

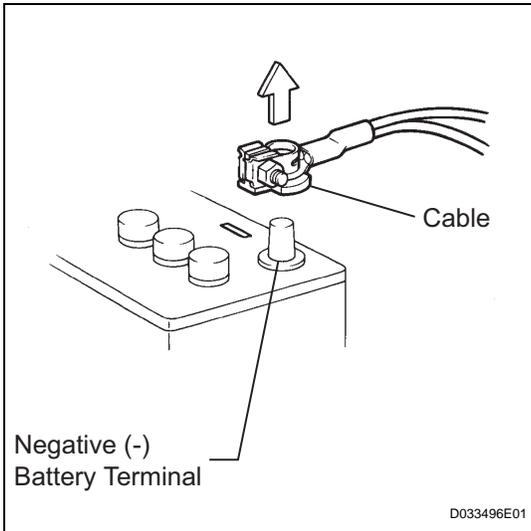
# AIR CONDITIONING SYSTEM

## PRECAUTION

**NOTICE:**

When the cable is disconnected from the negative (-) battery terminal, initialize the following system(s) after the cable is reconnected.

System name	See procedure
METER / GAUGE SYSTEM	See page <a href="#">ME-10</a>



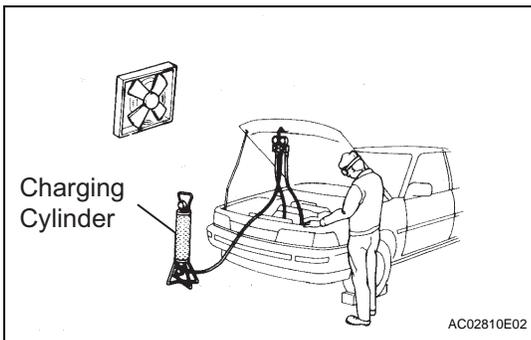
1. Before performing electronic work, disconnect the cable from the negative (-) battery terminal in order to prevent it from shorting and burning out.
2. Before disconnecting and reconnecting the battery cable, turn the ignition switch OFF and the headlight dimmer switch OFF. Then loosen the terminal nut completely. Do not damage the cable or terminal.
3. When the battery cable is disconnected, the clock and radio settings and stored DTCs are erased. Therefore, before disconnecting the battery cable, make a notes of them.

1. **CONNECT THE BATTERY NEGATIVE TERMINAL TO THE CABLE AND RUN THE ENGINE AT NO LESS THAN 2,000 RPM FOR 2MINUTE**

**NOTICE:**

If the engine exceeds 2,000 rpm, the clutch is automatically disengaged by the compressor protection control system.

2. **DO NOT HANDLE REFRIGERANT IN ENCLOSED AREAS OR NEAR OPEN FLAMES**
3. **ALWAYS WEAR EYE PROTECTION**



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

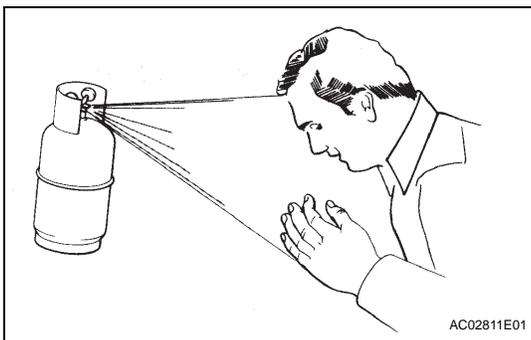
If liquid refrigerant gets in your eyes or on your skin:

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

**CAUTION:**

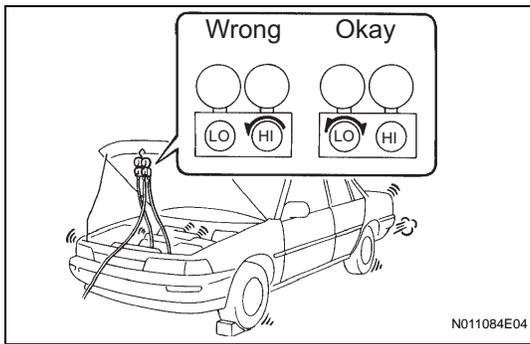
**Do not rub your eyes or skin.**

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



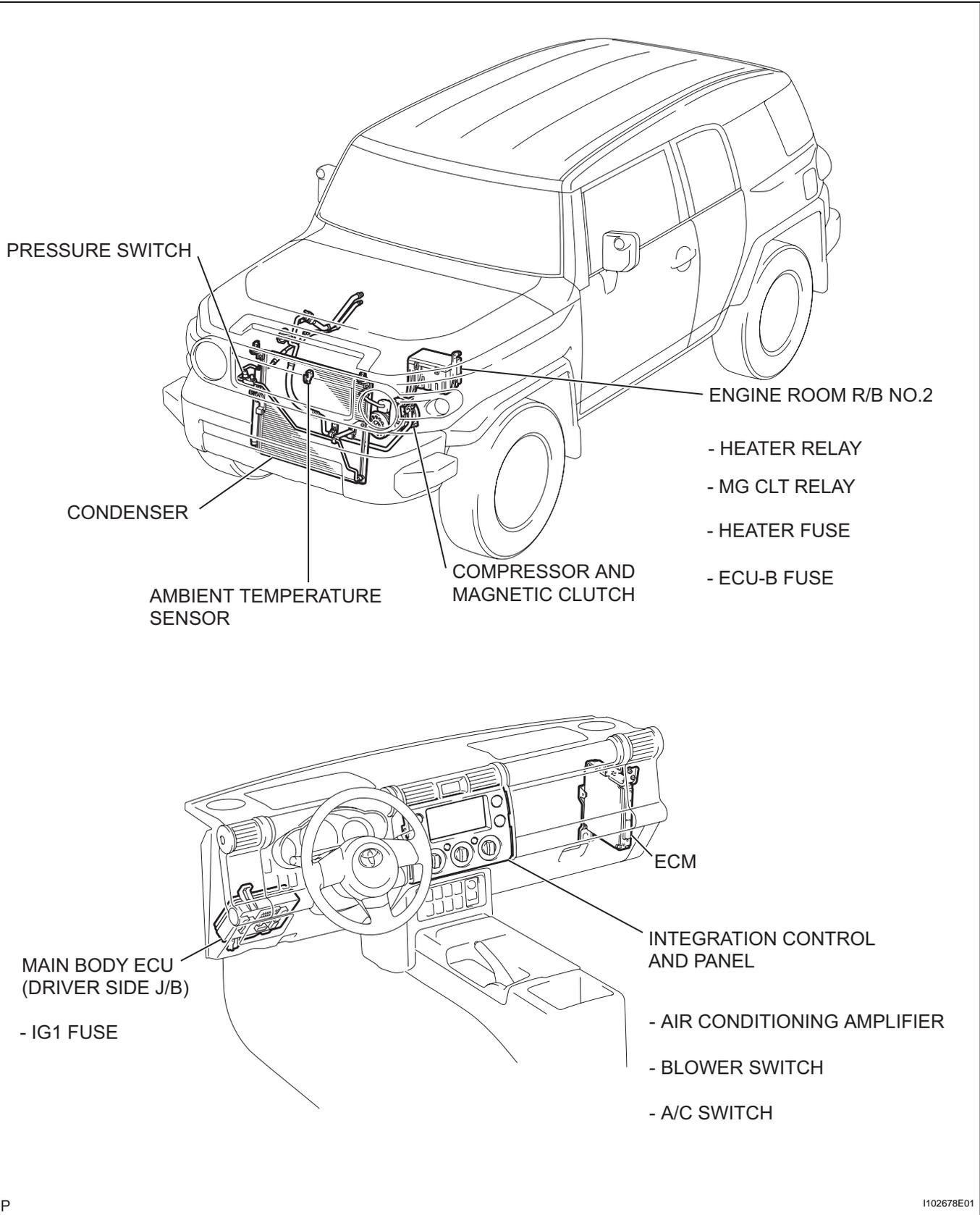
5. **NEVER HEAT CONTAINER OR EXPOSE THE CONTAINER TO OPEN FLAME**
6. **BE CAREFUL NOT TO DROP CONTAINER OR APPLY ANY PHYSICAL SHOCKS TO IT**

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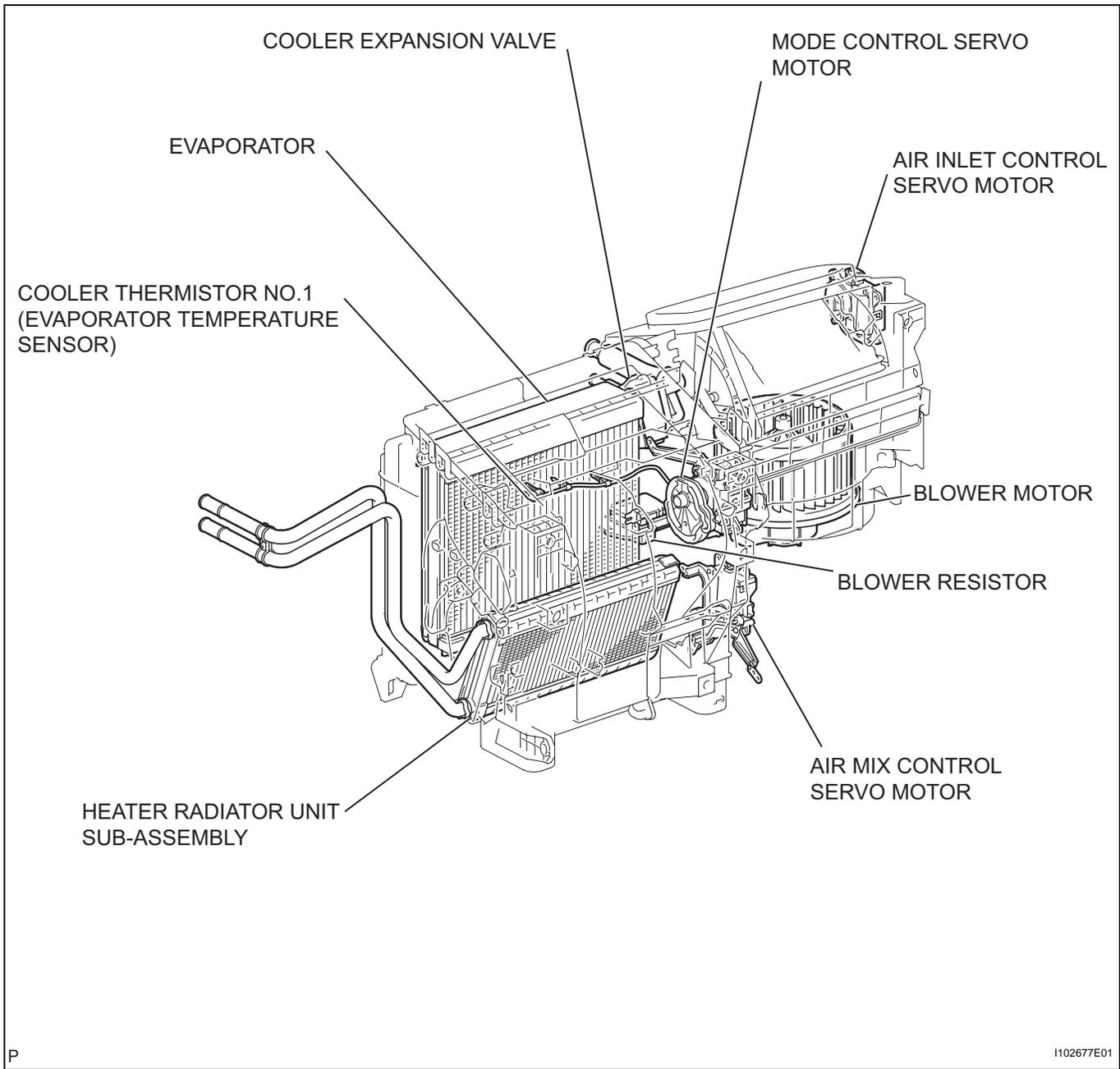


7. **DO NOT OPERATE COMPRESSOR WITHOUT ENOUGH REFRIGERANT IN REFRIGERANT SYSTEM**  
If there is not enough refrigerant in the refrigerant system, oil lubrication will be insufficient and compressor burnout may occur. Necessary care should be taken to avoid this.
8. **DO NOT OPEN HIGH PRESSURE MANIFOLD VALVE WHILE COMPRESSOR IS OPERATING**  
Open and close only the low pressure valve. If the high pressure valve is open, refrigerant flows in the reverse direction. This could cause the charging cylinder to rupture.
9. **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.
10. **DO NOT OPERATE ENGINE AND COMPRESSOR WITH NO REFRIGERANT**  
**CAUTION:**  
Doing so may damage the inside of the compressor because the compressor parts always move regardless of whether the A/C system is turned on or off.
11. **SUPPLEMENTAL RESTRAINT SYSTEM (SRS)**
  - (a) This vehicle is equipped with an SRS (Supplemental Restraint System) such as the driver, front passenger, side, and curtain shield air bags. Failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notices (see page [RS-1](#)).
12. **GENERAL PRECAUTION**
  - (a) While using the battery during inspection, do not bring the positive and negative tester probes too close to each other as a short circuit may occur.

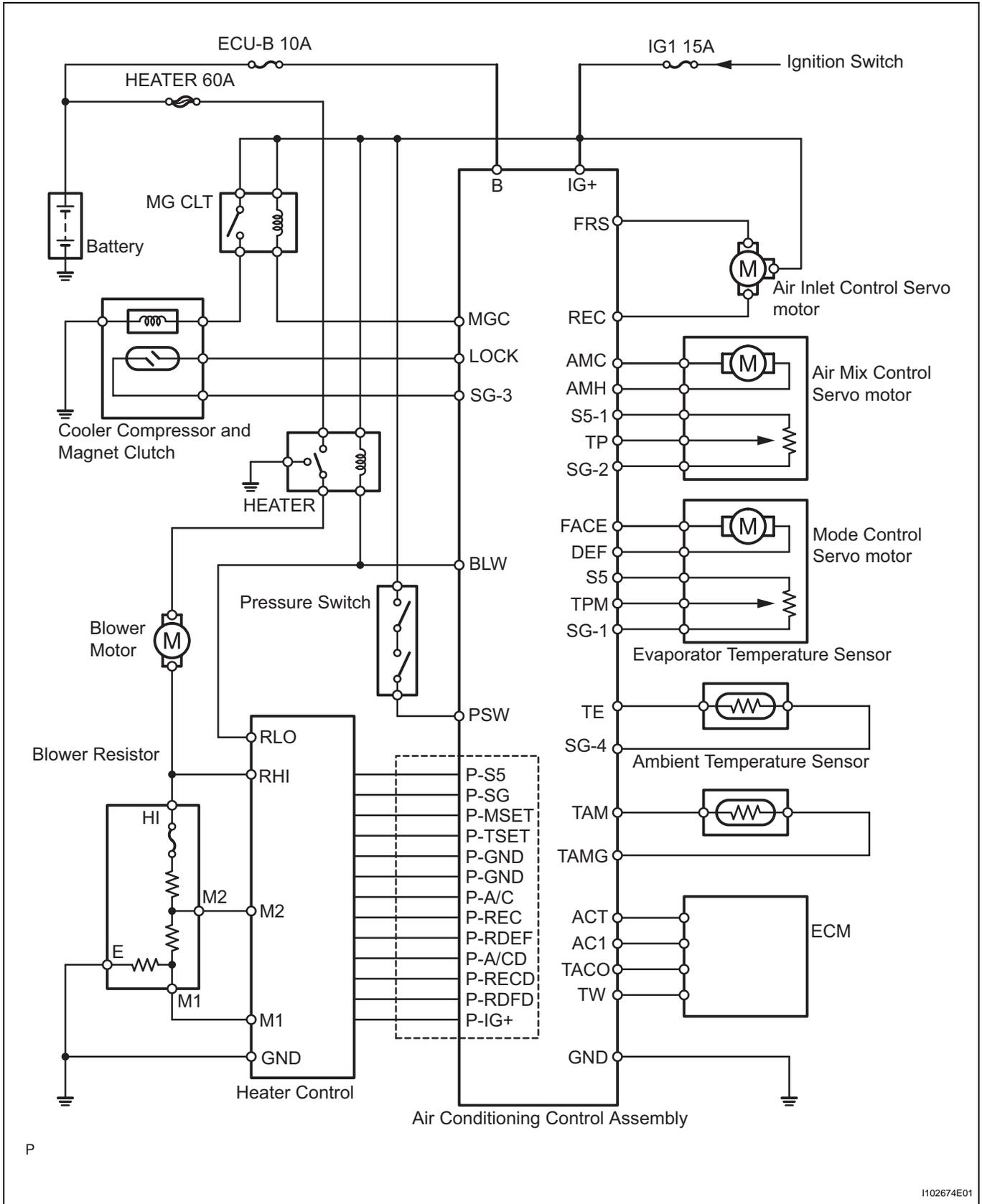
# PARTS LOCATION



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# SYSTEM DIAGRAM



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## PROBLEM SYMPTOMS TABLE

### HINT:

- Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.
- If the malfunction still exists even after checking and confirming that all the circuits are normal, replace the A/C amplifier.

### Air conditioning system

Symptom	Suspected area	See page
No Cool Air Comes Out: Compressor Not Operating	Volume of refrigerant	<a href="#">AC-12</a>
	Pressure switch	<a href="#">AC-104</a>
	Magnetic clutch	<a href="#">AC-88</a>
	Air conditioning amplifier assembly	<a href="#">AC-8</a>
	Compressor pick up sensor	<a href="#">AC-88</a>
	Cooler compressor	<a href="#">AC-88</a>
	Wire harness or connector	-
No Cool Air Comes Out: Blower Not Operating	HTR fuse	-
	Heater relay	<a href="#">AC-106</a>
	Blower resistor	<a href="#">AC-83</a>
	Blower motor	<a href="#">AC-81</a>
	Air conditioning panel assembly	<a href="#">AC-110</a>
	Air conditioning amplifier assembly	<a href="#">AC-8</a>
	Wire harness or connector	-
No Cool Air Comes Out: Air Mix Damper Servo Not Operating	Air mix control servo motor	<a href="#">AC-44</a>
	Air conditioning panel assembly	<a href="#">AC-110</a>
	Wire harness or connector	-
No Cool Air Comes Out: Insufficient Cooling	Volume of refrigerant	<a href="#">AC-12</a>
	Blower motor performance check	<a href="#">AC-81</a>
	Air mix damper servo full travel check	<a href="#">AC-44</a>
	Recirculation damper servo operation check	<a href="#">AC-74</a>
No Engine Idle-up when A/C Switch ON	Air conditioning amplifier assembly	<a href="#">AC-8</a>
	Idling control system	<a href="#">ES-251</a>
	Wire harness or connector	-
No Warm Air Comes Out: Blower Not Operating	HTR fuse	-
	IG1 fuse	-
	Heater relay	<a href="#">AC-106</a>
	Blower resistor	<a href="#">AC-83</a>
	Blower motor	<a href="#">AC-81</a>
	Air conditioning panel assembly	<a href="#">AC-110</a>
	Wire harness or connector	-
No Warm Air Comes Out: Air Mix Damper Servo Not Operating	Air mix control servo motor	<a href="#">AC-44</a>
	Air conditioning panel assembly	<a href="#">AC-110</a>
	Wire harness or connector	-

Symptom	Suspected area	See page
No Warm Air Comes Out: Insufficient Cooling	Volume of engine coolant	<a href="#">CO-3</a>
	Air conditioning panel assembly	<a href="#">AC-110</a>
	Blower motor performance check	<a href="#">AC-81</a>
	Air mix damper servo full travel check	<a href="#">AC-44</a>
	Recirculation damper servo operation check	<a href="#">AC-74</a>
	Heater radiator	-
Air Not Coming From Desired Outlets: Blower Not Operating	HTR fuse	-
	IG1 fuse	-
	Heater relay	<a href="#">AC-106</a>
	Blower resistor	<a href="#">AC-83</a>
	Blower motor	<a href="#">AC-81</a>
	Air conditioning panel assembly	<a href="#">AC-106</a>
	Wire harness or connector	-
Air Not Coming From Desired Outlets: Air Mix Damper Servo Not Operating	Air mix control servo motor	<a href="#">AC-44</a>
	Wire harness or connector	-
Windshield Fogging: Compressor Not Operating	IG1 fuse	-
	Volume of refrigerant	<a href="#">AC-12</a>
	Magnetic clutch	<a href="#">AC-88</a>
	Cooler thermistor sensor	<a href="#">AC-44</a>
	Air conditioning amplifier assembly	<a href="#">AC-8</a>
	Compressor pick up sensor	<a href="#">AC-88</a>
	Cooler compressor	<a href="#">AC-88</a>
	Wire harness or connector	-
Windshield Fogging: Blower Not Operating	HTR fuse	-
	Heater relay	<a href="#">AC-106</a>
	Blower resistor	<a href="#">AC-83</a>
	Blower motor	<a href="#">AC-81</a>
	Air conditioning panel assembly	<a href="#">AC-110</a>
	Wire harness or connector	-
Windshield Fogging: Air Mix Damper Servo Not Operating	Air mix control servo motor	<a href="#">AC-44</a>
	Air conditioning panel assembly	<a href="#">AC-110</a>
	Wire harness or connector	-
Windshield Fogging: Insufficient Cooling	Volume of refrigerant	<a href="#">AC-12</a>
	Blower motor performance check	<a href="#">AC-81</a>
	Air mix damper servo full travel check	<a href="#">AC-44</a>
	Recirculation damper servo operation check	<a href="#">AC-74</a>
Defrosting Insufficient:	Blower motor	<a href="#">AC-81</a>
	Mode doors: Check cooling, heating & door operation	-
	Mode control servo motor: Hot air not coming, Go to no warm air comes out	-
	Mode control servo motor: Cold air not coming, Go to no cold air comes out	-
Noise:	Blower motor: Inspect blower motor for debris/cracks	-
	Fresh air intake area: Inspect fresh air intake area for debris	-
Noise:	Cooler compressor: Cooler compressor incorrectly fitted	<a href="#">AC-90</a>
	Magnetic clutch	<a href="#">AC-88</a>
	Refrigerant charge amount	<a href="#">AC-20</a>
	Compressor mounting bracket: Compressor mounting bracket incorrectly fitted	<a href="#">EM-27</a>
	A/C lines secure & not grounded	-

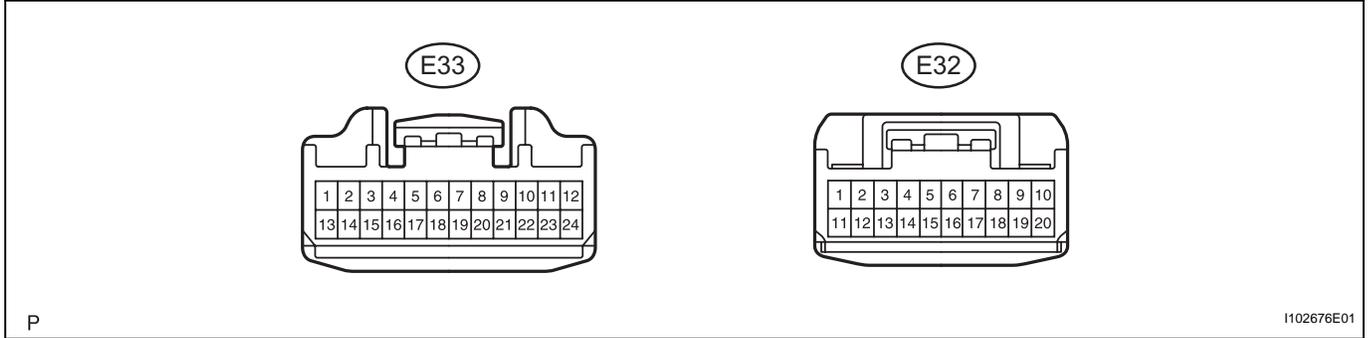
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Symptom	Suspected area	See page
Odor (Cycle through blower speed, mode, temperature to define odor type when engine is running and A/C switch is ON. (Musty smell, coolant oil smell))	Wet carpet: Inspect for water, engine coolant or oil leaks	-
	A/C drain tube: Inspect for water, engine coolant or oil leaks	-
	Fresh air intake area: Inspect for water, engine coolant or oil leaks	-
	Heater hose: Inspect for water, engine coolant or oil leaks	-
	Evaporator: Inspect for water, engine coolant or oil leaks	-
	Evapo case: Inspect for water, engine coolant or oil leaks	-
Air Not Coming from Desired Outlets (Cycle the mode lever and check airflow for outlets when engine is running, A/C switch is ON.)	Blower motor	<a href="#">AC-81</a>
	Mode control servo motor	<a href="#">AC-44</a>
	Mode doors: Check cooling, heating & door operation	-
	Wire harness or connector	-
	Air conditioning panel assembly	<a href="#">AC-110</a>

# TERMINALS OF ECU

## 1. INSPECT AIR CONDITIONING AMPLIFIER ASSEMBLY

- (a) Disconnect the E32 and E33 connectors from the air conditioning amplifier assembly and inspect the connector on the wire harness side, as shown in the table below.



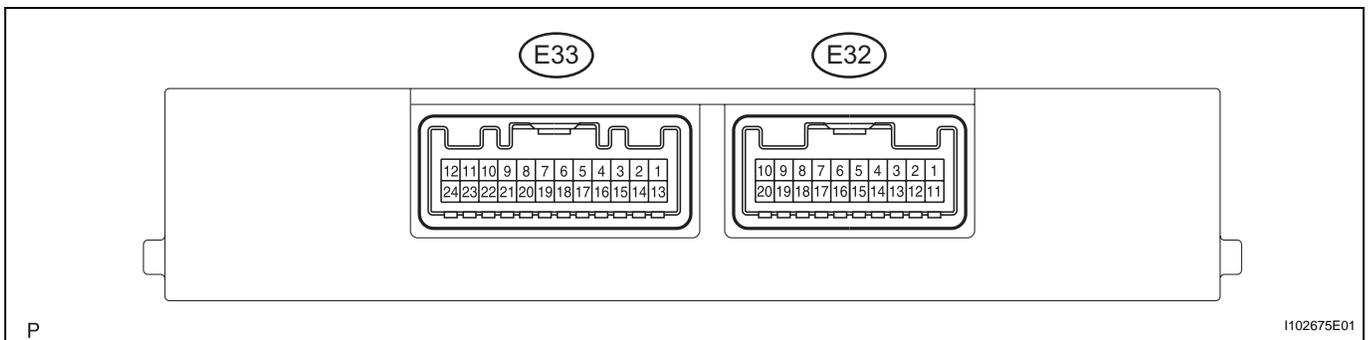
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**Standard:**

Symbols (Terminals No.)	Wiring Colors	Terminal Descriptions	Conditions	Specified Condition
IG+ (E32-1) - GND (E32-20)	Y-R - W-B	Power source (IG)	Ignition switch: OFF → ON	Below 1.0 → 11 to 14 V
B (E32-11) - GND (E32-20)	W-R - W-B	Power source (Back-up)	Always	11 to 14 V
SG-1 (E33 - 17) - Body ground	V-G - Body ground	Ground for mode control servo motor	Always	Below 1.0 Ω
SG-2 (E33 - 18) - Body ground	Y-G - Body ground	Ground for air mix control servomotor	Always	Below 1.0 Ω
SG-3 (E33 - 6) - Body ground	G-Y - Body ground	Ground for lock sensor	Always	Below 1.0 Ω
SG-4 (E32 - 9) - Body ground	GR-G - Body ground	Ground for A/C evaporator temperature sensor	Always	Below 1.0 Ω
TAMG (E33 - 16) - Body ground	GR - Body ground	Ground for ambient temperature sensor	Always	Below 1.0 Ω
GND (E32-20) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1.0 Ω

If the results are not as specified, inspect the circuits connected to the other parts.

- (b) Reconnect the E32 and E33 connectors to the air conditioning amplifier assembly and inspect the wire harness side connector from the back side, as shown in the table below.

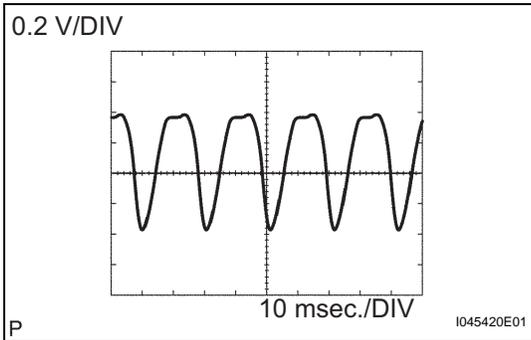


## Standard:

Symbols (Terminals No.)	Wiring Colors	Terminal Descriptions	Conditions	Specified Condition
DEF (E33-9) - GND (E32-20)	LG - W-B	Mode switch signal	Ignition switch: ON Mode select switch: Except DEF → DEF	Below 1.5 → 11 to 14 V
LOCK (E33-8) - SG-3 (E33-6)	R-W - G-Y	Magnet clutch signal	Start engine Operate A/C system Magnet clutch: ON	Pulse generation (See waveform 1)
ACI (E33-24) - GND (E32-20)	G-W - W-B	Idle up request signal	Engine idling Operate A/C system Magnet clutch: OFF → ON	11 to 14 → Below 1.0 V
FRS (E32-6) - GND (E32-20)	V-W - W-B	Recirculation/Fresh switch signal	Ignition switch: ON Recirculation/Fresh switch: RECIRCULATION → FRESH	11 to 14 → Below 1.0 V
REC (E32-7) - GND (E32-20)	P-B - W-B	Recirculation/Fresh switch signal	Ignition switch: ON Recirculation/Fresh switch: FRESH → RECIRCULATION	11 to 14 → Below 1.0 V
MGC (E32-4) - GND (E32-20)	LG-B - W-B	Magnet clutch relay signal	Engine idling Operate A/C system Magnet clutch: OFF → ON	11 to 14 → Below 1.0 V
PSW (E33-22) - GND (E32-20)	LG-R - W-B	A/C pressure switch signal	Start engine Operate A/C system Refrigerant pressure: Normal (Less than 0.196 MPa (2.0 kgf/cm <sup>2</sup> )) or more than 3.14 MPa (32.0 kgf/cm <sup>2</sup> ))	11 to 14 → Below 1.0 V
BLW (E32-8) - GND (E32-20)	Y - W-B	Blower switch signal	Ignition switch: ON Blower switch: ON OFF → ON (LO, M1, M2, HI)	11 to 14 → Below 1.0 V
TE (E32-10) - SG-4 (E32-9)	B - GR-G	A/C evaporator temperature sensor signal	Ignition switch: ON Evaporator temperature: 0 → 15°C (32 → 59°F)	1.7 to 2.1 → 0.9 to 1.3 V
TAM (E33-13) - TAMG (E33-16)	Y - GR	Ambient temperature sensor signal	Ignition switch: ON Ambient temperature: 25 → 40°C (77 → 104°F)	1.7 to 2.1 → 1.3 to 1.8 V
RDFG (E32-5) - GND (E32-20)	Y-V - W-B	Defogger switch signal	Ignition switch: ON Defogger switch: OFF → ON	11 to 14 → Below 1.0 V
S5 (E33-19) - SG-1 (E33-17)	P - V-G	Power supply for mode control servo motor	Ignition switch: OFF → ON	0 to 5.0 V
S5-1 (E33-7) - SG-2 (E33-18)	P-B - Y-G	Power supply for air mix control servomotor	Ignition switch: OFF → ON	0 to 5.0 V
SG-1 (E33 - 17) - Body ground	V-G - Body ground	Ground for mode control servo motor	Always	Below 1.0 Ω
SG-2 (E33 - 18) - Body ground	Y-G - Body ground	Ground for air mix control servomotor	Always	Below 1.0 Ω
SG-3 (E33 - 6) - Body ground	G-Y - Body ground	Ground for lock sensor	Always	Below 1.0 Ω
SG-4 (E32 - 9) - Body ground	GR-G - Body ground	Ground for A/C evaporator temperature sensor	Always	Below 1.0 Ω
TAMG (E33 - 16) - Body ground	GR - Body ground	Ground for ambient temperature sensor	Always	Below 1.0 Ω
GND (E32-20) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1.0 Ω
IG+ (E32-1) - Body ground	Y-R - Body ground	Power source (IG)	Ignition switch: OFF → ON	Below 1.0 → 11 to 14 V
B (E32-11) - Body ground	W-R - Body ground	Power source (Back-up)	Always	11 to 14 V

If the results are not as specified, replace the air conditioning amplifier assembly with a new one. If the results are still not as specified after replacing the air conditioning control assembly, inspect the circuits connected to other parts.

(1) WAVEFORM 1:  
Magnet clutch signal

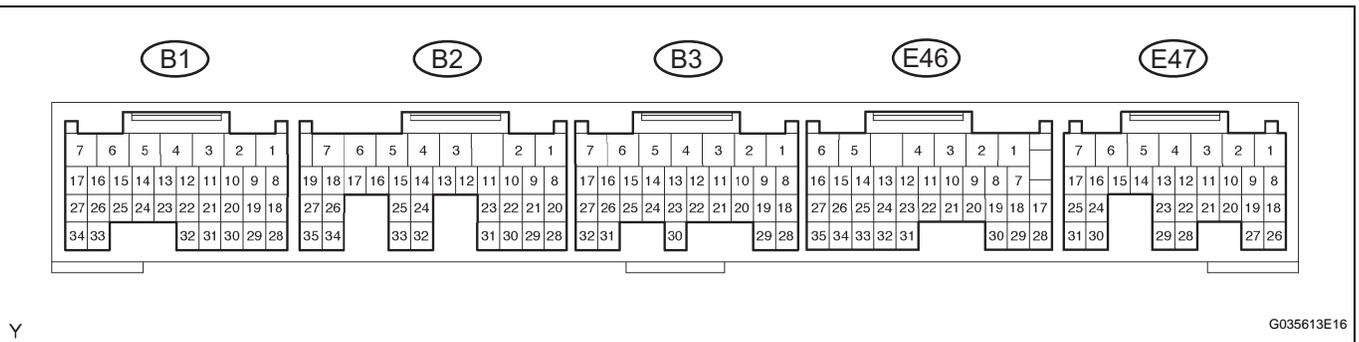


ECM Terminal Names	Between LOCK (E33-8) - SG-3 (E33-6)
Tester Ranges	0.2 V/DIV, 10 msec./DIV
Conditions	Idling

HINT:  
The wavelength becomes shorter as the engine rpm increases.

2. INSPECT ECM

- (a) Connect the connector to the ECM and inspect the wire harness side connector from the back side, as shown in the table below.

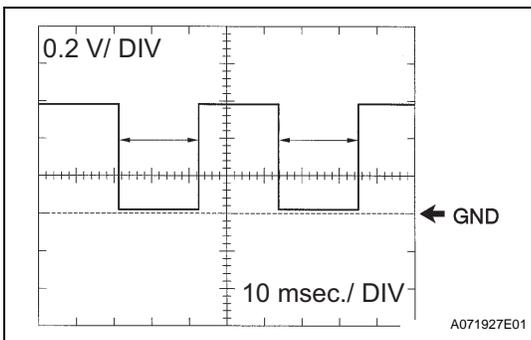


Standard voltage:

Symbols (Terminals No.)	Wiring Colors	Terminal Descriptions	Conditions	Specified Condition
ACT (E46-25) - E1 (B3-1)	L-W - BR	Magnet clutch ON permit signal	Start engine Operate A/C system A/C switch OFF Blower switch OFF → A/C switch ON Blower switch ON	Below 1.0 → 11 to 14 V
AC1 (E46-24) - E1 (B3-1)	G-W - BR	Idle-up request signal	Start engine A/C magnet clutch is engaged → not engaged	Below 1.0 → 11 to 14 V
THWO (E46-14) - E2 (B1-28)	BR-B - W-G	Engine coolant temperature sensor signal	Engine idling Engine coolant temperature 80°C (176°F)	Pulse generation (See waveform 1)

If the result is not as specified, the ECM may have a malfunction.

(1) WAVEFORM 1:  
Magnet clutch signal



ECM Terminal Names	Between THWO (E46-14) - E2 (B1-28)
Tester Ranges	0.2 V/DIV, 10 msec./DIV
Conditions	Idling

HINT:  
The wavelength becomes shorter as the engine rpm increases.

# REFRIGERANT

## ON-VEHICLE INSPECTION

### 1. CHECK REFRIGERANT PRESSURE USING MANIFOLD GAUGE SET

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

Test conditions:

- Engine warm.
- All doors fully open.
- A/C switch ON.
- Blower speed control switch at HI.
- Engine running at 1,500 rpm.
- Air inlet mode damper set at recirculation.
- Temperature control lever in MAX. COLD position.
- Air temperature at air inlet 30 to 35°C (86 to 95°F).

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

**Low pressure side:**

**0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm<sup>2</sup>)**

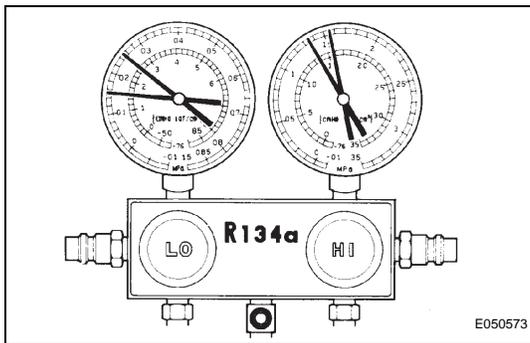
**High pressure side:**

**1.37 to 1.57 MPa (14 to 16 kgf/cm<sup>2</sup>)**

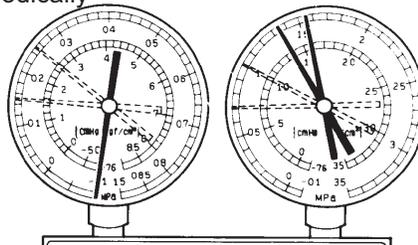
**HINT:**

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

(2) When there is moisture in the refrigeration system:



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

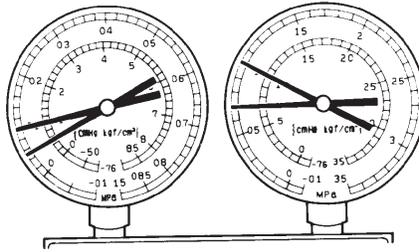


I022117E03

Symptoms	Probable Cause	Diagnosis	Corrective Actions
During operation, pressure on low pressure side cycles between normal and vacuum	Moisture in refrigeration system freezes at expansion valve orifice, causing temporary interruption of cycle However, when melted, returns to normal condition	<ul style="list-style-type: none"> <li>• Receiver dryer oversaturated</li> <li>• Moisture in refrigeration system freezes at expansion valve orifice and blocks refrigerant circulation</li> </ul>	<ol style="list-style-type: none"> <li>1. Replace receiver dryer</li> <li>2. Remove moisture from cycle by repeatedly evacuating air</li> <li>3. Supply appropriate volume of new refrigerant</li> </ol>

(3) When cooling is insufficient:

Condition: Air conditioning system does not function effectively.



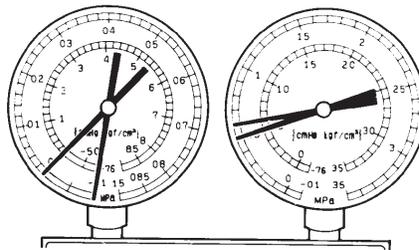
I022118E02

Symptoms	Probable Cause	Diagnosis	Corrective Actions
<ul style="list-style-type: none"> <li>Pressure low on both low and high pressure sides</li> <li>Cooling performance insufficient</li> </ul>	Gas leakage from refrigeration system	<ul style="list-style-type: none"> <li>Insufficient refrigerant</li> <li>Refrigerant leakage</li> </ul>	<ol style="list-style-type: none"> <li>Check for gas leakage using gas leak detector, and repair if necessary</li> <li>Supply appropriate volume of new refrigerant</li> <li>If indicated pressure value close to 0 when connected to gauge, create vacuum after inspecting and repairing location of leakage</li> </ol>

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(4) When the circulation of the refrigerant is poor:

Condition: Air conditioning system does not function effectively.

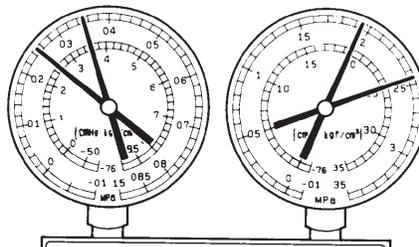


I022119E02

Symptoms	Probable Cause	Diagnosis	Corrective Action
<ul style="list-style-type: none"> <li>Pressure low on both low and high pressure sides</li> <li>Frost exists on piping from condenser to A/C unit</li> </ul>	Refrigerant flow obstructed by dirt in condenser	Condenser clogged	Replace condenser

(5) When the refrigerant does not circulate:

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

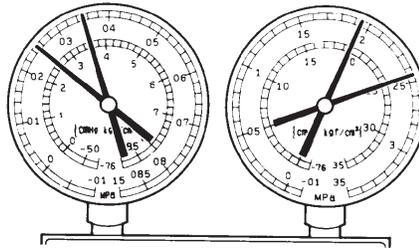


I022121E02

Symptoms	Probable Causes	Diagnosis	Corrective Actions
<ul style="list-style-type: none"> <li>Vacuum indicated on low pressure side, and extremely low pressure indicated on high pressure side</li> <li>Frost or condensation seen on piping on both sides of condenser or expansion valve</li> </ul>	<ul style="list-style-type: none"> <li>Refrigerant flow obstructed by moisture or dirt in refrigeration system</li> <li>Refrigerant flow obstructed by gas leakage from expansion valve</li> </ul>	Refrigerant does not circulate	<ol style="list-style-type: none"> <li>Check expansion valve</li> <li>Clean expansion valve with compressed air</li> <li>Replace condenser</li> <li>Evacuate air and then supply appropriate volume of new refrigerant</li> <li>For gas leakage from expansion valve, replace expansion valve</li> </ol>

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

Condition: Air conditioning system does not function effectively.

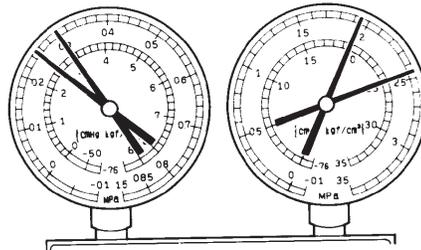


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Symptoms	Probable Causes	Diagnosis	Corrective Actions
Pressure extremely high on both sides	<ul style="list-style-type: none"> <li>Excessive refrigerant</li> <li>Cooling performance of condenser insufficient</li> </ul>	<ul style="list-style-type: none"> <li>Excessive refrigerant</li> <li>Cooling performance of condenser insufficient</li> </ul>	<ol style="list-style-type: none"> <li>Clean condenser fins</li> <li>Check condenser fan motor operation by switching A/C ON</li> <li>If 1 and 2 normal, check amount of refrigerant and supply appropriate volume of refrigerant</li> </ol>

(7) When there is air in the refrigeration system:

Condition: Air conditioning system does not function.



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

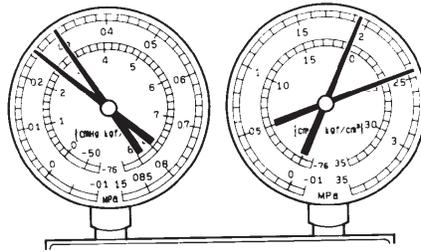
I022122E02

Symptoms	Probable Causes	Diagnosis	Corrective Actions
<ul style="list-style-type: none"> <li>Pressure extremely high on both low and high pressure sides</li> <li>Low pressure piping too hot to touch</li> </ul>	Air in refrigeration system	<ul style="list-style-type: none"> <li>Air in refrigeration system</li> <li>Insufficient vacuum purging</li> </ul>	<ol style="list-style-type: none"> <li>Check whether compressor oil dirty or insufficient</li> <li>Evacuate air and supply new refrigerant</li> </ol>

AC

(8) When the expansion valve malfunctions:

Condition: Air conditioning system does not function effectively.



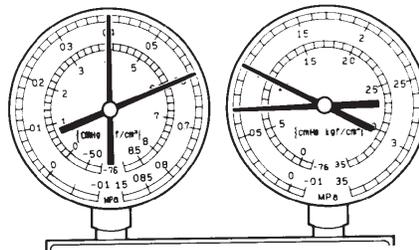
I022123E02

Symptoms	Probable Causes	Diagnosis	Corrective Actions
<ul style="list-style-type: none"> <li>Pressure extremely high on both low and high pressure sides</li> <li>Frost or condensation on piping on low pressure side</li> </ul>	Expansion valve malfunction	<ul style="list-style-type: none"> <li>Excessive refrigerant in low pressure piping</li> <li>Expansion valve opening too wide</li> </ul>	Replace expansion valve

AC

(9) When the compressor is defective:

Condition: Air conditioning system does not function.



I022124E02

Symptoms	Probable Cause	Diagnosis	Corrective Actions
<ul style="list-style-type: none"> <li>Pressure extremely high on both low and high pressure sides</li> <li>Pressure extremely low on high pressure side</li> </ul>	Internal leakage in compressor	<ul style="list-style-type: none"> <li>Compression failure of compressor</li> <li>Leakage from damaged valve or broken sliding parts in compressor</li> </ul>	Repair or replace compressor

2. INSPECT IDLING SPEED

- (a) Warm up the engine.
- (b) Inspect the idling speed when these conditions are established.
  - Engine warm
  - Blower speed control switch at HI
  - Temperature control lever in MAX. COLD position

Standard

Condition	Idling Speed
Switch A/C OFF	650 to 750 rpm
Switch A/C ON	750 to 850 rpm

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

## REPLACEMENT

### NOTICE:

When recharging refrigerant, collect together all the refrigerant remaining in the cycle, then recharge and seal the refrigerant as described below. (Do not overcharge.)

#### 1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM

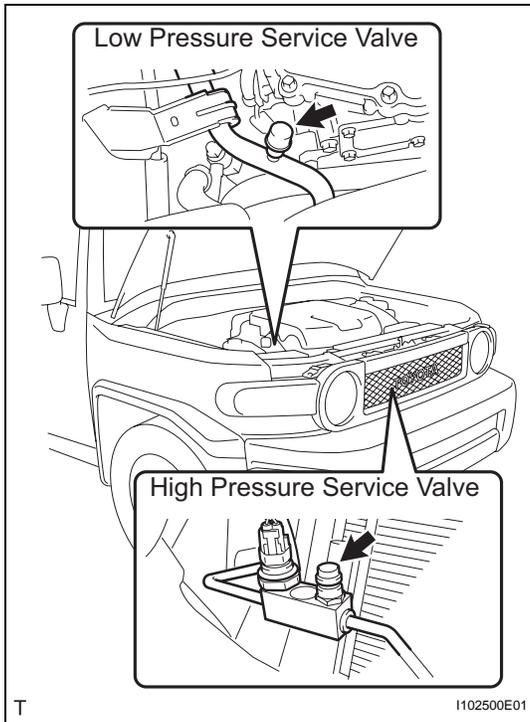
- (a) Start up the engine.
- (b) Switch A/C ON.
- (c) Turn the blower switch to ON.
- (d) Operate the cooler compressor with an engine speed of approximately 1,000 rpm for 5 to 6 minutes to circulate the refrigerant and collect the remaining compressor oil from each component, in the cooler compressor.
- (e) Stop the engine.
- (f) Remove the caps from the service valves on the refrigerant line.
- (g) Connect the Freon collection/recycling device to discharge the refrigerant gas remaining in the refrigeration system.

### NOTICE:

Use the Freon collection/recycling device in accordance with the manufacturer's instruction manual.

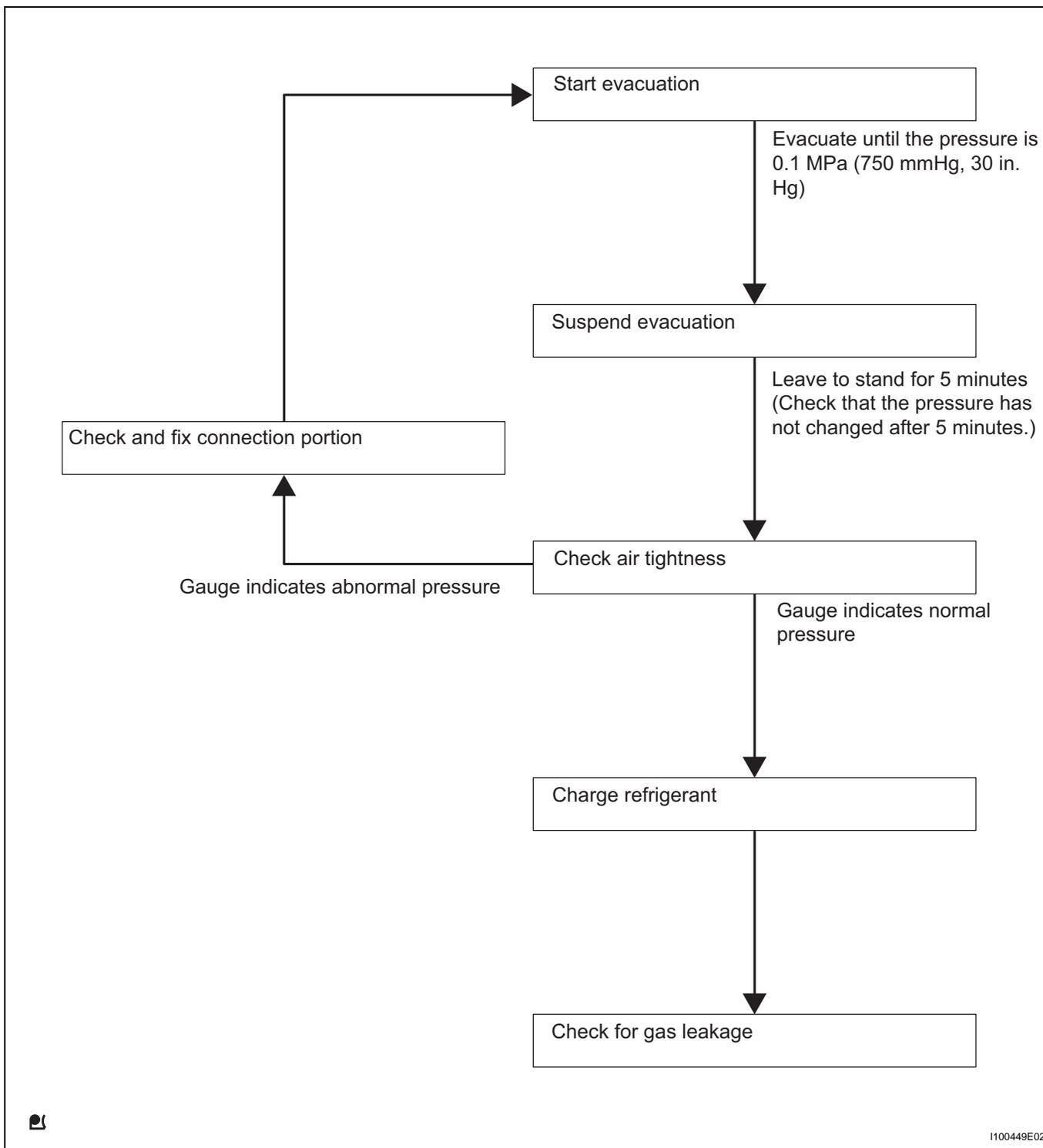
#### 2. CHARGE REFRIGERANT

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



T

1102500E01



AC

**NOTICE:**

**Charge refrigerant in accordance with equipment manual.**

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

**Standard:**

**570 to 630 g (20.11 to 22.22 oz.)**

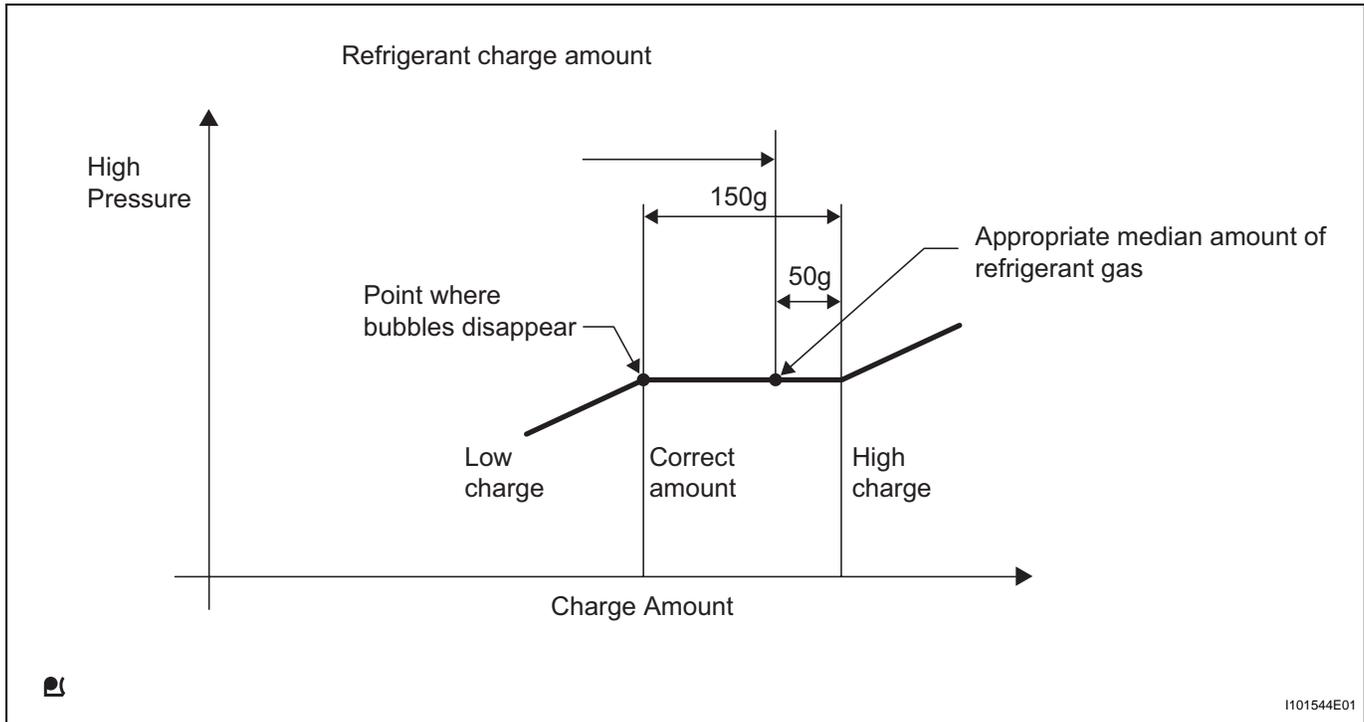


**NOTICE:**

**Do not start the engine before charging it with refrigerant as the cooler compressor doesn't work properly without sufficient refrigerant. This could cause the compressor to overheat.**

**HINT:**

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



- **High Charge Range:**  
If the refrigerant is overcharged, the pressure rises on the high-pressure side. High-pressure cut off frequently occurs. This causes insufficient cooling performance and also insufficient compressor lubrication.
  - **Low Charge Range:**  
Shortage of refrigerant causes insufficient cooling performance and low circulation of refrigerant oil, which shortens the compressor life. Operation with insufficient coolant raises refrigerant temperature and causes heat deterioration of the rubber seals and hoses. Cracking and thus refrigerant leakage may occur.
- (1) Install the caps onto the service valves on the refrigerant line.

**3. WARM UP ENGINE****NOTICE:**

**Warm up the engine at less than 2,000 rpm for 2 minute or more after charging it with refrigerant.**

**4. CHECK FOR REFRIGERANT LEAKAGE**

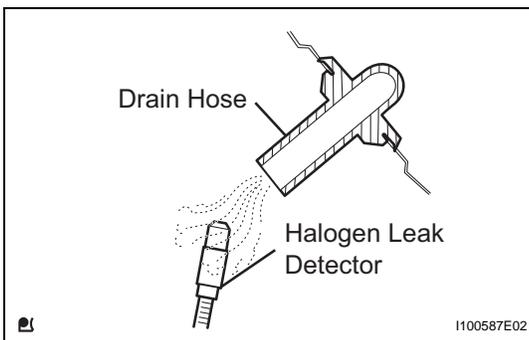
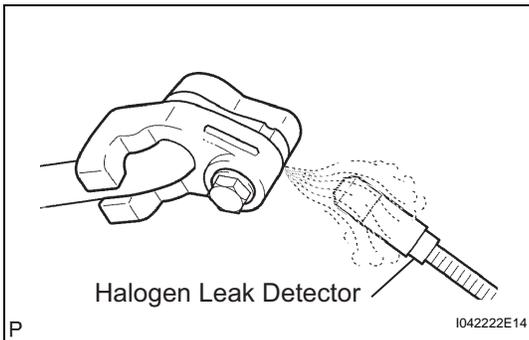
- (a) After recharging the refrigerant gas, check for refrigerant gas leakage using a halogen leak detector.

- (b) Perform the operation as follows:
- Stop the engine.
  - Secure good ventilation (the halogen leak detector may react to volatile gases other than refrigerant, such as evaporated gasoline or exhaust gas).
  - Repeat the test 2 or 3 times.
  - Make sure that some refrigerant remains in the refrigeration system.
- When the compressor is off: approximately 392 to 588 kPa (4 to 6 kgf\*cm<sup>2</sup>, 57 to 85 psi)

**HINT:**

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

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



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

**HINT:**

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

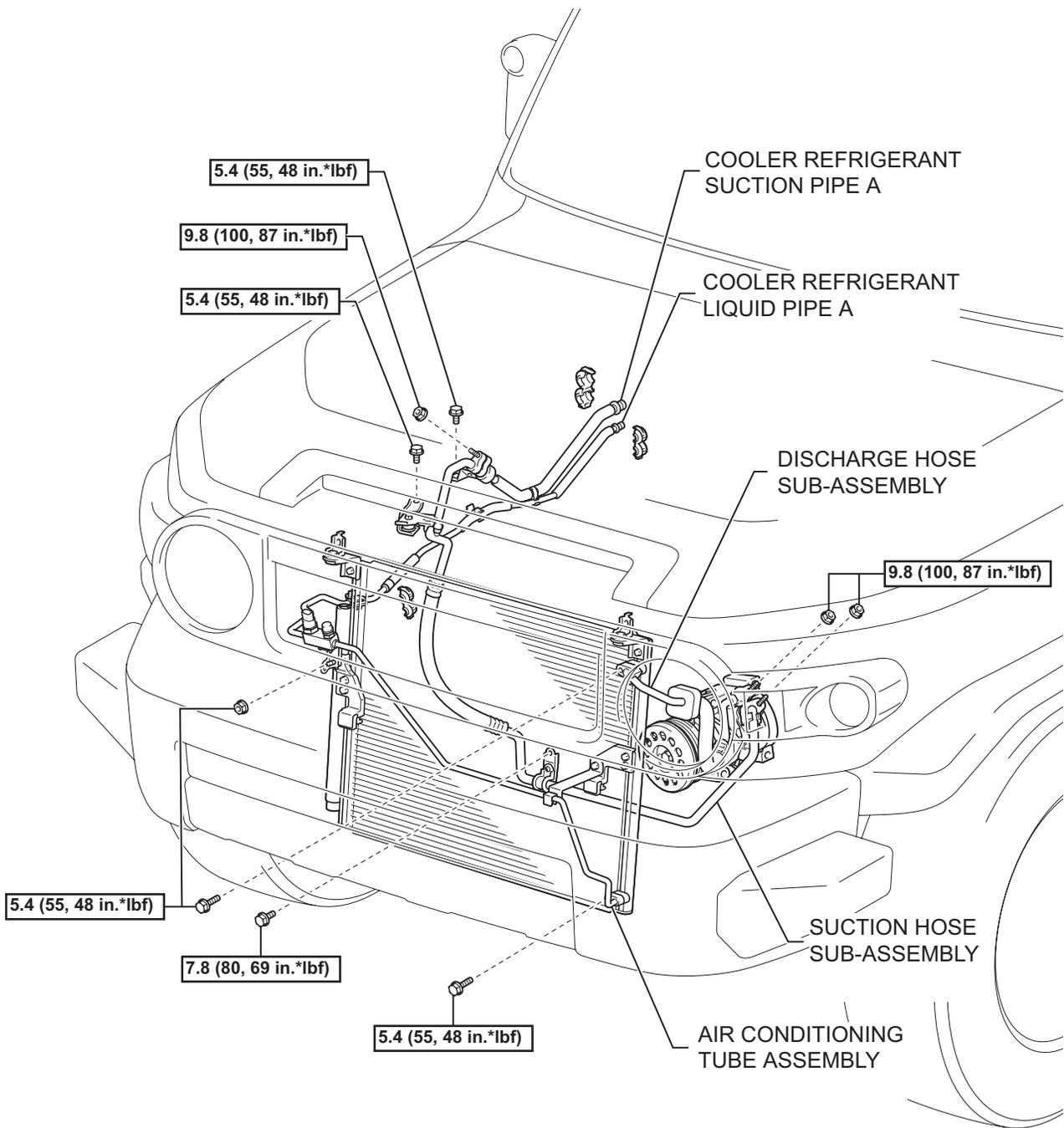
If such a reaction is unavoidable, the vehicle must be lifted up.

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

# REFRIGERANT LINE

## COMPONENTS

AC

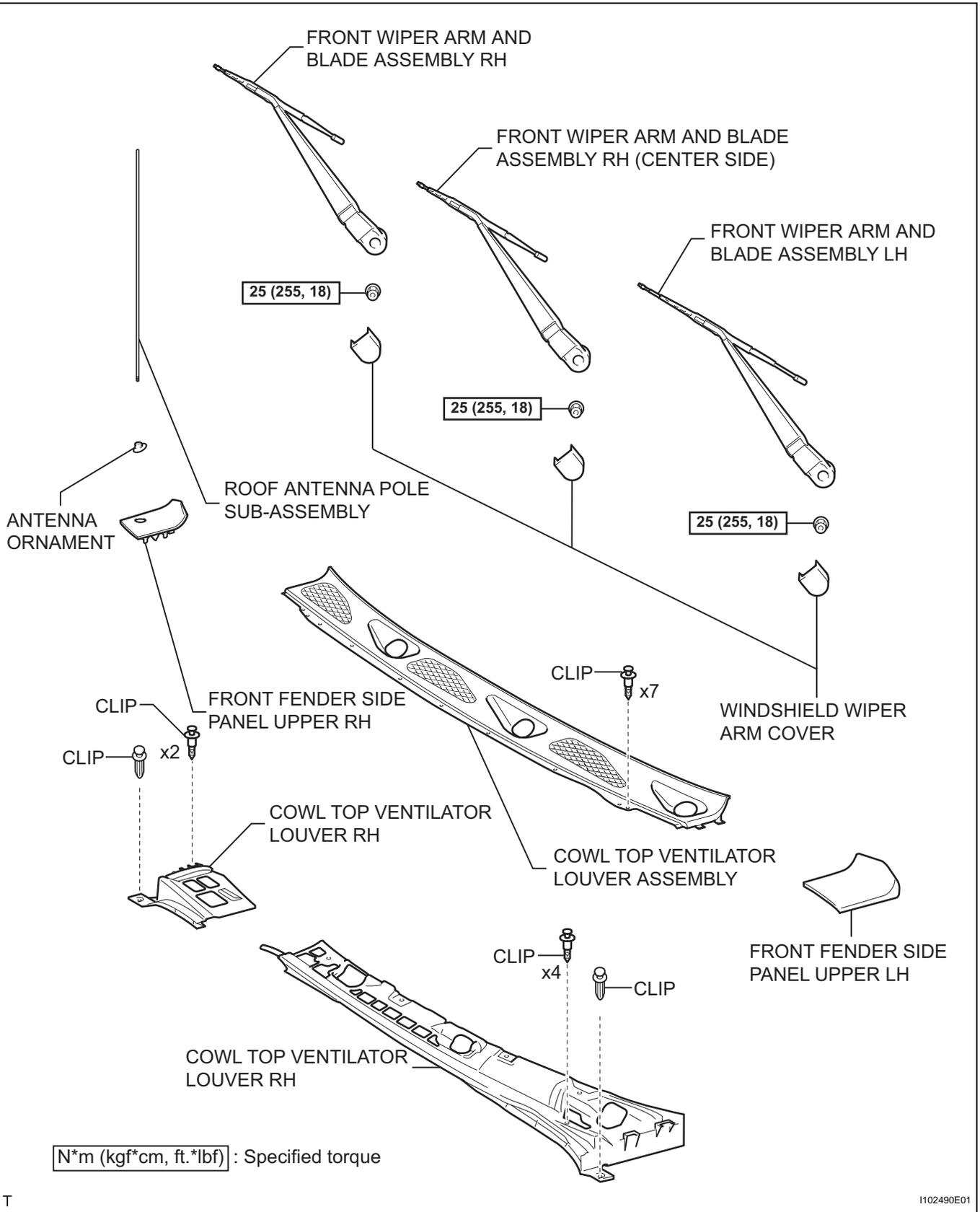


**[N\*m (kgf\*cm, ft\*lbf)]** : Specified torque

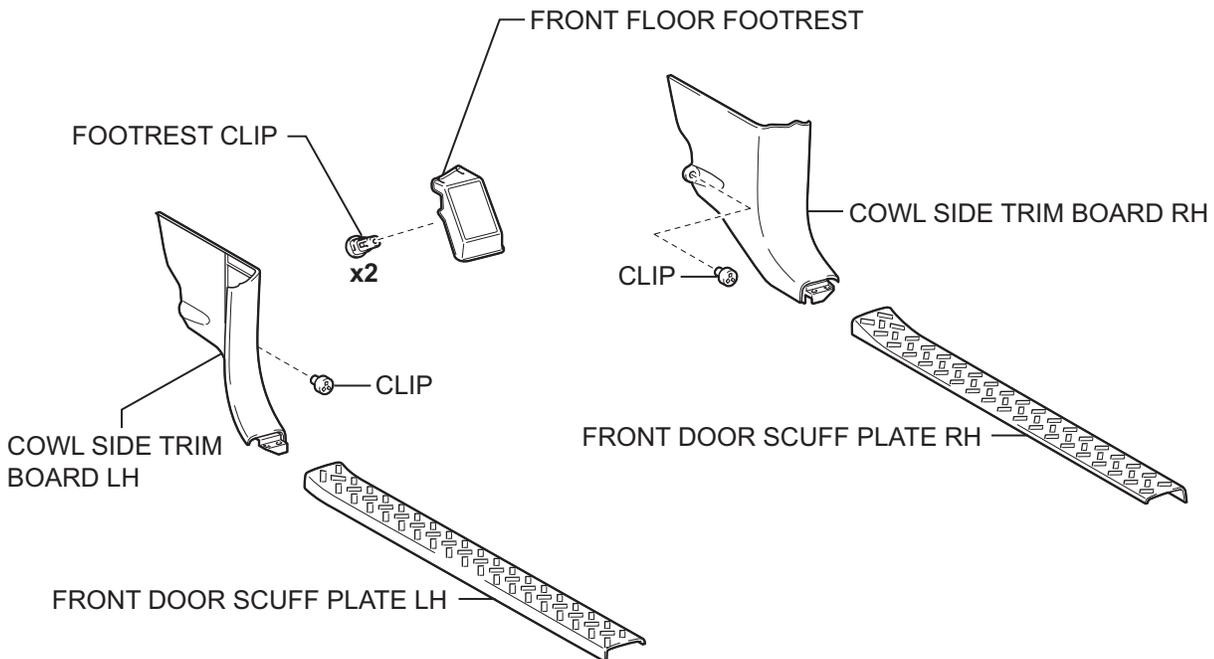
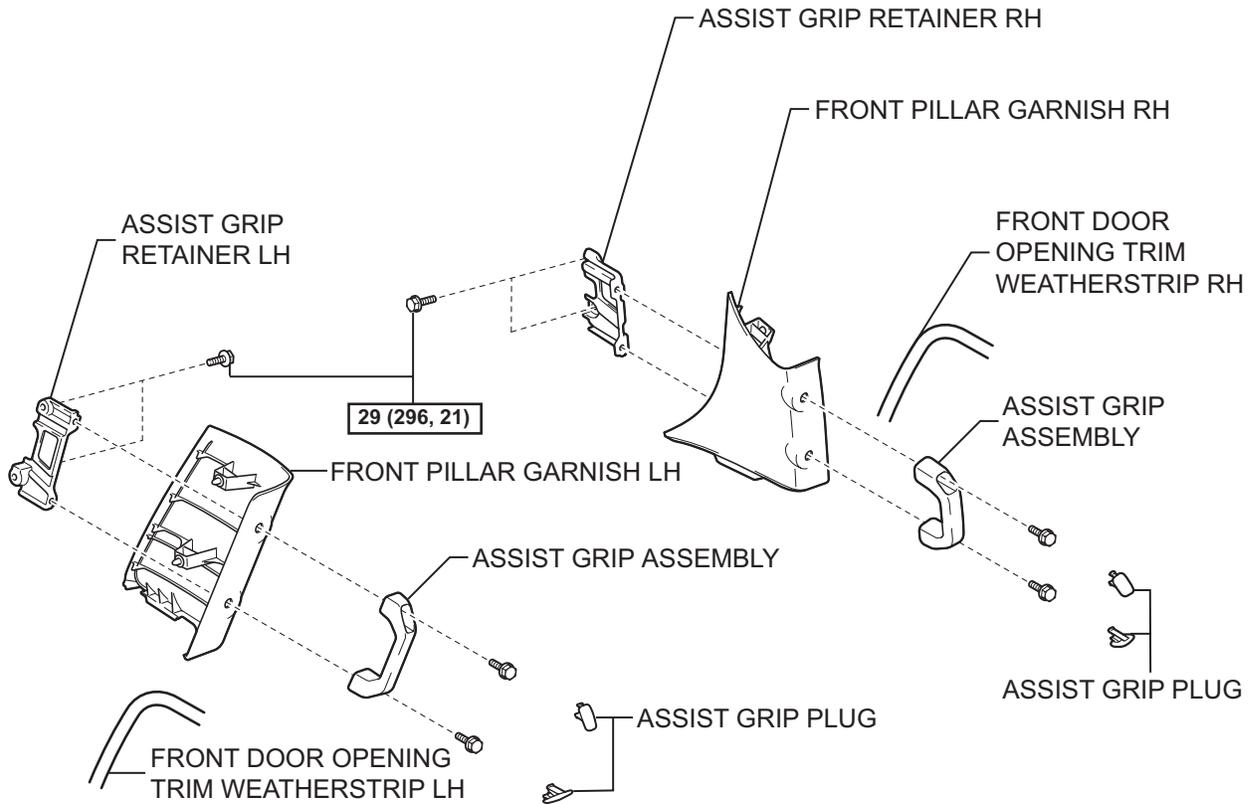
# AIR CONDITIONING UNIT

## COMPONENTS

AC

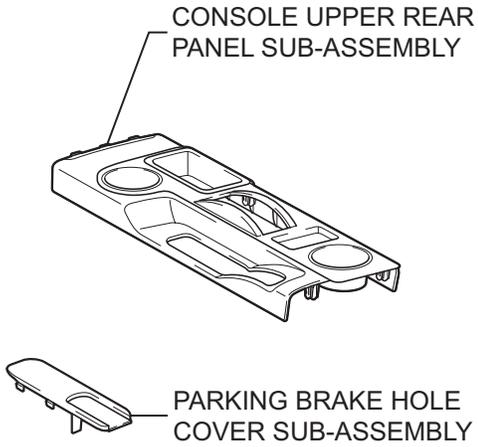


AC

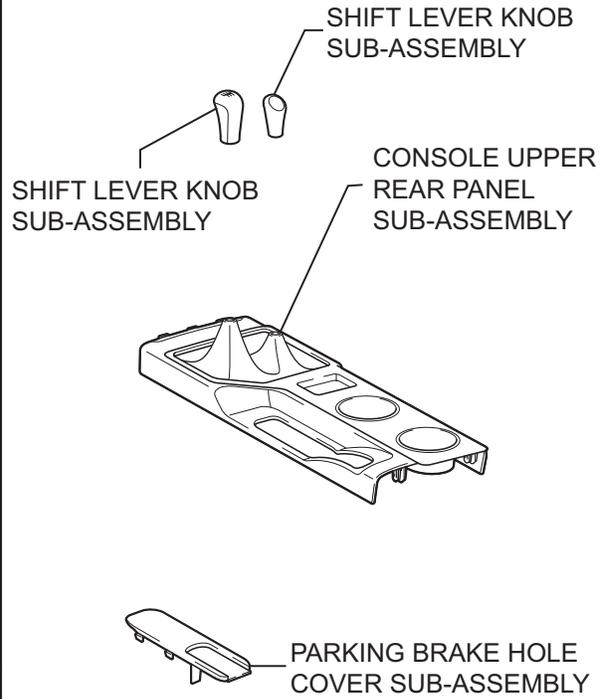


$N^*m$  (kgf\*cm, ft\*lbf) : Specified torque

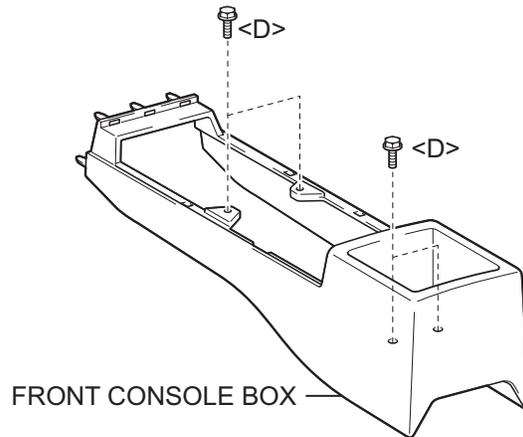
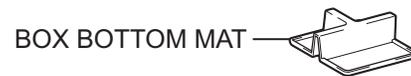
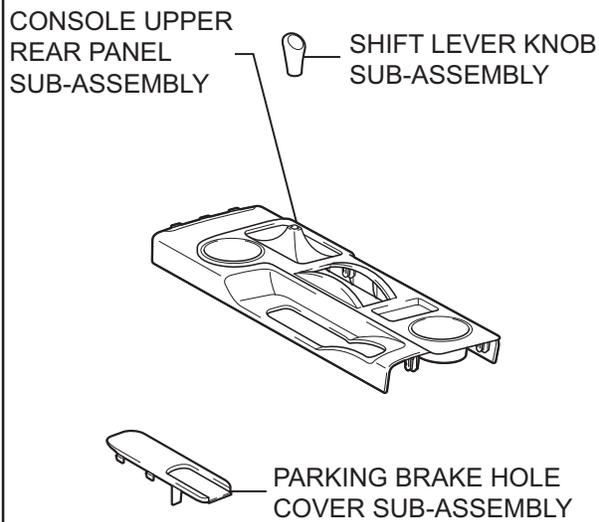
**for Automatic Transmission 2WD:**



**for Manual Transmission 4WD:**

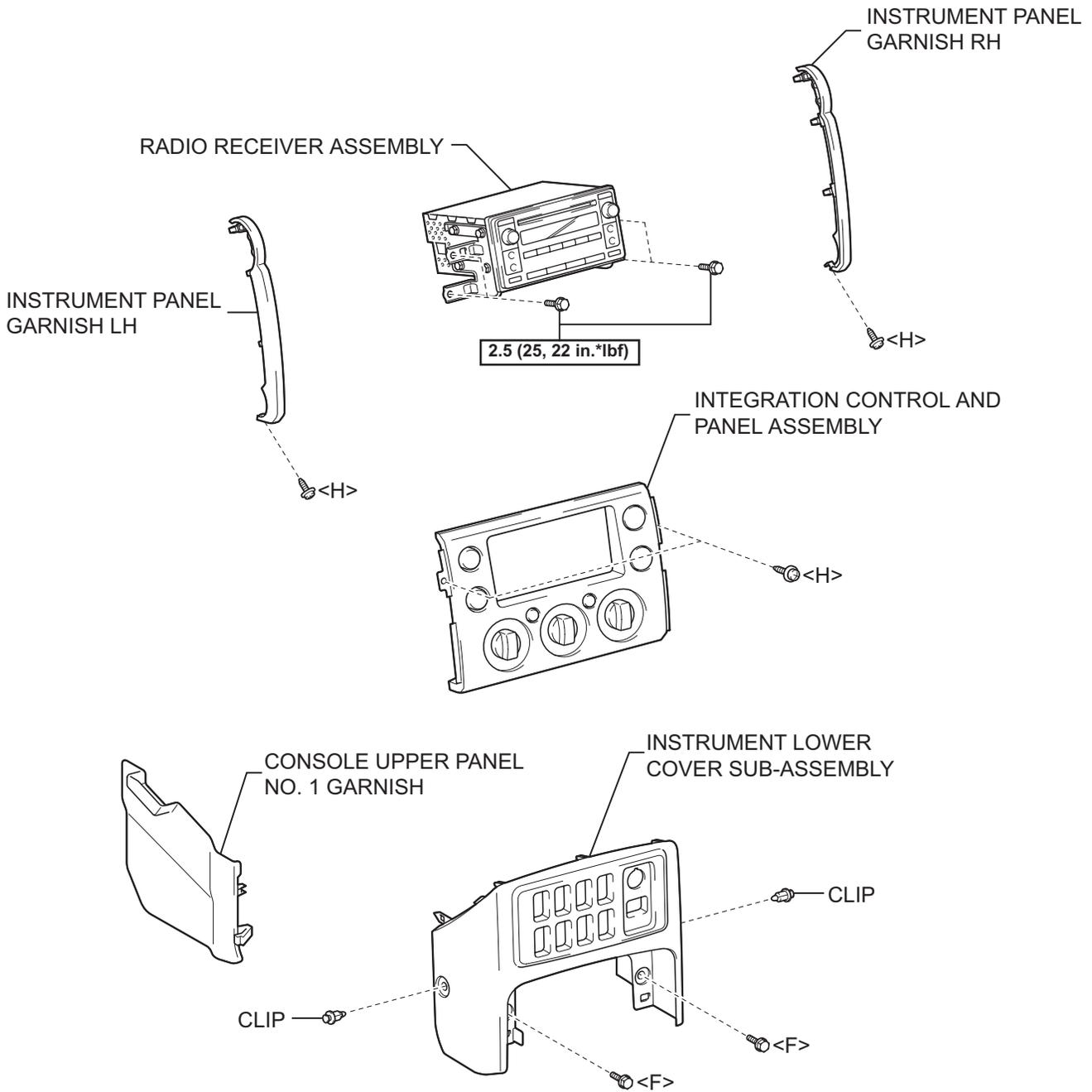


**for Automatic Transmission 4WD:**



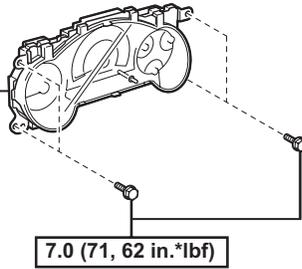
AC

AC

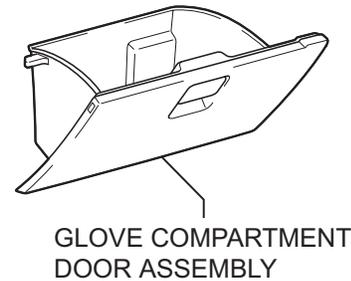
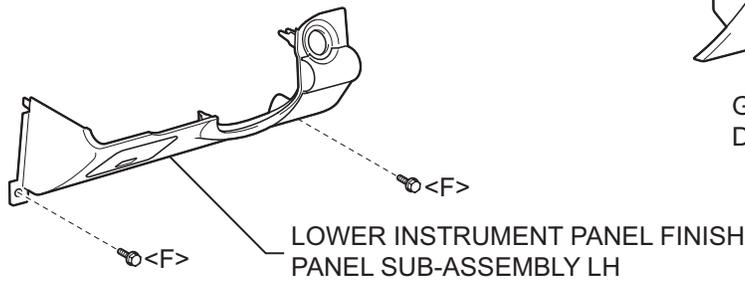
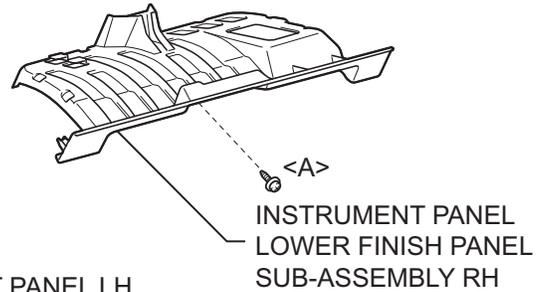
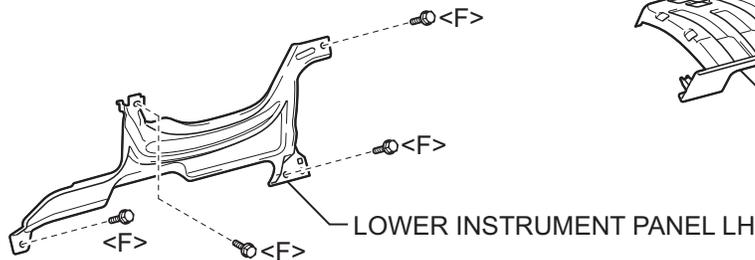
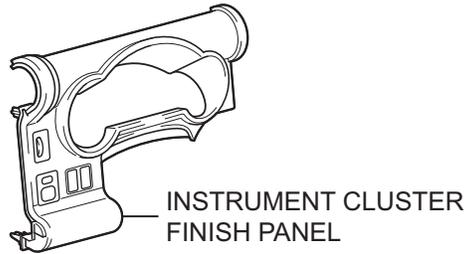
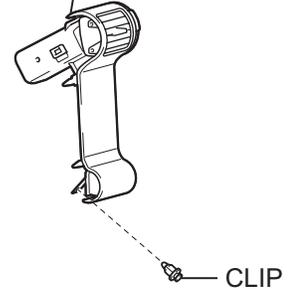


**N\*m (kgf\*cm, ft\*lbf)** : Specified torque

COMBINATION METER ASSEMBLY



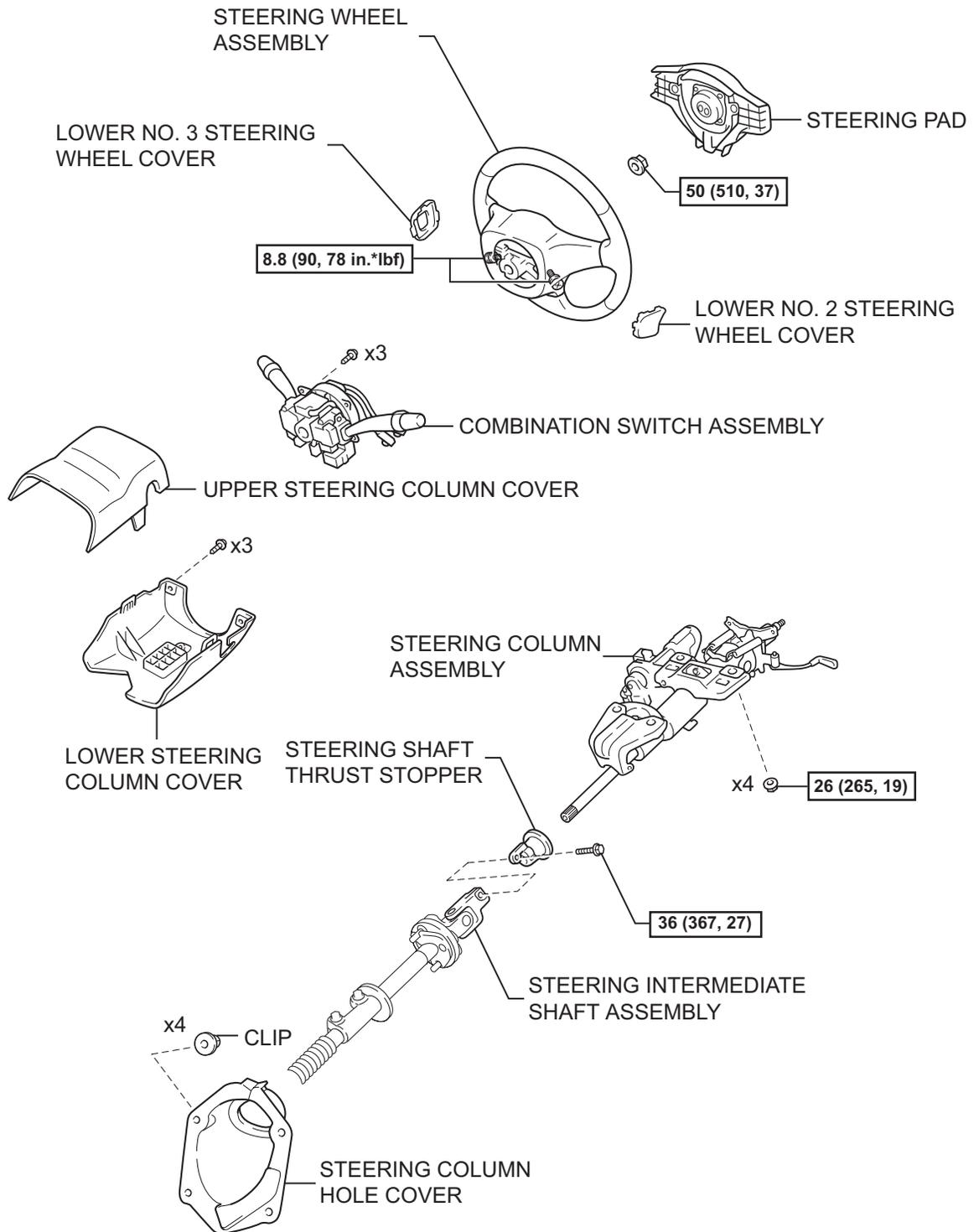
NO. 2 INSTRUMENT PANEL REGISTER ASSEMBLY



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

AC

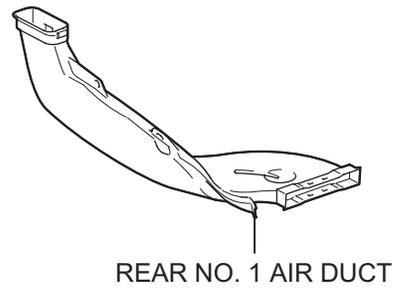
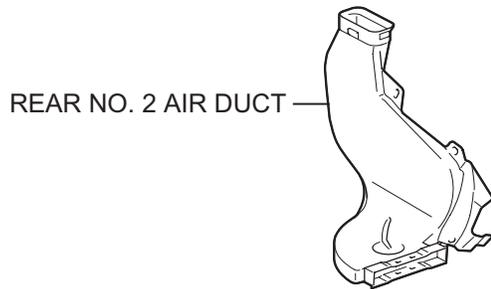
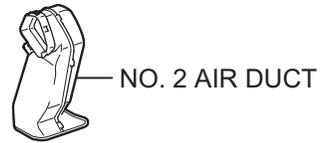
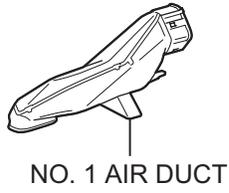
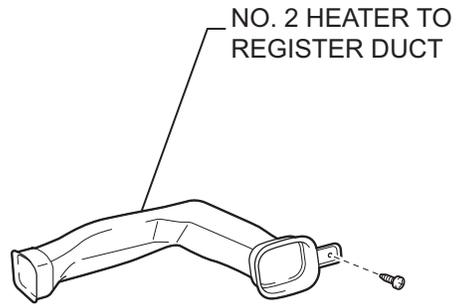
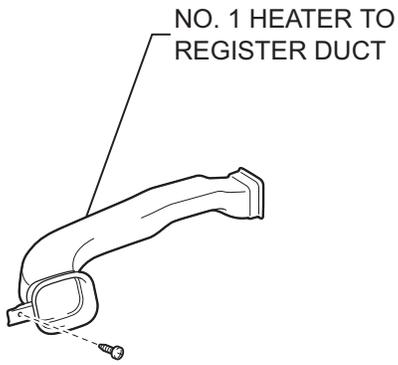


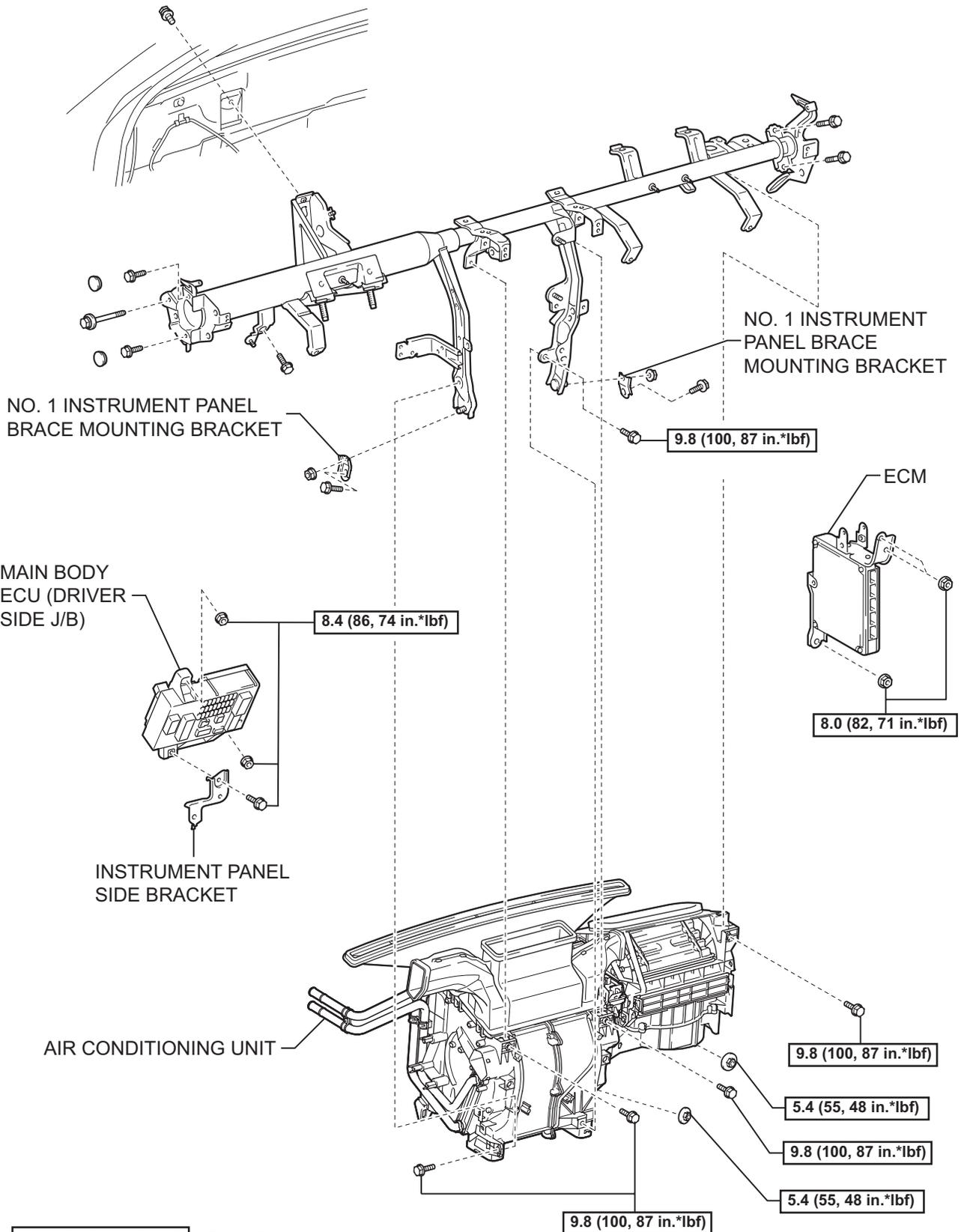


AC

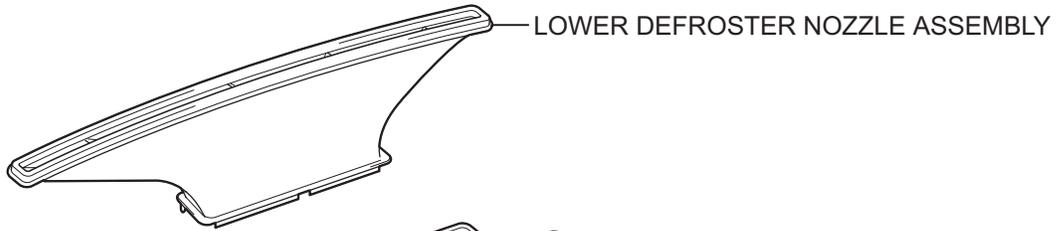
**N\*m (kgf\*cm, ft.\*lbf)** : Specified torque

AC

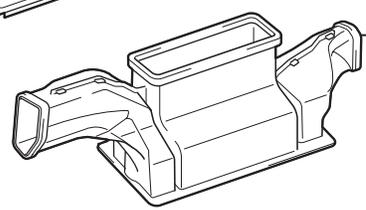




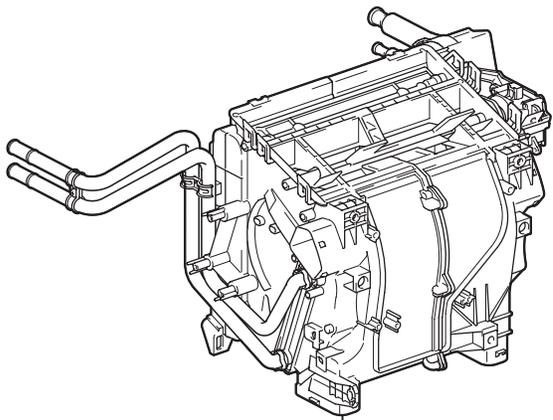
AC



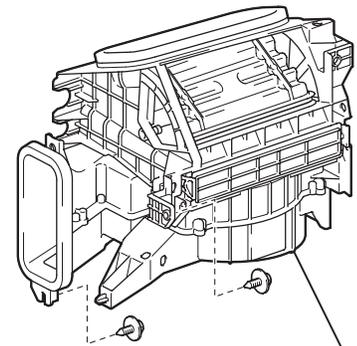
LOWER DEFROSTER NOZZLE ASSEMBLY



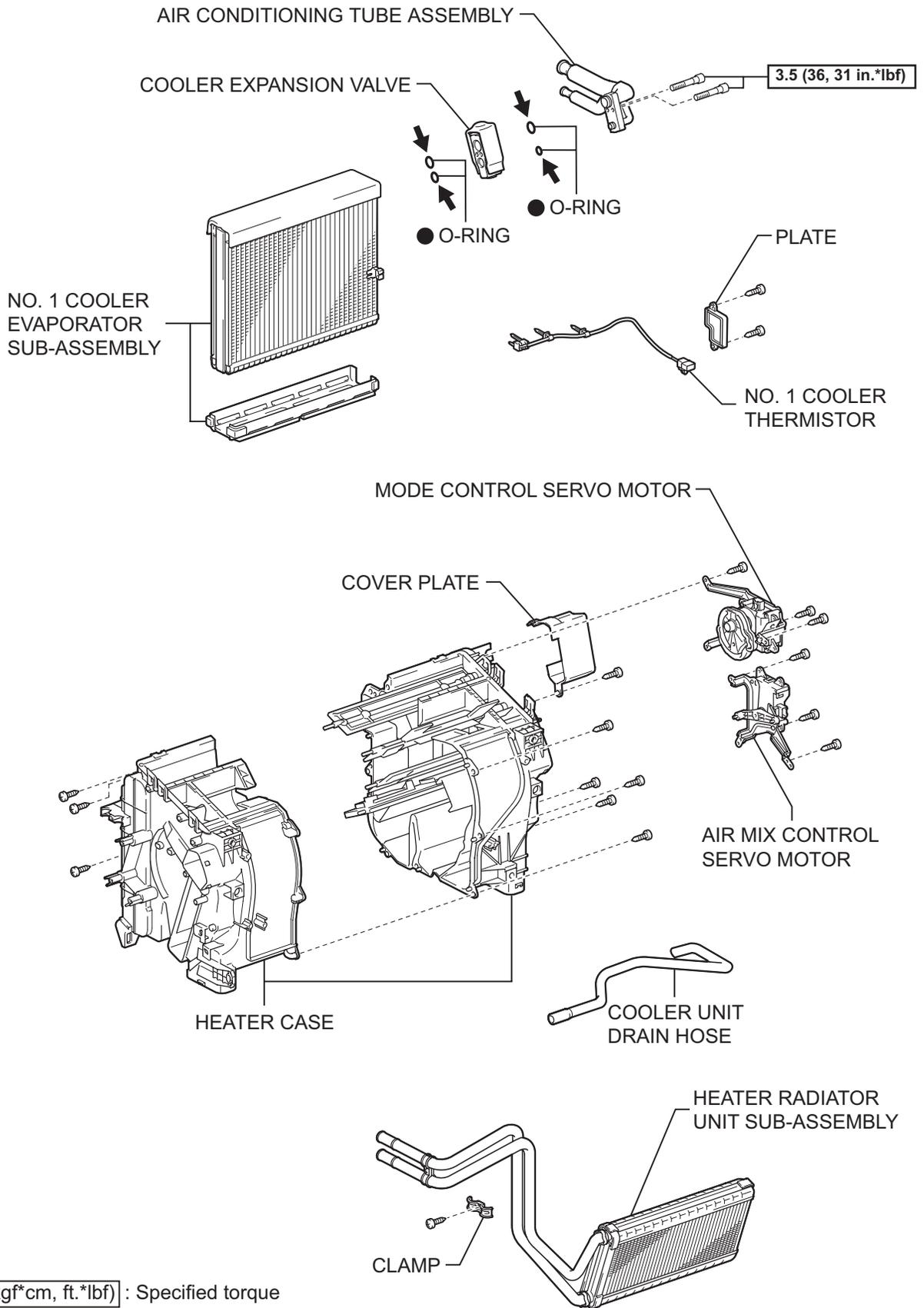
HEATER TO REGISTER DUCT ASSEMBLY



AIR CONDITIONING UNIT ASSEMBLY



BLOWER UNIT ASSEMBLY



AC

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

← Compressor Oil ND-8 or equivalent    ● Non-reusable part

## REMOVAL

### CAUTION:

Some of these service operations affect the SRS airbag system. Read the precautionary notices concerning the SRS airbag system before servicing (See page [RS-1](#)).

### HINT:

Use the same procedure for both the RH and LH sides.

1. **BOLTS, SCREWS AND NUTS TABLE** (See page [IP-9](#))
2. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**  
Wait for at least 90 seconds after disconnecting the cable to prevent the airbag from working.
3. **DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM** (See page [AC-16](#))
4. **DRAIN ENGINE COOLANT** (See page [CO-3](#))
5. **REMOVE ROOF ANTENNA POLE SUB-ASSEMBLY** (See page [AV-116](#))
6. **REMOVE WINDSHIELD WIPER ARM COVER** (See page [WW-25](#))
7. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH** (See page [WW-26](#))
8. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH (CENTER SIDE)** (See page [WW-26](#))
9. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH** (See page [WW-26](#))
10. **REMOVE FRONT FENDER SIDE PANEL UPPER LH** (See page [WW-26](#))
11. **REMOVE ANTENNA ORNAMENT** (See page [WW-26](#))
12. **REMOVE FRONT FENDER SIDE PANEL UPPER RH** (See page [WW-26](#))
13. **REMOVE COWL TOP VENTILATOR LOUVER ASSEMBLY** (See page [WW-27](#))
14. **REMOVE COWL TOP VENTILATOR LOUVER RH** (See page [WW-27](#))
15. **REMOVE COWL TOP VENTILATOR LOUVER LH** (See page [WW-27](#))
16. **DISCONNECT COOLER REFRIGERANT SUCTION PIPE A**

- (a) Install SST onto the piping clamp.

**SST 09870-00015**

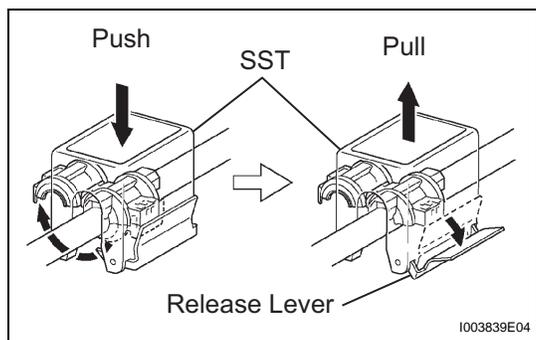
### HINT:

Check the directions of the piping clamp and SST by referring to the illustration on the caution label.

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

### NOTICE:

**Do not deform the tube when pushing SST.**



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

**NOTICE:**

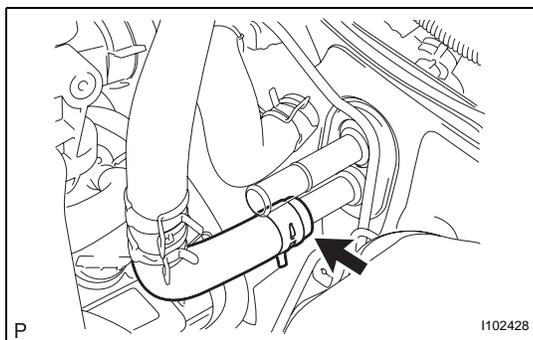
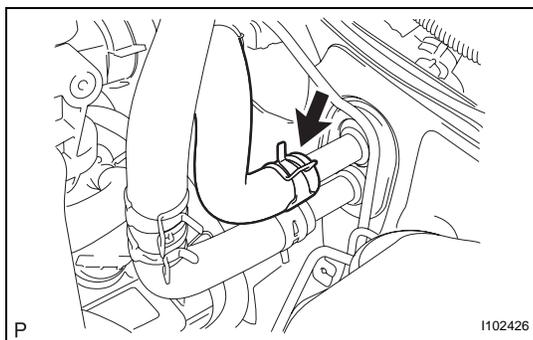
- Do not use any tools when disconnecting the pipe.
- Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering.

**17. DISCONNECT COOLER REFRIGERANT LIQUID PIPE A****SST 09870-00025****HINT:**

Disconnection procedure of the liquid pipe is the same as for the suction pipe.

**18. DISCONNECT HEATER INLET WATER HOSE**

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

**19. DISCONNECT HEATER WATER OUTLET HOSE A (FROM HEATER UNIT)**

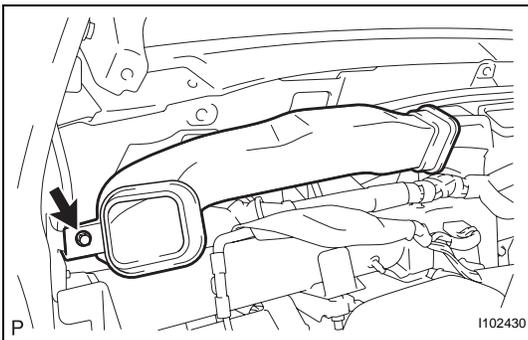
- (a) Using pliers, grip the claw of the clip, slide the clip and disconnect the heater water outlet hose from the heater unit.

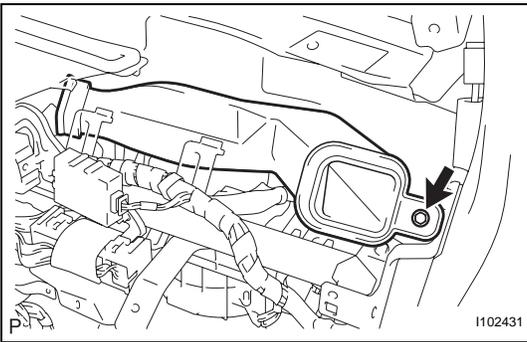
**20. POSITION FRONT WHEELS FACING STRAIGHT AHEAD****21. REMOVE LOWER NO. 3 STEERING WHEEL COVER (See page RS-345)****22. REMOVE LOWER NO. 2 STEERING WHEEL COVER (See page RS-345)****23. REMOVE STEERING PAD (See page RS-346)****24. REMOVE STEERING WHEEL ASSEMBLY (See page SR-8)****25. REMOVE LOWER STEERING COLUMN COVER (See page SR-8)****26. REMOVE UPPER STEERING COLUMN COVER (See page SR-8)****27. REMOVE COMBINATION SWITCH ASSEMBLY (See page SR-9)****28. REMOVE FRONT DOOR SCUFF PLATE RH (See page IR-15)**

29. REMOVE FRONT DOOR SCUFF PLATE LH (See page [IR-15](#))
30. REMOVE FRONT FLOOR FOOTREST (See page [IR-2](#))
31. REMOVE FOOTREST CLIP (See page [IR-2](#))
32. REMOVE COWL SIDE TRIM BOARD RH (See page [IR-15](#))
33. REMOVE COWL SIDE TRIM BOARD LH (See page [IR-15](#))
34. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH (See page [IP-10](#))
35. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH (See page [IP-10](#))
36. REMOVE ASSIST GRIP PLUG (See page [IR-17](#))
37. REMOVE ASSIST GRIP ASSEMBLY (See page [IR-17](#))
38. REMOVE FRONT PILLAR GARNISH RH (See page [IR-18](#))
39. REMOVE FRONT PILLAR GARNISH LH (See page [IR-18](#))
40. REMOVE INSTRUMENT PANEL GARNISH LH (See page [IP-10](#))
41. REMOVE INSTRUMENT PANEL GARNISH RH (See page [IP-10](#))
42. REMOVE INTEGRATION CONTROL AND PANEL ASSEMBLY (See page [IP-11](#))
43. REMOVE RADIO RECEIVER ASSEMBLY (See page [AV-55](#))
44. REMOVE PARKING BRAKE HOLE COVER SUB-ASSEMBLY (See page [IP-11](#))
45. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transmission) (See page [IP-11](#))
46. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for 4WD) (See page [IP-11](#))
47. REMOVE CONSOLE UPPER REAR PANEL SUB-ASSEMBLY (See page [IP-12](#))
48. REMOVE BOX BOTTOM MAT (See page [IP-12](#))
49. REMOVE FRONT CONSOLE BOX (See page [IP-12](#))
50. REMOVE CONSOLE UPPER PANEL NO. 1 GARNISH (See page [IP-10](#))
51. REMOVE INSTRUMENT LOWER COVER SUB-ASSEMBLY (See page [IP-13](#))
52. REMOVE NO. 1 INSTRUMENT PANEL REGISTER ASSEMBLY (See page [IP-13](#))

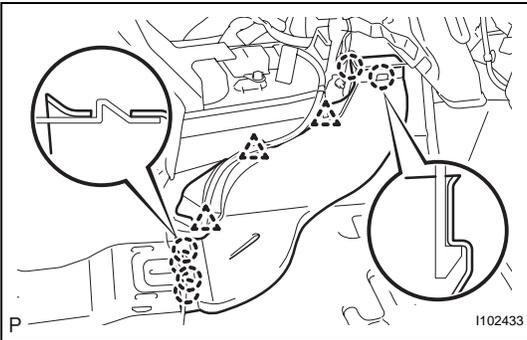
53. SEPARATE HOOD LOCK CONTROL LEVER SUB-ASSEMBLY (See page [IP-13](#))
54. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY LH (See page [IP-14](#))
55. REMOVE LOWER INSTRUMENT PANEL LH (See page [IP-14](#))
56. REMOVE INSTRUMENT CLUSTER FINISH PANEL (See page [IP-14](#))
57. REMOVE COMBINATION METER ASSEMBLY (See page [IP-14](#))
58. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY (See page [IP-15](#))
59. REMOVE INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH (See page [IP-15](#))
60. REMOVE NO. 2 INSTRUMENT PANEL REGISTER ASSEMBLY (See page [IP-16](#))
61. REMOVE NO. 2 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY (See page [IP-16](#))
62. REMOVE NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY (See page [IP-16](#))
63. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY (See page [AV-62](#))
64. REMOVE ASSIST GRIP RETAINER RH (See page [IP-16](#))
65. REMOVE ASSIST GRIP RETAINER LH (See page [IP-16](#))
66. DISCONNECT PASSENGER AIRBAG CONNECTOR (See page [IP-16](#))
67. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY (See page [IP-16](#))
68. REMOVE INSTRUMENT PANEL FINISH PANEL END LH (See page [IP-21](#))
69. REMOVE NO. 1 HEATER TO REGISTER DUCT
  - (a) Remove the screw and remove the heater to register duct.

AC

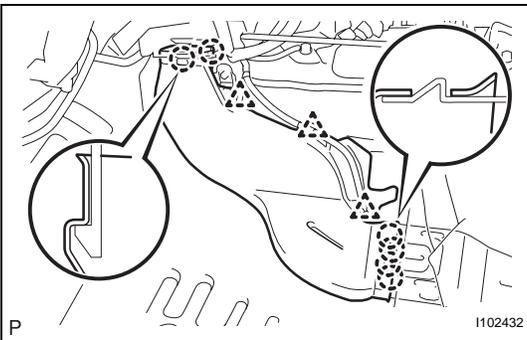


**70. REMOVE NO. 2 HEATER TO REGISTER DUCT**

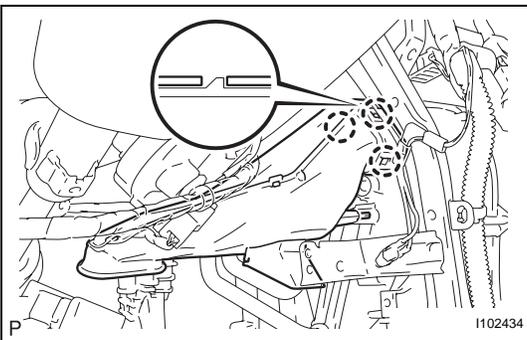
- (a) Remove the screw and remove the heater to register duct.

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

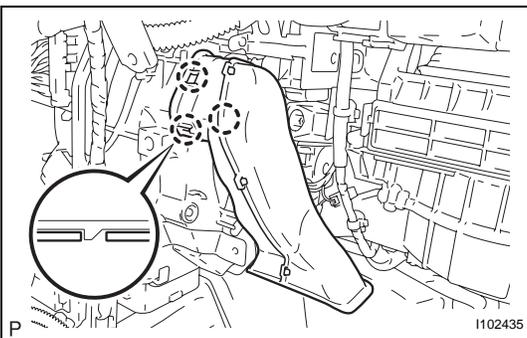
- (a) Disengage the 6 claws and 3 clamps and remove the rear air duct.

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

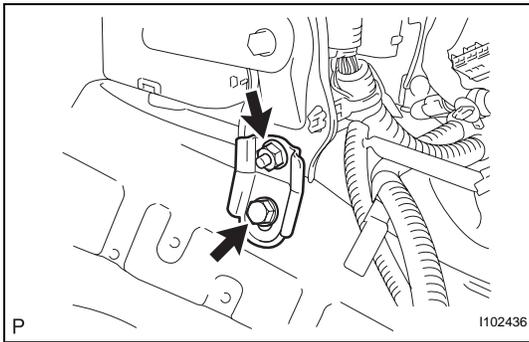
- (a) Disengage the 6 claws and 3 clamps and remove the rear air duct.

**73. REMOVE NO. 1 AIR DUCT**

- (a) Disengage the 3 claws and remove the air duct.

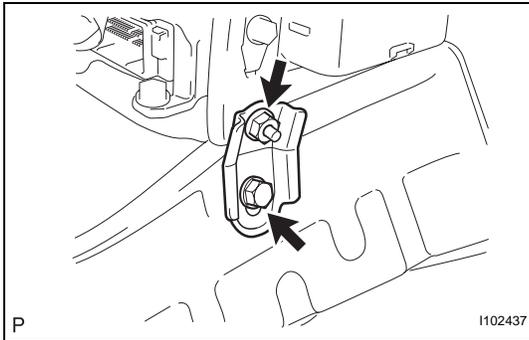
**74. REMOVE NO. 2 AIR DUCT**

- (a) Disengage the 3 claws and remove the air duct.



## 75. REMOVE NO. 1 INSTRUMENT PANEL BRACE MOUNTING BRACKET

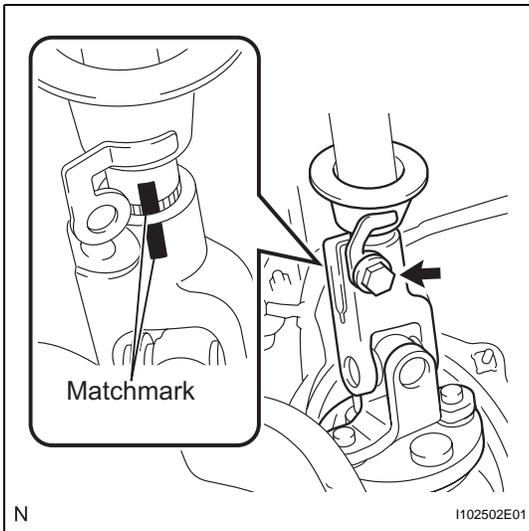
- (a) for LH side:  
 (1) Remove the bolt and nut and remove the instrument panel brace mounting bracket.



- (b) for RH side:  
 (1) Remove the bolt and nut and remove the instrument panel brace mounting bracket.

## 76. REMOVE ECM (See page [ES-446](#))

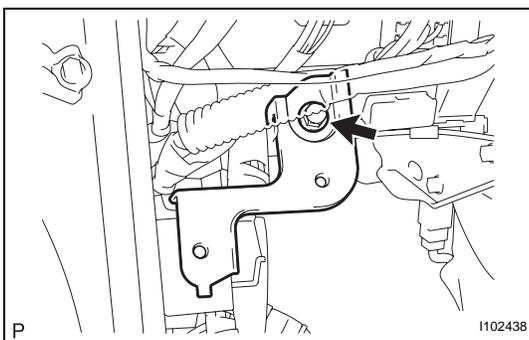
## 77. REMOVE STEERING COLUMN HOLE COVER (See page [SR-9](#))



## 78. SEPARATE STEERING INTERMEDIATE SHAFT ASSEMBLY

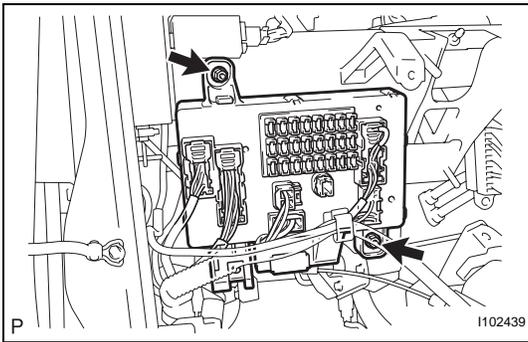
- (a) Remove the bolt and separate the steering shaft thrust stopper from the steering intermediate shaft assembly.  
 (b) Mark matchmarks on the steering column assembly and steering intermediate shaft.  
 (c) Pull the intermediate shaft assembly and steering shaft thrust stopper out of the steering column assembly.

## 79. REMOVE STEERING COLUMN ASSEMBLY (See page [SR-10](#))

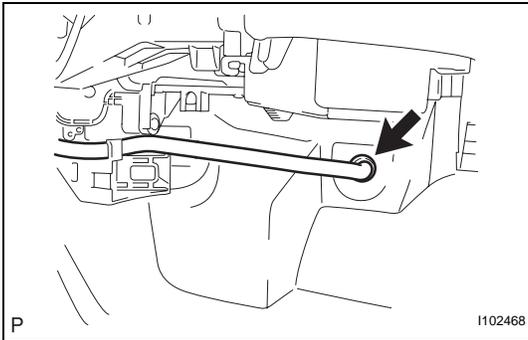


## 80. REMOVE INSTRUMENT PANEL SIDE BRACKET

- (a) Remove the bolt and remove the instrument panel side bracket.

**81. SEPARATE MAIN BODY ECU (DRIVER SIDE J/B)**

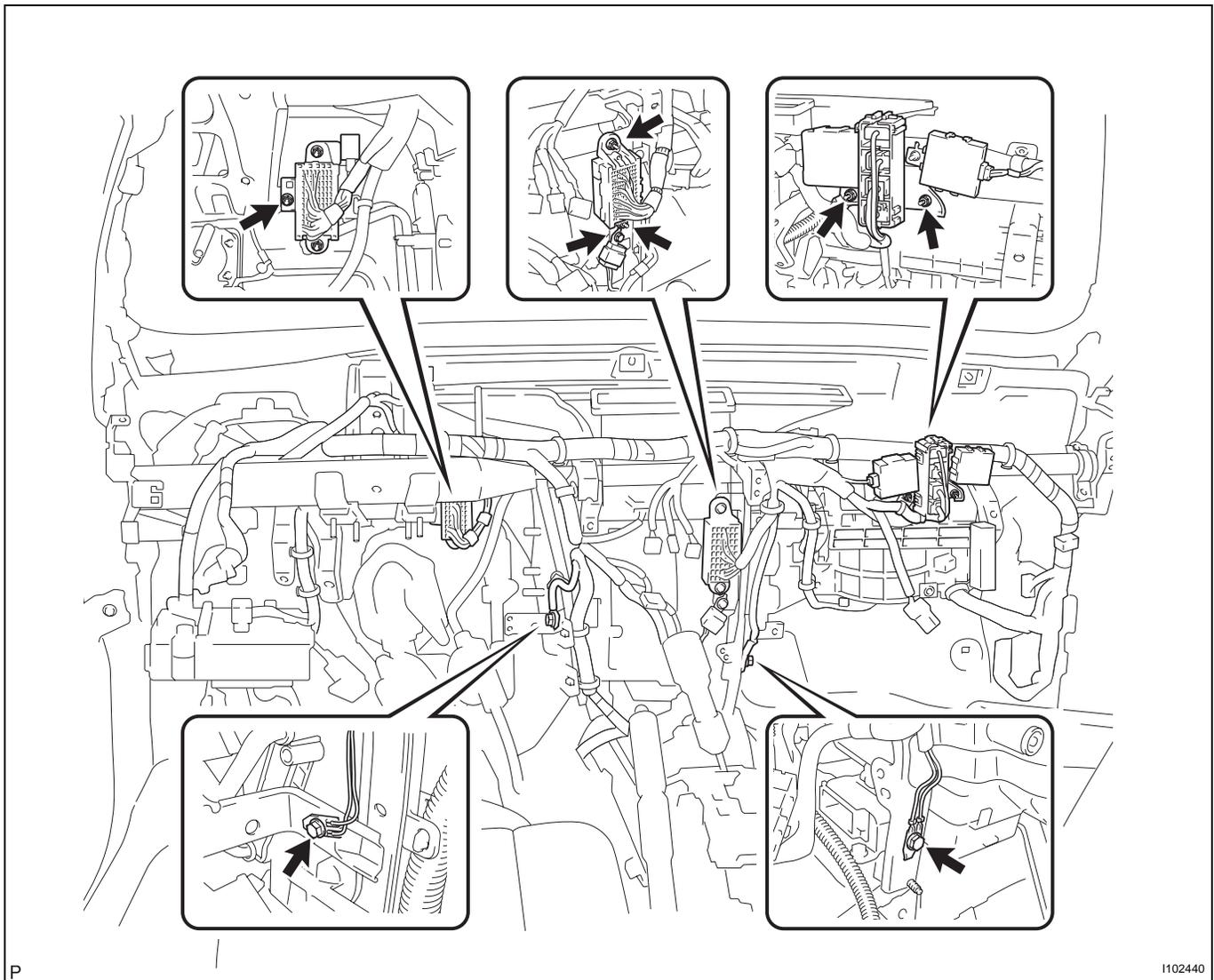
- (a) Remove the 2 nuts and remove the driver side junction block.

**82. REMOVE COOLER UNIT DRAIN HOSE**

- (a) Disconnect the cooler unit drain hose.

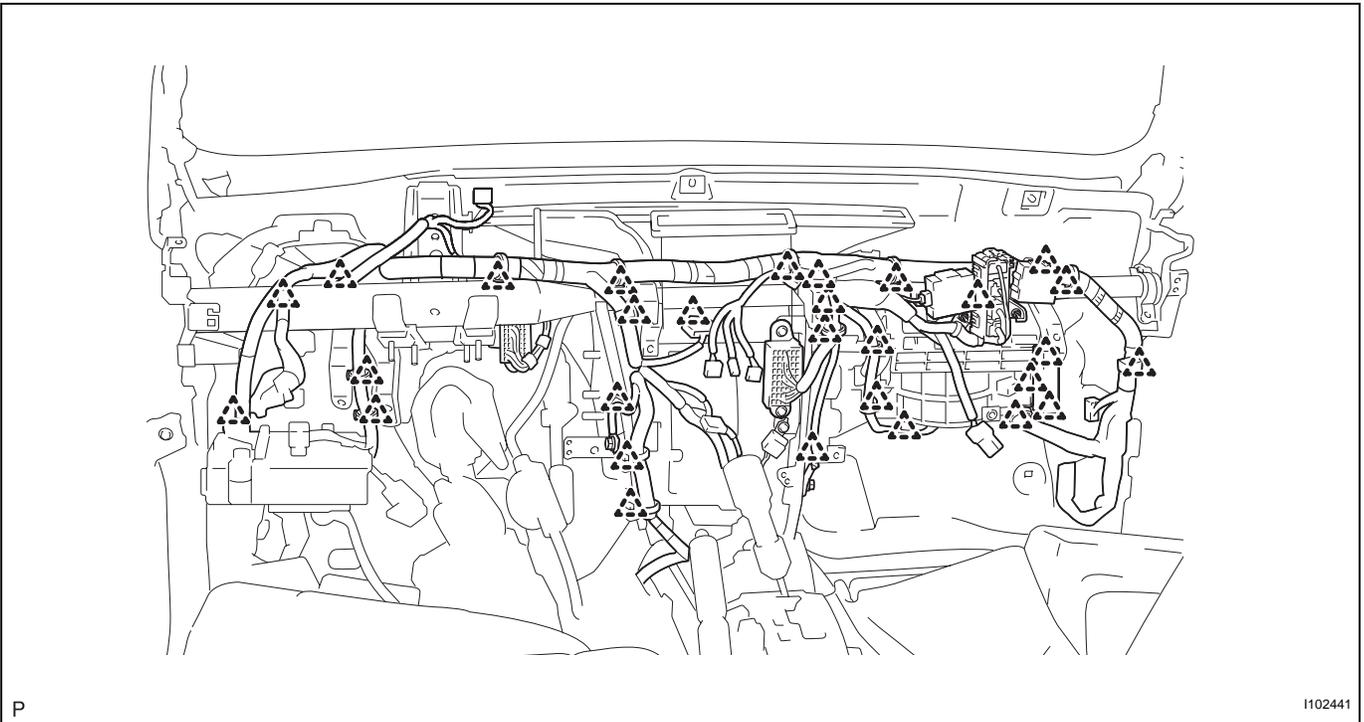
**83. REMOVE INSTRUMENT PANEL REINFORCEMENT**

- (a) Remove the 3 bolts and 5 nuts and disconnect the wire harness.

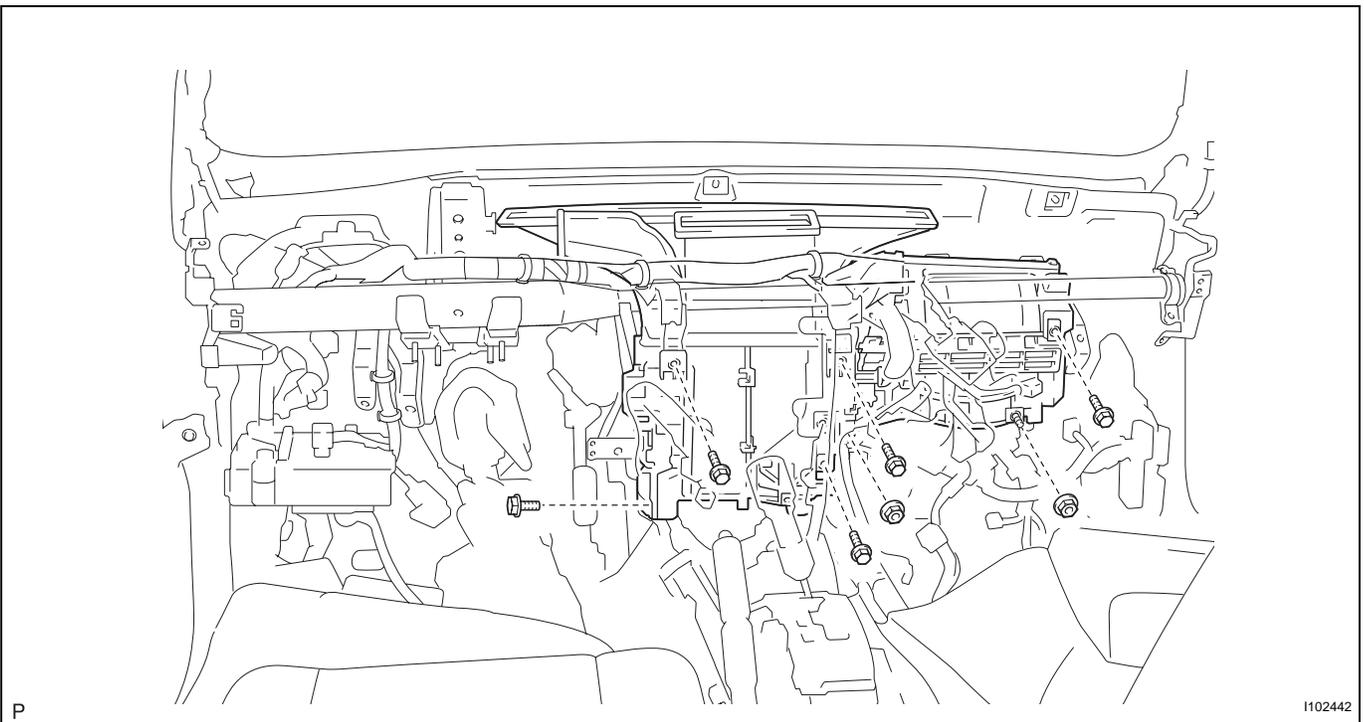


- (b) Disconnect the connectors.
- (c) Disengage the clamps.

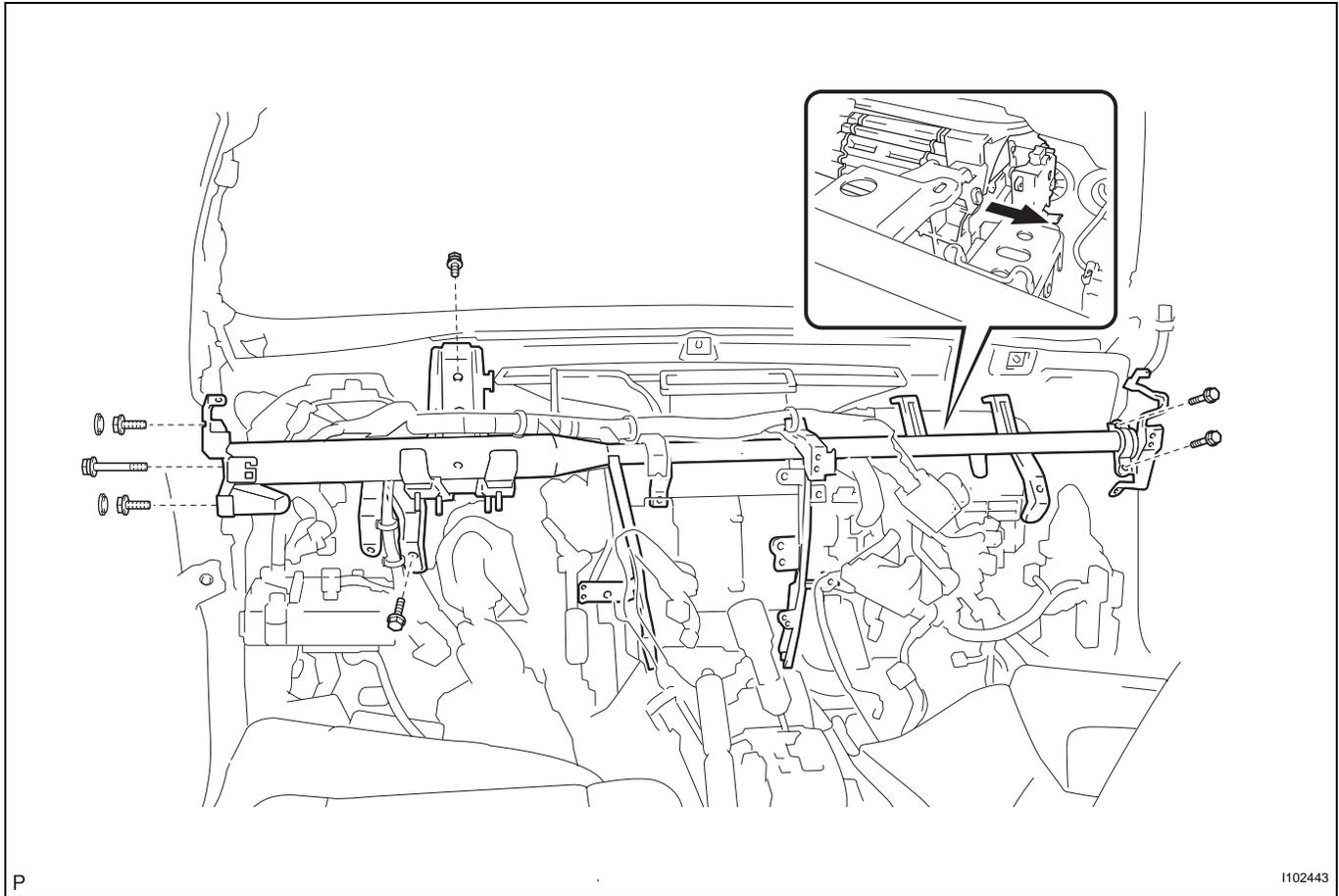
AC



- (d) Remove the 5 bolts and the 2 nuts.



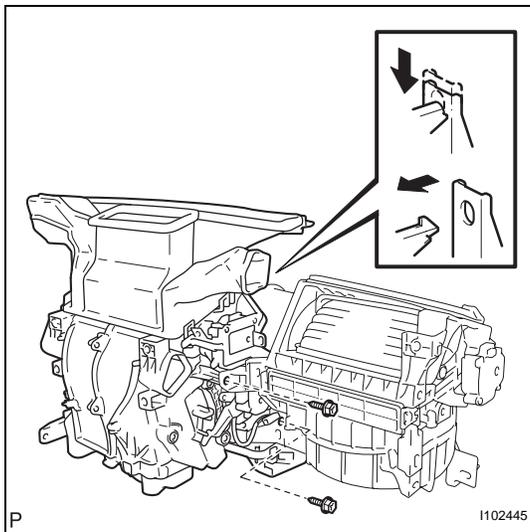
(e) Remove the 2 caps and the 7 bolts.

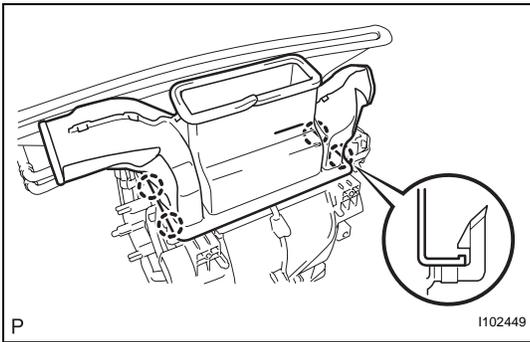


- (f) Disengage the reinforcement hook of the air conditioning unit, and remove the reinforcement.  
 (g) Remove the air conditioning unit.

#### 84. REMOVE AIR CONDITIONING UNIT ASSEMBLY

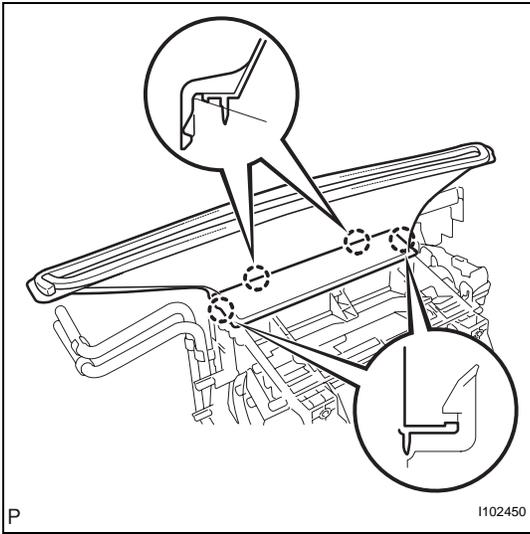
- (a) Remove the 2 screws.  
 (b) Remove the air conditioning unit as shown in the illustration.





**85. REMOVE HEATER TO REGISTER DUCT ASSEMBLY**

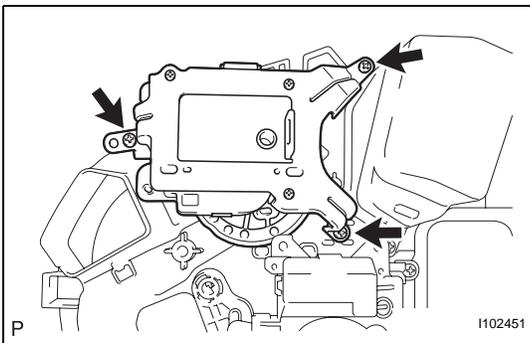
- (a) Disengage the 4 claws and remove the heater to register duct.



**86. REMOVE LOWER DEFROSTER NOZZLE ASSEMBLY**

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

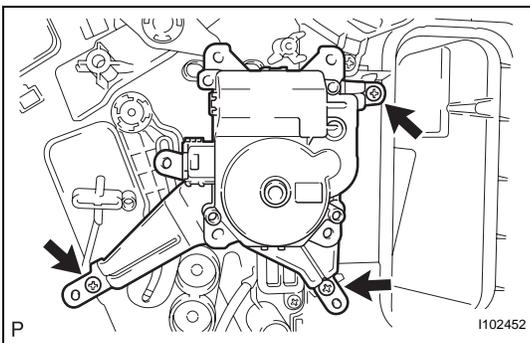
AC



**DISASSEMBLY**

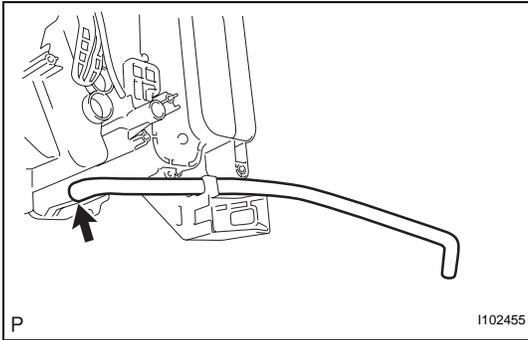
**1. REMOVE MODE CONTROL SERVO MOTOR**

- (a) Remove the 3 screws and remove the mode control servo motor.

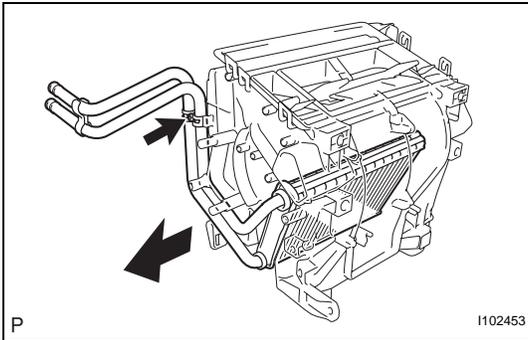


**2. REMOVE AIR MIX CONTROL SERVO MOTOR**

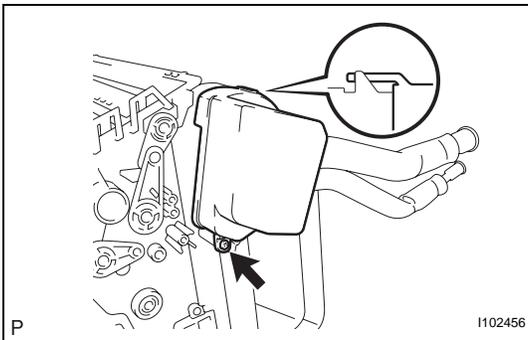
- (a) Remove the 3 screws and remove the air mix control servo motor.

**3. REMOVE COOLER UNIT DRAIN HOSE**

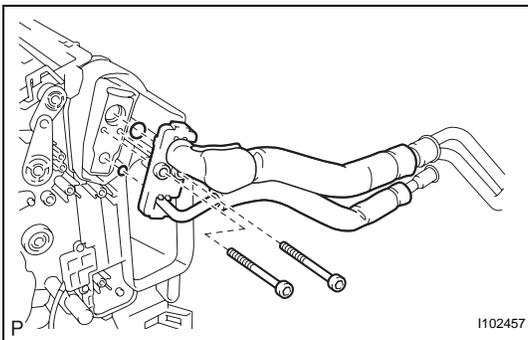
- (a) Remove the cooler unit drain hose.

**4. REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY**

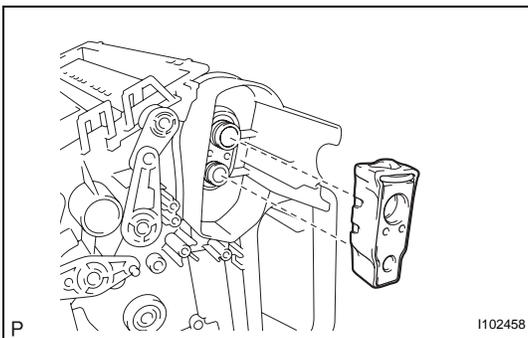
- (a) Remove the screw and clamp.  
 (b) Remove the heater radiator unit from the heater case.

**5. REMOVE COVER PLATE**

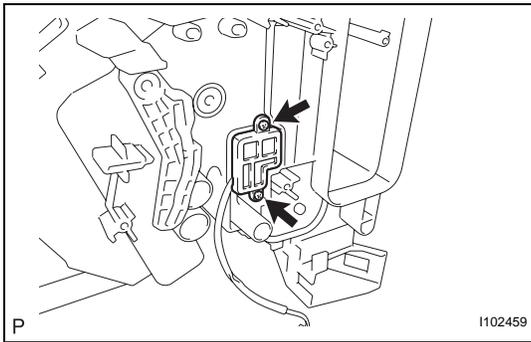
- (a) Remove the screw.  
 (b) Disengage the claw and remove the cover plate.

**6. REMOVE AIR CONDITIONING TUBE ASSEMBLY**

- (a) Using a hexagon wrench 4, remove the 2 hexagon bolts and remove the air conditioning tube.  
 (b) Remove the 2 O-rings from the air conditioning tube.

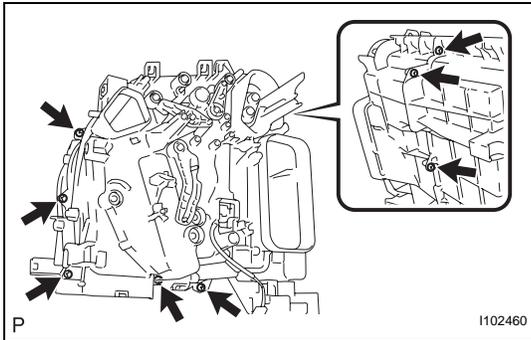
**7. REMOVE COOLER EXPANSION VALVE**

- (a) Remove the cooler expansion valve from the cooler evaporator.

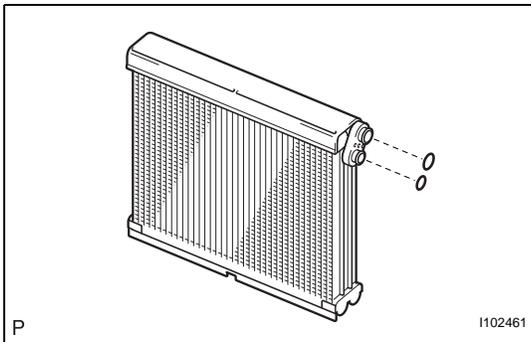


**8. REMOVE NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY**

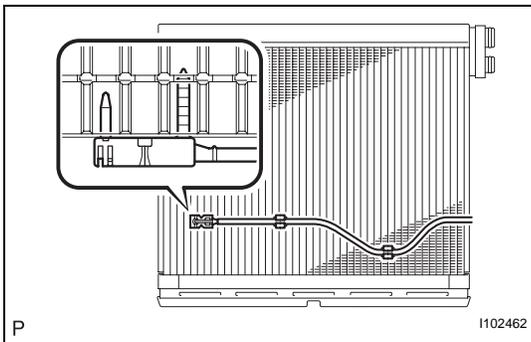
(a) Remove the 2 screws and remove the plate.



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



(c) Remove the cooler evaporator.  
Remove the 2 O-rings from the cooler evaporator.



**9. REMOVE NO. 1 COOLER THERMISTOR**

(a) Remove the cooler thermistor from the cooler evaporator.

# INSPECTION

## 1. INSPECT NO. 1 COOLER THERMISTOR

- (a) Measure the resistance.

**Standard resistance**

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

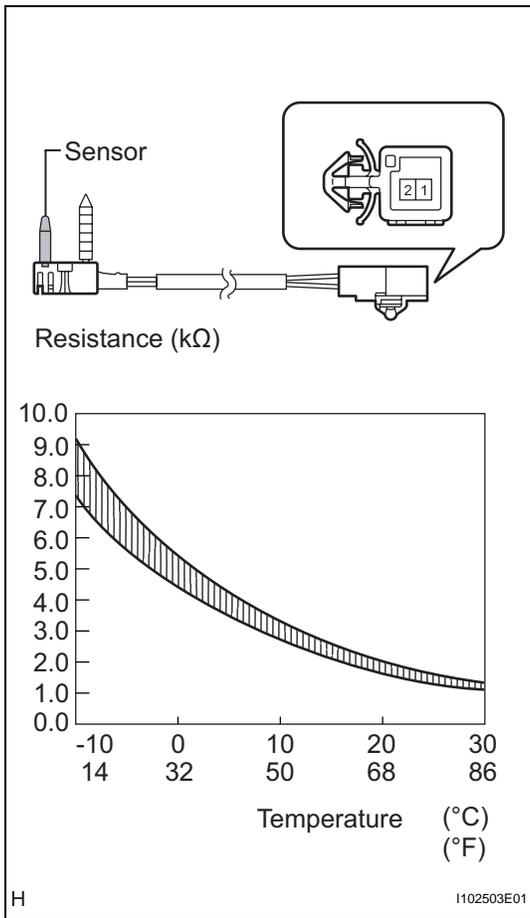
**NOTICE:**

- Touching the sensor even slightly may change the resistance value. Hold the connector of the sensor.
- When measuring the resistance, the temperature of the sensor and the cooler thermistor must be the same.

**HINT:**

As the temperature increases, the resistance decreases (see the graph).

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



AC

## 2. INSPECT MODE CONTROL SERVO MOTOR

- (a) Inspect the servo motor operation.

- (1) Connect the positive (+) lead from the battery to terminal 4 (DEF) and negative (-) lead to terminal 5 (FACE), then check that the lever turns to the DEF position smoothly.

**Standard:**

**The motor operates smoothly.**

If the operations are not as specified, replace the mode control servo motor.

- (2) Connect the positive (+) lead from the battery to terminal 5 (FACE) and negative (-) lead to terminal 4 (DEF), then check that the lever turns to the FACE position smoothly.

**Standard:**

**The motor operates smoothly.**

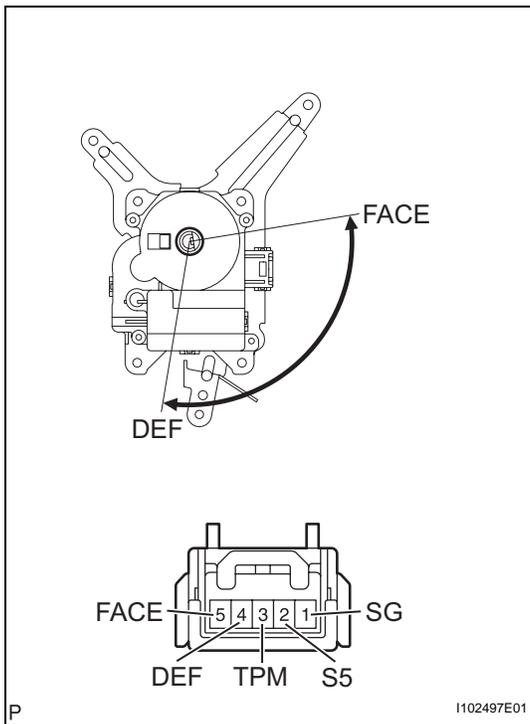
If the operations are not as specified, replace the mode control servo motor.

- (b) Check the servo motor resistance.

- (1) Using an ohmmeter, measure the resistance and check the results in accordance with the values in the table below.

**Standard resistance**

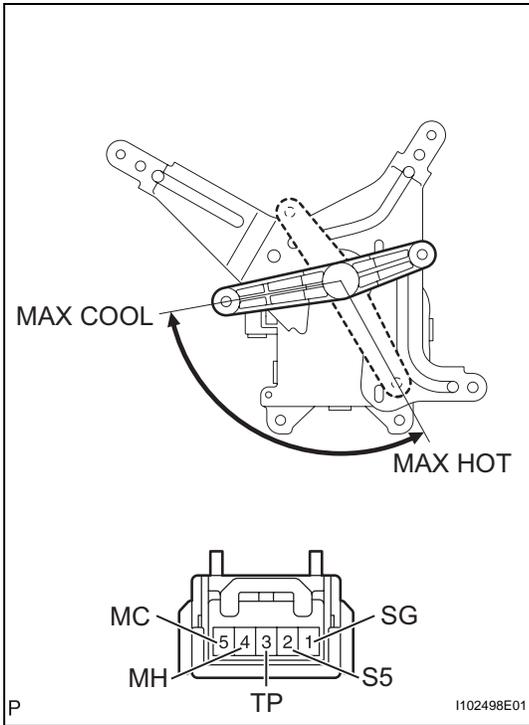
Tester Connection	Servo Motor Position	Specified Condition
1 (SG) - 2 (S5)	Always	4.2 to 7.8 kΩ



P

Tester Connection	Servo Motor Position	Specified Condition
1 (SG) - 3 (TPM)	DEF Position	3.4 to 6.2 kΩ
1 (SG) - 3 (TPM)	FACE Position	0.8 to 1.6 kΩ

If the result is not as specified, replace the mode control servo motor.



### 3. REMOVE AIR MIX CONTROL SERVO MOTOR

- (a) Inspect the servo motor operation.
  - (1) Connect the positive (+) lead from the battery to terminal 4 (MH) and negative (-) lead to terminal 5 (MC), then check that the lever turns to the MAX HOT position smoothly.

**Standard:**

**The motor operates smoothly.**

If the operations are not as specified, replace the air mix control servo motor.

- (2) Connect the positive (+) lead from the battery to terminal 5 (MC) and negative (-) lead to terminal 4 (MH), then check that the lever turns to the MAX COOL position smoothly.

**Standard:**

**The motor operates smoothly.**

If the operations are not as specified, replace the air mix control servo motor.

- (b) Check the servo motor resistance.
  - (1) Using an ohmmeter, measure the resistance and check the results in accordance with the values in the table below.

**Standard resistance**

Tester Connection	Servo Motor Position	Specified Condition
1 (SG) - 2 (S5)	Always	4.2 to 7.8 kΩ
1 (SG) - 3 (TP)	MAX HOT Position	3.4 to 6.2 kΩ
1 (SG) - 3 (TP)	MAX COOL Position	0.8 to 1.6 kΩ

If the result is not as specified, replace the air mix control servo motor.

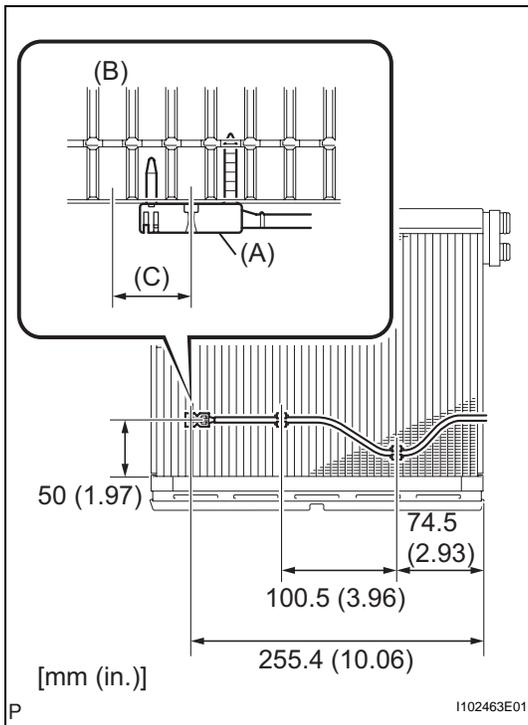
## REASSEMBLY

### 1. INSTALL NO. 1 COOLER THERMISTOR

- Install the sensor onto the evaporator as shown in the illustration.
- Check that the sensor sticks to the evaporator surface as shown in the illustration (A: Sensor, B: Evaporator).

**NOTICE:**

If reusing the evaporator, do not reinsert the sensor in the same position that it was in before. Insert it within area C shown in the illustration.



AC

### 2. INSTALL NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY

- Apply sufficient compressor oil (ND-OIL8) to 2 new O-rings and the fitting surface of the cooler evaporator.

**Compressor oil:**

**ND-OIL8 or the equivalent**

- Install the 2 O-rings onto the cooler evaporator.
- Install the cooler evaporator.

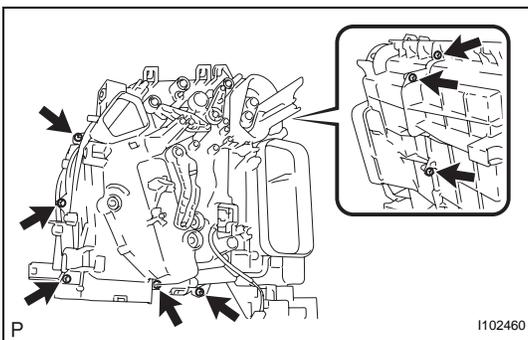
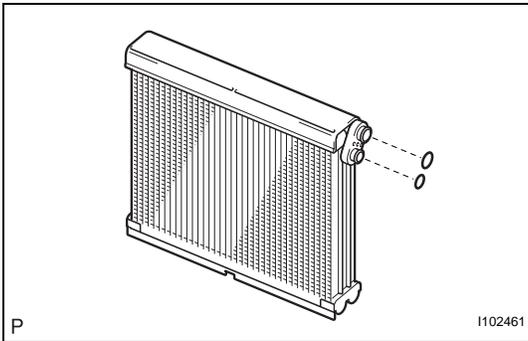
**HINT:**

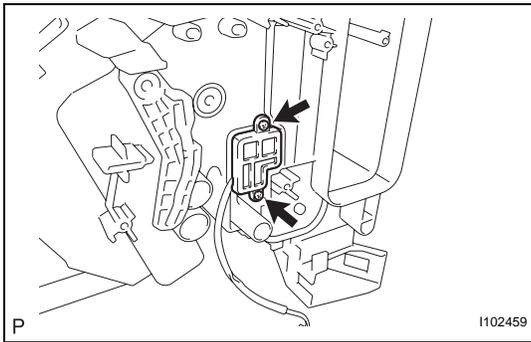
If a new cooler evaporator is installed, add compressor oil to the cooler evaporator as follows.

**Compressor oil:**

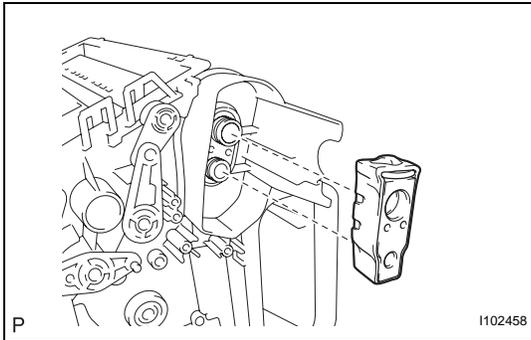
**ND-OIL8 or the equivalent. Add 40 cc (1.35 fl. oz.)**

- Install the cooler evaporator onto the heater case.
- Install the heater case with the 8 screws.



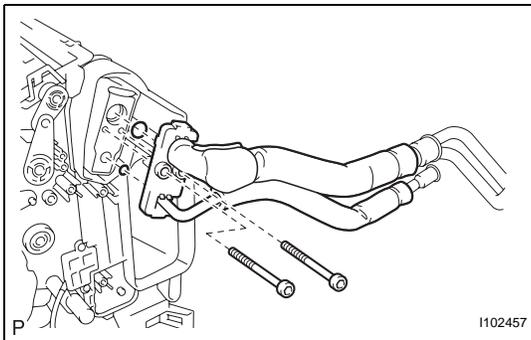


- (f) Install the plate with the 2 screws.



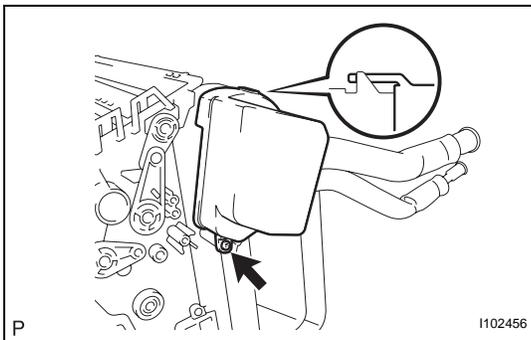
**3. INSTALL COOLER EXPANSION VALVE**

- (a) Apply sufficient compressor oil (ND-OIL8) to the fitting surface of the cooler expansion valve.  
**Compressor oil:**  
**ND-OIL8 or the equivalent**
- (b) Install the cooler expansion valve onto the cooler evaporator.



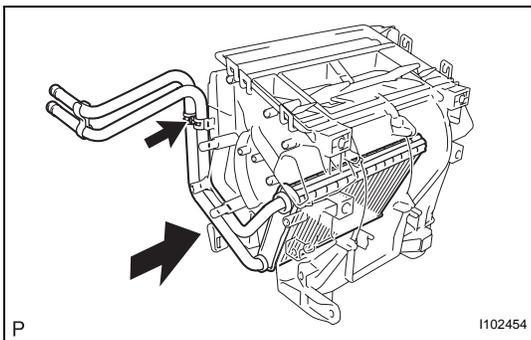
**4. INSTALL AIR CONDITIONING TUBE ASSEMBLY**

- (a) Apply sufficient compressor oil (ND-OIL8) to 2 new O-rings and the fitting surface of the air conditioning tube.  
**Compressor oil:**  
**ND-OIL8 or the equivalent**
- (b) Install the 2 O-rings onto the air conditioning tube.
- (c) Using a hexagon wrench 4, install the air conditioning tube with the 2 hexagon bolts.  
**Torque: 3.5 N\*m (36 kgf\*cm, 31 in.\*lbf)**



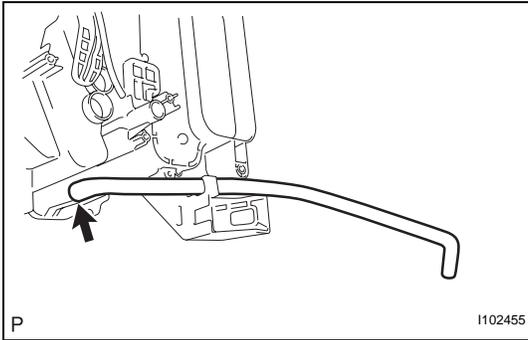
**5. INSTALL COVER PLATE**

- (a) Engage the claw.
- (b) Install the cover plate with the screw.

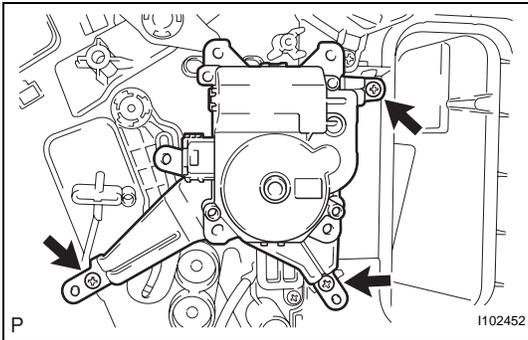


**6. INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY**

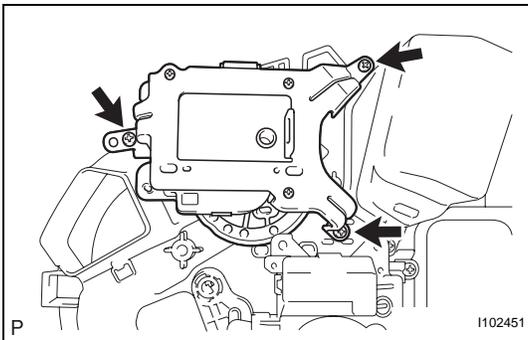
- (a) Install the heater radiator unit onto the heater case.
- (b) Install the clamp with the screw.

**7. INSTALL COOLER UNIT DRAIN HOSE**

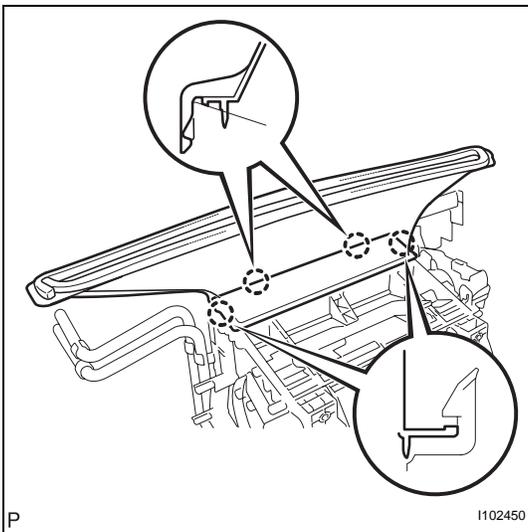
- (a) Install the cooler unit drain hose.

**8. INSTALL AIR MIX CONTROL SERVO MOTOR**

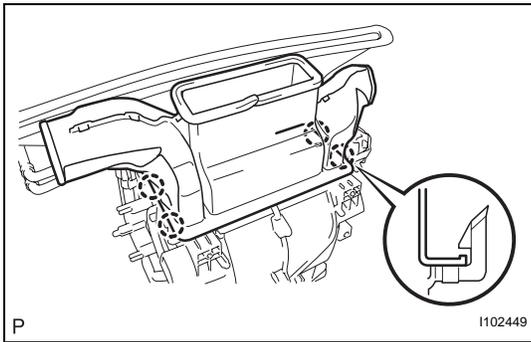
- (a) Install the air mix control servo motor with the 3 screws.

**9. INSTALL MODE CONTROL SERVO MOTOR**

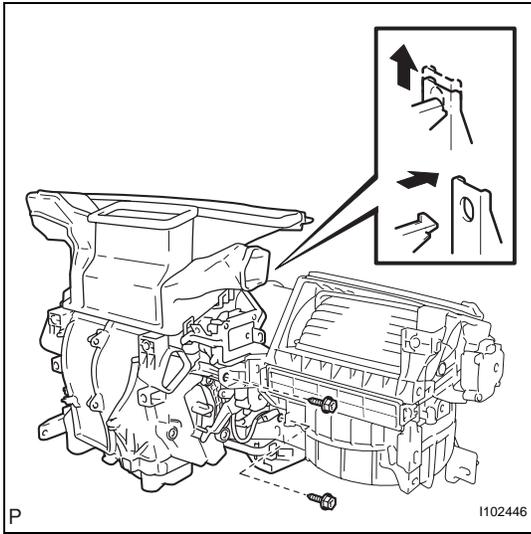
- (a) Install the mode control servo motor with the 3 screws.

**INSTALLATION****1. INSTALL LOWER DEFROSTER NOZZLE ASSEMBLY**

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

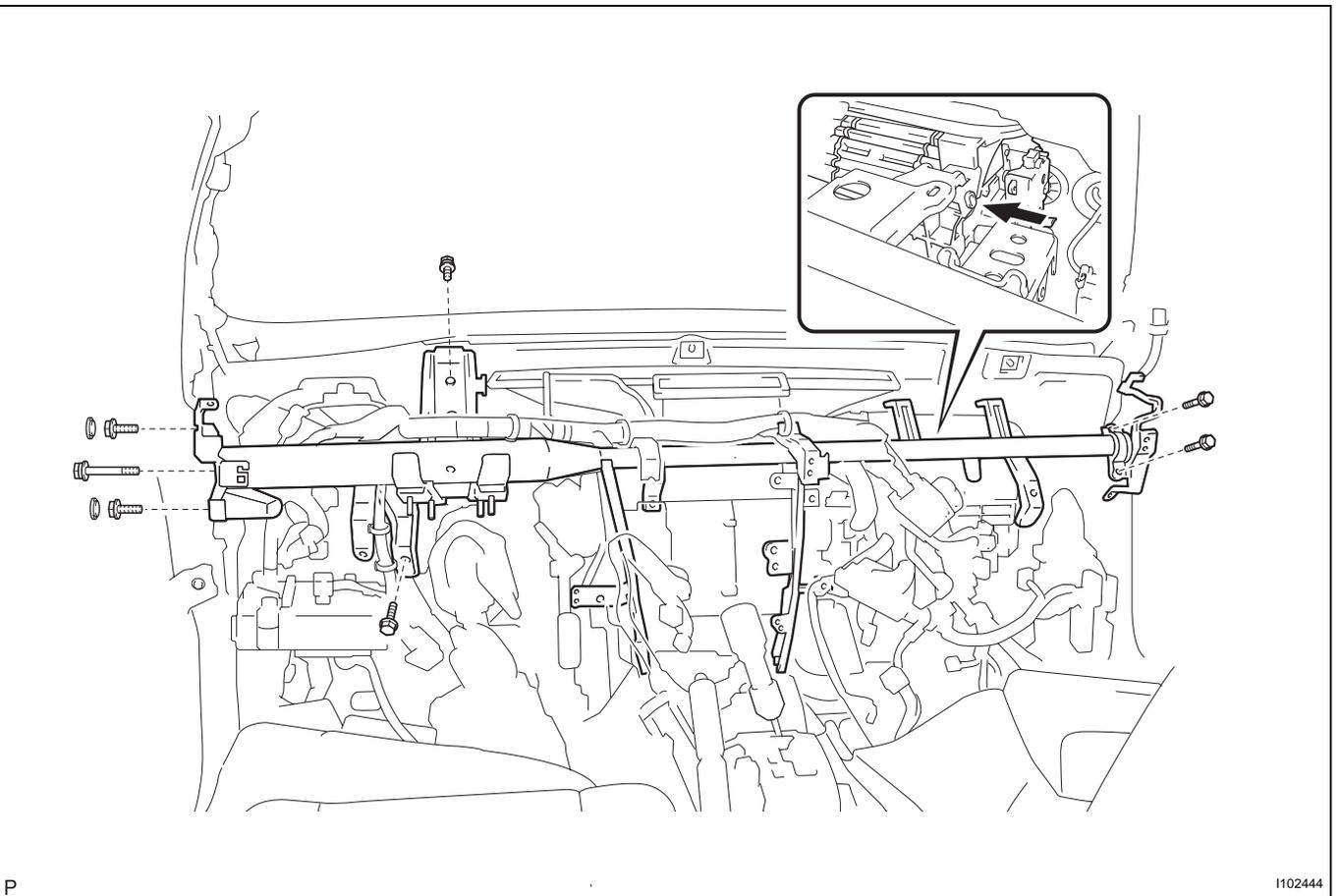


2. **INSTALL HEATER TO REGISTER DUCT ASSEMBLY**
  - (a) Engage the 4 claws and install the heater to register duct.



3. **INSTALL AIR CONDITIONING UNIT ASSEMBLY**
  - (a) Install the air conditioning unit with the 2 screws as shown in the illustration.

4. **INSTALL INSTRUMENT PANEL REINFORCEMENT**
  - (a) Provisionally install the air conditioning unit assembly.
  - (b) Insert the bracket hook into the holes of the reinforcement bracket, and provisionally install the reinforcement.
  - (c) Install the instrument panel reinforcement with the 7 bolts.
  - (d) Install the 2 caps.



- (e) Install the 5 bolts.

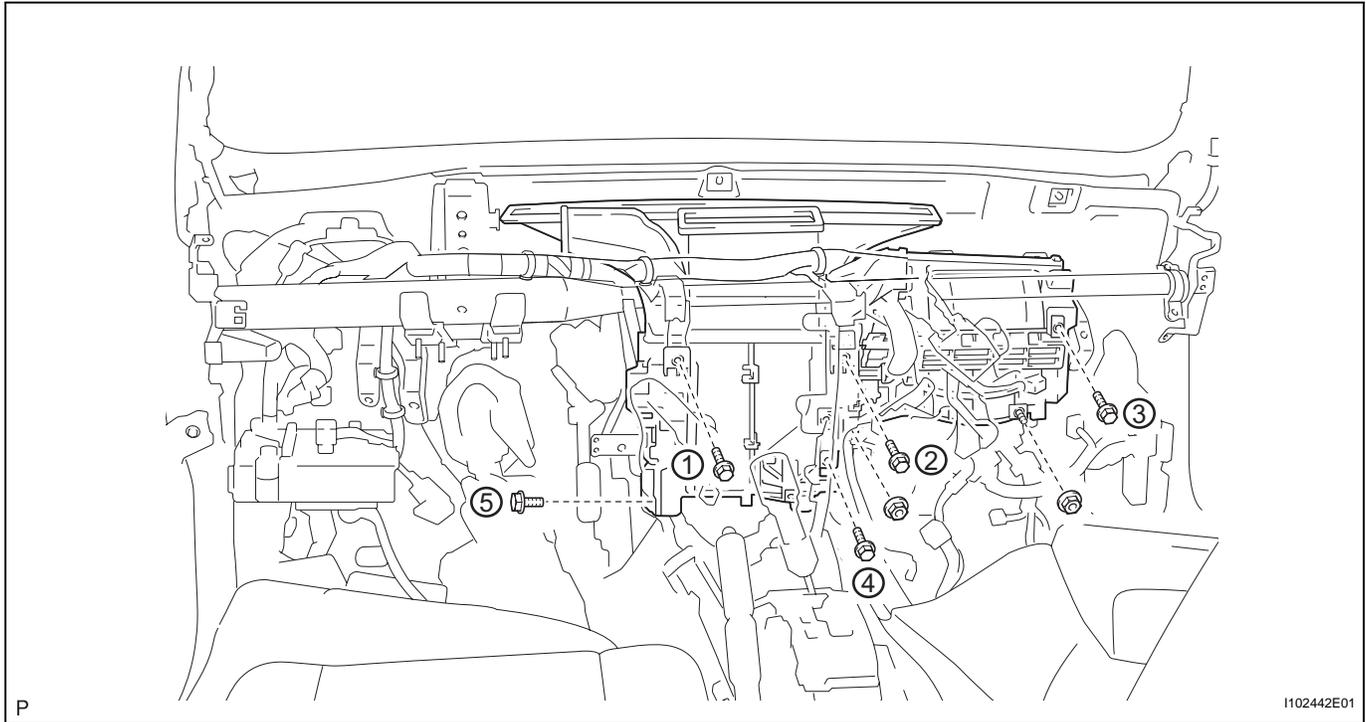
**NOTICE:**

**Tighten the bolts in the sequence order shown in the illustration to install the air conditioner unit assembly.**

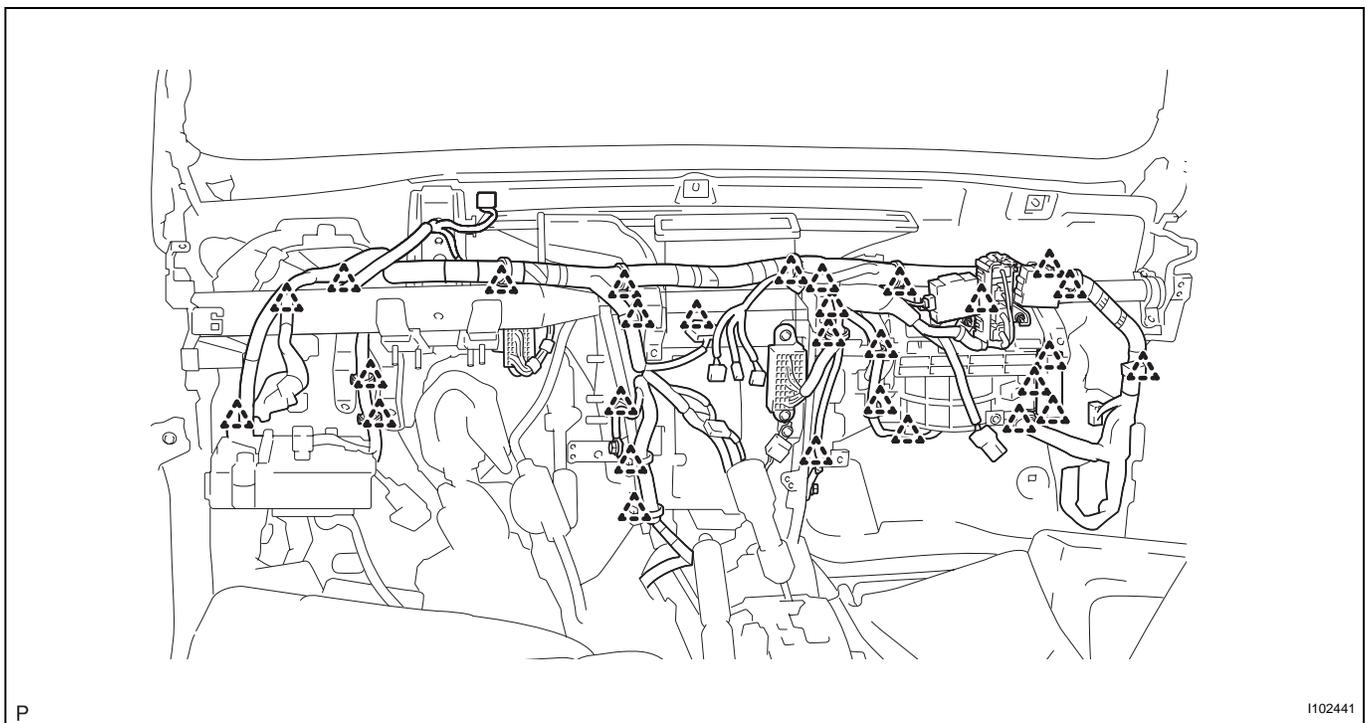
**Torque: 9.8 N\*m (100 kgf\*cm, 87 in.\*lbf) for bolt**

- (f) Install the 2 nuts.

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

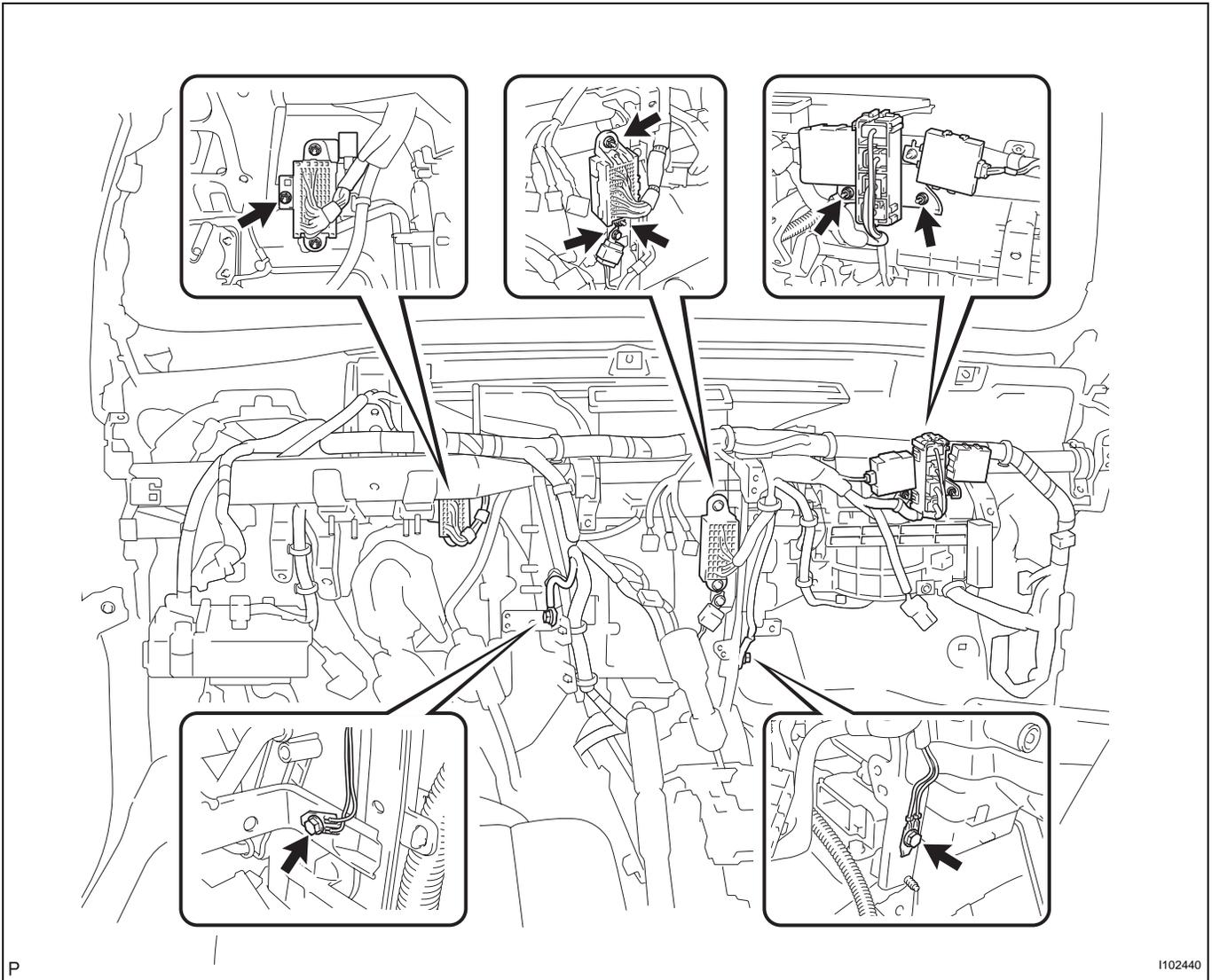


- (g) Engage the clamps.



- (h) Connect the connectors.

- (i) Connect the wire harness with the 3 bolts and 5 nuts.

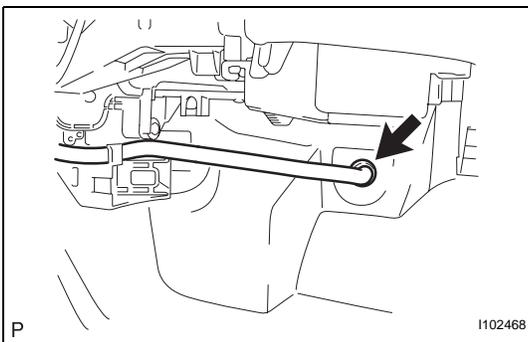


AC

Torque: 7.3 N\*m (74 kgf\*cm, 65 in.\*lbf) for nut

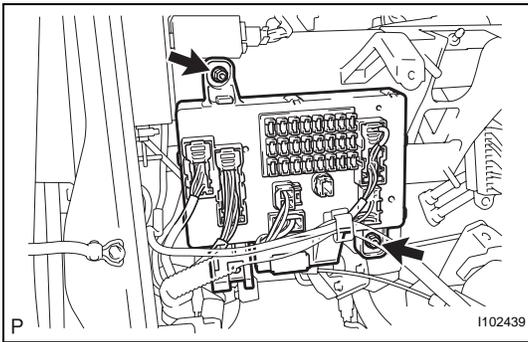
**5. INSTALL COOLER UNIT DRAIN HOSE**

- (a) Install the cooler unit drain hose.



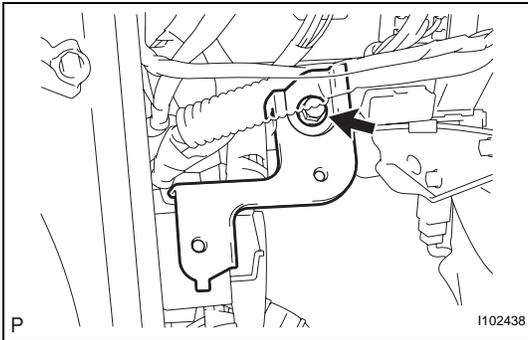
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## 6. INSTALL MAIN BODY ECU (DRIVER SIDE J/B)

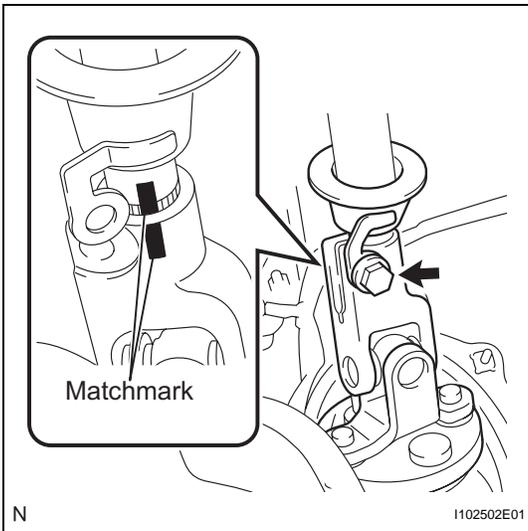
- (a) Install the main body ECU with the 2 nuts.  
**Torque: 8.4 N\*m (86 kgf\*cm, 74 in.\*lbf)**



## 7. INSTALL INSTRUMENT PANEL SIDE BRACKET

- (a) Install the instrument panel side bracket with the bolt.  
**Torque: 8.4 N\*m (86 kgf\*cm, 74 in.\*lbf)**

## 8. INSTALL STEERING COLUMN ASSEMBLY (See page [SR-16](#))

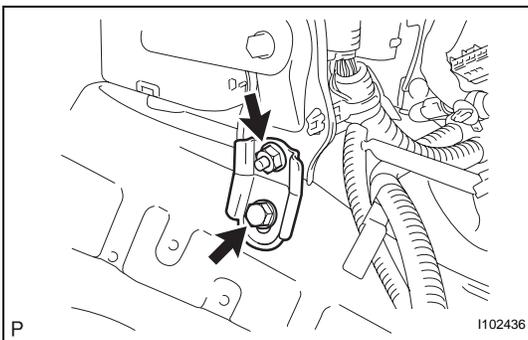


## 9. INSTALL STEERING INTERMEDIATE SHAFT ASSEMBLY

- (a) Align the matchmarks on the steering column assembly and the steering intermediate shaft assembly.  
 (b) Install the steering intermediate shaft assembly and thrust stopper onto the steering column assembly with the bolt.  
**Torque: 36 N\*m (367 kgf\*cm, 27 ft.\*lbf)**

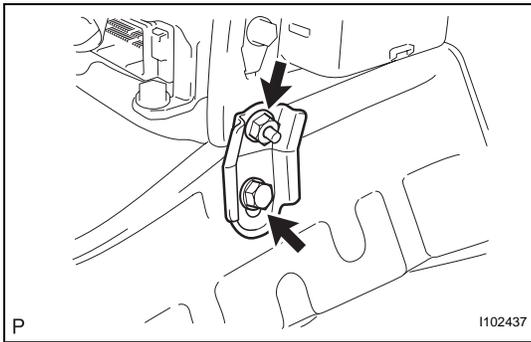
## 10. INSTALL STEERING COLUMN HOLE COVER (See page [SR-17](#))

## 11. INSTALL ECM (See page [ES-447](#))

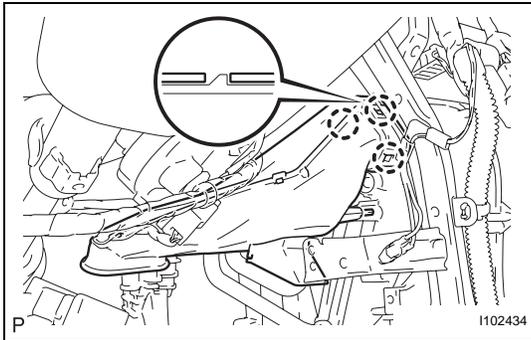


## 12. INSTALL NO. 1 INSTRUMENT PANEL BRACE BRACKET

- (a) for LH side:  
 (1) Install the instrument panel brace mounting bracket with the bolt and nut.

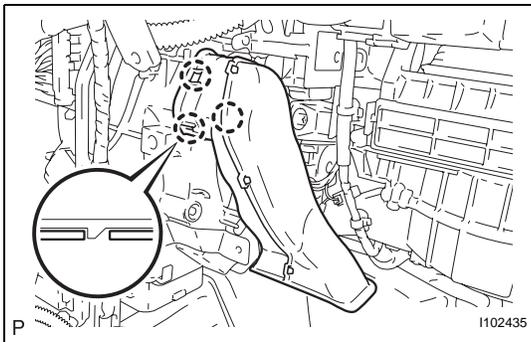


- (b) for RH side:
  - (1) Install the instrument panel brace mounting bracket with the bolt and nut.



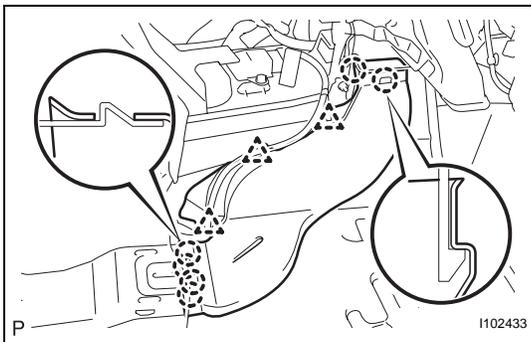
**13. INSTALL NO. 1 AIR DUCT**

- (a) Engage the 3 claws and install the air duct.



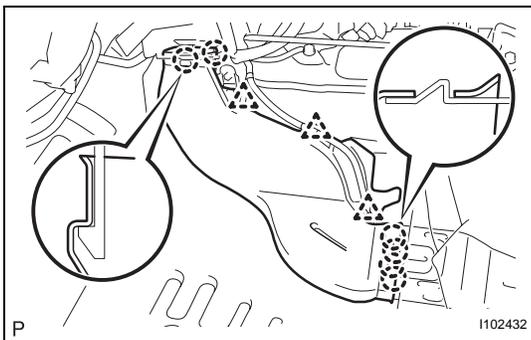
**14. INSTALL NO. 2 AIR DUCT**

- (a) Engage the 3 claws and install the air duct.



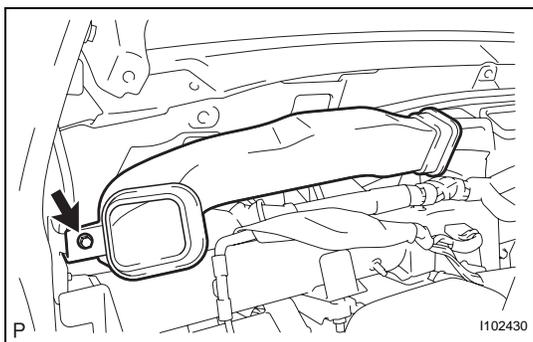
**15. INSTALL REAR NO. 1 AIR DUCT**

- (a) Engage the 6 claws and 3 clamps and install the air duct.

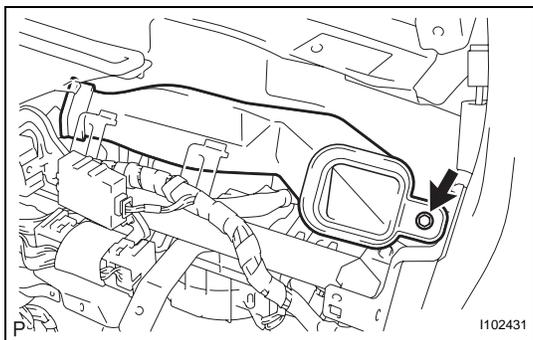


**16. INSTALL REAR NO. 2 AIR DUCT**

- (a) Engage the 6 claws and 3 clamps and install the air duct.



- 17. INSTALL NO. 1 HEATER TO REGISTER DUCT**  
 (a) Install the heater to register duct with the screw.



- 18. INSTALL NO. 2 HEATER TO REGISTER DUCT**  
 (a) Install the heater to register duct with the screw.
- 19. INSTALL INSTRUMENT PANEL SUB-ASSEMBLY**  
 (See page [IP-26](#))
- 20. CONNECT PASSENGER AIRBAG CONNECTOR** (See page [IP-26](#))
- 21. INSTALL INSTRUMENT PANEL FINISH PANEL END LH** (See page [IP-27](#))
- 22. INSTALL ASSIST GRIP RETAINER RH** (See page [IP-27](#))
- 23. INSTALL ASSIST GRIP RETAINER LH** (See page [IP-27](#))
- 24. INSTALL FRONT NO. 2 SPEAKER ASSEMBLY** (See page [AV-62](#))
- 25. INSTALL NO. 2 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY** (See page [IP-27](#))
- 26. INSTALL NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY** (See page [IP-27](#))
- 27. INSTALL NO. 2 INSTRUMENT PANEL REGISTER ASSEMBLY** (See page [IP-27](#))
- 28. INSTALL INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH** (See page [IP-28](#))
- 29. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY** (See page [IP-28](#))
- 30. INSTALL COMBINATION METER ASSEMBLY** (See page [IP-28](#))
- 31. INSTALL INSTRUMENT CLUSTER FINISH PANEL** (See page [IP-29](#))
- 32. INSTALL LOWER INSTRUMENT PANEL LH** (See page [IP-29](#))
- 33. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY LH** (See page [IP-29](#))
- 34. CONNECT HOOD LOCK CONTROL LEVER SUB-ASSEMBLY** (See page [IP-30](#))
- 35. INSTALL NO. 1 INSTRUMENT PANEL REGISTER ASSEMBLY** (See page [IP-30](#))

36. INSTALL INSTRUMENT LOWER COVER SUB-ASSEMBLY (See page [IP-30](#))
37. INSTALL CONSOLE UPPER PANEL NO. 1 GARNISH (See page [IP-31](#))
38. INSTALL FRONT CONSOLE BOX (See page [IP-31](#))
39. INSTALL BOX BOTTOM MAT (See page [IP-31](#))
40. INSTALL CONSOLE UPPER REAR PANEL SUB-ASSEMBLY (See page [IP-31](#))
41. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transmission) (See page [IP-32](#))
42. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for 4WD) (See page [IP-32](#))
43. INSTALL PARKING BRAKE HOLE COVER SUB-ASSEMBLY (See page [IP-32](#))
44. INSTALL RADIO RECEIVER ASSEMBLY (See page [AV-56](#))
45. INSTALL INTEGRATION CONTROL AND PANEL ASSEMBLY (See page [IP-32](#))
46. INSTALL INSTRUMENT PANEL GARNISH LH (See page [IP-33](#))
47. INSTALL INSTRUMENT PANEL GARNISH RH (See page [IP-33](#))
48. INSTALL FRONT PILLAR GARNISH RH (See page [IR-43](#))
49. INSTALL FRONT PILLAR GARNISH LH (See page [IR-43](#))
50. INSTALL ASSIST GRIP ASSEMBLY (See page [IR-43](#))
51. INSTALL ASSIST GRIP PLUG (See page [IR-44](#))
52. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH (See page [IP-33](#))
53. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH (See page [IP-33](#))
54. INSTALL COWL SIDE TRIM BOARD RH (See page [IR-45](#))
55. INSTALL COWL SIDE TRIM BOARD LH (See page [IR-45](#))
56. INSTALL FOOTREST CLIP (See page [IR-2](#))
57. INSTALL FRONT FLOOR FOOTREST (See page [IR-2](#))
58. INSTALL FRONT DOOR SCUFF PLATE RH (See page [IR-45](#))
59. INSTALL FRONT DOOR SCUFF PLATE LH (See page [IR-45](#))

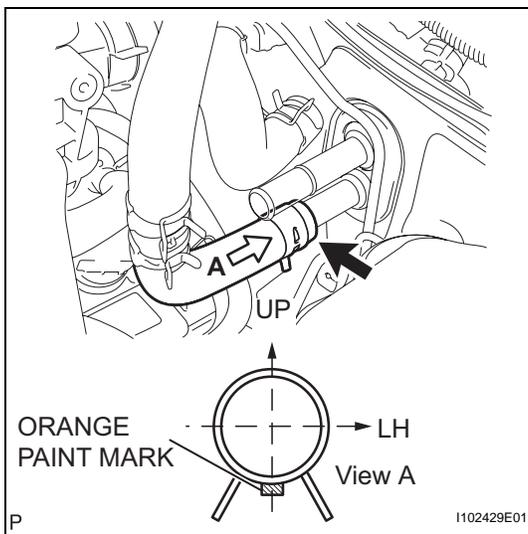
AC

60. INSTALL COMBINATION SWITCH ASSEMBLY (See page [SR-17](#))
61. INSTALL UPPER STEERING COLUMN COVER (See page [SR-17](#))
62. INSTALL LOWER STEERING COLUMN COVER (See page [SR-18](#))
63. INSTALL STEERING WHEEL ASSEMBLY (See page [SR-18](#))
64. INSTALL STEERING PAD (See page [RS-346](#))
65. INSTALL LOWER NO. 2 STEERING WHEEL COVER (See page [RS-347](#))
66. INSTALL LOWER NO. 3 STEERING WHEEL COVER (See page [RS-347](#))
67. CONNECT HEATER WATER OUTLET HOSE A (FROM HEATER UNIT)

- (a) Install the heater water outlet hose onto the heater unit.

**NOTICE:**

Perform the installation with the hose clip and mark at the correct angle as shown in the illustration.

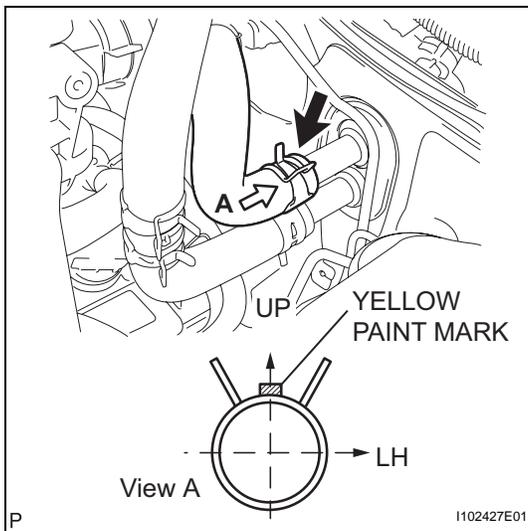


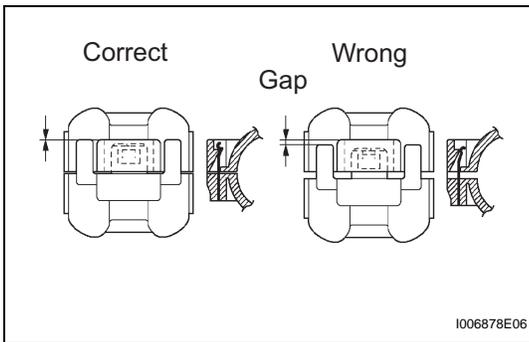
68. CONNECT HEATER INLET WATER HOSE

- (a) Install the heater water inlet hose onto the heater unit.

**NOTICE:**

Perform the installation with the hose clip and mark at the correct angle as shown in the illustration.



**69. INSTALL COOLER REFRIGERANT LIQUID PIPE A**

- (a) Remove the vinyl tape from liquid tube A and the connecting portion of the unit.
- (b) Apply sufficient compressor oil (ND-OIL8) to a new O-ring and the connecting part of the liquid pipe.

**Compressor oil:****ND-OIL8 or the equivalent**

- (c) Install the O-ring onto the liquid pipe.
- (d) Install the liquid and piping clamp.

**HINT:**

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

**70. INSTALL COOLER REFRIGERANT SUCTION PIPE A****HINT:**

Connection procedure of the suction pipe is the same as for the liquid pipe.

**71. INSTALL COWL TOP VENTILATOR LOUVER LH (See page [WW-30](#))****72. INSTALL COWL TOP VENTILATOR LOUVER RH (See page [WW-30](#))****73. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page [WW-31](#))****74. INSTALL FRONT FENDER SIDE PANEL UPPER LH (See page [WW-31](#))****75. INSTALL FRONT FENDER SIDE PANEL UPPER RH (See page [WW-31](#))****76. INSTALL ANTENNA ORNAMENT (See page [WW-31](#))****77. INSTALL ROOF ANTENNA POLE SUB-ASSEMBLY (See page [AV-116](#))****78. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page [WW-32](#))****79. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (CENTER SIDE) (See page [WW-32](#))****80. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page [WW-33](#))****81. INSTALL WINDSHIELD WIPER ARM COVER (See page [WW-34](#))****82. ADD ENGINE COOLANT (See page [CO-3](#))****83. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)

**84. CHECK SRS WARNING LIGHT**  
[RS-29](#)**85. CHARGE REFRIGERANT (See page [AC-16](#))****86. WARM UP ENGINE (See page [AC-18](#))**

87. CHECK FOR ENGINE COOLANT LEAKAGE (See page [CO-4](#))
88. CHECK FOR REFRIGERANT LEAKAGE (See page [AC-18](#))
89. POSITION FRONT WHEELS FACING STRAIGHT AHEAD

## REMOVAL

### CAUTION:

Some of these service operations affect the SRS airbag system. Read the precautionary notices concerning the SRS airbag system before servicing (See page [RS-1](#)).

### HINT:

Use the same procedure for both the RH and LH sides.

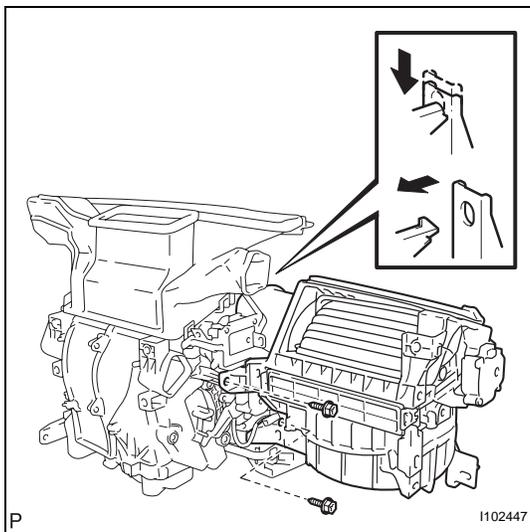
1. **BOLTS, SCREWS AND NUTS TABLE** (See page [IP-9](#))
2. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**  
Wait for at least 90 seconds after disconnecting the cable to prevent the airbag from working.
3. **DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM** (See page [AC-16](#))
4. **DRAIN ENGINE COOLANT** (See page [CO-3](#))
5. **REMOVE ROOF ANTENNA POLE SUB-ASSEMBLY** (See page [AV-116](#))
6. **REMOVE WINDSHIELD WIPER ARM COVER** (See page [WW-25](#))
7. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH** (See page [WW-26](#))
8. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH (CENTER SIDE)** (See page [WW-26](#))
9. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH** (See page [WW-26](#))
10. **REMOVE FRONT FENDER SIDE PANEL UPPER LH** (See page [WW-26](#))
11. **REMOVE ANTENNA ORNAMENT** (See page [WW-26](#))
12. **REMOVE FRONT FENDER SIDE PANEL UPPER RH** (See page [WW-26](#))
13. **REMOVE COWL TOP VENTILATOR LOUVER ASSEMBLY** (See page [WW-27](#))
14. **REMOVE COWL TOP VENTILATOR LOUVER RH** (See page [WW-27](#))
15. **REMOVE COWL TOP VENTILATOR LOUVER LH** (See page [WW-27](#))
16. **DISCONNECT COOLER REFRIGERANT SUCTION PIPE A** (See page [AC-32](#))
17. **DISCONNECT COOLER REFRIGERANT LIQUID PIPE A** (See page [AC-33](#))
18. **DISCONNECT HEATER INLET WATER HOSE** (See page [AC-33](#))
19. **DISCONNECT HEATER WATER OUTLET HOSE A (FROM HEATER UNIT)** (See page [AC-33](#))

20. POSITION FRONT WHEELS FACING STRAIGHT AHEAD
21. REMOVE LOWER NO. 3 STEERING WHEEL COVER (See page [RS-345](#))
22. REMOVE LOWER NO. 2 STEERING WHEEL COVER (See page [RS-345](#))
23. REMOVE STEERING PAD (See page [RS-346](#))
24. REMOVE STEERING WHEEL ASSEMBLY (See page [SR-8](#))
25. REMOVE LOWER STEERING COLUMN COVER (See page [SR-8](#))
26. REMOVE UPPER STEERING COLUMN COVER (See page [SR-8](#))
27. REMOVE COMBINATION SWITCH ASSEMBLY (See page [SR-9](#))
28. REMOVE FRONT DOOR SCUFF PLATE RH (See page [IR-15](#))
29. REMOVE FRONT DOOR SCUFF PLATE LH (See page [IR-15](#))
30. REMOVE FRONT FLOOR FOOTREST (See page [IR-2](#))
31. REMOVE FOOTREST CLIP (See page [IR-2](#))
32. REMOVE COWL SIDE TRIM BOARD RH (See page [IR-15](#))
33. REMOVE COWL SIDE TRIM BOARD LH (See page [IR-15](#))
34. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH (See page [IP-10](#))
35. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP LH (See page [IP-10](#))
36. REMOVE ASSIST GRIP PLUG (See page [IR-17](#))
37. REMOVE ASSIST GRIP ASSEMBLY (See page [IR-17](#))
38. REMOVE FRONT PILLAR GARNISH RH (See page [IR-18](#))
39. REMOVE FRONT PILLAR GARNISH LH (See page [IR-18](#))
40. REMOVE INSTRUMENT PANEL GARNISH LH (See page [IP-10](#))
41. REMOVE INSTRUMENT PANEL GARNISH RH (See page [IP-10](#))
42. REMOVE INTEGRATION CONTROL AND PANEL ASSEMBLY (See page [IP-11](#))
43. REMOVE RADIO RECEIVER ASSEMBLY (See page [AV-55](#))

44. REMOVE PARKING BRAKE HOLE COVER SUB-ASSEMBLY (See page [IP-11](#))
45. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transmission) (See page [IP-11](#))
46. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for 4WD) (See page [IP-11](#))
47. REMOVE CONSOLE UPPER REAR PANEL SUB-ASSEMBLY (See page [IP-12](#))
48. REMOVE BOX BOTTOM MAT (See page [IP-12](#))
49. REMOVE FRONT CONSOLE BOX (See page [IP-12](#))
50. REMOVE CONSOLE UPPER PANEL NO. 1 GARNISH (See page [IP-12](#))
51. REMOVE INSTRUMENT LOWER COVER SUB-ASSEMBLY (See page [IP-13](#))
52. REMOVE NO. 1 INSTRUMENT PANEL REGISTER ASSEMBLY (See page [IP-13](#))
53. SEPARATE HOOD LOCK CONTROL LEVER SUB-ASSEMBLY (See page [IP-13](#))
54. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY LH (See page [IP-14](#))
55. REMOVE LOWER INSTRUMENT PANEL LH (See page [IP-14](#))
56. REMOVE INSTRUMENT CLUSTER FINISH PANEL (See page [IP-14](#))
57. REMOVE COMBINATION METER ASSEMBLY (See page [IP-14](#))
58. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY (See page [IP-15](#))
59. REMOVE INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH (See page [IP-15](#))
60. REMOVE NO. 2 INSTRUMENT PANEL REGISTER ASSEMBLY (See page [IP-16](#))
61. REMOVE NO. 2 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY (See page [IP-16](#))
62. REMOVE NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY (See page [IP-16](#))
63. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY (See page [AV-62](#))
64. REMOVE ASSIST GRIP RETAINER RH (See page [IP-16](#))
65. REMOVE ASSIST GRIP RETAINER LH (See page [IP-16](#))
66. DISCONNECT PASSENGER AIRBAG CONNECTOR (See page [IP-16](#))

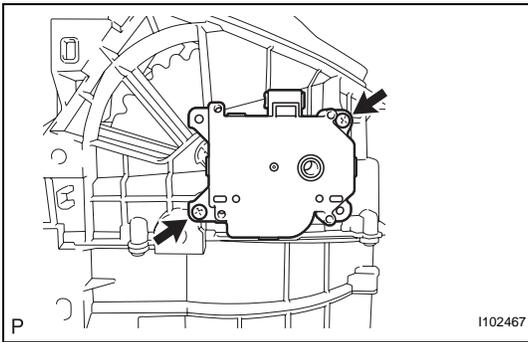
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67. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY (See page [IP-16](#))
68. REMOVE INSTRUMENT PANEL FINISH PANEL END LH (See page [IP-21](#))
69. REMOVE NO. 1 HEATER TO REGISTER DUCT (See page [AC-35](#))
70. REMOVE NO. 2 HEATER TO REGISTER DUCT (See page [AC-36](#))
71. REMOVE REAR NO. 1 AIR DUCT (See page [AC-36](#))
72. REMOVE REAR NO. 2 AIR DUCT (See page [AC-36](#))
73. REMOVE NO. 1 AIR DUCT (See page [AC-36](#))
74. REMOVE NO. 2 AIR DUCT (See page [AC-36](#))
75. REMOVE NO. 1 INSTRUMENT PANEL BRACE MOUNTING BRACKET (See page [AC-37](#))
76. REMOVE ECM (See page [ES-446](#))
77. REMOVE STEERING COLUMN HOLE COVER (See page [SR-9](#))
78. SEPARATE STEERING INTERMEDIATE SHAFT ASSEMBLY (See page [AC-37](#))
79. REMOVE STEERING COLUMN ASSEMBLY (See page [SR-10](#))
80. REMOVE INSTRUMENT PANEL SIDE BRACKET (See page [AC-37](#))
81. SEPARATE MAIN BODY ECU (DRIVER SIDE J/B) (See page [AC-38](#))
82. REMOVE COOLER UNIT DRAIN HOSE (See page [AC-38](#))
83. REMOVE INSTRUMENT PANEL REINFORCEMENT (See page [AC-38](#))
84. REMOVE BLOWER UNIT ASSEMBLY
  - (a) Remove the 2 screws.
  - (b) Remove the blower unit as shown in the illustration.

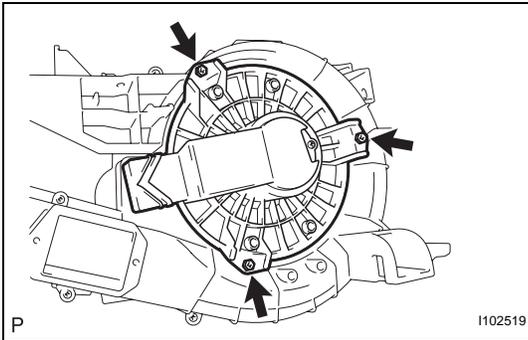


**DISASSEMBLY****1. REMOVE AIR INLET CONTROL SERVO MOTOR**

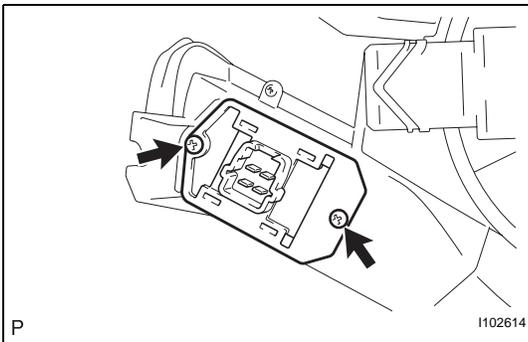
- (a) Remove the 2 screws and remove the air inlet control servo motor.

**2. REMOVE BLOWER MOTOR**

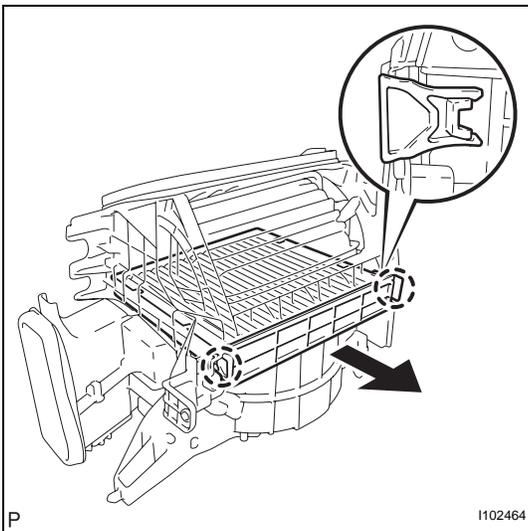
- (a) Remove the 3 screws and the blower motor.

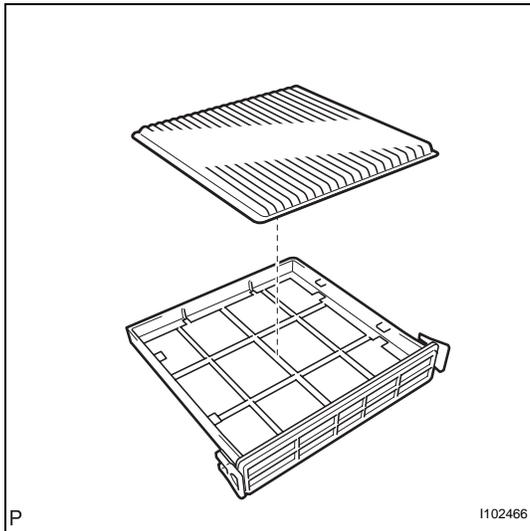
**3. REMOVE BLOWER RESISTOR**

- (a) Remove the 2 screws and the blower resistor.

**4. REMOVE CLEAN AIR FILTER SUB-ASSEMBLY**

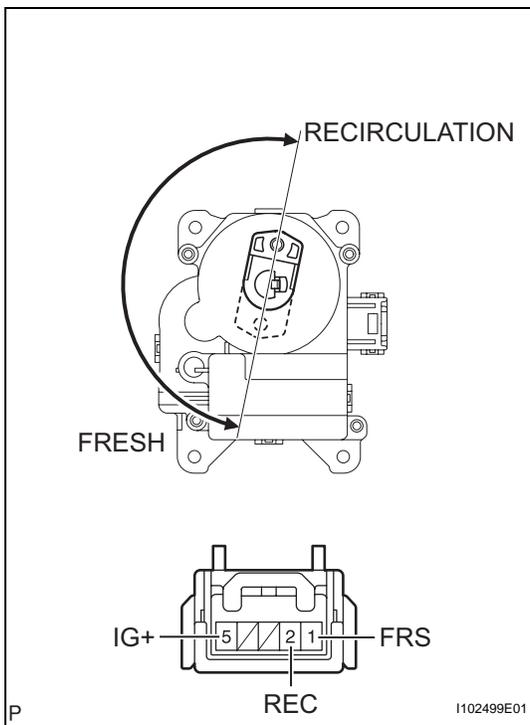
- (a) Disengage the 2 claws and remove the air filter.





## 5. REMOVE AIR REFINER ELEMENT

- (a) Remove the air refiner element.



## INSPECTION

### 1. INSPECT AIR INLET CONTROL SERVO MOTOR

- (a) Inspect the servo motor operation.

- (1) Connect the positive (+) lead from the battery to terminal 5 (IG+) and negative (-) lead to terminal 1 (FRS), then check that the lever turns to the FRESH side smoothly.

**Standard:**

**The motor operates smoothly.**

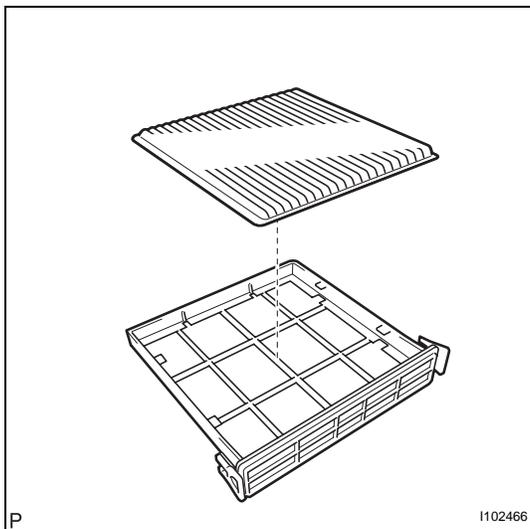
If the operations are not as specified, replace the air inlet control servo motor.

- (2) Connect the positive (+) lead from the battery to terminal 5 (IG+) and negative (-) lead to terminal 2 (REC), then check that the lever turns to the RECIRCULATION side smoothly.

**Standard:**

**The motor operates smoothly.**

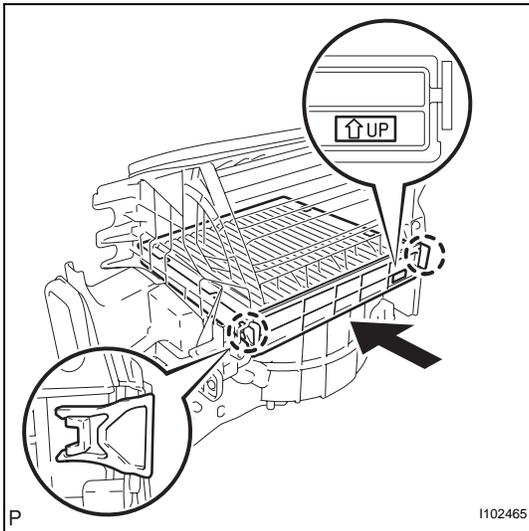
If the operations are not as specified, replace the air inlet control servo motor.



## REASSEMBLY

### 1. INSTALL AIR REFINER ELEMENT

- (a) Install the air refiner element.

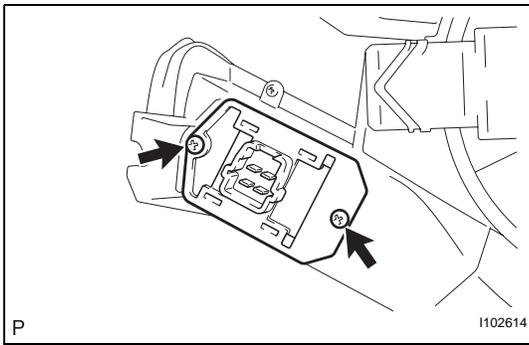


## 2. INSTALL CLEAN AIR FILTER SUB-ASSEMBLY

- (a) Engage the 2 claws and install the air filter.

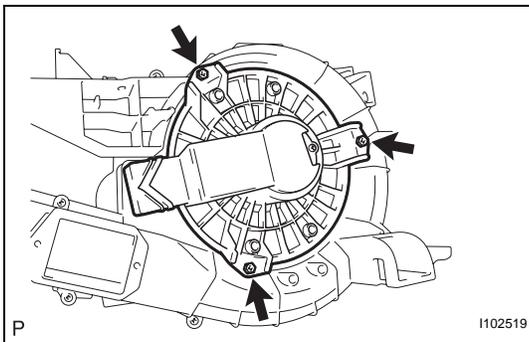
### NOTICE:

Install the air filter with its UP mark oriented in the correct direction.



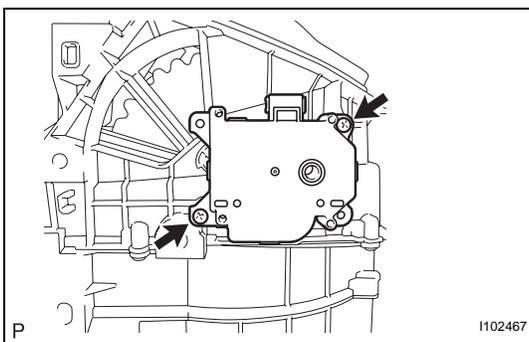
## 3. INSTALL BLOWER RESISTOR

- (a) Install the blower resistor with the 2 screws.



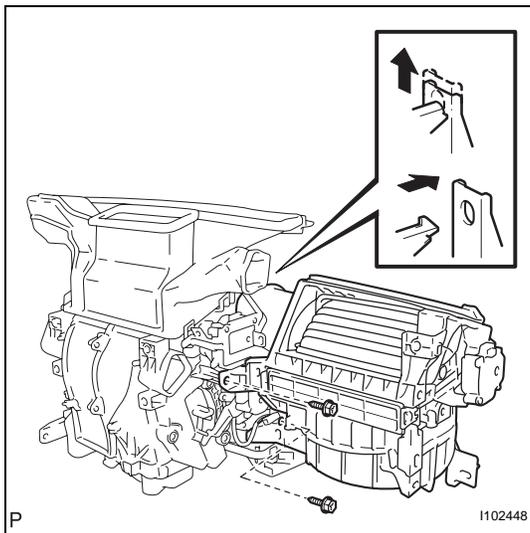
## 4. INSTALL BLOWER MOTOR

- (a) Install the blower motor with the 3 screws.



## 5. INSTALL AIR INLET CONTROL SERVO MOTOR

- (a) Install the air inlet control servo motor with the 2 screws.



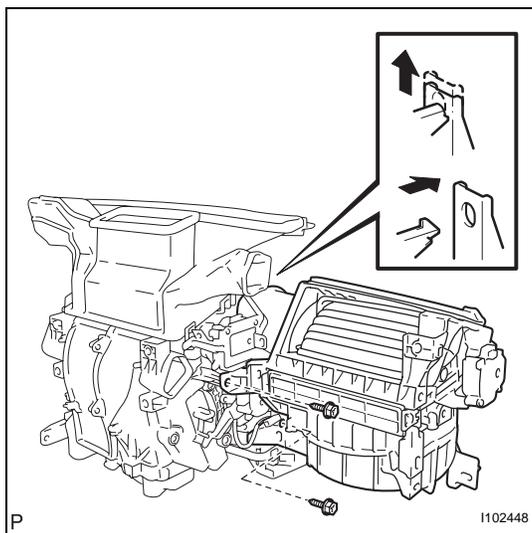
## INSTALLATION

1. **INSTALL BLOWER UNIT ASSEMBLY**
  - (a) Install the 2 screws and blower unit as shown in the illustration.
2. **INSTALL INSTRUMENT PANEL REINFORCEMENT** (See page [AC-49](#))
3. **INSTALL COOLER UNIT DRAIN HOSE** (See page [AC-51](#))
4. **INSTALL MAIN BODY ECU (DRIVER SIDE J/B)** (See page [AC-52](#))
5. **INSTALL INSTRUMENT PANEL SIDE BRACKET** (See page [AC-52](#))
6. **INSTALL STEERING COLUMN ASSEMBLY** (See page [SR-16](#))
7. **INSTALL STEERING INTERMEDIATE SHAFT ASSEMBLY** (See page [AC-52](#))
8. **INSTALL STEERING COLUMN HOLE COVER** (See page [SR-17](#))
9. **INSTALL ECM** (See page [ES-447](#))
10. **INSTALL NO. 1 INSTRUMENT PANEL BRACE BRACKET** (See page [AC-52](#))
11. **INSTALL NO. 1 AIR DUCT** (See page [AC-53](#))
12. **INSTALL NO. 2 AIR DUCT** (See page [AC-53](#))
13. **INSTALL REAR NO. 1 AIR DUCT** (See page [AC-53](#))
14. **INSTALL REAR NO. 2 AIR DUCT** (See page [AC-53](#))
15. **INSTALL NO. 1 HEATER TO REGISTER DUCT** (See page [AC-54](#))
16. **INSTALL NO. 2 HEATER TO REGISTER DUCT** (See page [AC-54](#))
17. **INSTALL INSTRUMENT PANEL SUB-ASSEMBLY** (See page [IP-26](#))
18. **CONNECT PASSENGER AIRBAG CONNECTOR** (See page [IP-26](#))
19. **INSTALL INSTRUMENT PANEL FINISH PANEL END LH** (See page [IP-27](#))
20. **INSTALL ASSIST GRIP RETAINER RH** (See page [IP-27](#))
21. **INSTALL ASSIST GRIP RETAINER LH** (See page [IP-27](#))
22. **INSTALL FRONT NO. 2 SPEAKER ASSEMBLY** (See page [AV-62](#))
23. **INSTALL NO. 2 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY** (See page [IP-27](#))

24. INSTALL NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY (See page [IP-27](#))
25. INSTALL NO. 2 INSTRUMENT PANEL REGISTER ASSEMBLY (See page [IP-27](#))
26. INSTALL INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH (See page [IP-28](#))
27. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY (See page [IP-28](#))
28. INSTALL COMBINATION METER ASSEMBLY (See page [IP-28](#))
29. INSTALL INSTRUMENT CLUSTER FINISH PANEL (See page [IP-29](#))
30. INSTALL LOWER INSTRUMENT PANEL LH (See page [IP-29](#))
31. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY LH (See page [IP-29](#))
32. CONNECT HOOD LOCK CONTROL LEVER SUB-ASSEMBLY (See page [IP-30](#))
33. INSTALL NO. 1 INSTRUMENT PANEL REGISTER ASSEMBLY (See page [IP-30](#))
34. INSTALL INSTRUMENT LOWER COVER SUB-ASSEMBLY (See page [IP-30](#))
35. INSTALL CONSOLE UPPER PANEL NO. 1 GARNISH (See page [IP-31](#))
36. INSTALL FRONT CONSOLE BOX (See page [IP-31](#))
37. INSTALL BOX BOTTOM MAT (See page [IP-31](#))
38. INSTALL CONSOLE UPPER REAR PANEL SUB-ASSEMBLY (See page [IP-31](#))
39. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transmission) (See page [IP-32](#))
40. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for 4WD) (See page [IP-32](#))
41. INSTALL PARKING BRAKE HOLE COVER SUB-ASSEMBLY (See page [IP-32](#))
42. INSTALL RADIO RECEIVER ASSEMBLY (See page [AV-56](#))
43. INSTALL INTEGRATION CONTROL AND PANEL ASSEMBLY (See page [IP-32](#))
44. INSTALL INSTRUMENT PANEL GARNISH LH (See page [IP-33](#))
45. INSTALL INSTRUMENT PANEL GARNISH RH (See page [IP-33](#))
46. INSTALL FRONT PILLAR GARNISH RH (See page [IR-43](#))

47. INSTALL FRONT PILLAR GARNISH LH (See page [IR-43](#))
48. INSTALL ASSIST GRIP ASSEMBLY (See page [IR-43](#))
49. INSTALL ASSIST GRIP PLUG (See page [IR-44](#))
50. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH (See page [IP-33](#))
51. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH (See page [IP-33](#))
52. INSTALL COWL SIDE TRIM BOARD RH (See page [IR-45](#))
53. INSTALL COWL SIDE TRIM BOARD LH (See page [IR-45](#))
54. INSTALL FOOTREST CLIP (See page [IR-2](#))
55. INSTALL FRONT FLOOR FOOTREST (See page [IR-2](#))
56. INSTALL FRONT DOOR SCUFF PLATE RH (See page [IR-45](#))
57. INSTALL FRONT DOOR SCUFF PLATE LH (See page [IR-45](#))
58. INSTALL COMBINATION SWITCH ASSEMBLY (See page [SR-17](#))
59. INSTALL UPPER STEERING COLUMN COVER (See page [SR-17](#))
60. INSTALL LOWER STEERING COLUMN COVER (See page [SR-18](#))
61. INSTALL STEERING WHEEL ASSEMBLY (See page [SR-18](#))
62. INSTALL STEERING PAD (See page [RS-346](#))
63. INSTALL LOWER NO. 2 STEERING WHEEL COVER (See page [RS-347](#))
64. INSTALL LOWER NO. 3 STEERING WHEEL COVER (See page [RS-347](#))
65. CONNECT HEATER WATER OUTLET HOSE A (FROM HEATER UNIT) (See page [AC-56](#))
66. CONNECT HEATER INLET WATER HOSE (See page [AC-56](#))
67. INSTALL COOLER REFRIGERANT LIQUID PIPE A (See page [AC-57](#))
68. INSTALL COOLER REFRIGERANT SUCTION PIPE A (See page [AC-57](#))
69. INSTALL COWL TOP VENTILATOR LOUVER LH (See page [WW-30](#))
70. INSTALL COWL TOP VENTILATOR LOUVER RH (See page [WW-30](#))

71. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page [WW-31](#))
72. INSTALL FRONT FENDER SIDE PANEL UPPER LH (See page [WW-31](#))
73. INSTALL FRONT FENDER SIDE PANEL UPPER RH (See page [WW-31](#))
74. INSTALL ANTENNA ORNAMENT (See page [WW-31](#))
75. INSTALL ROOF ANTENNA POLE SUB-ASSEMBLY (See page [AV-116](#))
76. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page [WW-32](#))
77. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (CENTER SIDE) (See page [WW-32](#))
78. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page [WW-33](#))
79. INSTALL WINDSHIELD WIPER ARM COVER (See page [WW-34](#))
80. ADD ENGINE COOLANT (See page [CO-3](#))
81. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL  
Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)
82. CHECK SRS WARNING LIGHT  
[RS-29](#)
83. CHARGE REFRIGERANT (See page [AC-16](#))
84. WARM UP ENGINE (See page [AC-18](#))
85. CHECK FOR ENGINE COOLANT LEAKAGE (See page [CO-4](#))
86. CHECK FOR REFRIGERANT LEAKAGE (See page [AC-18](#))
87. POSITION FRONT WHEELS FACING STRAIGHT AHEAD



## INSTALLATION

1. **INSTALL BLOWER UNIT ASSEMBLY**
  - (a) Install the 2 screws and blower unit as shown in the illustration.
2. **INSTALL INSTRUMENT PANEL REINFORCEMENT** (See page [AC-49](#))
3. **INSTALL COOLER UNIT DRAIN HOSE** (See page [AC-51](#))
4. **INSTALL MAIN BODY ECU (DRIVER SIDE J/B)** (See page [AC-52](#))
5. **INSTALL INSTRUMENT PANEL SIDE BRACKET** (See page [AC-52](#))
6. **INSTALL STEERING COLUMN ASSEMBLY** (See page [SR-16](#))
7. **INSTALL STEERING INTERMEDIATE SHAFT ASSEMBLY** (See page [AC-52](#))
8. **INSTALL STEERING COLUMN HOLE COVER** (See page [SR-17](#))
9. **INSTALL ECM** (See page [ES-447](#))
10. **INSTALL NO. 1 INSTRUMENT PANEL BRACE BRACKET** (See page [AC-52](#))
11. **INSTALL NO. 1 AIR DUCT** (See page [AC-53](#))
12. **INSTALL NO. 2 AIR DUCT** (See page [AC-53](#))
13. **INSTALL REAR NO. 1 AIR DUCT** (See page [AC-53](#))
14. **INSTALL REAR NO. 2 AIR DUCT** (See page [AC-53](#))
15. **INSTALL NO. 1 HEATER TO REGISTER DUCT** (See page [AC-54](#))
16. **INSTALL NO. 2 HEATER TO REGISTER DUCT** (See page [AC-54](#))
17. **INSTALL INSTRUMENT PANEL SUB-ASSEMBLY** (See page [IP-26](#))
18. **CONNECT PASSENGER AIRBAG CONNECTOR** (See page [IP-26](#))
19. **INSTALL INSTRUMENT PANEL FINISH PANEL END LH** (See page [IP-27](#))
20. **INSTALL ASSIST GRIP RETAINER RH** (See page [IP-27](#))
21. **INSTALL ASSIST GRIP RETAINER LH** (See page [IP-27](#))
22. **INSTALL FRONT NO. 2 SPEAKER ASSEMBLY** (See page [AV-62](#))
23. **INSTALL NO. 2 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY** (See page [IP-27](#))

24. INSTALL NO. 1 INSTRUMENT PANEL SPEAKER PANEL SUB-ASSEMBLY (See page [IP-27](#))
25. INSTALL NO. 2 INSTRUMENT PANEL REGISTER ASSEMBLY (See page [IP-27](#))
26. INSTALL INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH (See page [IP-28](#))
27. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY (See page [IP-28](#))
28. INSTALL COMBINATION METER ASSEMBLY (See page [IP-28](#))
29. INSTALL INSTRUMENT CLUSTER FINISH PANEL (See page [IP-29](#))
30. INSTALL LOWER INSTRUMENT PANEL LH (See page [IP-29](#))
31. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY LH (See page [IP-29](#))
32. CONNECT HOOD LOCK CONTROL LEVER SUB-ASSEMBLY (See page [IP-30](#))
33. INSTALL NO. 1 INSTRUMENT PANEL REGISTER ASSEMBLY (See page [IP-30](#))
34. INSTALL INSTRUMENT LOWER COVER SUB-ASSEMBLY (See page [IP-30](#))
35. INSTALL CONSOLE UPPER PANEL NO. 1 GARNISH (See page [IP-31](#))
36. INSTALL FRONT CONSOLE BOX (See page [IP-31](#))
37. INSTALL BOX BOTTOM MAT (See page [IP-31](#))
38. INSTALL CONSOLE UPPER REAR PANEL SUB-ASSEMBLY (See page [IP-31](#))
39. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transmission) (See page [IP-32](#))
40. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for 4WD) (See page [IP-32](#))
41. INSTALL PARKING BRAKE HOLE COVER SUB-ASSEMBLY (See page [IP-32](#))
42. INSTALL RADIO RECEIVER ASSEMBLY (See page [AV-56](#))
43. INSTALL INTEGRATION CONTROL AND PANEL ASSEMBLY (See page [IP-32](#))
44. INSTALL INSTRUMENT PANEL GARNISH LH (See page [IP-33](#))
45. INSTALL INSTRUMENT PANEL GARNISH RH (See page [IP-33](#))
46. INSTALL FRONT PILLAR GARNISH RH (See page [IR-43](#))

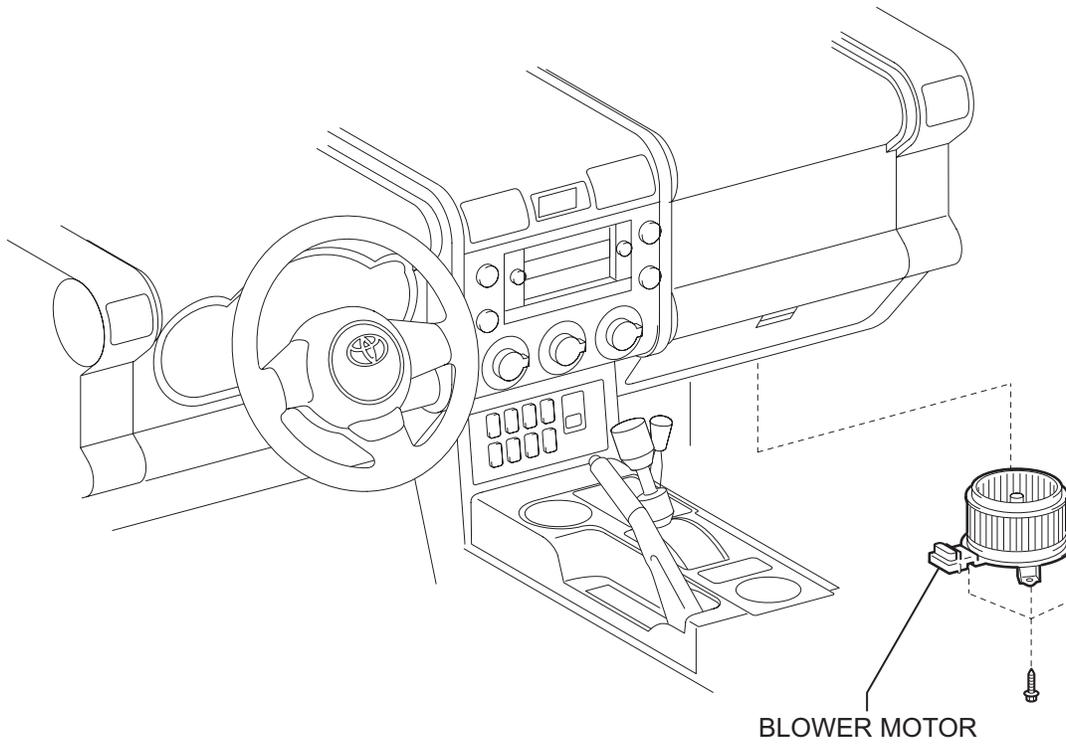
47. INSTALL FRONT PILLAR GARNISH LH (See page [IR-43](#))
48. INSTALL ASSIST GRIP ASSEMBLY (See page [IR-43](#))
49. INSTALL ASSIST GRIP PLUG (See page [IR-44](#))
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52. INSTALL COWL SIDE TRIM BOARD RH (See page [IR-45](#))
53. INSTALL COWL SIDE TRIM BOARD LH (See page [IR-45](#))
54. INSTALL FOOTREST CLIP (See page [IR-2](#))
55. INSTALL FRONT FLOOR FOOTREST (See page [IR-2](#))
56. INSTALL FRONT DOOR SCUFF PLATE RH (See page [IR-45](#))
57. INSTALL FRONT DOOR SCUFF PLATE LH (See page [IR-45](#))
58. INSTALL COMBINATION SWITCH ASSEMBLY (See page [SR-17](#))
59. INSTALL UPPER STEERING COLUMN COVER (See page [SR-17](#))
60. INSTALL LOWER STEERING COLUMN COVER (See page [SR-18](#))
61. INSTALL STEERING WHEEL ASSEMBLY (See page [SR-18](#))
62. INSTALL STEERING PAD (See page [RS-346](#))
63. INSTALL LOWER NO. 2 STEERING WHEEL COVER (See page [RS-347](#))
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67. INSTALL COOLER REFRIGERANT LIQUID PIPE A (See page [AC-57](#))
68. INSTALL COOLER REFRIGERANT SUCTION PIPE A (See page [AC-57](#))
69. INSTALL COWL TOP VENTILATOR LOUVER LH (See page [WW-30](#))
70. INSTALL COWL TOP VENTILATOR LOUVER RH (See page [WW-30](#))

71. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page [WW-31](#))
72. INSTALL FRONT FENDER SIDE PANEL UPPER LH (See page [WW-31](#))
73. INSTALL FRONT FENDER SIDE PANEL UPPER RH (See page [WW-31](#))
74. INSTALL ANTENNA ORNAMENT (See page [WW-31](#))
75. INSTALL ROOF ANTENNA POLE SUB-ASSEMBLY (See page [AV-116](#))
76. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page [WW-32](#))
77. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (CENTER SIDE) (See page [WW-32](#))
78. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page [WW-33](#))
79. INSTALL WINDSHIELD WIPER ARM COVER (See page [WW-34](#))
80. ADD ENGINE COOLANT (See page [CO-3](#))
81. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL  
Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)
82. CHECK SRS WARNING LIGHT  
[RS-29](#)
83. CHARGE REFRIGERANT (See page [AC-16](#))
84. WARM UP ENGINE (See page [AC-18](#))
85. CHECK FOR ENGINE COOLANT LEAKAGE (See page [CO-4](#))
86. CHECK FOR REFRIGERANT LEAKAGE (See page [AC-18](#))
87. POSITION FRONT WHEELS FACING STRAIGHT AHEAD

# BLOWER MOTOR

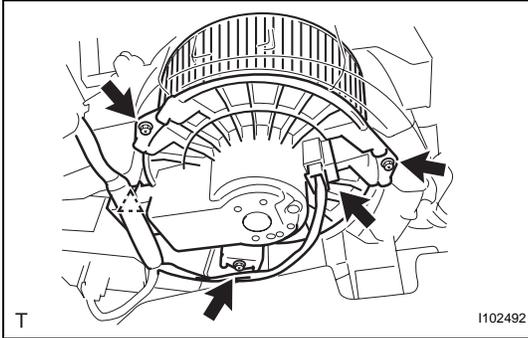
## COMPONENTS

AC



## REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE BLOWER MOTOR**
  - (a) Disconnect the connector and the clamp.
  - (b) Remove the 3 screws and the blower motor.



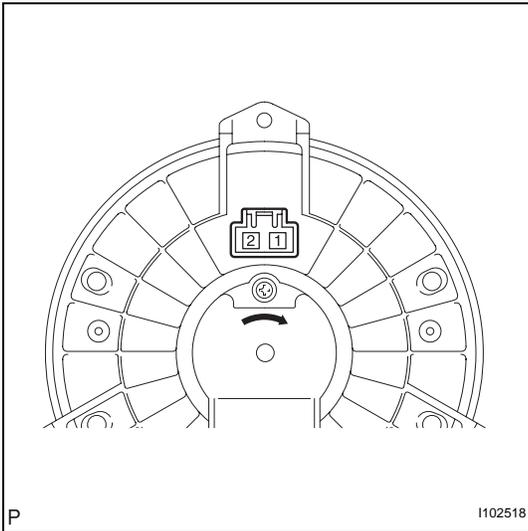
## INSPECTION

1. **INSPECT BLOWER MOTOR**
  - (a) Connect the positive (+) lead from the battery to terminal 2 and the negative (-) lead to terminal 1, then check that the motor operates smoothly.
 

**OK:**  
**The motor operates smoothly.**

 If the operation is not as specified, replace the blower motor.
  - (b) Measure the current.
 

**Standard current**



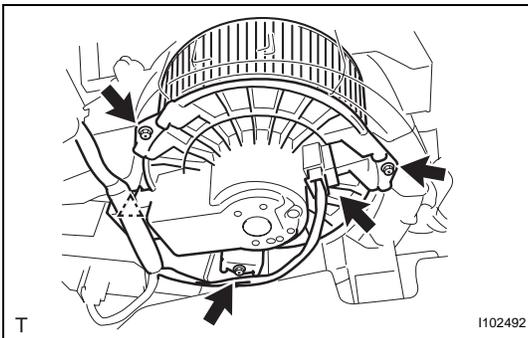
Tester Connection	Condition	Specified Condition
1 - 2	Blower motor operates	1 to 3.5 A

If the current value is not as specified, replace the blower motor.

## INSTALLATION

1. **INSTALL BLOWER MOTOR**
  - (a) Install the blower motor with the 3 screws.
  - (b) Connect the connector and the clamp.
2. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

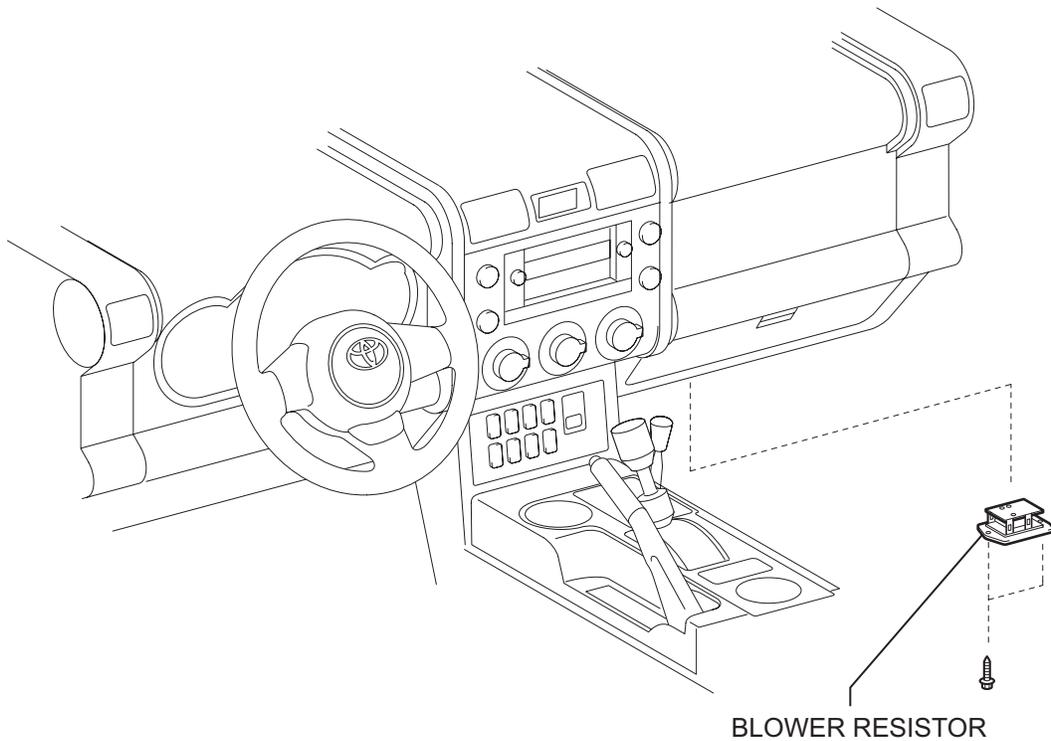
**Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)**



# BLOWER RESISTOR

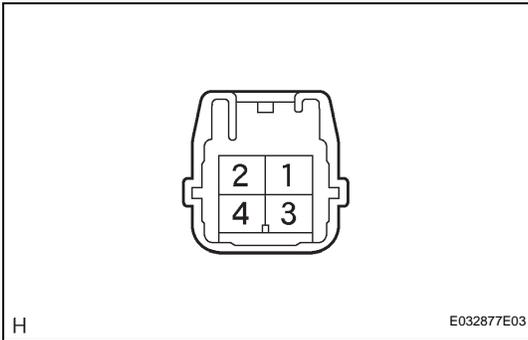
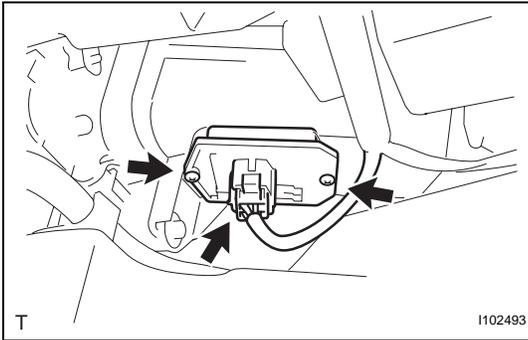
## COMPONENTS

AC



## REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE BLOWER RESISTOR**
  - (a) Disconnect the connector.
  - (b) Remove the 2 screws and the blower resistor.



## INSPECTION

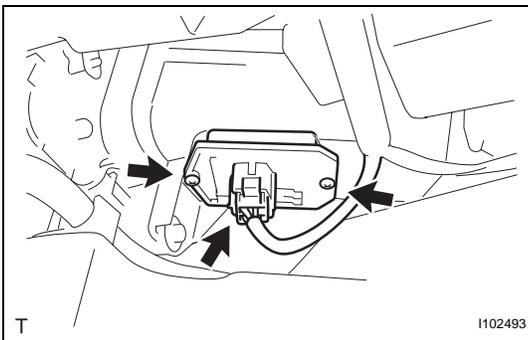
1. **INSPECT BLOWER RESISTOR**
    - (a) Measure the resistance.
- Standard resistance**

Tester connection	Specified condition
1 - 2	0.83 to 0.95 Ω
1 - 3	0.31 to 0.35 Ω
1 - 4	1.76 to 2.02 Ω

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

## INSTALLATION

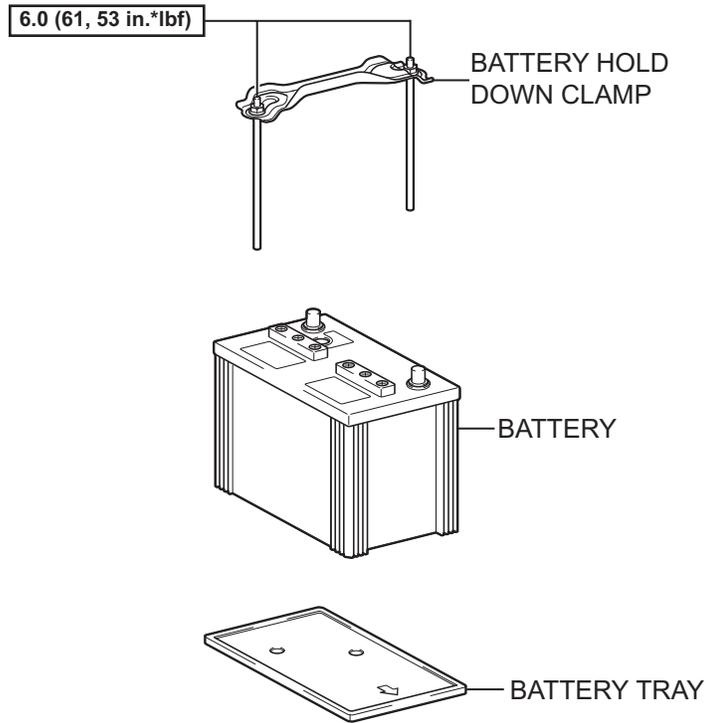
1. **INSTALL BLOWER RESISTOR**
  - (a) Install the blower resistor with the 2 screws.
  - (b) Connect the connector.
2. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**  
**Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)**



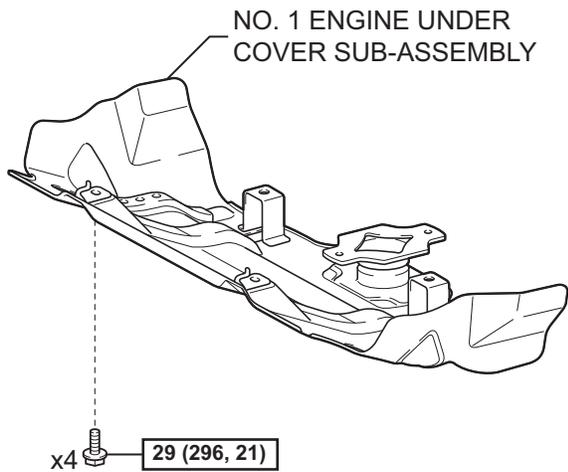
# COMPRESSOR AND MAGNETIC CLUTCH

## COMPONENTS

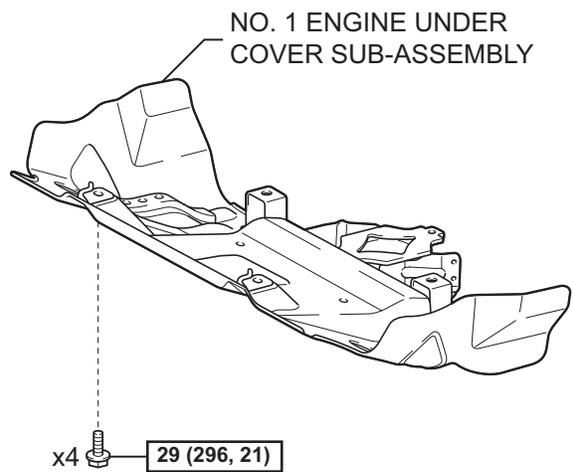
AC



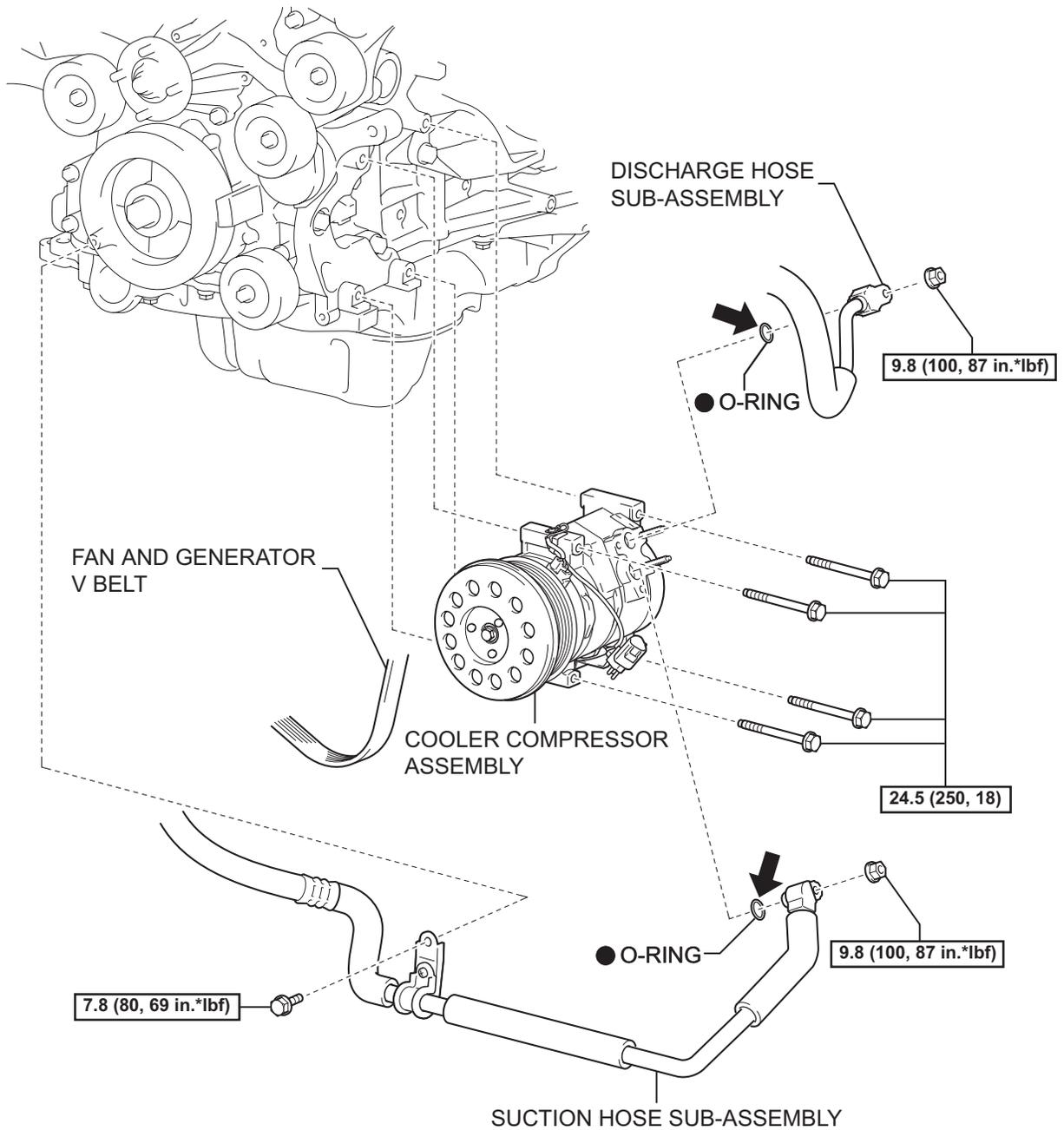
for 2WD:



for 4WD:



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

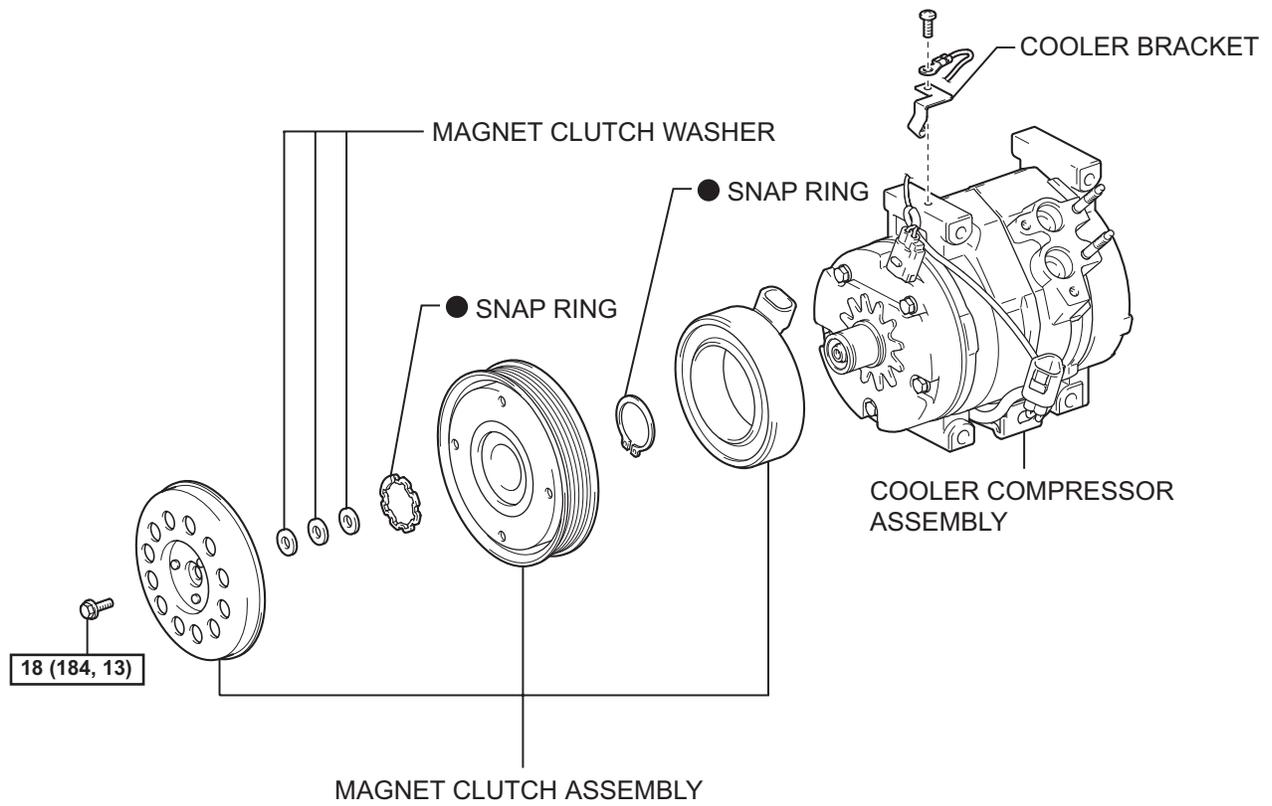


$\boxed{\text{N*m (kgf*cm, ft.*lbf)}}$  : Specified torque

← Compressor Oil ND-8 or equivalent

● Non-reusable part

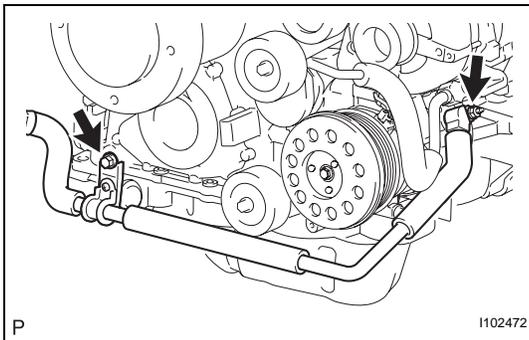
AC



**N\*m (kgf\*cm, ft.\*lbf)** : Specified torque      ● Non-reusable part

## REMOVAL

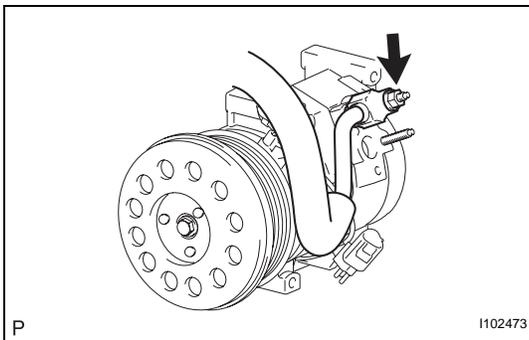
1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page [AC-16](#))
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
3. REMOVE BATTERY HOLD DOWN CLAMP
4. REMOVE BATTERY
5. REMOVE BATTERY TRAY
6. REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (See page [EM-6](#))
7. REMOVE FAN AND GENERATOR V BELT (See page [EM-6](#))



8. DISCONNECT SUCTION HOSE SUB-ASSEMBLY
  - (a) Remove the bolt and separate the suction hose.
  - (b) Remove the nut and disconnect the suction hose.
  - (c) Remove the O-ring from the suction hose.

**NOTICE:**

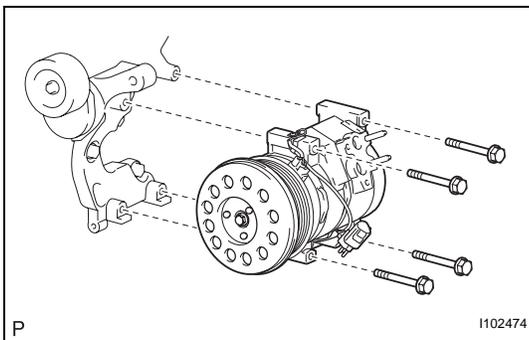
Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering.



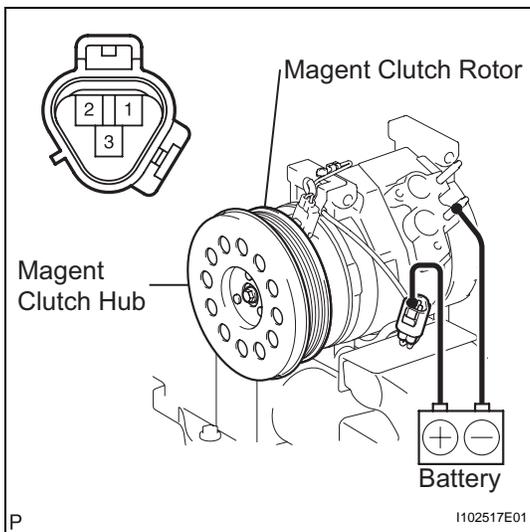
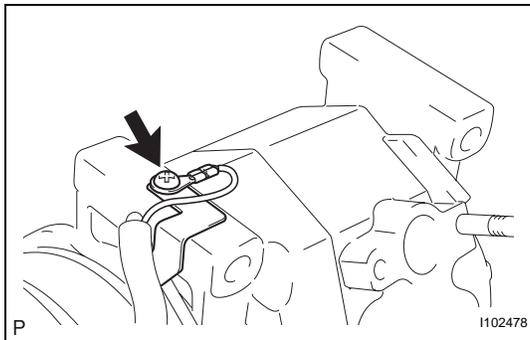
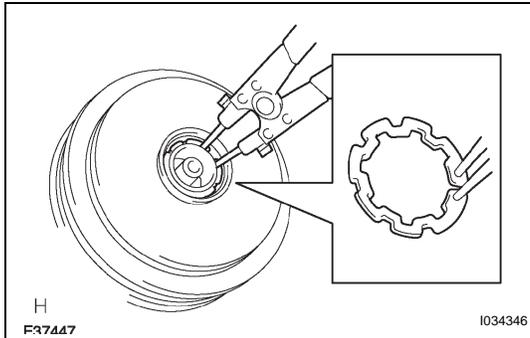
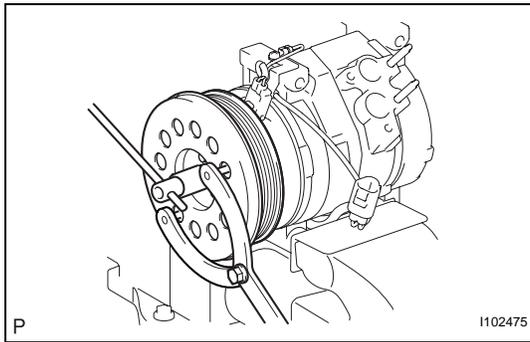
9. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY
  - (a) Remove the nut and disconnect the discharge hose.
  - (b) Remove the O-ring from the discharge hose.

**NOTICE:**

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



10. REMOVE COOLER COMPRESSOR ASSEMBLY
  - (a) Disconnect the connector.
  - (b) Remove the 4 bolts and compressor.



## DISASSEMBLY

### 1. REMOVE MAGNET CLUTCH ASSEMBLY

- (a) Clamp the cooler compressor in a vise.
- (b) Using SST, hold the magnet clutch hub.  
**SST 09960-10010 (09962-01000, 09963-00500)**
- (c) Remove the bolt, magnet clutch hub and magnet clutch washer.

#### HINT:

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

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

#### NOTICE:

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

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

### 2. REMOVE COOLER BRACKET

- (a) Remove the screw and the cooler bracket.

## INSPECTION

### 1. INSPECT MAGNET CLUTCH ASSEMBLY

- (a) Check the magnet clutch operation.
  - (1) Confirm that the magnet clutch hub and magnet clutch rotor lock when the battery positive lead is connected to terminal 3 (MG+) of the magnet clutch, and the negative lead is connected to the earth wire.  
If the operation is not as specified, replace the magnet clutch assembly.

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

#### Standard resistance:

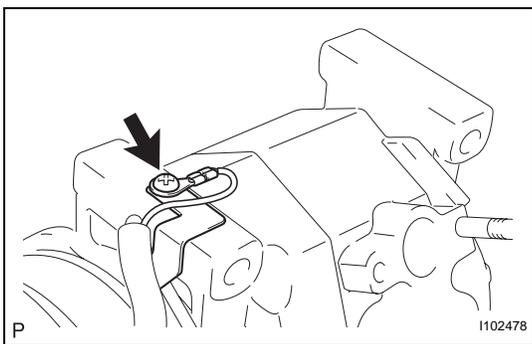
**165 to 205  $\Omega$  at 25°C (77°F)**

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

## REASSEMBLY

### 1. INSTALL COOLER BRACKET

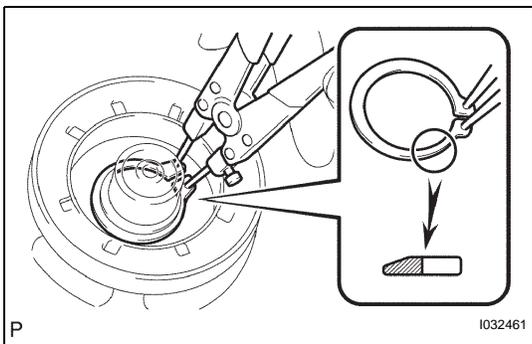
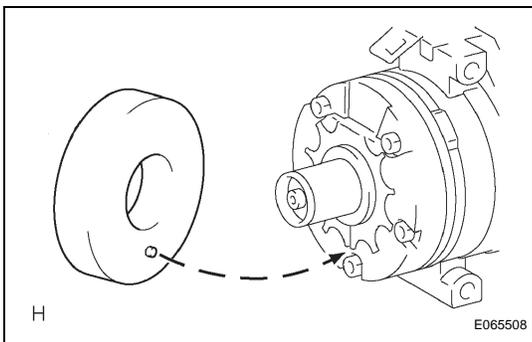
- (a) Install the cooler bracket with the screw.



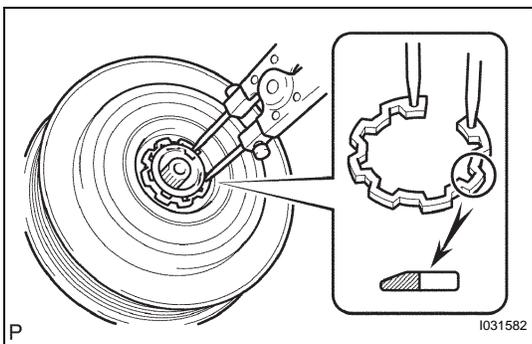
### 2. INSTALL MAGNET CLUTCH ASSEMBLY

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

- (a) Install the magnet clutch stator with the parts shown in the illustration matched.



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

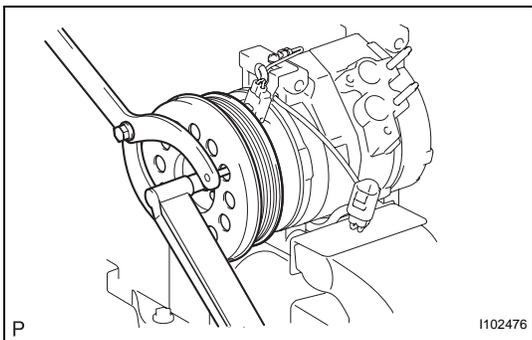


- (d) Using SST, install the magnet clutch rotor and a new snap ring with the chamfered side facing up.

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

- (e) Install the compressor spacer and magnet clutch hub.

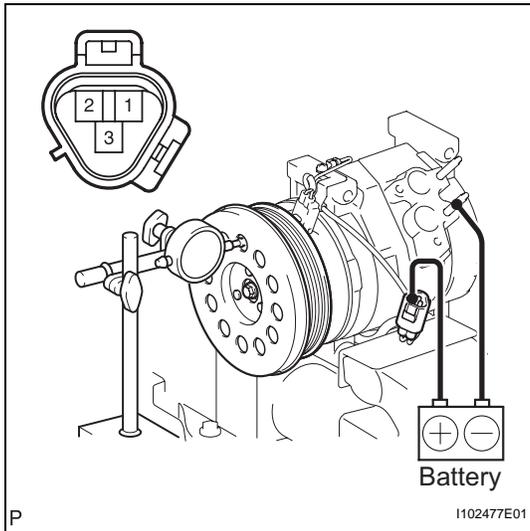
**NOTICE:**  
**Do not change the combination of the compressor spacer used before disassembly.**



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

**SST 09960-10010 (09962-01000, 09963-00500)**  
**Torque: 18 N\*m (184 kgf\*cm, 13 ft.\*lbf)**

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



### 3. INSPECT MAGNET CLUTCH CLEARANCE

- (a) Clamp the cooler compressor in a vise.
- (b) Set the dial indicator to the magnet clutch hub.
- (c) Connect the battery positive lead to terminal 3 (MG+) of the magnet clutch connector and the negative lead to the earth wire. Turn the magnet clutch on and off and measure the clearance.

#### Standard clearance:

**0.35 to 0.60 mm (0.014 to 0.024 in.)**

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

#### Compressor spacer thickness:

**0.1 mm (0.004 in.)**

**0.3 mm (0.012 in.)**

**0.5 mm (0.020 in.)**

#### NOTICE:

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

- (d) Remove the cooler compressor from the vise.

## INSTALLATION

### 1. ADJUST COMPRESSOR OIL

- (a) When replacing the compressor with a new one, gradually discharge the refrigerant gas from the service valve. Then drain the following amount of oil from the new compressor before installation, so that the amount of oil contained in it is the same as that in the compressor to be replaced.

#### HINT:

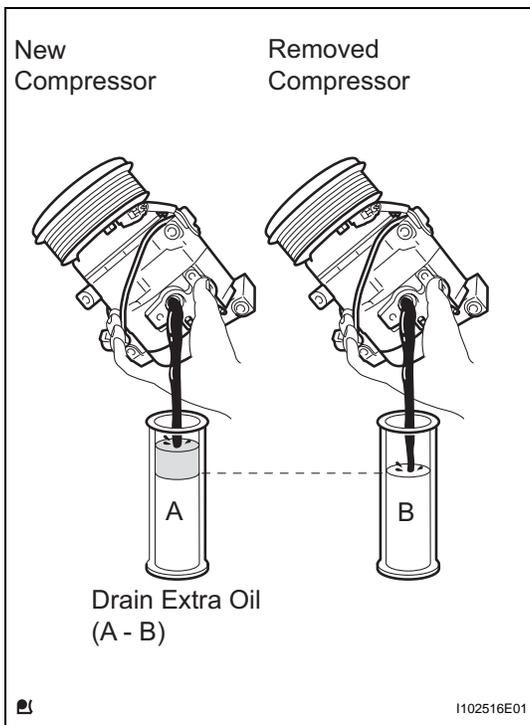
New compressors are filled with sufficient oil for the whole cycle. Therefore, it is necessary to drain residual oil from the condenser and cooling unit.

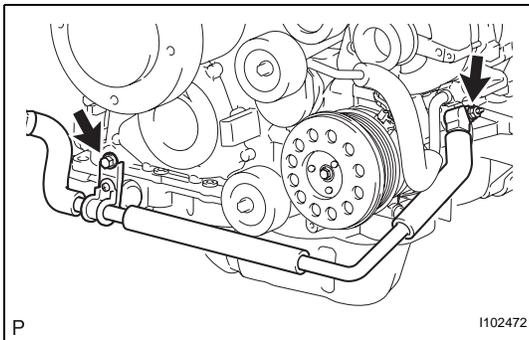
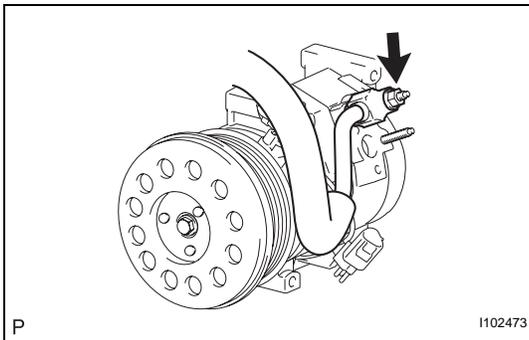
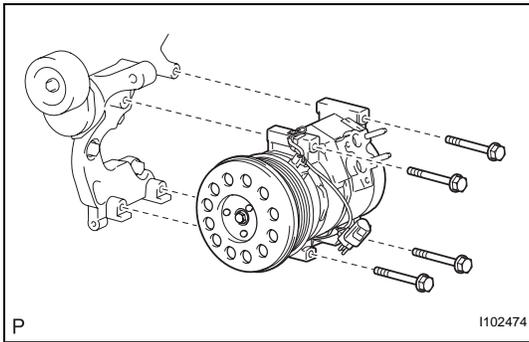
#### Standard:

**(The amount of oil inside a new compressor: 120 (+15) cc (4.1 (+0.51) fl.oz.) - (The amount of oil remaining in the removed compressor) = The amount of oil to be removed when replacing the compressor**

#### NOTICE:

- When checking the compressor oil level, observe the precautions for cooler removal/installation.
- If a new compressor is installed without removing the amount of oil remaining in the pipes of the vehicle, the amount of oil becomes too large. This prevents heat exchange in the refrigerant cycle and causes refrigeration failure.
- If the amount of oil remaining in the removed compressor is too small, check for oil leakage.
- Use ND-OIL8 compressor oil.





## 2. INSTALL COOLER COMPRESSOR ASSEMBLY

- (a) Install the compressor with the 4 bolts.  
**Torque: 24.5 N\*m (250 kgf\*cm, 18 ft.\*lbf)**
- (b) Connect the connector.

## 3. INSTALL DISCHARGE HOSE SUB-ASSEMBLY

- (a) Remove the attached vinyl tape from the hose.
- (b) Apply sufficient compressor oil (ND-OIL8) to a new O-ring and the fitting surface of the compressor.

### Compressor oil:

**ND-OIL8 or the equivalent**

- (c) Install the O-ring onto the discharge hose.
- (d) Install the discharge hose onto the compressor with the nut.

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

## 4. INSTALL SUCTION HOSE SUB-ASSEMBLY

- (a) Remove the attached vinyl tape from the hose.
- (b) Apply sufficient compressor oil (ND-OIL8) to a new O-ring and the fitting surface of the compressor.

### Compressor oil:

**ND-OIL8 or the equivalent**

- (c) Install the O-ring onto the suction hose.
- (d) Install the suction hose onto the compressor with the nut.

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

- (e) Install the suction hose with the bolt.

**Torque: 7.8 N\*m (80 kgf\*cm, 69 in.\*lbf)**

## 5. INSTALL FAN AND GENERATOR V BELT (See page [EM-6](#))

## 6. INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY

## 7. INSTALL BATTERY TRAY

## 8. INSTALL BATTERY

## 9. INSTALL BATTERY HOLD DOWN CLAMP Torque: 6.0 N\*m (61 kgf\*cm, 53 in.\*lbf)

## 10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)**

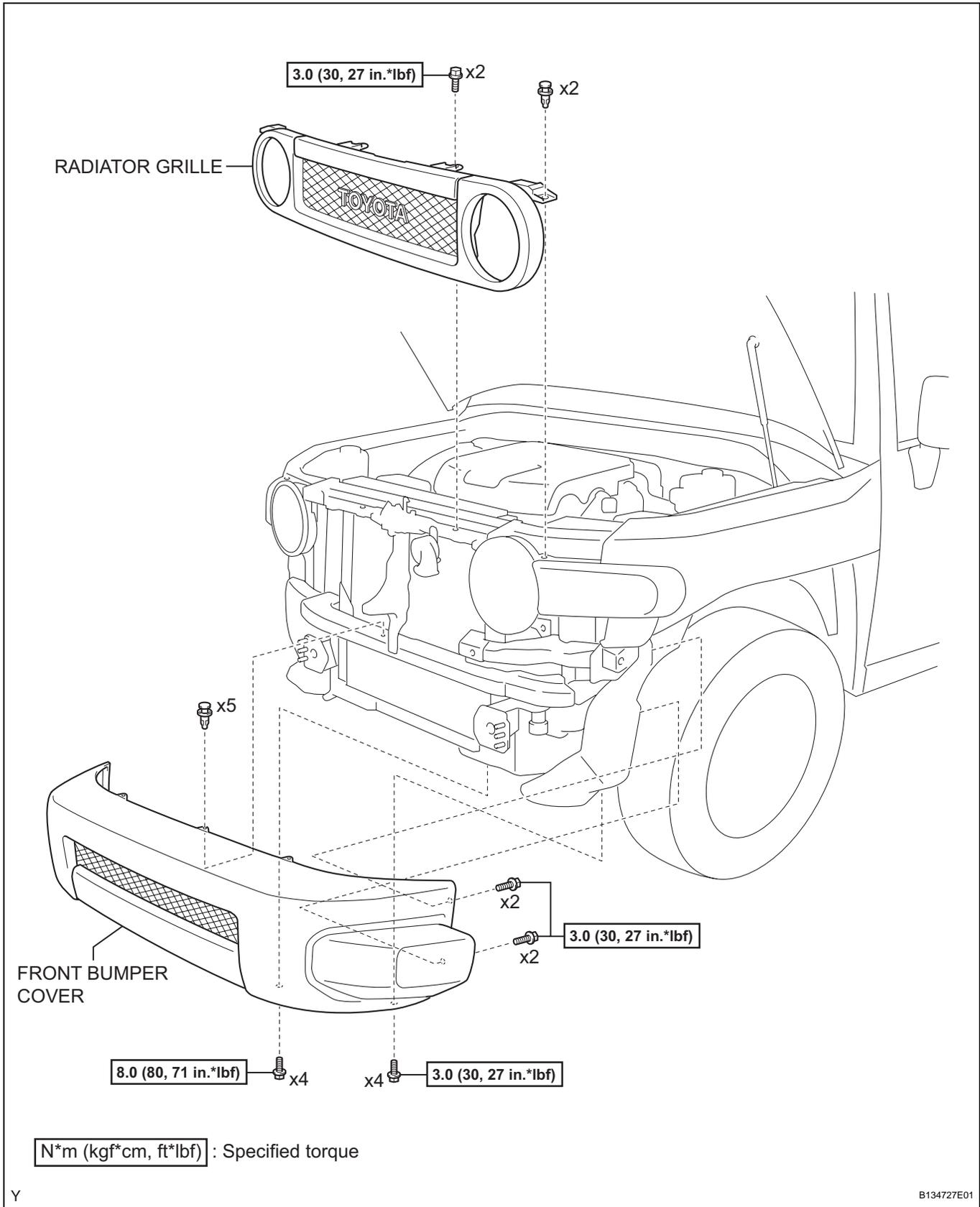
## 11. CHARGE REFRIGERANT (See page [AC-16](#))

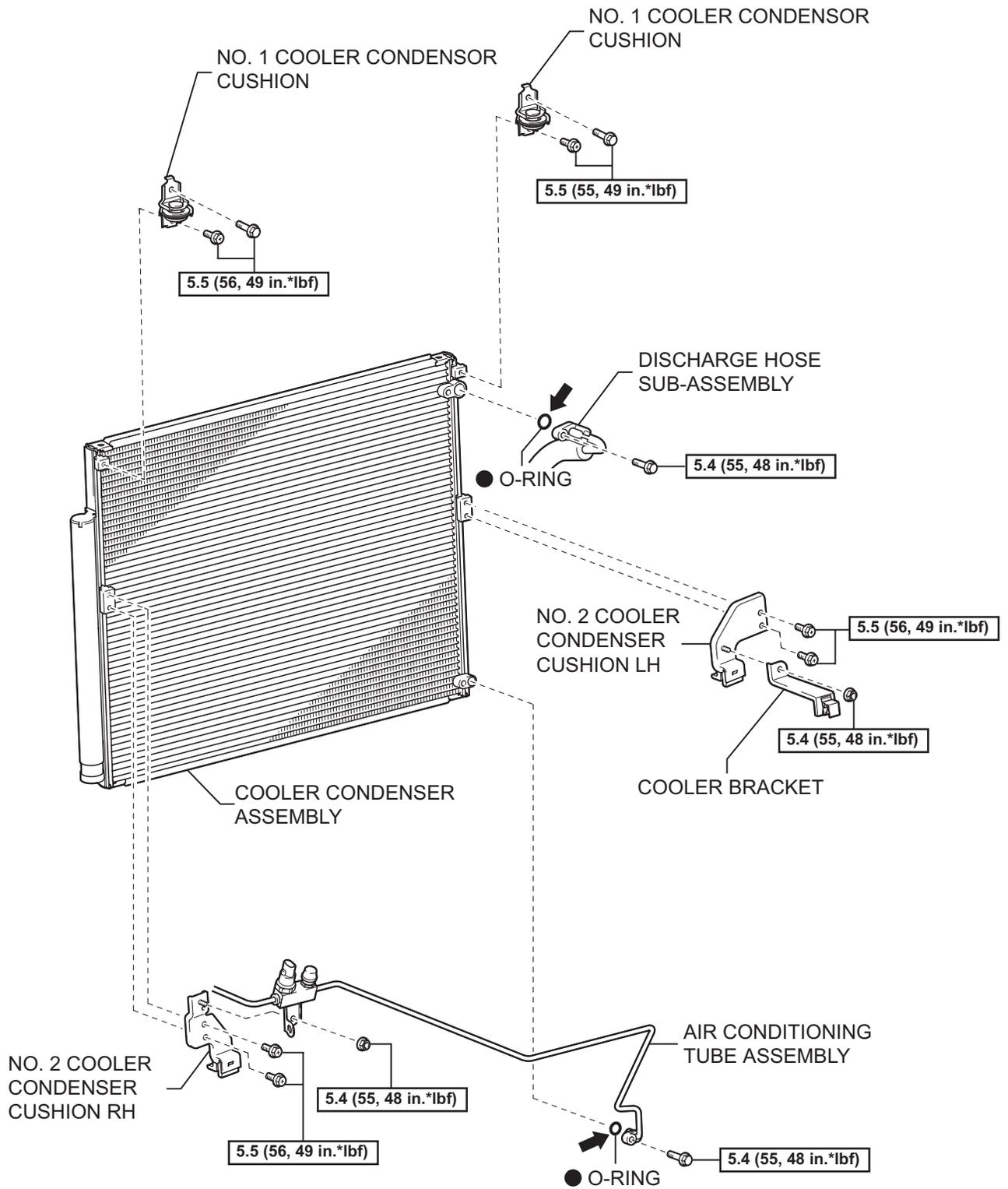
## 12. WARM UP ENGINE (See page [AC-18](#))

## 13. CHECK FOR REFRIGERANT LEAKAGE (See page [AC-18](#))

# CONDENSER COMPONENTS

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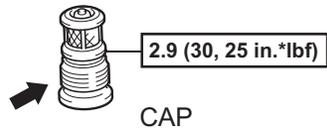
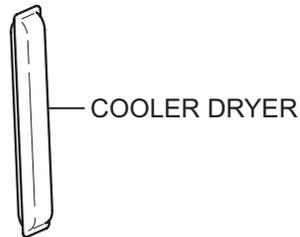
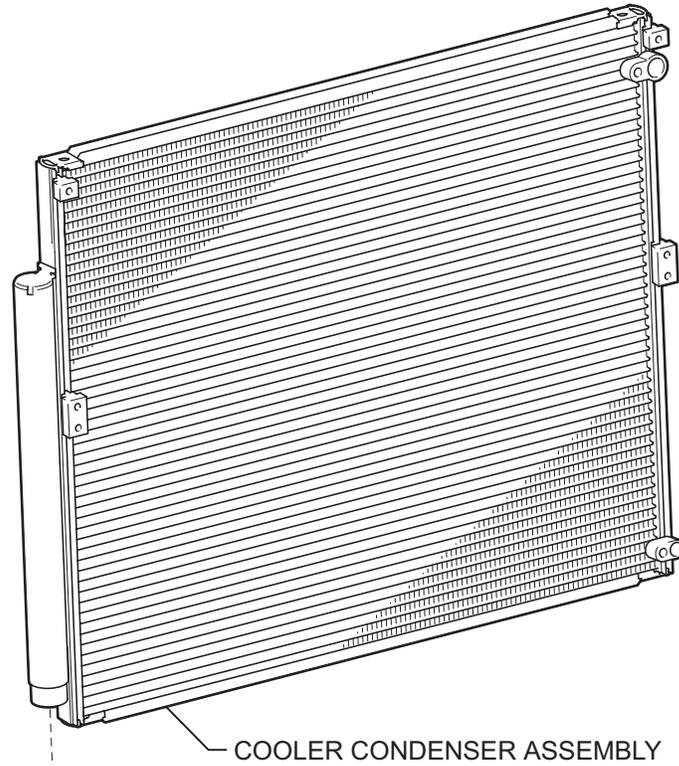




**N\*m (kgf\*cm, ft.\*lbf) :** Specified torque

← Compressor Oil ND-8 or equivalent      ● Non-reusable part

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

← Compressor Oil ND-8 or equivalent

---

## ON-VEHICLE INSPECTION

### 1. INSPECT COOLER CONDENSER ASSEMBLY

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

**NOTICE:**

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

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

### 2. CHECK CONDENSER FOR REFRIGERANT LEAKAGE

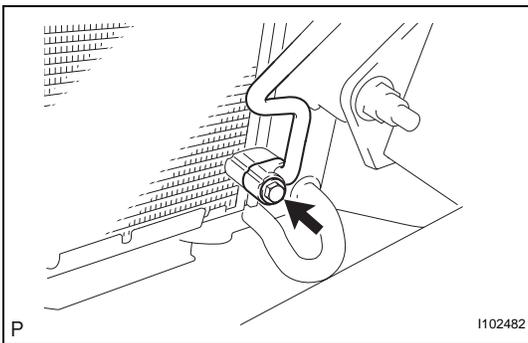
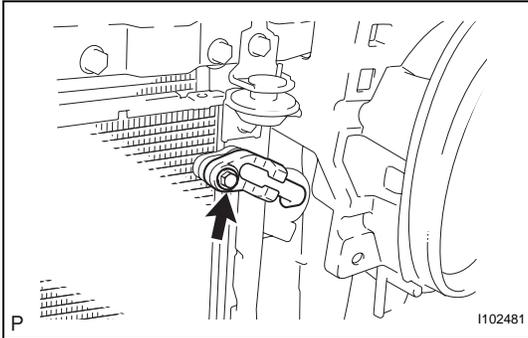
- (a) Check the pipe joints for gas leakage, using a halogen leak detector.
- (b) Check the tightening torque of the joints if gas leakage is detected from any pipe joints.

## REMOVAL

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page AC-16)
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
3. REMOVE RADIATOR GRILLE (See page ET-4)
4. REMOVE FRONT BUMPER COVER (See page ET-4)
5. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY
  - (a) Remove the bolt and disconnect the discharge hose from the cooler condenser.
  - (b) Remove the O-ring from the discharge hose.

**NOTICE:**

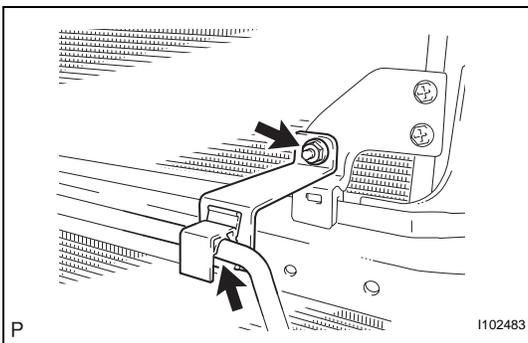
Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering.



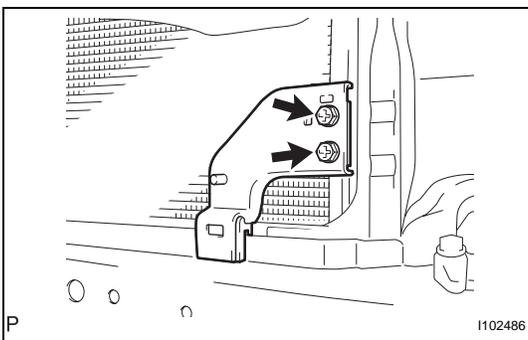
6. DISCONNECT AIR CONDITIONING TUBE ASSEMBLY
  - (a) Remove the bolt and disconnect the air conditioning tube from the cooler condenser.
  - (b) Remove the O-ring from the air conditioning tube.

**NOTICE:**

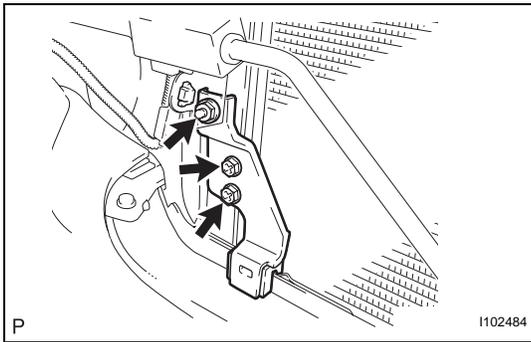
Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering.



7. REMOVE COOLER BRACKET
  - (a) Remove the nut.
  - (b) Disengage the clamp and remove the cooler bracket.

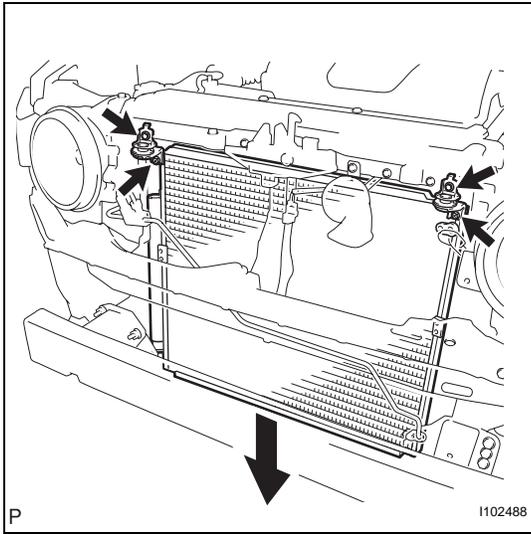


8. REMOVE NO. 2 COOLER CONDENSER CUSHION LH
  - (a) Remove the 2 bolts and remove the cooler condenser cushion.



**9. REMOVE NO. 2 COOLER CONDENSER CUSHION RH**

- (a) Remove the 2 bolts and nut and remove the cooler condenser cushion.



**10. REMOVE COOLER CONDENSER ASSEMBLY**

- (a) Remove the 4 bolts and remove the cooler condenser cushion.

**NOTICE:**

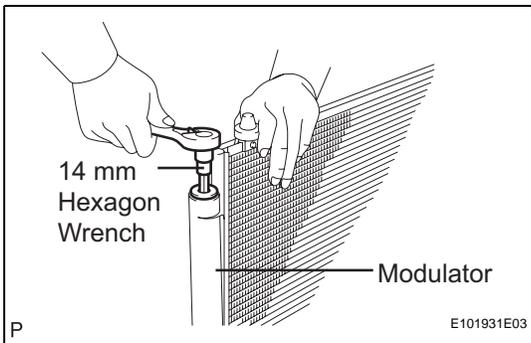
**Hold the cooler condenser by hand to prevent it from falling off when removing the cushion.**

- (b) Remove the condenser from the vehicle.

**NOTICE:**

**Do not damage the condenser or radiator when removing the condenser.**

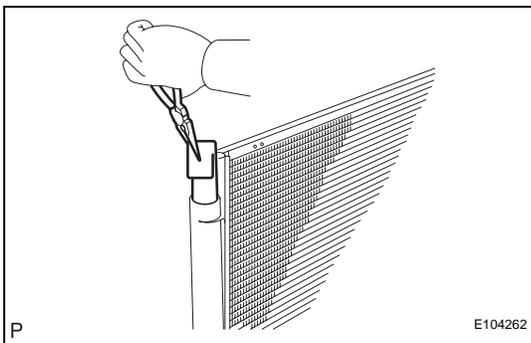
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**DISASSEMBLY**

**1. REMOVE COOLER DRYER**

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

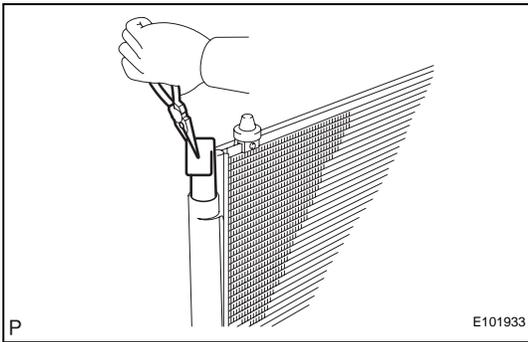


- (b) Using pliers, remove the cooler dryer.

## REASSEMBLY

### 1. INSTALL COOLER DRYER

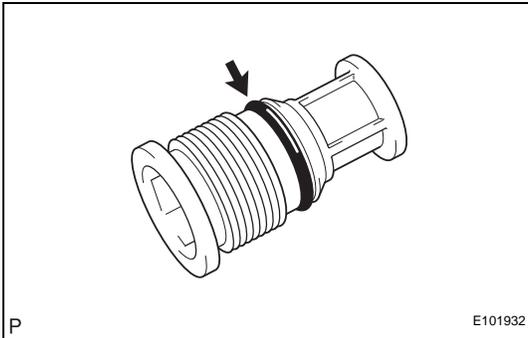
- (a) Using pliers, install the cooler dryer onto the modulator.



- (b) Apply sufficient compressor oil to the O-ring and the fitting surface of the cap.

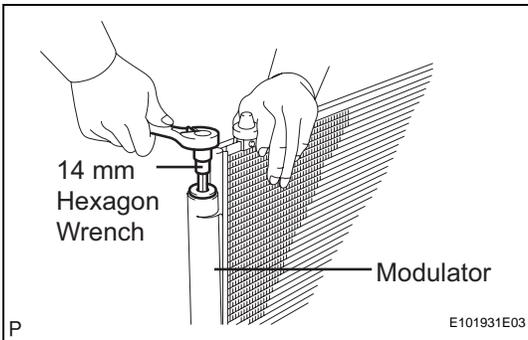
**Compressor oil:**

**ND-OIL 8 or the equivalent**



- (c) Using a 14 mm straight hexagon wrench, install the cap onto the modulator.

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



## INSTALLATION

### 1. INSTALL COOLER CONDENSER ASSEMBLY

- (a) Install the condenser into the vehicle.

**NOTICE:**

**Do not damage the condenser or radiator when installing the condenser.**

**HINT:**

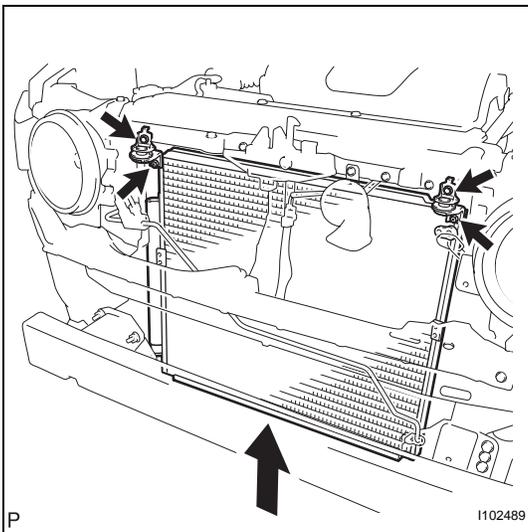
If a new condenser is installed, add compressor oil to the condenser as follows.

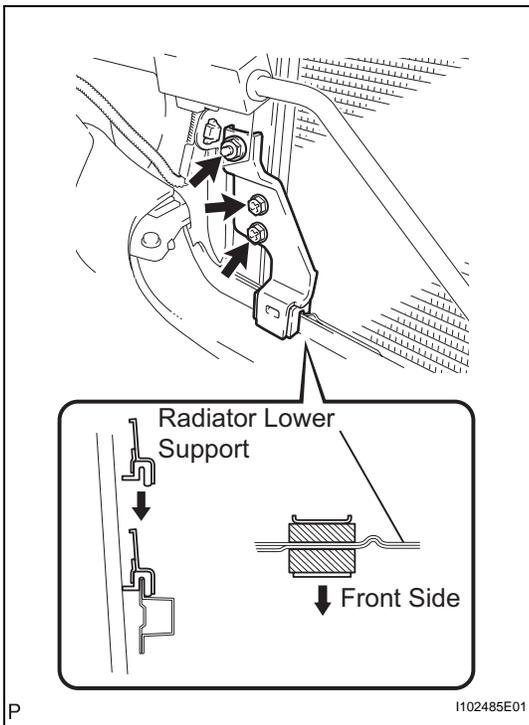
**Compressor oil:**

**ND-OIL8 or the equivalent. Add 40 cc (1.35 fl. oz.)**

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

**Torque: 5.5 N\*m (56 kgf\*cm, 49 in.\*lbf)**





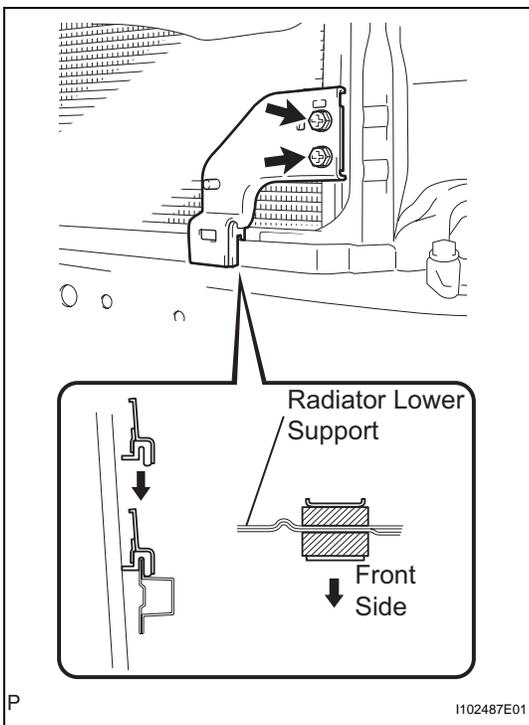
**2. INSTALL NO. 2 COOLER CONDENSER CUSHION RH**

- (a) Install the cooler condenser cushion with the 2 bolts and nut.

**NOTICE:**

Securely insert the cooler condenser cushion into the radiator lower support.

Torque: 5.5 N\*m (56 kgf\*cm, 49 in.\*lbf) for bolt  
5.4 N\*m (55 kgf\*cm, 48 in.\*lbf) for nut



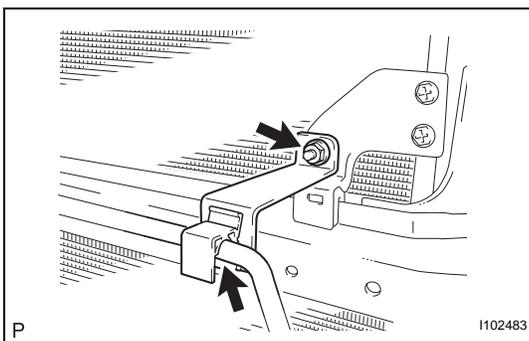
**3. INSTALL NO. 2 COOLER CONDENSER CUSHION LH**

- (a) Install the cooler condenser cushion with the 2 bolts.

**NOTICE:**

Securely insert the cooler condenser cushion into the radiator lower support.

Torque: 5.5 N\*m (56 kgf\*cm, 49 in.\*lbf)

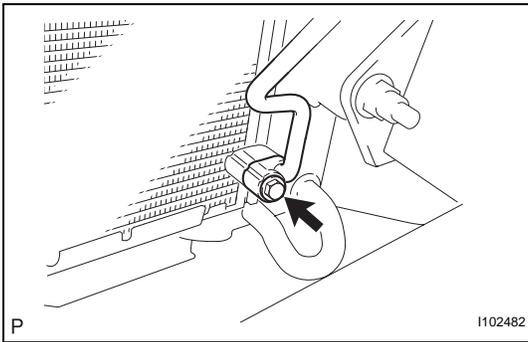


**4. INSTALL COOLER BRACKET**

- (a) Install the cooler bracket with the nut.

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

- (b) Engage the clamp.



### 5. INSTALL AIR CONDITIONING TUBE ASSEMBLY

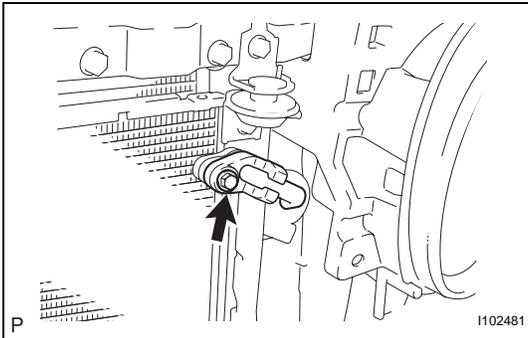
- (a) Remove the attached vinyl tape from the pipe and the connecting part of the cooler condenser.
- (b) Apply sufficient compressor oil to a new O-ring and the fitting surface of the pipe joint.

#### Compressor oil:

**ND-OIL8 or the equivalent**

- (c) Install the O-ring onto the air conditioning tube.
- (d) Install the tube onto the condenser with the bolt.

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



### 6. INSTALL DISCHARGE HOSE SUB-ASSEMBLY

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

#### Compressor oil:

**ND-OIL8 or the equivalent**

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

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

### 7. INSTALL FRONT BUMPER COVER (See page [ET-10](#))

### 8. INSTALL RADIATOR GRILLE (See page [ET-11](#))

### 9. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

**Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)**

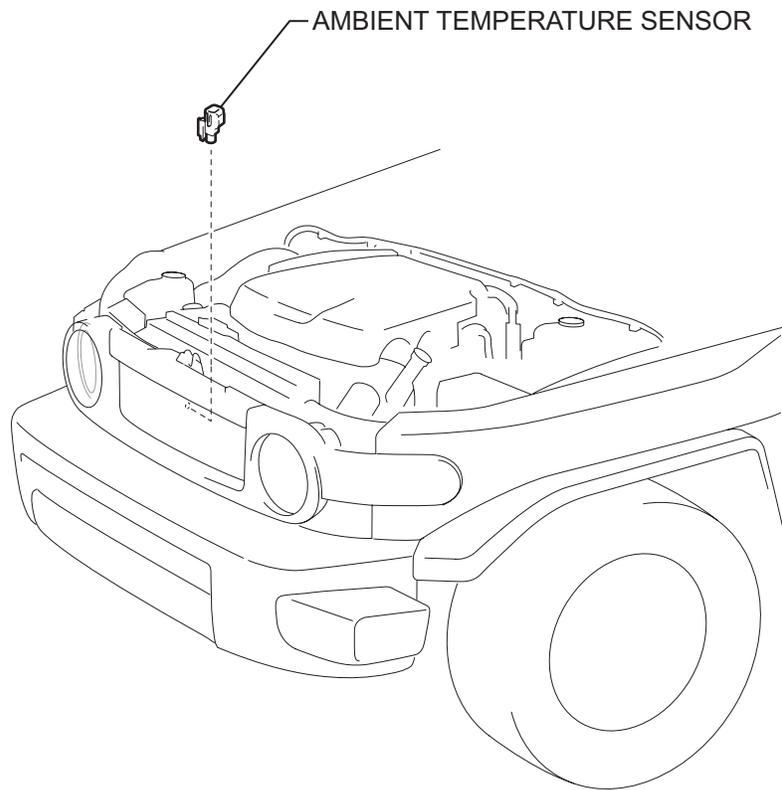
### 10. CHARGE REFRIGERANT (See page [AC-16](#))

### 11. WARM UP ENGINE (See page [AC-18](#))

### 12. CHECK FOR REFRIGERANT LEAKAGE (See page [AC-18](#))

# AMBIENT TEMPERATURE SENSOR

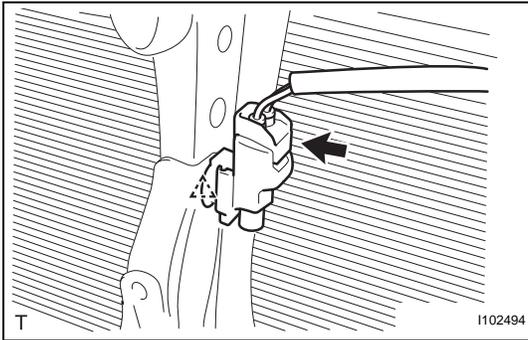
## COMPONENTS



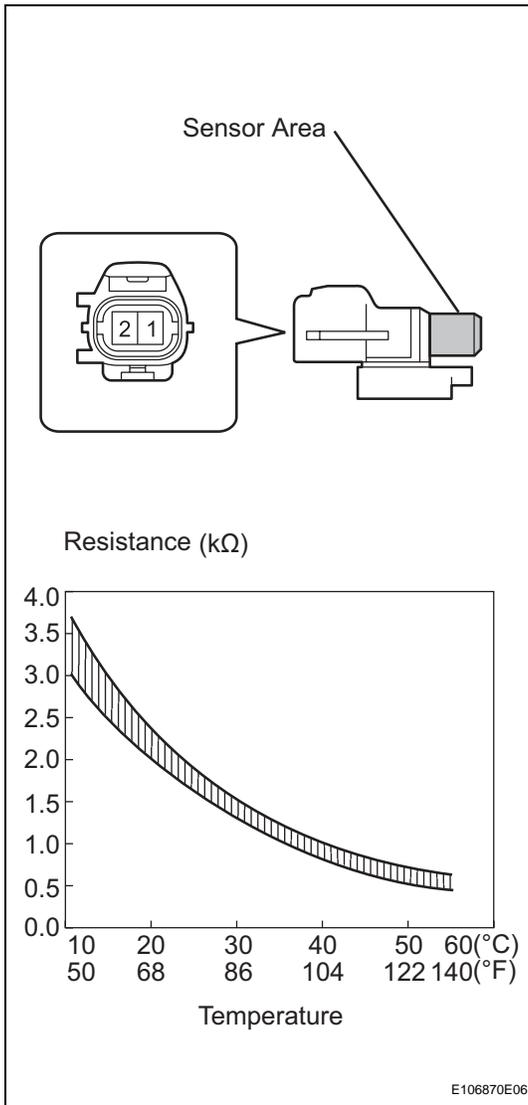
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## REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE AMBIENT TEMPERATURE SENSOR**
  - (a) Disconnect the connector.
  - (b) Disengage the clamp and remove the ambient temperature sensor.



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## INSPECTION

1. **INSPECT AMBIENT TEMPERATURE SENSOR**
  - (a) Measure the resistance.

### Standard resistance

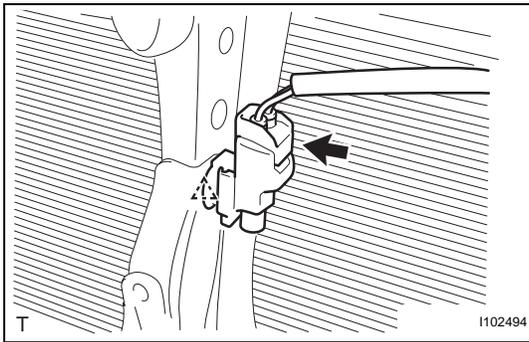
Tester Connection	Condition	Specified Condition
1 - 2	10°C (50°F)	3.00 to 3.73 kΩ
1 - 2	15°C (59°F)	2.45 to 2.88 kΩ
1 - 2	20°C (68°F)	1.95 to 2.30 kΩ
1 - 2	25°C (77°F)	1.60 to 1.80 kΩ
1 - 2	30°C (86°F)	1.28 to 1.47 kΩ
1 - 2	35°C (95°F)	1.00 to 1.22 kΩ
1 - 2	40°C (104°F)	0.80 to 1.00 kΩ
1 - 2	45°C (113°F)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

### NOTICE:

- Touching the sensor even slightly may change the resistance value. Hold the connector of the sensor.
- When measuring the resistance, the temperature of the sensor and the ambient temperature sensor must be the same.

### HINT:

As the temperature increases, the resistance decreases (see the graph).



## INSTALLATION

1. **INSTALL AMBIENT TEMPERATURE SENSOR**
  - (a) Engage the clamp and install the ambient temperature sensor.
  - (b) Connect the connector.
2. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**  
**Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)**

## PRESSURE SWITCH

### ON-VEHICLE INSPECTION

#### 1. INSPECT PRESSURE SWITCH

##### HINT:

- The pressure switch is installed onto the air conditioning pipe on the high pressure side.
- The switch detects drops in refrigerant pressure, such as from refrigerant leakage, and turns the magnet clutch off (\*1) to prevent damage to the compressor.
- The switch detects abnormally high pressure in the air conditioning cycle and turns the magnet clutch off (\*1) to prevent damage to parts of the air conditioning cycle.

(\*1): The ECM turns the magnet clutch on or off upon receiving the signal from the pressure switch.

- As the pressure switch operates when there is a malfunction with the refrigerant pressure, its function cannot be inspected on-vehicle. Follow the procedures below to inspect it.

- Inspect the refrigerant pressure in the air conditioning cycle.
- Read the manifold gauge pressure when the conditions below are established. (\*2)

##### Test conditions:

- Engine running at 1,500 rpm
- Blower speed control knob in HI position
- Temperature control knob in COOL position
- Air conditioning switch ON
- Recirculation mode
- Doors fully open

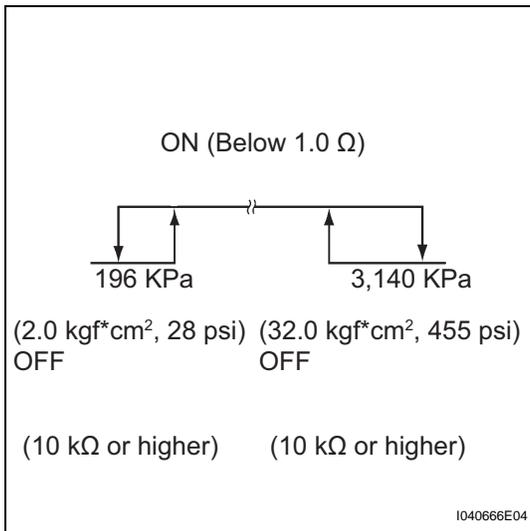
##### Standard:

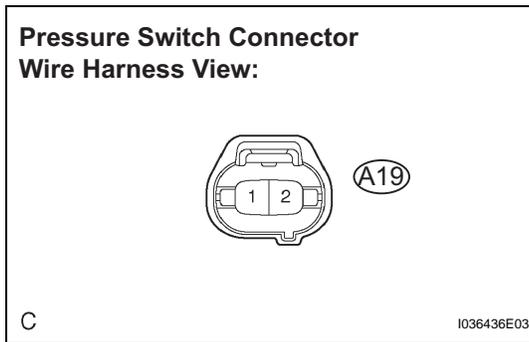
##### Pressure on high pressure side:

**1.37 to 1.57 MPa (13.9 to 16.0 kgf\*cm<sup>2</sup>, 198 to 228 psi)**

##### HINT:

- If the refrigerant pressure is not within the standard range, inspect and repair the air conditioning cycle.  
(See Page [AC-12](#))
- Proceed to step (\*2) if the refrigerant pressure is within the specified range.
- If the refrigerant pressure is below 196 KPa (2.0 kgf\*cm<sup>2</sup>, 28 psi), the refrigerant amount in the air conditioning cycle may have decreased significantly for reasons such as a gas leakage.





- (c) Check the air conditioning operation.
- (1) Disconnect the pressure switch connector.
  - (2) Connect terminals 1 and 2 of the pressure switch connector on the vehicle wire harness side using a service wire.
  - (3) Start the engine.
  - (4) Turn the air conditioning switch on and check that the magnet clutch is turned on.
  - (5) Check that the magnet clutch is turned off when disconnecting terminals 1 and 2 (those connected in the prior step).

**Standard:**

**Terminals 1 and 2 connected: Magnet clutch is ON**

**Terminals 1 and 2 disconnected: Magnet clutch is OFF**

Replace the pressure switch if the magnet clutch operates normally.

Inspect and repair the wire harness between the pressure switch and the ECM.

# HEATER BLOWER MOTOR RELAY

## ON-VEHICLE INSPECTION

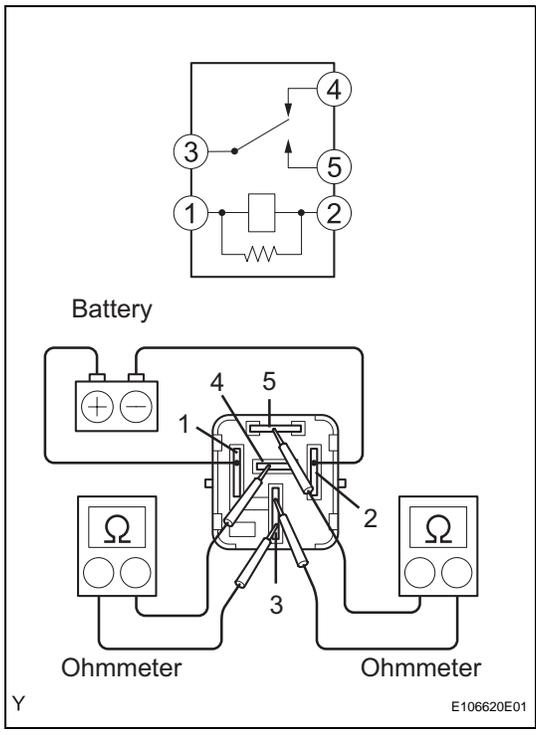
### 1. INSPECT HEATER BLOWER MOTOR RELAY ASSEMBLY

- (a) Check the resistance.
  - (1) Using an ohmmeter, measure the resistance between the terminals.

**Standard resistance**

Tester Connection	Specified Condition
3 - 4	Below 1 Ω
3 - 4	10 kΩ or higher (Apply battery voltage to terminals 1 and 2)
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (Apply battery voltage to terminals 1 and 2)

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



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# MAGNETIC CLUTCH RELAY

## ON-VEHICLE INSPECTION

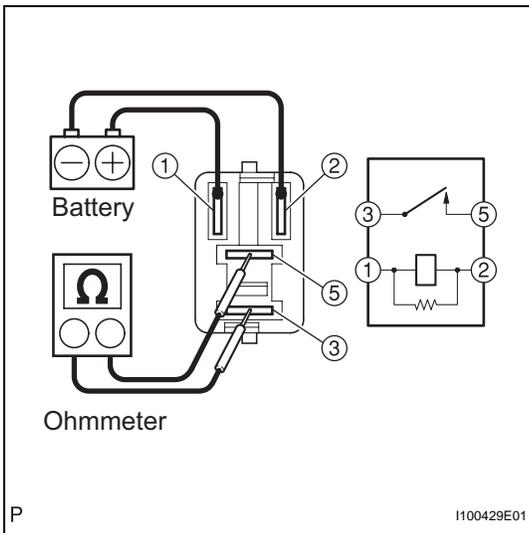
### 1. INSPECT MAGNET CLUTCH RELAY

- (a) Check the resistance.
  - (1) Using an ohmmeter, measure the resistance between the terminals.

**Standard resistance**

Tester Connection	Specified Condition
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (Apply battery voltage to terminals 1 and 2)

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



P

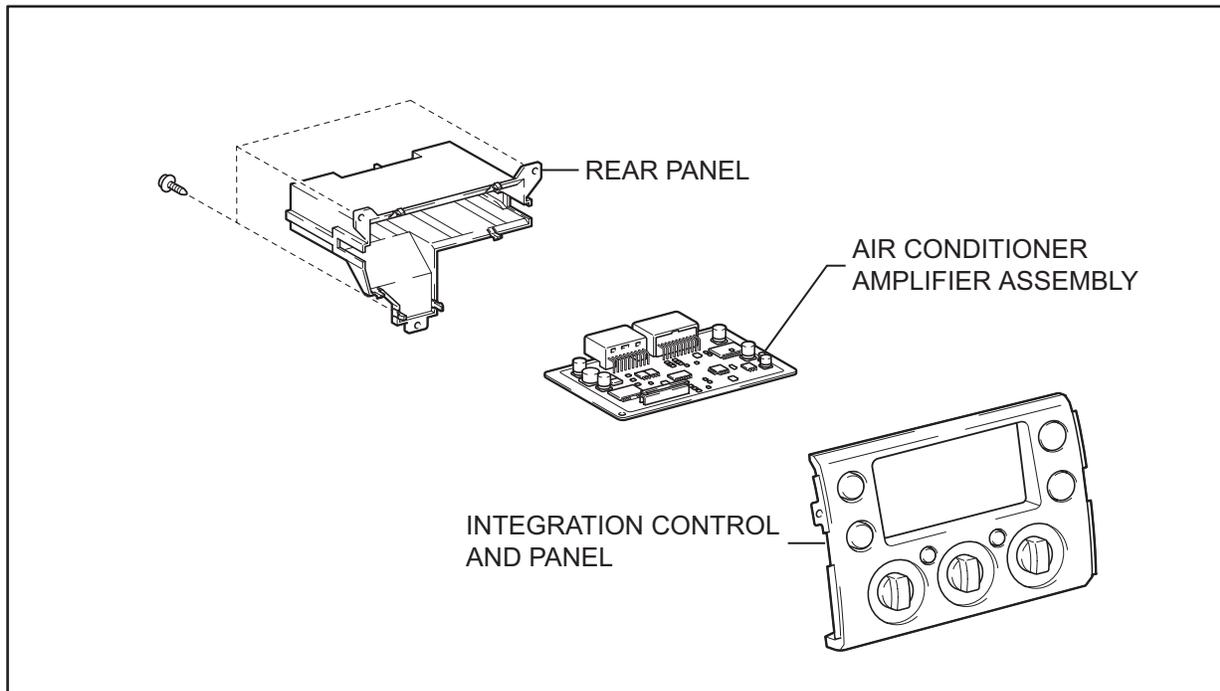
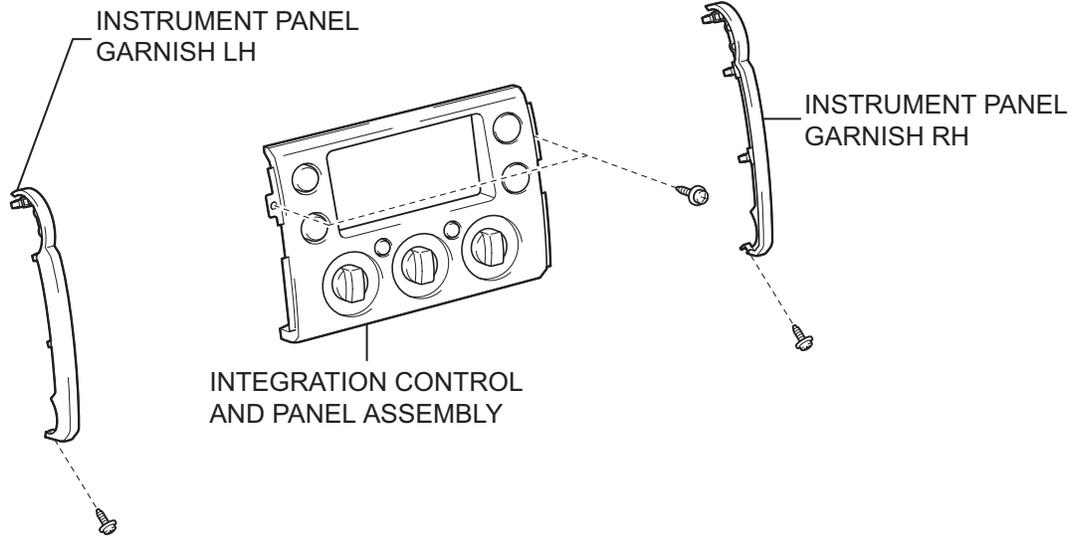
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# INTEGRATION CONTROL AND PANEL

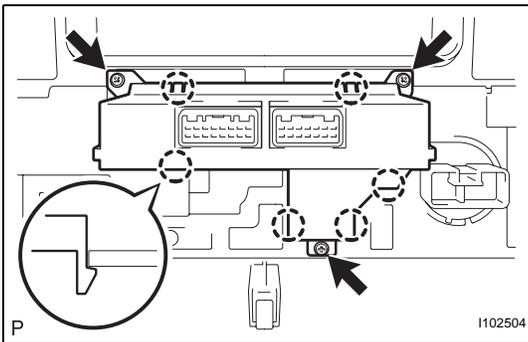
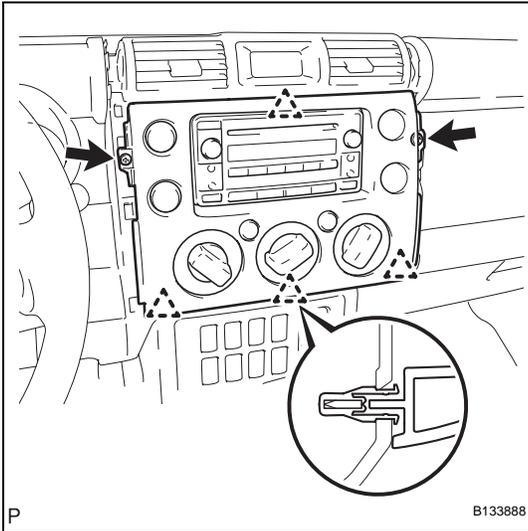
## COMPONENTS

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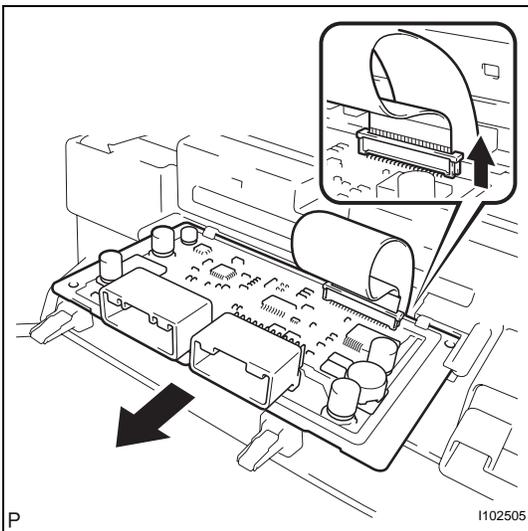
## REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE INSTRUMENT PANEL GARNISH LH (See page [IP-10](#))
3. REMOVE INSTRUMENT PANEL GARNISH RH (See page [IP-10](#))
4. REMOVE INTEGRATION CONTROL AND PANEL ASSEMBLY
  - (a) Remove the 2 screws.
  - (b) Disengage the 4 clips and remove the integration control assembly.
  - (c) Disconnect the 3 connectors.



## DISASSEMBLY

1. REMOVE AIR CONDITIONER AMPLIFIER ASSEMBLY
  - (a) Remove the 3 screws.
  - (b) Disengage the 6 claws and remove the rear panel.
  - (c) Disengage the lock of the connector and disconnect the cable.
  - (d) Remove the air conditioner amplifier assembly.



# INSPECTION

## 1. INSPECT INTEGRATION CONTROL AND PANEL ASSEMBLY

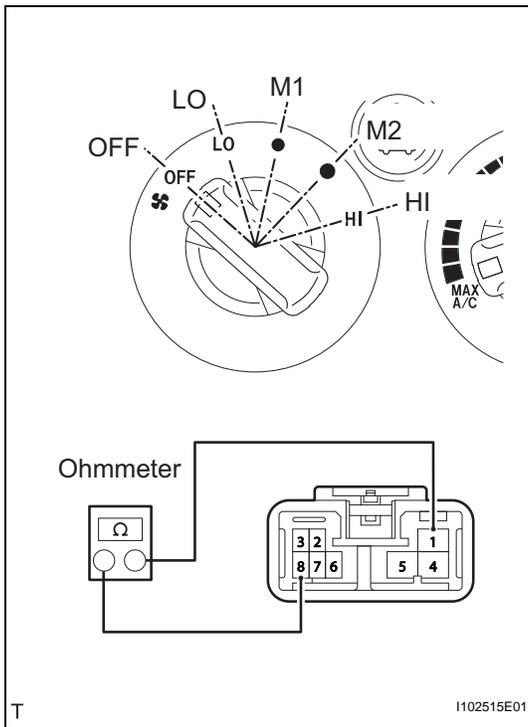
(a) Check the blower switch resistance.

- (1) Using an ohmmeter, measure the resistance and check the results in accordance with the values in the table below.

**Standard resistance**

Tester connection	Blower Switch Position	Specified Condition
1 - 4 - 5 - 6 - 8	OFF	10 K $\Omega$ or higher
1 - 8	LO	Below 1 $\Omega$
1 - 6 - 8	M1	Below 1 $\Omega$
1 - 5 - 8	M2	Below 1 $\Omega$
1 - 4 - 8	HI	Below 1 $\Omega$

If the result is not as specified, replace the integration control and panel assembly.



AC

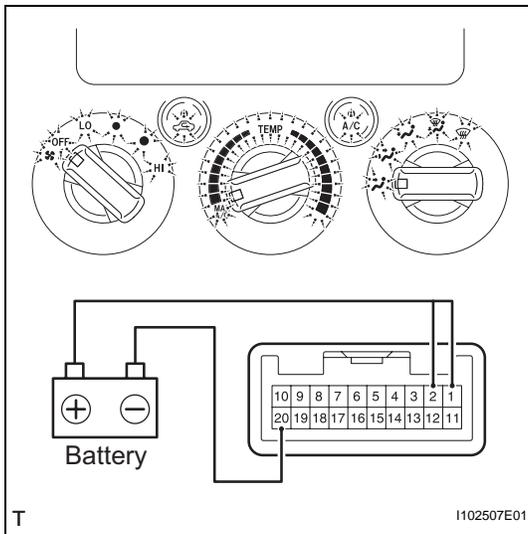
(b) Inspect the illumination operation.

- (1) Connect the positive (+) lead from the battery to terminals 1 (IG+) and 2 (ILL+) and the negative (-) lead to terminal 20 (GND), then check that the illuminations light up.

**Standard:**

**Illuminations light up**

If the result is not as specified, replace the integration control and panel assembly.

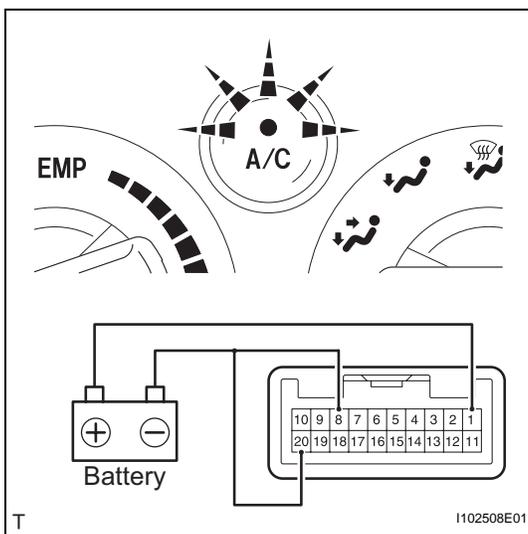


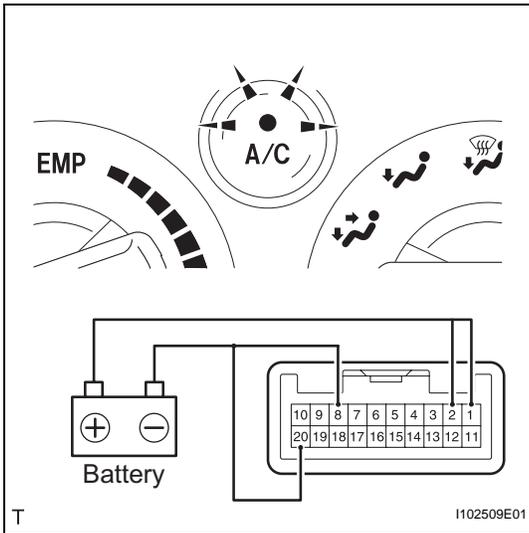
(c) Inspect the A/C indicator operation.

- (1) Connect the positive (+) lead from the battery to terminal 1 (IG+) and the negative (-) lead to terminals 8 (BLW) and 20 (GND).
- (2) Push the A/C button in and then check that the indicator lights up.

**Standard**

Switch Condition	Specified Condition
Switch ON	Indicator illuminates
Switch OFF	Indicator turns off





**HINT:**

Inspect the A/C indicator operation in any position except MAX COOL. The A/C indicator ON/OFF operation does not function in MAX COOL position (The A/C indicator is held in ON state).

If the result is not as specified, replace the integration control and panel assembly.

- (3) Under the above condition, connect the positive (+) lead from the battery to terminal 2 (ILL+) and then check that the indicator dims.

**Standard**

Switch Condition	Specified Condition
Switch ON	Indicator dims
Switch OFF	Indicator turns off

AC

**HINT:**

Inspect the A/C indicator operation in any position except MAX COOL. The A/C indicator ON/OFF operation does not function in MAX COOL position (The A/C indicator is held in ON state).

If the result is not as specified, replace the integration control and panel assembly.

- (d) Inspect the REC indicator operation.
  - (1) Connect the positive (+) lead from the battery to terminal 1 (IG+) and the negative (-) lead to terminal 20 (GND).

**NOTICE:**

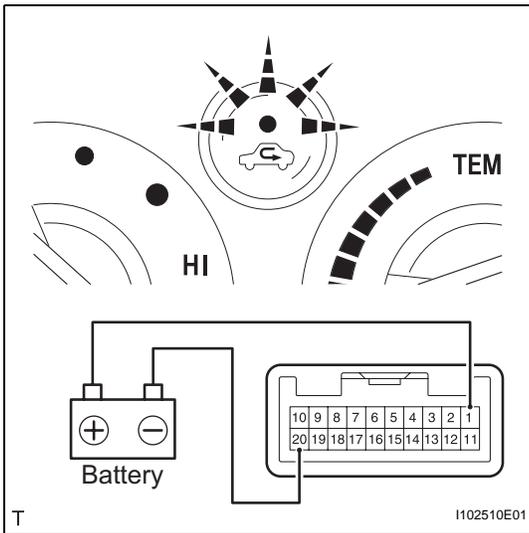
**Inspect the MODE switch in any position except DEF.**

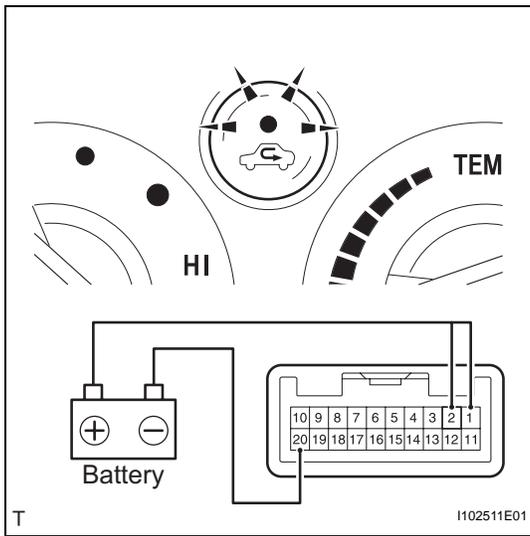
- (2) Push the REC button in and check that the indicator lights up.

**Standard**

Switch Condition	Specified Condition
Switch ON	Indicator illuminates
Switch OFF	Indicator turns off

If the result is not as specified, replace the integration control and panel assembly.





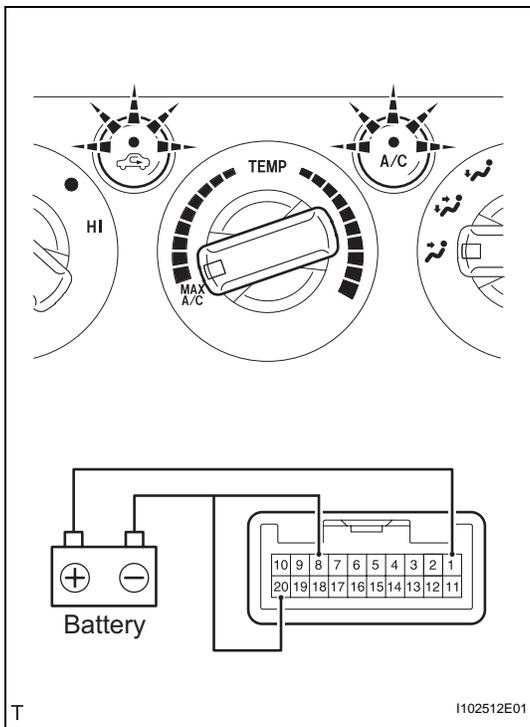
- (3) Under the above condition, connect the positive (+) lead from the battery to terminal 2 (ILL+) and then check that the indicator dims.

**NOTICE:**  
**Inspect the MODE switch in any position except DEF.**  
**Standard**

Switch Condition	Specified Condition
Switch ON	Indicator dims
Switch OFF	Indicator turns off

If the result is not as specified, replace the integration control and panel assembly.

AC



- (e) Inspect the temperature control switch operation.  
 (1) Connect the positive (+) lead from the battery to terminal 1 (IG+) and the negative (-) lead to terminals 8 (BLW) and 20 (GND).

**NOTICE:**  
**Inspect the MODE switch in any position other than DEF and FOOT/DEF.**

- (2) Check the A/C indicator and REC indicator operations when the temperature switch is operated.

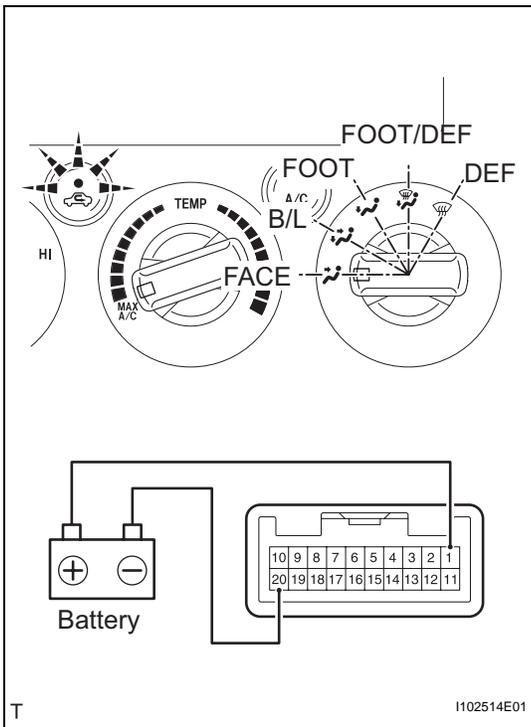
**Standard**

Temperature Switch Condition	Specified Condition (A/C indicator and REC indicator)
Except MAX A/C	Neither indicator illuminates
MAX A/C	Both indicators illuminate*1

**HINT:**

\*1: The A/C indicator remains illuminated even after the temperature switch is turned from this position to another. The REC indicator returns to the condition prior to turning the switch to MAX A/C. Press the A/C switch in and check that the indicator turns off.

If the result is not as specified, replace the integration control and panel assembly.



- (f) Inspect MODE switch operation.
  - (1) Connect the positive (+) lead from the battery to terminal 1 (IG+) and the negative (-) lead to terminal 20 (GND).
  - (2) Check the REC indicator operation when the MODE switch is operated.

**Standard**

Condition	Specified Condition (REC indicator)
MODE switch except DEF REC switch ON ↔ OFF	Indicator turns ON ↔ OFF in accordance with REC switch operation
MODE switch DEF REC switch ON ↔ OFF	Indicator turns off

If the result is not as specified, replace the integration control and panel assembly.

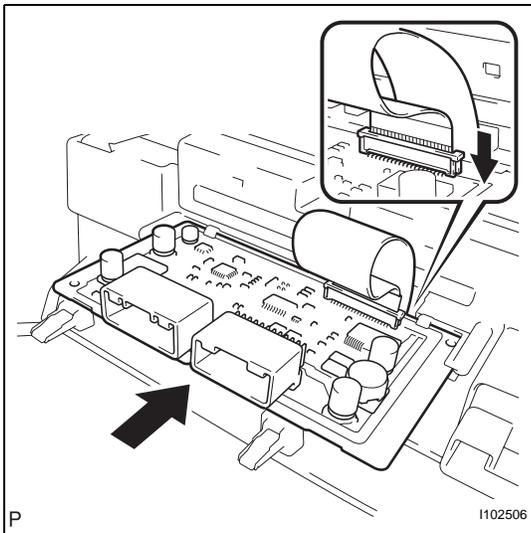
AC

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**REASSEMBLY**

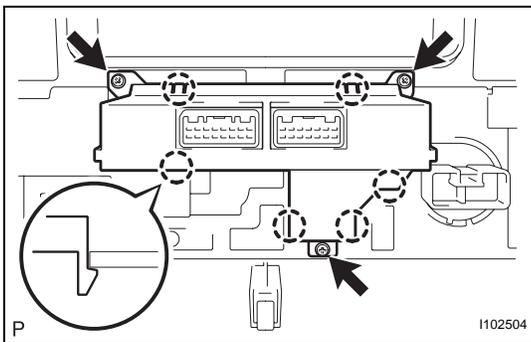
**1. INSTALL AIR CONDITIONER AMPLIFIER ASSEMBLY**

- (a) Remove the air conditioner amplifier assembly.
- (b) Engage the lock of the connector and connect the cable.

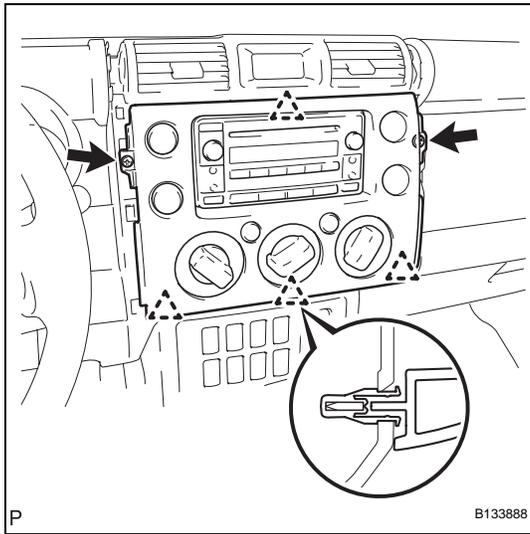


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- (c) Engage the 6 claws and install the rear panel.
- (d) Install the 3 screws.



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## INSTALLATION

- 1. INSTALL INTEGRATION CONTROL AND PANEL ASSEMBLY**
  - (a) Connect the 3 connectors.
  - (b) Engage the 4 clips and install the integration control assembly.
  - (c) Install the 2 screws.
- 2. INSTALL INSTRUMENT PANEL GARNISH LH (See page [IP-33](#))**
- 3. INSTALL INSTRUMENT PANEL GARNISH RH (See page [IP-33](#))**
- 4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**  
Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)