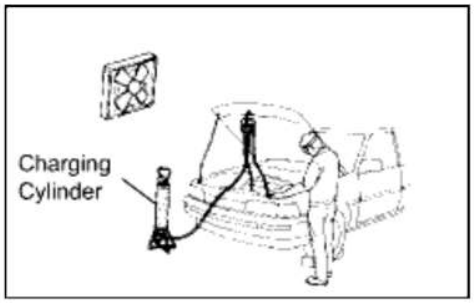
Last Modified: 3-10-2010	6.4 L	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Y5Q03GX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): PRECAUTION (2010 Corolla)		

PRECAUTION

1. EXPRESSIONS OF IGNITION SWITCH

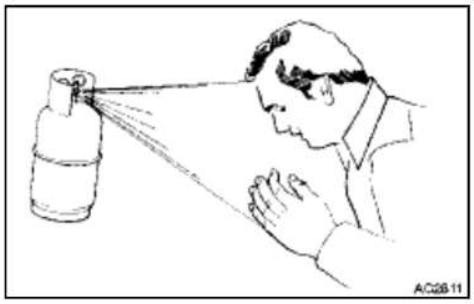
(a) The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

SWITCH TYPE		IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Expression	Ignition switch off	LOCK	Off
	Ignition switch ON	ON	On (IG)
	Ignition switch ACC	ACC	On (ACC)
	Engine start	START	Start



2. DO NOT HANDLE REFRIGERANT IN AN ENCLOSED AREA OR NEAR AN OPEN FLAME

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 affected area with lots of cold water.

CAUTION:

Do not rub your eyes or skin.

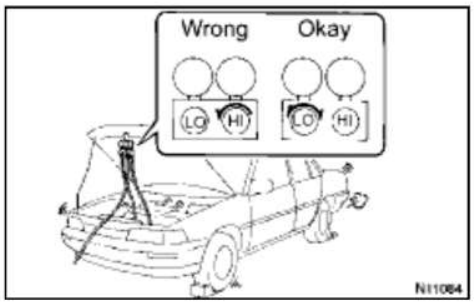
(b) Apply clean petroleum jelly to the skin.

(c) Go immediately to a hospital or see a physician for professional treatment.

5. NEVER HEAT CONTAINER OR EXPOSE THE CONTAINER TO AN OPEN FLAME

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6. BE CAREFUL NOT TO DROP CONTAINER OR APPLY PHYSICAL SHOCKS TO IT



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

If there is not enough refrigerant in the A/C system, oil lubrication will be insufficient and the compressor may be damaged.

Ensure that the system is fully charged and free of leaks to avoid this.

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

(a) Open and close only the low pressure valve.

If the high pressure valve is opened, refrigerant flows in the reverse direction causing the charging cylinder to rupture.

9. BE CAREFUL NOT TO OVERCHARGE SYSTEM WITH REFRIGERANT

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

10. DO NOT OPERATE ENGINE WITHOUT REFRIGERANT

CAUTION:

Doing so may damage the inside of the compressor because the compressor parts will 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) consisting of the driver, front passenger, side, and curtain shield airbags. Failure to carry out service operations 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 INFO .

12. GENERAL PRECAUTION

(a) While using battery voltage during the inspection, do not bring the positive and negative tester probes too close to each other as a short circuit may occur.

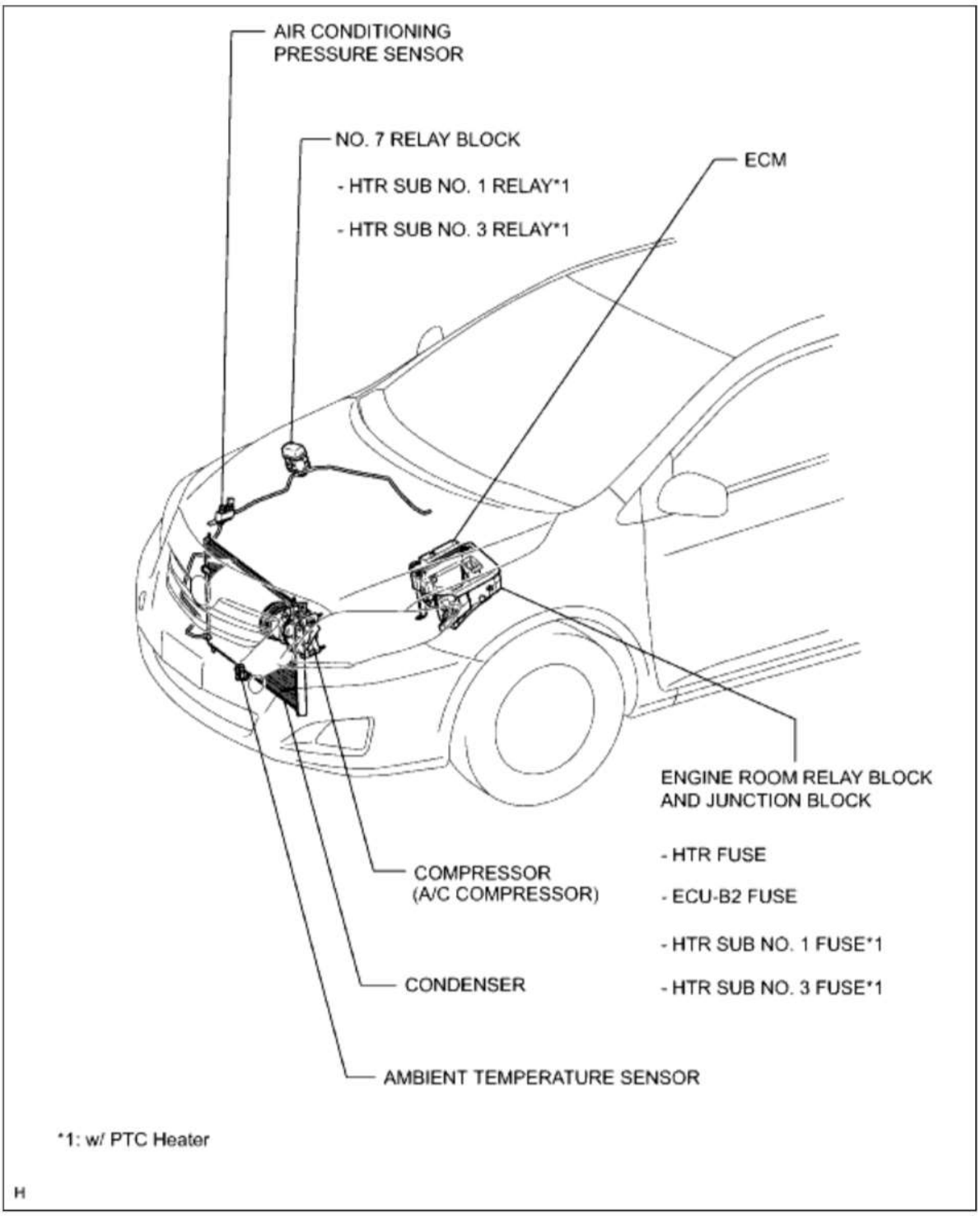
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Last Modified: 3-10-2010	6.4 R	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000026DG01AX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): PARTS LOCATION (2010 Corolla)		

PARTS LOCATION

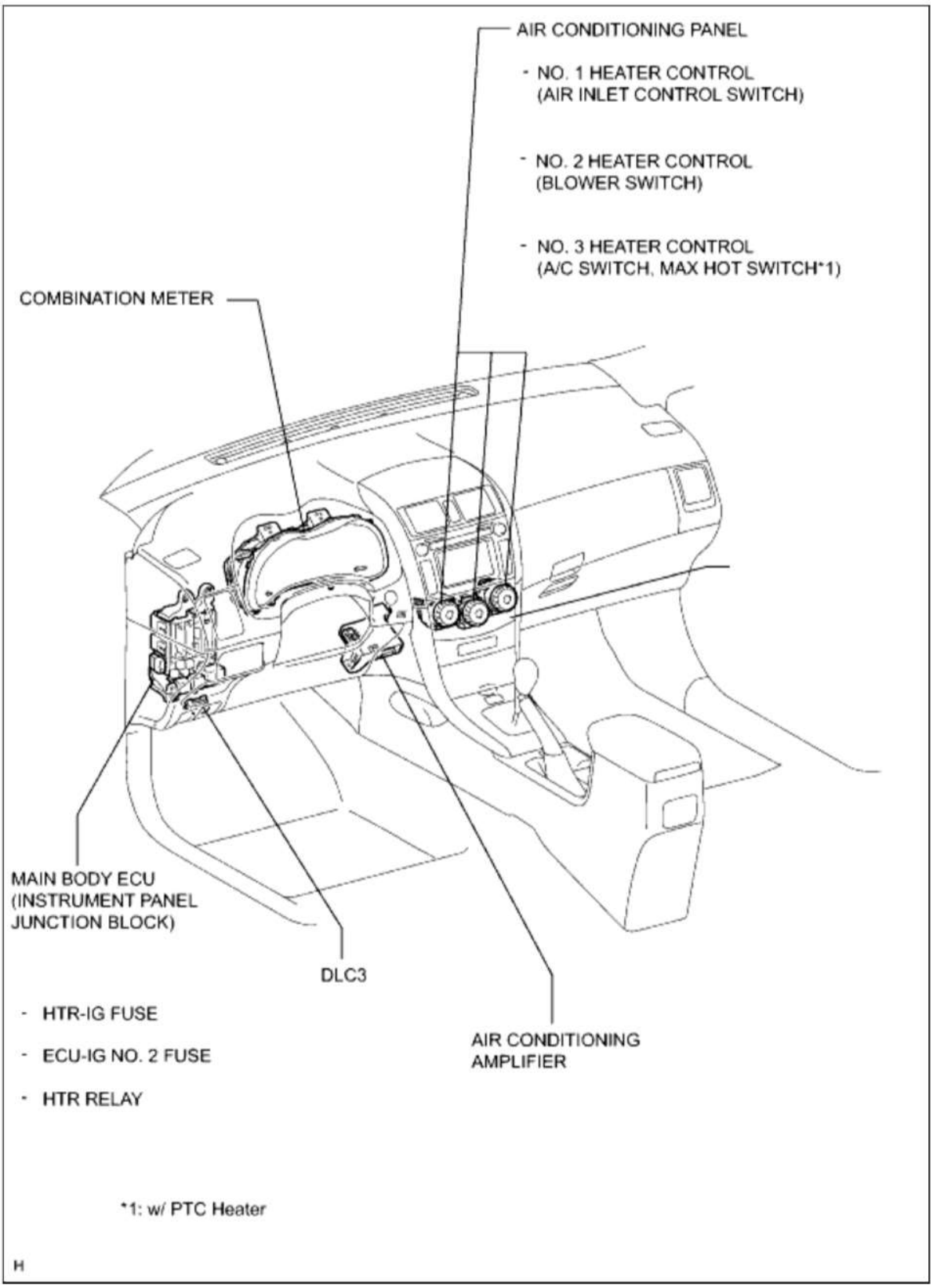
ILLUSTRATION

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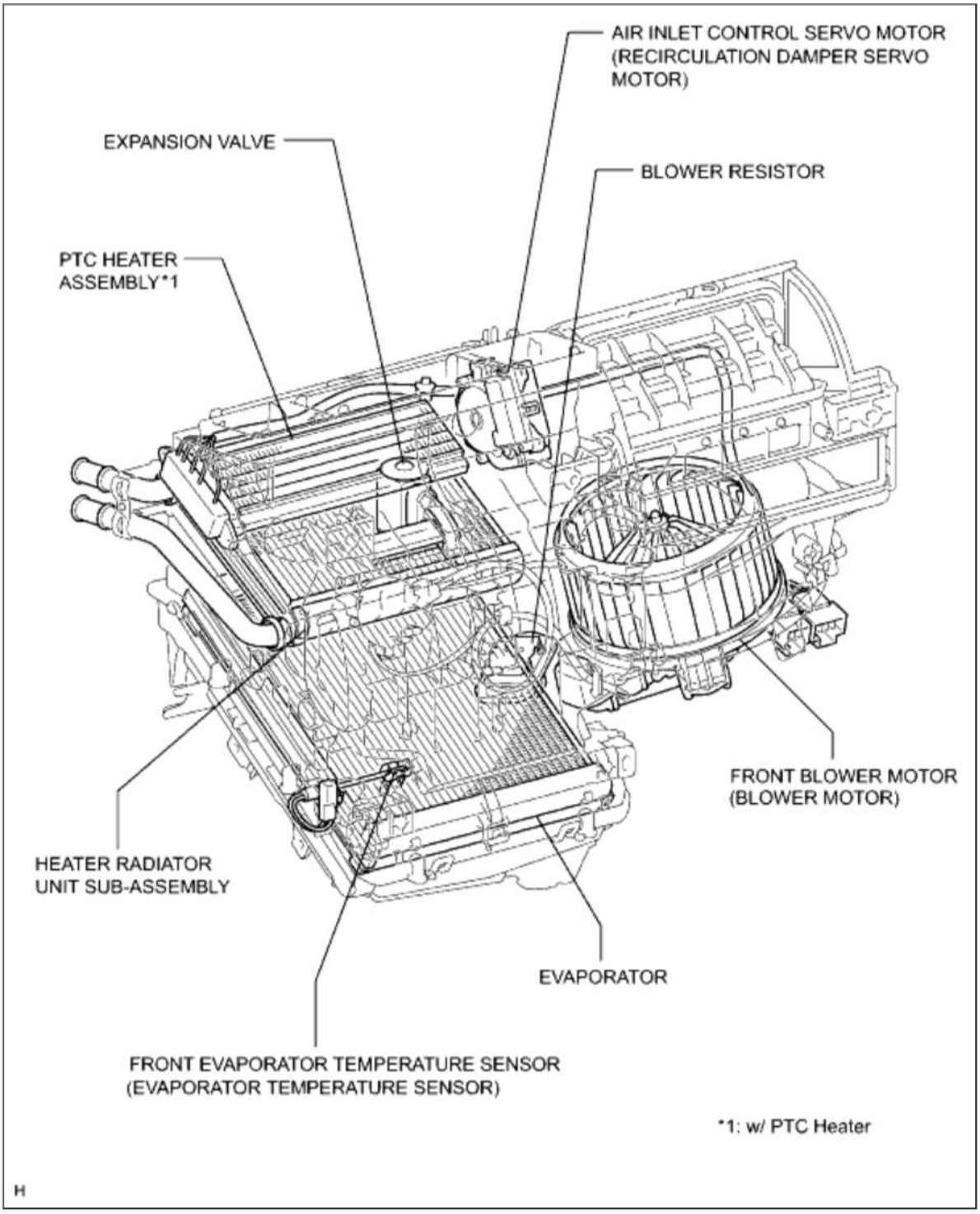
ILLUSTRATION

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ILLUSTRATION

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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001O7U027X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): SYSTEM DESCRIPTION (2010 Corolla)		

SYSTEM DESCRIPTION

1. GENERAL

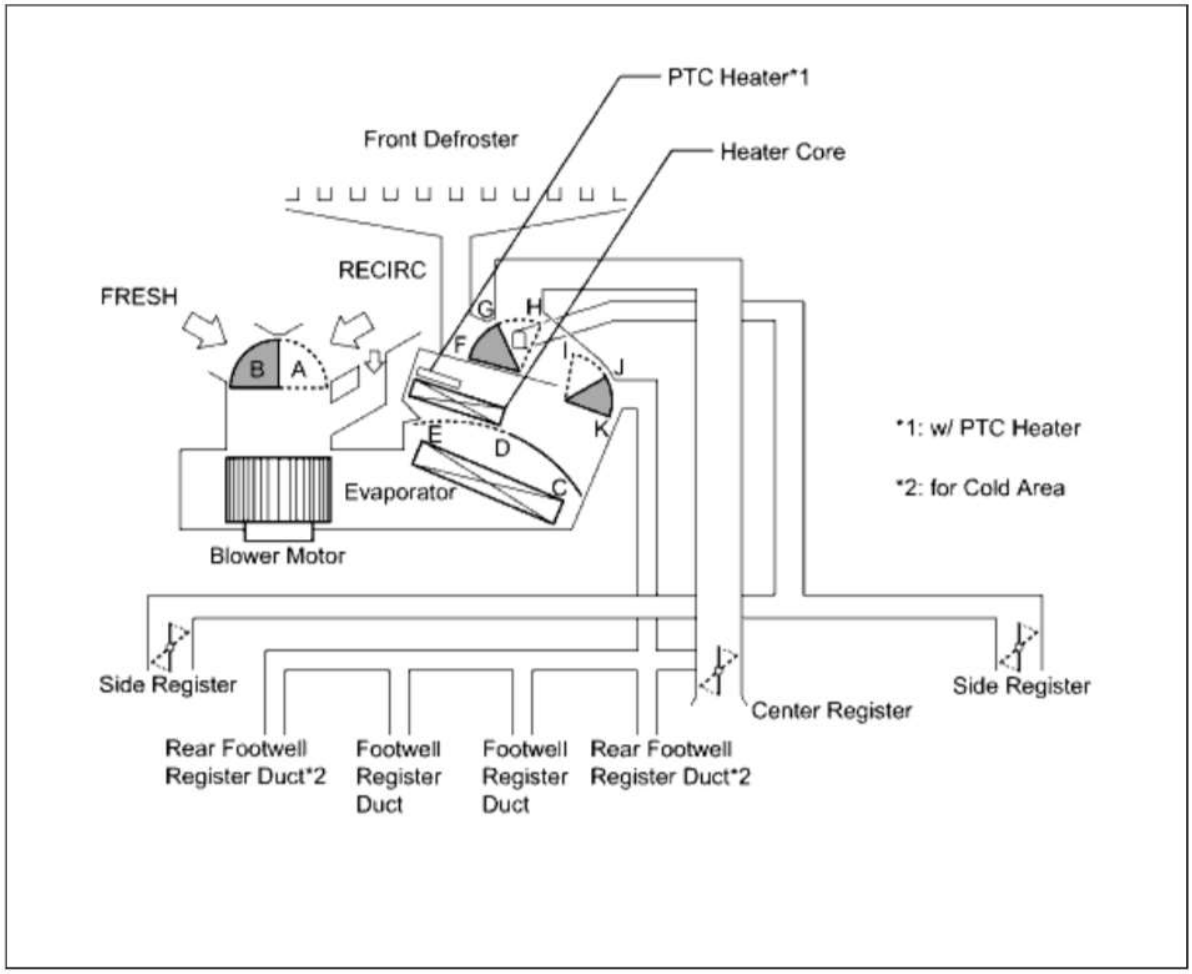
The air conditioning system has the following controls:

CONTROL	OUTLINE
Variable Capacity Compressor Control	Controls the compressor to turn ON or OFF and the discharge capacity based on the signals from various sensors.
Self-diagnosis	Checks the sensors in accordance with operation of air conditioning switches, then clock displays a DTC (Diagnosis Trouble Code) to indicate if there is a malfunction or not (sensor check function).

2. MODE POSITION AND DAMPER OPERATION

(a) Mode Position and Damper Operation

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Functions of Main Dampers

CONTROL DAMPER	OPERATION POSITION	DAMPER POSITION	OPERATION
Air Inlet Control Damper	FRESH	A	Brings in fresh air.
	RECIRC	B	Recirculates internal air.
Air Mix Control Damper	MAX COLD to MAX HOT Temperature Setting 16°C (61°F) to 30°C (86°F)	C - D - E	Varies the mixture ratio of the fresh air and the recirculation air in order to regulate the temperature continuously from HOT to COLD.
Mode Control Damper	DEF	H, K	Defrosts the windshield through the front defroster and side register.
	FOOT/DEF	H, J	Defrosts the windshield through the front defroster and side register, while air is also blown out from the front footwell register duct and rear foot well register duct*2.

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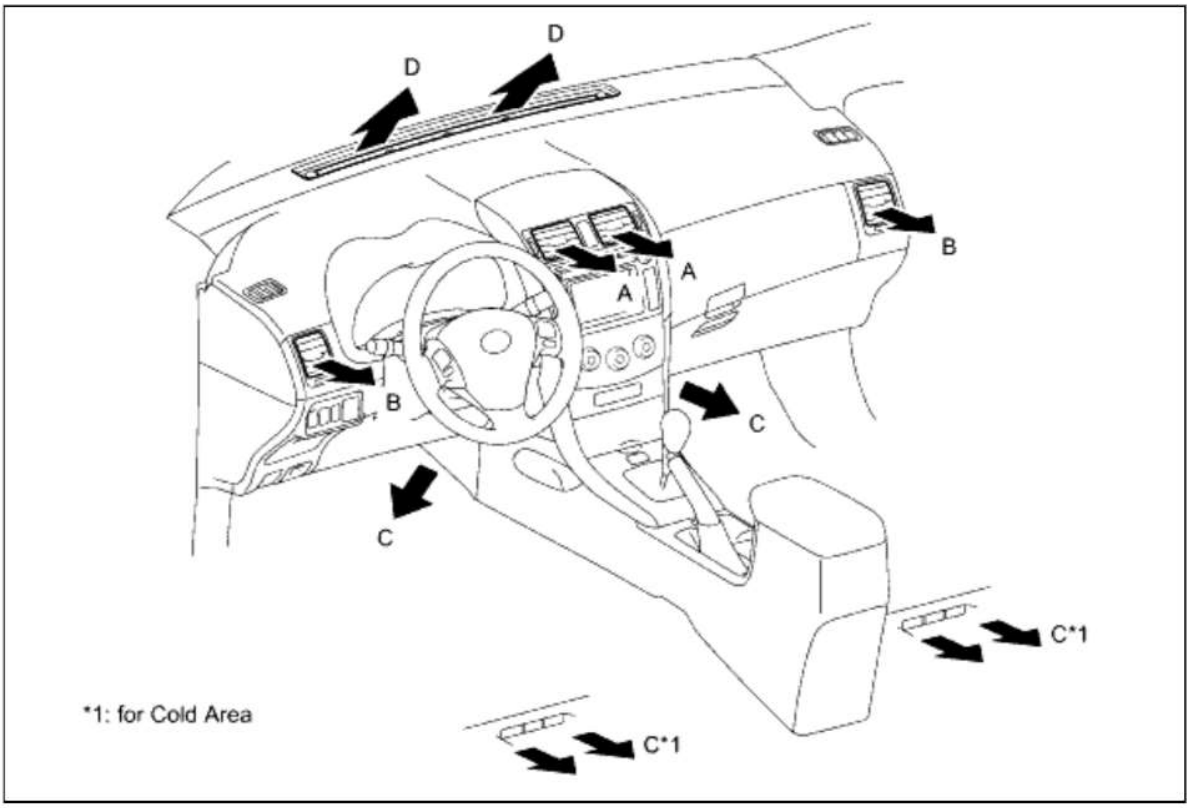
CONTROL DAMPER	OPERATION POSITION	DAMPER POSITION	OPERATION
	FOOT 	H, I	Air blows out of the footwell register duct, rear footwell register duct*2, and side register. In addition, air blows out slightly from the front defroster.
	BI-LEVEL 	F, I	Air blows out of the center register, side register, front footwell register duct and rear footwell register duct*2.
	FACE 	F, K	Air blows out of the center register and side register.

*1: w/ PTC Heater

*2: for Cold Area

3. AIR OUTLETS AND AIRFLOW VOLUME

(a) Air Outlets and Airflow Volume



INDICATION	CTR	SIDE	FOOTWELL	DEFROSTER

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(MODE)	A	B	C	D
FACE	○	○	—	—
BI-LEVEL	◎	◎	○	—
FOOT	—	◎	○	◎
FOOT/DEF	—	◎	◎	◎
DEF	—	◎	—	○

The size of the circle ○ indicates the proportion of airflow volume.

4. A/C COMPRESSOR

(a) General

(1) The A/C compressor is a continuously variable capacity type in which its capacity varies with the cooling load of the air conditioning system.

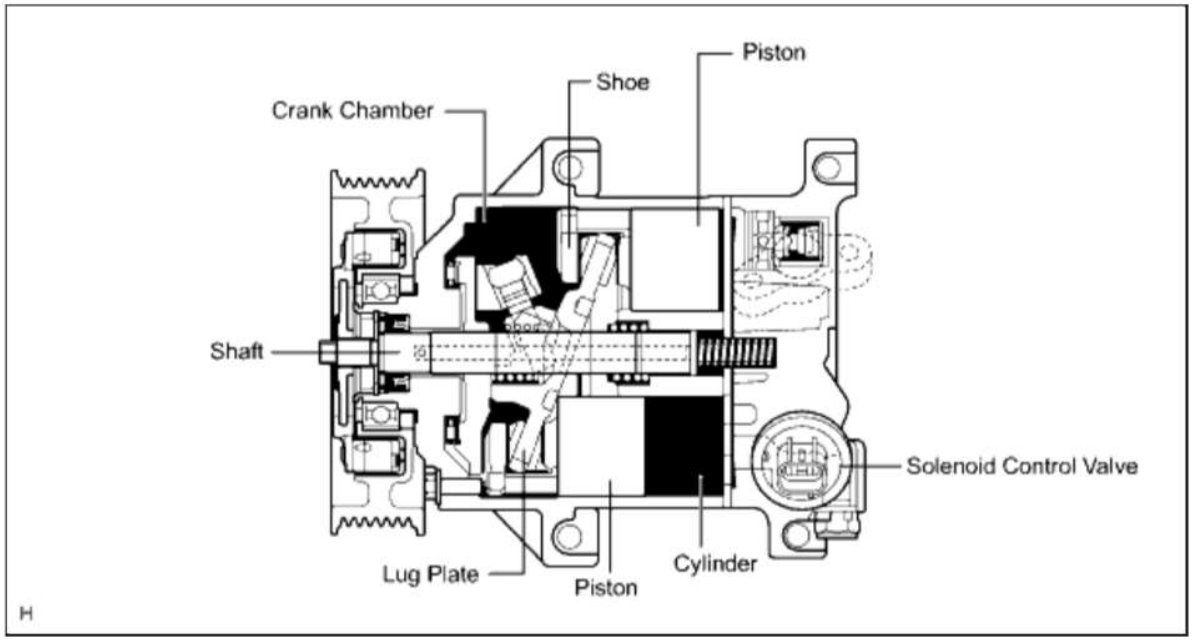
(2) The compressor consists of the shaft, lug plate, piston, shoe, crank chamber, cylinder, and solenoid control valve.

(3) The solenoid control valve adjusts the suction pressure is provided to enable to be controlled as desired.

(4) A plastic DL (Damper Limiter) type A/C pulley is used.

(5) A rotary valve uses suction to pull refrigerant gas into the cylinder.

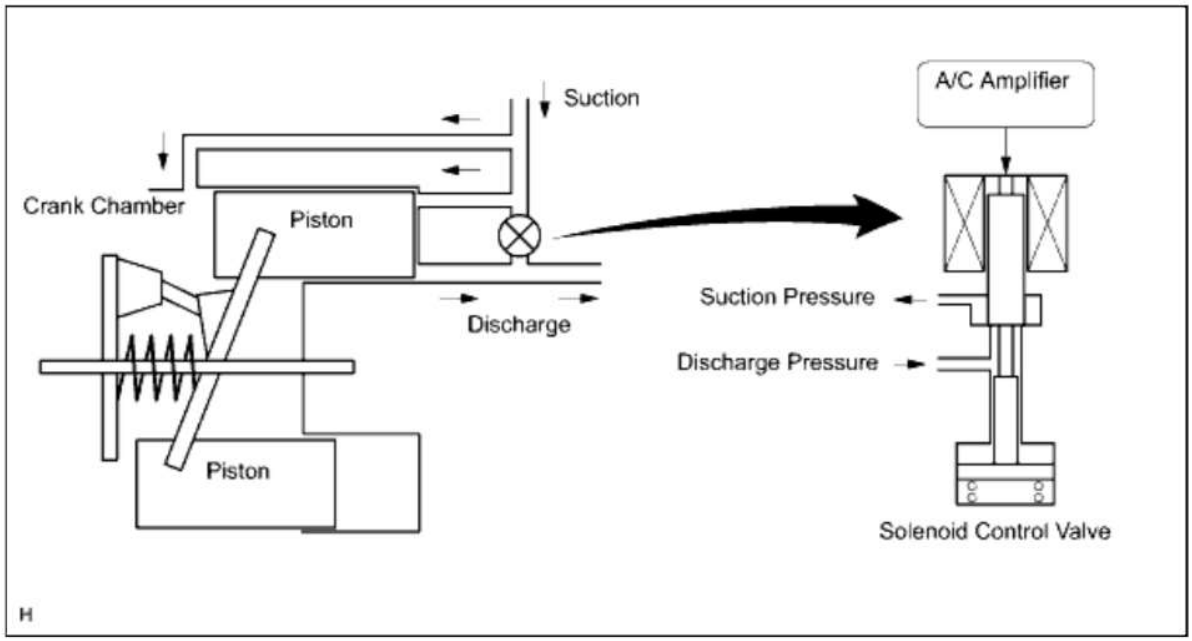
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(b) Operation

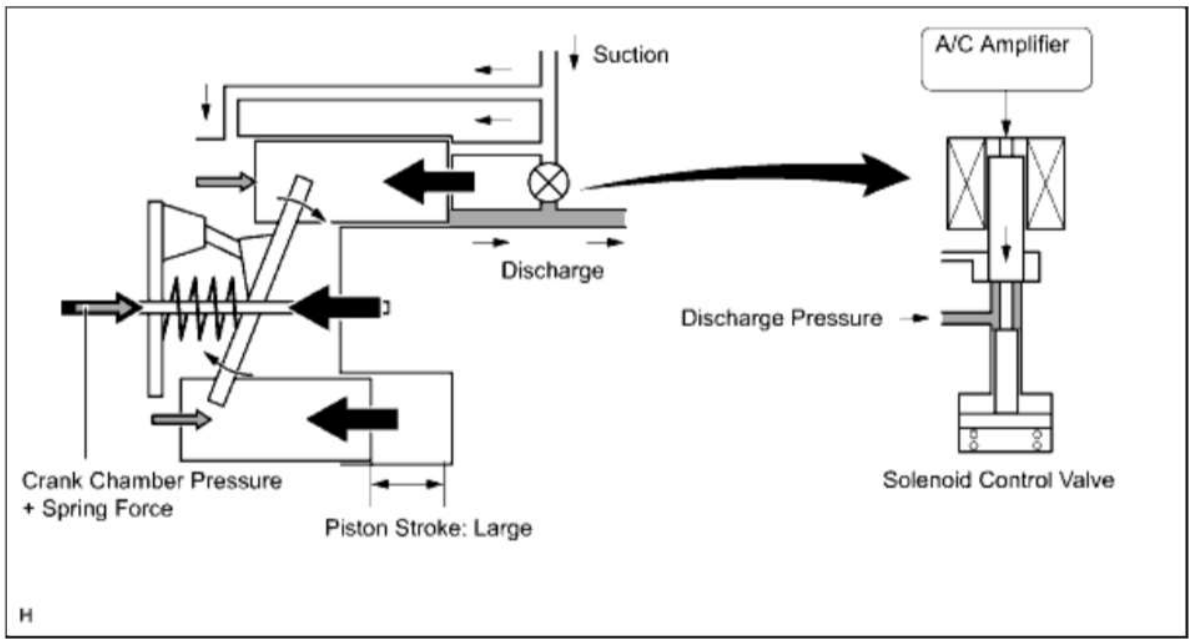
(1) The crank chamber is connected to the suction passage. A solenoid control valve is provided between the suction passage (low pressure) and the discharge passage (high pressure).

(2) The solenoid control valve duty cycle is controlled in accordance with the signals from the air conditioning amplifier.

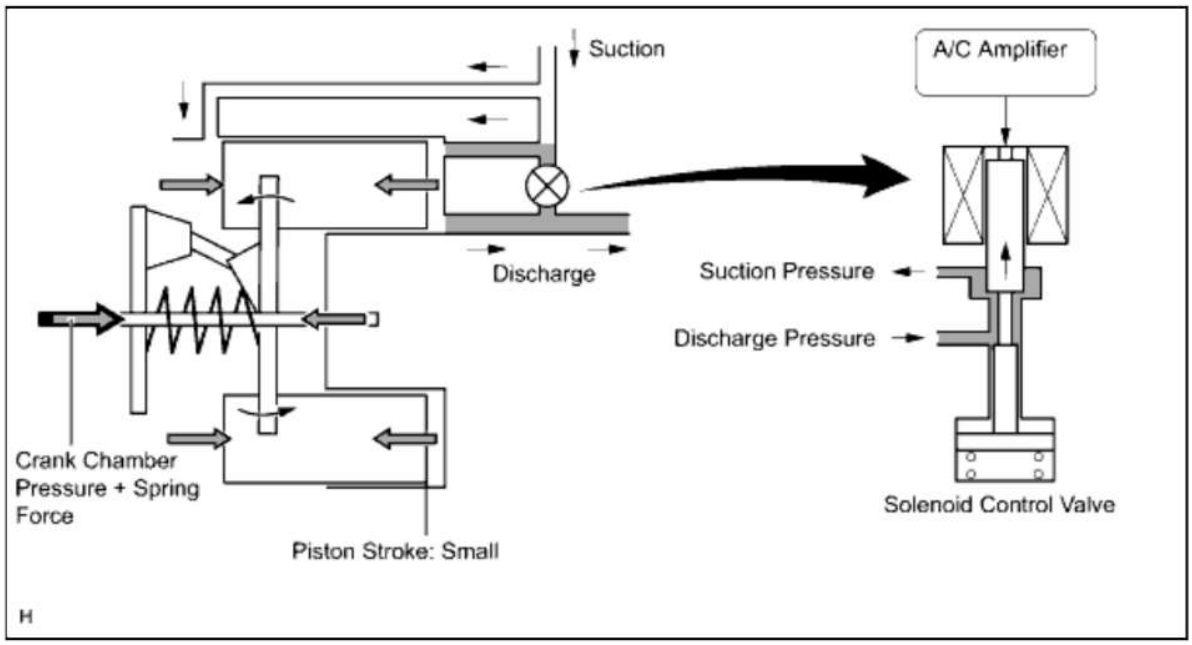


(3) When the solenoid control valve closes (solenoid coil is energized), a difference in pressure is created and the crank chamber pressure decreases. Then, the pressure that is applied to the right side of the piston becomes greater than the pressure that is applied to the left side. This compresses the spring and tilts the lug plate. As a result, there is a large piston stroke and the discharge capacity increases.

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(4) When the solenoid control valve opens (solenoid coil is not energized), the pressure is equalized. The pressure applied to the left side of the piston becomes equal to the right side. This is performed when the spring elongates and eliminates the tilt of the lug plate. As a result, there is a small piston stroke and the discharge capacity decreases.



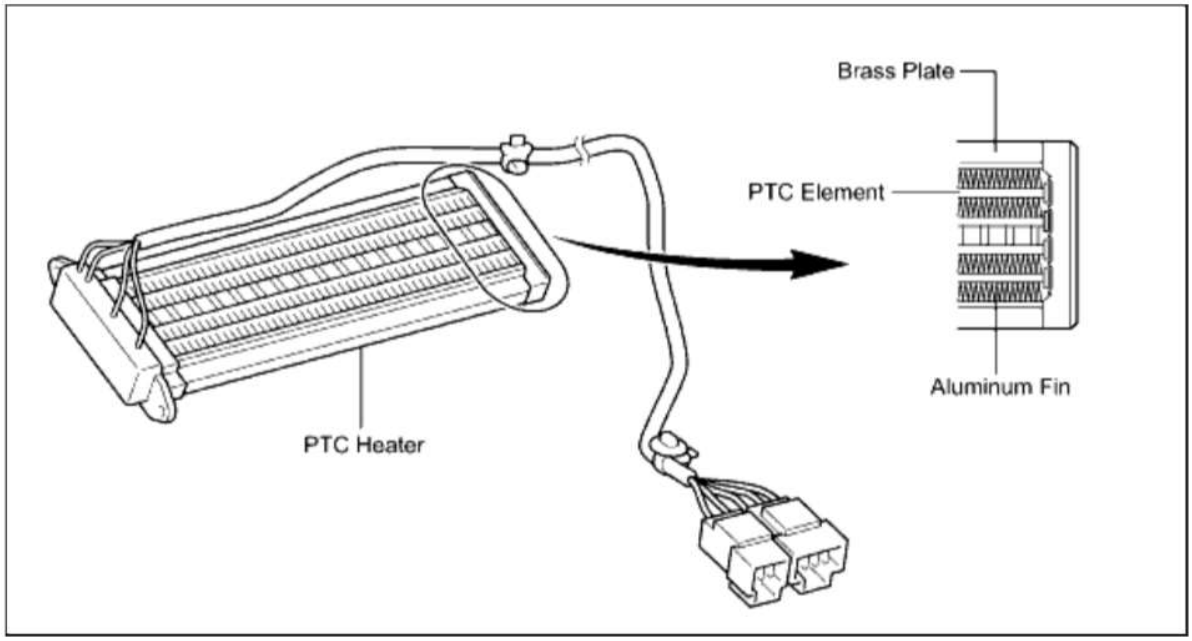
5. PTC HEATER (w/ PTC Heater)

(a) General

(1) The PTC heater is located above the heater core in the air conditioner unit.

(2) The PTC heater consists of a PTC element, aluminum fin, and brass plate. When current is applied to the PTC element, it generates heat to warm the air that passes through the unit.

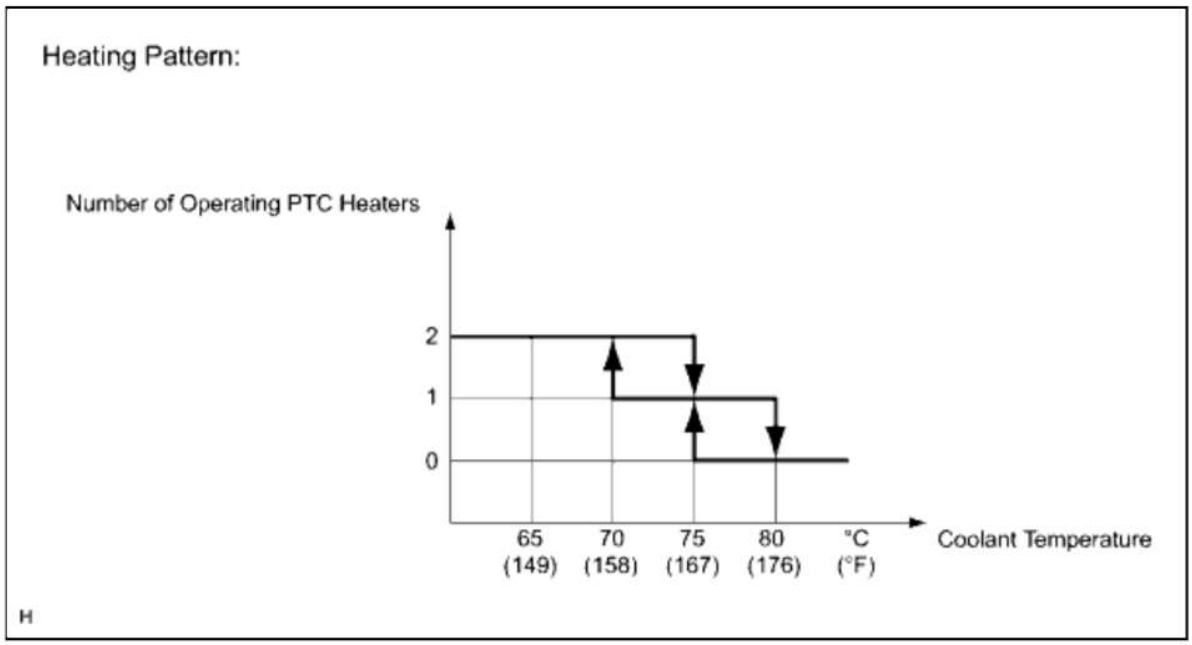
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(b) PTC Heater Operating Conditions

(1) The PTC heater is turned on and off by the air conditioning amplifier in accordance with the coolant temperature, ambient temperature, engine speed, air mix setting, and electrical load (generator power ratio).

For example, the number of the operating PTC heaters varies by the coolant temperature as in the graph below.



6. AMBIENT TEMPERATURE SENSOR

The ambient temperature sensor detects the outside temperature based on changes in the resistance of its built-in thermistor and sends a signal to the A/C amplifier.

7. EVAPORATOR TEMPERATURE SENSOR

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The evaporator temperature sensor detects the temperature of the cool air immediately past the evaporator in the form of resistance changes, and outputs it to the A/C amplifier.

8. A/C PRESSURE SENSOR

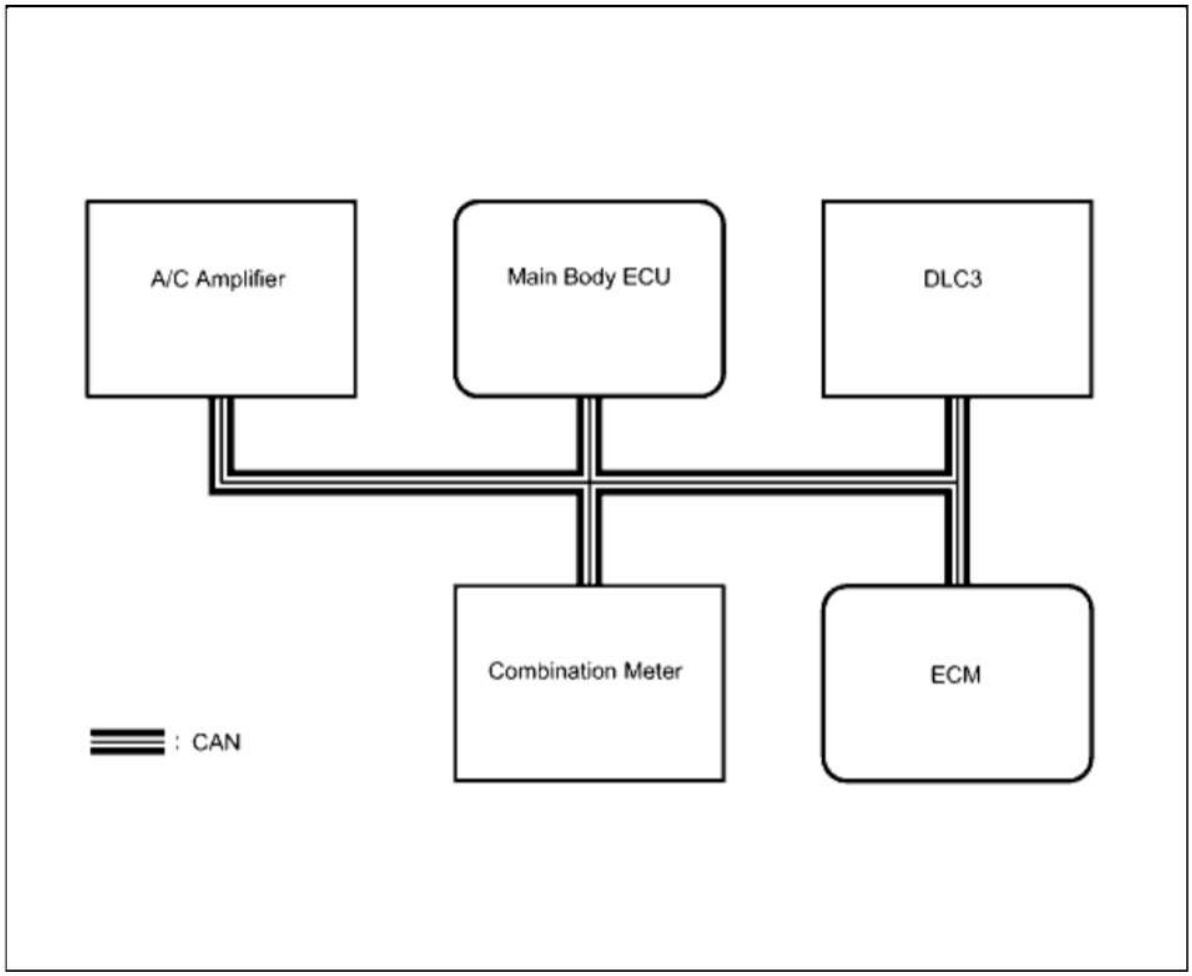
The A/C pressure sensor detects the refrigerant pressure and outputs it to the A/C amplifier in the form of voltage changes.



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Last Modified: 3-10-2010	6.4 U	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000026DI01OX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): SYSTEM DIAGRAM (2010 Corolla)		

SYSTEM DIAGRAM

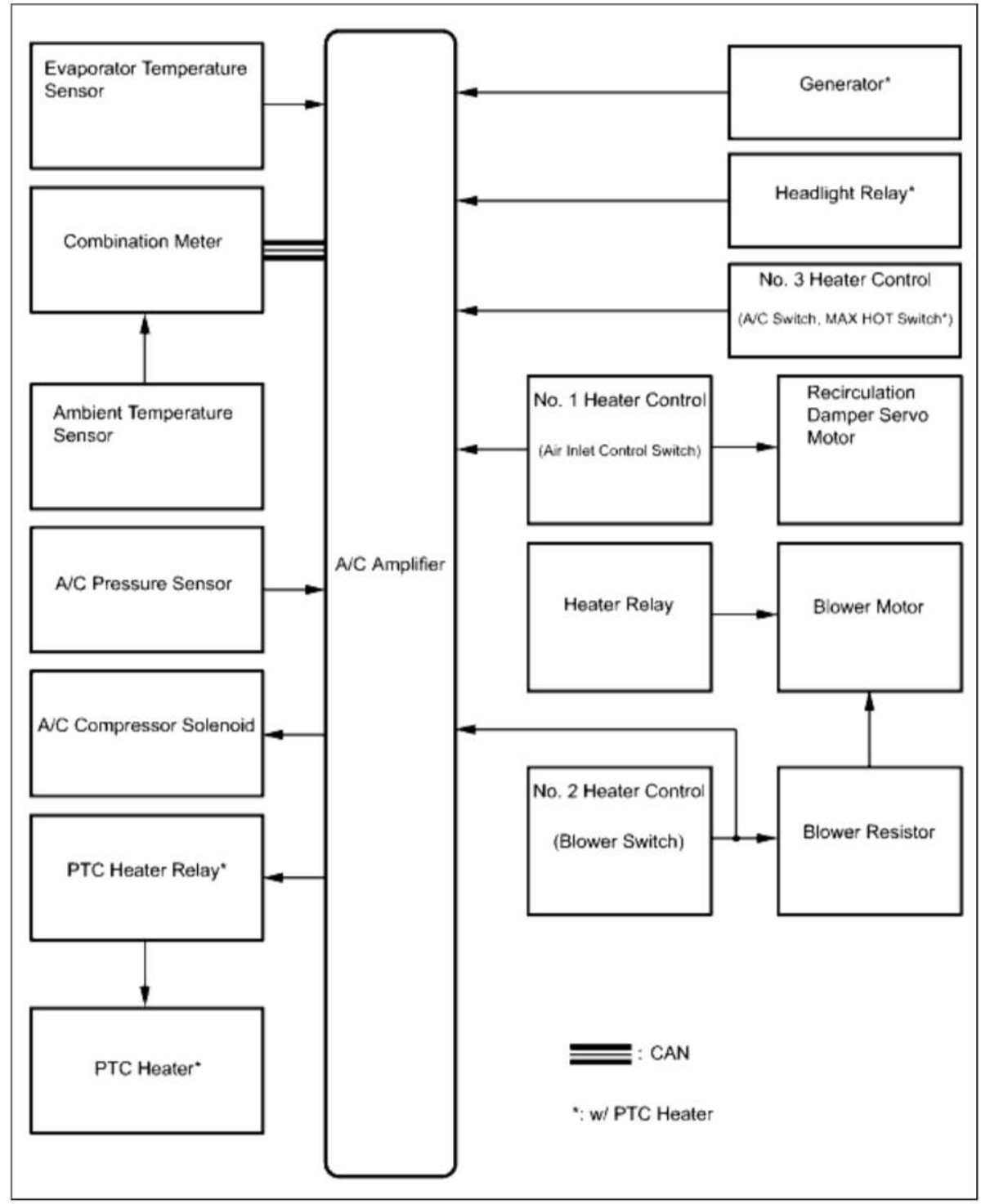


TRANSMITTER	RECEIVER	LINE	SIGNAL
A/C Amplifier	ECM	CAN	Heater Idle Up Request Signal
			A/C Idle Up Request Signal
			Outside Temperature Data
			External Variable Control Solenoid Current Signal
			Prior A/C Control Request Signal
			A/C (refrigerant) Pressure Sensor Signal
A/C Amplifier	Combination Meter	CAN	Outside Temperature Data

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TRANSMITTER	RECEIVER	LINE	SIGNAL
A/C Amplifier	DLC3	CAN	Diagnostic Tool Response
Main Body ECU	A/C Amplifier	CAN	Destination Symbol (Steering Wheel)
Combination Meter	A/C Amplifier	CAN	Vehicle Speed Signal
ECM	A/C Amplifier	CAN	Engine Coolant Temperature Signal
			Engine rpm Data
			A/C Control Cut-off Signal
			A/C-E/G Cooperation Control

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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000PM6030X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): HOW TO PROCEED WITH TROUBLESHOOTING (2010 Corolla)		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the air conditioning system.
- *: Use the Techstream.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**INSPECT BATTERY VOLTAGE**

(a) Inspect the battery voltage.

Standard Voltage:
11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3.	**CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM***

(a) Use the Techstream to check if the CAN communication system is functioning normally.

Result:

RESULT	PROCEED TO
CAN DTC is not output	A

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RESULT	PROCEED TO
CAN DTC is output	B

B ▶ **Go to CAN COMMUNICATION SYSTEM**

A ▼

4.	CHECK FOR DTC*

(a) Check for DTCs and note any codes that are output.

HINT:

Refer to DTC Check / Clear INFO .

(b) Clear the DTCs.

(c) Recheck for DTCs. Based on the DTCs output above, try to force the A/C system to output DTCs by simulating the conditions indicated by the DTCs.

Result:

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **Go to step 7**

A ▼

5.	PROBLEM SYMPTOMS TABLE

(a) Refer to Problem Symptoms Table INFO .

Result:

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RESULT	PROCEED TO
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B ▶ **Go to step 7**

A

▼

6.	OVERALL ANALYSIS AND TROUBLESHOOTING*

(a) Data List / Active Test INFO

(b) Terminals of ECU INFO

(c) On-vehicle Inspection

(d) Inspection

NEXT

▼

7.	ADJUST, REPAIR OR REPLACE

NEXT ▶ **END**

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Last Modified: 3-10-2010	6.4 T	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001M2W025X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): PROBLEM SYMPTOMS TABLE (2010 Corolla)		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, 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.

Air Conditioning System (for Manual Air Conditioning System)

SYMPTOM	SUSPECTED AREA	SEE PAGE
All functions of the A/C system do not operate.	IG power source circuit	INFO
	Back-up power source circuit	INFO
	A/C amplifier	INFO
Air Flow Control: No blower operation	Blower motor circuit	INFO
	A/C amplifier	INFO
Air Flow Control: No blower control	Blower motor circuit	INFO
	A/C amplifier	INFO
Air Flow Control: Insufficient air flow	Blower motor circuit	INFO
	A/C amplifier	INFO
Temperature Control: No cool air comes out.	Refrigerant volume	-
	Refrigerant pressure	INFO
	Pressure sensor circuit	INFO
	Compressor solenoid circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Heater control switch circuit	INFO
	Air mix damper control cable	INFO
	Expansion valve	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	A/C amplifier	INFO
Temperature Control: No warm air comes out.	Evaporator temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Generator signal circuit*1	INFO
	Headlight signal circuit*1	INFO
	PTC heater circuit*1	INFO
	Engine coolant temperature sensor circuit (for 2AZ-FE)	INFO
	Engine coolant temperature sensor circuit (for 2ZR-FE)	INFO
	CAN communication system	INFO
	Air mix damper control cable	INFO
	A/C amplifier	INFO
	ECM (for 2AZ-FE)	INFO
	ECM (for 2ZR-FE)	INFO
Temperature Control: Output air is warmer or cooler than the set temperature or response is slow.	Refrigerant volume	-
	Refrigerant pressure	INFO
	Ambient temperature sensor circuit	INFO
	Generator signal circuit*1	INFO
	Headlight signal circuit*1	INFO
	PTC heater circuit*1	INFO
	Engine coolant temperature sensor circuit (for 2AZ-FE)	INFO
	Engine coolant temperature sensor circuit (for 2ZR-FE)	INFO
	CAN communication system	INFO
	Air mix damper control cable	INFO
	Radiator unit sub-assembly	INFO
	Expansion valve	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	A/C amplifier	INFO
	ECM (for 2AZ-FE)	INFO
	ECM (for 2ZR-FE)	INFO
Temperature Control: No temperature control (only Max. cool or Max. hot)	Ambient temperature sensor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Heater control switch circuit	INFO
	Generator signal circuit*1	INFO
	Headlight signal circuit*1	INFO
	PTC heater circuit*1	INFO
	Engine coolant temperature sensor circuit (for 2AZ-FE)	INFO
	Engine coolant temperature sensor circuit (for 2ZR-FE)	INFO
	CAN communication system	INFO
	Air mix damper control cable	INFO
	A/C amplifier	INFO
	ECM (for 2AZ-FE)	INFO
	ECM (for 2ZR-FE)	INFO
No air inlet control	Recirculation damper servo motor circuit	INFO
	A/C amplifier	INFO
No air flow mode control	No. 2 heater control cable	INFO
Engine idle up does not occur, or is continuous.	Compressor solenoid circuit	INFO
	A/C amplifier	INFO
	ECM (for 2AZ-FE)	INFO
	ECM (for 2ZR-FE)	INFO
	CAN communication system	INFO
A/C indicator blinks.	Compressor solenoid circuit	INFO
	A/C amplifier	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
Diagnostic trouble codes are not recorded. Set mode is cleared when ignition switch is turned off.	Back-up power source circuit	INFO
	A/C amplifier	INFO

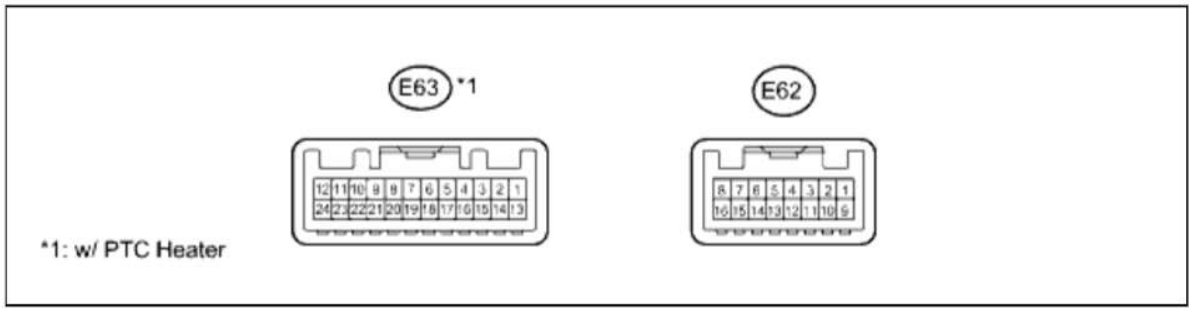
*1: w/ PTC Heater

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Last Modified: 3-10-2010	6.4 U	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000026DR01QX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): TERMINALS OF ECU (2010 Corolla)		

TERMINALS OF ECU

1. A/C AMPLIFIER



HINT:

Check from the rear of the connector while it is connected to the A/C amplifier.

TERMINAL NO. (SYMBOL)	WIRING COLOR	DESCRIPTION	CONDITION	SPECIFIED CONDITION
E62-1 (S5-3) - E62-4 (SG-2)	B - G	Power supply for A/C pressure sensor	Ignition switch ON	4.75 to 5.25 V
E62-2 (CANH) - E62-3 (CANL)	V - W	CAN communication system	CAN communication circuit	Pulse generation
E62-4 (SG-2) - Body ground	G - Body ground	Ground for A/C pressure sensor	Always	Below 1 V
E62-6 (PRE) - E62-4 (SG-2)	L - G	A/C pressure sensor signal	Engine is running A/C system is operating Refrigerant pressure: Abnormal pressure (more than 3140 kPa (32.0 kgf/cm^2, 455 psi))	4.848 V or higher
E62-6 (PRE) - E62-4 (SG-2)	L - G	A/C pressure sensor signal	Engine is running A/C system is operating Refrigerant pressure: Abnormal pressure (less than 196 kPa (2.0 kgf/cm^2, 28 psi))	Below 0.734 V

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TERMINAL NO. (SYMBOL)	WIRING COLOR	DESCRIPTION	CONDITION	SPECIFIED CONDITION
E62-6 (PRE) - E62-4 (SG-2)	L - G	A/C pressure sensor signal	Engine is running A/C system is operating Refrigerant pressure: Normal pressure (less than 3140 kPa (32.0 kgf/cm2, 455 psi) and more than 196 kPa (2.0 kgf/cm^2, 28 psi))	0.734 to 4.848 V
E62-7 (SOL+) - E62-12 (GND)	LG*1, V*2 - W-B	A/C compressor operation signal	Engine is running A/C switch: ON Blower switch: LO	Pulse generation (See waveform 1)
E62-8 (IG+) - E62-12 (GND)	Y*1, R*2 - W-B	Power source (IG)	Ignition switch off	Below 1 V
E62-8 (IG+) - E62-12 (GND)	Y*1, R*2 - W-B	Power source (IG)	Ignition switch ON	11 to 14 V
E62-9 (SBLW) - E62-12 (GND)	O*1, GR*2 - W-B	Blower motor speed control signal	Ignition switch ON Blower switch: OFF	11 to 14 V
E62-9 (SBLW) - E62-12 (GND)	O*1, GR*2 - W-B	Blower motor speed control signal	Ignition switch ON Blower switch: LO	Below 1 V
E62-10 (TE) - E62-11 (SG-3)	W*1, LG*2 - P*1, SB*2	A/C evaporator temperature sensor signal	Ignition switch ON Evaporator temperature at 10°C (50°F)	1.7 to 2.0 V
E62-10 (TE) - E62-11 (SG-3)	W*1, LG*2 - P*1, SB*2	A/C evaporator temperature sensor signal	Ignition switch ON Evaporator temperature at 15°C (59°F)	1.0 to 1.3 V
E62-11 (SG-3) - Body ground	P*1, SB*2 - Body ground	Ground for A/C evaporator temperature sensor	Always	Below 1 V
E62-12 (GND) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1 V
E62-15 (A/C) - E62-12 (GND)	L*1, Y*2 - W-B	A/C switch signal	Ignition switch ON A/C switch: OFF	Below 1 V
E62-15 (A/C) - E62-12 (GND)	L*1, Y*2 - W-B	A/C switch signal	Ignition switch ON A/C switch: ON	11 to 14 V

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TERMINAL NO. (SYMBOL)	WIRING COLOR	DESCRIPTION	CONDITION	SPECIFIED CONDITION
E62-16 (LED) - E62-12 (GND)	GR*1, BE*2 - W-B	A/C switch indicator light signal	Ignition switch ON A/C switch: OFF Blower switch: ON	11 to 14 V
E62-16 (LED) - E62-12 (GND)	GR*1, BE*2 - W-B	A/C switch indicator light signal	Ignition switch ON A/C switch: ON Blower switch: ON	Below 4 V
E63-1 (B) - E62-12 (GND)*3	W*1, BR*2 - W-B	Power source (Battery)	Always	11 to 14 V
E63-9 (PTC1) - E62-12 (GND)*3	W*1, P*2 - W-B	PTC heater operation signal	Ignition switch ON Temperature setting: MAX HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: OFF	Below 1 V
E63-9 (PTC1) - E62-12 (GND)*3	W*1, P*2 - W-B	PTC heater operation signal	Engine is running (1250 rpm or higher) Temperature setting: MAX HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 75°C (167°F) or lower Light control switch: OFF Blower switch: LO	11 to 14 V
E63-10 (PTC2) - E62-12 (GND)*3	B - W-B	PTC heater operation signal	Ignition switch ON Temperature setting: MAX HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 70°C (158°F) or lower Light control switch: OFF Blower switch: OFF	Below 1 V
E63-10 (PTC2) - E62-12 (GND)*3	B - W-B	PTC heater operation signal	Engine is running (1250 rpm or higher) Temperature setting: MAX HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF	11 to 14 V

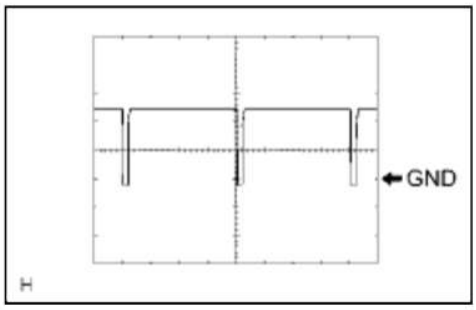
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TERMINAL NO. (SYMBOL)	WIRING COLOR	DESCRIPTION	CONDITION	SPECIFIED CONDITION
			Blower switch: LO	
E63-14 (HEAT) - E62-12 (GND)*3	LG*1, GR*2 - W-B	MAX HOT switch signal	Ignition switch ON MAX HOT switch: OFF	Below 1 V
E63-14 (HEAT) - E62-12 (GND)*3	LG*1, GR*2 - W-B	MAX HOT switch signal	Ignition switch ON MAX HOT switch: ON	11 to 14 V
E63-23 (HLS) - E62-12 (GND)*3	B*1, V*2 - W-B	Headlight dimmer signal (for PTC heater function)	Light control switch: OFF	11 to 14 V
E63-23 (HLS) - E62-12 (GND)*3	B*1, V*2 - W-B	Headlight dimmer signal (for PTC heater function)	Light control switch: ON	Below 1 V
E63-24 (ALT) - E62-12 (GND)*3	L - W-B	Generator signal (for PTC heater function)	Engine is running	Pulse generation

HINT:

- *1: TMC Made
- *2: NUMMI, TMMC Made
- *3: w/ PTC Heater

(a) Waveform 1



ITEM	CONTENT
Terminal No. (Symbol)	E62-7 (SOL+) - E62-12 (GND)
Tool Setting	5 V/DIV., 500 µs/DIV.
Vehicle Condition	Engine is running A/C switch: ON Blower switch: LO

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000STP03TX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): B1423: Pressure Sensor Circuit (2010 Corolla)		

DTC	**B1423**	**Pressure Sensor Circuit**

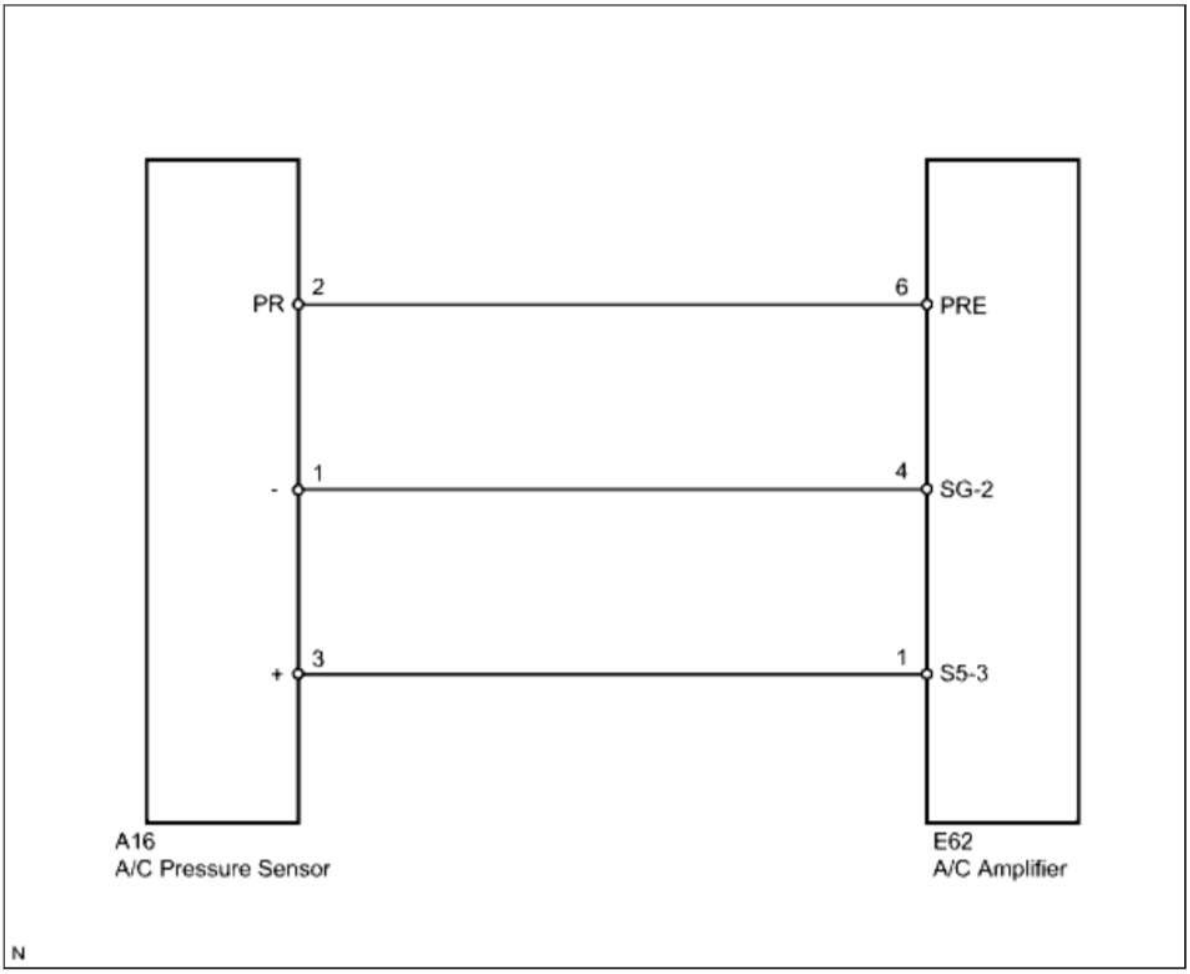
DESCRIPTION

This DTC is output when refrigerant pressure on the high pressure side is extremely low (0.19 MPa (2.0 kgf/cm^2, 28 psi) or less) or extremely high (3.14 MPa (32.0 kgf/cm^2, 455 psi) or more). The A/C pressure sensor, installed on the high pressure line to detect refrigerant pressure, outputs a refrigerant pressure signal to the A/C amplifier. The A/C amplifier converts this signal to a pressure value according to the sensor characteristics to control the compressor.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1423	• Open or short in A/C pressure sensor circuit • Refrigerant pressure on the high pressure line is extremely low (0.19 MPa (2.0 kgf/cm^2, 28 psi) or less) or extremely high (3.14 MPa (32.0 kgf/cm^2, 455 psi) or more).	• A/C Pressure sensor • Harness or connector between A/C pressure sensor and A/C amplifier • A/C amplifier • Expansion valve (blocked, stuck) • Condenser (blocked, deterioration of cooling capacity due to dirt) • Cooler dryer (moisture in the refrigerant cycle cannot be absorbed) • Cooling fan system (condenser cannot be cooled down) • A/C system (leaks, blocked)

WIRING DIAGRAM

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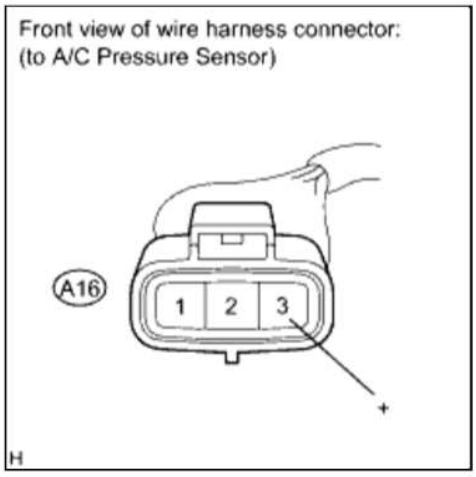
INSPECTION PROCEDURE

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)

(a) Disconnect the connector from the A/C pressure sensor.

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

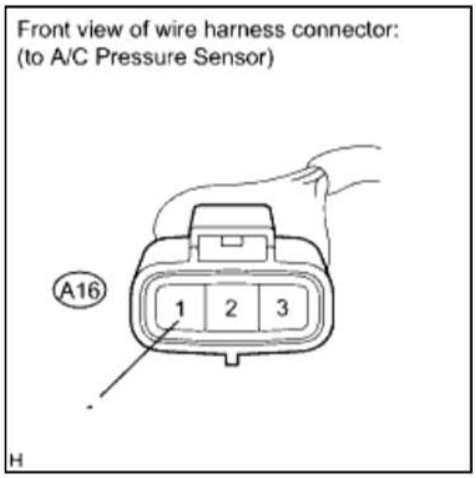
Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A16-3 (+) - Body ground	Ignition switch ON	4.75 to 5.25 V

NG ▶ **CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)**

OK ▼

2.	CHECK HARNESS AND CONNECTOR (GROUND CIRCUIT)



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A16-1 (-) - Body ground	Always	Below 1 Ω

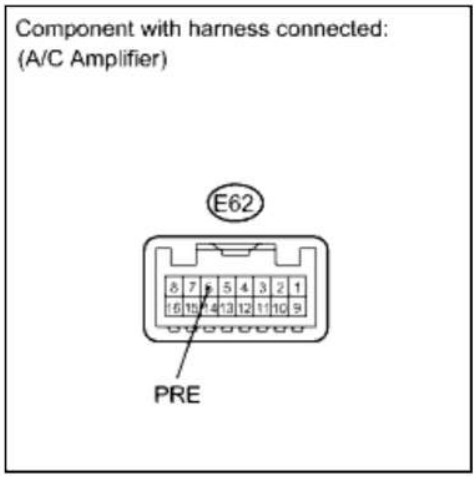
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NG ▶ **CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)**

OK ▼

3.	**INSPECT A/C PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)**

(a) Reconnect the connector to the A/C pressure sensor.



(b) Remove the A/C amplifier with the connectors still connected.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E62-6 (PRE) - Body ground	Ignition switch ON (A/C: OFF)	0.7 to 4.8 V

HINT:

If the measured voltage is not within the normal range, there may be a malfunction in the A/C amplifier, A/C pressure sensor, or wire harness. It is also possible that the amount of refrigerant may not be appropriate.

NG ▶ **CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)**

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OK

4.	INSPECT A/C PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)

(a) Measure the voltage when the following conditions are satisfied.

ITEM	CONDITION
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

- If refrigerant pressure on the high pressure line becomes extremely high during the inspection (if the voltage exceeds 4.8 V), the fail-safe function stops compressor operation. Therefore, measure the voltage before the fail-safe function operates.
- It is necessary to measure the voltage over a period of time (approximately 10 minutes) because the problem symptom may recur after a while.

HINT:

When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to operation of the ambient temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

(1) Measure the voltage according to the value(s) in the table below.

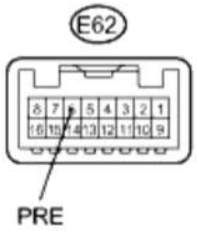
Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E62-6 (PRE) - Body ground	Ignition switch ON (A/C: ON)	0.7 to 4.8 V

Result:

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Component with harness connected:
(A/C Amplifier)



RESULT	PROCEED TO
OK (When troubleshooting according to DTC)	A
OK (When troubleshooting according to Problem Symptoms Table)	B
NG	C

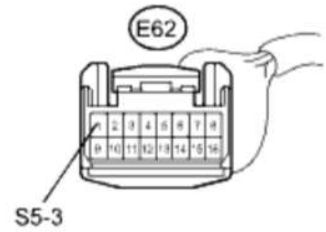
C ▶ **INSPECT COOLING FAN SYSTEM**

B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

A ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

5.	CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)

Front view of wire harness connector:
(to A/C Amplifier)



H

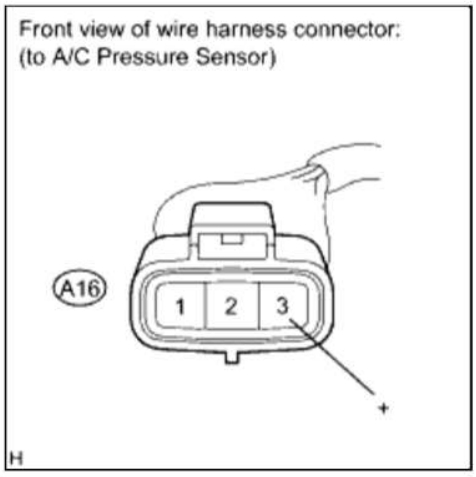
(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

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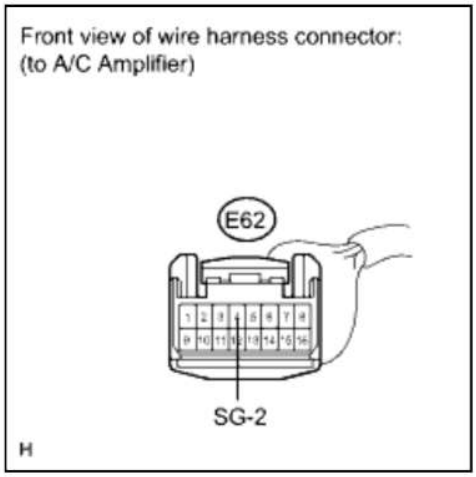


A16-3 (+) - E62-1 (S5-3)	Always	Below 1 Ω
E62-1 (S5-3) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

6.	**CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)**



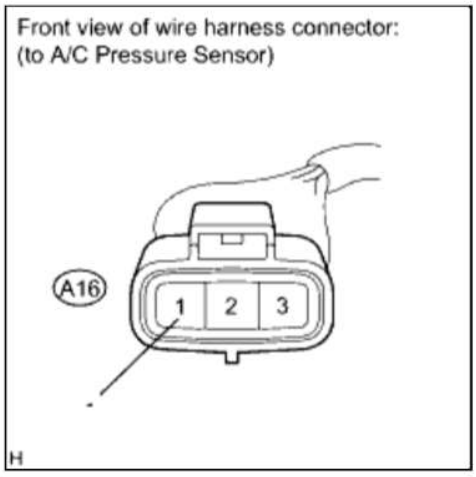
(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A16-1 (-) - E62-4 (SG-2)	Always	Below 1 Ω
E62-4 (SG-2) - Body ground	Always	10 kΩ or higher

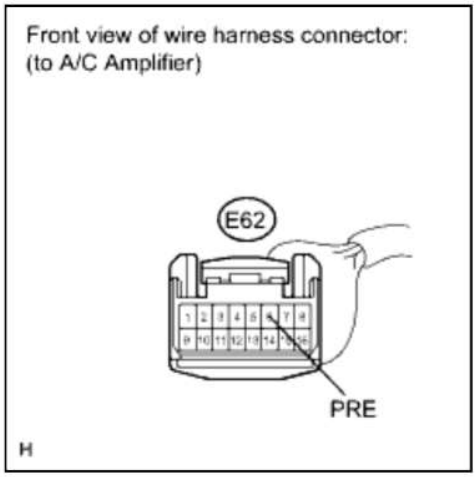
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NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

7.	CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)



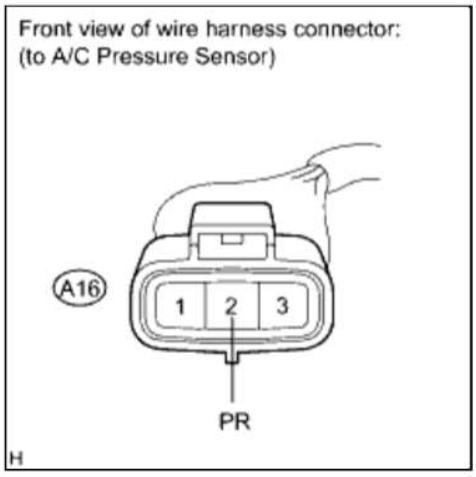
(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A16-2 (PR) - E62-6 (PRE)	Always	Below 1 Ω
E62-6 (PRE) - Body ground	Always	10 kΩ or higher

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NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK
▼

8.	**CHECK FOR A/C SYSTEM LEAK**

(a) Install the manifold gauge set.

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

(c) Evacuate the A/C system and check that vacuum can be maintained.

OK:

Vacuum can be maintained in the A/C system.

HINT:

If vacuum cannot be maintained in the A/C system, there may be a refrigerant leak. In this case, it is necessary to repair or replace the leaking part of the A/C system.

NG ▶ **REPAIR A/C SYSTEM LEAK**

OK
▼

9.	**CHARGE REFRIGERANT**

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(a) Add an appropriate amount of refrigerant INFO .

NEXT

10.	**RECHECK DTC**

(a) Recheck for DTCs when the following conditions are satisfied.

ITEM	CONDITION
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

If refrigerant pressure on the high pressure line is excessive, this DTC will be set. Therefore, it is necessary to measure the voltage over a period of time (approximately 10 minutes) because this DTC may be set after the A/C has been operating for a while.

HINT:

When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to signals from the ambient temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

Result:

RESULT	PROCEED TO
DTC B1423 is output	A
DTC B1423 is not output	B

NOTICE:

If the DTC was set due to an insufficient or excessive amount of refrigerant, the problem may have been solved after performing the previous step. However, the root cause of insufficient refrigerant may be refrigerant leaks. The root cause of excessive refrigerant may be adding refrigerant when the level was insufficient. Therefore, identify and repair any refrigerant leaks as necessary.

B ▶ END

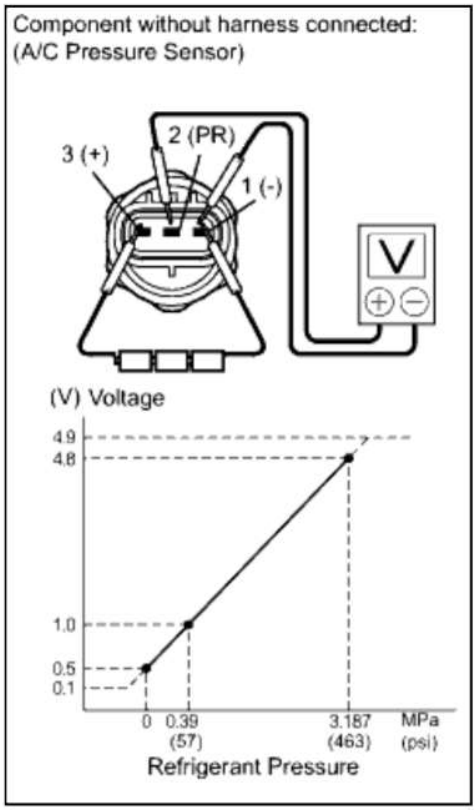
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A

11.	INSPECT A/C PRESSURE SENSOR

(a) Install the manifold gauge set.

(b) Disconnect the connector from the A/C pressure sensor.



(c) Connect the three 1.5 V dry cell batteries' positive (+) lead to terminal 3, and the negative (-) lead to terminal 1.

(d) Connect the voltmeter's positive (+) lead to terminal 2, and the negative (-) lead to terminal 1.

(e) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2 (PR) - 1 (-)	Refrigerant pressure: 0.39 to 3.187 MPa (57 to 463 psi)	1.0 to 4.8 V

NG ▶ **REPLACE A/C PRESSURE SENSOR**

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

12.	REPAIR A/C SYSTEM LEAK

(a) Identify the area where refrigerant leaks from INFO.

(b) Repair the identified area of the A/C system.

(c) Evacuate the A/C system.

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NEXT ▶ CHARGE REFRIGERANT

13.	INSPECT COOLING FAN SYSTEM

(a) Check that the cooling fan operates normally.

HINT:

- Cooling Fan Circuit INFO for 2AZ-FE).
- Cooling Fan Circuit INFO for 2ZR-FE).

NG ▶ REPAIR COOLING FAN SYSTEM

OK ▼

14.	CHARGE REFRIGERANT

(a) Use a refrigerant recovery unit to recover refrigerant.

(b) Evacuate the A/C system.

(c) Add an appropriate amount of refrigerant INFO.

HINT:

If refrigerant is added and the system has not been properly evacuated (insufficient vacuum time), moisture in the air remaining in the system will freeze in the expansion valve, blocking the flow on the high pressure side. Therefore, recover the refrigerant and properly evacuate the system. Add an appropriate amount of refrigerant, and check for DTCs.

NEXT ▼

15.	RECHECK DTC

(a) Recheck for DTCs when the following conditions are satisfied.

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ITEM	CONDITION
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

If refrigerant pressure on the high pressure line is excessive, this DTC will be set. Therefore, it is necessary to measure the voltage over a period of time (approximately 10 minutes) because DTC may be set after the A/C has been operating for a while.

HINT:

- When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to signals from the ambient temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.
- If refrigerant is added and the system has not been properly evacuated (insufficient vacuum time), moisture in the air remaining in the system will freeze in the expansion valve, blocking the flow on the high pressure side. Therefore, recover the refrigerant and properly evacuate the system. Add an appropriate amount of refrigerant, and check for DTCs. If the DTC is not output, it indicates that the cooler dryer in the condenser is not able to absorb moisture in the refrigerant. In this case, to complete the repair, it is necessary to replace the cooler dryer.

Result:

RESULT	PROCEED TO
DTC B1423 is output	A
DTC B1423 is not output	B

B ▶ **REPLACE COOLER DRYER**

A

16.	**REPLACE EXPANSION VALVE**

(a) Replace the expansion valve with a new one INFO .

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HINT:

Replace the expansion valve with a normal one because the expansion valve is either stuck or clogged.

NEXT

17.	CHARGE REFRIGERANT

(a) Add an appropriate amount of refrigerant INFO .

NEXT

18.	RECHECK DTC

(a) Recheck for DTCs when the following conditions are satisfied.

ITEM	CONDITION
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

If refrigerant pressure on the high pressure line is excessive, this DTC will be set. Therefore, it is necessary to measure the voltage over a period of time (approximately 10 minutes) because this DTC may be set after the A/C has been operating for a while.

HINT:

- When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to operation of the ambient temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.
- If refrigerant pressure is not normal after replacing the expansion valve with a new one, the

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condenser or pipes may be clogged with dirt, dust or other contaminants. In this case, clean or replace the condenser or pipes.

Result:

RESULT	PROCEED TO
DTC B1423 is not output	A
DTC B1423 is output	B

B ▶ REPLACE CONDENSER

A ▶ END

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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001O7Y024X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): DIAGNOSIS SYSTEM (2010 Corolla)		

DIAGNOSIS SYSTEM

1. CHECK DLC3

(a) Check the DLC3 INFO .

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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001GUF02RX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): DTC CHECK / CLEAR (2010 Corolla)		

DTC CHECK / CLEAR

1. DTC CHECK USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Trouble Codes.

(e) Check for DTCs.

2. DTC CLEAR USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Trouble Codes.

(e) Clear the DTCs by pressing the YES button on the Techstream display.

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000STK02EX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): B1412: Ambient Temperature Sensor Circuit (2010 Corolla)		

DTC	**B1412**	**Ambient Temperature Sensor Circuit**

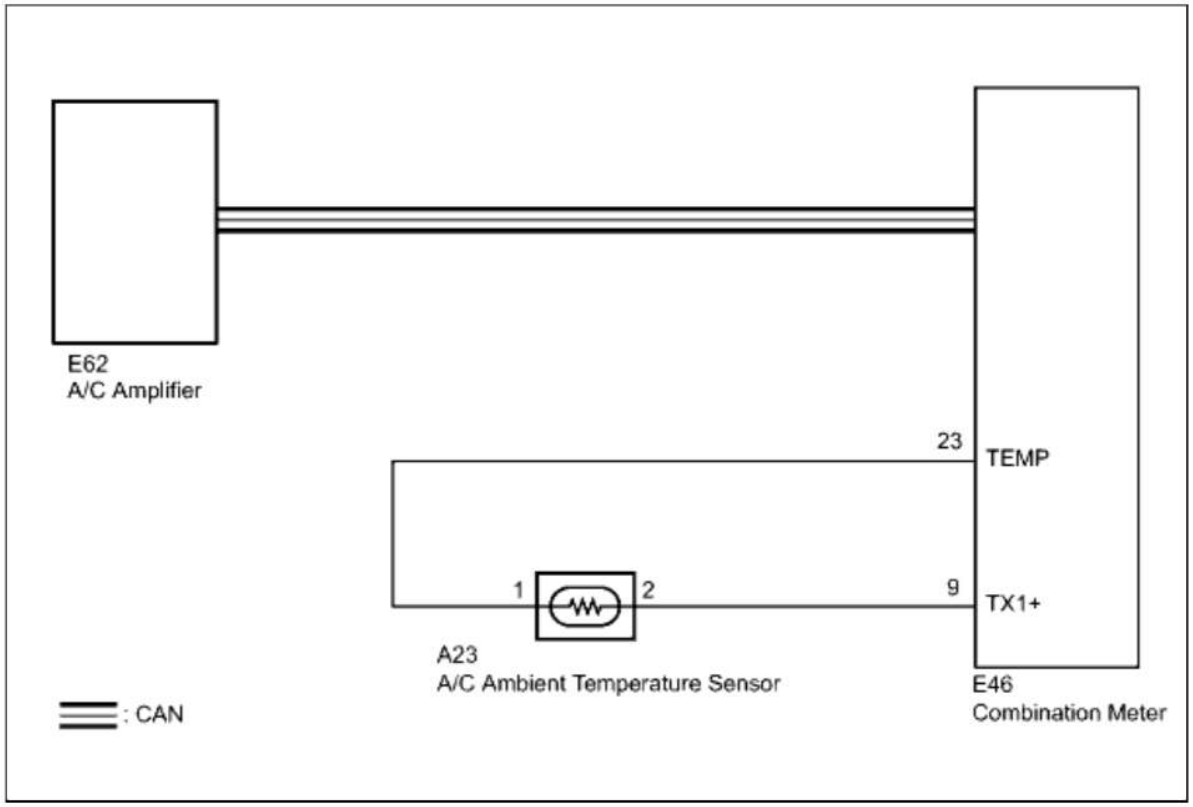
DESCRIPTION

The ambient temperature sensor is installed in front of the condenser. This sensor detects the temperature outside the cabin and sends the appropriate signals to the A/C amplifier via the CAN communication system.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1412	Open or short in ambient temperature sensor circuit	• Ambient temperature sensor • Harness or connector between ambient temperature sensor and combination meter • Combination meter • A/C amplifier • CAN communication system

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK CAN COMMUNICATION SYSTEM**

(a) Use the Techstream to check if the CAN communication system is functioning normally.

Result:

RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B ▶ **GO TO CAN COMMUNICATION SYSTEM**

A

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2.	READ VALUE USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Select the item below in the Data List, and read the display on the Techstream.

Data List / Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Ambient Temp Sensor (Ambi Temp Sens)	Ambient temperature sensor / Min: -23.3°C (-9.94°F), Max: 65.95°C (150.71°F)	Actual ambient temperature is displayed	Open in circuit: -23.3°C (-9.94°F) Short in circuit: 65.95°C (150.71°F)

OK:
The display is as specified in the "Normal Condition" column.
Result:

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to the DTC output)	C

C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

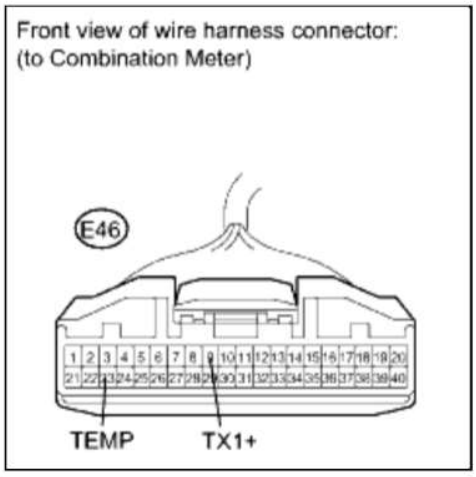
B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

A ▼

3.	CHECK HARNESS AND CONNECTOR (AMBIENT TEMPERATURE SENSOR CIRCUIT)

(a) Disconnect the connector from the combination meter.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-9 (TX1+) - E46-23 (TEMP)	25°C (77°F)	1.60 to 1.80 kΩ
E46-9 (TX1+) - E46-23 (TEMP)	40°C (104°F)	0.80 to 1.00 kΩ

NG ▶ **INSPECT AMBIENT TEMPERATURE SENSOR**

OK ▼

4.	**INSPECT COMBINATION METER**

(a) Temporarily replace the combination meter with a known good one INFO.

HINT:

Since the combination meter cannot be inspected while it is removed from the vehicle, replace the combination meter with a known good one and check that the condition returns to normal.

(b) Check for DTCs.

Result:

RESULT	PROCEED TO
DTC B1412 is not output	A
DTC B1412 is output	B

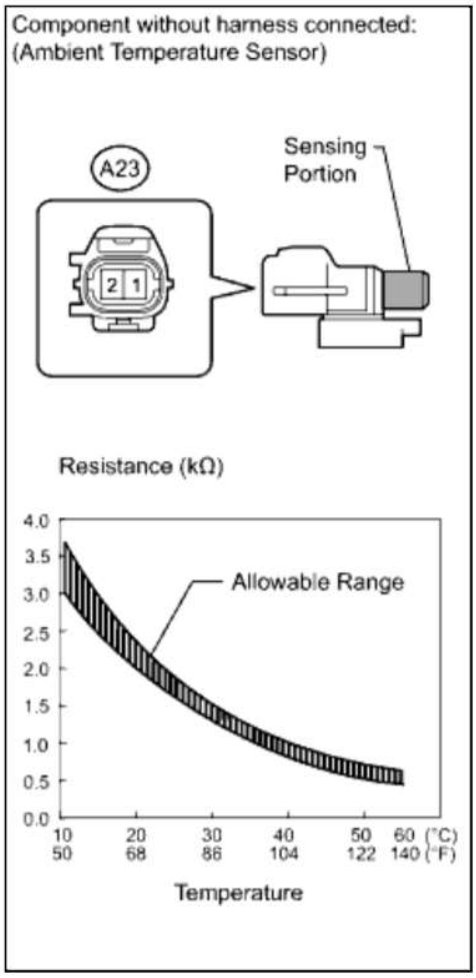
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B ▶ REPLACE AIR CONDITIONING AMPLIFIER

A ▶ REPLACE COMBINATION METER

5.	INSPECT AMBIENT TEMPERATURE SENSOR

(a) Remove the ambient temperature sensor.



(b) Disconnect the connector from the ambient temperature sensor.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A23-1 - A23-2	10°C (50°F)	3.00 to 3.73 kΩ
A23-1 - A23-2	15°C (59°F)	2.45 to 2.88 kΩ
A23-1 - A23-2	20°C (68°F)	1.95 to 2.30 kΩ

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A23-1 - A23-2	25°C (77°F)	1.60 to 1.80 kΩ
A23-1 - A23-2	30°C (86°F)	1.28 to 1.47 kΩ
A23-1 - A23-2	35°C (95°F)	1.00 to 1.22 kΩ
A23-1 - A23-2	40°C (104°F)	0.80 to 1.00 kΩ
A23-1 - A23-2	45°C (113°F)	0.65 to 0.85 kΩ
A23-1 - A23-2	50°C (122°F)	0.50 to 0.70 kΩ
A23-1 - A23-2	55°C (131°F)	0.44 to 0.60 kΩ
A23-1 - A23-2	60°C (140°F)	0.36 to 0.50 kΩ

NOTICE:

- Hold the sensor only by its connector. Touching the sensor may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

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

NG ▶ **REPLACE AMBIENT TEMPERATURE SENSOR**

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (AMBIENT TEMPERATURE SENSOR - COMBINATION METER)**

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Last Modified: 3-10-2010	6.4 U	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000PMG02OX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): DATA LIST / ACTIVE TEST (2010 Corolla)		

DATA LIST / ACTIVE TEST

1. Data List

Use the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Ambient Temp Sensor (Ambi Temp Sens)	Ambient temperature sensor / Min.: -23.3°C (-9.94°F), Max.: 65.95°C (150.71°F)	Actual ambient temperature is displayed	-
Adjusted Ambient Temp (Ambi Temp)	Adjusted ambient temperature / Min.: -30.8°C (-23.44°F), Max.: 50.8°C (123.44°F)	-	-
Evaporator Fin Thermistor (Evap Fin Temp)	Evaporator fin thermistor / Min.: -29.7°C (-21.46°F), Max.: 59.55°C (139.19°F)	Actual evaporator temperature is displayed	-
Engine Coolant Temp (Coolant Temp)	Engine coolant temperature / Min.: 1.3°C (34.34°F), Max.: 90.55°C (194.99°F)	Actual engine coolant temperature is displayed while engine is warmed up	-
Regulator Pressure Sensor (Reg Press Sens)	Regulator pressure sensor / Min.: 0 kgf/cm^{2}G (-0.45668 MPaG), Max.: 38.25 kgf/cm^{2}G (3.29437 MPaG)	Actual refrigerant pressure is displayed	-
Regulator Control	Compressor variable output current / Min.: 0 A, Max.: 0.997 A	-	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Current (Reg Ctrl Currnt)			
Number of Trouble Codes (#Codes)	Number of trouble codes / Min.: 0, Max.: 255	Number of DTCs will be displayed	-

2. ACTIVE TEST

Use the Techstream to perform Active Tests allows the relay, actuator, and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Test early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Test.

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Active Test.

(e) Check the operation by referring to the table below.

Air Conditioner

TESTER DISPLAY	TEST PART	CONTROL RANGE	NORMAL CONDITION
Heater Active Level (Heater Level)	Heater active level	Min.: 0, Max.: 3	-

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Last Modified: 3-10-2010	6.4 S	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001O7Z02HX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): DIAGNOSTIC TROUBLE CODE CHART (2010 Corolla)		

DIAGNOSTIC TROUBLE CODE CHART

HINT:

When the air conditioning system functions properly, DTC B1400 is output.

Air Conditioning System (for Manual Air Conditioning System)

DTC CODE	DETECTION ITEM	TROUBLE AREA	MEMORY*2	SEE PAGE
B1412*1	Ambient Temperature Sensor Circuit	1. Ambient temperature sensor 2. Harness or connector between ambient temperature sensor and combination meter 3. Combination meter 4. A/C amplifier 5. CAN communication system	Memorized (8.5 min. or more)	INFO
B1413*3	Evaporator Temperature Sensor Circuit	1. Evaporator temperature sensor 2. Harness or connector between evaporator temperature sensor and A/C amplifier 3. A/C amplifier	Memorized (8.5 min. or more)	INFO
B1423*3	Pressure Sensor Circuit	1. A/C pressure sensor 2. Harness or connector between A/C pressure sensor and A/C amplifier 3. A/C amplifier 4. Expansion valve (blocked, stuck) 5. Condenser (blocked, deterioration of cooling capacity due to dirt) 6. Cooler dryer (moisture in the refrigerant cycle cannot be absorbed) 7. Cooling fan system (condenser cannot be cooled down) 8. A/C system (leaks, blocked)	-	INFO
B1451*3	Compressor Solenoid Circuit	1. A/C compressor (compressor solenoid) 2. Harness or connector between A/C compressor (compressor solenoid) and A/C amplifier or body ground 4. A/C amplifier	-	INFO

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DTC CODE	DETECTION ITEM	TROUBLE AREA	MEMORY*2	SEE PAGE
B1499	Multiplex Communication Circuit	CAN communication system	Memorized	INFO

HINT:

- *1: If the ambient temperature is approx. -52.9°C (-63.22°F) or lower, DTC B1412/12 may be output even though the system is normal.
- *2: The A/C amplifier memorizes the DTC of the respective malfunction if it has occurred for the period of time indicated in the brackets.
- *3: For models without an air conditioning system, if this DTC is output, it does not indicate a problem.

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000STL031X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): B1413: Evaporator Temperature Sensor Circuit (2010 Corolla)		

DTC	**B1413**	**Evaporator Temperature Sensor Circuit**

DESCRIPTION

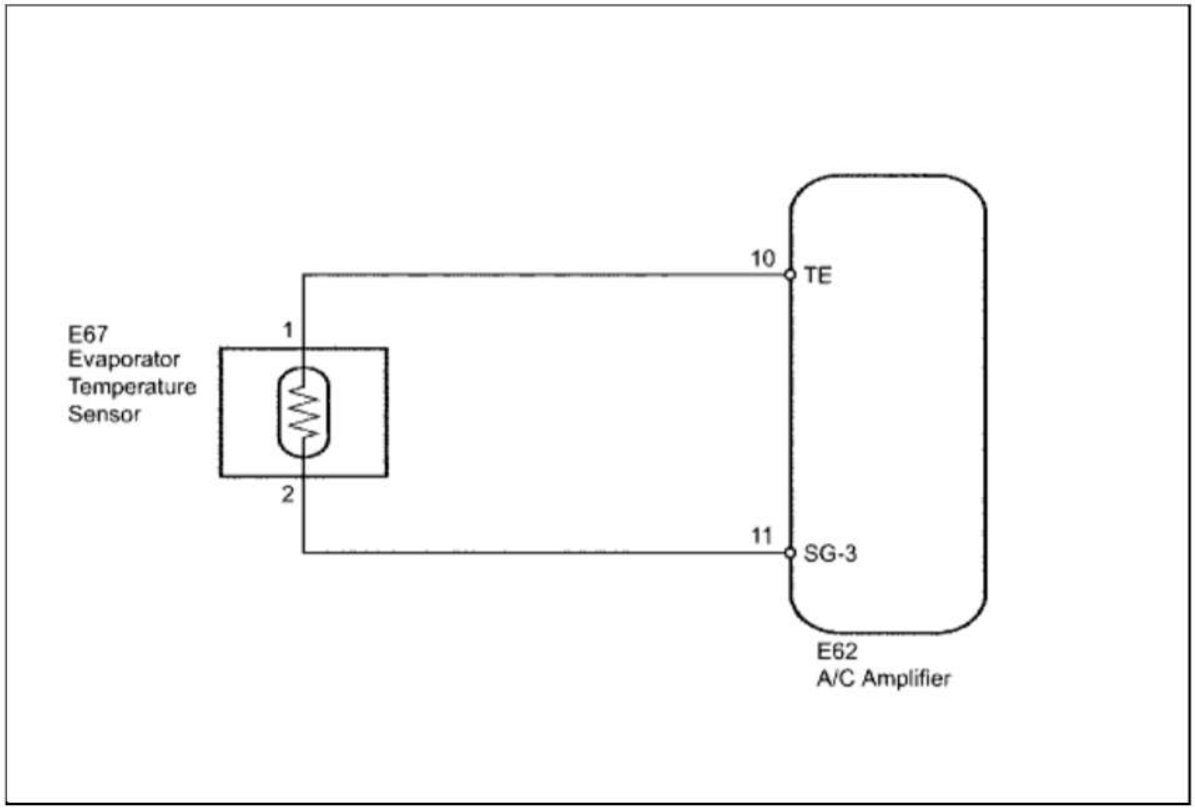
The evaporator temperature sensor (A/C thermistor) is installed on the evaporator in the air conditioning unit. It detects the temperature of the cooled air passed through the evaporator and its signal sent to the A/C amplifier is used to control the air conditioning. The resistance of the evaporator temperature sensor (A/C thermistor) changes in accordance with the temperature of the cooled air passed through the evaporator. As the temperature decreases, the resistance increases. As the temperature increases, the resistance decreases.

The A/C amplifier applies voltage (5 V) to the evaporator temperature sensor (A/C thermistor) and reads voltage changes as the resistance of the evaporator temperature sensor (A/C thermistor) changes. This sensor is used to prevent the evaporator from freezing.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1413	Open or short in evaporator temperature sensor circuit	• Evaporator temperature sensor • Harness or connector between evaporator temperature sensor and A/C amplifier • A/C amplifier

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**READ VALUE USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Select the item below in the Data List, and read the display on the Techstream.

Data List / Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Evaporator Fin Thermistor (Evap Fin Temp)	Evaporator fin thermistor / Min.: -29.7°C (-21.46°F), Max.: 59.55°C (139.19°F)	Actual evaporator temperature is displayed	Open in circuit: -29.7°C (-21.46°F) Short in circuit: 59.55°C (139.19°F)

OK:
The display is as specified in the "Normal Condition" column.

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Result:

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to the DTC output)	C

C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

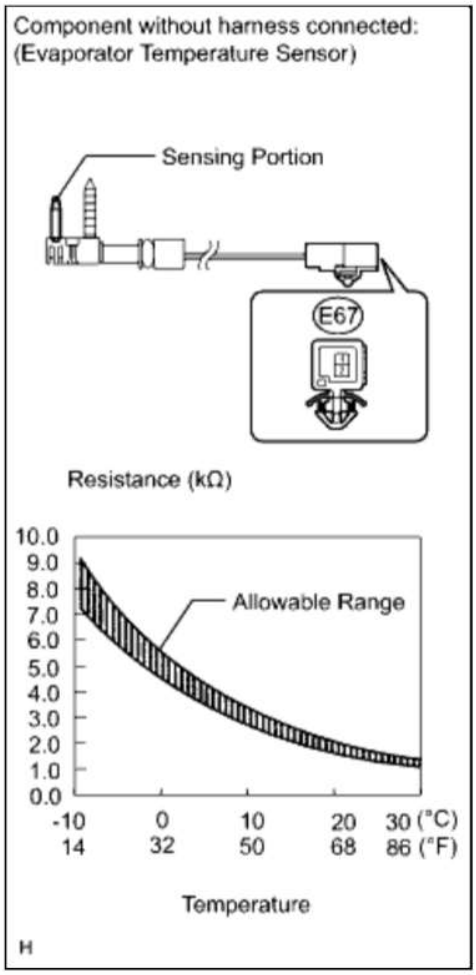
A ▼

2.	**INSPECT EVAPORATOR TEMPERATURE SENSOR**

(a) Remove the evaporator temperature sensor.

(b) Disconnect the connector from the evaporator temperature sensor.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E67-1 - E67-2	-10°C (14°F)	7.30 to 9.10 kΩ
E67-1 - E67-2	-5°C (23°F)	5.65 to 6.95 kΩ
E67-1 - E67-2	0°C (32°F)	4.40 to 5.35 kΩ
E67-1 - E67-2	5°C (41°F)	3.40 to 4.15 kΩ
E67-1 - E67-2	10°C (50°F)	2.70 to 3.25 kΩ
E67-1 - E67-2	15°C (59°F)	2.14 to 2.58 kΩ
E67-1 - E67-2	20°C (68°F)	1.71 to 2.05 kΩ
E67-1 - E67-2	25°C (77°F)	1.38 to 1.64 kΩ
E67-1 - E67-2	30°C (86°F)	1.11 to 1.32 kΩ

NOTICE:

- Hold the sensor only by its connector. Touching the sensor may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

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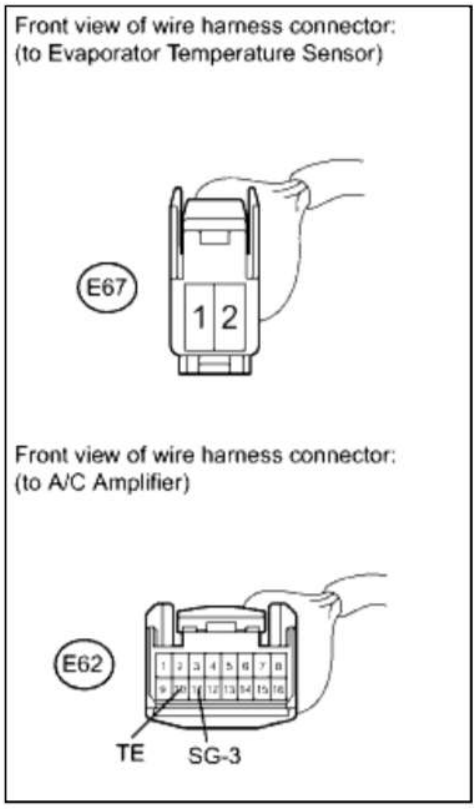
HINT:

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

NG ▶ **REPLACE EVAPORATOR TEMPERATURE SENSOR**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - EVAPORATOR TEMPERATURE SENSOR)**



(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E62-10 (TE) - E67-1	Always	Below 1 Ω
E62-11 (SG-3) - E67-2	Always	Below 1 Ω

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E62-10 (TE) - Body ground	Always	10 kΩ or higher
E62-11 (SG-3) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**



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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000VAV028X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): B1451: Compressor Solenoid Circuit (2010 Corolla)		

DTC	**B1451**	**Compressor Solenoid Circuit**

DESCRIPTION

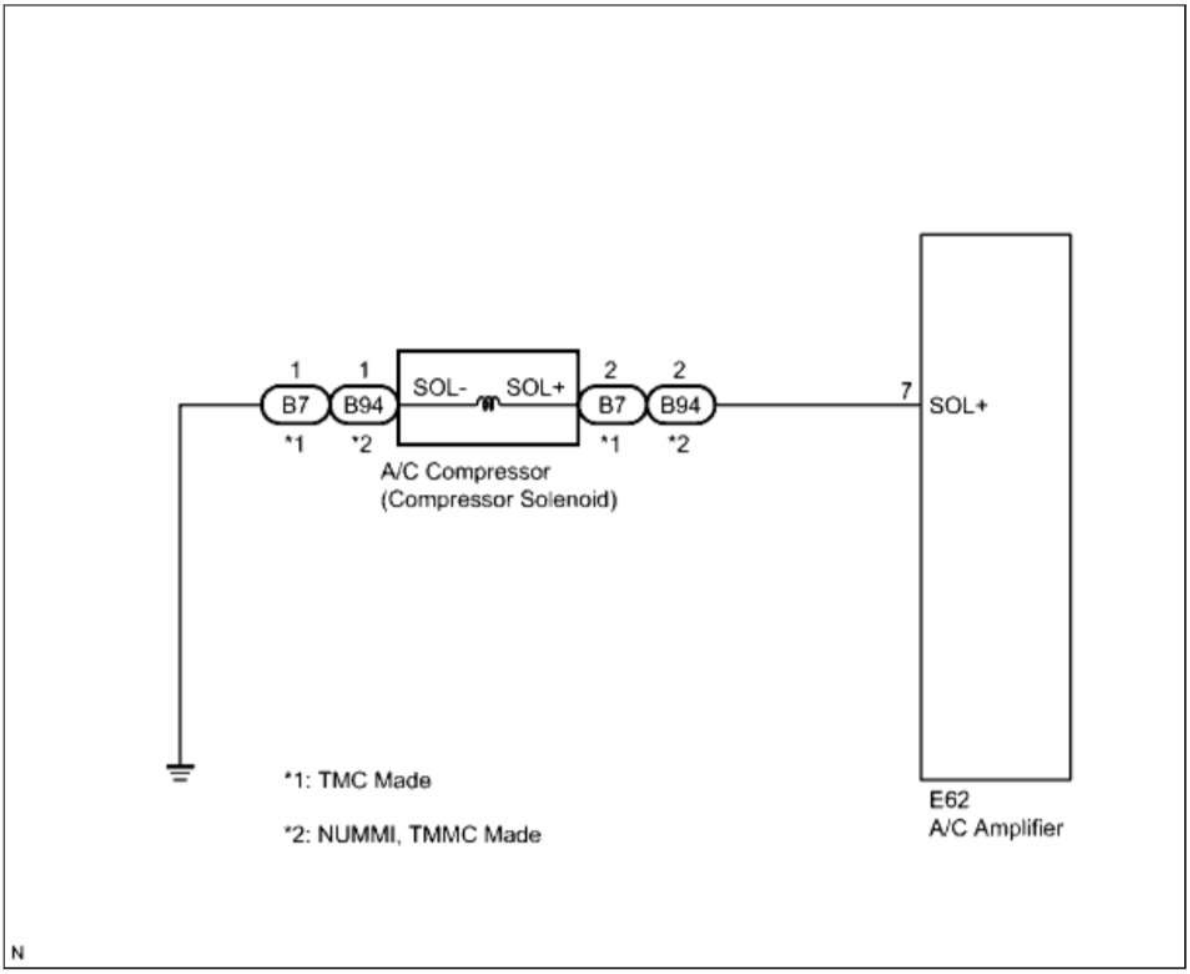
Through this circuit, the A/C compressor receives a refrigerant compression demand signal from the A/C amplifier.

Based on this signal, the A/C compressor changes the amount of compressor output.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1451	Open or short in A/C compressor solenoid circuit	• A/C compressor (compressor solenoid) • Harness or connector between A/C compressor (compressor solenoid) and A/C amplifier or body ground • A/C amplifier

WIRING DIAGRAM

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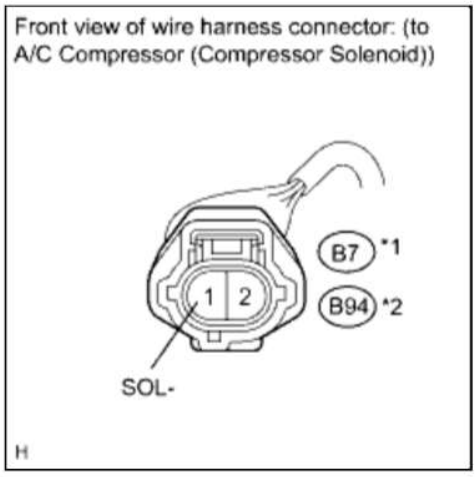
INSPECTION PROCEDURE

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (A/C COMPRESSOR - BODY GROUND)

(a) Disconnect the connector from the A/C compressor (compressor solenoid).

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
B7-1 (SOL-) - Body ground*1	Always	Below 1 Ω
B94-1 (SOL-) - Body ground*2	Always	Below 1 Ω

HINT:

- *1: TMC Made
- *2: NUMMI, TMMC Made

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

2.	**INSPECT A/C COMPRESSOR (COMPRESSOR SOLENOID)**

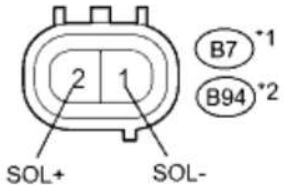
(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
B7-2 (SOL+) - B7-1 (SOL-)*1	20°C (68°F)	10 to 11 Ω

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Component without harness connected:
(A/C Compressor (Compressor Solenoid))



H

B94-2 (SOL+) - B94-1 (SOL-)*2	20°C (68°F)	10 to 11 Ω

HINT:

- *1: TMC Made
- *2: NUMMI, TMMC Made

Result:

RESULT	PROCEED TO
OK	A
NG (for 2AZ-FE)	B
NG (for 2ZR-FE)	C

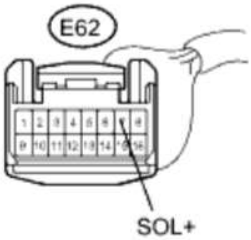
C ▶ **REPLACE A/C COMPRESSOR (for 2ZR-FE)**

B ▶ **REPLACE A/C COMPRESSOR (for 2AZ-FE)**

A

3.	**CHECK HARNESS AND CONNECTOR (A/C COMPRESSOR - A/C AMPLIFIER)**

Front view of wire harness connector:
(to A/C Amplifier)



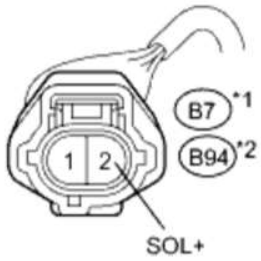
H

(a) Disconnect the connector from the A/C amplifier.

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

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Front view of wire harness connector: (to A/C Compressor (Compressor Solenoid))



H

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E62-7 (SOL+) - B7-2 (SOL+)*1	Always	Below 1 Ω
E62-7 (SOL+) - B94-2 (SOL+)*2	Always	Below 1 Ω
E62-7 (SOL+) - Body ground	Always	10 kΩ or higher

HINT:

- *1: TMC Made
- *2: NUMMI, TMMC Made

Result:

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to the DTC)	C

C ▶ REPLACE AIR CONDITIONING AMPLIFIER

B ▶ PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

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Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Y1K00PX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): Recirculation Damper Servo Motor Circuit (2010 Corolla)		

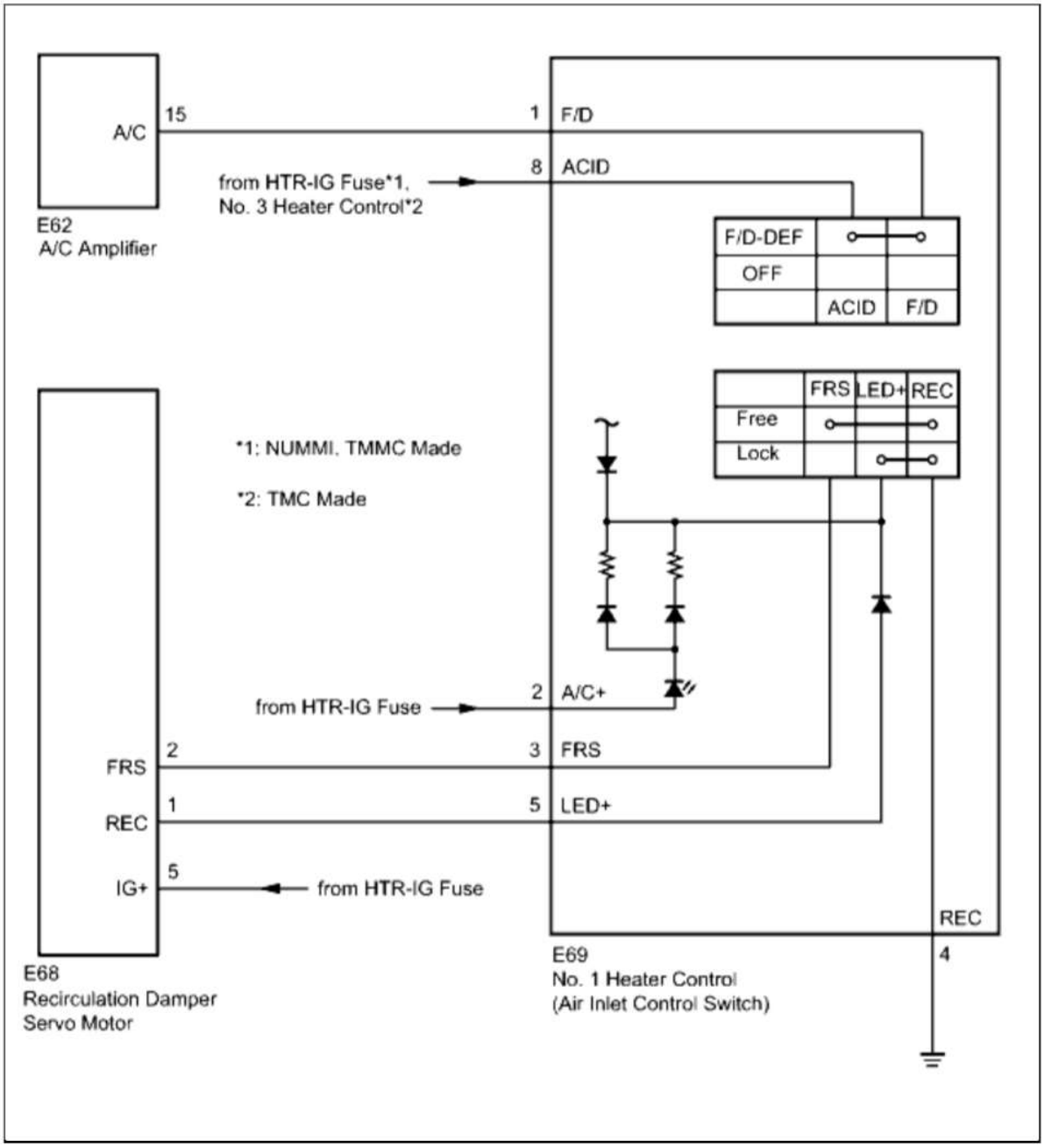
Recirculation Damper Servo Motor Circuit

DESCRIPTION

The recirculation damper servo motor and No. 1 heater control (air inlet control switch) are powered through the HTR-IG fuse. Operating the No. 1 heater control (air inlet control switch) drives the recirculation damper servo motor to switch between "FRESH" and "RECIRCULATION".

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**INSPECT FUSE (HTR-IG)**

(a) Remove the HTR-IG fuse from the instrument panel junction block.

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

Standard Resistance:

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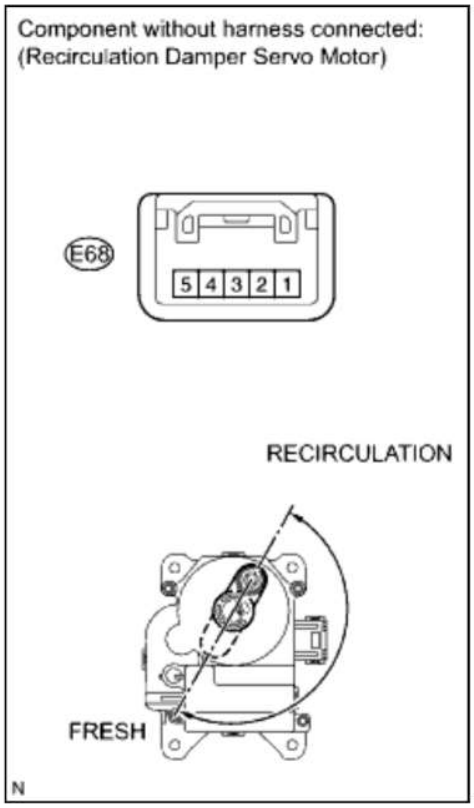
TEST ITEM	CONDITION	SPECIFIED CONDITION
HTR-IG fuse	Always	Below 1 Ω

NG ▶ **REPLACE FUSE (HTR-IG)**

OK ▼

2.	INSPECT RECIRCULATION DAMPER SERVO MOTOR

(a) Remove the recirculation damper servo motor.



(b) Disconnect the connector from the recirculation damper servo motor.

(c) Connect a positive (+) lead from the battery to terminal 5 and a negative (-) lead from the battery to terminal 2, then check that the arm turns to the "FRESH" side smoothly.

OK:

Lever turns to "FRESH" side smoothly.

(d) Connect a positive (+) lead from the battery to terminal 5 and a negative (-) lead from the battery to terminal 1, then check that the arm turns to the "RECIRCULATION" side smoothly.

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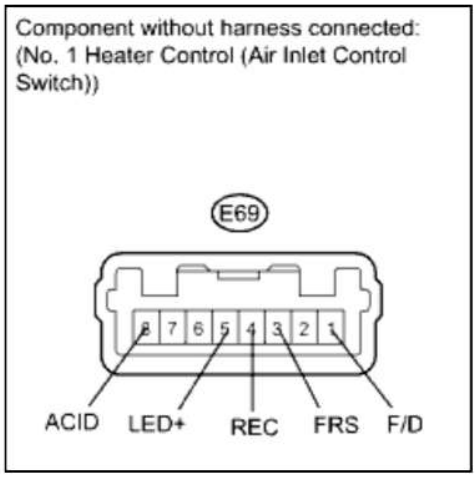
OK:
Lever turns to "RECIRCULATION" side smoothly.

NG ▶ **REPLACE RECIRCULATION DAMPER SERVO MOTOR**

OK ▼

3.	INSPECT NO. 1 HEATER CONTROL (AIR INLET CONTROL SWITCH)

(a) Remove the No. 1 heater control (air inlet control switch).



(b) Disconnect the connector from the No. 1 heater control (air inlet control switch).

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E69-3 (FRS) - E69-4 (REC)	Air inlet control switch: FREE	Below 1 Ω
E69-3 (FRS) - E69-4 (REC)	Air inlet control switch: LOCK	10 kΩ or higher
E69-1 (F/D) - E69-8 (ACID)	Mode control dial: except Foot/DEF position and DEF position	10 kΩ or higher
E69-1 (F/D) - E69-8 (ACID)	Mode control dial: Foot/DEF position or DEF position	Below 1 Ω

(d) Check that the indicator light comes on.

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(1) Turn the heater control base (air inlet control switch) to LOCK.

(2) Connect a positive (+) lead from the battery to terminal 2 and a negative (-) lead from the battery to terminal 4, and check that the indicator light comes on.

OK:

The indicator light comes on.

(e) Check that the illumination comes on.

(1) Connect a positive (+) lead from the battery to terminal 7 and negative (-) lead from the battery to terminal 6, and check that the illumination comes on.

OK:

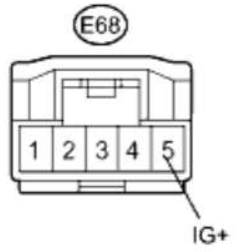
The illumination comes on.

NG ▶ **REPLACE NO. 1 HEATER CONTROL (AIR INLET CONTROL SWITCH)**

OK ▼

4.	**CHECK HARNESS AND CONNECTOR (RECIRCULATION DAMPER SERVO MOTOR - BATTERY)**

Front view of wire harness connector:
(to Recirculation Damper Servo Motor)



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

Standard Voltage:

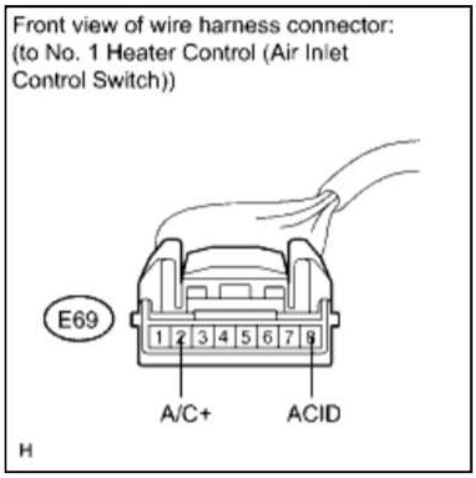
TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E68-5 (IG+) - Body ground	Ignition switch off	Below 1 V
E68-5 (IG+) - Body ground	Ignition switch ON	11 to 14 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

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5.	**CHECK HARNESS AND CONNECTOR (NO. 1 HEATER CONTROL (AIR INLET CONTROL SWITCH) - BATTERY)**



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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E69-2 (A/C+) - Body ground	Ignition switch off	Below 1 V
E69-2 (A/C+) - Body ground	Ignition switch ON	11 to 14 V
E69-8 (ACID) - Body ground	Ignition switch off	Below 1 V
E69-8 (ACID) - Body ground	Ignition switch ON	11 to 14 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

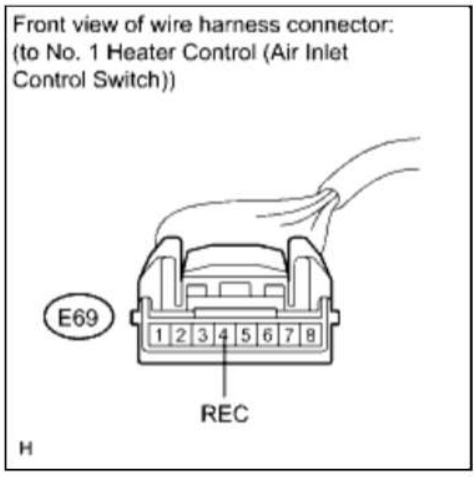
6.	**CHECK HARNESS AND CONNECTOR (NO. 1 HEATER CONTROL(AIR INLET CONTROL SWITCH) - BODY GROUND)**

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E69-4 (REC) - Body ground	Always	Below 1 Ω

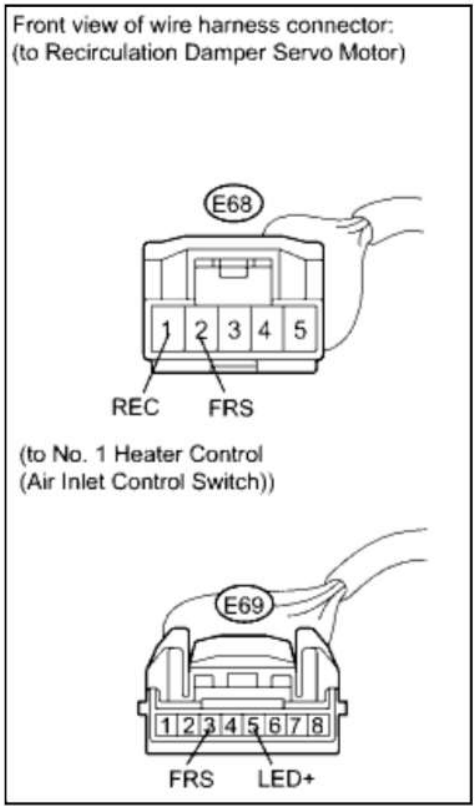
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NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

7.	**CHECK HARNESS AND CONNECTOR (NO. 1 HEATER CONTROL - RECIRCULATION DAMPER SERVO MOTOR)**



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

Standard Resistance:

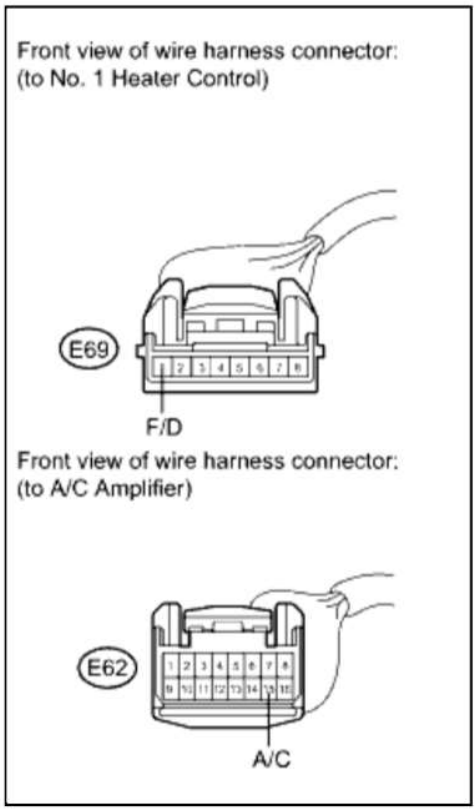
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E69-3 (FRS) - E68-2 (FRS)	Always	Below 1 Ω
E69-5 (LED+) - E68-1 (REC)	Always	Below 1 Ω
E69-3 (FRS) - Body ground	Always	10 kΩ or higher
E69-5 (LED+) - Body ground	Always	10 kΩ or higher

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NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

8.	CHECK HARNESS AND CONNECTOR (NO. 1 HEATER CONTROL - A/C AMPLIFIER)



(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E69-1 (F/D) - E62-15 (A/C)	Always	Below 1 Ω
E69-1 (F/D) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000017SQ02SX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): B1499: Multiplex Communication Circuit (2010 Corolla)		

DTC	**B1499**	**Multiplex Communication Circuit**

DESCRIPTION

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1499	Open in CAN communication circuit	CAN communication system

INSPECTION PROCEDURE

PROCEDURE

1.	**GO TO CAN COMMUNICATION SYSTEM**

(a) Refer to the CAN Communication System INFO.

NEXT ▶ END

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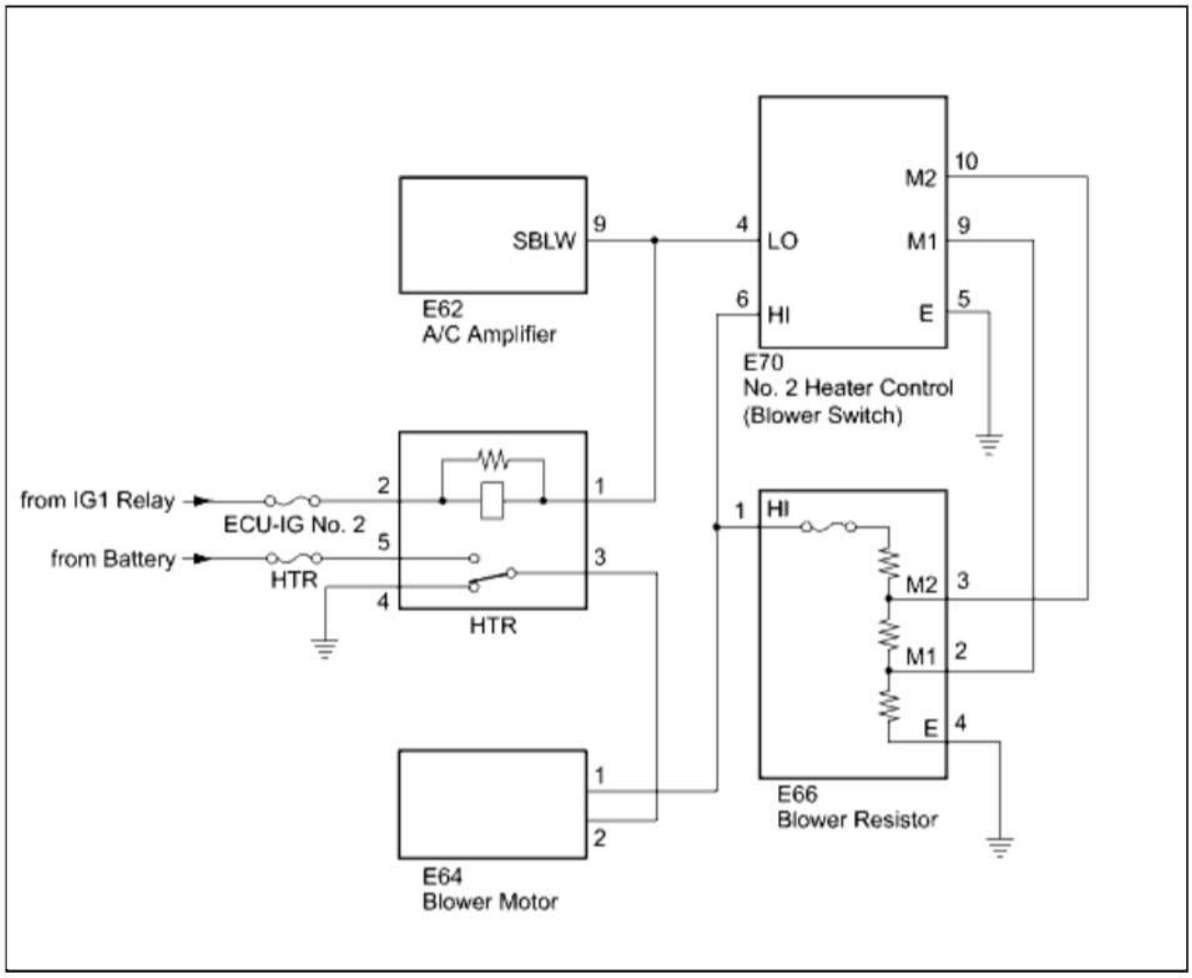
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002YEX00OX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): Blower Motor Circuit (2010 Corolla)		

Blower Motor Circuit

DESCRIPTION

When the No. 2 heater control (blower switch) is operated, the HTR relay will turn on and send current to operate the blower motor. Operating the No. 2 heater control (blower switch) adjusts the flow of current between the blower resistor and body ground, thus, adjusting the speed of the blower motor.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

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1.	INSPECT FUSE (HTR, ECU-IG NO. 2)

(a) Remove the HTR fuse from the engine room relay block and junction block.

(b) Remove the ECU-IG No. 2 fuse from the instrument panel junction block.

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

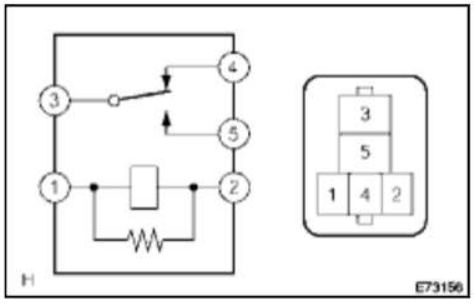
Standard Resistance:

TEST ITEM	CONDITION	SPECIFIED CONDITION
HTR fuse	Always	Below 1 Ω
ECU-IG NO. 2 fuse	Always	Below 1 Ω

NG ▶ **REPLACE FUSE (HTR, ECU-IG NO. 2)**

OK ▼

2.	INSPECT RELAY (HTR)



(a) Remove the HTR relay from the instrument panel junction block.

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

Standard Resistance:

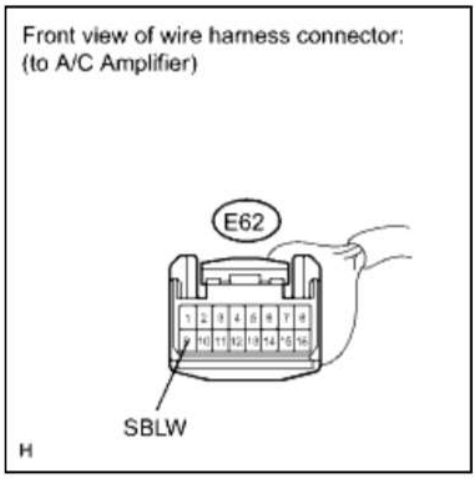
TESTER CONNECTION	SPECIFIED CONDITION
3 - 4	Below 1 Ω
3 - 4	10 kΩ or higher (When battery voltage is applied to terminals 1 and 2)
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (When battery voltage is applied to terminals 1 and 2)

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NG ▶ **REPLACE RELAY (HTR)**

OK ▼

3.	CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - BATTERY)



(a) Disconnect the connector from the A/C amplifier.

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E62-9 (SBLW) - Body ground	Ignition switch ON Blower switch: OFF	11 to 14 V
E62-9 (SBLW) - Body ground	Ignition switch ON Blower switch: ON	Below 1 V

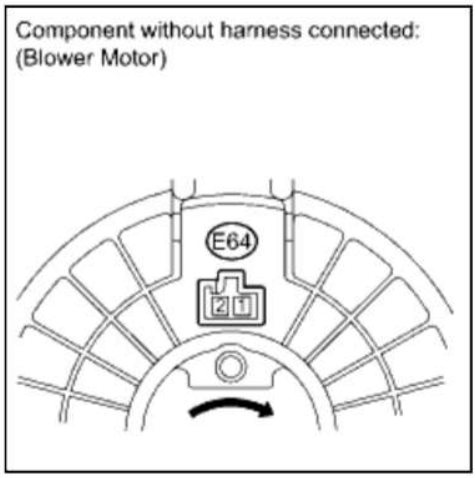
NG ▶ **INSPECT BLOWER MOTOR**

OK ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

4.	INSPECT BLOWER MOTOR

(a) Remove the blower motor.

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(b) Disconnect the connector from the blower motor.

(c) Connect a positive (+) lead from the battery to terminal 2 and a negative (-) lead from the battery to terminal 1, and check that the motor operates.

OK:

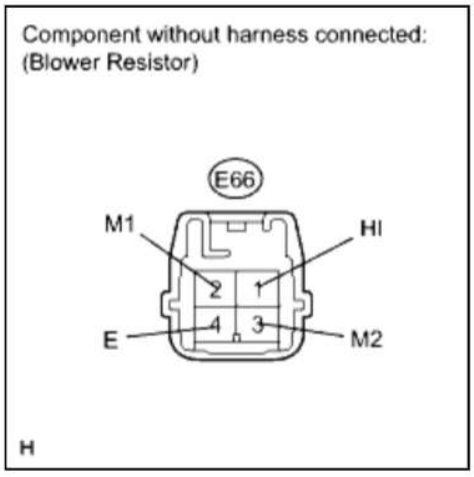
The blower motor operates smoothly.

NG ▶ **REPLACE BLOWER MOTOR**

OK ▼

5.	**INSPECT BLOWER RESISTOR**

(a) Remove the blower resistor.



(b) Disconnect the connector from the blower resistor.

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

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Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E66-1 (HI) - E66-4 (E)	Always	3.12 to 3.60 Ω
E66-1 (HI) - E66-2 (M1)	Always	1.45 to 1.67 Ω
E66-1 (HI) - E66-3 (M2)	Always	0.52 to 0.60 Ω

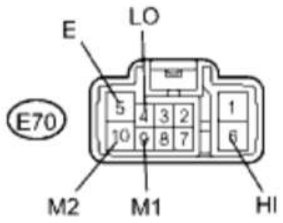
NG ▶ **REPLACE BLOWER RESISTOR**

OK ▼

6.	**INSPECT NO. 2 HEATER CONTROL (BLOWER SWITCH)**

(a) Remove the No. 2 heater control (blower switch).

Component without harness connected:
(No. 2 Heater Control (Blower Switch))



(b) Disconnect the connector from the No. 2 heater control (blower switch).

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E70-4 (LO), E70-6 (HI), E70-9 (M1), E70-10 (M2) - E70-5 (E)	Blower switch: OFF	10 kΩ or higher
E70-4 (LO) - E70-5 (E)	Blower switch: LO	Below 1 Ω
E70-4 (LO), E70-9 (M1) - E70-5 (E)	Blower switch: M1	Below 1 Ω

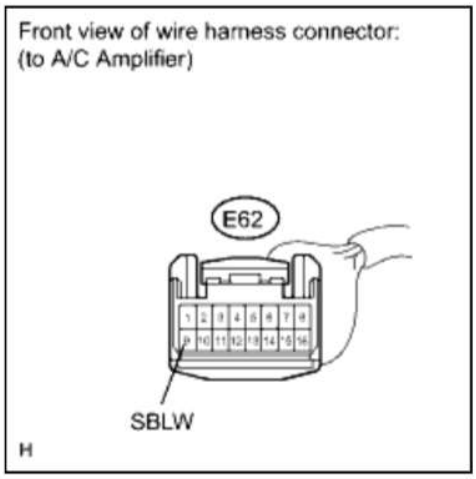
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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E70-4 (LO), E70-10 (M2) - E70-5 (E)	Blower switch: M2	Below 1 Ω
E70-4 (LO), E70-6 (HI) - E70-5 (E)	Blower switch: HI	Below 1 Ω

NG ▶ **REPLACE NO. 2 HEATER CONTROL (BLOWER SWITCH)**

OK ▼

7.	CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - BATTERY)



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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E62-9 (SBLW) - Body ground	Ignition switch ON	11 to 14 V
E62-9 (SBLW) - Body ground	Ignition switch off	Below 1 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

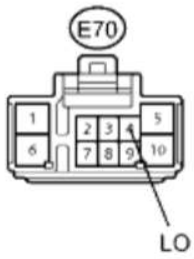
OK ▼

8.	CHECK HARNESS AND CONNECTOR (NO. 2 HEATER CONTROL (BLOWER SWITCH) - BATTERY)

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

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Front view of wire harness connector:
(to No. 2 Heater Control (Blower Switch))



N

Standard Voltage:

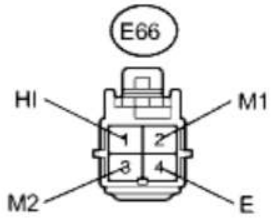
TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E70-4 (LO) - Body ground	Ignition switch ON	11 to 14 V
E70-4 (LO) - Body ground	Ignition switch off	Below 1 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

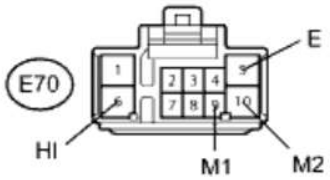
OK ▼

9.	**CHECK HARNESS AND CONNECTOR (BLOWER RESISTOR - NO. 2 HEATER CONTROL (BLOWER SWITCH))**

Front view of wire harness connector:
(to Blower Resistor)



Front view of wire harness connector:
(to No. 2 Heater Control (Blower Switch))



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E66-1 (HI) - E70-6 (HI)	Always	Below 1 Ω
E66-3 (M2) - E70-10 (M2)	Always	Below 1 Ω
E66-2 (M1) - E70-9 (M1)	Always	Below 1 Ω
E66-4 (E) - Body ground	Always	Below 1 Ω
E70-5 (E) - Body ground	Always	Below 1 Ω
E66-1 (HI) - Body ground	Always	10 kΩ or higher

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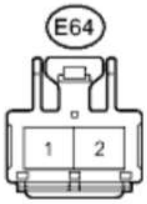
E66-3 (M2) - Body ground	Always	10 kΩ or higher
E66-2 (M1) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

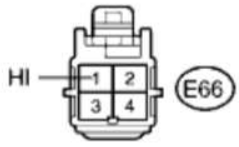
OK ▼

10.	**CHECK HARNESS AND CONNECTOR (BLOWER MOTOR - BLOWER RESISTOR, NO. 2 HEATER CONTROL)**

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



Front view of wire harness connector:
(to Blower Resistor)



Front view of wire harness connector:
(to No. 2 Heater Control (Blower Switch))



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E64-1 - E66-1 (HI)	Always	Below 1 Ω
E64-1 - E70-6 (HI)	Always	Below 1 Ω
E64-1 - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

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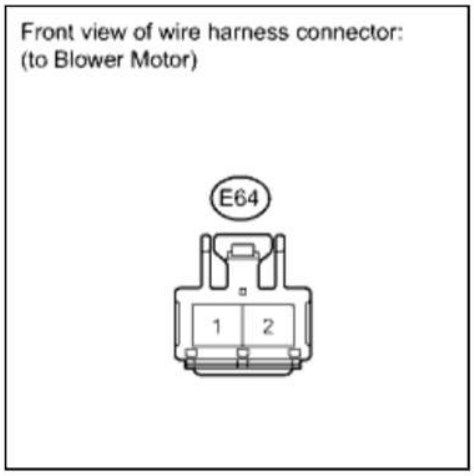
OK

11.	CHECK HARNESS AND CONNECTOR (BLOWER MOTOR - BATTERY, BODY GROUND)

(a) Reconnect the connector to the A/C amplifier.

(b) Reconnect the connector to the blower resistor.

(c) Reconnect the connector to the No. 2 heater control (blower switch).



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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E64-2 - Body ground	Ignition switch ON Blower switch: OFF	Below 1 V
E64-2 - Body ground	Ignition switch ON Blower switch: ON	11 to 14 V

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E64-2 - Body ground	Ignition switch off Blower switch: OFF	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

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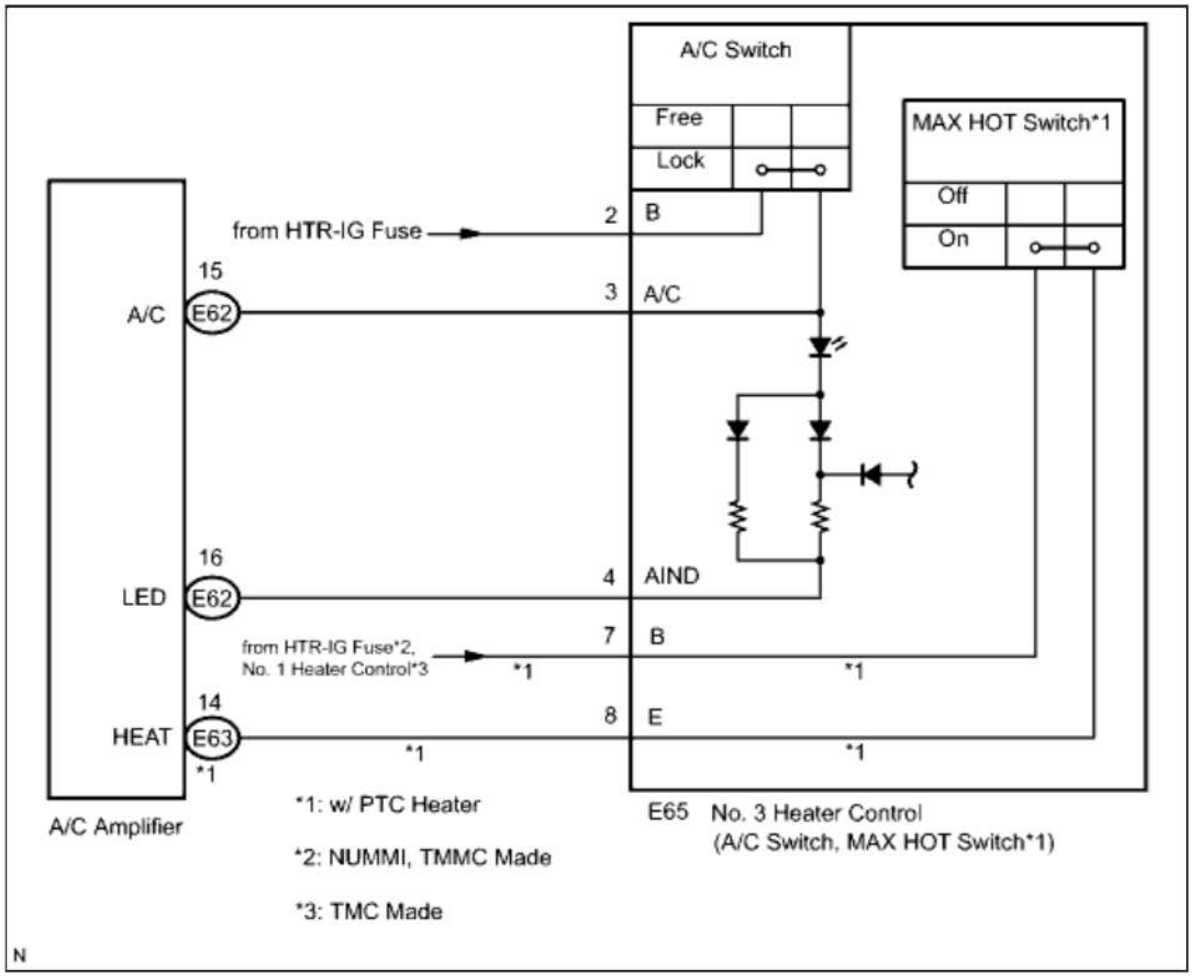
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Y1M00VX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): Heater Control Switch Circuit (2010 Corolla)		

Heater Control Switch Circuit

DESCRIPTION

The No. 3 heater control is powered through the HTR-IG fuse. The No. 3 heater control transmits operational signals of each switch to the A/C amplifier.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

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1.	INSPECT FUSE (HTR-IG)

(a) Remove the HTR-IG fuse from the instrument panel junction block.

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

Standard Resistance:

TEST ITEM	CONDITION	SPECIFIED CONDITION
HTR-IG fuse	Always	Below 1 Ω

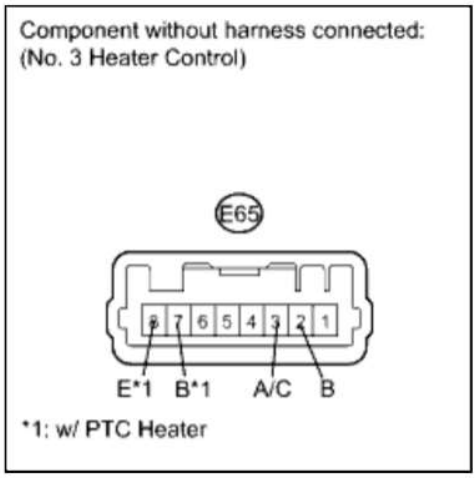
NG ▶ **REPLACE FUSE (HTR-IG)**

OK ▼

2.	INSPECT NO. 3 HEATER CONTROL

(a) Measure the resistance.

(1) Remove the No. 3 heater control.



(2) Disconnect the connector from the No. 3 heater control.

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION

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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E65-2 (B) - E65-3 (A/C)	A/C switch: LOCK	Below 1 Ω
E65-2 (B) - E65-3 (A/C)	A/C switch: FREE	10 kΩ or higher
E65-7 (B) - E65-8 (E)*1	Air mix control dial: MAX HOT position	Below 1 Ω
E65-7 (B) - E65-8 (E)*1	Air mix control dial: except MAX HOT position	10 kΩ or higher

HINT:

***1: w/ PTC Heater**

(b) Check that the indicator light comes on.

(1) Connect a positive (+) lead from the battery to terminal 3 and a negative (-) lead from the battery to terminal 4, and check that the indicator light comes on.

OK:

The indicator light comes on.

(c) Check that the illumination comes on.

(1) Connect a positive (+) lead from the battery to terminal 5 and a negative (-) lead from the battery to terminal 6, and check that the illumination comes on.

OK:

The illumination comes on.

NG ▶ **REPLACE NO. 3 HEATER CONTROL**

OK ▼

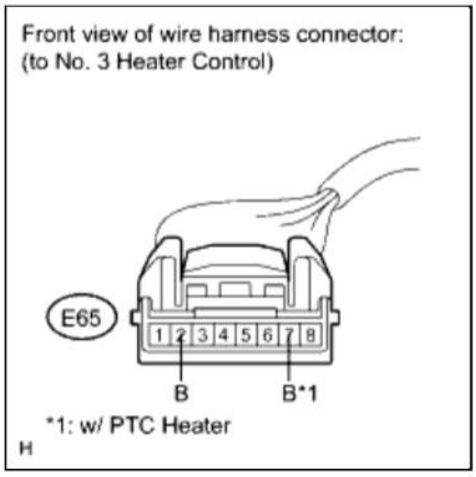
3.	CHECK HARNESS AND CONNECTOR (NO. 3 HEATER CONTROL - BATTERY)

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E65-2 (B) - Body ground	Ignition switch ON	11 to 14 V

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E65-2 (B) - Body ground	Ignition switch off	Below 1 V
E65-7 (B) - Body ground*1	Ignition switch ON	11 to 14 V
E65-7 (B) - Body ground*1	Ignition switch off	Below 1 V

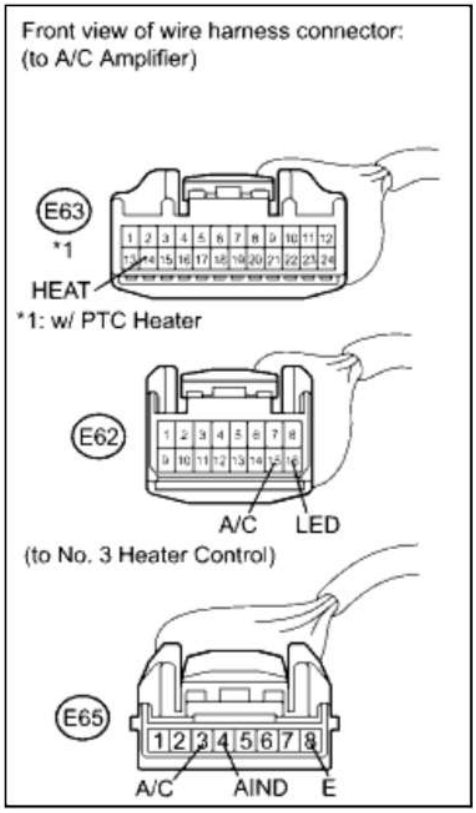
HINT:

***1: w/ PTC Heater**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

4.	**CHECK HARNESS AND CONNECTOR (NO. 3 HEATER CONTROL - A/C AMPLIFIER)**



(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E65-3 (A/C) - E62-15 (A/C)	Always	Below 1 Ω
E65-4 (AIND) - E62-16 (LED)	Always	Below 1 Ω
E65-8 (E) - E63-14 (HEAT)*1	Always	Below 1 Ω
E65-3 (A/C) - Body ground	Always	10 kΩ or higher
E65-4 (AIND) - Body ground	Always	10 kΩ or higher
E65-8 (E) - Body ground*1	Always	10 kΩ or higher

HINT:

***1: w/ PTC Heater**

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**



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Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002BRP00LX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): PTC Heater Circuit (2010 Corolla)		

PTC Heater Circuit

DESCRIPTION

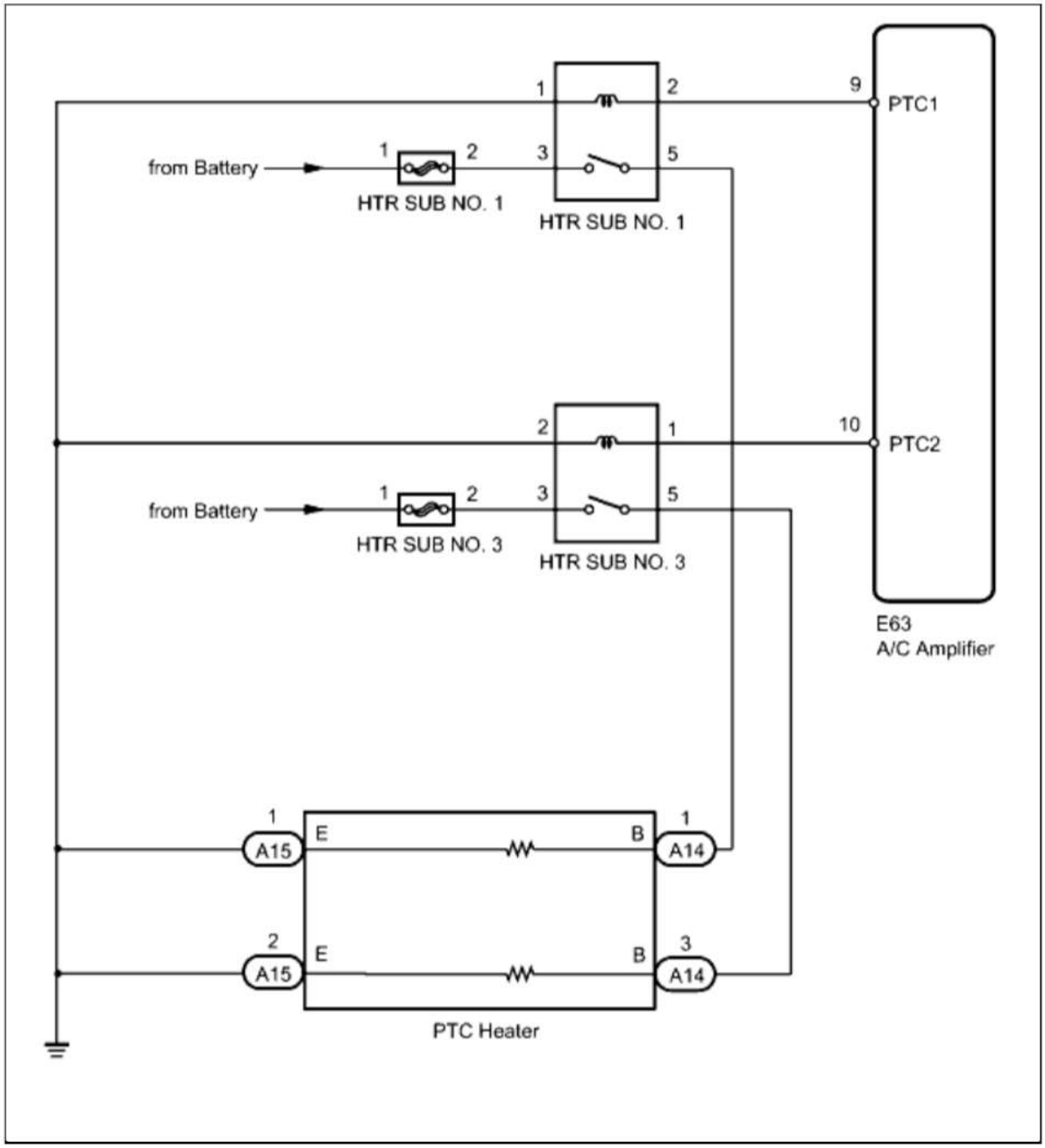
The PTC heater is installed in the heater unit and operates when the coolant temperature is low and normal heater operation is insufficient.

The A/C amplifier switches the circuit in the PTC relay and operates the PTC heater when the operating conditions (the coolant temperature is below 65°C (149°F), setting temperature is MAX. HOT, ambient temperature is below 10°C (50°F) and blower switch is not OFF) are met.

The PTC heater controls the number of the heater elements to be heated based on the electrical load and the amount of voltage generated. Therefore, when inspecting the PTC heater, be sure to turn off other electrical devices.

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**INSPECT FUSE (HTR SUB NO. 1, HTR SUB NO. 3)**

(a) Remove the HTR SUB No. 1 and HTR SUB No. 3 fuses from the engine room relay block and junction block.

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

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Standard Resistance:

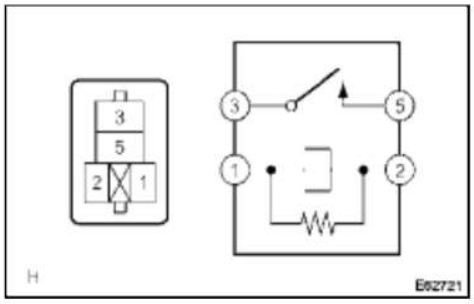
TEST ITEM	CONDITION	SPECIFIED CONDITION
HTR SUB No. 1 fuse	Always	Below 1 Ω
HTR SUB No. 3 fuse	Always	Below 1 Ω

(c) Install the HTR SUB No. 1 and HTR SUB No. 3 fuses to the engine room relay block and junction block.

NG ▶ **REPLACE FUSE (HTR SUB NO. 1, HTR SUB NO. 3)**

OK ▼

2.	**INSPECT RELAY (HTR SUB NO. 1, HTR SUB NO. 3)**



(a) Remove the HTR SUB No. 1 and HTR SUB No. 3 relays from the No. 7 relay block.

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

Standard Resistance:

TESTER CONNECTION	SPECIFIED CONDITION
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (When battery voltage applied to terminals 1 and 2)

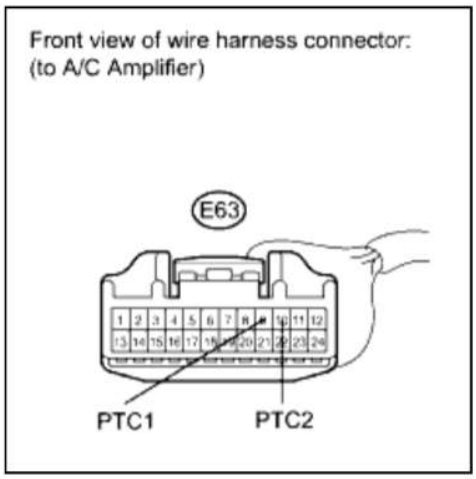
(c) Install the HTR SUB No. 1 and HTR SUB No. 3 relays to the No. 7 relay block.

NG ▶ **REPLACE RELAY (HTR SUB NO. 1, HTR SUB NO. 3)**

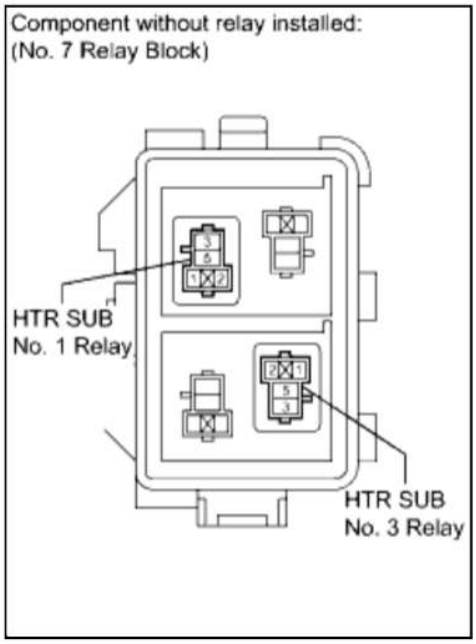
OK

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3.	**CHECK HARNESS AND CONNECTOR (NO. 7 RELAY BLOCK - A/C AMPLIFIER, BODY GROUND)**



(a) Disconnect the connector from the A/C amplifier.



(b) Remove the HTR SUB No. 1 and HTR SUB No. 3 fuses from the No. 7 relay block.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

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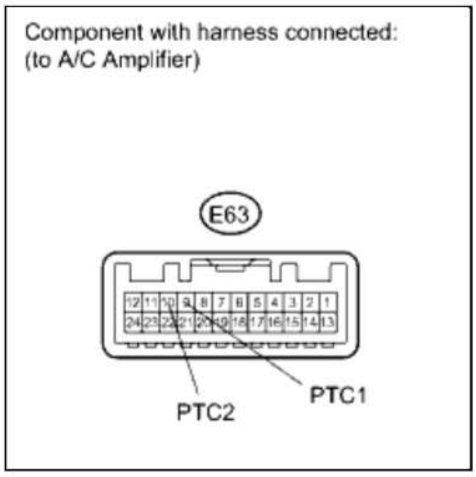
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E63-9 (PTC1) - HTR SUB No. 1 relay terminal 2	Always	Below 1 Ω
E63-10 (PTC2) - HTR SUB No. 3 relay terminal 1	Always	Below 1 Ω
E63-9 (PTC1) - Body ground	Always	10 kΩ or higher
E63-10 (PTC2) - Body ground	Always	10 kΩ or higher
HTR SUB No. 1 relay terminal 1 - Body ground	Always	Below 1 Ω
HTR SUB No. 3 relay terminal 2 - Body ground	Always	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

4.	**INSPECT AIR CONDITIONING AMPLIFIER**

(a) Reconnect the connector to the A/C amplifier.



(b) Remove the A/C amplifier with the connectors still connected.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E63-9 (PTC1) - Body ground	Ignition switch ON Temperature setting: MAX. HOT	Below 1 V

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
	Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: OFF	
E63-9 (PTC1) - Body ground	Engine running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: ON	11 to 14 V
E63-10 (PTC2) - Body ground	Ignition switch ON Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: OFF	Below 1 V
E63-10 (PTC2) - Body ground	Engine running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: ON	11 to 14 V

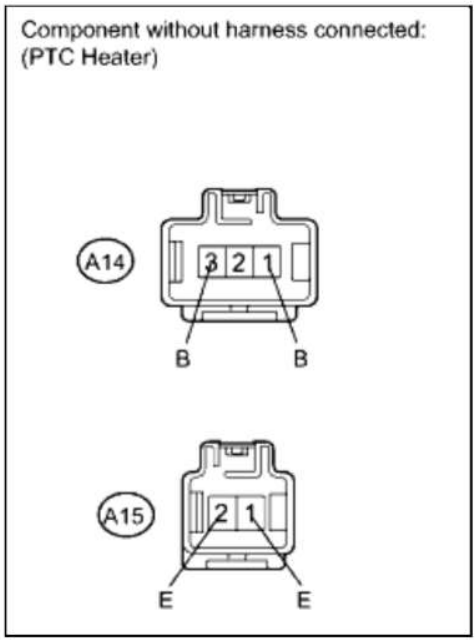
NG ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

OK ▼

5.	**INSPECT PTC HEATER**

(a) Disconnect the connector from the PTC heater.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-1 (B) - A15-1 (E)	Always	Below 1 Ω
A14-3 (B) - A15-2 (E)	Always	Below 1 Ω

NG ▶ **REPLACE PTC HEATER**

OK ▼

6.	CHECK HARNESS AND CONNECTOR (PTC HEATER - BATTERY)

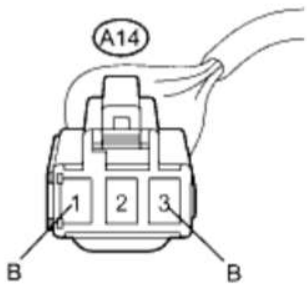
(a) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-1 (B) - Body ground	Ignition switch ON Temperature setting:	Below 1 V

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Front view of wire harness connector:
(to PTC Heater)



	MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: OFF	
A14-1 (B) - Body ground	Engine running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: ON	11 to 14 V
A14-3 (B) - Body ground	Ignition switch ON Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: OFF	Below 1 V
A14-3 (B) - Body ground	Engine running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: ON	11 to 14 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

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OK ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (PTC HEATER - BODY GROUND)

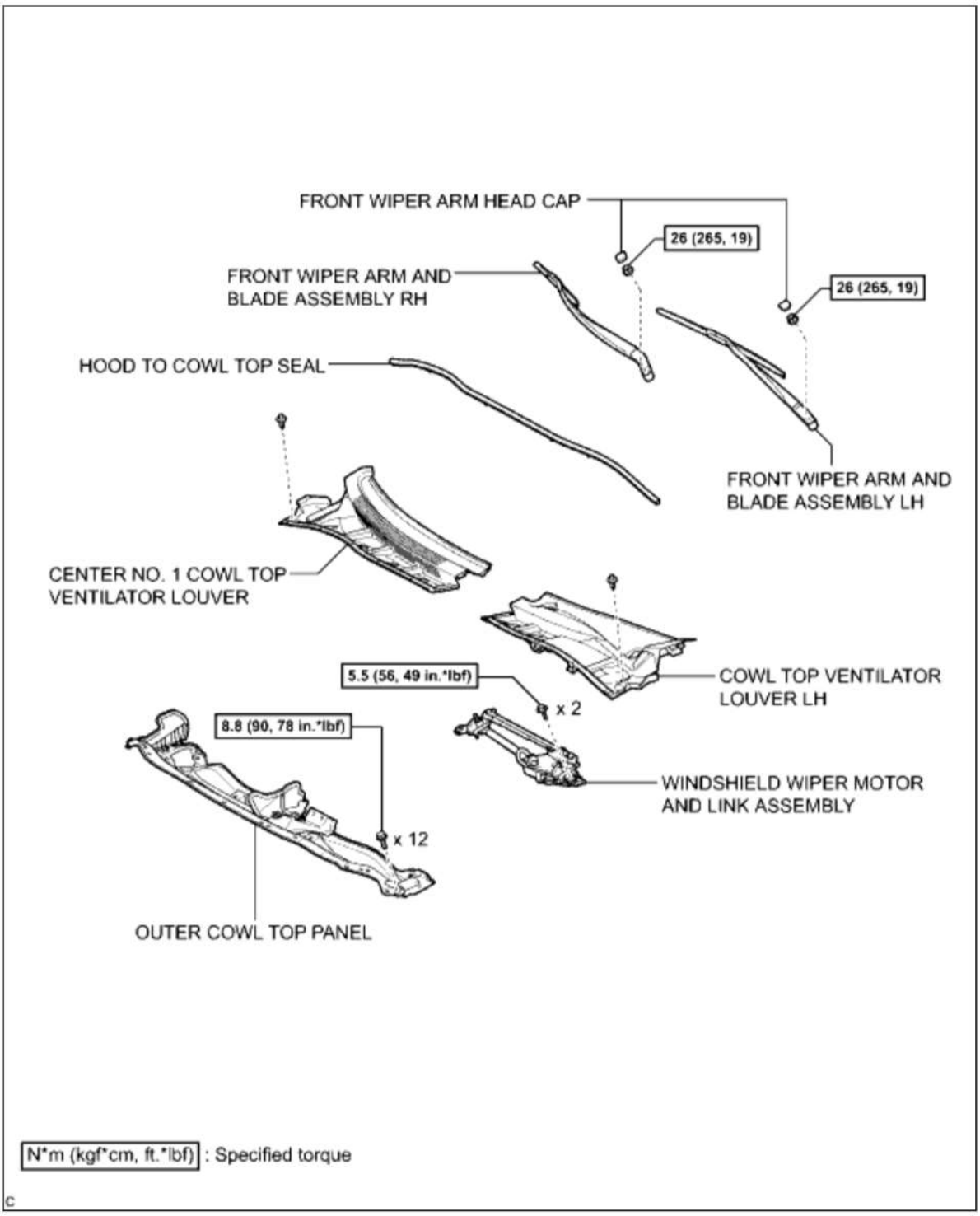
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXE001X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: COMPONENTS (2010 Corolla)		

COMPONENTS

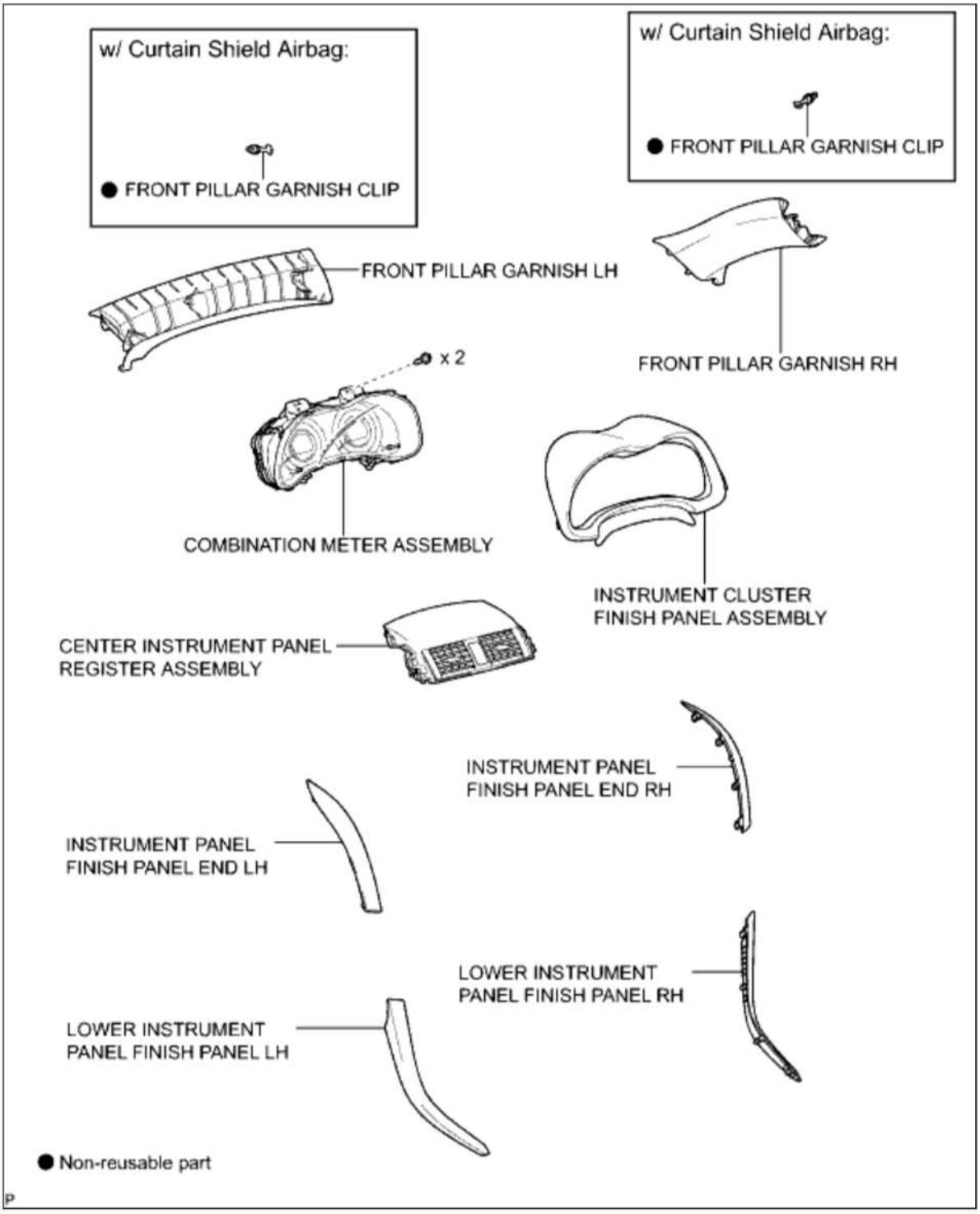
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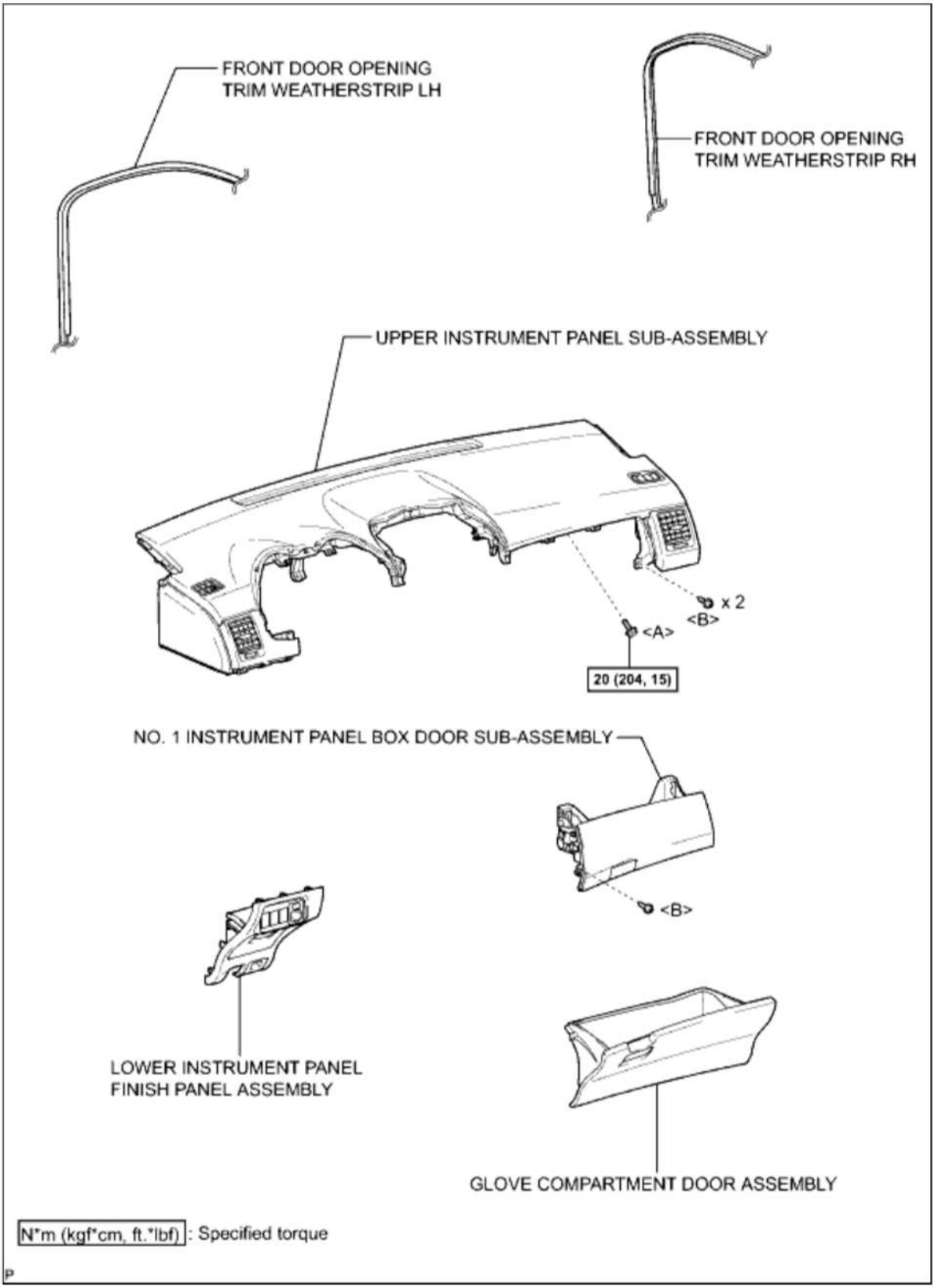
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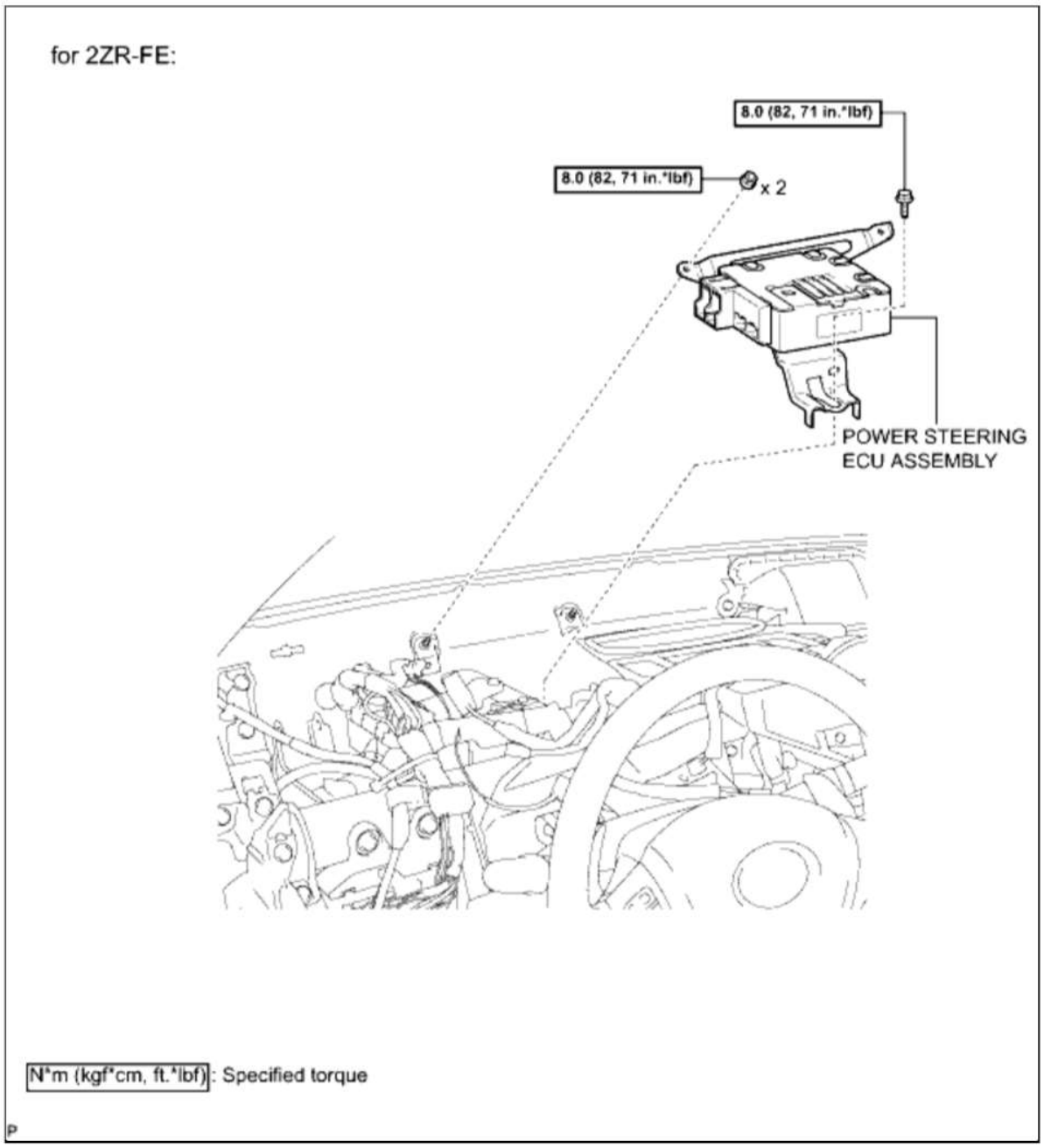
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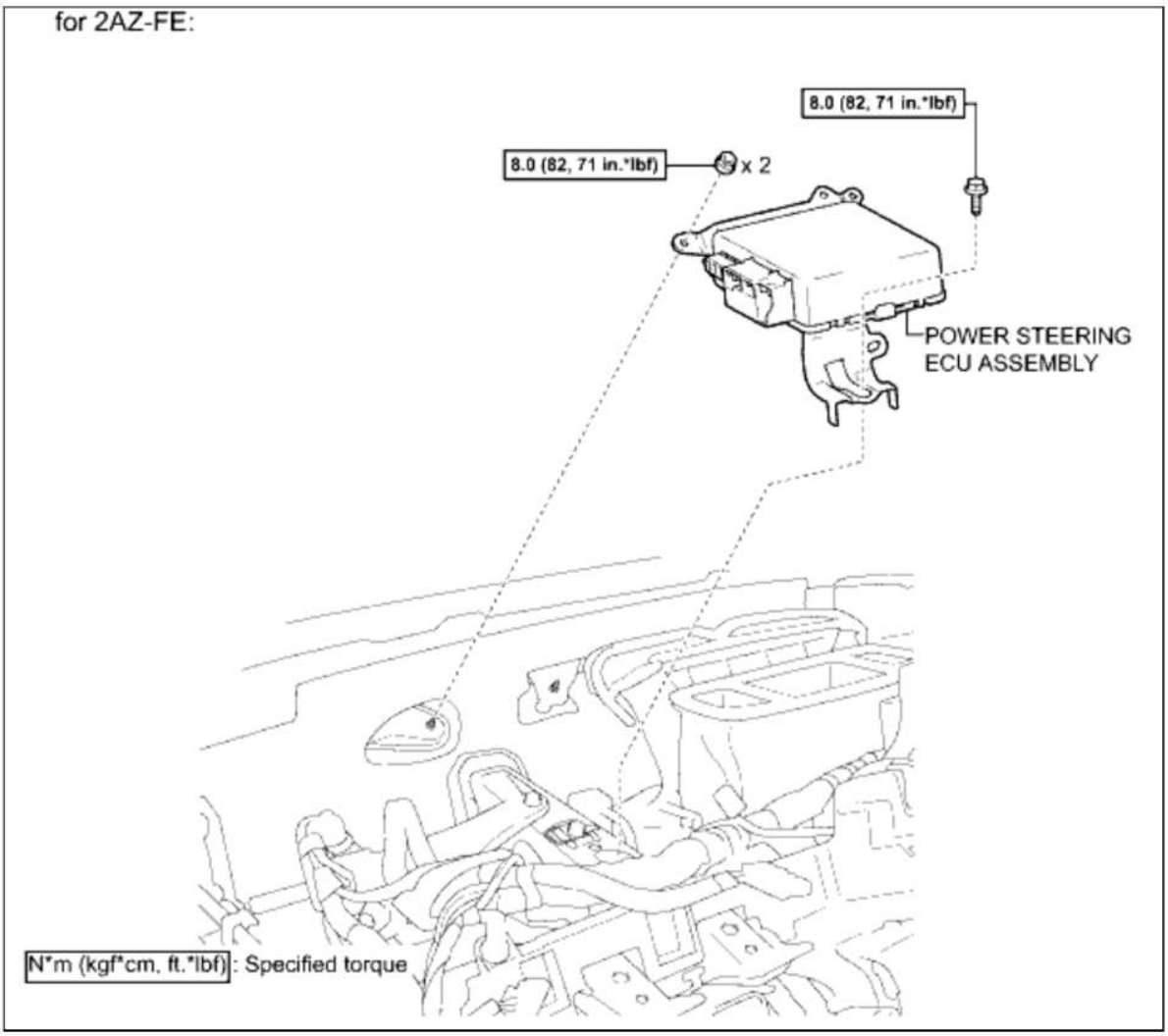
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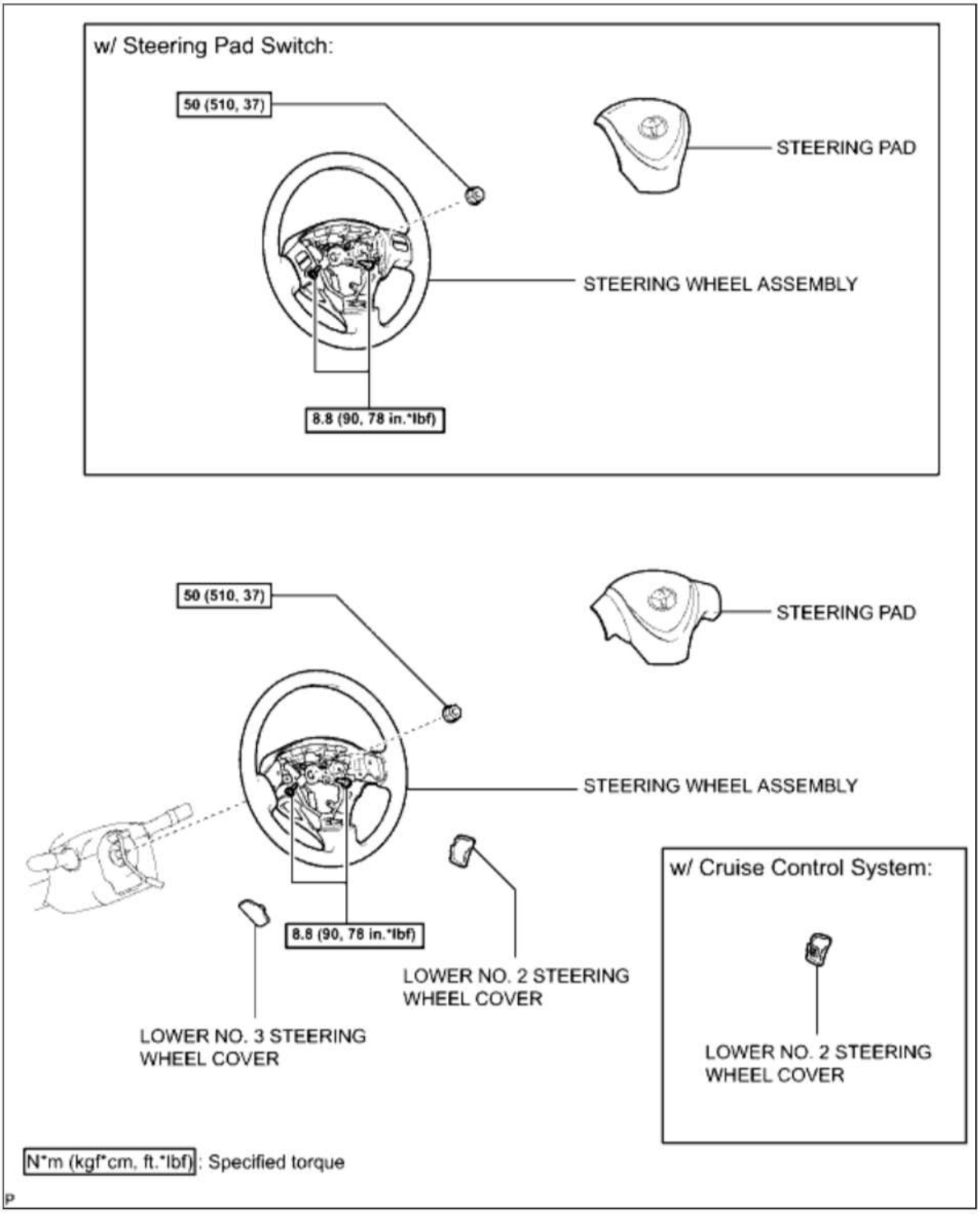
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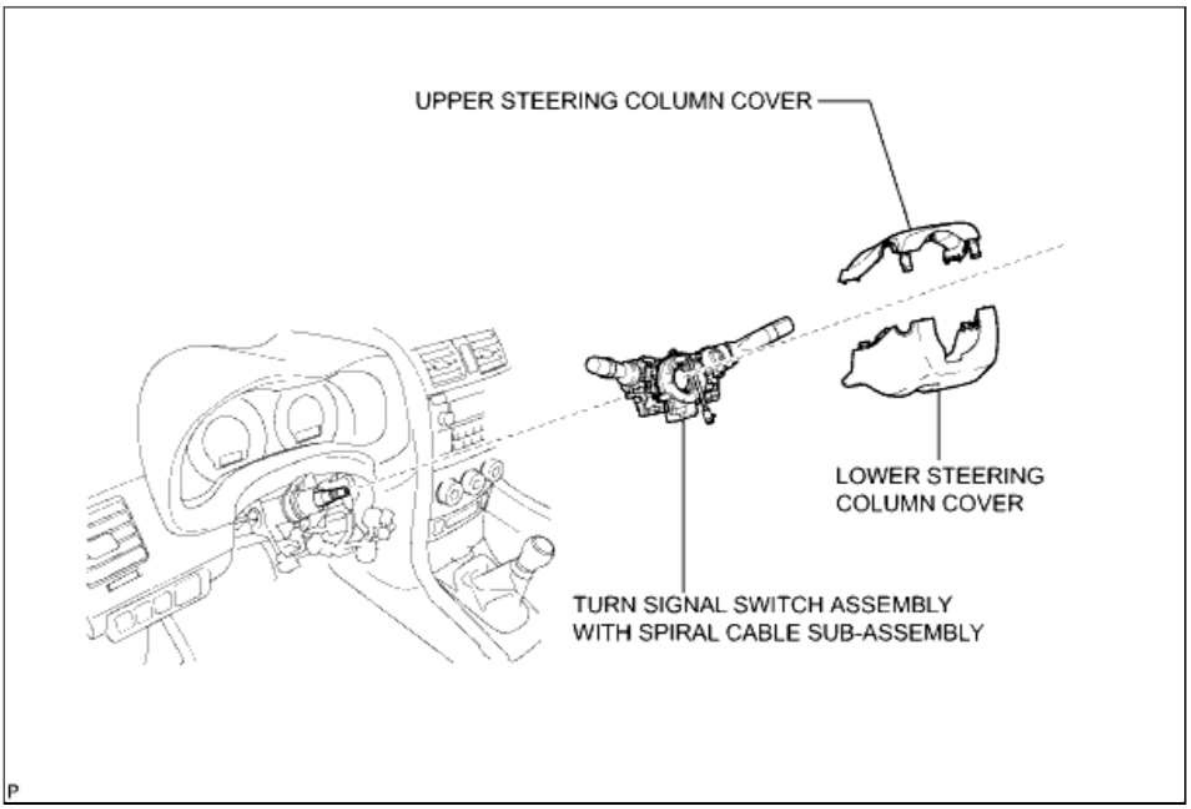
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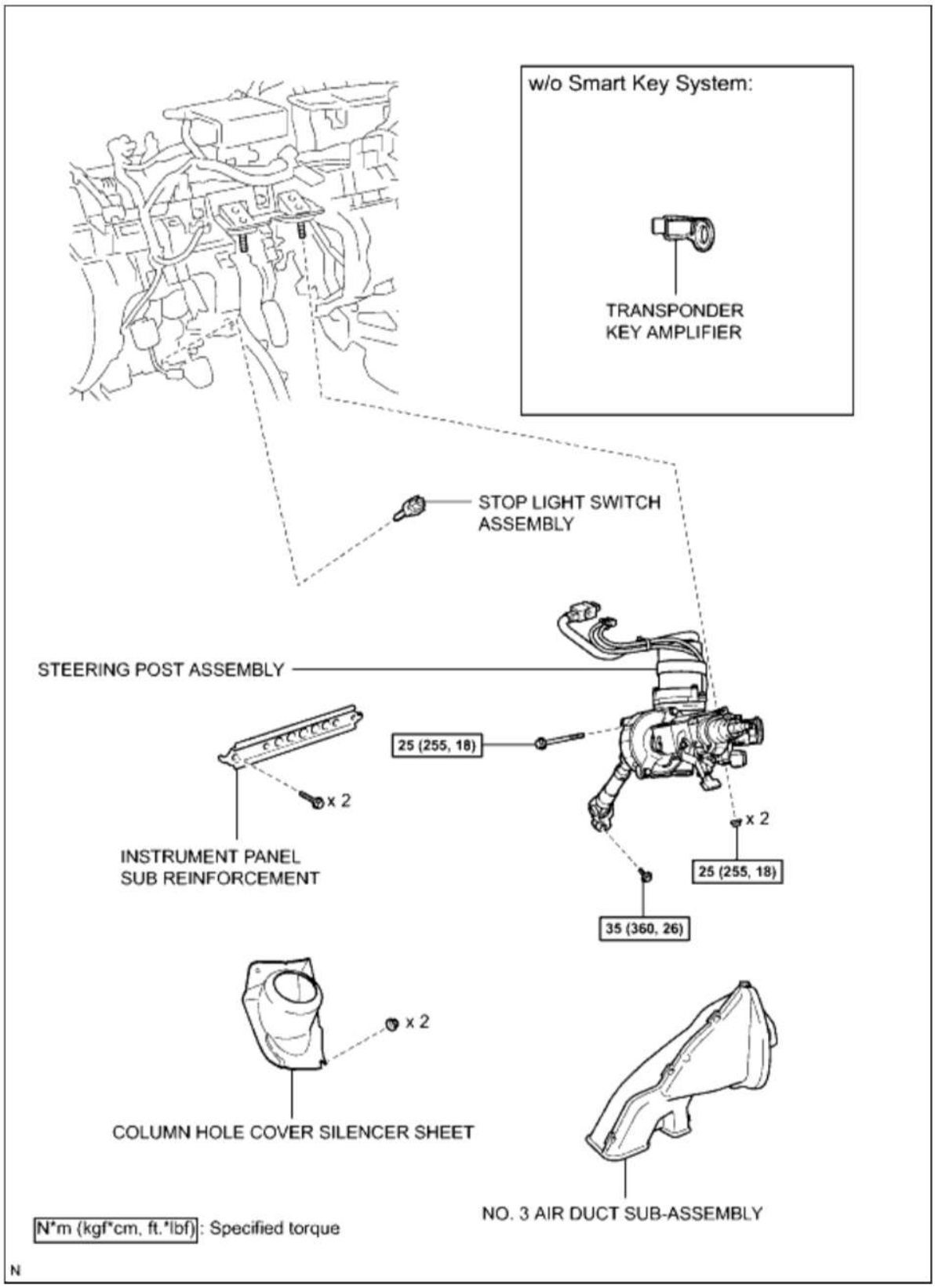
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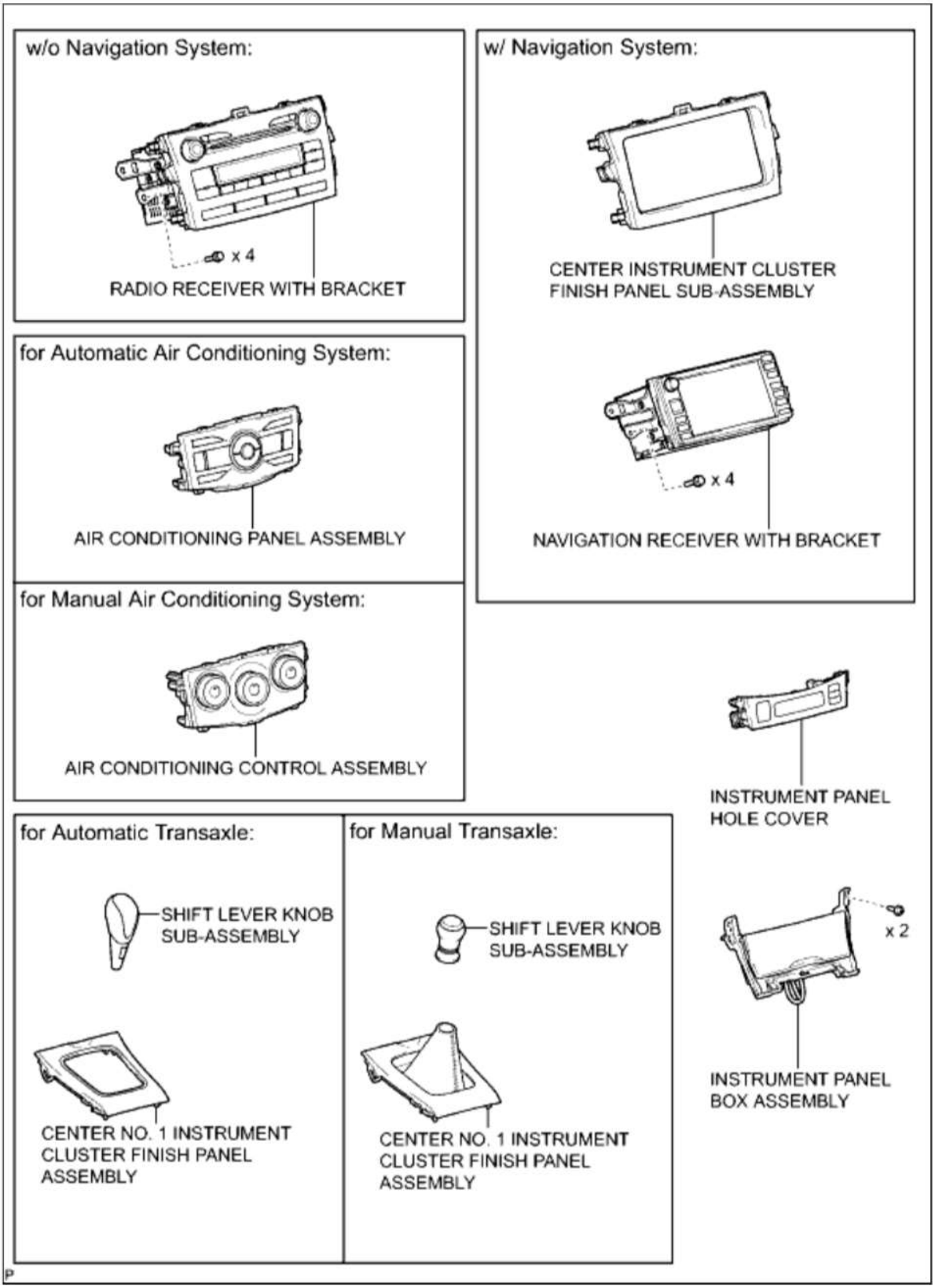
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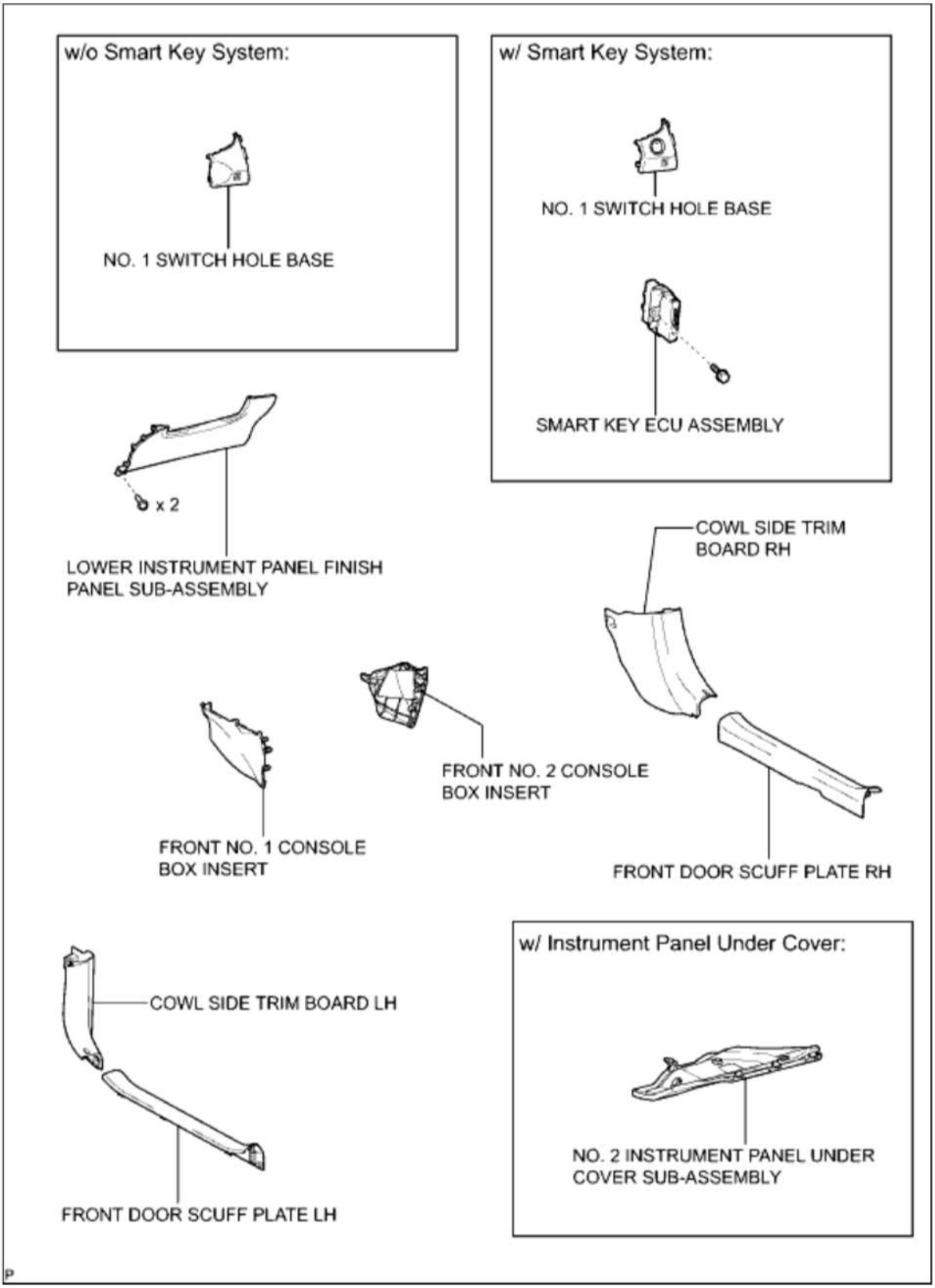
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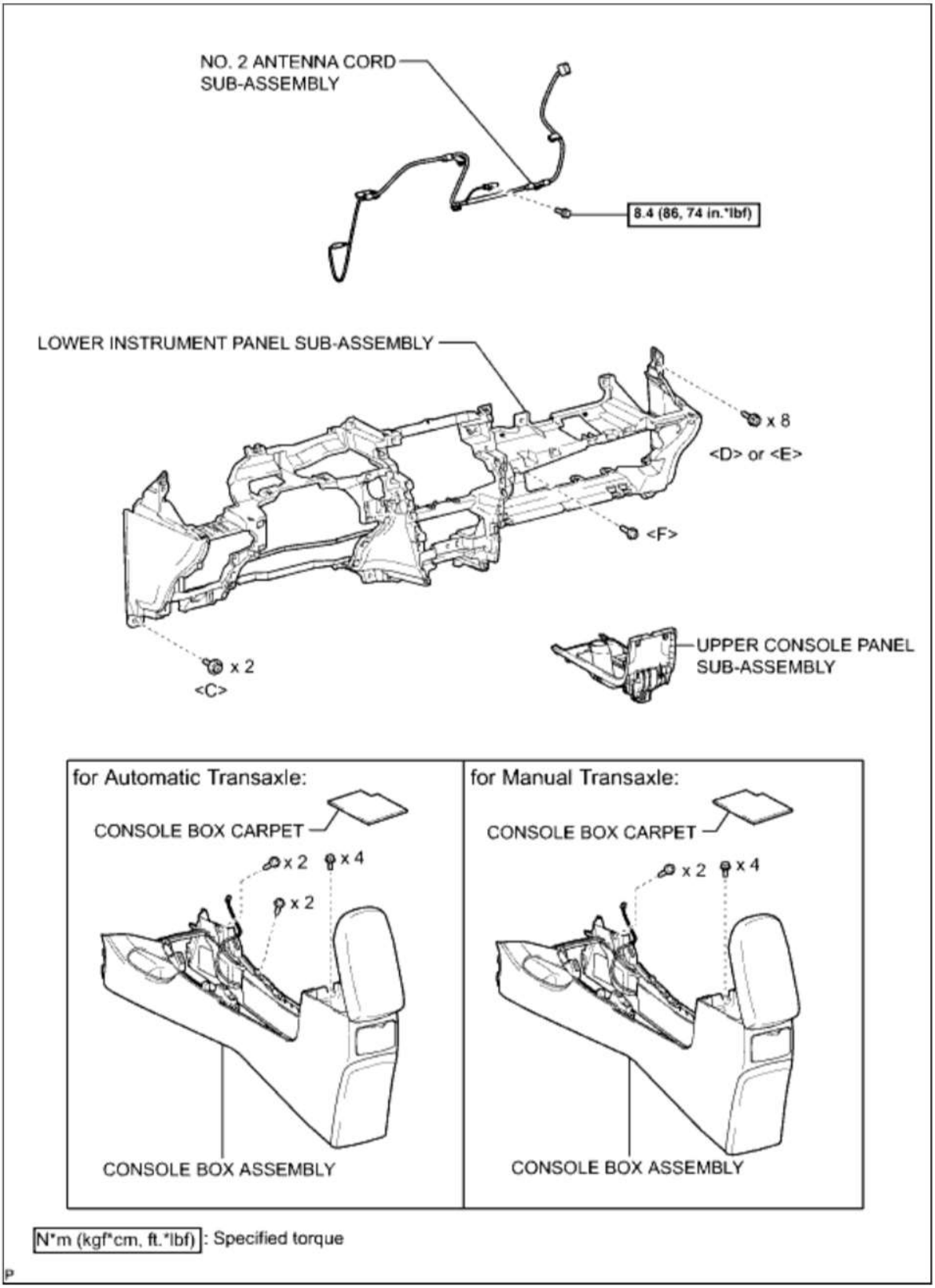
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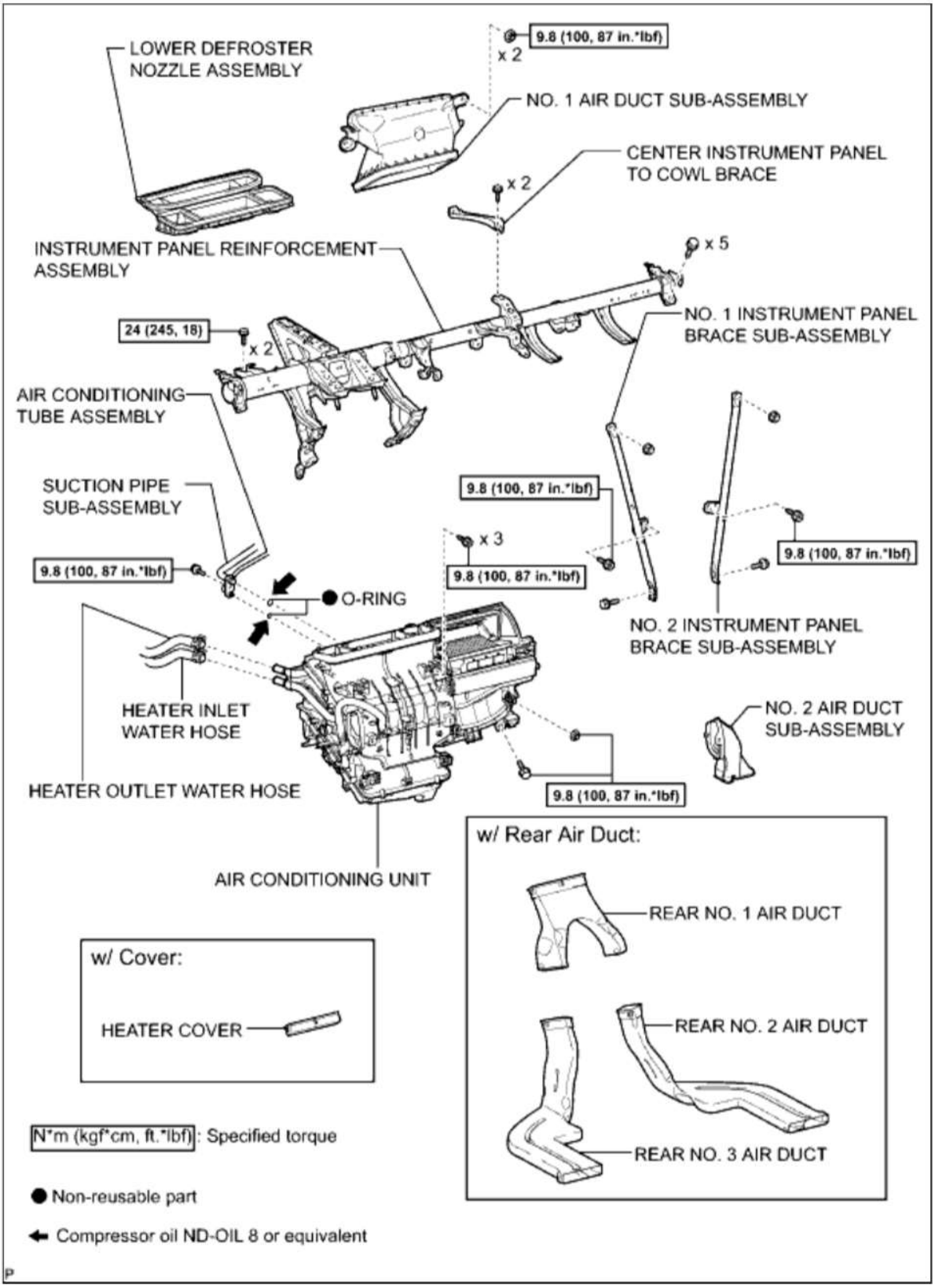
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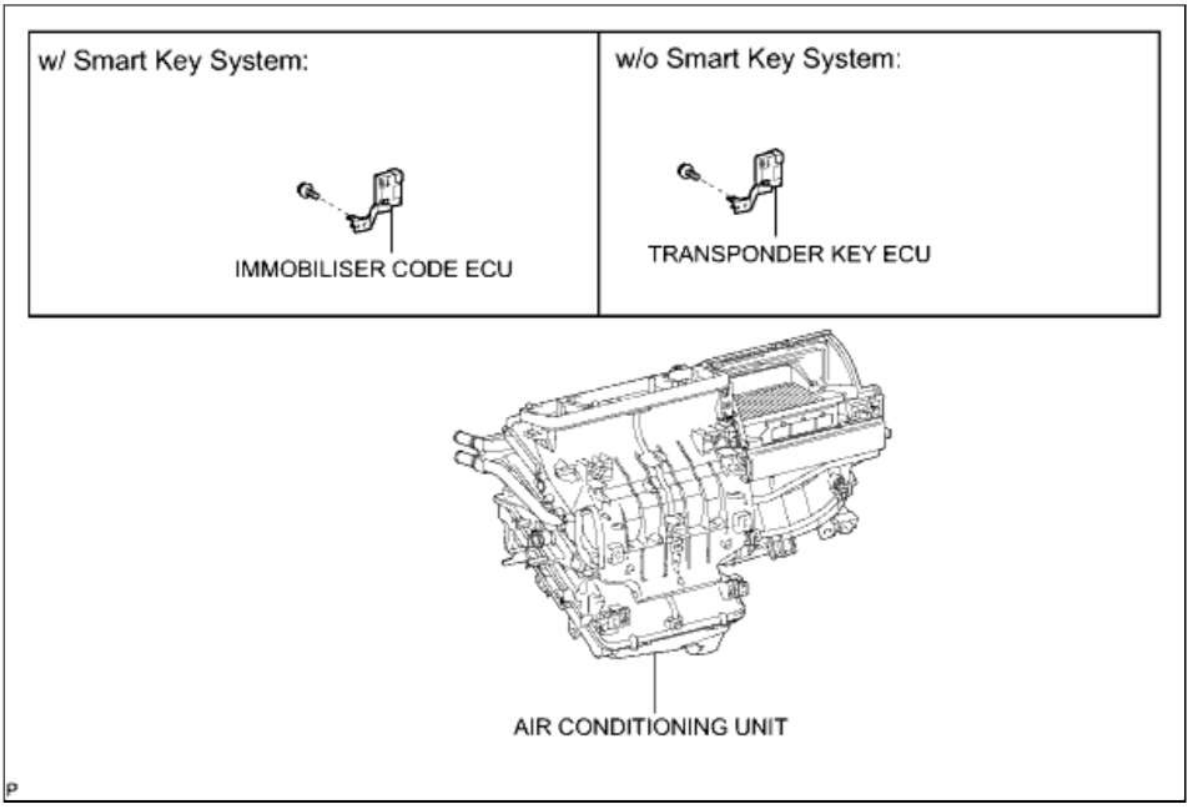
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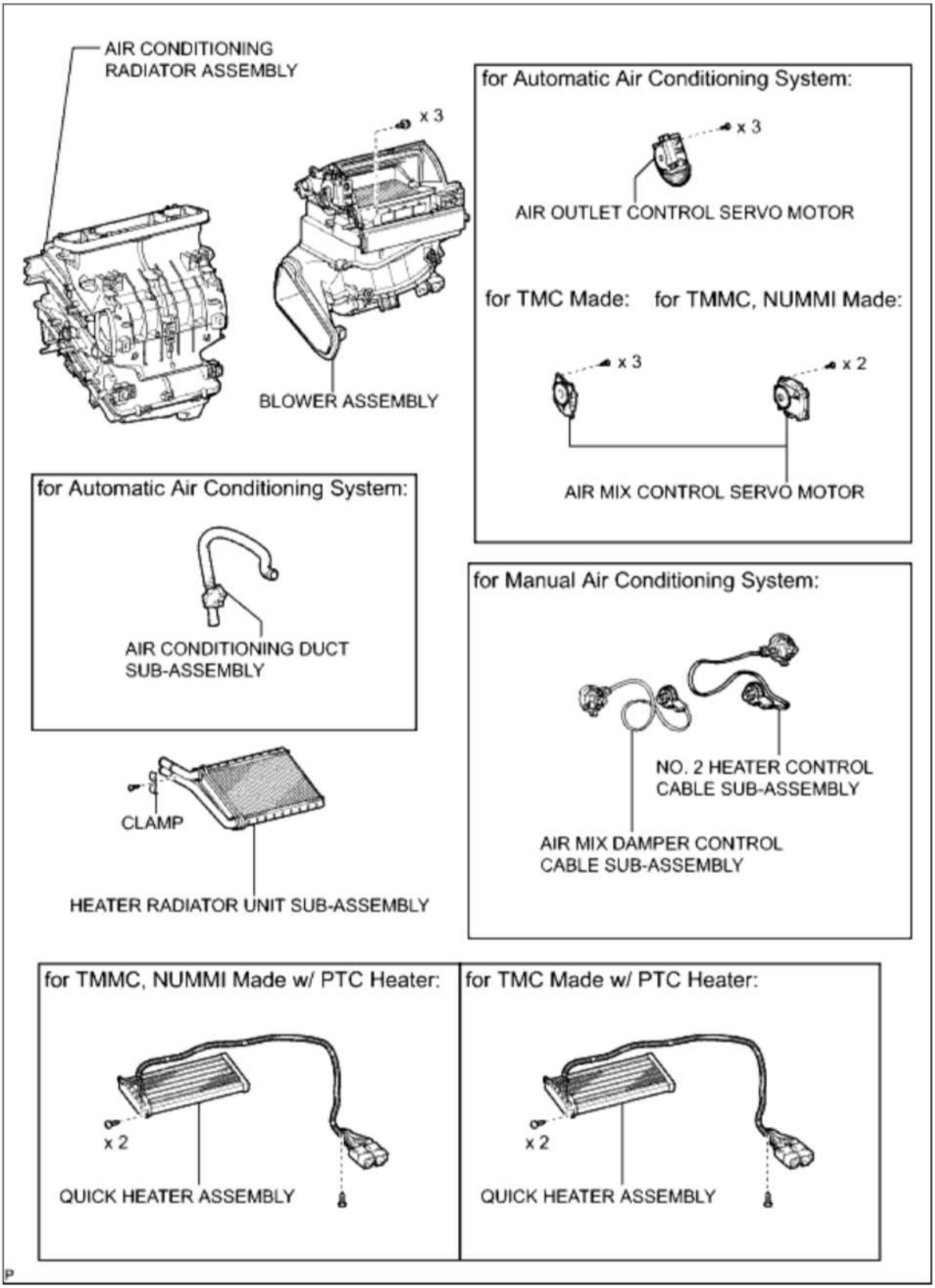
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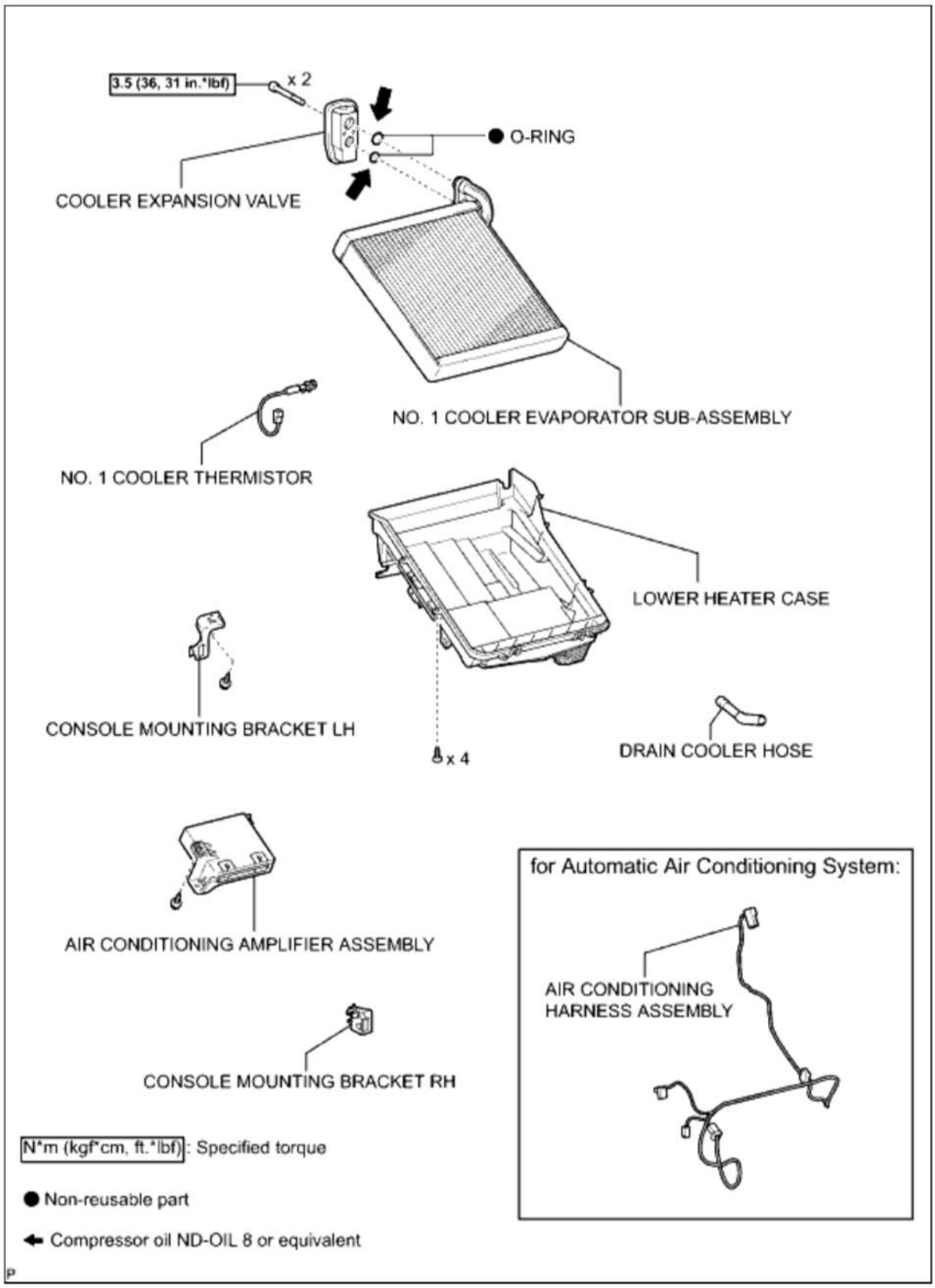
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLW0A7X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: REMOVAL (2010 Corolla)		

REMOVAL

1. PRECAUTION

INFO

2. ALIGN FRONT WHEELS FACING STRAIGHT AHEAD

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

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

HINT:

Before disconnecting the cable, set the air conditioning control switch to DEF-MODE. (for Automatic Air Conditioning System)

4. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

5. REMOVE FRONT WIPER ARM HEAD CAP INFO

6. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

7. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

8. REMOVE HOOD TO COWL TOP SEAL INFO

9. REMOVE CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

10. REMOVE COWL TOP VENTILATOR LOUVER LH INFO

11. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

12. REMOVE OUTER COWL TOP PANEL (for TMC Made) INFO

13. REMOVE OUTER COWL TOP PANEL (except TMC Made) INFO

14. DISCONNECT SUCTION PIPE SUB-ASSEMBLY

(a) Remove the bolt and slide the hook connector.

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(b) Disconnect the suction pipe sub-assembly.

(c) Remove the O-ring from the suction hose sub-assembly.

NOTICE:

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

15. DISCONNECT AIR CONDITIONING TUBE ASSEMBLY

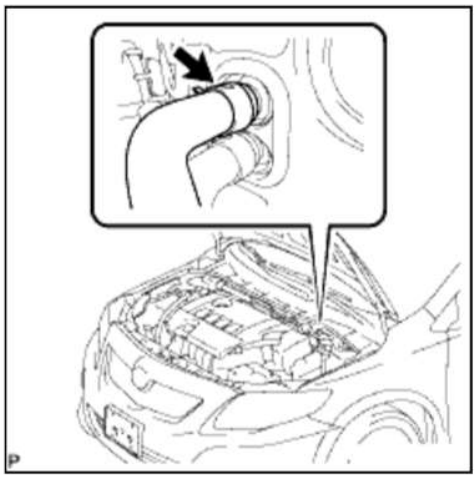
(a) Disconnect the air conditioning tube assembly.

(b) Remove the O-ring from the air conditioning tube assembly.

NOTICE:

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

16. DISCONNECT HEATER WATER HOSE OUTLET



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

NOTICE:

- Do not apply excessive force to the heater outlet water hose.
- Prepare a drain pan or a piece of cloth in case the coolant leaks.

17. DISCONNECT HEATER WATER HOSE INLET

HINT:

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

18. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO
19. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO
20. REMOVE INSTRUMENT PANEL FINISH PANEL END LH INFO
21. REMOVE INSTRUMENT PANEL FINISH PANEL END RH INFO
22. REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO
23. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO
24. REMOVE COMBINATION METER ASSEMBLY INFO
25. REMOVE FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO
26. REMOVE FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO
27. REMOVE FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO
28. REMOVE FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO
29. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO
30. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO
31. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY INFO
32. REMOVE NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO
33. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO
34. DISCONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO
35. REMOVE UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO
36. REMOVE POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO
37. REMOVE POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO
38. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO
39. REMOVE LOWER NO. 3 STEERING WHEEL COVER INFO
40. REMOVE LOWER NO. 2 STEERING WHEEL COVER INFO
41. REMOVE STEERING PAD INFO
42. REMOVE STEERING WHEEL ASSEMBLY INFO
43. REMOVE LOWER STEERING COLUMN COVER INFO
44. REMOVE UPPER STEERING COLUMN COVER INFO

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45. REMOVE TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO

46. REMOVE COLUMN HOLE COVER SILENCER SHEET INFO

47. SEPARATE NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO

48. REMOVE INSTRUMENT PANEL SUB REINFORCEMENT INFO

49. REMOVE NO. 3 AIR DUCT SUB-ASSEMBLY INFO

50. REMOVE TRANSPONDER KEY AMPLIFIER (w/ Smart Key System) INFO

51. REMOVE STOP LIGHT SWITCH ASSEMBLY INFO

52. REMOVE STEERING POST ASSEMBLY (for 2ZR-FE) INFO

53. REMOVE STEERING POST ASSEMBLY (for 2AZ-FE) INFO

54. REMOVE RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

55. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

56. REMOVE NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

57. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

58. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

59. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

60. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

61. REMOVE INSTRUMENT PANEL BOX ASSEMBLY INFO

62. REMOVE INSTRUMENT PANEL HOLE COVER INFO

63. REMOVE AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System) INFO

64. REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

65. REMOVE FRONT DOOR SCUFF PLATE LH INFO

66. REMOVE COWL SIDE TRIM BOARD LH INFO

67. REMOVE FRONT NO. 1 CONSOLE BOX INSERT INFO

68. REMOVE NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

69. REMOVE NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

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70. REMOVE FRONT DOOR SCUFF PLATE RH INFO

71. REMOVE COWL SIDE TRIM BOARD RH INFO

72. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

73. REMOVE FRONT NO. 2 CONSOLE BOX INSERT INFO

74. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

75. REMOVE CONSOLE BOX CARPET INFO

76. REMOVE CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

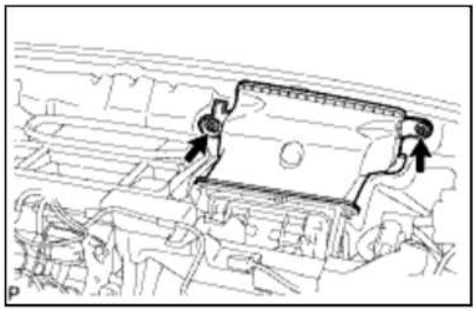
77. REMOVE CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

78. REMOVE NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

79. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

80. REMOVE SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

81. REMOVE NO. 1 AIR DUCT SUB-ASSEMBLY

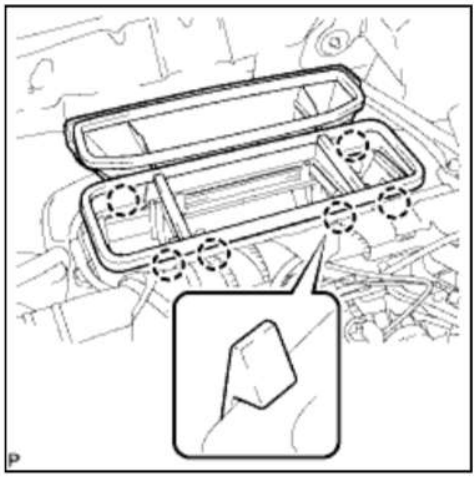


(a) Remove the 2 nuts and the No. 1 air duct sub-assembly.

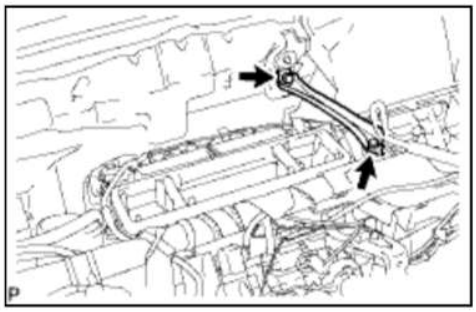
82. REMOVE LOWER DEFROSTER NOZZLE ASSEMBLY

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

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83. REMOVE CENTER INSTRUMENT PANEL TO COWL BRACE



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

84. REMOVE REAR NO. 2 AIR DUCT (w/ Rear Air Duct)

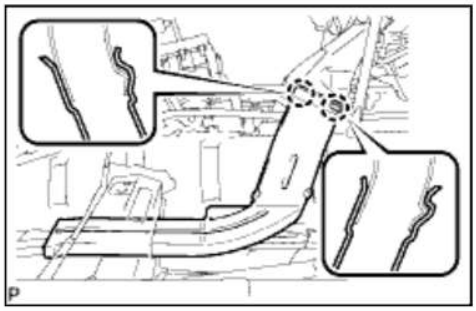


(a) Remove the clip.

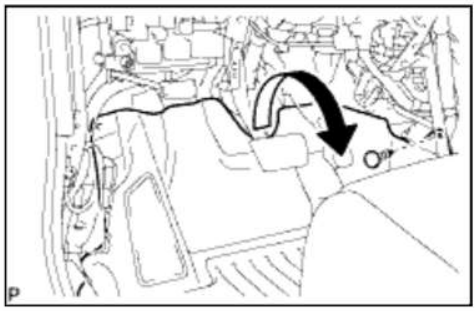
(b) Turn back the floor carpet.

(c) Disengage the 2 claws and remove the rear No. 2 air duct.

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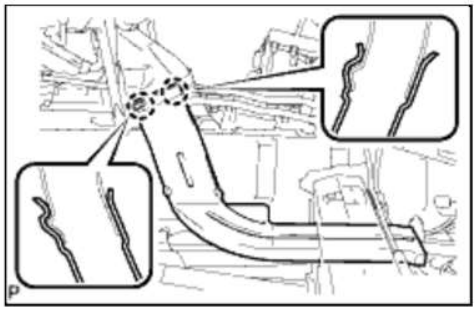


85. REMOVE REAR NO. 3 AIR DUCT (w/ Rear Air Duct)



(a) Remove the clip.

(b) Turn back the floor carpet.



(c) Disengage the 2 claws and remove the rear No. 3 air duct.

86. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System)

(a) for TMC made:

(1) Disconnect the connector.

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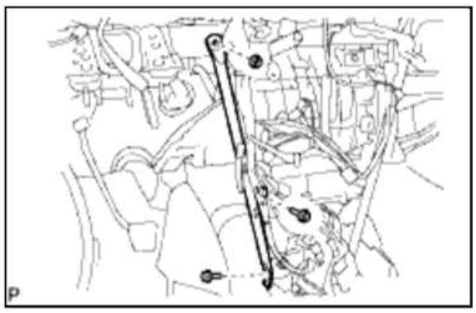
(2) Disengage each clamp.

(b) for TMMC, NUMMI made:



(1) Disconnect the connector.

(2) Disengage each clamp.



(c) Remove the screw.

(d) Remove the bolt, the nut, and the No. 1 instrument panel brace sub-assembly.

87. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air

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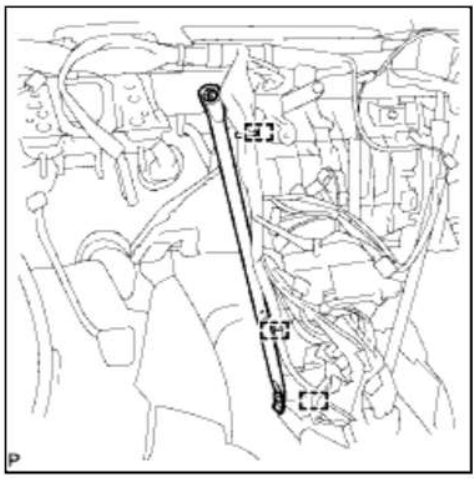
Conditioning System)

(a) for TMC Made:

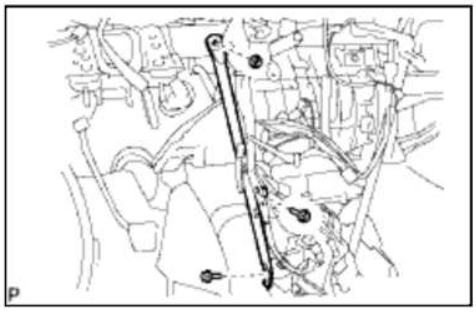


(1) Disengage each clamp.

(b) for TMMC, NUMMI Made:



(1) Disengage each clamp.



(c) Remove the screw.

(d) Remove the bolt, the nut, and the No. 1 instrument panel brace sub-assembly.

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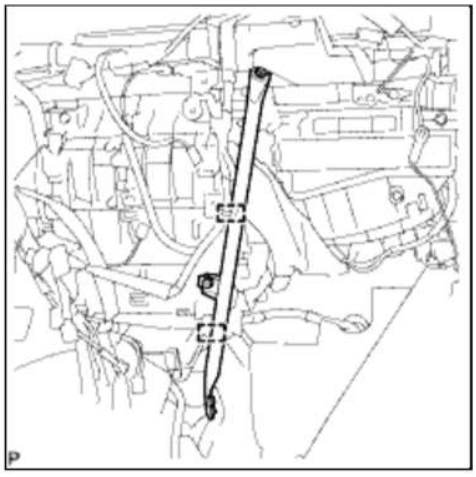
88. REMOVE NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY

(a) for TMC Made:

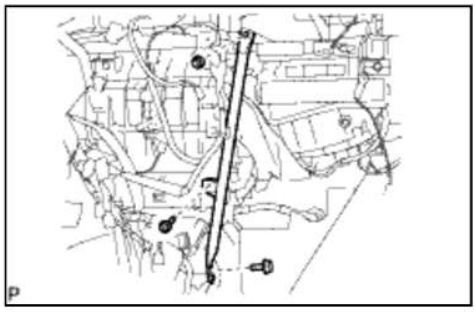


(1) Disengage each clamp.

(b) for TMMC, NUMMI Made:



(1) Disengage each clamp.

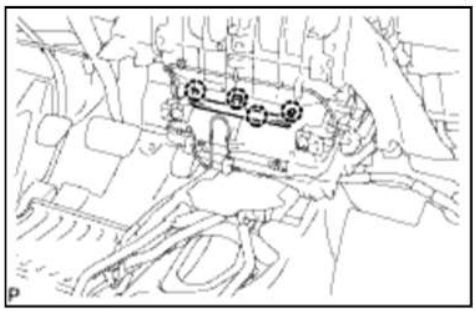


(c) Remove the screw.

(d) Remove the bolt, the nut, and the No. 2 instrument panel brace sub-assembly.

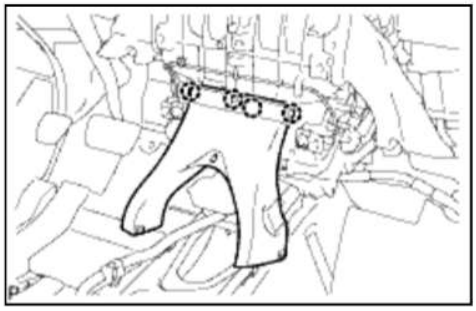
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89. REMOVE HEATER COVER (w/ Cover)



(a) Disengage the 4 claws and remove the heater cover.

90. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct)



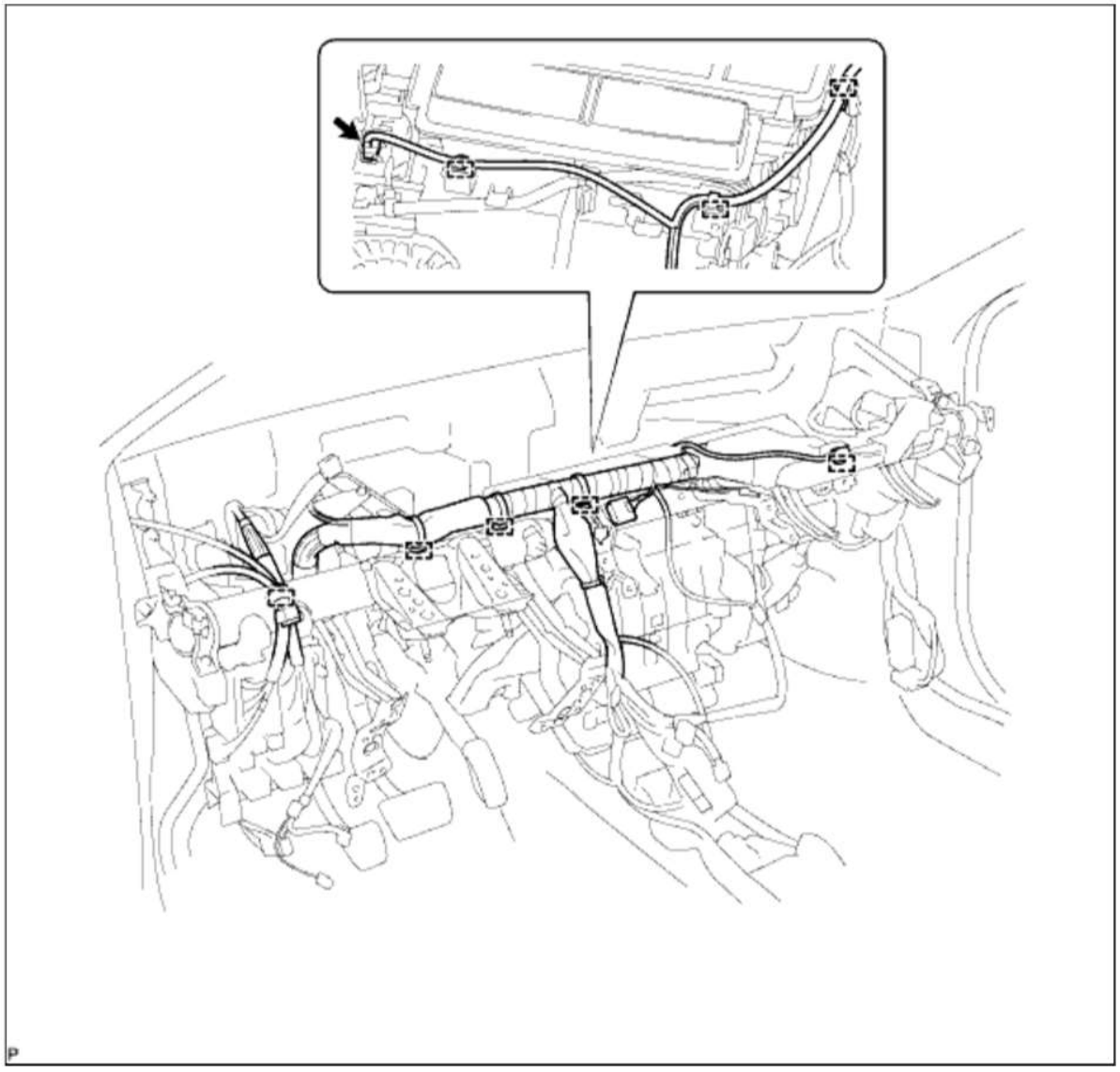
(a) Disengage the 4 claws and remove the rear No. 1 air duct.

91. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System)

(a) Disconnect the connector.

(b) Disengage each clamp and the wire harness.

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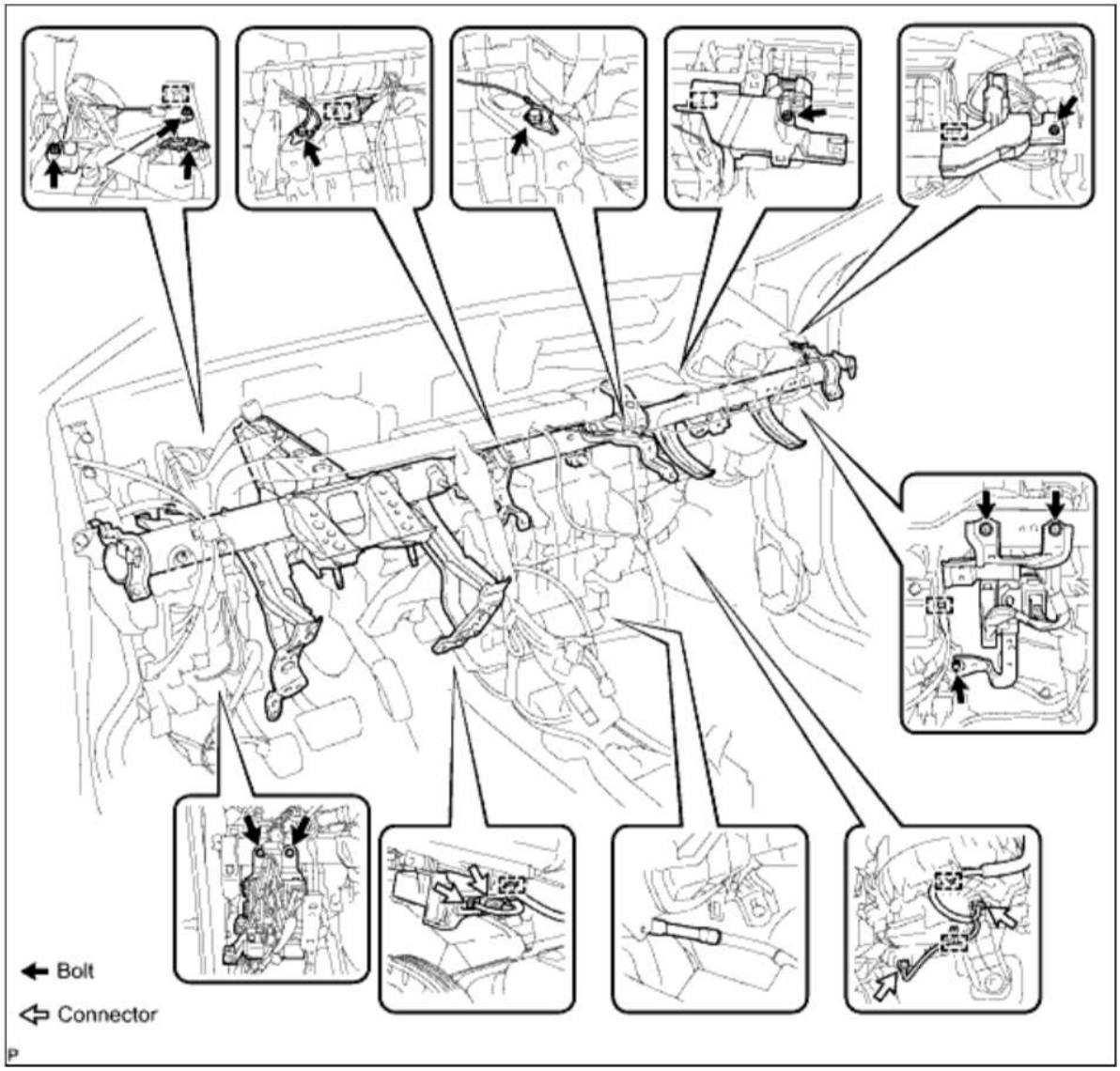
(c) Disconnect each connector.

(d) Disengage each clamp.

(e) Remove the 12 bolts, and disengage the wire harness and junction block.

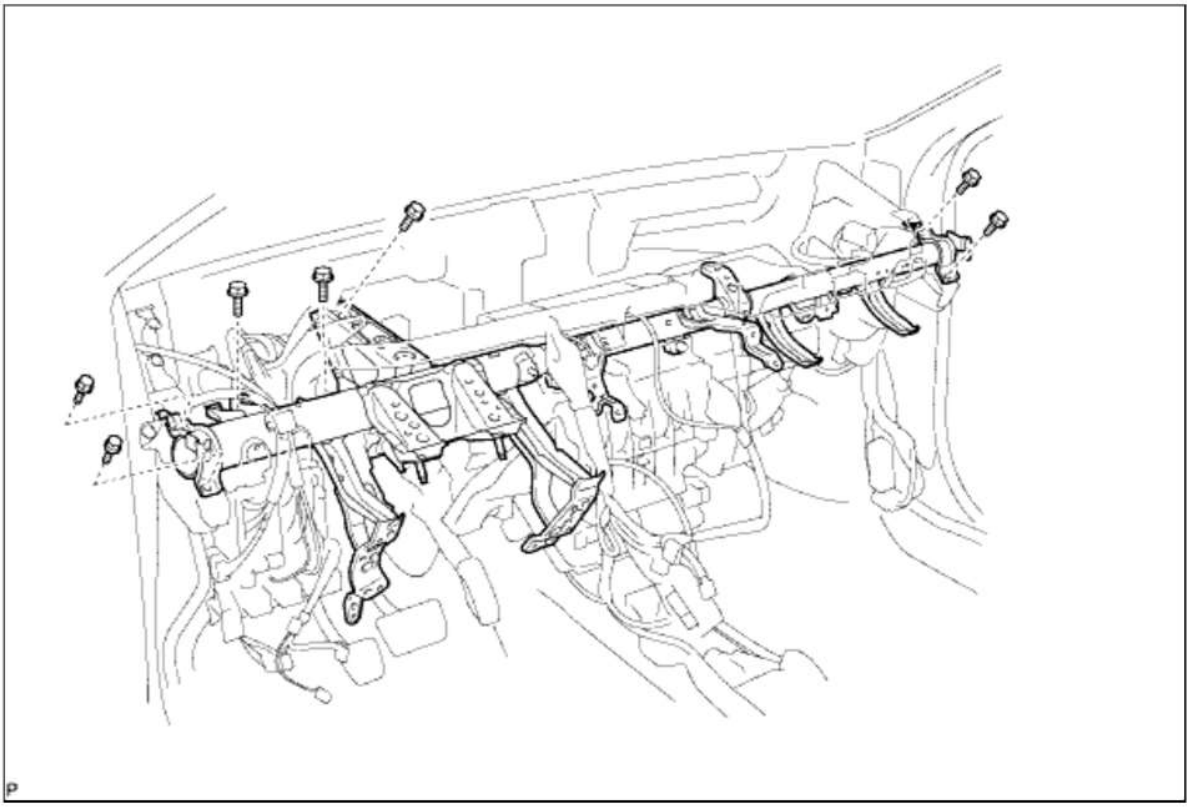
(f) Disengage the cooler drain hose.

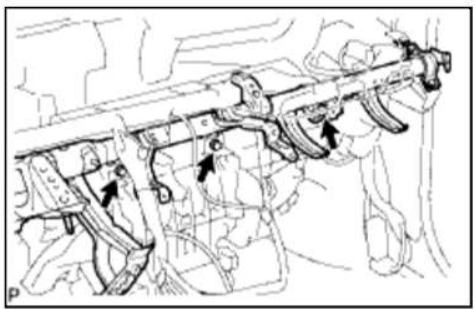
cardiagn.com



(g) Remove the 7 bolts.

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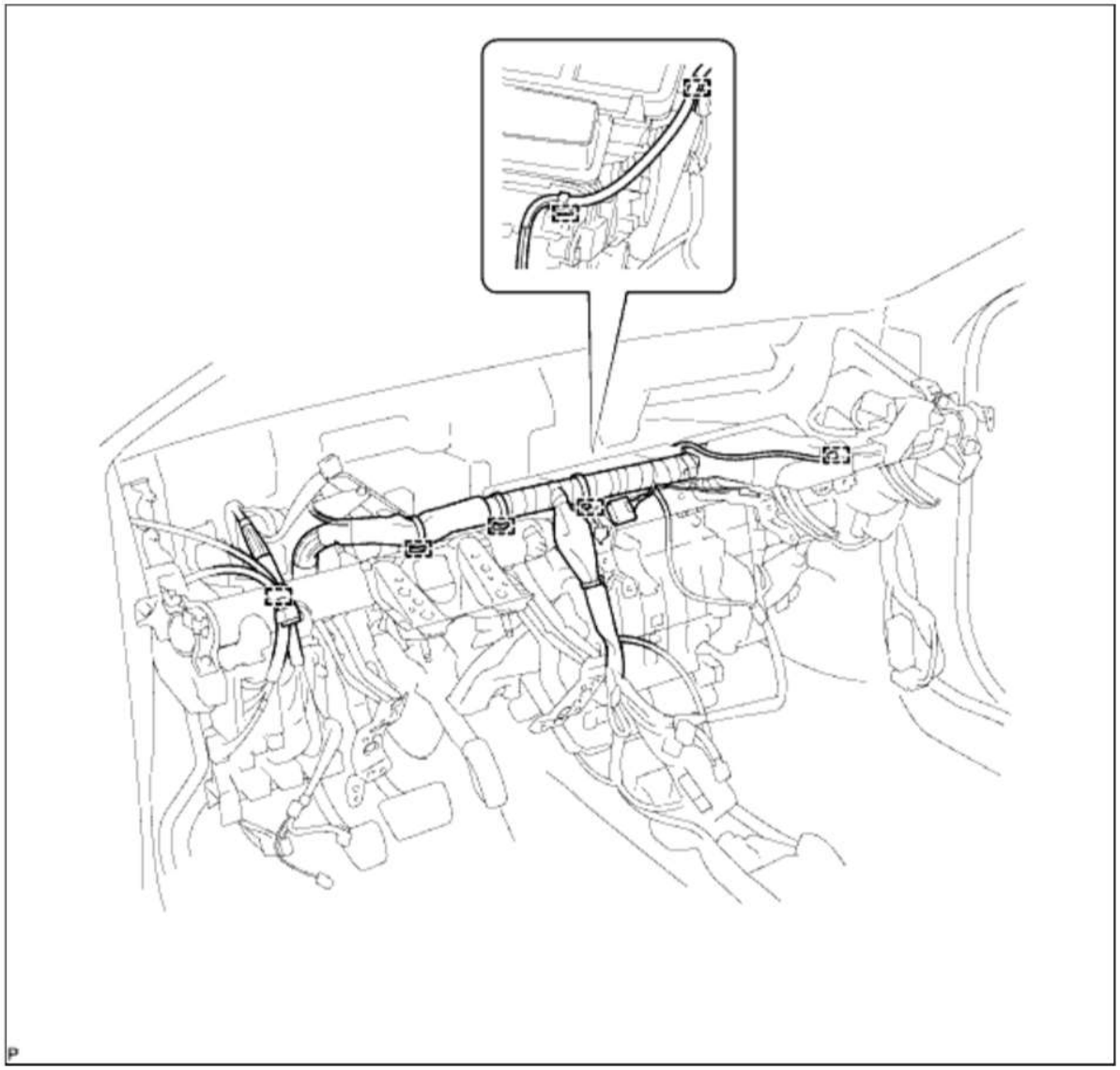


(h) Remove the 3 bolts and the instrument panel reinforcement assembly.

92. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air Conditioning System)

(a) Disengage each clamp and the wire harness.

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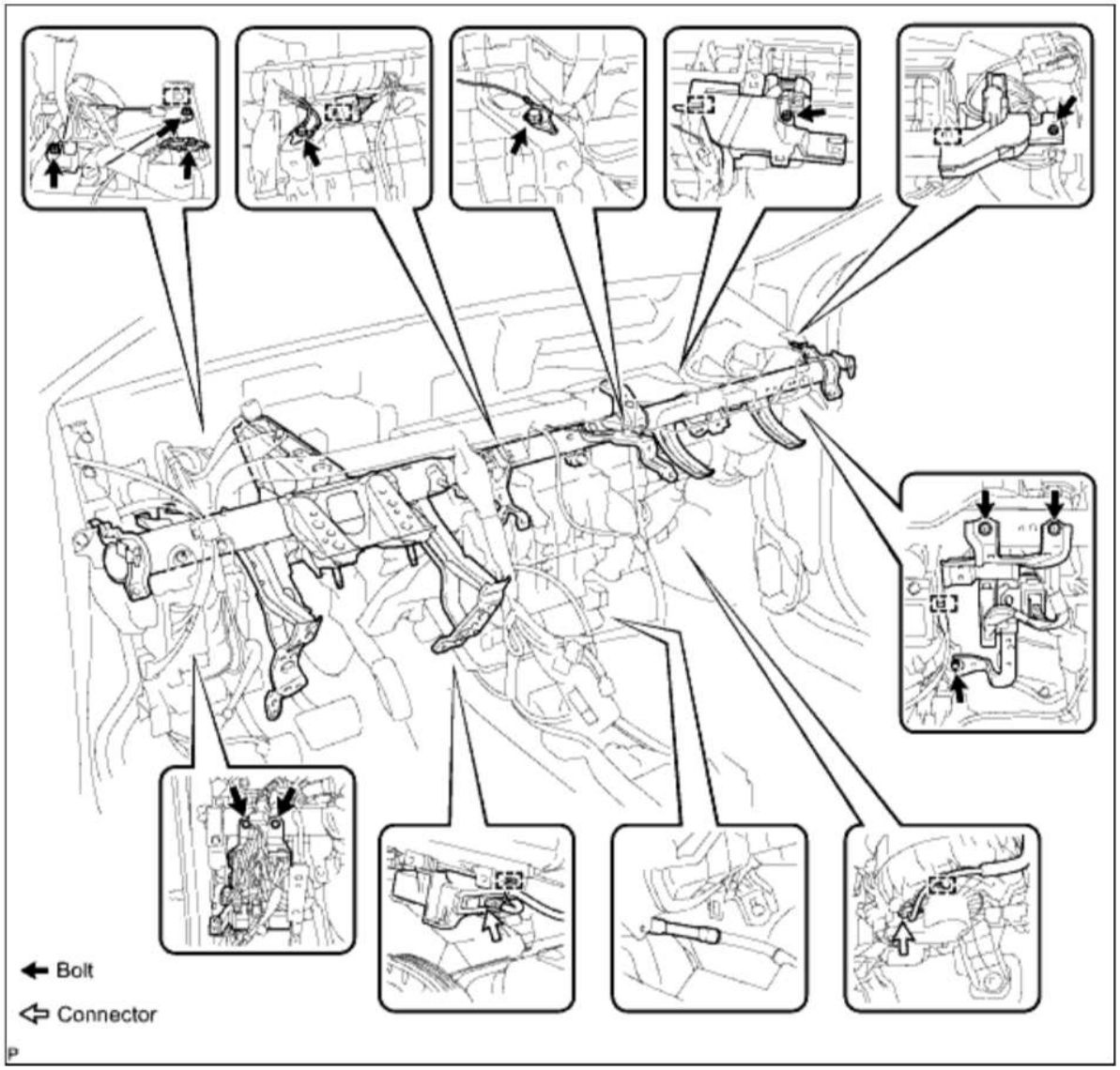
(b) Disconnect each connector.

(c) Disengage each clamp.

(d) Remove the 12 bolts, and disengage the wire harness and junction block.

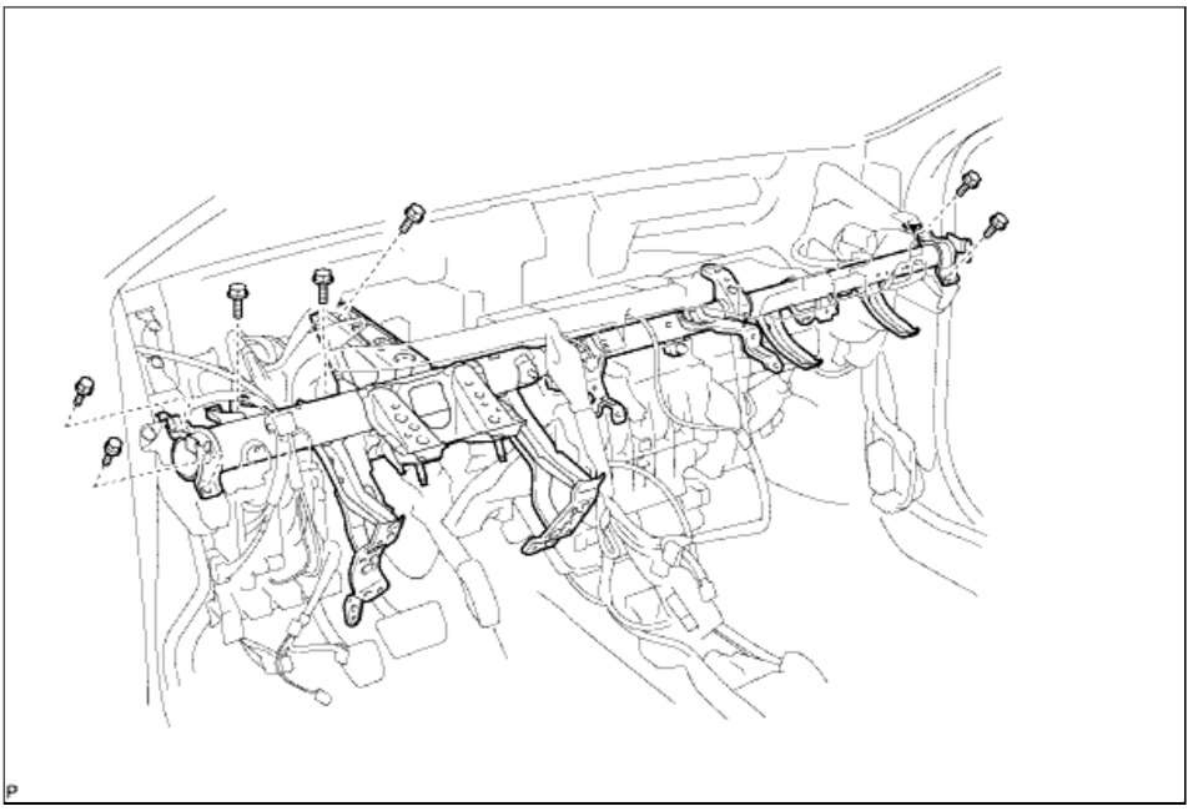
(e) Disengage the cooler drain hose.

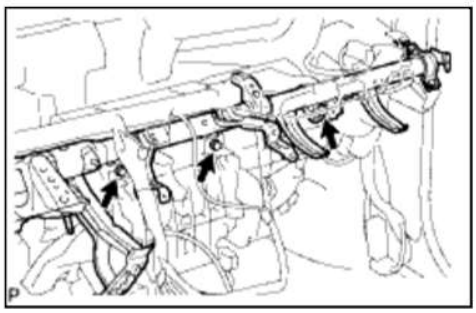
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(f) Remove the 7 bolts.

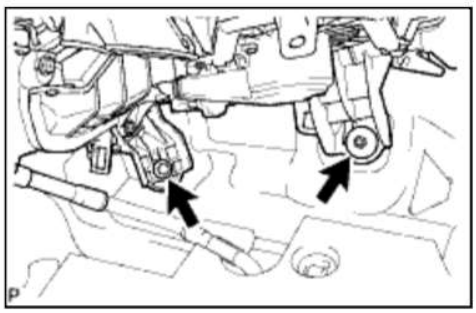
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(g) Remove the 3 bolts and the instrument panel reinforcement assembly.

93. REMOVE AIR CONDITIONING UNIT



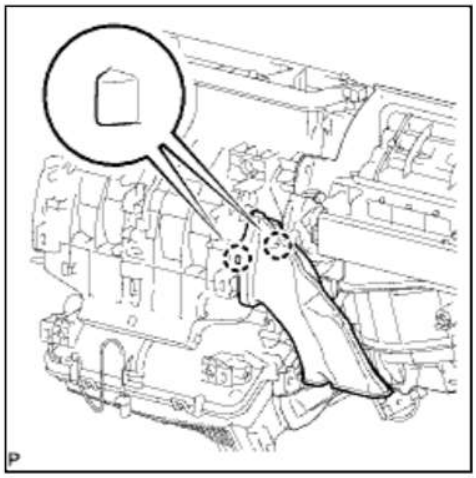
(a) Remove the bolt, the nut, and the air conditioning unit.

NOTICE:

- Be sure to support the air conditioning unit assembly when removing it because failure to do so may cause the bracket of the air conditioning unit assembly to break.
- When disassembling the air conditioning unit, eliminate static electricity by touching the vehicle body to prevent the components from being damaged.

94. REMOVE NO. 2 AIR DUCT SUB-ASSEMBLY

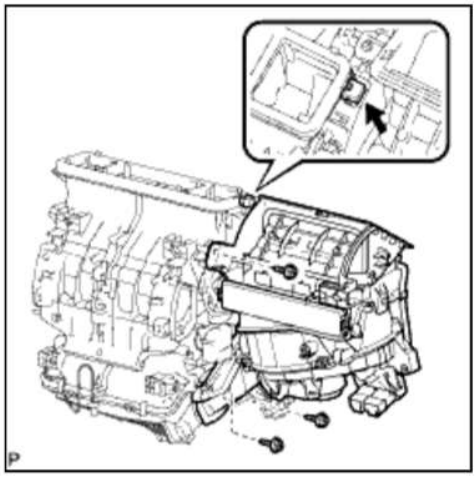
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(a) Disengage the 2 claws and remove the No. 2 air duct sub-assembly.

95. REMOVE BLOWER ASSEMBLY (w/o PTC Heater)

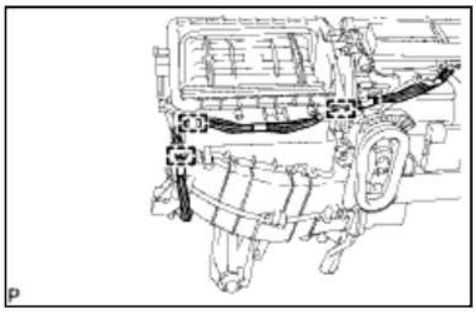
(a) for Automatic Air Conditioning System:



(1) Disconnect the connector.

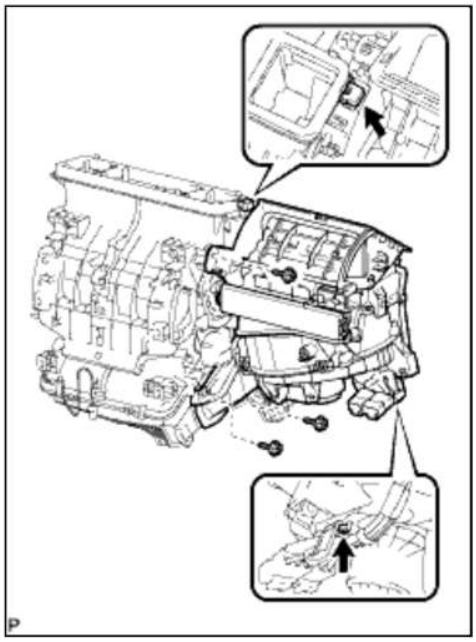
(b) Remove the 3 screws and the blower assembly.

96. REMOVE BLOWER ASSEMBLY (w/ PTC Heater)



(a) Disengage each clamp.

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(b) Remove the screw and disengage the quick heater connector.

(c) for Automatic Air Conditioning System:

(1) Disconnect the connector.

(d) Remove the 3 screws and the blower assembly.

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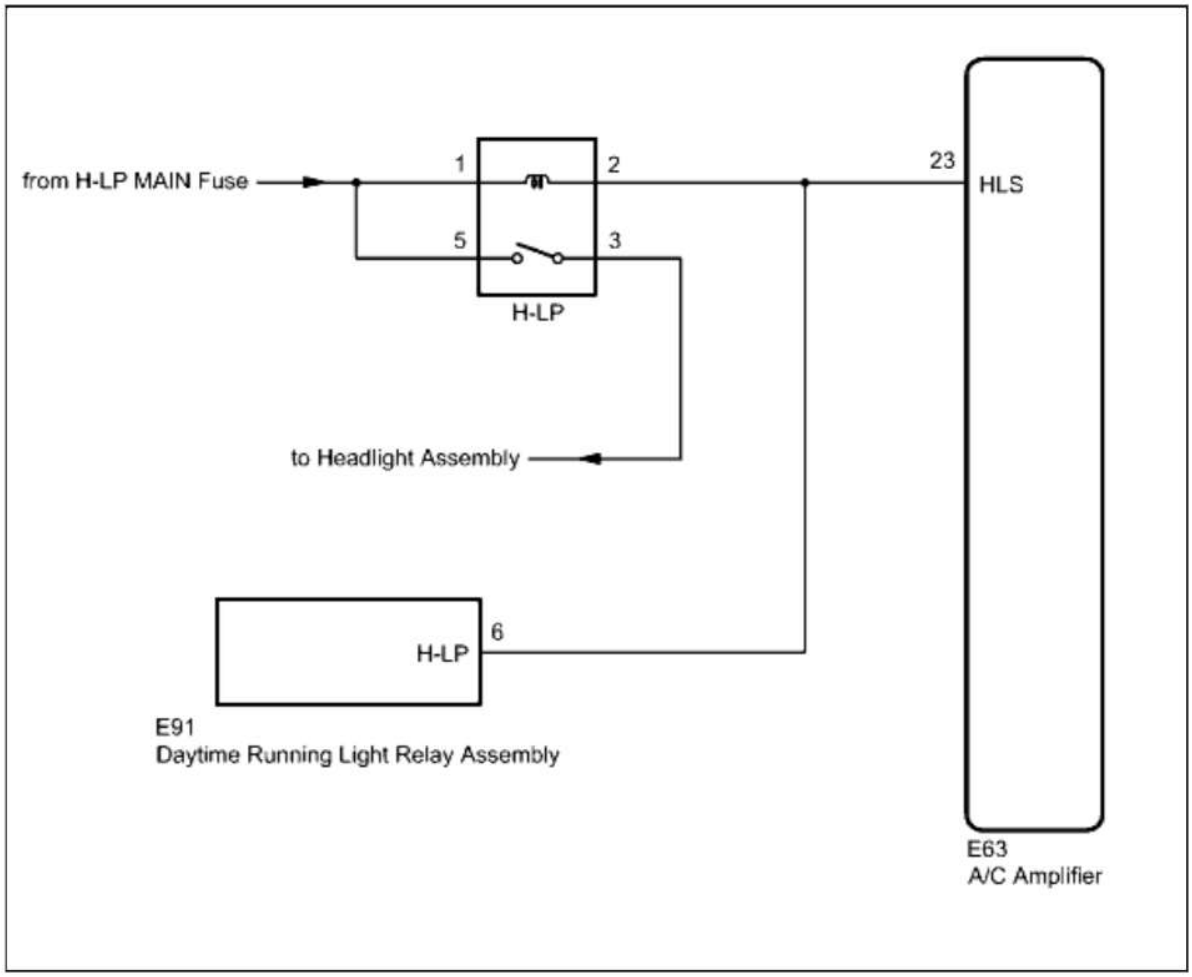
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Y1L00KX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): Headlight Signal Circuit (2010 Corolla)		

Headlight Signal Circuit

DESCRIPTION

The A/C amplifier receives headlight operational signals to determine the electrical load. The electrical load signals are used for controlling the number of the PTC heater elements to be heated.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

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1.	INSPECT HEADLIGHT ASSEMBLY

(a) Check if the headlights come on when the light control switch is turned to the HEAD position.

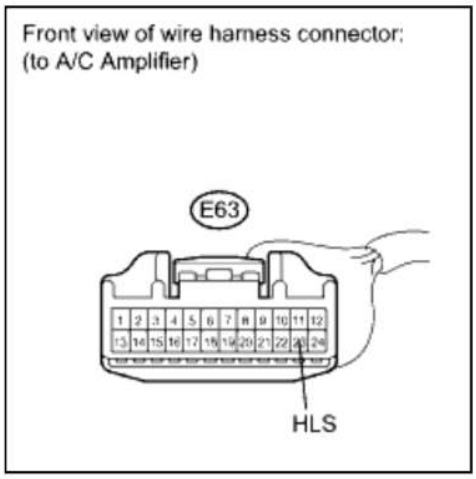
OK:

The headlights come on.

NG ▶ GO TO LIGHTING SYSTEM

OK ▼

2.	CHECK HARNESS AND CONNECTOR (HEADLIGHT SIGNAL)



(a) Disconnect the connector from the A/C amplifier.

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E63-23 (HLS) - Body ground	Light control switch: OFF	11 to 14 V
E63-23 (HLS) - Body ground	Light control switch: HEAD	Below 1 V

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

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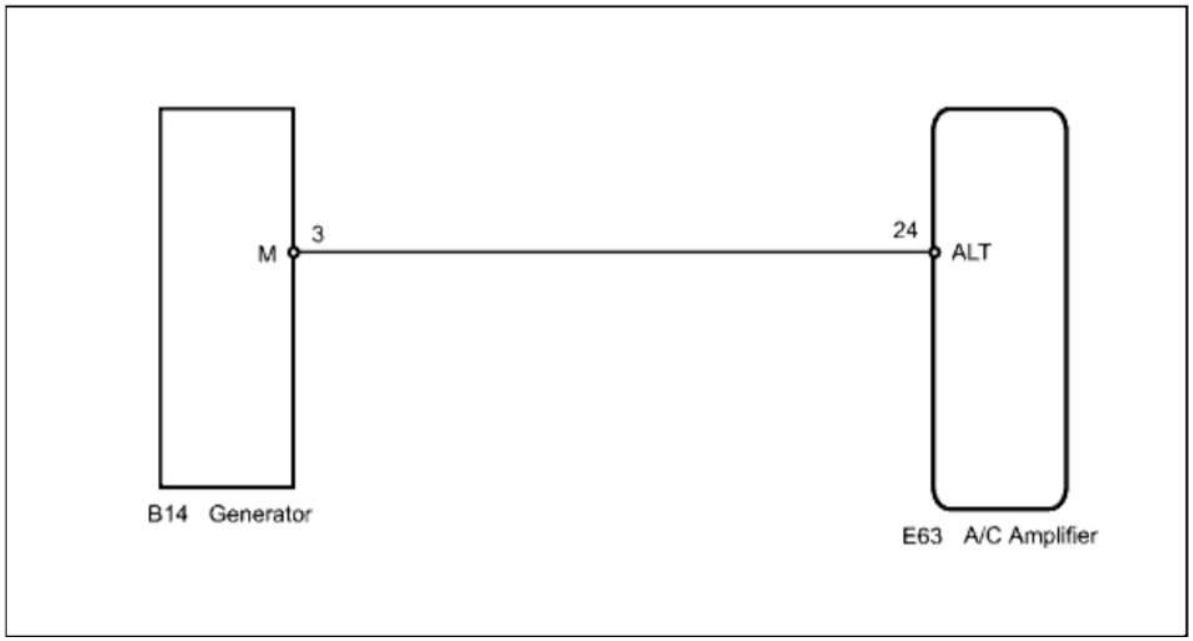
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Y8100KX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): Generator Signal Circuit (2010 Corolla)		

Generator Signal Circuit

DESCRIPTION

When the engine is started, the generator rotates and a pulsed voltage signal is generated. This signal is used by the A/C amplifier. The generated voltage signals sent from the generator are used for controlling the number of the heater elements to be heated.

WIRING DIAGRAM



INSPECTION PROCEDURE

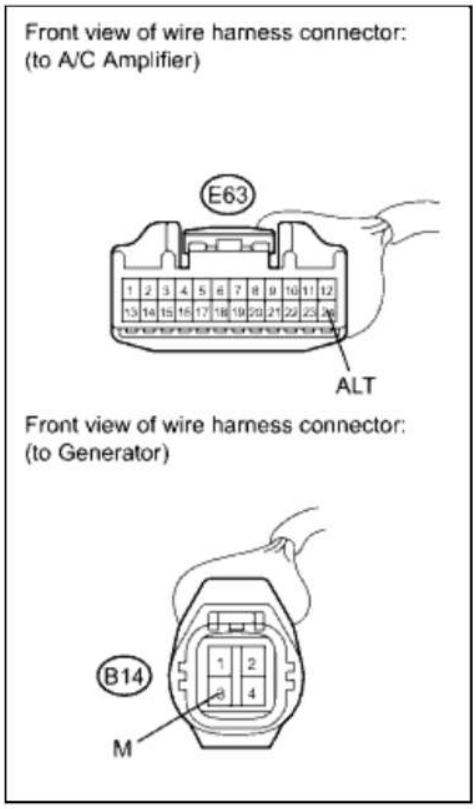
PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - GENERATOR)**

(a) Disconnect the connector from the A/C amplifier.

(b) Disconnect the connector from the generator.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E63-24 (ALT) - B14-3 (M)	Always	Below 1 Ω
E63-24 (ALT) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

2.	**INSPECT GENERATOR**

(a) Inspect the generator.

(1) for 2AZ-FE:

Inspect the generator INFO for On-vehicle Inspection, INFO for Inspection).

(2) for 2ZR-FE:

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Inspect the generator INFO for On-vehicle Inspection, INFO for Inspection).

Result:

RESULT	PROCEED TO
OK	A
NG (for 2AZ-FE)	B
NG (for 2ZR-FE)	C

C ▶ **REPLACE GENERATOR (for 2ZR-FE)**

B ▶ **REPLACE GENERATOR (for 2AZ-FE)**

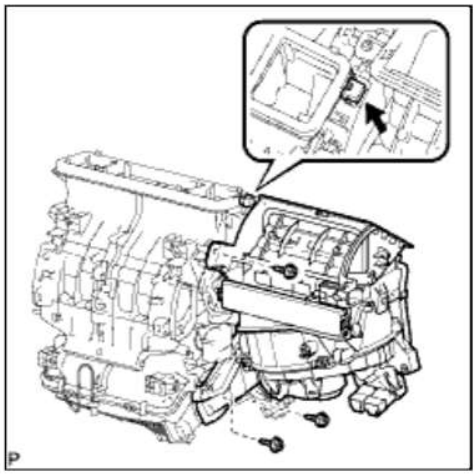
A ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLU0AAX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL BLOWER ASSEMBLY (w/o PTC Heater)

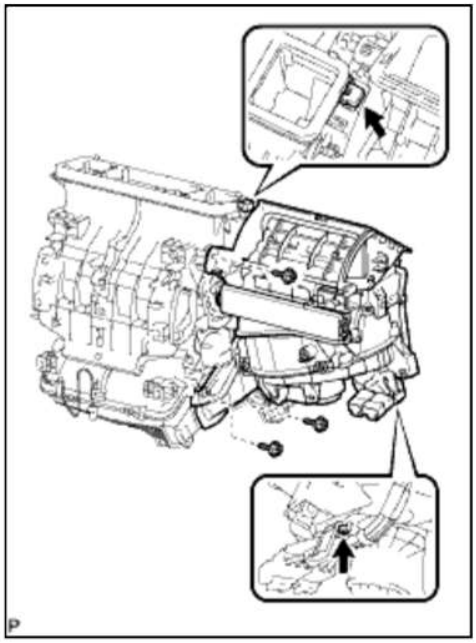


(a) Install the blower assembly with the 3 screws.

(b) for Automatic Air Conditioning System:

(1) Connect the connector.

2. INSTALL BLOWER ASSEMBLY (w/ PTC Heater)



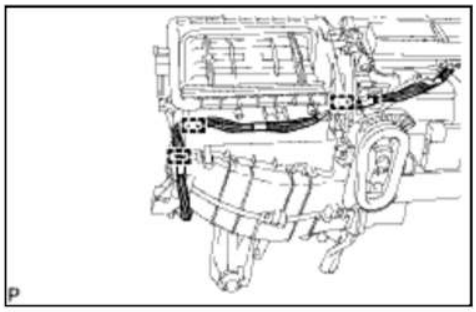
(a) Install the blower assembly with the 3 screws.

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(b) Engage the quick heater connector and install the screw.

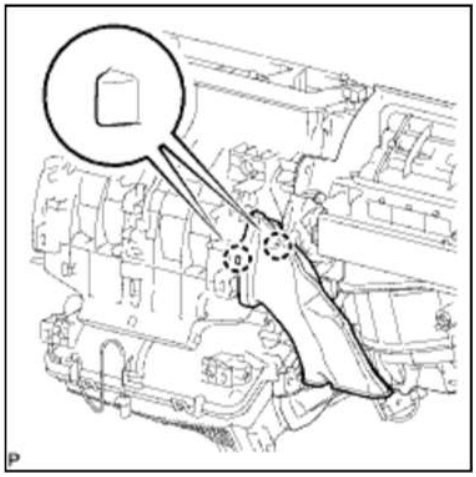
(c) for Automatic Air Conditioning System:

(1) Connect the connector.



(d) Engage each clamp.

3. INSTALL NO. 2 AIR DUCT SUB-ASSEMBLY

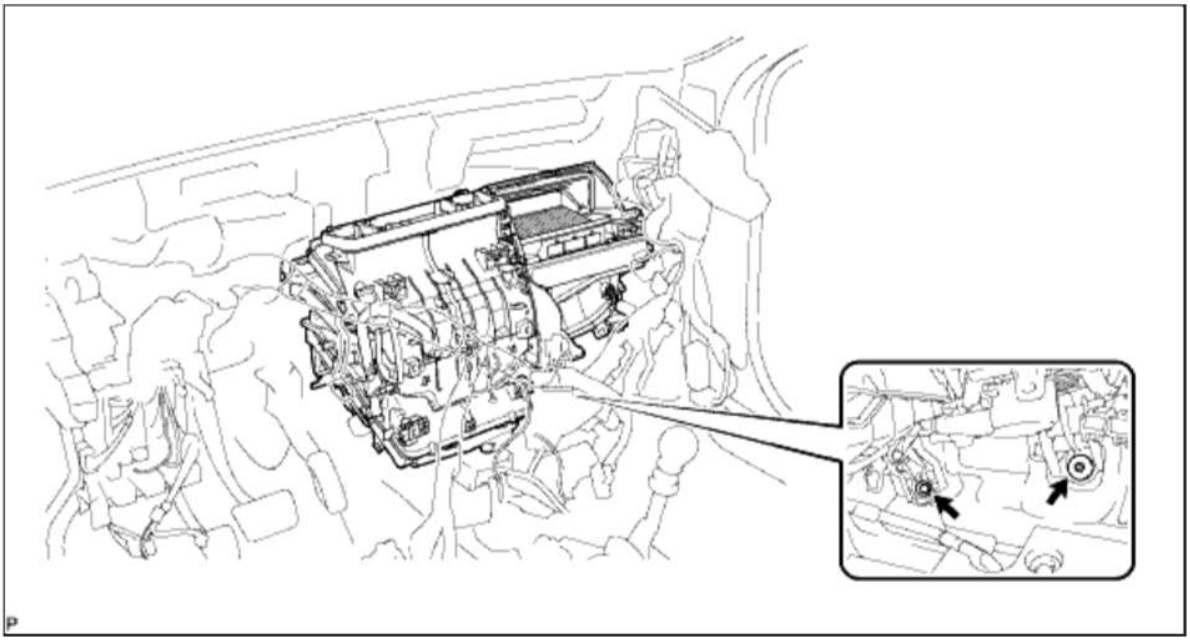


(a) Engage the 2 claws and install the No. 2 air duct sub-assembly.

4. TEMPORARILY TIGHTEN AIR CONDITIONING UNIT

(a) Temporarily tighten the air conditioning unit with the bolt and the nut.

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NOTICE:

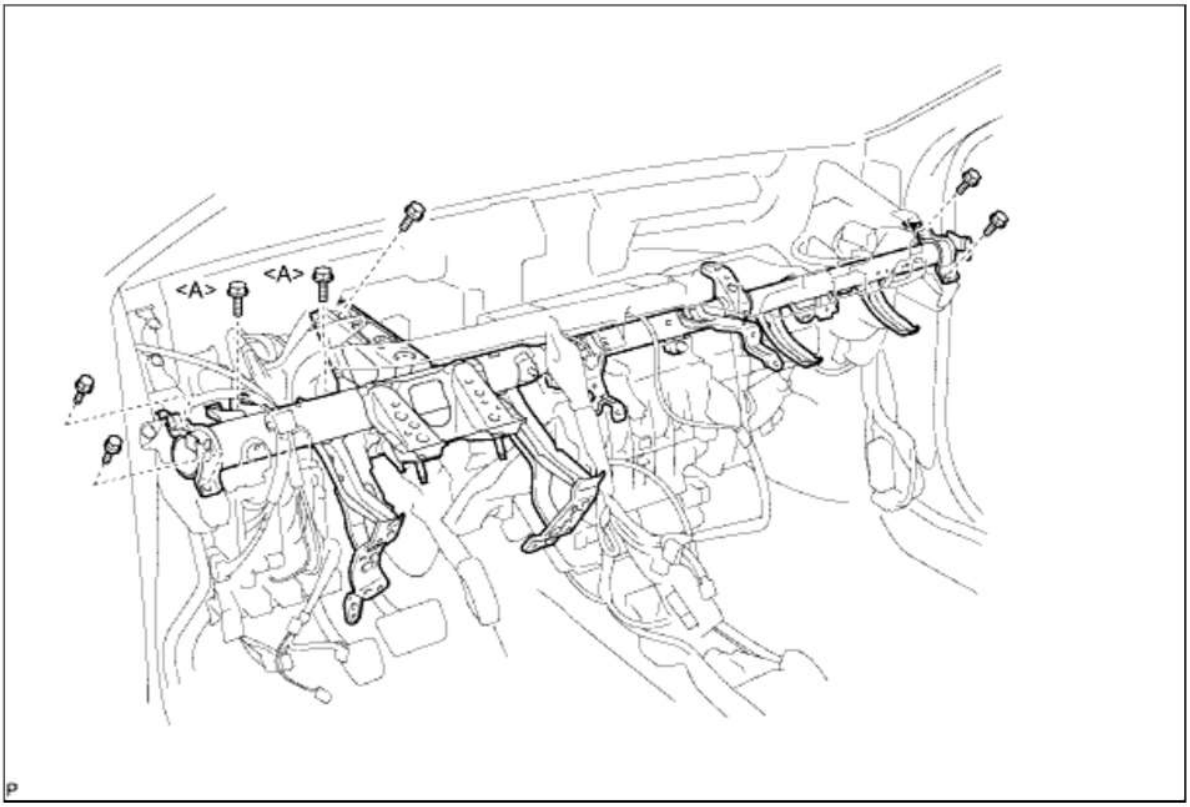
- Be sure to support the air conditioning unit assembly when removing it because failure to do so may cause the bracket of the air conditioning unit assembly to break.
- When installing the air conditioning unit, eliminate static electricity by touching the vehicle body to prevent the components from being damaged.

5. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System)

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

<A> - Torque: 24 N·m (245 kgf·cm, 18ft·lbf)

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(b) Connect each connector.

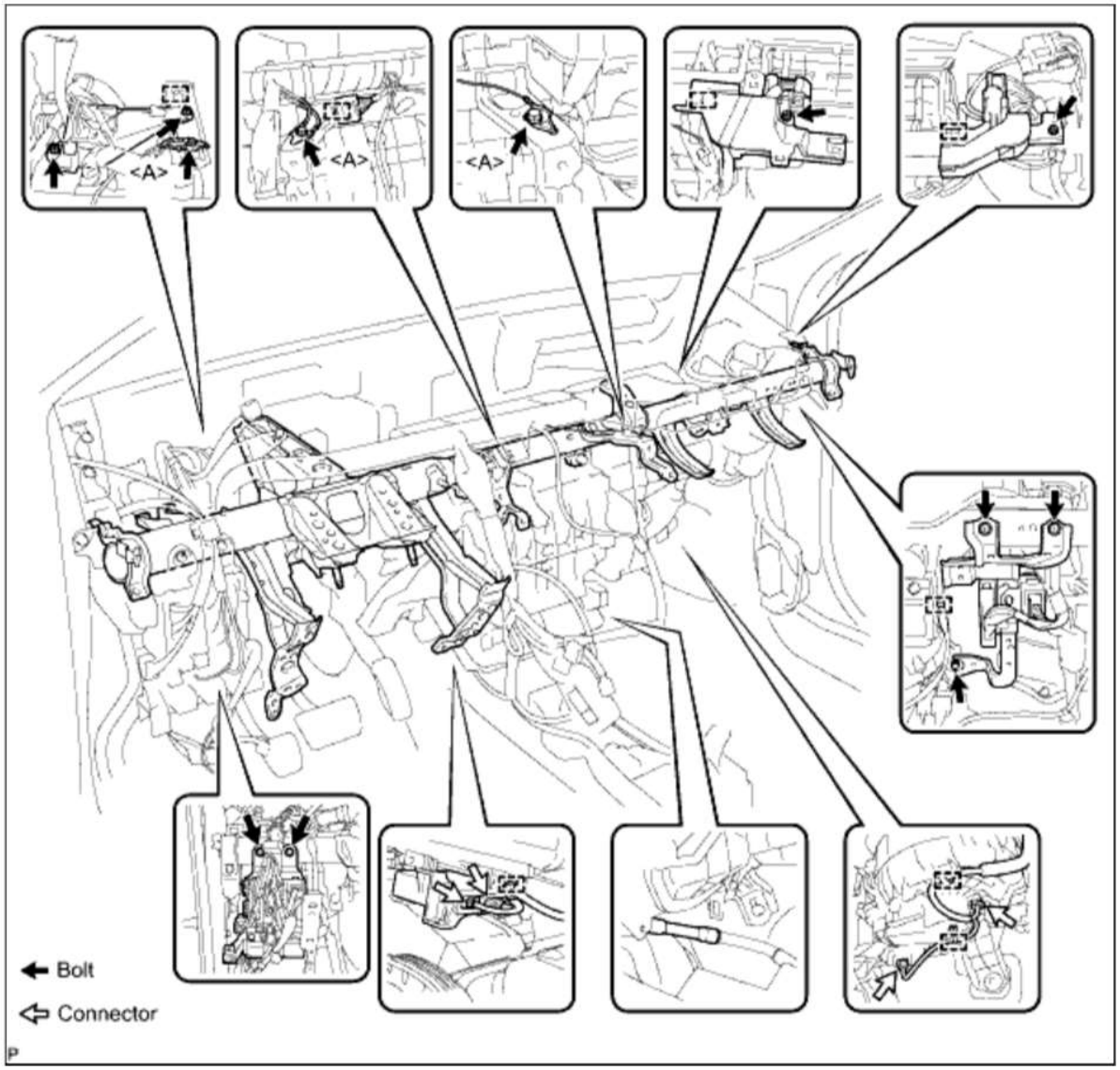
(c) Engage each clamp.

(d) Engage the wire harness and junction block with the 12 bolts.

<A> - Torque: 8.4 N·m (86 kgf·cm, 74in·lbf)

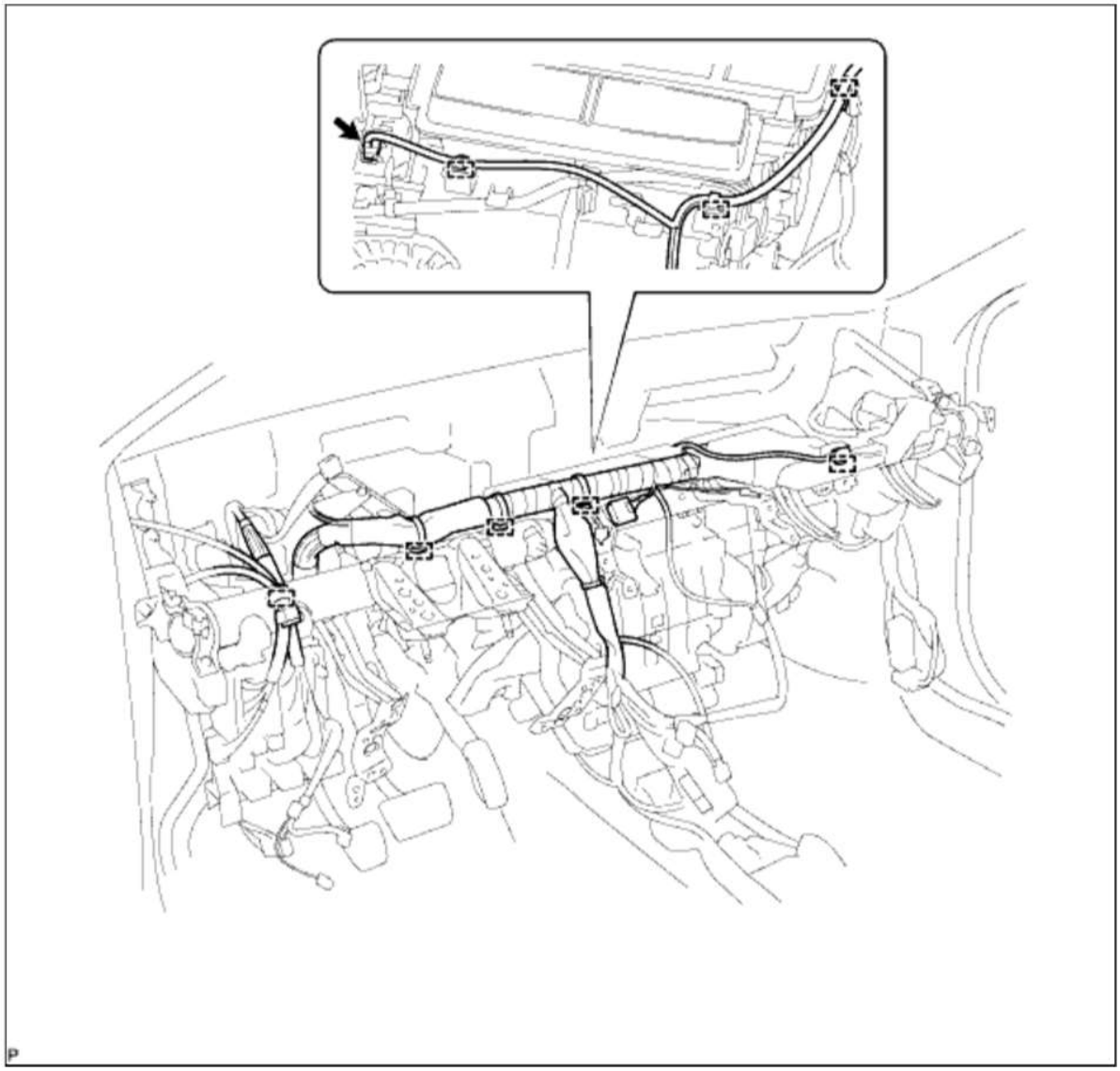
(e) Engage the cooler drain hose.

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(f) Engage each clamp and the wire harness.

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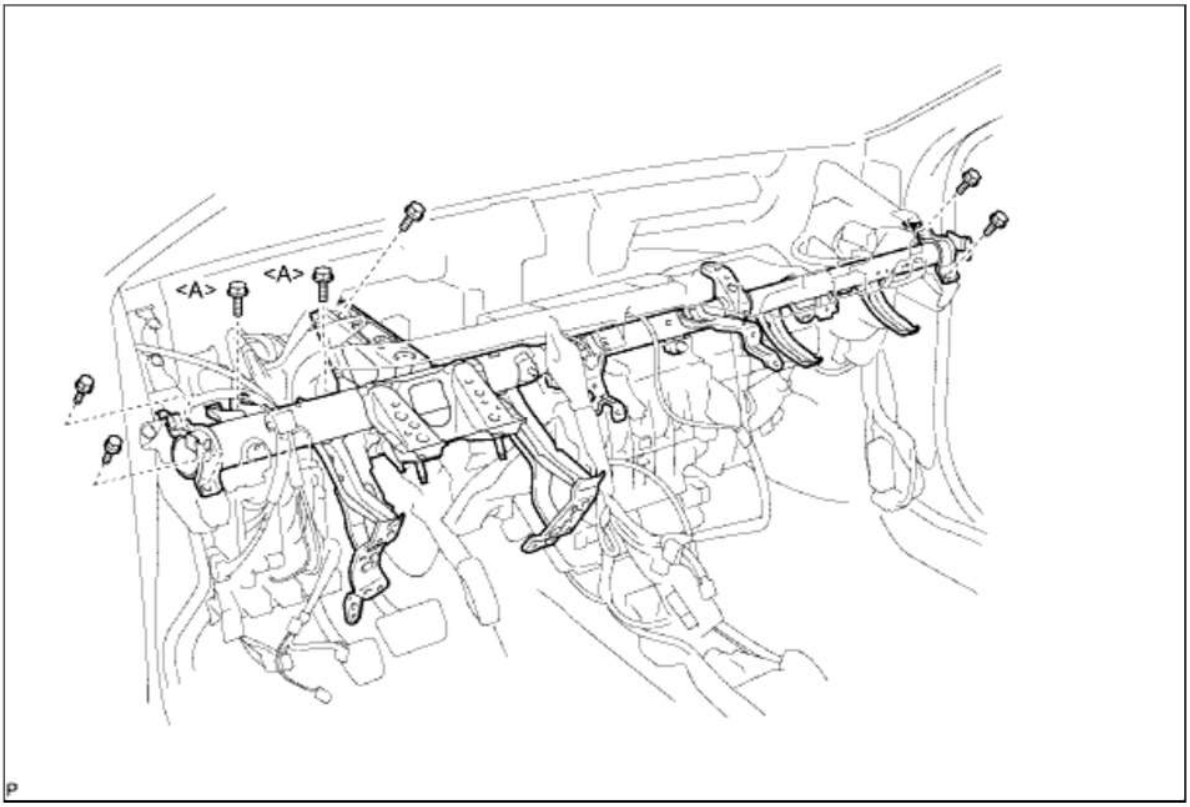


6. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air Conditioning System)

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

<A> - Torque: 24 N·m (245 kgf·cm, 18ft·lbf)

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(b) Connect each connector.

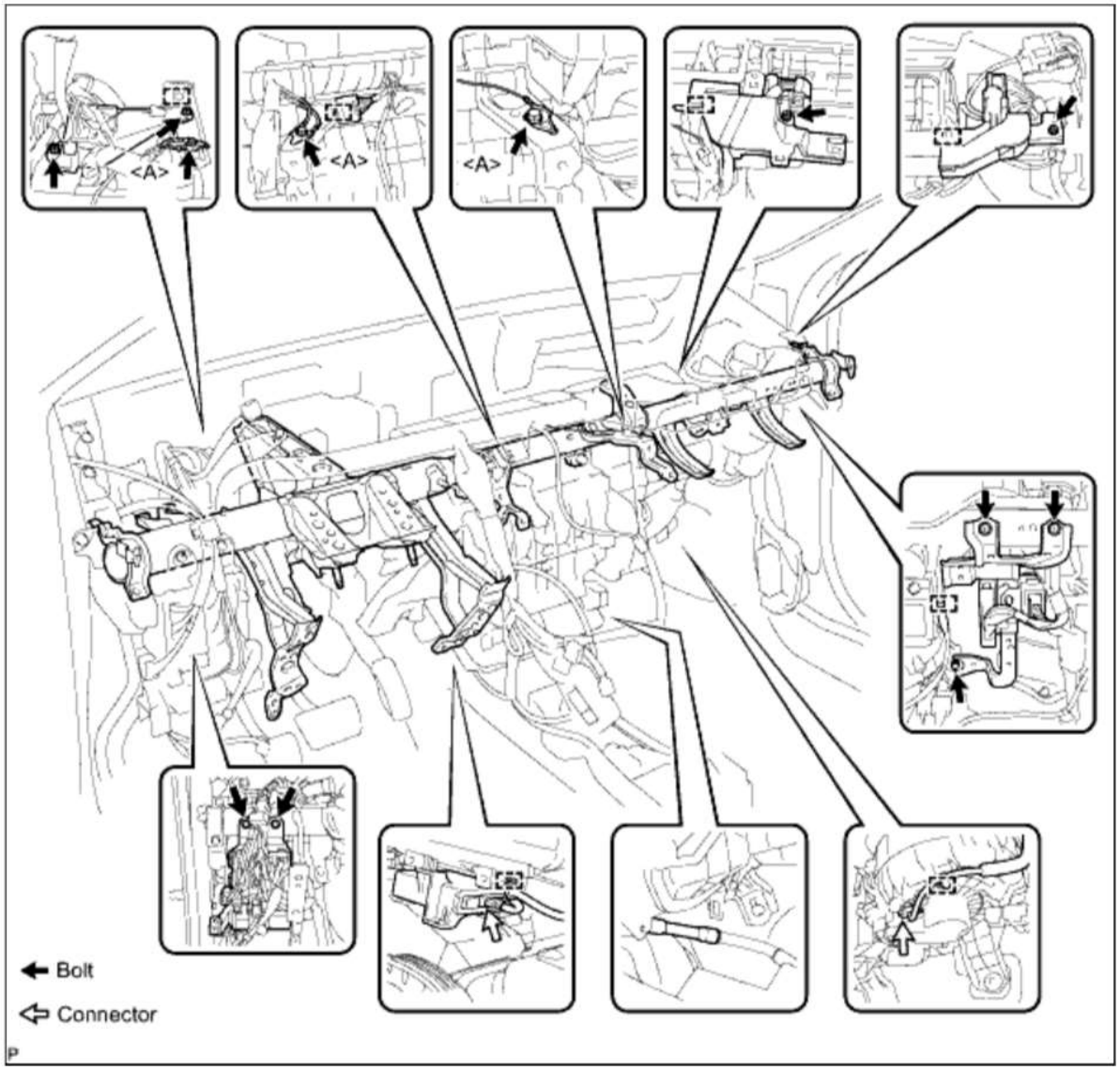
(c) Engage each clamp.

(d) Engage the wire harness and junction block with the 12 bolts.

<A> - Torque: 8.4 N·m (86 kgf·cm, 74in·lbf)

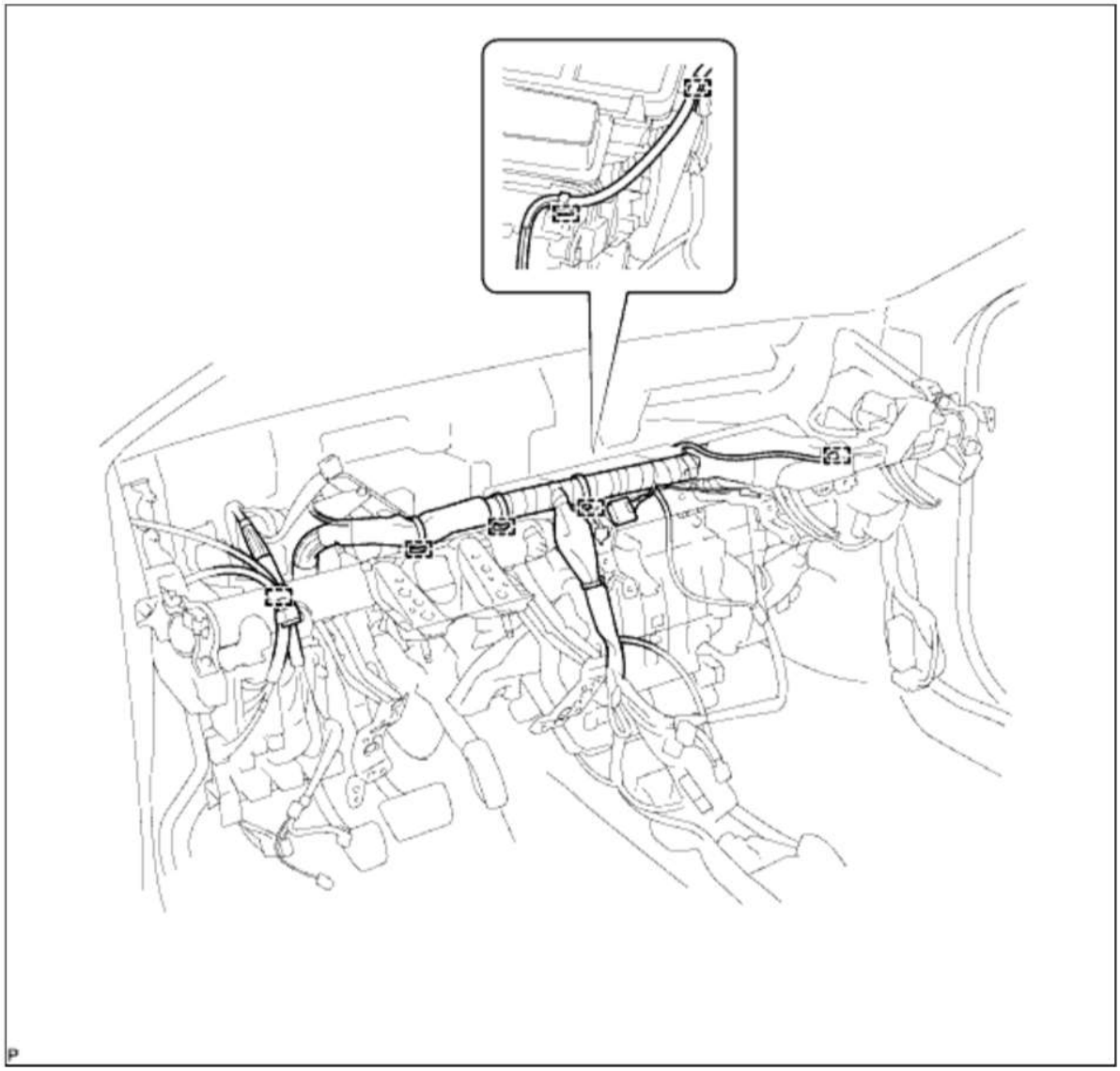
(e) Engage the cooler drain hose.

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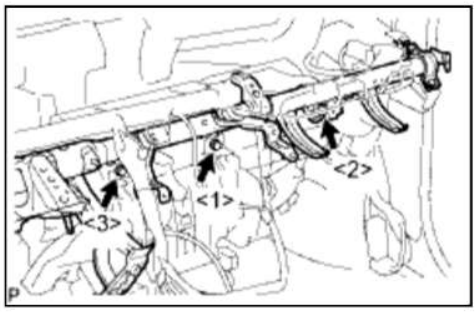


(f) Engage each clamp and the wire harness.

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7. INSTALL AIR CONDITIONING UNIT



(a) Install the 3 bolts.

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

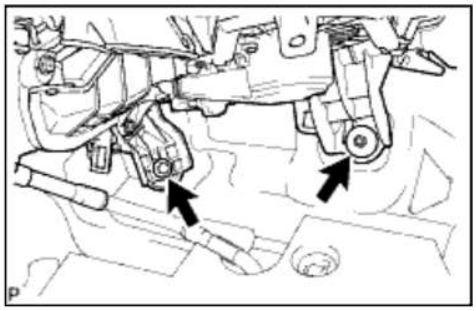
HINT:

Tighten the bolts in the order shown in the illustration.

(b) Install the bolt.

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

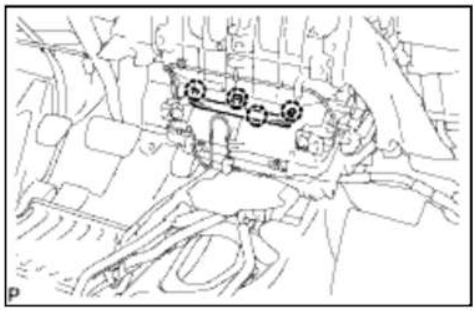
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(c) Install the air conditioning unit with the nut.

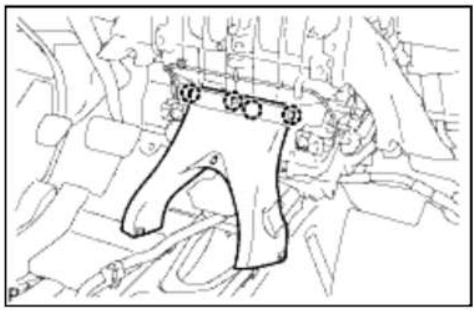
Torque: 9.8 N·m (100 kgf·cm, 87in·lbf)

8. INSTALL HEATER COVER (w/ Cover)



(a) Engage the 4 claws and install the heater cover.

9. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct)



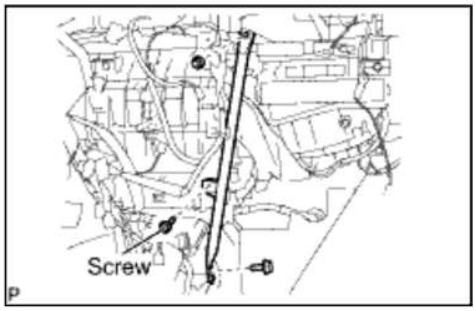
(a) Engage the 4 claws and install the rear No. 1 air duct.

10. INSTALL NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY

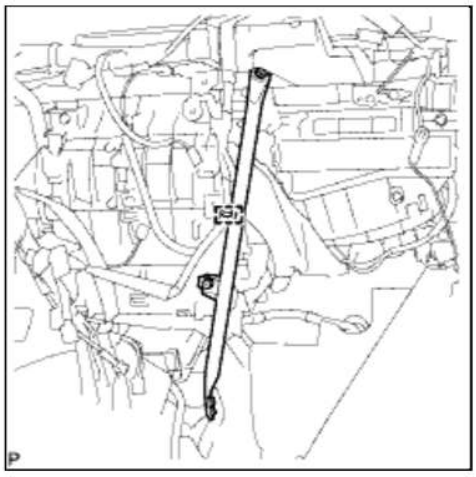
(a) Install the No. 2 instrument panel brace sub-assembly with the bolt, screw and the nut.

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

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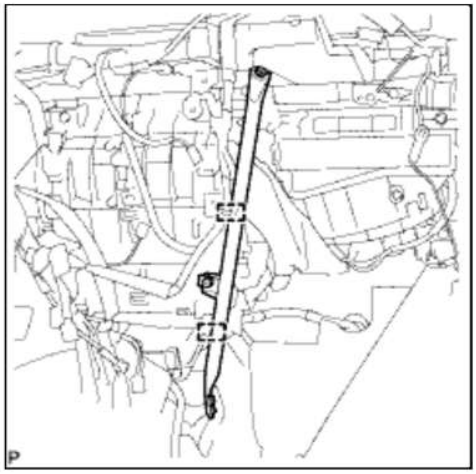


(b) for TMC Made:



(1) Engage the clamp.

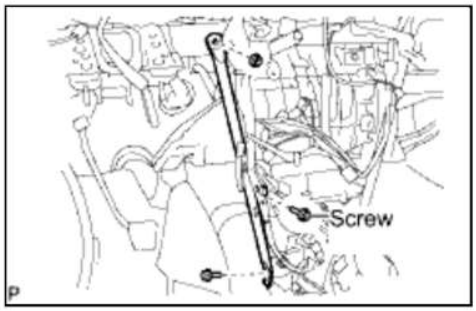
(c) for TMMC, NUMMI Made:



(1) Engage each clamp.

11. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System)

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(a) Install the No. 1 instrument panel brace sub-assembly with the bolt, screw and the nut.

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

(b) for TMC Made:



(1) Engage each clamp.

(2) Connect the connector.

(c) for TMMC, NUMMI Made:

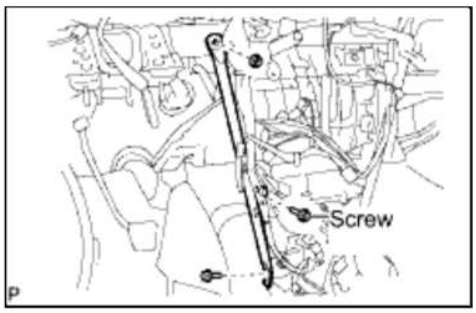


(1) Engage each clamp.

(2) Connect the connector.

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12. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air Conditioning System)



(a) Install the No. 1 instrument panel brace sub-assembly with the bolt, screw and the nut.

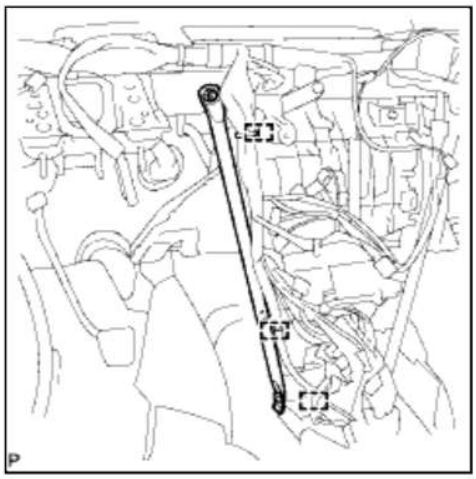
Screw - Torque: 9.8 N·m (100 kgf·cm, 87in·lbf)

(b) for TMC Made:



(1) Engage each clamp.

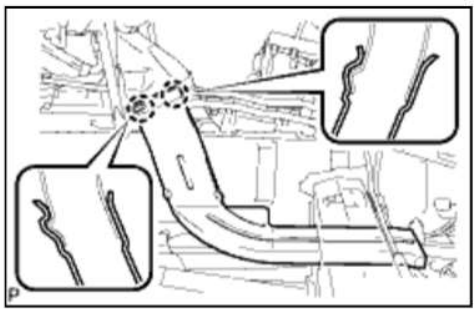
(c) for TMMC, NUMMI Made:



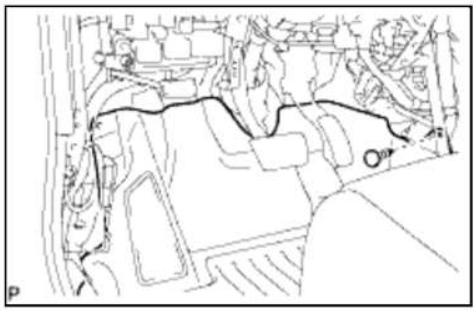
(1) Engage each clamp.

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13. INSTALL REAR NO. 3 AIR DUCT (w/ Rear Air Duct)

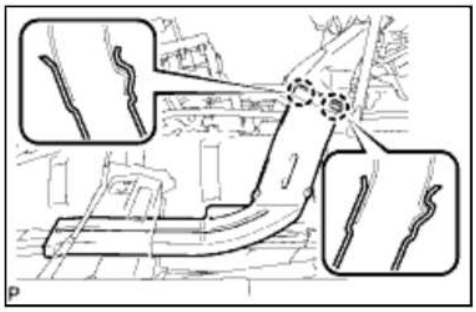


(a) Engage the 2 claws to install the rear No. 3 air duct.

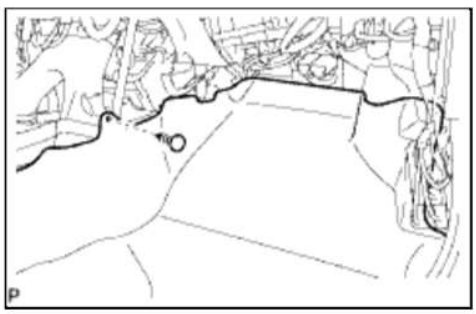


(b) Engage the clip and install the floor carpet.

14. INSTALL REAR NO. 2 AIR DUCT (w/ Rear Air Duct)



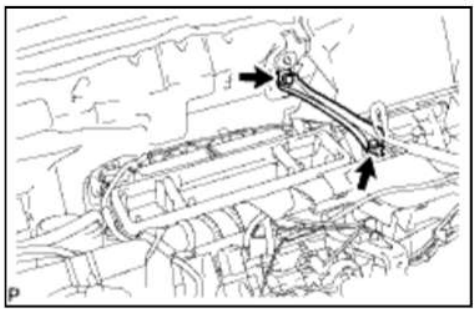
(a) Engage the 2 claws to install the rear No. 2 air duct.



(b) Engage the clip and install the floor carpet.

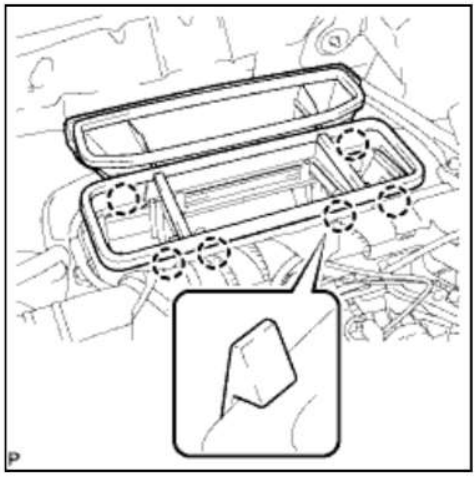
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15. INSTALL CENTER INSTRUMENT PANEL TO COWL BRACE



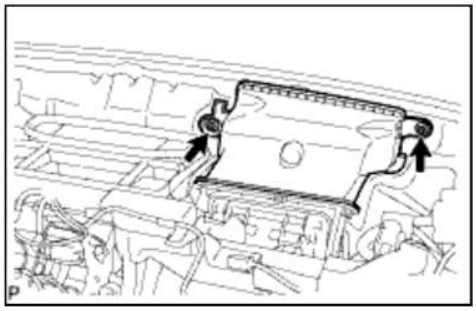
(a) Install the center instrument panel to cowl brace with the 2 bolts.

16. INSTALL LOWER DEFROSTER NOZZLE ASSEMBLY



(a) Engage the 6 claws and install the lower defroster nozzle assembly.

17. INSTALL NO. 1 AIR DUCT SUB-ASSEMBLY



(a) Install the No. 1 air duct sub-assembly with the 2 nuts.

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

18. INSTALL SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

19. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

20. INSTALL NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

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21. INSTALL CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

22. INSTALL CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

23. INSTALL CONSOLE BOX CARPET INFO

24. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

25. INSTALL NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

26. INSTALL NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

27. INSTALL FRONT NO. 1 CONSOLE BOX INSERT INFO

28. INSTALL COWL SIDE TRIM BOARD LH INFO

29. INSTALL FRONT DOOR SCUFF PLATE LH INFO

30. INSTALL FRONT NO. 2 CONSOLE BOX INSERT INFO

31. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

32. INSTALL COWL SIDE TRIM BOARD RH INFO

33. INSTALL FRONT DOOR SCUFF PLATE RH INFO

34. INSTALL AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System) INFO

35. INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

36. INSTALL INSTRUMENT PANEL HOLE COVER INFO

37. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

38. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

39. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

40. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

41. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

42. INSTALL RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

43. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

44. INSTALL NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

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45. INSTALL STEERING POST ASSEMBLY (for 2ZR-FE) INFO
46. INSTALL STEERING POST ASSEMBLY (for 2AZ-FE) INFO
47. TURN FRONT WHEELS FACING STRAIGHT AHEAD
48. CONNECT NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO
49. INSTALL STOP LIGHT SWITCH ASSEMBLY INFO
50. INSTALL NO. 3 AIR DUCT SUB-ASSEMBLY INFO
51. INSTALL INSTRUMENT PANEL SUB REINFORCEMENT INFO
52. INSTALL COLUMN HOLE COVER SILENCER SHEET INFO
53. INSTALL TRANSPONDER KEY AMPLIFIER (w/o Smart Key System) INFO
54. INSTALL TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO
55. INSTALL UPPER STEERING COLUMN COVER INFO
56. INSTALL LOWER STEERING COLUMN COVER INFO
57. TURN FRONT WHEELS FACING STRAIGHT AHEAD
58. ADJUST SPIRAL CABLE INFO
59. INSTALL STEERING WHEEL ASSEMBLY INFO
60. INSTALL STEERING PAD INFO
61. INSTALL LOWER NO. 3 STEERING WHEEL COVER INFO
62. INSTALL LOWER NO. 2 STEERING WHEEL COVER INFO
63. INSPECT STEERING WHEEL CENTER POINT
64. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO
65. INSTALL POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO
66. INSTALL POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO
67. INSTALL UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO
68. CONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO
69. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO
70. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO
71. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO
72. INSTALL NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO

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73. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY INFO

74. INSTALL FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO

75. INSTALL FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO

76. INSTALL FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO

77. INSTALL FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO

78. INSTALL COMBINATION METER ASSEMBLY INFO

79. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

80. INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

81. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

82. INSTALL INSTRUMENT PANEL FINISH PANEL END RH INFO

83. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

84. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

85. INSTALL HEATER WATER HOSE OUTLET



(a) Install the water hose and attach the clip.

86. INSTALL HEATER WATER HOSE INLET

HINT:

Use the same procedure described for the heater outlet water hose.

87. INSTALL AIR CONDITIONING TUBE ASSEMBLY

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

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

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Compressor oil:
ND-OIL 8 or equivalent

(c) Install the O-ring on the air conditioning tube assembly.

(d) Install the air conditioning tube assembly.

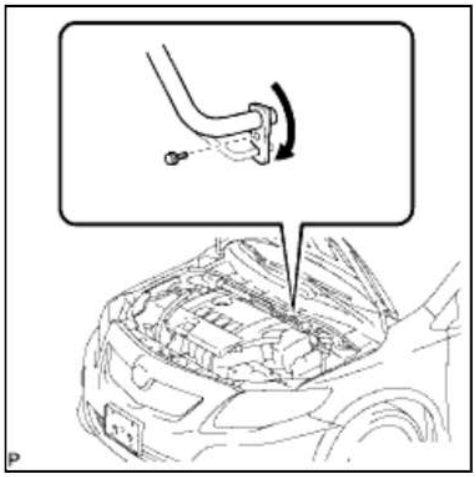
88. INSTALL SUCTION PIPE SUB-ASSEMBLY

(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 suction hose sub-assembly.

Compressor oil:
ND-OIL 8 or equivalent

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



(d) Move the hook connector in the direction indicated by the arrow in the illustration.

(e) Insert the pipe joint into the fitting hole securely and tighten the bolt.

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

89. INSTALL OUTER COWL TOP PANEL (for TMC Made) INFO

90. INSTALL OUTER COWL TOP PANEL (except TMC Made) INFO

91. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

92. INSTALL COWL TOP VENTILATOR LOUVER LH INFO

93. INSTALL CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

94. INSTALL HOOD TO COWL TOP SEAL INFO

95. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

96. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

97. INSTALL FRONT WIPER ARM HEAD CAP INFO

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98. CHARGE WITH REFRIGERANT INFO

99. ADD ENGINE COOLANT (for 2ZR-FE) INFO

100. ADD ENGINE COOLANT (for 2AZ-FE) INFO

101. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

102. INSPECT FOR COOLANT LEAK (for 2ZR-FE) INFO

103. INSPECT FOR COOLANT LEAK (for 2AZ-FE) INFO

104. INSPECT STEERING PAD INFO

105. INSPECT SRS WARNING LIGHT

INFO

106. WARM UP ENGINE INFO

107. INSPECT FOR REFRIGERANT LEAK INFO



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Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000TS6031X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): IG Power Source Circuit (2010 Corolla)		

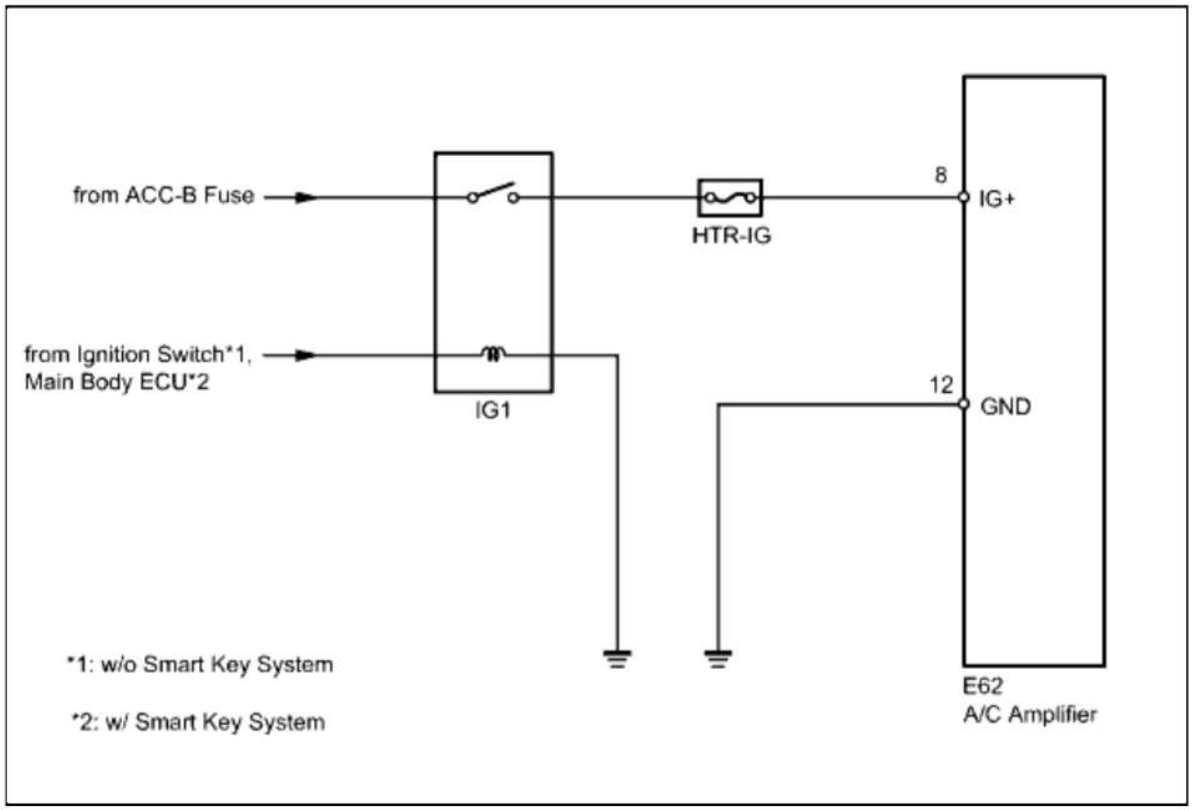
IG Power Source Circuit

DESCRIPTION

The main power source is supplied to the A/C amplifier when the ignition switch is turned to ON.

The power source is used for operating the A/C amplifier and servo motor, etc.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Start the engine before inspection. Check the IG1 relay or battery if the engine does not start.

PROCEDURE

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1.	INSPECT FUSE (HTR-IG)

(a) Remove the HTR-IG fuse from the instrument panel junction block.

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

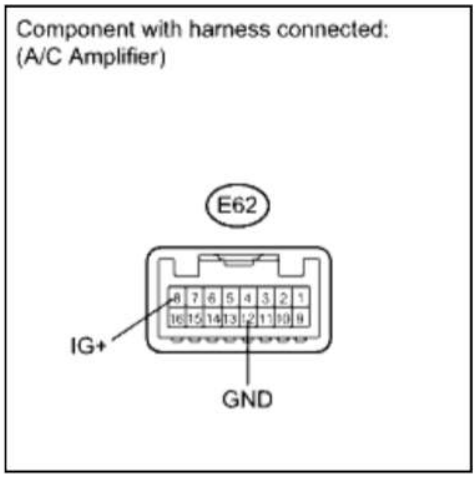
Standard Resistance:

TEST ITEM	CONDITION	SPECIFIED CONDITION
HTR-IG fuse	Always	Below 1 Ω

NG ▶ **REPLACE FUSE (HTR-IG)**

OK ▼

2.	INSPECT AIR CONDITIONING AMPLIFIER (IG+ - GND)



(a) Remove the A/C amplifier with the connectors still connected.

(b) Turn the ignition switch to ON.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

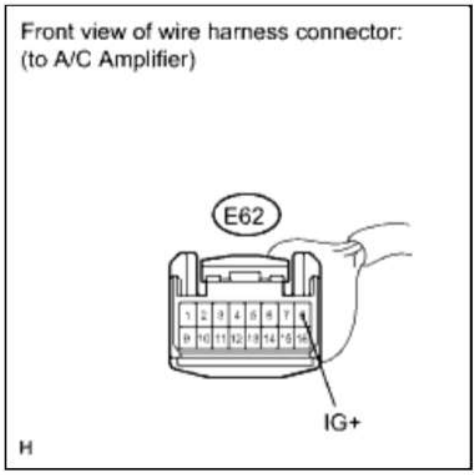
TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E62-8 (IG+) - E62-12 (GND)	Ignition switch ON	11 to 14 V

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NG ▶ **CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER - BATTERY)**

OK ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

3.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER - BATTERY)**



(a) Disconnect the connector from the A/C amplifier.

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E62-8 (IG+) - Body ground	Ignition switch off	Below 1 V
	Ignition switch ON	11 to 14 V

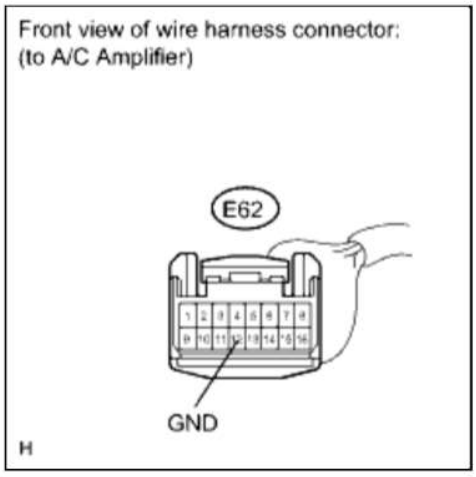
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

4.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER - BODY GROUND)**

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

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Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E62-12 (GND) - Body ground	Always	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

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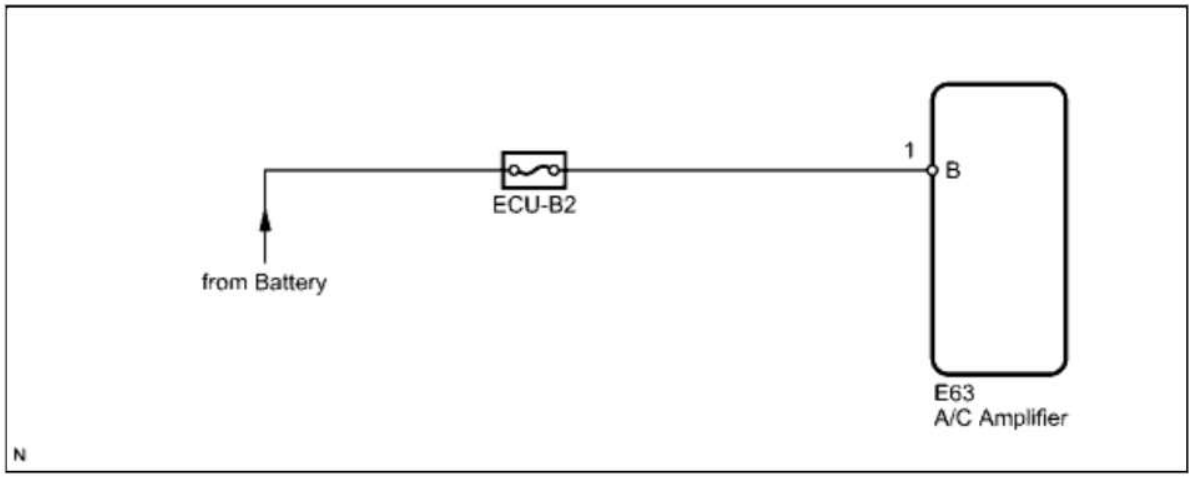
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000TS702HX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): Back-up Power Source Circuit (2010 Corolla)		

Back-up Power Source Circuit

DESCRIPTION

The back-up power source circuit for the A/C amplifier is shown below. Power used for DTC memory etc is supplied even when the ignition switch is off.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	**INSPECT FUSE (ECU-B2)**

(a) Remove the ECU-B2 fuse from the engine room relay block and junction block.

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

Standard Resistance:

TEST ITEM	CONDITION	SPECIFIED CONDITION
ECU-B2 fuse	Always	Below 1 Ω

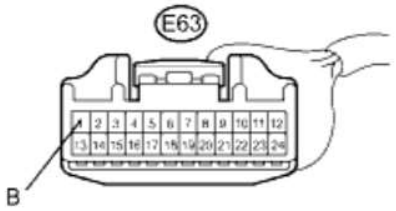
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NG ▶ **REPLACE FUSE (ECU-B2)**

OK ▼

2.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER - BODY GROUND)**

Front view of wire harness connector:
(to A/C Amplifier)



(a) Disconnect the connector from the A/C amplifier.

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E63-1 (B) - Body ground	Always	11 to 14 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

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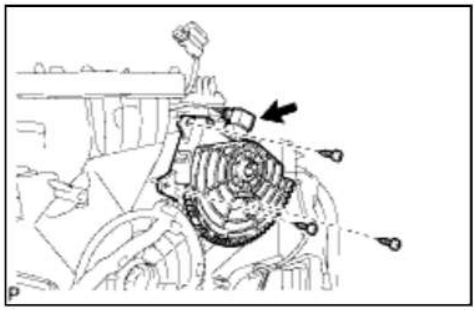
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLX01UX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: DISASSEMBLY (2010 Corolla)		

DISASSEMBLY

1. REMOVE IMMOBILISER CODE ECU (w/ Smart Key System) INFO

2. REMOVE TRANSPONDER KEY ECU (w/o Smart Key System) INFO

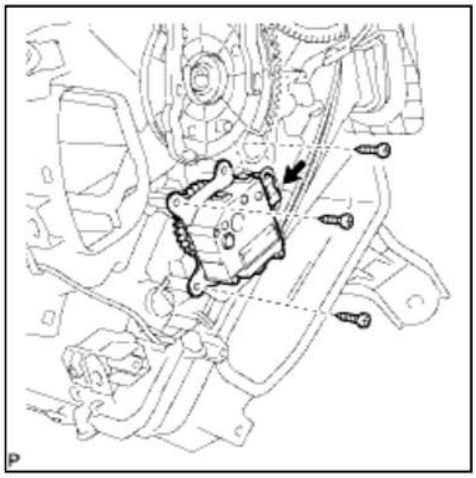
3. REMOVE AIR OUTLET CONTROL SERVO MOTOR (for Automatic Air Conditioning System)



(a) Disconnect the connector.

(b) Remove the 3 screws and the air outlet control servo motor.

4. REMOVE AIR MIX CONTROL SERVO MOTOR (for TMC Made with Automatic Air Conditioning System)

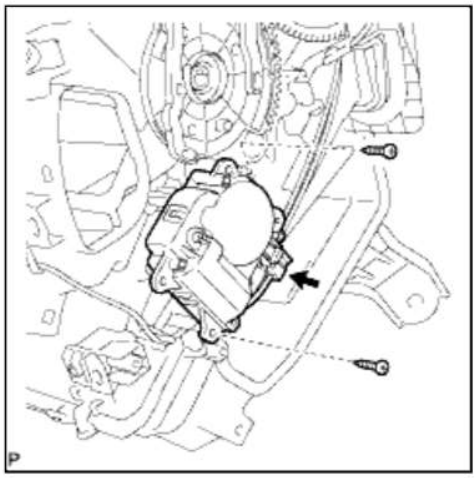


(a) Disconnect the connector.

(b) Remove the 3 screws and the air mix control servo motor.

5. REMOVE AIR MIX CONTROL SERVO MOTOR (for TMMC, NUMMI Made with Automatic Air Conditioning System)

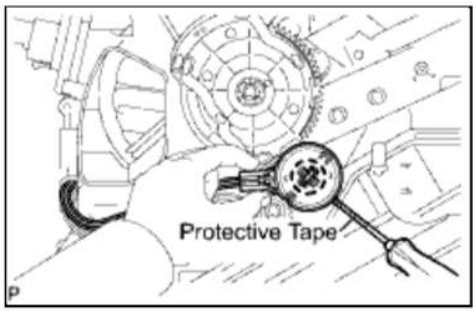
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(a) Disconnect the connector.

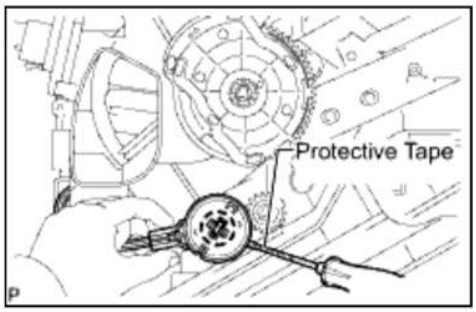
(b) Remove the 2 screws and the air mix control servo motor.

6. REMOVE NO. 2 HEATER CONTROL CABLE SUB-ASSEMBLY (for Manual Air Conditioning System)



(a) Using a screwdriver with the tip taped, disengage the claw and remove the No. 2 heater control cable sub-assembly.

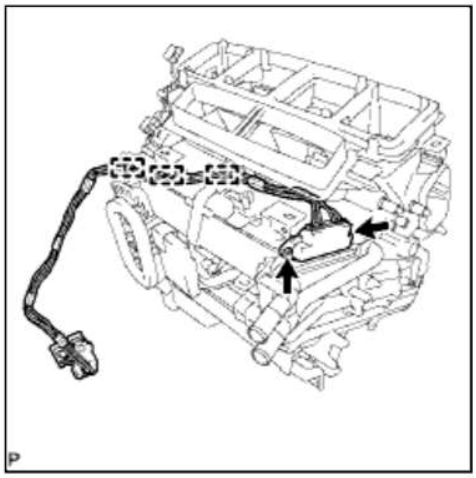
7. REMOVE AIR MIX DAMPER CONTROL CABLE SUB-ASSEMBLY (for Manual Air Conditioning System)



(a) Using a screwdriver with the tip taped, disengage the claw and remove the air mix damper control cable sub-assembly.

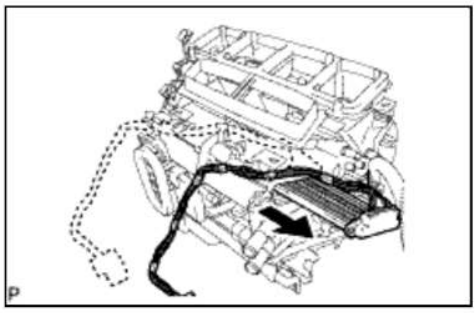
8. REMOVE QUICK HEATER ASSEMBLY (w/ PTC Heater)

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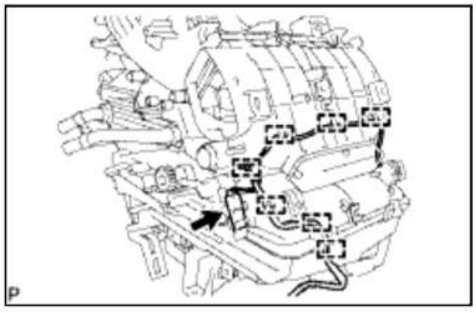
(a) Disengage each clamp.

(b) Remove the 2 screws.



(c) Remove the quick heater assembly as shown in the illustration.

9. REMOVE AIR CONDITIONING HARNESS ASSEMBLY (for Automatic Air Conditioning System)



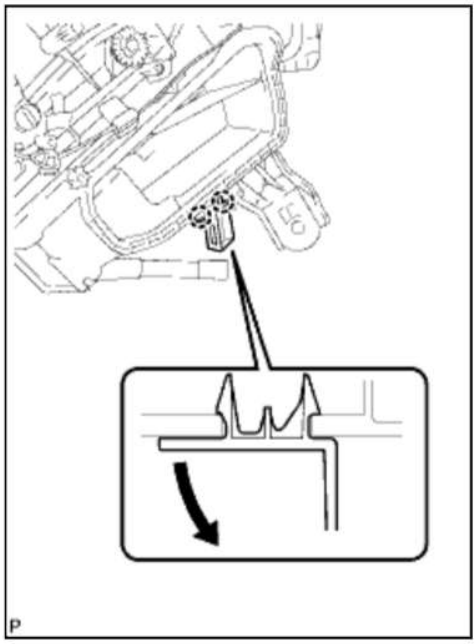
(a) Disconnect the connector.

(b) Disengage each clamp and remove the air conditioning harness.

10. REMOVE CONSOLE MOUNTING BRACKET RH

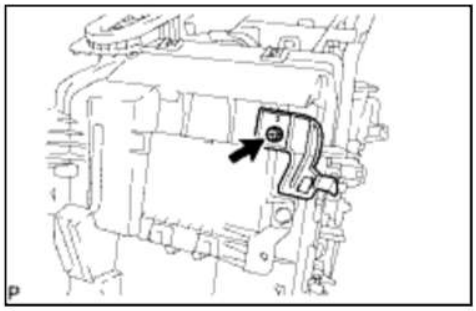
(a) Disengage the 2 claws and remove the console mounting

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bracket RH as shown in the illustration.

11. REMOVE CONSOLE MOUNTING BRACKET LH



(a) Remove the screw and the console mounting bracket LH.

12. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY

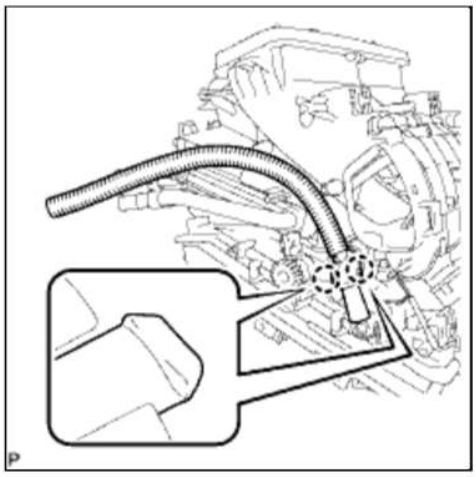
(a) Remove the screw.

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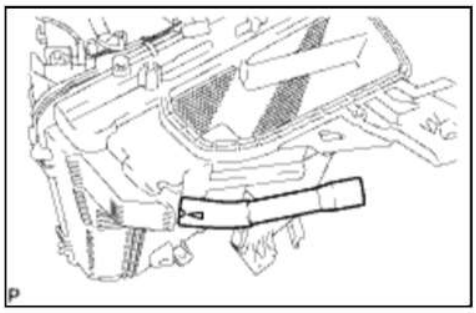
(b) Disengage the claw and remove the air conditioning amplifier assembly as shown in the illustration.

13. REMOVE AIR CONDITIONING DUCT SUB-ASSEMBLY (for Automatic Air Conditioning System)



(a) Disengage the 2 claws and remove the air conditioning duct sub-assembly.

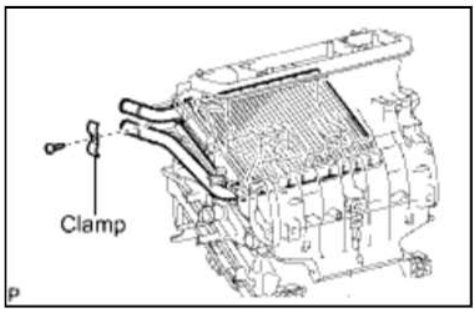
14. REMOVE DRAIN COOLER HOSE



(a) Remove the drain cooler hose from the air conditioning radiator assembly.

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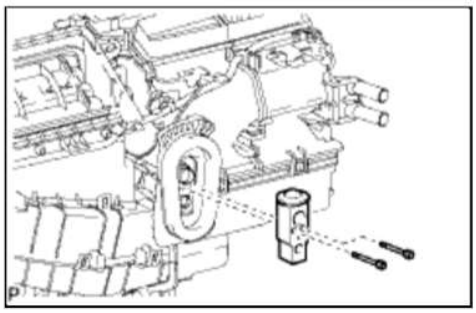
15. REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY



(a) Remove the screw and the clamp.

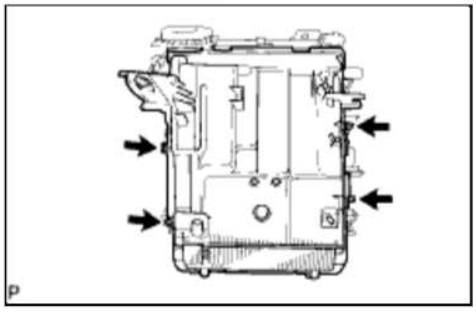
(b) Remove the heater radiator unit sub-assembly from the air conditioning unit assembly.

16. REMOVE COOLER EXPANSION VALVE



(a) Using a 4 mm hexagon wrench, remove the 2 hexagon bolts and cooler expansion valve.

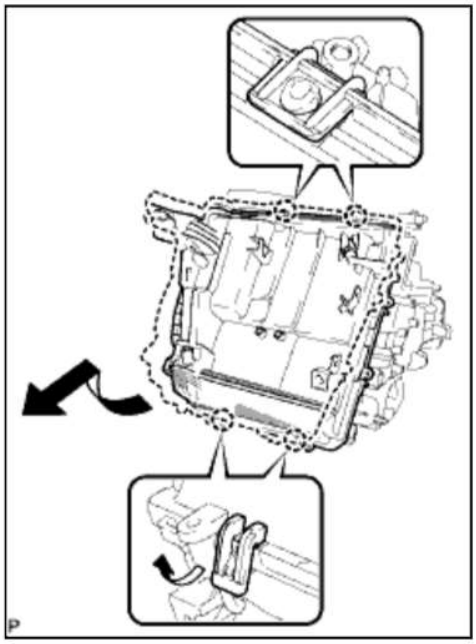
17. REMOVE NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY

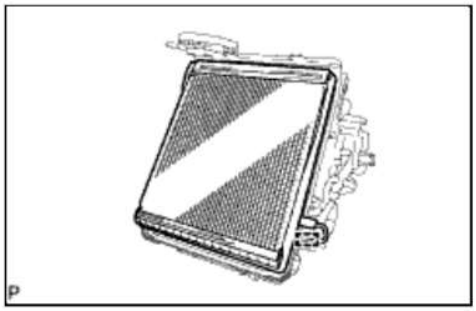


(a) Remove the 4 screws.

(b) Disengage the 4 claws and remove the lower heater case.

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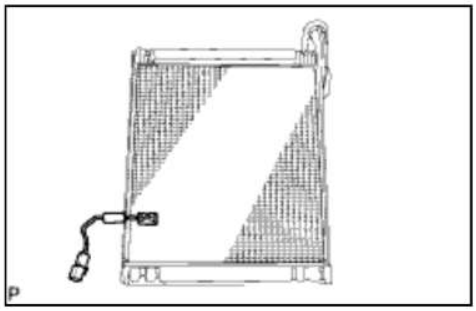




(c) Disengage the clamp, and remove the No. 1 cooler evaporator sub-assembly together with the No. 1 cooler thermistor.

(d) Remove the 2 O-rings.

18. REMOVE NO. 1 COOLER THERMISTOR



(a) Remove the No. 1 cooler thermistor from the No. 1 cooler evaporator sub-assembly.

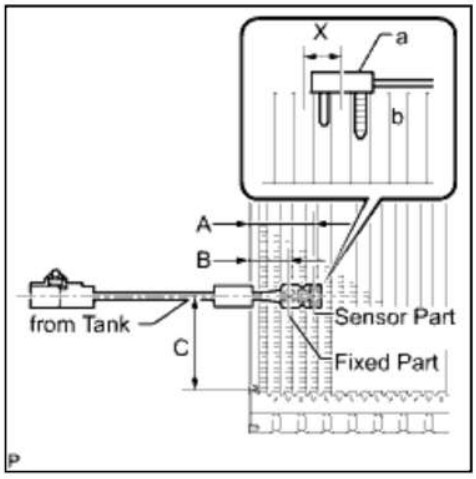
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLY01UX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING UNIT: REASSEMBLY (2010 Corolla)		

REASSEMBLY

1. INSTALL NO. 1 COOLER THERMISTOR

(a) Install the No. 1 cooler thermistor as shown in the illustration.



PART	LENGTH	
A	34.3 mm	1.35 in.
B	20.9 mm	0.823 in.
C	50 mm	1.96 in.

NOTICE:

- Be sure to insert the thermistor only once because reinserting it will not allow it to be firmly secured.
- When reusing the evaporator, insert the thermistor one row next to the one that has been used previously (X in the illustration).
- After inserting the thermistor, do not apply excessive force to the wire.
- Directly insert the thermistor until the edge of plastic case "a" comes into contact with evaporator "b".

2. INSTALL NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY

(a) Sufficiently apply compressor oil to 2 new O-rings and the fitting surfaces. Install the 2 O-rings to the No. 1 cooler evaporator sub-assembly.

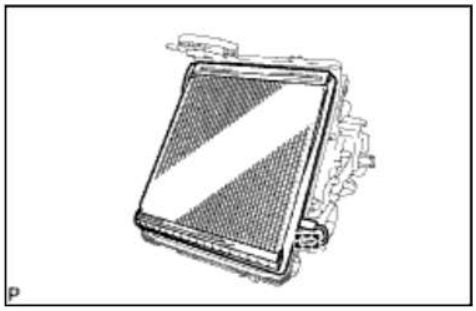
Compressor oil:
ND-OIL 8 or equivalent

NOTICE:

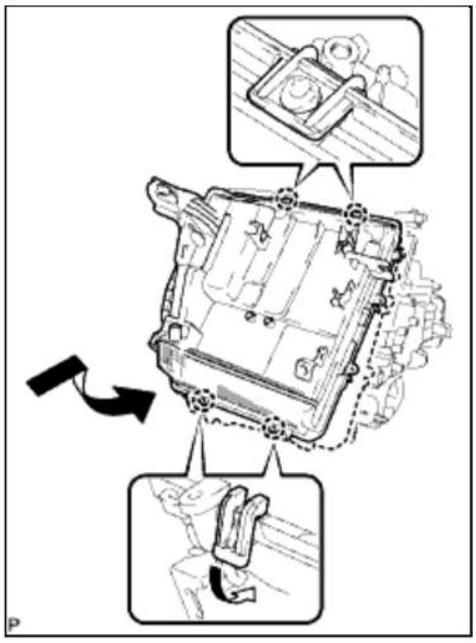
Keep the O-rings and O-ring fitting surfaces clean from dirt or foreign matter.

(b) Install the No. 1 cooler evaporator sub-assembly together with the No. 1 cooler thermistor as a set.

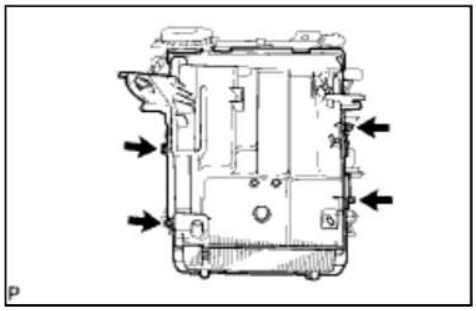
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(c) Engage the clamp.



(d) Engage the 4 claws as shown in the illustration.

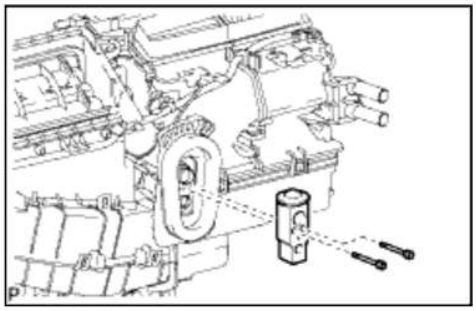


(e) Install the lower heater case with the 4 screws.

3. INSTALL COOLER EXPANSION VALVE

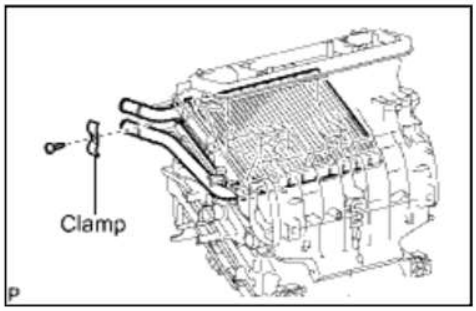
(a) Using a 4 mm hexagon wrench, install the cooler expansion valve with the 2 hexagon bolts.

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Torque: 3.5 N·m (36 kgf·cm, 31in·lbf)

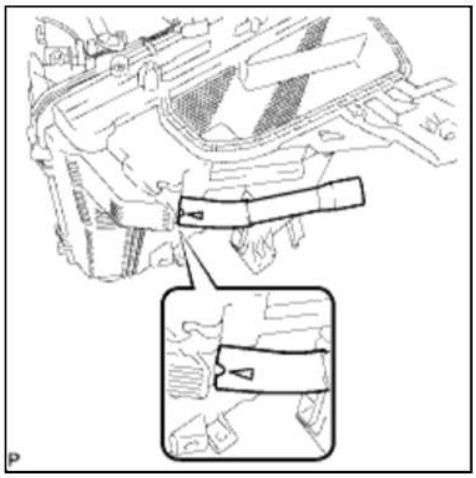
4. INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY



(a) Install the heater radiator unit sub-assembly to the air conditioning unit assembly.

(b) Install the clamp with the screw.

5. INSTALL DRAIN COOLER HOSE

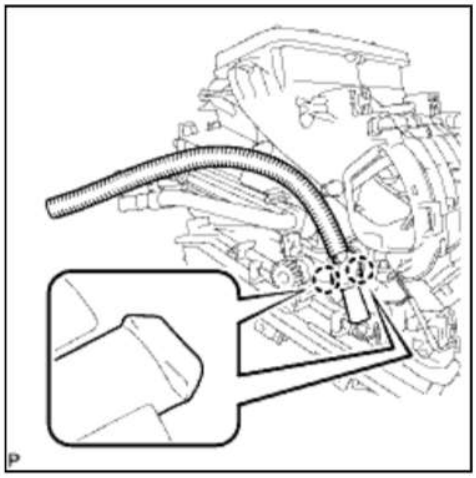


(a) Install the drain cooler hose to the air conditioning unit assembly.

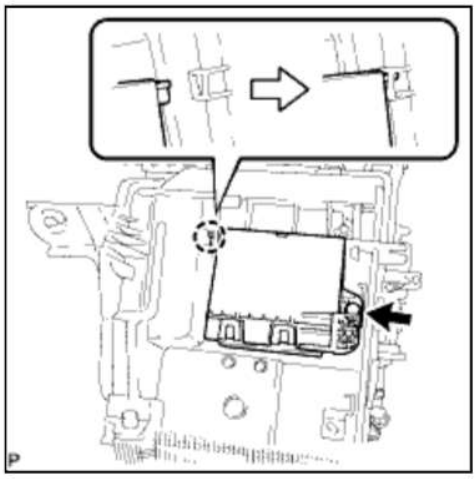
6. INSTALL AIR CONDITIONING DUCT SUB-ASSEMBLY (for Automatic Air Conditioning System)

(a) Engage the 2 claws and install the air conditioning duct sub-assembly.

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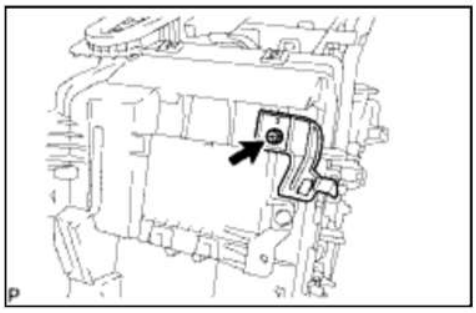
7. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY



(a) Engage the claw.

(b) Install the air conditioning amplifier assembly with the screw.

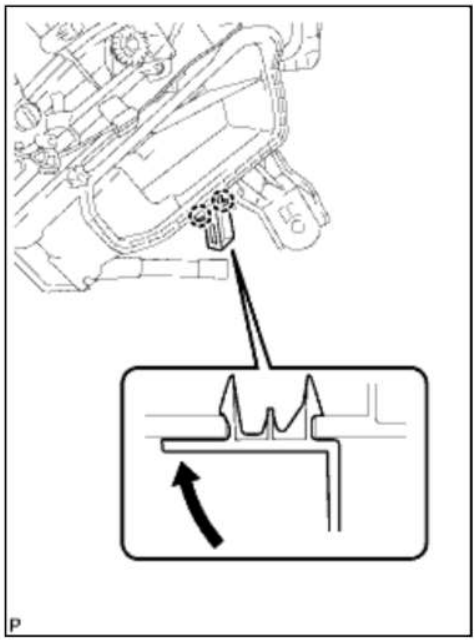
8. INSTALL CONSOLE MOUNTING BRACKET LH



(a) Install the console mounting bracket LH with the screw.

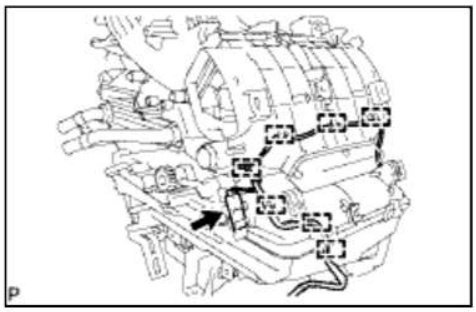
9. INSTALL CONSOLE MOUNTING BRACKET RH

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(a) Engage the 2 claws and install the console mounting bracket RH as shown in the illustration.

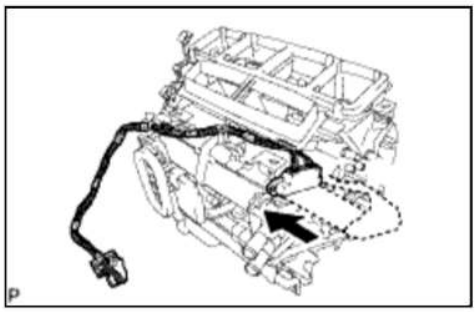
10. INSTALL AIR CONDITIONING HARNESS ASSEMBLY (for Automatic Air Conditioning System)



(a) Connect the connector.

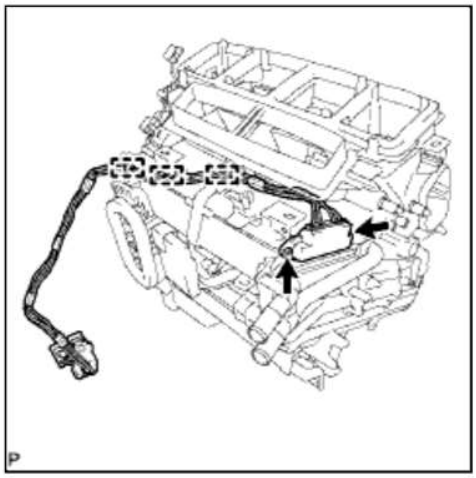
(b) Engage each clamp and install the air conditioning harness assembly.

11. INSTALL QUICK HEATER ASSEMBLY (w/ PTC Heater)



(a) Install the quick heater assembly as shown in the illustration.

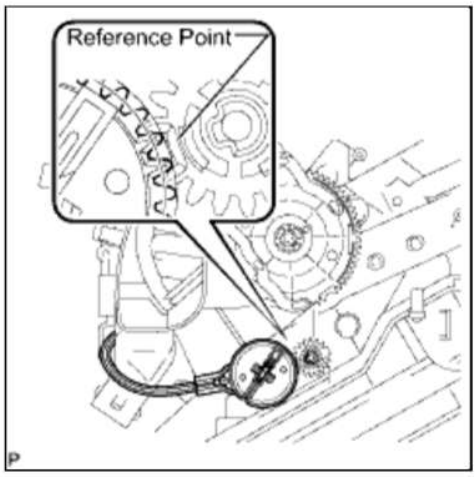
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(b) Install the 2 screws.

(c) Engage each clamp.

12. INSTALL AIR MIX DAMPER CONTROL CABLE SUB-ASSEMBLY (for Manual Air Conditioning System)

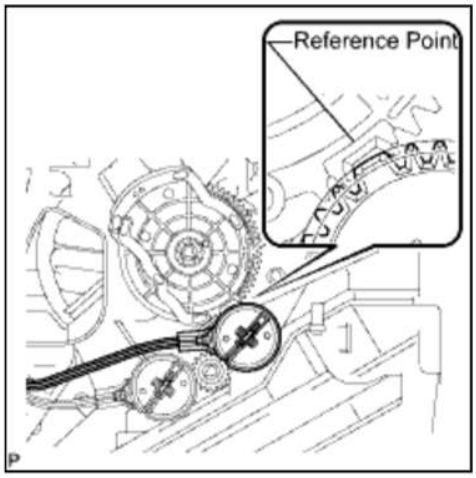


(a) Position the gear of the air mix damper control cable sub-assembly and the unit gear as shown in the illustration, and install the air mix damper control cable sub-assembly.

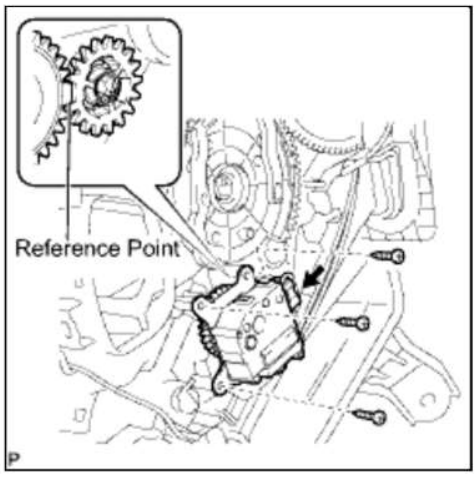
13. INSTALL NO. 2 HEATER CONTROL CABLE SUB-ASSEMBLY (for Manual Air Conditioning System)

(a) Position the gear of the No. 2 heater control cable sub-assembly and the unit link as shown in the illustration, and install the No. 2 heater control cable sub-assembly.

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14. INSTALL AIR MIX CONTROL SERVO MOTOR (for TMC Made with Automatic Air Conditioning System)



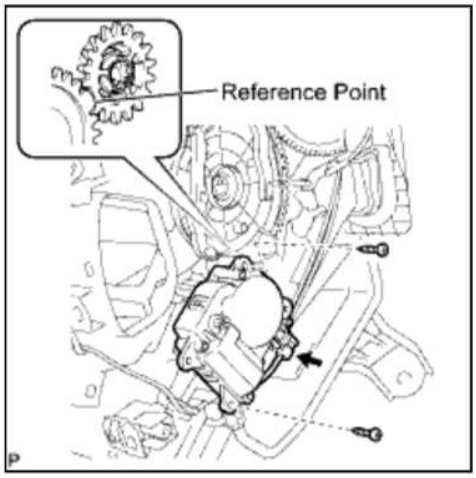
(a) Using the reference point, install the air mix control servo motor with the 3 screws.

(b) Connect the connector.

15. INSTALL AIR MIX CONTROL SERVO MOTOR (for TMMC, NUMMI Made with Automatic Air Conditioning System)

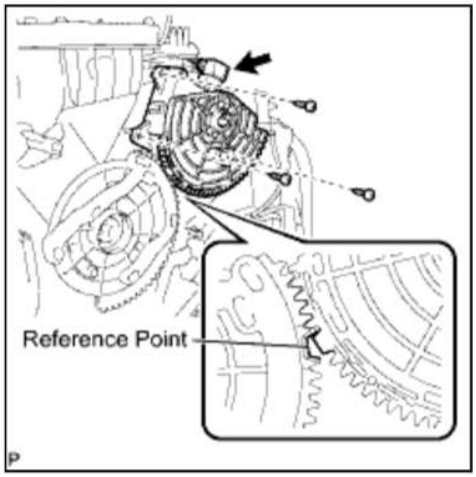
(a) Using the reference point, install the air mix control servo motor with the 2 screws.

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(b) Connect the connector.

16. INSTALL AIR OUTLET CONTROL SERVO MOTOR (for Automatic Air Conditioning System)



(a) Using the reference point, install the air outlet control servo motor with the 3 screws.

(b) Connect the connector.

17. INSTALL IMMOBILISER CODE ECU (w/ Smart Key System) INFO

18. INSTALL TRANSPONDER KEY ECU (w/o Smart Key System) INFO

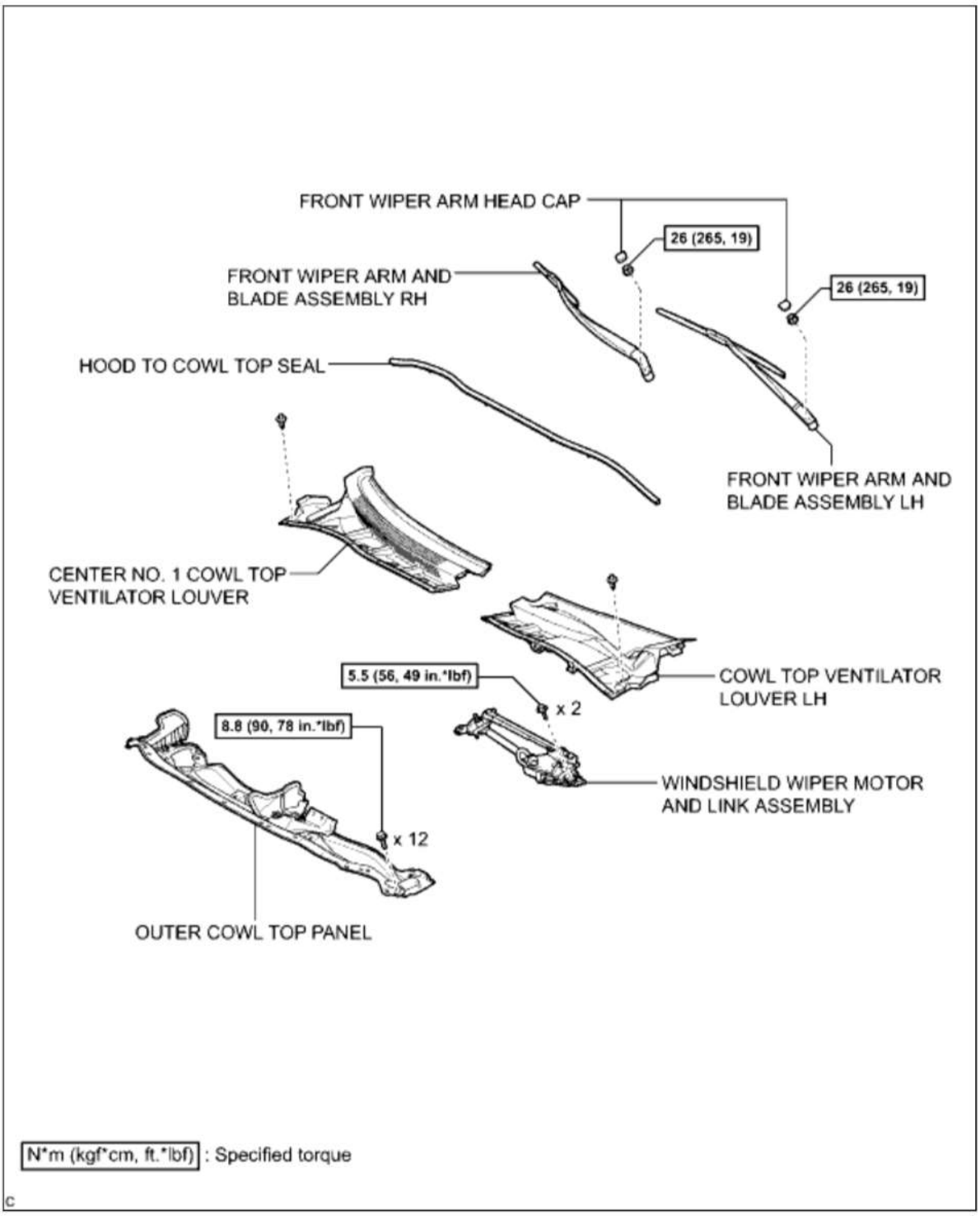
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXJ001X
Title: HEATING / AIR CONDITIONING: AIR INLET CONTROL SERVO MOTOR: COMPONENTS (2010 Corolla)		

COMPONENTS

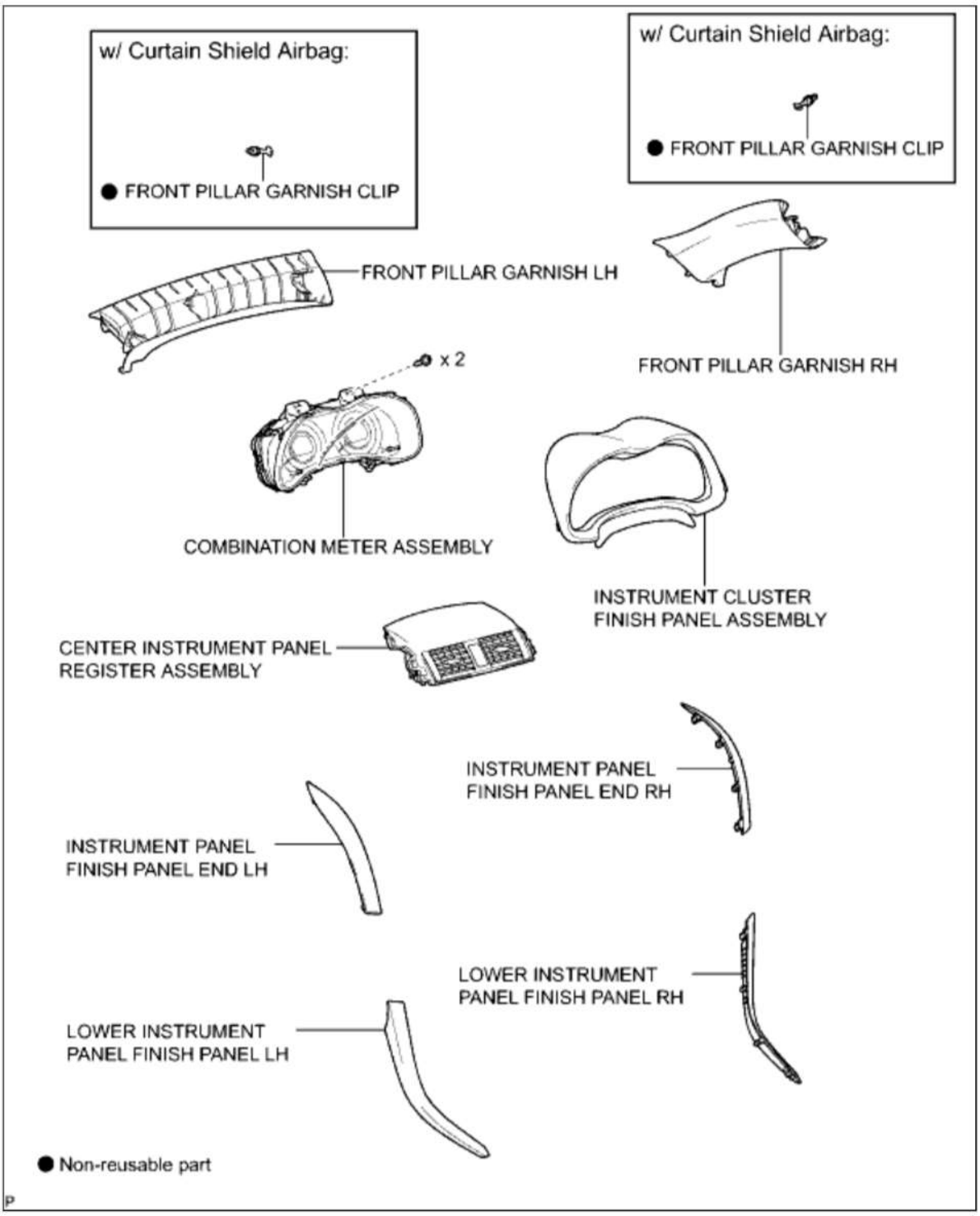
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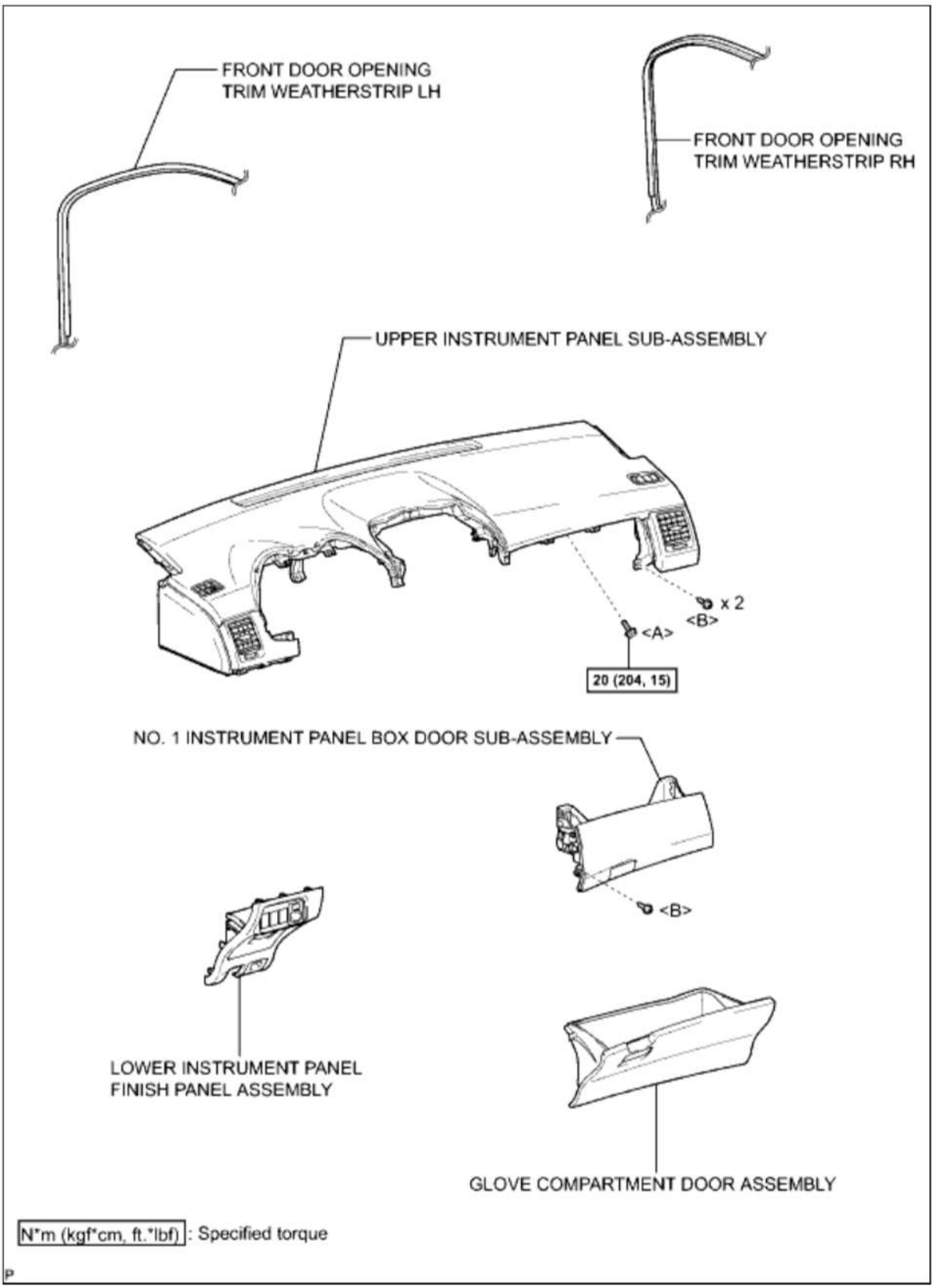
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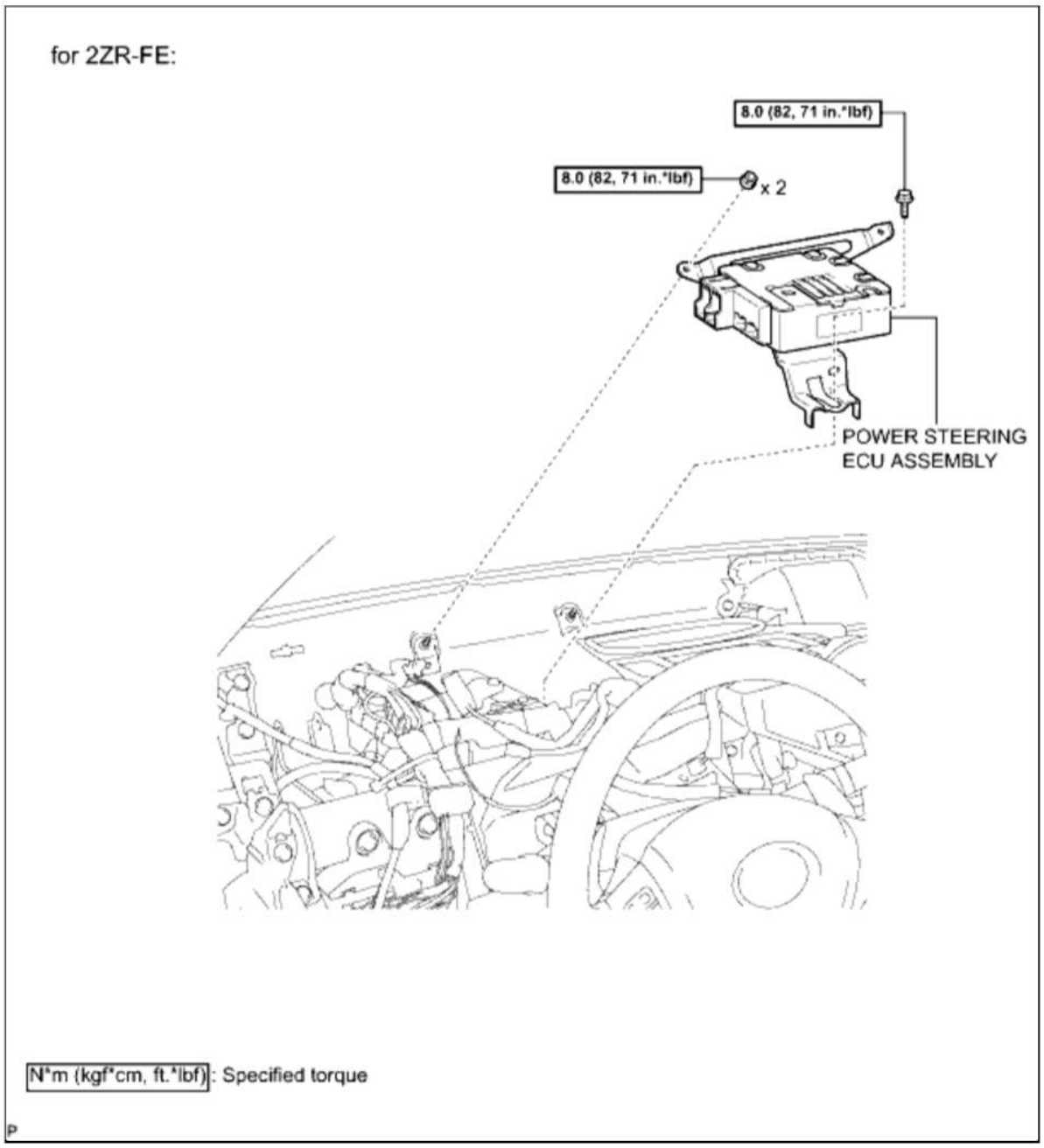
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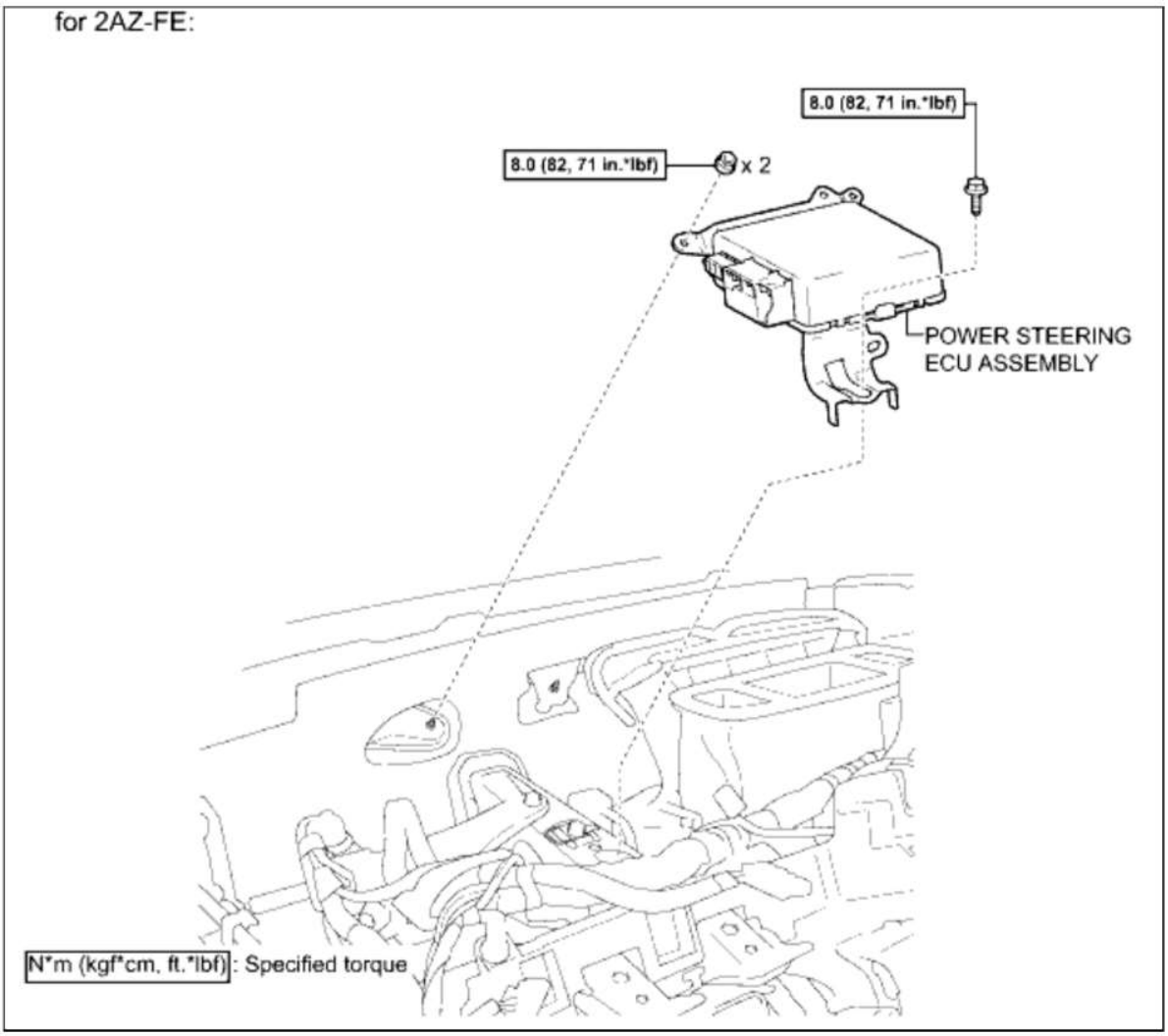
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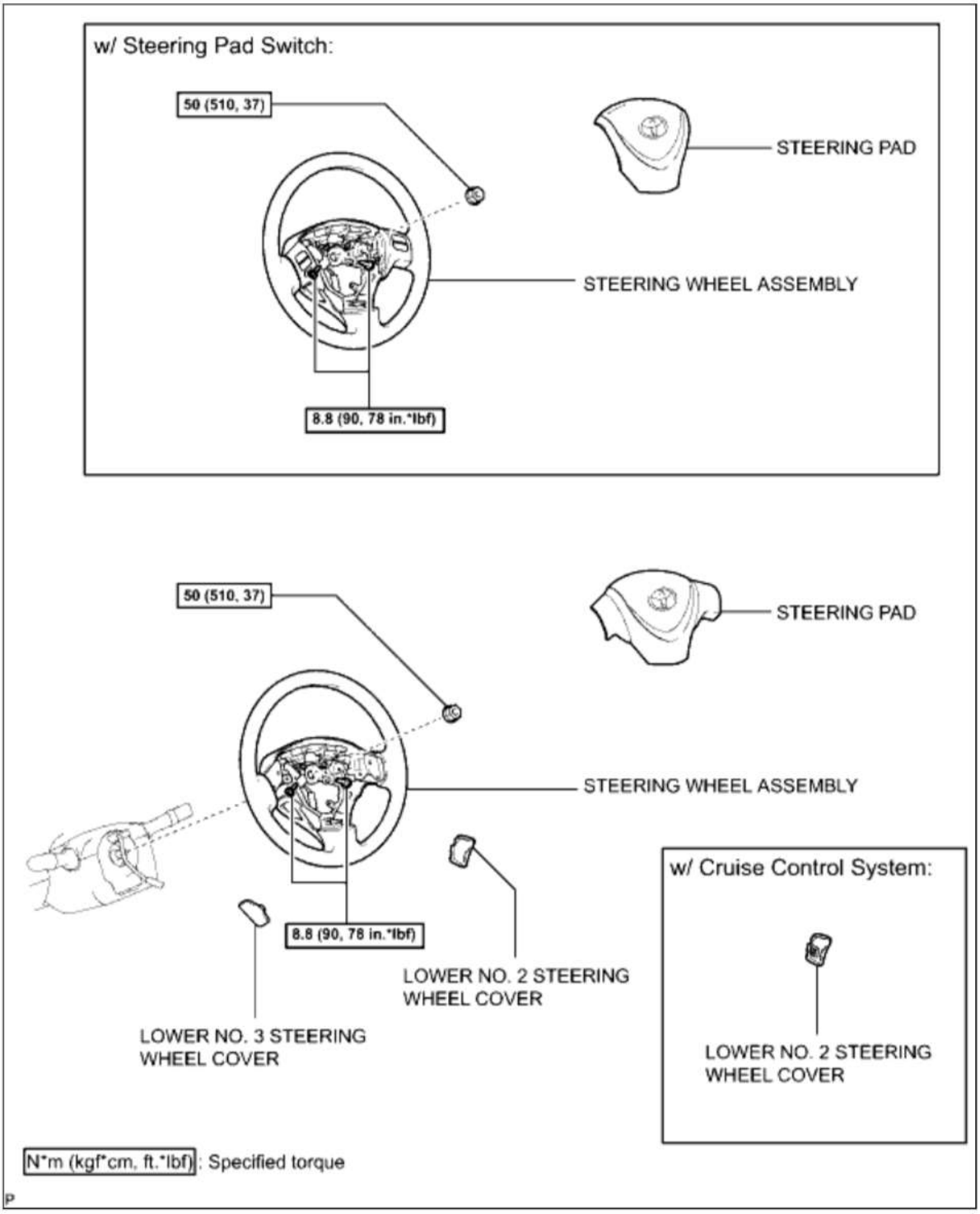
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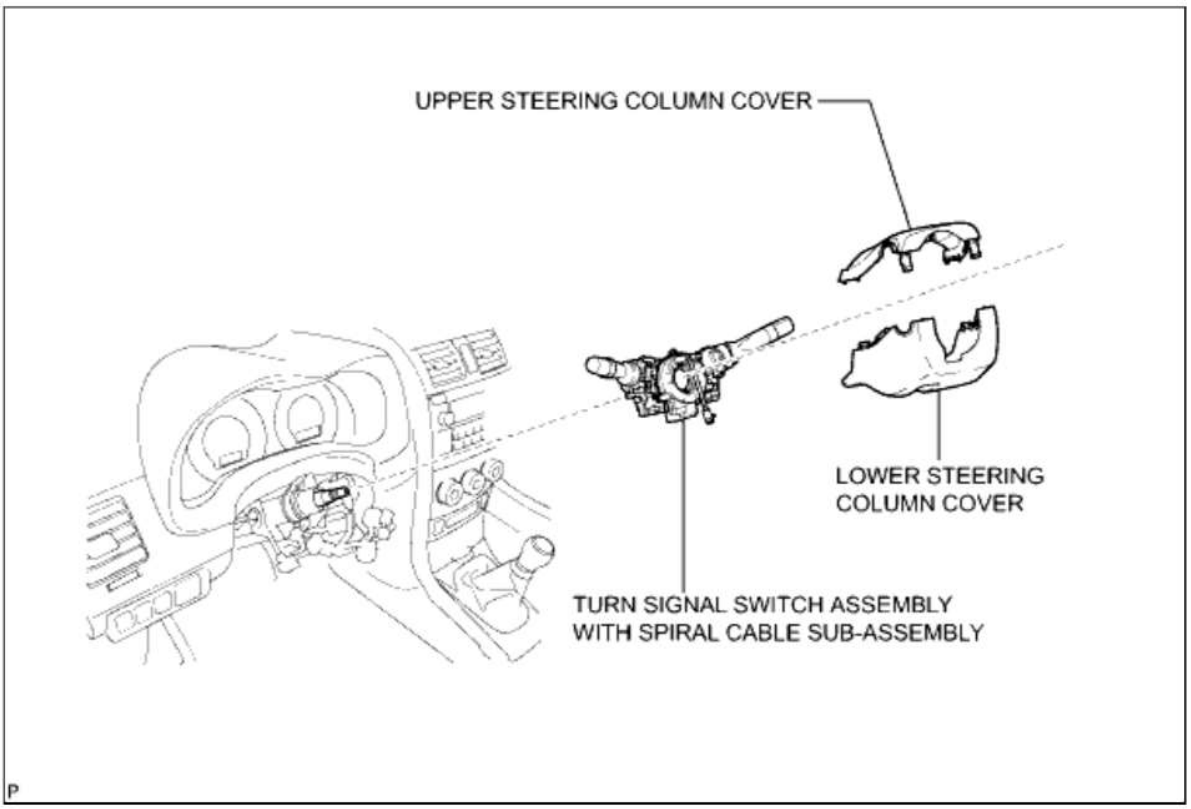
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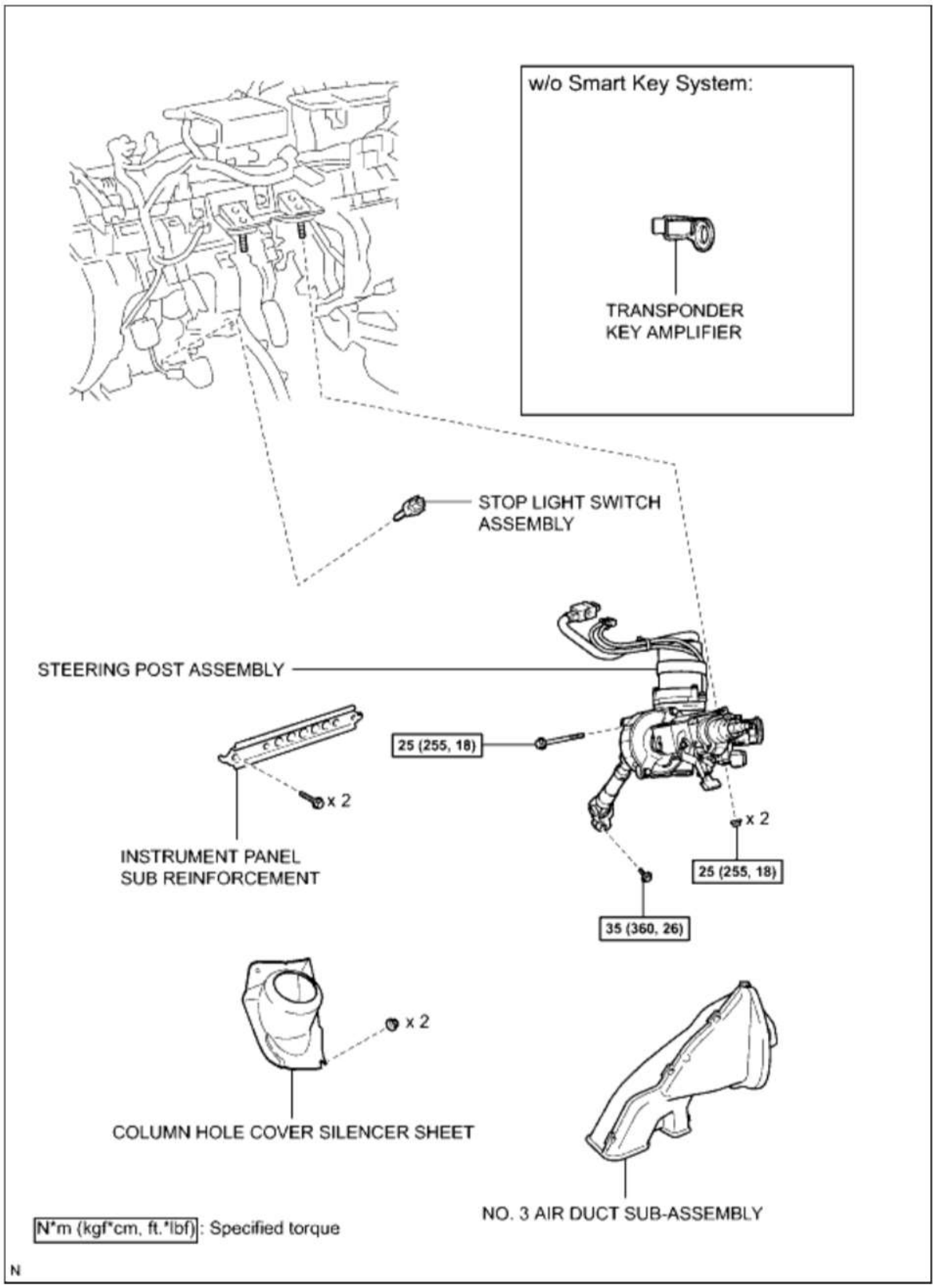
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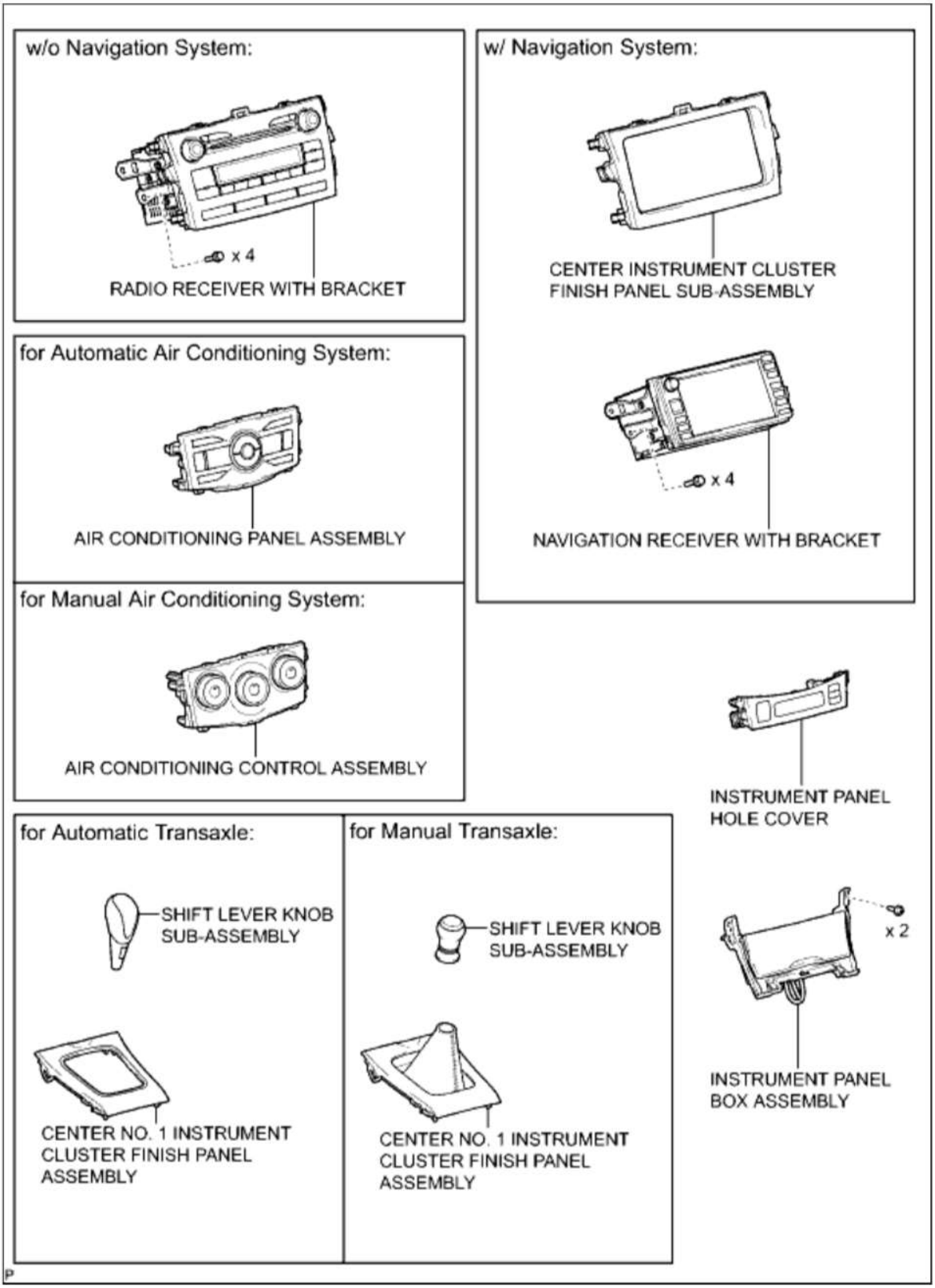
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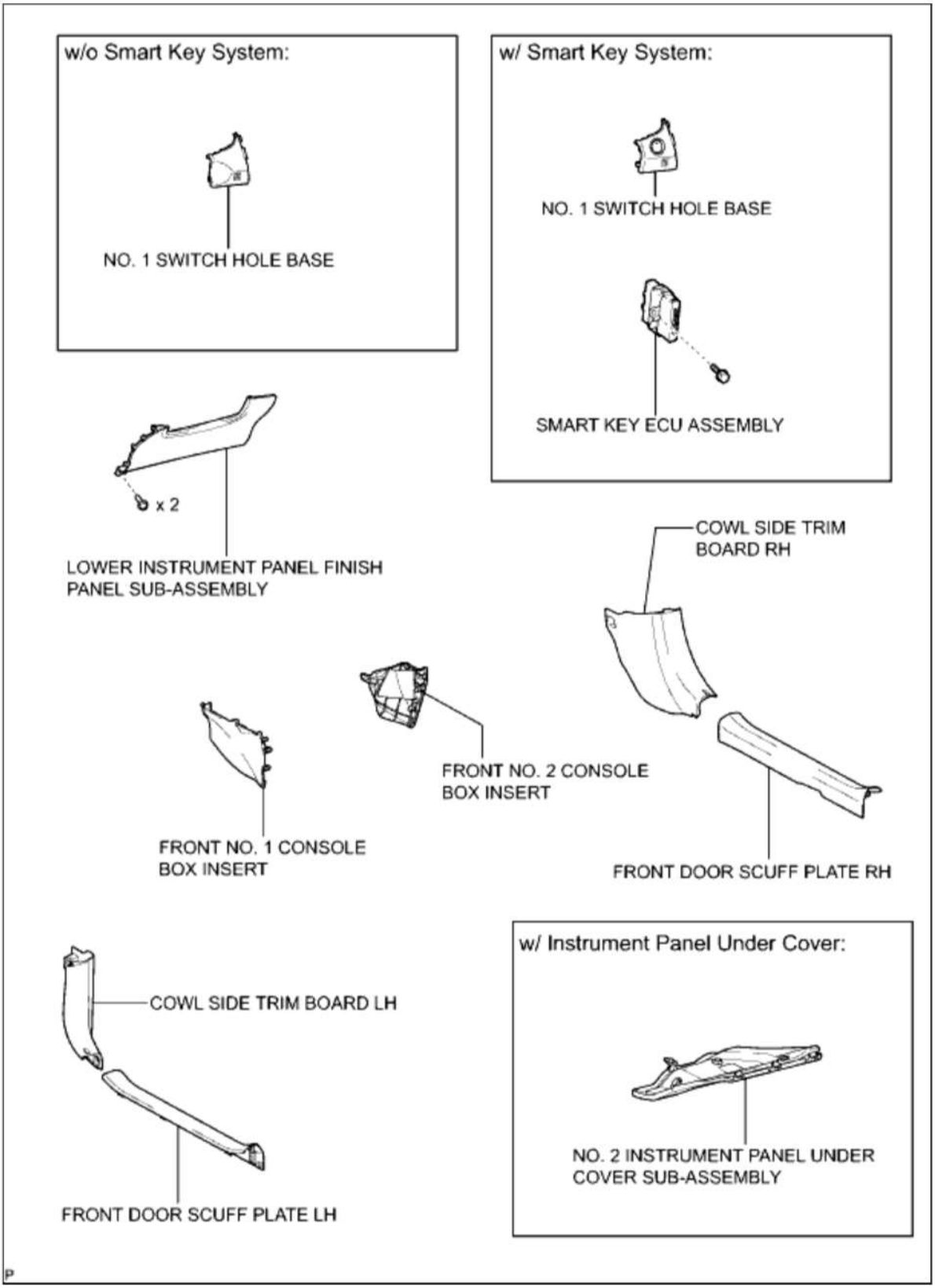
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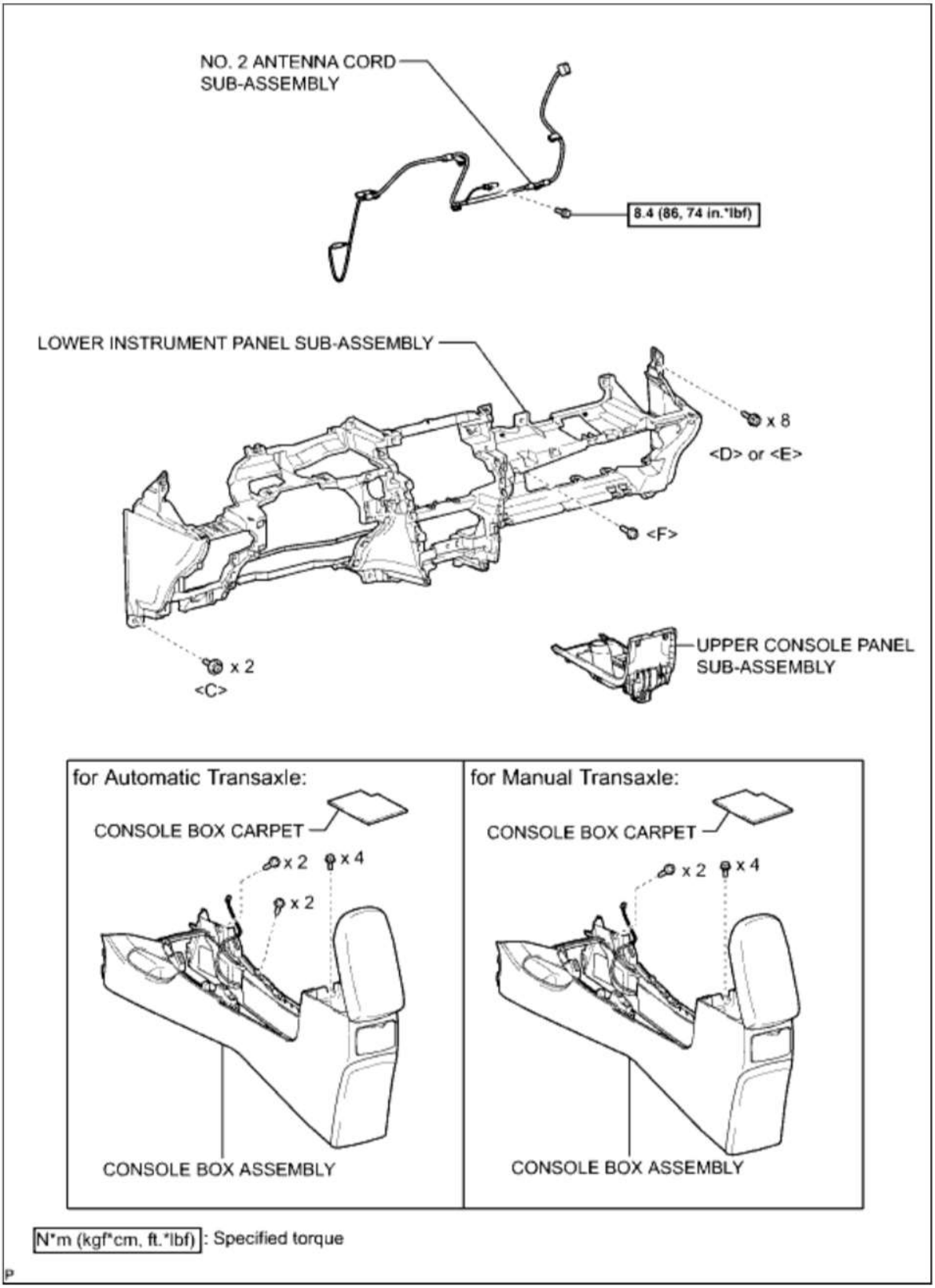
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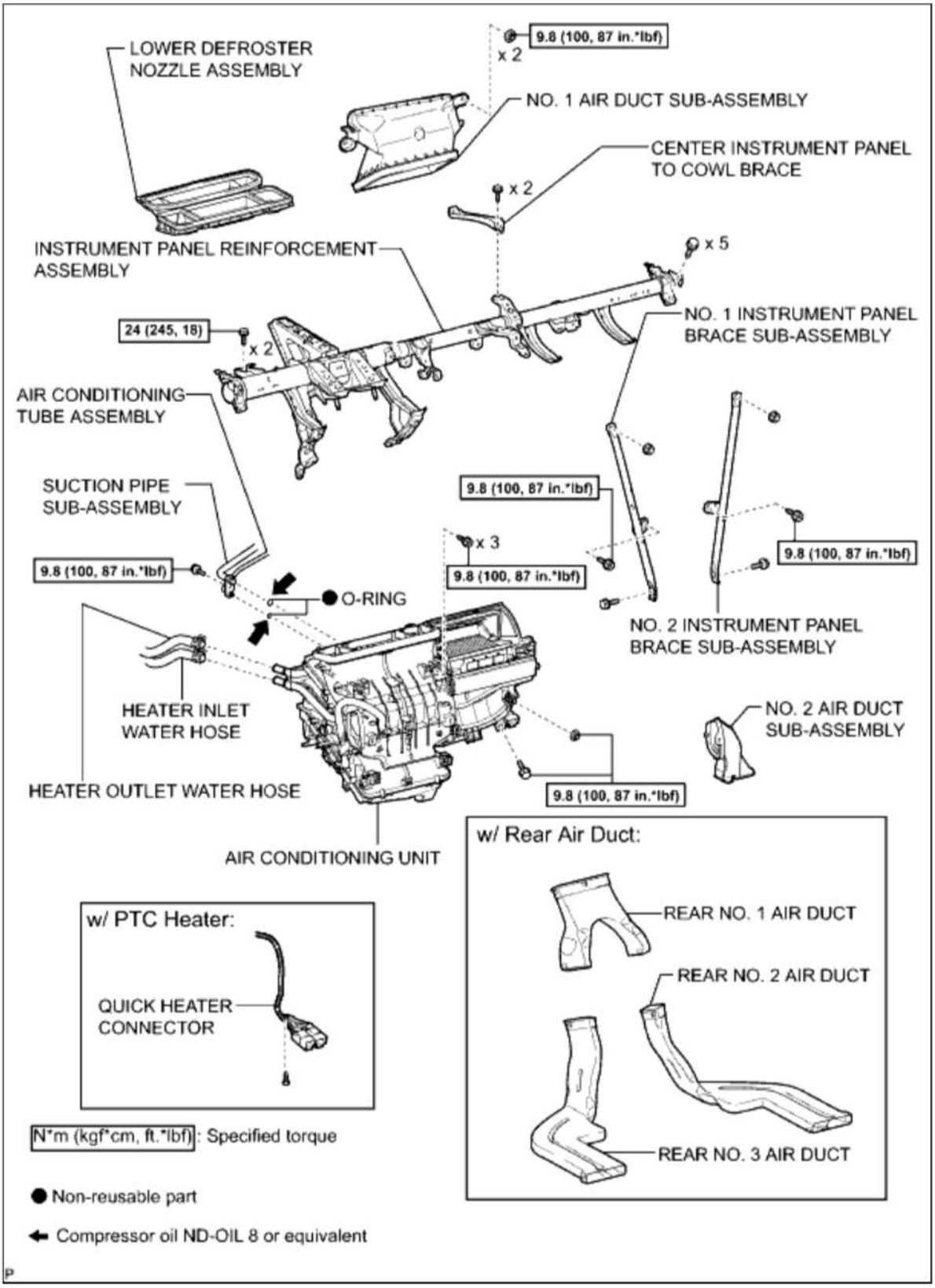
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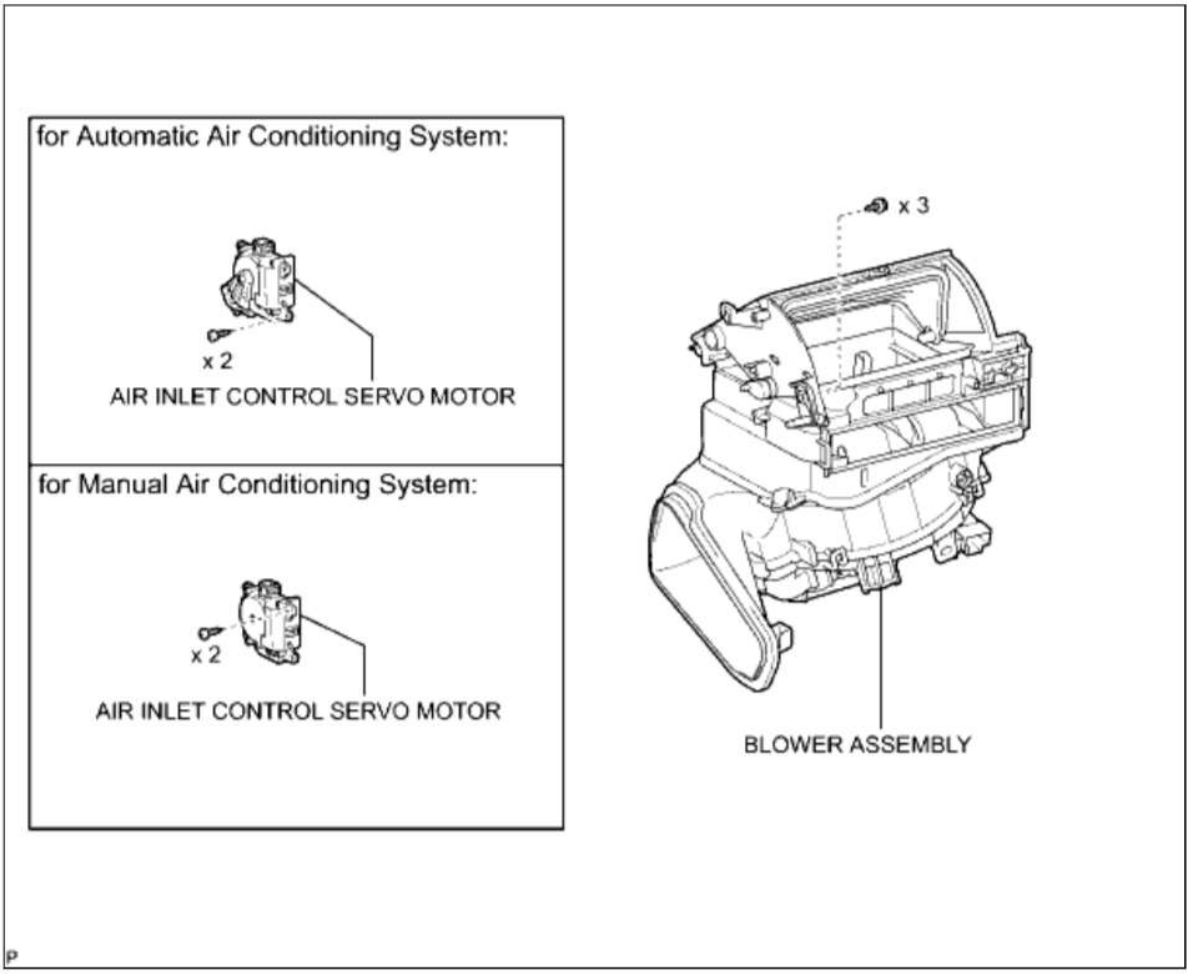
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLW0A9X
Title: HEATING / AIR CONDITIONING: AIR INLET CONTROL SERVO MOTOR: REMOVAL (2010 Corolla)		

REMOVAL

1. PRECAUTION

INFO

2. ALIGN FRONT WHEELS FACING STRAIGHT AHEAD

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

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

HINT:

Before disconnecting the cable, set the air conditioning control switch to DEF-MODE. (for Automatic Air Conditioning System)

4. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

5. REMOVE FRONT WIPER ARM HEAD CAP INFO

6. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

7. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

8. REMOVE HOOD TO COWL TOP SEAL INFO

9. REMOVE CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

10. REMOVE COWL TOP VENTILATOR LOUVER LH INFO

11. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

12. REMOVE OUTER COWL TOP PANEL (for TMC Made) INFO

13. REMOVE OUTER COWL TOP PANEL (except TMC Made) INFO

14. DISCONNECT SUCTION PIPE SUB-ASSEMBLY INFO

15. DISCONNECT AIR CONDITIONING TUBE ASSEMBLY INFO

16. DISCONNECT HEATER WATER HOSE OUTLET INFO

17. DISCONNECT HEATER WATER HOSE INLET INFO

18. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

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19. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO
20. REMOVE INSTRUMENT PANEL FINISH PANEL END LH INFO
21. REMOVE INSTRUMENT PANEL FINISH PANEL END RH INFO
22. REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO
23. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO
24. REMOVE COMBINATION METER ASSEMBLY INFO
25. REMOVE FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO
26. REMOVE FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO
27. REMOVE FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO
28. REMOVE FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO
29. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO
30. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO
31. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY INFO
32. REMOVE NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO
33. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO
34. DISCONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO
35. REMOVE UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO
36. REMOVE POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO
37. REMOVE POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO
38. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO
39. REMOVE LOWER NO. 3 STEERING WHEEL COVER INFO
40. REMOVE LOWER NO. 2 STEERING WHEEL COVER INFO
41. REMOVE STEERING PAD INFO
42. REMOVE STEERING WHEEL ASSEMBLY INFO
43. REMOVE LOWER STEERING COLUMN COVER INFO
44. REMOVE UPPER STEERING COLUMN COVER INFO
45. REMOVE TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO

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46. REMOVE COLUMN HOLE COVER SILENCER SHEET INFO

47. SEPARATE NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO

48. REMOVE INSTRUMENT PANEL SUB REINFORCEMENT INFO

49. REMOVE NO. 3 AIR DUCT SUB-ASSEMBLY INFO

50. REMOVE TRANSPONDER KEY AMPLIFIER (w/ Smart Key System) INFO

51. REMOVE STOP LIGHT SWITCH ASSEMBLY INFO

52. REMOVE STEERING POST ASSEMBLY (for 2ZR-FE) INFO

53. REMOVE STEERING POST ASSEMBLY (for 2AZ-FE) INFO

54. REMOVE RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

55. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

56. REMOVE NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

57. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

58. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

59. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

60. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

61. REMOVE INSTRUMENT PANEL BOX ASSEMBLY INFO

62. REMOVE INSTRUMENT PANEL HOLE COVER INFO

63. REMOVE AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System) INFO

64. REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

65. REMOVE FRONT DOOR SCUFF PLATE LH INFO

66. REMOVE COWL SIDE TRIM BOARD LH INFO

67. REMOVE FRONT NO. 1 CONSOLE BOX INSERT INFO

68. REMOVE NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

69. REMOVE NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

70. REMOVE FRONT DOOR SCUFF PLATE RH INFO

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71. REMOVE COWL SIDE TRIM BOARD RH INFO

72. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

73. REMOVE FRONT NO. 2 CONSOLE BOX INSERT INFO

74. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

75. REMOVE CONSOLE BOX CARPET INFO

76. REMOVE CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

77. REMOVE CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

78. REMOVE NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

79. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

80. REMOVE SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

81. REMOVE NO. 1 AIR DUCT SUB-ASSEMBLY INFO

82. REMOVE LOWER DEFROSTER NOZZLE ASSEMBLY INFO

83. REMOVE CENTER INSTRUMENT PANEL TO COWL BRACE INFO

84. REMOVE REAR NO. 2 AIR DUCT (w/ Rear Air Duct) INFO

85. REMOVE REAR NO. 3 AIR DUCT (w/ Rear Air Duct) INFO

86. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System) INFO

87. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air Conditioning System) INFO

88. REMOVE NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY INFO

89. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct) INFO

90. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System) INFO

91. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air Conditioning System) INFO

92. REMOVE AIR CONDITIONING UNIT INFO

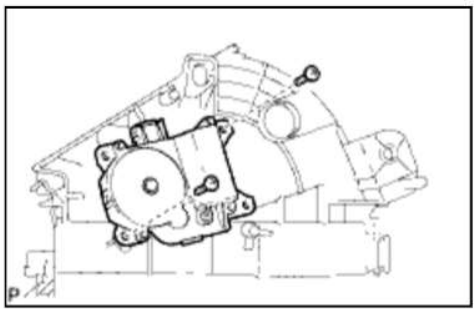
93. REMOVE NO. 2 AIR DUCT SUB-ASSEMBLY INFO

94. REMOVE BLOWER ASSEMBLY (w/o PTC Heater) INFO

95. REMOVE BLOWER ASSEMBLY (w/ PTC Heater) INFO

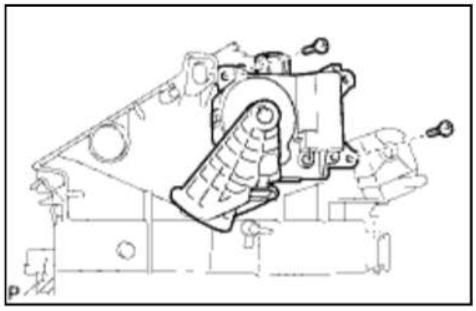
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96. REMOVE AIR INLET CONTROL SERVO MOTOR (for Manual Air Conditioning System)



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

97. REMOVE AIR INLET CONTROL SERVO MOTOR (for Automatic Air Conditioning System)



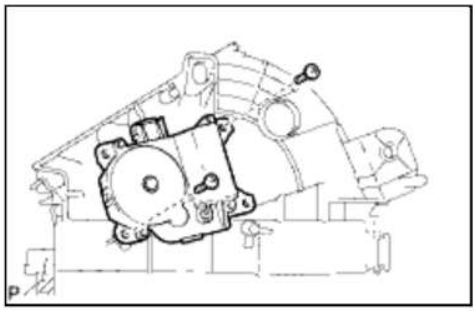
(a) Remove the 2 screws and the air inlet control servo motor.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLU0ACX
Title: HEATING / AIR CONDITIONING: AIR INLET CONTROL SERVO MOTOR: INSTALLATION (2010 Corolla)		

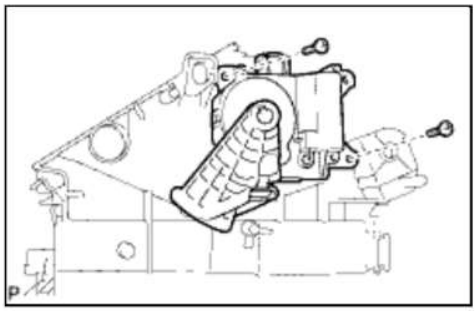
INSTALLATION

1. INSTALL AIR INLET CONTROL SERVO MOTOR (for Manual Air Conditioning System)



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

2. INSTALL AIR INLET CONTROL SERVO MOTOR (for Automatic Air Conditioning System)



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

3. INSTALL BLOWER ASSEMBLY (w/o PTC Heater) INFO

4. INSTALL BLOWER ASSEMBLY (w/ PTC Heater) INFO

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

6. TEMPORARILY TIGHTEN AIR CONDITIONING UNIT INFO

7. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System) INFO

8. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air Conditioning System) INFO

9. INSTALL AIR CONDITIONING UNIT INFO

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10. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct) INFO

11. INSTALL NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY INFO

12. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System) INFO

13. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air Conditioning System) INFO

14. INSTALL REAR NO. 3 AIR DUCT (w/ Rear Air Duct) INFO

15. INSTALL REAR NO. 2 AIR DUCT (w/ Rear Air Duct) INFO

16. INSTALL CENTER INSTRUMENT PANEL TO COWL BRACE INFO

17. INSTALL LOWER DEFROSTER NOZZLE ASSEMBLY INFO

18. INSTALL NO. 1 AIR DUCT SUB-ASSEMBLY INFO

19. INSTALL SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

20. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

21. INSTALL NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

22. INSTALL CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

23. INSTALL CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

24. INSTALL CONSOLE BOX CARPET INFO

25. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

26. INSTALL NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

27. INSTALL NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

28. INSTALL FRONT NO. 1 CONSOLE BOX INSERT INFO

29. INSTALL COWL SIDE TRIM BOARD LH INFO

30. INSTALL FRONT DOOR SCUFF PLATE LH INFO

31. INSTALL FRONT NO. 2 CONSOLE BOX INSERT INFO

32. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

33. INSTALL COWL SIDE TRIM BOARD RH INFO

34. INSTALL FRONT DOOR SCUFF PLATE RH INFO

35. INSTALL AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System)

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INFO

36. INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

37. INSTALL INSTRUMENT PANEL HOLE COVER INFO

38. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

39. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

40. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

41. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

42. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

43. INSTALL RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

44. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

45. INSTALL NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

46. INSTALL STEERING POST ASSEMBLY (for 2ZR-FE) INFO

47. INSTALL STEERING POST ASSEMBLY (for 2AZ-FE) INFO

48. TURN FRONT WHEELS FACING STRAIGHT AHEAD

49. CONNECT NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO

50. INSTALL STOP LIGHT SWITCH ASSEMBLY INFO

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

52. INSTALL INSTRUMENT PANEL SUB REINFORCEMENT INFO

53. INSTALL COLUMN HOLE COVER SILENCER SHEET INFO

54. INSTALL TRANSPONDER KEY AMPLIFIER (w/o Smart Key System) INFO

55. INSTALL TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO

56. INSTALL UPPER STEERING COLUMN COVER INFO

57. INSTALL LOWER STEERING COLUMN COVER INFO

58. TURN FRONT WHEELS FACING STRAIGHT AHEAD

59. ADJUST SPIRAL CABLE INFO

60. INSTALL STEERING WHEEL ASSEMBLY INFO

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61. INSTALL STEERING PAD INFO

62. INSTALL LOWER NO. 3 STEERING WHEEL COVER INFO

63. INSTALL LOWER NO. 2 STEERING WHEEL COVER INFO

64. INSPECT STEERING WHEEL CENTER POINT

65. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO

66. INSTALL POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO

67. INSTALL POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO

68. INSTALL UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO

69. CONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO

70. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO

71. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

72. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO

73. INSTALL NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO

74. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY INFO

75. INSTALL FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO

76. INSTALL FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO

77. INSTALL FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO

78. INSTALL FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO

79. INSTALL COMBINATION METER ASSEMBLY INFO

80. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

81. INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

82. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

83. INSTALL INSTRUMENT PANEL FINISH PANEL END RH INFO

84. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

85. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

86. INSTALL HEATER WATER HOSE OUTLET INFO

87. INSTALL HEATER WATER HOSE INLET INFO

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88. INSTALL AIR CONDITIONING TUBE ASSEMBLY INFO

89. INSTALL SUCTION PIPE SUB-ASSEMBLY INFO

90. INSTALL OUTER COWL TOP PANEL (for TMC Made) INFO

91. INSTALL OUTER COWL TOP PANEL (except TMC Made) INFO

92. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

93. INSTALL COWL TOP VENTILATOR LOUVER LH INFO

94. INSTALL CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

95. INSTALL HOOD TO COWL TOP SEAL INFO

96. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

97. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

98. INSTALL FRONT WIPER ARM HEAD CAP INFO

99. CHARGE WITH REFRIGERANT INFO

100. ADD ENGINE COOLANT (for 2ZR-FE) INFO

101. ADD ENGINE COOLANT (for 2AZ-FE) INFO

102. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

103. INSPECT FOR COOLANT LEAK (for 2ZR-FE) INFO

104. INSPECT FOR COOLANT LEAK (for 2AZ-FE) INFO

105. INSPECT STEERING PAD INFO

106. INSPECT SRS WARNING LIGHT

INFO

107. WARM UP ENGINE INFO

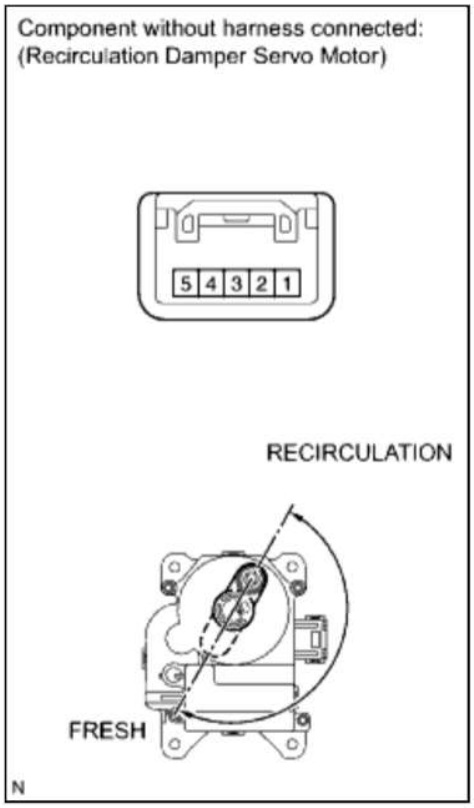
108. INSPECT FOR REFRIGERANT LEAK INFO

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000314U00MX
Title: HEATING / AIR CONDITIONING: AIR INLET CONTROL SERVO MOTOR: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT RECIRCULATION DAMPER SERVO MOTOR (for Manual Air Conditioning System)



(a) Disconnect the connector from the recirculation damper servo motor.

(b) Connect a positive (+) lead from the battery to terminal 5 and a negative (-) lead from the battery to terminal 2, then check that the arm turns to the "FRESH" side smoothly.

OK:

Lever turns to "FRESH" side smoothly.

(c) Connect a positive (+) lead from the battery to terminal 5 and a negative (-) lead from the battery to terminal 1, then check that the arm turns to the "RECIRCULATION" side smoothly.

OK:

Lever turns to "RECIRCULATION" side smoothly.

If the result is not as specified, replace the recirculation damper servo motor.

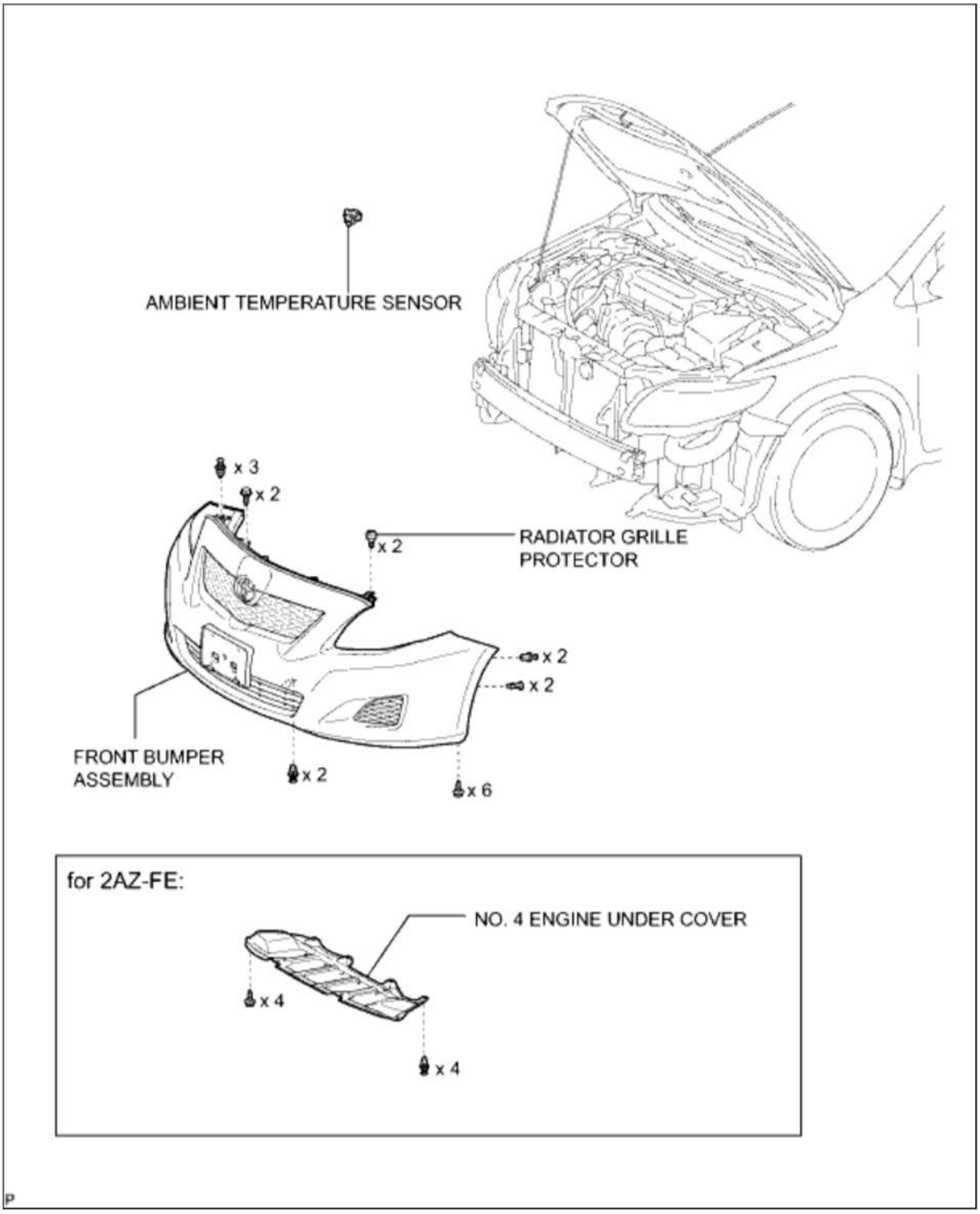
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXQ001X
Title: HEATING / AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XMI00DX
Title: HEATING / AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: REMOVAL (2010 Corolla)		

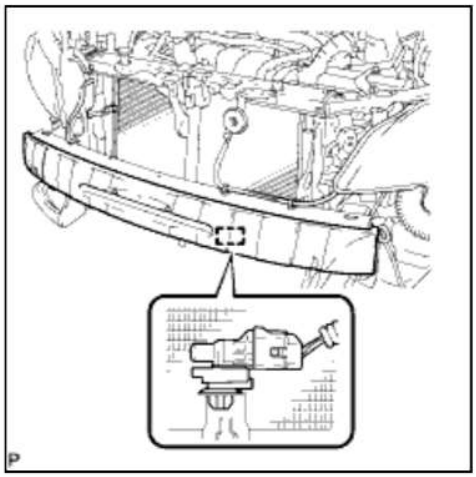
REMOVAL

1. REMOVE RADIATOR GRILLE PROTECTOR INFO

2. REMOVE NO. 4 ENGINE UNDER COVER (for 2AZ-FE) INFO

3. REMOVE FRONT BUMPER ASSEMBLY INFO

4. REMOVE AMBIENT TEMPERATURE SENSOR



(a) Disconnect the connector.

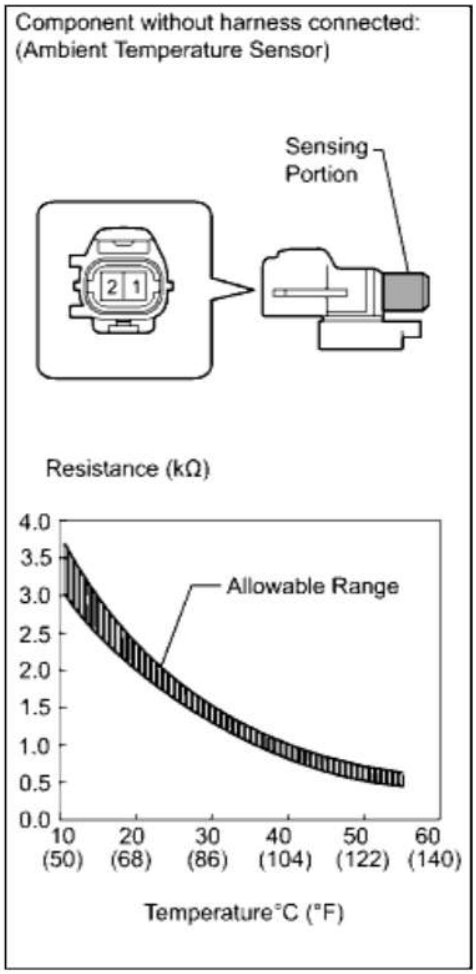
(b) Disengage the clamp and the ambient temperature sensor.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000201P020X
Title: HEATING / AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT AMBIENT TEMPERATURE SENSOR



(a) Disconnect the connector from the ambient temperature sensor.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	10°C (50°F)	3.00 to 3.73 kΩ
1 - 2	15°C (59°F)	2.45 to 2.88 kΩ
1 - 2	20°C (68°F)	1.95 to 2.30 kΩ

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
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:

- 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 the same as the ambient temperature.

HINT:

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

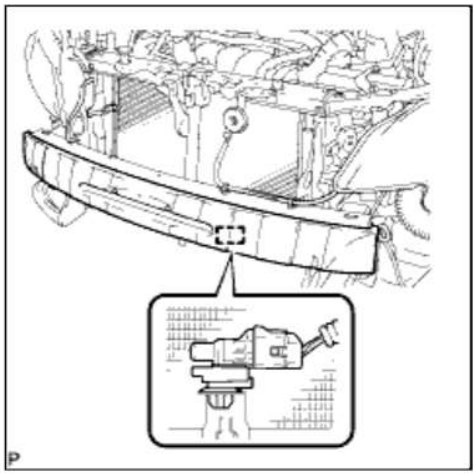
If the resistance is not as specified, replace the ambient temperature sensor.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XMG00DX
Title: HEATING / AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL AMBIENT TEMPERATURE SENSOR



(a) Engage the clamp and install the ambient temperature sensor.

(b) Connect the connector.

2. INSTALL FRONT BUMPER ASSEMBLY INFO

3. INSTALL NO. 4 ENGINE UNDER COVER (for 2AZ-FE) INFO

4. INSTALL RADIATOR GRILLE PROTECTOR INFO

5. VEHICLE PREPARATION FOR FOG LIGHT AIMING ADJUSTMENT (w/ Fog Light) INFO

6. PREPARATION FOR FOG LIGHT AIMING (w/ Fog Light) INFO

7. INSPECT FOG LIGHT AIMING (w/ Fog Light) INFO

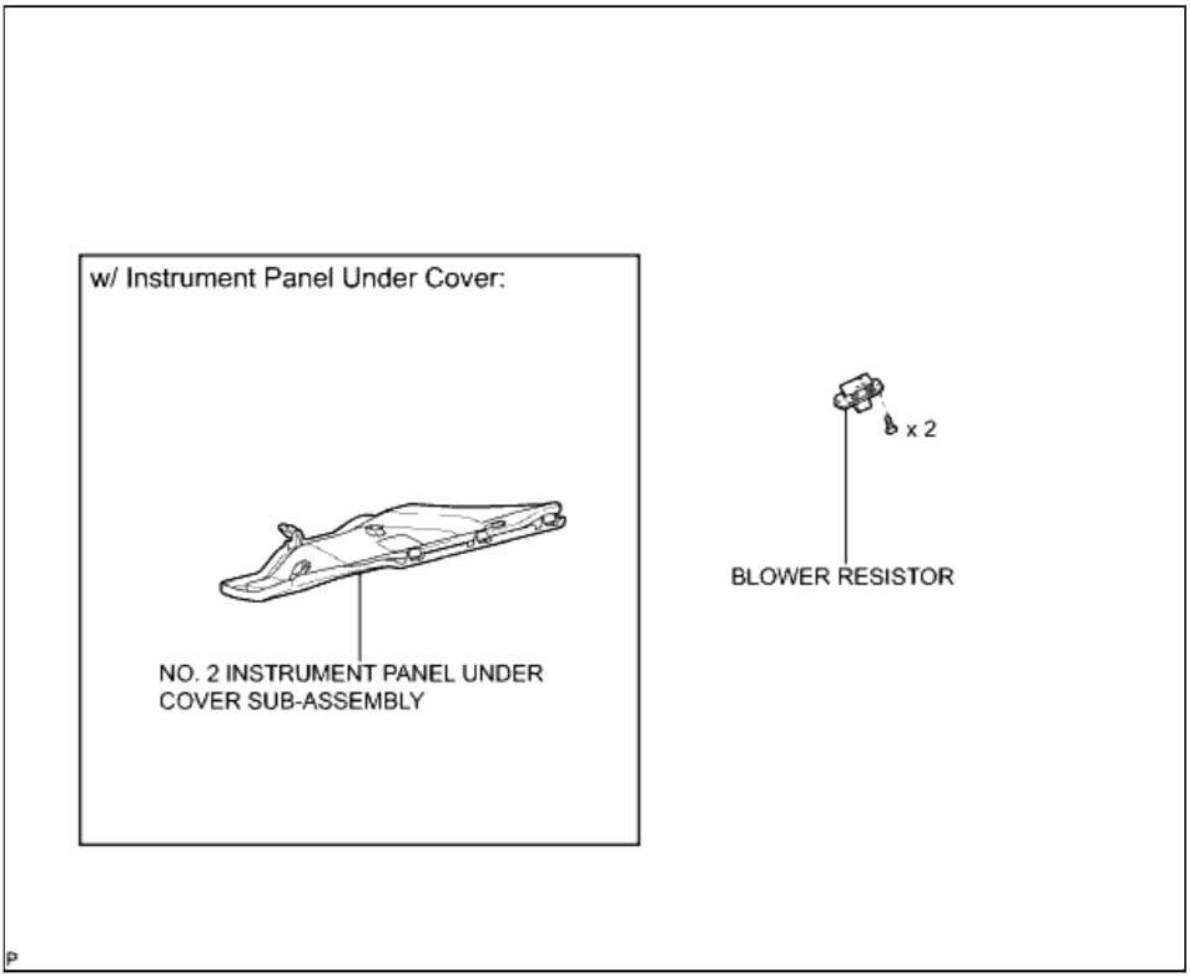
8. ADJUST FOG LIGHT AIMING (w/ Fog Light) INFO

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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXK001X
Title: HEATING / AIR CONDITIONING: BLOWER RESISTOR: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION



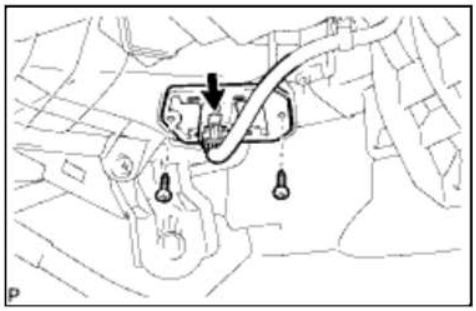
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XU300EX
Title: HEATING / AIR CONDITIONING: BLOWER RESISTOR: REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

2. REMOVE BLOWER RESISTOR



(a) Disconnect the connector.

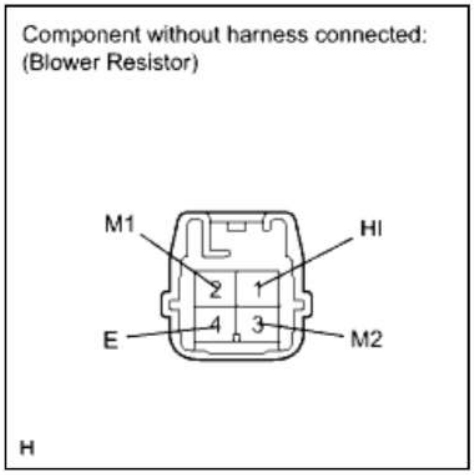
(b) Remove the 2 screws and the blower resistor.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000314S00PX
Title: HEATING / AIR CONDITIONING: BLOWER RESISTOR: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT BLOWER RESISTOR (for Manual Air Conditioning System)



(a) Disconnect the connector from the blower resistor.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 (HI) - 4 (E)	Always	3.12 to 3.60 Ω
1 (HI) - 2 (M1)	Always	1.45 to 1.67 Ω
1 (HI) - 3 (M2)	Always	0.52 to 0.60 Ω

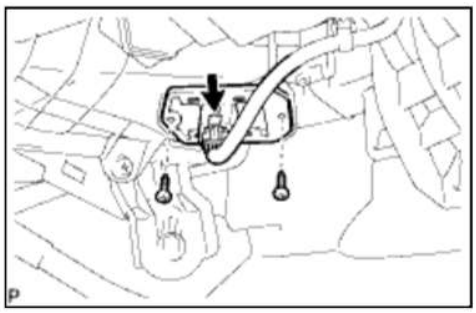
If the resistance is not as specified, replace the blower resistor.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XU100EX
Title: HEATING / AIR CONDITIONING: BLOWER RESISTOR: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL BLOWER RESISTOR



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

(b) Connect the connector.

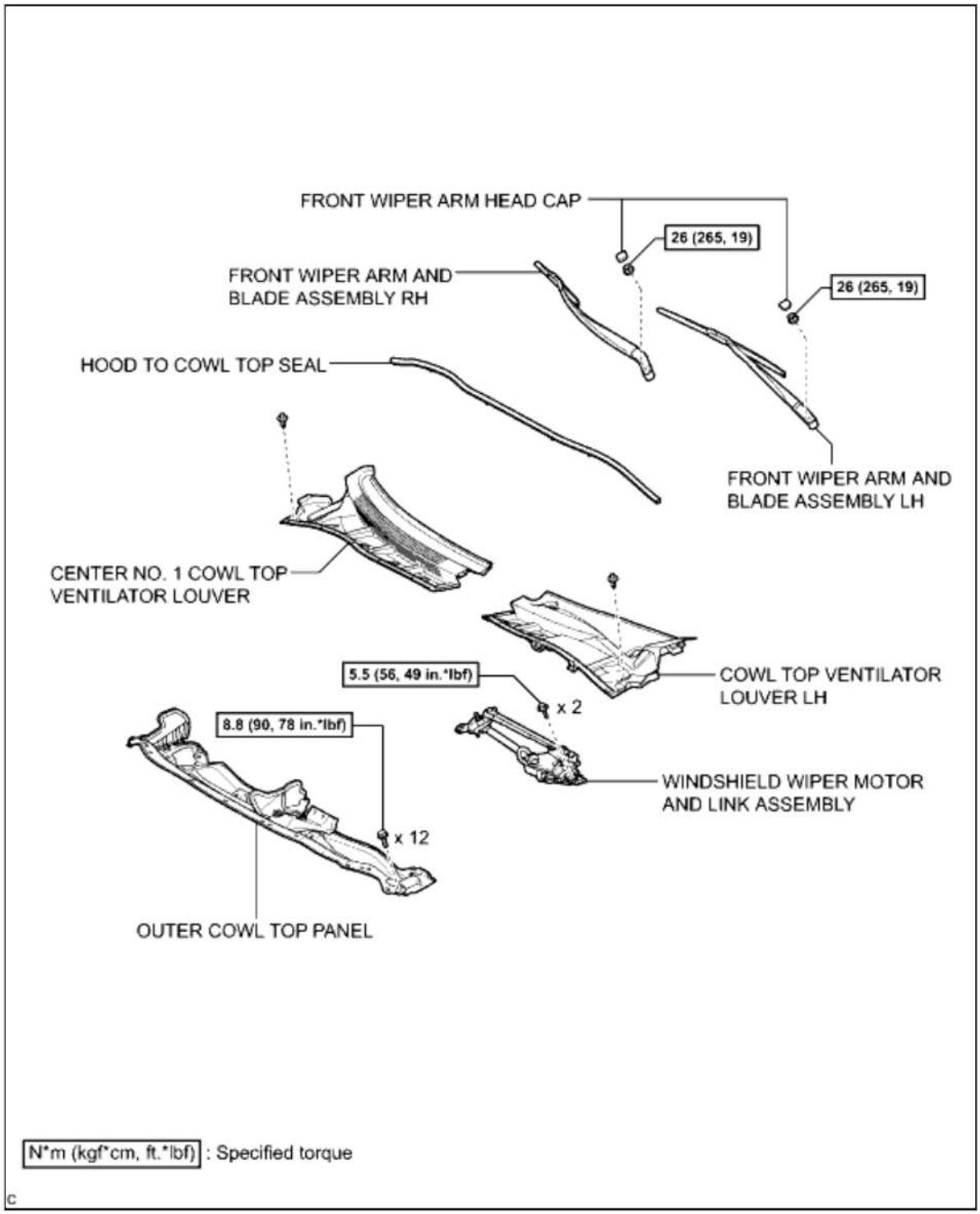
2. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXF001X
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: COMPONENTS (2010 Corolla)		

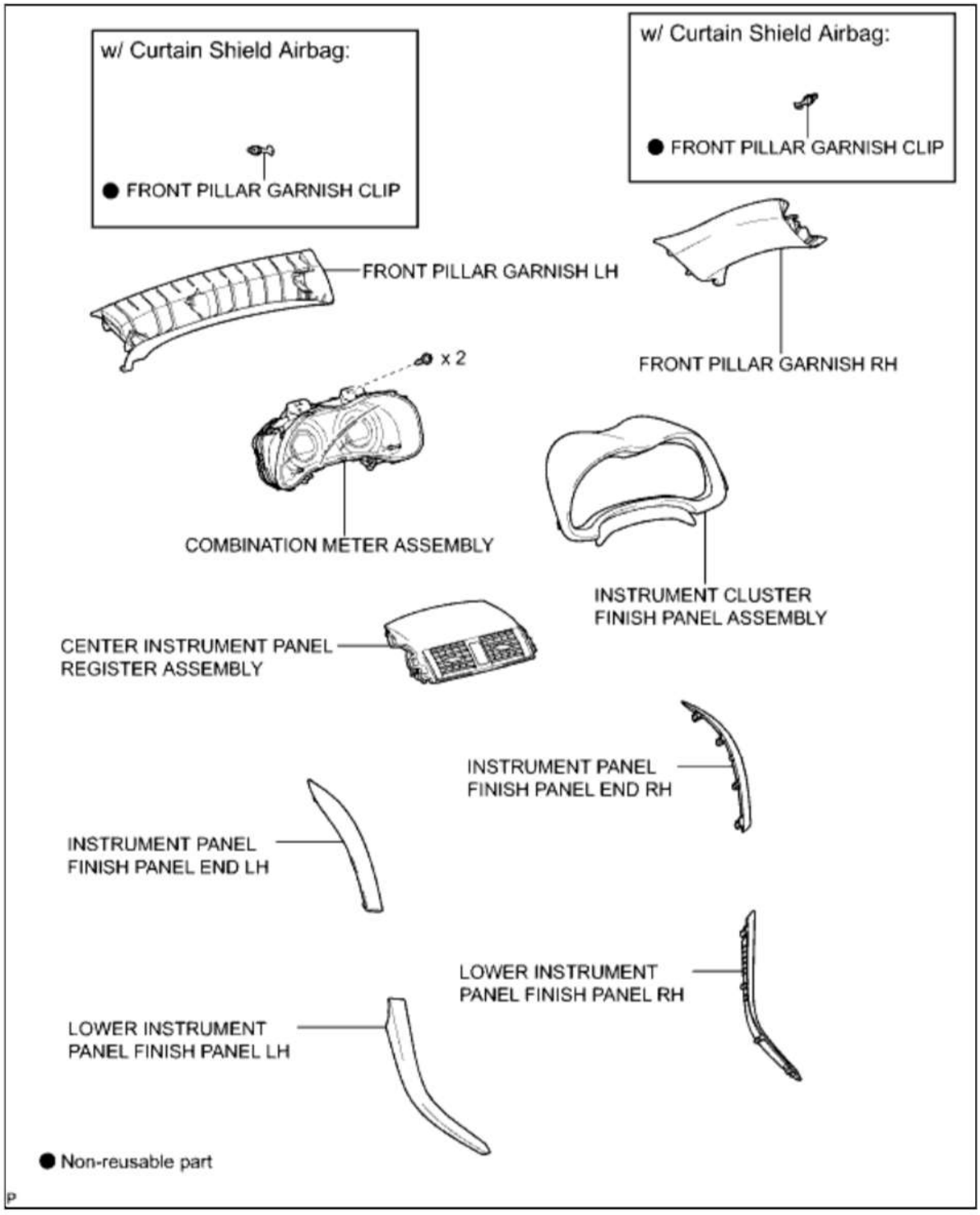
COMPONENTS

ILLUSTRATION



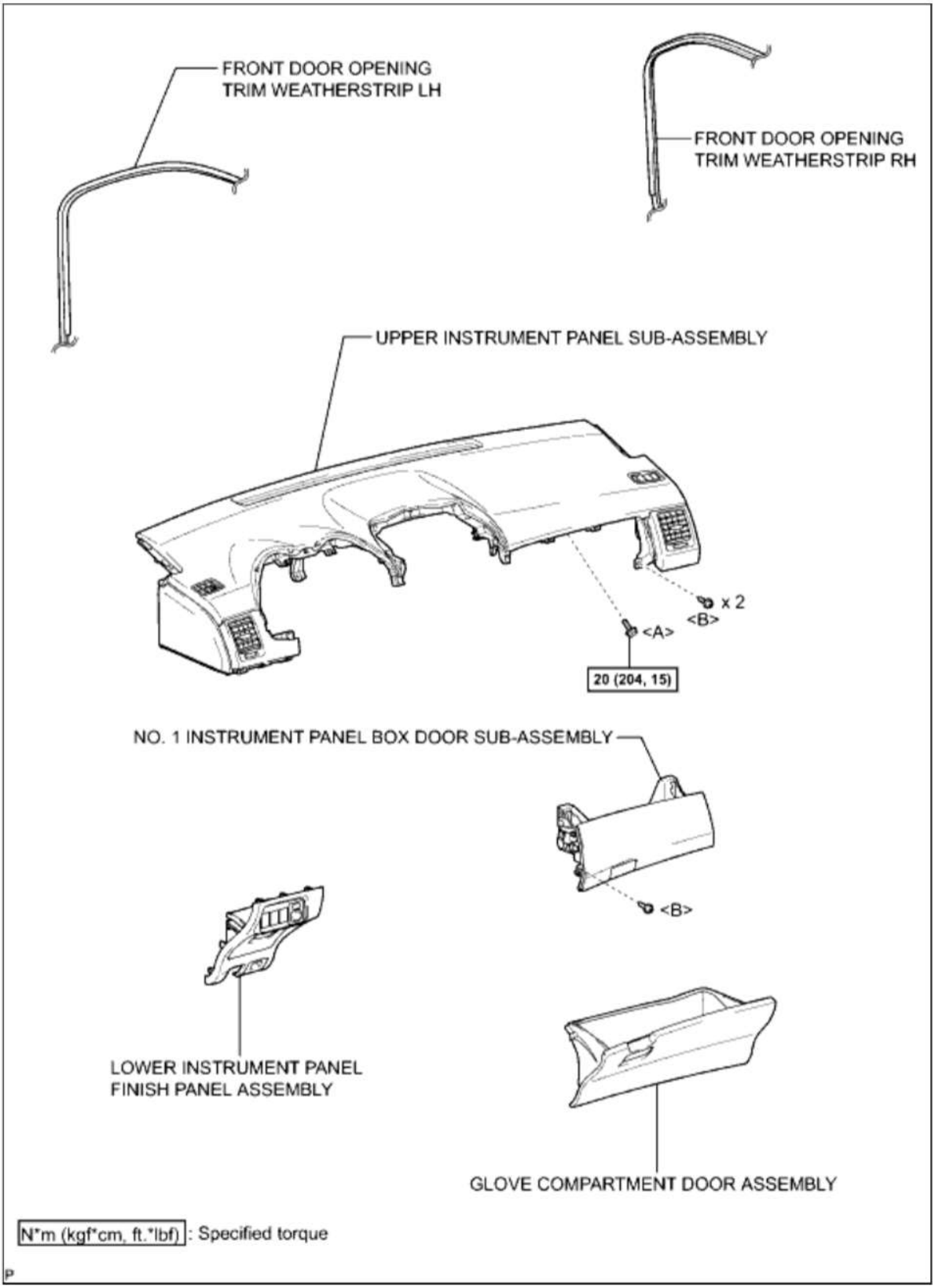
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ILLUSTRATION



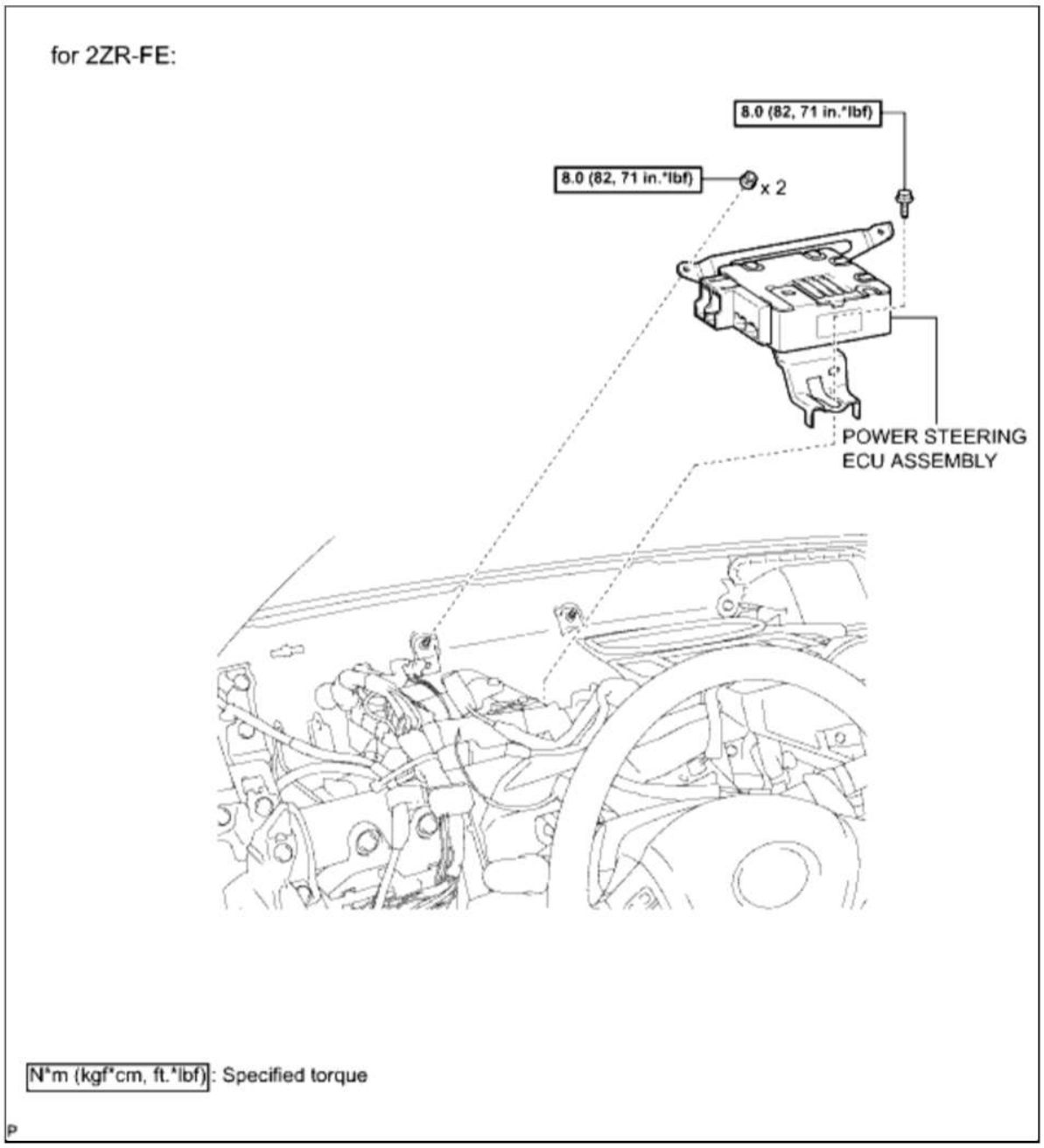
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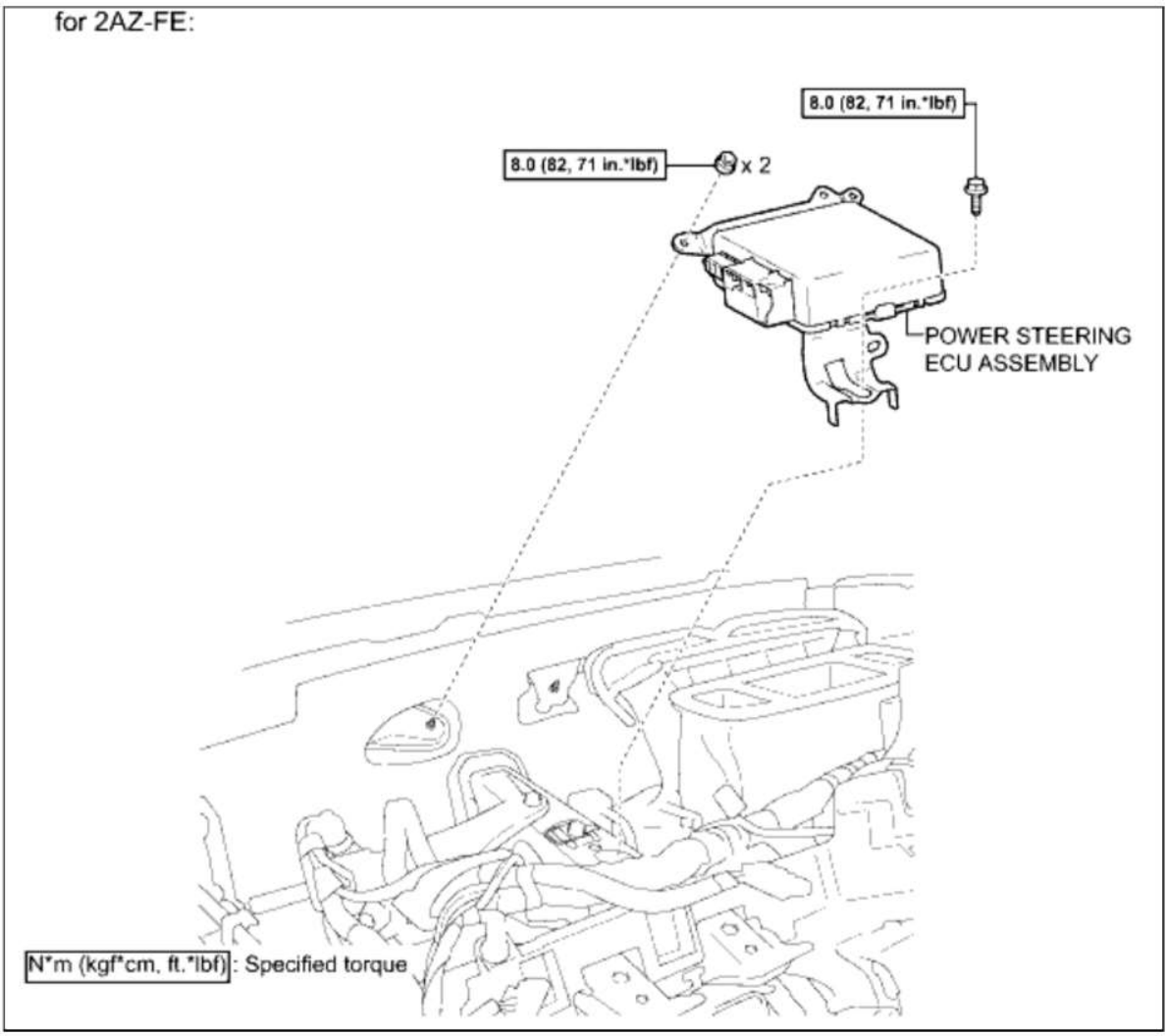
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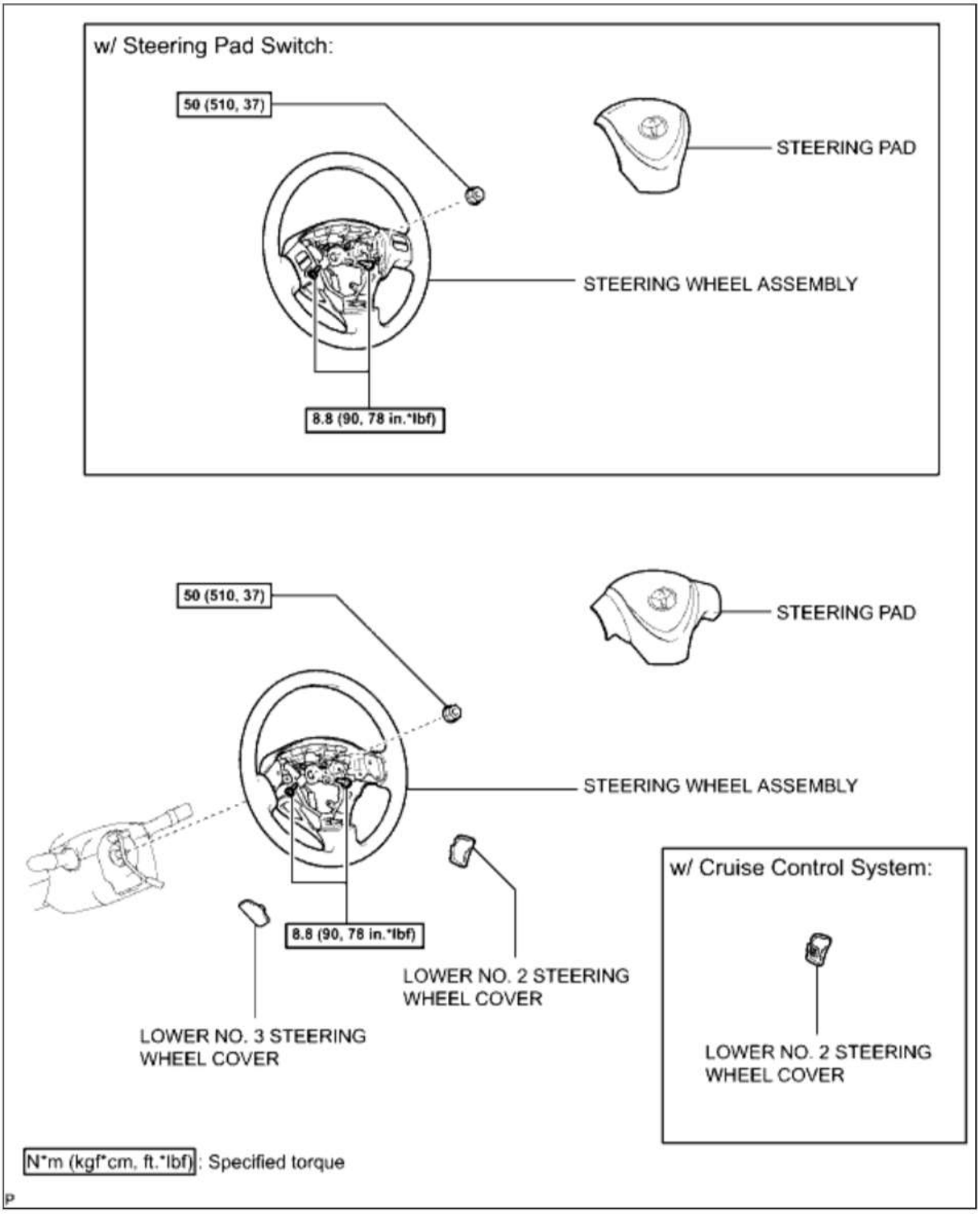
ILLUSTRATION

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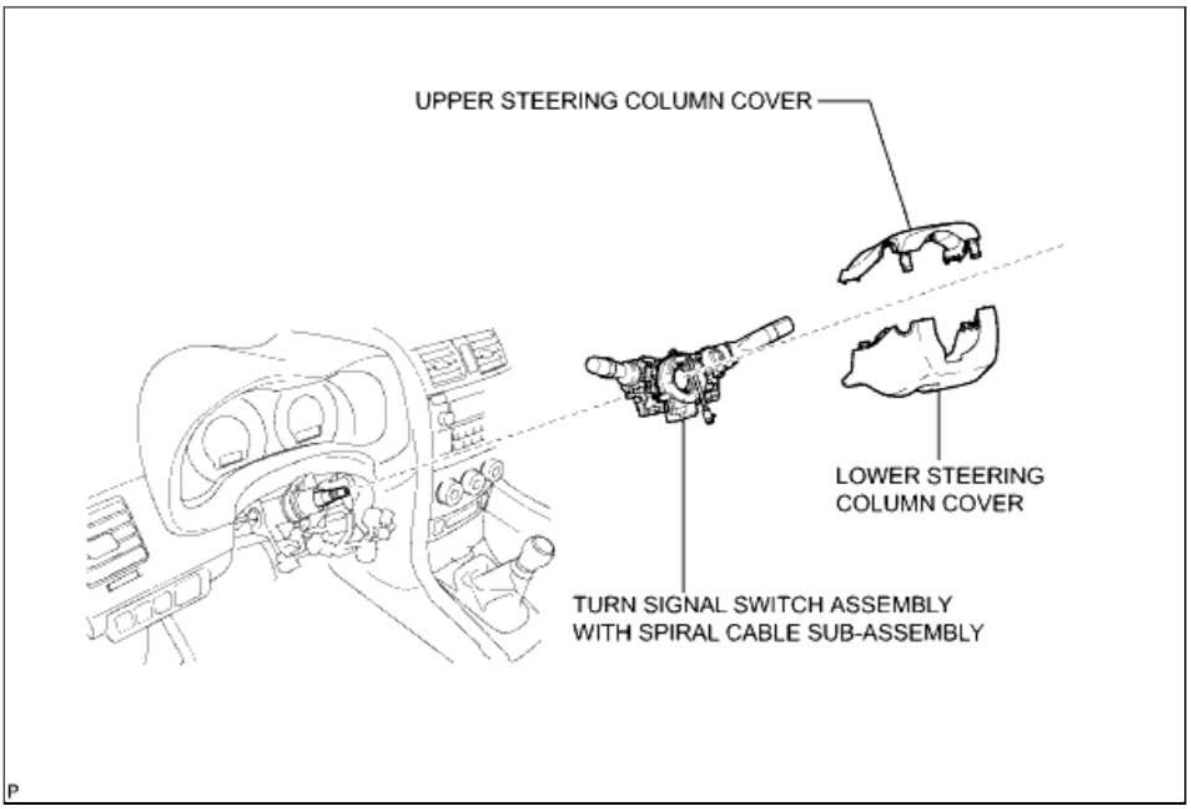
ILLUSTRATION

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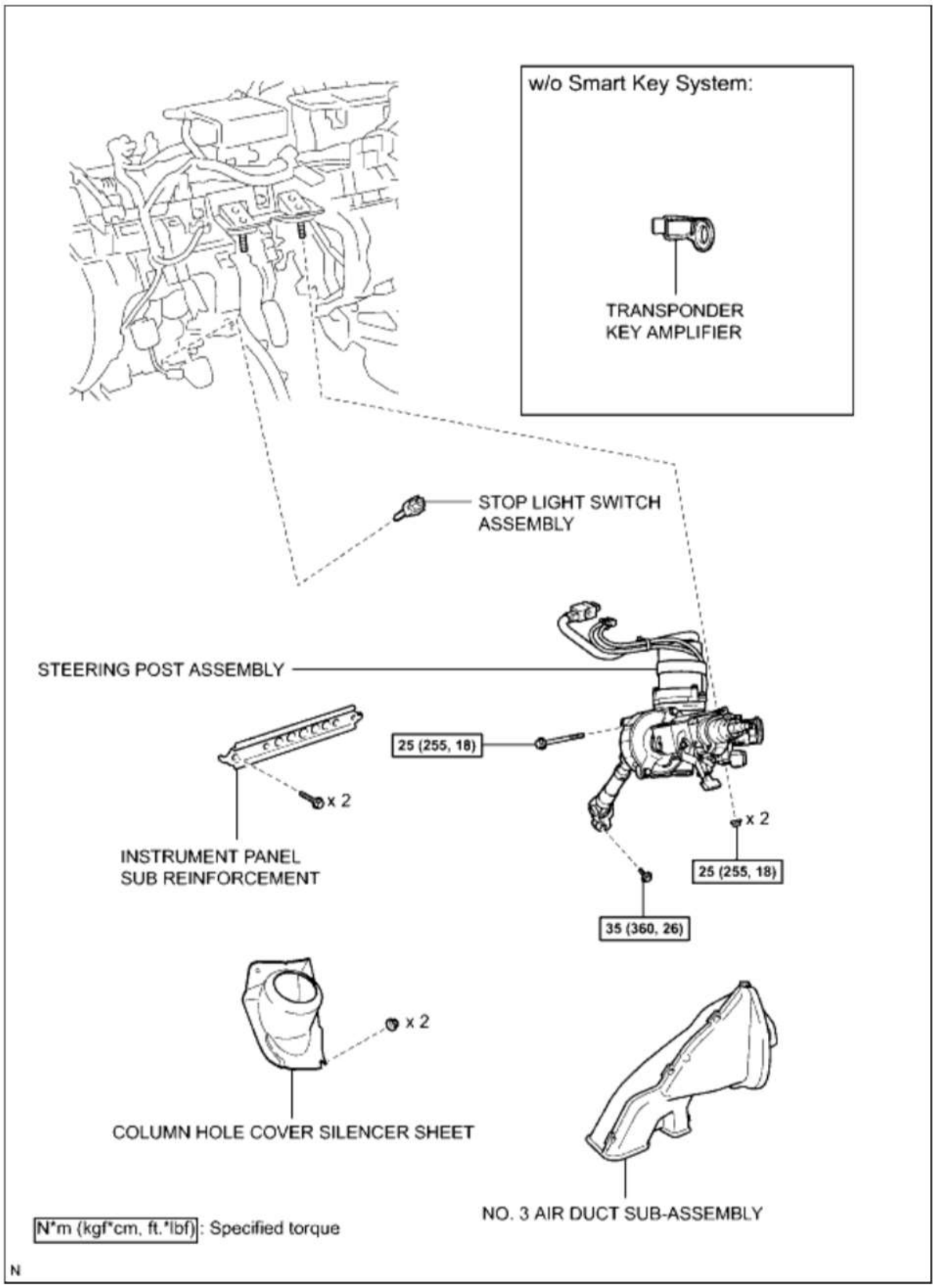
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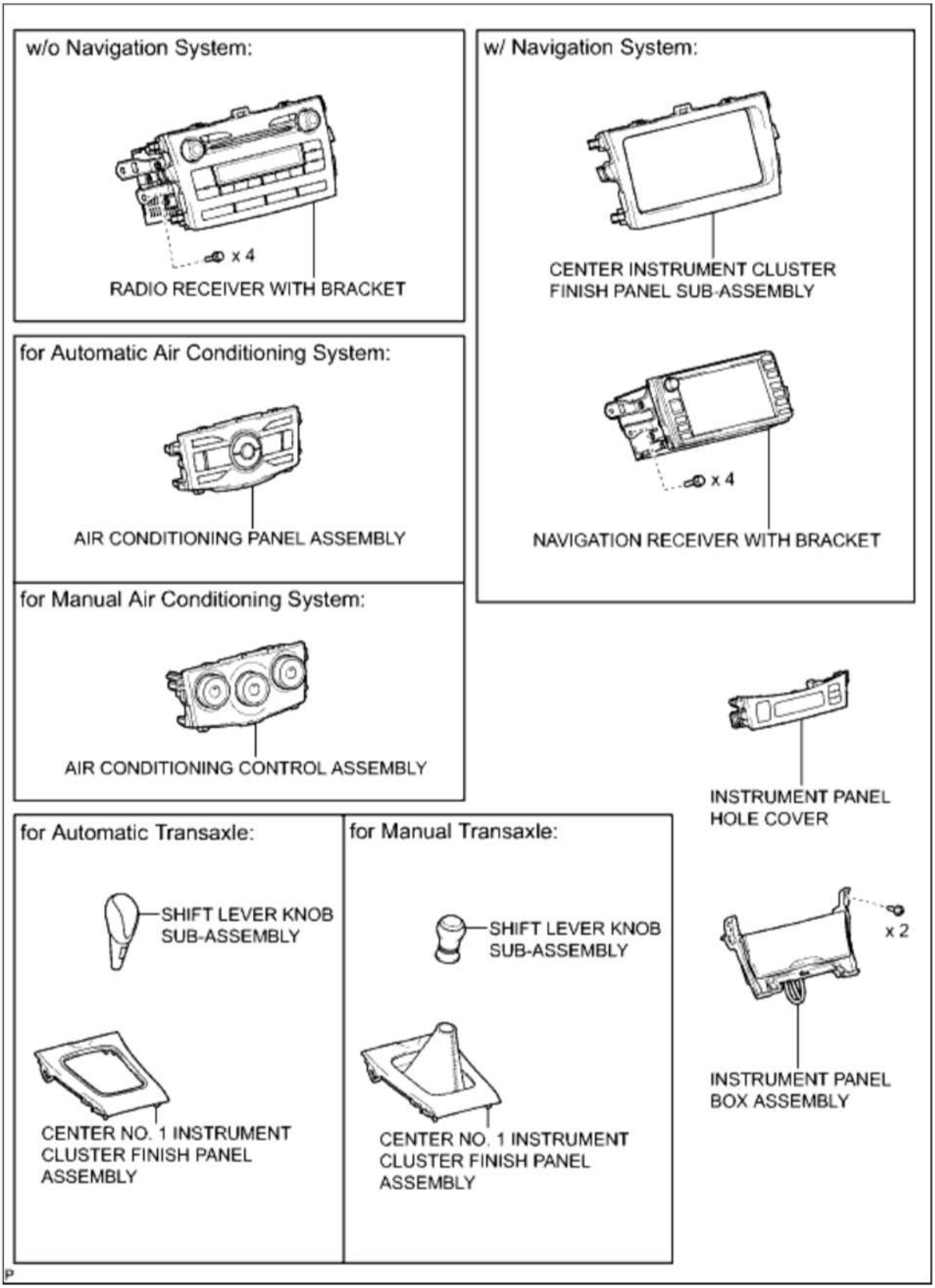
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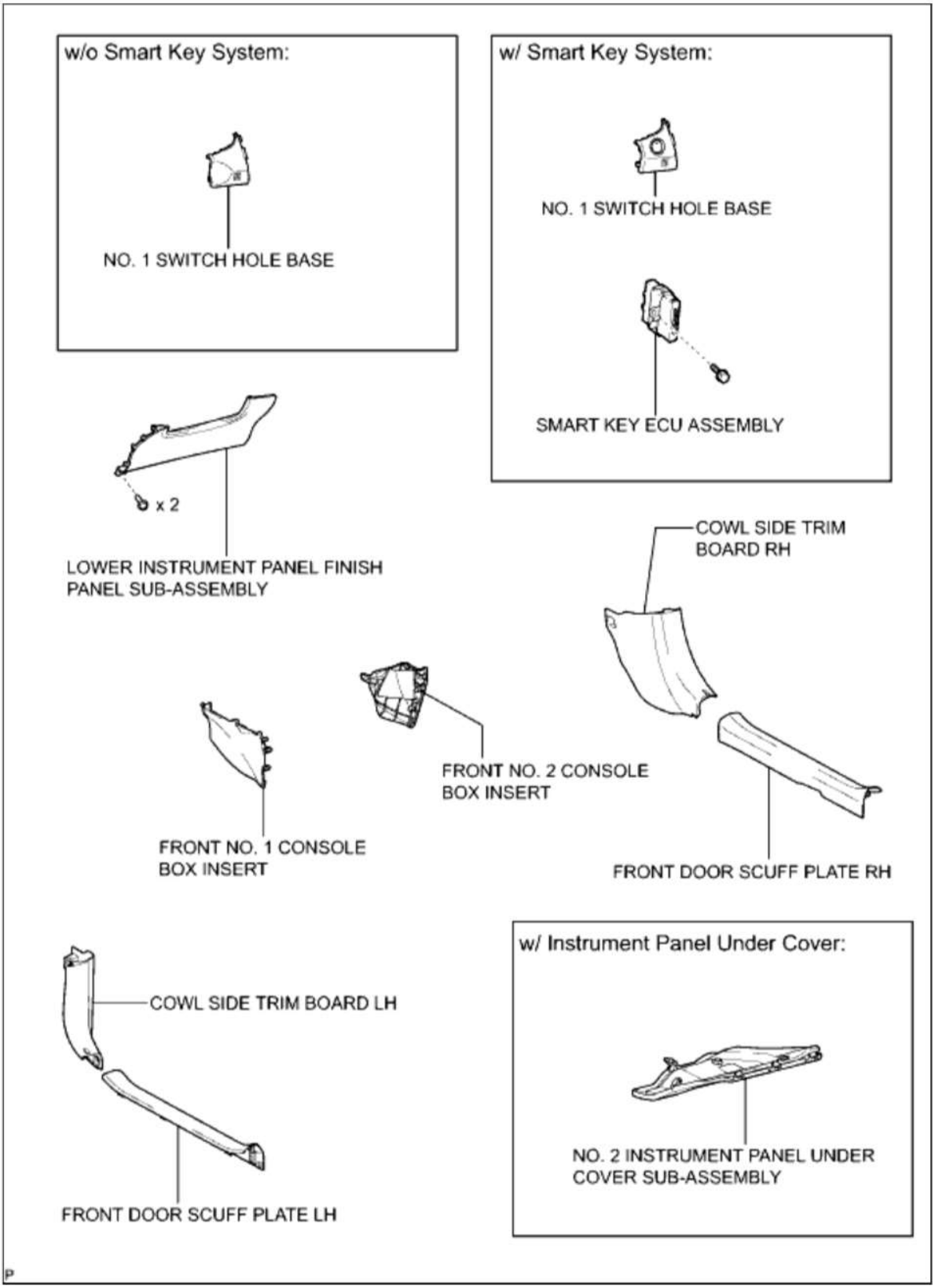
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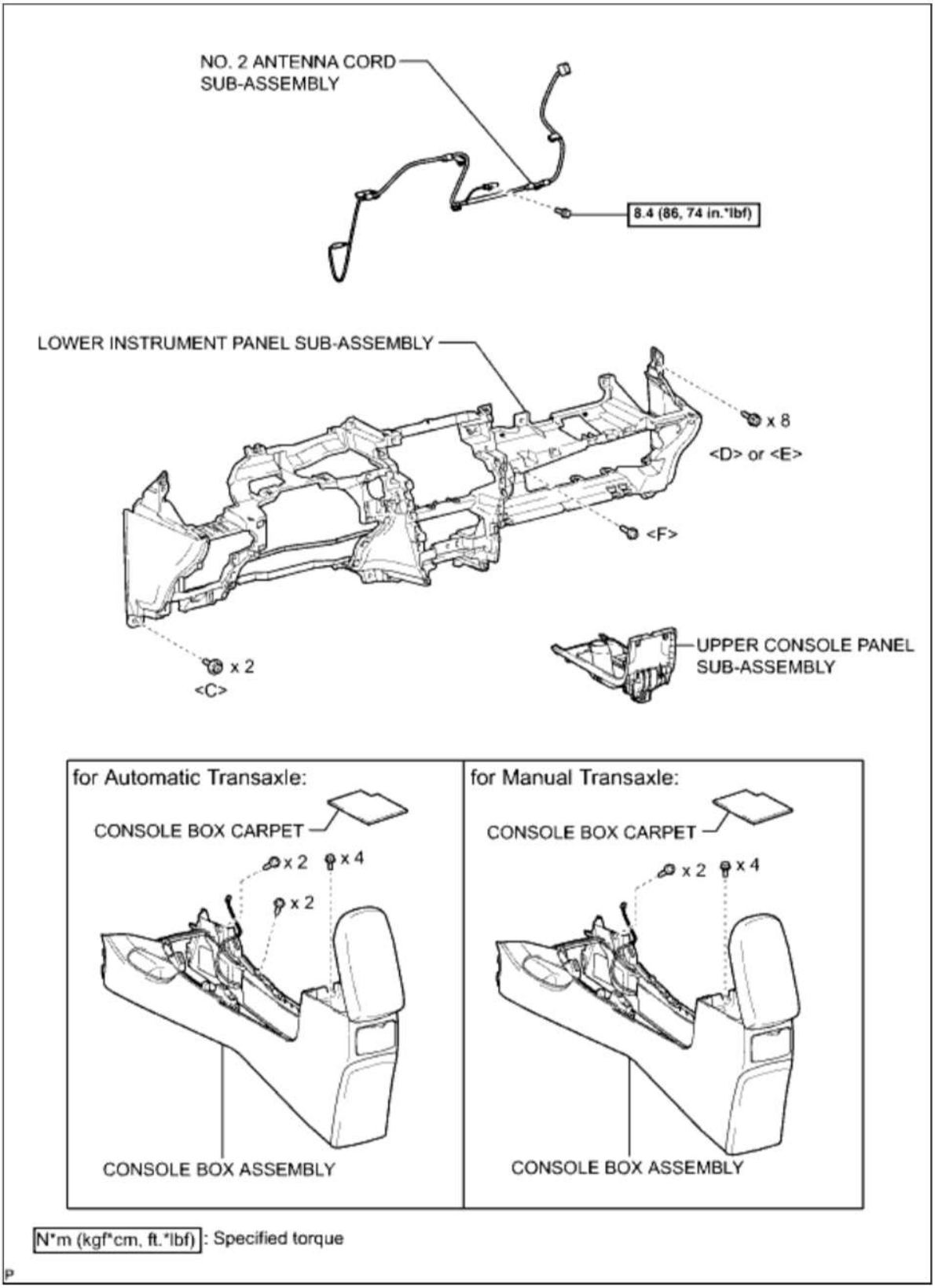
ILLUSTRATION

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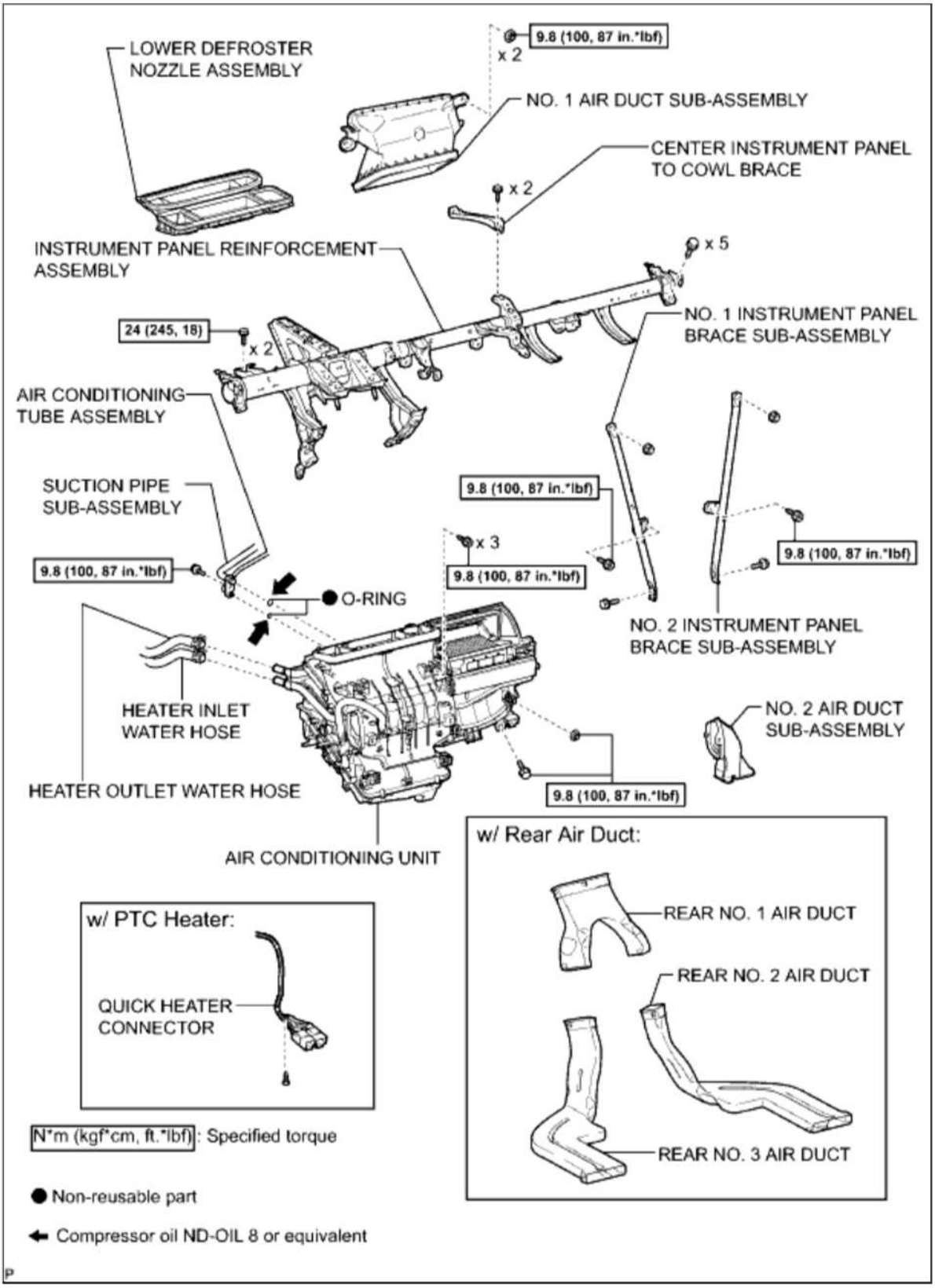
ILLUSTRATION

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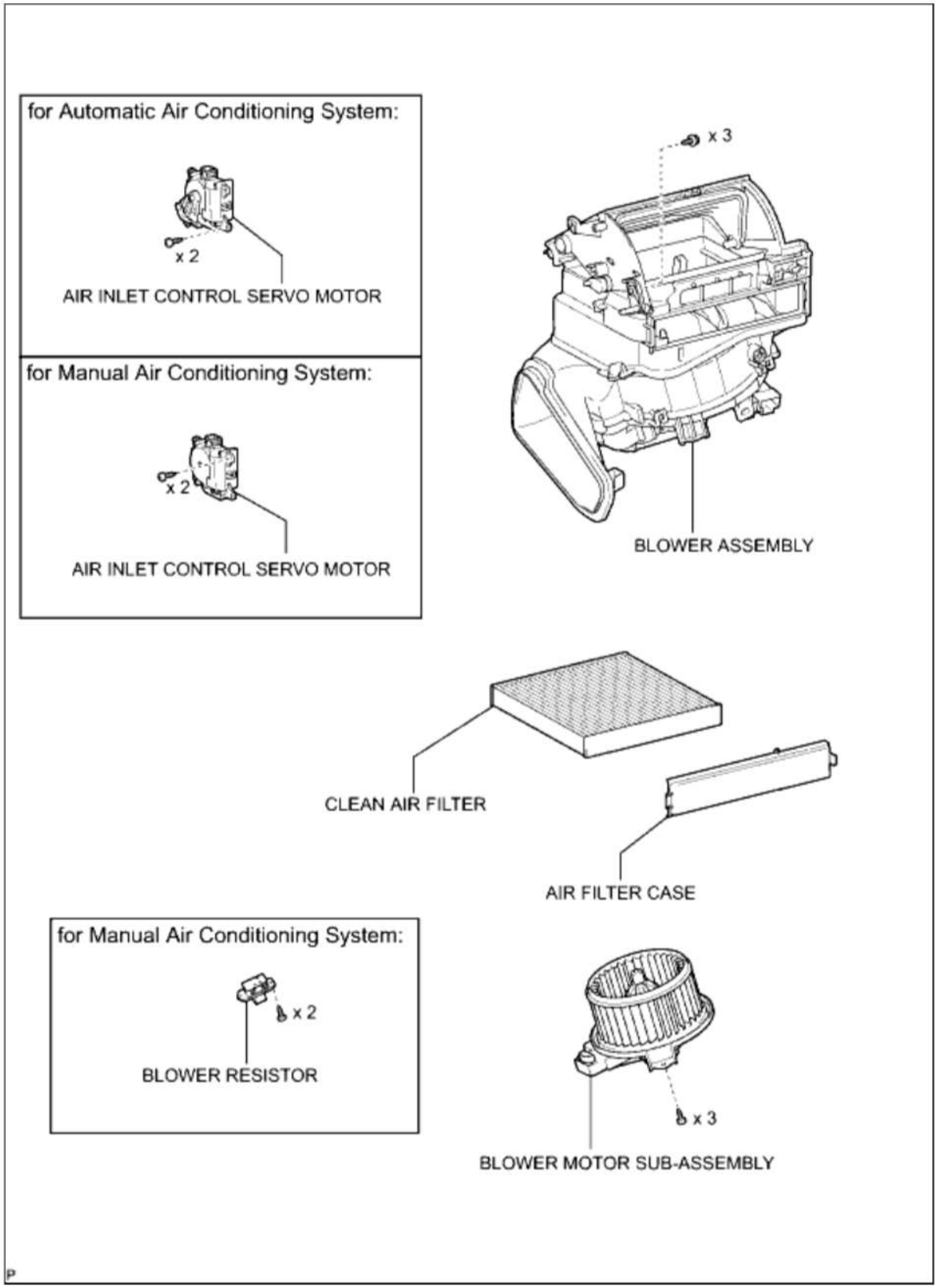
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLW0A8X
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: REMOVAL (2010 Corolla)		

REMOVAL

1. PRECAUTION

INFO

2. ALIGN FRONT WHEELS FACING STRAIGHT AHEAD

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

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

HINT:

Before disconnecting the cable, set the air conditioning control switch to DEF-MODE. (for Automatic Air Conditioning System)

4. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

5. REMOVE FRONT WIPER ARM HEAD CAP INFO

6. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

7. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

8. REMOVE HOOD TO COWL TOP SEAL INFO

9. REMOVE CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

10. REMOVE COWL TOP VENTILATOR LOUVER LH INFO

11. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

12. REMOVE OUTER COWL TOP PANEL (for TMC Made) INFO

13. REMOVE OUTER COWL TOP PANEL (except TMC Made) INFO

14. DISCONNECT SUCTION PIPE SUB-ASSEMBLY INFO

15. DISCONNECT AIR CONDITIONING TUBE ASSEMBLY INFO

16. DISCONNECT HEATER WATER HOSE OUTLET INFO

17. DISCONNECT HEATER WATER HOSE INLET INFO

18. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

19. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

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20. REMOVE INSTRUMENT PANEL FINISH PANEL END LH INFO

21. REMOVE INSTRUMENT PANEL FINISH PANEL END RH INFO

22. REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

23. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

24. REMOVE COMBINATION METER ASSEMBLY INFO

25. REMOVE FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO

26. REMOVE FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO

27. REMOVE FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO

28. REMOVE FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO

29. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

30. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO

31. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY INFO

32. REMOVE NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO

33. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO

34. DISCONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO

35. REMOVE UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO

36. REMOVE POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO

37. REMOVE POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO

38. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO

39. REMOVE LOWER NO. 3 STEERING WHEEL COVER INFO

40. REMOVE LOWER NO. 2 STEERING WHEEL COVER INFO

41. REMOVE STEERING PAD INFO

42. REMOVE STEERING WHEEL ASSEMBLY INFO

43. REMOVE LOWER STEERING COLUMN COVER INFO

44. REMOVE UPPER STEERING COLUMN COVER INFO

45. REMOVE TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO

46. REMOVE COLUMN HOLE COVER SILENCER SHEET INFO

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47. SEPARATE NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO

48. REMOVE INSTRUMENT PANEL SUB REINFORCEMENT INFO

49. REMOVE NO. 3 AIR DUCT SUB-ASSEMBLY INFO

50. REMOVE TRANSPONDER KEY AMPLIFIER (w/ Smart Key System) INFO

51. REMOVE STOP LIGHT SWITCH ASSEMBLY INFO

52. REMOVE STEERING POST ASSEMBLY (for 2ZR-FE) INFO

53. REMOVE STEERING POST ASSEMBLY (for 2AZ-FE) INFO

54. REMOVE RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

55. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

56. REMOVE NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

57. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

58. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

59. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

60. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

61. REMOVE INSTRUMENT PANEL BOX ASSEMBLY INFO

62. REMOVE INSTRUMENT PANEL HOLE COVER INFO

63. REMOVE AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System) INFO

64. REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

65. REMOVE FRONT DOOR SCUFF PLATE LH INFO

66. REMOVE COWL SIDE TRIM BOARD LH INFO

67. REMOVE FRONT NO. 1 CONSOLE BOX INSERT INFO

68. REMOVE NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

69. REMOVE NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

70. REMOVE FRONT DOOR SCUFF PLATE RH INFO

71. REMOVE COWL SIDE TRIM BOARD RH INFO

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72. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

73. REMOVE FRONT NO. 2 CONSOLE BOX INSERT INFO

74. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

75. REMOVE CONSOLE BOX CARPET INFO

76. REMOVE CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

77. REMOVE CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

78. REMOVE NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

79. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

80. REMOVE SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

81. REMOVE NO. 1 AIR DUCT SUB-ASSEMBLY INFO

82. REMOVE LOWER DEFROSTER NOZZLE ASSEMBLY INFO

83. REMOVE CENTER INSTRUMENT PANEL TO COWL BRACE INFO

84. REMOVE REAR NO. 2 AIR DUCT (w/ Rear Air Duct) INFO

85. REMOVE REAR NO. 3 AIR DUCT (w/ Rear Air Duct) INFO

86. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System) INFO

87. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air Conditioning System) INFO

88. REMOVE NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY INFO

89. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct) INFO

90. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System) INFO

91. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air Conditioning System) INFO

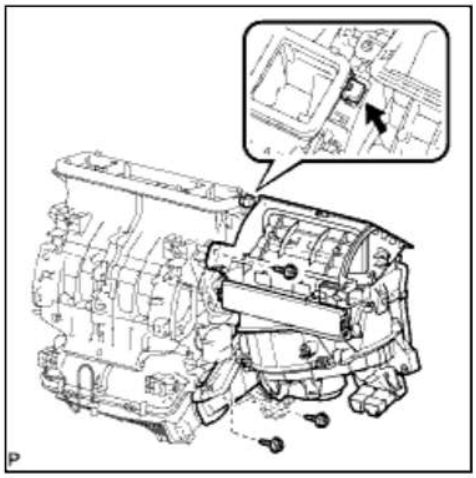
92. REMOVE AIR CONDITIONING UNIT INFO

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

94. REMOVE BLOWER ASSEMBLY (w/o PTC Heater)

(a) for Automatic Air Conditioning System:

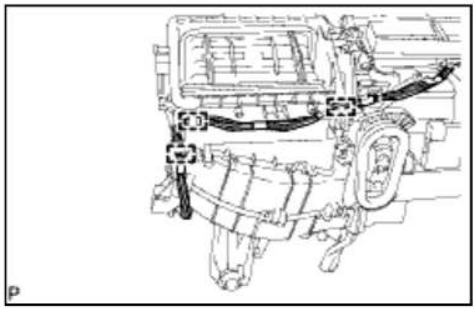
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(1) Disconnect the connector.

(b) Remove the 3 screws and the blower assembly.

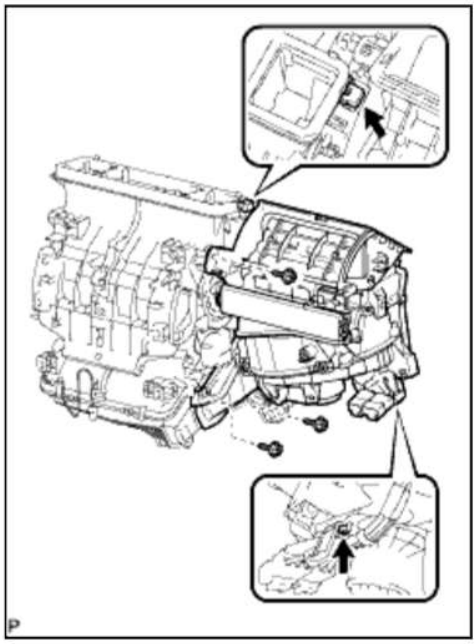
95. REMOVE BLOWER ASSEMBLY (w/ PTC Heater)



(a) Disengage each clamp.

(b) Remove the screw and disengage the quick heater connector.

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(c) for Automatic Air Conditioning System:

(1) Disconnect the connector.

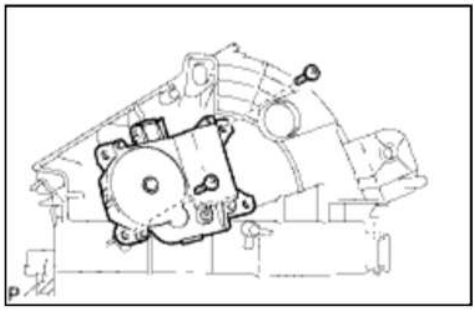
(d) Remove the 3 screws and the blower assembly.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Y2100LX
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: DISASSEMBLY (2010 Corolla)		

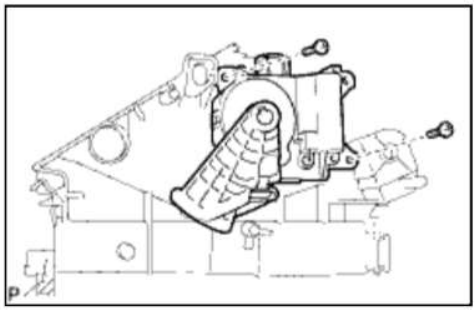
DISASSEMBLY

1. REMOVE AIR INLET CONTROL SERVO MOTOR (for Manual Air Conditioning System)



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

2. REMOVE AIR INLET CONTROL SERVO MOTOR (for Automatic Air Conditioning System)

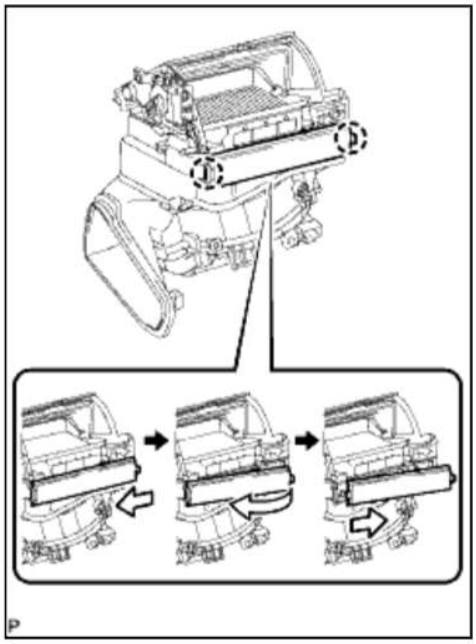


(a) Remove the 2 screws and the air inlet control servo motor.

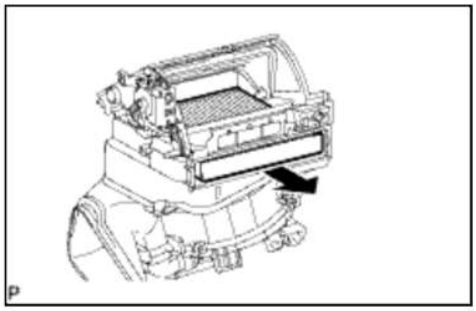
3. REMOVE AIR FILTER CASE

(a) Disengage the 2 claws and remove the air filter case as shown in the illustration.

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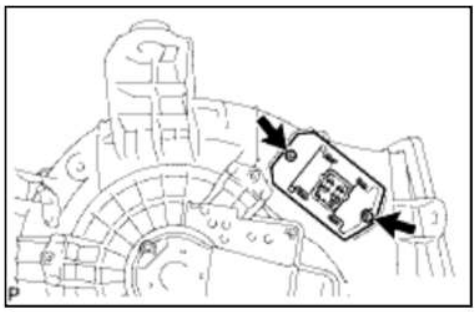


4. REMOVE CLEAN AIR FILTER



(a) Remove the clean air filter as shown in the illustration.

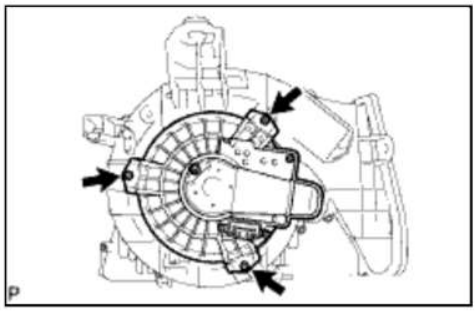
5. REMOVE BLOWER RESISTOR (for Manual Air Conditioning System)



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

6. REMOVE BLOWER MOTOR SUB-ASSEMBLY

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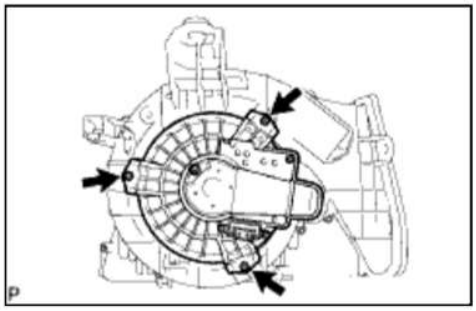
(a) Remove the 3 screws and the blower motor sub-assembly.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Y2200LX
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: REASSEMBLY (2010 Corolla)		

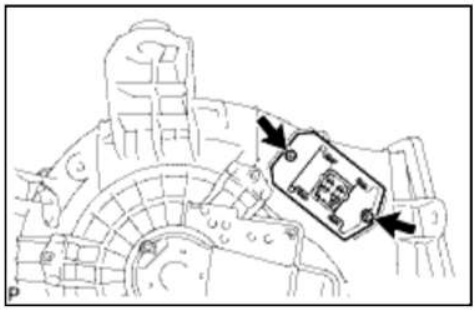
REASSEMBLY

1. INSTALL BLOWER MOTOR SUB-ASSEMBLY



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

2. INSTALL BLOWER RESISTOR

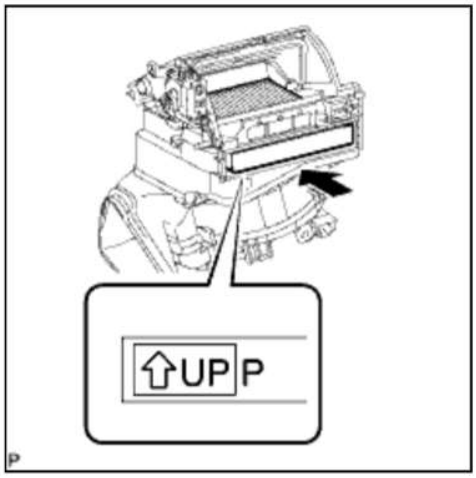


(a) Install the blower resistor with the 2 screws.

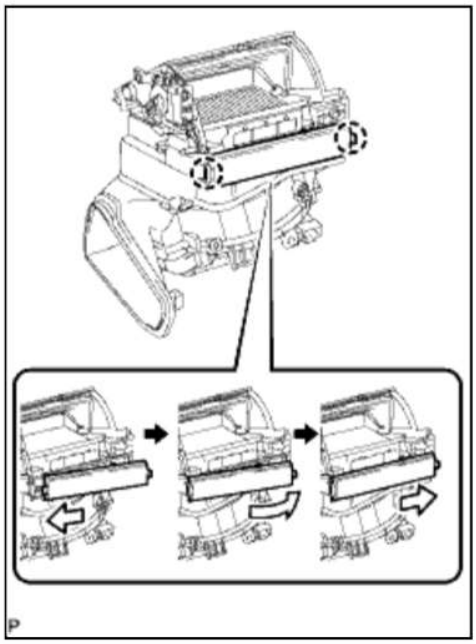
3. INSTALL CLEAN AIR FILTER

(a) Install the clean air filter as shown in the illustration.

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4. INSTALL AIR FILTER CASE

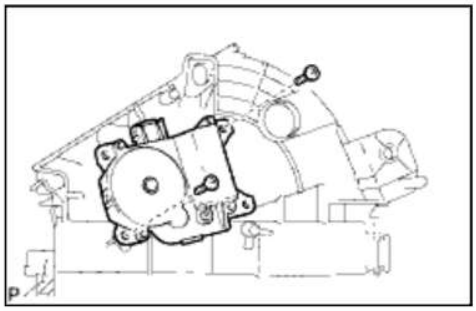


(a) Engage the 2 claws and install the air filter case as shown in the illustration.

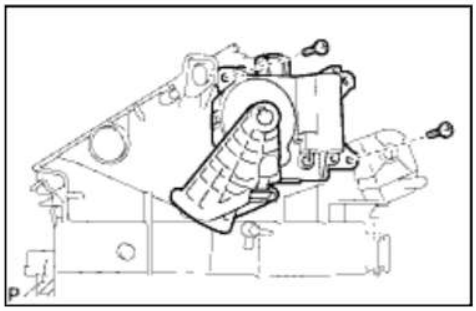
5. INSTALL AIR INLET CONTROL SERVO MOTOR (for Manual Air Conditioning System)

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

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6. INSTALL AIR INLET CONTROL SERVO MOTOR (for Automatic Air Conditioning System)



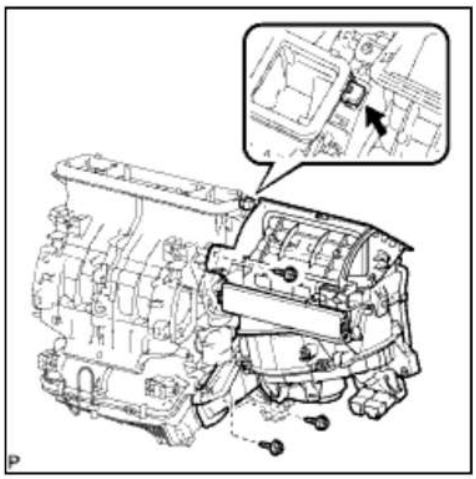
(a) Install the air inlet control servo motor with the 2 screws.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLU0ABX
Title: HEATING / AIR CONDITIONING: BLOWER UNIT: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL BLOWER ASSEMBLY (w/o PTC Heater)

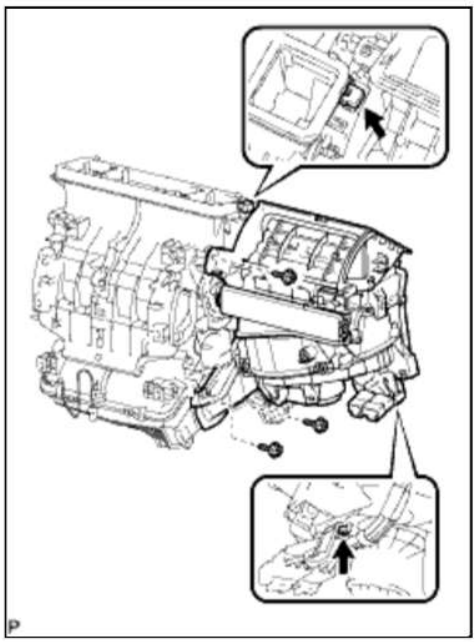


(a) Install the blower assembly with the 3 screws.

(b) for Automatic Air Conditioning System:

(1) Connect the connector.

2. INSTALL BLOWER ASSEMBLY (w/ PTC Heater)



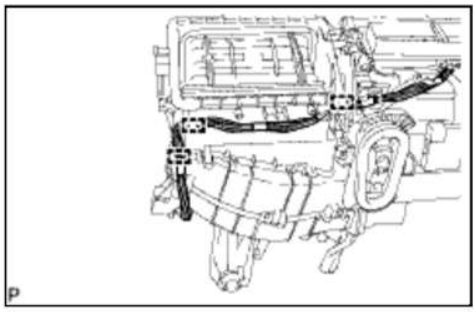
(a) Install the blower assembly with the 3 screws.

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(b) Engage the quick heater connector and install the screw.

(c) for Automatic Air Conditioning System:

(1) Connect the connector.



(d) Engage each clamp.

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

4. TEMPORARILY TIGHTEN AIR CONDITIONING UNIT INFO

5. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System) INFO

6. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air Conditioning System) INFO

7. INSTALL AIR CONDITIONING UNIT INFO

8. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct) INFO

9. INSTALL NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY INFO

10. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System) INFO

11. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air Conditioning System) INFO

12. INSTALL REAR NO. 3 AIR DUCT (w/ Rear Air Duct) INFO

13. INSTALL REAR NO. 2 AIR DUCT (w/ Rear Air Duct) INFO

14. INSTALL CENTER INSTRUMENT PANEL TO COWL BRACE INFO

15. INSTALL LOWER DEFROSTER NOZZLE ASSEMBLY INFO

16. INSTALL NO. 1 AIR DUCT SUB-ASSEMBLY INFO

17. INSTALL SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

18. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

19. INSTALL NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

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20. INSTALL CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

21. INSTALL CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

22. INSTALL CONSOLE BOX CARPET INFO

23. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

24. INSTALL NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

25. INSTALL NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

26. INSTALL FRONT NO. 1 CONSOLE BOX INSERT INFO

27. INSTALL COWL SIDE TRIM BOARD LH INFO

28. INSTALL FRONT DOOR SCUFF PLATE LH INFO

29. INSTALL FRONT NO. 2 CONSOLE BOX INSERT INFO

30. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

31. INSTALL COWL SIDE TRIM BOARD RH INFO

32. INSTALL FRONT DOOR SCUFF PLATE RH INFO

33. INSTALL AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System) INFO

34. INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

35. INSTALL INSTRUMENT PANEL HOLE COVER INFO

36. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

37. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

38. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

39. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

40. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

41. INSTALL RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

42. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

43. INSTALL NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

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44. INSTALL STEERING POST ASSEMBLY (for 2ZR-FE) INFO
45. INSTALL STEERING POST ASSEMBLY (for 2AZ-FE) INFO
46. TURN FRONT WHEELS FACING STRAIGHT AHEAD
47. CONNECT NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO
48. INSTALL STOP LIGHT SWITCH ASSEMBLY INFO
49. INSTALL NO. 3 AIR DUCT SUB-ASSEMBLY INFO
50. INSTALL INSTRUMENT PANEL SUB REINFORCEMENT INFO
51. INSTALL COLUMN HOLE COVER SILENCER SHEET INFO
52. INSTALL TRANSPONDER KEY AMPLIFIER (w/o Smart Key System) INFO
53. INSTALL TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO
54. INSTALL UPPER STEERING COLUMN COVER INFO
55. INSTALL LOWER STEERING COLUMN COVER INFO
56. TURN FRONT WHEELS FACING STRAIGHT AHEAD
57. ADJUST SPIRAL CABLE INFO
58. INSTALL STEERING WHEEL ASSEMBLY INFO
59. INSTALL STEERING PAD INFO
60. INSTALL LOWER NO. 3 STEERING WHEEL COVER INFO
61. INSTALL LOWER NO. 2 STEERING WHEEL COVER INFO
62. INSPECT STEERING WHEEL CENTER POINT
63. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO
64. INSTALL POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO
65. INSTALL POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO
66. INSTALL UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO
67. CONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO
68. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO
69. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO
70. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO
71. INSTALL NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO

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72. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY INFO

73. INSTALL FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO

74. INSTALL FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO

75. INSTALL FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO

76. INSTALL FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO

77. INSTALL COMBINATION METER ASSEMBLY INFO

78. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

79. INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

80. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

81. INSTALL INSTRUMENT PANEL FINISH PANEL END RH INFO

82. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

83. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

84. INSTALL HEATER WATER HOSE OUTLET INFO

85. INSTALL HEATER WATER HOSE INLET INFO

86. INSTALL AIR CONDITIONING TUBE ASSEMBLY INFO

87. INSTALL SUCTION PIPE SUB-ASSEMBLY INFO

88. INSTALL OUTER COWL TOP PANEL (for TMC Made) INFO

89. INSTALL OUTER COWL TOP PANEL (except TMC Made) INFO

90. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

91. INSTALL COWL TOP VENTILATOR LOUVER LH INFO

92. INSTALL CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

93. INSTALL HOOD TO COWL TOP SEAL INFO

94. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

95. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

96. INSTALL FRONT WIPER ARM HEAD CAP INFO

97. CHARGE WITH REFRIGERANT INFO

98. ADD ENGINE COOLANT (for 2ZR-FE) INFO

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99. ADD ENGINE COOLANT (for 2AZ-FE) INFO

100. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

101. INSPECT FOR COOLANT LEAK (for 2ZR-FE) INFO

102. INSPECT FOR COOLANT LEAK (for 2AZ-FE) INFO

103. INSPECT STEERING PAD INFO

104. INSPECT SRS WARNING LIGHT

INFO

105. WARM UP ENGINE INFO

106. INSPECT FOR REFRIGERANT LEAK INFO



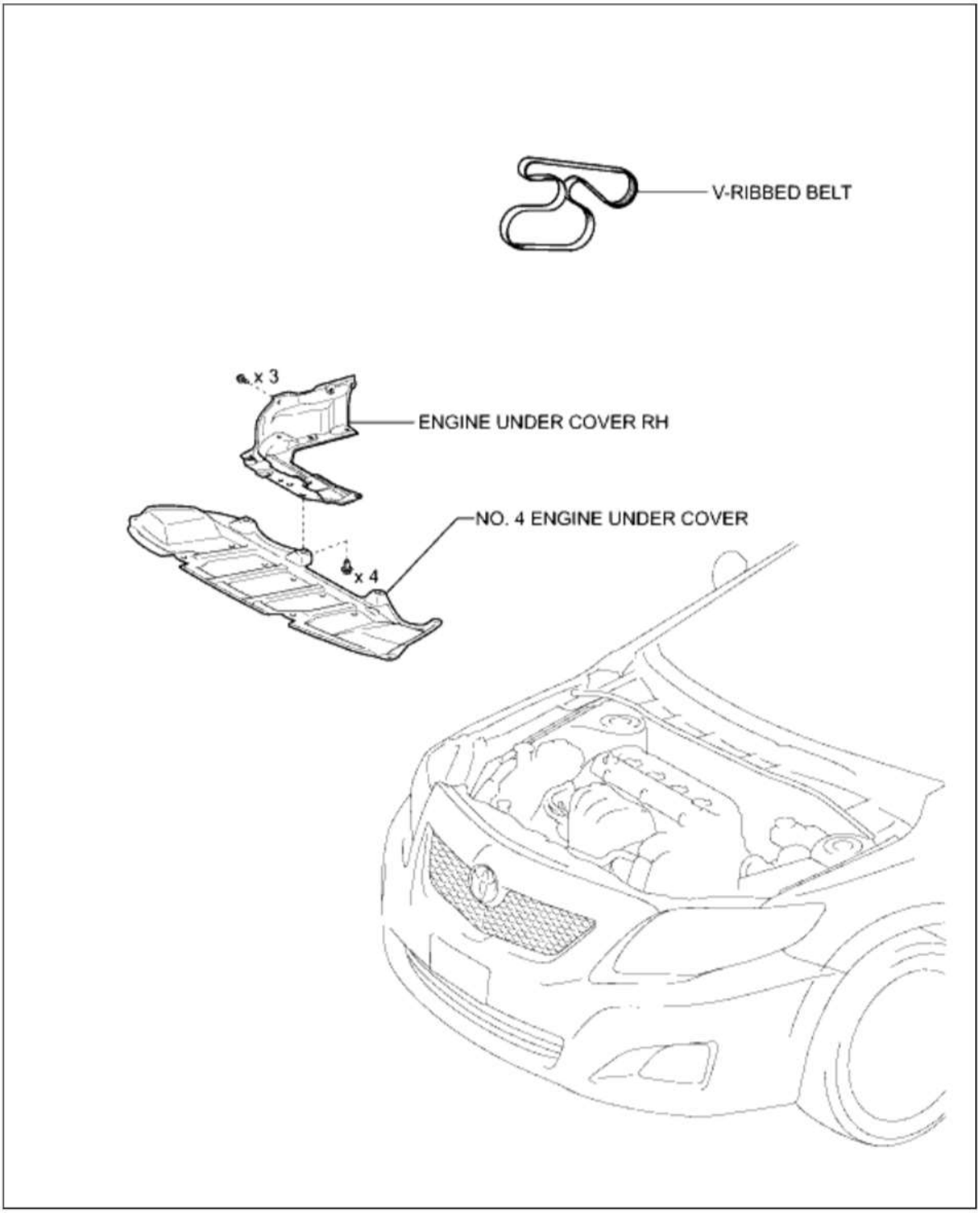
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXM001X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2AZ-FE): COMPONENTS (2010 Corolla)		

COMPONENTS

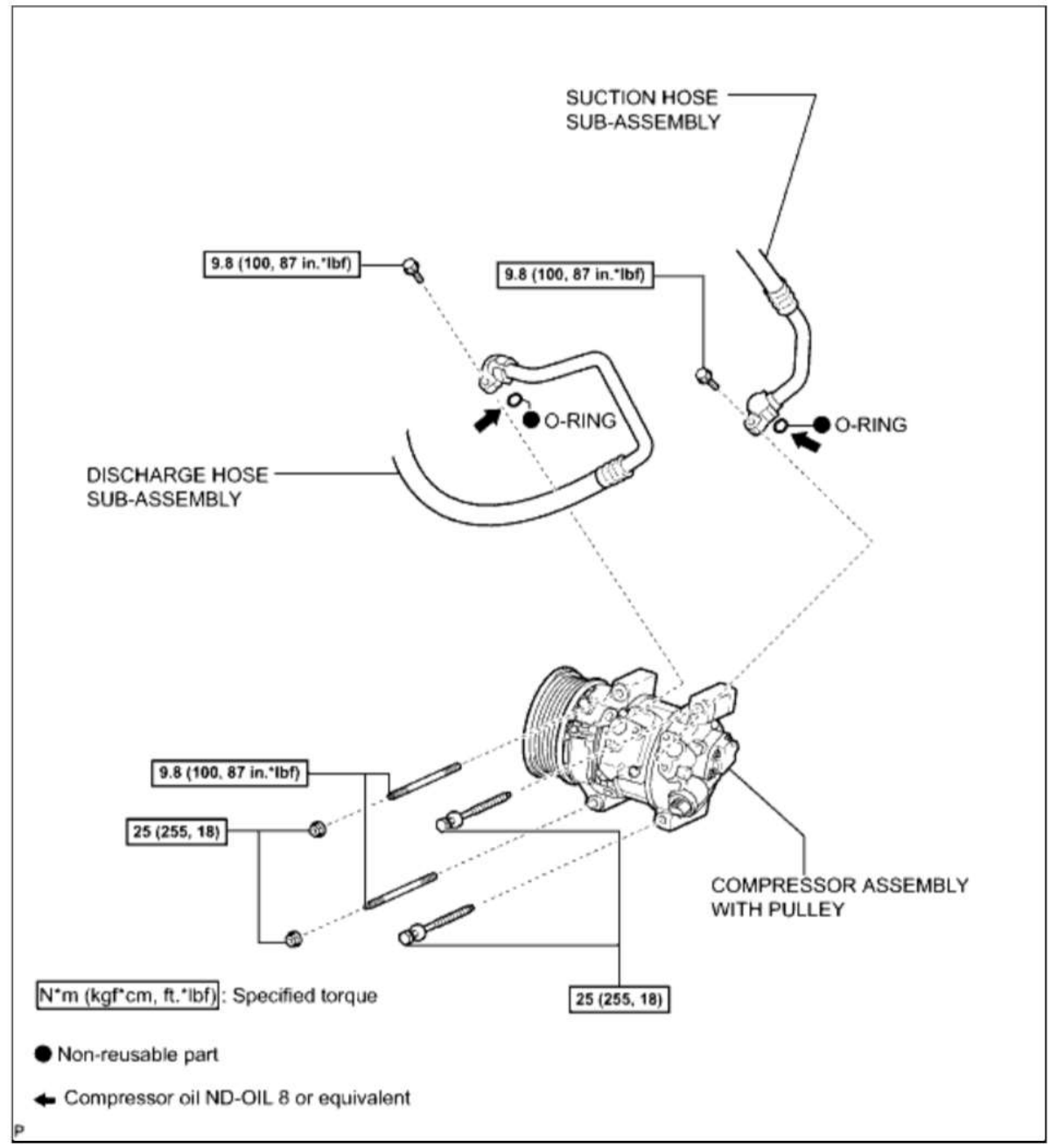
ILLUSTRATION

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002CVY020X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2AZ-FE): ON-VEHICLE INSPECTION (2010 Corolla)		

ON-VEHICLE INSPECTION

1. INSPECT COMPRESSOR FOR METALLIC SOUND

(a) Check if there is abnormal metallic sound from the compressor when the A/C switch is on and the compressor operates.

If abnormal metallic sound is heard, replace the compressor and pulley.

2. INSPECT REFRIGERANT PRESSURE

(a) Inspect the refrigerant pressure INFO .

3. INSPECT FOR LEAKAGE OF REFRIGERANT

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

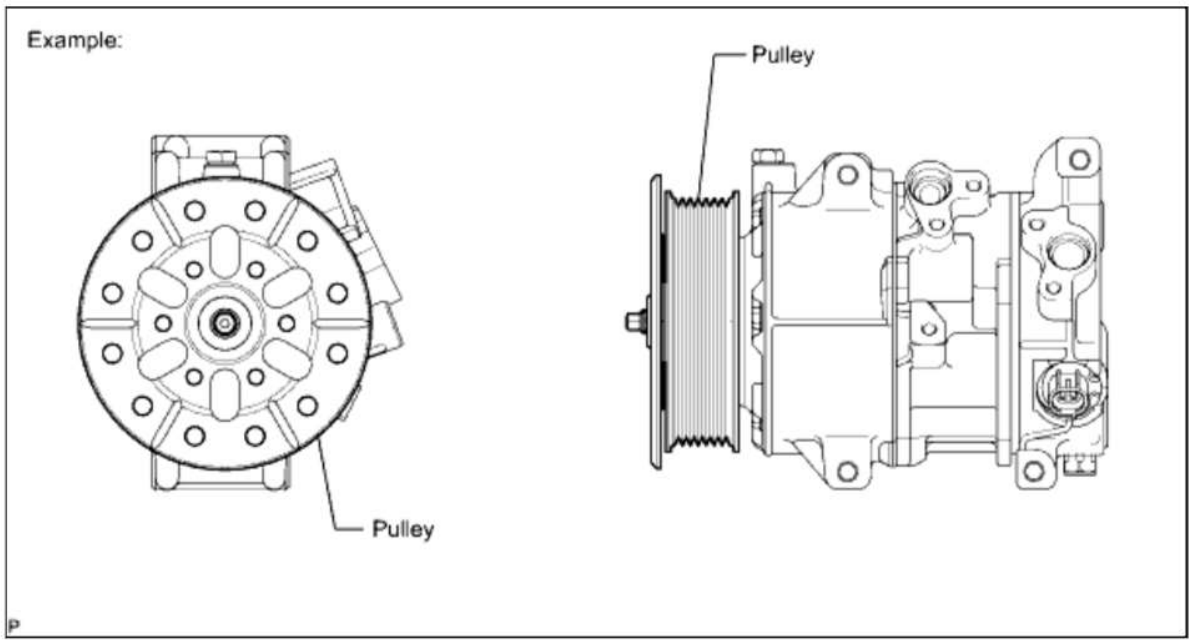
If there is any leakage, replace the compressor and pulley.

4. INSPECT COMPRESSOR AND PULLEY

(a) Check operation of compressor and pulley.

(1) Start the engine.

(2) Inspect the compressor pulley.



Standard:

The compressor shaft rotates along with the pulley.

If the result is not as specified, replace the compressor and pulley.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XUM00YX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2AZ-FE): REMOVAL (2010 Corolla)		

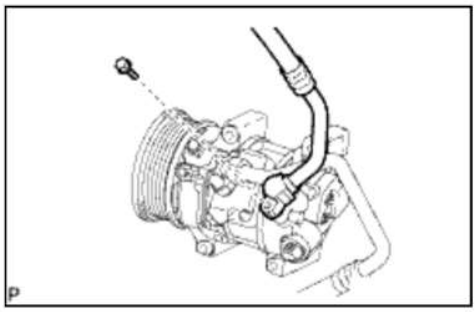
REMOVAL

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

2. REMOVE ENGINE UNDER COVER RH

3. REMOVE V-RIBBED BELT INFO

4. DISCONNECT SUCTION HOSE SUB-ASSEMBLY



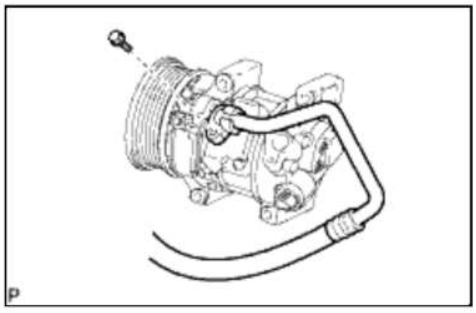
(a) Remove the bolt and disconnect the suction hose sub-assembly from the compressor assembly with pulley.

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

NOTICE:

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

5. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY



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

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

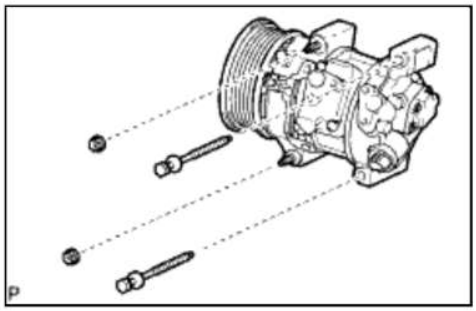
NOTICE:

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

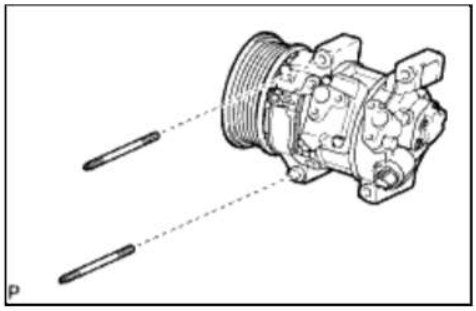
6. REMOVE COMPRESSOR ASSEMBLY WITH PULLEY

(a) Disconnect the connector.

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(b) Remove the 2 bolts and the 2 nuts.



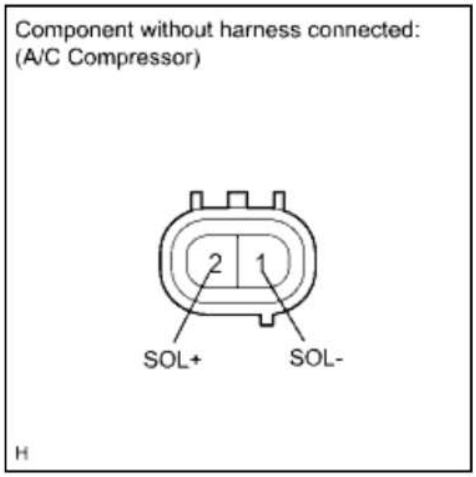
(c) Using a "TORX" socket wrench (E8), remove the 2 stud bolts and the compressor assembly with pulley.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002CVX021X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2AZ-FE): INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT COMPRESSOR AND PULLEY (A/C COMPRESSOR)



(a) Disconnect the connector from the compressor and pulley.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2 (SOL+) - 1 (SOL-)	20°C (68°F)	10 to 11 Ω

If the resistance is not as specified, replace the compressor and pulley.

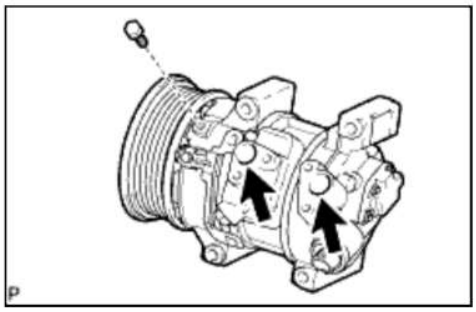
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XUK00YX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2AZ-FE): INSTALLATION (2010 Corolla)		

INSTALLATION

1. ADJUST COMPRESSOR OIL LEVEL

(a) When replacing the cooler compressor assembly with a new one, gradually discharge the inert gas (helium) from the service valve, and drain the following amount of oil from the vents indicated by the arrows in the illustration before installation.



HINT:

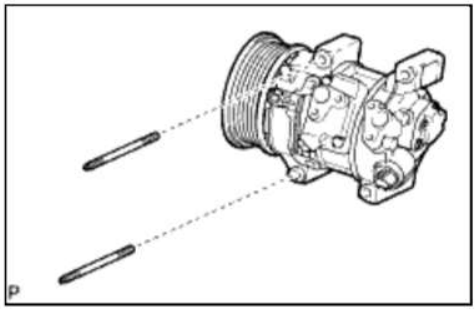
The drain bolt and washer can be reused.

Standard:
(Oil capacity inside the new compressor: 90 + 15 cc (3 + 0.51 fl.oz.)) - (Remaining oil amount in the removed compressor) = (Oil amount to be removed from the new compressor when replacing)

NOTICE:

- If a new compressor is installed without removing some oil remaining in the pipes of the vehicle, the oil amount will be excessive. This prevents heat exchange in the refrigerant cycle and causes refrigeration system failure.
- If the volume of oil remaining in the removed compressor is too small, check for oil leaks.
- Be sure to use ND-OIL 8 or equivalent for compressor oil.

2. INSTALL COMPRESSOR ASSEMBLY WITH PULLEY

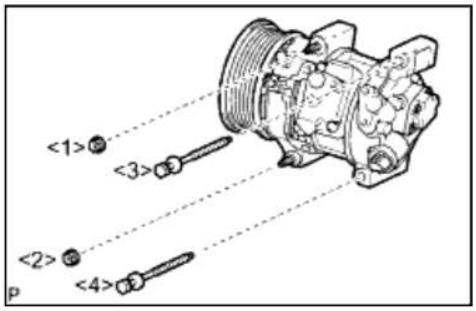


(a) Using a "TORX" socket wrench (E8), install the compressor assembly with pulley with the 2 stud bolts.

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

(b) Install the compressor assembly with pulley with the 2

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bolts and the 2 nuts.

HINT:

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

Torque: 25 N·m (255 kgf·cm, 18ft·lbf)

(c) Connect the connector.

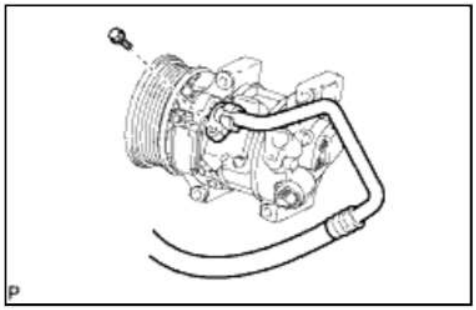
3. CONNECT DISCHARGE HOSE SUB-ASSEMBLY

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

(b) Apply sufficient compressor oil to a new O-ring and the fitting surface of the compressor assembly with pulley.

Compressor oil:
ND-OIL 8 or equivalent

(c) Install the O-ring onto the discharge hose sub-assembly.



(d) Install the discharge hose sub-assembly onto the compressor assembly with pulley with the bolt.

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

4. CONNECT SUCTION HOSE SUB-ASSEMBLY

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

(b) Apply sufficient compressor oil to a new O-ring and the fitting surface of the compressor assembly with pulley.

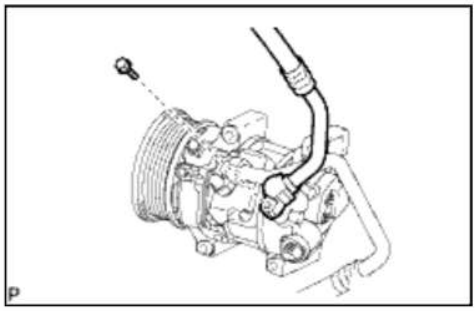
Compressor oil:
ND-OIL 8 or equivalent

(c) Install the O-ring onto the suction hose sub-assembly.

(d) Install the suction hose sub-assembly onto the compressor assembly with pulley with the bolt.

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

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5. INSTALL V-RIBBED BELT INFO

6. INSTALL ENGINE UNDER COVER RH

7. CHARGE WITH REFRIGERANT INFO

8. WARM UP ENGINE INFO

9. INSPECT FOR REFRIGERANT LEAK INFO

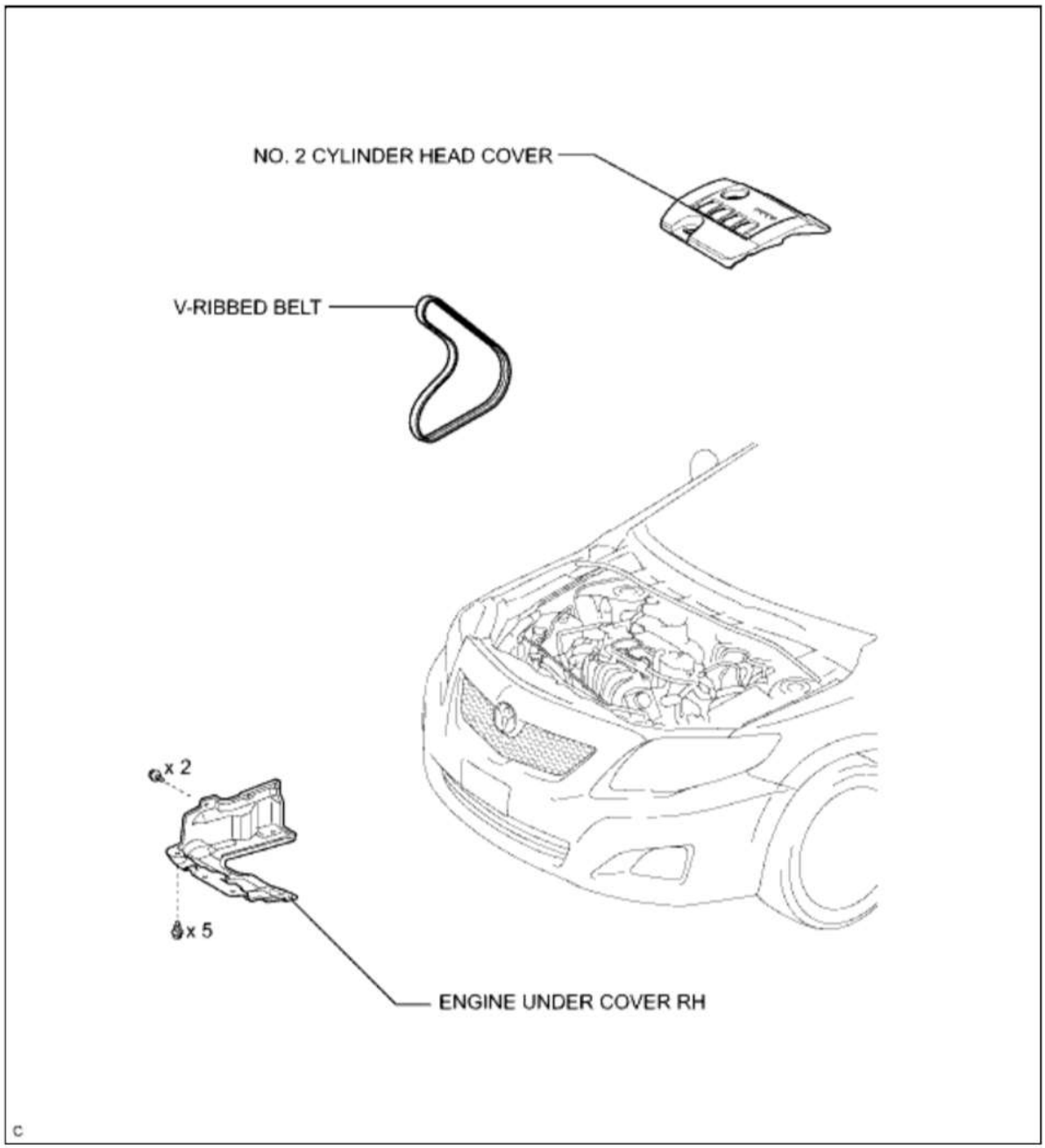
TOYOTA

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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXN001X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2ZR-FE): COMPONENTS (2010 Corolla)		

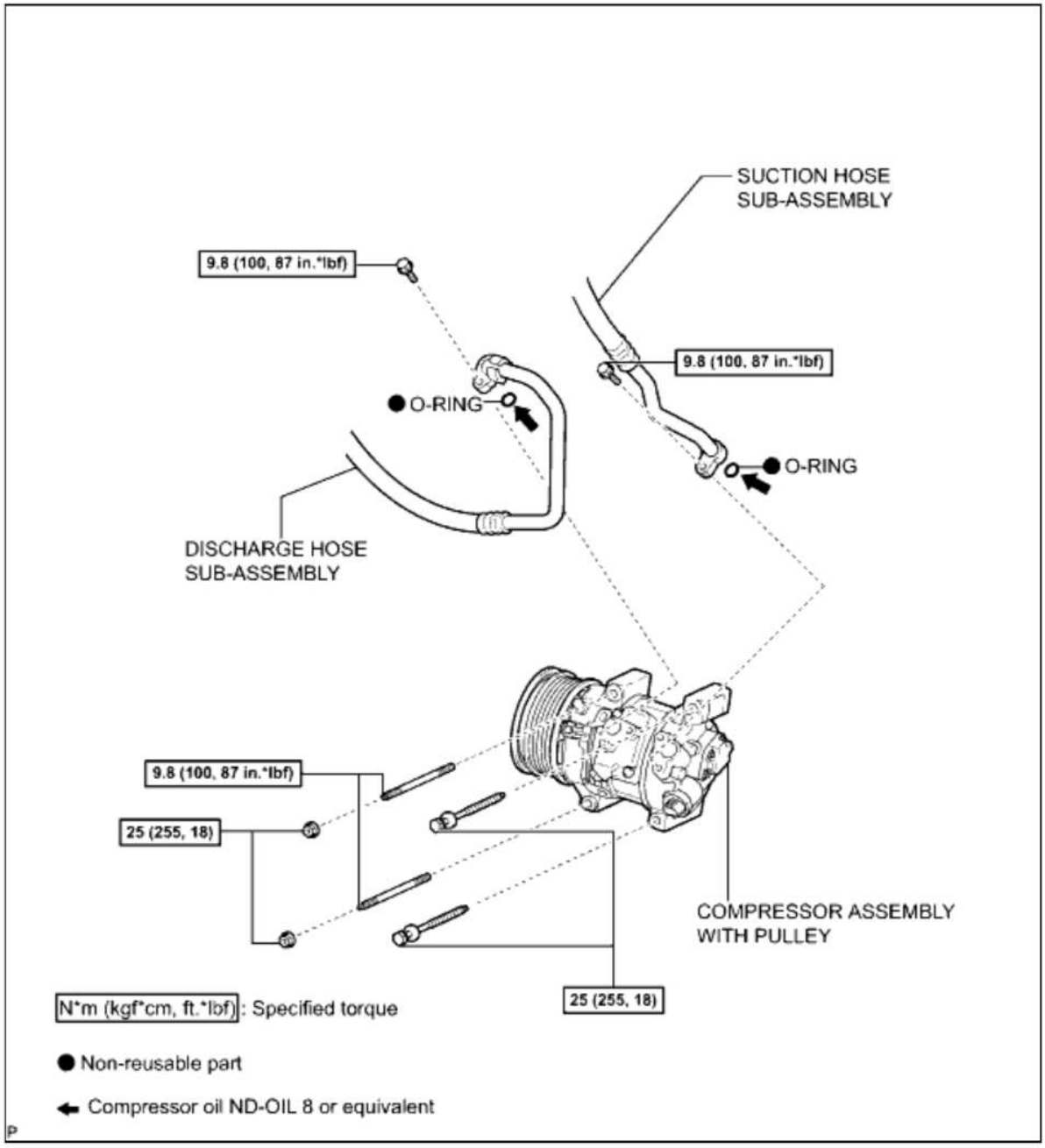
COMPONENTS

ILLUSTRATION



ILLUSTRATION

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002CVY021X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2ZR-FE): ON-VEHICLE INSPECTION (2010 Corolla)		

ON-VEHICLE INSPECTION

1. INSPECT COMPRESSOR FOR METALLIC SOUND

(a) Check if there is abnormal metallic sound from the compressor when the A/C switch is on and the compressor operates.

If abnormal metallic sound is heard, replace the compressor and pulley.

2. INSPECT REFRIGERANT PRESSURE

(a) Inspect the refrigerant pressure INFO .

3. INSPECT FOR LEAKAGE OF REFRIGERANT

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

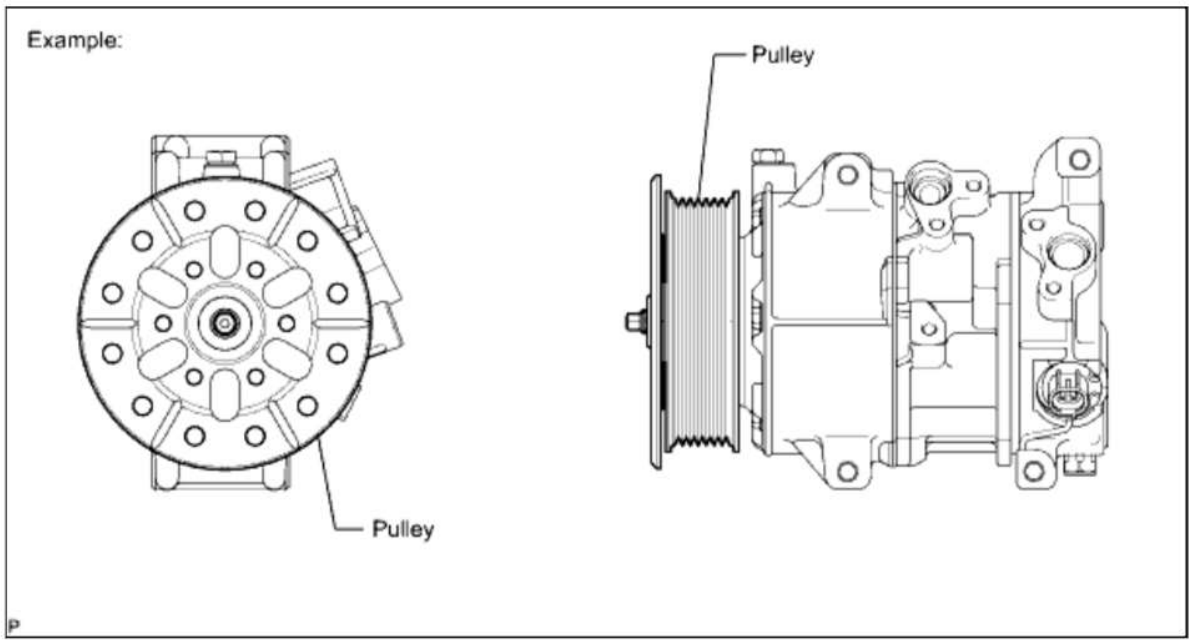
If there is any leakage, replace the compressor and pulley.

4. INSPECT COMPRESSOR AND PULLEY

(a) Check operation of compressor and pulley.

(1) Start the engine.

(2) Inspect the compressor pulley.



Standard:

The compressor shaft rotates along with the pulley.

If the result is not as specified, replace the compressor and pulley.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XUM00ZX
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2ZR-FE): REMOVAL (2010 Corolla)		

REMOVAL

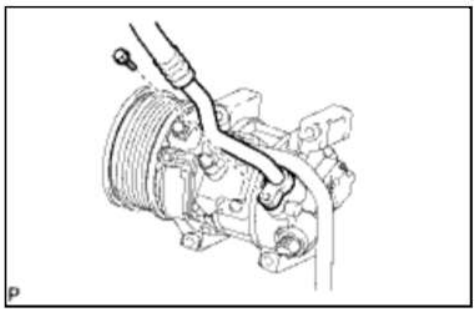
1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

2. REMOVE NO. 2 CYLINDER HEAD COVER INFO

3. REMOVE ENGINE UNDER COVER RH

4. REMOVE V-RIBBED BELT INFO

5. DISCONNECT SUCTION HOSE SUB-ASSEMBLY



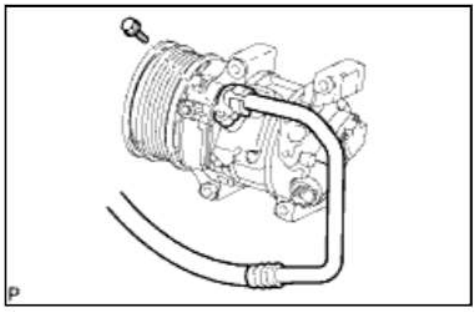
(a) Remove the bolt and disconnect the suction hose sub-assembly from the compressor assembly with pulley.

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

NOTICE:

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

6. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY



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

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

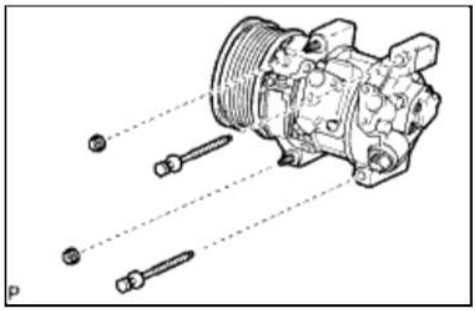
NOTICE:

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

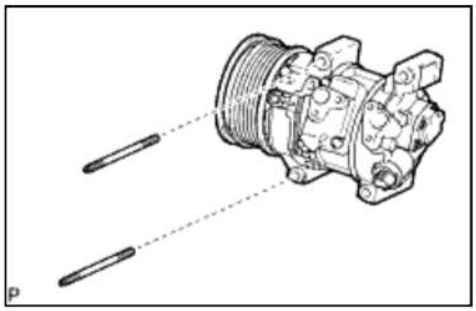
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7. REMOVE COMPRESSOR ASSEMBLY WITH PULLEY

(a) Disconnect the connector.



(b) Remove the 2 bolts and the 2 nuts.



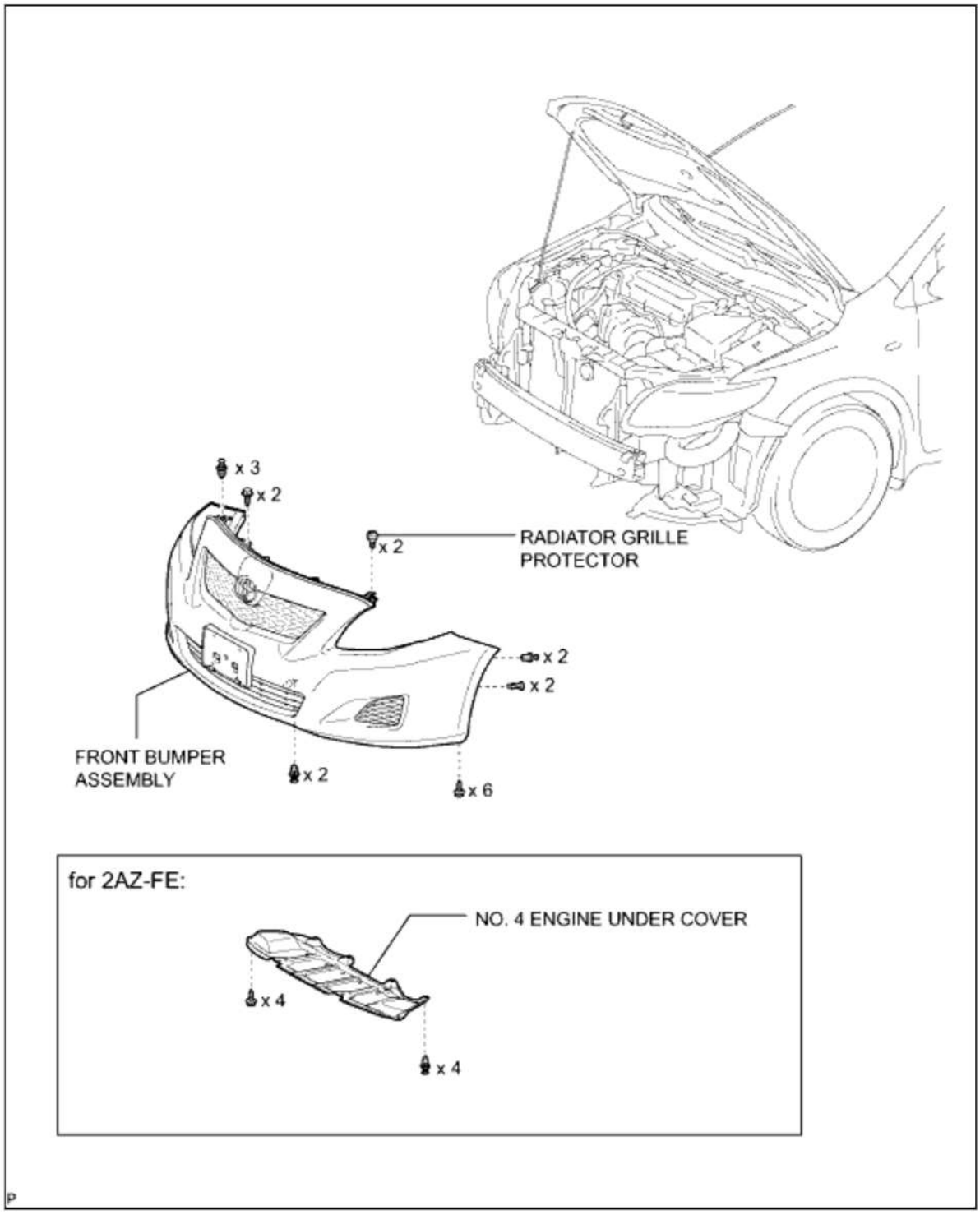
(c) Using a "TORX" socket wrench (E8), remove the 2 stud bolts and the compressor assembly with pulley.

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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXO001X
Title: HEATING / AIR CONDITIONING: CONDENSER: COMPONENTS (2010 Corolla)		

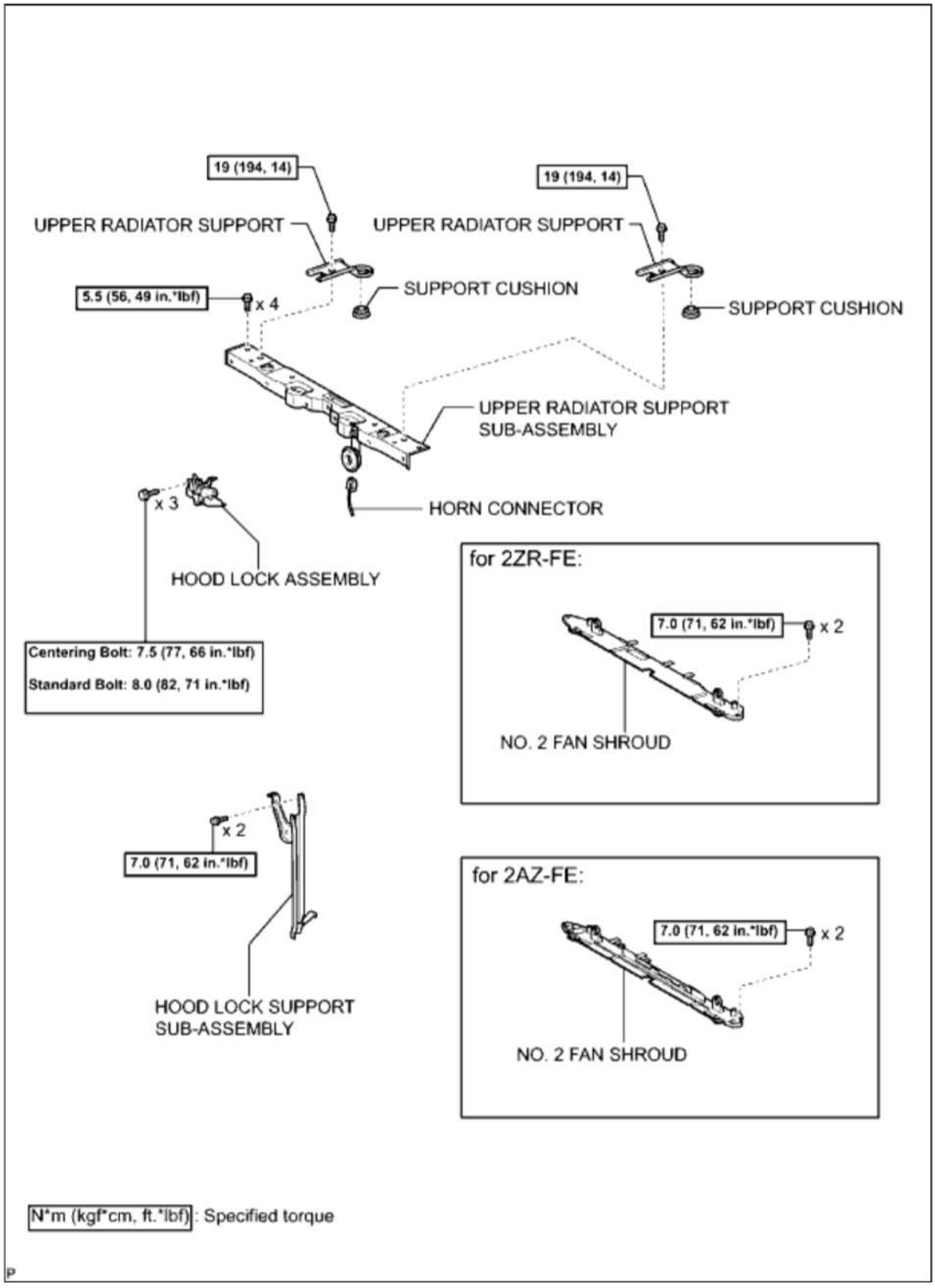
COMPONENTS

ILLUSTRATION



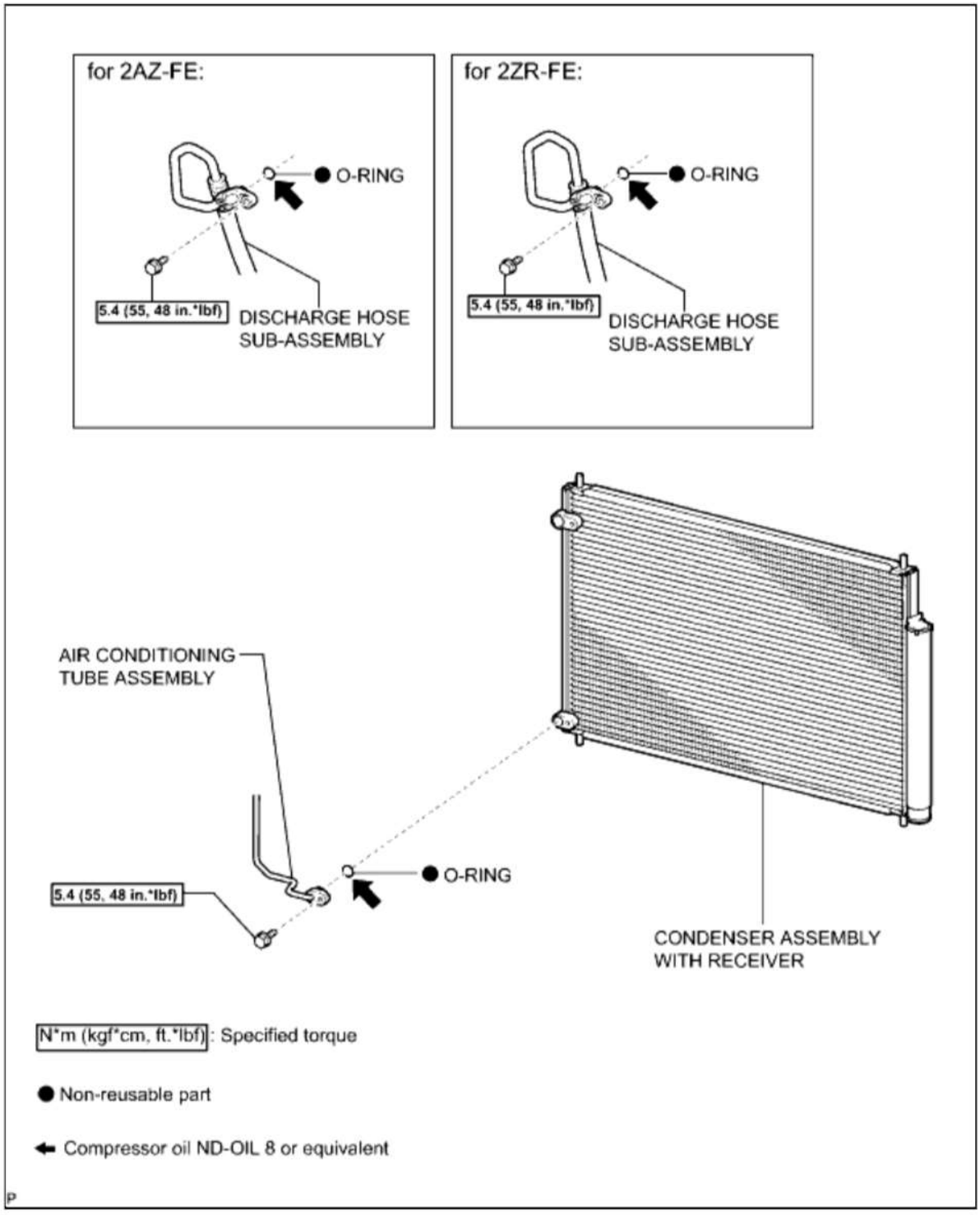
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ILLUSTRATION



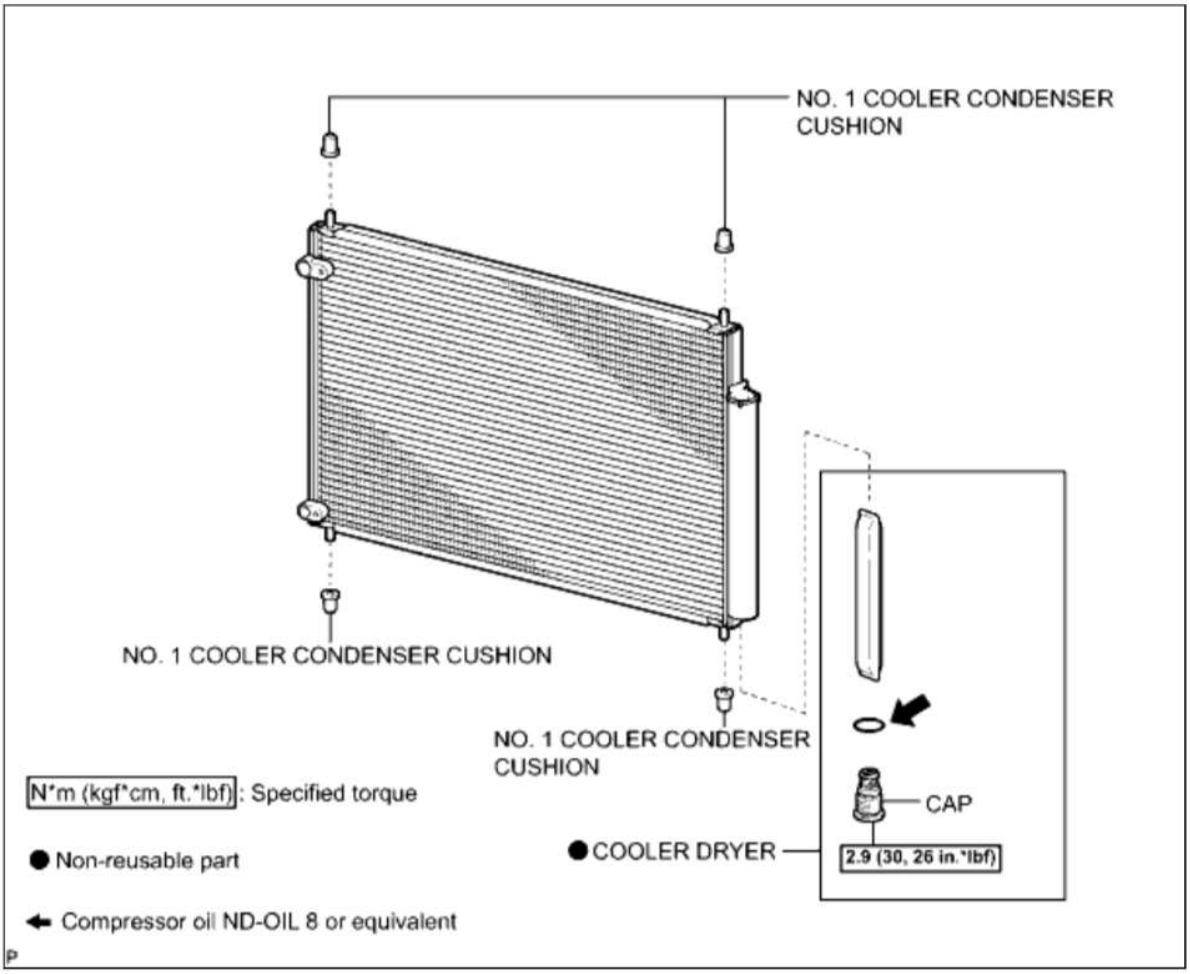
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ILLUSTRATION



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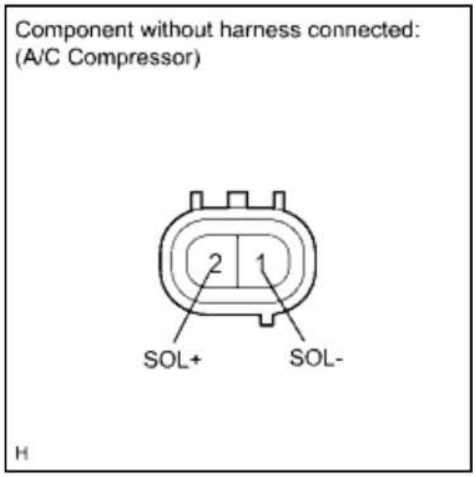


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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002CVX022X
Title: HEATING / AIR CONDITIONING: COMPRESSOR (for 2ZR-FE): INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT COMPRESSOR AND PULLEY (A/C COMPRESSOR)



(a) Disconnect the connector from the compressor and pulley.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2 (SOL+) - 1 (SOL-)	20°C (68°F)	10 to 11 Ω

If the resistance is not as specified, replace the compressor and pulley.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000012UU00TX
Title: HEATING / AIR CONDITIONING: CONDENSER: ON-VEHICLE INSPECTION (2010 Corolla)		

ON-VEHICLE INSPECTION

1. INSPECT CONDENSER ASSEMBLY WITH RECEIVER

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

NOTICE:

Do not damage the condenser assembly fins.

(b) If any condenser assembly fins are bent, straighten them using a screwdriver or pliers.

2. INSPECT FOR REFRIGERANT LEAK

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

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

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XLT00XX
Title: HEATING / AIR CONDITIONING: CONDENSER: REMOVAL (2010 Corolla)		

REMOVAL

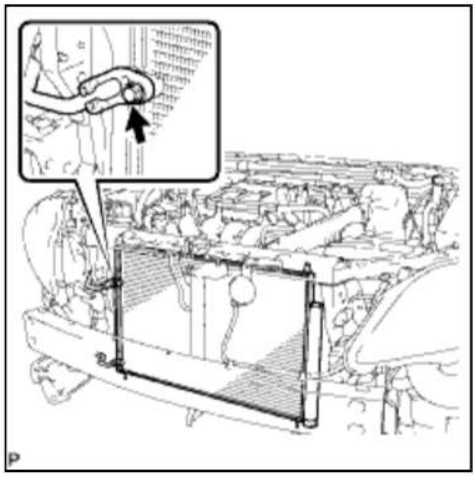
1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

2. REMOVE RADIATOR GRILLE PROTECTOR INFO

3. REMOVE NO. 4 ENGINE UNDER COVER (for 2AZ-FE) INFO

4. REMOVE FRONT BUMPER ASSEMBLY INFO

5. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY



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

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

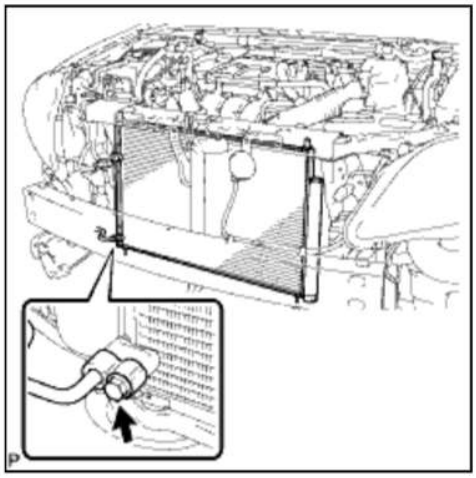
NOTICE:

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

6. DISCONNECT AIR CONDITIONING TUBE ASSEMBLY

(a) Remove the bolt and disconnect the air conditioning tube assembly from the condenser.

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(b) Remove the O-ring from the air conditioning tube assembly.

NOTICE:

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

7. REMOVE UPPER RADIATOR SUPPORT (for 2ZR-FE) INFO

8. REMOVE UPPER RADIATOR SUPPORT (for 2AZ-FE) INFO

9. DISCONNECT HOOD LOCK ASSEMBLY INFO

10. SEPARATE WATER BY-PASS HOSE (for 2ZR-FE) INFO

11. SEPARATE WATER BY-PASS HOSE (for 2AZ-FE) INFO

12. REMOVE HOOD LOCK SUPPORT SUB-ASSEMBLY (for 2ZR-FE) INFO

13. REMOVE HOOD LOCK SUPPORT SUB-ASSEMBLY (for 2AZ-FE) INFO

14. REMOVE UPPER RADIATOR SUPPORT SUB-ASSEMBLY (for 2ZR-FE) INFO

15. REMOVE UPPER RADIATOR SUPPORT SUB-ASSEMBLY (for 2AZ-FE) INFO

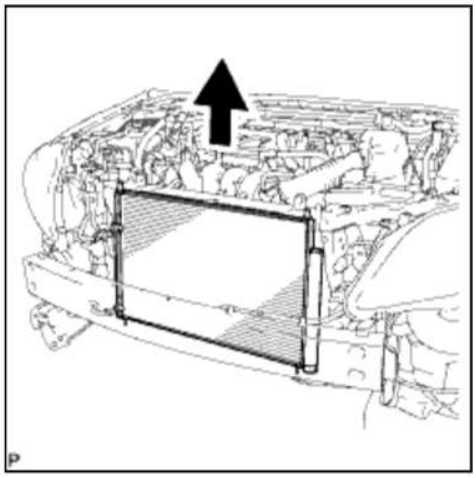
16. REMOVE NO. 2 FAN SHROUD (for 2ZR-FE) INFO

17. REMOVE NO. 2 FAN SHROUD (for 2AZ-FE) INFO

18. REMOVE CONDENSER ASSEMBLY WITH RECEIVER

(a) Remove the condenser assembly with receiver as shown in the illustration.

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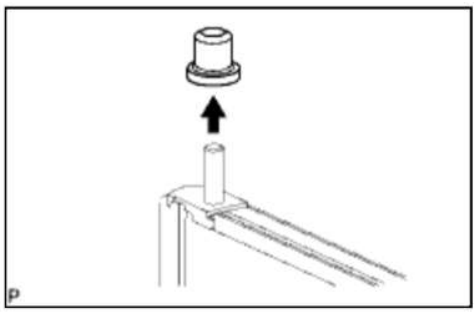


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XLU010X
Title: HEATING / AIR CONDITIONING: CONDENSER: DISASSEMBLY (2010 Corolla)		

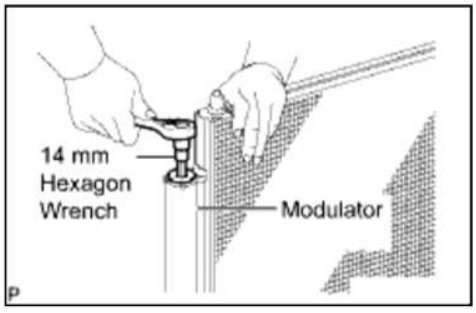
DISASSEMBLY

1. REMOVE NO. 1 COOLER CONDENSER CUSHION

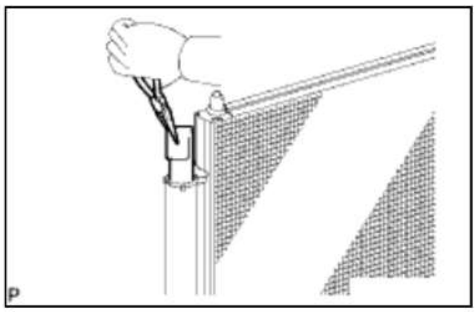


(a) Remove the 4 No. 1 cooler condenser cushions.

2. REMOVE COOLER DRYER



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



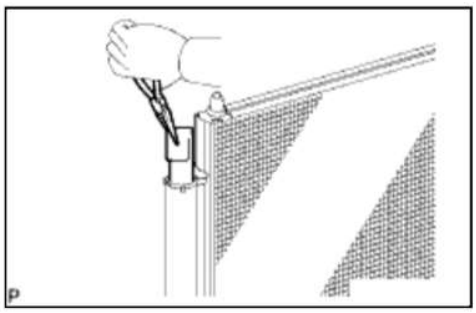
(b) Using pliers, remove the cooler dryer.

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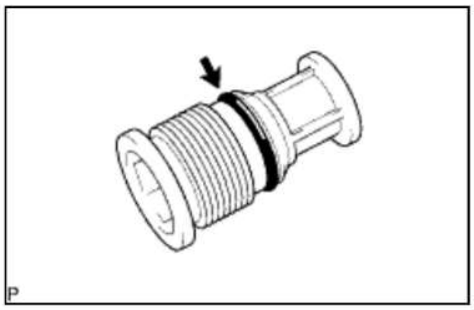
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XLV010X
Title: HEATING / AIR CONDITIONING: CONDENSER: REASSEMBLY (2010 Corolla)		

REASSEMBLY

1. INSTALL COOLER DRYER

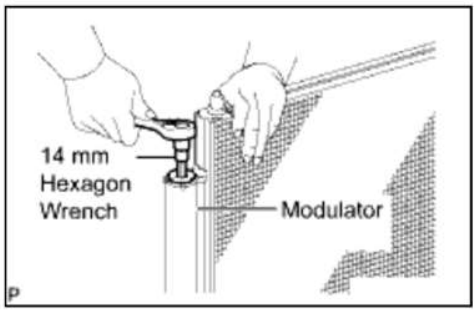


(a) Using pliers, install the new cooler dryer to the modulator.



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

Compressor oil:
ND-OIL 8 or equivalent



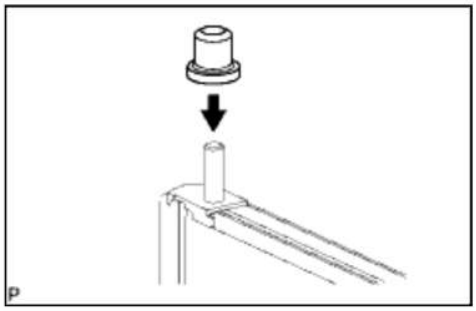
(c) Using a 14 mm straight hexagon wrench, install the new cap to the cooler condenser core.

Torque: 2.9 N·m (30 kgf·cm, 26in·lbf)

2. INSTALL NO. 1 COOLER CONDENSER CUSHION

(a) Install the 4 No. 1 cooler condenser cushions.

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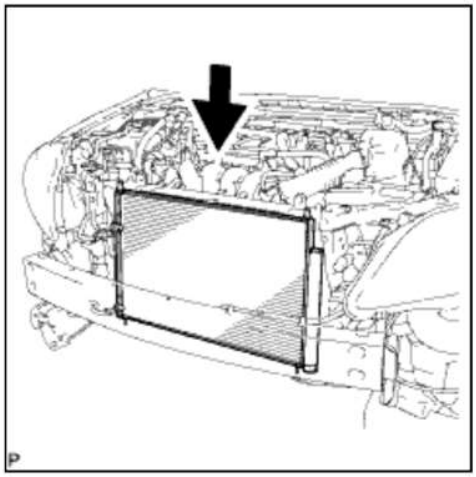


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XLR00XX
Title: HEATING / AIR CONDITIONING: CONDENSER: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL CONDENSER ASSEMBLY WITH RECEIVER



(a) Install the condenser assembly with receiver as shown in the illustration.

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 NO. 2 FAN SHROUD (for 2ZR-FE) INFO

3. INSTALL NO. 2 FAN SHROUD (for 2AZ-FE) INFO

4. INSTALL UPPER RADIATOR SUPPORT SUB-ASSEMBLY (for 2ZR-FE) INFO

5. INSTALL UPPER RADIATOR SUPPORT SUB-ASSEMBLY (for 2AZ-FE) INFO

6. INSTALL HOOD LOCK SUPPORT SUB-ASSEMBLY (for 2ZR-FE) INFO

7. INSTALL HOOD LOCK SUPPORT SUB-ASSEMBLY (for 2AZ-FE) INFO

8. INSTALL WATER BY-PASS HOSE (for 2ZR-FE) INFO

9. INSTALL WATER BY-PASS HOSE (for 2AZ-FE) INFO

10. INSTALL HOOD LOCK ASSEMBLY INFO

11. INSPECT HOOD SUB-ASSEMBLY INFO

12. ADJUST HOOD SUB-ASSEMBLY INFO

13. INSTALL UPPER RADIATOR SUPPORT (for 2ZR-FE) INFO

14. INSTALL UPPER RADIATOR SUPPORT (for 2AZ-FE) INFO

15. CONNECT AIR CONDITIONING TUBE ASSEMBLY

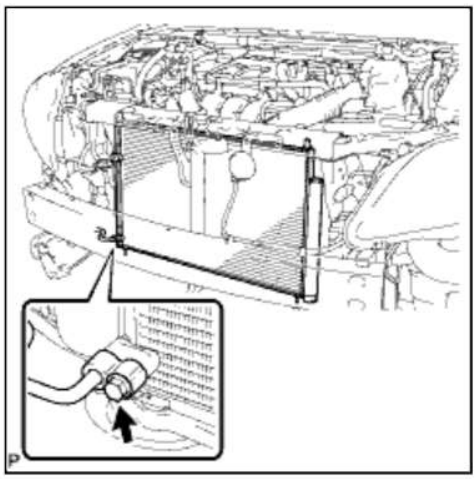
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(a) Remove the attached vinyl tape from the tube and the connecting part of the cooler condenser assembly.

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

Compressor oil:
ND-OIL 8 or equivalent

(c) Install the O-ring on the air conditioning tube assembly.



(d) Install the air conditioning tube assembly on the cooler condenser assembly with the bolt.

Torque: 5.4 N·m (55 kgf·cm, 48in·lbf)

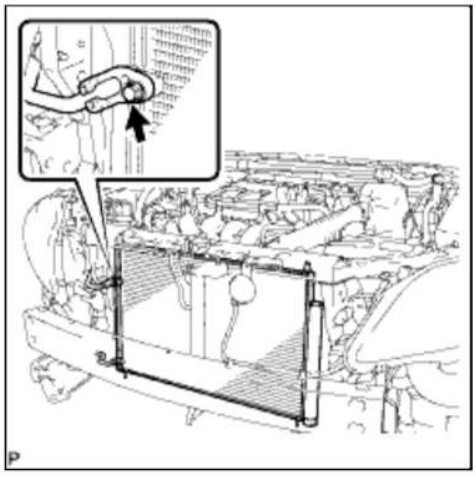
16. CONNECT DISCHARGE HOSE SUB-ASSEMBLY

(a) Remove the attached vinyl tape from the pipe and the connecting part of the cooler condenser assembly.

(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 discharge hose sub-assembly.



(d) Install the discharge hose sub-assembly on the cooler condenser assembly with the bolt.

Torque: 5.4 N·m (55 kgf·cm, 48in·lbf)

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17. CHARGE WITH REFRIGERANT INFO

18. INSTALL FRONT BUMPER ASSEMBLY INFO

19. INSTALL NO. 4 ENGINE UNDER COVER INFO

20. INSTALL RADIATOR GRILLE PROTECTOR INFO

21. WARM UP ENGINE INFO

22. INSPECT FOR REFRIGERANT LEAK INFO

23. VEHICLE PREPARATION FOR FOG LIGHT AIMING ADJUSTMENT INFO

24. PREPARATION FOR FOG LIGHT AIMING INFO

25. INSPECT FOG LIGHT AIMING INFO

26. ADJUST FOG LIGHT AIMING INFO

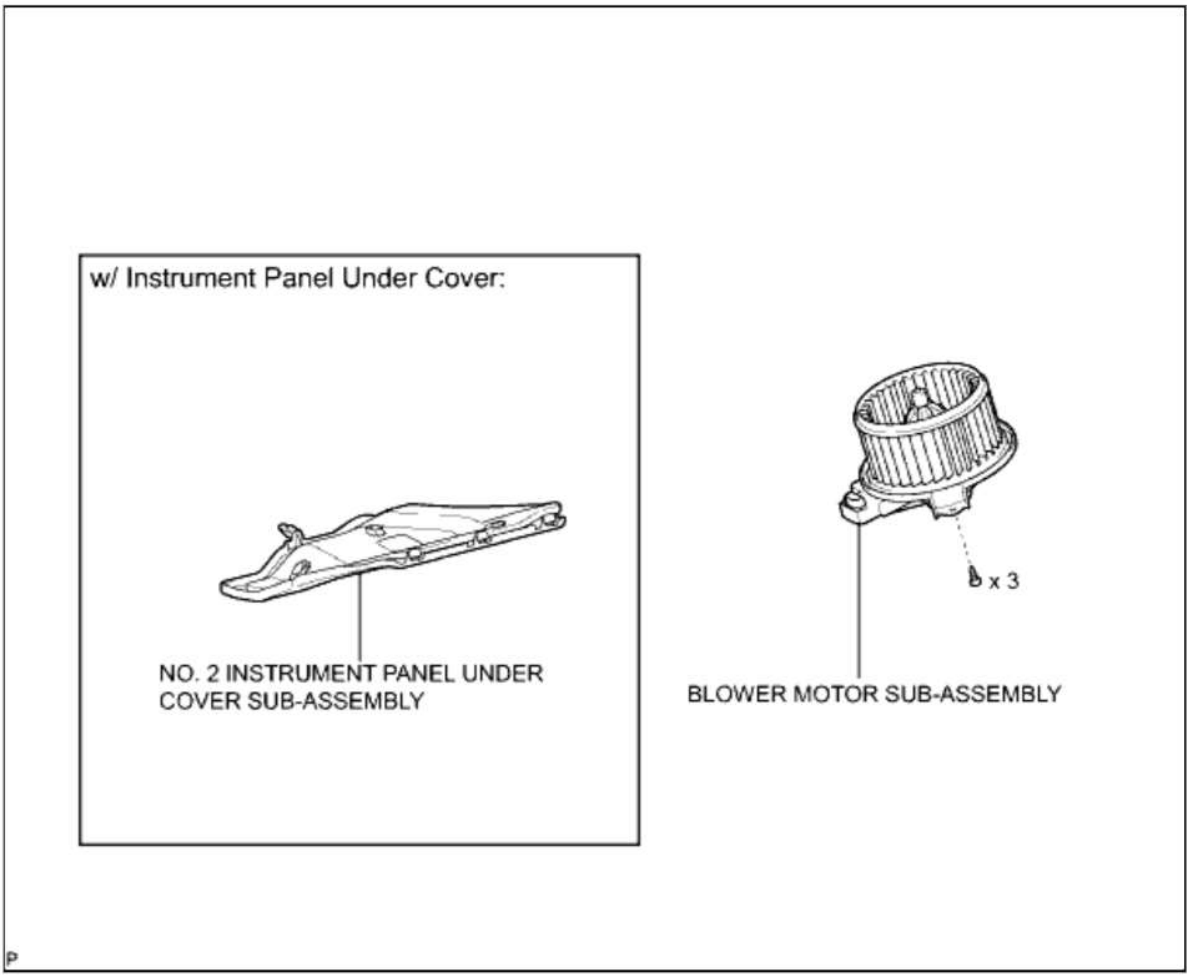


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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXI001X
Title: HEATING / AIR CONDITIONING: FRONT BLOWER MOTOR: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION



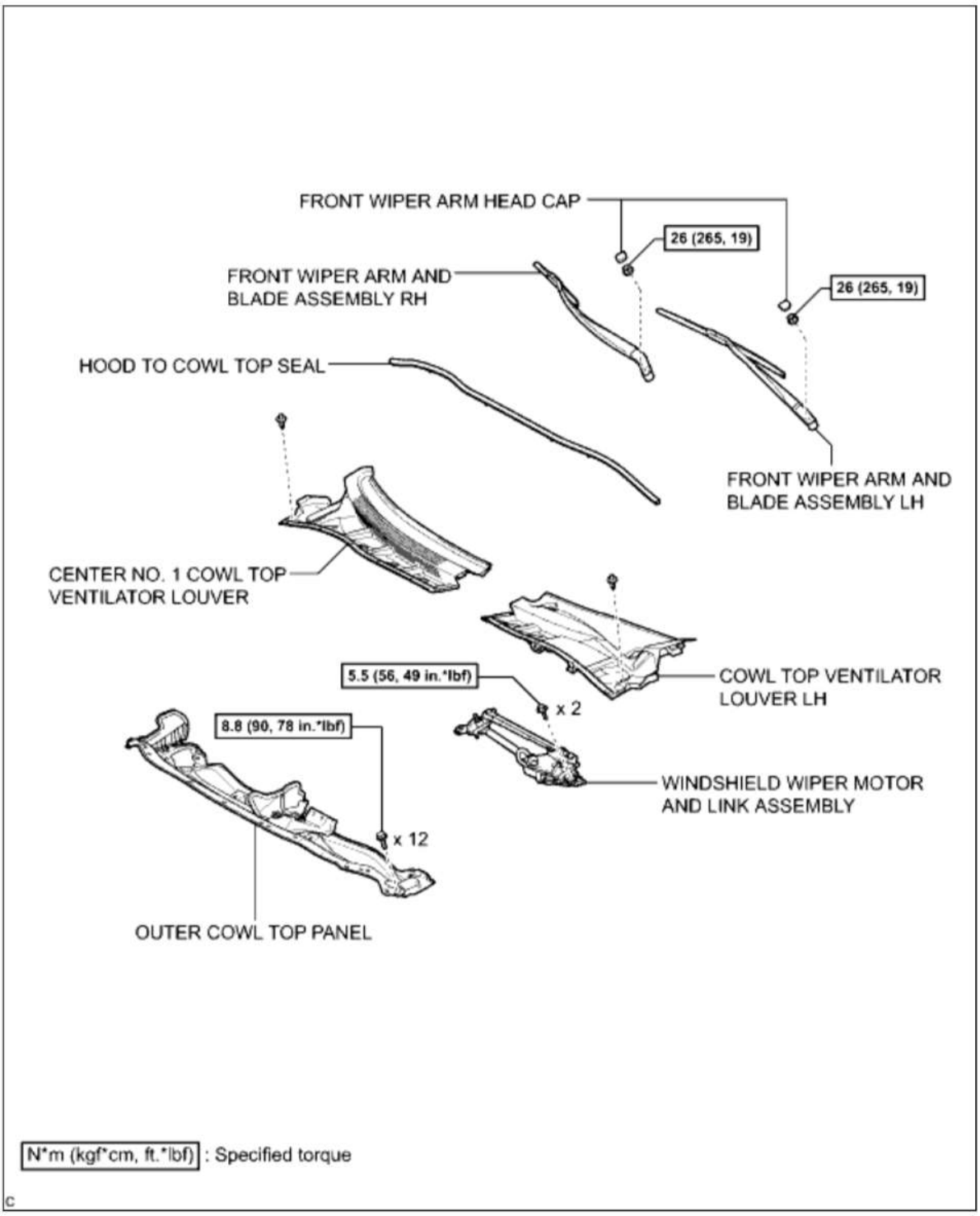
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXR001X
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: COMPONENTS (2010 Corolla)		

COMPONENTS

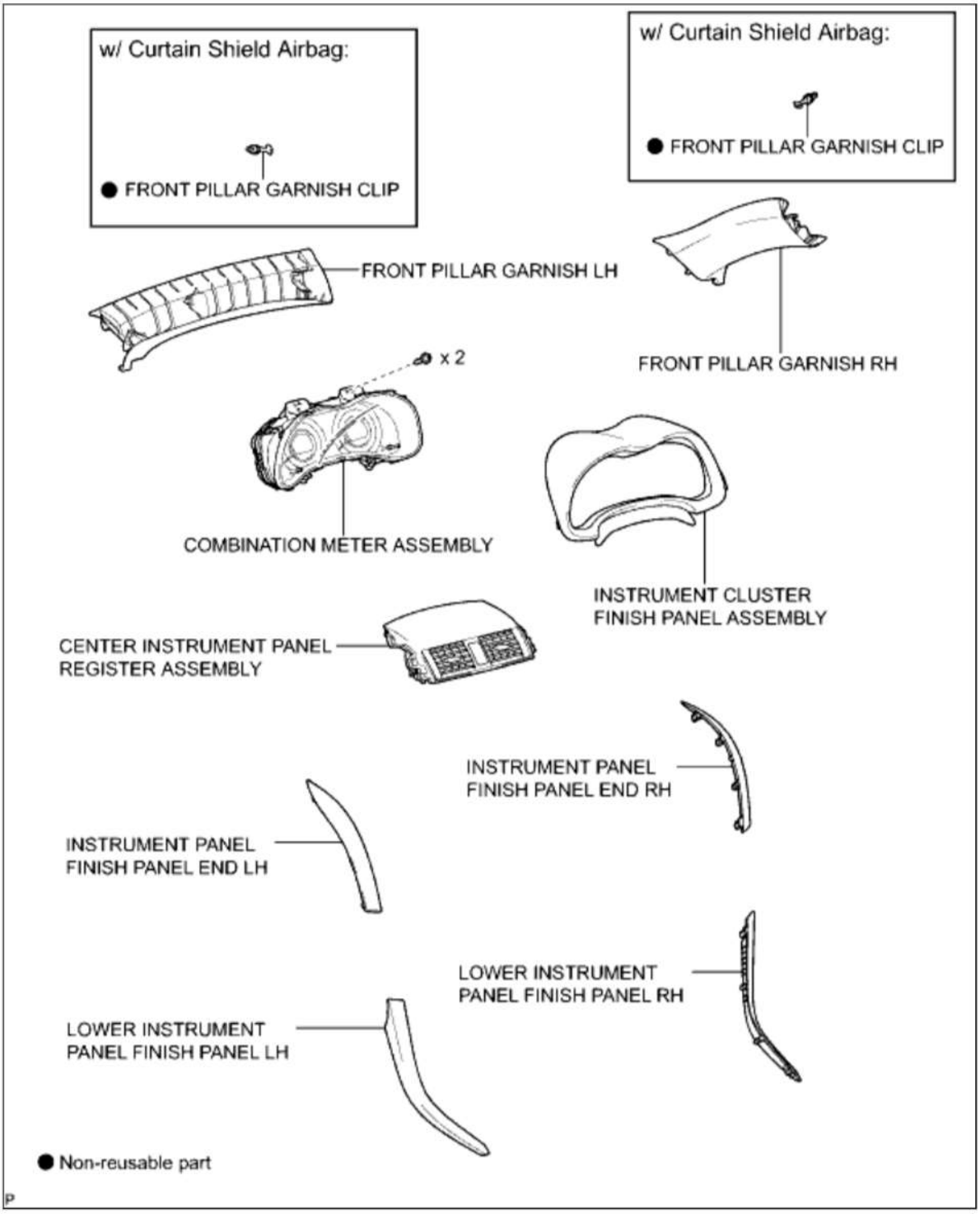
ILLUSTRATION

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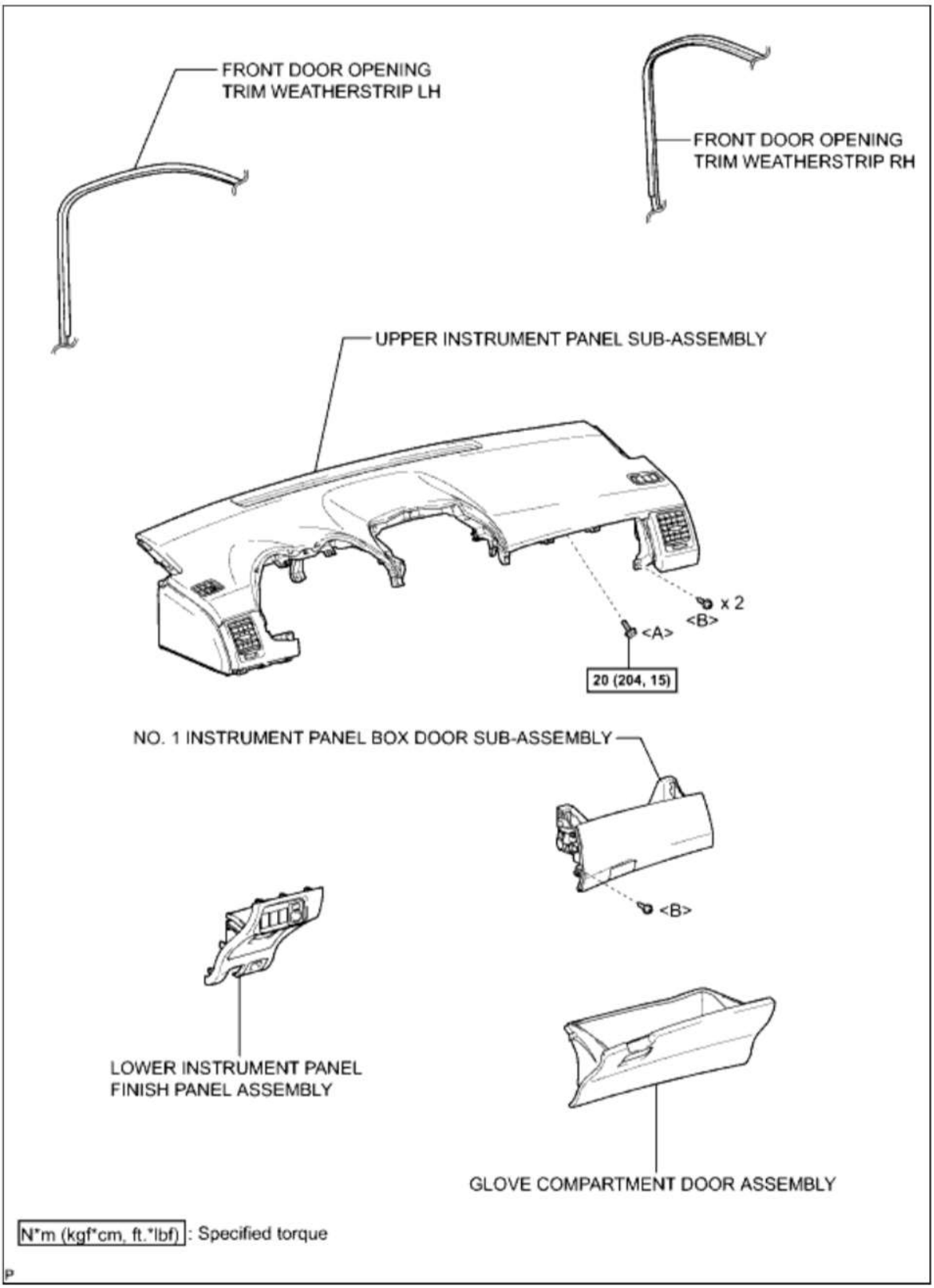
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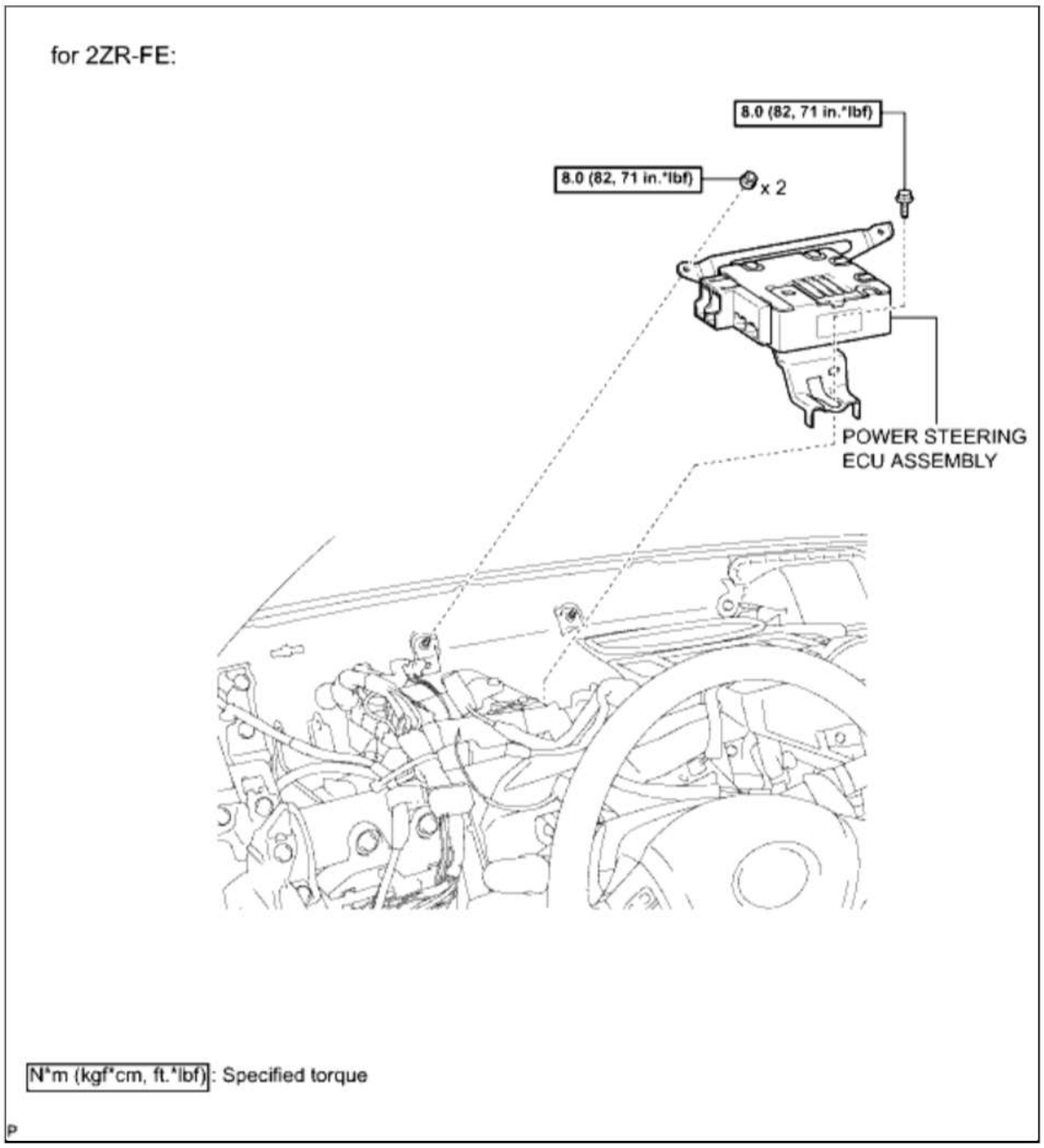
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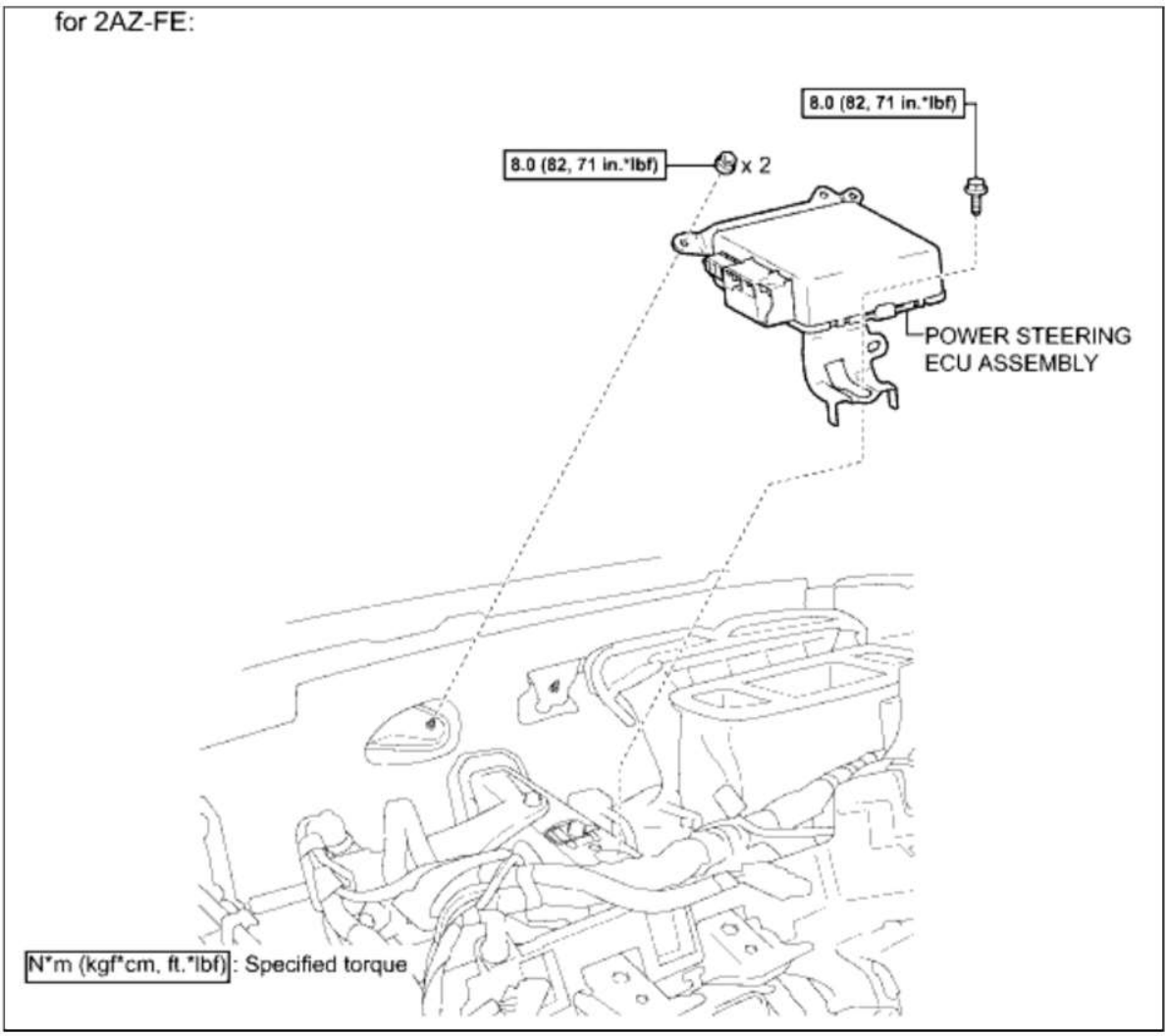
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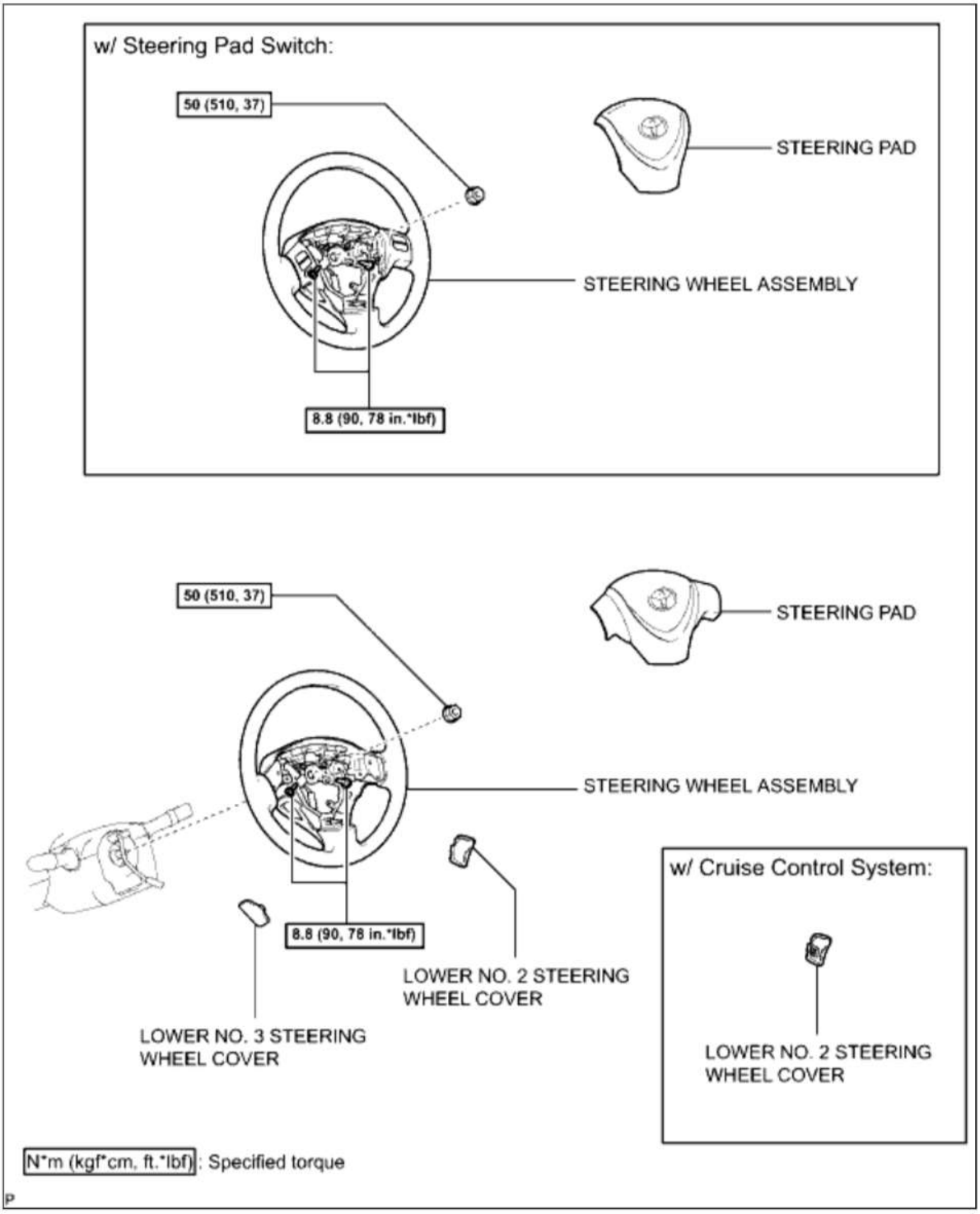
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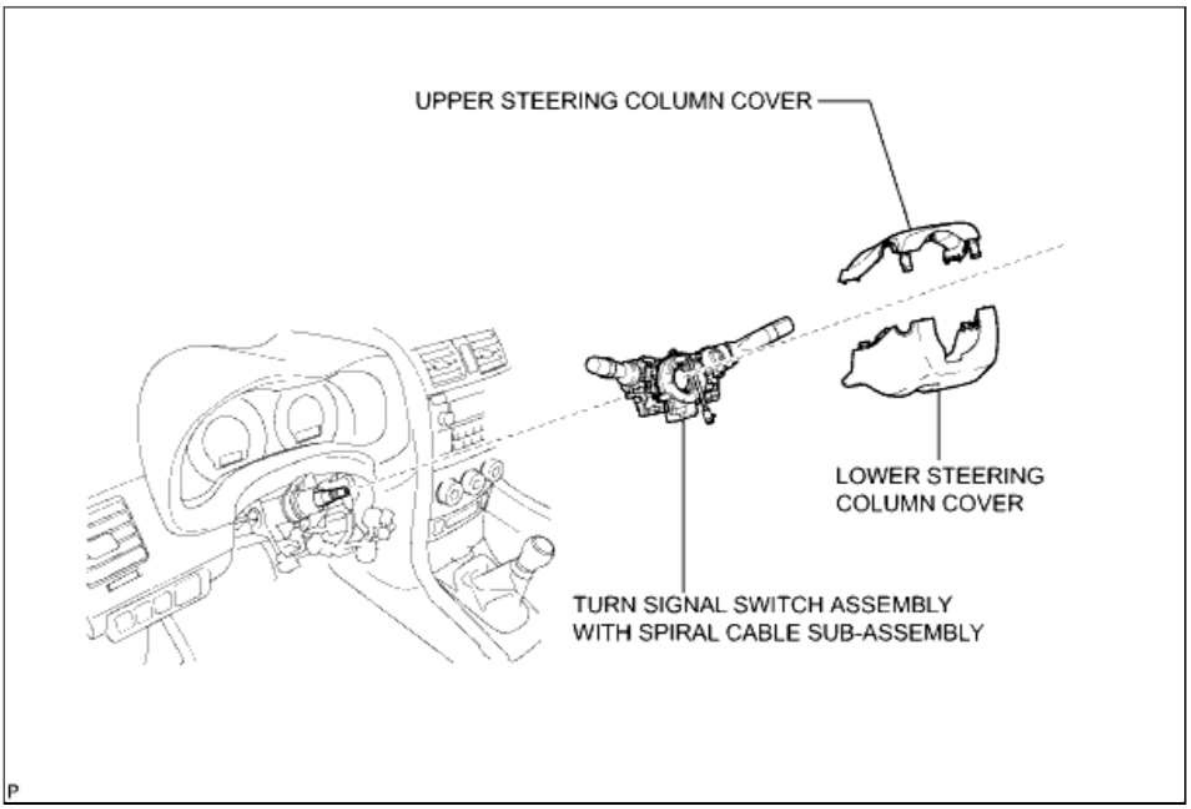
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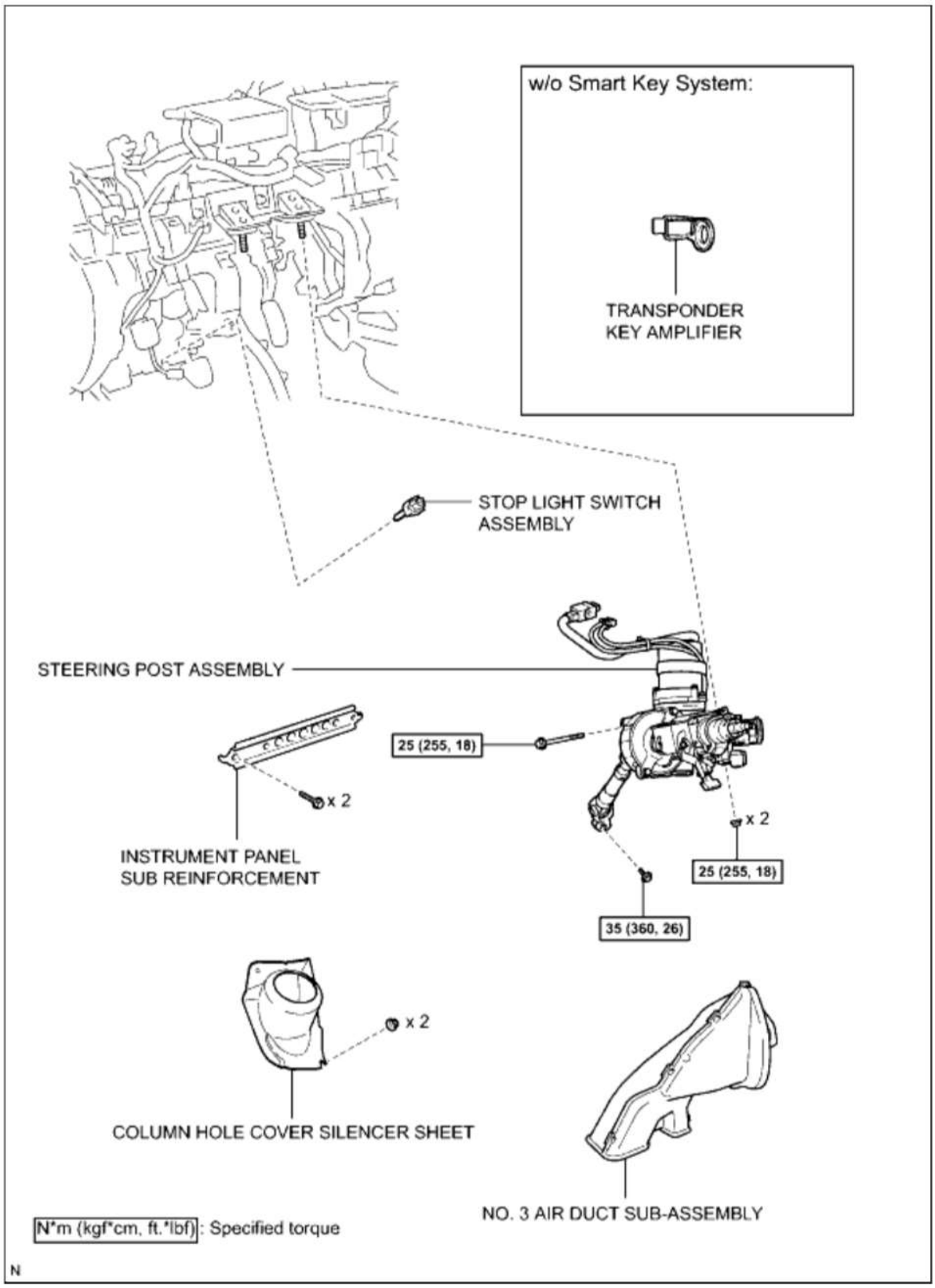
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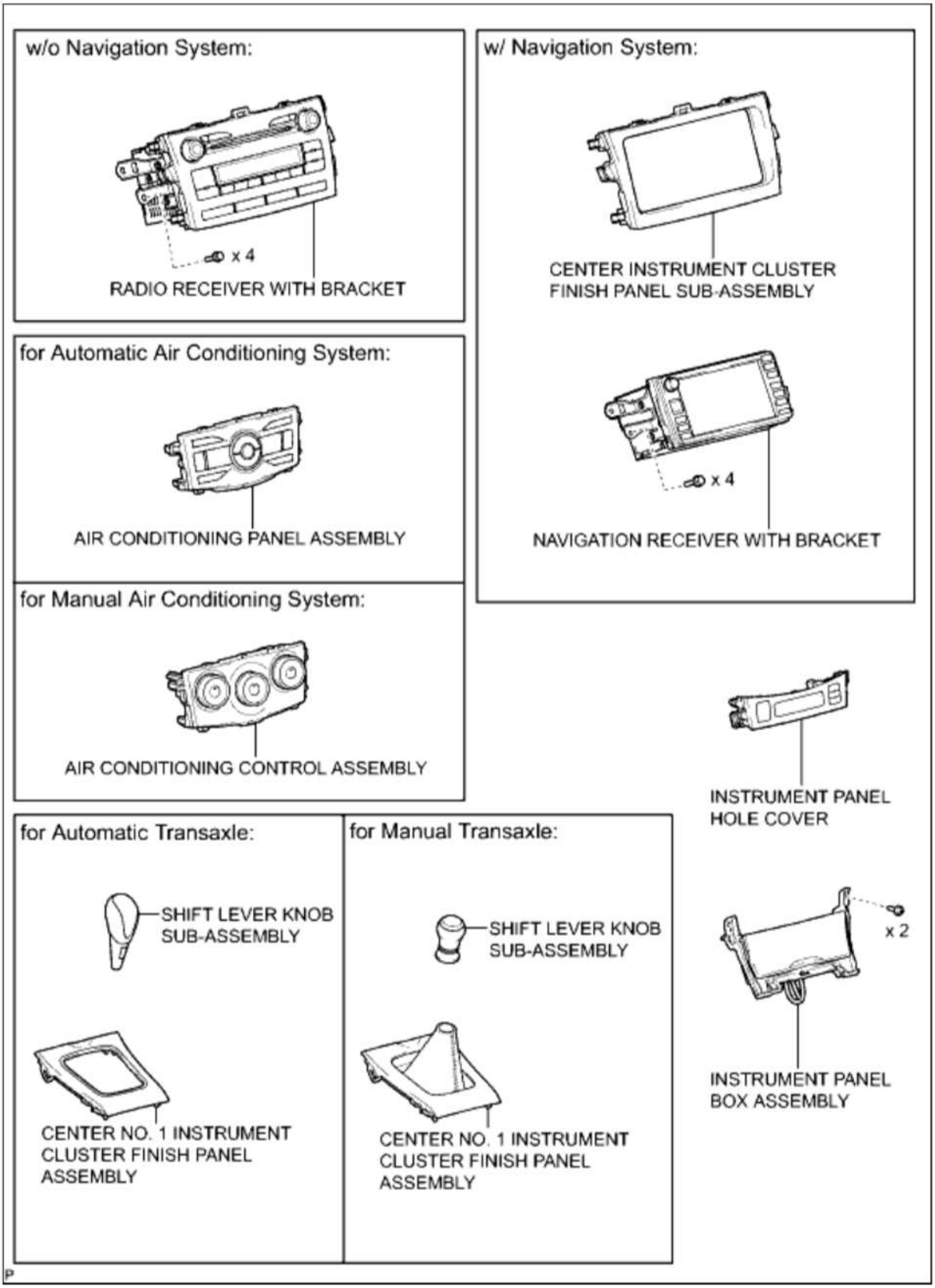
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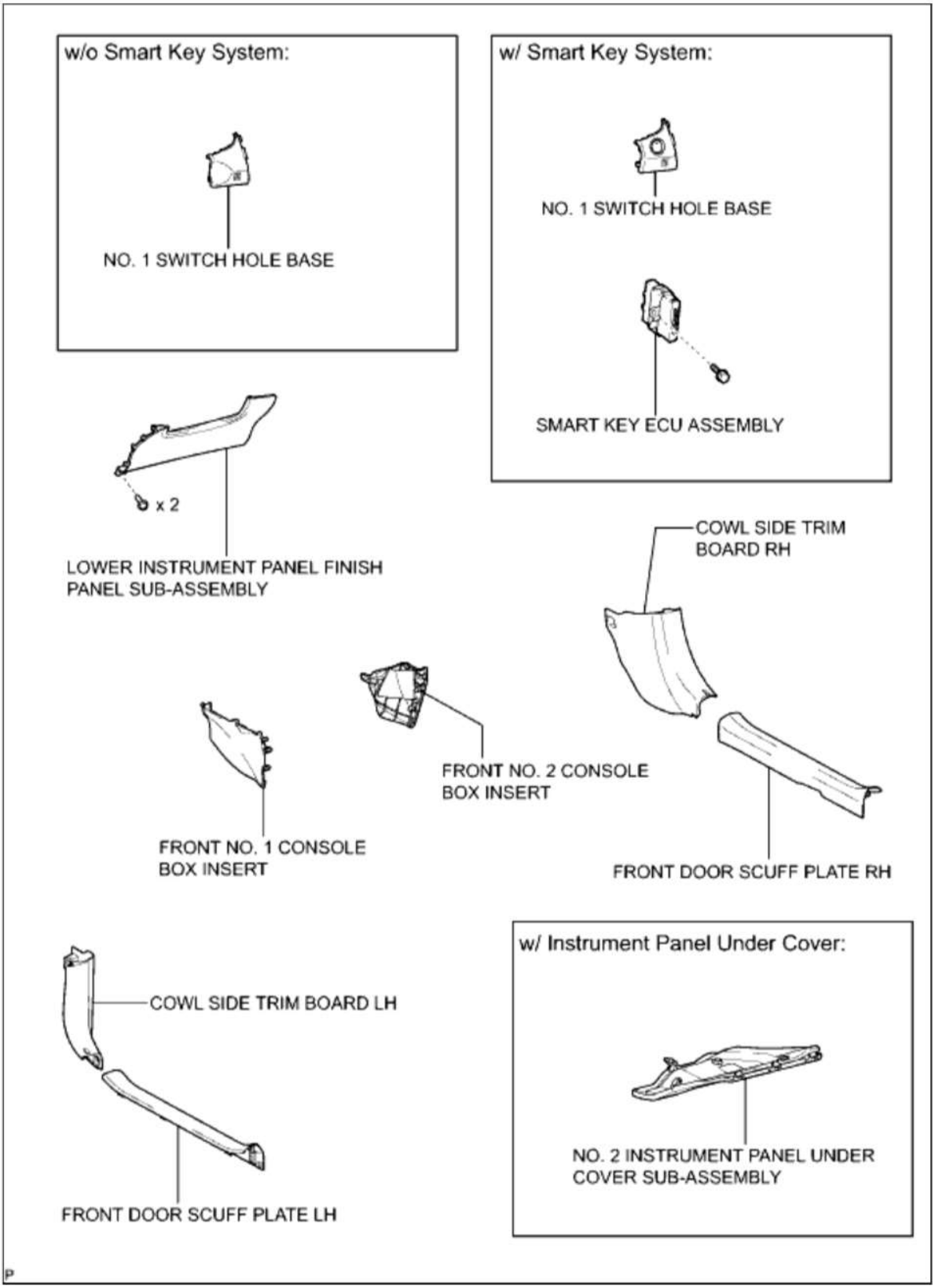
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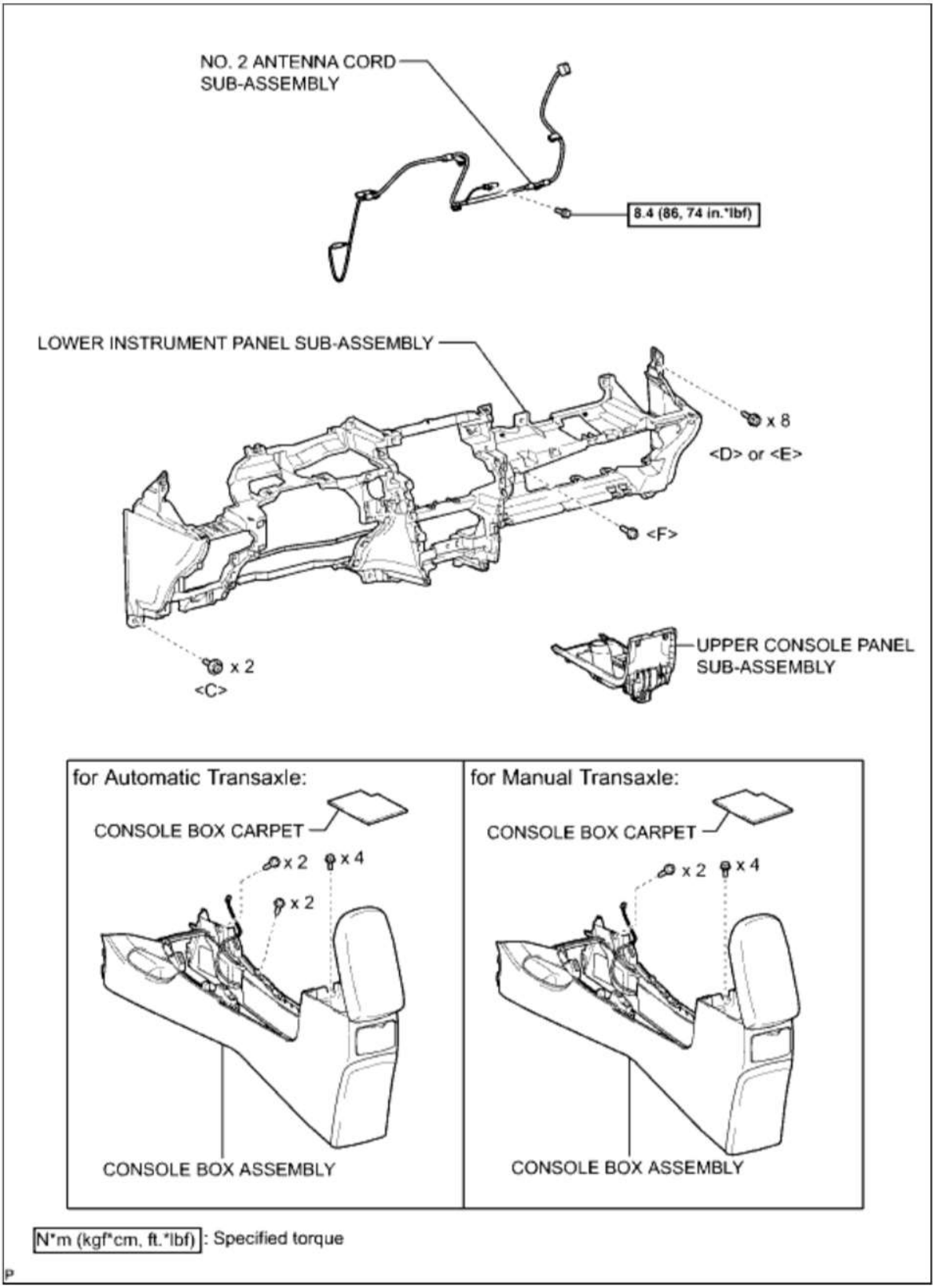
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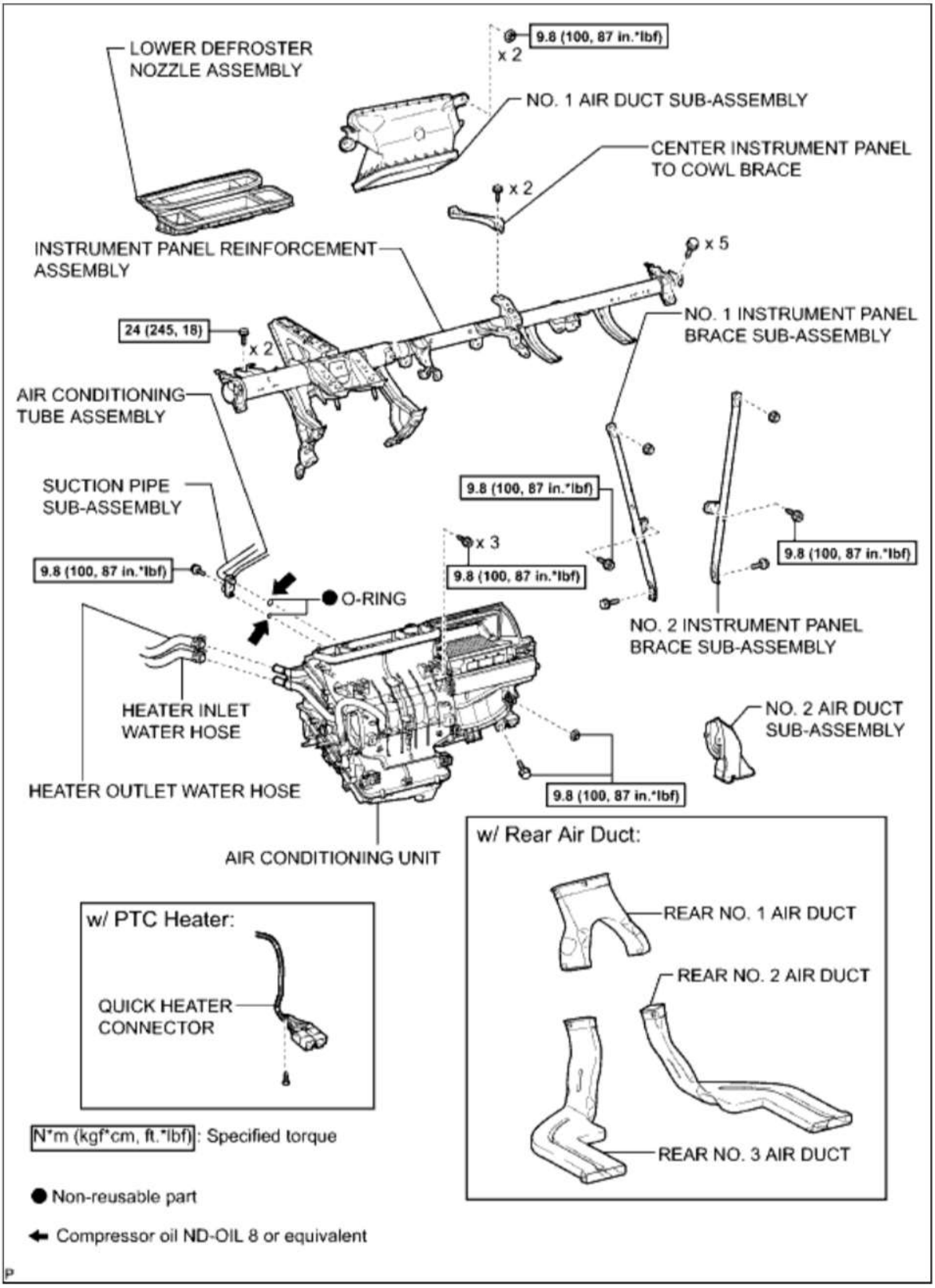
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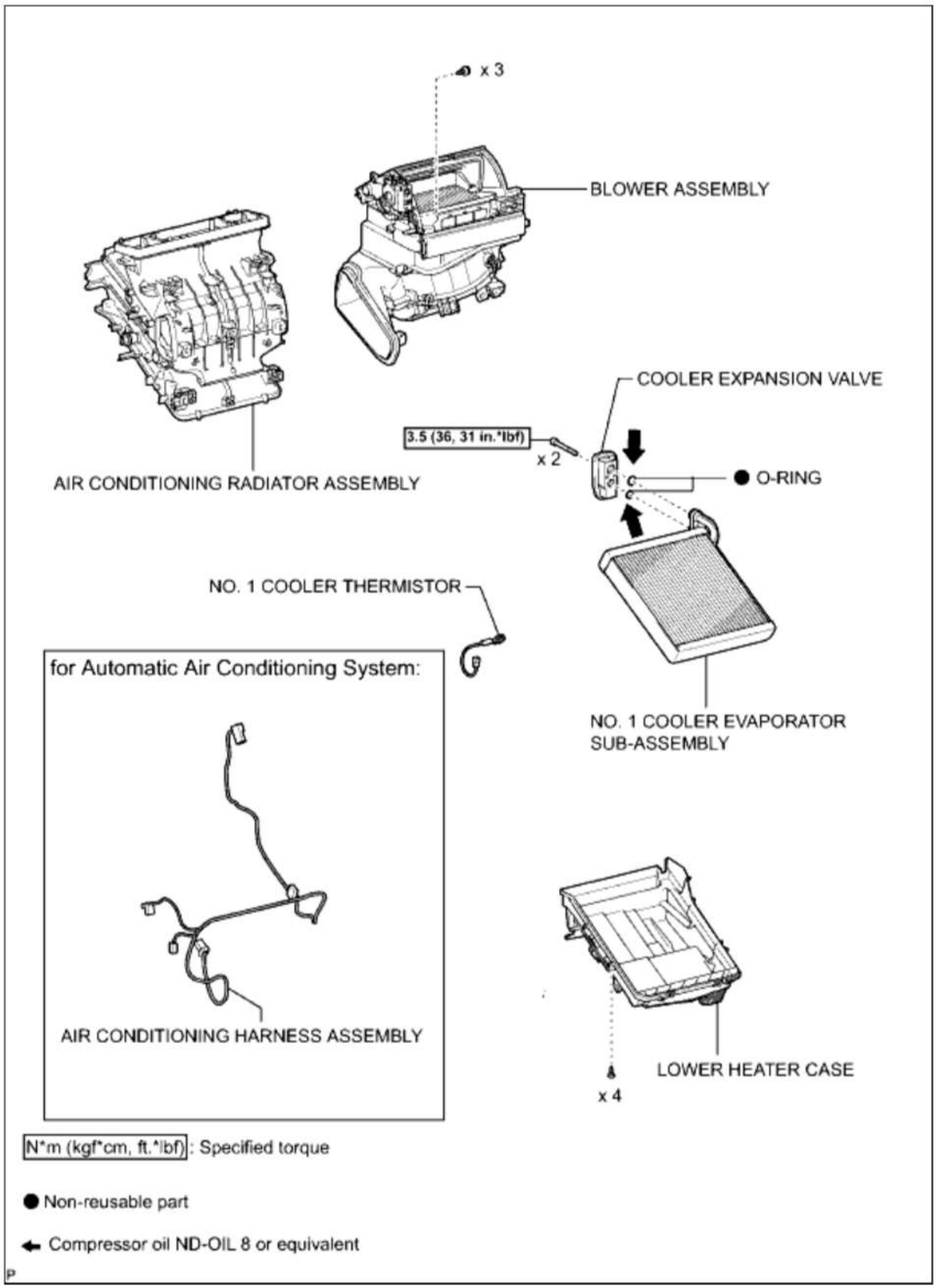
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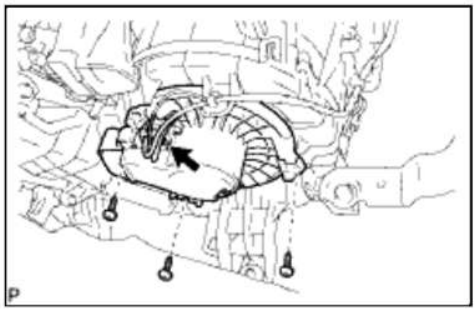
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XU900FX
Title: HEATING / AIR CONDITIONING: FRONT BLOWER MOTOR: REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

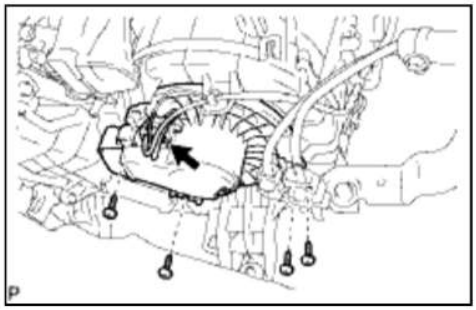
2. REMOVE BLOWER MOTOR SUB-ASSEMBLY (w/o PTC Heater)



(a) Disconnect the connector.

(b) Remove the 3 screws and the blower motor sub-assembly.

3. REMOVE BLOWER MOTOR SUB-ASSEMBLY (w/ PTC Heater)



(a) Remove the quick heater connector screw.

(b) Disconnect the connector.

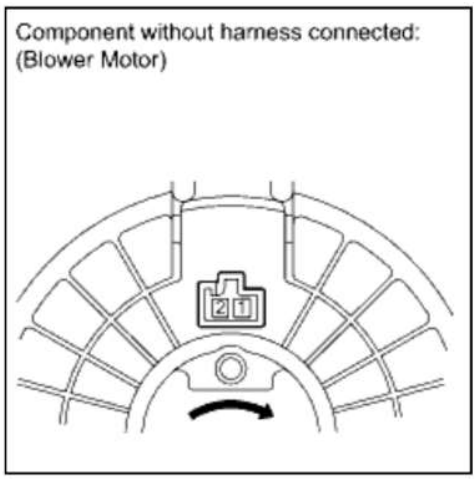
(c) Remove the 4 screws and the blower motor sub-assembly.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000314T00QX
Title: HEATING / AIR CONDITIONING: FRONT BLOWER MOTOR: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT BLOWER MOTOR (for Manual Air Conditioning System)



(a) Disconnect the connector from the blower motor.

(b) Connect a positive (+) lead from the battery to terminal 2 and a negative (-) lead from the battery to terminal 1, and check that the motor operates.

OK:

The blower motor operates smoothly.

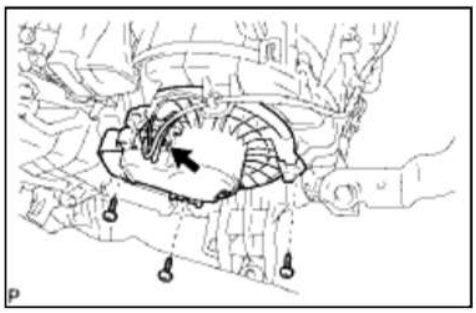
If the result is not as specified, replace the blower motor.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XU700FX
Title: HEATING / AIR CONDITIONING: FRONT BLOWER MOTOR: INSTALLATION (2010 Corolla)		

INSTALLATION

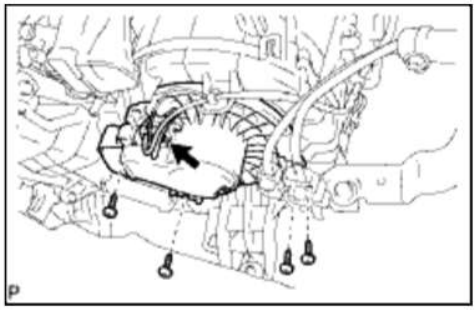
1. INSTALL BLOWER MOTOR SUB-ASSEMBLY (w/o PTC Heater)



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

(b) Connect the connector.

2. INSTALL BLOWER MOTOR SUB-ASSEMBLY (w/ PTC Heater)



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

(b) Connect the connector.

(c) Install the quick heater connector screw.

3. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLW0ABX
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: REMOVAL (2010 Corolla)		

REMOVAL

1. PRECAUTION

INFO

2. ALIGN FRONT WHEELS FACING STRAIGHT AHEAD

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

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

HINT:

Before disconnecting the cable, set the air conditioning control switch to DEF-MODE. (for Automatic Air Conditioning System)

4. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

5. REMOVE FRONT WIPER ARM HEAD CAP INFO

6. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

7. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

8. REMOVE HOOD TO COWL TOP SEAL INFO

9. REMOVE CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

10. REMOVE COWL TOP VENTILATOR LOUVER LH INFO

11. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

12. REMOVE OUTER COWL TOP PANEL (for TMC Made) INFO

13. REMOVE OUTER COWL TOP PANEL (except TMC Made) INFO

14. DISCONNECT SUCTION PIPE SUB-ASSEMBLY INFO

15. DISCONNECT AIR CONDITIONING TUBE ASSEMBLY INFO

16. DISCONNECT HEATER WATER HOSE OUTLET INFO

17. DISCONNECT HEATER WATER HOSE INLET INFO

18. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

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19. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO
20. REMOVE INSTRUMENT PANEL FINISH PANEL END LH INFO
21. REMOVE INSTRUMENT PANEL FINISH PANEL END RH INFO
22. REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO
23. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO
24. REMOVE COMBINATION METER ASSEMBLY INFO
25. REMOVE FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO
26. REMOVE FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO
27. REMOVE FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO
28. REMOVE FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO
29. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO
30. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO
31. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY INFO
32. REMOVE NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO
33. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO
34. DISCONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO
35. REMOVE UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO
36. REMOVE POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO
37. REMOVE POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO
38. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO
39. REMOVE LOWER NO. 3 STEERING WHEEL COVER INFO
40. REMOVE LOWER NO. 2 STEERING WHEEL COVER INFO
41. REMOVE STEERING PAD INFO
42. REMOVE STEERING WHEEL ASSEMBLY INFO
43. REMOVE LOWER STEERING COLUMN COVER INFO
44. REMOVE UPPER STEERING COLUMN COVER INFO
45. REMOVE TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO

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46. REMOVE COLUMN HOLE COVER SILENCER SHEET INFO

47. SEPARATE NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO

48. REMOVE INSTRUMENT PANEL SUB REINFORCEMENT INFO

49. REMOVE NO. 3 AIR DUCT SUB-ASSEMBLY INFO

50. REMOVE TRANSPONDER KEY AMPLIFIER (w/ Smart Key System) INFO

51. REMOVE STOP LIGHT SWITCH ASSEMBLY INFO

52. REMOVE STEERING POST ASSEMBLY (for 2ZR-FE) INFO

53. REMOVE STEERING POST ASSEMBLY (for 2AZ-FE) INFO

54. REMOVE RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

55. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

56. REMOVE NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

57. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

58. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

59. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

60. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

61. REMOVE INSTRUMENT PANEL BOX ASSEMBLY INFO

62. REMOVE INSTRUMENT PANEL HOLE COVER INFO

63. REMOVE AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System) INFO

64. REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

65. REMOVE FRONT DOOR SCUFF PLATE LH INFO

66. REMOVE COWL SIDE TRIM BOARD LH INFO

67. REMOVE FRONT NO. 1 CONSOLE BOX INSERT INFO

68. REMOVE NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

69. REMOVE NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

70. REMOVE FRONT DOOR SCUFF PLATE RH INFO

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71. REMOVE COWL SIDE TRIM BOARD RH INFO

72. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

73. REMOVE FRONT NO. 2 CONSOLE BOX INSERT INFO

74. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

75. REMOVE CONSOLE BOX CARPET INFO

76. REMOVE CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

77. REMOVE CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

78. REMOVE NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

79. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

80. REMOVE SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

81. REMOVE NO. 1 AIR DUCT SUB-ASSEMBLY INFO

82. REMOVE LOWER DEFROSTER NOZZLE ASSEMBLY INFO

83. REMOVE CENTER INSTRUMENT PANEL TO COWL BRACE INFO

84. REMOVE REAR NO. 2 AIR DUCT (w/ Rear Air Duct) INFO

85. REMOVE REAR NO. 3 AIR DUCT (w/ Rear Air Duct) INFO

86. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System) INFO

87. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air Conditioning System) INFO

88. REMOVE NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY INFO

89. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct) INFO

90. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System) INFO

91. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air Conditioning System) INFO

92. REMOVE AIR CONDITIONING UNIT INFO

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

94. REMOVE BLOWER ASSEMBLY (w/o PTC Heater) INFO

95. REMOVE BLOWER ASSEMBLY (w/ PTC Heater) INFO

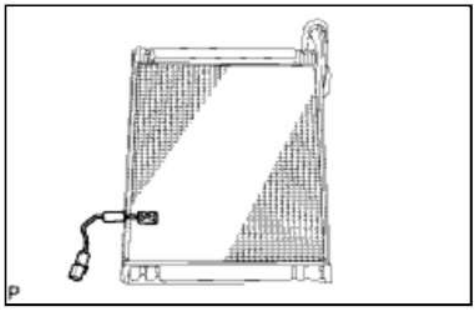
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96. REMOVE AIR CONDITIONING HARNESS ASSEMBLY (for Automatic Air Conditioning System) INFO

97. REMOVE COOLER EXPANSION VALVE INFO

98. REMOVE NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY INFO

99. REMOVE NO. 1 COOLER THERMISTOR



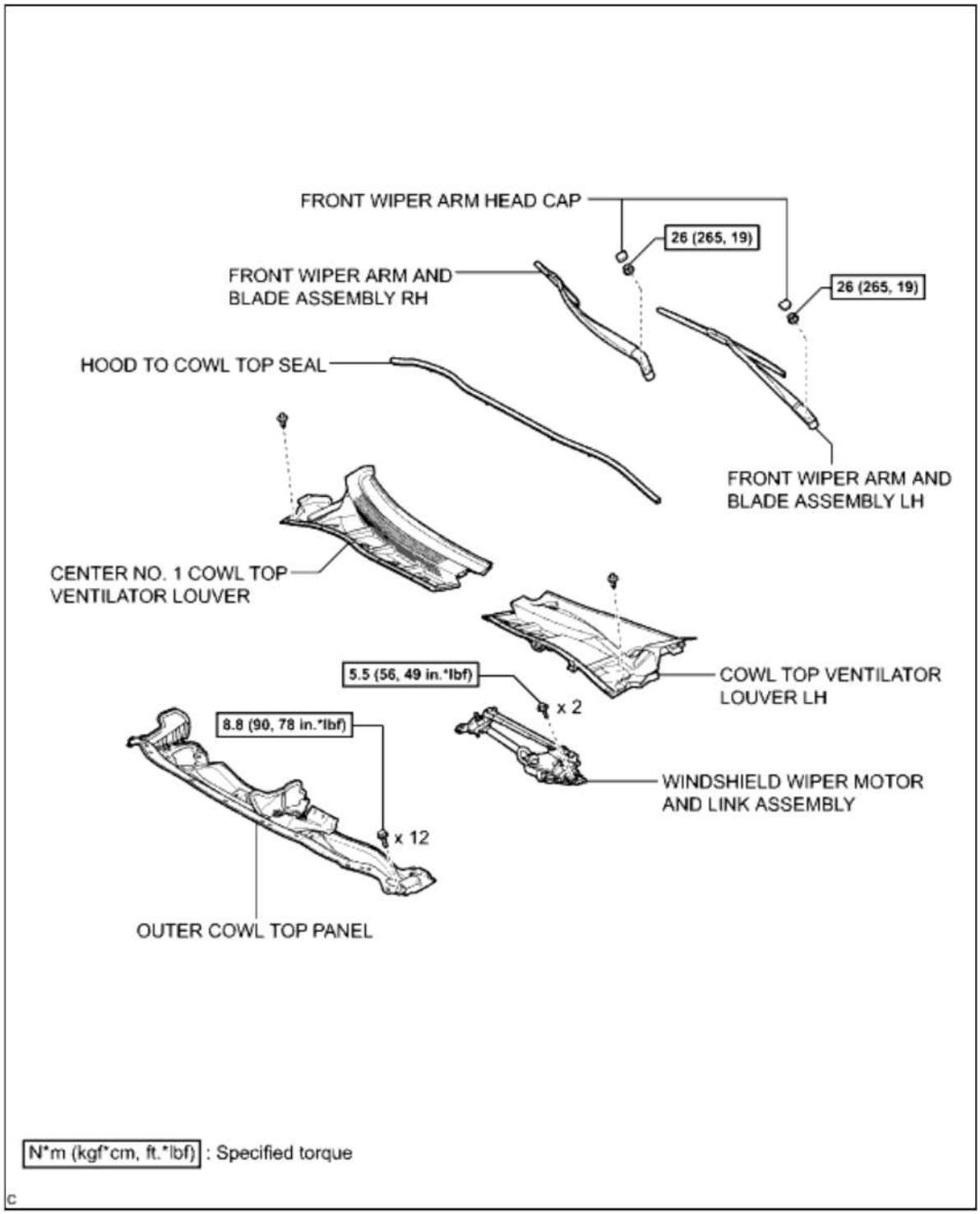
(a) Remove the No. 1 cooler thermistor from the No. 1 cooler evaporator sub-assembly.

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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXL001X
Title: HEATING / AIR CONDITIONING: PTC HEATER ASSEMBLY: COMPONENTS (2010 Corolla)		

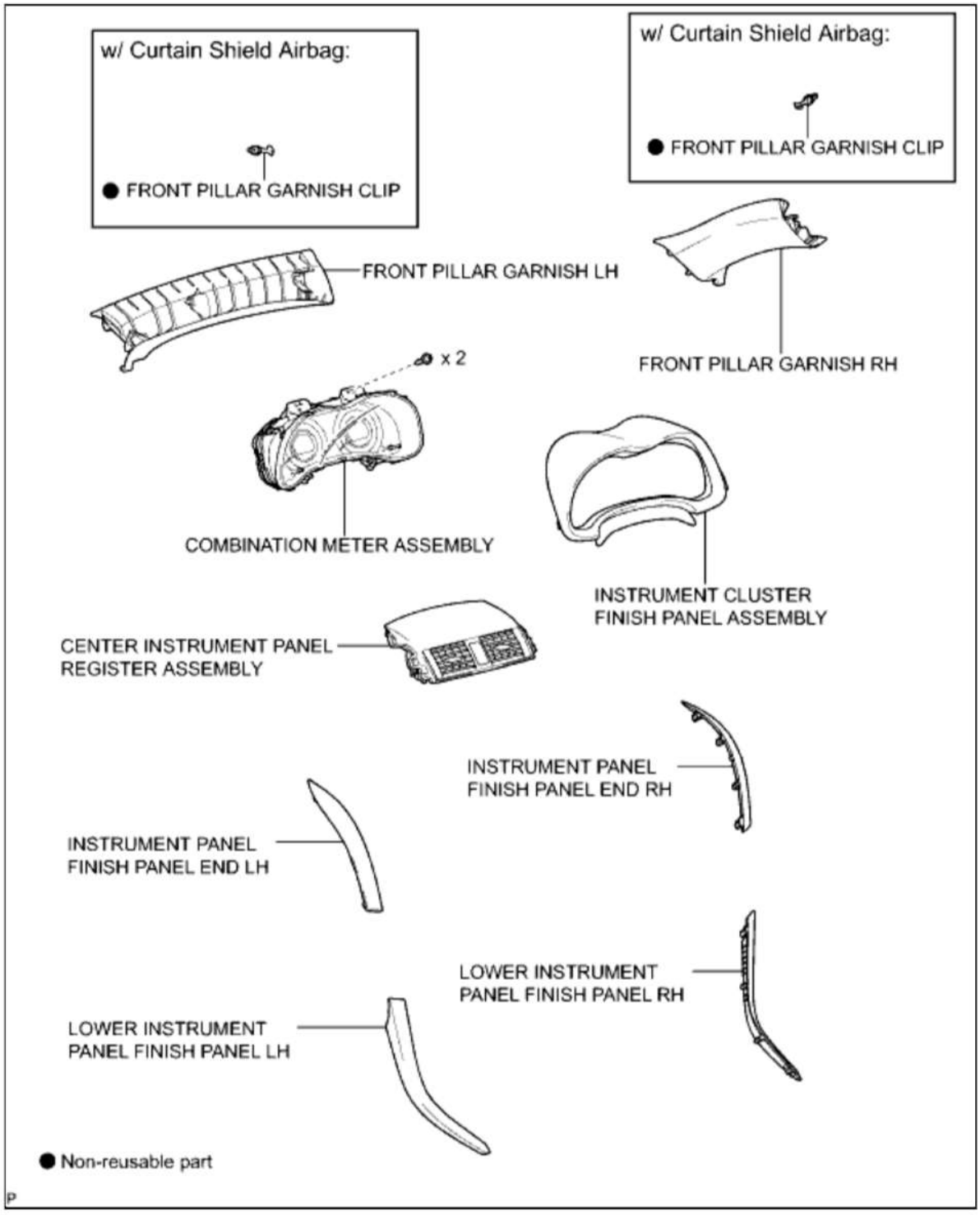
COMPONENTS

ILLUSTRATION



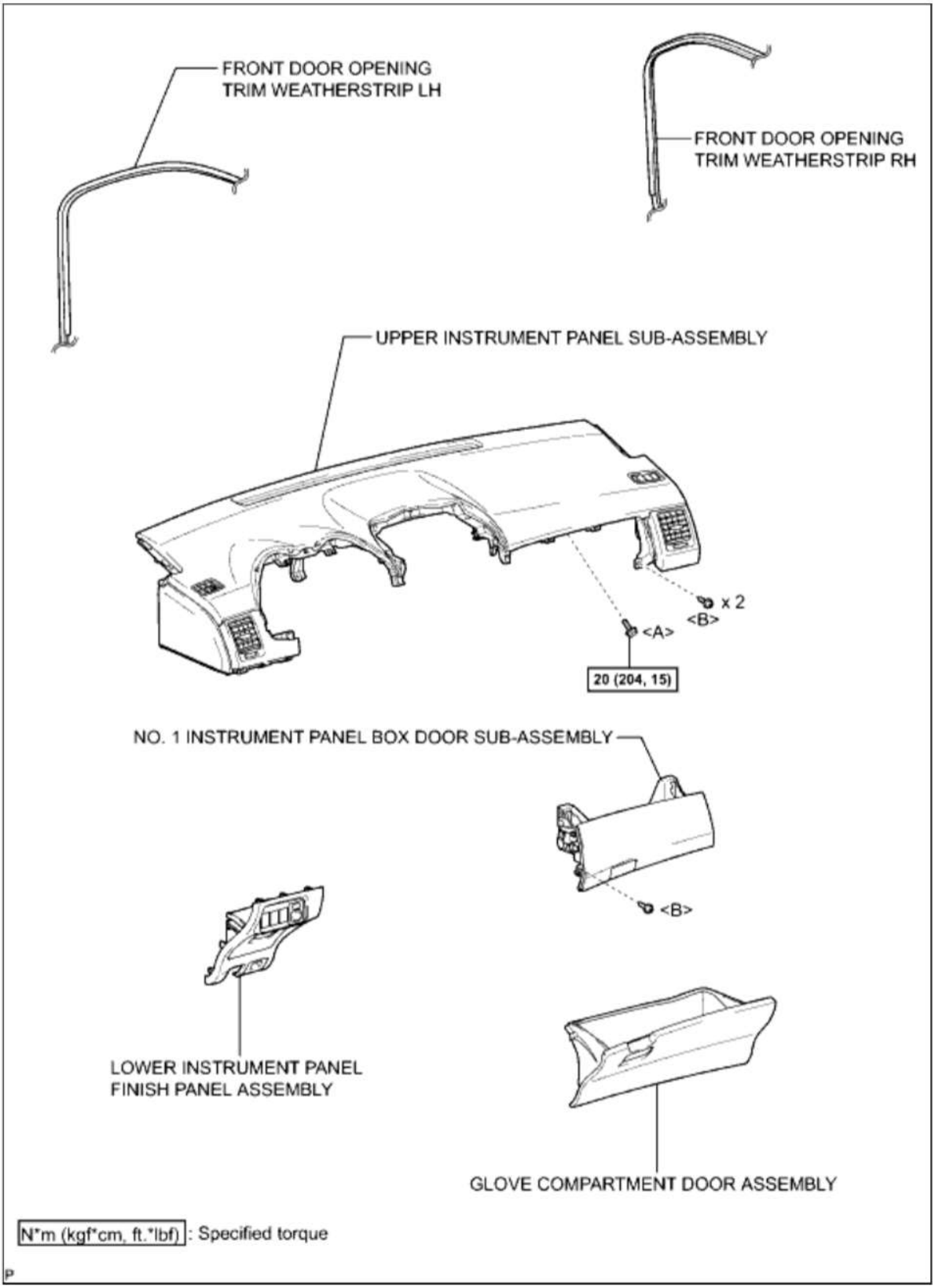
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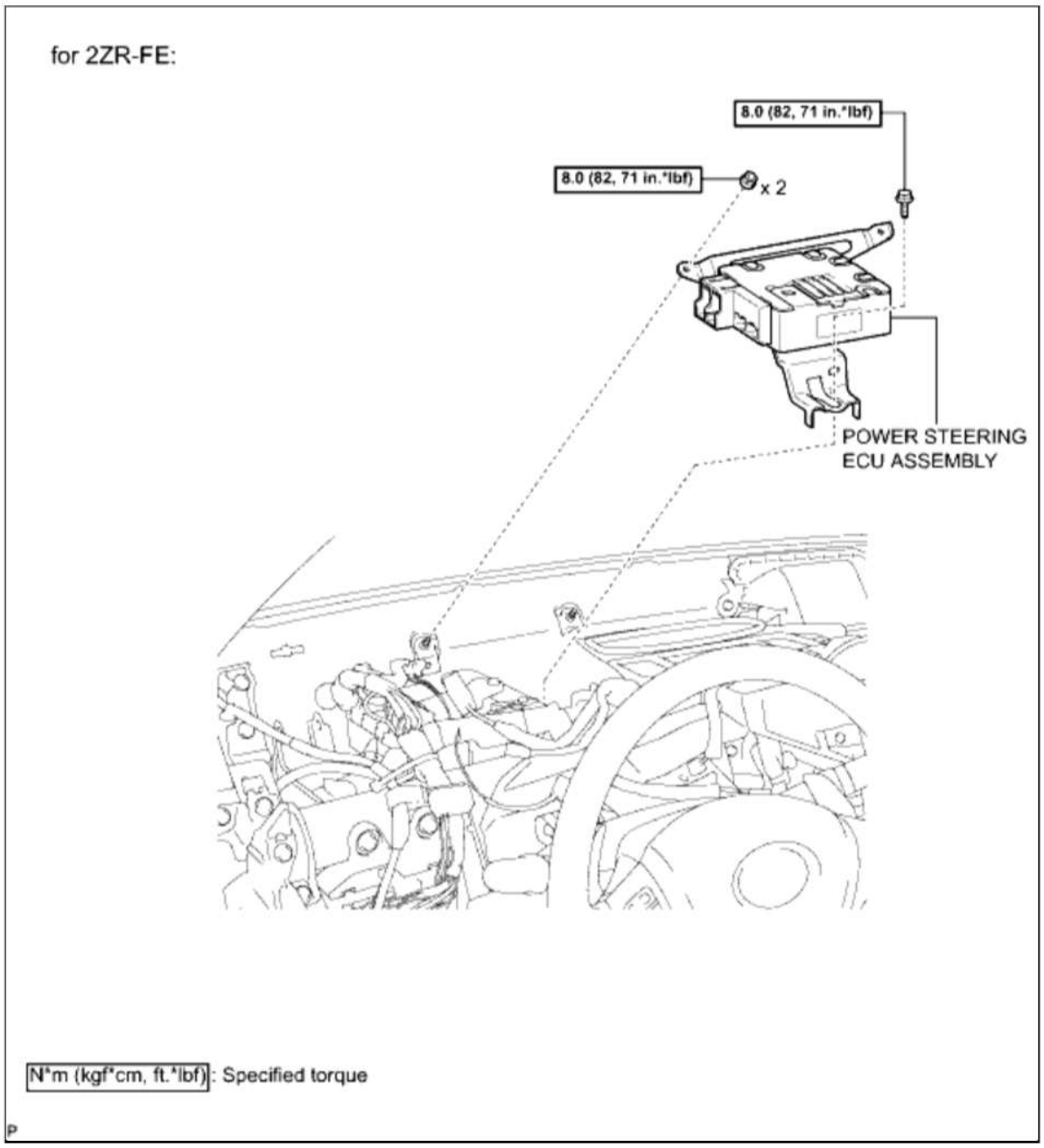
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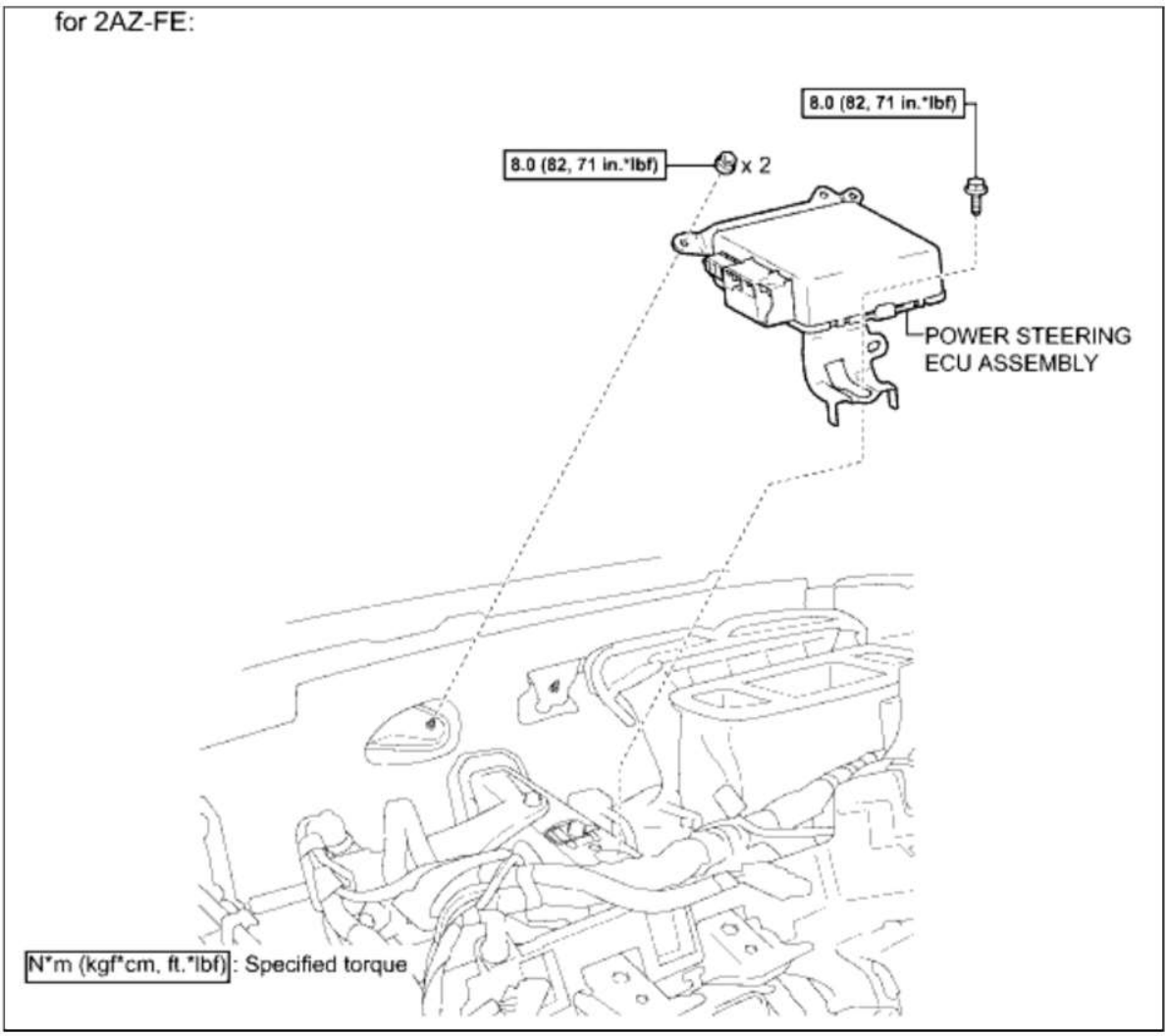
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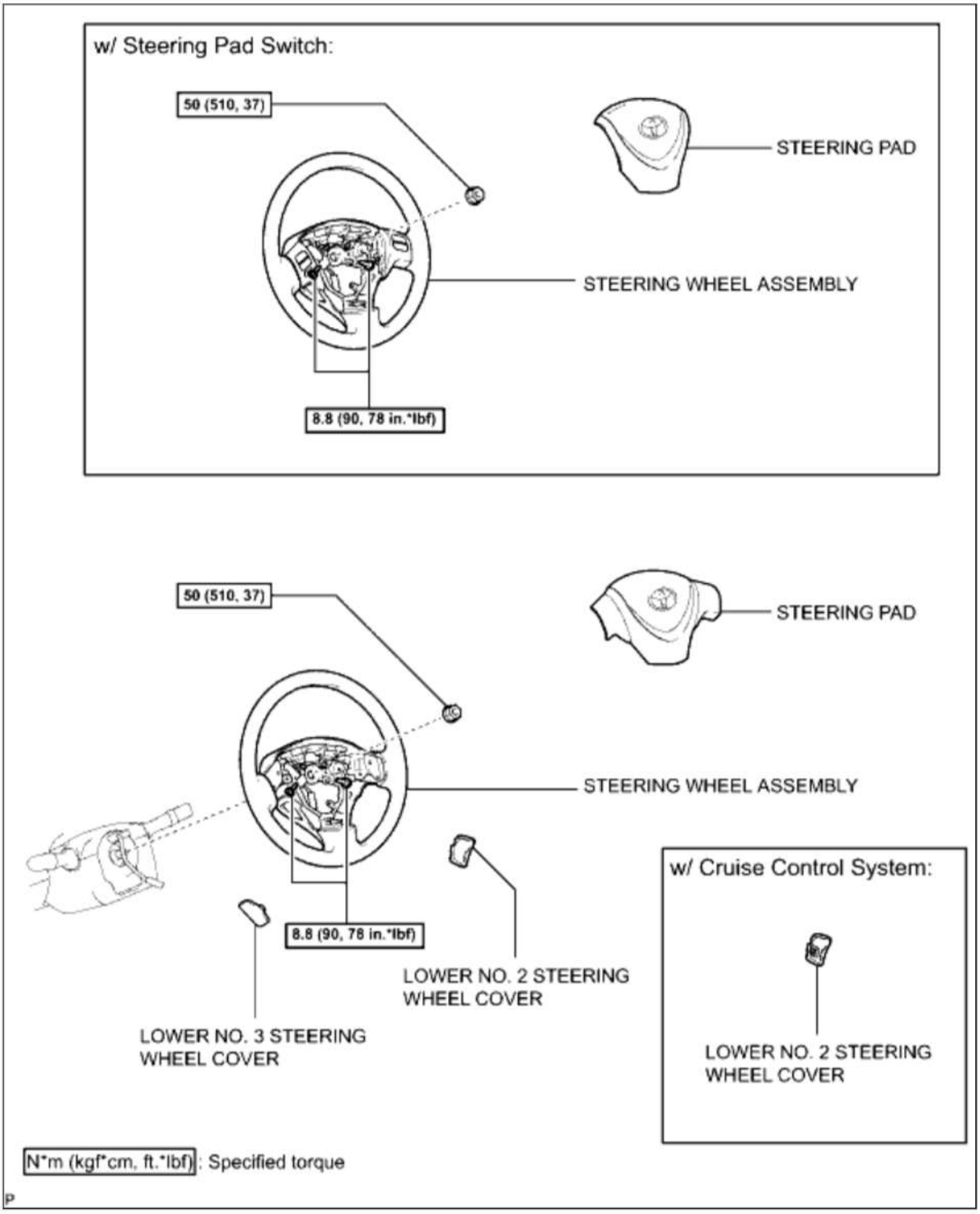
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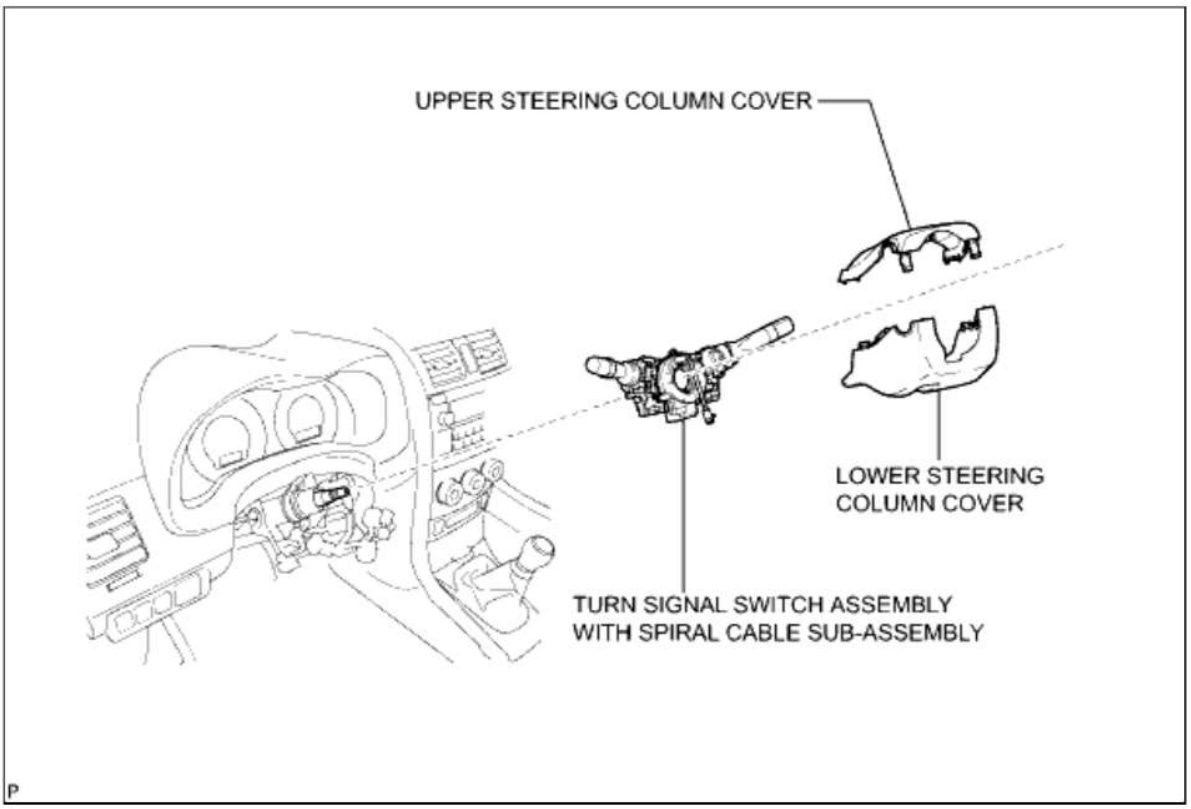
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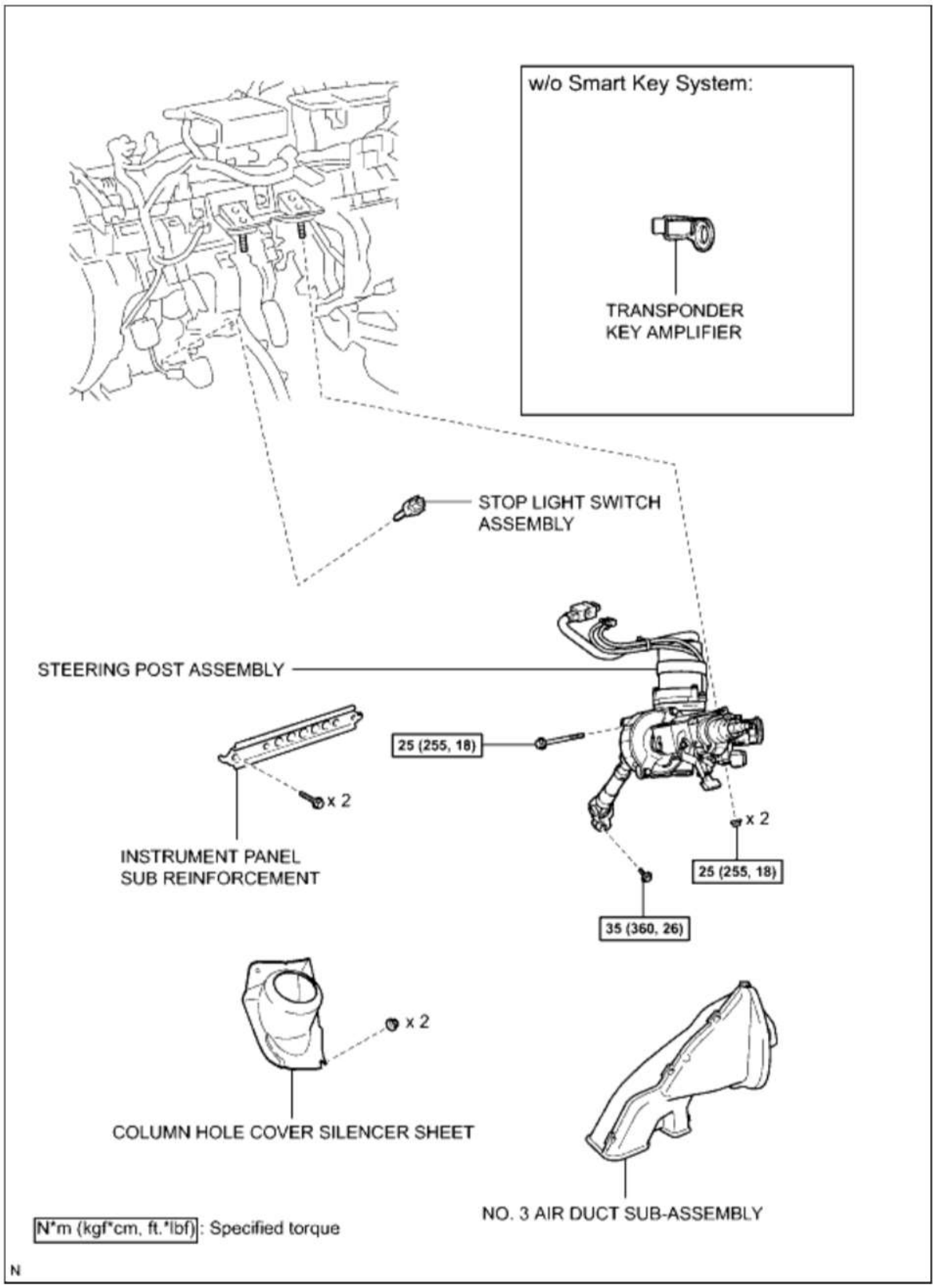
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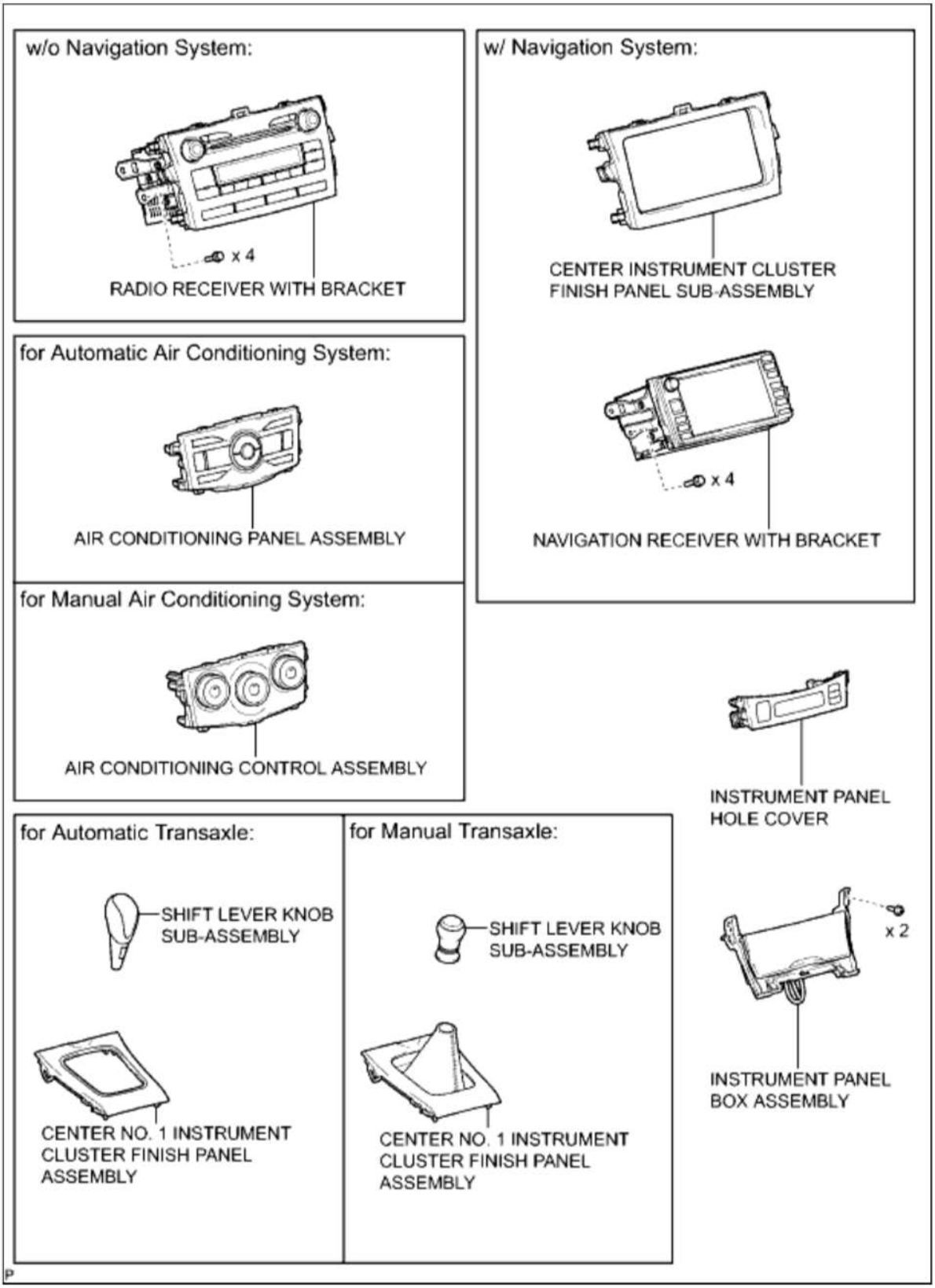
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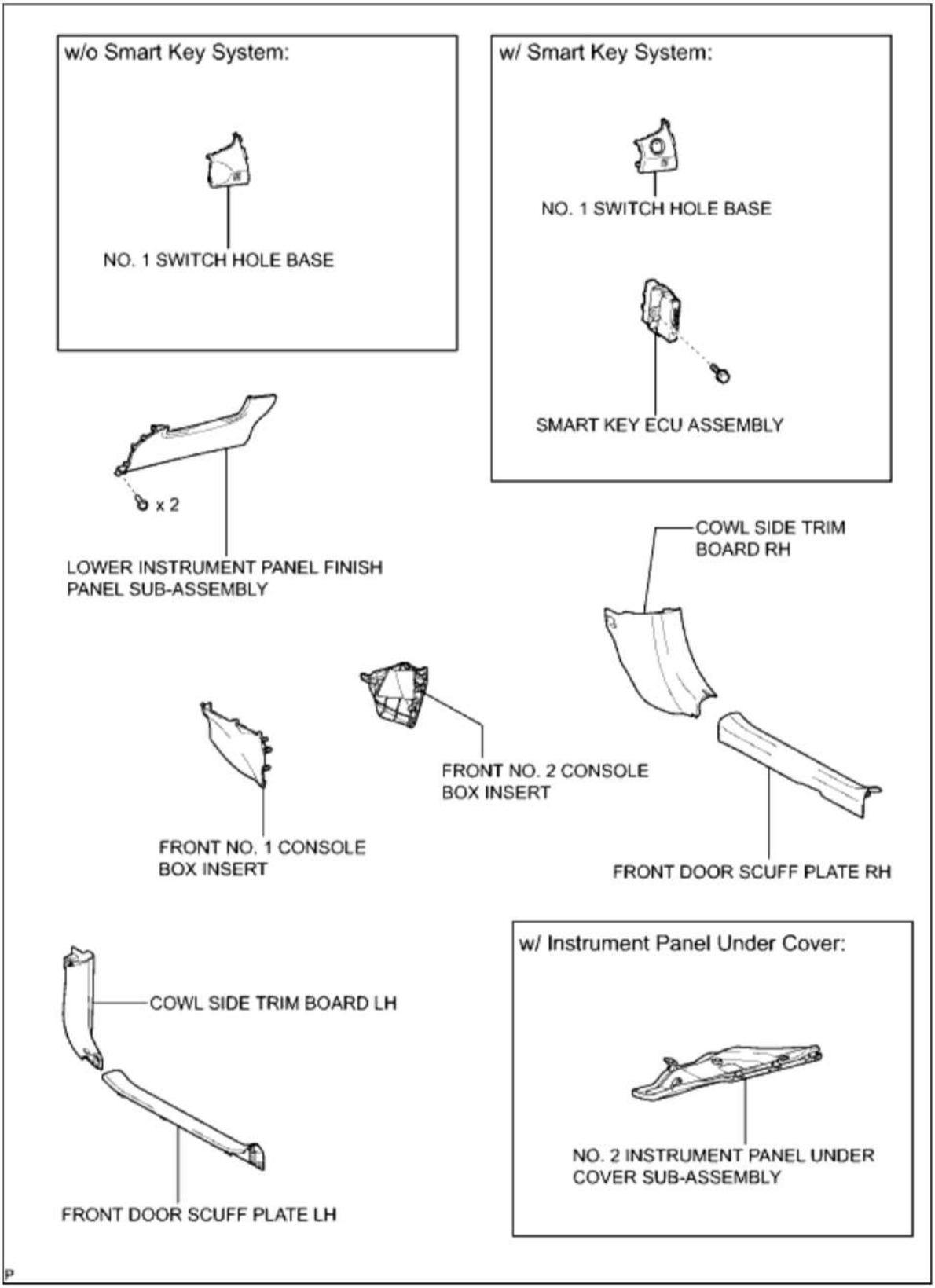
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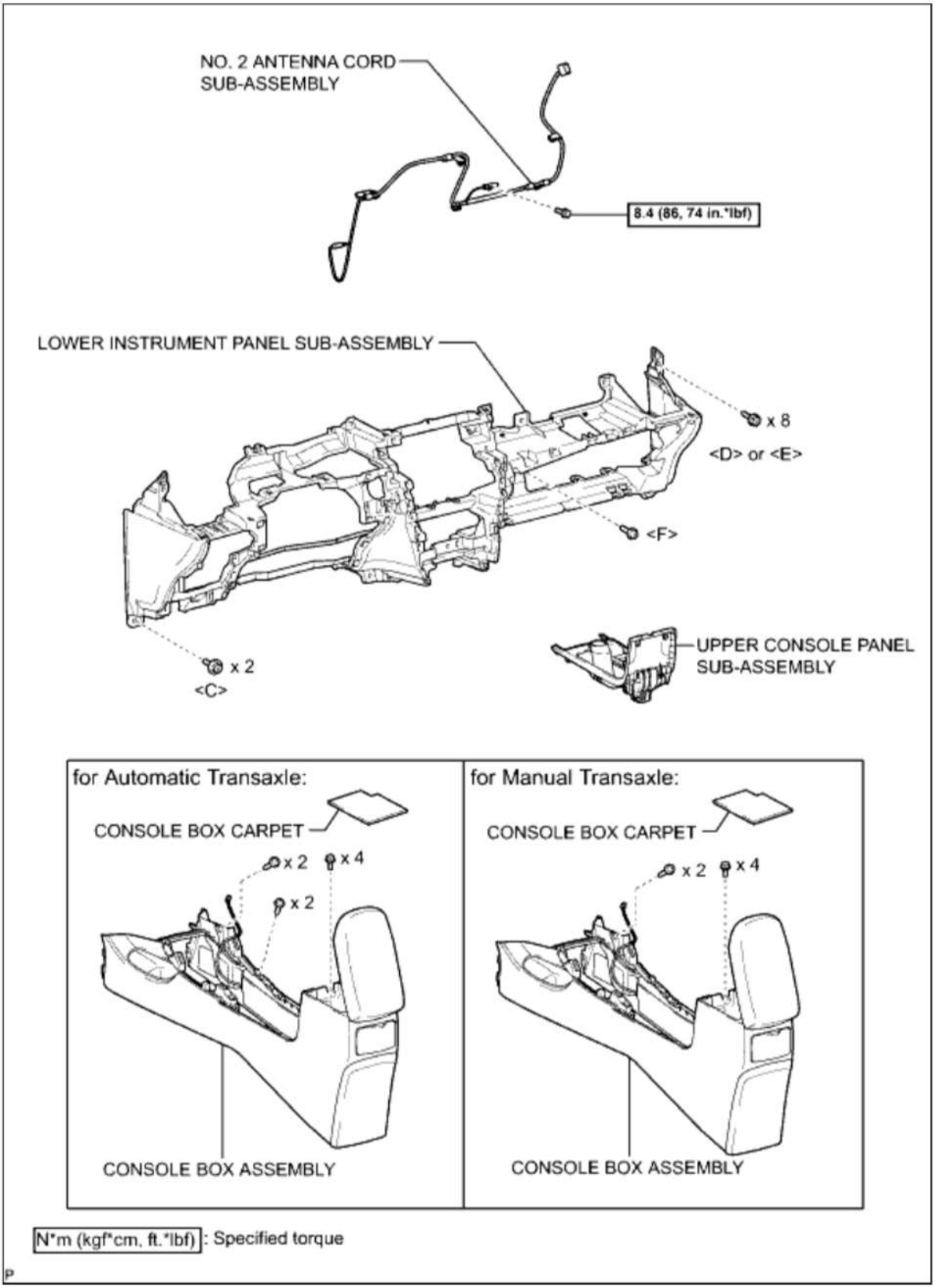
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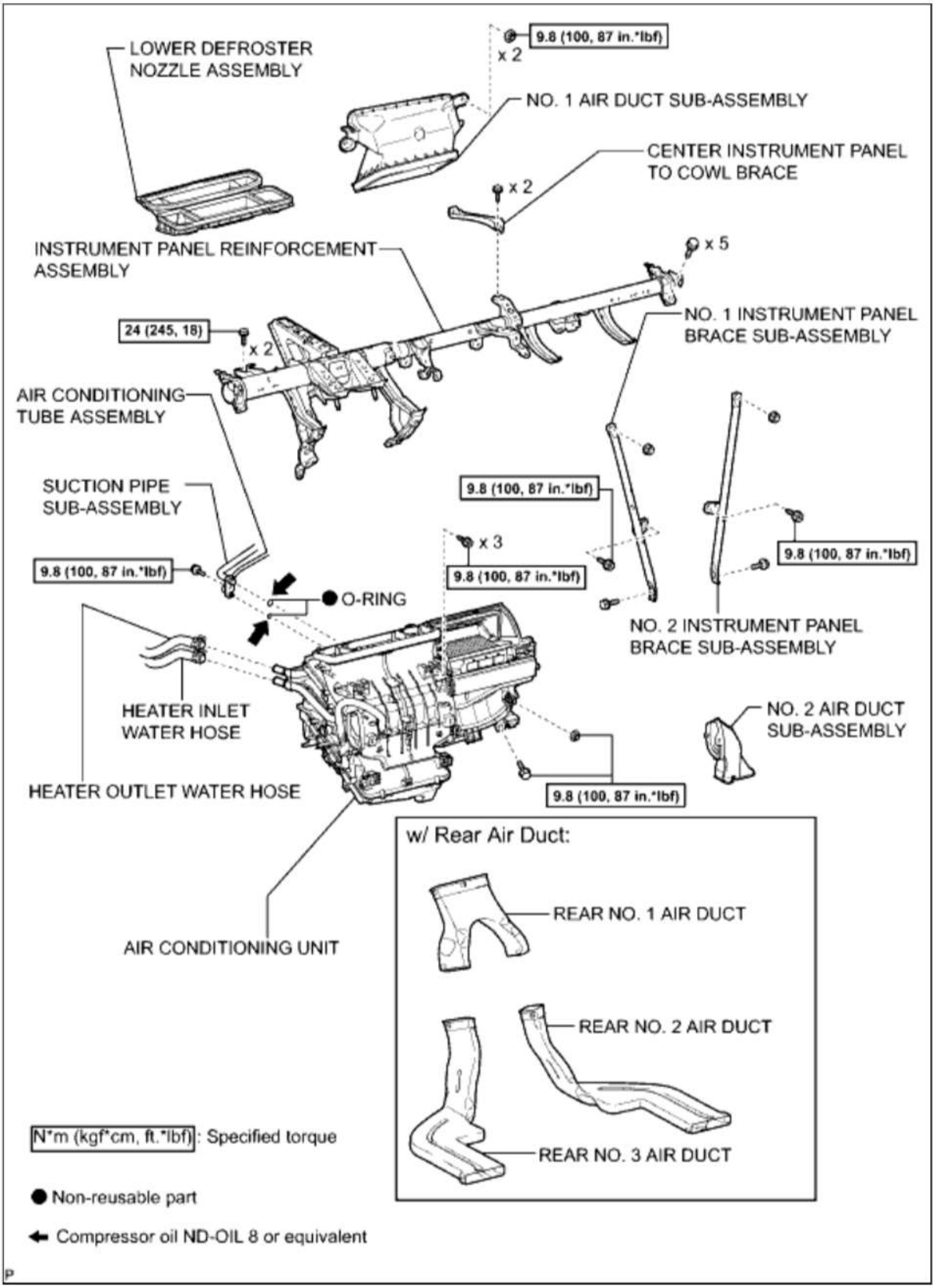
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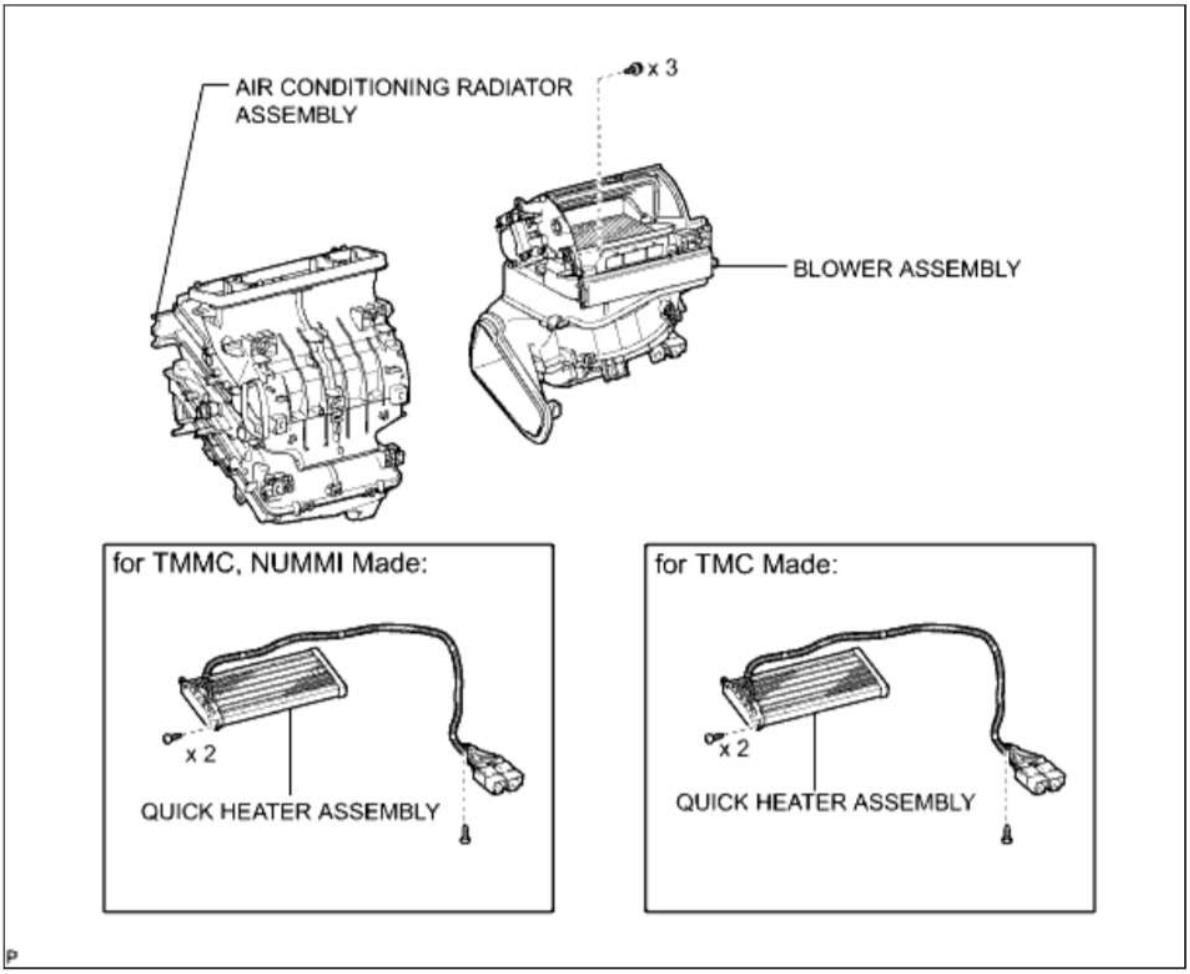
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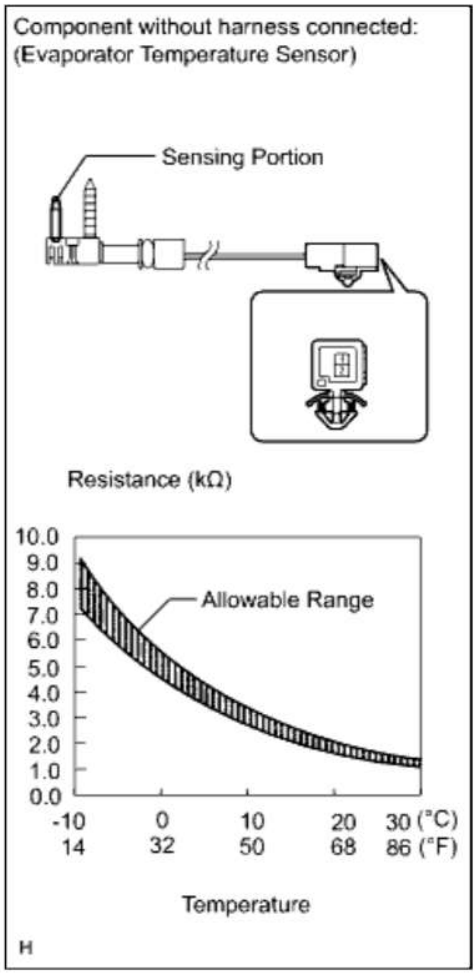


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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000202X01UX
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT EVAPORATOR TEMPERATURE SENSOR



(a) Disconnect the connector from the evaporator temperature sensor.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	-10°C (14°F)	7.30 to 9.10 kΩ
1 - 2	-5°C (23°F)	5.65 to 6.95 kΩ
1 - 2	0°C (32°F)	4.40 to 5.35 kΩ

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
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:

- 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 the same as the ambient temperature.

HINT:

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

If the resistance is not as specified, replace the evaporator temperature sensor.



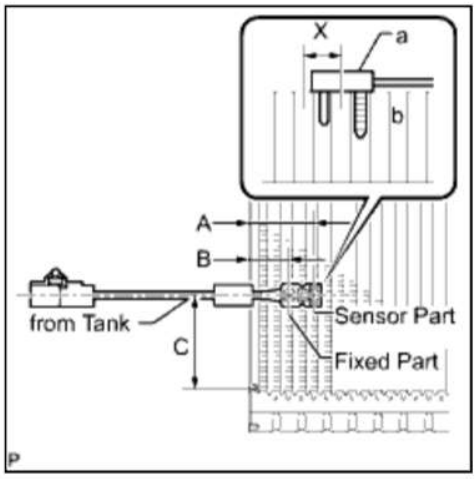
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLU0AEX
Title: HEATING / AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL NO. 1 COOLER THERMISTOR

(a) Install the No. 1 cooler thermistor as shown in the illustration.



PART	LENGTH	
A	34.3 mm	1.35 in.
B	20.9 mm	0.823 in.
C	50 mm	1.96 in.

NOTICE:

- Be sure to insert the thermistor only once because reinserting it will not allow it to be firmly secured.
- When reusing the evaporator, insert the thermistor one row next to the one that has been used previously (X in the illustration).
- After inserting the thermistor, do not apply excessive force to the wire.
- Directly insert the thermistor until the edge of plastic case "a" comes into contact with evaporator "b".

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

3. INSTALL COOLER EXPANSION VALVE INFO

4. INSTALL AIR CONDITIONING HARNESS ASSEMBLY (for Automatic Air Conditioning System) INFO

5. INSTALL BLOWER ASSEMBLY (w/o PTC Heater) INFO

6. INSTALL BLOWER ASSEMBLY (w/ PTC Heater) INFO

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

8. TEMPORARILY TIGHTEN AIR CONDITIONING UNIT INFO

9. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System) INFO

10. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air

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Conditioning System) INFO

11. INSTALL AIR CONDITIONING UNIT INFO

12. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct) INFO

13. INSTALL NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY INFO

14. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System) INFO

15. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air Conditioning System) INFO

16. INSTALL REAR NO. 3 AIR DUCT (w/ Rear Air Duct) INFO

17. INSTALL REAR NO. 2 AIR DUCT (w/ Rear Air Duct) INFO

18. INSTALL CENTER INSTRUMENT PANEL TO COWL BRACE INFO

19. INSTALL LOWER DEFROSTER NOZZLE ASSEMBLY INFO

20. INSTALL NO. 1 AIR DUCT SUB-ASSEMBLY INFO

21. INSTALL SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

22. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

23. INSTALL NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

24. INSTALL CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

25. INSTALL CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

26. INSTALL CONSOLE BOX CARPET INFO

27. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

28. INSTALL NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

29. INSTALL NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

30. INSTALL FRONT NO. 1 CONSOLE BOX INSERT INFO

31. INSTALL COWL SIDE TRIM BOARD LH INFO

32. INSTALL FRONT DOOR SCUFF PLATE LH INFO

33. INSTALL FRONT NO. 2 CONSOLE BOX INSERT INFO

34. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

35. INSTALL COWL SIDE TRIM BOARD RH INFO

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36. INSTALL FRONT DOOR SCUFF PLATE RH INFO

37. INSTALL AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System) INFO

38. INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

39. INSTALL INSTRUMENT PANEL HOLE COVER INFO

40. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

41. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

42. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

43. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

44. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

45. INSTALL RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

46. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

47. INSTALL NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

48. INSTALL STEERING POST ASSEMBLY (for 2ZR-FE) INFO

49. INSTALL STEERING POST ASSEMBLY (for 2AZ-FE) INFO

50. TURN FRONT WHEELS FACING STRAIGHT AHEAD

51. CONNECT NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO

52. INSTALL STOP LIGHT SWITCH ASSEMBLY INFO

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

54. INSTALL INSTRUMENT PANEL SUB REINFORCEMENT INFO

55. INSTALL COLUMN HOLE COVER SILENCER SHEET INFO

56. INSTALL TRANSPONDER KEY AMPLIFIER (w/o Smart Key System) INFO

57. INSTALL TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO

58. INSTALL UPPER STEERING COLUMN COVER INFO

59. INSTALL LOWER STEERING COLUMN COVER INFO

60. TURN FRONT WHEELS FACING STRAIGHT AHEAD

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61. ADJUST SPIRAL CABLE INFO

62. INSTALL STEERING WHEEL ASSEMBLY INFO

63. INSTALL STEERING PAD INFO

64. INSTALL LOWER NO. 3 STEERING WHEEL COVER INFO

65. INSTALL LOWER NO. 2 STEERING WHEEL COVER INFO

66. INSPECT STEERING WHEEL CENTER POINT

67. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO

68. INSTALL POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO

69. INSTALL POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO

70. INSTALL UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO

71. CONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO

72. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO

73. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

74. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO

75. INSTALL NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO

76. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY INFO

77. INSTALL FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO

78. INSTALL FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO

79. INSTALL FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO

80. INSTALL FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO

81. INSTALL COMBINATION METER ASSEMBLY INFO

82. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

83. INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

84. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

85. INSTALL INSTRUMENT PANEL FINISH PANEL END RH INFO

86. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

87. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

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88. INSTALL HEATER WATER HOSE OUTLET INFO

89. INSTALL HEATER WATER HOSE INLET INFO

90. INSTALL AIR CONDITIONING TUBE ASSEMBLY INFO

91. INSTALL SUCTION PIPE SUB-ASSEMBLY INFO

92. INSTALL OUTER COWL TOP PANEL (for TMC Made) INFO

93. INSTALL OUTER COWL TOP PANEL (except TMC Made) INFO

94. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

95. INSTALL COWL TOP VENTILATOR LOUVER LH INFO

96. INSTALL CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

97. INSTALL HOOD TO COWL TOP SEAL INFO

98. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

99. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

100. INSTALL FRONT WIPER ARM HEAD CAP INFO

101. CHARGE WITH REFRIGERANT INFO

102. ADD ENGINE COOLANT (for 2ZR-FE) INFO

103. ADD ENGINE COOLANT (for 2AZ-FE) INFO

104. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

105. INSPECT FOR COOLANT LEAK (for 2ZR-FE) INFO

106. INSPECT FOR COOLANT LEAK (for 2AZ-FE) INFO

107. INSPECT STEERING PAD INFO

108. INSPECT SRS WARNING LIGHT

INFO

109. WARM UP ENGINE INFO

110. INSPECT FOR REFRIGERANT LEAK INFO



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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLW0AAX
Title: HEATING / AIR CONDITIONING: PTC HEATER ASSEMBLY: REMOVAL (2010 Corolla)		

REMOVAL

1. PRECAUTION

INFO

2. ALIGN FRONT WHEELS FACING STRAIGHT AHEAD

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

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

HINT:

Before disconnecting the cable, set the air conditioning control switch to DEF-MODE. (for Automatic Air Conditioning System)

4. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

5. REMOVE FRONT WIPER ARM HEAD CAP INFO

6. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

7. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

8. REMOVE HOOD TO COWL TOP SEAL INFO

9. REMOVE CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

10. REMOVE COWL TOP VENTILATOR LOUVER LH INFO

11. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

12. REMOVE OUTER COWL TOP PANEL (for TMC Made) INFO

13. REMOVE OUTER COWL TOP PANEL (except TMC Made) INFO

14. DISCONNECT SUCTION PIPE SUB-ASSEMBLY INFO

15. DISCONNECT AIR CONDITIONING TUBE ASSEMBLY INFO

16. DISCONNECT HEATER WATER HOSE OUTLET INFO

17. DISCONNECT HEATER WATER HOSE INLET INFO

18. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

19. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

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20. REMOVE INSTRUMENT PANEL FINISH PANEL END LH INFO

21. REMOVE INSTRUMENT PANEL FINISH PANEL END RH INFO

22. REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

23. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

24. REMOVE COMBINATION METER ASSEMBLY INFO

25. REMOVE FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO

26. REMOVE FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO

27. REMOVE FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO

28. REMOVE FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO

29. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

30. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO

31. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY INFO

32. REMOVE NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO

33. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO

34. DISCONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO

35. REMOVE UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO

36. REMOVE POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO

37. REMOVE POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO

38. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO

39. REMOVE LOWER NO. 3 STEERING WHEEL COVER INFO

40. REMOVE LOWER NO. 2 STEERING WHEEL COVER INFO

41. REMOVE STEERING PAD INFO

42. REMOVE STEERING WHEEL ASSEMBLY INFO

43. REMOVE LOWER STEERING COLUMN COVER INFO

44. REMOVE UPPER STEERING COLUMN COVER INFO

45. REMOVE TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO

46. REMOVE COLUMN HOLE COVER SILENCER SHEET INFO

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47. SEPARATE NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO

48. REMOVE INSTRUMENT PANEL SUB REINFORCEMENT INFO

49. REMOVE NO. 3 AIR DUCT SUB-ASSEMBLY INFO

50. REMOVE TRANSPONDER KEY AMPLIFIER (w/ Smart Key System) INFO

51. REMOVE STOP LIGHT SWITCH ASSEMBLY INFO

52. REMOVE STEERING POST ASSEMBLY (for 2ZR-FE) INFO

53. REMOVE STEERING POST ASSEMBLY (for 2AZ-FE) INFO

54. REMOVE RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

55. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

56. REMOVE NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

57. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

58. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

59. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

60. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

61. REMOVE INSTRUMENT PANEL BOX ASSEMBLY INFO

62. REMOVE INSTRUMENT PANEL HOLE COVER INFO

63. REMOVE AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System) INFO

64. REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

65. REMOVE FRONT DOOR SCUFF PLATE LH INFO

66. REMOVE COWL SIDE TRIM BOARD LH INFO

67. REMOVE FRONT NO. 1 CONSOLE BOX INSERT INFO

68. REMOVE NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

69. REMOVE NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

70. REMOVE FRONT DOOR SCUFF PLATE RH INFO

71. REMOVE COWL SIDE TRIM BOARD RH INFO

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72. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

73. REMOVE FRONT NO. 2 CONSOLE BOX INSERT INFO

74. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

75. REMOVE CONSOLE BOX CARPET INFO

76. REMOVE CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

77. REMOVE CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

78. REMOVE NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

79. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

80. REMOVE SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

81. REMOVE NO. 1 AIR DUCT SUB-ASSEMBLY INFO

82. REMOVE LOWER DEFROSTER NOZZLE ASSEMBLY INFO

83. REMOVE CENTER INSTRUMENT PANEL TO COWL BRACE INFO

84. REMOVE REAR NO. 2 AIR DUCT (w/ Rear Air Duct) INFO

85. REMOVE REAR NO. 3 AIR DUCT (w/ Rear Air Duct) INFO

86. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System) INFO

87. REMOVE NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air Conditioning System) INFO

88. REMOVE NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY INFO

89. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct) INFO

90. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System) INFO

91. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air Conditioning System) INFO

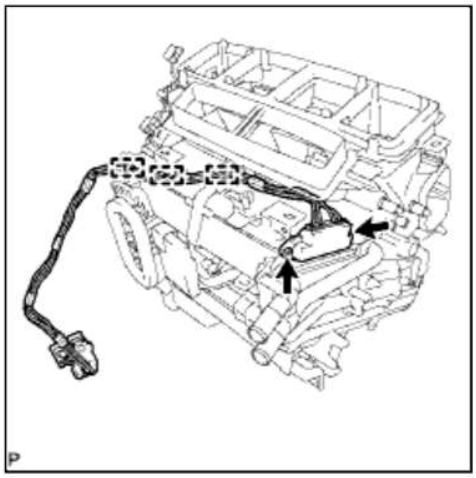
92. REMOVE AIR CONDITIONING UNIT INFO

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

94. REMOVE BLOWER ASSEMBLY INFO

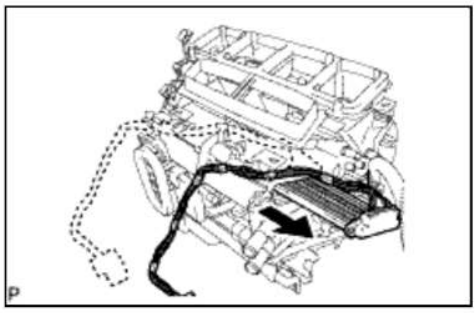
95. REMOVE QUICK HEATER ASSEMBLY

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(a) Disengage each clamp.

(b) Remove the 2 screws.



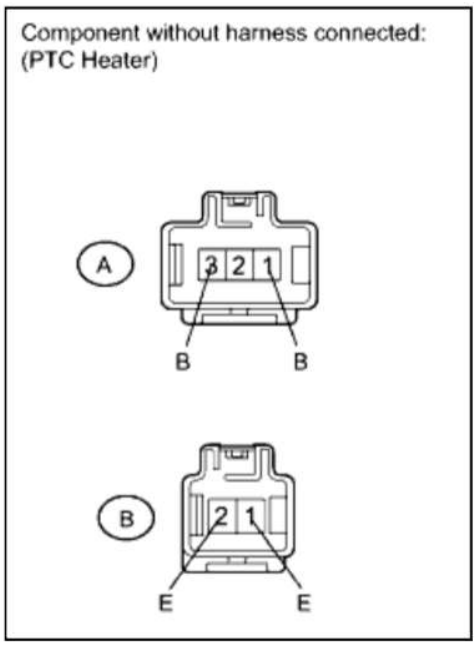
(c) Remove the quick heater assembly as shown in the illustration.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003G4L003X
Title: HEATING / AIR CONDITIONING: PTC HEATER ASSEMBLY: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT PTC HEATER



(a) Disconnect the connector from the PTC heater.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A-1 (B) - B-1 (E)	Always	Below 1 Ω
A-3 (B) - B-2 (E)	Always	Below 1 Ω

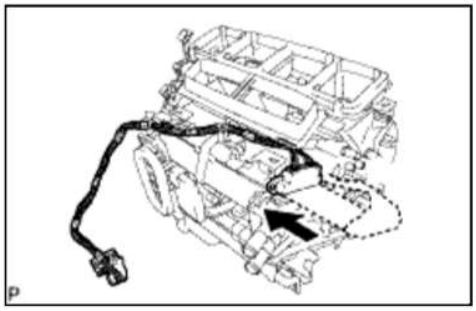
If the resistance is not as specified, replace the PTC heater.

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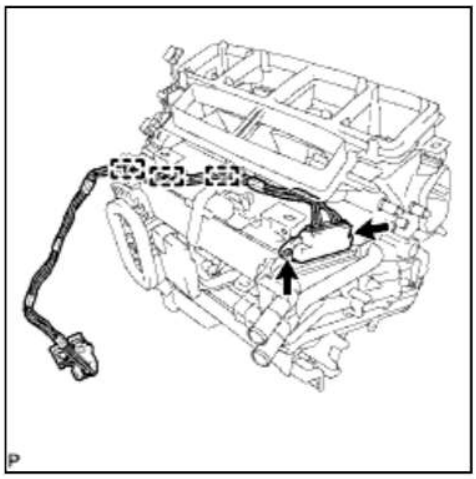
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001HLU0ADX
Title: HEATING / AIR CONDITIONING: PTC HEATER ASSEMBLY: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL QUICK HEATER ASSEMBLY



(a) Install the quick heater assembly as shown in the illustration.



(b) Install the 2 screws.

(c) Engage each clamp.

2. INSTALL BLOWER ASSEMBLY INFO

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

4. TEMPORARILY TIGHTEN AIR CONDITIONING UNIT INFO

5. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Manual Air Conditioning System) INFO

6. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (for Automatic Air Conditioning System) INFO

7. INSTALL AIR CONDITIONING UNIT INFO

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8. REMOVE REAR NO. 1 AIR DUCT (w/ Rear Air Duct) INFO

9. INSTALL NO. 2 INSTRUMENT PANEL BRACE SUB-ASSEMBLY INFO

10. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Manual Air Conditioning System) INFO

11. INSTALL NO. 1 INSTRUMENT PANEL BRACE SUB-ASSEMBLY (for Automatic Air Conditioning System) INFO

12. INSTALL REAR NO. 3 AIR DUCT (w/ Rear Air Duct) INFO

13. INSTALL REAR NO. 2 AIR DUCT (w/ Rear Air Duct) INFO

14. INSTALL CENTER INSTRUMENT PANEL TO COWL BRACE INFO

15. INSTALL LOWER DEFROSTER NOZZLE ASSEMBLY INFO

16. INSTALL NO. 1 AIR DUCT SUB-ASSEMBLY INFO

17. INSTALL SMART KEY ECU ASSEMBLY (w/ Smart Key System) INFO

18. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

19. INSTALL NO. 2 ANTENNA CORD SUB-ASSEMBLY INFO

20. INSTALL CONSOLE BOX ASSEMBLY (for Manual Transaxle) INFO

21. INSTALL CONSOLE BOX ASSEMBLY (for Automatic Transaxle) INFO

22. INSTALL CONSOLE BOX CARPET INFO

23. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

24. INSTALL NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

25. INSTALL NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

26. INSTALL FRONT NO. 1 CONSOLE BOX INSERT INFO

27. INSTALL COWL SIDE TRIM BOARD LH INFO

28. INSTALL FRONT DOOR SCUFF PLATE LH INFO

29. INSTALL FRONT NO. 2 CONSOLE BOX INSERT INFO

30. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (w/ Instrument Panel Under Cover) INFO

31. INSTALL COWL SIDE TRIM BOARD RH INFO

32. INSTALL FRONT DOOR SCUFF PLATE RH INFO

33. INSTALL AIR CONDITIONING PANEL ASSEMBLY (for Manual Air Conditioning System)

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INFO

34. INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System) INFO

35. INSTALL INSTRUMENT PANEL HOLE COVER INFO

36. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

37. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

38. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

39. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

40. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

41. INSTALL RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

42. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

43. INSTALL NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

44. INSTALL STEERING POST ASSEMBLY (for 2ZR-FE) INFO

45. INSTALL STEERING POST ASSEMBLY (for 2AZ-FE) INFO

46. TURN FRONT WHEELS FACING STRAIGHT AHEAD

47. CONNECT NO. 2 STEERING INTERMEDIATE SHAFT ASSEMBLY INFO

48. INSTALL STOP LIGHT SWITCH ASSEMBLY INFO

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

50. INSTALL INSTRUMENT PANEL SUB REINFORCEMENT INFO

51. INSTALL COLUMN HOLE COVER SILENCER SHEET INFO

52. INSTALL TRANSPONDER KEY AMPLIFIER (w/o Smart Key System) INFO

53. INSTALL TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY INFO

54. INSTALL UPPER STEERING COLUMN COVER INFO

55. INSTALL LOWER STEERING COLUMN COVER INFO

56. TURN FRONT WHEELS FACING STRAIGHT AHEAD

57. ADJUST SPIRAL CABLE INFO

58. INSTALL STEERING WHEEL ASSEMBLY INFO

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59. INSTALL STEERING PAD INFO

60. INSTALL LOWER NO. 3 STEERING WHEEL COVER INFO

61. INSTALL LOWER NO. 2 STEERING WHEEL COVER INFO

62. INSPECT STEERING WHEEL CENTER POINT

63. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO

64. INSTALL POWER STEERING ECU ASSEMBLY (for 2ZR-FE) INFO

65. INSTALL POWER STEERING ECU ASSEMBLY (for 2AZ-FE) INFO

66. INSTALL UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO

67. CONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO

68. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO

69. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

70. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO

71. INSTALL NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO

72. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY INFO

73. INSTALL FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO

74. INSTALL FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO

75. INSTALL FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO

76. INSTALL FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO

77. INSTALL COMBINATION METER ASSEMBLY INFO

78. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

79. INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

80. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

81. INSTALL INSTRUMENT PANEL FINISH PANEL END RH INFO

82. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

83. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

84. INSTALL HEATER WATER HOSE OUTLET INFO

85. INSTALL HEATER WATER HOSE INLET INFO

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86. INSTALL AIR CONDITIONING TUBE ASSEMBLY INFO

87. INSTALL SUCTION PIPE SUB-ASSEMBLY INFO

88. INSTALL OUTER COWL TOP PANEL (for TMC Made) INFO

89. INSTALL OUTER COWL TOP PANEL (except TMC Made) INFO

90. INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY INFO

91. INSTALL COWL TOP VENTILATOR LOUVER LH INFO

92. INSTALL CENTER NO. 1 COWL TOP VENTILATOR LOUVER INFO

93. INSTALL HOOD TO COWL TOP SEAL INFO

94. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH INFO

95. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH INFO

96. INSTALL FRONT WIPER ARM HEAD CAP INFO

97. CHARGE WITH REFRIGERANT INFO

98. ADD ENGINE COOLANT (for 2ZR-FE) INFO

99. ADD ENGINE COOLANT (for 2AZ-FE) INFO

100. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

101. INSPECT FOR COOLANT LEAK (for 2ZR-FE) INFO

102. INSPECT FOR COOLANT LEAK (for 2AZ-FE) INFO

103. INSPECT STEERING PAD INFO

104. INSPECT SRS WARNING LIGHT

INFO

105. WARM UP ENGINE INFO

106. INSPECT FOR REFRIGERANT LEAK INFO

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000114701QX
Title: HEATING / AIR CONDITIONING: REFRIGERANT: ON-VEHICLE INSPECTION (2010 Corolla)		

ON-VEHICLE INSPECTION

1. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

HINT:

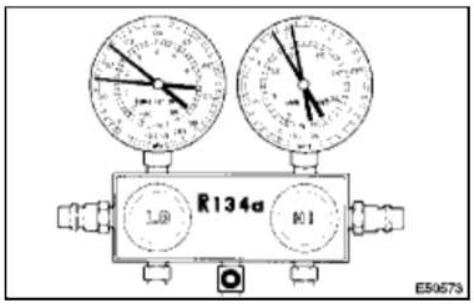
This is a method where a manifold gauge set is used to help locate the problem.

(a) Read the manifold gauge pressure when the following conditions are established.

Test conditions:

- Temperature at the air inlet with the switch set at RECIRC is 30 to 35°C (86 to 95°F).
- Engine is running at 1500 rpm.
- Blower speed control switch is at "HI".
- Temperature control dial is at "COOL".
- A/C switch is ON.
- Doors are fully open.

(1) Normally functioning refrigeration system

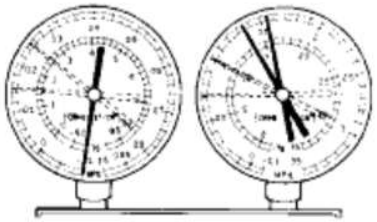


Gauge Reading

PRESSURE SIDE	REFRIGERANT VOLUME
Low	0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm^2, 21 to 36 psi)
High	1.37 to 1.57 MPa (13.9 to 16.0 kgf/cm^2, 198 to 227 psi)

(2) Moisture is present in refrigeration system.

Condition:
Periodically cools and then fails to cool.

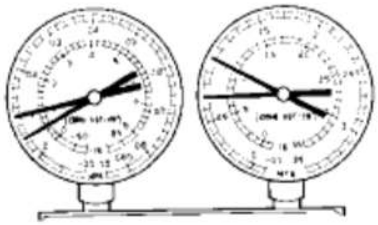


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SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
During operation, pressure on low pressure side cycles between normal and vacuum	• Moisture in the A/C system will freeze at the expansion valve orifice, causing the refrigeration cycle to temporarily stop • After the system stops, and warms up again, the ice will melt and normal operation will be temporarily restored	• Cooler dryer (integrated into the condenser tank) in oversaturated state • Moisture in the refrigeration system freezes at the expansion valve orifice and blocks circulation of refrigerant	1. Replace the cooler dryer 2. Remove moisture in the system by repeatedly evacuating air 3. Supply a proper amount of new refrigerant

(3) Insufficient cooling

Condition: Cooling system does not function effectively.



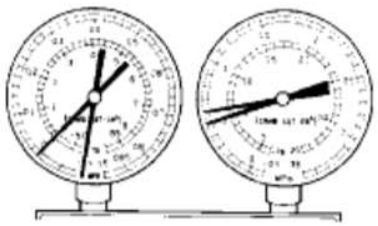
I22118

SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Pressure is low on both low and high pressure sides • Insufficient cooling performance	Gas leakage from the refrigeration system	• Insufficient refrigerant • Refrigerant leaking	1. Check for gas leaks and repair if necessary 2. Supply a proper amount of new refrigerant 3. If the gauge indicates a pressure of close to 0, then it will be necessary to evacuate the system after repairing the leak

(4) Poor circulation of refrigerant

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Condition: Cooling system does not function effectively.

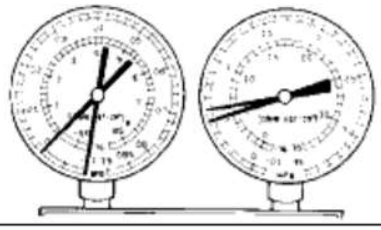


I22119

SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Pressure is low on both low and high pressure sides • Frost exists on pipe from condenser to unit	Refrigerant flow is obstructed by dirt inside the pipes of the condenser core	Receiver is clogged	Replace the condenser

(5) Refrigerant does not circulate.

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



I22120

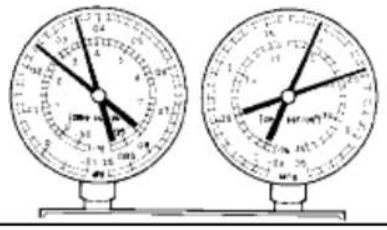
SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Vacuum is indicated on low pressure side and very low pressure is indicated on high pressure side • Frost or condensation is seen on piping on both sides of receiver/drier or expansion valve	• Refrigerant flow is obstructed by moisture or dirt in the refrigeration system • Refrigerant flow is obstructed by gas leaking internally through the expansion valve	Refrigerant does not circulate	1. Check the expansion valve 2. Replace the expansion valve 3. Replace the condenser 4. Evacuate air and supply a proper amount of new refrigerant 5. For internal gas leak at the expansion valve, replace

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SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
			the expansion valve

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

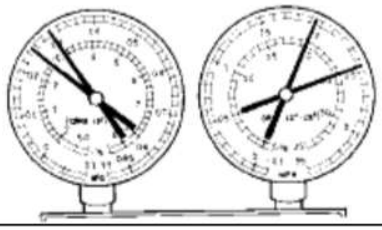
Condition: Cooling system does not function.



SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
Pressure is too high on both low and high pressure sides	• Unable to develop sufficient performance due to an excessive use of refrigeration system • Cooling effectiveness of the condenser is insufficient	• Excessive refrigerant in cycle → excessive refrigerant was added during recharging • Condenser cooling effectiveness is insufficient → condenser fins are clogged at the cooling fan	1. Clean the condenser 2. Check the operation of the condenser cooling fan 3. If 1 and 2 are normal state, check the amount of refrigerant and supply the proper amount of refrigerant

(7) Air is present in the refrigeration system.

Condition: Cooling system does not function.



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

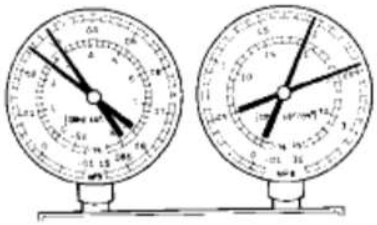
SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION

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SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Pressure is too high on both low and high pressure sides • The low pressure piping is too hot to touch	Air in the system	• Air present in the refrigeration system • Insufficient vacuum purging	1. Check compressor oil to see if it is dirty or insufficient 2. Evacuate the system and recharge it with new or purified refrigerant

(8) Expansion valve malfunction

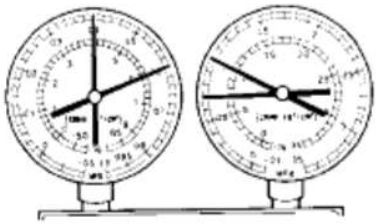
Condition: Insufficient cooling



SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Pressure is too high on both low and high pressure sides • Frost or a large amount of condensation on piping on low pressure side	Expansion valve may be sticking	• Excessive refrigerant in low pressure piping • Expansion valve opened too wide	Check expansion valve

(9) Insufficient compressor compression

Condition: Insufficient cooling

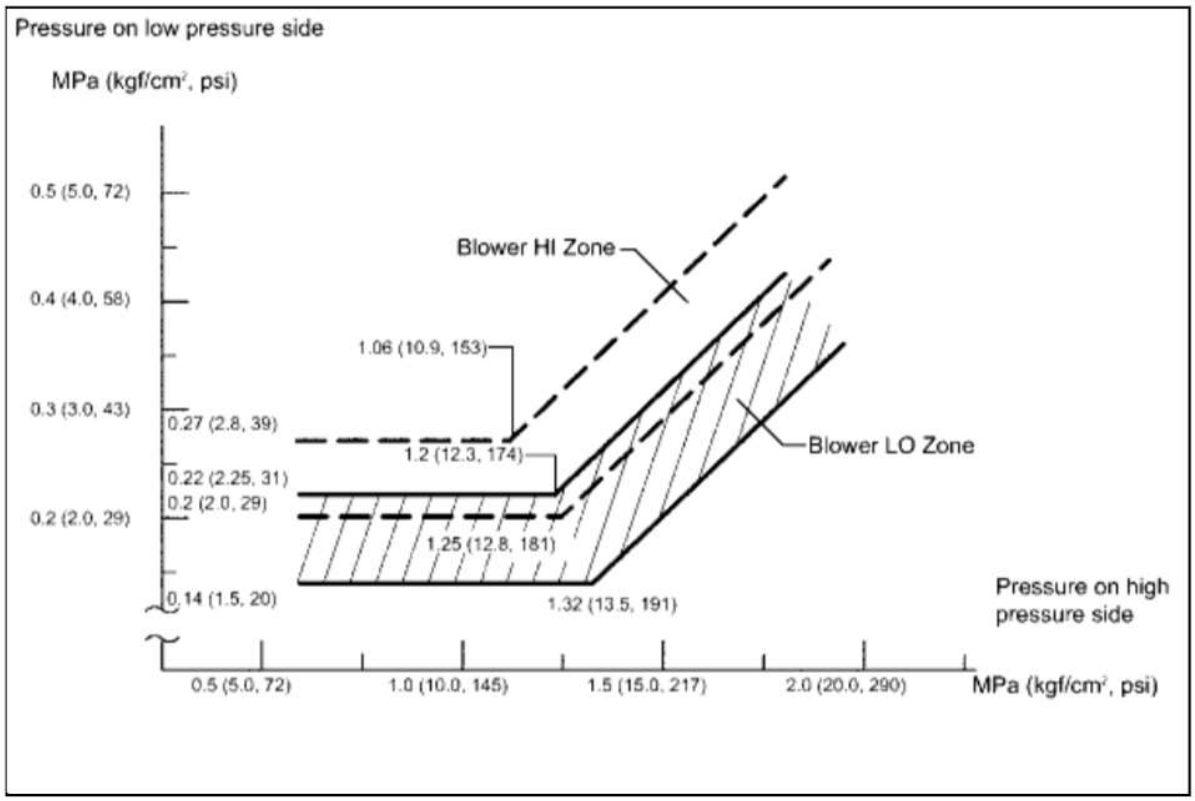


SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION

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SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Pressure is too high both on low and high pressure sides • Pressure is too low on high pressure side	Internal leak in the compressor	• Low compression • Leak from a damaged valve, or parts may be broken	Replace the compressor

Gauge readings (Reference)



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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000114601TX
Title: HEATING / AIR CONDITIONING: REFRIGERANT: REPLACEMENT (2010 Corolla)		

REPLACEMENT

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

(a) Start up the engine.

(b) Turn the A/C switch on.

(c) Operate the cooler compressor at an engine speed of approximately 1000 rpm for 5 to 6 minutes to circulate the refrigerant. This causes most of the compressor oil from the various components of the A/C system to collect in the A/C compressor.

(d) Stop the engine.

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

2. CHARGE WITH REFRIGERANT

(a) Perform vacuum purging using a vacuum pump.

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

Standard:
410 to 470 g (14.5 to 16.6 oz.)

SST: 09985-20010

09985-02130
09985-02150
09985-02090
09985-02110
09985-02010
09985-02050
09985-02060
09985-02070
09985-02140
09985-02080

NOTICE:

Do not turn the A/C on before charging with refrigerant. Doing so will cause the cooler compressor to work without refrigerant, resulting in overheating of the cooler compressor.

HINT:

Ensure that sufficient refrigerant is available to recharge the system when using a refrigerant recovery unit.

Refrigerant recovery units are not always able to recover 100% of the refrigerant from an A/C system.

3. WARM UP ENGINE

(a) Keep the A/C switch on for at least 2 minutes to warm up the compressor.

NOTICE:

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

4. INSPECT FOR REFRIGERANT LEAK

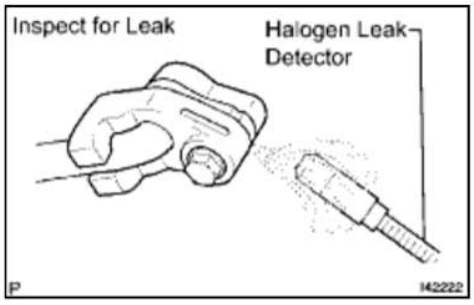
(a) After recharging with refrigerant, inspect for refrigerant leaks using a halogen leak detector.

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(b) Carry out the test under the following conditions:

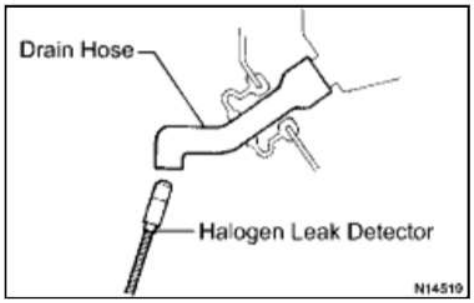
- Turn the ignition switch off.
- Secure good ventilation (the halogen leak detector may react to volatile gases which are not refrigerant, such as evaporated gasoline and exhaust gas).
- Repeat the test 2 or 3 times.
- Make sure that there is some refrigerant remaining in the refrigeration system.

  When the compressor is off: approx. 392 to 588 kPa (3.9 to 5.9 kgf/cm^2, 57 to 85 psi).



(c) Using a halogen leak detector, inspect for refrigerant leaks from the refrigerant lines.

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



HINT:

- After the blower motor has stopped, let the cooling unit stand for more than 15 minutes.
- Bring 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 volatile gases.

  If it is not possible to avoid interference from volatile gases, the vehicle should be lifted up to allow testing.

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

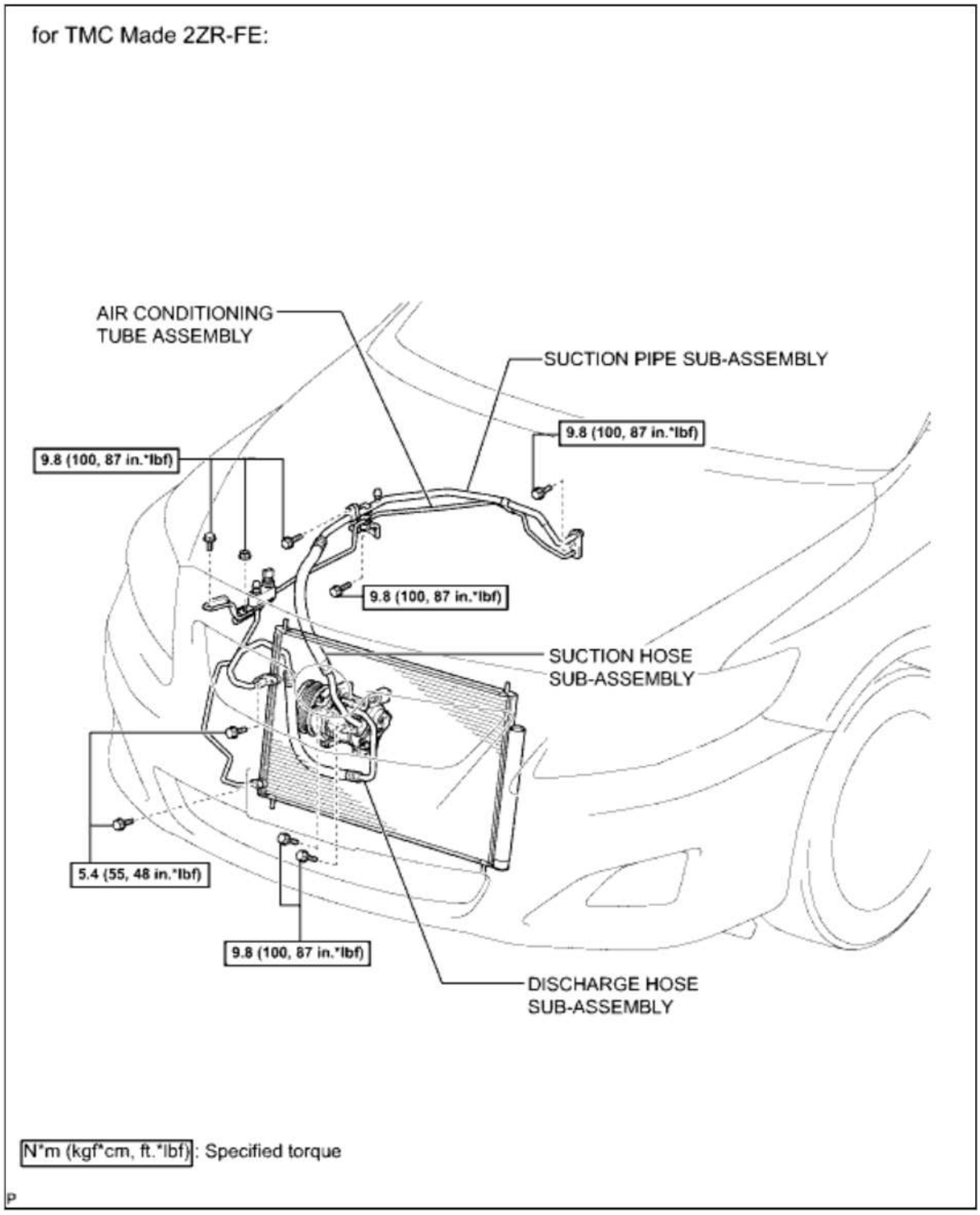
(f) Disconnect the pressure switch connector and leave it for approximately 20 minutes. Bring the halogen leak detector close to the pressure switch and perform the test.

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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXC001X
Title: HEATING / AIR CONDITIONING: REFRIGERANT LINE: COMPONENTS (2010 Corolla)		

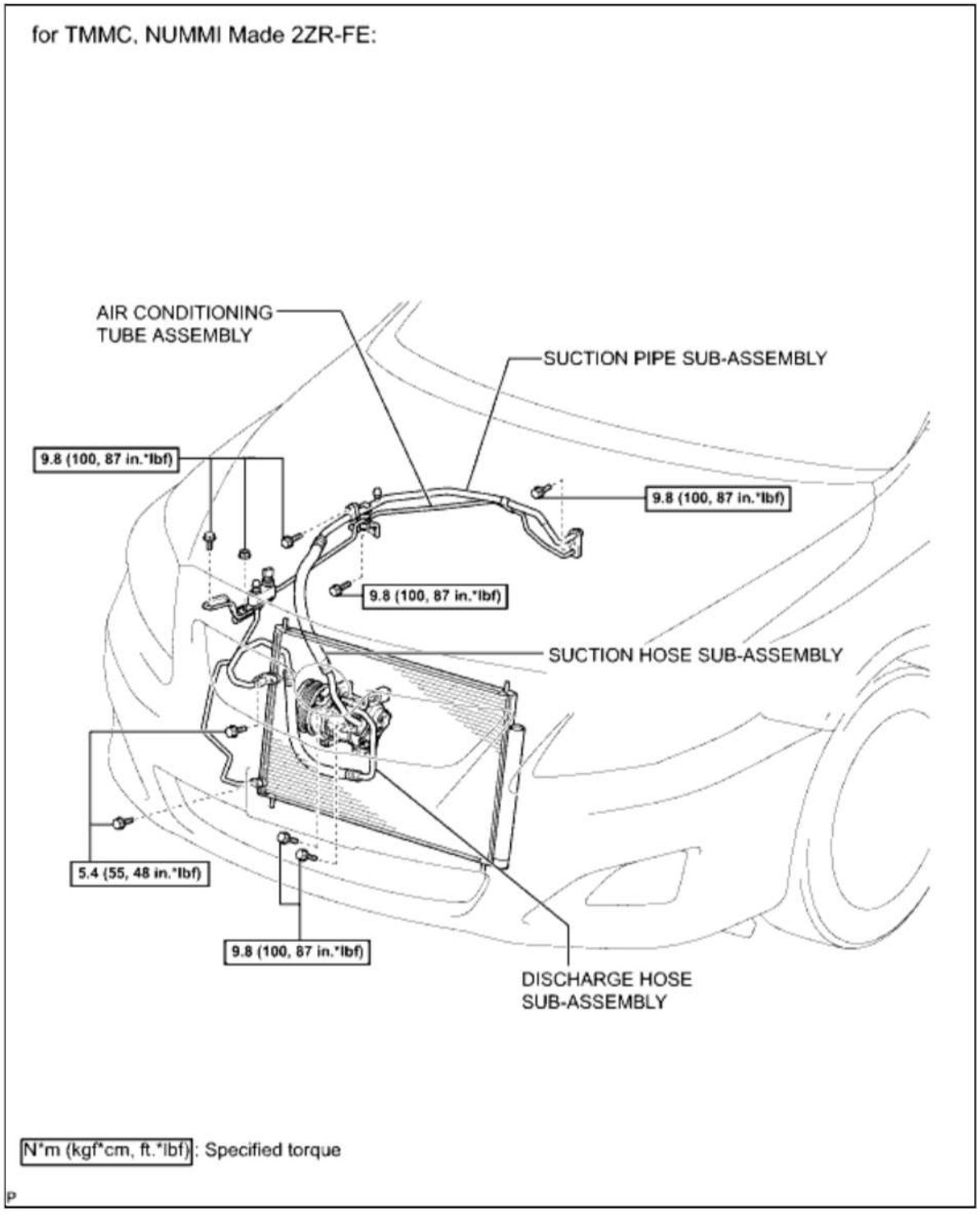
COMPONENTS

ILLUSTRATION



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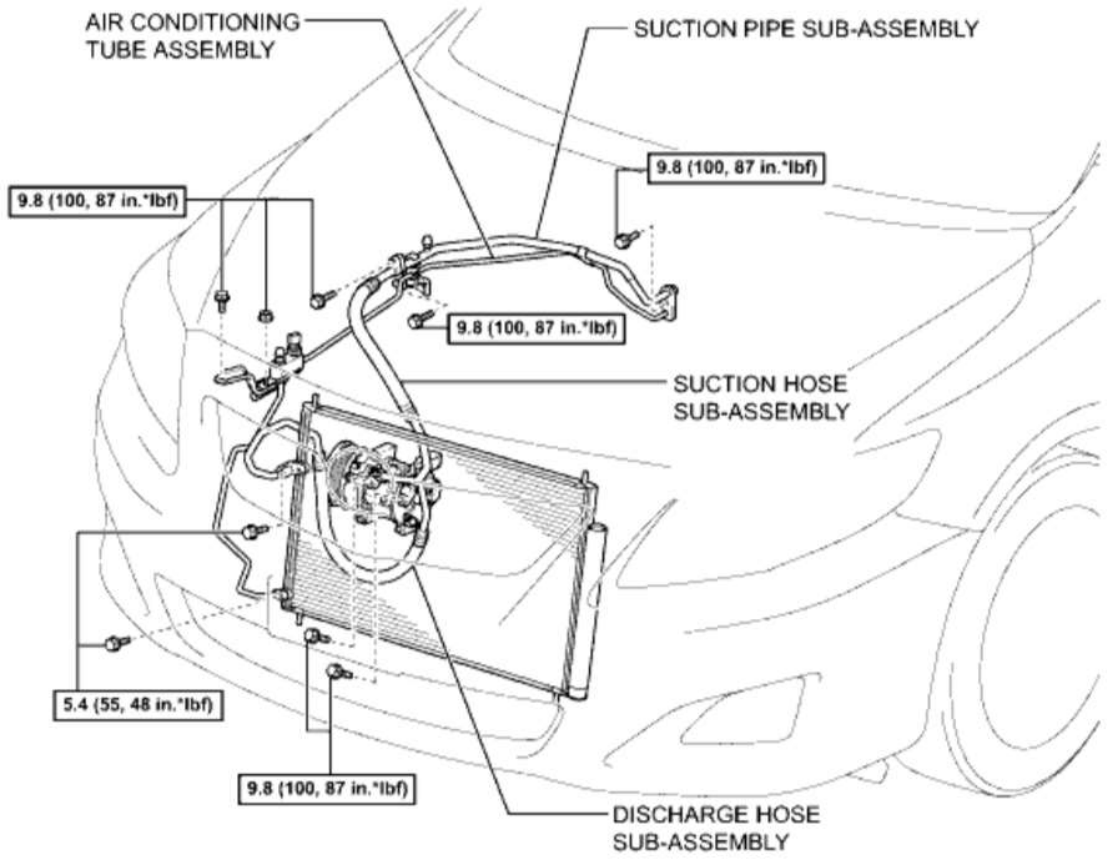
ILLUSTRATION



ILLUSTRATION

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for 2AZ-FE:



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

P

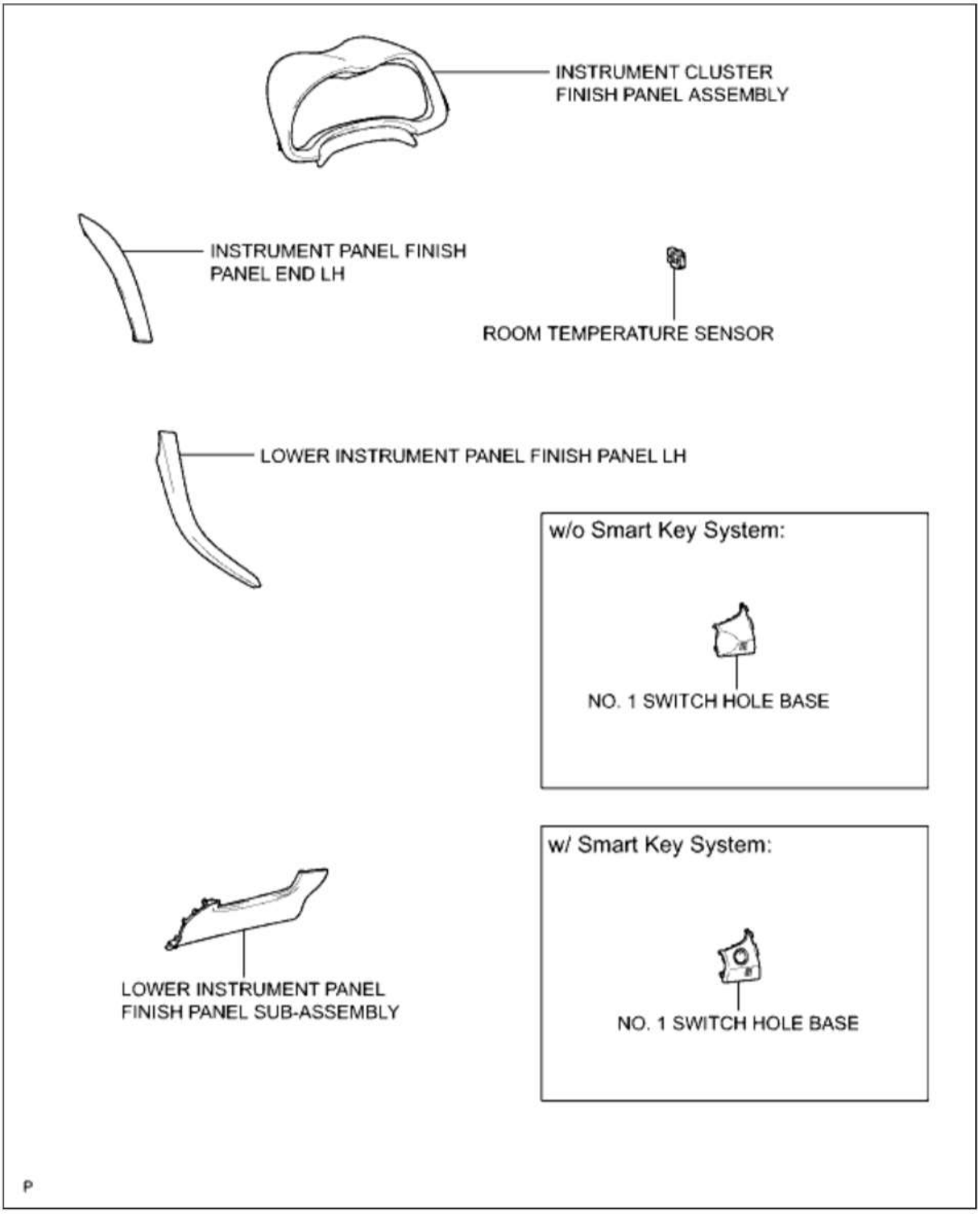
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXP001X
Title: HEATING / AIR CONDITIONING: ROOM TEMPERATURE SENSOR: COMPONENTS (2010 Corolla)		

COMPONENTS

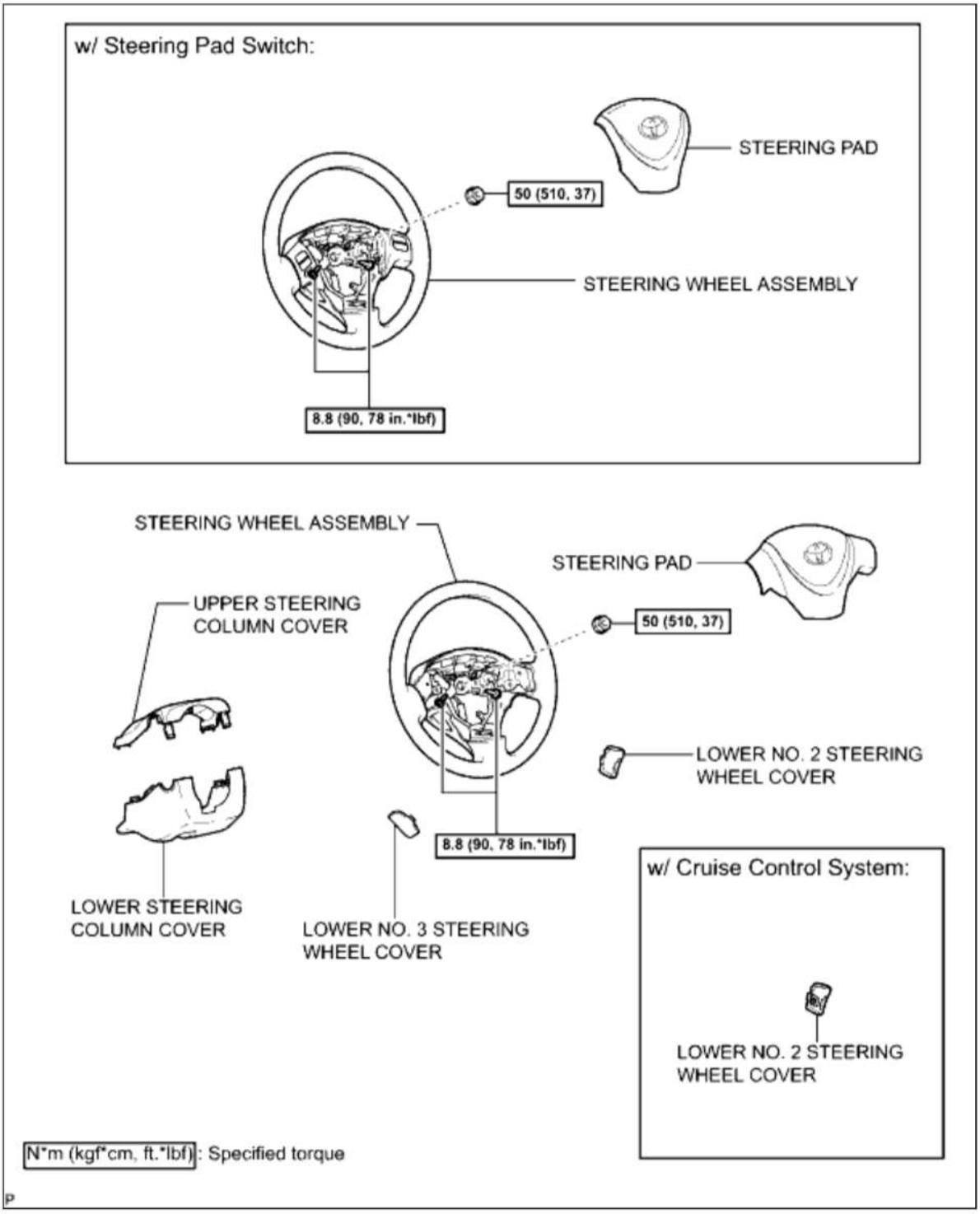
ILLUSTRATION

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ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XMT00DX
Title: HEATING / AIR CONDITIONING: ROOM TEMPERATURE SENSOR: REMOVAL (2010 Corolla)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

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

2. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO

3. REMOVE LOWER NO. 3 STEERING WHEEL COVER INFO

4. REMOVE LOWER NO. 2 STEERING WHEEL COVER INFO

5. REMOVE STEERING PAD INFO

6. REMOVE STEERING WHEEL ASSEMBLY INFO

7. REMOVE LOWER STEERING COLUMN COVER INFO

8. REMOVE UPPER STEERING COLUMN COVER INFO

9. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

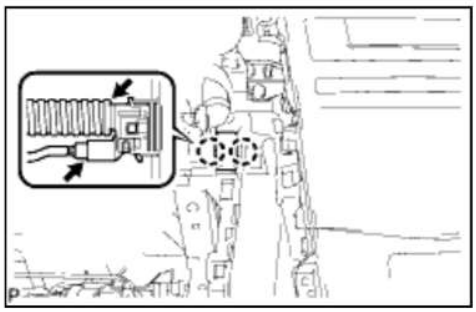
10. REMOVE INSTRUMENT PANEL FINISH PANEL END LH INFO

11. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

12. REMOVE NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

13. REMOVE NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

14. REMOVE ROOM TEMPERATURE SENSOR



(a) Disconnect the connector.

(b) Disengage the air hose.

(c) Disengage the 2 claws and remove the room temperature sensor.

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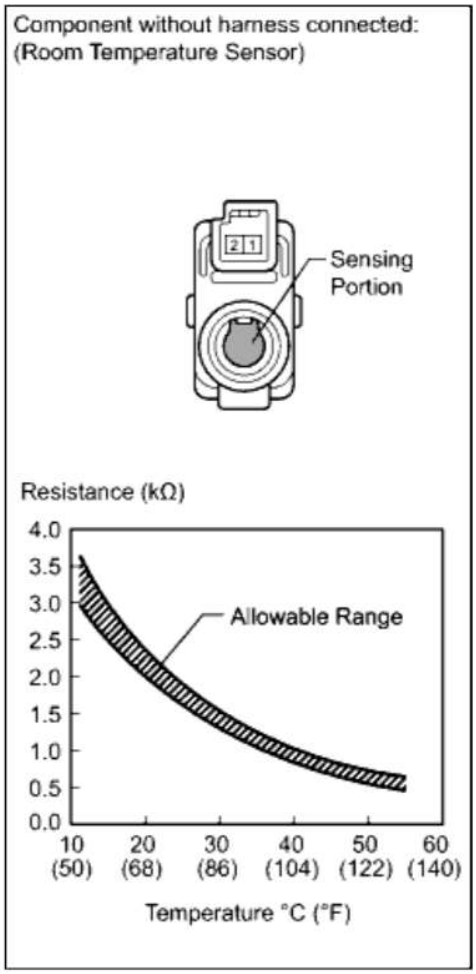


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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000201O01WX
Title: HEATING / AIR CONDITIONING: ROOM TEMPERATURE SENSOR: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT ROOM TEMPERATURE SENSOR



(a) Disconnect the connector from the room temperature sensor.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	10°C (50°F)	3.00 to 3.73 kΩ
1 - 2	15°C (59°F)	2.45 to 2.88 kΩ
1 - 2	20°C (68°F)	1.95 to 2.30 kΩ

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
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:

- Hold the sensor only by its connector. Touching the sensor may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

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

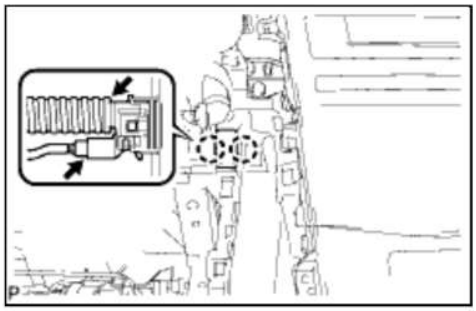
If the resistance is not as specified, replace the room temperature sensor.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XMR00DX
Title: HEATING / AIR CONDITIONING: ROOM TEMPERATURE SENSOR: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL ROOM TEMPERATURE SENSOR



(a) Engage the 2 claws and install the room temperature sensor.

(b) Engage the air hose.

(c) Connect the connector.

2. INSTALL NO. 1 SWITCH HOLE BASE (w/o Smart Key System) INFO

3. INSTALL NO. 1 SWITCH HOLE BASE (w/ Smart Key System) INFO

4. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

5. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

6. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

7. INSTALL UPPER STEERING COLUMN COVER INFO

8. INSTALL LOWER STEERING COLUMN COVER INFO

9. TURN FRONT WHEELS TO FACE STRAIGHT AHEAD

10. ADJUST SPIRAL CABLE INFO

11. INSTALL STEERING WHEEL ASSEMBLY INFO

12. INSTALL STEERING PAD INFO

13. INSTALL LOWER NO. 3 STEERING WHEEL COVER INFO

14. INSTALL LOWER NO. 2 STEERING WHEEL COVER INFO

15. INSPECT STEERING WHEEL CENTER POINT

16. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY INFO

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17. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

18. INSPECT STEERING PAD INFO

19. INSPECT SRS WARNING LIGHT

INFO

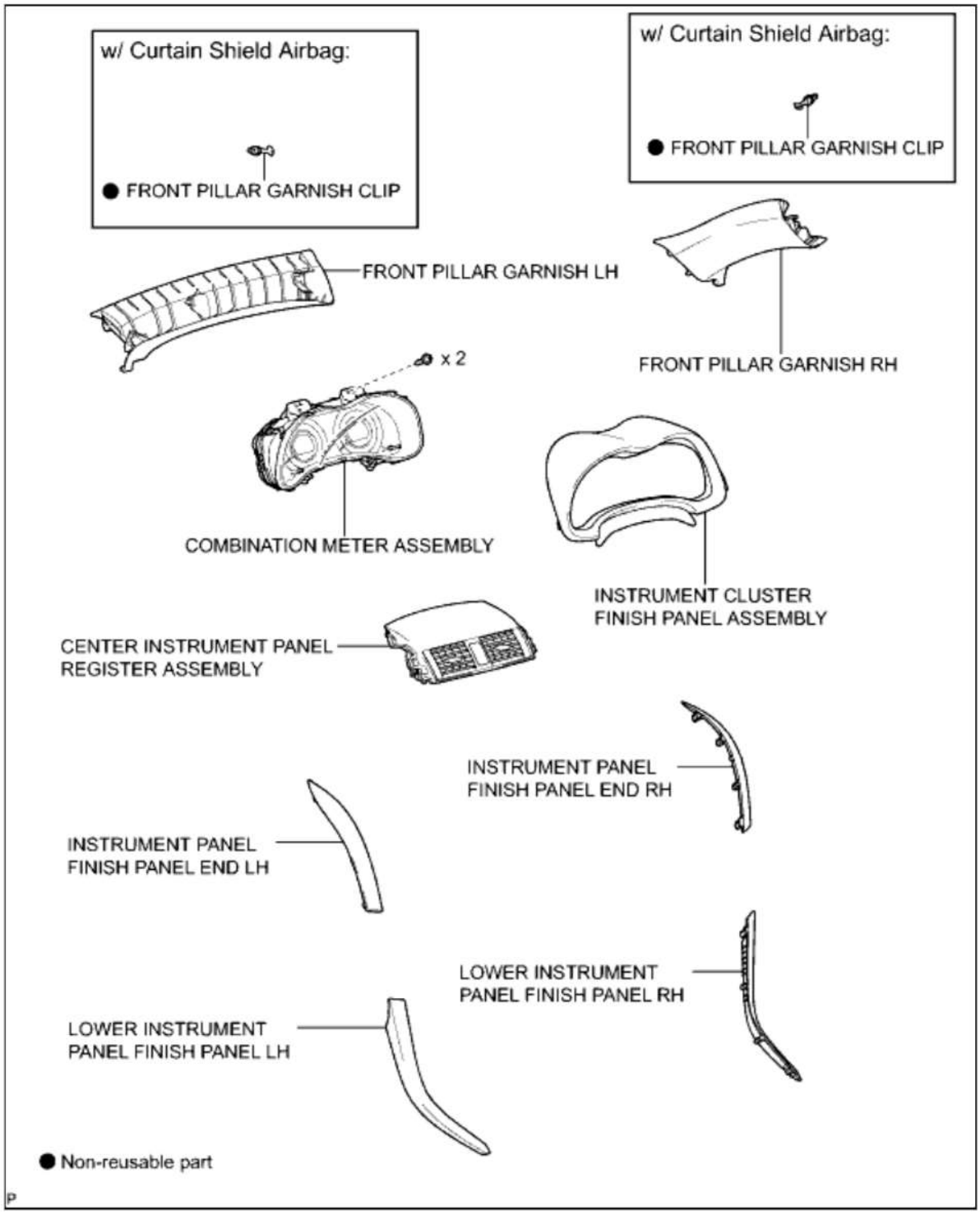


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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXS001X
Title: HEATING / AIR CONDITIONING: SOLAR SENSOR: COMPONENTS (2010 Corolla)		

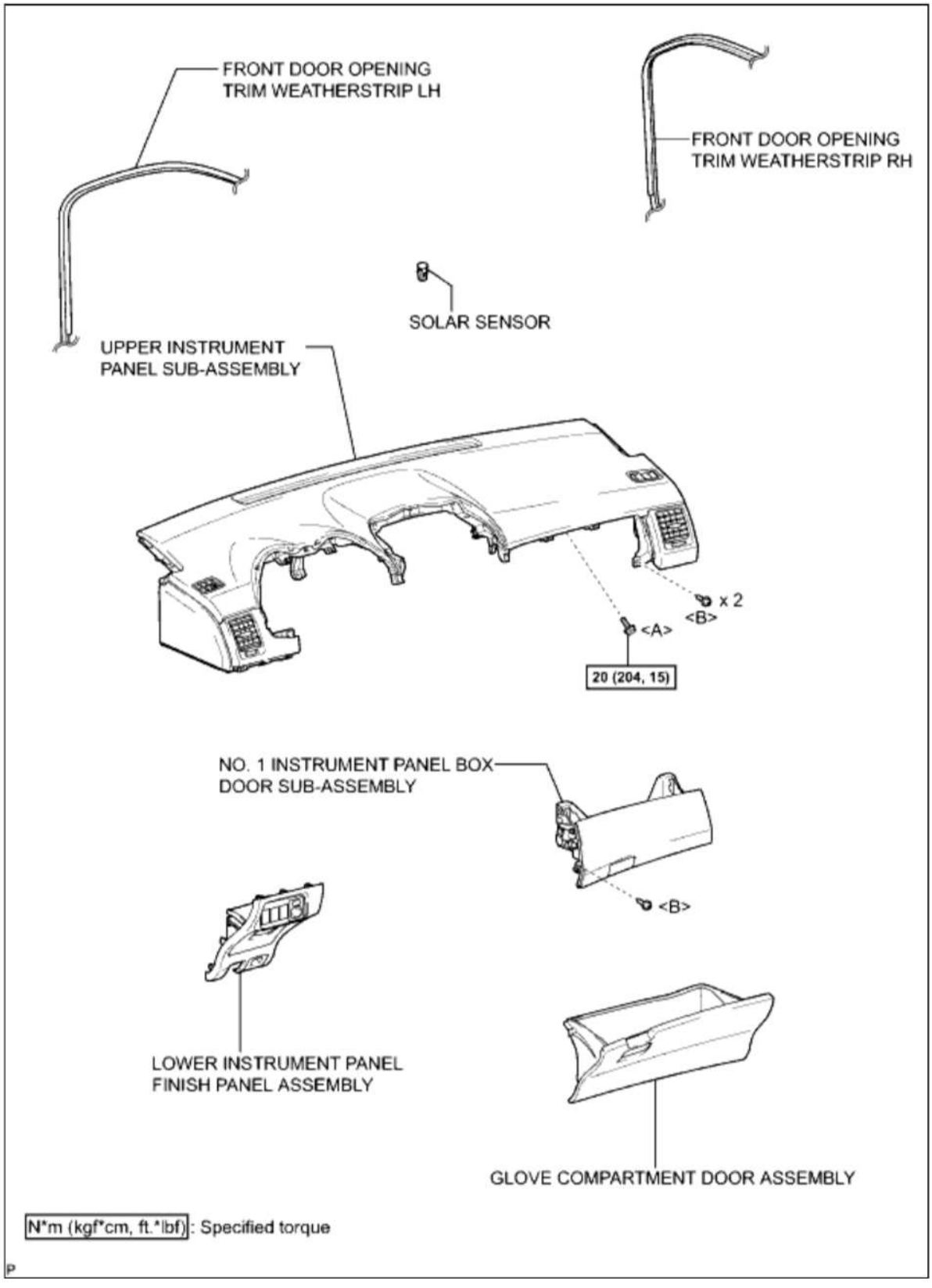
COMPONENTS

ILLUSTRATION



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ILLUSTRATION



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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001WID01MX
Title: HEATING / AIR CONDITIONING: SOLAR SENSOR: REMOVAL (2010 Corolla)		

REMOVAL

1. PRECAUTION

INFO

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

CAUTION:

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

3. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

4. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

5. REMOVE INSTRUMENT PANEL FINISH PANEL END LH INFO

6. REMOVE INSTRUMENT PANEL FINISH PANEL END RH INFO

7. REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

8. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

9. REMOVE COMBINATION METER ASSEMBLY INFO

10. REMOVE FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO

11. REMOVE FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO

12. REMOVE FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO

13. REMOVE FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO

14. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

15. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO

16. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY INFO

17. REMOVE NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO

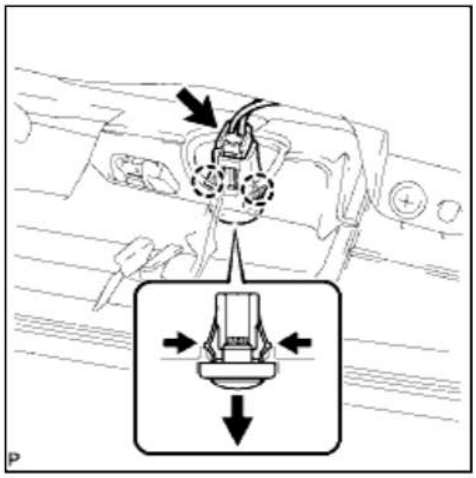
18. DISCONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO

19. DISCONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO

20. REMOVE UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO

21. REMOVE SOLAR SENSOR

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(a) Disconnect the connector.

(b) Disengage the 2 claws and remove the solar sensor.

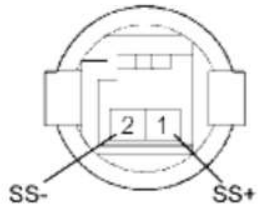
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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000314V00WX
Title: HEATING / AIR CONDITIONING: SOLAR SENSOR: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT SOLAR SENSOR

Component without harness connected:
(Solar Sensor)



(a) Disconnect the connector from the solar sensor.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1 - 2	Solar sensor covered with a cloth.	∞ Ω
1 - 2	Solar sensor exposed to electric light.	Except ∞ Ω

HINT:

Use an incandescent light for inspection. Bring it within about 30 cm (11.8 in.) of the solar sensor.

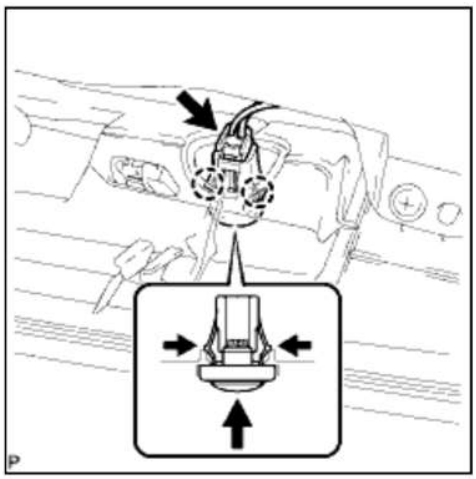
If the resistance is not as specified, replace the solar sensor.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001WIB01MX
Title: HEATING / AIR CONDITIONING: SOLAR SENSOR: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL SOLAR SENSOR



(a) Engage the 2 claws and install the solar sensor.

(b) Connect the connector.

2. INSTALL UPPER INSTRUMENT PANEL SUB-ASSEMBLY INFO

3. CONNECT INSTRUMENT PANEL WIRE ASSEMBLY INFO

4. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP LH INFO

5. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL ASSEMBLY INFO

6. CONNECT FRONT DOOR OPENING TRIM WEATHERSTRIP RH INFO

7. INSTALL NO. 1 INSTRUMENT PANEL BOX DOOR SUB-ASSEMBLY INFO

8. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY INFO

9. INSTALL FRONT PILLAR GARNISH LH (w/ Curtain Shield Airbag) INFO

10. INSTALL FRONT PILLAR GARNISH LH (w/o Curtain Shield Airbag) INFO

11. INSTALL FRONT PILLAR GARNISH RH (w/ Curtain Shield Airbag) INFO

12. INSTALL FRONT PILLAR GARNISH RH (w/o Curtain Shield Airbag) INFO

13. INSTALL COMBINATION METER ASSEMBLY INFO

14. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

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15. INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

16. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

17. INSTALL INSTRUMENT PANEL FINISH PANEL END RH INFO

18. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

19. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

20. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

21. INSPECT SRS WARNING LIGHT

INFO

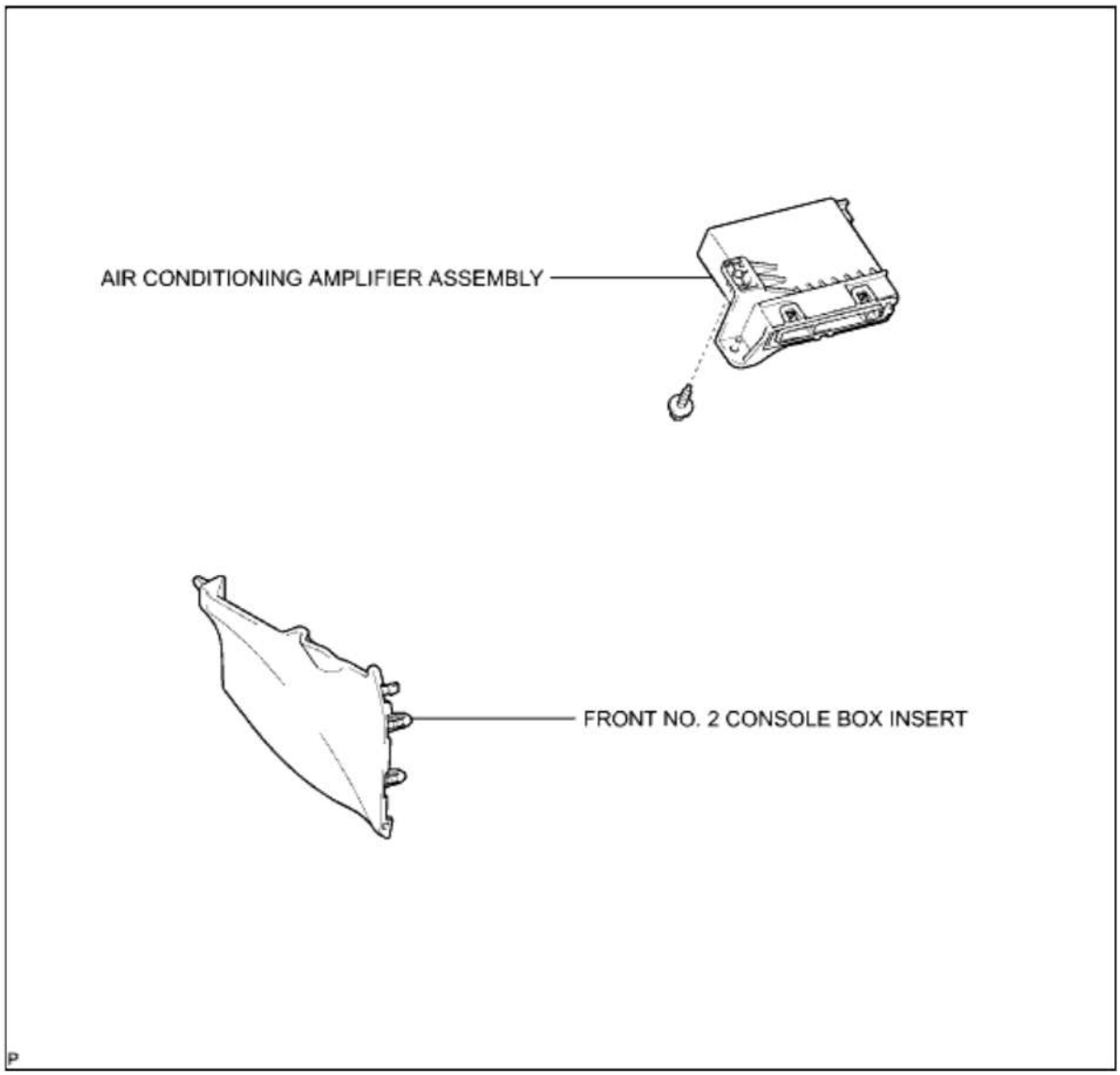


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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXW001X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION



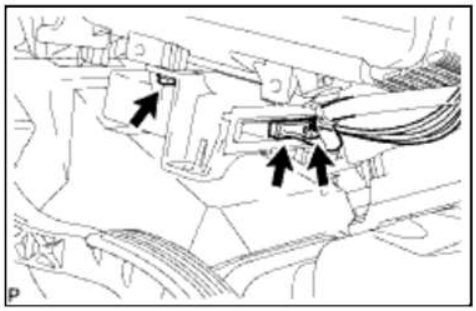
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XMC00IX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE FRONT NO. 2 CONSOLE BOX INSERT INFO

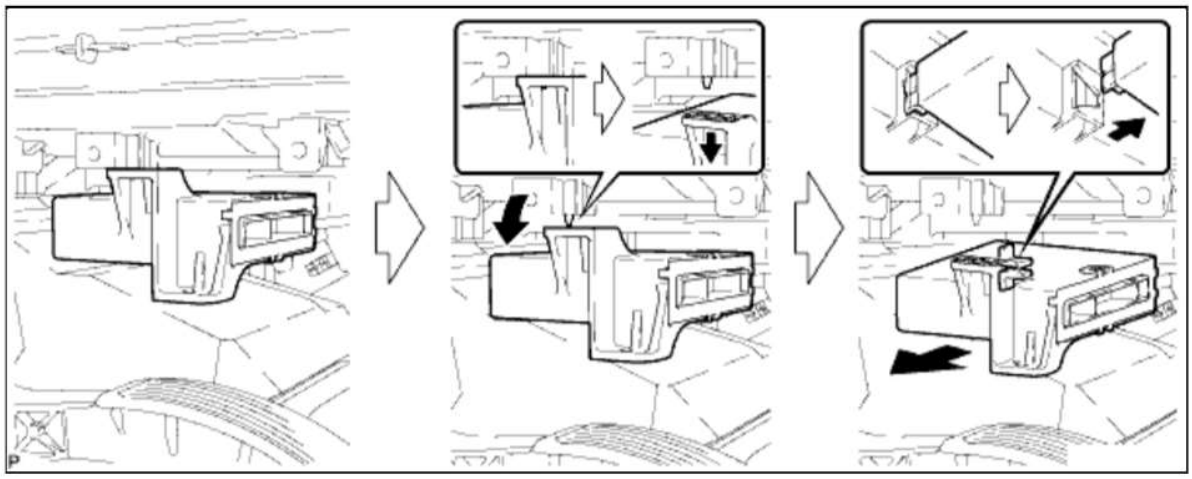
2. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY



(a) Disconnect each connector.

(b) Remove the screw.

(c) Remove the air conditioning amplifier assembly as shown in the illustration.



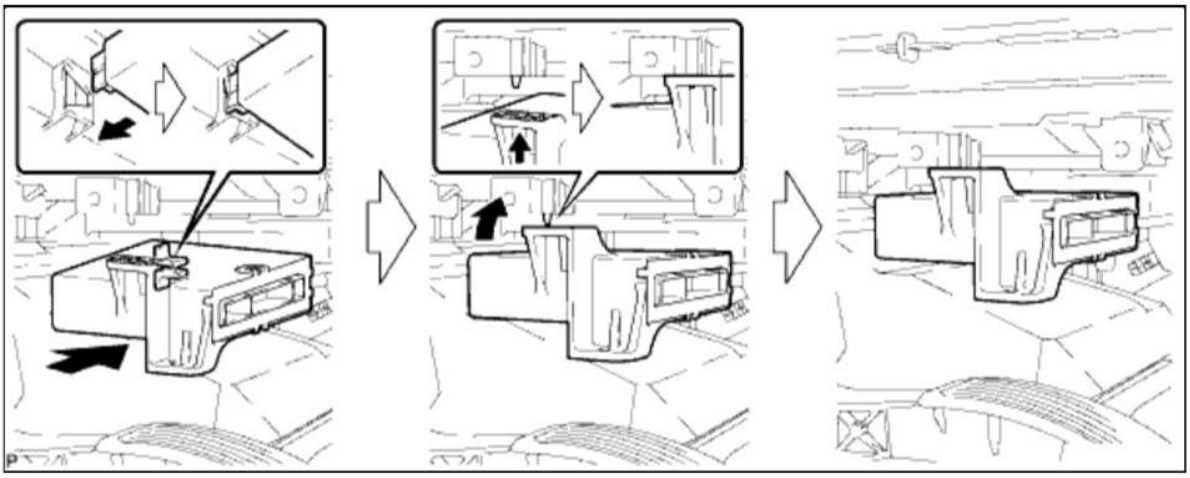
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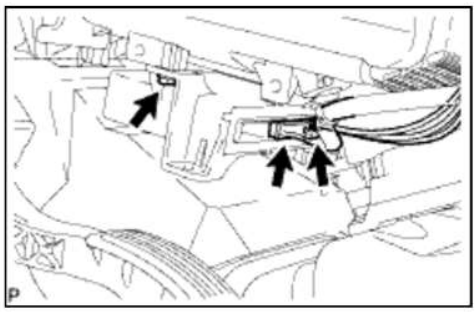
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XMA00IX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY

(a) Install the air conditioning amplifier assembly as shown in the illustration.





(b) Install the screw.

(c) Connect each connector.

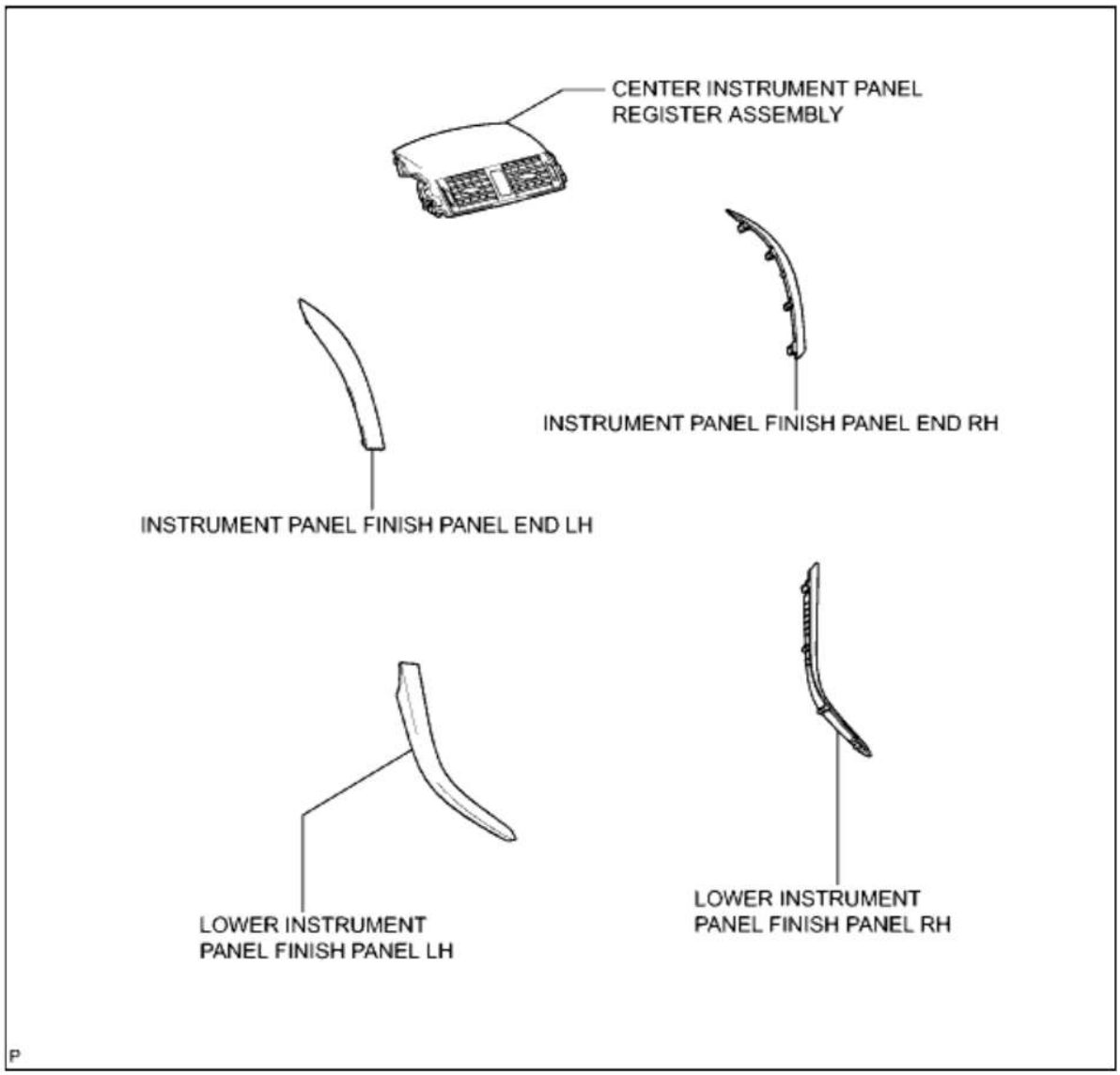
2. INSTALL FRONT NO. 2 CONSOLE BOX INSERT

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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XLY00BX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL (for Automatic Air Conditioning System): COMPONENTS (2010 Corolla)		

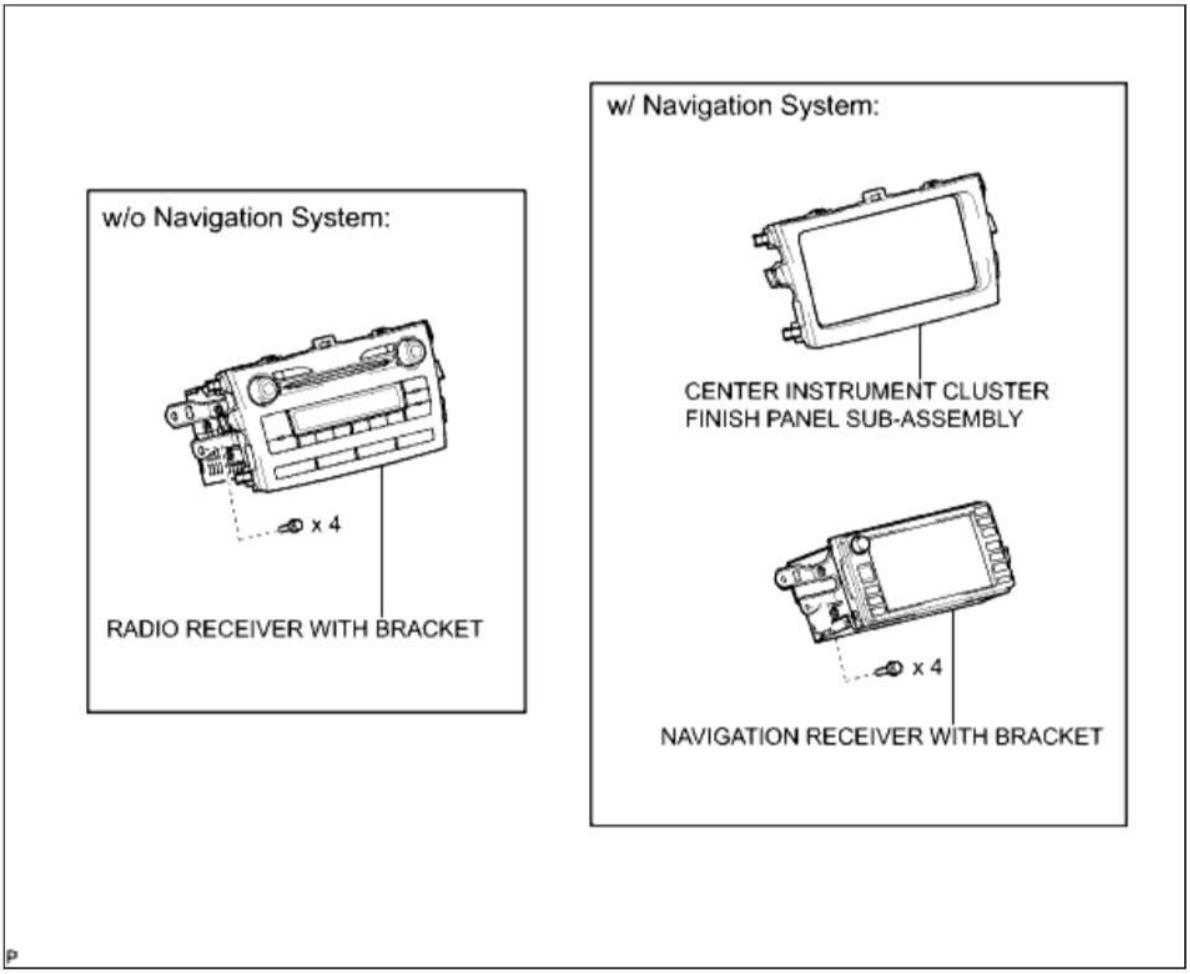
COMPONENTS

ILLUSTRATION



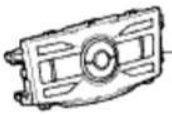
ILLUSTRATION

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AIR CONDITIONING CONTROL ASSEMBLY



INSTRUMENT PANEL HOLE COVER



INSTRUMENT PANEL BOX ASSEMBLY

for Automatic Transaxle:



SHIFT LEVER KNOB SUB-ASSEMBLY

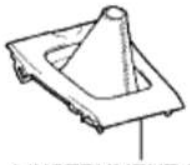


CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY

for Manual Transaxle:



SHIFT LEVER KNOB SUB-ASSEMBLY



CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY

P

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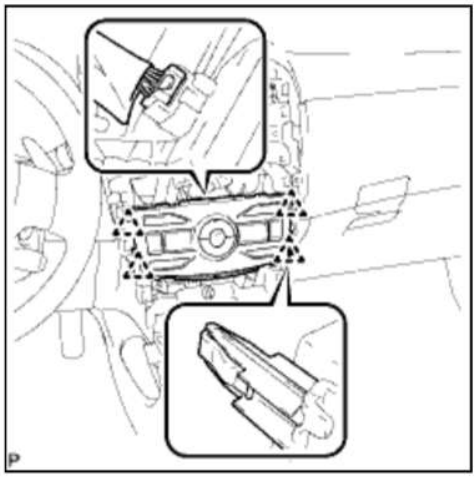
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XM200UX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL (for Automatic Air Conditioning System): REMOVAL (2010 Corolla)		

REMOVAL

1. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH** INFO
2. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH** INFO
3. **REMOVE INSTRUMENT PANEL FINISH PANEL END LH** INFO
4. **REMOVE INSTRUMENT PANEL FINISH PANEL END RH** INFO
5. **REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY** INFO
6. **REMOVE RADIO RECEIVER WITH BRACKET (w/o Navigation System)** INFO
7. **REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System)** INFO
8. **REMOVE NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System)** INFO
9. **REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle)** INFO
10. **REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle)** INFO
11. **REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle)** INFO
12. **REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle)** INFO
13. **REMOVE INSTRUMENT PANEL BOX ASSEMBLY** INFO
14. **REMOVE INSTRUMENT PANEL HOLE COVER** INFO
15. **REMOVE AIR CONDITIONING CONTROL ASSEMBLY**

(a) Disengage the 4 clips and remove the air conditioning control assembly.

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(b) Disconnect the connector.

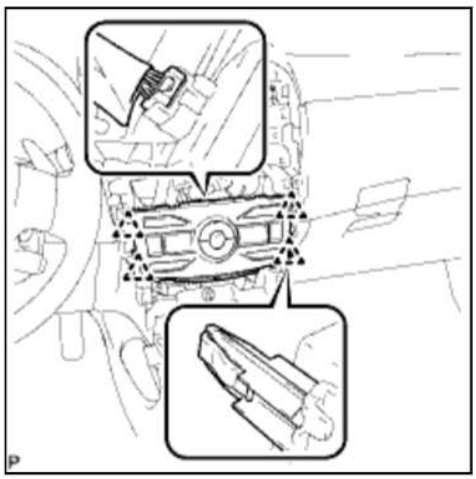
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XM000UX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL (for Automatic Air Conditioning System): INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL AIR CONDITIONING CONTROL ASSEMBLY

(a) Connect the connector.



(b) Engage the 4 clips and install the air conditioning control assembly.

2. INSTALL INSTRUMENT PANEL HOLE COVER INFO

3. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

4. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

5. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

6. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

7. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

8. INSTALL RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

9. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

10. INSTALL NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

11. INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

12. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

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13. INSTALL INSTRUMENT PANEL FINISH PANEL END RH INFO

14. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

15. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

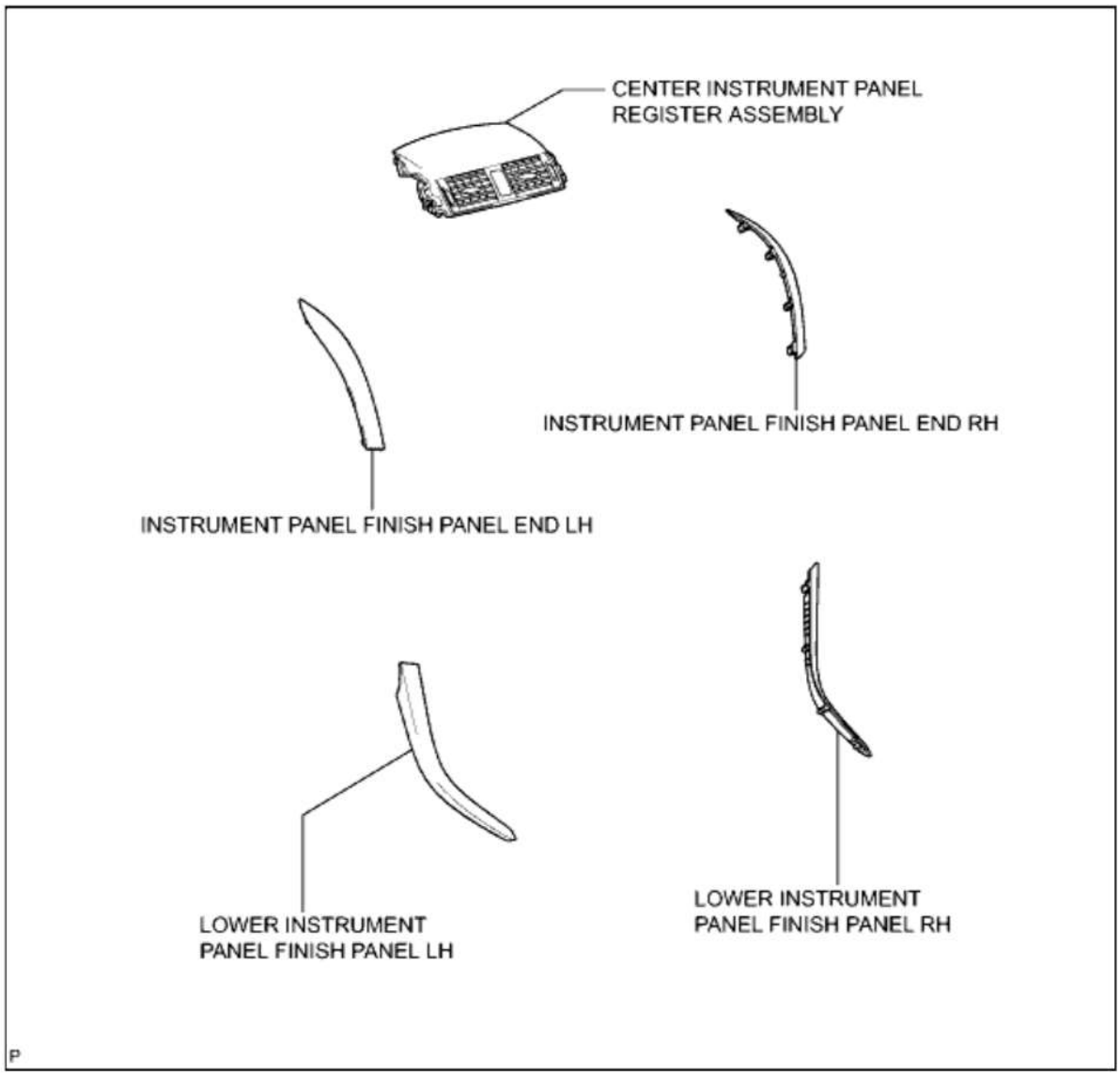


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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XM100FX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): COMPONENTS (2010 Corolla)		

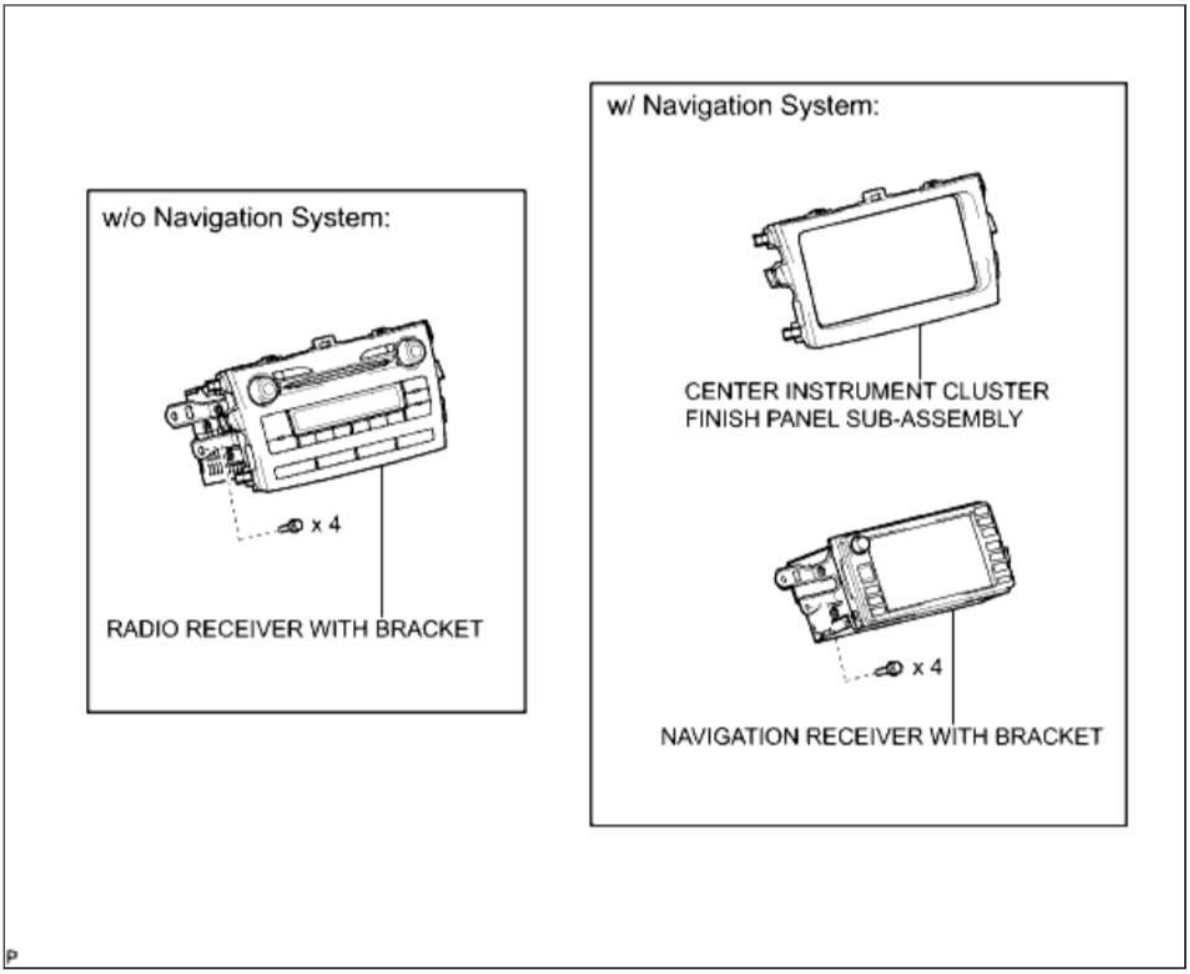
COMPONENTS

ILLUSTRATION



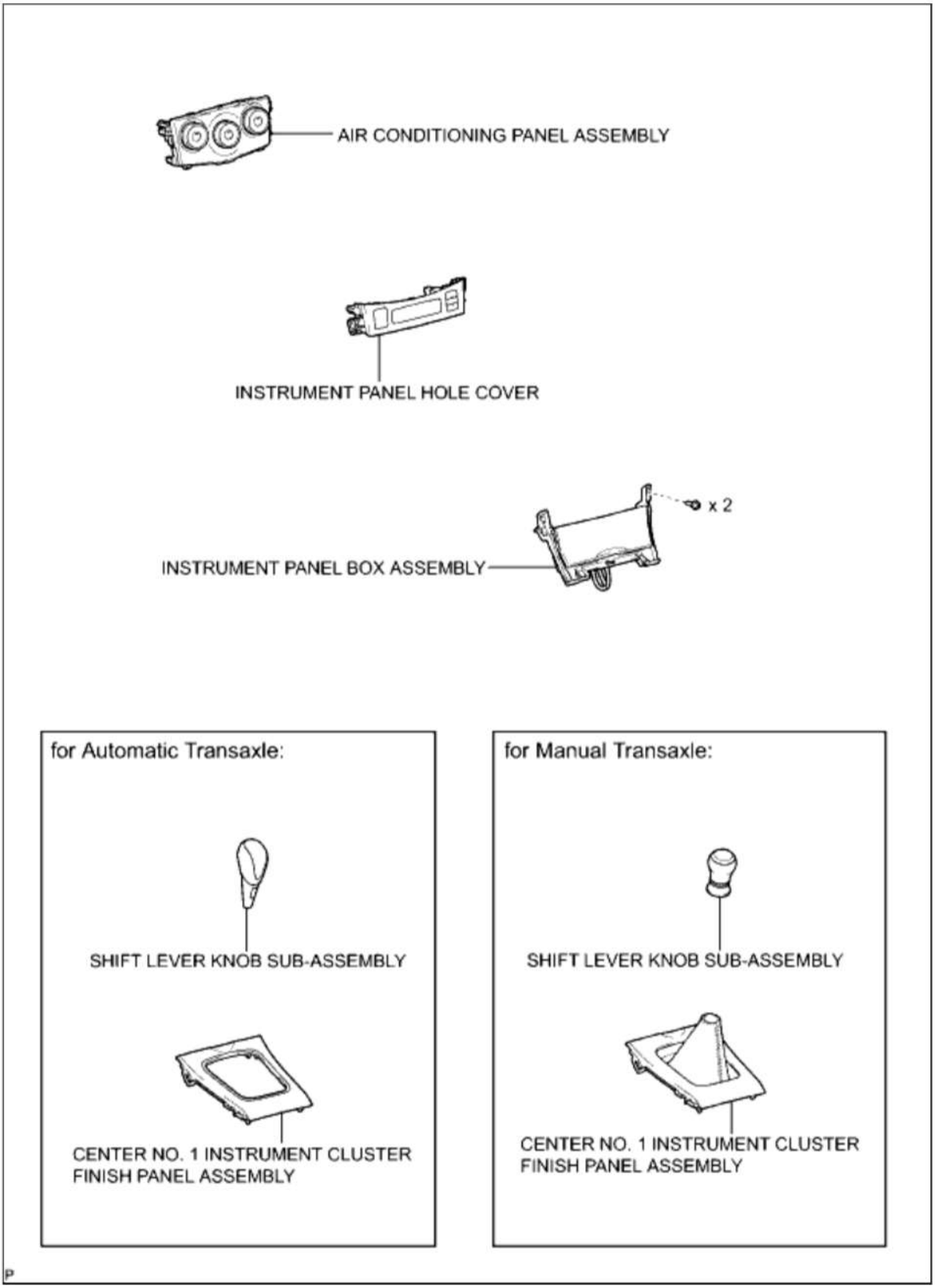
ILLUSTRATION

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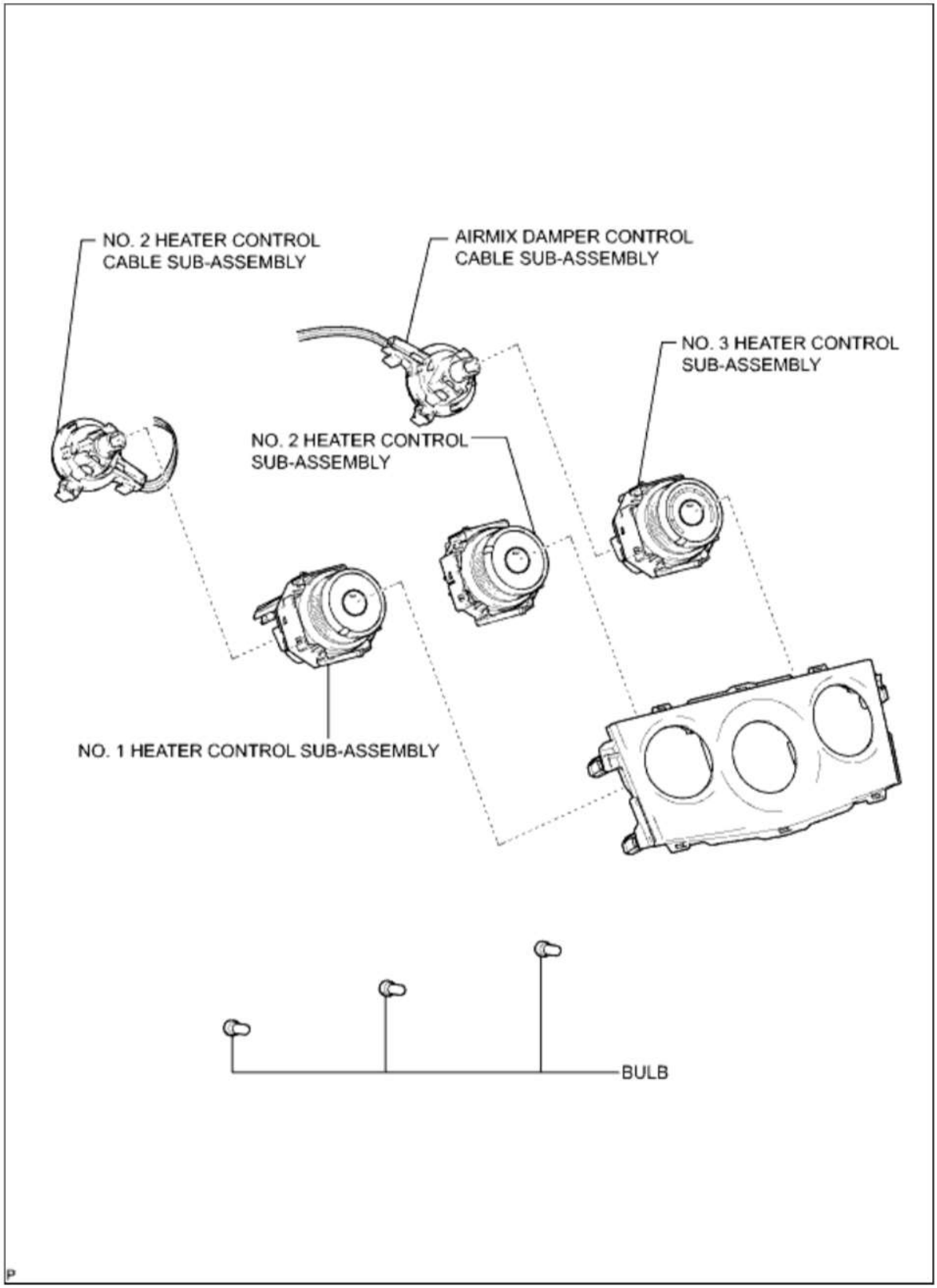
ILLUSTRATION

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ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XM200VX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

2. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

3. REMOVE INSTRUMENT PANEL FINISH PANEL END LH INFO

4. REMOVE INSTRUMENT PANEL FINISH PANEL END RH INFO

5. REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

6. REMOVE RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

7. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

8. REMOVE NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

9. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

10. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

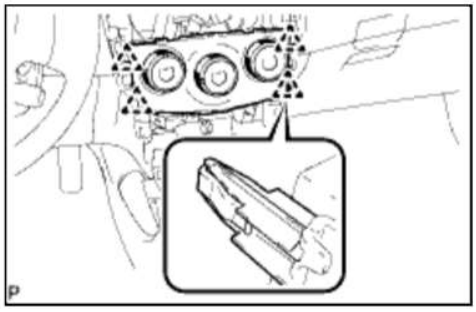
11. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

12. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

13. REMOVE INSTRUMENT PANEL BOX ASSEMBLY INFO

14. REMOVE INSTRUMENT PANEL HOLE COVER INFO

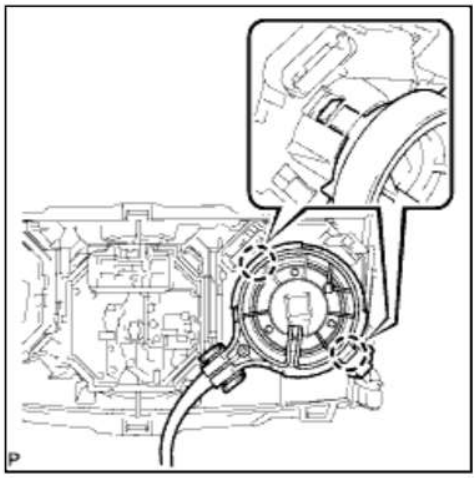
15. REMOVE AIR CONDITIONING PANEL ASSEMBLY



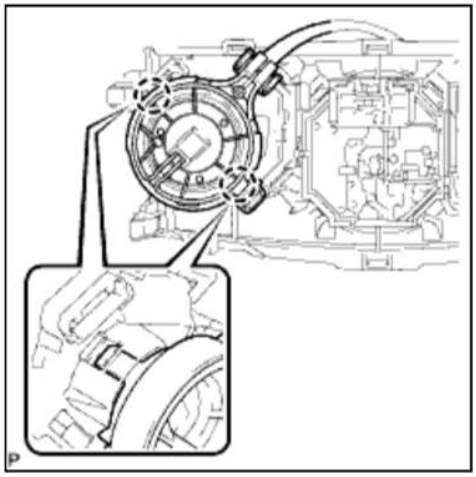
(a) Disengage the 4 clips and remove the air conditioning panel assembly.

(b) Disconnect each connector.

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(c) Disengage the 2 claws and the No. 2 heater control cable sub-assembly.



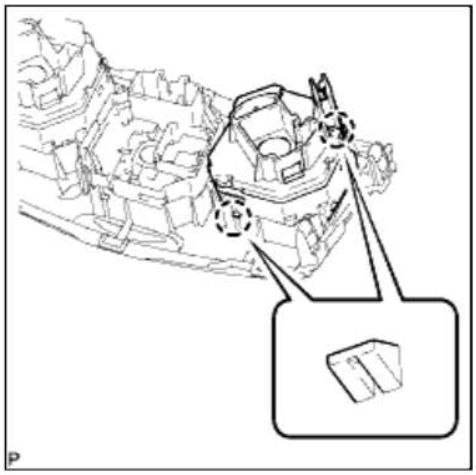
(d) Disengage the 2 claws and the airmix damper control cable sub-assembly.

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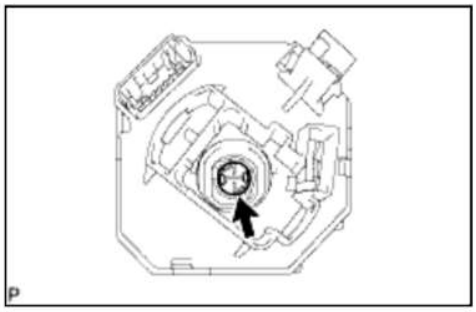
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XM300FX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): DISASSEMBLY (2010 Corolla)		

DISASSEMBLY

1. REMOVE NO. 1 HEATER CONTROL SUB-ASSEMBLY



(a) Disengage the 2 claws and remove the No. 1 heater control sub-assembly.

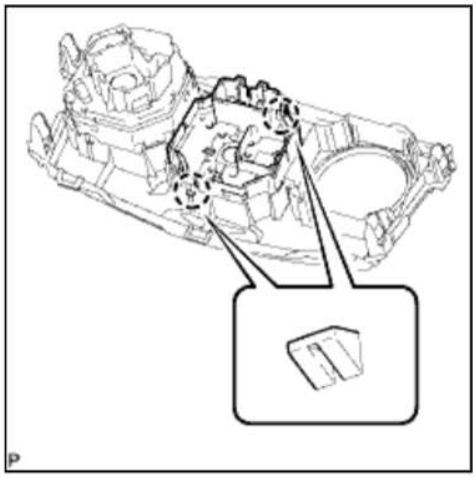


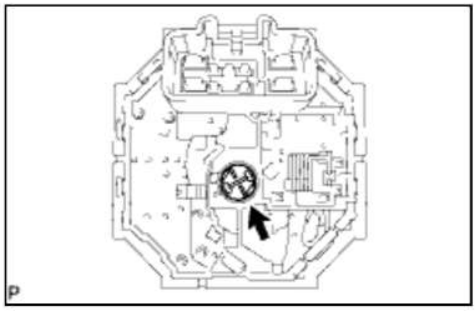
(b) Remove the bulb.

2. REMOVE NO. 2 HEATER CONTROL SUB-ASSEMBLY

(a) Disengage the 2 claws and remove the No. 2 heater control sub-assembly.

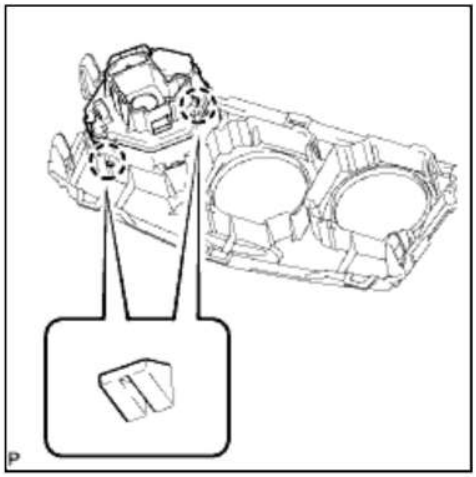
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(b) Remove the bulb.

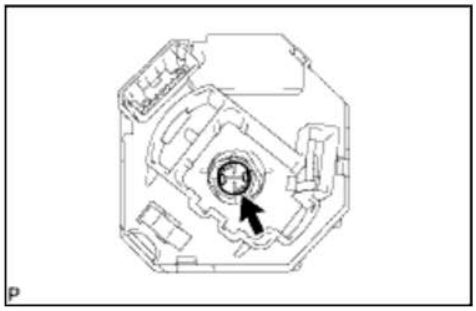
3. REMOVE NO. 3 HEATER CONTROL SUB-ASSEMBLY



(a) Disengage the 2 claws and remove the No. 3 heater control sub-assembly.

(b) Remove the bulb.

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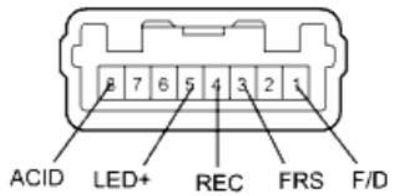
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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000314R00SX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT NO. 1 HEATER CONTROL (AIR INLET CONTROL SWITCH)

Component without harness connected:
(No. 1 Heater Control (Air Inlet Control Switch))



(a) Disconnect the connector from the No. 1 heater control (air inlet control switch).

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
3 (FRS) - 4 (REC)	Air inlet control switch: FREE	Below 1 Ω
3 (FRS) - 4 (REC)	Air inlet control switch: LOCK	10 kΩ or higher
1 (F/D) - 8 (ACID)	Mode control dial: except Foot/DEF position and DEF position	10 kΩ or higher
1 (F/D) - 8 (ACID)	Mode control dial: Foot/DEF position or DEF position	Below 1 Ω

(c) Check that the indicator light comes on.

(1) Turn the No. 1 heater control (air inlet control switch) to LOCK.

(2) Connect a positive (+) lead from the battery to terminal 2 and a negative (-) lead from the battery to terminal 4, and check that the indicator light comes on.

OK:

The indicator light comes on.

(d) Check that the illumination comes on.

(1) Connect a positive (+) lead from the battery to terminal 7 and negative (-) to terminal 6, and

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check that the illumination comes on.

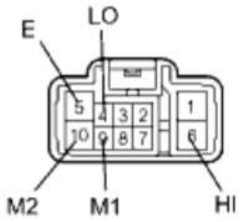
OK:

The illumination comes on.

If the result is not as specified, replace the No. 1 heater control (air inlet control switch).

2. INSPECT NO. 2 HEATER CONTROL (BLOWER SWITCH)

Component without harness connected:
(No. 2 Heater Control (Blower Switch))



(a) Disconnect the connector from the No. 2 heater control (blower switch).

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
4 (LO), 6 (HI), 9 (M1), 10 (M2) - 5 (E)	Blower switch: OFF	10 kΩ or higher
4 (LO) - 5 (E)	Blower switch: LO	Below 1 Ω
4 (LO), 9 (M1) - 5 (E)	Blower switch: M1	Below 1 Ω
4 (LO), 10 (M2) - 5 (E)	Blower switch: M2	Below 1 Ω
4 (LO), 6 (HI) - 5 (E)	Blower switch: HI	Below 1 Ω

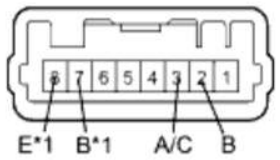
If the resistance is not as specified, replace the No. 2 heater control (blower switch).

3. INSPECT NO. 3 HEATER CONTROL

(a) Disconnect the connector from the No. 3 heater control.

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Component without harness connected:
(No. 3 Heater Control)



*1: w/ PTC Heater

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

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
2 (B) - 3 (A/C)	A/C switch: LOCK	Below 1 Ω
2 (B) - 3 (A/C)	A/C switch: FREE	10 kΩ or higher
7 (B) - 8 (E)*1	Air mix control dial: MAX HOT position	Below 1 Ω
7 (B) - 8 (E)*1	Air mix control dial: except MAX HOT position	10 kΩ or higher

HINT:

***1: w/ PTC heater**

(c) Check that the indicator light comes on.

(1) Connect a positive (+) lead from the battery to terminal 3 and a negative (-) lead from the battery to terminal 4, and check that the indicator light comes on.

OK:

The indicator light comes on.

(d) Check that the illumination comes on.

(1) Connect a positive (+) lead from the battery to terminal 5 and a negative (-) lead from the battery to terminal 6, and check that the illumination comes on.

OK:

The illumination comes on.

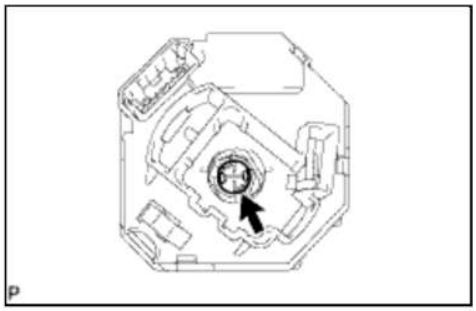
If the result is not as specified, replace the No. 3 heater control.

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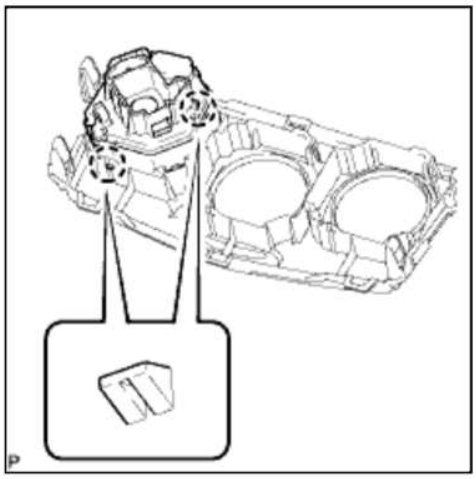
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XM400FX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): REASSEMBLY (2010 Corolla)		

REASSEMBLY

1. INSTALL NO. 3 HEATER CONTROL SUB-ASSEMBLY

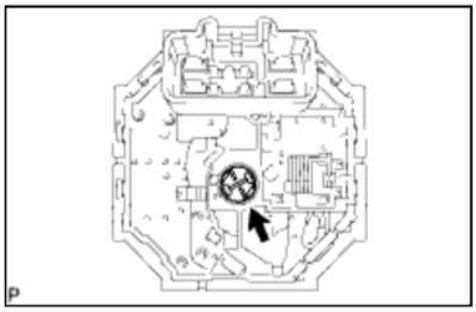


(a) Install the bulb.



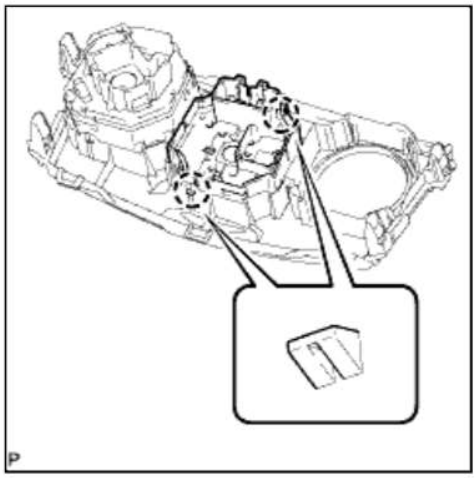
(b) Engage the 2 claws and install the No. 3 heater control sub-assembly.

2. INSTALL NO. 2 HEATER CONTROL SUB-ASSEMBLY



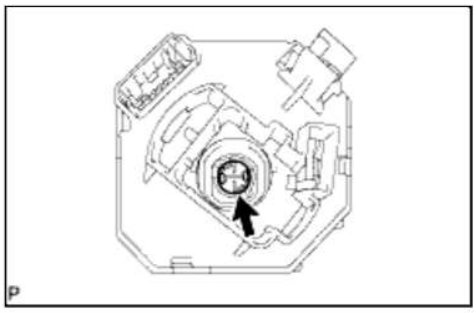
(a) Install the bulb.

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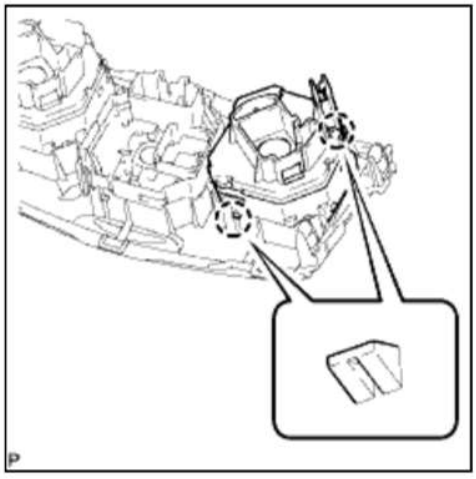


(b) Engage the 2 claws and install the No. 2 heater control sub-assembly.

3. INSTALL NO. 1 HEATER CONTROL SUB-ASSEMBLY



(a) Install the bulb.



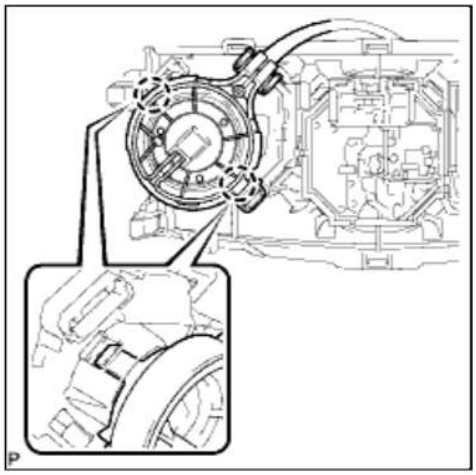
(b) Engage the 2 claws and install the No. 1 heater control sub-assembly.

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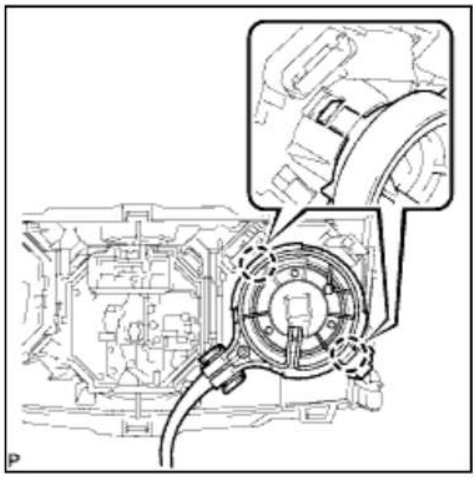
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002XM000VX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL AIR CONDITIONING PANEL ASSEMBLY



(a) Engage the 2 claws and the airmix damper control cable sub-assembly.

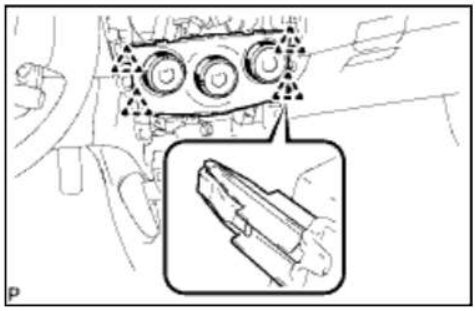


(b) Engage the 2 claws and the No. 2 heater control cable sub-assembly.

(c) Connect each connector.

(d) Engage the 4 clips and install the air conditioning panel assembly.

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2. INSTALL INSTRUMENT PANEL HOLE COVER INFO

3. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

4. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) INFO

5. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) INFO

6. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) INFO

7. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) INFO

8. INSTALL RADIO RECEIVER WITH BRACKET (w/o Navigation System) INFO

9. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (w/ Navigation System) INFO

10. INSTALL NAVIGATION RECEIVER WITH BRACKET (w/ Navigation System) INFO

11. INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY INFO

12. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

13. INSTALL INSTRUMENT PANEL FINISH PANEL END RH INFO

14. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

15. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

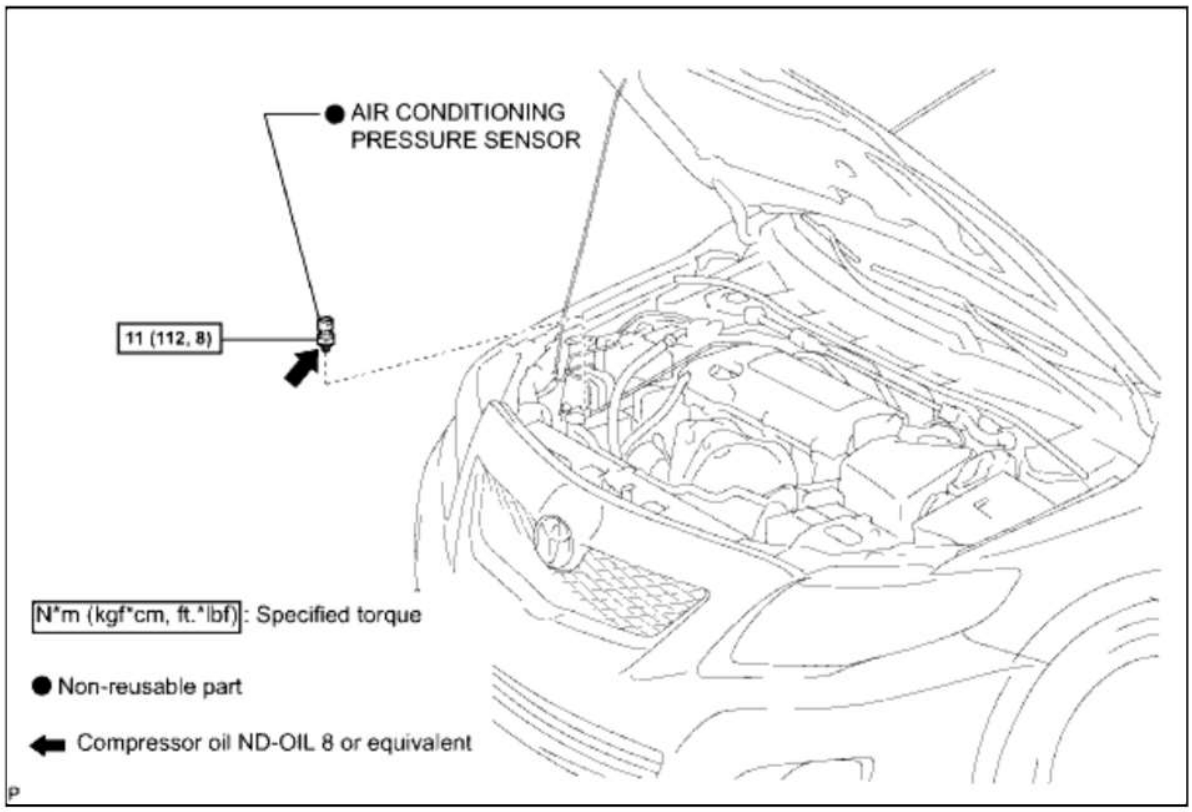
TOYOTA

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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003FXT001X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION



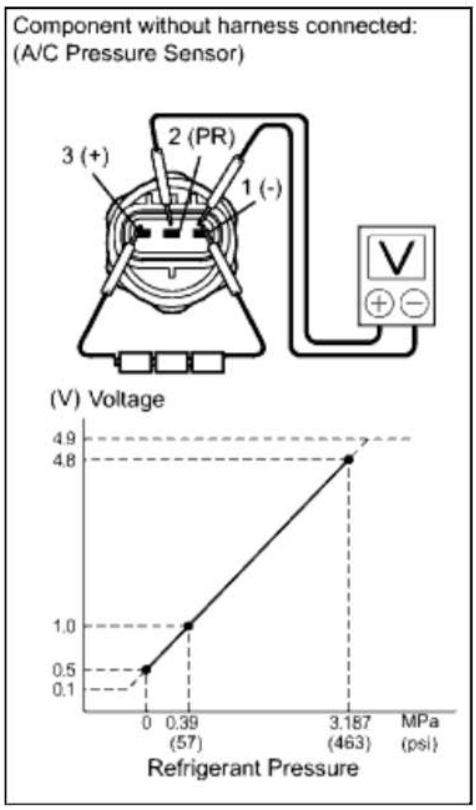
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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM00000202W01RX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: ON-VEHICLE INSPECTION (2010 Corolla)		

ON-VEHICLE INSPECTION

1. INSPECT A/C PRESSURE SENSOR

(a) Install the manifold gauge set.



(b) Disconnect the connector from the A/C pressure sensor.

(c) Connect the three 1.5 V dry cell batteries' positive (+) lead to terminal 3 and the negative (-) lead to terminal 1.

(d) Connect the voltmeter's positive (+) lead to terminal 2 and the negative (-) lead to terminal 1.

(e) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2 (PR) - 1 (-)	Refrigerant pressure: 0.39 to 3.187 MPa (57 to 463 psi)	1.0 to 4.8 V

If the voltage is not as specified, replace the A/C pressure sensor.

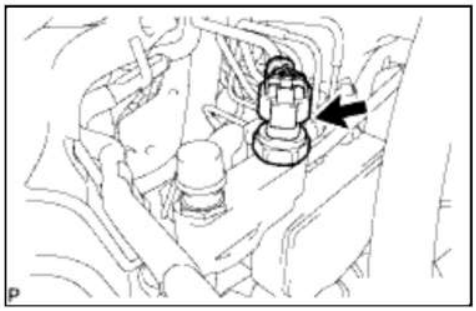
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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003CY1004X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: REMOVAL (2010 Corolla)		

REMOVAL

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM INFO

2. REMOVE AIR CONDITIONING PRESSURE SENSOR



(a) Disconnect the connector.

(b) Remove the air conditioning pressure sensor.

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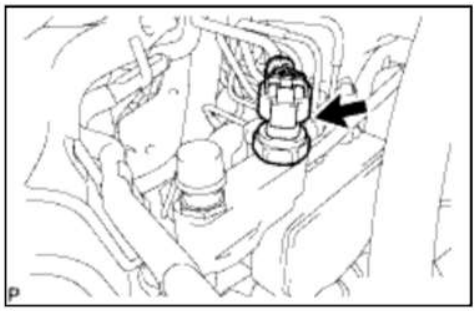
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003CXZ004X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL AIR CONDITIONING PRESSURE SENSOR

(a) Sufficiently apply compressor oil to a new air conditioning pressure sensor.

Compressor oil:
ND-OIL 8 or equivalent



(b) Install the new air conditioning pressure sensor.

Torque: 11 N·m (112 kgf·cm, 8ft·lbf)

(c) Connect the connector.

2. CHARGE WITH REFRIGERANT INFO

3. WARM UP ENGINE INFO

4. INSPECT FOR REFRIGERANT LEAK INFO

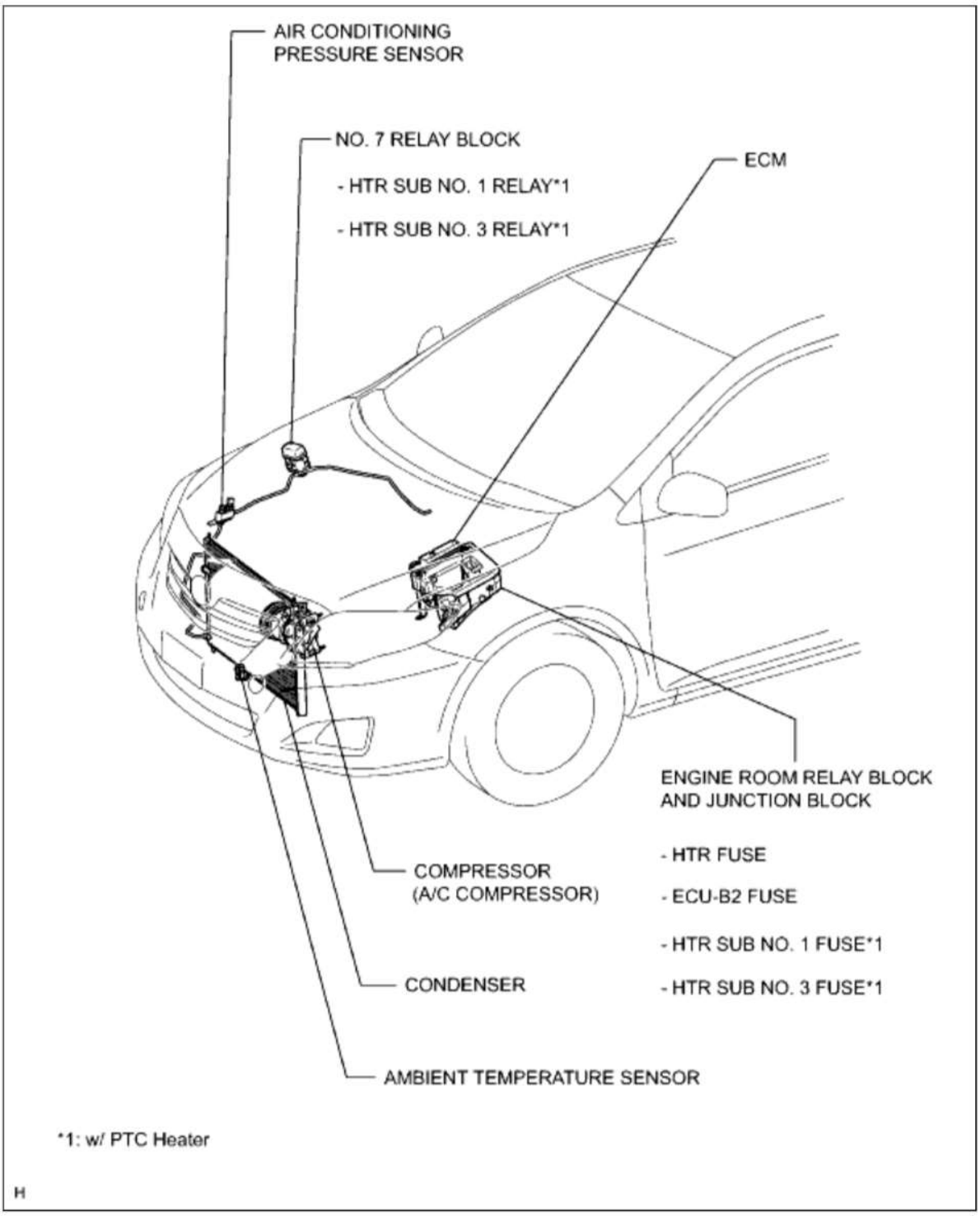
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Last Modified: 3-10-2010	6.4 R	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000026DG019X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): PARTS LOCATION (2010 Corolla)		

PARTS LOCATION

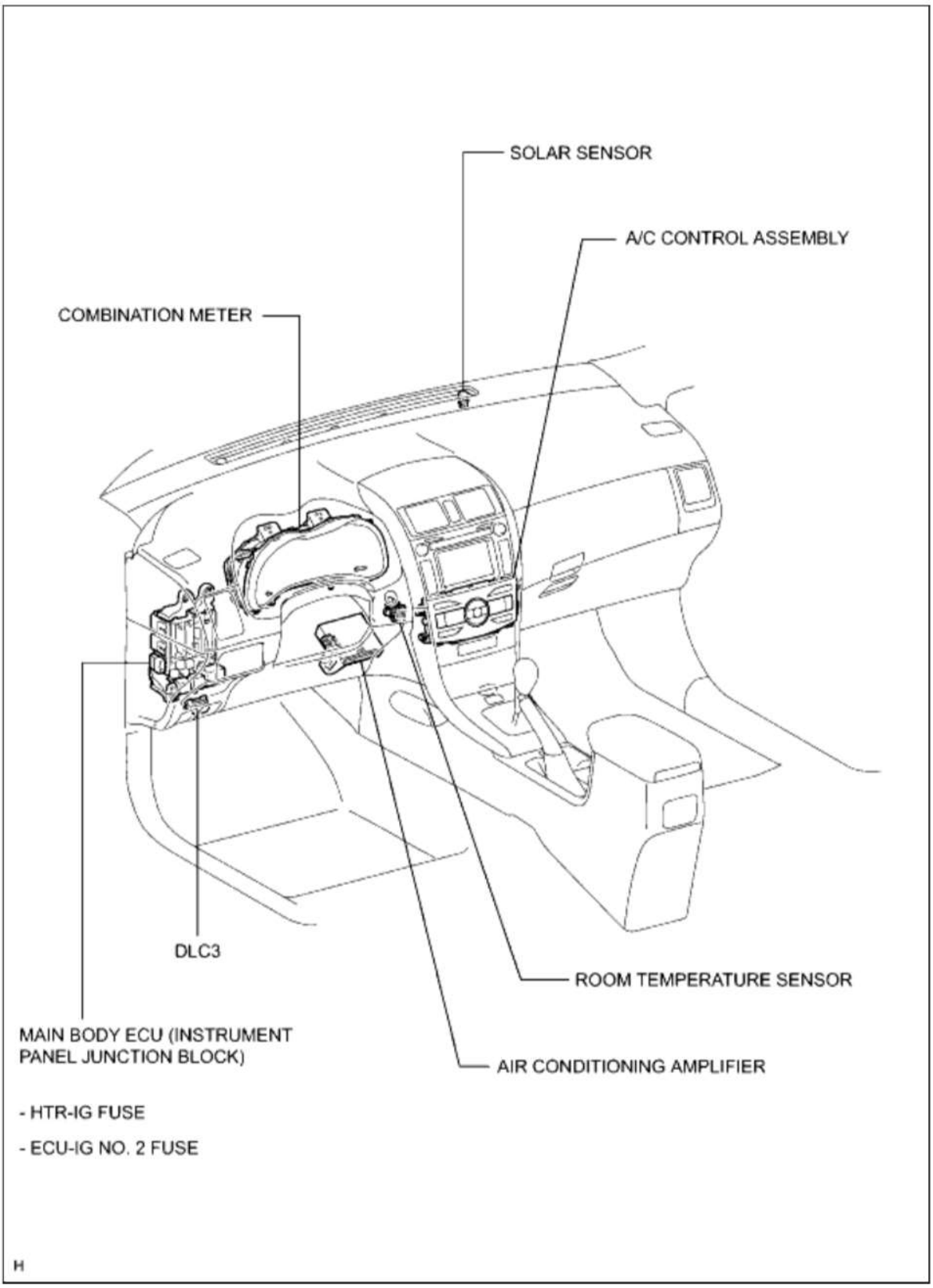
ILLUSTRATION

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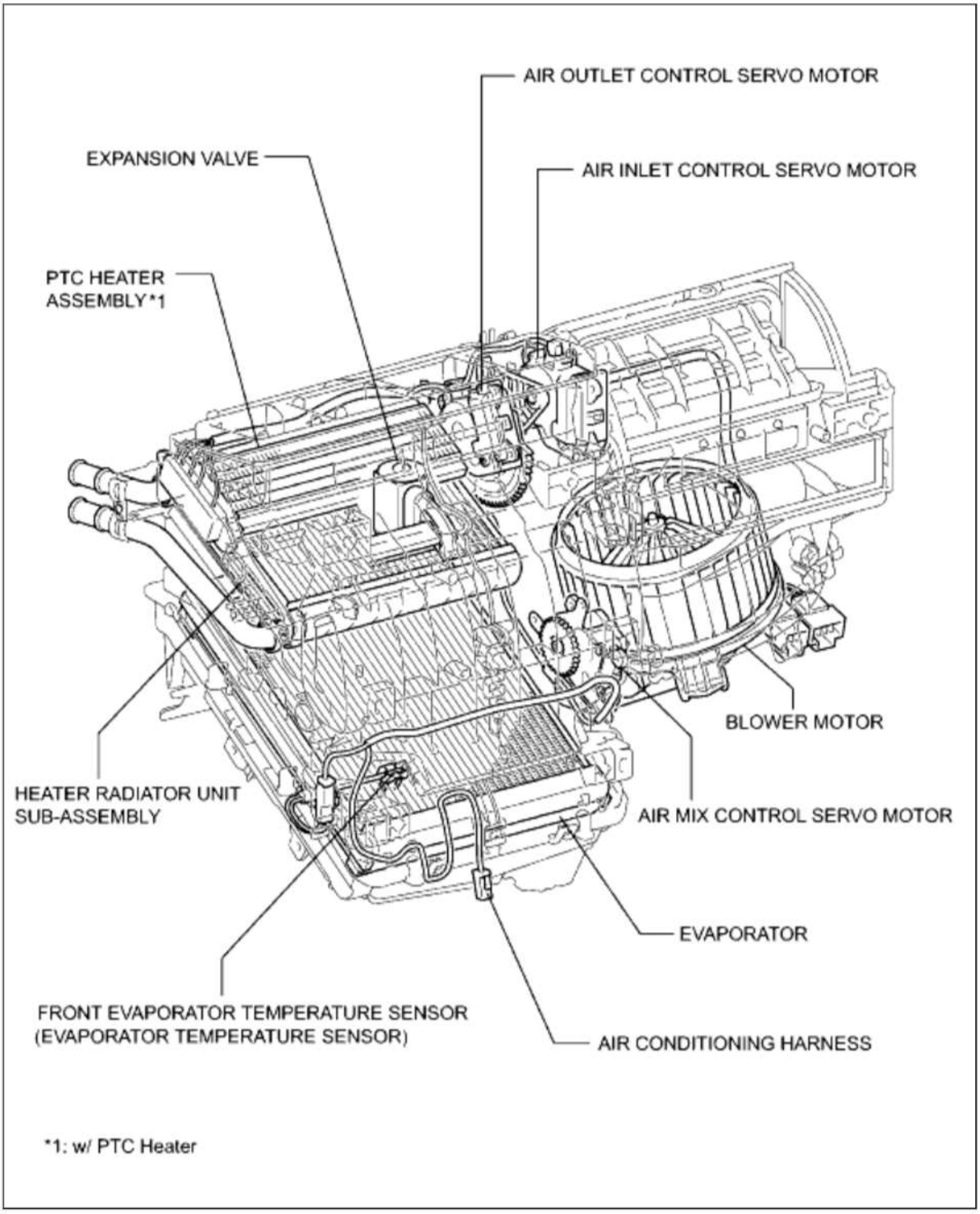
ILLUSTRATION

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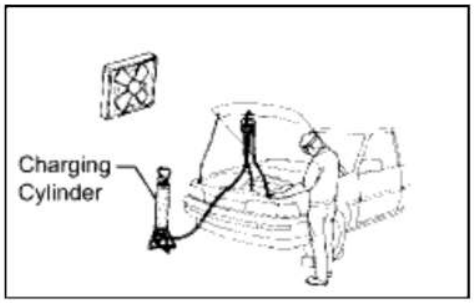
Last Modified: 3-10-2010	6.4 L	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Y5Q03FX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): PRECAUTION (2010 Corolla)		

PRECAUTION

1. EXPRESSIONS OF IGNITION SWITCH

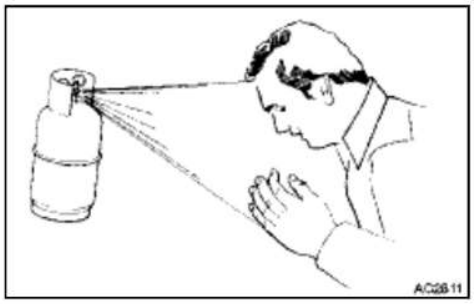
(a) The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

SWITCH TYPE		IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Expression	Ignition switch off	LOCK	Off
	Ignition switch ON	ON	On (IG)
	Ignition switch ACC	ACC	On (ACC)
	Engine start	START	Start



2. DO NOT HANDLE REFRIGERANT IN AN ENCLOSED AREA OR NEAR AN OPEN FLAME

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.

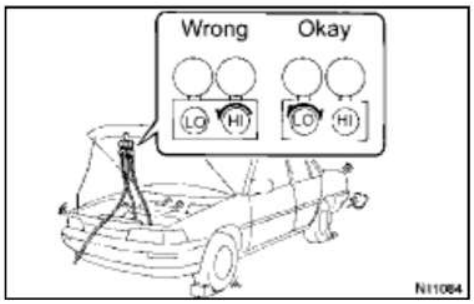
(b) Apply clean petroleum jelly to the skin.

(c) Go immediately to a hospital or see a physician for professional treatment.

5. NEVER HEAT CONTAINER OR EXPOSE THE CONTAINER TO AN OPEN FLAME

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6. BE CAREFUL NOT TO DROP CONTAINER OR APPLY PHYSICAL SHOCKS TO IT



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

If there is not enough refrigerant in the A/C system, oil lubrication will be insufficient and the compressor may be damaged.

Necessary care should be taken to avoid this.

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

(a) Open and close only the low pressure valve.

If the high pressure valve is opened, refrigerant flows in the reverse direction, causing 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) consisting of the driver, front passenger, side, and curtain shield airbags. Failure to carry out service operations 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 INFO .

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.

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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001O7U026X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): SYSTEM DESCRIPTION (2010 Corolla)		

SYSTEM DESCRIPTION

1. GENERAL

The air conditioning system has the following controls:

CONTROL	OUTLINE
Neural Network Control	This control is capable of effecting complex control by artificially simulating the information processing method of the nervous system of living organisms in order to establish a complex input or output relationship that is similar to a human brain.
Outlet Air Temperature Control	In compliance with the temperature set at the temperature control switch, the neural network control calculates the outlet temperature based on the input signals from various sensors. In addition, corrections in accordance with the signals from the evaporative temperature sensor and engine coolant temperature sensor are added to control the outlet air temperature.
Blower Control	Controls the blower motor in accordance with the airflow volume that has been calculated by the neural network control based on the input signals from various sensors.
Air Outlet Control	Automatically switches the outlets in accordance with the outlet mode ratio that has been calculated by the neural network control based on the input signals from various sensors.
Air Inlet Control	Automatically controls the air inlet control damper in accordance with the airflow volume that has been calculated by the neural network control.
Variable Capacity Compressor Control	Controls the compressor to turn ON or OFF and the discharge capacity based on the signals from various sensors.
Ambient Temperature Indication Control	Based on the signals from the ambient temperature sensor, this control calculates the ambient temperature, which is then corrected in the air conditioning amplifier, and shown in the multi-information display in the combination meter.
Rear Window Defogger Control	Switches the rear defogger and outside rear view mirror heaters on for 15 minutes when the rear defogger button is pressed. Switches them OFF if the button is pressed while they are operating.
Self-diagnosis	Checks the sensors in accordance with the operation of air conditioning switches, then temperature setting displays a DTC (Diagnosis Trouble Code) to indicate if there is a malfunction or not (sensor check function).
	Drives the actuators through a predetermined sequence in accordance with the operation of the air conditioning switches (actuator check function).

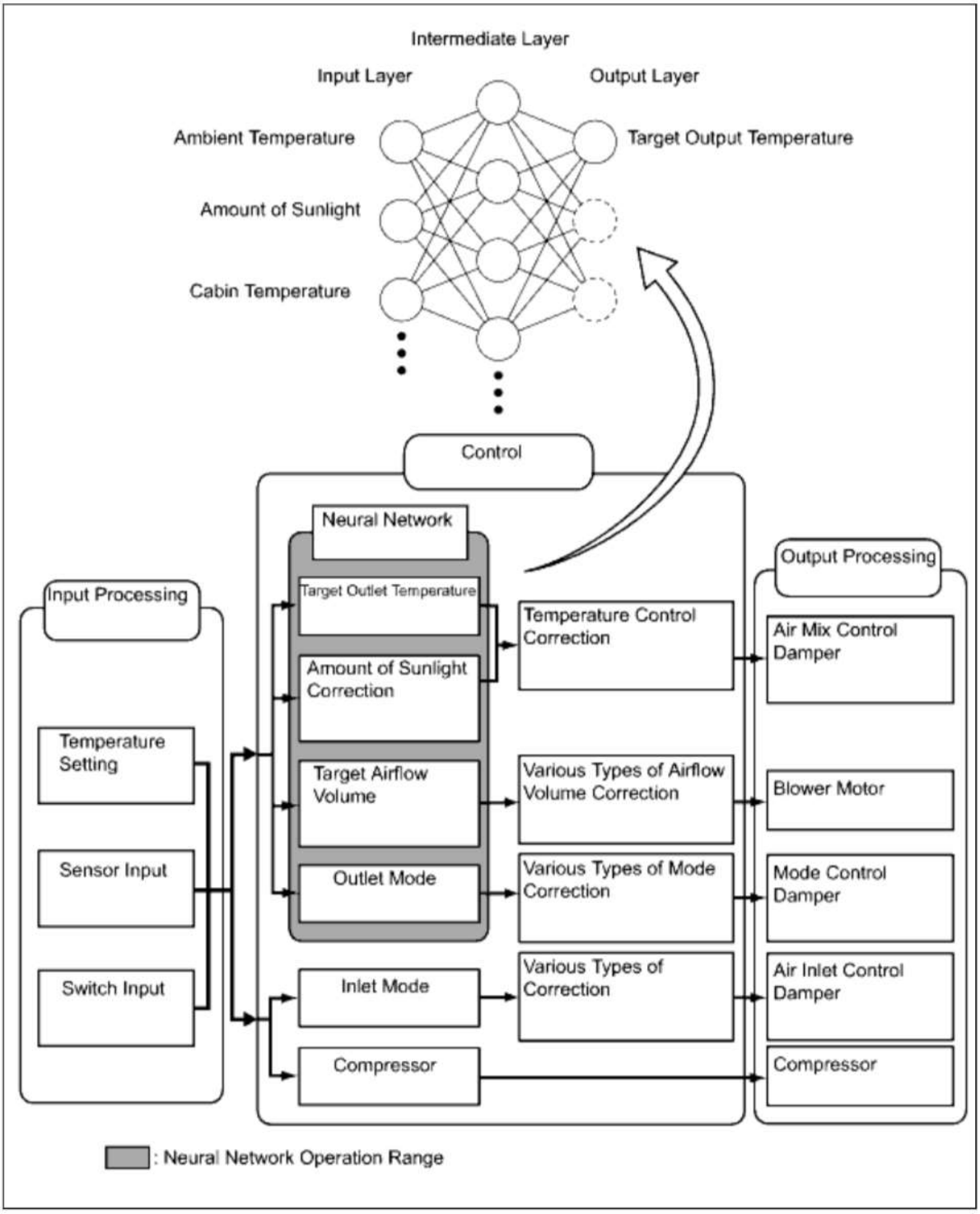
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2. NEURAL NETWORK CONTROL

- In previous automatic air conditioning systems, the A/C amplifier determined the required outlet air temperature and blower air volume in accordance with the calculation formula that has been obtained based on information received from the sensors.

  However, because the senses of a person are rather complex, a given temperature is sensed differently, depending on the environment in which the person is situated. For example, a given amount of solar radiation can feel comfortably warm in a cold climate, or extremely uncomfortable in a hot climate. Therefore, as a technique for effecting a higher level of control, a neural network has been adopted in the automatic air conditioning system. With this technique, the data that has been collected under varying environmental conditions is stored in the A/C amplifier. The A/C amplifier can then effect control to provide enhanced air conditioning comfort.
- The neural network control consists of neurons in the input layer, intermediate layer, and output layer. The input layer neurons process the input data of the outside temperature, the amount of sunlight, and the cabin temperature based on the outputs of the switches and sensors, and output them to the intermediate layer neurons. Based on this data, the intermediate layer neurons adjust the strength of the links among the neurons. The sum of these is then calculated by the output layer neurons in the form of the required outlet temperature, solar correction, target airflow volume, and outlet mode control volume. Accordingly, the A/C amplifier controls the servo motors and blower motor in accordance with the control volumes that have been calculated by the neural network control.

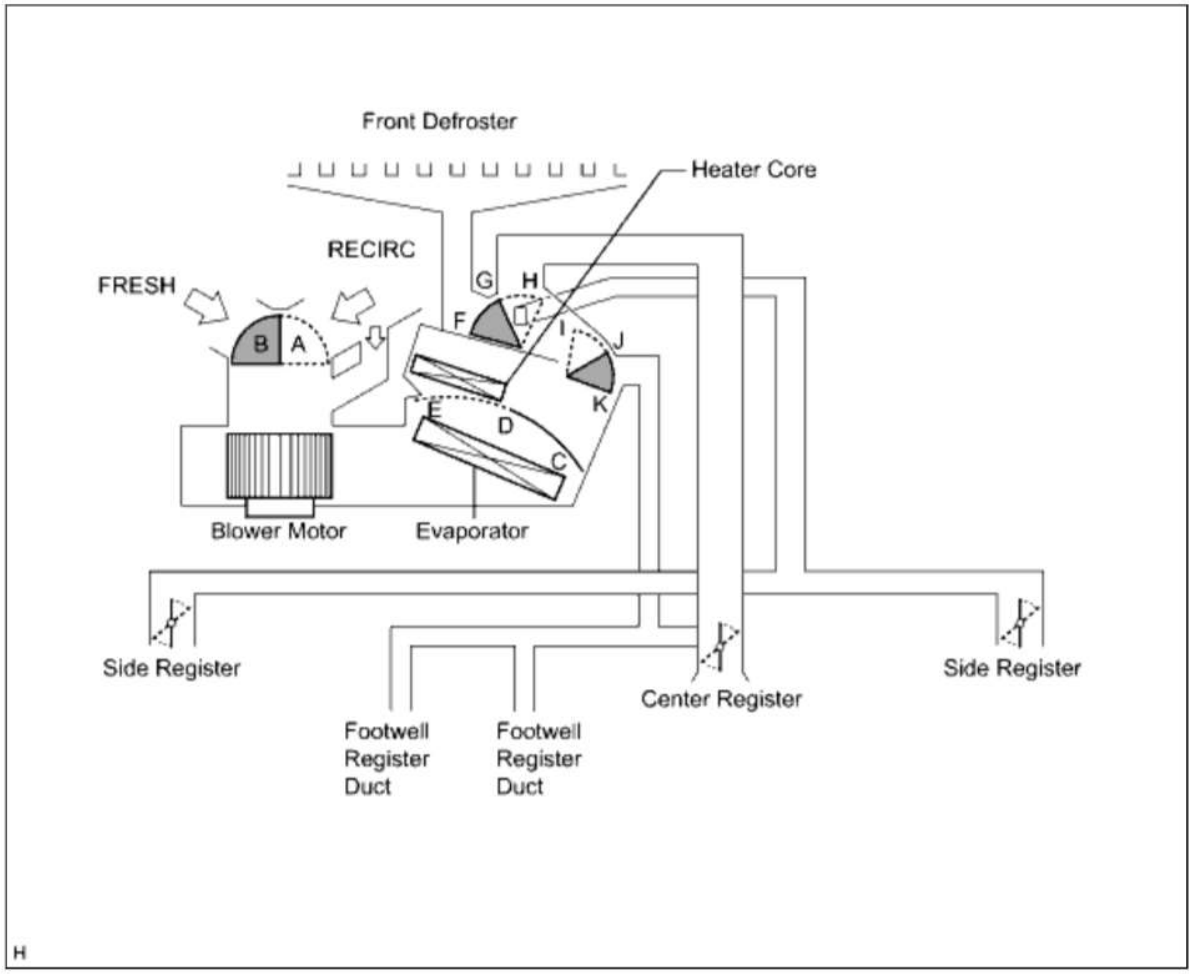
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3. MODE POSITION AND DAMPER OPERATION

(a) Mode position and damper operation

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Functions of Main Dampers:

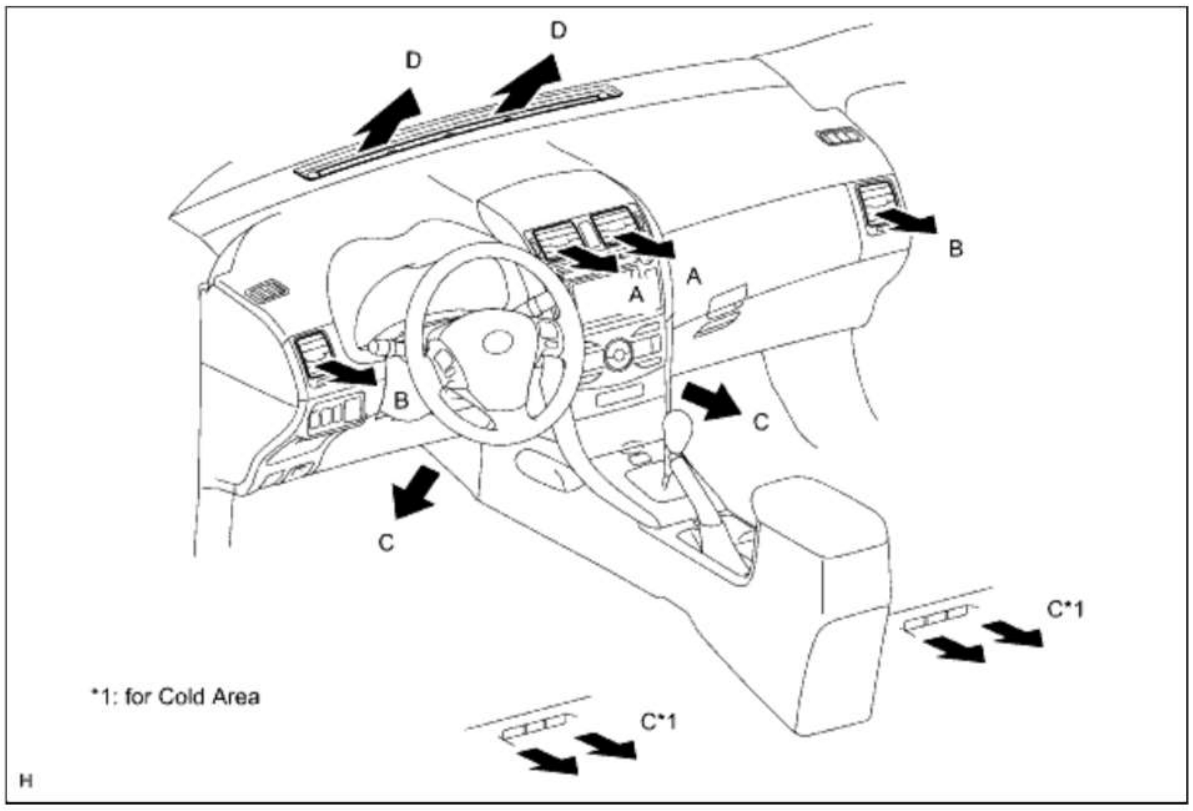
CONTROL DAMPER	OPERATION POSITION	DAMPER POSITION	OPERATION
Air Inlet Control Damper	FRESH	A	Brings in fresh air.
	RECIRC	B	Recirculates internal air.
Air Mix Control Damper	MAX COLD to MAX HOT Temperature Setting 16°C (61°F) to 30°C (86°F)	C - D - E	Varies the mixture ratio of the fresh air and the recirculation air in order to regulate the temperature continuously from HOT to COLD.
Mode Control Damper	DEF	H, K	Defrosts the windshield through the front defroster and side register.
	FOOT/DEF	H, J	Defrosts the windshield through the front defroster and side register, while air is also blown out from the front foot well register ducts.

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CONTROL DAMPER	OPERATION POSITION	DAMPER POSITION	OPERATION
	FOOT 	H, I	Air blows out of the footwell register duct and side register. In addition, air blows out slightly from the front defroster.
	BI-LEVEL 	F, I	Air blows out of the center register, side register, and front footwell register ducts.
	FACE 	F, K	Air blows out of the center register and side register.

4. AIR OUTLETS AND AIRFLOW VOLUME

(a) Air Outlets and Airflow Volume



INDICATION (MODE)	CTR	SIDE	FOOTWELL	DEFROSTER
	A	B	C	D

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INDICATION (MODE)	CTR	SIDE	FOOTWELL	DEFROSTER
	A	B	C	D
FACE	◯	◯	—	—
BI-LEVEL	○	○	◯	—
FOOT	—	○	◯	○
FOOT/DEF	—	○	○	○
DEF	—	○	—	◯

The size of the circle ○ indicates the proportion of airflow volume.

5. BLOWER MOTOR

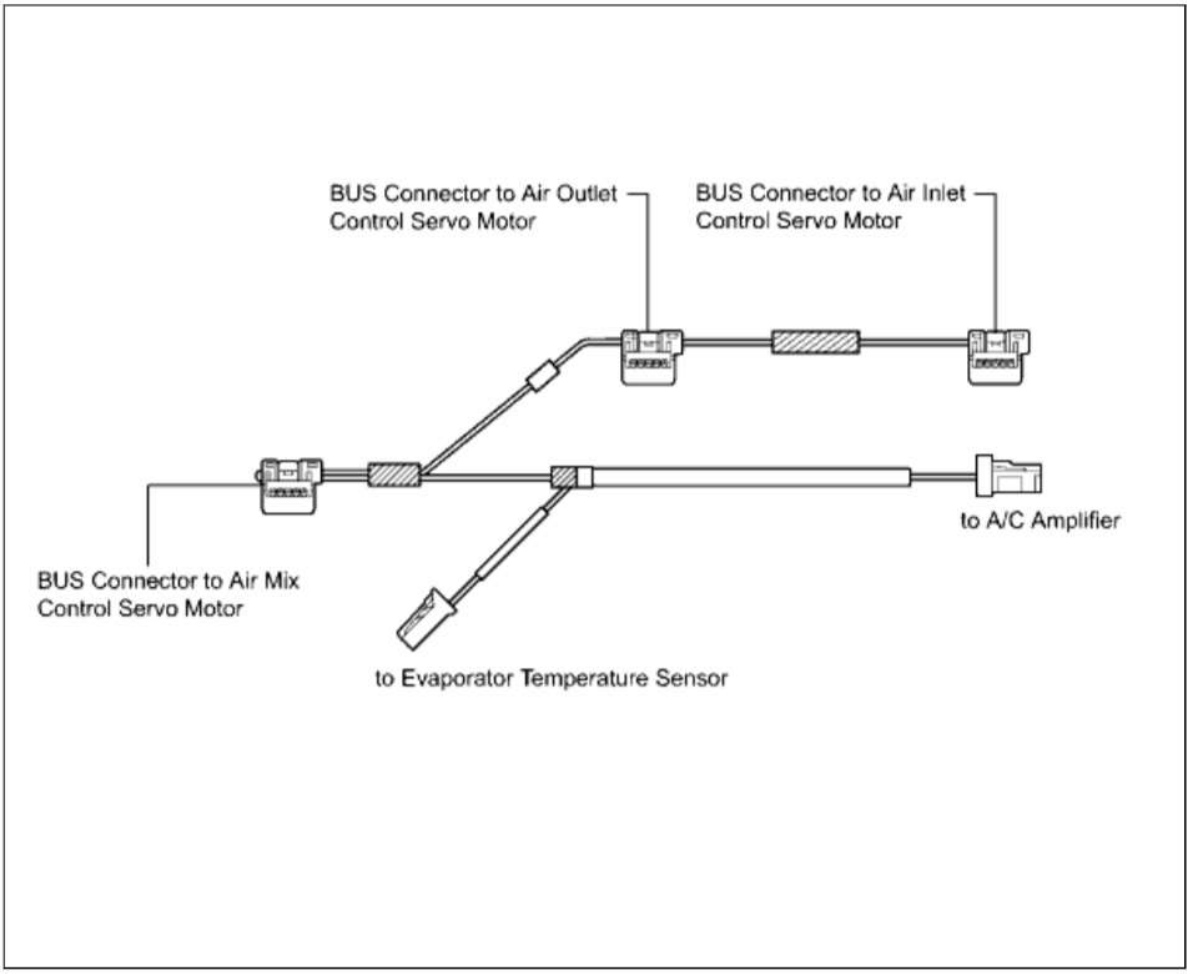
The blower motor has a built-in blower controller, and is controlled with duty control from the A/C amplifier.

6. BUS CONNECTOR

(a) A BUS connector is used in the wire harness connection that connects the servo motor from the A/C amplifier.

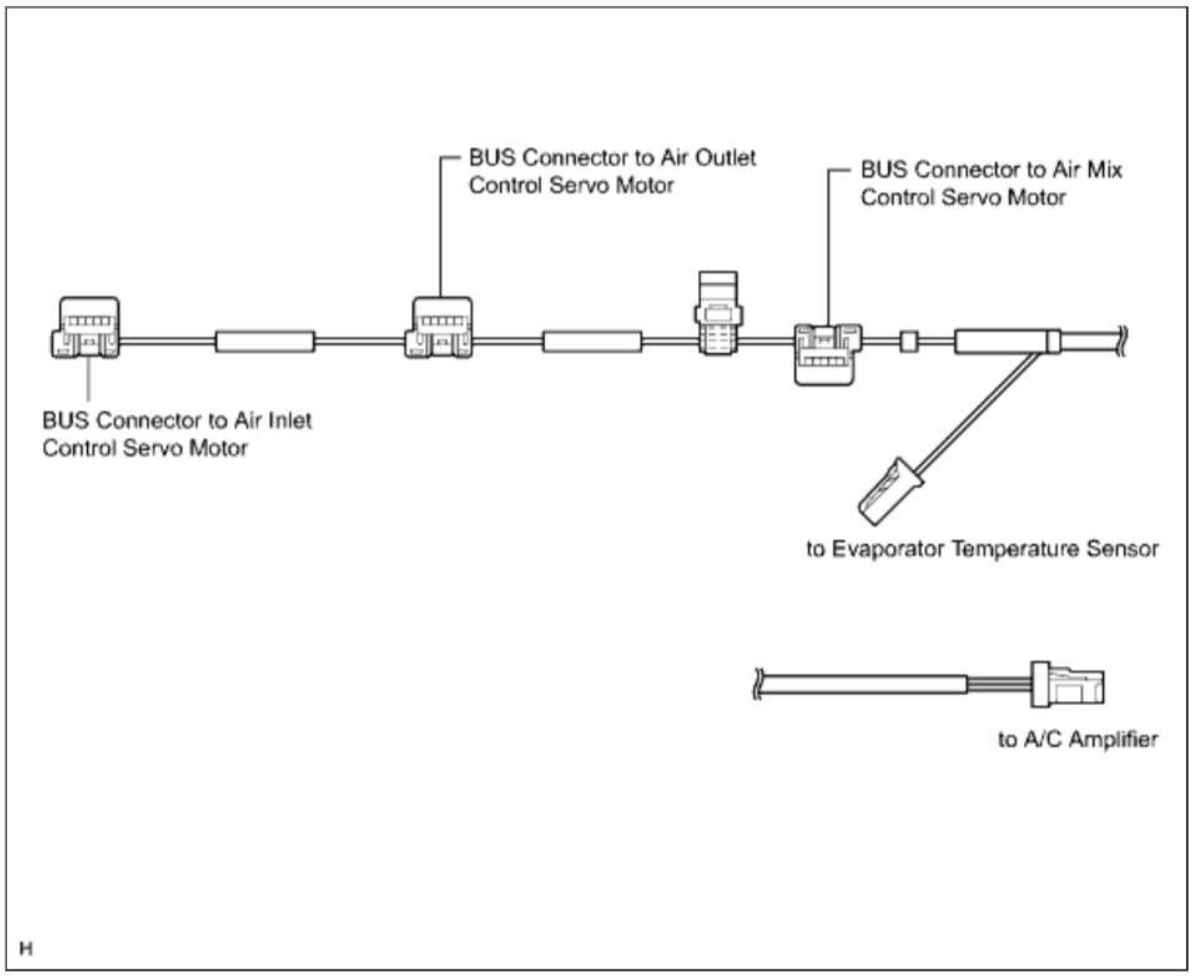
(1) for TMC Made

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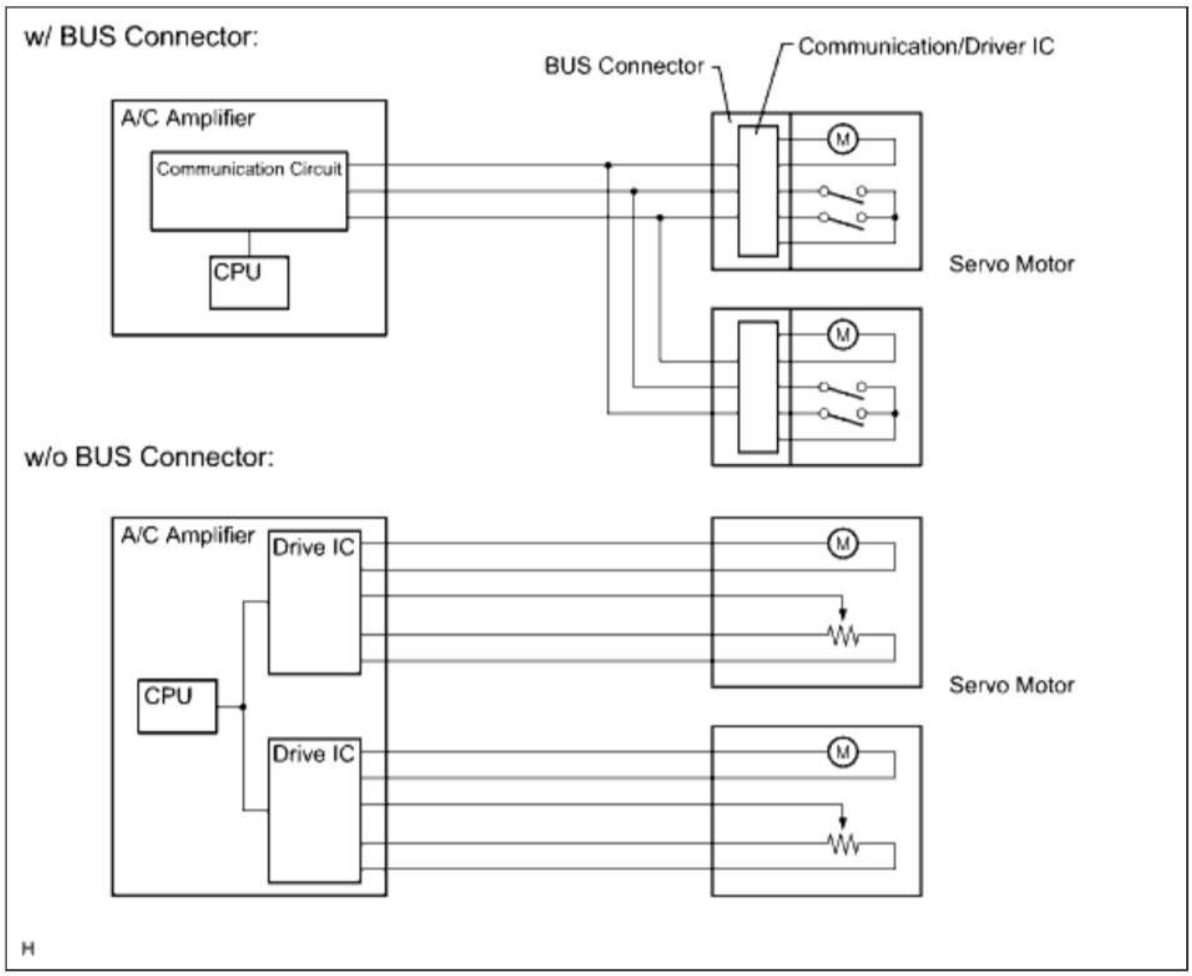
(2) for NUMMI, TMMC Made

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(b) Each BUS connector has a built-in communication/driver IC which communicates with each servo motor connector, actuates the servo motor, and has a position detection function. This enables bus communication for the servo motor wire harness, for a more lightweight construction and a reduced number of wires.

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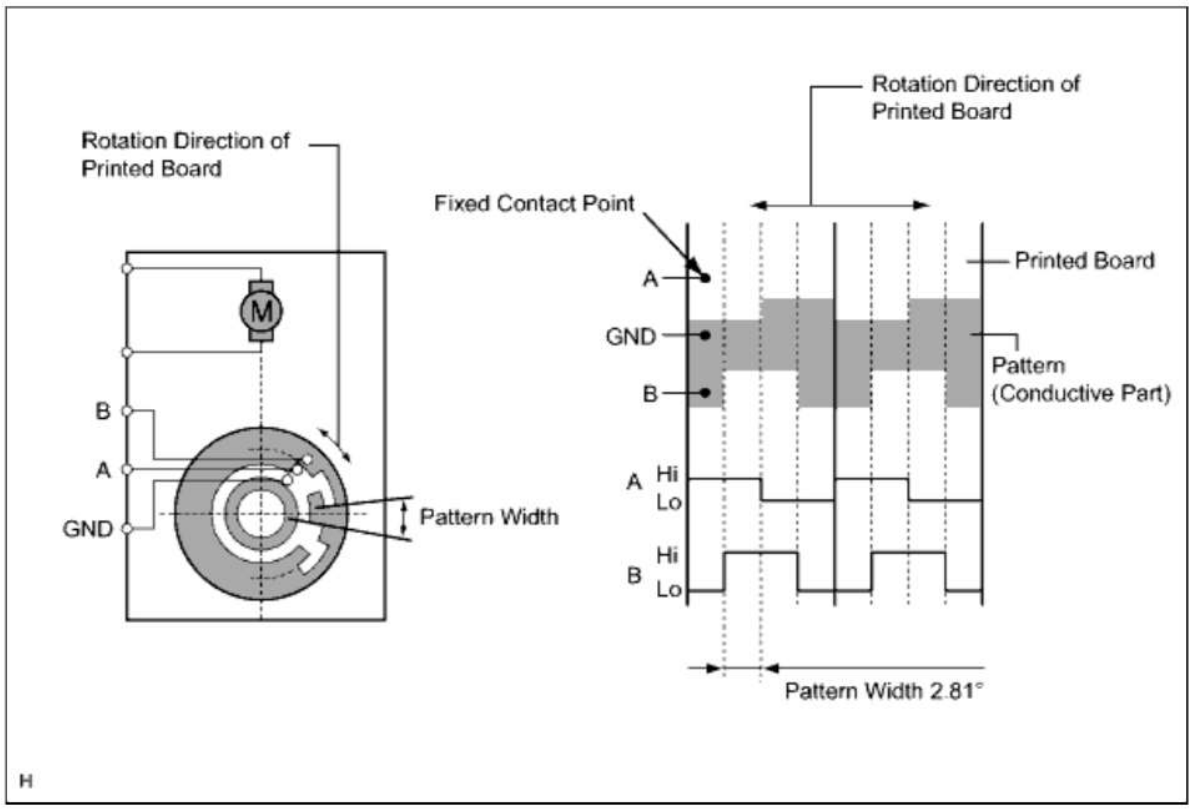


7. SERVO MOTOR

(a) In contrast to the previous type that detects the position using potentiometer voltage, the pulse pattern type servo motor detects the relative position using the 2-bit ON/OFF signals.

The forward and reverse revolutions of this motor are detected by way of two phases, A and B, which output four types of patterns. The air conditioning amplifier counts the number of pulse patterns in order to determine the stopped position.

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8. A/C COMPRESSOR

(a) General

(1) The A/C compressor is a continuously variable capacity type in which its capacity varies in accordance with the cooling load of the air conditioning system.

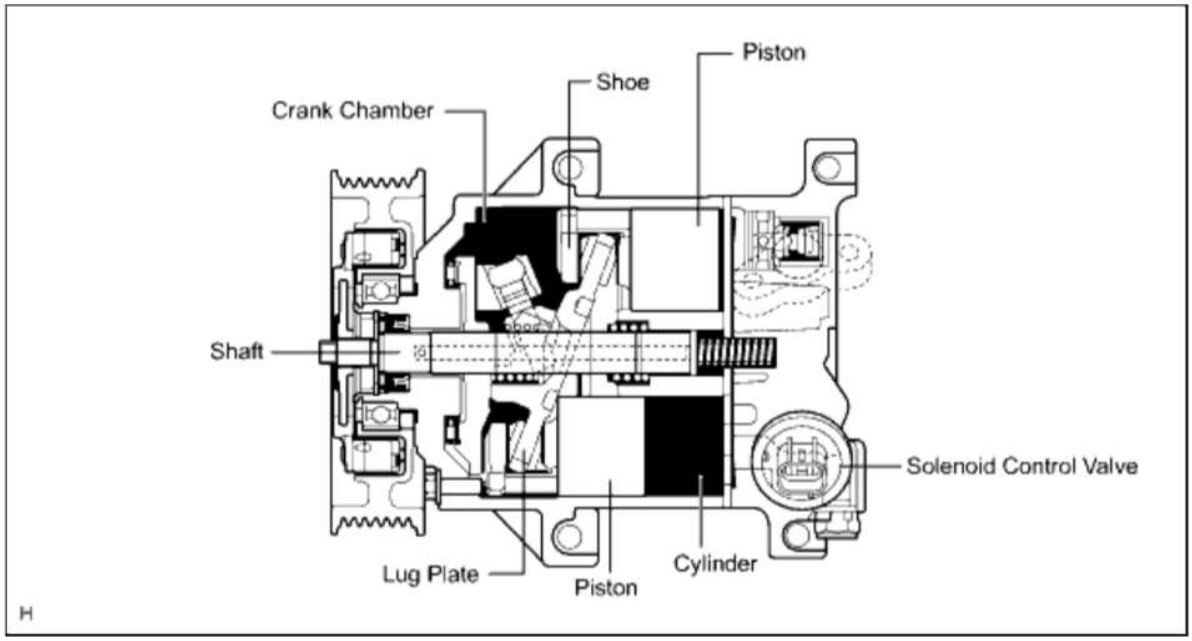
(2) The compressor consists of the shaft, lug plate, piston, shoe, crank chamber, cylinder, and solenoid control valve.

(3) The solenoid control valve is provided to enable the suction pressure to be controlled as desired.

(4) A plastic DL (Damper Limiter) type A/C pulley is used.

(5) A rotary type valve is used to suction refrigerant gas into the cylinder.

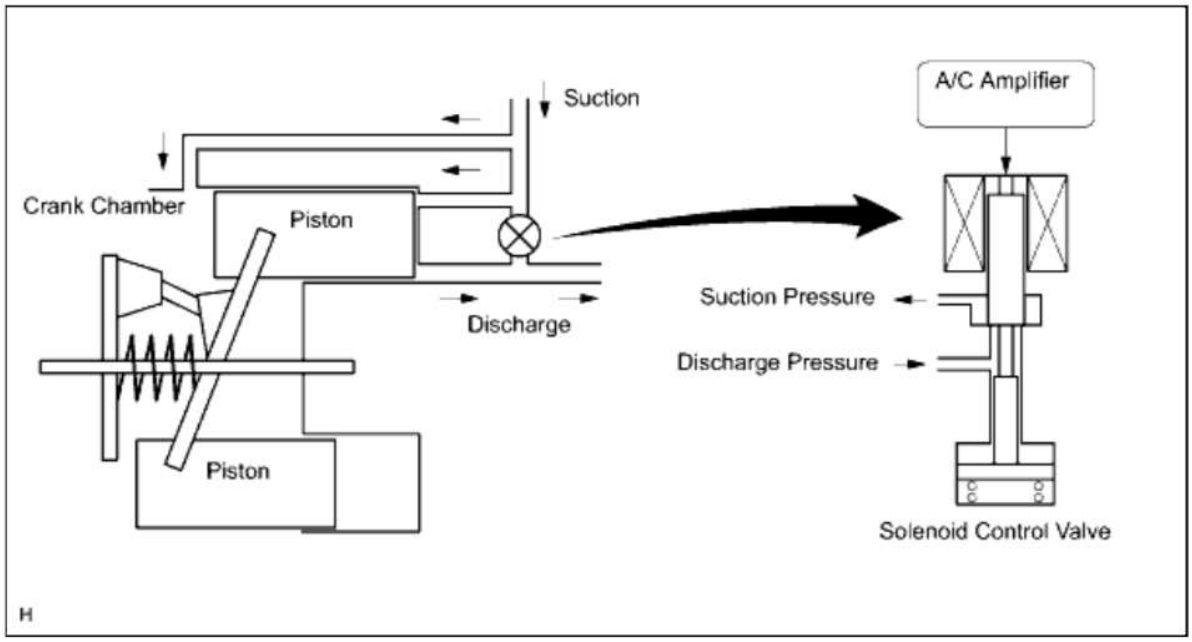
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(b) Operation

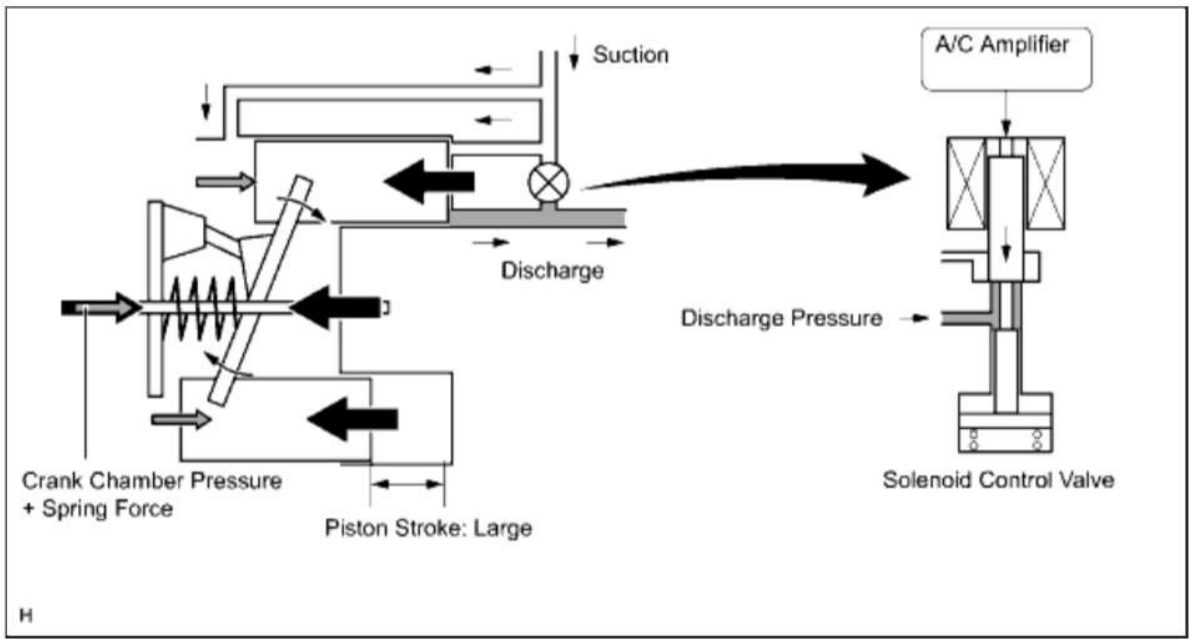
(1) The crank chamber is connected to the suction passage. A solenoid control valve is provided between the suction passage (low pressure) and the discharge passage (high pressure).

(2) The solenoid control valve operates under duty cycle control in accordance with the signals from the air conditioning amplifier.

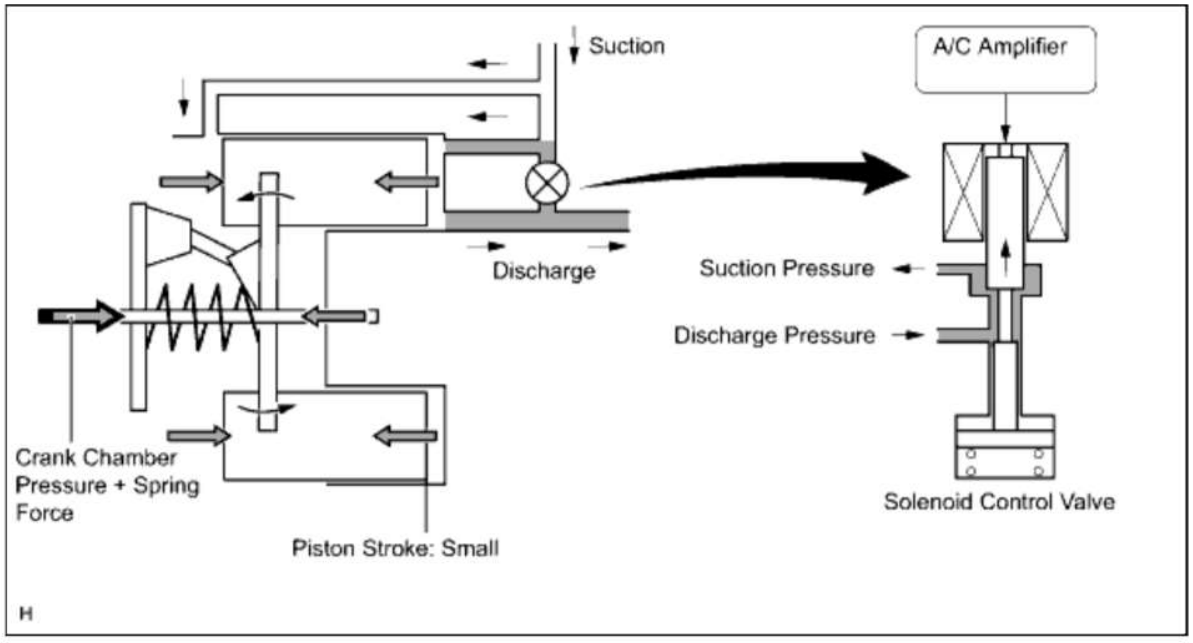


(3) When the solenoid control valve closes (solenoid coil is energized), a difference in pressure is created and the pressure in the crank chamber decreases. Then, the pressure that is applied to the right side of the piston becomes greater than the pressure that is applied to the left side of the piston. This compresses the spring and tilts the lug plate. As a result, there is a large piston stroke and the discharge capacity increases.

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(4) When the solenoid control valve opens (solenoid coil is not energized), the difference in pressure disappears. Then, the pressure that is applied to the left side of the piston becomes the same as the pressure that is applied to the right side of the piston. Thus, the spring elongates and eliminates the tilt of the lag plate. As a result, there is a small piston stroke and the discharge capacity decreases.



9. ROOM TEMPERATURE SENSOR

The room temperature sensor detects the cabin temperature based on changes in the resistance of its built-in thermistor and sends a signal to the A/C amplifier.

10. AMBIENT TEMPERATURE SENSOR

The ambient temperature sensor detects the outside temperature based on changes in the resistance of its built-in thermistor and sends a signal to the A/C amplifier.

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11. EVAPORATOR TEMPERATURE SENSOR

The evaporator temperature sensor detects the temperature of the cool air immediately after the evaporator in the form of resistance changes, and outputs it to the A/C amplifier.

12. SOLAR SENSOR

The solar sensor detects the changes in the amount of sunlight and outputs it to the A/C amplifier in the form of voltage changes.

13. A/C PRESSURE SENSOR

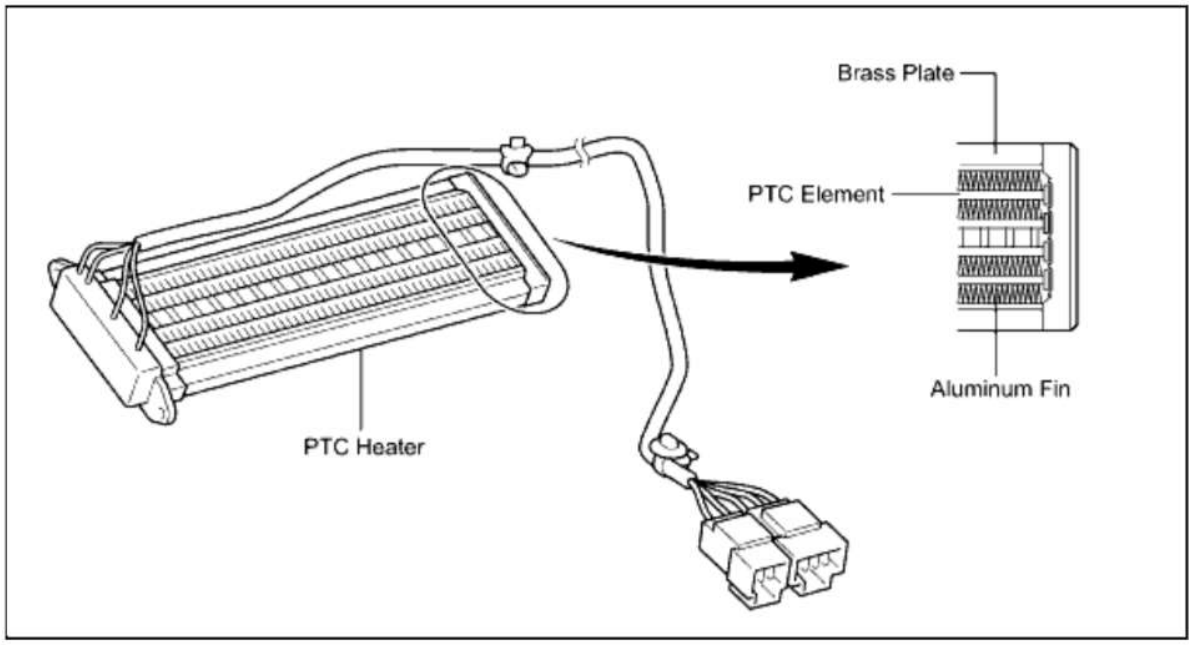
The A/C pressure sensor detects the refrigerant pressure and outputs it to the A/C amplifier in the form of voltage changes.

14. PTC HEATER (w/ PTC Heater)

(a) General

(1) The PTC heater is located above the heater core in the air conditioner unit.

(2) The PTC heater consists of a PTC element, aluminum fin, and brass plate. When current is applied to the PTC element, it generates heat to warm the air that passes through the unit.

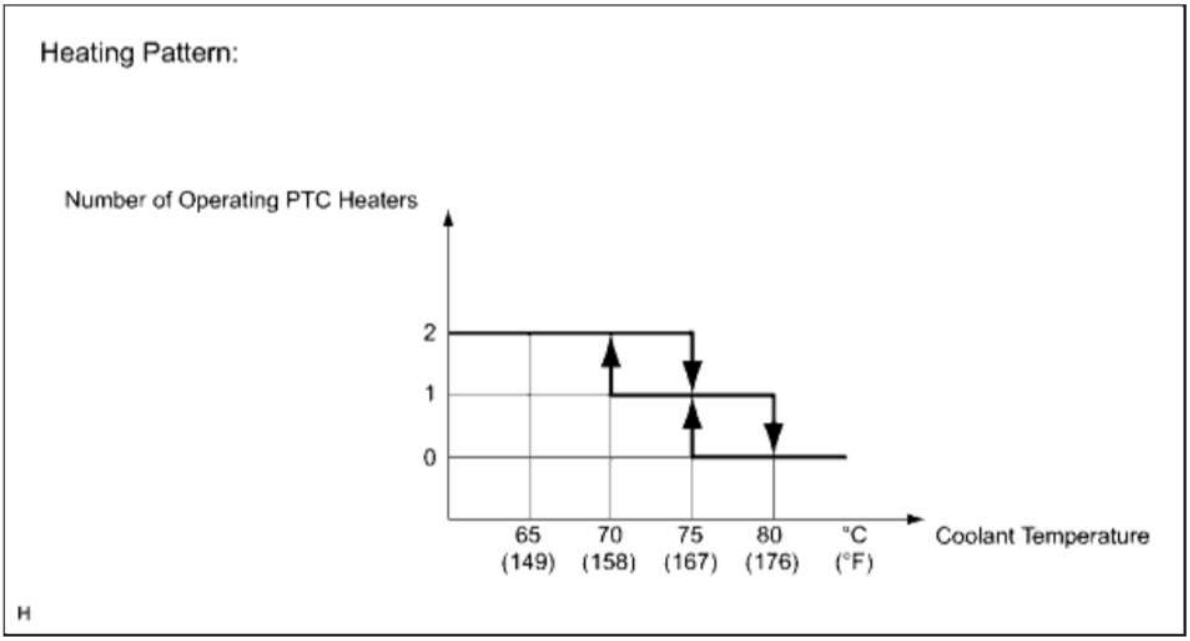


(b) PTC Heater Operating Conditions

(1) The PTC heater is turned on and off by the air conditioning amplifier in accordance with the coolant temperature, ambient temperature, engine speed, air mix setting, and electrical load (generator power ratio).

For example, the number of the operating PTC heaters varies by the coolant temperature as in the graph below.

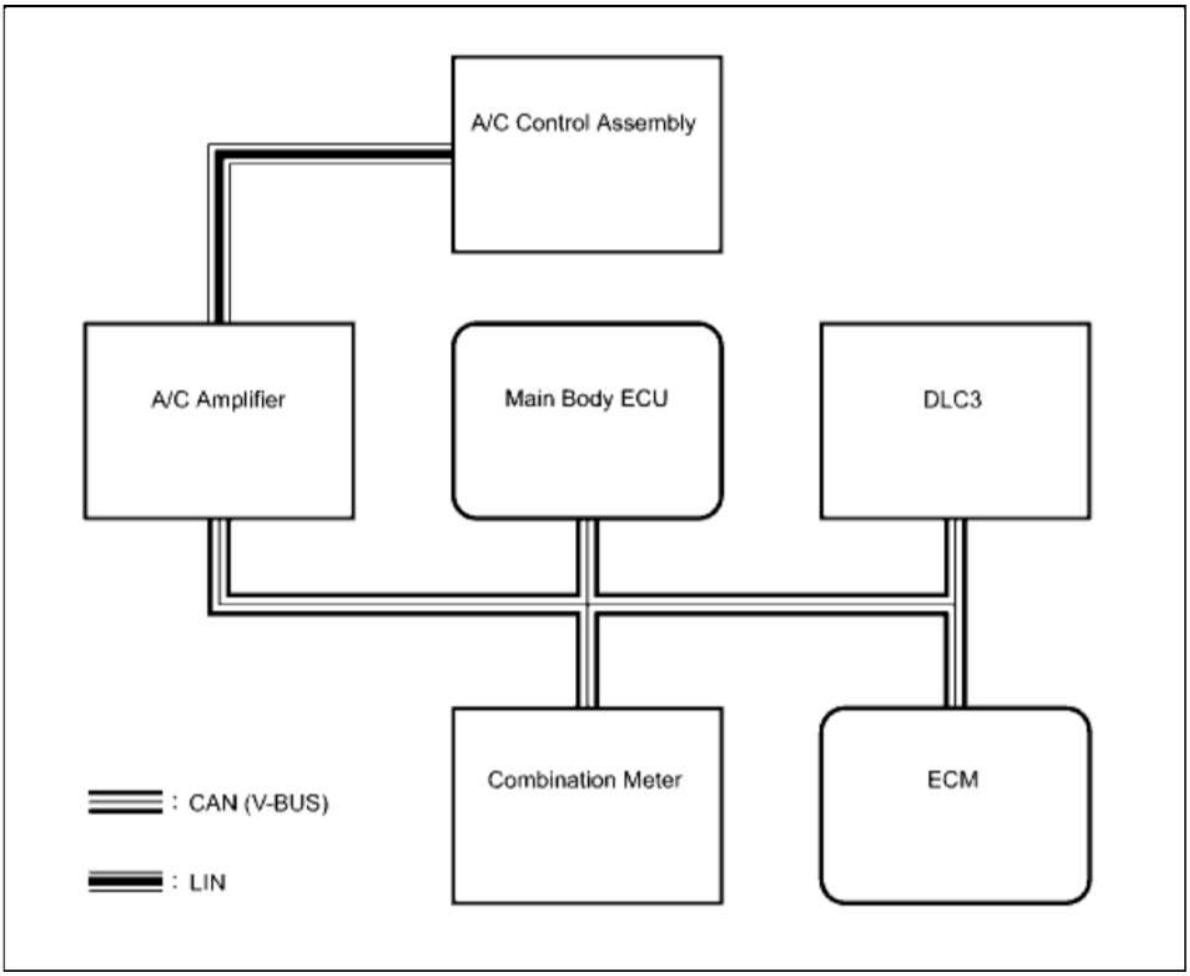
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Last Modified: 3-10-2010	6.4 U	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000026DI01NX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): SYSTEM DIAGRAM (2010 Corolla)		

SYSTEM DIAGRAM

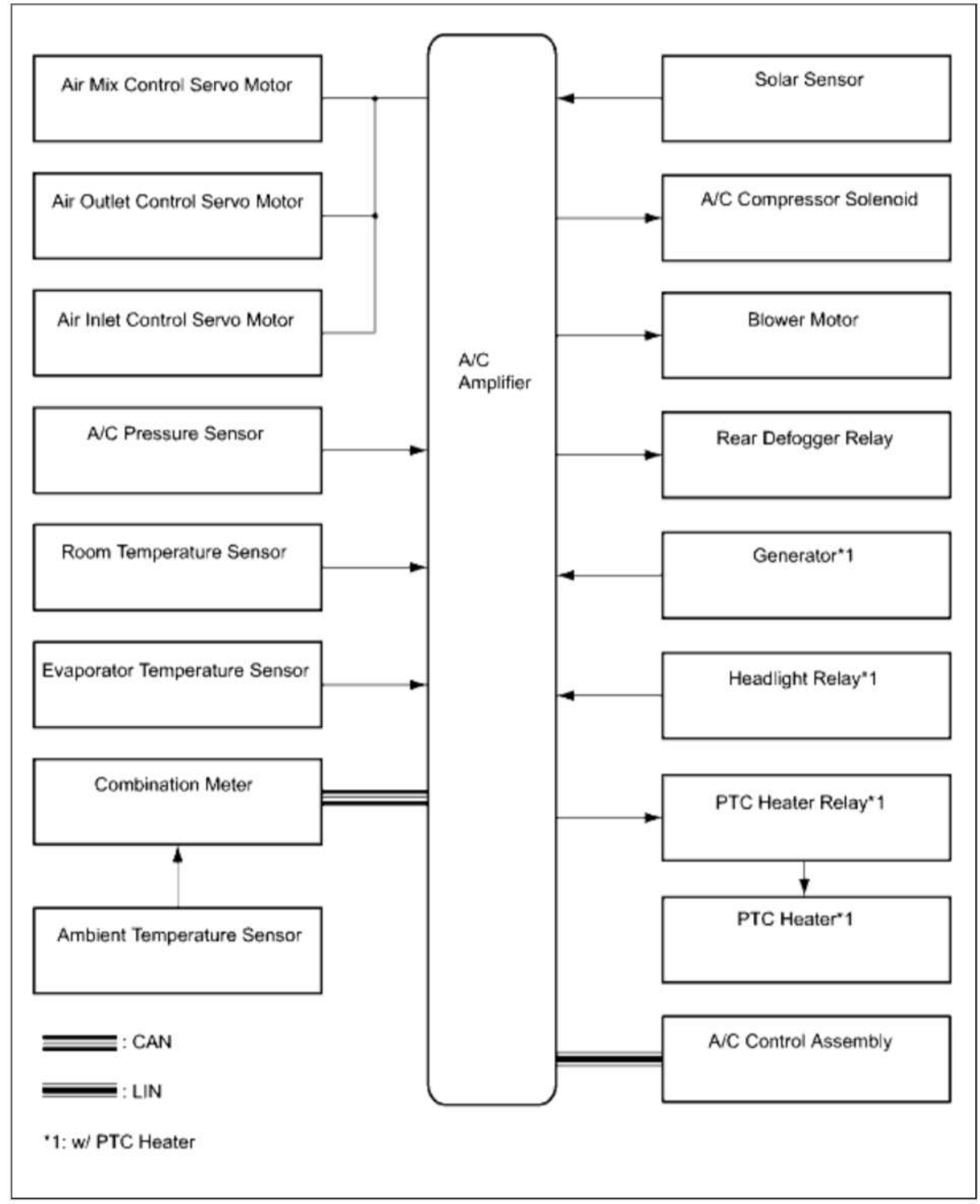


TRANSMITTER	RECEIVER	LINE	SIGNAL
A/C Amplifier	ECM	CAN	Magnetic Clutch Request Signal
			Heater Idle Up Request Signal
			A/C Idle Up Request Signal
			Outside Temperature Data
			External Variable Control Solenoid Current Signal
			Prior A/C Control Request Signal
			Refrigerant Gas Pressure Sensor Signal

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TRANSMITTER	RECEIVER	LINE	SIGNAL
			Motor Cooling Fan Drive Request Signal
			Acceleration Cut Inhibit Signal
A/C Amplifier	DLC3	CAN	Diagnostic Tool Response Signal
A/C Amplifier	A/C Control Assembly	LIN	A/C Operating State Signal
Main Body ECU	A/C Amplifier	CAN	Destination Symbol (Steering Wheel)
Combination Meter	A/C Amplifier	CAN	Vehicle Speed Signal
			Outside Temperature Data
ECM	A/C Amplifier	CAN	Engine Coolant Temperature Signal
			Engine rpm Data
			A/C Control Cut-off Signal
			A/C-E/G Cooperation Control Signal
A/C Control Assembly	A/C Amplifier	LIN	A/C Operation Signal

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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000PM602ZX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): HOW TO PROCEED WITH TROUBLESHOOTING (2010 Corolla)		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the air conditioning system.
- *: Use the Techstream.

1.	**VEHICLE BROUGHT TO WORKSHOP**

NEXT

2.	**INSPECT BATTERY VOLTAGE**

(a) Inspect the battery voltage.

Standard Voltage:
11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT

3.	**CHECK COMMUNICATION FUNCTION OF CAN COMMUNICATION SYSTEM***

(a) Use the Techstream to check if the CAN Communication System is functioning normally.

Result:

RESULT	PROCEED TO
CAN DTC is not output	A

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RESULT	PROCEED TO
CAN DTC is output	B

B ▶ INFO **Go to CAN COMMUNICATION SYSTEM**

A ▼

4.	CHECK FOR DTC*

(a) Check for DTCs and write down any codes that are output.

HINT:

Refer to DTC Check / Clear INFO .

(b) Clear the DTCs.

(c) Recheck for DTCs. Based on the DTCs output above, try to force the A/C system to output DTCs by simulating the conditions indicated by the DTCs.

Result:

RESULT	PROCEED TO
DTC is not output	A
DTC is output	B

B ▶ **GO TO STEP 7**

A ▼

5.	PROBLEM SYMPTOMS TABLE

(a) Refer to Problem Symptoms Table INFO .

Result:

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RESULT	PROCEED TO
Fault is not listed in problem symptoms table	A
Fault is listed in problem symptoms table	B

B ▶ **GO TO STEP 7**

A

▼

6.	OVERALL ANALYSIS AND TROUBLESHOOTING*

(a) Actuator Check INFO

(b) Data List / Active Test INFO

(c) Terminals of ECU INFO

(d) On-vehicle Inspection

(e) Inspection

NEXT

▼

7.	ADJUST, REPAIR OR REPLACE

NEXT ▶ **END**

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Last Modified: 3-10-2010	6.4 T	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001M2W024X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): PROBLEM SYMPTOMS TABLE (2010 Corolla)		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, 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.

Air Conditioning System

SYMPTOM	SUSPECTED AREA	SEE PAGE
All functions of the A/C system do not operate.	IG power source circuit	INFO
	Back-up power source circuit	INFO
	Heater control panel power source circuit	INFO
	LIN communication circuit	INFO
	A/C control assembly	INFO
	A/C amplifier	INFO
Air Flow Control: No blower operation	Blower motor circuit	INFO
	Heater control panel power source circuit	INFO
	LIN communication circuit	INFO
	A/C control assembly	INFO
	A/C amplifier	INFO
Air Flow Control: No blower control	Blower motor circuit	INFO
	Heater control panel power source circuit	INFO
	LIN communication circuit	INFO
	A/C control assembly	INFO
	A/C amplifier	INFO
Air Flow Control: Insufficient air flow	Blower motor circuit	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	A/C amplifier	INFO
Temperature Control: No cool air comes out.	Refrigerant volume	-
	Refrigerant pressure	INFO
	Pressure sensor circuit	INFO
	Compressor solenoid circuit	INFO
	Air mix control servo motor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Heater control panel power source circuit	INFO
	LIN communication circuit	INFO
	Expansion valve	INFO
	A/C control assembly	INFO
	A/C amplifier	INFO
	ECM (for 2AZ-FE)	INFO
	ECM (for 2ZR-FE)	INFO
Temperature Control: No warm air comes out.	Air mix control servo motor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Generator signal circuit*1	INFO
	Headlight signal circuit*1	INFO
	PTC heater circuit*1	INFO
	CAN communication system	INFO
	Engine coolant temperature sensor circuit (for 2AZ-FE)	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Engine coolant temperature sensor circuit (for 2ZR-FE)	INFO
	A/C amplifier	INFO
Temperature Control: Output air is warmer or cooler than the set temperature or response is slow.	Refrigerant volume	-
	Refrigerant pressure	INFO
	Solar sensor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Generator signal circuit*1	INFO
	Headlight signal circuit*1	INFO
	PTC heater circuit*1	INFO
	Air mix control servo motor circuit	INFO
	Radiator unit sub-assembly	INFO
	Expansion valve	INFO
	CAN communication system	INFO
	Engine coolant temperature sensor circuit (for 2AZ-FE)	INFO
	Engine coolant temperature sensor circuit (for 2ZR-FE)	INFO
	A/C amplifier	INFO
Temperature Control: No temperature control (only Max. cool or Max. warm)	Air mix control servo motor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Solar sensor circuit	INFO
	Generator signal circuit*1	INFO
	Headlight signal circuit*1	INFO
	PTC heater circuit*1	INFO

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Compressor solenoid circuit	INFO
	Engine coolant temperature sensor circuit (for 2AZ-FE)	INFO
	Engine coolant temperature sensor circuit (for 2ZR-FE)	INFO
	CAN communication system	INFO
	A/C control assembly	INFO
	ECM (for 2AZ-FE)	INFO
	ECM (for 2ZR-FE)	INFO
	A/C amplifier	INFO
No air inlet control	Air inlet control servo motor circuit	INFO
	A/C amplifier	INFO
No air flow mode control	Air outlet control servo motor circuit	INFO
	A/C amplifier	INFO
Engine idle up does not occur, or is continuous.	Compressor solenoid circuit	INFO
	Heater control panel power source circuit	INFO
	LIN communication circuit	INFO
	A/C control assembly	INFO
	A/C amplifier	INFO
	ECM (for 2AZ-FE)	INFO
	ECM (for 2ZR-FE)	INFO
A/C indicator blinks.	Compressor solenoid circuit	INFO
	A/C amplifier	INFO
Diagnostic trouble codes are not recorded. Set mode is cleared when ignition switch is off.	Back-up power source circuit	INFO
	A/C amplifier	INFO

*1: w/ PTC Heater

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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000PMH01LX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): CUSTOMIZE PARAMETERS (2010 Corolla)		

CUSTOMIZE PARAMETERS

HINT:

The following items can be customized.

NOTICE:

- When the customer requests a change in a function, first make sure that the function can be customized.
- Be sure to make a note of the current settings before customizing.
- When troubleshooting a function, first make sure that the function is set to the default setting.

Air Conditioner

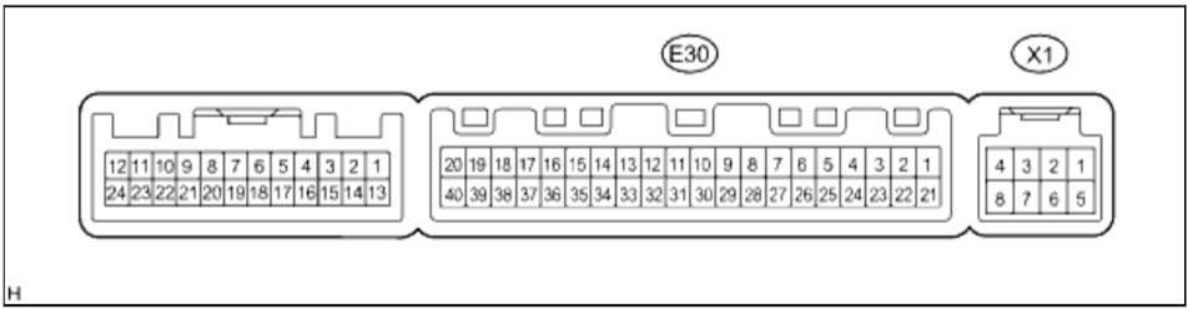
TESTER DISPLAY	DEFAULT	CONTENTS	SETTING
Set Temperature Shift	NORMAL	Function to shift the temperature against the displayed temperature	+2 C / +1 C / NORMAL / -1 C / -2 C
Air Inlet Mode	AUTO	When turning the A/C ON to make the cabin cool down quickly, this is the function to change the mode automatically to RECIRCULATION mode	MANUAL / AUTO
Compressor Mode	AUTO	Function to turn the A/C ON automatically by pressing the AUTO button when the blower is ON and the A/C is OFF	MANUAL / AUTO
Compressor/Air Inlet DEF operation	LINK	Function to turn the A/C ON automatically linked with the FRONT DEF button when the A/C is OFF	NORMAL / LINK
Evaporator Control	AUTO	Function to set the evaporator control to the coldest position	MANUAL / AUTO
Foot/DEF Auto Mode	ON	Function to turn the airflow from FOOT / DEF ON automatically when AUTO MODE is ON	OFF / ON
Foot/DEF Automatic Blow Up Function	ON	Function to change the blower level automatically when the defroster is ON	OFF / ON

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Last Modified: 3-10-2010	6.4 U	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000026DR01PX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): TERMINALS OF ECU (2010 Corolla)		

TERMINALS OF ECU

1. A/C AMPLIFIER



HINT:

Check from the rear of the connector while it is connected to the A/C amplifier.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
E30-1 (IG+) - E30-14 (GND)	Y*1, R*2 - W-B	Power source (IG)	Ignition switch ON	11 to 14 V
E30-1 (IG+) - E30-14 (GND)	Y*1, R*2 - W-B	Power source (IG)	Ignition switch off	Below 1 V
E30-2 (SOL+) - E30-14 (GND)	LG*1, V*2 - W-B	A/C compressor operation signal	Engine is running A/C switch: ON Blower switch: LO	Pulse generation (See waveform 1)
E30-3 (PTC1) - E30-14 (GND)*3	W*1, P*2 - W-B	PTC heater operation signal	Engine is running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 75°C (167°F) or lower Light control switch: OFF Blower switch: ON	11 to 14 V

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TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
E30-9 (PRE) - E30-13 (SG-2)	L - G	A/C pressure sensor signal	Engine is running, A/C system is operating, Refrigerant pressure: Abnormal pressure (more than 3140 kPa (32.0 kgf/cm^2, 455 psi))	4.848 V or higher
E30-9 (PRE) - E30-13 (SG-2)	L - G	A/C pressure sensor signal	Engine is running, A/C system is operating, Refrigerant pressure: Abnormal pressure (less than 196 kPa (2.0 kgf/cm^2, 28 psi))	Below 0.734 V
E30-9 (PRE) - E30-13 (SG-2)	L - G	A/C pressure sensor signal	Engine is running, A/C system is operating, Refrigerant pressure: Normal pressure (less than 3140 kPa (32.0 kgf/cm^2, 455 psi) and more than 196 kPa (2.0 kgf/cm^2, 28 psi))	0.734 to 4.848 V
E30-10 (S5-3) - E30-13 (SG-2)	B - G	Power supply for A/C pressure sensor	Ignition switch ON A/C switch: ON	4.75 to 5.25 V
E30-10 (S5-3) - E30-13 (SG-2)	B - G	Power supply for A/C pressure sensor	Ignition switch ON A/C switch: OFF	Below 1 V
E30-11 (CANH) - E30-12 (CANL)	V - W	CAN communication circuit	Ignition switch ON	Pulse generation
E30-13 (SG-2) - Body ground	G - Body ground	Ground for A/C pressure sensor	Always	Below 1 V
E30-14 (GND) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1 V
E30-21 (B) - E30-14 (GND)	W*1, BR*2 - W-B	Power source (Back-up)	Always	11 to 14 V
E30-22 (PTC2) - E30-14 (GND)*3	B - W-B	PTC heater operation signal	Engine is running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 70°C (158°F) or lower	11 to 14 V

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TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
			Light control switch: OFF Blower switch: ON	
E30-23 (BLW) - E30-14 (GND)	R*1, L*2 - W-B	Blower motor speed control signal	Ignition switch ON Blower switch: ON	Pulse generation (See waveform 2)
E30-25 (ALT) - E30-14 (GND)*3	L - W-B	Alternator signal (PTC Heater line control)	Start engine	Pulse generation
E30-27 (HLS) - E30-14 (GND)*3	B*1, V*2 - W-B	Headlight signal (PTC Heater line control)	Start engine Headlight switch: OFF	11 to 14 V
E30-27 (HLS) - E30-14 (GND)*3	B*1, V*2 - W-B	Headlight signal (PTC Heater line control)	Start engine Headlight switch: ON	Below 1 V
E30-29 (TR) - E30-34 (SG-1)	GR*1, W*2 - V*1, SB*2	Room temperature sensor signal	Ignition switch ON Cabin temperature at 25°C (77°F)	1.8 to 2.2 V
E30-29 (TR) - E30-34 (SG-1)	GR*1, W*2 - V*1, SB*2	Room temperature sensor signal	Ignition switch ON Cabin temperature at 40°C (104°F)	1.2 to 1.6 V
E30-31 (S5-4) - E30-14 (GND)	LG*1, Y*2 - W-B	Solar sensor power source	Ignition switch ON A/C switch: ON	4.5 to 5.5 V
E30-33 (TS) - E30-14 (GND)	P*1, R*2 - W-B	Solar sensor signal	Ignition switch ON Solar sensor is subjected to light.	0.8 to 4.3 V
E30-33 (TS) - E30-14 (GND)	P*1, R*2 - W-B	Solar sensor signal	Ignition switch ON Solar sensor is covered with cloth.	Below 0.8 V
E30-34 (SG-1) - Body ground	V*1, SB*2 - Body ground	Ground for room temperature sensor	Always	Below 1 V
E30-37 (LIN1) - E30-14 (GND)	SB*1, LG*2 - W-B	LIN communication signal	Ignition switch ON	Pulse generation

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TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
E30-38 (RDFG) - E30-14 (GND)	B*1, BE*2 - W-B	DEF relay signal	Ignition switch ON REAR DEF switch: ON	Below 1 V
E30-38 (RDFG) - E30-14 (GND)	B*1, BE*2 - W-B	DEF relay signal	Ignition switch ON REAR DEF switch: OFF	11 to 14 V
X1-2 (BUS G) - Body ground	-	Ground for BUS IC	Always	Below 1 V
X1-3 (BUS) - X1-2 (BUS G)	-	BUS IC control signal	Ignition switch off → ON	Pulse generation
X1-4 (B BUS) - X1-2 (BUS G)	-	Power supply for BUS IC	Ignition switch off	Below 1 V
X1-4 (B BUS) - X1-2 (BUS G)	-	Power supply for BUS IC	Ignition switch ON	11 to 14 V
X1-5 (SGA) - Body ground	-	Ground for evaporator temperature sensor	Always	Below 1 V
X1-6 (TEA) - X1-5 (SGA)	-	Evaporator temperature sensor signal	Ignition switch ON Evaporator temperature at 0°C (32°F)	1.7 to 2.1 V
X1-6 (TEA) - X1-5 (SGA)	-	Evaporator temperature sensor signal	Ignition switch ON Evaporator temperature at 15°C (59°F)	0.9 to 1.3 V

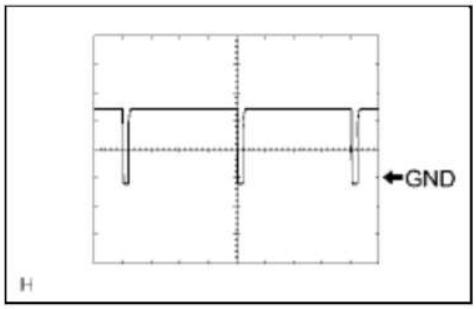
HINT:

- *1: TMC Made
- *2: NUMMI, TMMC Made
- *3: w/ PTC Heater

(a) Waveform 1

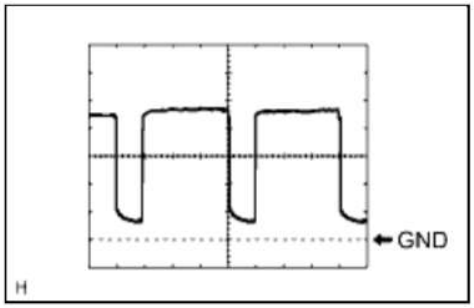
ITEM	CONTENT
Terminal No. (Symbol)	E30-2 (SOL+) - E30-14 (GND)
Tool Setting	5 V/DIV., 500 µs/DIV.

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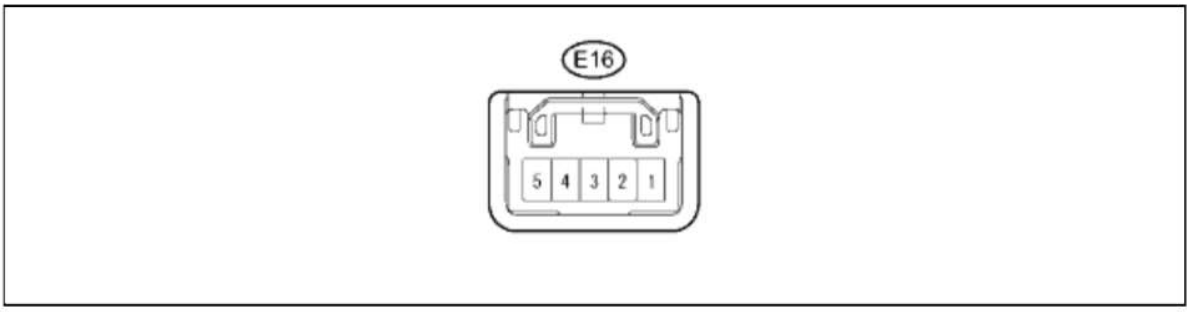
Vehicle Condition	Engine is running A/C switch: ON Blower Switch: LO

(b) Waveform 2



ITEM	CONTENT
Terminal No. (Symbol)	E30-23 (BLW) - E30-14 (GND)
Tool Setting	1 V/DIV., 500 µs/DIV.
Vehicle Condition	Ignition switch ON Blower switch: ON

2. A/C CONTROL ASSEMBLY



HINT:

Check from the rear of the connector while it is connected to the A/C control assembly.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
E16-2 (GND) - Body ground	W-B - Body ground	Ground for A/C control assembly	Always	Below 1 V
E16-3 (LIN1) - E16-2 (GND)	SB*1, LG*2 - W-B	LIN communication circuit	Ignition switch ON	Pulse generation
E16-5 (IG+) - E16-2 (GND)	B*1, V*2 - W-B	Power source (IG)	Ignition switch off	Below 1 V
E16-5 (IG+) - E16-2 (GND)	B*1, V*2 - W-B	Power source (IG)	Ignition switch ON	11 to 14 V

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HINT:

- *1: TMC Made
- *2: NUMMI, TMMC Made



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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001MYG01HX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): DIAGNOSIS SYSTEM (2010 Corolla)		

DIAGNOSIS SYSTEM

1. DESCRIPTION

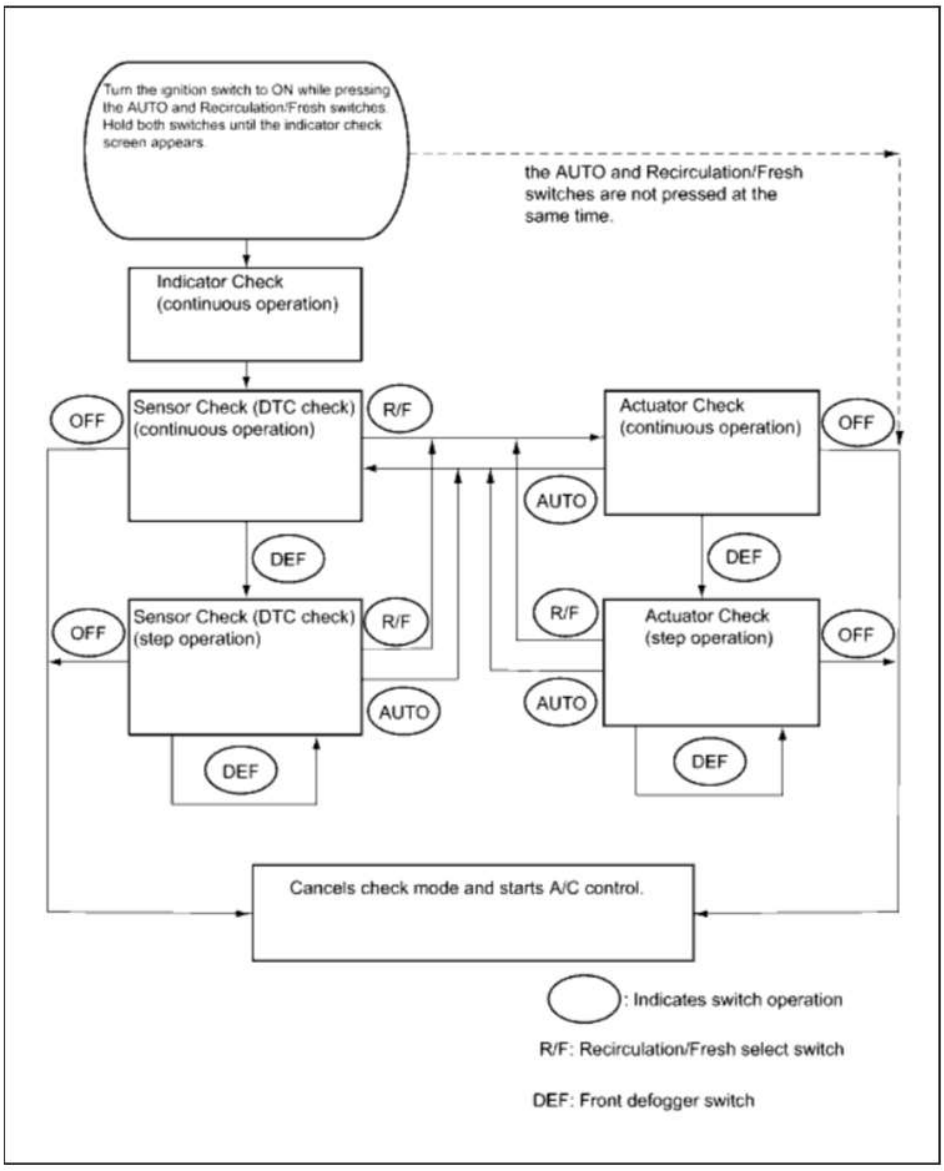
(a) Air conditioning system data and the Diagnostic Trouble Codes (DTCs) can be read through the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the Techstream to check for malfunctions and perform troubleshooting.

2. CHECK DLC3

(a) Check the DLC3 INFO .

3. LIST OF OPERATION METHODS

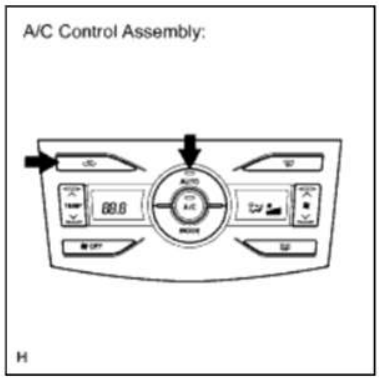
(a) By operating each of the air conditioning control switches as shown in the diagram below, it is possible to enter the diagnostic check mode.



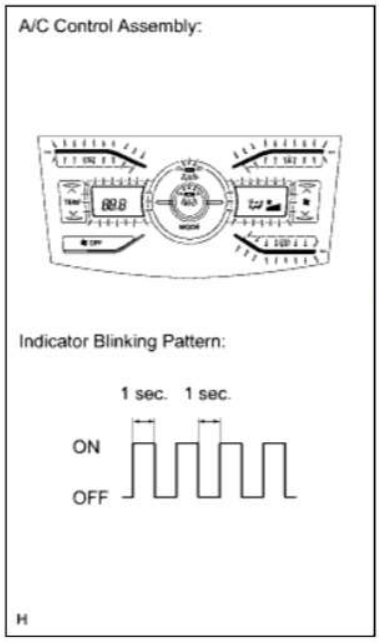
4. INDICATOR CHECK

(a) Turn the ignition switch off.

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(b) Turn the ignition switch to ON while pressing the A/C control assembly "AUTO" switch and "R/F" switch simultaneously. Hold both switches until the indicator check screen appears.



(c) The indicator check is automatically performed when panel diagnosis is activated. Check that the indicators light up and go off at 1 second intervals 4 times in succession.

HINT:

- The sensor check automatically starts when the indicator check is completed.
- Press the "OFF" switch to cancel the check mode.
- If a navigation system is installed, the indicator will blink and the buzzer will sound.

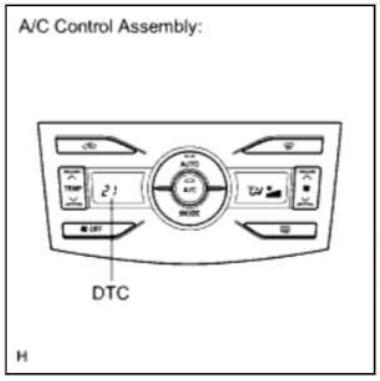
5. SENSOR CHECK (DTC CHECK)

(a) Start the engine and warm it up.

(b) Perform the indicator check.

HINT:

After the indicator check is completed, the system enters the DTC check mode automatically.



(c) Read the DTC displayed on the panel.

NOTICE:

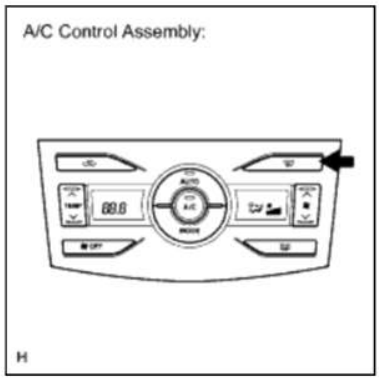
- In the sensor check mode, which is automatically entered after indicator check mode, troubleshooting may be partially performed. Be sure to perform the actuator and sensor checks again.
- If the check is performed in a dark place, DTC 21 may be displayed even though the system is normal.

HINT:

Refer to the DTC chart (Diagnostic Trouble Code chart) for details of the codes INFO .

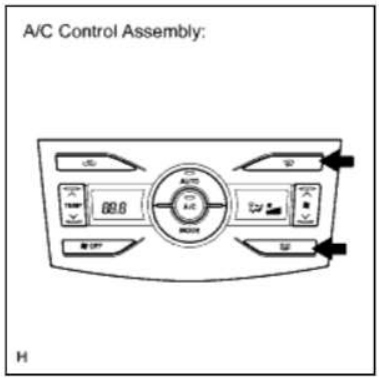
- When there are no problems, DTC 00 is output.
- As an example, the illustration shows that display code 21 is output.

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(d) If the steps are difficult to read because they change automatically, push the "DEF" switch to display the steps one at a time so that they can be read easily. The items are displayed step by step each time the "DEF" switch is pushed.

- Push the "OFF" switch to finish panel diagnosis.
- Push the "R/F" switch to enter the actuator check mode.



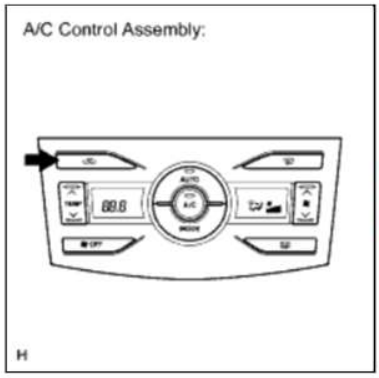
(e) Clear the DTC

(1) During the sensor check, press the "DEF" switch and "REAR DEF" switch at the same time.

6. ACTUATOR CHECK

(a) Start the engine and warm it up.

(b) Perform the indicator check.



(c) Push the "R/F" switch to perform the actuator check.

HINT:

Be sure to perform the actuator check after starting the engine.

(d) As the actuator check is repeated from steps 1 to 10 at 1 second intervals, check the temperature and air flow visually and by hand.

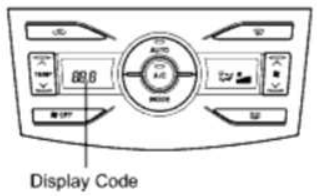
HINT:

- The display blinks at 1 second intervals in the step operation.
- Push the "OFF" switch to finish panel diagnosis.
- Push the "AUTO" switch to enter the sensor check mode.

STEP	DISPLAY	CONDITION

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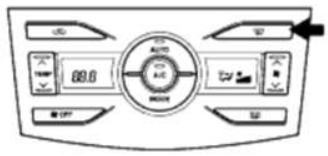
A/C Control Assembly:



H

NO.	CODE					
		BLOWER LEVEL	AIR MIX DAMPER	AIRFLOW VENT	AIR INLET DAMPER	COMPRESSOR
1	0	0	0% open	FACE	FRESH	OFF
2	1	1	0% open	FACE	FRESH	OFF
3	2	17	0% open	FACE	RECIRCULATION/FRESH	ON
4	3	17	0% open	FACE	RECIRCULATION	ON
5	4	17	50% open	B/L	RECIRCULATION	ON
6	5	17	50% open	B/L	RECIRCULATION	ON
7	6	17	50% open	FOOT	FRESH	ON
8	7	17	100% open	FOOT-0	FRESH	ON
9	8	17	100% open	F/D	FRESH	ON
10	9	31	100% open	DEF	FRESH	ON

A/C Control Assembly:



H

(e) If the steps are difficult to read because they change automatically, push the "DEF" switch to display the steps one at a time so that they can be read easily. The items are displayed step by step each time the "DEF" switch is pushed.

HINT:

- Push the "OFF" switch to finish panel diagnosis.
- Push the "R/F" switch to enter the sensor check mode.

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Last Modified: 3-10-2010	6.4 U	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000PMG02NX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): DATA LIST / ACTIVE TEST (2010 Corolla)		

DATA LIST / ACTIVE TEST

1. Data List

Use the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Data List.

(e) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Room Temperature Sensor (Room Temp)	Room temperature sensor / Min.: -6.5°C (20.3°F), Max.: 57.25°C (135.05°F)	Actual cabin temperature is displayed	-
Ambient Temp Sensor (Ambi Temp Sens)	Ambient temperature sensor / Min.: -23.3°C (-9.94°F), Max.: 65.95°C (150.71°F)	Actual ambient temperature is displayed	-
Adjusted Ambient Temp (Ambi Temp)	Adjusted ambient temperature / Min.: -30.8°C (-23.44°F), Max.: 50.8°C (123.44°F)	-	-
Evaporator Fin Thermistor (Evap Fin Temp)	Evaporator fin thermistor / Min.: -29.7°C (-21.46°F), Max.: 59.55°C (139.19°F)	Actual evaporator temperature is displayed	-
Solar Sensor (D side) (Solar Sens-D)	Driver side solar sensor / Min.: 0, Max.: 255	Driver side solar sensor value increases as brightness increases	-
Engine Coolant Temp (Coolant Temp)	Engine coolant temperature / Min.: 1.3°C (34.34°F), Max.: 90.55°C (194.99°F)	Actual engine coolant temperature is displayed while engine is warmed up	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Set Temperature (D side) (Set Temp-D)	Driver side set temperature / Min.: 18°C (65°F), Max.: 32°C (85°F)	Driver side set temperature is displayed	-
Blower Motor Speed Level (Blower Level)	Blower motor speed level / Min.: 0, Max.: 31	Increases in the range between 0 and 31 as the blower motor speed increases	-
Regulator Pressure Sensor (Reg Press Sens)	Regulator pressure sensor / Min.: -0.45668 MPaG, Max.: 3.29437 MPaG	Actual refrigerant pressure is displayed	-
Regulator Control Current (Reg Ctrl Currnt)	Compressor variable output current / Min.: 0 A, Max.: 0.997 A	-	-
Air Mix Servo Targ Pulse(D) (Air Mix Pulse-D)	Driver side air mix servo motor target pulse / Min.: 0, Max.: 255	MAX. COLD: 93 (pulse) MAX. HOT: 6 (pulse)	-
Air Outlet Servo Pulse (D) (Air Out Pulse-D)	Driver side air outlet servo motor target pulse / Min.: 0, Max.: 255	FACE: 47 (pulse) B/L: 37 (pulse) FOOT: 17 (pulse) FOOT/DEF: 9 (pulse) DEF: 5 (pulse)	-
Air Inlet Damper Targ Pulse (A/I Damp Targ Pls)	Air inlet damper target pulse / Min.: 0, Max.: 255	• RECIRCULATION: 19 (pulse) • FRESH: 7 (pulse)	-
Number of Trouble Codes (#Codes)	Number of trouble codes / Min.: 0, Max.: 255	Number of DTCs will be displayed	-

2. Active Test

HINT:

Using the Techstream to perform Active Tests allows the relay actuator and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Test early in troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Test.

(a) Connect the Techstream to the DLC3.

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(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Air Conditioner / Active Test.

(e) Check the operation by referring to the table below.

Air Conditioner

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Blower Motor (Blower Motor)	Blower motor	Min.: 0, Max.: 31	-
Defogger Relay (Rear) (Defogger Rly-R)	Defogger relay (Rear)	OFF, ON	-
Heater Active Level (Heater Level)	Heater active level	Min.: 0, Max.: 3	-
Air Mix Servo Targ Pulse(D) (Air Mix Pulse-D)	Driver side air mix servo motor pulse	Min.: 0, Max.: 255	-
Air Outlet Servo Pulse (D) (Air Out Pulse-D)	Driver side air outlet servo motor pulse	Min.: 0, Max.: 255	-
Air Inlet Damper Targ Pulse (A/I Damp Targ Pls)	Air inlet damper target pulse	Min.: 0, Max.: 255	-

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Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001GUF02QX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): DTC CHECK / CLEAR (2010 Corolla)		

DTC CHECK / CLEAR

1. DTC CHECK USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Trouble Codes.

(e) Check for DTCs.

2. DTC CLEAR USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

(d) Enter the following menus: Body Electrical / Trouble Codes.

(e) Clear DTCs by pressing the YES button on the Techstream display.

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Last Modified: 3-10-2010	6.4 S	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001O7Z02GX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): DIAGNOSTIC TROUBLE CODE CHART (2010 Corolla)		

DIAGNOSTIC TROUBLE CODE CHART

HINT:

When the air conditioning system functions properly, DTC B1400/00 is output.

Air Conditioning System

DTC CODE	DETECTION ITEM	TROUBLE AREA	MEMORY*4	SEE PAGE
B1411/11*1	Room Temperature Sensor Circuit	1. Room temperature sensor 2. Harness or connector between room temperature sensor and A/C amplifier 3. A/C amplifier	Memorized (8.5 min. or more)	INFO
B1412/12*2	Ambient Temperature Sensor Circuit	1. Ambient temperature sensor 2. Harness or connector between ambient temperature sensor and combination meter 3. Combination meter 4. CAN communication system 5. A/C amplifier	Memorized (8.5 min. or more)	INFO
B1413/13	Evaporator Temperature Sensor Circuit	1. Air conditioning harness 2. Evaporator temperature sensor 3. A/C amplifier	Memorized (8.5 min. or more)	INFO
B1421/21*3	Solar Sensor Circuit (Passenger Side)	1. Solar sensor 2. Harness or connector between solar sensor and A/C amplifier 3. A/C amplifier	Memorized (8.5 min. or more) (only when circuit is shorted)	INFO
B1423/23	Pressure Sensor Circuit	1. A/C pressure sensor 2. Harness or connector between A/C pressure sensor and A/C amplifier 3. A/C amplifier 4. Expansion valve (blocked, stuck) 5. Condenser (blocked, deterioration of cooling capacity due to dirt)	-	INFO

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DTC CODE	DETECTION ITEM	TROUBLE AREA	MEMORY*4	SEE PAGE
		6. Cooler dryer (moisture in the refrigerant cycle cannot be absorbed) 7. Cooling fan system (condenser cannot be cooled down) 8. A/C system (leaks, blocked)		
B1441/41	Air Mix Damper Control Servo Motor Circuit (Passenger Side)	1. A/C amplifier 2. Air conditioning harness 3. Air mix control servo motor	Memorized (30 sec.)	INFO
B1442/42	Air Inlet Damper Control Servo Motor Circuit	1. A/C amplifier 2. Air conditioning harness 3. Air inlet control servo motor	Memorized (30 sec.)	INFO
B1443/43	Air Outlet Damper Control Servo Motor Circuit	1. A/C amplifier 2. Air conditioning harness 3. Air outlet control servo motor	Memorized (30 sec.)	INFO
B1451/51	Compressor Solenoid Circuit	1. A/C compressor 2. Harness or connector between A/C amplifier and A/C compressor 3. A/C amplifier	-	INFO
B1497/97	BUS IC Communication Malfunction	1. Air conditioning harness 2. A/C amplifier	Memorized (10 sec. or more)	INFO
B1499/99	Multiplex Communication Circuit	CAN communication system	Memorized	INFO

*1: If the cabin temperature is approximately -18.6°C (-1.48°F) or lower, DTC B1411/11 may be output even though the system is normal.

*2: If the ambient temperature is approximately -52.9°C (-63.22°F) or lower, DTC B1412/12 may be output even though the system is normal.

*3: If the check is performed in a dark place, DTC B1421/21 (solar sensor circuit abnormal) may be output even though the system is normal.

*4: The A/C amplifier memorizes the DTC of the respective malfunction if it has occurred for the period of time indicated in the brackets.



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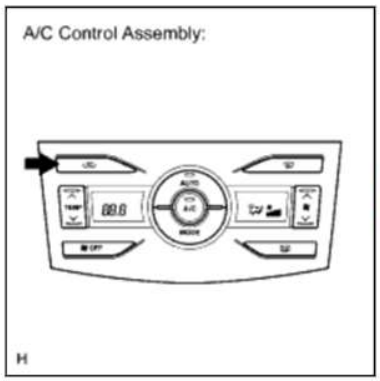
Last Modified: 3-10-2010	6.4 D	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001GUG022X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): ACTUATOR CHECK (2010 Corolla)		

ACTUATOR CHECK

1. ACTUATOR CHECK

(a) Start the engine and warm it up.

(b) Perform the indicator check INFO .



(c) Push the "R/F" switch to perform the actuator check.

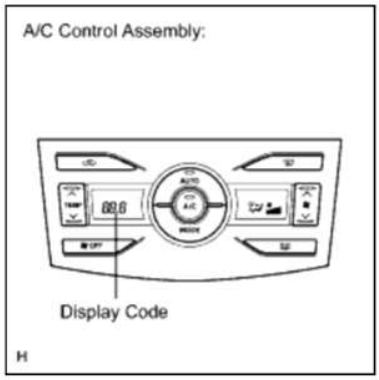
HINT:

Be sure to perform the actuator check after starting the engine.

(d) As the actuator check is repeated from steps 1 to 10 at 1 second intervals, check the temperature and air flow visually and by hand.

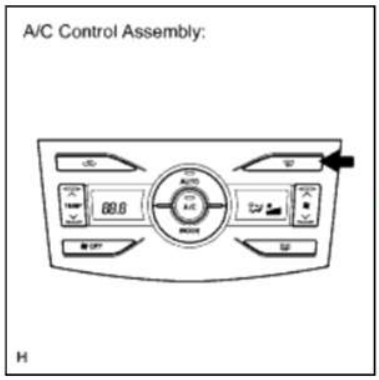
HINT:

- The display blinks at 1 second intervals in the step operation.
- Push the "OFF" switch to finish panel diagnosis.
- Push the "AUTO" switch to enter the sensor check mode.



STEP NO.	DISPLAY CODE	CONDITION				
		BLOWER LEVEL	AIR MIX DAMPER	AIRFLOW VENT	AIR INLET DAMPER	COMPRESSOR
1	0	0	0% open	FACE	FRESH	OFF
2	1	1	0% open	FACE	FRESH	OFF
3	2	17	0% open	FACE	RECIRCULATION/FRESH	ON
4	3	17	0% open	FACE	RECIRCULATION	ON
5	4	17	50% open	B/L	RECIRCULATION	ON
6	5	17	50% open	B/L	RECIRCULATION	ON
7	6	17	50% open	FOOT	FRESH	ON
8	7	17	100% open	FOOT-0	FRESH	ON
9	8	17	100% open	F/D	FRESH	ON
10	9	31	100% open	DEF	FRESH	ON

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(e) If the steps are difficult to read because they change automatically, push the "DEF" switch to display the steps one at a time so that they can be read easily. The items are displayed step by step each time the "DEF" switch is pushed.

HINT:

- Push the "OFF" switch to finish panel diagnosis.
- Push the "R/F" switch to enter the sensor check mode.

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001M2X01KX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1411/11: Room Temperature Sensor Circuit (2010 Corolla)		

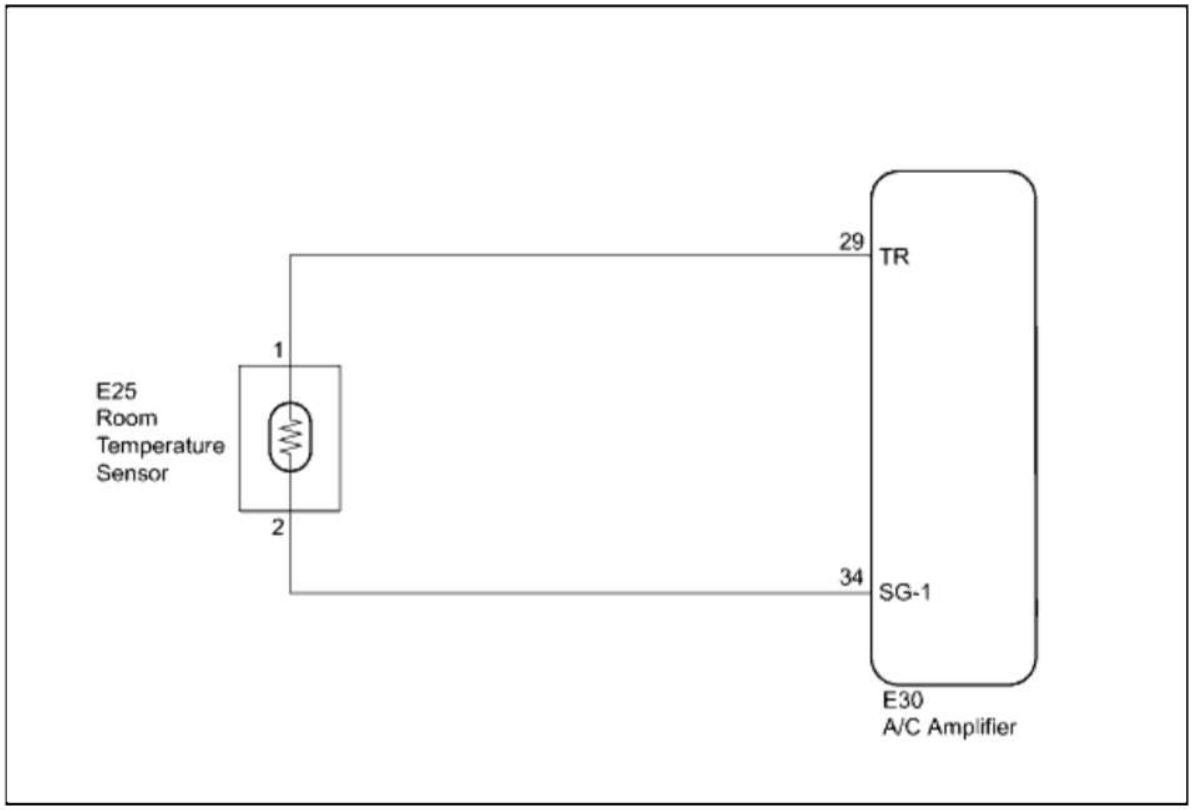
DTC	**B1411/11**	**Room Temperature Sensor Circuit**

DESCRIPTION

This sensor detects the cabin temperature that is used as the basis for temperature control and sends a signal to the A/C amplifier.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1411/11	Open or short in room temperature sensor circuit	• Room temperature sensor • Harness or connector between room temperature sensor and A/C amplifier • A/C amplifier

WIRING DIAGRAM



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INSPECTION PROCEDURE

PROCEDURE

1.	READ VALUE USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON and turn the Techstream main switch on.

(c) Select the item below in the Data List, and read the display on the Techstream.

Data List / Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Room Temperature Sensor (Room Temp)	Room temperature sensor / Min.: -6.5°C (20.3°F), Max.: 57.25°C (135.05°F)	Actual cabin temperature is displayed	-

OK:
The display is as specified in the "Normal Condition" column.
Result:

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to DTC)	C

C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

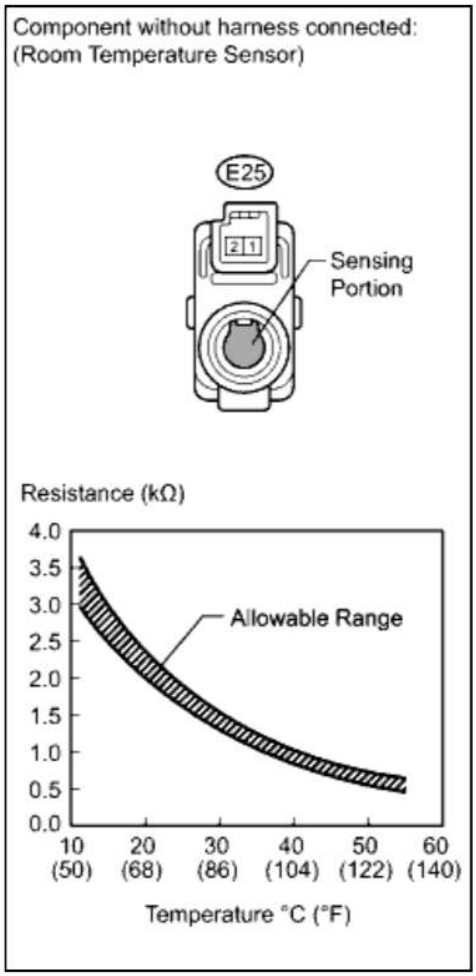
B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

A ▼

2.	INSPECT ROOM TEMPERATURE SENSOR

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(a) Remove the room temperature sensor.



(b) Disconnect the connector from the room temperature sensor.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E25-1 - E25-2	10°C (50°F)	3.00 to 3.73 kΩ
E25-1 - E25-2	15°C (59°F)	2.45 to 2.88 kΩ
E25-1 - E25-2	20°C (68°F)	1.95 to 2.30 kΩ
E25-1 - E25-2	25°C (77°F)	1.60 to 1.80 kΩ
E25-1 - E25-2	30°C (86°F)	1.28 to 1.47 kΩ
E25-1 - E25-2	35°C (95°F)	1.00 to 1.22 kΩ
E25-1 - E25-2	40°C (104°F)	0.80 to 1.00 kΩ
E25-1 - E25-2	45°C (113°F)	0.65 to 0.85 kΩ
E25-1 - E25-2	50°C (122°F)	0.50 to 0.70 kΩ

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E25-1 - E25-2	55°C (131°F)	0.44 to 0.60 kΩ
E25-1 - E25-2	60°C (140°F)	0.36 to 0.50 kΩ

NOTICE:

- Hold the sensor only by its connector. Touching the sensor may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

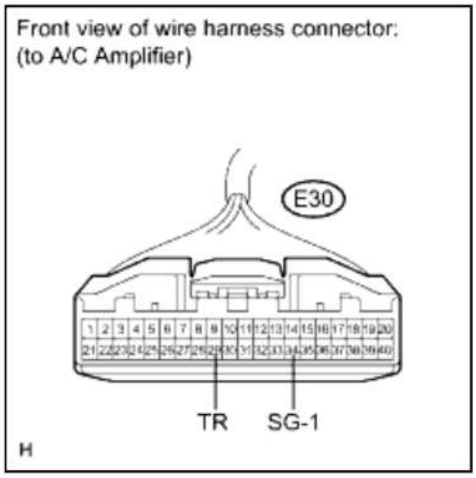
HINT:

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

NG ▶ **REPLACE ROOM TEMPERATURE SENSOR**

OK ▼

3.	**CHECK HARNESS AND CONNECTOR (ROOM TEMPERATURE SENSOR - AIR CONDITIONING AMPLIFIER)**



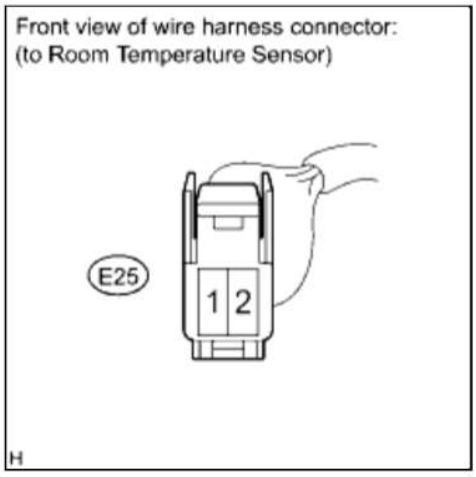
(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

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E30-29 (TR) - E25-1	Always	Below 1 Ω
E30-34 (SG-1) - E25-2	Always	Below 1 Ω
E30-29 (TR) - Body ground	Always	10 kΩ or higher
E30-34 (SG-1) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002HT000JX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1412/12: Ambient Temperature Sensor Circuit (2010 Corolla)		

DTC	**B1412/12**	**Ambient Temperature Sensor Circuit**

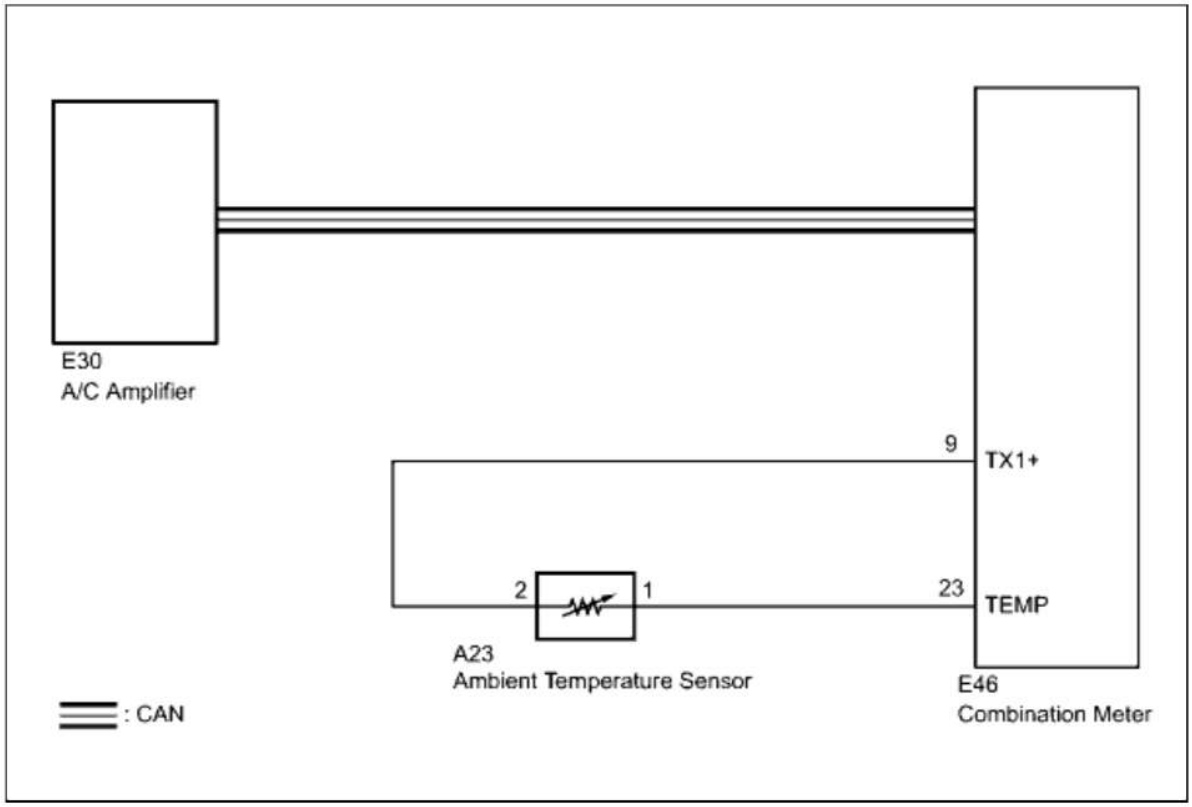
DESCRIPTION

This sensor detects the temperature outside the cabin and sends the appropriate signals to the A/C amplifier via the CAN communication system.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1412/12	Open or short in ambient temperature sensor circuit	• Ambient temperature sensor • Harness or connector between ambient temperature sensor and combination meter • Combination meter • CAN communication system • A/C amplifier

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM (COMBINATION METER - A/C AMPLIFIER)

(a) Use the Techstream.

(b) Check that the CAN communication system functions normally between the combination meter and the A/C amplifier.

Result:

RESULT	PROCEED TO
CAN DTC is not output	A
CAN DTC is output	B

B ▶ GO TO CAN COMMUNICATION SYSTEM

A

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2.	READ VALUE USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON and turn the Techstream main switch on.

(c) Select the item below in the Data List, and read the display on the Techstream.

Data List / Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Ambient Temp Sensor (Ambi Temp Sens)	Ambient temperature sensor / Min: -23.3°C (-9.94°F), Max: 65.95°C (150.71°F)	Actual ambient temperature is displayed	Open in circuit: -23.3°C (-9.94°F) Short in circuit: 65.95°C (150.71°F)

OK:
The display is as specified in the "Normal Condition" column.
Result:

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to DTC)	C

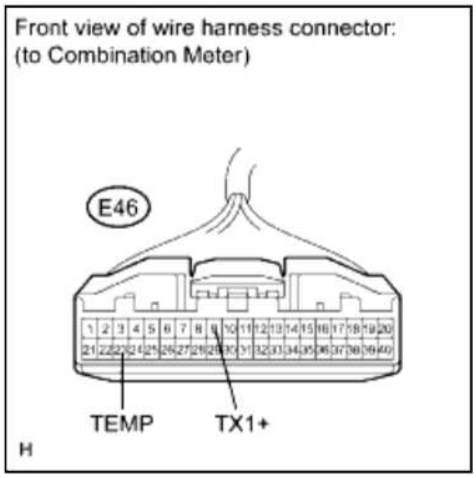
C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

A

3.	CHECK HARNESS AND CONNECTOR (AMBIENT TEMPERATURE SENSOR CIRCUIT)

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(a) Disconnect the connector from the combination meter.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-9 (TX1+) - E46-23 (TEMP)	Outside temperature: 25°C (77°F)	1.60 to 1.80 kΩ
E46-9 (TX1+) - E46-23 (TEMP)	Outside temperature: 40°C (104°F)	0.80 to 1.00 kΩ

HINT:

As the temperature increases, the resistance decreases.

NG ▶ **INSPECT AMBIENT TEMPERATURE SENSOR**

OK ▼

4.	**REPLACE COMBINATION METER**

(a) Replace the combination meter INFO.

HINT:

Since the combination meter cannot be inspected while it is removed from the vehicle, replace the combination meter with a known good one and check that the condition returns to normal.

(b) Check for DTCs.

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Result:

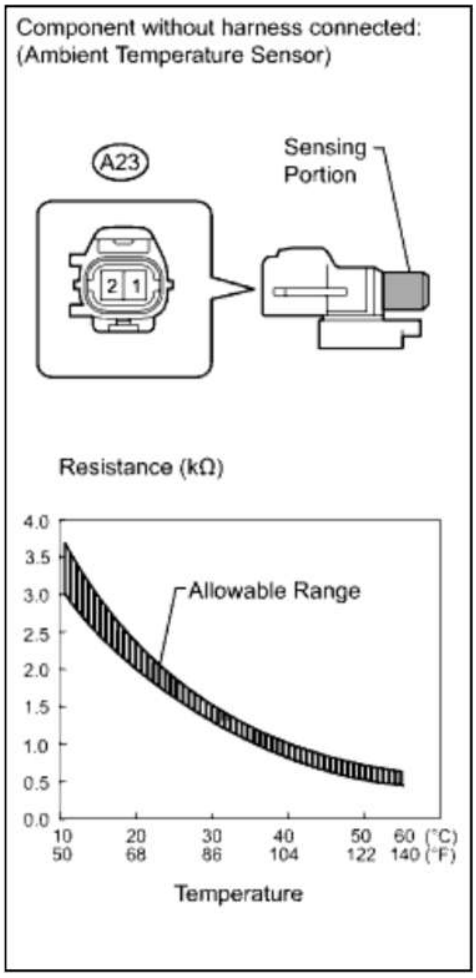
RESULT	PROCEED TO
DTC B1412 is not output	A
DTC B1412 is output	B

B ▶ REPLACE AIR CONDITIONING AMPLIFIER

A ▶ END

5.	INSPECT AMBIENT TEMPERATURE SENSOR

(a) Remove the ambient temperature sensor.



(b) Disconnect the connector from the ambient temperature sensor.

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

Standard Resistance:

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A23-1 - A23-2	10°C (50°F)	3.00 to 3.73 kΩ
A23-1 - A23-2	15°C (59°F)	2.45 to 2.88 kΩ
A23-1 - A23-2	20°C (68°F)	1.95 to 2.30 kΩ
A23-1 - A23-2	25°C (77°F)	1.60 to 1.80 kΩ
A23-1 - A23-2	30°C (86°F)	1.28 to 1.47 kΩ
A23-1 - A23-2	35°C (95°F)	1.00 to 1.22 kΩ
A23-1 - A23-2	40°C (104°F)	0.80 to 1.00 kΩ
A23-1 - A23-2	45°C (113°F)	0.65 to 0.85 kΩ
A23-1 - A23-2	50°C (122°F)	0.50 to 0.70 kΩ
A23-1 - A23-2	55°C (131°F)	0.44 to 0.60 kΩ
A23-1 - A23-2	60°C (140°F)	0.36 to 0.50 kΩ

NOTICE:

- Hold the sensor only by its connector. Touching the sensor may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

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

NG ▶ **REPLACE AMBIENT TEMPERATURE SENSOR**

OK ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR (COMBINATION METER - AMBIENT TEMPERATURE SENSOR)**

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000STP03SX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1423/23: Pressure Sensor Circuit (2010 Corolla)		

DTC	**B1423/23**	**Pressure Sensor Circuit**

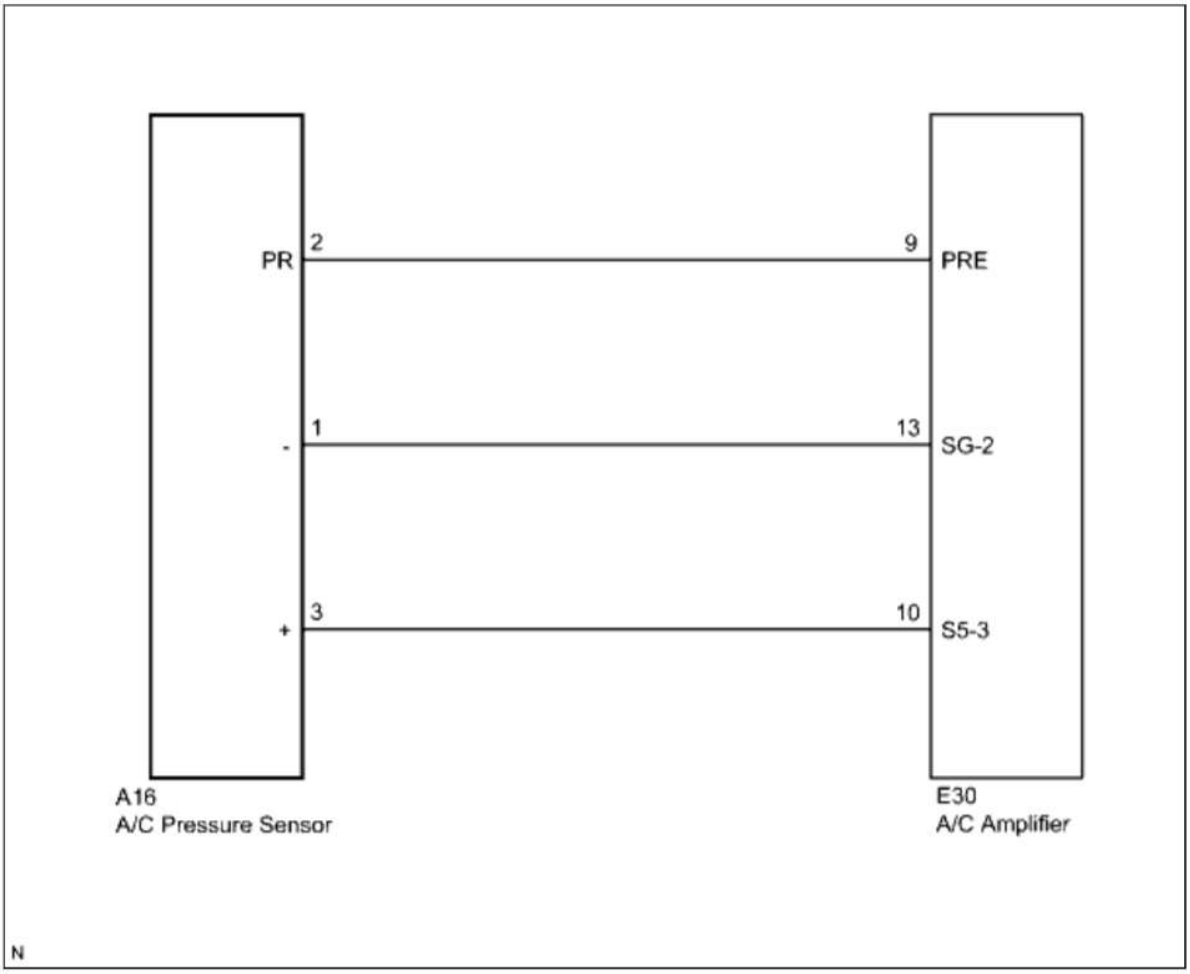
DESCRIPTION

This DTC is output when refrigerant pressure on the high pressure side is extremely low (0.19 MPa (2.0 kgf/cm^2, 28 psi) or less) or extremely high (3.14 MPa (32.0 kgf/cm^2, 455 psi) or more). The A/C pressure sensor, which is installed on the high pressure side pipe to detect refrigerant pressure, outputs a refrigerant pressure signal to the A/C amplifier. The A/C amplifier converts this signal to a pressure value according to the sensor characteristics to control the compressor.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1423/23	• Open or short in A/C pressure sensor circuit • Refrigerant pressure on the high pressure side is extremely low (0.19 MPa (2.0 kgf/cm^2, 28 psi) or less) or extremely high (3.14 MPa (32.0 kgf/cm^2, 455 psi) or more).	• A/C pressure sensor • Harness or connector between A/C pressure sensor and A/C amplifier • A/C amplifier • Expansion valve (blocked, stuck) • Condenser (blocked, deterioration of cooling capacity due to dirt) • Cooler dryer (moisture in the refrigerant cycle cannot be absorbed) • Cooling fan system (condenser cannot be cooled down) • A/C system (leaks, blocked)

WIRING DIAGRAM

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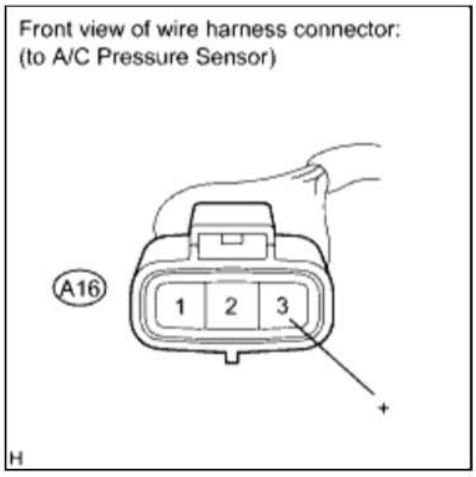
INSPECTION PROCEDURE

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)

(a) Disconnect the connector from the A/C pressure sensor.

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

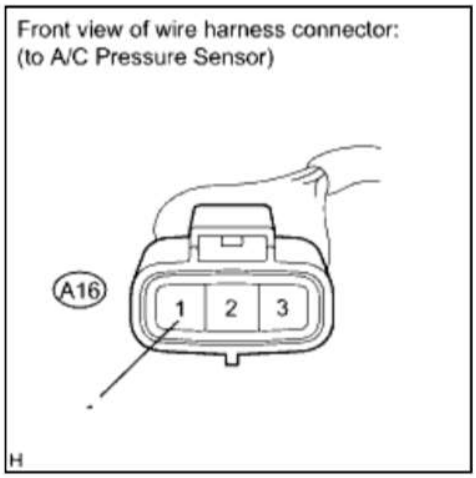
Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A16-3 (+) - Body ground	Ignition switch ON	4.75 to 5.25 V

NG ▶ **CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)**

OK ▼

2.	**CHECK HARNESS AND CONNECTOR (GROUND CIRCUIT)**



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A16-1 (-) - Body ground	Always	Below 1 Ω

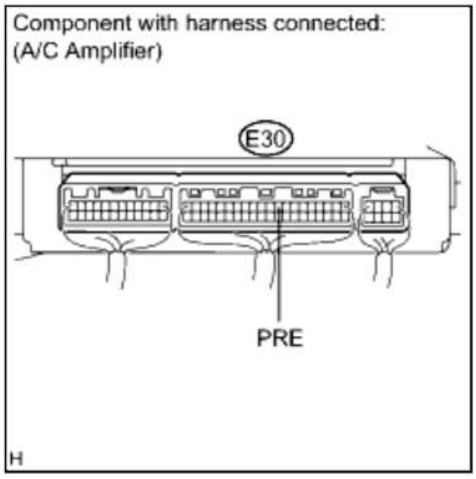
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NG ▶ **CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)**

OK ▼

3.	**INSPECT A/C PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)**

(a) Reconnect the connector to the A/C pressure sensor.



(b) Remove the A/C amplifier with the connectors still connected.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-9 (PRE) - Body ground	Ignition switch ON (A/C: OFF)	0.7 to 4.8 V

HINT:

If the measured voltage is not within the normal range, there may be a malfunction in the A/C amplifier, A/C pressure sensor, or wire harness. It is also possible that the amount of refrigerant may not be appropriate.

NG ▶ **CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)**

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OK

4.	INSPECT A/C PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)

(a) Measure the voltage when the following conditions are satisfied.

ITEM	CONDITION
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

- If refrigerant pressure on the high pressure side becomes extremely high during the inspection (if the voltage exceeds 4.8 V), the fail-safe function stops compressor operation. Therefore, measure the voltage before the fail-safe function operates.
- It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the problem symptom may recur after a while.

HINT:

When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to the operation of the ambient temperature and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

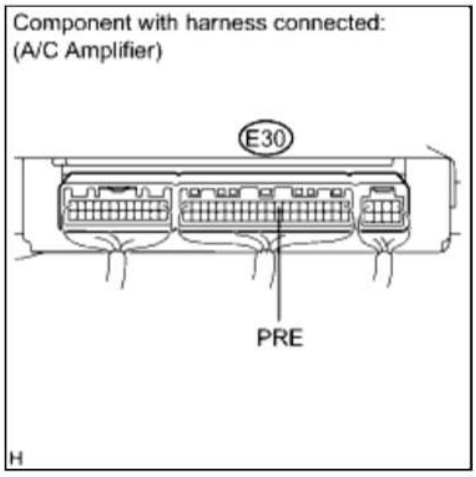
(1) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-9 (PRE) - Body ground	Ignition switch ON (A/C: ON)	0.7 to 4.8 V

Result:

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RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to DTC)	C

C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

A
▼

5.	INSPECT COOLING FAN SYSTEM

(a) Check that the cooling fan operates normally.

HINT:

- INFO for 2AZ-FE.
- INFO for 2ZR-FE.

NG ▶ **REPAIR COOLING FAN SYSTEM**

OK
▼

6.	CHARGE REFRIGERANT

(a) Use a refrigerant recovery unit to recover refrigerant.

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(b) Evacuate the A/C system.

(c) Add an appropriate amount of refrigerant INFO .

HINT:

If refrigerant is added and the system has not been properly evacuated (insufficient vacuum time), moisture in the air remaining in the system will freeze in the expansion valve, blocking the flow on the high pressure side. Therefore, in order to confirm the problem, recover the refrigerant and properly evacuate the system. Add an appropriate amount of refrigerant, and check for DTCs.

NEXT

7.	RECHECK DTC

(a) Recheck for DTCs when the following conditions are satisfied.

ITEM	CONDITION
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

If refrigerant pressure on the high pressure side becomes high, the DTC will be set. Therefore, it is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the A/C operates for a while.

HINT:

- When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to operation of the ambient temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.
- If refrigerant is added and the system has not been properly evacuated (insufficient vacuum time), moisture in the air remaining in the system will freeze in the expansion valve, blocking the flow on the high pressure side. Therefore, in order to confirm the problem, recover the refrigerant and properly evacuate the system. Add an appropriate amount of refrigerant, and check for DTCs. If the DTC is not output after this work, it indicates that the cooler dryer in the condenser is not able to absorb moisture in the refrigerant cycle. In this case, to complete the repair, it is necessary to replace the cooler dryer.

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Result:

RESULT	PROCEED TO
DTC B1423 is not output	A
DTC B1423 is output	B

B ▶ REPLACE EXPANSION VALVE

A ▶ REPLACE COOLER DRYER

8.	REPLACE EXPANSION VALVE

(a) Replace the expansion valve with a new one INFO .

HINT:

Replace the expansion valve with a new one because the expansion valve is either stuck or clogged.

NEXT

9.	CHARGE REFRIGERANT

(a) Add an appropriate amount of refrigerant INFO .

NEXT

10.	RECHECK DTC

(a) Recheck for DTCs when the following conditions are satisfied.

ITEM	CONDITION
Vehicle Doors	Fully open

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ITEM	CONDITION
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

If refrigerant pressure on the high pressure side becomes high, the DTC will be set. Therefore, it is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the A/C operates for a while.

HINT:

- When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to the operation of the ambient temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.
- If refrigerant pressure is not normal after replacing the expansion valve with a new one, the condenser or pipes may be clogged due to dirt, dust or other contaminants. In this case, clean or replace the condenser or pipes.

Result:

RESULT	PROCEED TO
DTC B1423 is not output	A
DTC B1423 is output	B

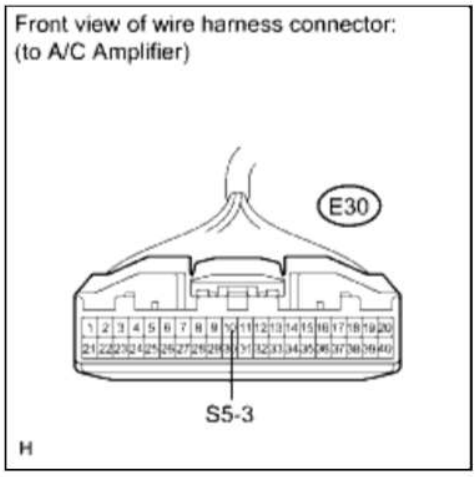
B ▶ **REPLACE CONDENSER**

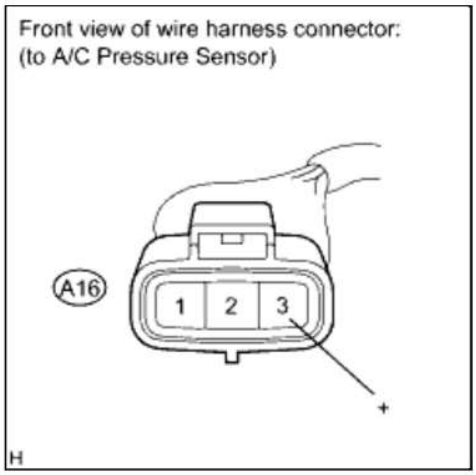
A ▶ **END**

11.	CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)

(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A16-3 (+) - E30-10 (S5-3)	Always	Below 1 Ω
E30-10 (S5-3) - Body ground	Always	10 kΩ or higher

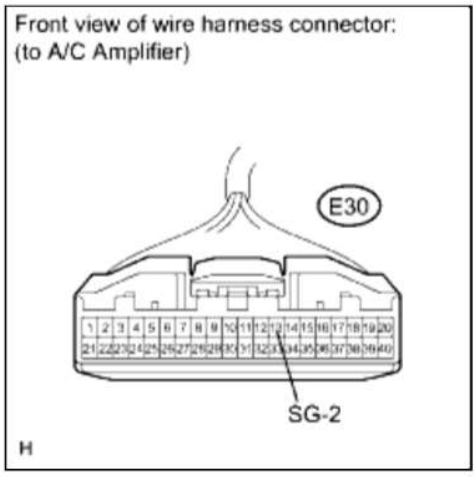
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

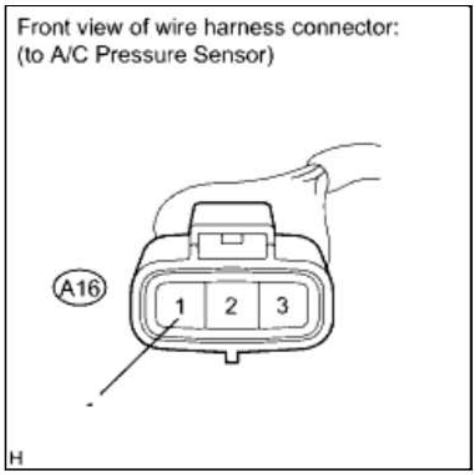
OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

12.	CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)

(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A16-1 (-) - E30-13 (SG-2)	Always	Below 1 Ω
E30-13 (SG-2) - Body ground	Always	10 kΩ or higher

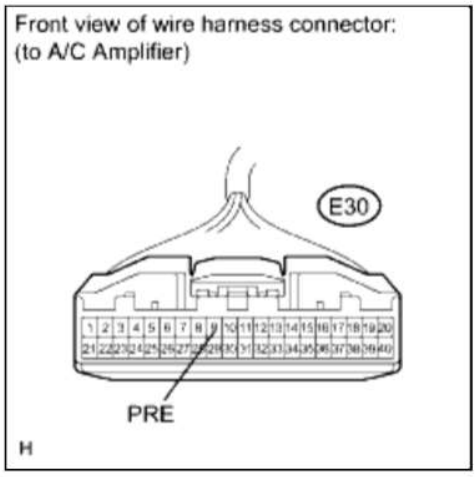
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

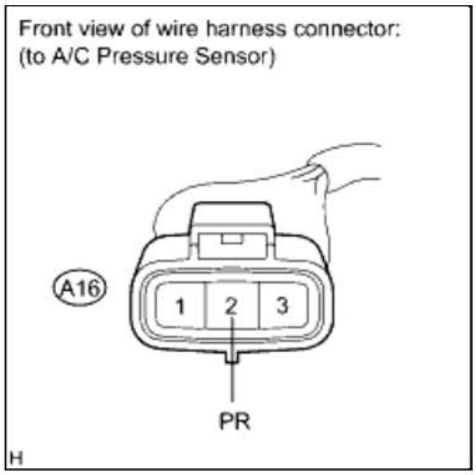
OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

13.	CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - A/C PRESSURE SENSOR)

(a) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A16-2 (PR) - E30-9 (PRE)	Always	Below 1 Ω
E30-9 (PRE) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

14.	INSPECT FOR A/C SYSTEM LEAK

(a) Install the manifold gauge set.

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

(c) Evacuate the A/C system and check that vacuum can be maintained.

OK:

Vacuum can be maintained in the A/C system.

HINT:

If vacuum cannot be maintained in the A/C system, there may be a refrigerant leak. In this case, it is necessary

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to repair or replace the leaking part of the A/C system.

NG ▶ **REPAIR A/C SYSTEM LEAK**

OK
▼

15.	CHARGE REFRIGERANT

(a) Add an appropriate amount of refrigerant INFO .

NEXT
▼

16.	RECHECK DTC

(a) Recheck for DTCs when the following conditions are satisfied.

ITEM	CONDITION
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI
A/C Switch	ON
R/F Switch	RECIRCULATION
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

If refrigerant pressure on the high pressure side becomes high, the DTC will be set. Therefore, it is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the A/C operates for a while.

HINT:

When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to the operation of the ambient temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.

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Result:

RESULT	PROCEED TO
DTC B1423 is not output	A
DTC B1423 is output	B

NOTICE:

If the DTC was set due to an insufficient or excessive amount of refrigerant, the problem may have been solved after performing the previous step. However, the root cause of insufficient refrigerant may be refrigerant leaks. The root cause of excessive refrigerant may be adding refrigerant when the level was insufficient. Therefore, identify and repair the area where refrigerant leaks from as necessary.

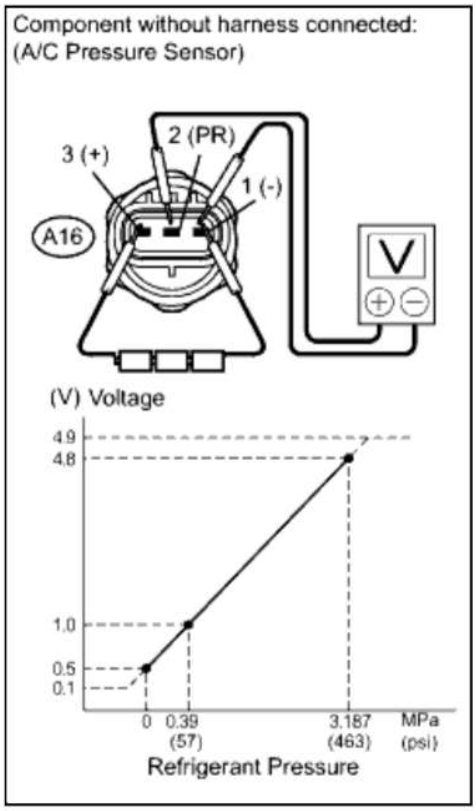
B ▶ INSPECT A/C PRESSURE SENSOR

A ▶ END

17.	INSPECT A/C PRESSURE SENSOR

(a) Install the manifold gauge set.

(b) Disconnect the connector from the A/C pressure sensor.



(c) Connect the three 1.5 V dry cell batteries' positive (+) lead to terminal 3, and the negative (-) lead to terminal 1.

(d) Connect the voltmeter's positive (+) lead to terminal 2, and the negative (-) lead to

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terminal 1.

(e) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A16-2 (PR) - A16-1 (-)	Refrigerant pressure: 0.39 to 3.187 MPa (57 to 463 psi)	1.0 to 4.8 V

NG ▶ **REPLACE A/C PRESSURE SENSOR**

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

18.	**REPAIR A/C SYSTEM LEAK**

(a) Identify the area where refrigerant leaks from INFO.

(b) Repair the identified area of the A/C system.

(c) Evacuate the A/C system.

NEXT ▶ **CHARGE REFRIGERANT**

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000STL030X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1413/13: Evaporator Temperature Sensor Circuit (2010 Corolla)		

DTC	**B1413/13**	**Evaporator Temperature Sensor Circuit**

DESCRIPTION

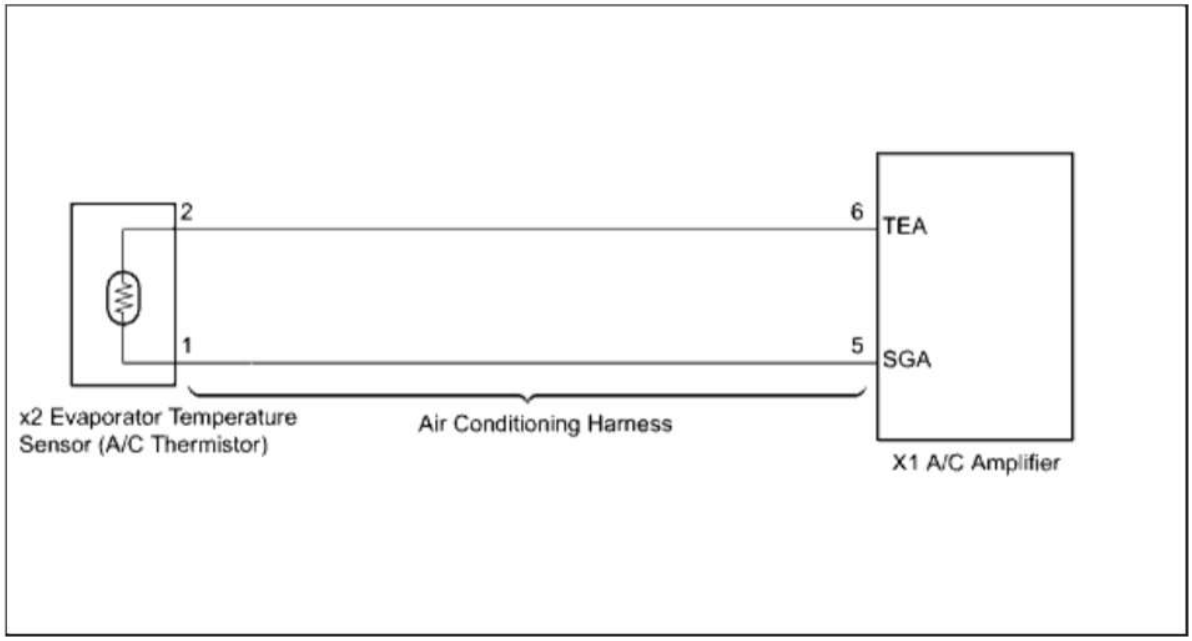
The evaporator temperature sensor (A/C thermistor) is installed on the evaporator in the air conditioning unit. It detects the temperature of the cooled air that has passed through the evaporator and its signal is used to control the air conditioning. It sends a signal to the A/C amplifier. The resistance of the evaporator temperature sensor (A/C thermistor) changes in accordance with the temperature of the cooled air that has passed through the evaporator. As the temperature decreases, the resistance increases. As the temperature increases, the resistance decreases.

The A/C amplifier applies voltage (5 V) to the evaporator temperature sensor (A/C thermistor) and reads voltage changes as the resistance of the evaporator temperature sensor (A/C thermistor) changes. This sensor is used to prevent the evaporator from freezing.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1413/13	Open or short in evaporator temperature sensor circuit	• Evaporator temperature sensor • Air conditioning harness • A/C amplifier

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**READ VALUE USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON and turn the Techstream main switch on.

(c) Select the item below in the Data List, and read the display on the Techstream.

Data List / Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Evaporator Fin Thermistor (Evap Fin Temp)	Evaporator fin thermistor / Min.: -29.7°C (-21.46°F), Max.: 59.55°C (139.19°F)	Actual evaporator temperature is displayed	Open in circuit: -29.7°C (-21.46°F) Short in circuit: 59.55°C (139.19°F)

OK:
The display is as specified in the "Normal Condition" column.
Result:

RESULT	PROCEED TO
NG	A

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RESULT	PROCEED TO
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to DTC)	C

C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

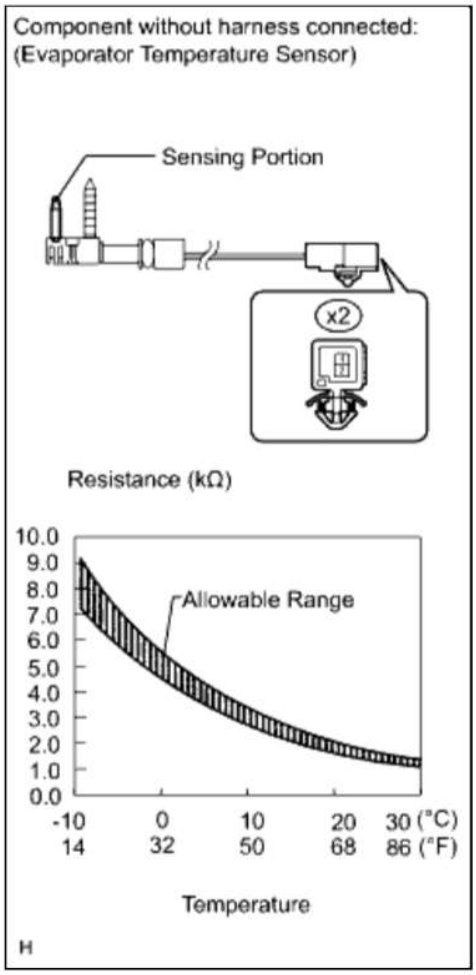
A

2.	**INSPECT EVAPORATOR TEMPERATURE SENSOR**

(a) Remove the evaporator temperature sensor.

(b) Disconnect the connector from the evaporator temperature sensor.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
x2-1 - x2-2	-10°C (14°F)	7.30 to 9.10 kΩ
x2-1 - x2-2	-5°C (23°F)	5.65 to 6.95 kΩ
x2-1 - x2-2	0°C (32°F)	4.40 to 5.35 kΩ
x2-1 - x2-2	5°C (41°F)	3.40 to 4.15 kΩ
x2-1 - x2-2	10°C (50°F)	2.70 to 3.25 kΩ
x2-1 - x2-2	15°C (59°F)	2.14 to 2.58 kΩ
x2-1 - x2-2	20°C (68°F)	1.71 to 2.05 kΩ
x2-1 - x2-2	25°C (77°F)	1.38 to 1.64 kΩ
x2-1 - x2-2	30°C (86°F)	1.11 to 1.32 kΩ

NOTICE:

- Hold the sensor only by its connector. Touching the sensor may change the resistance value.
- When measuring, the sensor temperature must be the same as the ambient temperature.

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HINT:

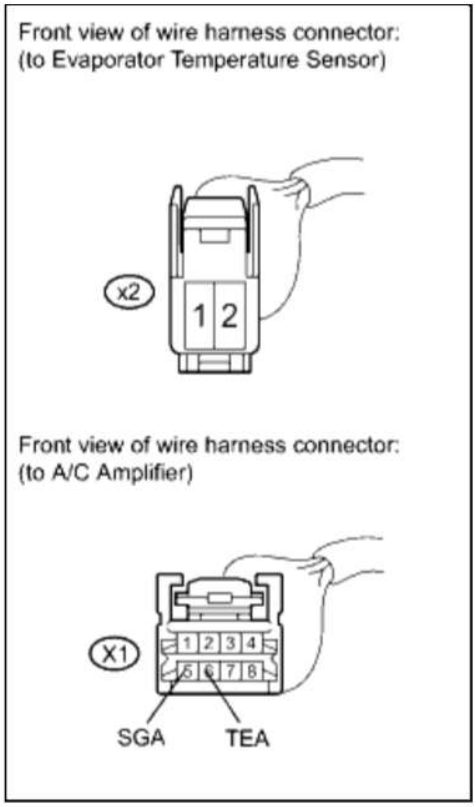
As the temperature increases, the resistance decreases (see the graph).

NG ▶ **REPLACE EVAPORATOR TEMPERATURE SENSOR**

OK ▼

3.	INSPECT AIR CONDITIONING HARNESS

(a) Remove the air conditioning harness.



(1) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
X1-6 (TEA) - x2-2	Always	Below 1 Ω

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
X1-5 (SGA) - x2-1	Always	Below 1 Ω
X1-6 (TEA) - Body ground	Always	10 kΩ or higher
X1-5 (SGA) - Body ground	Always	10 kΩ or higher

NG ▶ **REPLACE AIR CONDITIONING HARNESS**

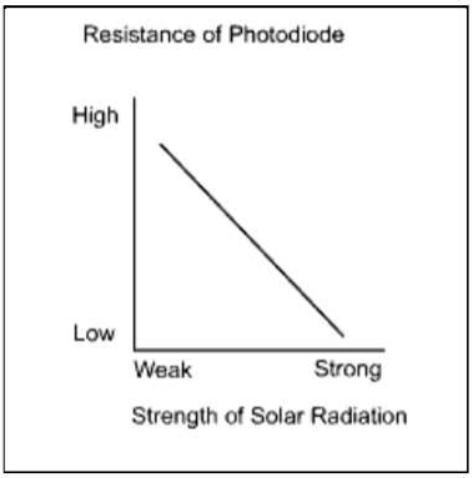
OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000STN01TX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1421/21: Solar Sensor Circuit (Passenger Side) (2010 Corolla)		

DTC	**B1421/21**	**Solar Sensor Circuit (Passenger Side)**

DESCRIPTION

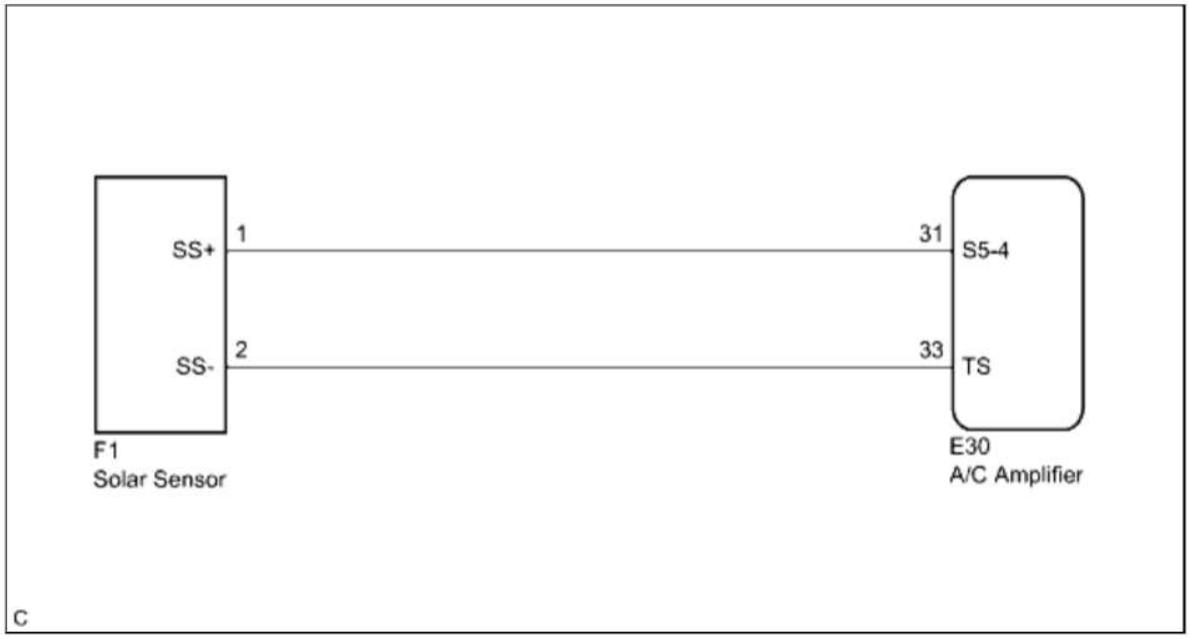


The solar sensor, which is installed on the upper side of the instrument panel, detects sunlight and controls the air conditioning in AUTO mode. The output voltage from the solar sensor varies according to the amount of sunlight. When the sunlight increases, the output voltage increases. As the sunlight decreases, the output voltage decreases. The A/C amplifier detects voltage output from the solar sensor.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1421/21	Open or short in passenger side solar sensor circuit	• Solar sensor • Harness or connector between solar sensor and A/C amplifier • A/C amplifier

WIRING DIAGRAM

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INSPECTION PROCEDURE

HINT:

If the check is performed in a dark place, DTC B1421/21 (solar sensor circuit abnormal) may be output even though the system is normal.

PROCEDURE

1.	**READ VALUE USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON and turn the Techstream on.

(c) Expose the sensing portion of the solar sensor to light.

HINT:

Use an incandescent light for inspection.

(d) Select the item below in the Data List, and read the display on the Techstream.

Data List / Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Solar Sensor (D side) (Solar	Driver side solar sensor / Min.: 0, Max.: 255	Driver side solar sensor value increases as brightness increases	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Sens-D)			

OK:
The display is as specified in the "Normal Condition" column.
Result:

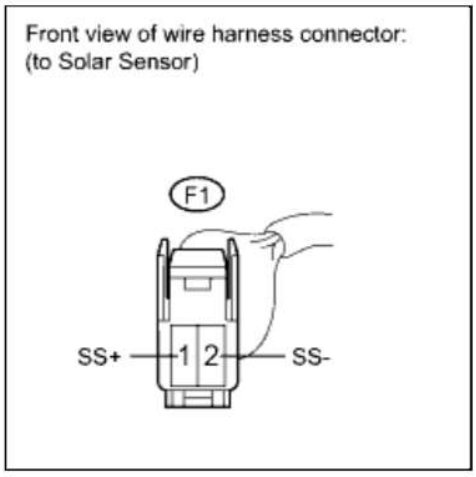
RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to DTC)	C

C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

A ▼

2.	**CHECK HARNESS AND CONNECTOR (SOLAR SENSOR)**



(a) Disconnect the connector from the solar sensor.

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

Standard Voltage:

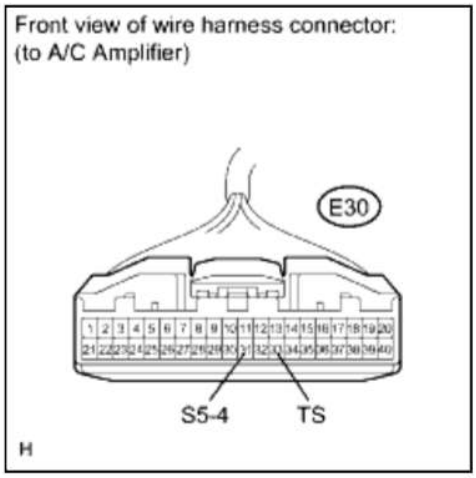
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TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F1-1 (SS+) - F1-2 (SS-)	Ignition switch off	Below 1 V
F1-1 (SS+) - F1-2 (SS-)	Ignition switch ON	11 to 14 V

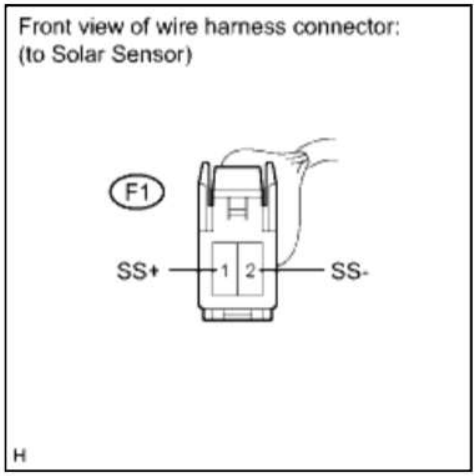
NG ▶ **CHECK HARNESS AND CONNECTOR (SOLAR SENSOR - A/C AMPLIFIER)**

OK ▶ **REPLACE SOLAR SENSOR**

3.	CHECK HARNESS AND CONNECTOR (SOLAR SENSOR - A/C AMPLIFIER)



(a) Disconnect the connector from the A/C amplifier.



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-33 (TS) - F1-2 (SS-)	Always	Below 1 Ω
E30-31 (S5-4) - F1-1 (SS+)	Always	Below 1 Ω
E30-33 (TS) - Body ground	Always	10 kΩ or higher
E30-31 (S5-4) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

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OK ▶ REPLACE AIR CONDITIONING AMPLIFIER

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000STR01SX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1441/41: Air Mix Damper Control Servo Motor Circuit (Passenger Side) (2010 Corolla)		

DTC	**B1441/41**	**Air Mix Damper Control Servo Motor Circuit (Passenger Side)**

DESCRIPTION

The air mix damper servo sends pulse signals to inform the air conditioning amplifier of the damper position. The air conditioning amplifier activates the motor (normal, reverse) based on the signals to move the air mix damper (passenger seat) to any position, which adjusts the amount of air passing the heater core after passing the evaporator to control the blowing temperature. The A/C amplifier communicates with the servo through a communication/driver IC and wiring assembly called the air conditioning harness.

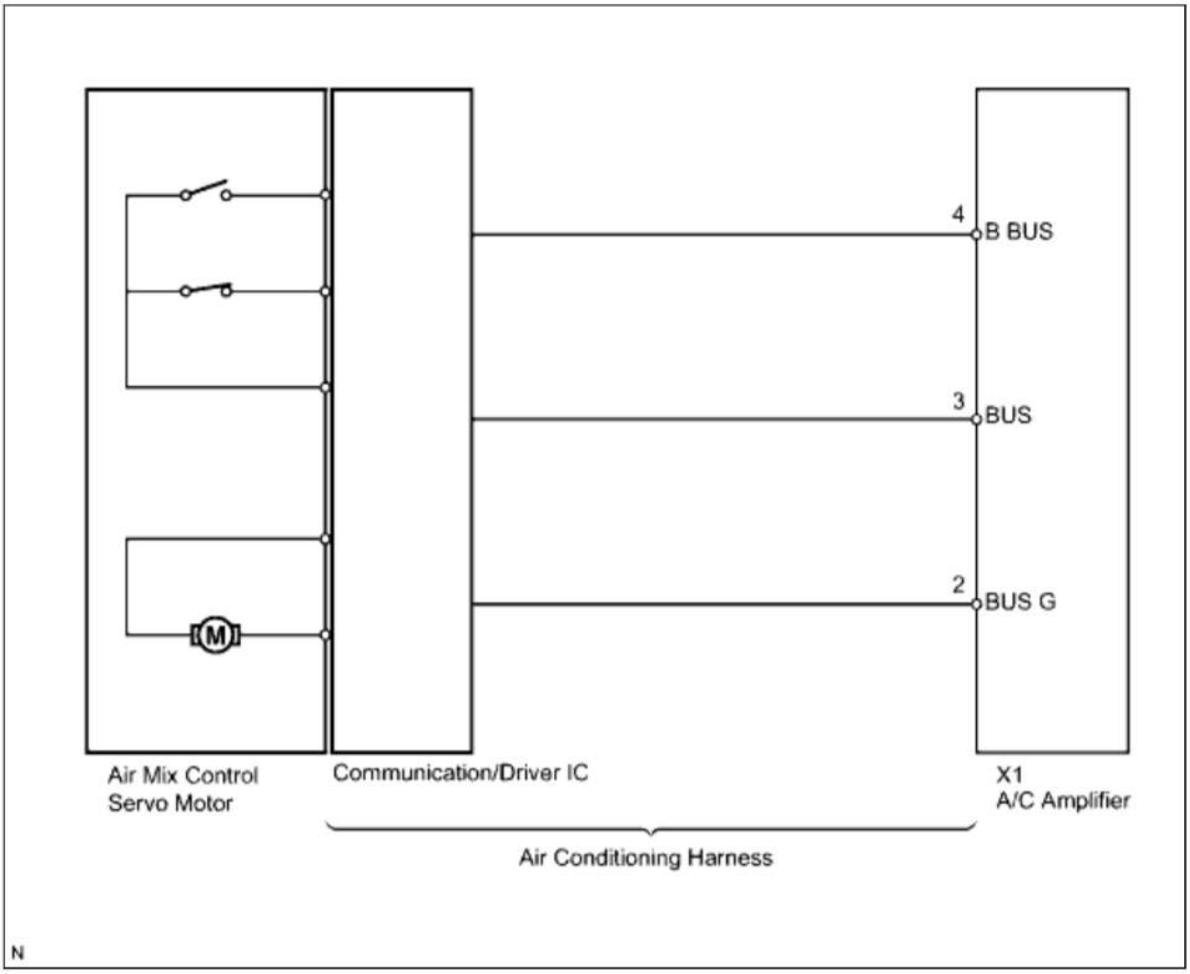
HINT:

Confirm that no mechanical problem is present because this DTC can be output when either a damper link or the damper is mechanically locked.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1441/41	Air mix damper position sensor value does not change even if air conditioning amplifier operates air mix control servo motor	• Air mix control servo motor • Air conditioning harness • A/C amplifier

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**READ VALUE USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON and turn the Techstream on.

(c) Operate the temperature adjustment switch.

(d) Select the item below in the Data List, and read the display on the Techstream.

Data List / Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Mix Servo Targ Pulse (D)	Driver side air mix servo motor target pulse / Min.: 0, Max.: 255	MAX. COLD: 93 (pulse)	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
(Air Mix Pulse-D)		MAX. HOT: 6 (pulse)	

OK:
The display is as specified in the "Normal Condition" column.
Result:

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to DTC)	C

C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

A ▼

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

(a) Replace the air mix control servo motor INFO .

HINT:

Since the servo motor cannot be inspected while it is removed from the vehicle, replace the servo motor with a known good one and check that the condition returns to normal.

(b) Check for DTCs.
Result:

RESULT	PROCEED TO
DTC B1441/41 is output	A
DTC B1441/41 is not output	B

B ▶ **REPLACE AIR MIX CONTROL SERVO MOTOR**

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A

3.	INSPECT AIR CONDITIONING HARNESS

(a) Replace the air conditioning harness INFO .

HINT:

Since the air conditioning harness cannot be inspected while it is removed from the vehicle, replace the air conditioning harness with a known good one and check that the condition returns to normal.

(b) Check for DTCs.

Result:

RESULT	PROCEED TO
DTC B1441/41 is output	A
DTC B1441/41 is not output	B

B ▶ REPLACE AIR CONDITIONING HARNESS

A ▶ REPLACE AIR CONDITIONING AMPLIFIER

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000STS01TX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1442/42: Air Inlet Damper Control Servo Motor Circuit (2010 Corolla)		

DTC	**B1442/42**	**Air Inlet Damper Control Servo Motor Circuit**

DESCRIPTION

The damper servo (air inlet control) sends pulse signals to inform the air conditioning amplifier of the damper position. The air conditioning amplifier activates the motor (normal, reverse) based on the signals to move the air inlet damper to any position, which controls the intake air settings (FRESH, FRESH/RECIRCULATION, and RECIRCULATION). The A/C amplifier communicates with the servo through a communication/driver IC and wiring assembly called the air conditioning harness.

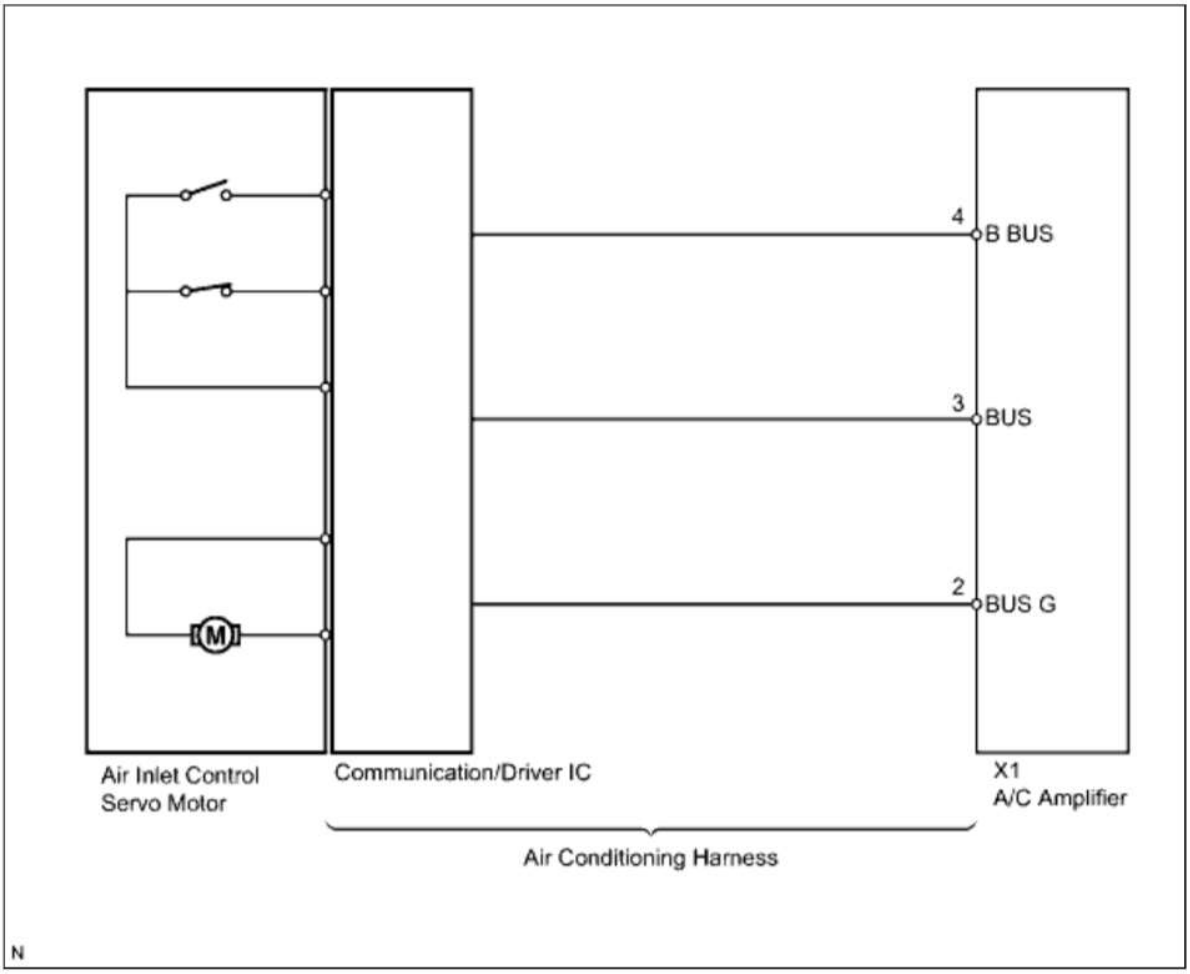
HINT:

Confirm that no mechanical problem is present because this DTC can be output when either a damper link or the damper is mechanically locked.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1442/42	Air inlet damper position sensor value does not change even if air conditioning amplifier operates air inlet control servo motor	• Air inlet control servo motor • Air conditioning harness • A/C amplifier

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**READ VALUE USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON and turn the Techstream on.

(c) Operate the R/F (Recirculation/Fresh) switch.

(d) Select the item below in the Data List, and read the display on the Techstream.

Data List / Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Inlet Damper Targ Pulse	Air inlet damper target pulse / Min.: 0, Max.: 255	• RECIRCULATION: 19	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
(A/I Damp Targ Pls)	•	(pulse) FRESH: 7 (pulse)	

OK:

The display is as specified in the "Normal Condition" column.

Result:

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to DTC)	C

C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

A ▼

2.	INSPECT AIR INLET CONTROL SERVO MOTOR

(a) Replace the air inlet control servo motor INFO .

HINT:

Since the servo motor cannot be inspected while it is removed from the vehicle, replace the servo motor with a known good one and check that the condition returns to normal.

(b) Check for DTCs.

Result:

RESULT	PROCEED TO
DTC B1442/42 is output	A
DTC B1442/42 is not output	B

B ▶ **REPLACE AIR INLET CONTROL SERVO MOTOR**

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A

3.	INSPECT AIR CONDITIONING HARNESS

(a) Replace the air conditioning harness INFO .

HINT:

Since the air conditioning harness cannot be inspected while it is removed from the vehicle, replace the air conditioning harness with a known good one and check that the condition returns to normal.

(b) Check for DTCs.

Result:

RESULT	PROCEED TO
DTC B1442/42 is output	A
DTC B1442/42 is not output	B

B ▶ REPLACE AIR CONDITIONING HARNESS

A ▶ REPLACE AIR CONDITIONING AMPLIFIER

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000STT01UX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1443/43: Air Outlet Damper Control Servo Motor Circuit (2010 Corolla)		

DTC	**B1443/43**	**Air Outlet Damper Control Servo Motor Circuit**

DESCRIPTION

The mode damper servo sends pulse signals to inform the air conditioning amplifier of the damper position. The air conditioning amplifier activates the motor (normal, reverse) based on the signals to move the air outlet damper to any position, which controls the air outlet switching. The A/C amplifier communicates with the servo through a communication/driver IC and wiring assembly called the air conditioning harness.

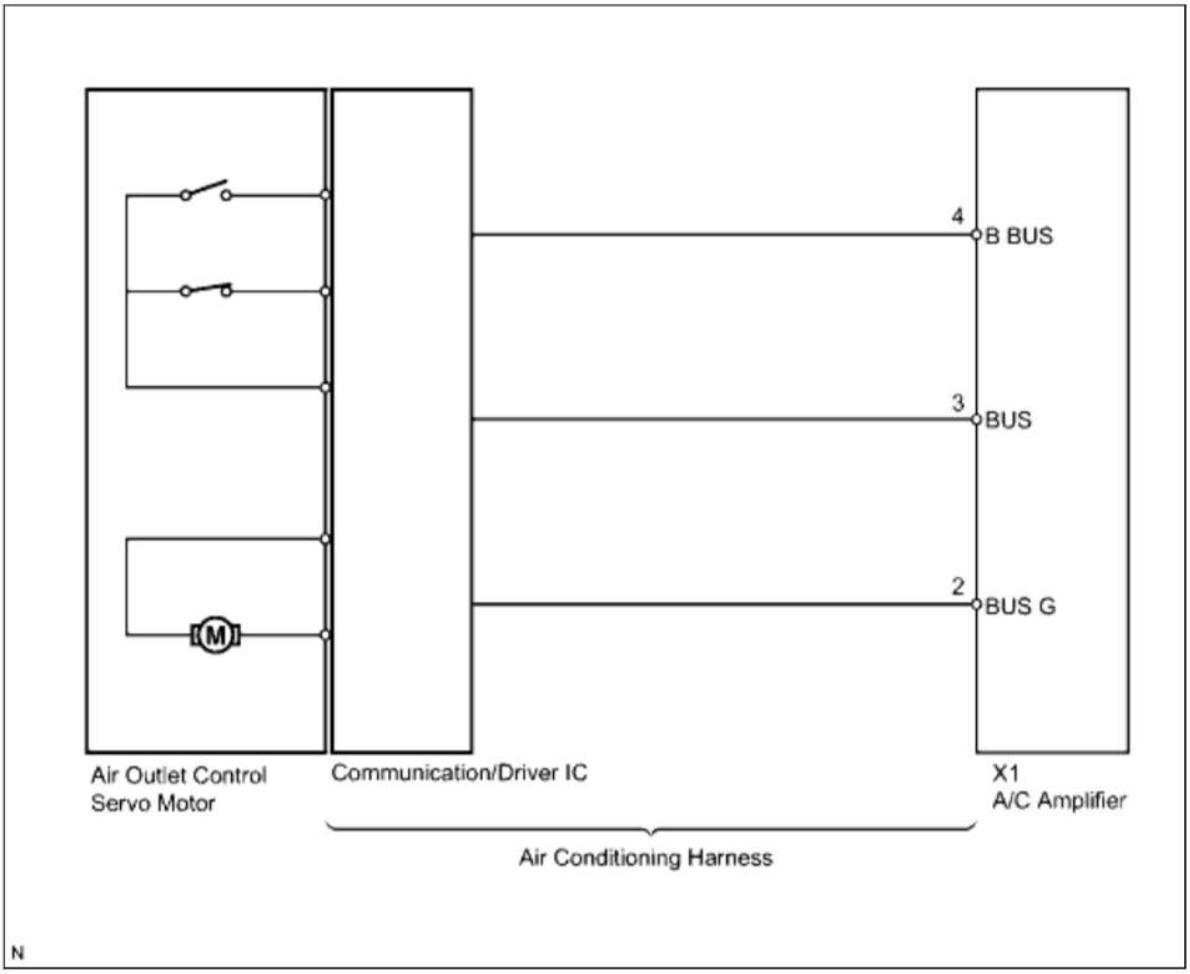
HINT:

Confirm that no mechanical problem is present because this DTC can be output when either a damper link or the damper is mechanically locked.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1443/43	Air outlet damper position sensor value does not change even if air conditioning amplifier operates air outlet control servo motor	• Air outlet control servo motor • Air conditioning harness • A/C amplifier

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**READ VALUE USING TECHSTREAM**

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON and turn the Techstream on.

(c) Operate the MODE switch.

(d) Select the item below in the Data List, and read the display on the Techstream.

Data List / Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Outlet Servo Pulse (D)	Driver side air outlet servo motor target pulse / Min.: 0, Max.: 255	FACE: 47 (pulse) B/L: 37 (pulse)	-

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TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
(Air Out Pulse-D)		FOOT: 17 (pulse) FOOT/DEF: 9 (pulse) DEF: 5 (pulse)	

OK:
The display is as specified in the "Normal Condition" column.
Result:

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B
OK (When troubleshooting according to DTC)	C

C ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

B ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

A ▼

2.	**INSPECT AIR OUTLET CONTROL SERVO MOTOR**

(a) Replace the air outlet control servo motor INFO .

HINT:

Since the servo motor cannot be inspected while it is removed from the vehicle, replace the servo motor with a known good one and check that the condition returns to normal.

(b) Check for DTCs.

Result:

RESULT	PROCEED TO
DTC B1443/43 is output	A
DTC B1443/43 is not output	B

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B ▶ REPLACE AIR OUTLET CONTROL SERVO MOTOR

A ▼

3.	INSPECT AIR CONDITIONING HARNESS

(a) Replace the air conditioning harness INFO.

HINT:

Since the air conditioning harness cannot be inspected while it is removed from the vehicle, replace the air conditioning harness with a known good one and check that the condition returns to normal.

(b) Check for DTCs.

Result:

RESULT	PROCEED TO
DTC B1443/43 is output	A
DTC B1443/43 is not output	B

B ▶ REPLACE AIR CONDITIONING HARNESS

A ▶ REPLACE AIR CONDITIONING AMPLIFIER

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000VAV027X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1451/51: Compressor Solenoid Circuit (2010 Corolla)		

DTC	**B1451/51**	**Compressor Solenoid Circuit**

DESCRIPTION

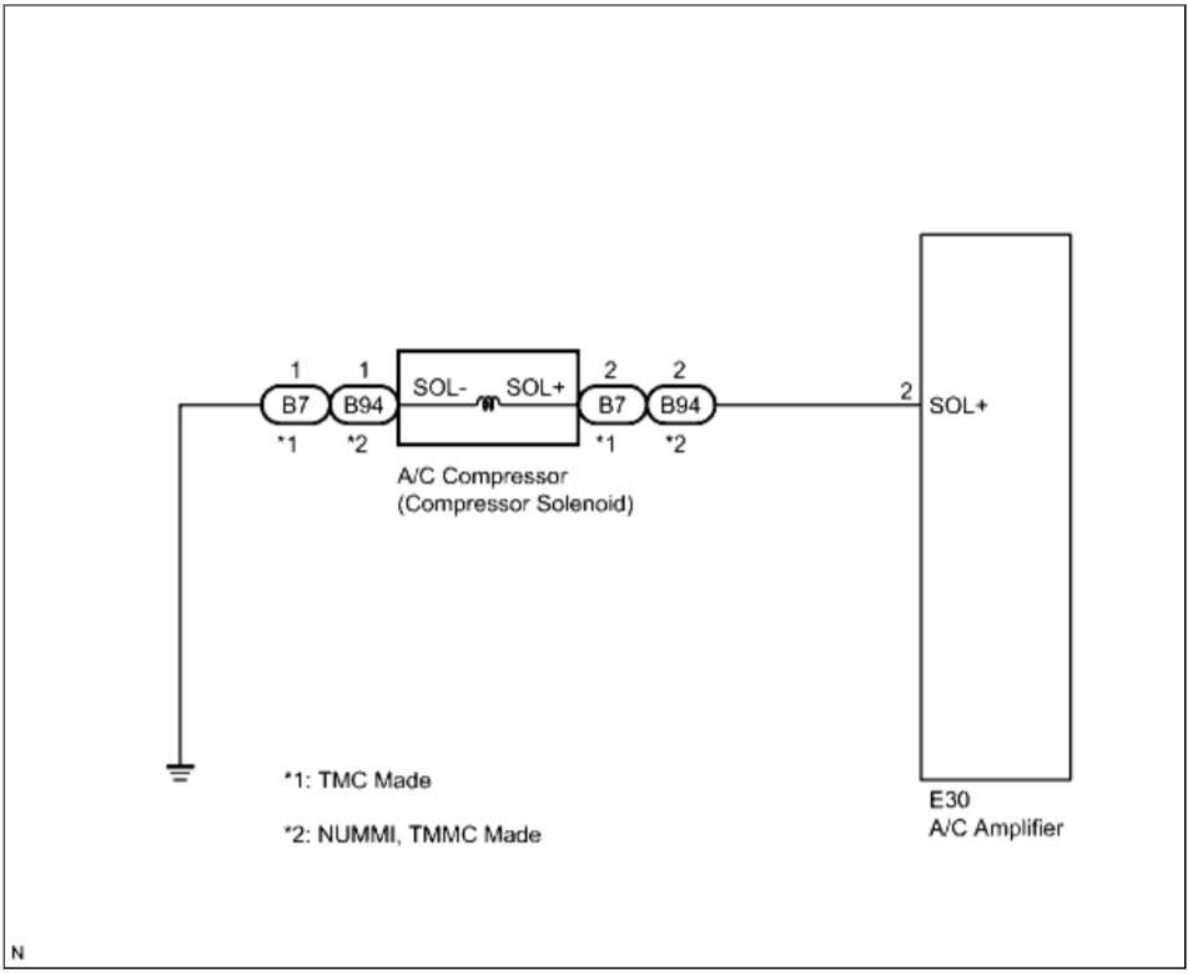
Through this circuit, the A/C compressor receives a refrigerant compression demand signal from the air conditioning amplifier.

Based on this signal, the A/C compressor changes the amount of compressor output.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1451/51	Open or short in A/C compressor solenoid circuit	• A/C compressor • Harness or connector between A/C amplifier and A/C compressor • A/C amplifier

WIRING DIAGRAM

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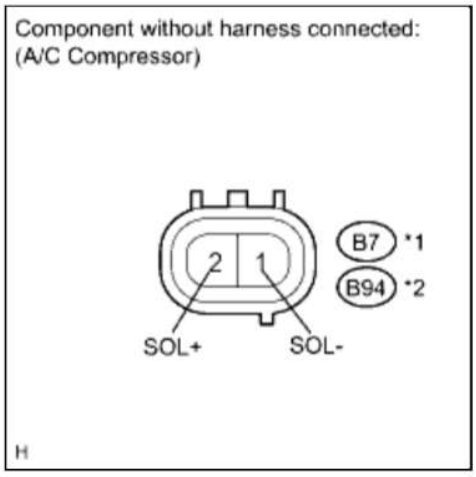
INSPECTION PROCEDURE

PROCEDURE

1.	**INSPECT A/C COMPRESSOR**

(a) Disconnect the A/C compressor connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
B7-2 (SOL+) - B7-1 (SOL-)*1	20°C (68°F)	10 to 11 Ω
B94-2 (SOL+) - B94-1 (SOL-)*2	20°C (68°F)	10 to 11 Ω

*1: TMC Made

*2: NUMMI, TMMC Made

Result:

RESULT	PROCEED TO
OK	A
NG (for 2AZ-FE)	B
NG (for 2ZR-FE)	C

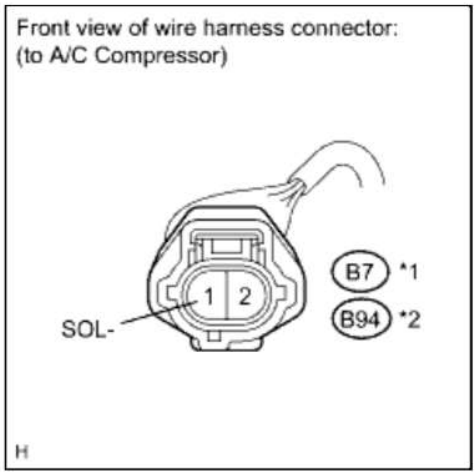
C ▶ REPLACE A/C COMPRESSOR (for 2ZR-FE)

B ▶ REPLACE A/C COMPRESSOR (for 2AZ-FE)

A ▼

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2.	CHECK HARNESS AND CONNECTOR (A/C COMPRESSOR - BODY GROUND)



(a) Disconnect the A/C compressor connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
B7-1 (SOL-) - Body ground*1	Always	Below 1 Ω
B94-1 (SOL-) - Body ground*2	Always	Below 1 Ω

*1: TMC Made

*2: NUMMI, TMMC Made

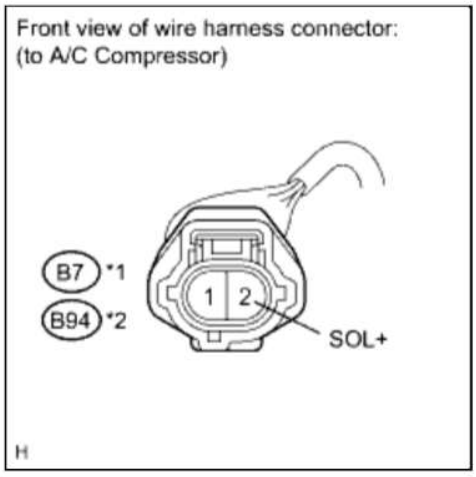
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

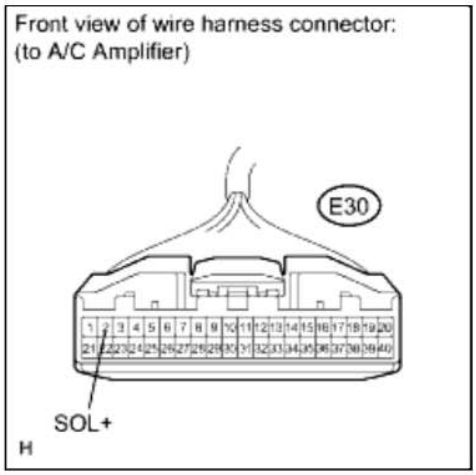
OK ▼

3.	CHECK HARNESS AND CONNECTOR (A/C COMPRESSOR - A/C AMPLIFIER)

(a) Disconnect the A/C compressor connector.

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(b) Disconnect the A/C amplifier connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-2 (SOL+) - B7-2 (SOL+)*1	Always	Below 1 Ω
E30-2 (SOL+) - B94-2 (SOL+)*2	Always	Below 1 Ω
E30-2 (SOL+) - Body ground	Always	10 kΩ or higher

*1: TMC Made

*2: NUMMI, TMMC Made

Result:

RESULT	PROCEED TO
NG	A
OK (When troubleshooting according to Problem Symptoms Table)	B

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RESULT	PROCEED TO
OK (When troubleshooting according to DTC)	C

C ▶ REPLACE AIR CONDITIONING AMPLIFIER

B ▶ PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000VAW01OX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1497/97: BUS IC Communication Malfunction (2010 Corolla)		

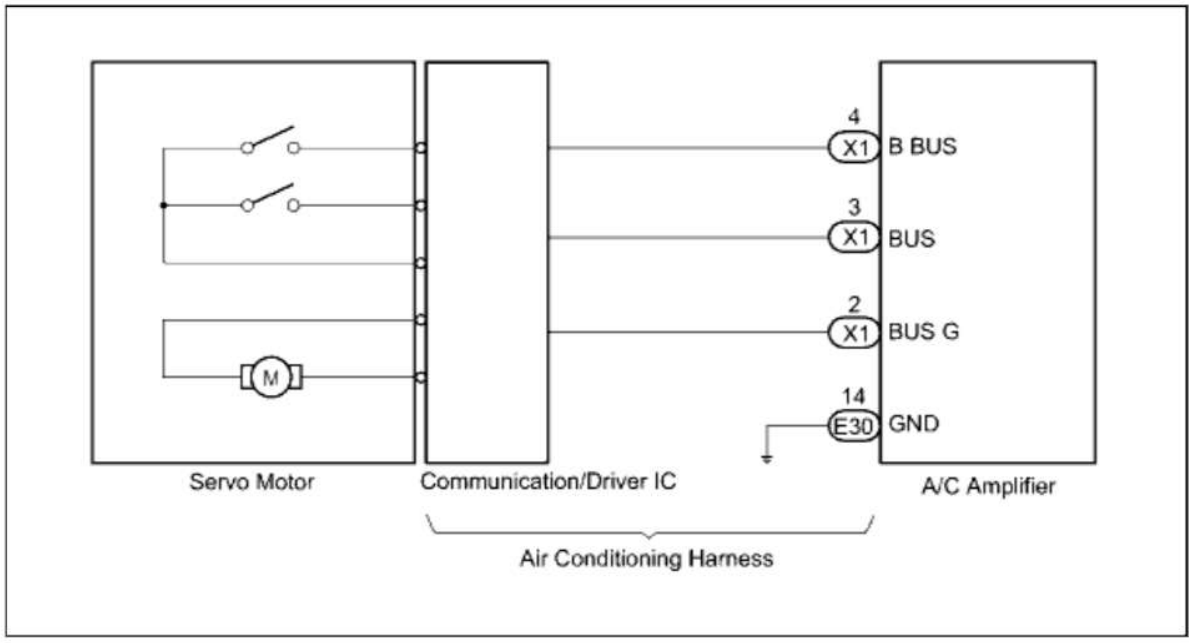
DTC	**B1497/97**	**BUS IC Communication Malfunction**

DESCRIPTION

The air conditioning harness connects the air conditioning amplifier and each servo motor. The air conditioning amplifier supplies power and sends operation instructions to each servo motor through the air conditioning harness. Each servo motor sends the damper position information to the air conditioning amplifier. The A/C amplifier communicates with the servo through a communication/driver IC and wiring assembly called the air conditioning harness.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1497/97	Communication line error or open	• Air conditioning harness • A/C amplifier

WIRING DIAGRAM



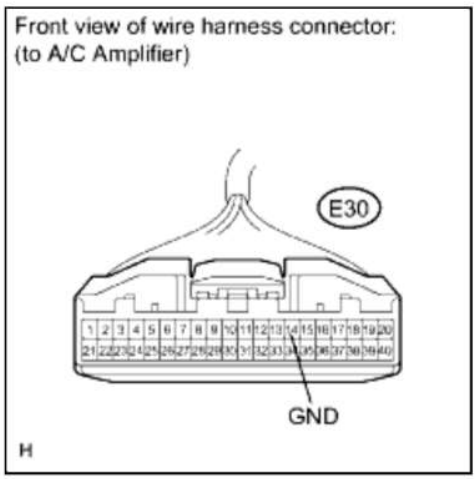
INSPECTION PROCEDURE

PROCEDURE

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1.	CHECK HARNESS AND CONNECTOR

(a) Remove the A/C amplifier.



(b) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-14 (GND) - Body ground	Always	Below 1 Ω

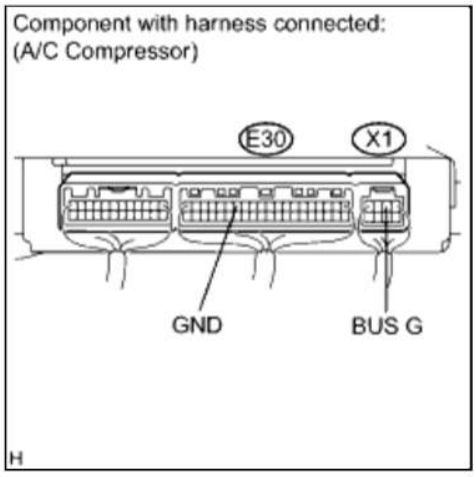
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

2.	INSPECT AIR CONDITIONING AMPLIFIER

(a) Reconnect the connector to the A/C amplifier.

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

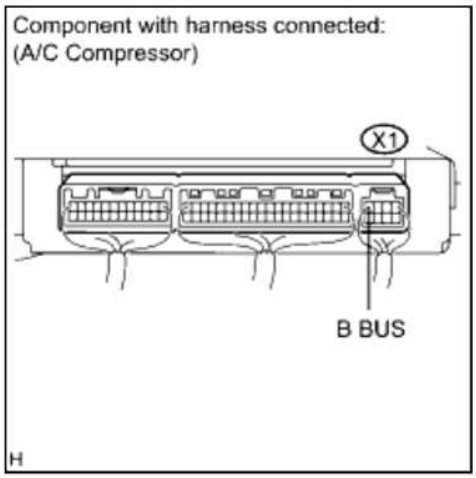
Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
X1-2 (BUS G) - E30-14 (GND)	Always	Below 1 Ω

NG ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

OK ▼

3.	**INSPECT AIR CONDITIONING AMPLIFIER**



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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
X1-4 (B BUS) - Body ground	Ignition switch off	Below 1 V
X1-4 (B BUS) - Body ground	Ignition switch ON	11 to 14 V

NG ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

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OK

4.	REPLACE AIR CONDITIONING HARNESS

(a) Replace the air conditioning harness INFO.

HINT:

Since the air conditioning harness cannot be inspected while it is removed from the vehicle, replace the air conditioning harness with a known good one and check that the condition returns to normal.

(b) Check for DTCs.

Result:

RESULT	PROCEED TO
DTC B1497/97 is not output	A
DTC B1497/97 is output	B

B ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

A ▶ **END**

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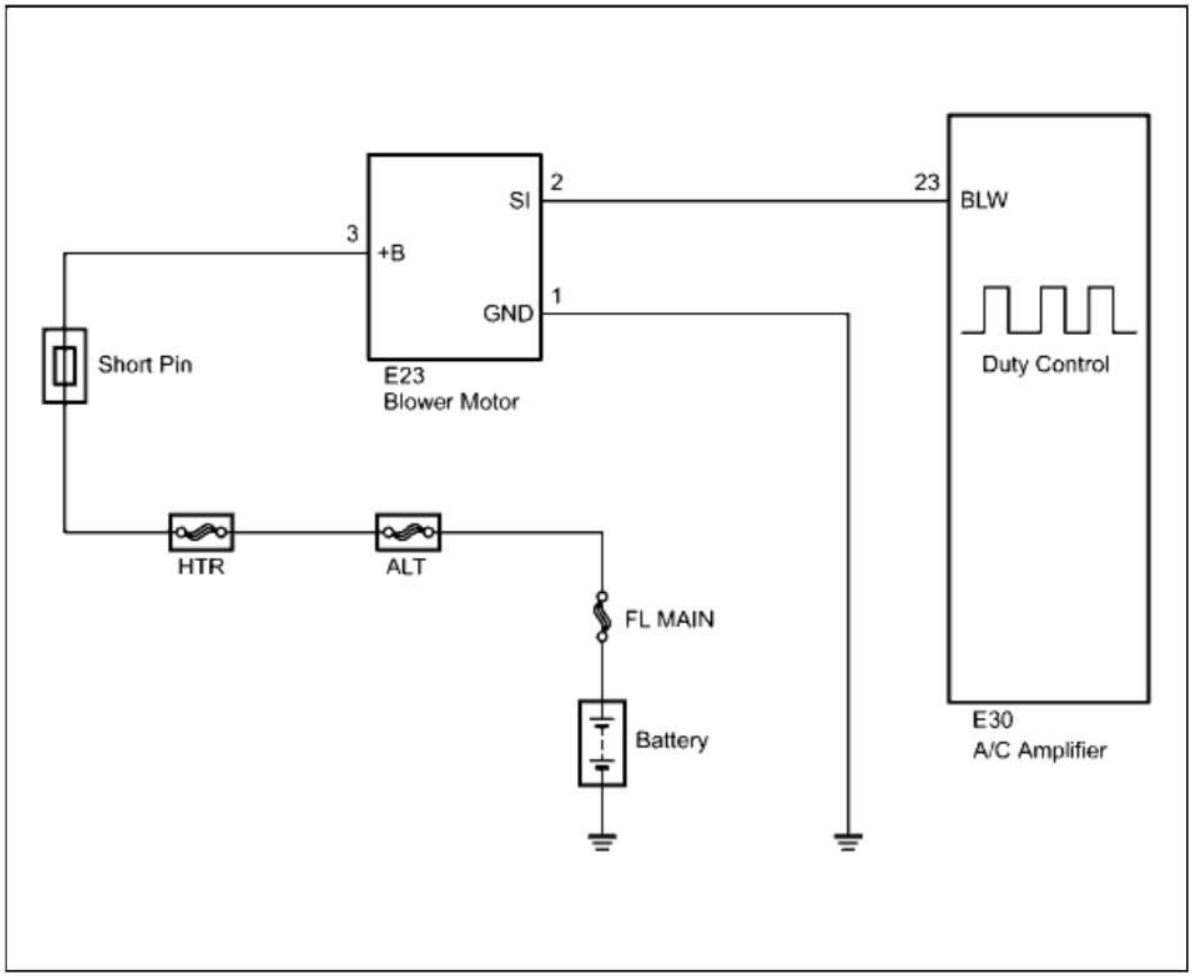
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000TS801UX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): Blower Motor Circuit (2010 Corolla)		

Blower Motor Circuit

DESCRIPTION

The blower motor is operated by signals from the A/C amplifier. Blower motor speed signals are transmitted in accordance with changes in the duty ratio.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

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1.	PERFORM ACTIVE TEST USING TECHSTREAM

(a) Connect the Techstream to the DLC3.

(b) Turn the ignition switch to ON and turn the Techstream on.

(c) Select the item below in the Active Test and then check that the blower motor operates.

Active Test / Air Conditioner

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Blower Motor (Blower Motor)	Blower motor	Min.: 0, Max.: 31	-

Result:

RESULT	PROCEED TO
OK	A
NG (blower motor does not operate)	B
NG (blower motor operates but does not change speed)	C

C ▶ **INSPECT BLOWER MOTOR**

B ▶ **INSPECT FUSE (HTR)**

A ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

2.	INSPECT FUSE (HTR)

(a) Remove the HTR fuse from the engine room relay block and junction block.

(b) Measure the resistance of the fuse.

Standard Resistance:

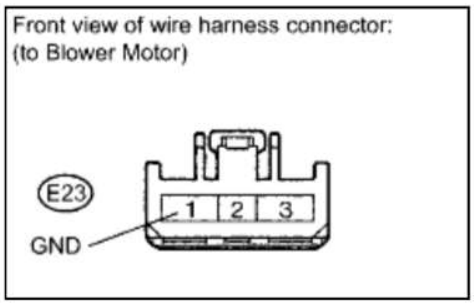
TEST ITEM	CONDITION	SPECIFIED CONDITION
HTR fuse	Always	Below 1 Ω

NG ▶ **REPLACE FUSE (HTR)**

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OK

3.	CHECK HARNESS AND CONNECTOR (BLOWER MOTOR - BODY GROUND)



(a) Disconnect the blower motor connector.

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

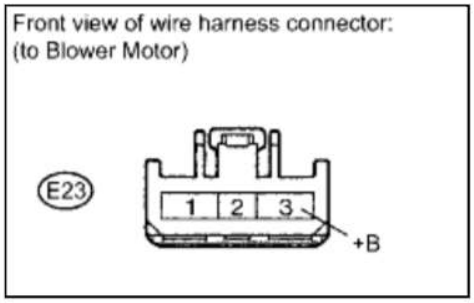
Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E23-1 (GND) - Body ground	Always	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4.	CHECK HARNESS AND CONNECTOR (BLOWER MOTOR - BATTERY)



(a) Disconnect the blower motor connector.

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

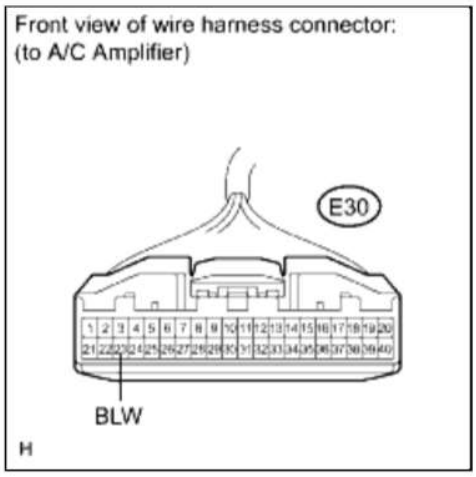
Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E23-3 (+B) - Body ground	Always	11 to 14 V

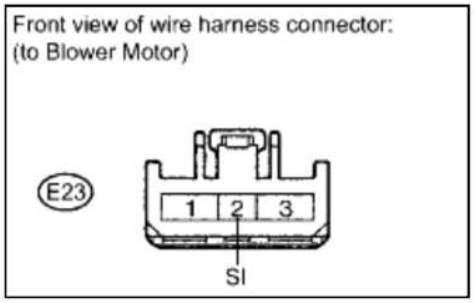
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

5.	CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - BLOWER MOTOR)



(a) Disconnect the A/C amplifier connector.



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E23-2 (SI) - E30-23 (BLW)	Always	Below 1 Ω
E23-2 (SI) - Body ground	Always	10 kΩ or higher

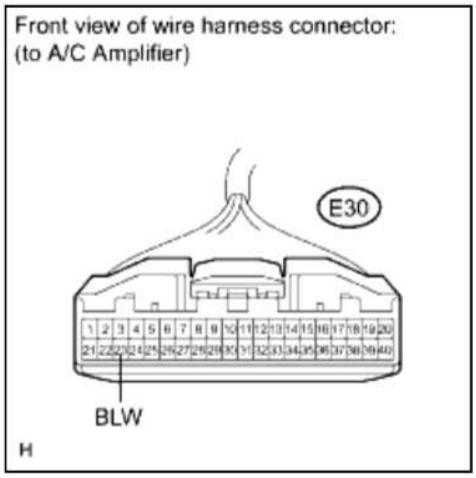
NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

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OK

6.	INSPECT BLOWER MOTOR

(a) Reconnect the connector to the blower motor.



(b) Measure the voltage on the A/C amplifier connector side according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E30-23 (BLW) - Body ground	Ignition switch ON	4.5 to 5.5 V

NG ▶ **REPLACE BLOWER MOTOR**

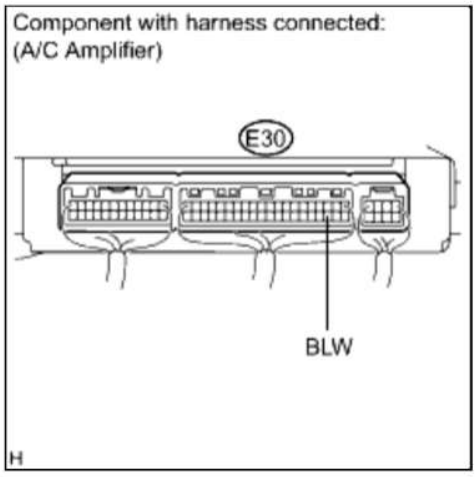
OK

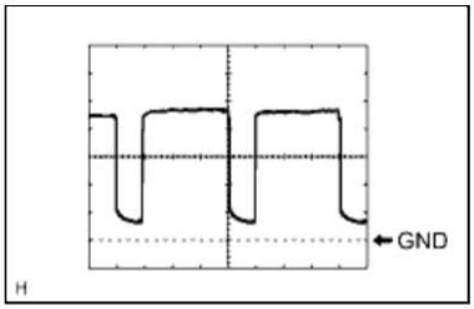
7.	INSPECT AIR CONDITIONING AMPLIFIER

(a) Remove the A/C amplifier.

(b) Reconnect the connector to the A/C amplifier.

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(c) Turn the ignition switch to ON.

(d) Turn the blower switch on.

(e) Measure the waveform between terminal E30-23 (BLW) of the A/C amplifier and body ground.

ITEM	CONTENT
Tool setting	1 V/DIV., 500 µs/DIV.
Vehicle condition	Ignition switch ON Blower switch: ON

OK:
Waveform is as shown in the illustration.

HINT:

Waveform varies with the blower level.

NG ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

OK ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

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Last Modified: 3-10-2010	6.4 C	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000017SQ02RX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1499/99: Multiplex Communication Circuit (2010 Corolla)		

DTC	**B1499/99**	**Multiplex Communication Circuit**

DESCRIPTION

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1499/99	Open in CAN communication circuit	CAN communication system

INSPECTION PROCEDURE

PROCEDURE

1.	**GO TO CAN COMMUNICATION SYSTEM**

(a) Refer to the CAN Communication System INFO.

NEXT ▶ END

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Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002BRP00KX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): PTC Heater Circuit (2010 Corolla)		

PTC Heater Circuit

DESCRIPTION

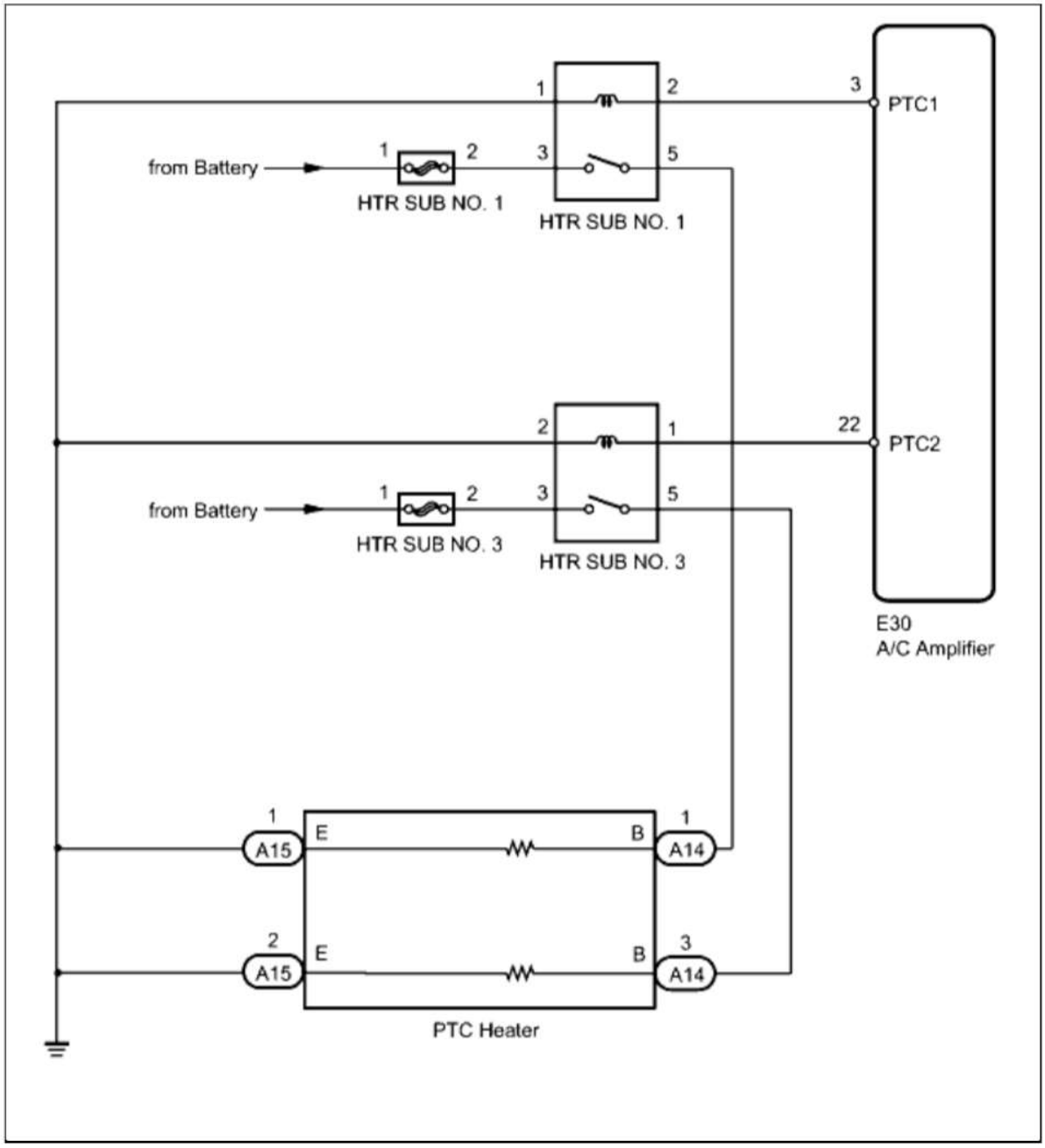
The PTC heater is installed in the heater unit and operates when the coolant temperature is low and normal heater operation is insufficient.

The A/C amplifier switches the circuit in the PTC relay and operates the PTC heater when the operating conditions (the coolant temperature is below 65°C (149°F), setting temperature is MAX. HOT, ambient temperature is below 10°C (50°F) and blower switch is not OFF) are met.

The PTC heater controls the number of the heater elements to be heated based on the electrical load and the amount of voltage generated. Therefore, when inspecting the PTC heater, be sure to turn off other electrical devices.

WIRING DIAGRAM

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INSPECTION PROCEDURE

PROCEDURE

1.	**INSPECT FUSE (HTR SUB NO. 1, HTR SUB NO. 3)**

(a) Remove the HTR SUB No. 1 and HTR SUB No. 3 fuses from the engine room relay block and junction block.

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

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Standard Resistance:

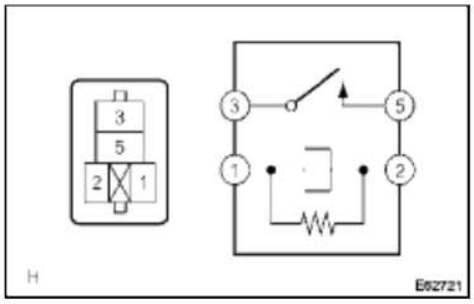
TEST ITEM	CONDITION	SPECIFIED CONDITION
HTR SUB No. 1 fuse	Always	Below 1 Ω
HTR SUB No. 3 fuse	Always	Below 1 Ω

(c) Install the HTR SUB No. 1 and HTR SUB No. 3 fuses to the engine room relay block and junction block.

NG ▶ **REPLACE FUSE (HTR SUB NO. 1, HTR SUB NO. 3)**

OK ▼

2.	**INSPECT RELAY (HTR SUB NO. 1, HTR SUB NO. 3)**



(a) Remove the HTR SUB No. 1 and HTR SUB No. 3 relays from the No. 7 relay block.

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

Standard Resistance:

TESTER CONNECTION	SPECIFIED CONDITION
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (When battery voltage applied to terminals 1 and 2)

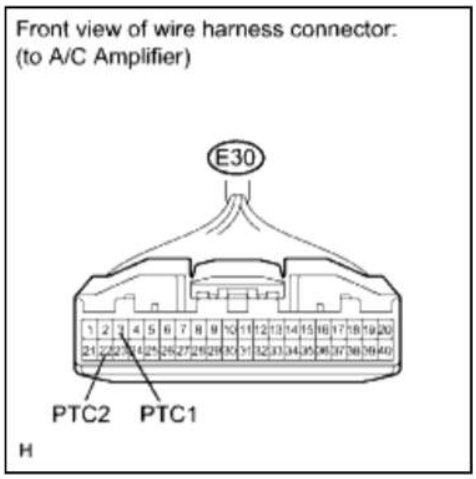
(c) Install the HTR SUB No. 1 and HTR SUB No. 3 relays to the No. 7 relay block.

NG ▶ **REPLACE RELAY (HTR SUB NO. 1, HTR SUB NO. 3)**

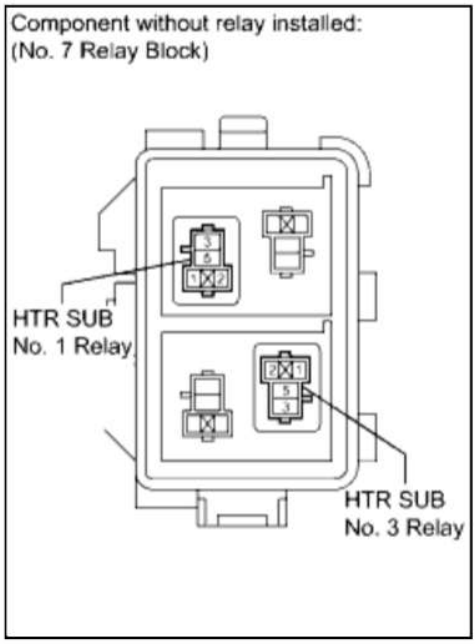
OK

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3.	**CHECK HARNESS AND CONNECTOR (NO. 7 RELAY BLOCK - A/C AMPLIFIER, BODY GROUND)**



(a) Disconnect the connector from the A/C amplifier.



(b) Remove the HTR SUB No. 1 and HTR SUB No. 3 fuses from the No. 7 relay block.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

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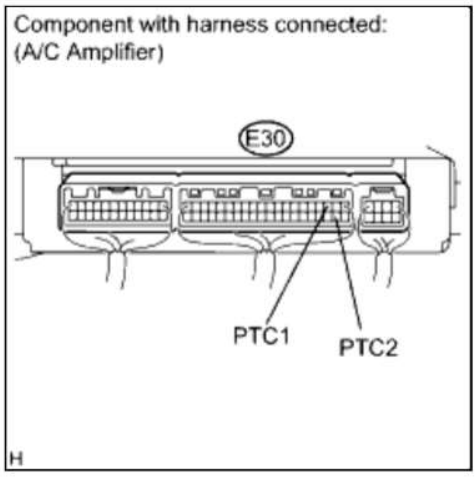
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-3 (PTC1) - HTR SUB No. 1 relay terminal 2	Always	Below 1 Ω
E30-22 (PTC2) - HTR SUB No. 3 relay terminal 1	Always	Below 1 Ω
E30-3 (PTC1) - Body ground	Always	10 kΩ or higher
E30-22 (PTC2) - Body ground	Always	10 kΩ or higher
HTR SUB No. 1 relay terminal 1 - Body ground	Always	Below 1 Ω
HTR SUB No. 3 relay terminal 2 - Body ground	Always	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

4.	**INSPECT AIR CONDITIONING AMPLIFIER**

(a) Reconnect the connector to the A/C amplifier.



(b) Remove the A/C amplifier with the connectors still connected.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-3 (PTC1) - Body ground	Ignition switch: ON Temperature setting: MAX. HOT	Below 1 V

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TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
	Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: OFF	
E30-3 (PTC1) - Body ground	Engine running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: ON	11 to 14 V
E30-22 (PTC2) - Body ground	Ignition switch: ON Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: OFF	Below 1 V
E30-22 (PTC2) - Body ground	Engine running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 70°C (149°F) or lower Light control switch: OFF Blower switch: ON	11 to 14 V

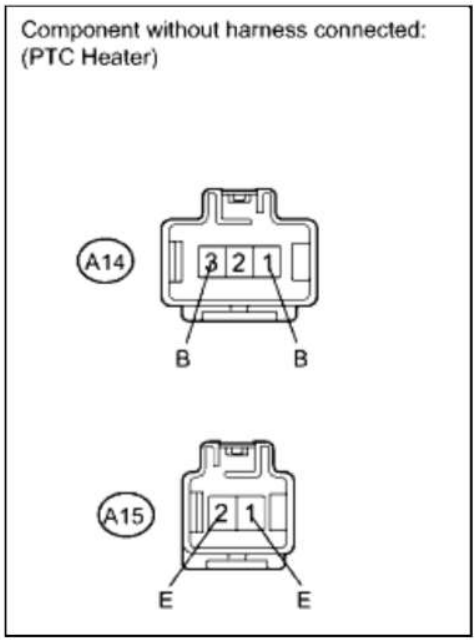
NG ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

OK ▼

5.	**INSPECT PTC HEATER**

(a) Disconnect the connector from the PTC heater.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-1 (B) - A15-1 (E)	Always	Below 1 Ω
A14-3 (B) - A15-2 (E)	Always	Below 1 Ω

NG ▶ **REPLACE PTC HEATER**

OK ▼

6.	**CHECK HARNESS AND CONNECTOR (PTC HEATER - BATTERY)**

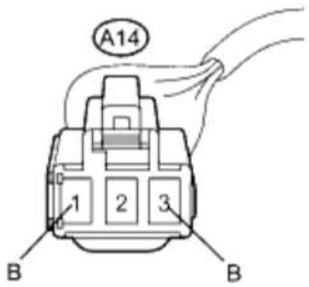
(a) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-1 (B) - Body ground	Ignition switch: ON Temperature setting:	Below 1 V

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Front view of wire harness connector:
(to PTC Heater)



	MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: OFF	
A14-1 (B) - Body ground	Engine running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: ON	11 to 14 V
A14-3 (B) - Body ground	Ignition switch: ON Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: OFF	Below 1 V
A14-3 (B) - Body ground	Engine running (1250 rpm or higher) Temperature setting: MAX. HOT Ambient temperature: 10°C (50°F) or lower Engine coolant temperature: 65°C (149°F) or lower Light control switch: OFF Blower switch: ON	11 to 14 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

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OK ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR (PTC HEATER - BODY GROUND)

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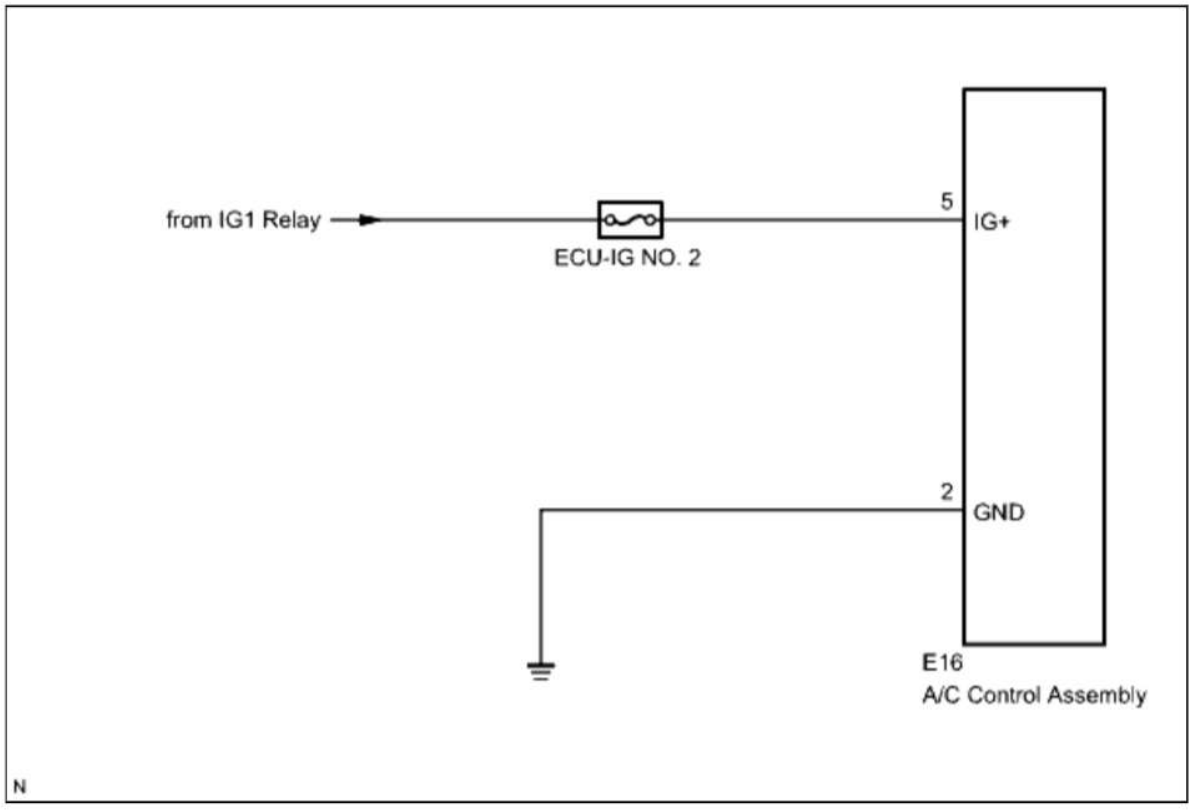
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001O7Q01GX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): Heater Control Panel Power Source Circuit (2010 Corolla)		

Heater Control Panel Power Source Circuit

DESCRIPTION

Battery voltage is supplied to the A/C control assembly through the ECU-IG No. 2 fuse.

WIRING DIAGRAM

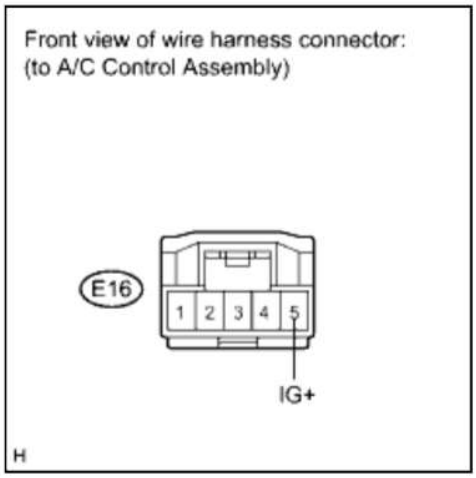


INSPECTION PROCEDURE

PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (IG+ - BODY GROUND)**

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(a) Disconnect the connector from the A/C control assembly.

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

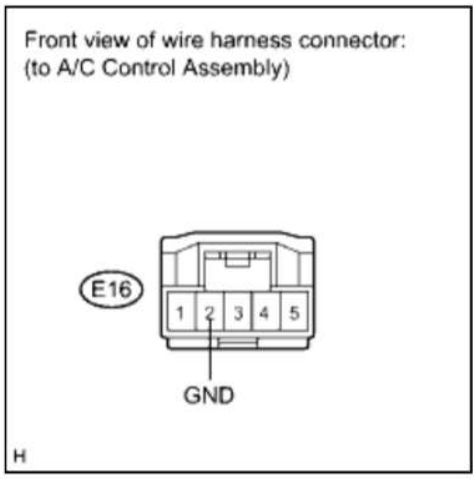
Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E16-5 (IG+) - Body ground	Ignition switch ON	11 to 14 V
E16-5 (IG+) - Body ground	Ignition switch off	Below 1 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

2.	CHECK HARNESS AND CONNECTOR (GND - BODY GROUND)



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E16-2 (GND) - Body ground	Always	Below 1 Ω

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NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE



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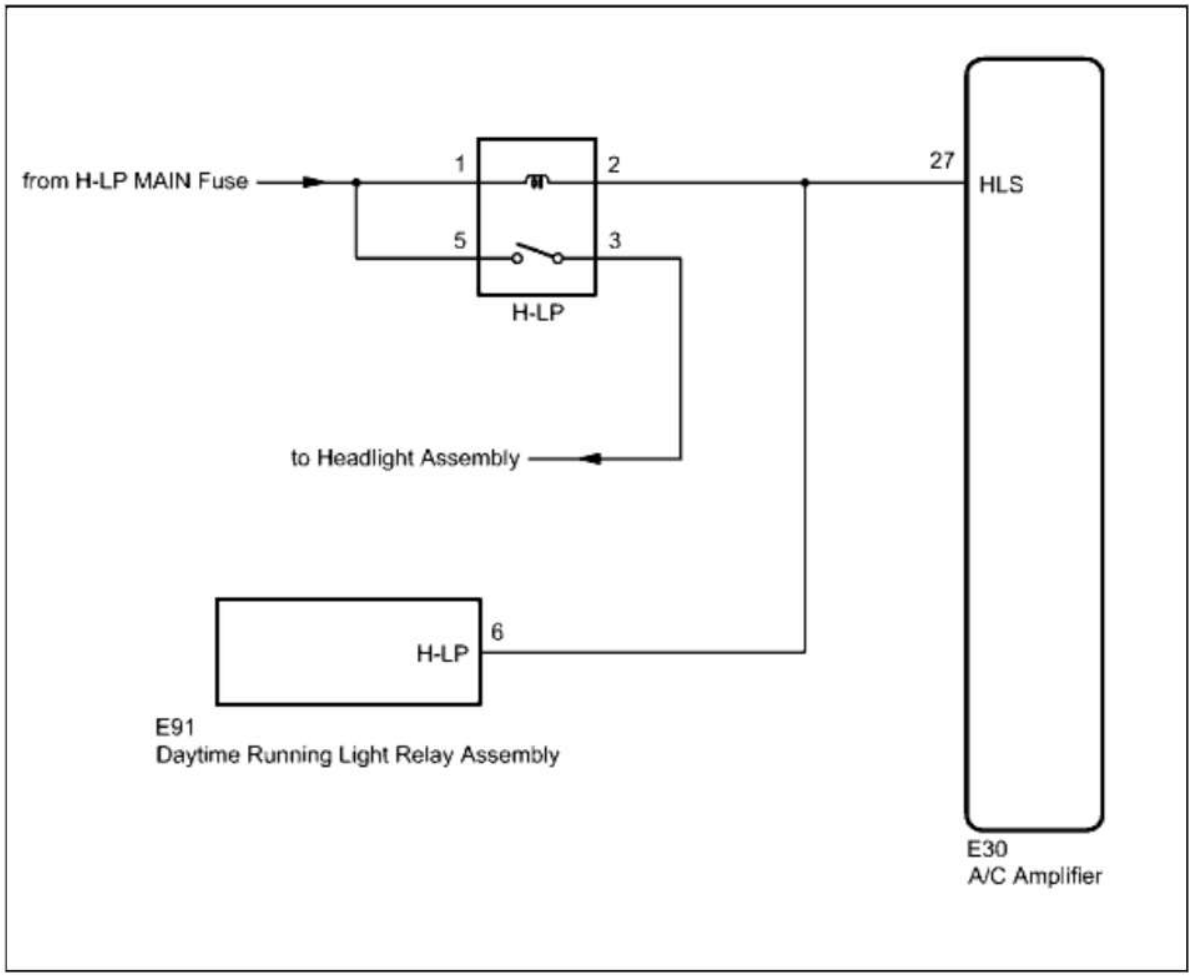
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Y1L00JX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): Headlight Signal Circuit (2010 Corolla)		

Headlight Signal Circuit

DESCRIPTION

The A/C amplifier receives headlight operational signals to determine the electrical load. The electrical load signals are used for controlling the number of the PTC heater elements to be heated.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

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1.	INSPECT HEADLIGHT ASSEMBLY

(a) Check if the headlights come on when the light control switch is turned to the HEAD position.

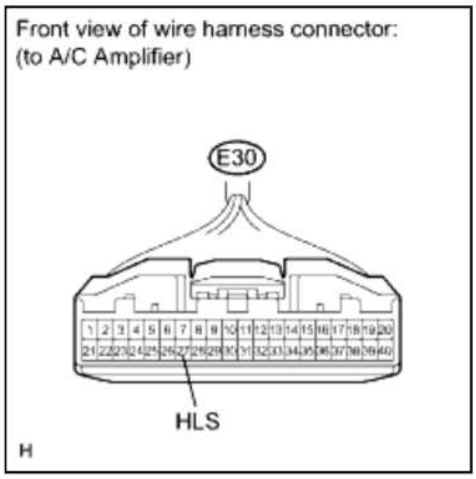
OK:

The headlights come on.

NG ▶ GO TO LIGHTING SYSTEM

OK ▼

2.	CHECK HARNESS AND CONNECTOR (HEADLIGHT SIGNAL)



(a) Disconnect the connector from the A/C amplifier.

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E30-27 (HLS) - Body ground	Light control switch: OFF	11 to 14 V
E30-27 (HLS) - Body ground	Light control switch: HEAD	Below 1 V

NG ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ▶ PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

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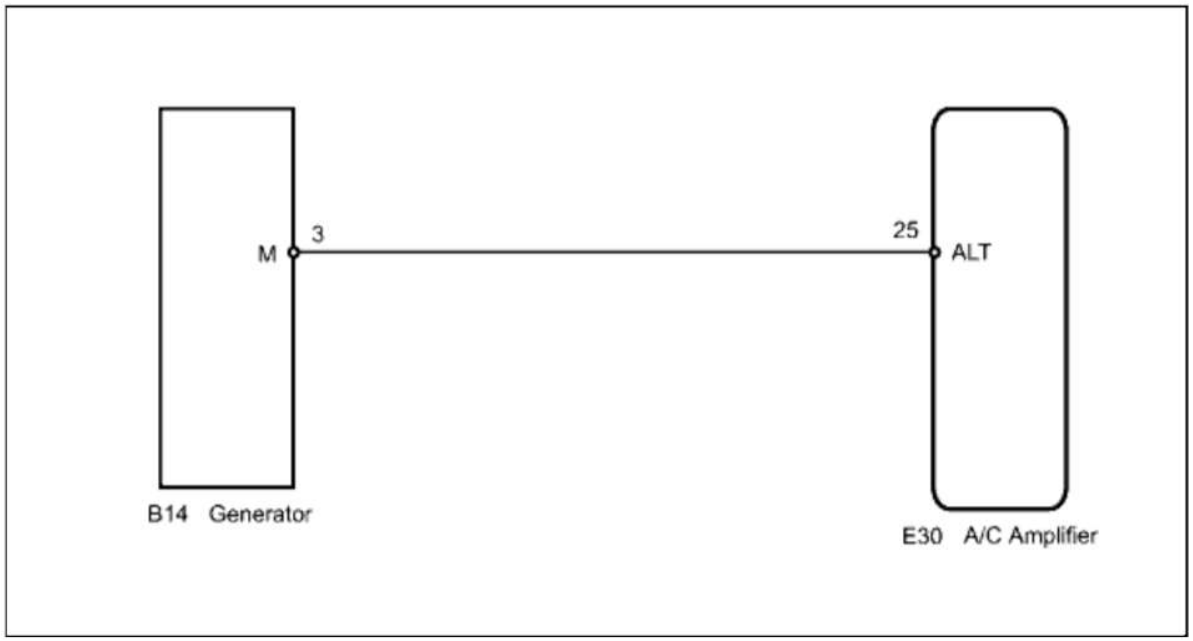
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Y8100JX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): Generator Signal Circuit (2010 Corolla)		

Generator Signal Circuit

DESCRIPTION

When the engine is started, the generator rotates and a pulsed voltage signal is generated. This signal is used by the A/C amplifier. The generated voltage signals sent from the generator are used for controlling the number of the heater elements to be heated.

WIRING DIAGRAM



INSPECTION PROCEDURE

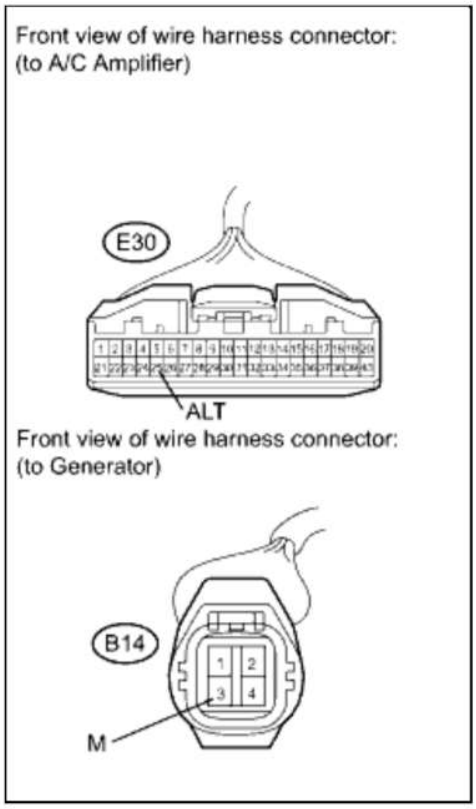
PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - GENERATOR)**

(a) Disconnect the connector from the A/C amplifier.

(b) Disconnect the connector from the generator.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-25 (ALT) - B14-3 (M)	Always	Below 1 Ω
E30-25 (ALT) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▼

2.	**INSPECT GENERATOR**

(a) Inspect the generator.

(1) for 2AZ-FE:

Inspect the generator (INFO for On-vehicle Inspection, INFO for Inspection).

(2) for 2ZR-FE:

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Inspect the generator (INFO for On-vehicle Inspection, INFO for Inspection).

Result:

RESULT	PROCEED TO
OK	A
NG (for 2AZ-FE)	B
NG (for 2ZR-FE)	C

C ▶ **REPLACE GENERATOR (for 2ZR-FE)**

B ▶ **REPLACE GENERATOR (for 2AZ-FE)**

A ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

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Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000TS6030X
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): IG Power Source Circuit (2010 Corolla)		

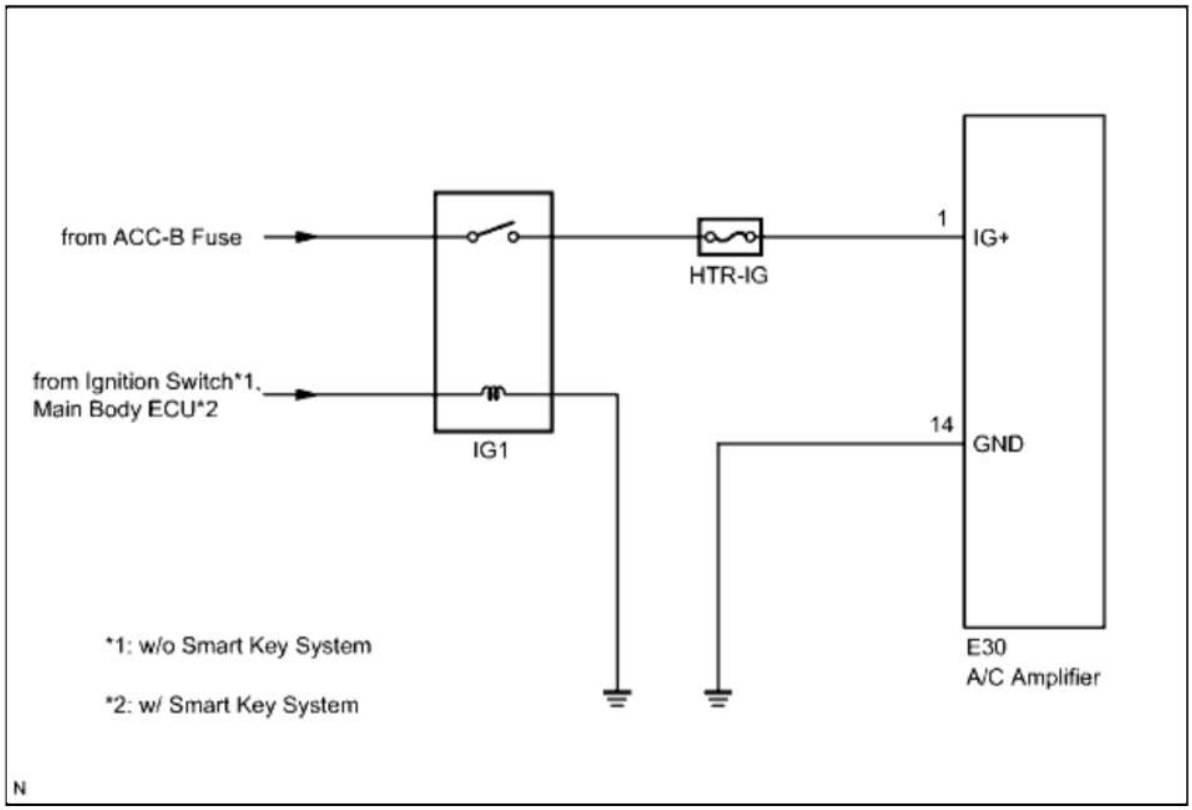
IG Power Source Circuit

DESCRIPTION

The main power source is supplied to the A/C amplifier when the ignition switch is ON.

The power source is used for operating the A/C amplifier and servo motor, etc.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Start the engine before inspection. Check the IG1 relay or battery if the engine does not start.

PROCEDURE

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1.	INSPECT FUSE (HTR-IG)

(a) Remove the HTR-IG fuse from the instrument panel junction block.

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

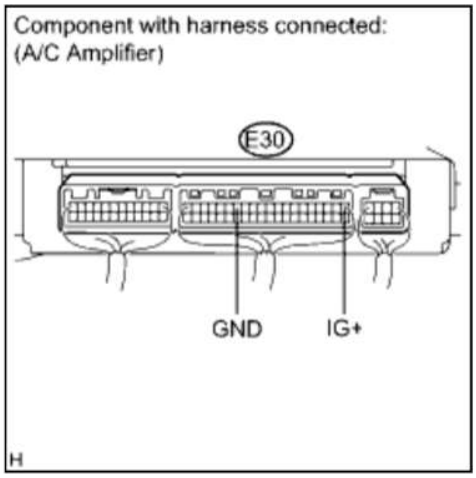
Standard Resistance:

TEST ITEM	CONDITION	SPECIFIED CONDITION
HTR-IG fuse	Always	Below 1 Ω

NG ▶ **REPLACE FUSE (HTR-IG)**

OK ▼

2.	INSPECT AIR CONDITIONING AMPLIFIER (IG+ - GND)



(a) Remove the A/C amplifier with its connectors still connected.

(b) Turn the ignition switch to ON.

(c) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

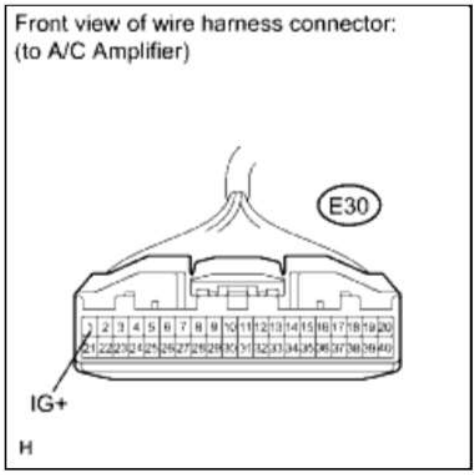
TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E30-1 (IG+) - E30-14 (GND)	Ignition switch ON	11 to 14 V

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NG ▶ **CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER - BATTERY)**

OK ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

3.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER - BATTERY)**



(a) Disconnect the connector from the A/C amplifier.

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
E30-1 (IG+) - Body ground	Ignition switch off	Below 1 V
	Ignition switch ON	11 to 14 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

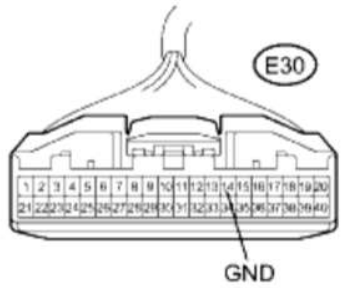
OK ▼

4.	**CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER - BODY GROUND)**

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

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Front view of wire harness connector:
(to A/C Amplifier)



H

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-14 (GND) - Body ground	Always	Below 1 Ω

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **REPLACE AIR CONDITIONING AMPLIFIER**

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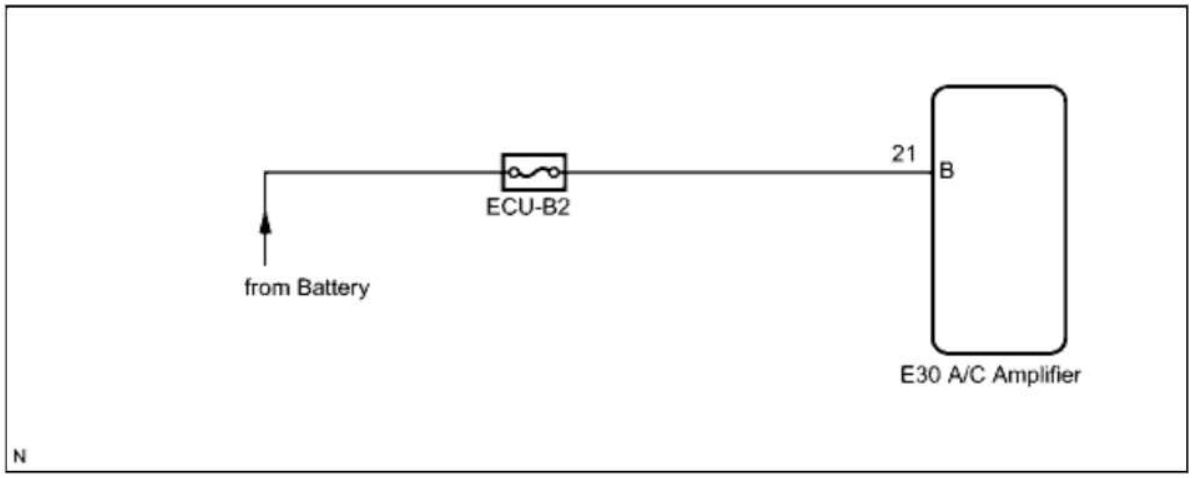
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000TS702GX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): Back-up Power Source Circuit (2010 Corolla)		

Back-up Power Source Circuit

DESCRIPTION

The back-up power source circuit for the A/C amplifier is shown below. Power is supplied even when the ignition switch is off and is used for diagnostic trouble code memory, etc.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	**INSPECT FUSE (ECU-B2)**

(a) Remove the ECU-B2 fuse from the engine room relay block and junction block.

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

Standard Resistance:

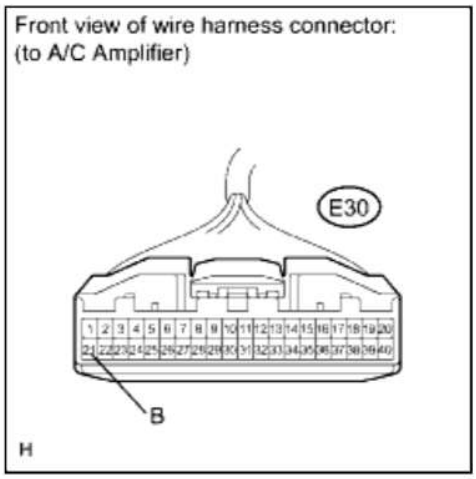
TEST ITEM	CONDITION	SPECIFIED CONDITION
ECU-B2 fuse	Always	Below 1 Ω

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NG ▶ **REPLACE FUSE (ECU-B2)**

OK ▼

2.	**INSPECT AIR CONDITIONING AMPLIFIER (AIR CONDITIONING AMPLIFIER - BODY GROUND)**



(a) Disconnect the connector from the A/C amplifier.

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-21 (B) - Body ground	Always	11 to 14 V

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

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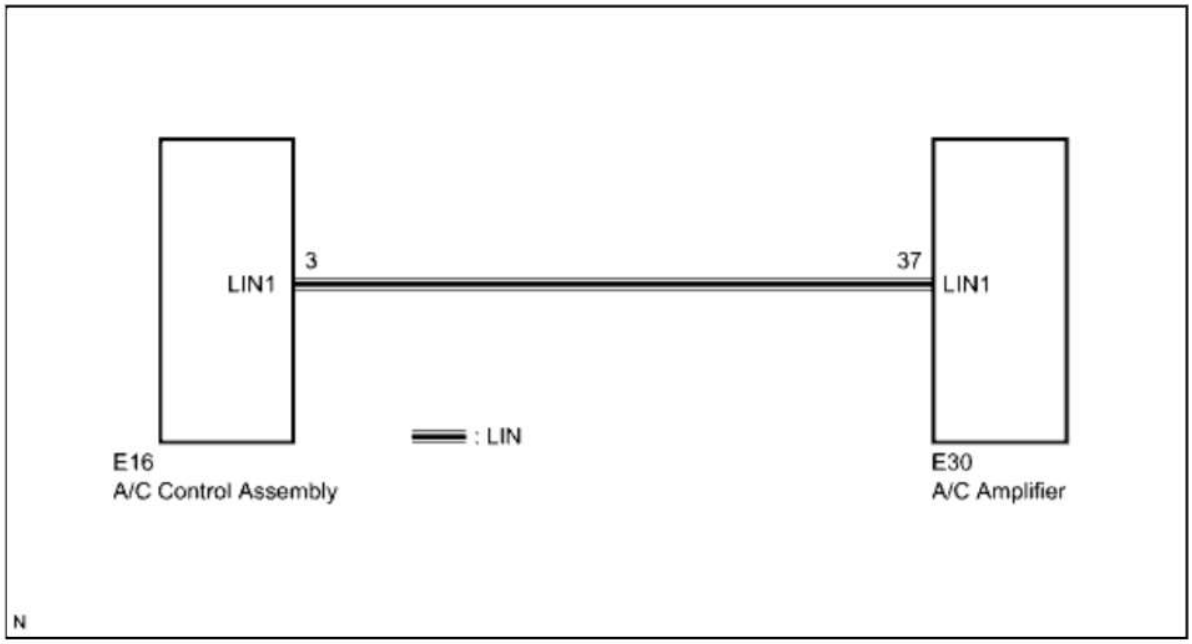
Last Modified: 3-10-2010	6.4 J	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001O7R01HX
Title: HEATING / AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): LIN Communication Circuit (2010 Corolla)		

LIN Communication Circuit

DESCRIPTION

Switch operational signals are exchanged between terminal LIN1 of the A/C control assembly and terminal LIN1 of the A/C amplifier.

WIRING DIAGRAM



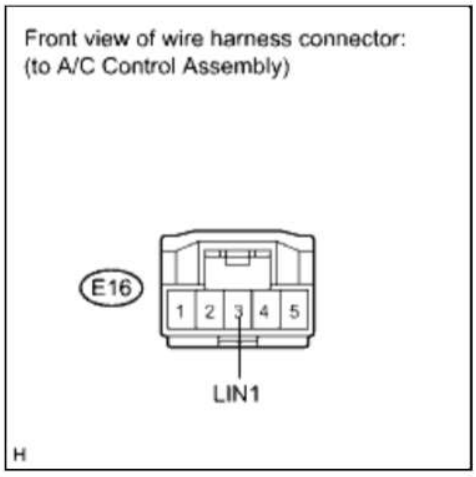
INSPECTION PROCEDURE

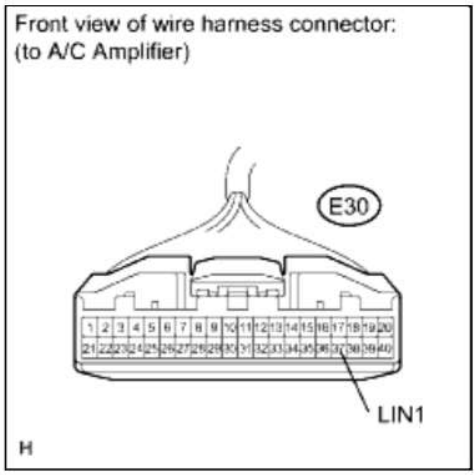
PROCEDURE

1.	**CHECK HARNESS AND CONNECTOR (A/C CONTROL ASSEMBLY - AIR CONDITIONING AMPLIFIER)**

(a) Disconnect the connector from the A/C control assembly.

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(b) Disconnect the connector from the A/C amplifier.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E30-37 (LIN1) - E16-3 (LIN1)	Always	Below 1 Ω
E30-37 (LIN1) - Body ground	Always	10 kΩ or higher

NG ▶ **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ▶ **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

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