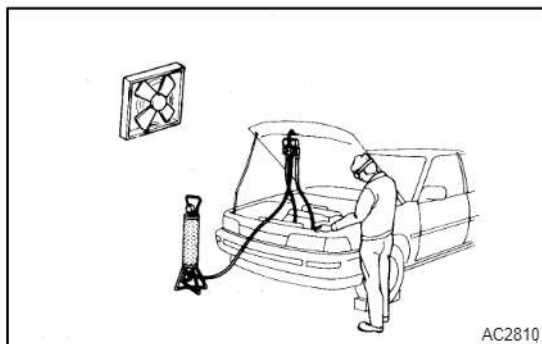


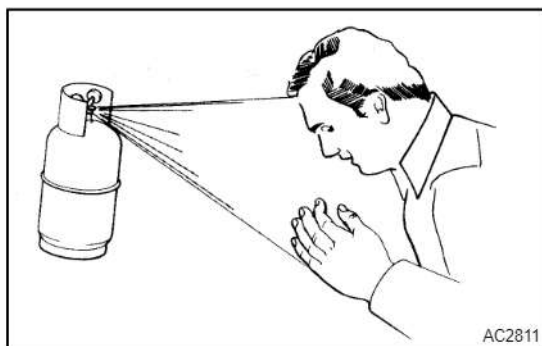
AIR CONDITIONING SYSTEM

PRECAUTION

5508Q-02



1. **DO NOT HANDLE REFRIGERANT IN AN ENCLOSED AREA OR NEAR AN OPEN FLAME**
2. **ALWAYS WEAR EYE PROTECTION**



3. **BE CAREFUL NOT TO GET LIQUID REFRIGERANT IN YOUR EYES OR ON YOUR SKIN**

If liquid refrigerant gets in your eyes or on your skin.

- (a) Wash the area with lots of cool water.

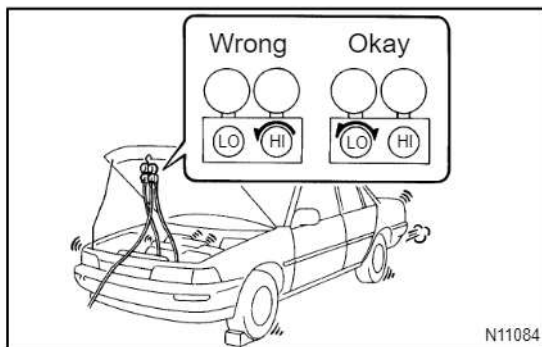
CAUTION:

Do not rub your eyes or skin.

- (b) Apply clean petroleum jelly to the skin.
- (c) Go immediately to a physician or hospital for professional treatment.

4. **NEVER HEAT CONTAINER OR EXPOSE IT TO NAKED FLAME**

5. **BE CAREFUL NOT TO DROP CONTAINER AND NOT TO APPLY PHYSICAL SHOCKS TO IT**



6. **DO NOT OPERATE COMPRESSOR WITHOUT ENOUGH REFRIGERANT IN REFRIGERANT SYSTEM**

If there is not enough refrigerant in the refrigerant system oil lubrication will be insufficient and compressor burnout may occur, so take care to avoid this, necessary care should be taken.

7. **DO NOT OPEN HIGH PRESSURE MANIFOLD VALVE WHILE COMPRESSOR IS OPERATING**

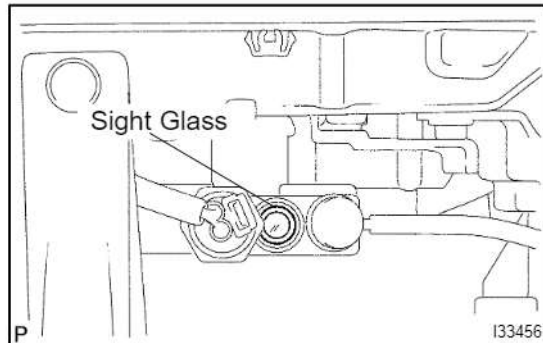
If the high pressure valves opened, refrigerant flows in the reverse direction and could cause the charging cylinder to rupture, so open and close the only low pressure valve.

8. **BE CAREFUL NOT TO OVERCHARGE SYSTEM WITH REFRIGERANT**

If refrigerant is overcharged, it causes problems such as insufficient cooling, poor fuel economy, engine overheating etc.

REFRIGERANT ON-VEHICLE INSPECTION

550QC-02



1. INSPECT REFRIGERANT VOLUME

- (a) Observe the sight glass on the cooler refrigerant liquid pipe A.

Test conditions:

- ◆ Running engine at 1,500 rpm
- ◆ Blower speed control switch at "HI"
- ◆ A/C switch ON
- ◆ Temperature control dial at "MAX. COOL"
- ◆ Fully open the doors

Item	Symptom	Amount of refrigerant	Corrective Actions
1	Bubbles exist	Insufficient*	(1) Check for gas leakage and repair if necessary (2) Add refrigerant until bubbles disappear
2	No bubbles exist	Empty, insufficient or excessive	Refer 3 and 4
3	No temperature difference between compressor inlet and outlet	Empty or nearly empty	(1) Check for gas leakage with gas leak detector and repair if necessary (2) Add refrigerant until bubbles disappear
4	Considerable temperature difference between compressor inlet and outlet	Proper or excessive	Refer to 5 and 6
5	Immediately after air conditioning is turned off, refrigerant clear	Excessive	(1) Discharge refrigerant (2) Remove air and supply proper amount or purified refrigerant
6	Immediately after air conditioning is turned off, refrigerant foams and then becomes clear	Proper	—

*: Bubbles in the sight glass with ambient temperatures higher than usual can be considered normal if cooling is sufficient.

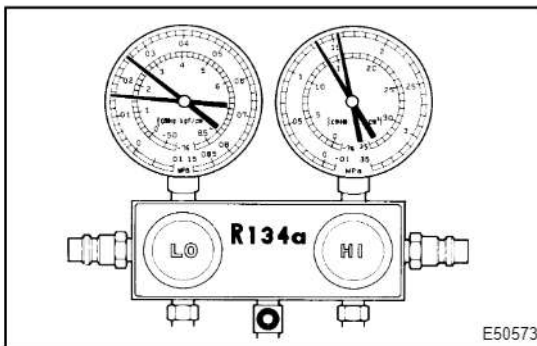
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2. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

- (a) This is a method in which the trouble is located by using a manifold gauge set. Read the manifold gauge pressure when these conditions are established.

Test conditions:

- ◆ Temperature at the air inlet with the switch set at RECIRC is 30 – 35 °C (86 – 95 °F)
- ◆ Engine running at 1,500 rpm
- ◆ Blower speed control switch at "HI" position
- ◆ Temperature control dial at "COOL" position
- ◆ A/C switch ON
- ◆ Fully open doors



- (1) Normally functioning refrigeration system.

Gauge reading:

Low pressure side:

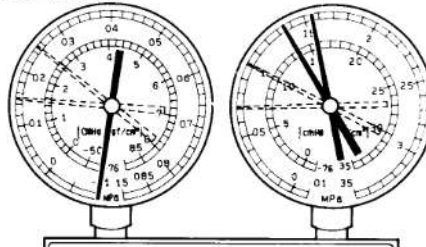
0.15 – 0.25 MPa (1.5 – 2.5 kgf/cm²)

High pressure side:

1.37 – 1.57 MPa (14 – 16 kgf/cm²)

- (2) Moisture present in refrigeration system.

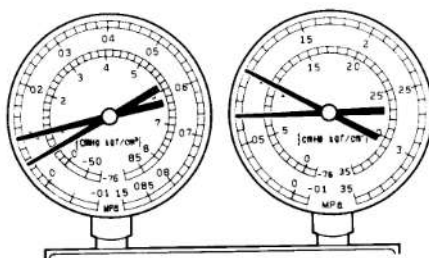
Condition: Periodically cools and then fails to cool



Symptom	Probable cause	Diagnosis	Remedy
During operation, pressure on low pressure side sometimes become a vacuum and sometime normal	Moisture in refrigeration system freezes at expansion valve orifice causing a temporary stop of cycle, however, when it melts, normal state is restored.	◆Drier in oversaturated state ◆Moisture in refrigeration system freezes at expansion valve orifice and blocks circulation of refrigerant	(1) Replace condenser (2) Remove moisture in cycle by repeatedly evacuating air (3) Supply proper amount of new refrigerant

(3) Insufficient cooling

Condition: Cooling system does not function effectively.

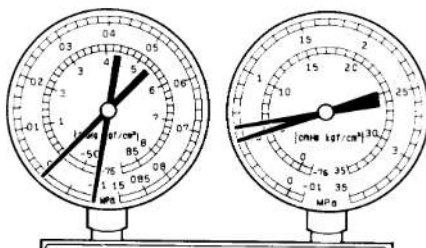


I22118

Symptom	Probable cause	Diagnosis	Corrective Actions
◆Pressure low on both low and high pressure side ◆Bubbles and seen through sight glass continuously ◆Insufficient cooling performance	Gas leakage in refrigeration system	◆Insufficient refrigerant ◆Refrigerant leaking	(1) Check for gas leakage and repair if necessary (2) Supply proper amount of new refrigerant (3) If indicated pressure value is close to a 0 when connected to gauge, create the vacuum after inspecting and repairing location of leak

(4) Poor circulation of refrigerant

Condition: Cooling system close not function effectively.

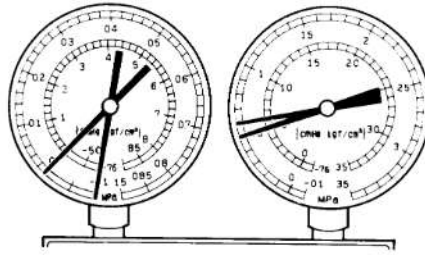


I22119

Symptom	Probable cause	Diagnosis	Corrective Action
◆Pressure is low on both low and high pressure sides ◆Frost on pipe from condenser to unit	Refrigerant flow is obstructed by dirt in receiver	Receiver is clogged	Replace condenser

(5) Refrigerant does not circulate

Condition: Cooling system does not function. (Sometimes it way function)

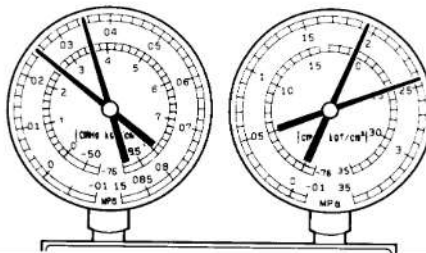


I22120

Symptom	Probable cause	Diagnosis	Corrective Actions
◆ Vacuum is indicated on low pressure side and very low pressure is indicated on high pressure side ◆ Frost or dew is seen on piping before and after receiver/ drier or expansion valve	◆ Refrigerant flow obstructed by moisture or dirt in refrigeration system ◆ Refrigerant flow is obstructed by gas leak from expansion valve	Refrigerant does not circulate	(1) Check expansion valve (2) Clean out dirt in expansion valve by air blowing (3) Replace condenser (4) Evaporate air and supply proper amount of new refrigerant. (5) For gas leakage from expansion valve, replace expansion valve

(6) Refrigerant is overcharged or cooling effectiveness of condenser is insufficient

Condition: Cooling system does not function.

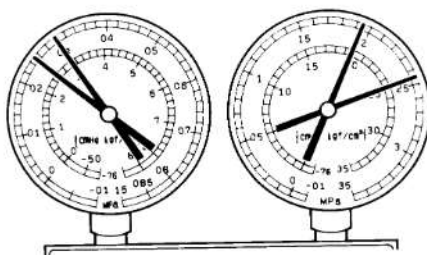


I22121

Symptom	Probable cause	Diagnosis	Remedy
◆ Pressure is too high on both low and high pressure side ◆ No air bubbles are seen through the sight glass even when the engine rpm lowers	◆ Unable to develop sufficient performance due to excessive use of refrigeration system ◆ Cooling effectiveness of condenser is insufficient	◆ Excessive refrigerant in cycle → excessive refrigerant is supplied ◆ Condenser cooling effectiveness is insufficient → condenser fins are clogged at cooling fan	(1) Clean condenser (2) Check cooling fan with cooling fan motor operation (3) If (1) and (2) are in normal state, check amount of refrigerant and supply proper amount of refrigerant

(7) Air present in refrigeration system

Condition: Cooling system does not function.



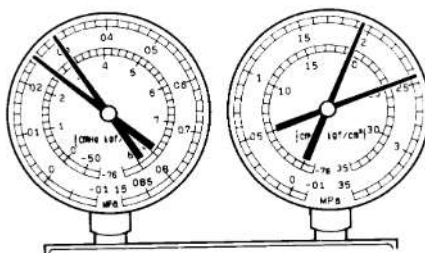
NOTE : These gauge indications are shown when the refrigeration system opens and the refrigerant is charged without vacuum purging.

I22122

Symptom	Probable cause	Diagnosis	Corrective Actions
◆Pressure is too high on both low and high pressure side ◆The low pressure piping too hot to touch ◆Bubbles can be seen through sight glass	Air entered in refrigeration system	◆Air present in refrigeration system ◆Insufficient vacuum purging	(1) Check compressor oil to see if it is see if it is dirty or insufficient (2) Evacuate air and supply new refrigerant

(8) Expansion valve improperly

Condition: Refrigerant functions insufficient.

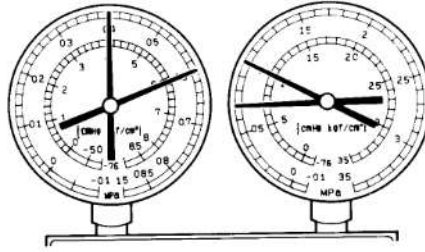


I22123

Symptom	Probable cause	Diagnosis	Corrective Actions
◆Pressure is too high on both low and high pressure side ◆Frost or large amount of dew on piping on low pressure side	Trouble in expansion valve	◆Excessive refrigerant in low pressure piping ◆Expansion valve opened too wide	Check expansion valve

(9) Defective compression compressor

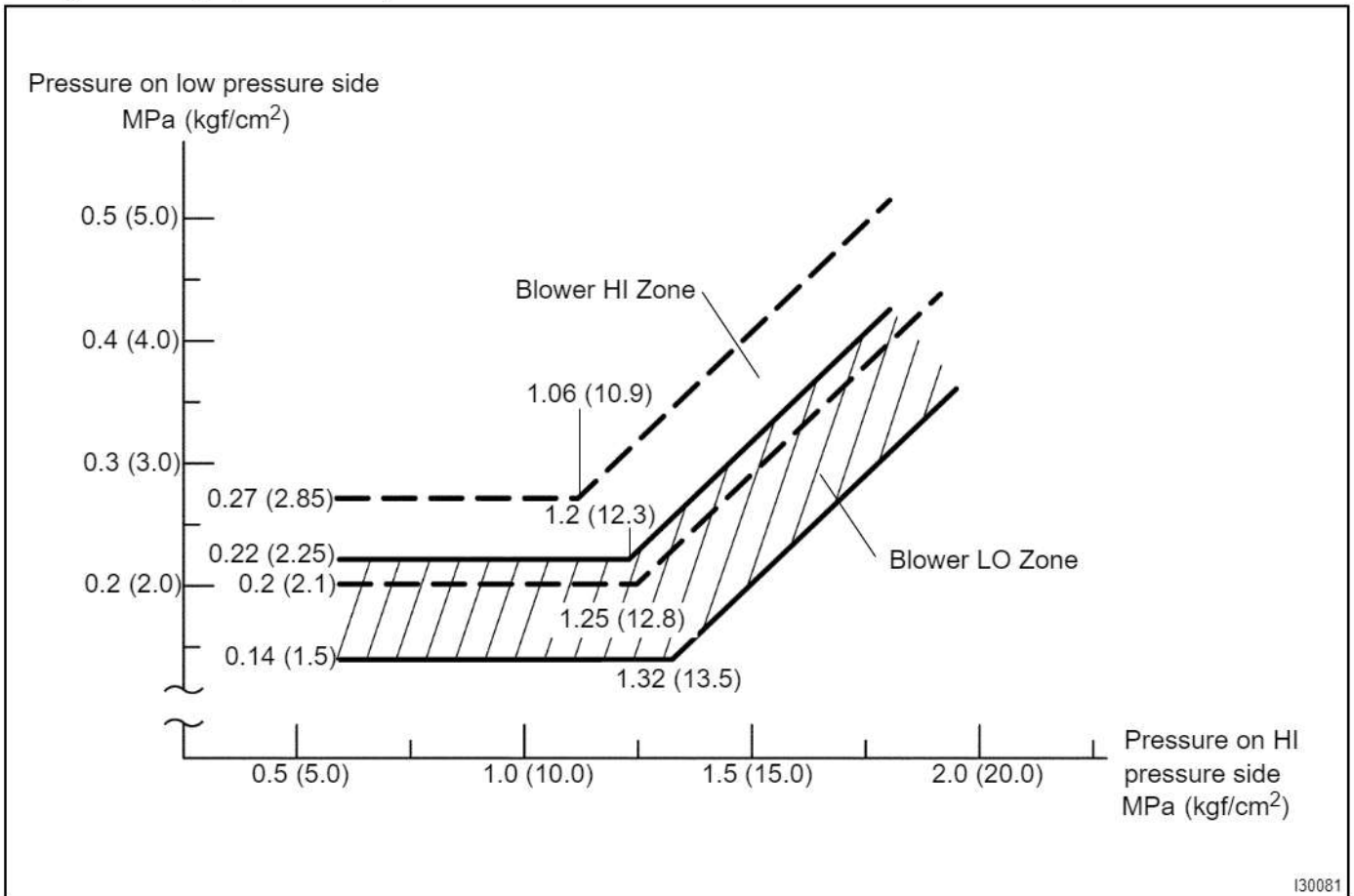
Condition : Refrigerant is not effective.



I22124

Symptom	Probable cause	Diagnosis	Corrective Actions
◆Pressure is too high both on low and high pressure side ◆Pressure is too low on high pressure side	Internal leak in compressor	◆Compression failure ◆Leakage from damaged valve or broken sliding parts	Repair or replace compressor

Gauge readings (Reference)



REPLACEMENT

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

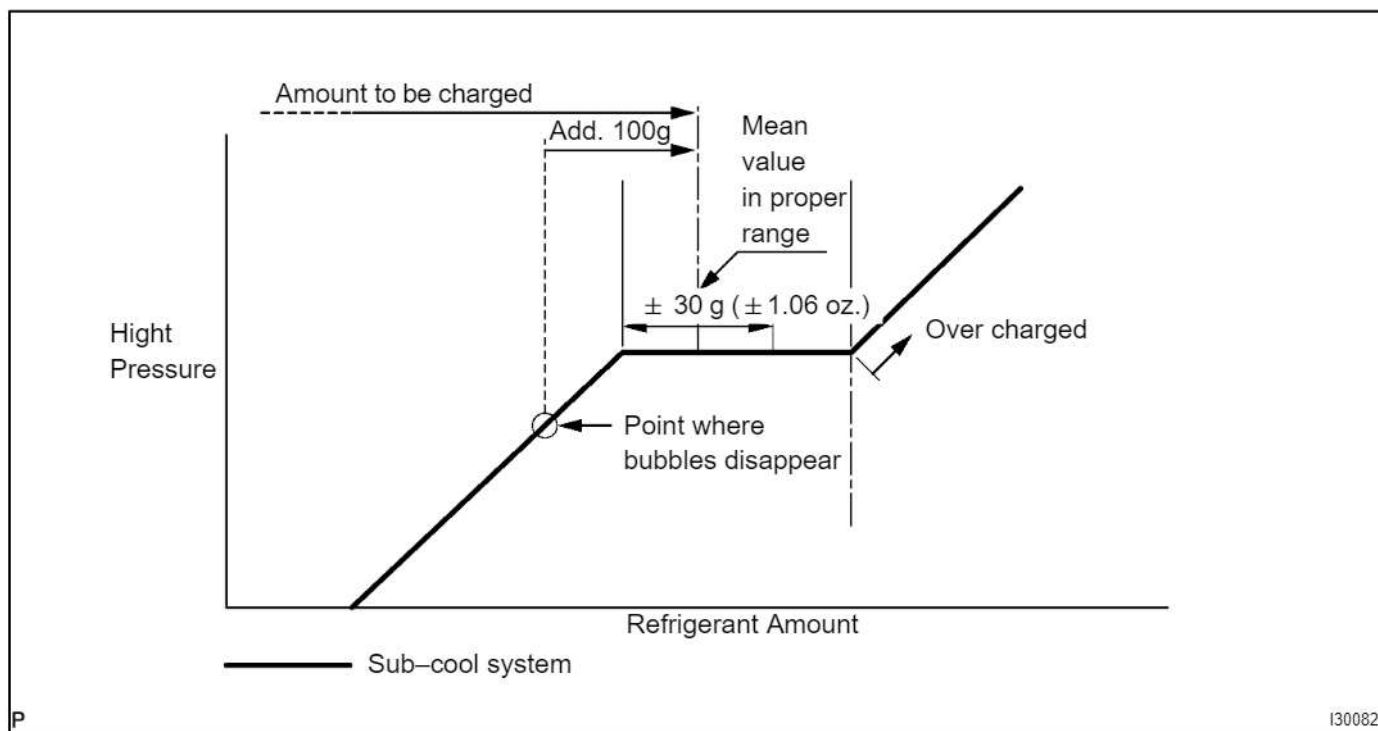
- Turn the A/C switch ON.
- Operating the cooler compressor at the engine rpm of approx. 1,000 for 5 to 6 min., circulate the refrigerant and collect compressor oil remaining in each component into the cooler compressor as much as possible.
- Stop the engine.
- Let the refrigerant gas out.
SST 07110-58060 (07117-58080, 07117-58090, 07117-78050, 07117-88060, 07117-88070, 07117-88080)

2. CHARGE REFRIGERANT

- Using a vacuum pump, perform a vacuum purging.
- Charge refrigerant, HFC-134a (R134a).

Standard: 600 ± 30 g (21.16 ± 1.06 oz.)

SST 07110-58060 (07117-58060, 07117-58070, 07117-58080, 07117-58090, 07117-78050, 07117-88060, 07117-88070, 07117-88080)



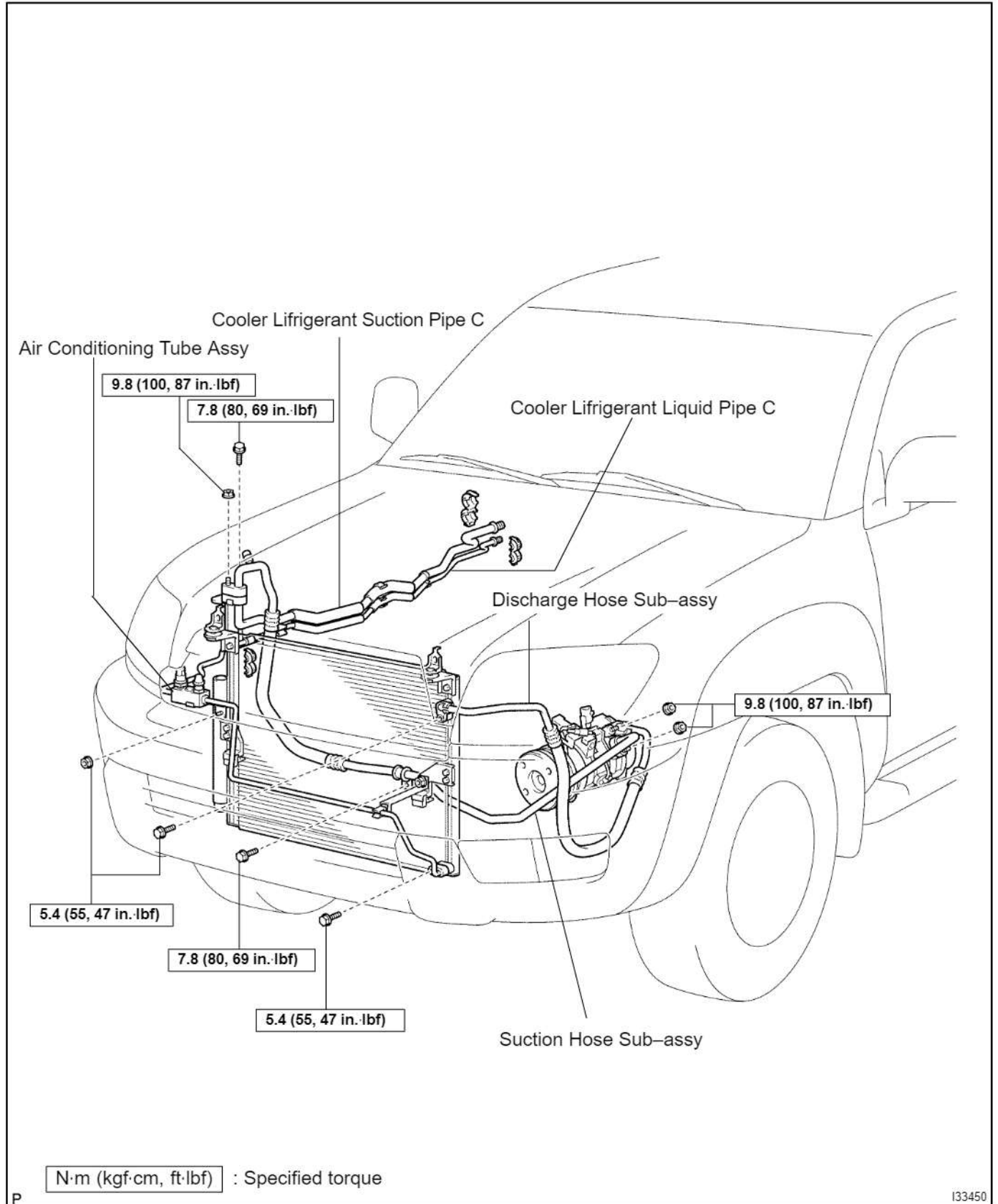
3. WARM UP ENGINE

4. INSPECT LEAKAGE OF REFRIGERANT

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

REFRIGERANT LINE COMPONENTS

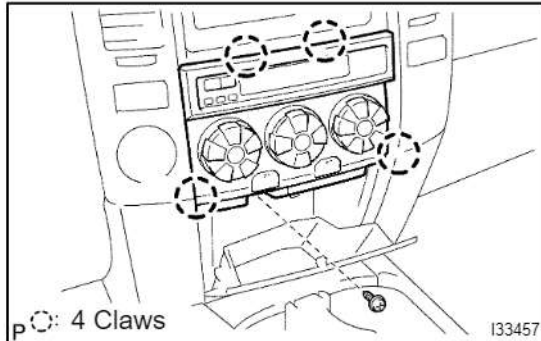
550QE-03



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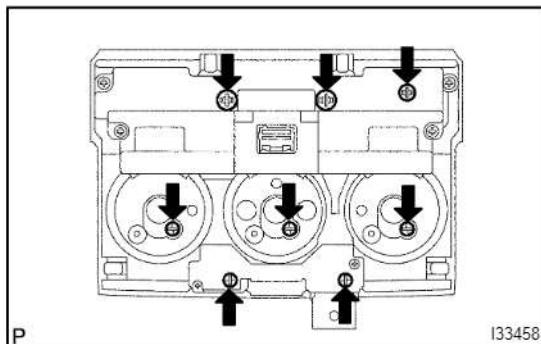
AIR CONDITIONING CONTROL ASSY OVERHAUL

5509F-02



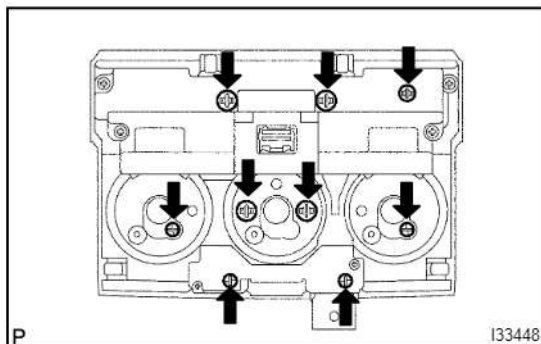
1. REMOVE AIR CONDITIONING CONTROL ASSY

- (a) Remove the screw.
- (b) Release the 4 claw fittings.
- (c) Disconnect the connector and remove the air conditioning control assy.



2. REMOVE COOLER CONTROL SWITCH BULB (EXCEPT INDEPENDENCE TEMPERATURE CONTROL)

- (a) Remove the 8 cooler control switch bulbs from the air conditioning control assy.



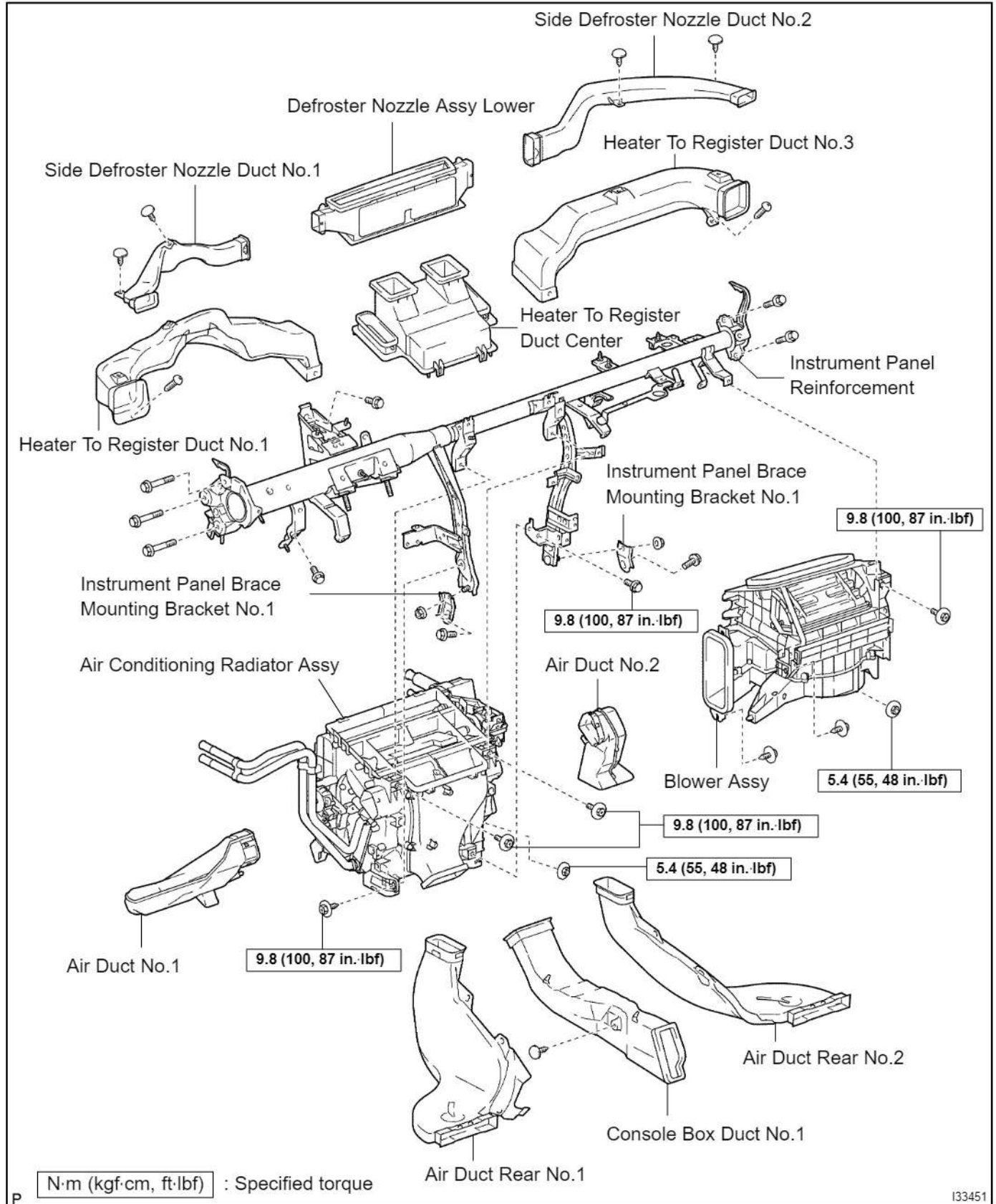
3. REMOVE COOLER CONTROL SWITCH BULB (INDEPENDENCE TEMPERATURE CONTROL)

- (a) Remove the 9 cooler control switch bulbs from the air conditioning control assy.

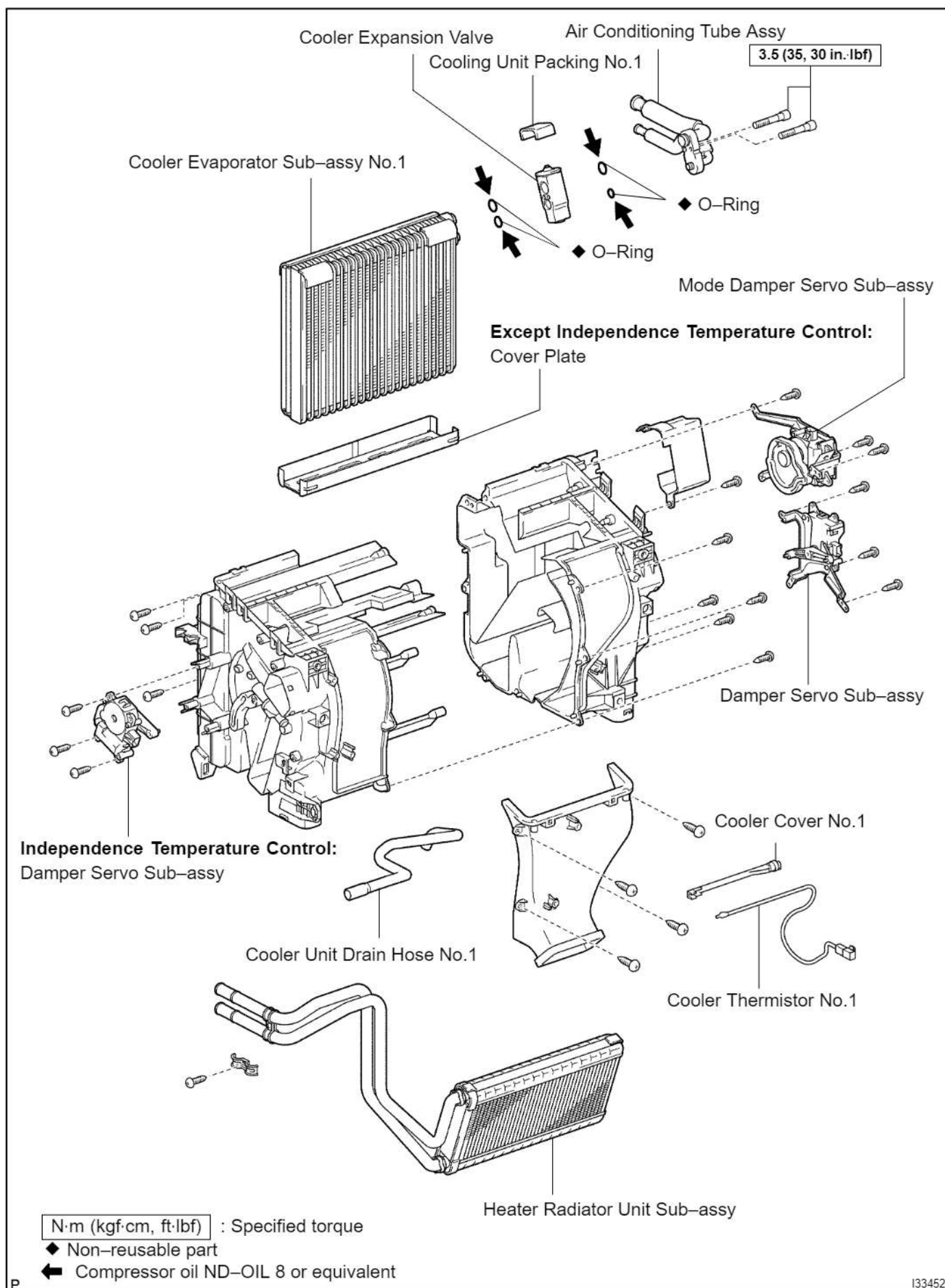
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AIR CONDITIONING RADIATOR ASSY COMPONENTS

550R2-02



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OVERHAUL

HINT:

COMPONENTS: See page 55-11

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page 55-8)

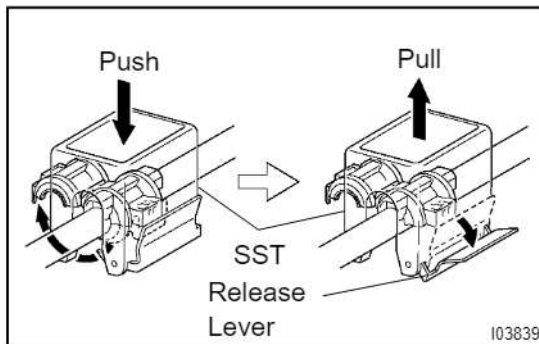
SST 07110-58060 (07117-58080, 07117-58090, 07117-78050, 07117-88060, 07117-88070, 07117-88080)

2. DISCONNECT COOLER REFRIGERANT SUCTION PIPE C

- (a) Install SST on piping clamp.

HINT:

Make sure the direction of the piping clamp claw and SST by seeing the illustration shown on the caution label.



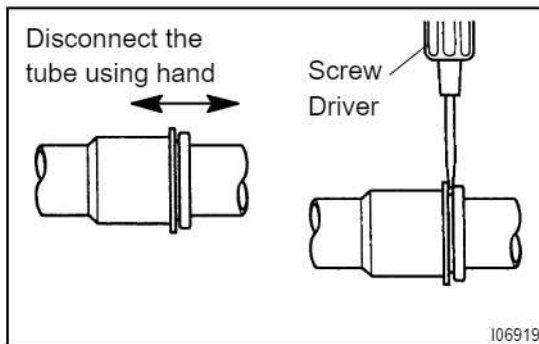
- (b) Push down SST and release the clamp lock.

NOTICE:

Be careful not to deform the tube when pushing SST.

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

SST 09870-00015



- (d) Disconnect the air conditioning tube assy.

NOTICE:

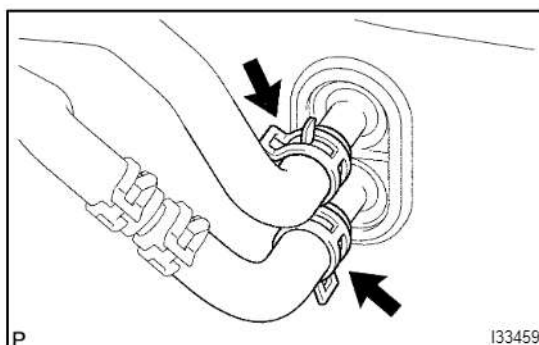
- ◆ Do not use tools like screwdriver to remove the tube.
- ◆ Cap the open fittings immediately to keep moisture or dirt out of the system.

3. DISCONNECT COOLER REFRIGERANT LIQUID PIPE C

HINT:

Disconnection of the cooler refrigerant liquid pipe C is same the cooler refrigerant suction pipe C.

SST 09870-00025



4. DISCONNECT HEATER WATER OUTLET HOSE A(FROM HEATER UNIT)

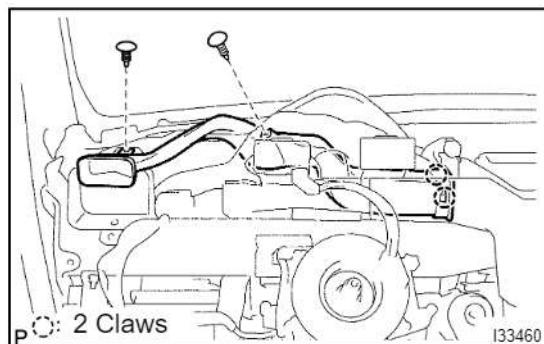
- (a) Using pliers, grip the claws of clip and slide the clip and disconnect the heater water outlet hose A (from heater unit).

5. DISCONNECT HEATER WATER OUTLET HOSE A(FROM HEATER UNIT)
6. REMOVE INSTRUMENT PANEL SAFETY PAD SUB-ASSY (See page 71-14)

HINT:

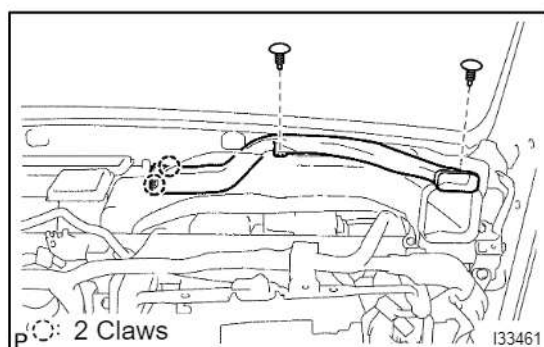
Refer to the instructions for removal of the instrument panel safety pad sub-assy.

7. REMOVE ECM (See page 10-24)
8. REMOVE AIRCONDITIONER AMPLIFIER ASSY (See page 55-43)



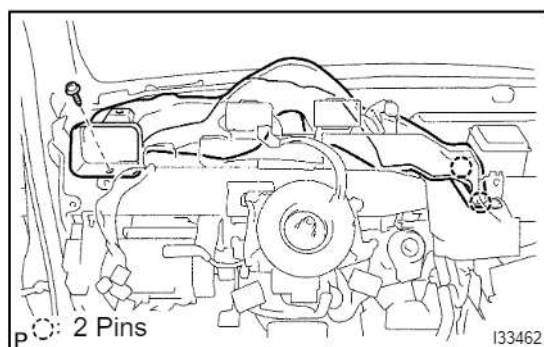
9. REMOVE SIDE DEFROSTER NOZZLE DUCT NO.1

- (a) Remove the 2 clips.
- (b) Release the 2 claw fittings and remove the side defroster nozzle duct No.1.



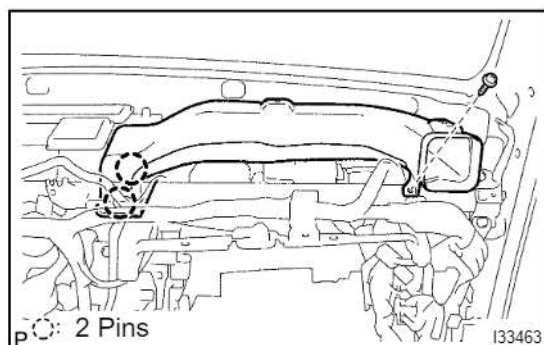
10. REMOVE SIDE DEFROSTER NOZZLE DUCT NO.2

- (a) Remove the 2 clips.
- (b) Release the 2 claw fittings and remove the side defroster nozzle duct No.2.



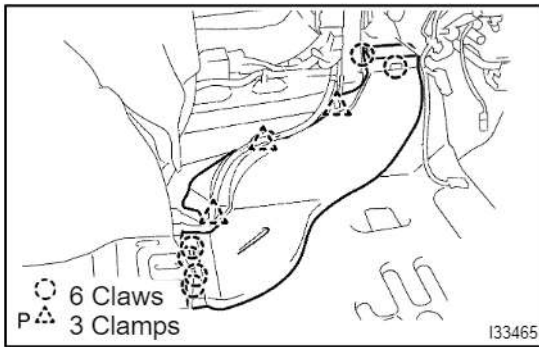
11. REMOVE HEATER TO REGISTER DUCT NO.1

- (a) Remove the screw.
- (b) Release the 2 pin fittings and remove the heater to register duct No.1.

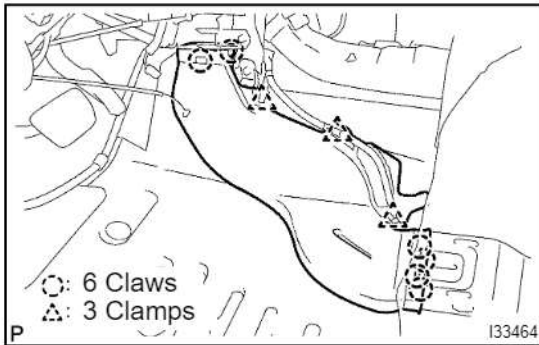


12. REMOVE HEATER TO REGISTER DUCT NO.3

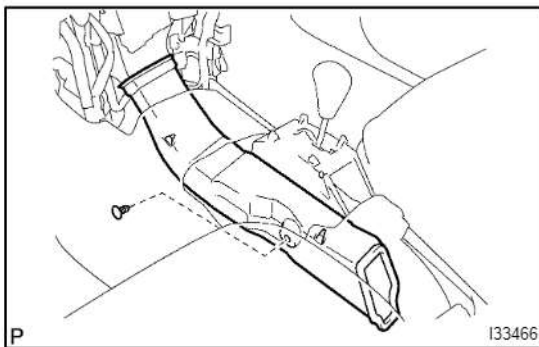
- (a) Remove the screw.
- (b) Release the 2 pin fittings and remove the heater to register duct No.3.

**13. REMOVE AIR DUCT REAR NO.1**

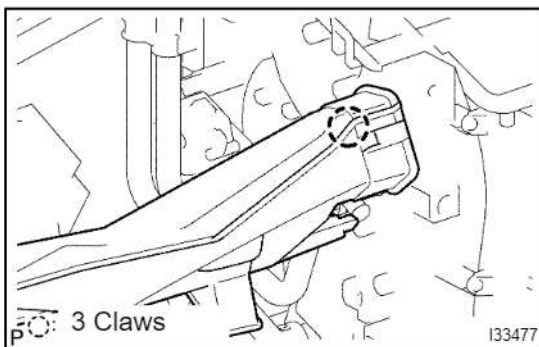
- (a) Release the 6 claw fittings and 3 clamps and remove the air duct rear No.2.

**14. REMOVE AIR DUCT REAR NO.2**

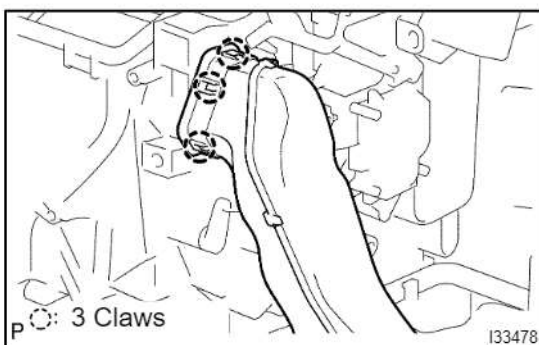
- (a) Release the 6 claw fittings and 3 clamps and remove the air duct rear No.1.

**15. DISCONNECT CONSOLE BOX DUCT NO.1**

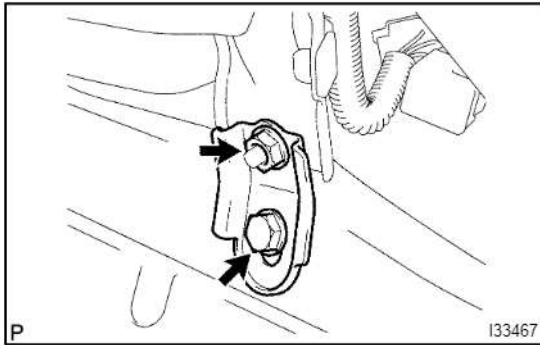
- (a) Remove the clip and disconnect the console box duct No.1.

**16. REMOVE AIR DUCT NO.1**

- (a) Release the 3 claw fittings and remove the air duct No.1.

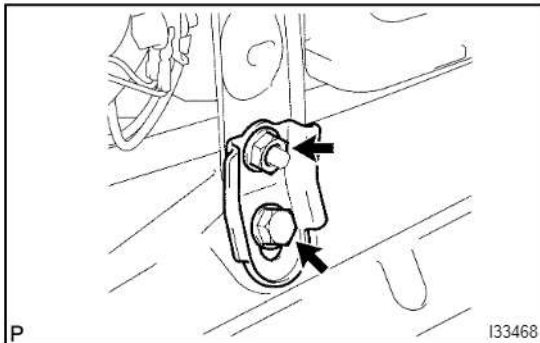
**17. REMOVE AIR DUCT NO.2**

- (a) Release the 3 claw fittings and remove the air duct No.2.

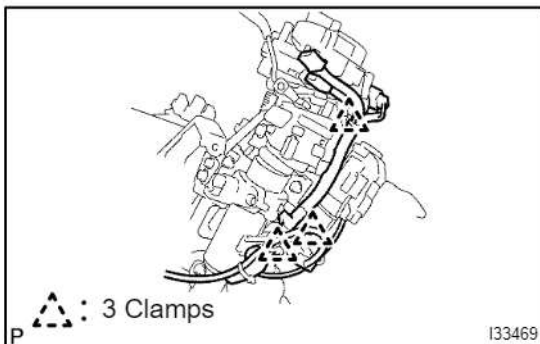


18. REMOVE INSTRUMENT PANEL BRACE MOUNTING BRACKET NO.1

- (a) Remove the bolt, nut and instrument panel brace mounting bracket No.1.

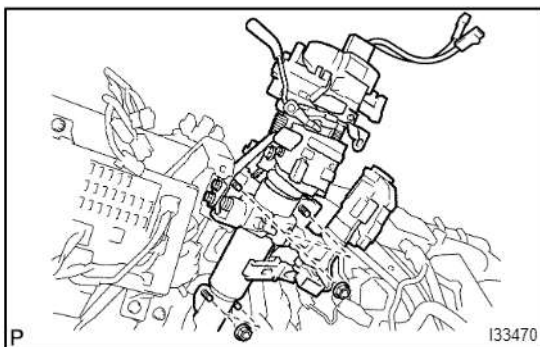


- (b) Remove the bolt, nut and instrument panel brace mounting bracket No.1.



19. DISCONNECT STEERING COLUMN ASSY

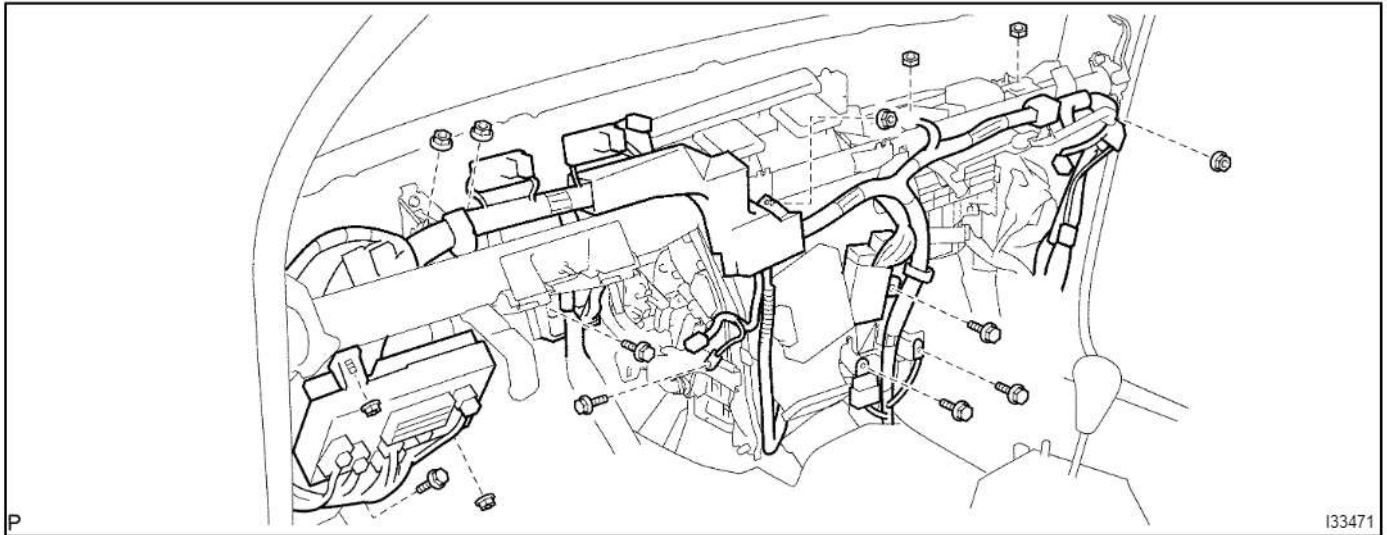
- (a) Release the 3 clamps and disconnect the connector.



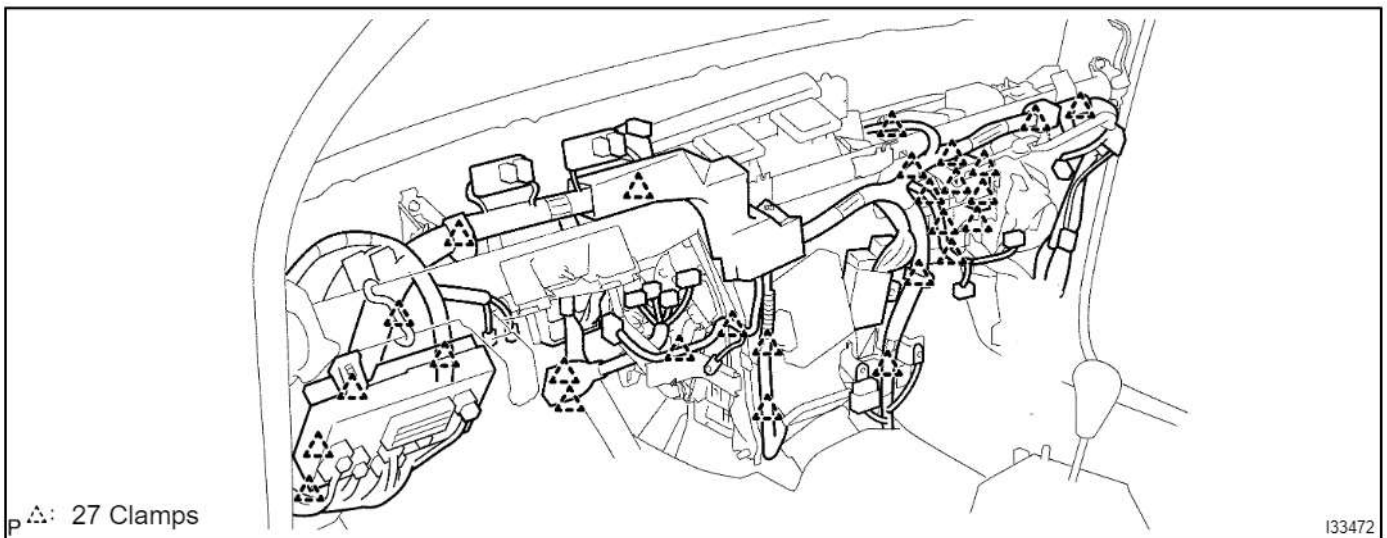
- (b) Remove the 4 nuts and disconnect the steering column assembly.

20. REMOVE INSTRUMENT PANEL REINFORCEMENT

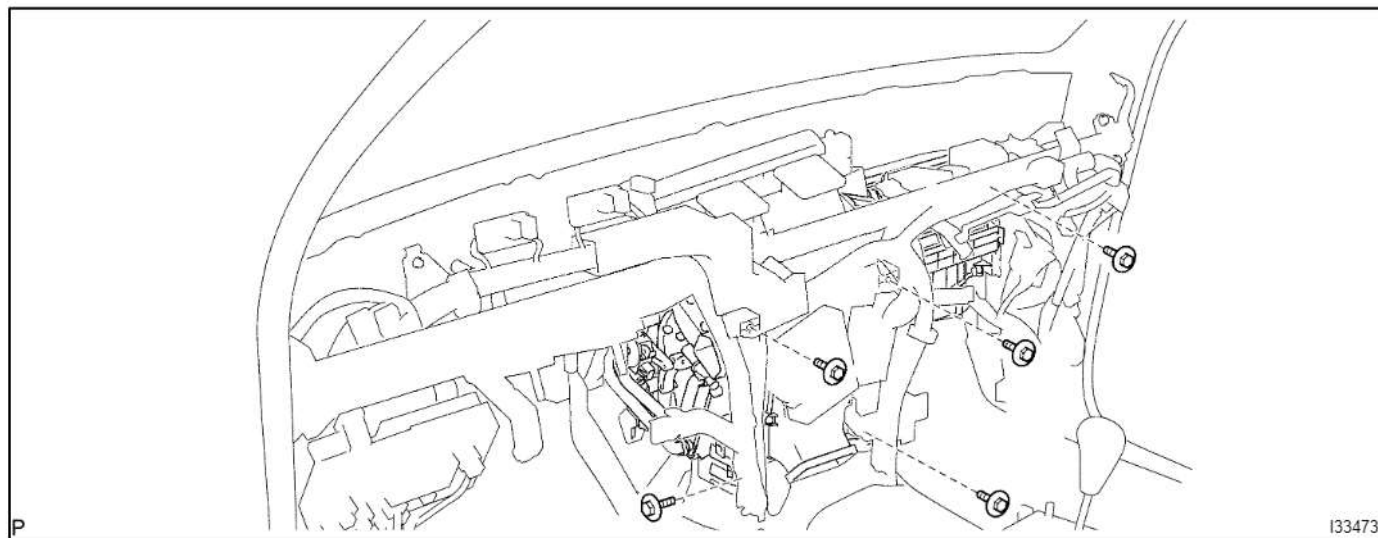
- (a) Remove the 6 bolts and 8 nuts.



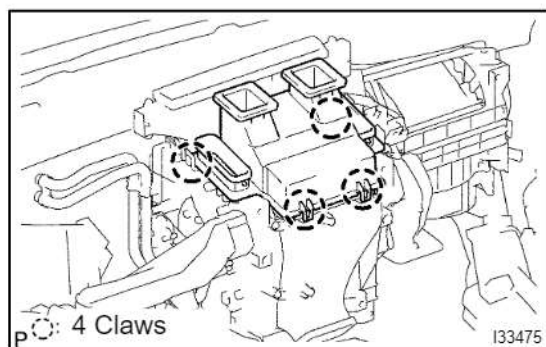
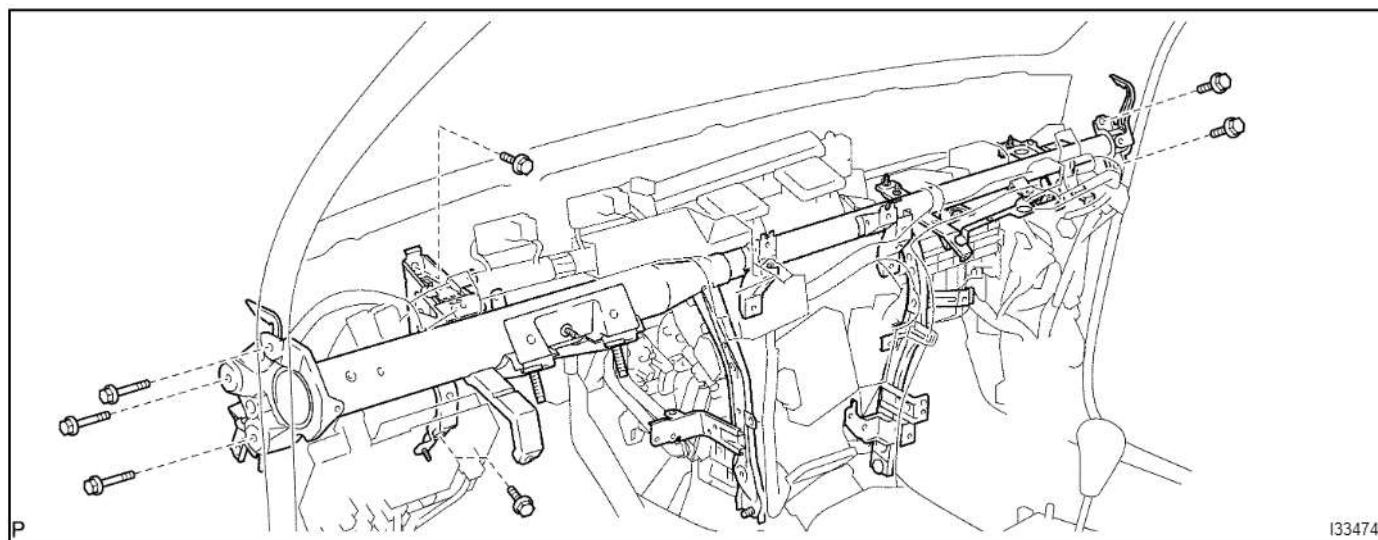
- (b) Release the 27 clamps.
(c) Disconnect the connectors.



(d) Remove the 5 bolts.

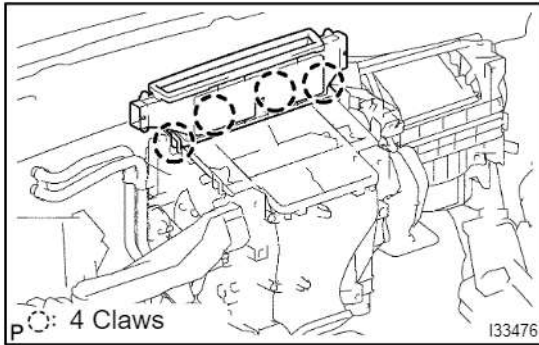


(e) Remove the 7 bolts and instrument panel reinforcement.

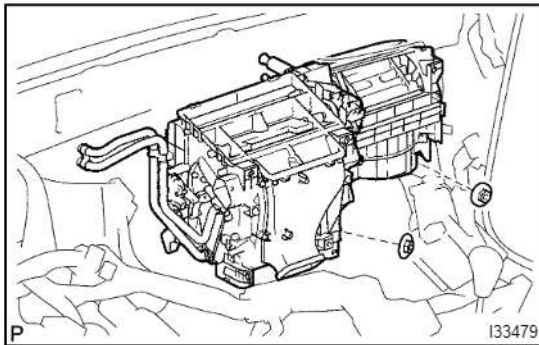


21. REMOVE HEATER TO REGISTER DUCT CENTER

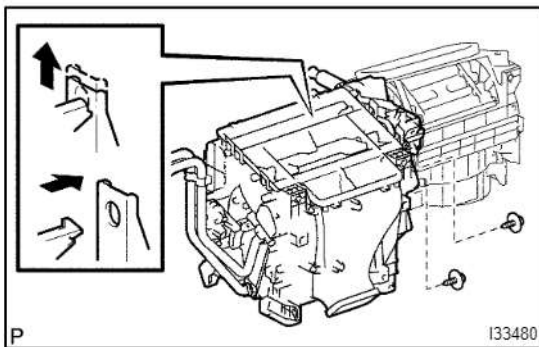
(a) Release the 4 claw fittings and remove the heater to register duct center.

**22. REMOVE DEFROSTER NOZZLE ASSY LOWER**

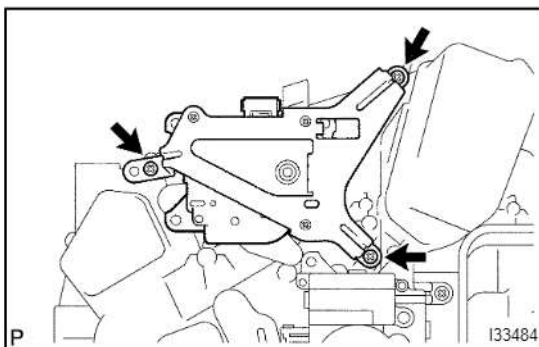
- (a) Release the 4 claw fittings and remove the defroster nozzle assy lower.

**23. REMOVE AIR CONDITIONER UNIT ASSY**

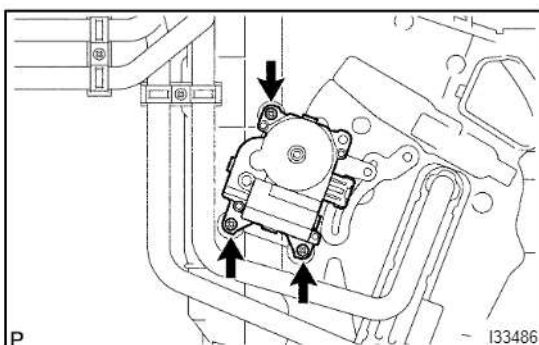
- (a) Disconnect the connectors.
(b) Remove the 2 nut and air conditioner unit assy.

**24. REMOVE AIR CONDITIONING RADIATOR ASSY**

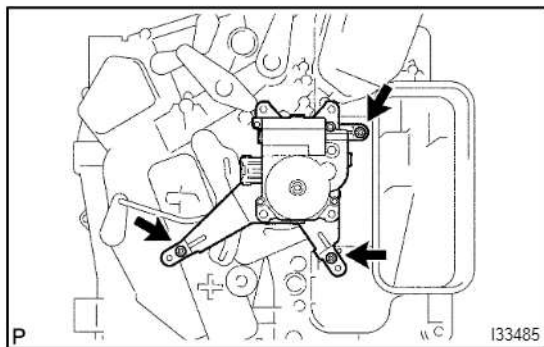
- (a) Remove the 2 screws and air conditioning radiator assy.

**25. REMOVE MODE DAMPER SERVO SUB-ASSY**

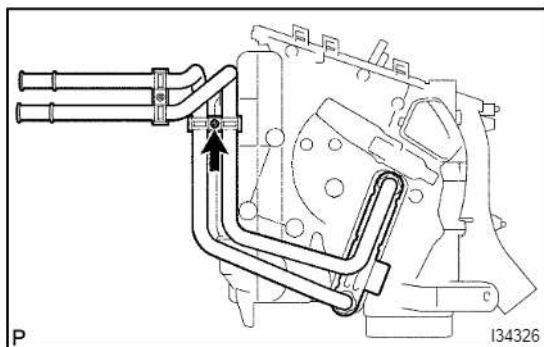
- (a) Remove the 3 screws and mode damper servo sub-assy.

**26. REMOVE DAMPER SERVO SUB-ASSY (INDEPENDENCE TEMPERATURE CONTROL)**

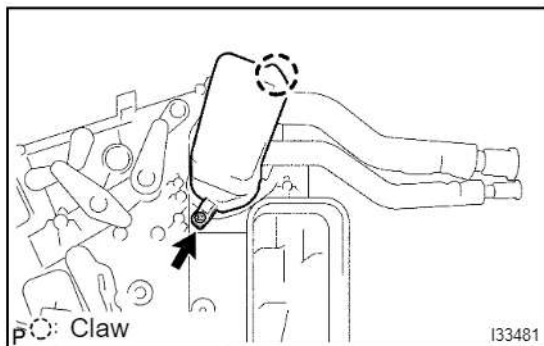
- (a) Remove the 3 screws and damper servo sub-assy.

**27. REMOVE DAMPER SERVO SUB-ASSY**

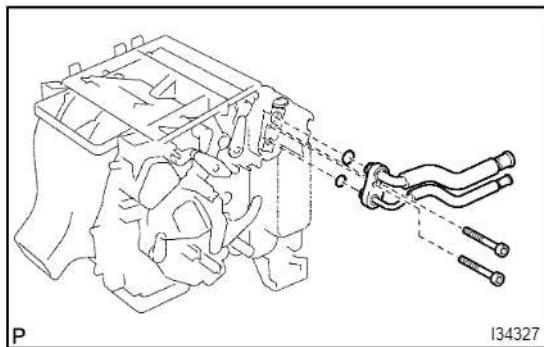
- (a) Remove the 3 screws and damper servo sub-assy.

**28. REMOVE HEATER RADIATOR UNIT SUB-ASSY**

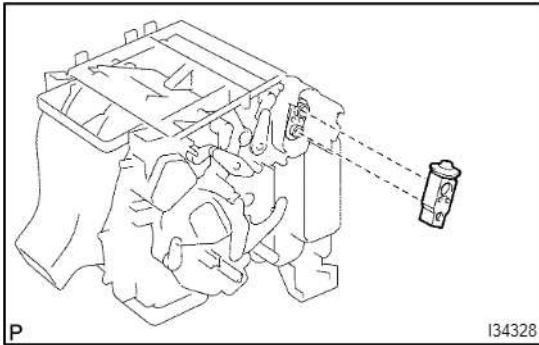
- (a) Remove the screw, clamp and heater radiator unit sub-assy.

29. REMOVE COOLER THERMISTOR NO.1**30. REMOVE COOLER COVER NO.1****31. REMOVE COOLER UNIT DRAIN HOSE NO.1****32. REMOVE AIR CONDITIONING TUBE ASSY**

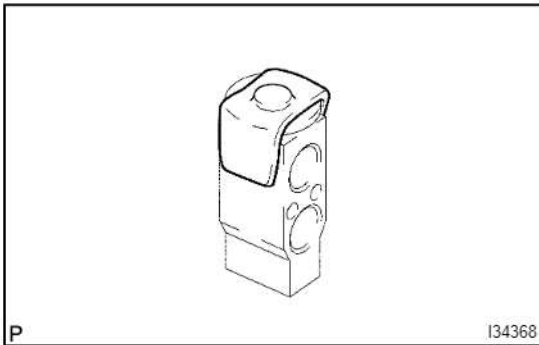
- (a) Remove the screw.
(b) Release the claw fitting and remove the cover.



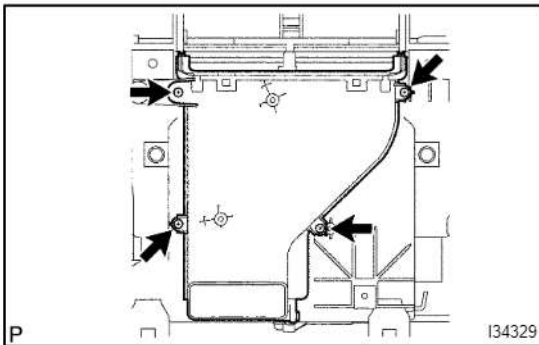
- (c) Using a hexagon wrench 4.0 mm (0.15 in.), remove the 2 hexagon bolts and air conditioning tube assy.
(d) Remove the 2 O-rings from the air conditioning tube assy.

**33. REMOVE COOLER EXPANSION VALVE**

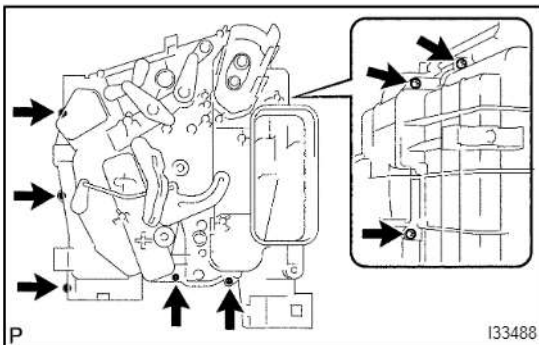
- (a) Remove the cooler expansion valve from the cooler evaporator sub-assy No.1.

**34. REMOVE COOLING UNIT PACKING NO.1**

- (a) Remove the cooling unit packing No.1.

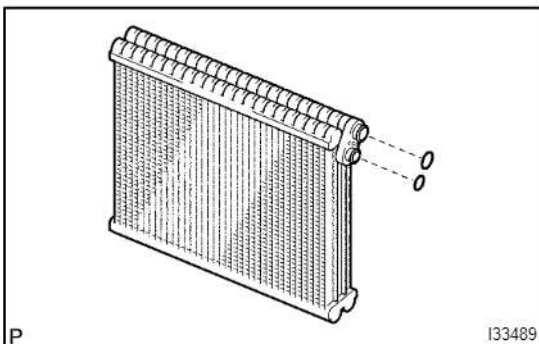
**35. REMOVE COOLER EVAPORATOR SUB-ASSY NO.1**

- (a) Remove the 4 screws and air duct sub-assy.

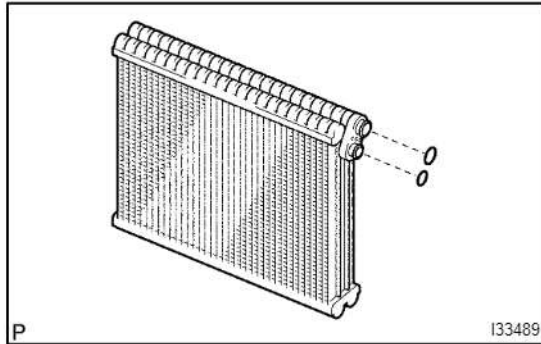


- (b) Remove the 8 screws and separate the heater case.

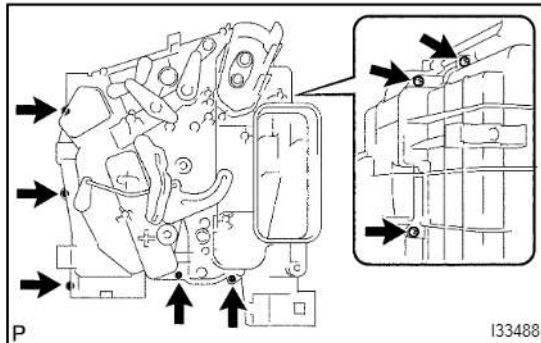
- (c) Remove the cooler evaporator sub-assy No.1.



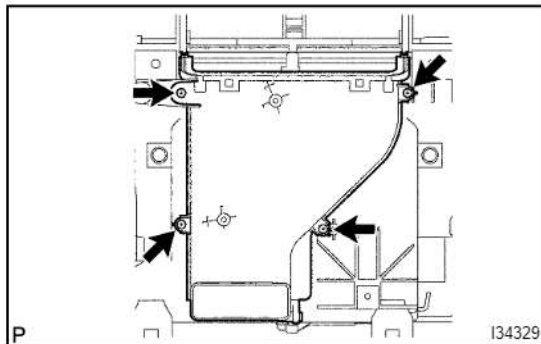
- (d) Remove the 2 O-rings from the cooler evaporator sub-assy No.1.

36. REMOVE COVER PLATE (EXCEPT INDEPENDENCE TEMPERATURE CONTROL)

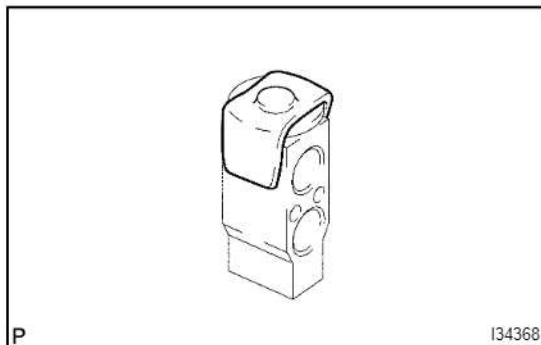
- 37. INSTALL COOLER EVAPORATOR SUB-ASSY NO.1**
- (a) Sufficiently apply compressor oil to the 2 new O-rings and fitting surface of the cooler expansion valve.
Compressor oil: ND-OIL8 or equivalent
- (b) Install the 2 O-rings on the cooler evaporator sub-assy No.1.



- (c) Install the cooler evaporator sub-assy No.1 on the heater case.
- (d) Install the heater case with the 8 screws.



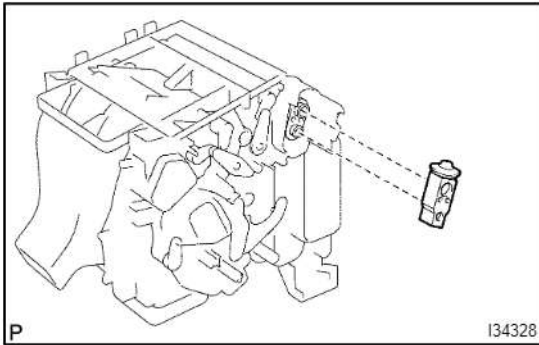
- (e) Install the air duct sub-assy with the 4 screws.

**38. INSTALL COOLING UNIT PACKING NO.1**

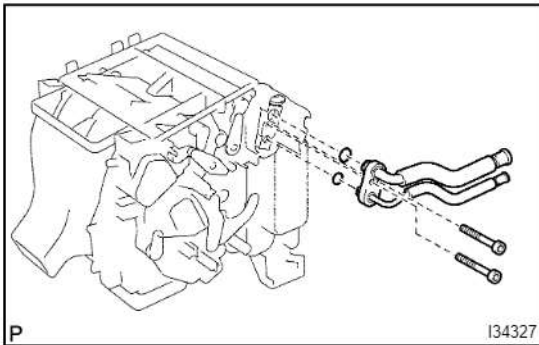
- (a) Install the cooling unit packing No.1.

HINT:

Securely attach so that the gap in the cooling unit packing No.1 will not be made.

**39. INSTALL COOLER EXPANSION VALVE**

- (a) Install the cooler expansion valve from cooler evaporator sub-assy No.1.

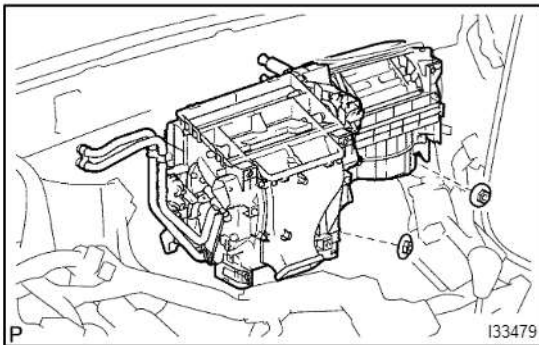
**40. INSTALL AIR CONDITIONING TUBE ASSY**

- (a) Sufficiently apply compressor oil to the 2 new O-rings and fitting surface of the air conditioning tube assy.

Compressor oil: ND-OIL8 or equivalent

- (b) Install the 2 O-rings on the air conditioning tube assy.
 (c) Using a hexagon wrench 4.0 mm (0.15 in.), install the air conditioning tube assy with the 2 hexagon bolts.

Torque: 3.5 N·m (35 kgf·cm, 30 in·lbf)

**41. INSTALL AIR CONDITIONER UNIT ASSY**

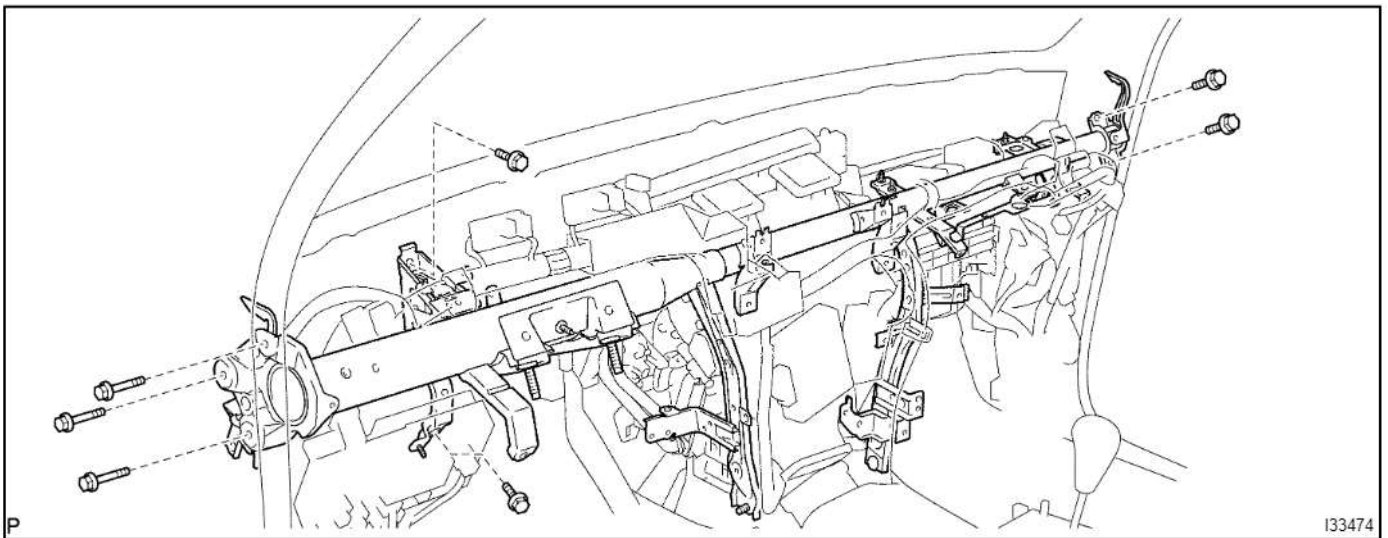
- (a) Install the air conditioner unit assy with the 2 nuts.

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

- (b) Connect the connectors.

42. INSTALL INSTRUMENT PANEL REINFORCEMENT

- (a) Install the instrument panel reinforcement with the 7 bolts.

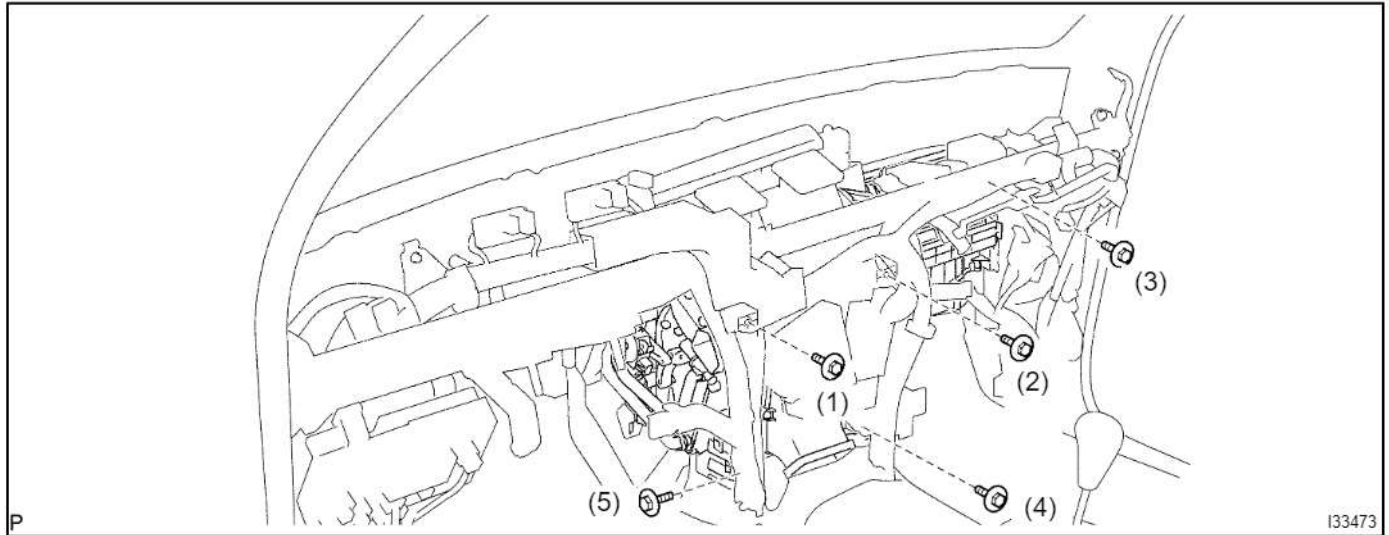


- (b) Install the 5 bolts.

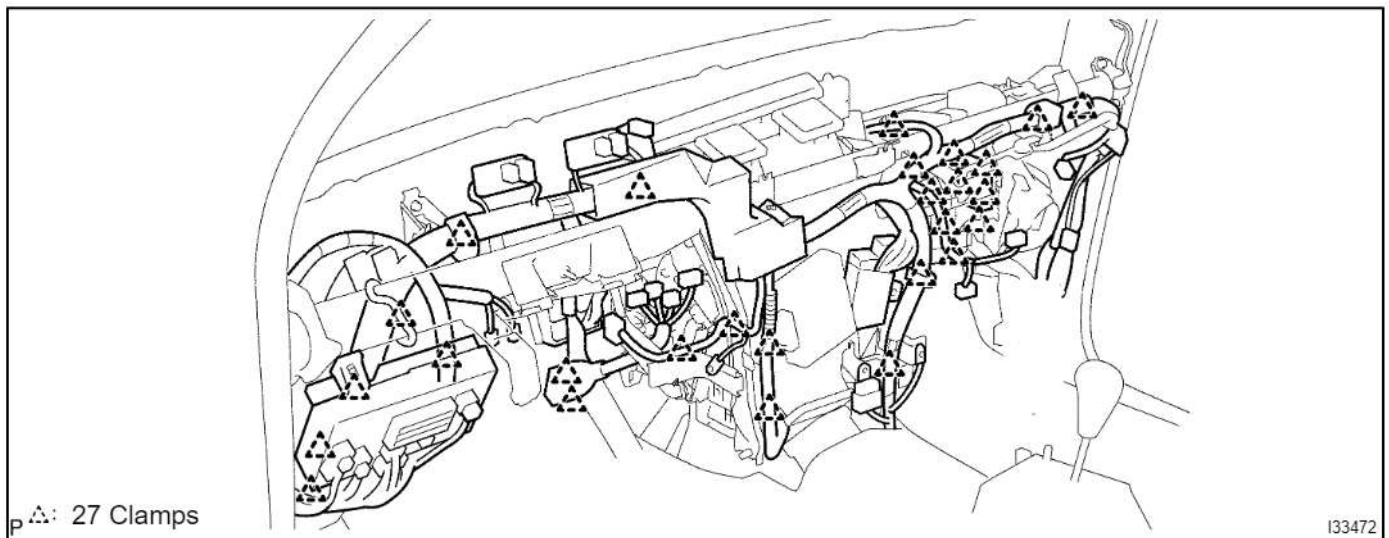
Torque: 9.8 N·m (100 kgf·cm, 87 in·lbf)

NOTICE:

Tighten the bolts in following order shown in the illustration to install the air conditioner unit assy.

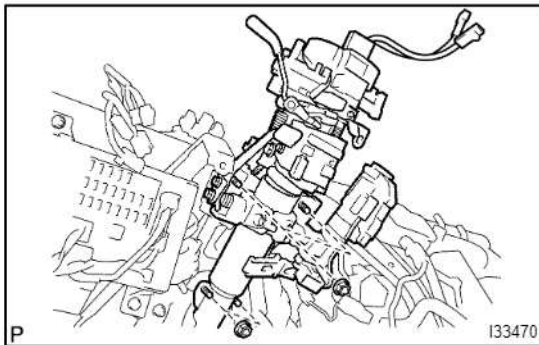
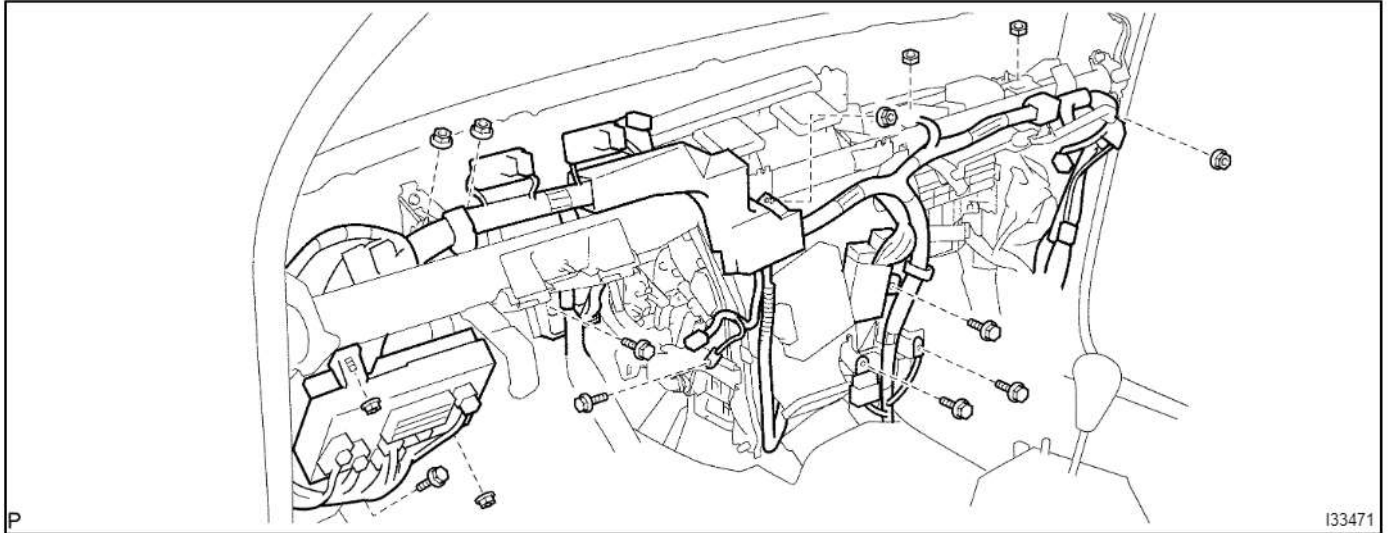


- (c) Install the 27 clamps.
(d) Connect the connectors.



- (e) Install the 6 bolts and 8 nuts.

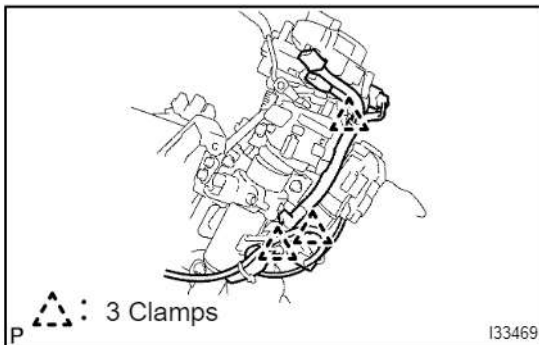
Torque: 8.3 N·m (85 kgf·cm, 73 in·lbf)



43. INSTALL STEERING COLUMN ASSY

- (a) Install the steering column assy with the 4 nuts.

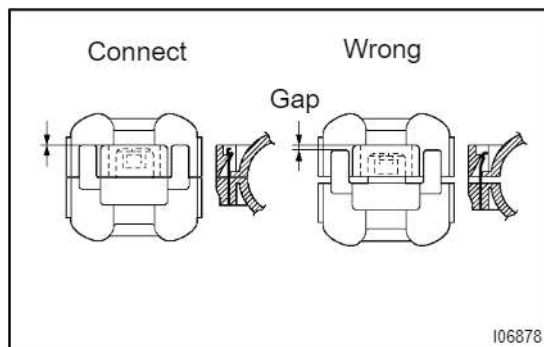
Torque: 26 N·m (265 kgf·cm, 19 in·lbf)



- (b) Install the 3 clamps and connect the connectors.

44. INSTALL ECM (See page 10-24)

45. INSTALL INSTRUMENT PANEL SAFETY PAD SUB-ASSY (See page 71-14)

**46. INSTALL COOLER REFRIGERANT LIQUID PIPE C**

- (a) Lubricate new O-ring with compressor oil and install them on the hose.

Compressor oil: ND-OIL 8 or equivalent

- (b) Install the cooler refrigerant liquid pipe C and piping clamp.

HINT:

After connection, check the fitting for claw of the piping clamp.

47. INSTALL COOLER REFRIGERANT SUCTION PIPE C

- (a) Lubricate a new O-ring with compressor oil and install them to the pipe.

Compressor oil: ND-OIL 8 or equivalent

- (b) Install the cooler refrigerant suction pipe C and piping clamp.

HINT:

After connection, check the fitting for claw of the piping clamp.

48. CHARGE REFRIGERANT (See page 55-8)

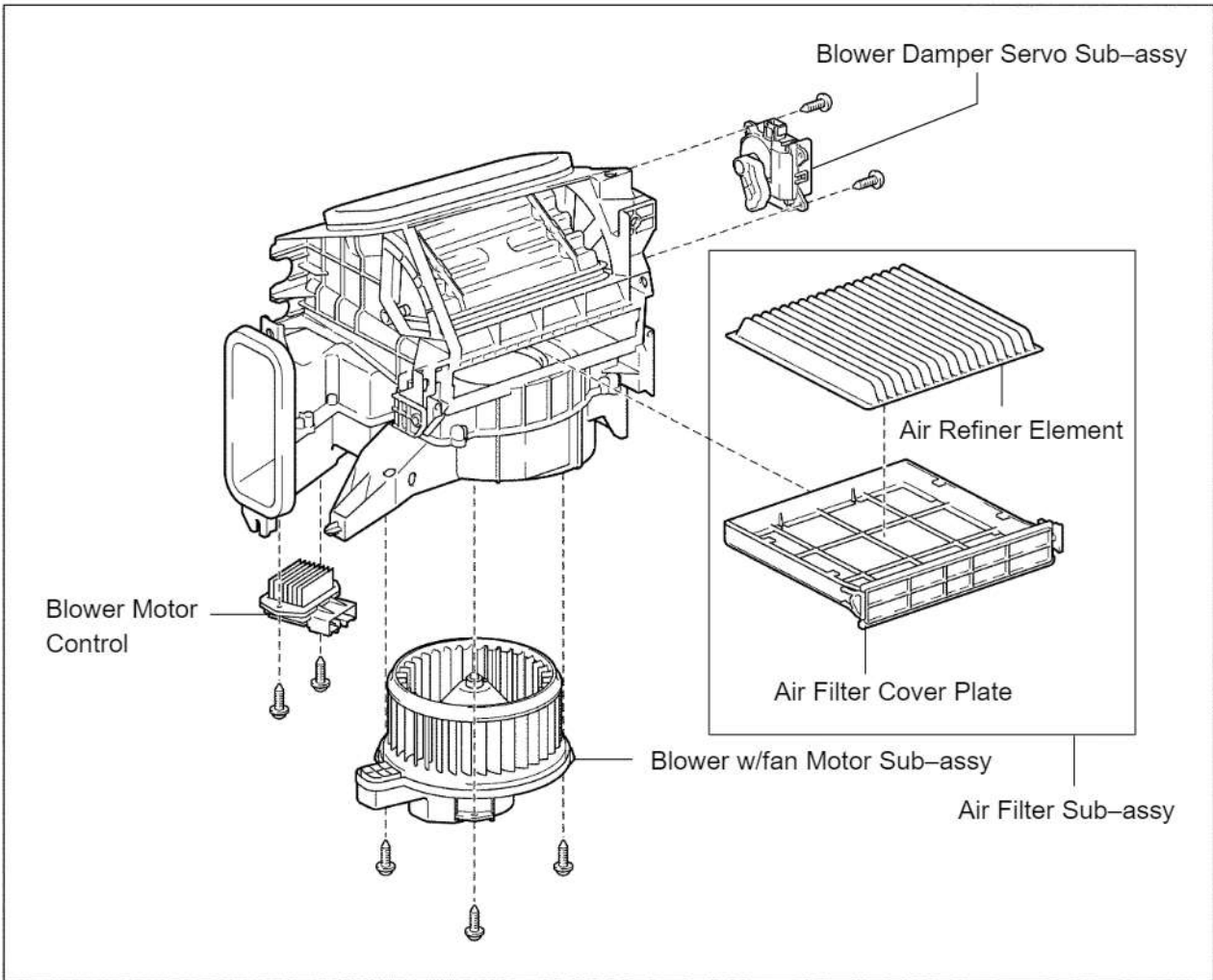
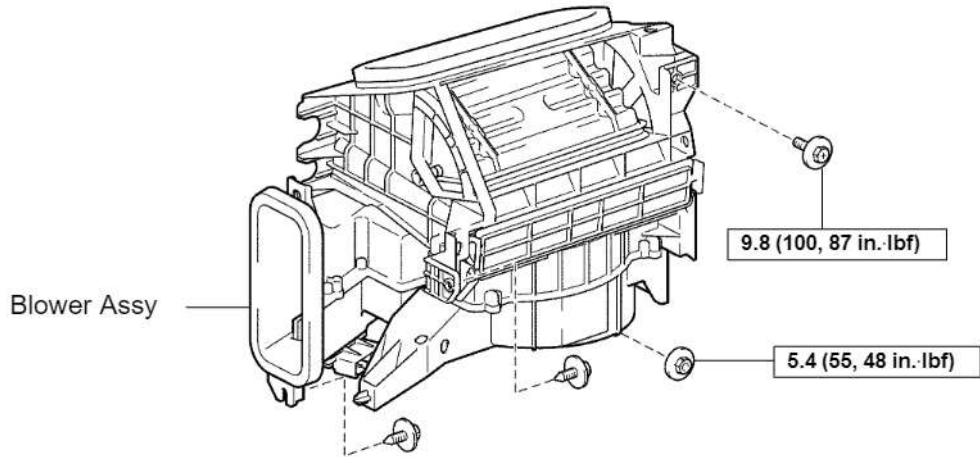
SST 07110-58060 (07117-58060, 07117-58070, 07117-58080, 07117-58090, 07117-78050, 07117-88060, 07117-88070, 07117-88080)

Specified amount: 600 ± 30 g (21.16 ± 1.06 oz.)

49. WARM UP ENGINE (See page 55-8)**50. INSPECT LEAKAGE OF REFRIGERANT (See page 55-8)**

BLOWER ASSY COMPONENTS

550QG-02



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

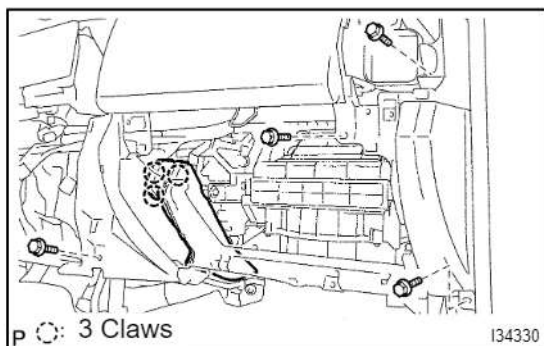
133453

OVERHAUL

HINT:

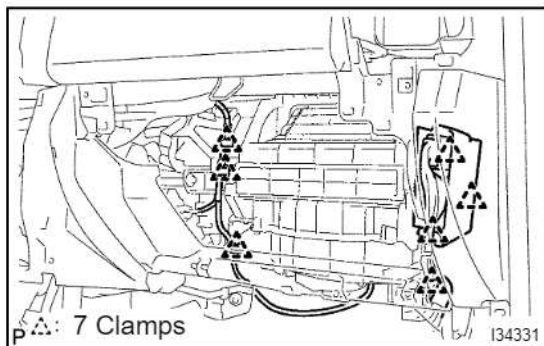
COMPONENTS: See page 55-27

1. REMOVE CONSOLE UPPER REAR PANEL SUB-ASSY (See page 71-14)
2. REMOVE CONSOLE PANEL SUB-ASSY UPPER (See page 71-14)
3. REMOVE CONSOLE UPPER PANEL GARNISH NO.1 (See page 71-14)
4. REMOVE CONSOLE UPPER PANEL GARNISH NO.2 (See page 71-14)
5. REMOVE CONSOLE BOX ASSY REAR (See page 71-14)
6. REMOVE COWL SIDE TRIM BOARD RH (See page 71-14)
7. REMOVE INSTRUMENT PANEL UNDER COVER SUB-ASSY NO.2 (See page 71-14)
8. REMOVE GLOVE COMPARTMENT DOOR STOPPER SUB-ASSY (See page 71-14)
9. REMOVE GLOVE COMPARTMENT DOOR SUB-ASSY (See page 71-14)
10. REMOVE INSTRUMENT PANEL FINISH PANEL LOWER NO.2 (See page 71-14)
11. REMOVE INSTRUMENT PANEL REGISTER ASSY NO.2 (See page 71-14)



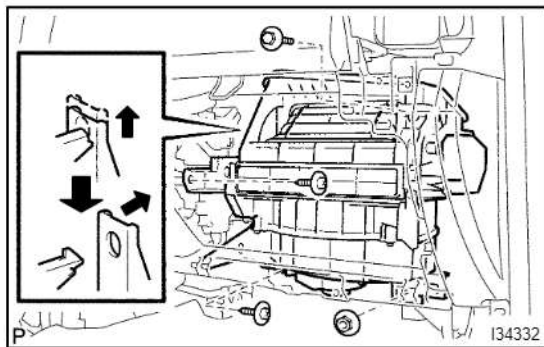
12. REMOVE AIR DUCT NO.2

- (a) Remove the 4 bolts and disconnect the Instrument panel safety pad sub-assy.
- (b) Remove the 3 claw fittings and remove the air duct No.2.

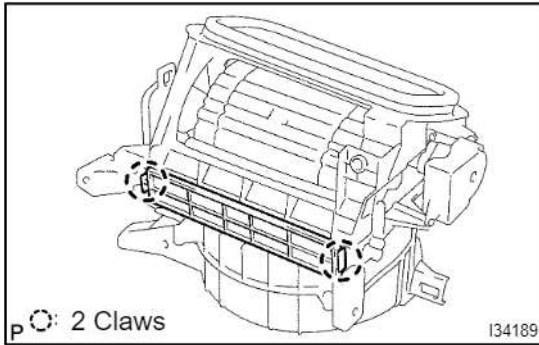


13. REMOVE BLOWER ASSY

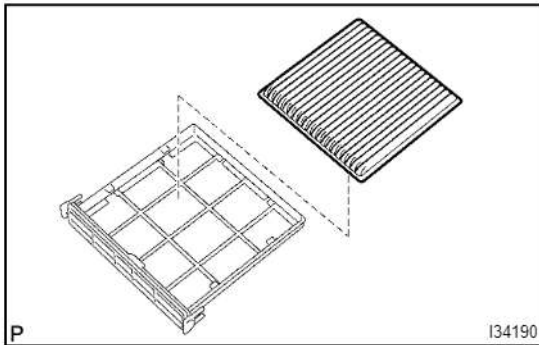
- (a) Release the 7 clamps and disconnect the connectors.



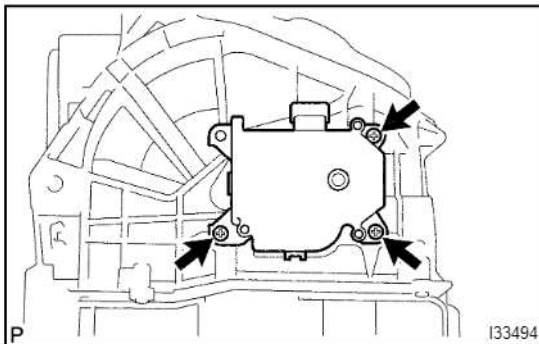
- (b) Remove the bolt and 2 screws and nut.
- (c) Release the claw fitting and remove the blower Assy.

**14. REMOVE CLEAN AIR FILTER SUB-ASSY**

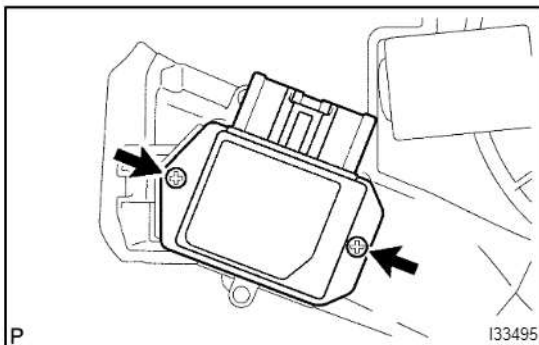
- (a) Release the 2 claw fittings and remove the air filter sub-assy.

**15. REMOVE CLEAN AIR FILTER**

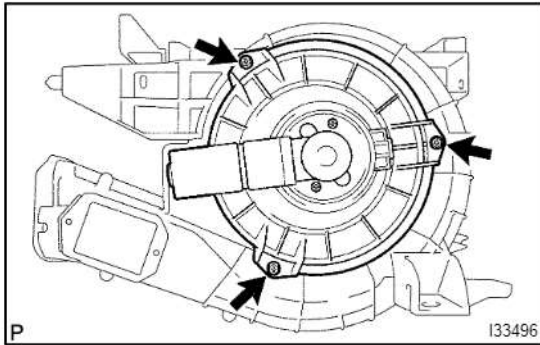
- (a) Remove the air refiner element from the air filter cover plate.

16. REMOVE AIR FILTER COVER PLATE**17. REMOVE BLOWER DAMPER SERVO SUB-ASSY**

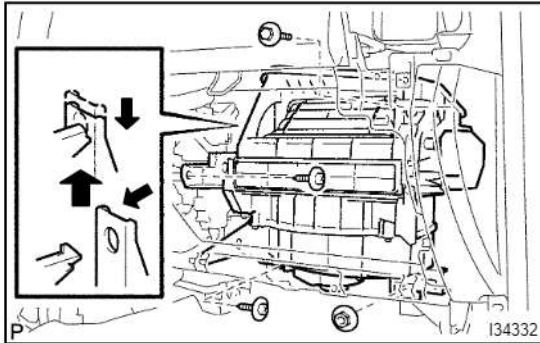
- (a) Remove the 3 screws and blower damper servo sub-assy.

**18. REMOVE BLOWER MOTOR CONTROL**

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

**19. REMOVE BLOWER W/FAN MOTOR SUB-ASSY**

- (a) Remove the 3 screws and blower w/ fan motor sub-assy.

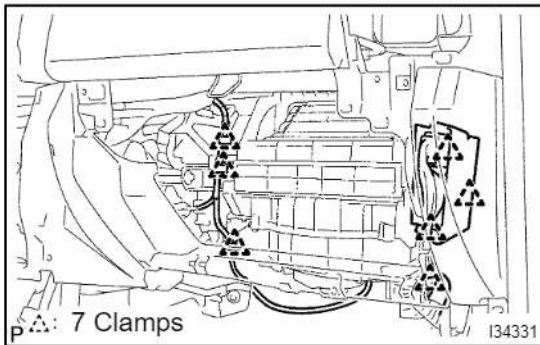
**20. INSTALL BLOWER ASSY**

- (a) Install the blower assy with the claw fitting.
 (b) Install the bolt, 2 screws and nut.

Torque:

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

5.4 N·m (55 kgf·cm, 48 in·lbf) (Nut)

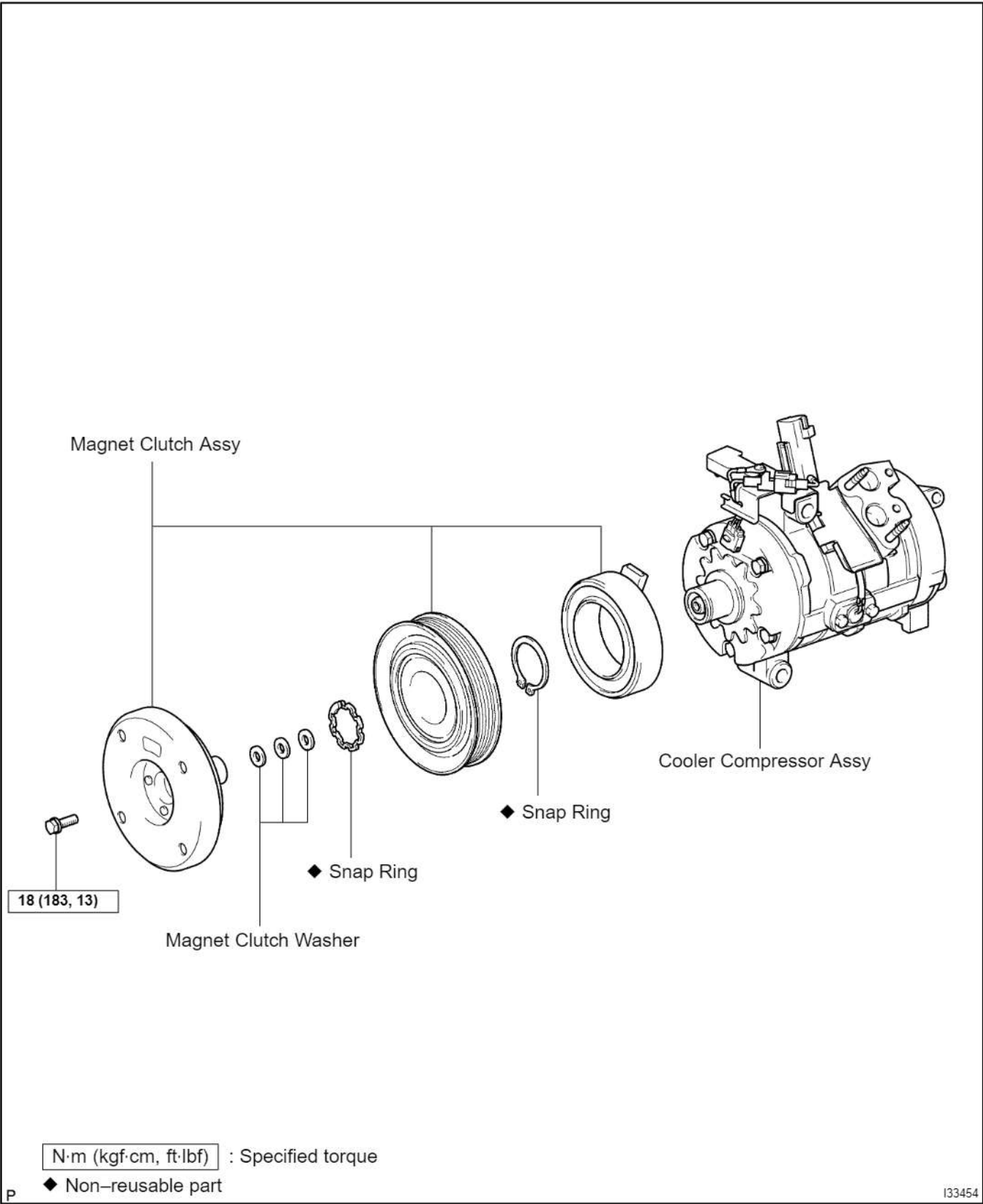


- (c) Install the 7 clamps and connect the connectors.

COOLER COMPRESSOR ASSY (2UZ-FE)

COMPONENTS

550QI-02



REPLACEMENT

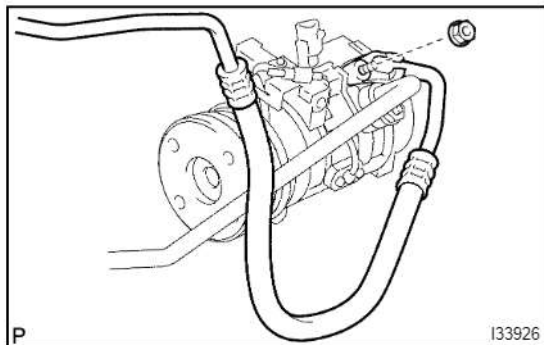
HINT:

COMPONENTS: See page 55-31

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page 55-8)

SST 07110-58060 (07117-58080, 07117-58090, 07117-78050, 07117-88060, 07117-88070, 07117-88080)

2. REMOVE FAN AND GENERATOR V BELT (See page 14-194)

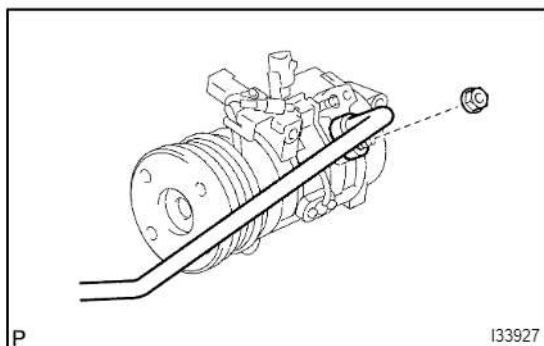


3. DISCONNECT DISCHARGE HOSE SUB-ASSY

- Remove the nut and disconnect the discharge hose sub-assy from the compressor and magnetic clutch.
- Remove the O-ring from the discharge hose sub-assy.

NOTICE:

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

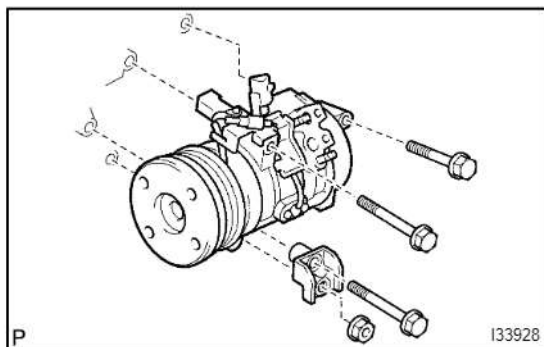


4. DISCONNECT SUCTION HOSE SUB-ASSY

- Remove the nut and disconnect the cooler refrigerant suction hose sub-assy from the compressor and magnetic clutch.
- Remove the O-ring from the cooler refrigerant suction hose sub-assy.

NOTICE:

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

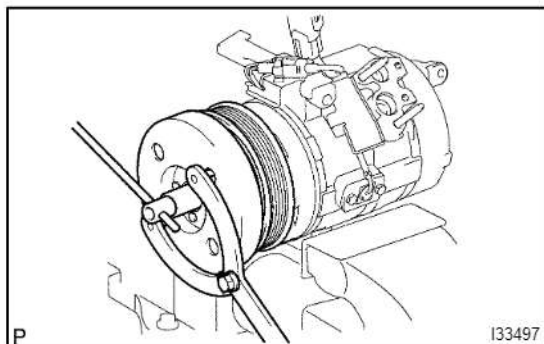


5. REMOVE COMPRESSOR AND MAGNETIC CLUTCH

- Disconnect the connector.
- Remove the nut.
- Remove the 3 bolts, stay, compressor and compressor and magnetic clutch.

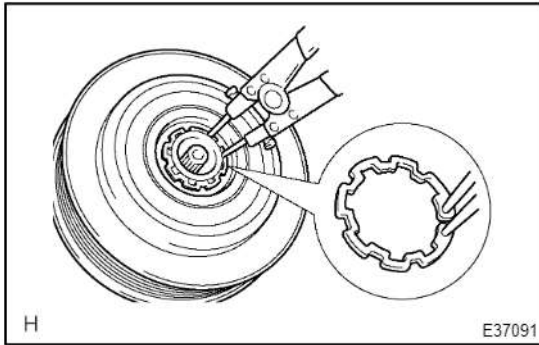
6. REMOVE MAGNET CLUTCH ASSY

- Place the compressor and magnetic clutch in a vise.

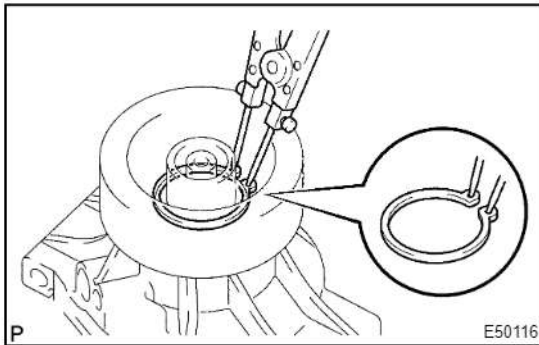


- Using SST, remove the bolt, magnet clutch hub and magnet clutch washer.

SST 09960-10010 (09962-01000, 09963-00500)



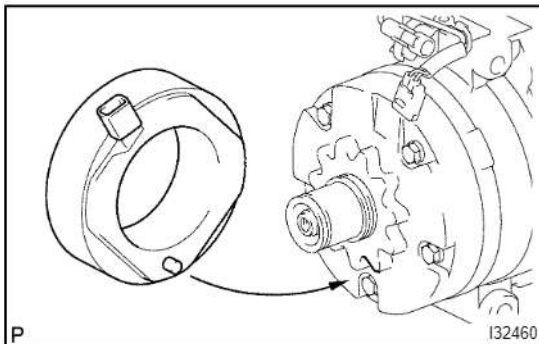
- (c) Using a snap ring expander, remove the snap ring and magnet clutch rotor.
- (d) Remove the screw and disconnect the connector.



- (e) Using a snap ring expander, remove the snap ring and magnet clutch starter.

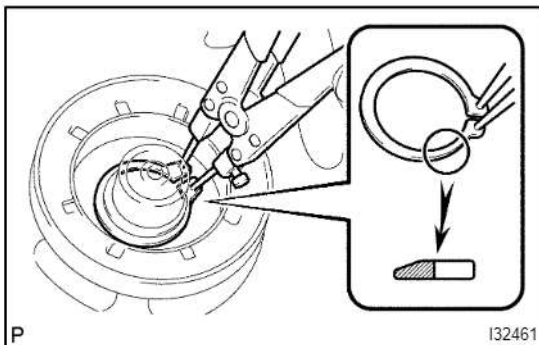
7. REMOVE COOLER COMPRESSOR BRACKET

8. REMOVE COOLER COMPRESSOR ASSY

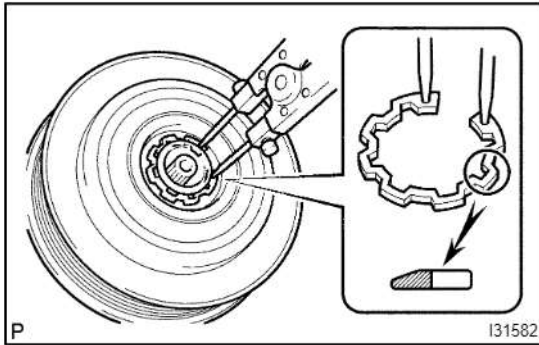


9. INSTALL MAGNET CLUTCH ASSY

- (a) Fit the parts shown in the illustration and install the magnet clutch starter.



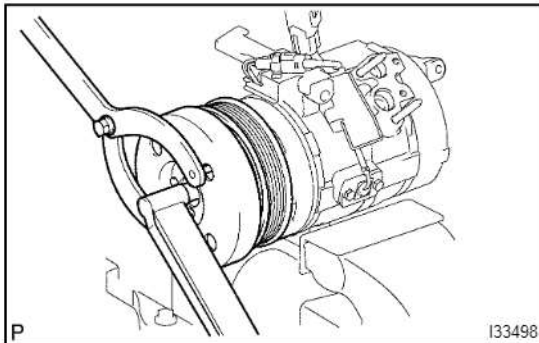
- (b) Using a snap ring expander, install a new snap ring with the chamfered side facing up.
- (c) Install the screw and connect the connector.



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

NOTICE:

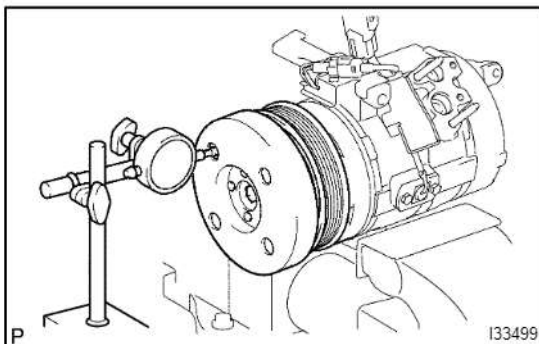
Do not change the combination of the magnet clutch washers used before disassembly.



- (f) Using SST, install the magnet clutch hub and magnet clutch washer with the bolt.

SST 09960-10010 (09962-01000, 09963-00500)

Torque: 18 N·m (183 kgf·cm, 13 ft·lbf)

**10. INSPECT MAGNETIC CLUTCH CLEARANCE**

- (a) Set the dial indicator to the magnet clutch hub.
- (b) Connect the battery positive lead to the terminal 1 of magnet clutch connector and the negative lead to the earth wire. Turn on and off the magnet clutch and measure the clearance.

Standard clearance:

0.35 – 0.60 mm (0.013 – 0.023 in.)

If the measured value is out of the standard range, remove the magnet clutch hub and adjust it with magnet clutch washers.

NOTICE:

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

11. INSPECT COMPRESSOR OIL

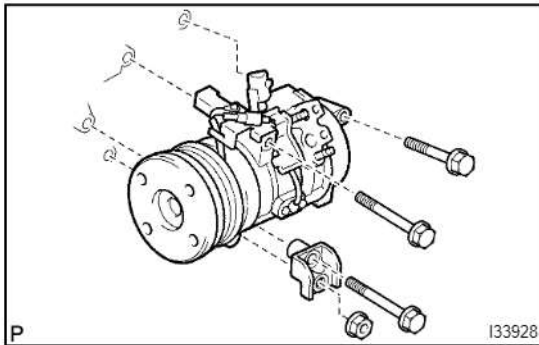
- (a) When replacing the compressor and magnetic clutch with a new one, after gradually removing the refrigerant gas from the service valve, drain the following amount of oil from the new compressor and magnetic clutch before installation.

Standard:

(Oil capacity inside new compressor and magnetic clutch: 120 + 15 cc (4.0 + 0.5 fl. oz.)) – (Remaining oil amount in the removed compressor and magnetic clutch) = (Oil amount to be removed when replacing)

NOTICE:

- ◆ When checking the compressor oil level, observe the precautions on the cooler removal/installation.
- ◆ Because compressor oil remains in the pipes of the vehicle, if a new compressor and magnetic clutch is installed without removing some oil inside, the oil amount becomes excessive, preventing heat exchange in the refrigerant cycle and causing refrigerant failure.
- ◆ If the remaining oil in the removed compressor and magnetic clutch is too small in volume, check for oil leakage.
- ◆ Be sure to use ND-OIL8 for compressor oil.

**12. INSTALL COMPRESSOR AND MAGNETIC CLUTCH**

- (a) Install the compressor and magnetic clutch and stay, compressor with the 3 bolts.

Torque: 46 N·m (469 kgf·cm, 34 ft·lbf)

- (b) Install the nut.

Torque: 24 N·m (245 kgf·cm, 18 ft·lbf)

- (c) Connect the connector.

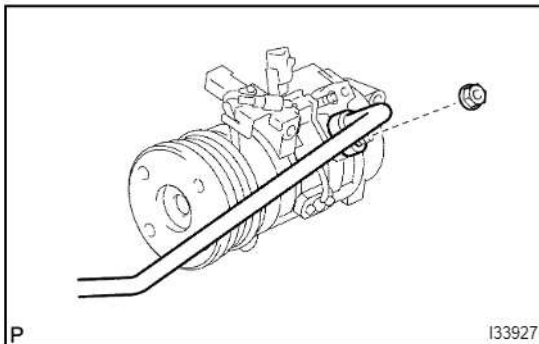
13. INSTALL SUCTION HOSE SUB-ASSY

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

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

Compressor oil: ND-OIL8 or equivalent

- (c) Install a O-ring on the suction hose sub-assy.



- (d) Install the suction hose sub-assy on the compressor and magnetic clutch with the nut.

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

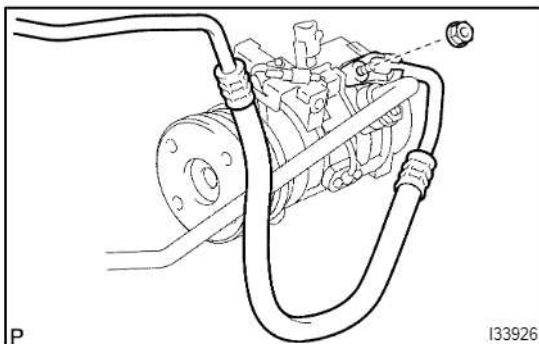
14. INSTALL DISCHARGE HOSE SUB-ASSY

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

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

Compressor oil: ND-OIL8 or equivalent

- (c) Install a O-ring on the discharge hose sub-assy.



- (d) Install the discharge hose sub-assy on the compressor and magnetic clutch with the nut.

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

15. **INSPECT V-RIBBED BELT TENSIONER ASSY** (See page 14-194)
16. **INSTALL FAN AND GENERATOR V BELT** (See page 14-194)
17. **CHARGE REFRIGERANT** (See page 55-8)
SST 07110-58060 (07117-58060, 07117-58070, 07117-58080, 07117-58090, 07117-78050,
07117-88060, 07117-88070, 07117-88080)
Specified amount: 600 ± 30 g (21.16 ± 1.06 oz.)
18. **WARM UP ENGINE** (See page 55-8)
19. **INSPECT LEAKAGE OF REFRIGERANT** (See page 55-8)

COOLER CONDENSER CORE

5509K-02

ON-VEHICLE INSPECTION

1. INSPECT COOLER CONDENSER ASSY

- (a) If a fin of the cooler condenser assy is dirty, clean it with water and dry it with compressor air.

NOTICE:

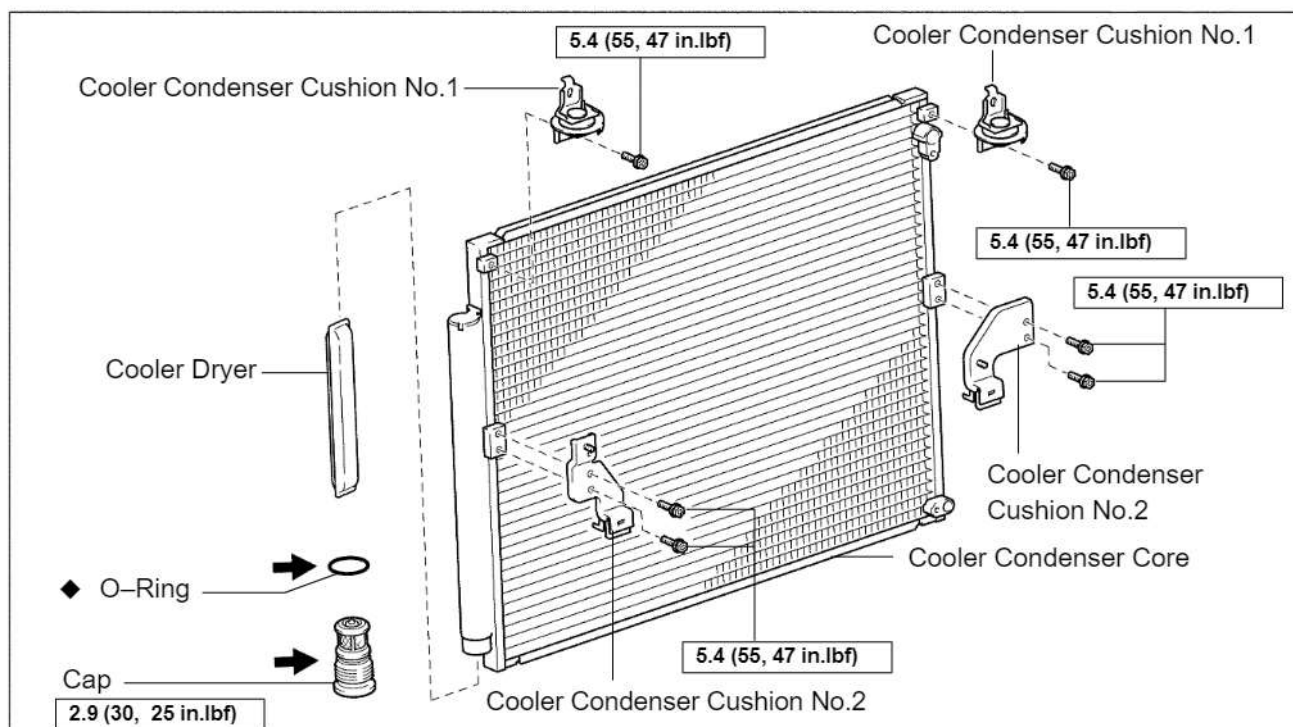
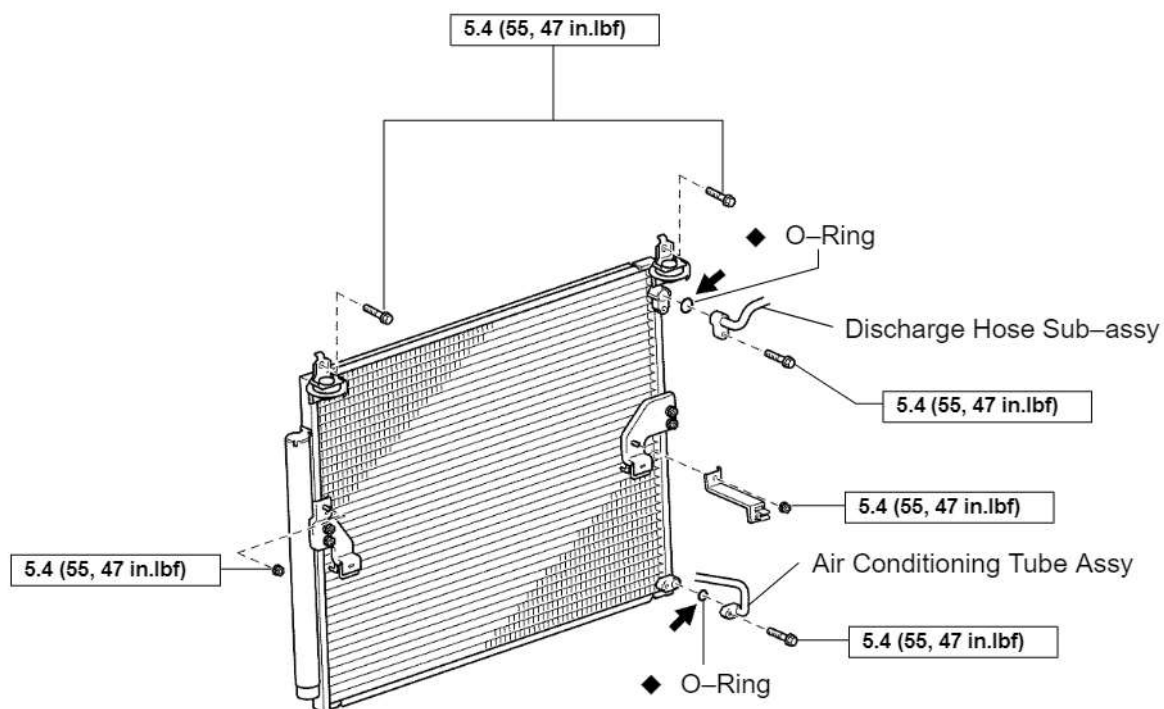
Do not damage the fin of the condenser assy.

- (b) If a fin of the condenser assy is bent, make it straight using a screwdriver or pliers.

2. INSPECT CONDENSER FOR LEAKAGE OF REFRIGERANT

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

COMPONENTS



P N·m (kgf·cm, ft·lbf) : Specified torque
 ◆ Non-reusable part
 ← Compressor oil ND-OIL 8 or equivalent

2004 4RUNNER REPAIR MANUAL (RM1050U)

133455

Author :

Date :

1129

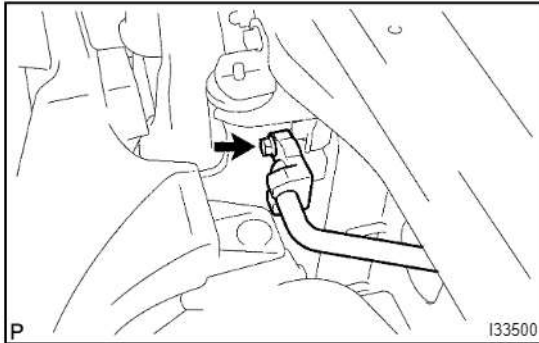
OVERHAUL

HINT:

COMPONENTS: See page 55-38

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page 55-8)

SST 07110-58060 (07117-58080, 07117-58090, 07117-78050, 07117-88060, 07117-88070, 07117-88080)

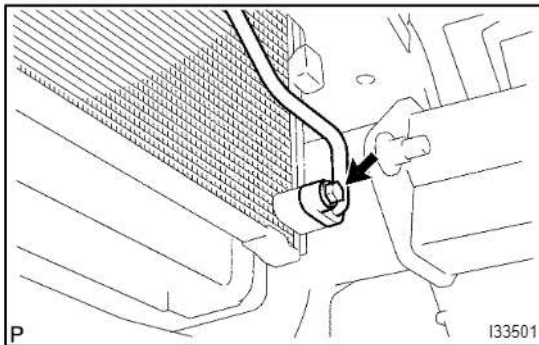


2. DISCONNECT DISCHARGE HOSE SUB-ASSY

- (a) Remove the bolt and disconnect the cooler refrigerant discharge hose sub-assy from the cooler condenser assy.
- (b) Remove the O-ring from the cooler refrigerant discharge hose sub-assy.

NOTICE:

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

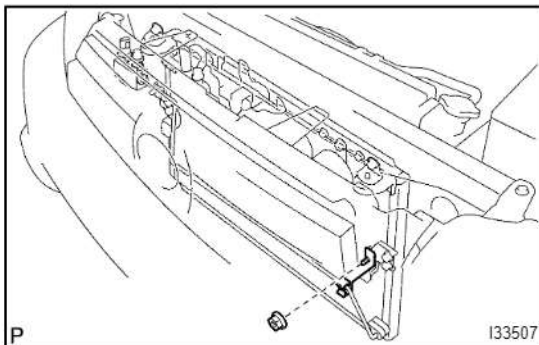


3. DISCONNECT AIR CONDITIONING TUBE ASSY

- (a) Remove the bolt and disconnect the air conditioning tube assy from the cooler condenser assy.
- (b) Remove the O-ring from the air conditioning tube assy.

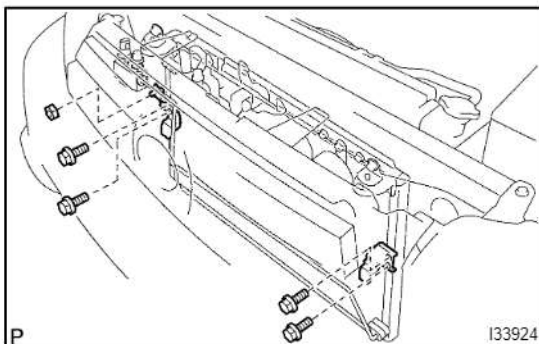
NOTICE:

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

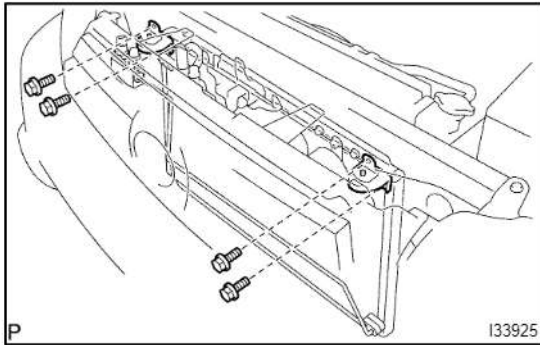


4. REMOVE COOLER CONDENSER CUSHION NO.2

- (a) Remove the nut and cooler condenser bracket No.1.

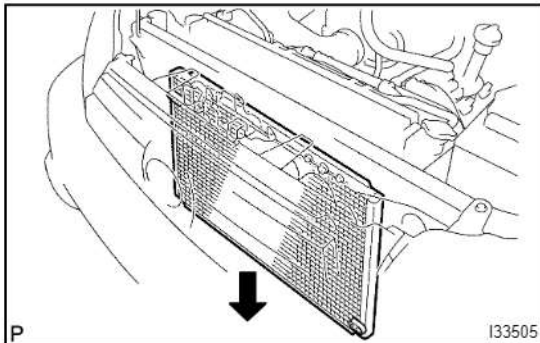


- (b) Remove the 4 bolts, nut and cooler condenser cushion No. 2.



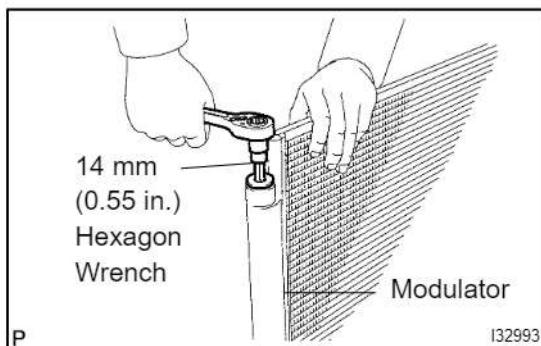
5. REMOVE COOLER CONDENSER CUSHION NO.1

- (a) Remove the 4 bolts and cooler condenser cushion No. 1.



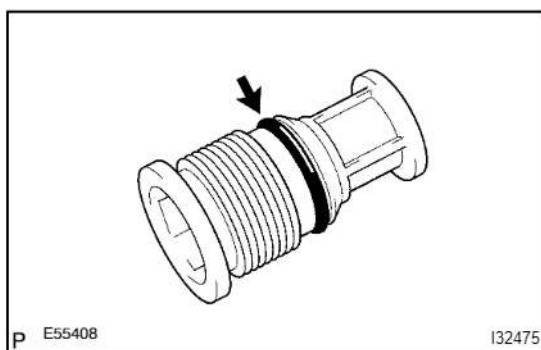
6. REMOVE COOLER CONDENSER CORE

- (a) Remove the cooler condenser core.

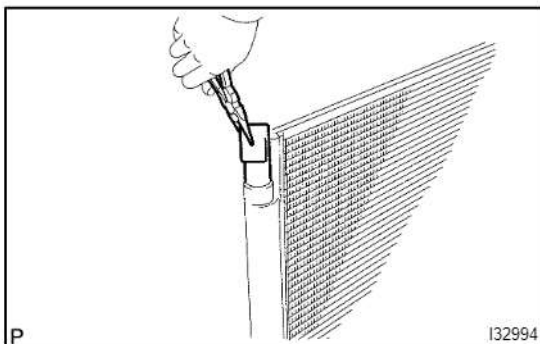


7. REMOVE COOLER DRYER

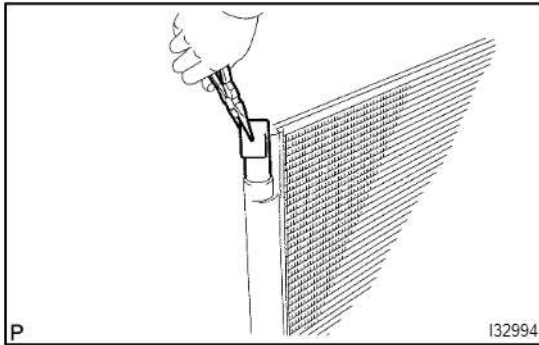
- (a) Using hexagon wrench 14 mm (0.55 in.), remove the cap and filter from the modulator.



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

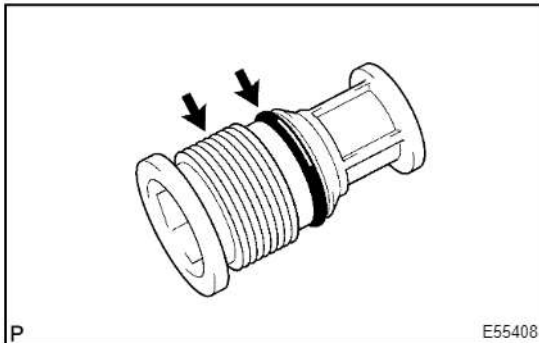


- (c) Using a needle nose pliers, remove the cooler dryer.



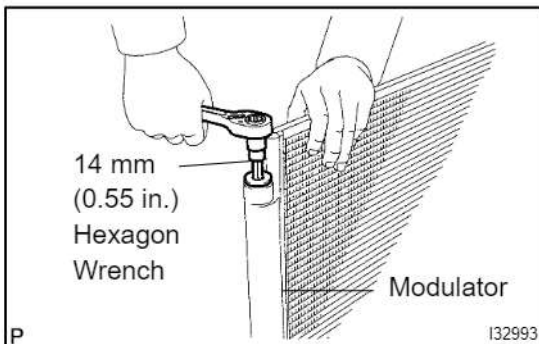
8. INSTALL COOLER DRYER

- (a) Using a needle nose pliers, install the cooler dryer.



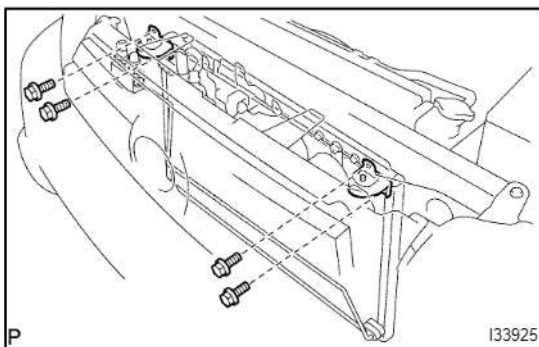
- (b) Install new O-ring on the cap.
 (c) Sufficiently apply compressor oil to the fitting surfaces of the O-ring and the cap.

Compressor oil: ND-OIL 8 or equivalent



- (d) Using hexagon wrench 14 mm (0.55 in.), install the cap to the cooler condenser assy.

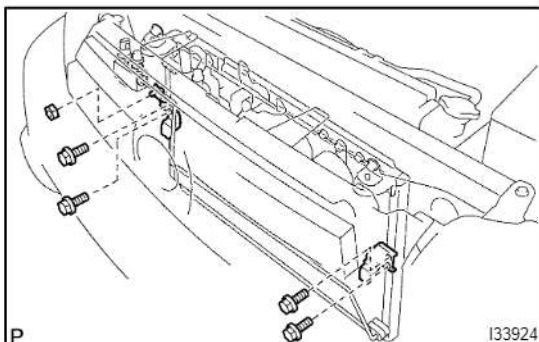
Torque: 2.9 N·m (30 kgf·cm, 25 in.·lbf)



9. INSTALL COOLER CONDENSER CUSHION NO.1

- (a) Install the cooler condenser cushion No. 1 with the 4 bolts.

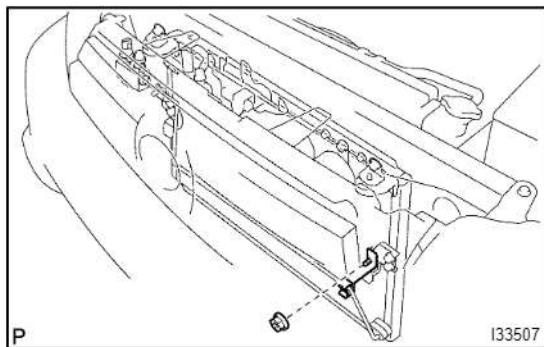
Torque: 5.4 N·m (55 kgf·cm, 47 in.·lbf)



10. INSTALL COOLER CONDENSER CUSHION NO.2

- (a) Install the cooler condenser cushion No. 2 with the 4 bolts and nut.

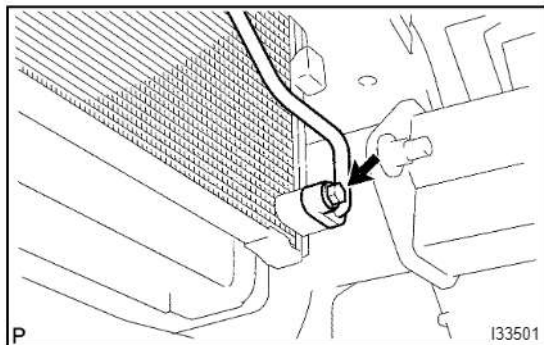
Torque: 5.4 N·m (55 kgf·cm, 47 in.·lbf)



- (b) Install the cooler condenser bracket No.1 with the nut.
Torque: 5.4 N·m (55 kgf·cm, 47 in.·lbf)

11. INSTALL AIR CONDITIONING TUBE ASSY

- (a) Remove the attached vinyl tape from the tube and connecting part of the cooler condenser assy.
 (b) Sufficiently apply compressor oil to the new O-ring and fitting surface of the pipe joint.
Compressor oil: ND-OIL 8 or equivalent
 (c) Install a O-ring on the air conditioning tube assy.



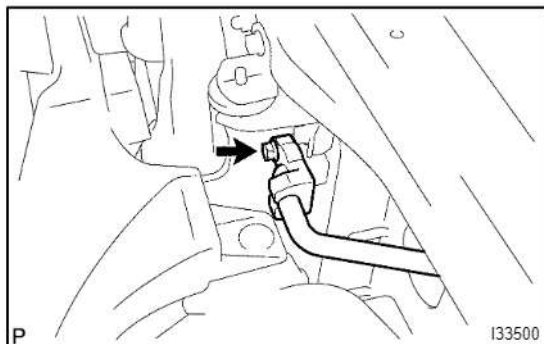
- (d) Connect the air conditioning tube assy on the cooler condenser assy with the bolt.

Torque: 5.4 N·m (55 kgf·cm, 47 in.·lbf)

12. INSTALL DISCHARGE HOSE SUB-ASSY

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

Compressor oil: ND-OIL 8 or equivalent



- (c) Install a O-ring on the discharge hose sub-assy.
 (d) Connect the discharge hose sub-assy on the cooler condenser assy with the bolt.

Torque: 5.4 N·m (55 kgf·cm, 47 in.·lbf)

13. CHARGE REFRIGERANT (See page 55-8)

SST 07110-58060 (07117-58060, 07117-58070, 07117-58080, 07117-58090, 07117-78050, 07117-88060, 07117-88070, 07117-88080)

Specified amount: 600 ± 30 g (21.16 ± 1.06 oz.)

14. WARM UP ENGINE (See page 55-8)

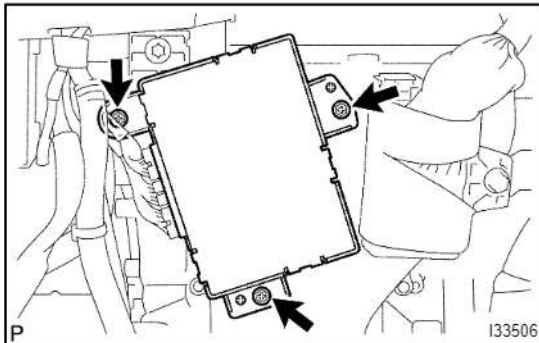
15. INSPECT LEAKAGE OF REFRIGERANT (See page 55-8)

AIRCONDITIONER AMPLIFIER ASSY

550QN-02

REPLACEMENT

1. REMOVE CONSOLE UPPER REAR PANEL SUB-ASSY (See page 71-14)
2. REMOVE CONSOLE PANEL SUB-ASSY UPPER (See page 71-14)
3. REMOVE CONSOLE UPPER PANEL GARNISH NO.1 (See page 71-14)
4. REMOVE CONSOLE UPPER PANEL GARNISH NO.2 (See page 71-14)
5. REMOVE CONSOLE BOX ASSY REAR (See page 71-14)
6. REMOVE AIR CONDITIONING CONTROL ASSY (See page 71-14)
7. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSY CENTER (See page 71-14)



8. REMOVE AIRCONDITIONER AMPLIFIER ASSY
 - (a) Disconnect the connectors.
 - (b) Remove the 3 screws and air conditioner amplifier assy.