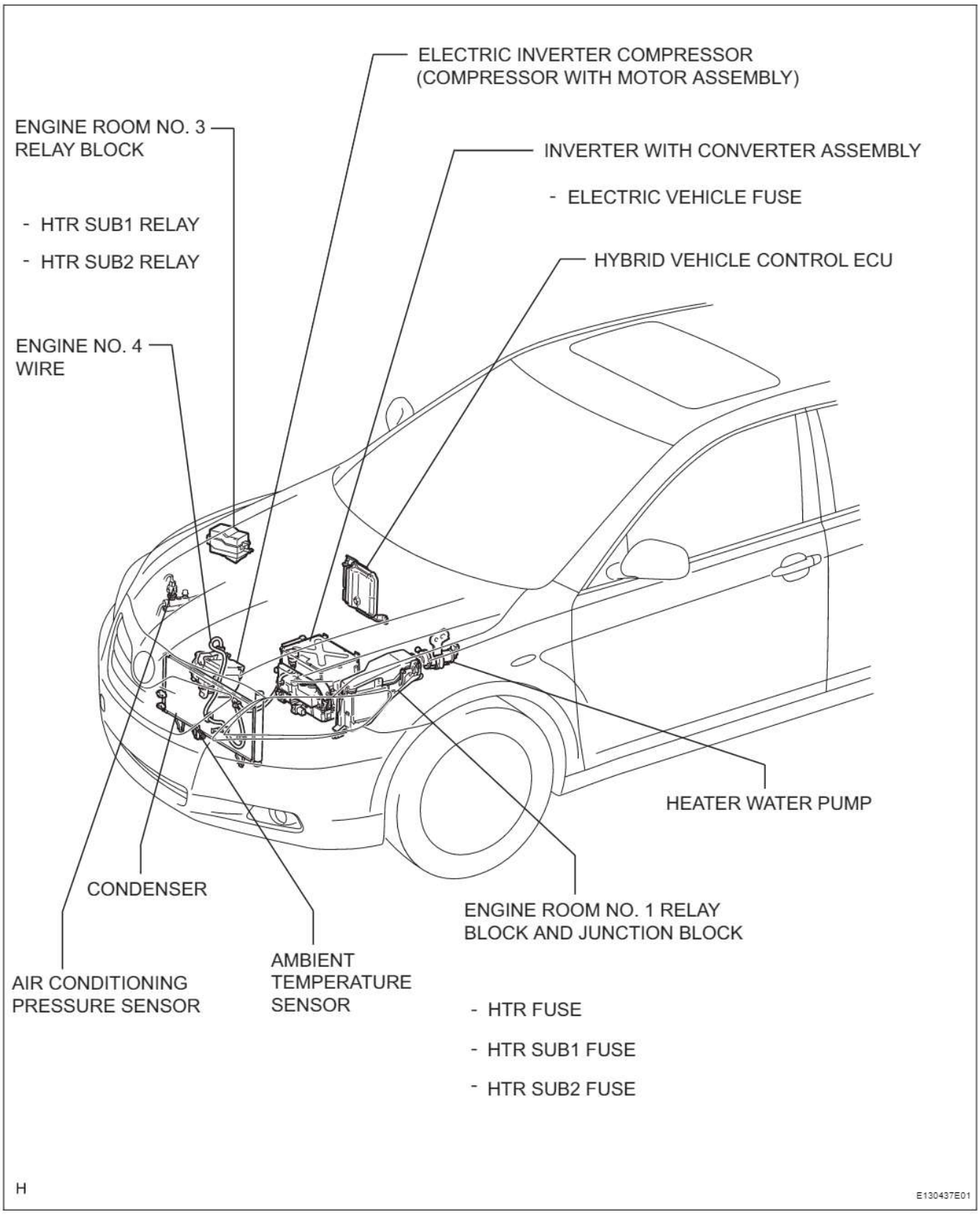
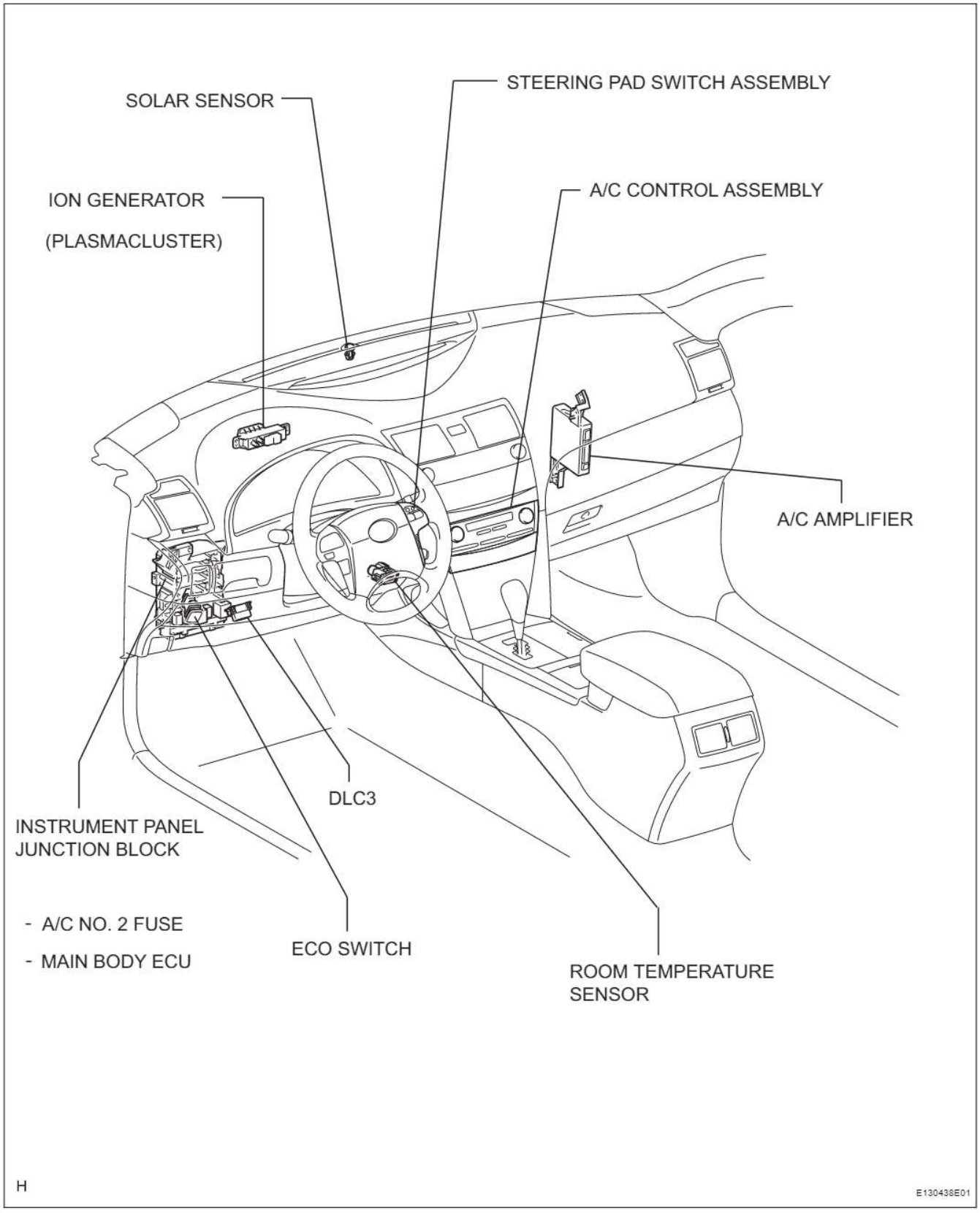
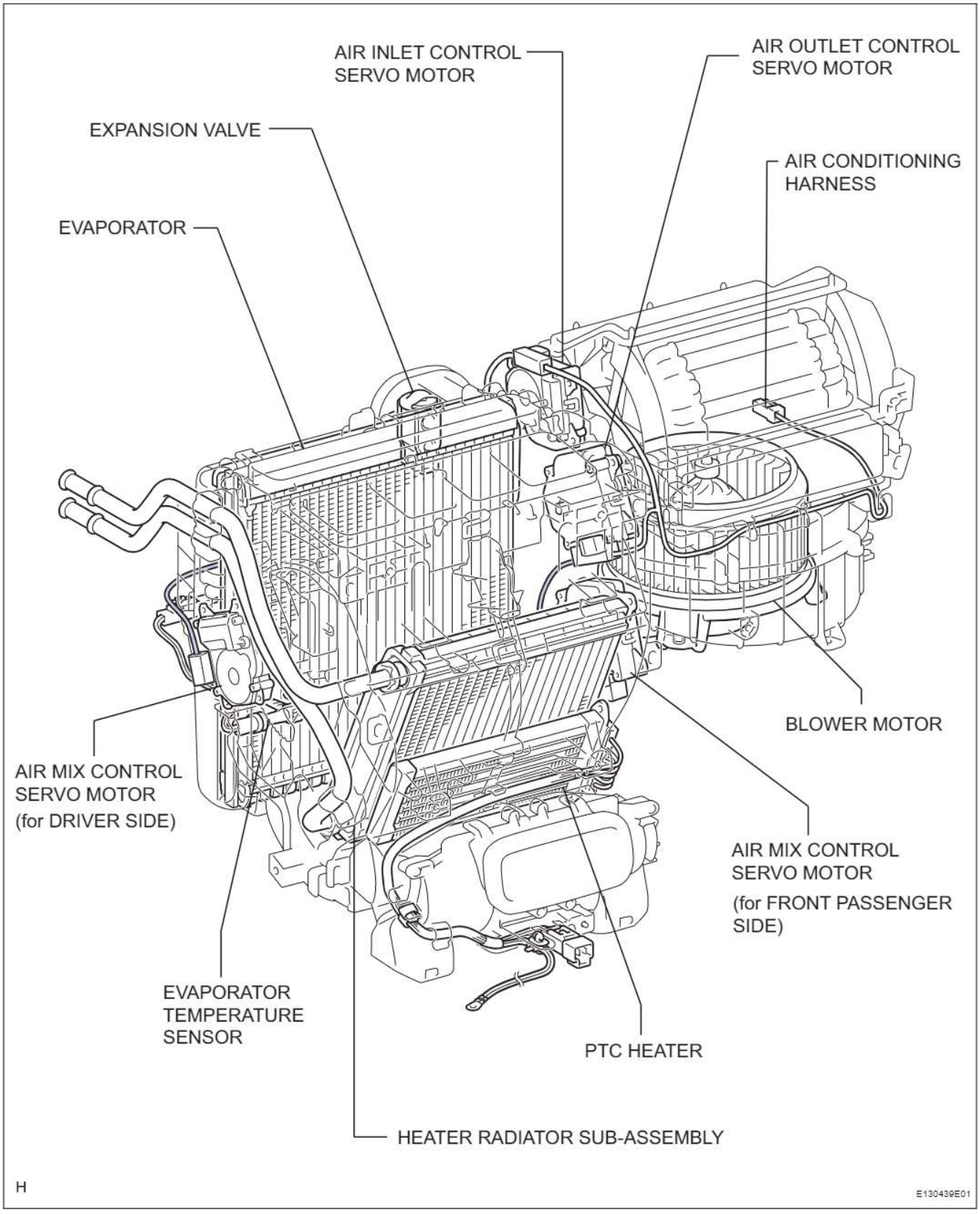
PARTS LOCATION



AC


SOLAR SENSOR
STEERING PAD SWITCH ASSEMBLY
ION GENERATOR
(PLASMACLUSTER)
A/C CONTROL ASSEMBLY
A/C AMPLIFIER
DLC3
INSTRUMENT PANEL
JUNCTION BLOCK
- A/C NO. 2 FUSE
- MAIN BODY ECU
ECO SWITCH
ROOM TEMPERATURE
SENSOR
H
E130438E01

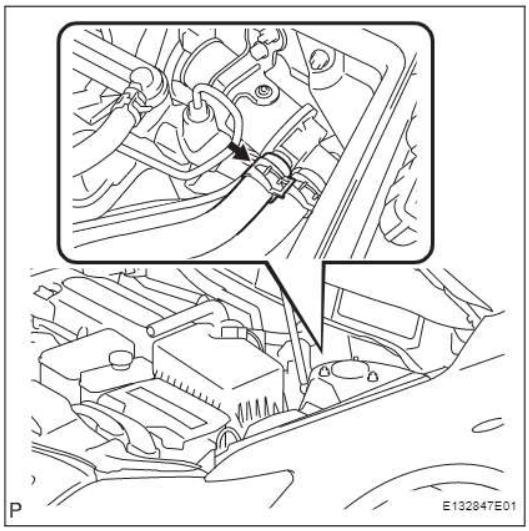
AC


AIR INLET CONTROL SERVO MOTOR
AIR OUTLET CONTROL SERVO MOTOR
EXPANSION VALVE
AIR CONDITIONING HARNESS
EVAPORATOR
BLOWER MOTOR
AIR MIX CONTROL SERVO MOTOR (for DRIVER SIDE)
AIR MIX CONTROL SERVO MOTOR (for FRONT PASSENGER SIDE)
EVAPORATOR TEMPERATURE SENSOR
PTC HEATER
HEATER RADIATOR SUB-ASSEMBLY
H
E130439E01

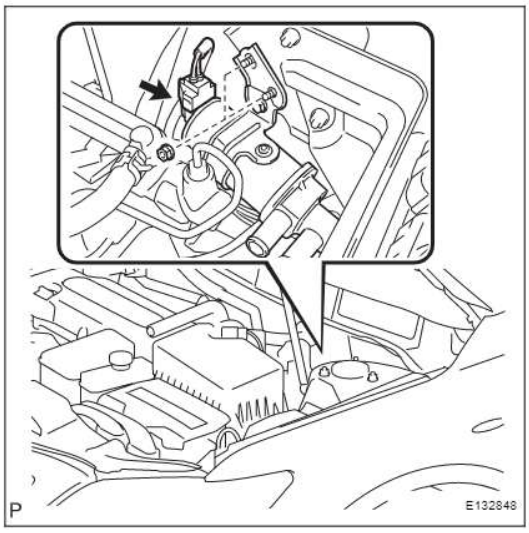
AC

REMOVAL

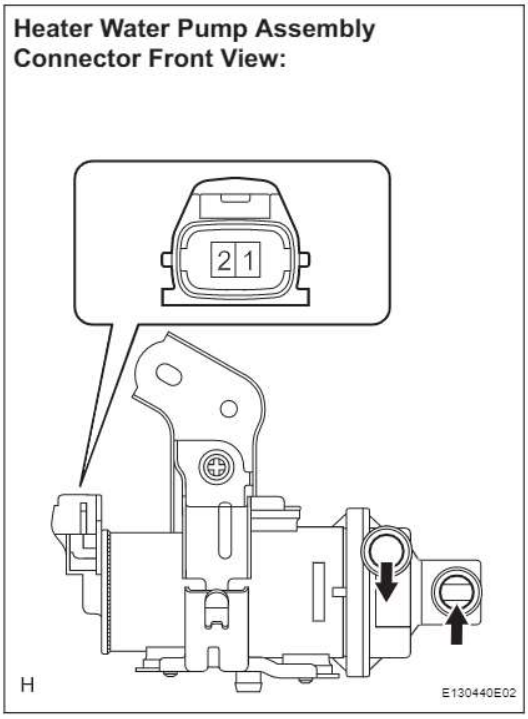
1. SEPARATE BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY (See page BR-27)
2. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page WW-9)
3. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page WW-9)
4. REMOVE FRONT FENDER TO COWL SIDE SEAL LH (See page WW-9)
5. REMOVE FRONT FENDER TO COWL SIDE SEAL RH (See page WW-9)
6. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page WW-10)
7. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY (See page WW-10)
8. REMOVE COWL TOP PANEL OUTER SUB-ASSEMBLY (See page ES-403)
9. REMOVE HEATER WATER OUTLET HOSE
   (a) Using pliers, grip the claws of the clip and slide the clip to disconnect the heater water outlet hose.



10. REMOVE HEATER WATER INLET HOSE
    HINT:
    Disconnection procedure for the heater water inlet hose is the same as that for the heater water outlet hose.
11. REMOVE HEATER WATER PUMP
    (a) Disconnect the connector.
    (b) Remove the 2 nuts and heater water pump.

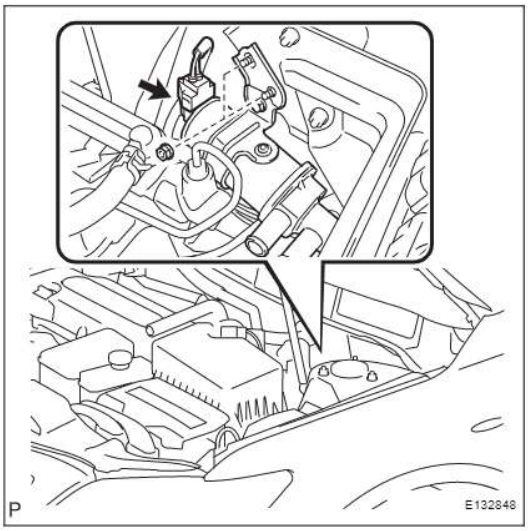


AC



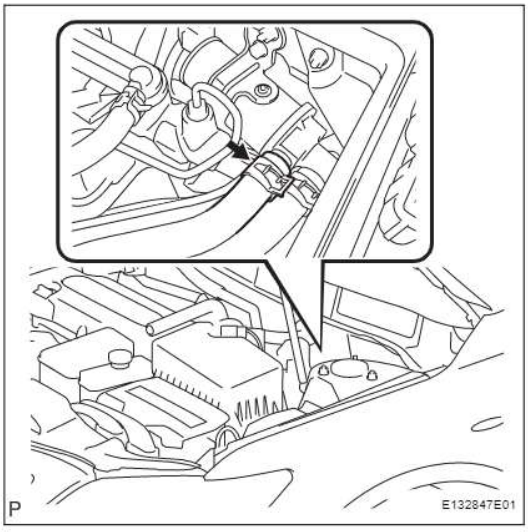
INSPECTION

1. **INSPECT HEATER WATER PUMP ASSEMBLY**
   (a) Connect the positive (+) lead terminal 1 of the heater water pump assembly connector and the negative (-) lead to terminal 2.
   OK:
   Heater water pump operates smoothly.
   NOTICE:
   Complete operation within 10 seconds if there is no water in the heater water pump assembly.
   If the result is not as specified, replace the heater water pump assembly.



INSTALLATION

1. **INSTALL HEATER WATER PUMP**
   (a) Install the heater water pump with the 2 nuts.
   Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)
   (b) Connect the connector.
2. **INSTALL HEATER WATER INLET HOSE**
   (a) Install the water hose and attach the clip.

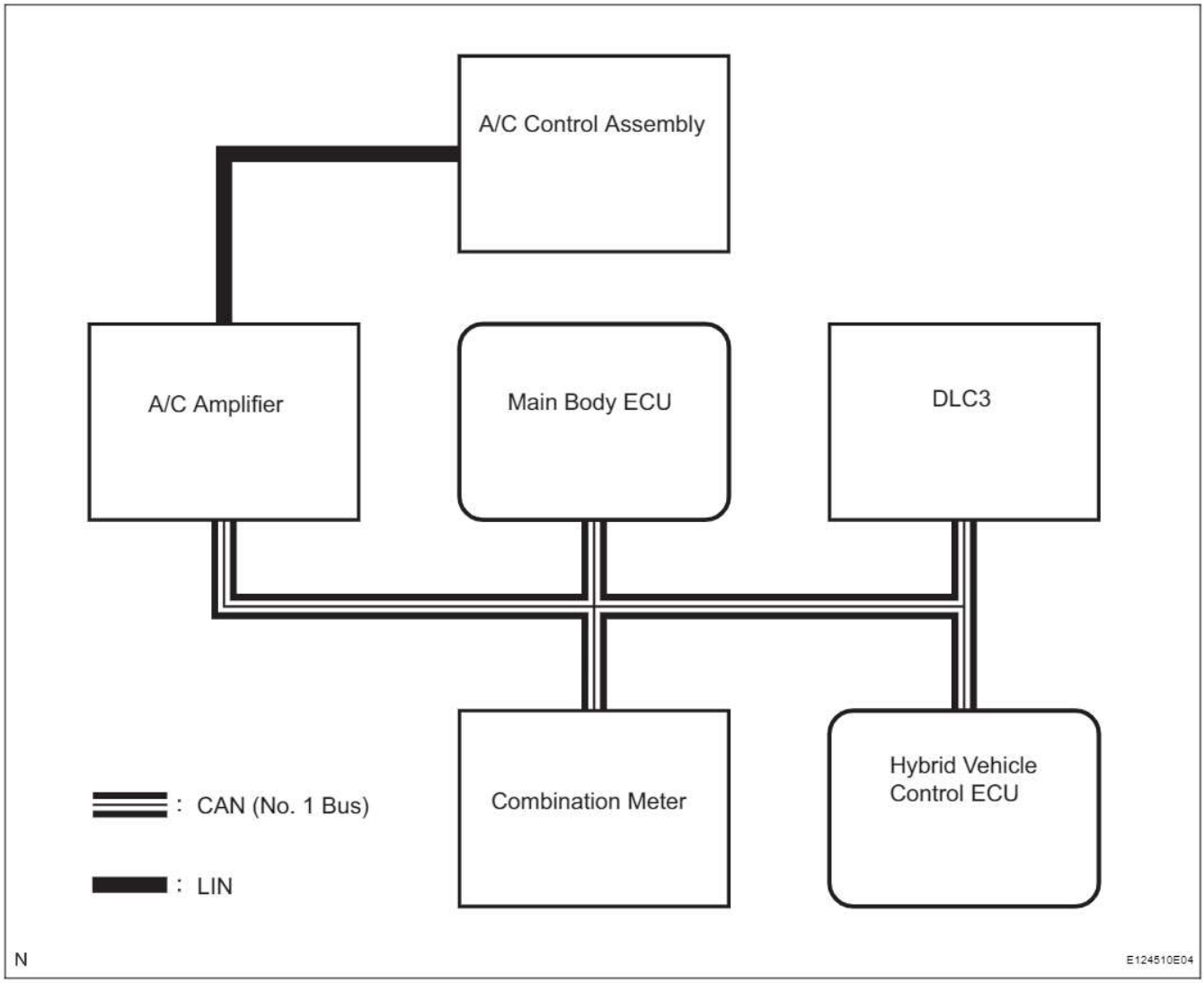


3. **INSTALL HEATER WATER OUTLET HOSE**
   (a) Install the water hose and attach the clip.
4. **INSTALL COWL TOP PANEL OUTER SUB-ASSEMBLY (See page ES-405)**
5. **INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY (See page WW-13)**
6. **INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page WW-14)**
7. **INSTALL FRONT FENDER TO COWL SIDE SEAL RH (See page WW-14)**
8. **INSTALL FRONT FENDER TO COWL SIDE SEAL LH (See page WW-14)**
9. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page WW-15)**

AC

10. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page WW-14)
11. INSTALL BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY (See page BR-33)

SYSTEM DIAGRAM

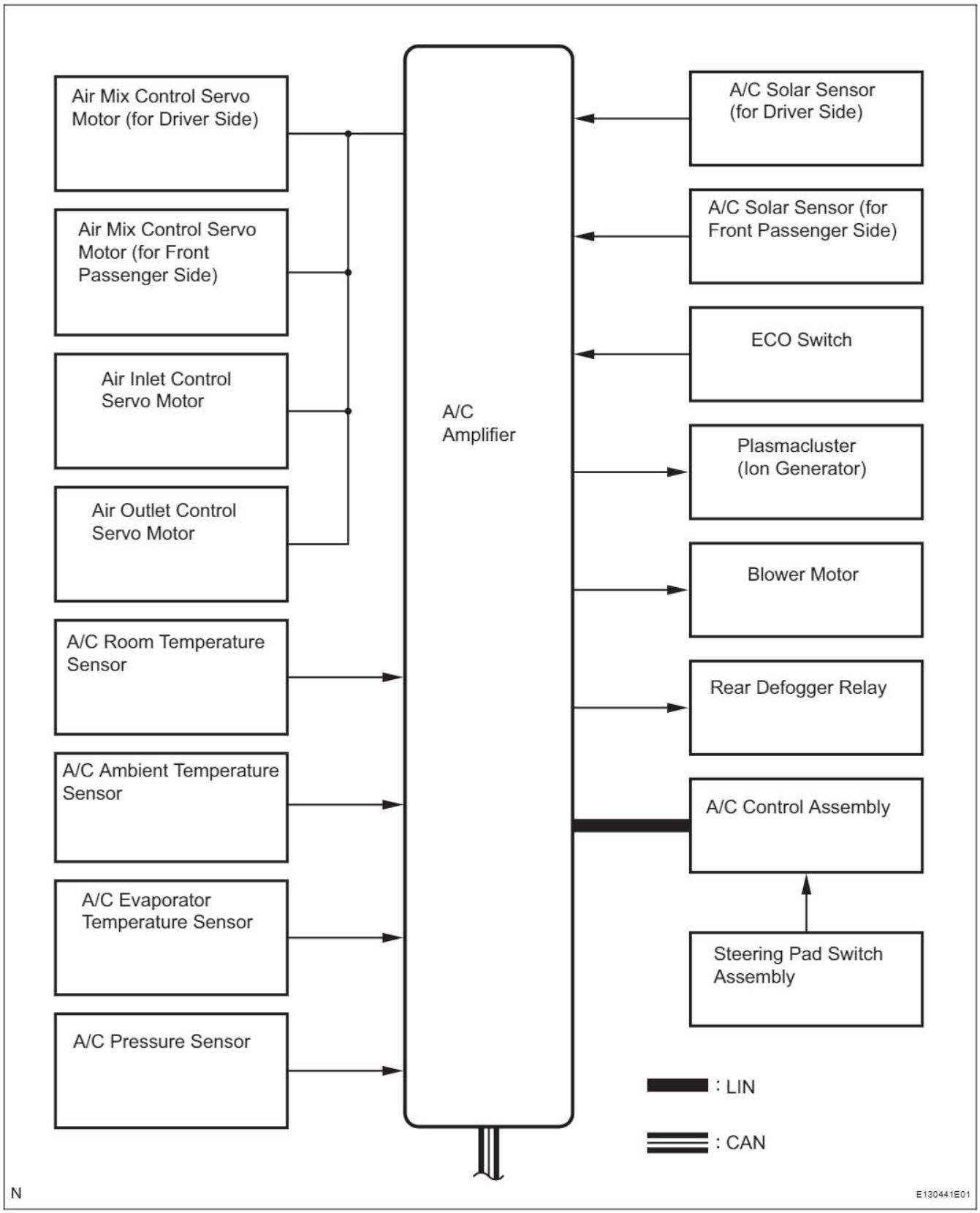


Transmitter	Receiver	Line	Signal
A/C Amplifier	Hybrid Vehicle Control ECU	CAN	Heater Idle Up Request Signal
			Engine ON Request Signal
			Outside Temperature Data
			Water Pump ON/OFF Request Signal
			Prior A/C Control Request Signal
			A/C Control State Signal
			Inlet State Signal
			Standby for Inverter Request Signal
			Electromotion Compressor Start Signal
			Electromotion Compressor Target Revolution Signal
A/C Amplifier	Combination Meter	CAN	Outside Temperature Data
A/C Amplifier	DLC3	CAN	Diagnostic Tool Response
A/C Amplifier	A/C Control Assembly	LIN	A/C Operating State Signal

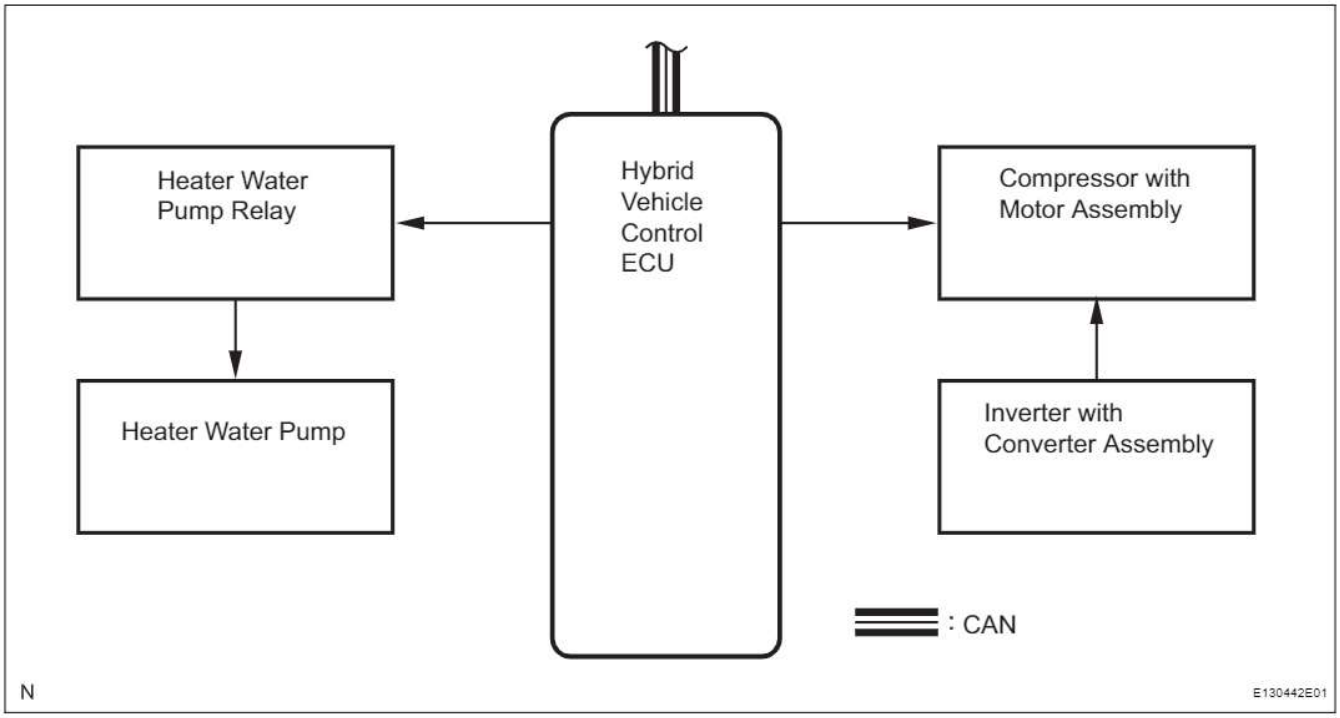
AC

Transmitter	Receiver	Line	Signal
Main Body ECU	A/C Amplifier	CAN	Auto Dimmer Signal
			Destination Package
			Vehicle Configuration (LHD/RHD) Information
Combination Meter	A/C Amplifier	CAN	Vehicle Speed Signal
Hybrid Vehicle Control ECU	A/C Amplifier	CAN	State of STB
			Compulsion Recycle Request Signal
			A/C Inverter and HV control ECU Communication Signal
			No Electrical Heater Request Signal
			A/C Inverter Main Voltage Signal
			A/C Inverter Output Signal
			Motor Overload Information
			Motor Start Information
			A/C Inverter Power Source Malfunction
			STB Wire Short
			State of STB
			A/C Inverter Temperature
			Battery Cooling Fan Voltage
			A/C Motor Revolution Signal
			A/C Input Power Signal
			A/C Motor Current Request
			A/C Inverter Voltage Signal
A/C Control Assembly	A/C Amplifier	LIN	A/C Operation Signal

AC


Air Mix Control Servo Motor (for Driver Side)
Air Mix Control Servo Motor (for Front Passenger Side)
Air Inlet Control Servo Motor
Air Outlet Control Servo Motor
A/C Room Temperature Sensor
A/C Ambient Temperature Sensor
A/C Evaporator Temperature Sensor
A/C Pressure Sensor
A/C Amplifier
A/C Solar Sensor (for Driver Side)
A/C Solar Sensor (for Front Passenger Side)
ECO Switch
Plasmacluster (Ion Generator)
Blower Motor
Rear Defogger Relay
A/C Control Assembly
Steering Pad Switch Assembly
: LIN
: CAN
N
E130441E01

AC


Heater Water Pump Relay
Hybrid Vehicle Control ECU
Compressor with Motor Assembly
Heater Water Pump
Inverter with Converter Assembly
: CAN
N
E130442E01

SYSTEM DESCRIPTION

1. GENERAL

(a) The air conditioning system has the following controls:

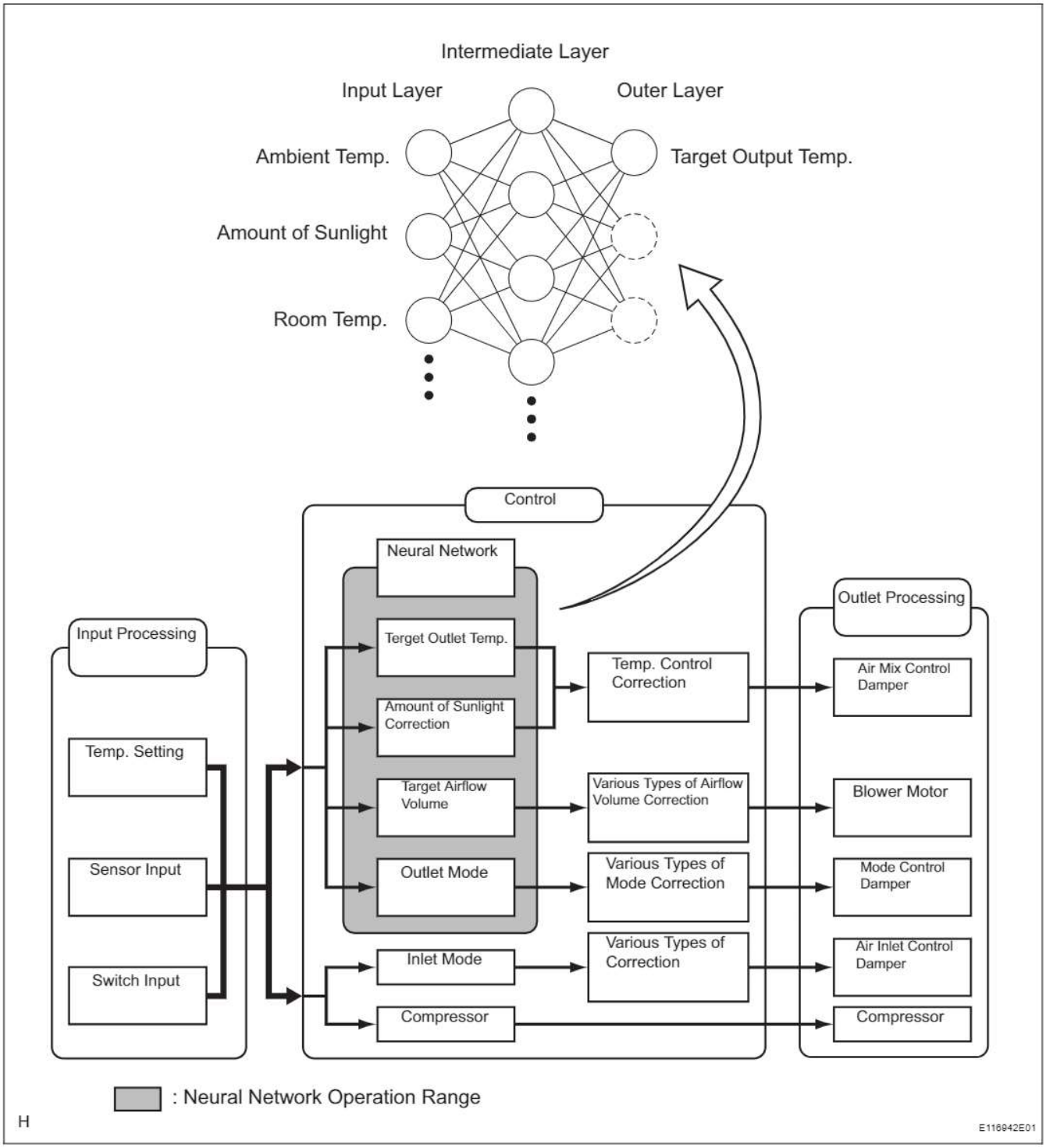
Control	Outline
Neural Network Control	This control is capable of effecting complex control by artificially simulating the information processing method of the nervous system of living organisms in order to establish a complex input / output relationship that is similar to a human brain.
Outlet Air Temp. Control	Based on the temperature set at the temperature control switch, the neural network control calculates the outlet air temperature based on the input signals from various sensors.
	The temperature setting for the driver and front passenger are controlled independently in order to provide a separate vehicle interior temperatures for the right and left side of the cabin. Thus, air conditioning that accommodates the occupants' preferences has been realized.
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 air outlets in accordance with the outlet mode that has been calculated by the neural network control based on the input signals from various sensors.
	In accordance with the engine coolant temperature, outside air temperature, amount of sunlight, required blower volume, outlet temperature, and vehicle speed conditions, this control automatically switches the blower outlet to the FOOT / DEF mode to prevent the windows from becoming fogged when the outside air temperature is low.
Air Inlet Control	Automatically controls the air inlet control damper to achieve the calculated required outlet air temperature.
Electric Inverter Compressor Control	The A/C amplifier calculates the target speed of the compressor based on the target evaporator temperature (which is calculated by the room temperature sensor, outside temp. sensor, and the solar sensor) and the actual evaporator temperature that is detected by the evaporator temperature sensor in order to control the compressor speed.
	The A/C amplifier calculates the target evaporator temperature, which includes corrections based on the room temperature sensor, outside temp. sensor, the solar sensor, and evaporator temperature sensor. Accordingly, the A/C amplifier controls the compressor speed to an extent that would not inhibit the proper cooling performance or defogging performance.
PTC Heater Control	When the THS II system is operating (READY), and the blower motor is turned ON, the A/C amplifier turns ON the PTC heater if the conditions listed below are met. • Engine coolant temperature is below specified temperature. • Outside temperature is below specified temperature (DEF mode). • Tentative air mix damper opening angle is above the specified value (MAX HOT).
Electric Water Pump Control	When the blower motor is ON and the engine has been stopped by the THS II system control, the A/C amplifier turns ON the electric water pump in accordance with the judgment of the air mix damper opening.
ECO Mode Control	When the ECO switch is turned ON, the A/C amplifier limits the air conditioning system performance.
Rear Window Defogger Control	Operates the rear defogger and outside rear view mirror heaters on for 15 minutes to 60 minutes when the rear defogger button is pressed. Switches them off if the button is pressed again while they are operating.
Outside Temperature Indication Control	Calculates the outside temperature using signals transmitted by the outside temperature sensor. Calculated values are corrected by the A/C amplifier and then indicated on the multi-information display.
Self-Diagnosis	A DTC (Diagnostic Trouble Code) is stored in the memory when the A/C amplifier detects a problem with the air conditioning system.

AC

2. NEURAL NETWORK CONTROL

(a) 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.

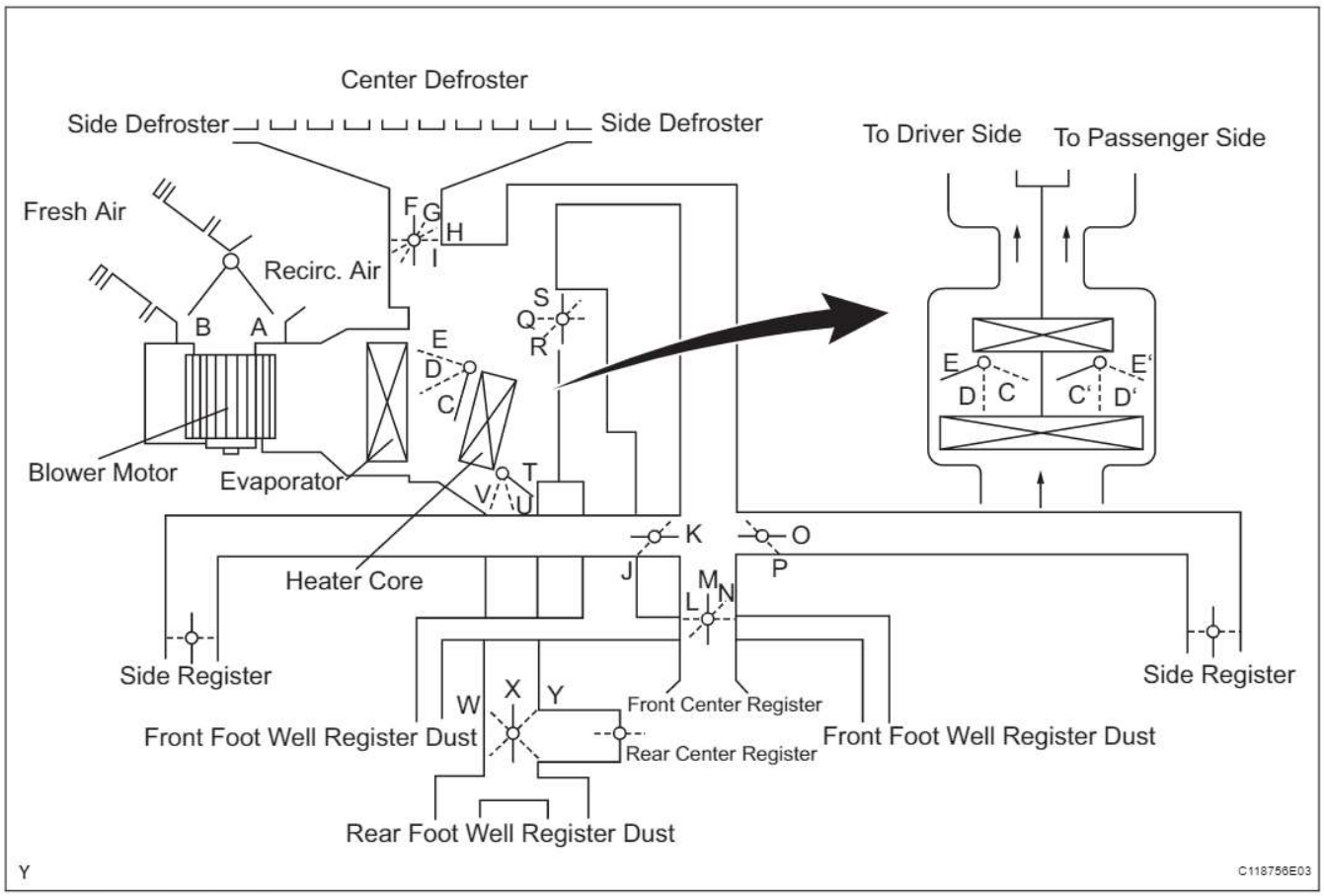
(b) The neural network control consists of neurons in the input layer, intermediate layer, and output layer. The input layer neurons process the input data of the outside temperature, the amount of sunlight, and the room temperature based on the outputs of the switches and sensors, and output them to 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.


Intermediate Layer
Input Layer
Outer Layer
Ambient Temp.
Amount of Sunlight
Room Temp.
Target Output Temp.
Control
Neural Network
Input Processing
Terget Outlet Temp.
Amount of Sunlight Correction
Target Airflow Volume
Outlet Mode
Inlet Mode
Compressor
Temp. Setting
Sensor Input
Switch Input
Temp. Control Correction
Various Types of Airflow Volume Correction
Various Types of Mode Correction
Various Types of Correction
Outlet Processing
Air Mix Control Damper
Blower Motor
Mode Control Damper
Air Inlet Control Damper
Compressor
: Neural Network Operation Range
H
E116942E01

AC

3. MODE POSITION AND DAMPER OPERATION

(a) Mode Position and Damper Operation



Functions of Main Dampers:

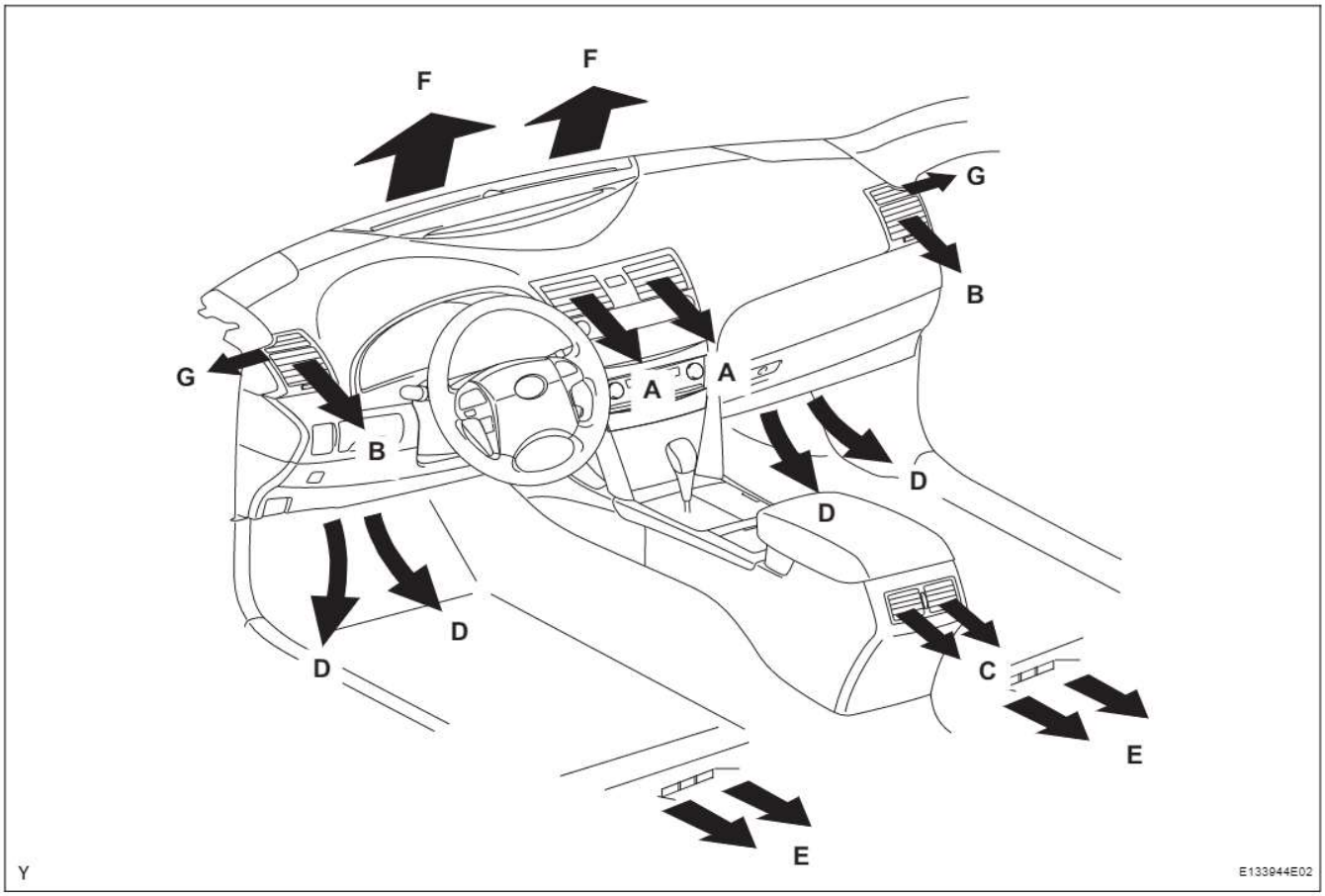
Control Damper	Operation Position	Damper Position	Operation
Air Inlet Control Damper	FRESH	A	Brings in fresh air.
	RECIRC	B	Recirculates internal air.
Air Mix Control Damper	MAX COLD to MAX HOT Temperature Setting	C - D - E (C' - D' - E') T - U - V	Varies the mixture ratio of the fresh air and the recirculation air in order to regulate the temperature continuously from HOT to COLD.

AC

Control Damper	Operation Position	Damper Position	Operation
Air Outlet Control Damper	DEF	F, J, L, P, S, Y	Defrosts the windshield through the center defroster, side defroster, and side register.
	FOOT / DEF	G, J, L, P, Q, X	Defrosts the windshield through the center defroster, side defroster, side register, and rear center register, while air is also blown out from the front and rear foot well register ducts.
	FOOT	H, J, L, P, Q, X	Air blows out of the foot well register dust, and side register. In addition, air blows out slightly from the center defroster and side defroster.
	BI-LEVEL	I, K, N, O, R, X	Air blows out of the front and rear center registers, side register and front and rear foot well register ducts.
	FACE	I, K, M, O, S, W	Air blows out of the front and rear center registers, and side register.

4. AIR OUTLETS AND AIRFLOW VOLUME

(a) Air Outlets and Airflow Volume



AC

INDICATION (MODE)	SELECTION (Auto / Manual)	FACE			FOOT		DEF	
		CTR	SIDE	RR	FR	RR	CTR	SIDE
		A	B	C	D	E	F	G

FACE 	○ / ○	◯	◯	◯	—	—	—	—
B/L-U*1 	○ / ○	○	○	○	○	○	—	—
B/L-L*2 	○ / -	○	○	○	◯	◯	—	—
FOOT-F*3 	○ / -	—	○	○	◯	○	○	○
FOOT-R*4 	○ / ○	—	○	○	◯	◯	○	○
FOOT-D*5 	○ / -	—	○	○	○	○	○	○
F/D 	○ / ○	—	○	○	◯	◯	○	○
DEF 	○ / ○	—	○	—	—	—	◯	◯

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

*1: Greater airflow volume at the upper area

*2: Greater airflow volume at the lower area

*3: Greater airflow volume at the front

*4: Greater airflow volume at the rear

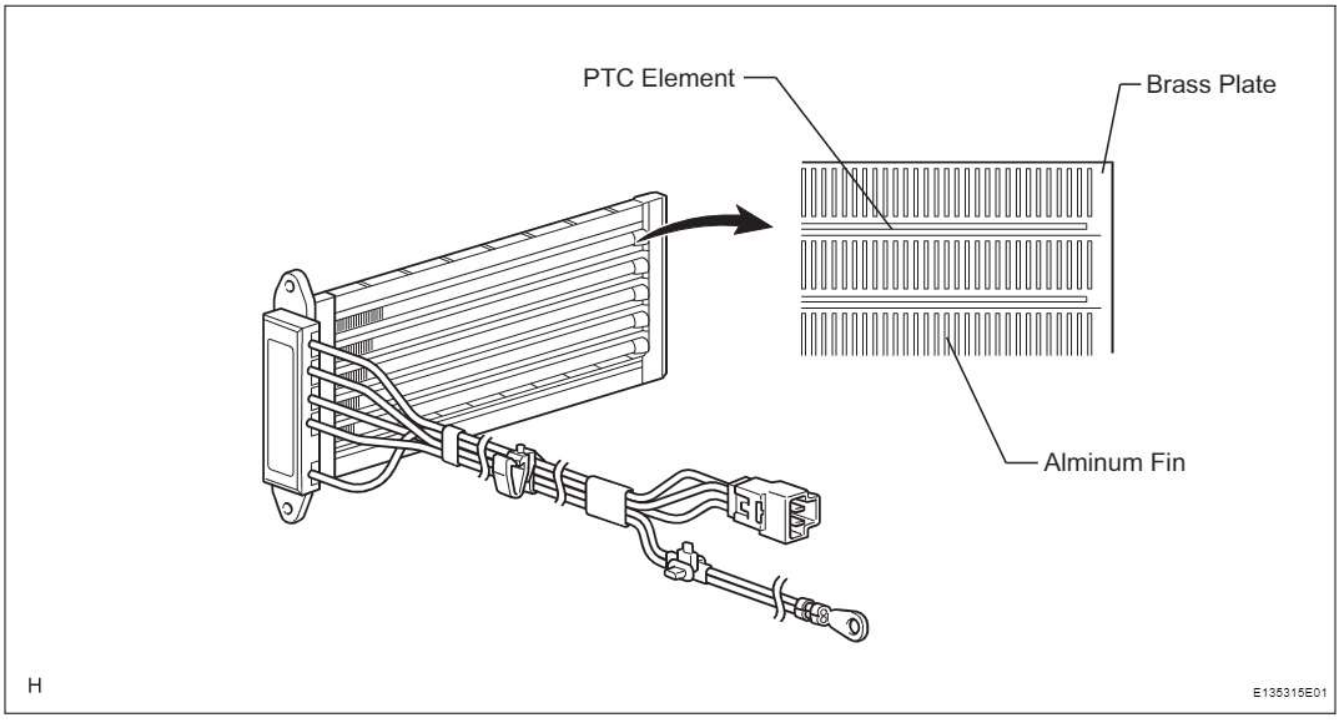
*5: Greater airflow volume at the defroster

5. PTC HEATER

(a) The PTC heater is located above the heater core in the air conditioning unit.

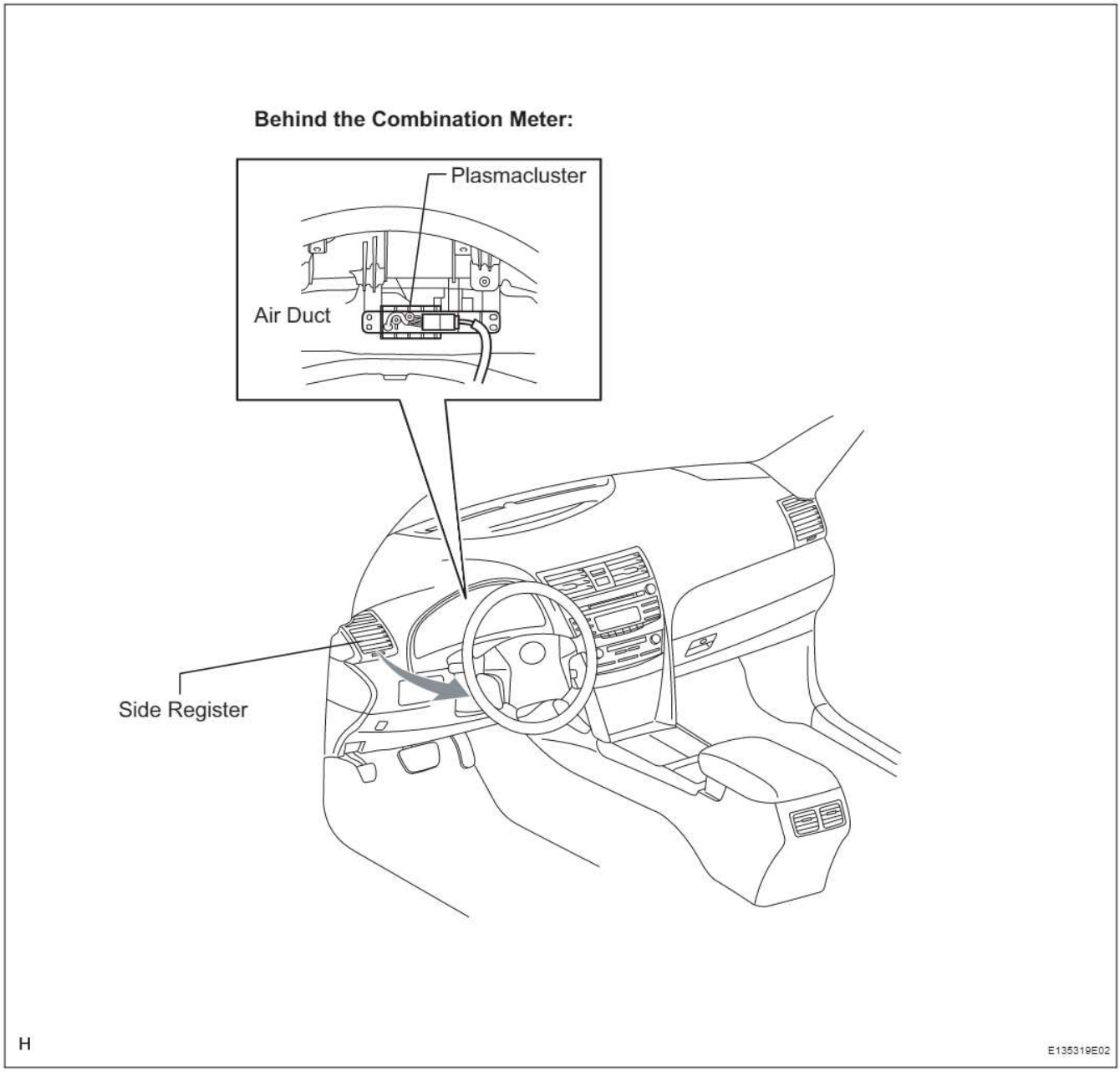
AC

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



6. PLASMACLUSTER ION GENERATOR CONTROL

(a) General:



(1) A Plasmacluster ion generator is provided inside the air duct of the side register on the driver seat side to improve the air quality and comfort in the cabin.

(2) This generator is controlled by the A/C amplifier and operates in conjunction with the blower motor.

NOTICE:

- **The Plasmacluster ion generator uses a high voltage, which is hazardous. Therefore, if the Plasmacluster ion generator requires repairs, be sure to have them done at a TOYOTA dealer.**

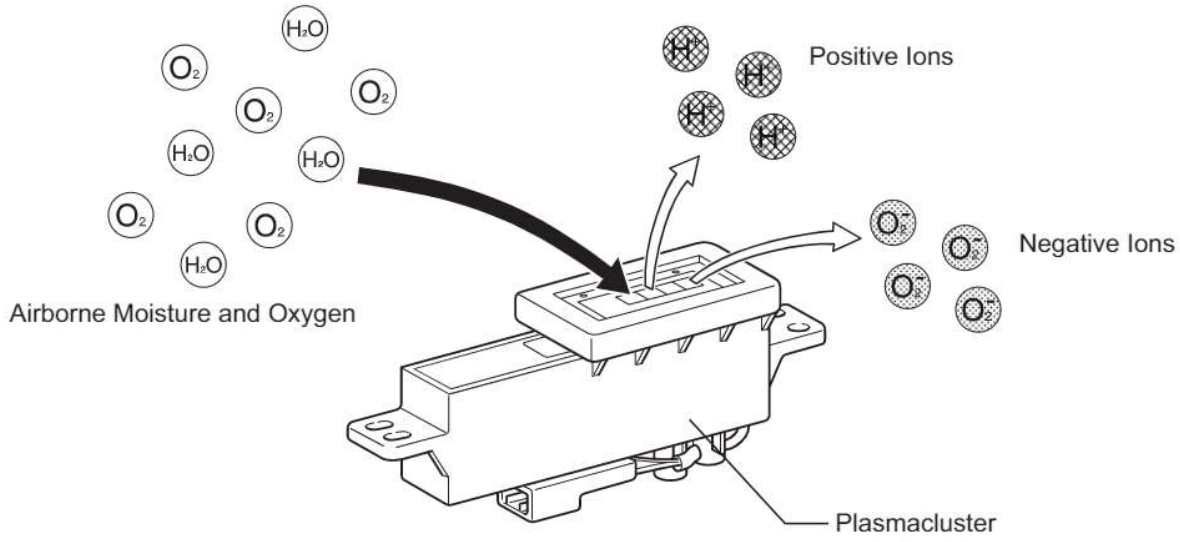
AC

- **Do not apply any type of spray (such as a cleaning solvent or hair spray) or stick any foreign matter into the Plasmacluster ion outlet, as this could cause improper operation or a malfunction.**
- **After use, dust may accumulate around the side register on the driver seat side. If this occurs, press the OFF switch on the heater control panel to stop the blower motor before cleaning the area.**
- **It is normal for the Plasmacluster ion generator to emit a slight sound during operation. This sound is created when electrons collide with the electrode while Plasmacluster ions are being generated.**

HINT:

Plasmacluster™, plasmacluster, and plasmacluster ions are a trademark of the SHARP Corporation.

(b) Operation:



(1) The Plasmacluster ion generator produces positive and negative ions from the water molecules (H2O) and oxygen molecules (O2) in the air, and emits them into the air. These ions reduce airborne germs.

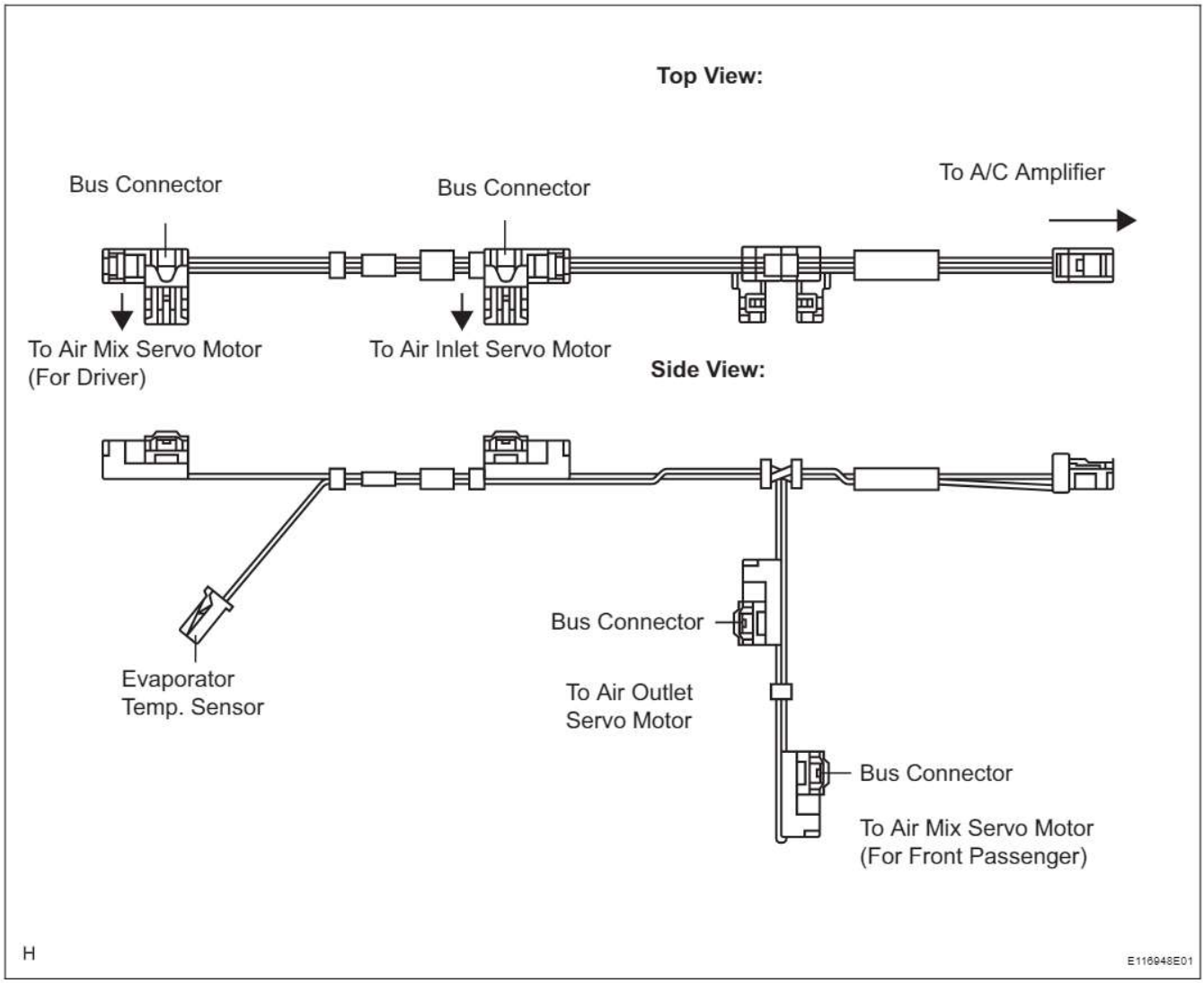
7. BLOWER MOTOR

(a) The blower motor has a built-in blower controller, and is controlled with duty control from the A/C amplifier.

AC

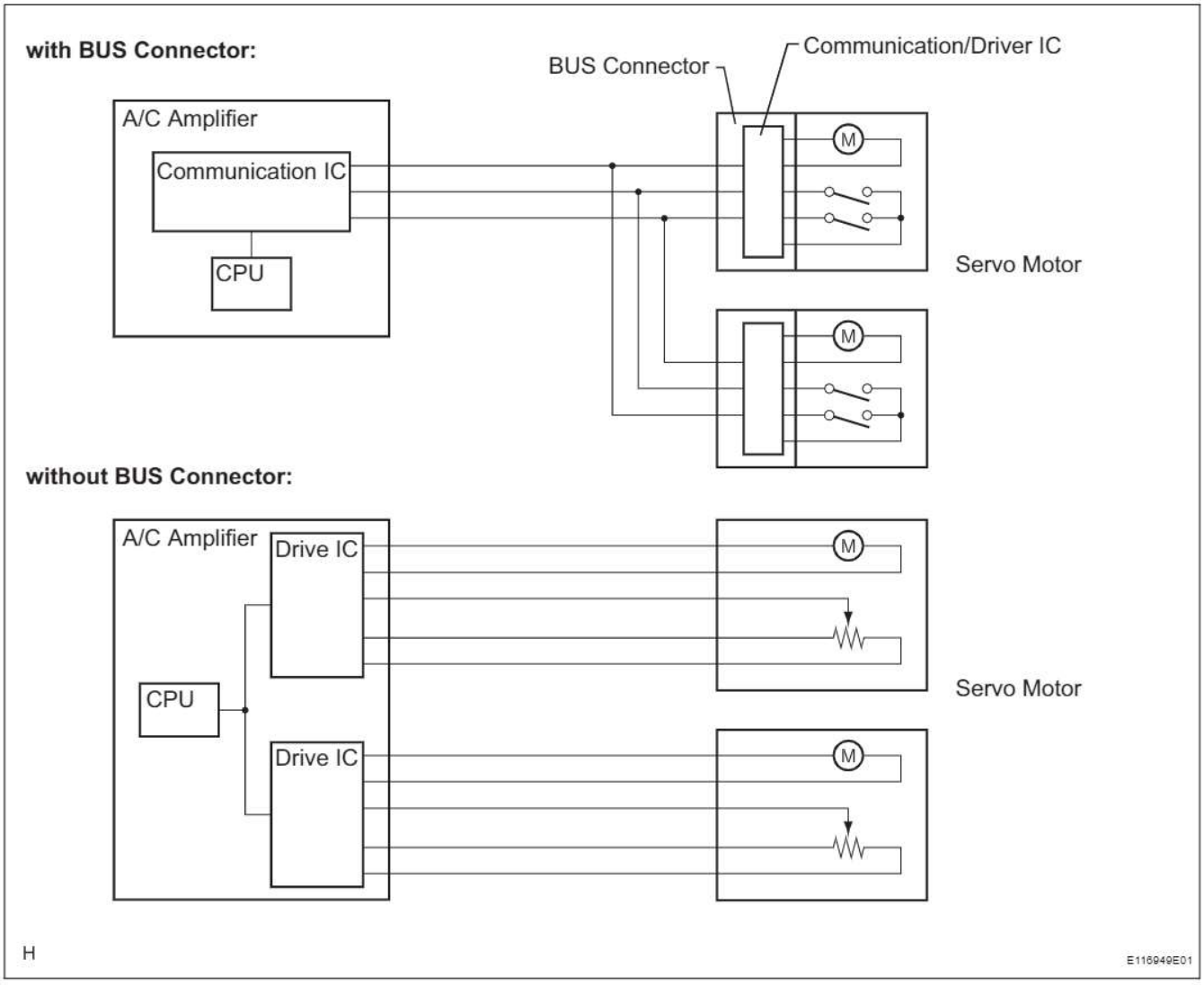
8. BUS CONNECTOR

(a) A BUS connector is used in the wire harness connection that connects the servo motor from the A/C amplifier.



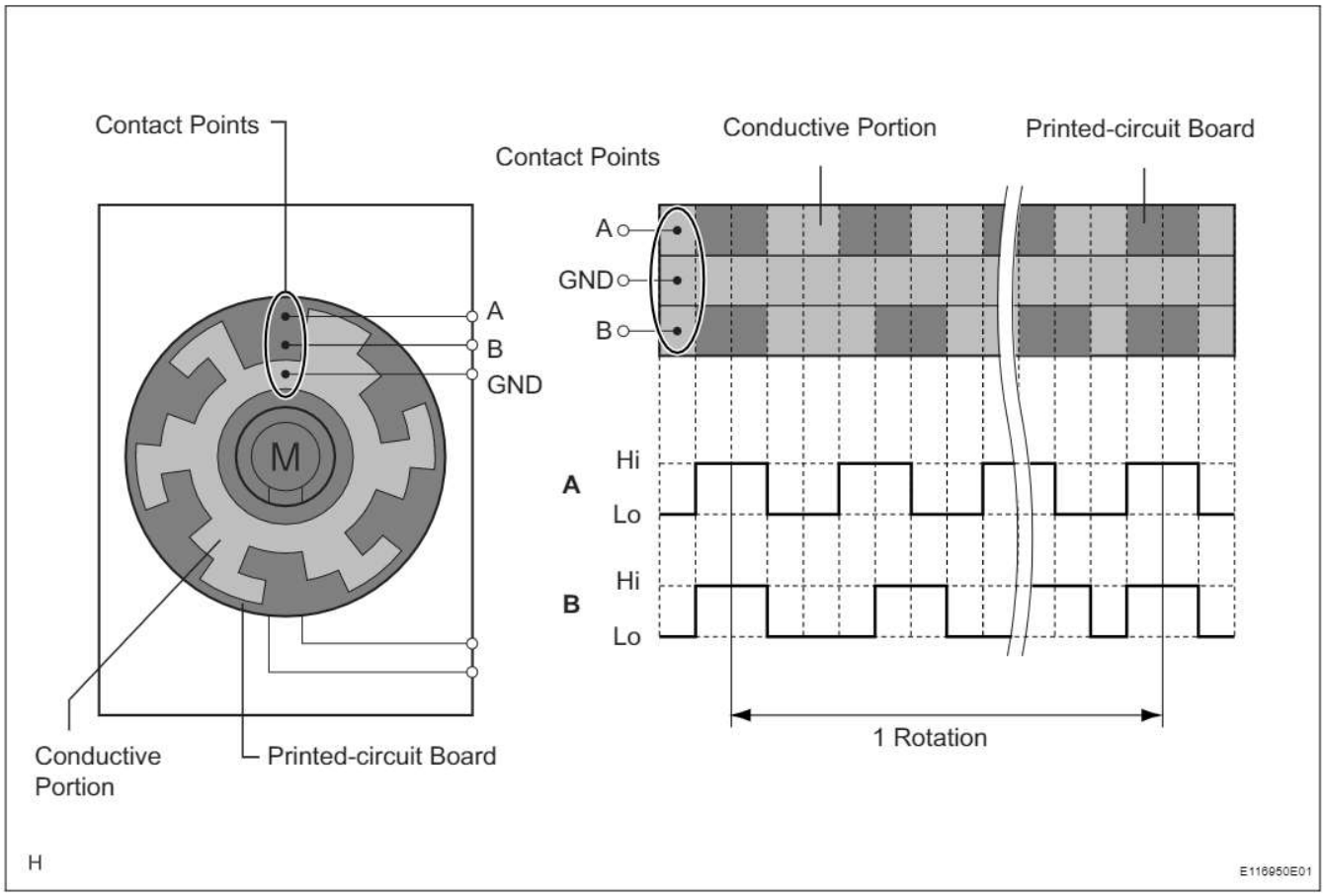
AC

(b) The 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.



9. SERVO MOTOR

(a) The pulse pattern type servo motor consists of a printed circuit board and servo motor. The printed circuit board has three contact points, and transmits to the A/C amplifier two ON-OFF signals for the difference of the pulse phase. The BUS connector detects the damper position and movement direction with this signal.

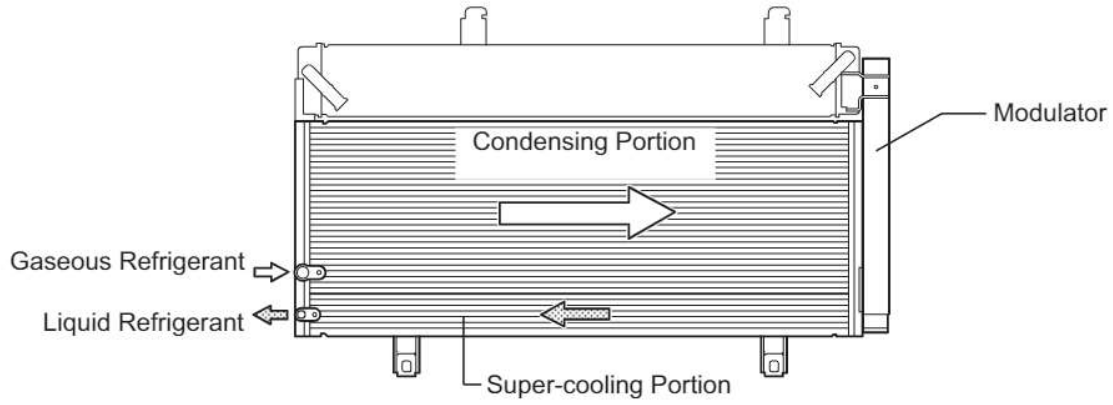


10. CONDENSER

(a) A MF (Multi-Flow) type condenser is used. The condenser consists of two cooling portions: a condensing portion and a super-cooling portion, and gas-liquid separator (modulator) are integrated together. This condenser uses a sub-cool cycle that offers excellent heat-exchange performance.

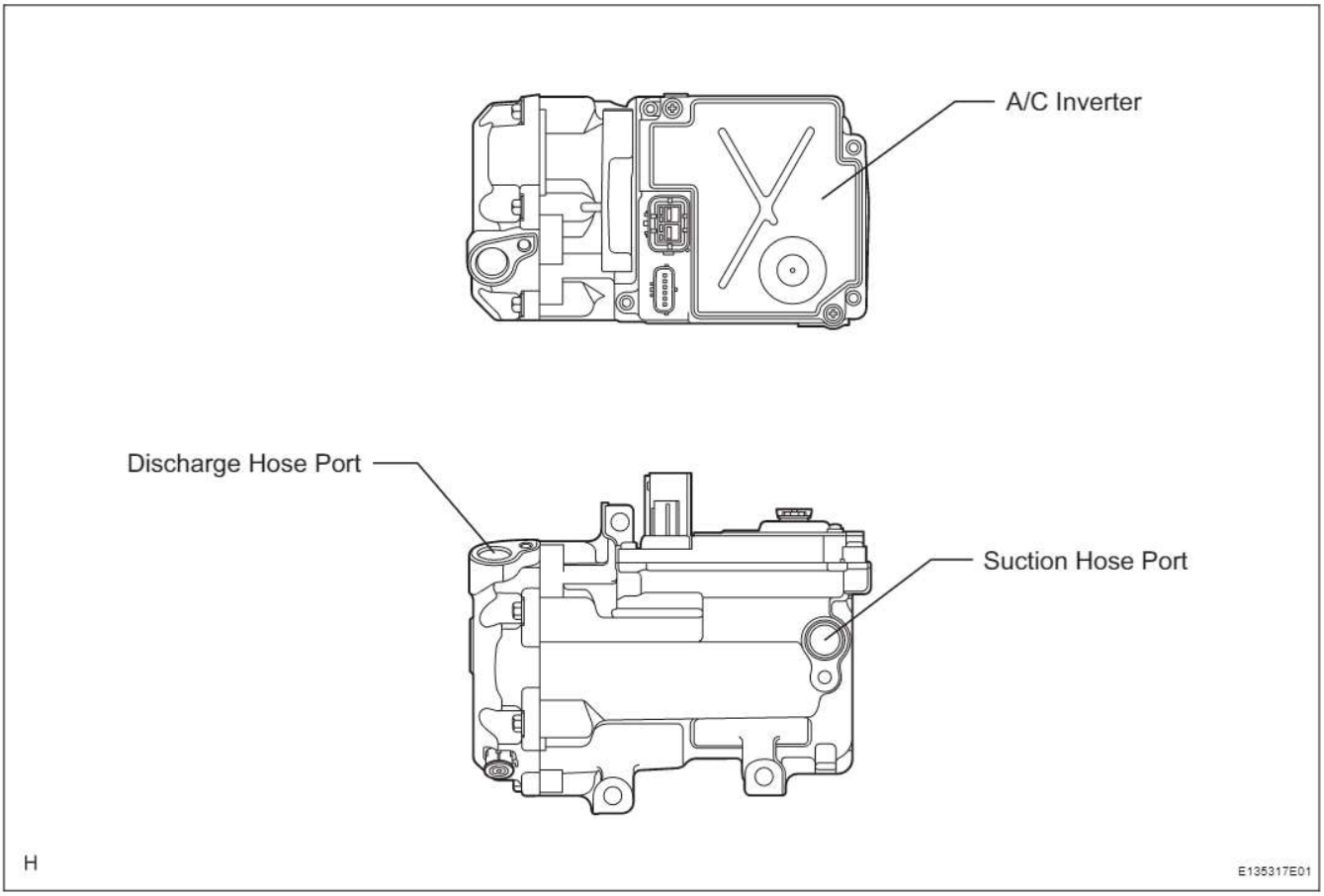
AC

(b) In the sub-cool cycle, after the refrigerant passes through the condensing portion of the condenser, both the liquid refrigerant and the gaseous refrigerant that could not be liquefied are cooled again in the super-cooling portion. Thus, the refrigerant is sent to the evaporator in an almost completely liquefied state.



11. A/C COMPRESSOR

(a) General



AC

HINT:
In order ensure the proper insulation of the internal high-voltage portion of the compressor and the compressor housing, this vehicle has adopted a compressor oil (ND11) with a high level of insulation performance. Therefore, never use a compressor oil other than the ND11 type compressor oil or its equivalent.

(1) Along with the installation of the hybrid unit on this vehicle, an ES27 electric inverter compressor that is driven by a motor is used. The basic construction and operation of this compressor are the same as the ordinary scroll compressor, except that it is driven by an electric motor.
(2) The Air Conditioning (A/C) inverter is integrated with the compressor.
(3) The electric motor is actuated by 3-phase alternating current (244.8 V) supplied by the A/C inverter. As a result, the air conditioning control system on this vehicle is actuated without depending on the operation of the engine, thus realizing a comfortable air conditioning system and low fuel consumption.
(4) Due to the use of an electric inverter compressor, the compressor speed can be controlled at the required speed calculated by the A/C amplifier. Thus, the cooling and dehumidification performance and power consumption have been optimized.
(5) Low-moisture permeation hoses are used for the suction and discharge hoses at the compressor in order to minimize the entry of moisture into the refrigeration cycle.
(6) The compressor uses high-voltage alternating current. If a short or open circuit occurs in the compressor wiring harness, the hybrid vehicle control ECU will cut off the A/C inverter circuit in order to stop the power supply to the compressor.

(b) Compressor Speed Control
(1) The A/C amplifier calculates the target compressor speed based on the target evaporator temperature (calculated from the room temperature sensor, outside temp. sensor, and solar sensor) and the actual evaporator temperature detected by the evaporator temperature sensor. Then, the A/C amplifier transmits the target speed to the hybrid vehicle control ECU. The hybrid vehicle control ECU controls the A/C inverter based on the target speed data in order to control the compressor to a speed that suits the operating condition of the air conditioning system.

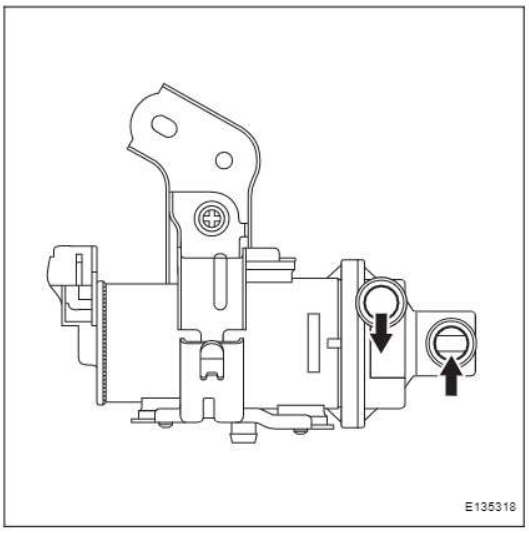
AC

(2) The A/C amplifier calculates the target evaporator temperature, which includes corrections based on the room temperature sensor, outside temp. sensor, solar sensor, and evaporator temperature sensor. Accordingly, the A/C amplifier controls the compressor speed to an extent that does not inhibit the proper cooling performance or defogging performance. As a result, comfort and low fuel consumption can be realized.

12. ELECTRIC WATER PUMP

(a) This vehicle uses an electric water pump for air conditioning. This provides a stable heater performance even if the engine is stopped because of a function of the THS-II system.

(b) This vehicle uses a new type of electrical water pump in which the water flow resistance has been reduced.



13. ROOM TEMPERATURE SENSOR

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

14. AMBIENT TEMPERATURE SENSOR

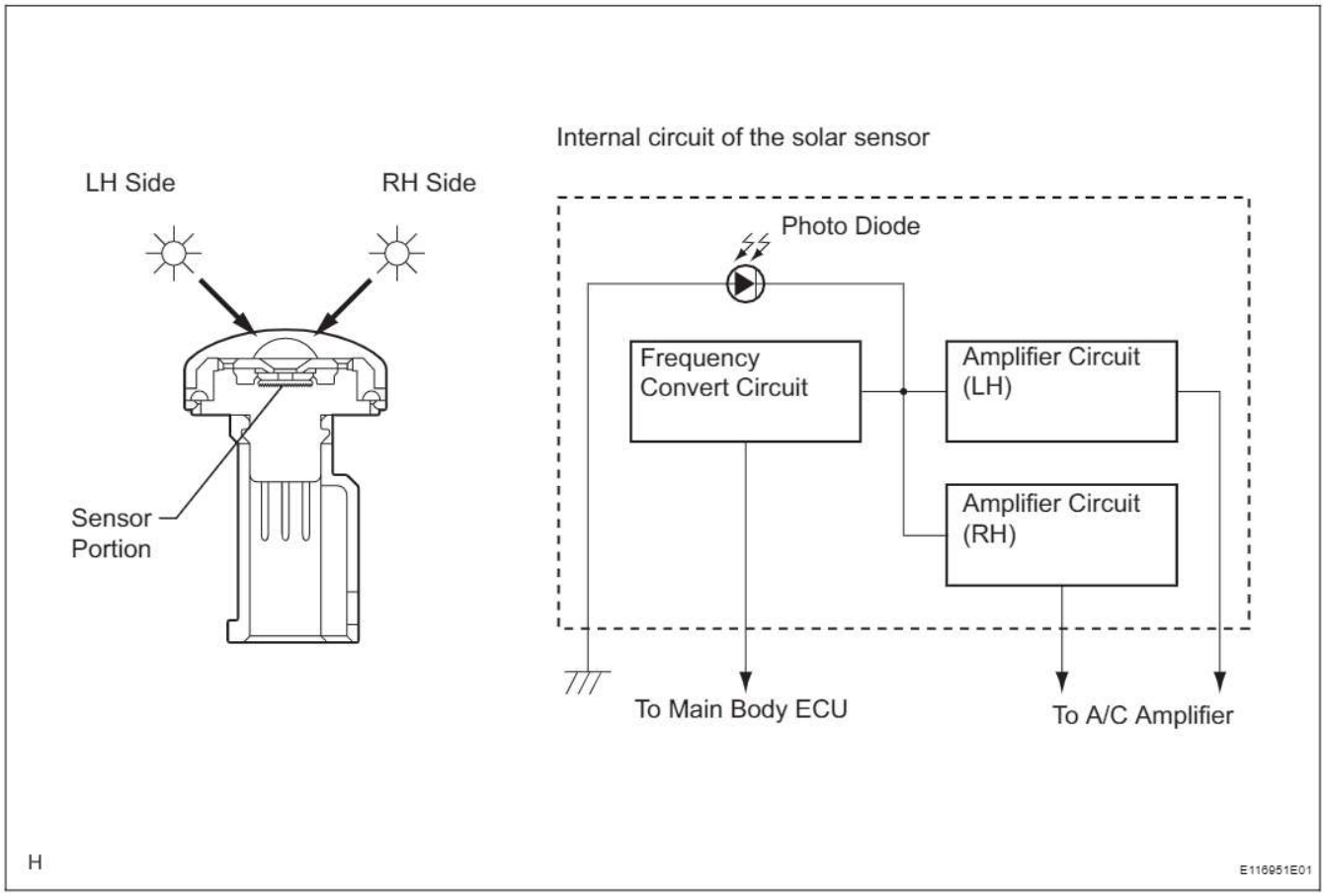
(a) The outside temp. sensor detects the outside temperature based on changes in the resistance of its built-in thermistor and sends a signal to the A/C amplifier.

15. SOLAR SENSOR

(a) The solar sensor consists of a photo diode, two amplifier circuits for the solar sensor, and frequency converter circuit for the light control sensor.

AC

(b) A solar sensor detects (in the form of changes in the current that flows through the built-in photo diode) the changes in the amount of sunlight from the LH and RH sides (2 directions) and outputs these sunlight strength signals to the A/C amplifier.



16. EVAPORATOR TEMPERATURE SENSOR

(a) 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.

17. A/C PRESSURE SENSOR

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

18. ECO MODE CONTROL

NOTICE:

- **ECO mode control is performed only when the blower motor is ON. When the ECO switch is turned ON while the blower motor is OFF, the ECO switch indicator light and the heater control panel LCD display illuminate, but ECO mode control is not performed.**

AC

- **During cooling under ECO mode control, the cabin temperature is maintained at 25°C (77°F) even if the set temperature is below 25°C (77°F). Since the power consumption of the electric inverter compressor is limited under ECO mode control, this does not indicate a malfunction. To decrease the cabin temperature to below 25°C (77°F), the MAX COLD temperature (18°C (64.4°F)) must be selected or ECO mode control must be canceled by turning the ECO switch OFF.**

(a) General

(1) Eco mode control limits the air conditioning system performance during heating and cooling and increases the amount of engine OFF time, thus improving the fuel economy.

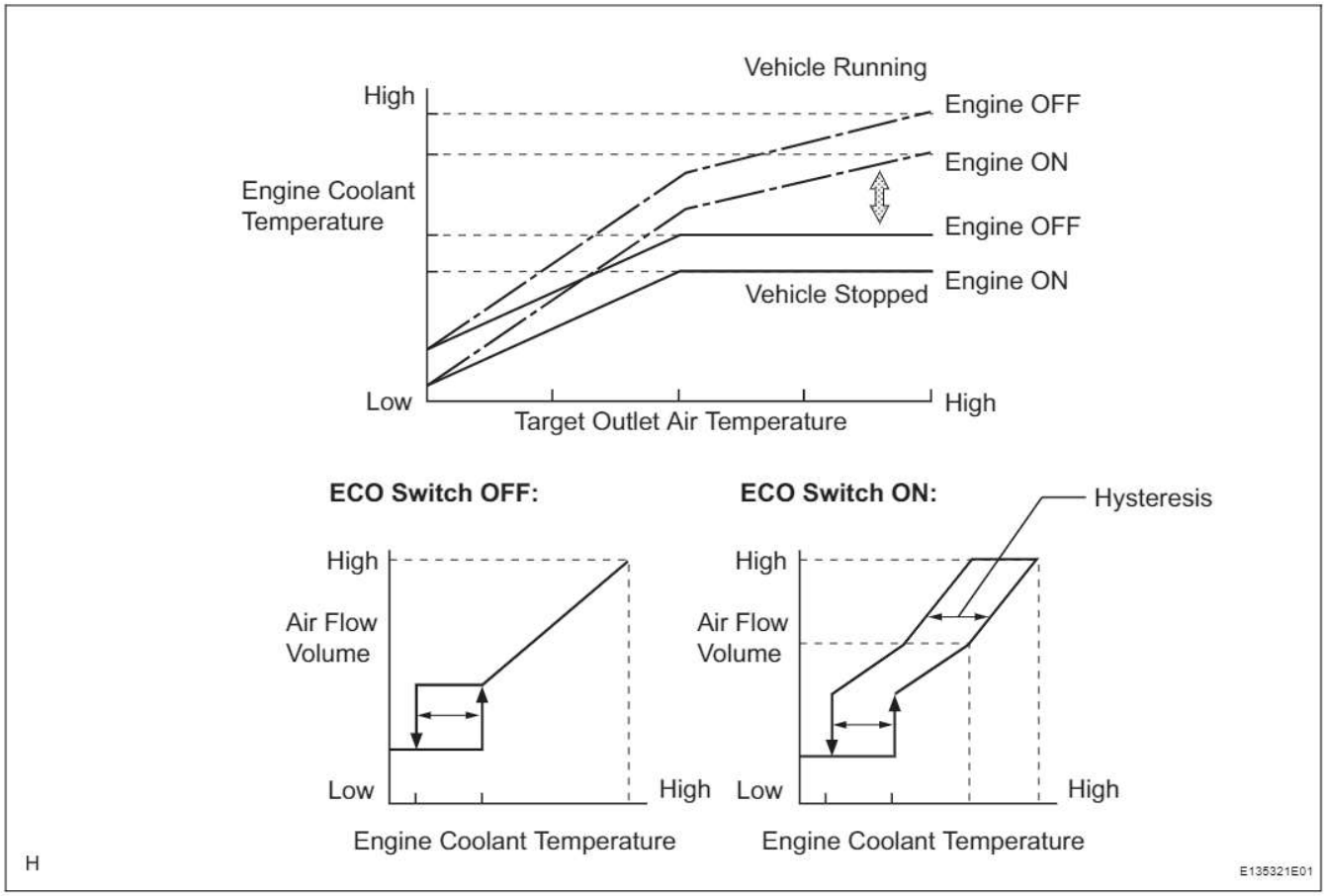
(2) Eco mode control is activated by pressing the momentary type ECO switch on the instrument panel. "ECO" is displayed on the heater control panel LCD during this control.

(3) Eco mode control during heating and cooling, and its cancel conditions are shown in the table below.

ECO Mode Control		Eco Mode Cancel Conditions
Heating Mode	• Stops PTC heater operation. • Increases the amount of engine OFF time. • Prohibits BI-LEVEL mode during AUTO operation.	• DEF or FOOT DEF mode is selected. • MAX HOT temp. setting • ECO switch OFF
Cooling Mode	Limits power consumption by the electric inverter compressor based on the cabin temperature.	• MAX COLD temp. setting • ECO switch OFF

AC

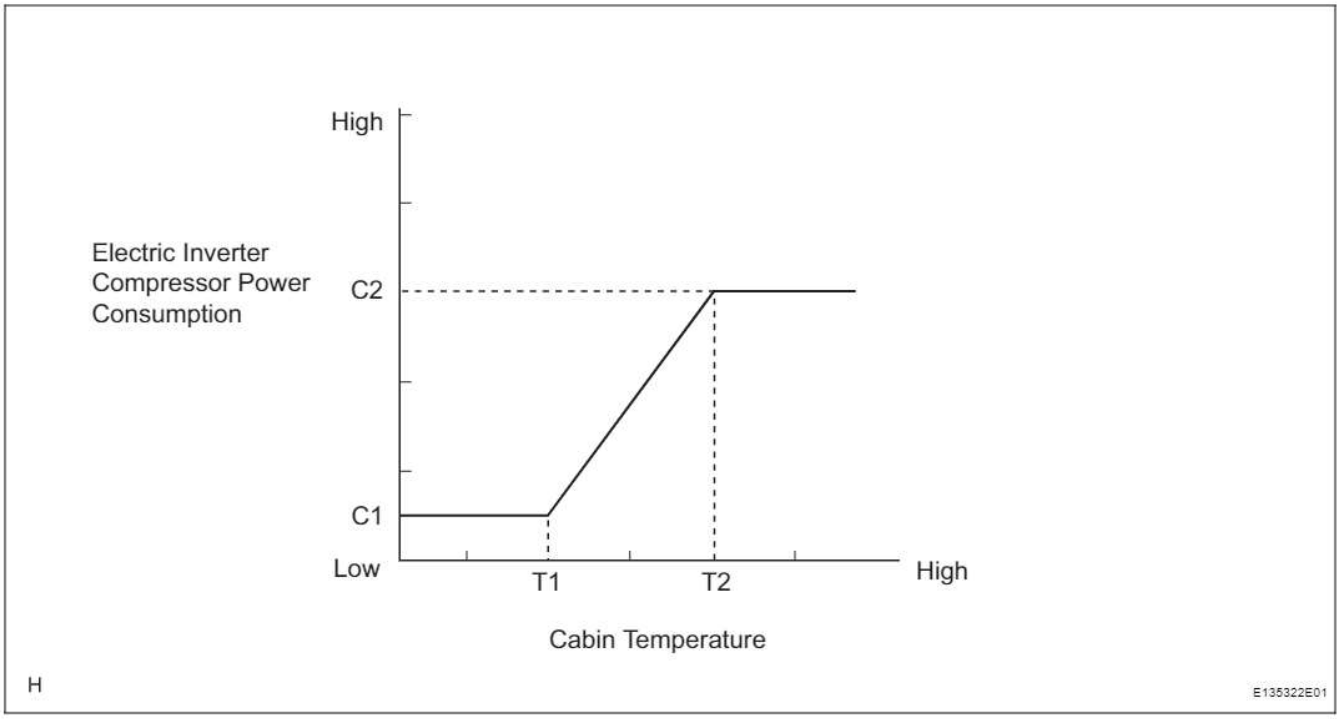
(b) Heating Mode



(1) The required engine coolant temperature when starting the engine when the vehicle is stopped differs from that when the vehicle is running. Therefore, the fuel economy has been improved by increasing the amount of engine-off time when the vehicle is stopped.
(2) When the ECO switch is turned ON during heating, the A/C amplifier stops the PTC heater operation. Therefore, it takes a longer time to reach the set temperature than while the ECO switch is OFF.
(3) Engine coolant temperatures fluctuate greatly between when the vehicle is running and the vehicle is stopped. The blower level changes accordingly.
(4) The hysteresis, which is used while the ECO switch is ON, is provided to prevent the blower level from hunting due to fluctuations in the engine coolant temperature.

AC

(c) Cooling Mode



(1) When the ECO switch is turned ON during cooling, the A/C amplifier limits the power consumption of the electric inverter compressor in accordance with the cabin temperature.
(2) The A/C amplifier does not limit the power consumption very much (C2 shown in the graph below), and prioritizes decreasing the cabin temperature when the cabin temperature is high (T2 or above). When the cabin temperature decreases to T1 or below, the A/C amplifier limits the power consumption of the electric inverter compressor C1 and restrains the cooling performance. This prevents the SOC (state of charge) of the HV battery from decreasing and increases the amount of engine OFF time, improving the fuel economy.

AC

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

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

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 intelligent tester 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

4 CHECK FOR DTC*

(a) Check for DTCs and note any codes that are output.
HINT:
Refer to the DTC CHECK / CLEAR (See page AC-39).
(b) Delete the DTCs.
(c) Recheck for DTCs. Based on the DTCs output above, try to force output of the A/C system DTC by simulating the operation indicated by the DTC.
Result

Result	Proceed to
DTC is not output	A
DTC is output	B

AC

B → Go to step 7

A

5	PROBLEM SYMPTOMS TABLE

(a) Refer to the PROBLEM SYMPTOMS TABLE (See page AC-32).

Result

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 (See page AC-50)
(b) DATA LIST / ACTIVE TEST (See page AC-45)
(c) TERMINALS OF ECU (See page AC-34)
(d) On-vehicle Inspection
(e) Inspection

NEXT

7	ADJUST, REPAIR OR REPLACE

NEXT

END

AC

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:

DISPLAY (ITEM)	DEFAULT	CONTENTS	SETTING
SET TEMP SHIFT (Set Temperature Shift)	NORMAL	To shift the temperature against the displayed temperature	+2 C / +1 C / NORMAL / -1 C / -2 C
AIR INLET MODE (Air Inlet Mode)	AUTO	In case of turning the A/C ON when you desire to make the compartment cool down quickly, this is the function to change the mode automatically to RECIRCULATION mode	MANUAL / AUTO
COMPRESSOR MODE (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
COMPRS / DEF OPER (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
EVAP CTRL (Evaporator Control)	AUTO	Function to set the evaporator control to the AUTOMATIC position (AUTO) to save power, or to the coldest position (MANUAL) to dehumidify the air and to prevent the windows from fogging up	MANUAL / AUTO
FOOT / DEF MODE (Foot / DEF Auto Mode)	ON	Function to turn the airflow from FOOT/DEF ON automatically when AUTO MODE is ON	OFF / ON
AUTO BLOW UP (Foot / DEF Automatic Blower Up Function)	ON	Function to change the blower level automatically when the defroster is ON	OFF / ON
AMBIENT TMP SFT (Ambient Temperature Shift)	NORMAL	Function to shift the ambient temperature against the displayed ambient temperature	+3 C / +2 C / +1 C / NORMAL / -1 C / -2 C / -3 C

AC

PROBLEM SYMPTOMS TABLE

AIR CONDITIONING SYSTEM:

Symptom	Suspected Area	See page
All functions of the A/C system do not operate	1. IG power source circuit	AC-158
	2. Back-up power source circuit	AC-161
	3. Heater control panel power source circuit	AC-133
	4. LIN communication circuit	AC-163
	5. Steering pad switch circuit	AC-149
	6. A/C control assembly	AC-257
	7. A/C amplifier	AC-268
Air Flow Control: No blower operation	1. Blower motor circuit	AC-127
	2. Heater control panel power source circuit	AC-133
	3. LIN communication circuit	AC-163
	4. A/C control assembly	AC-257
	5. A/C amplifier	AC-268
Air Flow Control: No blower control	1. Blower motor circuit	AC-127
	2. Heater control panel power source circuit	AC-133
	3. LIN communication circuit	AC-163
	4. A/C control assembly	AC-257
	5. A/C amplifier	AC-268
Air Flow Control: Insufficient air flow	1. Blower motor circuit	AC-127
	2. A/C amplifier	AC-268
Temperature Control: No cool air comes out	1. Refrigerant volume	-
	2. Refrigerant pressure	AC-165
	3. Pressure switch circuit	AC-69
	4. Air mix control servo motor circuit (Driver side)	AC-86
	5. Air mix control servo motor circuit (Passenger side)	AC-78
	6. Evaporator temperature sensor circuit	AC-60
	7. Room temperature sensor circuit	AC-52
	8. Ambient temperature sensor circuit	AC-56
	9. Heater control panel power source circuit	AC-133
	10. LIN communication circuit	AC-163
	11. Expansion valve	AC-195
	12. A/C control assembly	AC-257
	13. A/C amplifier	AC-268
	14. Engine wire No. 4	HV-563
	15. Compressor with motor assembly	AC-229
	16. Inverter with converter assembly	HV-559
	17. Hybrid vehicle control ECU	HV-570
Temperature Control: No warm air comes out	1. Air mix control servo motor circuit (Driver side)	AC-86
	2. Air mix control servo motor circuit (Passenger side)	AC-78
	3. Evaporator temperature sensor circuit	AC-60
	4. Room temperature sensor circuit	AC-52
	5. Ambient temperature sensor circuit	AC-56
	6. A/C amplifier	AC-268

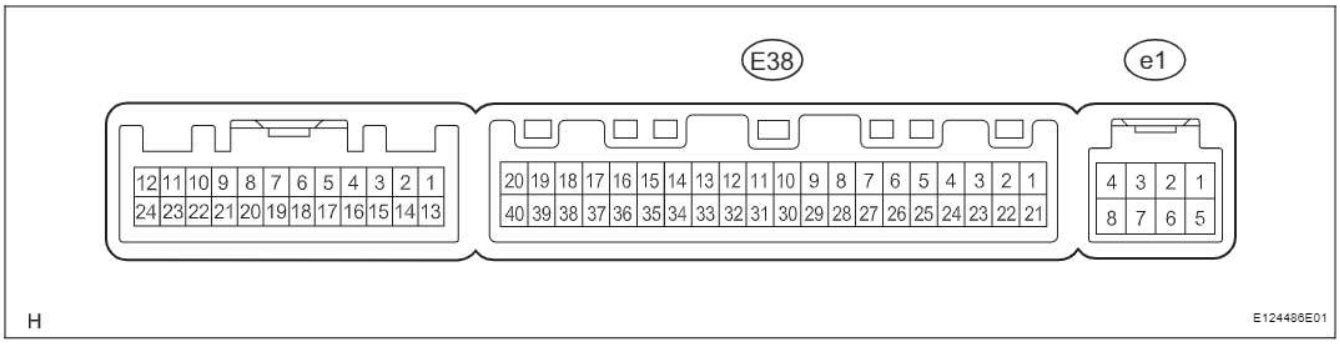
AC

Symptom	Suspected Area	See page
Temperature Control: Output air is warmer or cooler than the set temperature or response is slow.	1. Refrigerant volume	-
	2. Refrigerant pressure	AC-165
	3. Solar sensor circuit (Driver side)	AC-73
	4. Solar sensor circuit (Passenger side)	AC-64
	5. Room temperature sensor circuit	AC-52
	6. Ambient temperature sensor circuit	AC-56
	7. Air mix control servo motor circuit (Driver side)	AC-86
	8. Air mix control servo motor circuit (Passenger side)	AC-78
	9. ECO switch circuit	AC-154
	10. Radiator unit sub-assembly	AC-195
	11. Expansion valve	AC-195
	12. A/C amplifier	AC-268
Temperature Control: No temperature control (only Max. cool or Max. warm)	1. Air mix control servo motor circuit (Driver side)	AC-86
	2. Air mix control servo motor circuit (Passenger side)	AC-78
	3. Room temperature sensor circuit	AC-52
	4. Ambient temperature sensor circuit	AC-56
	5. Evaporator temperature sensor circuit	AC-60
	6. Solar sensor circuit (Driver side)	AC-73
	7. Solar sensor circuit (Passenger side)	AC-64
	8. A/C control assembly	AC-257
	9. A/C amplifier	AC-268
No air inlet control	1. Air inlet control servo motor circuit	AC-81
	2. A/C amplifier	AC-268
No air flow mode control	1. Air outlet control servo motor circuit	AC-83
	2. A/C amplifier	AC-268
Unable to control A/C with the steering pad switch	1. Steering pad switch circuit	AC-149
	2. Heater control panel power source circuit	AC-133
	3. LIN communication circuit	AC-163
	4. A/C control assembly	AC-257
	5. A/C amplifier	AC-268
Heater performance is low (PTC heater does not operate)	1. PTC heater circuit	AC-140
	2. Heater water pump circuit	AC-135
	3. A/C amplifier	AC-268
Plasmacluster does not operate	1. Blower motor circuit	AC-127
	2. Plasmacluster circuit	AC-146
	3. A/C amplifier	AC-268
ECO switch indicator does not come on (ECO switch does not operate)	1. ECO switch circuit	AC-154
	2. A/C amplifier	AC-268
Diagnostic trouble codes are not recorded. Set mode is cleared when power switch is turned OFF.	1. Back-up power source circuit	AC-161
	2. A/C amplifier	AC-268

AC

TERMINALS OF ECU

1. A/C AMPLIFIER



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

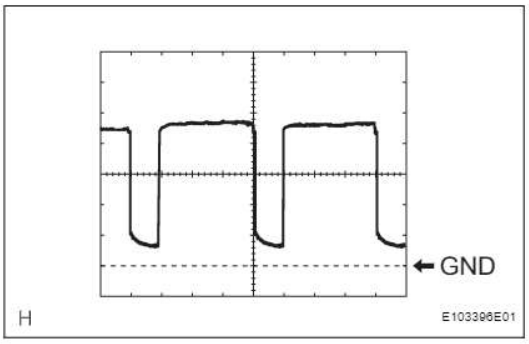
Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
E38-1 (IG+) - E38-14 (GND)	V - W-B	Power source (IG)	Power switch on (IG)	10 to 14 V
E38-1 (IG+) - E38-14 (GND)	V - W-B	Power source (IG)	Power switch off	Below 1 V
E38-3 (PTC1) - E38-14 (GND)	SB - W-B	PTC heater operation signal	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: OFF	10 to 14 V
E38-3 (PTC1) - E38-14 (GND)	SB - W-B	PTC heater operation signal	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: ON	Below 1 V
E38-5 (TAM) - E38-14 (GND)	P - W-B	A/C ambient temperature sensor signal	Power switch on (IG) at 25°C (77°F)	1.35 to 1.75 V
E38-5 (TAM) - E38-14 (GND)	P - W-B	A/C ambient temperature sensor signal	Power switch on (IG) at 40°C (104°F)	0.9 to 1.2 V
E38-9 (PRE) - E38-13 (SG-2)	V - L	A/C pressure sensor signal	Start HV system, Operate A/C system, Refrigerant pressure: Abnormal pressure (more than 3,140 kPa (32.0 kgf/cm^2, 455 psi))	4.74 V or higher
E38-9 (PRE) - E38-13 (SG-2)	V - L	A/C pressure sensor signal	Start HV system, Operate A/C system, Refrigerant pressure: Abnormal pressure (less than 196 kPa (2.0 kgf/cm^2, 28 psi))	Below 0.76 V
E38-9 (PRE) - E38-13 (SG-2)	V - L	A/C pressure sensor signal	Start HV system, Operate A/C system, Refrigerant pressure: Abnormal pressure (more than 3,140 kPa (32.0 kgf/cm^2, 455 psi) or less than 196 kPa (2.0 kgf/cm^2, 28 psi))	0.76 to 4.74 V
E38-10 (S5-3) - E38-13 (SG-2)	BR - L	Power supply for A/C pressure sensor	Power switch on (IG) A/C switch: ON	4.5 to 5.5 V
E38-10 (S5-3) - E38-13 (SG-2)	BR - L	Power supply for A/C pressure sensor	Power switch on (IG) A/C switch: OFF	Below 1 V
E38-11 (CANH) - E38-12 (CANL)	B - W	CAN communication system	CAN communication circuit	Pulse generation

AC

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
E38-13 (SG-2) - Body ground	L - Body ground	Ground for A/C pressure sensor, A/C ambient temperature sensor	Always	Below 1 V
E38-14 (GND) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1 V
E38-15 (ECOS) - E38-14 (GND)	SB - W-B	ECO switch signal	Power switch on (IG) ECO switch: OFF	Below 1 V
E38-15 (ECOS) - E38-14 (GND)	SB - W-B	ECO switch signal	Power switch on (IG) ECO switch: ON	10 to 14 V
E38-16 (ECID) - E38-14 (GND)	B - W-B	ECO switch indicator signal	Power switch on (IG) ECO switch: OFF	10 to 14 V
E38-16 (ECID) - E38-14 (GND)	B - W-B	ECO switch indicator signal	Power switch on (IG) ECO switch: ON	Below 1 V
E38-21 (B) - E38-14 (GND)	GR - W-B	Power source (Back-up)	Always	10 to 14 V
E38-22 (PTC2) - E38-14 (GND)	L - W-B	PTC heater operation signal	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: OFF	10 to 14 V
E38-22 (PTC2) - E38-14 (GND)	L - W-B	PTC heater operation signalo	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: ON	Below 1 V
E38-23 (BLW) - E38-14 (GND)	R - W-B	Blower motor speed control signal	Power switch on (IG) Blower switch: ON	Pulse generation (See waveform 1)
E38-29 (TR) - E38-34 (SG-1)	P - LG	A/C room temperature sensor signal	Power switch on (IG) Cabin temperature at 25°C (77°F)	1.8 to 2.2 V
E38-29 (TR) - E38-34 (SG-1)	P - LG	A/C room temperature sensor signal	Power switch on (IG) Cabin temperature at 40°C (104°F)	1.2 to 1.6 V
E38-32 (TSP) - E38-14 (GND)	Y - W-B	A/C solar sensor signal (for Front passenger side)	Power switch on (IG) Solar sensor is subjected to electric light.	0.8 to 4.3 V
E38-32 (TSP) - E38-14 (GND)	Y - W-B	A/C solar sensor signal (for Front passenger side)	Power switch on (IG) Solar sensor is covered with a cloth.	Below 0.8 V
E38-33 (TSD) - E38-14 (GND)	O - W-B	A/C solar sensor signal (for Driver side)	Power switch on (IG) Solar sensor is subjected to electric light.	0.8 to 4.3 V
E38-33 (TSD) - E38-14 (GND)	O - W-B	A/C solar sensor signal (for Driver side)	Power switch on (IG) Solar sensor is covered with a cloth.	Below 0.8 V
E38-34 (SG-1) - Body ground	LG - Body ground	Ground for A/C room temperature sensor	Always	Below 1 V
E38-37 (LIN1) - E38-14 (GND)	GR - W-B	LIN communication signal	Power switch on (IG)	Pulse generation
E38-38 (RDFG) - E38-14 (GND)	G - W-B	DEF relay signal	Power switch on (IG) REAR DEF switch: ON	Below 1 V
E38-38 (RDFG) - E38-14 (GND)	G - W-B	DEF relay signal	Power switch on (IG) REAR DEF switch: OFF	10 to 14 V
E38-39 (PCD1) - E38-14 (GND)	R - W-B	Plasmacluster operation signal	Power switch on (IG) Blower switch: OFF (plasmacluster not operating)	10 to 14 V
E38-39 (PCD1) - E38-14 (GND)	R - W-B	Plasmacluster operation signal	Power switch on (IG) Blower switch: ON (plasmacluster operating)	Below 1 V
e1-2 (BUS G) - Body ground	-	Ground for BUS IC	Always	Below 1 V

AC

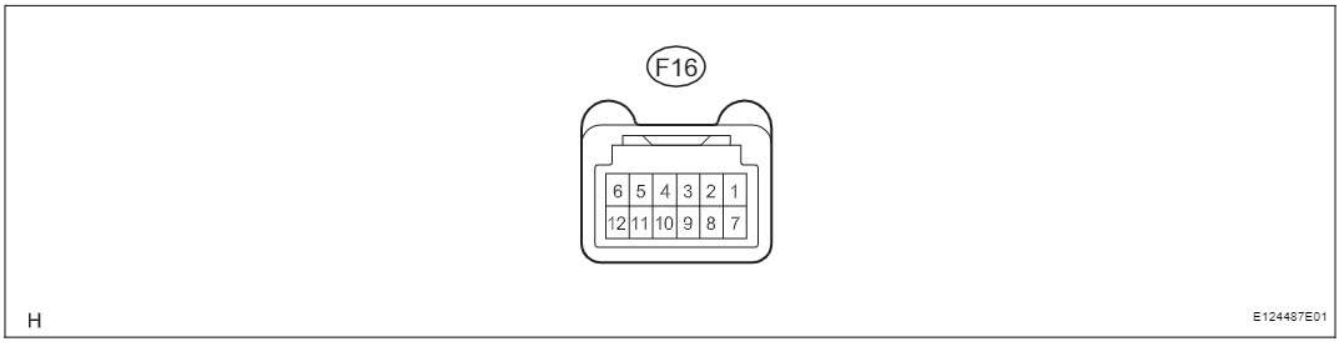
Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
e1-3 (BUS) - e1-2 (BUS G)	-	BUS IC control signal	Power switch off → on (IG)	Pulse generation
e1-4 (B BUS) - e1-2 (BUS G)	-	Power supply for BUS IC	Power switch off	Below 1 V
e1-4 (B BUS) - e1-2 (BUS G)	-	Power supply for BUS IC	Power switch on (IG)	10 to 14 V
e1-5 (SGA) - Body ground	-	Ground for evaporator temperature sensor	Always	Below 1 V
e1-6 (TEA) - e1-5 (SGA)	-	A/C evaporator temperature sensor signal	Power switch on (IG) Evaporator temperature at 0°C (32°F)	1.7 to 2.1 V
e1-6 (TEA) - e1-5 (SGA)	-	A/C evaporator temperature sensor signal	Power switch on (IG) Evaporator temperature at 15°C (59°F)	0.9 to 1.3 V



(a) Waveform 1:

Item	Contents
Terminal No. (Symbols)	E38-23 (BLW) - E38-14 (GND)
Tool Setting	1 V/DIV., 500 μs/DIV.
Vehicle Condition	Power switch on (IG) Blower switch: ON

2. A/C CONTROL ASSEMBLY

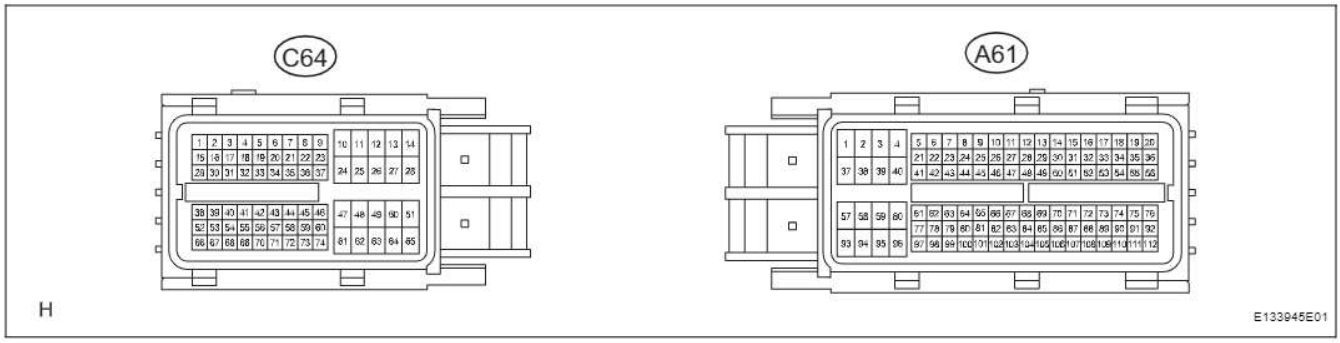


HINT:
Check from the rear of the connector while it is connected to the A/C control assembly.

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
F16-3 (GND) - Body ground	W-B - Body ground	Ground for A/C control assembly	Always	Below 1 V
F16-4 (TX+) - F16-3 (GND)	L - W-B	LIN communication circuit	Power switch on (IG)	Pulse generation
F16-5 (IG+) - F16-3 (GND)	V - W-B	Power source (IG)	Power switch off	Below 1 V
F16-5 (IG+) - F16-3 (GND)	V - W-B	Power source (IG)	Power switch on (IG)	10 to 14 V

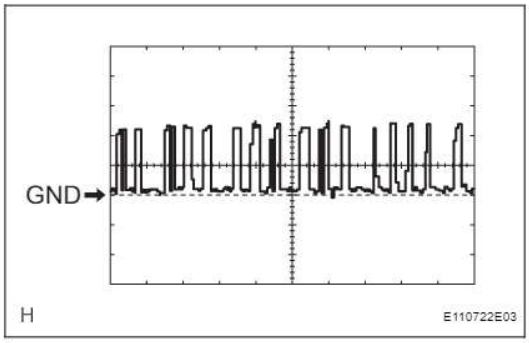
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3. HYBRID VEHICLE CONTROL ECU



HINT:
Check from the front of the connector while it is disconnected from the hybrid vehicle control ECU.

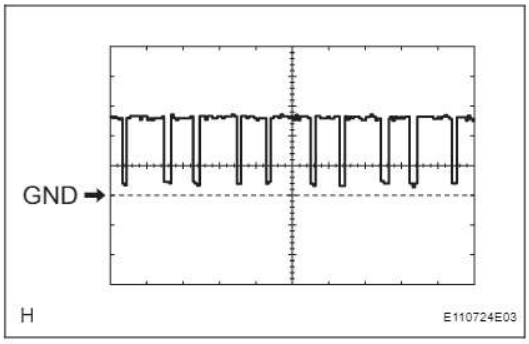
Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
A61-11 (WP) - Body ground	O - Body ground	Heater water pump operation signal	Power switch off	Below 1 V
A61-11 (WP) - Body ground	O - Body ground	Heater water pump operation signal	Power switch on (IG)	10 to 14 V
C64-18 (CLK) - Body ground	G - Body ground	Compressor operation signal	Power switch on (IG)	Pulse generation (See waveform 1)
C64-19 (ETI) - Body ground	Y - Body ground	Compressor operation signal	Power switch on (IG)	Pulse generation (See waveform 2)
C64-20 (ITE) - Body ground	W - Body ground	Compressor operation signal	Power switch on (IG)	Pulse generation (See waveform 3)
C64-33 (STB) - Body ground	R - Body ground	Compressor operation signal	Power switch on (IG)	10 to 14 V
C64-33 (STB) - Body ground	R - Body ground	Compressor operation signal	Power switch off	Below 1 V



(a) Waveform 1:

Item	Contents
Terminal No. (Symbols)	C64-18 (CLK) - Body ground
Tool Setting	5 V/DIV., 200 ms./DIV.
Vehicle Condition	Power switch on (IG)

HINT:
Waveform cycle varies with the communication contents.

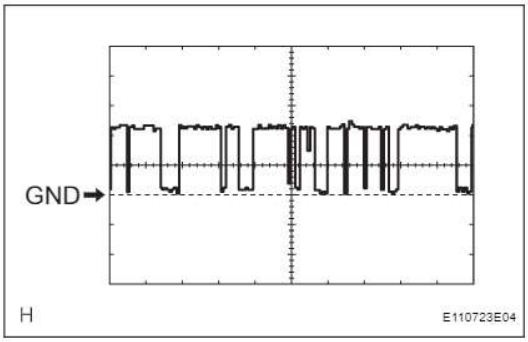


(b) Waveform 2:

Item	Contents
Terminal No. (Symbols)	C64-19 (ETI) - Body ground
Tool Setting	5 V/DIV., 200 ms./DIV.
Vehicle Condition	Power switch on (IG)

HINT:
Waveform cycle varies with the communication contents.

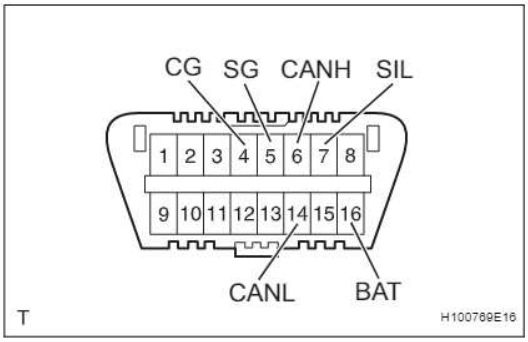
AC



(c) Waveform 3:

Item	Contents
Terminal No. (Symbols)	C64-20 (ITE) - Body ground
Tool Setting	5 V/DIV., 200 ms./DIV.
Vehicle Condition	Power switch on (IG)

HINT:
Waveform cycle varies with the communication contents.



DIAGNOSIS SYSTEM

1. CHECK DLC3

(a) The vehicle's ECU uses the ISO 15765-4 communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format.

Symbol (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	10 to 14 V
CANH (6) - CANL (14)	CAN bus line	Power switch off*	54 to 69 Ω
CANH (6) - BAT (16)	HIGH-level CAN bus line	Power switch off*	6 kΩ or higher
CANH (6) - CG (4)	HIGH-level CAN bus line	Power switch off*	200 Ω or higher
CANL (14) - BAT (16)	LOW-level CAN bus line	Power switch off*	6 kΩ or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Power switch off*	200 Ω or higher

NOTICE:
***: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the power switch, any other switches, or the doors.**
HINT:
Connect the cable of the intelligent tester to the DLC3, turn the power switch on (IG) and attempt to use the tester. If the display indicates that a communication error has occurred, there is a problem either with the vehicle or with the tester.

- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 of the original vehicle.
- If communication is still not possible when the tester is connected to another vehicle, the problem may be in the tester itself. Consult the Service Department listed in the tester's instruction manual.

AC

DTC CHECK / CLEAR

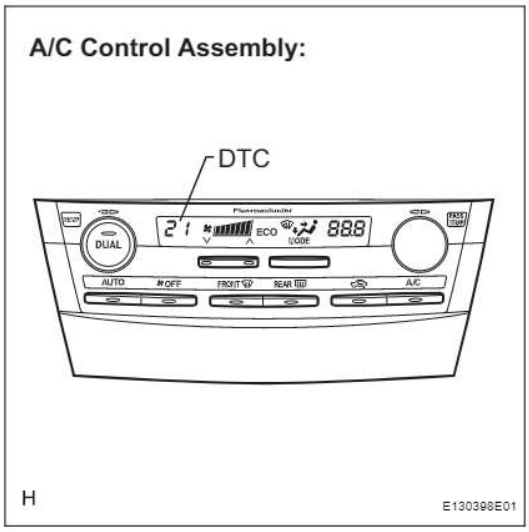
1. DTC CHECK (SENSOR CHECK)

(a) Start the THS-II system.

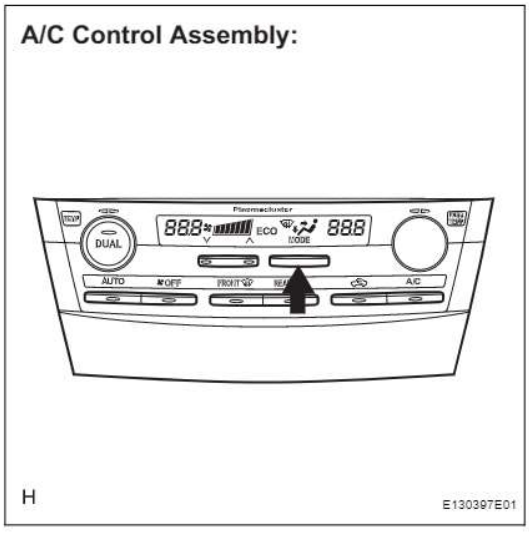
(b) Perform the indicator check (See page AC-41).
HINT:
After the indicator check is completed, the system enters the DTC check mode automatically.

(c) Read the code displayed on the panel. (Trouble codes are output on the temperature display.)
NOTICE:
- **In the sensor check mode, which is automatically transferred from the indicator check mode, troubleshooting may be partially performed. Be sure to perform the actuator check, and then the sensor check again.**
- **If the check is performed in a dark place, DTC 21 or 24 may be displayed even though the system is normal.**

HINT:
Refer to the DTC chart (Diagnostic Trouble Code chart) for details of the codes (See page AC-47).
- When there are no problems, DTC 00 is output.
- As an example, the illustration shows that DTC 21 is output.

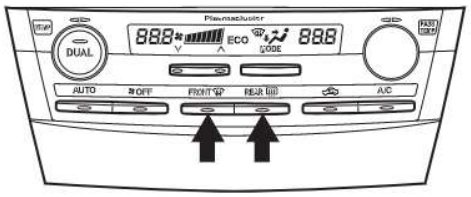


(d) If the steps are difficult to read because they change automatically, push the "MODE" switch to display the steps one at a time so that they can be read easily. The items are displayed step by step each time the "MODE" switch is pushed.
HINT:
- Push the "OFF" switch to finish panel diagnosis.
- Push the "R/F" switch to enter the actuator check mode.



AC

A/C Control Assembly:

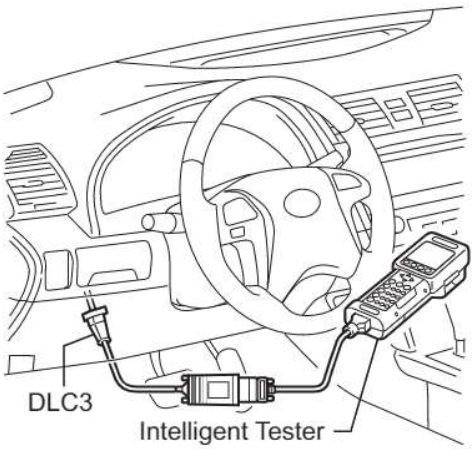


H

E130397E02

2. CLEARING DTC

(a) During the sensor check, press the "FRONT DEF" switch and "REAR DEF" switch at the same time.



H

C131977E01

3. DTC CHECK USING INTELLIGENT TESTER

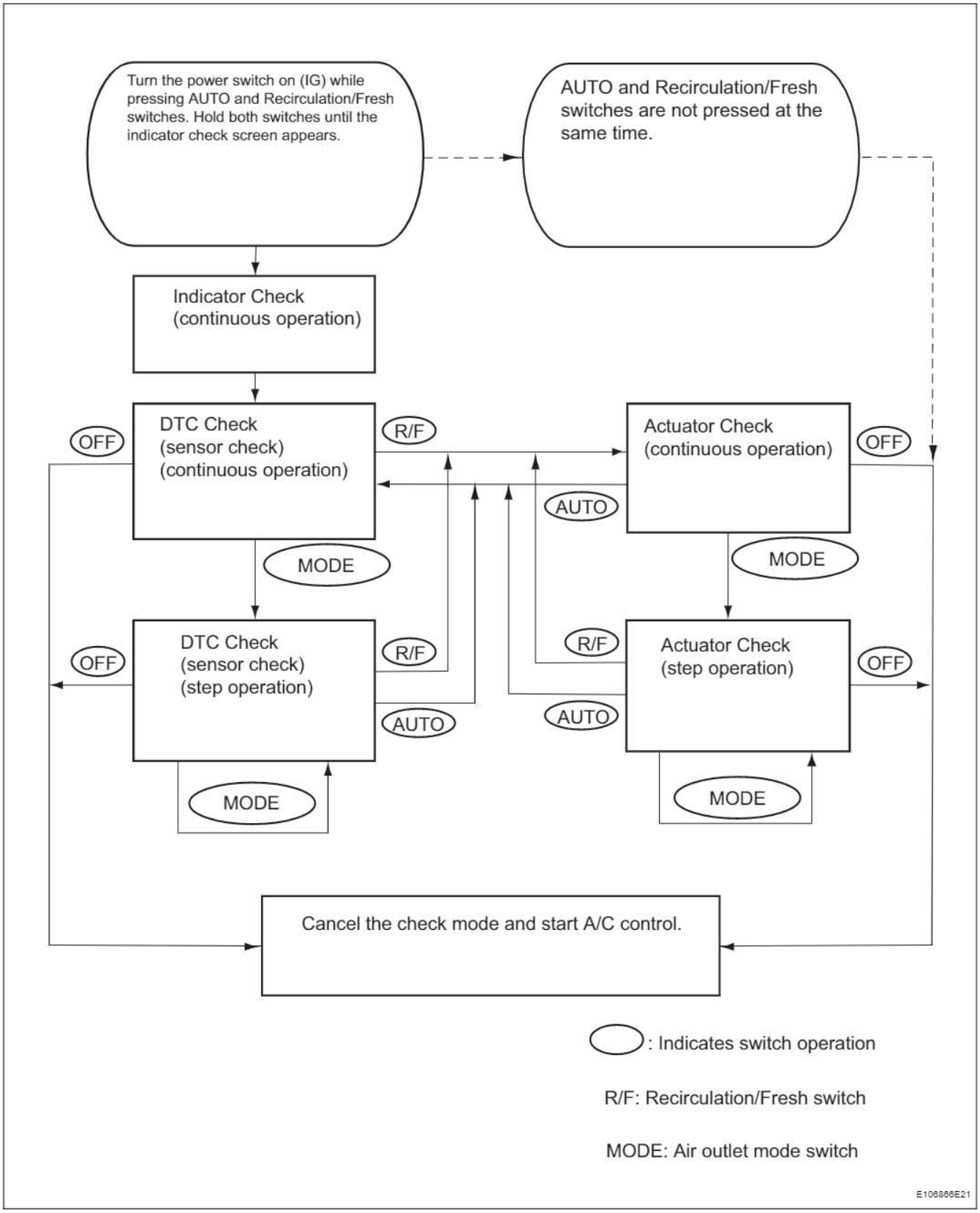
(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menu items: DIAGNOSIS / OBD/ MOBD / DTC INFO / CURRENT CODES.
HINT:
Refer to the intelligent tester operator's manual for further details.
(e) Check the details of the DTCs.
(f) Clear the DTCs.
HINT:
After repairing the malfunctions, clear the DTCs.
(1) Connect the intelligent tester to the DLC3.
(2) Turn the power switch on (IG).
(3) Enter the following menu items: DIAGNOSIS / OBD/MOBD / DTC INFO / CLEAR CODES.
HINT:
Refer to the intelligent tester operator's manual for further details.
(4) Press the YES button.

AC

CHECK MODE PROCEDURE

1. LIST OF OPERATION METHODS

(a) By operating each of the A/C control switches as shown in the diagram below, it is possible to enter the diagnostic check mode.

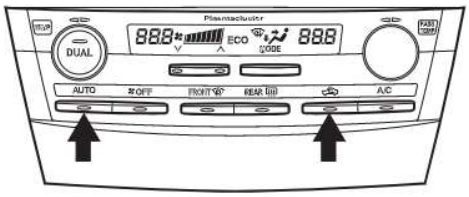


AC

2. INDICATOR CHECK

(a) Turn the power switch off.

A/C Control Assembly:

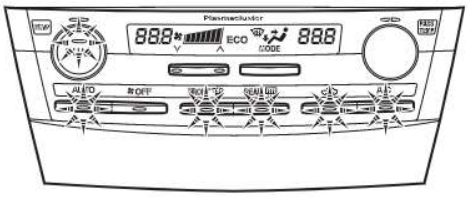


H

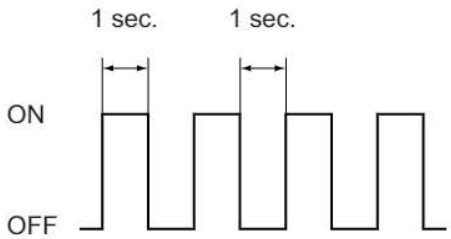
E130397E03

(b) Turn the power switch on (IG) while pressing the A/C control "AUTO" switch and "R/F" switch simultaneously. Hold both switches until the indicator check screen appears.

A/C Control Assembly:



Indicator Blinking Pattern:



H

E130399E01

(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.

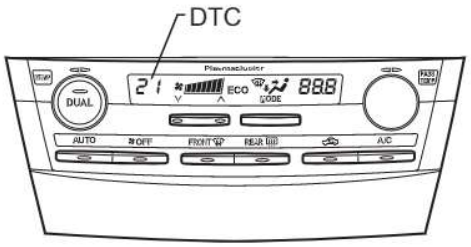
3. DTC CHECK (SENSOR CHECK)

(a) Start the THS-II system.

(b) Perform the indicator check.
HINT:
After the indicator check is completed, the system enters the DTC check mode automatically.

AC

A/C Control Assembly:

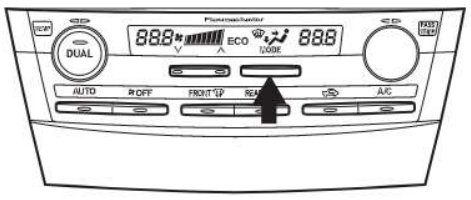


H E130398E01

(c) Read the code displayed on the panel (Trouble codes are output on the temperature display.)
NOTICE:
- **In the sensor check mode, which is automatically transferred from the indicator check mode, troubleshooting may be partially performed. Be sure to perform the actuator check, and then the sensor check again.**
- **If the check is performed in a dark place, DTC 21 or 24 may be displayed even though the system is normal.**

HINT:
Refer to the DTC chart (Diagnostic Trouble Code chart) for details of the codes (See page AC-47).
- When there are no problems, DTC 00 is output.
- As an example, the illustration shows that DTC 21 is output.

A/C Control Assembly:



H E130397E01

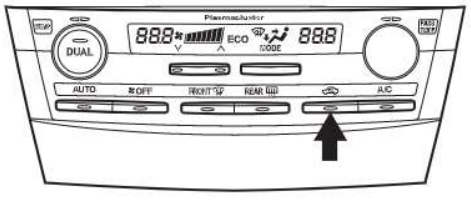
(d) If the steps are difficult to read because they change automatically, push the "MODE" switch to display the steps one at a time so that they can be read easily. The items are displayed step by step each time the "MODE" switch is pushed.
HINT:
- Push the "OFF" switch to finish panel diagnosis.
- Push the "R/F" switch to enter the actuator check mode.

4. ACTUATOR CHECK

(a) Start the THS-II system.

(b) Perform the indicator check.

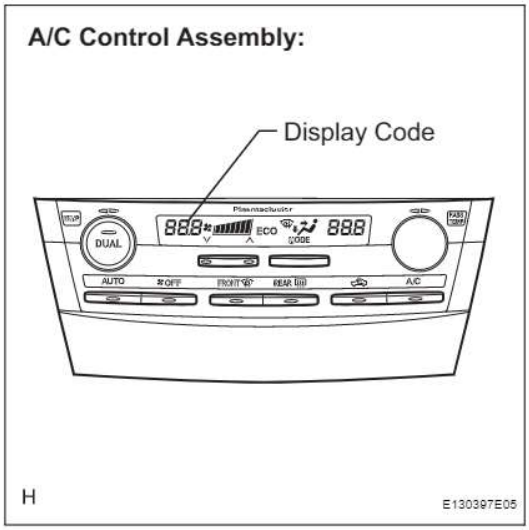
A/C Control Assembly:



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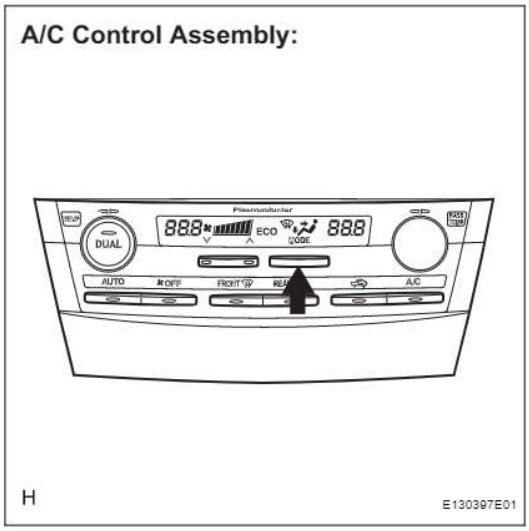
(c) Push the "R/F" switch to perform the actuator check.
HINT:
Be sure to perform the actuator check after starting the THS-II system.

AC



(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	Conditions				
		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



(e) If the steps are difficult to read because they change automatically, push the "MODE" 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 "MODE" switch is pushed.
HINT:
- Push the "OFF" switch to finish panel diagnosis.
- Push the "R/F" switch to enter the sensor check mode.

AC

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

Using the intelligent tester's DATA LIST allows switch, sensor, actuator, and other item values to be read without removing any parts. Reading the DATA LIST early in troubleshooting is one way to save time.

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG).
(c) Turn the tester on.
(d) Enter the following menus: DIAGNOSIS / OBD/ MOBD / 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 TEMP (Room temperature sensor)	Room temperature sensor / Min.: -6.5°C (20.3°F), Max.: 57.25°C (135.05°F)	Actual cabin temperature is displayed	-
AMBI TEMP SENS (Ambient temperature sensor)	Ambient temperature sensor / Min.: -23.3°C (-9.94°F), Max.: 65.95°C (150.71°F)	Actual ambient temperature is displayed	-
AMBI TEMP (Adjusted ambient temperature)	Adjusted ambient temperature / Min.: -30.8°C (-23.44°F), Max.: 50.8°C (123.44°F)	-	-
EVAP FIN TEMP (Evaporator fin thermistor)	Evaporator fin thermistor / Min.: -29.7°C (-21.46°F), Max.: 59.55°C (139.19°F)	Actual evaporator temperature is displayed	-
SOLAR SENS-D (Solar sensor (D side))	Driver side solar sensor / Min.: 0, Max.: 255	Driver side solar sensor value increases as brightness increases	-
SOLAR SENS-P (Solar sensor (P side))	Passenger side solar sensor / Min.: 0, Max.: 255	Passenger side solar sensor value increases as brightness increases	-
COOLANT TEMP (Engine coolant temperature)	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	-
SET TEMP-D (Set temperature (D side))	Driver side set temperature / Min.: 0°C (32°F), Max.: 30°C (54°F)	Driver side set temperature is displayed	-
SET TEMP-P (Set temperature (P side))	Passenger side set temperature / Min.: 0°C (32°F), Max.: 30°C (54°F)	Passenger side set temperature is displayed	-
ESTIMATE TEMP-D (Estimated temperature (D side))	Driver side estimated temperature / Min.: -358.4°C (-613.12°F), Max.: 358.4°C (677.12°F)	Damper is at "MAX. COOL": -358.4°C (-613.12°F) Damper is at "MAX. HOT": 358.4°C (677.12°F)	-
ESTIMATE TEMP-P (Estimated temperature (P side))	Passenger side estimated temperature / Min.: -358.4, Max.: 358.4	Damper is at "MAX. COOL": -358.4°C (-613.12°F) Damper is at "MAX. HOT": 358.4°C (677.12°F)	-
BLOWER LEVEL (Blower motor speed level)	Blower motor speed level / Min.: 0 level, Max.: 31 level	Increases in the range between 0 and 31 as the blower motor speed increases	-
REG PRESS SENS (Regulator pressure sensor)	Regulator pressure sensor / Min.: -0.5 kgf/cm^{2}G, Max.: 37.75 kgf/cm^{2}G	Actual refrigerant pressure is displayed	-
AIR MIX PULSE-D (Air mix servomotor target pulse (D side))	Driver side air mix servo motor target pulse / Min.: 0, Max.: 255	MAX. COLD: 5 (pulse) MAX. HOT: 103 (pulse)	-

AC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
AIR MIX PULSE-P (Air mix servomotor target pulse (P side))	Passenger side air mix servo motor target pulse / Min.: 0, Max.: 255	MAX. COLD: 105 (pulse) MAX. HOT: 7 (pulse)	-
AIR OUT PULSE-D (Air out pulse-D)	Driver side air outlet servo motor target pulse / Min.: 0, Max.: 255	FACE: 8 (pulse) B/L: 30 to 38 (pulse) FOOT: 50 to 74 (pulse) FOOT/DEF: 80 (pulse) DEF: 97 (pulse)	-
A/I DAMP PLS (Air inlet damper target pulse)	Air inlet damper target pulse / Min.: 0, Max.: 255	RECIRCULATION: 7 (pulse) FRESH: 28 (pulse)	-
COMPRS SPD (Compressor speed)	Compressor speed / Min.: 0, Max.: 65535 rpm	Displays actual rotation speed in the range between 0 rpm and 8,600 rpm	-
COMPRS TARG SPD (Compressor target speed)	Compressor target speed / Min.: 0, Max.: 65535 rpm	Displays actual rotation speed in the range between 0 rpm and 8,600 rpm	-
#CODES (Number of trouble codes)	Number of trouble codes / Min.: 0, Max.: 255	Number of DTCs will be displayed	-

2. ACTIVE TEST

HINT:

Performing the intelligent tester's ACTIVE TEST allows relays, VSVs, actuators and other items to be operated without removing any parts. Performing the ACTIVE TEST early in troubleshooting is one way to save time. The DATA LIST can be displayed during the ACTIVE TEST.

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG).
(c) Turn the tester on.
(d) Enter the following menus: DIAGNOSIS / OBD/ MOBD / AIR CONDITIONER / ACTIVE TEST.
(e) Perform the ACTIVE TEST by referring to the table below.

AIR CONDITIONER:

Tester Display	Test Part	Control Range
BLOWER MOTOR (Blower motor)	Blower motor / Min.: Level 0, Max.: Level 31	-
DEFOGER RLY-R (Defogger relay (Rear))	Defogger relay (Rear) / OFF, ON	-
COMPRS TARG SPD (Compressor target speed)	Compressor target speed / Min.: 0, Max.: 65535 (800 to 8,600 rpm)	-
WATER PUMP (Water pump)	Water pump / OFF, ON	-
ELECTRICAL FAN (Electrical fan)	Electrical fan / OFF, ON	-
HEATER1 (Electric heater1)	Electric Heater1 / OFF, ON	-
HEATER2 (Electric heater2)	Electric Heater2 / OFF, ON	-
AIR MIX PULSE-D (Air mix servomotor pulse (D side))	Driver side air mix servo motor pulse / Min.: 0, Max.: 255	-
AIR MIX PULSE-P (Air mix servomotor pulse (P side))	Passenger side air mix servo motor pulse / Min.: 0, Max.: 255	-
AIR OUT PULSE-D (Air outlet servomotor pulse (D side))	Driver side air outlet servo motor pulse / Min.: 0, Max.: 255	-

AC

Tester Display	Test Part	Control Range
A/I DAMP PLS (Air inlet damper target pulse)	Air inlet damper target pulse / Min.: 0, Max.: 255	-

DIAGNOSTIC TROUBLE CODE CHART

AIR CONDITIONING SYSTEM:

DTC Code	Detection Item	Trouble Area	Memory *5	See page
B1411/11 *1	Room Temperature Sensor Circuit	1. A/C room temperature sensor 2. Harness or connector between A/C room temperature sensor and A/C amplifier 3. A/C amplifier	Memorized (8.5 min. or more)	AC-52
B1412/12 *2	Ambient Temperature Sensor Circuit	1. Ambient temperature sensor 2. Harness or connector between ambient temperature sensor and A/C amplifier 3. A/C amplifier	Memorized (8.5 min. or more)	AC-56
B1413/13	Evaporator Temperature Sensor Circuit	1. Evaporator temperature sensor 2. Air conditioning harness 3. A/C amplifier	Memorized (8.5 min. or more)	AC-60
B1421/21 *3	Solar Sensor Circuit (Passenger Side)	1. Solar sensor 2. Harness or connector between solar sensor and A/C amplifier 3. Harness or connector between solar sensor and main body ECU 4. A/C amplifier 5. Main body ECU	Memorized (8.5 min. or more) (only when circuit is shorted)	AC-64
B1423/23	Pressure Sensor Circuit	1. A/C pressure sensor 2. Harness or connector between A/C pressure sensor and A/C amplifier 3. Refrigerant pipe line 4. A/C amplifier	-	AC-69
B1424/24 *3	Solar Sensor Circuit (Driver Side)	1. Solar sensor 2. Harness or connector between solar sensor and A/C amplifier 3. Harness or connector between solar sensor and main body ECU 4. A/C amplifier 5. Main body ECU	Memorized (8.5 min. or more) (only when circuit is shorted)	AC-73
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.)	AC-78
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.)	AC-81
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.)	AC-83
B1446/46	Air Mix Damper Control Servo Motor Circuit (Driver Side)	1. A/C amplifier 2. Air conditioning harness 3. Air mix control servo motor	Memorized (30 sec.)	AC-86

AC

DTC Code	Detection Item	Trouble Area	Memory *5	See page
B1471/71	A/C Inverter High Voltage Power Resource System Malfunction	1. Harness or connector between compressor with motor assembly and inverter with converter assembly 2. Compressor with motor assembly 3. Hybrid control system 4. Inverter with converter assembly 5. CAN communication system	Memorized	AC-88
B1472/72	A/C Inverter High Voltage Output System Malfunction	1. Compressor with motor assembly 2. CAN communication system	Memorized	AC-94
B1473/73	A/C Inverter Start-up Signal System Malfunction	1. Harness or connector between hybrid vehicle control ECU and compressor with motor assembly 2. Compressor with motor assembly 3. Hybrid control system 4. CAN communication system	-	AC-95
B1474/74	A/C Inverter Malfunction	1. Compressor with motor assembly 2. CAN communication system	Memorized	AC-99
B1475/75	A/C Inverter Cooling / Heating System Malfunction	1. Cooling fan system 2. Refrigerant volume 3. Compressor with motor assembly 4. CAN communication system	Memorized	AC-100
B1476/76	A/C Inverter Load System Malfunction	1. Refrigerant volume 2. Compressor with motor assembly 3. Cooling fan system 4. CAN communication system	Memorized	AC-104
B1477/77	A/C Inverter Low Voltage Power Resource System Malfunction	1. Compressor with motor assembly 2. CAN communication system	Memorized	AC-108
B1497/97	BUS IC Communication Malfunction	1. Air conditioning harness 2. A/C amplifier	Memorized (10 sec. or more)	AC-109
B1498/98 *4	Communication Malfunction (A/C Inverter Local)	1. Harness or connector between hybrid vehicle control ECU and compressor with motor assembly and body ground 2. Electric vehicle fuse 3. Hybrid vehicle control ECU 4. Compressor with motor assembly 5. Inverter with converter assembly 6. Engine wire No. 4 7. CAN communication system 8. Hybrid control system	Memorized	AC-112

AC

DTC Code	Detection Item	Trouble Area	Memory *5	See page
B1499/99	Multiplex Communication Circuit	CAN communication system	Memorized	AC-121
P0AA6-611	Hybrid Battery Voltage System Isolation Fault	1. Compressor oil 2. Refrigerant pipe line 3. Compressor with motor assembly 4. CAN communication system	-	AC-122

HINT:

- *1: If the cabin temperature is approx. -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 approx. -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 or B1424/24 (solar sensor circuit abnormal) may be output even though the system is normal.
- *4: Depending on the timing of the power supply to the 12 V power supply circuit and high-voltage circuit when the power switch is turned on (READY), an abnormal information signal may be output, causing this DTC to be stored. If the output DTC is a code that was memorized in the past, check the fuses and wire harnesses. If there is no malfunction, erase the DTC.
- *5: The A/C amplifier memorizes the DTC of the respective malfunction if it has occurred for the period of time indicated in the brackets.

ACTUATOR CHECK

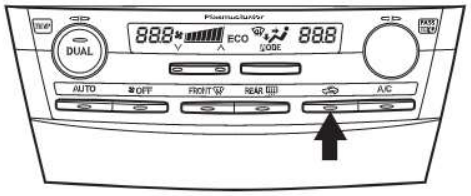
1. ACTUATOR CHECK

(a) Start the THS-II system.

(b) Perform the indicator check (See page AC-41).

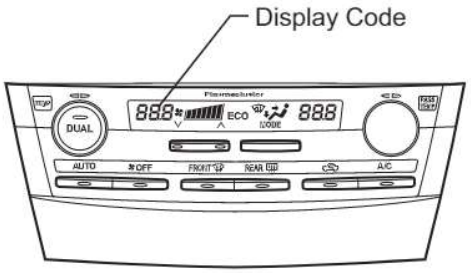
(c) Push the "R/F" switch to perform the actuator check.
HINT:
Be sure to perform the actuator check after starting the THS-II system.

A/C Control Assembly:



H E130397E04

A/C Control Assembly:



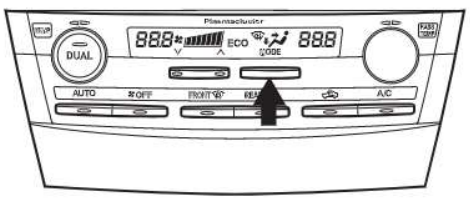
H E130397E05

(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	Conditions				
		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

AC

A/C Control Assembly:



H

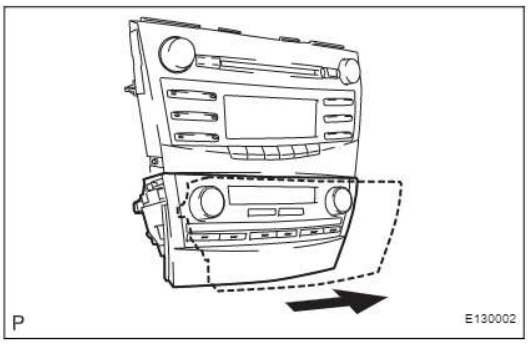
E130397E01

(e) If the steps are difficult to read because they change automatically, push the "MODE" 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 "MODE" switch is pushed.
HINT:
- Push the "OFF" switch to finish panel diagnosis.
- Push the "R/F" switch to enter the sensor check mode.

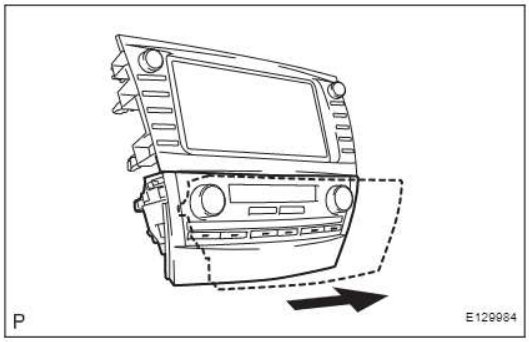
AC

REMOVAL

1. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (See page IP-14)
2. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-14)
3. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-14)
4. REMOVE FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY (See page IP-15)
5. REMOVE UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page IP-15)
6. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY (See page IP-16)
7. REMOVE INSTRUMENT PANEL NO. 2 REGISTER ASSEMBLY (See page IP-16)
8. REMOVE RADIO RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/o Navigation System) (See page AV-136)
9. REMOVE NAVIGATION RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/ Navigation System) (See page NS-193)
10. REMOVE RADIO NO. 1 BRACKET (w/o Navigation System) (See page AV-136)
11. REMOVE RADIO NO. 1 BRACKET (w/ Navigation System) (See page NS-193)
12. REMOVE RADIO NO. 2 BRACKET (w/o Navigation System) (See page AV-136)
13. REMOVE RADIO NO. 2 BRACKET (w/ Navigation System) (See page NS-193)
14. REMOVE AIR CONDITIONING CONTROL ASSEMBLY (w/o Navigation System)
    (a) Remove the air conditioning control assembly as shown in the illustration.



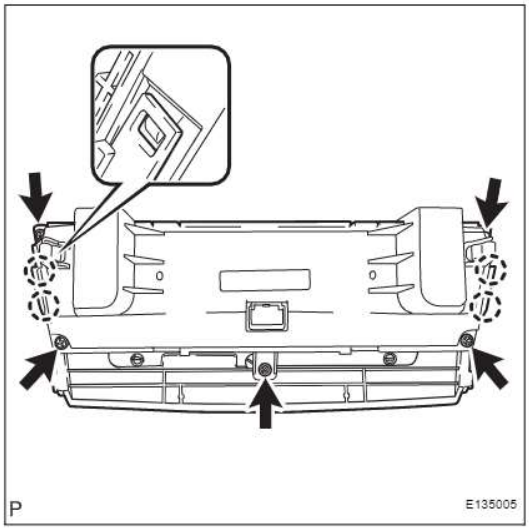
AC



15. REMOVE AIR CONDITIONING CONTROL ASSEMBLY (w/ Navigation System)

(a) Remove the air conditioning control assembly as shown in the illustration.

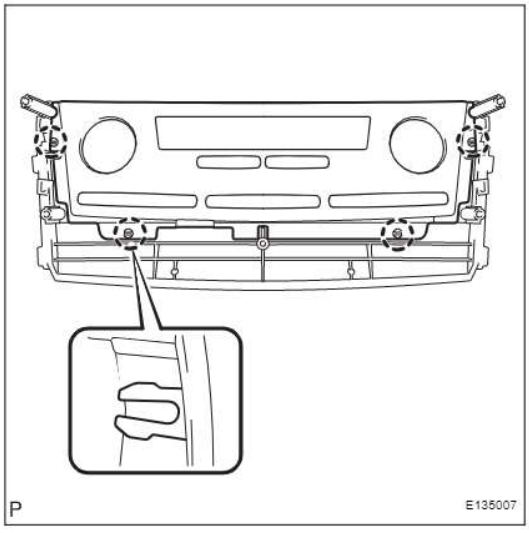
DISASSEMBLY



1. REMOVE AIR CONDITIONING PANEL SUB-ASSEMBLY

(a) Remove the 5 screws.

(b) Disengage the 4 claws and remove the air conditioning panel sub-assembly.



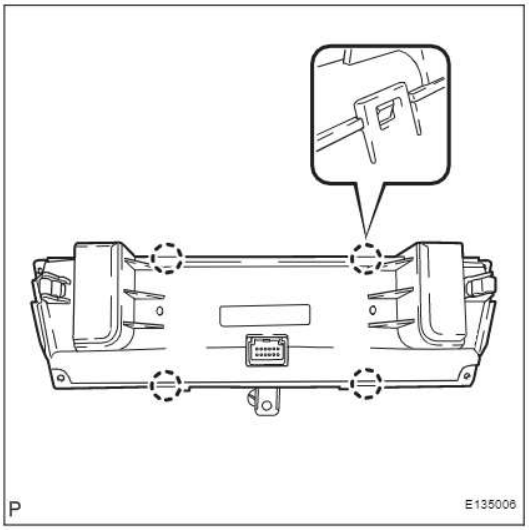
(c) Disengage the 4 claws and remove the ornament.

2. REMOVE CONTROL KNOB SUB-ASSEMBLY

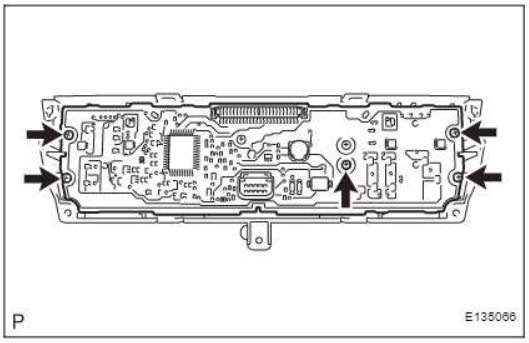
NOTICE:

When disassembling the air conditioning control assembly, eliminate static electricity by touching the vehicle body to prevent the components from being damaged.

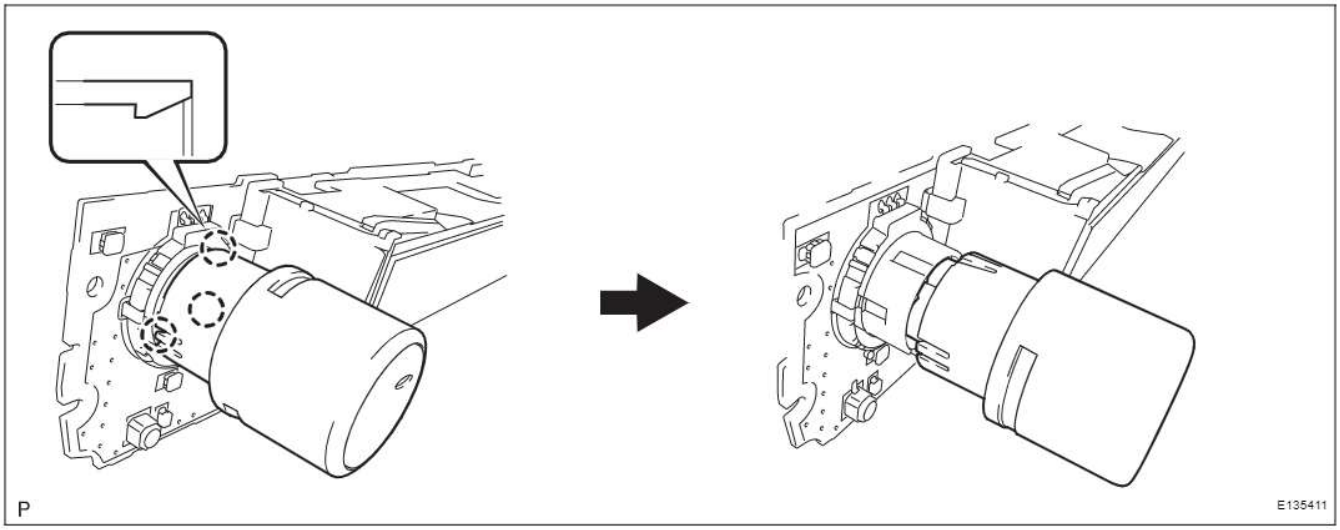
AC



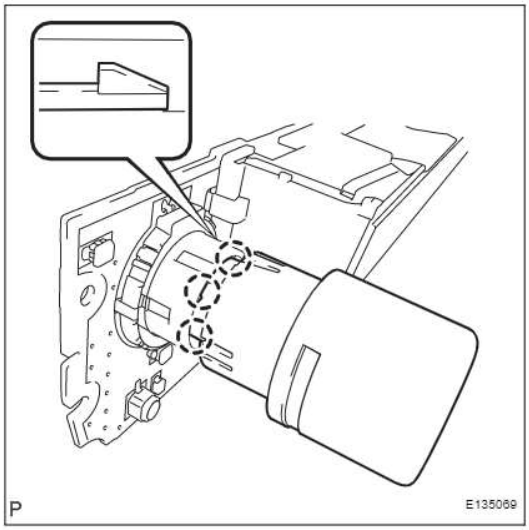
(a) Disengage the 4 claws and remove the control panel case.



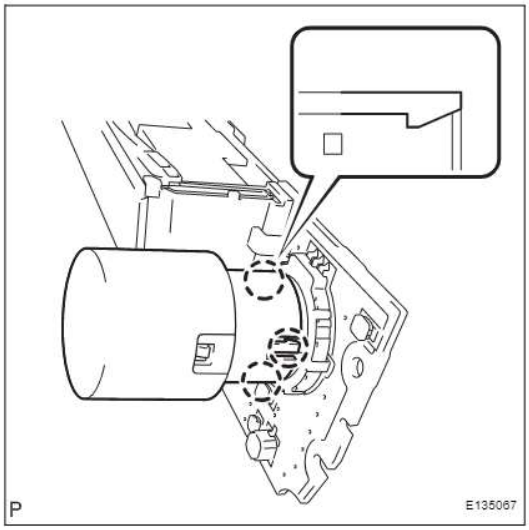
(b) Remove the 5 screws and switch control sub-assembly.
(c) Driver Side:
(1) Disengage the 3 claws and pull the control knob sub-assembly to the position shown in the illustration.



AC



(2) Disengage the 3 claws and remove the control knob sub-assembly.
HINT:
Remove the control knob sub-assembly and the dual push switch as a unit.



(d) Passenger Side:
(1) Disengage the 3 claws and remove the control knob sub-assembly.

AC

REASSEMBLY

1. **INSTALL CONTROL KNOB SUB-ASSEMBLY**

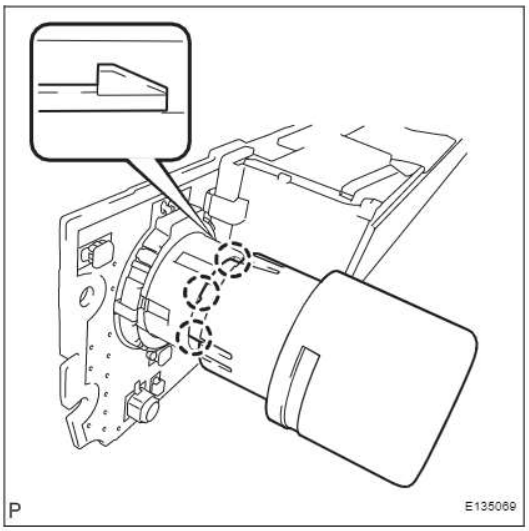
NOTICE:

When disassembling the air conditioning control assembly, eliminate static electricity by touching the vehicle body to prevent the components from being damaged.

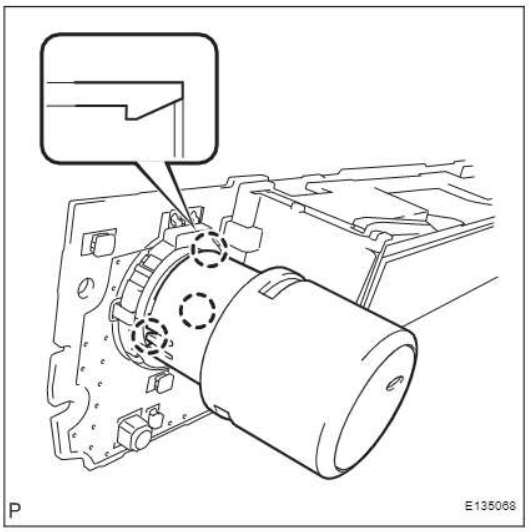
(a) Driver Side:

(1) Engage the dual push switch with dial on the switch control sub-assembly.

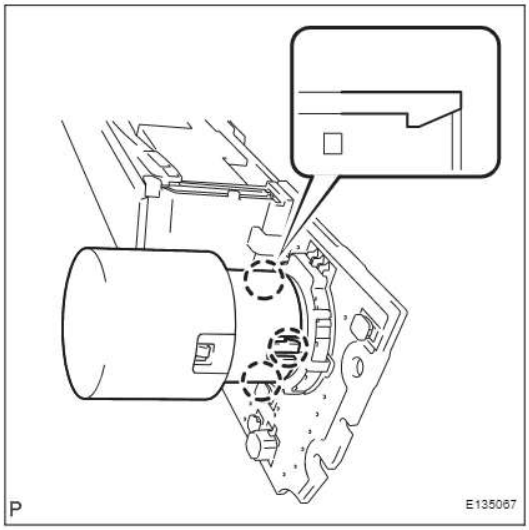
(2) Engage the 3 claws.



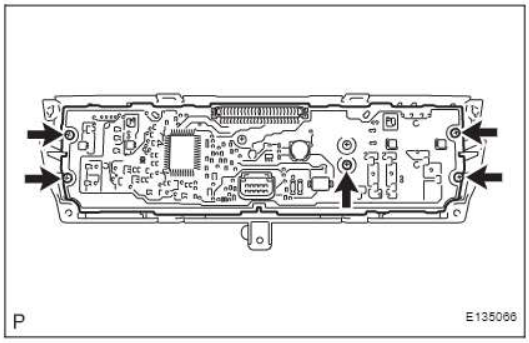
(3) Engage the 3 claws and install the control knob sub-assembly.



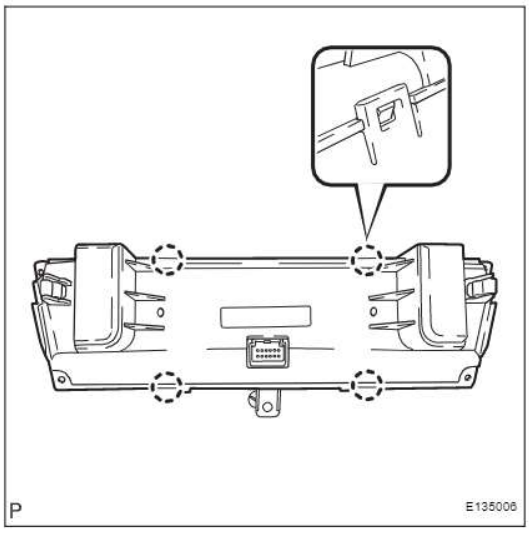
AC



(b) Passenger Side:
(1) Engage the 3 claws and install the control knob sub-assembly.

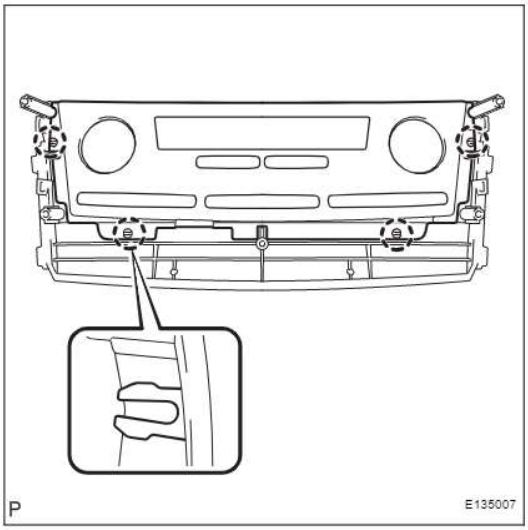


(c) Install the switch control sub-assembly with the 5 screws.

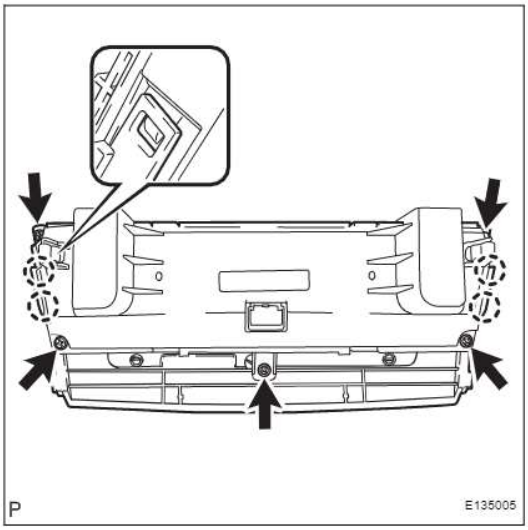


(d) Engage the 4 claws and install the control panel case.

AC

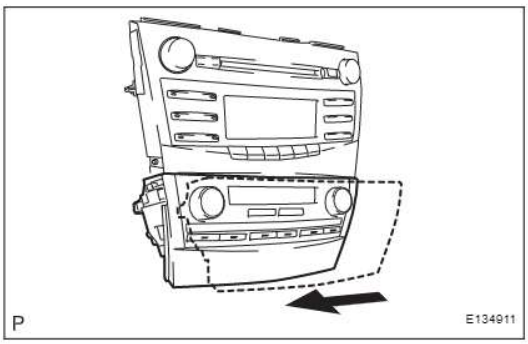


2. **INSTALL AIR CONDITIONING PANEL SUB-ASSEMBLY**
   (a) Engage the 4 claws and install the ornament.

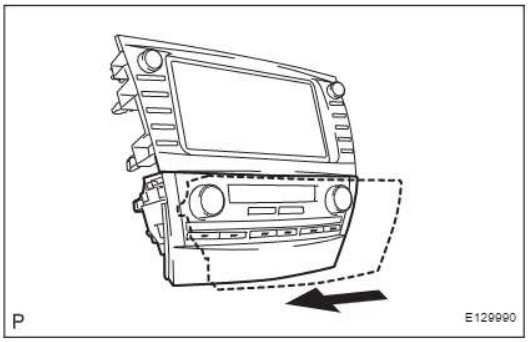


   (b) Engage the 4 claws.
   (c) Install the air conditioning panel sub-assembly with the 5 screws.

INSTALLATION



1. **INSTALL AIR CONDITIONING CONTROL ASSEMBLY (w/o Navigation System)**
   (a) Install the air conditioning control assembly as shown in the illustration.

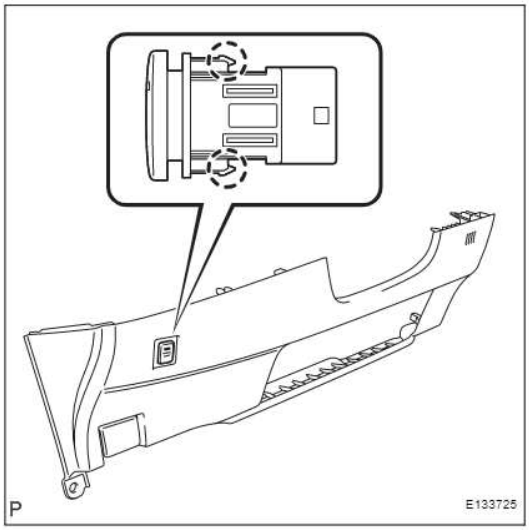


2. **INSTALL AIR CONDITIONING CONTROL ASSEMBLY (w/ Navigation System)**
   (a) Install the air conditioning control assembly as shown in the illustration.
3. **INSTALL RADIO NO. 2 BRACKET (w/o Navigation System) (See page AV-137)**
4. **INSTALL RADIO NO. 2 BRACKET (w/ Navigation System) (See page NS-194)**
5. **INSTALL RADIO NO. 1 BRACKET (w/o Navigation System) (See page AV-137)**

AC

6. INSTALL RADIO NO. 1 BRACKET (w/ Navigation System) (See page NS-194)
7. INSTALL RADIO RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/o Navigation System) (See page AV-137)
8. INSTALL NAVIGATION RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/ Navigation System) (See page NS-194)
9. INSTALL INSTRUMENT PANEL NO. 2 REGISTER ASSEMBLY (See page IP-31)
10. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY (See page IP-31)
11. INSTALL UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page IP-31)
12. INSTALL FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY (See page IP-31)
13. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-32)
14. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-32)
15. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (See page IP-32)

AC



INSTALLATION

1. **INSTALL ECO SWITCH**
   (a) Engage the 2 claws to install the eco switch.
2. **INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-35)**
3. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-41)**
4. **INSTALL FRONT DOOR SCUFF PLATE LH (See page IR-41)**

AC

REMOVAL

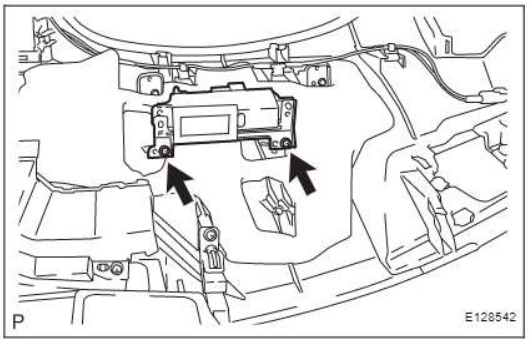
1. ALIGN FRONT WHEELS FACING STRAIGHT AHEAD
2. DISCONNECT NEGATIVE BATTERY TERMINAL
   NOTICE:
   Wait for 90 seconds after disconnecting the terminal to prevent the airbag from deploying (See page RS-1).
3. REMOVE LOWER NO. 3 STEERING WHEEL COVER (See page RS-345)
4. REMOVE LOWER NO. 2 STEERING WHEEL COVER (See page RS-345)
5. REMOVE STEERING PAD (See page RS-345)
6. REMOVE STEERING WHEEL ASSEMBLY (See page SR-36)
7. REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-13)
8. REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-14)
9. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-11)
10. REMOVE STEERING COLUMN COVER (See page IP-12)
11. REMOVE TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY (See page SR-37)
12. REMOVE NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-12)
13. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL (See page IP-12)
14. REMOVE INSTRUMENT CLUSTER FINISH PANEL (See page IP-13)
15. REMOVE COMBINATION METER ASSEMBLY (See page IP-13)
16. REMOVE FRONT DOOR SCUFF PLATE RH (See page IR-15)
17. REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-15)
18. REMOVE INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY (See page IP-13)
19. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-14)
20. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (See page IP-14)
21. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-14)

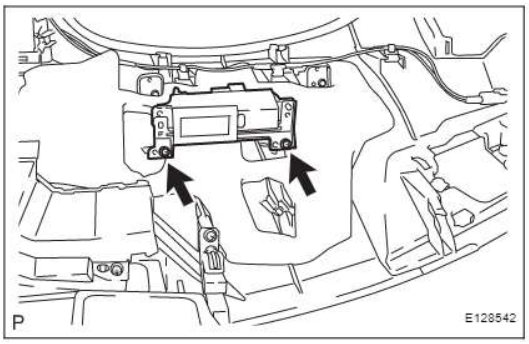
AC

22. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-14)
23. REMOVE FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY (See page IP-15)
24. REMOVE UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page IP-15)
25. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY (See page IP-16)
26. REMOVE INSTRUMENT PANEL NO. 2 REGISTER ASSEMBLY (See page IP-16)
27. REMOVE RADIO RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/o Navigation System) (See page AV-136)
28. REMOVE NAVIGATION RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/ Navigation System) (See page NS-193)
29. REMOVE CONSOLE BOX POCKET (See page IP-17)
30. REMOVE CONSOLE BOX CARPET (See page IP-17)
31. REMOVE CONSOLE BOX ASSEMBLY (See page IP-17)
32. REMOVE NO. 2 CONSOLE BOX INSERT FRONT (See page IP-18)
33. REMOVE NO. 1 CONSOLE BOX INSERT FRONT (See page IP-18)
34. REMOVE FRONT PILLAR GARNISH LH (See page IR-16)
35. REMOVE INSTRUMENT PANEL NO. 1 REGISTER ASSEMBLY (See page IP-18)
36. REMOVE INSTRUMENT PANEL NO. 1 SPEAKER PANEL SUB-ASSEMBLY (See page IP-19)
37. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY (for LH Side) (See page AV-146)
38. REMOVE FRONT PILLAR GARNISH RH (See page IR-16)
39. REMOVE INSTRUMENT PANEL NO. 3 REGISTER ASSEMBLY (See page IP-19)
40. REMOVE INSTRUMENT PANEL NO. 2 SPEAKER PANEL SUB-ASSEMBLY (See page IP-19)
41. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY (for RH Side) (See page IP-19)
42. REMOVE NO. 1 DEFROSTER NOZZLE GARNISH (See page IP-20)
43. DISCONNECT INSTRUMENT PANEL WIRE ASSEMBLY

AC

44. REMOVE INSTRUMENT PANEL SAFETY PAD ASSEMBLY (See page IP-20)
45. REMOVE SIDE NO. 1 DEFROSTER NOZZLE DUCT (See page IP-22)
46. REMOVE NO. 1 HEATER TO REGISTER DUCT (See page IP-23)
47. REMOVE PLASMACLUSTER
    (a) Remove the 2 screws and plasmacluster.





INSTALLATION

1. INSTALL PLASMACLUSTER
   (a) Install the plasmacluster with the 2 screws.
   Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)
2. INSTALL NO. 1 HEATER TO REGISTER DUCT (See page IP-24)
3. INSTALL SIDE NO. 1 DEFROSTER NOZZLE DUCT (See page IP-25)
4. INSTALL INSTRUMENT PANEL SAFETY PAD ASSEMBLY (See page IP-25)
5. CONNECT INSTRUMENT PANEL WIRE ASSEMBLY
6. INSTALL NO. 1 DEFROSTER NOZZLE GARNISH (See page IP-28)
7. INSTALL FRONT NO. 2 SPEAKER ASSEMBLY (for LH Side) (See page AV-146)
8. INSTALL INSTRUMENT PANEL NO. 1 SPEAKER PANEL SUB-ASSEMBLY (See page IP-28)
9. INSTALL INSTRUMENT PANEL NO. 1 REGISTER ASSEMBLY (See page IP-28)
10. INSTALL FRONT PILLAR GARNISH LH (See page IR-38)
11. INSTALL FRONT NO. 2 SPEAKER ASSEMBLY (for RH Side) (See page IP-28)
12. INSTALL INSTRUMENT PANEL NO. 2 SPEAKER PANEL SUB-ASSEMBLY (See page IP-29)
13. INSTALL INSTRUMENT PANEL NO. 3 REGISTER ASSEMBLY (See page IP-29)
14. INSTALL FRONT PILLAR GARNISH RH (See page IR-39)

AC

15. INSTALL NO. 1 CONSOLE BOX INSERT FRONT (See page IP-29)
16. INSTALL NO. 2 CONSOLE BOX INSERT FRONT (See page IP-30)
17. INSTALL CONSOLE BOX ASSEMBLY (See page IP-30)
18. INSTALL CONSOLE BOX CARPET (See page IP-30)
19. INSTALL CONSOLE BOX POCKET (See page IP-30)
20. INSTALL RADIO RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/o Navigation System) (See page AV-137)
21. INSTALL NAVIGATION RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/ Navigation System) (See page NS-194)
22. INSTALL INSTRUMENT PANEL NO. 2 REGISTER ASSEMBLY (See page IP-31)
23. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY (See page IP-31)
24. INSTALL UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page IP-31)
25. INSTALL FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY (See page IP-31)
26. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-32)
27. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-32)
28. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (See page IP-32)
29. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-33)
30. INSTALL INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY (See page IP-33)
31. INSTALL COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-42)
32. INSTALL FRONT DOOR SCUFF PLATE RH (See page IR-42)
33. INSTALL COMBINATION METER ASSEMBLY (See page IP-33)
34. INSTALL INSTRUMENT CLUSTER FINISH PANEL (See page IP-34)
35. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL (See page IP-34)
36. INSTALL NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-34)

AC

37. INSTALL TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY
38. ADJUST SPIRAL CABLE SUB-ASSEMBLY (See page RS-360)
39. INSTALL STEERING COLUMN COVER (See page IP-35)
40. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-35)
41. INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-41)
42. INSTALL FRONT DOOR SCUFF PLATE LH (See page IR-41)
43. INSTALL STEERING WHEEL ASSEMBLY (See page SR-42)
44. INSTALL STEERING PAD (See page RS-346)
45. INSTALL LOWER NO. 3 STEERING WHEEL COVER (See page RS-347)
46. INSTALL LOWER NO. 2 STEERING WHEEL COVER (See page RS-347)
47. CONNECT NEGATIVE BATTERY TERMINAL
48. INSPECT STEERING PAD (See page RS-347)
49. INSPECT SRS WARNING LIGHT (See page RS-33)
50. PERFORM INITIALIZATION
    NOTICE:
    Some systems need initialization after reconnecting the negative battery terminal (See page IN-43).

AC

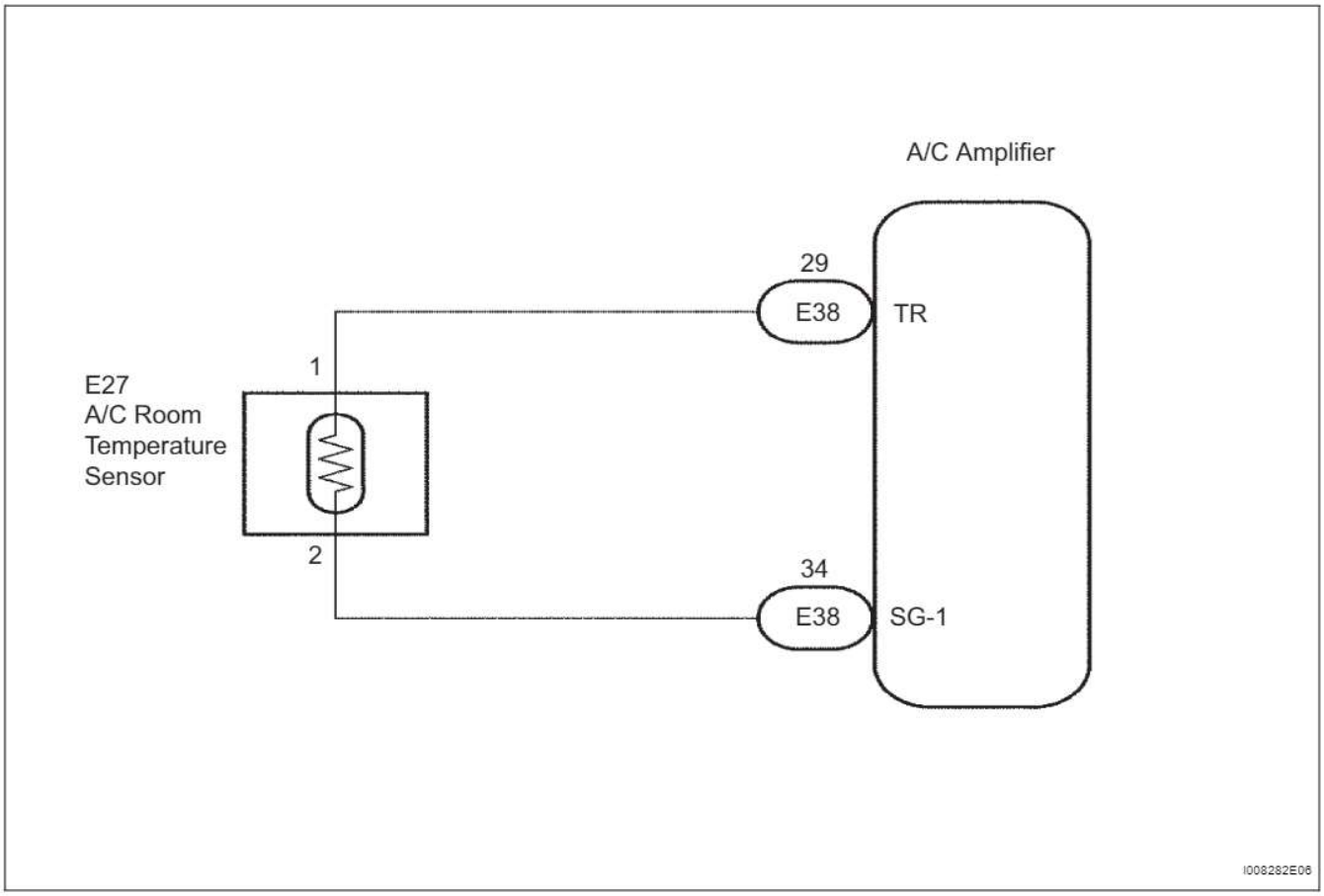
DTC	B1411/11	Room Temperature Sensor Circuit

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	Room temperature sensor circuit (Open or short)	• A/C room temperature sensor • Harness or connector between A/C room temperature sensor and A/C amplifier • A/C amplifier

WIRING DIAGRAM



INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.

AC

(c) Select the item below in the DATA LIST, and read the display on the intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ROOM TEMP (Room temperature sensor)	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 the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

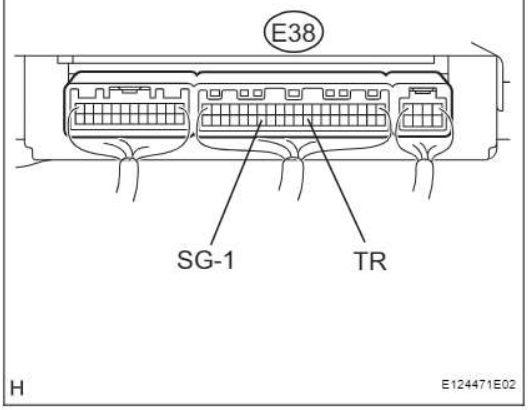
B → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

C → REPLACE AIR CONDITIONING AMPLIFIER

A

2 INSPECT AIR CONDITIONING AMPLIFIER

Air Conditioning Amplifier Connector Wire Harness View:



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

(b) Turn the power switch on (IG).

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

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E38-29 (TR) - E38-34 (SG-1)	Power switch on (IG) at 25°C (77°F)	1.35 to 1.75 V
E38-29 (TR) - E38-34 (SG-1)	Power switch on (IG) at 40°C (104°F)	0.9 to 1.2 V

HINT:

As the temperature increases, the voltage decreases.

Result

Result	Proceed to
NG	A
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

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

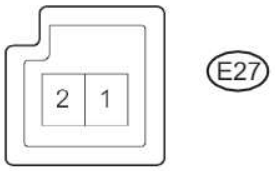
C → REPLACE AIR CONDITIONING AMPLIFIER

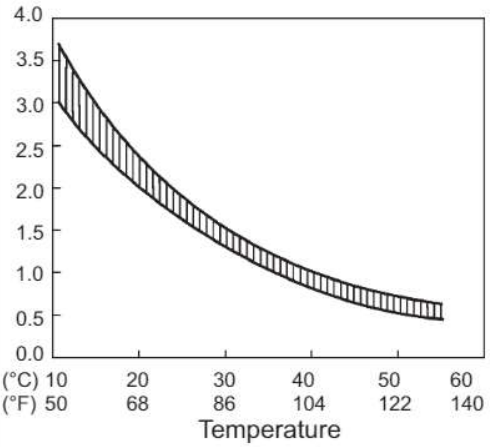
AC

A

3 INSPECT A/C ROOM TEMPERATURE SENSOR

A/C Room Temperature Sensor Connector Front View:





(a) Remove the A/C room temperature sensor.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
E27-1 - E27-2	10°C (50°F)	3.00 to 3.73 kΩ
E27-1 - E27-2	15°C (59°F)	2.45 to 2.88 kΩ
E27-1 - E27-2	20°C (68°F)	1.95 to 2.30 kΩ
E27-1 - E27-2	25°C (77°F)	1.60 to 1.80 kΩ
E27-1 - E27-2	30°C (86°F)	1.28 to 1.47 kΩ
E27-1 - E27-2	35°C (95°F)	1.00 to 1.22 kΩ
E27-1 - E27-2	40°C (104°F)	0.80 to 1.00 kΩ
E27-1 - E27-2	45°C (113°F)	0.65 to 0.85 kΩ
E27-1 - E27-2	50°C (122°F)	0.50 to 0.70 kΩ
E27-1 - E27-2	55°C (131°F)	0.44 to 0.60 kΩ
E27-1 - E27-2	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).

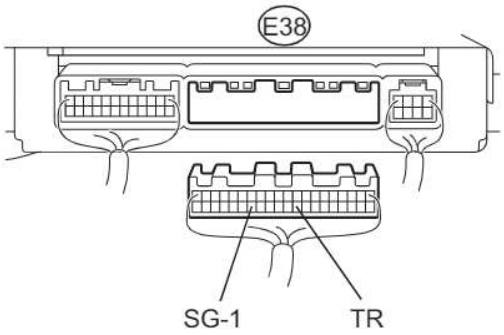
NG → **REPLACE A/C ROOM TEMPERATURE SENSOR**

OK

AC

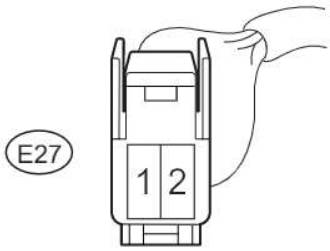
4	CHECK HARNESS AND CONNECTOR (A/C ROOM TEMPERATURE SENSOR - AIR CONDITIONING AMPLIFIER)

A/C Amplifier Connector Wire Harness View:



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

A/C Room Temperature Sensor Connector Front View:



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

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

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E38-29 (TR) - E27-1	Always	Below 1 Ω
E38-34 (SG-1) - E27-2	Always	Below 1 Ω
E38-29 (TR) - Body ground	Always	10 kΩ or higher
E38-34 (SG-1) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE AIR CONDITIONING AMPLIFIER

AC

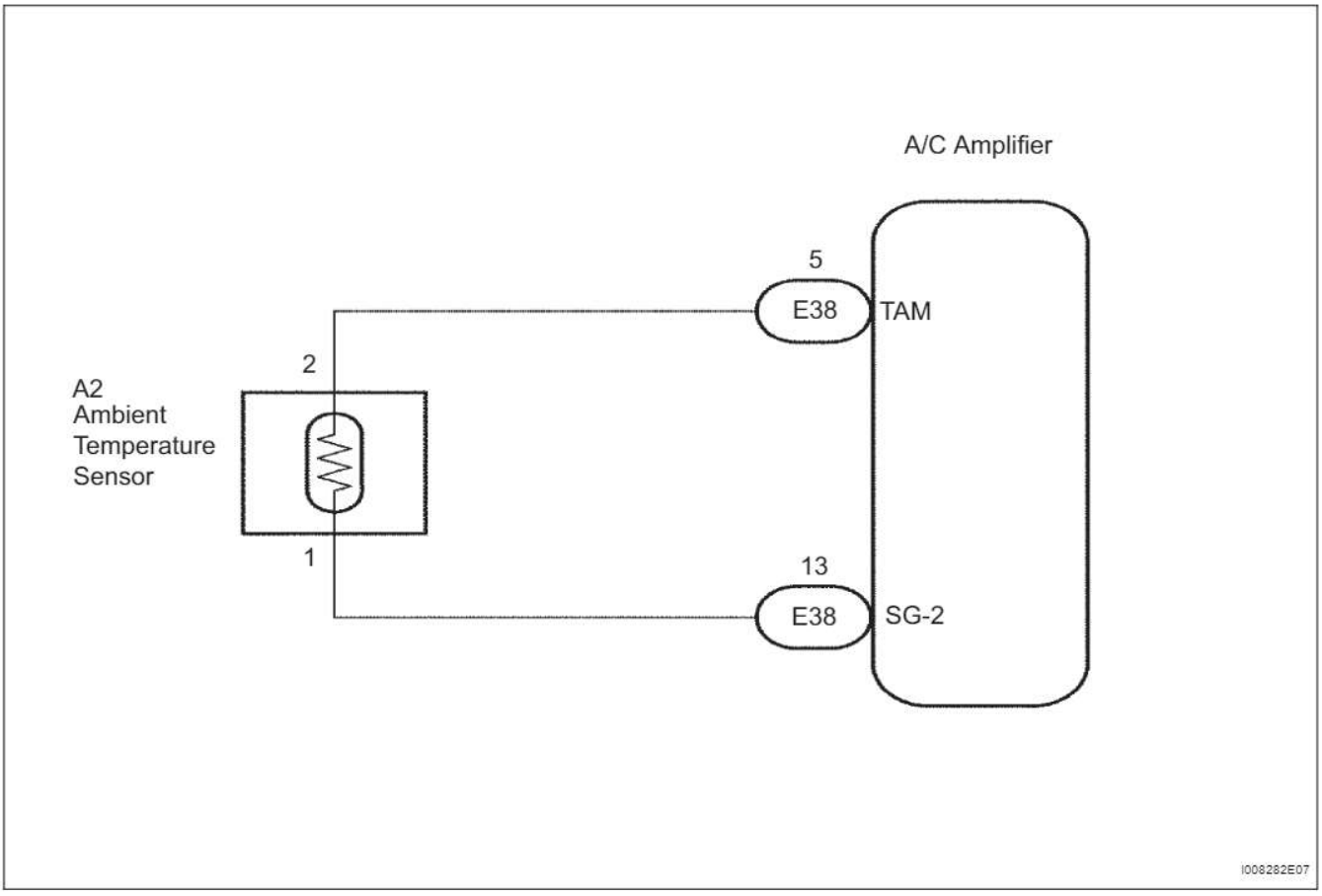
DTC	B1412/12	Ambient Temperature Sensor Circuit

DESCRIPTION

The ambient temperature sensor is installed in front of the condenser to detect the ambient temperature which is used to control the air conditioner "AUTO" mode. This sensor is connected to the A/C amplifier and detects fluctuations in the ambient temperature. This data is used for controlling the cabin temperature. The sensor sends a signal to the A/C amplifier. The resistance of the ambient temperature sensor changes in accordance with the ambient temperature. As the temperature decreases, the resistance increases. As the temperature increases, the resistance decreases.
The A/C amplifier applies voltage (5 V) to the ambient temperature sensor and reads voltage changes as the resistance of the ambient temperature sensor changes.

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 A/C amplifier • A/C amplifier

WIRING DIAGRAM



INSPECTION PROCEDURE

AC

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.

(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.
(c) Select the item below in the DATA LIST, and read the display on the intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
AMBI TEMP SENS (Ambient temperature sensor)	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 the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

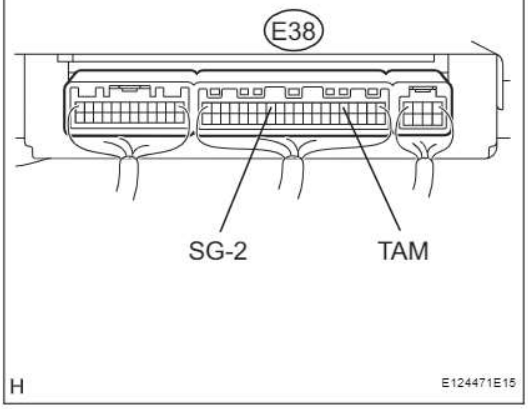
B → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

C → REPLACE AIR CONDITIONING AMPLIFIER

A

2 INSPECT AIR CONDITIONING AMPLIFIER

Air Conditioning Amplifier Connector Wire Harness View:



(a) Remove the A/C amplifier with the connectors still connected.
(b) Turn the power switch on (IG).
(c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E38-5 (TAM) - E38-13 (SG-2)	Power switch on (IG) at 25°C (77°F)	1.35 to 1.75 V
E38-5 (TAM) - E38-13 (SG-2)	Power switch on (IG) at 40°C (104°F)	0.9 to 1.2 V

HINT:
As the temperature increases, the voltage decreases.

Result

Result	Proceed to
NG	A
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

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

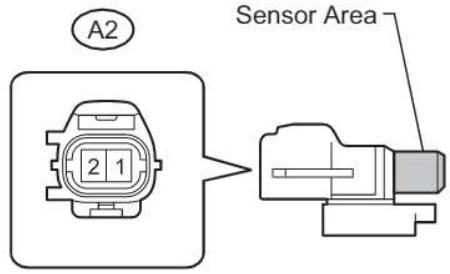
C → REPLACE AIR CONDITIONING AMPLIFIER

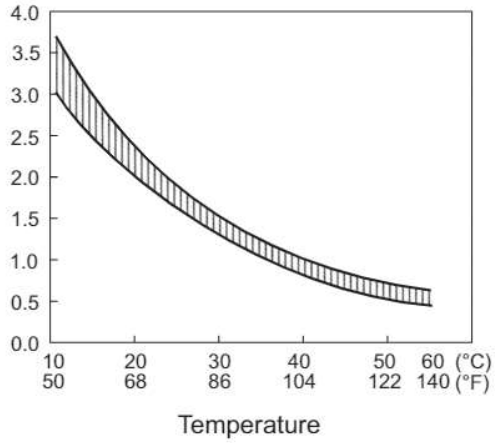
AC

A

3 INSPECT AMBIENT TEMPERATURE SENSOR

Ambient Temperature Sensor Connector Front View:





(a) Remove the ambient temperature sensor.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
A2-1 - A2-2	10°C (50°F)	3.00 to 3.73 kΩ
A2-1 - A2-2	15°C (59°F)	2.45 to 2.88 kΩ
A2-1 - A2-2	20°C (68°F)	1.95 to 2.30 kΩ
A2-1 - A2-2	25°C (77°F)	1.60 to 1.80 kΩ
A2-1 - A2-2	30°C (86°F)	1.28 to 1.47 kΩ
A2-1 - A2-2	35°C (95°F)	1.00 to 1.22 kΩ
A2-1 - A2-2	40°C (104°F)	0.80 to 1.00 kΩ
A2-1 - A2-2	45°C (113°F)	0.65 to 0.85 kΩ
A2-1 - A2-2	50°C (122°F)	0.50 to 0.70 kΩ
A2-1 - A2-2	55°C (131°F)	0.44 to 0.60 kΩ
A2-1 - A2-2	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).

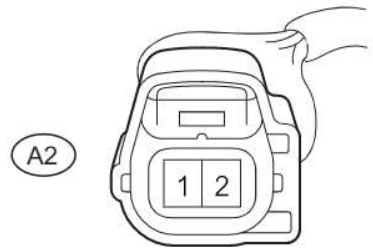
NG → **REPLACE AMBIENT TEMPERATURE SENSOR**

OK

AC

4	CHECK HARNESS AND CONNECTOR (AMBIENT TEMPERATURE SENSOR - A/C AMPLIFIER)

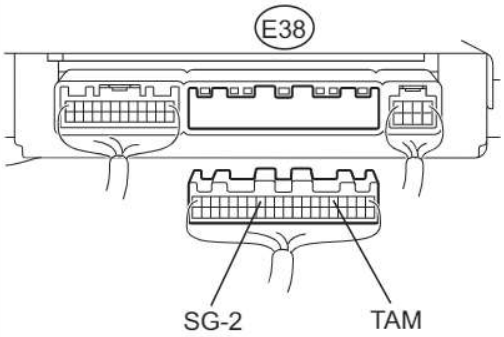
Ambient Temperature Sensor Connector Front View:



H E124473E02

(a) Disconnect the ambient temperature sensor connector.

Air Conditioning Amplifier Connector Wire Harness View:



H E124470E03

(b) Disconnect the A/C amplifier connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
A2-2 - E38-5 (TAM)	Always	Below 1 Ω
A2-1 - E38-13 (SG-2)	Always	Below 1 Ω
E38-5 (TAM) - Body ground	Always	10 kΩ or higher
E38-13 (SG-2) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE AIR CONDITIONING AMPLIFIER

AC

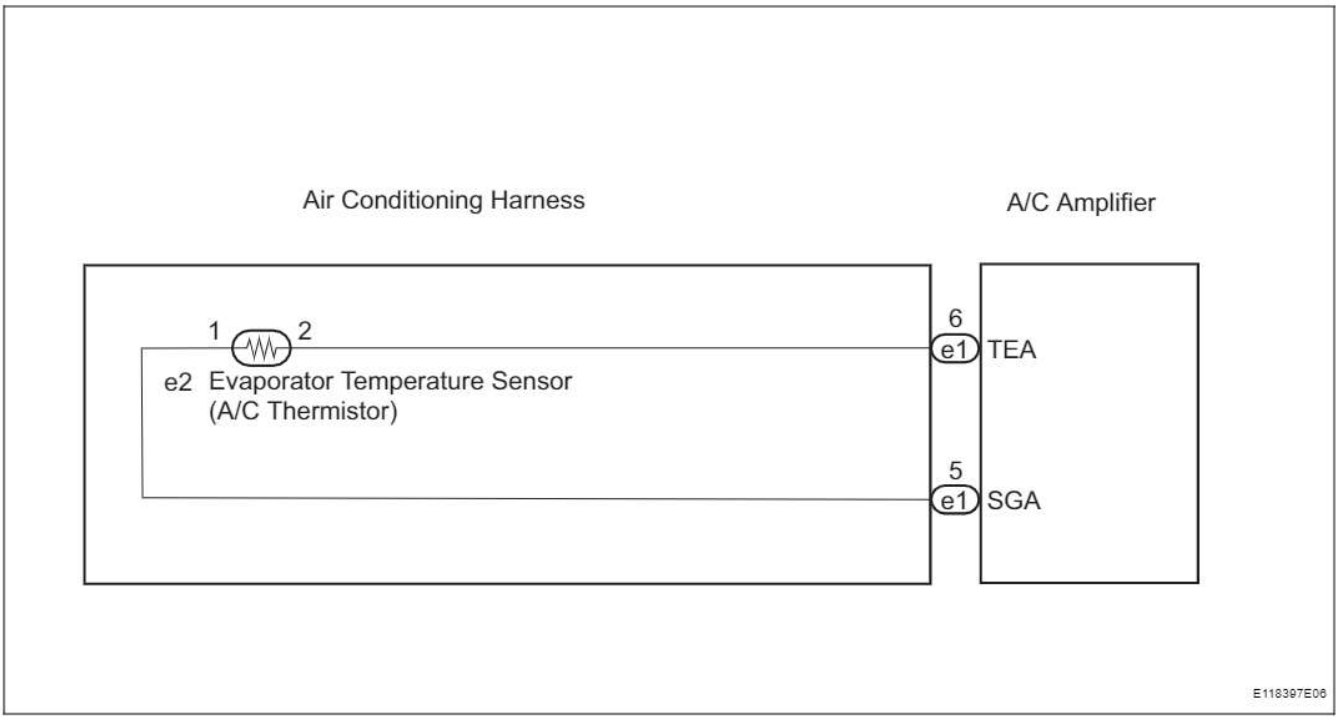
DTC	B1413/13	Evaporator Temperature Sensor Circuit

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



INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.

AC

(c) Select the item below in the DATA LIST, and read the display on the intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
EVAP FIN TEMP (Evaporator fin thermistor)	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
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

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

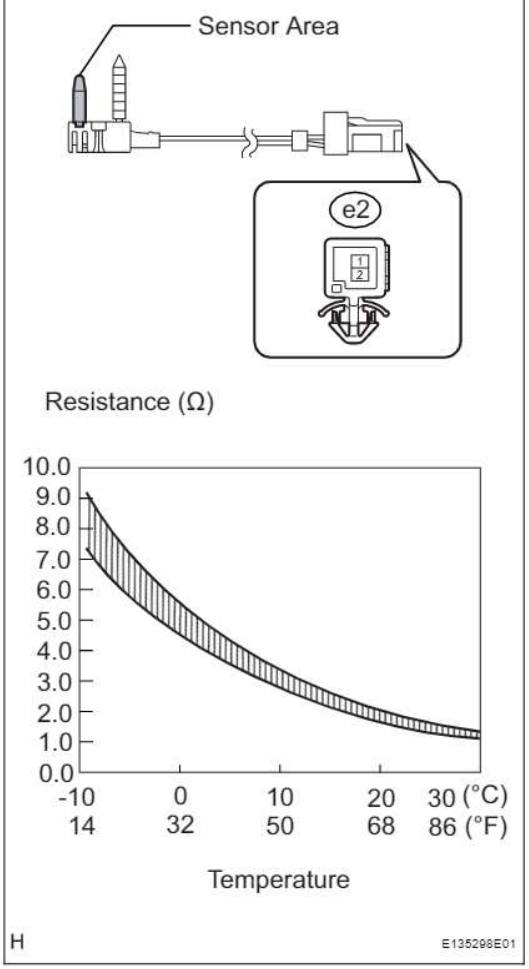
C → REPLACE AIR CONDITIONING AMPLIFIER

A

AC

2	INSPECT EVAPORATOR TEMPERATURE SENSOR

Evaporator Temperature Sensor Connector Front View:



(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
e2-1 - e2-2	-10°C (14°F)	7.30 to 9.10 kΩ
e2-1 - e2-2	-5°C (23°F)	5.65 to 6.95 kΩ
e2-1 - e2-2	0°C (32°F)	4.40 to 5.35 kΩ
e2-1 - e2-2	5°C (41°F)	3.40 to 4.15 kΩ
e2-1 - e2-2	10°C (50°F)	2.70 to 3.25 kΩ
e2-1 - e2-2	15°C (59°F)	2.14 to 2.58 kΩ
e2-1 - e2-2	20°C (68°F)	1.71 to 2.05 kΩ
e2-1 - e2-2	25°C (77°F)	1.38 to 1.64 kΩ
e2-1 - e2-2	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).

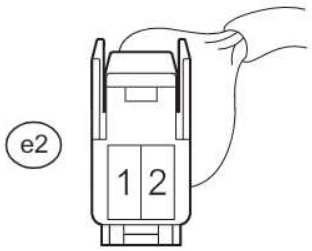
NG → **REPLACE EVAPORATOR TEMPERATURE SENSOR**

OK

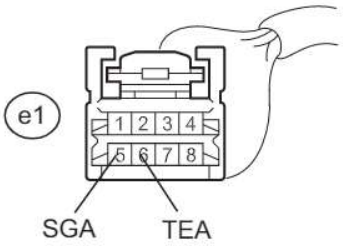
AC

3 INSPECT AIR CONDITIONING HARNESS

Evaporator Temperature Sensor Connector Front View:



Air Conditioning Amplifier Connector Front View:



E135297E01

(a) Remove the air conditioning harness.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
e1-6 (TEA) - e2-2	Always	Below 1 Ω
e1-5 (SGA) - e2-1	Always	Below 1 Ω
e1-6 (TEA) - Body ground	Always	10 kΩ or higher
e1-5 (SGA) - Body ground	Always	10 kΩ or higher

NG → **REPLACE AIR CONDITIONING HARNESS**

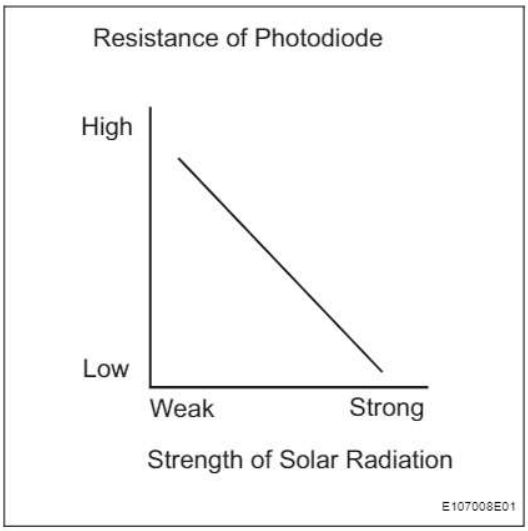
OK

REPLACE AIR CONDITIONING AMPLIFIER

AC

DTC	B1421/21	Solar Sensor Circuit (Passenger Side)

DESCRIPTION

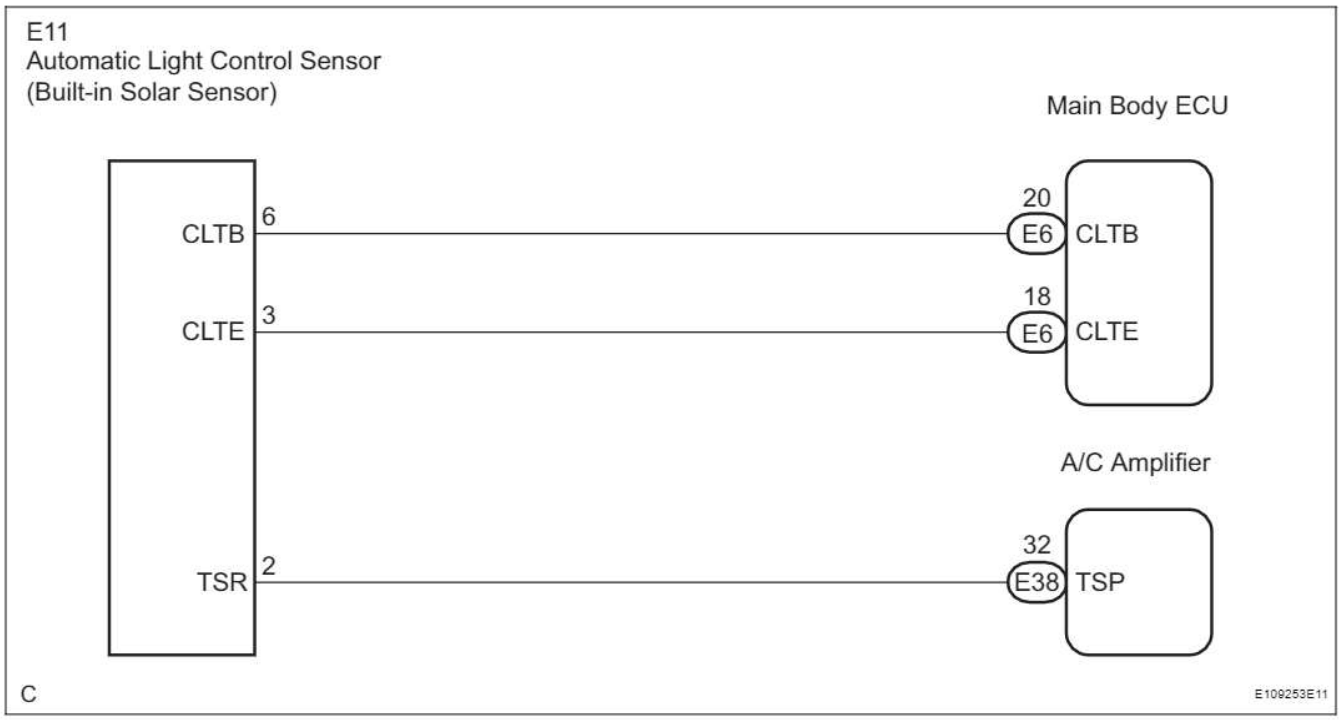


The solar sensor, which is installed on the upper side of the instrument panel, detects sunlight and controls the air conditioning in AUTO mode. The output voltage from the solar sensor varies according to the amount of sunlight. When the sunlight increases, the output voltage increases. As the sunlight 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 • Harness or connector between solar sensor and main body ECU • A/C amplifier • Main body ECU

AC

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- If DTC B1244 is output at the same time, troubleshoot DTC B1244 first (See page LI-23).
- If the check is performed in a dark place, DTC B1421/21 or B1424/24 (solar sensor circuit abnormal) may be output even though the system is normal.

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch 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 intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SOLAR SENS-P (Solar sensor (P side))	Passenger side solar sensor / Min.: 0, Max.: 255	Passenger side solar sensor value increases as brightness increases	-

OK:
The display is as specified in the normal condition column.

Result

Result	Proceed to
NG	A
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

AC

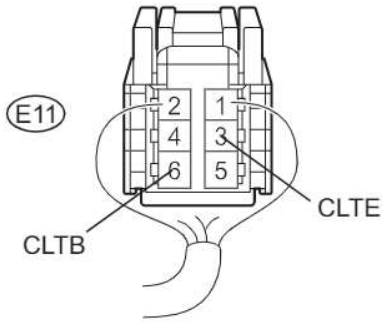
B → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

C → REPLACE AIR CONDITIONING AMPLIFIER

A

2 CHECK HARNESS AND CONNECTOR (SOLAR SENSOR)

A/C Solar Sensor Connector Wire Harness View:



(a) Disconnect the solar sensor connector.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

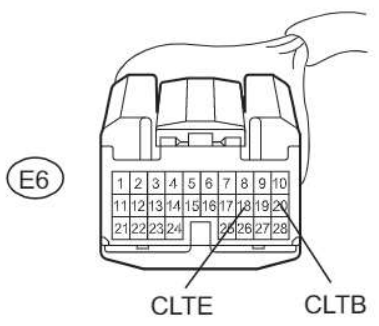
Tester Connection (Symbols)	Condition	Specified Condition
E11-6 (CLTB) - E11-3 (CLTE)	Power switch off	Below 1 V
E11-6 (CLTB) - E11-3 (CLTE)	Power switch on (IG)	10 to 14 V

OK → Go to step 4

NG

3 CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - SOLAR SENSOR)

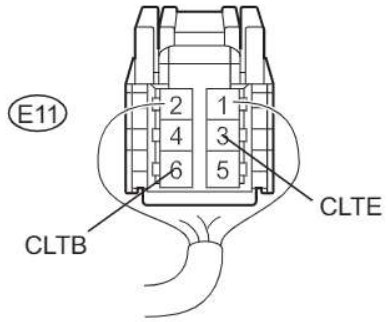
Main Body ECU Connector Front View:



(a) Disconnect the main body ECU connector.

AC

A/C Solar Sensor Connector Wire Harness View:



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

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E6-20 (CLTB) - E11-6 (CLTB)	Always	Below 1 Ω
E6-18 (CLTE) - E11-3 (CLTE)	Always	Below 1 Ω
E6-20 (CLTB) - Body ground	Always	10 kΩ or higher
E6-18 (CLTE) - Body ground	Always	10 kΩ or higher

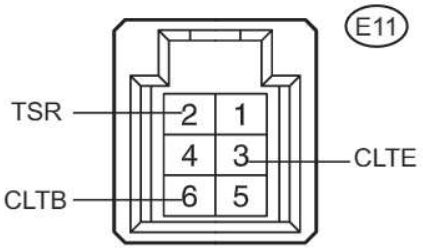
NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE MAIN BODY ECU

4 CHECK SOLAR SENSOR

Solar Sensor Connector Front View:



(a) Remove the solar sensor with its connector still connected.

(b) Connect the positive (+) lead from the battery to terminal 6 (CLTB), and the negative (-) lead to terminal 3 (CLTE) of the solar sensor.

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

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E11-2 (TSR) - E11-3 (CLTE)	Sensor is subjected to electric light	0.8 to 4.3 V
E11-2 (TSR) - E11-3 (CLTE)	Sensor is covered with a cloth	Below 0.8 V

NOTICE:

- **The connection procedure for using a digital tester such as a TOYOTA electrical tester is shown above. When using an analog tester, connect the negative (-) lead to terminal 6, and the positive (+) lead to terminal 3 of the solar sensor.**
- **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.**

HINT:

- Use an incandescent light for inspection. Bring it within about 30 cm (11.8 in.) of the solar sensor.
- As the inspection light is moved away from the sensor, the voltage increases.

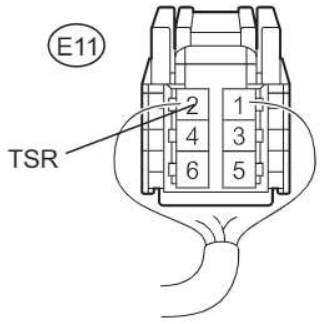
AC

NG → REPLACE SOLAR SENSOR

OK

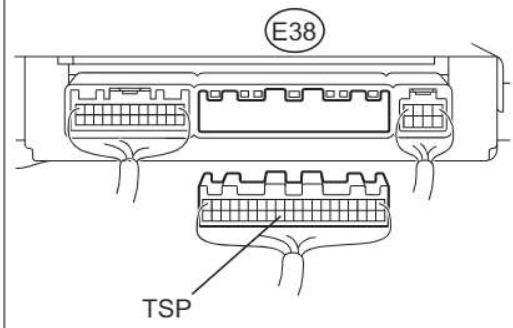
5 CHECK HARNESS AND CONNECTOR (SOLAR SENSOR - A/C AMPLIFIER)

A/C Solar Sensor Connector Wire Harness View:



(a) Disconnect the solar sensor connector.

Air Conditioning Amplifier Connector Wire Harness View:



(b) Disconnect the A/C amplifier connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E38-32 (TSP) - E11-2 (TSR)	Always	Below 1 Ω
E38-32 (TSP) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE AIR CONDITIONING AMPLIFIER

AC

DTC	B1423/23	Pressure Sensor Circuit

DESCRIPTION

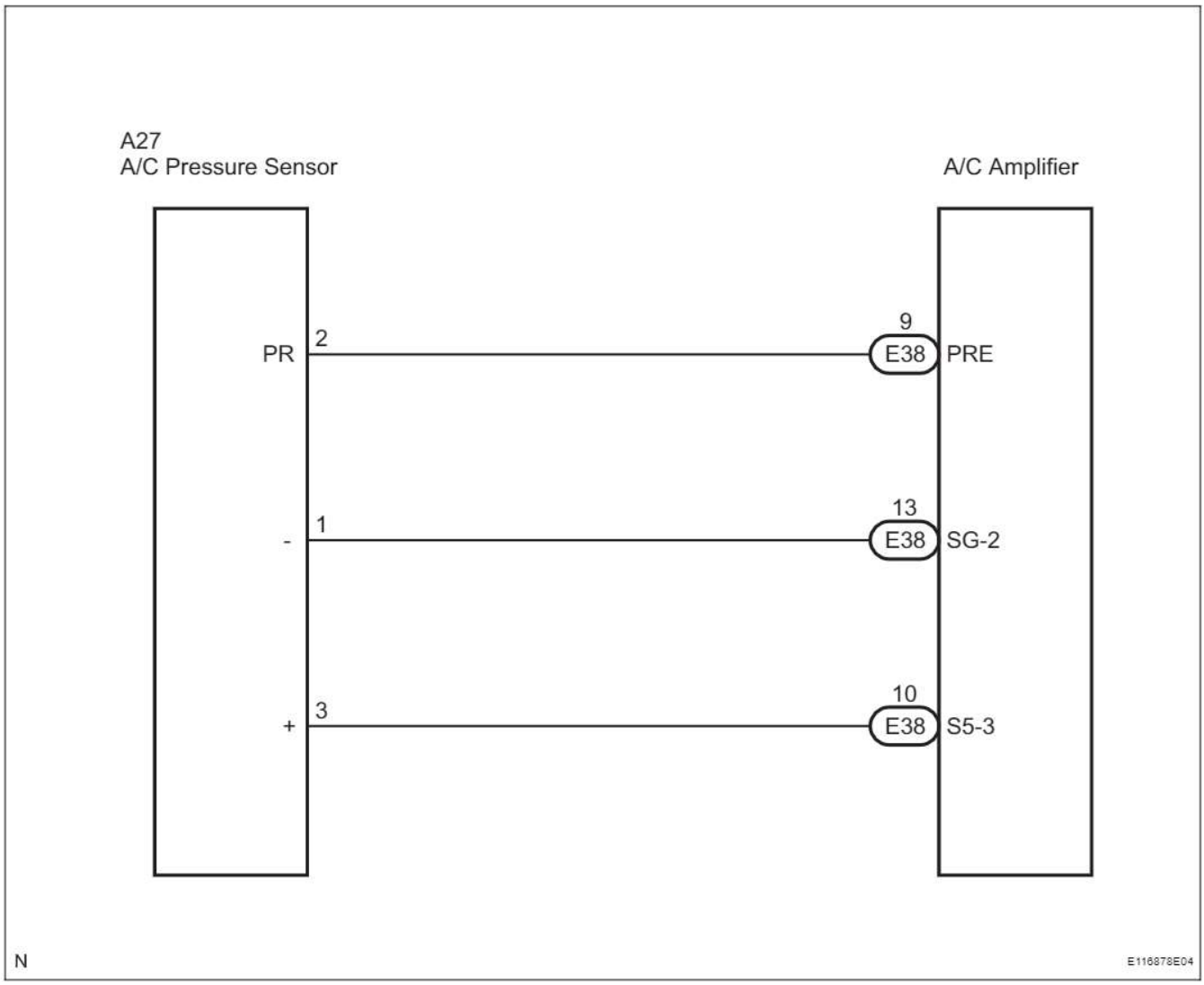
This DTC is output when refrigerant pressure is extremely low (0.19 MPa (2.0 kgf/cm^2, 28 psi) or less) or extremely high (3.14 MPa (32.0 kgf/cm^2, 455 psi) or more). The A/C pressure sensor, which is installed on the pipe of the high pressure side to detect refrigerant pressure, outputs a refrigerant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

HINT:

Be sure to check the refrigerant volume first when this DTC is output because this DTC can also be output if there is no refrigerant in the system.

DTC No.	DTC Detection Condition	Trouble Area
B1423/23	Open or short in pressure switch circuit	• A/C pressure sensor • Harness or connector between A/C pressure sensor and A/C amplifier • Refrigerant pipe line • A/C amplifier

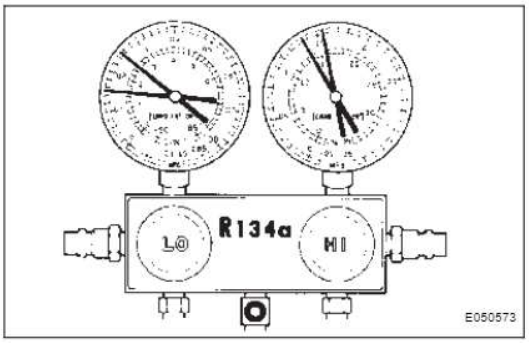
WIRING DIAGRAM



AC

INSPECTION PROCEDURE

1 CHECK REFRIGERANT PRESSURE



(a) Install the manifold gauge set (See page AC-165).
(b) Read the manifold gauge pressure when the following conditions are established.
(1) Prepare the vehicle according to the chart below.

Item	Condition
Vehicle Doors	All fully open
Engine speed	1,500 rpm
Temperature Setting	MAX COLD
Blower Speed	HI
A/C switch	ON
R/F Switch	RECIRCULATION (30 to 35°C (86 to 95°F))

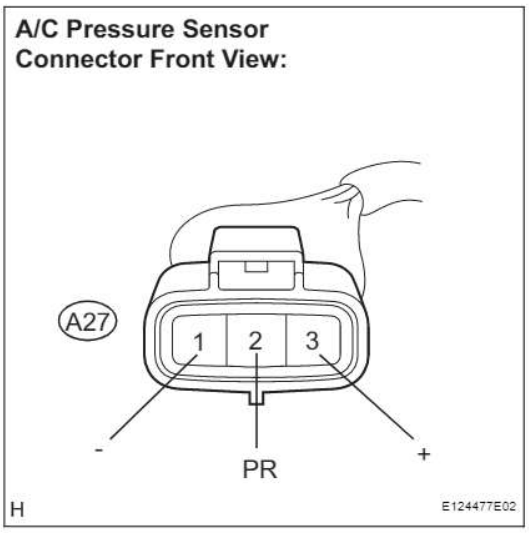
Standard pressure:
Low pressure side:
0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm^2, 21.3 to 35.6 psi)
High pressure side:
1.37 to 1.57 MPa (14 to 16 kgf/cm^2, 199 to 228 psi)

NG → **CHARGE REFRIGERANT**

OK

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

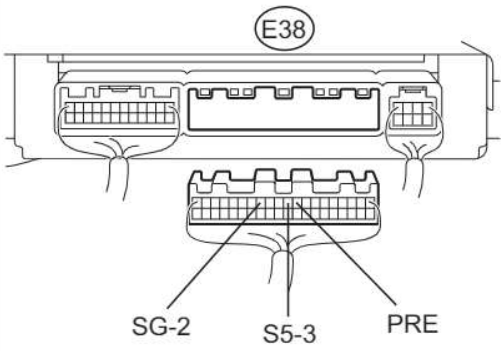
A/C Pressure Sensor Connector Front View:



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

AC

Air Conditioning Amplifier Connector Wire Harness View:



(b) Disconnect the A/C amplifier connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

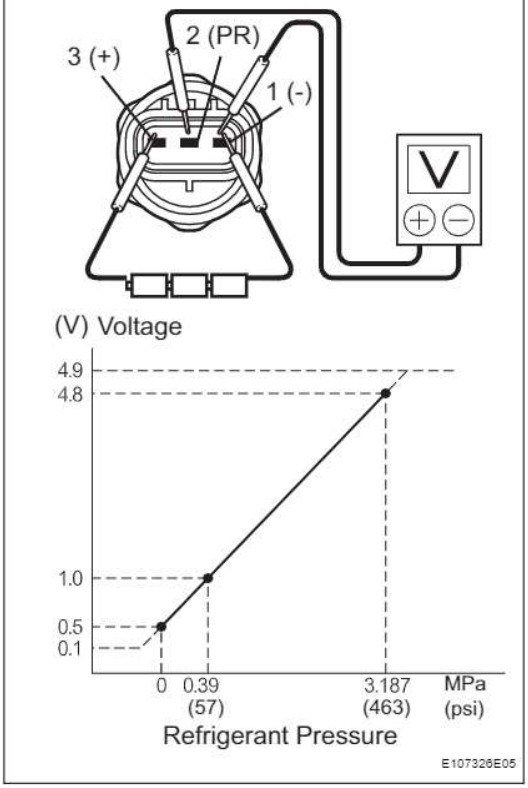
Tester Connection (Symbols)	Condition	Specified Condition
A27-2 (PR) - E38-9 (PRE)	Always	Below 1 Ω
A27-3 (+) - E38-10 (S5-3)	Always	Below 1 Ω
A27-1 (-) - E38-13 (SG-2)	Always	Below 1 Ω
E38-9 (PRE) - Body ground	Always	10 kΩ or higher
E38-10 (S5-3) - Body ground	Always	10 kΩ or higher
E38-13 (SG-2) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

3 INSPECT A/C PRESSURE SENSOR

A/C Pressure Sensor Connector Front View:



(a) Install the manifold gauge set (See page AC-165).
(b) Connect the three 1.5 V dry cell batteries' positive (+) lead to terminal 3, and the negative (-) lead to terminal 1. Then connect the voltmeter's positive (+) lead to terminal 2, and the negative (-) lead to terminal 1. Measure the voltage.

OK:

The voltage changes according to refrigerant pressure, as shown in the graph.

Result

Result	Proceed to
NG	A
OK (When troubleshooting according to the DTC)	B
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	C

B → **REPLACE AIR CONDITIONING AMPLIFIER**

C → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

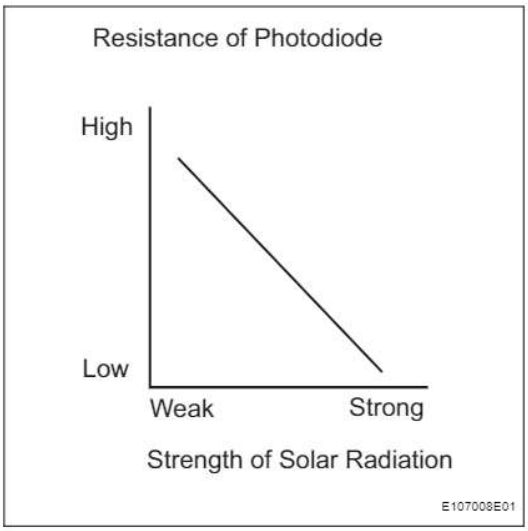
AC

A

REPLACE A/C PRESSURE SENSOR

DTC	B1424/24	Solar Sensor Circuit (Driver Side)

DESCRIPTION

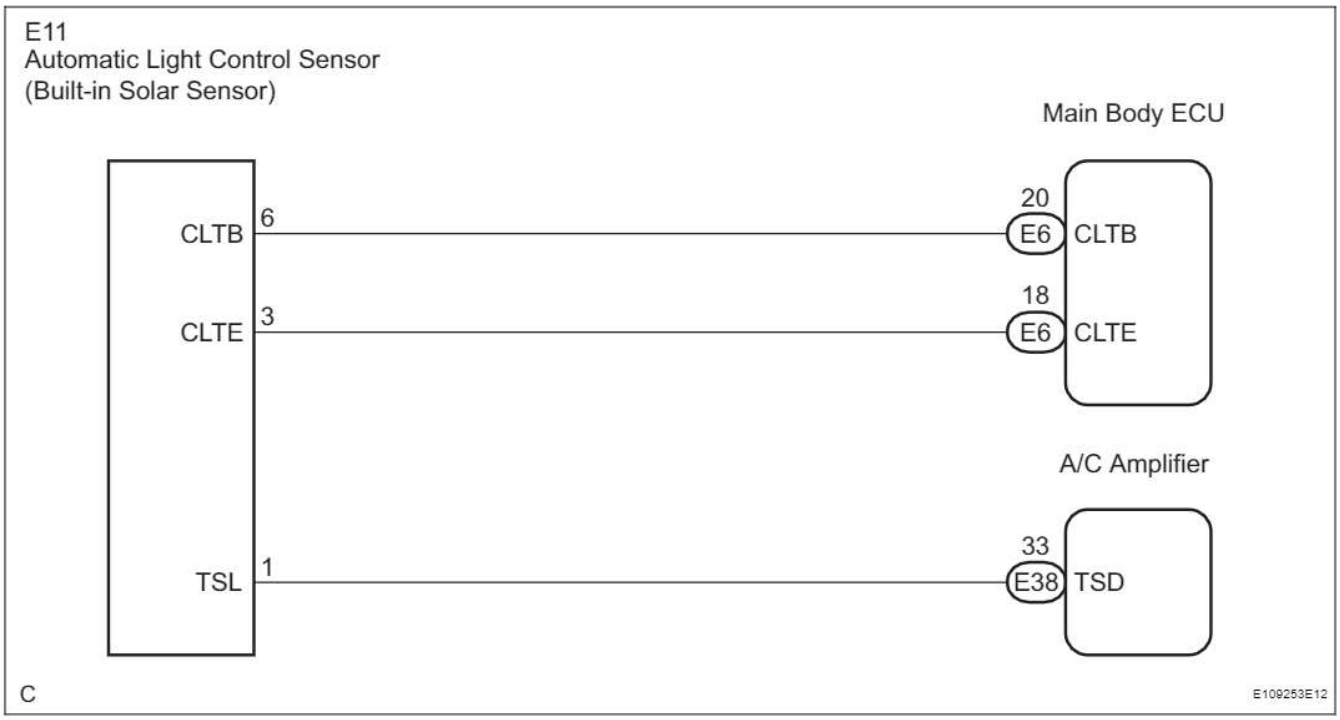


The solar sensor, which is installed on the upper side of the instrument panel, detects sunlight and controls the air conditioning in AUTO mode. The output voltage from the solar sensor varies according to the amount of sunlight. When the sunlight increases, the output voltage increases. As the sunlight decreases, the output voltage decreases. The A/C amplifier detects output voltage from the solar sensor.

DTC No.	DTC Detection Condition	Trouble Area
B1424/24	Open or short in driver side solar sensor circuit	• Solar sensor • Harness or connector between solar sensor and A/C amplifier • Harness or connector between solar sensor and main body ECU • A/C amplifier • Main body ECU

AC

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- If DTC B1244 is output at the same time, troubleshoot DTC B1244 first (See page LI-23).
- If the check is performed in a dark place, DTC B1421/21 or B1424/24 (solar sensor circuit abnormal) may be output even though the system is normal.

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch 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 intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SOLAR SENS-D (Solar sensor (D side))	Driver side solar sensor / Min.: 0, Max.: 255	Driver side solar sensor value increases as brightness increases	-

OK:
The display is as specified in the normal condition column.

Result

Result	Proceed to
NG	A
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

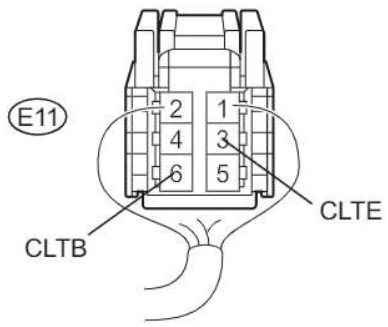
B → PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

C → REPLACE AIR CONDITIONING AMPLIFIER

A

2 CHECK HARNESS AND CONNECTOR (SOLAR SENSOR)

A/C Solar Sensor Connector Wire Harness View:



(a) Disconnect the solar sensor connector.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

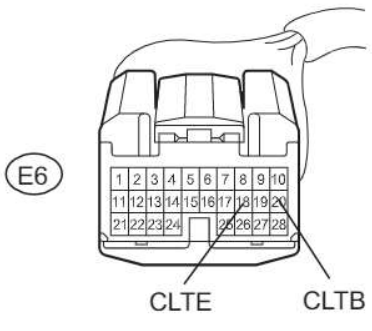
Tester Connection (Symbols)	Condition	Specified Condition
E11-6 (CLTB) - E11-3 (CLTE)	Power switch on (IG)	10 to 14 V
E11-6 (CLTB) - E11-3 (CLTE)	Power switch off	Below 1 V

OK → Go to step 4

NG

3 CHECK HARNESS AND CONNECTOR (SOLAR SENSOR - MAIN BODY ECU)

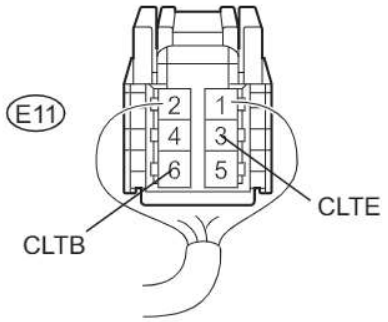
Main Body ECU Connector Front View:



(a) Disconnect the main body ECU connector.

AC

A/C Solar Sensor Connector Wire Harness View:



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

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E6-20 (CLTB) - E11-6 (CLTB)	Always	Below 1 Ω
E6-18 (CLTE) - E11-3 (CLTE)	Always	Below 1 Ω
E6-20 (CLTB) - Body ground	Always	10 kΩ or higher
E6-18 (CLTE) - Body ground	Always	10 kΩ or higher

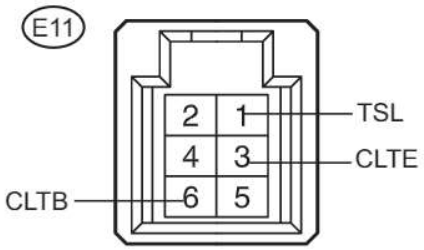
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE MAIN BODY ECU

4 CHECK SOLAR SENSOR

Solar Sensor Connector Front View:



(a) Remove the solar sensor with its connector still connected.

(b) Connect the positive (+) lead from the battery to terminal 6 (CLTB), and the negative (-) lead to terminal 3 (CLTE) of the solar sensor.

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

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E11-1 (TSL) - E11-3 (CLTE)	Sensor is subjected to electric light	0.8 to 4.3 V
E11-1 (TSL) - E11-3 (CLTE)	Sensor is covered with a cloth	Below 0.8 V

NOTICE:

- **The connection procedure for using a digital tester such as a TOYOTA electrical tester is shown above. When using an analog tester, connect the negative (-) lead to terminal 6, and the positive (+) lead to terminal 3 of the solar sensor.**
- **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.**

HINT:

- Use an incandescent light for inspection. Bring it within about 30 cm (11.8 in.) of the solar sensor.
- As the inspection light is moved away from the sensor, the voltage increases.

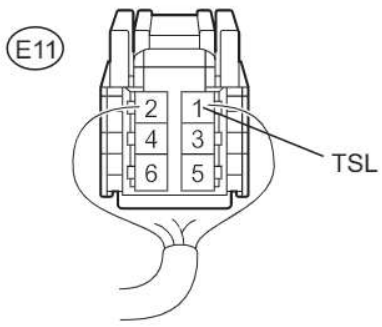
AC

NG → REPLACE SOLAR SENSOR

OK

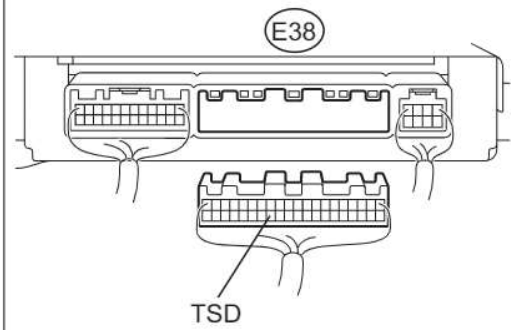
5 CHECK HARNESS AND CONNECTOR (SOLAR SENSOR - A/C AMPLIFIER)

A/C Solar Sensor Connector Wire Harness View:



(a) Disconnect the solar sensor connector.

Air Conditioning Amplifier Connector Wire Harness View:



(b) Disconnect the A/C amplifier connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E38-33 (TSD) - E11-1 (TSL)	Always	Below 1 Ω
E38-33 (TSD) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE AIR CONDITIONING AMPLIFIER

AC

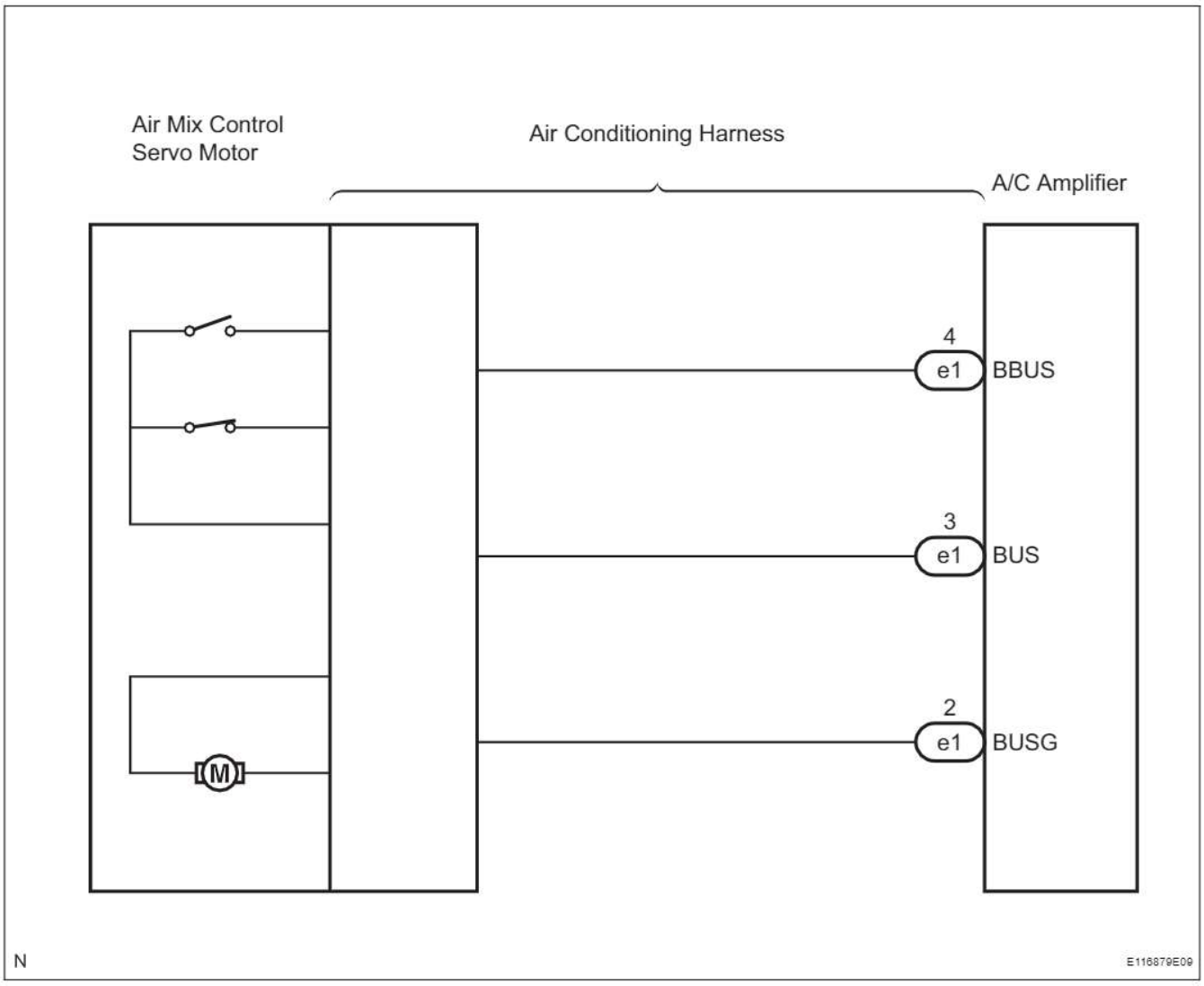
DTC	B1441/41	Air Mix Damper Control Servo Motor Circuit (Passenger Side)

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.
HINT:
Confirm that no mechanical problem is present because this diagnostic code can be output when either a damper link or 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



AC

INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.
(c) Operate the front passenger side temperature adjustment switch.
(d) Select the item below in the DATA LIST, and read the display on the intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
AIR MIX PULSE-P (Air mix servomotor target pulse (P side))	Passenger side air mix servo motor target pulse / Min.: 0, Max.: 255	MAX. COLD: 105 (pulse) MAX. HOT: 7 (pulse)	-

OK:
The display is as specified in the normal condition column.

Result

Result	Proceed to
NG	A
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

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

C → REPLACE AIR CONDITIONING AMPLIFIER

A

2	REPLACE AIR MIX CONTROL SERVO MOTOR

(a) Replace the air mix control servo motor.
HINT:
Since the servo motor cannot be inspected while it is removed from the vehicle, replace the servo motor with a normal 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 → END

AC

A

REPLACE AIR CONDITIONING HARNESS

DTC	B1442/42	Air Inlet Damper Control Servo Motor Circuit

DESCRIPTION

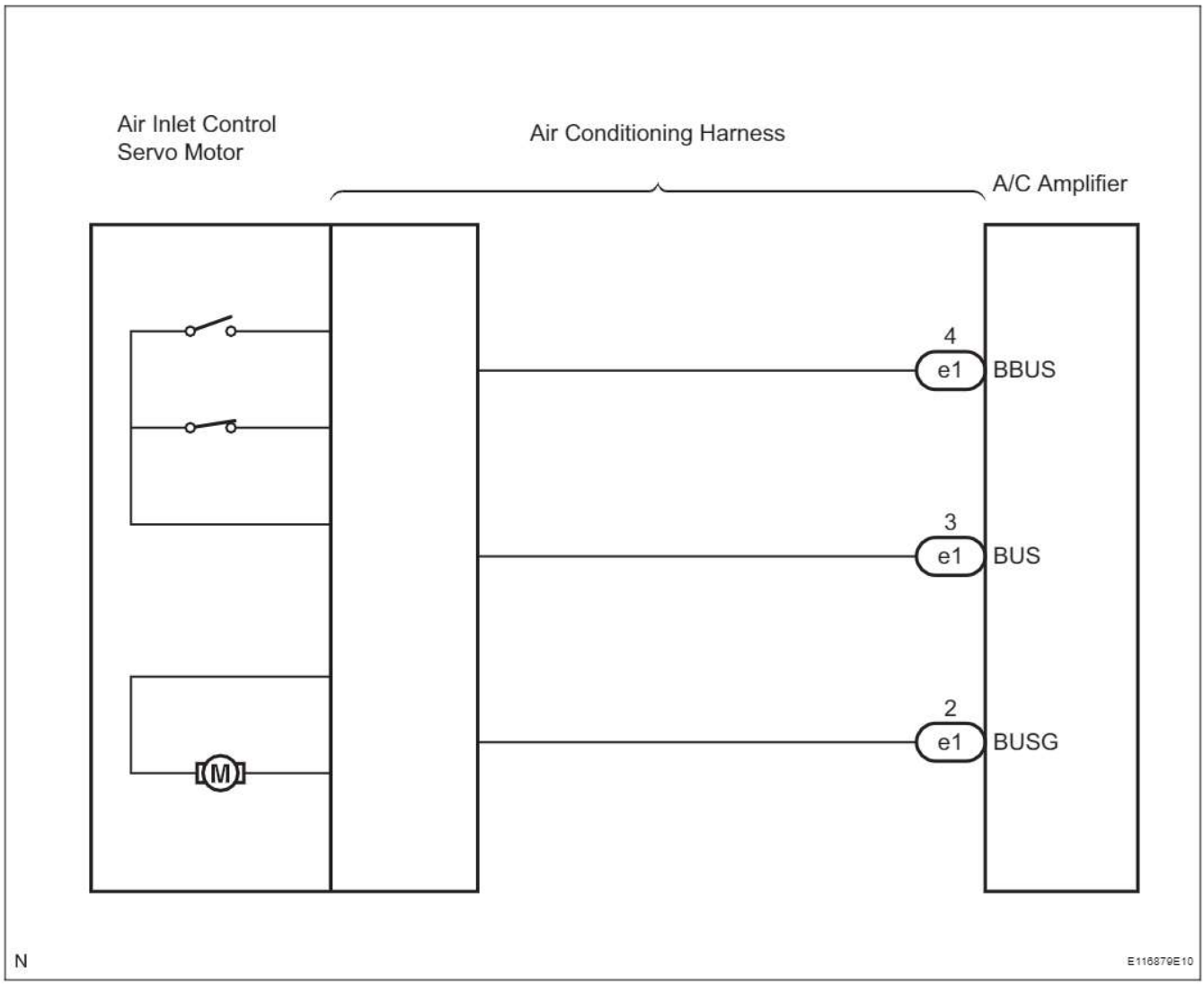
The damper servo (air inlet control) sends pulse signals to inform the air conditioning amplifier of the damper position. The air conditioning amplifier activates the motor (normal, reverse) based on the signals to move the air inlet damper to any position, which controls the intake air settings (FRESH, FRESH/RECIRCULATION, and RECIRCULATION).

HINT:

Confirm that no mechanical problem is present because this diagnostic code can be output when either a damper link or 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



AC

INSPECTION PROCEDURE

1 READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.
(c) Operate the R/F (Recirculation/Fresh) switch.
(d) Select the item below in the DATA LIST, and read the display on the intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
A/I DAMP PLS (Air inlet damper target pulse)	Air inlet damper target pulse / Min.: 0, Max.: 255	RECIRCULATION: 7 (pulse) FRESH: 28 (pulse)	-

OK:
The display is as specified in the normal condition column.

Result

Result	Proceed to
NG	A
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

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

C → REPLACE AIR CONDITIONING AMPLIFIER

A

2 REPLACE AIR INLET CONTROL SERVO MOTOR

(a) Replace the air inlet control servo motor.
HINT:
Since the servo motor cannot be inspected while it is removed from the vehicle, replace the servo motor with a normal 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 → END

A

REPLACE AIR CONDITIONING HARNESS

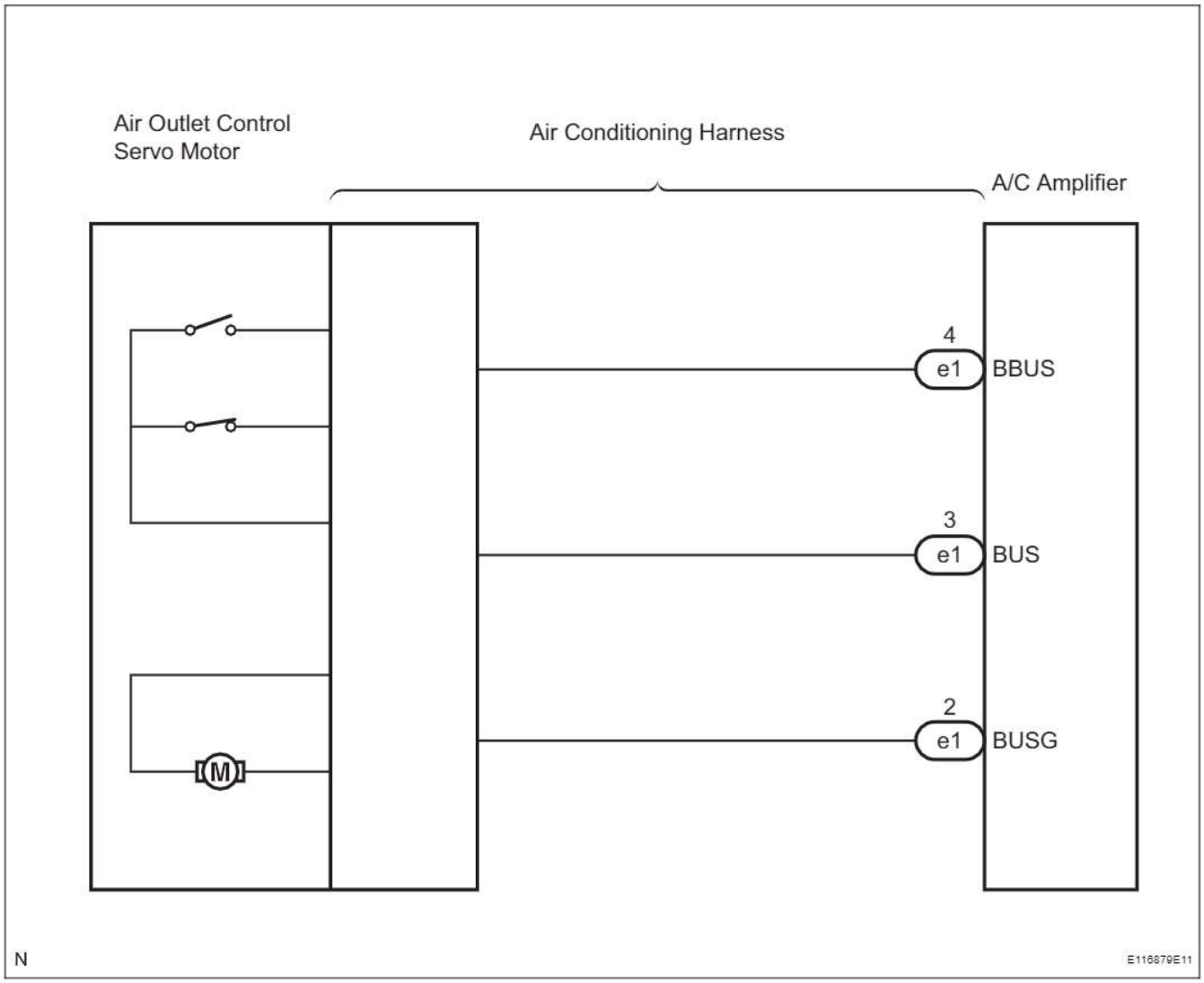
DTC	B1443/43	Air Outlet Damper Control Servo Motor Circuit

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.
HINT:
Confirm that no mechanical problem is present because this diagnostic code can be output when either a damper link or 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



AC

INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.
(c) Operate the MODE switch.
(d) Select the item below in the DATA LIST, and read the display on the intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
AIR OUT PULSE-D (Air outlet servomotor target pulse (D side))	Driver side air outlet servo motor target pulse / Min.: 0, Max.: 255	FACE: 8 (pulse) B/L: 30 to 38 (pulse) FOOT: 50 to 74 (pulse) FOOT/DEF: 80 (pulse) DEF: 97 (pulse)	-

OK:
The display is as specified in the normal condition column.

Result

Result	Proceed to
NG	A
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

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

C → REPLACE AIR CONDITIONING AMPLIFIER

A

2	REPLACE AIR OUTLET CONTROL SERVO MOTOR

(a) Replace the air outlet control servo motor.
HINT:
Since the servo motor cannot be inspected while it is removed from the vehicle, replace the servo motor with a normal 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 → END

AC

A

REPLACE AIR CONDITIONING HARNESS

DTC	B1446/46	Air Mix Damper Control Servo Motor Circuit (Driver Side)

DESCRIPTION

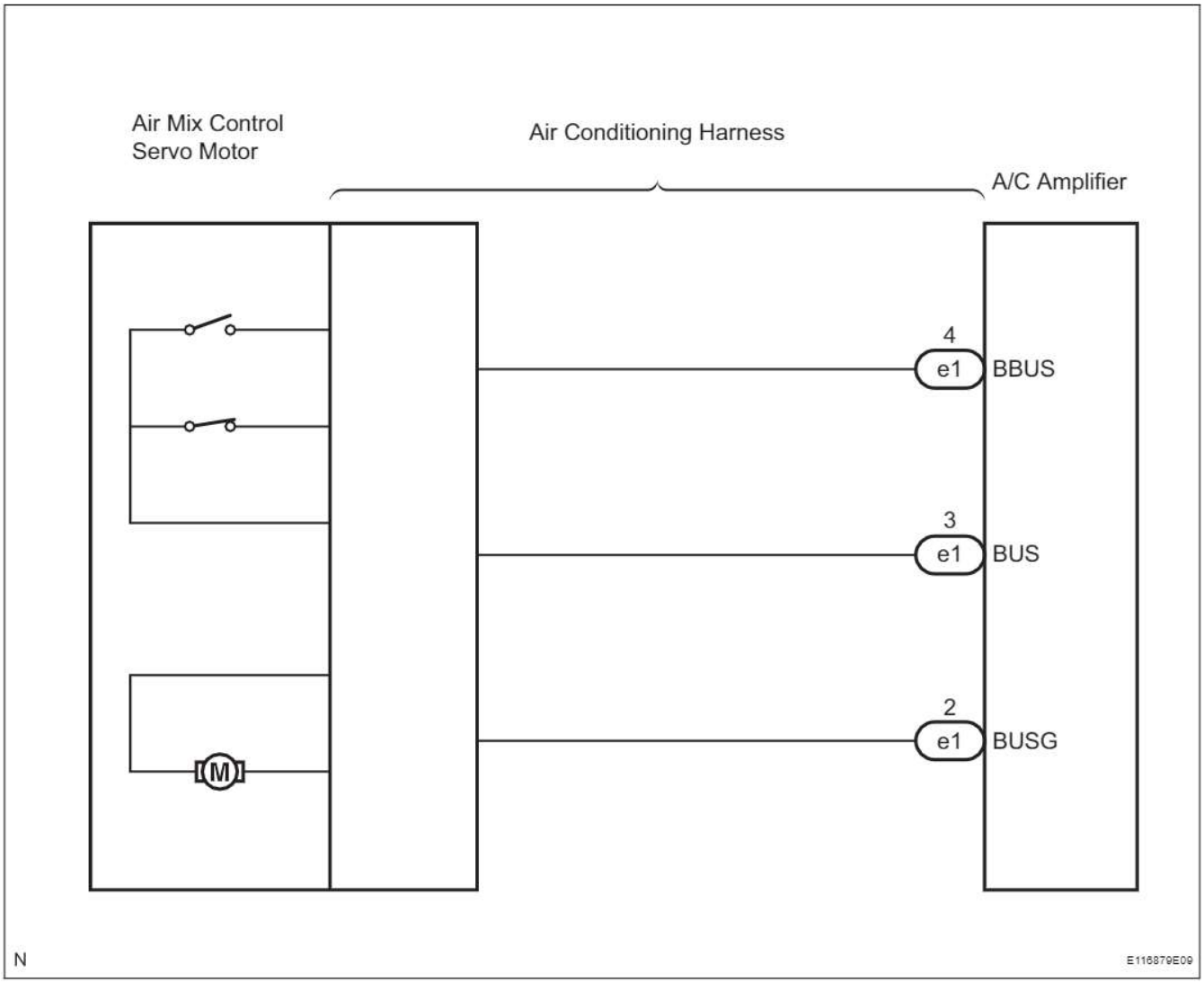
The air mix damper servo sends pulse signals to inform the air conditioning amplifier of the damper position. The air conditioning amplifier activates the motor (normal, reverse) based on the signals to move the air mix damper (driver seat) to any position. As a result, the amount of air passing through the heater core after passing through the evaporator is adjusted, and the temperature of the air blowing toward the driver seat side is controlled.

HINT:

Confirm that no mechanical problem is present because this diagnostic code can be output when either a damper link or damper is mechanically locked.

DTC No.	DTC Detection Condition	Trouble Area
B1446/46	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



AC

INSPECTION PROCEDURE

1	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.
(c) Operate the driver side temperature adjustment switch.
(d) Select the item below in the DATA LIST, and read the display on the intelligent tester.

DATA LIST / AIR CONDITIONER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
AIR MIX PULSE-D (Air mix servomotor target pulse (D side))	Driver side air mix servo motor target pulse / Min.: 0, Max.: 255	MAX COLD: 5 (pulse) MAX HOT: 103 (pulse)	-

OK:
The display is as specified in the normal condition column.

Result

Result	Proceed to
NG	A
OK (When troubleshooting according to the PROBLEM SYMPTOMS TABLE)	B
OK (When troubleshooting according to the DTC)	C

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

C → REPLACE AIR CONDITIONING AMPLIFIER

A

2	REPLACE AIR MIX CONTROL SERVO MOTOR

(a) Replace the air mix control servo motor.
HINT:
Since the servo motor cannot be inspected while it is removed from the vehicle, replace the servo motor with a normal one and check that the condition returns to normal.
(b) Check for DTCs.
Result

Result	Proceed to
DTC B1446/46 is output	A
DTC B1446/46 is not output	B

B → END

A

REPLACE AIR CONDITIONING HARNESS

AC

DTC	B1471/71	A/C Inverter High Voltage Power Resource System Malfunction

DESCRIPTION

The A/C inverter assembly monitors power voltage from the main battery in the circuit. It stops compressor control and outputs the DTC when the monitored voltage is outside the specified range. The output DTC is memorized as previous trouble. Compressor control may not resume unless the power switch is turned off.

CAUTION:

- **Wear electrically insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors. Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

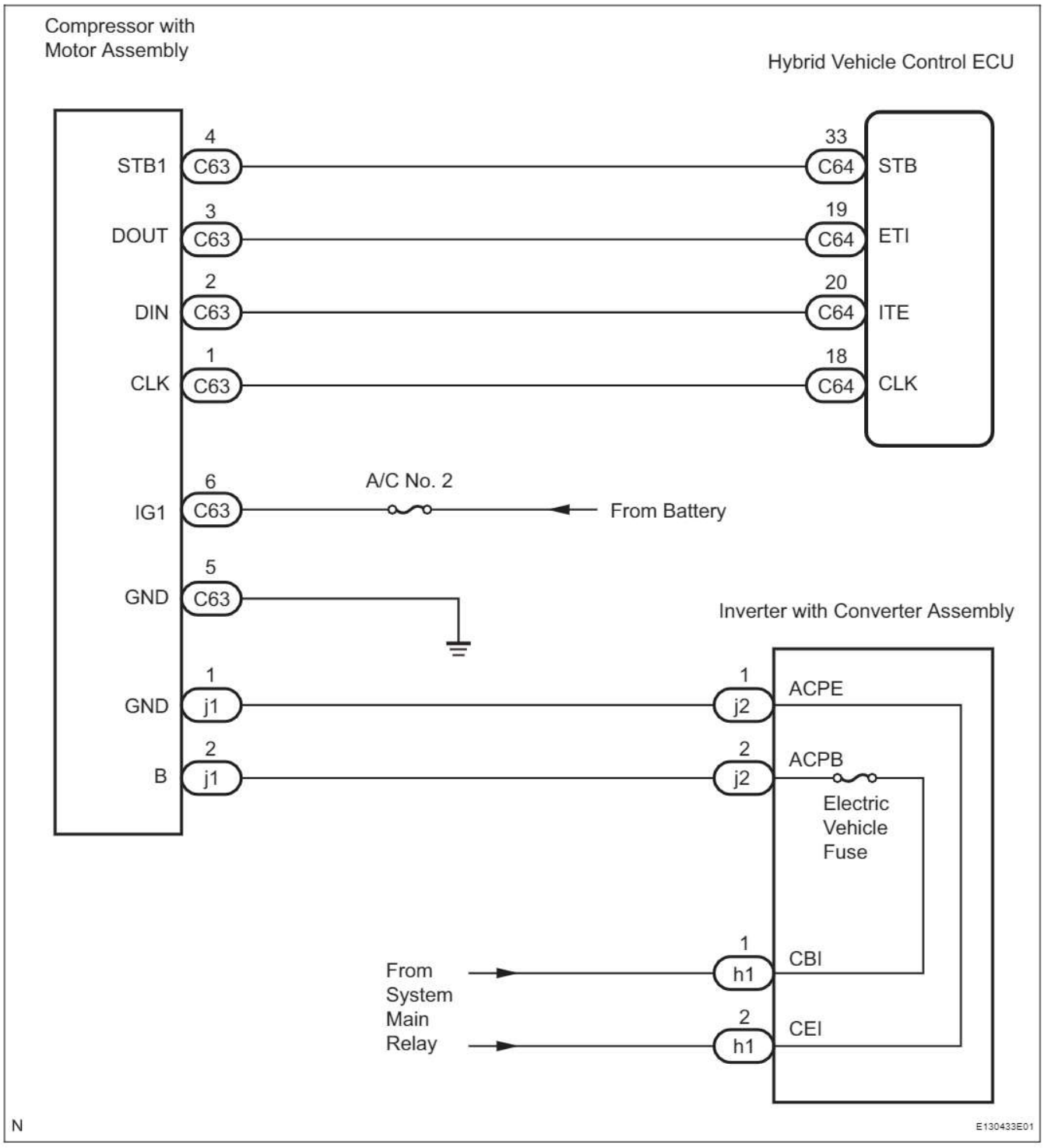
NOTICE:

The hybrid control system and air conditioning system output DTCs separately. Inspect DTCs following the flow chart for the hybrid control system first if any DTCs from those systems are output simultaneously.

DTC No.	DTC Detection Condition	Trouble Area
B1471/71	• Open or short in A/C inverter high voltage power resource system. • The boost pressure system is broken or malfunctioning.	• Harness or connector between compressor with motor assembly and inverter with converter assembly • Compressor with motor assembly • Hybrid control system • Inverter with converter assembly • CAN communication system

AC

WIRING DIAGRAM



INSPECTION PROCEDURE

CAUTION:

- **Wear electrically insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors. Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

AC

1	CHECK CAN COMMUNICATION SYSTEM

(a) Use the intelligent tester 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 (See page CA-7)**

A

2	CHECK DIAGNOSTIC TROUBLE CODE (HYBRID CONTROL SYSTEM)

(a) Check if DTCs for the hybrid control system are output using the intelligent tester.
OK:
Hybrid control system DTCs are not output.

NG → **GO TO HYBRID CONTROL SYSTEM (See page HV-15)**

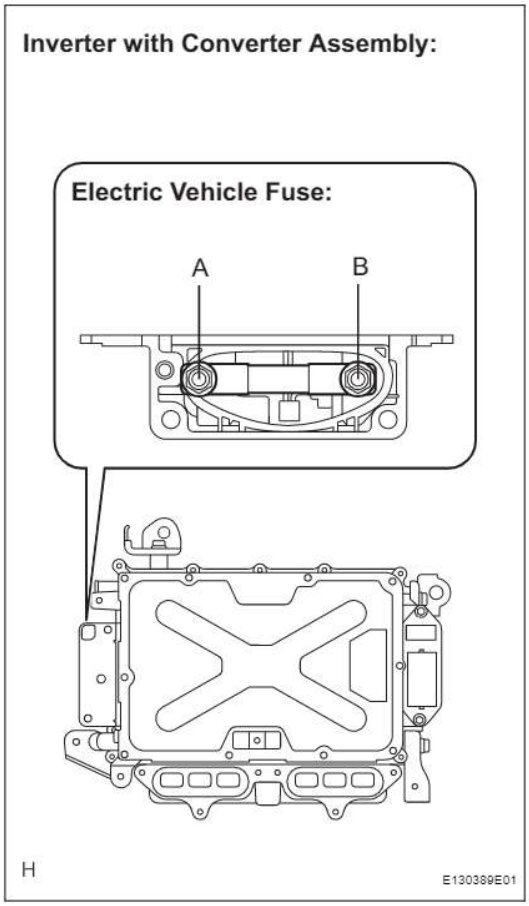
OK

3	INSPECT ELECTRIC VEHICLE FUSE

(a) Turn the power switch off.
(b) Remove the service plug grip.
CAUTION:
- **Be sure to wear insulated gloves.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

NOTICE:
Do not start the engine with the service plug grip removed because it may cause a malfunction.
(c) Remove the connector cover assembly.
CAUTION:
Be sure to wear insulated gloves.
NOTICE:
Be sure to prevent foreign objects or water from entering the inverter with converter assembly.

AC



(d) Check that bolts A and B are tightened securely.
(e) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Item (Tester Connection)	Condition	Specified Condition
ELECTRIC VEHICLE fuse (A - B)	Always	Below 1 Ω

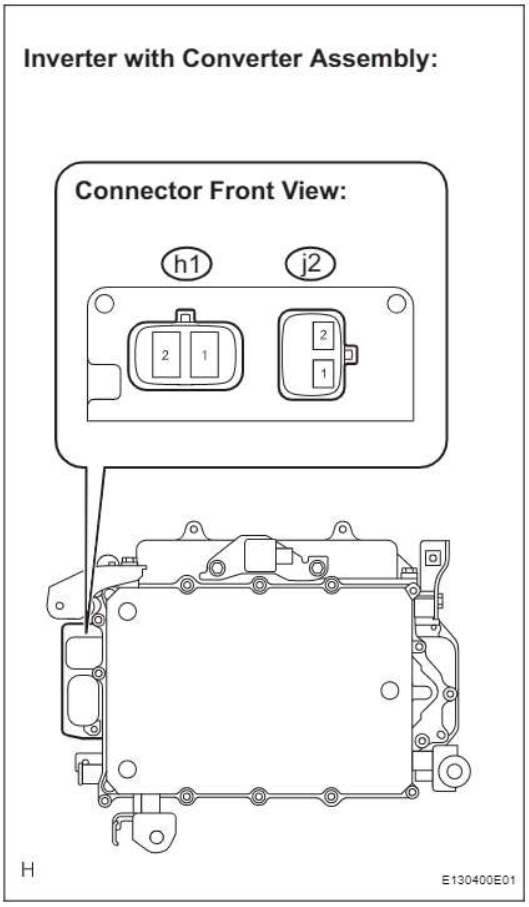
NG → REPLACE ELECTRIC VEHICLE FUSE

OK

4	INSPECT INVERTER WITH CONVERTER ASSEMBLY

CAUTION:
- **Be sure to wear insulated gloves.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

AC



(a) Disconnect the connector from the inverter with converter assembly.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

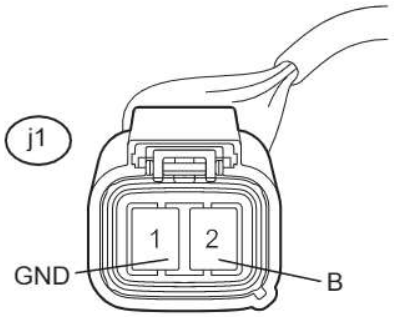
Tester Connection (Symbols)	Condition	Specified Condition
j2-1 (ACPE) - h1-2 (CEI)	Always	Below 1 Ω
j2-2 (ACPB) - h1-1 (CBI)	Always	Below 1 Ω

NG → **REPLACE INVERTER WITH CONVERTER ASSEMBLY**

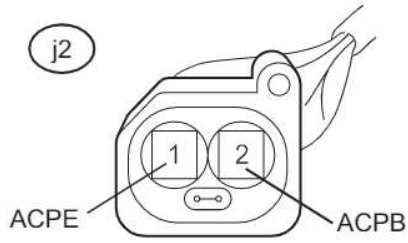
OK

5	INSPECT ENGINE WIRE NO. 4

Compressor with Motor Assembly Connector Front View:



Inverter with Converter Assembly Connector Front View:



H

E130379E01

(a) Disconnect the connector from engine wire No. 4.
CAUTION:
Be sure to wear insulated gloves.

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

Tester Connection (Symbols)	Condition	Specified Condition
j1-1 (GND) - j2-1 (ACPE)	Always	Below 1 Ω
j1-2 (B) - j2-2 (ACPB)	Always	Below 1 Ω
j1-1 (GND) - j1-2 (B)	Always	10 kΩ or higher

NG → **REPLACE ENGINE WIRE NO. 4**

OK

REPLACE COMPRESSOR WITH MOTOR ASSEMBLY

AC

DTC	B1472/72	A/C Inverter High Voltage Output System Malfunction

DESCRIPTION

The inverter in the compressor with motor assembly outputs high-voltage to operate the motor. If there is an open or short in the output circuit, the ECU will stop compressor operation and output the DTC. The output DTC will be memorized as a past DTC. The compressor operation remains stopped until both the past and present DTCs are cleared.

CAUTION:

- **Wear electrically insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors. Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

DTC No.	DTC Detection Condition	Trouble Area
B1472/72	Open or short in A/C inverter high voltage output system.	• Compressor with motor assembly • CAN communication system

INSPECTION PROCEDURE

CAUTION:

- **Wear electrically insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors. Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

1 CHECK CAN COMMUNICATION SYSTEM

(a) Use the intelligent tester 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 (See page CA-7)**

A

REPLACE COMPRESSOR WITH MOTOR ASSEMBLY

AC

DTC	B1473/73	A/C Inverter Start-up Signal System Malfunction

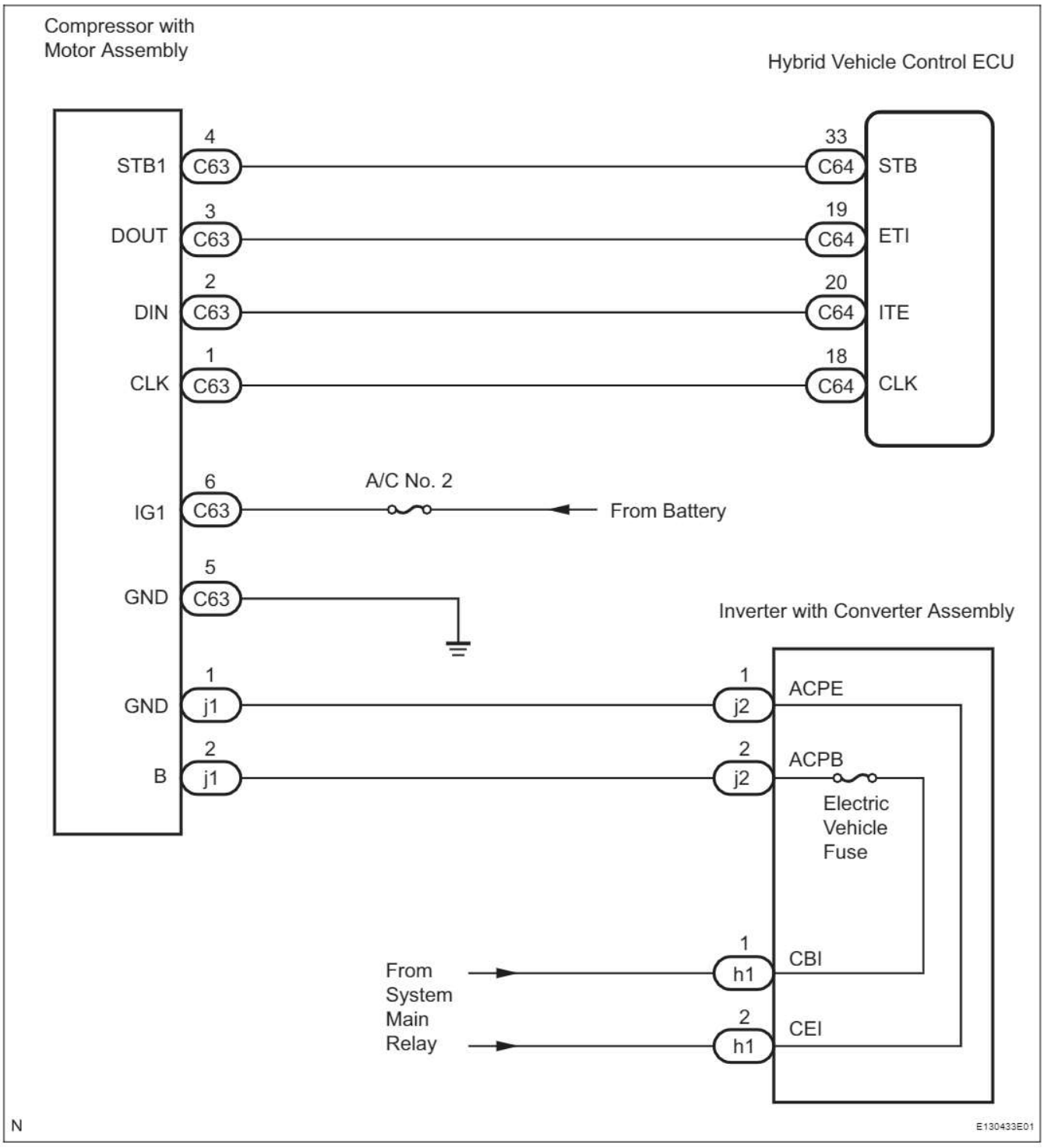
DESCRIPTION

The inverter activation signal is sent to the compressor with motor assembly from the hybrid vehicle control ECU. Compressor control is stopped and the DTC is output if there is an open or short in the signal circuit.

DTC No.	DTC Detection Condition	Trouble Area
B1473/73	Open or short in A/C inverter start-up signal system.	• Harness or connector between hybrid vehicle control ECU and compressor with motor assembly • Compressor with motor assembly • Hybrid control system • CAN communication system

AC

WIRING DIAGRAM



INSPECTION PROCEDURE

AC

1	CHECK CAN COMMUNICATION SYSTEM

(a) Use the intelligent tester 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 (See page CA-7)

A

2 CHECK DIAGNOSTIC TROUBLE CODE

(a) Check if DTCs for the air conditioning system and the hybrid control system are output using the intelligent tester.

Result

Result	Proceed to
Only DTC B1473 is output	A
DTCs B1473 and P3108 are output simultaneously (B1498 is not output)	
DTCs B1473 and B1498 are output simultaneously (P3108 is not output)	B
DTCs B1473, B1498 and P3108 are output simultaneously	
DTCs other than P3108 are output for hybrid control system	C

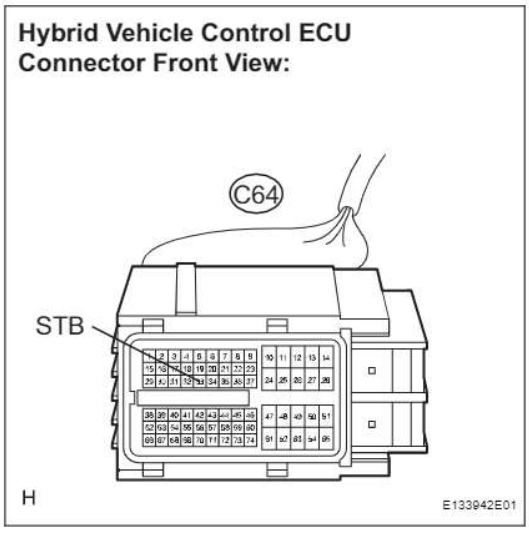
B → GO TO DTC B1498/98 (See page AC-112)

C → GO TO HYBRID CONTROL SYSTEM (See page HV-15)

A

3 CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - COMPRESSOR WITH MOTOR ASSEMBLY)

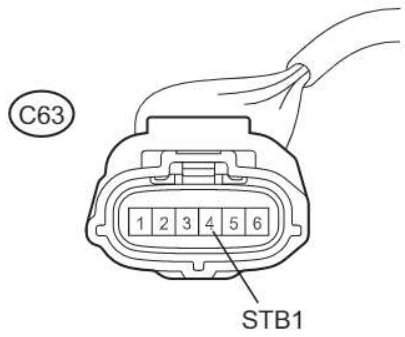
Hybrid Vehicle Control ECU Connector Front View:



(a) Disconnect the connector from the hybrid vehicle control ECU.

AC

Compressor with Motor Assembly Connector Front View:



(b) Disconnect the connector from the compressor with motor assembly.
CAUTION:
Do not disconnect the connector on the high-voltage side.

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

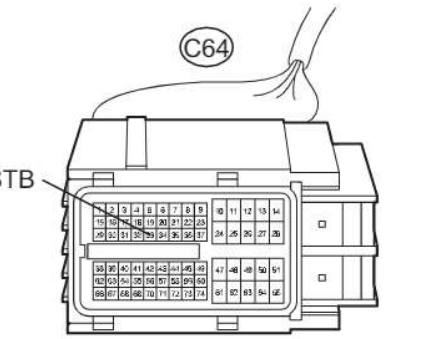
Tester Connection (Symbols)	Condition	Specified Condition
C64-33 (STB) - C63-4 (STB1)	Always	Below 1 Ω
C64-33 (STB) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

4 INSPECT COMPRESSOR WITH MOTOR ASSEMBLY

Hybrid Vehicle Control ECU Connector Front View:



(a) Reconnect the connector to the compressor with motor assembly.

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

Tester Connection (Symbols)	Condition	Specified Condition
C64-33 (STB) - Body ground	Power switch on (IG)	10 to 14 V
C64-33 (STB) - Body ground	Power switch off	Below 1 V

NG → **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY**

OK

REPLACE HYBRID VEHICLE CONTROL ECU

AC

DTC	B1474/74	A/C Inverter Malfunction

DESCRIPTION

DTC No.	DTC Detecting Condition	Trouble Area
B1474/74	A/C inverter malfunction	• Compressor with motor assembly • CAN communication system

INSPECTION PROCEDURE

CAUTION:

- **Wear electrically insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors. Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

1	CHECK CAN COMMUNICATION SYSTEM

(a) Use the intelligent tester 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 (See page CA-7)**

A →

REPLACE COMPRESSOR WITH MOTOR ASSEMBLY

AC

DTC	B1475/75	A/C Inverter Cooling / Heating System Malfunction

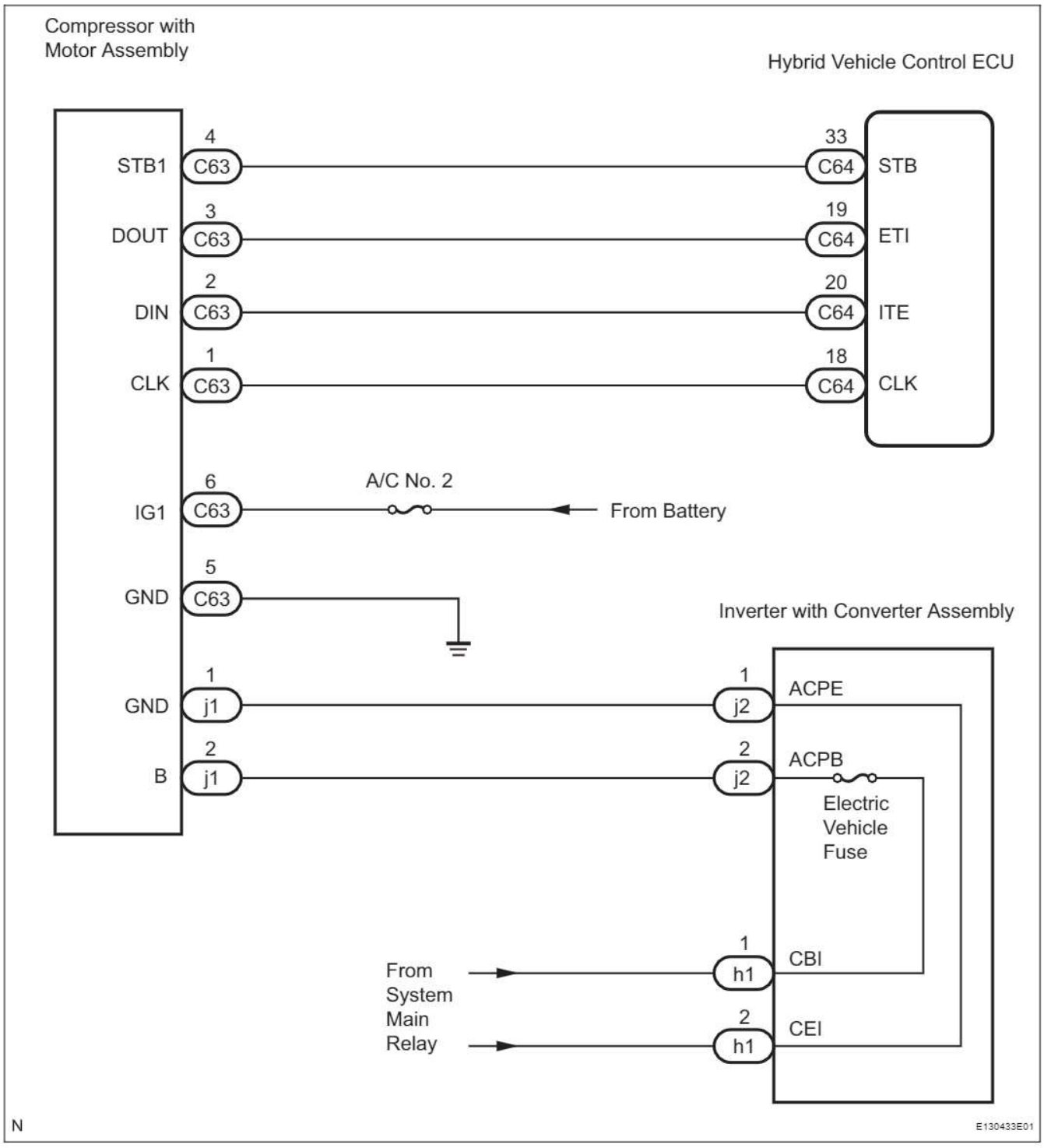
DESCRIPTION

The temperature sensor of the compressor with motor assembly detects inverter temperature.
If the temperature exceeds the maximum, the compressor with motor assembly stops compressor operation, and this DTC will be output.

DTC No.	DTC Detection Condition	Trouble Area
B1475/75	Cooling water temperature in the inverter is outside the specified range (temperature is too high), or there is an open or short to ground in the temperature sensor circuit.	• Cooling fan system • Refrigerant volume • Compressor with motor assembly • CAN communication system

AC

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK CAN COMMUNICATION SYSTEM

AC

(a) Use the intelligent tester 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 (See page CA-7)**

A

2 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.
(c) Select the item below in the ACTIVE TEST and then check that the fan operates.

ACTIVE TEST / AIR CONDITIONER:

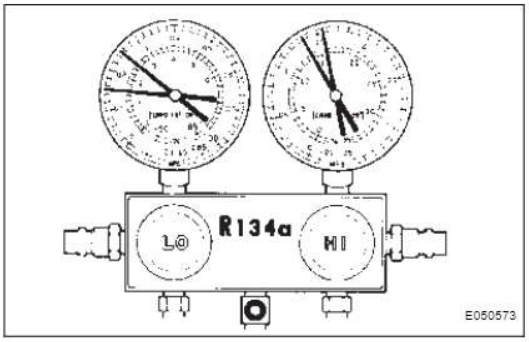
Tester Display	Test Part	Control Range
ELECTRICAL FAN (Electrical fan)	Electrical fan/OFF, ON	-

OK:
Electrical fan operates smoothly.

NG → **GO TO COOLING FAN SYSTEM (See page CO-3)**

OK

3 CHECK REFRIGERANT PRESSURE



(a) Install the manifold gauge set (See page AC-165).
(b) Read the manifold gauge pressure when the following conditions are established.
(1) Prepare the vehicle according to the chart below.

Item	Condition
Vehicle Doors	All fully open
Engine speed	1,500 rpm
Temperature Setting	MAX COLD
Blower Speed	HI
A/C switch	ON
R/F Switch	RECIRCULATION (30 to 35°C (86 to 95°F))

Standard pressure:
Low pressure side:
0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm^2, 21.3 to 35.6 psi)
High pressure side:
1.37 to 1.57 MPa (14 to 16 kgf/cm^2, 199 to 228 psi)

AC

NG → CHARGE REFRIGERANT

OK

4	READ OUTPUT DTC (DTC B1475/75)

(a) Clear the DTCs (See page AC-39).
(b) Prepare the vehicle according to the table below.

Item	Condition
Engine speed	Engine idling
Blower speed	HI
A/C switch	ON
Temperature setting	MAX. COLD

(c) Check for DTCs (See page AC-39).

Result

Result	Proceed to
DTC B1475/75 is not output (normal)	A
DTC B1475/75 is output	B

NOTICE:
If the engine keeps idling when ambient temperature is high, the compressor may automatically stop to protect the inverter circuit, and DTC B1475/75 may be stored.

B → REPLACE COMPRESSOR WITH MOTOR ASSEMBLY

A

SYSTEM IS OK

AC

DTC	B1476/76	A/C Inverter Load System Malfunction

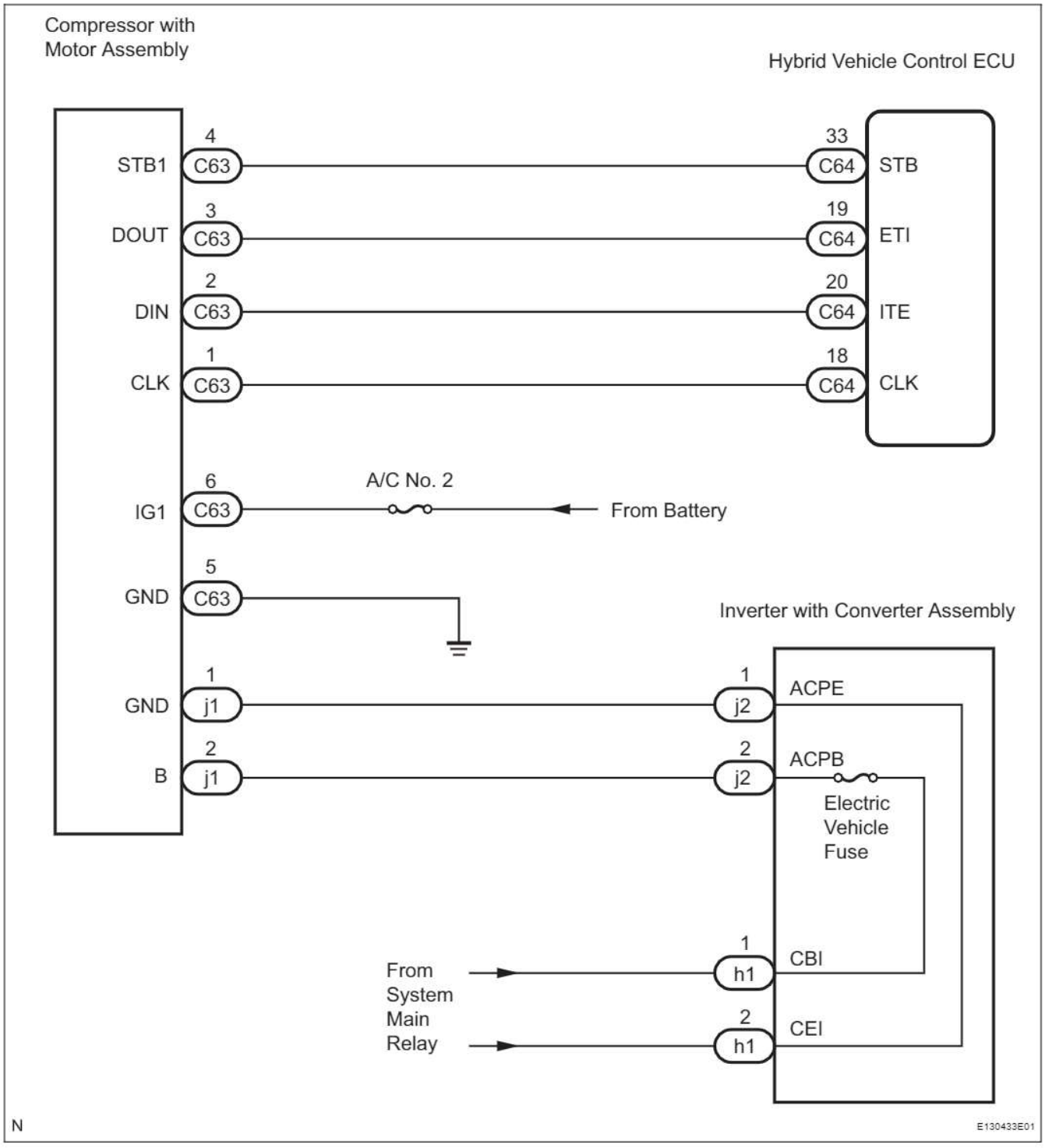
DESCRIPTION

The compressor with motor assembly stops compressor control and outputs this DTC if the rotation load is too large or too small while controlling motor rotation in the compressor with motor assembly.
Possible causes are refrigerant gas leakage, overcharged refrigerant gas, insufficient cooling because of a condenser fan circuit malfunction, or compressor lock.

DTC No.	DTC Detection Condition	Trouble Area
B1476/76	Motor's rotation load while the compressor is operating is too large or too small.	• Refrigerant volume • Compressor with motor assembly • Cooling fan system • CAN communication system

AC

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK CAN COMMUNICATION SYSTEM

(a) Use the intelligent tester to check if the CAN Communication System is functioning normally.

AC

Result

Result	Proceed to
CAN DTC is not output	A
CAN DTC is output	B

B → **GO TO CAN COMMUNICATION SYSTEM (See page CA-7)**

A

2 PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.
(c) Select the item below in the ACTIVE TEST and then check that the fan operates.

ACTIVE TEST / AIR CONDITIONER:

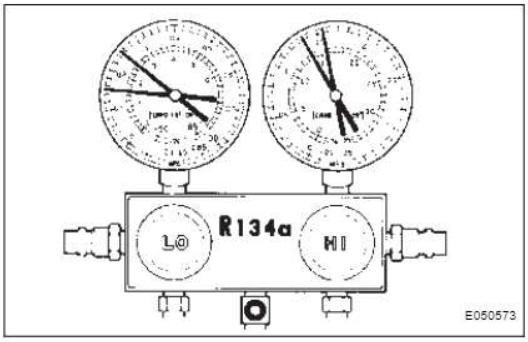
Tester Display	Test Part	Control Range
ELECTRICAL FAN (Electrical fan)	Electrical fan/OFF, ON	-

OK:
Electrical fan operates smoothly.

NG → **GO TO COOLING FAN SYSTEM (See page CO-3)**

OK

3 CHECK REFRIGERANT PRESSURE



(a) Install the manifold gauge set (See page AC-165).
(b) Read the manifold gauge pressure when the following conditions are established.
(1) Prepare the vehicle according to the chart below.

Item	Condition
Vehicle Doors	All fully open
Engine speed	1,500 rpm
Temperature Setting	MAX COLD
Blower Speed	HI
A/C switch	ON
R/F Switch	RECIRCULATION (30 to 35°C (86 to 95°F))

Standard pressure:
Low pressure side:
0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm^2, 21.3 to 35.6 psi)
High pressure side:
1.37 to 1.57 MPa (14 to 16 kgf/cm^2, 199 to 228 psi)

AC

NG → CHARGE REFRIGERANT

OK

REPLACE COMPRESSOR WITH MOTOR ASSEMBLY

DTC	B1477/77	A/C Inverter Low Voltage Power Resource System Malfunction

DESCRIPTION

The compressor with motor assembly monitors the controlling power voltage in the circuit. It stops the compressor circuit and outputs the DTC when the monitored voltage is outside the specified range. The output DTC is memorized as previous trouble. The compressor control may not resume unless the power switch is turned off.

CAUTION:

- **Wear electrically insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors. Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

DTC No.	DTC Detection Condition	Trouble Area
B1477/77	An open or short to ground in the inverter's controlling power voltage circuit.	• Compressor with motor assembly • CAN communication system

INSPECTION PROCEDURE

CAUTION:

- **Wear electrically insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors. Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

1 CHECK CAN COMMUNICATION SYSTEM

(a) Use the intelligent tester 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 (See page CA-7)**

A

REPLACE COMPRESSOR WITH MOTOR ASSEMBLY

AC

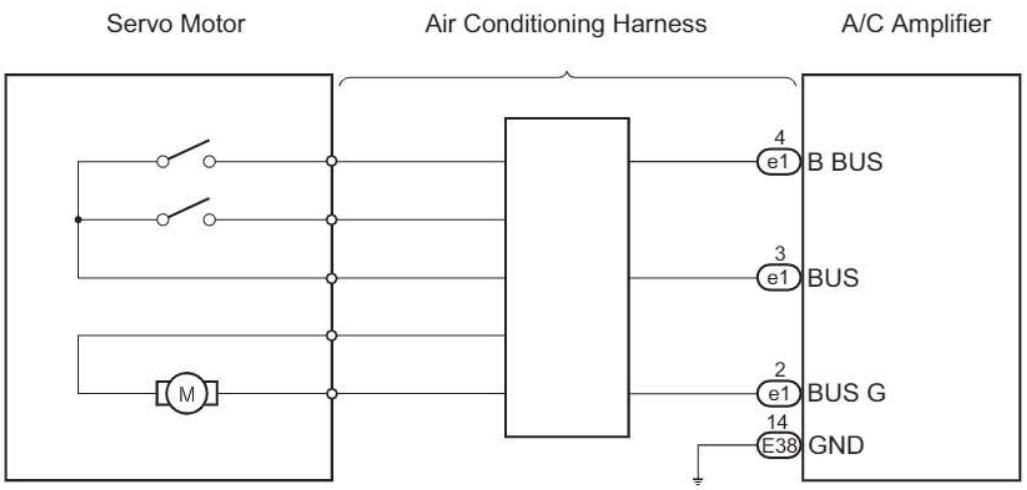
DTC	B1497/97	BUS IC Communication Malfunction

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.

DTC No.	DTC Detection Condition	Trouble Area
B1497/97	Communication line error or open	• Air conditioning harness • A/C amplifier

WIRING DIAGRAM



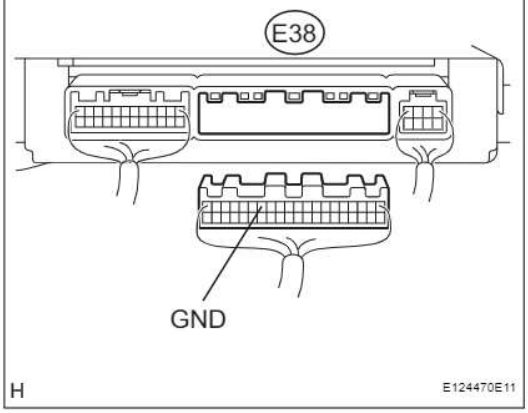
INSPECTION PROCEDURE

1	CHECK HARNESS AND CONNECTOR

(a) Remove the A/C amplifier.

AC

Air Conditioning Amplifier Connector Wire Harness View:



(b) Disconnect the connector from the A/C amplifier.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

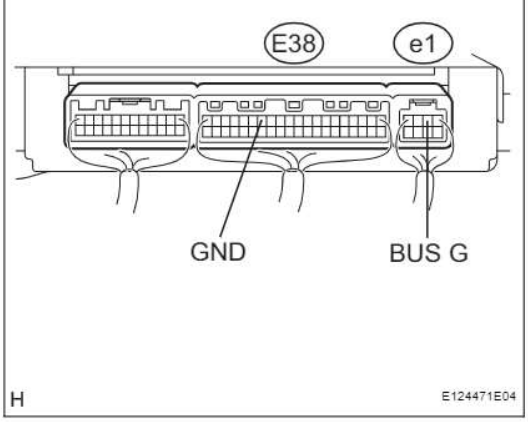
Tester Connection (Symbols)	Condition	Specified Condition
E38-14 (GND) - Body ground	Always	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

2 INSPECT AIR CONDITIONING AMPLIFIER

Air Conditioning Amplifier Connector Wire Harness View:



(a) Reconnect the connector to the A/C amplifier.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
e1-2 (BUS G) - E38-14 (GND)	Always	Below 1 Ω

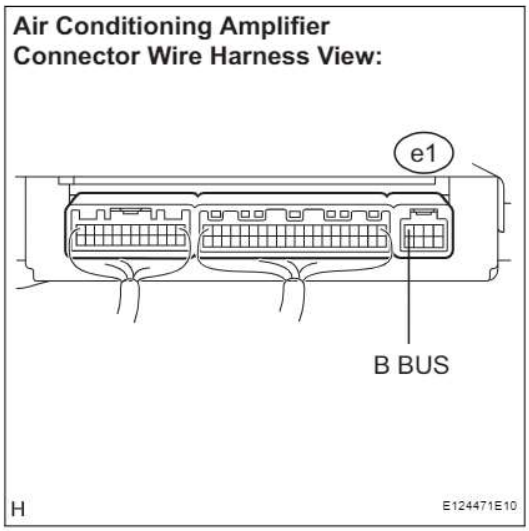
NG → **REPLACE AIR CONDITIONING AMPLIFIER**

OK

AC

3 INSPECT AIR CONDITIONING AMPLIFIER

Air Conditioning Amplifier Connector Wire Harness View:



(a) Disconnect the connector (e1) from the A/C amplifier.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
e1-4 (B BUS) - Body ground	Power switch off	Below 1 V
e1-4 (B BUS) - Body ground	Power switch on (IG)	10 to 14 V

NG → **REPLACE AIR CONDITIONING AMPLIFIER**

OK

4 REPLACE AIR CONDITIONING HARNESS

(a) Replace the air conditioning harness.
HINT:
Since the air conditioning harness cannot be inspected while it is removed from the vehicle, replace the air conditioning harness with a normal one and check that the condition returns to normal.
(b) Check for DTCs.

Result

Result	Proceed to
DTC B1497/97 is output.	A
DTC B1497/97 is not output.	B

B → **END**

A

REPLACE AIR CONDITIONING AMPLIFIER

AC

DTC	B1498/98	Communication Malfunction (A/C Inverter Local)

DESCRIPTION

The hybrid vehicle control ECU and compressor with motor assembly transmit information to one another via a communication line. Compressor control is stopped and the DTC is output if communication information is cut off or abnormal information occurs.

The DTC is also detected if high-voltage power supplied from the inverter with converter assembly to the compressor control circuit is shut off.

The output DTC is memorized as previous trouble.

CAUTION:

- **Wear electrically insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors. Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

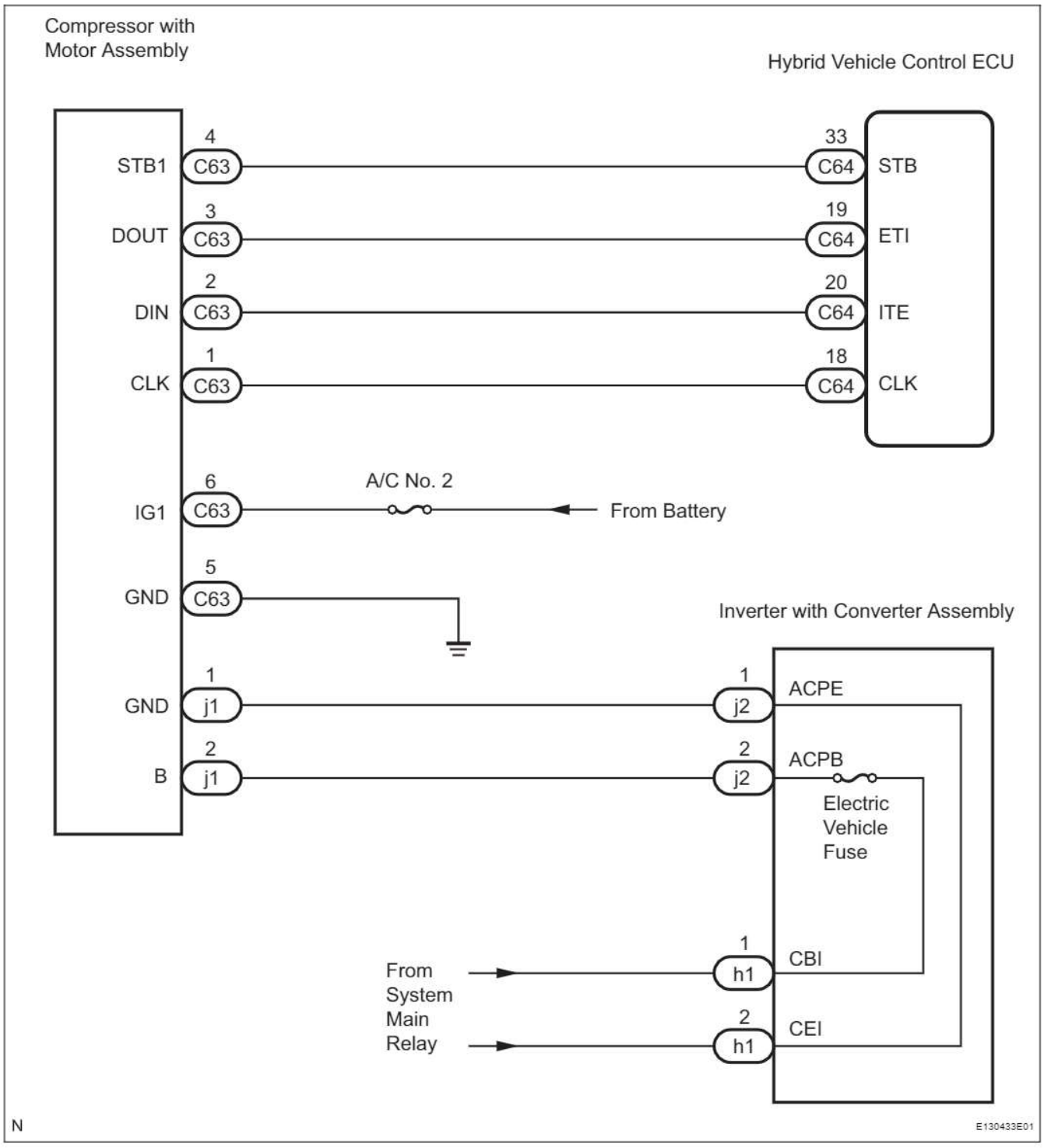
NOTICE:

Depending on the timing of the power supply to the 12 V power supply circuit and high-voltage circuit when the power switch is turned on (READY), an abnormal information signal may be output, causing this DTC to be stored. If the output DTC is a code that was memorized in the past, check the fuses and wire harnesses. If there is no malfunction, erase the DTC.

DTC No.	DTC Detection Condition	Trouble Area
B1498/98	• Communication line error or open between the hybrid vehicle control ECU and the compressor with motor assembly. • High-voltage power source is shut off.	• Harness or connector between hybrid vehicle control ECU, compressor with motor assembly, and body ground • Hybrid vehicle control ECU • Compressor with motor assembly • Inverter with converter assembly • Engine wire No. 4 • Electric vehicle fuse • CAN communication system • Hybrid control system

AC

WIRING DIAGRAM



INSPECTION PROCEDURE

CAUTION:

- **Wear electrically insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors. Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

AC

NOTICE:
Depending on the timing of the power supply to the 12 V power supply circuit and high-voltage circuit when the power switch is turned on (READY), an abnormal information signal may be output, causing this DTC to be stored. If the output DTC is a code that was memorized in the past, check the fuses and wire harnesses. If there is no malfunction, erase the DTC.

1 CHECK CAN COMMUNICATION SYSTEM

(a) Use the intelligent tester 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 (See page CA-7)**

A

2 CHECK DIAGNOSTIC TROUBLE CODE

(a) Check if DTCs for the hybrid control system are output using the intelligent tester.

Result

Result	Proceed to
DTC is not output	A
Only DTC P3108 is output	A
DTCs other than P3108 are output	B

B → **GO TO HYBRID CONTROL SYSTEM (See page HV-15)**

A

3 INSPECT FUSE (A/C NO. 2)

(a) Remove the A/C No. 2 fuse from the instrument panel J/B.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

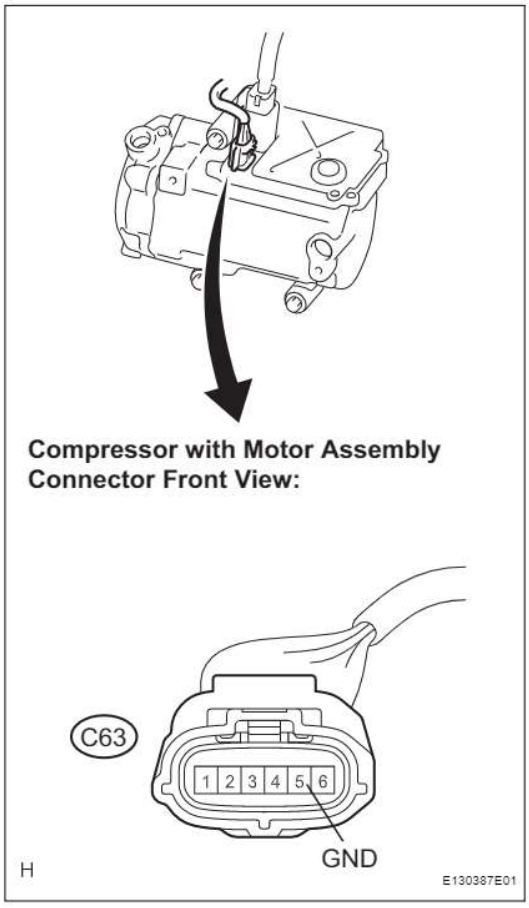
Tester Item	Condition	Specified condition
A/C No. 2 fuse	Always	Below 1 Ω

NG → **REPLACE FUSE (A/C NO. 2)**

AC

OK

4	CHECK HARNESS AND CONNECTOR (COMPRESSOR WITH MOTOR ASSEMBLY - BODY GROUND)



(a) Disconnect the connector from the compressor with motor assembly.
CAUTION:
Do not disconnect the connector on the high-voltage side.

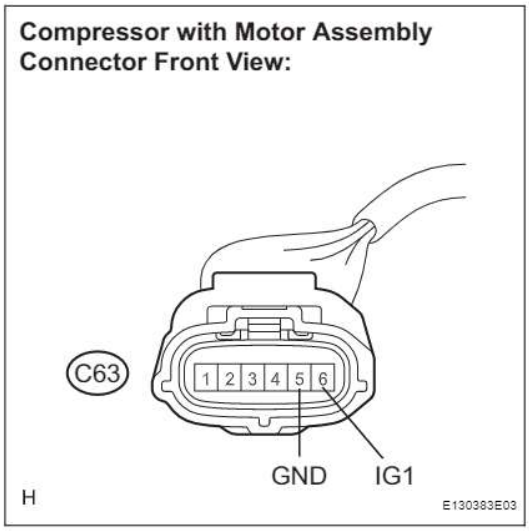
(b) Measure the resistance according to the value(s) in the table below.
Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
C63-5 (GND) - Body ground	Always	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

5	CHECK HARNESS AND CONNECTOR (IG1 - GND)



(a) Turn the power switch on (IG).

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

Tester Connection (Symbols)	Condition	Specified Condition
C63-6 (IG1) - C63-5 (GND)	Power switch on (IG)	10 to 14 V
C63-6 (IG1) - C63-5 (GND)	Power switch off	Below 1 V

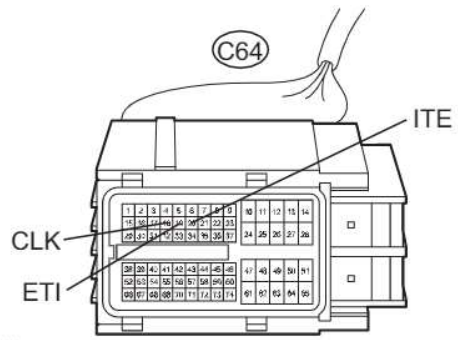
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

AC

OK

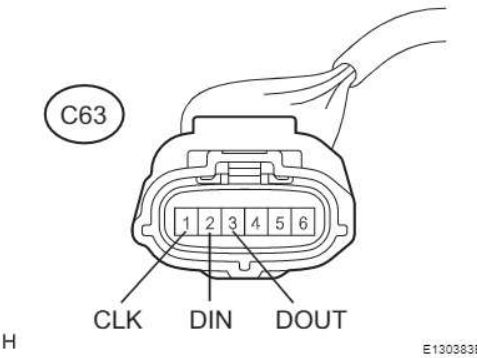
6	CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - COMPRESSOR WITH MOTOR ASSEMBLY)

Hybrid Vehicle Control ECU Connector Front View:



(a) Disconnect the connector from the hybrid vehicle control ECU.

Compressor with Motor Assembly Connector Front View:



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

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
C63-1 (CLK) - C64-18 (CLK)	Always	Below 1 Ω
C63-2 (DIN) - C64-20 (ITE)	Always	Below 1 Ω
C63-3 (DOUT) - C64-19 (ETI)	Always	Below 1 Ω
C63-1 (CLK) - Body ground	Always	10 kΩ or higher
C63-2 (DIN) - Body ground	Always	10 kΩ or higher
C63-3 (DOUT) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

7	INSPECT ELECTRIC VEHICLE FUSE

(a) Turn the power switch off.
(b) Remove the service plug grip.

CAUTION:

- **Be sure to wear insulated gloves.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

NOTICE:

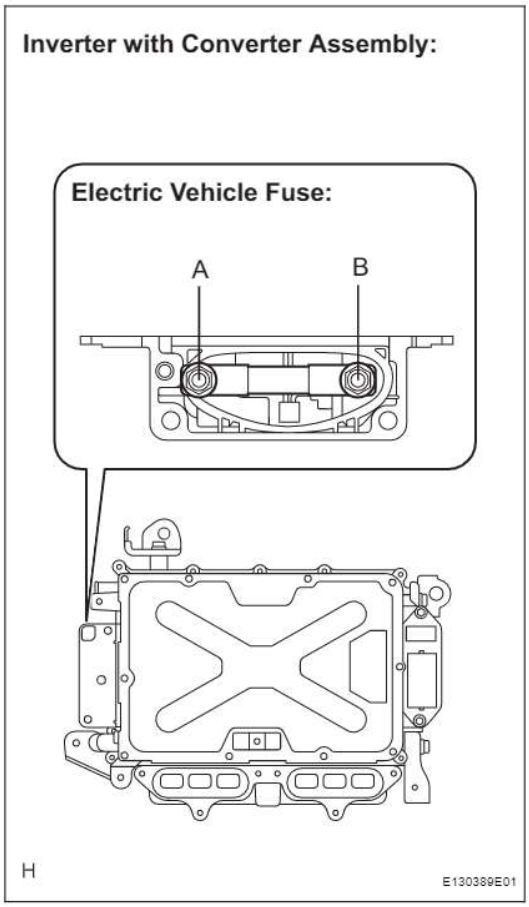
Do not start the engine with the service plug grip removed because it may cause a malfunction.

(c) Remove the connector cover assembly.

AC

CAUTION:
Be sure to wear insulated gloves.
NOTICE:
Be sure to prevent foreign objects or water from entering the inverter with converter assembly.

(d) Check that bolts A and B are tightened securely.
(e) Measure the resistance according to the value(s) in the table below.



Standard resistance

Tester Item (Tester Connection)	Condition	Specified Condition
ELECTRIC VEHICLE fuse (A - B)	Always	Below 1 Ω

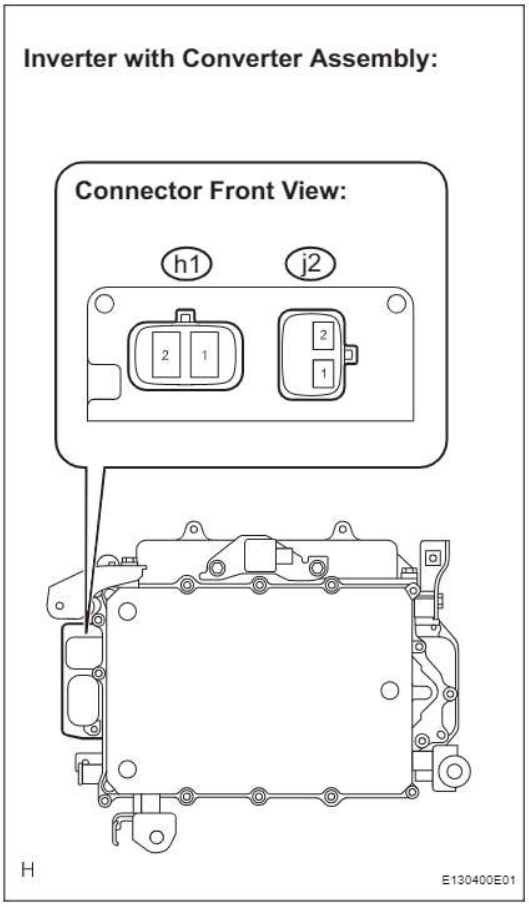
NG → REPLACE ELECTRIC VEHICLE FUSE

OK

8	INSPECT INVERTER WITH CONVERTER ASSEMBLY

CAUTION:
- **Be sure to wear insulated gloves.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

AC



(a) Disconnect the connector from the inverter with converter assembly.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

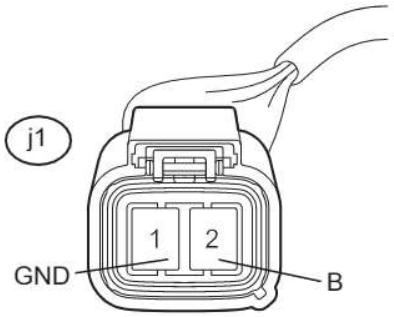
Tester Connection (Symbols)	Condition	Specified Condition
j2-1 (ACPE) - h1-2 (CEI)	Always	Below 1 Ω
j2-2 (ACPB) - h1-1 (CBI)	Always	Below 1 Ω

NG → **REPLACE INVERTER WITH CONVERTER ASSEMBLY**

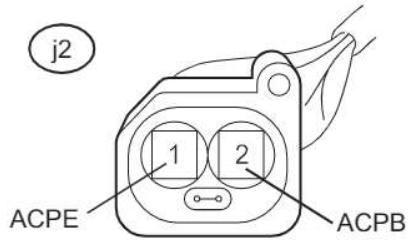
OK

9	INSPECT ENGINE WIRE NO. 4

Compressor with Motor Assembly Connector Front View:



Inverter with Converter Assembly Connector Front View:



(a) Disconnect the connector from engine wire No. 4.
CAUTION:
Be sure to wear insulated gloves.
(b) Measure the resistance according to the value(s) in the table below.
Standard resistance

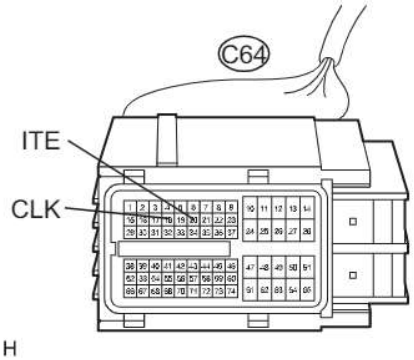
Tester Connection (Symbols)	Condition	Specified Condition
j1-1 (GND) - j2-1 (ACPE)	Always	Below 1 Ω
j1-2 (B) - j2-2 (ACPB)	Always	Below 1 Ω
j1-1 (GND) - j1-2 (B)	Always	10 kΩ or higher

NG → **REPLACE ENGINE WIRE NO. 4**

OK

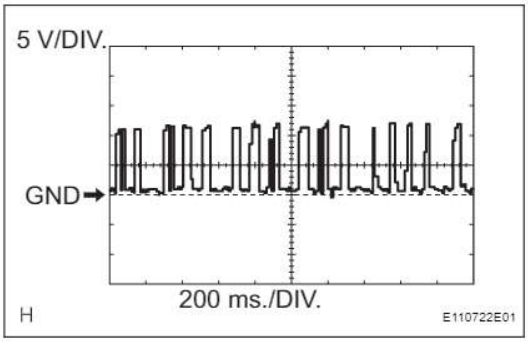
10	INSPECT COMPRESSOR WITH MOTOR ASSEMBLY

Hybrid Vehicle Control ECU Connector Front View:



(a) Reconnect the compressor with motor assembly.
(b) Turn the power switch on (IG).

AC



(c) Measure the waveform according to the following tables.

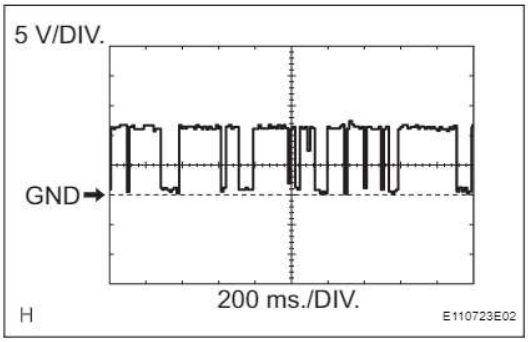
(1) CLK - Body ground

Standard

Tester Connection (Symbols)	Condition	Specified Condition
C64-18 (CLK) - Body ground	Power switch on (IG)	Pulse generation

Item	Contents
Tool Setting	5 V/DIV., 200 ms./DIV.
Vehicle Condition	Power switch on (IG)

HINT:
Waveform cycle varies with the communication contents.



(2) ITE - Body ground

Standard

Tester Connection (Symbols)	Condition	Specified Condition
C64-20 (ITE) - Body ground	Power switch on (IG)	Pulse generation

Item	Contents
Tool Setting	5 V/DIV., 200 ms./DIV.
Vehicle Condition	Power switch on (IG)

HINT:
Waveform cycle varies with the communication contents.

NG → **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY**

OK

REPLACE HYBRID VEHICLE CONTROL ECU

AC

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

1	GO TO CAN COMMUNICATION SYSTEM

(a) Refer to the CAN communication system (See page CA-7).

NEXT

END

AC

DTC	P0AA6-611	Hybrid Battery Voltage System Isolation Fault

DESCRIPTION

The DTC is output if there is insulation trouble with the high-voltage circuits in the air conditioning system. Possible causes are poor insulation in the compressor with motor assembly, or mixing of any oil other than ND-OIL 11 in the refrigerant cycle.

The motor driven with high-voltage is built into the electrical compressor and is cooled directly with refrigerant. Compressor oil (ND-OIL 11) with high insulation performance is used because a leakage of electrical power may occur if regular compressor oil (ND-OIL 8) is used.

NOTICE:

- **Electrical insulation performance may decrease significantly if even a small amount of oil other than ND-OIL 11 is used (or enters) in the refrigerant cycle, causing the DTC to be output.**
- **If other oil is accidentally used and a DTC is output, collect the oil in the refrigerant cycle into the compressor and replace it with ND-OIL 11 to increase the ND-OIL 11 ratio amount.**
- **Replace the main components (evaporator, condenser, and compressor) if a large amount of oil other than ND-OIL 11 enters the system. Failing to do so may cause electrical insulation performance to remain low, causing the DTC to be output.**

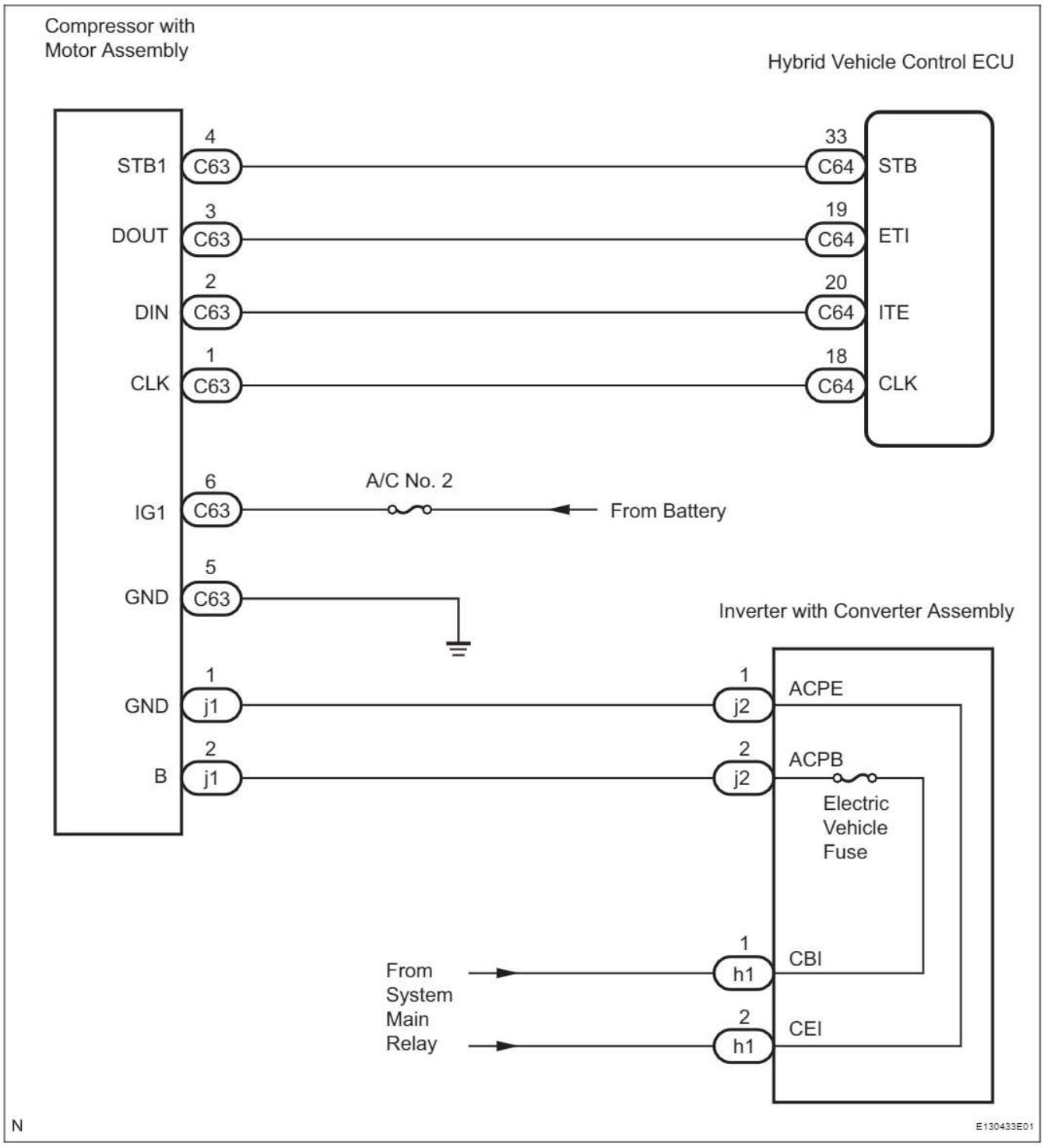
CAUTION:

- **Wear insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors.**
- **Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

DTC No.	DTC Detection Condition	Trouble Area
P0AA6-611	High voltage system insulation malfunction	• Compressor oil • Refrigerant pipe line • Compressor with motor assembly • CAN communication system

AC

WIRING DIAGRAM



INSPECTION PROCEDURE

CAUTION:

- **Wear insulated gloves and pull out the service plug grip before inspection as procedures may require disconnecting high-voltage connectors.**
- **Be sure to carry the removed service plug grip because other workers may install it by mistake.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

AC

HINT:
If it can be confirmed that any compressor oil other than ND-OIL 11 has been used in the vehicle, replace the air conditioning cycle.

1 CHECK CAN COMMUNICATION SYSTEM

(a) Use the intelligent tester 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 (See page CA-7)**

A

2 INSPECT COMPRESSOR WITH MOTOR ASSEMBLY

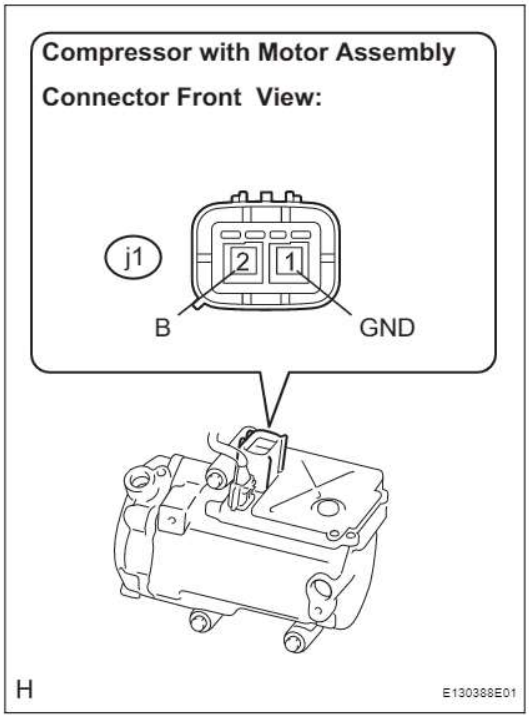
(a) Clear the DTCs (See page AC-39).
(b) Turn the power switch on (IG).
(c) Prepare the vehicle according to the table below for 3 minutes.

Item	Condition
Blower speed	HI
Temperature setting	MAX COLD
A/C	ON

(d) Turn the power switch off.
(e) Remove the service plug grip.
CAUTION:
- **Because the compressor has a high-voltage circuit, wear insulated gloves and pull out the service plug grip to cut off the high-voltage circuit before inspection.**
- **Do not touch the high-voltage connectors or terminals for 10 minutes after the service plug grip is removed.**

NOTICE:
Do not start the engine with the service plug grip removed because it may cause a malfunction.

AC



(f) Disconnect the connector (j1) from the compressor with motor assembly.

(g) Using a megohmmeter, measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
j1-1 (GND) - Body ground	Always	2 MΩ or higher
j1-2 (B) - Body ground	Always	2 MΩ or higher

NG → **REPLACE COMPRESSOR WITH MOTOR ASSEMBLY**

OK

3	INSPECT AIR CONDITIONING CYCLE

(a) Reconnect the connector (j1) to the compressor with motor assembly.

(b) Install the service plug grip.

(c) Turn the power switch on (IG).

(d) Set the A/C setting temperature to 25°C (77°F) and the blower switch LO and then operate the compressor for 10 minutes to circulate the refrigerant cycle with refrigerant and collect as much compressor oil as possible.

(e) Turn the power switch off.

(f) Using a spot cooler or other tools, cool down the compressor with motor assembly for 30 minutes, or leave the vehicle overnight before inspection.

NOTICE:

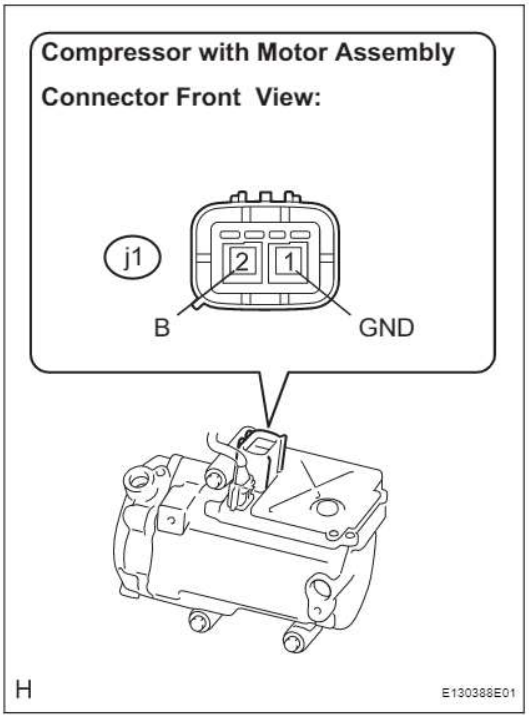
Do not operate the compressor before inspection.

(g) Remove the service plug grip.

NOTICE:

Do not start the engine with the service plug grip removed because it may cause a malfunction.

AC



(h) Disconnect the connector (j1) from the compressor with motor assembly.

(i) Using a megohmmeter, measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
j1-1 (GND) - Body ground	Always	3 MΩ or higher
j1-2 (B) - Body ground	Always	3 MΩ or higher

NOTICE:
If the results are out of the specified range, replace the compressor without operating.

NG → **REPLACE AIR CONDITIONING CYCLE**

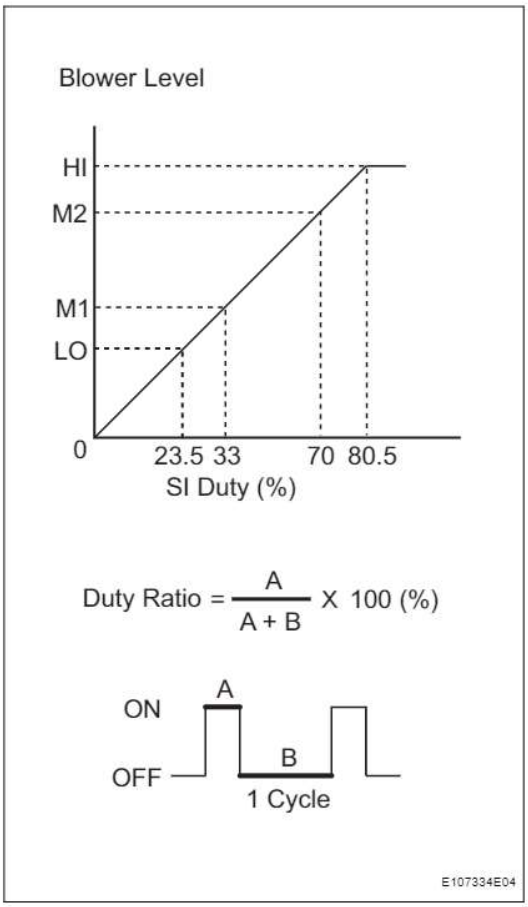
OK

REPLACE COMPRESSOR WITH MOTOR ASSEMBLY

AC

Blower Motor Circuit

DESCRIPTION



The blower motor is operated by signals from the A/C amplifier. The blower motor speed is controlled using various duty ratios.

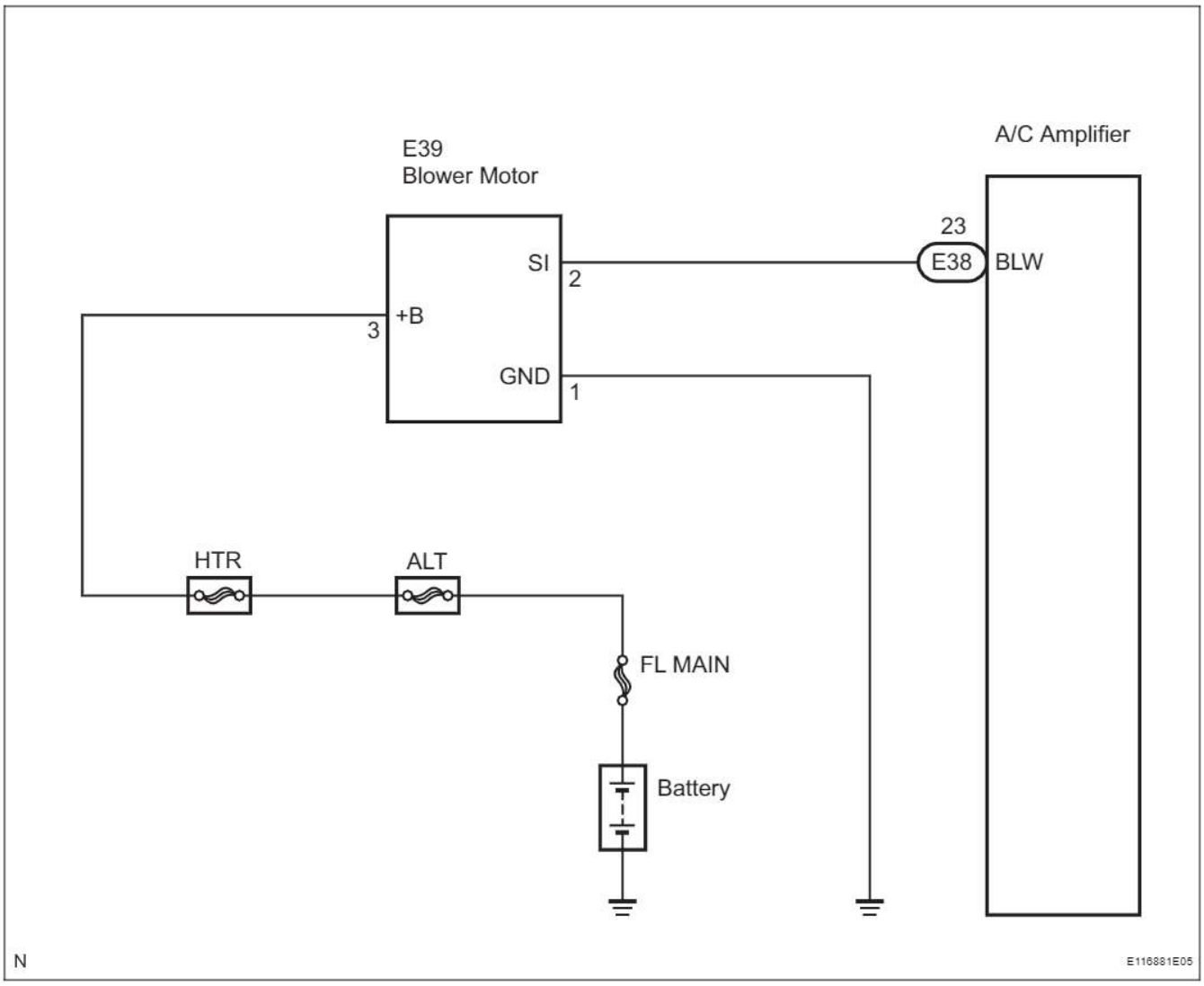
Duty Ratio:

The duty ratio is the ratio of the blower motor ON time (A) to the total of the blower motor ON and OFF time (A + B).

The blower motor controller controls the blower motor speed.

AC

WIRING DIAGRAM



INSPECTION PROCEDURE

1	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch 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 Parts	Control Range
BLOWER MOTOR (Blower motor)	Blower motor / Min.: Level 01, Max.: Level 31	-

AC

Result

Result	Proceed to
OK	A
NG (blower motor does not operate)	B

Result	Proceed to
NG (blower motor operates but does not change speed)	C

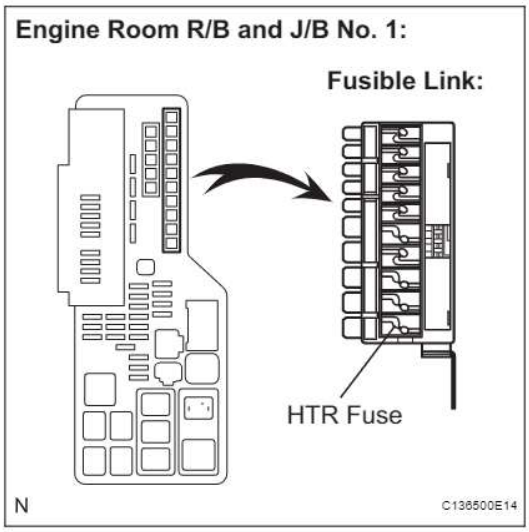
B → Go to step 2

C → Go to step 6

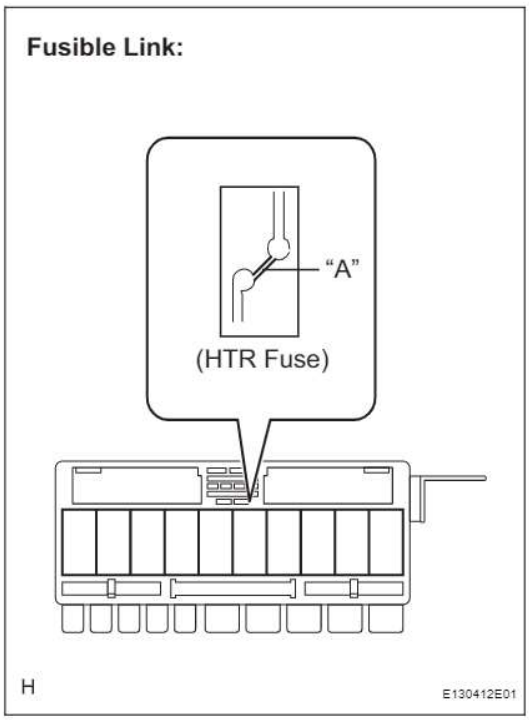
A

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 INSPECT FUSIBLE LINK (HTR)



(a) Remove the fusible link from the engine room relay block and junction block No. 1.



(b) Check if the fusible link is melted.
OK:
The point indicated by "A" is not melted.

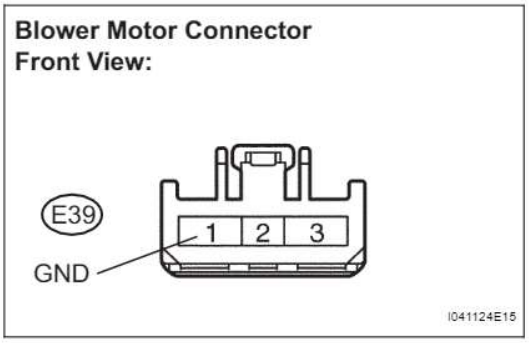
(c) Install the fusible link to the engine room relay block and junction block No. 1 with the nut.

NG → **REPLACE FUSIBLE LINK (HTR)**

AC

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.

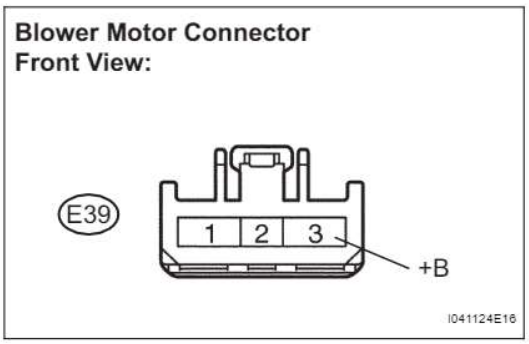
Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E39-1 (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.
(b) Measure the voltage according to the value(s) in the table below.

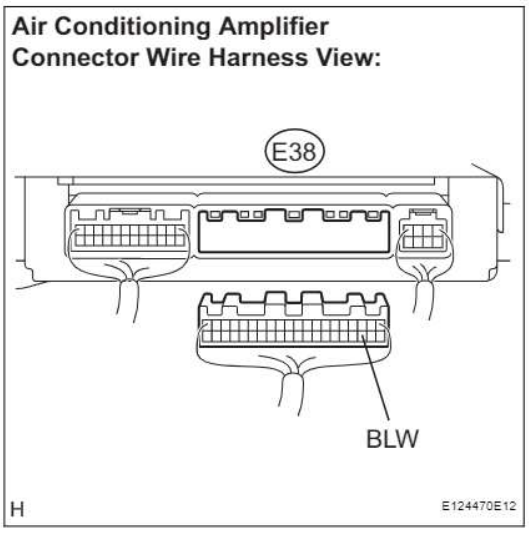
Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E39-3 (+B) - Body ground	Always	10 to 14 V

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

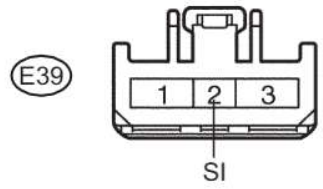
5	CHECK HARNESS AND CONNECTOR (A/C AMPLIFIER - BLOWER MOTOR)



(a) Disconnect the A/C amplifier connector.

AC

Blower Motor Connector
Front View:



I041124E17

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

Standard resistance

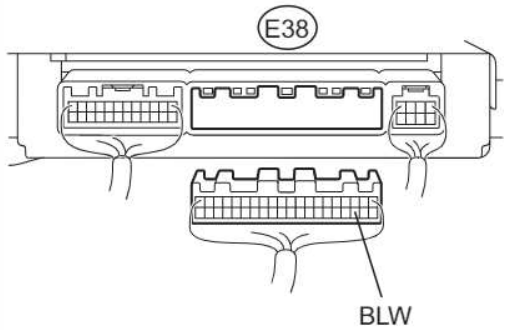
Tester Connection (Symbols)	Condition	Specified Condition
E39-2 (SI) - E38-23 (BLW)	Always	Below 1 Ω
E39-2 (SI) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6 INSPECT BLOWER MOTOR

Air Conditioning Amplifier
Connector Wire Harness View:



H

E124470E12

(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 (Symbols)	Condition	Specified Condition
E38-23 (BLW) - Body ground	Power switch on (IG)	4.5 to 5.5 V

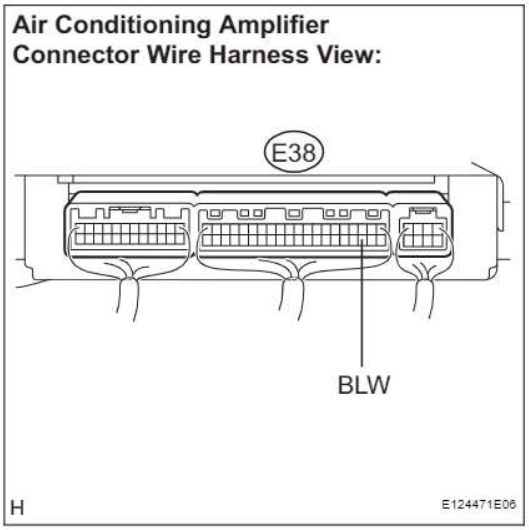
NG → REPLACE BLOWER MOTOR

OK

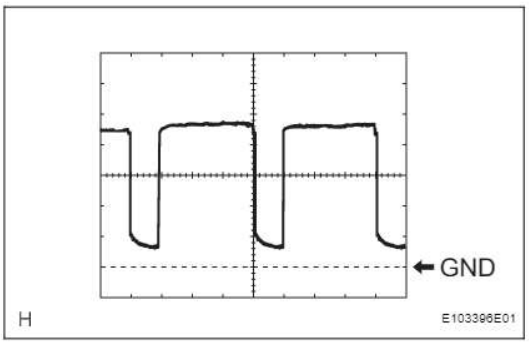
7 INSPECT AIR CONDITIONING AMPLIFIER

(a) Remove the A/C amplifier.

AC



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



(c) Turn the power switch on (IG).
(d) Turn the blower switch ON.
(e) Measure the waveform between terminal E38-23 (BLW) of the A/C amplifier and body ground.
OK:
Waveform is as shown in the illustration.
HINT:
Waveform varies with the blower level.

Item	Contents
Tool setting	1 V/DIV., 500 μs/DIV.
Vehicle condition	Power switch on (IG) Blower switch: ON

NG → **REPLACE AIR CONDITIONING AMPLIFIER**

OK →

REPLACE BLOWER MOTOR

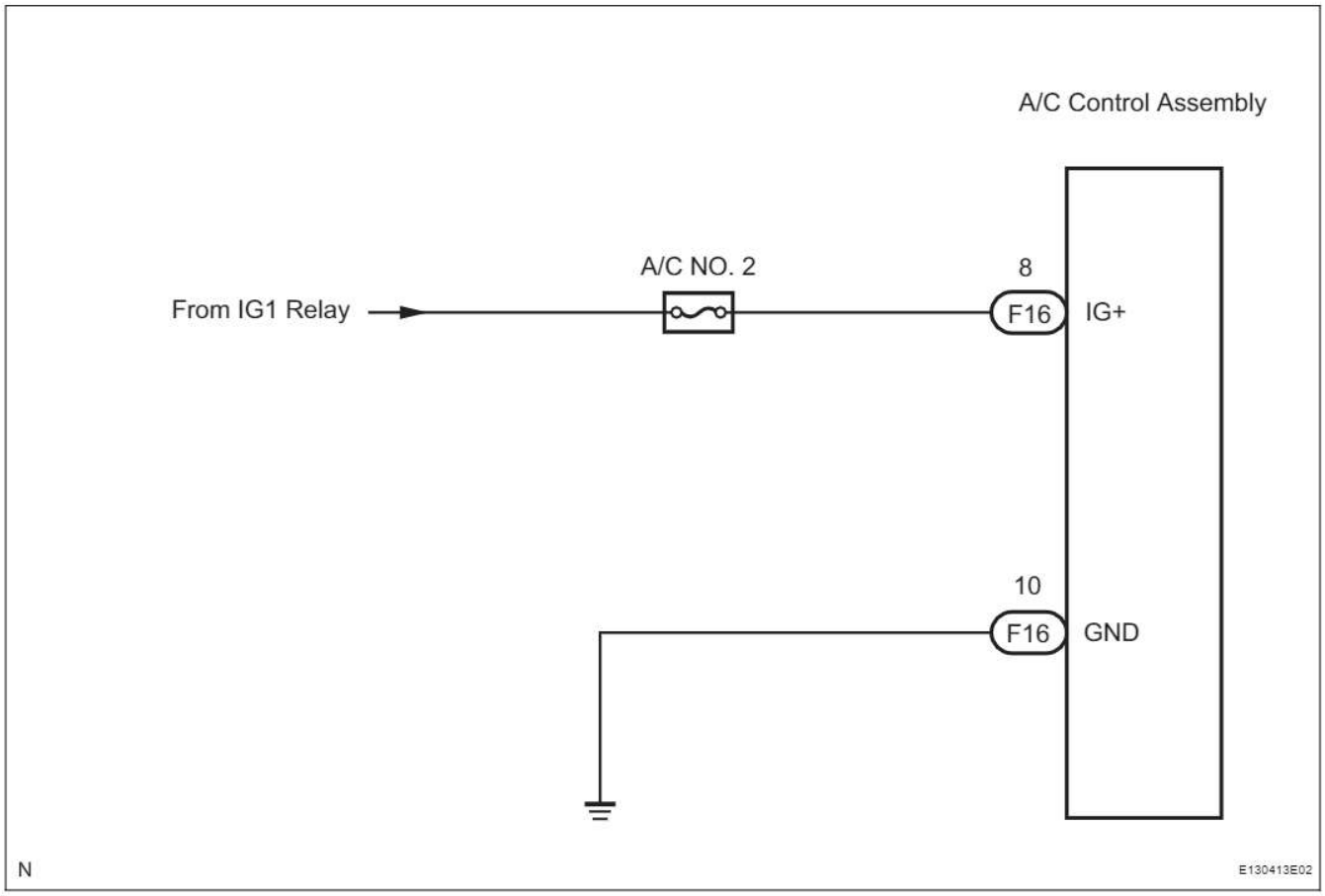
AC

Heater Control Panel Power Source Circuit

DESCRIPTION

Battery voltage is supplied to the heater control panel (A/C control assembly) through the A/C No. 2 fuse.

WIRING DIAGRAM

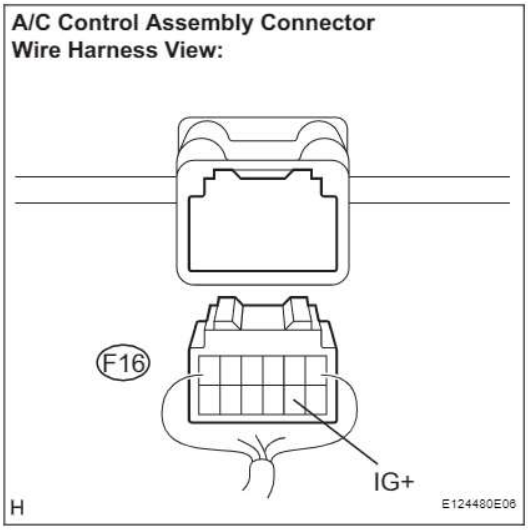


AC

INSPECTION PROCEDURE

1 CHECK HARNESS AND CONNECTOR (IG+, B - BODY GROUND)

A/C Control Assembly Connector Wire Harness View:



(a) Disconnect the connector from the heater control panel.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

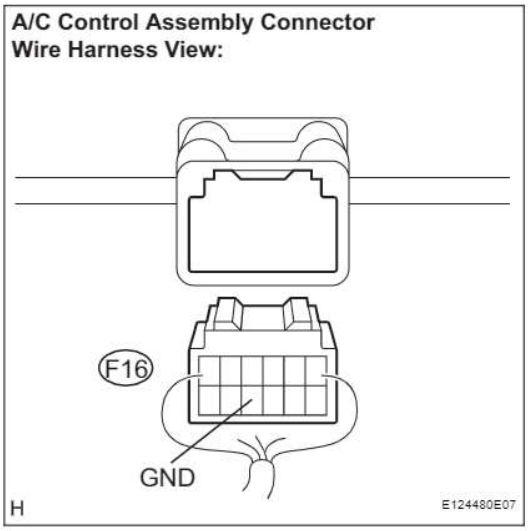
Tester Connection (Symbols)	Condition	Specified Condition
F16-8 (IG+) - Body ground	Power switch on (IG)	10 to 14 V
F16-8 (IG+) - Body ground	Power switch off	Below 1 V

NG → GO TO SMART KEY SYSTEM (See page ST-10)

OK

2 CHECK HARNESS AND CONNECTOR (GND - BODY GROUND)

A/C Control Assembly Connector Wire Harness View:



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

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
F16-10 (GND) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

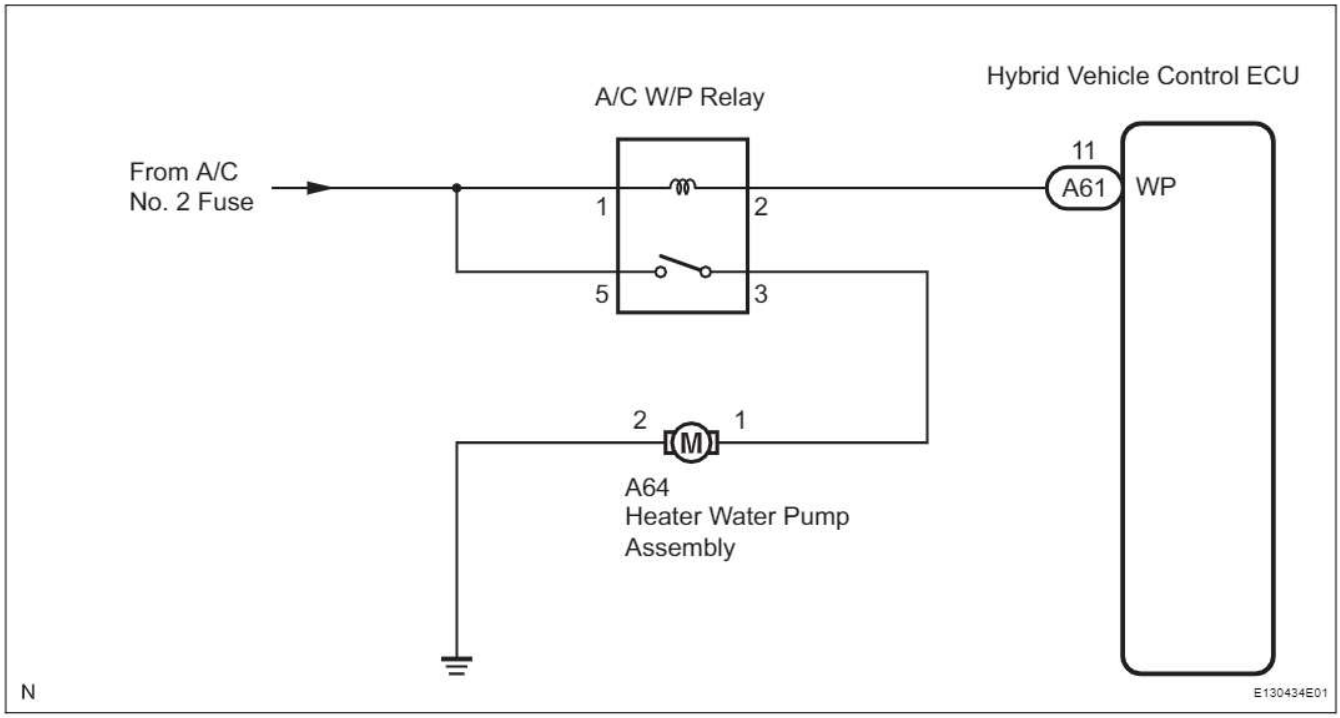
AC

Heater Water Pump Circuit

DESCRIPTION

The heater water pump assembly sends engine coolant to the heater core assembly while the engine is stopped to prevent heater effectiveness from becoming low. Directed by the A/C amplifier, the hybrid vehicle control ECU operates the water pump relay and drives the heater water pump assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK CAN COMMUNICATION SYSTEM

(a) Use the intelligent tester 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 (See page CA-7)

A

2	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.

AC

(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.
(c) Select the item below in the ACTIVE TEST and check that the relay operates.

ACTIVE TEST / AIR CONDITIONER:

Tester Display	Test Part	Control Range
WATER PUMP (Water pump)	Activate the water pump/OFF, ON	-

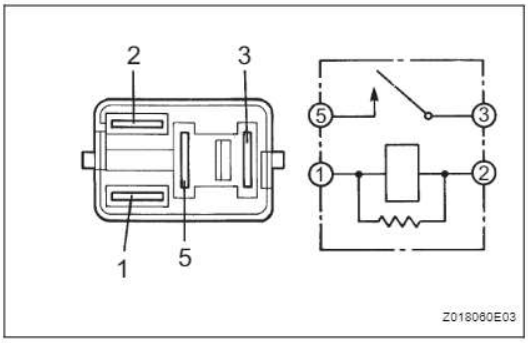
OK:
Heater water pump operates smoothly.

NG → **Go to step 3**

OK →

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

3 INSPECT RELAY (A/C W/P)



(a) Remove the A/C W/P relay from the engine room relay block and junction block No. 1.
(b) Measure the resistance according to the value(s) in the table below.
Standard resistance

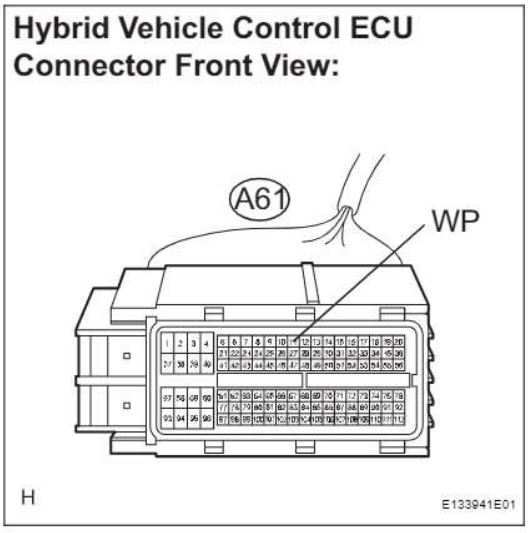
Tester Connection	Specified Condition
3 - 5	10 kΩ or higher
3 - 5	Below 1 Ω (When battery voltage is applied to terminals 1 and 2)

NG → **REPLACE RELAY (A/C W/P)**

OK →

4 CHECK HARNESS AND CONNECTOR (HYBRID VEHICLE CONTROL ECU - BATTERY)

Hybrid Vehicle Control ECU Connector Front View:



(a) Disconnect the connector from the hybrid vehicle control ECU.
(b) Measure the voltage according to the value(s) in the table below.
Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
A61-11 (WP) - Body ground	Power switch off	Below 1 V
A61-11 (WP) - Body ground	Power switch on (IG)	10 to 14 V

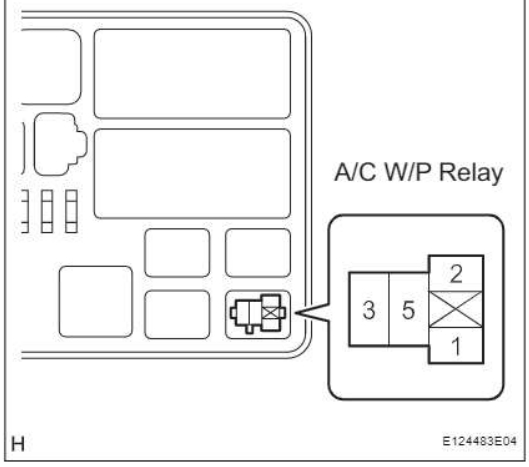
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

AC

OK

5	CHECK HARNESS AND CONNECTOR (BATTERY - ENGINE ROOM R/B AND J/B NO. 1)

Engine Room R/B and J/B No. 1:



(a) Remove the A/C W/P relay from the engine room relay block and junction block No. 1.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

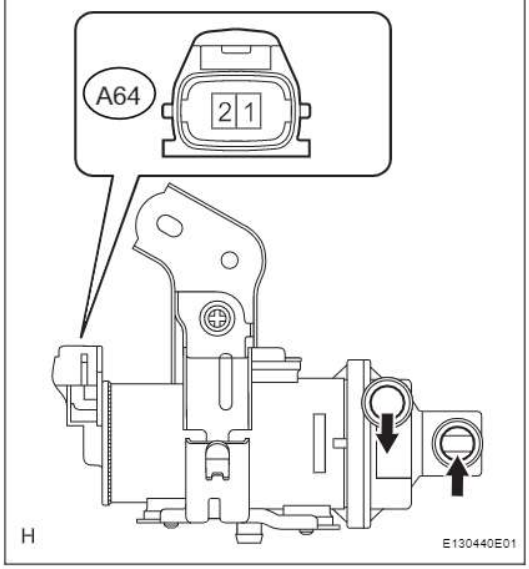
Tester Connection (Symbols)	Condition	Specified Condition
Relay block A/C W/P relay terminal 5 - Body ground	Power switch on (IG)	10 to 14 V
Relay block A/C W/P relay terminal 5 - Body ground	Power switch off	Below 1 V

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

6	INSPECT HEATER WATER PUMP ASSEMBLY

Heater Water Pump Assembly Connector Front View:



(a) Disconnect the connector from the heater water pump assembly.
(b) Connect the positive (+) lead from the battery to terminal 1 and the negative (-) lead to terminal 2.

OK:

Heater water pump operates smoothly.

NOTICE:

Complete this inspection within 10 seconds if there is no water in the heater water pump assembly.

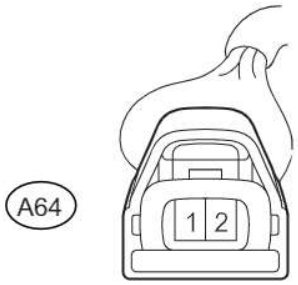
NG → REPLACE HEATER WATER PUMP ASSEMBLY

OK

AC

7	CHECK HARNESS AND CONNECTOR (HEATER WATER PUMP ASSEMBLY - BODY GROUND)

Heater Water Pump Assembly Connector Front View:



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

Standard resistance

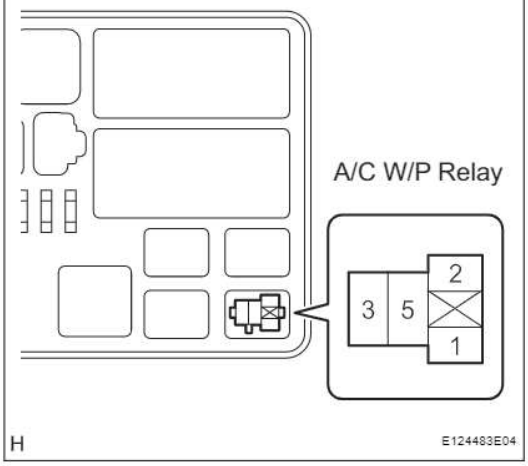
Tester Connection	Condition	Specified Condition
A64-2 - Body ground	Always	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

8	CHECK HARNESS AND CONNECTOR (HEATER WATER PUMP ASSEMBLY - ENGINE ROOM R/B AND J/B NO. 1)

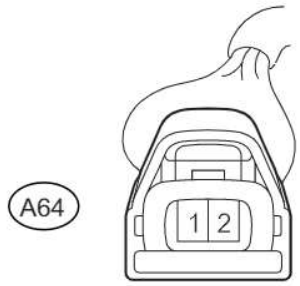
Engine Room R/B and J/B No. 1:



(a) Remove the A/C W/P relay from the engine room relay block and junction block No. 1.

AC

Heater Water Pump Assembly Connector Front View:



H

E130435E01

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

Standard resistance

Tester Connection	Condition	Specified Condition
A64-1 - Relay block A/C W/P relay terminal 3	Always	Below 1 Ω
A64-1 - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE HYBRID VEHICLE CONTROL ECU

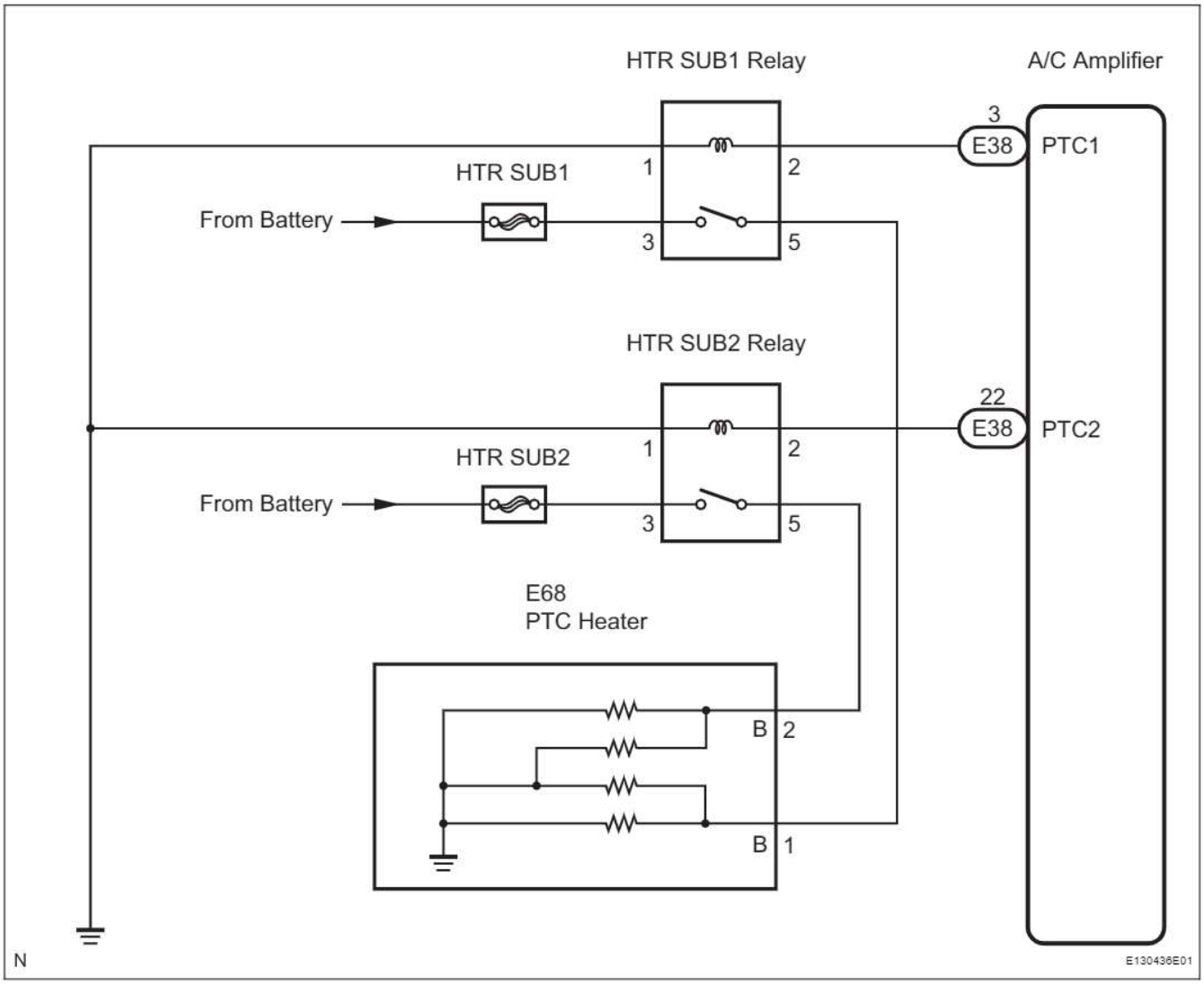
AC

PTC Heater Circuit

DESCRIPTION

The PTC heater is installed in the radiator in the heater unit and operates when cooling water temperature is low and normal heater effectiveness is insufficient.
The air conditioning amplifier switches the circuit in the PTC relay and operates the PTC heater when the operating conditions (cooling water temperature is below 55°C (131°F), setting temperature is MAX. HOT, air outlet damper position is FOOT or FOOT/DEF, and blower switch is not OFF) are met.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the power switch on (IG) and turn the intelligent tester main switch on.

AC

(c) Select the item below in the ACTIVE TEST and then check that the relay operates.

ACTIVE TEST / AIR CONDITIONER:

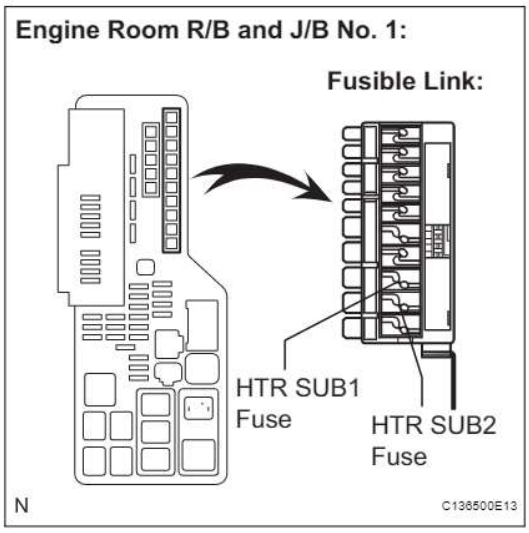
Tester Display	Test Part	Control Range
HEATER1 (Electric heater1)	Electric heater1/ON, OFF	-
HEATER2 (Electric heater2)	Electric heater2/ON, OFF	-

NG → Go to step 2

OK

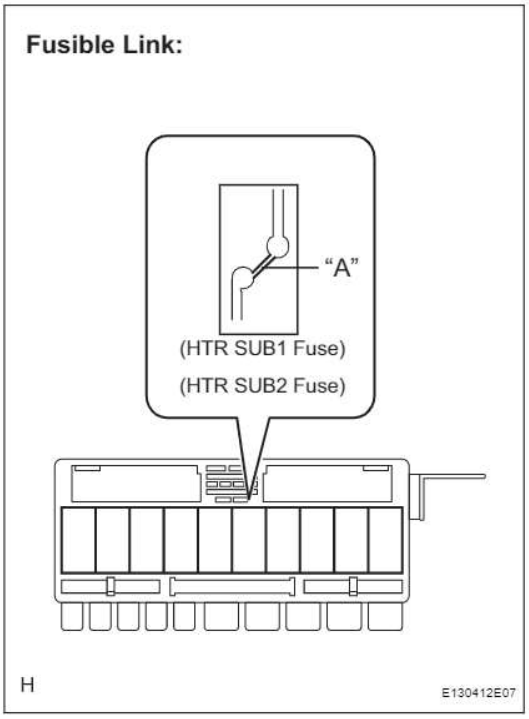
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 INSPECT FUSIBLE LINK (HTR SUB1, HTR SUB2)



(a) Remove the fusible link from the engine room relay block and junction block No. 1.

AC



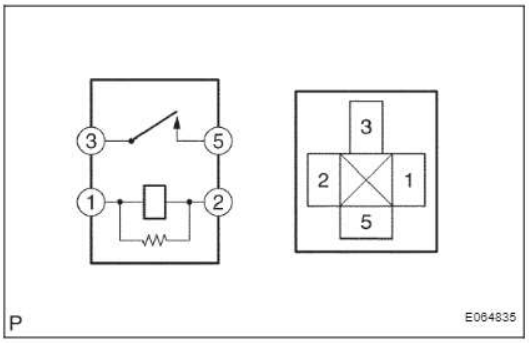
(b) Check if the fusible link is melted.
OK:
The point indicated by "A" is not melted.

(c) Install the fusible link to the engine room relay block and junction block No. 1 with the nut.

NG → **REPLACE FUSIBLE LINK (HTR SUB1, HTR SUB2)**

OK

3	INSPECT PTC HEATER RELAY



(a) Remove the PTC heater relay from the engine room relay block No. 3.

(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 is applied to terminals 1 and 2)

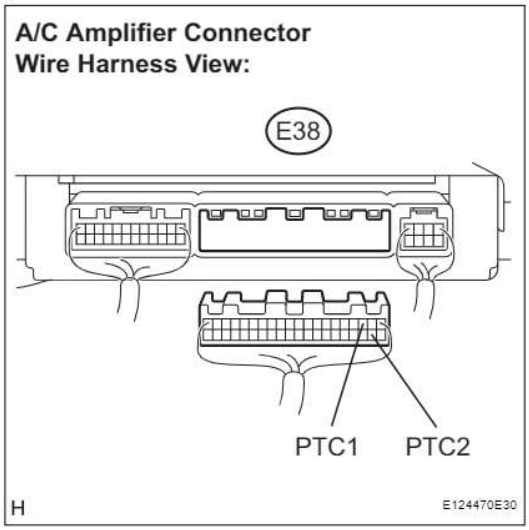
(c) Install the PTC heater relay to the engine room relay block No. 3.

NG → **REPLACE PTC HEATER RELAY**

OK

AC

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



(a) Disconnect the connector from the A/C amplifier.
(b) Measure the resistance according to the value(s) in the table below.

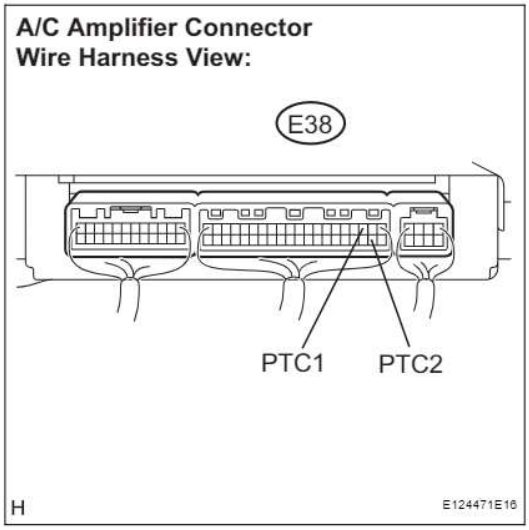
Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E38-3 (PTC1) - Body ground	Always	Below 1 Ω
E38-22 (PTC2) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5 INSPECT AIR CONDITIONING AMPLIFIER (PTC1, PTC2)



(a) Reconnect the connector to the A/C amplifier.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E38-3 (PTC1) - Body ground	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: OFF	10 to 14 V
E38-3 (PTC1) - Body ground	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: ON	Below 1 V
E38-22 (PTC2) - Body ground	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: OFF	10 to 14 V

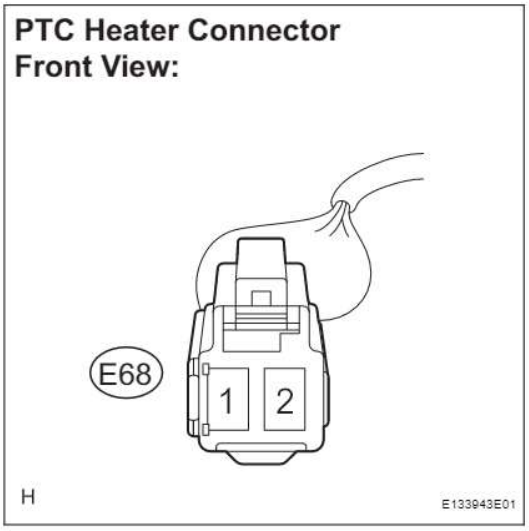
AC

Tester Connection (Symbols)	Condition	Specified Condition
E38-22 (PTC2) - Body ground	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: ON	Below 1 V

NG → REPLACE AIR CONDITIONING AMPLIFIER

OK

6 CHECK HARNESS AND CONNECTOR (BATTERY - PTC HEATER)



(a) Disconnect the connector from the PTC heater.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E68-1 - Body ground	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: OFF	Below 1 V
E68-1 - Body ground	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: ON	10 to 14 V
E68-2 - Body ground	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: OFF	Below 1 V
E68-2 - Body ground	Power switch on (IG) Temperature setting: MAX. HOT MODE switch: FOOT Engine coolant temperature: 55°C (131°F) or lower Blower switch: ON	10 to 14 V

AC

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

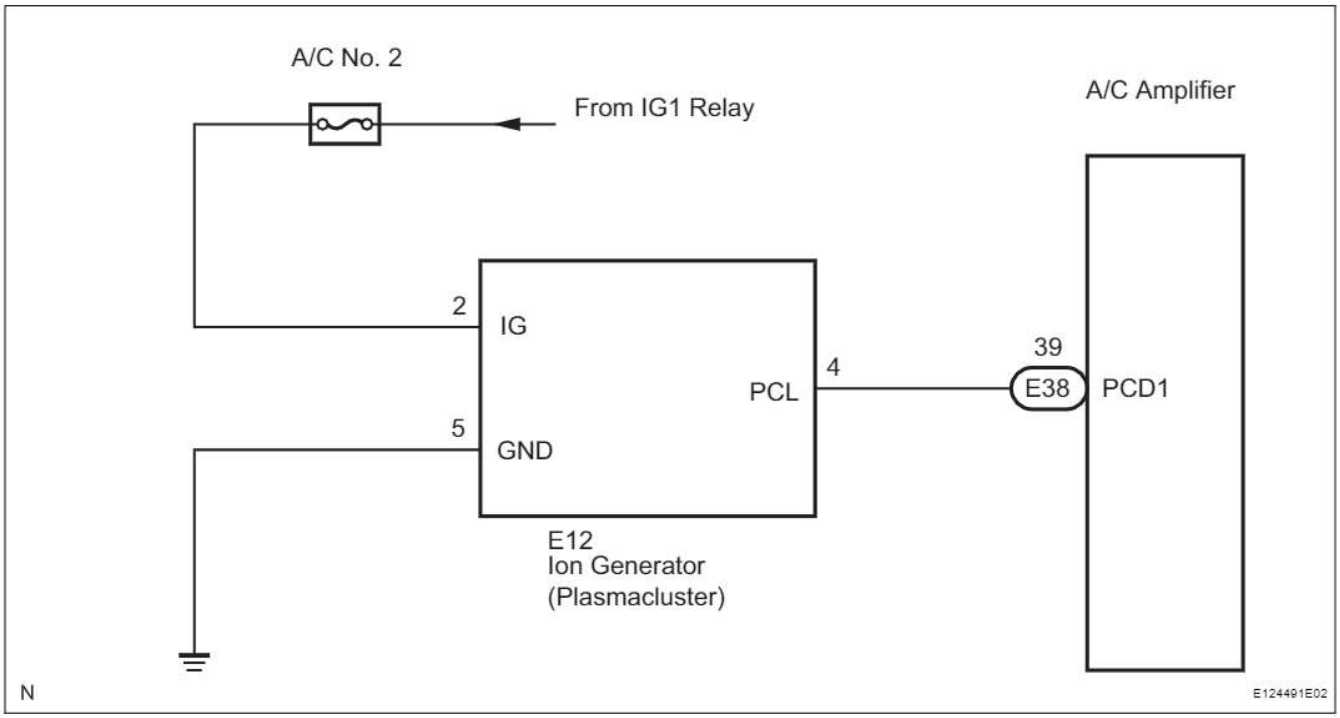
REPLACE PTC HEATER

Plasmacluster Circuit

DESCRIPTION

The plasmacluster operates in conjunction with blower switch operation.

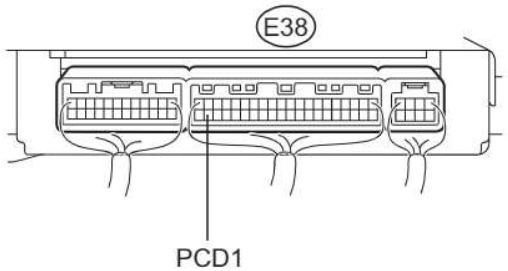
WIRING DIAGRAM



INSPECTION PROCEDURE

1	INSPECT AIR CONDITIONING AMPLIFIER

Air Conditioning Amplifier Connector Wire Harness View:



(a) Remove the A/C amplifier with the connectors still connected.
(b) Turn the power switch on (IG).
(c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E38-39 (PCD1) - Body ground	Power switch on (IG) Blower switch: OFF	10 to 14 V
E38-39 (PCD1) - Body ground	Power switch on (IG) Blower switch: ON	Below 1 V

NG → Go to step 2

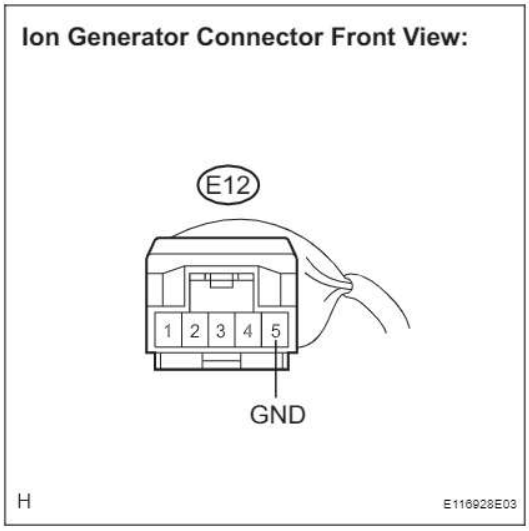
AC

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 CHECK HARNESS AND CONNECTOR (ION GENERATOR - BODY GROUND)

Ion Generator Connector Front View:



(a) Disconnect the connector from the ion generator.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

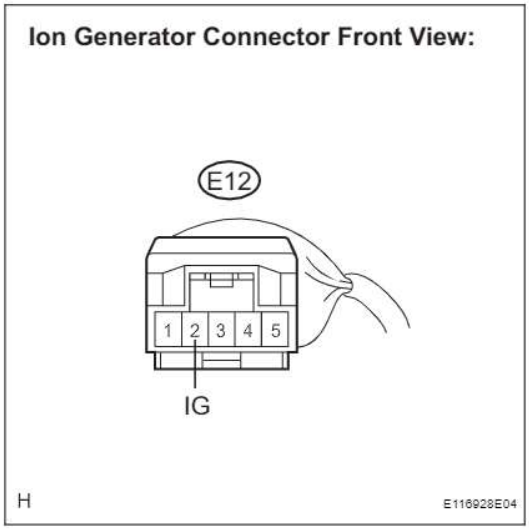
Tester Connection (Symbols)	Condition	Specified Condition
E12-5 (GND) - Body ground	Always	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

3 CHECK HARNESS AND CONNECTOR (ION GENERATOR - BATTERY)

Ion Generator Connector Front View:



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

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E12-2 (IG) - Body ground	Power switch off	Below 1 V
E12-2 (IG) - Body ground	Power switch on (IG)	10 to 14 V

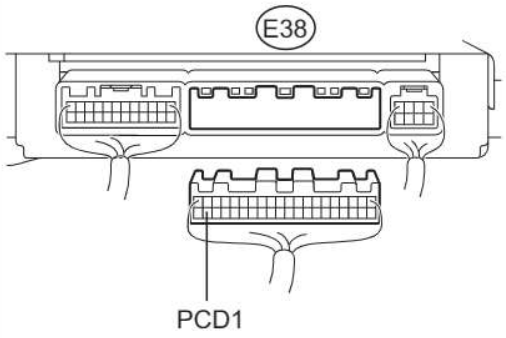
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

AC

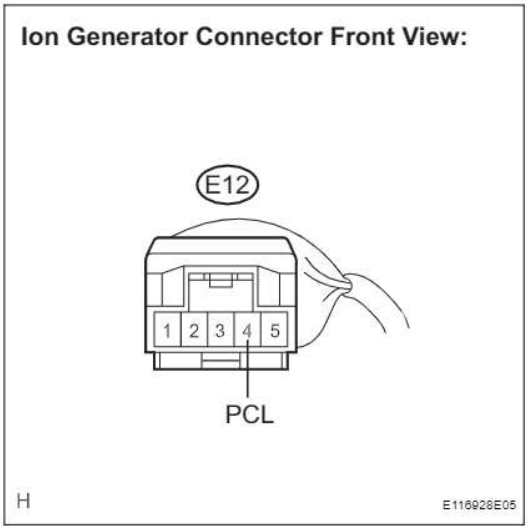
4	CHECK HARNESS AND CONNECTOR (ION GENERATOR - A/C AMPLIFIER)

Air Conditioning Amplifier Connector Wire Harness View:



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

Ion Generator Connector Front View:



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

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E12-4 (PCL) - E38-39 (PCD1)	Always	Below 1 Ω
E12-4 (PCL) - Body ground	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ION GENERATOR

AC

Steering Pad Switch Circuit

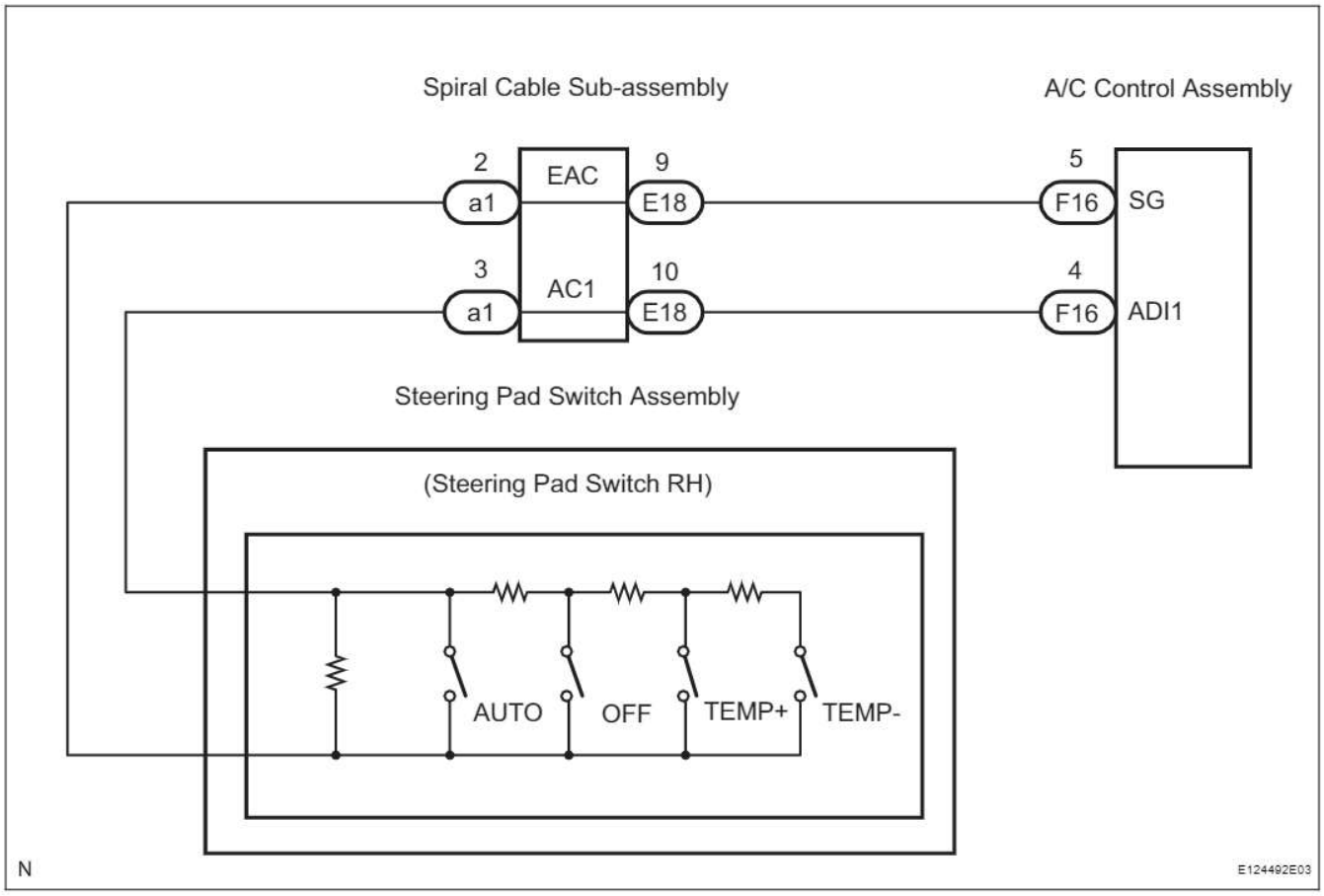
DESCRIPTION

AUTO, OFF, TEMP UP (+), and TEMP DOWN (-) switches are located on the steering pad switch. The resistance of the steering pad switch changes in accordance with switch operation. The A/C control assembly outputs voltage to the steering pad switch and reads voltage changes due to the resistance changes that result from switch operation.

HINT:

If there is an open in the circuit, the A/C system cannot be operated by the steering pad switch assembly. If there is a short in the circuit, the resulting condition is the same as if the switch were continuously depressed. Therefore, the A/C control assembly cannot be operated by the steering pad switch assembly, and the A/C control assembly will not be able to function correctly.

WIRING DIAGRAM

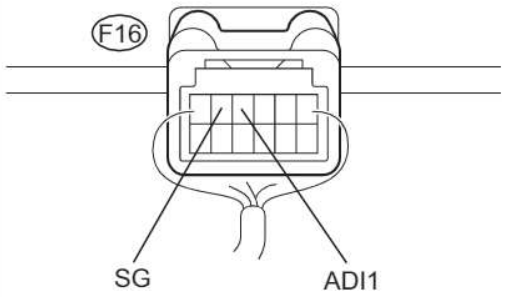


AC

INSPECTION PROCEDURE

1	INSPECT AIR CONDITIONING CONTROL ASSEMBLY

A/C Control Assembly Connector Wire Harness View:



H E124479E03

(a) Remove the A/C control assembly with the connectors still connected.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
F16-4 (ADI1) - F16-5 (SG)	AUTO switch: ON	Below 2.5 Ω
F16-4 (ADI1) - F16-5 (SG)	OFF switch: ON	Approx. 329 Ω
F16-4 (ADI1) - F16-5 (SG)	TEMP+ switch: ON	Approx. 1,000 Ω
F16-4 (ADI1) - F16-5 (SG)	TEMP- switch: ON	Approx. 3,110 Ω

NG → Go to step 2

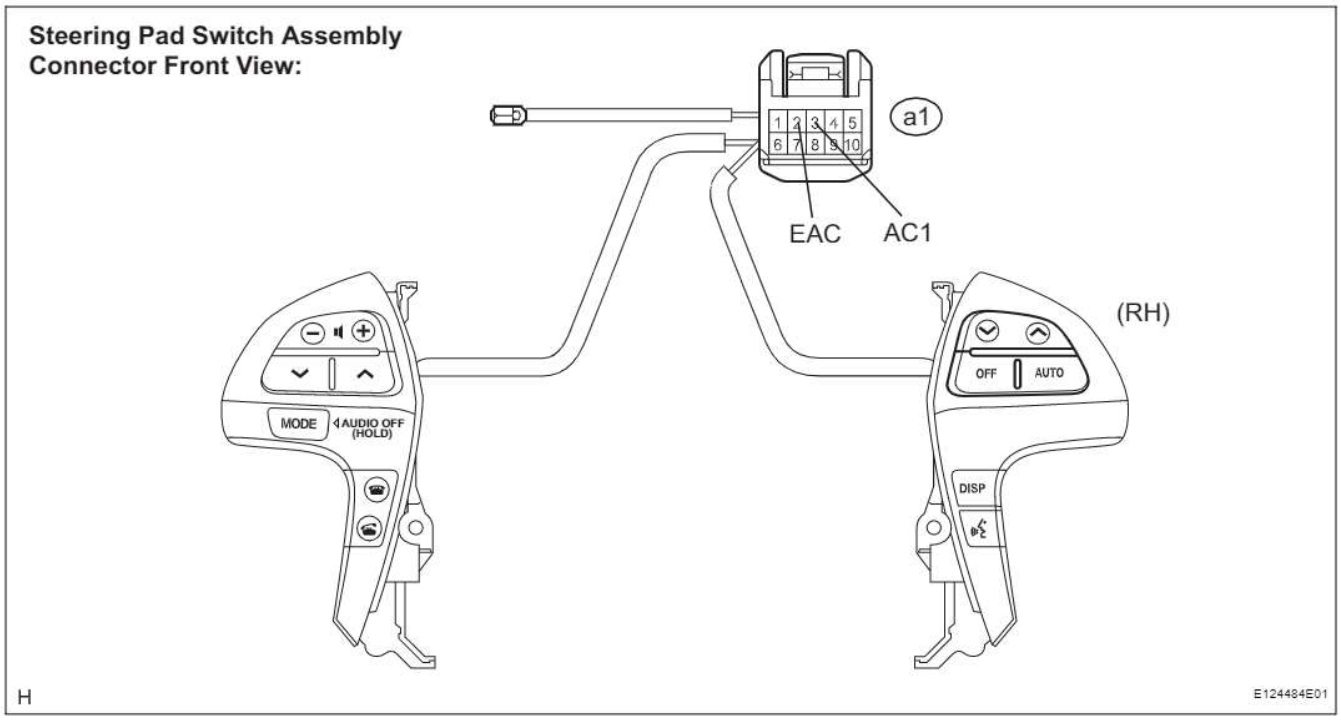
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2	INSPECT STEERING PAD SWITCH ASSEMBLY

(a) Remove the steering pad switch assembly.
(b) Disconnect the connector from the steering pad switch assembly.

AC



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

Standard resistance

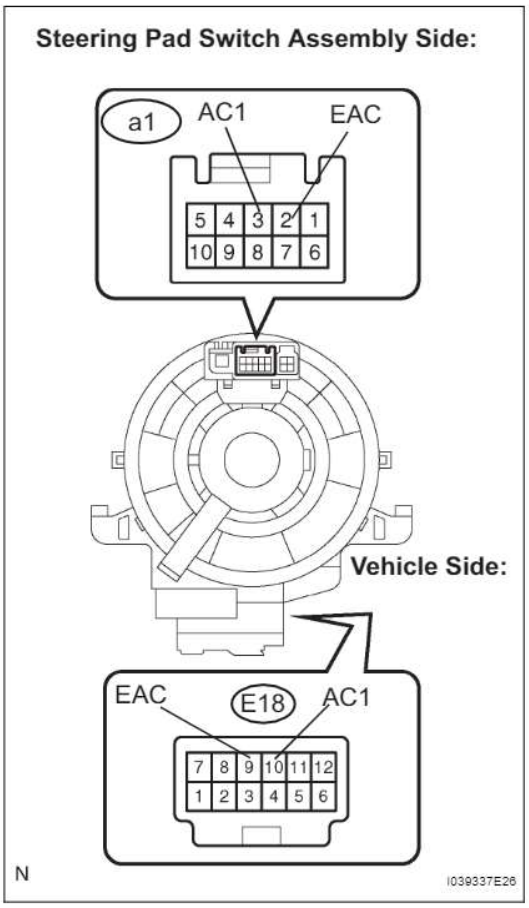
Tester Connection (Symbols)	Condition	Specified Condition
a1-3 (AC1) - a1-2 (EAC)	AUTO switch: ON	Below 2.5 Ω
a1-3 (AC1) - a1-2 (EAC)	OFF switch: ON	Approx. 329 Ω
a1-3 (AC1) - a1-2 (EAC)	TEMP+ switch: ON	Approx. 1,000 Ω
a1-3 (AC1) - a1-2 (EAC)	TEMP- switch: ON	Approx. 3,110 Ω

NG → REPLACE STEERING PAD SWITCH ASSEMBLY

OK

AC

3	INSPECT SPIRAL CABLE SUB-ASSEMBLY



(a) Disconnect the connector from the spiral cable sub-assembly.

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

Standard resistance

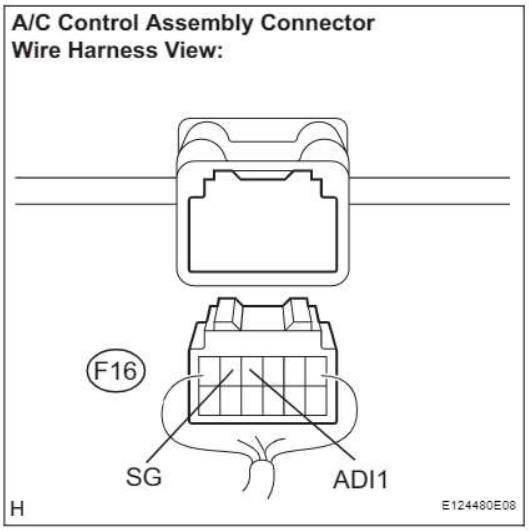
Tester Connection (Symbols)	Condition	Specified Condition
E18-10 (AC1) - a1-3 (AC1)	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	
E18-9 (EAC) - a1-2 (EAC)	Center	Below 1 Ω
	2.5 rotations to the left	
	2.5 rotations to the right	

HINT:
The spiral cable makes a maximum of approximately 5 rotations.

NG → REPLACE SPIRAL CABLE SUB-ASSEMBLY

OK

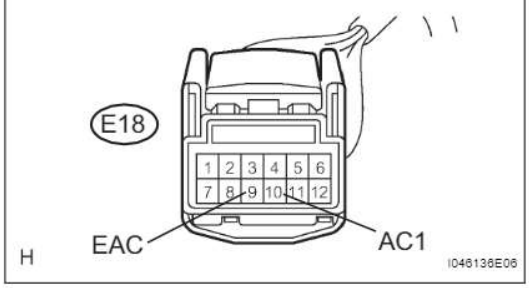
4	CHECK HARNESS AND CONNECTOR (A/C CONTROL ASSEMBLY - SPIRAL CABLE SUB-ASSEMBLY)



(a) Disconnect the connector from the A/C control assembly.

AC

Spiral Cable Sub-assembly Connector Front View:



(b) Disconnect the connector from the spiral cable sub-assembly.

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

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
F16-4 (ADI1) - E18-10 (AC1)	Always	Below 1 Ω
F16-5 (SG) - E18-9 (EAC)	Always	Below 1 Ω
F16-4 (ADI1) - E18-10 (AC1)	Always	10 kΩ or higher
F16-5 (SG) - E18-9 (EAC)	Always	10 kΩ or higher

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE AIR CONDITIONING CONTROL ASSEMBLY

AC

ECO Switch Circuit

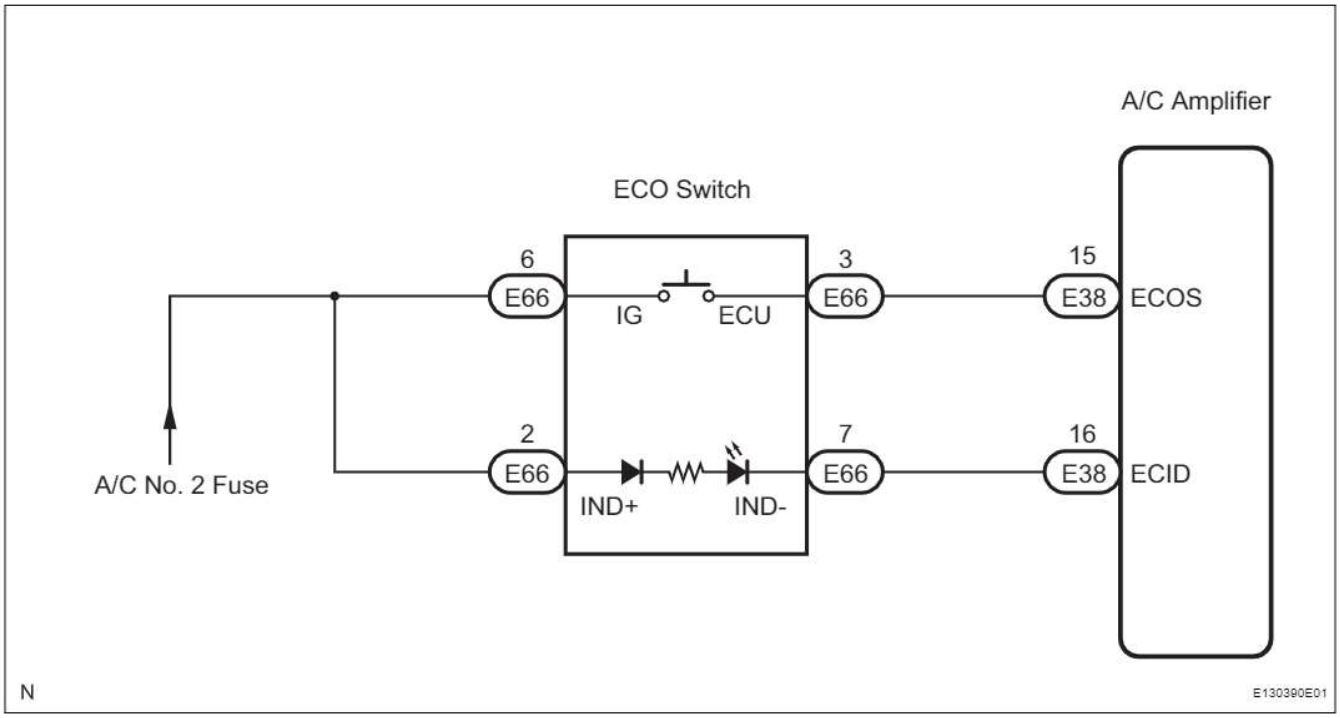
DESCRIPTION

The ECO switch is installed on the instrument panel on the driver's seat side. When the ECO switch is turned on, the A/C amplifier receives an ECO switch ON signal and controls the air conditioning to enhance fuel efficiency.

When the heater is on, the engine ON request coolant temperature will be set to a lower level. Thus, the length of time that the engine operates to generate the heat necessary to operate the heater will be limited. When the engine coolant temperature drops, the amount of air flow of the blower motor will also decrease. If FOOT/DEF or DEF is selected, or if the temperature is set to MAX HOT, the fuel efficiency control due to the ECO switch operation will be canceled.

When the air conditioning is used to cool the vehicle, the power consumption of the compressor will be limited. Initially, the air conditioning will operate normally until the cabin temperature stabilizes. After the cabin temperature stabilizes, the power consumption of the compressor will be limited while stabilizing the cabin temperature. If the temperature is set to MAX COOL, the fuel efficiency control due to the ECO switch operation will be canceled.

WIRING DIAGRAM

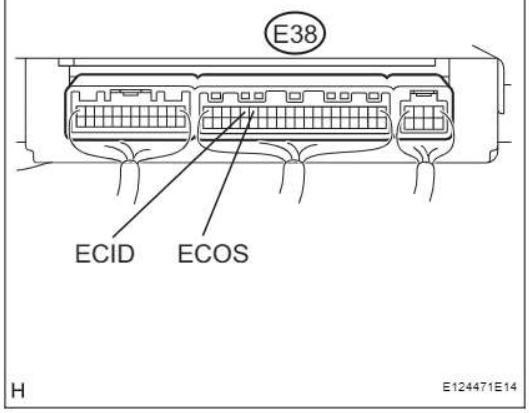


AC

INSPECTION PROCEDURE

1 INSPECT AIR CONDITIONING AMPLIFIER

Air Conditioning Amplifier Connector Wire Harness View:



(a) Remove the A/C amplifier with the connectors still connected.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E38-15 (ECOS) - Body ground	Power switch on (IG) ECO switch: OFF (when switch is not pressed)	Below 1 V
E38-15 (ECOS) - Body ground	Power switch on (IG) ECO switch: ON (when switch is pressed)	10 to 14 V
E38-16 (ECID) - Body ground	Power switch on (IG) ECO switch: OFF	10 to 14 V
E38-16 (ECID) - Body ground	Power switch on (IG) ECO switch: ON	Below 1 V

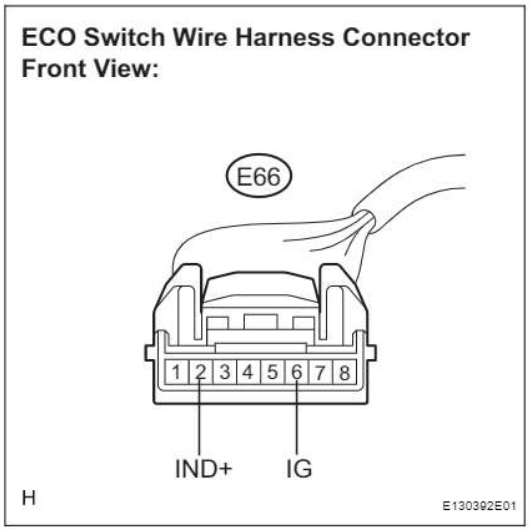
NG → Go to step 2

OK →

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 CHECK HARNESS AND CONNECTOR (ECO SWITCH - BATTERY)

ECO Switch Wire Harness Connector Front View:



(a) Disconnect the connector from the ECO switch.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

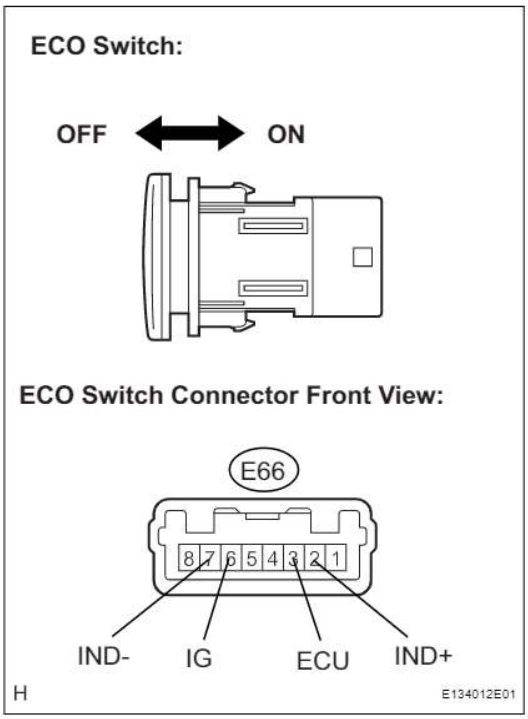
Tester Connection (Symbols)	Condition	Specified Condition
E66-6 (IG) - Body ground	Power switch off	Below 1 V
E66-6 (IG) - Body ground	Power switch on (IG)	10 to 14 V
E66-2 (IND+) - Body ground	Power switch off	Below 1 V
E66-2 (IND+) - Body ground	Power switch on (IG)	10 to 14 V

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK →

AC

3	INSPECT ECO SWITCH



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

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E66-6 (IG) - E66-3 (ECU)	ECO switch: OFF (when switch is not pressed)	10 kΩ or higher
E66-6 (IG) - E66-3 (ECU)	ECO switch: ON (when switch is pressed)	Below 1 Ω

(b) Connect the positive (+) lead from the battery to terminal 2 (IND+), and the negative (-) lead to terminal 7 (IND-). Check that the indicator light comes on.

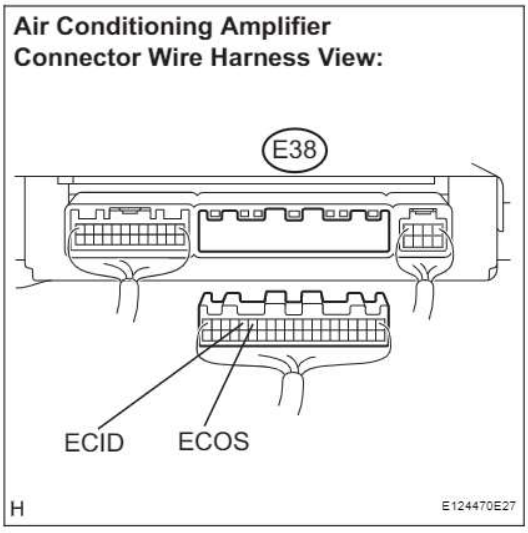
OK:

Indicator light comes on.

NG → **REPLACE ECO SWITCH**

OK

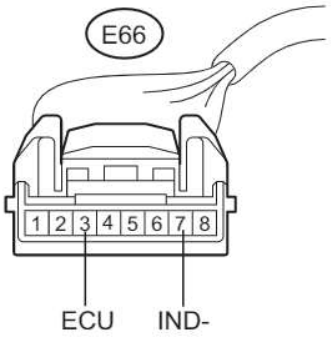
4	CHECK HARNESS AND CONNECTOR (ECO SWITCH - A/C AMPLIFIER)



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

AC

ECO Switch Wire Harness Connector Front View:



H

E130392E03

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

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E38-15 (ECOS) - E66-3 (ECU)	Always	Below 1 Ω
E38-15 (ECOS) - Body ground	Always	10 kΩ or higher
E38-16 (ECID) - E66-7 (IND-)	Always	Below 1 Ω
E38-16 (ECID) - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE AIR CONDITIONING AMPLIFIER

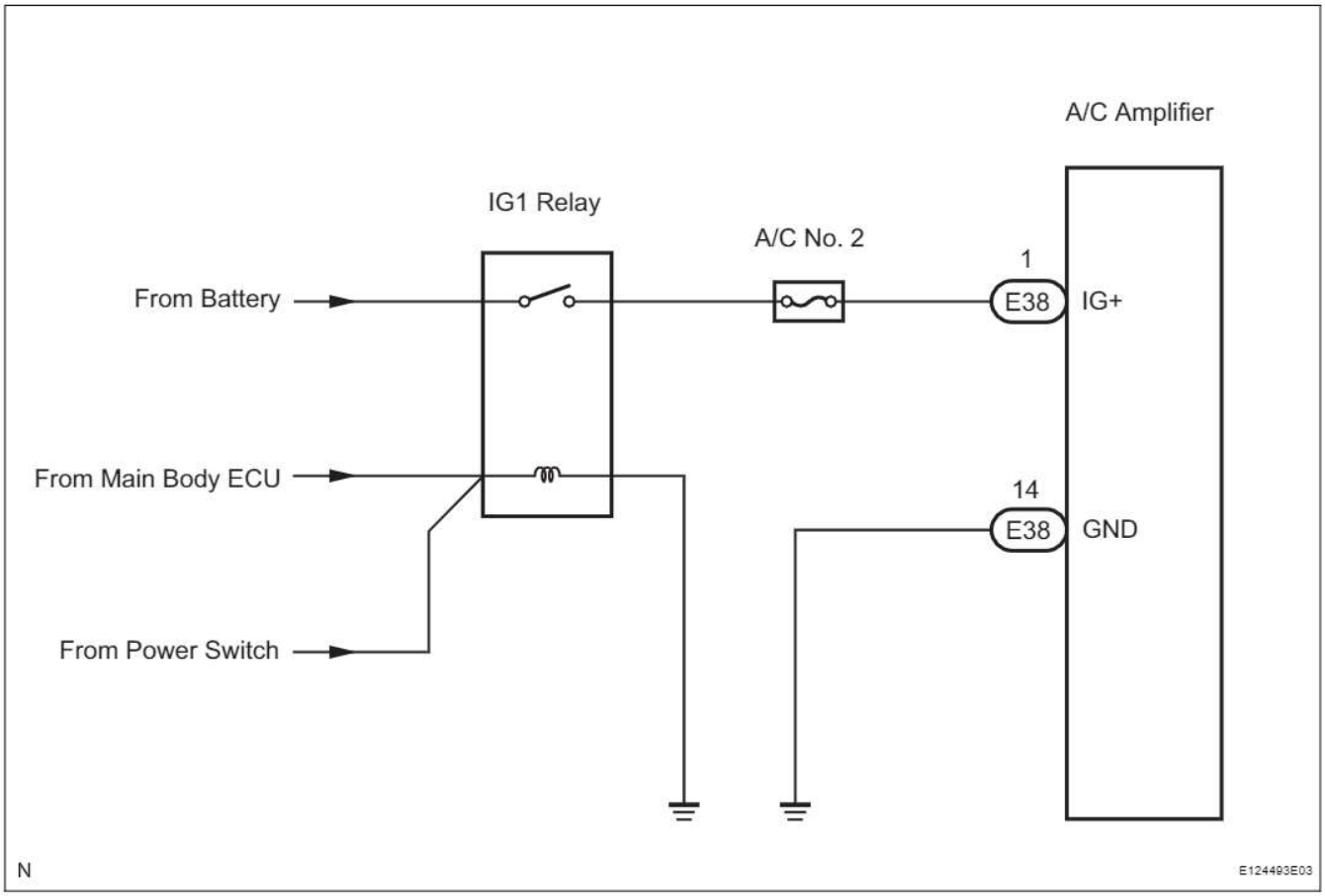
AC

IG Power Source Circuit

DESCRIPTION

The main power source is supplied to the A/C amplifier when the power switch is turned on (IG).
The power source is used for operating the A/C amplifier and servo motor, etc.

WIRING DIAGRAM

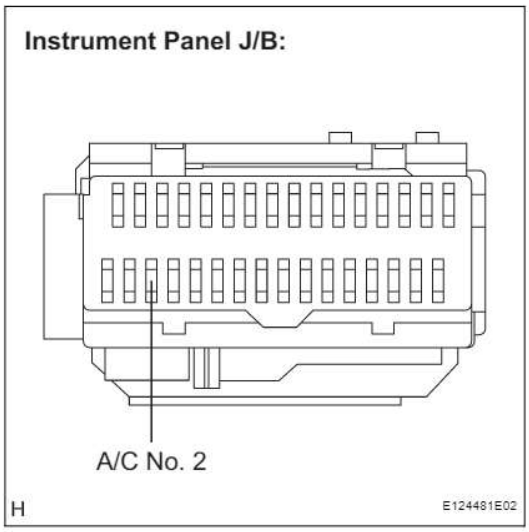


INSPECTION PROCEDURE

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

AC

1	INSPECT FUSE (A/C NO. 2)



(a) Remove the A/C No. 2 fuse from the instrument panel J/B.
(b) Measure the resistance according to the value(s) in the table below.

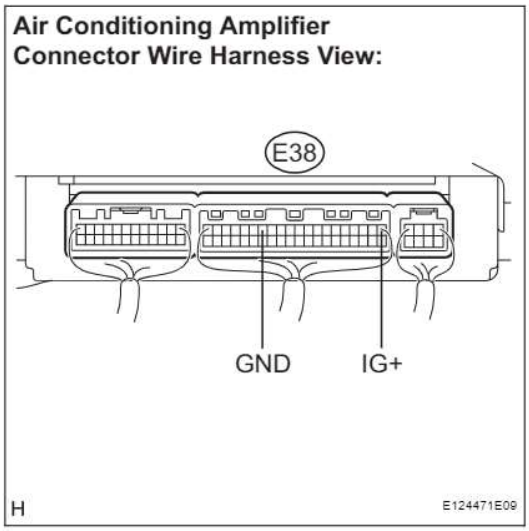
Standard resistance

Tester Item	Condition	Specified Condition
A/C No. 2 fuse	Always	Below 1 Ω

NG → REPLACE FUSE (A/C NO. 2)

OK

2	INSPECT AIR CONDITIONING AMPLIFIER (IG+ - GND)



(a) Remove the A/C amplifier with its connectors still connected.
(b) Turn the power switch on (IG).
(c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E38-1 (IG+) - E38-14 (GND)	Power switch on (IG)	10 to 14 V

NG → Go to step 3

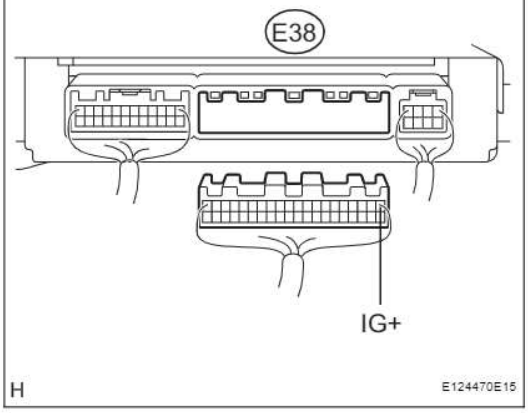
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

AC

3	CHECK WIRE HARNESS (AIR CONDITIONING AMPLIFIER - BATTERY)

Air Conditioning Amplifier Connector Wire Harness View:



(a) Disconnect the A/C amplifier connector.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

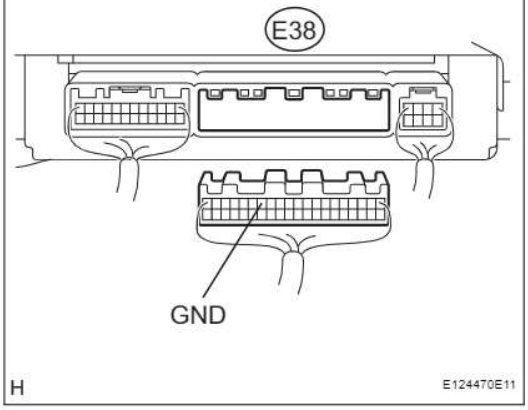
Tester Connection (Symbols)	Condition	Specified Condition
E38-1 (IG+) - Body ground	Power switch off	Below 1 V
	Power switch on (IG)	10 to 14 V

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4	CHECK WIRE HARNESS (AIR CONDITIONING AMPLIFIER - BODY GROUND)

Air Conditioning Amplifier Connector Wire Harness View:



(a) Disconnect the A/C amplifier connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
E38-14 (GND) - Body ground	Always	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE AIR CONDITIONING AMPLIFIER

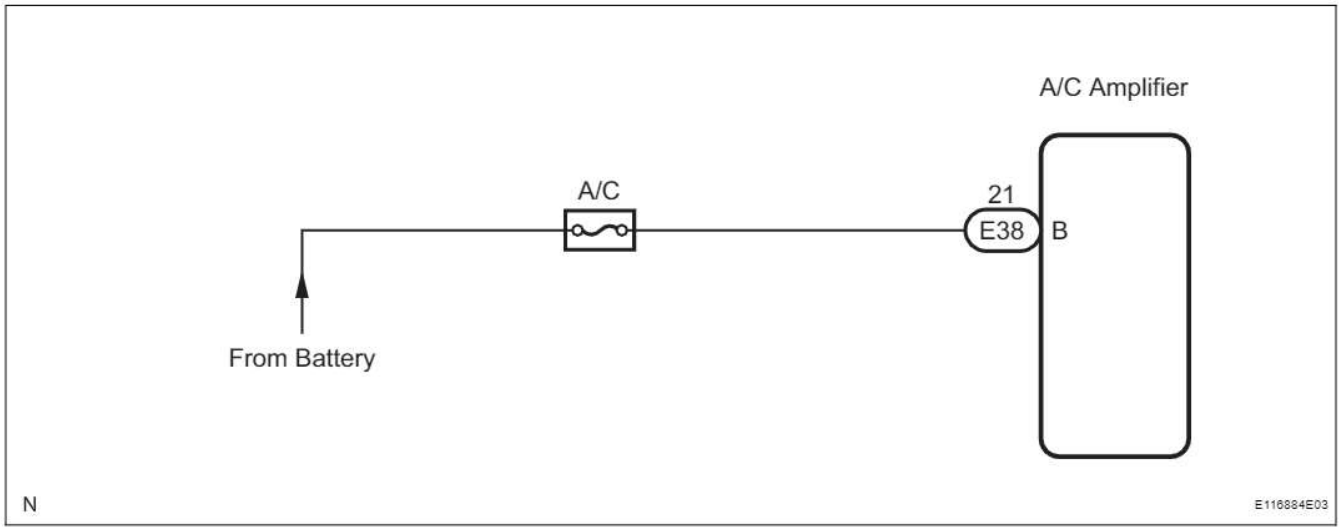
AC

Back-up Power Source Circuit

DESCRIPTION

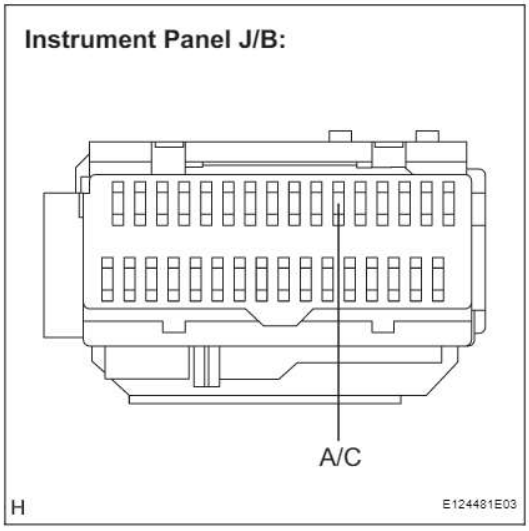
The back-up power source circuit for the A/C amplifier is shown below. Power is supplied even when turning the power switch off and is used for diagnostic trouble code memory, etc.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT FUSE (A/C)



(a) Remove the A/C fuse from the instrument panel J/B.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Item	Condition	Specified Condition
A/C fuse	Always	Below 1 Ω

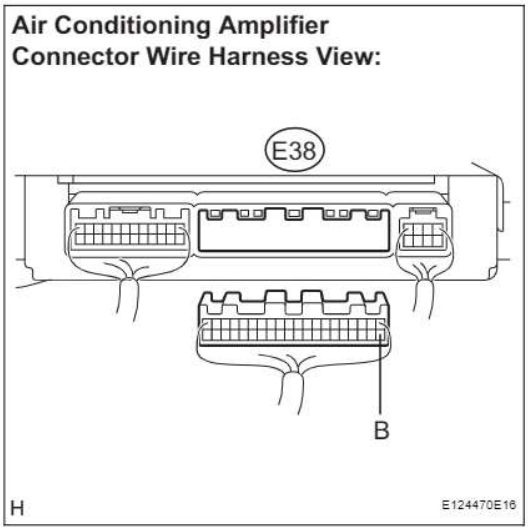
NG → REPLACE FUSE (A/C)

OK

AC

2	INSPECT AIR CONDITIONING AMPLIFIER (AIR CONDITIONING AMPLIFIER - BODY GROUND)

Air Conditioning Amplifier Connector Wire Harness View:



(a) Disconnect the A/C amplifier connector.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection (Symbols)	Condition	Specified Condition
E38-21 (B) - Body ground	Always	10 to 14 V

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

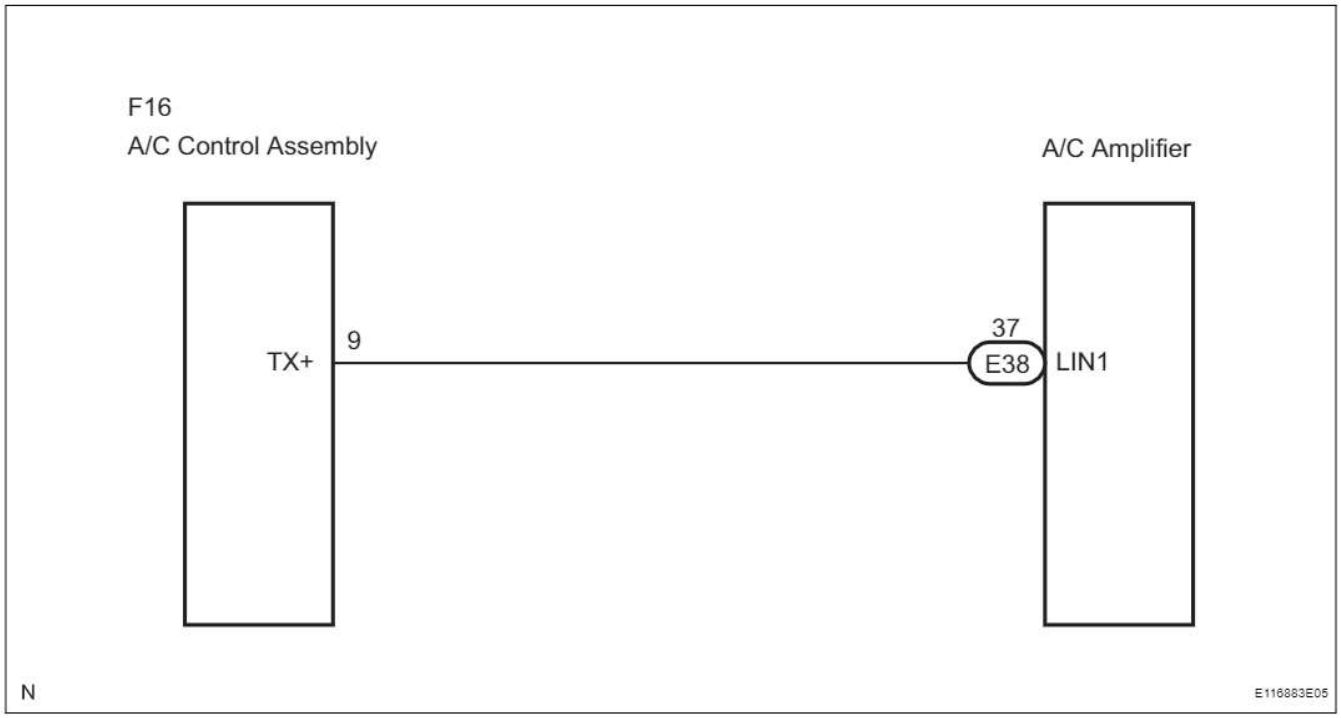
AC

LIN Communication Circuit

DESCRIPTION

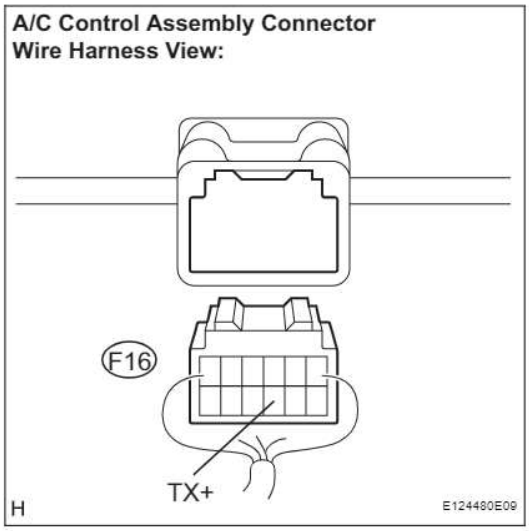
The operation signal of a switch etc. is exchanged between terminal TX+ of the A/C control assembly and terminal LIN1 of the A/C amplifier.

WIRING DIAGRAM



INSPECTION PROCEDURE

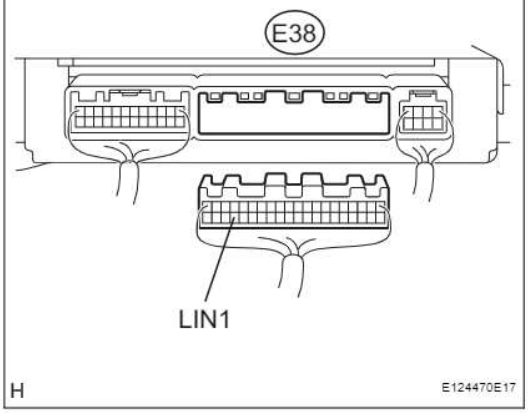
1	CHECK HARNESS AND CONNECTOR (A/C CONTROL ASSEMBLY - AIR CONDITIONING AMPLIFIER)



(a) Disconnect the connector from the A/C control assembly.

AC

Air Conditioning Amplifier Connector Wire Harness View:



(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 (Symbols)	Condition	Specified Condition
E38-37 (LIN1) - F16-9 (TX+)	Always	Below 1 Ω
E38-37 (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

AC

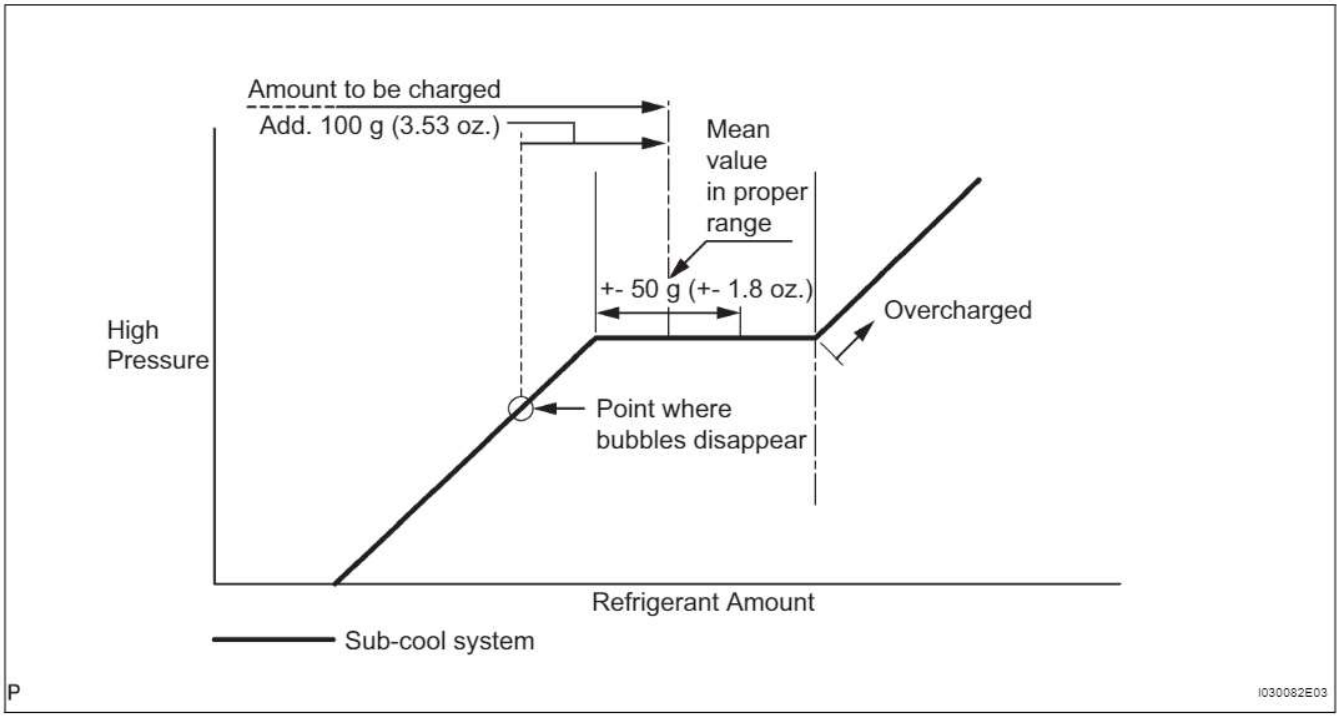
REPLACEMENT

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

(a) Turn the A/C switch on.
(b) Operate the A/C with the setting temperature at 25°C (77°F) and the blower level at LO for 10 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.
(c) Turn the power switch off.
(d) 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:
480 to 580 g (16.9 to 20.5 oz.)

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

NOTICE:

- **Do not turn the A/C on before charging with refrigerant. Doing so will cause the compressor to work without refrigerant, resulting in overheating of the cooler compressor.**

AC

- **Approximately 100 g (3.53 oz.) of refrigerant may need to be charged after bubbles disappear.**
  The refrigerant amount should be checked by quantity, not with the sight glass.
- **Avoid using the gauge manifold set that had been used for vehicles with conventional compressor oil (ND-OIL11 or equivalent) as much as possible. This will cause compressor oil remaining in the manifold to enter the vehicle, resulting in insulation performance deterioration. A gauge manifold set that had been used 3 times or less can be reused if an appropriate one is not available.**

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.

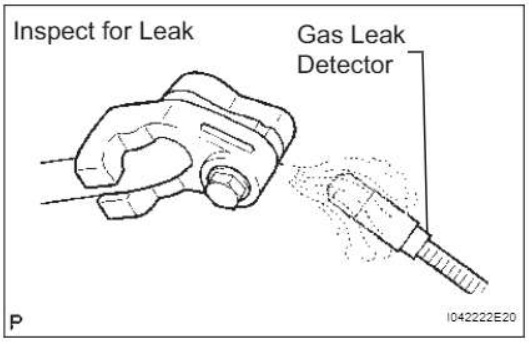
3. WARM UP COMPRESSOR

(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.

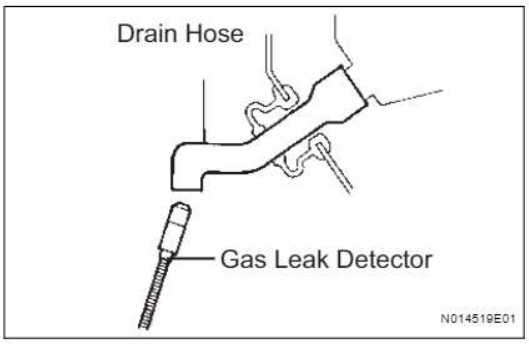
4. INSPECT FOR REFRIGERANT LEAK

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

AC



(c) Using a gas leak detector, inspect for a leak from the refrigerant lines.



(d) Bring the gas leak detector close to the drain hose with the detector's power off, and then turn the detector on.
HINT:
- After the blower motor has stopped, let the cooling unit stand for more than 15 minutes.
- Bring the gas leak detector sensor under the drain hose.
- When bringing the gas leak detector close to the drain hose, make sure that the gas leak detector does not react to volatile gases.
  If it is not possible to avoid interference form volatile gases, the vehicle should be lifted up to allow testing.

(e) If a gas leak is not detected from the drain hose, remove the blower motor control from the cooling unit. Insert the gas leak detector sensor into the unit and perform the test.

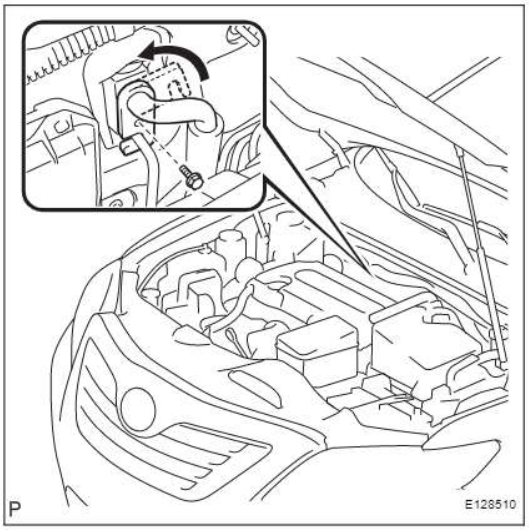
(f) Disconnect the pressure switch connector and leave it for approximately 20 minutes. Bring the gas leak detector close to the pressure switch and perform the test.

AC

REMOVAL

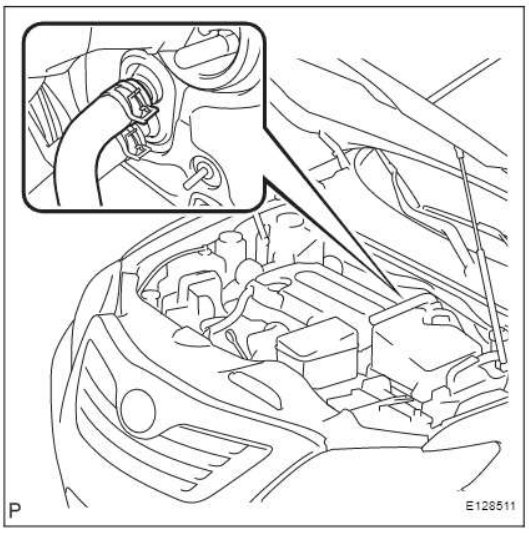
1. **RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM**
   (a) Start up the engine.
   (b) Turn the A/C switch on.
   (c) Operate the cooler compressor at an engine speed of approximately 1,000 rpm for 5 to 6 minutes to circulate the refrigerant. This causes most of the compressor oil from the various components 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. **ALIGN FRONT WHEELS FACING STRAIGHT AHEAD**
3. **DISCONNECT NEGATIVE BATTERY TERMINAL**
   NOTICE:
   Wait for 90 seconds after disconnecting the terminal to prevent the airbag from deploying (See page RS-1).
4. **SEPARATE BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY (See page BR-27)**
5. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page WW-9)**
6. **REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page WW-9)**
7. **REMOVE FRONT FENDER TO COWL SIDE SEAL LH (See page WW-9)**
8. **REMOVE FRONT FENDER TO COWL SIDE SEAL RH (See page WW-9)**
9. **REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page WW-10)**
10. **REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY (See page WW-10)**
11. **REMOVE COWL TOP PANEL OUTER SUB-ASSEMBLY (See page ES-403)**

AC



12. **DISCONNECT SUCTION PIPE SUB-ASSEMBLY**
    (a) Remove the bolt, and slide the hook connector.
    (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.

13. **DISCONNECT AIR CONDITIONER TUBE AND ACCESSORY**
    (a) Disconnect the air conditioner tube and accessory.
    (b) Remove the O-ring from the air conditioner tube and accessory.
    NOTICE:
    Seal the openings of the disconnected parts using vinyl tape to prevent entry of moisture and foreign matter.



14. **DISCONNECT HEATER OUTLET WATER HOSE**
    (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 cloth in case the coolant leaks.**

15. **DISCONNECT HEATER INLET WATER HOSE**
    HINT:
    Disconnection procedure for the heater inlet water hose is the same as that for the heater outlet water hose.

16. **REMOVE LOWER NO. 3 STEERING WHEEL COVER (See page RS-345)**

17. **REMOVE LOWER NO. 2 STEERING WHEEL COVER (See page RS-345)**

18. **REMOVE STEERING PAD (See page RS-345)**

19. **REMOVE STEERING WHEEL ASSEMBLY (See page SR-36)**

20. **REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-13)**

21. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-14)**

22. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-11)**

23. **REMOVE STEERING COLUMN COVER (See page IP-12)**

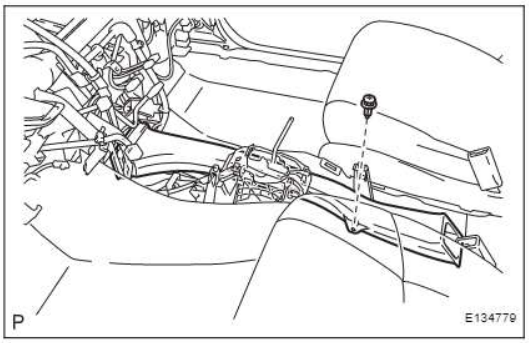
24. **REMOVE TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY (See page SR-37)**

25. **REMOVE NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-12)**

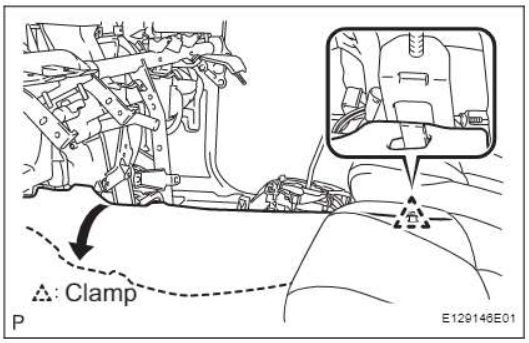
AC

26. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL (See page IP-12)
27. REMOVE INSTRUMENT CLUSTER FINISH PANEL (See page IP-13)
28. REMOVE COMBINATION METER ASSEMBLY (See page IP-13)
29. REMOVE FRONT DOOR SCUFF PLATE RH (See page IR-15)
30. REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-15)
31. REMOVE INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY (See page IP-13)
32. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-14)
33. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (See page IP-14)
34. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-14)
35. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-14)
36. REMOVE FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY (See page IP-15)
37. REMOVE UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page IP-15)
38. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY (See page IP-16)
39. REMOVE INSTRUMENT PANEL NO. 2 REGISTER ASSEMBLY (See page IP-16)
40. REMOVE RADIO RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/o Navigation System) (See page AV-136)
41. REMOVE NAVIGATION RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/ Navigation System) (See page NS-193)
42. REMOVE CONSOLE BOX POCKET (See page IP-17)
43. REMOVE CONSOLE BOX CARPET (See page IP-17)
44. REMOVE CONSOLE BOX ASSEMBLY (See page IP-17)
45. REMOVE NO. 2 CONSOLE BOX INSERT FRONT (See page IP-18)
46. REMOVE NO. 1 CONSOLE BOX INSERT FRONT (See page IP-18)
47. REMOVE FRONT PILLAR GARNISH LH (See page IR-16)

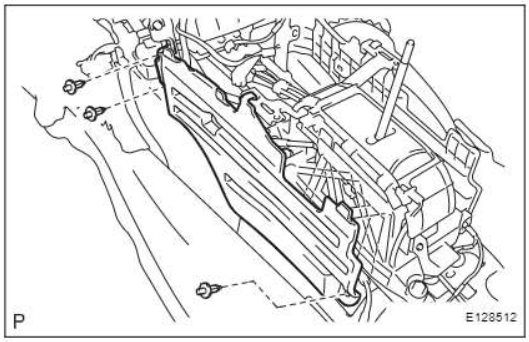
48. REMOVE INSTRUMENT PANEL NO. 1 REGISTER ASSEMBLY (See page IP-18)
49. REMOVE INSTRUMENT PANEL NO. 1 SPEAKER PANEL SUB-ASSEMBLY (See page IP-19)
50. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY (for LH Side) (See page AV-146)
51. REMOVE FRONT PILLAR GARNISH RH (See page IR-16)
52. REMOVE INSTRUMENT PANEL NO. 3 REGISTER ASSEMBLY (See page IP-19)
53. REMOVE INSTRUMENT PANEL NO. 2 SPEAKER PANEL SUB-ASSEMBLY (See page IP-19)
54. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY (for RH Side) (See page IP-19)
55. REMOVE NO. 1 DEFROSTER NOZZLE GARNISH (See page IP-20)
56. DISCONNECT INSTRUMENT PANEL WIRE ASSEMBLY
57. REMOVE INSTRUMENT PANEL SAFETY PAD ASSEMBLY (See page IP-20)
58. REMOVE NO. 1 CONSOLE BOX DUCT
    (a) Remove the clip and No. 1 console box duct.



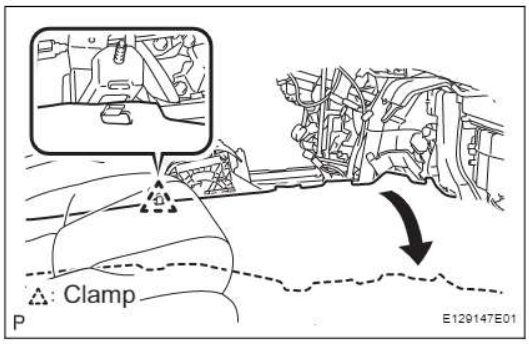
59. REMOVE FLOOR CARPET BRACKET LH
    (a) Release the clamp.
    (b) Turn back the floor carpet.



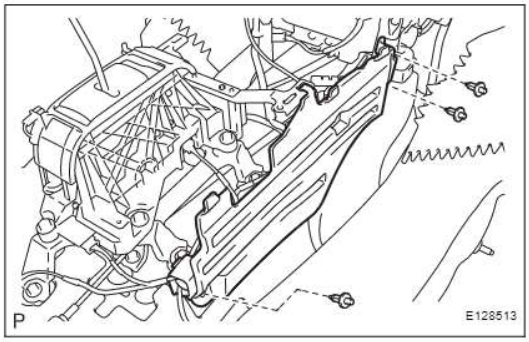
AC



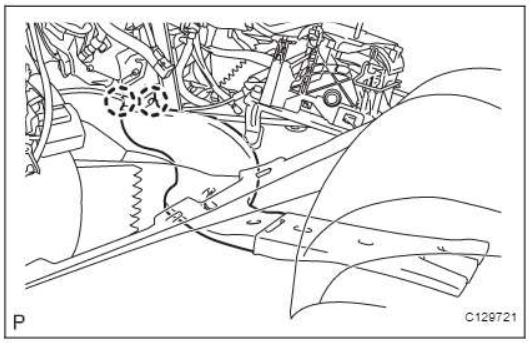
(c) Remove the 3 clips.
(d) Remove the floor carpet bracket LH.



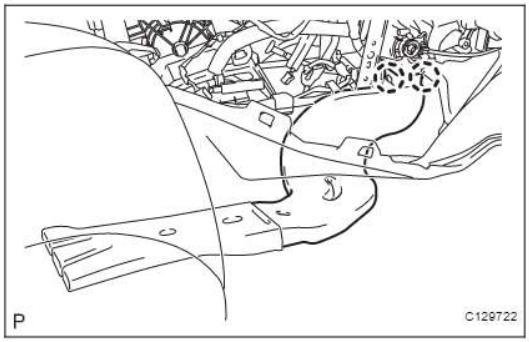
60. REMOVE FLOOR CARPET BRACKET RH
(a) Release the clamp.
(b) Turn back the floor carpet.



(c) Remove the 3 clips.
(d) Remove the floor carpet bracket RH.



61. REMOVE REAR NO. 2 AIR DUCT
(a) Release the 2 claws and remove the rear No. 2 air duct.



62. REMOVE REAR NO. 1 AIR DUCT
(a) Release the 2 claws and remove the rear No. 1 air duct.

63. REMOVE NO. 1 AIR DUCT SUB-ASSEMBLY (See page SR-37)

64. SEPARATE STEERING INTERMEDIATE SHAFT ASSEMBLY (See page SR-37)

65. REMOVE STEERING COLUMN ASSEMBLY (See page SR-38)

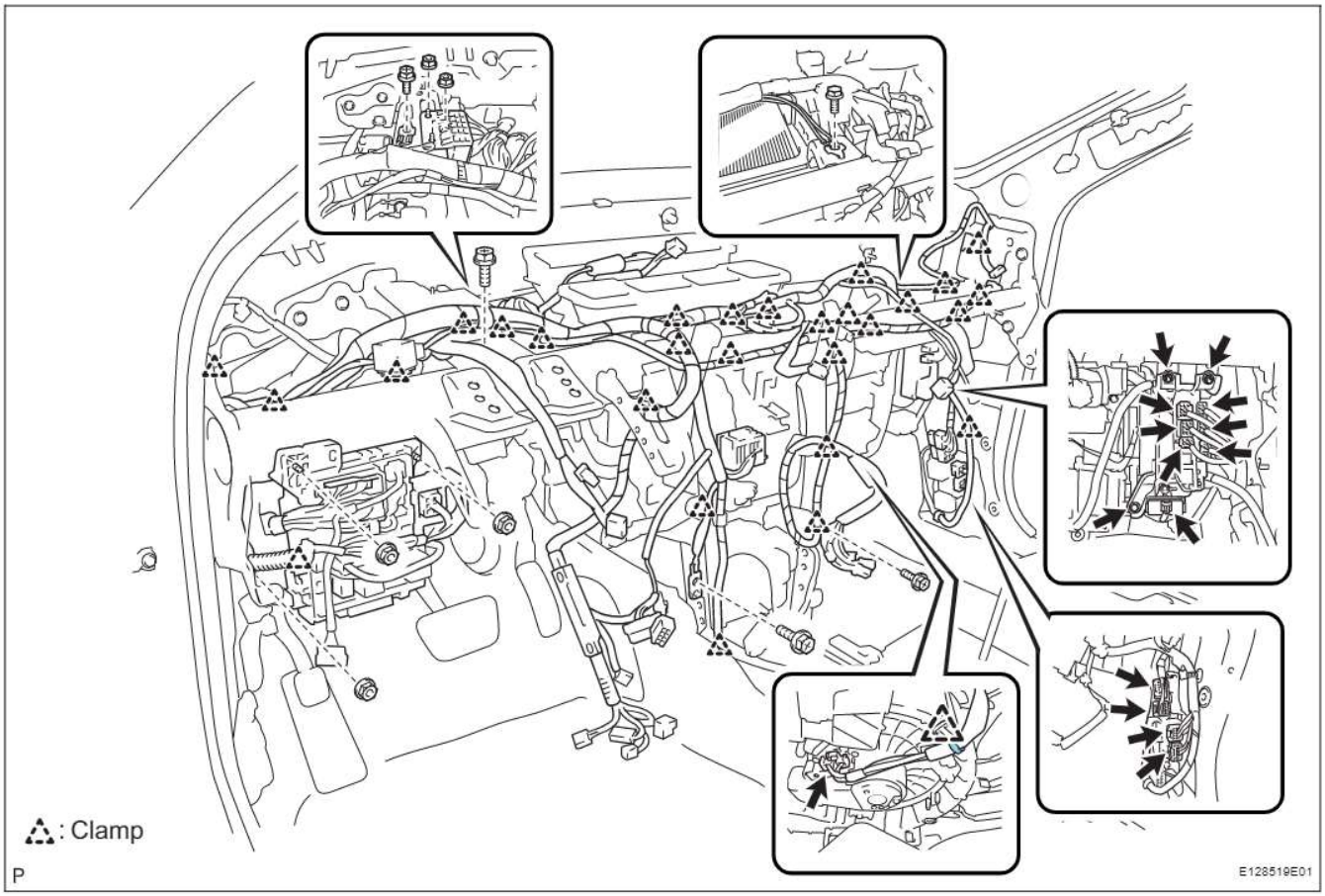
AC

66. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY (See page AC-269)

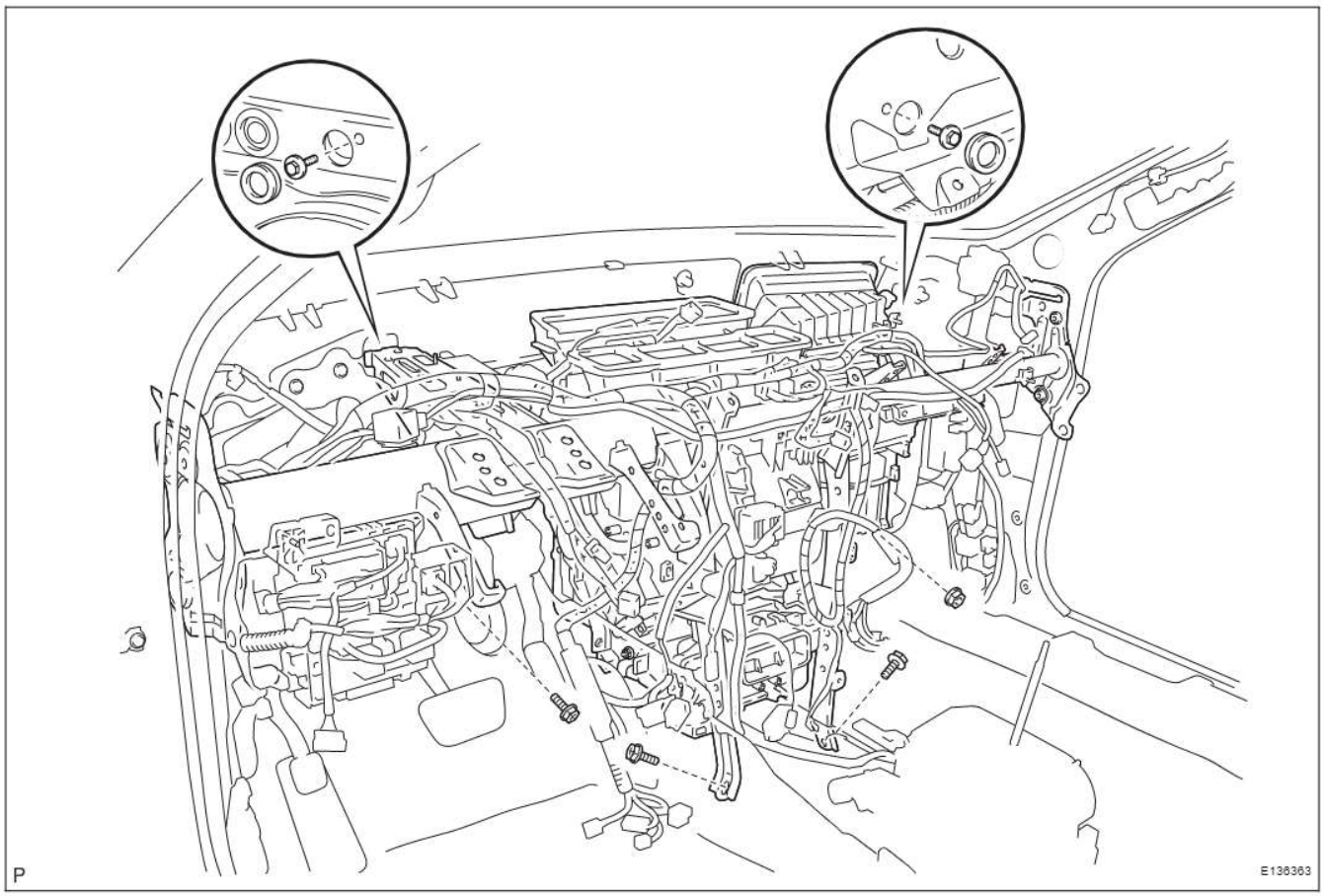
67. REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY

(a) Remove the 28 clamps, disconnect the 11 connectors, and then disconnect the wire harness.

(b) Remove the 6 nuts, 7 bolts, and junction block.

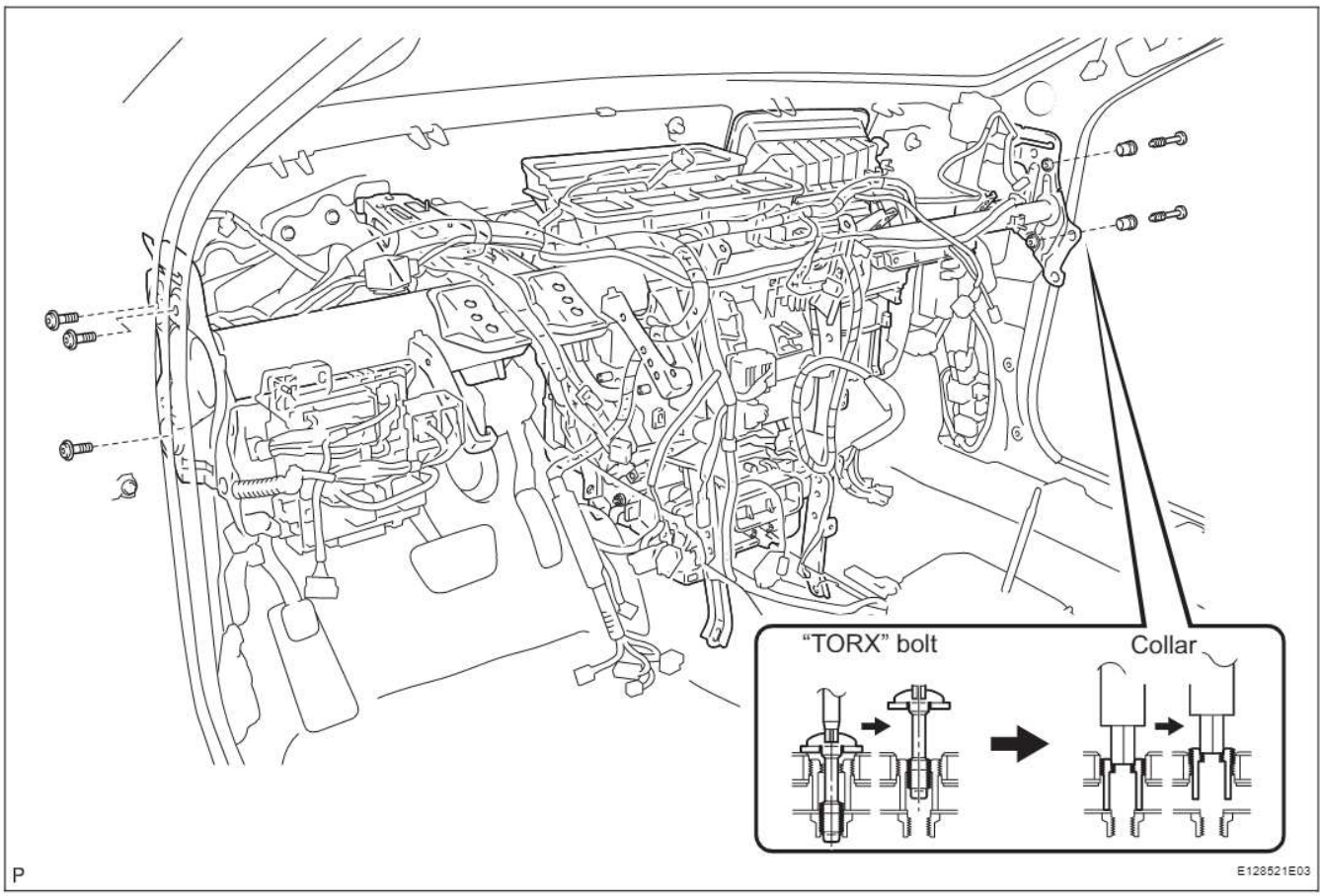


(c) Remove the 2 caps and 2 bolts from the engine compartment side.



(d) Remove the 3 bolts and nut.

(e) Using a "TORX" socket wrench (T40), remove the 5 "TORX" bolts.

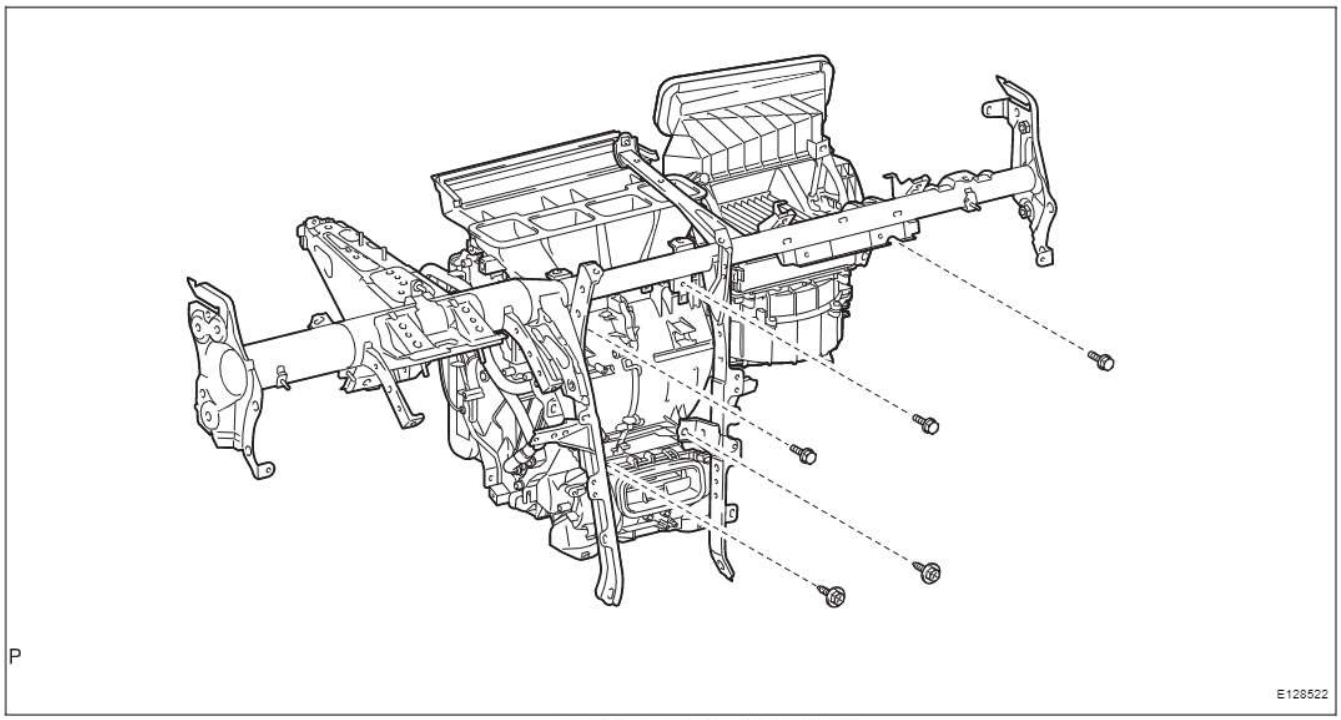


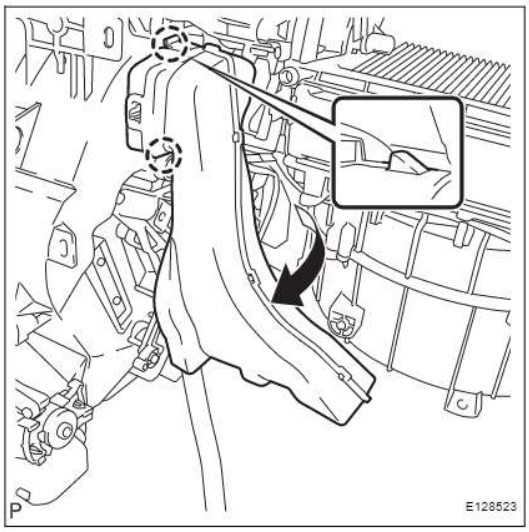
HINT:
The "TORX" bolts on the passenger side can be removed with the collars for adjustment.

(f) Using a 12 mm hexagon wrench, remove the 2 collars and instrument panel reinforcement assembly with the air conditioning unit assembly.

AC

(g) Remove the 3 bolts, 2 screws, and instrument panel reinforcement assembly.

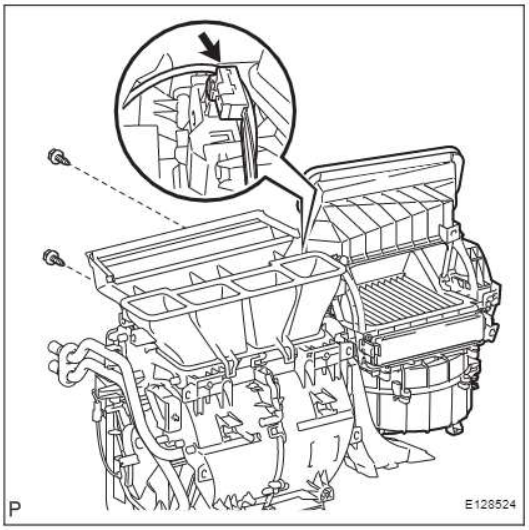




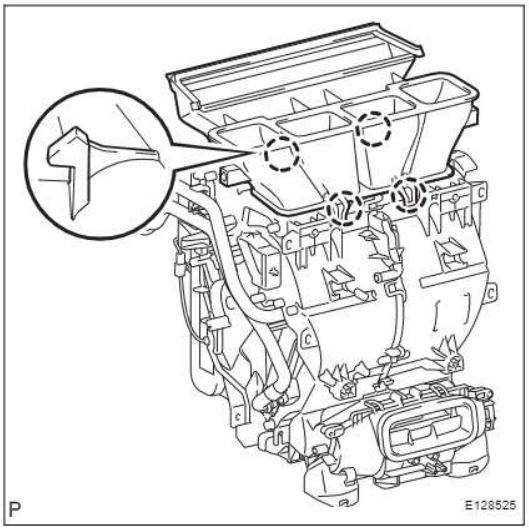
DISASSEMBLY

1. **REMOVE NO. 2 AIR DUCT SUB-ASSEMBLY**
   (a) Release the 2 claws and remove the No. 2 air duct sub-assembly as shown in the illustration.
2. **REMOVE BLOWER ASSEMBLY**
   (a) Disconnect the connector.

AC

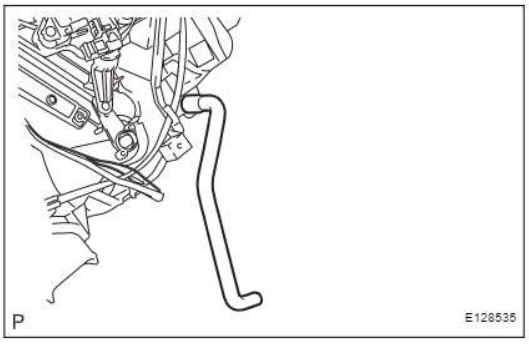


(b) Remove the 2 screws and blower assembly.



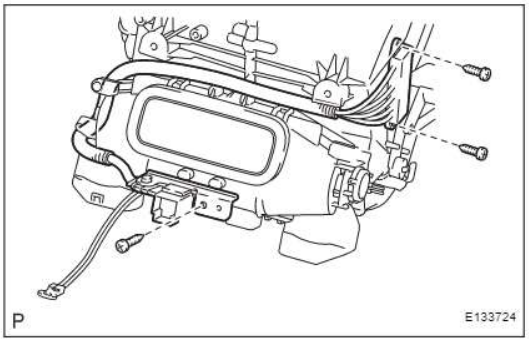
3. REMOVE NO. 6 HEATER TO REGISTER DUCT ASSEMBLY

(a) Release the 4 claws and remove the No. 6 heater to register duct assembly.



4. REMOVE DRAIN COOLER HOSE

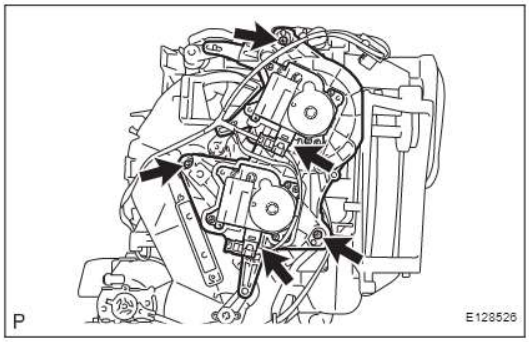
(a) Remove the drain cooler hose from the air conditioning radiator assembly.



5. REMOVE QUICK HEATER ASSEMBLY

(a) Remove the 3 screws and quick heater assembly.

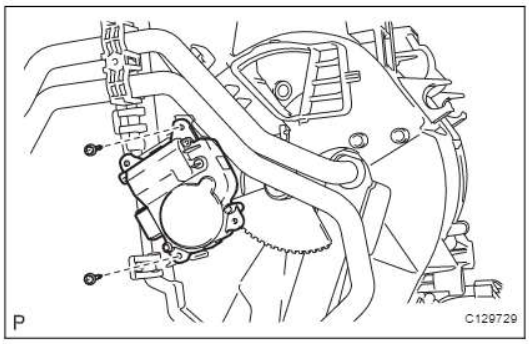
AC



6. REMOVE AIR OUTLET CONTROL SERVO MOTOR

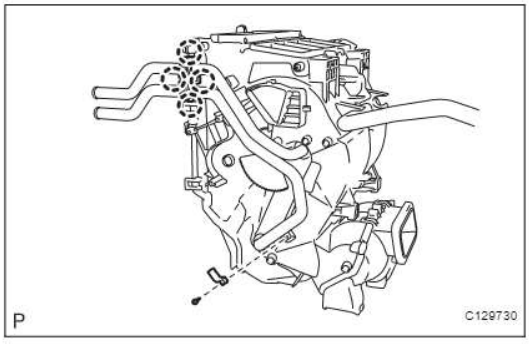
(a) Disconnect the 2 connectors and remove the air conditioner harness.

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



7. REMOVE AIR MIX CONTROL SERVO MOTOR

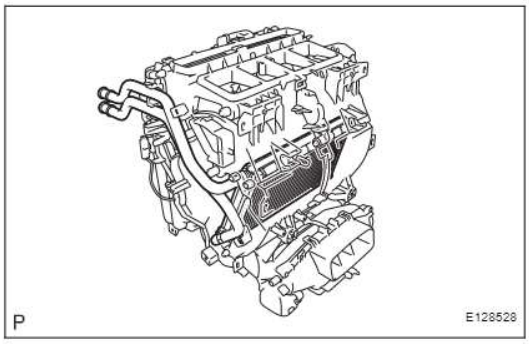
(a) Remove the 2 screws and air mix control servo motor.



8. REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY

(a) Remove the screw and clamp.

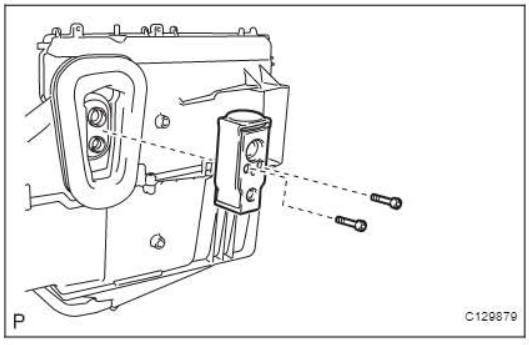
(b) Release the 4 claws and remove the clamp.



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

NOTICE:

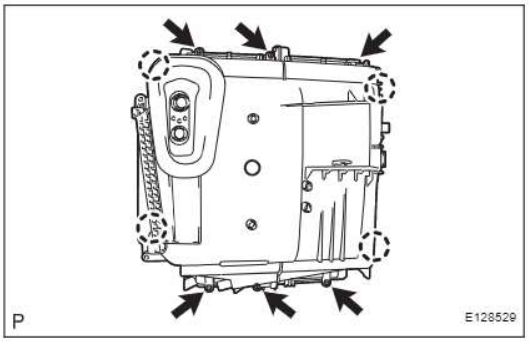
Prepare a drain pan or cloth in case the coolant water leaks.



9. REMOVE COOLER EXPANSION VALVE

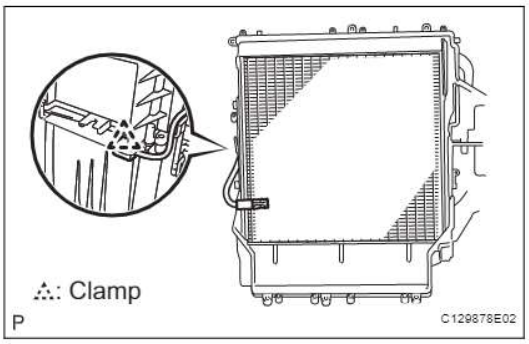
(a) Using a 4 mm hexagon wrench, remove the 2 hexagon bolts and cooler expansion valve.

AC

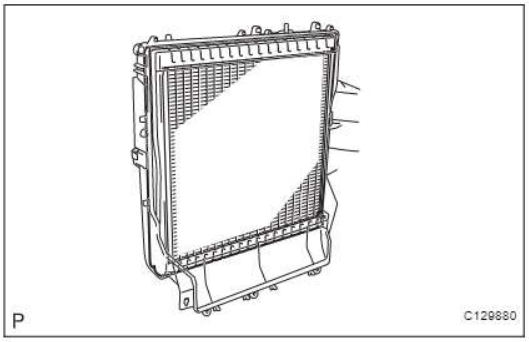


10. REMOVE NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY

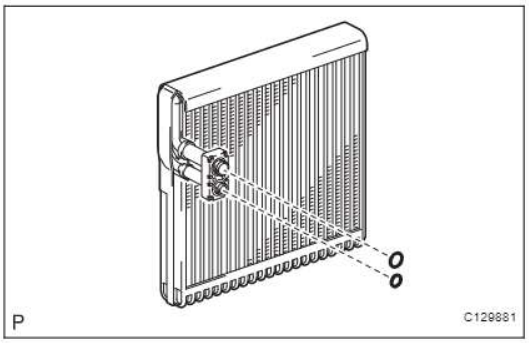
(a) Remove the 6 screws, release the 4 claws, and remove the plate cover.



(b) Remove the clamp and No. 1 cooler thermistor.

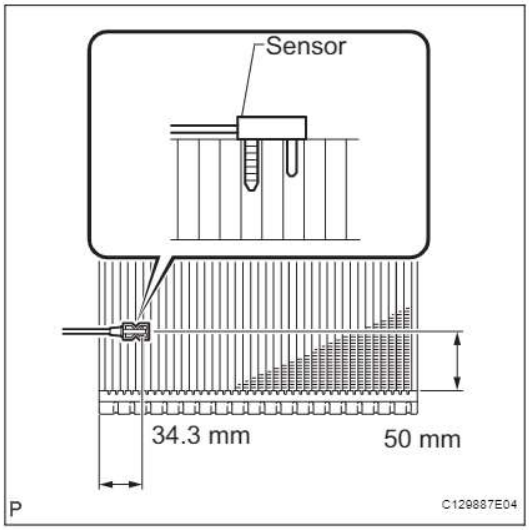


(c) Remove the No. 1 cooler evaporator sub-assembly.



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

AC

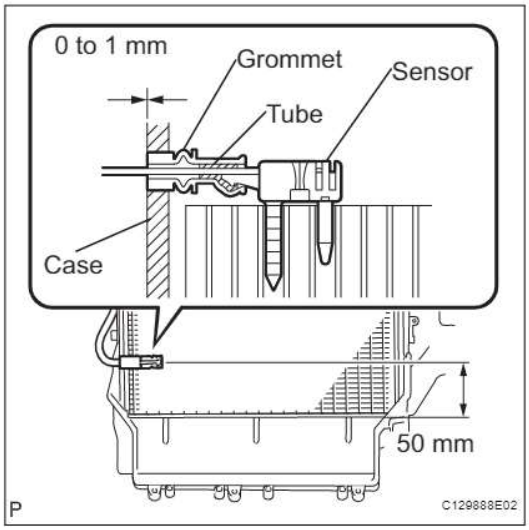


REASSEMBLY

1. INSTALL NO. 1 COOLER THERMISTOR

(a) If using a new evaporator:

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



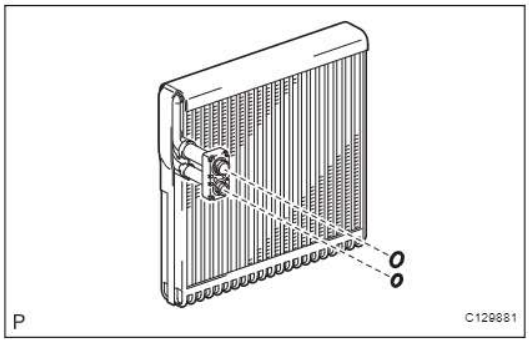
(b) If reusing the evaporator:

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

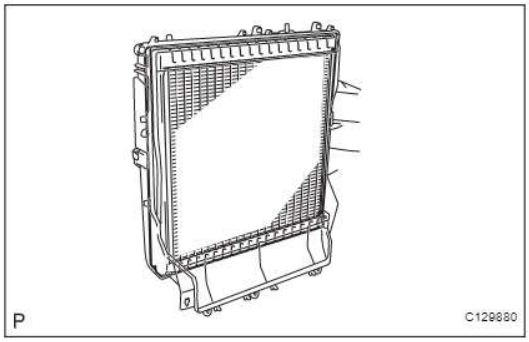
2. INSTALL NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY

(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.

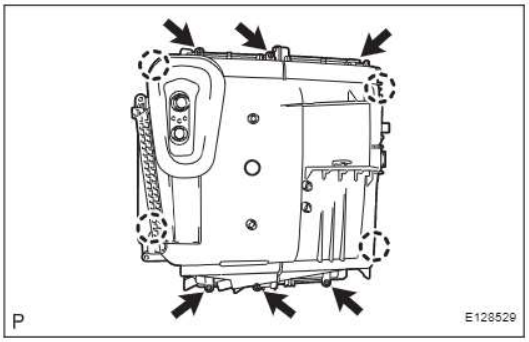
Compressor oil:
ND-OIL 11 or equivalent



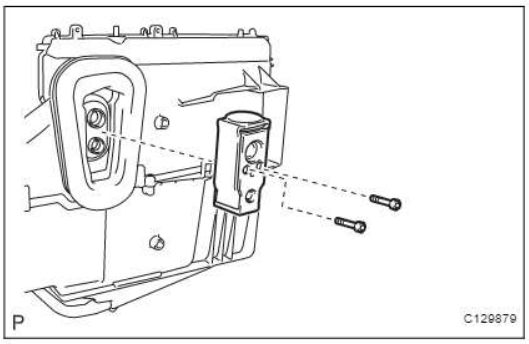
(b) Install the No. 1 cooler evaporator sub-assembly.



AC

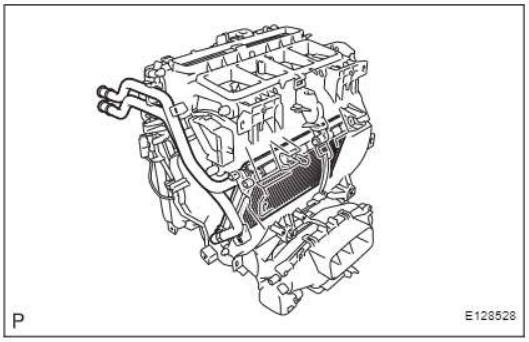


(c) Engage the 4 claws and install the plate cover with the 6 screws.



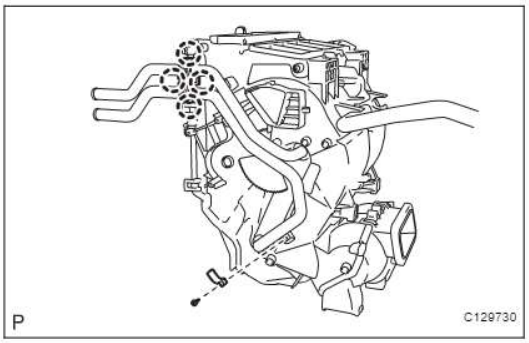
3. INSTALL COOLER EXPANSION VALVE

(a) Using a 4 mm hexagon wrench, install the cooler expansion valve with the 2 hexagon bolts.
Torque: 3.5 N*m (35 kgf*cm, 30 in.*lbf)

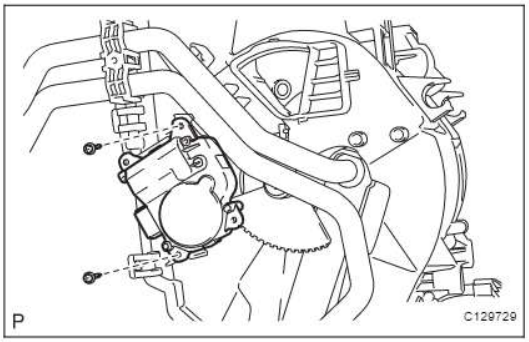


4. INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY

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



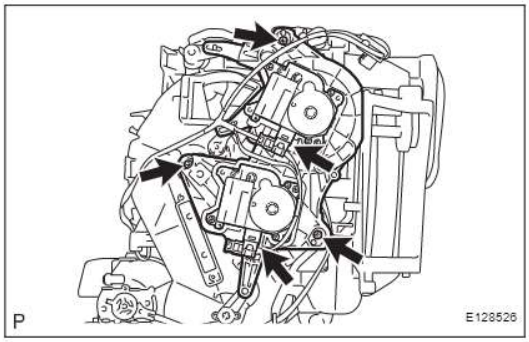
(b) Install the clamp with the screw.
(c) Engage the 4 claws and install the heater clamp.



5. INSTALL AIR MIX DAMPER CONTROL MOTOR

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

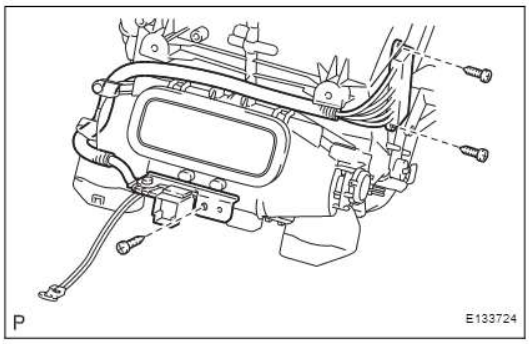
AC



6. INSTALL AIR OUTLET CONTROL SERVO MOTOR

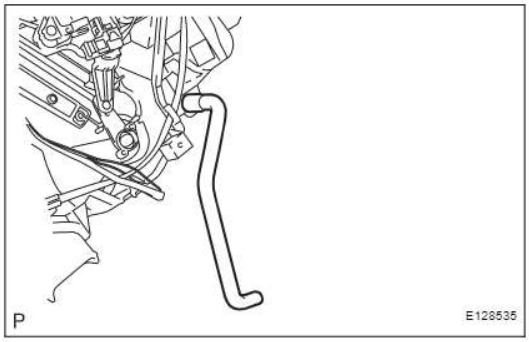
(a) Install the air outlet control servo motor with the 3 screws.

(b) Connect the 2 connectors and install the air conditioner harness.



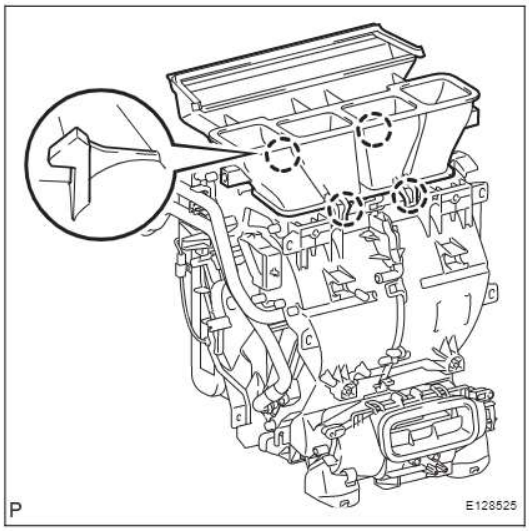
7. INSTALL QUICK HEATER ASSEMBLY

(a) Install the quick heater assembly with the 3 screws.



8. INSTALL DRAIN COOLER HOSE

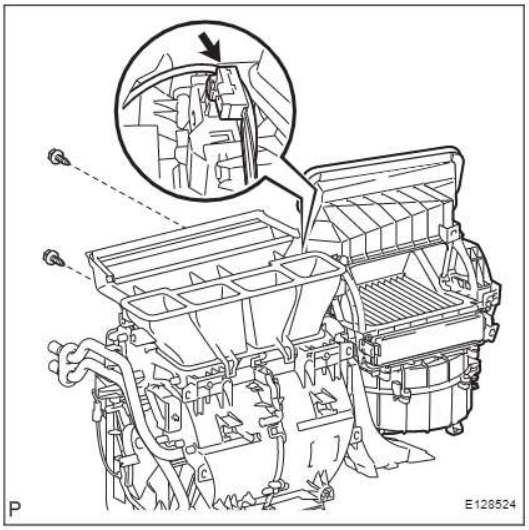
(a) Install the drain cooler hose to the air conditioning radiator assembly.



9. INSTALL NO. 6 HEATER TO REGISTER DUCT ASSEMBLY

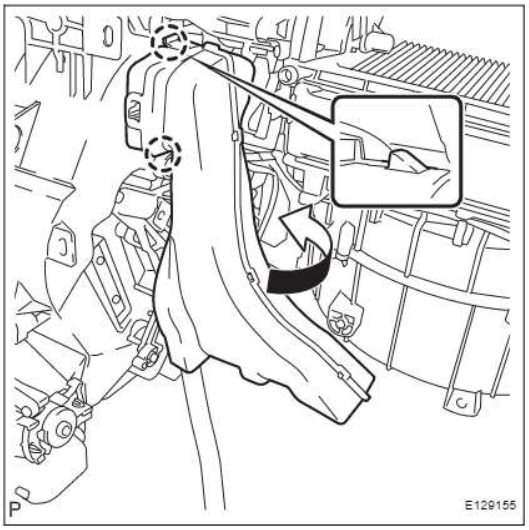
(a) Engage the 4 claws to install the No. 6 heater to register duct assembly.

AC



10. INSTALL BLOWER ASSEMBLY

(a) Install the blower assembly with the 2 screws.
(b) Connect the connector.



11. INSTALL NO. 2 AIR DUCT SUB-ASSEMBLY

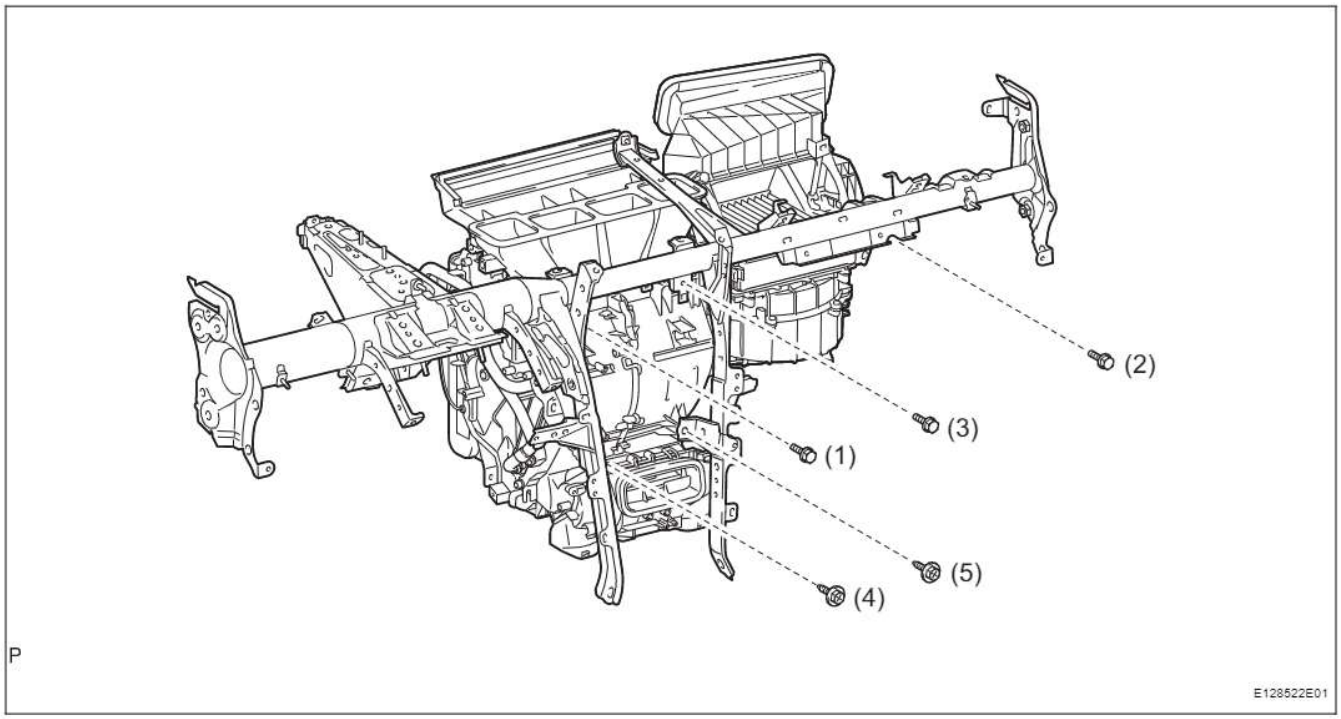
(a) Engage the 2 claws to install the No. 2 air duct sub-assembly.

AC

INSTALLATION

1. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY

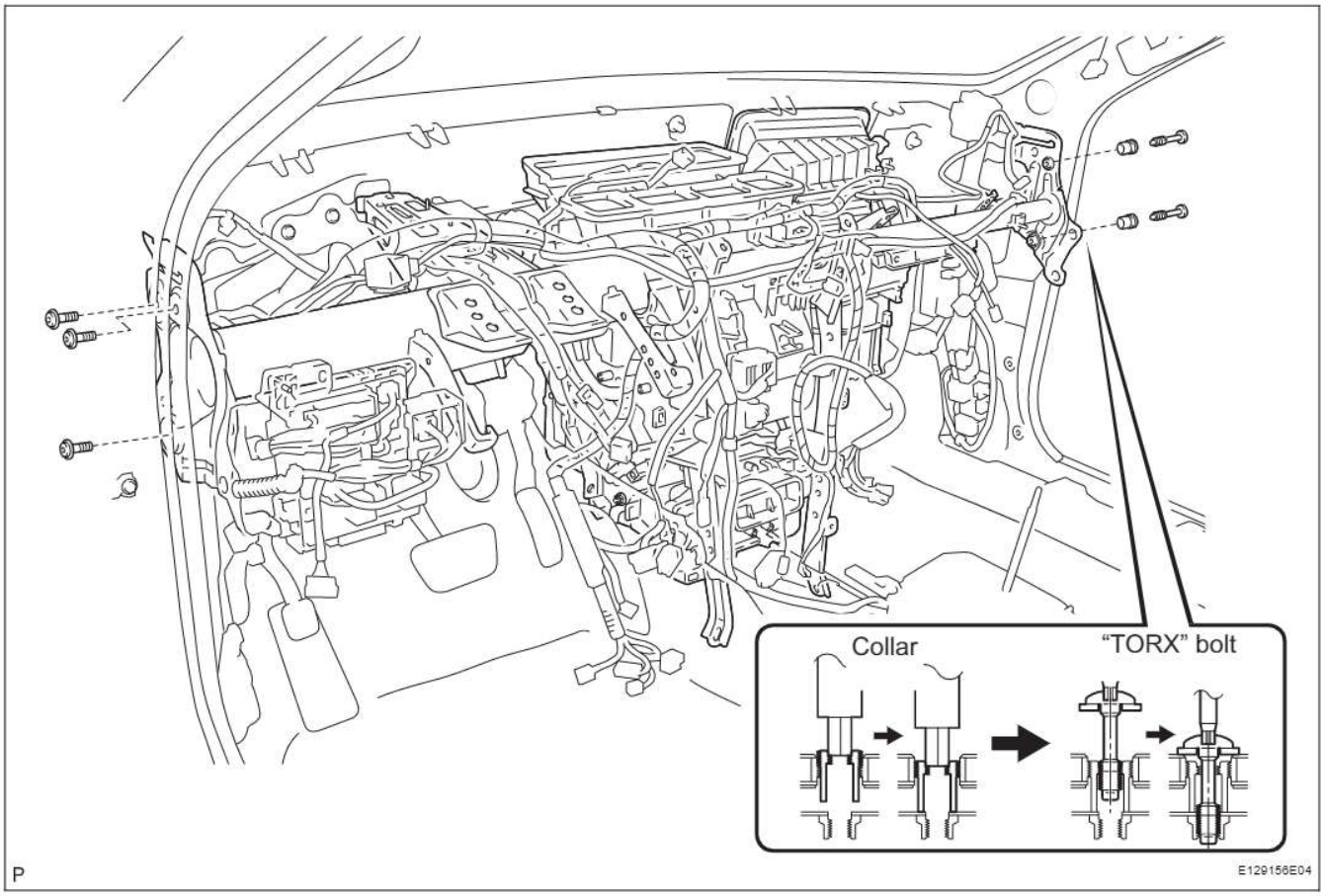
(a) Install the air conditioning unit assembly to the instrument panel reinforcement assembly with the 2 screws and 3 bolts.



Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)
NOTICE:
Tighten the bolts and screws in the order shown in the illustration to install the air conditioning unit assembly.

AC

(b) Driver seat:
(1) Using a "TORX" socket wrench (T40), install the instrument panel reinforcement assembly with the 3 "TORX" bolts.

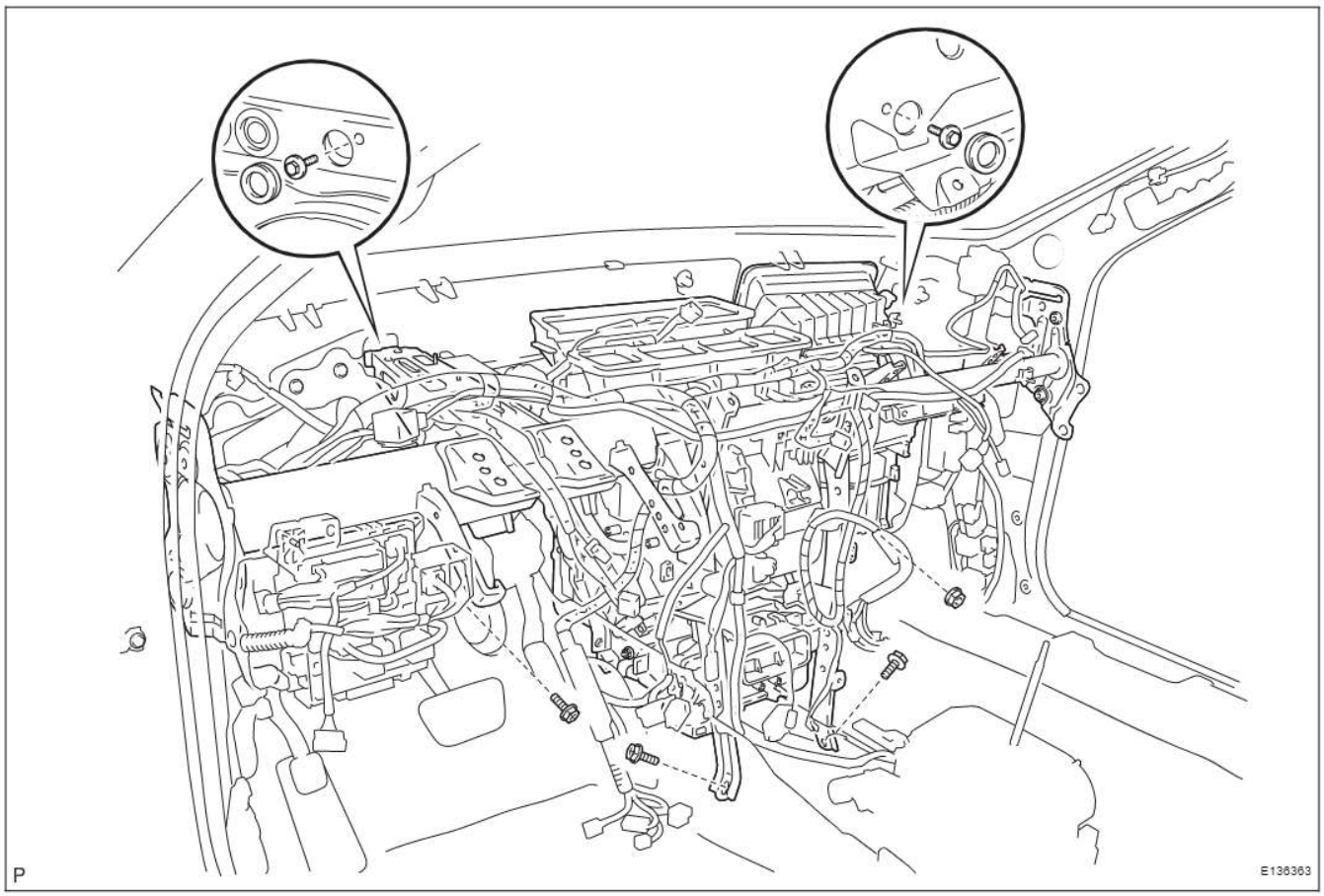


Torque: 17 N*m (173 kgf*cm, 13 ft.*lbf)

(c) Passenger seat:
(1) Using a 12 mm hexagon wrench, adjust the position of the 2 collars.
Torque: 6.0 N*m (61 kgf*cm, 53 in.*lbf)
(2) Using a "TORX" socket wrench (T40), install the instrument panel reinforcement assembly with the 2 "TORX" bolts.
Torque: 20 N*m (204 kgf*cm, 15 ft.*lbf)

AC

(d) Install the instrument panel reinforcement assembly with the 3 bolts and nut.



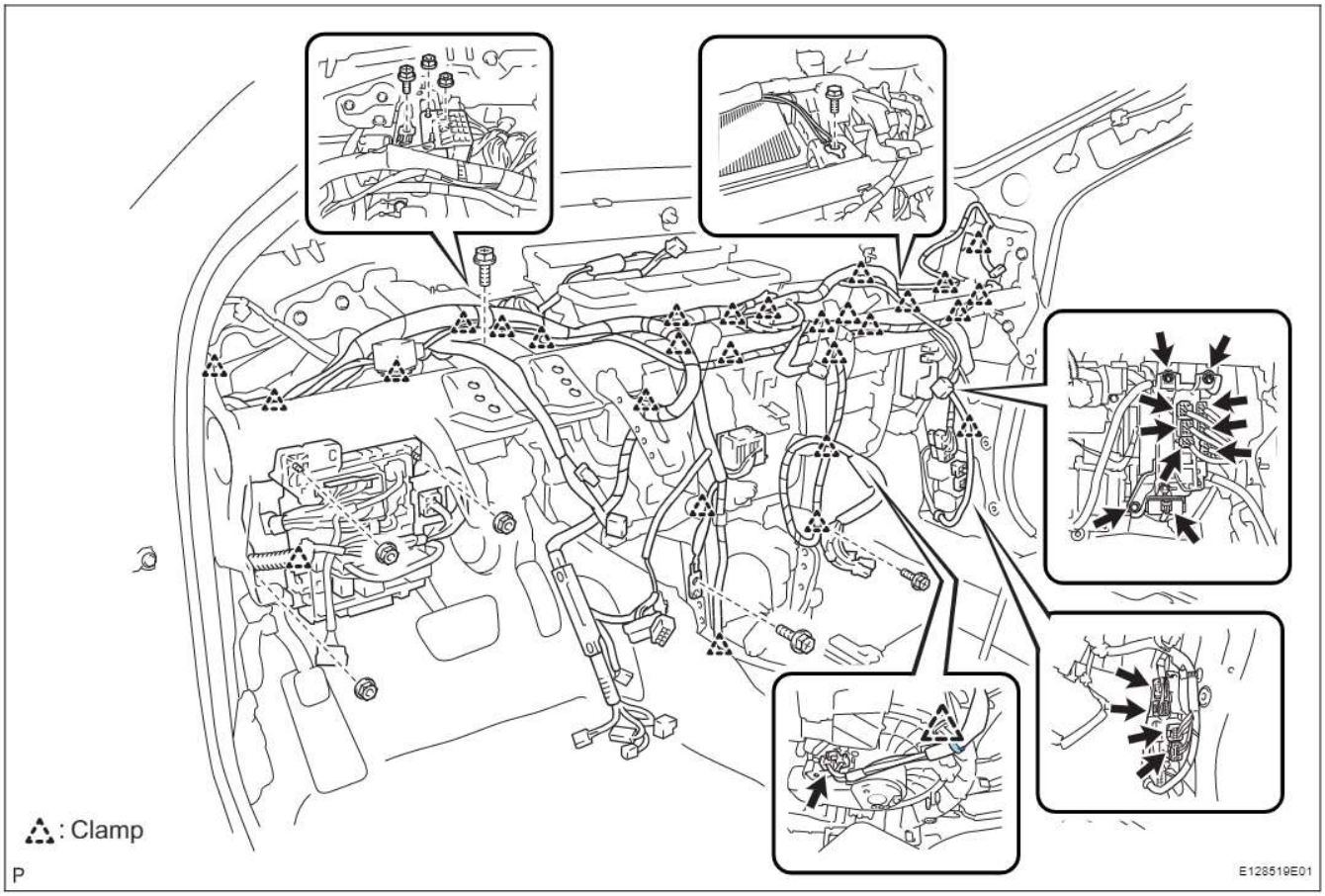
Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf) (NUT)

(e) Install the 2 bolts and 2 caps.

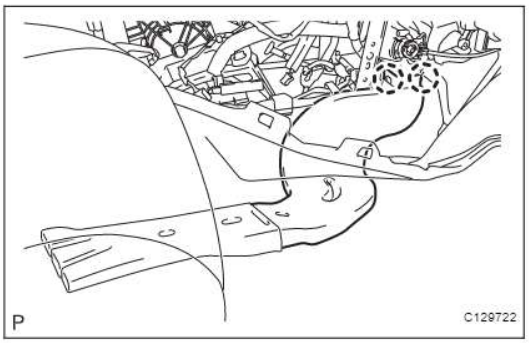
(f) Connect the connectors and clamps.

AC

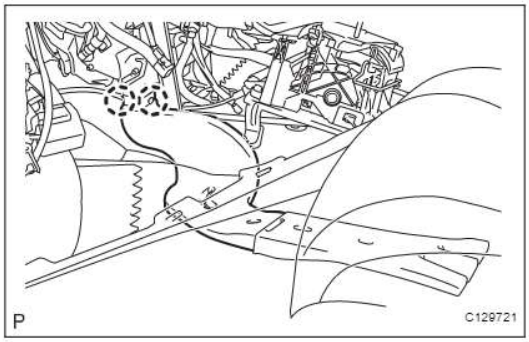
(g) Install the 6 nuts and 7 bolts.



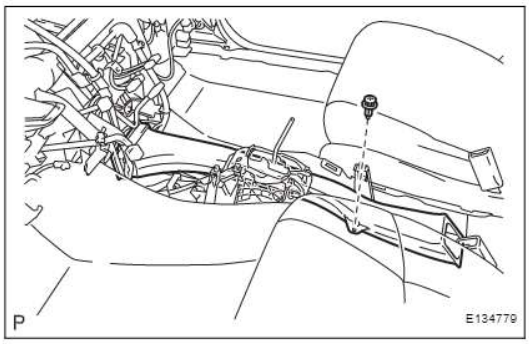
2. **INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY (See page AC-269)**
3. **INSTALL STEERING COLUMN ASSEMBLY (See page SR-40)**
4. **CONNECT STEERING INTERMEDIATE SHAFT ASSEMBLY (See page SR-40)**
5. **INSTALL NO. 1 AIR DUCT SUB-ASSEMBLY (See page SR-41)**
6. **INSTALL REAR NO. 1 AIR DUCT**
   (a) Engage the 2 claws to install the rear No. 1 air duct.



AC



7. INSTALL REAR NO. 2 AIR DUCT
   (a) Engage the 2 claws to install the rear No. 2 air duct.
8. INSTALL FLOOR CARPET BRACKET RH
9. INSTALL FLOOR CARPET BRACKET LH



10. INSTALL NO. 1 CONSOLE BOX DUCT
    (a) Install the No. 1 console box duct with the clip.
11. INSTALL INSTRUMENT PANEL SAFETY PAD ASSEMBLY (See page IP-25)
12. CONNECT INSTRUMENT PANEL WIRE ASSEMBLY
13. INSTALL NO. 1 DEFROSTER NOZZLE GARNISH (See page IP-28)
14. INSTALL FRONT NO. 2 SPEAKER ASSEMBLY (for LH Side) (See page AV-146)
15. INSTALL INSTRUMENT PANEL NO. 1 SPEAKER PANEL SUB-ASSEMBLY (See page IP-28)
16. INSTALL INSTRUMENT PANEL NO. 1 REGISTER ASSEMBLY (See page IP-28)
17. INSTALL FRONT PILLAR GARNISH LH (See page IR-38)
18. INSTALL FRONT NO. 2 SPEAKER ASSEMBLY (for RH Side) (See page IP-28)
19. INSTALL INSTRUMENT PANEL NO. 2 SPEAKER PANEL SUB-ASSEMBLY (See page IP-29)
20. INSTALL INSTRUMENT PANEL NO. 3 REGISTER ASSEMBLY (See page IP-29)
21. INSTALL FRONT PILLAR GARNISH RH (See page IR-39)
22. INSTALL NO. 1 CONSOLE BOX INSERT FRONT (See page IP-29)
23. INSTALL NO. 2 CONSOLE BOX INSERT FRONT (See page IP-30)
24. INSTALL CONSOLE BOX ASSEMBLY (See page IP-30)
25. INSTALL CONSOLE BOX CARPET (See page IP-30)
26. INSTALL CONSOLE BOX POCKET (See page IP-30)
27. INSTALL RADIO RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/o Navigation System) (See page AV-137)

AC

28. INSTALL NAVIGATION RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/ Navigation System) (See page NS-194)
29. INSTALL INSTRUMENT PANEL NO. 2 REGISTER ASSEMBLY (See page IP-31)
30. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY (See page IP-31)
31. INSTALL UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page IP-31)
32. INSTALL FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY (See page IP-31)
33. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-32)
34. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-32)
35. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (See page IP-32)
36. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-33)
37. INSTALL INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY (See page IP-33)
38. INSTALL COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-42)
39. INSTALL FRONT DOOR SCUFF PLATE RH (See page IR-42)
40. INSTALL COMBINATION METER ASSEMBLY (See page IP-33)
41. INSTALL INSTRUMENT CLUSTER FINISH PANEL (See page IP-34)
42. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL (See page IP-34)
43. INSTALL NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-34)
44. INSTALL TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY
45. ADJUST SPIRAL CABLE SUB-ASSEMBLY (See page RS-360)
46. INSTALL STEERING COLUMN COVER (See page IP-35)
47. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-35)
48. INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-41)
49. INSTALL FRONT DOOR SCUFF PLATE LH (See page IR-41)

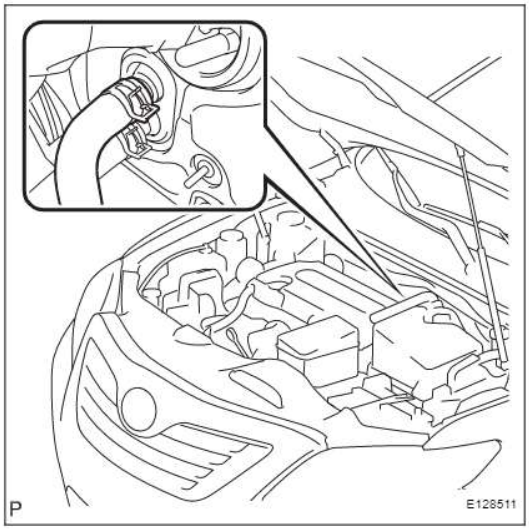
AC

50. **INSTALL STEERING WHEEL ASSEMBLY (See page SR-42)**

51. **INSTALL STEERING PAD (See page RS-346)**

52. **INSTALL LOWER NO. 3 STEERING WHEEL COVER (See page RS-347)**

53. **INSTALL LOWER NO. 2 STEERING WHEEL COVER (See page RS-347)**

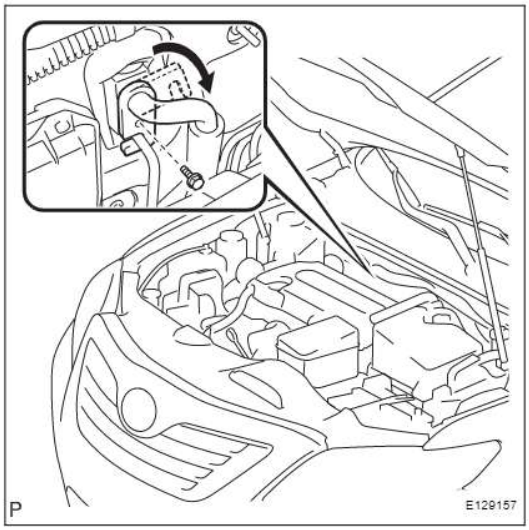


54. **INSTALL HEATER INLET WATER HOSE**
    (a) Install the water hose and attach the clip.

55. **INSTALL HEATER OUTLET WATER HOSE**
    (a) Use the same procedures described for the heater inlet water hose.

56. **INSTALL AIR CONDITIONER TUBE AND ACCESSORY**
    (a) Remove the attached vinyl tape from the tube.
    (b) Sufficiently apply compressor oil to a new O-ring and fitting surface of the air conditioner tube and accessory.
    Compressor oil:
    ND-OIL 11 or equivalent
    (c) Install the O-ring on the air conditioner tube and accessory.
    (d) Install the air conditioner tube and accessory.

57. **INSTALL SUCTION HOSE 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 11 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, 87 in.*lbf)

58. **INSTALL COWL TOP PANEL OUTER SUB-ASSEMBLY (See page ES-405)**

59. **INSTALL WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY (See page WW-13)**

60. **INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page WW-14)**

61. **INSTALL FRONT FENDER TO COWL SIDE SEAL LH (See page WW-14)**

62. **INSTALL FRONT FENDER TO COWL SIDE SEAL RH (See page WW-14)**

63. **INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page WW-14)**

AC

64. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page WW-15)
65. INSTALL BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY (See page BR-33)
66. CONNECT NEGATIVE BATTERY TERMINAL
67. INSPECT STEERING PAD (See page RS-347)
68. INSPECT SRS WARNING LIGHT (See page RS-33)
69. PERFORM INITIALIZATION
NOTICE:
Some systems need initialization after reconnecting the negative battery terminal (See page IN-43).
70. ADD ENGINE COOLANT (See page CO-5)
71. INSPECT FOR COOLANT LEAK
72. CHARGE WITH REFRIGERANT (See page AC-169)
73. WARM UP COMPRESSOR (See page AC-171)
74. INSPECT FOR REFRIGERANT LEAK (See page AC-171)

AC

REMOVAL

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM (See page AC-169)
2. ALIGN FRONT WHEELS FACING STRAIGHT AHEAD
3. DISCONNECT NEGATIVE BATTERY TERMINAL
   NOTICE:
   Wait for 90 seconds after disconnecting the terminal to prevent the airbag from deploying (See page RS-1).
4. SEPARATE BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY (See page BR-27)
5. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page WW-9)
6. REMOVE FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page WW-9)
7. REMOVE FRONT FENDER TO COWL SIDE SEAL LH (See page WW-9)
8. REMOVE FRONT FENDER TO COWL SIDE SEAL RH (See page WW-9)
9. REMOVE COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page WW-10)
10. REMOVE WINDSHIELD WIPER MOTOR AND LINK ASSEMBLY (See page WW-10)
11. REMOVE COWL TOP OUTER FRONT PANEL SUB-ASSEMBLY (See page ES-403)
12. DISCONNECT SUCTION PIPE SUB-ASSEMBLY (See page AC-186)
13. DISCONNECT AIR CONDITIONER TUBE AND ACCESSORY (See page AC-186)
14. DISCONNECT HEATER OUTLET WATER HOSE (See page AC-186)
15. DISCONNECT HEATER INLET WATER HOSE (See page AC-186)
16. REMOVE LOWER NO. 3 STEERING WHEEL COVER (See page RS-345)
17. REMOVE LOWER NO. 2 STEERING WHEEL COVER (See page RS-345)
18. REMOVE STEERING PAD (See page RS-345)
19. REMOVE STEERING WHEEL ASSEMBLY (See page SR-36)
20. REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-13)
21. REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-14)

AC

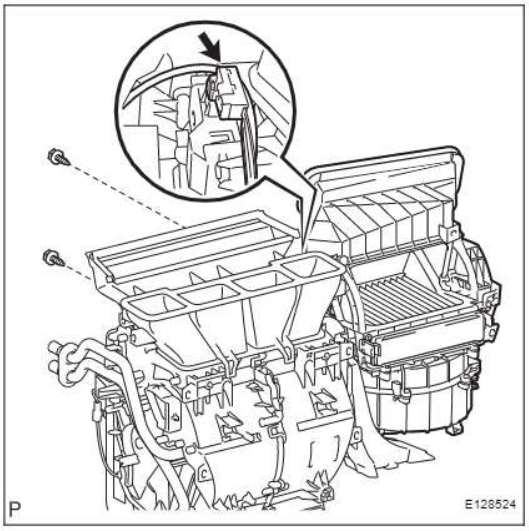
22. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-11)
23. REMOVE STEERING COLUMN COVER (See page IP-12)
24. REMOVE TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY (See page SR-37)
25. REMOVE NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-12)
26. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL (See page IP-12)
27. REMOVE INSTRUMENT CLUSTER FINISH PANEL (See page IP-13)
28. REMOVE COMBINATION METER ASSEMBLY (See page IP-13)
29. REMOVE FRONT DOOR SCUFF PLATE RH (See page IR-15)
30. REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-15)
31. REMOVE INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY (See page IP-13)
32. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-14)
33. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (See page IP-14)
34. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-14)
35. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-14)
36. REMOVE FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY (See page IP-15)
37. REMOVE UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page IP-15)
38. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY (See page IP-16)
39. REMOVE INSTRUMENT PANEL NO. 2 REGISTER ASSEMBLY (See page IP-16)
40. REMOVE RADIO RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/o Navigation System) (See page AV-136)
41. REMOVE NAVIGATION RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (See page NS-193)
42. REMOVE CONSOLE BOX POCKET (See page IP-17)
43. REMOVE CONSOLE BOX CARPET (See page IP-17)

AC

44. REMOVE CONSOLE BOX ASSEMBLY (See page IP-17)
45. REMOVE NO. 2 CONSOLE BOX INSERT FRONT (See page IP-18)
46. REMOVE NO. 1 CONSOLE BOX INSERT FRONT (See page IP-18)
47. REMOVE FRONT PILLAR GARNISH LH (See page IR-16)
48. REMOVE INSTRUMENT PANEL NO. 1 REGISTER ASSEMBLY (See page IP-18)
49. REMOVE INSTRUMENT PANEL NO. 1 SPEAKER PANEL SUB-ASSEMBLY (See page IP-19)
50. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY (for LH Side) (See page AV-146)
51. REMOVE FRONT PILLAR GARNISH RH (See page IR-16)
52. REMOVE INSTRUMENT PANEL NO. 3 REGISTER ASSEMBLY (See page IP-19)
53. REMOVE INSTRUMENT PANEL NO. 2 SPEAKER PANEL SUB-ASSEMBLY (See page IP-19)
54. REMOVE FRONT NO. 2 SPEAKER ASSEMBLY (for RH Side) (See page IP-19)
55. REMOVE NO. 1 DEFROSTER NOZZLE GARNISH (See page IP-20)
56. DISCONNECT INSTRUMENT PANEL WIRE ASSEMBLY
57. REMOVE INSTRUMENT PANEL SAFETY PAD ASSEMBLY (See page IP-20)
58. REMOVE NO. 1 CONSOLE BOX DUCT (See page AC-188)
59. REMOVE FLOOR CARPET BRACKET LH (See page AC-188)
60. REMOVE FLOOR CARPET BRACKET RH (See page AC-189)
61. REMOVE REAR NO. 2 AIR DUCT (See page AC-189)
62. REMOVE REAR NO. 1 AIR DUCT (See page AC-189)
63. REMOVE NO. 1 AIR DUCT SUB-ASSEMBLY (See page SR-37)
64. SEPARATE STEERING INTERMEDIATE SHAFT ASSEMBLY (See page SR-37)
65. REMOVE STEERING COLUMN ASSEMBLY (See page SR-38)
66. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY (See page AC-269)

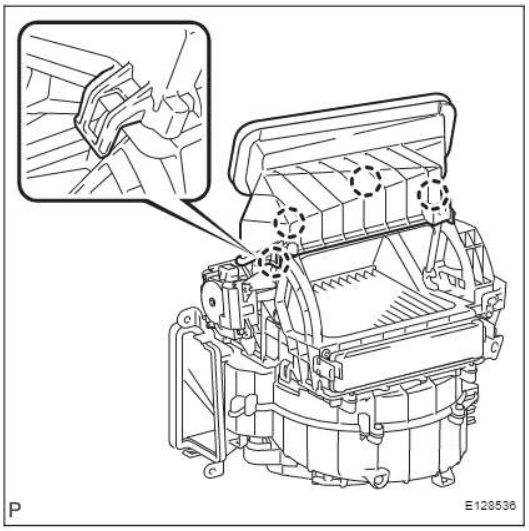
67. **REMOVE INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (See page AC-190)**

68. **REMOVE BLOWER ASSEMBLY**
    (a) Disconnect the connector.
    (b) Remove the 2 screws and blower assembly.

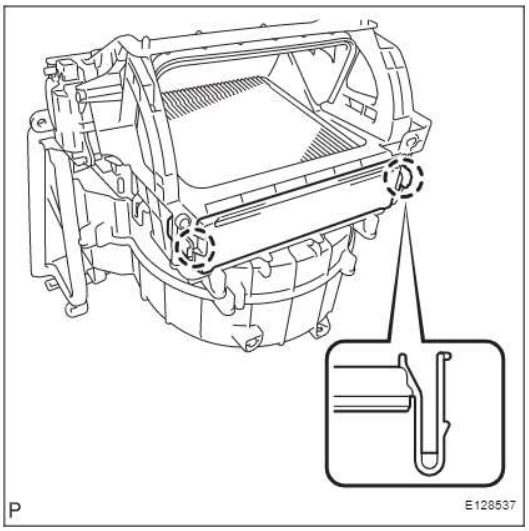


DISASSEMBLY

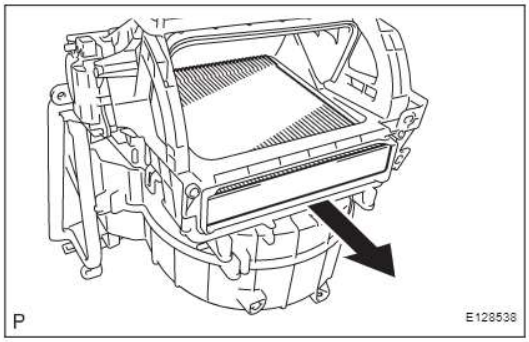
1. **REMOVE AIR DUCT SUB-ASSEMBLY**
    (a) Release the 4 claws and remove the air duct sub-assembly.



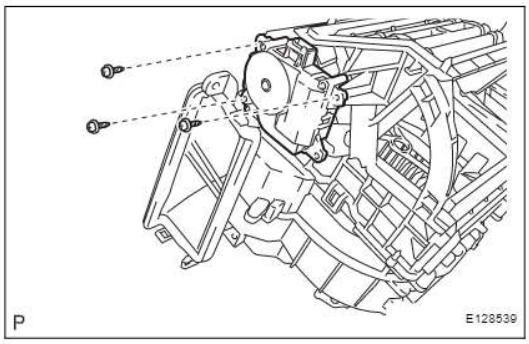
2. **REMOVE AIR FILTER COVER PLATE**
    (a) Release the 2 claws and remove the air filter cover plate.



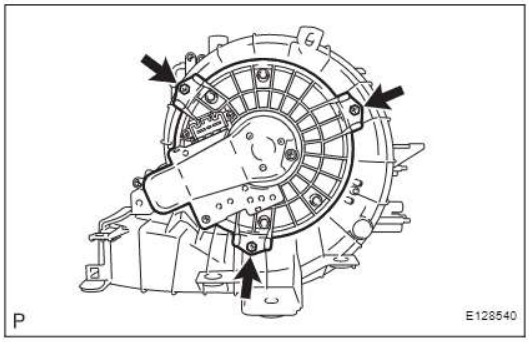
AC



3. **REMOVE CLEAN AIR FILTER**
   (a) Remove the clean air filter as shown in the illustration.

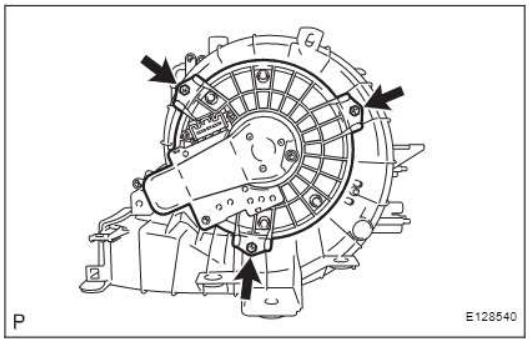


4. **REMOVE AIR INLET SERVO MOTOR**
   (a) Remove the 3 screws and air inlet servo motor.

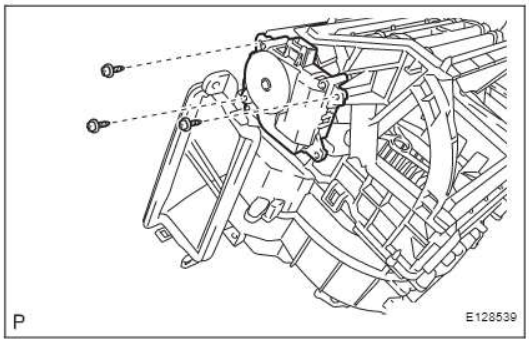


5. **REMOVE BLOWER WITH FAN MOTOR SUB-ASSEMBLY**
   (a) Remove the 3 screws and blower with fan motor sub-assembly.

REASSEMBLY

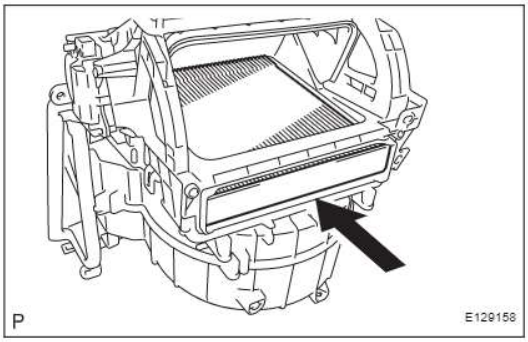


1. **INSTALL BLOWER WITH FAN MOTOR SUB-ASSEMBLY**
   (a) Install the blower with fan motor sub-assembly with the 3 screws.



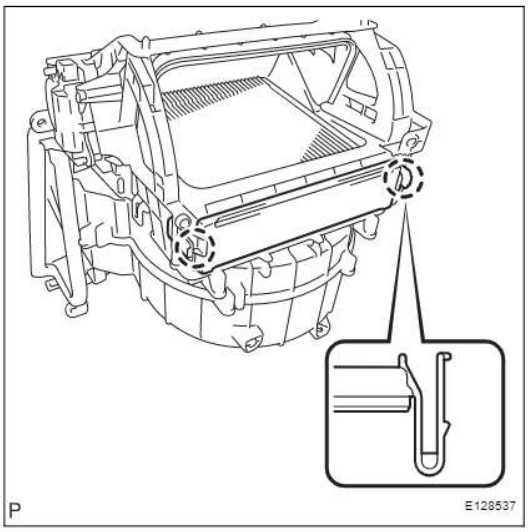
2. **INSTALL AIR INLET SERVO MOTOR**
   (a) Install the air inlet servo motor with the 3 screws.

AC



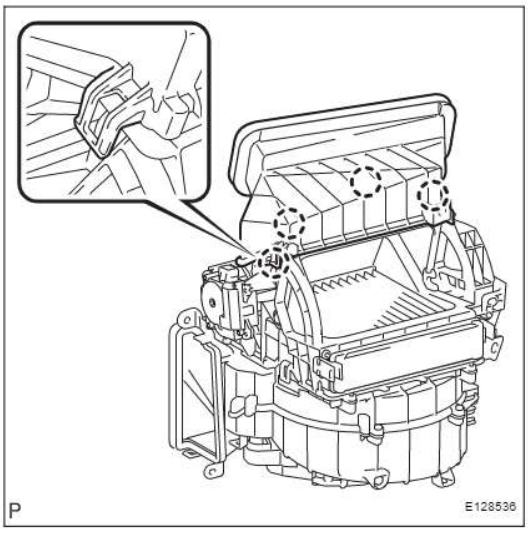
3. INSTALL CLEAN AIR FILTER

(a) Install the clean air filter as shown in the illustration.



4. INSTALL AIR FILTER COVER PLATE

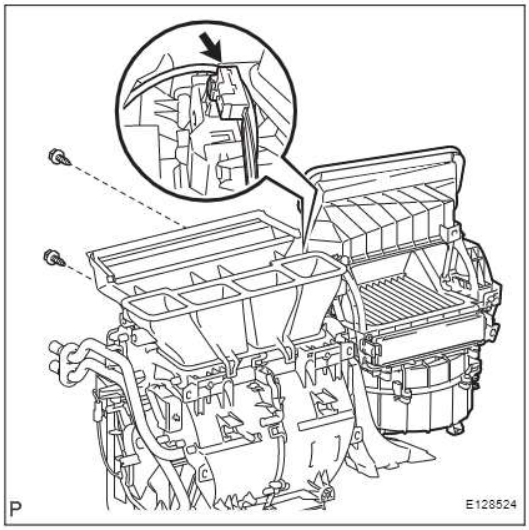
(a) Engage the 2 claws to install the air filter cover plate.



5. INSTALL AIR DUCT SUB-ASSEMBLY

(a) Engage the 4 claws to install the air duct sub-assembly.

AC



INSTALLATION

1. INSTALL BLOWER ASSEMBLY
   (a) Install the blower assembly with the 2 screws.
   (b) Connect the connector.
2. INSTALL INSTRUMENT PANEL REINFORCEMENT ASSEMBLY (See page AC-200)
3. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY (See page AC-269)
4. INSTALL STEERING COLUMN ASSEMBLY (See page SR-40)
5. CONNECT STEERING INTERMEDIATE SHAFT ASSEMBLY (See page SR-40)
6. INSTALL NO. 1 AIR DUCT (See page SR-41)
7. INSTALL REAR NO. 1 AIR DUCT (See page AC-203)
8. INSTALL REAR NO. 2 AIR DUCT (See page AC-204)
9. INSTALL FLOOR CARPET BRACKET RH
10. INSTALL FLOOR CARPET BRACKET LH
11. INSTALL NO. 1 CONSOLE BOX DUCT (See page AC-204)
12. INSTALL INSTRUMENT PANEL SAFETY PAD ASSEMBLY (See page IP-25)
13. CONNECT INSTRUMENT PANEL WIRE ASSEMBLY
14. INSTALL NO. 1 DEFROSTER NOZZLE GARNISH (See page IP-28)
15. INSTALL FRONT NO. 2 SPEAKER ASSEMBLY (for LH Side) (See page AV-146)
16. INSTALL INSTRUMENT PANEL NO. 1 SPEAKER PANEL SUB-ASSEMBLY (See page IP-28)
17. INSTALL INSTRUMENT PANEL NO. 1 REGISTER ASSEMBLY (See page IP-28)
18. INSTALL FRONT PILLAR GARNISH LH (See page IR-38)
19. INSTALL FRONT NO. 2 SPEAKER ASSEMBLY (for RH Side) (See page IP-28)
20. INSTALL INSTRUMENT PANEL NO. 2 SPEAKER PANEL SUB-ASSEMBLY (See page IP-28)
21. INSTALL INSTRUMENT PANEL NO. 3 REGISTER ASSEMBLY (See page IP-29)
22. INSTALL FRONT PILLAR GARNISH RH (See page IR-39)
23. INSTALL NO. 1 CONSOLE BOX INSERT FRONT (See page IP-29)

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24. INSTALL NO. 2 CONSOLE BOX INSERT FRONT (See page IP-30)
25. INSTALL CONSOLE BOX ASSEMBLY (See page IP-30)
26. INSTALL CONSOLE BOX CARPET (See page IP-30)
27. INSTALL CONSOLE BOX POCKET (See page IP-30)
28. INSTALL RADIO RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/o Navigation System) (See page AV-137)
29. INSTALL NAVIGATION RECEIVER WITH HEATER CONTROL PANEL ASSEMBLY (w/ Navigation System) (See page NS-194)
30. INSTALL INSTRUMENT PANEL NO. 2 REGISTER ASSEMBLY (See page IP-31)
31. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY (See page IP-31)
32. INSTALL UPPER CONSOLE REAR PANEL SUB-ASSEMBLY (See page IP-31)
33. INSTALL FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY (See page IP-31)
34. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-32)
35. INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH (See page IP-32)
36. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (See page IP-32)
37. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-33)
38. INSTALL INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY (See page IP-33)
39. INSTALL COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-42)
40. INSTALL FRONT DOOR SCUFF PLATE RH (See page IR-42)
41. INSTALL COMBINATION METER ASSEMBLY (See page IP-33)
42. INSTALL INSTRUMENT CLUSTER FINISH PANEL (See page IP-34)
43. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL (See page IP-34)
44. INSTALL NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-34)
45. INSTALL TURN SIGNAL SWITCH ASSEMBLY WITH SPIRAL CABLE SUB-ASSEMBLY

AC

46. ADJUST SPIRAL CABLE SUB-ASSEMBLY (See page RS-360)
47. INSTALL STEERING COLUMN COVER (See page IP-35)
48. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-35)
49. INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-41)
50. INSTALL FRONT DOOR SCUFF PLATE LH (See page IR-41)
51. INSTALL STEERING WHEEL ASSEMBLY (See page SR-42)
52. INSTALL STEERING PAD (See page RS-346)
53. INSTALL LOWER NO. 3 STEERING WHEEL COVER (See page RS-347)
54. INSTALL LOWER NO. 2 STEERING WHEEL COVER (See page RS-347)
55. INSTALL HEATER INLET WATER HOSE (See page AC-206)
56. INSTALL HEATER OUTLET WATER HOSE (See page AC-206)
57. INSTALL AIR CONDITIONER TUBE AND ACCESSORY (See page AC-206)
58. INSTALL SUCTION HOSE SUB-ASSEMBLY (See page AC-206)
59. INSTALL COWL TOP PANEL OUTER SUB-ASSEMBLY (See page ES-405)
60. INSTALL WINDSHIELD WIPER MOTOR AND LINK (See page WW-13)
61. INSTALL COWL TOP VENTILATOR LOUVER SUB-ASSEMBLY (See page WW-14)
62. INSTALL FRONT FENDER TO COWL SIDE SEAL LH (See page WW-14)
63. INSTALL FRONT FENDER TO COWL SIDE SEAL RH (See page WW-14)
64. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY LH (See page WW-14)
65. INSTALL FRONT WIPER ARM AND BLADE ASSEMBLY RH (See page WW-15)
66. INSTALL BRAKE MASTER CYLINDER RESERVOIR SUB-ASSEMBLY (See page BR-33)
67. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
68. INSPECT STEERING PAD (See page RS-347)

AC

69. **INSPECT SRS WARNING LIGHT**
(See page RS-33)

70. **PERFORM INITIALIZATION**
NOTICE:
Some systems need initialization after reconnecting the negative battery terminal (See page IN-43).

71. **ADD ENGINE COOLANT (See page CO-5)**

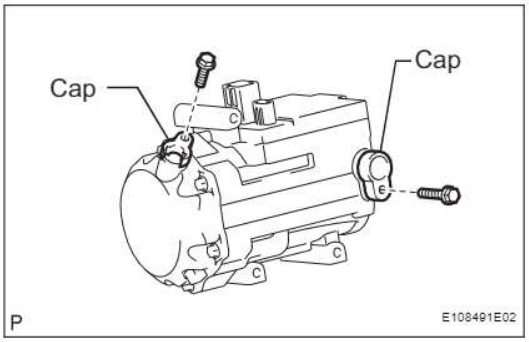
72. **INSPECT FOR COOLANT LEAK**

73. **CHARGE WITH REFRIGERANT (See page AC-169)**

74. **WARM UP COMPRESSOR (See page AC-169)**

75. **INSPECT FOR REFRIGERANT LEAK (See page AC-171)**

AC



INSTALLATION

1. ADJUST COMPRESSOR OIL

(a) When replacing the electric inverter compressor with a new one, gradually discharge the inert gas (helium) from the cap, and drain the following amount of oil from the new electric inverter compressor before installation.

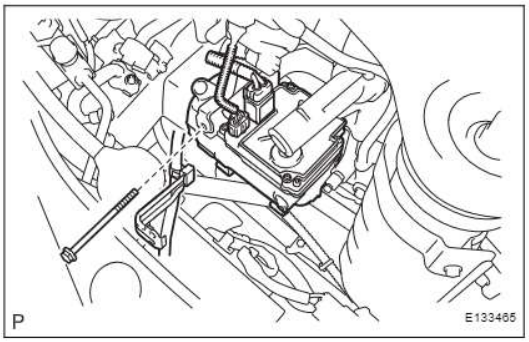
Standard:

(Oil capacity inside the new electric inverter compressor: 120 to 135 cc (4.1 to 4.6 fl.oz.)) - (Remaining oil amount in the removed electric inverter compressor) = (Oil amount to be removed from the new compressor when replacing)

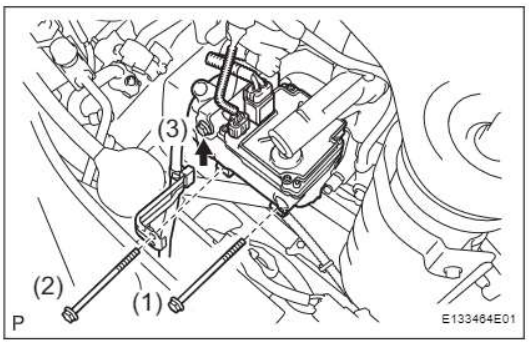
NOTICE:

- **When checking the compressor oil level, observe the precautions on the cooler removal/installation.**
- **If a new electric inverter compressor is installed without removing some oil, due to the oil remaining in the pipes of the vehicle, the oil amount will be too large. This prevents heat exchange in the refrigerant cycle and causes refrigerant failure.**
- **If the volume of oil remaining in the removed electric inverter compressor is too small, inspect for an oil leak.**
- **Be sure to use ND-OIL 11 or equivalent for compressor oil.**

2. INSTALL ELECTRIC INVERTER COMPRESSOR



(a) Temporarily install the electric inverter compressor with the bolt.



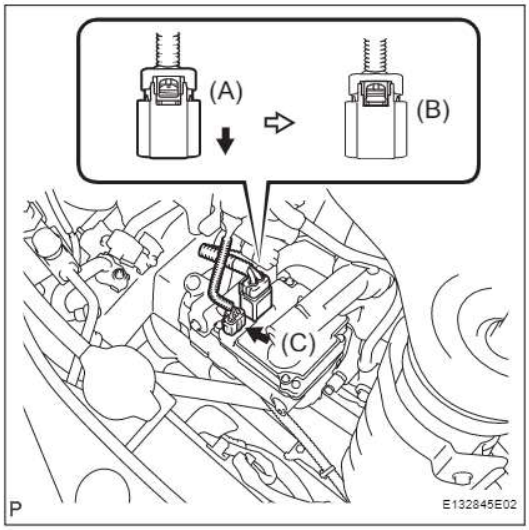
(b) Install the electric inverter compressor with the 3 bolts.

CAUTION:

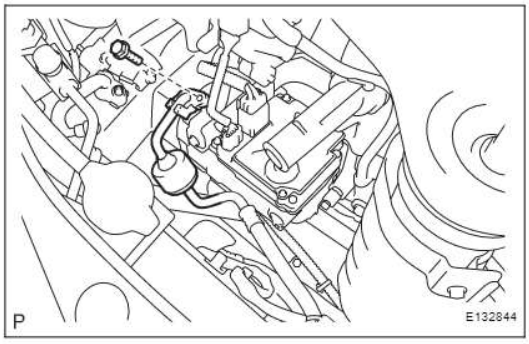
Tighten the bolts in the order indicated in the illustration.

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

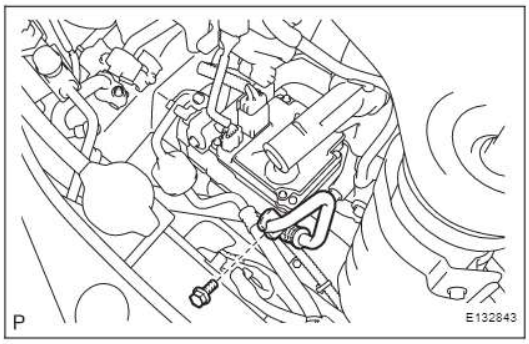
AC



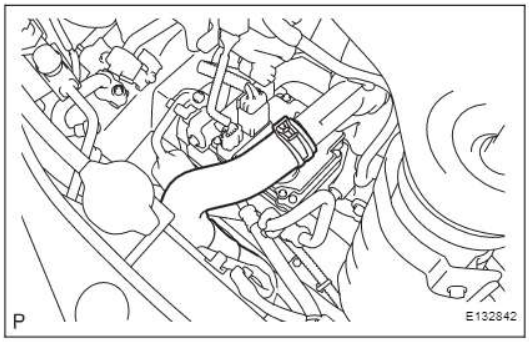
(c) Connect the connector (A).
NOTICE:
Wear insulated gloves when performing this procedure.
(d) Lock the green-colored lock (B).
NOTICE:
Wear insulated gloves when performing this procedure.
(e) Connect the connector (C).



3. INSTALL NO. 1 COOLER REFRIGERANT DISCHARGE HOSE
(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 electric inverter compressor.
Compressor oil:
ND-OIL 11 or equivalent
(c) Install the O-ring onto the No. 1 cooler refrigerant discharge hose.
(d) Install the No. 1 cooler refrigerant discharge hose onto the electric inverter compressor with the bolt.
Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)



4. INSTALL NO. 1 COOLER REFRIGERANT SUCTION HOSE
(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 electric inverter compressor.
Compressor oil:
ND-OIL 11 or equivalent
(c) Install the O-ring onto the No. 1 cooler refrigerant suction hose.
(d) Install the No. 1 cooler refrigerant suction hose onto the electric inverter compressor with the bolt.
Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)



5. INSTALL RADIATOR HOSE OUTLET
(a) Install the radiator hose outlet and attach the clip.

6. INSTALL SERVICE PLUG GRIP (See page HB-97)

7. CONNECT NEGATIVE BATTERY TERMINAL

8. ADD ENGINE COOLANT (See page CO-5)

9. INSPECT FOR COOLANT LEAK

10. CHARGE WITH REFRIGERANT (See page AC-169)

11. WARM UP COMPRESSOR (See page AC-171)

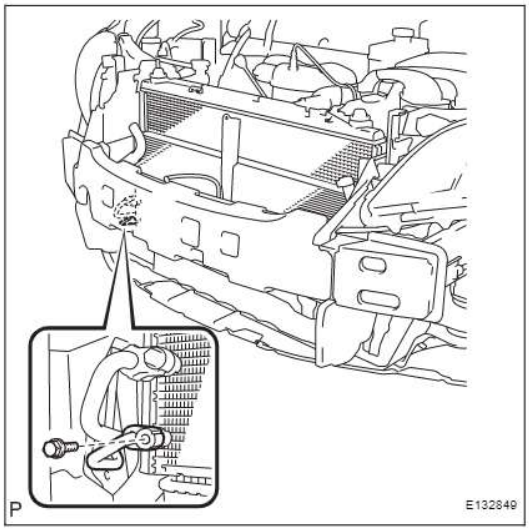
AC

12. **INSPECT FOR REFRIGERANT LEAK (See page AC-171)**

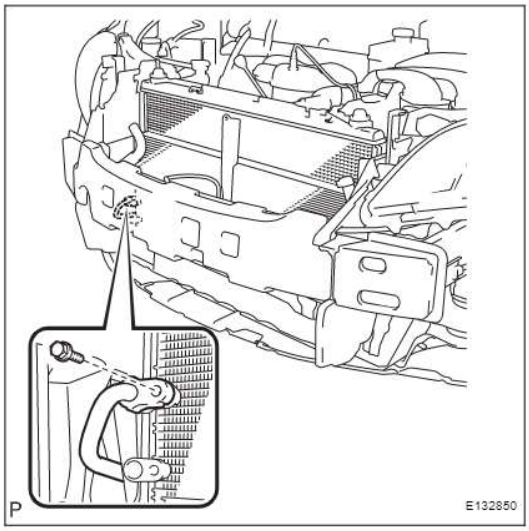
13. **PERFORM INITIALIZATION**
    (a) Perform initialization procedure (See page IN-43).
    HINT:
    Some vehicle systems require initialization after reconnecting the cable to the negative battery terminal.

REMOVAL

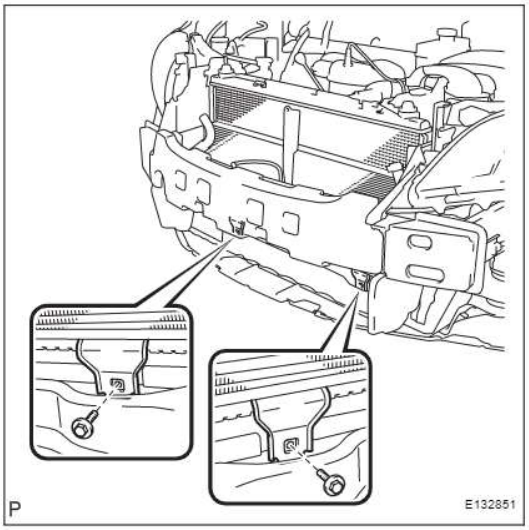
1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM (See page AC-169)
2. DRAIN COOLANT (for Inverter) (See page HV-556)
3. REMOVE AIR CLEANER INLET ASSEMBLY (See page EM-90)
4. REMOVE FRONT BUMPER ASSEMBLY (See page ET-3)
5. REMOVE FRONT BUMPER ENERGY ABSORBER (See page ET-6)
6. REMOVE RADIATOR SUPPORT UPPER (See page CO-23)
7. REMOVE RADIATOR ASSEMBLY (See page HV-577)
8. DISCONNECT LIQUID TUBE SUB-ASSEMBLY
   (a) Remove the bolt and disconnect the liquid tube sub-assembly from the condenser.
   (b) Remove the O-ring from the liquid tube sub-assembly.
   NOTICE:
   Seal the openings of the disconnected parts using vinyl tape to prevent entry of moisture and foreign matter.



9. DISCONNECT COOLER REFRIGERANT DISCHARGE PIPE
   (a) Remove the bolt and disconnect the cooler refrigerant discharge pipe from the condenser.
   (b) Remove the O-ring from the cooler refrigerant discharge pipe.
   NOTICE:
   Seal the openings of the disconnected parts using vinyl tape to prevent entry of moisture and foreign matter.

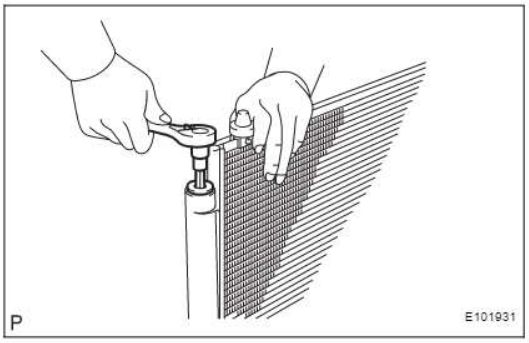


AC



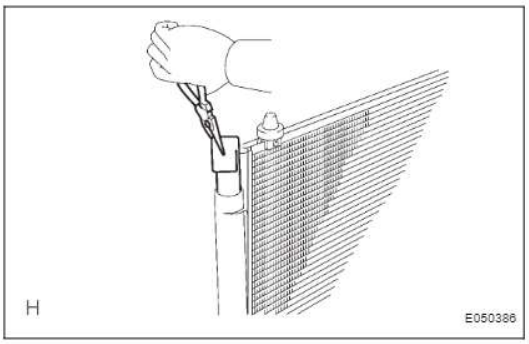
10. REMOVE COOLER CONDENSER ASSEMBLY

(a) Remove the 2 bolts and condenser.

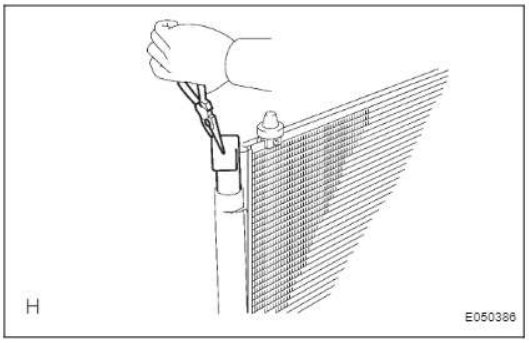


11. REMOVE COOLER DRYER

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



(b) Using pliers, remove the cooler dryer.

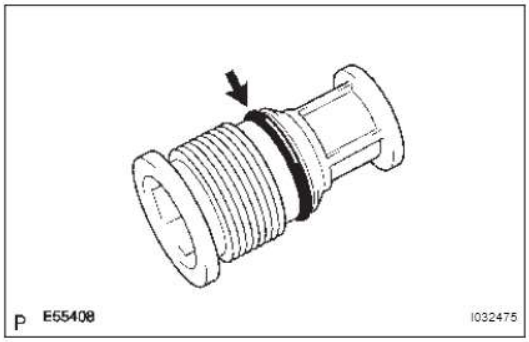


INSTALLATION

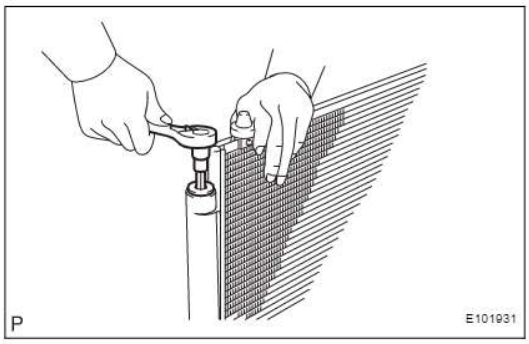
1. INSTALL COOLER DRYER

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

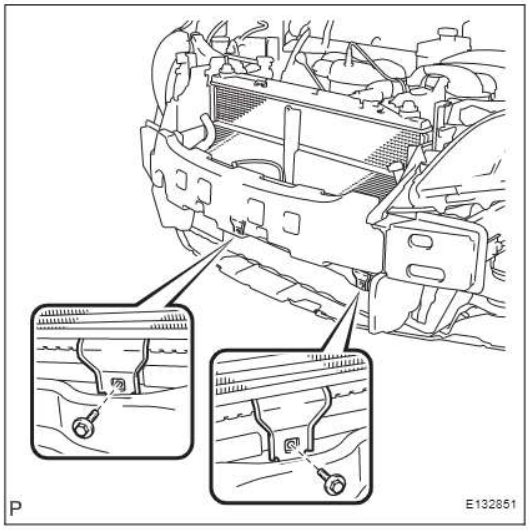
AC



(b) Apply sufficient compressor oil to an O-ring and cap fitting surface.
Compressor oil:
ND-OIL 11 or equivalent

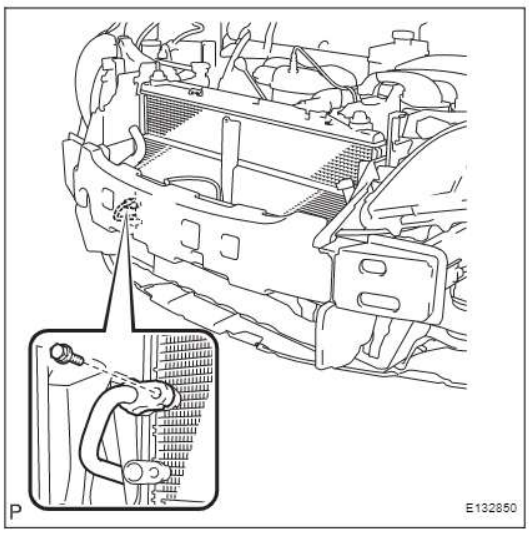


(c) Using a 14 mm straight hexagon wrench, install the cap to the cooler condenser core.
Torque: 2.9 N*m (30 kgf*cm, 26 in.*lbf)



2. INSTALL COOLER CONDENSER ASSEMBLY

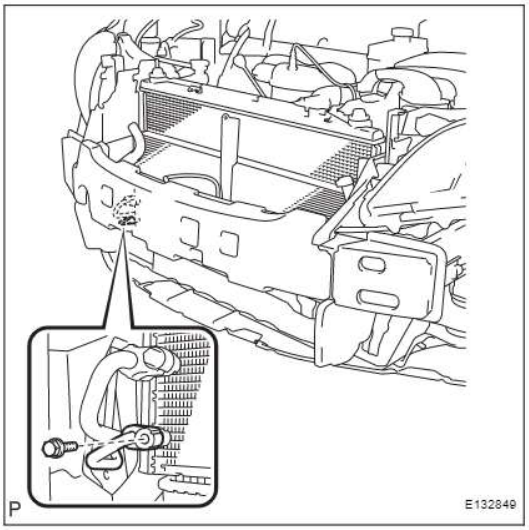
(a) Install the cooler condenser assembly with the 2 bolts.
Torque: 5.0 N*m (51 kgf*cm, 44 in.*lbf)
HINT:
If the condenser is replaced with a new one, add compressor oil to the new condenser.
Capacity:
40 cc (1.4 fl. oz.)
Compressor oil:
ND-OIL 11 or equivalent



3. INSTALL COOLER REFRIGERANT DISCHARGE PIPE

(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 11 or equivalent
(c) Install the O-ring on the cooler refrigerant discharge pipe.
Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)

AC



4. **INSTALL LIQUID TUBE SUB-ASSEMBLY**
   (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 11 or equivalent
   (c) Install the O-ring on the liquid tube sub-assembly.
   (d) Install the liquid tube sub-assembly on the cooler condenser assembly with the bolt.
   Torque: 9.8 N*m (100 kgf*cm, 87 in.*lbf)
5. **INSTALL RADIATOR ASSEMBLY (See page HV-577)**
6. **INSTALL RADIATOR SUPPORT UPPER (See page CO-29)**
7. **INSTALL AIR CLEANER INLET ASSEMBLY (See page EM-113)**
8. **ADD COOLANT (for Inverter) (See page HV-556)**
9. **INSPECT FOR COOLANT LEAK (for Inverter) (See page HV-555)**
10. **CHARGE WITH REFRIGERANT (See page AC-169)**
11. **WARM UP ENGINE (See page AC-171)**
12. **INSPECT FOR REFRIGERANT LEAK (See page AC-171)**
13. **INSTALL FRONT BUMPER ENERGY ABSORBER (See page ET-7)**
14. **INSTALL FRONT BUMPER ASSEMBLY (See page ET-9)**

AC

AIR CONDITIONING SYSTEM

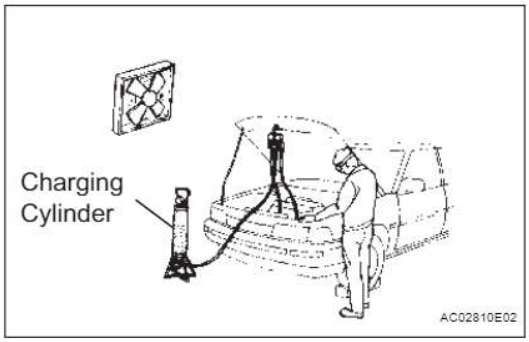
PRECAUTION

NOTICE:

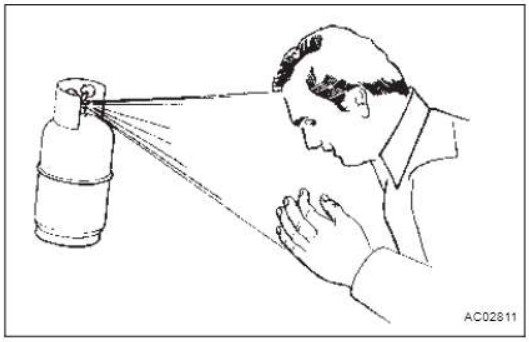
Because the compressor operates at high voltages, wear electric insulated gloves and pull out the service plug grip to cut the high-voltage circuit before inspection.

HINT:

When the power switch on (IG) after the 12 volt battery is reconnected, the indicator light on the switch may flash and a motor sound may be heard. This does not indicate a malfunction.



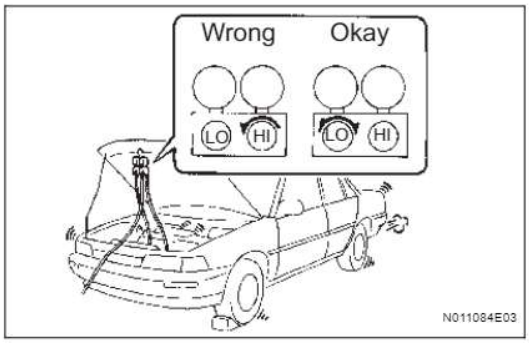
1. **DO NOT HANDLE REFRIGERANT IN AN ENCLOSED AREA OR NEAR AN OPEN FLAME**
2. **ALWAYS WEAR EYE PROTECTION**



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

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

   (a) Wash the area with lots of cold water.
   CAUTION:
   Do not rub your eyes or skin.
   (b) Apply clean petroleum jelly to the skin.
   (c) Go immediately to a hospital or see a physician for professional treatment.
4. **NEVER HEAT CONTAINER OR EXPOSE IT TO OPEN FLAME**
5. **BE CAREFUL NOT TO DROP CONTAINER OR APPLY PHYSICAL SHOCKS TO IT**



6. **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.
7. **DO NOT OPEN HIGH PRESSURE MANIFOLD VALVE WHILE COMPRESSOR IS OPERATING**

   Open and close only the low pressure valve. If the high pressure valve is opened, refrigerant flows in the reverse direction causing the charging cylinder to rupture.
8. **BE CAREFUL NOT TO OVERCHARGE SYSTEM WITH REFRIGERANT**

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

AC

9. NOTICE FOR HYBRID SYSTEM ACTIVATION

When the warning light is illuminated or the HV battery has been disconnected and reconnected, turning the power switch on (READY) may not start the system on the first try. If so, turn the power switch off and reattempt to turn the power switch on (READY).

10. PRECAUTIONS TO BE OBSERVED WHILE SERVICING

NOTICE:

- **Only use ND-OIL11 for the electric inverter compressor of the air conditioning system. Using other A/C oils may be dangerous, as they may conduct electricity.**
- **Electrical insulation performance may decrease significantly if even a small amount of oil other than ND-OIL11 is used (or enters) in the refrigeration cycle, causing a DTC to be output.**
- **If other oil is accidentally used and a DTC is output, collect the compressor oil in the compressor and replace it with ND-OIL11 to increase the ND-OIL11 ratio amount.**
- **Replace the main components (evaporator, condenser, and compressor) if a large amount of oil other than ND-OIL11 enters the system. Failing to do so may cause electrical insulation performance to remain low, causing a DTC to be output.**

CAUTION:

Always use electric insulating gloves and remove the service plug grip before beginning inspection, as inspection of the air conditioning system requires disconnecting high voltage connectors. (See page AC-88)

11. SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

(a) This vehicle is equipped with an SRS (Supplemental Restraint System) such as the driver, front passenger, side, and curtain shield airbags. Failure to carry out service operation in the correct sequence could cause the SRS to unexpectedly deploy during servicing, possibly leading to a serious accident. Before servicing (including removal or installation of parts, inspection or replacement), be sure to read the precautionary notices (See page RS-1).

12. NOTICE FOR INITIALIZATION

NOTICE:

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

System Name	See procedure
SFI System	(See page IN-43)

AC

13. 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.

REFRIGERANT

ON-VEHICLE INSPECTION

1. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

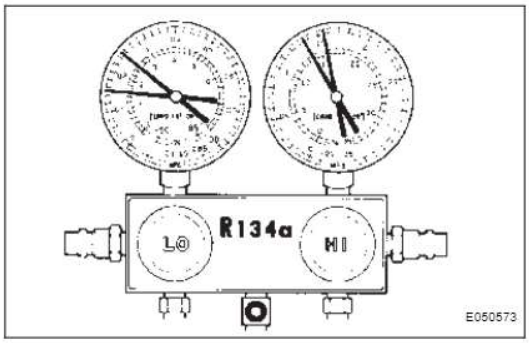
HINT:

This is a method where a manifold gauge set is used to help locate the problem.

(a) Read the manifold gauge pressure when these 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 1,500 rpm.
- Blower speed control switch is at "HI".
- Temperature control dial is at "COOL".
- A/C switch is ON.
- Doors are fully open.
- Engine switch is in a position that enables the AC compressor to run.



(1) Normally functioning refrigeration system.

Gauge reading:

Low pressure side:

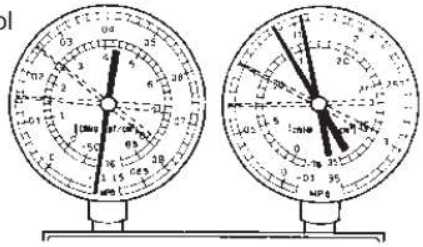
0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm^2, 21.3 to 35.5 psi)

High pressure side:

1.37 to 1.57 MPa (14 to 16 kgf/cm^2, 199.1 to 227.5 psi)

(2) Moisture is present in refrigeration system.

Condition:
Periodically cools and then fails to cool

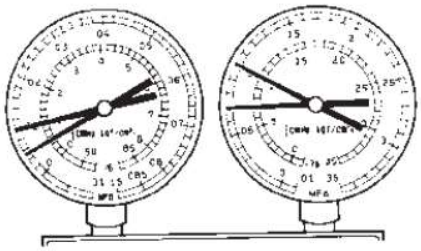


Symptom	Probable Cause	Diagnosis	Corrective Actions
During operation, pressure on low pressure side cycles between normal and vacuum	Moisture in the AC system will freeze at the expansion valve orifice, causing the refrigeration cycle to temporarily stop After the system stops, and warms up again, the ice will melt and normal operation will be temporarily restored	• Cooler dryer (integrated into condenser tank) in oversaturated state • Moisture in refrigeration system freezes at expansion valve orifice and blocks circulation of refrigerant	1. Replace cooler dryer 2. Remove moisture in system by repeatedly evacuating air 3. Supply a proper amount of new refrigerant

AC

(3) Insufficient cooling

Condition: Cooling system does not function effectively.

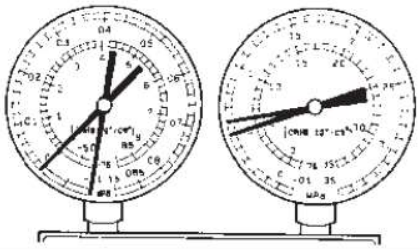


I022118E15

Symptom	Probable Cause	Diagnosis	Corrective Actions
• Pressure is low on both low and high pressure sides • Bubbles are seen through sight glass continuously • Insufficient cooling performance	Gas leakage from the refrigeration system	• Insufficient refrigerant • Refrigerant leaking	1. Check for gas leakage 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

Condition: Cooling system does not function effectively.

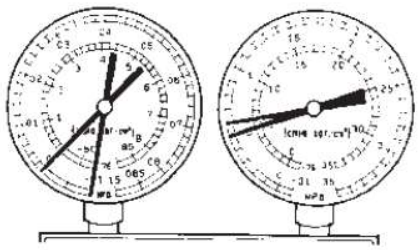


I022119E16

Symptom	Probable Cause	Diagnosis	Corrective Actions
• 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 condenser

(5) Refrigerant does not circulate.

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



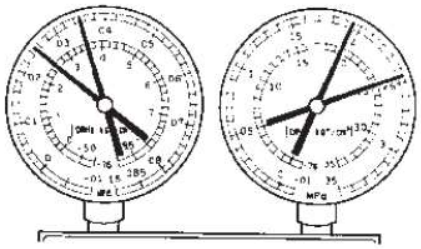
I022120E14

AC

Symptom	Probable Cause	Diagnosis	Corrective Actions
• Vacuum is indicated on low pressure side and very low pressure is indicated on high pressure side • Frost or condensation is seen on piping on both sides of receiver/drier or expansion valve	• Refrigerant flow is obstructed by moisture or dirt in refrigeration system • Refrigerant flow is disrupted by gas leaking internally through the expansion valve	Refrigerant does not circulate	1. Check the expansion valve 2. Replace expansion valve 3. Replace condenser 4. Evacuate air and supply a proper amount of new refrigerant 5. For internal gas leak at expansion valve, replace expansion valve

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

Condition: Cooling system does not function.



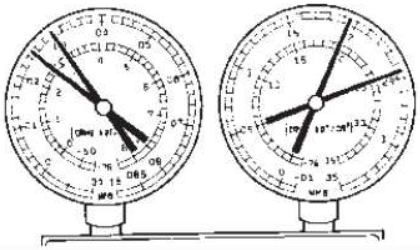
I022121E15

Symptom	Probable Cause	Diagnosis	Corrective Actions
• Pressure is too high on both low and high pressure sides • No air bubbles are seen through sight glass even when engine rpm lowers	• Unable to develop sufficient performance due to excessive use of refrigeration system • Cooling effectiveness of condenser is insufficient	• Excessive refrigerant in cycle → excessive refrigerant was added during recharging • Condenser cooling effectiveness is insufficient → condenser fins are clogged at cooling fan	1. Clean 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 proper amount of refrigerant

(7) Air is present in 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.



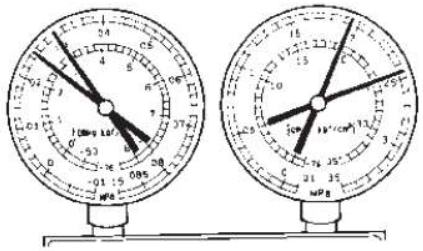
I022122E06

Symptom	Probable Cause	Diagnosis	Corrective Actions
• Pressure is too high on both low and high pressure sides • The low pressure piping is too hot to touch • Bubbles can be seen through sight glass	Air in system	• Air present in 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

AC

(8) Expansion valve malfunction

Condition: Insufficient cooling

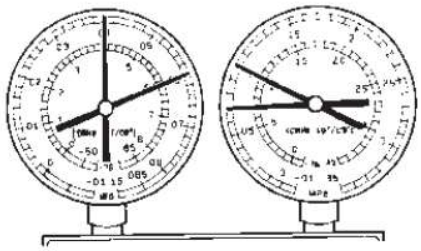


I022123E05

Symptom	Probable Cause	Diagnosis	Corrective Actions
• 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

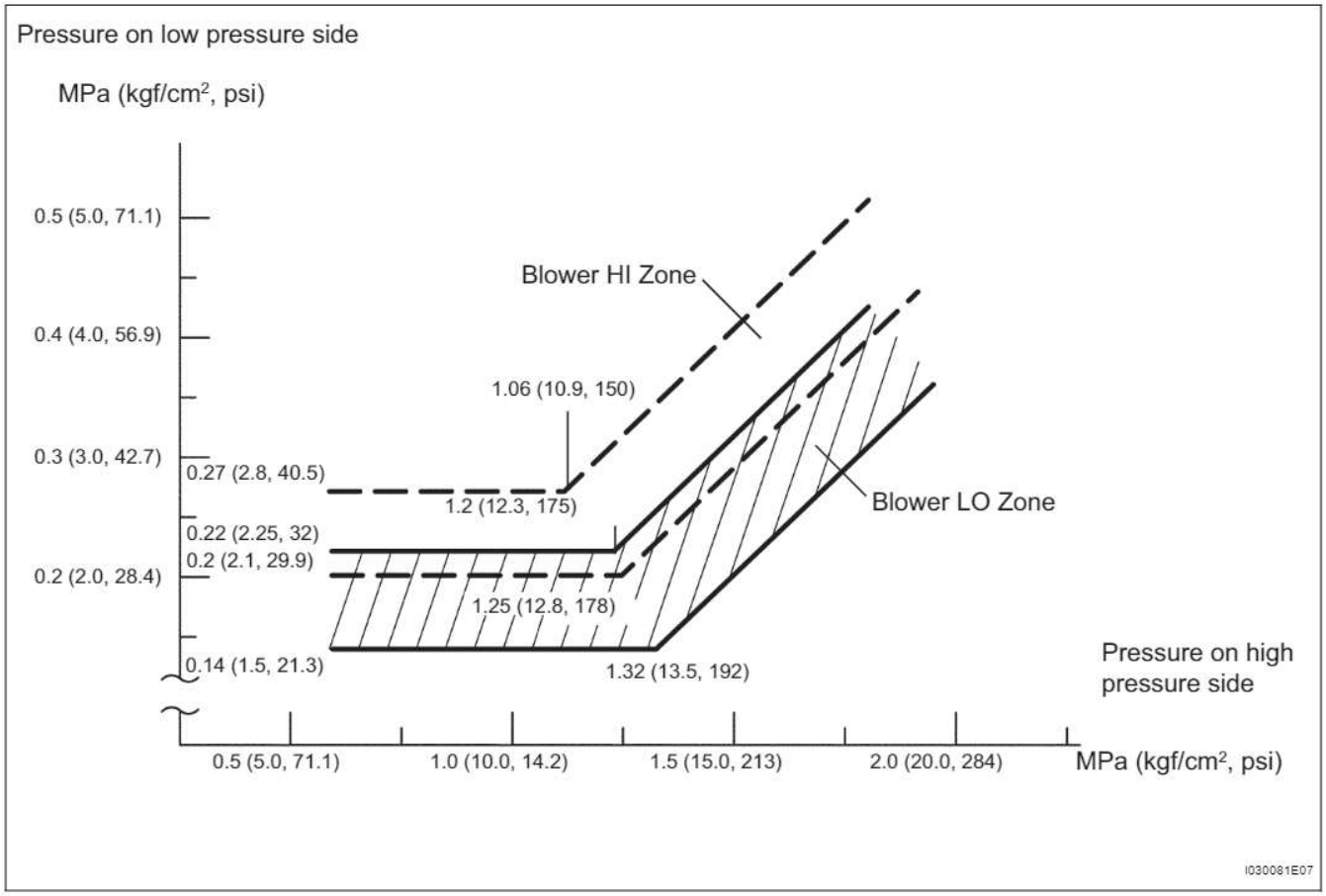


I022124E05

Symptom	Probable Cause	Diagnosis	Corrective Actions
• Pressure is too high both on low and high pressure sides • Pressure is too low on high pressure side	Internal leak in compressor	• Low compression • Leak from a damaged valve, or parts may be broken	Replace compressor

Gauge readings (Reference)

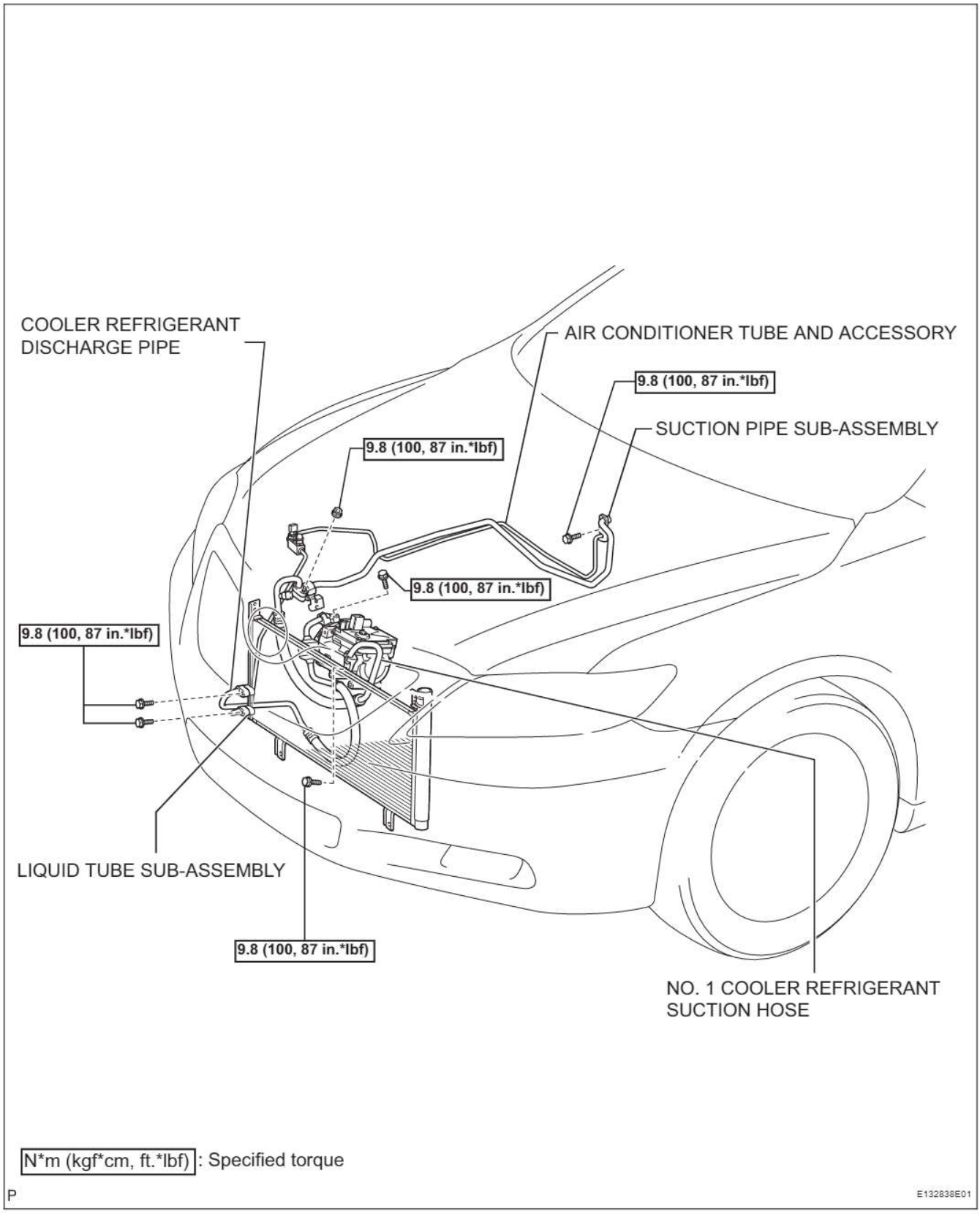
AC


Pressure on low pressure side
MPa (kgf/cm², psi)
0.5 (5.0, 71.1)
0.4 (4.0, 56.9)
0.3 (3.0, 42.7)
0.2 (2.0, 28.4)
Blower HI Zone
1.06 (10.9, 150)
0.27 (2.8, 40.5)
1.2 (12.3, 175)
Blower LO Zone
0.22 (2.25, 32)
0.2 (2.1, 29.9)
1.25 (12.8, 178)
0.14 (1.5, 21.3)
1.32 (13.5, 192)
Pressure on high pressure side
0.5 (5.0, 71.1)
1.0 (10.0, 14.2)
1.5 (15.0, 213)
2.0 (20.0, 284)
MPa (kgf/cm², psi)
I030081E07

AC

REFRIGERANT LINE

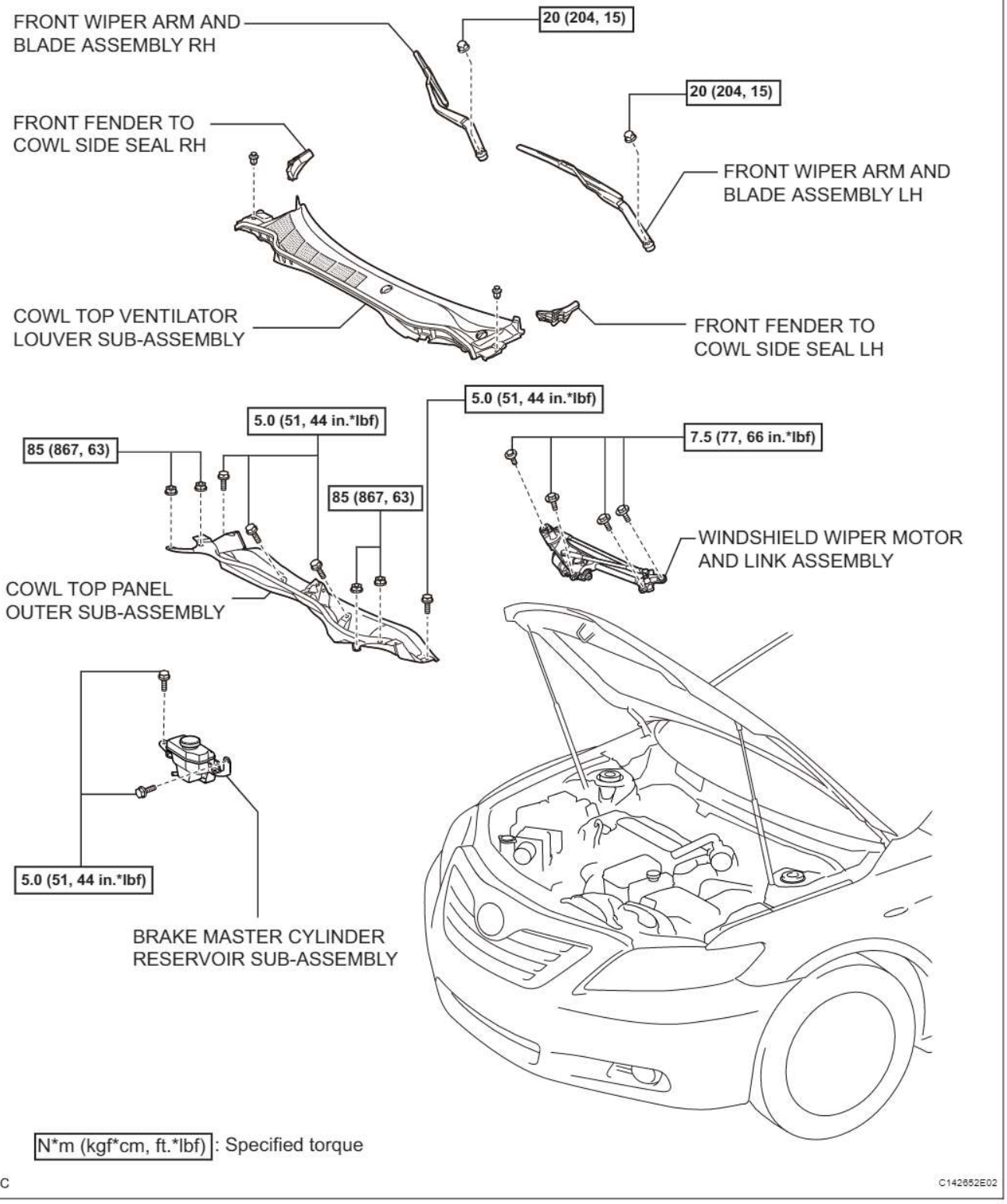
COMPONENTS



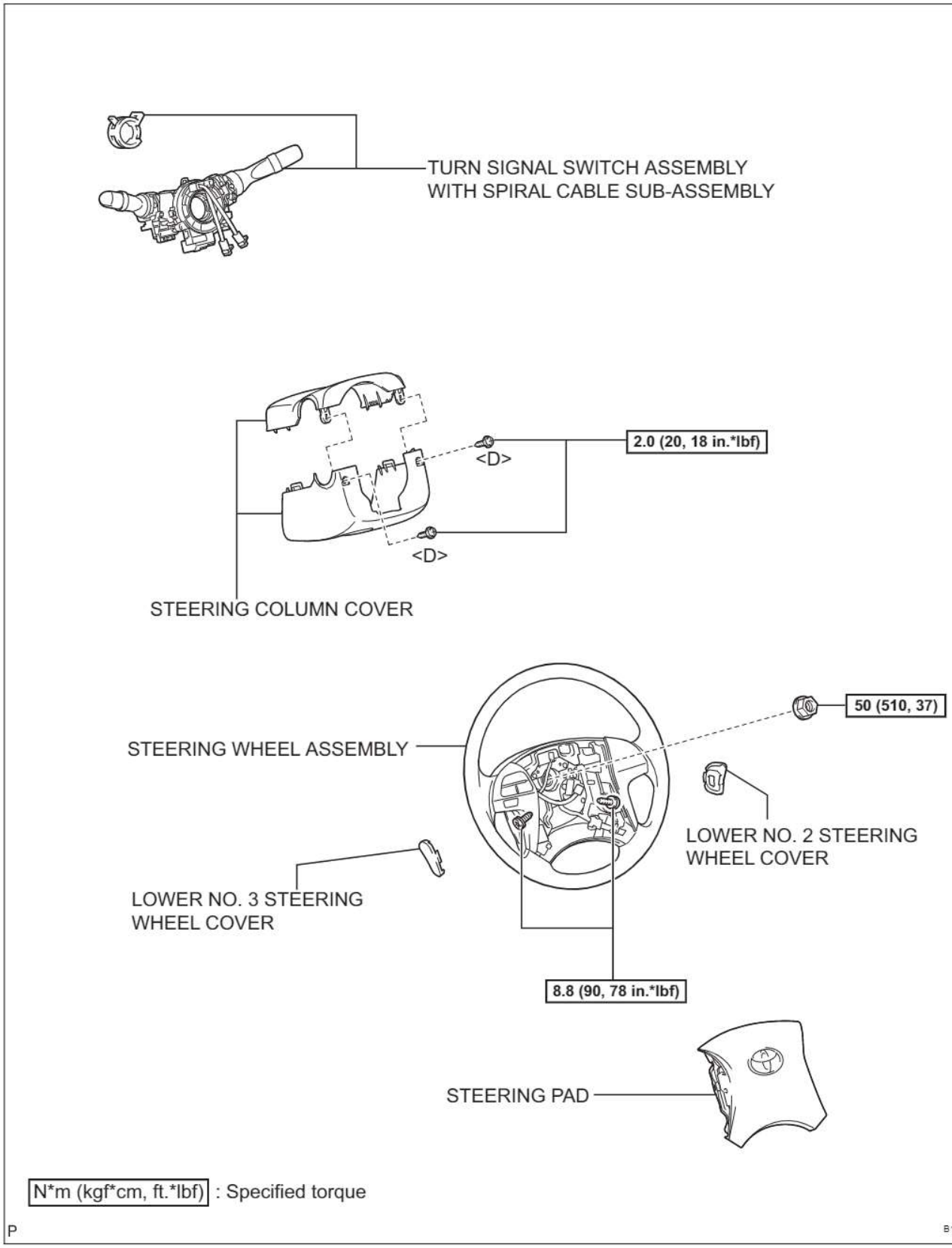
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AIR CONDITIONING UNIT

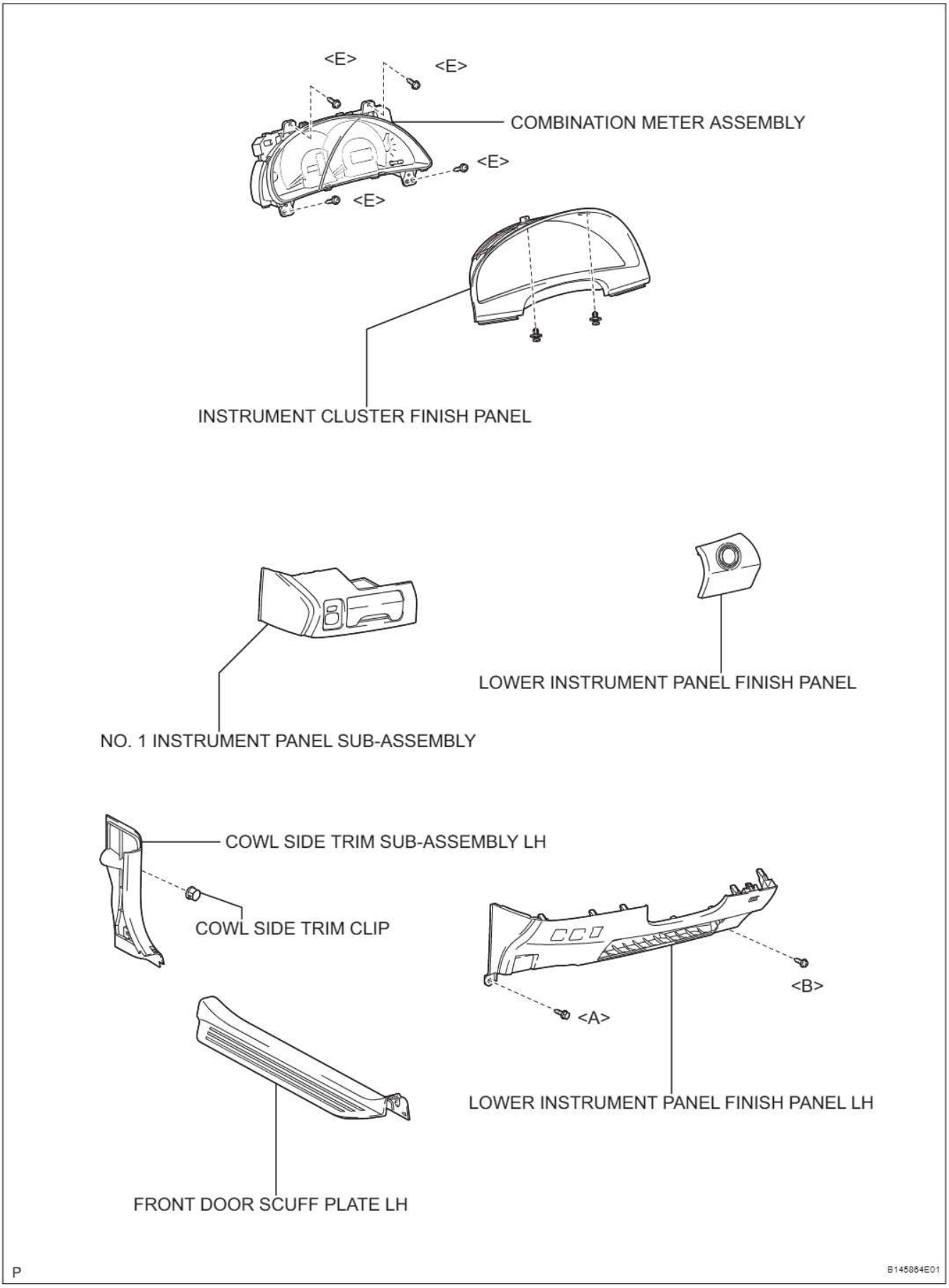
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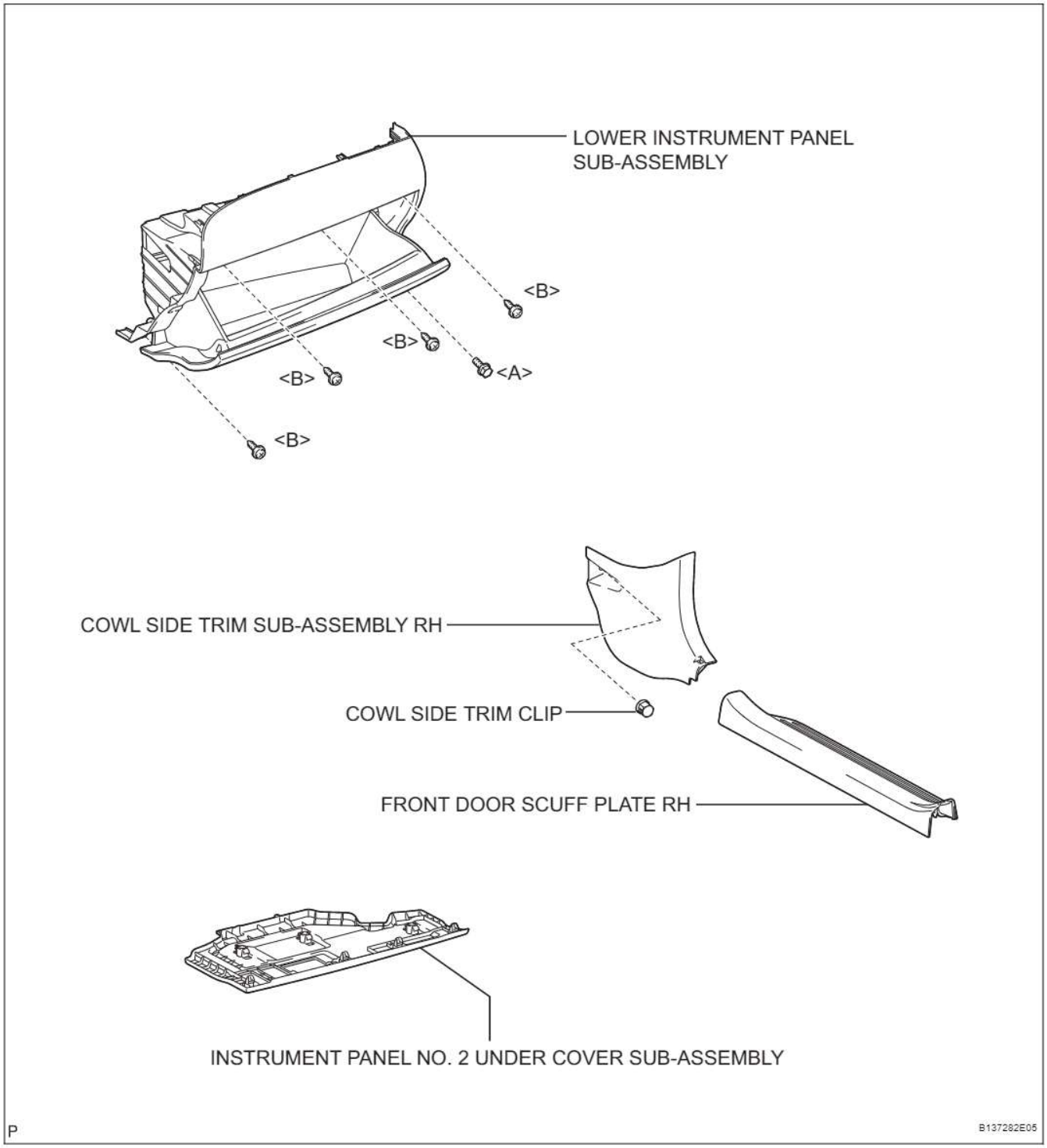
AC


TURN SIGNAL SWITCH ASSEMBLY
WITH SPIRAL CABLE SUB-ASSEMBLY
2.0 (20, 18 in.*lbf)
<D>
<D>
STEERING COLUMN COVER
50 (510, 37)
STEERING WHEEL ASSEMBLY
LOWER NO. 2 STEERING
WHEEL COVER
LOWER NO. 3 STEERING
WHEEL COVER
8.8 (90, 78 in.*lbf)
STEERING PAD
N*m (kgf*cm, ft.*lbf) : Specified torque
P
B137279E04

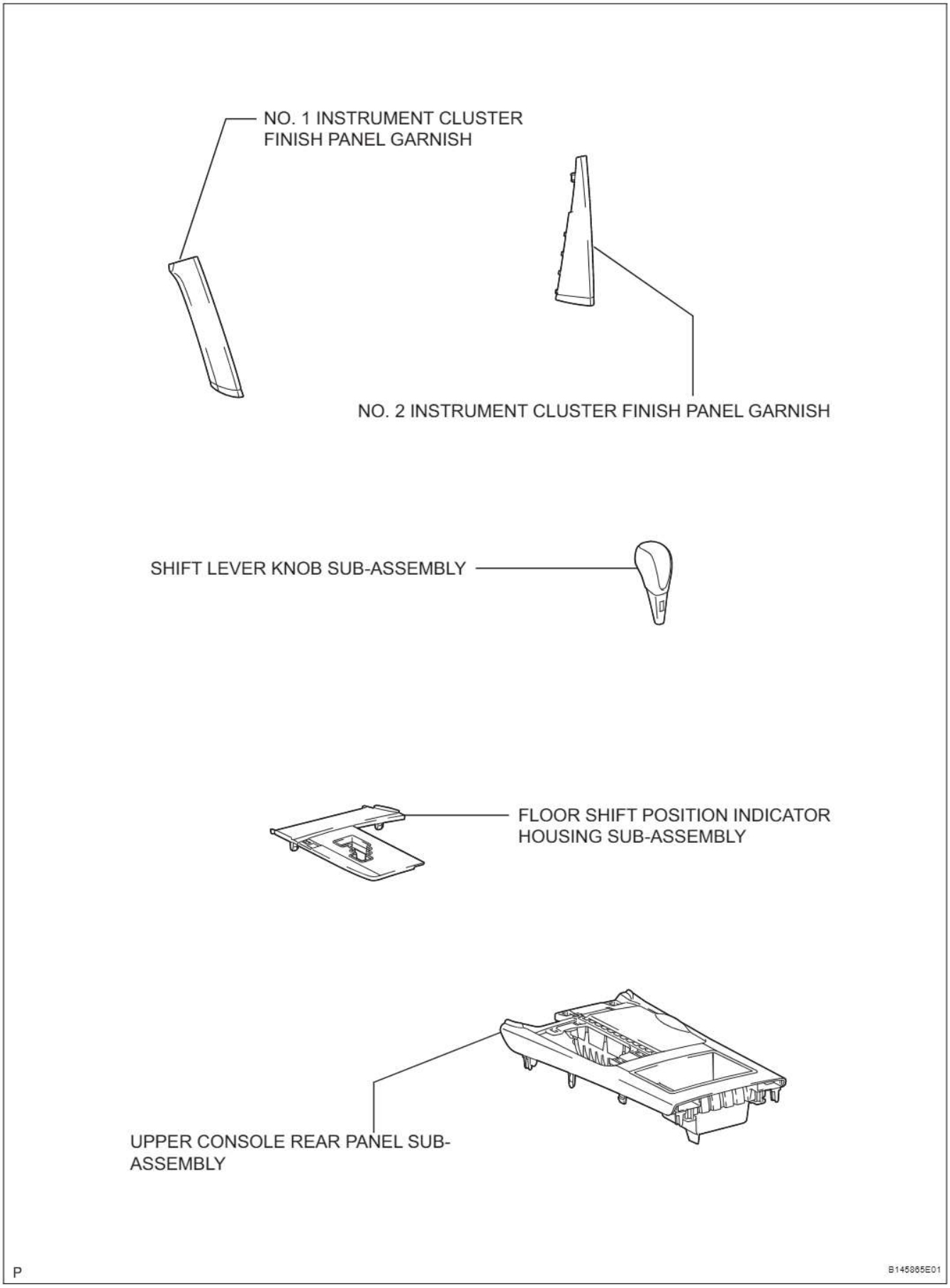
AC


<E>
<E>
COMBINATION METER ASSEMBLY
<E>
<E>
INSTRUMENT CLUSTER FINISH PANEL
LOWER INSTRUMENT PANEL FINISH PANEL
NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY
COWL SIDE TRIM SUB-ASSEMBLY LH
COWL SIDE TRIM CLIP
<B>
<A>
LOWER INSTRUMENT PANEL FINISH PANEL LH
FRONT DOOR SCUFF PLATE LH
P
B145864E01

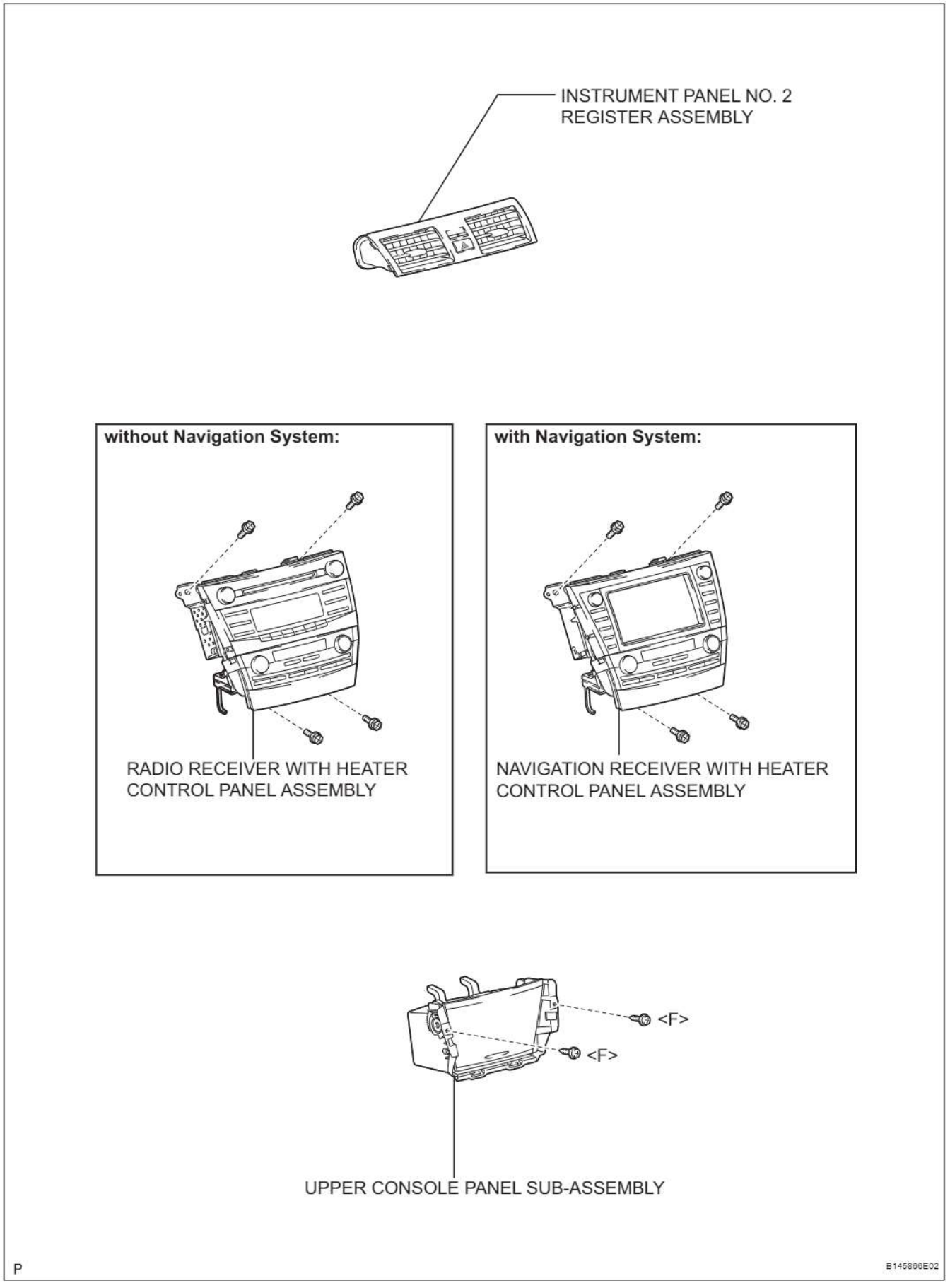
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LOWER INSTRUMENT PANEL SUB-ASSEMBLY
<B>
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COWL SIDE TRIM SUB-ASSEMBLY RH
COWL SIDE TRIM CLIP
FRONT DOOR SCUFF PLATE RH
INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY
P
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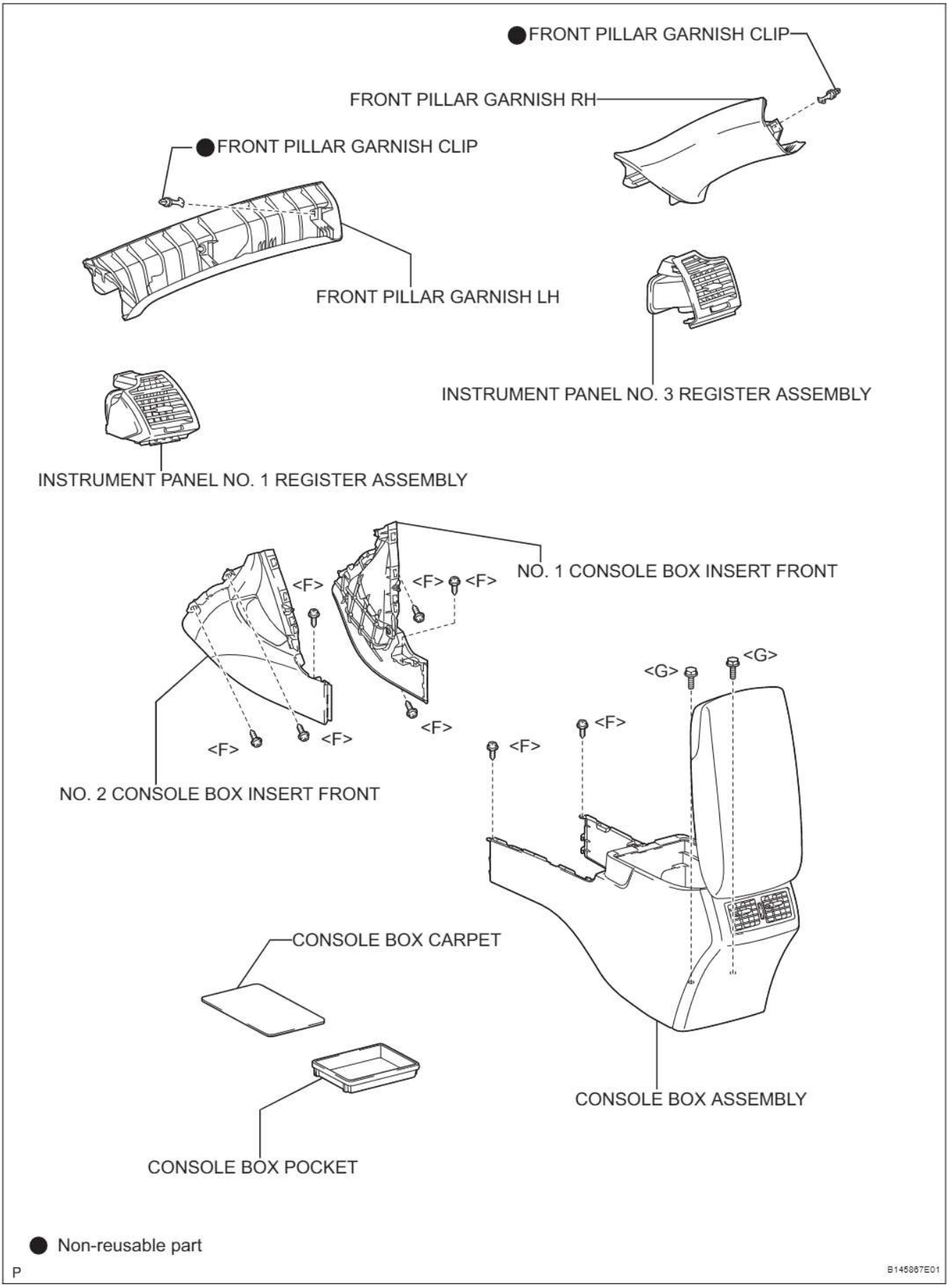
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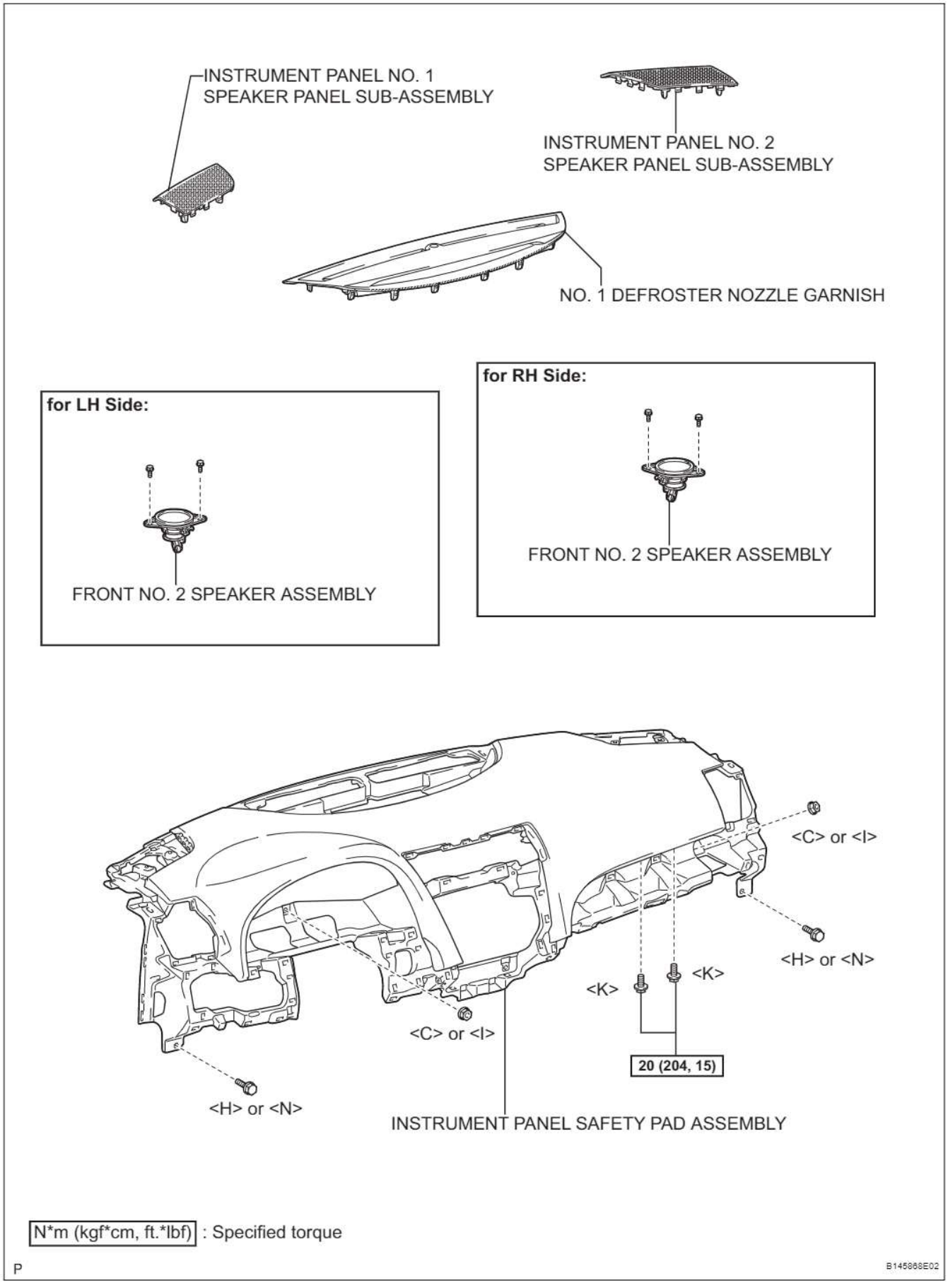

NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH
NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH
SHIFT LEVER KNOB SUB-ASSEMBLY
FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY
UPPER CONSOLE REAR PANEL SUB-ASSEMBLY
P
B145865E01

AC


INSTRUMENT PANEL NO. 2
REGISTER ASSEMBLY
without Navigation System:
RADIO RECEIVER WITH HEATER
CONTROL PANEL ASSEMBLY
with Navigation System:
NAVIGATION RECEIVER WITH HEATER
CONTROL PANEL ASSEMBLY
<F>
<F>
UPPER CONSOLE PANEL SUB-ASSEMBLY
P
B145866E02

AC


● FRONT PILLAR GARNISH CLIP
FRONT PILLAR GARNISH RH
● FRONT PILLAR GARNISH CLIP
FRONT PILLAR GARNISH LH
INSTRUMENT PANEL NO. 3 REGISTER ASSEMBLY
INSTRUMENT PANEL NO. 1 REGISTER ASSEMBLY
NO. 1 CONSOLE BOX INSERT FRONT
<F>
<F>
<F>
<F>
<F>
<F>
NO. 2 CONSOLE BOX INSERT FRONT
<G>
<G>
<F>
<F>
CONSOLE BOX CARPET
CONSOLE BOX ASSEMBLY
CONSOLE BOX POCKET
● Non-reusable part
P
B145867E01

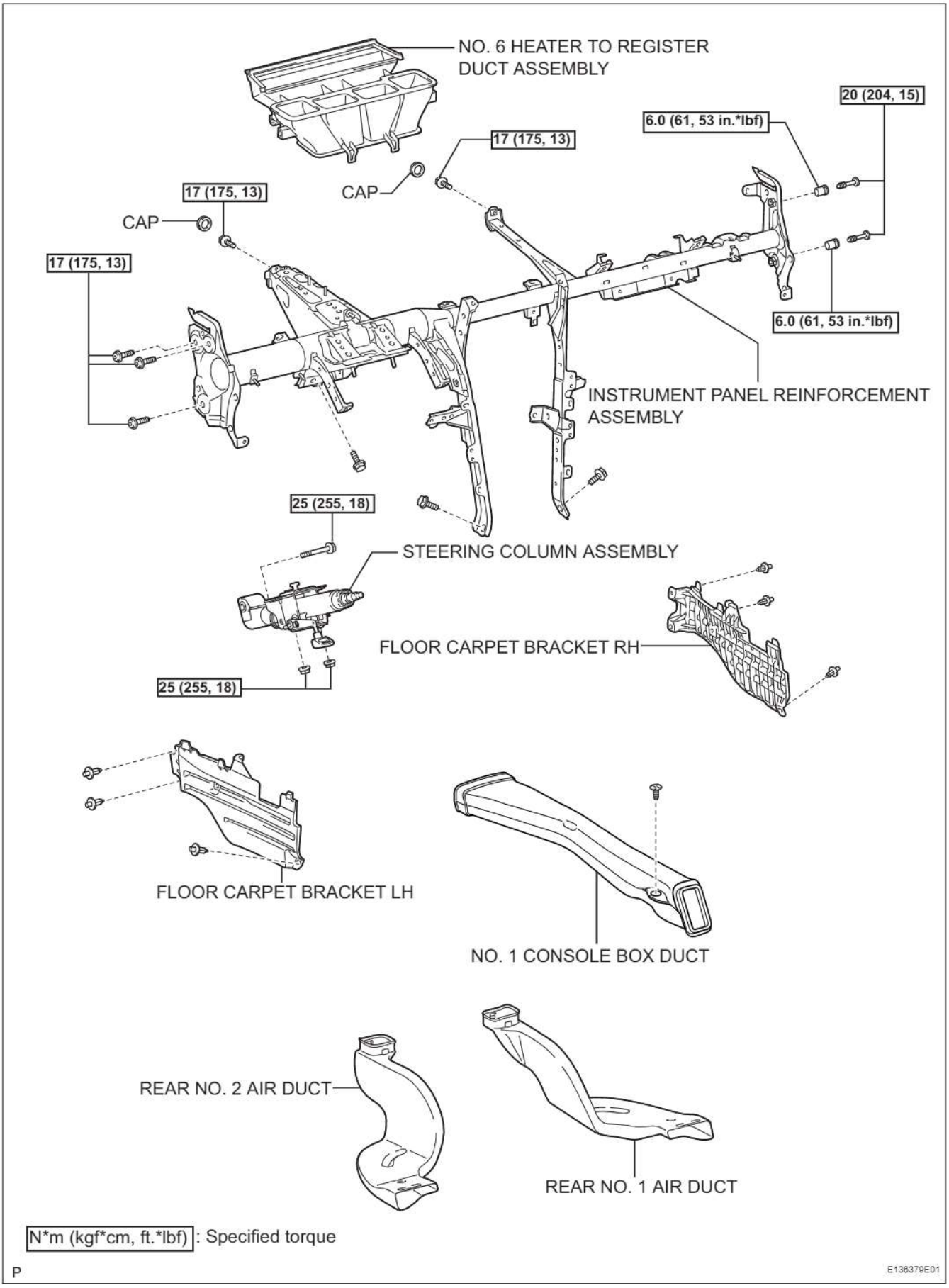


N*m (kgf*cm, ft.*lbf) : Specified torque

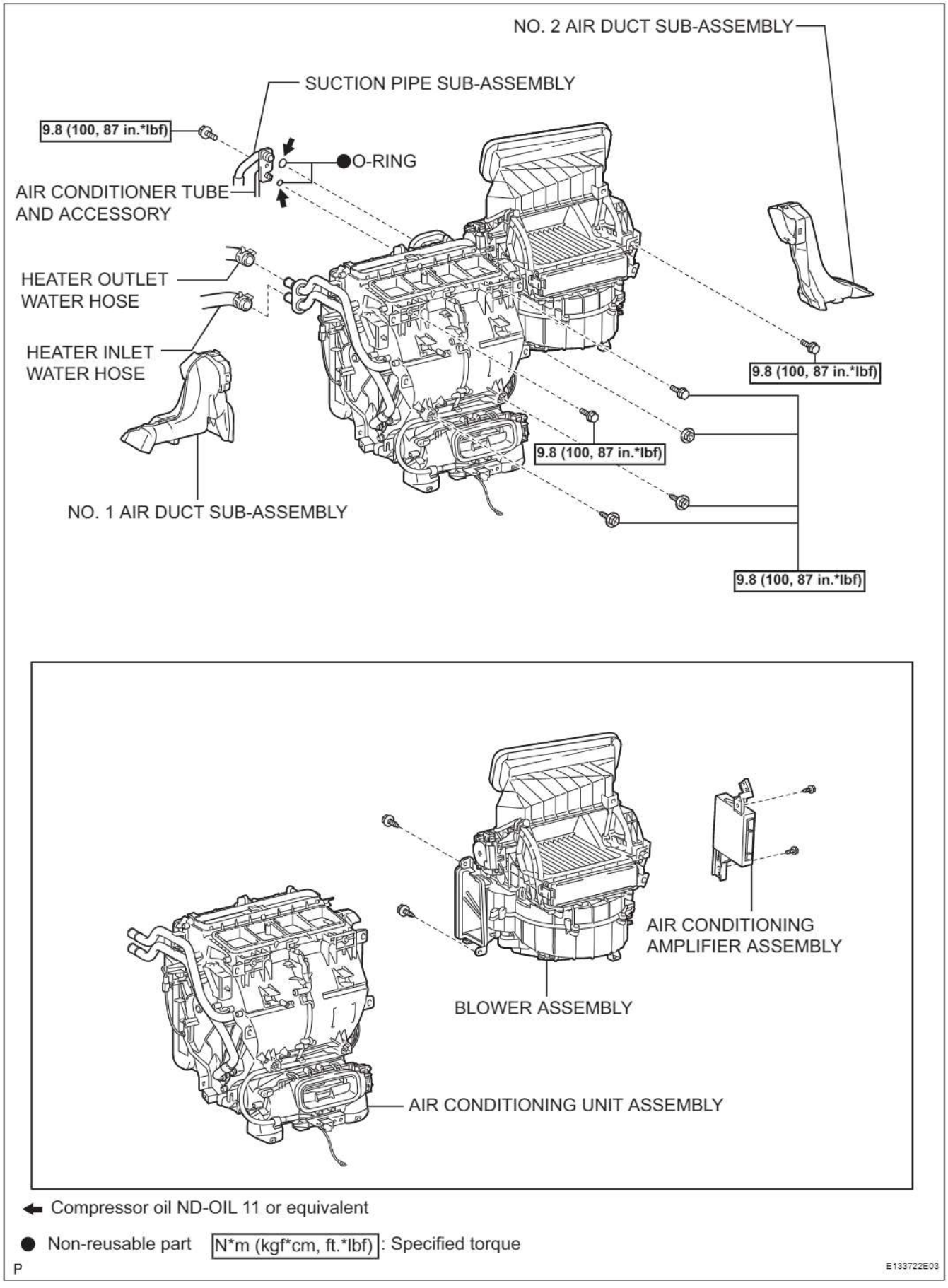
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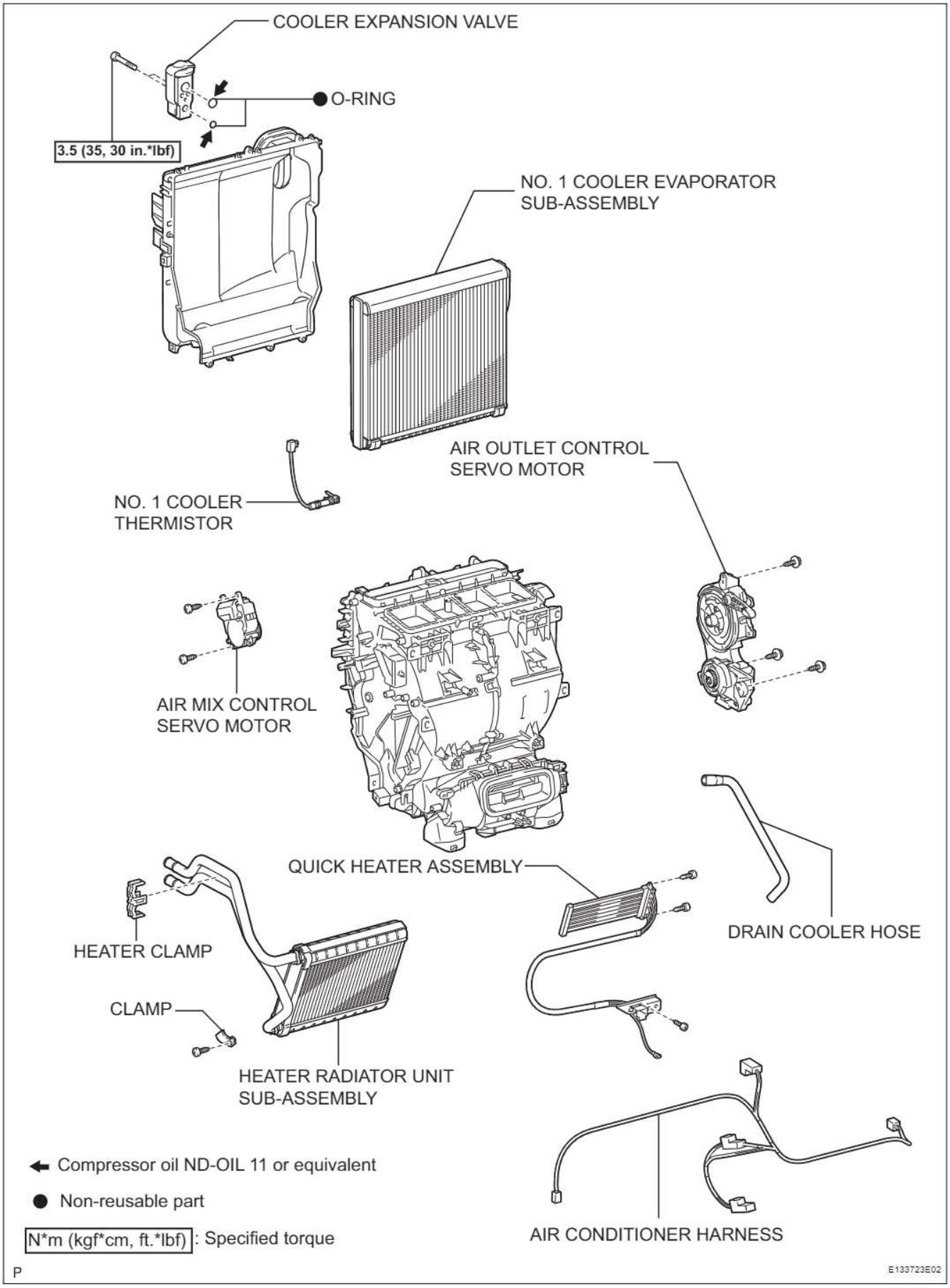
AC


NO. 6 HEATER TO REGISTER DUCT ASSEMBLY
20 (204, 15)
6.0 (61, 53 in.*lbf)
17 (175, 13)
CAP
17 (175, 13)
CAP
17 (175, 13)
6.0 (61, 53 in.*lbf)
INSTRUMENT PANEL REINFORCEMENT ASSEMBLY
25 (255, 18)
STEERING COLUMN ASSEMBLY
FLOOR CARPET BRACKET RH
25 (255, 18)
FLOOR CARPET BRACKET LH
NO. 1 CONSOLE BOX DUCT
REAR NO. 2 AIR DUCT
REAR NO. 1 AIR DUCT
N*m (kgf*cm, ft.*lbf) : Specified torque
P
E136379E01

AC


NO. 2 AIR DUCT SUB-ASSEMBLY
SUCTION PIPE SUB-ASSEMBLY
9.8 (100, 87 in.*lbf)
O-RING
AIR CONDITIONER TUBE AND ACCESSORY
HEATER OUTLET WATER HOSE
HEATER INLET WATER HOSE
NO. 1 AIR DUCT SUB-ASSEMBLY
9.8 (100, 87 in.*lbf)
9.8 (100, 87 in.*lbf)
9.8 (100, 87 in.*lbf)
AIR CONDITIONING AMPLIFIER ASSEMBLY
BLOWER ASSEMBLY
AIR CONDITIONING UNIT ASSEMBLY
Compressor oil ND-OIL 11 or equivalent
Non-reusable part
N*m (kgf*cm, ft.*lbf): Specified torque
P
E133722E03

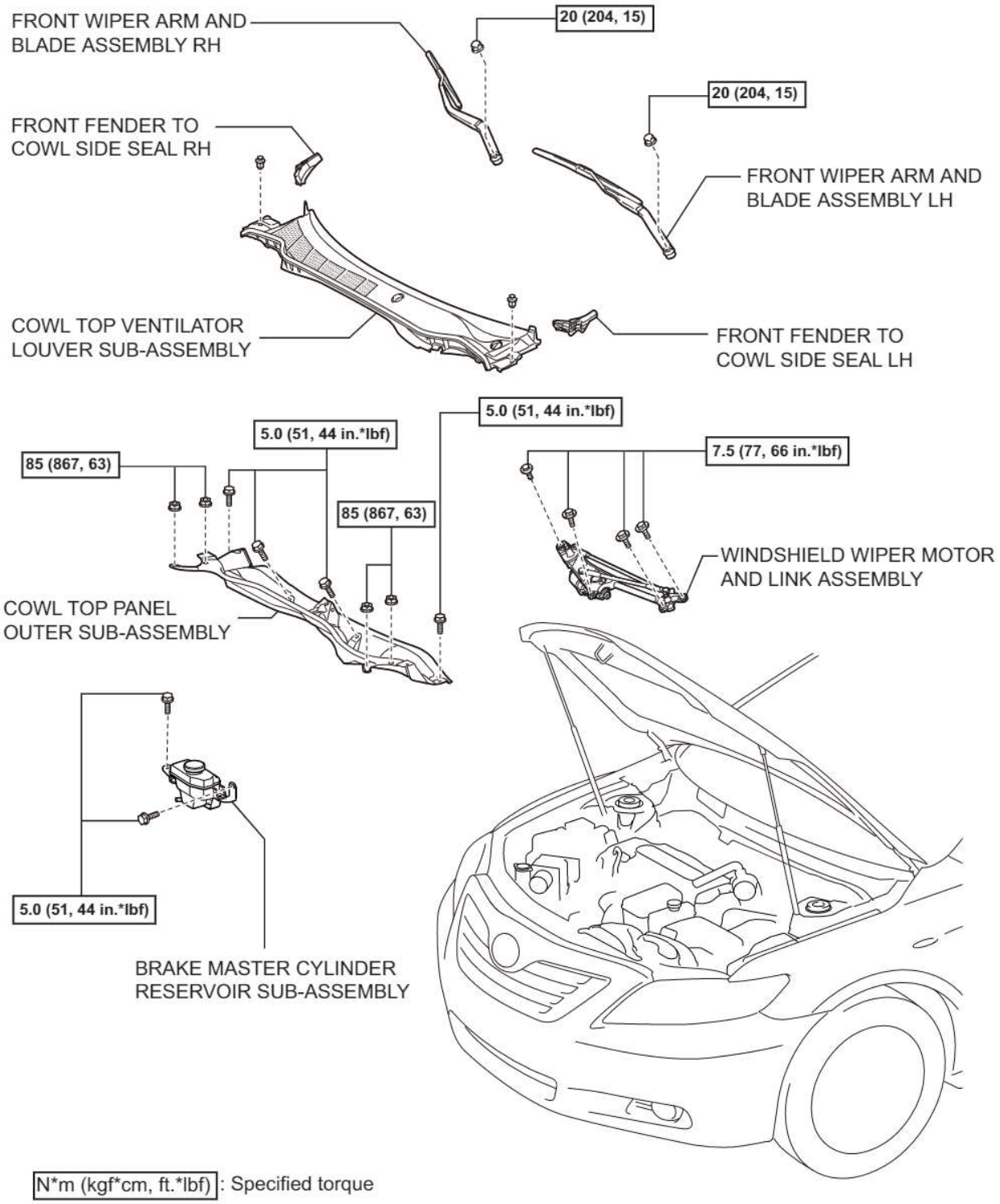
AC


COOLER EXPANSION VALVE
O-RING
3.5 (35, 30 in.*lbf)
NO. 1 COOLER EVAPORATOR SUB-ASSEMBLY
AIR OUTLET CONTROL SERVO MOTOR
NO. 1 COOLER THERMISTOR
AIR MIX CONTROL SERVO MOTOR
QUICK HEATER ASSEMBLY
DRAIN COOLER HOSE
HEATER CLAMP
CLAMP
HEATER RADIATOR UNIT SUB-ASSEMBLY
AIR CONDITIONER HARNESS
Compressor oil ND-OIL 11 or equivalent
Non-reusable part
N*m (kgf*cm, ft.*lbf): Specified torque
P
E133723E02

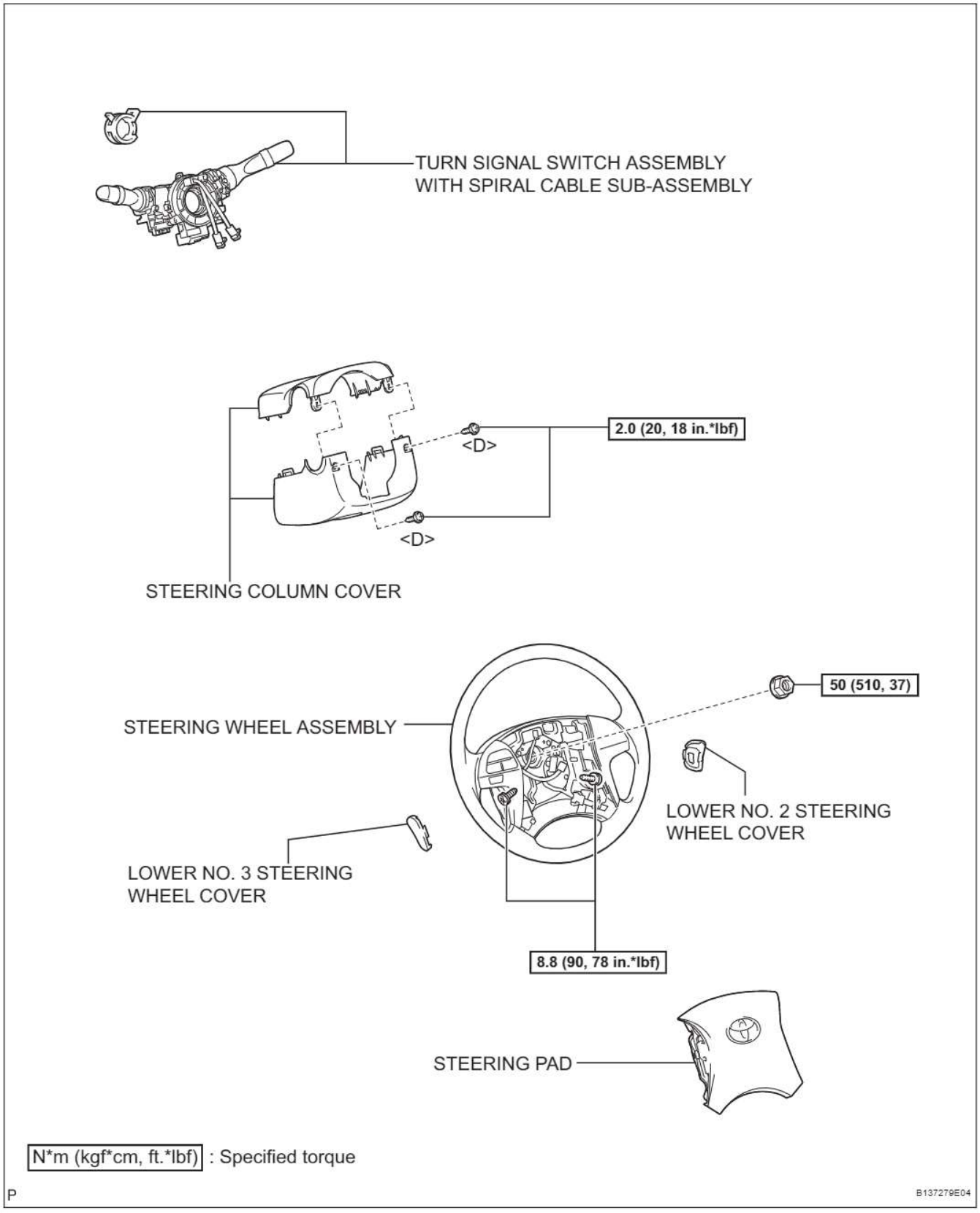
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BLOWER UNIT

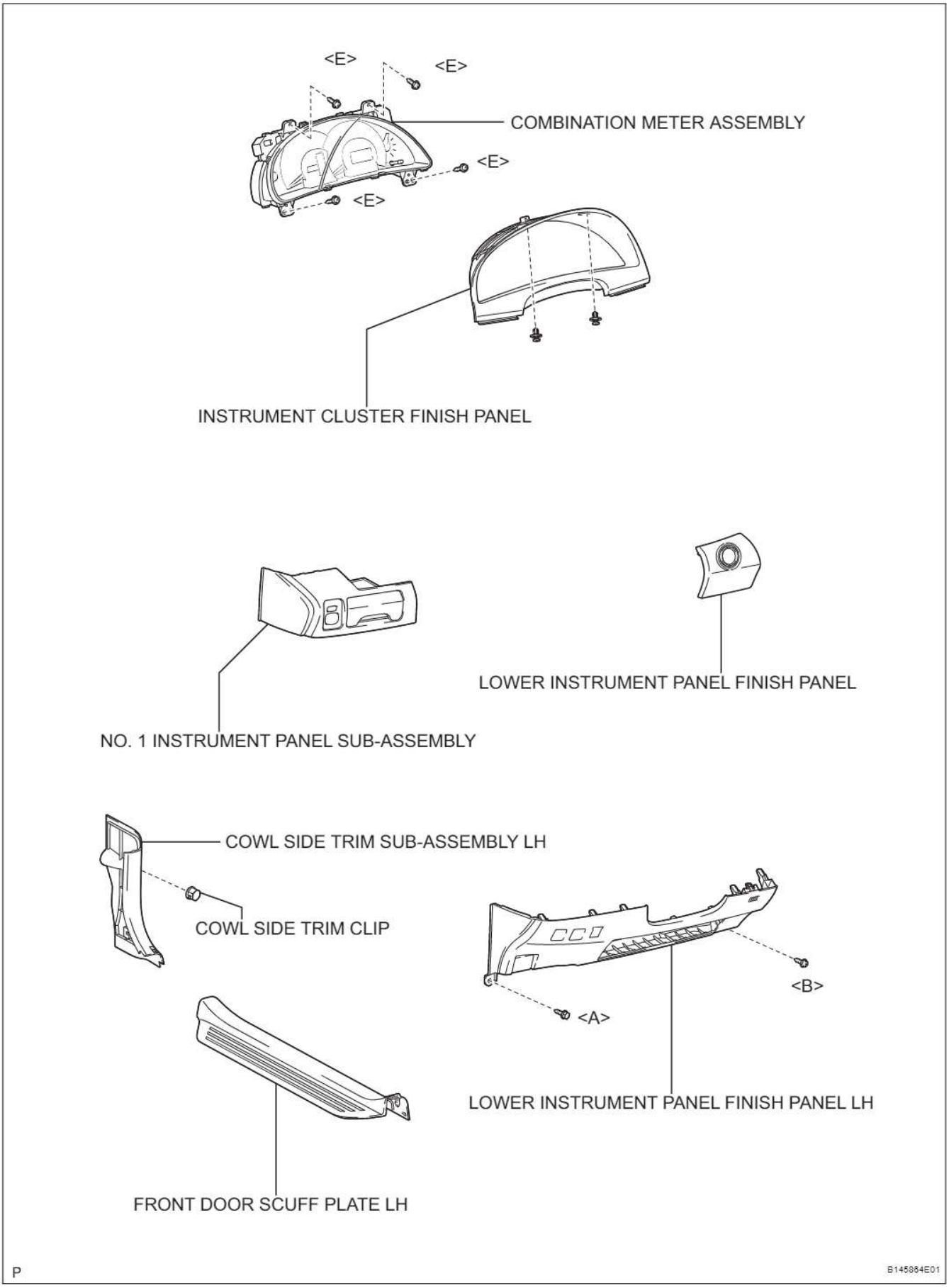
COMPONENTS



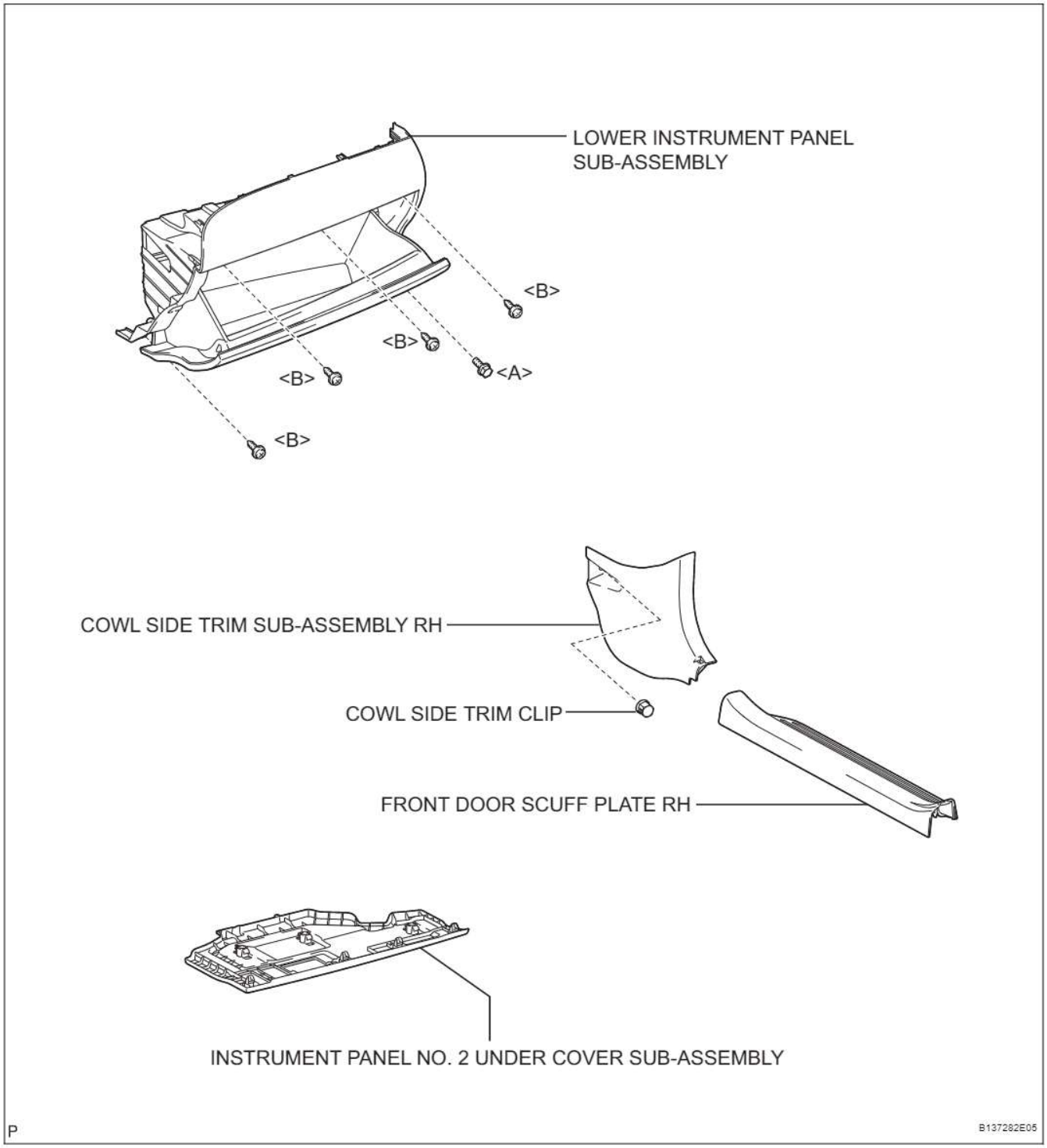
AC


TURN SIGNAL SWITCH ASSEMBLY
WITH SPIRAL CABLE SUB-ASSEMBLY
2.0 (20, 18 in.*lbf)
<D>
<D>
STEERING COLUMN COVER
50 (510, 37)
STEERING WHEEL ASSEMBLY
LOWER NO. 2 STEERING
WHEEL COVER
LOWER NO. 3 STEERING
WHEEL COVER
8.8 (90, 78 in.*lbf)
STEERING PAD
N*m (kgf*cm, ft.*lbf) : Specified torque
P
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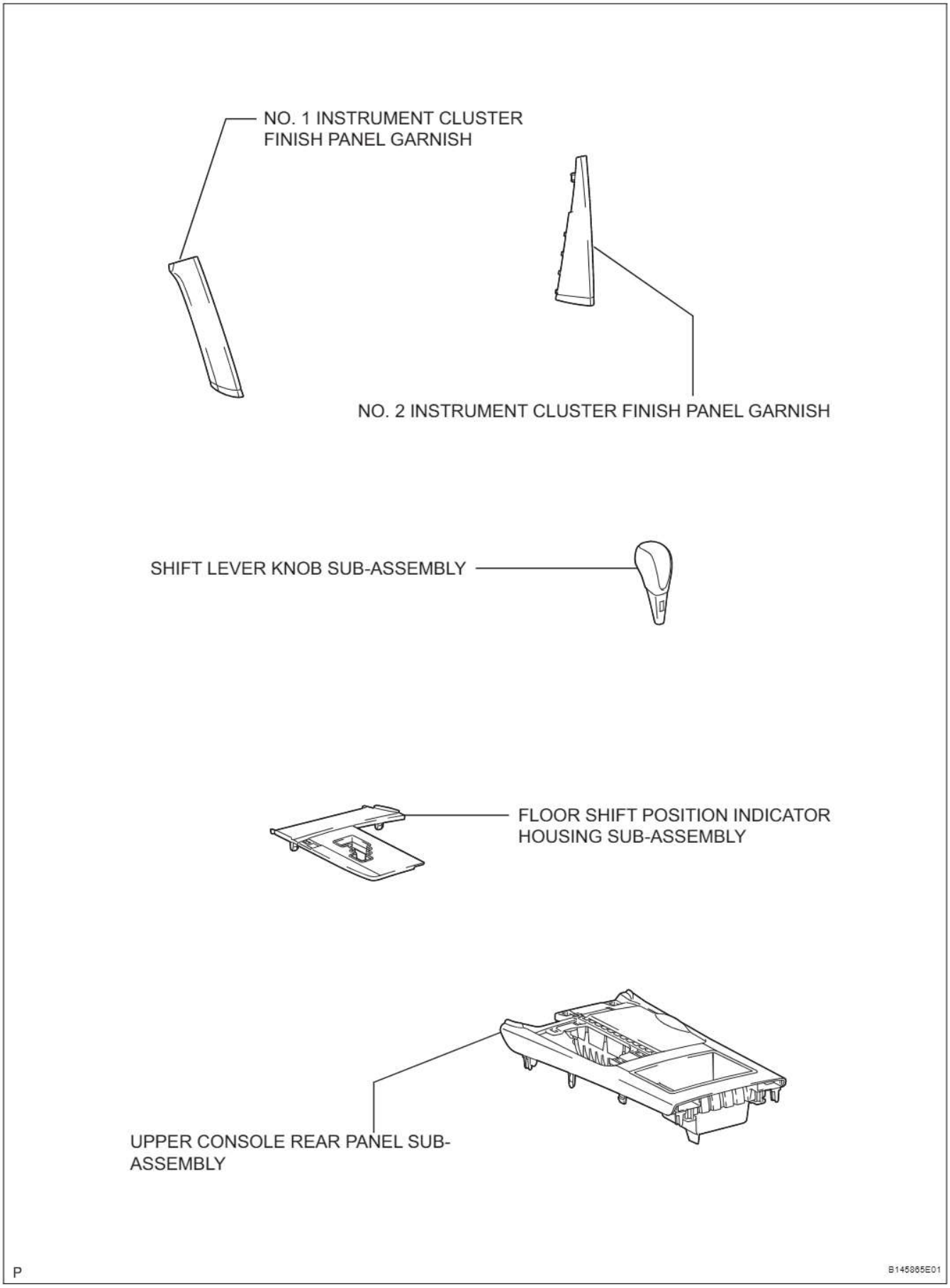
AC


<E>
<E>
COMBINATION METER ASSEMBLY
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INSTRUMENT CLUSTER FINISH PANEL
LOWER INSTRUMENT PANEL FINISH PANEL
NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY
COWL SIDE TRIM SUB-ASSEMBLY LH
COWL SIDE TRIM CLIP
<B>
<A>
LOWER INSTRUMENT PANEL FINISH PANEL LH
FRONT DOOR SCUFF PLATE LH
P
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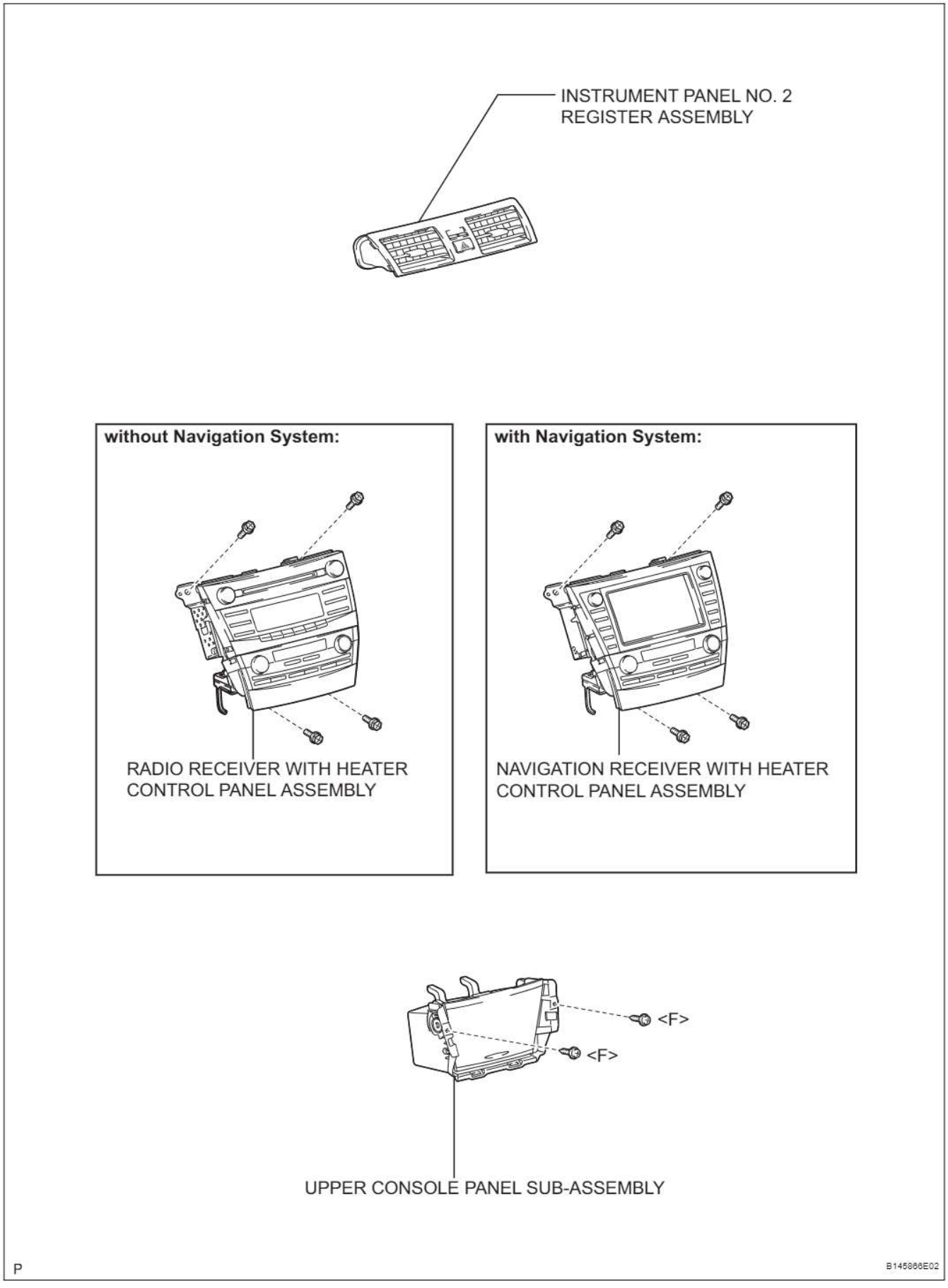
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LOWER INSTRUMENT PANEL SUB-ASSEMBLY
<B>
<B>
<B>
<A>
<B>
COWL SIDE TRIM SUB-ASSEMBLY RH
COWL SIDE TRIM CLIP
FRONT DOOR SCUFF PLATE RH
INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY
P
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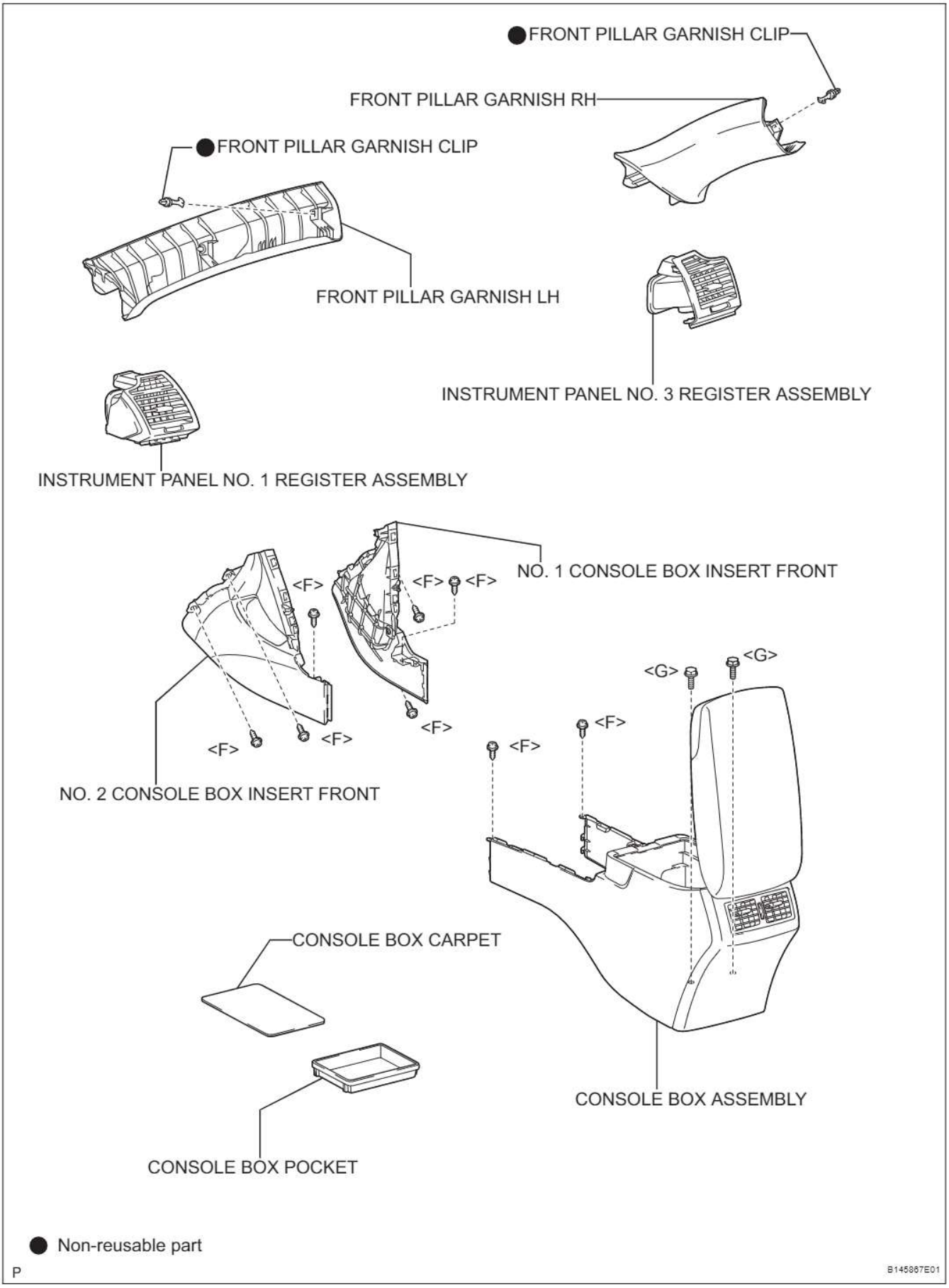
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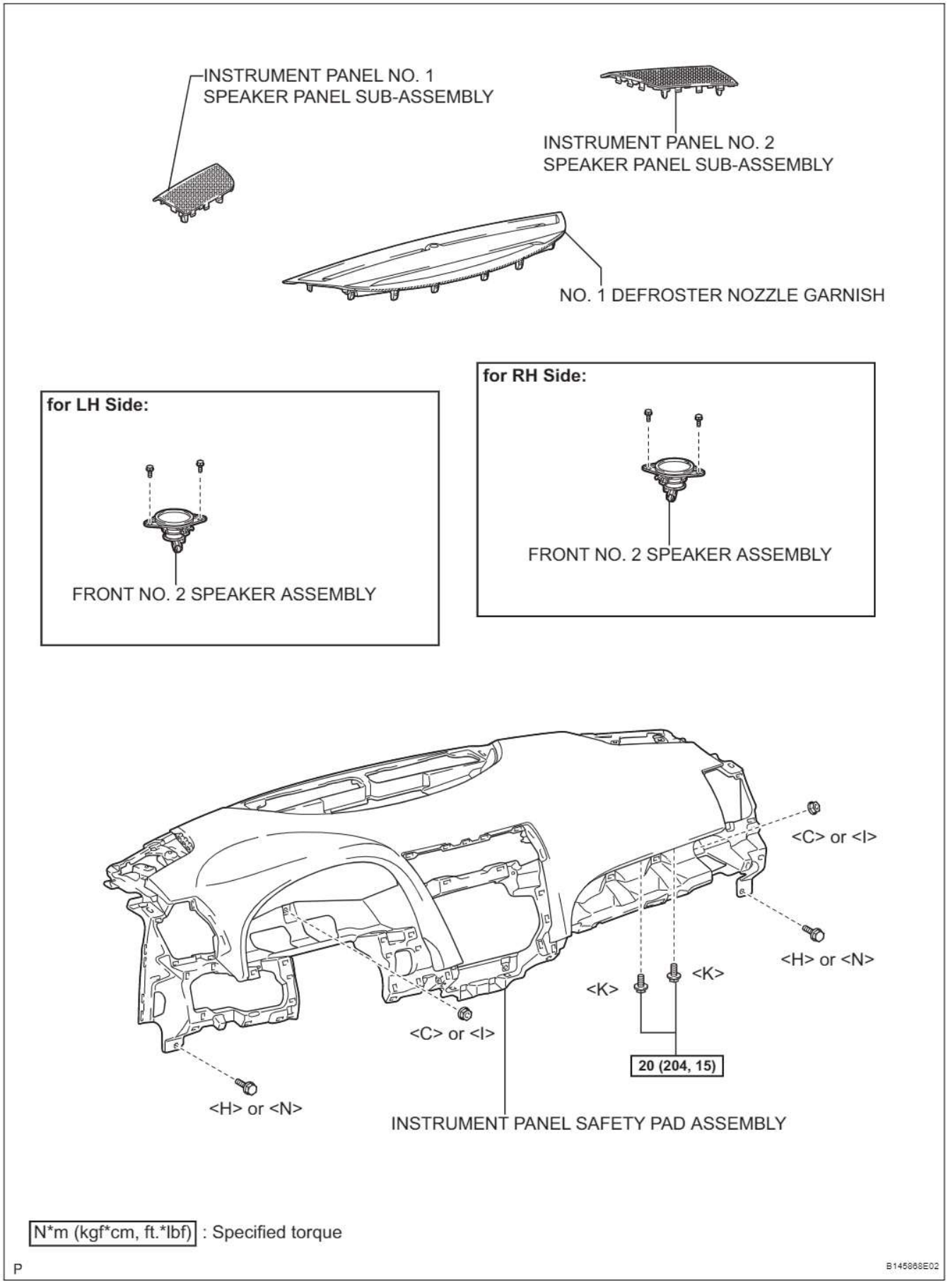

NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH
NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH
SHIFT LEVER KNOB SUB-ASSEMBLY
FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY
UPPER CONSOLE REAR PANEL SUB-ASSEMBLY
P
B145865E01

AC


INSTRUMENT PANEL NO. 2
REGISTER ASSEMBLY
without Navigation System:
RADIO RECEIVER WITH HEATER
CONTROL PANEL ASSEMBLY
with Navigation System:
NAVIGATION RECEIVER WITH HEATER
CONTROL PANEL ASSEMBLY
<F>
<F>
UPPER CONSOLE PANEL SUB-ASSEMBLY
P
B145866E02

AC


FRONT PILLAR GARNISH CLIP
FRONT PILLAR GARNISH RH
FRONT PILLAR GARNISH CLIP
FRONT PILLAR GARNISH LH
INSTRUMENT PANEL NO. 3 REGISTER ASSEMBLY
INSTRUMENT PANEL NO. 1 REGISTER ASSEMBLY
NO. 1 CONSOLE BOX INSERT FRONT
<F>
<F>
<F>
<F>
<F>
<F>
NO. 2 CONSOLE BOX INSERT FRONT
<G>
<G>
<F>
<F>
CONSOLE BOX CARPET
CONSOLE BOX ASSEMBLY
CONSOLE BOX POCKET
Non-reusable part
P
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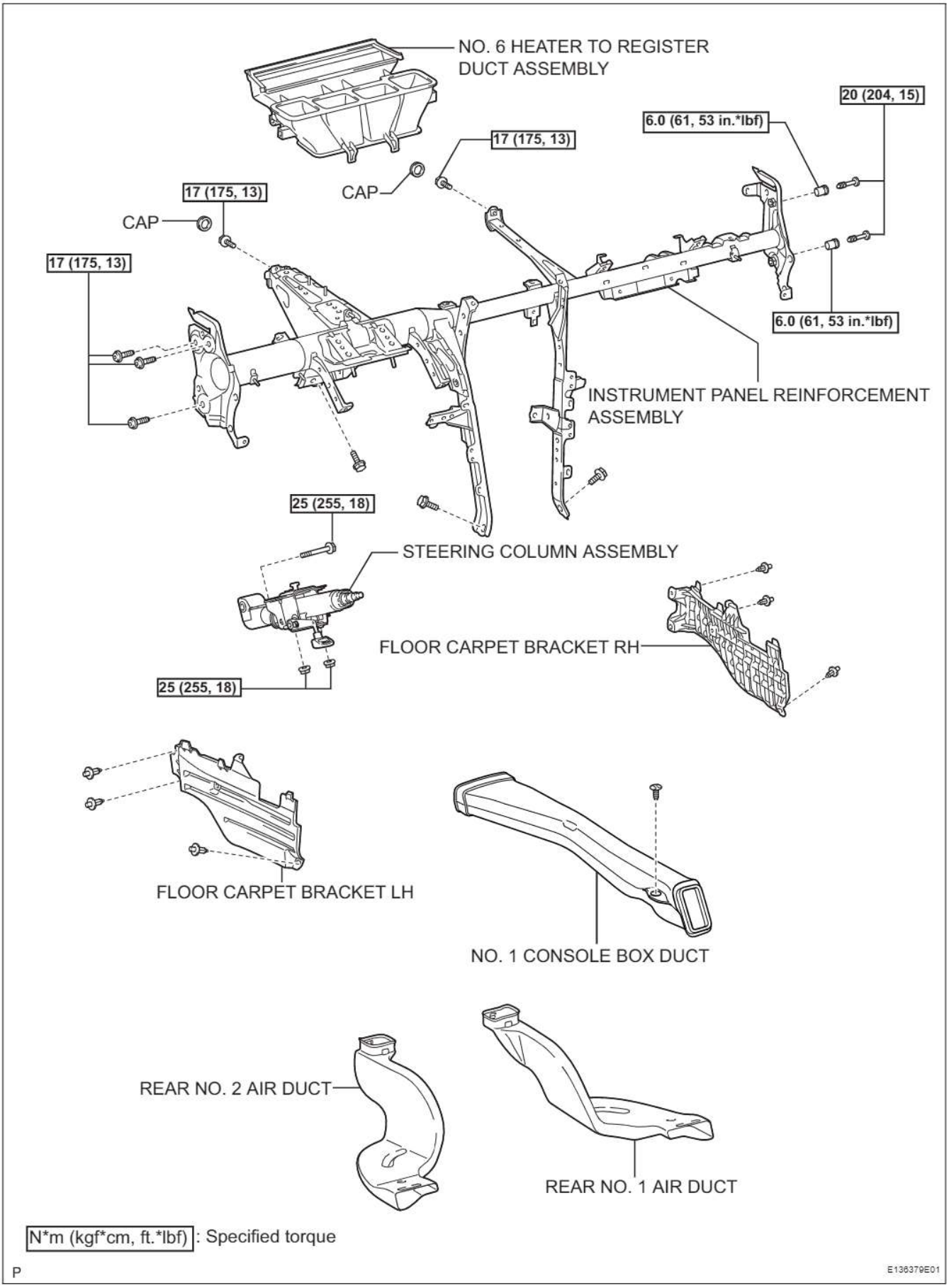


N*m (kgf*cm, ft.*lbf) : Specified torque

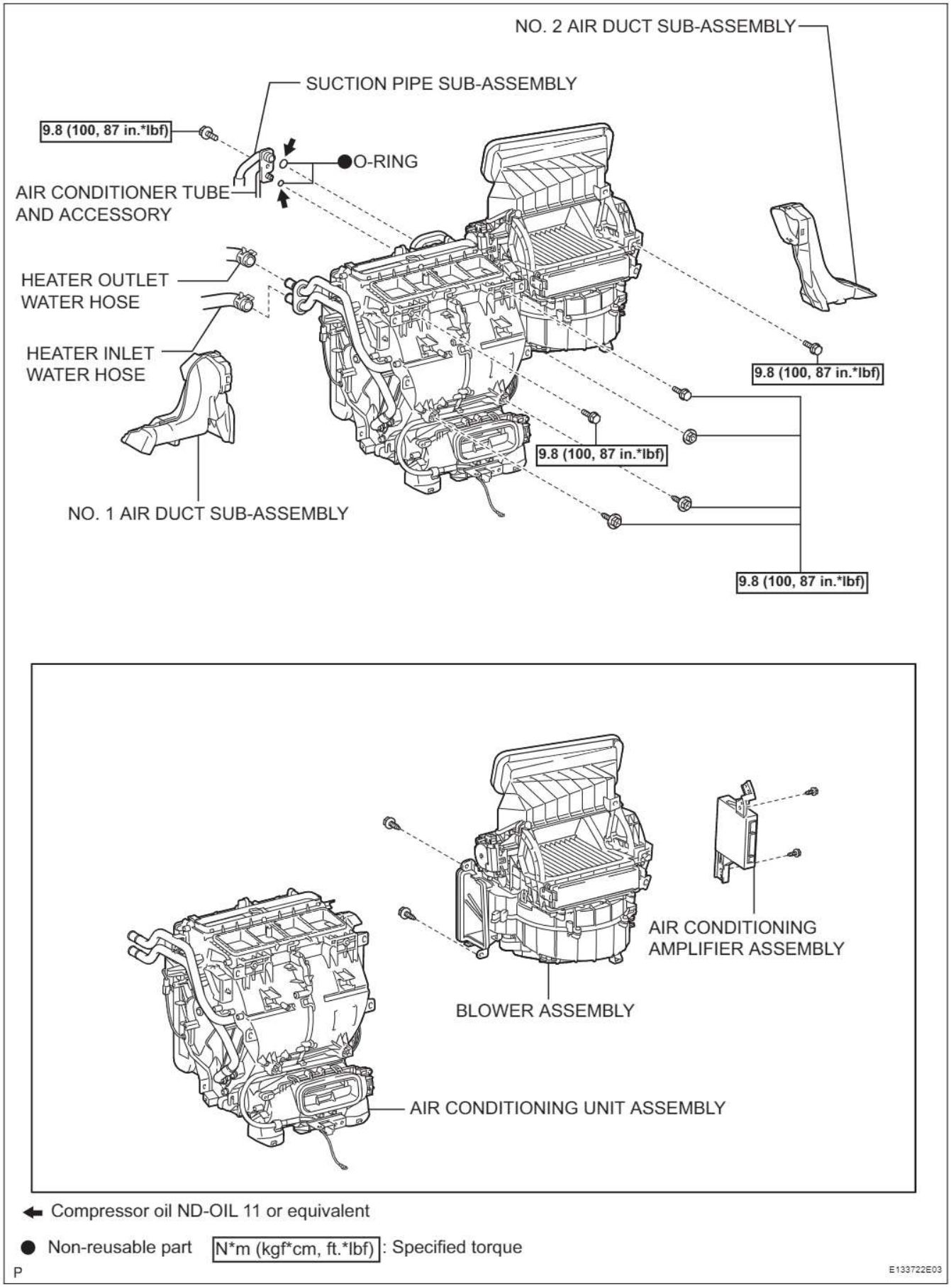
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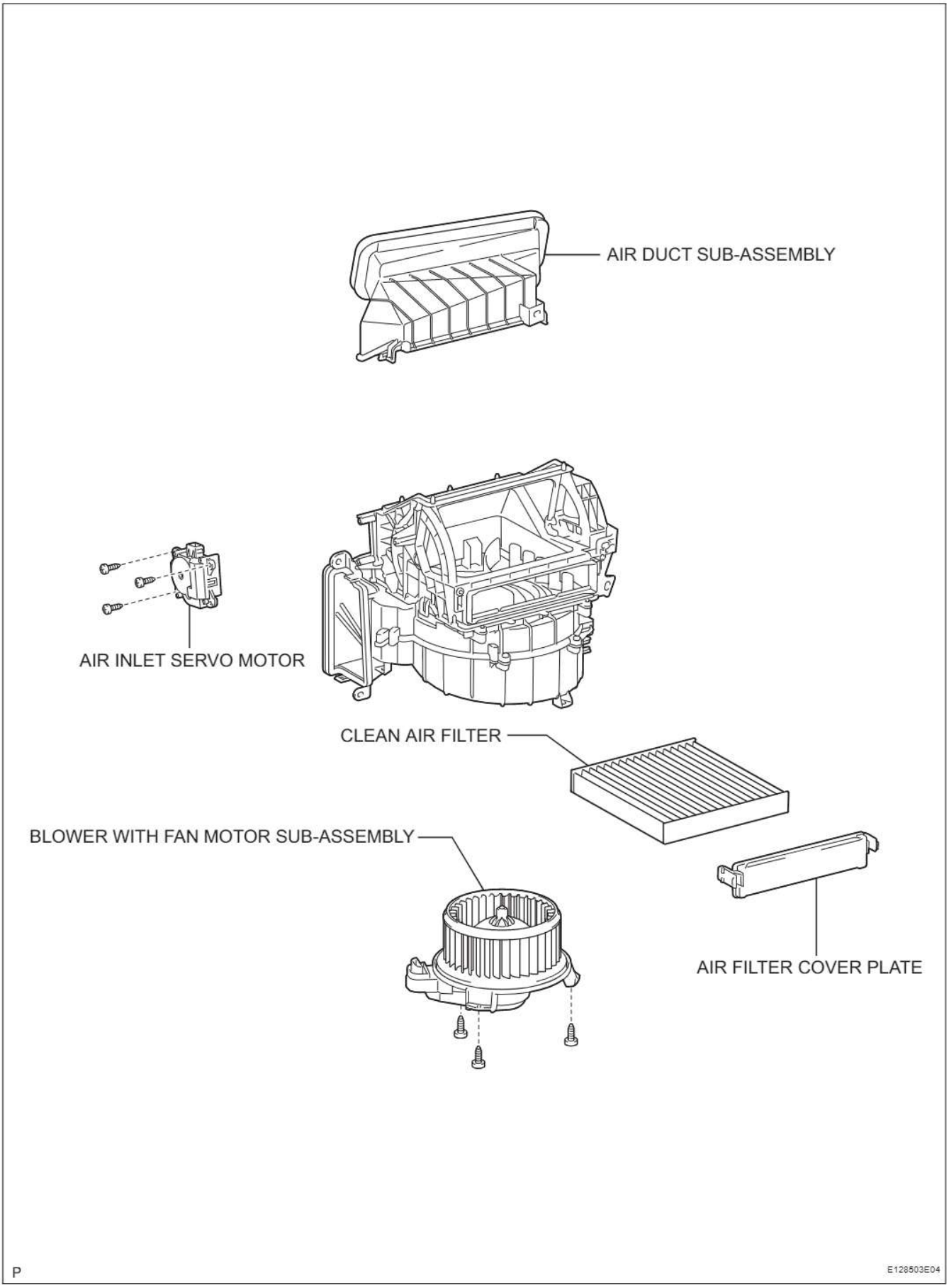
AC


NO. 6 HEATER TO REGISTER DUCT ASSEMBLY
20 (204, 15)
6.0 (61, 53 in.*lbf)
17 (175, 13)
CAP
17 (175, 13)
CAP
17 (175, 13)
6.0 (61, 53 in.*lbf)
INSTRUMENT PANEL REINFORCEMENT ASSEMBLY
25 (255, 18)
STEERING COLUMN ASSEMBLY
FLOOR CARPET BRACKET RH
25 (255, 18)
FLOOR CARPET BRACKET LH
NO. 1 CONSOLE BOX DUCT
REAR NO. 2 AIR DUCT
REAR NO. 1 AIR DUCT
N*m (kgf*cm, ft.*lbf) : Specified torque
P
E136379E01

AC

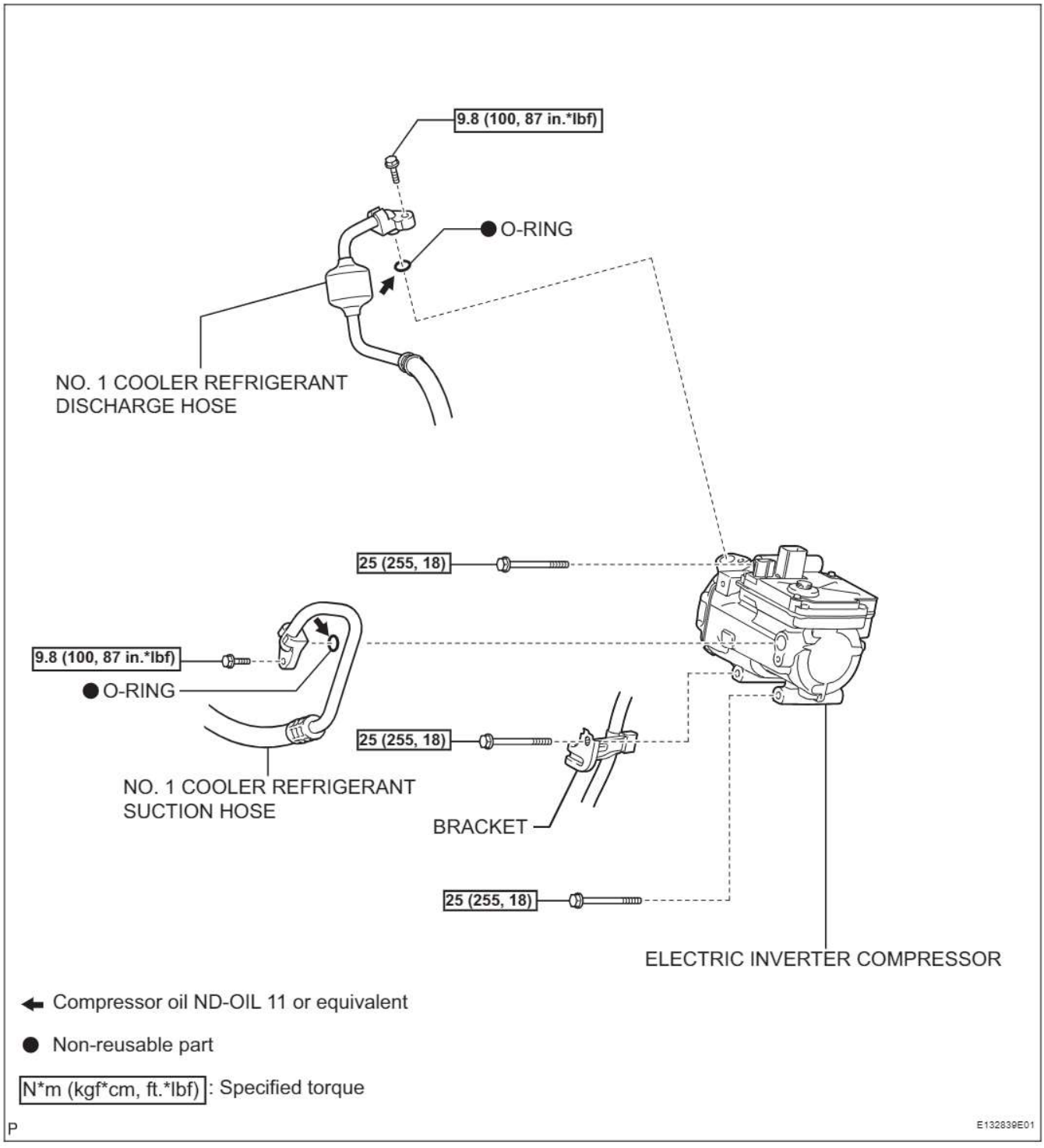

NO. 2 AIR DUCT SUB-ASSEMBLY
SUCTION PIPE SUB-ASSEMBLY
9.8 (100, 87 in.*lbf)
O-RING
AIR CONDITIONER TUBE AND ACCESSORY
HEATER OUTLET WATER HOSE
HEATER INLET WATER HOSE
NO. 1 AIR DUCT SUB-ASSEMBLY
9.8 (100, 87 in.*lbf)
9.8 (100, 87 in.*lbf)
9.8 (100, 87 in.*lbf)
AIR CONDITIONING AMPLIFIER ASSEMBLY
BLOWER ASSEMBLY
AIR CONDITIONING UNIT ASSEMBLY
Compressor oil ND-OIL 11 or equivalent
Non-reusable part
N*m (kgf*cm, ft.*lbf): Specified torque
P
E133722E03

AC


AIR DUCT SUB-ASSEMBLY
AIR INLET SERVO MOTOR
CLEAN AIR FILTER
BLOWER WITH FAN MOTOR SUB-ASSEMBLY
AIR FILTER COVER PLATE
P
E128503E04

ELECTRIC INVERTER COMPRESSOR

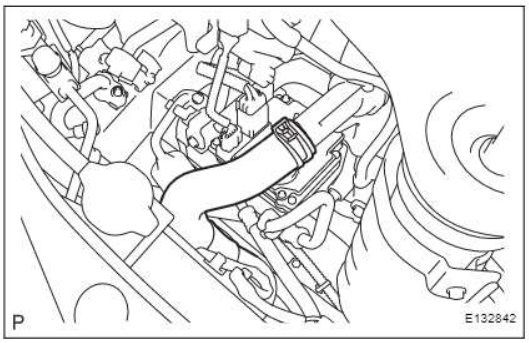
COMPONENTS

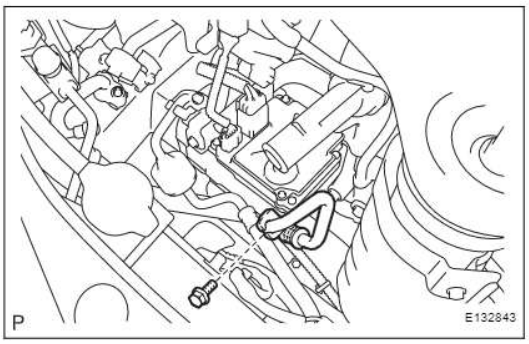


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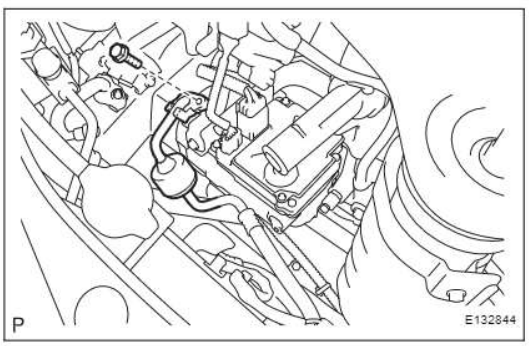
REMOVAL

1. **RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM (See page AC-169)**
2. **DRAIN ENGINE COOLANT (See page CO-5)**
3. **DISCONNECT NEGATIVE BATTERY TERMINAL**
4. **REMOVE SERVICE PLUG GRIP (See page HB-86)**
5. **REMOVE NO. 2 ENGINE ROOM SIDE RH COVER (See page HV-560)**
6. **REMOVE CONNECTOR COVER ASSEMBLY (See page HV-560)**
7. **CHECK TERMINAL VOLTAGE (See page HV-561)**
8. **INSTALL CONNECTOR COVER ASSEMBLY (See page HV-566)**
9. **INSTALL NO. 2 ENGINE ROOM SIDE RH COVER (See page HV-568)**
10. **DISCONNECT RADIATOR HOSE OUTLET**
    (a) Using pliers, grip the claws of the clip and slide the clip to disconnect the radiator hose outlet.





11. **DISCONNECT NO. 1 COOLER REFRIGERANT SUCTION HOSE**
    (a) Remove the bolt and disconnect the No. 1 cooler refrigerant suction hose from the compressor and pulley.
    (b) Remove the O-ring from the No. 1 cooler refrigerant suction hose.
    NOTICE:
    Seal the openings of the disconnected parts using vinyl tape to prevent entry of moisture and foreign matter.



12. **DISCONNECT NO. 1 COOLER REFRIGERANT DISCHARGE HOSE**
    (a) Remove the bolt and disconnect the No. 1 cooler refrigerant discharge hose from the compressor and pulley.
    (b) Remove the O-ring from the No. 1 cooler refrigerant discharge hose.
    NOTICE:
    Seal the openings of the disconnected parts using vinyl tape to prevent entry of moisture and foreign matter.

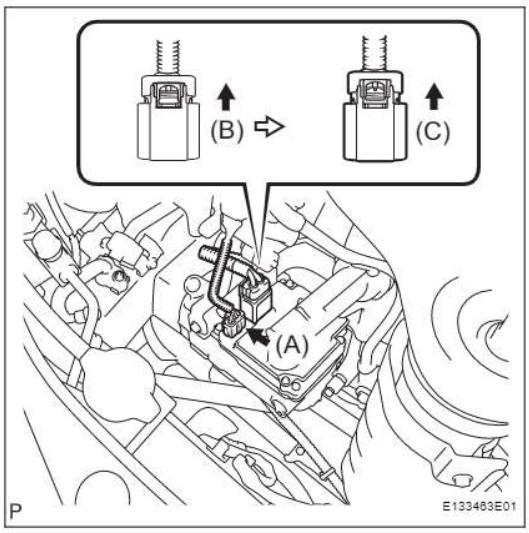
AC

13. REMOVE ELECTRIC INVERTER COMPRESSOR

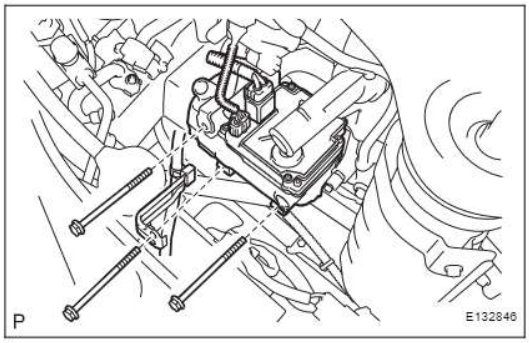
(a) Disconnect the connector (A).

(b) Release the green-colored lock (B).
CAUTION:
Wear insulated gloves when performing this procedure.

(c) Disconnect the connector (C).
NOTICE:
Insulate the connector by sealing it with tape.



(d) Remove the 3 bolts and electric inverter compressor.



INSPECTION

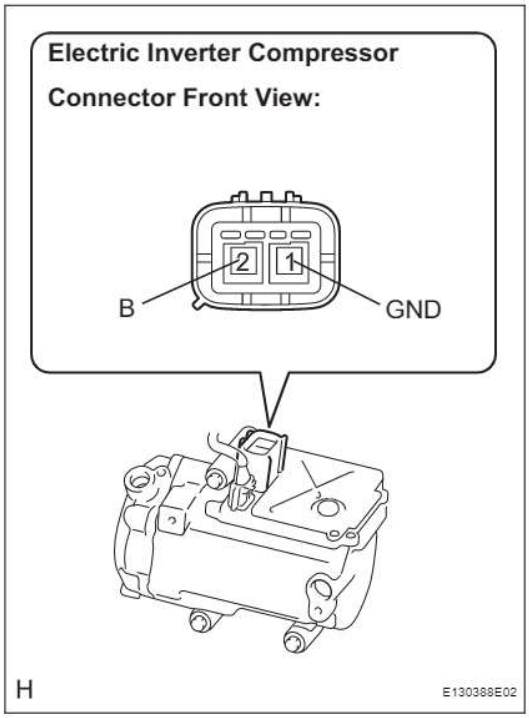
1. INSPECT ELECTRIC INVERTER COMPRESSOR

(a) Disconnect the connector from the electric inverter compressor.

(b) Using a megohmmeter, measure the resistance according to the value(s) in the table below.
Standard resistance

Tester connection (Symbols)	Condition	Specified condition
1 (GND) - Body ground	Always	2 MΩ or higher
2 (B) - Body ground	Always	2 MΩ or higher

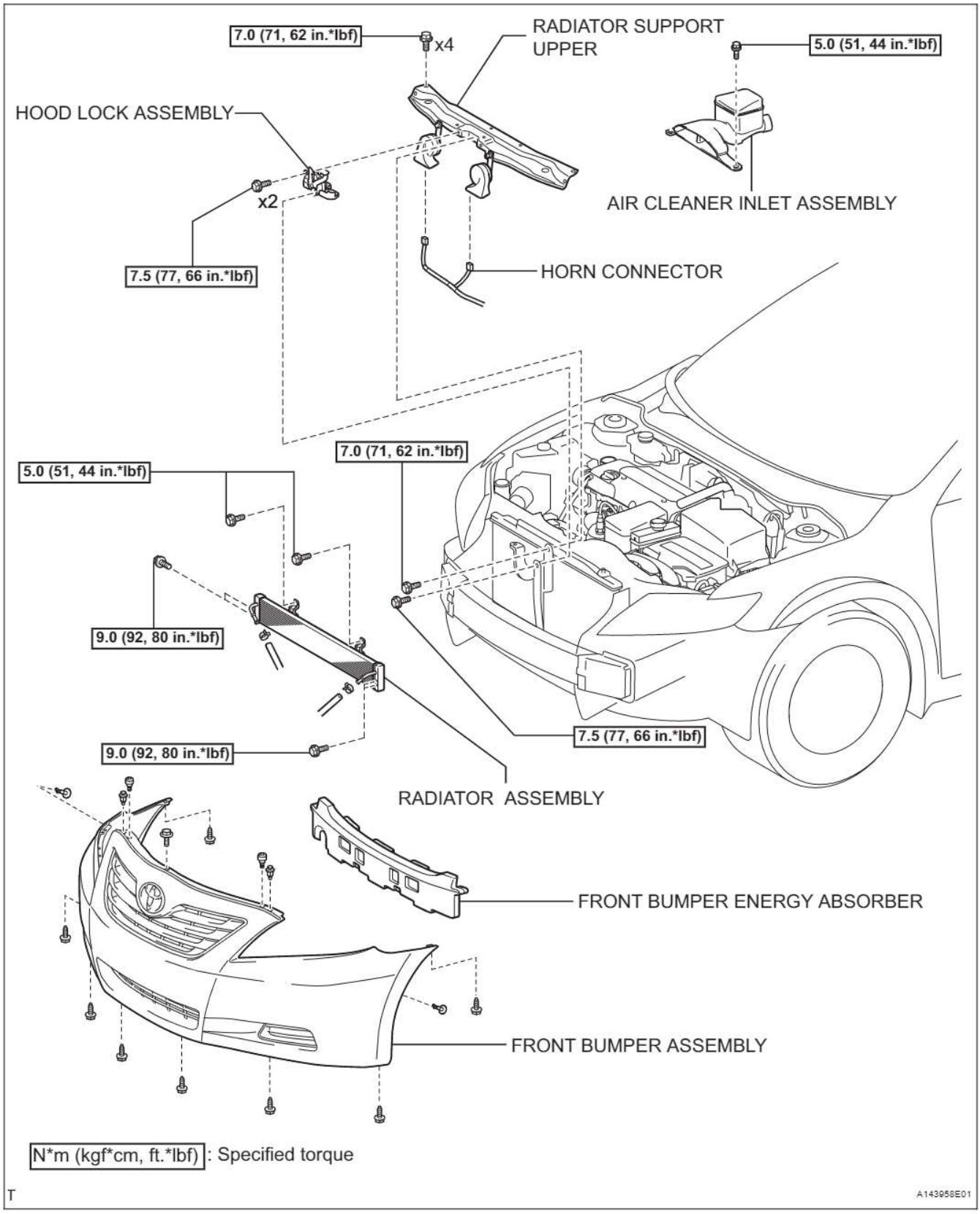
If the resistance is not as specified, replace the electric inverter compressor.



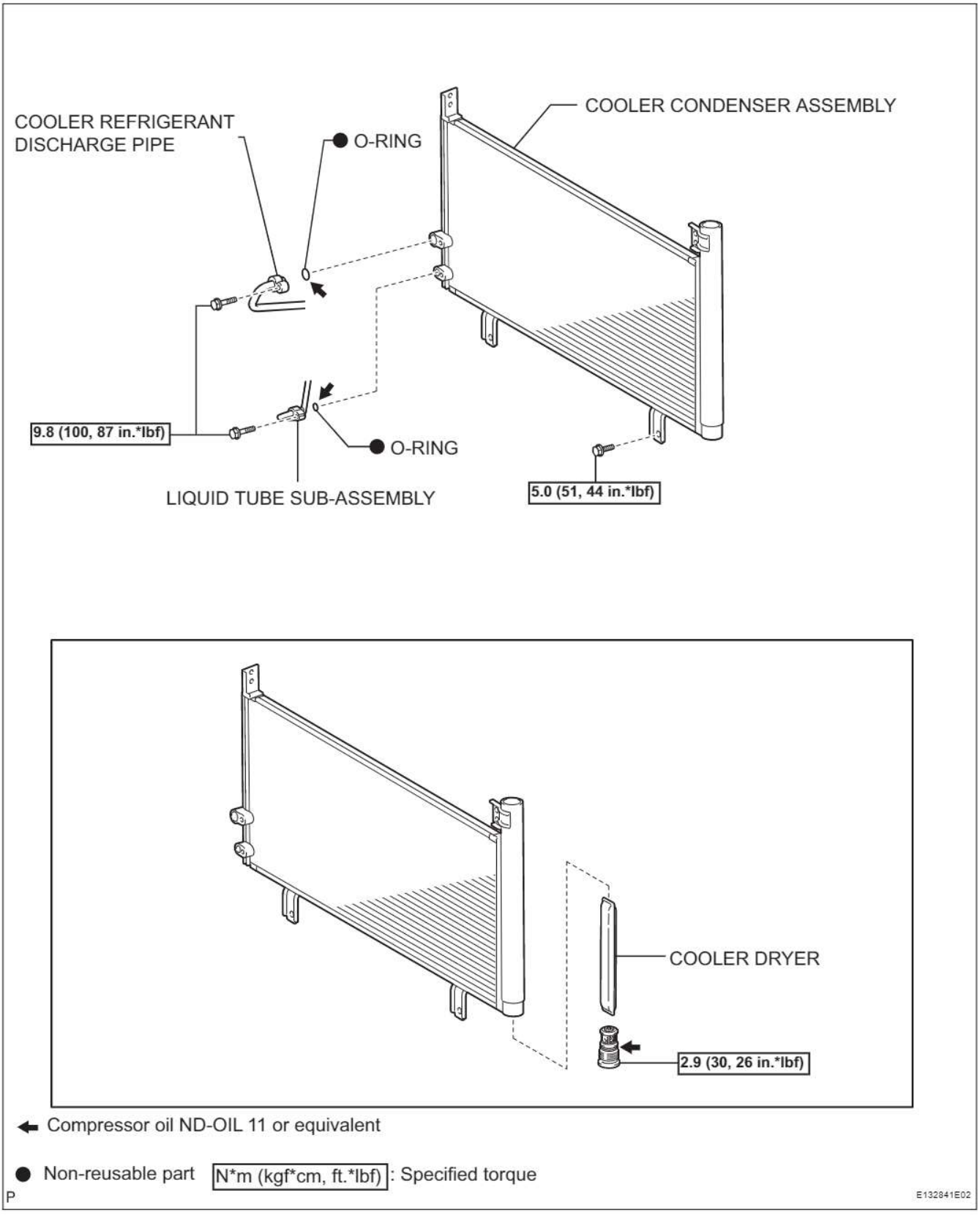
AC

CONDENSER

COMPONENTS



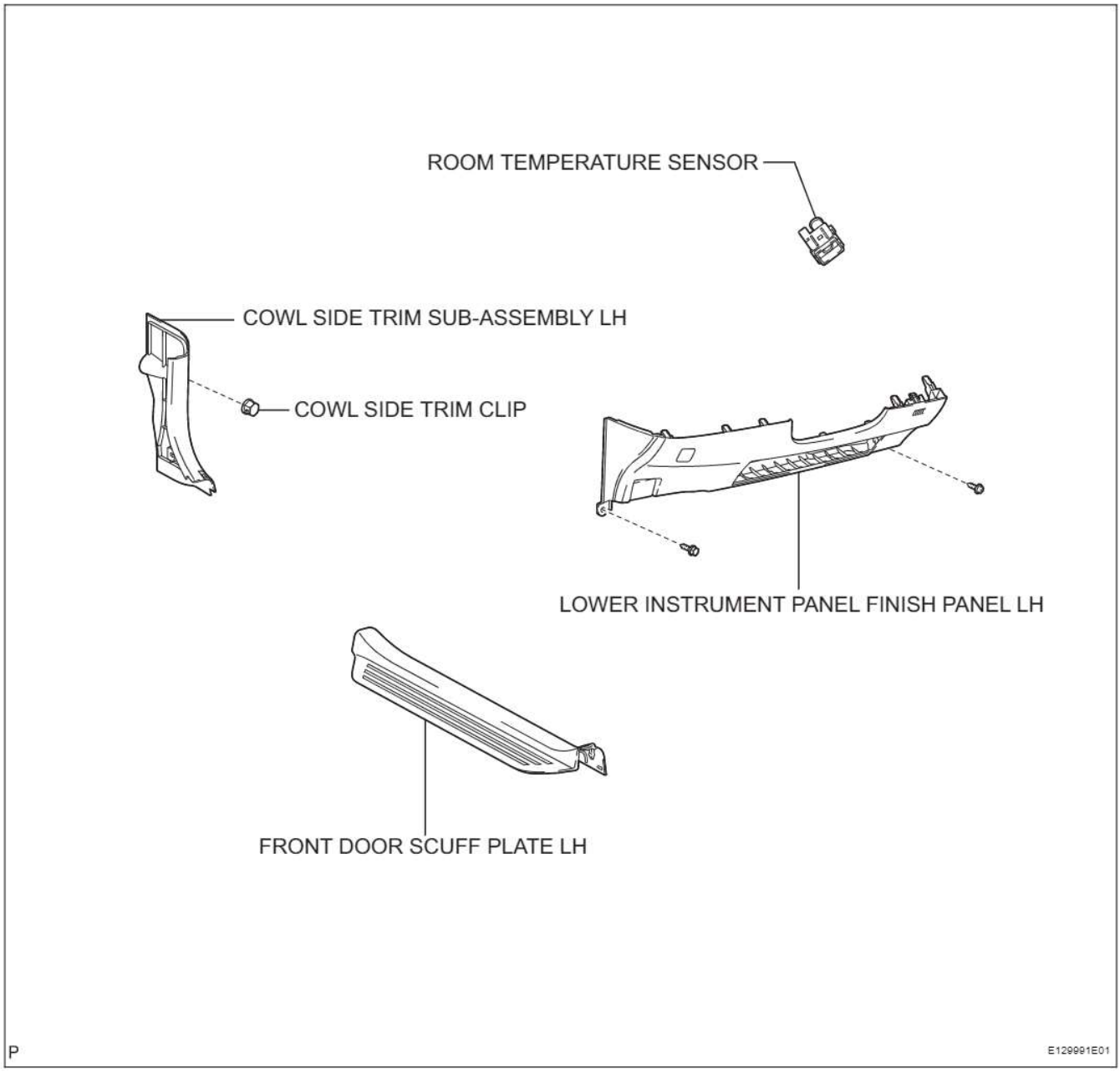
AC


COOLER REFRIGERANT DISCHARGE PIPE
O-RING
COOLER CONDENSER ASSEMBLY
9.8 (100, 87 in.*lbf)
O-RING
LIQUID TUBE SUB-ASSEMBLY
5.0 (51, 44 in.*lbf)
COOLER DRYER
2.9 (30, 26 in.*lbf)
Compressor oil ND-OIL 11 or equivalent
Non-reusable part
N*m (kgf*cm, ft.*lbf): Specified torque
P
E132841E02

AC

ROOM TEMPERATURE SENSOR

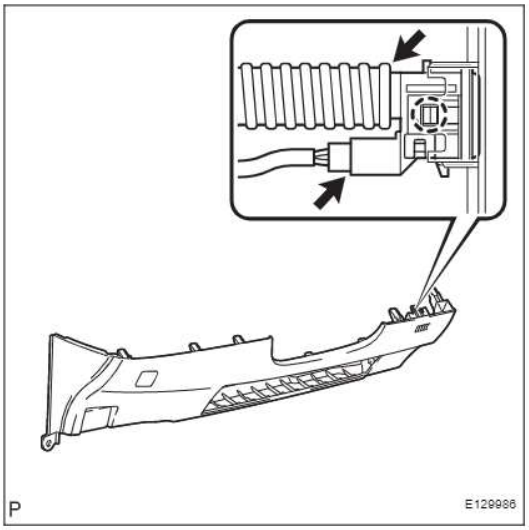
COMPONENTS



AC

REMOVAL

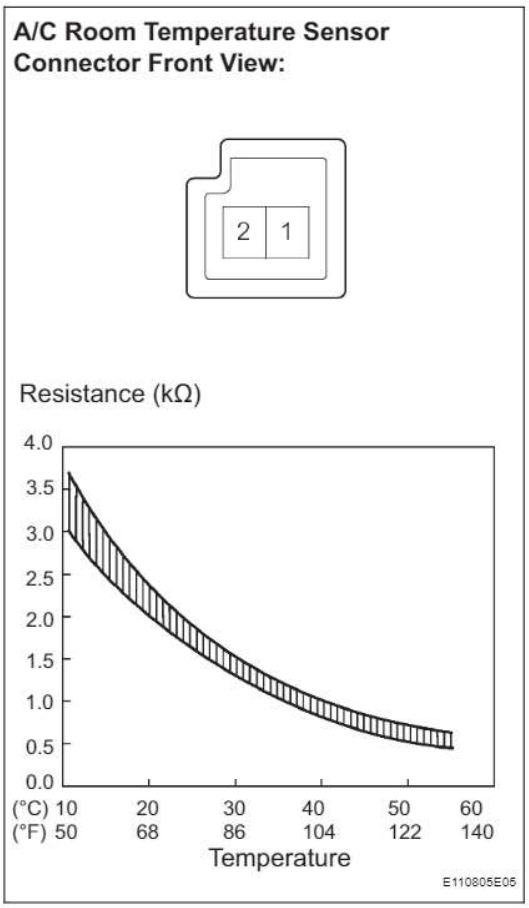
1. **REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-13)**
2. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY (See page IR-14)**
3. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-11)**
4. **REMOVE ROOM TEMPERATURE SENSOR**
   (a) Disconnect the connector and air hose.
   (b) Release the claw and remove the sensor.



INSPECTION

1. **INSPECT ROOM TEMPERATURE SENSOR**
   (a) 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
1 - 2	15°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



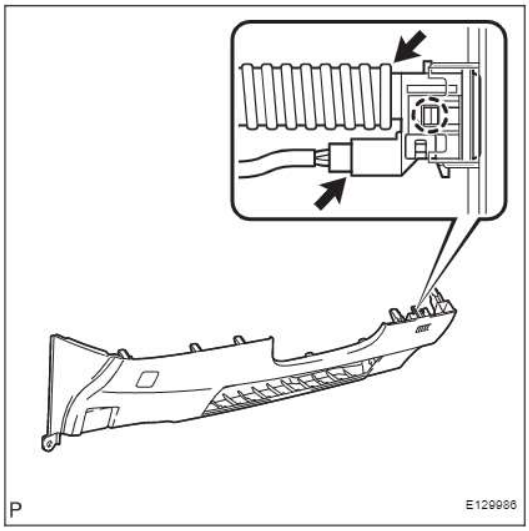
NOTICE:

- **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).

AC

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



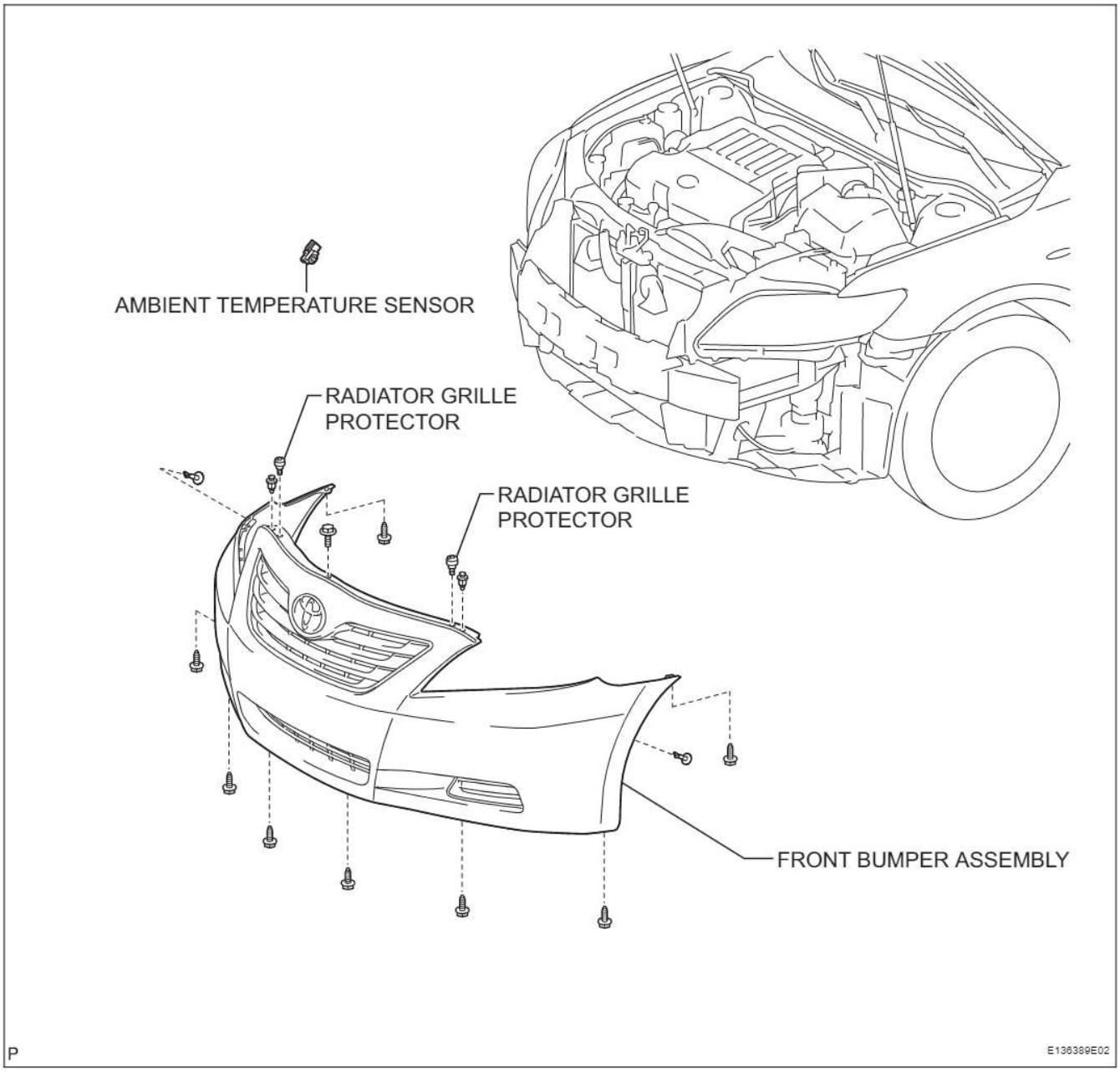
INSTALLATION

1. **INSTALL ROOM TEMPERATURE SENSOR**
   (a) Engage the claw to install the sensor.
   (b) Connect the connector and attach the air hose.
2. **INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-35)**
3. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-41)**
4. **INSTALL FRONT DOOR SCUFF PLATE LH (See page IR-41)**

AC

AMBIENT TEMPERATURE SENSOR

COMPONENTS

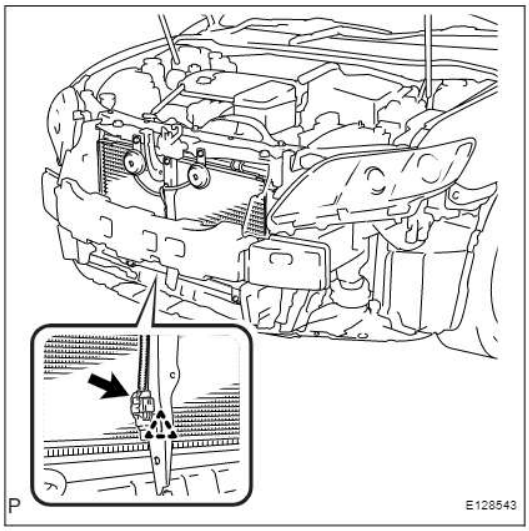


AC

REMOVAL

1. **REMOVE FRONT BUMPER ASSEMBLY (See page ET-3)**

2. **REMOVE AMBIENT TEMPERATURE SENSOR**
   (a) Disconnect the connector and detach the clamp.
   (b) Remove the ambient temperature sensor.



INSPECTION

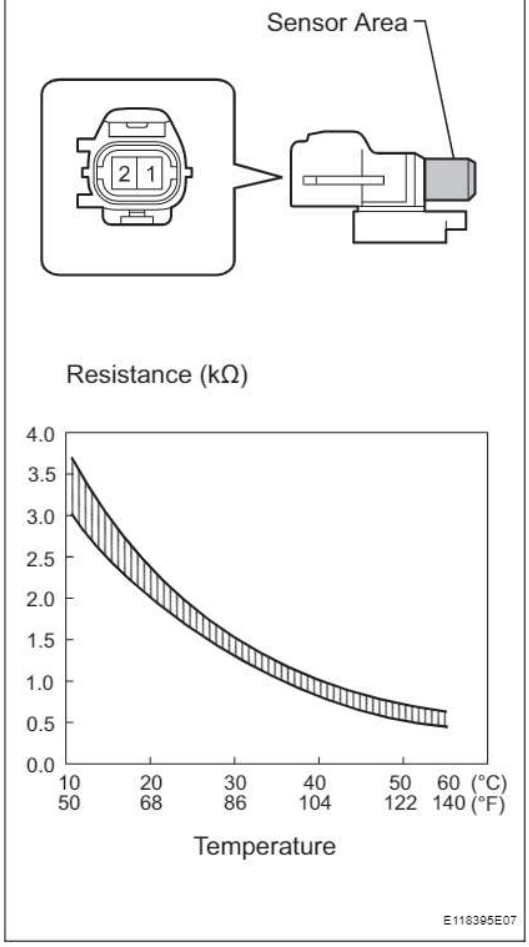
1. **INSPECT AMBIENT TEMPERATURE SENSOR**
   (a) Measure the resistance according to the value(s) in the table below.
   Standard resistance

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
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

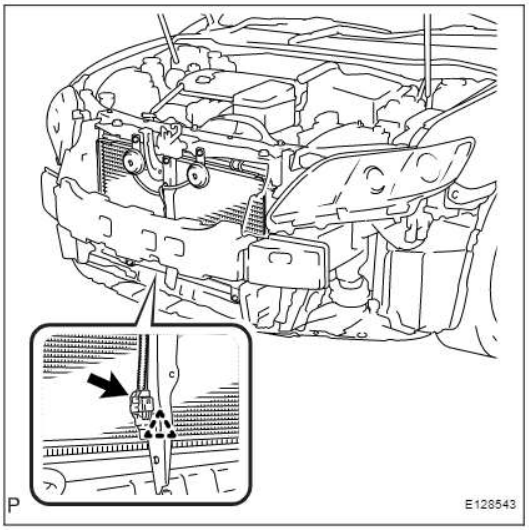
NOTICE:
- **Even slightly touching the sensor may change the resistance value. Be sure to hold the connector of the sensor.**
- **When measuring, the sensor temperature must be the same as the ambient temperature.**

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

Ambient Temperature Sensor Connector Front View:



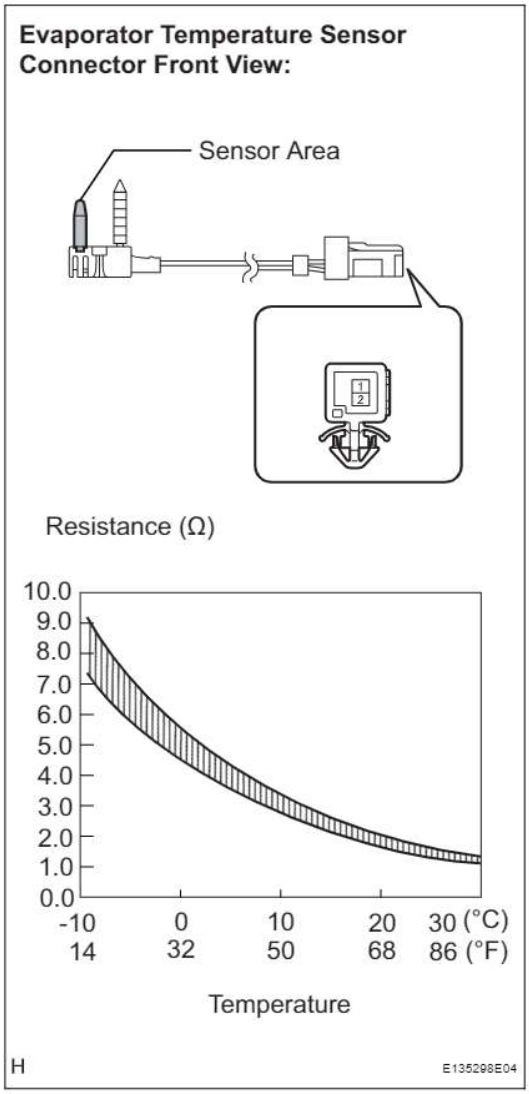
AC



INSTALLATION

1. **INSTALL AMBIENT TEMPERATURE SENSOR**
   (a) Install the ambient temperature sensor with the clamp.
   (b) Connect the connector.
2. **INSTALL FRONT BUMPER ASSEMBLY (See page ET-9)**

AC



EVAPORATOR TEMPERATURE SENSOR

ON-VEHICLE INSPECTION

1. INSPECT EVAPORATOR TEMPERATURE SENSOR

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

Standard resistance

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

NOTICE:

- **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.

AC

AIR CONDITIONING PRESSURE SENSOR

ON-VEHICLE INSPECTION

1. INSPECT PRESSURE SENSOR

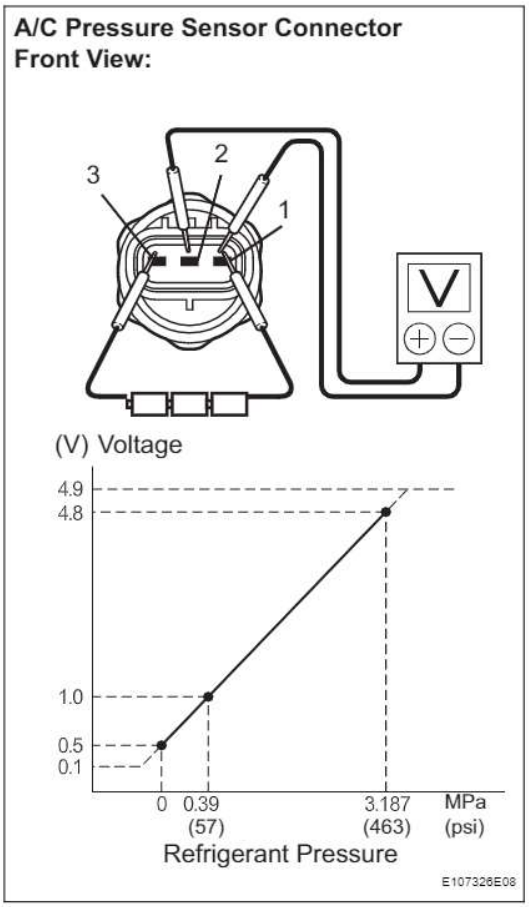
(a) Install the manifold gauge set (See page AC-165).

(b) Connect the three 1.5 V dry cell batteries' positive (+) lead to terminal 3, and the negative (-) lead to terminal 1. Then connect the voltmeter's positive (+) lead to terminal 2, and the negative (-) lead to terminal 1. Measure the voltage.

OK:

The voltage changes according to refrigerant pressure, as shown in the graph.

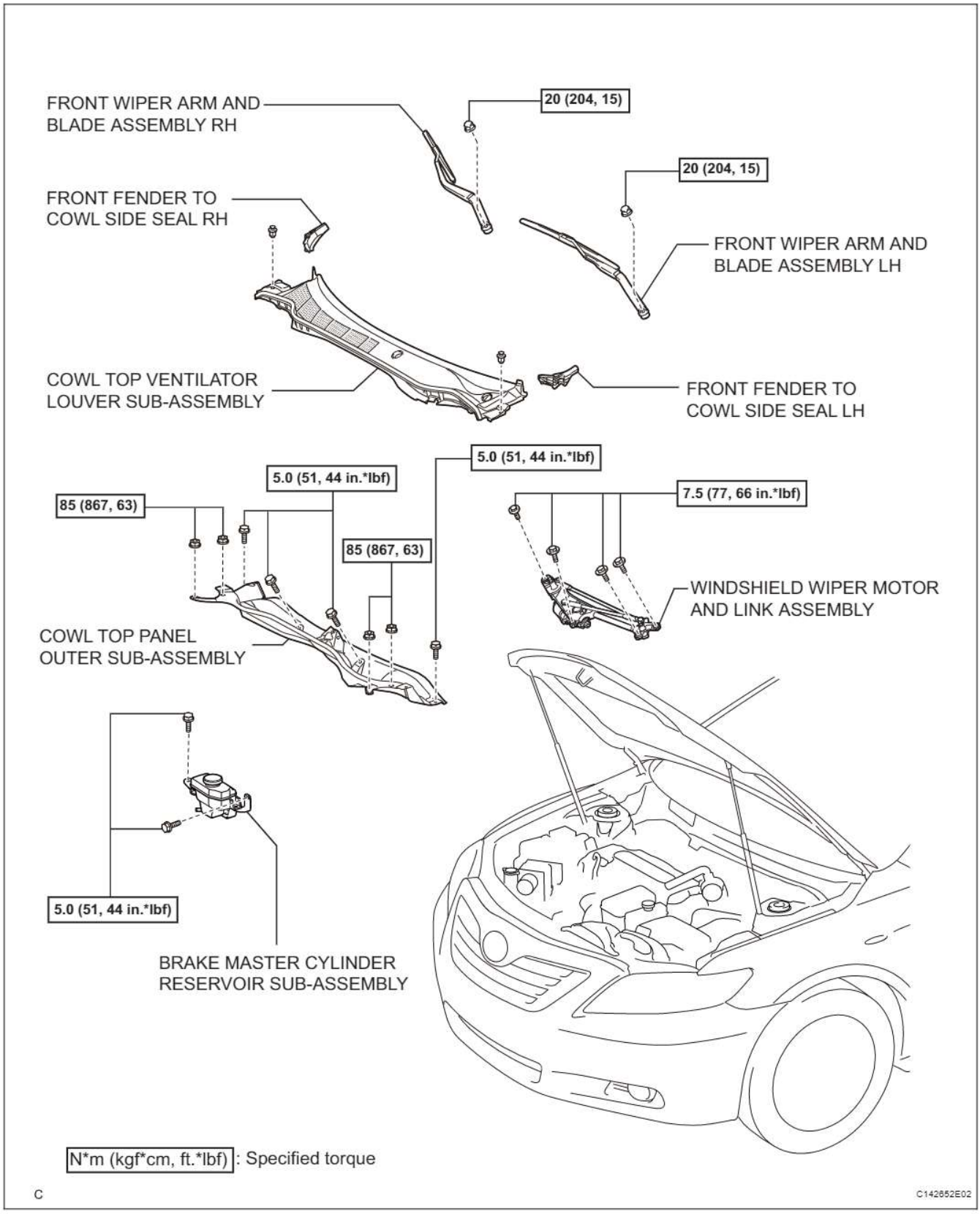
If the voltage is not as specified, replace the pressure sensor.



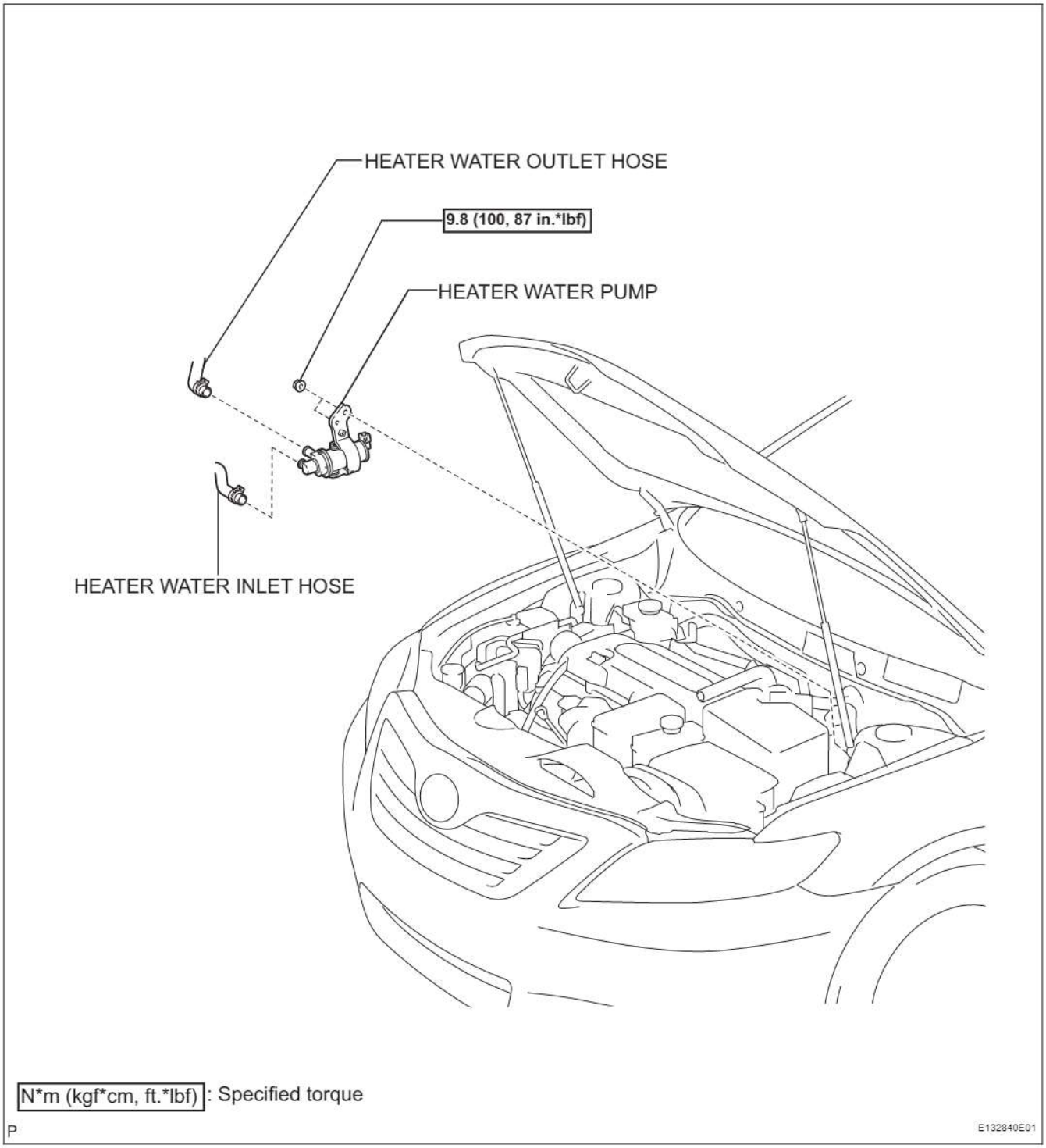
AC

HEATER WATER PUMP

COMPONENTS



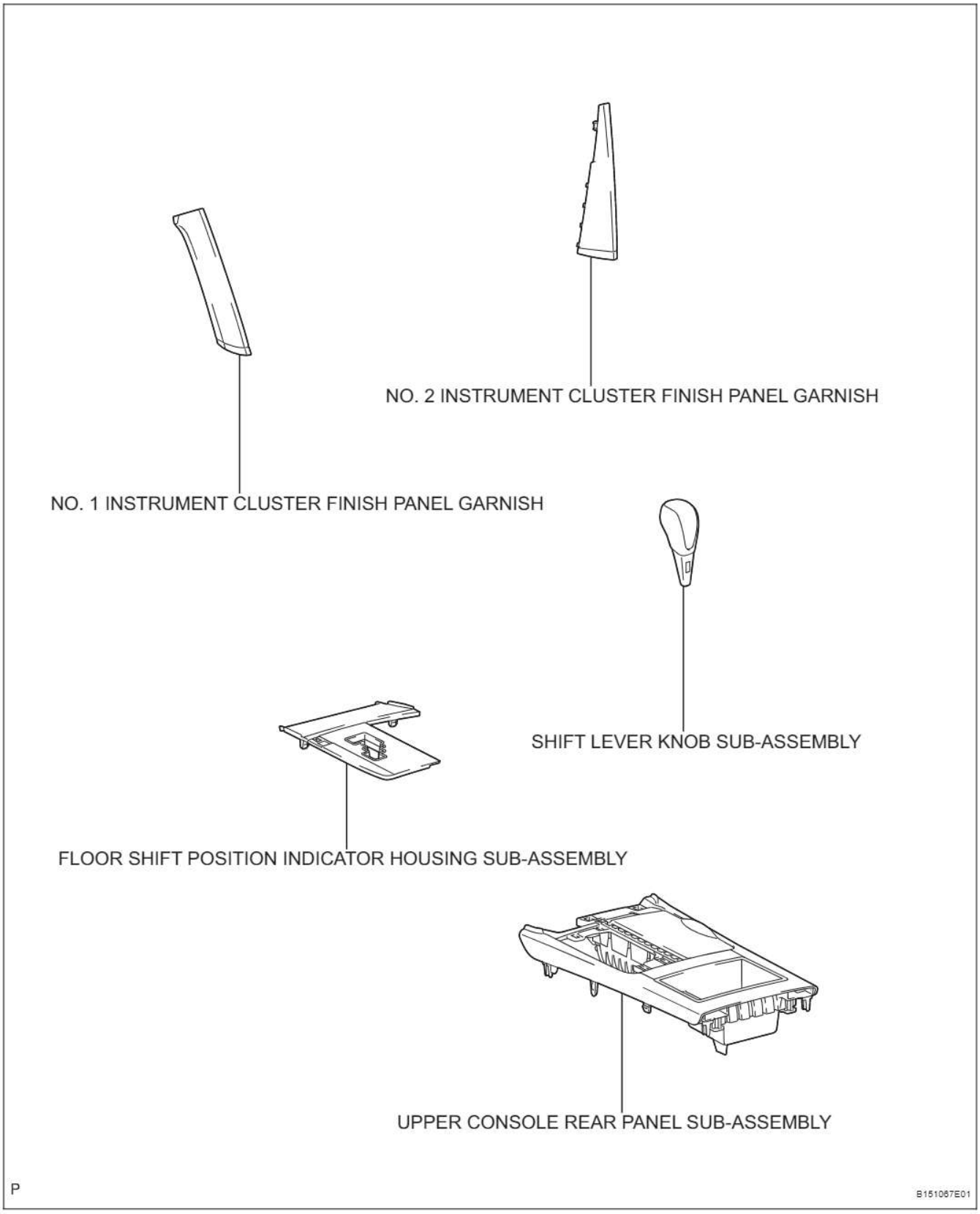
AC


HEATER WATER OUTLET HOSE
9.8 (100, 87 in.*lbf)
HEATER WATER PUMP
HEATER WATER INLET HOSE
N*m (kgf*cm, ft.*lbf): Specified torque
P
E132840E01

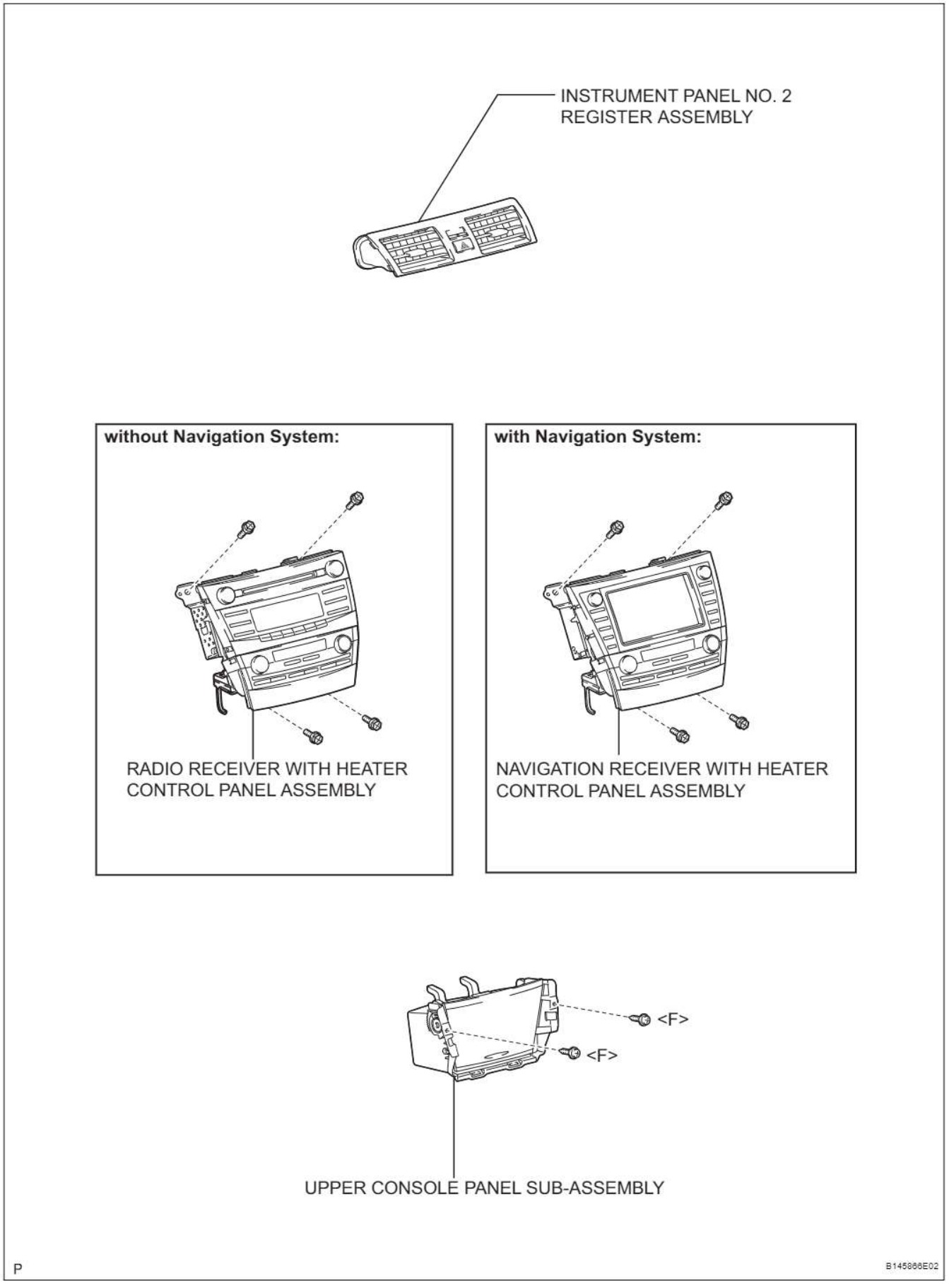
AC

AIR CONDITIONING CONTROL ASSEMBLY

COMPONENTS

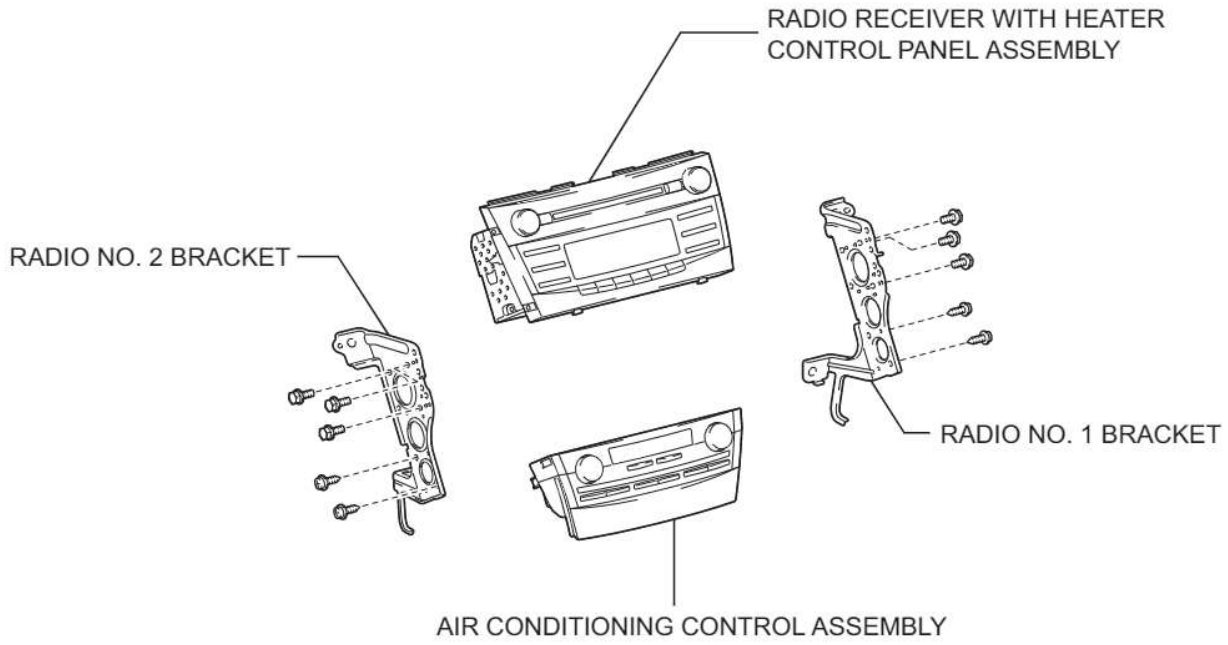


AC

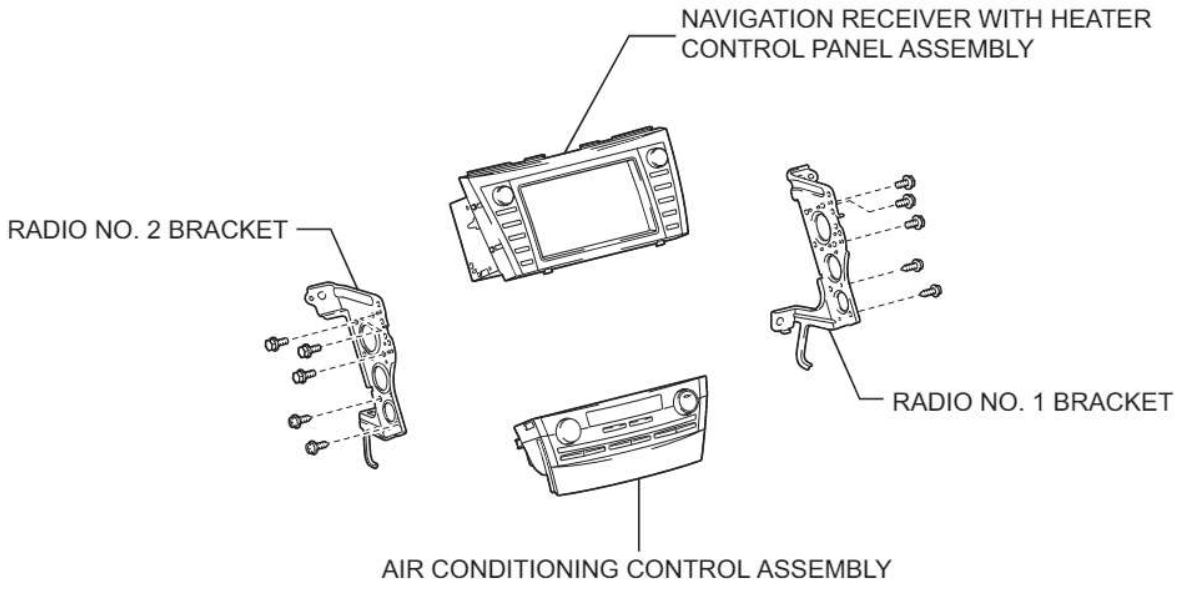

INSTRUMENT PANEL NO. 2
REGISTER ASSEMBLY
without Navigation System:
RADIO RECEIVER WITH HEATER
CONTROL PANEL ASSEMBLY
with Navigation System:
NAVIGATION RECEIVER WITH HEATER
CONTROL PANEL ASSEMBLY
<F>
<F>
UPPER CONSOLE PANEL SUB-ASSEMBLY
P
B145866E02

AC

without Navigation System:

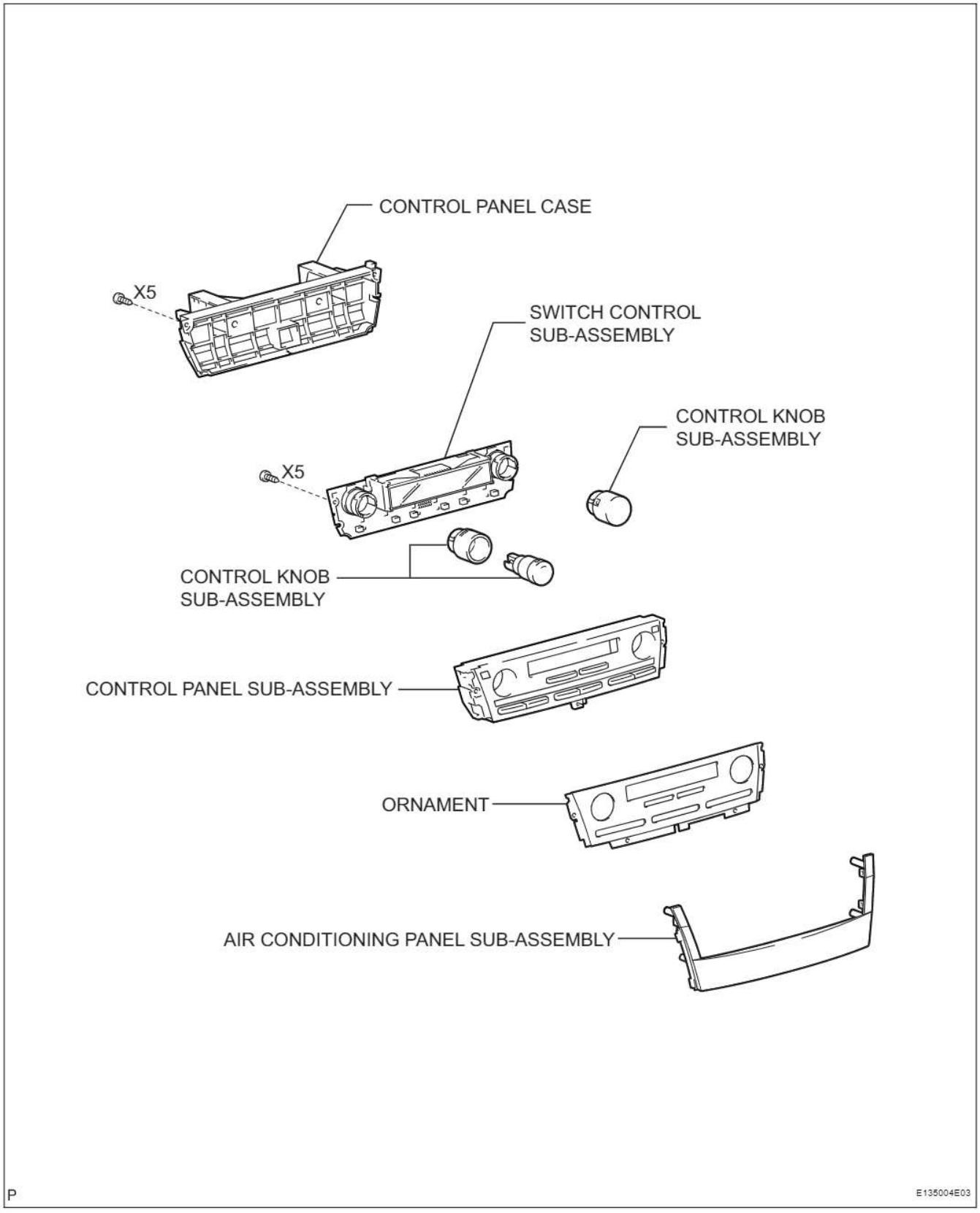


with Navigation System:



AC

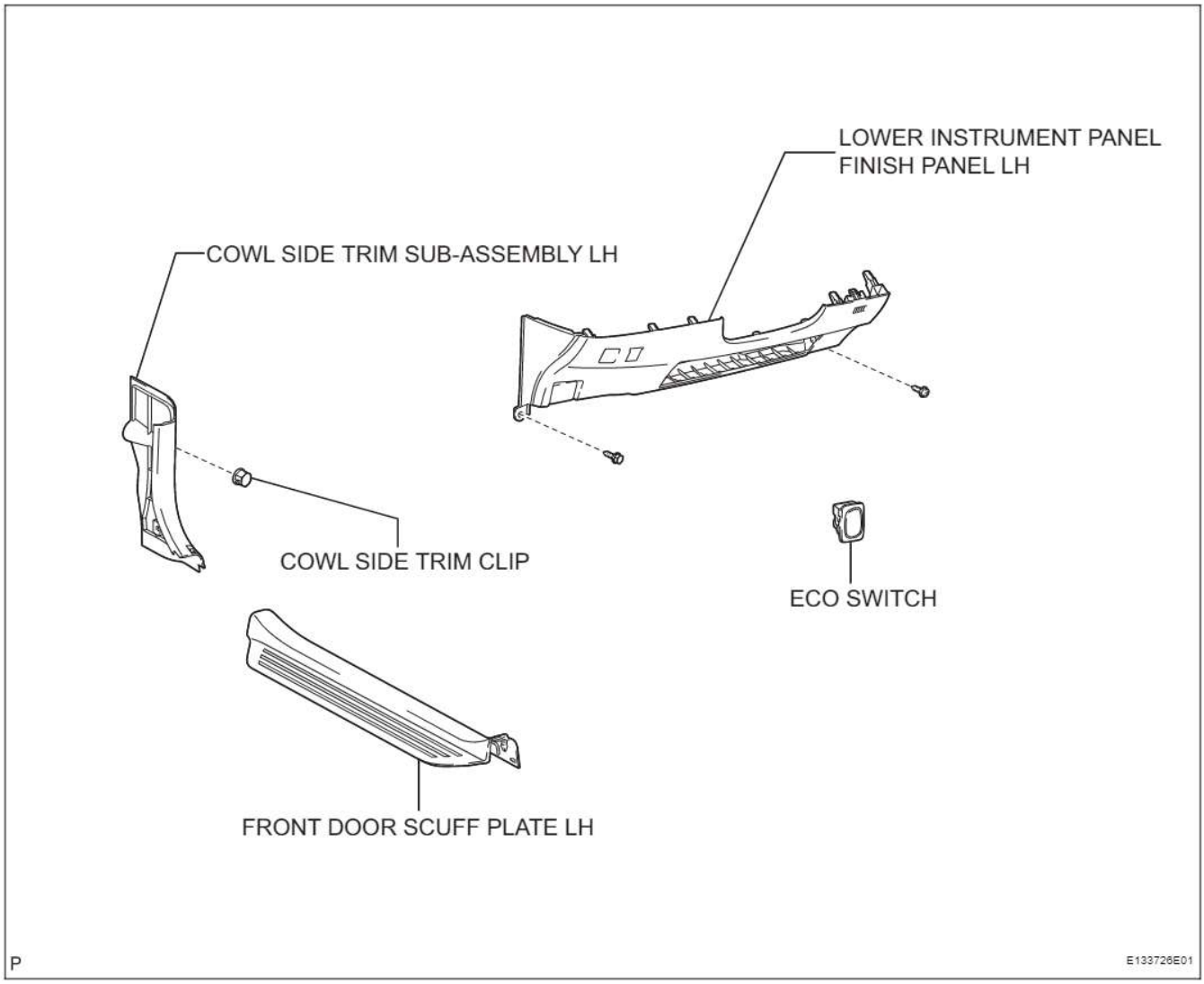
P E136391E01


CONTROL PANEL CASE
X5
SWITCH CONTROL
SUB-ASSEMBLY
CONTROL KNOB
SUB-ASSEMBLY
X5
CONTROL KNOB
SUB-ASSEMBLY
CONTROL PANEL SUB-ASSEMBLY
ORNAMENT
AIR CONDITIONING PANEL SUB-ASSEMBLY
P
E135004E03

AC

ECO SWITCH

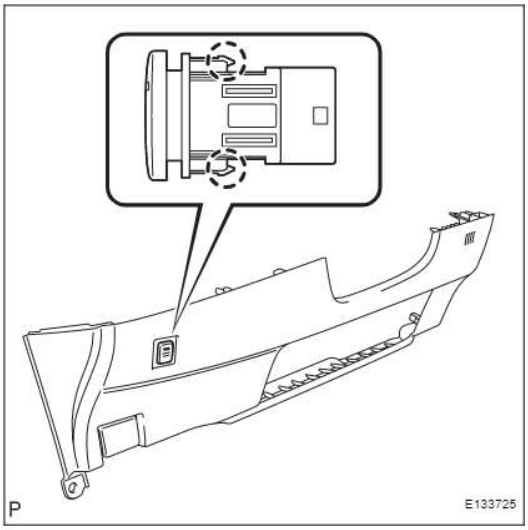
COMPONENTS



AC

REMOVAL

1. REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-13)
2. REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-14)
3. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH (See page IP-11)
4. REMOVE ECO SWITCH
   (a) Release the 2 claws and remove the eco switch.

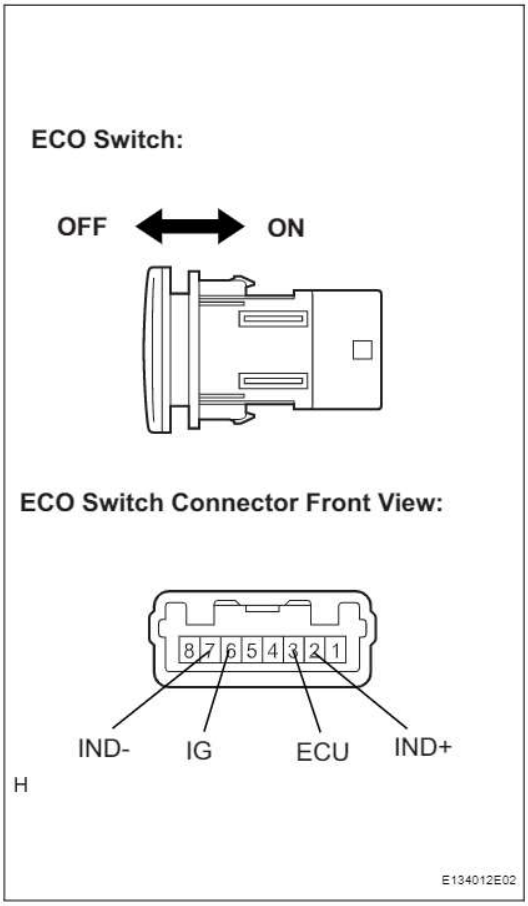


INSPECTION

1. INSPECT ECO SWITCH
   (a) Measure the resistance according to the value(s) in the table below.
   Standard resistance

Tester Connection (Symbols)	Condition	Specified Condition
6 (IG) - 3 (ECU)	ECO switch: OFF (when switch is not pressed)	10 kΩ or higher
6 (IG) - 3 (ECU)	ECO switch: ON (when switch is pressed)	Below 1 Ω

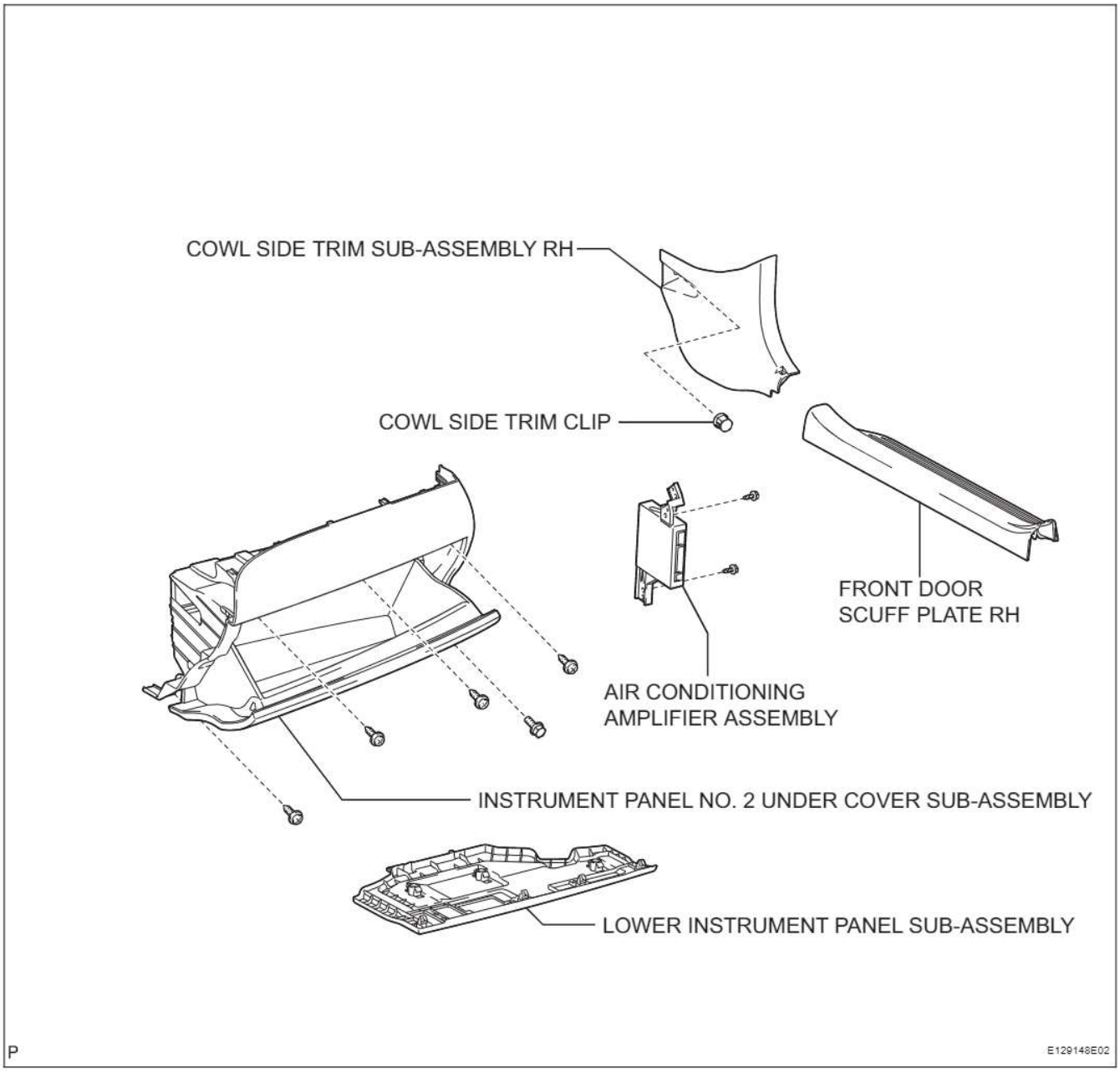
   If the resistance is not as specified, replace the ECO switch.
   (b) Connect the positive (+) lead from the battery to terminal 2 (IND+), and the negative (-) lead to terminal 7 (IND-). Check that the indicator light comes on.
   OK:
   Indicator light comes on.
   If the result is not as specified, replace the ECO switch.



AC

AIR CONDITIONING AMPLIFIER

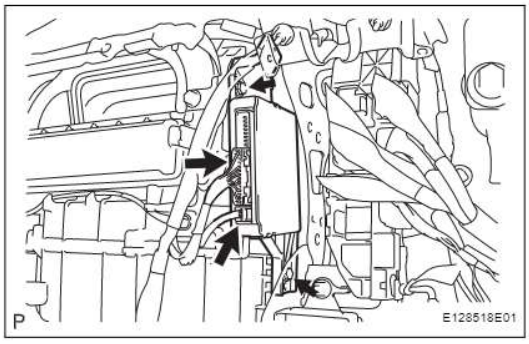
COMPONENTS

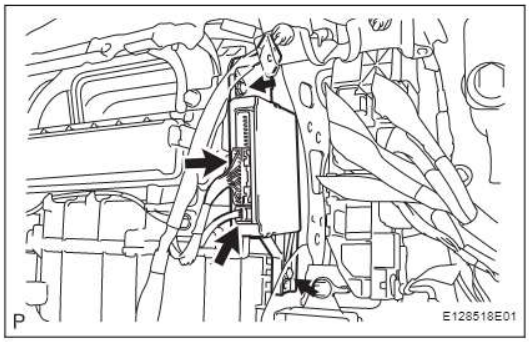


AC

REMOVAL

1. REMOVE FRONT DOOR SCUFF PLATE RH (See page IR-15)
2. REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-15)
3. REMOVE INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY (See page IP-13)
4. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-14)
5. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY
   (a) Disconnect the connectors.
   (b) Remove the 2 bolts and air conditioning amplifier assembly.





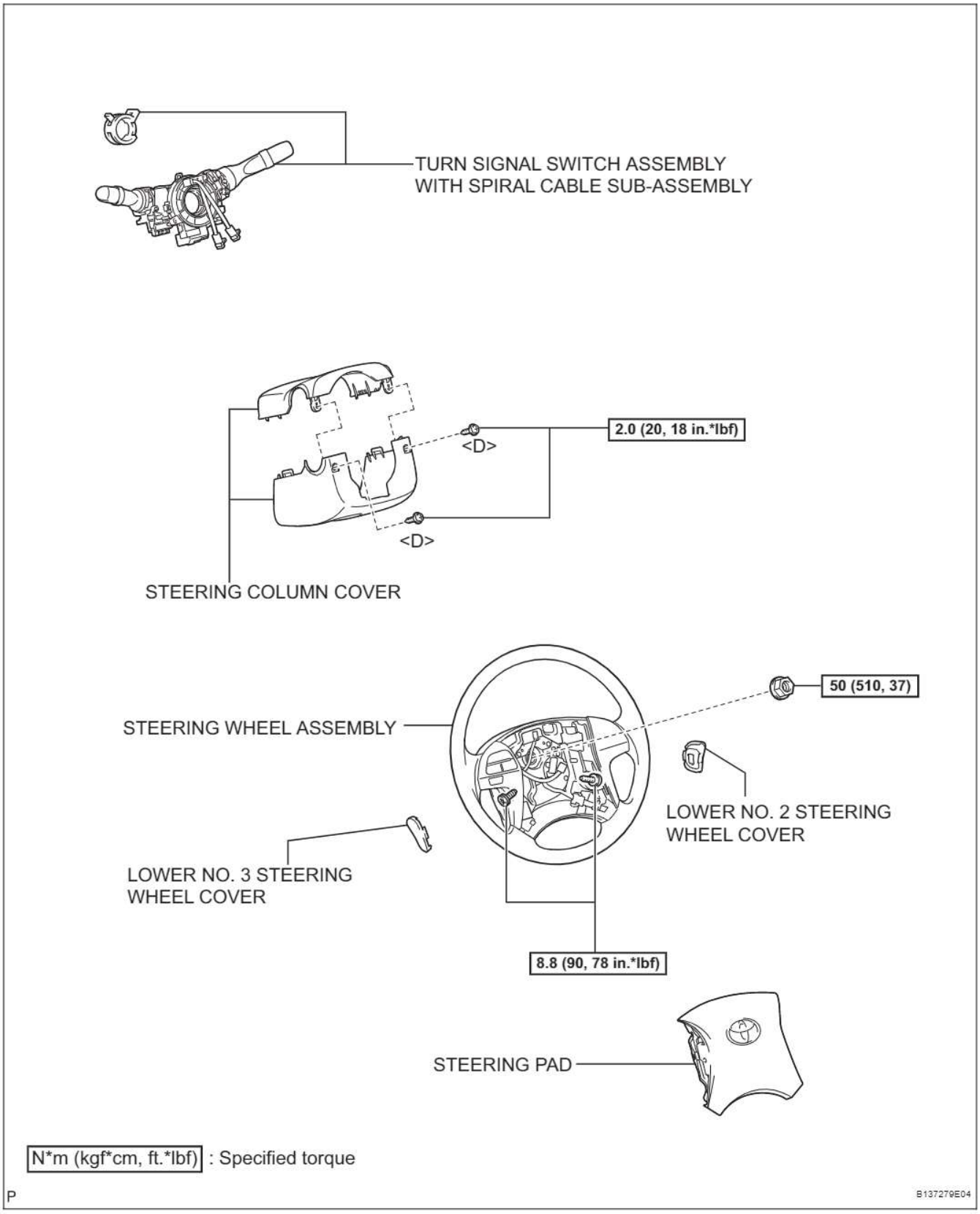
INSTALLATION

1. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY
   (a) Install the air conditioning amplifier assembly with the 2 bolts.
   (b) Connect the connectors.
2. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-33)
3. INSTALL INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY (See page IP-33)
4. INSTALL COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-42)
5. INSTALL FRONT DOOR SCUFF PLATE RH (See page IR-42)

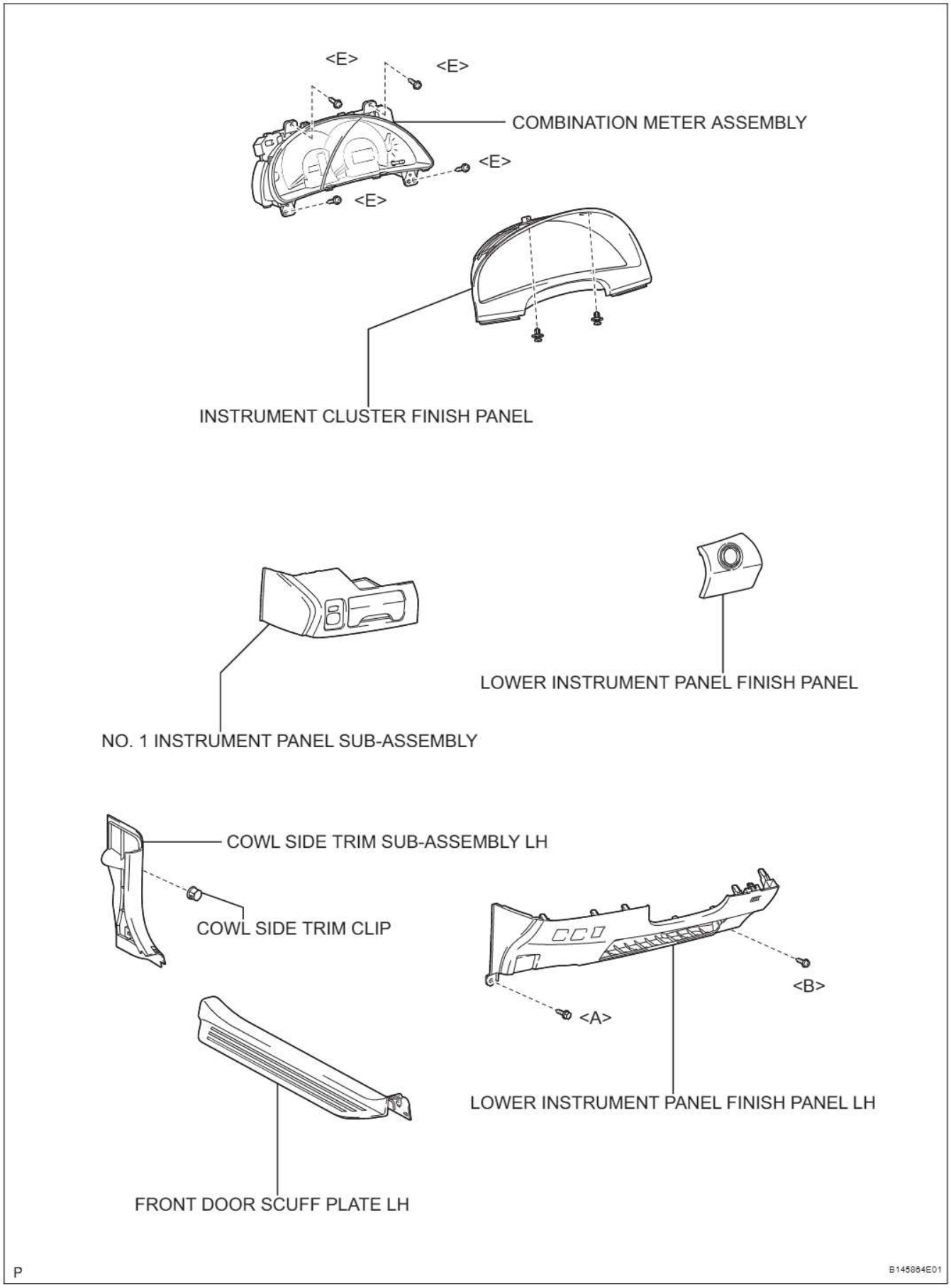
AC

PLASMACLUSTER

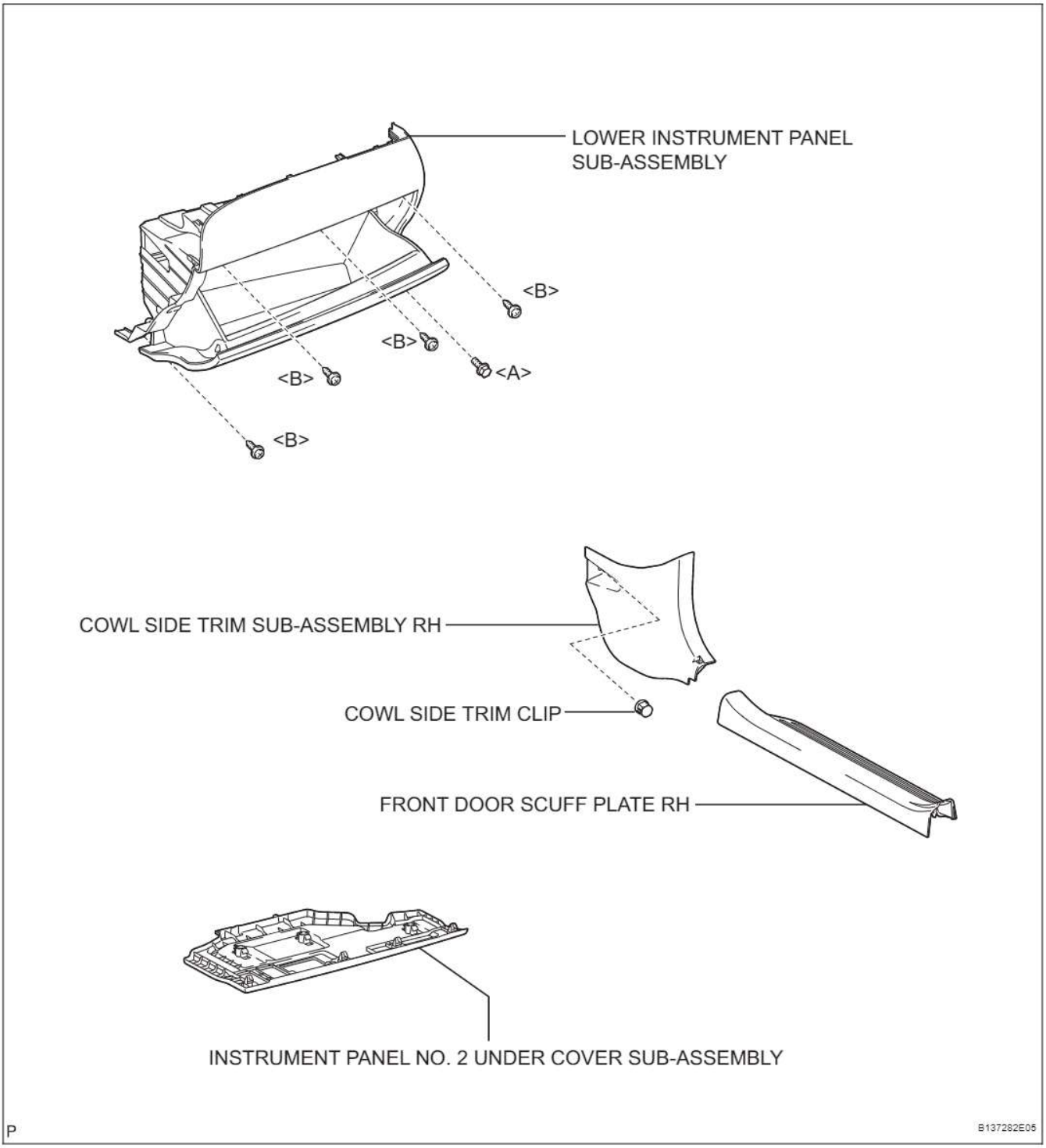
COMPONENTS



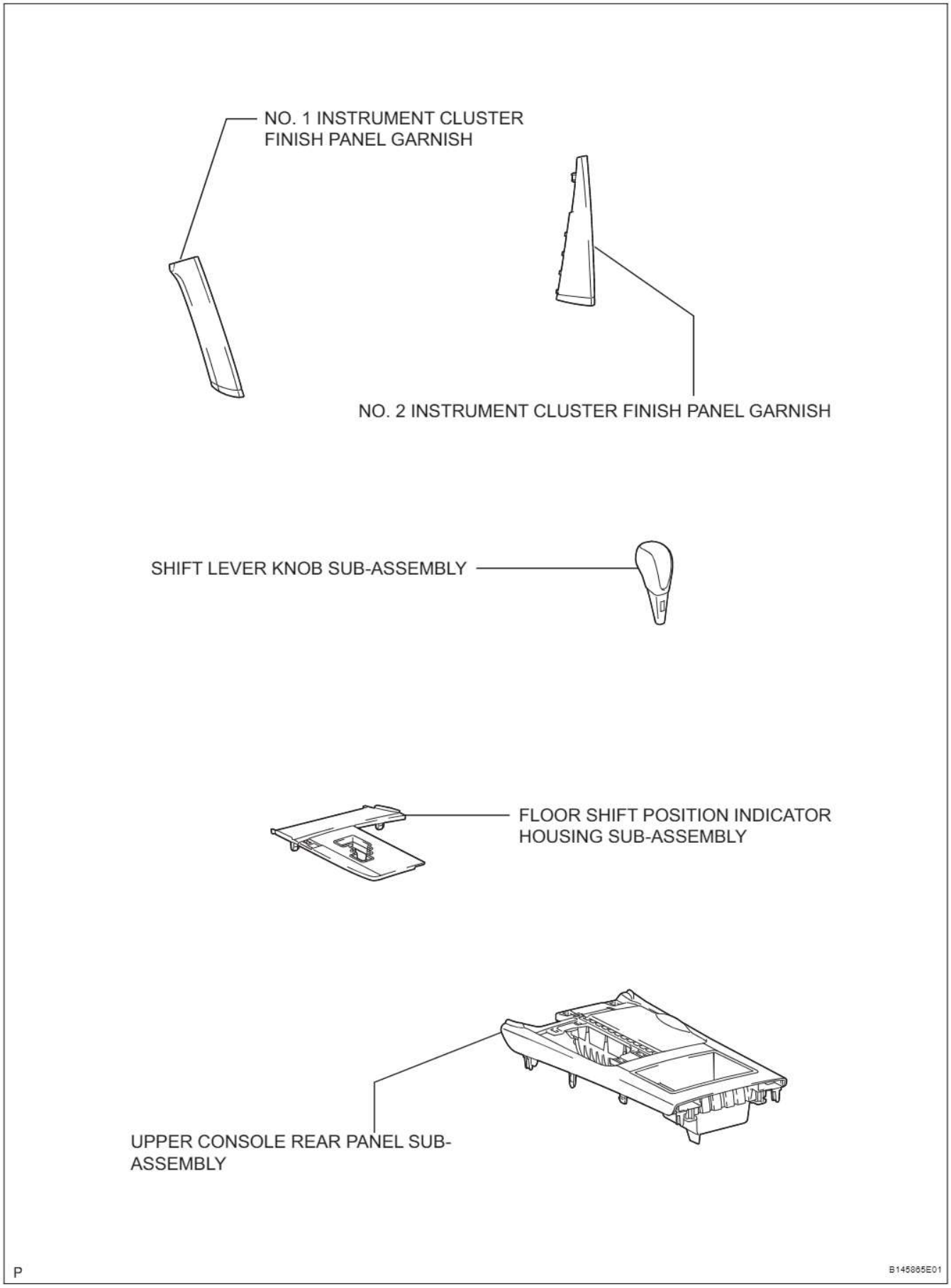
AC


<E>
<E>
COMBINATION METER ASSEMBLY
<E>
<E>
INSTRUMENT CLUSTER FINISH PANEL
LOWER INSTRUMENT PANEL FINISH PANEL
NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY
COWL SIDE TRIM SUB-ASSEMBLY LH
COWL SIDE TRIM CLIP
<B>
<A>
LOWER INSTRUMENT PANEL FINISH PANEL LH
FRONT DOOR SCUFF PLATE LH
P
B145864E01

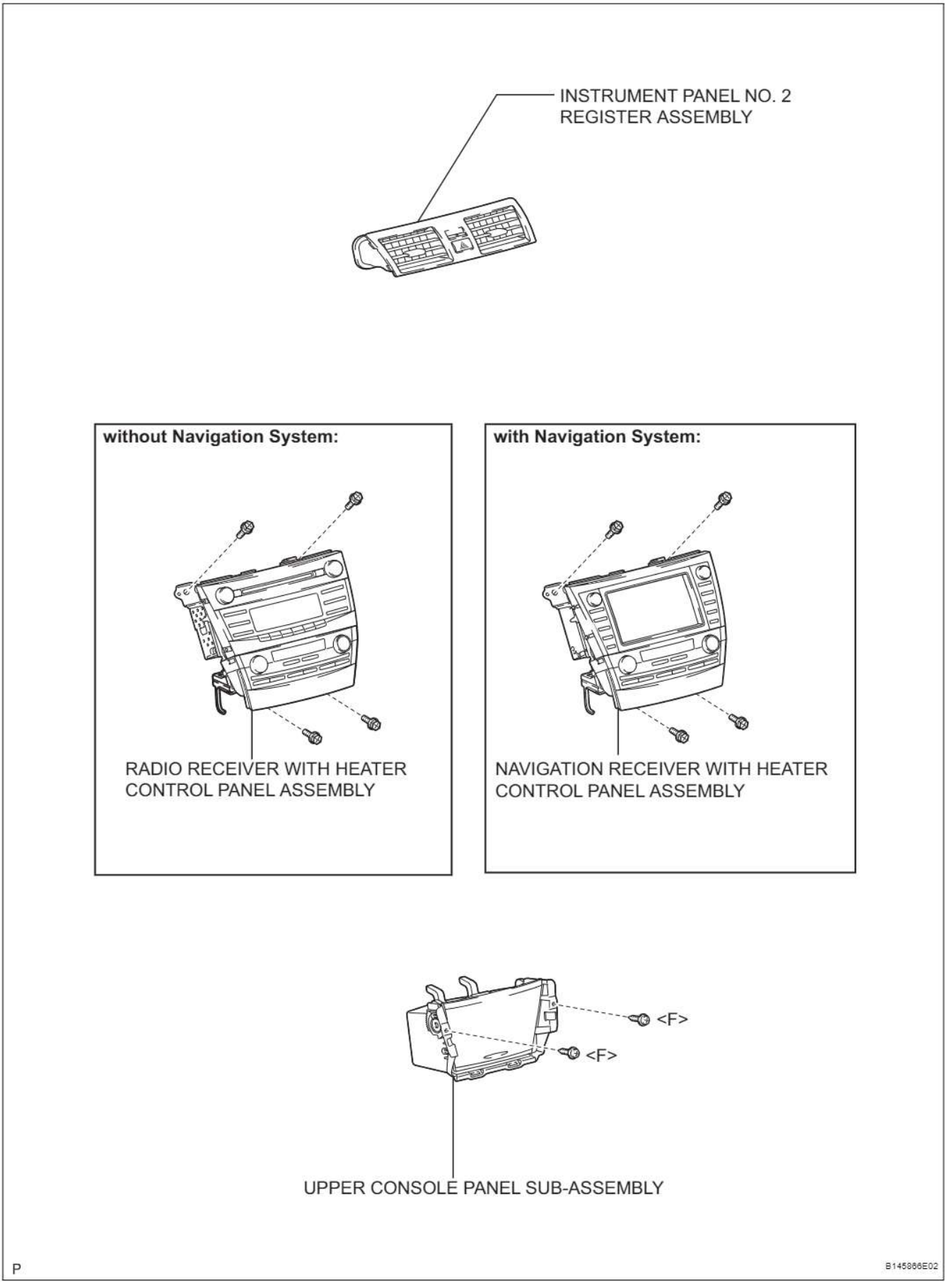
AC


LOWER INSTRUMENT PANEL SUB-ASSEMBLY
<B>
<B>
<B>
<A>
<B>
COWL SIDE TRIM SUB-ASSEMBLY RH
COWL SIDE TRIM CLIP
FRONT DOOR SCUFF PLATE RH
INSTRUMENT PANEL NO. 2 UNDER COVER SUB-ASSEMBLY
P
B137282E05

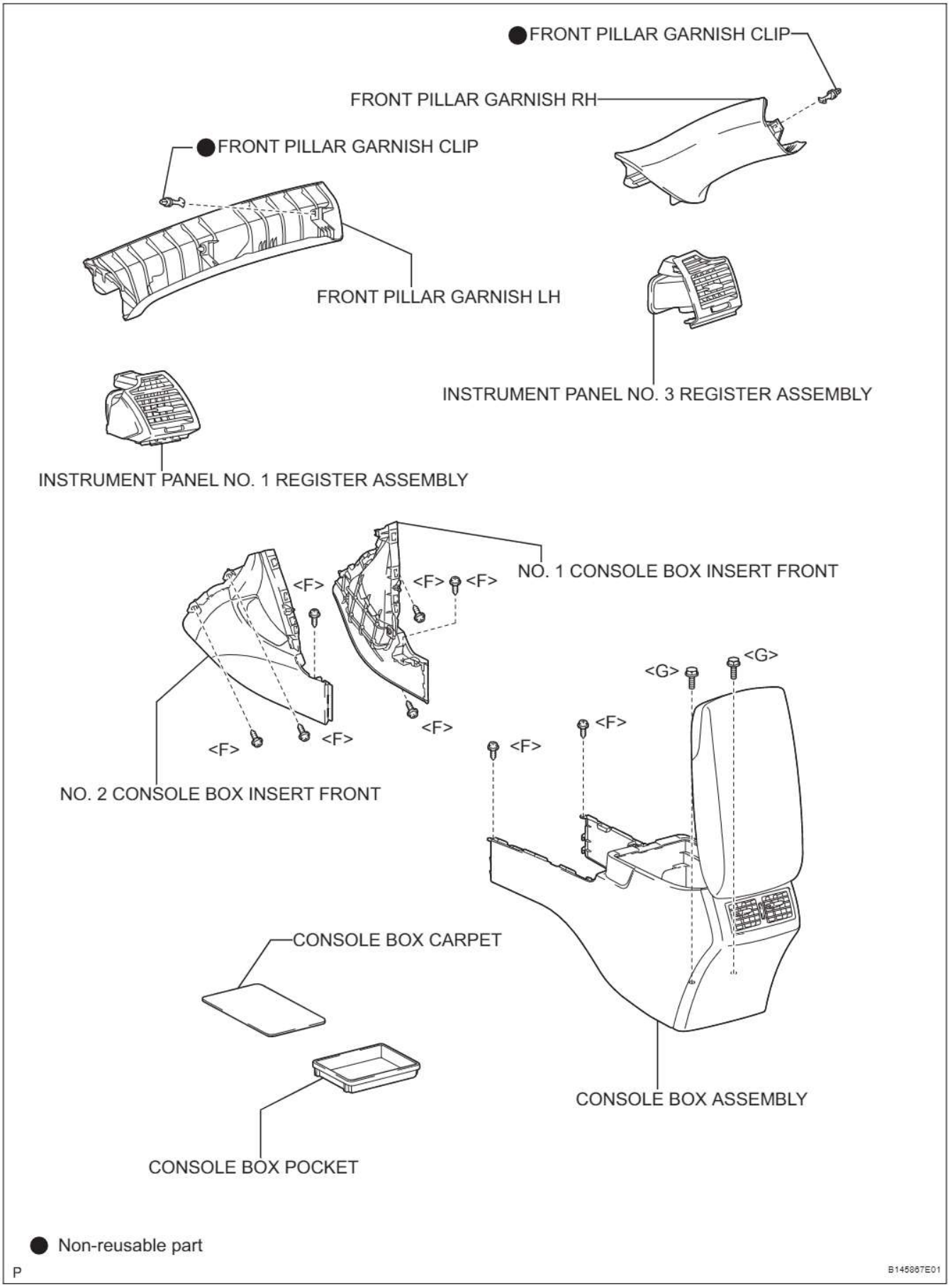
AC


NO. 1 INSTRUMENT CLUSTER FINISH PANEL GARNISH
NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH
SHIFT LEVER KNOB SUB-ASSEMBLY
FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY
UPPER CONSOLE REAR PANEL SUB-ASSEMBLY
P
B145865E01

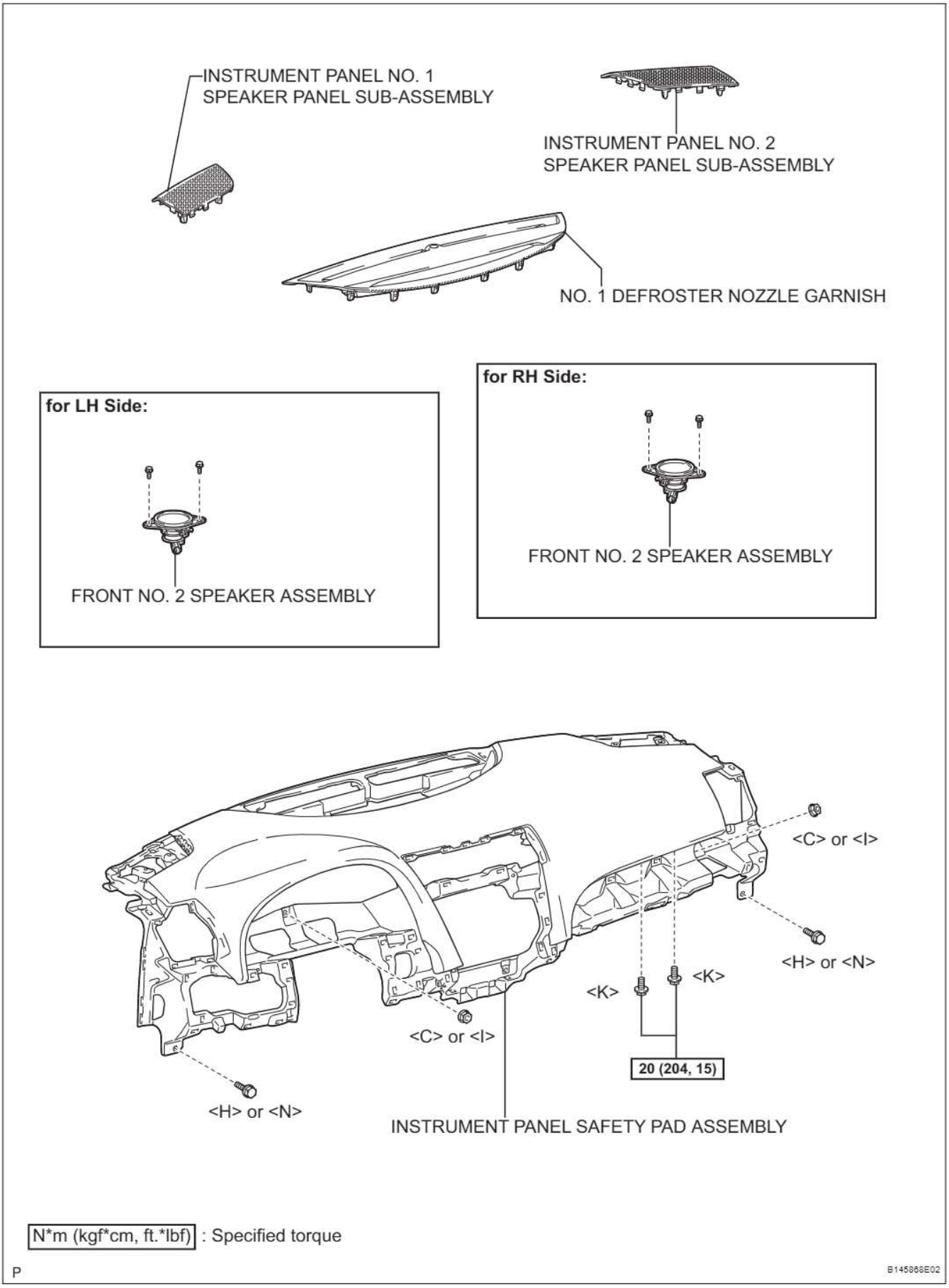
AC


INSTRUMENT PANEL NO. 2
REGISTER ASSEMBLY
without Navigation System:
RADIO RECEIVER WITH HEATER
CONTROL PANEL ASSEMBLY
with Navigation System:
NAVIGATION RECEIVER WITH HEATER
CONTROL PANEL ASSEMBLY
<F>
<F>
UPPER CONSOLE PANEL SUB-ASSEMBLY
P
B145866E02

AC


FRONT PILLAR GARNISH CLIP
FRONT PILLAR GARNISH RH
FRONT PILLAR GARNISH CLIP
FRONT PILLAR GARNISH LH
INSTRUMENT PANEL NO. 3 REGISTER ASSEMBLY
INSTRUMENT PANEL NO. 1 REGISTER ASSEMBLY
NO. 1 CONSOLE BOX INSERT FRONT
<F>
<G>
NO. 2 CONSOLE BOX INSERT FRONT
CONSOLE BOX CARPET
CONSOLE BOX ASSEMBLY
CONSOLE BOX POCKET
Non-reusable part
P
B145867E01

AC

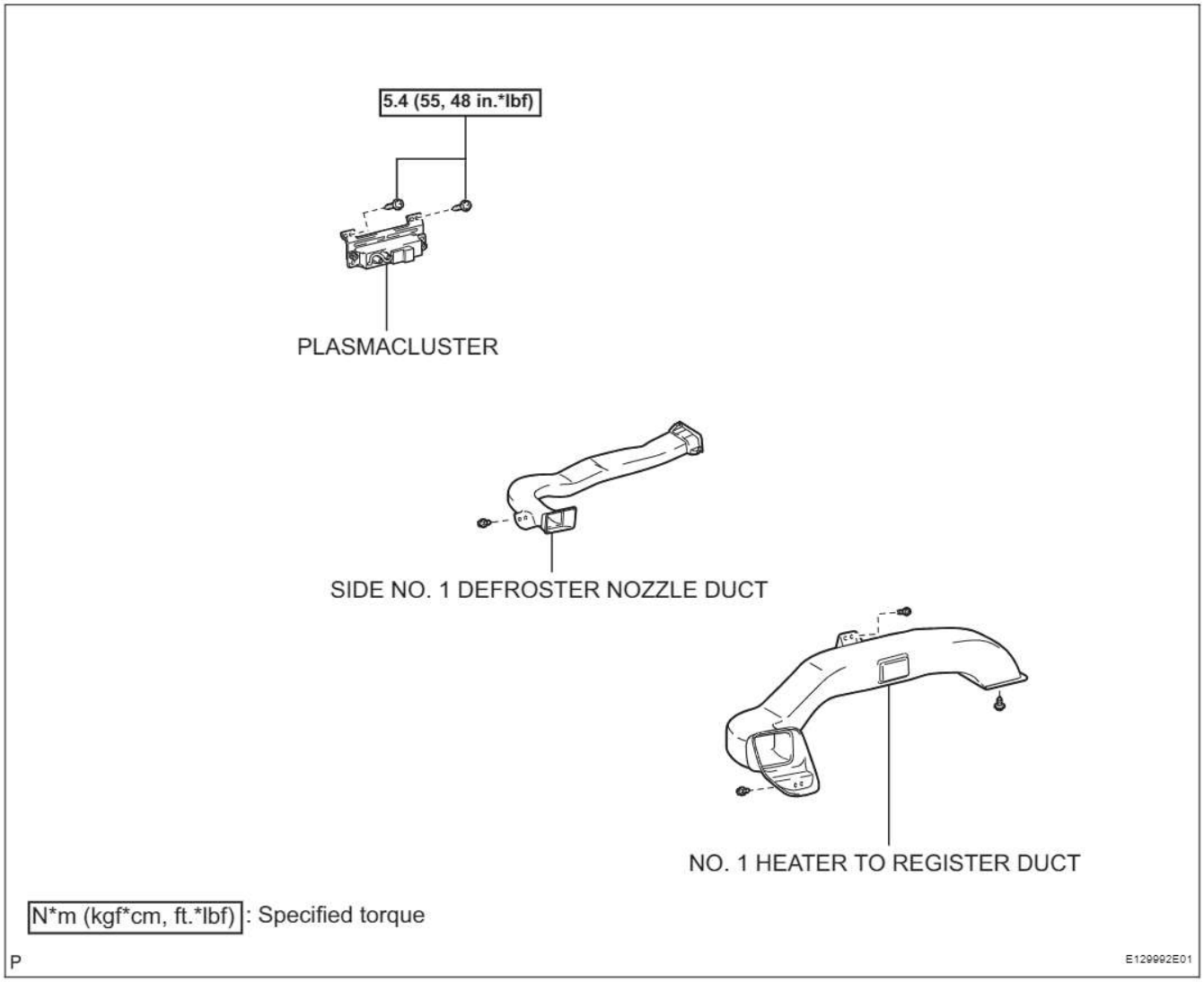


AC

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

P

B145868E02


5.4 (55, 48 in.*lbf)
PLASMACLUSTER
SIDE NO. 1 DEFROSTER NOZZLE DUCT
NO. 1 HEATER TO REGISTER DUCT
N*m (kgf*cm, ft.*lbf) : Specified torque
P
E129992E01

AC