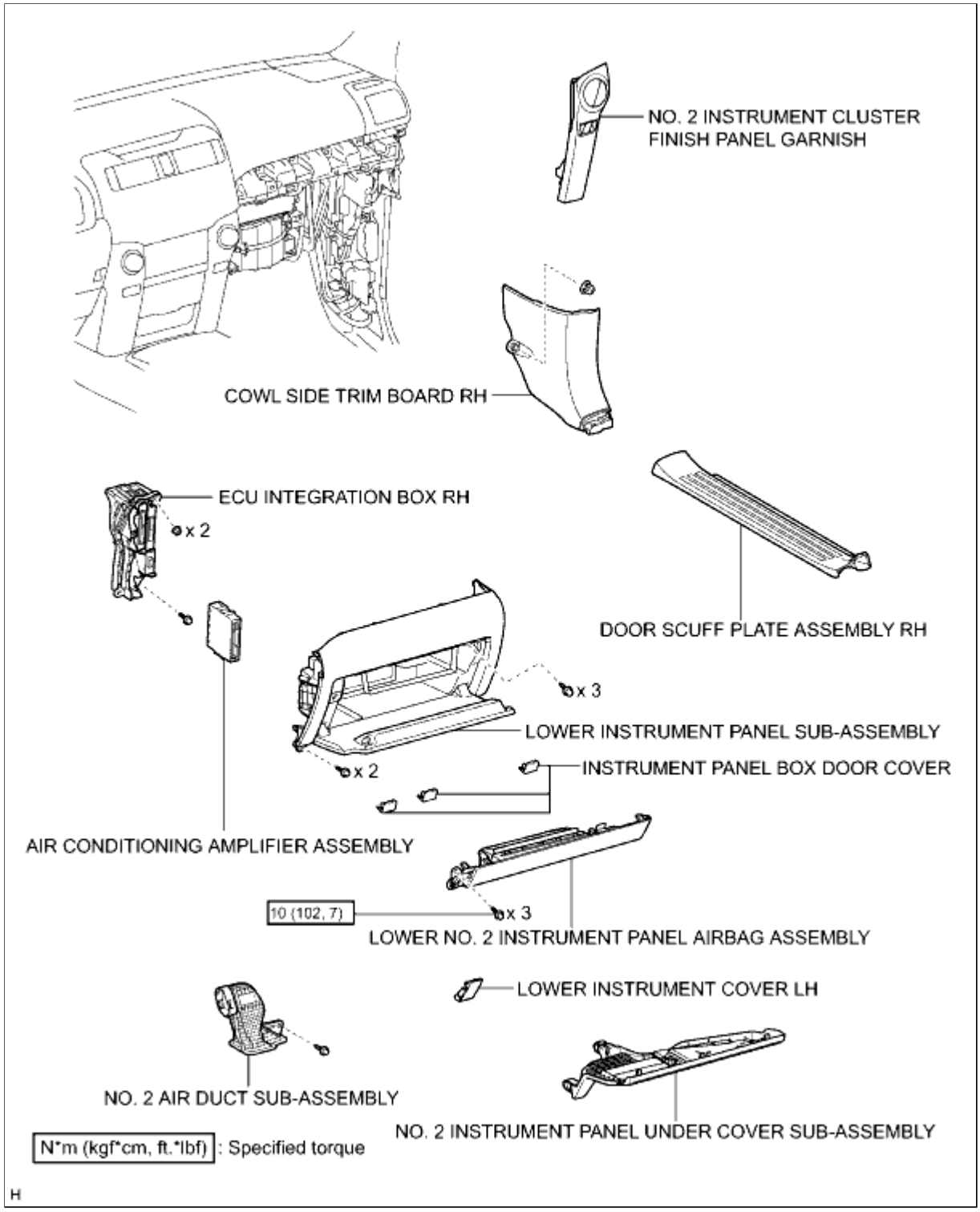
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000046LD000X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003WBR00IX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: REMOVAL (2010 4Runner)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

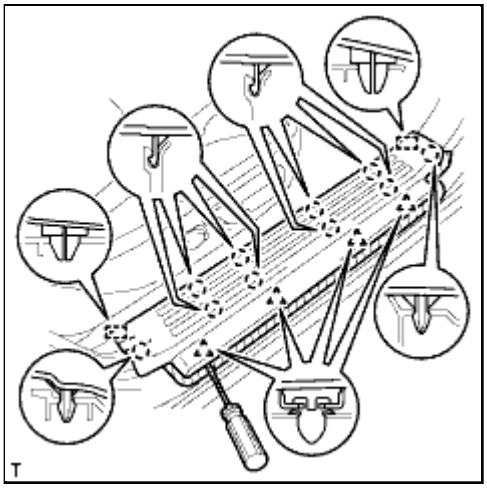
CAUTION:

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

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO **.**

2. REMOVE DOOR SCUFF PLATE ASSEMBLY RH



(a) Put protective tape around the door scuff plate.

Text in Illustration

*1	Protective Tape

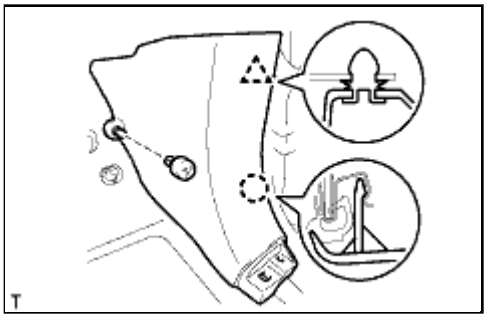
(b) Using a screwdriver, detach the 4 clips, 10 claws and 2 guides and remove the door scuff plate.

HINT:

Tape the screwdriver tip before use.

3. REMOVE COWL SIDE TRIM BOARD RH

(a) Remove the clip.



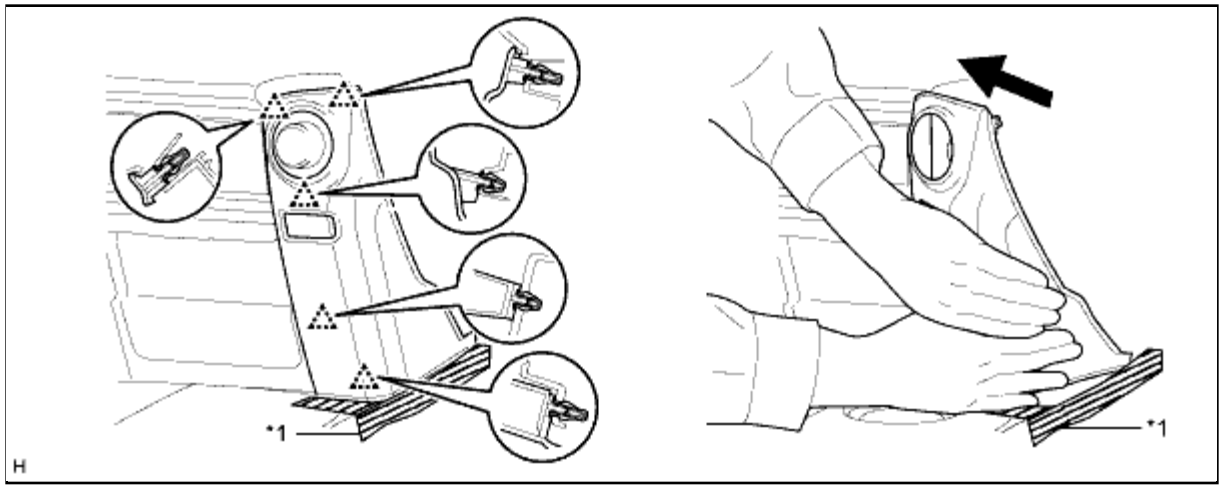
(b) Detach the clip and claw and remove the cowl side trim board.

4. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

(a) Open the instrument cluster finish panel lid.

(b) Put protective tape around the No. 2 instrument cluster finish panel garnish.

(c) Grip the No. 2 instrument cluster finish panel garnish and pull it diagonally upward toward the rear to detach the 5 clips and remove the No. 2 instrument cluster finish panel garnish.



Text in Illustration

*1	Protective Tape	-	-

5. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

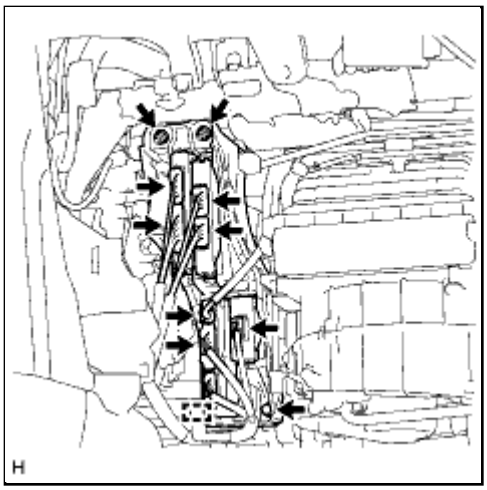
6. REMOVE LOWER INSTRUMENT COVER LH INFO

7. REMOVE LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY INFO

8. REMOVE INSTRUMENT PANEL BOX DOOR COVER INFO

9. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

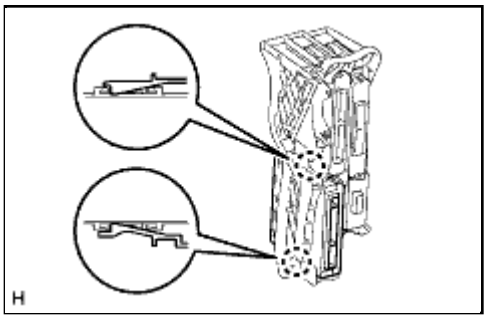
10. REMOVE NO. 2 AIR DUCT SUB-ASSEMBLY INFO



11. REMOVE ECU INTEGRATION BOX RH

(a) Disconnect the connectors and detach the clamp.

(b) Remove the 2 nuts, bolt and ECU integration box RH.



12. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY

(a) Detach the 2 claws and remove the air conditioning amplifier assembly.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003WBP00IX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: INSTALLATION (2010 4Runner)		

INSTALLATION

HINT:

A bolt without a torque specification is shown in the standard bolt chart INFO **.**

1. INSTALL AIR CONDITIONER AMPLIFIER ASSEMBLY

(a) Attach the 2 claws to install the air conditioning amplifier assembly.

2. INSTALL ECU INTEGRATION BOX RH

(a) Install the ECU integration box RH with the 2 nuts and bolt.

(b) Attach the clamp and connect the connectors.

NOTICE:

- Do not twist the connectors of ECU when connecting them.
- Do not apply more force than necessary to the connectors. If more than 98 N (10 kgf, 22 lbf) of force is applied to a connector, the connector or connector holder may be damaged.

3. INSTALL NO. 2 AIR DUCT SUB-ASSEMBLY INFO

4. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

5. INSTALL INSTRUMENT PANEL BOX DOOR COVER INFO

6. INSTALL LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY INFO

7. INSTALL LOWER INSTRUMENT COVER LH INFO

8. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

9. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

(a) Attach the 5 clips to install the No. 2 instrument cluster finish panel garnish.

10. INSTALL COWL SIDE TRIM BOARD RH

(a) Attach the clip and claw to install the cowl side trim board.

11. INSTALL DOOR SCUFF PLATE ASSEMBLY RH

(a) Attach the 4 clips, 10 claws and 2 guides to install the door scuff plate.

(b) Install the clip.

12. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO **.**

13. CHECK SRS WARNING LIGHT

(a) Check the SRS warning light 

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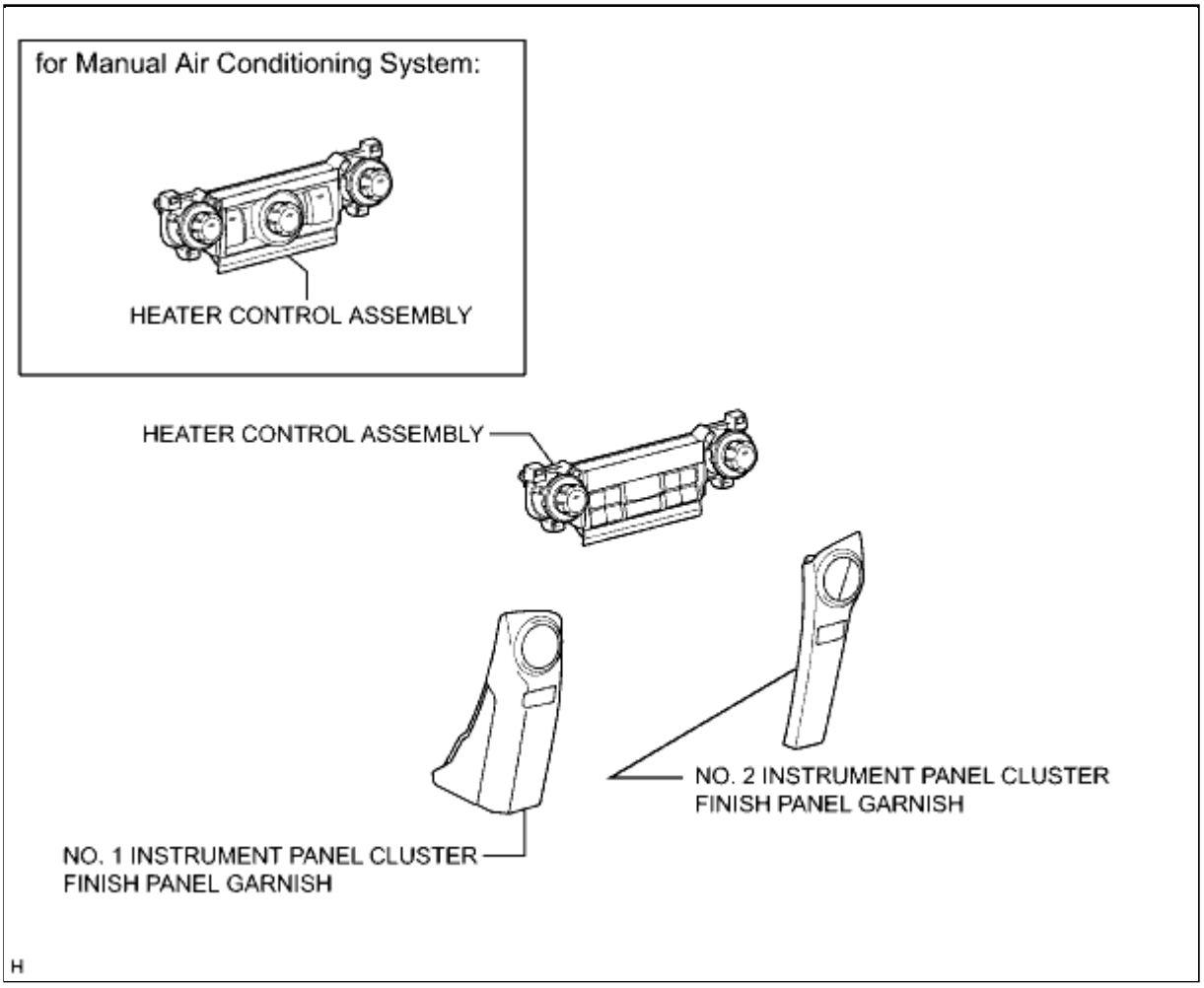
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003B6I007X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003B4600CX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL: REMOVAL (2010 4Runner)		

REMOVAL

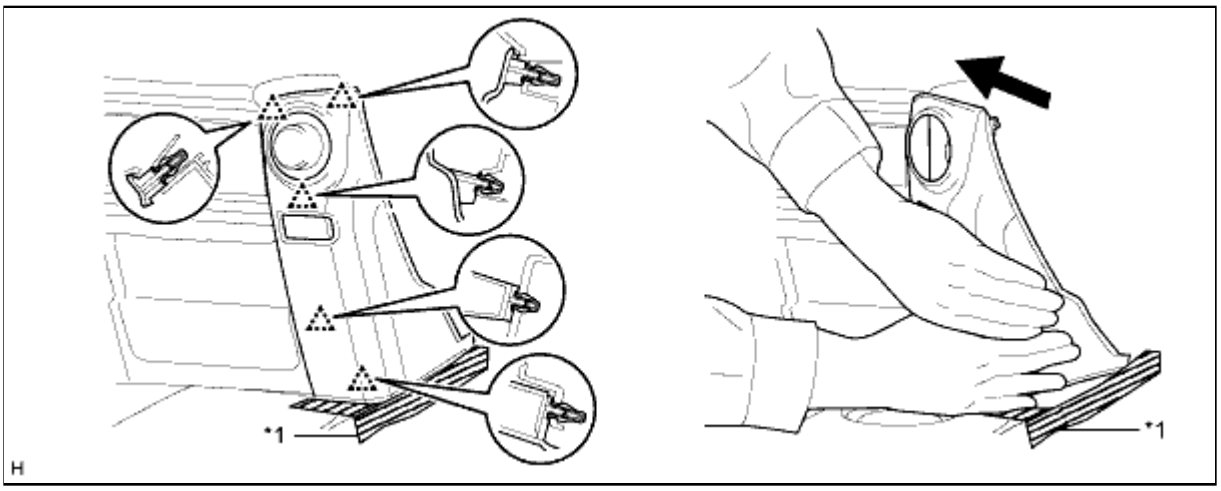
1. REMOVE NO. 1 INSTRUMENT PANEL CLUSTER FINISH PANEL GARNISH INFO

2. REMOVE NO. 2 INSTRUMENT PANEL CLUSTER FINISH PANEL GARNISH

(a) Open the instrument cluster finish panel lid.

(b) Put protective tape around the No. 2 instrument cluster finish panel garnish.

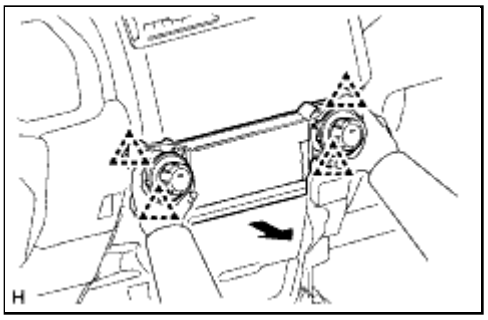
(c) Grip the No. 2 instrument cluster finish panel garnish and pull it diagonally upward toward the rear to detach the 5 clips and remove the No. 2 instrument cluster finish panel garnish.



Text in Illustration

*1	Protective Tape	-	-

3. REMOVE HEATER CONTROL ASSEMBLY

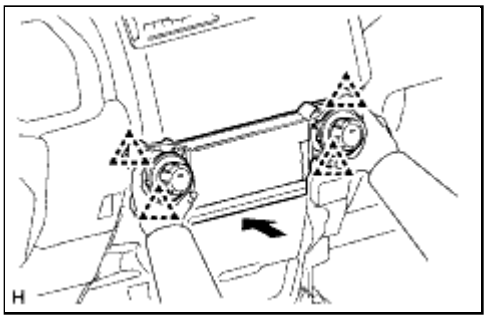


(a) Detach the 4 clips and remove the heater control assembly.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003B4400CX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL HEATER CONTROL ASSEMBLY



(a) Attach the 4 clips to install the heater control assembly.

2. INSTALL NO. 1 INSTRUMENT PANEL CLUSTER FINISH PANEL GARNISH

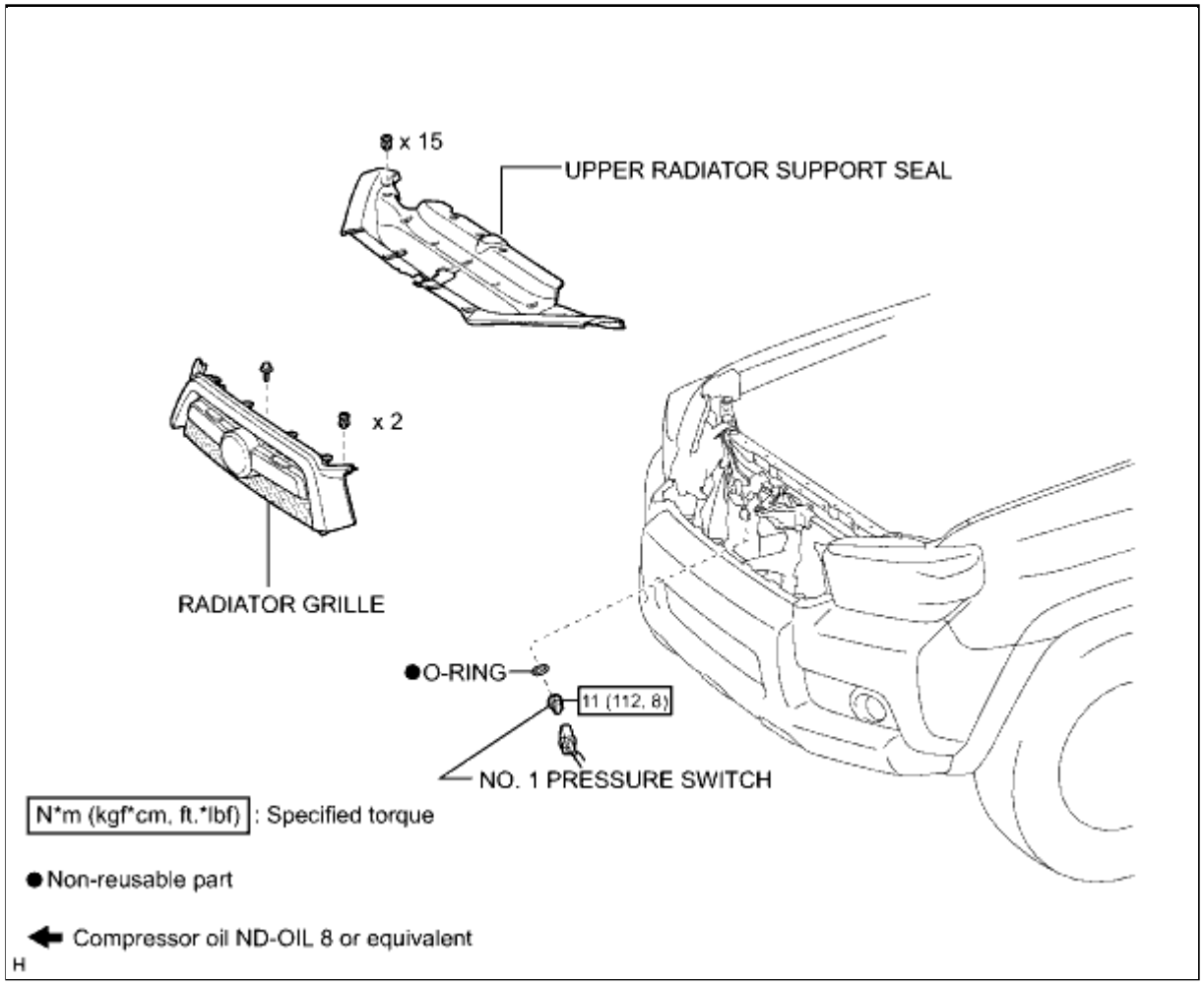
3. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH

(a) Attach the 5 clips to install the No. 2 instrument cluster finish panel garnish.

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000030JH00KX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: COMPONENTS (2010 4Runner)		

COMPONENTS

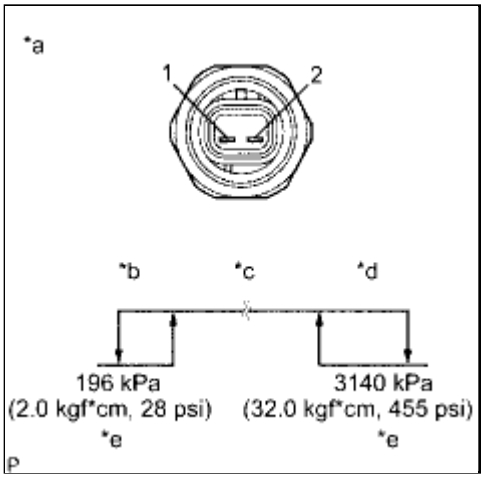
ILLUSTRATION



Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000202W02DX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

1. INSPECT NO. 1 PRESSURE SWITCH



(a) Connect a manifold gauge set.

(b) Connect the positive (+) lead from the ohmmeter to terminal 1 and the negative (-) lead to terminal 2.

(c) Measure the resistance between terminals when refrigerant pressure is charged, as shown in the illustration.

If operation is not as specified, replace the pressure switch.

Text in Illustration

*a	Component without harness connected (No. 1 Pressure Switch)
*b	Low Pressure Side
*c	On (Below 1.0 Ω)
*d	High Pressure Side
*e	Off (10 kΩ or higher)

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000030JI00LX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: REMOVAL (2010 4Runner)		

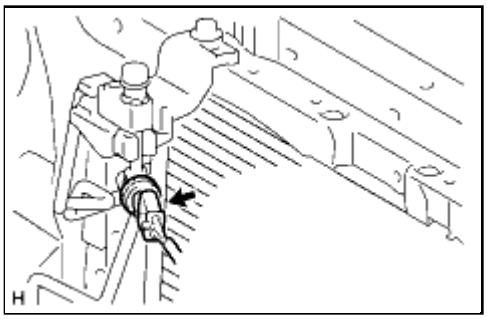
REMOVAL

1. REMOVE UPPER RADIATOR SUPPORT SEAL INFO

2. REMOVE RADIATOR GRILLE

(a) Remove the radiator grille INFO .

3. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO



4. REMOVE NO. 1 PRESSURE SWITCH

(a) Disconnect the connector.

(b) Remove the No. 1 pressure switch.

(c) Remove the O-ring from the No. 1 pressure switch.

NOTICE:

Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering them.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000030JG00LX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL NO. 1 PRESSURE SWITCH

(a) Sufficiently apply compressor oil to a new O-ring and the fitting surface of the No. 1 pressure switch.

Compressor oil:
ND-OIL 8 or equivalent

(b) Install the O-ring to the No. 1 pressure switch.

(c) Install the No. 1 pressure switch.

Torque: 11 N·m (112 kgf·cm, 8ft·lbf)

(d) Connect the connector.

2. CHARGE REFRIGERANT INFO

3. WARM UP ENGINE INFO

4. CHECK FOR REFRIGERANT GAS LEAK INFO

5. INSTALL RADIATOR GRILLE

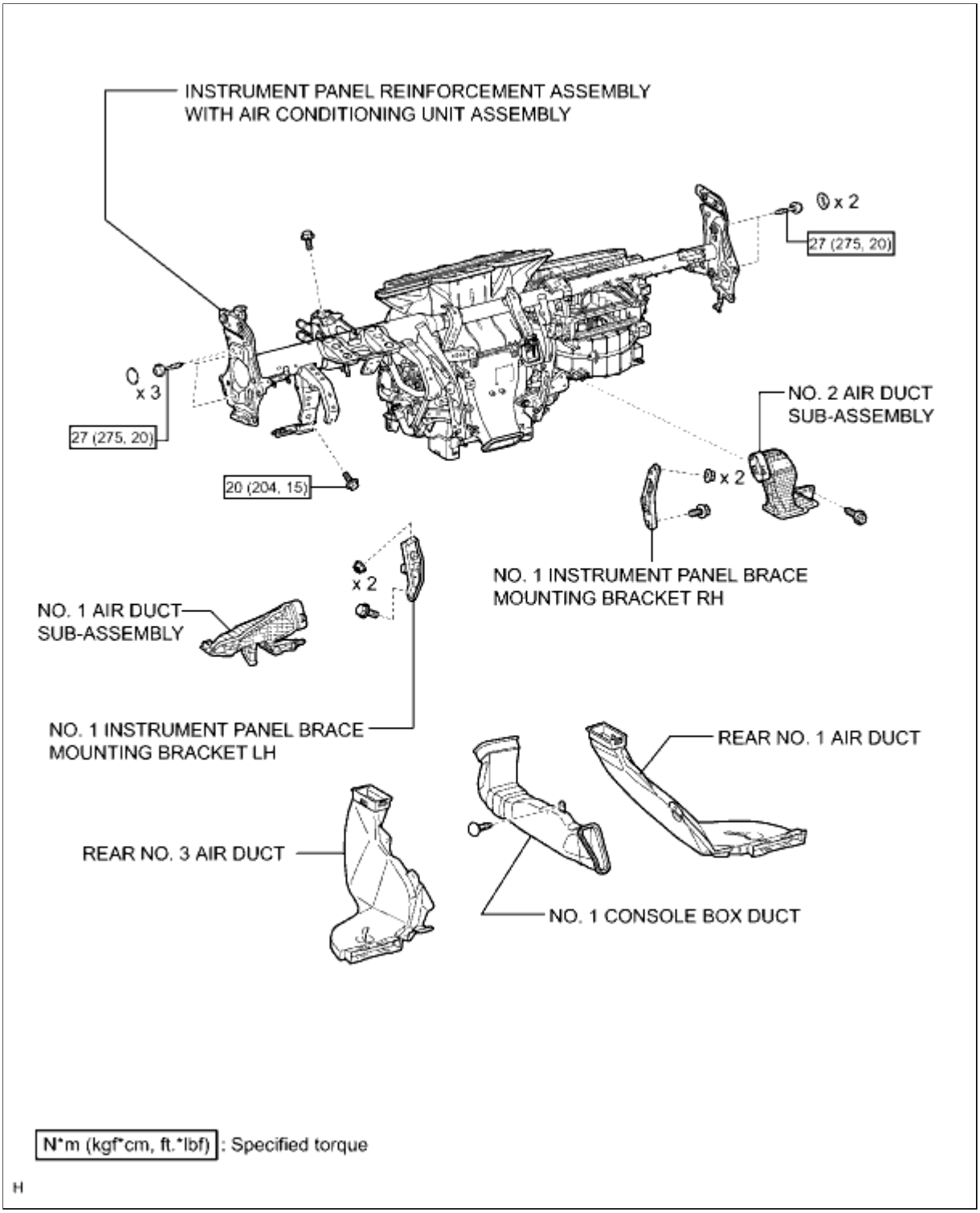
(a) Install the radiator grille INFO .

6. INSTALL UPPER RADIATOR SUPPORT SEAL INFO

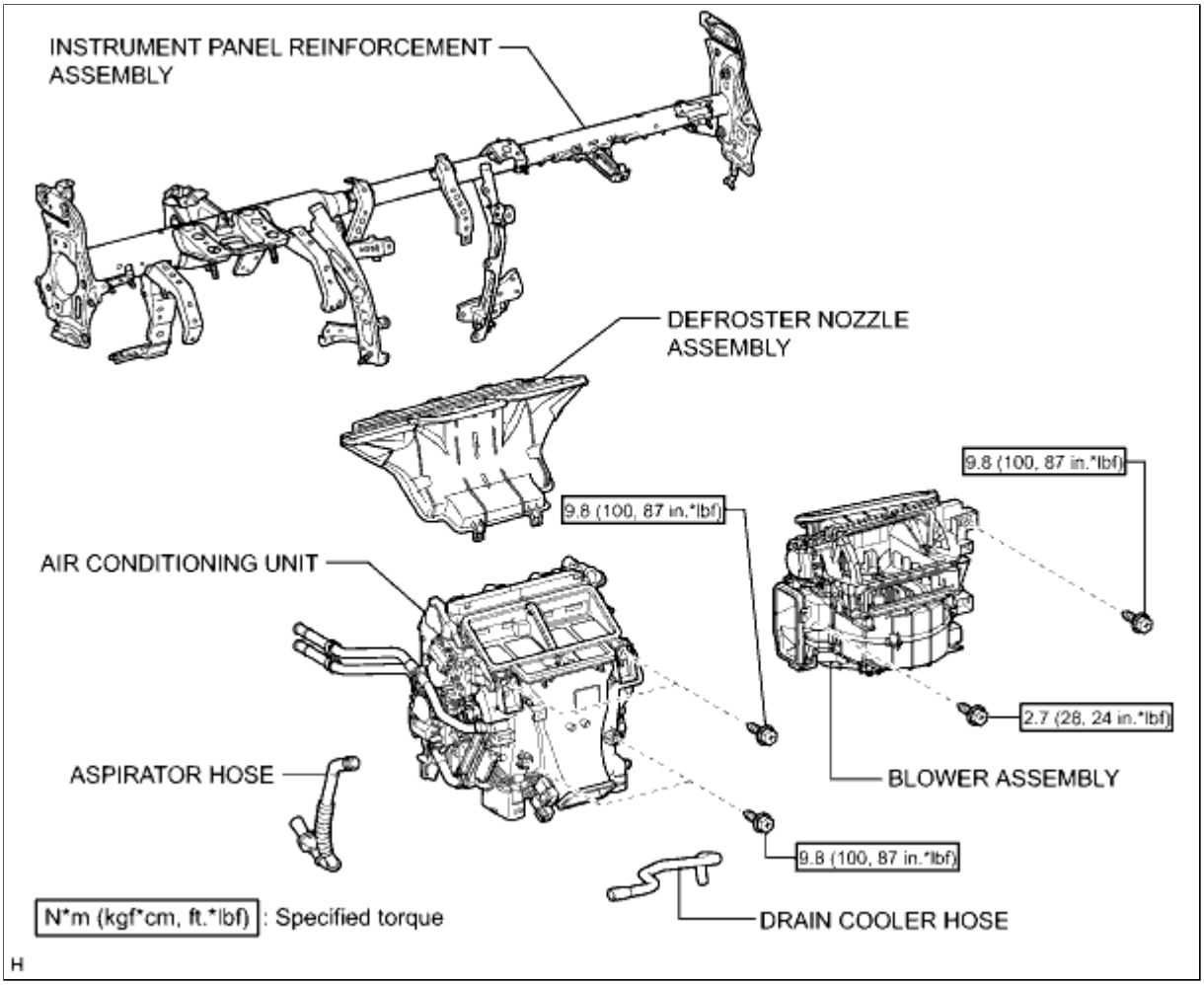
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000038ZQ006X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: COMPONENTS (2010 4Runner)		

COMPONENTS

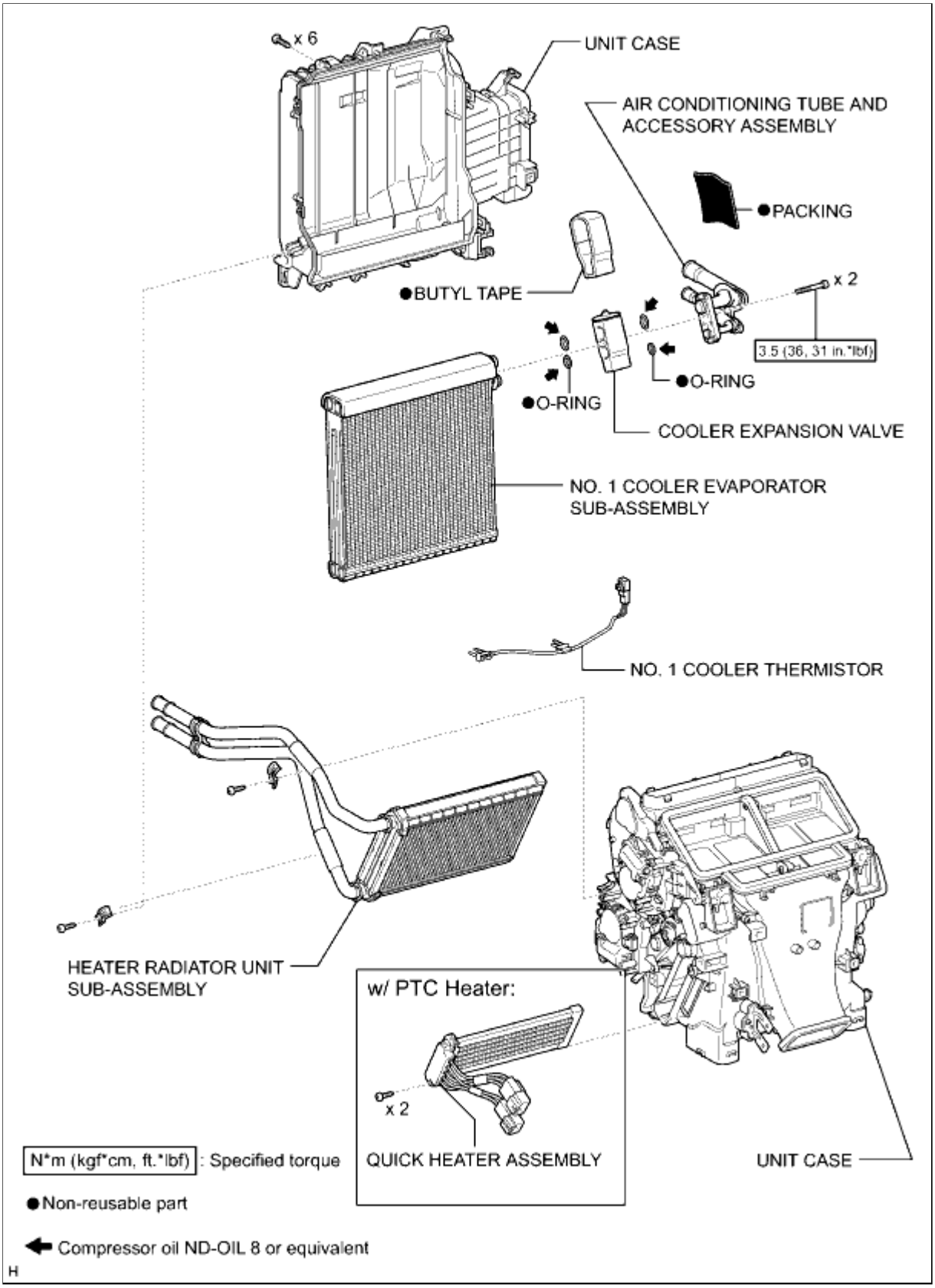
ILLUSTRATION



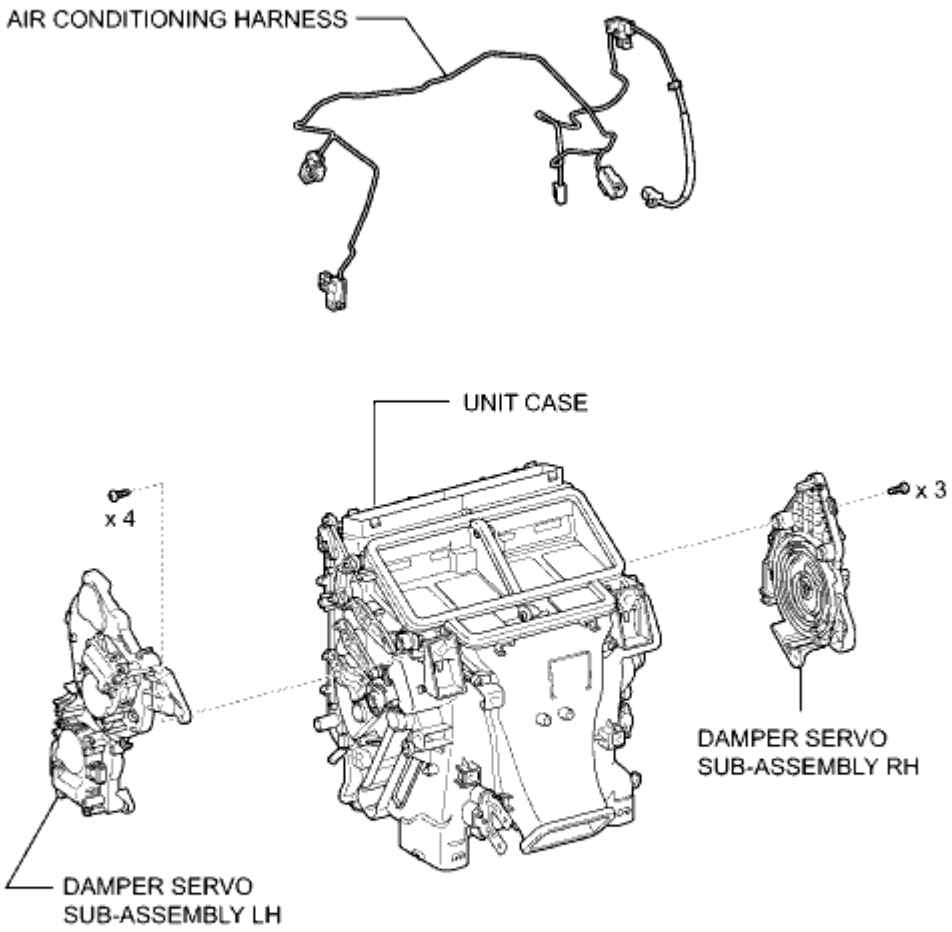
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



H

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000017ZR022X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: REMOVAL (2010 4Runner)		

REMOVAL

1. DRAIN ENGINE COOLANT

(a) for 1GR-FE:

Drain engine coolant INFO .

(b) for 2TR-FE:

Drain engine coolant INFO .

2. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

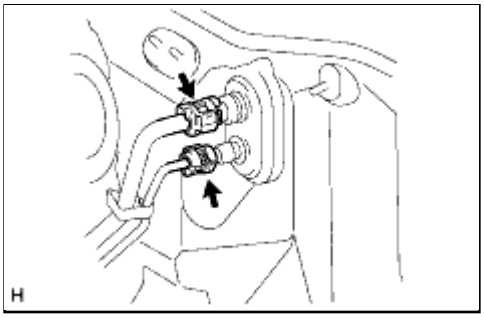
CAUTION:

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

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO .

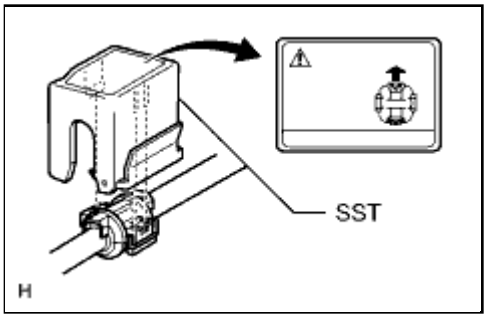
4. DISCONNECT AIR CONDITIONING TUBE AND ACCESSORY ASSEMBLY



(a) Using SST, remove the piping clamp.

SST: 09870-00015

SST: 09870-00025

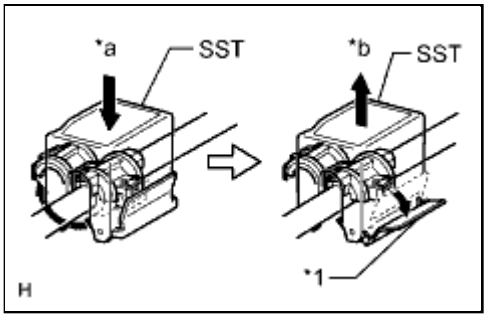


(1) Attach SST to the piping clamp.

HINT:

Confirm the direction of the piping clamp claw and SST by referring to the illustration on the caution label.

(2) Push down SST and release the clamp lock.



Text in Illustration

*1	Release Lever
*a	Push
*b	Pull

NOTICE:

Be careful not to deform the tubes when pushing SST.

(3) Pull SST slightly and push the release lever, and then remove the piping clamp with SST.

(4) Remove the piping clamp from SST.

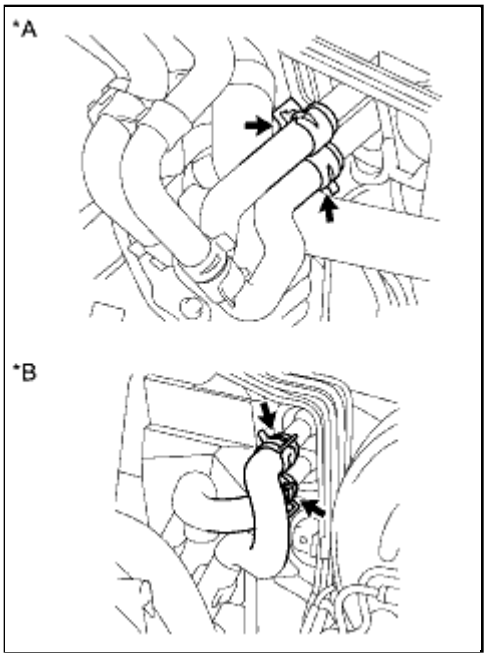
(b) Disconnect the air conditioning tube and accessory assembly.

NOTICE:

Cap the open fittings immediately to keep moisture and dirt out of the system.

(c) Remove the grommet.

5. DISCONNECT INLET HEATER WATER HOSE AND OUTLET HEATER WATER HOSE



(a) Using pliers, grip the claws of the clips and slide the 2 clips.

Text in Illustration

*A	for 1GR-FE
*B	for 2TR-FE

(b) Disconnect the 2 heater water hoses.

6. REMOVE WINDSHIELD WIPER MOTOR ASSEMBLY

(a) Remove the windshield wiper motor assembly INFO .

7. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY

(a) Remove the instrument panel INFO .

8. REMOVE STEERING COLUMN ASSEMBLY

(a) Remove the steering column INFO .

9. REMOVE FRONT SEAT ASSEMBLY LH

(a) for Manual Seat:

Remove the front seat assembly LH INFO .

(b) for Power Seat:

Remove the front seat assembly LH INFO .

10. REMOVE FRONT SEAT ASSEMBLY RH

HINT:

Use the same procedure described for the LH side.

(a) for Manual Seat:

Remove the front seat assembly RH INFO .

(b) for Power Seat:

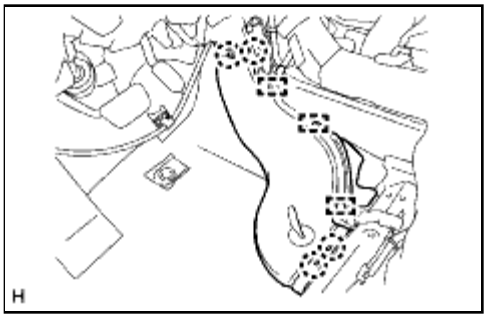
Remove the front seat assembly RH INFO .

11. REMOVE FRONT FLOOR CARPET ASSEMBLY

HINT:

It is not necessary to fully remove the floor carpet. Partially remove it so that the rear air duct can be removed in a later step.

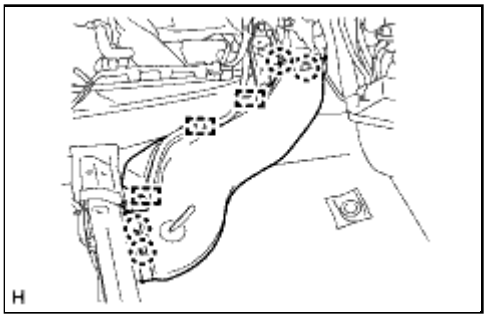
12. REMOVE REAR NO. 3 AIR DUCT



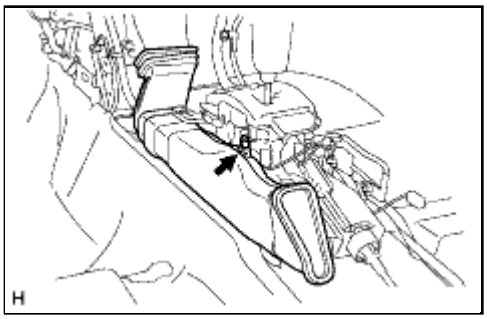
(a) Detach the 3 clamps and 4 claws and remove the rear No. 3 air duct.

13. REMOVE REAR NO. 1 AIR DUCT

(a) Detach the 3 clamps and 4 claws and remove the rear No. 1 air duct.

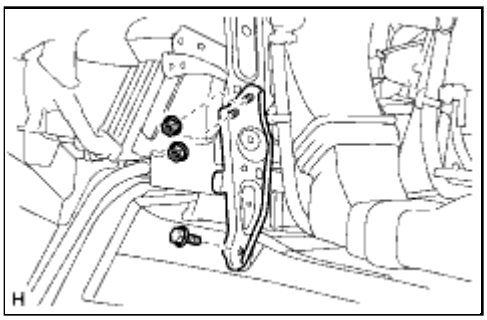


14. REMOVE NO. 1 CONSOLE BOX DUCT



(a) Remove the clip and No. 1 console box duct.

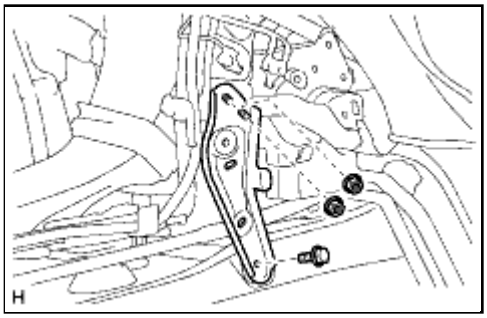
15. REMOVE NO. 1 INSTRUMENT PANEL BRACE MOUNTING BRACKET LH



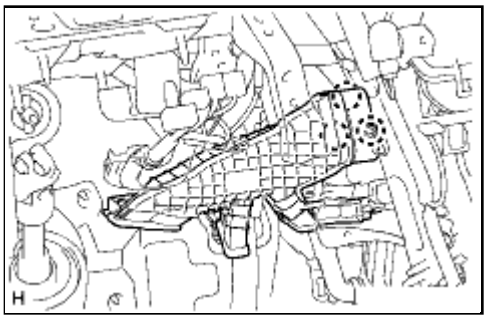
(a) Remove the 2 nuts, bolt and instrument panel brace.

16. REMOVE NO. 1 INSTRUMENT PANEL BRACE MOUNTING BRACKET RH

(a) Remove the 2 nuts, bolt and instrument panel brace.

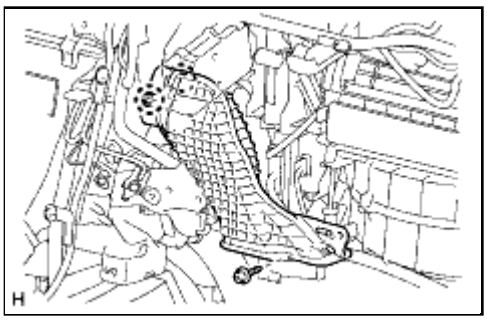


17. REMOVE NO. 1 AIR DUCT SUB-ASSEMBLY



(a) Detach the 3 claws and remove the duct.

18. REMOVE NO. 2 AIR DUCT SUB-ASSEMBLY

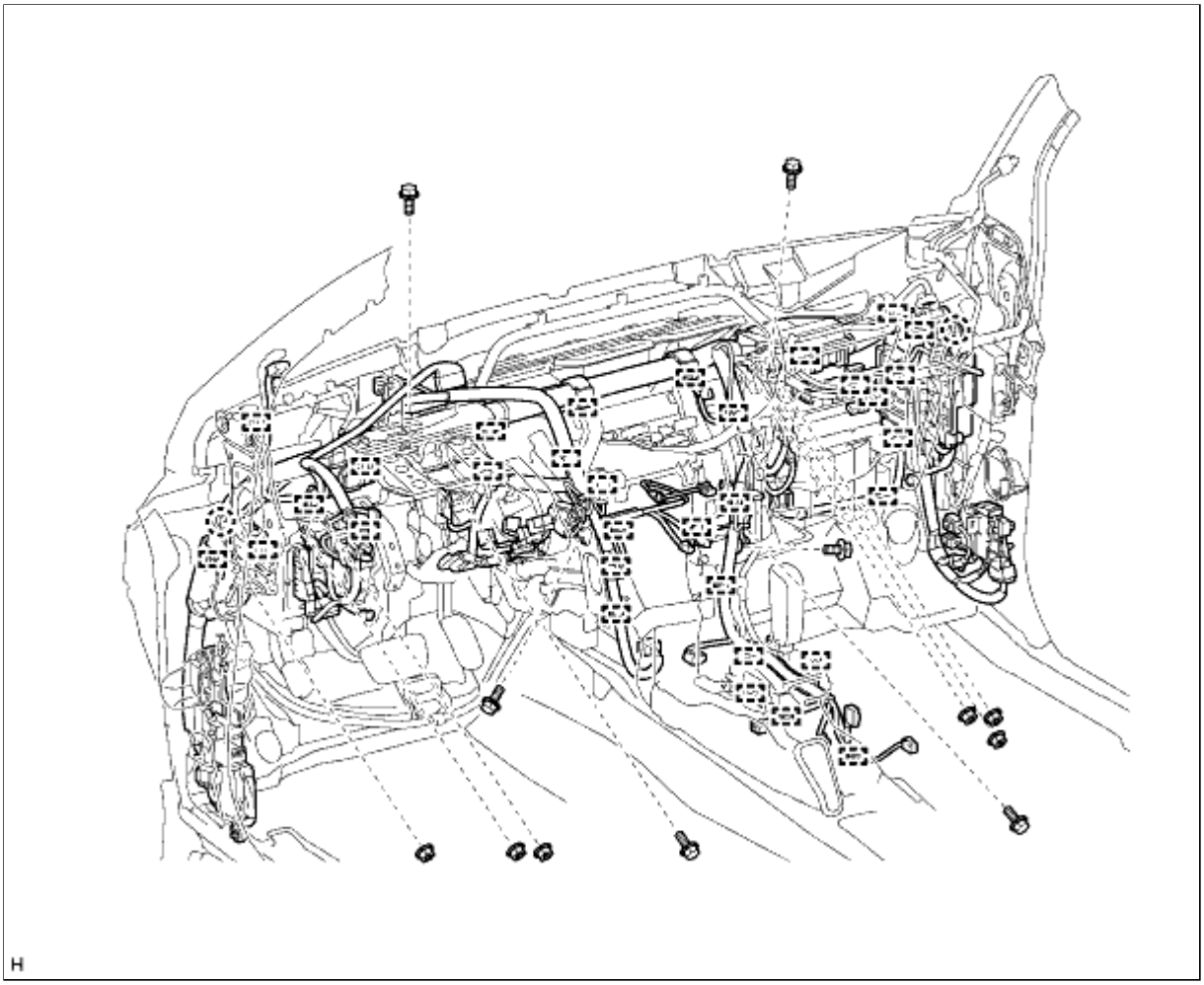


(a) Remove the screw.

(b) Detach the 2 claws and remove the air duct.

19. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY WITH AIR CONDITIONING UNIT ASSEMBLY

(a) Detach the clamps and disconnect the connectors and wire harness.



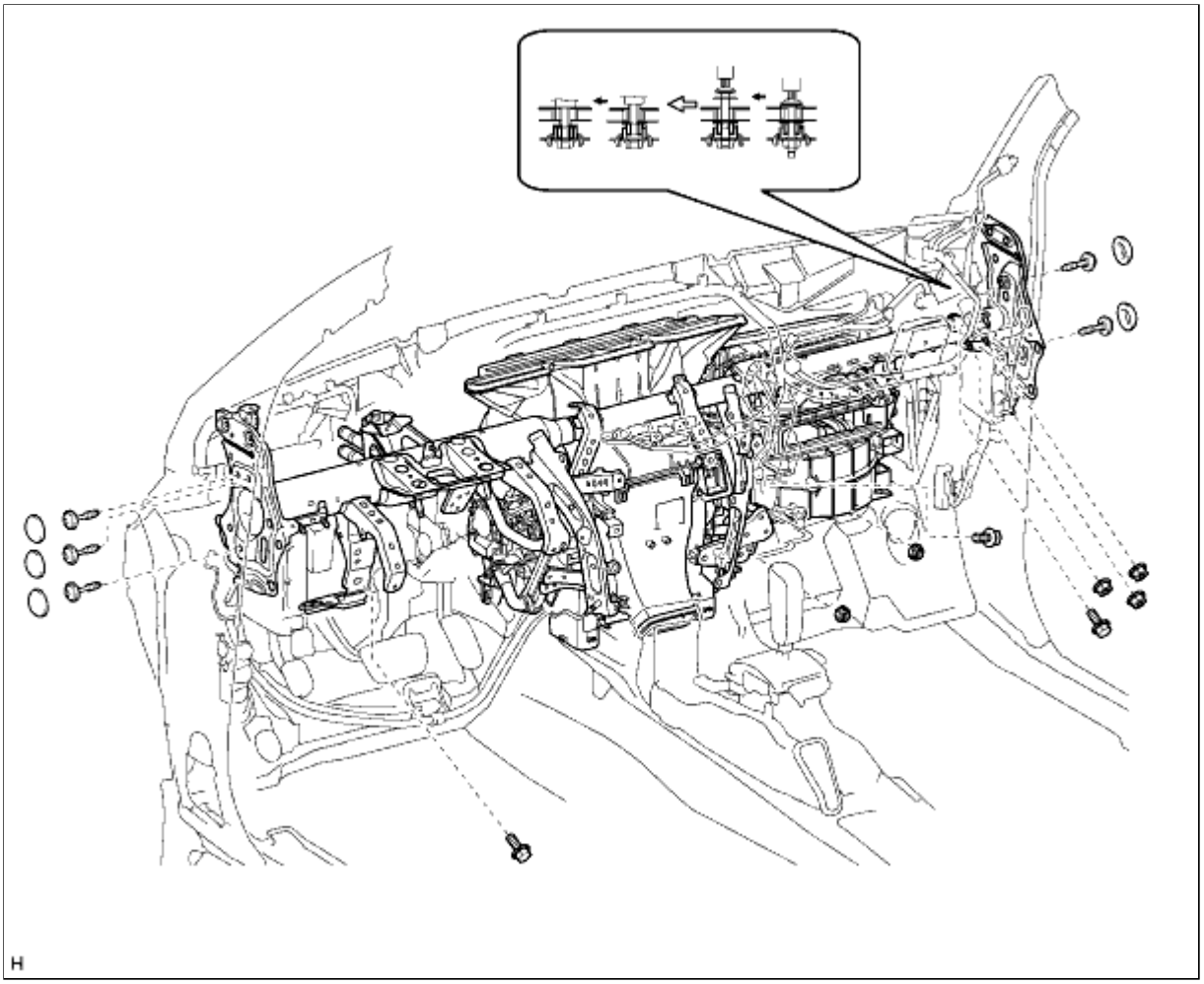
(b) Remove the instrument panel reinforcement assembly with air conditioning unit assembly.

(1) Remove the 5 caps.

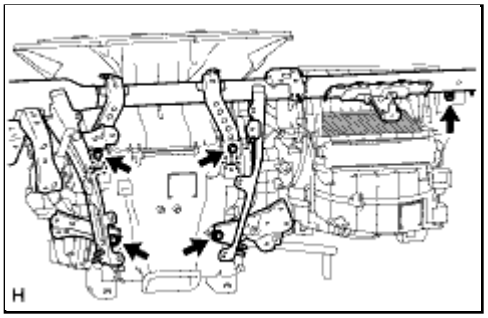
(2) Using a T40 "TORX" socket, remove the 5 "TORX" bolts.

(3) Using a 12 mm hexagon wrench, loosen the 2 collars.

(4) Remove the bolts, nuts and instrument panel reinforcement assembly with air conditioning unit assembly.



20. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY



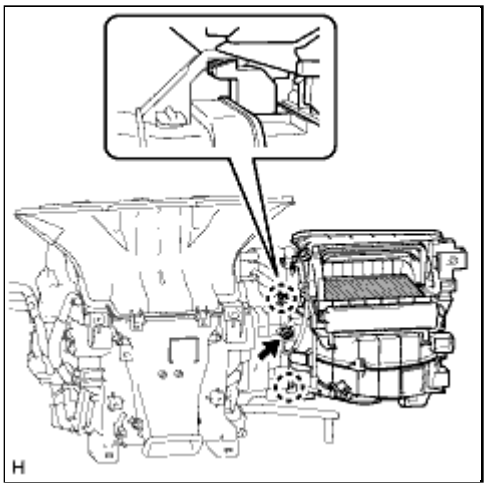
(a) Remove the 5 bolts.

(b) Detach the 2 claws and remove the instrument panel reinforcement assembly.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003AXS00SX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: DISASSEMBLY (2010 4Runner)		

DISASSEMBLY

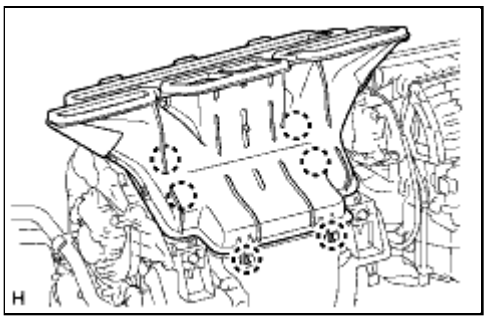
1. REMOVE BLOWER ASSEMBLY



(a) Remove the bolt.

(b) Detach the 2 claws and remove the blower unit assembly.

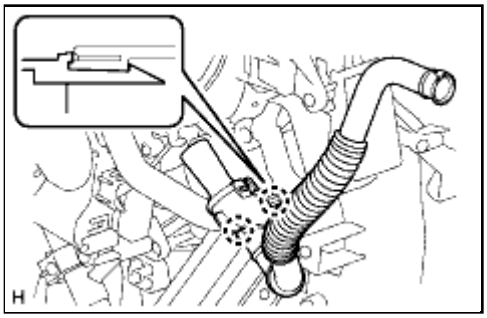
2. REMOVE DEFROSTER NOZZLE ASSEMBLY



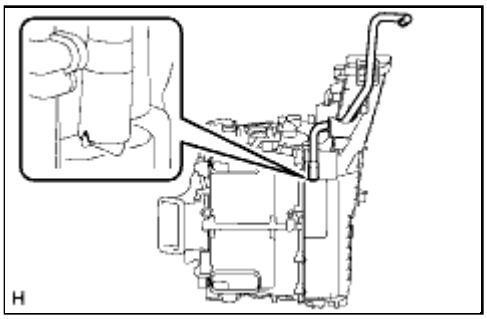
(a) Detach the 6 claws and remove the defroster nozzle assembly.

3. REMOVE ASPIRATOR HOSE

(a) Detach the 2 claws and remove the aspirator hose.

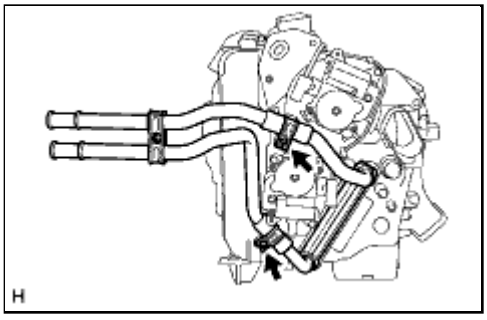


4. REMOVE DRAIN COOLER HOSE



(a) Remove the drain cooler hose.

5. REMOVE QUICK HEATER ASSEMBLY (w/ PTC Heater) INFO



6. REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY

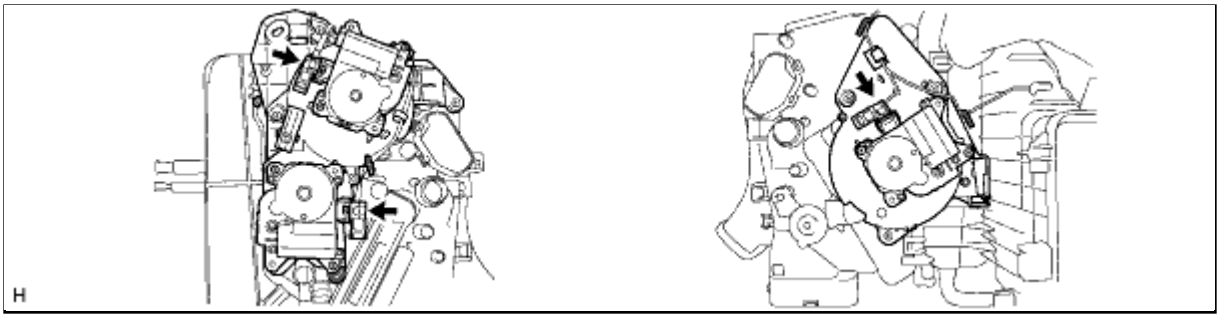
(a) Remove the 2 screws and 2 radiator brackets.

(b) Remove the radiator.

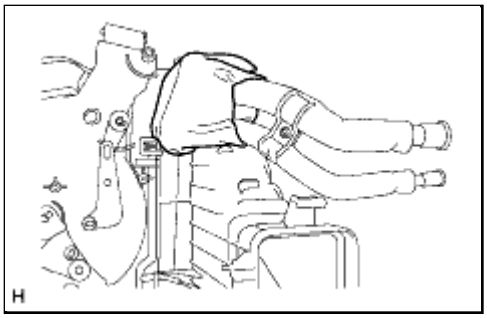
7. REMOVE AIR CONDITIONING HARNESS

(a) Disconnect the connectors.

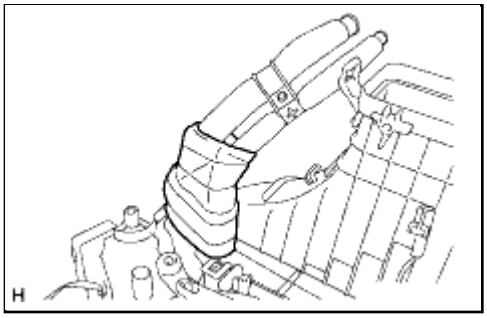
(b) Detach the clamps and remove the harness.



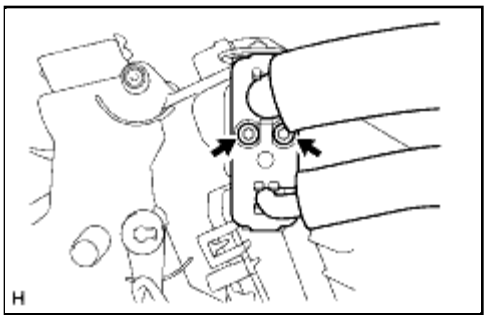
8. REMOVE AIR CONDITIONING TUBE AND ACCESSORY ASSEMBLY



(a) Remove the packing.



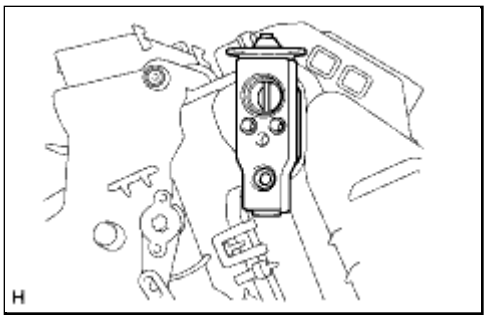
(b) Remove the butyl tape.



(c) Using a 4 mm hexagon wrench, remove the 2 hexagon bolts and the air conditioner tube and accessory assembly.

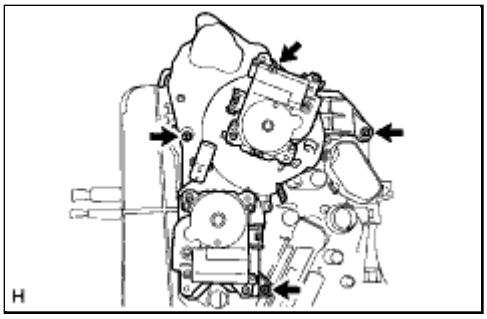
(d) Remove the 2 O-rings from the air conditioning tube and accessory assembly.

9. REMOVE COOLER EXPANSION VALVE

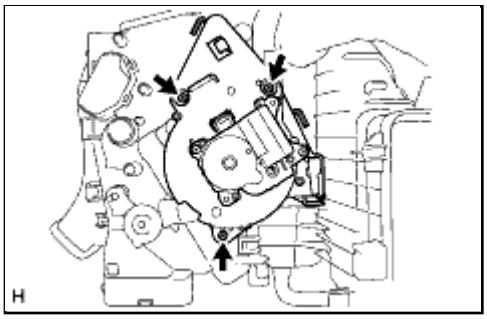


(a) Remove the cooler expansion valve.

10. REMOVE DAMPER SERVO SUB-ASSEMBLY LH



(a) Remove the 4 screws and damper servo sub-assembly LH.

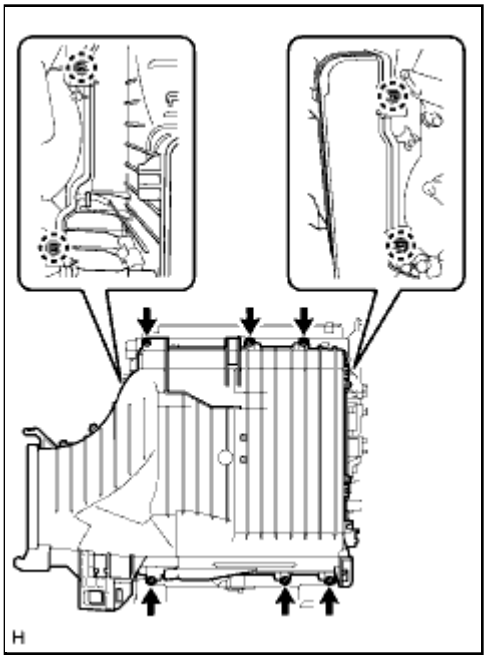


11. REMOVE DAMPER SERVO SUB-ASSEMBLY RH

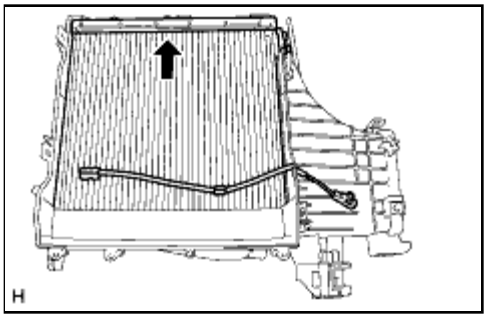
(a) Remove the 3 screws and damper servo sub-assembly RH.

12. REMOVE NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY

(a) Remove the 6 screws.



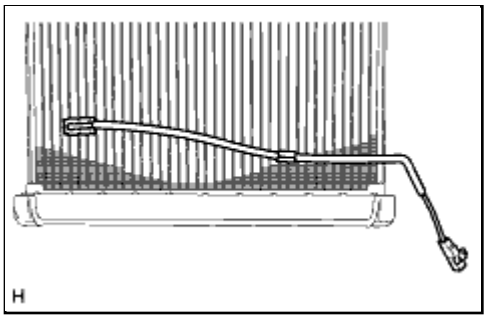
(b) Detach the 4 claws and remove the unit case.



(c) Remove the evaporator.

(d) Remove the 2 O-rings from the evaporator.

13. REMOVE NO. 1 COOLER THERMISTOR



(a) Remove the thermistor.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000017ZP022X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: INSTALLATION (2010 4Runner)		

INSTALLATION

HINT:

A bolt without a torque specification is shown in the standard bolt chart INFO **.**

1. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY

(a) Attach the 2 claws to install the instrument panel reinforcement assembly.

(b) Install the 5 bolts.

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

2. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY WITH AIR CONDITIONING UNIT ASSEMBLY

(a) Install the instrument panel reinforcement assembly with air conditioning unit assembly.

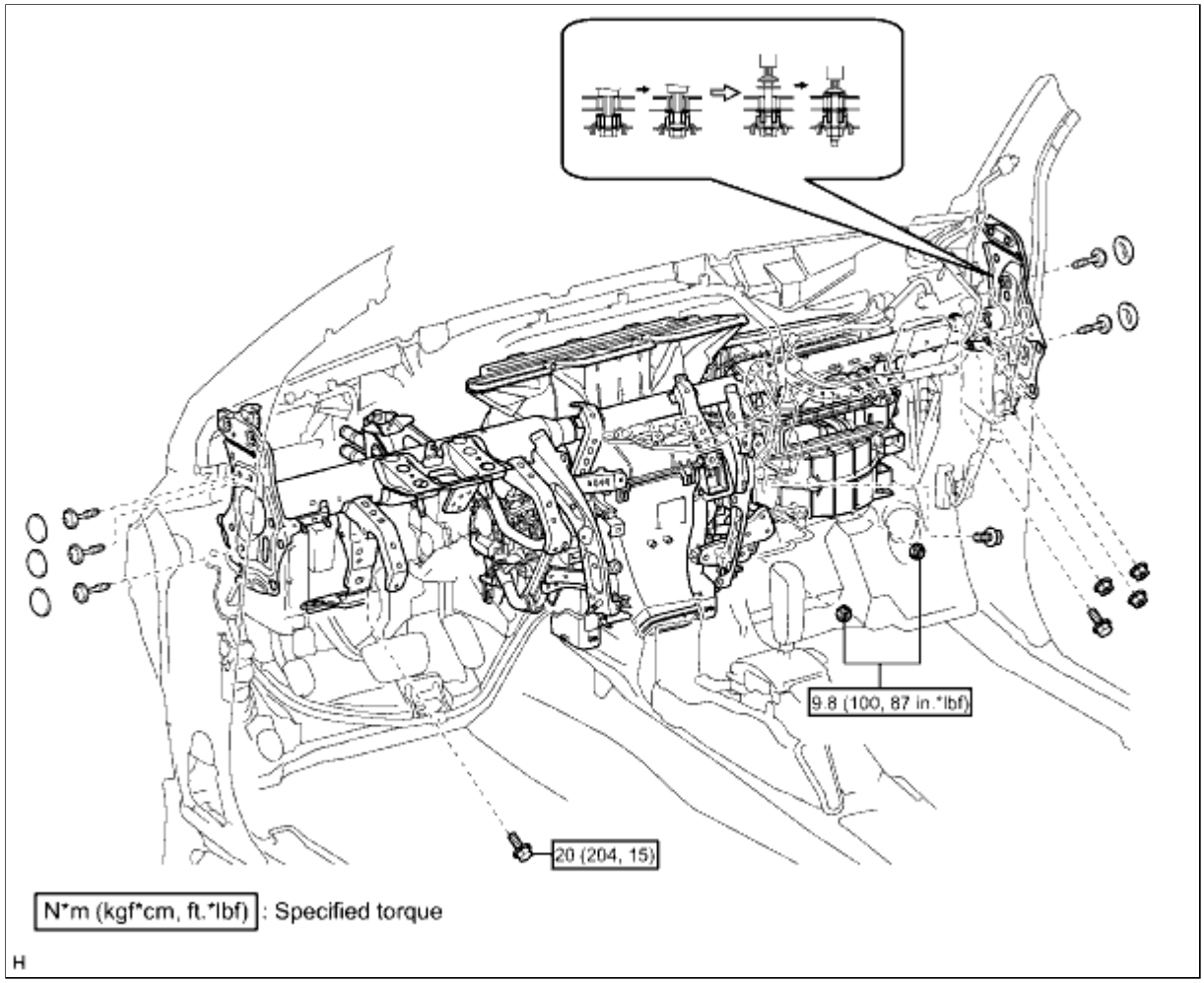
(1) Install the bolts, nuts and instrument panel reinforcement assembly with air conditioning assembly.

(2) Using a 12 mm hexagon wrench, tighten the 2 collars.

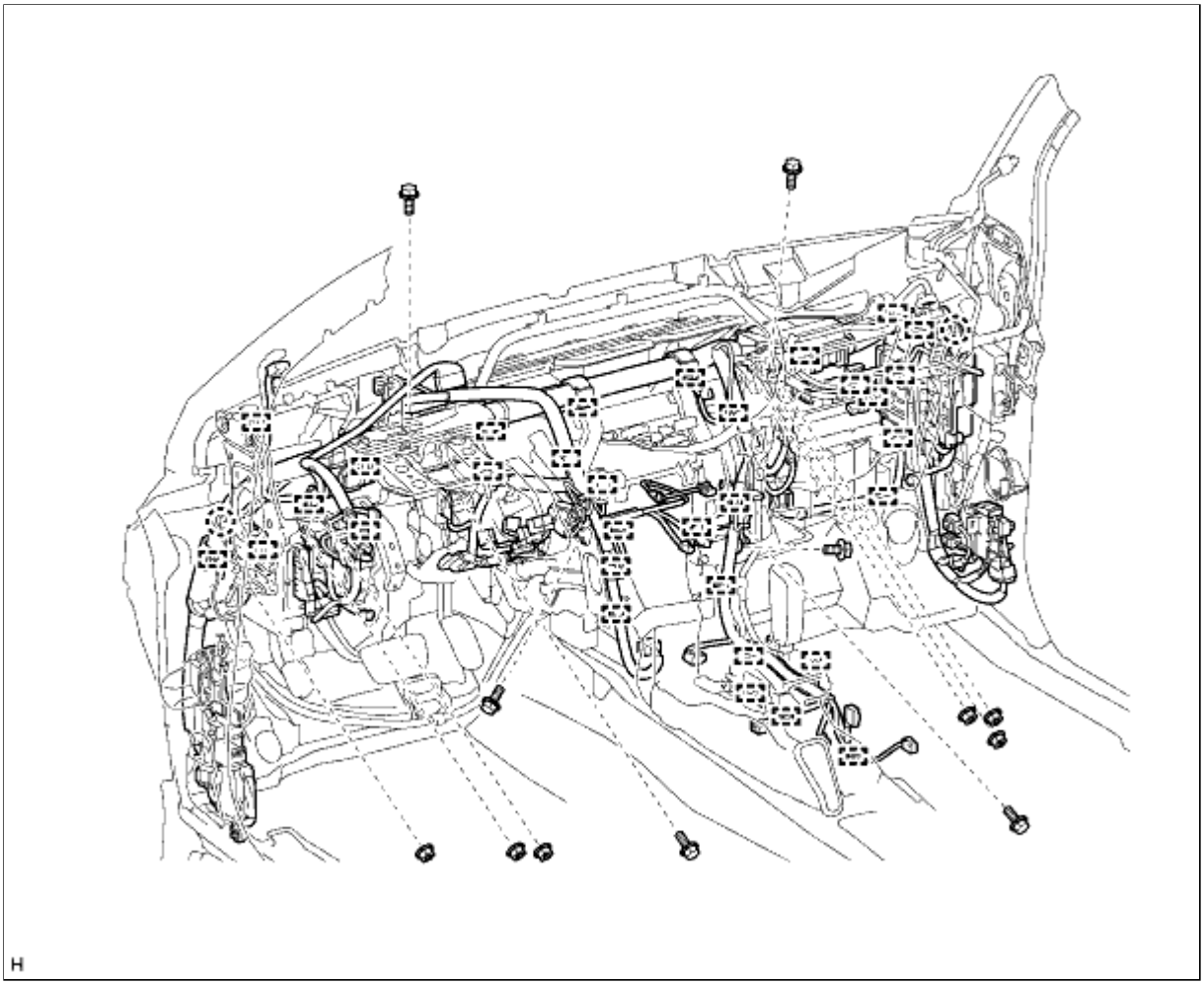
(3) Using a T40 "TORX" socket, install the 5 "TORX" bolts.

Torque: 27 N·m (275 kgf·cm, 20ft·lbf)

(4) Install the 5 caps.



(b) Attach the clamps and connect the connectors to the wire harness.



3. INSTALL NO. 1 AIR DUCT SUB-ASSEMBLY

(a) Attach the 3 claws to install the duct.

4. INSTALL NO. 2 AIR DUCT SUB-ASSEMBLY

(a) Attach the 3 claws to install the air duct.

(b) Install the screw.

5. INSTALL INSTRUMENT PANEL BRACE MOUNTING BRACKET LH

(a) Install the instrument panel brace mounting bracket LH with the 2 nuts and bolt.

6. INSTALL INSTRUMENT PANEL BRACE MOUNTING BRACKET RH

(a) Install the instrument panel brace mounting bracket RH with the 2 nuts and bolt.

7. INSTALL NO. 1 CONSOLE BOX DUCT

(a) Install the No. 1 console box duct with the clip.

8. INSTALL REAR NO. 3 AIR DUCT

(a) Attach the 3 clamps and 4 claws to install the rear No. 3 air duct.

9. INSTALL REAR NO. 1 AIR DUCT

(a) Attach the 3 clamps and 4 claws to install the rear No. 1 air duct.

10. INSTALL FRONT FLOOR CARPET ASSEMBLY

(a) Install the front floor carpet assembly.

11. INSTALL FRONT SEAT ASSEMBLY LH

(a) for Manual Seat:

Install the front seat assembly LH INFO .

(b) for Power Seat:

Install the front seat assembly LH INFO .

12. INSTALL FRONT SEAT ASSEMBLY RH

HINT:

Use the same procedure described for the LH side.

(a) for Manual Seat:

Install the front seat assembly RH INFO .

(b) for Power Seat:

Install the front seat assembly RH INFO .

13. INSTALL STEERING COLUMN ASSEMBLY

(a) Install the steering column assembly INFO .

14. INSTALL INSTRUMENT PANEL SUB-ASSEMBLY

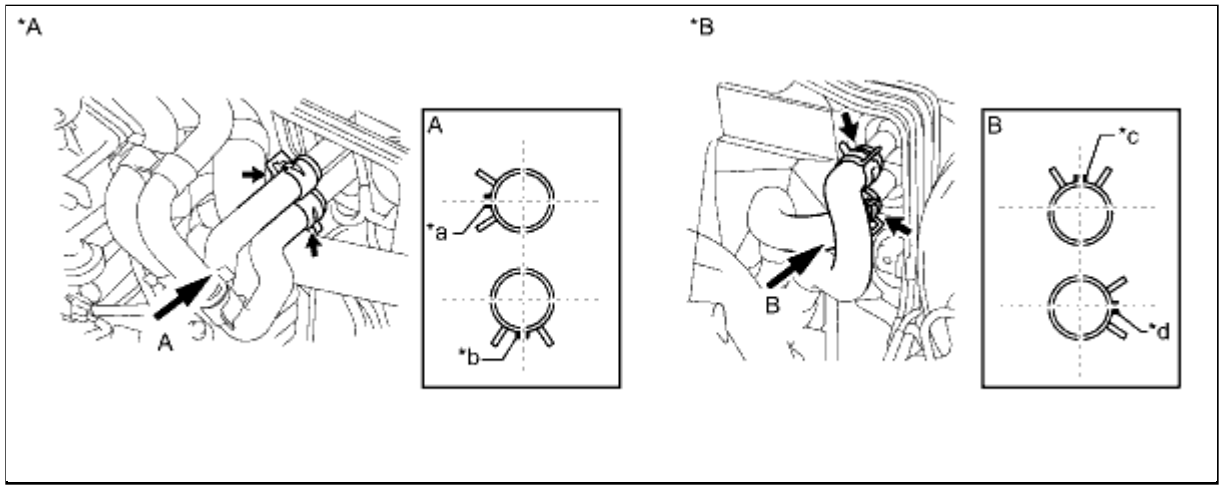
(a) Install the instrument panel sub-assembly INFO .

15. INSTALL WINDSHIELD WIPER MOTOR ASSEMBLY

(a) Install the windshield wiper motor assembly INFO .

16. CONNECT HEATER WATER INLET HOSE AND HEATER WATER OUTLET HOSE

(a) Connect the 2 heater water hoses.



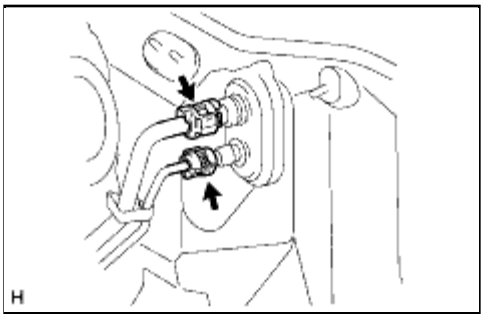
Text in Illustration

*A	for 1GR-FE	*B	for 2TR-FE

*a	Green Marking	*b	Blue Marking
*c	Yellow Marking	*d	White Marking

(b) Using pliers, grip the claws of the clips and slide the 2 clips.

17. CONNECT AIR CONDITIONING TUBE ASSEMBLY

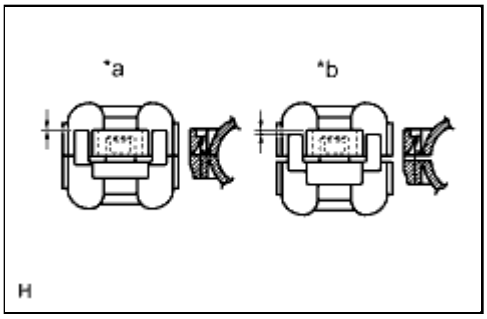


(a) Install the grommet.

(b) Install the 2 new O-rings to the air conditioning tube assembly.

Compressor oil:
ND-OIL 8 or equivalent

(c) Connect the air conditioning tube assembly with the piping clamp.



Text in Illustration

*a	CORRECT
*b	INCORRECT

NOTICE:

After connecting the tube, check that the claw of the piping clamp is attached.

18. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO .

19. CHECK SRS WARNING LIGHT

(a) Check the SRS warning light INFO .

20. ADD ENGINE COOLANT

(a) for 1GR-FE:

Add engine coolant INFO .

(b) for 2TR-FE:

Add engine coolant INFO .

21. CHARGE REFRIGERANT INFO

22. WARM UP ENGINE INFO

23. CHECK FOR ENGINE COOLANT LEAK

(a) for 1GR-FE:

Check for engine coolant leak INFO .

(b) for 2TR-FE:

Check for engine coolant leak INFO .

24. CHECK FOR REFRIGERANT GAS LEAK INFO

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Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003AXT00SX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: REASSEMBLY (2010 4Runner)		

REASSEMBLY

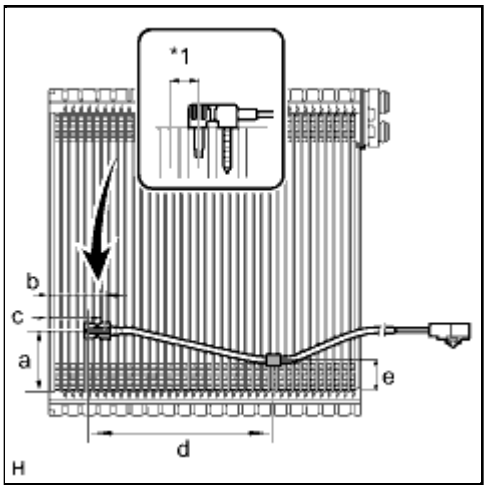
1. INSTALL NO. 1 COOLER THERMISTOR

NOTICE:

If reusing the evaporator, do not insert the thermistor into a location where the thermistor was previously inserted.

(a) Insert the thermistor to a location that is 1 fin to the right or left of its previous location.

Standard:



ITEM	SPECIFIED CONDITION
a	50 mm (1.97 in.)
b	46.7 mm (1.84 in.)
c	33.3 mm (1.31 in.)
d	154.1 mm (6.07 in.)
e	25 mm (0.98 in.)

Text in Illustration

*1	1 Fin

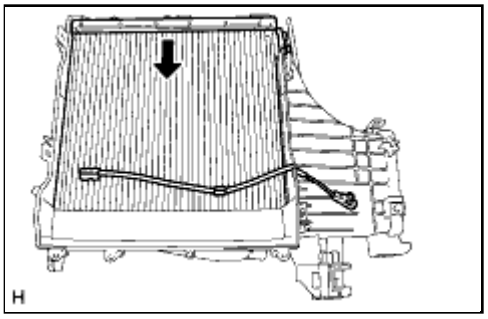
2. INSTALL NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY

(a) Sufficiently apply compressor oil to 2 new O-rings and the fitting surface of the hose joint.

Compressor oil:
ND-OIL 8 or equivalent

(b) Install the 2 O-rings to the evaporator.

(c) Install the evaporator.

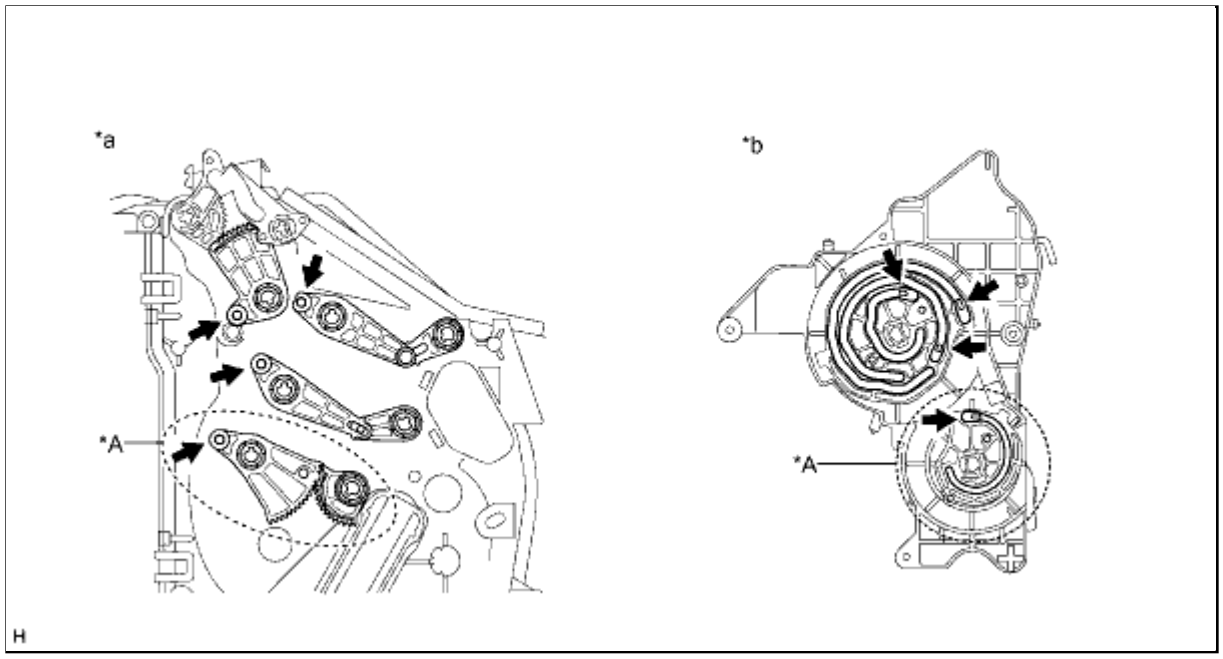


(d) Attach the 4 claws to install the unit case.

(e) Install the 6 screws.

3. INSTALL DAMPER SERVO SUB-ASSEMBLY LH

(a) Align the grooves on the damper servo sub-assembly with the protrusions on the unit and install the damper servo sub-assembly.



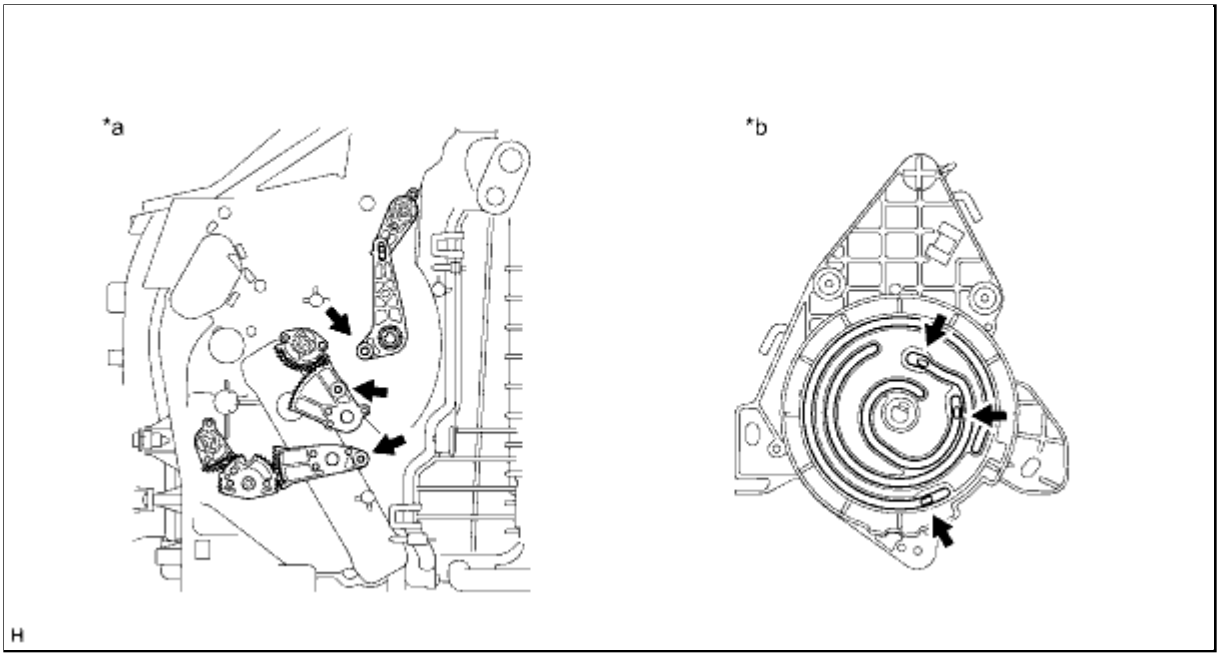
Text in Illustration

*A	for Automatic Air Conditioning System	-	-
*a	Air Conditioning Unit Side	*b	Damper Servo Side

(b) Install the 4 screws.

4. INSTALL DAMPER SERVO SUB-ASSEMBLY RH

(a) Align the grooves on the damper servo sub-assembly with the protrusions on the unit and install the damper servo sub-assembly.



Text in Illustration

*a	Air Conditioning Unit Side	*b	Damper Servo Side

(b) Install the 3 screws.

5. INSTALL COOLER EXPANSION VALVE

(a) Install the expansion valve.

6. INSTALL AIR CONDITIONING TUBE AND ACCESSORY ASSEMBLY

(a) Sufficiently apply compressor oil to 2 new O-rings and the fitting surface of the hose joint.

Compressor oil:
ND-OIL 8 or equivalent

(b) Install the 2 O-rings to the air conditioning tube and accessory assembly.

(c) Install the air conditioning tube and accessory assembly.

(d) Using a 4 mm hexagon wrench, install the 2 hexagon bolts.

Torque: 3.5 N·m (36 kgf·cm, 31in·lbf)

(e) Install new butyl tape.

(f) Install new packing.

7. INSTALL AIR CONDITIONING HARNESS

(a) Attach the clamps to install the harness.

(b) Connect the connectors.

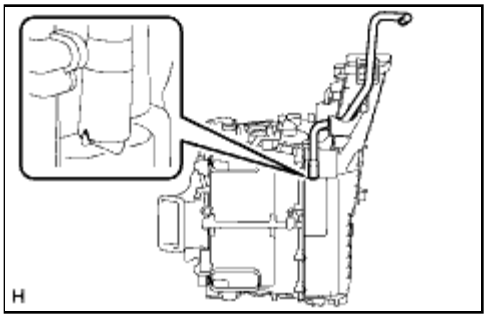
8. INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY

(a) Install the radiator.

(b) Install the bracket with the 2 screws.

9. INSTALL QUICK HEATER ASSEMBLY (w/ PTC Heater) INFO

10. INSTALL DRAIN COOLER HOSE



(a) Install the drain cooler hose as shown in the illustration.

11. INSTALL ASPIRATOR HOSE

(a) Attach the 2 claws to install the aspirator hose.

12. INSTALL DEFROSTER NOZZLE ASSEMBLY

(a) Attach the 6 claws to install the defroster nozzle assembly.

13. INSTALL BLOWER ASSEMBLY

(a) Attach the 2 claws to install the blower assembly.

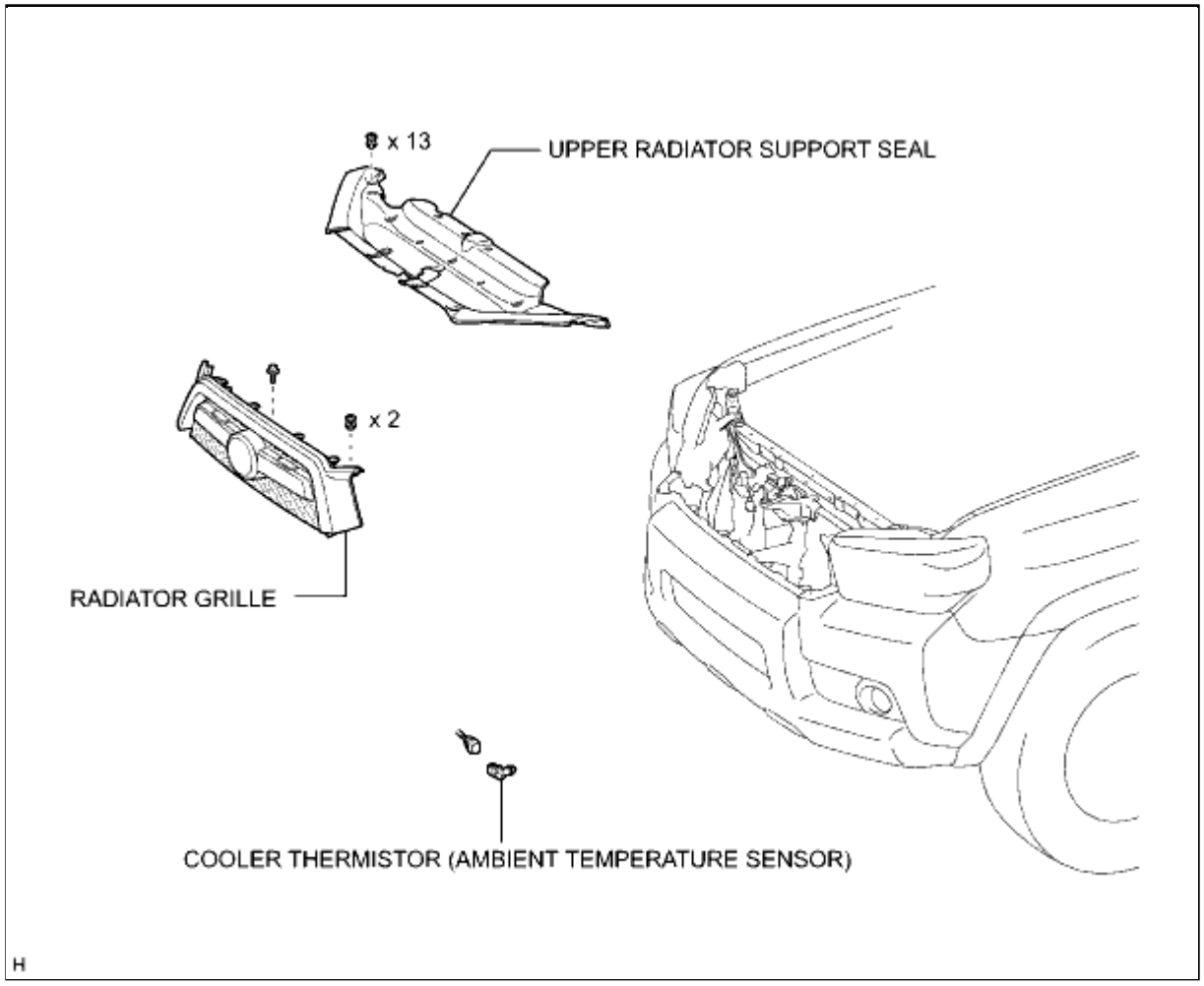
(b) Install the screw.

Torque: 2.7 N·m (28 kgf·cm, 24in·lbf)

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000002VYJ00NX
Title: HEATING / AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



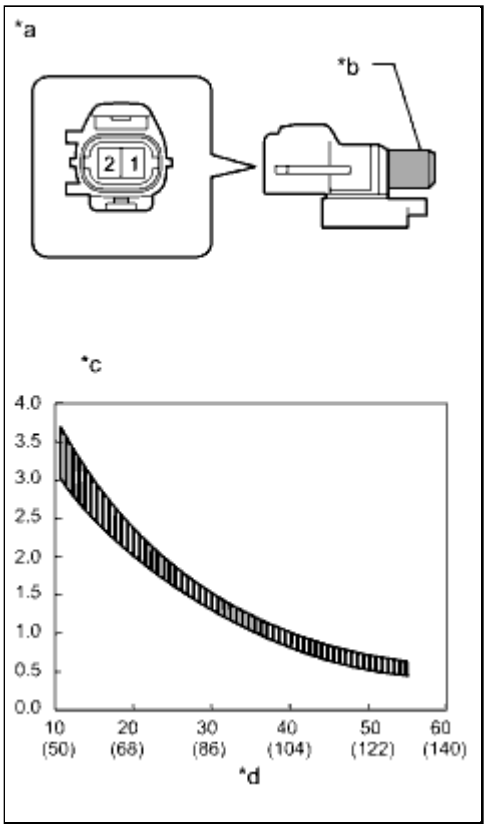
Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000000Y0P027X
Title: HEATING / AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT COOLER THERMISTOR (AMBIENT TEMPERATURE SENSOR)

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

Standard Resistance:



TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	10°C (50°F)	3.00 to 3.73 kΩ
	15°C (59°F)	2.45 to 2.88 kΩ
	20°C (68°F)	1.95 to 2.30 kΩ
	25°C (77°F)	1.60 to 1.80 kΩ
	30°C (86°F)	1.28 to 1.47 kΩ
	35°C (95°F)	1.00 to 1.22 kΩ
	40°C (104°F)	0.80 to 1.00 kΩ
	45°C (113°F)	0.65 to 0.85 kΩ
	50°C (122°F)	0.50 to 0.70 kΩ
	55°C (131°F)	0.44 to 0.60 kΩ
	60°C (140°F)	0.36 to 0.50 kΩ

HINT:

As the temperature increases, the resistance decreases (refer to the graph).

NOTICE:

- Touching the sensor even slightly may change the resistance value. Hold the connector of the sensor.
- When measuring the resistance, make sure the sensor

temperature is the same as the ambient temperature.

If the result is not as specified, replace the cooler thermistor (ambient temperature sensor).

Text in Illustration

*a	Component without harness connected (Ambient Temperature Sensor)
*b	Sensor Area
*c	Resistance (kΩ)
*d	Temperature (°C (°F))

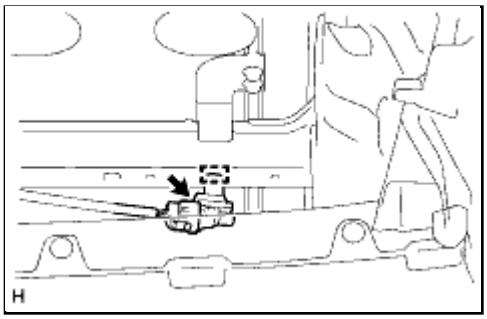
Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000002VYK00NX
Title: HEATING / AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE UPPER RADIATOR SUPPORT SEAL

2. REMOVE RADIATOR GRILLE

(a) Remove the radiator grille .



3. REMOVE COOLER THERMISTOR (AMBIENT TEMPERATURE SENSOR)

(a) Disconnect the connector.

(b) Using a screwdriver, detach the clamp and remove the sensor.

HINT:

Tape the screwdriver tip before use.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000002VYI00NX
Title: HEATING / AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL COOLER THERMISTOR (AMBIENT TEMPERATURE SENSOR)

(a) Attach the clamp to install the sensor.

(b) Connect the connector.

2. INSTALL RADIATOR GRILLE

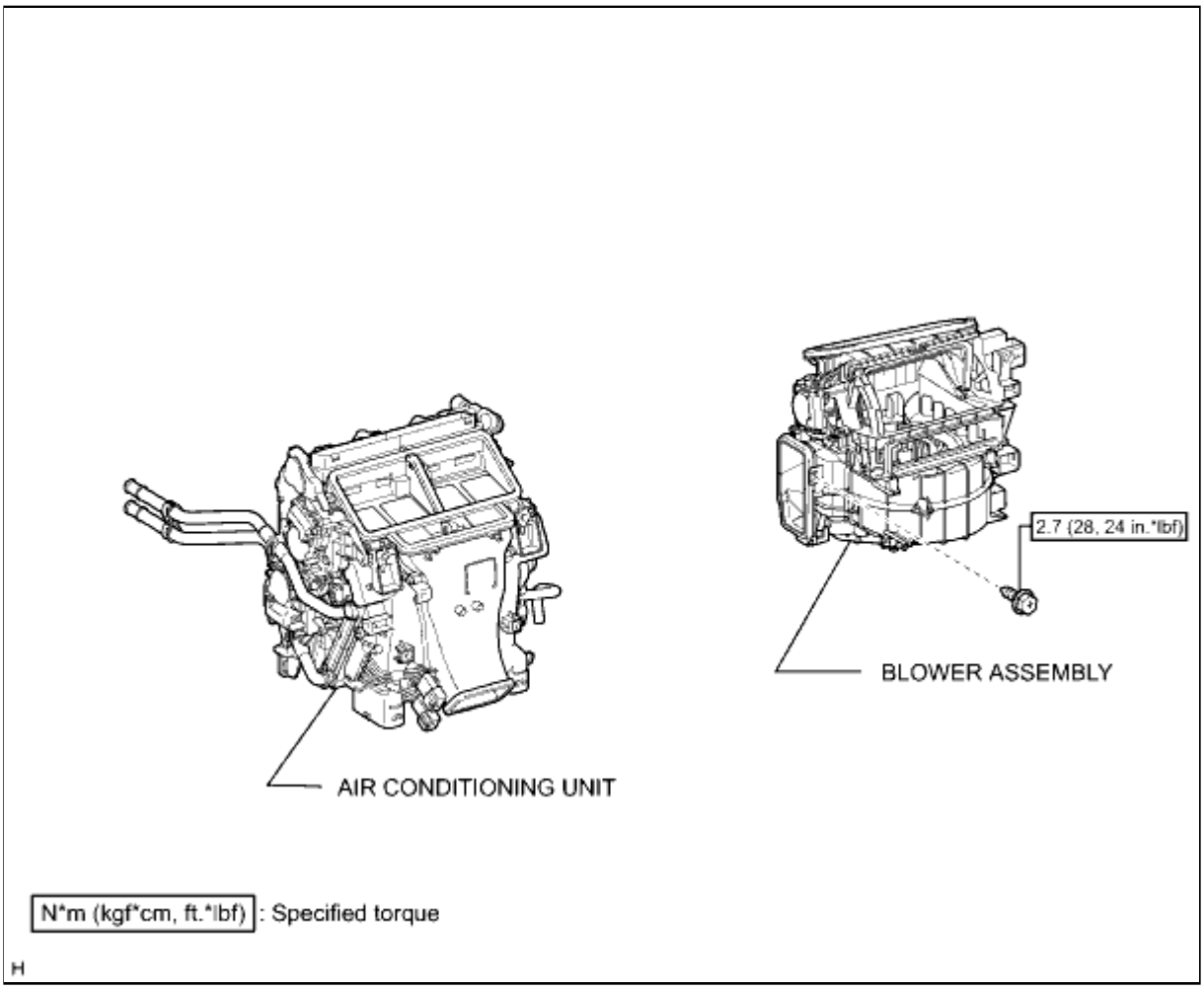
(a) Install the radiator grille INFO .

3. INSTALL UPPER RADIATOR SUPPORT SEAL INFO

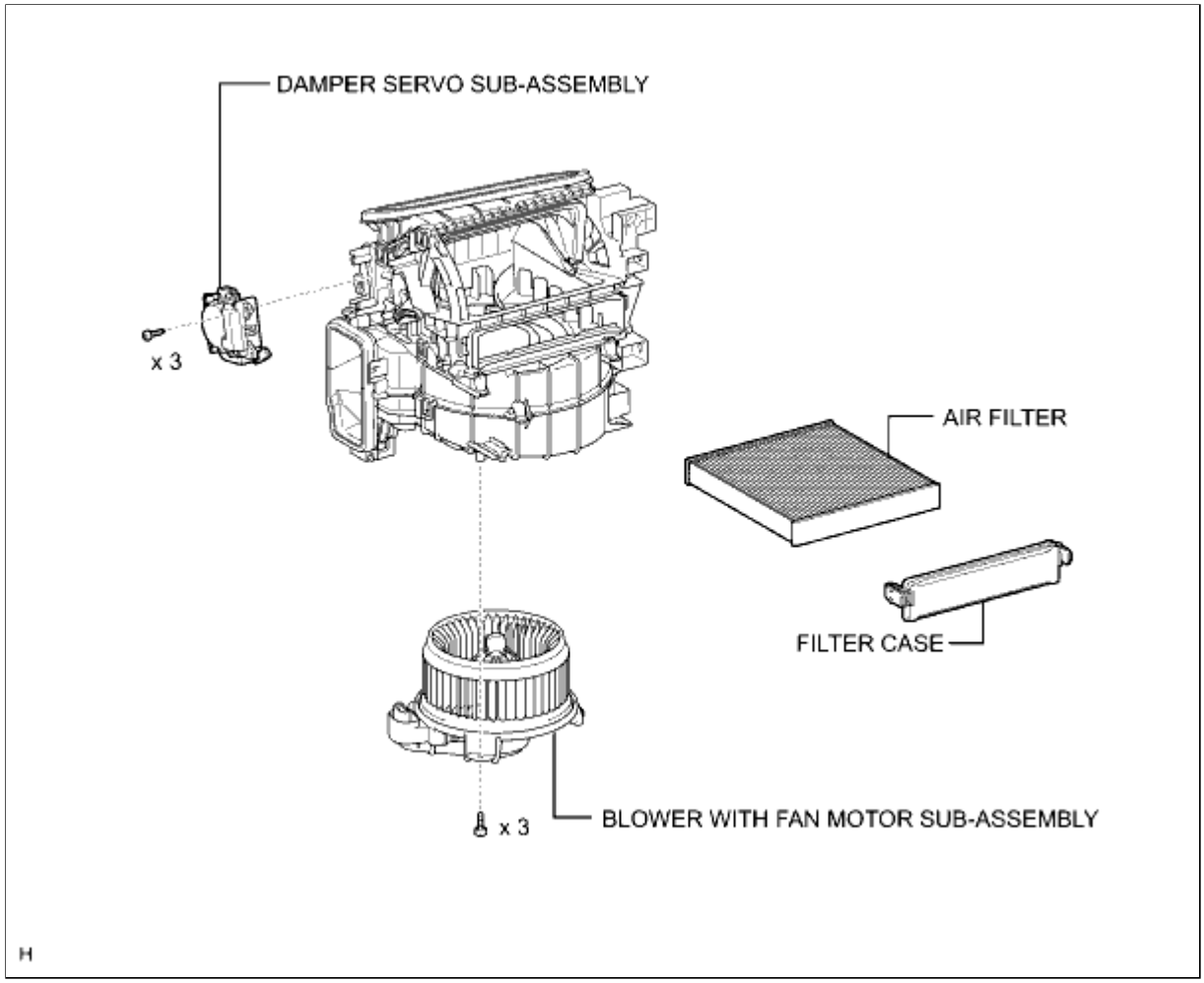
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003AEK00BX
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



ILLUSTRATION



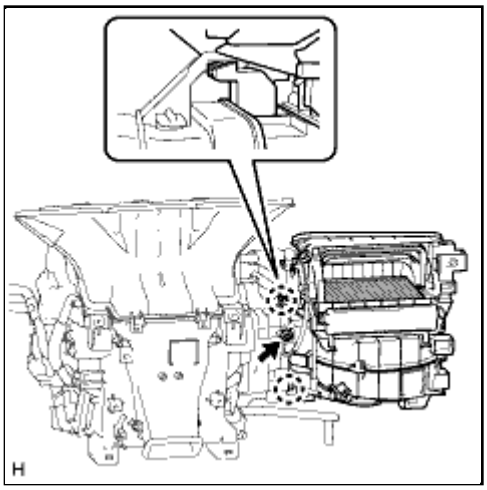
Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003B3S00JX
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE AIR CONDITIONING UNIT

(a) Remove the air conditioning unit INFO .

2. REMOVE BLOWER ASSEMBLY



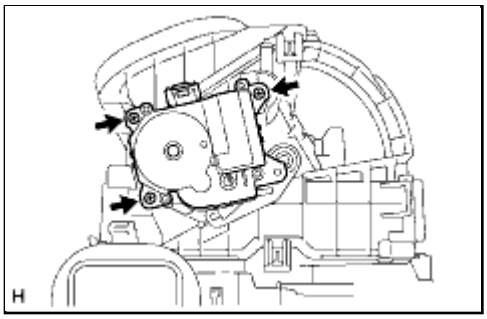
(a) Remove the screw.

(b) Disconnect the connector and detach the clamp.

(c) Detach the 2 claws and remove the blower unit.

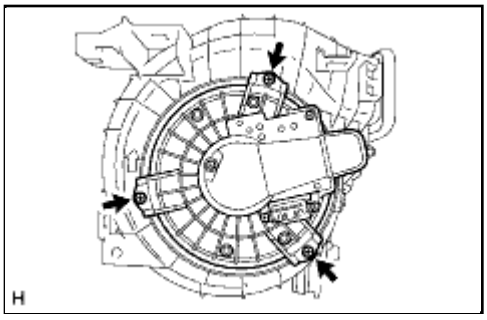
Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003B3T00JX
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: DISASSEMBLY (2010 4Runner)		

DISASSEMBLY



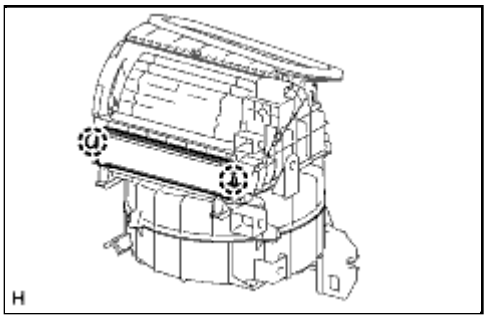
1. REMOVE DAMPER SERVO SUB-ASSEMBLY

(a) Remove the 3 screws and damper servo sub-assembly.



2. REMOVE BLOWER WITH FAN MOTOR SUB-ASSEMBLY

(a) Remove the 3 screws and motor.



3. REMOVE AIR FILTER

(a) Detach the 2 claws and remove the filter.

(b) Remove the filter case.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003B3U00JX
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: REASSEMBLY (2010 4Runner)		

REASSEMBLY

1. INSTALL AIR FILTER

(a) Install the filter.

(b) Attach the 2 claws to install the filter case.

2. INSTALL BLOWER WITH FAN MOTOR SUB-ASSEMBLY

(a) Install the motor with the 3 screws.

3. INSTALL DAMPER SERVO SUB-ASSEMBLY

(a) Install the damper servo with the 3 screws.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003B3Q00GX
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL BLOWER ASSEMBLY

(a) Attach the 2 claws to install the blower unit.

(b) Connect the connector and attach the clamp.

(c) Install the screw.

Torque: 2.7 N·m (28 kgf·cm, 24in·lbf)

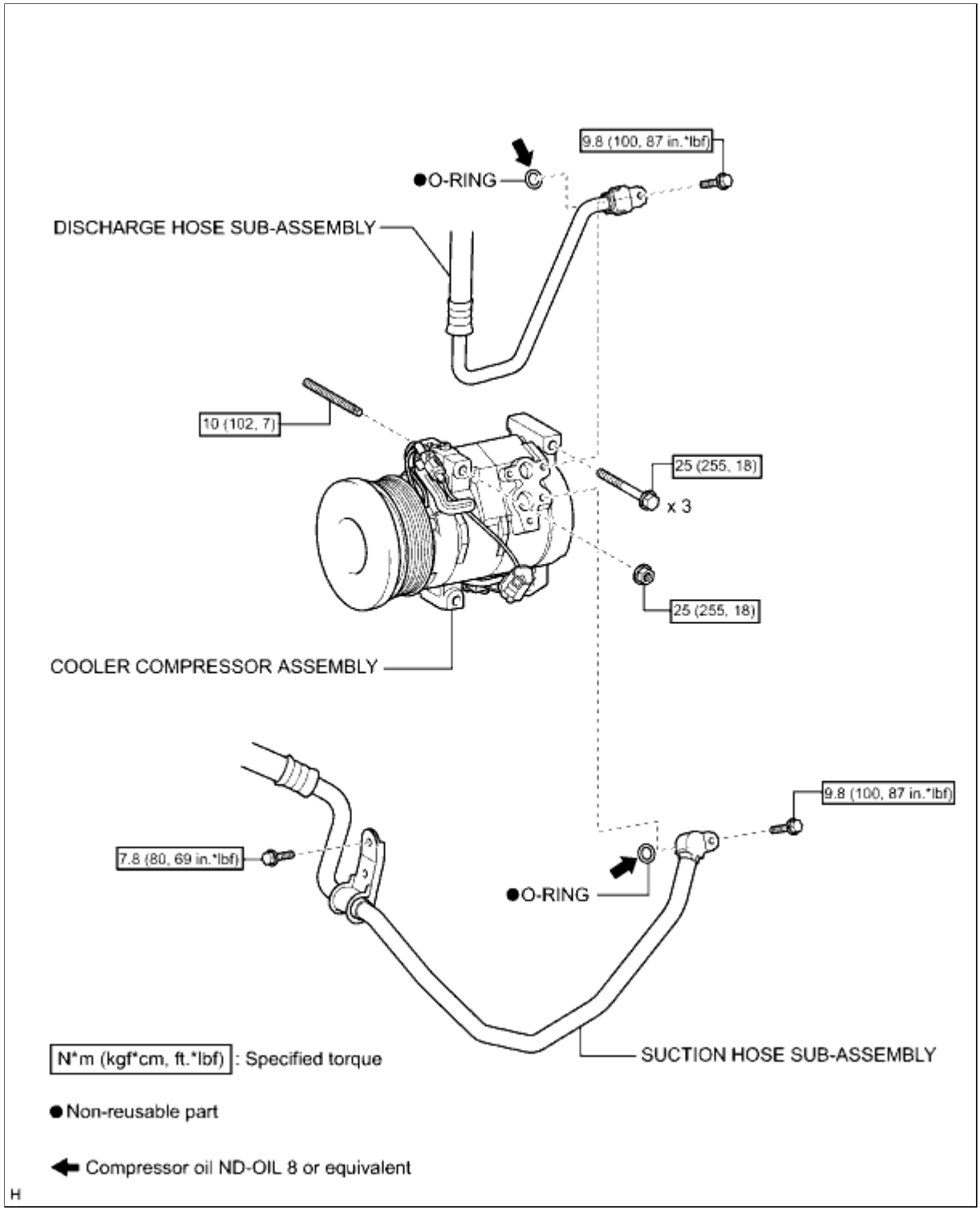
2. INSTALL AIR CONDITIONING UNIT

(a) Install the air conditioning unit INFO .

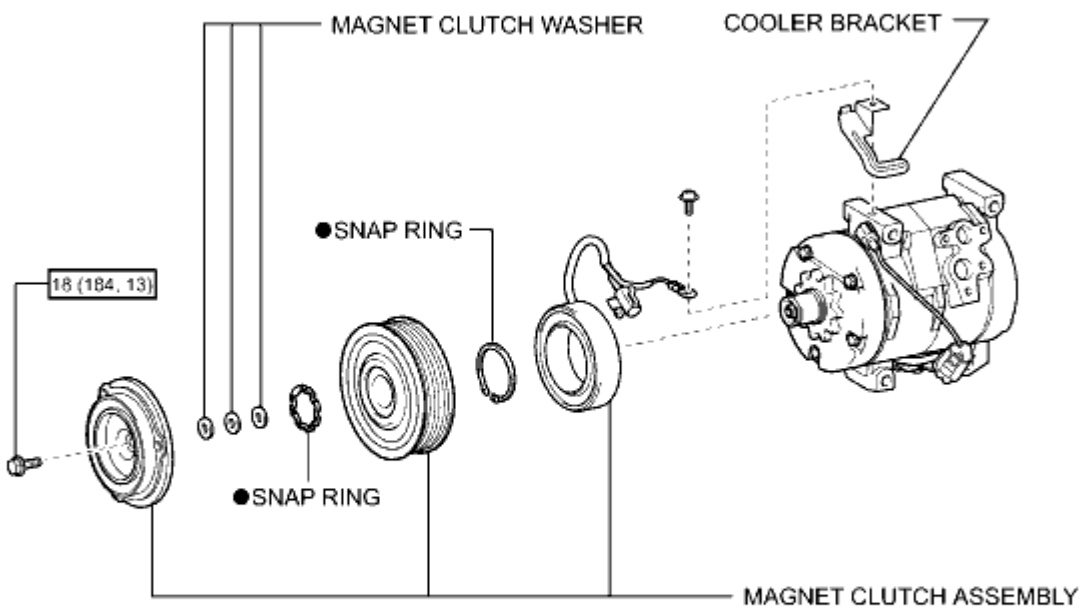
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000002VY700UX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 1GR-FE): COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



ILLUSTRATION



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

● Non-reusable part

H

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000000180102TX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 1GR-FE): REMOVAL (2010 4Runner)		

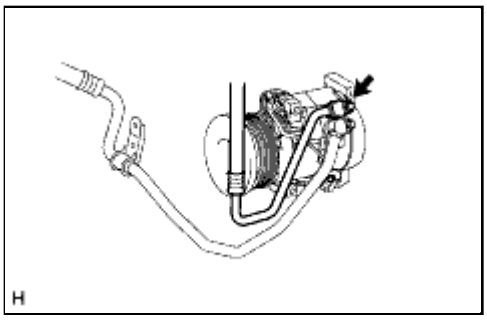
REMOVAL

1. REMOVE GENERATOR ASSEMBLY

(a) Remove the generator assembly INFO .

2. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

3. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY



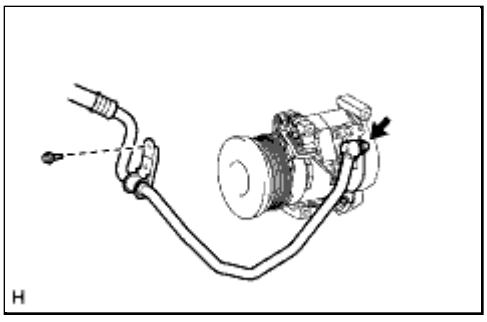
(a) Remove the bolt and disconnect the discharge hose from the cooler compressor.

(b) Remove the O-ring from the discharge hose.

NOTICE:

Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering them.

4. DISCONNECT SUCTION HOSE SUB-ASSEMBLY



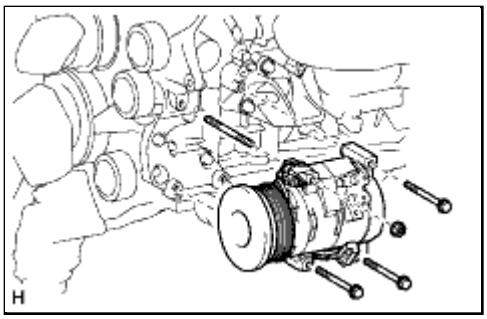
(a) Remove the 2 bolts and disconnect the suction hose from the cooler compressor.

(b) Remove the O-ring from the suction hose.

NOTICE:

Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering them.

5. REMOVE COOLER COMPRESSOR ASSEMBLY



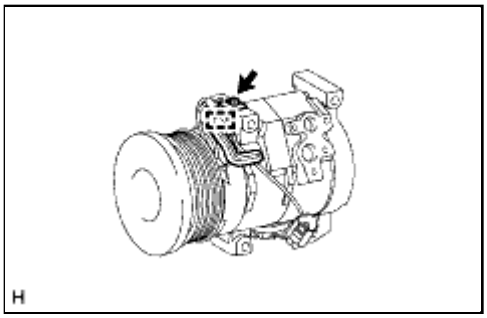
(a) Disconnect the connector.

(b) Remove the 3 bolts and nut.

(c) Remove the stud bolt and cooler compressor.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016AL030X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 1GR-FE): DISASSEMBLY (2010 4Runner)		

DISASSEMBLY

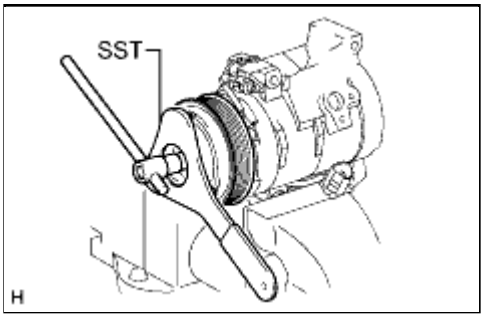


1. REMOVE COOLER BRACKET

(a) Detach the clamp.

(b) Remove the screw and cooler bracket.

2. REMOVE MAGNET CLUTCH ASSEMBLY



(a) Clamp the cooler compressor in a vise.

(b) Using SST, hold the magnet clutch hub.

SST: 07112-76060

(c) Remove the bolt, magnet clutch hub and magnet clutch washer(s).

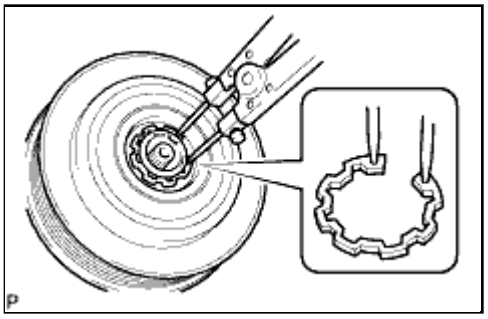
HINT:

There is no set number of magnet clutch washers since they are used for adjusting.

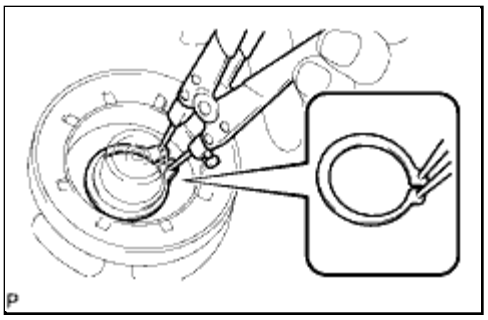
(d) Using a snap ring expander, remove the snap ring and magnet clutch rotor.

NOTICE:

Do not damage the seal cover of the bearing when removing the snap ring.



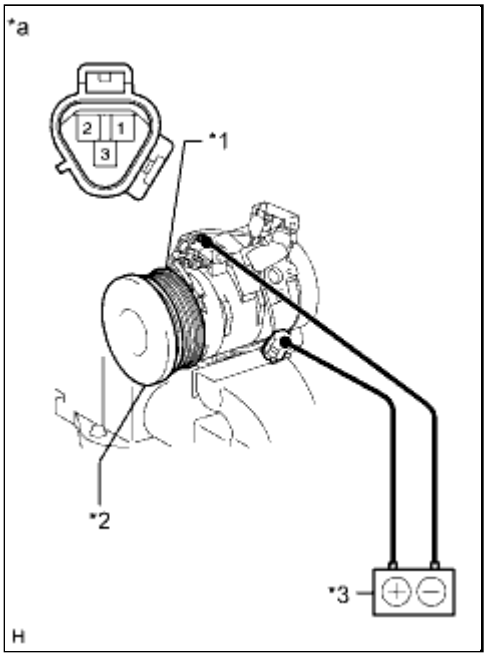
(e) Disconnect the connector.



(f) Using a snap ring expander, remove the snap ring and magnet clutch stator.

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016AI02LX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 1GR-FE): INSPECTION (2010 4Runner)		

INSPECTION



1. INSPECT MAGNET CLUTCH ASSEMBLY

(a) Check the magnet clutch operation.

(1) Confirm that the magnet clutch hub and magnet clutch rotor lock when the positive (+) lead of the battery is connected to terminal 3 of the magnet clutch, and the negative (-) lead is connected to the ground wire.

If the operation is not as specified, replace the magnet clutch assembly.

Text in Illustration

*1	Magnet Clutch Rotor
*2	Magnet Clutch Hub
*3	Battery
*a	Component without harness connected (Magnet Clutch Assembly)

(b) Measure the resistance between terminals 1 and 2.

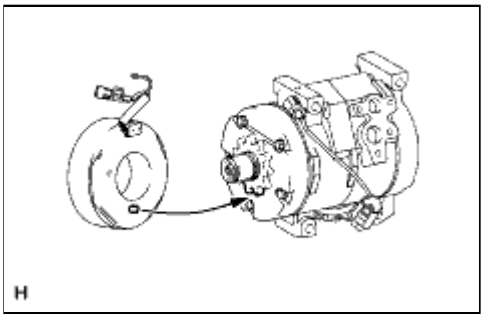
Standard resistance:
65 to 125 Ω at 20°C (68°F)

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

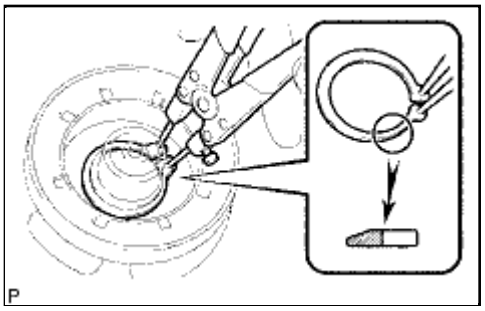
Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016TR031X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 1GR-FE): REASSEMBLY (2010 4Runner)		

REASSEMBLY

1. INSTALL MAGNET CLUTCH ASSEMBLY

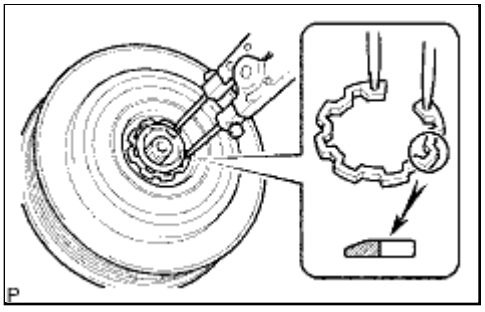


(a) Align the parts as shown in the illustration and install the magnet clutch stator.



(b) Using a snap ring expander, install a new snap ring with the chamfered side facing up.

(c) Connect the connector.



(d) Using a snap ring expander, install the magnet clutch rotor and a new snap ring with the chamfered side facing up.

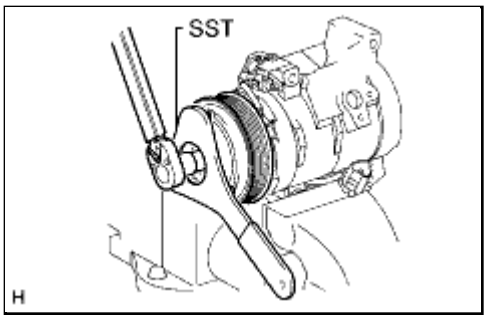
NOTICE:

Do not damage the seal cover of the bearing when installing the snap ring.

(e) Install the compressor washer(s) and magnet clutch hub.

NOTICE:

Do not change the combination of compressor washer(s) used before disassembly.



(f) Using SST, hold the magnet clutch hub and install the bolt.

SST: 07112-76060

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

NOTICE:

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

2. INSTALL COOLER BRACKET

(a) Install the cooler bracket with the screw.

(b) Attach the clamp.

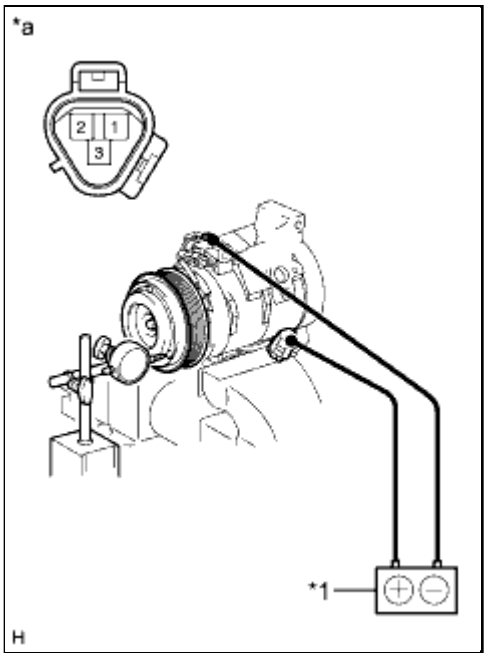
3. INSPECT MAGNET CLUTCH CLEARANCE

(a) Clamp the cooler compressor in a vise.

(b) Set a dial indicator on the magnet clutch hub.

(c) Connect the positive (+) lead of the battery to terminal 3 of the magnet clutch connector and the negative (-) lead to the ground wire. Turn the magnet clutch on and off and measure the clearance.

Standard clearance:
0.35 to 0.60 mm (0.014 to 0.024 in.)



Text in Illustration

*1	Battery
*a	Component without harness connected (Magnet Clutch Assembly)

If the measured value is not within the standard range, remove the magnet clutch hub and adjust the clearance using compressor washers to obtain the standard clearance.

Compressor washer thickness:
0.1 mm (0.004 in.)
0.3 mm (0.012 in.)
0.5 mm (0.020 in.)

NOTICE:

Be sure to perform the adjustment with 3 or fewer magnet clutch washers.

(d) Remove the cooler compressor from the vise.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000017ZZ02ZX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 1GR-FE): INSTALLATION (2010 4Runner)		

INSTALLATION

1. ADJUST COMPRESSOR OIL

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

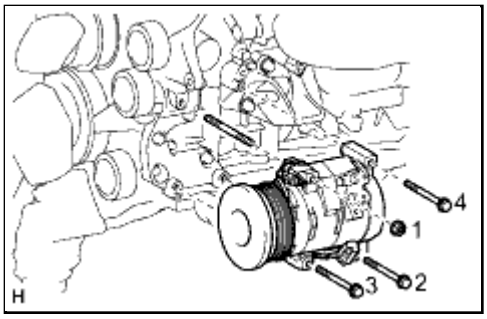
Standard:

(Oil capacity inside the new compressor and magnetic clutch: 120 + 15 cc (4.1 + 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)

NOTICE:

- When checking the compressor oil level, follow the A/C system precautions.
- If a new compressor and magnetic clutch is installed without removing some of 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 compressor oil.

2. INSTALL COOLER COMPRESSOR ASSEMBLY



(a) Install the cooler compressor with the stud bolt.

Torque: 10 N·m (102 kgf·cm, 7ft·lbf)

(b) Install the 3 bolts and nut.

Torque: 25 N·m (255 kgf·cm, 18ft·lbf)

HINT:

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

(c) Connect the connector.

3. CONNECT SUCTION HOSE SUB-ASSEMBLY

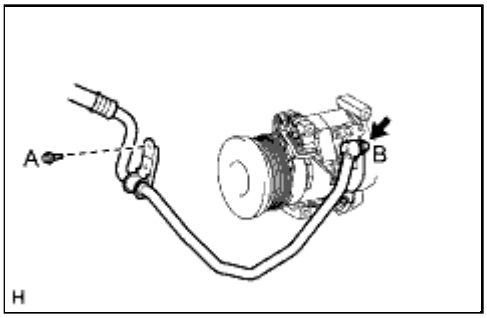
(a) Remove the attached vinyl tape from the suction hose.

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

Compressor oil:
ND-OIL 8 or equivalent

(c) Install the O-ring to the suction hose.

(d) Connect the suction hose with the 2 bolts.



for bolt A - Torque: 7.8 N·m (80 kgf·cm, 69in·lbf)
for bolt B - Torque: 9.8 N·m (100 kgf·cm, 87in·lbf)

4. CONNECT DISCHARGE HOSE SUB-ASSEMBLY

(a) Remove the attached vinyl tape from the cooler refrigerant discharge hose.

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

Compressor oil:
ND-OIL 8 or equivalent

(c) Install the O-ring to the discharge hose.

(d) Connect the discharge hose to the cooler compressor with the bolt.

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

5. INSTALL GENERATOR ASSEMBLY

(a) Install the generator assembly INFO .

6. CHARGE REFRIGERANT INFO

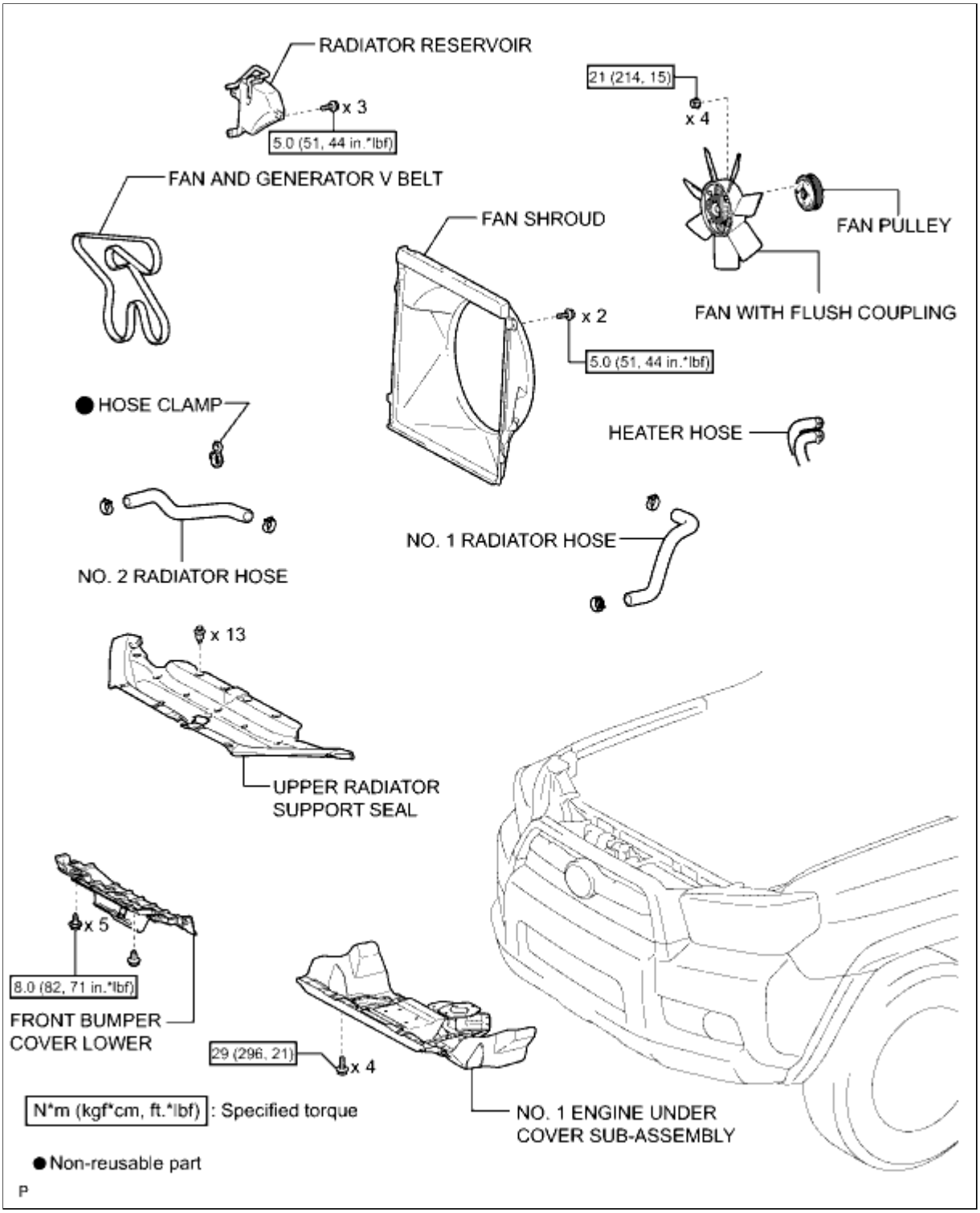
7. WARM UP ENGINE INFO

8. CHECK FOR REFRIGERANT GAS LEAK INFO

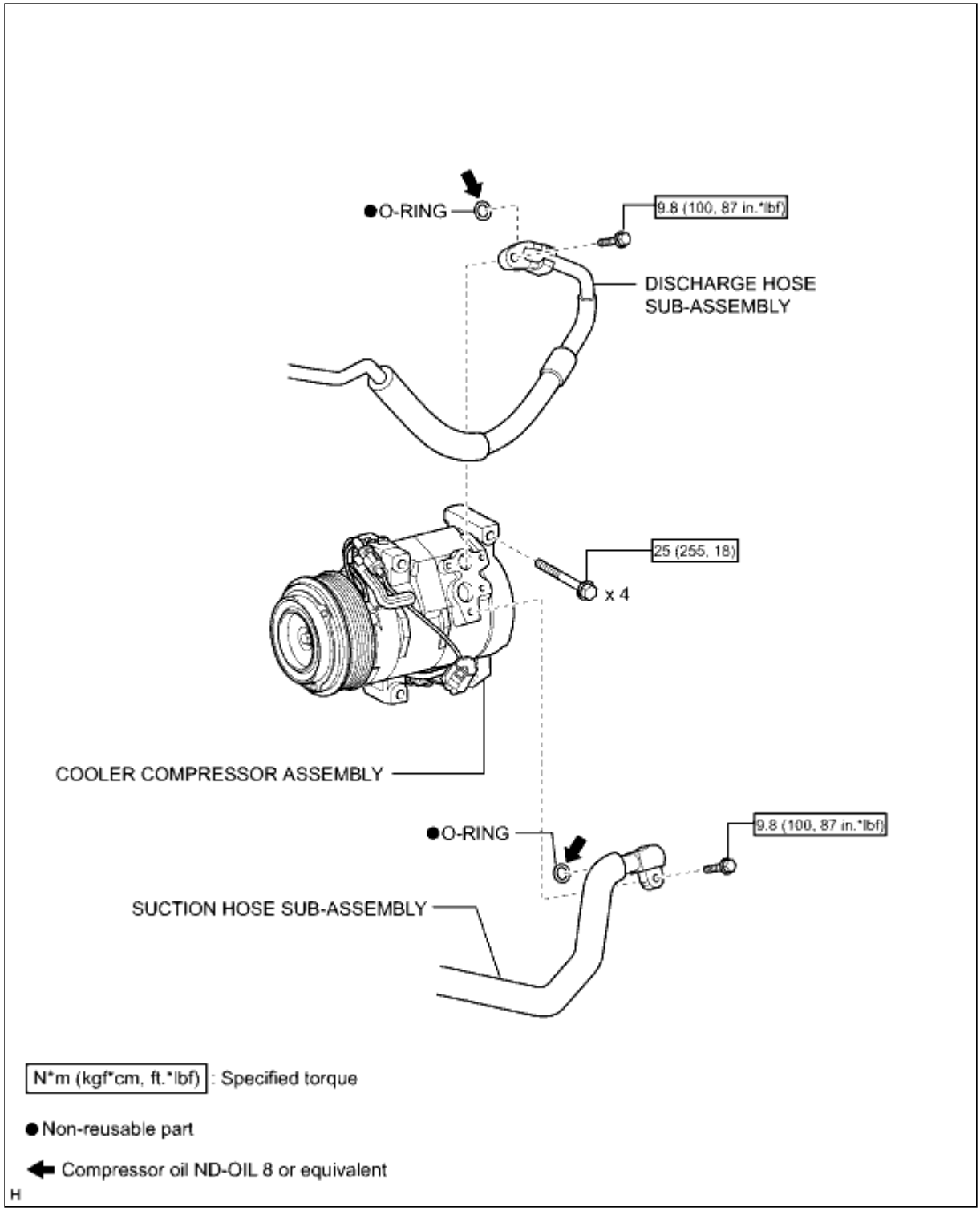
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000012JU00GX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2TR-FE): COMPONENTS (2010 4Runner)		

COMPONENTS

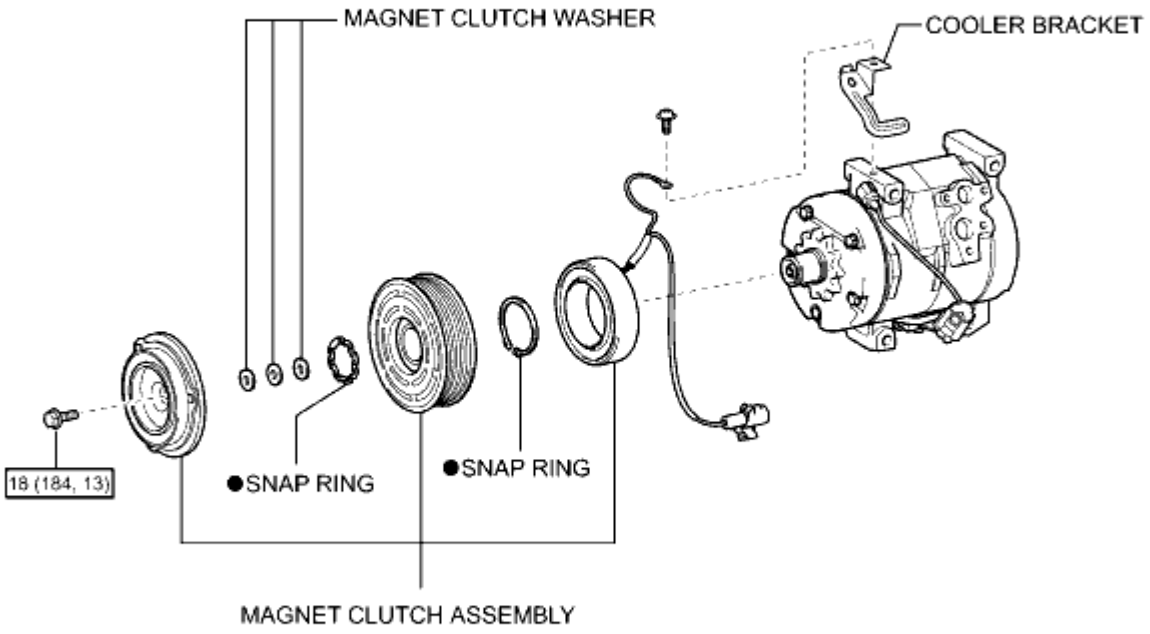
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



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

● Non-reusable part

H

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000012JZ013X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2TR-FE): REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE UPPER RADIATOR SUPPORT SEAL INFO

2. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

3. REMOVE FRONT BUMPER COVER LOWER INFO

4. REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY INFO

5. DRAIN ENGINE COOLANT INFO

6. REMOVE RADIATOR RESERVOIR INFO

7. REMOVE NO. 1 RADIATOR HOSE INFO

8. REMOVE NO. 2 RADIATOR HOSE INFO

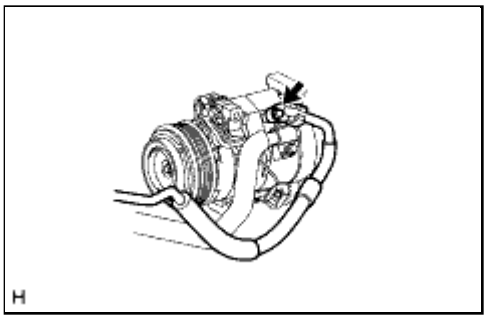
9. REMOVE FAN AND GENERATOR V BELT INFO

10. REMOVE FAN SHROUD INFO

11. REMOVE VANE PUMP ASSEMBLY

(a) Remove the vane pump assembly INFO .

12. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY



(a) Remove the bolt and disconnect the discharge hose sub-assembly from the compressor.

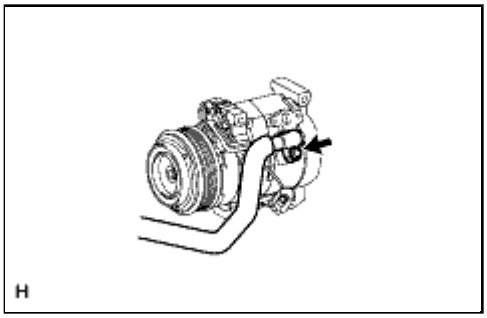
(b) Remove the O-ring from the discharge hose.

NOTICE:

Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering.

13. DISCONNECT SUCTION HOSE SUB-ASSEMBLY

(a) Remove the bolt and disconnect the suction hose



sub-assembly from the compressor.

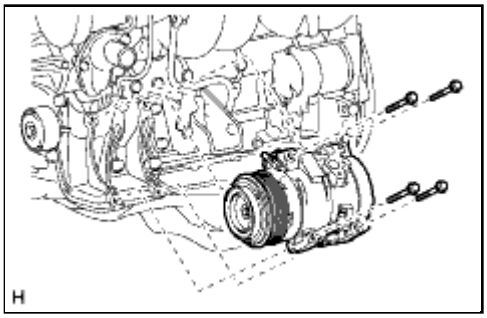
(b) Remove the O-ring from the suction hose.

NOTICE:

Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering.

14. REMOVE COOLER COMPRESSOR ASSEMBLY

(a) Disconnect the connector.

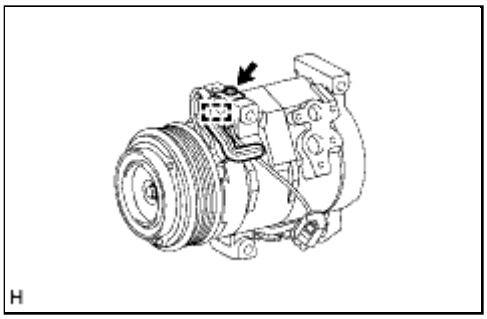


(b) Remove the 4 bolts and compressor.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016AL03DX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2TR-FE): DISASSEMBLY (2010 4Runner)		

DISASSEMBLY

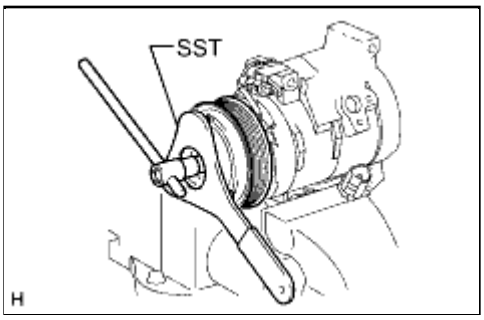
1. REMOVE COOLER BRACKET



(a) Detach the 2 clamps.

(b) Remove the screw and cooler bracket.

2. REMOVE MAGNET CLUTCH ASSEMBLY



(a) Clamp the cooler compressor in a vise.

(b) Using SST, hold the magnet clutch hub.

SST: 07112-76060

(c) Remove the bolt, magnet clutch hub and magnet clutch washer.

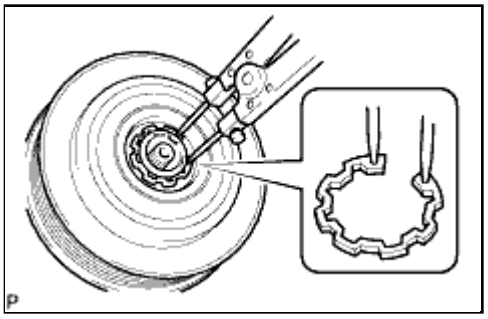
HINT:

There is no set number of magnet clutch washers since they are used for adjusting.

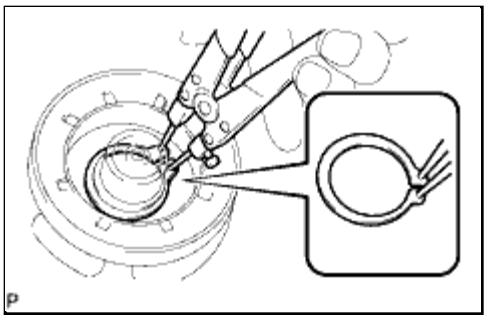
(d) Using a snap ring expander, remove the snap ring and magnet clutch rotor.

NOTICE:

Do not damage the seal cover of the bearing when removing the snap ring.



(e) Detach the connector clamp.



(f) Using a snap ring expander, remove the snap ring and magnet clutch stator.

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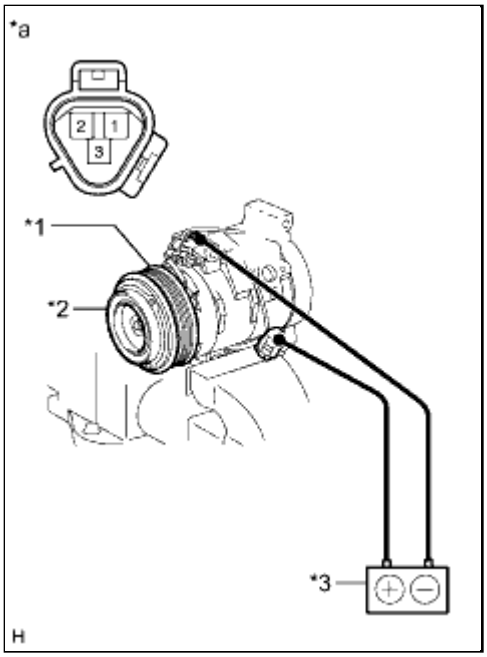
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016AI02WX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2TR-FE): INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT MAGNET CLUTCH ASSEMBLY



(a) Check the magnet clutch operation.

(1) Confirm that the magnet clutch hub and magnet clutch rotor lock when the battery positive lead is connected to terminal 3 of the magnet clutch and the negative lead is connected to the ground wire.

If the operation is not as specified, replace the magnet clutch assembly.

Text in Illustration

*1	Magnet Clutch Rotor
*2	Magnet Clutch Hub
*3	Battery
*a	Component without harness connected (Magnet Clutch Assembly)

(b) Measure the resistance between terminals 1 and 2.

Standard resistance:
65 to 125 Ω at 20°C (68°F)

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

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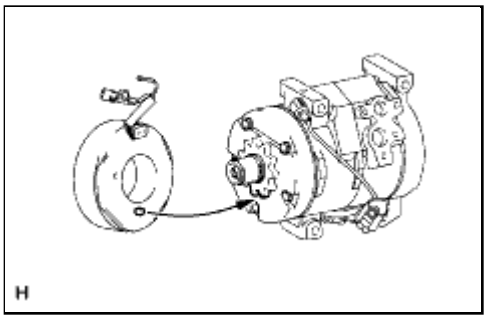
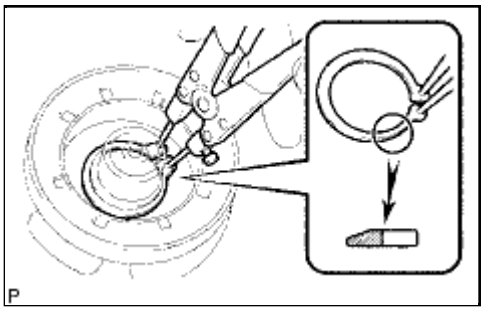
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016TR03EX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2TR-FE): REASSEMBLY (2010 4Runner)		

REASSEMBLY

1. INSTALL MAGNET CLUTCH ASSEMBLY

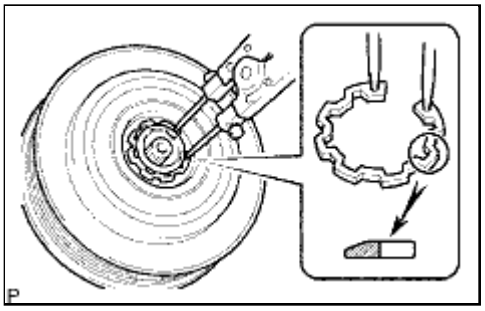


(a) Install the magnet clutch stator with the parts aligned as shown in the illustration.



(b) Using a snap ring expander, install a new snap ring with the chamfered side facing outward.

(c) Attach the connector clamp.



(d) Using a snap ring expander, install the magnet clutch rotor and a new snap ring with the chamfered side facing outward.

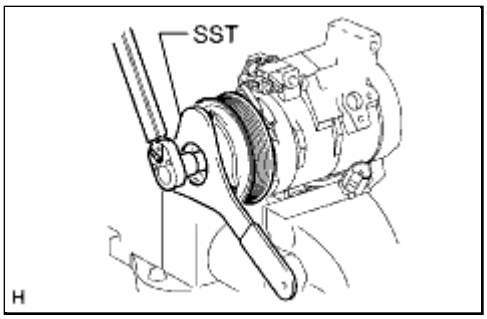
NOTICE:

Do not damage the seal cover of the bearing when installing the snap ring.

(e) Install the magnet clutch washer and magnet clutch hub.

NOTICE:

Do not change the combination of magnet clutch washer used before disassembly.



(f) Using SST, hold the magnet clutch hub and install the bolt.

SST: 07112-76060

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

NOTICE:

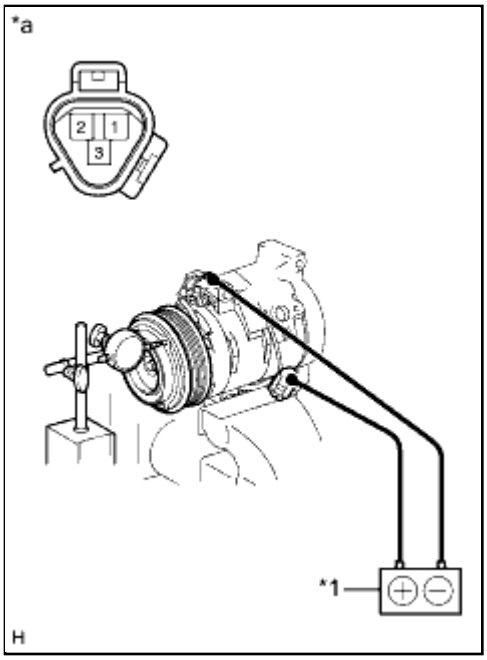
Make sure that there is no foreign matter or oil on the compressor shaft, bolt and clutch hub.

2. INSTALL COOLER BRACKET

(a) Connect the ground wire and install the cooler bracket with the screw.

(b) Attach the 2 clamps.

3. INSPECT MAGNET CLUTCH CLEARANCE



(a) Clamp the cooler compressor in a vise between aluminum plates.

Text in Illustration

*1	Battery
*a	Component without harness connected (Magnet Clutch Assembly)

(b) Set a dial indicator to the magnet clutch hub.

(c) Connect the battery positive (+) lead to terminal 1 of the magnet clutch connector. Turn the magnet clutch on and off by connecting and disconnecting the battery negative (-) lead to and from the ground wire and measure the clearance.

Standard clearance:
0.35 to 0.60 mm (0.014 to 0.024 in.)

If the measured value is not within the standard clearance, remove the magnet clutch hub and adjust the clearance using magnet clutch washers to obtain the standard clearance.

Magnet clutch washer thickness:
0.1 mm (0.004 in.)

0.3 mm (0.012 in.)
0.5 mm (0.020 in.)

NOTICE:

Adjustment should be performed with 3 magnet clutch washers or less.

(d) Remove the cooler compressor from the vise.

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Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000012JW013X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2TR-FE): INSTALLATION (2010 4Runner)		

INSTALLATION

1. ADJUST COMPRESSOR OIL

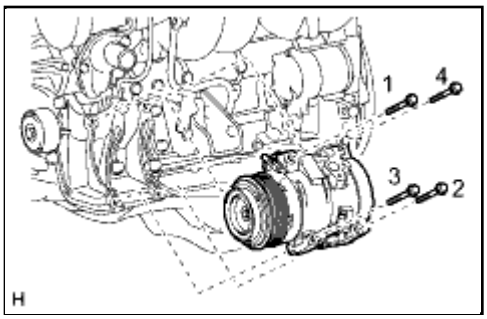
(a) When replacing the compressor and magnet clutch with a new one, gradually discharge the refrigerant gas from the service valve and drain the following amount of oil from the new compressor and magnet clutch before installation.

Standard:
(Oil capacity inside the new compressor and magnet clutch: 180 + 15 cc (6.08 + 0.51 fl.oz.)) - (Remaining oil amount in the removed compressor and magnet clutch) = (Oil amount to be removed from the new compressor)

NOTICE:

- When checking the compressor oil level, follow the A/C system precautions.
- Since compressor oil remains in the pipes of the vehicle, if a new compressor is installed without removing some oil from the compressor, the oil amount becomes excessive. Excessive oil prevents heat exchange in the refrigerant cycle and causes refrigeration system failure.
- If the volume of oil remaining in the removed compressor and magnet clutch is small, check for oil leakage.
- Be sure to use ND-OIL 8 or equivalent compressor oil.

2. INSTALL COOLER COMPRESSOR ASSEMBLY



(a) Install the compressor with the 4 bolts and tighten the bolts in the order shown in the illustration.

Torque: 25 N·m (255 kgf·cm, 18ft·lbf)

(b) Connect the connector.

3. INSTALL SUCTION HOSE SUB-ASSEMBLY

(a) Remove the vinyl tape attached to the 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 to the suction hose.

(d) Connect the suction hose with the bolt.

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

4. INSTALL DISCHARGE HOSE SUB-ASSEMBLY

(a) Remove the vinyl tape attached to the 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 to the discharge hose.

(d) Connect the discharge hose with the bolt.

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

5. INSTALL VANE PUMP ASSEMBLY

(a) Install the vane pump assembly INFO .

6. INSTALL FAN SHROUD INFO

7. INSTALL NO. 2 RADIATOR HOSE INFO

8. INSTALL NO. 1 RADIATOR HOSE INFO

9. INSTALL RADIATOR RESERVOIR INFO

10. INSTALL FAN AND GENERATOR V BELT INFO

11. CHARGE REFRIGERANT INFO

12. ADD ENGINE COOLANT INFO

13. WARM UP ENGINE INFO

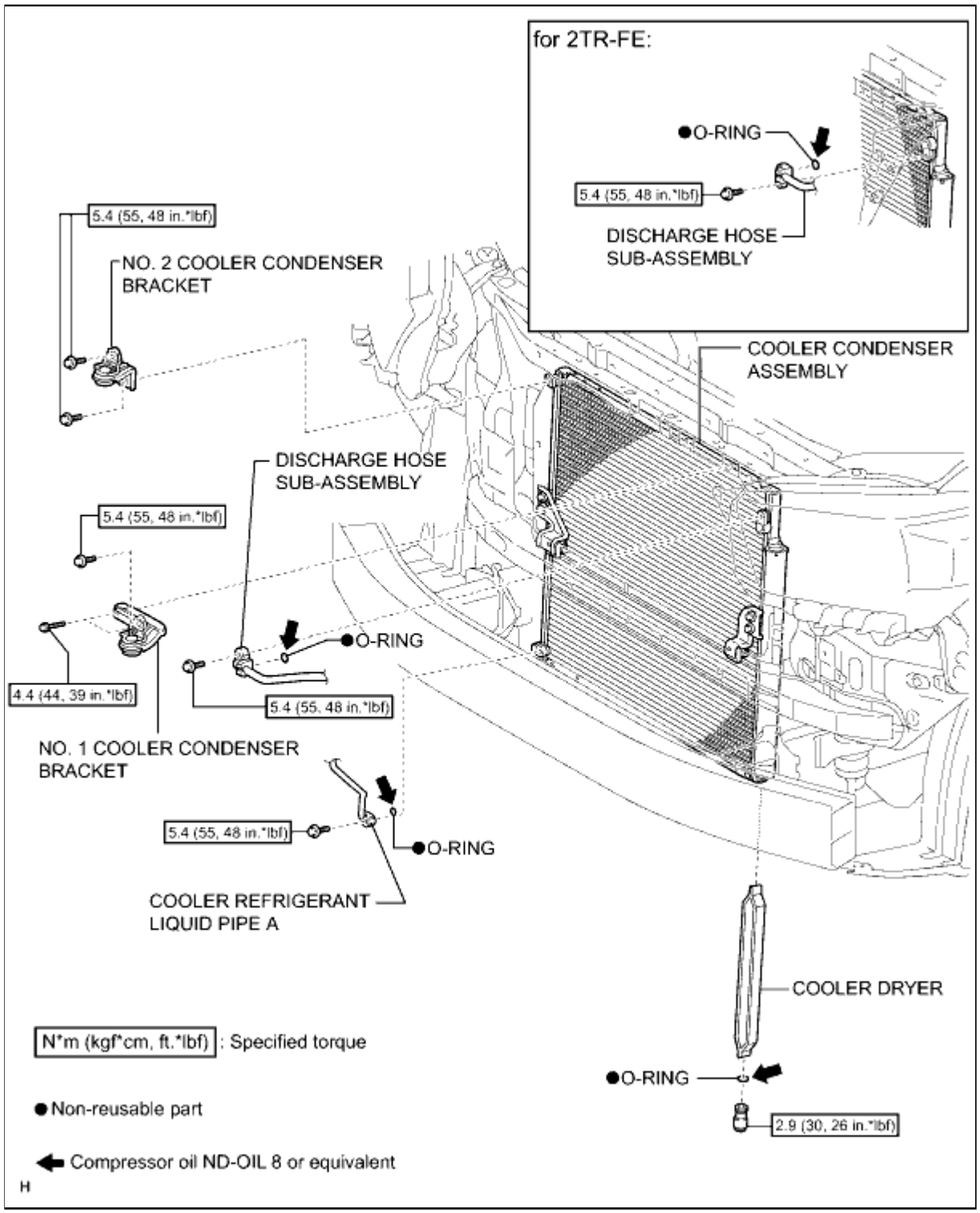
14. CHECK FOR REFRIGERANT LEAK INFO

15. INSTALL UPPER RADIATOR SUPPORT SEAL INFO

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000002VYA00IX
Title: HEATING / AIR CONDITIONING: CONDENSER: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001807019X
Title: HEATING / AIR CONDITIONING: CONDENSER: ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

1. INSPECT COOLER CONDENSER ASSEMBLY

(a) If the fins of the cooler condenser are dirty, clean them with water. Dry the fins with compressed air.

NOTICE:

Do not damage the fins of the condenser.

(b) If a fin of the cooler condenser is bent, straighten it using a screwdriver or pliers.

2. CHECK CONDENSER FOR LEAKAGE OF REFRIGERANT

(a) Using a halogen leak detector, check the pipe joints for gas leakage. If gas leakage from a joint is detected, check the torque of the joint.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000180601NX
Title: HEATING / AIR CONDITIONING: CONDENSER: REMOVAL (2010 4Runner)		

REMOVAL

1. DRAIN ENGINE COOLANT

(a) for 1GR-FE:

Drain engine coolant INFO .

(b) for 2TR-FE:

Drain engine coolant INFO .

2. REMOVE RADIATOR ASSEMBLY

(a) for 1GR-FE:

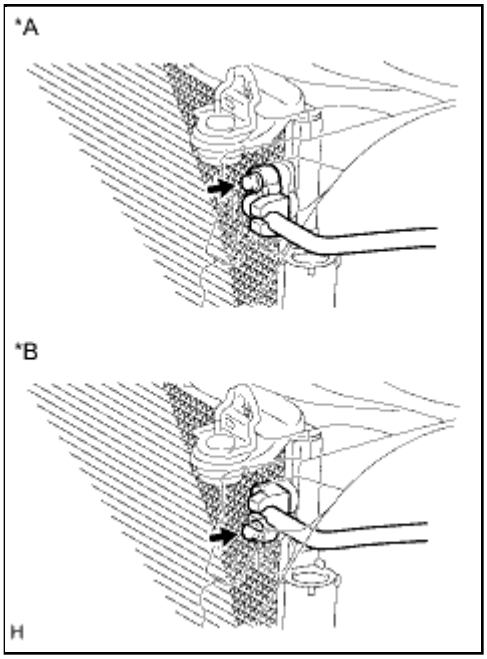
Remove the radiator assembly INFO .

(b) for 2TR-FE:

Remove the radiator assembly INFO .

3. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

4. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY



Text in Illustration

*A	for 1GR-FE
*B	for 2TR-FE

(a) Remove the bolt and disconnect the discharge hose from the cooler condenser.

NOTICE:

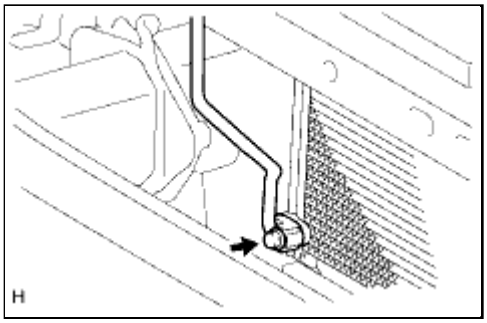
- When removing the bolt, do not allow any tools to contact the pipe.
- When removing the bolt, hold a part of the pipe near the connector.

(b) Remove the O-ring from the discharge hose.

NOTICE:

Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering them.

5. DISCONNECT COOLER REFRIGERANT LIQUID PIPE A



(a) Remove the 2 bolts and disconnect liquid pipe A from the cooler condenser.

NOTICE:

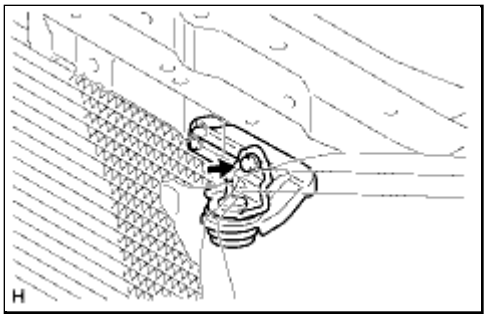
- When removing the bolts, do not allow any tools to contact the pipe.
- When removing the bolts, hold a part of the pipe near the connector.

(b) Remove the O-ring from liquid pipe A.

NOTICE:

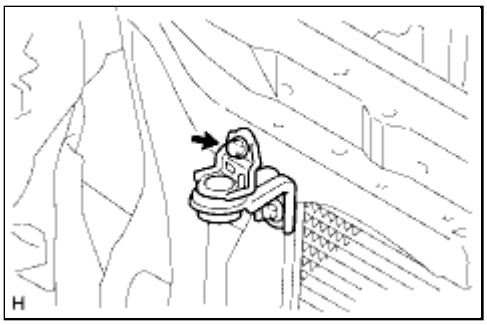
Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering them.

6. DISCONNECT NO. 1 COOLER CONDENSER BRACKET



(a) Remove the bolt and disconnect the No. 1 cooler condenser bracket.

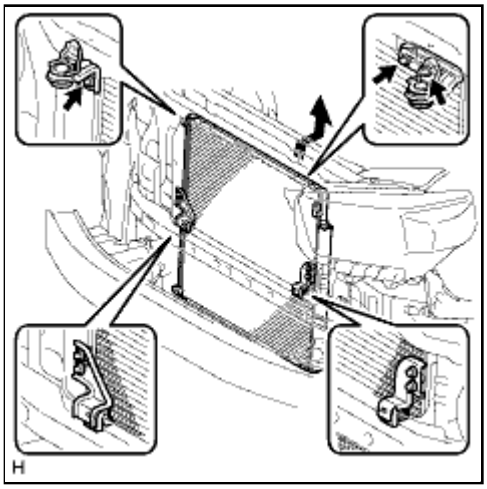
7. DISCONNECT NO. 2 COOLER CONDENSER BRACKET



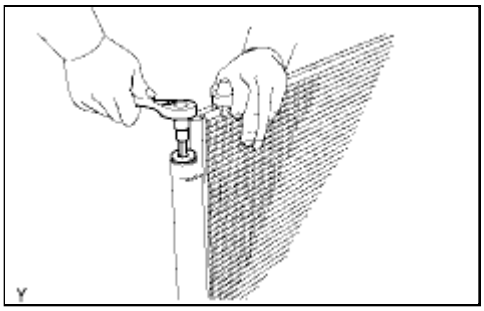
(a) Remove the bolt and disconnect the No. 2 cooler condenser bracket.

8. REMOVE COOLER CONDENSER ASSEMBLY

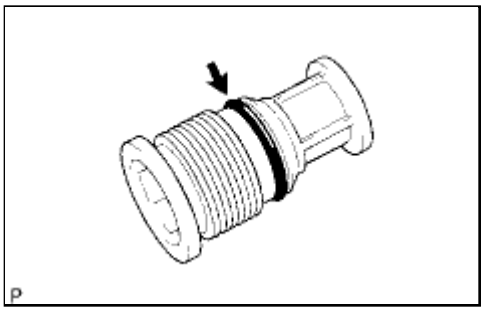
(a) Remove the 3 bolts and cooler condenser as shown in the illustration.



9. REMOVE COOLER DRYER

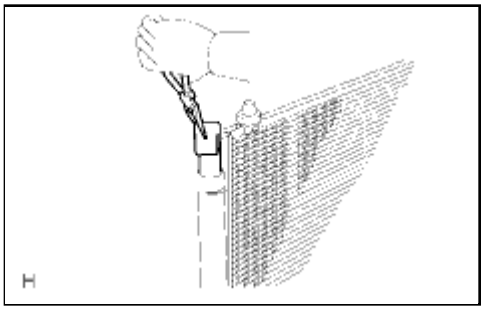


(a) Using a 14 mm socket hexagon wrench, remove the cap from the modulator.



(b) Remove the O-ring from the cap.

(c) Using pliers, remove the cooler dryer.

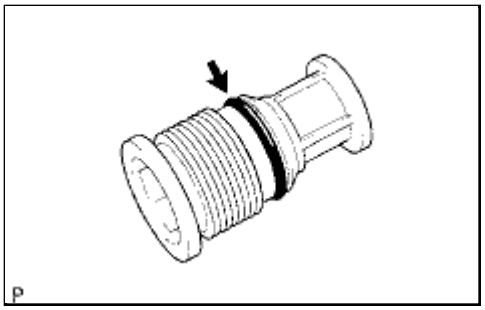


Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000180401QX
Title: HEATING / AIR CONDITIONING: CONDENSER: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL COOLER DRYER

(a) Using pliers, install the cooler dryer.



(b) Apply a sufficient amount of compressor oil to the contact surfaces of a new O-ring and the cap.

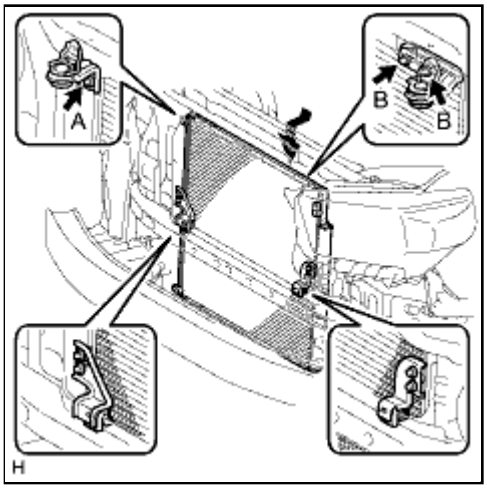
Compressor oil:
ND-OIL 8 or equivalent

(c) Install the O-ring to the cap.

(d) Using a 14 mm socket hexagon wrench, install the cap to the modulator.

Torque: 2.9 N·m (30 kgf·cm, 26in·lbf)

2. INSTALL COOLER CONDENSER ASSEMBLY



(a) Install the cooler condenser with the 3 bolts as shown in the illustration.

for bolt A - Torque: 5.4 N·m (55 kgf·cm, 48in·lbf)
for bolt B - Torque: 4.4 N·m (44 kgf·cm, 39in·lbf)

3. CONNECT NO. 1 COOLER CONDENSER BRACKET

(a) Connect the No. 1 cooler condenser bracket with the bolt.

4. CONNECT NO. 2 COOLER CONDENSER BRACKET

(a) Connect the No. 2 cooler condenser bracket with the bolt.

5. 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 liquid pipe A joint.

Compressor oil:
ND-OIL 8 or equivalent

(c) Install the O-ring to liquid pipe A.

(d) Connect liquid pipe A to the cooler condenser with the bolt.

Torque: 5.4 N·m (55 kgf·cm, 48in·lbf)

NOTICE:

- When tightening the bolts, do not allow any tools to contact the pipe.
- When tightening the bolts, hold a part of the pipe near the connector.

6. 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 discharge hose joint.

Compressor oil:
ND-OIL 8 or equivalent

(c) Install the O-ring to the discharge hose.

(d) Connect the discharge hose to the cooler condenser with the bolt.

Torque: 5.4 N·m (55 kgf·cm, 48in·lbf)

NOTICE:

- When tightening the bolt, do not allow any tools to contact the pipe.
- When tightening the bolt, hold a part of the pipe near the connector.

7. CHARGE REFRIGERANT INFO

8. INSTALL RADIATOR ASSEMBLY

(a) for 1GR-FE:

Install the radiator assembly INFO.

(b) for 2TR-FE:

Install the radiator assembly INFO.

9. ADD ENGINE COOLANT

(a) for 1GR-FE:

Add the engine coolant INFO.

(b) for 2TR-FE:

Add the engine coolant INFO.

10. WARM UP ENGINE INFO

11. CHECK FOR ENGINE COOLANT LEAK

(a) for 1GR-FE:

Check for engine coolant leak INFO.

(b) for 2TR-FE:

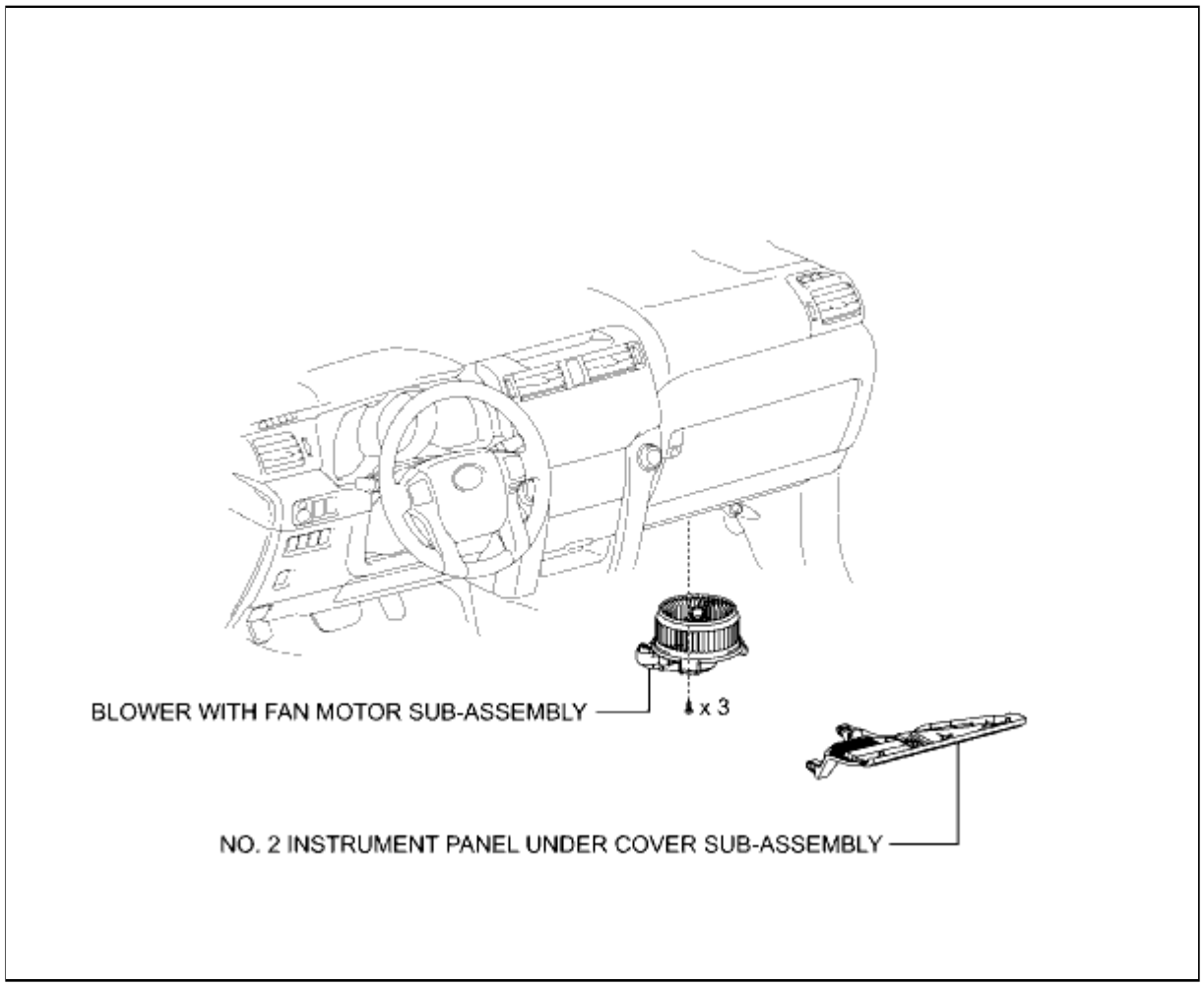
Check for engine coolant leak INFO .

12. CHECK FOR REFRIGERANT GAS LEAK INFO

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000039PY008X
Title: HEATING / AIR CONDITIONING: FRONT BLOWER MOTOR: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000002PKP00JX
Title: HEATING / AIR CONDITIONING: FRONT BLOWER MOTOR: REMOVAL (2010 4Runner)		

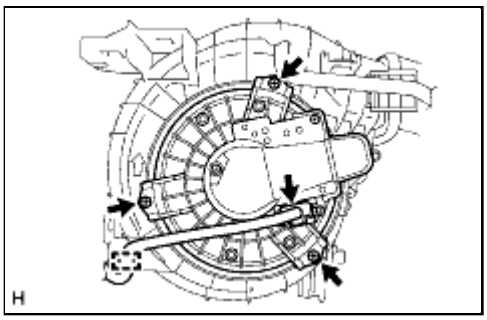
REMOVAL

1. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

2. REMOVE BLOWER WITH FAN MOTOR SUB-ASSEMBLY

(a) Detach the clamp.

(b) Disconnect the connector.



(c) Remove the 3 screws and motor.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000002PKN00JX
Title: HEATING / AIR CONDITIONING: FRONT BLOWER MOTOR: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL BLOWER WITH FAN MOTOR SUB-ASSEMBLY

(a) Install the motor with the 3 screws.

(b) Connect the connector.

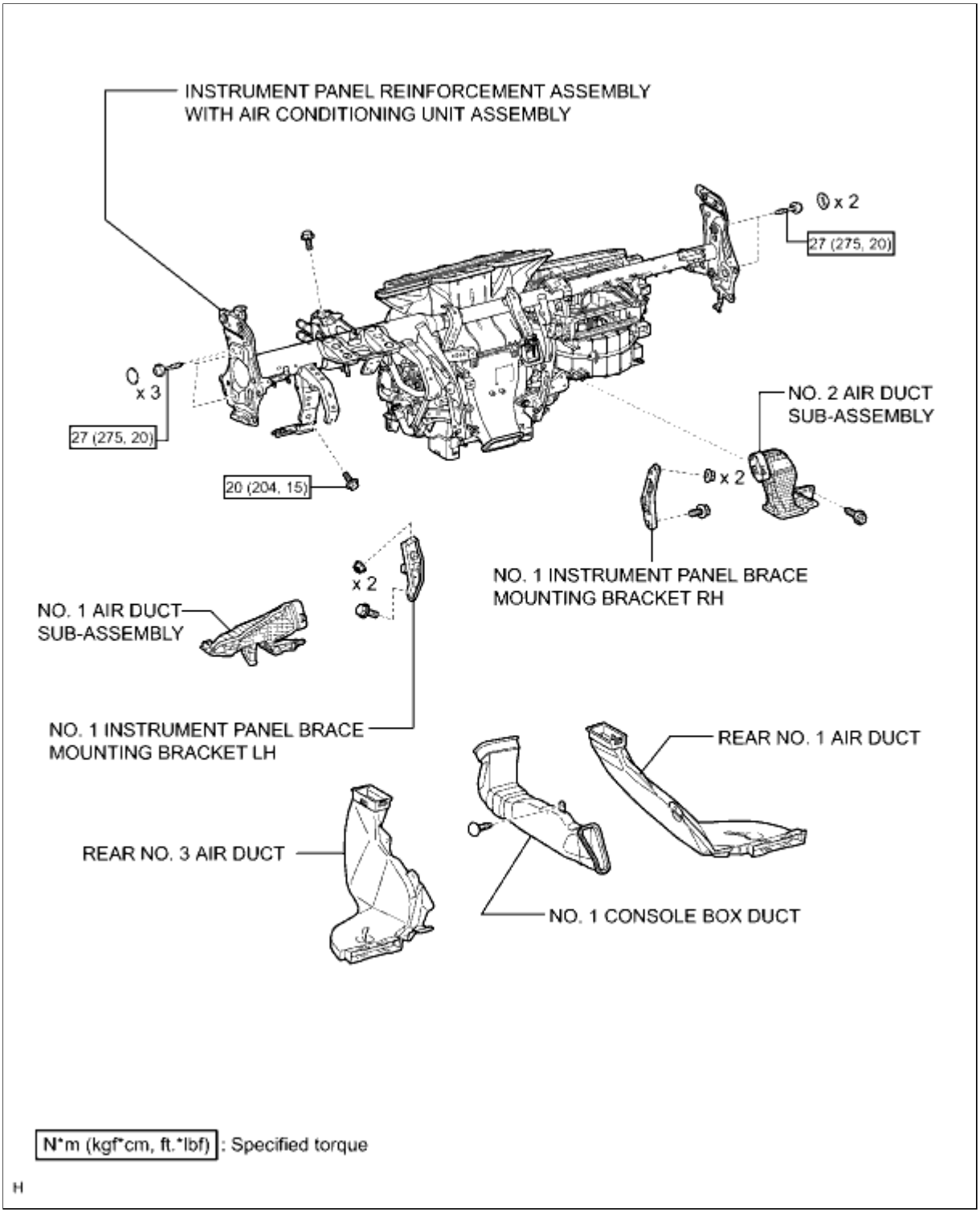
(c) Attach the clamp.

2. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

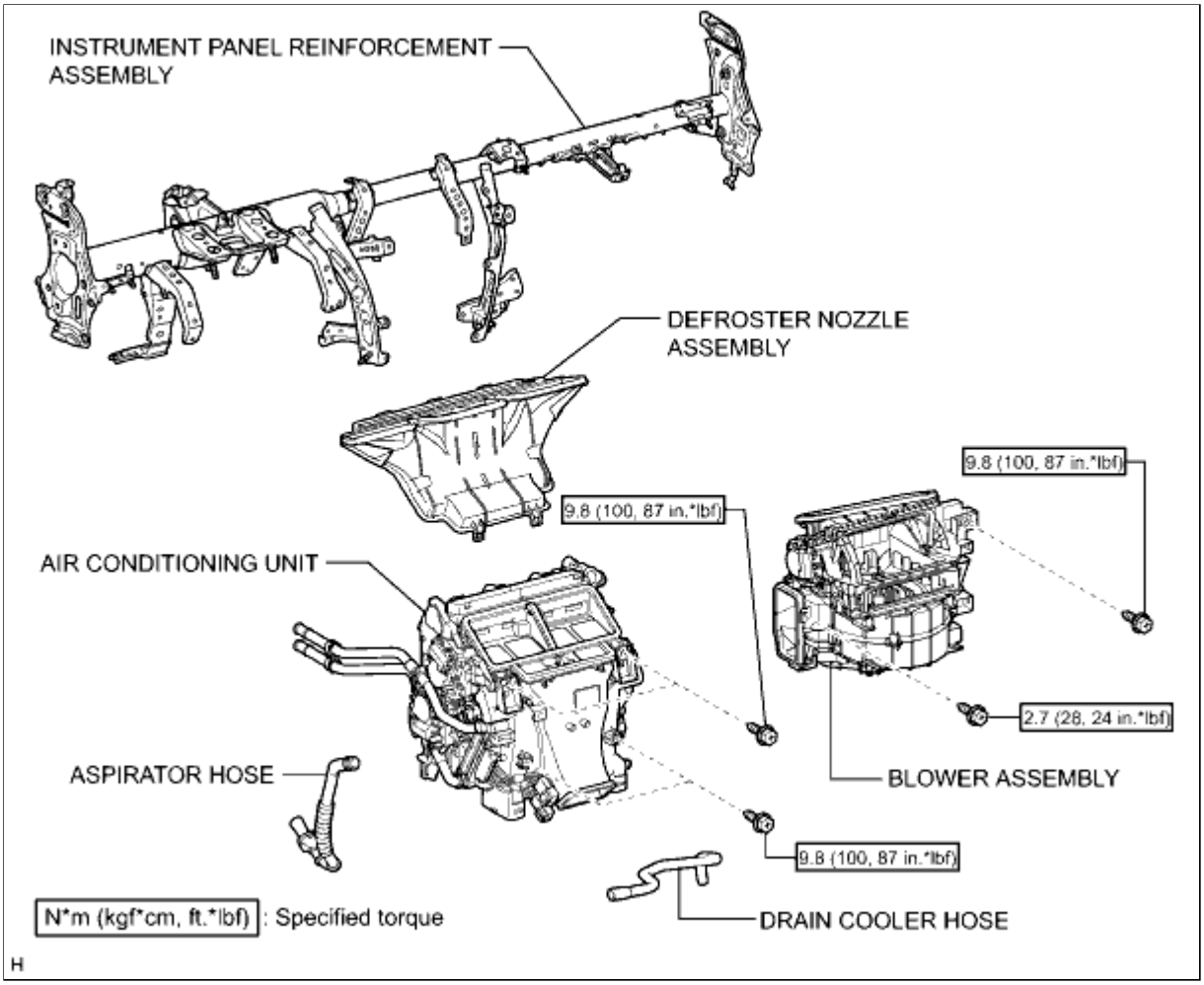
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003AQT006X
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: COMPONENTS (2010 4Runner)		

COMPONENTS

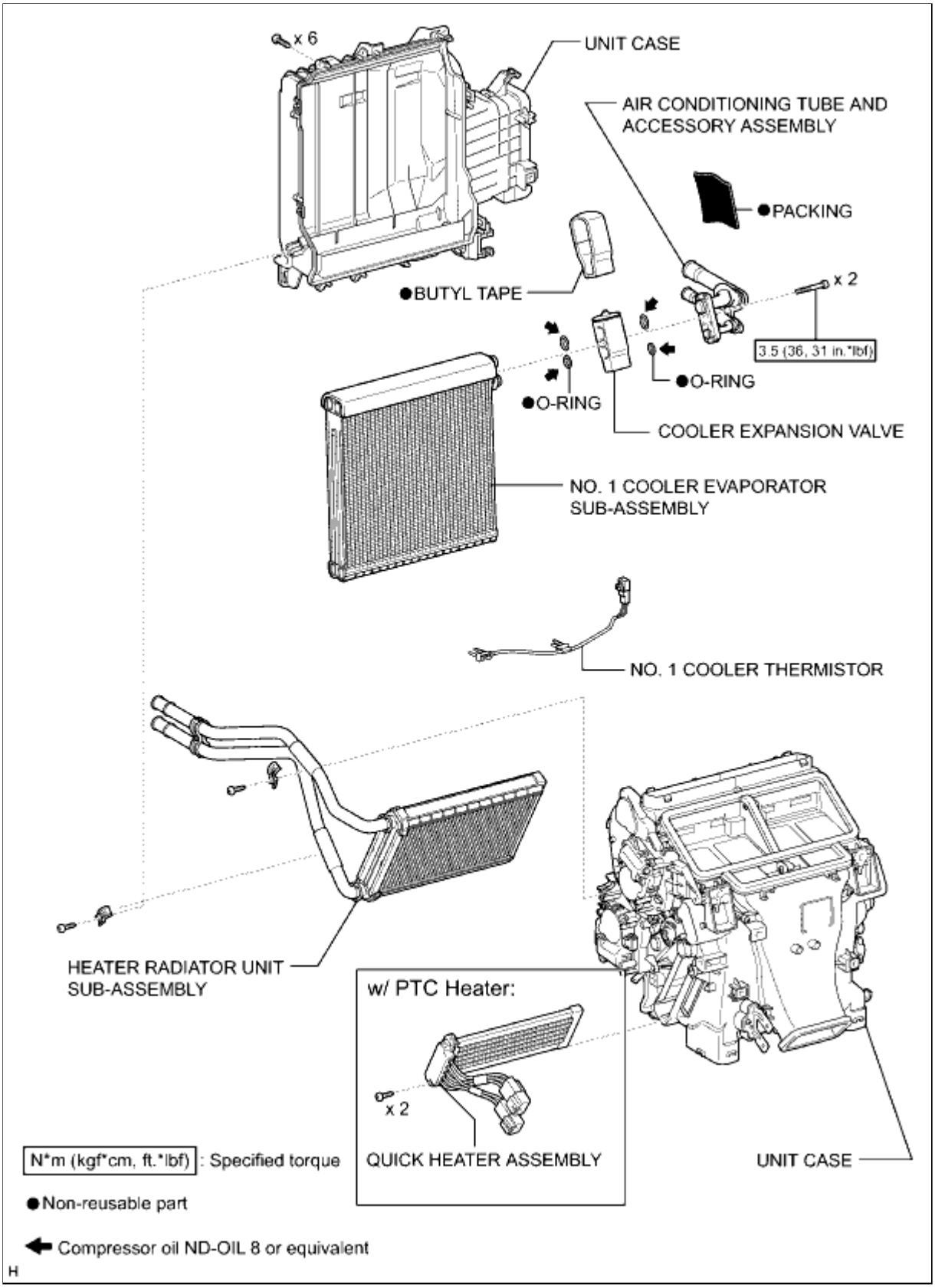
ILLUSTRATION



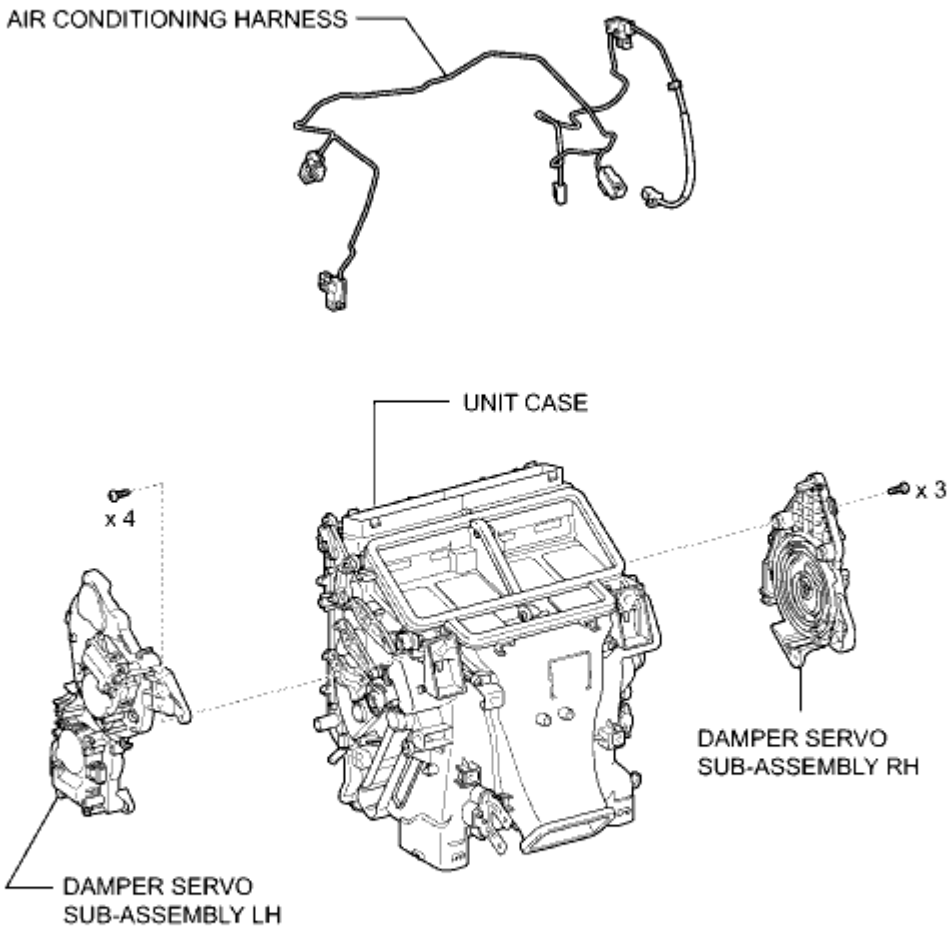
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION

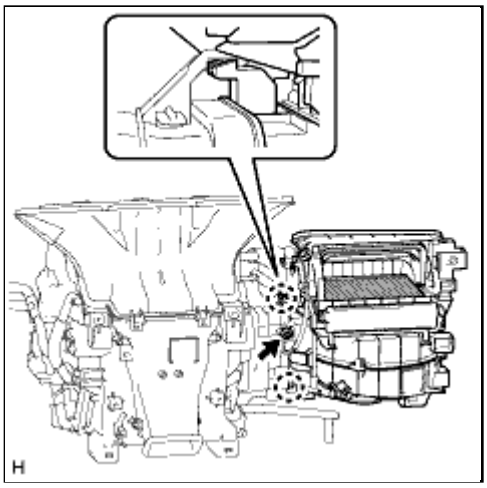


H

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003AXS011X
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: DISASSEMBLY (2010 4Runner)		

DISASSEMBLY

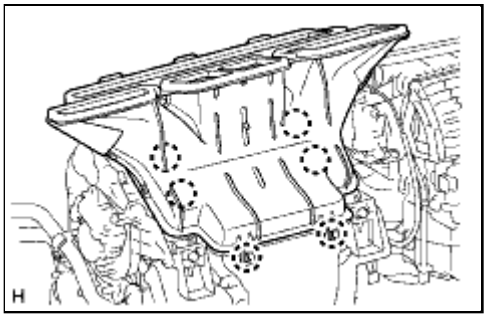
1. REMOVE BLOWER ASSEMBLY



(a) Remove the screw.

(b) Detach the 2 claws and remove the blower unit assembly.

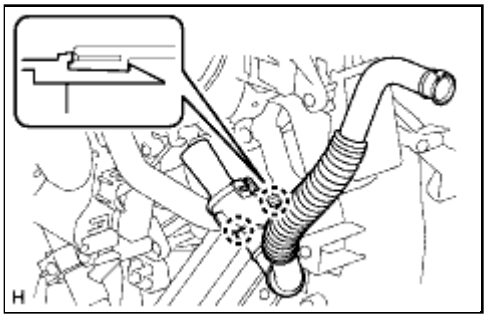
2. REMOVE DEFROSTER NOZZLE ASSEMBLY



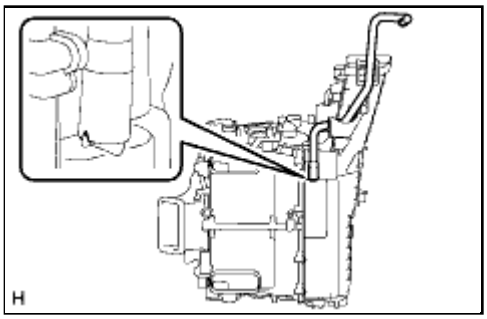
(a) Detach the 6 claws and remove the defroster nozzle assembly.

3. REMOVE ASPIRATOR HOSE

(a) Detach the 2 claws and remove the aspirator hose.

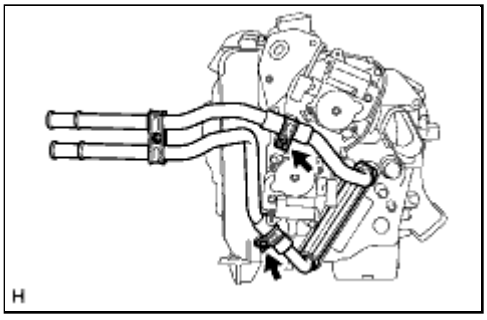


4. REMOVE DRAIN COOLER HOSE



(a) Remove the drain cooler hose.

5. REMOVE QUICK HEATER ASSEMBLY (w/ PTC Heater) INFO

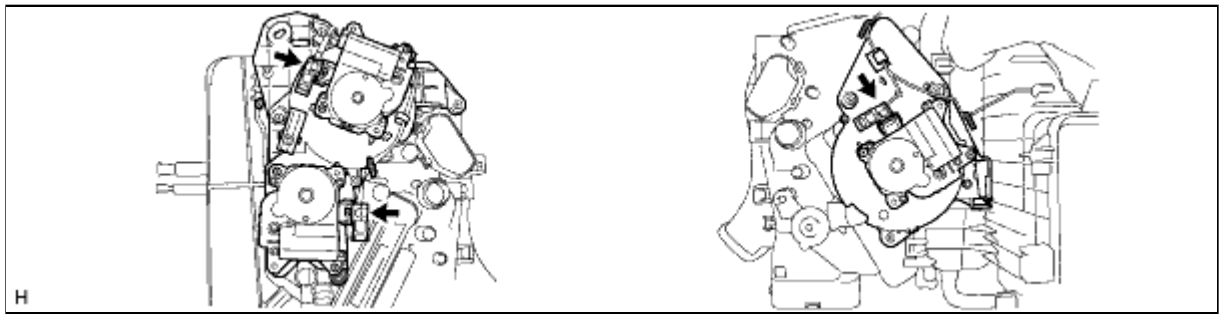


6. REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY

(a) Remove the 2 screws and 2 radiator brackets.

(b) Remove the radiator.

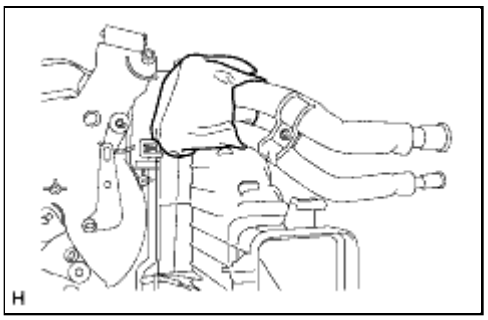
7. REMOVE AIR CONDITIONING HARNESS



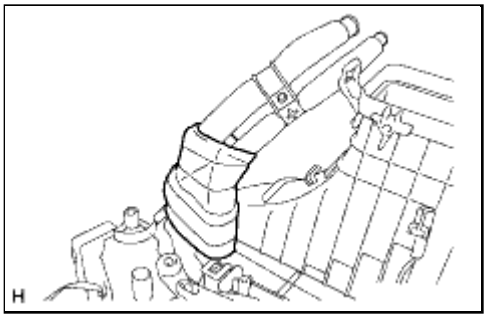
(a) Disconnect the connectors.

(b) Detach the clamps and remove the harness.

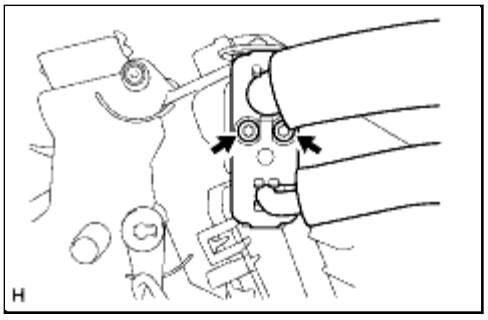
8. REMOVE AIR CONDITIONING TUBE AND ACCESSORY ASSEMBLY



(a) Remove the packing.



(b) Remove the butyl tape.

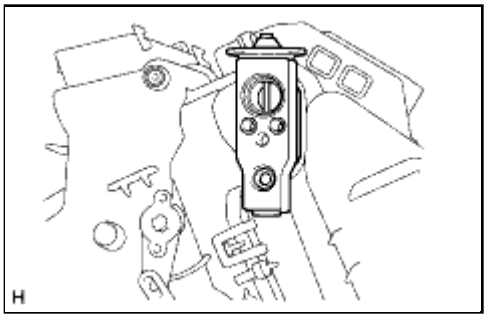


(c) Using a 4 mm hexagon wrench, remove the 2 hexagon bolts and the, air conditioning tube and accessory assembly.

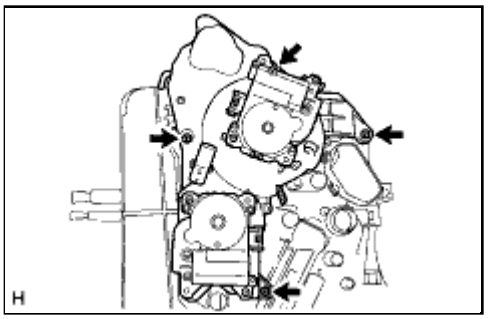
(d) Remove the 2 O-rings from the air conditioning tube and accessory assembly.

9. REMOVE COOLER EXPANSION VALVE

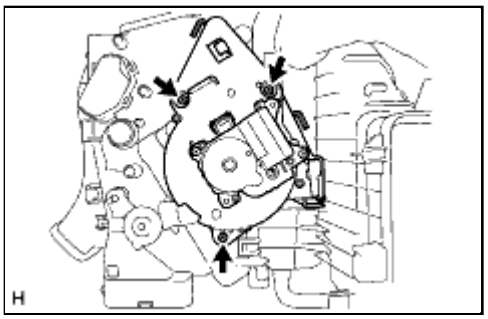
(a) Remove the expansion valve.



10. REMOVE DAMPER SERVO SUB-ASSEMBLY LH



(a) Remove the 4 screws and damper servo sub-assembly.

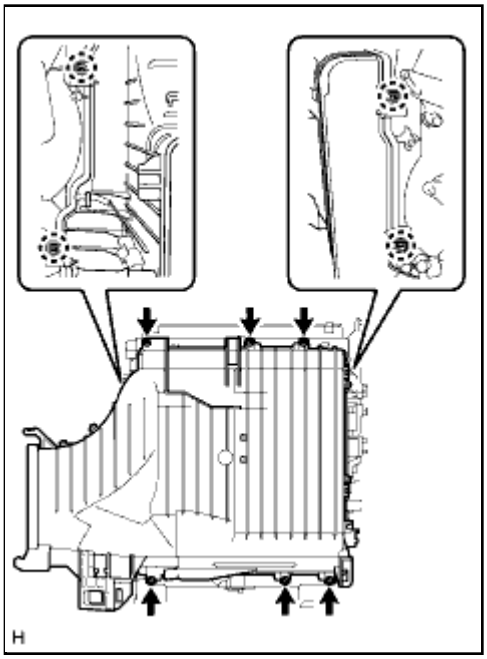


11. REMOVE DAMPER SERVO SUB-ASSEMBLY RH

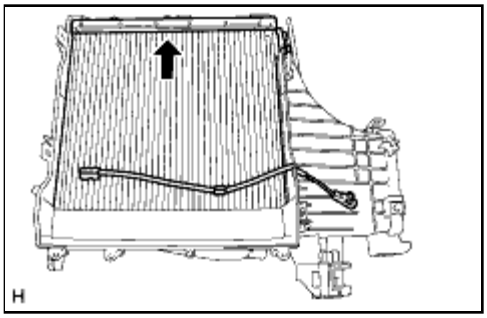
(a) Remove the 3 screws and damper servo sub-assembly.

12. REMOVE NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY

(a) Remove the 6 screws.



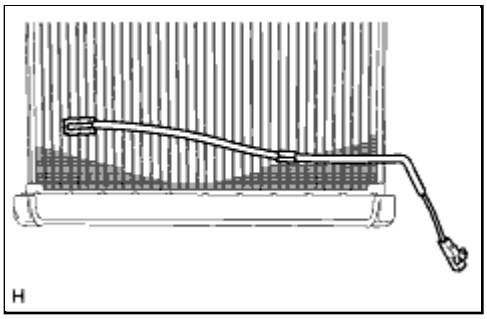
(b) Detach the 4 claws and remove the unit case.



(c) Remove the evaporator.

(d) Remove the 2 O-rings from the evaporator.

13. REMOVE NO. 1 COOLER THERMISTOR



(a) Remove the sensor.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000017ZR023X
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE AIR CONDITIONING UNIT

(a) Remove the air conditioning unit INFO .

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003AXT011X
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: REASSEMBLY (2010 4Runner)		

REASSEMBLY

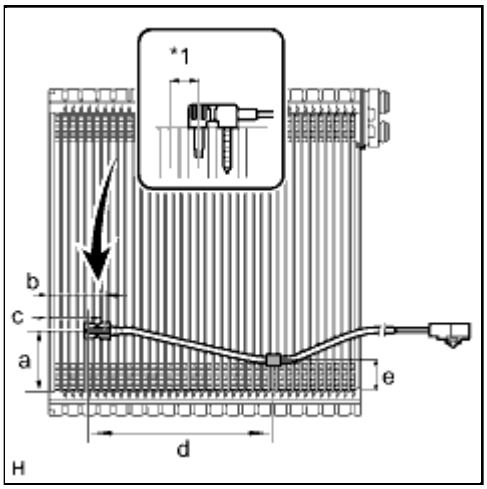
1. INSTALL NO. 1 COOLER THERMISTOR

NOTICE:

If reusing the evaporator, do not insert the sensor into a location where the sensor was previously inserted.

(a) Insert the sensor to a location that is 1 fin to the right or left of its previous location.

Standard:



ITEM	SPECIFIED CONDITION
a	50 mm (1.97 in.)
b	46.7 mm (1.84 in.)
c	33.3 mm (1.31 in.)
d	154.1 mm (6.07 in.)
e	25 mm (0.98 in.)

Text in Illustration

*1	1 Fin

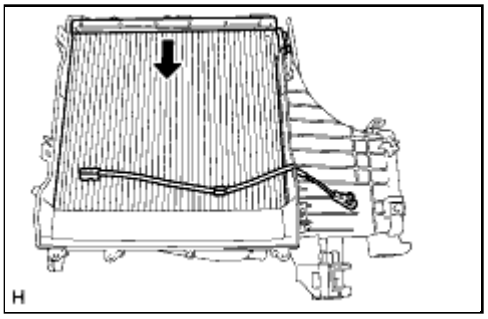
2. INSTALL NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY

(a) Sufficiently apply compressor oil to 2 new O-rings and the fitting surface of the hose joint.

Compressor oil:
ND-OIL 8 or equivalent

(b) Install the 2 O-rings to the evaporator.

(c) Install the evaporator.

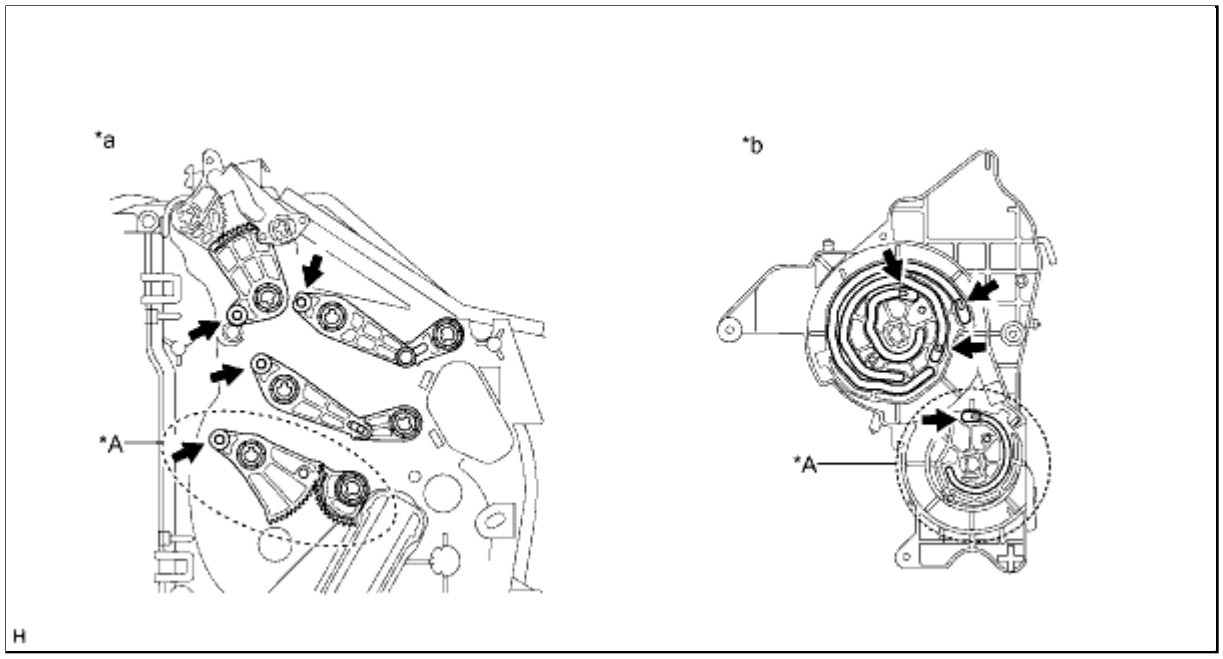


(d) Attach the 4 claws to install the unit case.

(e) Install the 6 screws.

3. INSTALL DAMPER SERVO SUB-ASSEMBLY LH

(a) Align the grooves on the damper servo sub-assembly with the protrusions on the unit and install the damper servo sub-assembly.



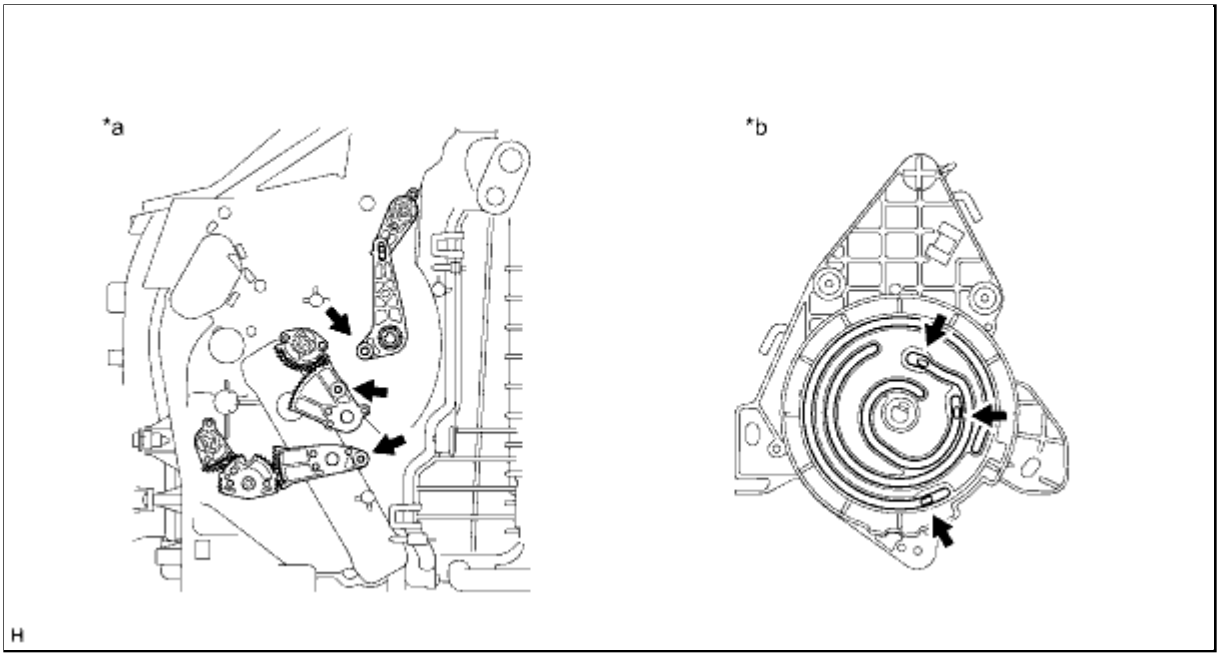
Text in Illustration

*A	for Automatic Air Conditioning System	-	-
*a	Air Conditioning Unit Side	*b	Damper Servo Side

(b) Install the 4 screws.

4. INSTALL DAMPER SERVO SUB-ASSEMBLY RH

(a) Align the grooves on the damper servo sub-assembly with the protrusions on the unit and install the damper servo sub-assembly.



Text in Illustration

*a	Air Conditioning Unit Side	*b	Damper Servo Side

(b) Install the 3 screws.

5. INSTALL COOLER EXPANSION VALVE

(a) Install the expansion valve.

6. INSTALL AIR CONDITIONING TUBE AND ACCESSORY ASSEMBLY

(a) Sufficiently apply compressor oil to 2 new O-rings and the fitting surface of the hose joint.

Compressor oil:
ND-OIL 8 or equivalent

(b) Install the 2 O-rings to the air conditioning tube and accessory assembly.

(c) Install the air conditioning tube and accessory assembly.

(d) Using a 4 mm hexagon wrench, install the 2 hexagon bolts.

Torque: 3.5 N·m (36 kgf·cm, 31in·lbf)

(e) Install new butyl tape.

(f) Install new packing.

7. INSTALL AIR CONDITIONING HARNESS

(a) Attach the clamps to install the harness.

(b) Connect the connectors.

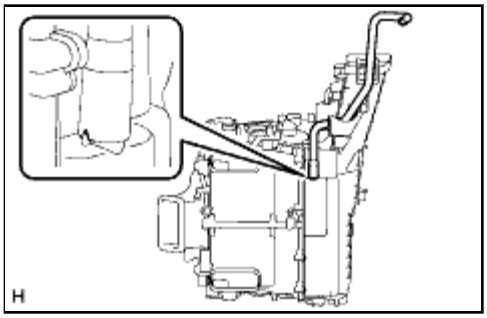
8. INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY

(a) Install the radiator.

(b) Install the bracket with the 2 screws.

9. INSTALL QUICK HEATER ASSEMBLY (w/ PTC Heater) INFO

10. INSTALL DRAIN COOLER HOSE



(a) Install the drain cooler hose as shown in the illustration.

11. INSTALL ASPIRATOR HOSE

(a) Attach the 2 claws to install the aspirator hose.

12. INSTALL DEFROSTER NOZZLE ASSEMBLY

(a) Attach the 6 claws to install the defroster nozzle assembly.

13. INSTALL BLOWER ASSEMBLY

(a) Attach the 2 claws to install the blower assembly.

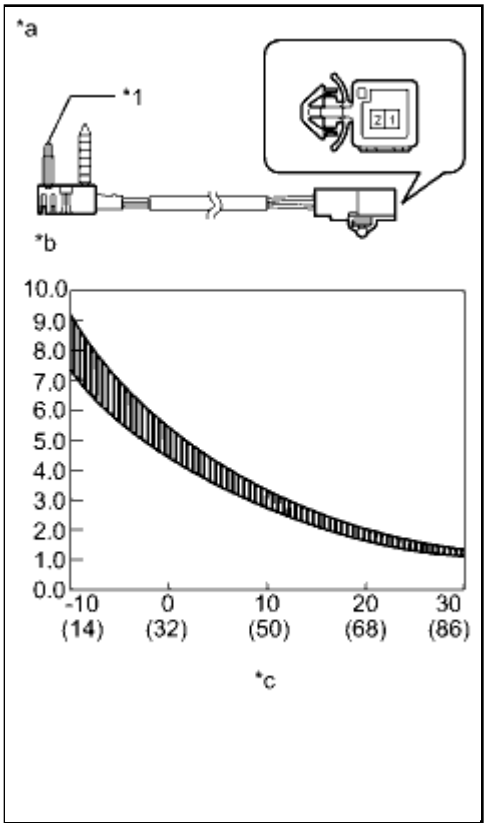
(b) Install the screw.

Torque: 2.7 N·m (28 kgf·cm, 24in·lbf)

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001HA6016X
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT NO. 1 COOLER THERMISTOR



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	-10°C (14°F)	7.30 to 9.10 kΩ
1 - 2	-5°C (23°F)	5.65 to 6.95 kΩ
1 - 2	0°C (32°F)	4.40 to 5.35 kΩ
1 - 2	5°C (41°F)	3.40 to 4.15 kΩ
1 - 2	10°C (50°F)	2.70 to 3.25 kΩ
1 - 2	15°C (59°F)	2.14 to 2.58 kΩ
1 - 2	20°C (68°F)	1.71 to 2.05 kΩ
1 - 2	25°C (77°F)	1.38 to 1.64 kΩ
1 - 2	30°C (86°F)	1.11 to 1.32 kΩ

HINT:

As the temperature increases, the resistance decreases (refer to the graph).

NOTICE:

- Even slightly touching the sensor may change the resistance value. Be sure to hold the connector of the sensor.
- When measuring the resistance, make sure the sensor temperature is almost the same as the ambient temperature.

If the result is not as specified, replace the No. 1 cooler thermistor.

Text in Illustration

*1	Sensor
*a	Component without harness connected (No. 1 Cooler Thermistor)
*b	Resistance (kΩ)
*c	Temperature (°C(°F))

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000017ZP023X
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: INSTALLATION (2010 4Runner)		

INSTALLATION

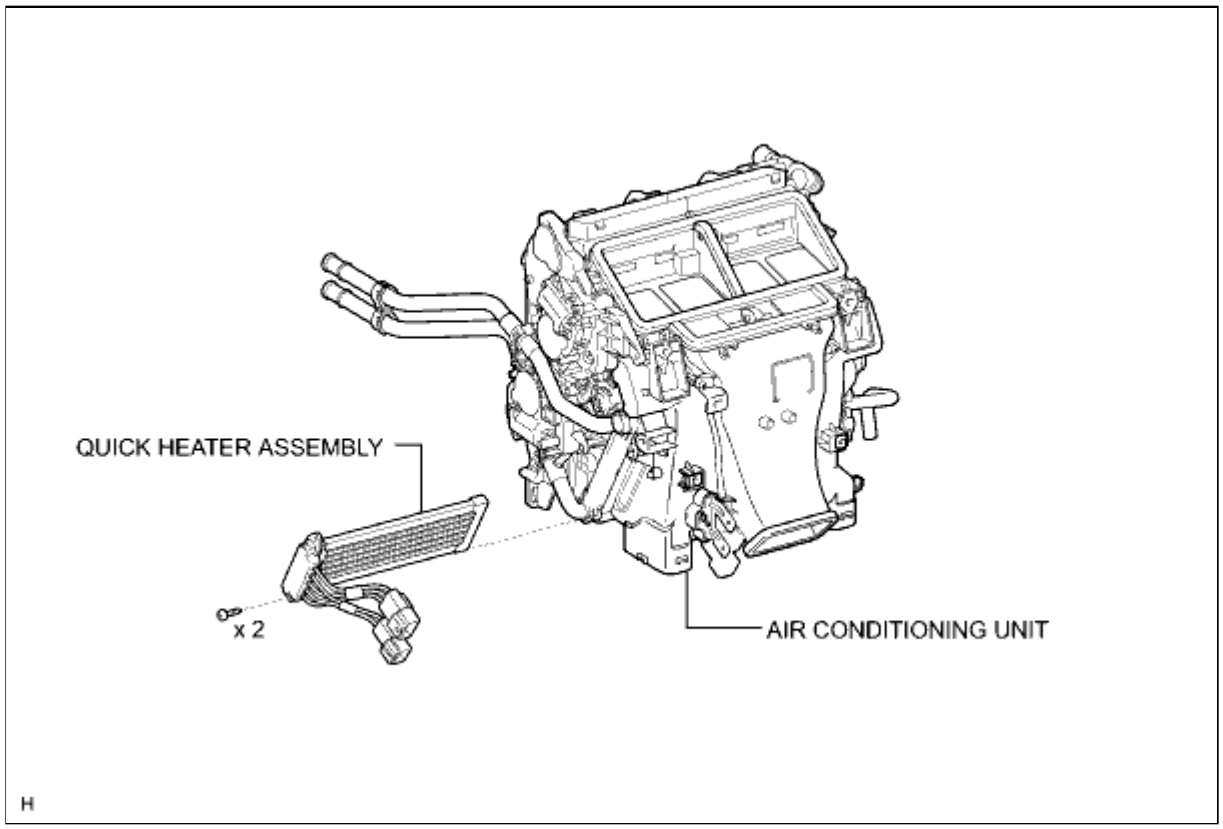
1. INSTALL AIR CONDITIONING UNIT

(a) Install the air conditioning unit INFO .

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001R9O00JX
Title: HEATING / AIR CONDITIONING: PTC HEATER ASSEMBLY: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



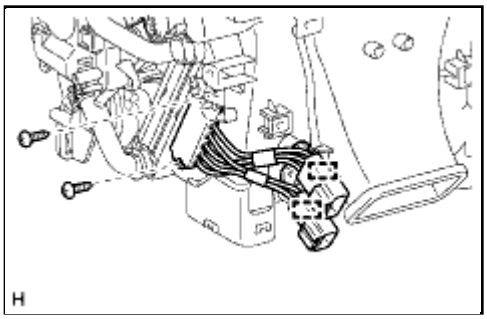
Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000022AH00OX
Title: HEATING / AIR CONDITIONING: PTC HEATER ASSEMBLY: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE AIR CONDITIONING UNIT

(a) Remove the air conditioning unit INFO .

2. REMOVE QUICK HEATER ASSEMBLY



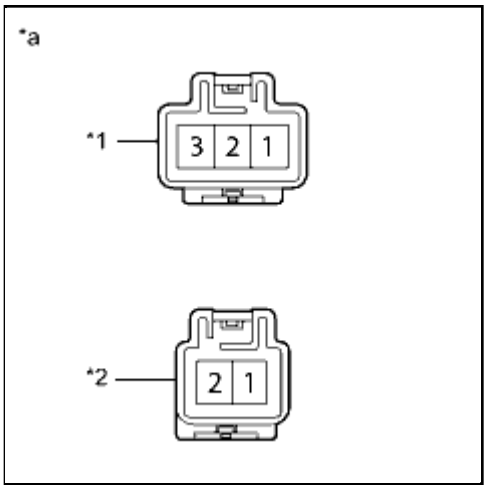
(a) Detach the 2 clamps.

(b) Remove the 2 screws and quick heater.

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000022AG00OX
Title: HEATING / AIR CONDITIONING: PTC HEATER ASSEMBLY: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT QUICK HEATER ASSEMBLY



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A-1 - B-1	23 to 25°C (73 to 77°F)	0.5 to 2.5 Ω
A-2 - B-1	23 to 25°C (73 to 77°F)	0.5 to 2.5 Ω
A-2 - B-2	23 to 25°C (73 to 77°F)	0.5 to 2.5 Ω
A-3 - B-2	23 to 25°C (73 to 77°F)	0.5 to 2.5 Ω

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

Text in Illustration

*1	Connector A
*2	Connector B
*a	Component without harness connected (Quick Heater Assembly)

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000022AF00QX
Title: HEATING / AIR CONDITIONING: PTC HEATER ASSEMBLY: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL QUICK HEATER ASSEMBLY

(a) Attach the 2 clamps to install the quick heater.

(b) Install the 2 screws.

2. INSTALL AIR CONDITIONING UNIT

(a) Install the air conditioning unit INFO .

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001R8Z01GX
Title: HEATING / AIR CONDITIONING: REFRIGERANT: ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

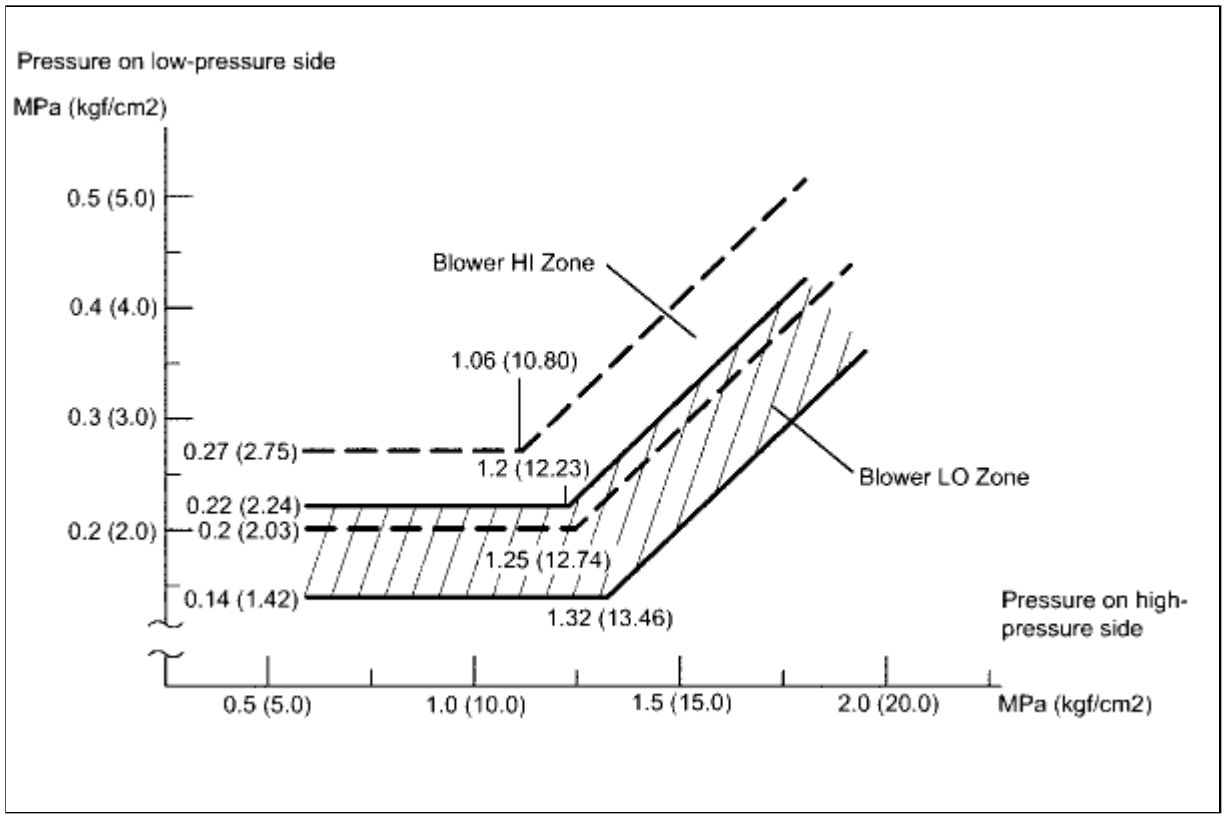
1. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

(a) This method uses a manifold gauge set to locate problem areas. Read the manifold gauge pressure when these conditions are established.

Test conditions:

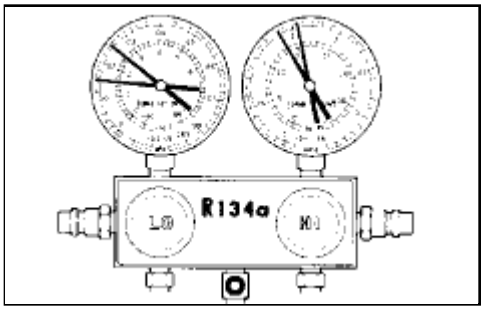
- Temperature the air inlet is 30 to 35°C (86 to 95°F).
- Engine is running 1500 rpm.
- All doors are fully open.
- Blower speed control switch is set to HI.
- Air inlet control set to RECIRC.
- A/C switch is on.

Gauge readings (Reference)



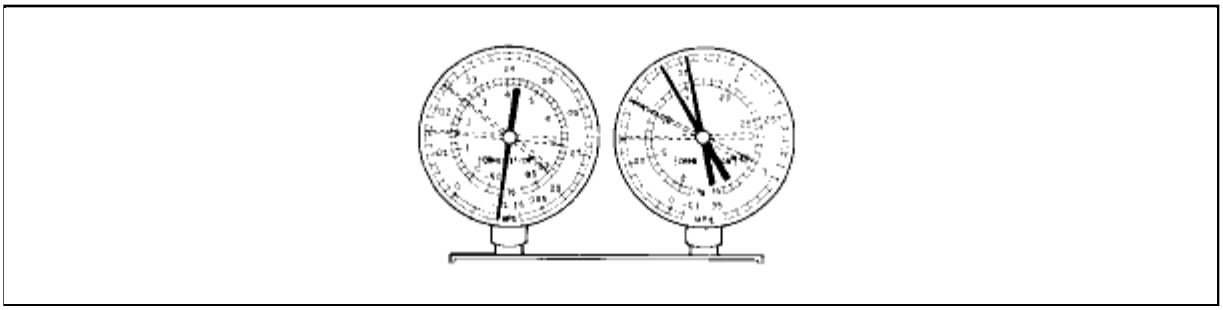
(1) Normally functioning refrigeration system.

Gauge Reading:



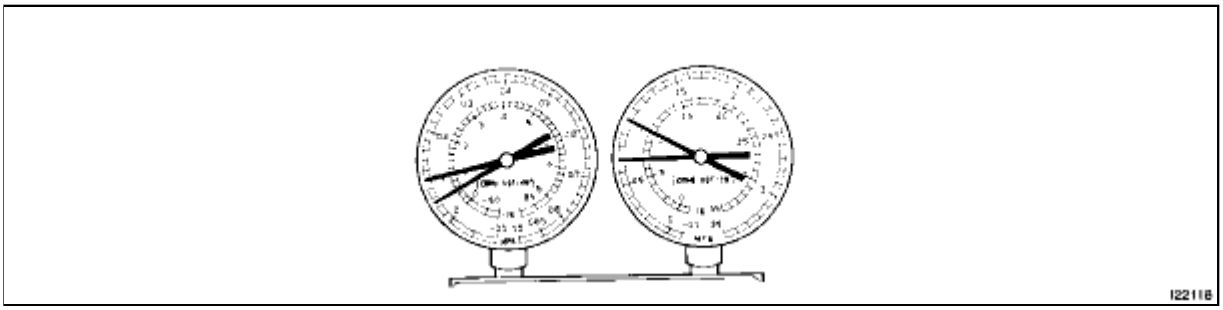
PRESSURE SIDE	REFRIGERANT VOLUME
Low	0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm^2)
High	1.37 to 1.57 MPa (14 to 16 kgf/cm^2)

(2) The A/C system periodically changes between normal and improper function due to moisture in the refrigerant system.



SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
During operation, pressure on low pressure side cycles between normal and vacuum	Moisture in refrigeration system freezes expansion valve orifice, causing temporary stop of cycle. However, when melted, normal state is restored.	- Dryer is overly saturated - Moisture in refrigeration system freezes expansion valve orifice and blocks refrigerant circulation	1. Replace cooler dryer 2. Remove moisture from cycle by repeatedly evacuating air 3. Supply appropriate volume of new refrigerant

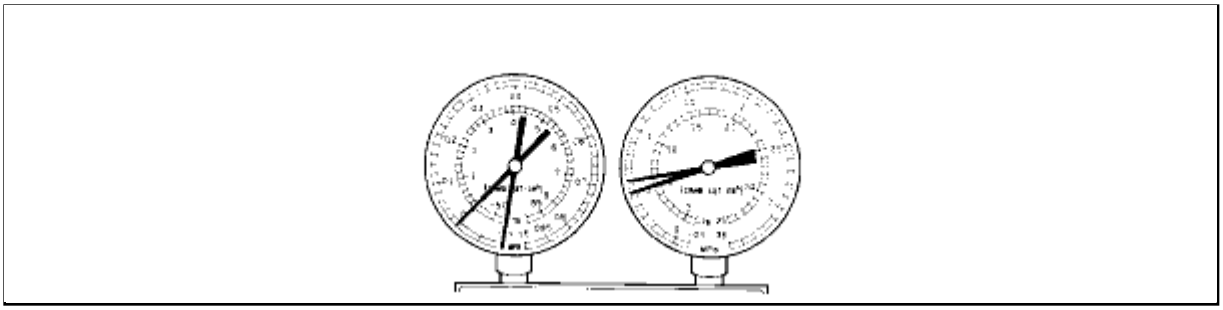
(3) The A/C system does not function effectively due to insufficient refrigerant.



SYMPTOMS	PROBABLE	DIAGNOSIS	CORRECTIVE ACTIONS

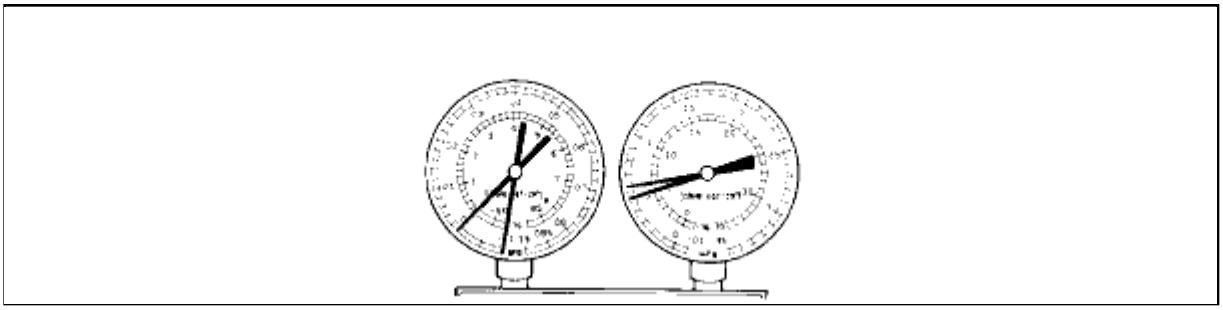
	CAUSE		
- Pressure low on both low and high pressure sides - Cooling performance insufficient	Gas leakage from refrigeration system	- Insufficient refrigerant - Refrigerant leakage	1. Check for gas leakage and repair if necessary 2. Supply appropriate volume of new refrigerant 3. If indicated pressure value close to 0 when connected to gauge, create vacuum after inspecting and repairing location of leakage

(4) The A/C system does not function effectively due to poor circulation of the refrigerant.



SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
- 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

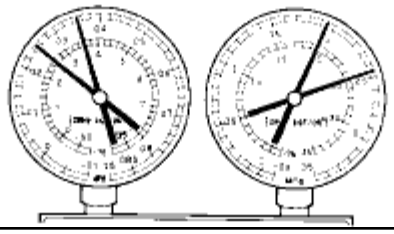
(5) The A/C system does not function or functions intermittently because the refrigerant does not circulate.



SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
- Vacuum indicated on low pressure side and extremely	- Refrigerant flow obstructed by moisture	Refrigerant does not circulate	1. Check expansion valve refrigerant

SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
low pressure indicated on high pressure side - Frost or condensation seen on piping on both sides of condenser or expansion valve	or dirt in refrigeration system - Refrigerant flow obstructed by gas leakage from expansion valve		2. Clean expansion valve by blowing air 3. Replace condenser 4. Evacuate air and charge appropriate volume of new refrigerant 5. For gas leakage from expansion valve, replace expansion valve

(6) The A/C system does not function effectively due to overcharged refrigerant or insufficient cooling of the condenser.

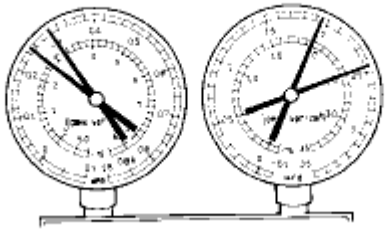


SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
Pressure extremely high on both low and high-pressure sides	- Excessive refrigerant - Cooling performance of condenser insufficient	- Condenser is dirty - Condenser fan motor is malfunctioning - Excessive refrigerant	1. Clean condenser 2. Check condenser fan motor operation 3. If 1 and 2 are normal, check amount of refrigerant and supply appropriate volume of refrigerant

(7) The A/C system does not function due to air in the refrigeration system.

CAUTION:

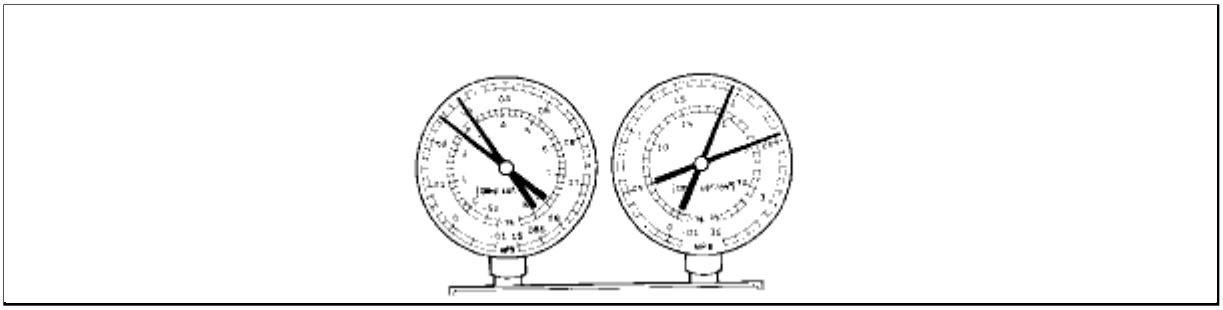
The low-pressure piping may be very hot and cause serious burns.



HINT: These gauge indications occur when the refrigeration system opens and the refrigerant is charged without vacuum purging

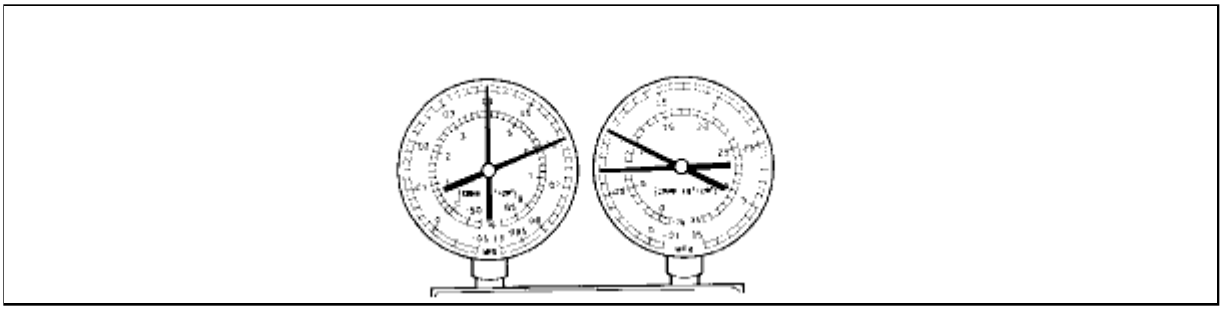
SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
- Pressure extremely high on both low and high-pressure sides - Low-pressure piping is too hot to touch	Air in refrigeration system	- Air in refrigeration system - Vacuum purging insufficient	1. Check if compressor oil is dirty or insufficient 2. Evacuate air and charge new refrigerant

(8) The A/C system does not function effectively due to an expansion valve malfunction.



SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
- Pressure extremely high on both low and high-pressure sides - Frost or condensation on piping on low-pressure side	Problem with expansion valve	- Excessive refrigerant in low pressure piping - Expansion valve open too wide	Replace expansion valve

(9) The A/C system does not function due to a defective compressor.



SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
- Pressure extremely high on both low and high-pressure sides - Pressure extremely low on high pressure side	Internal leakage in compressor	- Compression failure - Leakage from damaged valve or sliding parts broken	Repair or replace compressor

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001R8Y01HX
Title: HEATING / AIR CONDITIONING: REFRIGERANT: REPLACEMENT (2010 4Runner)		

REPLACEMENT

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

(a) Start the engine.

(b) Turn the A/C switch on.

(c) Operate the cooler compressor while the engine speed is approximately 1000 rpm for 5 to 6 minutes to circulate the refrigerant and collect the compressor oil remaining in each component into the cooler compressor.

(d) Stop the engine.

(e) Recover the refrigerant from the A/C system using a refrigerant recovery unit.

2. CHARGE REFRIGERANT

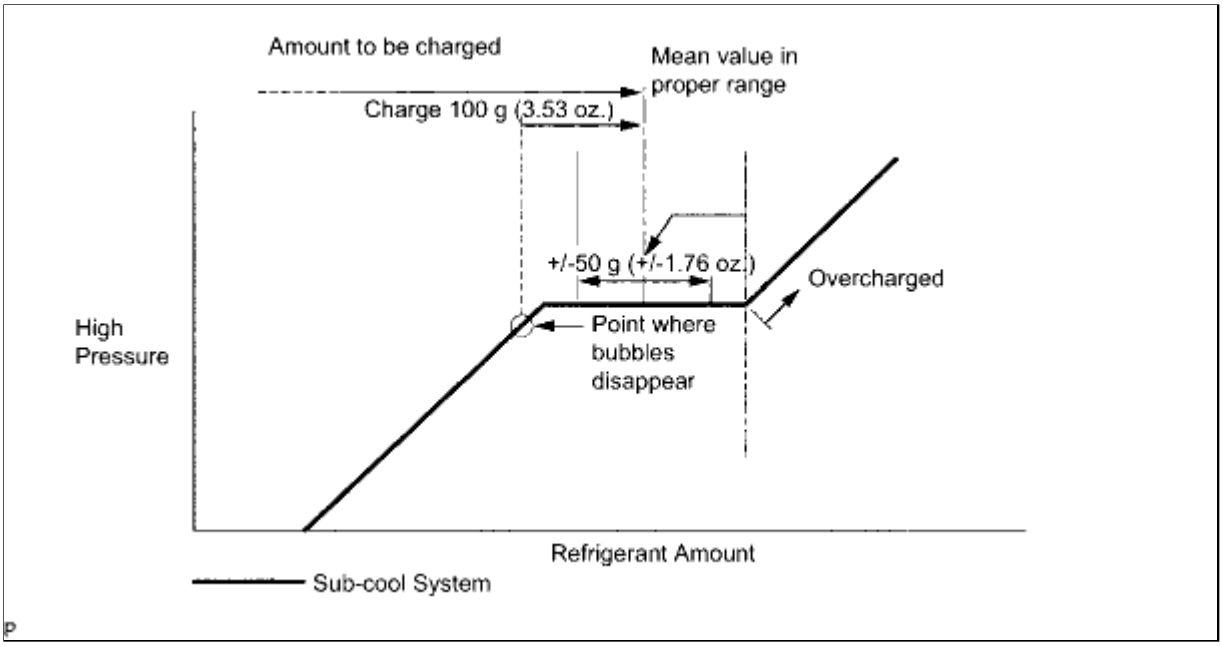
SST: 09985-20010

09985-02130
09985-02150
09985-02090
09985-02110
09985-02010
09985-02050
09985-02060
09985-02070

(a) Perform vacuum purging using a vacuum pump.

(b) Charge refrigerant HFC-134a (R134a).

Standard:
550 +/-30 g (19.3 +/-1.0 oz.)



NOTICE:

- Do not operate the cooler compressor before charging refrigerant as the cooler compressor does not work properly without any refrigerant and does overheats.
- Approximately 100 g (3.53 oz.) of refrigerant may need to be charged after bubbles disappear.

3. WARM UP ENGINE

(a) Warm up the engine at less than 1850 rpm for 2 minutes or more after charging the refrigerant.

NOTICE:

Be sure to warm up the compressor by turning the A/C switch on after removing and installing the cooler refrigerant lines (including the compressor) to prevent damage to the compressor.

4. CHECK FOR REFRIGERANT GAS LEAK

(a) After recharging the refrigerant gas, check for refrigerant gas leakage using a halogen leak detector.

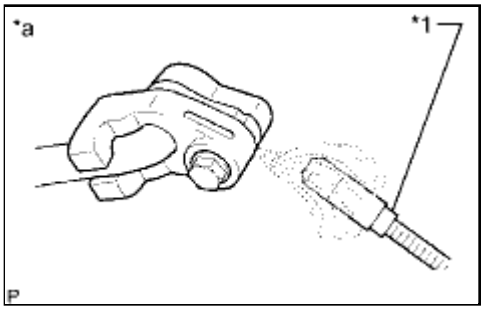
(b) Perform the operation under these conditions:

- 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 (4.0 to 6.0 kgf/cm^2, 57 to 85 psi).

(c) Using a halogen leak detector, check the refrigerant line for leakage.

Text in Illustration

*1	Halogen Leak Detector



*a	Check for Leakage

(d) If a gas leak from the drain hose is not detected, remove the blower motor control (blower resistor) from the cooling unit. Insert the halogen leak detector sensor into the unit and perform the test.

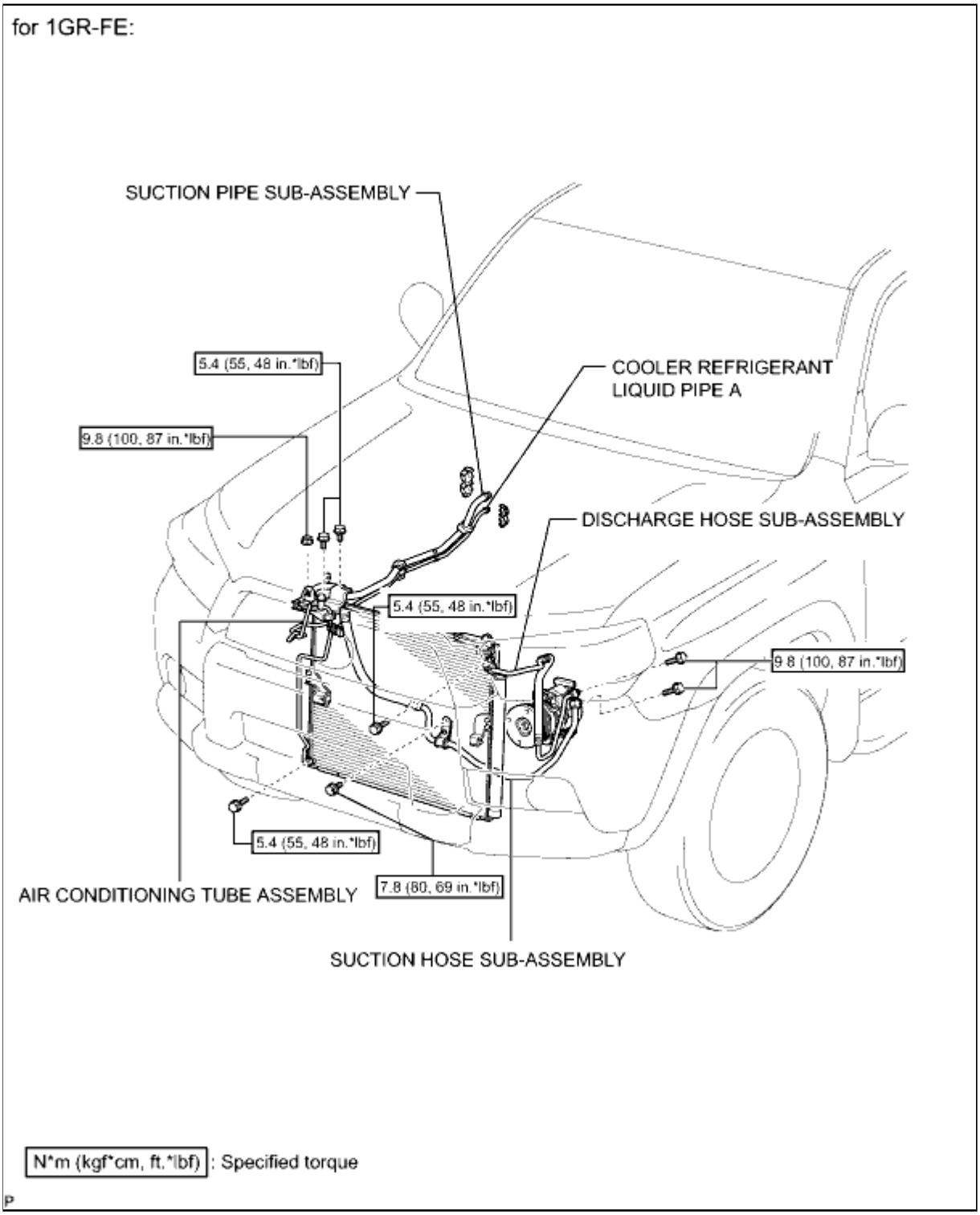
(e) Disconnect the connector and wait for approximately 20 minutes. Bring the halogen leak detector close to the pressure switch and perform the test.

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000038ZP006X
Title: HEATING / AIR CONDITIONING: REFRIGERANT LINE: COMPONENTS (2010 4Runner)		

COMPONENTS

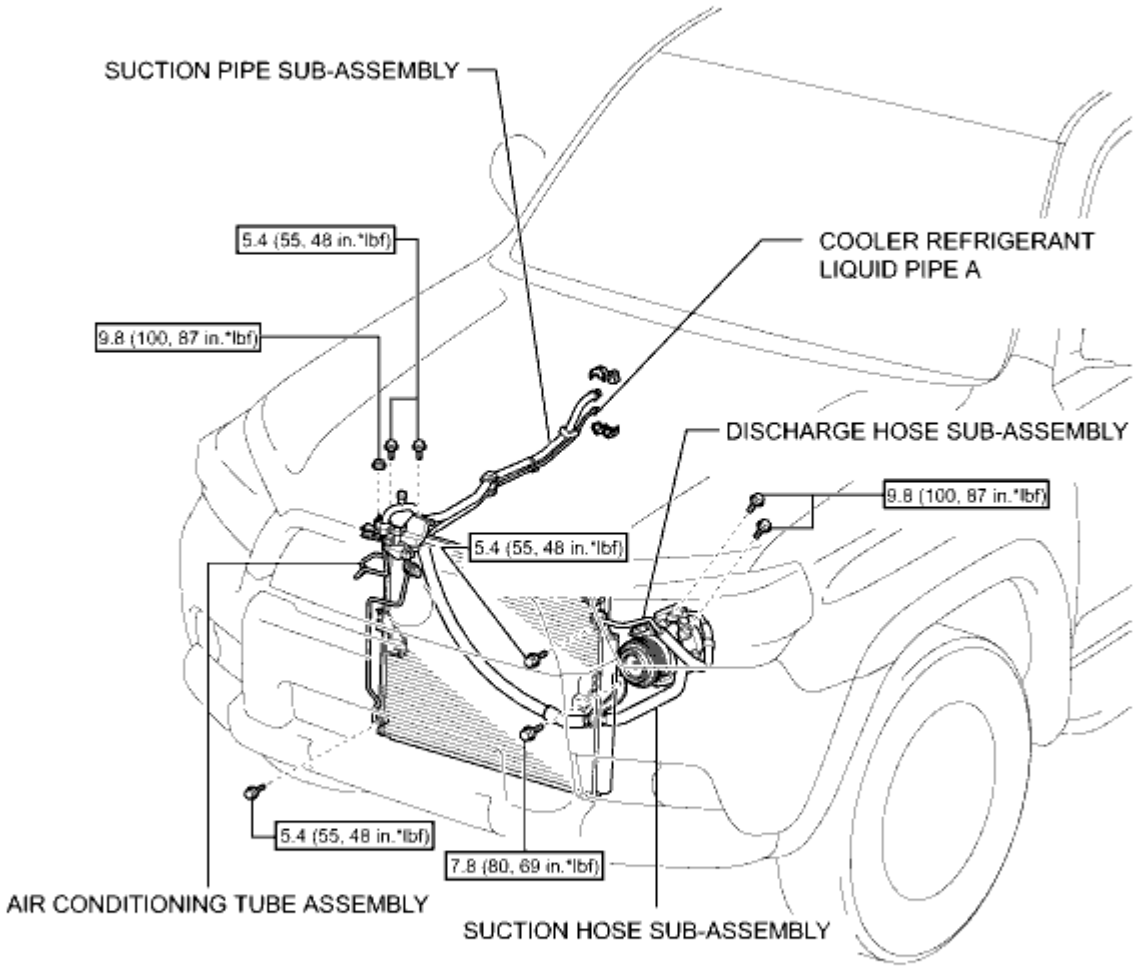
ILLUSTRATION

for 1GR-FE:



ILLUSTRATION

for 2TR-FE:



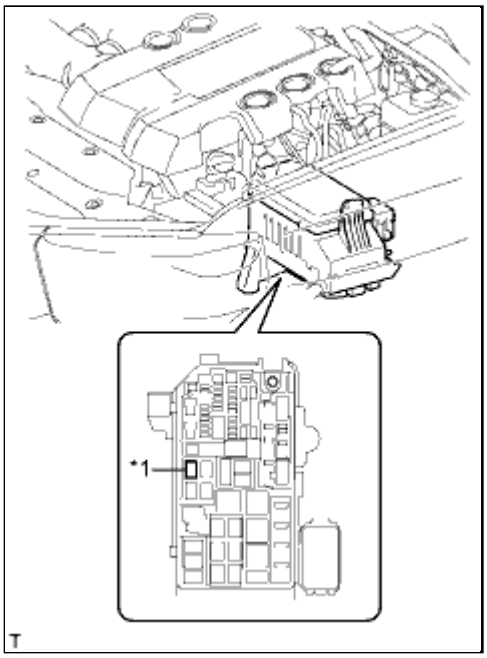
N*m (kgf*cm, ft.*lbf) : Specified torque

o

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000012HP01MX
Title: HEATING / AIR CONDITIONING: RELAY (for Magnet Clutch Control): ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

1. REMOVE MAGNET CLUTCH RELAY



(a) Remove the magnet clutch relay from the engine room relay block.

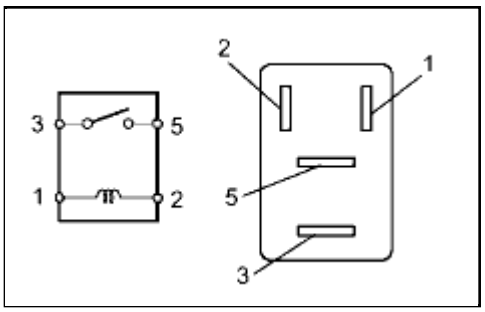
Text in Illustration

*1	Magnet Clutch Relay

2. INSPECT MAGNET CLUTCH RELAY

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

Standard Resistance:



TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 - 5	Battery voltage not applied between terminals 1 and 2	10 kΩ or higher
	Battery voltage applied to terminal 1 and 2	Below 1 Ω

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

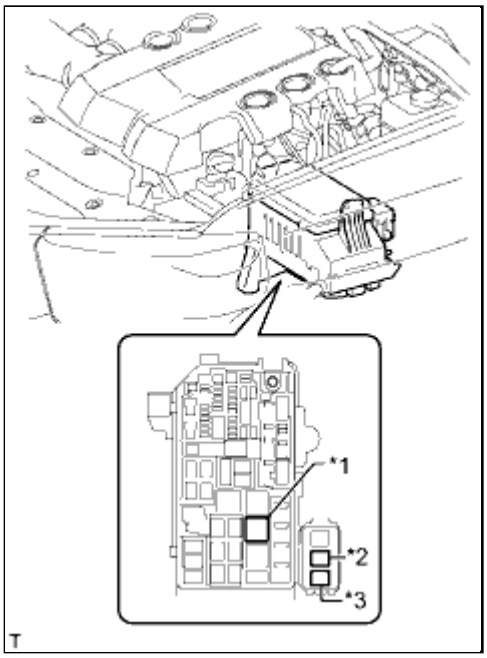
3. INSTALL MAGNET CLUTCH RELAY

(a) Install the magnet clutch relay to the engine room relay block.

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000012HP01UX
Title: HEATING / AIR CONDITIONING: RELAY (w/ PTC Heater): ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

1. REMOVE PTC HEATER RELAY (PTC NO. 1, PTC NO. 1, PTC NO. 3)



(a) Remove the 3 PTC heater relays from the engine room relay block.

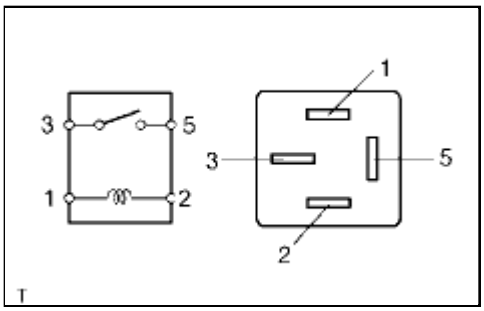
Text in Illustration

*1	PTC No. 1 Relay
*2	PTC No. 2 Relay
*3	PTC No. 3 Relay

2. INSPECT PTC HEATER RELAY (PTC NO. 1, PTC NO. 2, PTC NO. 3)

(a) 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 between terminals 1 and 2	10 kΩ or higher
	Battery voltage applied to terminal 1 and 2	Below 1 Ω

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

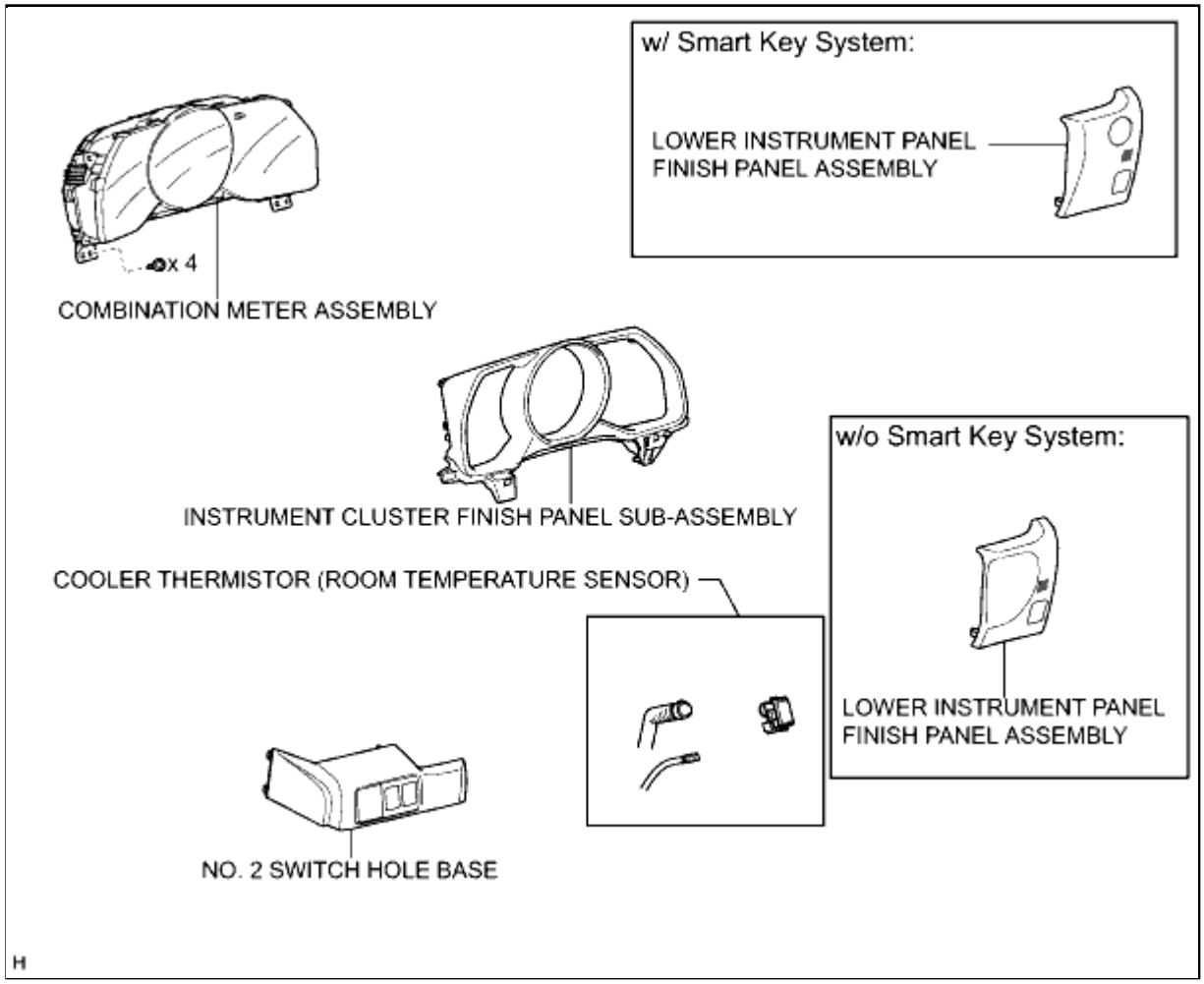
3. INSTALL PTC HEATER RELAY (PTC NO. 1, PTC NO. 2, PTC NO. 3)

(a) Install the 3 PTC heater relays to the engine room relay block.

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000002VYG00BX
Title: HEATING / AIR CONDITIONING: ROOM TEMPERATURE SENSOR: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



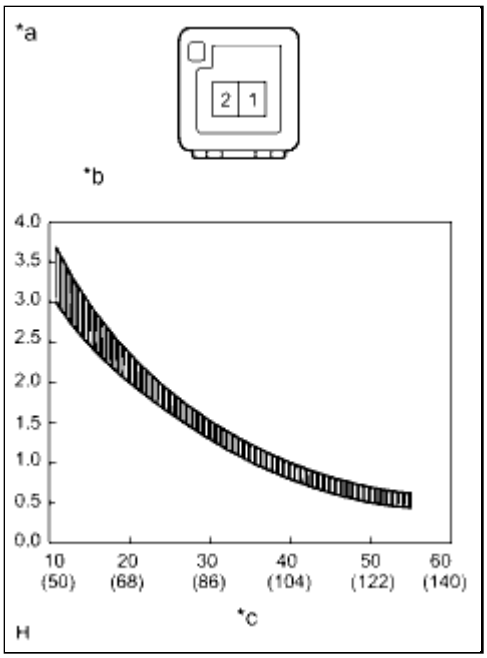
Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000000Y0G01HX
Title: HEATING / AIR CONDITIONING: ROOM TEMPERATURE SENSOR: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT COOLER THERMISTOR (ROOM TEMPERATURE SENSOR)

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

Standard Resistance:



TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	10°C (50°F)	3.00 to 3.73 kΩ
	15°C (59°F)	2.45 to 2.88 kΩ
	20°C (68°F)	1.95 to 2.30 kΩ
	25°C (77°F)	1.60 to 1.80 kΩ
	30°C (86°F)	1.28 to 1.47 kΩ
	35°C (95°F)	1.00 to 1.22 kΩ
	40°C (104°F)	0.80 to 1.00 kΩ
	45°C (113°F)	0.65 to 0.85 kΩ
	50°C (122°F)	0.50 to 0.70 kΩ
	55°C (131°F)	0.44 to 0.60 kΩ
	60°C (140°F)	0.36 to 0.50 kΩ

HINT:

As the temperature increases, the resistance decreases (refer to the graph).

NOTICE:

- Touching the sensor even slightly may change the resistance value. Hold the connector of the sensor.
- When measuring the resistance, make sure the sensor

temperature is the same as the ambient temperature.

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

Text in Illustration

*a	Component without harness connected (Cooler Thermistor (Room Temperature Sensor))
*b	Resistance (kΩ)
*c	Temperature (°C (°F))

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000039P300FX
Title: HEATING / AIR CONDITIONING: ROOM TEMPERATURE SENSOR: REMOVAL (2010 4Runner)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

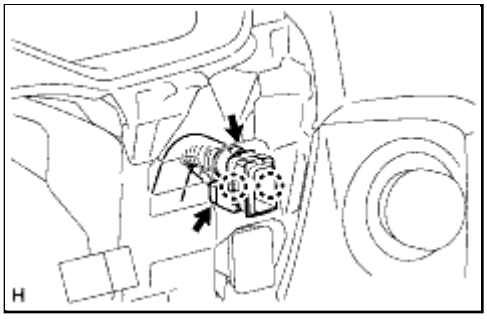
When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO .

2. REMOVE NO. 2 SWITCH HOLE BASE INFO

3. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

4. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY INFO

5. REMOVE COMBINATION METER ASSEMBLY INFO



6. REMOVE COOLER THERMISTOR (ROOM TEMPERATURE SENSOR)

(a) Disconnect the connector and hose.

(b) Detach the 2 claws and remove the cooler thermistor.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000039P100FX
Title: HEATING / AIR CONDITIONING: ROOM TEMPERATURE SENSOR: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL COOLER THERMISTOR (ROOM TEMPERATURE SENSOR)

(a) Attach the 2 claws to install the cooler thermistor.

(b) Connect the connector and hose.

2. INSTALL COMBINATION METER ASSEMBLY INFO

3. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY INFO

4. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

5. INSTALL NO. 2 SWITCH HOLE BASE INFO

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

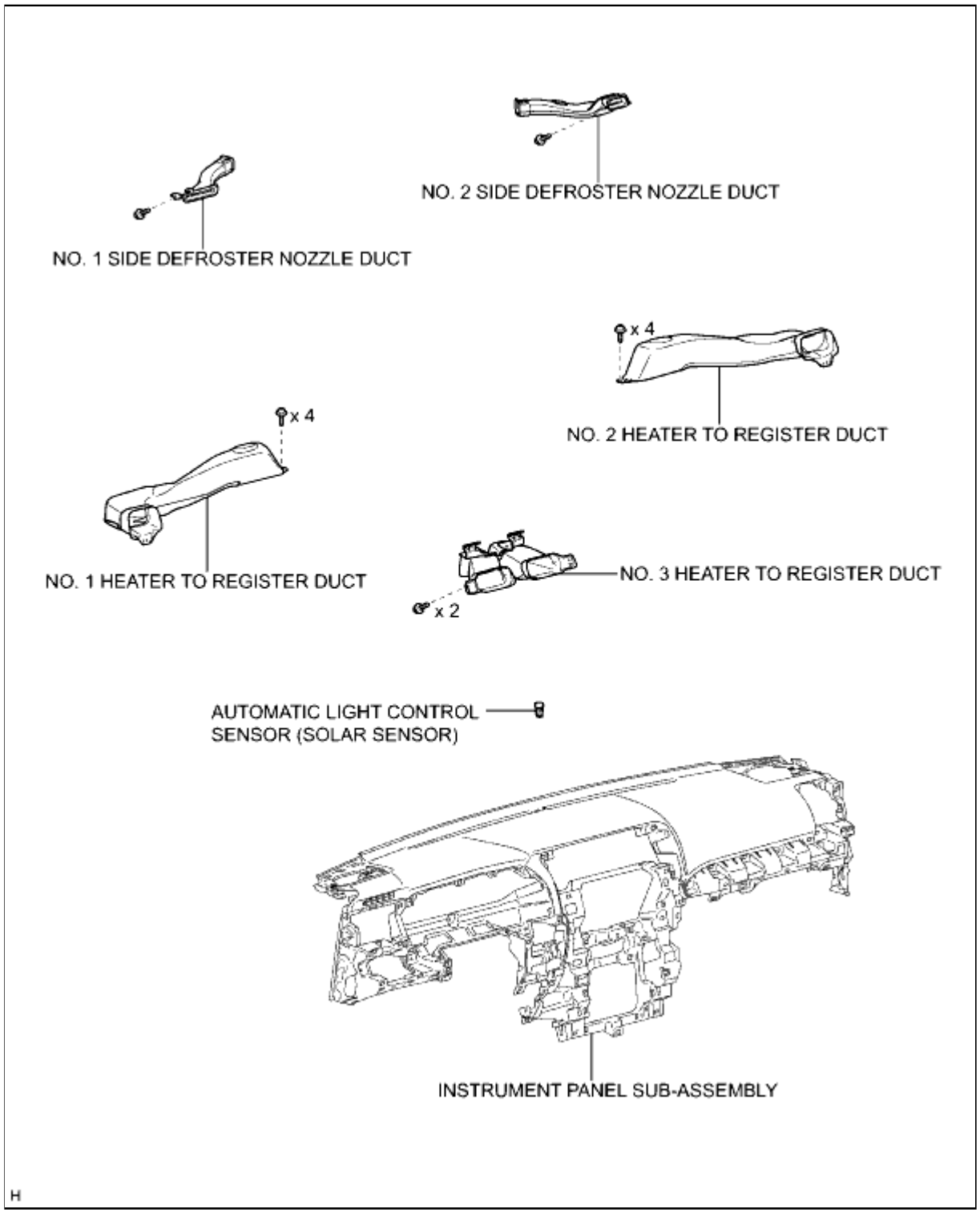
NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO **.**

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000024C100WX
Title: HEATING / AIR CONDITIONING: SOLAR SENSOR: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000024C200YX
Title: HEATING / AIR CONDITIONING: SOLAR SENSOR: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY

(a) Remove the instrument panel sub-assembly INFO .

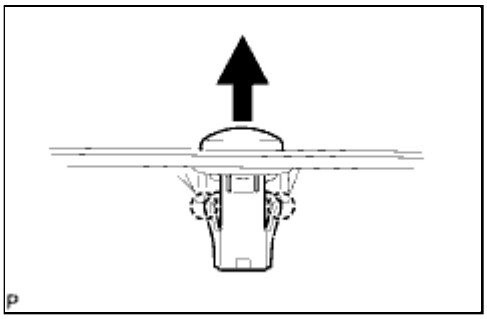
2. REMOVE NO. 1 HEATER TO REGISTER DUCT INFO

3. REMOVE NO. 2 HEATER TO REGISTER DUCT INFO

4. REMOVE NO. 1 SIDE DEFROSTER NOZZLE DUCT INFO

5. REMOVE NO. 2 SIDE DEFROSTER NOZZLE DUCT INFO

6. REMOVE NO. 3 HEATER TO REGISTER DUCT INFO



7. REMOVE AUTOMATIC LIGHT CONTROL SENSOR (SOLAR SENSOR)

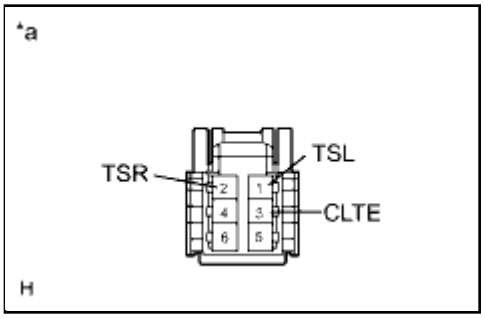
(a) Disconnect the connector.

(b) Detach the 2 claws and remove the sensor.

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001JU401FX
Title: HEATING / AIR CONDITIONING: SOLAR SENSOR: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT AUTOMATIC LIGHT CONTROL SENSOR (SOLAR SENSOR)



(a) Connect the positive (+) lead of the battery to terminal 6 and the negative (-) lead to terminal 3, and then measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 (TSL) - 3 (CLTE)	Sensor subjected to electric light	0.5 to 3.0 V
1 (TSL) - 3 (CLTE)	Sensor covered with cloth	0.5 V or less
2 (TSR) - 3 (CLTE)	Sensor subjected to electric light	0.5 to 3.0 V
2 (TSR) - 3 (CLTE)	Sensor covered with cloth	0.8 V or less

HINT:

- As the inspection light is moved away from the sensor, the voltage increases.
- Use an incandescent light for inspection. Bring it within 30 cm (11.8 in.) of the automatic light control sensor.

NOTICE:

The connection procedure for using a digital tester, such as a TOYOTA electrical tester, is shown above.

If the result is not as specified, replace the automatic light control sensor.

Text in Illustration

*a	Component without harness connected (Automatic Light Control Sensor (Solar Sensor))

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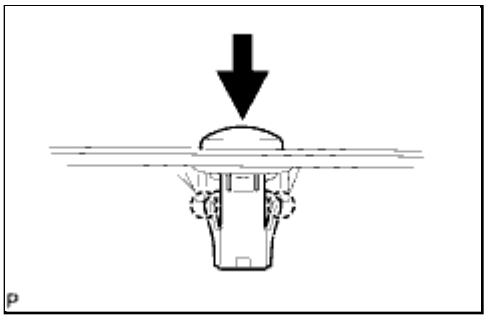
Title: HEATING / AIR CONDITIONING: SOLAR SENSOR: INSTALLATION (2010 4Runner)		

INSTALLATION



1. INSTALL AUTOMATIC LIGHT CONTROL SENSOR (SOLAR SENSOR)

(a) Attach the 2 claws to install the sensor.

(b) Connect the connector.

2. INSTALL NO. 3 HEATER TO REGISTER DUCT INFO

3. INSTALL NO. 2 SIDE DEFROSTER NOZZLE DUCT INFO

4. INSTALL NO. 1 SIDE DEFROSTER NOZZLE DUCT INFO

5. INSTALL NO. 2 HEATER TO REGISTER DUCT INFO

6. INSTALL NO. 1 HEATER TO REGISTER DUCT INFO

7. INSTALL INSTRUMENT PANEL SUB-ASSEMBLY

(a) Install the instrument panel sub-assembly INFO .