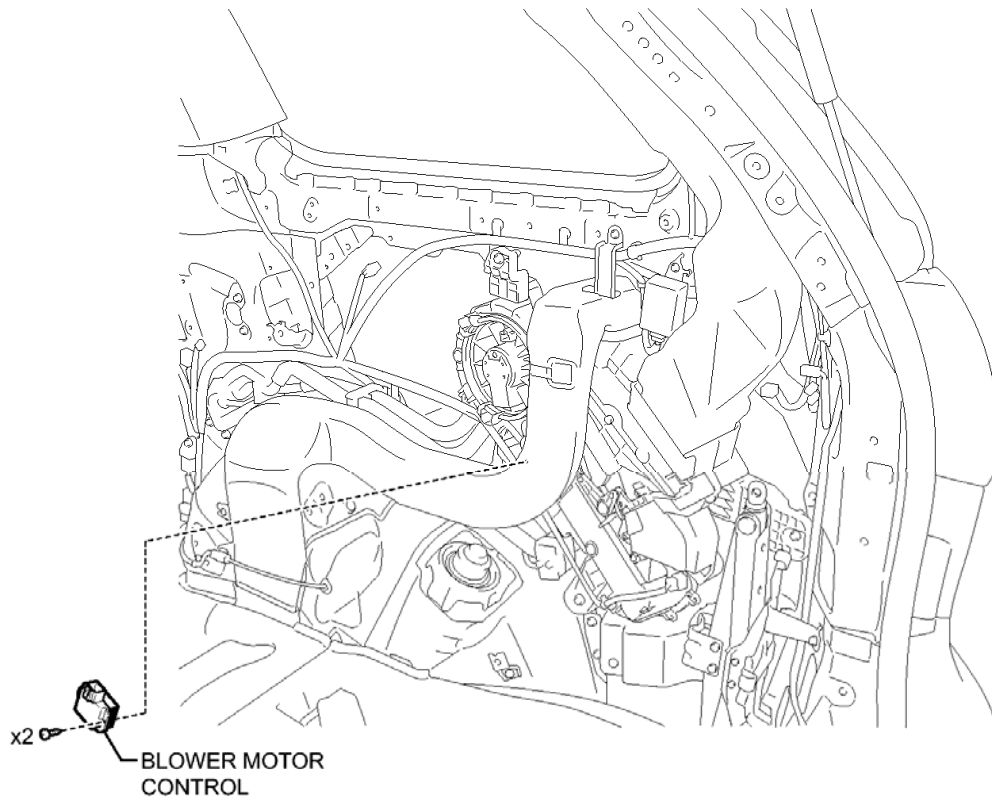
ILLUSTRATION



$\boxed{\text{N}\cdot\text{m (kgf}\cdot\text{cm, ft}\cdot\text{lb)}} : \text{Specified torque}$

Fig. 172: Rear Blower Motor Controller Replacement Components With Torque Specifications (2 Of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P

Fig. 173: Blower Motor Controller Replacement Components (3 Of 3)

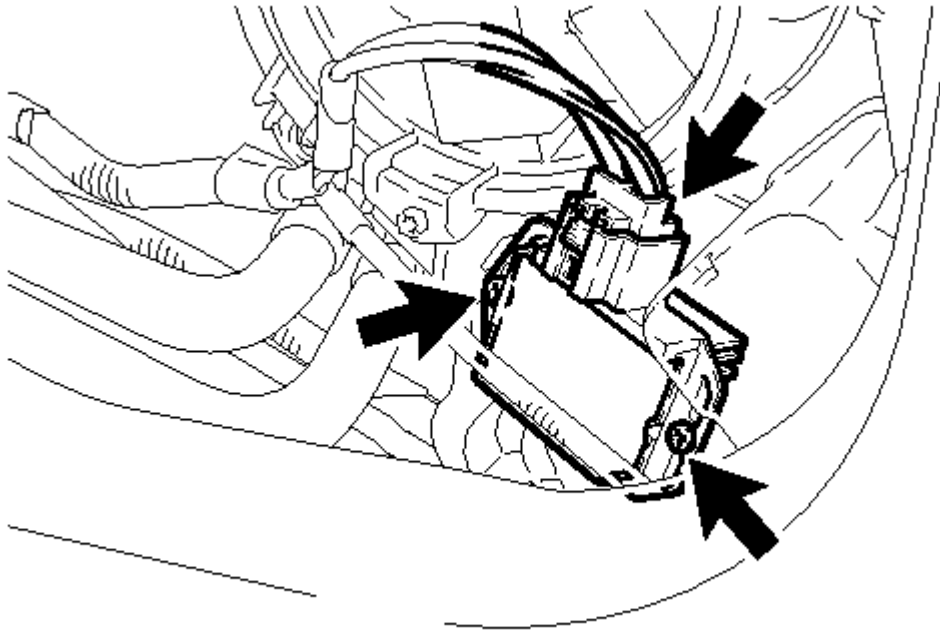
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE BACK DOOR WEATHERSTRIP
2. REMOVE BACK DOOR SCUFF PLATE . Refer to **REMOVAL - Step 17**
3. REMOVE ROOF HEADLINING REAR GARNISH . Refer to **REMOVAL - Step 19**
4. SEPARATE REAR NO. 2 SEAT OUTER BELT ASSEMBLY RH . Refer to **REMOVAL - Step 24**
5. REMOVE REAR DOOR SCUFF PLATE RH . Refer to **REMOVAL - Step 13**
6. SEPARATE SLIDE DOOR WEATHERSTRIP RH
7. REMOVE QUARTER TRIM PANEL ASSEMBLY RH . Refer to **REMOVAL - Step 26**
8. REMOVE REAR NO. 2 WINDOW SIDE GARNISH ASSEMBLY RH . Refer to **REMOVAL - Step 28**

9. REMOVE BLOWER MOTOR CONTROL



P

Fig. 174: Identifying Blower Motor Control, Connector & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Remove the 2 screws and blower motor control.

INSTALLATION

INSTALLATION

1. INSTALL BLOWER MOTOR CONTROL

- a. Install the blower motor control with 2 screws.
- b. Connect the connector.

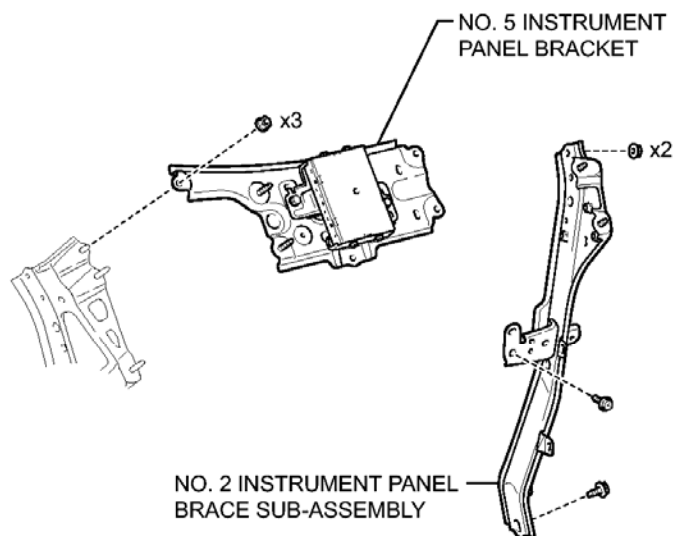
2. **INSTALL REAR NO. 2 WINDOW SIDE GARNISH ASSEMBLY RH** . Refer to **INSTALLATION - Step 12**
3. **INSTALL QUARTER TRIM PANEL ASSEMBLY RH** . Refer to **REMOVAL - Step 26**
4. **INSTALL SLIDE DOOR WEATHERSTRIP RH**
5. **INSTALL REAR DOOR SCUFF PLATE RH** . Refer to **INSTALLATION - Step 27**
6. **INSTALL REAR NO. 2 SEAT OUTER BELT ASSEMBLY RH** . Refer to **INSTALLATION - Step 16**
7. **INSTALL ROOF HEADLINING REAR GARNISH** . Refer to **INSTALLATION - Step 22**
8. **INSTALL BACK DOOR SCUFF PLATE** . Refer to **INSTALLATION - Step 24**

9. INSTALL BACK DOOR WEATHERSTRIP

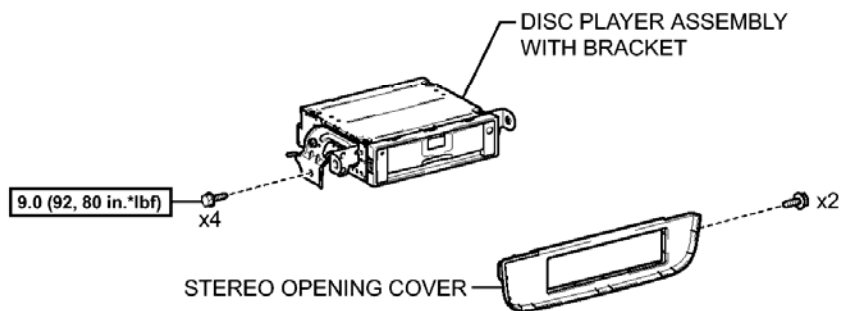
PTC HEATER ASSEMBLY

COMPONENTS

ILLUSTRATION



w/ Rear Monitor:



N*m (kgf*cm, ft.*lbf): Specified torque

ILLUSTRATION



REMOVAL

- ## 1. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY

Refer to **REMOVAL**

2. **REMOVE STEREO OPENING COVER (w/ Rear Monitor) . Refer to REMOVAL - Step 19**
3. **REMOVE DISC PLAYER ASSEMBLY WITH BRACKET (w/ Rear Monitor) . Refer to REMOVAL - Step 20**
4. **REMOVE NO. 5 INSTRUMENT PANEL BRACKET** See step 27
5. **REMOVE NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY** See step 29

6. **REMOVE NO. 4 AIR DUCT SUB-ASSEMBLY** See step 2
7. **REMOVE PTC HEATER ASSEMBLY**

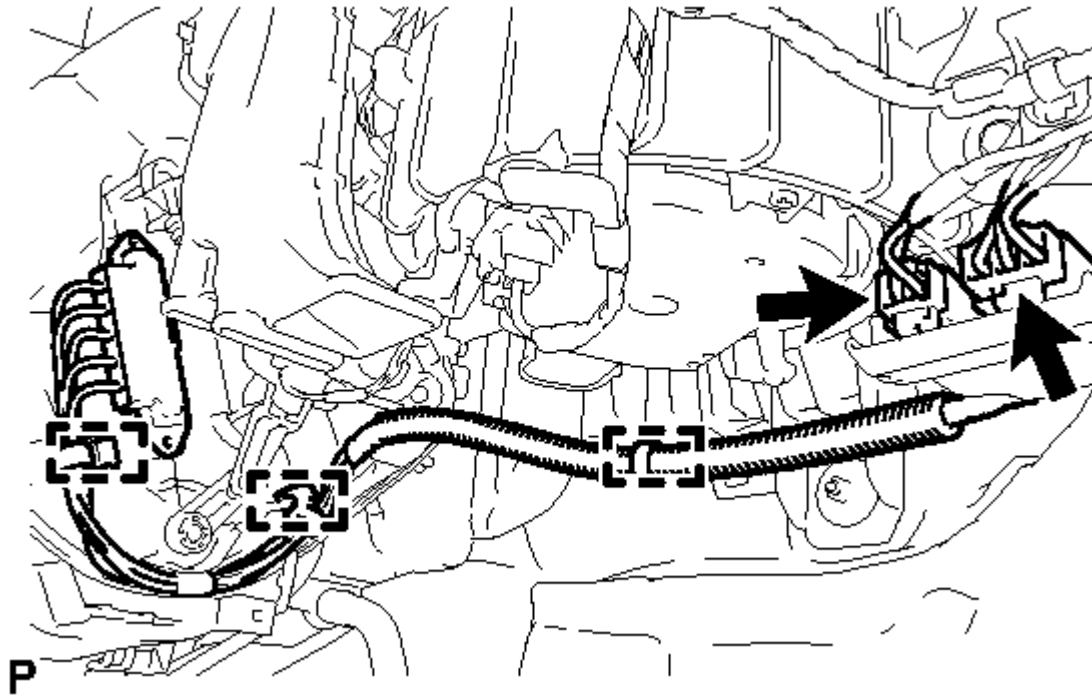


Fig. 177: Identifying PTC Heater Connectors & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the 2 connectors.
- b. Disengage the 3 clamps.
- c. Remove the screw, then disengage the 3 guides and separate the cover plate.

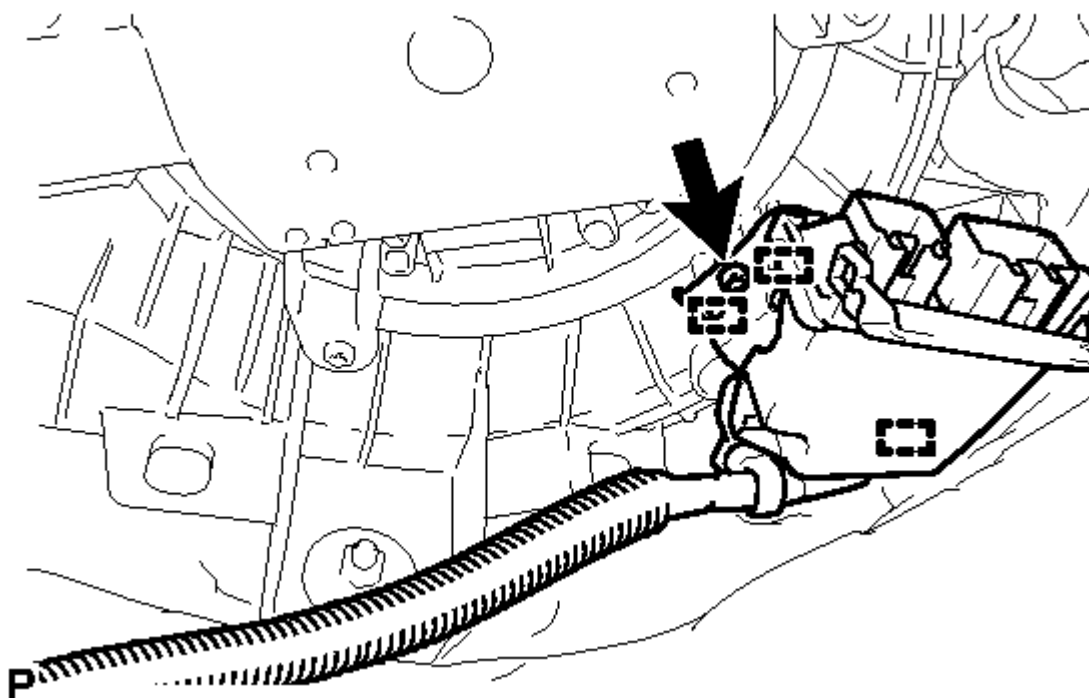


Fig. 178: Identifying PTC Heater Cover Plate Guides & Screw
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Disengage the 3 claws and the clamp, and remove the cover plate.

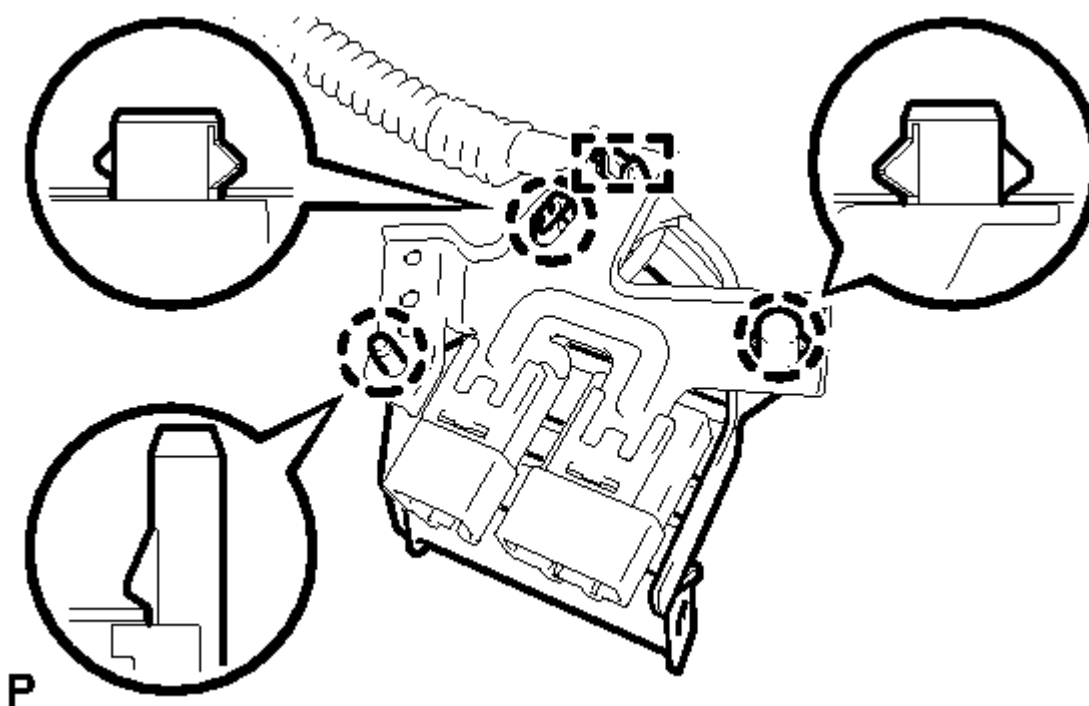
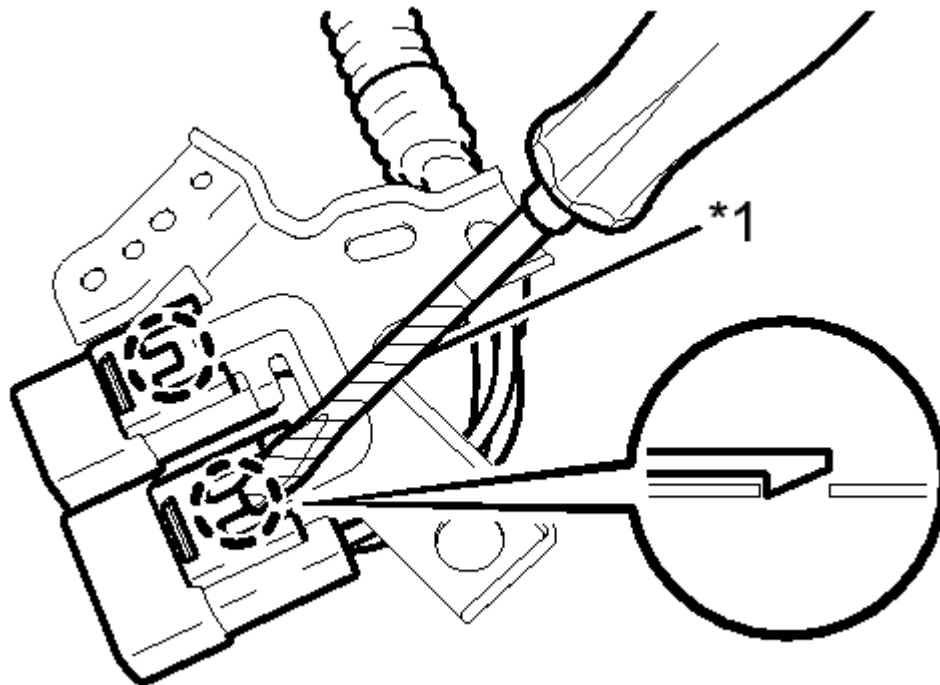


Fig. 179: Identifying PTC Heater Cover Plate Claws & Clamp
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Using a screwdriver with its tip wrapped in protective tape, disengage the 2 claws and disconnect the 2 connectors.



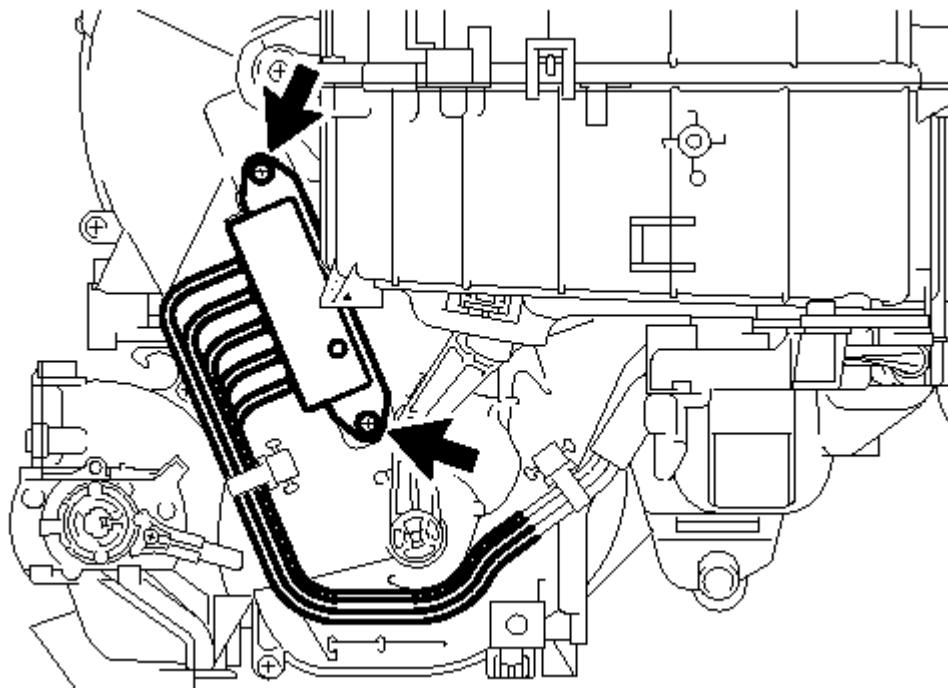
P

Fig. 180: Removing PTC Heater Connector & Claws Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Protective Tape
----	--------------------

- f. Remove the 2 screws and the PTC heater.



P

Fig. 181: Identifying PTC Heater & Screws

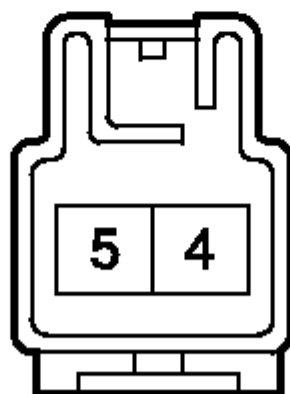
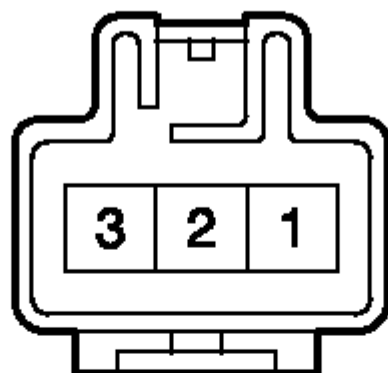
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. INSPECT PTC HEATER ASSEMBLY

*a



P

Fig. 182: PTC Heater Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Measure the resistance according to the value(s) in the table below.

TEXT IN ILLUSTRATION

*a	Component without harness connected (PTC Heater Assembly)
----	---

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 4	Always	Below 1 ohms
2 - 4	Always	Below 1 ohms
2 - 5	Always	Below 1 ohms
3 - 5	Always	Below 1 ohms

If the result is not as specified, replace the PTC heater assembly.

INSTALLATION

INSTALLATION

1. INSTALL PTC HEATER ASSEMBLY

- Install the PTC heater with the 2 screws.
- Engage the 2 claws and connect the 2 connectors.
- Engage the 3 claws and the clamp, and install the cover plate.
- Engage the 3 guides and install the cover plate with the screw.
- Engage the 3 clamps.
- Connect the 2 connectors.

2. INSTALL NO. 4 AIR DUCT SUB-ASSEMBLY See step 5

3. INSTALL NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY See step 5

4. INSTALL NO. 5 INSTRUMENT PANEL BRACKET See step 7

5. INSTALL DISC PLAYER ASSEMBLY WITH BRACKET (w/ Rear Monitor) . Refer to INSTALLATION - Step 3

6. INSTALL STEREO OPENING COVER (w/ Rear Monitor) . Refer to INSTALLATION - Step 4

7. INSTALL INSTRUMENT PANEL SUB-ASSEMBLY

Refer to **INSTALLATION**

COMPRESSOR (FOR 1AR-FE)

COMPONENTS

ILLUSTRATION

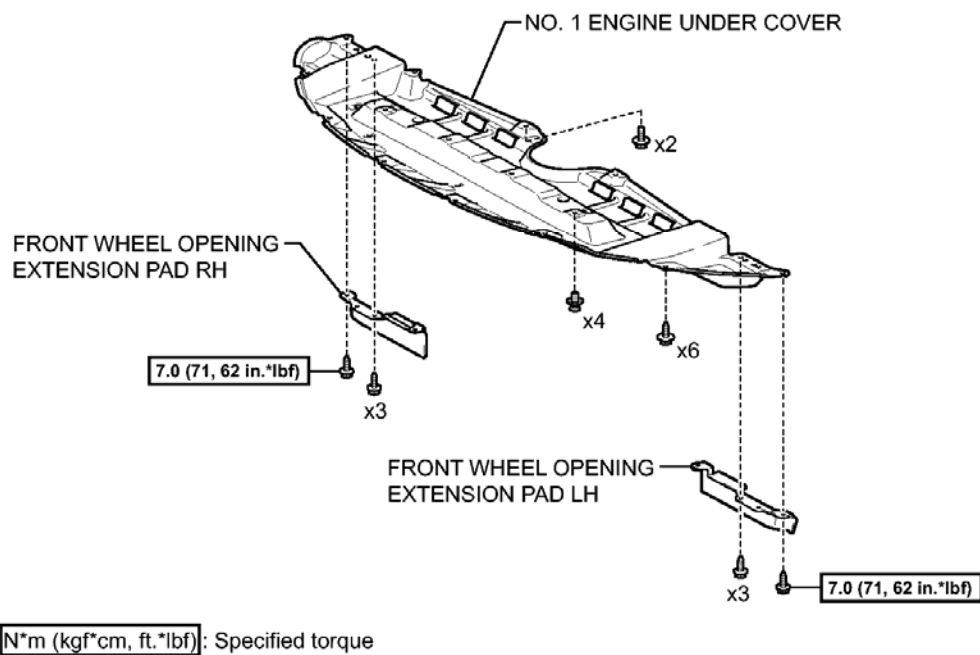
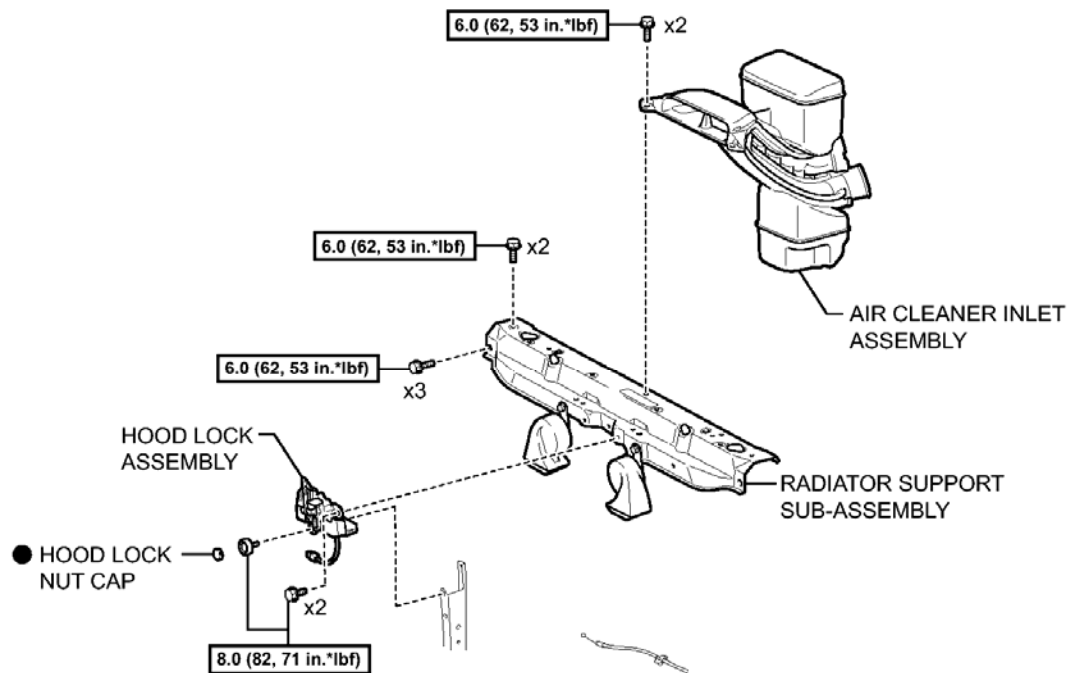


Fig. 183: Compressor Replacement Components With Torque Specifications (1 Of 4)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



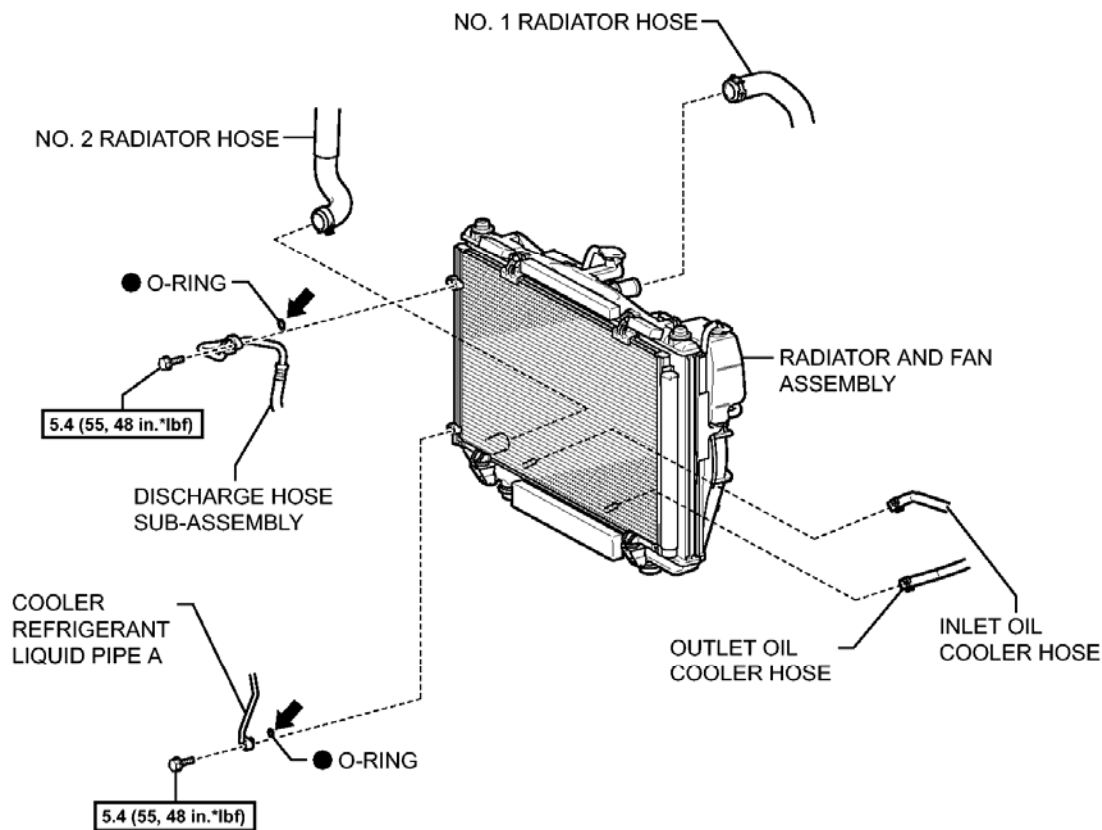
[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

P

Fig. 184: Compressor Replacement Components With Torque Specifications (2 Of 4)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



5.4 (55, 48 in.*lbf): Specified torque

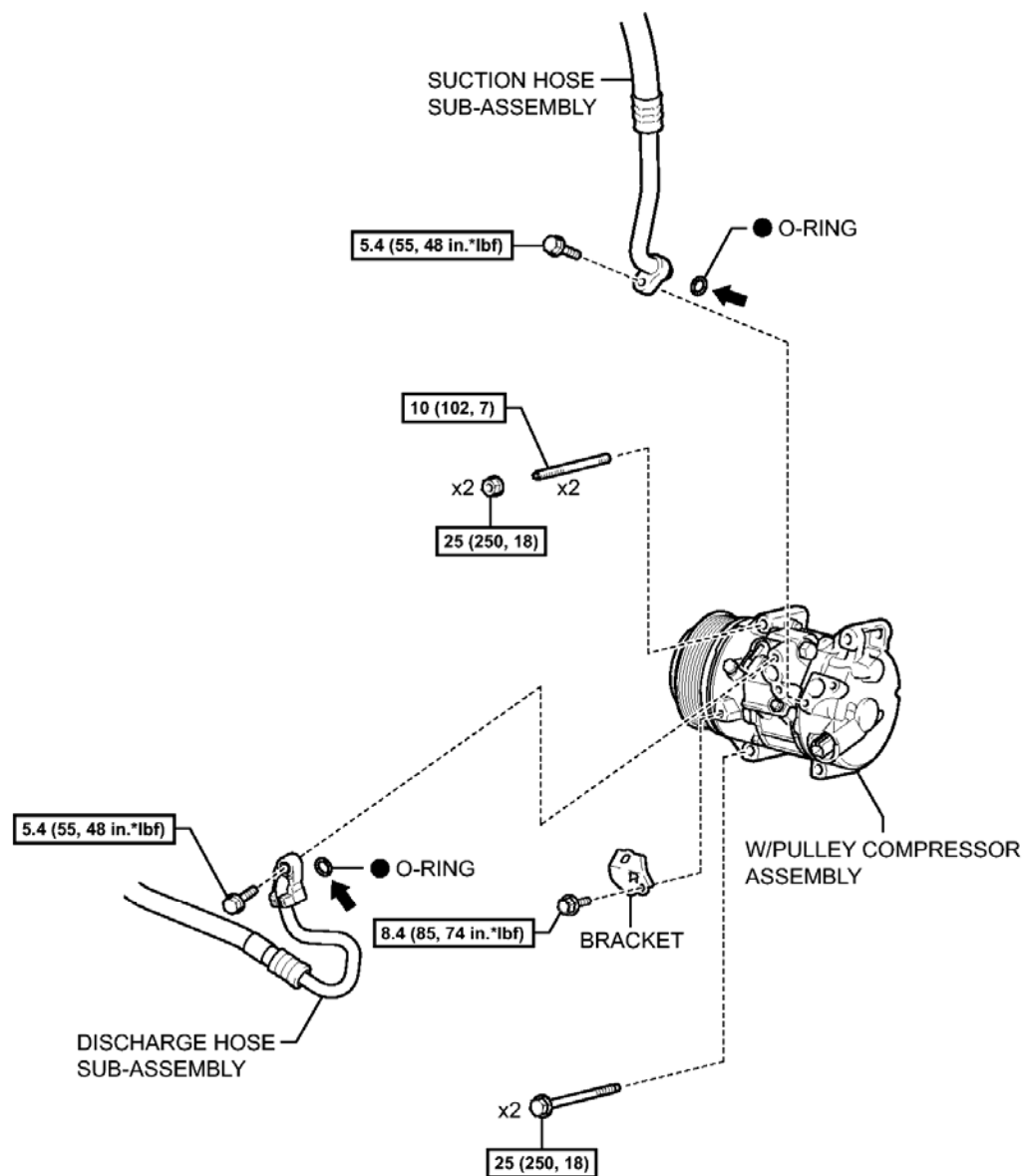
● Non-reusable part

← Compressor oil ND-OIL8 or equivalent

P

Fig. 185: Compressor Replacement Components With Torque Specifications (3 Of 5)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

← Compressor oil ND-OIL 8 or equivalent

P

Fig. 186: Compressor Replacement Components With Torque Specifications (4 Of 4)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. INSPECT COMPRESSOR FOR METALLIC SOUND

- a. Check if there are any abnormal metallic sounds from the compressor when the A/C switch is on and the compressor operates.

If any abnormal metallic sound is heard, replace the compressor.

2. INSPECT REFRIGERANT PRESSURE

HINT:

See step 1

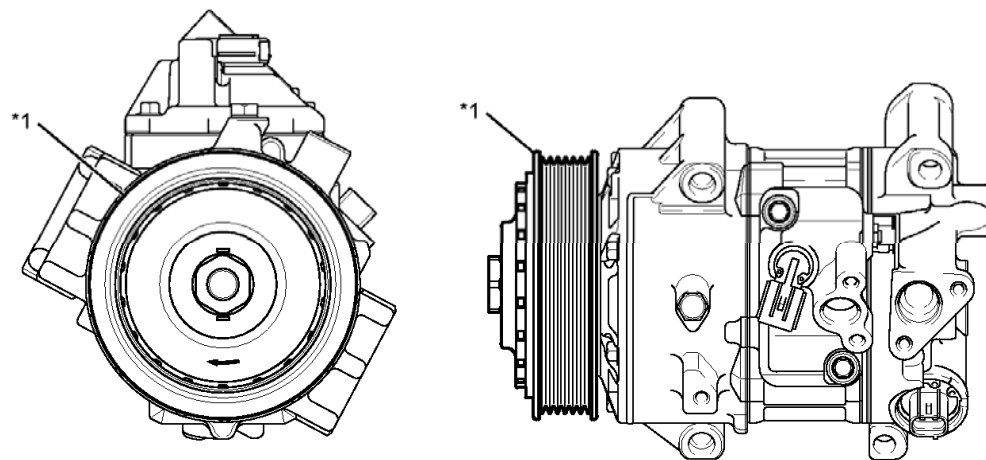
3. INSPECT FOR LEAKAGE OF REFRIGERANT

- a. Using a halogen leak detector, check for leakage of refrigerant.

If there is any leakage, replace the compressor.

4. INSPECT W/PULLEY COMPRESSOR ASSEMBLY

- a. Check operation of compressor.
 1. Start the engine.
 2. Inspect the compressor.



P

Fig. 187: Inspecting Compressor w/ Pulley Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Pulley	-	-
----	--------	---	---

OK

The compressor shaft rotates along with the pulley.

If the result is not as specified, replace the compressor.

REMOVAL

REMOVAL

1. **RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM** See step 1
2. **REMOVE NO. 1 ENGINE UNDER COVER** . Refer to **REMOVAL - Step 4**
3. **DRAIN ENGINE COOLANT** . Refer to **REPLACEMENT - Step 3**
4. **REMOVE FAN AND GENERATOR V BELT**

Refer to **REMOVAL**

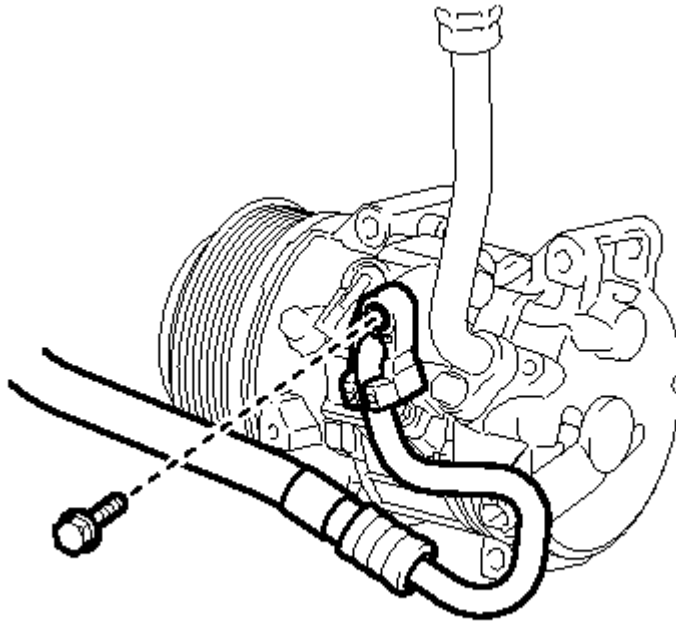
5. **REMOVE MILLIMETER WAVE RADAR SENSOR ASSEMBLY (w/ Dynamic Radar Cruise Control System)**

Refer to **REMOVAL**

6. **REMOVE RADIATOR GRILLE SUB-ASSEMBLY (w/o Dynamic Radar Cruise Control System)**

Refer to **REMOVAL**

7. **REMOVE AIR CLEANER INLET ASSEMBLY** . Refer to **REMOVAL - Step 22**
8. **DISCONNECT NO. 1 RADIATOR HOSE** . Refer to **REMOVAL - Step 5**
9. **DISCONNECT NO. 2 RADIATOR HOSE** . Refer to **REMOVAL - Step 6**
10. **DISCONNECT INLET OIL COOLER HOSE** . Refer to **REMOVAL - Step 7**
11. **DISCONNECT OUTLET OIL COOLER HOSE** . Refer to **REMOVAL - Step 8**
12. **DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY** See step 13
13. **DISCONNECT COOLER REFRIGERANT LIQUID PIPE A** See step 14
14. **REMOVE HOOD LOCK NUT CAP** . Refer to **REMOVAL - Step 5**
15. **REMOVE HOOD LOCK ASSEMBLY** . Refer to **REMOVAL - Step 6**
16. **REMOVE RADIATOR SUPPORT SUB-ASSEMBLY** See step 17
17. **REMOVE RADIATOR AND FAN ASSEMBLY** See step 18
18. **DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY**



P

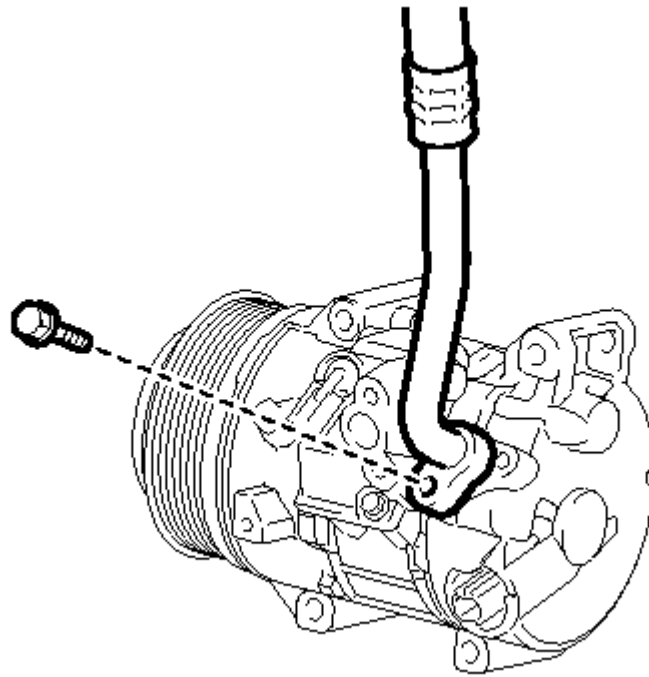
Fig. 188: Identifying Discharge Hose & Bolt At Compressor

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the bolt and disconnect the discharge hose from the compressor.
- b. Remove the O-ring from the discharge hose.

NOTE: **Seal the openings of the disconnected parts using vinyl tape to prevent the entry of moisture and foreign matter.**

19. DISCONNECT SUCTION HOSE SUB-ASSEMBLY



P

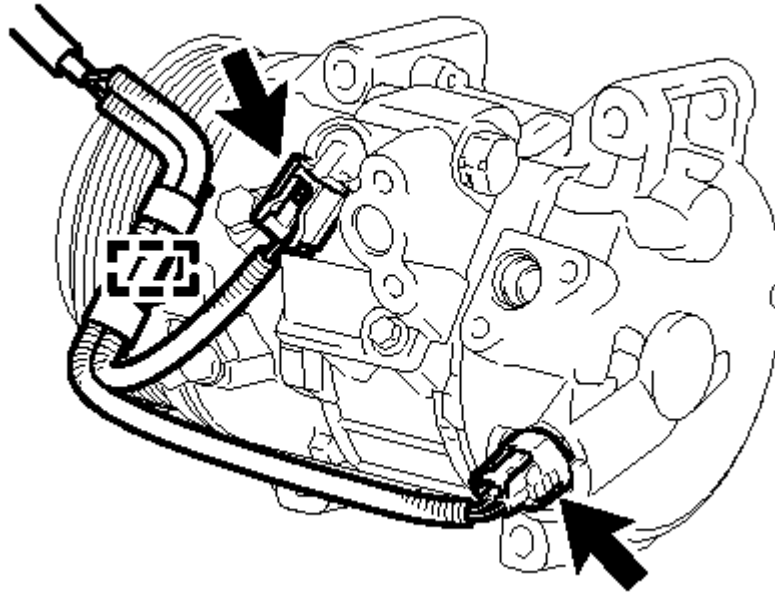
Fig. 189: Identifying Suction Hose & Bolt At Compressor

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the bolt and disconnect the suction hose from the compressor.
- b. Remove the O-ring from the suction hose.

NOTE: **Seal the openings of the disconnected parts using vinyl tape to prevent entry of moisture and foreign matter.**

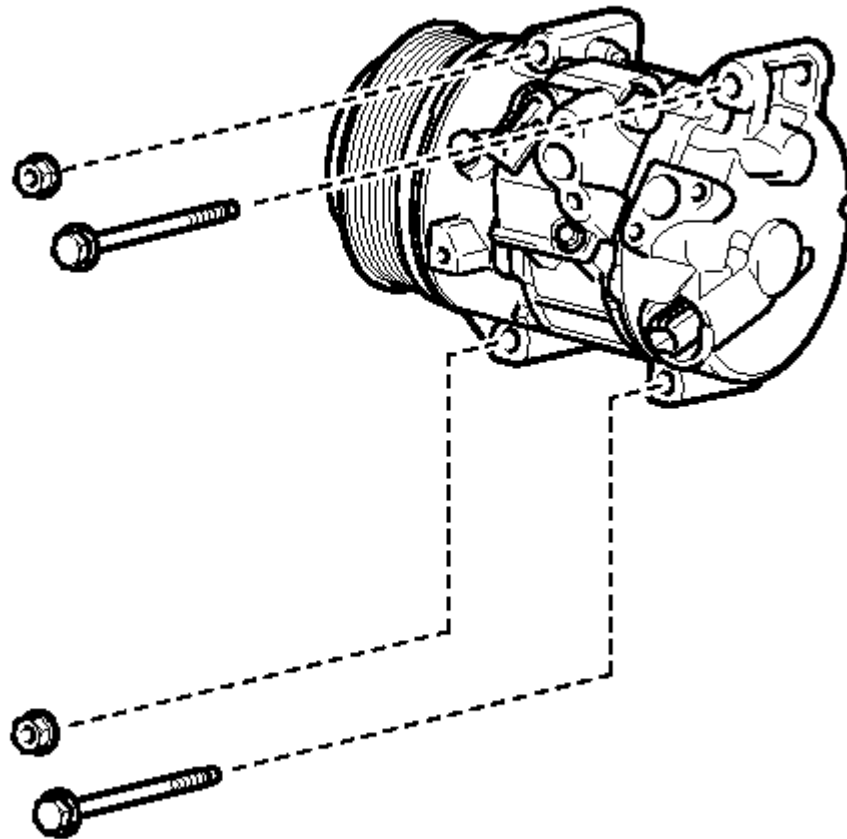
20. REMOVE W/PULLEY COMPRESSOR ASSEMBLY



P

Fig. 190: Identifying Compressor Assembly w/ Pulley Connectors & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

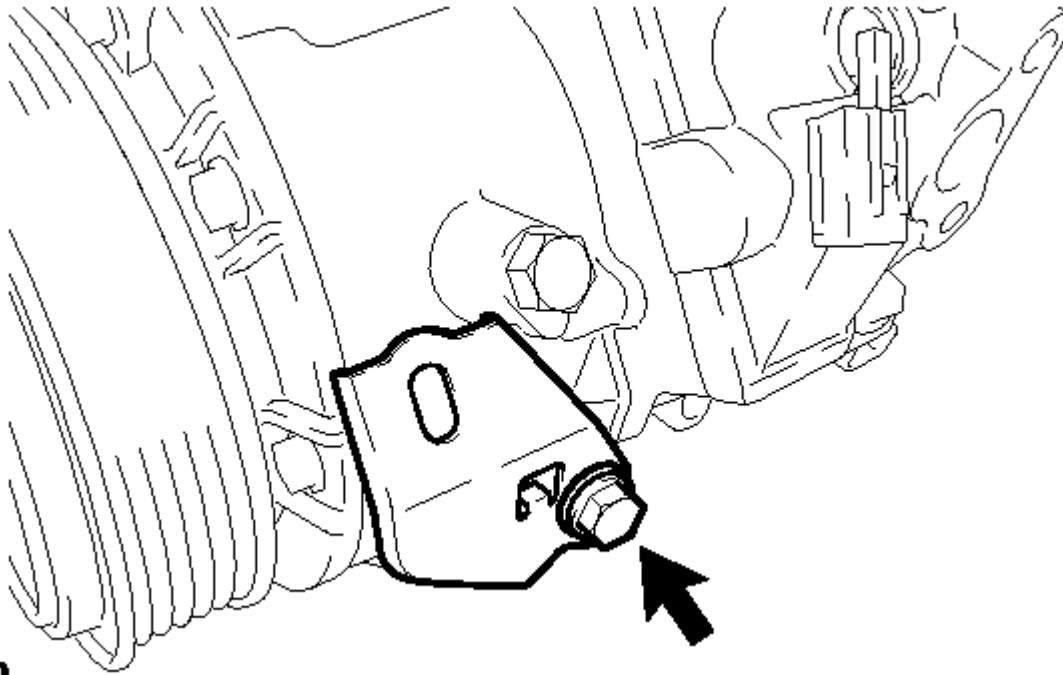
- a. Disengage the clamp.
- b. Disconnect the 2 connectors.
- c. Remove the 2 bolts, 2 nuts and the compressor.



P

Fig. 191: Identifying Compressor Assembly w/ Pulley & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

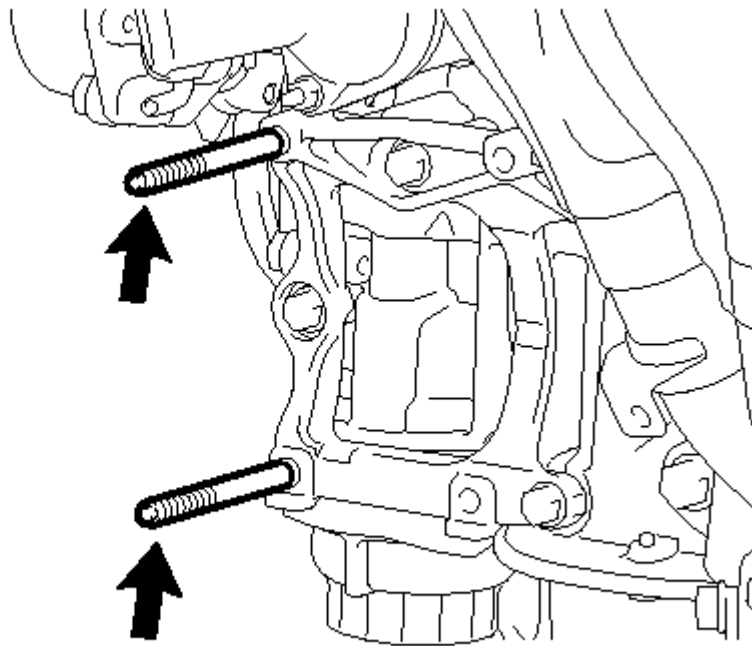
- d. Remove the bolt and the bracket.



P

Fig. 192: Identifying Compressor Assembly w/ Pulley Bracket & Bolt
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Using an E8 "TORX" socket wrench, remove the 2 stud bolts.



P

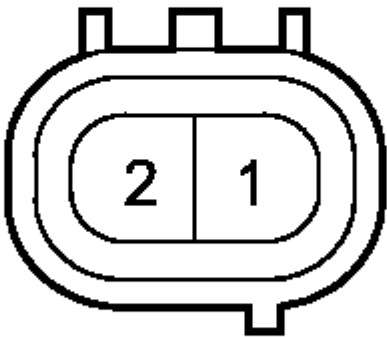
Fig. 193: Identifying Compressor Assembly w/ Pulley Stud Bolts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

- 1. **INSPECT W/PULLEY COMPRESSOR ASSEMBLY (SOLENOID VALVE)**
 - a. Measure the resistance according to the value(s) in the table below.

*a



H

Fig. 194: Identifying Compressor Assembly w/ Pulley Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Resistance

Tester Connection	Condition	Specified Condition
2 - 1	20°C (68°F)	10 to 11 ohms

TEXT IN ILLUSTRATION

*a	Component without harness connected (A/C Compressor (Solenoid Valve))
----	---

If the resistance is not as specified, replace the compressor.

INSTALLATION

INSTALLATION

1. ADJUST COMPRESSOR OIL LEVEL

- a. When replacing the compressor with a new one, gradually discharge the refrigerant from the service valve, and drain the following amount of oil from the new compressor before installation.

Standard

(Oil capacity inside the new compressor : 140 + 15 cc (4.8 + 0.51 fl.oz.)) - (Remaining oil amount in the removed compressor) = (Oil amount to be removed from the new compressor when replacing)

NOTE:

- When checking the compressor oil level, observe the Precautions on the Cooler Removal/Installation.
- If a new compressor is installed without removing some oil, due to the oil remaining in the pipes of the vehicle, the oil amount will be too large. This prevents heat exchange in the refrigerant cycle and causes refrigerant failure.
- If the volume of oil remaining in the removed compressor is too small, check for oil leakage.
- Be sure to use ND-OIL 8 or equivalent for compressor oil.

2. INSTALL W/PULLEY COMPRESSOR ASSEMBLY

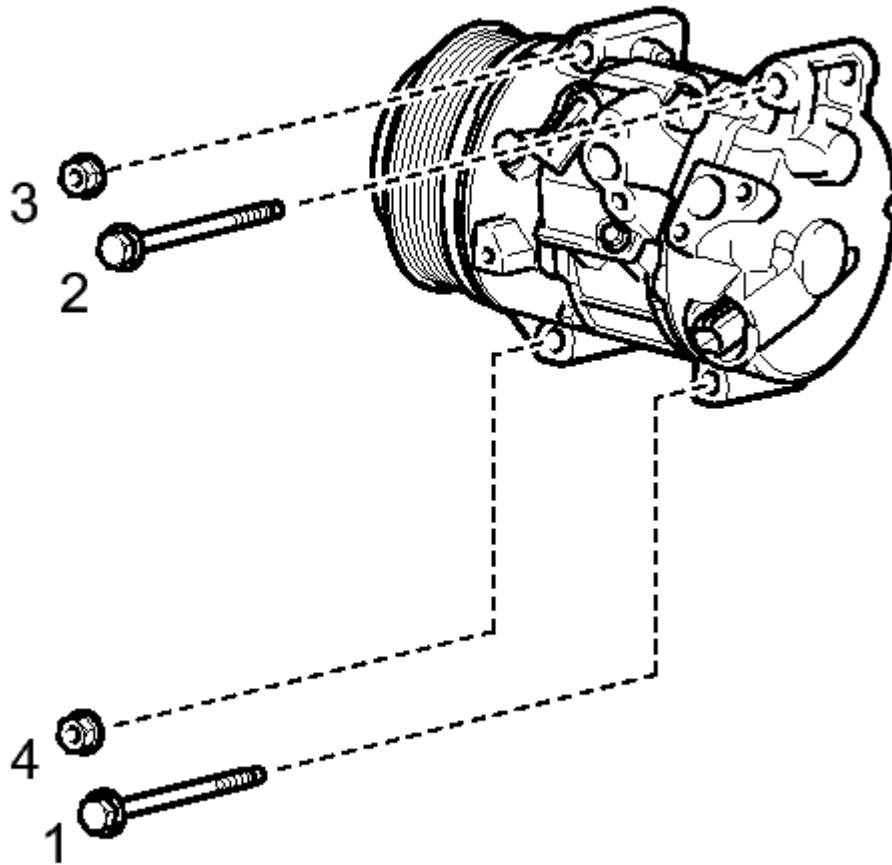
- a. Using an E8 "TORX" socket wrench, install the compressor with the 2 stud bolts.

Torque: 10 N*m (102 kgf*cm, 7 ft.*lbf)

- b. Install the bracket onto the compressor with the bolt.

Torque: 8.4 N*m (85 kgf*cm, 74 in.*lbf)

- c. Install the compressor with pulley with the 2 bolts and 2 nuts.



P

Fig. 195: Identifying Compressor Assembly w/ Pulley & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf)

HINT:

Tighten the bolts and the nuts in the order shown in the illustration.

- d. Connect the 2 connectors.
e. Engage the clamp.

3. CONNECT SUCTION HOSE SUB-ASSEMBLY

- a. Remove the attached vinyl tape from the suction hose.

- b. Sufficiently apply compressor oil to a new O-ring and the fitting surface of the compressor.

Compressor oil

ND-OIL 8 or equivalent

- c. Install the O-ring onto the suction hose.
- d. Connect the suction hose to the compressor with the bolt.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

4. CONNECT DISCHARGE HOSE SUB-ASSEMBLY

- a. Remove the attached vinyl tape from the discharge hose.
- b. Sufficiently apply compressor oil to a new O-ring and the fitting surface of the compressor.

Compressor oil

ND-OIL 8 or equivalent

- c. Install the O-ring onto the discharge hose.
- d. Connect the discharge hose to the compressor with the bolt.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

- 5. **INSTALL RADIATOR AND FAN ASSEMBLY** See step 4
- 6. **INSTALL RADIATOR SUPPORT SUB-ASSEMBLY** See step 5
- 7. **INSTALL HOOD LOCK ASSEMBLY** . Refer to **ON-VEHICLE INSPECTION - Step 1**
- 8. **INSTALL HOOD LOCK NUT CAP** . Refer to **INSTALLATION - Step 9**
- 9. **CONNECT COOLER REFRIGERANT LIQUID PIPE A** See step 8
- 10. **CONNECT DISCHARGE HOSE SUB-ASSEMBLY** See step 9
- 11. **CONNECT OUTLET OIL COOLER HOSE** . Refer to **INSTALLATION - Step 9**
- 12. **CONNECT INLET OIL COOLER HOSE** . Refer to **INSTALLATION - Step 10**
- 13. **CONNECT NO. 2 RADIATOR HOSE** . Refer to **INSTALLATION - Step 11**
- 14. **CONNECT NO. 1 RADIATOR HOSE** . Refer to **INSTALLATION - Step 12**
- 15. **INSTALL AIR CLEANER INLET ASSEMBLY** . Refer to **INSTALLATION - Step 47**
- 16. **INSTALL RADIATOR GRILLE SUB-ASSEMBLY (w/o Dynamic Radar Cruise Control System)**

Refer to **INSTALLATION**

- 17. **INSTALL MILLIMETER WAVE RADAR SENSOR ASSEMBLY (w/ Dynamic Radar Cruise Control System)**

Refer to **INSTALLATION**

18. INSTALL FAN AND GENERATOR V BELT

Refer to **INSTALLATION**

19. **ADD ENGINE COOLANT** . Refer to **REPLACEMENT - Step 4**

20. **INSPECT FOR COOLANT LEAK** . Refer to **ON-VEHICLE INSPECTION - Step 1**

21. **CHARGE REFRIGERANT** See step 2

22. **WARM UP ENGINE** See step 3

23. **INSPECT FOR REFRIGERANT LEAK** See step 4

24. **INSPECT AUTOMATIC TRANSAXLE FLUID**

for U660E: Refer to **ADJUSTMENT**

for U660F: Refer to **ADJUSTMENT**

25. **INSTALL NO. 1 ENGINE UNDER COVER** . Refer to **INSTALLATION - Step 16**

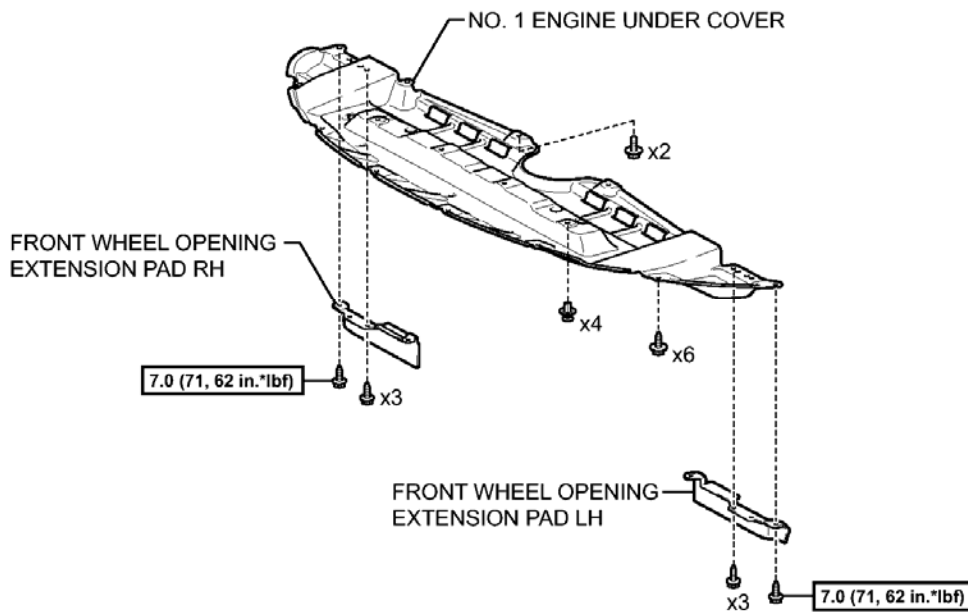
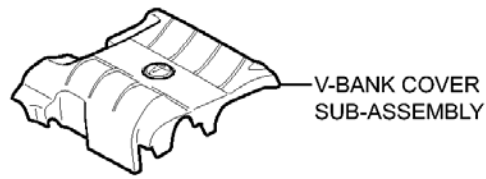
26. **INSPECT HOOD SUB-ASSEMBLY** . Refer to **ON-VEHICLE INSPECTION - Step 1**

27. **ADJUST HOOD SUB-ASSEMBLY** . Refer to **ADJUSTMENT - Step 1**

COMPRESSOR (FOR 2GR-FE)

COMPONENTS

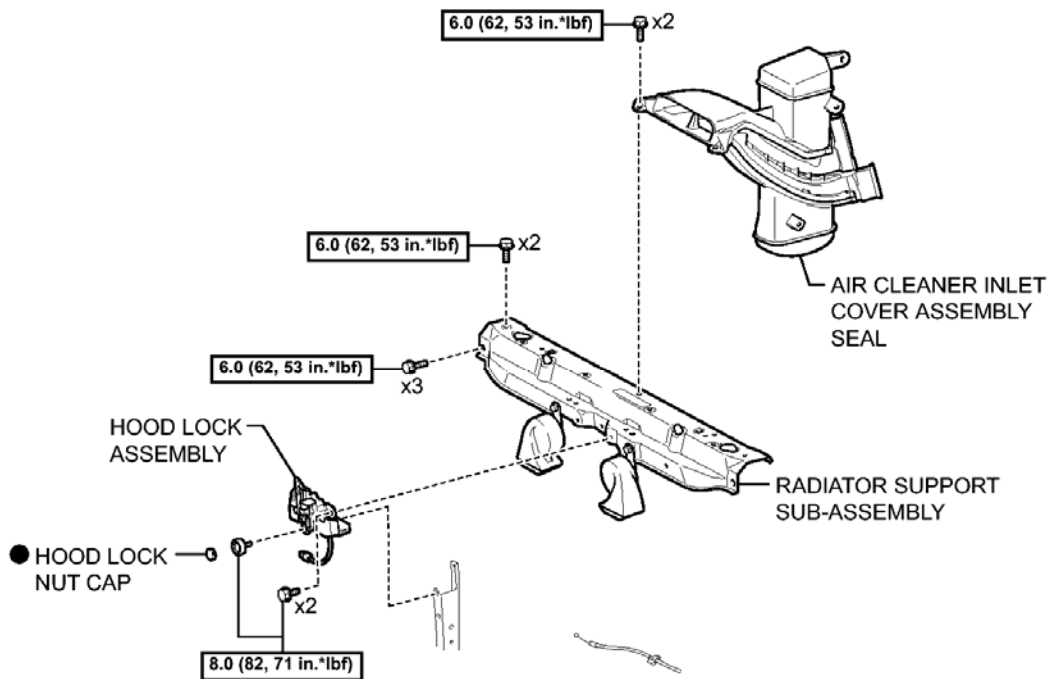
ILLUSTRATION



N*m (kgf*cm, ft.*lbf): Specified torque

P
Fig. 196: Compressor Replacement Components With Torque Specifications (1 Of 5)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

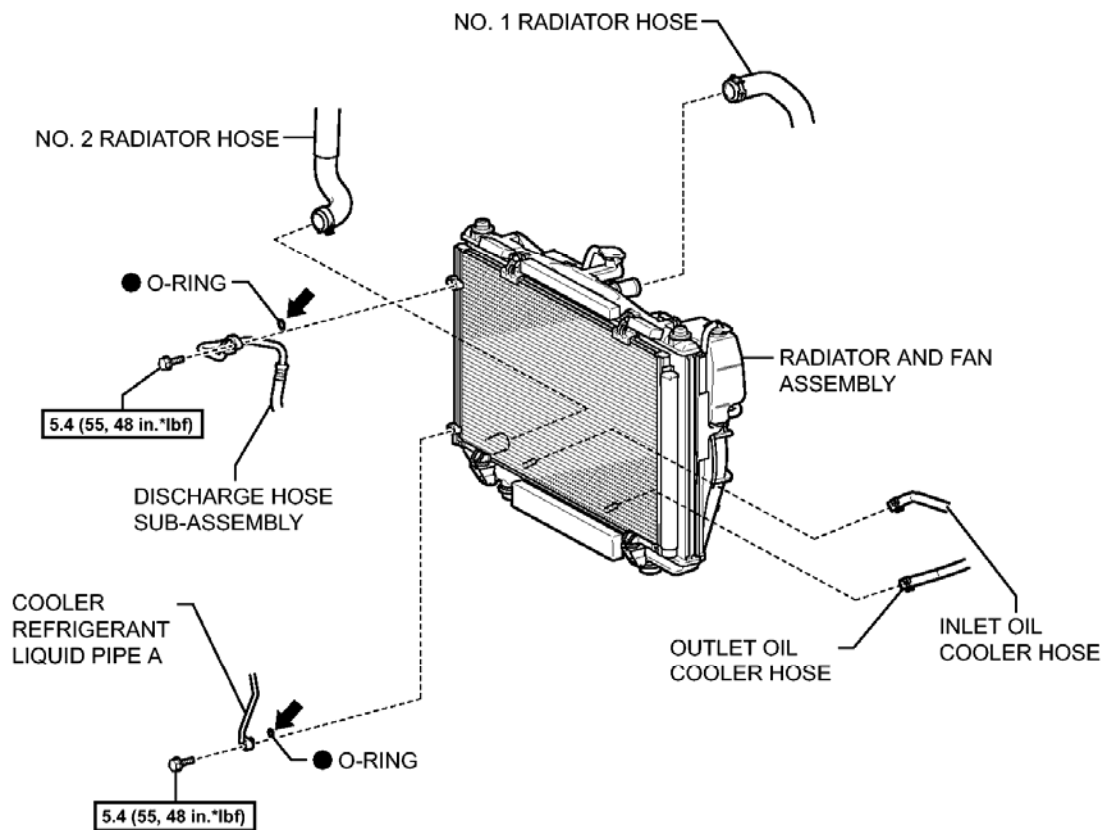


N*m (kgf*cm, ft.*lbf): Specified torque

● Non-reusable part

P
Fig. 197: Compressor Replacement Components With Torque Specifications (2 Of 5)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



5.4 (55, 48 in.*lbf): Specified torque

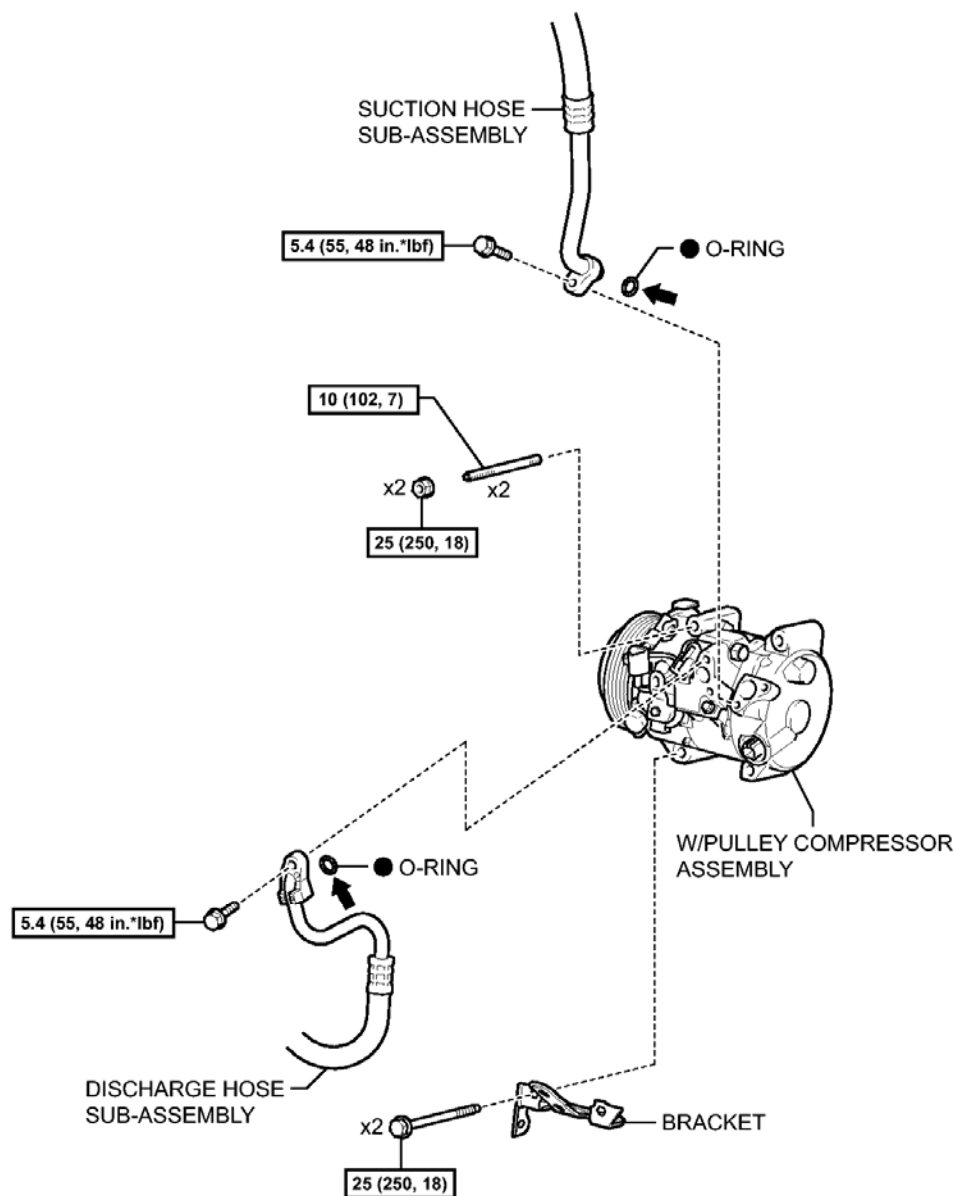
● Non-reusable part

← Compressor oil ND-OIL8 or equivalent

P

Fig. 198: Compressor Replacement Components With Torque Specifications (3 Of 5)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



[N*m (kgf*cm, ft.*lbf)]: Specified torque

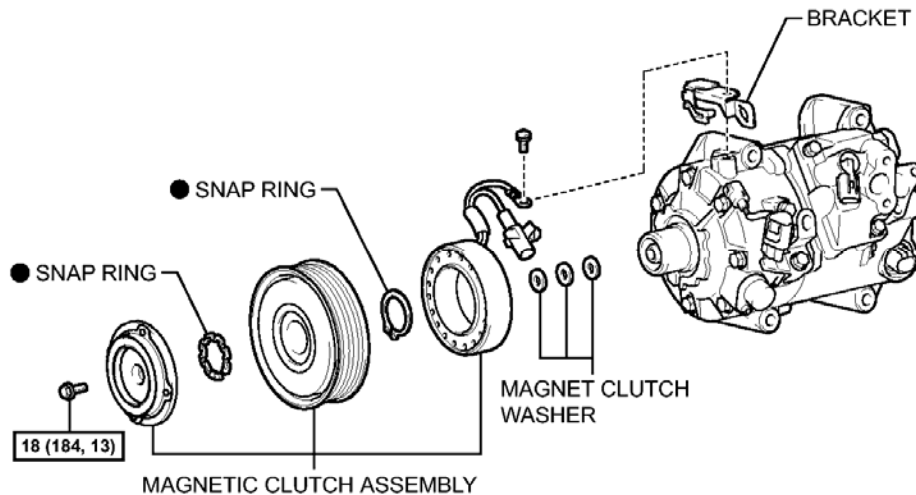
● Non-reusable part

← Compressor oil ND-OIL 8 or equivalent

P

Fig. 199: Compressor Replacement Components With Torque Specifications (4 Of 5)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

P

Fig. 200: Compressor Replacement Components With Torque Specifications (5 Of 5)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM** See step 1
2. **REMOVE V-BANK COVER SUB-ASSEMBLY** . Refer to **REMOVAL - Step 24**
3. **REMOVE NO. 1 ENGINE UNDER COVER** . Refer to **REMOVAL - Step 4**
4. **DRAIN ENGINE COOLANT** . Refer to **REPLACEMENT - Step 3**
5. **REMOVE FAN AND GENERATOR V BELT**

Refer to **REMOVAL**

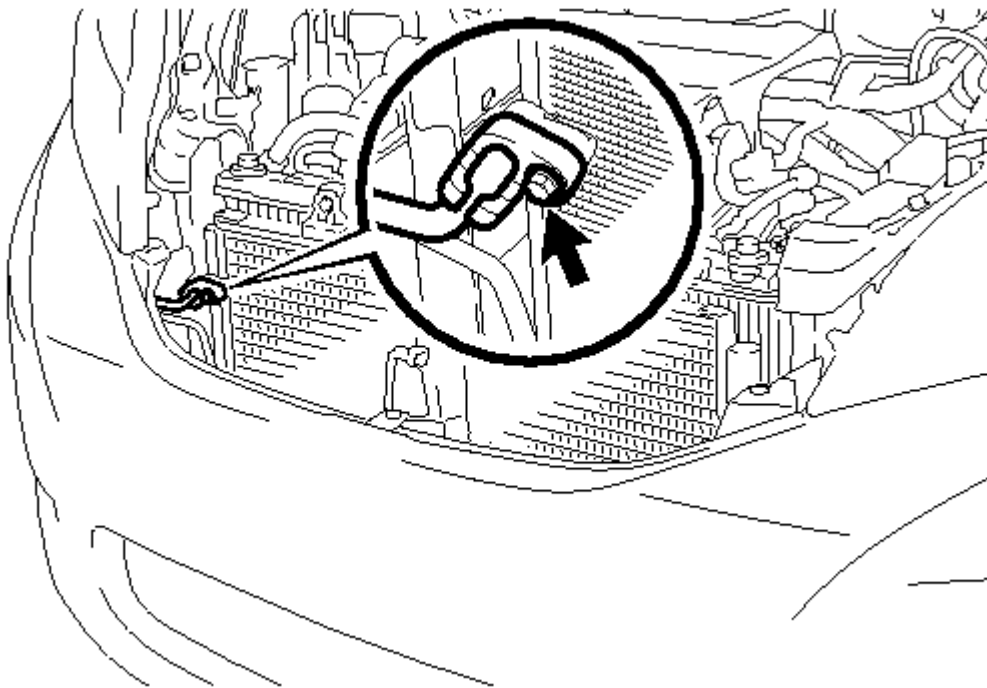
6. **REMOVE MILLIMETER WAVE RADAR SENSOR ASSEMBLY (w/ Dynamic Radar Cruise Control System)**

Refer to **REMOVAL**

7. **REMOVE RADIATOR GRILLE SUB-ASSEMBLY (w/o Dynamic Radar Cruise Control System)**

Refer to **REMOVAL**

8. **REMOVE AIR CLEANER INLET COVER ASSEMBLY SEAL** . Refer to **REMOVAL - Step 6**
9. **DISCONNECT NO. 1 RADIATOR HOSE** . Refer to **REMOVAL - Step 5**
10. **DISCONNECT NO. 2 RADIATOR HOSE** . Refer to **REMOVAL - Step 6**
11. **DISCONNECT INLET OIL COOLER HOSE** . Refer to **REMOVAL - Step 7**
12. **DISCONNECT OUTLET OIL COOLER HOSE** . Refer to **REMOVAL - Step 8**
13. **DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY**



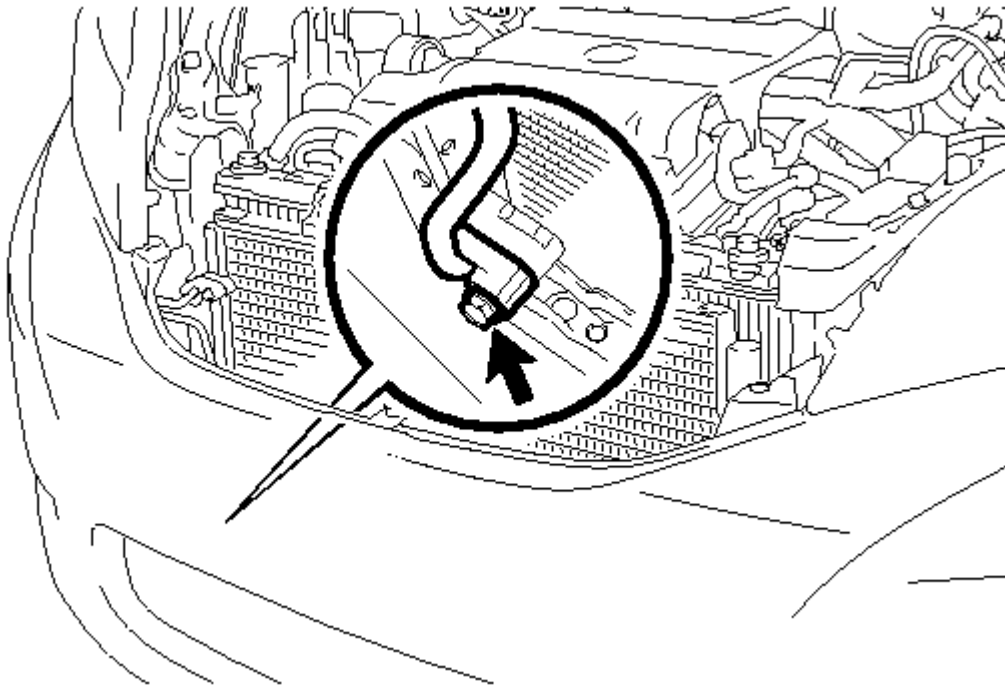
P

Fig. 201: Identifying Discharge Hose & Bolt At Condenser
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the bolt and disconnect the discharge hose from the condenser.
- b. Remove the O-ring from the discharge hose.

NOTE: **Seal the openings of the disconnected parts using vinyl tape to prevent the entry of moisture and foreign matter.**

14. **DISCONNECT COOLER REFRIGERANT LIQUID PIPE A**



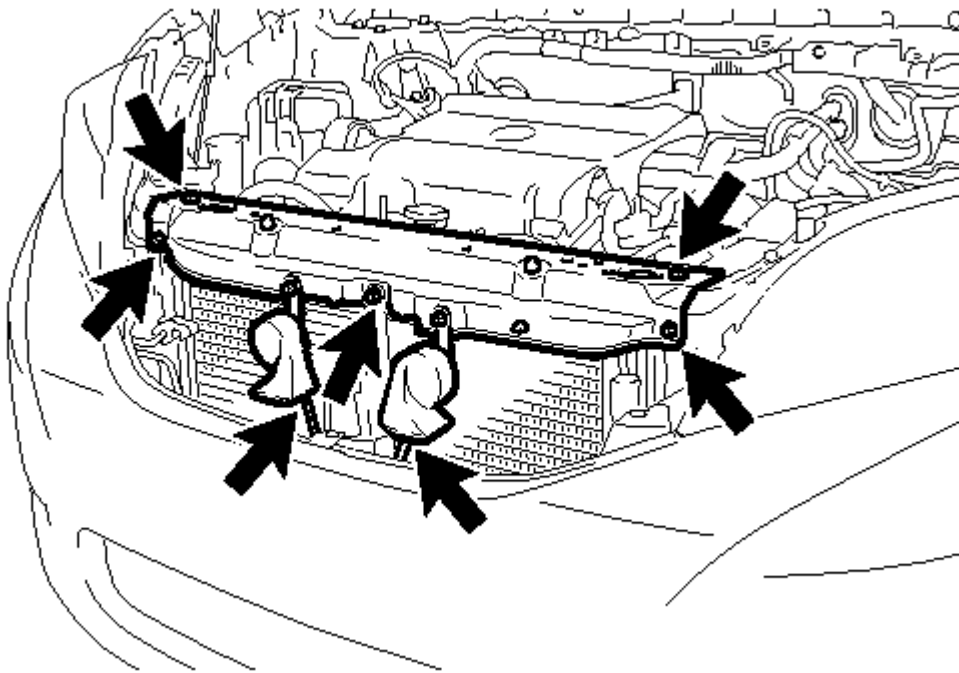
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Fig. 202: Identifying Cooler Refrigerant Liquid Pipe A & Bolt At Condenser
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the bolt and disconnect the cooler refrigerant liquid pipe A from the condenser.
- b. Remove the O-ring from the cooler refrigerant liquid pipe A.

NOTE: **Seal the openings of the disconnected parts using vinyl tape to prevent the entry of moisture and foreign matter.**

15. **REMOVE HOOD LOCK NUT CAP** . Refer to **REMOVAL - Step 5**
16. **REMOVE HOOD LOCK ASSEMBLY** . Refer to **REMOVAL - Step 6**
17. **REMOVE RADIATOR SUPPORT SUB-ASSEMBLY**

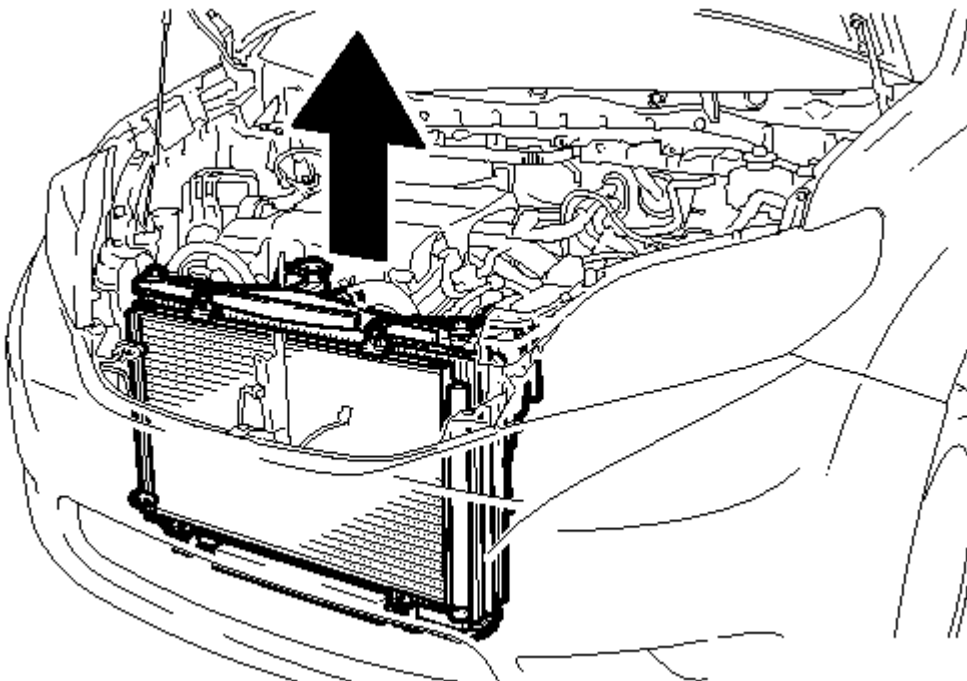


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Fig. 203: Identifying Radiator Support, Horn, Connectors & Bolts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the 2 connectors.
- b. Remove the 5 bolts and separate the radiator support with horn assembly.

18. REMOVE RADIATOR AND FAN ASSEMBLY



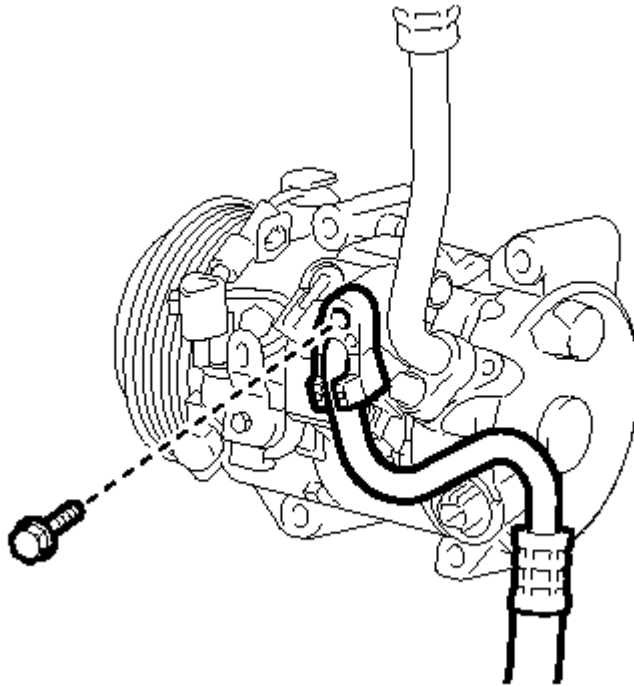
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Fig. 204: Remove Radiator & Fan Assembly

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the radiator and fan assembly with condenser from vehicle.

19. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY



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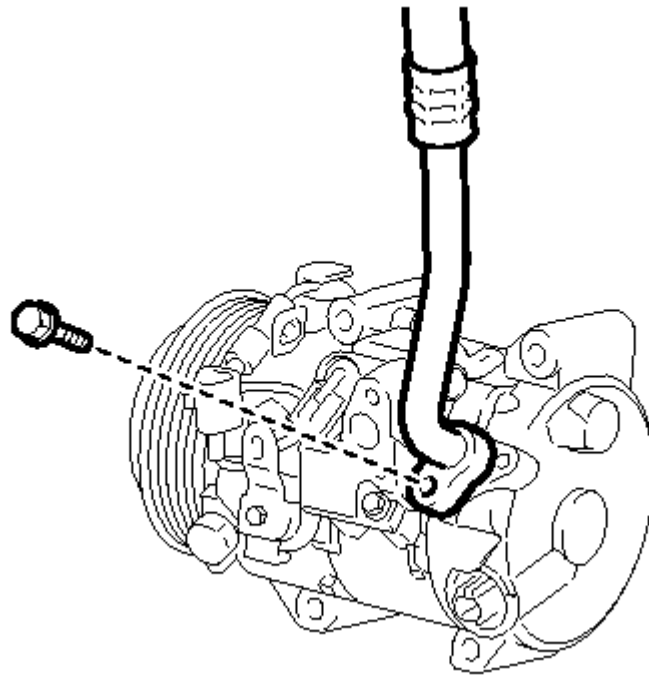
Fig. 205: Identifying Discharge Hose & Bolt At Compressor

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the bolt and disconnect the discharge hose from the compressor.
- b. Remove the O-ring from the discharge hose.

NOTE: Seal the openings of the disconnected parts using vinyl tape to prevent the entry of moisture and foreign matter.

20. DISCONNECT SUCTION HOSE SUB-ASSEMBLY



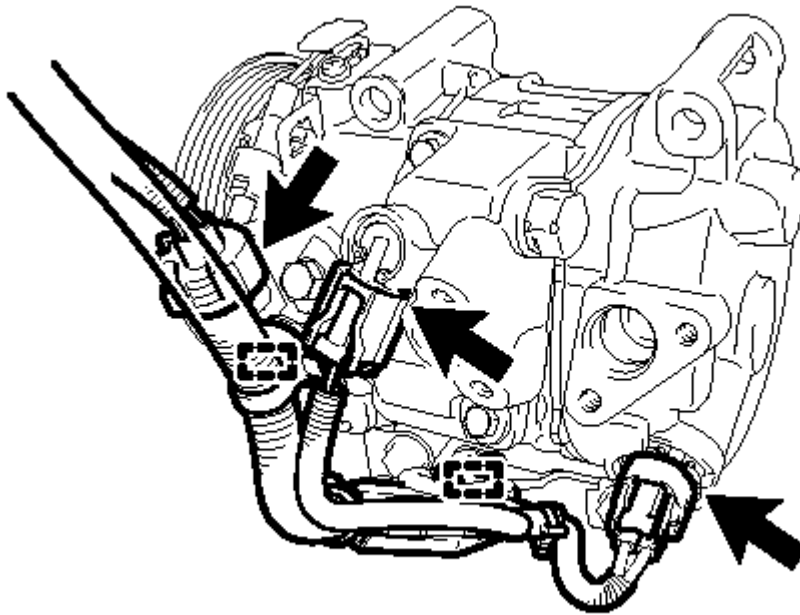
P

Fig. 206: Identifying Suction Hose & Bolt At Compressor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the bolt and disconnect the suction hose from the compressor.
- b. Remove the O-ring from the suction hose.

NOTE: Seal the openings of the disconnected parts using vinyl tape to prevent entry of moisture and foreign matter.

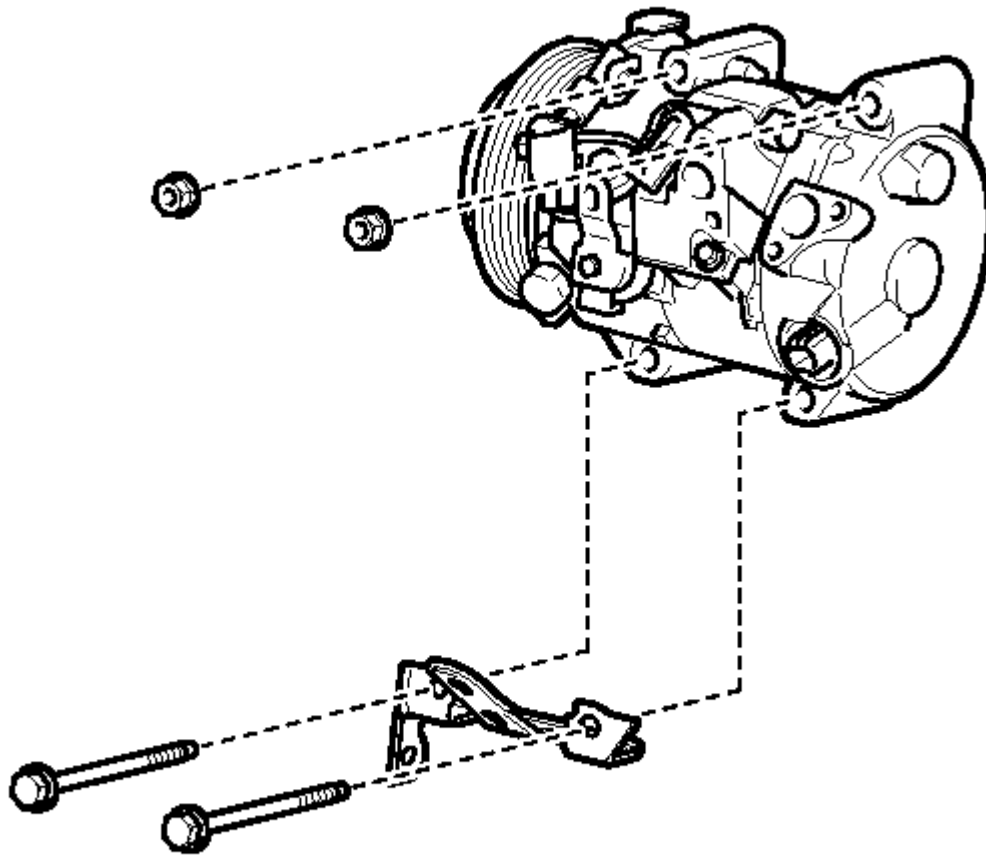
21. REMOVE W/PULLEY COMPRESSOR ASSEMBLY



P

Fig. 207: Identifying Compressor Assembly w/ Pulley Connectors & Clamps
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

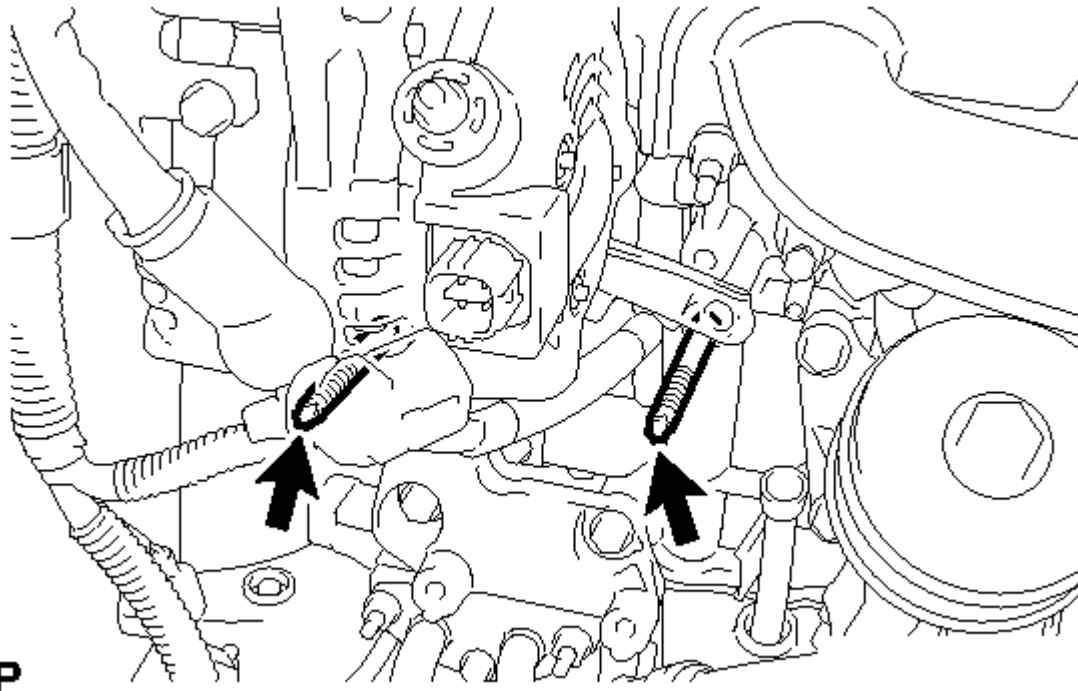
- a. Disengage the 2 clamps.
- b. Disconnect the 3 connectors.
- c. Remove the 2 bolts and 2 nuts.



P

Fig. 208: Identifying Compressor Assembly w/ Pulley, Bracket & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Remove the bracket and compressor.
- e. Using an E8 "TORX" socket wrench, remove the 2 stud bolts.



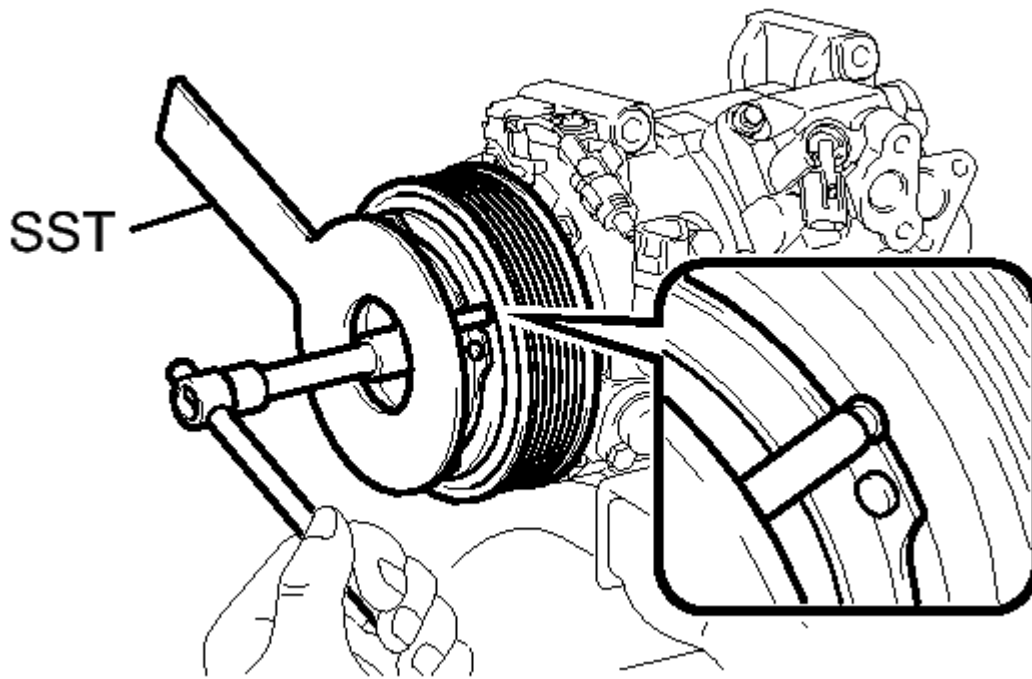
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Fig. 209: Identifying Compressor Assembly w/ Pulley Stud Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

DISASSEMBLY

DISASSEMBLY

1. REMOVE MAGNETIC CLUTCH ASSEMBLY

- a. Place the compressor and magnetic clutch in a vise.



P

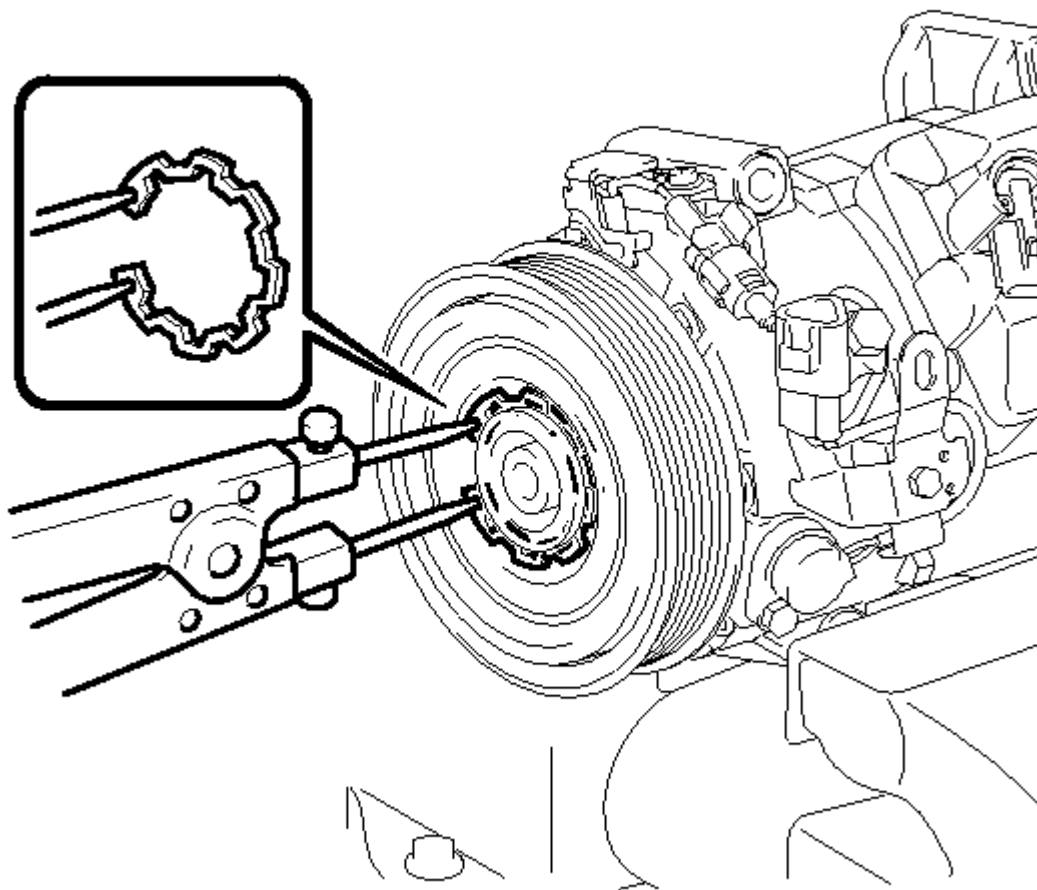
Fig. 210: Holding Magnetic Clutch Hub Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Using SST, hold the magnetic clutch hub.
 - SST: 09985-00270
- c. Remove the bolt, magnetic clutch hub and magnetic clutch washers.

HINT:

There is no set number of magnetic clutch washers because they are used for adjustment.

- d. Using a snap ring expander, remove the snap ring and then remove the magnetic clutch rotor.

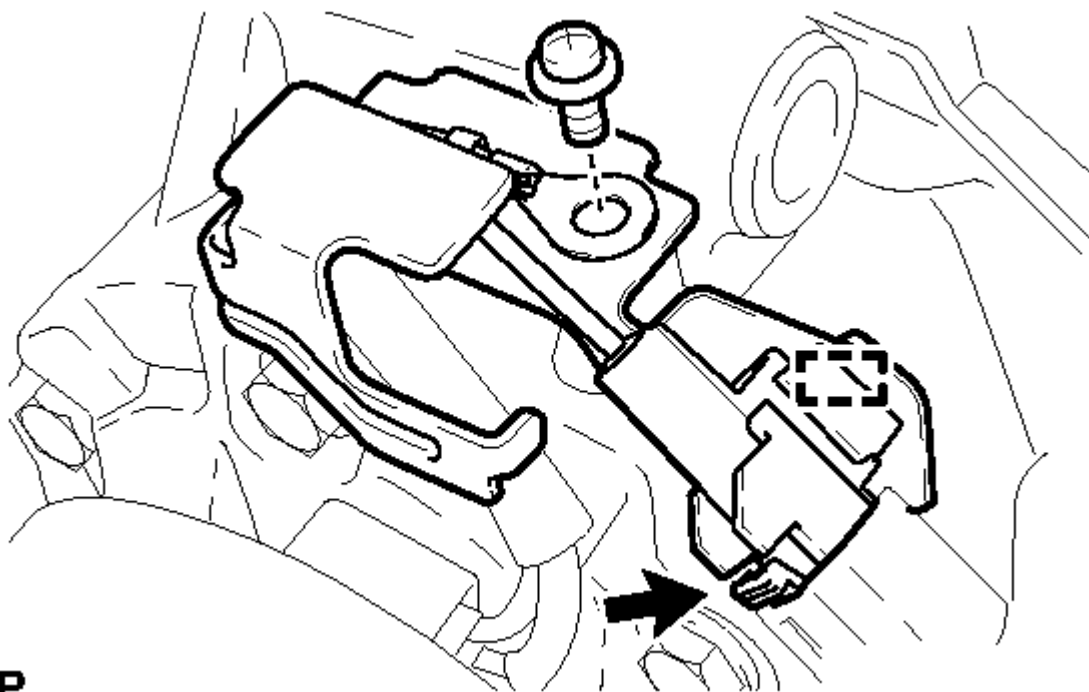


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Fig. 211: Removing Magnetic Clutch Rotor Snap Ring Using A Snap Ring Expander
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Take care not to damage the seal cover of the bearing when removing the snap ring.

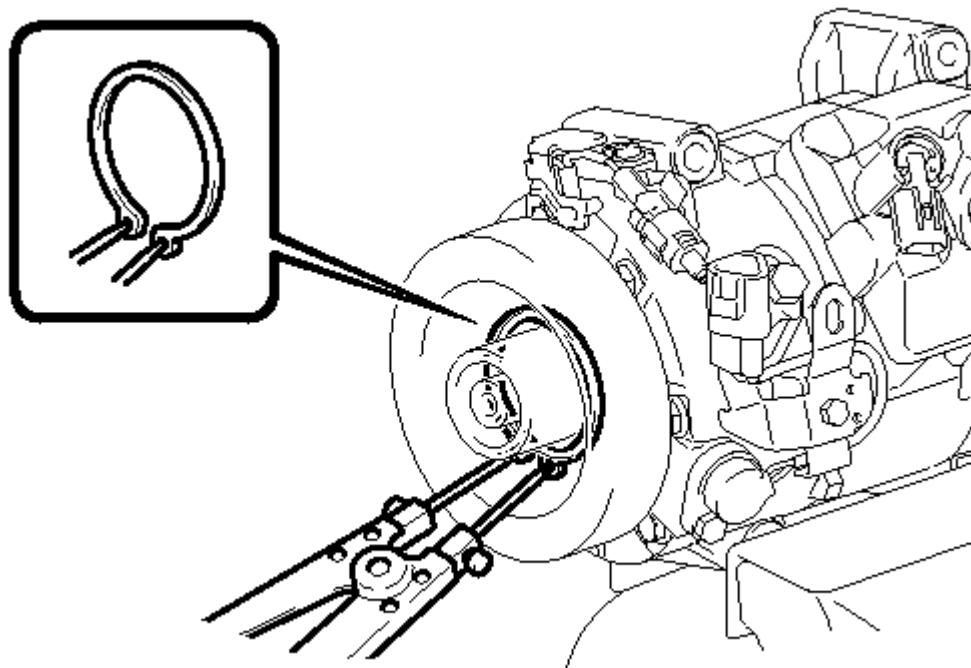
- e. Disconnect the connector.



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Fig. 212: Identifying Magnetic Clutch Bracket, Connector & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. Disengage the clamp.
- g. Remove the screw and bracket.
- h. Using a snap ring expander, remove the snap ring and magnetic clutch stator.



P

Fig. 213: Removing Magnetic Clutch Stator Snap Ring Using A Snap Ring Expander
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. **INSPECT A/C COMPRESSOR (A/C LOCK SENSOR)**
 - a. Measure the resistance according to the value(s) in the table below.

*a

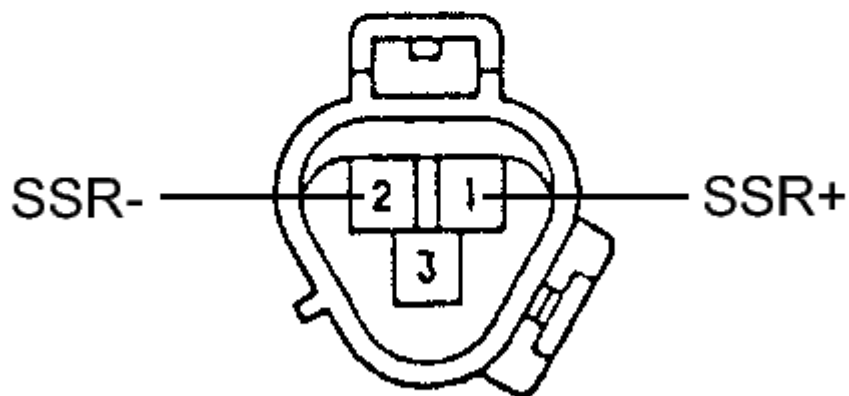


Fig. 214: A/C Compressor Connector End View (A/C Lock Sensor)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Resistance

Tester		Specified
--------	--	-----------

Connection	Condition	Condition
1 (SSR+) - 2 (SSR-)	20°C (68° F)	160 to 320 ohms

If the resistance is not as specified, replace the A/C compressor.

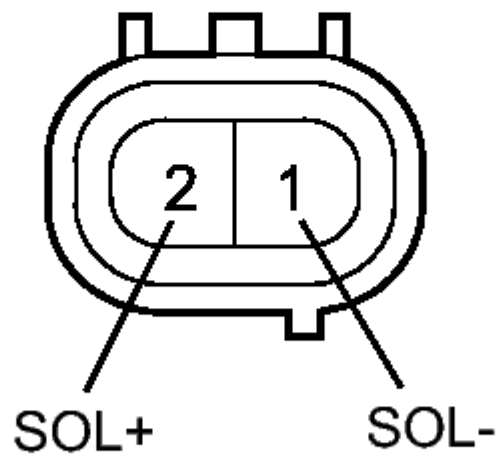
TEXT IN ILLUSTRATION

*a	Component without harness connected (A/C Compressor (A/C Lock Sensor))
----	---

2. INSPECT A/C COMPRESSOR (A/C COMPRESSOR SOLENOID)

- a. Measure the resistance according to the value(s) in the table below.

*a



H

Fig. 215: A/C Compressor Connector End View (A/C Compressor Solenoid)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Resistance

Tester Connection	Condition	Specified Condition
2 (SOL+) - 1 (SOL-)	20°C (68°F)	10 to 11 ohms

If the resistance is not as specified, replace the A/C compressor.

TEXT IN ILLUSTRATION

	Component without
--	-------------------

	harness
	connected
	(A/C
*a	Compressor
	(A/C
	Compressor
	Solenoid))

3. INSPECT A/C COMPRESSOR (A/C COMPRESSOR - MAGNETIC CLUTCH)

- a. Disconnect the connector from the A/C compressor.

*a

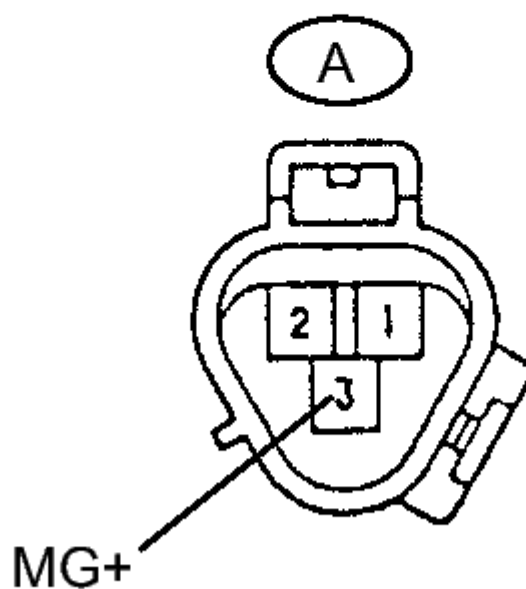
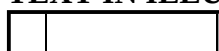


Fig. 216: A/C Compressor Connector End View (A/C Compressor - Magnetic Clutch)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



*a	Component without harness connected (A/C Compressor)
----	---

- b. Disconnect the connector from the magnetic clutch.

*a

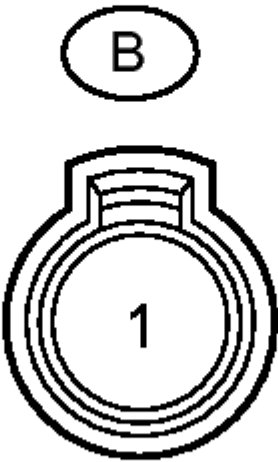


Fig. 217: Magnetic Clutch Connector End View (To Magnetic Clutch)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance



Tester Connection	Condition	Specified Condition
A-3 (MG+) - B-1	Always	Below 1 ohms
A-3 (MG+) - Body ground	Always	10 kohms or higher

If the resistance is not as specified, replace the A/C compressor.

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Magnetic Clutch)
----	---

4. INSPECT MAGNETIC CLUTCH

- a. Measure the resistance according to the value(s) in the table below.

*a

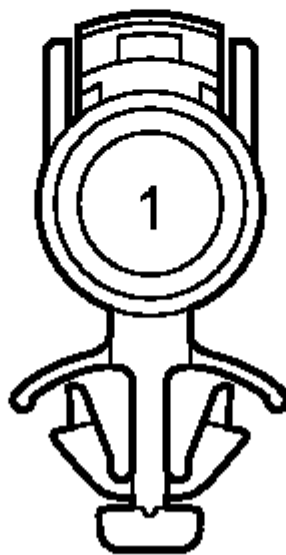


Fig. 218: Magnetic Clutch Connector End View (Magnetic Clutch)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - Body ground	20°C (68°F)	3.8 to 4.2 ohms

If the resistance is not as specified, replace the magnetic clutch.

TEXT IN ILLUSTRATION

	Component without
--	-------------------

*a	harness connected (Magnetic Clutch)
----	--

- b. When connector terminal 1 is connected to the positive (+) battery terminal, check that the following occurs: 1) the magnetic clutch's operating sound can be heard, and 2) the magnetic clutch's hub and rotor lock.

OK

1)

The magnetic clutch's operating sound can be heard.

2)

The magnetic clutch's hub and rotor lock.

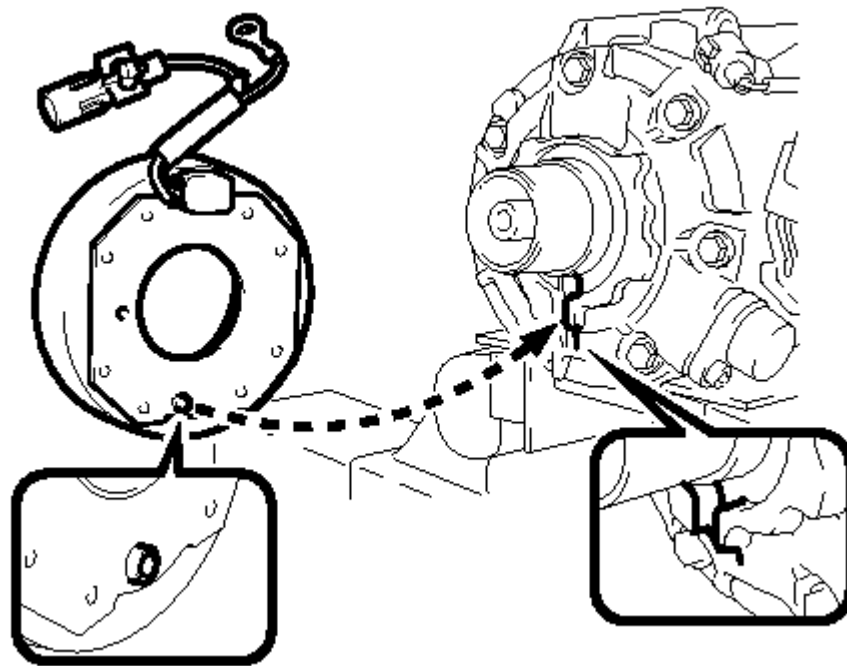
If the result is not as specified, replace the magnetic clutch.

REASSEMBLY

REASSEMBLY

1. INSTALL MAGNETIC CLUTCH ASSEMBLY

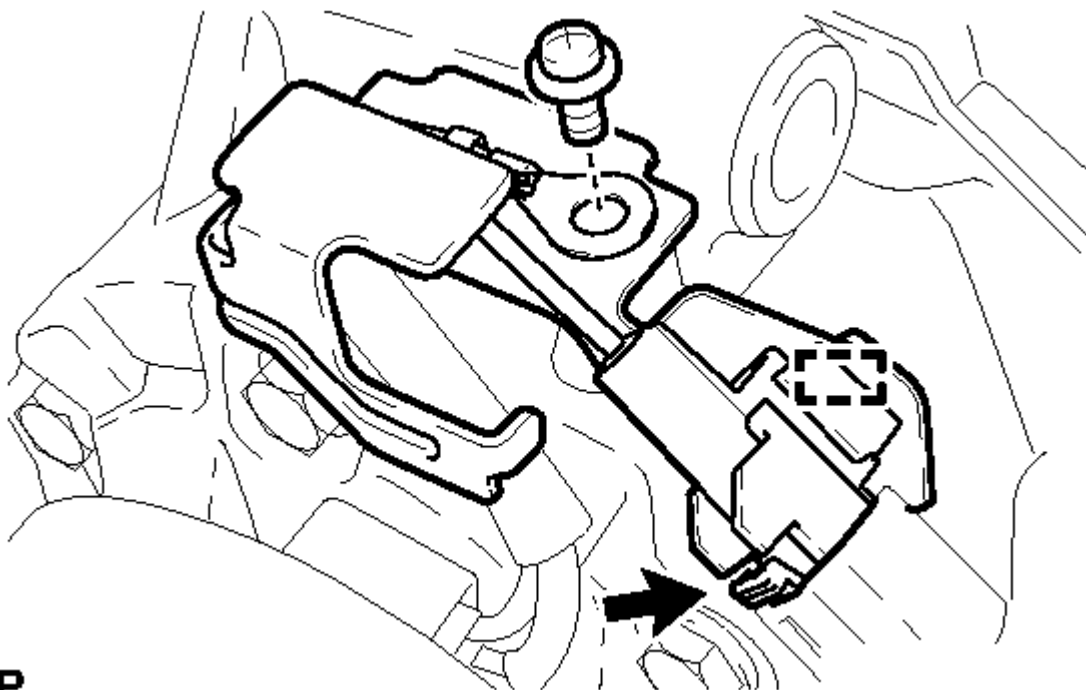
- a. Install the magnetic clutch stator while aligning the protrusion on the stator with the notch on the air compressor assembly as shown in the illustration.



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Fig. 219: Identifying Magnetic Clutch Stator, Stator Protrusion & Air Compressor Notch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

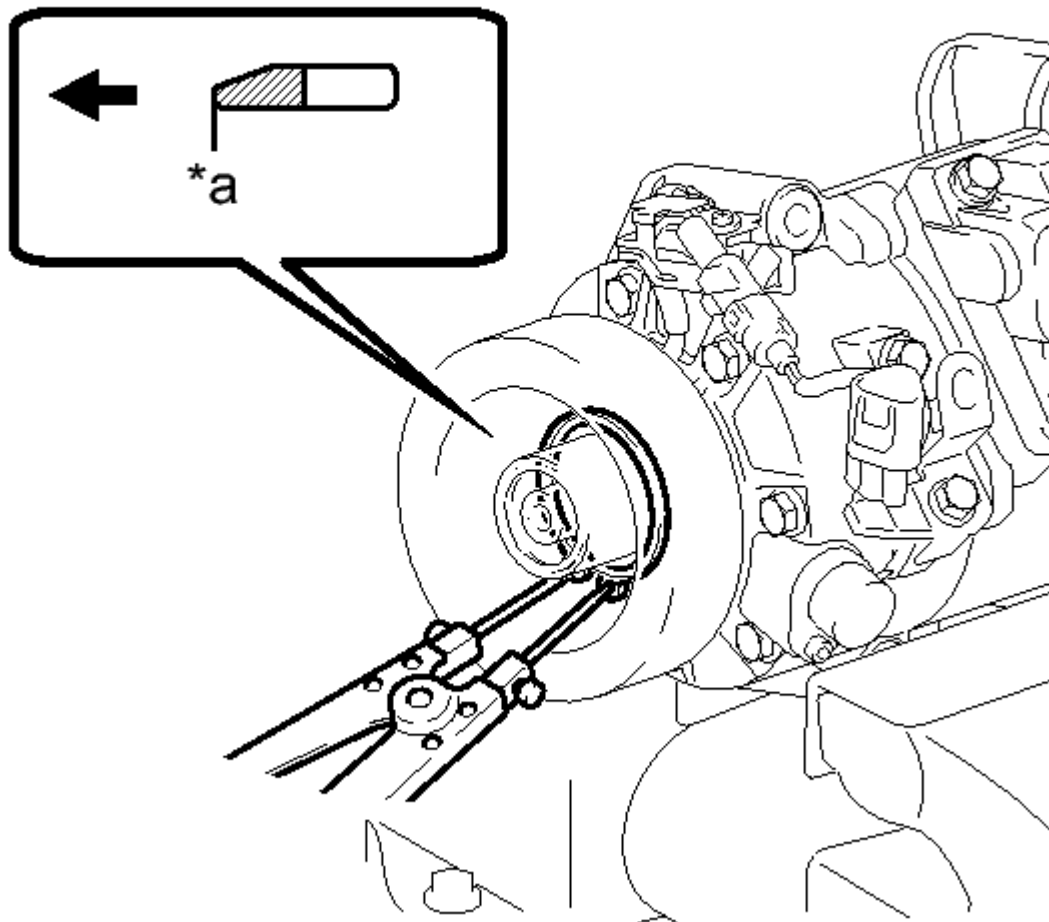
- b. Engage the clamp.



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Fig. 220: Identifying Magnetic Clutch Bracket, Connector & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Install the bracket with the screw.
- d. Connect the connector.
- e. Using a snap ring expander, install a new snap ring with the chamfered side facing up.



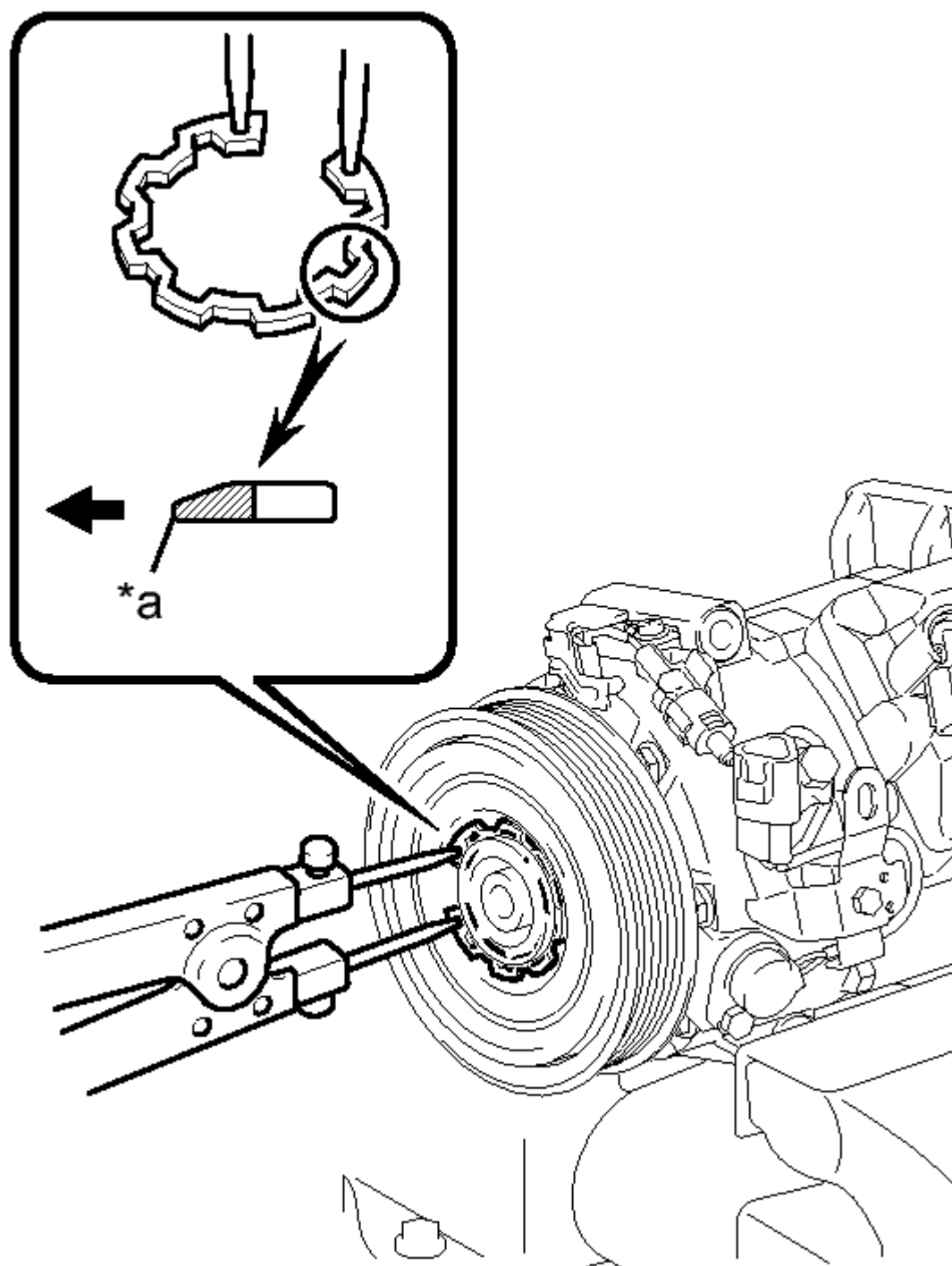
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Fig. 221: Installing New Magnetic Clutch Stator Snap Ring Using A Snap Ring Expander
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

***a** Inside

- f. Using a snap ring expander, install the magnetic clutch rotor and a new snap ring with the chamfered side facing up.



P

Fig. 222: Installing New Magnetic Clutch Rotor Snap Ring Using A Snap Ring Expander
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

***a** Inside

NOTE:

- Do not expand the snap ring by more than 35.5 mm (1.39 in.) when installing it.
- Take care not to damage the seal cover of the bearing when removing the snap ring.

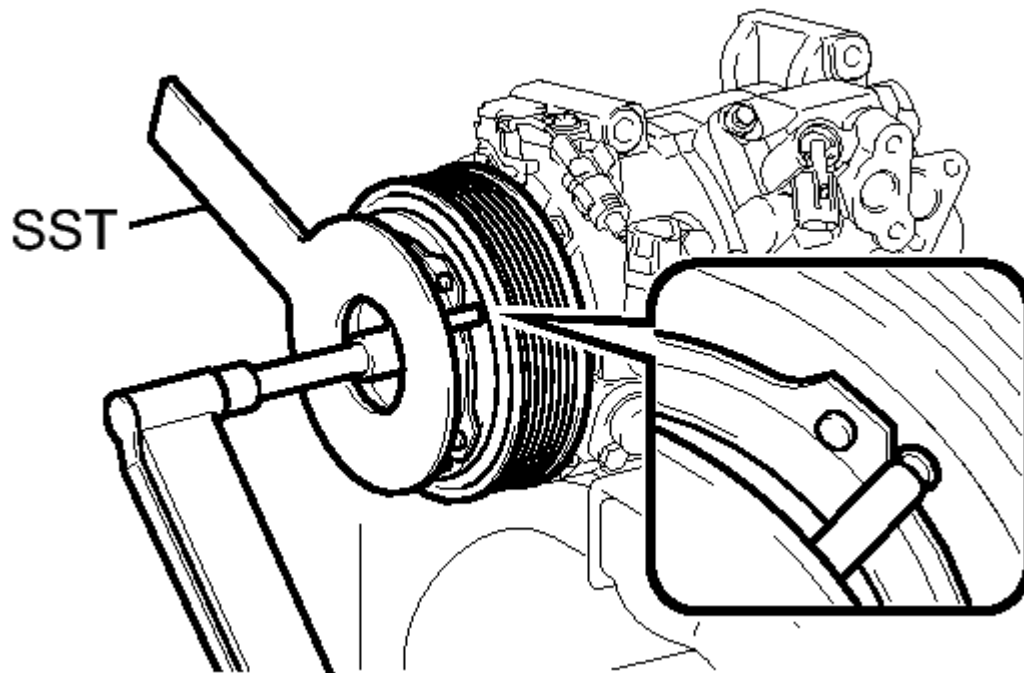
g. Install the magnetic clutch washer and magnetic clutch hub.

NOTE:

Do not change the combination of the magnetic clutch washers used before disassembly.

h. Using SST, hold the magnetic clutch hub and install the bolt.

- SST: 09985-00270



P

Fig. 223: Holding Magnetic Clutch Hub Using SST
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 18 N*m (184 kgf*cm, 13 ft.*lbf)

NOTE:

Make sure that there is no foreign matter or oil on the compressor shaft, bolt and clutch hub.

2. INSPECT MAGNETIC CLUTCH CLEARANCE

a. Set the dial indicator to the magnetic clutch hub.

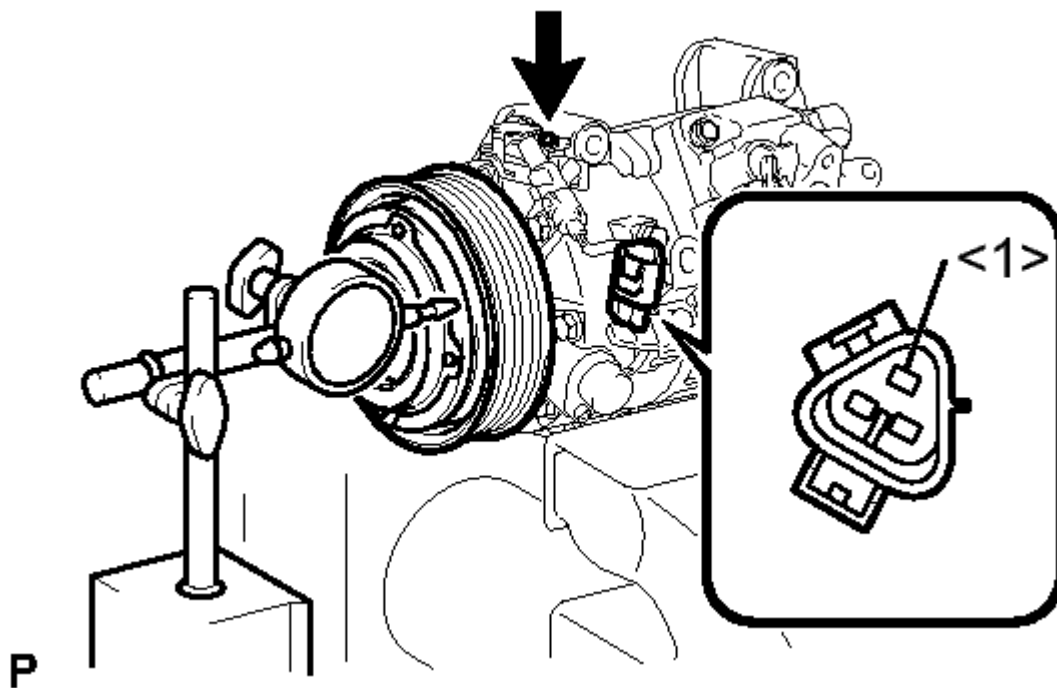


Fig. 224: Inspecting Magnetic Clutch Clearance
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect a positive (+) lead from the battery to terminal 1 of the magnetic clutch connector, and a negative (-) lead to the ground wire. Turn the magnetic clutch on and off, and measure the clearance.

Standard clearance

0.25 to 0.60 mm (0.0098 to 0.0236 in.)

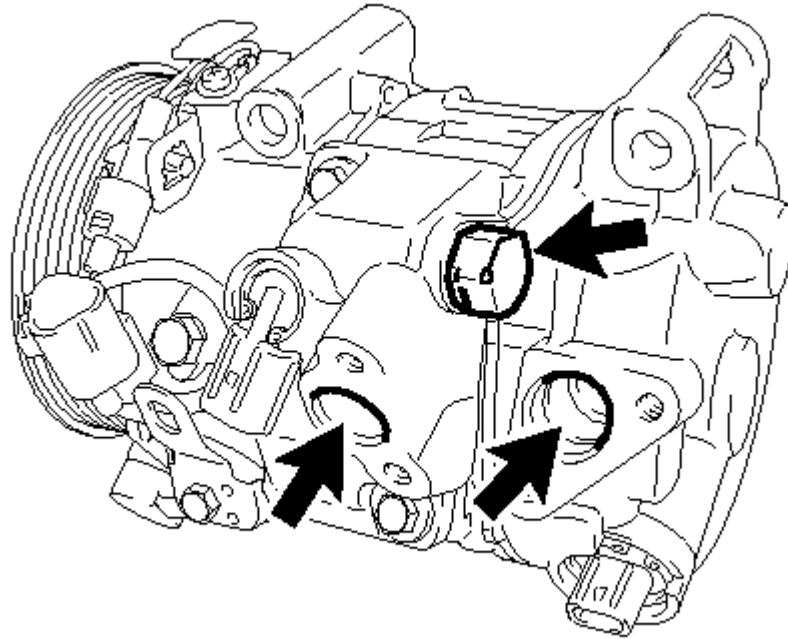
If the measured value is not within the standard range, remove the magnetic clutch hub and adjust it with the magnetic clutch washers.

NOTE: Adjustment should be performed with 3 or less magnetic clutch washers.

- c. Remove the compressor and magnetic clutch from the vise.

3. ADJUST COMPRESSOR OIL LEVEL

- a. When replacing the compressor and magnetic clutch with a new one, gradually discharge the refrigerant from the service valve, and drain the following amount of oil from the new compressor and magnetic clutch before installation.



P

Fig. 225: Identifying Compressor Service Valves & Drain
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard

(Oil capacity inside the new compressor and magnetic clutch: 140 + 15 cc (4.8 + 0.51 fl.oz.)) -
(Remaining oil amount in the removed compressor and magnetic clutch) = (Oil amount to be removed from the new compressor when replacing)

NOTE:

- When checking the compressor oil level, observe the Precautions on the Cooler Removal/Installation.
- If a new compressor and magnetic clutch are installed without removing some oil, due to the oil remaining in the pipes of the vehicle, the oil amount will be too large. This prevents heat exchange in the refrigerant cycle and causes refrigerant failure.
- If the volume of oil remaining in the removed compressor and magnetic clutch is too small, check for oil leakage.
- Be sure to use ND-OIL 8 or equivalent for compressor oil.

INSTALLATION

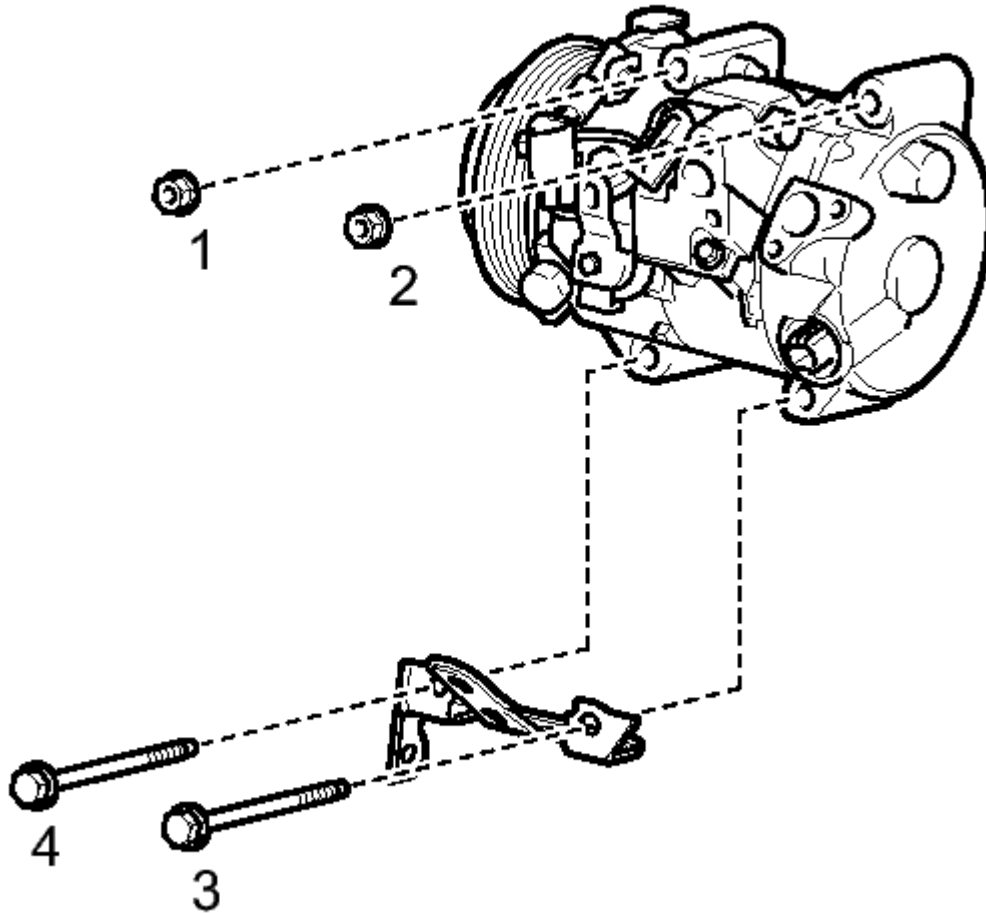
INSTALLATION

1. INSTALL W/PULLEY COMPRESSOR ASSEMBLY

- a. Using an E8 "TORX" socket wrench, install the compressor with the 2 stud bolts.

Torque: 10 N*m (102 kgf*cm, 7 ft.*lbf)

- b. Install the compressor assembly with pulley with the 2 bolts and 2 nuts.



P

Fig. 226: Identifying Compressor Assembly w/ Pulley & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Torque: 25 N*m (250 kgf*cm, 18 ft.*lbf)

HINT:

Tighten the bolts and the nuts in the order shown in the illustration.

- c. Connect the 3 connectors.
d. Engage the 2 clamps.

2. CONNECT SUCTION HOSE SUB-ASSEMBLY

- a. Remove the attached vinyl tape from the suction hose.
- b. Sufficiently apply compressor oil to a new O-ring and the fitting surface of the compressor.

Compressor oil

ND-OIL 8 or equivalent

- c. Install the O-ring onto the suction hose.
- d. Connect the suction hose to the compressor with the bolt.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

3. CONNECT DISCHARGE HOSE SUB-ASSEMBLY

- a. Remove the attached vinyl tape from the discharge hose.
- b. Sufficiently apply compressor oil to a new O-ring and the fitting surface of the compressor.

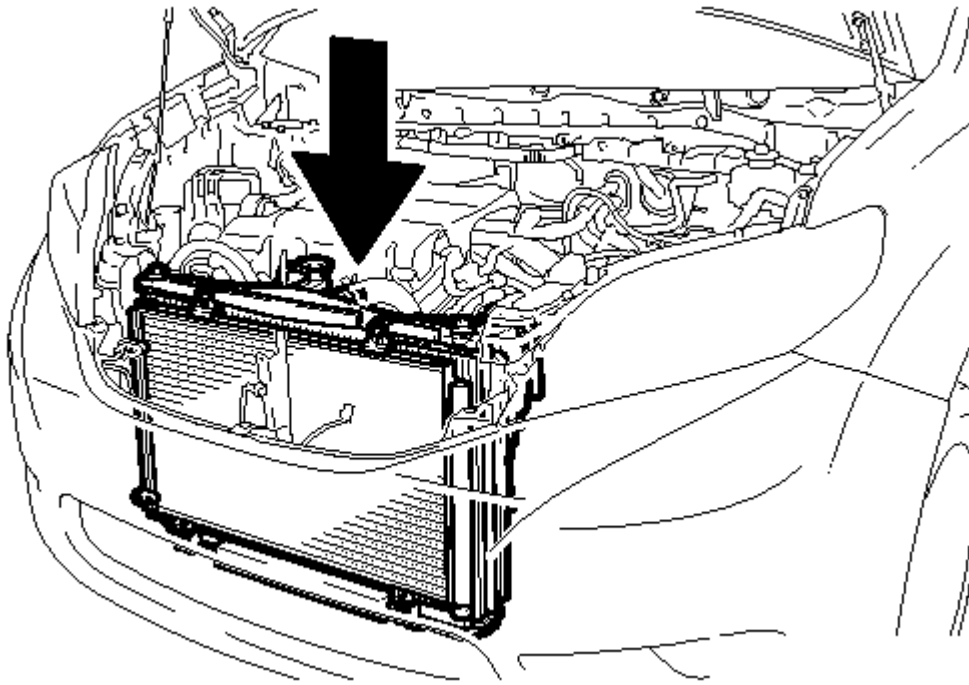
Compressor oil

ND-OIL 8 or equivalent

- c. Install the O-ring onto the discharge hose.
- d. Connect the discharge hose to the compressor with the bolt.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

4. INSTALL RADIATOR AND FAN ASSEMBLY



P

Fig. 227: Installing Radiator & Fan Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the radiator and fan assembly with condenser into the vehicle.

5. INSTALL RADIATOR SUPPORT SUB-ASSEMBLY

- a. Install the radiator support with 5 bolts.

Torque: 6.0 N*m (62 kgf*cm, 53 in.*lbf)

- b. Connect the 2 connectors.
- c. Engage the clamp.

6. INSTALL HOOD LOCK ASSEMBLY . Refer to ON-VEHICLE INSPECTION - Step 1

7. INSTALL HOOD LOCK NUT CAP . Refer to INSTALLATION - Step 9

8. CONNECT COOLER REFRIGERANT LIQUID PIPE A

- a. Remove the attached vinyl tape from the cooler refrigerant liquid pipe A.
- b. Sufficiently apply compressor oil to a new O-ring and the fitting surface of the condenser.

Compressor oil

ND-OIL 8 or equivalent

- c. Install the O-ring onto the cooler refrigerant liquid pipe A.
- d. Connect the cooler refrigerant liquid pipe A to the condenser with the bolt.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

9. CONNECT DISCHARGE HOSE SUB-ASSEMBLY

- a. Remove the attached vinyl tape from the discharge hose.
- b. Sufficiently apply compressor oil to a new O-ring and the fitting surface of the condenser.

Compressor oil

ND-OIL 8 or equivalent

- c. Install the O-ring onto the discharge hose.
- d. Connect the discharge hose to the condenser with the bolt.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

10. **CONNECT OUTLET OIL COOLER HOSE** . Refer to **INSTALLATION - Step 9**
11. **CONNECT INLET OIL COOLER HOSE** . Refer to **INSTALLATION - Step 10**
12. **CONNECT NO. 2 RADIATOR HOSE** . Refer to **INSTALLATION - Step 11**
13. **CONNECT NO. 1 RADIATOR HOSE** . Refer to **INSTALLATION - Step 12**
14. **INSTALL AIR CLEANER INLET COVER ASSEMBLY SEAL** . Refer to **INSTALLATION - Step 5**
15. **INSTALL RADIATOR GRILLE SUB-ASSEMBLY (w/o Dynamic Radar Cruise Control System)**

Refer to **INSTALLATION**

16. **INSTALL MILLIMETER WAVE RADAR SENSOR ASSEMBLY (w/ Dynamic Radar Cruise Control System)**

Refer to **INSTALLATION**

17. **INSTALL FAN AND GENERATOR V BELT**

Refer to **INSTALLATION**

18. **ADD ENGINE COOLANT** . Refer to **REPLACEMENT - Step 4**
19. **INSPECT FOR COOLANT LEAK** . Refer to **ON-VEHICLE INSPECTION - Step 1**
20. **CHARGE REFRIGERANT** See step 2
21. **WARM UP ENGINE** See step 3
22. **INSPECT FOR REFRIGERANT LEAK** See step 4
23. **INSPECT AUTOMATIC TRANSAXLE FLUID**

for U660E: Refer to **ADJUSTMENT**

for U660F: Refer to **ADJUSTMENT**

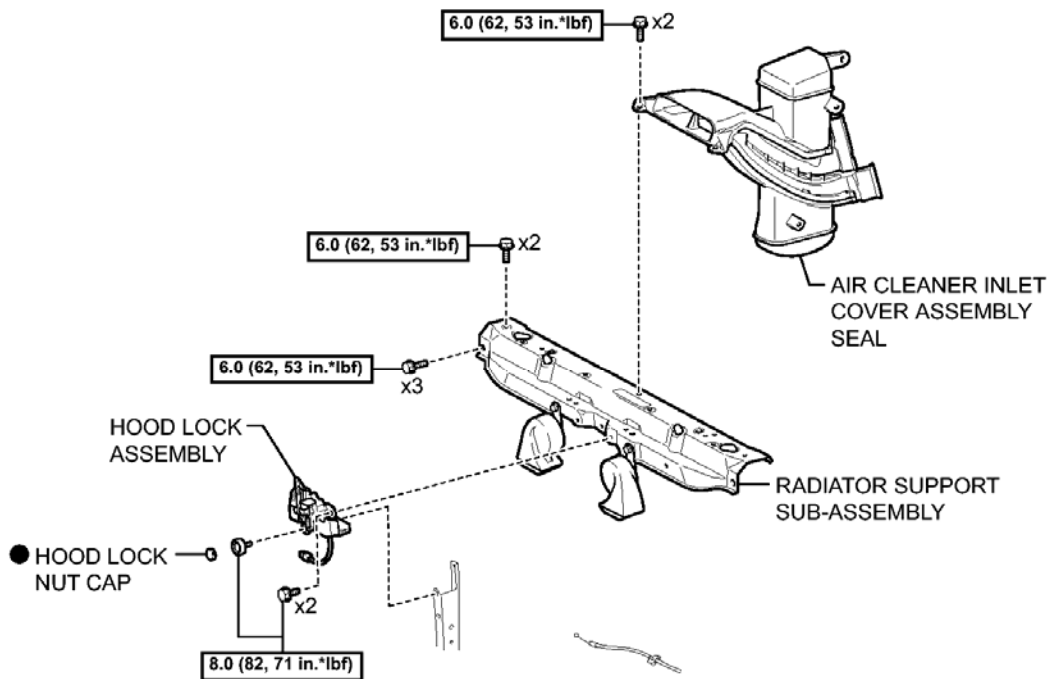
24. **INSTALL NO. 1 ENGINE UNDER COVER** . Refer to **INSTALLATION - Step 16**

25. **INSTALL V-BANK COVER SUB-ASSEMBLY** . Refer to INSTALLATION - Step 95
26. **INSPECT HOOD SUB-ASSEMBLY** . Refer to ON-VEHICLE INSPECTION - Step 1
27. **ADJUST HOOD SUB-ASSEMBLY** . Refer to ADJUSTMENT - Step 1

CONDENSER

COMPONENTS

ILLUSTRATION



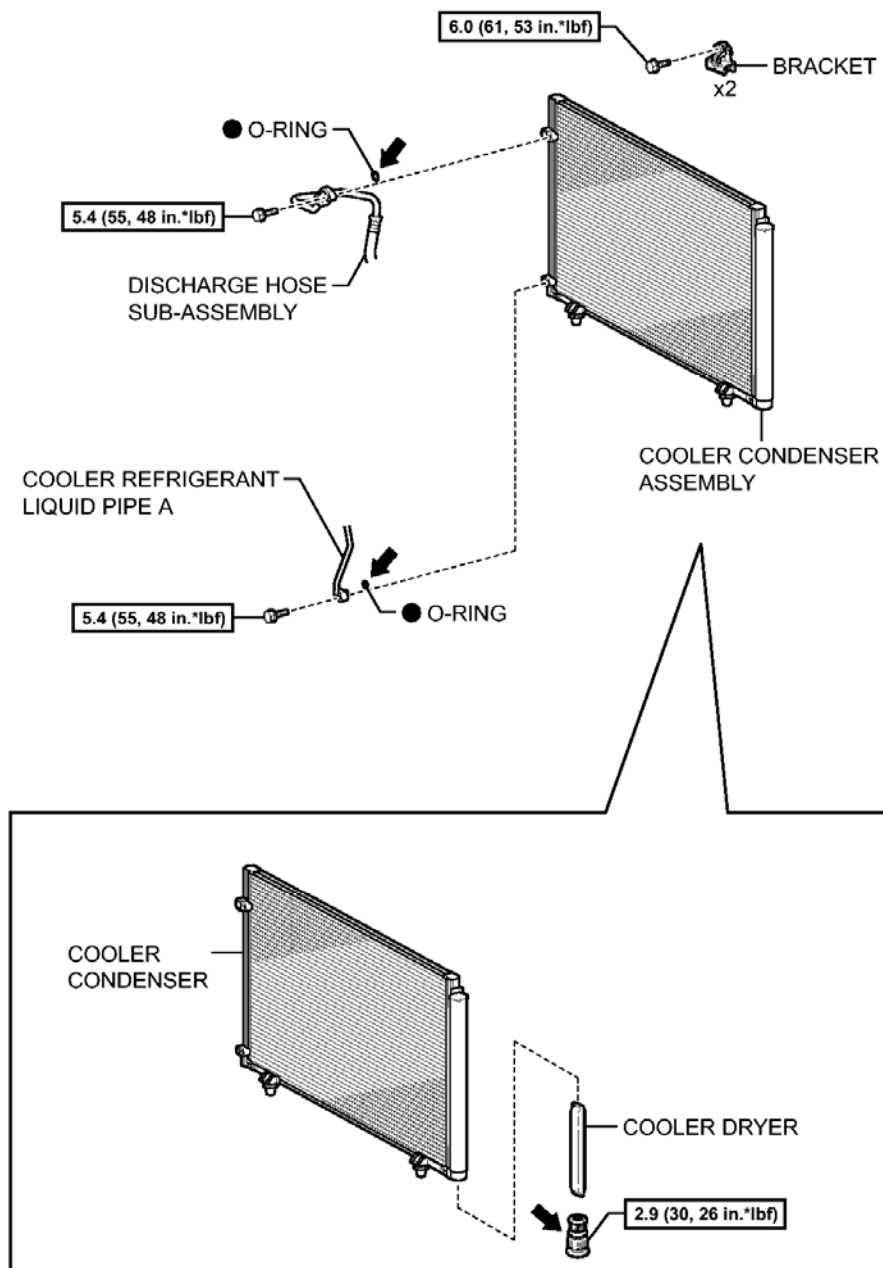
[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

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Fig. 228: Condenser Replacement Components With Torque Specifications (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



N*m (kgf*cm, ft.*lbf): Specified torque

● Non-reusable part

← Compressor oil ND-OIL 8 or equivalent

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Fig. 229: Condenser Replacement Components With Torque Specifications (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. INSPECT COOLER CONDENSER ASSEMBLY

- a. If the fins of the cooler condenser are dirty, clean them with water and dry them with compressed air.

NOTE: **Do not damage the fins of the cooler condenser assembly.**

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

2. CHECK CONDENSER FOR REFRIGERANT LEAKAGE

- a. Check the pipe joints for gas leakage, using a halogen leak detector.
- b. Check the tightening torque of the joints if gas leakage is detected from any pipe joints.

REMOVAL

REMOVAL

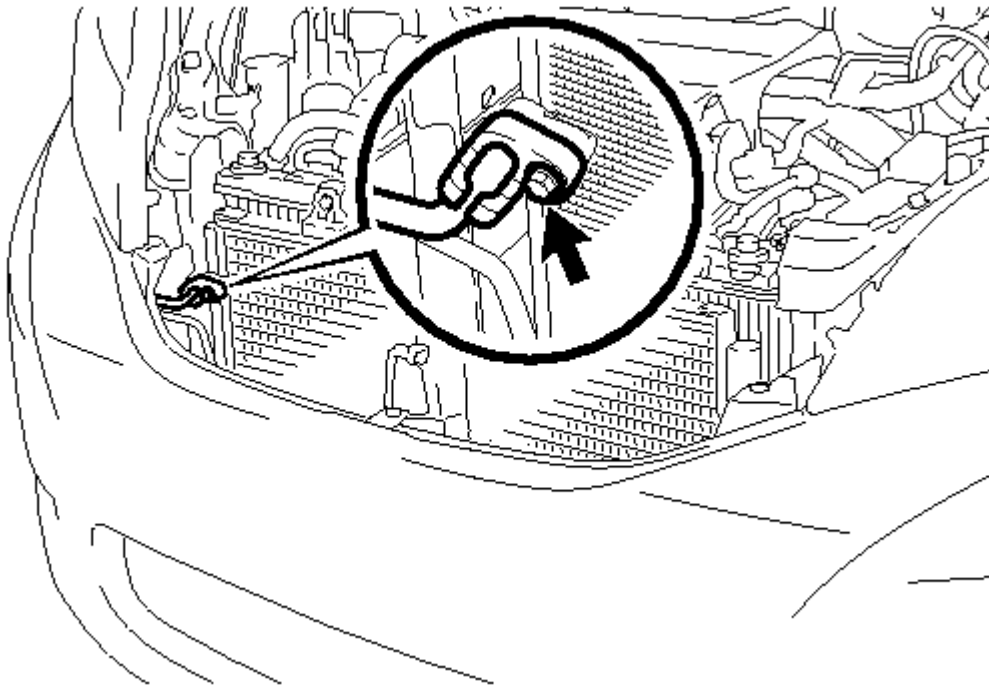
1. **RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM** See step 1
2. **REMOVE MILLIMETER WAVE RADAR SENSOR ASSEMBLY (w/ Dynamic Radar Cruise Control System)**

Refer to **REMOVAL**

3. **REMOVE RADIATOR GRILLE SUB-ASSEMBLY (w/o Dynamic Radar Cruise Control System)**

Refer to **REMOVAL**

4. **REMOVE AIR CLEANER INLET COVER ASSEMBLY SEAL** . Refer to **REMOVAL - Step 6**
5. **REMOVE HOOD LOCK NUT CAP** . Refer to **REMOVAL - Step 5**
6. **REMOVE HOOD LOCK ASSEMBLY** . Refer to **REMOVAL - Step 6**
7. **REMOVE RADIATOR SUPPORT SUB-ASSEMBLY** See step 17
8. **DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY**



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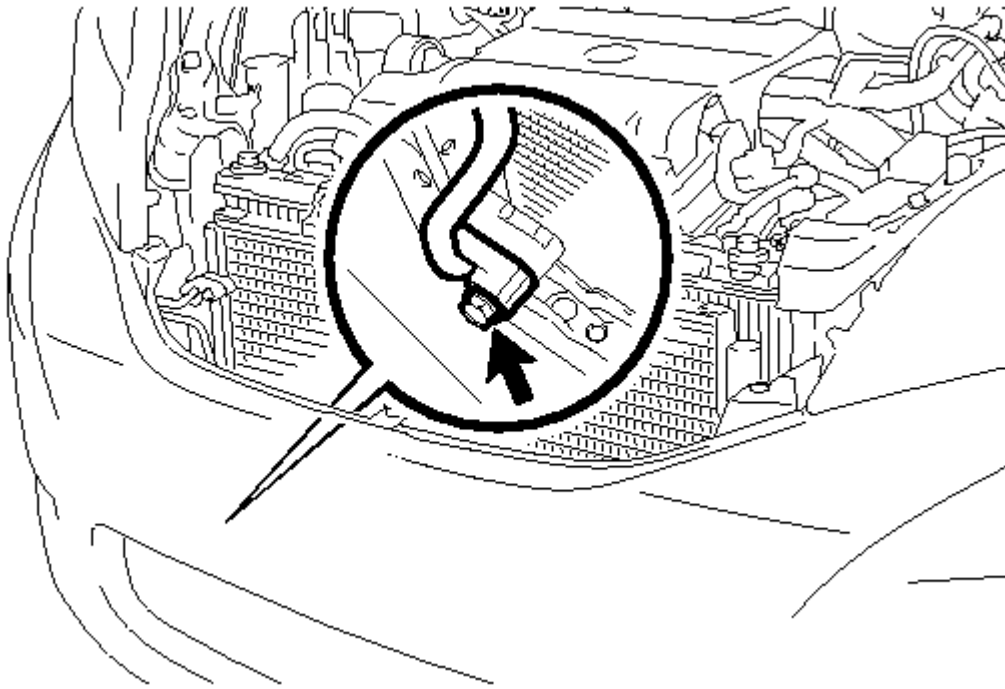
Fig. 230: Identifying Discharge Hose & Bolt At Condenser

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the bolt and disconnect the discharge hose from the cooler condenser.
- b. Remove the O-ring from the discharge hose.

NOTE: Seal the openings of the disconnected parts using vinyl tape to prevent the entry of moisture and foreign matter.

9. DISCONNECT COOLER REFRIGERANT LIQUID PIPE A



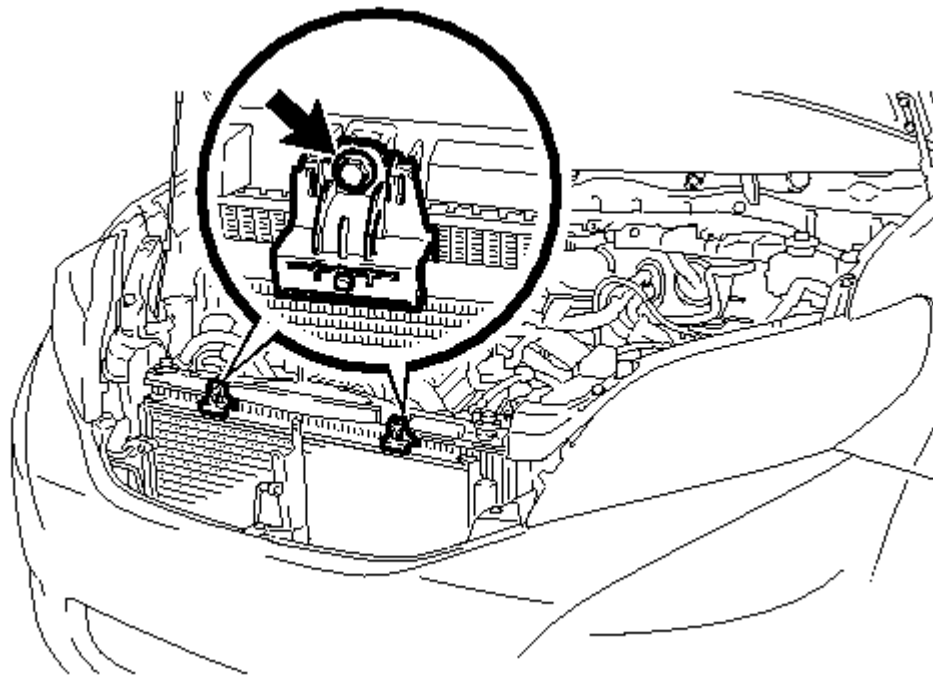
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Fig. 231: Identifying Cooler Refrigerant Liquid Pipe A & Bolt At Condenser
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the bolt and disconnect the cooler refrigerant liquid pipe A from the cooler condenser.
- b. Remove the O-ring from the cooler refrigerant liquid pipe A.

NOTE: **Seal the openings of the disconnected parts using vinyl tape to prevent the entry of moisture and foreign matter.**

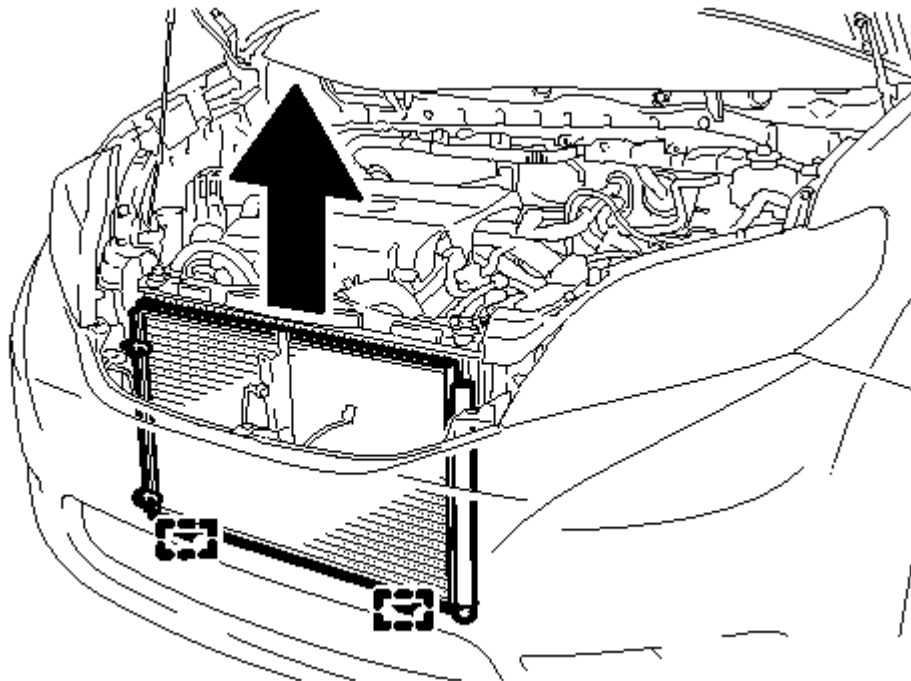
10. REMOVE COOLER CONDENSER ASSEMBLY



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Fig. 232: Identifying Cooler Condenser Brackets & Bolts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the 2 bolts and 2 brackets.
- b. Disengage the 2 guides and remove the cooler condenser from the vehicle.



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Fig. 233: Removing Cooler Condenser

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

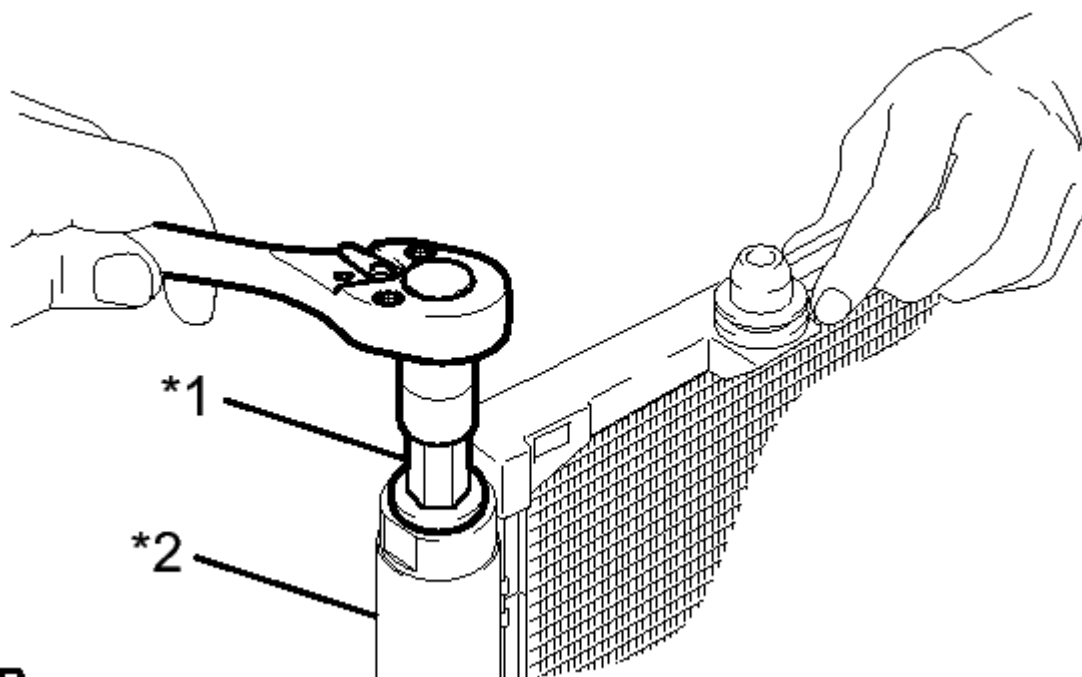
NOTE: Do not damage the condenser or radiator when removing the cooler condenser.

DISASSEMBLY

DISASSEMBLY

1. REMOVE COOLER DRYER

- a. Using a 14 mm straight hexagon wrench, remove the cap from the modulator.



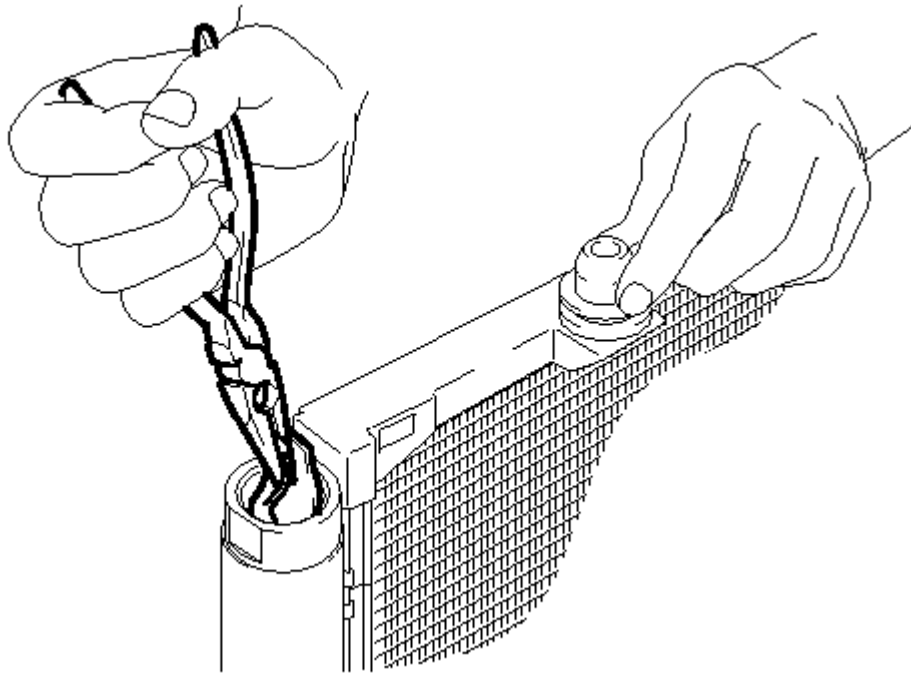
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Fig. 234: Removing Cooler Dryer Modulator Cap Using A Hexagon Wrench
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	14 mm Straight Hexagon Wrench
*2	Modulator

- b. Using pliers, remove the cooler dryer.



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Fig. 235: Removing Cooler Dryer Using Pliers

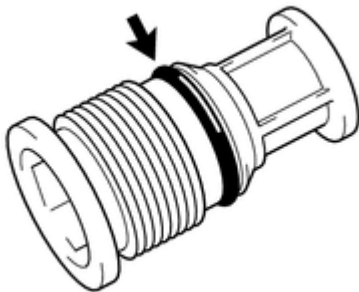
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REASSEMBLY

REASSEMBLY

1. INSTALL COOLER DRYER

- a. Using pliers, install the cooler dryer onto the modulator.
- b. Apply sufficient compressor oil to the O-ring and the fitting surface of the cap.



P

Fig. 236: Identifying Compressor Oil Application Area

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Compressor oil

ND-OIL 8 or equivalent

- c. Using a 14 mm straight hexagon wrench, install the cap onto the cooler condenser core.

Torque: 2.9 N*m (30 kgf*cm, 26 in.*lbf)

INSTALLATION

INSTALLATION

1. INSTALL COOLER CONDENSER ASSEMBLY

- a. Engage the 2 guides and install the cooler condenser into the vehicle.

NOTE: Do not damage the condenser or radiator when installing the condenser.

HINT:

If a new cooler condenser is installed, add compressor oil to the condenser as follows.

Capacity

Add 40 cc (1.35 fl. oz.)

Compressor oil

ND-OIL8 or equivalent.

- b. Install the 2 brackets with the 2 bolts.

Torque: 6.0 N*m (61 kgf*cm, 53 in.*lbf)

2. CONNECT COOLER REFRIGERANT LIQUID PIPE A

- a. Remove the attached vinyl tape from the pipe and the connecting part of the cooler condenser.
- b. Sufficiently apply compressor oil to a new O-ring and the fitting surface of the tube joint.

Compressor oil

ND-OIL8 or equivalent

- c. Install the O-ring onto the cooler refrigerant liquid pipe A.
- d. Install the cooler refrigerant liquid pipe A onto the cooler condenser with the bolt.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

3. CONNECT DISCHARGE HOSE SUB-ASSEMBLY

- a. Remove the attached vinyl tape from the hose and the connecting part of the cooler condenser.
- b. Sufficiently apply compressor oil to a new O-ring and the fitting surface of the hose joint.

Compressor oil

ND-OIL8 or equivalent

- c. Install the O-ring onto the discharge hose.
- d. Install the discharge hose onto the cooler condenser with the bolt.

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

4. **INSTALL RADIATOR SUPPORT SUB-ASSEMBLY** See step 5
5. **INSTALL HOOD LOCK ASSEMBLY** . Refer to **INSTALLATION - Step 6**
6. **INSTALL HOOD LOCK NUT CAP** . Refer to **INSTALLATION - Step 9**
7. **INSTALL AIR CLEANER INLET COVER ASSEMBLY SEAL** . Refer to **INSTALLATION - Step 5**
8. **INSTALL RADIATOR GRILLE SUB-ASSEMBLY (w/o Dynamic Radar Cruise Control System)**

Refer to **INSTALLATION**

9. **INSTALL MILLIMETER WAVE RADAR SENSOR ASSEMBLY (w/ Dynamic Radar Cruise Control System)**

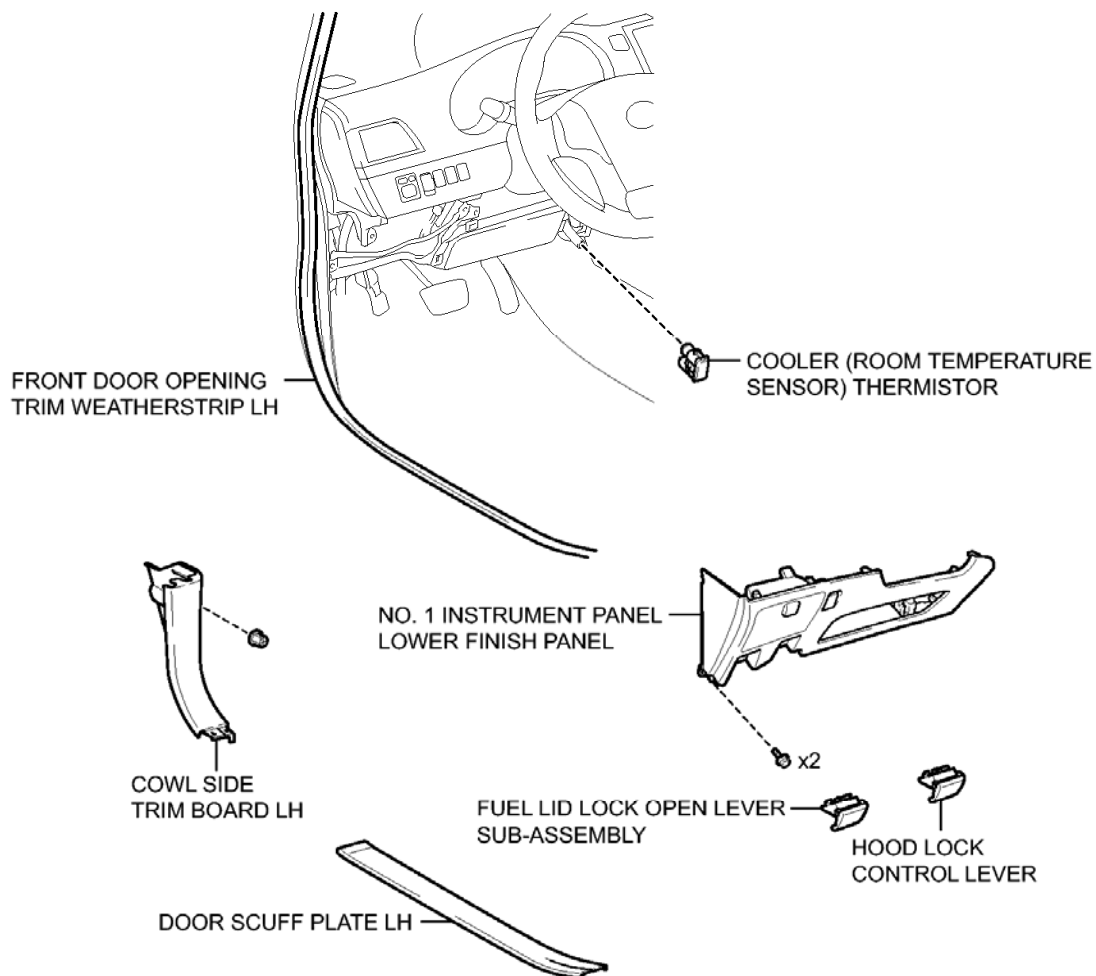
Refer to **INSTALLATION**

10. **CHARGE REFRIGERANT** See step 2
11. **WARM UP ENGINE** See step 3
12. **INSPECT FOR REFRIGERANT LEAK** See step 4
13. **INSPECT HOOD SUB-ASSEMBLY** . Refer to **ON-VEHICLE INSPECTION - Step 1**
14. **ADJUST HOOD SUB-ASSEMBLY** . Refer to **ADJUSTMENT - Step 1**

ROOM TEMPERATURE SENSOR (FOR FRONT SIDE)

COMPONENTS

ILLUSTRATION



T

Fig. 237: Room Temperature Sensor Replacement Components
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE DOOR SCUFF PLATE LH

HINT:

Use the same procedure as for the RH side. Refer to REMOVAL - Step 3 .

2. REMOVE COWL SIDE TRIM BOARD LH

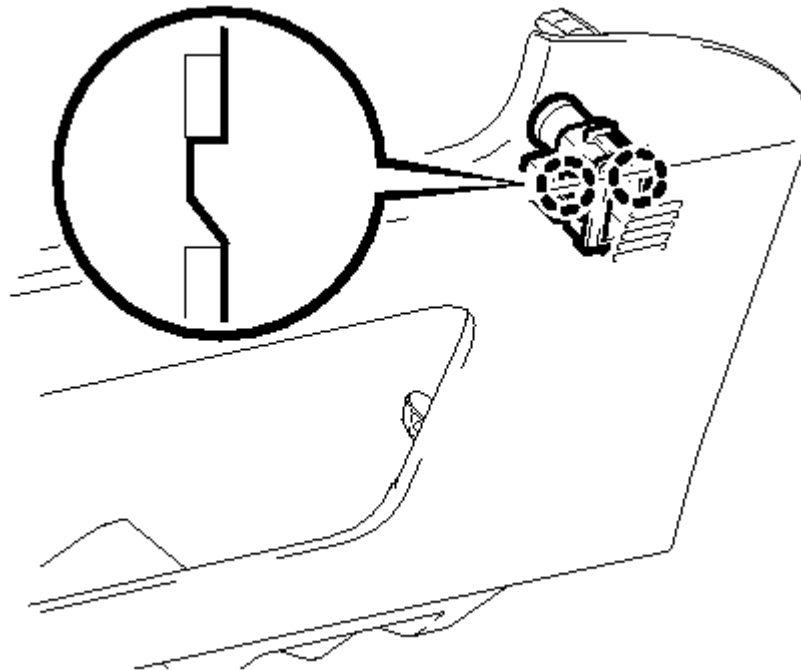
HINT:

Use the same procedure as for the RH side. Refer to REMOVAL - Step 5 .

3. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP LH

4. REMOVE NO. 1 INSTRUMENT PANEL LOWER FINISH PANEL . Refer to REMOVAL - Step 19

5. REMOVE COOLER (ROOM TEMPERATURE SENSOR) THERMISTOR



P

Fig. 238: Identifying Cooler (Room Temperature Sensor) Thermistor & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the 2 claws and cooler (room temperature sensor) thermistor.

INSPECTION

INSPECTION

1. INSPECT COOLER (ROOM TEMPERATURE SENSOR) THERMISTOR

- a. Measure the resistance according to the value(s) in the table below.

*a

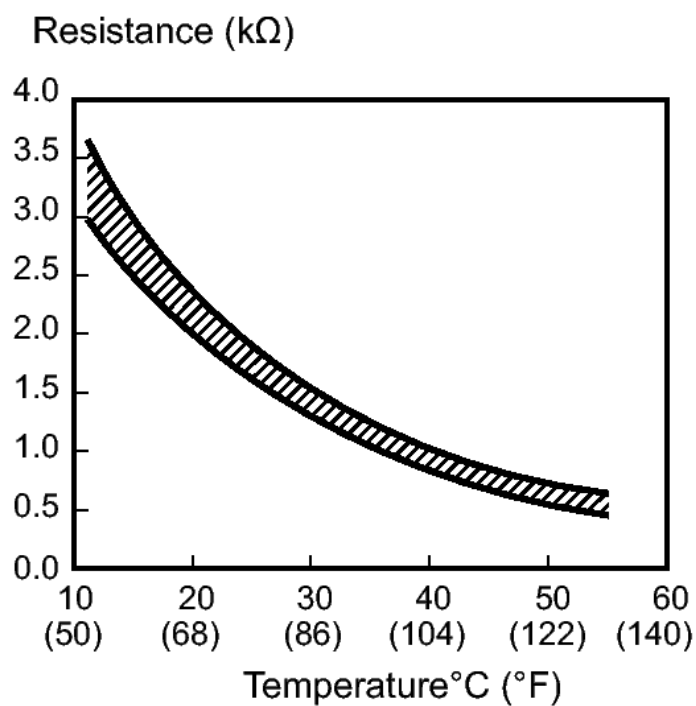
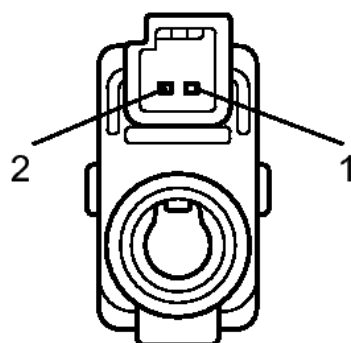
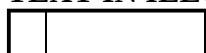


Fig. 239: Cooler (Room Temperature Sensor) Thermistor Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



*a	Component without harness connected (Cooler (Room temperature sensor) Thermistor)
----	---

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2	10°C (50° F)	3.00 to 3.73 kohms
1 - 2	15°C (59° F)	2.45 to 2.88 kohms
1 - 2	20°C (68° F)	1.95 to 2.30 kohms
1 - 2	25°C (77° F)	1.60 to 1.80 kohms
1 - 2	30°C (86° F)	1.28 to 1.47 kohms
1 - 2	35°C (95° F)	1.00 to 1.22 kohms
1 - 2	40°C (104°F)	0.80 to 1.00 kohms
1 - 2	45°C (113°F)	0.65 to 0.85 kohms
1 - 2	50°C (122°F)	0.50 to 0.70 kohms
1 - 2	55°C (131°F)	0.44 to 0.60 kohms
1 - 2	60°C	0.36 to 0.50

	(140°F)	kohms
--	---------	-------

NOTE:

- Even slightly touching the sensor may change the resistance value. Be sure to hold the sensor connector.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

As the temperature increases, the resistance decreases (see **Fig. 239**).

If the resistance is not as specified, replace the cooler (room temperature sensor) thermistor.

INSTALLATION

INSTALLATION

1. **INSTALL COOLER (ROOM TEMPERATURE SENSOR) THERMISTOR**
 - a. Engage the 2 claws and install the cooler (room temperature sensor) thermistor.
2. **INSTALL NO. 1 INSTRUMENT PANEL LOWER FINISH PANEL** . Refer to **INSTALLATION - Step 39**
3. **INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH**
4. **INSTALL COWL SIDE TRIM BOARD LH**

HINT:

Use the same procedure as for the RH side. Refer to **INSTALLATION - Step 35** .

5. **INSTALL DOOR SCUFF PLATE LH**

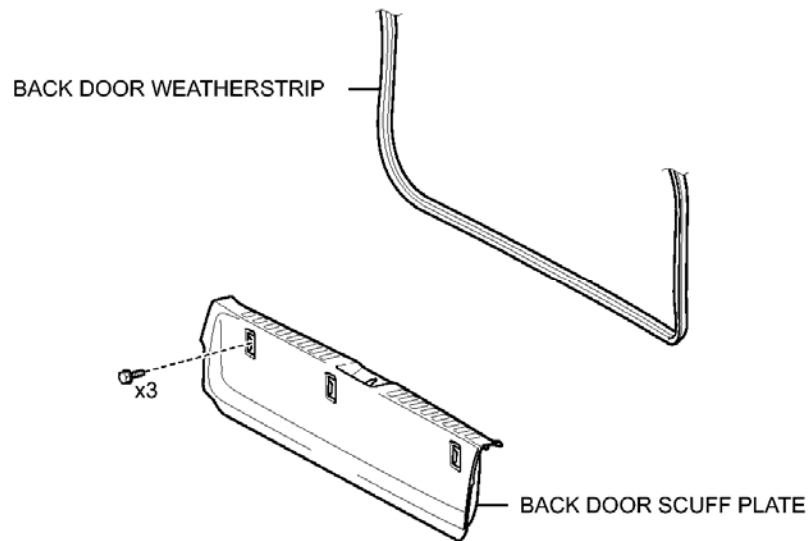
HINT:

Use the same procedure as for the RH side. Refer to **INSTALLATION - Step 37** .

ROOM TEMPERATURE SENSOR (FOR REAR SIDE)

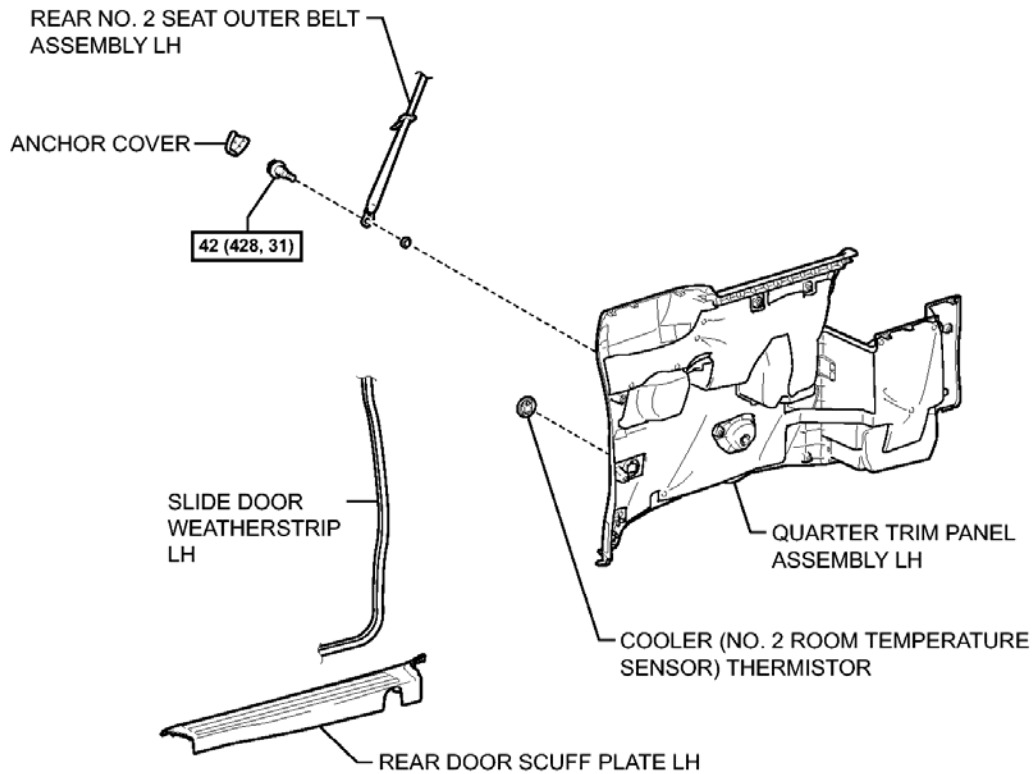
COMPONENTS

ILLUSTRATION



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Fig. 240: Room Temperature Sensor Replacement Components (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



$\boxed{\text{N}\cdot\text{m (kgf}\cdot\text{cm, ft.}\cdot\text{lbf)}}$: Specified torque

P

Fig. 241: Room Temperature Sensor Replacement Components With Torque Specifications (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. SEPARATE BACK DOOR WEATHERSTRIP

2. **REMOVE BACK DOOR SCUFF PLATE** . Refer to **REMOVAL - Step 17**
3. **REMOVE REAR DOOR SCUFF PLATE LH**

HINT:

Use the same procedure as for the RH side. Refer to **REMOVAL - Step 13** .

4. **SEPARATE SLIDE DOOR WEATHERSTRIP LH**
5. **SEPARATE REAR NO. 2 SEAT OUTER BELT ASSEMBLY LH**
 - a. Disengage the 3 claws and remove the anchor cover.

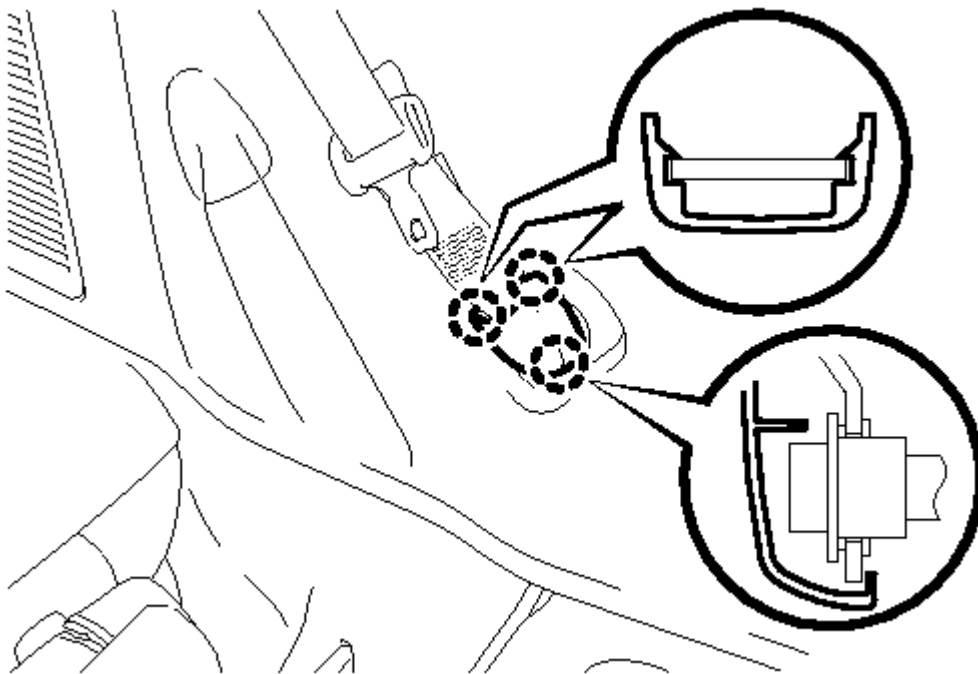


Fig. 242: Identifying Rear No. 2 Seat Outer Belt Assembly LH Anchor Cover & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the bolt and separate the rear No. 2 seat outer belt.

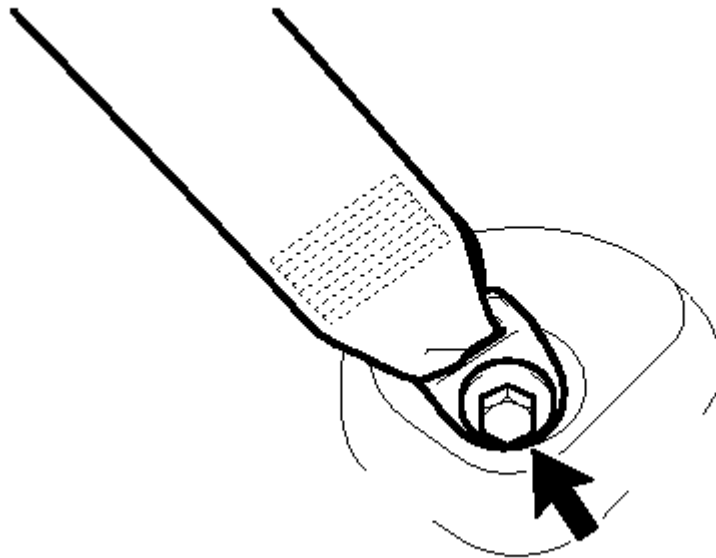


Fig. 243: Identifying Rear No. 2 Seat Outer Belt & Bolt
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. REMOVE QUARTER TRIM PANEL ASSEMBLY LH . Refer to **REMOVAL - Step 27**
7. REMOVE COOLER (NO. 2 ROOM TEMPERATURE SENSOR) THERMISTOR



Fig. 244: Identifying Cooler (No. 2 Room Temperature Sensor) Thermistor & Claws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

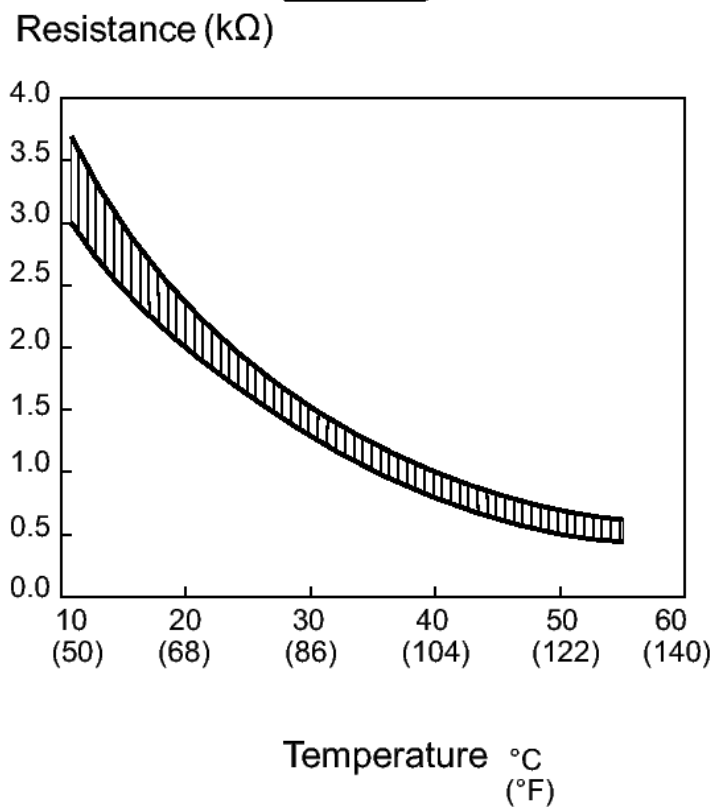
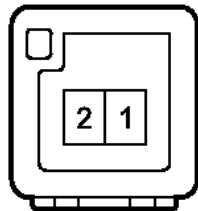
- a. Disengage the 4 claws and remove the cooler (No. 2 room temperature sensor) thermistor.

INSPECTION

INSPECTION

- 1. INSPECT COOLER (NO. 2 ROOM TEMPERATURE SENSOR) THERMISTOR**

*a



H

Fig. 245: Cooler (No. 2 Room Temperature Sensor) Thermistor Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Measure the resistance according to the value(s) in the table below.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Cooler (No. 2 room temperature sensor) thermistor)
----	---

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2	10°C (50° F)	3.00 to 3.73 kohms
1 - 2	15°C (59° F)	2.45 to 2.88 kohms
1 - 2	20°C (68° F)	1.95 to 2.30 kohms
1 - 2	25°C (77° F)	1.60 to 1.80 kohms
1 - 2	30°C (86° F)	1.28 to 1.47 kohms
1 - 2	35°C (95° F)	1.00 to 1.22 kohms
1 - 2	40°C (104°F)	0.80 to 1.00 kohms
1 - 2	45°C (113°F)	0.65 to 0.85 kohms
1 - 2	50°C (122°F)	0.50 to 0.70 kohms
1 - 2	55°C (131°F)	0.44 to 0.60 kohms

1 - 2	60°C (140°F)	0.36 to 0.50 kohms
-------	-----------------	--------------------------

NOTE:

- Even slightly touching the sensor may change the resistance value. Be sure to hold the connector of the sensor.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

As the temperature increases, the resistance decreases (see the graph in **Fig. 245**).

If the result is not as specified, replace the cooler (No. 2 room temperature sensor) thermistor.

INSTALLATION

INSTALLATION

1. INSTALL COOLER (NO. 2 ROOM TEMPERATURE SENSOR) THERMISTOR

- a. Engage the 4 claws and install the cooler (No. 2 room temperature sensor) thermistor.

2. INSTALL QUARTER TRIM PANEL ASSEMBLY LH . Refer to **INSTALLATION - Step 15**

3. INSTALL REAR NO. 2 SEAT OUTER BELT ASSEMBLY LH

- a. Install the rear No. 2 seat outer belt with the bolt.

Torque: 42 N*m (428 kgf*cm, 31 ft.*lbf)

- b. Engage the 3 claws and install the anchor cover.

4. INSTALL SLIDE DOOR WEATHERSTRIP LH

5. INSTALL REAR DOOR SCUFF PLATE LH

HINT:

Use the same procedure as for the RH side. Refer to **INSTALLATION - Step 27** .

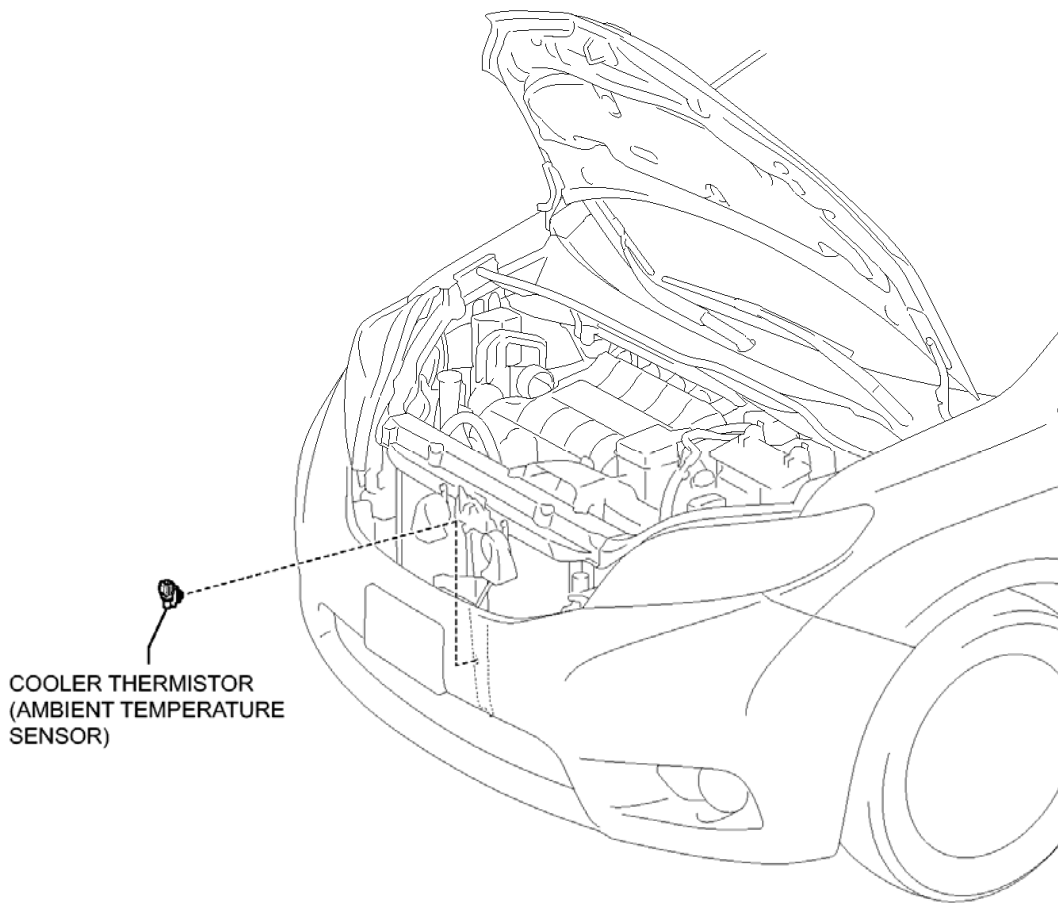
6. INSTALL BACK DOOR SCUFF PLATE . Refer to **INSTALLATION - Step 24**

7. INSTALL BACK DOOR WEATHERSTRIP

AMBIENT TEMPERATURE SENSOR

COMPONENTS

ILLUSTRATION



P

Fig. 246: Ambient Temperature Sensor Replacement Component
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

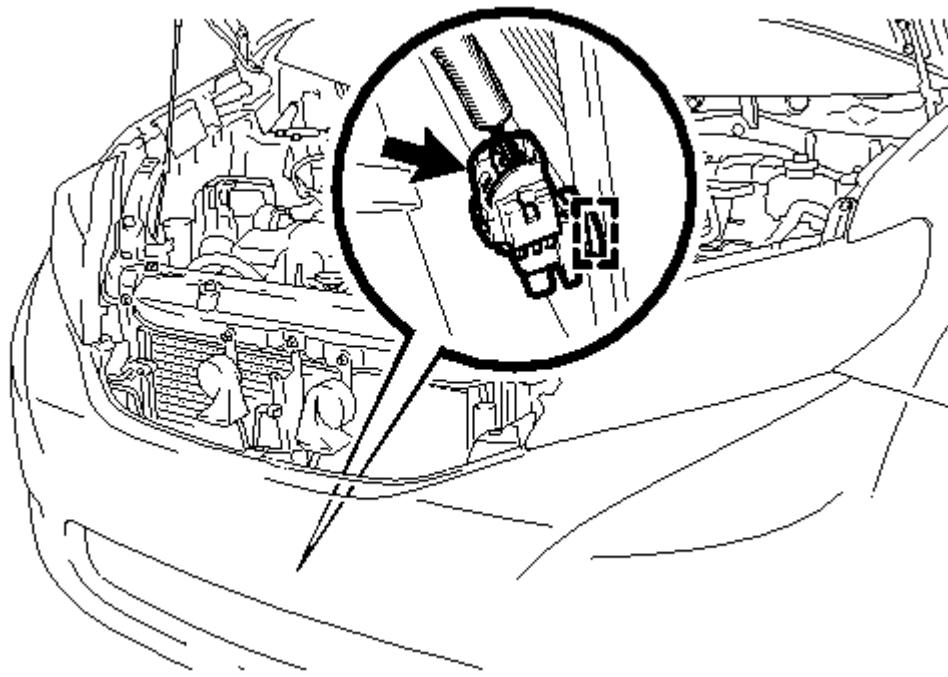
1. **REMOVE RADIATOR GRILLE SUB-ASSEMBLY (w/o Dynamic Radar Cruise Control System)**

Refer to **REMOVAL**

2. **REMOVE MILLIMETER WAVE RADAR SENSOR ASSEMBLY (w/ Dynamic Radar Cruise Control System)**

Refer to **INSTALLATION**

3. **REMOVE COOLER THERMISTOR (AMBIENT TEMPERATURE SENSOR)**



P

Fig. 247: Identifying Cooler Thermistor (Ambient Temperature Sensor), Connector & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Disengage the clamp and remove the cooler thermistor (ambient temperature sensor).

INSPECTION

INSPECTION

1. **INSPECT COOLER THERMISTOR (AMBIENT TEMPERATURE SENSOR)**
 - a. Measure the resistance according to the value(s) in the table below.

*a

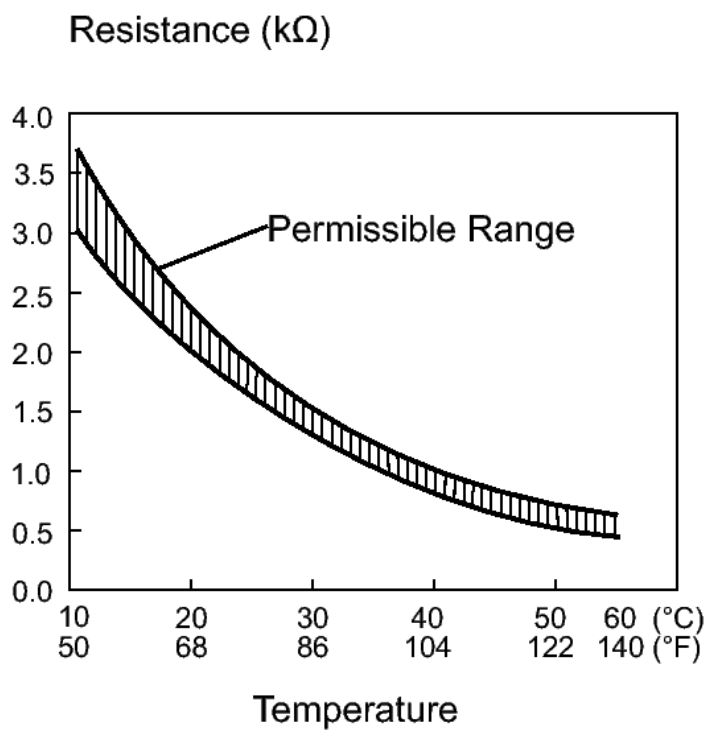
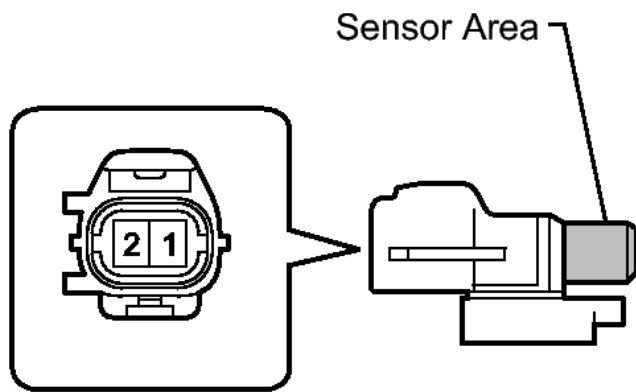
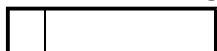


Fig. 248: Cooler Thermistor (Ambient Temperature Sensor) Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION



*a	Component without harness connected (Cooler Thermistor (Ambient Temperature Sensor))
----	--

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2	10°C (50° F)	3.00 to 3.73 kohms
1 - 2	15°C (59° F)	2.45 to 2.88 kohms
1 - 2	20°C (68° F)	1.95 to 2.30 kohms
1 - 2	25°C (77° F)	1.60 to 1.80 kohms
1 - 2	30°C (86° F)	1.28 to 1.47 kohms
1 - 2	35°C (95° F)	1.00 to 1.22 kohms
1 - 2	40°C (104°F)	0.80 to 1.00 kohms
1 - 2	45°C (113°F)	0.65 to 0.85 kohms
1 - 2	50°C (122°F)	0.50 to 0.70 kohms
1 - 2	55°C (131°F)	0.44 to 0.60 kohms
1 - 2	60°C	0.36 to 0.50

	(140°F)	kohms
--	---------	-------

NOTE:

- Even slightly touching the sensor may change the resistance value. Be sure to hold the sensor connector.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

As the temperature increases, the resistance decreases (see the graph in **Fig. 248**).

If the resistance is not as specified, replace the cooler thermistor (ambient temperature sensor).

INSTALLATION

INSTALLATION

1. **INSTALL COOLER THERMISTOR (AMBIENT TEMPERATURE SENSOR)**
 - a. Engage the clamp and install the cooler thermistor (ambient temperature sensor).
 - b. Connect the connector.
2. **INSTALL RADIATOR GRILLE SUB-ASSEMBLY (w/o Dynamic Radar Cruise Control System)**

Refer to **INSTALLATION**

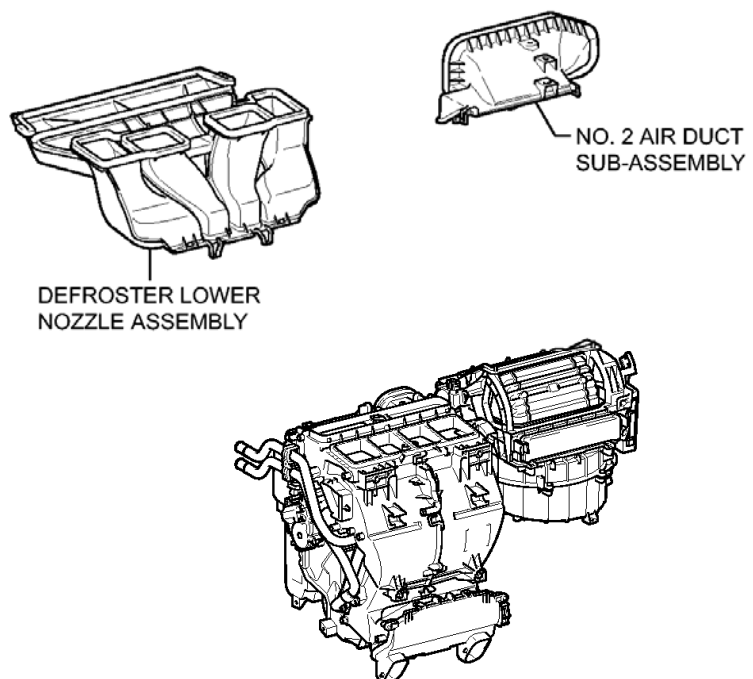
3. **INSTALL MILLIMETER WAVE RADAR SENSOR ASSEMBLY (w/ Dynamic Radar Cruise Control System)**

Refer to **INSTALLATION**

FRONT EVAPORATOR TEMPERATURE SENSOR

COMPONENTS

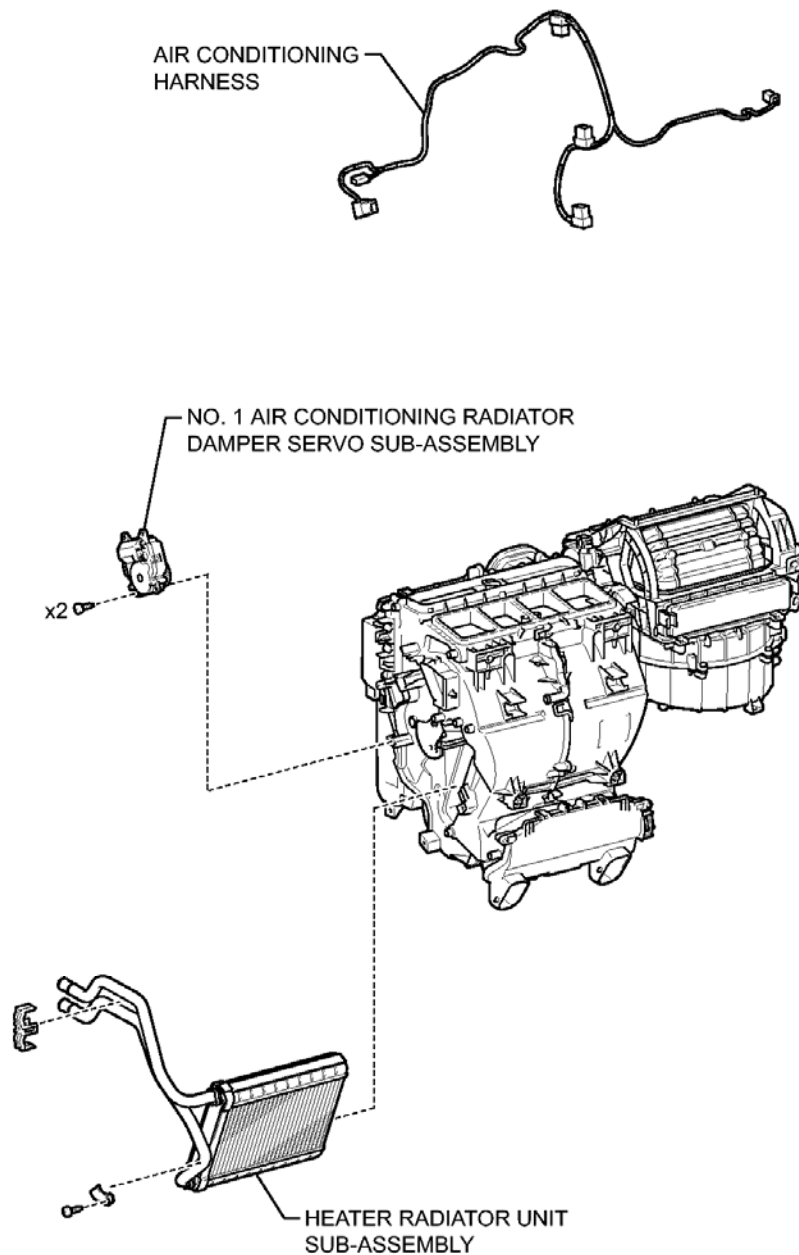
ILLUSTRATION



P

Fig. 249: Front Evaporator Temperature Sensor Replacement Components (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

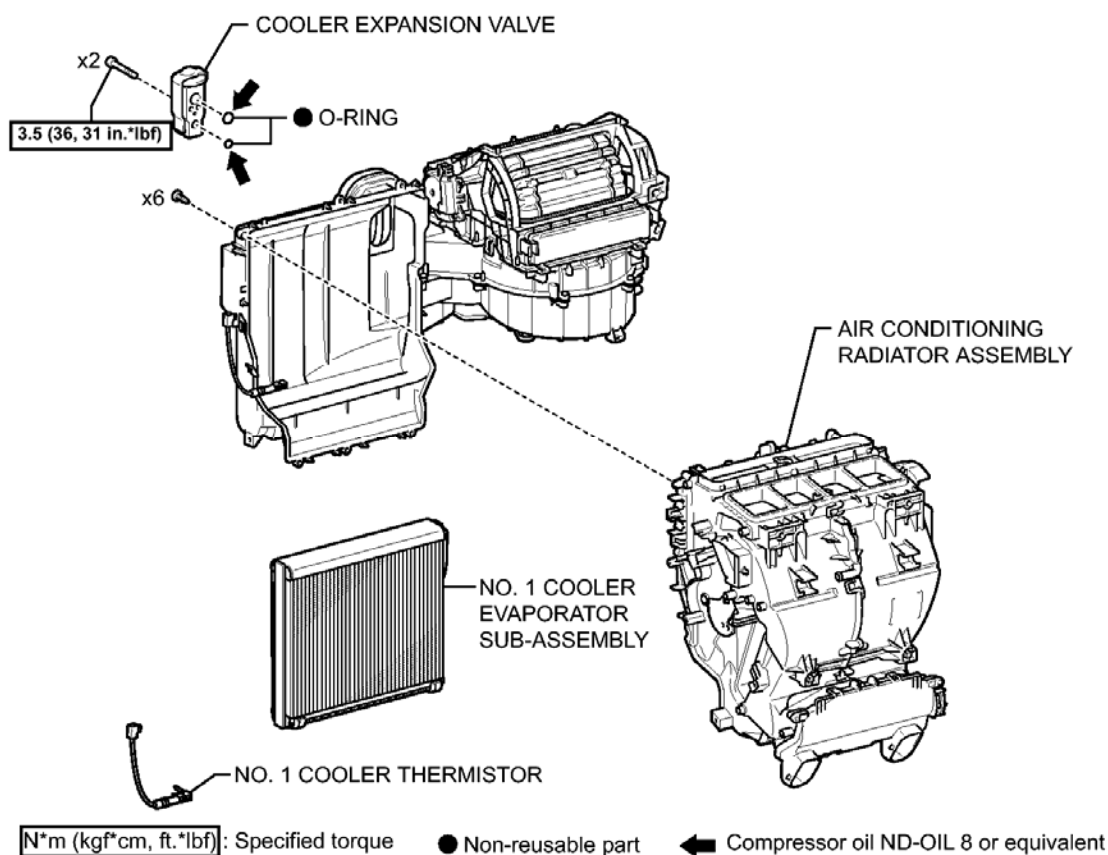
ILLUSTRATION



P

Fig. 250: Front Evaporator Temperature Sensor Replacement Components (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P

Fig. 251: Front Evaporator Temperature Sensor Replacement Components With Torque Specifications (3 Of 3)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

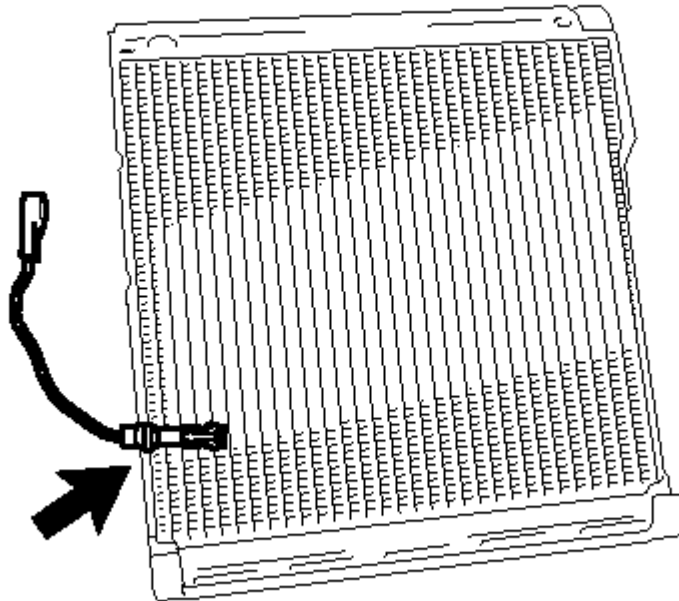
REMOVAL

1. REMOVE AIR CONDITIONING UNIT

Refer to INSTALLATION

2. **REMOVE DEFROSTER LOWER NOZZLE ASSEMBLY** See step 2
3. **REMOVE NO. 2 AIR DUCT SUB-ASSEMBLY** See step 3
4. **REMOVE NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY** See step 4
5. **REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY** See step 5
6. **REMOVE AIR CONDITIONING HARNESS** See step 6
7. **REMOVE AIR CONDITIONING RADIATOR ASSEMBLY** See step 9
8. **REMOVE COOLER EXPANSION VALVE** See step 11

9. **REMOVE NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY** See step 12
10. **REMOVE NO. 1 COOLER THERMISTOR**



P

Fig. 252: Identifying No. 1 Cooler Thermistor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the No. 1 cooler thermistor.

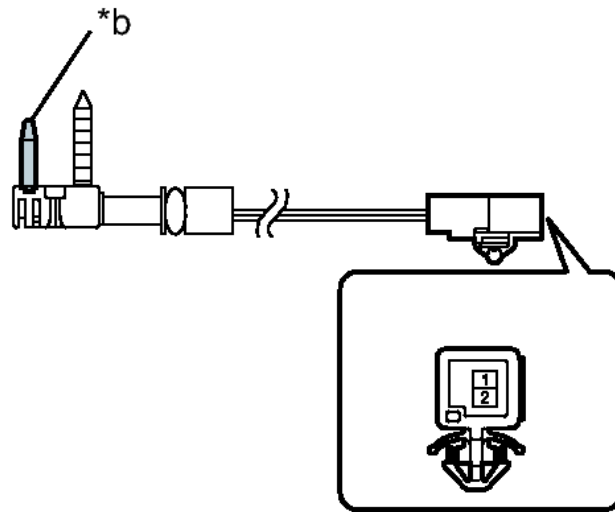
INSPECTION

INSPECTION

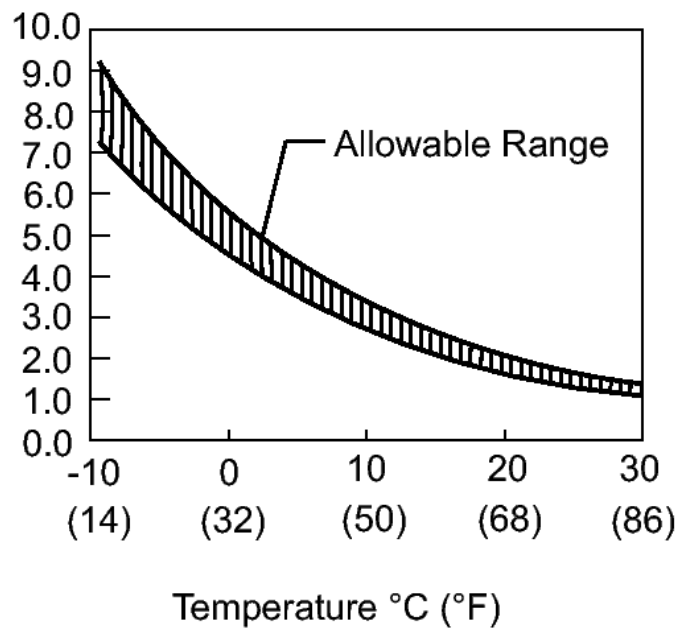
1. INSPECT NO. 1 COOLER THERMISTOR

- a. Measure the resistance according to the value(s) in the table below.

*a



Resistance (k Ω)



H

Fig. 253: No. 1 Cooler Thermistor Connector End View
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Resistance



Tester Connection	Condition	Specified Condition
1 - 2	-10°C (14°F)	7.30 to 9.10 kohms
1 - 2	-5°C (23°F)	5.65 to 6.95 kohms
1 - 2	0°C (32°F)	4.40 to 5.35 kohms
1 - 2	5°C (41°F)	3.40 to 4.15 kohms
1 - 2	10°C (50°F)	2.70 to 3.25 kohms
1 - 2	15°C (59°F)	2.14 to 2.58 kohms
1 - 2	20°C (68°F)	1.71 to 2.05 kohms
1 - 2	25°C (77°F)	1.38 to 1.64 kohms
1 - 2	30°C (86°F)	1.11 to 1.32 kohms

TEXT IN ILLUSTRATION

*a	Component without harness connected (No. 1 Cooler Thermistor)
*b	Sensing Portion

NOTE:

- Hold the sensor only by its connector. Touching the sensor may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

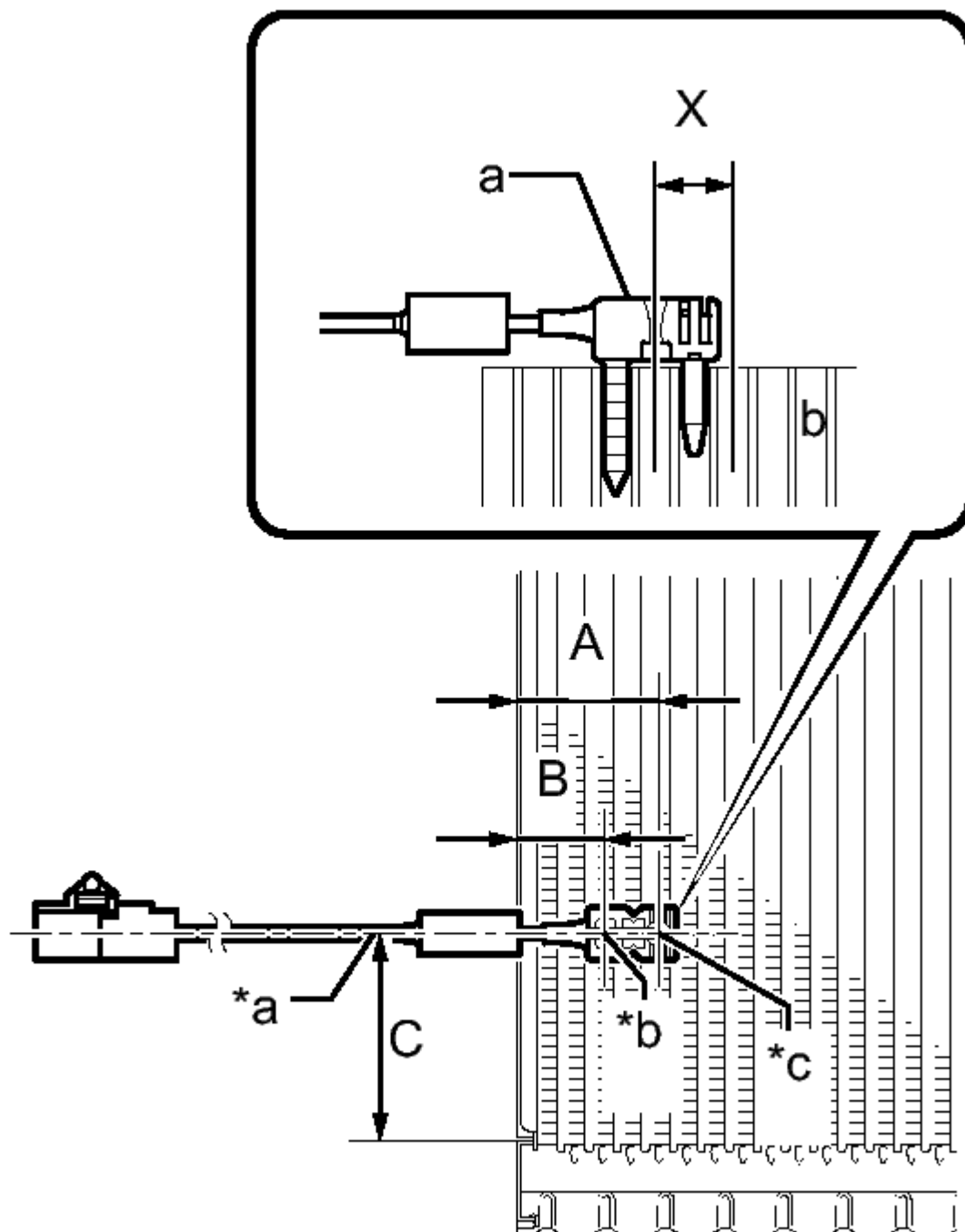
As the temperature increases, the resistance decreases (see the graph in **Fig. 253**).

If the result is not as specified, replace the No. 1 cooler thermistor.

INSTALLATION

INSTALLATION

1. INSTALL NO. 1 COOLER THERMISTOR



P

Fig. 254: Installing No. 1 Cooler Thermistor

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install the No. 1 cooler thermistor as shown in the illustration.

Standard

Part	Length
A	34.3 mm (1.35 in.)
B	20.9 mm (0.822 in.)
C	48 to 52 mm (1.890 to 2.047 in.)

TEXT IN ILLUSTRATION

*a	From Tank
*b	Fixed Part
*c	Sensor Part

NOTE:

- Be sure to insert the thermistor only once because reinserting it into the same position will not allow it to be firmly secured.
- When reusing the evaporator, insert the thermistor one row next to the one that has been used previously (X in the illustration).
- After inserting the thermistor, do not apply excessive force to the wire.
- Directly insert the thermistor until the edge of plastic case "a" comes into contact with evaporator "b".

2. **INSTALL NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY** See step 4
3. **INSTALL COOLER EXPANSION VALVE** See step 6
4. **INSTALL AIR CONDITIONING RADIATOR ASSEMBLY** See step 7
5. **INSTALL AIR CONDITIONING HARNESS** See step 10
6. **INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY** See step 11
7. **INSTALL NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY** See step 12
8. **INSTALL NO. 2 AIR DUCT SUB-ASSEMBLY** See step 13

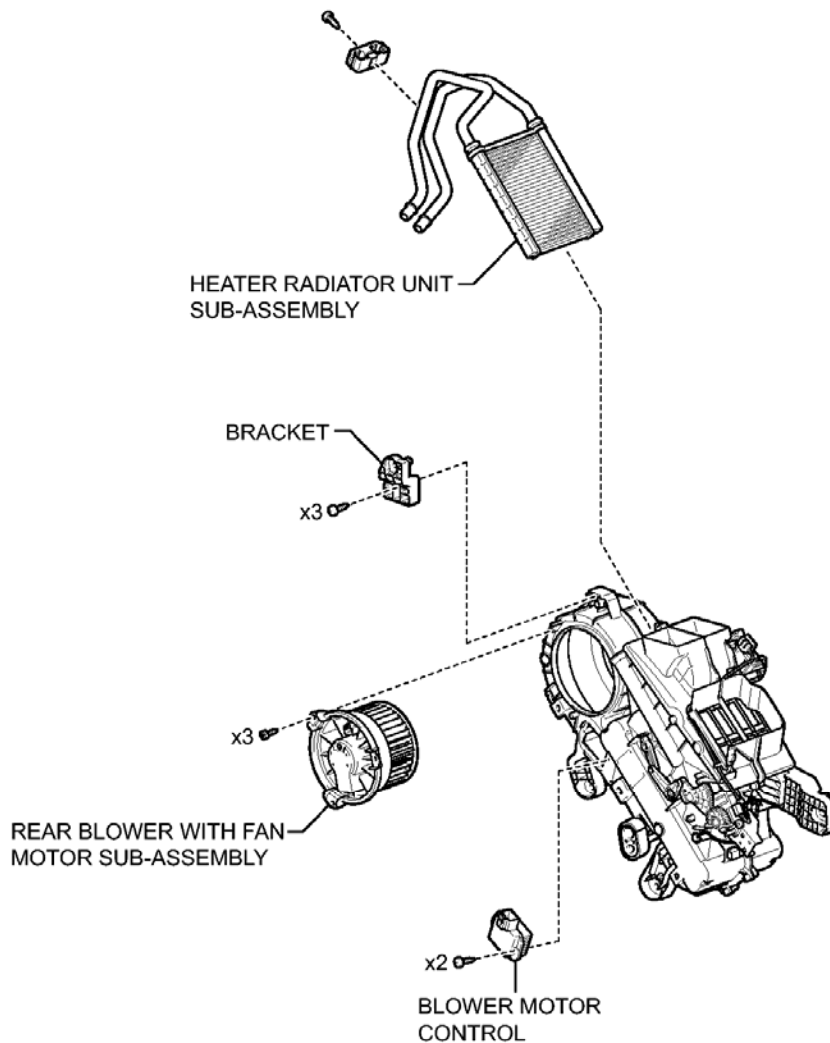
9. **INSTALL DEFROSTER LOWER NOZZLE ASSEMBLY** See step 14
10. **INSTALL AIR CONDITIONING UNIT**

Refer to **INSTALLATION**

REAR EVAPORATOR TEMPERATURE SENSOR

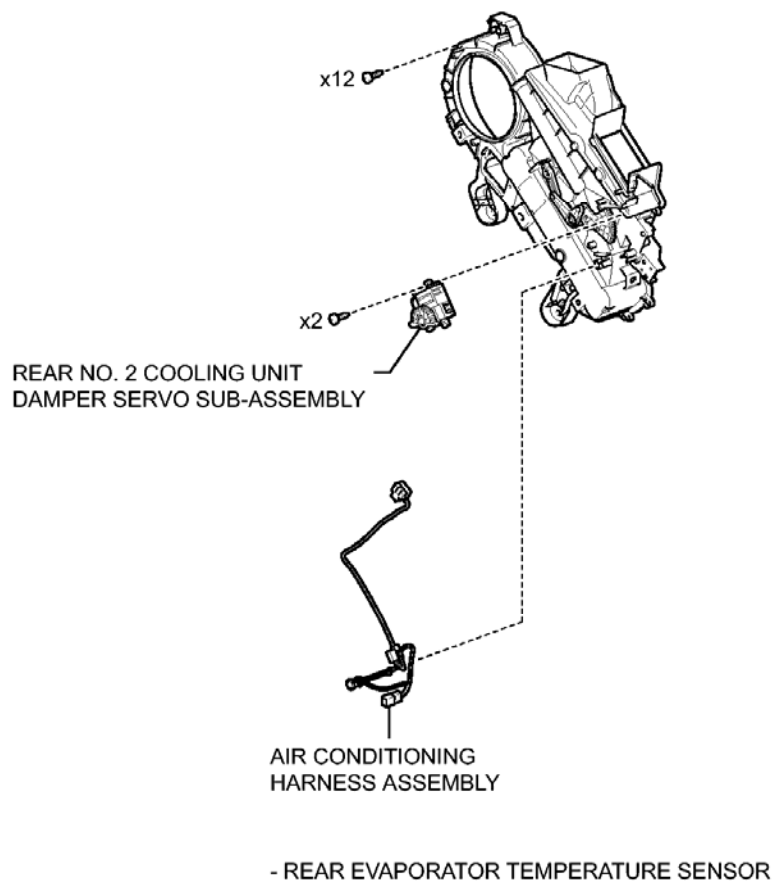
COMPONENTS

ILLUSTRATION



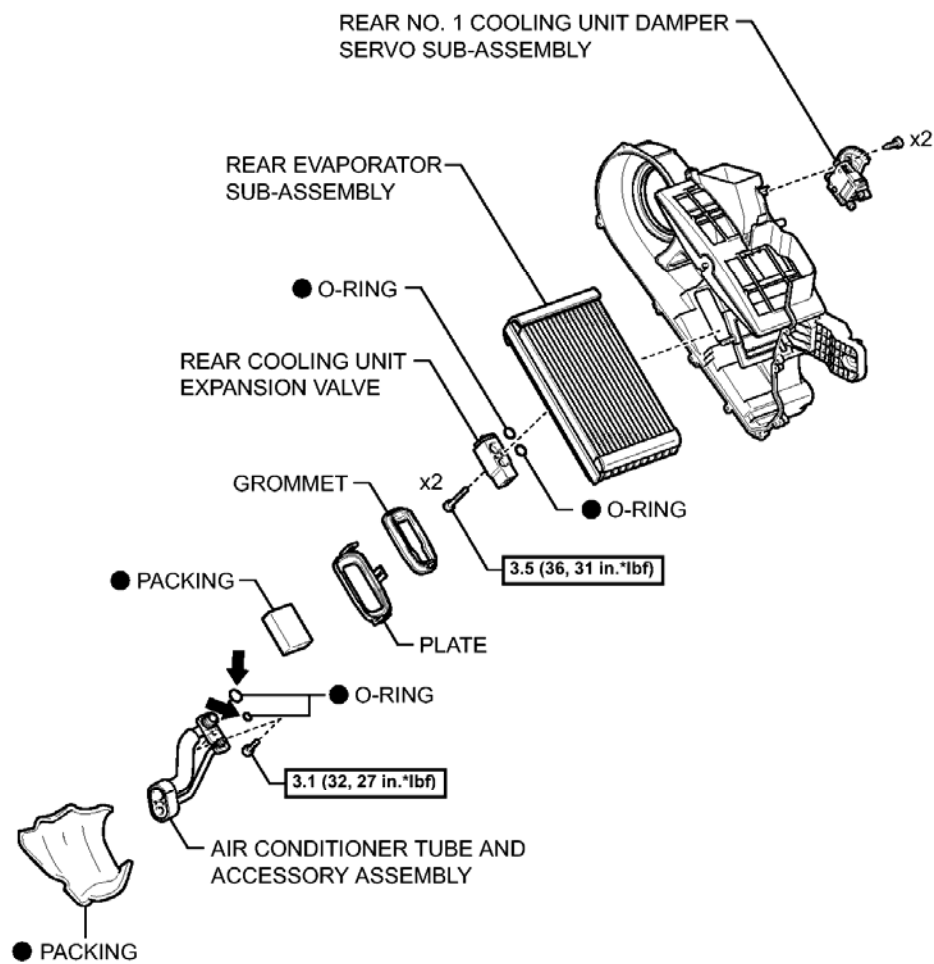
P
Fig. 255: Rear Evaporator Temperature Sensor Replacement Components (1 Of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P
Fig. 256: Rear Evaporator Temperature Sensor Replacement Components (2 Of 3)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

← Compressor oil ND-OIL 8 or equivalent

P

Fig. 257: Rear Evaporator Temperature Sensor Replacement Components With Torque Specifications (3 Of 3)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE REAR COOLING UNIT ASSEMBLY

Refer to REMOVAL

2. **REMOVE REAR BLOWER WITH FAN MOTOR SUB-ASSEMBLY** See step 1
3. **REMOVE BLOWER MOTOR CONTROL** See step 2
4. **REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY** See step 3
5. **REMOVE REAR NO. 2 COOLING UNIT DAMPER SERVO SUB-ASSEMBLY** See step 4
6. **REMOVE REAR NO. 1 COOLING UNIT DAMPER SERVO SUB-ASSEMBLY** See step 5
7. **DISCONNECT AIR CONDITIONING HARNESS ASSEMBLY** See step 6
8. **REMOVE AIR CONDITIONER TUBE AND ACCESSORY ASSEMBLY** See step 7
9. **REMOVE REAR COOLING UNIT EXPANSION VALVE** See step 8
10. **REMOVE REAR EVAPORATOR SUB-ASSEMBLY** See step 9
11. **REMOVE REAR EVAPORATOR TEMPERATURE SENSOR**

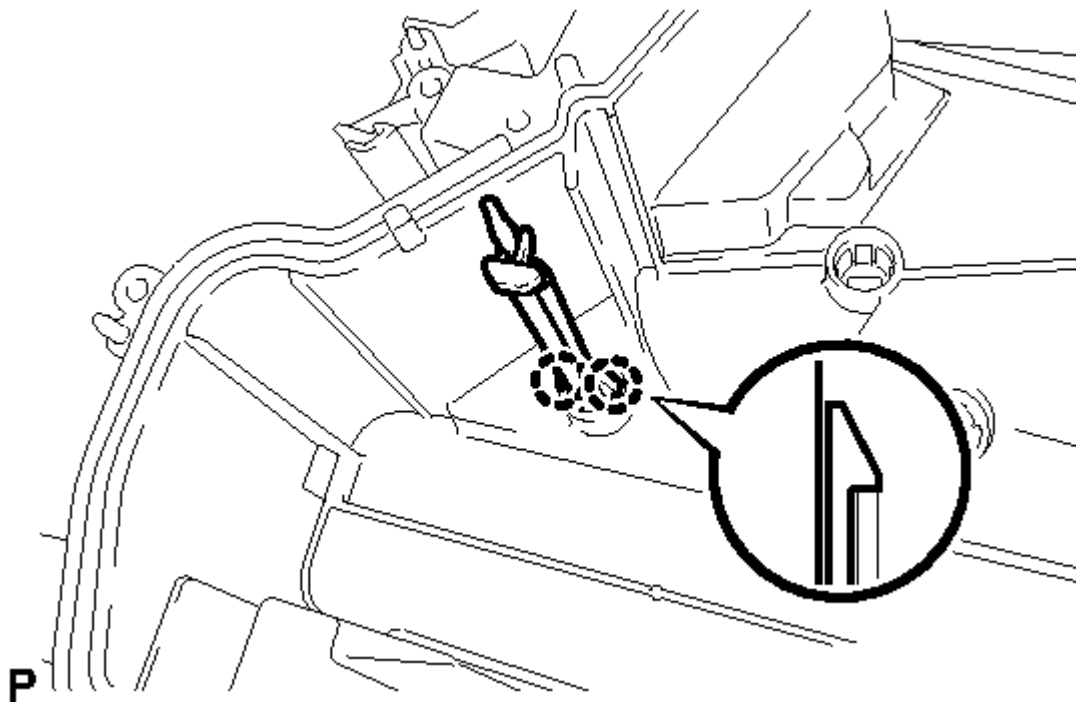


Fig. 258: Identifying Rear Evaporator Temperature Sensor & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the 2 claws and rear evaporator temperature sensor.

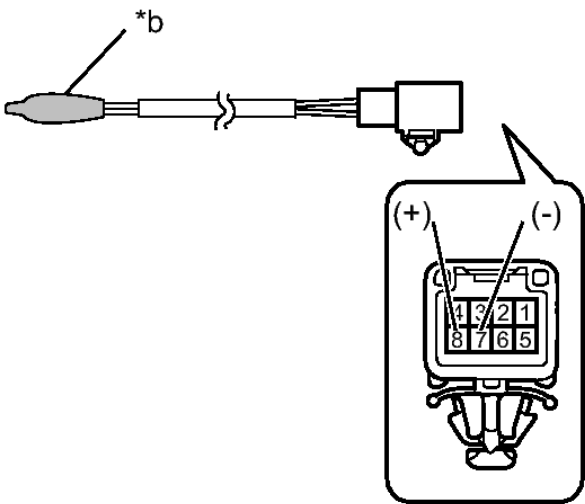
INSPECTION

INSPECTION

1. INSPECT REAR EVAPORATOR TEMPERATURE SENSOR

- a. Measure the resistance according to the value(s) in the table below.

*a



Resistance (kΩ)

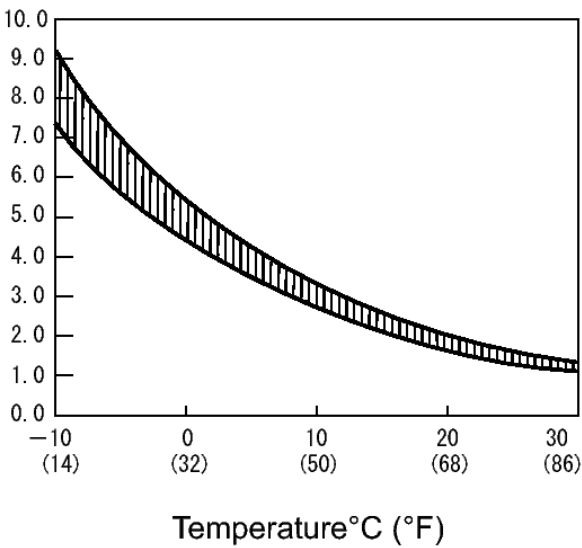


Fig. 259: Rear Evaporator Temperature Sensor Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Resistance

Tester Connection	Condition	Specified Condition
7(-) - 8(+)	-10°C (14°F)	7.30 to 9.10 kohms
7(-) - 8(+)	-5°C (23°F)	5.65 to 6.95 kohms
7(-) - 8(+)	0°C (32°F)	4.40 to 5.35 kohms
7(-) - 8(+)	5°C (41°F)	3.40 to 4.15 kohms
7(-) - 8(+)	10°C (50°F)	2.70 to 3.25 kohms
7(-) - 8(+)	15°C (59°F)	2.14 to 2.58 kohms
7(-) - 8(+)	20°C (68°F)	1.71 to 2.05 kohms
7(-) - 8(+)	25°C (77°F)	1.38 to 1.64 kohms
7(-) - 8(+)	30°C (86°F)	1.11 to 1.32 kohms

TEXT IN ILLUSTRATION

*a	Component without harness connected (Rear Evaporator Temperature Sensor)
*b	Sensing Portion

NOTE:

- Hold the sensor only by its connector. Touching the sensor may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

As the temperature increases, the resistance decreases (see the graph in **Fig. 259**).

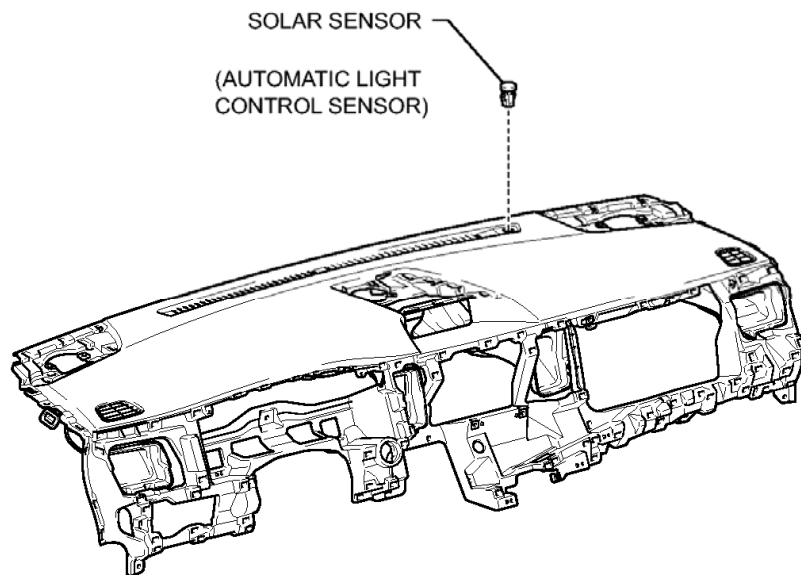
If the resistance is not as specified, replace the rear evaporator temperature sensor.

INSTALLATION**INSTALLATION**

1. **INSTALL REAR EVAPORATOR TEMPERATURE SENSOR**
 - a. Engage the 2 claws and install the rear evaporator temperature sensor.
2. **INSTALL REAR EVAPORATOR SUB-ASSEMBLY** See step 2
3. **INSTALL REAR COOLING UNIT EXPANSION VALVE** See step 3
4. **INSTALL AIR CONDITIONER TUBE AND ACCESSORY ASSEMBLY** See step 4
5. **INSTALL AIR CONDITIONING HARNESS ASSEMBLY** See step 5
6. **INSTALL REAR NO. 1 COOLING UNIT DAMPER SERVO SUB-ASSEMBLY** See step 6
7. **INSTALL REAR NO. 2 COOLING UNIT DAMPER SERVO SUB-ASSEMBLY** See step 7
8. **INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY** See step 8
9. **INSTALL BLOWER MOTOR CONTROL** See step 9
10. **INSTALL REAR BLOWER WITH FAN MOTOR SUB-ASSEMBLY** See step 10
11. **INSTALL REAR COOLING UNIT ASSEMBLY**

Refer to **INSTALLATION**

SOLAR SENSOR**COMPONENTS****ILLUSTRATION**



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Fig. 260: Solar Sensor Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

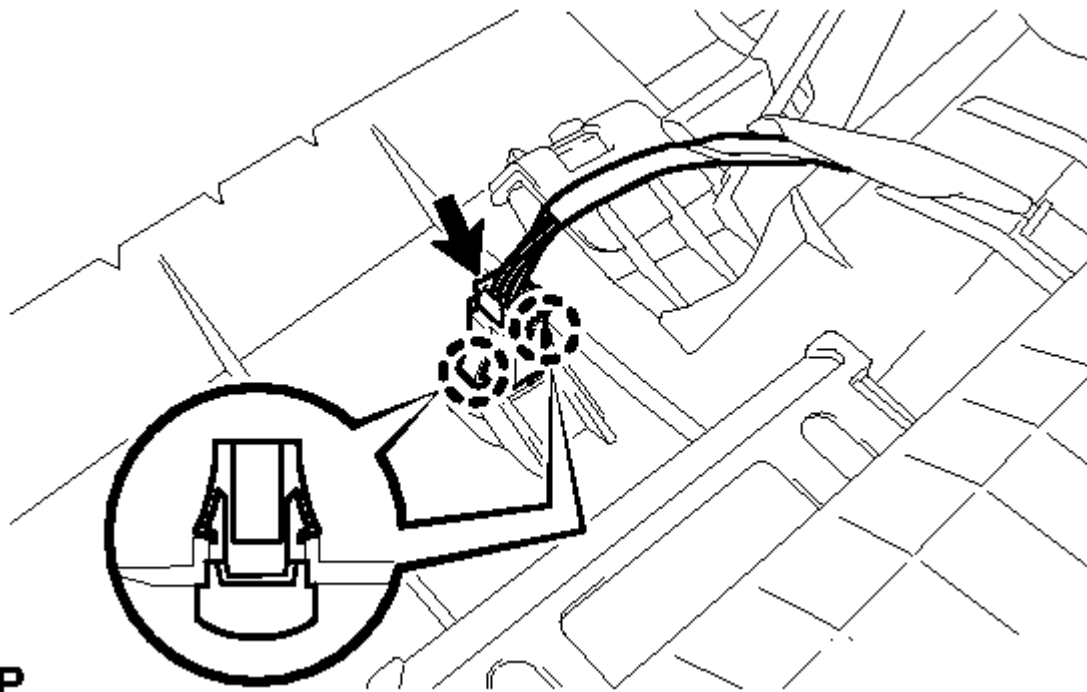
REMOVAL

REMOVAL

1. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY

Refer to **REMOVAL**

2. REMOVE SOLAR SENSOR



P

Fig. 261: Identifying Solar Sensor, Connector & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Disengage the 2 claws and remove the solar sensor.

INSPECTION

INSPECTION

1. INSPECT SOLAR SENSOR

- a. Disconnect the solar sensor connector.

*a

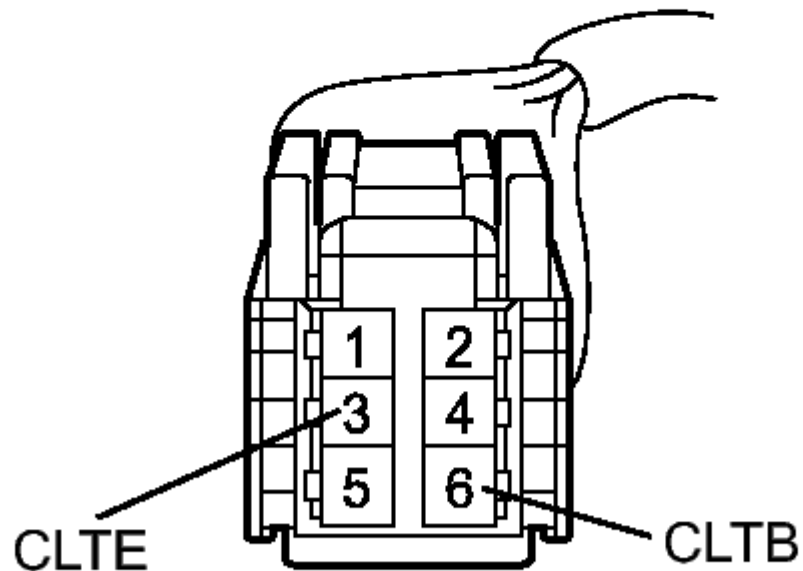


Fig. 262: Solar Sensor Connector End View (To Solar Sensor)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Condition	Specified Condition
6 (CLTB) - 3 (CLTE)	Ignition switch off	Below 1 V
6 (CLTB) - 3 (CLTE)	Ignition switch on (IG)	11 to 14 V

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Solar Sensor)
----	--

If the voltage is not as specified, repair or replace the wire harness or connector.

- c. Reconnect the solar sensor connector.

*a

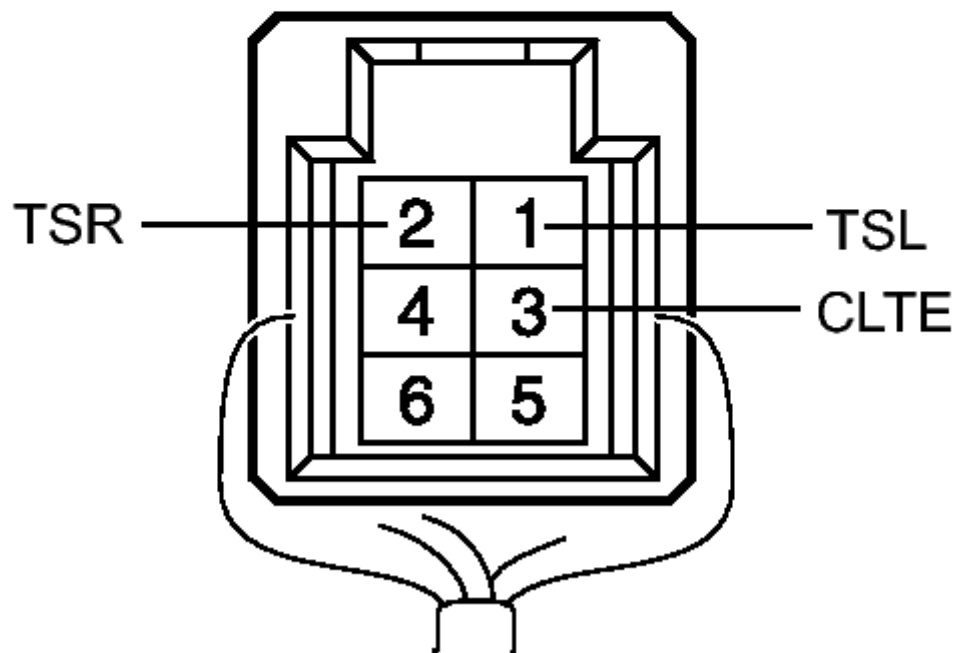


Fig. 263: Solar Sensor Connector End View
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Turn the ignition switch to ON.

- e. Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Condition	Specified Condition
1 (TSL) - 3 (CLTE)	Sensor is exposed to electric light	0.8 to 4.3 V
1 (TSL) - 3 (CLTE)	Sensor is covered with a cloth	Below 0.8 V
2 (TSR) - 3 (CLTE)	Sensor is exposed to electric light	0.8 to 4.3 V
2 (TSR) - 3 (CLTE)	Sensor is covered with a cloth	Below 0.8 V

TEXT IN ILLUSTRATION

*a	Component with harness connected (Solar Sensor)
----	---

NOTE:

- The connection procedure for using a digital tester such as a TOYOTA electrical tester is shown above. When using an analog tester, connect the positive (+) lead to terminal 6 and the negative (-) lead to terminal 2 of the solar sensor.
- While using the battery during inspection, do not bring the positive and negative tester probes too close to each other as a short circuit may occur.

HINT:

- Use an incandescent light for inspection. Bring it within about 30 cm (11.8 in.) of the solar sensor.
- As the inspection light is moved away from the sensor, the voltage decreases.

If the voltage is not as specified, replace the solar sensor.

INSTALLATION

INSTALLATION

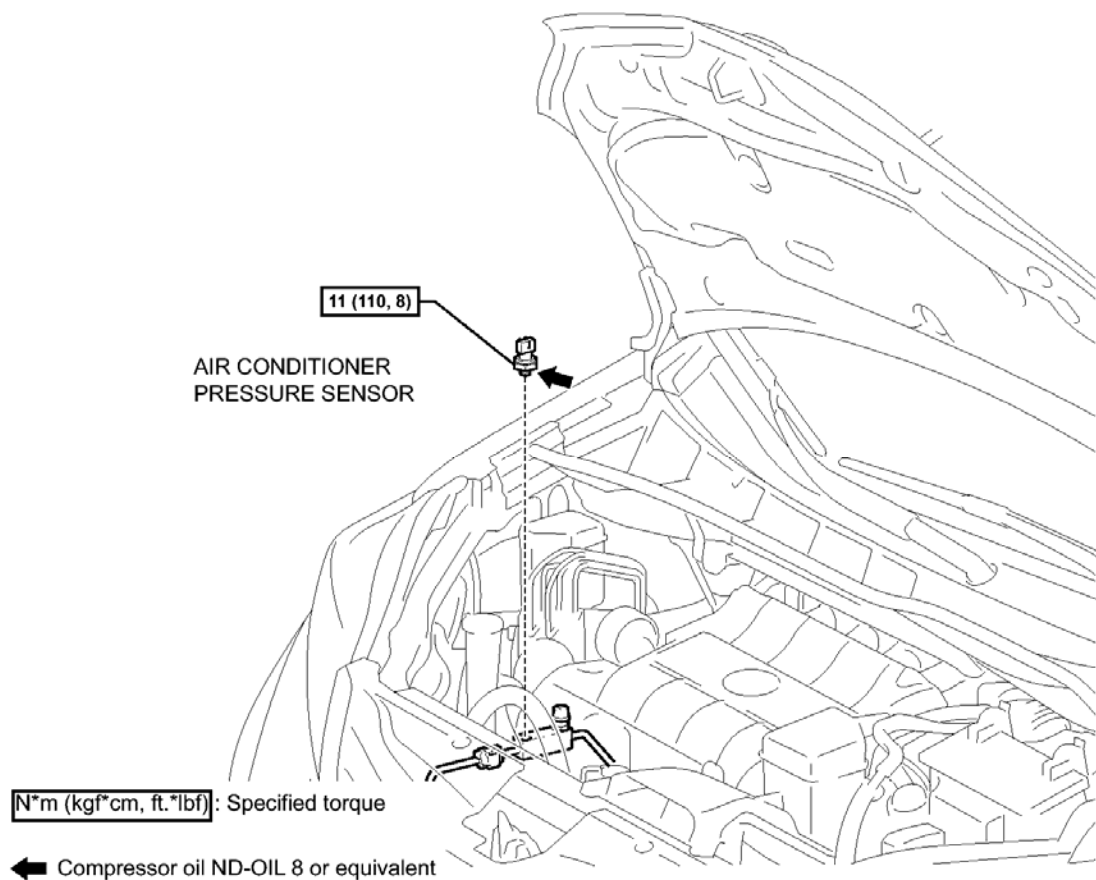
1. **INSTALL SOLAR SENSOR**
 - a. Engage the 2 claws and install the solar sensor.
 - b. Connect the connector.
2. **INSTALL INSTRUMENT PANEL SUB-ASSEMBLY**

Refer to INSTALLATION

AIR CONDITIONING PRESSURE SENSOR

COMPONENTS

ILLUSTRATION



P

Fig. 264: Air Conditioning Pressure Sensor Replacement Components With Torque Specifications
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. INSPECT AIR CONDITIONER PRESSURE SENSOR

- a. Check the wire harness.

*a



Fig. 265: Air Conditioner Pressure Sensor Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Air Conditioner pressure sensor)
----	--

- 1. Disconnect the connector of the pressure sensor.
- 2. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester	Condition	Specified
--------	-----------	-----------

Connection		Condition
1 - Body ground	Always	Below 1 ohms

3. Turn the ignition switch to ON.
4. Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Switch condition	Specified Condition
1 - 3	Ignition switch ON	4.75 to 5.25 V

- b. Check the pressure sensor.

*a

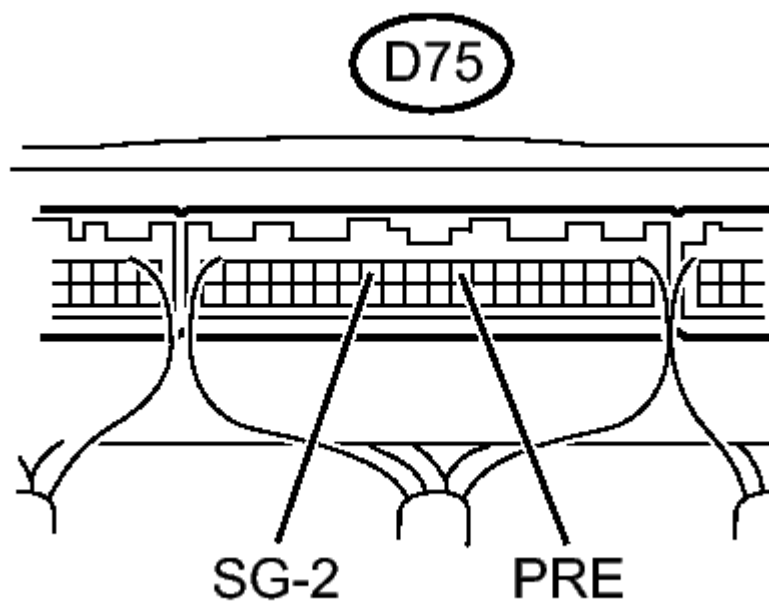


Fig. 266: Identifying Air Conditioner Amplifier Connector Terminals
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component with harness connected (Air Conditioning)
----	---

amplifier)

1. Set the manifold gauge.
2. Connect the connector to the pressure sensor.
3. Warm up the engine.
4. A/C switch on.
5. Measure the voltage according to the value(s) in the table below.

HINT:

Check from the rear of the connector while it is connected to the air conditioning amplifier.

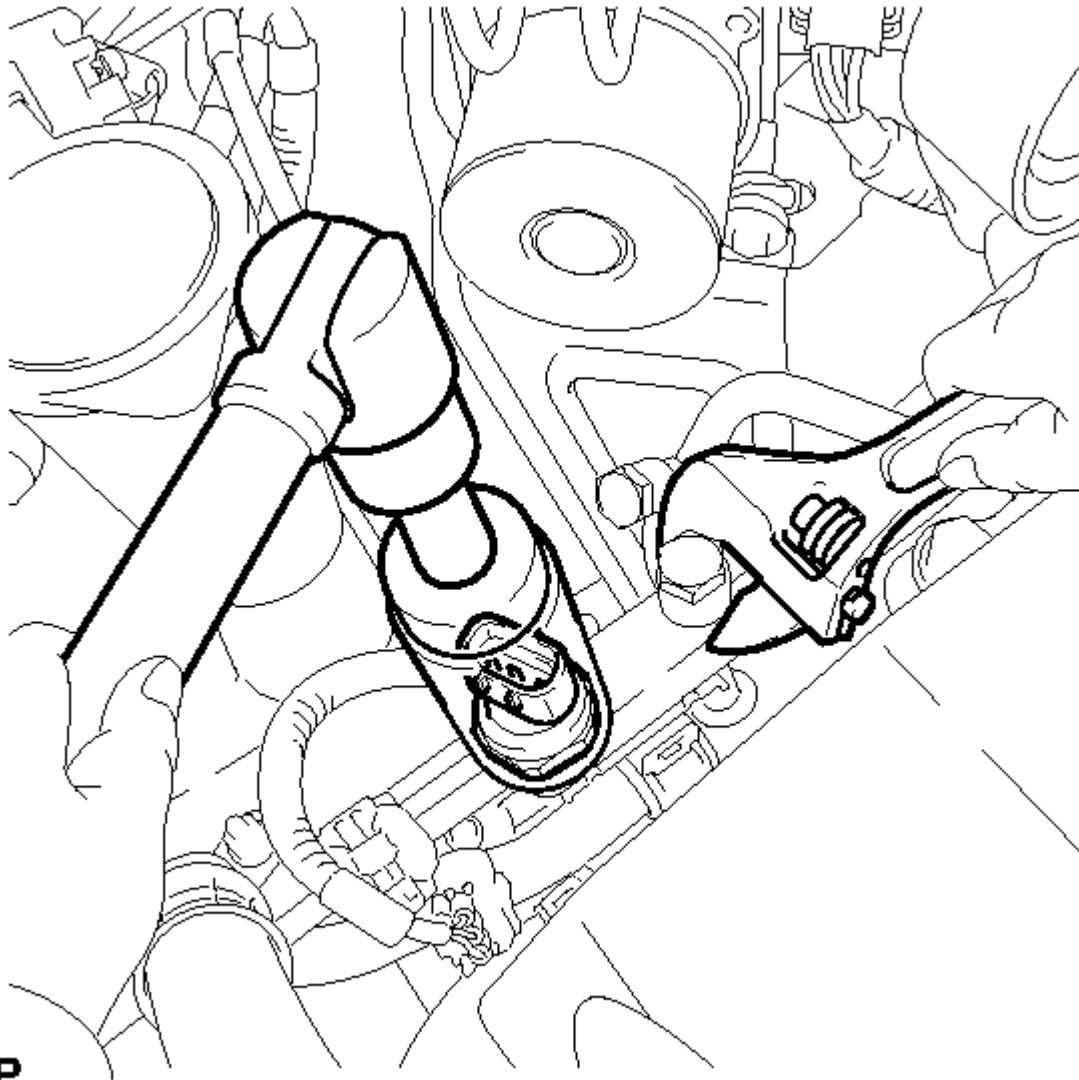
Standard Voltage

Tester Connection	Condition	Specified Condition
9(PRE) - 13 (SG-2)	0.176 to 3.025 MPa (1.8 to 30.9 kgf/cm ² , 25 to 439 psi)	0.63 to 4.72 V

REMOVAL

REMOVAL

1. **RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM** See step 1
2. **REMOVE AIR CONDITIONER PRESSURE SENSOR**



P

Fig. 267: Removing Air Conditioner Pressure Sensor Using A Deep Socket Wrench
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Using a deep socket wrench 27 mm, remove the pressure sensor.

NOTE: **Seal the openings of the disconnected parts using vinyl tape to prevent the entry of moisture and foreign matter.**

INSTALLATION

INSTALLATION

1. INSTALL AIR CONDITIONER PRESSURE SENSOR

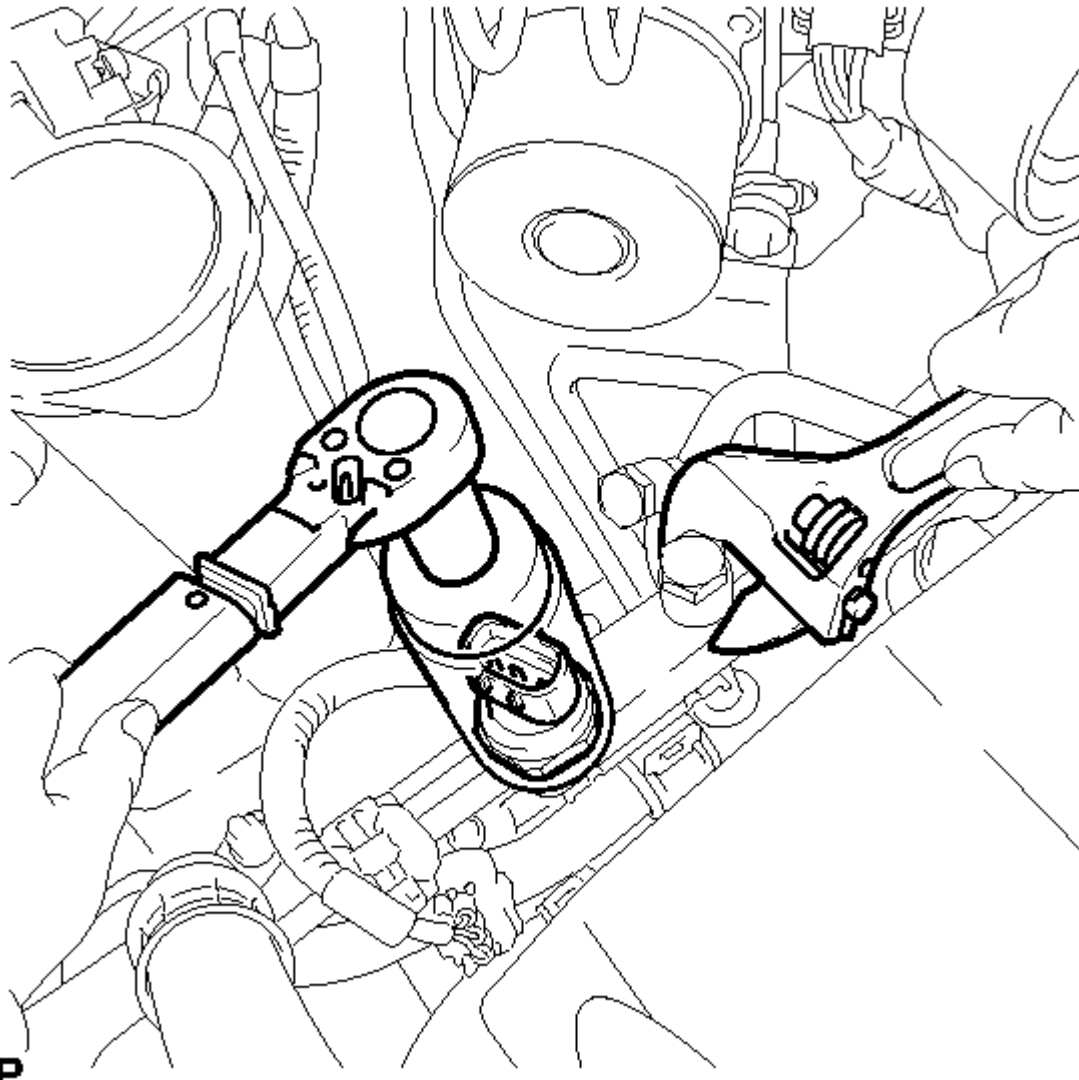


Fig. 268: Installing Air Conditioner Pressure Sensor Using A Deep Socket Wrench
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Sufficiently apply compressor oil to O-ring and the fitting surface of the pressure sensor.

Compressor oil

ND-OIL 8 or equivalent

- b. Using a deep socket wrench 27 mm, install the pressure sensor.

Torque: 11 N*m (110 kgf*cm, 8 ft.*lbf)

- c. Connect the connector.

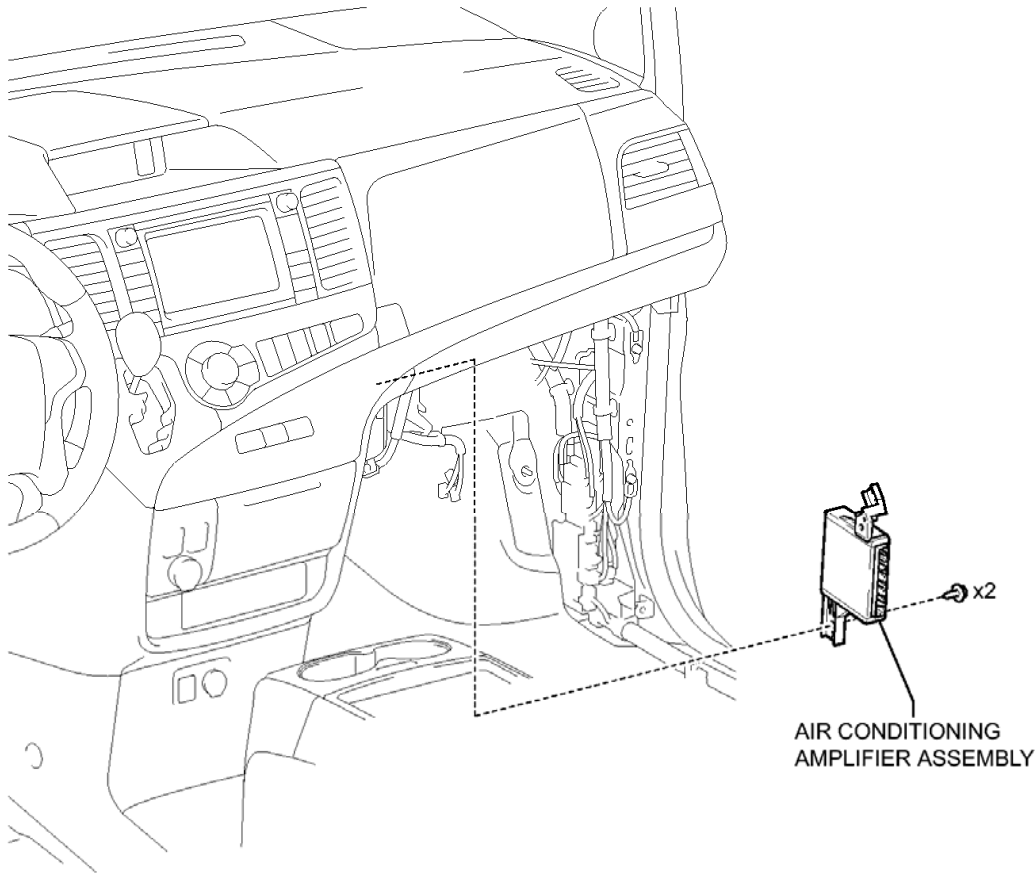
2. **CHARGE REFRIGERANT** See step 2
3. **WARM UP ENGINE** See step 3

4. INSPECT FOR REFRIGERANT LEAK See step 4

AIR CONDITIONING AMPLIFIER

COMPONENTS

ILLUSTRATION



P

Fig. 269: Air Conditioning Amplifier Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE ECU INTEGRATION BOX RH

Refer to **REMOVAL**

2. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY

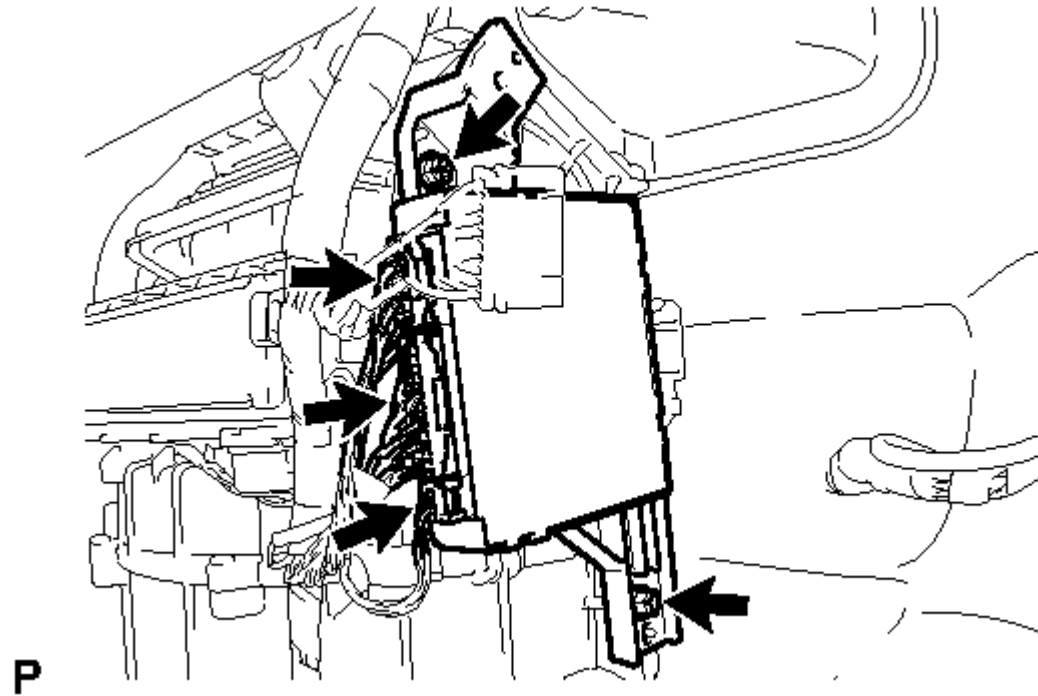


Fig. 270: Identifying Air Conditioning Amplifier Assembly, Connectors & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the 3 connectors.
- b. Remove the 2 screws and air conditioning amplifier.

INSTALLATION

INSTALLATION

1. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY

- a. Install the air conditioning amplifier with the 2 screws.
- b. Connect the connector.

2. INSTALL ECU INTEGRATION BOX RH

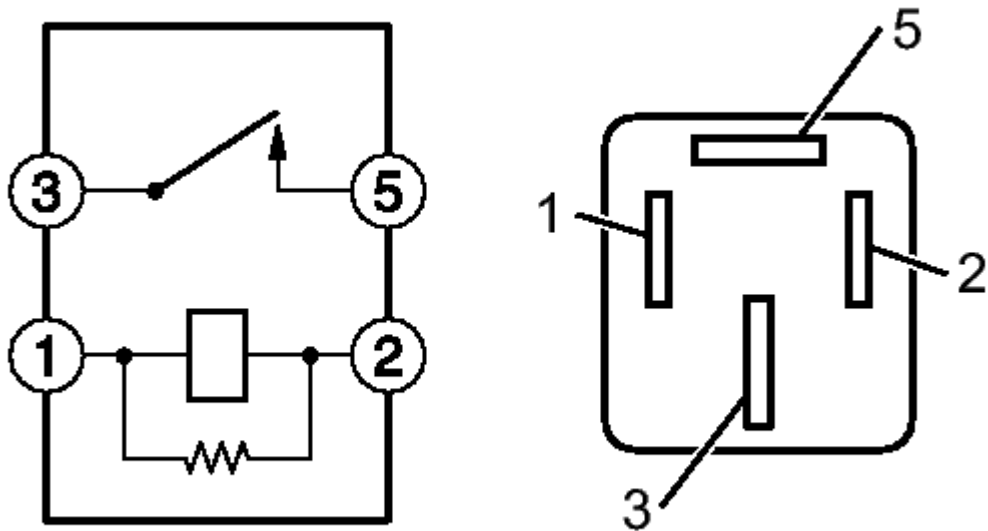
Refer to **INSTALLATION**

RELAY

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. INSPECT PTC HEATER RELAY



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Fig. 271: Identifying Relay Terminals

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

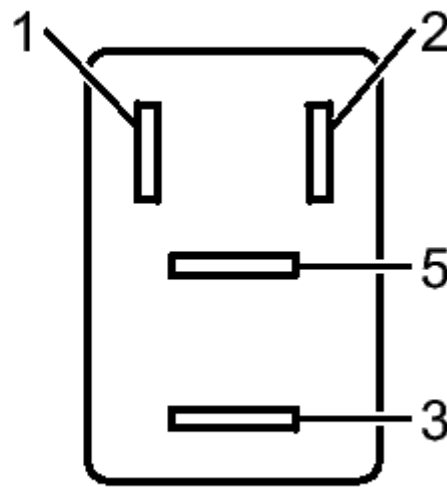
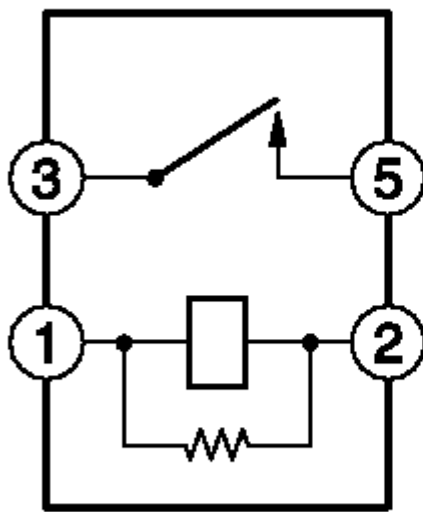
- a. Check the resistance.
 1. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage not applied	10 kohms or higher
3 - 5	Battery voltage applied to terminals 1 and 2	Below 1 ohms

If the result is not as specified, replace the relay.

2. INSPECT NO. 2 PTC HEATER RELAY



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Fig. 272: Inspecting Battery Blower Terminal Relays
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

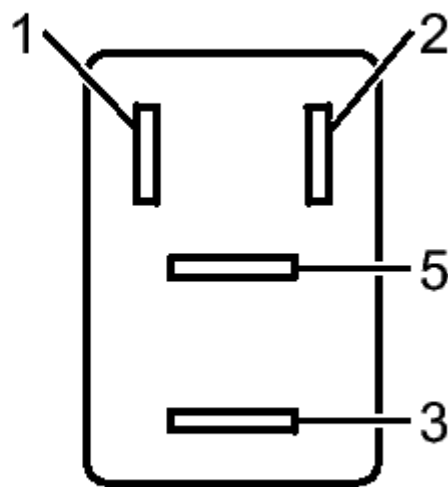
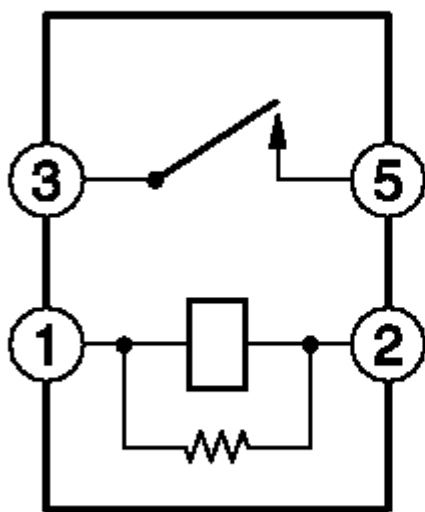
- a. Check the resistance.
 1. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage not applied	10 kohms or higher
3 - 5	Battery voltage applied to terminals 1 and 2	Below 1 ohms

If the result is not as specified, replace the relay.

3. INSPECT MAGNET-CLUTCH RELAY



P

Fig. 273: Inspecting Battery Blower Terminal Relays
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Check the resistance.
 1. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage not applied	10 kohms or higher
3 - 5	Battery voltage applied to terminals 1 and 2	Below 1 ohms

If the result is not as specified, replace the relay.