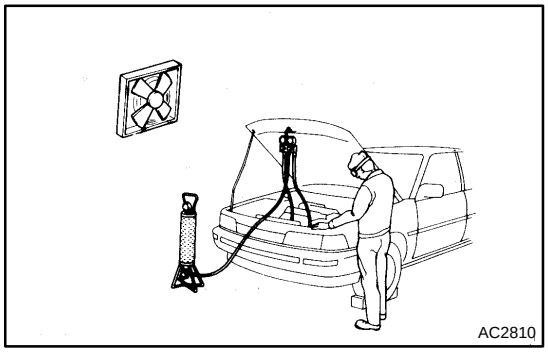
AIR CONDITIONING SYSTEM

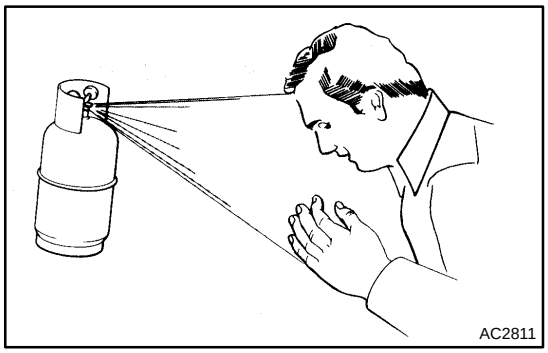
PRECAUTION

550IN–01



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:

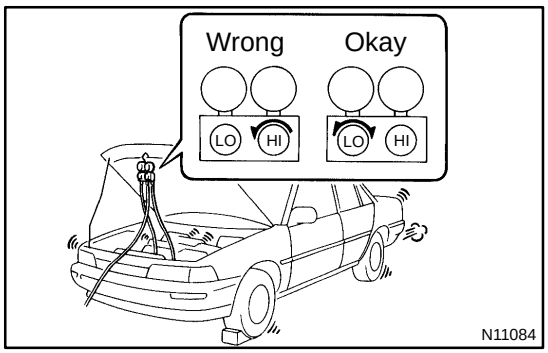
Do not rub your eyes or skin.

(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

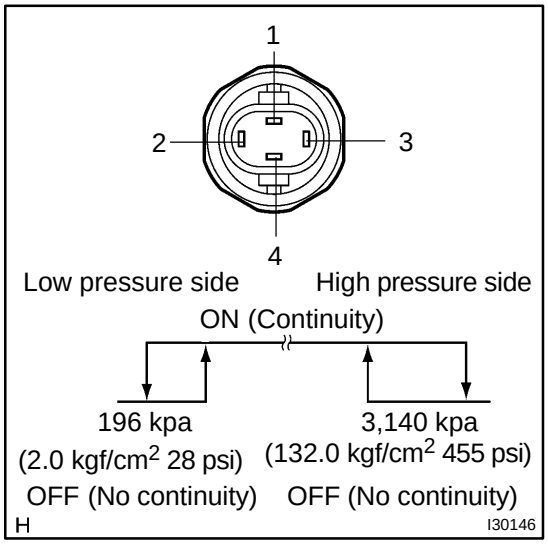
If the high pressure valves opened, refrigerant flows in the reverse direction and could cause the charging cylinder to rupture, so open and close the only low pressure valve.

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.

550IO–01

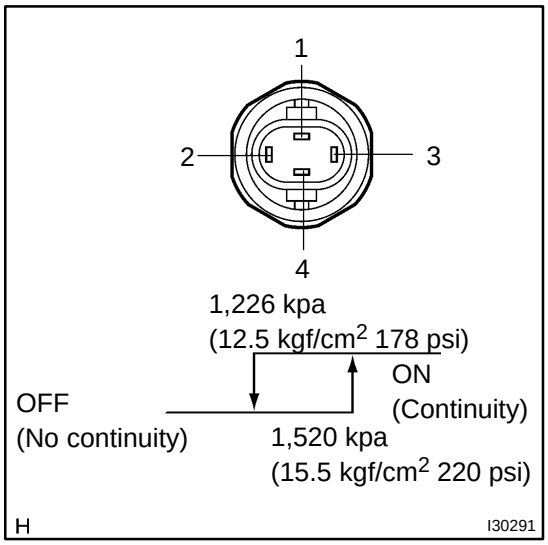
ON–VEHICLE INSPECTION



1. INSPECT PRESSURE SWITCH NO.1.

(a) Magnetic clutch control:
Inspect pressure switch operation.
(1) Set on the manifold gauge set.
(2) Connect the positive (+) lead from the ohmmeter to terminal 4 and the negative (–) lead to terminal 1.
(3) Check continuity between terminals when refrigerant pressure is changed, as shown in the illustration.

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



(b) Cooling fan control:
Inspect pressure switch operation.
(1) Connect the positive (+) lead from the ohmmeter to terminal 2 and the negative (–) lead to terminal 3.
(2) Check continuity between terminals when refrigerant pressure is changed, as shown in the illustration.

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

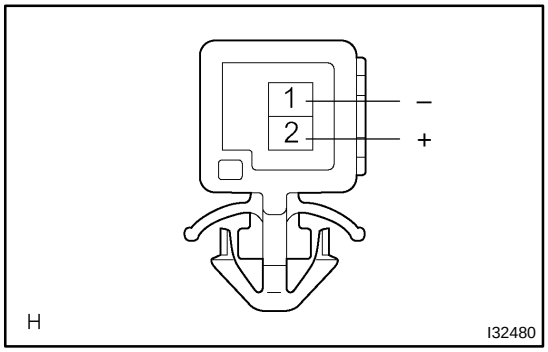
2. COOLER COMPRESSOR ASSY W/MAGNETIC CLUTCH

(a) Connect the positive (+) lead from the battery to terminal and the negative (–) lead to the body ground.
(b) Check that the magnetic clutch energized.

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

550IP–01

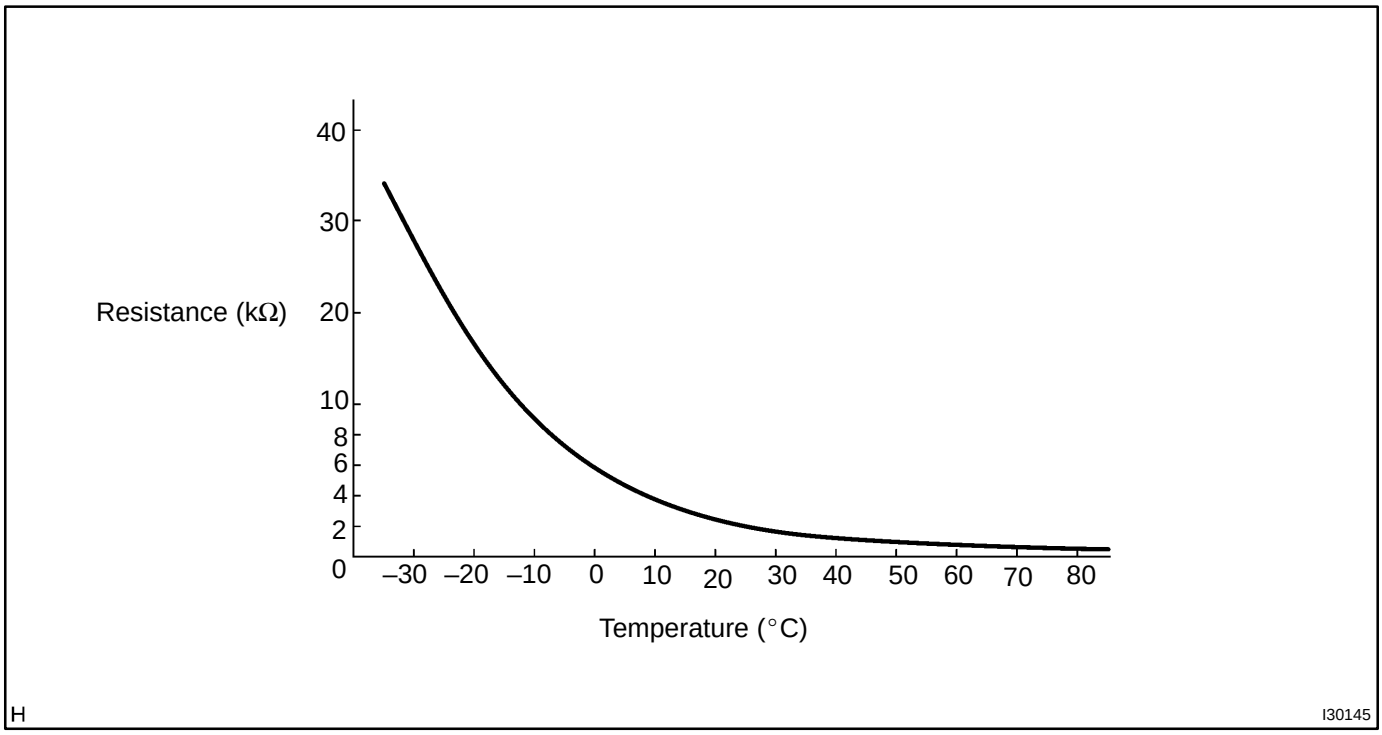
INSPECTION



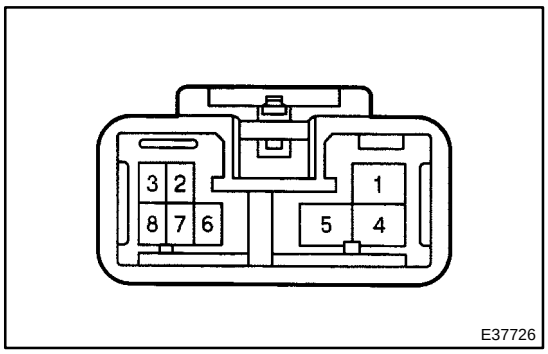
1. COOLER THERMISTOR NO.1

(a) Check resistance between terminals 1 and 2 of cooler thermistor No. 1 at each temperature, as shown in the chart.

Resistance:



If resistance value is not as specified, replace the sensor.



2. COOLER AND ACCESSORY ASSY

(a) Inspect blower switch continuity.

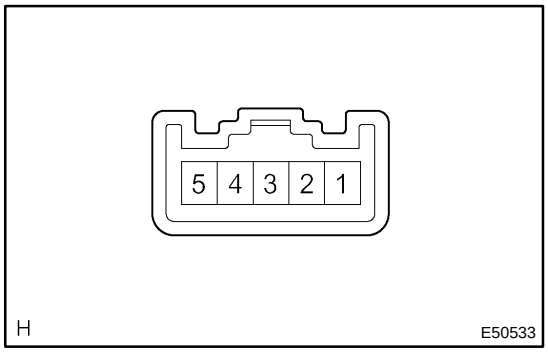
Condition / Circuit	Tester connection	Specified condition
OFF	–	No continuity
LO	1 – 8	Continuity
M1	1 – 6 – 8	Continuity
M2	1 – 5 – 8	Continuity
HI	1 – 4 – 8	Continuity

If continuity is not as specified, replace the air conditioner control assy.

(b) Inspect illumination operation.

Connect the positive (+) lead from the battery to terminal 2 and negative (–) lead to terminal 3 then check that the illuminations light up.

If there is bulb not light up, replace the bulb.



3. COOLER SWITCH HOLE COVER

(a) Inspect switch continuity.

Check the continuity between terminals while switch is pressed, as shown in the chart.

Tester connection	Specified condition
2 – 5	Continuity

If continuity is not as specified, replace the cooler switch.

(b) Inspect illumination operation.

Connect the positive (+) lead from the battery to terminal 4 and negative (–) lead to terminal 3 then check that the illuminations light up.

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

(c) Inspect indicator operation.

(1) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1.

(2) Push the A/C button in and then check that the indicator lights up.

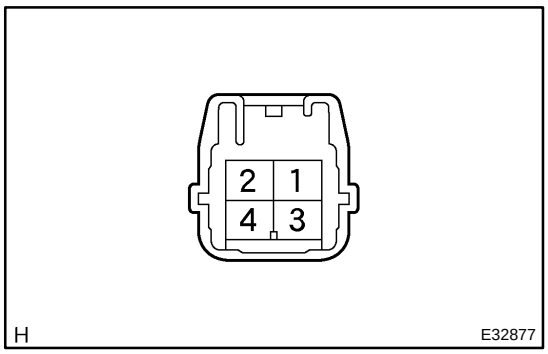
If operation is not as specified, replace the cooler switch.

(d) Inspect dimming operation

(1) Connect the positive (+) lead from the battery to terminal 2 and the negative (–) lead to terminal 1 while press the switch.

(2) Connect the positive (+) lead from battery to terminal 4 and then check that the indicator dims.

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

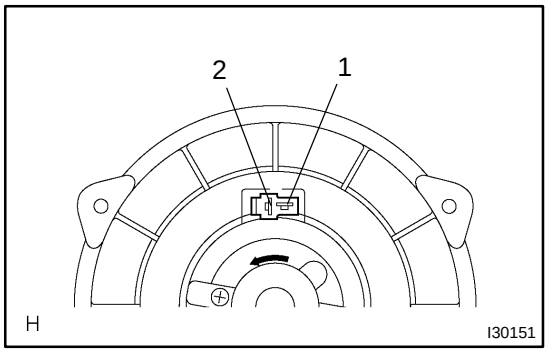


4. BLOWER RESISTOR

(a) Measure resistance between terminals, as shown in the chart below.

Tester connection	Specified condition
1 – 2	1.398 – 1.605 Ω
1 – 3	0.465 – 0.535 Ω
1 – 4	3.069 – 3.531 Ω

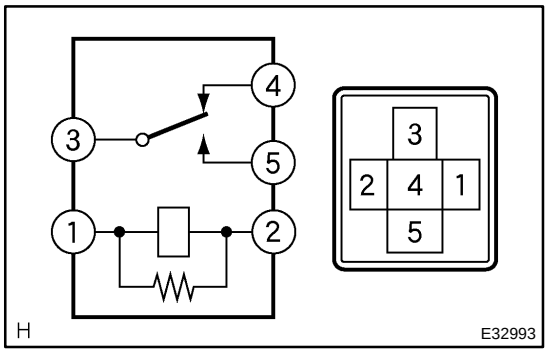
If resistance is not as specified, replace the blower resistor.



5. BLOWER W/FAN MOTOR SUB–ASSY

(a) Connect the positive (+) lead from the battery to terminal 2 and negative (–) to terminal 1, then check that the motor operation smoothly.

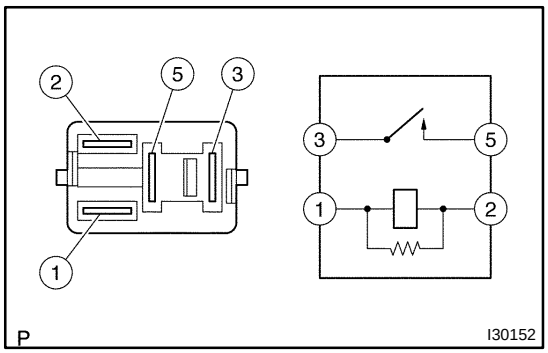
If operation is not as specified, replace the blower motor.



6. HEATER BLOWER MOTOR RELAY ASSY

Condition	tester connection	Specified condition
constant	1 – 2 3 – 4	Continuity
Apply B+ between terminals 1 and 2.	3 – 5	Continuity

If continuity is not as specified, replace the heater blower motor relay.



7. MAGNET–CLUTCH RELAY

Condition	tester connection	Specified condition
constant	1 – 2	Continuity
Apply B+ between terminals 1 and 2.	3 – 5	Continuity

If continuity is not as specified, replace the magnet–clutch relay.

REFRIGERANT

ON–VEHICLE INSPECTION

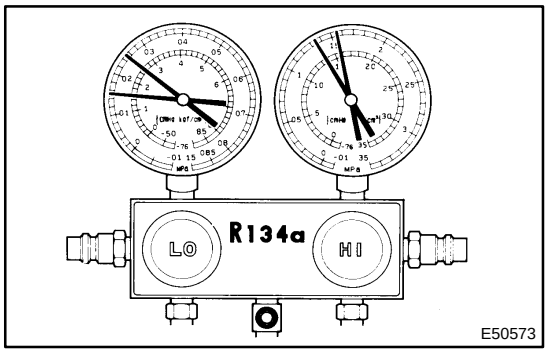
550IQ–01

1. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

(a) This is a method in witch the trouble is located by using a manifold gauge set. Read the manifold gauge pressure when the 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 1500 rpm
- Blower speed control switch at ”HI” position
- Temperature control dial at ”COOL” position
- A/C switch ON
- Fully open doors



E50573

(1) Normally functioning refrigeration system.

Gauge reading:

Low pressure side:

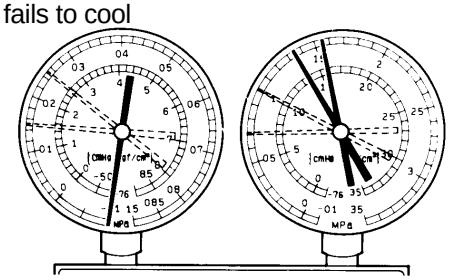
0.15 – 0.25 MPa (1.5 – 2.5 kgf/cm^2)

High pressure side:

1.37 – 1.57 MPa (14 – 16 kgf/cm^2)

(2) Moisture present in refrigeration system.

Condition : Periodically cools and then fails to cool

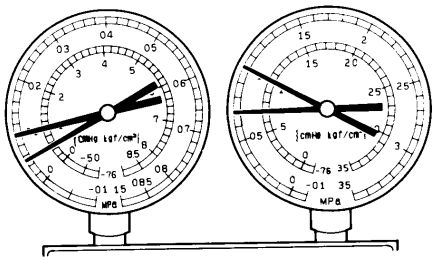


I22117

Symptom	Probable cause	Diagnosis	Remedy
During operation, pressure on low pressure side sometimes become a vacuum and sometime normal	Moisture in refrigerating system freezes at expansion valve orifice causing a temporary stop of cycle, however, when it melts, normal state is restored.	• Drier in oversaturected state • Moisture in refrigerating 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 eftectively.

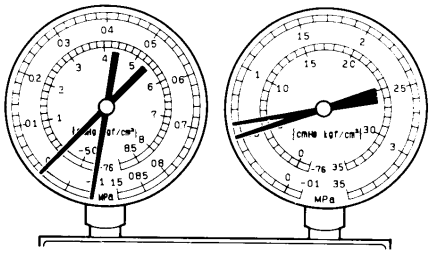


I22118

Symptom	Probable cause	Diagnosis	Corrective Actions
• Pressure low on both low and high pressure sides • 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.

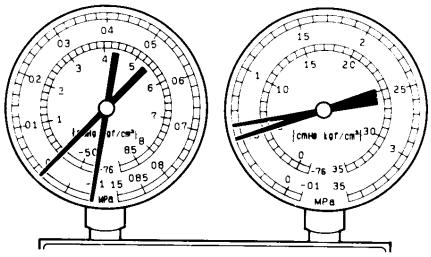


I22119

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

(5) Refrigerant does not circulate

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

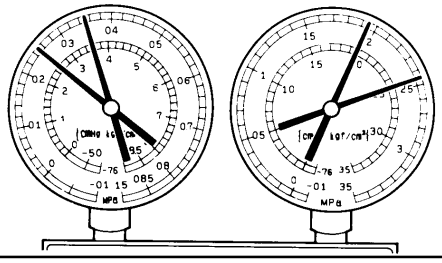


I22120

Symptom	Probable cause	Diagnosis	Corrective Actions
• Vacuum indicated on low pressure side, very low pressure indicated on high pressure side • Frost or dew seen on piping before and after receiver/ drier or expansion valve	• Refrigerant flow obstructed by moisture or dirt in refrigerating system • Refrigerant flow obstructed by gas leaked 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 overcharged or insufficient cooling of condenser

Condition: Cooling system does not function dftectively.

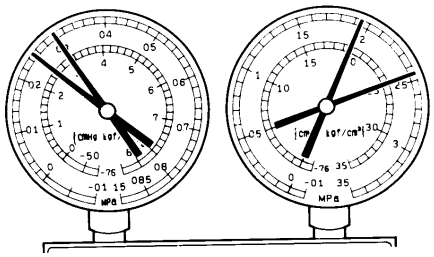


I22121

Symptom	Probable cause	Diagnosis	Remedy
• Pressure too high on both low and high pressure sides	• Unable to develop sufficient performance due to excessive use of refrigerating system • Insufficient cooling of condenser	• Excessive refrigerant in cycle→too much refrigerant supplied • Condenser cooling insufficient→condenser fins 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.



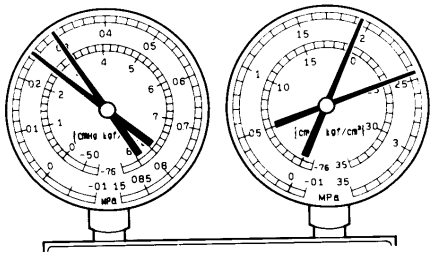
NOTE : These gauge indications are shown when the refrigerating system has been opens and the refrigerant charged without vacuum purging.

I22122

Symptom	Probable cause	Diagnosis	Corrective Actions
• Pressure too high on both low and high pressure sides • The low pressure piping too hot to the touch	Air entered in refrigerating system	• Air present in refrigerating 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.

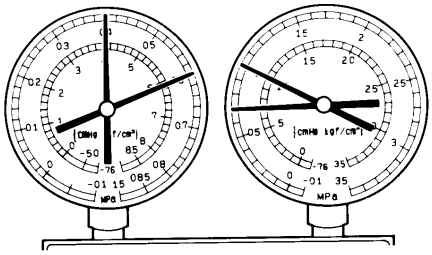


I22123

Symptom	Probable cause	Diagnosis	Corrective Actions
• Pressure too high on both low and high pressure sides • 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

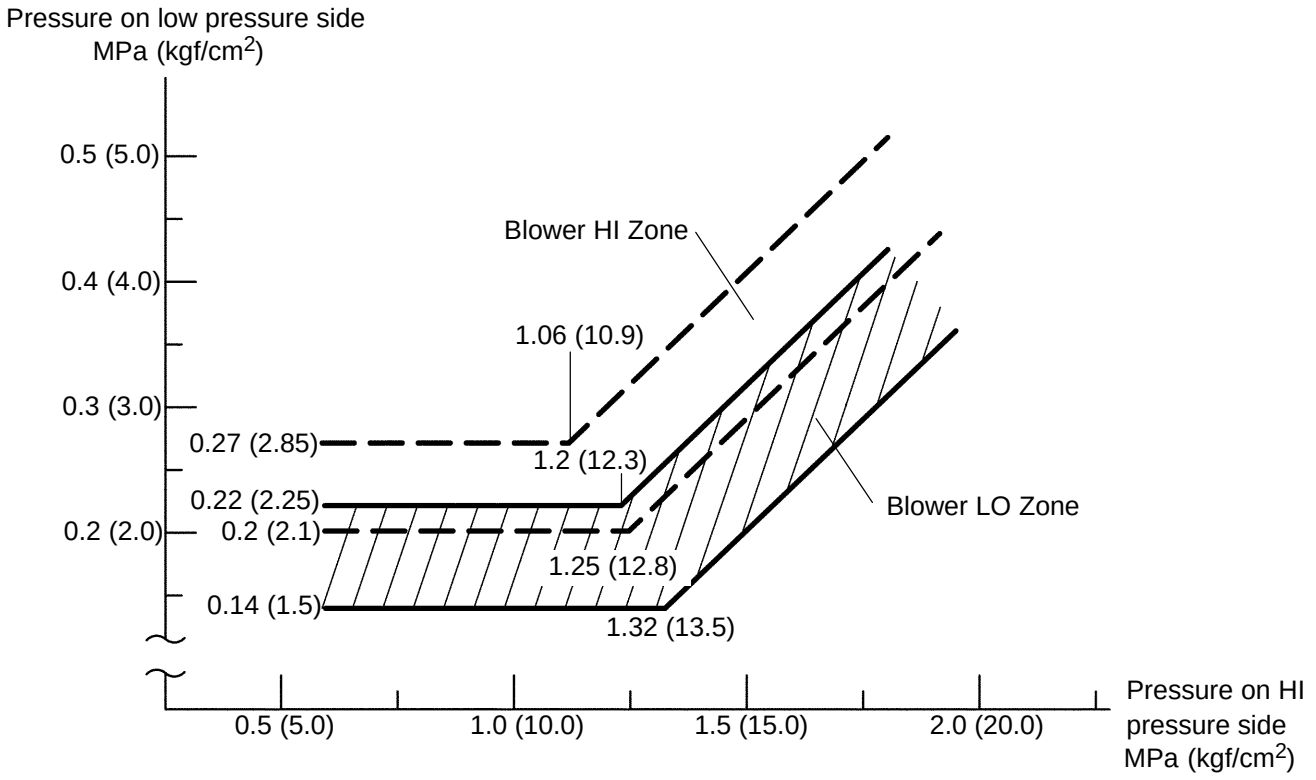
Condition : Refrigerant is not effective.



I22124

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

Gauge readings (Reference)



I30081

550IR–01

REPLACEMENT

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

(a) Turn the A/C switch ON.

(b) Operating the cooler compressor at the engine rpm of approx. 1000 for 5 to 6 min., circulate the refrigerant and collect compressor oil remaining in each component into the cooler compressor as much as possible.

(c) Stop the engine.

(d) Let the refrigerant gas out.

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

2. CHARGE REFRIGERANT

(a) Using a vacuum pump, perform a vacuum pumping.

(b) Supply refrigerant, HFC–134a (R134a).

Standard: 490 ± 30 g (17.28 ± 1.06 oz.)

SST 07110–58060 (07117–58060, 07117–58070, 07117–58080, 07117–58090, 07117–78050, 07117–88060, 07117–88070, 07117–88080), 07117–48130, 07117–48140

3. WARM UP ENGINE

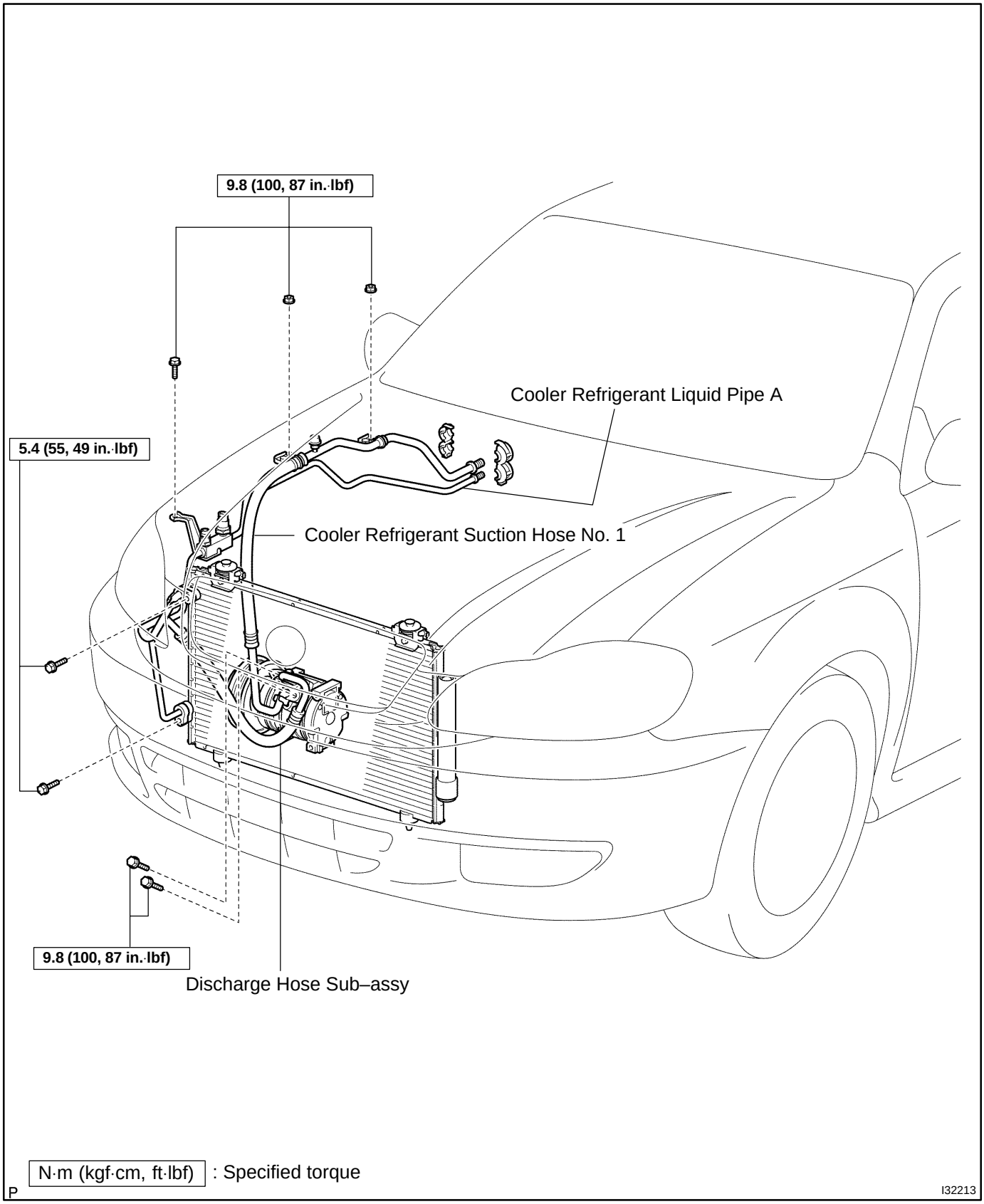
4. INSPECT LEAKAGE OF REFRIGERANT

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

REFRIGERANT LINE

COMPONENTS

550IS–01

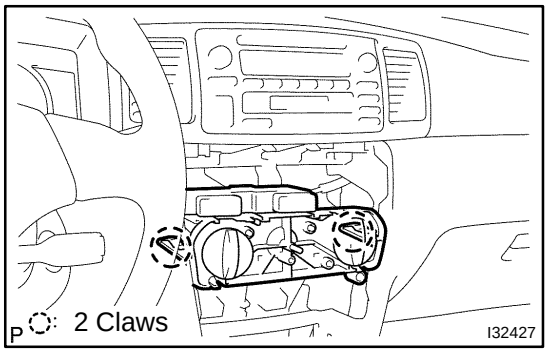


HEATER CONTROL & ACCESSORY ASSY

550IT–01

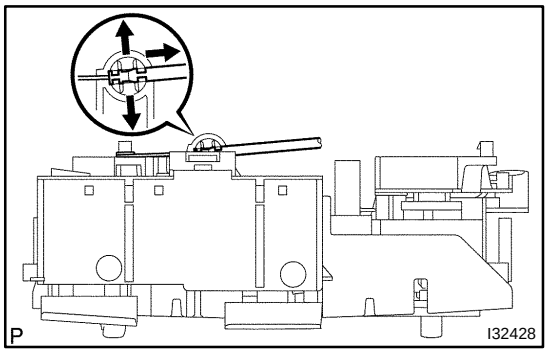
REPLACEMENT

1. **REMOVE CONSOLE PANEL UPPER (See page 71–10)**
2. **REMOVE INSTRUMENT CLUSTER FINISH PANEL (See page 71–10)**



3. **REMOVE HEATER CONTROL & ACCESSORY ASSY**

(a) Release the 2 fitting claws and pull out the heater control & accessory assy.



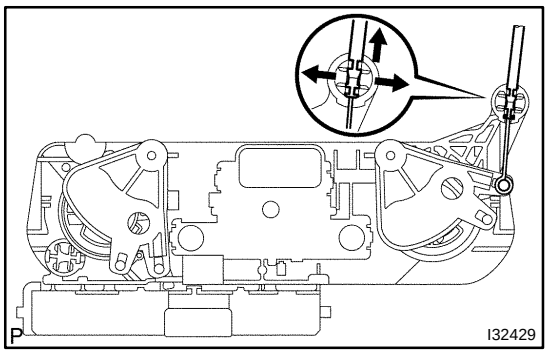
(b) Using a screwdriver, open the claw of the cable clamp and disconnect the defroster damper control cable.

NOTICE:

- **Be careful not to bend the cable wire.**
- **If the cable wire bends, the heater control & accessory assy operationality becomes worse.**

HINT:

Tape the screwdriver tip before use.



(c) Using a screwdriver, open the claw of the cable clamp and disconnect the air mix damper control cable.

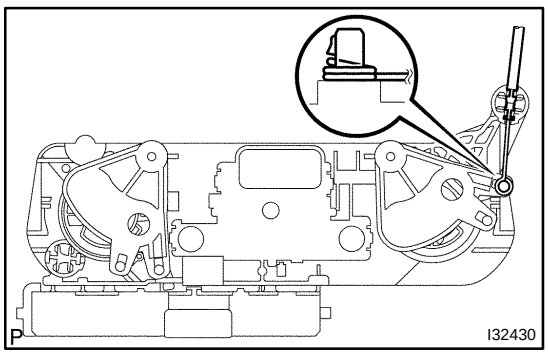
NOTICE:

- **Be careful not to bend the cable wire.**
- **If the cable wire bends, the heater control & accessory assy operationality becomes worse.**

HINT:

Tape the screwdriver tip before use.

(d) Disconnect the connector, remove the heater control & accessory assy.



4. **INSTALL HEATER CONTROL & ACCESSORY ASSY**

(a) Install the inner cable end of the air mix damper control cable to the heater control lever.

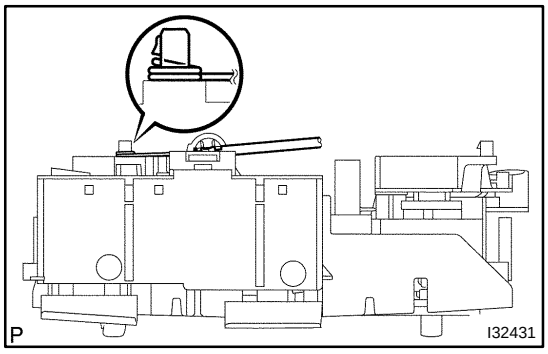
(b) Install the outer cable of the air mix damper control cable to the cable clamp.

NOTICE:

- **Be careful not to bend the cable wire.**
- **If the cable wire bends, the heater control & accessory assy operationality becomes worse.**

HINT:

- Operating the heater control knob and check that it properly stops at both ends of MAX. COOL and MAX. HOT and no recoil is identified.
- Check that the outer cable should not be disengaged (moved) from the heater control & accessory assy when the cable is pulled.



(c) Install the inner cable end of the defroster damper control cable to the heater control lever.

(d) Install the outer cable of the defroster damper control cable to the cable clamp.

NOTICE:

- **Be careful not to bend the cable wire.**
- **If the cable wire bends, the heater control & accessory assy operationality becomes worse.**

HINT:

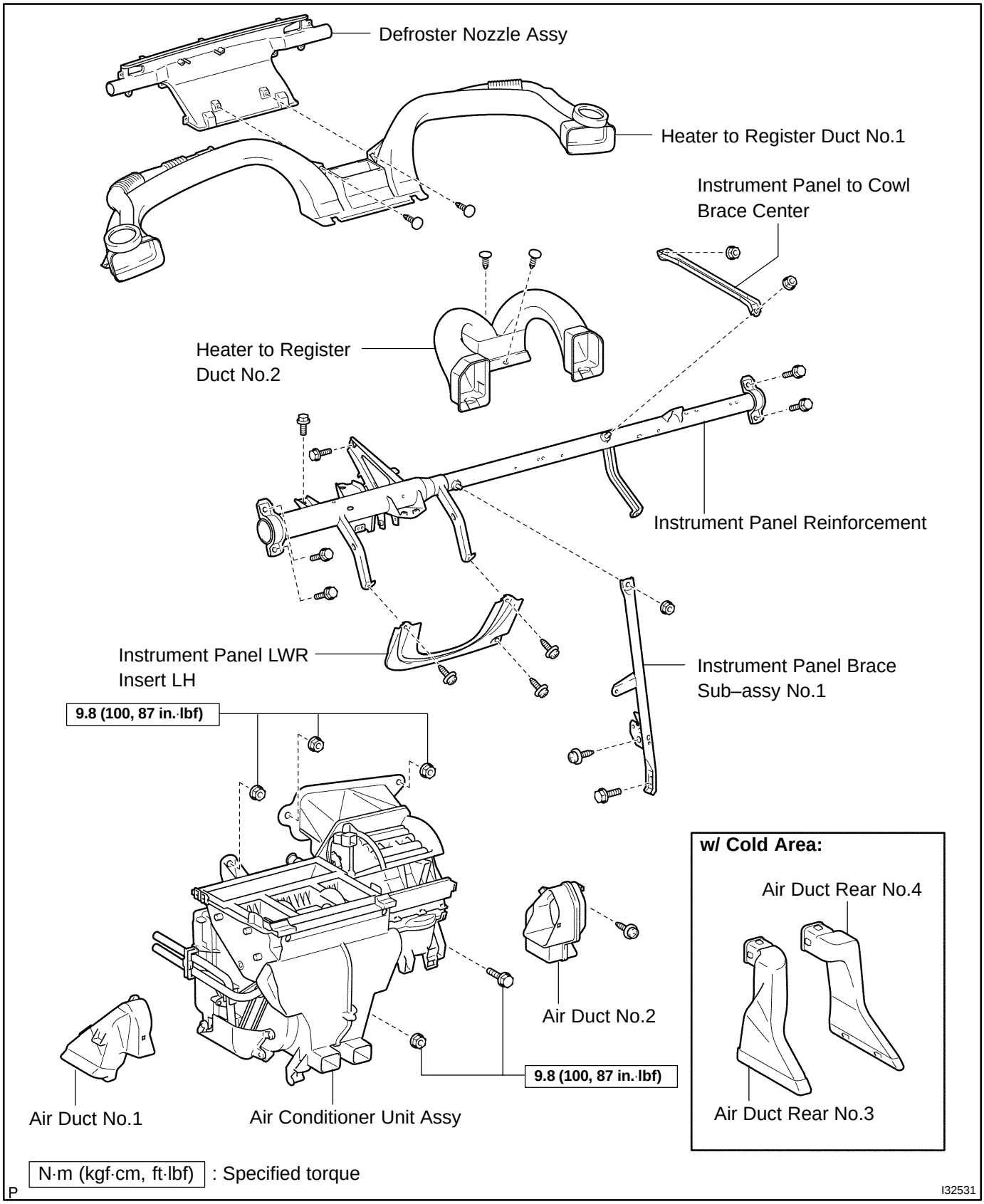
- Operating the heater control knob and check that it properly stops at both ends of FACE and DEF and no recoil is identified.
- Check that the outer cable should not be disengaged (moved) from the heater control & accessory assy when the cable is pulled.

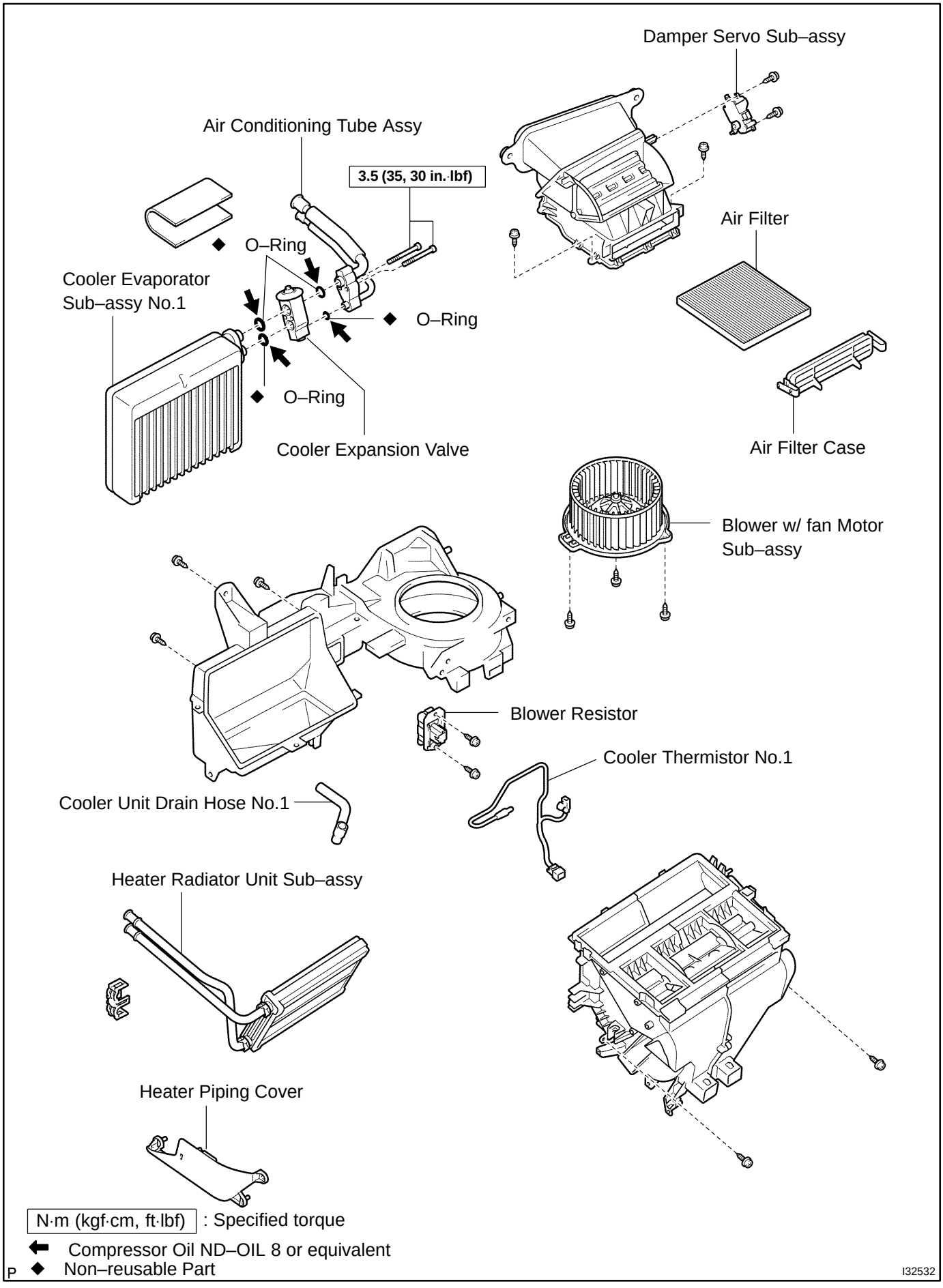
(e) Connect the connector, install the heater control & accessory assy.

AIR CONDITIONER UNIT ASSY

550IU–01

COMPONENTS




Damper Servo Sub–assy
Air Conditioning Tube Assy
3.5 (35, 30 in.·lbf)
O–Ring
Cooler Evaporator Sub–assy No.1
O–Ring
O–Ring
Cooler Expansion Valve
Air Filter
Air Filter Case
Blower w/ fan Motor Sub–assy
Blower Resistor
Cooler Thermistor No.1
Cooler Unit Drain Hose No.1
Heater Radiator Unit Sub–assy
Heater Piping Cover
N·m (kgf·cm, ft·lbf) : Specified torque
Compressor Oil ND–OIL 8 or equivalent
Non–reusable Part
I32532

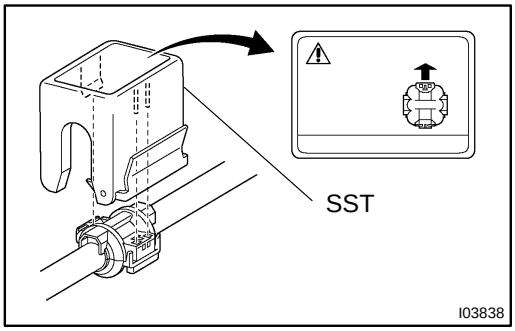
OVERHAUL

HINT:

COMPONENT: See page 55–15

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page 55–11)

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



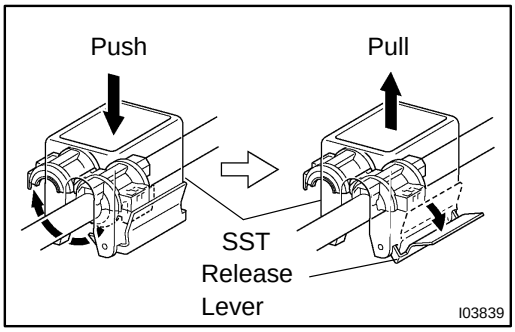
2. DISCONNECT COOLER REFRIGERANT SUCTION HOSE NO.1

(a) Install SST to piping clamp.

SST 09870–00015

HINT:

Confirm the direction of the piping clamp claw and SST using the illustration showing on the caution label.



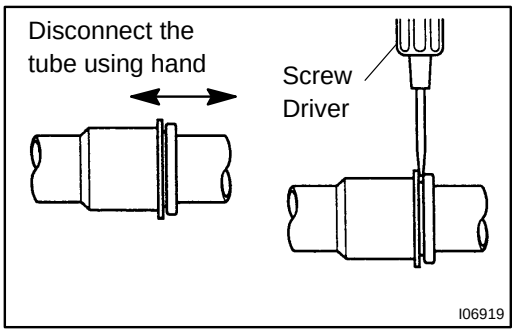
(b) Push down SST and release the clamp lock.

NOTICE:

Be careful not to deform the tube, when pushing SST.

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

(d) Remove the piping clamp from SST.



(e) Disconnect the cooler refrigerant suction hose No. 1.

NOTICE:

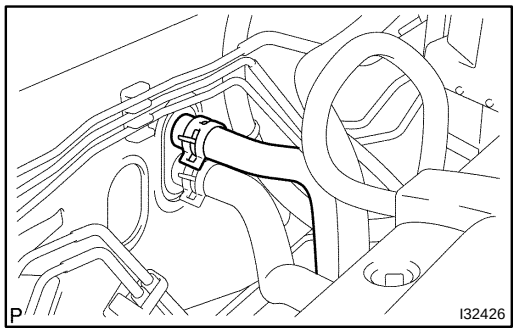
- **Do not use tools like screwdriver to remove the tube.**
- **Cap the open fittings immediately to keep moisture or dirt out of the system.**

3. DISCONNECT COOLER REFRIGERANT LIQUID PIPE A

SST 09870–00015

HINT:

Disconnect in the same way as the cooler refrigerant suction hose No. 1.



4. DISCONNECT HEATER INLET WATER HOSE

(a) Using pliers, grip the claws of clip and slide the clip and disconnect the heater inlet water hose.

5. DISCONNECT HEATER OUTLET WATER HOSE

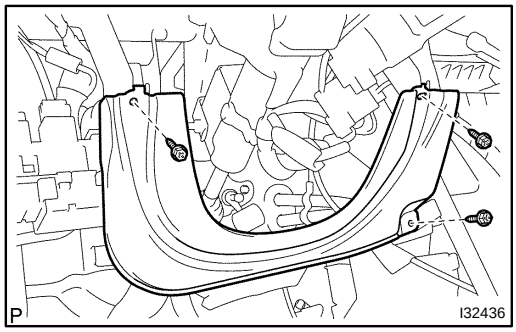
HINT:

Disconnect in the same way as the heater inlet water hose.

6. REMOVE INSTRUMENT PANEL SUB–ASSY LOWER (See page 71–10)

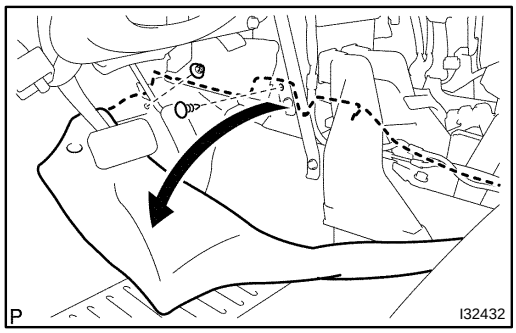
HINT:

Refer to the instructions for removal of the instrument panel sub–assy lower.



7. REMOVE INSTRUMENT PANEL LWR PAD INSERT LH

(a) Remove the 3 screws and instrument panel LWR pad insert LH.

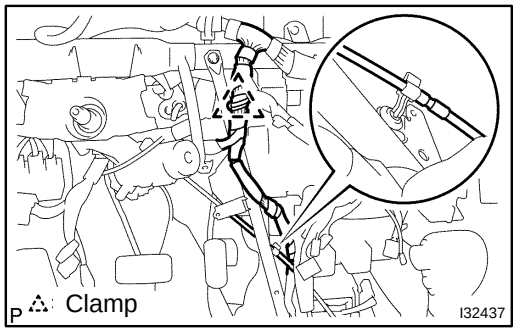


8. REMOVE INSTRUMENT PANEL BRACE SUB–ASSY NO.1

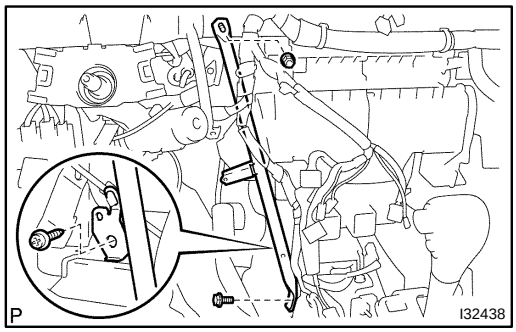
(a) Remove 2 clips and take up the floor carpet.

HINT:

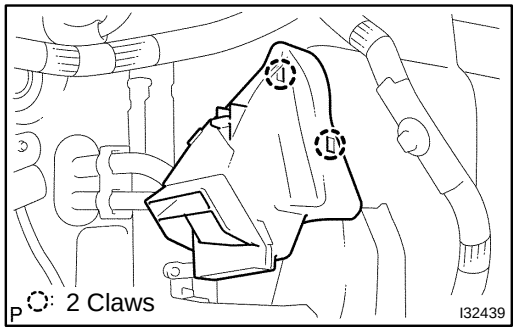
Take up the floor carpet as small as the instrument panel brace sub–assy No. 1 can be removed.



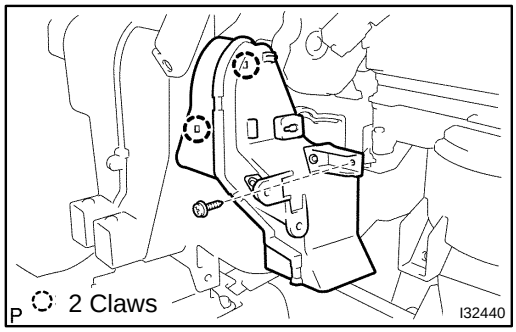
(b) Remove the clamp and floor shift parking lock cable assy.



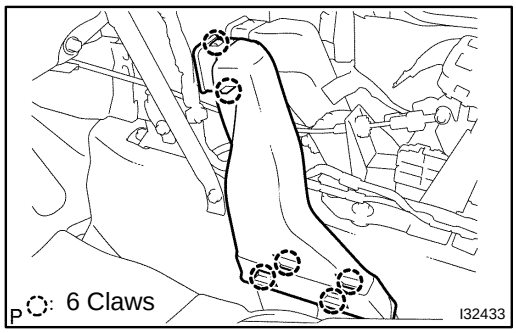
(c) Remove the screw.
(d) Remove the bolt, nut and instrument panel brace sub–assy No. 1.



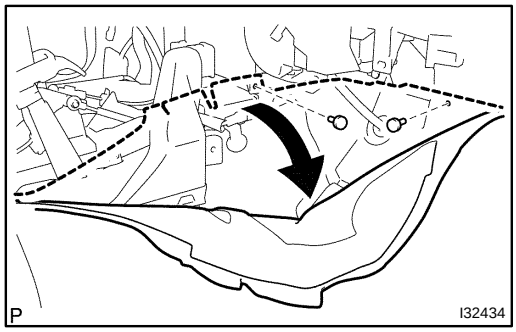
9. REMOVE AIR DUCT NO.1
(a) Release the 2 fitting claws, remove the air duct No. 1.



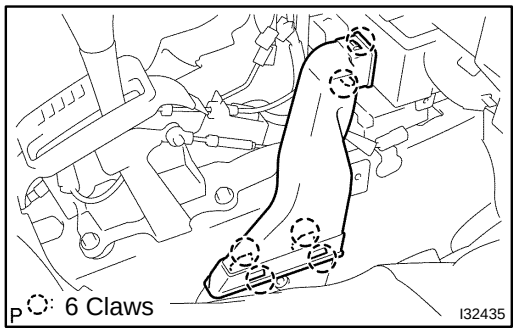
10. REMOVE AIR DUCT NO.2
(a) Remove the screw.
(b) Release the 2 fitting claws, remove the air duct No. 2.



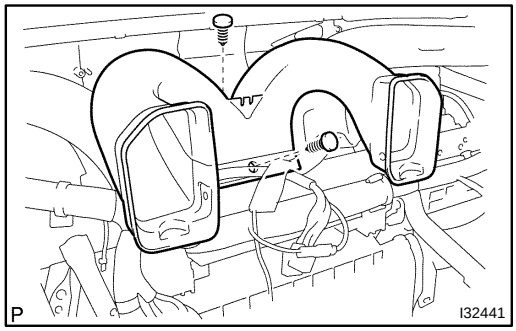
11. REMOVE AIR DUCT REAR NO.3 (W/ COLD AREA)
(a) Release the 6 fitting claws, remove the air duct rear No.3.



12. REMOVE AIR DUCT REAR NO.4 (W/ COLD AREA)
(a) Remove 2 clips and take up the floor carpet.
HINT:
Take up the floor carpet as small as the air duct rear No.4 can be removed.

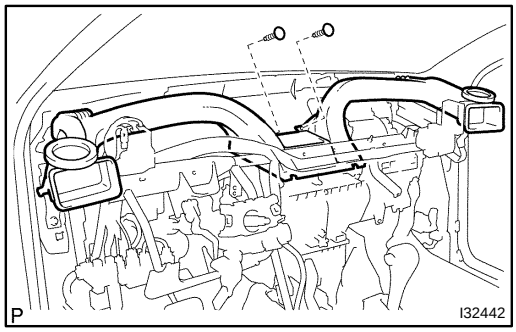


(b) Release the 6 fitting claws, remove the air duct rear No.4.



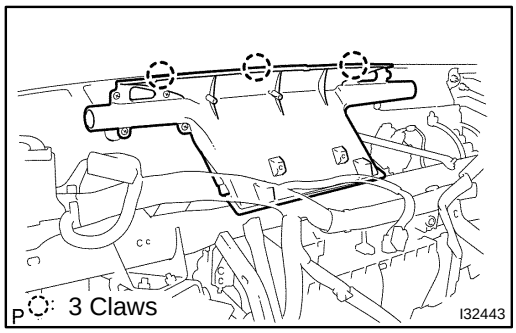
13. REMOVE HEATER TO REGISTER DUCT NO.2

(a) Remove the 2 clips and heater to register duct No. 2.



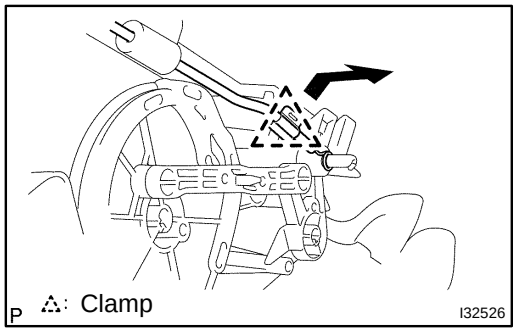
14. REMOVE HEATER TO REGISTER DUCT NO.1

(a) Remove the 2 clips and heater to register duct No. 1.



15. REMOVE DEFROSTER NOZZLE ASSY

(a) Release the 3 fitting claws, remove the defroster nozzle assy.



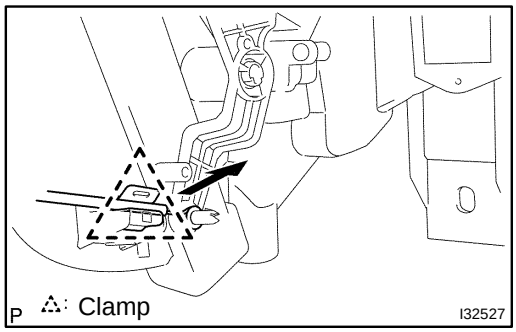
16. DISCONNECT DEFROSTER DAMPER CONTROL CABLE SUB–ASSY

(a) Disconnect the outer cable from the clamp.

(b) Disconnect the inner cable and defroster damper control cable sub–assy.

NOTICE:

- **Be careful not to bend the cable wire.**
- **If the cable wire bends, the heater control & accessory assy operationality becomes worse.**



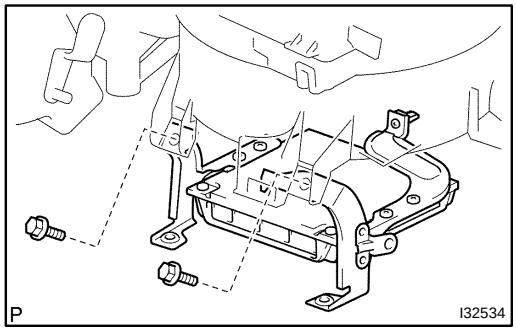
17. DISCONNECT AIRMIX DAMPER CONTROL CABLE SUB–ASSY

(a) Disconnect the outer cable from the clamp.

(b) Disconnect the inner cable and air mix damper control cable sub–assy.

NOTICE:

- **Be careful not to bend the cable wire.**
- **If the cable wire bends, the heater control & accessory assy operationality becomes worse.**

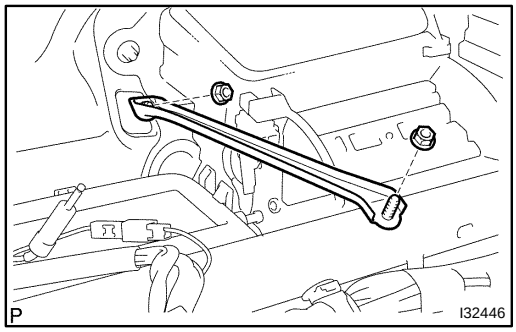


18. DISCONNECT ECM

(a) Remove the 2 bolts and disconnect the ECM.

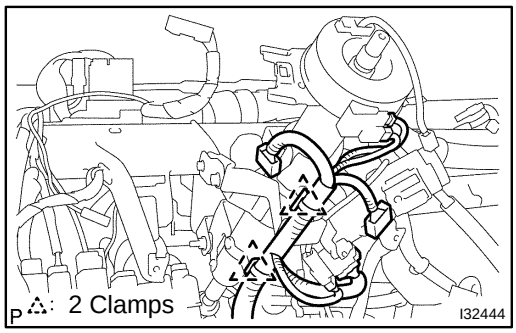
NOTICE:

- **Do not apply excessive force to the connecter of the ECM.**
- **Do not give any impact to the ECM.**



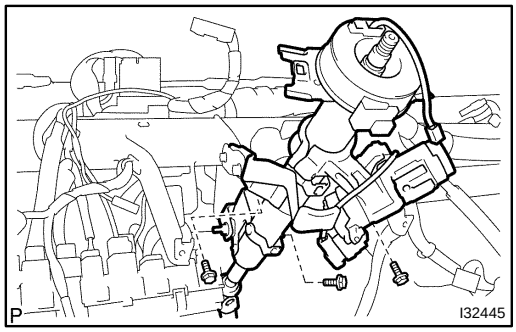
19. REMOVE INSTRUMENT PANEL TO COWL BRACE CENTER

(a) Remove the 2 nuts and instrument panel to cowl brace center.



20. DISCONNECT STEERING COLUMN ASSY

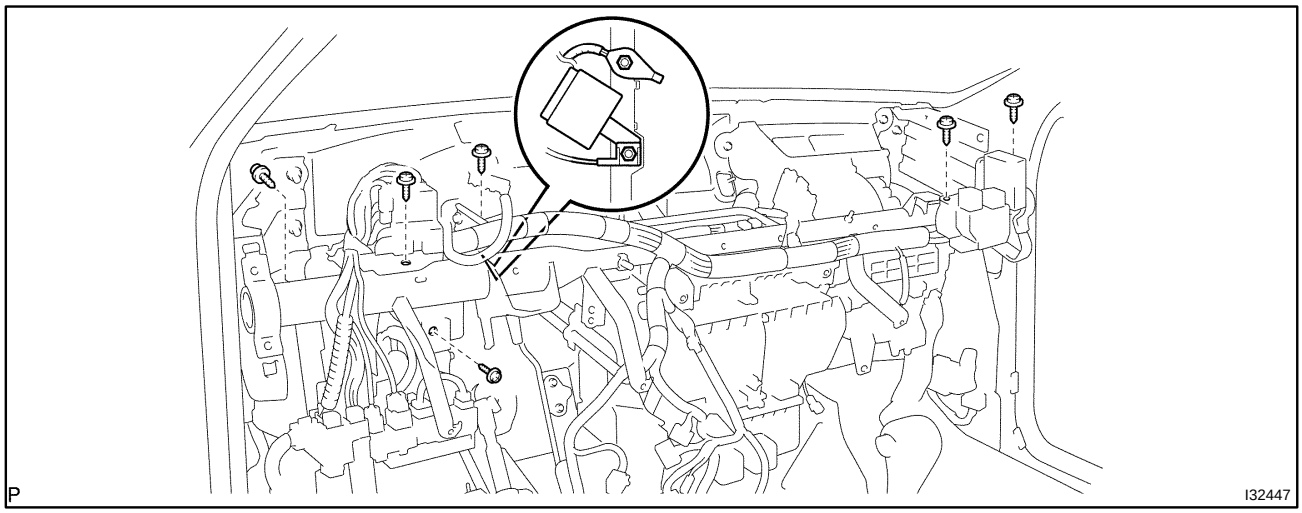
(a) Disconnect the connector, remove the 2 clamps.



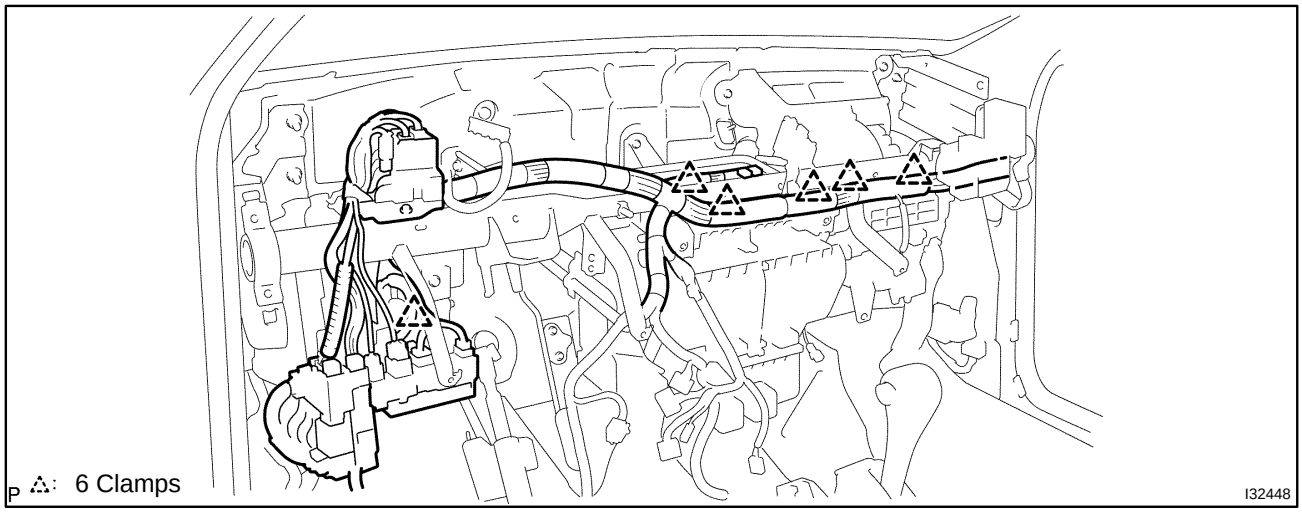
(b) Remove the 3 bolts, disconnect the steering column assy.

21. REMOVE INSTRUMENT PANEL REINFORCEMENT

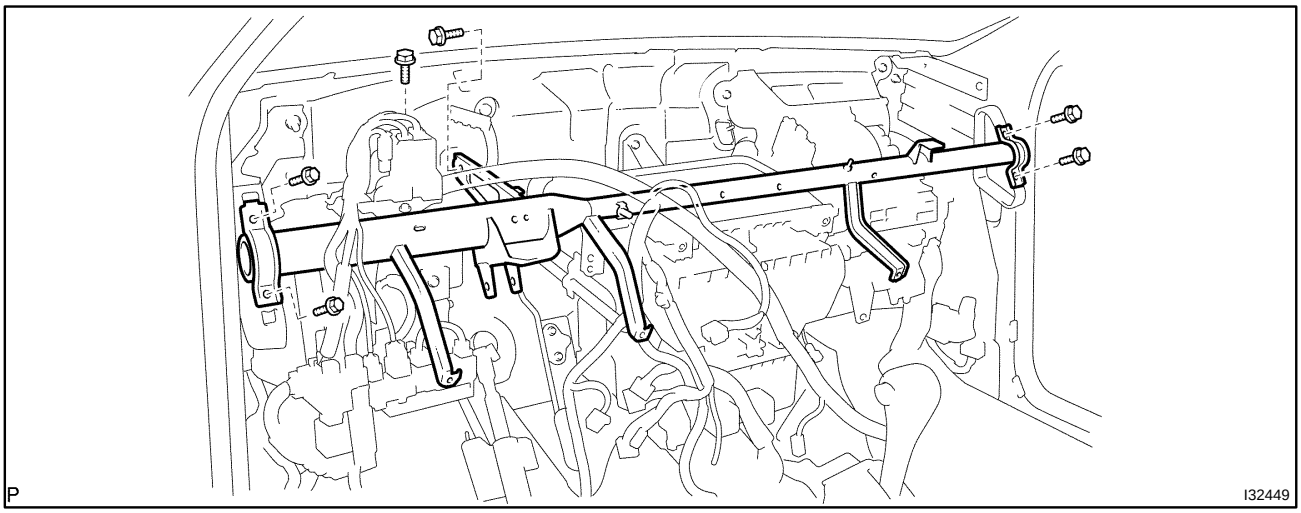
(a) Remove the 8 screws and 2 earth wires from the instrument panel reinforcement.

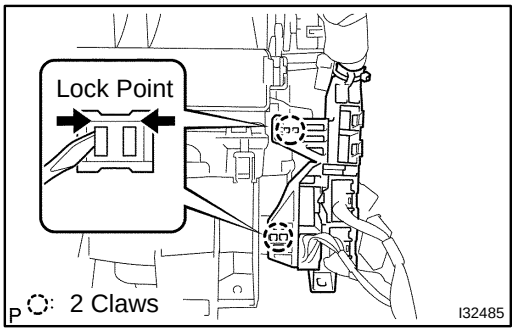


(b) Disconnect the 6 clamps and wire harness.



(c) Remove the 6 bolts and instrument panel reinforcement.



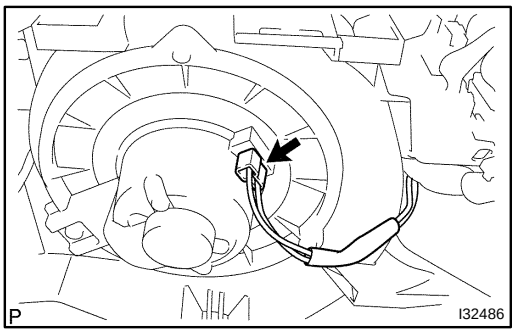


22. REMOVE AIR CONDITIONER UNIT ASSY

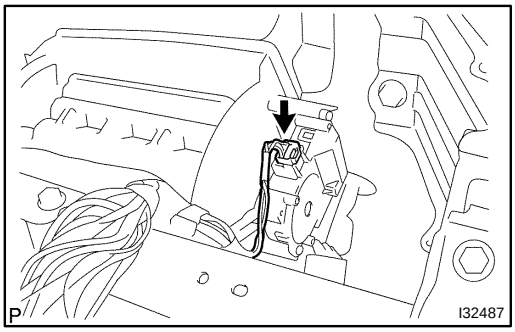
(a) Release the 2 fitting claws, disconnect the connector holder.

HINT:

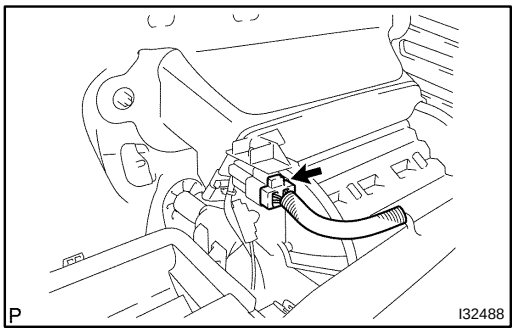
Release the claw while pressing the lock part in the arrow direction.



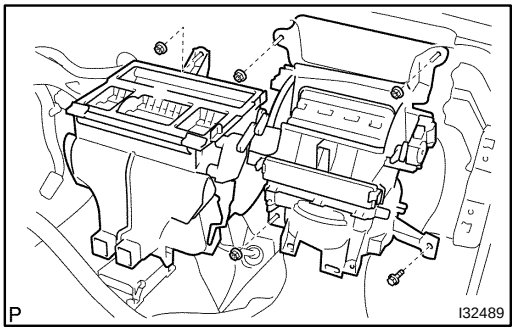
(b) Disconnect the connector from the blower w/ fan motor sub–assy.



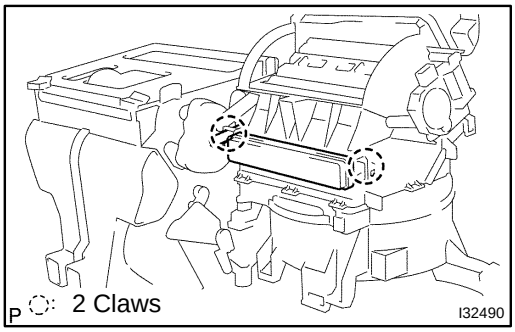
(c) Disconnect the connector from the damper servo sub–assy.



(d) Disconnect the connector from the cooler thermistor No. 1.

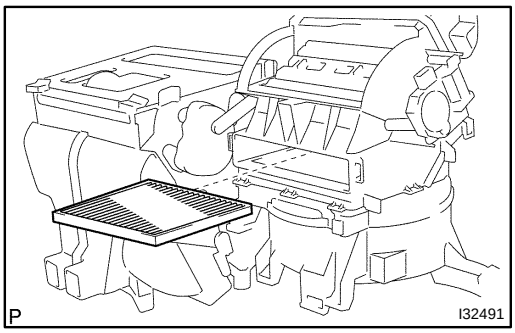


(e) Remove the 4 nuts, bolt and air conditioner unit assy.



23. REMOVE AIR FILTER CASE

(a) Release the 2 fitting claws, remove the air filter case.

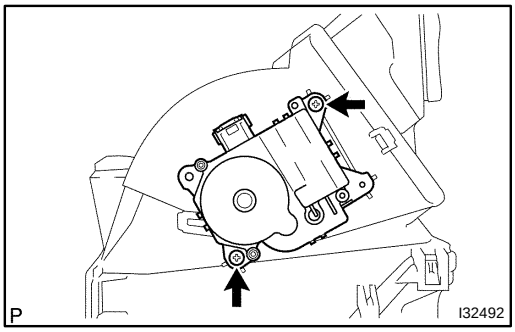


24. REMOVE AIR FILTER

(a) Remove the air filter from the air conditioner unit assy.

HINT:

Removing only the glove compartment door assy makes it possible and install the air filter.

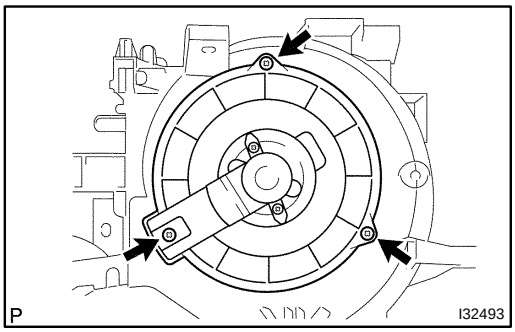


25. REMOVE DAMPER SERVO SUB–ASSY

(a) Remove the 2 screws and damper servo sub–assy.

HINT:

Removing only instrument panel sub–assy upper and heater to register duct No. 1 makes it possible and install the damper servo sub–assy.

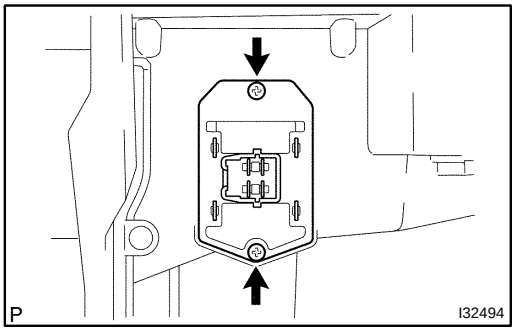


26. REMOVE BLOWER W/FAN MOTOR SUB–ASSY

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

HINT:

Removing only the ECM makes it possible and install the blower w/fan motor sub–assy.



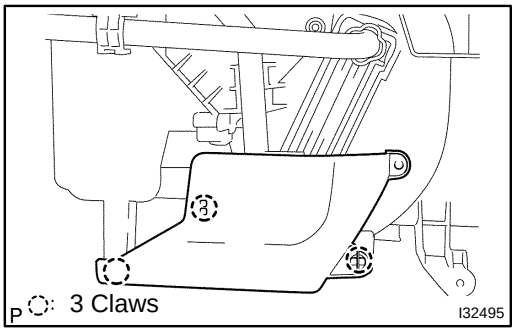
27. REMOVE BLOWER RESISTOR

(a) Disconnect the connector.

(b) Remove the 2 screws and blower resistor.

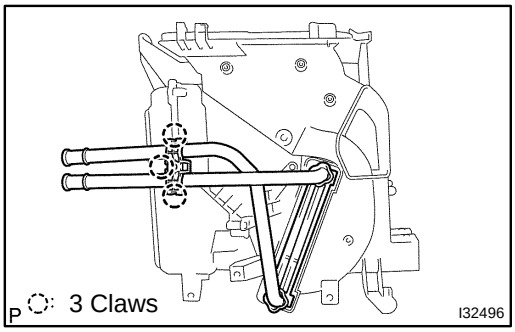
HINT:

Removing only the ECM makes it possible and install the blower resistor.



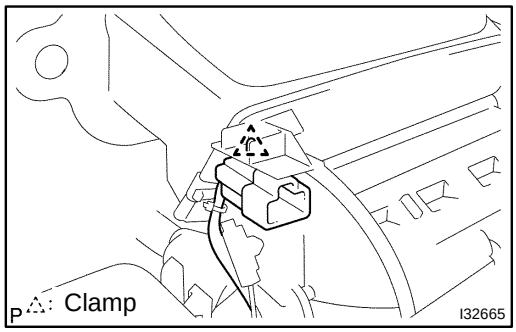
28. REMOVE HEATER PIPING COVER

(a) Release the 3 fitting claws, remove the heater piping cover.



29. REMOVE HEATER RADIATOR UNIT SUB–ASSY

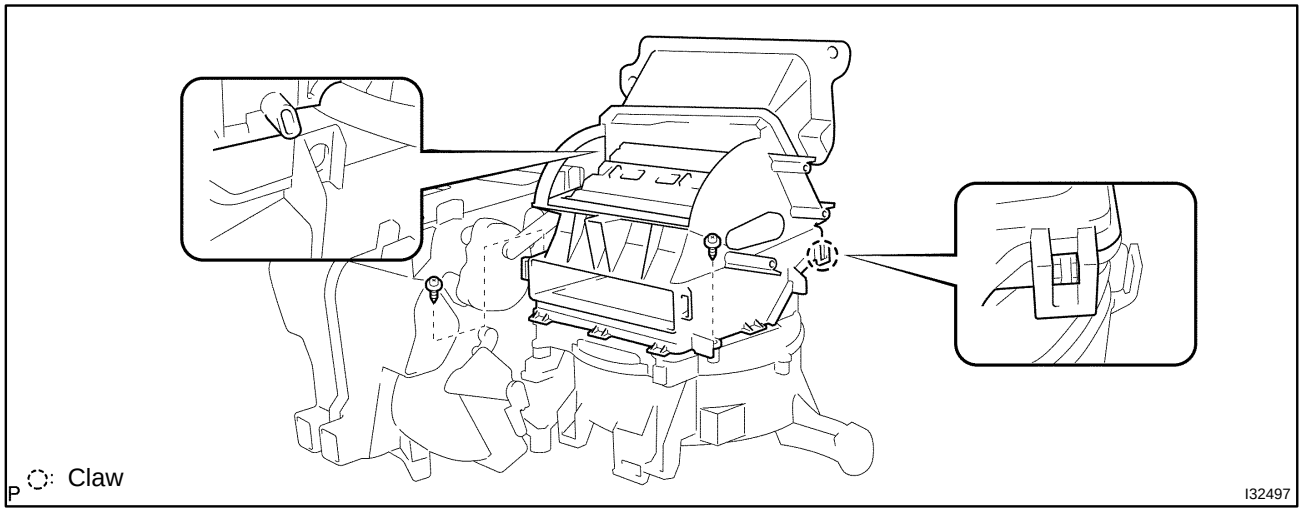
(a) Release the 3 fitting claws, remove the heater piping clamp and heater radiator unit sub–assy



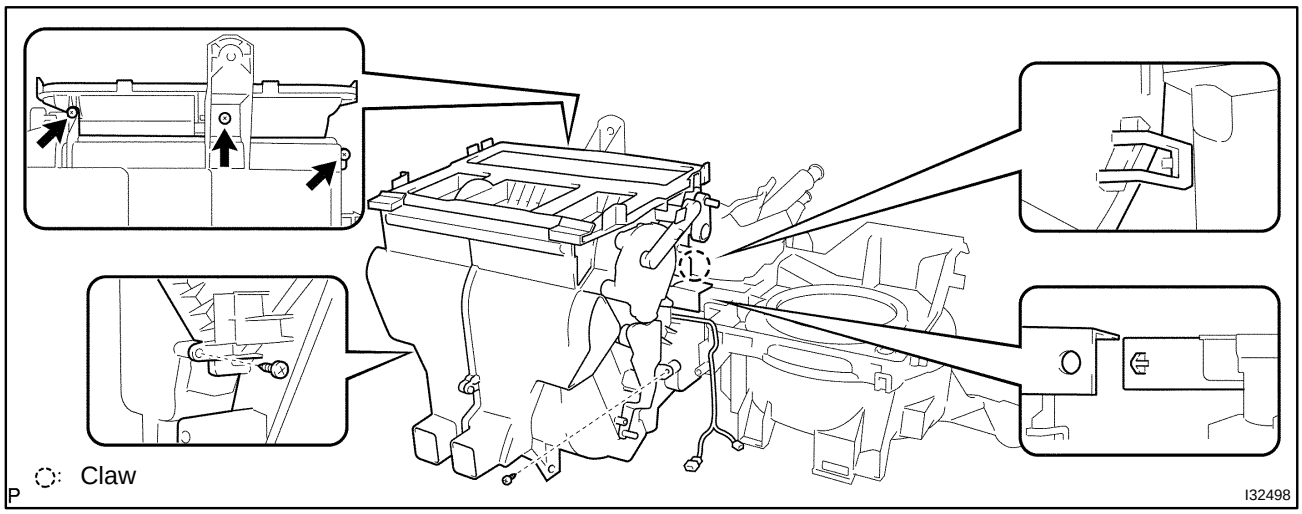
30. REMOVE COOLER THERMISTOR NO.1

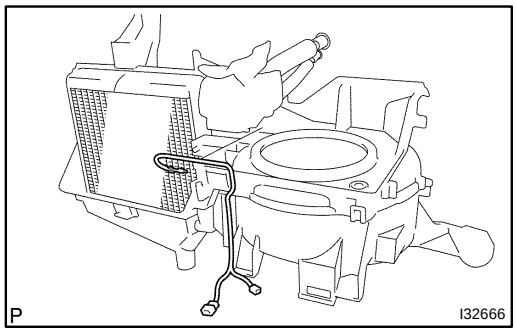
(a) Remove the clamp.

(b) Release the fitting claw, remove the 2 screws and heater case.

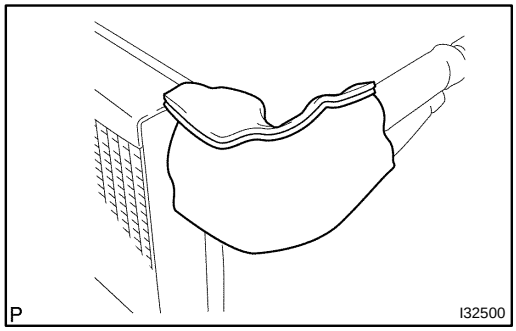


(c) Release the fitting claw, remove the 5 screws and heater case.



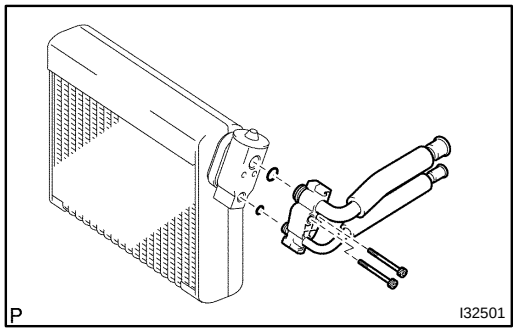


(d) Remove the cooler thermistor No. 1 from the cooler evaporator sub–assy No. 1.

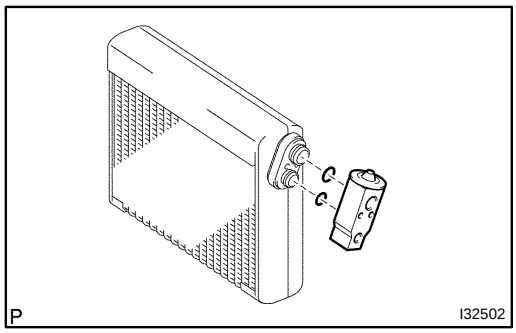


31. REMOVE AIR CONDITIONING TUBE ASSY

(a) Remove the cooler evaporator assy from the heater case.
(b) Remove the packing.



(c) Using a hexagon wrench 5.0 mm (0.20 in.), remove the 2 hexagon bolts and air conditioning tube assy.
(d) Remove the 2 O–rings from the air conditioning tube assy.



32. REMOVE COOLER EXPANSION VALVE

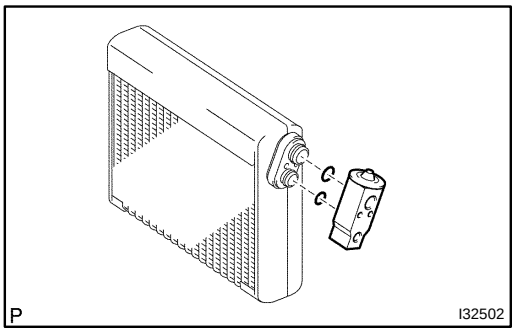
(a) Remove the cooler expansion valve from the cooler evaporator sub–assy No. 1.
(b) Remove the 2 O–rings from the cooler evaporator sub–assy No. 1.

HINT:

Removing only instrument panel sub–assy upper, heater to register duct No. 1 and heater case makes it possible and install the cooler expansion valve.

33. REMOVE COOLER EVAPORATOR SUB–ASSY NO.1

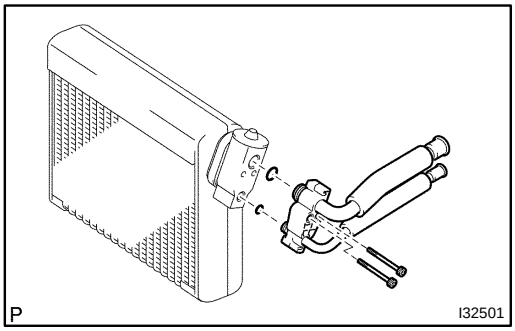
34. REMOVE COOLER UNIT DRAIN HOSE NO.1



35. INSTALL COOLER EXPANSION VALVE

(a) Lubricate 2 new O–rings with compressor oil and install them to the cooler expansion valve.
Compressor oil: ND–OIL 8 or equivalent

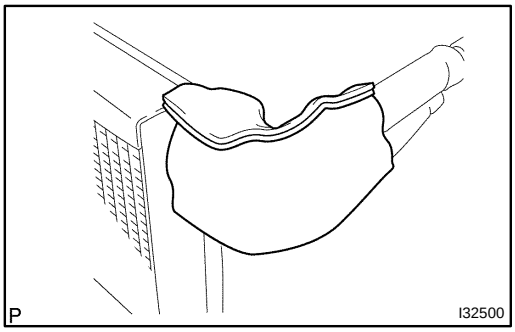
(b) Install the cooler expansion valve from cooler evaporator sub–assy No. 1.



36. INSTALL AIR CONDITIONING TUBE ASSY

(a) Lubricate 2 new O–rings with compressor oil and install them to the air conditioning tube assy.
Compressor oil: ND–OIL 8 or equivalent

(b) Using a hexagon wrench 5.0 mm (0.20 in.), install the air conditioning tube assy with the 2 hexagon bolts.
Torque: 3.5 N·m (35 kgf·cm, 30 in.·lbf)

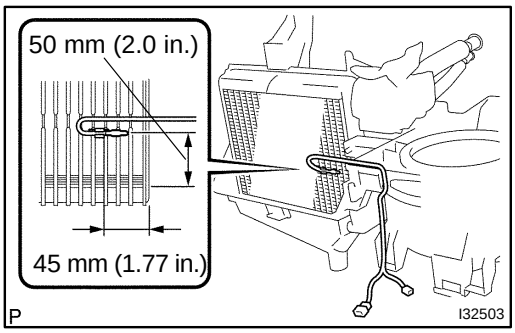


(c) Install the packing.

HINT:

Securely attach so that the gap in the packing will not be mode.

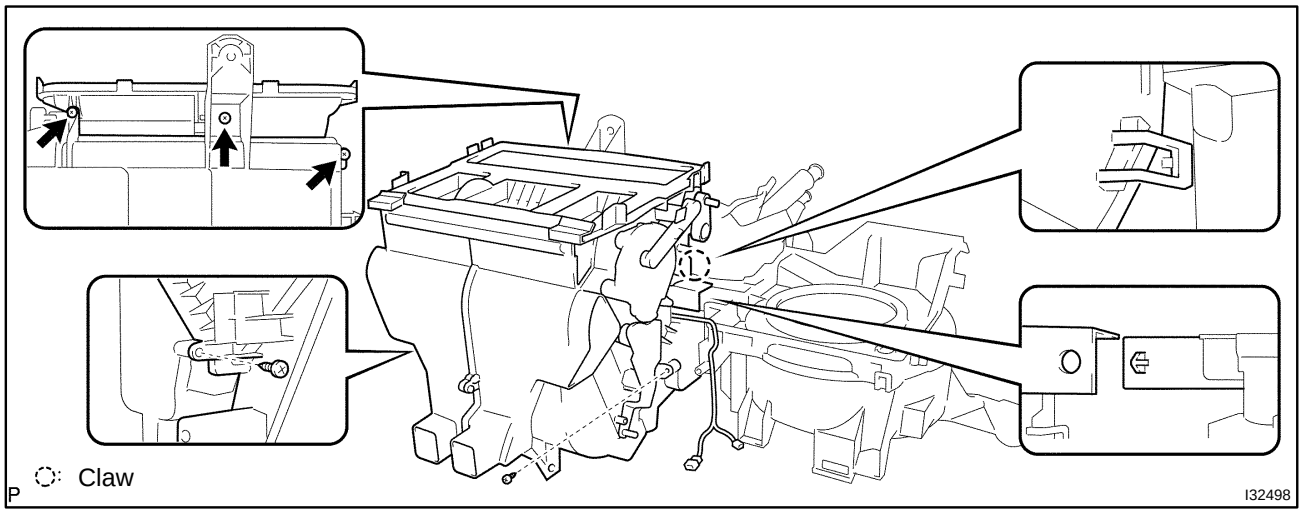
(d) Install the cooler evaporator assy to the heater case.



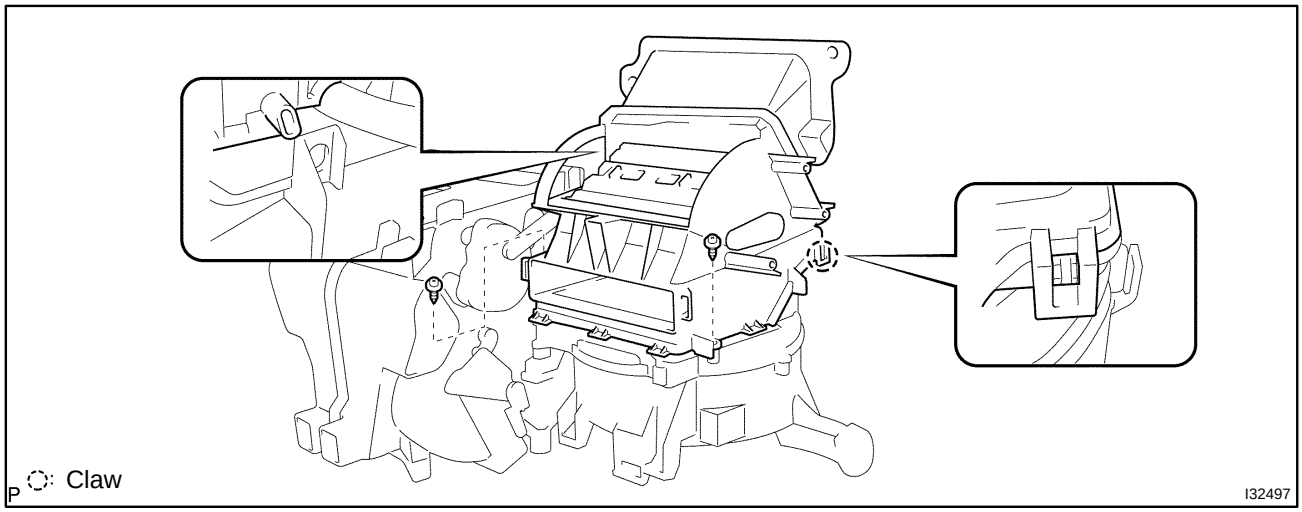
37. INSTALL COOLER THERMISTOR NO.1

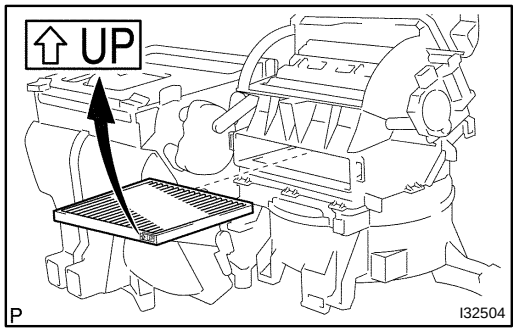
(a) Install the cooler thermistor No. 1 at the shown position on the illustration.

(b) Install the heater case with the claw and 5 screws.



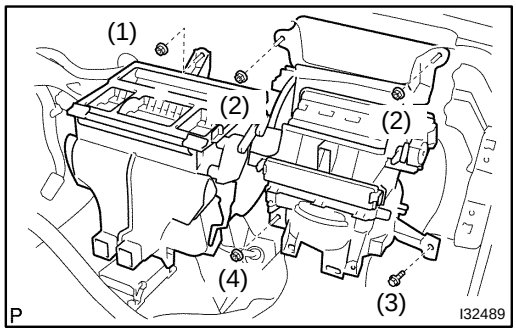
(c) Install the heater case with the claw and 2 screws.





38. INSTALL AIR FILTER

(a) Install the air filter to the air conditioner unit assy.

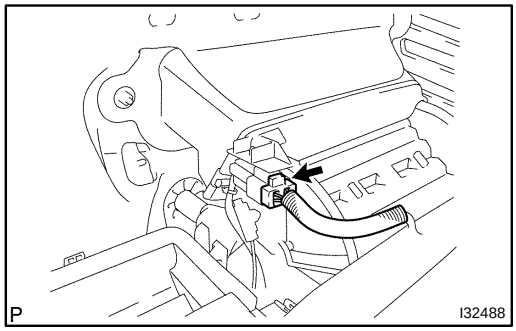


39. INSTALL AIR CONDITIONER UNIT ASSY

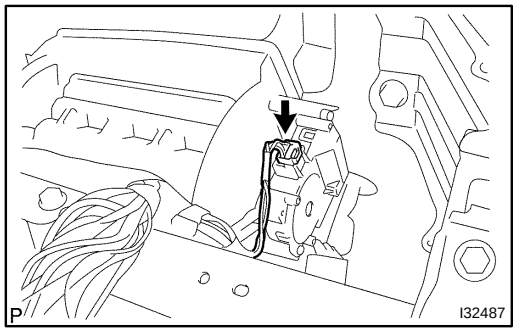
(a) Install the air conditioner unit assy with the 4 nuts and bolt.
Torque: 9.8 N·m (100 kgf·cm, 87 in.·lbf)

NOTICE:

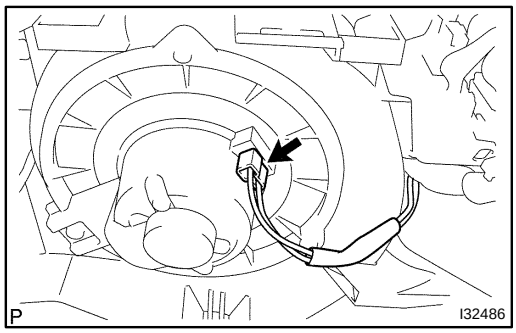
Tighten the nuts and bolt in following order shown in the illustration to install the air conditioner unit assy.



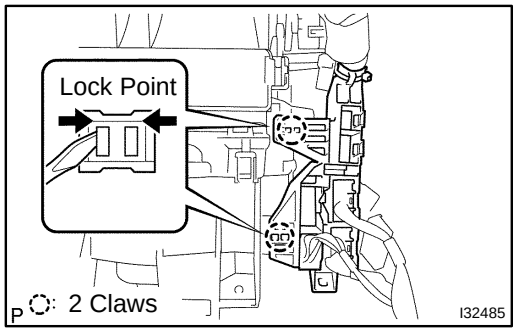
(b) Connect the connector to the cooler thermistor No. 1.



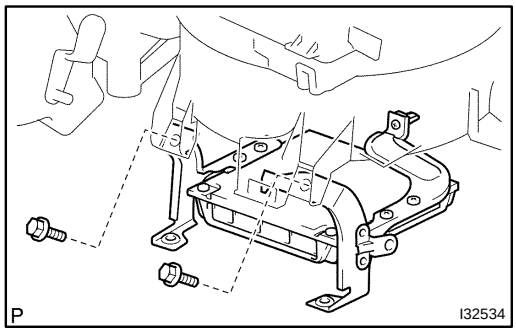
(c) Connect the connector to the damper servo sub–assy.



(d) Connect the connector to the blower w/ fan motor sub–assy.



(e) Install the 2 fitting claws, connect the connector holder.



40. INSTALL ECM

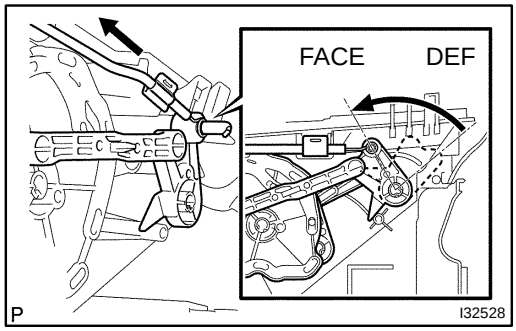
(a) Install the ECM with the 2 bolts.
Torque: 3.0 N·m (30 kgf·cm, 26 in.·lbf)

NOTICE:

- **Do not apply excessive force to the connecter of the ECM.**
- **Do not give any impact to the ECM.**

41. INSTALL INSTRUMENT PANEL SUB–ASSY LOWER (See page 71–10)

42. INSTALL HEATER CONTROL & ACCESSORY ASSY (See page 55–13)



43. INSTALL DEFROSTER DAMPER CONTROL CABLE SUB–ASSY

(a) Set the arm in FACE position.

(b) Install the inner cable end to the control lever with the arm in FACE position.

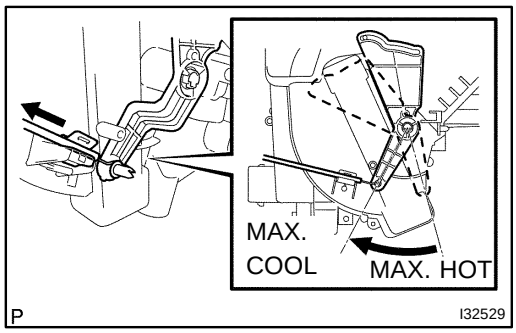
(c) Install the outer cable to the cable clamp while slightly pressing it in the direction of the arrow.

NOTICE:

- **Be careful not to bend the cable wire.**
- **If the cable wire bends, the heater control & accessory assy operationality becomes worse.**

HINT:

Operating the mode control lever, check that it properly stops at both ends of FACE and DEF and no recoil is identified.



44. INSTALL AIRMIX DAMPER CONTROL CABLE SUB–ASSY

(a) Set the arm in MAX. COOL position.

(b) Install the inner cable end to the control lever with the arm in MAX. COOL position.

(c) Install the outer cable to the cable clamp while slightly pressing it in the direction of the arrow.

NOTICE:

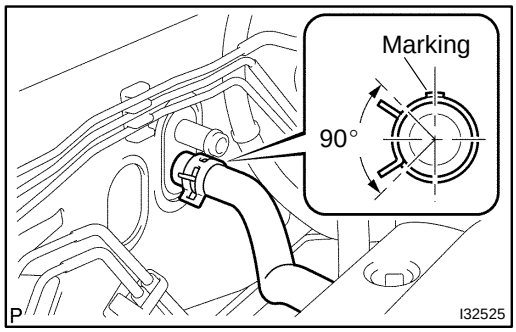
- **Be careful not to bend the cable wire.**
- **If the cable wire bends, the heater control & accessory assy operationality becomes worse.**

HINT:

Operating the temperature control lever, check that it properly stops at both ends of MAX. COOL and MAX. HOT and no recoil is identified.

45. REMOVE HEATER CONTROL & ACCESSORY ASSY (See page 55–13)

46. INSTALL INSTRUMENT PANEL SUB–ASSY UPPER (See page 71–10)



47. INSTALL HEATER OUTLET WATER HOSE

(a) Using pliers, grip the claws of clip and slide the clip and connect the heater outlet water hose.

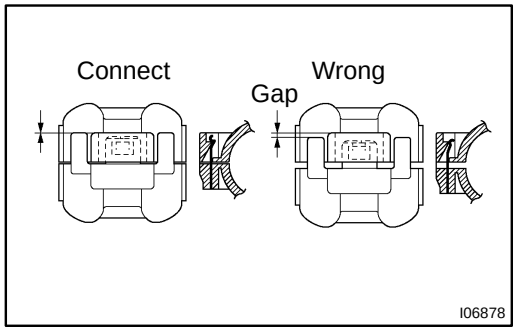
NOTICE:

- **The clip is installing so that the projection of the clip may go into the 90° to a direction position.**
- **Marking of hose is installed upward by vehicle.**

48. INSTALL HEATER INLET WATER HOSE

HINT:

Connect in the same way as the heater outlet water hose.



49. INSTALL COOLER REFRIGERANT SUCTION HOSE NO.1

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

Compressor oil: ND–OIL 8 or equivalent

(b) Install the cooler refrigerant suction hose No. 1 and piping clamp.

HINT:

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

50. INSTALL COOLER REFRIGERANT LIQUID PIPE A

(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 liquid pipe A and piping clamp.

HINT:

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

51. ADD COOLANT (See page 16–7)

52. CHECK ENGINE COOLANT LEAK (See page 16–1)

53. CHARGE REFRIGERANT (See page 55–11)

SST 07110–58060 (07117–58060, 07117–58070, 07117–58080, 07117–58090, 07117–78050, 07117–88060, 07117–88070, 07117–88080), 07117–48130, 07117–48140

Specified amount: 490 ± 30 g (17.28 ± 1.06 oz.)

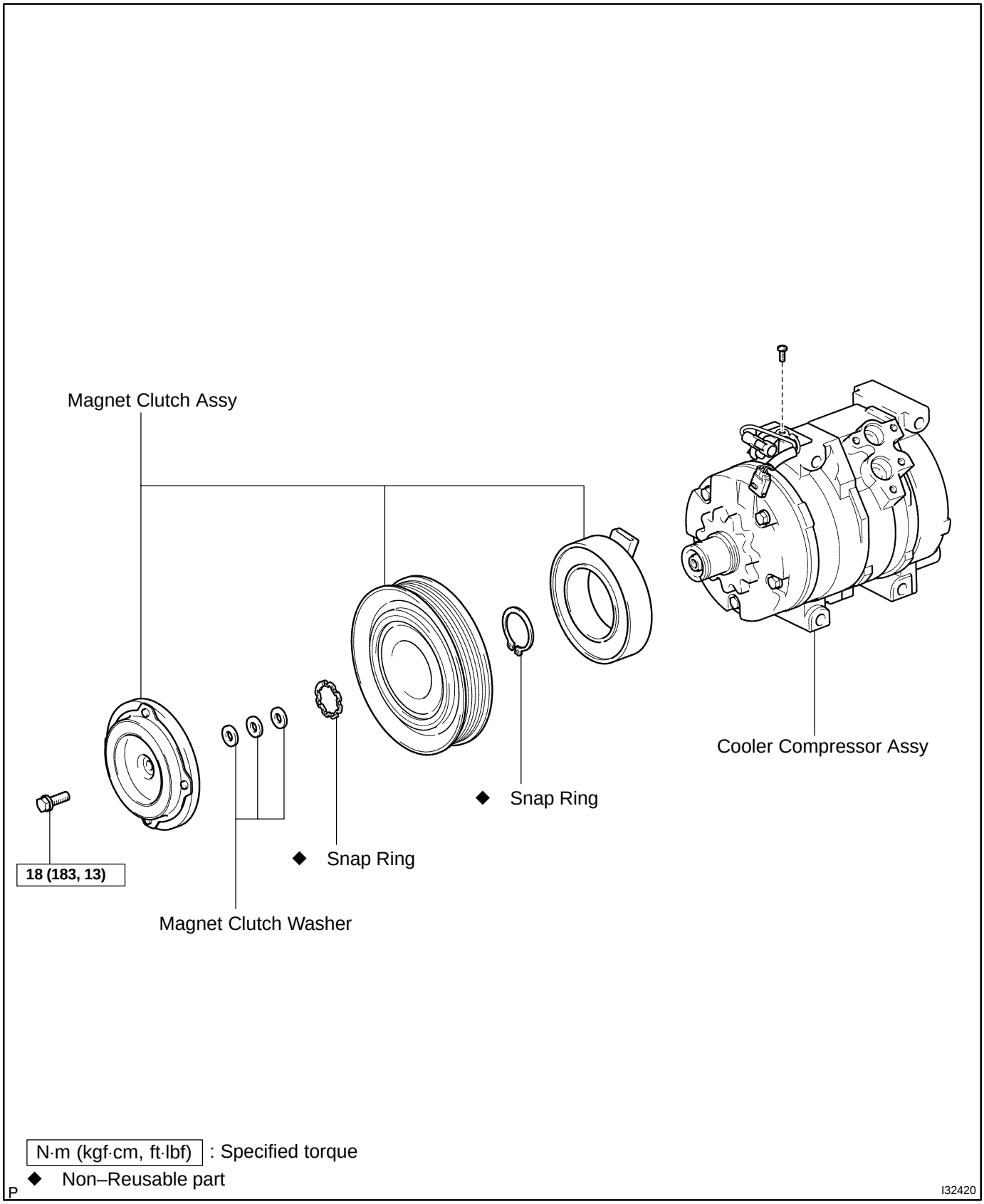
54. WARM UP ENGINE

55. INSPECT LEAKAGE OF REFRIGERANT (See page 55–11)

COOLER COMPRESSOR ASSY

COMPONENTS

550IZ–01



550J0–01

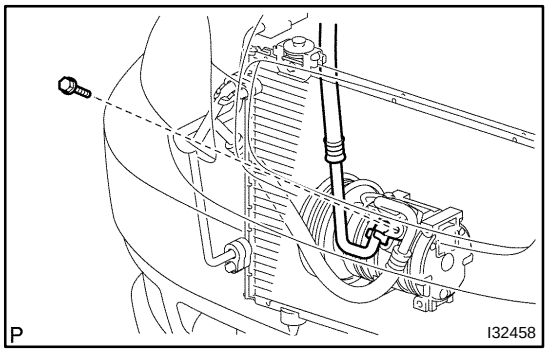
REPLACEMENT

HINT:

COMPONENTS: See page 55–33

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page 55–11)

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



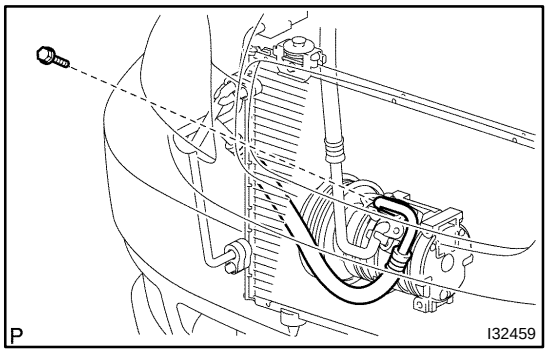
2. DISCONNECT COOLER REFRIGERANT SUCTION HOSE NO.1

(a) Remove the bolt and disconnect the cooler refrigerant suction hose No. 1 from the compressor and magnetic clutch.

(b) Remove the O–ring from the cooler refrigerant suction hose No. 1.

NOTICE:

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



3. DISCONNECT DISCHARGE HOSE SUB–ASSY

(a) Remove the bolt and disconnect the discharge hose sub–assy from the compressor and magnetic clutch.

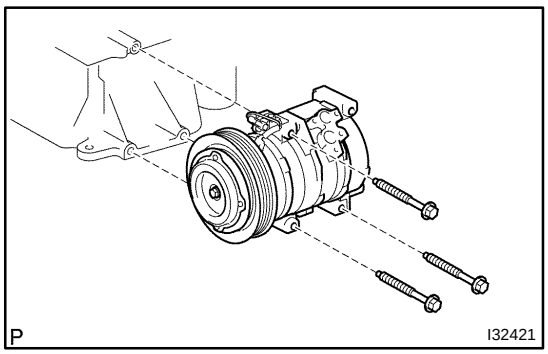
(b) Remove the O–ring from the discharge hose sub–assy.

NOTICE:

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

4. REMOVE ENGINE UNDER COVER RH

5. REMOVE FAN AND GENERATOR V BELT (See page 14–4)



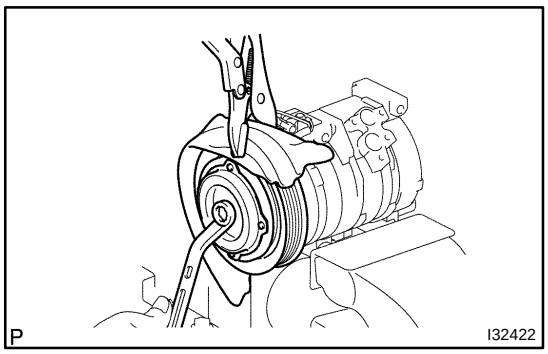
6. REMOVE COMPRESSOR AND MAGNETIC CLUTCH

(a) Disconnect the connector.

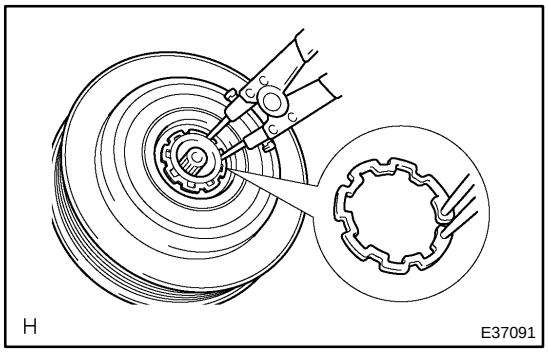
(b) Remove the 3 bolts and compressor and magnetic clutch.

7. REMOVE MAGNET CLUTCH ASSY

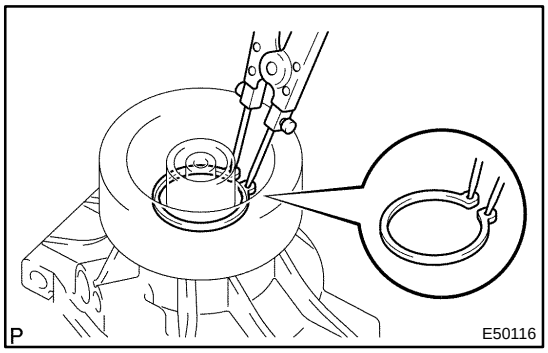
(a) Place the compressor and magnetic clutch in vise.



(b) Using a vise pliers, hold the magnet clutch hub.
(c) Remove the bolt, magnet clutch hub and magnet clutch washer.

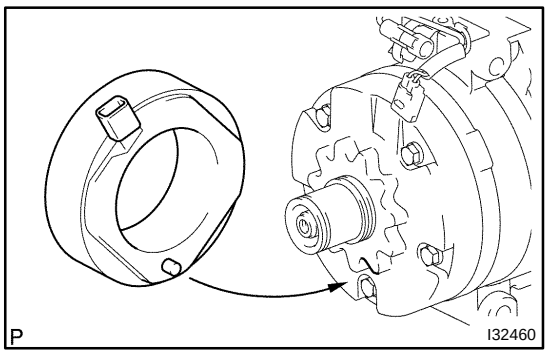


(d) Using a snap ring expander, remove the snap ring and magnet clutch rotor.
(e) Remove the screw, disconnect the connector.



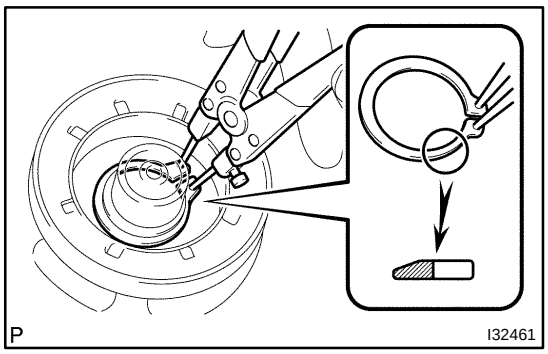
(f) Using a snap ring expander, remove the snap ring and magnet clutch starter.

8. REMOVE COOLER COMPRESSOR ASSY

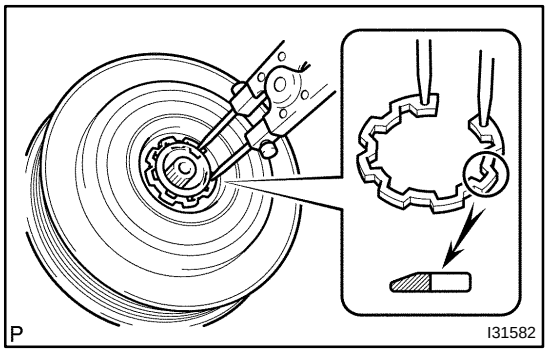


9. INSTALL MAGNET CLUTCH ASSY

(a) Matching the parts shown in the illustration, install the magnet clutch starter.



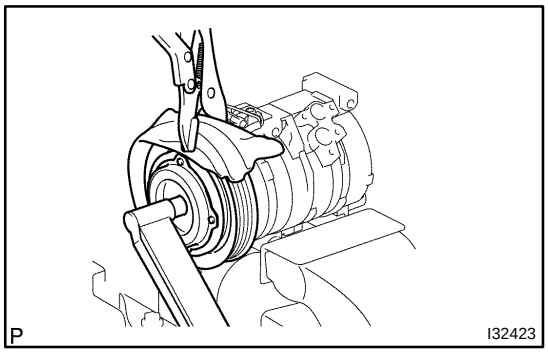
(b) Using a snap ring expander, install a new snap ring with the chamfered side facing up.
(c) Install the screw, connect the connector.



(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.

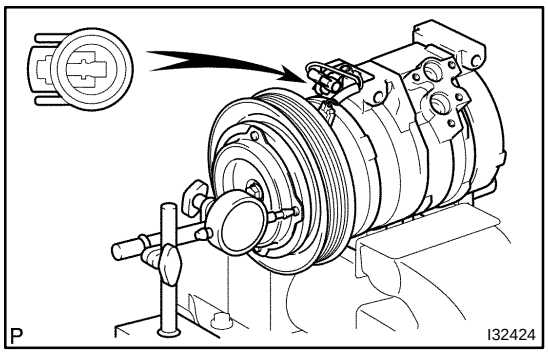
NOTICE:

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



(f) Using a vise pliers, hold the magnet clutch hub and install the bolt.

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

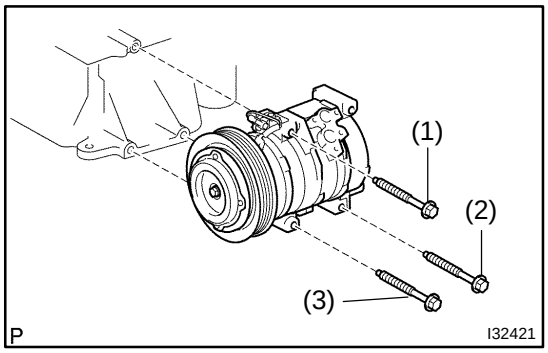
(a) When replacing the compressor and magnetic clutch with new one, after gradually removing the refrigerant gas from the service valve, drain the following amount of oil from the new compressor and magnetic clutch before installation.

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 too much, 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 with the 3 bolts.

Toque: 29 N·m (295 kgf·cm, 21 ft·lbf)

NOTICE:

Tighten the bolts in following order shown in the illustration to install the compressor and magnetic clutch.

(b) Connect the connector.

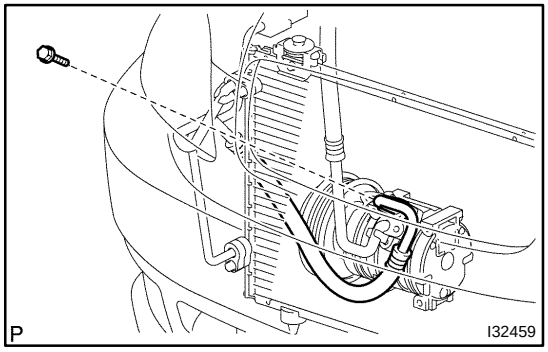
13. INSTALL DISCHARGE HOSE SUB–ASSY

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

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

Compressor oil: ND–OIL8 or equivalent

(c) Install a O–ring to the discharge hose sub–assy.



(d) Install the discharge hose sub–assy to the compressor and magnetic clutch with the bolt.

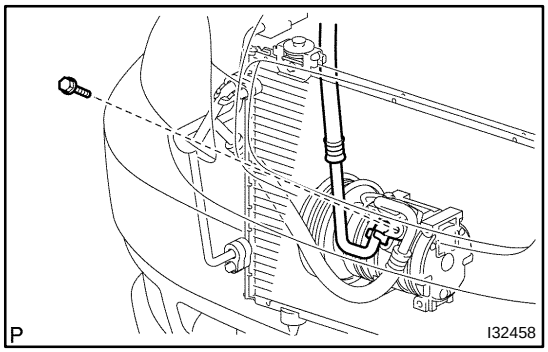
Torque: 9.8 N·m (100 kgf·cm, 87 in.·lbf)

14. INSTALL COOLER REFRIGERANT SUCTION HOSE NO.1

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

(b) Sufficiently apply compressor oil to the new O–ring and fit surface of the compressor and magnetic clutch.
Compressor oil: ND–OIL8 or equivalent

(c) Install a O–ring to the cooler refrigerant suction hose No. 1.



(d) Install the cooler refrigerant suction hose No. 1 to the compressor and magnetic clutch with the bolt.
Torque: 9.8 N·m (100 kgf·cm, 87 in.·lbf)

15. CHARGE REFRIGERANT (See page 55–11)
SST 07110–58060 (07117–58060, 07117–58070, 07117–58080, 07117–58090, 07117–78050, 07117–88060, 07117–88070, 07117–88080), 07117–48130, 07117–48140
Specified amount: 490 ± 30 g (17.28 ± 1.06 oz.)

16. WARM UP ENGINE

17. INSPECT LEAKAGE OF REFRIGERANT (See page 55–11)

W/RECEIVER CONDENSER ASSY

550IW–01

ON–VEHICLE INSPECTION

1. INSPECT W/RECEIVER CONDENSER ASSY

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

NOTICE:

Do not damage the fin of the w/receiver condenser assy.

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

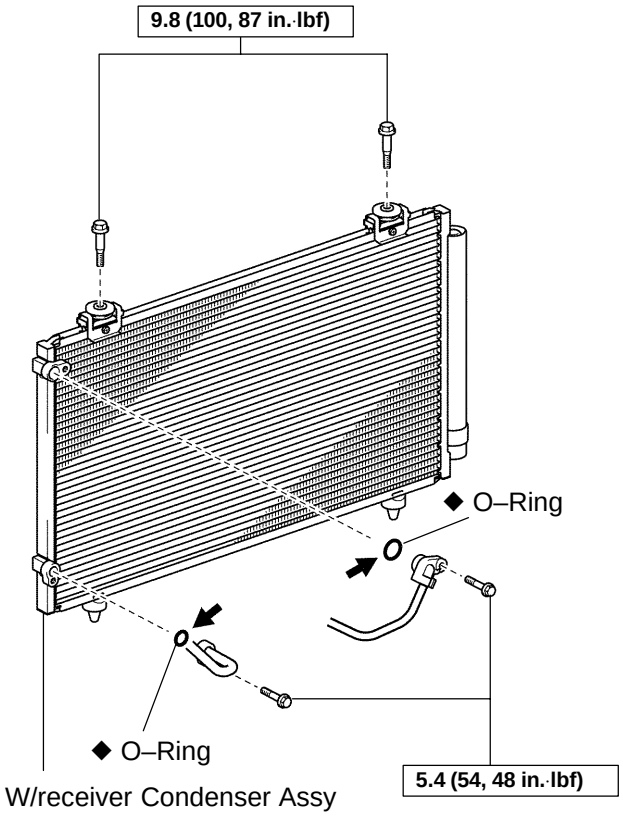
2. INSPECT W/RECEIVER CONDENSER ASSY FOR LEAKAGE OF REFRIGERANT

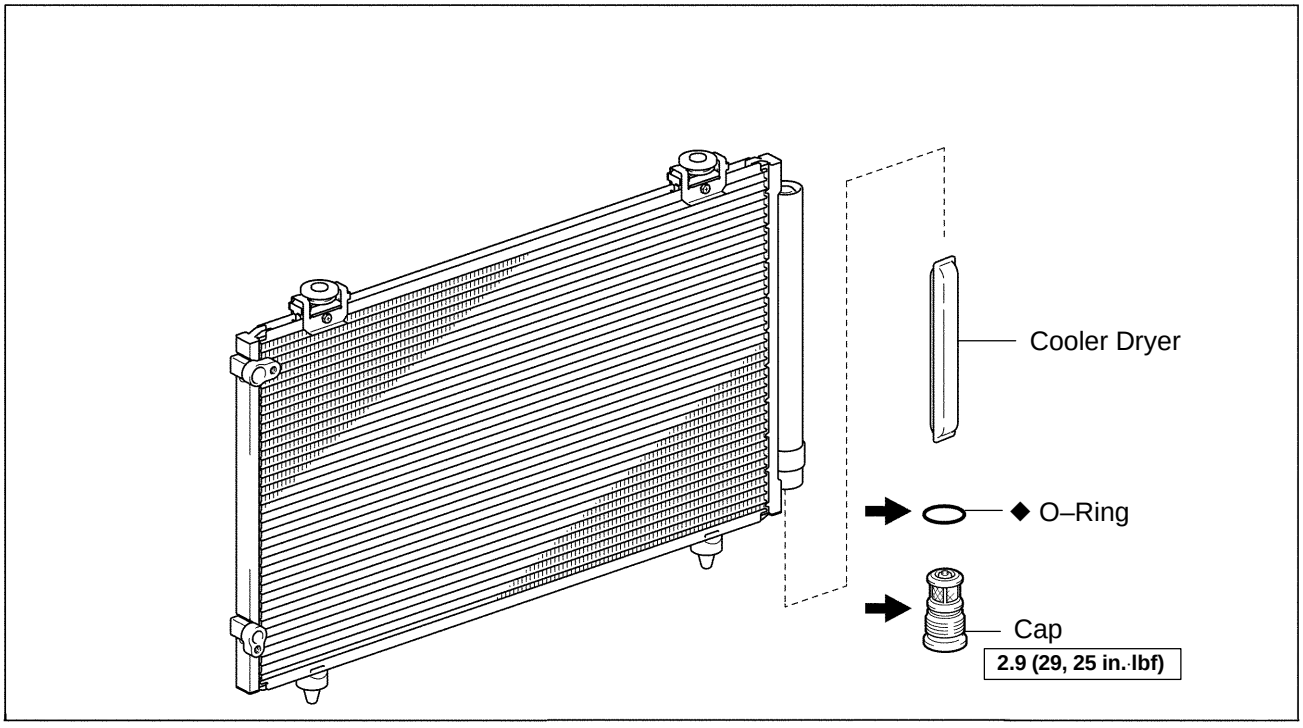
(a) Using a halogen leak detector, check pipe joints for gas leakage.

(b) If gas leakage is detected in a joint, check the torque of the joint.

550IX–01

COMPONENTS





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

⬅ Compressor Oil ND–OIL 8 or equivalent

◆ Non–reusable part

I32505

550IY–01

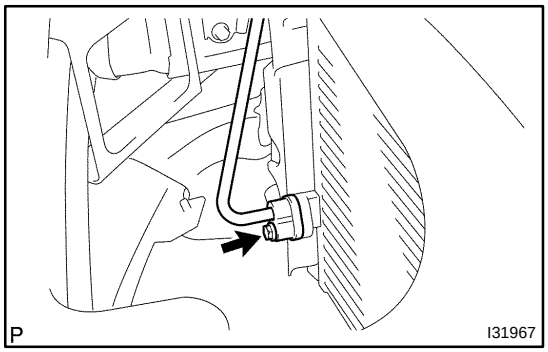
OVERHAUL

HINT:

COMPONENTS: See page 55–40

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page 55–11)

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



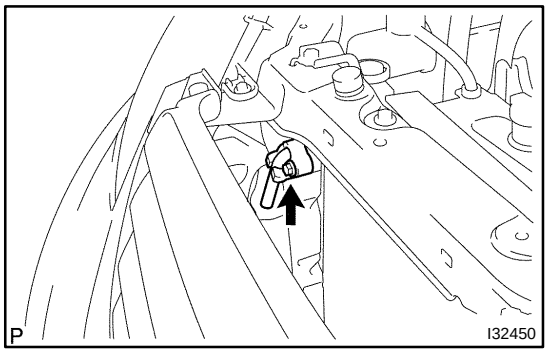
2. DISCONNECT COOLER REFRIGERANT LIQUID PIPE A

(a) Remove the bolt and disconnect the cooler refrigerant liquid pipe A from the w/receiver condenser assy.

(b) Remove the O–ring from the cooler refrigerant liquid pipe A.

NOTICE:

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



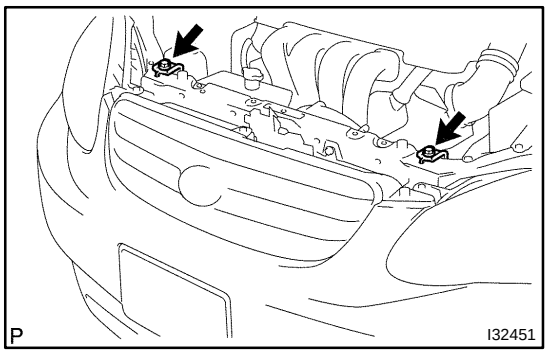
3. DISCONNECT DISCHARGE HOSE SUB–ASSY

(a) Remove the bolt and discharge hose sub–assy from the w/receiver condenser assy.

(b) Remove the O–ring from the discharge hose sub–assy.

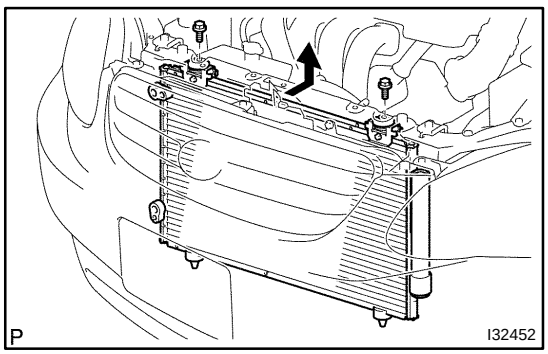
NOTICE:

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



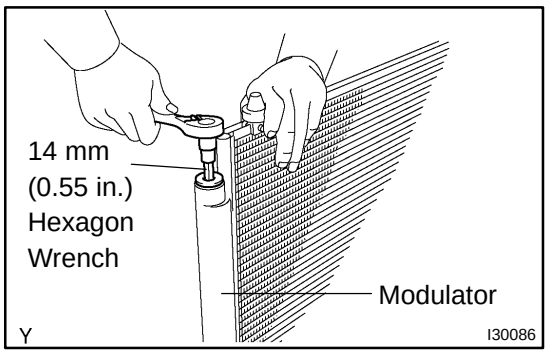
4. REMOVE W/RECEIVER CONDENSER ASSY

(a) Remove the 2 bolts and 2 radiator upper supports.



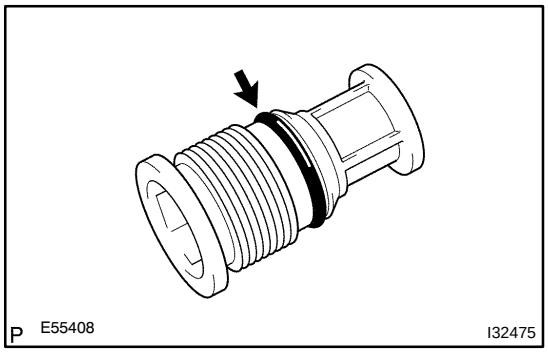
(b) Remove the 2 bolts.

(c) Slide the upper part of the radiator assy rearward to remove the w/receiver condenser assy.

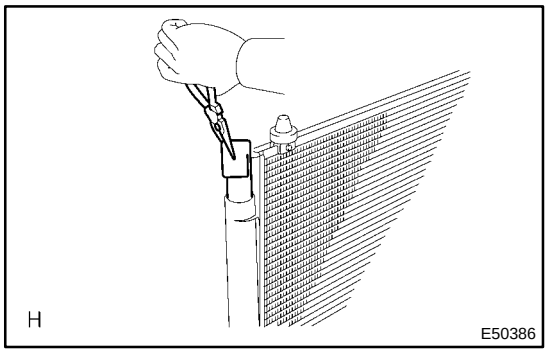


5. REMOVE COOLER DRYER

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



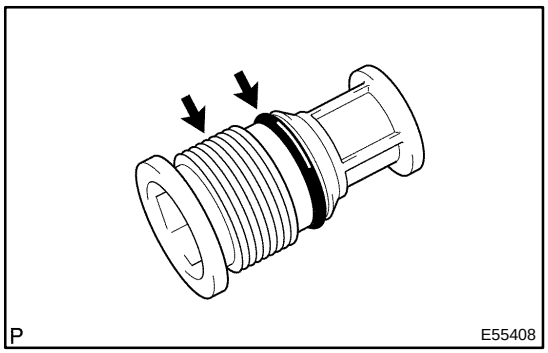
(b) Remove the O–ring from the cap.



(c) Using pliers, remove the cooler dryer.

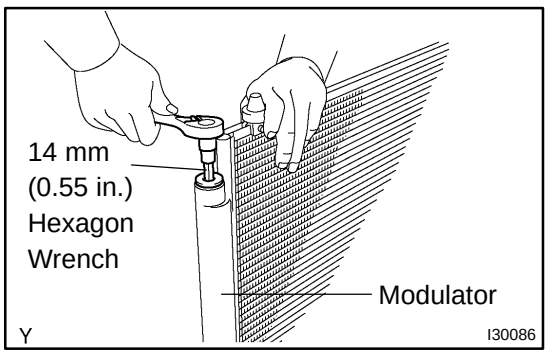
6. INSTALL COOLER DRYER

(a) Using pliers, install the cooler dryer.

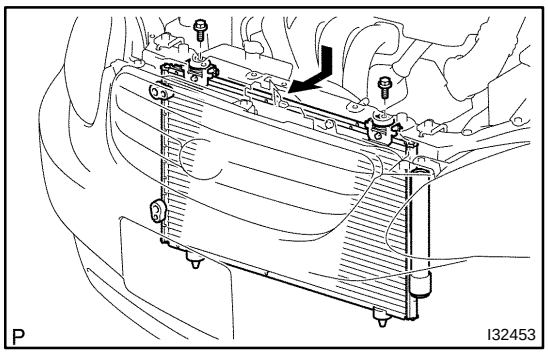


(b) Install the new O–ring to the cap.

(c) Sufficiently apply compressor oil to the fit surfaces of the O–ring and the cap.
Compressor oil: ND–OIL 8 or equivalent

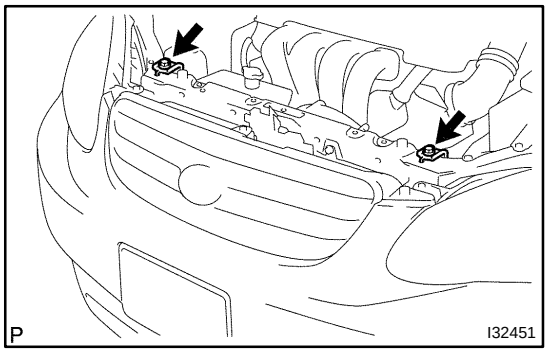


(d) Using a socket hexagon wrench 14 mm (0.55 in.), install the cap to the modulator.
Torque: 2.9 N·m (29 kgf·cm, 25 in.·lbf)



7. INSTALL W/RECEIVER CONDENSER ASSY

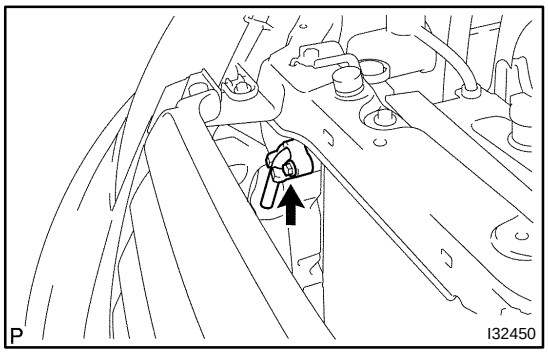
(a) Install the w/receiver condenser assy with the 2 bolts.
Torque: 9.8 N·m (100 kgf·cm, 87 in.·lbf)



(b) Install the 2 radiator upper supports with the 2 bolts.

8. INSTALL DISCHARGE HOSE SUB–ASSY

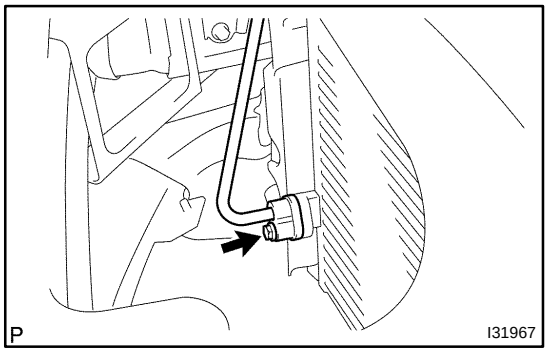
(a) Remove the attached vinyl tape from the hose and connecting part of the w/receiver condenser assy.
(b) Sufficiently apple compressor oil to the new O–ring and hose joint.
Compressor oil: ND–OIL 8 or equivalent
(c) Install a O–ring to the discharge hose sub–assy.



(d) Install the discharge hose sub–assy to the w/receiver condenser assy with the bolt.
Torque: 5.4 N·m (54 kgf·cm, 48 in.·lbf)

9. INSTALL COOLER REFRIGERANT LIQUID PIPE A

(a) Remove the attached vinyl tape from the pipe and w/receiver condenser assy.
(b) Sufficiently apple compressor oil to the new O–ring and pipe joint.
Compressor oil: ND–OIL 8 or equivalent
(c) Install a O–rings to the cooler refrigerant liquid pipe A.



(d) Install the cooler refrigerant liquid pipe A to the w/receiver condenser assy with the bolt.
Torque: 5.4 N·m (54 kgf·cm, 48 in.·lbf)

10. CHARGE REFRIGERANT (See page 55–11)

SST 07110–58060 (07117–58060, 07117–58070, 07117–58080, 07117–58090, 07117–78050, 07117–88060, 07117–88070, 07117–88080), 07117–48130, 07117–48140

Specified amount: 490 ± 30 g (17.28 ± 1.06 oz.)

11. WARM UP ENGINE

12. INSPECT LEAKAGE OF REFRIGERANT (See page 55–11)