

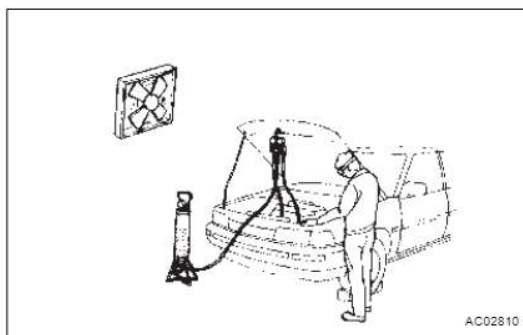
AIR CONDITIONING SYSTEM

PRECAUTION

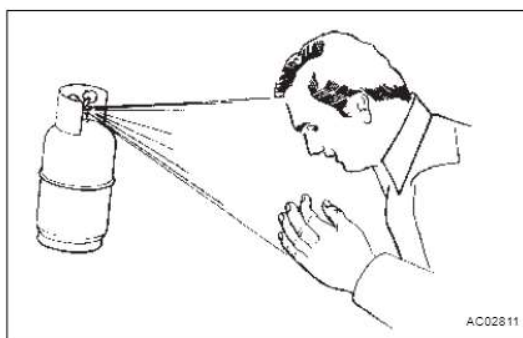
NOTICE:

When disconnecting the cable from the negative (-) battery terminal, initialize the following systems after the cable is reconnected.

System	See procedure
Power window control system (with Jam protection function)	IN-23
Sliding roof system	



1. DO NOT HANDLE REFRIGERANT IN AN ENCLOSED AREA OR NEAR AN OPEN FLAME
2. ALWAYS WEAR PROTECTIVE GLASSES



3. AVOID SKIN OR EYE CONTACT WITH LIQUID REFRIGERANT

If liquid refrigerant comes in contact with your eyes or skin:

- (a) Rinse the area thoroughly with 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 see a physician for professional treatment.

4. NEVER HEAT CONTAINER OR EXPOSE IT TO OPEN FLAME
5. DO NOT DROP OR STRIKE CONTAINER OF REFRIGERANT

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

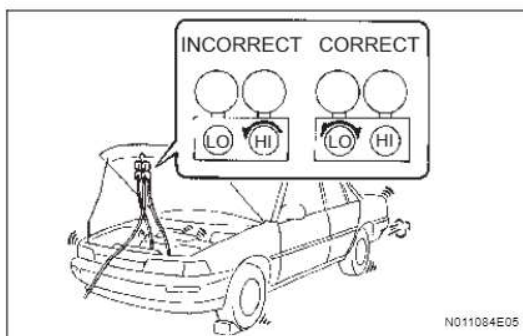
If there is not enough refrigerant in the refrigerant system, oil lubrication will be insufficient and the compressor may burn out. Care should be taken to avoid this.

7. 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 opened, refrigerant flows in the reverse direction and causes the charging cylinder to rupture.

8. BE CAREFUL NOT TO OVERCHARGE SYSTEM WITH REFRIGERANT

Overcharged refrigerant will cause problems such as insufficient cooling, poor fuel economy, engine overheating, etc.



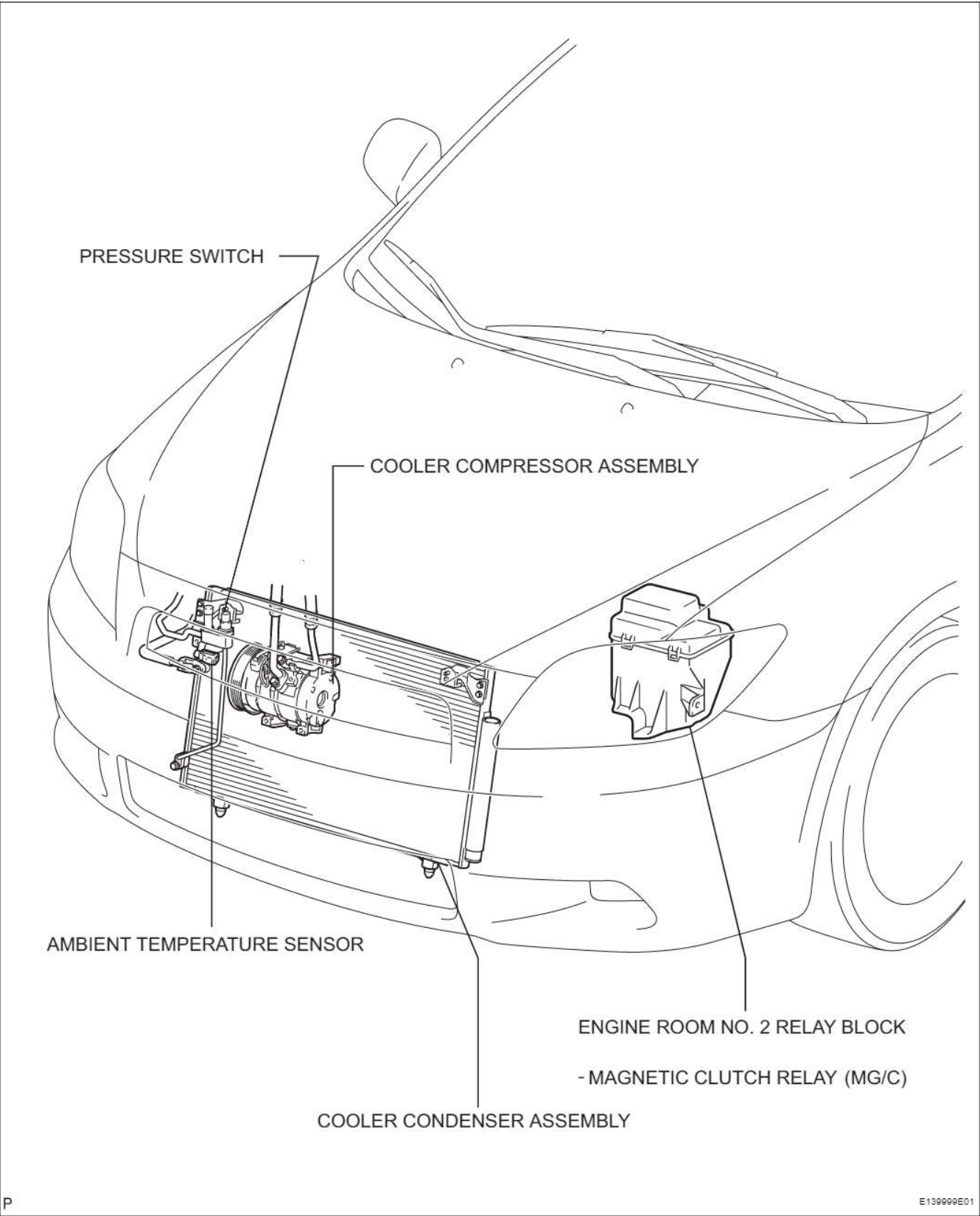
AC-2**AIR CONDITIONING – AIR CONDITIONING SYSTEM**

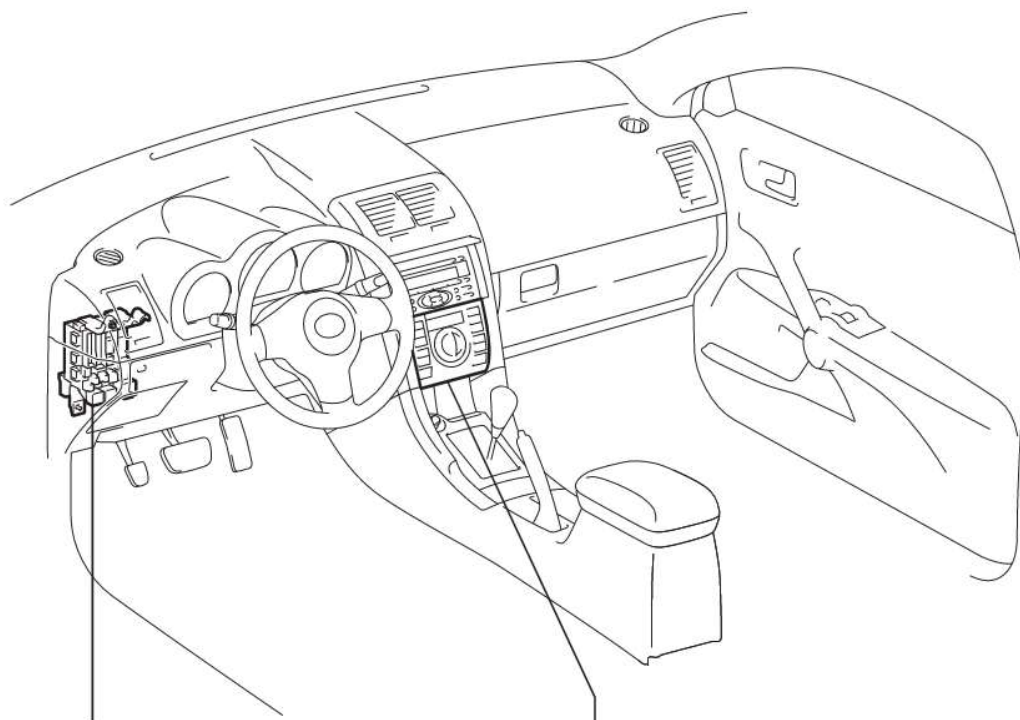
- 9. DO NOT OPERATE ENGINE AND COMPRESSOR WITHOUT REFRIGERANT IN REFRIGERANT SYSTEM**

NOTICE:

This may damage the inside of the compressor because the compressor parts move regardless of whether the A/C system is turned on or off.

PARTS LOCATION



AC-4**AIR CONDITIONING – AIR CONDITIONING SYSTEM**

INSTRUMENT PANEL JUNCTION BLOCK
- HEATER RELAY
- IG1 RELAY (IG1)

HEATER CONTROL ASSEMBLY
(A/C AMPLIFIER ASSEMBLY)

P

E140000E01

AC

AIR CONDITIONING – AIR CONDITIONING SYSTEM

AC-5

EVAPORATOR SUB-ASSEMBLY

AIR INLET CONTROL SERVO MOTOR

BLOWER WITH FAN MOTOR
SUB-ASSEMBLY

EVAPORATOR TEMPERATURE SENSOR

BLOWER MOTOR
CONTROL

AIR OUTLET CONTROL SERVO MOTOR

AIR MIX CONTROL SERVO MOTOR

HEATER RADIATOR UNIT SUB-ASSEMBLY

P

E140001E01

AC

AC-6

AIR CONDITIONING – AIR CONDITIONING SYSTEM

PROBLEM SYMPTOMS TABLE

Check the circuits for each problem symptom in the order given in the table below and proceed to the relevant troubleshooting page.

HINT:

Inspect the "Fuse" and "Relay" before inspecting the suspected area as shown in the table below.

Inspect each malfunction circuit in numerical order for the corresponding symptom.

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
Whole functions of the A/C system do not operate	1. Heater control & accessory assembly	AC-71
	2. A/C amplifier assembly	AC-7
	3. Wire harness or connector	-
Air Flow Control: No blower operation	1. Blower w/ fan motor sub-assembly	AC-42
	2. Heater control & accessory assembly	AC-71
	3. A/C amplifier assembly	AC-7
	4. Wire harness or connector	-
Air Flow Control: No blower control	1. Blower w/ fan motor sub-assembly	AC-42
	2. Heater control & accessory assembly	AC-71
	3. A/C amplifier assembly	AC-7
	4. Wire harness or connector	-
Air Flow Control: Insufficient air comes out	1. Blower w/ fan motor sub-assembly	AC-42
	2. Heater control & accessory assembly	AC-71
	3. A/C amplifier assembly	AC-7
	4. Wire harness or connector	-
Temperature Control: No cool air comes out	1. Volume of refrigerant	AC-11
	2. Drive belt tension	EM-6
	3. Refrigerant pressure	AC-11
	4. Cooler compressor assembly	AC-53
	5. Pressure switch	AC-66
	6. Air mix control servo motor	AC-49
	7. Heater control & accessory assembly	AC-71
	8. A/C amplifier assembly	AC-7
	9. Wire harness or connector	-
Temperature Control: No warm air comes out	1. Engine coolant volume	CO-6
	2. Air mix control servo motor	AC-49
	3. Heater control & accessory assembly	AC-71
	4. Heater radiator unit sub-assembly	-
	5. A/C amplifier assembly	AC-7
	6. Wire harness or connector	-
Temperature Control: Output air is warmer or cooler than the set temperature or response is slow	1. Heater control & accessory assembly	AC-7
	2. Air mix control servo motor	AC-49
	3. A/C amplifier assembly	AC-7
Temperature Control: No temperature control	1. Heater control & accessory assembly	AC-71
	2. Air mix control servo motor	AC-49
	3. A/C amplifier assembly	AC-7

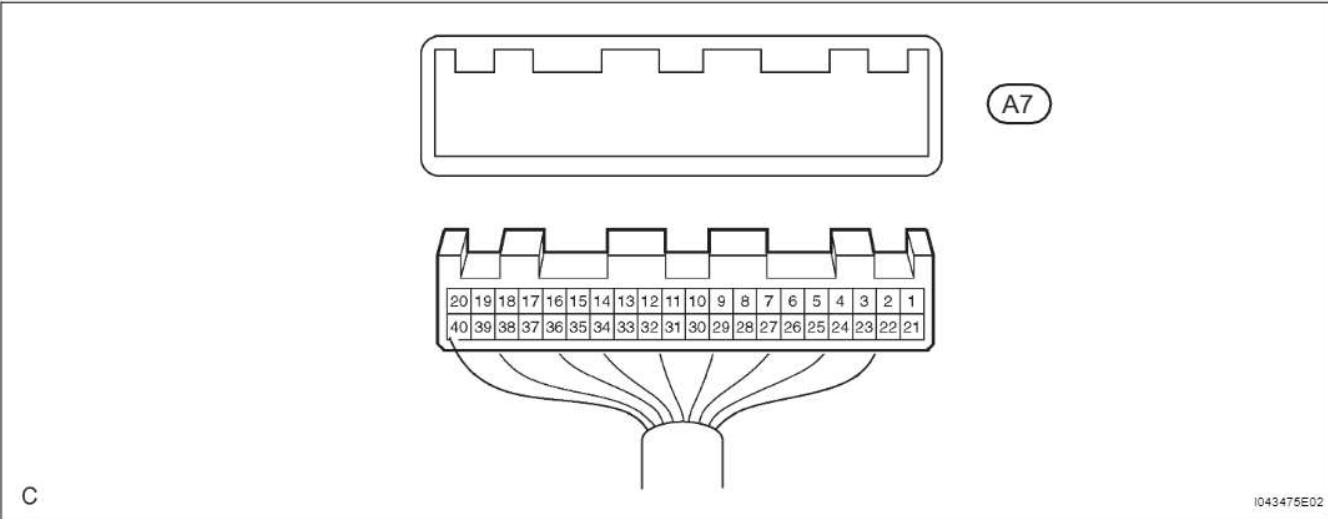
AIR CONDITIONING – AIR CONDITIONING SYSTEM**AC-7**

Symptom	Suspected Area	See page
No air inlet control	1. Air inlet servo motor	AC-45
	2. Heater control & accessory assembly	AC-71
	3. A/C amplifier assembly	AC-7
	4. Wire harness or connector	-
No air outlet control	1. Heater control & accessory assembly	AC-71
	2. Air outlet control servo motor	AC-47
	3. A/C amplifier assembly	AC-7
	4. Wire harness or connector	-
Engine idle up does not occur, or is continuous	1. Cooler compressor assembly	AC-53
	2. Heater control & accessory assembly	AC-71
	3. A/C amplifier assembly	AC-7
Brightness does not change when rheostat volume or light control switch is turned	1. Wire harness or connector	-

TERMINALS OF ECU

1. CHECK AIR CONDITIONING AMPLIFIER ASSEMBLY
- (a) Disconnect the connector from the air conditioning amplifier assembly.

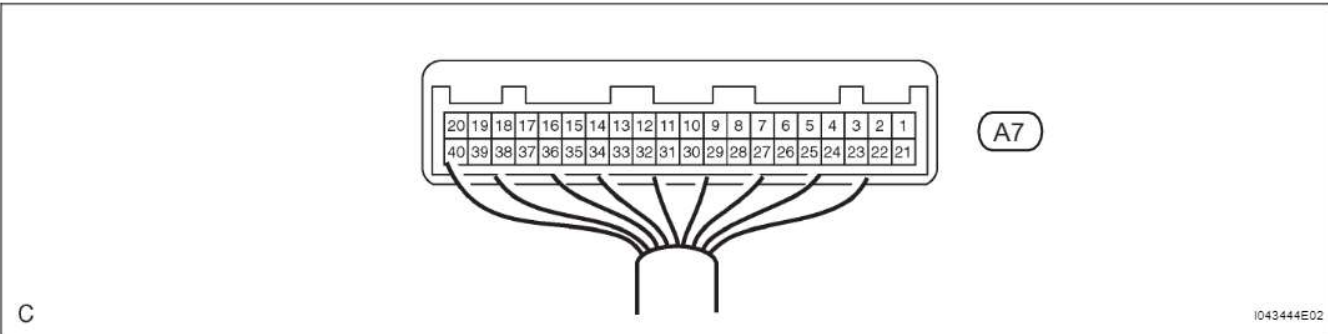
(b) Measure the voltage and resistance according to the value(s) in the table below.



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND (A7-12) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1 Ω
IG (A7-20) - GND (A7-12)	P - W-B	Power source (IG)	Ignition switch: ON	10 to 14 V
+B (A7-40) - GND (A7-12)	V - W-B	Power source (Backup)	Always	10 to 14 V

- If the results are not as specified, inspect the circuits connected to the other parts.
- (c) Connect the connector to the air conditioning amplifier assembly.

(d) Measure the voltage and resistance according to the value(s) in the table below.



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
AOF (A7-1) - GND (A7-12)	W - W-B	Air vent mode control servo motor operation voltage	Ignition switch: ON Mode switch: DEF	10 to 14 V
			Ignition switch: ON Mode switch: FACE	Below 1 V
AOD (A7-2) - GND (A7-12)	LG - W-B	Air vent mode control servo motor operation voltage	Ignition switch: ON Mode switch: FACE	10 to 14 V
			Ignition switch: ON Mode switch: DEF	Below 1 V

AIR CONDITIONING – AIR CONDITIONING SYSTEM

AC-9

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
REC (A7-3) - GND (A7-12)	L - W-B	Air inlet control servo motor operation voltage	Ignition switch: ON R/F switch: FRESH	10 to 14 V
			Ignition switch: ON R/F switch: RECIRCULATION	Below 1 V
FRS (A7-4) - GND (A7-12)	R - W-B	Air inlet control servo motor operation voltage	Ignition switch: ON R/F switch: RECIRCULATION	10 to 14 V
			Ignition switch: ON R/F switch: FRESH	Below 1 V
RrDEF (A7-5) - GND (A7-12)	P - W-B	Rear defogger relay signal	Ignition switch: ON DEF switch: OFF	10 to 14 V
			Ignition switch: ON DEF switch: ON	Below 1 V
MGC (A7-6) - GND (A7-12)	BR - W-B	Magnetic clutch relay operation signal	Ignition switch: ON Magnetic clutch: OFF	10 to 14 V
			Ignition switch: ON Magnetic clutch: ON	Below 1 V
BLC (A7-9) - GND (A7-12)	L - W-B	Blower motor speed control signal	Ignition switch: ON Blower switch: ON	Pulse generation (See waveform 1)
AC1 (A7-10) - GND (A7-12)	P - W-B	Magnetic clutch signal	Ignition switch: ON Magnetic clutch: OFF	10 to 14 V
			Ignition switch: ON Magnetic clutch: ON	Below 1 V
FrHR (A7-11) - GND (A7-12)	BR - W-B	A/C switch relay signal	Ignition switch: ON Blower switch: LO A/C switch: OFF	10 to 14 V
			Ignition switch: ON Blower switch: LO A/C switch: ON	Below 1 V
GND (A7-12) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1 Ω
TP (A7-13) - GND (A7-12)	B - W-B	Air vent mode control servo motor position signal	Ignition switch: ON Set temperature switch: MAXHOT → MAXCOOL	0.7 to 4.3 V
S5-TP (A7-14) - SG-TP (A7-30)	V - Y	Power supply for air mix control servo motor	Ignition switch: ON	4.5 to 5.5 V
ACT (A7-16) - GND (A7-12)	LG - W-B	Magnetic clutch ON permission signal	Ignition switch: ON Magnetic clutch: OFF	10 to 14 V
			Ignition switch: ON Magnetic clutch: ON	Below 1 V
ILL- (A7-17) - GND (A7-12)	W - W-B	Ground for illumination	Ignition switch: ON	Below 1 Ω
SPD (A7-18) - GND (A7-12)	O - W-B	Vehicle speed signal	Ignition switch: ON Turn front wheel slowly	Pulse generation (See waveform 2)
ILL+ (A7-19) - ILL- (A7-17)	R - W	Power supply for illumination	Ignition switch: ON Light control switch: OFF	10 to 14 V
			Ignition switch: ON Light control switch: ON	Below 1 V
IG (A7-20) - GND (A7-12)	P - W-B	Power source (IG)	Ignition switch: ON	10 to 14 V
AMC (A7-21) - GND (A7-12)	G - W-B	Air mix control servo motor operation voltage	Ignition switch: ON Set temperature switch: MAXCOOL	10 to 14 V
			Ignition switch: ON Set temperature switch: MAXHOT	Below 1 V

AC

AC-10

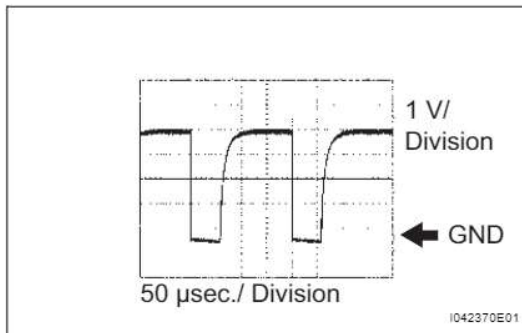
AIR CONDITIONING – AIR CONDITIONING SYSTEM

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
AMH (A7-22) - GND (A7-12)	GR - W-B	Air mix control servo motor operation voltage	Ignition switch: ON Set temperature switch: MAXHOT	10 to 14 V
			Ignition switch: ON Set temperature switch: MAXCOOL	Below 1 V
TAM (A7-23) - GND (A7-12)	P - W-B	A/C ambient temperature sensor signal	Ignition switch: ON Ambient temperature: 25°C (77°F)	1.35 to 1.75 V
			Ignition switch: ON Ambient temperature: 40°C (104°F)	0.85 to 1.25 V
TE (A7-24) - GND (A7-12)	LG - W-B	Evaporator temperature sensor signal	Ignition switch: ON Evaporator temperature: 0 °C (32°F)	2.0 to 2.4 V
			Ignition switch: ON Evaporator temperature: 15°C (59°F)	1.4 to 1.8 V
HAZ (A7-25) - GND (A7-12)	O - W-B	Hazard switch signal	Hazard switch: OFF	10 to 14 V
			Hazard switch: ON	Below 1 V
SECU (A7-27) - GND (A7-12)	B - W-B	Security indicator signal	Security indicator comes on or blink (when theft deterrent system and engine immobilizer system is set)	10 to 14 V
			Security indicator does not come on	Below 1 V
SG-TPM (A7-29) - Body ground	G - Body ground	Ground for air vent mode control servo motor	Always	Below 1 Ω
SG-TP (A7-30) - Body ground	Y - Body ground	Ground for air mix control servo motor	Always	Below 1 Ω
SG-TAM (A7-31) - Body ground	B - Body ground	Ground for ambient temperature sensor	Always	Below 1 Ω
SG-TE (A7-32) - Body ground	B - Body ground	Ground for evaporator temperature sensor	Always	Below 1 Ω
TPM (A7-33) - GND (A7-12)	V - W-B	Air vent mode control servo motor position signal	Ignition switch: ON Mode switch: FACE → DEF	0.7 to 4.3 V
S5-TPM (A7-34) - SG-TPM (A7-29)	L - G	Air vent mode control servo motor position signal	Ignition switch: ON	10 to 14 V
A/BON (A7-35) - GND (A7-12)	Y - W-B	Passenger airbag ON indicator signal	Ignition switch: ON Passenger airbag ON indicator comes on	10 to 14 V
			Ignition switch: ON Passenger airbag ON indicator does not comes on	Below 1 V
A/BOFF (A7-36) - GND (A7-12)	BR - W-B	Passenger airbag OFF indicator signal	Ignition switch: ON Passenger airbag OFF indicator comes on	10 to 14 V
			Ignition switch: ON Passenger airbag OFF indicator does not comes on	Below 1 V

AIR CONDITIONING – AIR CONDITIONING SYSTEM

AC-11

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
PRS (A7-37) - GND (A7-12)	G - W-B	Pressure switch signal	Ignition switch: START Refrigerant pressure: Normally	Below 1 V
			Ignition switch: START Refrigerant pressure: Less than 0.19 MPa (2.0 kgf/cm ² , 28 psi) or more than 1.34 MPa (13.7 kgf/cm ² , 195 psi)	10 to 14 V
SEAT (A7-38) - IG (A7-20)	P - P	Passenger seat belt warning light signal	Ignition switch: ON Passenger seat belt warning comes on	10 to 14 V
			Ignition switch: ON Passenger seat belt warning does not comes on	Below 1 V
+B (A7-40) - GND (A7-12)	V - W-B	Power source (Backup)	Always	10 to 14 V



(1) Waveform 1:

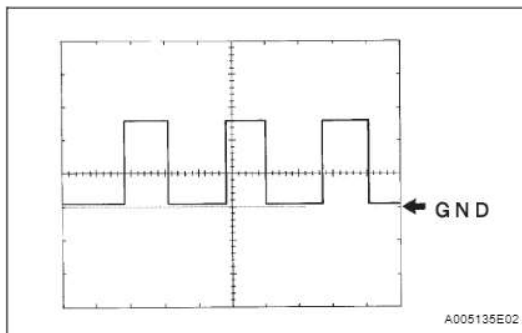
Measure the waveform between terminals A7-9 (BLC) and A7-12 (GND).

OK:

A waveform should be output as shown in the illustration.

HINT:

Waveform cycle varies with the blower level.



(2) Waveform 2:

Measure the waveform between terminals A7-9 (BLC) and A7-12 (GND).

OK:

A waveform should be output as shown in the illustration.

HINT:

As vehicle speed increases, the cycle of the signal waveform becomes narrow.

REFRIGERANT

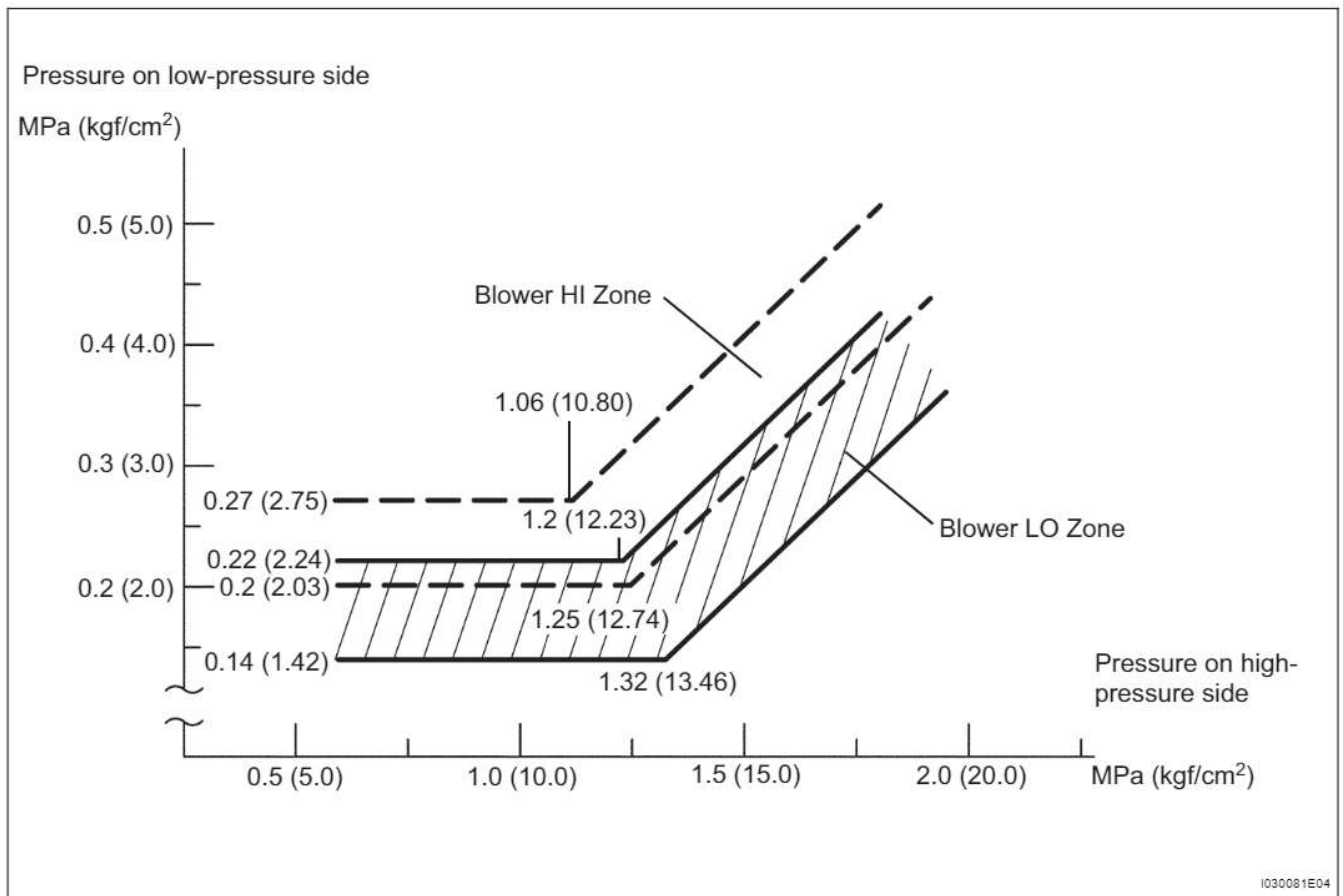
ON-VEHICLE INSPECTION

1. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

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

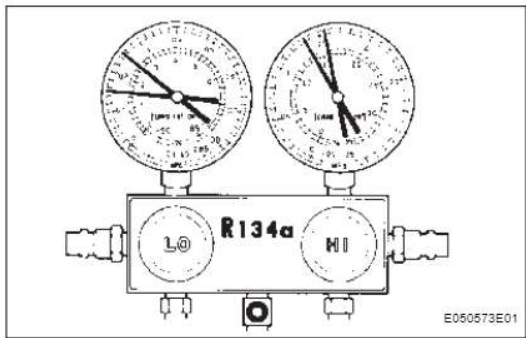
- Temperature at the air inlet is 30 to 35°C (86 to 95°F).
- Engine is running at 1,500 rpm.
- All doors are fully open.
- Blower speed control switch is at HI.
- Temperature control switch is at MAX COOL.
- A/C switch is ON.

Gauge readings (Reference)



AC-12

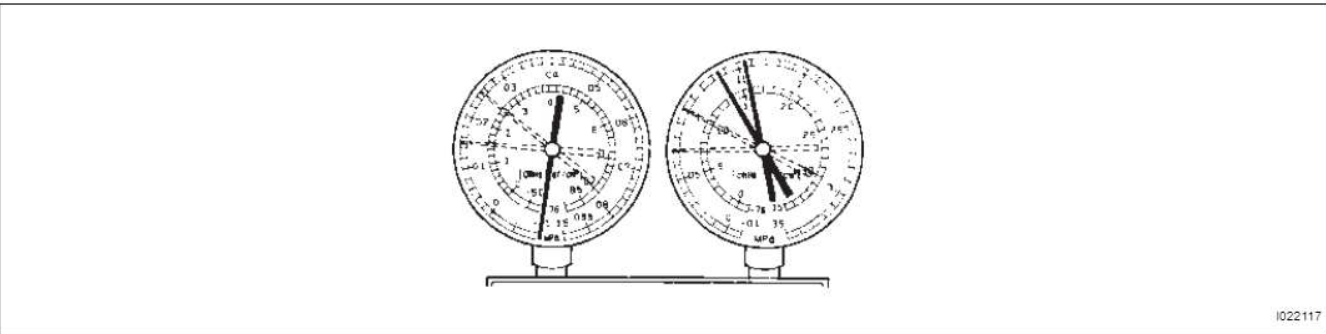
AIR CONDITIONING – REFRIGERANT



- (1) Normally functioning refrigeration system
Gauge reading

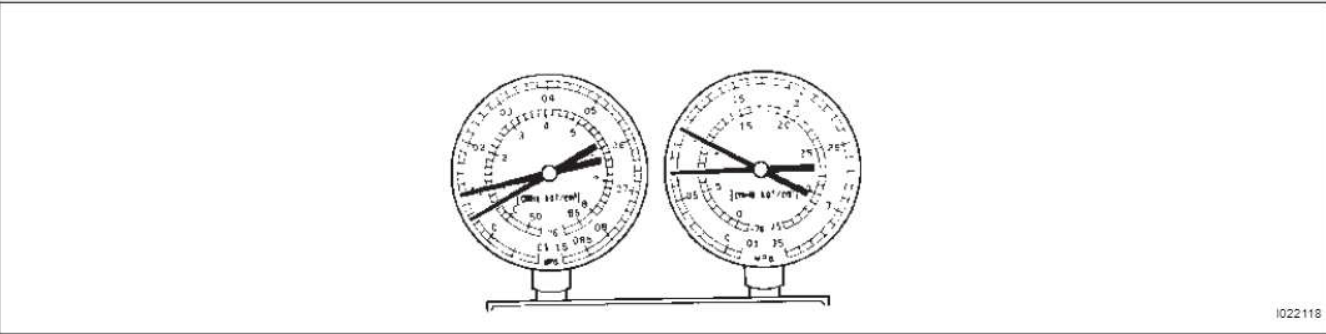
Pressure side	Refrigerant volume
Low	0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm ²)
High	1.37 to 1.57 MPa (14 to 16 kgf/cm ²)

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



Symptoms	Probable Cause	Diagnosis	Corrective Actions
During operation, pressure on low-pressure side cycles between normal and vacuum	Moisture in refrigeration system freezes at expansion valve orifice, causing temporary stop of cycle. However, when melted, normal state is restored	- Drier is overly saturated - Moisture in refrigeration system freezes at expansion valve orifice and blocks refrigerant circulation	1. Replace cooler drier 2. Remove moisture from cycle by repeatedly evacuating air 3. Supply appropriate volume of new refrigerant

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

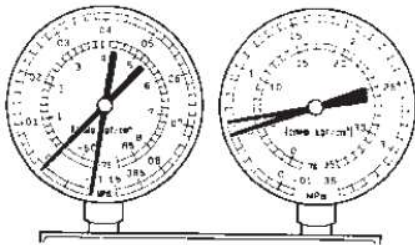


Symptoms	Probable Cause	Diagnosis	Corrective Actions
- Pressure low on both low and high-pressure sides - Cooling performance insufficient	Gas leakage from refrigeration system	- Insufficient refrigerant - Refrigerant leakage	1. Check for gas leakage and repair if necessary 2. Supply appropriate volume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

AIR CONDITIONING – REFRIGERANT

AC-13

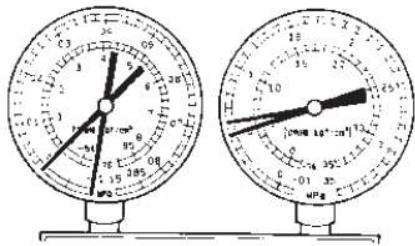
(4) The A/C system does not function effectively due to poor circulation of the refrigerant.



1022119

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

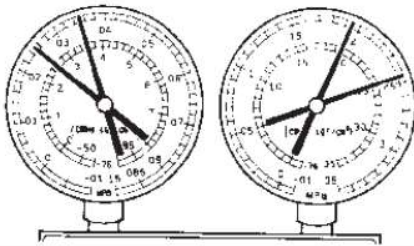
(5) The A/C system does not function intermittently because the refrigerant does not circulate.



1022120

Symptoms	Probable Cause	Diagnosis	Corrective Actions
- Vacuum indicated on low-pressure side, and extremely low pressure indicated on high-pressure side - Frost or condensation seen on piping on both sides of condenser or expansion valve	- Refrigerant flow obstructed by moisture or dirt in refrigeration system - Refrigerant flow obstructed by gas leakage from expansion valve	Refrigerant does not circulate	1. Check expansion valve 2. Clean expansion valve by blowing air 3. Replace condenser 4. Evacuate air and charge appropriate volume of new refrigerant 5. For gas leakage from expansion valve, replace expansion valve

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



1022121

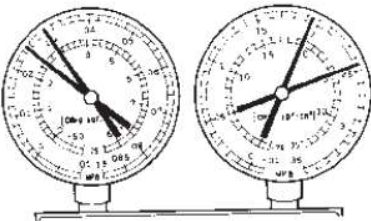
AC

AC-14

AIR CONDITIONING – REFRIGERANT

Symptoms	Probable Cause	Diagnosis	Corrective Actions
Pressure extremely high on both low and high-pressure sides	- Excessive refrigerant - Cooling performance of condenser insufficient	- Condenser is dirty - Condenser fan motor is malfunctioning - Excessive refrigerant	1. Clean condenser 2. Check condenser fan motor operation 3. If 1 and 2 normal, check the amount of refrigerant and supply appropriate volume of refrigerant

- (7) The A/C system does not function due to air in the refrigeration system.
- CAUTION:**
The low-pressure piping may be very hot and cause serious burns.

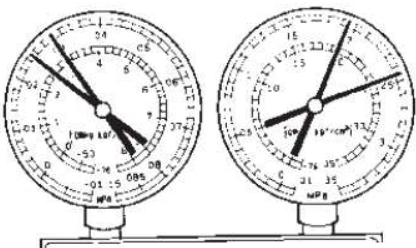


HINT: These gauge indications occur when the refrigeration system opens and the refrigerant is charged without vacuum purging

I022122E03

Symptoms	Probable Cause	Diagnosis	Corrective Actions
- Pressure extremely high on both low and high-pressure sides - Low-pressure piping is too hot to touch	Air in refrigeration system	- Air in refrigeration system - Vacuum purging insufficient	1. Check if compressor oil is dirty or insufficient 2. Evacuate air and charge new refrigerant

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



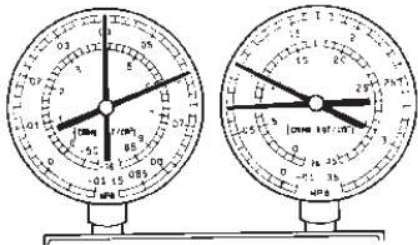
I022123

Symptoms	Probable Cause	Diagnosis	Corrective Actions
- Pressure extremely high on both low and high-pressure sides - Frost or condensation on piping on low-pressure side	Problem with expansion valve	- Excessive refrigerant in low pressure piping - Expansion valve too wide open	Replace expansion valve

AIR CONDITIONING – REFRIGERANT

AC-15

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



1022124

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

AC-16

AIR CONDITIONING – REFRIGERANT

REPLACEMENT**1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM**

- (a) Start up the engine.
- (b) A/C switch is ON.
- (c) 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 compressor oil remaining in each component into the cooler compressor.
- (d) Stop the engine.
- (e) Using SST, discharge the refrigerant gas.

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

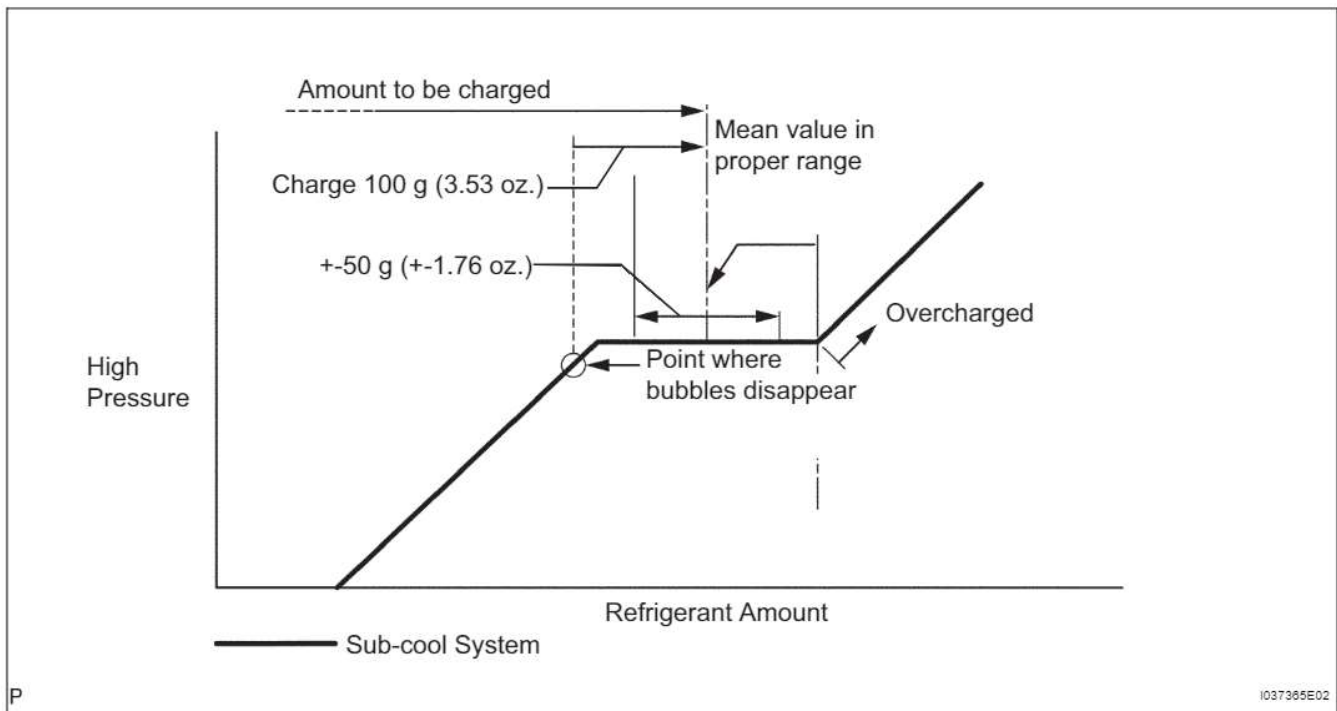
2. CHARGE REFRIGERANT

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

Standard:

430 $\pm$ 30 g (15.2 $\pm$ 1.1 oz.)

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

**NOTICE:**

- Do not operate the cooler compressor before charging refrigerant as the cooler compressor will not work properly without any refrigerant, and will overheat.

AIR CONDITIONING – REFRIGERANT

AC-17

- Approximately 100 g (3.53 oz.) of refrigerant may need to be charged after bubbles disappear. The refrigerant amount should be checked by measuring its quantity, and not with the sight glass.

3. WARM UP ENGINE

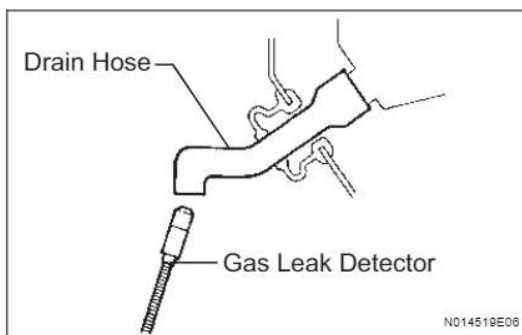
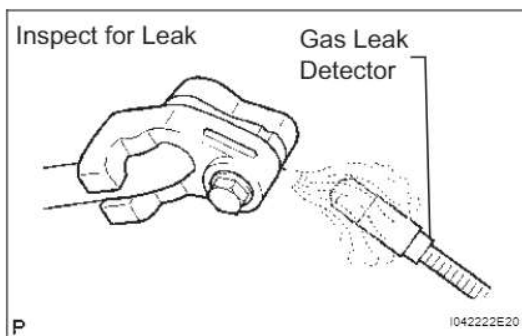
- (a) Warm up the engine at less than 1,850 rpm for 2 minutes or more after charging the refrigerant.

NOTICE:

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

4. INSPECT FOR REFRIGERANT LEAK

- (a) After recharging with refrigerant gas, inspect for refrigerant leak gas using a halogen leak detector.
- (b) Carry out the test under the following conditions:
- IG OFF
 - Secure good ventilation (the gas leak detector may react to volatile gases which are not refrigerant, such as evaporated gasoline and exhaust gas).
 - Repeat the test 2 or 3 times.
 - Make sure that there is some refrigerant remaining in the refrigeration system. When the compressor is off: approx. 392 to 588 kPa (4 to 6 kgf/cm², 57 to 85 psi)
- (c) Using a gas leak detector, inspect for refrigerant leak from the refrigerant lines..



- (d) Bring the gas leak detector close to the drain hose with the detector's power off, and then turn the detector on.

NOTICE:

- After the blower motor has stopped, let the cooling unit stand for more than 15 minutes.
- Bring the gas leak detector sensor under the drain hose.
- When bringing the gas leak detector close to the drain hose, make sure that the gas leak detector does not react to volatile gases. If it is not possible to avoid interference from volatile gases, the vehicle should be lifted up to allow testing.

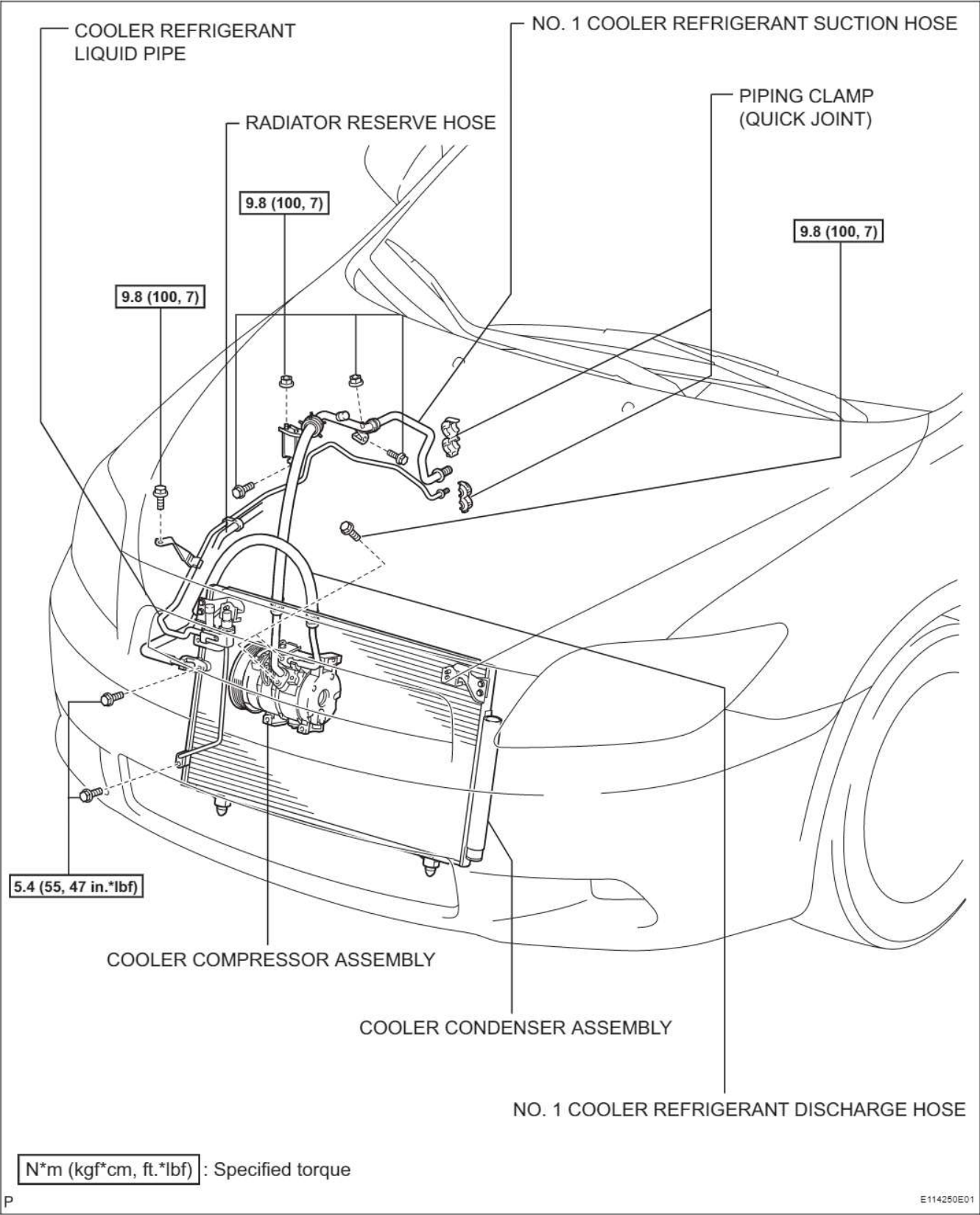
AC

AC-18**AIR CONDITIONING – REFRIGERANT**

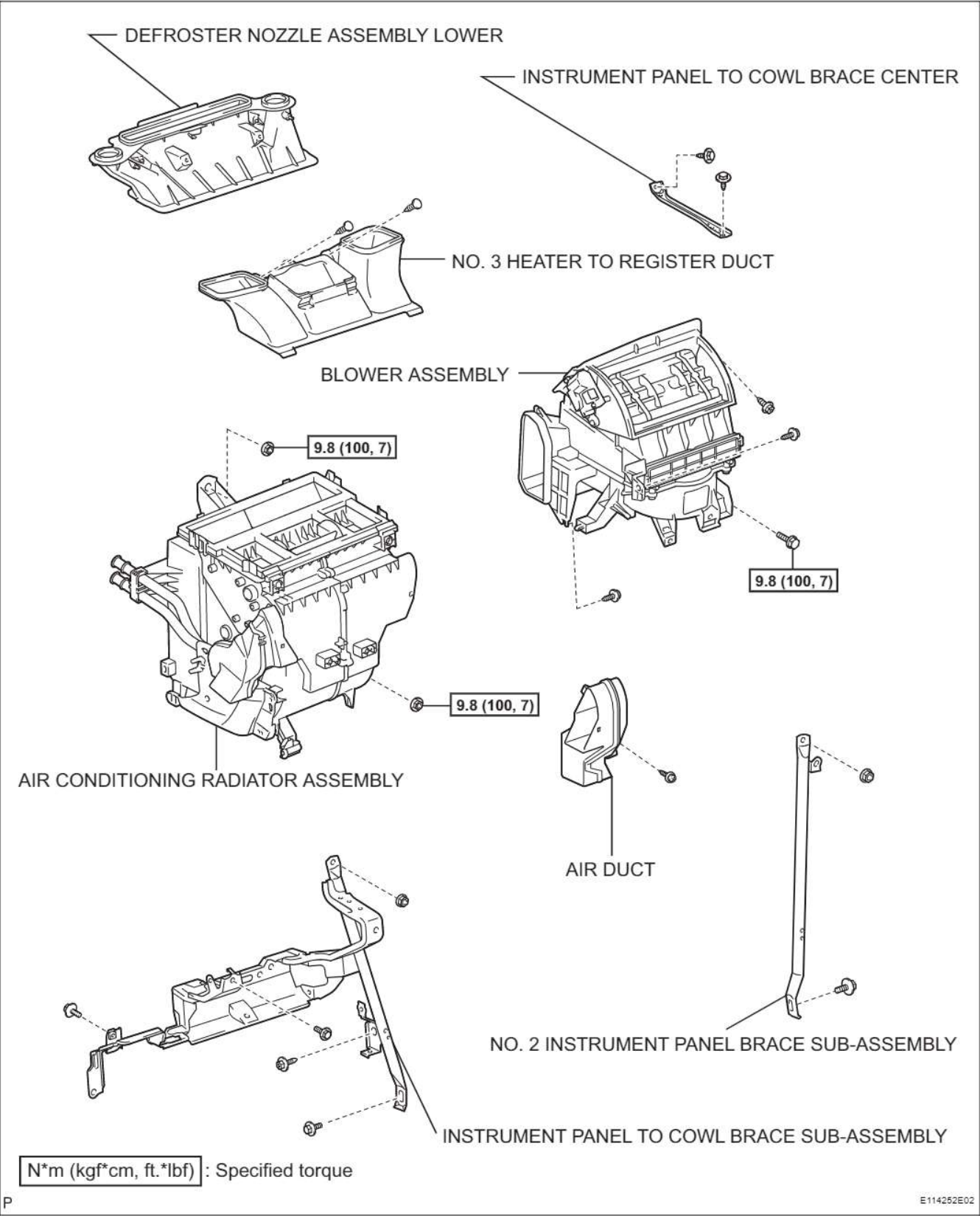
- (e) If a gas leak is not detected from the drain hose, remove the blower motor control from the cooling unit. Insert the gas leak detector sensor into the unit and perform the test.
- (f) Disconnect the pressure switch connector and leave it for approximately 20 minutes. Bring the gas leak detector close to the pressure switch and perform the test.

REFRIGERANT LINE

COMPONENTS

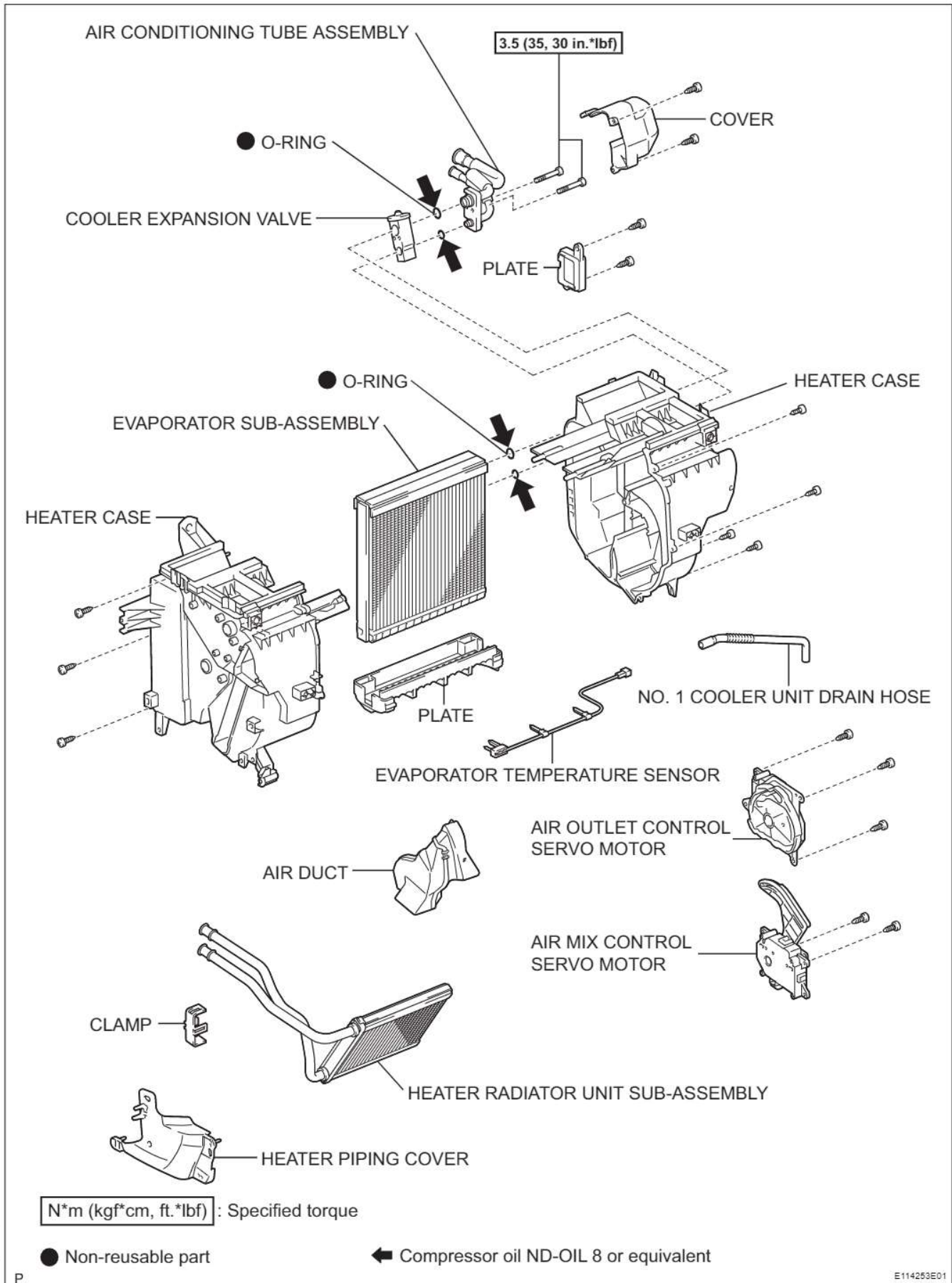


AIR CONDITIONING UNIT
COMPONENTS



AC-20

AIR CONDITIONING – AIR CONDITIONING UNIT



REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page AC-15)

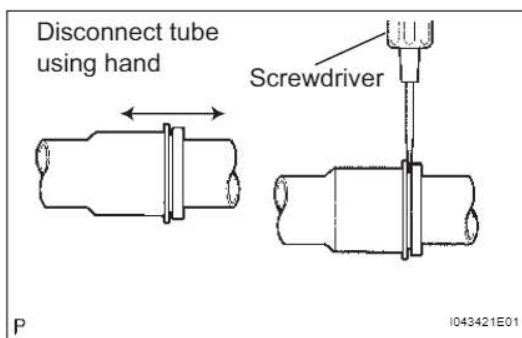
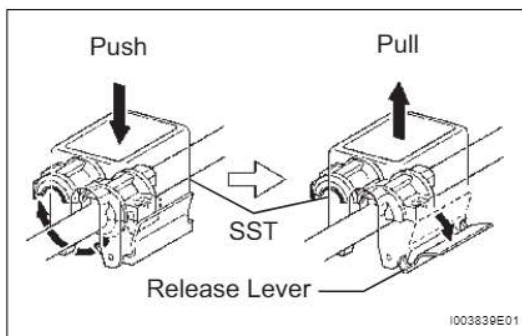
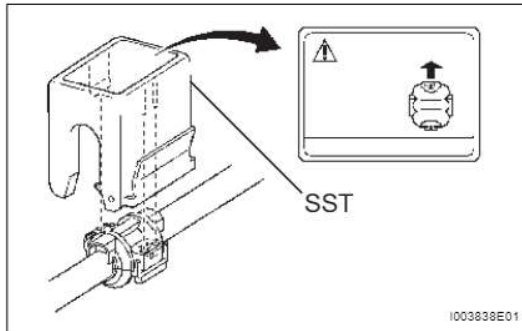
3. DISCONNECT NO. 1 COOLER REFRIGERANT SUCTION HOSE

- (a) Install SST on the piping clamp.

SST 09870-00025

HINT:

Confirm the correct direction of the piping clamp claw and SST by checking the illustration on the caution label.



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

NOTICE:

Be careful not to deform the tube when pushing SST.

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

- (d) Disconnect the cooler refrigerant suction hose.

NOTICE:

- Do not use a screwdriver or similar tool to disconnect the hose.
- Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering them.

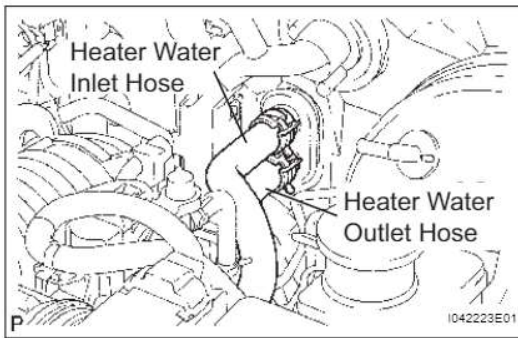
- (e) Remove the 2 O-rings from the cooler refrigerant suction hose.

4. DISCONNECT COOLER REFRIGERANT LIQUID PIPE

SST 09870-00015

HINT:

Disconnection of the cooler refrigerant liquid pipe is the same as for the cooler refrigerant suction hose.

AC-22**AIR CONDITIONING – AIR CONDITIONING UNIT****5. DISCONNECT HEATER WATER INLET HOSE**

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

6. DISCONNECT HEATER WATER OUTLET HOSE**HINT:**

Disconnection of the heater water outlet hose is the same as for the heater water inlet hose.

7. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY UPPER

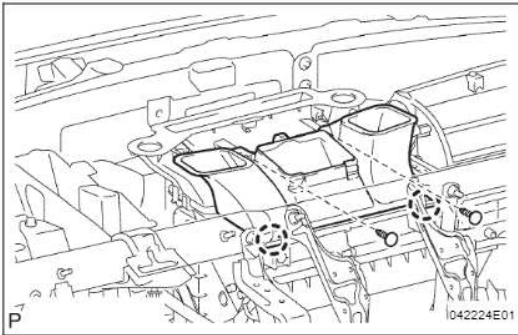
- (a) Remove the instrument panel sub-assembly upper (see page [IP-4](#)).

8. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY LOWER

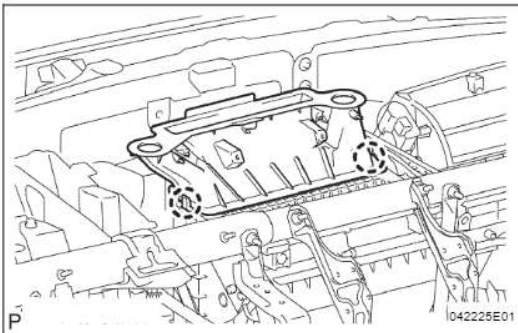
- (a) Remove the instrument panel sub-assembly lower (see page [IP-16](#)).

9. REMOVE ECM (See page [ES-407](#))**10. REMOVE NO. 3 HEATER TO REGISTER DUCT**

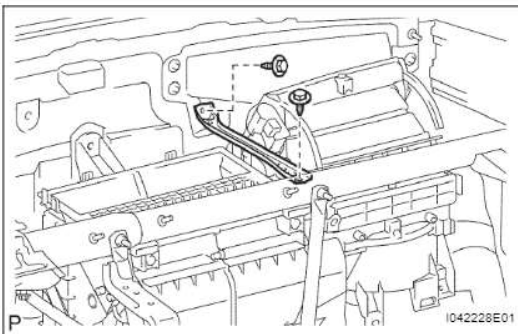
- (a) Remove the 2 clips.
- (b) Detach the 2 claws and remove the heater to register duct.

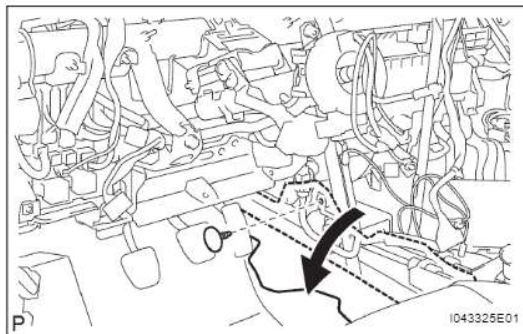
**11. REMOVE DEFROSTER NOZZLE ASSEMBLY LOWER**

- (a) Detach the 2 claws and remove the defroster nozzle assembly lower.

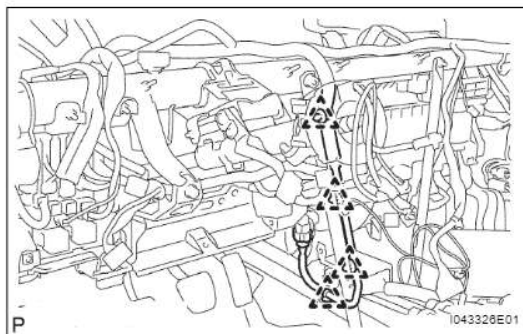
**12. REMOVE INSTRUMENT PANEL TO COWL BRACE CENTER**

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

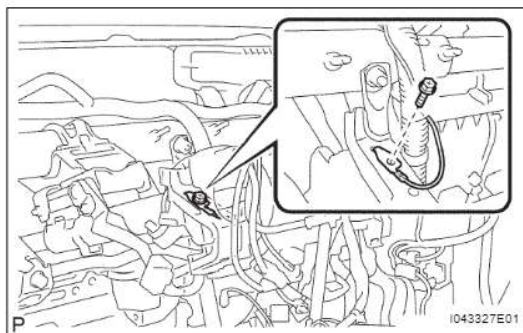


AIR CONDITIONING – AIR CONDITIONING UNIT**AC-23****13. REMOVE INSTRUMENT PANEL TO COWL BRACE SUB-ASSEMBLY**

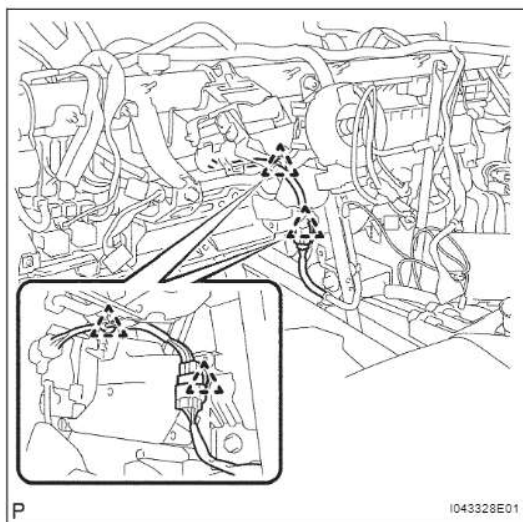
(a) Remove the clip and fold the floor carpet back.



(b) Disconnect the 4 clamps and disconnect the wire harness.

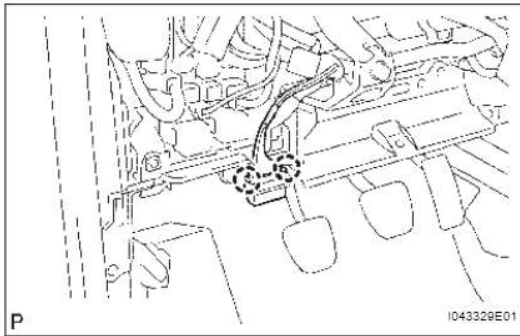


(c) Remove the bolt and disconnect the ground wire.

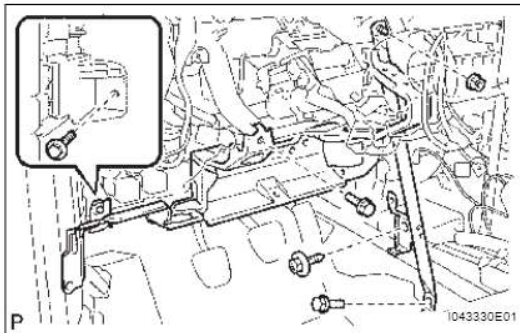


(d) Disconnect the 2 clamps and disconnect the wire harness.

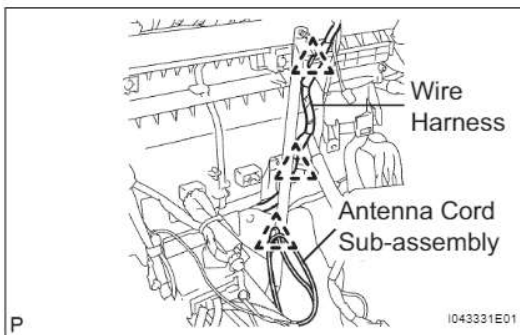
AC

AC-24**AIR CONDITIONING – AIR CONDITIONING UNIT**

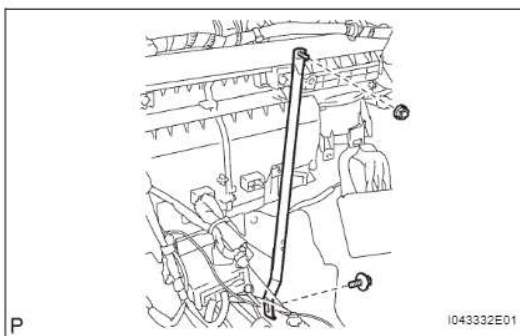
(e) Detach the 2 claws and disconnect the connector.



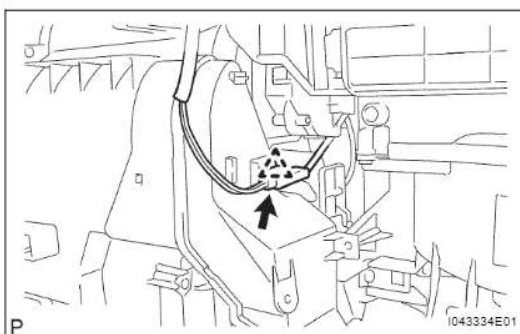
(f) Remove the 3 bolts, nut, screw and instrument panel to cowl brace sub-assembly.

**14. REMOVE NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY**

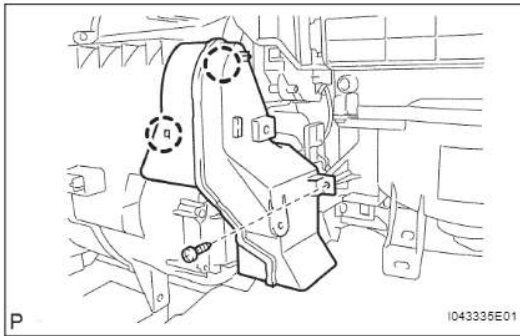
- (a) Disconnect the 2 clamps and separate the wire harness.
- (b) Disconnect the clamp and separate the antenna cord sub-assembly.



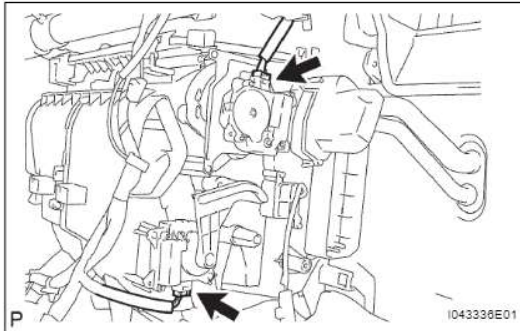
(c) Remove the bolt, nut and instrument panel brace.

**15. REMOVE AIR DUCT**

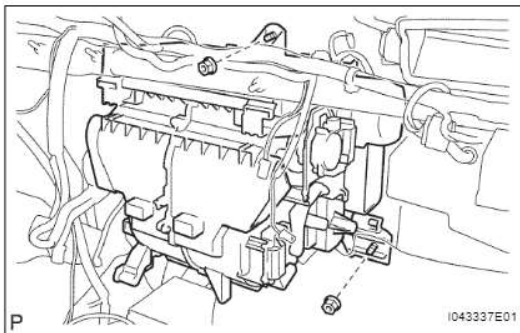
- (a) Remove the connectors from the air duct and disconnect the connector.

AIR CONDITIONING – AIR CONDITIONING UNIT**AC-25**

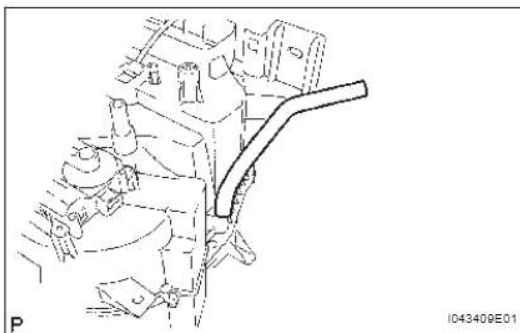
- (b) Remove the screw.
- (c) Detach the 2 claws and remove the air duct.

16. REMOVE BLOWER ASSEMBLY (See page AC-38)**17. REMOVE AIR CONDITIONING RADIATOR ASSEMBLY**

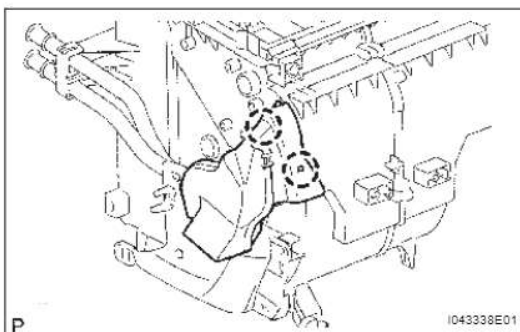
- (a) Remove the 2 connectors.



- (b) Remove the 2 nuts and the air conditioning radiator.

**DISASSEMBLY****1. REMOVE NO. 1 COOLER UNIT DRAIN HOSE**

- (a) Remove the cooler unit drain hose.

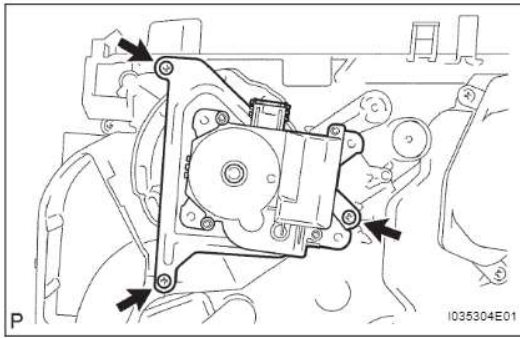
**2. REMOVE AIR DUCT**

- (a) Detach the 2 claws and remove the air duct.

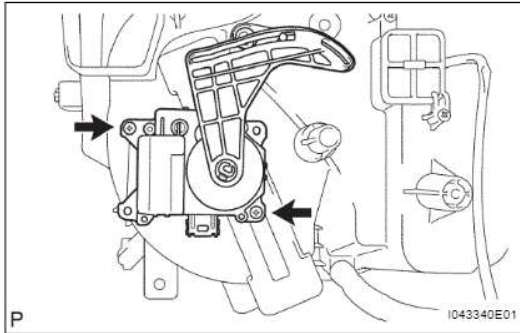
AC

AC-26

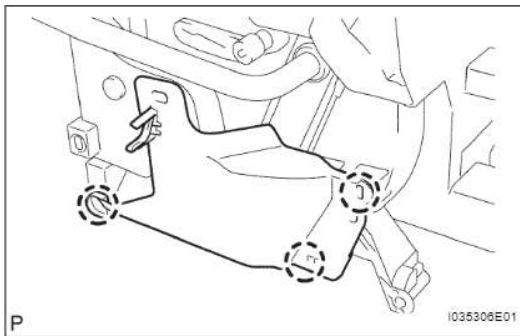
AIR CONDITIONING – AIR CONDITIONING UNIT



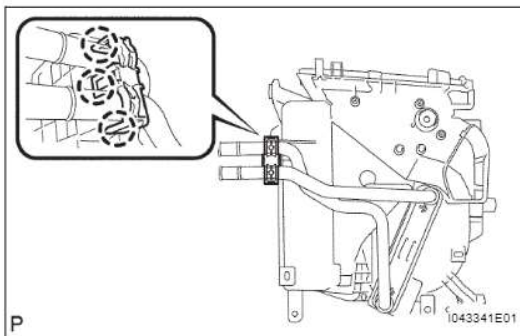
- 3. REMOVE AIR OUTLET CONTROL SERVO MOTOR**
 (a) Remove the 3 screws and air outlet control servo motor.



- 4. REMOVE AIR MIX CONTROL SERVO MOTOR**
 (a) Remove the 2 screws and air mix control servo motor.

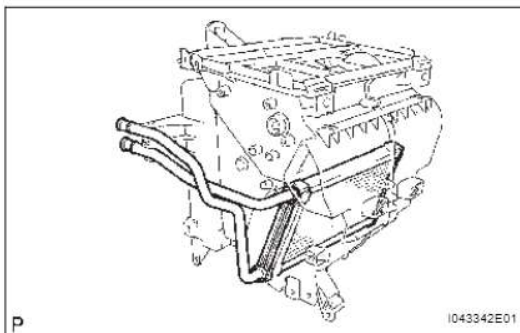


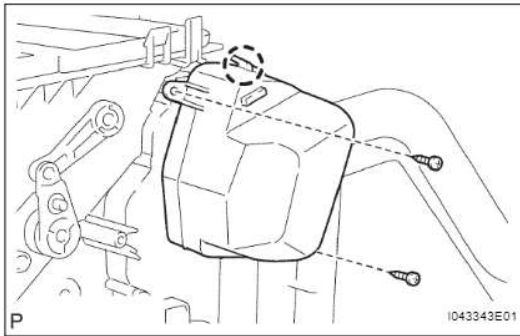
- 5. REMOVE HEATER PIPING COVER**
 (a) Detach the 3 claws and remove the heater piping cover.



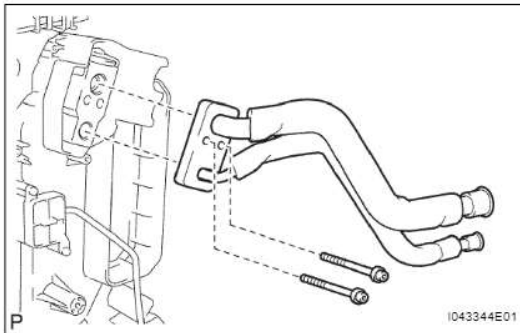
- 6. REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY**
 (a) Detach the 3 claws and remove the clamp.

- (b) Remove the heater radiator unit.

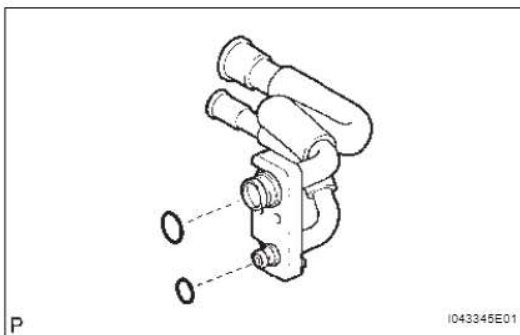


AIR CONDITIONING – AIR CONDITIONING UNIT**AC-27****7. REMOVE AIR CONDITIONING TUBE ASSEMBLY**

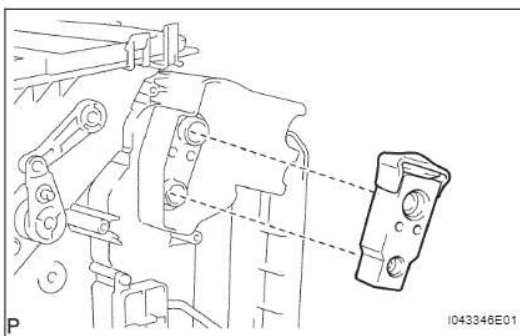
- (a) Remove the 2 screws.
- (b) Detach the claw and remove the cover.



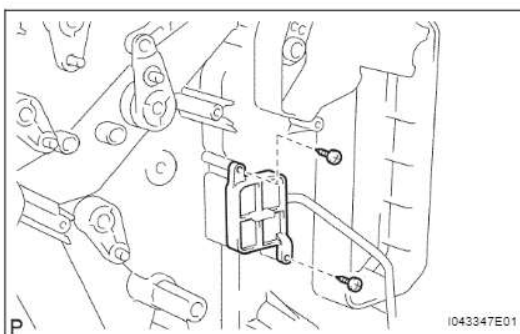
- (c) Using a 4 mm hexagon wrench, remove the 2 hexagon bolts and air conditioning tube.



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

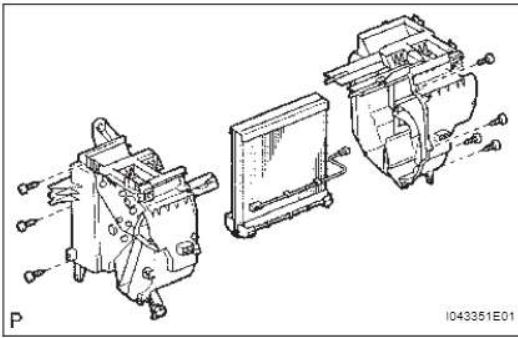
**8. REMOVE COOLER EXPANSION VALVE**

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

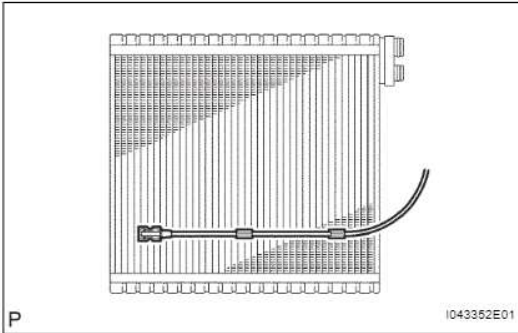
**9. REMOVE EVAPORATOR TEMPERATURE SENSOR**

- (a) Remove the 2 screws and plate.

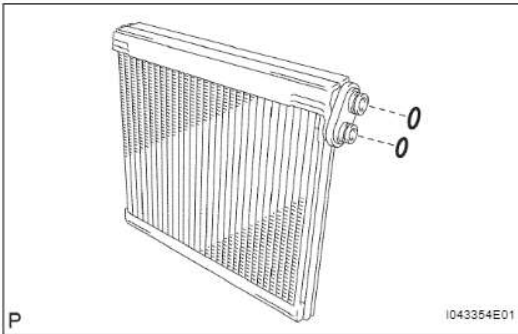
AC

AC-28**AIR CONDITIONING – AIR CONDITIONING UNIT**

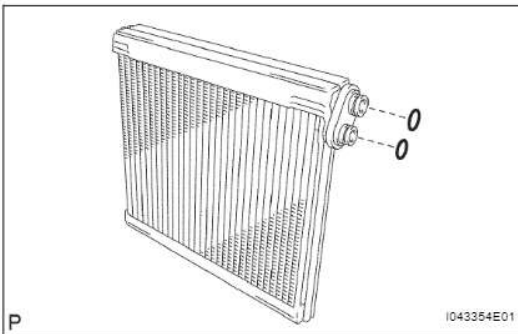
- (b) Remove the 7 screws, cooler evaporator and evaporator temperature sensor.



- (c) Remove the evaporator temperature sensor from the cooler evaporator.

**10. REMOVE EVAPORATOR SUB-ASSEMBLY**

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

**REASSEMBLY****1. INSTALL COOLER EVAPORATOR SUB-ASSEMBLY**

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

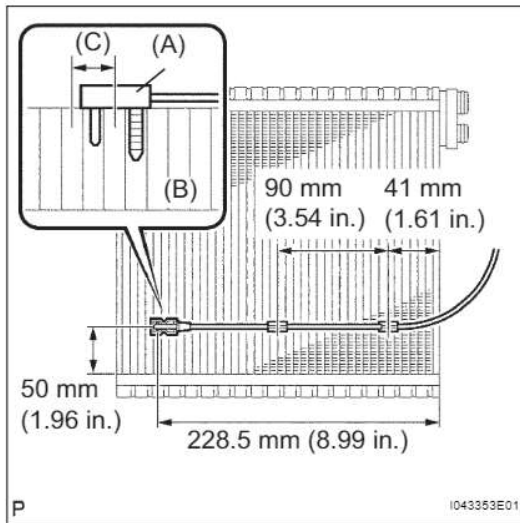
Compressor oil:

ND-OIL 8 or equivalent

- (b) Install the 2 O-rings on the cooler evaporator.

AIR CONDITIONING – AIR CONDITIONING UNIT

AC-29

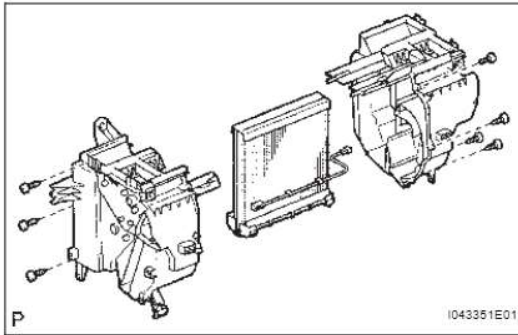


2. INSTALL EVAPORATOR TEMPERATURE SENSOR

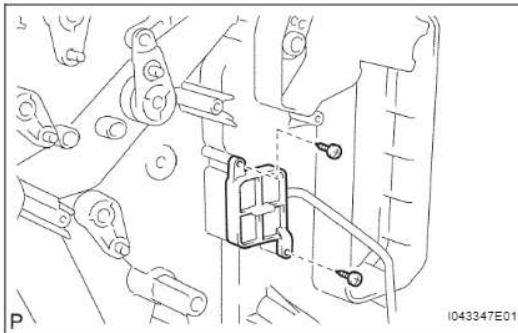
- Install the evaporator temperature sensor as shown in the illustration.
- Check that the sensor sticks to the evaporator surface as shown in the illustration (A: Sensor, B: Evaporator).

NOTICE:

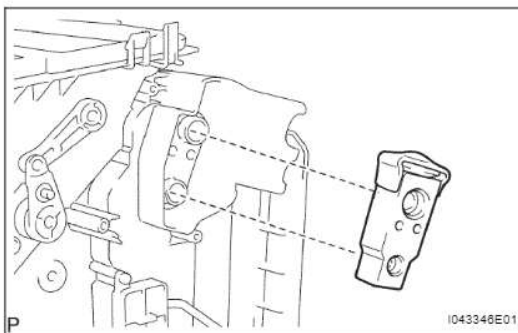
If reusing the evaporator, **DO NOT** insert the sensor to the position that it had been inserted before. Insert it between position C shown in the illustration.



- Install the cooler evaporator on the heater case with the 7 screws.



- Install the plate with the 2 screws.

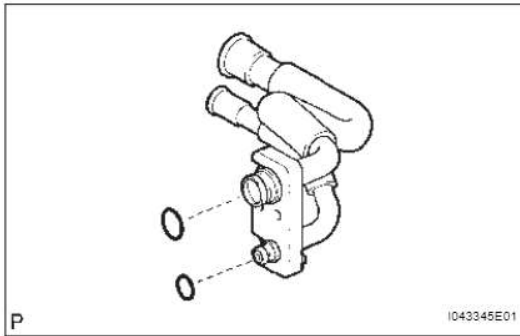


3. INSTALL COOLER EXPANSION VALVE

- Install the cooler expansion valve to the cooler evaporator.

AC-30

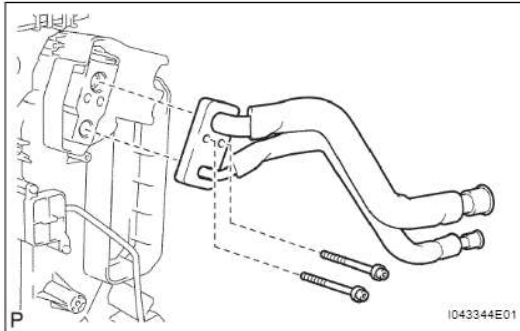
AIR CONDITIONING – AIR CONDITIONING UNIT

**4. INSTALL AIR CONDITIONING TUBE ASSEMBLY**

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

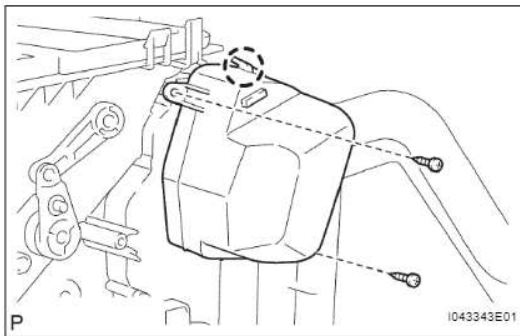
Compressor oil:

ND-OIL 8 or equivalent

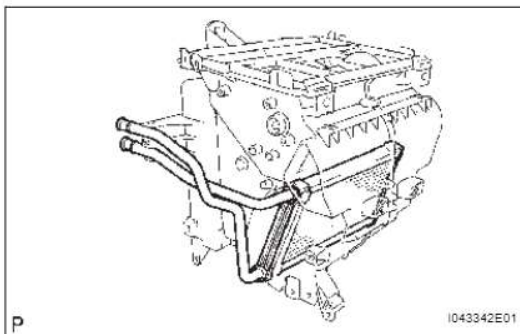


- (b) Using a 4 mm hexagon wrench, install the air conditioning tube with the 2 hexagon bolts.

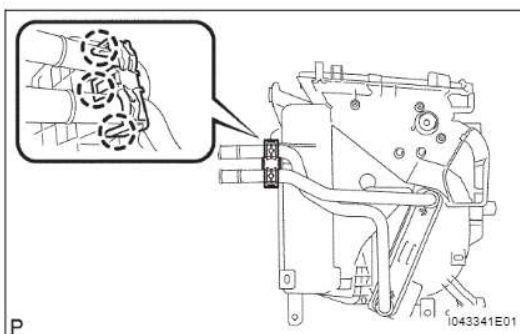
Torque: 3.5 N*m (35 kgf*cm, 30 in.*lbf)



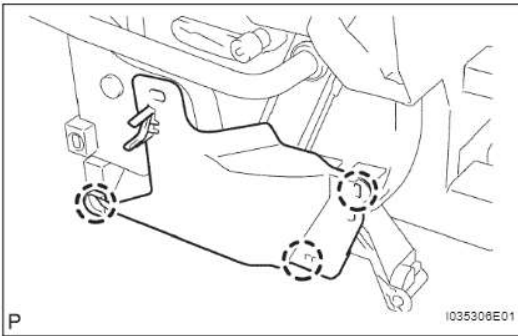
- (c) Install the cover with the claw and 2 screws.

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

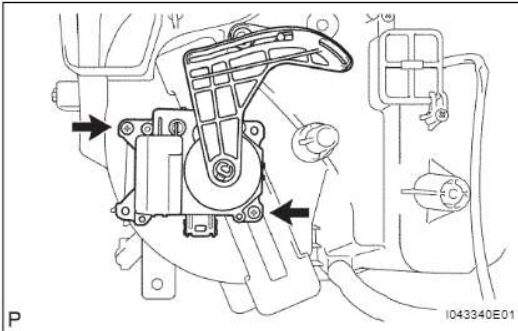
- (a) Install the heater radiator unit.



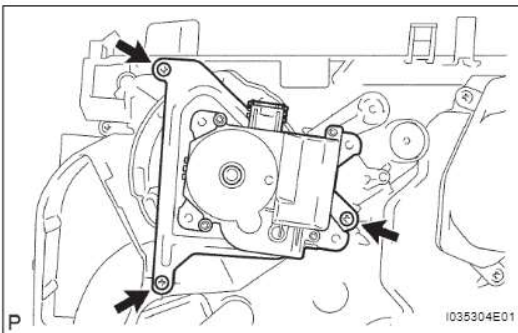
- (b) Attach the 3 claws and install the clamp.

AIR CONDITIONING – AIR CONDITIONING UNIT**AC-31****6. INSTALL HEATER PIPING COVER**

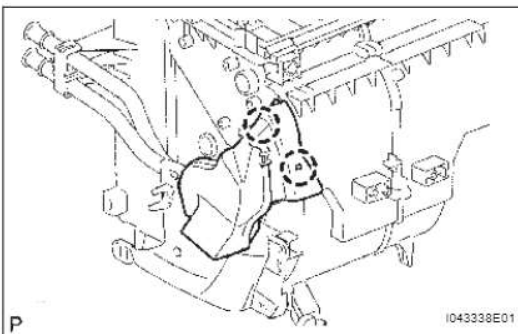
- (a) Attach the 3 claws and install the heater piping cover.

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

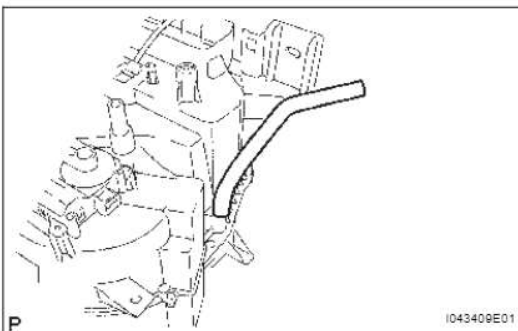
- (a) Install the air mix control servo motor with the 2 screws.

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

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

**9. INSTALL AIR DUCT**

- (a) Attach the 2 claws and install the air duct.

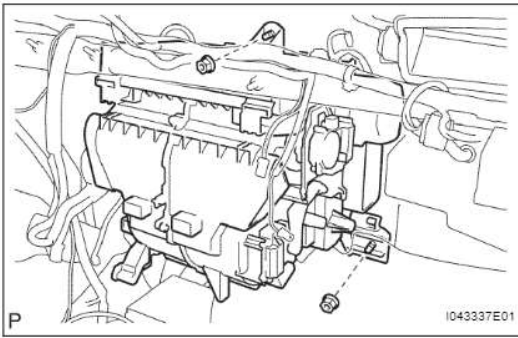
**10. INSTALL NO. 1 COOLER UNIT DRAIN HOSE**

- (a) Install the cooler unit drain hose.

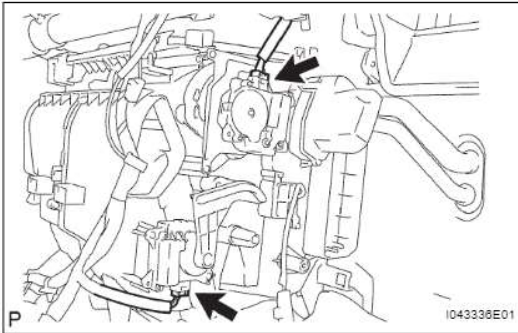
AC

AC-32**AIR CONDITIONING – AIR CONDITIONING UNIT****INSTALLATION****1. INSTALL AIR CONDITIONING RADIATOR ASSEMBLY**

- (a) Temporarily tighten the air conditioning radiator with the 2 nuts.



- (b) Connect the 2 connectors.

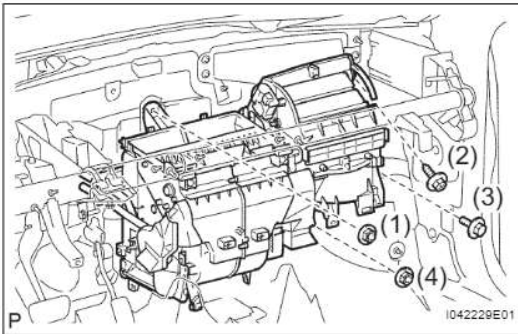
2. INSTALL BLOWER ASSEMBLY (See page AC-40)**3. INSTALL AIR CONDITIONING UNIT ASSEMBLY**

- (a) Fully tighten the air conditioner unit with the bolt, screw and 2 nuts.

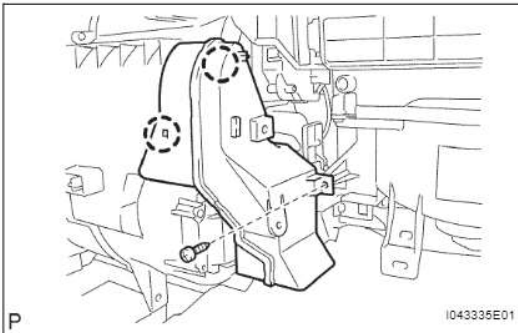
Torque: 9.8 N*m (100 kgf*cm, 7 ft.*lbf)

NOTICE:

Tighten in the order indicated in the illustration.

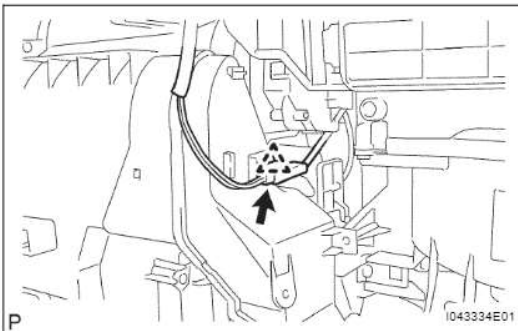
**4. INSTALL AIR DUCT**

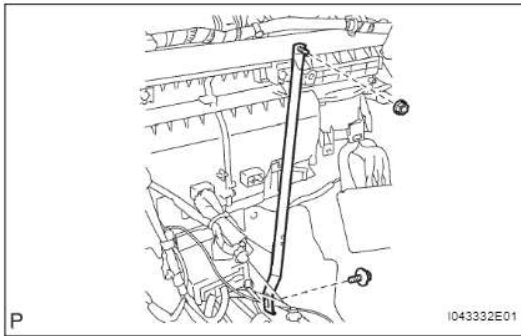
- (a) Attach the 2 claws and install the air duct.



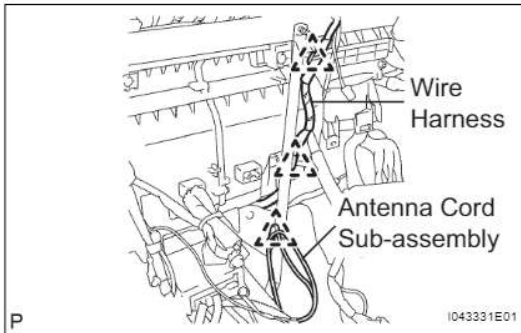
- (b) Install the screw.

- (c) Connect the connector and install the connector to the air duct.

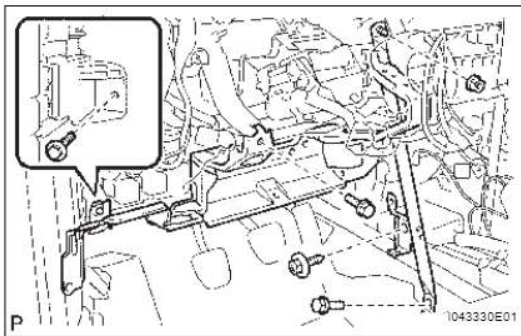


AIR CONDITIONING – AIR CONDITIONING UNIT**AC-33****5. INSTALL NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY**

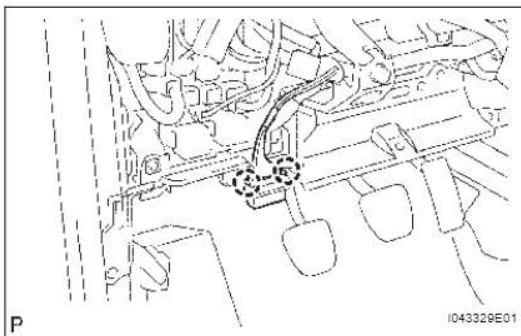
- (a) Install the instrument panel brace with the bolt and nut.



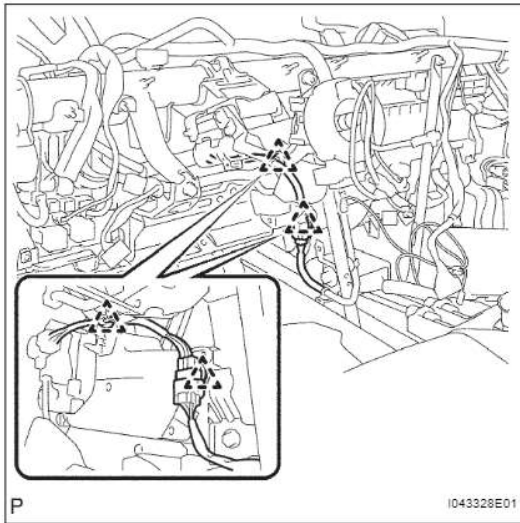
- (b) Install the antenna cord and attach the clamp.
(c) Install the wire harness and attach the 2 clamps.

**6. INSTALL INSTRUMENT PANEL TO COWL BRACE SUB-ASSEMBLY**

- (a) Install the instrument panel to cowl brace with the 3 bolts and nut.



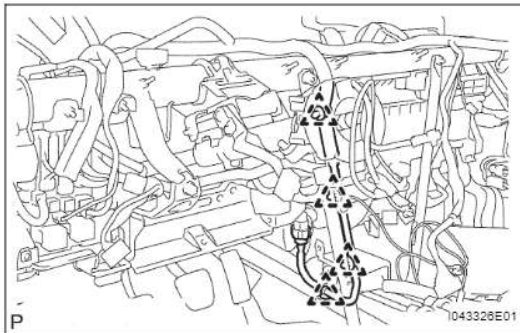
- (b) Attach the 2 claws to install the connector.

AC-34**AIR CONDITIONING – AIR CONDITIONING UNIT**

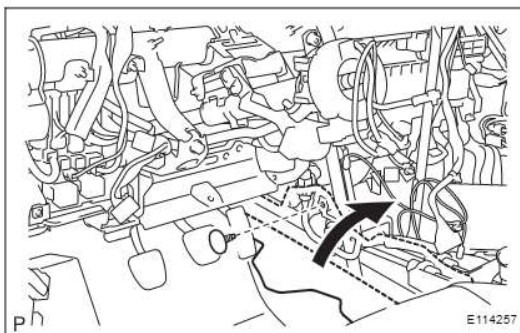
(c) Install the wire harness and attach the 2 clamps.



(d) Install the ground wire with the bolt.



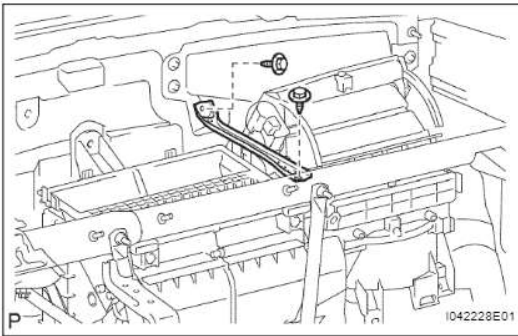
(e) Install the wire harness and attach the 4 clamps.



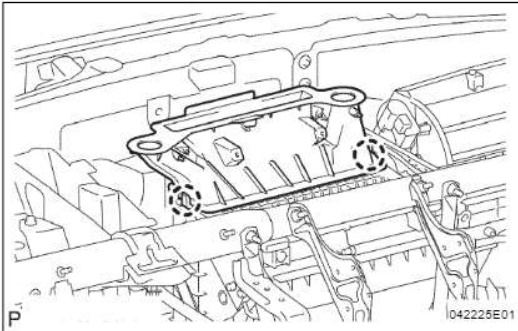
(f) Reposition the floor carpet and install the clip.

AIR CONDITIONING – AIR CONDITIONING UNIT

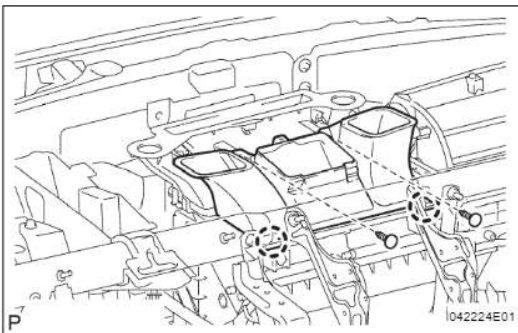
AC-35

**7. INSTALL INSTRUMENT PANEL TO COWL BRACE CENTER**

- (a) Install the instrument panel to cowl brace center with the 2 bolts.

**8. INSTALL DEFROSTER NOZZLE ASSEMBLY LOWER**

- (a) Attach the 2 claws and install the defroster nozzle assembly lower.

**9. INSTALL NO. 3 HEATER TO REGISTER DUCT**

- (a) Attach the 2 claws and install the heater to register duct.
(b) Install the 2 clips.

10. INSTALL ECM (See page [ES-408](#))**11. INSTALL INSTRUMENT PANEL LOWER ASSEMBLY**

- (a) Install the instrument panel lower assembly (see page [IP-21](#)).

12. INSTALL INSTRUMENT PANEL SUB-ASSEMBLY UPPER

- (a) Install the instrument panel sub-assembly upper (see page [IP-9](#)).

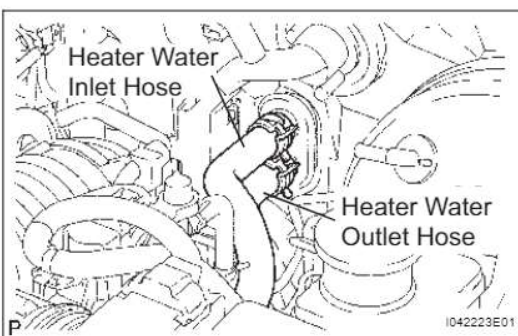
13. CONNECT HEATER WATER OUTLET HOSE

- (a) Connect the water hose and attach the clip.

14. CONNECT HEATER WATER INLET HOSE

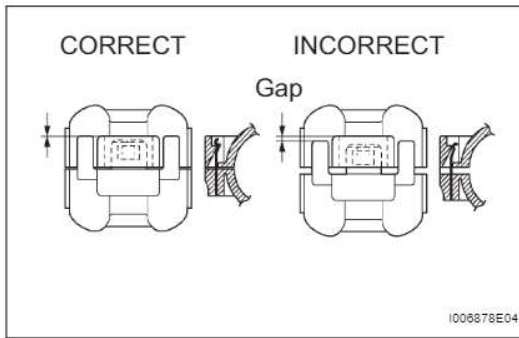
HINT:

Use the same procedures described for the water hose.



AC-36

AIR CONDITIONING – AIR CONDITIONING UNIT

**15. INSTALL COOLER REFRIGERANT LIQUID PIPE**

- (a) Remove the attached vinyl tape from the pipe.
- (b) Sufficiently apply compressor oil to new 2 O-rings and the fitting surface of the cooler refrigerant liquid pipe A.

Compressor oil:

ND-OIL 8 or equivalent

- (c) Install the 2 O-rings on the cooler refrigerant liquid pipe.
- (d) Install the cooler refrigerant liquid pipe and piping clamp.

HINT:

After the connection, check that the claw of the piping clamp is engaged.

16. INSTALL NO. 1 COOLER REFRIGERANT SUCTION HOSE

- (a) Remove the attached vinyl tape from the pipe.
- (b) Sufficiently apply compressor oil to new 2 O-rings and the fitting surface of the cooler refrigerant suction hose.

Compressor oil:

ND-OIL 8 or equivalent

- (c) Install the 2 O-rings on the cooler refrigerant suction hose.
- (d) Install the cooler refrigerant suction hose and the piping clamp.

HINT:

After the connection, check that the claw of the piping clamp is engaged.

17. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**18. PERFORM INITIALIZATION**

- (a) Perform initialization (see page [IN-23](#)).

NOTICE:

Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

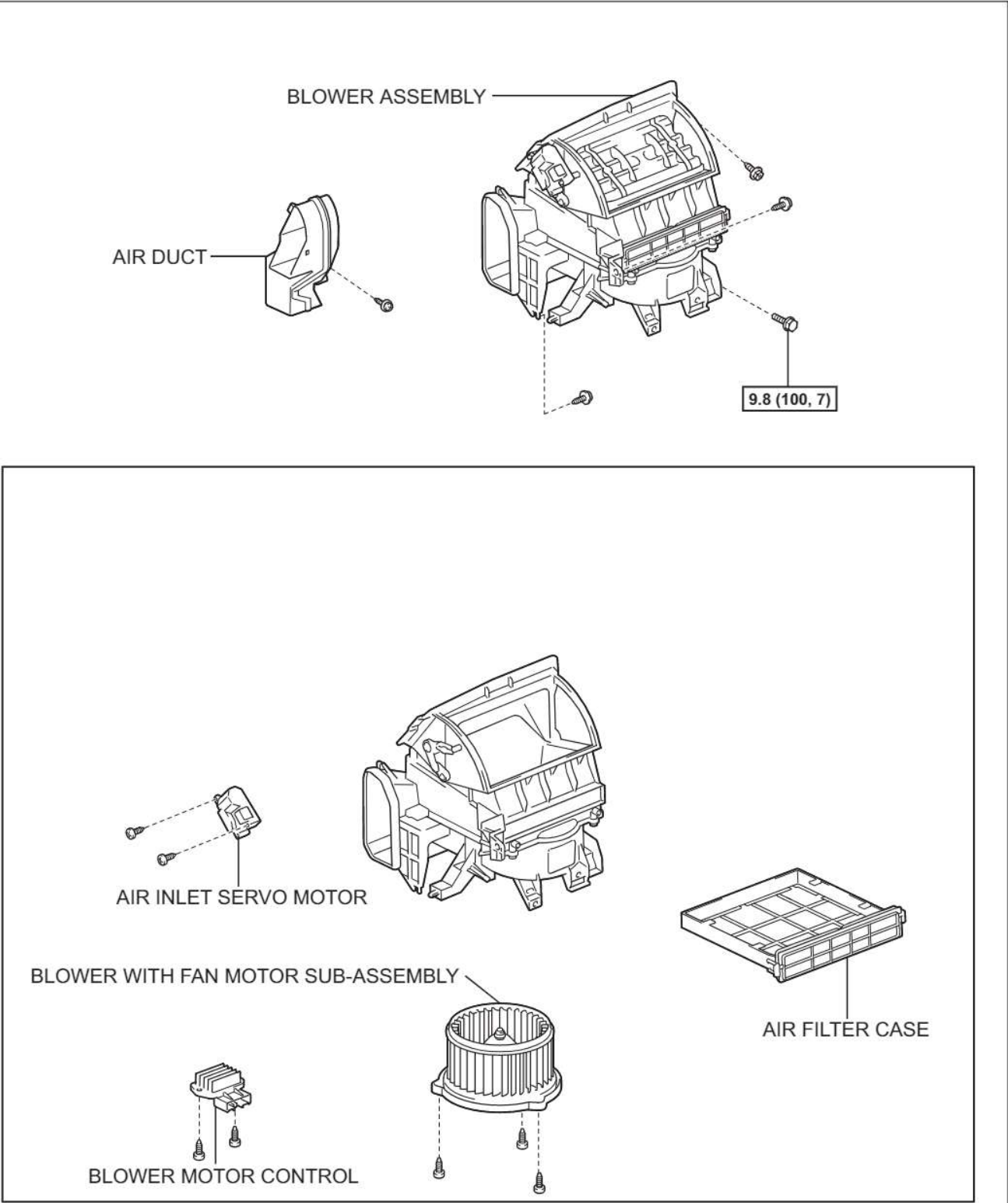
19. INSPECT SRS WARNING LIGHT

- (a) Check the SRS warning light (see page [RS-11](#)).

20. ADD ENGINE COOLANT (See page [CO-6](#))**21. CHARGE REFRIGERANT (See page [AC-15](#))****22. WARM UP ENGINE (See page [AC-16](#))****23. INSPECT FOR ENGINE COOLANT LEAK (See page [CO-1](#))****24. INSPECT FOR REFRIGERANT LEAK (See page [AC-16](#))**

BLOWER UNIT

COMPONENTS



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

P

E114254E01

AC

AC-38

AIR CONDITIONING – BLOWER UNIT

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. **REMOVE INSTRUMENT PANEL SUB-ASSEMBLY UPPER**

(a) Remove the instrument panel sub-assembly upper (see page [IP-4](#)).

3. **REMOVE INSTRUMENT PANEL SUB-ASSEMBLY LOWER**

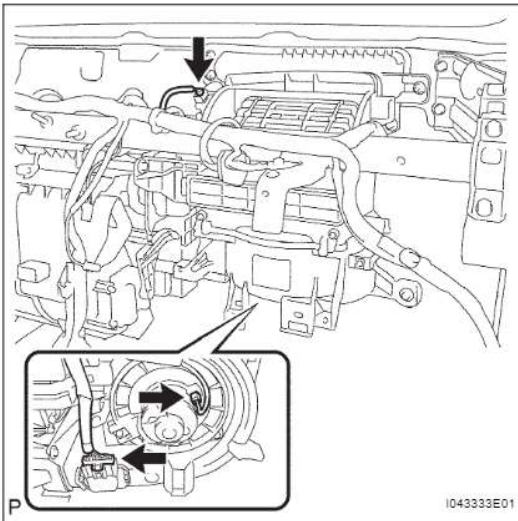
(a) Remove the instrument panel sub-assembly lower (see page [IP-16](#)).

4. **REMOVE ECM (See page [ES-407](#))**

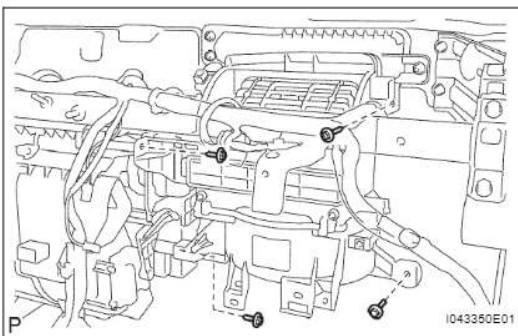
5. **REMOVE AIR DUCT (See page [AC-24](#))**

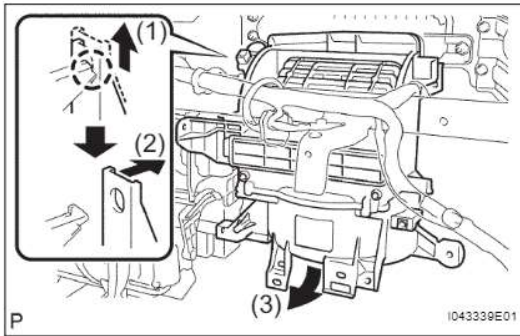
6. **REMOVE BLOWER ASSEMBLY**

(a) Disconnect the 3 connectors.



(b) Remove the 3 screws and bolt.

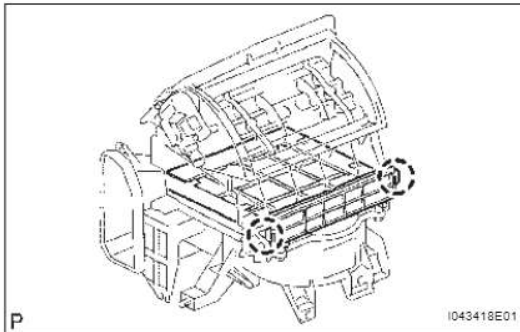


AIR CONDITIONING – BLOWER UNIT**AC-39**

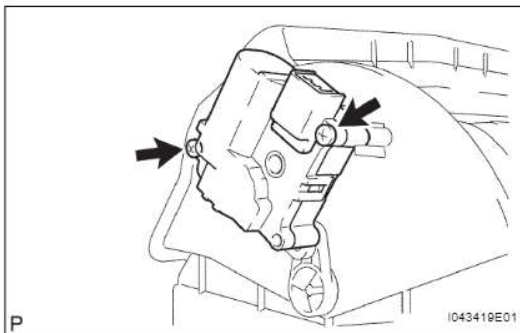
- (c) Detach the claw and remove the blower in the order shown in the illustration.

DISASSEMBLY**1. REMOVE AIR FILTER CASE**

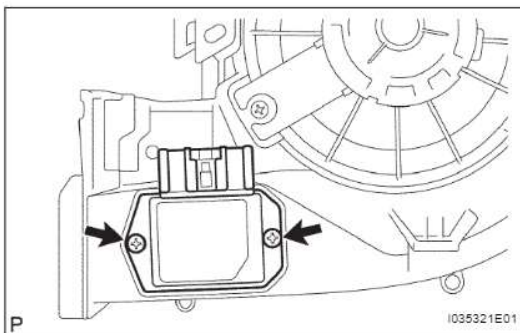
- (a) Detach the 2 claws and remove the air filter case.

**2. REMOVE AIR INLET SERVO MOTOR**

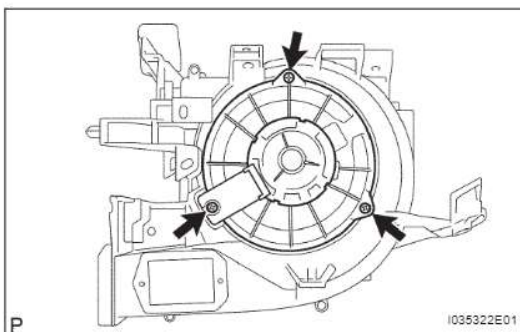
- (a) Remove the 2 screws and air inlet servo motor.

**3. REMOVE BLOWER MOTOR CONTROL**

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

**4. REMOVE BLOWER WITH FAN MOTOR SUB-ASSEMBLY**

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

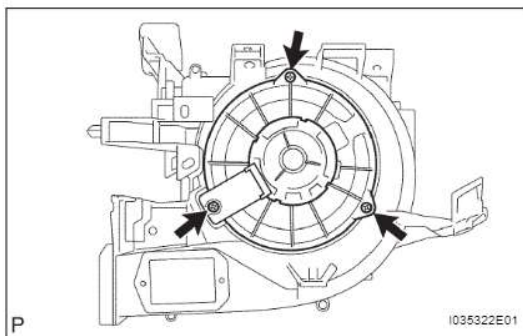
**AC**

AC-40

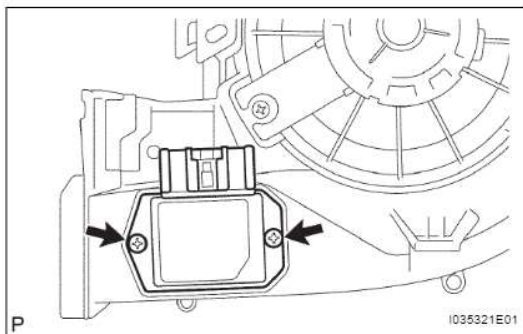
AIR CONDITIONING – BLOWER UNIT

REASSEMBLY**1. INSTALL BLOWER WITH FAN MOTOR SUB-ASSEMBLY**

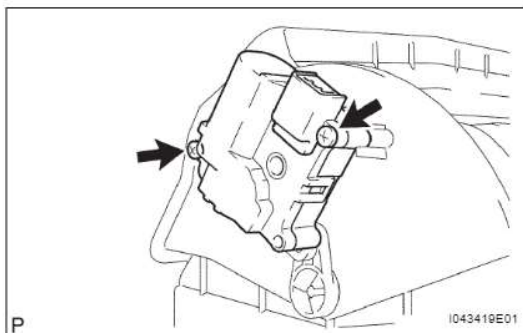
(a) Install the blower motor with the 3 screws.

**2. INSTALL BLOWER MOTOR CONTROL**

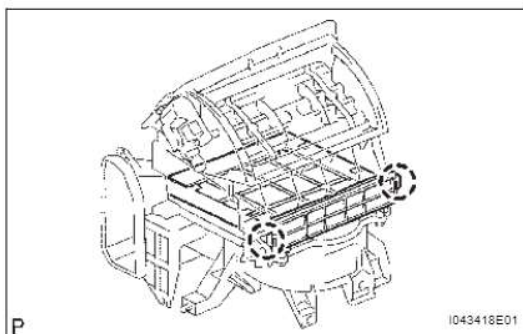
(a) Install the blower motor control with the 2 screws.

**3. INSTALL AIR INLET SERVO MOTOR**

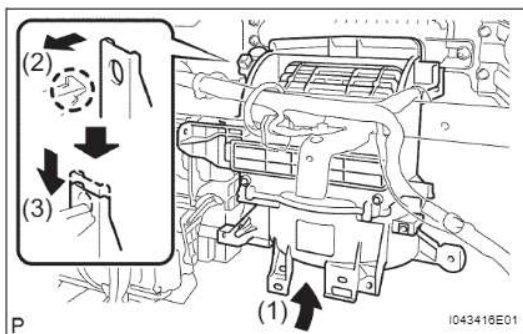
(a) Install the air inlet servo motor with the 2 screws.

**4. INSTALL AIR FILTER CASE**

(a) Install the air filter case and attach the 2 claws.

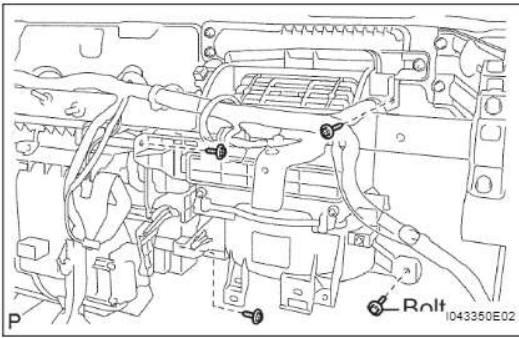
**INSTALLATION****1. INSTALL BLOWER ASSEMBLY**

(a) Install the blower assembly with the claw in the order shown in the illustration.



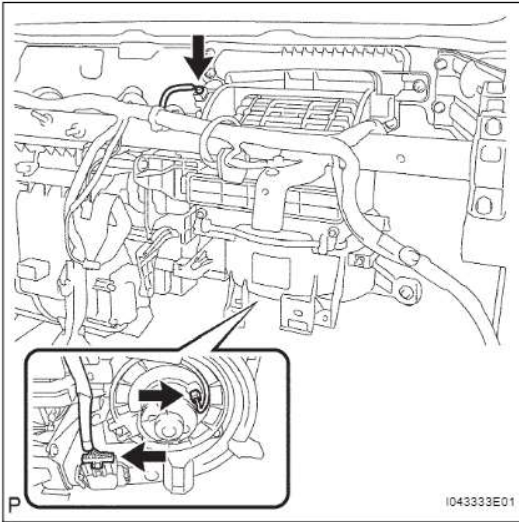
AIR CONDITIONING – BLOWER UNIT

AC-41



- (b) Install the blower assembly with the bolt and 3 screws.

Torque: 9.8 N*m (100 kgf*cm, 7 ft.*lbf) for bolt



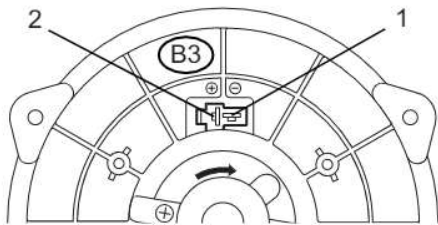
- (c) Connect the 3 connectors.

2. **INSTALL AIR DUCT** (See page [AC-32](#))
3. **INSTALL ECM** (See page [ES-408](#))
4. **INSTALL INSTRUMENT PANEL SUB-ASSEMBLY LOWER**
 - (a) Install the instrument panel sub-assembly lower (see page [IP-21](#)).
5. **INSTALL INSTRUMENT PANEL SUB-ASSEMBLY UPPER**
 - (a) Install the instrument panel sub-assembly upper (see page [IP-9](#)).
6. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
7. **PERFORM INITIALIZATION**
 - (a) Perform initialization (see page [IN-23](#)).
8. **INSPECT SRS WARNING LIGHT**
 - (a) Check the SRS warning light (see page [RS-11](#)).

AC-42

AIR CONDITIONING – BLOWER MOTOR

Component without harness connected:
(Blower with Fan Motor Sub-assembly)



H

E135525E02

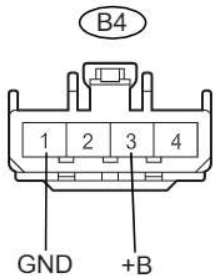
BLOWER MOTOR

ON-VEHICLE INSPECTION

1. INSPECT BLOWER WITH FAN MOTOR SUB-ASSEMBLY

- Disconnect the B3 blower with fan motor connector.
- Connect the positive (+) lead from the battery to terminal 1 and negative (-) lead to terminal 2, and then check that the motor operates smoothly. If the operation is not as specified, replace the blower motor.

Front view of wire harness connector:
(to Blower Motor Control)



H

E135528E01

BLOWER RESISTOR

ON-VEHICLE INSPECTION

1. INSPECT BLOWER MOTOR CONTROL

- (a) Disconnect the B4 blower motor control connector.
- (b) Measure the voltage of the wire harness side connector.

Standard voltage

Tester Connection	Condition	Specified Condition
B4-3 (+B) - B4-1 (GND)	Blower switch: OFF	10 to 14 V
B4-3 (+B) - B4-1 (GND)	Blower switch: LO	Below 1 V

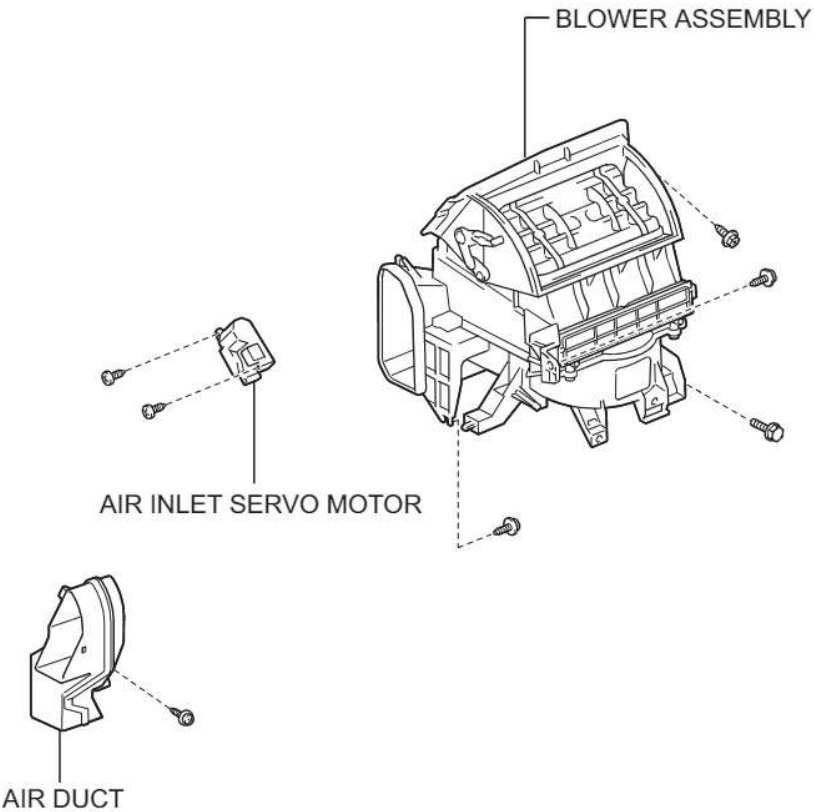
If the voltage is not as specified, replace the blower motor control.

AC-44

AIR CONDITIONING – AIR INLET CONTROL SERVO MOTOR

AIR INLET CONTROL SERVO MOTOR

COMPONENTS



REMOVAL

1. REMOVE BLOWER ASSEMBLY

(a) Remove the blower assembly (see page [AC-38](#)).

2. REMOVE AIR INLET SERVO MOTOR (See page [AC-39](#))

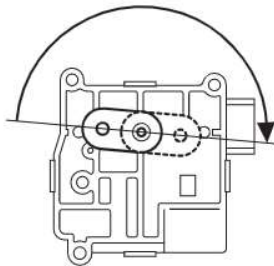
INSPECTION

1. INSPECT AIR INLET SERVO MOTOR

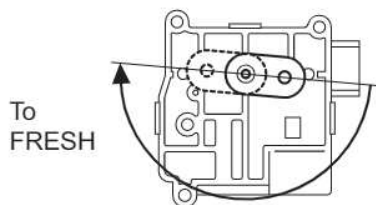
(a) Inspect the servo motor operation.

- (1) Connect the positive (+) lead from the battery to terminal D1-3 and negative (-) lead to terminal D1-2, and then check that the arm turns to the "FRESH" side smoothly.
- (2) Connect the positive (+) lead from the battery to terminal D1-3 and negative (-) lead to terminal D1-1, and then check that the arm turns to the "RECIRCULATION" side smoothly. If the operation is not as specified, replace the air inlet servo motor.

Air Inlet Servo Motor:

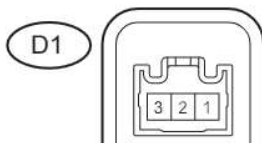


To RECIRCULATION



To FRESH

**Component without harness connected:
(Air Inlet Servo Motor)**



H

E135527E01

AC-46**AIR CONDITIONING – AIR INLET CONTROL SERVO MOTOR**

INSTALLATION

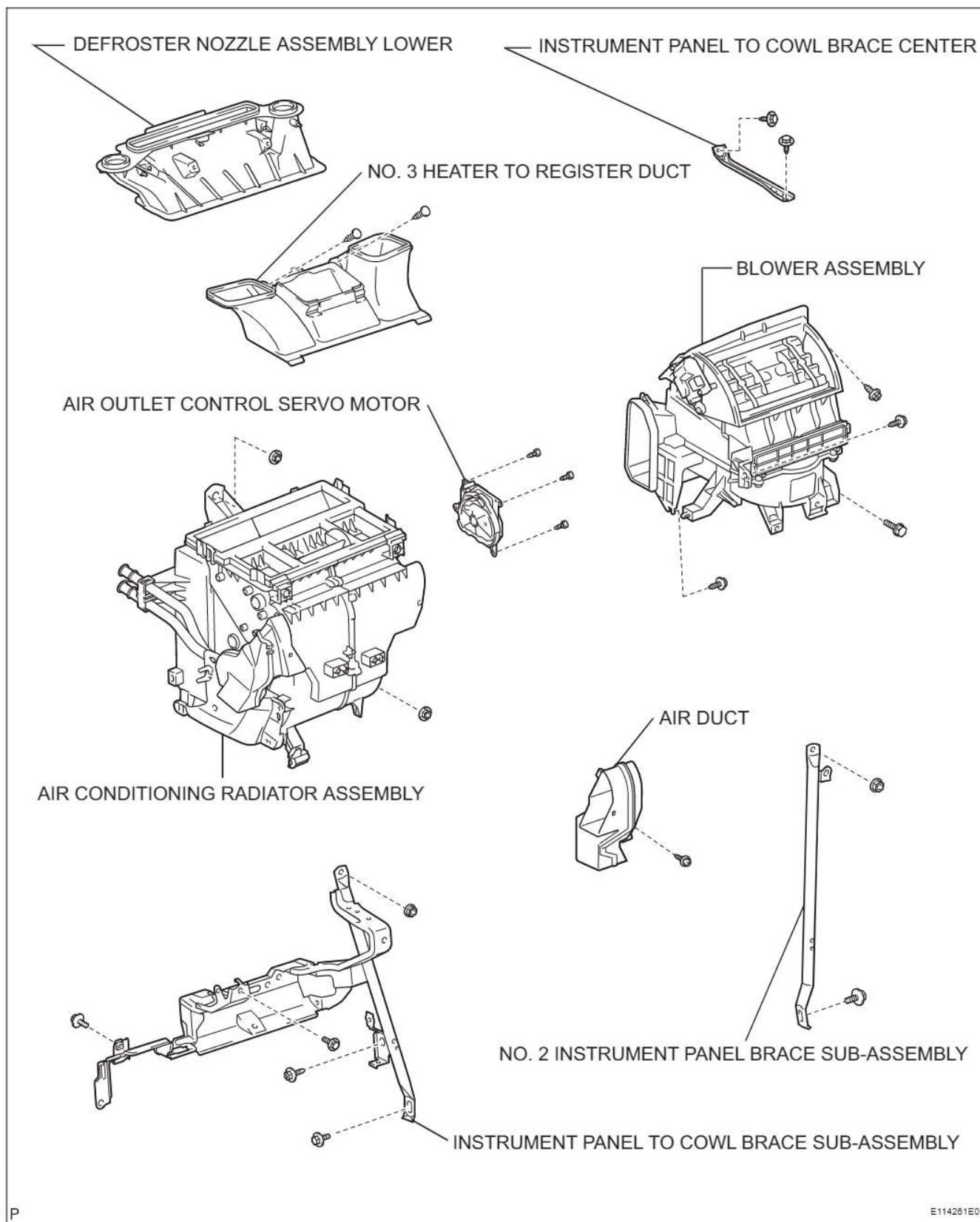
1. **INSTALL AIR INLET SERVO MOTOR** (See page [AC-40](#))
2. **INSTALL BLOWER ASSEMBLY**
 - (a) Install the blower assembly (see page [AC-40](#)).

AC-46

AIR CONDITIONING – AIR OUTLET CONTROL SERVO MOTOR

AIR OUTLET CONTROL SERVO MOTOR

COMPONENTS



REMOVAL

1. REMOVE AIR CONDITIONING RADIATOR ASSEMBLY

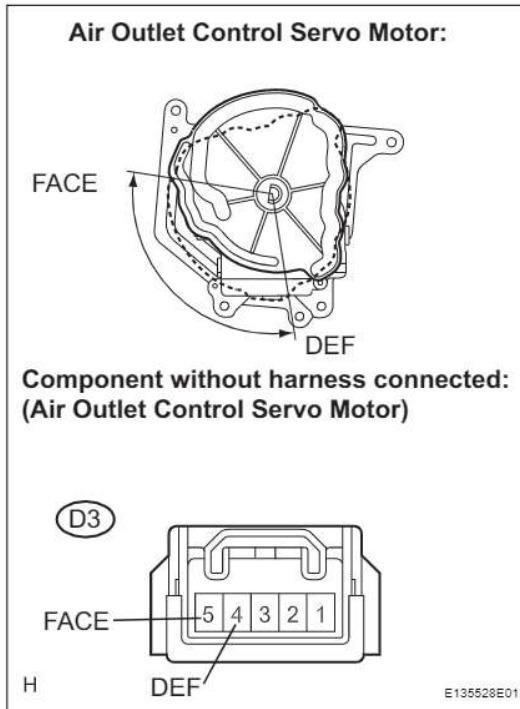
- (a) Remove the air conditioning radiator assembly (see page [AC-21](#)).

2. REMOVE AIR OUTLET CONTROL SERVO MOTOR (See page [AC-26](#))

INSPECTION

1. INSPECT AIR OUTLET CONTROL SERVO MOTOR

- (a) Inspect the servo motor operation.
- (1) Connect the positive (+) lead from the battery to terminal D3-5 (FACE) and negative (-) lead to terminal D3-4 (DEF), and then check that the lever turns to the "FACE" position smoothly.
 - (2) Connect the positive (+) lead from the battery to terminal D3-4 (DEF) and negative (-) lead to terminal D3-5 (FACE), and then check that the lever turns to the "DEF" position smoothly. If the operation is not as specified, replace the air outlet control servo motor.



AC-48**AIR CONDITIONING – AIR OUTLET CONTROL SERVO MOTOR**

INSTALLATION

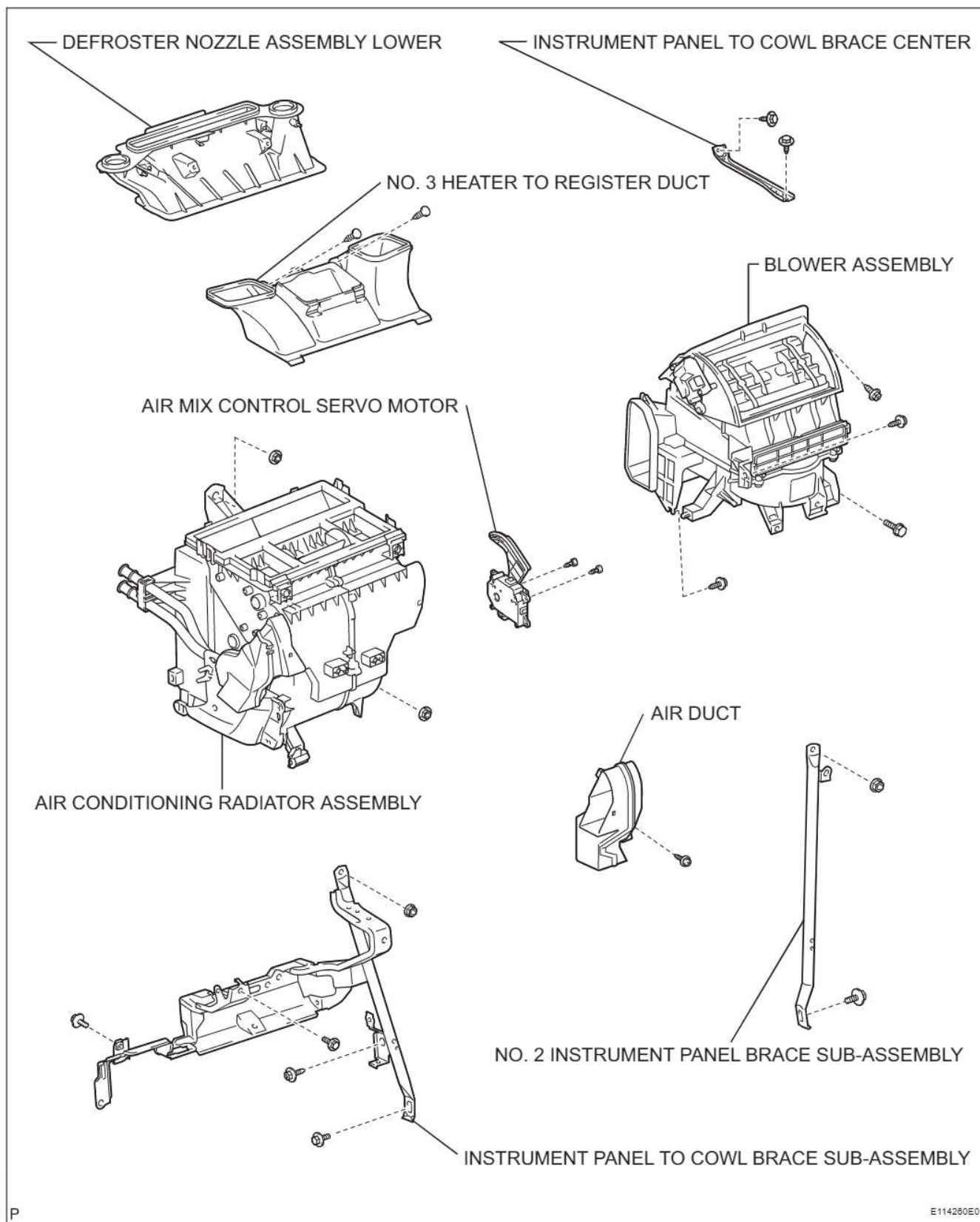
1. **INSTALL AIR OUTLET CONTROL SERVO MOTOR**
(See page [AC-31](#))
2. **INSTALL AIR CONDITIONING RADIATOR ASSEMBLY**
 - (a) Install the air conditioning radiator assembly (see page [AC-32](#)).

AC-48

AIR CONDITIONING – AIR MIX CONTROL SERVO MOTOR

AIR MIX CONTROL SERVO MOTOR

COMPONENTS



REMOVAL

1. REMOVE AIR CONDITIONING RADIATOR ASSEMBLY

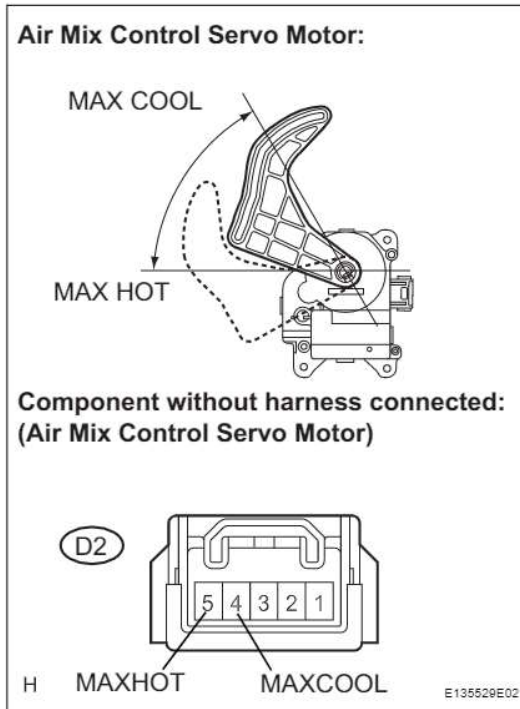
- (a) Remove the air conditioning radiator assembly (see page [AC-21](#)).

2. REMOVE AIR MIX CONTROL SERVO MOTOR (See page [AC-26](#))

INSPECTION

1. INSPECT AIR MIX CONTROL SERVO MOTOR

- (a) Inspect the servo motor operation.
- (1) Connect the positive (+) lead from the battery to terminal D2-5 (MAXHOT) and negative (-) lead to terminal D2-4 (MAXCOOL), and then check that the lever turns to the "MAXHOT" position smoothly.
 - (2) Connect the positive (+) lead from the battery to terminal D2-4 (MAXCOOL) and negative (-) lead to terminal D2-5 (MAXHOT), and then check that the lever turns to the "MAXCOOL" position smoothly.
- If the operation is not as specified, replace the air mix control servo motor.



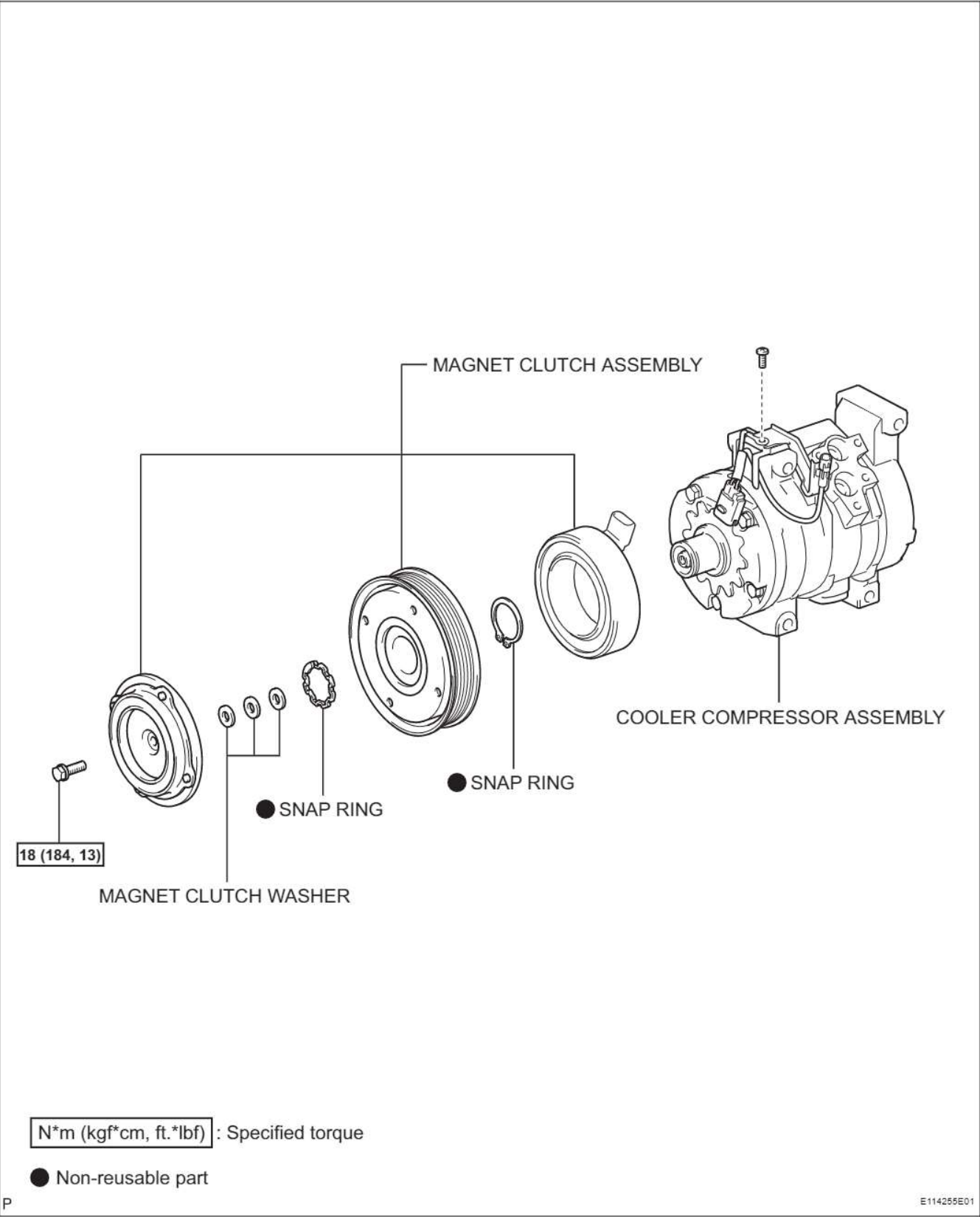
AC-50**AIR CONDITIONING – AIR MIX CONTROL SERVO MOTOR**

INSTALLATION

1. **INSTALL AIR MIX CONTROL SERVO MOTOR** (See page [AC-31](#))
2. **INSTALL AIR CONDITIONING RADIATOR ASSEMBLY**
 - (a) Install the air conditioning radiator assembly (see page [AC-32](#)).

COMPRESSOR AND MAGNETIC CLUTCH

COMPONENTS



REMOVAL

1. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page [AC-15](#))

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

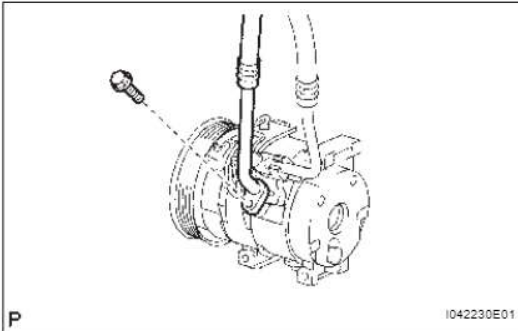
Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

3. DISCONNECT NO. 1 COOLER REFRIGERANT SUCTION HOSE

- (a) Remove the bolt and disconnect the cooler refrigerant suction hose from the cooler compressor.
- (b) Remove the O-ring from the cooler refrigerant suction hose.

NOTICE:

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

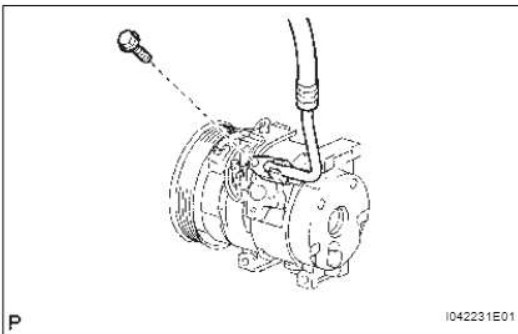


4. DISCONNECT NO. 1 COOLER REFRIGERANT DISCHARGE HOSE

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

NOTICE:

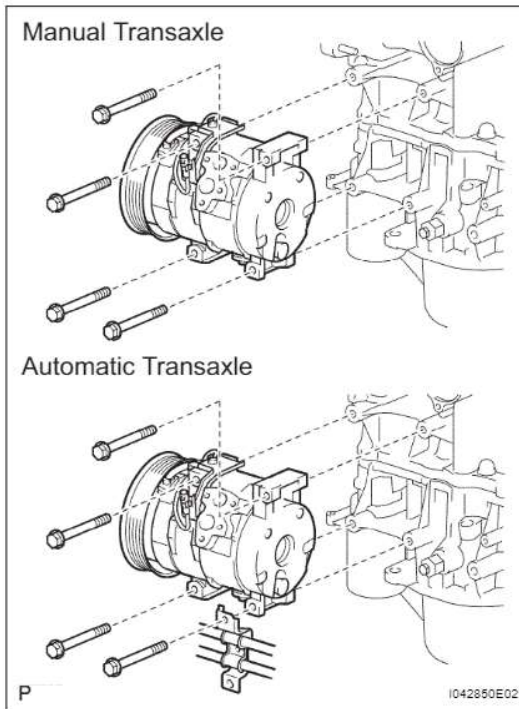
Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering them.



5. REMOVE ENGINE UNDER COVER RH
6. REMOVE FAN AND GENERATOR V BELT (See page [EM-6](#))

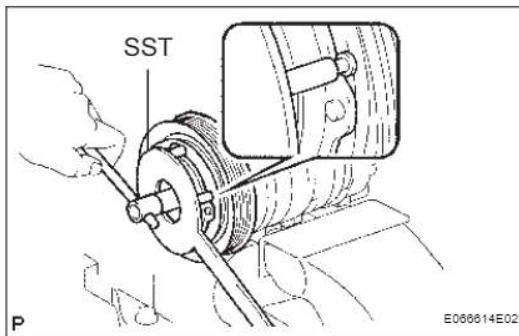
AC-52

AIR CONDITIONING – COMPRESSOR AND MAGNETIC CLUTCH



7. REMOVE COOLER COMPRESSOR ASSEMBLY

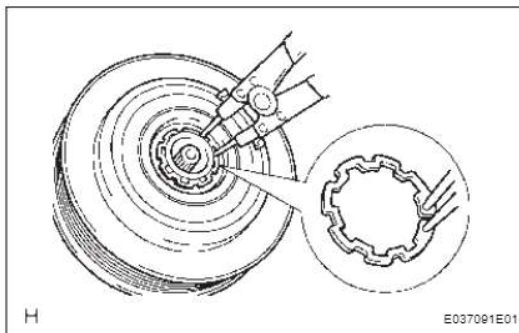
- (a) Disconnect the connector.
- (b) Remove the 4 bolts and cooler compressor.



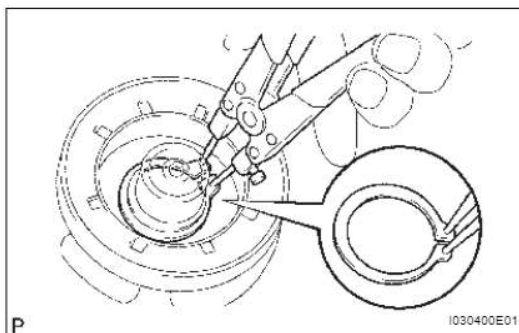
DISASSEMBLY

1. REMOVE MAGNET CLUTCH ASSEMBLY

- (a) Using SST, hold the magnet clutch hub.
SST 95047-10400
- (b) 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.

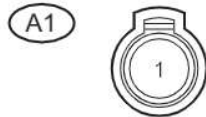


- (c) Using a snap ring expander, remove the snap ring and magnet clutch rotor.
NOTICE:
Do not damage the seal cover of the bearing when removing the snap ring.
- (d) Disconnect the connector.



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

Component without harness connected:
(Cooler Compressor Assembly)



H

E135530E01

INSPECTION

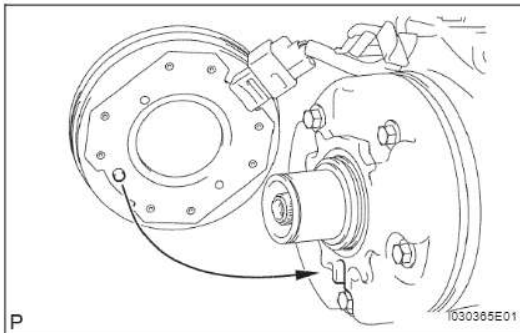
1. INSPECT COOLER COMPRESSOR ASSEMBLY

- Connect the positive (+) lead from the battery to terminal A1-1 and the negative (-) lead to the body ground.
- Check that the magnetic clutch is engaged. If the operation is not as specified, replace the magnet clutch.

REASSEMBLY

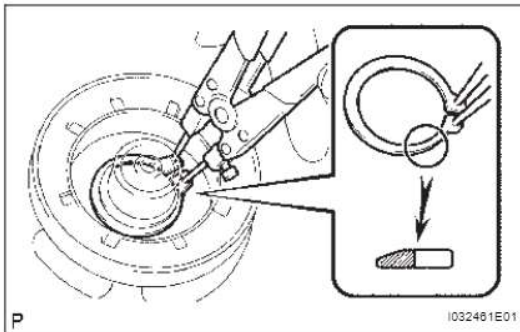
1. INSTALL MAGNET CLUTCH ASSEMBLY

- Matching the parts shown in the illustration, install the magnet clutch starter.



P

1030385E01



P

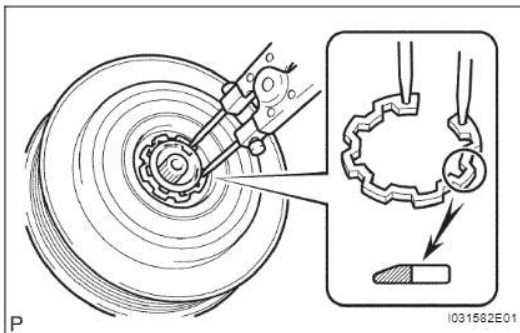
1032481E01

- Using a snap ring expander, install 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.

- Connect the connector.



P

1031582E01

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

NOTICE:

- Do not expand the snap ring by more than 30.5 mm (1.2 in.) when installing it.
- Do not damage the seal cover of the bearing when installing the snap ring.

- Install the magnet clutch washer and magnet clutch hub.

NOTICE:

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

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

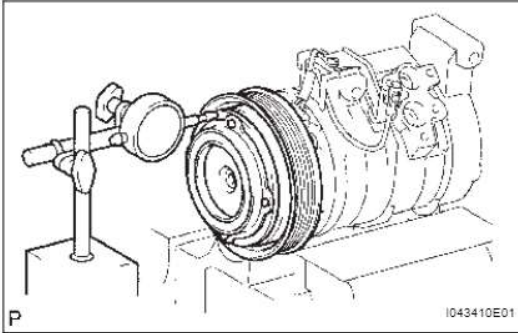
SST 95047-10400

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

AC

AC-54

AIR CONDITIONING – COMPRESSOR AND MAGNETIC CLUTCH

**NOTICE:**

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

2. INSPECT MAGNETIC CLUTCH CLEARANCE

- (a) Set the dial indicator to the magnet clutch hub.
- (b) Connect the battery positive (+) lead to the terminal 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 0.023 in.)

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

NOTICE:

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

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

3. ADJUST COMPRESSOR OIL

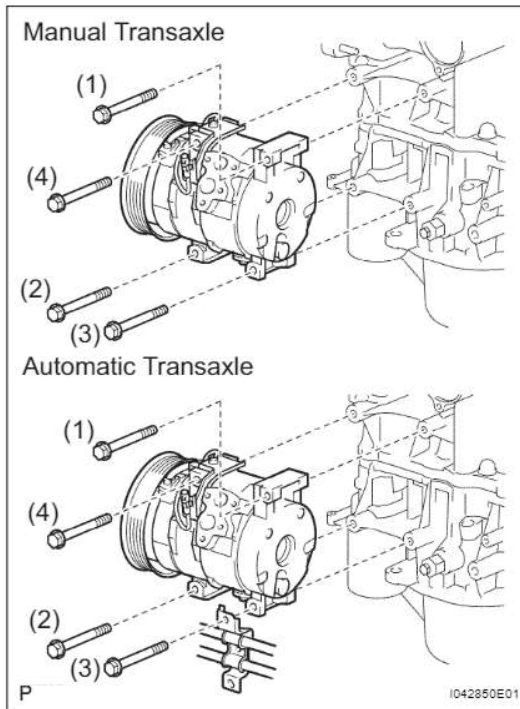
- (a) When replacing the cooler compressor with a new one, after gradually removing the refrigerant gas from the service valve, drain the following amount of oil from the new cooler compressor before installation.

Standard:

**(Oil capacity inside new cooler compressor:
140 + 15 cc (4.7 + 0.5 fl. oz.)) - (Remaining oil
amount in the removed cooler compressor) =
(Oil amount to be removed when replacing)**

NOTICE:

- When checking the compressor oil level, observe the precautions for the cooler removal/installation.
- Since compressor oil remains in the pipes of the vehicle, if a new cooler compressor is installed without removing some oil inside, the oil amount becomes excessive, preventing heat exchange in the refrigerant cycle and causing refrigerant failure.
- If the remaining oil in the removed cooler compressor is too small in volume, check for oil leakage.
- Be sure to use ND-OIL 8 for compressor oil.



INSTALLATION

1. INSTALL COOLER COMPRESSOR ASSEMBLY

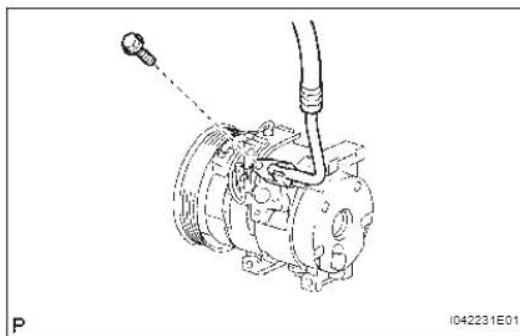
- (a) Install the cooler compressor with the 4 bolts.

Torque: 25 N*m (255 kgf*cm, 18 ft.*lbf)

NOTICE:

Tighten the bolts in the order shown in the illustration to install the cooler compressor.

- (b) Connect the connector.



2. INSTALL NO. 1 COOLER REFRIGERANT DISCHARGE HOSE

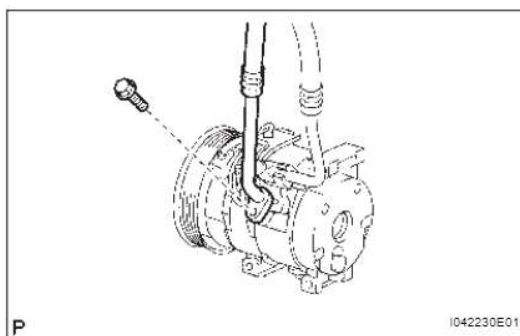
- (a) Remove the attached vinyl tape from the hose.
(b) Sufficiently apply compressor oil to a new O-ring and the fitting surface of the cooler compressor.

Compressor oil:

ND-OIL 8 or equivalent

- (c) Install the O-ring on the cooler refrigerant discharge hose.
(d) Install the cooler refrigerant discharge hose on the cooler compressor with the bolt.

Torque: 9.8 N*m (100 kgf*cm, 7 ft.*lbf)



3. INSTALL NO. 1 COOLER REFRIGERANT SUCTION HOSE

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

Compressor oil:

ND-OIL 8 or equivalent

- (c) Install the O-ring on the cooler refrigerant suction hose.
(d) Install the cooler refrigerant suction hose on the cooler compressor with the bolt.

Torque: 9.8 N*m (100 kgf*cm, 7 ft.*lbf)

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

5. INSTALL ENGINE UNDER COVER RH

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

AC-56**AIR CONDITIONING – COMPRESSOR AND MAGNETIC CLUTCH**

7. PERFORM INITIALIZATION

- (a) Perform initialization (see page [IN-23](#)).

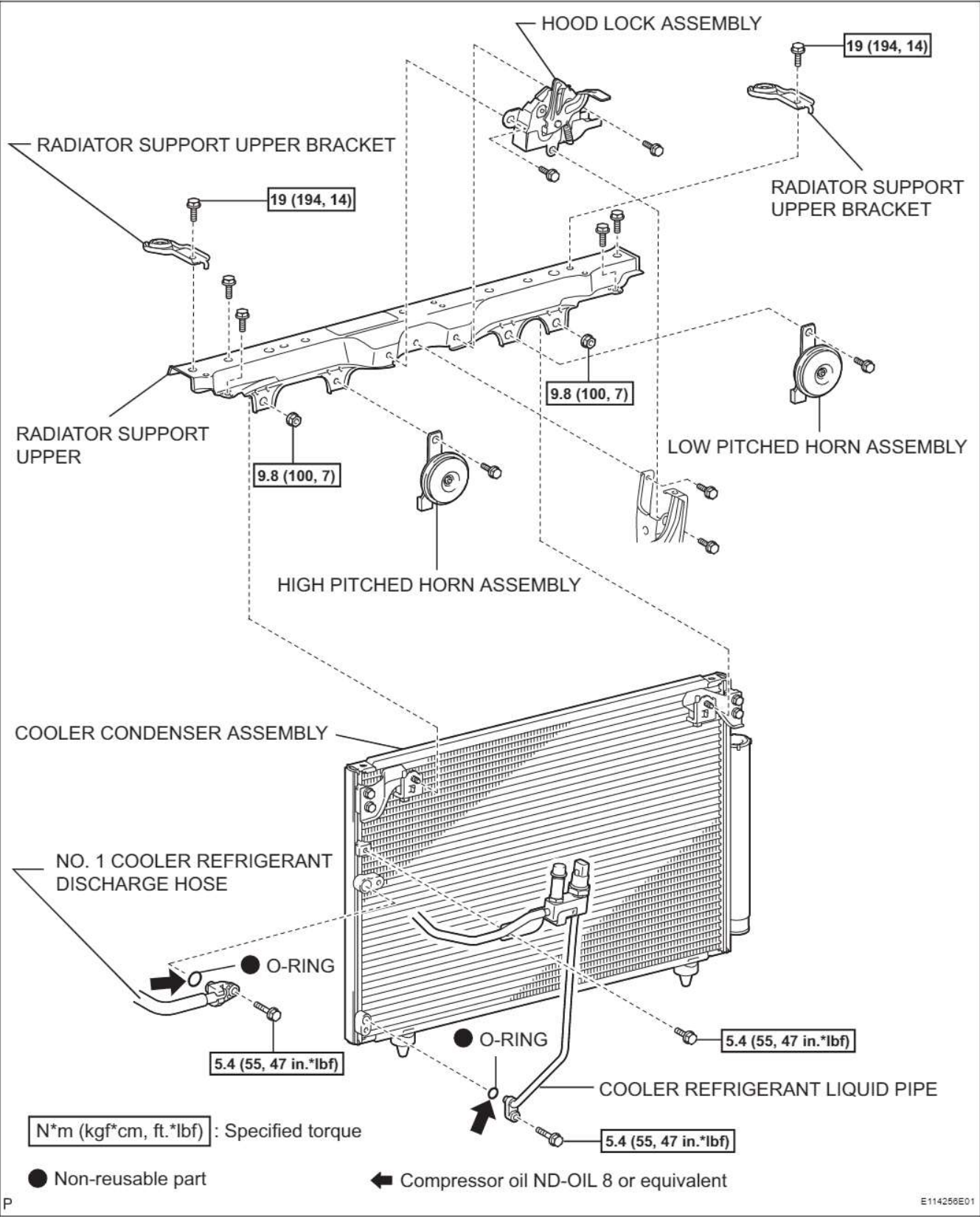
NOTICE:

Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

8. CHARGE REFRIGERANT (See page [AC-15](#))**9. WARM UP ENGINE (See page [AC-16](#))****10. INSPECT FOR REFRIGERANT LEAK (See page [AC-16](#))**

CONDENSER

COMPONENTS



ON-VEHICLE INSPECTION

1. INSPECT COOLER CONDENSER ASSEMBLY

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

NOTICE:

Do not damage the fins of the condenser.

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

2. CHECK CONDENSER FOR LEAKAGE OF REFRIGERANT

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

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

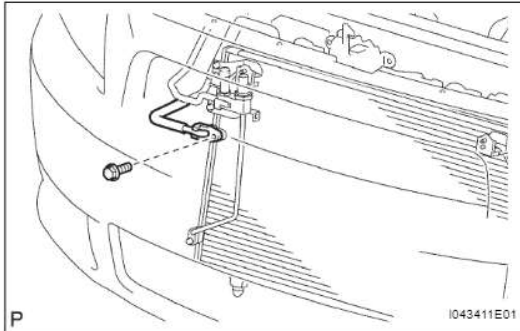
2. DISCHARGE REFRIGERANT FROM REFRIGERATION SYSTEM (See page AC-15)

3. DISCONNECT NO. 1 COOLER REFRIGERANT DISCHARGE HOSE

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

NOTICE:

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

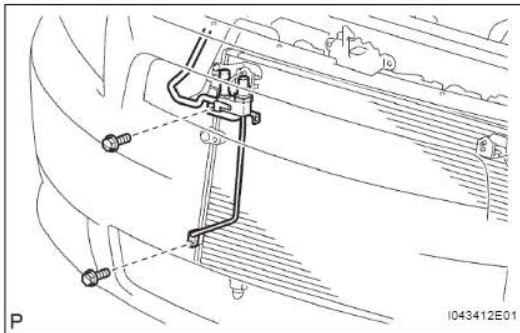


4. DISCONNECT COOLER REFRIGERANT LIQUID PIPE

- Remove the 2 bolts and disconnect the cooler refrigerant liquid pipe from the cooler condenser.
- Remove the O-ring from the cooler refrigerant liquid pipe.

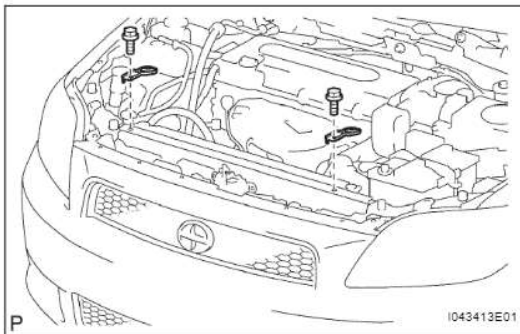
NOTICE:

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



5. REMOVE RADIATOR SUPPORT UPPER BRACKET

- Remove the 2 bolts and 2 brackets.

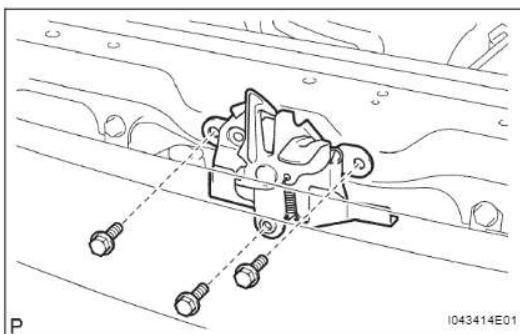


6. REMOVE HOOD LOCK ASSEMBLY

- Remove the 3 bolts and hood lock.

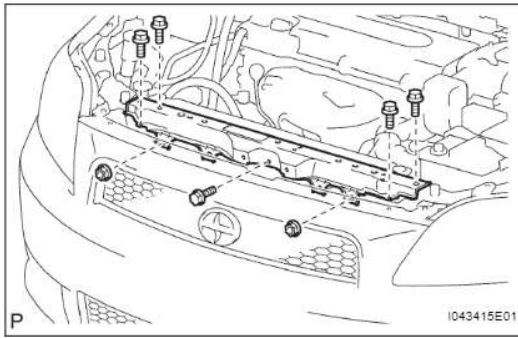
7. REMOVE LOW PITCHED HORN ASSEMBLY (See page HO-5)

8. REMOVE HIGH PITCHED HORN ASSEMBLY (See page HO-7)

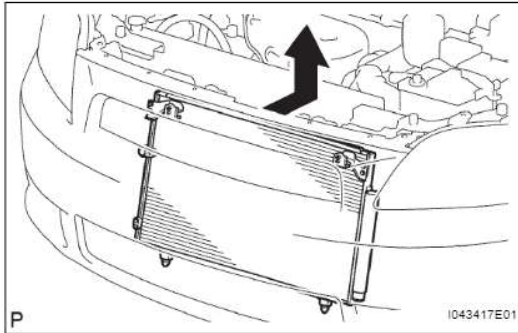


AC-60

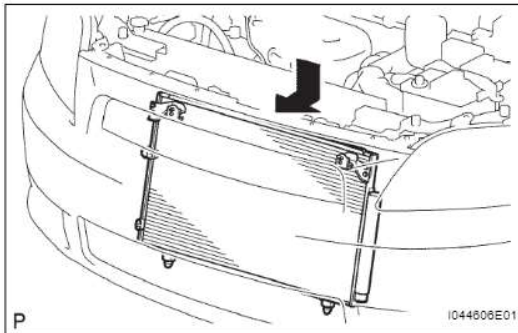
AIR CONDITIONING – CONDENSER

**9. REMOVE RADIATOR SUPPORT UPPER**

- (a) Remove the 5 bolts, 2 nuts and radiator support upper.

**10. REMOVE COOLER CONDENSER ASSEMBLY**

- (a) Remove the cooler condenser.

**INSTALLATION****1. INSTALL COOLER CONDENSER ASSEMBLY**

- (a) Install the cooler condenser.

HINT:

If the condenser is replaced with a new one, add compressor oil to the new condenser.

Capacity:

40 cc (1.4 fl. oz.)

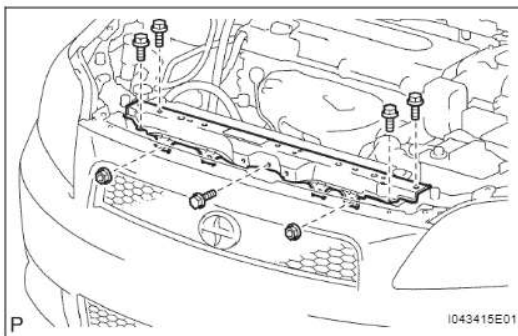
Compressor oil:

ND-8 or equivalent

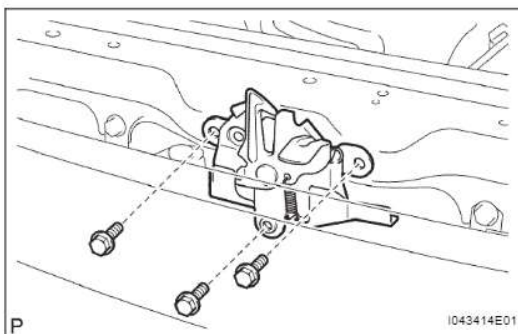
2. INSTALL RADIATOR SUPPORT UPPER

- (a) Install the radiator support upper with the 5 bolts and 2 nuts.

Torque: 9.8 N*m (100 kgf*cm, 7 ft.*lbf)

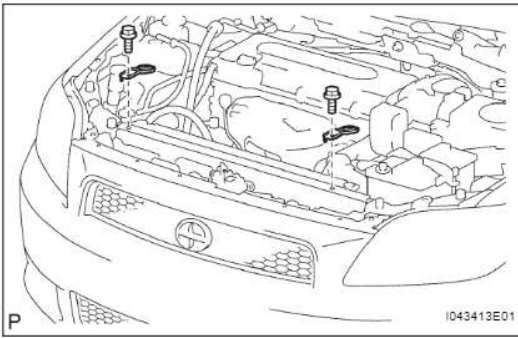
3. INSTALL HIGH PITCHED HORN ASSEMBLY (See page [HO-8](#))**4. INSTALL LOW PITCHED HORN ASSEMBLY (See page [HO-6](#))****5. INSTALL HOOD LOCK ASSEMBLY**

- (a) Install the hood lock with the 3 bolts.



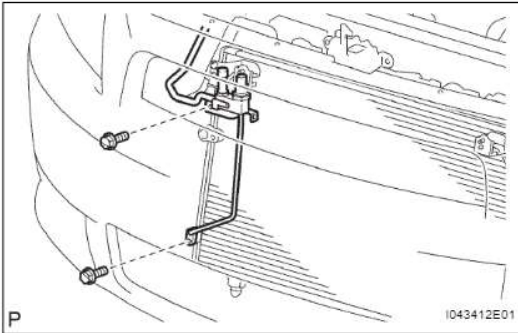
AIR CONDITIONING – CONDENSER

AC-61

**6. INSTALL RADIATOR SUPPORT UPPER BRACKET**

- (a) Install the 2 brackets with the 2 bolts.

Torque: 19 N*m (194 kgf*cm, 14 ft.*lbf)

**7. INSTALL COOLER REFRIGERANT LIQUID PIPE**

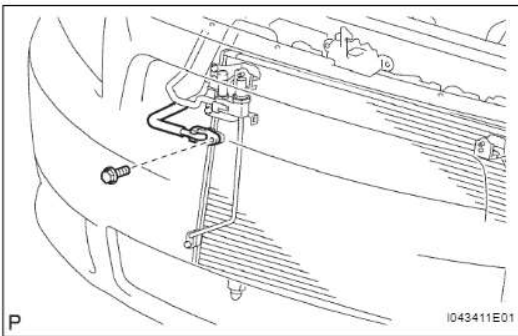
- (a) Remove the attached vinyl tape from the pipe and the connecting part of the cooler condenser.
 (b) Sufficiently apply compressor oil to a new O-ring and the fitting surface of the pipe joint.

Compressor oil:

ND-OIL 8 or equivalent

- (c) Install the O-ring on the cooler refrigerant liquid pipe.
 (d) Install the cooler refrigerant liquid pipe on the cooler condenser with the 2 bolts.

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

**8. INSTALL NO. 1 COOLER REFRIGERANT DISCHARGE HOSE**

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

Compressor oil:

ND-OIL 8 or equivalent

- (c) Install the O-ring on the cooler refrigerant discharge hose.
 (d) Install the cooler refrigerant discharge hose on the cooler condenser with the bolt.

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

9. ADJUST HOOD SUB-ASSEMBLY (See page [ED-1](#))**10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL****11. PERFORM INITIALIZATION**

- (a) Perform initialization (see page [IN-23](#)).

NOTICE:

Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

12. CHARGE REFRIGERANT (See page [AC-15](#))**13. WARM UP ENGINE (See page [AC-16](#))****14. INSPECT FOR REFRIGERANT LEAK (See page [AC-16](#))**

AC

AMBIENT TEMPERATURE SENSOR

ON-VEHICLE INSPECTION

1. INSPECT AMBIENT TEMPERATURE SENSOR

- (a) Disconnect the A6 ambient temperature sensor connector.
- (b) Measure the resistance between terminals 1 and 2 of the A/C ambient temperature sensor at each temperature, as shown in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
A6-1 - A6-2	10°C (50°F)	3.00 to 3.73 kΩ
	15°C (59°F)	2.45 to 2.88 kΩ
	20°C (68°F)	1.95 to 2.30 kΩ
	25°C (77°F)	1.60 to 1.80 kΩ
	30°C (86°F)	1.28 to 1.47 kΩ
	35°C (95°F)	1.00 to 1.22 kΩ
	40°C (104°F)	0.80 to 1.00 kΩ
	45°C (113°F)	0.65 to 0.85 kΩ
	50°C (122°F)	0.50 to 0.70 kΩ
	55°C (131°F)	0.44 to 0.60 kΩ
	60°C (140°F)	0.36 to 0.50 kΩ

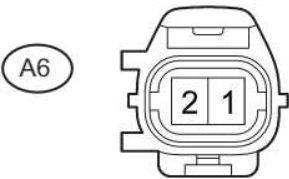
NOTICE:

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

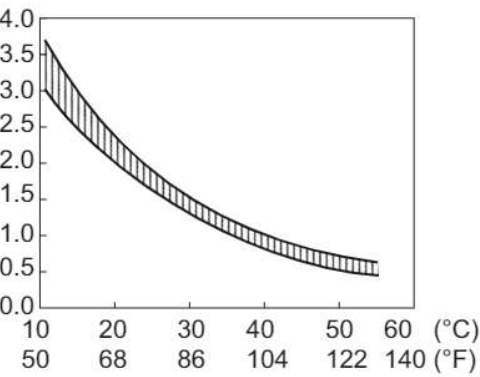
HINT:

As the temperature increases, the resistance decreases (see the graph). If the resistance value is not as specified, replace the sensor.

Component without harness connected:
(Ambient Temperature Sensor)



Resistance (kΩ)

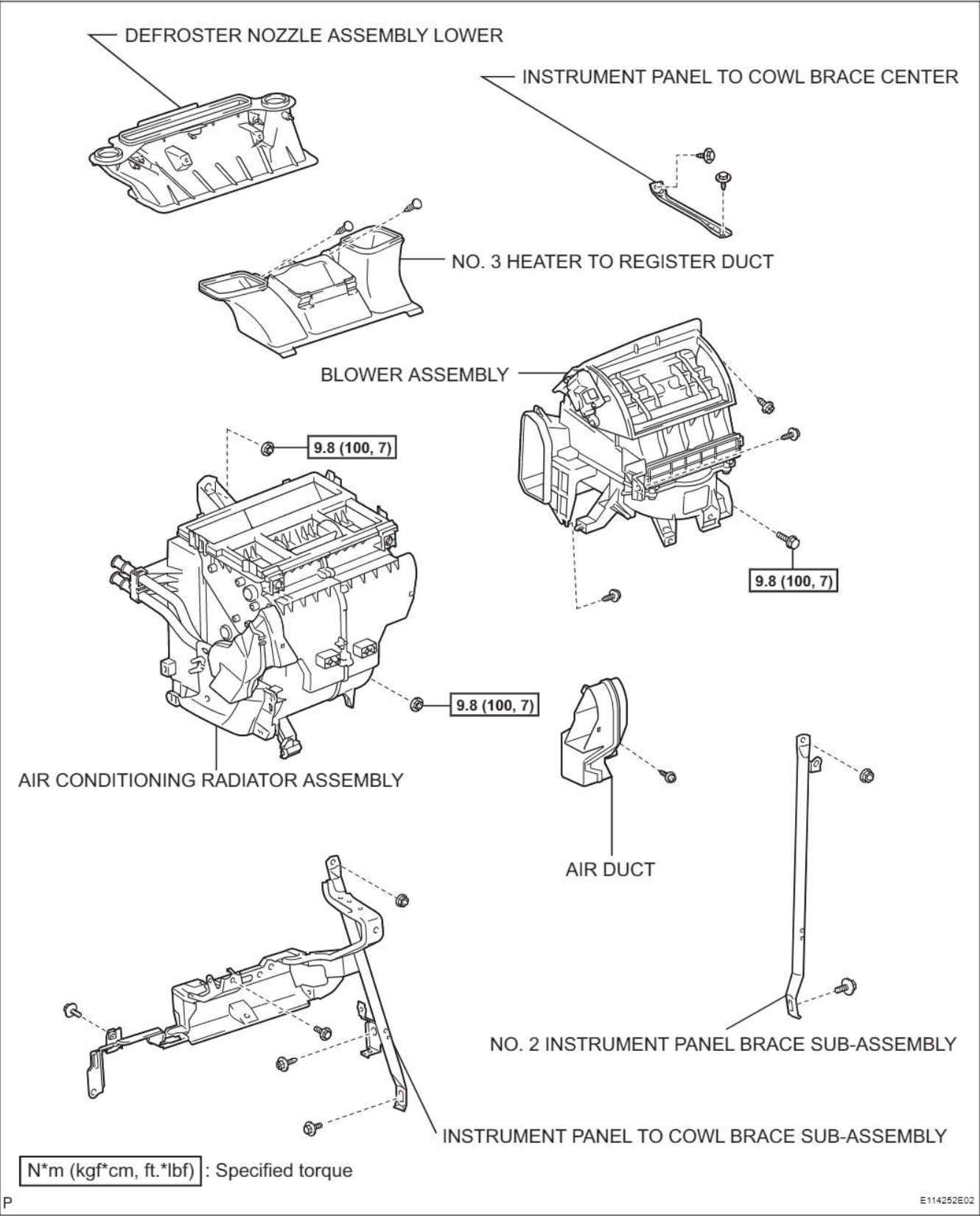


H

E135531E02

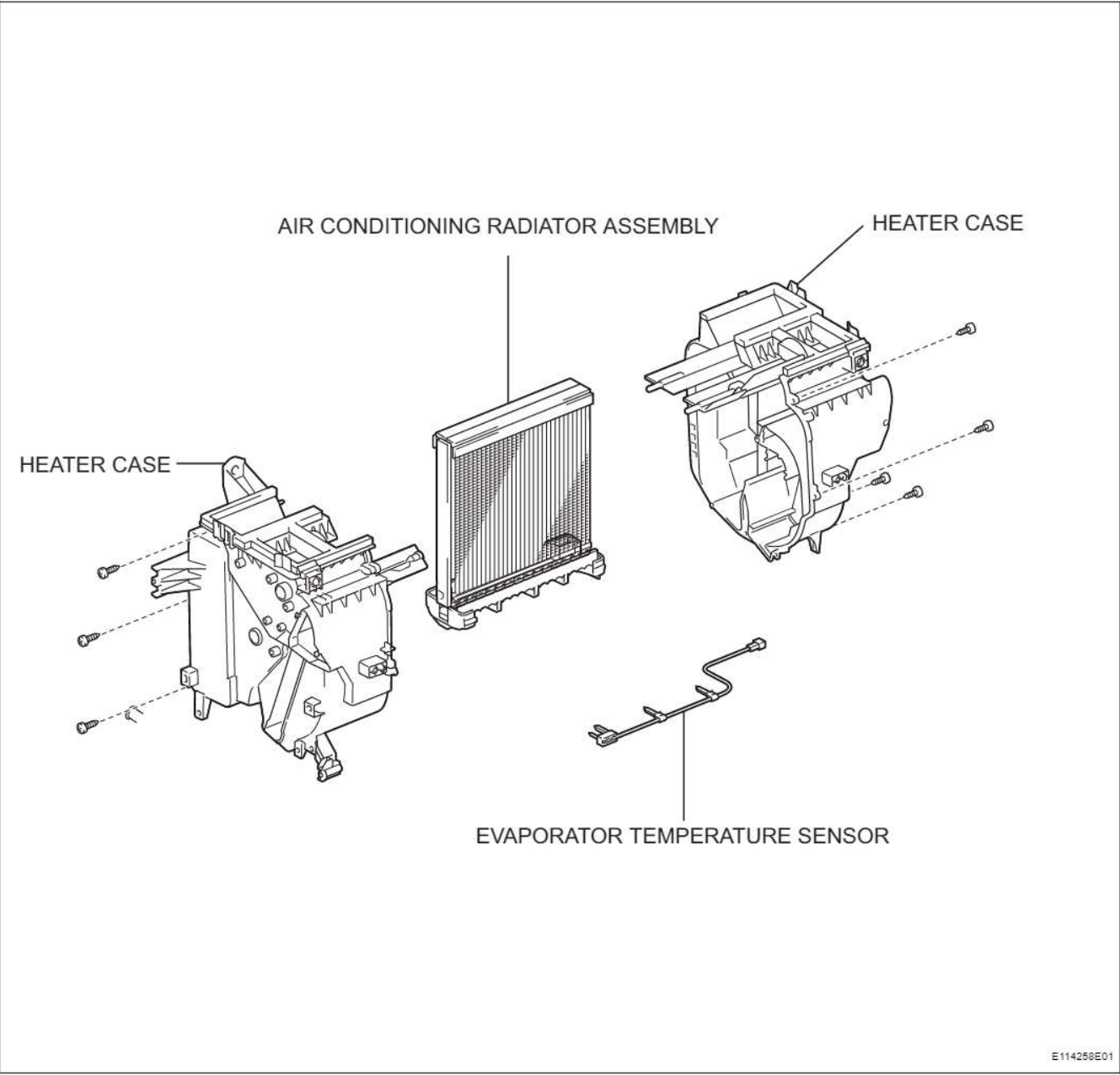
EVAPORATOR TEMPERATURE SENSOR

COMPONENTS



AC-64

AIR CONDITIONING – EVAPORATOR TEMPERATURE SENSOR



REMOVAL

1. REMOVE AIR CONDITIONING RADIATOR ASSEMBLY
- (a) Remove the air conditioning radiator assembly (see page AC-21).
2. REMOVE EVAPORATOR TEMPERATURE SENSOR
- (See page AC-27)

INSPECTION

1. INSPECT EVAPORATOR TEMPERATURE SENSOR
- (a) Measure the resistance according to the value(s) in the table below.

Standard resistance

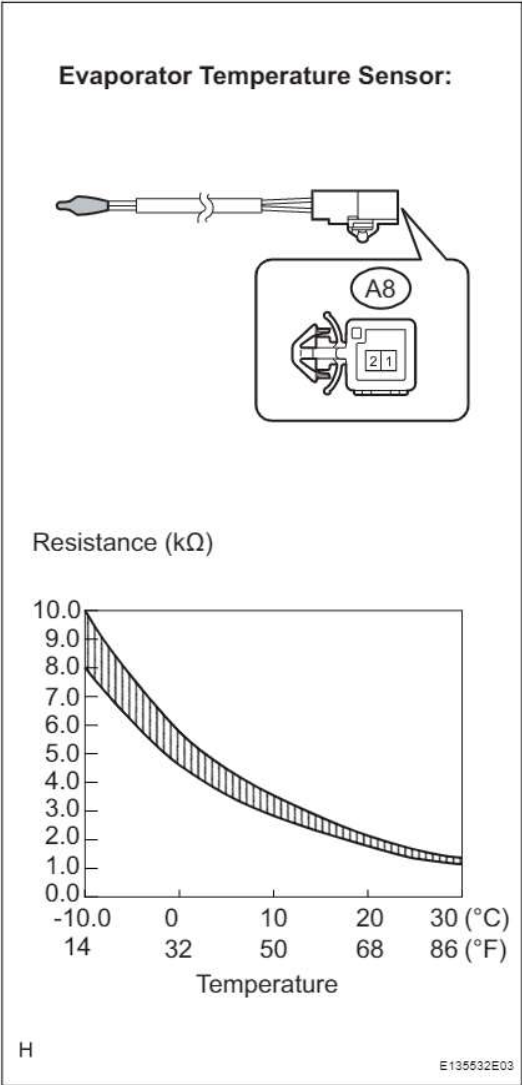
Tester Connection	Condition	Specified Condition
A8-1 - A8-2	-10°C (14°F)	7.40 to 9.20 kΩ
	-5°C (23°F)	5.65 to 7.00 kΩ
	0°C (32°F)	4.35 to 5.40 kΩ
	5°C (41°F)	3.40 to 4.20 kΩ
	10°C (50°F)	2.68 to 3.30 kΩ
	15°C (59°F)	2.10 to 2.60 kΩ
	20°C (68°F)	1.66 to 2.10 kΩ
	25°C (77°F)	1.32 to 1.66 kΩ
	30°C (86°F)	1.05 to 1.35 kΩ

NOTICE:

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

HINT:

As the temperature increases, the resistance decreases (see the graph). If the resistance value is not as specified, replace the sensor.



AC-66**AIR CONDITIONING – EVAPORATOR TEMPERATURE SENSOR**

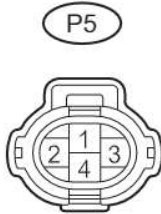
INSTALLATION

1. **INSTALL EVAPORATOR TEMPERATURE SENSOR**
(See page [AC-29](#))
2. **INSTALL AIR CONDITIONING RADIATOR ASSEMBLY**
 - (a) Install the air conditioning radiator assembly (see page [AC-32](#)).

AC-66

AIR CONDITIONING – PRESSURE SWITCH

Front view of wire harness connector:
(to Pressure Switch)



PRESSURE SWITCH

ON-VEHICLE INSPECTION

1. INSPECT PRESSURE SWITCH (for magnet clutch control)

- (a) Check the air conditioning operation.
 - (1) Disconnect the P5 pressure switch connector.
 - (2) Connect terminals P5-1 and P5-4 of the connector of the pressure switch 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 P5-1 and P5-4 (that were connected in the previous step).

Standard:

Terminals P5-1 and P5-4 are connected:
magnet clutch is on

Terminals P5-1 and P5-4 are
disconnected: magnet clutch is off

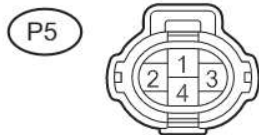
Replace the pressure switch if the magnet clutch is operated normally.

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

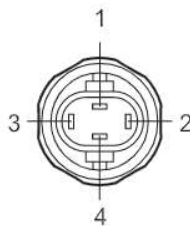
AIR CONDITIONING – PRESSURE SWITCH

AC-67

Front view of wire harness connector:
(to Pressure Switch)



Component without harness connected:
(Pressure Switch)



1226 kPa (12.5 kgf/cm², 178psi)

OFF (10 kΩ or higher) ON (Below 1 Ω)

1520 kPa (15.5 kgf/cm², 220psi)

H

E135534E01

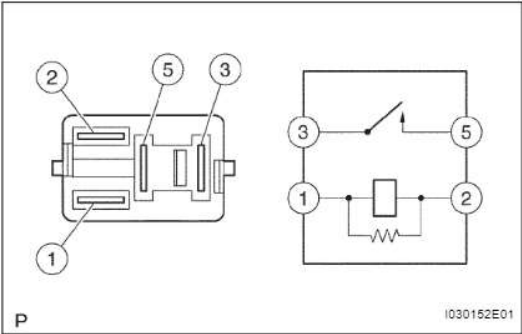
2. INSPECT PRESSURE SWITCH (for cooling fan control)

- (a) Set the manifold gauge.

HINT:

The switch turns the condenser fan on or off in accordance with pressure in the cycle so that heat exchange in the condenser can be performed effectively within the normal pressure range.

- (b) Disconnect the P5 pressure switch connector and connect terminals P5-1 and P5-4 using a tool such as a service wire.
- (c) Connect the positive (+) lead from the ohmmeter to terminal P5-2 and the negative (-) lead to terminal P5-3.
- (d) Start the engine and turn the air conditioning switch on.
- (e) Check that the continuity between terminals P5-2 and P5-3 changes in accordance with the refrigerant pressure as shown in the illustration. If the operation is not as specified, replace the pressure switch.



MAGNETIC CLUTCH RELAY

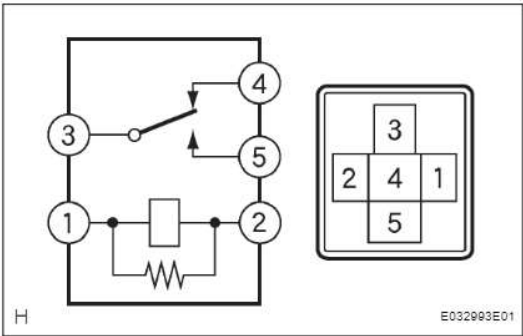
ON-VEHICLE INSPECTION

1. **INSPECT MAGNET CLUTCH RELAY (Marking: MG/C)**
- (a) Remove the magnet clutch relay from the No. 2 engine room relay block.
 - (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
3 - 5	Always	10 kΩ or higher
3 - 5	Battery voltage is applied to terminals 1 and 2	Below 1 Ω

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



HEATER RELAY

ON-VEHICLE INSPECTION

1. **INSPECT HEATER RELAY (Marking: HTR)**
- (a) Remove the heater relay from the instrument panel junction block.
 - (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
3 - 4	Always	Below 1 Ω
3 - 4	Battery voltage is applied to terminals 1 and 2	10 kΩ or higher
3 - 5	Always	10 kΩ or higher
3 - 5	Battery voltage is applied to terminals 1 and 2	Below 1 Ω

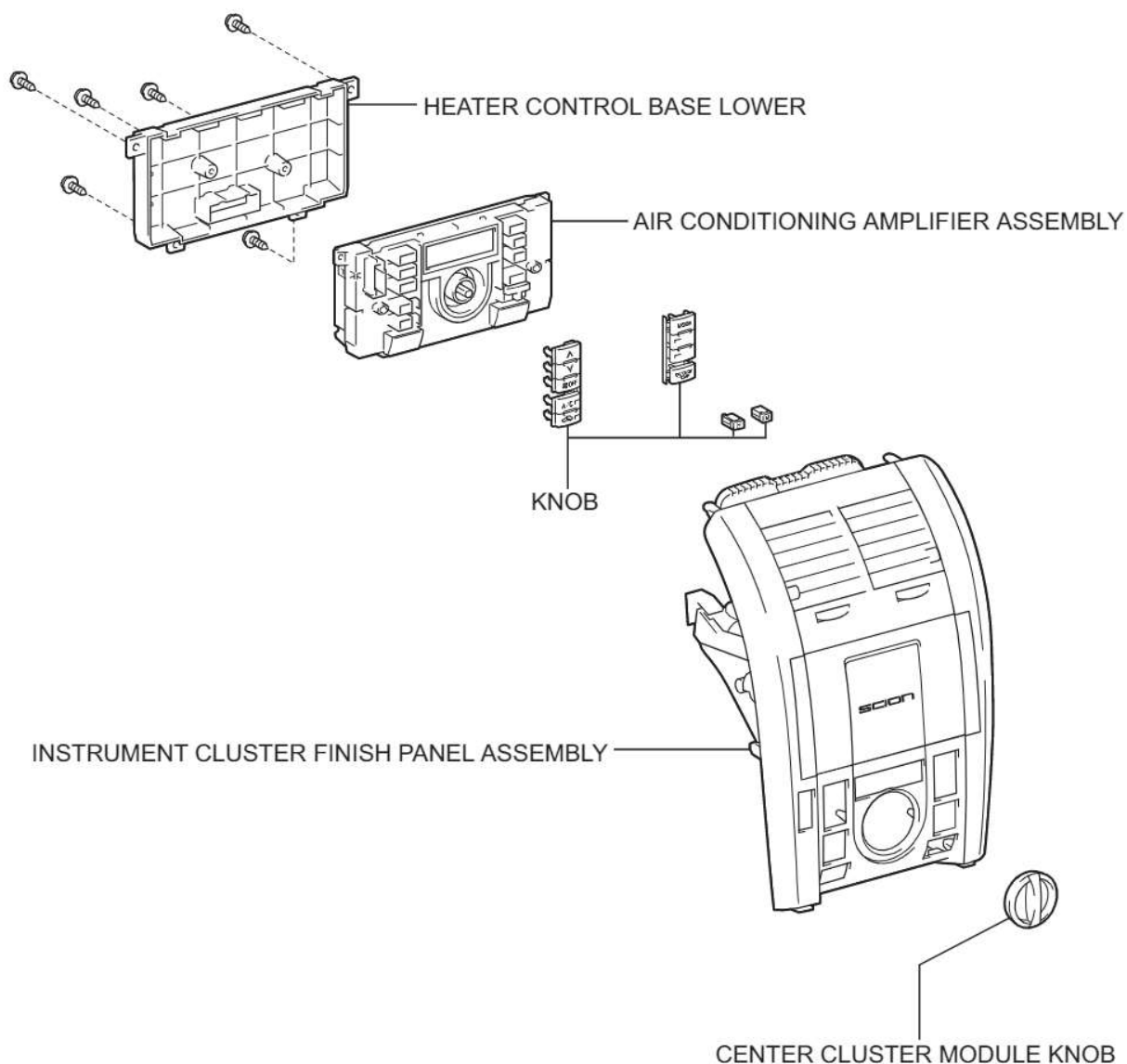
If the resistance is not as specified, replace the heater relay.

AC-70

AIR CONDITIONING – HEATER CONTROL ASSEMBLY

HEATER CONTROL ASSEMBLY

COMPONENTS



AC

P

E114251E01

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

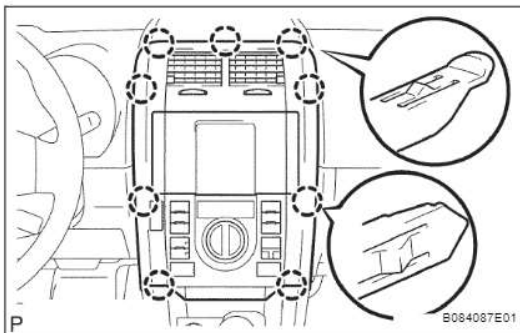
2. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) (See page IP-5)
3. REMOVE CONSOLE PANEL UPPER FRONT (See page IP-5)
4. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY

- (a) Detach the 9 claws.

NOTICE:

If the heater control is removed with the cover open, it may be broken. Be sure the cover is closed when removing it.

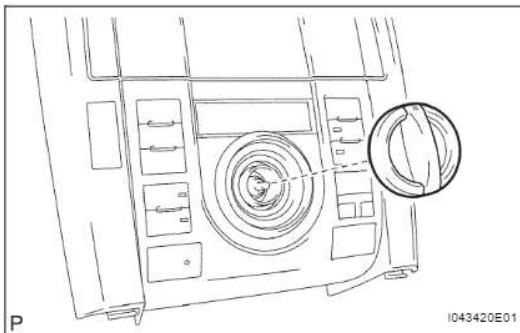
- (b) Disconnect the connector, then remove the heater control.



DISASSEMBLY

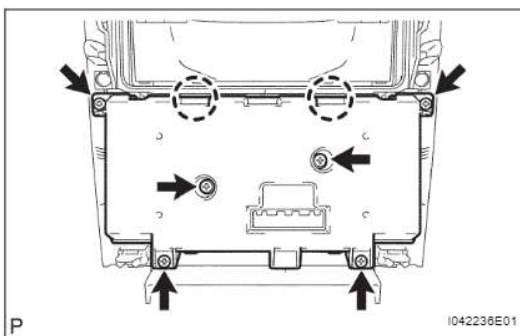
1. REMOVE CENTER CLUSTER MODULE KNOB

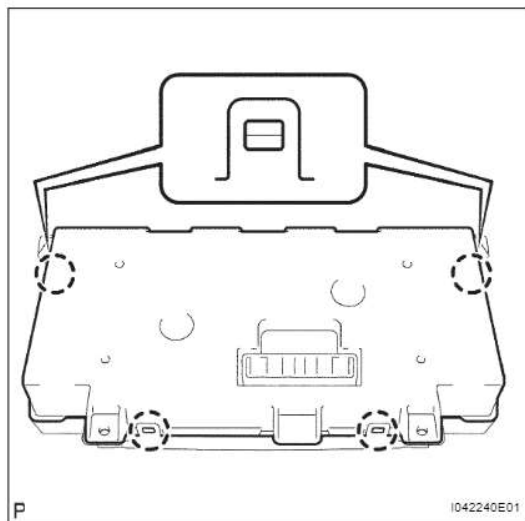
- (a) Remove the center cluster module knob.



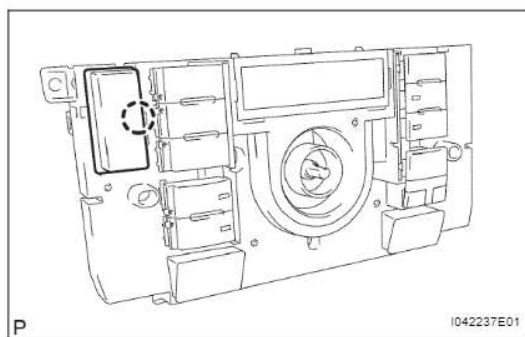
2. REMOVE HEATER CONTROL BASE LOWER

- (a) Remove the 6 screws.
- (b) Detach the 2 claws and remove the heater control panel.



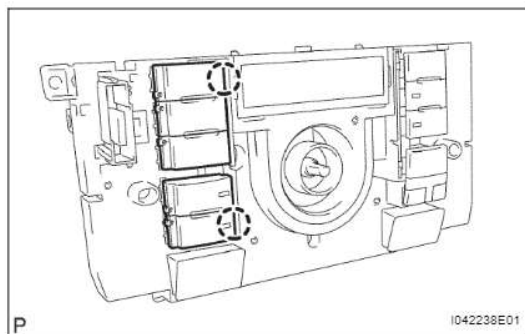
AC-72**AIR CONDITIONING – HEATER CONTROL ASSEMBLY**

- (c) Detach the 4 claws and remove the heater control base lower.

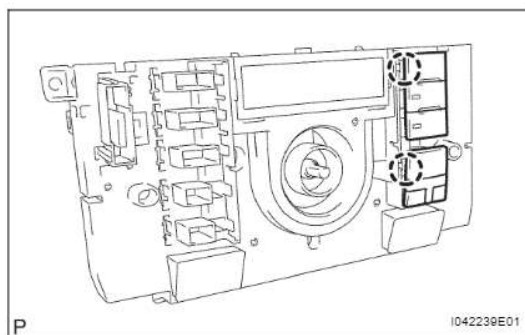


3. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY

- (a) Detach the claw and remove the knob.



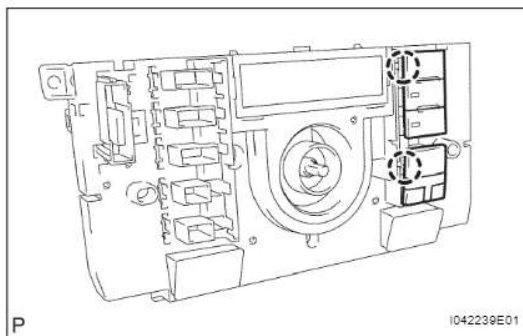
- (b) Detach the 2 claws and remove the knob.



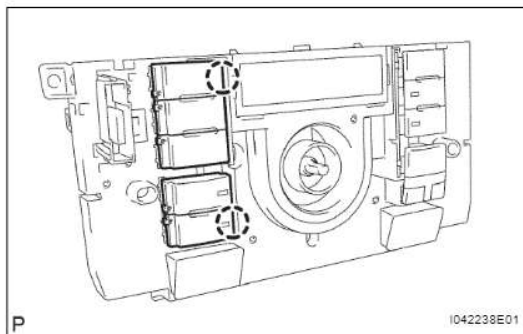
- (c) Release the 2 claws and remove the knob.

AIR CONDITIONING – HEATER CONTROL ASSEMBLY**AC-73****REASSEMBLY****1. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY**

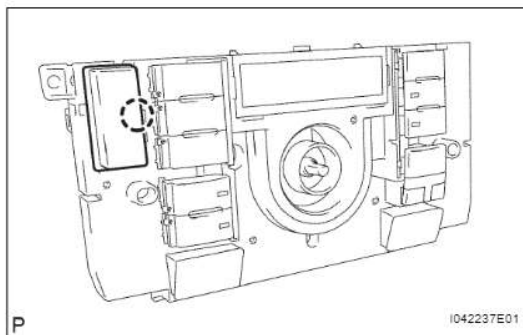
(a) Attach the 2 claws to install the knob.



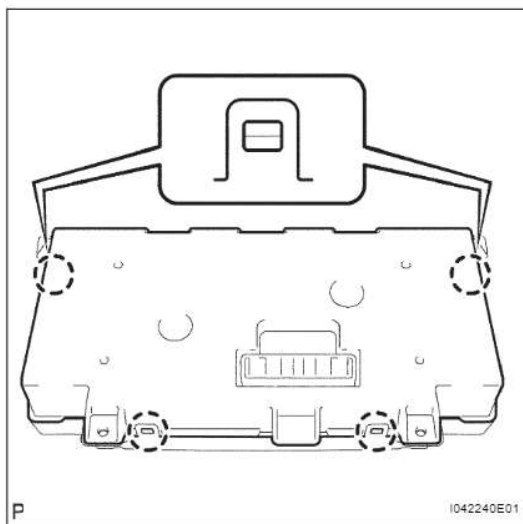
(b) Attach the 2 claws to install the knob.

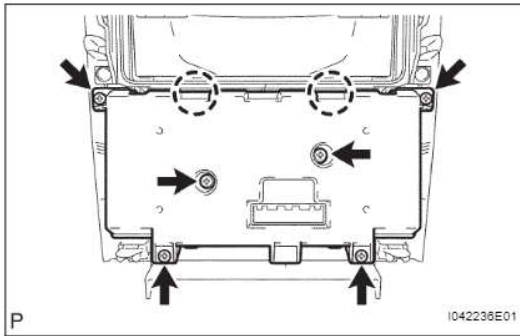


(c) Attach the claw to install the knob.

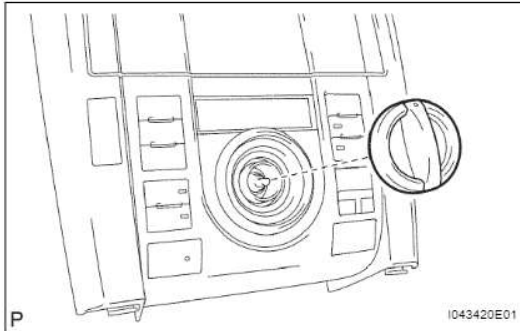
**2. INSTALL HEATER CONTROL BASE LOWER**

(a) Attach the 4 claws to install the heater control base lower.

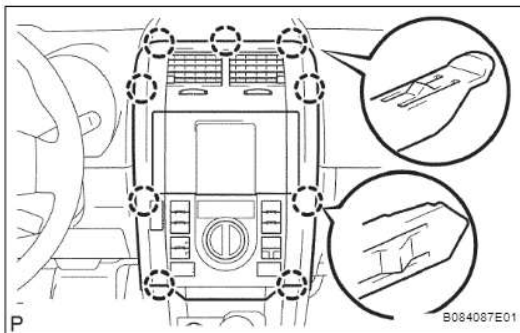


AC-74**AIR CONDITIONING – HEATER CONTROL ASSEMBLY**

- (b) Attach the 2 claws to install the heater control base.
- (c) Install the 6 screws.

**3. INSTALL CENTER CLUSTER MODULE KNOB**

- (a) Install the center module knob.

**INSTALLATION****1. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY**

- (a) Connect the connector.
- (b) Attach the 9 claws to install the instrument cluster finish panel.

2. INSTALL CONSOLE PANEL UPPER FRONT (See page [IP-11](#))**3. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) (See page [IP-12](#))****4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL****5. PERFORM INITIALIZATION**

- (a) Perform initialization (see page [IN-23](#)).

NOTICE:

Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.