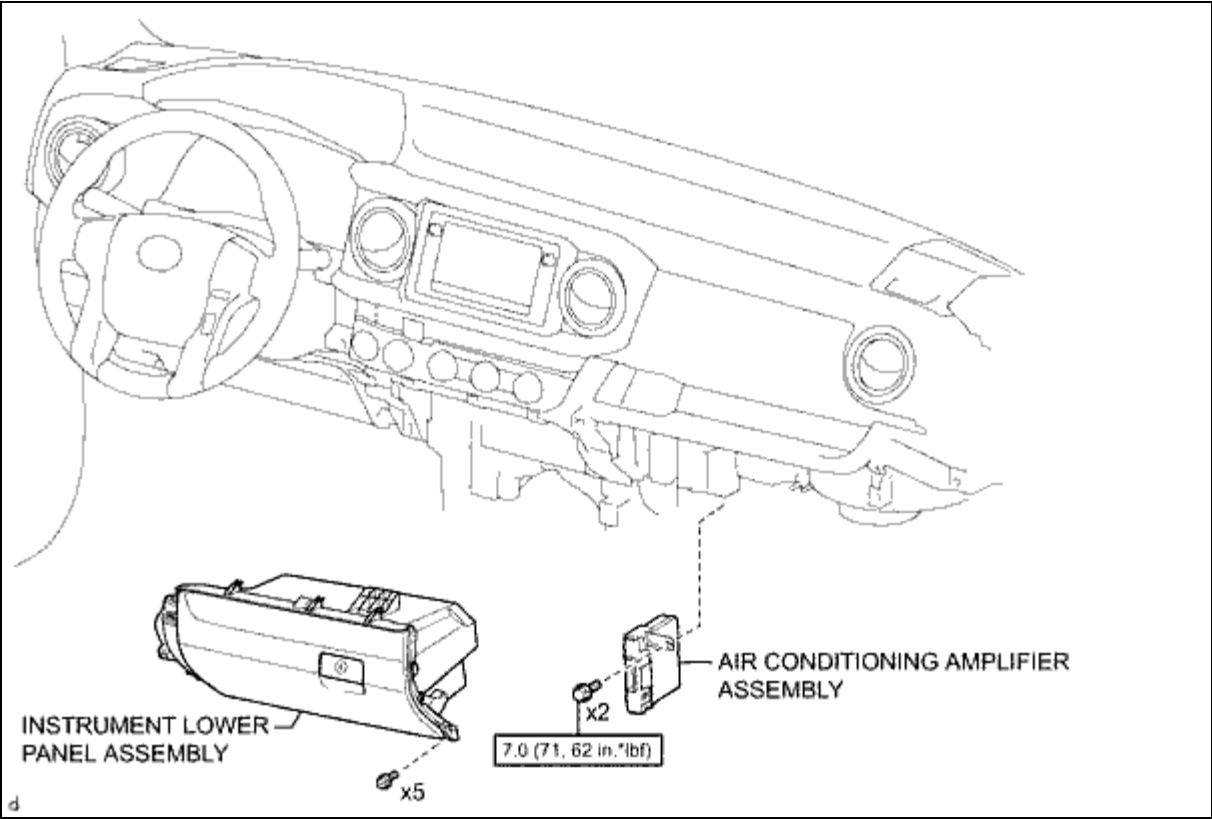


Last Modified: 11-13-2015	6.6 K	Doc ID: RM0000016BG00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016BF00BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY

- (a) Install the air conditioner amplifier assembly with the 2 bolts.

Torque:

7.0 N·m {71 kgf·cm, 62in·lbf}

- (b) Connect the 2 connectors.

2. INSTALL INSTRUMENT LOWER PANEL ASSEMBLY [INFO](#)

3. INSTALL LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016BH00BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING AMPLIFIER: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY

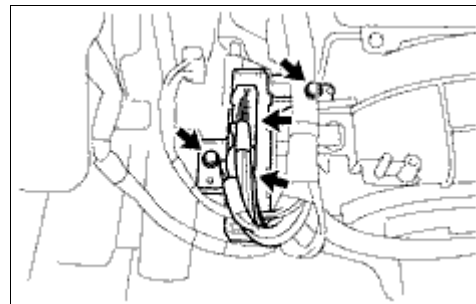
INFO

2. REMOVE INSTRUMENT LOWER PANEL ASSEMBLY

INFO

3. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY

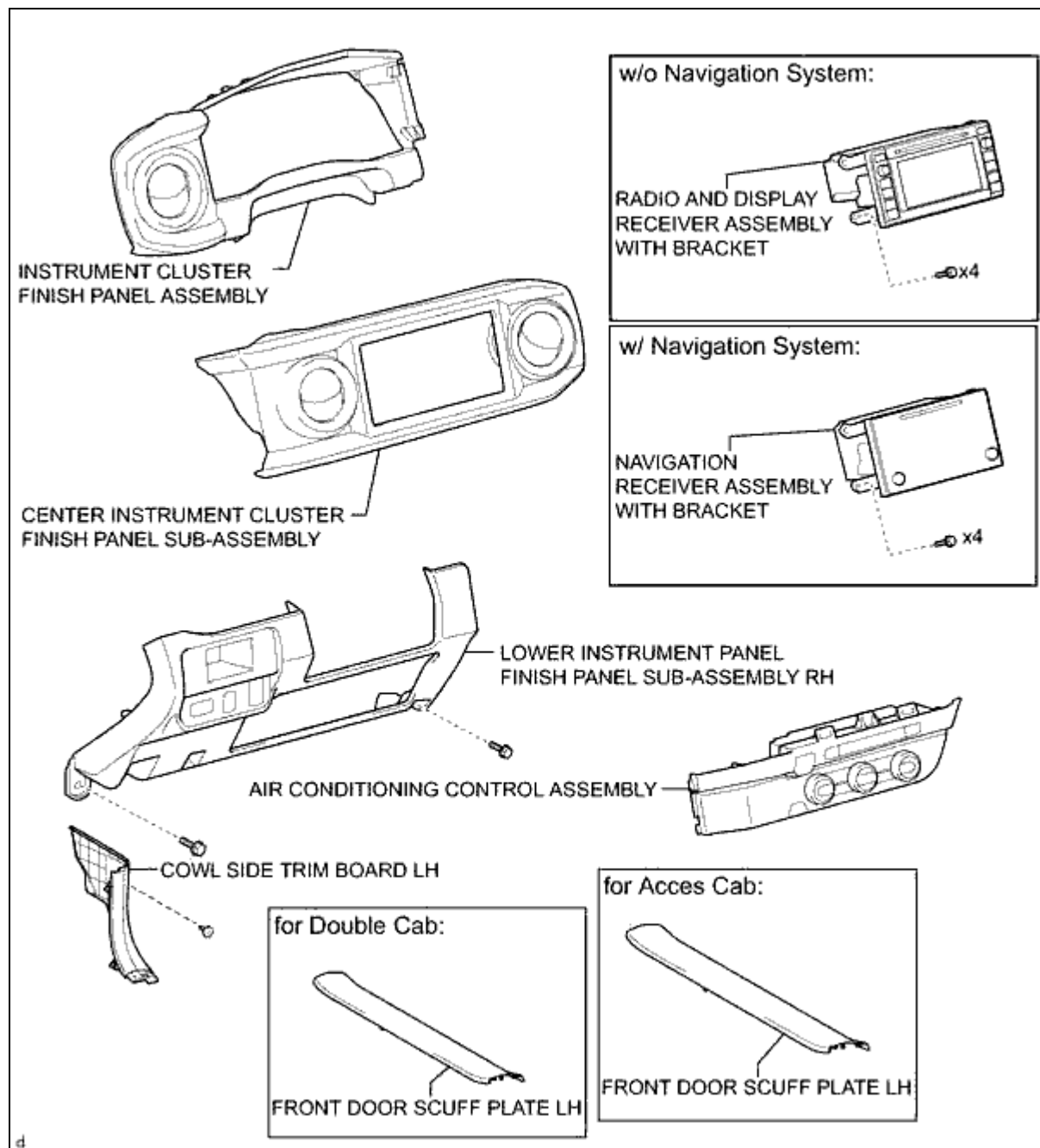
- Disconnect the 2 connectors.
- Remove the 2 bolts and air conditioning amplifier assembly.



Last Modified: 11-13-2015	6.6 K	Doc ID: RM0000016AD00KX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PANEL (for Automatic Air Conditioning System): COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016AB00LX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PANEL (for Automatic Air Conditioning System): INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL AIR CONDITIONING CONTROL ASSEMBLY

- (a) Connect the connectors.
- (b) Engage the 8 clips to install the air conditioning control assembly.

2. INSTALL RADIO AND DISPLAY RECEIVER ASSEMBLY WITH BRACKET (w/o Navigation System) [INFO](#)

3. INSTALL NAVIGATION RECEIVER ASSEMBLY WITH BRACKET (w/ Navigation System) [INFO](#)

4. INSTALL INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH [INFO](#)

5. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY [INFO](#)

6. INSTALL INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY [INFO](#)

7. INSTALL COWL SIDE TRIM BOARD LH [INFO](#)

8. REMOVE FRONT DOOR SCUFF PLATE LH (for Access Cab) [INFO](#)

9. INSTALL FRONT DOOR SCUFF PLATE LH (for Double Cab) [INFO](#)

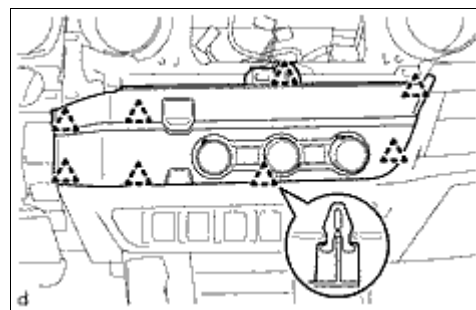


Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016AE00LX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PANEL (for Automatic Air Conditioning System): REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE FRONT DOOR SCUFF PLATE LH (for Double Cab) [INFO](#)
2. REMOVE FRONT DOOR SCUFF PLATE LH (for Access Cab) [INFO](#)
3. REMOVE COWL SIDE TRIM BOARD LH [INFO](#)
4. REMOVE INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY [INFO](#)
5. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY [INFO](#)
6. REMOVE INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH [INFO](#)
7. REMOVE NAVIGATION RECEIVER ASSEMBLY WITH BRACKET (w/ Navigation System) [INFO](#)
8. REMOVE RADIO AND DISPLAY RECEIVER ASSEMBLY WITH BRACKET (w/o Navigation System) [INFO](#)
9. REMOVE AIR CONDITIONING CONTROL ASSEMBLY

(a) Disengage the 8 clips.



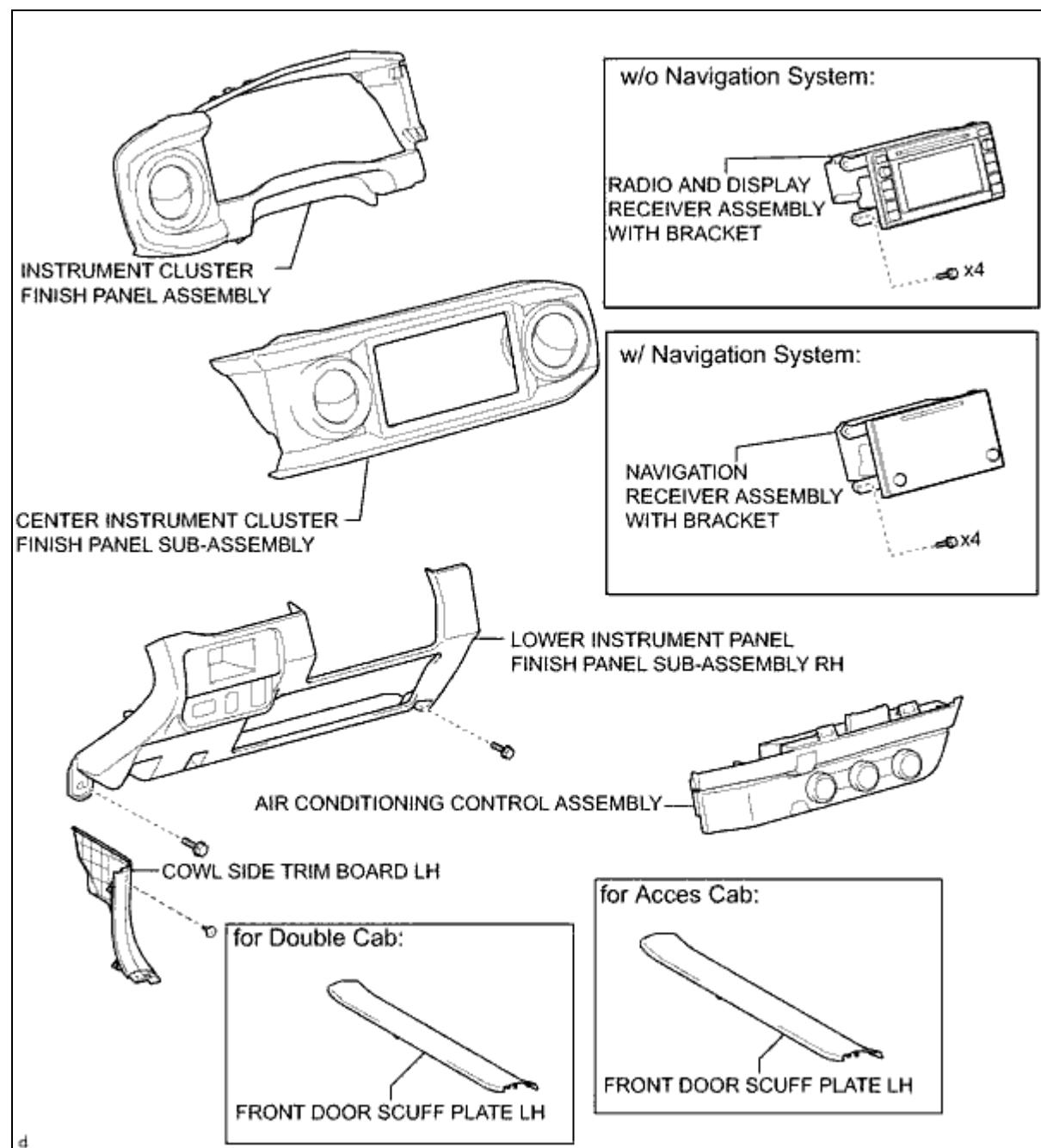
(b) Disconnect the connectors to remove the air conditioning control assembly.



Last Modified: 11-13-2015	6.6 K	Doc ID: RM0000016AD00JX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AC00JX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT AIR CONDITIONING CONTROL ASSEMBLY

(a) Check the blower switch resistance.

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

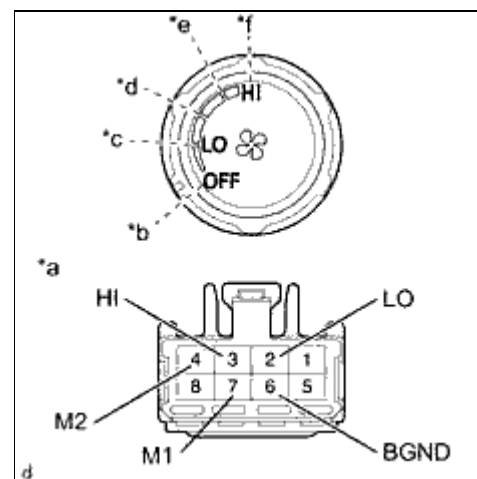
Text in Illustration

*a	Component without harness connected (Air Conditioning control assembly)
*b	Blower Switch OFF Position
*c	Blower Switch LO Position
*d	Blower Switch M1 Position
*e	*Blower Switch M2 Position
*f	Blower Switch Hi Position

Standard Resistance:

TESTER CONNECTION	BLOWER SWITCH POSITION	SPECIFIED CONDITION
2 (LO) - 3 (HI) - 4 (M2) - 6 (BGND) - 7(M1)	Blower switch: OFF	10 K Ω or higher
2 (LO) - 6 (BGND)	Blower switch: LO	Below 1 Ω
2 (LO) - 6 (BGND) - 7 (M1)	Blower switch: M1	Below 1 Ω
2 (LO) - 4 (M2) - 6 (BGND)	Blower switch: M2	Below 1 Ω
2 (LO) - 3 (HI) - 6 (BGND)	Blower switch: HI	Below 1 Ω

If the result is not as specified, replace the air conditioning control assembly.



(b) Check the operation.

- (1) Apply battery voltage across terminals 14 (IG+) and 1 (GND).
- (2) Connect the positive (+) tester probe of a voltmeter to terminal 2 (AMSW) and negative (-) tester probe to terminal 1 (GND), then check the voltage.

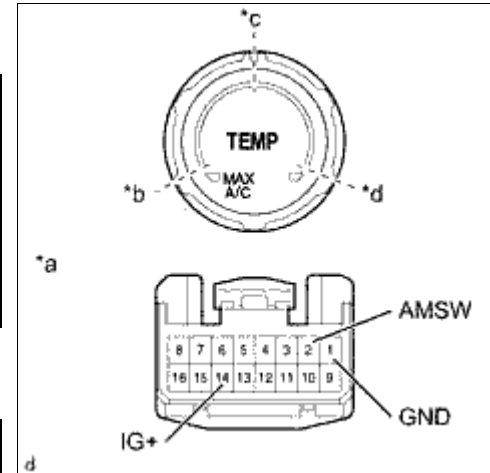
Text in Illustration

*a	Component without harness connected (Air Conditioning control assembly)
*b	0° (MAX A/C)
*c	120°
*d	240° (MAX HOT)

Standard Voltage:

ANGLE (POSITION)	SPECIFIED CONDITION
0° (MAX A/C)	0 to 0.4 V
120°	6.3 to 7.2 V
240° (MAX HOT)	13 to 13.5 V

If the result is not as specified, replace the air conditioning control assembly.



(c) Check the operation.

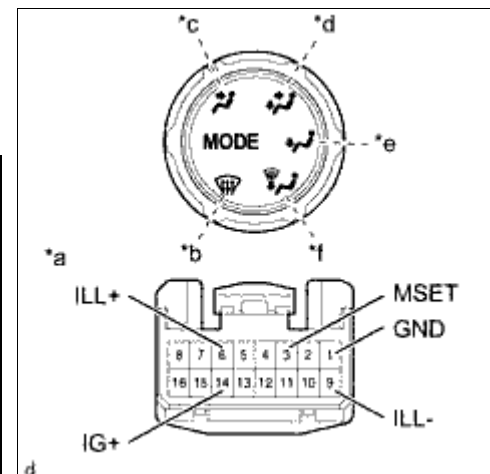
- (1) Apply battery voltage across terminals 14 (IG+) and 1 (GND).
- (2) Connect the positive (+) tester probe of a voltmeter to terminal 3 (MSET) and negative (-) tester probe to terminal 1 (GND), then check the voltage.

Text in Illustration

*a	Component without harness connected (Air Conditioning control assembly)
*b	DEF
*c	FACE
*d	B/L
*e	*FOOT
*f	FOOT/DEF

Standard Voltage:

ANGLE (POSITION)	SPECIFIED CONDITION
------------------	---------------------



ANGLE (POSITION)	SPECIFIED CONDITION
0° (FACE)	13.3 to 13.5 V
60° (B/L)	10.1 to 11.0 V
120° (FOOT)	6.3 to 7.2 V
180° (FOOT/DEF)	2.5 to 3.4 V
240° (DEF)	0 to 0.2 V

If the result is not as specified, replace the air conditioning control assembly.

(d) Inspect the illumination.

(1) Connect the positive (+) lead to terminal 6 (ILL+) and negative (-) lead to terminal 9 (ILL-), and check that the illuminations comes on.

OK:

Illuminations comes on.

If the result is not as specified, replace the air conditioning control assembly.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016AB00KX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL AIR CONDITIONING CONTROL ASSEMBLY

- (a) Connect the connectors.
- (b) Engage the 8 clips to install the air conditioning control assembly.

2. INSTALL RADIO AND DISPLAY RECEIVER ASSEMBLY WITH BRACKET (w/o Navigation System) [INFO](#)

3. INSTALL NAVIGATION RECEIVER ASSEMBLY WITH BRACKET (w/ Navigation System) [INFO](#)

4. INSTALL INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH [INFO](#)

5. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY [INFO](#)

6. INSTALL INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY [INFO](#)

7. INSTALL COWL SIDE TRIM BOARD LH [INFO](#)

8. REMOVE FRONT DOOR SCUFF PLATE LH (for Access Cab) [INFO](#)

9. INSTALL FRONT DOOR SCUFF PLATE LH (for Double Cab) [INFO](#)

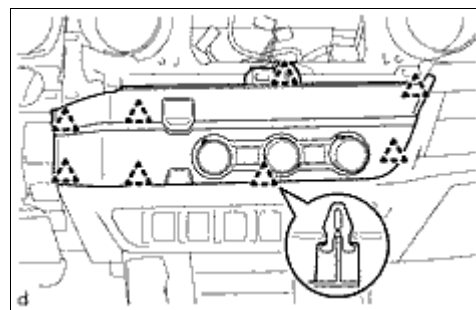


Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016AE00KX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PANEL (for Manual Air Conditioning System): REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE FRONT DOOR SCUFF PLATE LH (for Double Cab) [INFO](#)
2. REMOVE FRONT DOOR SCUFF PLATE LH (for Access Cab) [INFO](#)
3. REMOVE COWL SIDE TRIM BOARD LH [INFO](#)
4. REMOVE INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY [INFO](#)
5. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY [INFO](#)
6. REMOVE INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH [INFO](#)
7. REMOVE NAVIGATION RECEIVER ASSEMBLY WITH BRACKET (w/ Navigation System) [INFO](#)
8. REMOVE RADIO AND DISPLAY RECEIVER ASSEMBLY WITH BRACKET (w/o Navigation System) [INFO](#)
9. REMOVE AIR CONDITIONING CONTROL ASSEMBLY

(a) Disengage the 8 clips.



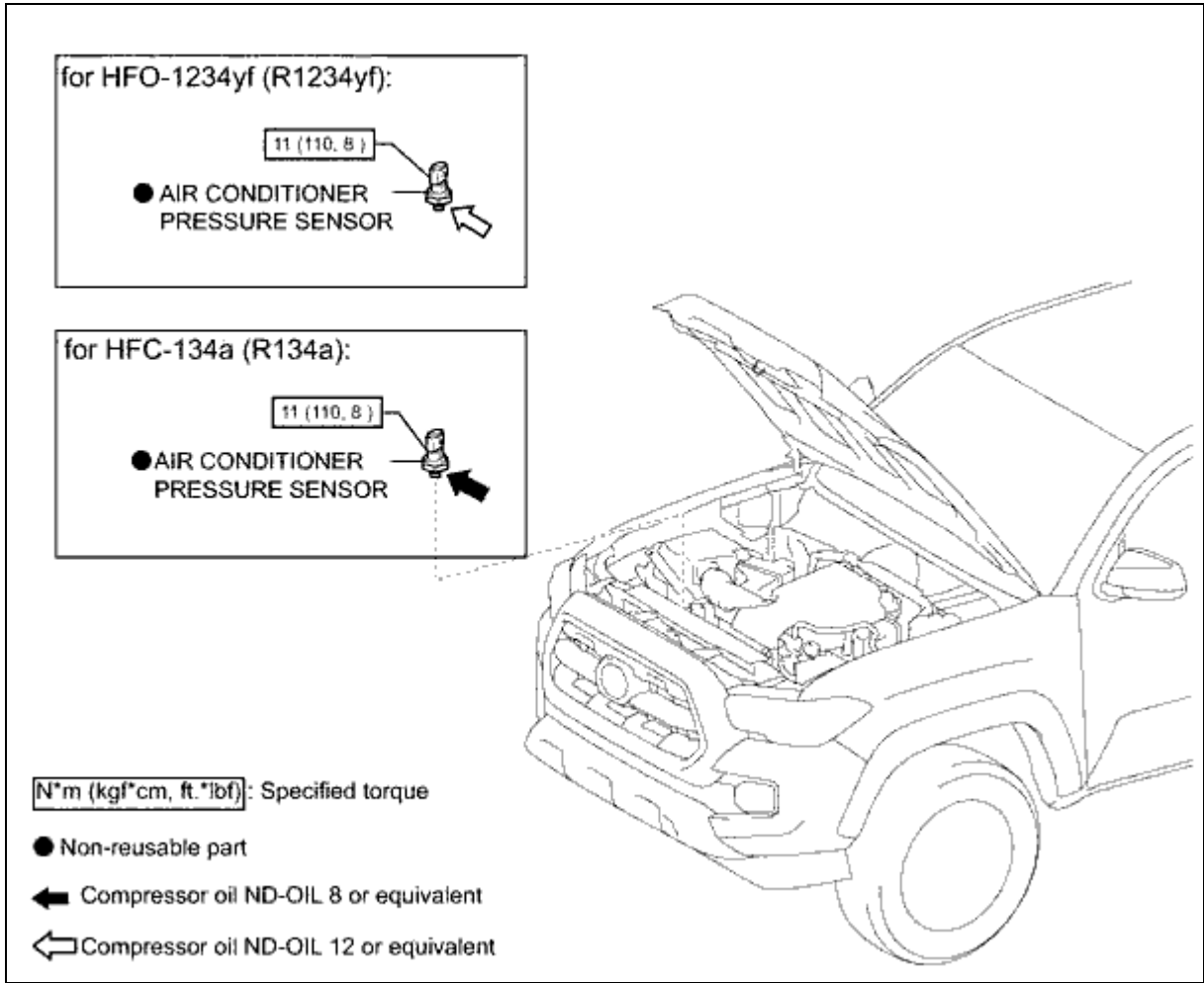
(b) Disconnect the connectors to remove the air conditioning control assembly.



Last Modified: 11-13-2015	6.6 K	Doc ID: RM000005VRI000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VRH000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL AIR CONDITIONER PRESSURE SENSOR

- (a) Remove the vinyl tape from the air conditioner tube and accessory assembly and connecting part of the air conditioner pressure sensor.
- (b) Apply sufficiently compressor oil to a new O-ring and fitting surface of the air conditioner pressure sensor.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

NOTICE:

Keep the O-rings and O-ring fitting surfaces free of foreign matter.

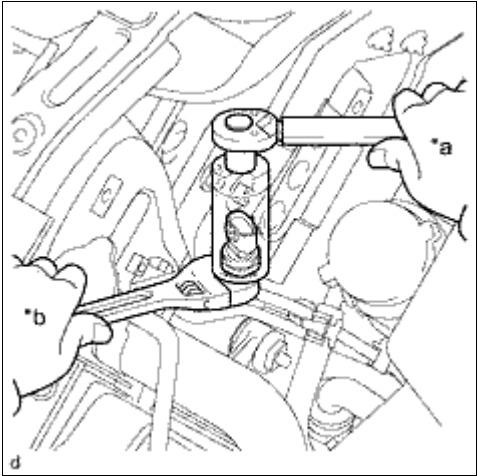
- (c) Using a 27 mm deep socket wrench, install the air conditioner pressure sensor.

Text in Illustration

*a	Turn
*b	Hold

Torque:

11 N·m {110 kgf·cm, 8ft·lbf}



- (d) Connect the connector.

2. CHARGE AIR CONDITIONING SYSTEM WITH REFRIGERANT INFO

3. WARM UP ENGINE INFO

4. INSPECT FOR REFRIGERANT LEAK INFO



Last Modified: 11-13-2015	6.6 G	Doc ID: RM000005VRK000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. INSPECT AIR CONDITIONER PRESSURE SENSOR (for Automatic Air Conditioning System)

- (a) Check the wire harness.
- (1) Disconnect the A34 air conditioner pressure sensor connector.

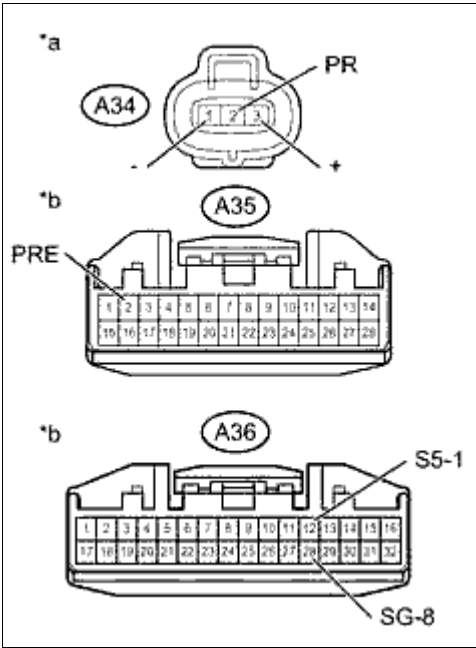
(2) Disconnect the A35 and A36 air conditioning amplifier assembly connector.
- (3) Measure the resistance according to the value(s) in the table below.

Text in Illustration

*a	Front view of wire harness connector (to Air Conditioner Pressure Sensor)
*b	Front view of wire harness connector (to Air Conditioner Amplifier Assembly)

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A34-1 (-) - A36-28 (SG-8)	Always	Below 1 Ω
A34-2 (PR) - A35-2 (PRE)	Always	Below 1 Ω
A34-3 (+) - A36-12 (S5-1)	Always	Below 1 Ω
A34-1 (-) - Body ground	Always	10 k Ω or higher
A34-2 (PR) - Body ground	Always	10 k Ω or higher
A34-3 (+) - Body ground	Always	10 k Ω or higher



If the resistance is not as specified, repair the wire harness.

- (4) Connect the A35 and A36 air conditioning amplifier assembly connector.

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

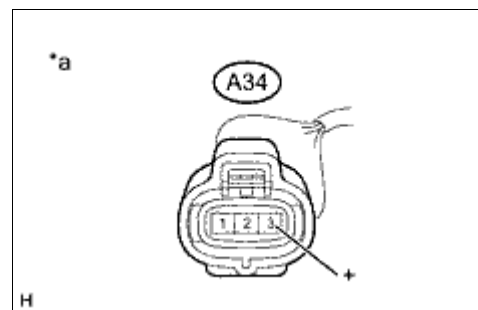
Text in Illustration

*a	Component without harness connected (to Air Conditioner Pressure Sensor)
----	---

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A34-3 (+) - Body ground	IG ON	4.75 to 5.25 V

If the voltage is not as specified, repair the wire harness or replace the air conditioning amplifier assembly.



- (b) Check the air conditioner pressure sensor.

- (1) Install a manifold gauge set.
- (2) Connect the A34 air conditioner pressure sensor connector.
- (3) Warm up the engine.
- (4) A/C switch on.

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

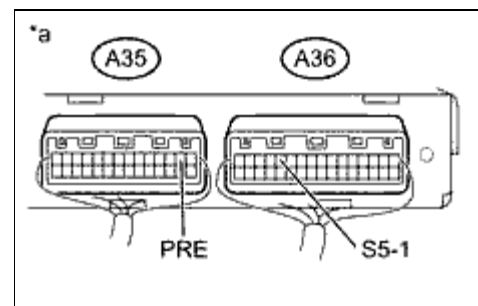
Text in Illustration

*a	Component without harness connected (to Air Conditioner Pressure Sensor)
----	---

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A35-2 (PRE) - A36-12 (S5-1)	Refrigerant pressure: Normal pressure (less than 3025 kPa (30.8 kgf/cm ² , 439 psi) and more than 176 kPa (1.8 kgf/cm ² , 26 psi))	0.63 to 4.72 V

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



2. INSPECT AIR CONDITIONER PRESSURE SENSOR (for Manual Air Conditioning System)

- (a) Check the wire harness.

- (1) Disconnect the A34 air conditioner pressure sensor connector.

(2) Disconnect the A14 air conditioning amplifier assembly connector.

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

Text in Illustration

*a	Front view of wire harness connector (to Air Conditioner Pressure Sensor)
*b	Front view of wire harness connector (to Air Conditioner Amplifier Assembly)

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A34-1 (-) - A14-33 (SG-1)	Always	Below 1 Ω
A34-2 (PR) - A14-5 (PRE)	Always	Below 1 Ω
A34-3 (+) - A14-8 (S5-1)	Always	Below 1 Ω
A34-1 (-) - Body ground	Always	10 k Ω or higher
A34-2 (PR) - Body ground	Always	10 k Ω or higher
A34-3 (+) - Body ground	Always	10 k Ω or higher

If the resistance is not as specified, repair the wire harness.

(4) Connect the A14 air conditioning amplifier assembly connector.

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

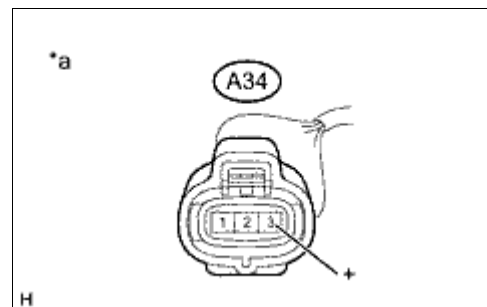
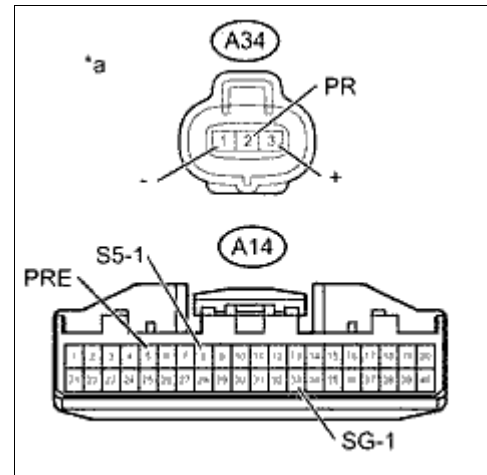
Text in Illustration

*a	Component without harness connected (to Air Conditioner Pressure Sensor)
----	---

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A34-3 (+) - Body ground	IG ON	4.75 to 5.25 V

If the voltage is not as specified, repair the wire harness or replace the air conditioning amplifier assembly.



- (b) Check the air conditioner pressure sensor.
- (1) Install a manifold gauge set.
 - (2) Connect the A34 air conditioner pressure sensor connector.
 - (3) Warm up the engine.
 - (4) A/C switch on.
 - (5) Measure the voltage according to the value(s) in the table below.

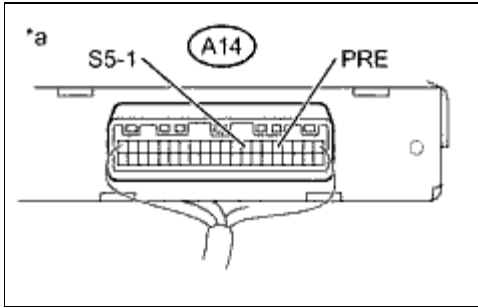
Text in Illustration

*a	Component without harness connected (to Air Conditioner Pressure Sensor)
----	---

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A14-5 (PRE) - A14-8 (S5-1)	Refrigerant pressure: Normal pressure (less than 3025 kPa (30.8 kgf/ cm ² , 439 psi) and more than 176 kPa (1.8 kgf/cm ² , 26 psi))	0.63 to 4.72 V

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



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VRJ000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING PRESSURE SENSOR: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE REFRIGERANT FROM REFRIGERATION SYSTEM INFO

2. REMOVE AIR CONDITIONER PRESSURE SENSOR

(a) Disconnect the connector.

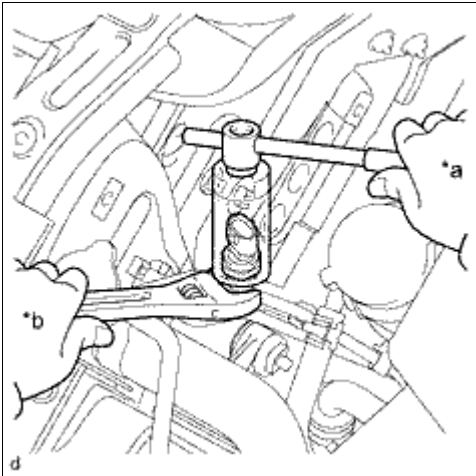


(b) Using a 27 mm deep socket wrench, remove the air conditioner pressure sensor.

Text in Illustration

*a	Turn
*b	Hold

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



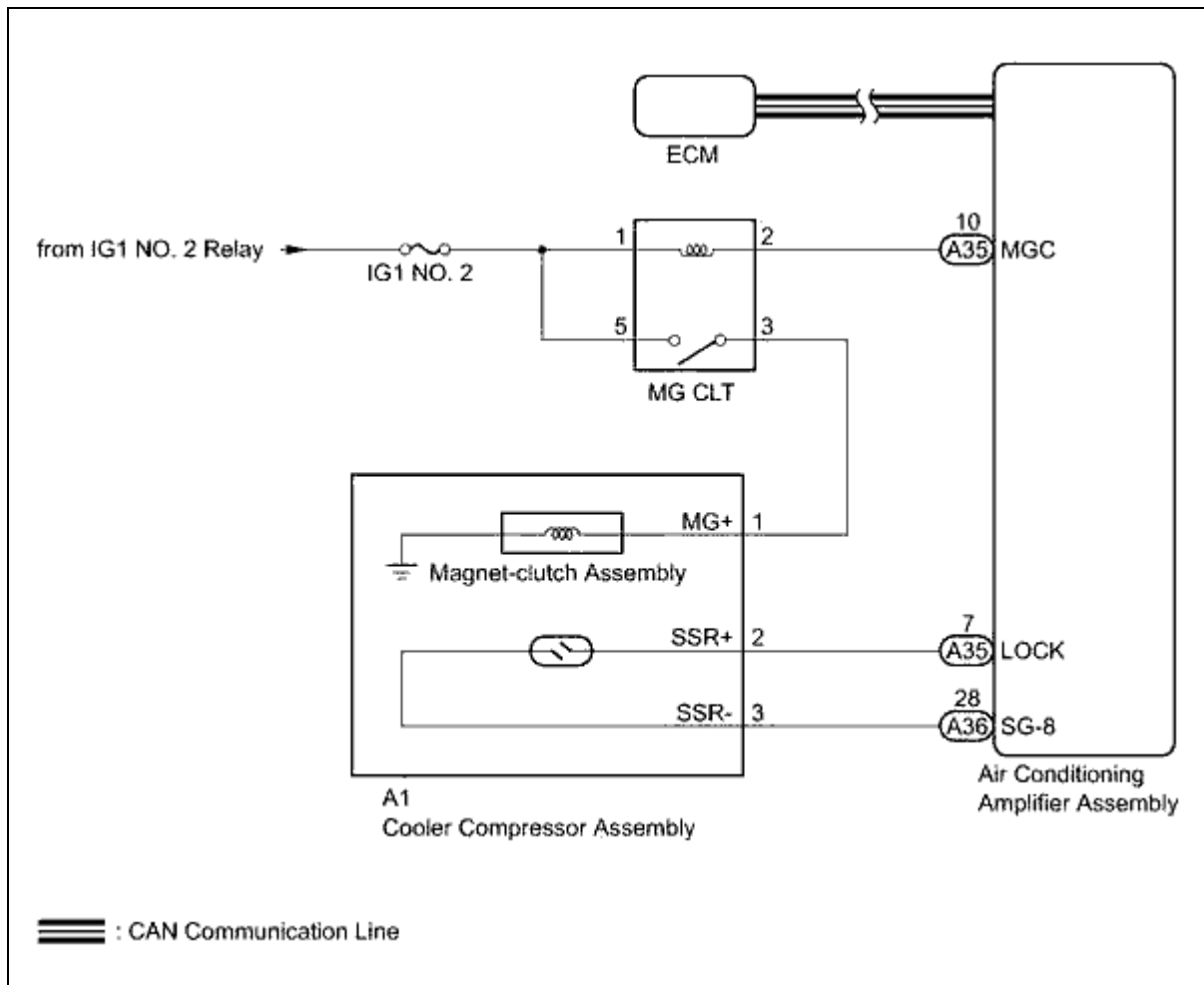
Last Modified: 11-13-2015	6.6 J	Doc ID: RM000000XCQ0AOX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): Air Conditioning Compressor Magnetic Clutch Circuit; 2016 MY Tacoma [08/2015 -]		

Air Conditioning Compressor Magnetic Clutch Circuit

DESCRIPTION

When the air conditioning amplifier assembly is turned on, a magnetic clutch on signal is sent from the MGC terminal of the air conditioning amplifier assembly. Then, the MG CLT relay turns on to operate the magnetic clutch assembly.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- ECM malfunctions can affect the storage of this DTC. Therefore, check all SFI system DTCs and confirm that the system is normal before performing the following inspection [INFO](#).
- Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1. CHECK FOR DTC (CAN COMMUNICATION SYSTEM)

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

Result

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

B ► GO TO CAN COMMUNICATION SYSTEM

A



2. INSPECT MG CLT RELAY

(a) Remove the MG CLT relay.

(b) Inspect the MG CLT relay  .

NG ► REPLACE MG CLT RELAY

OK



3. CHECK HARNESS AND CONNECTOR (MG CLT RELAY - POWER SOURCE CIRCUIT)

(a) Remove the MG CLT relay.

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
MG CLT-1 - Body ground	Ignition switch ON	11 to 14 V
MG CLT-5 - Body ground	Ignition switch ON	11 to 14 V

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK



4.	CHECK HARNESS AND CONNECTOR (MG CLT RELAY - AIR CONDITIONING AMPLIFIER ASSEMBLY AND MAGNET-CLUTCH ASSEMBLY)
----	--

- (a) Remove the MG CLT relay.
- (b) Disconnect the A35 air conditioning amplifier assembly connector.
- (c) Disconnect the A1 magnet-clutch assembly connector.
- (d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
MG CLT-2 - A35-10 (MGC)	Always	Below 1 Ω
MG CLT-3 - A1-1 (MG+)	Always	Below 1 Ω
MG CLT-2 or A35-10 (MGC) - Body ground	Always	10 k Ω or higher
MG CLT-3 or A1-1 (MG+) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



5.	INSPECT MAGNET-CLUTCH ASSEMBLY
----	---------------------------------------

- (a) Remove the magnet-clutch assembly  .
- (b) Inspect the magnet-clutch assembly  .

NG  **REPLACE MAGNET-CLUTCH ASSEMBLY**

OK



6.	INSPECT AIR CONDITIONING AMPLIFIER ASSEMBLY
----	--

- (a) Reconnect the A35 air conditioning amplifier assembly connector.
- (b) Reconnect the A1 magnet-clutch assembly connector.
- (c) Reinstall the MG CLT relay.
- (d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION	
A35-10 (MGC) - Body ground	• Engine idling • "A/C" switch off → on • Blower switch: LO • Magnet-clutch assembly: off → on	11 to 14 V → Below 1 V	*a

Text in Illustration

*a	Component with harness connected (Air Conditioning Amplifier Assembly)
----	---

- NG

▶

REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY
- OK

▶

PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000001M2X065X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1411/11; Room Temperature Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	B1411/11	Room Temperature Sensor Circuit
------------	-----------------	--

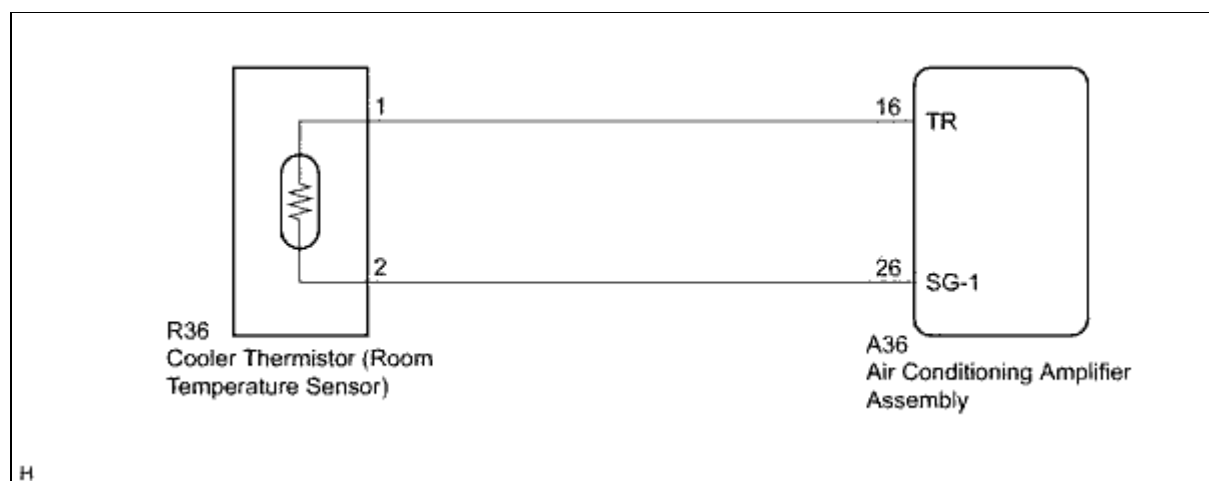
DESCRIPTION

The cooler thermistor (room temperature sensor) is installed in the instrument panel to detect the cabin temperature which is used to control the air conditioning system AUTO mode. The resistance of the cooler thermistor (room temperature sensor) changes in accordance with the cabin temperature. As the temperature decreases, the resistance increases. As the temperature increases, the resistance decreases.

The air conditioning amplifier assembly applies a voltage (5 V) to the cooler thermistor (room temperature sensor) and reads voltage changes due to changes in the resistance of the cooler thermistor (room temperature sensor).

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1411/11	Open or short in cooler thermistor (room temperature sensor) circuit	• Cooler thermistor (room temperature sensor) • Harness or connector • Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	READ VALUE USING TECHSTREAM
-----------	------------------------------------

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (e) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Room Temperature Sensor	Cooler thermistor (room temperature sensor) / min.: -6.50°C (20.30°F) max.: 57.25°C (135.05°F)	Actual cabin temperature displayed	-

OK:

The display is as specified in the Normal Condition column.

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

B ► **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

C ► **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

A



2.	INSPECT COOLER THERMISTOR (ROOM TEMPERATURE SENSOR)
-----------	--

- (a) Remove the cooler thermistor (room temperature sensor)  .
- (b) Inspect the cooler thermistor (room temperature sensor)  .

NG ► **REPLACE COOLER THERMISTOR (ROOM TEMPERATURE SENSOR)**

OK



3.	CHECK HARNESS AND CONNECTOR (COOLER THERMISTOR (ROOM TEMPERATURE SENSOR) - AIR CONDITIONING AMPLIFIER ASSEMBLY)
----	--

- (a) Disconnect the R36 cooler thermistor (room temperature sensor) connector.
- (b) Disconnect the A36 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R36-1 - A36-16 (TR)	Always	Below 1 Ω
R36-2 - A36-26 (SG-1)	Always	Below 1 Ω
R36-1 or A36-16 (TR) - Body ground	Always	10 k Ω or higher
R36-2 or A36-26 (SG-1) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STK0B5X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1412/12; Ambient Temperature Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	B1412/12	Ambient Temperature Sensor Circuit
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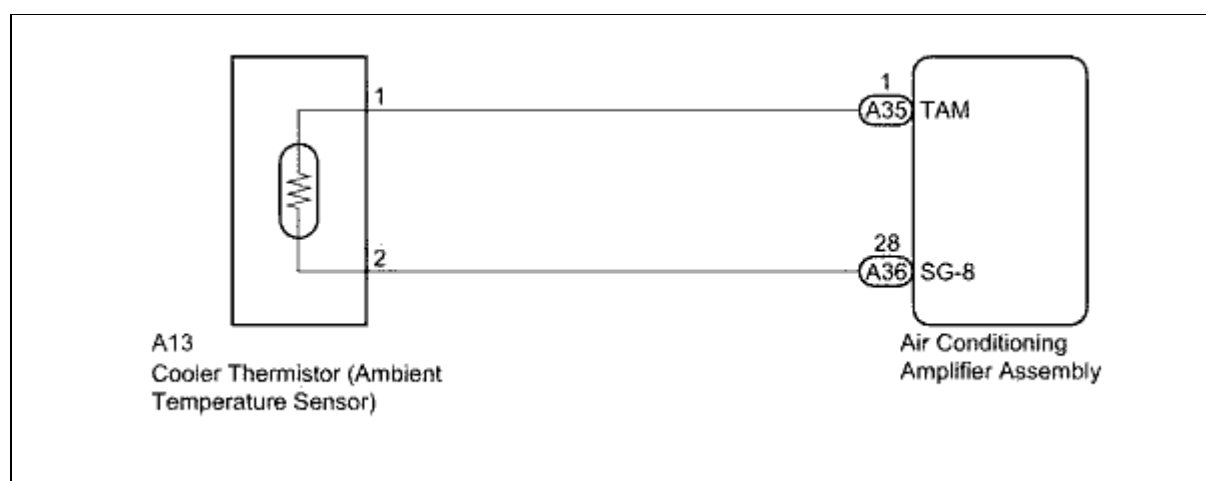
DESCRIPTION

The ambient temperature sensor is installed in front of the condenser to detect the ambient temperature which is used to control the air conditioning system AUTO mode. This sensor is connected to the air conditioning amplifier assembly and detects fluctuations in the ambient temperature. This data is used for controlling the cabin temperature. The sensor sends a signal to the air conditioning amplifier assembly. 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 air conditioning amplifier assembly applies a voltage (5 V) to the ambient temperature sensor and reads voltage changes due to changes in the resistance of the ambient temperature sensor.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1412/12	Open or short in cooler thermistor (ambient temperature sensor) circuit	• Ambient temperature sensor • Harness or connector • Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	READ VALUE USING TECHSTREAM
-----------	------------------------------------

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (e) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Ambient Temp Sensor	Ambient temperature sensor / Min: -23.30°C (-9.94°F) Max: 65.95°C (150.71°F)	Actual ambient temperature displayed	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A
▼

2.	INSPECT AMBIENT TEMPERATURE SENSOR
-----------	---

- (a) Remove the ambient temperature sensor INFO.
- (b) Inspect the ambient temperature sensor INFO.

NG ► REPLACE AMBIENT TEMPERATURE SENSOR

OK



3.	CHECK HARNESS AND CONNECTOR (AMBIENT TEMPERATURE SENSOR - AIR CONDITIONING AMPLIFIER ASSEMBLY)
----	---

- (a) Disconnect the A13 ambient temperature sensor connector.
- (b) Disconnect the A35 and A36 air conditioning amplifier assembly connectors.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A35-1 (TAM) - A13-1	Always	Below 1 Ω
A36-28 (SG-8) - A13-2	Always	Below 1 Ω
A35-1 (TAM) or A13-1 - Body ground	Always	10 k Ω or higher
A36-28 (SG-8) or A13-2 - Body ground	Always	10 k Ω or higher

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STL0CNX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1413/13; Evaporator Temperature Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	B1413/13	Evaporator Temperature Sensor Circuit
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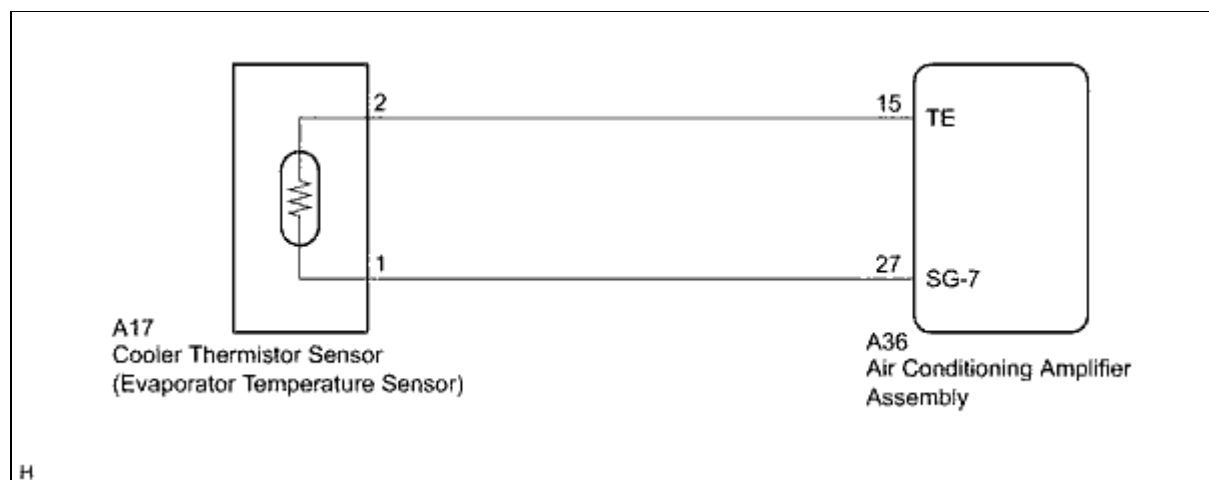
DESCRIPTION

The cooler thermistor sensor (evaporator temperature sensor) is installed on the evaporator in the air conditioner unit to detect the temperature of the cooled air that has passed through the evaporator and is used to control the air conditioning. It sends signals to the air conditioning amplifier assembly. The resistance of the cooler thermistor sensor (evaporator temperature sensor) 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 air conditioning amplifier assembly applies voltage (5 V) to the cooler thermistor sensor (evaporator temperature sensor) and reads voltage changes as the resistance of the cooler thermistor sensor (evaporator temperature sensor) changes. This sensor is used for frost prevention.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1413/13	Open or short in cooler thermistor sensor (evaporator temperature sensor) circuit	• Cooler thermistor sensor (Evaporator temperature sensor) • Harness or connector • Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (e) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Evaporator Fin Thermistor	Cooler thermistor sensor (Evaporator temperature sensor) / Min.: -29.70°C (-21.46°F) Max.: 59.55°C (139.19°F)	Actual evaporator temperature displayed	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A



2. INSPECT COOLER THERMISTOR SENSOR (EVAPORATOR TEMPERATURE SENSOR)

- (a) Remove the cooler thermistor sensor (evaporator temperature sensor) .
- (b) Inspect the cooler thermistor sensor (evaporator temperature sensor) .

NG ► REPLACE COOLER THERMISTOR SENSOR (EVAPORATOR TEMPERATURE SENSOR)

OK



3.

CHECK HARNESS AND CONNECTOR (COOLER THERMISTOR SENSOR (EVAPORATOR TEMPERATURE SENSOR) - AIR CONDITIONING AMPLIFIER ASSEMBLY)

- (a) Disconnect the A17 cooler thermistor sensor (evaporator temperature sensor) connector.
- (b) Disconnect the A36 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A36-15 (TE) - A17-2	Always	Below 1 Ω
A36-27 (SG-7) - A17-1	Always	Below 1 Ω
A36-15 (TE) or A17-2 - Body ground	Always	10 k Ω or higher
A36-27 (SG-7) or A17-1 - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM0000026BV0B7X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1422/22; Compressor Lock Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	B1422/22	Compressor Lock Sensor Circuit
------------	-----------------	---------------------------------------

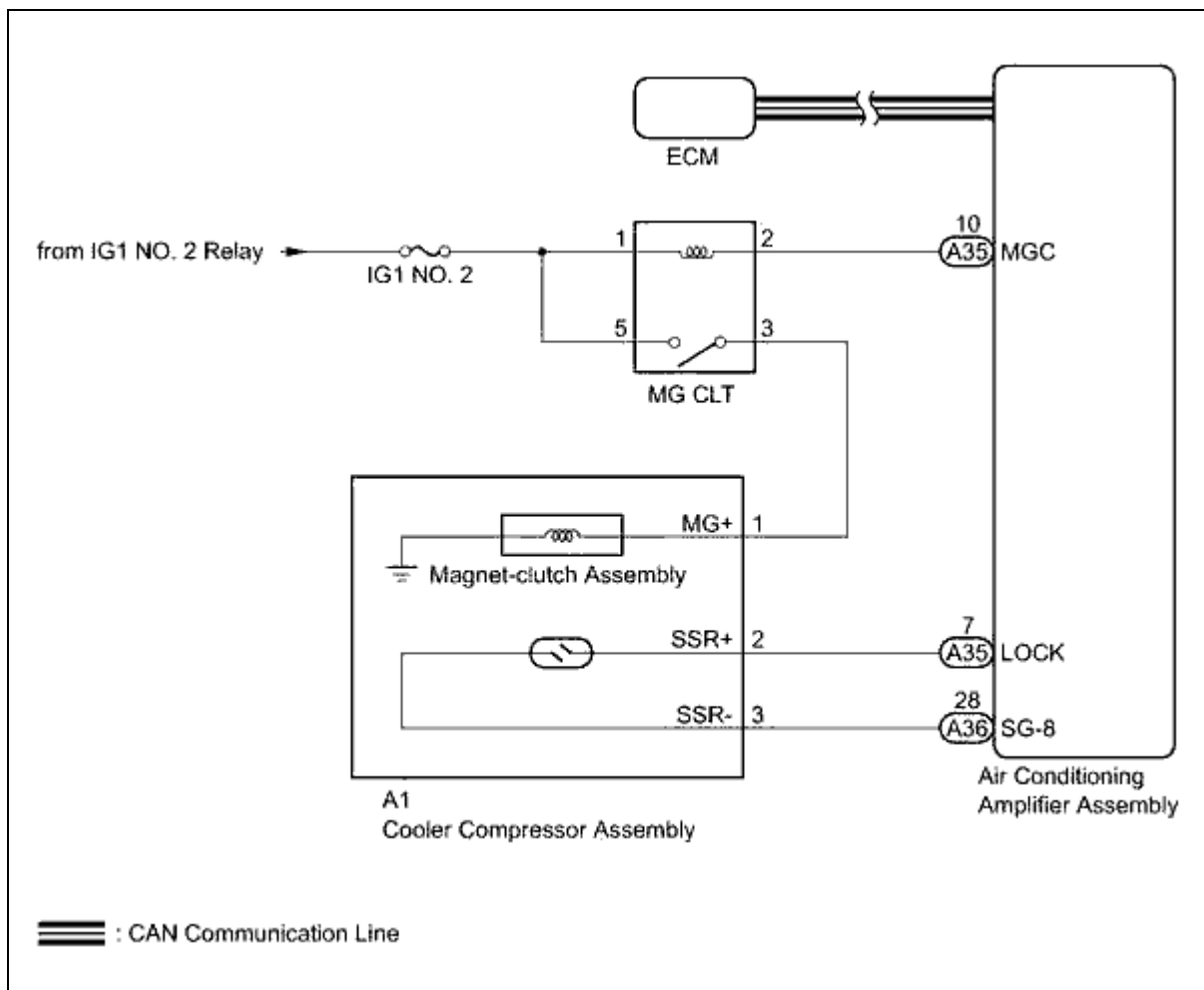
SYSTEM DESCRIPTION

The ECM sends the engine speed signal to the air conditioning amplifier assembly via CAN communication.

The air conditioning amplifier assembly reads the difference between compressor speed and engine speed. When the difference becomes too large, the air conditioning amplifier assembly determines that the compressor is locked, and turns the magnet-clutch assembly off.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1422/22	Open or short in A/C lock sensor circuit	• Magnet-clutch assembly • Cooler compressor assembly • Harness or connector • Air conditioning amplifier assembly • CAN communication system

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- ECM malfunctions can affect the storage of this DTC. Therefore, check all SFI system DTCs and confirm that the system is normal before performing the following inspection [INFO](#).
- Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1.	CHECK FOR DTC (CAN COMMUNICATION SYSTEM)
----	---

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

Result

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

OK



2.	INSPECT COOLER COMPRESSOR ASSEMBLY
-----------	---

(a) Remove the cooler compressor assembly  .

(b) Inspect the cooler compressor assembly  .

NG  **REPLACE COOLER COMPRESSOR ASSEMBLY**

OK



3.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - COOLER COMPRESSOR ASSEMBLY)
-----------	---

(a) Disconnect the A1 cooler compressor assembly connector.

(b) Disconnect the A35 and A36 air conditioning amplifier assembly connectors.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A35-7 (LOCK) - A1-2 (SSR+)	Always	Below 1 Ω
A36-28 (SG-8) - A1-3 (SSR-)	Always	Below 1 Ω
A35-7 (LOCK) or A1-2 (SSR+) - Body ground	Always	10 k Ω or higher
A36-28 (SG-8) or A1-3 (SSR-) - Body ground	Always	10 k Ω or higher

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

B  **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

C  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

A **REPAIR OR REPLACE HARNESS OR CONNECTOR**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STP0EOX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1423/23; Pressure Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

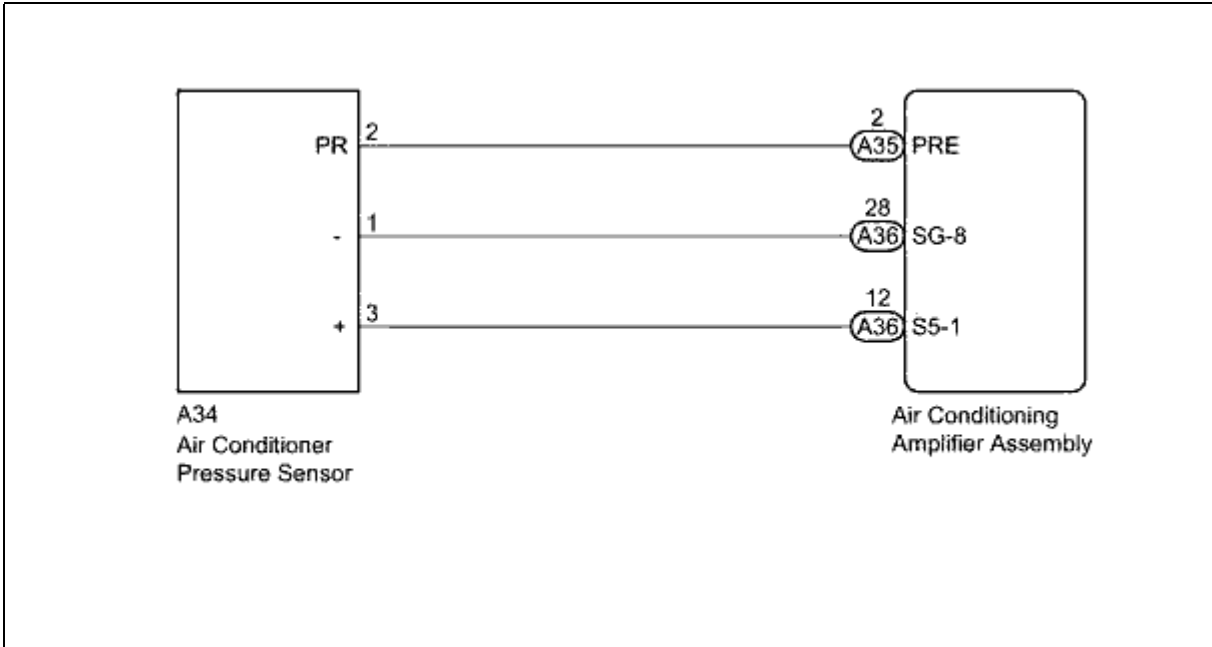
DTC	B1423/23	Pressure Sensor Circuit
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DESCRIPTION

This DTC is stored if refrigerant pressure on the high pressure side is extremely low (176 kPa (1.8 kgf/cm² , 26 psi) or less) or extremely high (3140 kPa (32.0 kgf/cm² , 455 psi) or more). The air conditioner pressure sensor, which is installed on the pipe on the high pressure side to detect refrigerant pressure, sends a refrigerant pressure signal to the air conditioning amplifier assembly. The air conditioning amplifier assembly converts this signal to a pressure value according to the sensor characteristics and uses it to control the compressor.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1423/23	• Open or short in air conditioning pressure sensor circuit • Refrigerant pressure on the high pressure side is extremely low (176 kPa (1.8 kgf/cm² , 26 psi) or less) or extremely high (3140 kPa (32.0 kgf/cm² , 455 psi) or more).	• Air conditioner pressure sensor • Harness or connector • Air conditioning amplifier assembly • Cooler expansion valve (blocked, stuck) • Cooler condenser assembly (blocked, deterioration of cooling capacity due to dirt) • Cooler dryer (moisture in the refrigerant cycle cannot be absorbed) • Cooling fan system (cooler condenser assembly cannot be cooled down) • A/C system (leaks, blocked)

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)
----	---

- (a) Disconnect the A34 air conditioner pressure sensor connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A34-3 (+) - Body ground	Ignition switch ON	4.75 to 5.25 V

NG **GO TO STEP 5**

OK

2.	CHECK HARNESS AND CONNECTOR (GROUND CIRCUIT)
----	---

- (a) Disconnect the A34 air conditioner pressure sensor connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A34-1 (-) - Body ground	Always	Below 1 Ω

NG  **GO TO STEP 6**

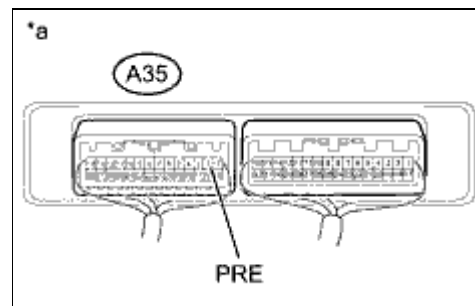
OK



3.	INSPECT AIR CONDITIONING PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)
-----------	---

(a) Reconnect the A34 air conditioner pressure sensor connector.

(b) Remove the air conditioning amplifier assembly with the connectors still connected  .



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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A35-2 (PRE) - Body ground	Ignition switch ON (A/C: off)	0.74 to 4.71 V

Text in Illustration

*a	Component with harness connected (Air Conditioning Amplifier Assembly)
----	---

HINT:

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

NG  **GO TO STEP 7**

OK



4. INSPECT AIR CONDITIONING PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)

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

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

NOTICE:

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

HINT:

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

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

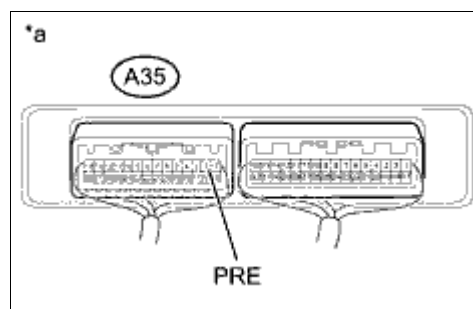
Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A35-2 (PRE) - Body ground	Refer to above "Procedure Condition"	0.74 to 4.71 V

Text in Illustration

*a	Component with harness connected (Air Conditioning Amplifier Assembly)
----	---

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



B ► **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

C ► **GO TO STEP 13**

A ► **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

5.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONER PRESSURE SENSOR)
-----------	--

- (a) Reconnect the A34 air conditioner pressure sensor connector.
- (b) Disconnect the A35 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A34-3 (+) - A36-12 (S5-1)	Always	Below 1 Ω
A34-3 (+) or A36-12 (S5-1) - Body ground	Always	10 k Ω or higher

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ► **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

6.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONER PRESSURE SENSOR)
-----------	--

- (a) Reconnect the A34 air conditioner pressure sensor connector.
- (b) Disconnect the A36 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A34-1 (-) - A36-28 (SG-8)	Always	Below 1 Ω
A34-1 (-) or A36-28 (SG-8) - Body ground	Always	10 k Ω or higher

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ► **REPLACE AIR CONDITIONING AMPLIFIER**

ASSEMBLY

7.

CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONING PRESSURE SENSOR)

- (a) Reconnect the A34 air conditioner pressure sensor connector.
- (b) Disconnect the A35 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A34-2 (PR) - A35-2 (PRE)	Always	Below 1 Ω
A34-2 (PR) or A35-2 (PRE) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



8.

INSPECT FOR A/C SYSTEM LEAK

- (a) Install a manifold gauge set.
- (b) Recover the refrigerant from the A/C system using a refrigerant recovery unit.
- (c) Evacuate the A/C system and check that vacuum can be maintained in it.

OK:

Vacuum can be maintained in the A/C system.

HINT:

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

NG  **GO TO STEP 12**

OK



9.

CHARGE SYSTEM WITH REFRIGERANT

- (a) Use a refrigerant recovery unit to recover refrigerant.
- (b) Evacuate the A/C system.
- (c) Add an appropriate amount of refrigerant.

for HFC-134a(R134a) INFO

for HFO-1234yf(R1234yf) INFO

HINT:

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

NEXT



10.	RECHECK FOR DTC
------------	------------------------

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

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

NOTICE:

If refrigerant pressure on the high pressure side becomes high, the DTC will be set. It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the A/C operates for a while.

HINT:

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

RESULT	PROCEED TO
DTC B1423/23 is output	A
DTC B1423/23 is not output	B

NOTICE:

If the DTC was set due to an insufficient or excessive amount of refrigerant, the problem may have been solved after performing the previous step. However, the root cause of insufficient refrigerant may be

refrigerant leaks. The root cause of excessive refrigerant may be adding too much refrigerant when the level was insufficient. Therefore, identify and repair the area where refrigerant leaks from as necessary.

B  **END**

A

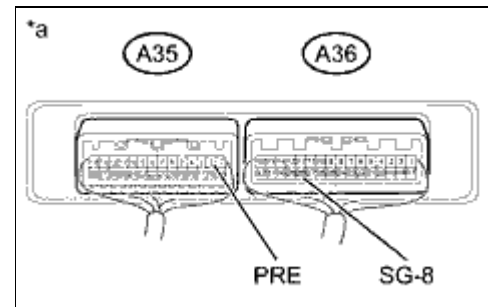


11. INSPECT AIR CONDITIONER PRESSURE SENSOR

- (a) Install a manifold gauge set.
- (b) Reconnect the A34 air conditioner pressure sensor connector.
- (c) Turn the ignition switch to ON.
- (d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A35-2 (PRE) - A36-28 (SG-8)	Refrigerant pressure: (less than 3140 kPa (32.0 kgf/cm ² , 455 psi) and more than 176 kPa (1.8 kgf/cm ² , 26 psi))	0.74 to 4.71 V



Text in Illustration

*a Component with harness connected
(Air Conditioning Amplifier Assembly)

NG  **REPLACE AIR CONDITIONING PRESSURE SENSOR**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

12. REPAIR A/C SYSTEM LEAK

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

for HFC-134a(R134a) 

for HFO-1234yf(R1234yf) 

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

(c) Evacuate the A/C system.

RESULT	PROCEED TO
for HFC-134a(R134a)	A
for HFO-1234yf(R1234yf)	B

B ► CHARGE SYSTEM WITH REFRIGERANT

A ► CHARGE SYSTEM WITH REFRIGERANT

13.	INSPECT COOLING FAN SYSTEM
------------	-----------------------------------

(a) Check that the cooling fan(s) operates normally.

HINT:

Refer to cooling fan system .

NG ► GO TO COOLING FAN SYSTEM

OK



14.	CHARGE SYSTEM WITH REFRIGERANT
------------	---------------------------------------

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

(b) Evacuate the A/C system.

(c) Add an appropriate amount of refrigerant.

for HFC-134a(R134a) 

for HFO-1234yf(R1234yf) 

HINT:

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

NEXT



15.	RECHECK FOR DTC
------------	------------------------

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

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

NOTICE:

If refrigerant pressure on the high pressure side becomes high, the DTC will be set. It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the air conditioning operates for a while.

HINT:

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

RESULT	PROCEED TO
DTC B1423/23 is output	A
DTC B1423/23 is not output	B

B ▶ **REPLACE COOLER CONDENSER ASSEMBLY**

A



16.	REPLACE COOLER EXPANSION VALVE
------------	---------------------------------------

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

HINT:

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

NEXT



17. CHARGE SYSTEM WITH REFRIGERANT

- (a) Use a refrigerant recovery unit to recover refrigerant.
- (b) Evacuate the A/C system.
- (c) Add an appropriate amount of refrigerant.

for HFC-134a(R134a) INFO

for HFO-1234yf(R1234yf) INFO

HINT:

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

NEXT



18. RECHECK FOR DTC

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

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

NOTICE:

If refrigerant pressure on the high pressure side becomes high, the DTC will be set. It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the air conditioning operates for a while.

HINT:

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

- If refrigerant pressure is not normal after replacing the cooler expansion valve with a new or known good one, the condenser or pipes may be clogged due to dirt, dust or other foreign matter. In this case, clean or replace the cooler condenser assembly or pipes.

RESULT	PROCEED TO
DTC B1423/23 is not output	A
DTC B1423/23 is output	B

B ► **CLEAN OR REPLACE COOLER CONDENSER ASSEMBLY OR PIPE**

A ► **END**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STR0A0X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1431/31; Air Mix Damper Position Sensor Circuit (Passenger Side); 2016 MY Tacoma [08/2015 -]		

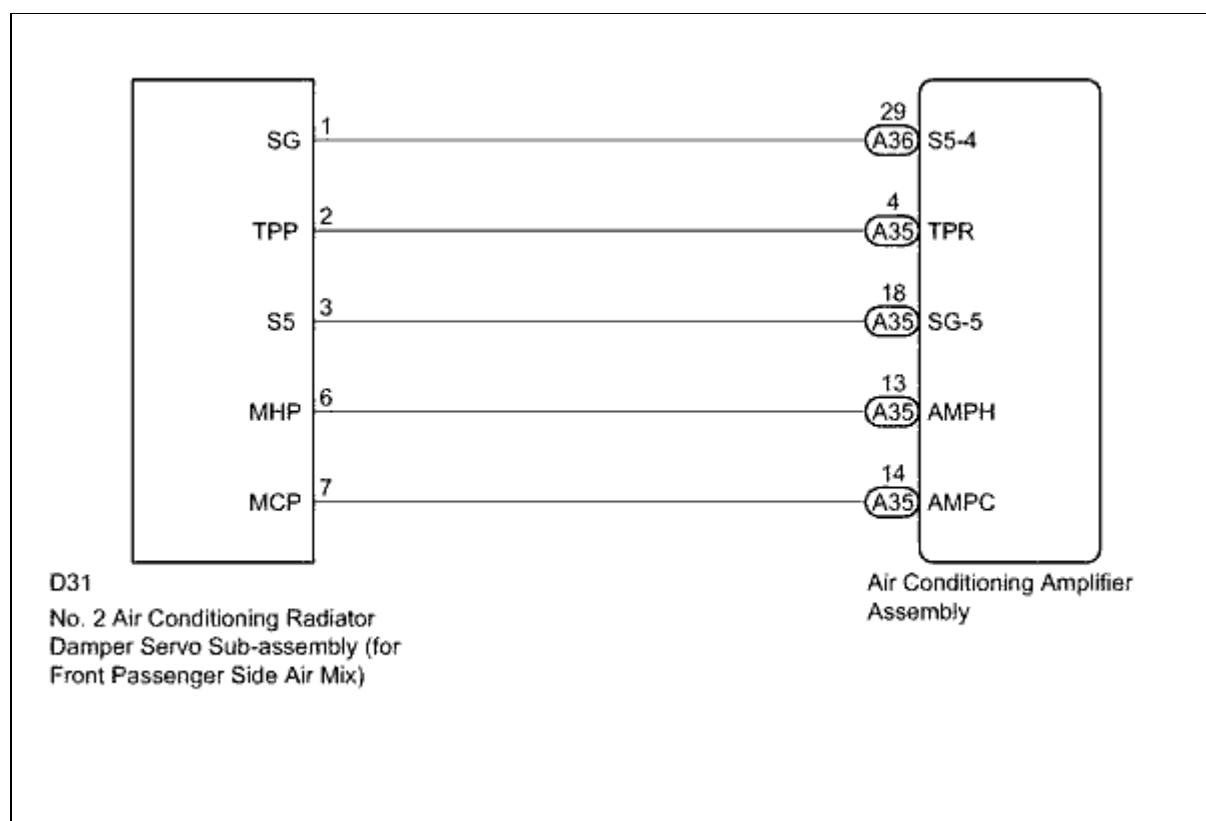
DTC	B1431/31	Air Mix Damper Position Sensor Circuit (Passenger Side)
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DESCRIPTION

This sensor detects the position of the air mix damper (for front passenger side) and sends the appropriate signals to the air conditioning amplifier assembly. The position sensor is built into the No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix).

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1431/31	Short to ground or power source circuit air mix damper position sensor (for front passenger side) circuit.	- No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix) - Harness or connector - Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Operate the front passenger side temperature switch.
- (e) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (f) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Mix Damper Position (Passenger Side)	Air mix damper servo motor (for front passenger side) actual position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-
Air Mix Damper Target (Passenger Side)	Air mix damper servo motor (for front passenger side) target position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A
▼

2.

INSPECT NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (FOR FRONT PASSENGER SIDE AIR MIX)

- (a) Remove the No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix)  .
- (b) Inspect the No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix)  .

NG

**REPLACE NO. 2 AIR CONDITIONING RADIATOR
DAMPER SERVO SUB-ASSEMBLY (FOR FRONT
PASSENGER SIDE AIR MIX)**

OK

3.

CHECK HARNESS AND CONNECTOR (NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)

- (a) Disconnect the D31 No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix) connector.
- (b) Disconnect the A35 and A36 air conditioning amplifier assembly connectors.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D31-1 (SG) - A36-29 (S5-4)	Always	Below 1 Ω
D31-2 (TPP) - A35-4 (TPR)	Always	Below 1 Ω
D31-3 (S5) - A35-18 (SG-5)	Always	Below 1 Ω
D31-1 (SG) or A36-29 (S5-4) - Body ground	Always	10 k Ω or higher
D31-2 (TPP) or A35-4 (TPR) - Body ground	Always	10 k Ω or higher
D31-3 (S5) or A35-18 (SG-5) - Body ground	Always	10 k Ω or higher

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK**

**REPLACE AIR CONDITIONING AMPLIFIER
ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STS09MX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1432/32; Air Inlet Damper Position Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

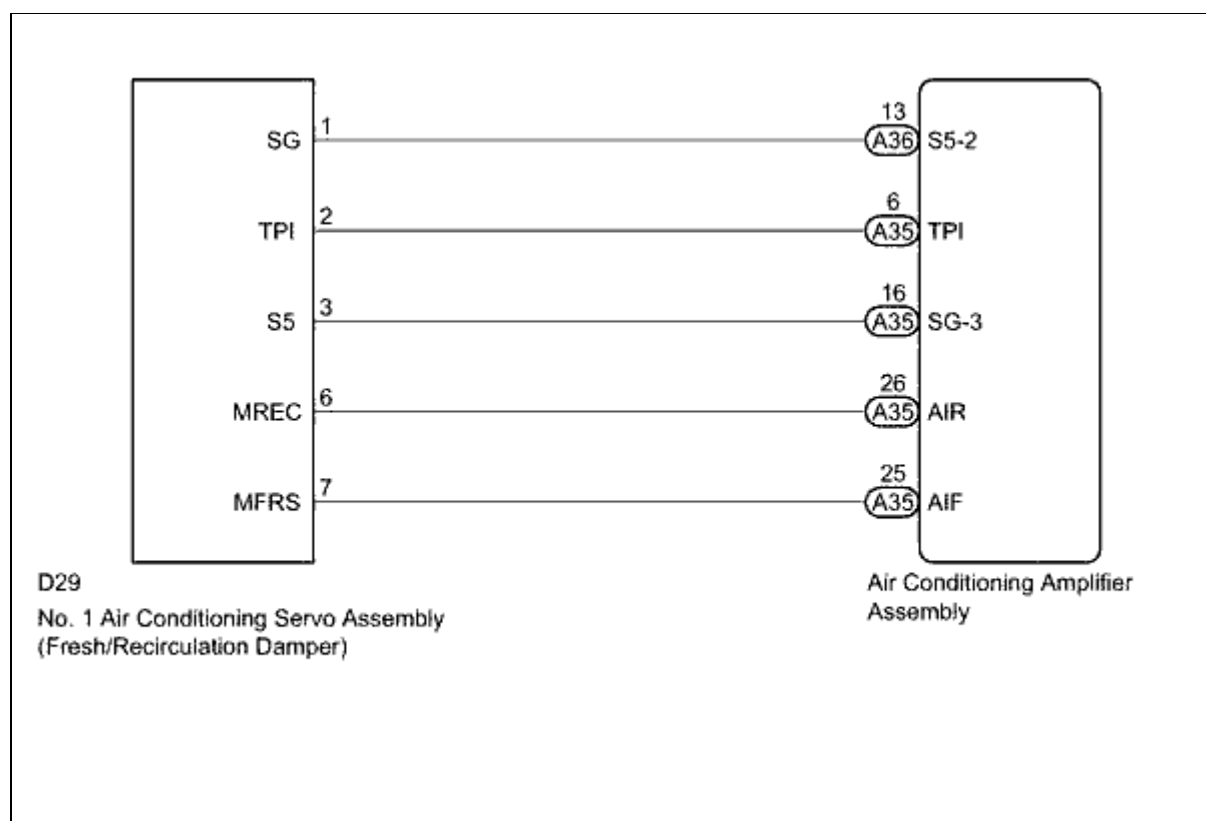
DTC	B1432/32	Air Inlet Damper Position Sensor Circuit
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DESCRIPTION

This sensor detects the position of the air inlet damper and sends the appropriate signals to the air conditioning amplifier assembly. The position sensor is built into the No. 1 air conditioning servo assembly (fresh/recirculation damper).

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1432/32	Short to ground or power source circuit air inlet damper position sensor circuit.	- No. 1 air conditioning servo assembly (fresh/recirculation damper) - Harness or connector - Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Operate the recirculation/fresh switch.
- (e) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (f) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Inlet Damper Position	Air inlet damper servo motor actual position / Air inlet damper servo motor actual position / Min.: -14.0% Max.: 113.5%	FRESH: 0.0% RECIRCULATION: 100.0%	-
Air Inlet Damper Target	Air inlet damper servo motor target position / Min.: -14.0% Max.: 113.5%	FRESH: 0.0% RECIRCULATION: 100.0%	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A



2. INSPECT NO. 1 AIR CONDITIONING SERVO ASSEMBLY (FRESH/RECIRCULATION DAMPER)

(a) Remove the No. 1 air conditioning servo assembly (fresh/recirculation damper)  .

(b) Inspect the No. 1 air conditioning servo assembly (fresh/recirculation damper)  .

NG  **REPLACE NO. 1 AIR CONDITIONING SERVO ASSEMBLY (FRESH/RECIRCULATION DAMPER)**

OK



3.	CHECK HARNESS AND CONNECTOR (NO. 1 AIR CONDITIONING SERVO ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)
-----------	--

(a) Disconnect the D29 No. 1 air conditioning servo assembly (fresh/recirculation damper) connector.

(b) Disconnect the A35 and A36 air conditioning amplifier assembly connectors.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D29-1 (SG) - A36-13 (S5-2)	Always	Below 1 Ω
D29-2 (TPI) - A35-6 (TPI)	Always	Below 1 Ω
D29-3 (S5) - A35-16 (SG-3)	Always	Below 1 Ω
D29-1 (SG) or A36-13 (S5-2) - Body ground	Always	10 k Ω or higher
D29-2 (TPI) or A35-6 (TPI) - Body ground	Always	10 k Ω or higher
D29-3 (S5) or A35-16 (SG-3) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STT09VX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1433/33; Air Outlet Damper Position Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

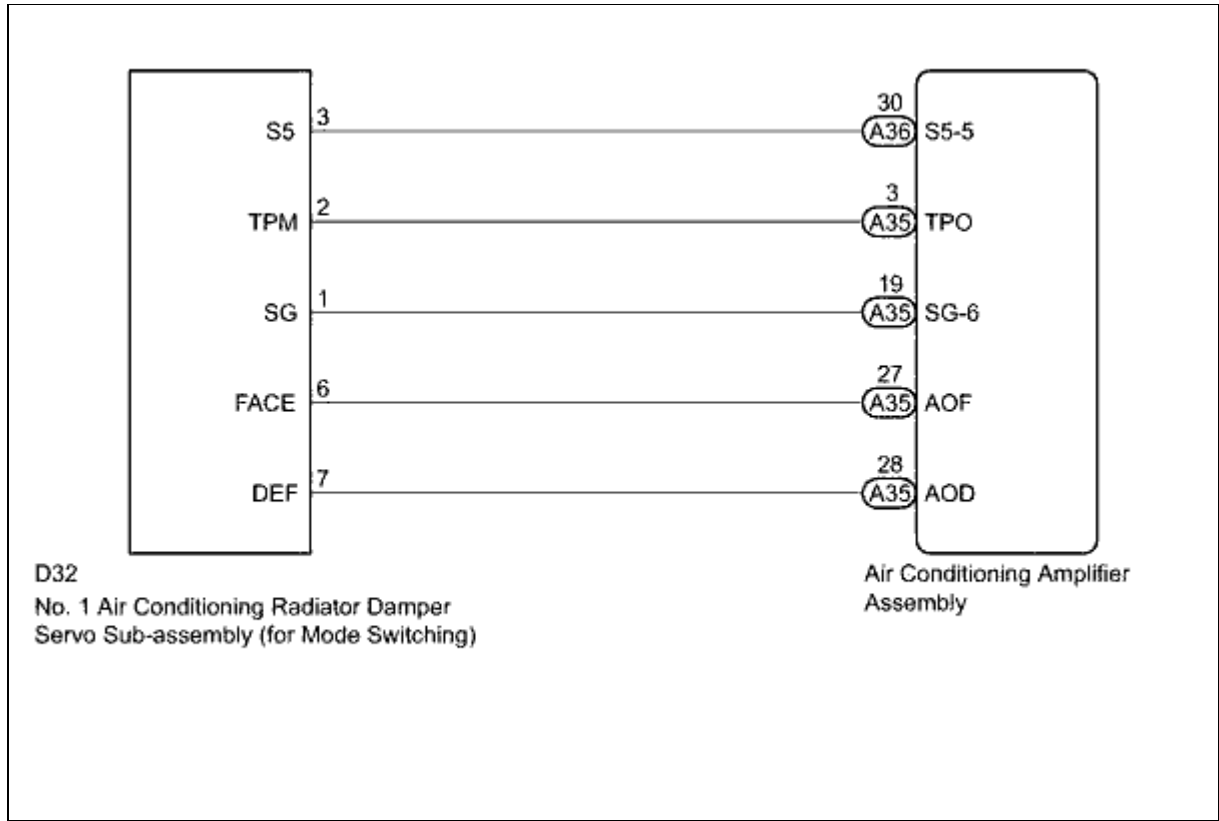
DTC	B1433/33	Air Outlet Damper Position Sensor Circuit
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DESCRIPTION

This sensor detects the position of the mode damper and sends the appropriate signals to the air conditioning amplifier assembly. The position sensor is built into the No. 1 air conditioning radiator damper servo sub-assembly (for mode switching).

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1433/33	Short to ground or power source circuit mode damper position sensor circuit.	- No. 1 air conditioning radiator damper servo sub-assembly (for mode switching) - Harness or connector - Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Operate the mode switch.
- (e) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (f) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Outlet Damper Position	Mode damper servo motor actual position / Min.: -14.0% Max.: 113.5%	FACE: 0.0% DEF: 100.0%	-
Air Outlet Damper Target	Mode damper servo motor target position / Min.: -14.0% Max.: 113.5%	FACE: 0.0% DEF: 100.0%	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A



2. INSPECT NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (FOR MODE SWITCHING)

(a) Remove the No. 1 air conditioning radiator damper servo sub-assembly (for mode switching)  .

(b) Inspect the No. 1 air conditioning radiator damper servo sub-assembly (for mode switching)  .

NG  **REPLACE NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (FOR MODE SWITCHING)**

OK



3.	CHECK HARNESS AND CONNECTOR (NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)
-----------	--

(a) Disconnect the D32 No. 1 air conditioning radiator damper servo sub-assembly (for mode switching) connector.

(b) Disconnect the A35 air conditioning amplifier assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D32-3 (S5) - A36-30 (S5-5)	Always	Below 1 Ω
D32-2 (TPM) - A35-3 (TPO)	Always	Below 1 Ω
D32-1 (SG) - A35-19 (SG-6)	Always	Below 1 Ω
D32-3 (S5) or A36-30 (S5-5) - Body ground	Always	10 k Ω or higher
D32-2 (TPM) or A35-3 (TPO) - Body ground	Always	10 k Ω or higher
D32-1 (SG) or A35-19 (SG-6) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STU084X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1436/36; Air Mix Damper Position Sensor Circuit (Driver Side); 2016 MY Tacoma [08/2015 -]		

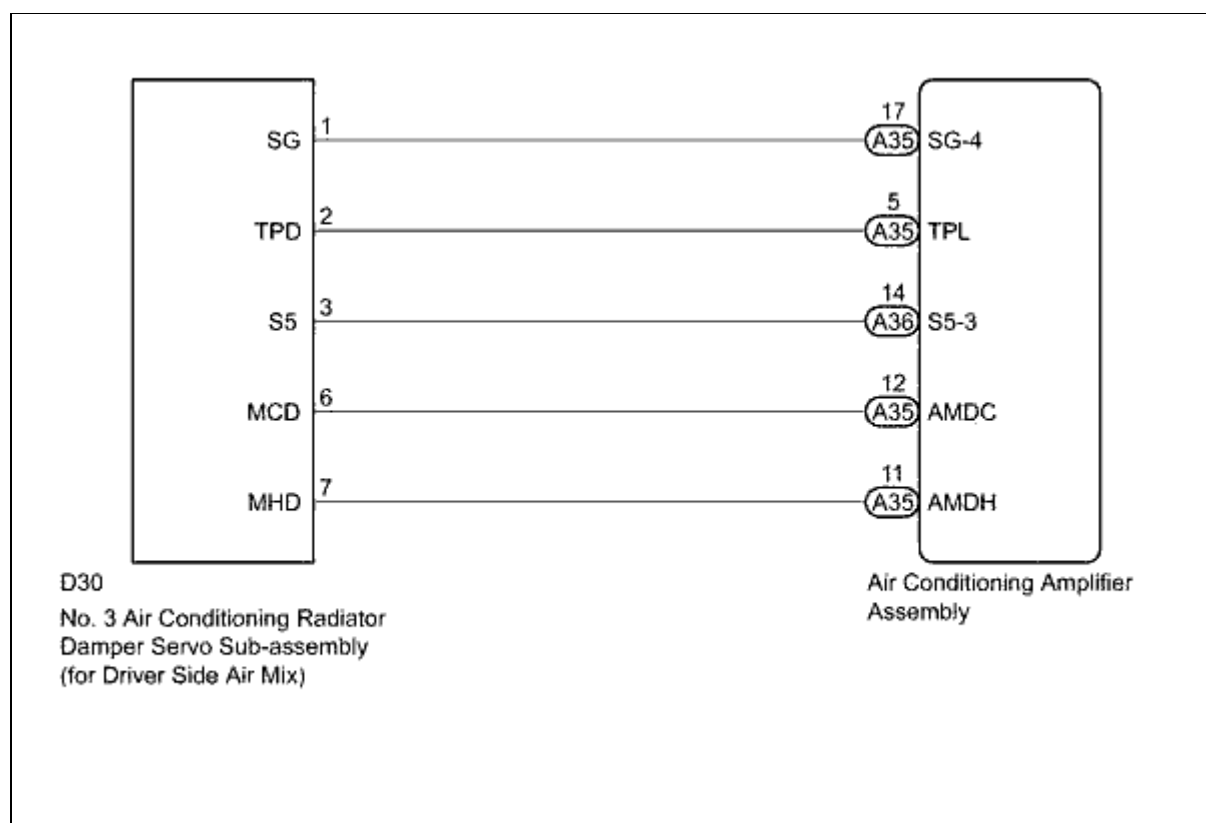
DTC	B1436/36	Air Mix Damper Position Sensor Circuit (Driver Side)
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DESCRIPTION

This sensor detects the position of the air mix damper (for driver side) and sends the appropriate signals to the air conditioning amplifier assembly. The position sensor is built into the No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix).

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1436/36	Short to ground or power source circuit air mix damper position sensor (for driver side) circuit.	- No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix) - Harness or connector - Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Operate the driver side temperature switch.
- (e) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (f) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Mix Damper Position (Driver Side)	Air mix damper servo motor (for driver side) actual position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-
Air Mix Damper Target (Driver Side)	Air mix damper servo motor (for driver side) target position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A



2.

INSPECT NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (FOR DRIVER SIDE AIR MIX)(a) Remove the No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix) (b) Inspect the No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix) **NG** **REPLACE NO. 3 AIR CONDITIONING RADIATOR
DAMPER SERVO SUB-ASSEMBLY (FOR DRIVER
SIDE AIR MIX)****OK**

3.

CHECK HARNESS AND CONNECTOR (NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)

(a) Disconnect the D30 No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix) connector.

(b) Disconnect the A35 and A36 air conditioning amplifier assembly connectors.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D30-1 (SG) - A35-17 (SG-4)	Always	Below 1 Ω
D30-2 (TPD) - A35-5 (TPL)	Always	Below 1 Ω
D30-3 (S5) - A36-14 (S5-3)	Always	Below 1 Ω
D30-1 (SG) or A35-17 (SG-4) - Body ground	Always	10 k Ω or higher
D30-2 (TPD) or A35-5 (TPL) - Body ground	Always	10 k Ω or higher
D30-3 (S5) or A36-14 (S5-3) - Body ground	Always	10 k Ω or higher

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR****OK** **REPLACE AIR CONDITIONING AMPLIFIER
ASSEMBLY**

Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STR0A1X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1441/41; Air Mix Damper Control Servo Motor Circuit (Passenger Side); 2016 MY Tacoma [08/2015 -]		

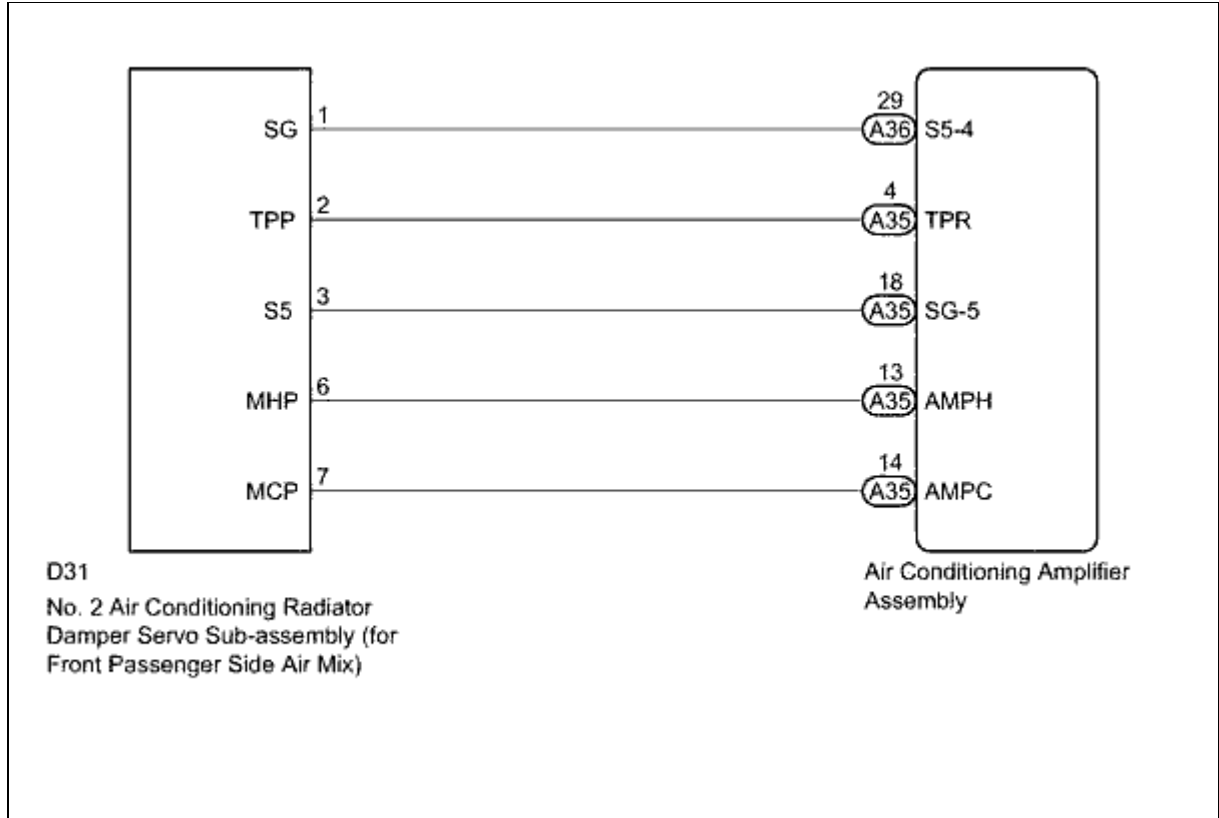
DTC	B1441/41	Air Mix Damper Control Servo Motor Circuit (Passenger Side)
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DESCRIPTION

This No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix) is controlled by the air conditioning amplifier assembly and moves the air mix damper (for front passenger side) to the desired position.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1441/41	Air mix damper position sensor (for front passenger side) value does not change even if air conditioning amplifier assembly operates air mix damper servo motor (for front passenger side).	- No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix) - Harness or connector - Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Operate the front passenger side temperature switch.
- (e) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (f) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Mix Damper Position (Passenger Side)	Air mix damper servo motor (for front passenger side) actual position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-
Air Mix Damper Target (Passenger Side)	Air mix damper servo motor (for front passenger side) target position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A



2.

INSPECT NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (FOR FRONT PASSENGER SIDE AIR MIX)

- (a) Remove the No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix)  .
- (b) Inspect the No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix)  .

NG

**REPLACE NO. 2 AIR CONDITIONING RADIATOR
DAMPER SERVO SUB-ASSEMBLY (FOR FRONT
PASSENGER SIDE AIR MIX)**

OK

3.

CHECK HARNESS AND CONNECTOR (NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)

- (a) Disconnect the D31 No. 2 air conditioning radiator damper servo sub-assembly (for front passenger side air mix) connector.
- (b) Disconnect the A35 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D31-6 (MHP) - A35-13 (AMPH)	Always	Below 1 Ω
D31-7 (MCP) - A35-14 (AMPC)	Always	Below 1 Ω
D31-6 (MHP) or A35-13 (AMPH) - Body ground	Always	10 k Ω or higher
D31-7 (MCP) or A35-14 (AMPC) - Body ground	Always	10 k Ω or higher

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE AIR CONDITIONING AMPLIFIER
ASSEMBLY**

Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STS09NX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1442/42; Air Inlet Damper Control Servo Motor Circuit; 2016 MY Tacoma [08/2015 -]		

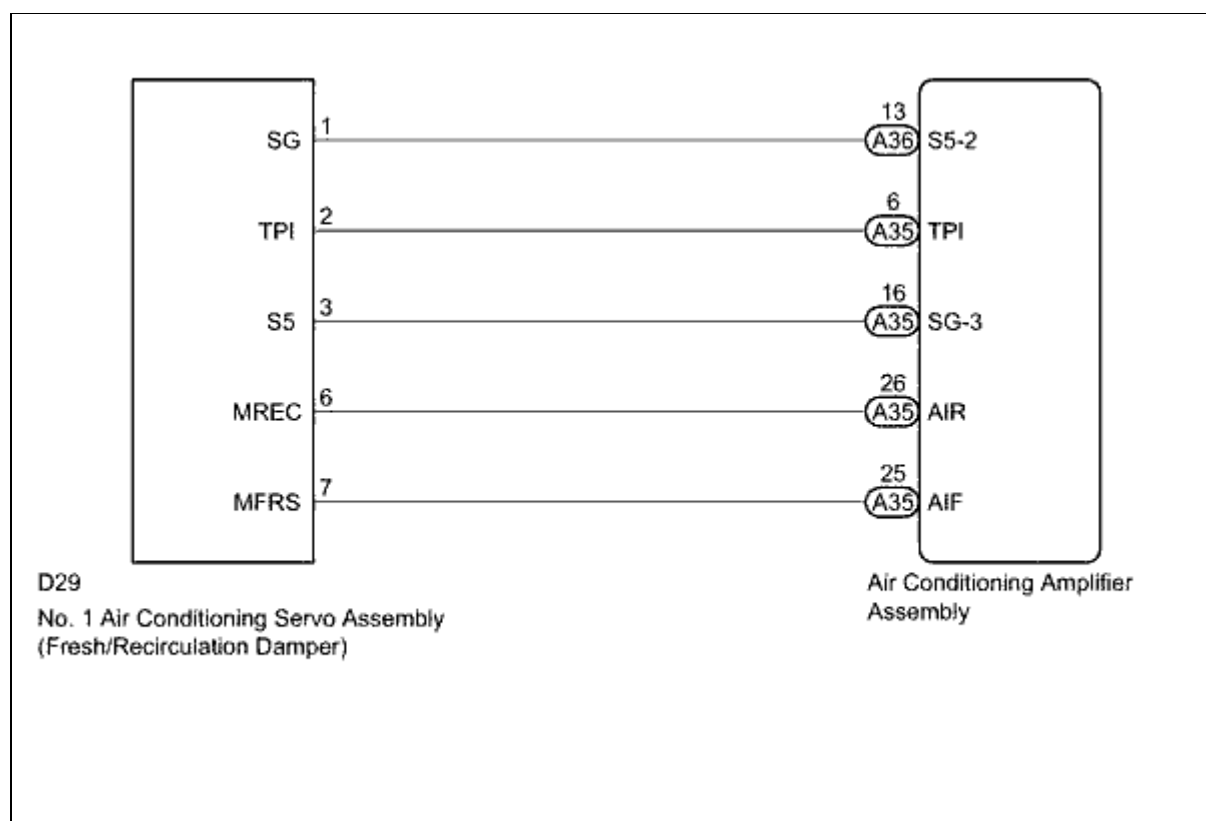
DTC	B1442/42	Air Inlet Damper Control Servo Motor Circuit
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DESCRIPTION

This No. 1 air conditioning servo assembly (fresh/recirculation damper) is controlled by the air conditioning amplifier assembly and moves the air inlet damper to the desired position.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1442/42	Air inlet damper position sensor value does not change even if air conditioning amplifier assembly operates air inlet damper servo motor.	- No. 1 air conditioning servo assembly (fresh/recirculation damper) - Harness or connector - Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Operate the recirculation/fresh switch.
- (e) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (f) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Inlet Damper Position	Air inlet damper servo motor actual position / Air inlet damper servo motor actual position / Min.: -14.0% Max.: 113.5%	FRESH: 0.0% RECIRCULATION: 100.0%	-
Air Inlet Damper Target	Air inlet damper servo motor target position / Min.: -14.0% Max.: 113.5%	FRESH: 0.0% RECIRCULATION: 100.0%	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A



2. INSPECT NO. 1 AIR CONDITIONING SERVO ASSEMBLY (FRESH/RECIRCULATION DAMPER)

(a) Remove the No. 1 air conditioning servo assembly (fresh/recirculation damper)  .

(b) Inspect the No. 1 air conditioning servo assembly (fresh/recirculation damper)  .

NG  **REPLACE NO. 1 AIR CONDITIONING SERVO ASSEMBLY (FRESH/RECIRCULATION DAMPER)**

OK



3.	CHECK HARNESS AND CONNECTOR (NO. 1 AIR CONDITIONING SERVO ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)
-----------	--

(a) Disconnect the D29 No. 1 air conditioning servo assembly (fresh/recirculation damper).

(b) Disconnect the A35 air conditioning amplifier assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D29-6 (MREC) - A35-26 (AIR)	Always	Below 1 Ω
D29-7 (MFRS) - A35-25 (AIF)	Always	Below 1 Ω
D29-6 (MREC) or A35-26 (AIR) - Body ground	Always	10 k Ω or higher
D29-7 (MFRS) or A35-25 (AIF) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STT09WX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1443/43; Air Outlet Damper Control Servo Motor Circuit; 2016 MY Tacoma [08/2015 -]		

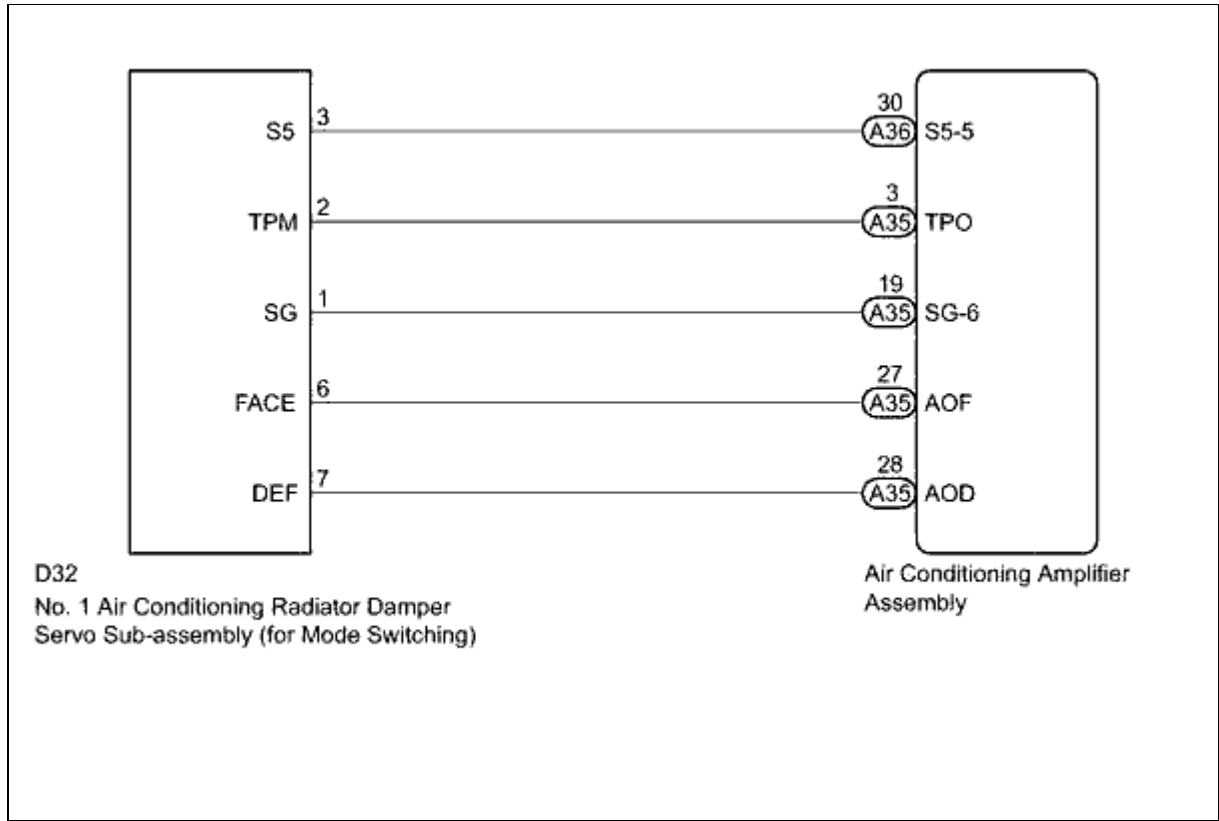
DTC	B1443/43	Air Outlet Damper Control Servo Motor Circuit
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DESCRIPTION

This No. 1 air conditioning radiator damper servo sub-assembly (for mode switching) is controlled by the air conditioning amplifier assembly and moves the mode damper to the desired position.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1443/43	Mode damper position sensor value does not change even if air conditioning amplifier assembly operates mode damper servo motor.	- No. 1 air conditioning radiator damper servo sub-assembly (for mode switching) - Harness or connector - Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Operate the mode switch.
- (e) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (f) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Outlet Damper Position	Mode damper servo motor actual position / Min.: -14.0% Max.: 113.5%	FACE: 0.0% DEF: 100.0%	-
Air Outlet Damper Target	Mode damper servo motor target position / Min.: -14.0% Max.: 113.5%	FACE: 0.0% DEF: 100.0%	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A



2. INSPECT NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (FOR MODE SWITCHING)

(a) Remove the No. 1 air conditioning radiator damper servo sub-assembly (for mode switching)  .

(b) Inspect the No. 1 air conditioning radiator damper servo sub-assembly (for mode switching)  .

NG  **REPLACE NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (FOR MODE SWITCHING)**

OK



3.	CHECK HARNESS AND CONNECTOR (NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)
-----------	--

(a) Disconnect the D32 No. 1 air conditioning radiator damper servo sub-assembly (for mode switching) connector.

(b) Disconnect the A35 air conditioning amplifier assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D32-6 (FACE) - A35-27 (AOF)	Always	Below 1 Ω
D32-7 (DEF) - A35-28 (AOD)	Always	Below 1 Ω
D32-6 (FACE) or A35-27 (AOF)	Always	10 k Ω or higher
D32-7 (DEF) or A35-28 (AOD)	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STU085X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B1446/46; Air Mix Damper Control Servo Motor Circuit (Driver Side); 2016 MY Tacoma [08/2015 -]		

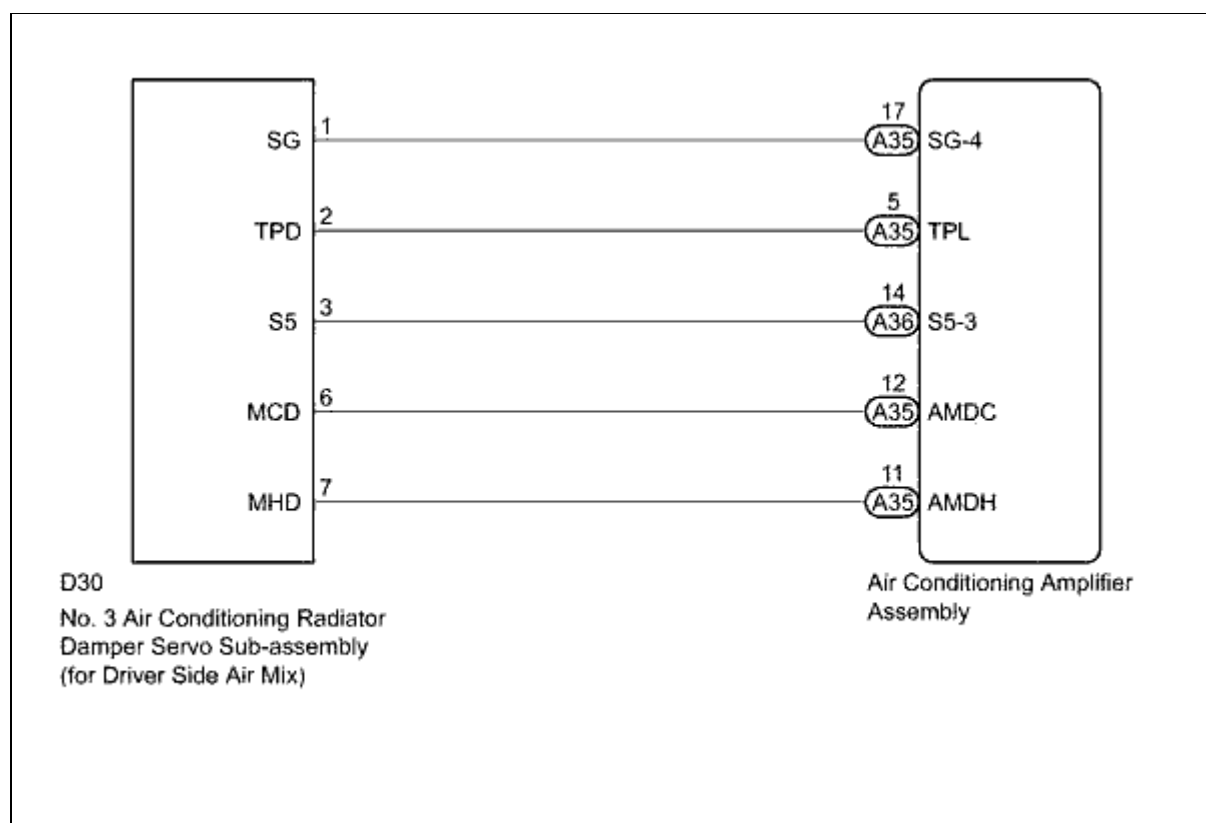
DTC	B1446/46	Air Mix Damper Control Servo Motor Circuit (Driver Side)
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DESCRIPTION

This No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix) is controlled by the air conditioning amplifier assembly and moves the air mix damper (for driver side) to the desired position.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1446/46	Air mix damper position sensor (for driver side) value does not change even if air conditioning amplifier assembly operates air mix damper servo motor (for driver side)	- No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix) - Harness or connector - Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Operate the driver side temperature switch.
- (e) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (f) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Air Mix Damper Position (Driver Side)	Air mix damper servo motor (for driver side) actual position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-
Air Mix Damper Target (Driver Side)	Air mix damper servo motor (for driver side) target position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A
▼

2.

INSPECT NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (FOR DRIVER SIDE AIR MIX)

(a) Remove the No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix)

INFO

(b) Inspect the No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix)

INFO

NG**REPLACE NO. 3 AIR CONDITIONING RADIATOR
DAMPER SERVO SUB-ASSEMBLY (FOR DRIVER
SIDE AIR MIX)****OK**

3.

CHECK HARNESS AND CONNECTOR (NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)

(a) Disconnect the D30 No. 3 air conditioning radiator damper servo sub-assembly (for driver side air mix) connector.

(b) Disconnect the A35 air conditioning amplifier assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
D30-6 (MCD) - A35-12 (AMDC)	Always	Below 1 Ω
D30-7 (MHD) - A35-11 (AMDH)	Always	Below 1 Ω
D30-6 (MCD) or A35-12 (AMDC) - Body ground	Always	10 k Ω or higher
D30-7 (MHD) or A35-11 (AMDH) - Body ground	Always	10 k Ω or higher

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE AIR CONDITIONING AMPLIFIER
ASSEMBLY**

Last Modified: 11-13-2015	6.6 C	Doc ID: RM000004U4501EX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): B14B2; Lost Communication with Front Panel LIN; 2016 MY Tacoma [08/2015 -]		

DTC	B14B2	Lost Communication with Front Panel LIN
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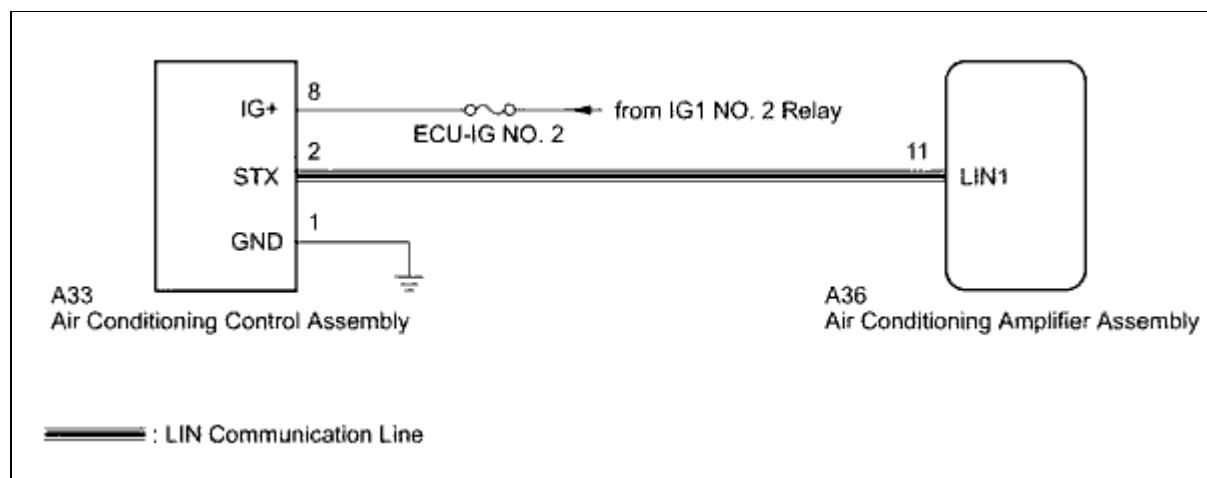
DESCRIPTION

The air conditioning control assembly communicates with the air conditioning amplifier assembly through the LIN communication system.

If the LIN communication system malfunctions, the air conditioning amplifier assembly does not operate even if the air conditioning control assembly is operated.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B14B3	Lost communication with the air conditioning control assembly.	• Harness or connector • Air conditioning control assembly • Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING CONTROL ASSEMBLY -
-----------	---

POWER SOURCE CIRCUIT)

- (a) Disconnect the A33 air conditioning control assembly connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A33-8 (IG+) - Body ground	Ignition switch off	Below 1 V
A33-8 (IG+) - Body ground	Ignition switch ON	11 to 14 V

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A33-1 (GND) - Body ground	Always	Below 1 Ω

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



2.

CHECK HARNESS AND CONNECTOR (AIR CONDITIONING CONTROL ASSEMBLY - AIR CONDITIONING AMPLIFIER ASSEMBLY)

- (a) Disconnect the A33 air conditioning control assembly connector.
- (b) Disconnect the A36 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A33-2 (STX) - A36-11 (LIN1)	Always	Below 1 Ω
A33-2 (STX) or A36-11 (LIN1) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



3.	REPLACE AIR CONDITIONING CONTROL ASSEMBLY
-----------	--

(a) Replace the air conditioning control assembly  .

HINT:
Since the air conditioning control assembly cannot be inspected while it is removed from the vehicle, replace the air conditioning control assembly with a new or known good one and same problem occurs again.

OK:
Same problem does not occurs.

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

- B  **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**
- C  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**
- A  **END (AIR CONDITIONING CONTROL ASSEMBLY WAS DEFECTIVE)**



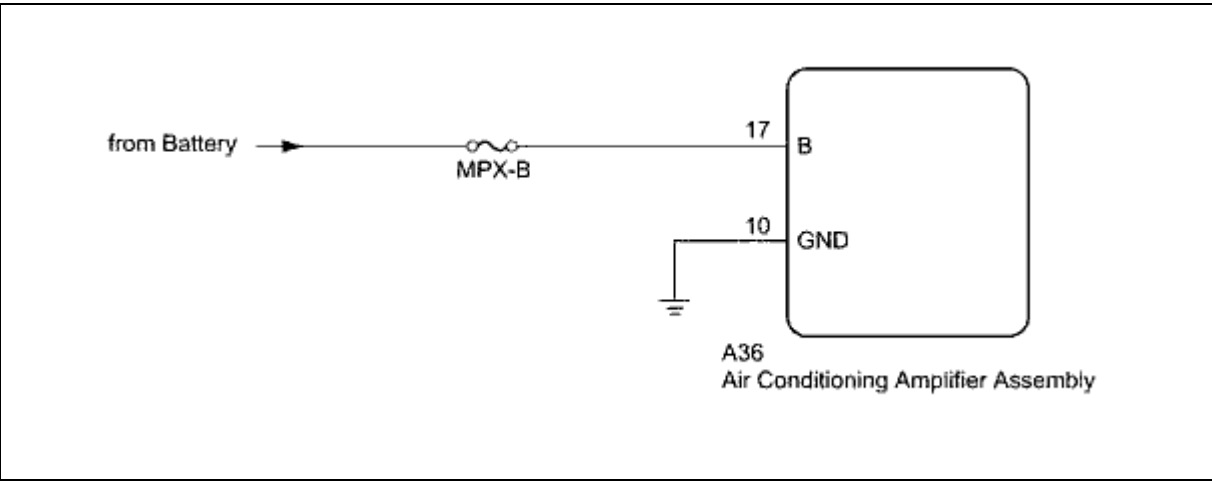
Last Modified: 11-13-2015	6.6 J	Doc ID: RM000000TS70AMX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): Back-up Power Source Circuit; 2016 MY Tacoma [08/2015 -]		

Back-up Power Source Circuit

DESCRIPTION

The back-up power source circuit for the air conditioning amplifier assembly is shown below. Power is supplied even when the ignition switch is off. The power is used for diagnostic trouble code memory, etc.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - BATTERY)
----	--

- (a) Disconnect the A36 air conditioning amplifier assembly connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A36-17 (B) - Body ground	Always	11 to 14 V

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK



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

(a) Disconnect the A36 air conditioning amplifier assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A36-10 (GND) - Body ground	Always	Below 1 Ω

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE



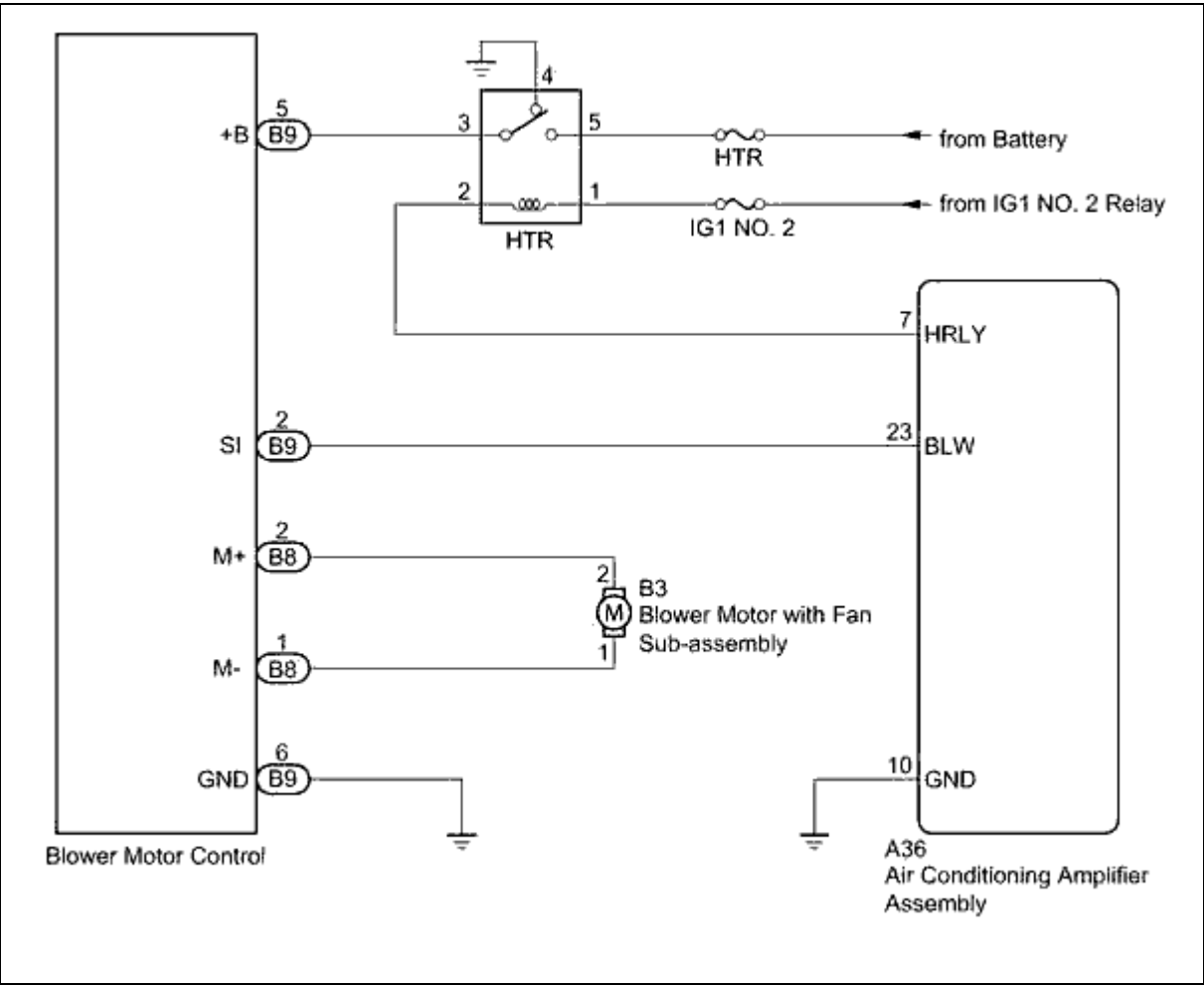
Last Modified: 11-13-2015	6.6 J	Doc ID: RM000002LLW062X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): Blower Motor Circuit; 2016 MY Tacoma [08/2015 -]		

Blower Motor Circuit

DESCRIPTION

The blower motor with fan sub-assembly operates according to signals from the air conditioning amplifier assembly. The blower motor with fan sub-assembly speed signals are transmitted by changes in the duty ratio.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1. PERFORM ACTIVE TEST USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Active Test.
- (e) According to the display on the Techstream, perform the Active Test.

Air Conditioner

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Blower Motor	Blower motor with fan sub-assembly	Min.: 0, Max.: 31	-

OK:

Blower motor with fan sub-assembly operates and blower motor speed changes.

RESULT	PROCEED TO
OK	A
NG (Blower motor with fan sub-assembly does not operate)	B
NG (Blower motor with fan sub-assembly operates but blower motor speed does not change)	C

B ► GO TO STEP 2

C ► GO TO STEP 8

A ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

2. INSPECT BLOWER MOTOR WITH FAN SUB-ASSEMBLY

- (a) Remove the blower motor with fan sub-assembly 
- (b) Inspect the blower motor with fan sub-assembly  .

NG ► REPLACE BLOWER MOTOR WITH FAN SUB-ASSEMBLY

OK
▼

3. INSPECT HTR RELAY

- (a) Remove the HTR relay.
- (b) Inspect the HTR relay  .

NG  **REPLACE HTR RELAY**

OK



4. CHECK HARNESS AND CONNECTOR (HTR RELAY - POWER SOURCE CIRCUIT)

- (a) Remove the HTR relay.
- (b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
HTR-5 - Body ground	Always	11 to 14 V
HTR-1 - Body ground	Ignition switch ON	11 to 14 V

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



5. CHECK HARNESS AND CONNECTOR (HTR RELAY - BLOWER MOTOR CONTROL AND AIR CONDITIONING AMPLIFIER ASSEMBLY)

- (a) Remove the HTR relay.
- (b) Disconnect the B9 blower motor control connector.
- (c) Disconnect the A36 air conditioning amplifier assembly connector.
- (d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
HTR-3 - B9-5 (+B)	Always	Below 1 Ω

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
HTR-2 - A36-7 (HRLY)	Always	Below 1 Ω
HTR-3 or B9-5 (+B) - Body ground	Always	10 k Ω or higher
HTR-2 or A36-7 (HRLY) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



6.	CHECK HARNESS AND CONNECTOR (BLOWER MOTOR CONTROL - BLOWER MOTOR WITH FAN SUB-ASSEMBLY AND BODY GROUND)
-----------	--

- (a) Disconnect the B3 blower motor with fan sub-assembly connector.
- (b) Disconnect the B8 and B9 blower motor control connectors.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
B8-2 (M+) - B3-2	Always	Below 1 Ω
B8-1 (M-) - B3-1	Always	Below 1 Ω
B9-6 (GND) - Body ground	Always	Below 1 Ω
B8-2 (M+) or B3-2 - Body ground	Always	10 k Ω or higher
B8-1 (M-) or B3-1 - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



7.	CHECK HARNESS AND CONNECTOR (BLOWER MOTOR CONTROL - BLOWER MOTOR WITH FAN SUB-ASSEMBLY)
-----------	--

- (a) Disconnect the B9 blower motor control connector.
- (b) Disconnect the A36 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

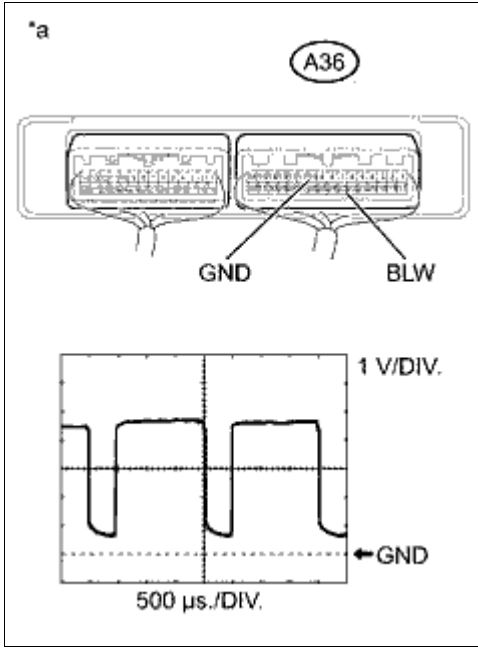
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
B9-2 (SI) - A36-23 (BLW)	Always	Below 1 Ω
B9-2 (SI) or A36-23 (BLW) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



8.	CHECK AIR CONDITIONING AMPLIFIER ASSEMBLY
-----------	--



(a) Remove the air conditioning amplifier assembly  .

- (b) Reconnect the A36 air conditioning amplifier assembly connector.
- (c) Reconnect the B3 blower motor with fan sub-assembly connector.
- (d) Reconnect the B8 and B9 blower motor control connector.
- (e) Reinstall the HTR relay.
- (f) Using an oscilloscope, check the waveform.

Measurement Condition

ITEM	CONTENT
Terminal No. (Symbol)	A36-23 (BLW) - A36-10 (GND)
Tester Range	1 V/DIV., 500 μ s/DIV.

ITEM	CONTENT
Condition	Ignition switch ON Blower switch LO

OK:

Waveform is as shown in the illustration.

HINT:

Waveform varies with the blower level.

Text in Illustration

*a	Component with harness connected (Air Conditioning Amplifier Assembly)
----	---

NG ► **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

OK



9.	REPLACE BLOWER MOTOR CONTROL
-----------	-------------------------------------

(a) Replace the blower motor control with a new or normally functioning one  .

(b) Operate the blower motor with fan sub-assembly to check that it functions properly.

OK:

Blower motor with fan sub-assembly operates normally.

NG ► **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

OK ► **END (BLOWER MOTOR CONTROL WAS DEFECTIVE)**



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000040EV02ZX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): CUSTOMIZE PARAMETERS; 2016 MY Tacoma [08/2015 -]		

CUSTOMIZE PARAMETERS

1. CUSTOMIZE AIR CONDITIONING SYSTEM

(a) Customizing with the Techstream

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.

HINT:

The following items can be customized.

- (1) Connect the Techstream to the DLC3.
- (2) Turn the ignition switch to ON.
- (3) Turn the Techstream on.
- (4) Enter the following menus: Customize Setting / Air Conditioner.
- (5) Select the setting by referring to the table below.

Air Conditioner

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
DEF (PSW/Lock) Mode Setting	Link	When pressure switch ON or the compressor lock is generated, the function to switch to air automatically is stopped.	Link or Normal	Air Conditioning Amplifier Assembly
Set Temperature Shift	Normal	Function to perform control with the shifted temperature versus the displayed temperature	-2C, -1C, Normal, +1C, +2C	Air Conditioning Amplifier Assembly
Compressor Mode	Automatic	Function to turn the A/C on automatically by pressing the AUTO button when the blower is on and the A/C is off	Automatic or Manual	Air Conditioning Amplifier Assembly
Air Inlet Mode*1	Automatic	In case of turning the A/C on to cool the cabin down quickly, this is the function to change the mode automatically to RECIRCULATION mode	Automatic or Manual	Air Conditioning Amplifier Assembly
Foot/DEF Auto Mode	ON	Function to turn the airflow to FOOT/DEF automatically when AUTO mode is on	ON or OFF	Air Conditioning Amplifier Assembly
Foot/DEF Automatic Blow Up Function	ON	Function to increase the blower level automatically when the defroster is on	ON or OFF	Air Conditioning Amplifier Assembly
Fan speed increment control	Normal	Function to define how fast the AC blower goes to target speed when first activating the	Slow, Normal, Fast	Air Conditioning Amplifier

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
		air conditioning		Assembly
Outside Air Mode Auto Switch Function	ON	Function to automatically change the air inlet to FRESH mode when the vehicle is parked	ON or OFF	Air Conditioning Amplifier Assembly

*1: except G. C. C countries

(b) Customizing using the Navigation receiver assembly (for Navigation Receiver Type)

- (1) Turn the ignition switch to ON.
- (2) Enter the following menus: APPS / Setup / Vehicle / Vehicle Customization / Climate Settings.
- (3) Select the setting by referring to the table below.

Climate Settings

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Auto A/C Mode	On	Function to turn the A/C on automatically by pressing the AUTO button when the blower is on and the A/C is off	On or Off	Air Conditioning Amplifier Assembly
Efficient Ventilation Mode	On	In case of turning the A/C on to cool the cabin down quickly, this is the function to change the mode automatically to RECIRCULATION mode	On or Off	Air Conditioning Amplifier Assembly

(c) Customizing using the Radio and display receiver assembly (for Radio and Display Type)

- (1) Turn the ignition switch to ON.
- (2) Enter the following menus: SETUP / General / Vehicle / Vehicle customization / Climate settings.
- (3) Select the setting by referring to the table below.

Climate settings

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Auto A/C Mode	On	Function to turn the A/C on automatically by pressing the AUTO button when the blower is on and the A/C is off	On or Off	Air Conditioning Amplifier Assembly
Efficient Ventilation Mode	On	In case of turning the A/C on to cool the cabin down quickly, this is the function to change the mode automatically to RECIRCULATION mode	On or Off	Air Conditioning Amplifier Assembly



Last Modified: 11-13-2015	6.6 U	Doc ID: RM000001GFL08TX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. DATA LIST

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

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Air Conditioner / Data List.
- Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Room Temperature Sensor	Cooler thermistor (room temperature sensor) / Min.: -6.50°C (20.30°F) Max.: 57.25°C (135.05°F)	Actual cabin temperature displayed	-
Ambient Temp Sensor	Ambient temperature sensor / Min.: -23.30°C (-9.94°F) Max.: 65.95°C (150.71°F)	Actual ambient temperature displayed	-
Adjusted Ambient Temp	Adjusted ambient temperature / Min.: -30.80°C (-23.44°F) Max.: 50.80°C (123.44°F)	-	-
Evaporator Fin Thermistor	Cooler thermistor sensor (evaporator temperature sensor) / Min.: -29.70°C (-21.46°F) Max.: 59.55°C (139.19°F)	Actual evaporator temperature displayed	-
Evaporator Target Temp	Evaporator target temperature / Min.: -327.68°C (-557.82°F) Max.: 327.67°C (621.81°F)	Evaporator target temperature displayed	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Engine Coolant Temp	Engine coolant temperature sensor / Min.: 1.30°C (34.34°F) Max.: 90.55°C (194.99°F)	Actual engine coolant temperature displayed	-
Blower Motor Speed Level	Blower motor speed level / Min.: 0 Max.: 31	Displayed speed level increases in range between 0 and 31 as blower motor speed increases	-
Regulator Pressure Sensor	Air conditioner pressure sensor / Min.: -66.22 psi (gauge) Max.: 477.68 psi (gauge)	Actual pressure is displayed	-
Electric Heater Count*1	Maximum heater operation level / Min.: 0 Max.: 3	Maximum possible operation level of quick heater assembly (PTC heater) displayed	-
Electric Heater Active Level*1	Actual heater operation level / Min.: 0 Max.: 3	Actual operation level of quick heater assembly (PTC heater) displayed	-
Shift Set Temperature	Shift set temperature / 2C decr, 1C decr, Normal, 1C incr, 2C incr	Customized value displayed	-
Air Inlet Mode*2	Air inlet mode / Auto or Manual	Customized value displayed	-
Compressor Mode	Compressor mode / Auto or Manual	Customized value displayed	-
Fan speed increment control	Fan speed increment control / Slow, Normal, Fast	Customized value displayed	-
Foot/DEF Auto Mode	Foot/DEF auto mode / ON or OFF	Customized value displayed	-
Foot/DEF Auto Blow Up	Foot/DEF auto blower speed increase / ON or OFF	Customized value displayed	-
Refrigerant Gas Type	Refrigerant gas type / R134a or 1234yf	Refrigerant gas type displayed	-
Set Temperature (D Side)	Driver side set temperature / Min.: MAX COLD Max.: MAX HOT	Driver side set temperature displayed	-
Set Temperature (P Side)	Front passenger side set temperature / Min.: MAX COLD Max.: MAX HOT	Front passenger side set temperature displayed	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Outside Air Mode Auto Switch Function	Outside air mode auto switch function / ON or OFF	Customized value displayed	-
Air Mix Damper Position (Driver Side)	Air mix damper servo motor (for driver side) actual position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-
Air Mix Damper Position (Passenger Side)	Air mix damper servo motor (for front passenger side) actual position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-
Air Outlet Damper Position	Mode damper servo motor actual position / Min.: -14.0% Max.: 113.5%	FACE: 0.0% DEF: 100.0%	-
Air Inlet Damper Position	Air inlet damper servo motor actual position / Min.: -14.0% Max.: 113.5%	FRESH: 0.0% RECIRCULATION: 100.0%	-
Air Mix Damper Target (Driver Side)	Air mix damper servo motor (for driver side) target position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-
Air Mix Damper Target (Passenger Side)	Air mix damper servo motor (for front passenger side) target position / Min.: -14.0% Max.: 113.5%	MAX COOL: 0.0% MAX HOT: 100.0%	-
Air Outlet Damper Target	Mode damper servo motor target position / Min.: -14.0% Max.: 113.5%	FACE: 0.0% DEF: 100.0%	-
Air Inlet Damper Target	Air inlet damper servo motor target position / Min.: -14.0% Max.: 113.5%	FRESH: 0.0% RECIRCULATION: 100.0%	-
DEF (PSW/Lock) Mode Setting	DEF (PSW/Lock) Mode Setting / Link or Normal	Customized value displayed	-
Number of Trouble Codes	Number of trouble codes / Min.: 0 Max.: 255	Number of DTCs displayed	-

*1: w/ PTC Heater

*2: except U.S.A and Canada

2. ACTIVE TEST

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

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Active Test.
- (e) Check the operation by referring to the table below.

Air Conditioner

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Blower Motor	Blower motor with fan sub-assembly	Min.: 0, Max.: 31	-
Air Mix Damper (Driver Side)	Air mix damper servo motor (for driver side)	Min.: -14.0% , Max.: 113.5%	Operates between 0 and 100%
Air Mix Damper (Passenger Side)	Air mix damper servo motor (for front passenger side)	Min.: -14.0% , Max.: 113.5%	Operates between 0 and 100%
Air Outlet Damper (Driver Side)	Mode damper servo motor	Min.: -14.0% , Max.: 113.5%	Operates between 0 and 100%
Air Inlet Damper (Rear)	Air inlet damper servo motor	Min.: -14.0% , Max.: 113.5%	Operates between 0 and 100%
Magnetic Clutch Relay	Air conditioning system operation	OFF, ON	-
Mirror Heater Relay	Mirror heater	OFF, ON	-
Electrical Fan	Electrical Fan	OFF, ON	-
Heater Active Level*1	Quick heater assembly	Min.: 0, Max.: 3	-

*1: w/ PTC Heater



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000001MYG08IX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. DESCRIPTION

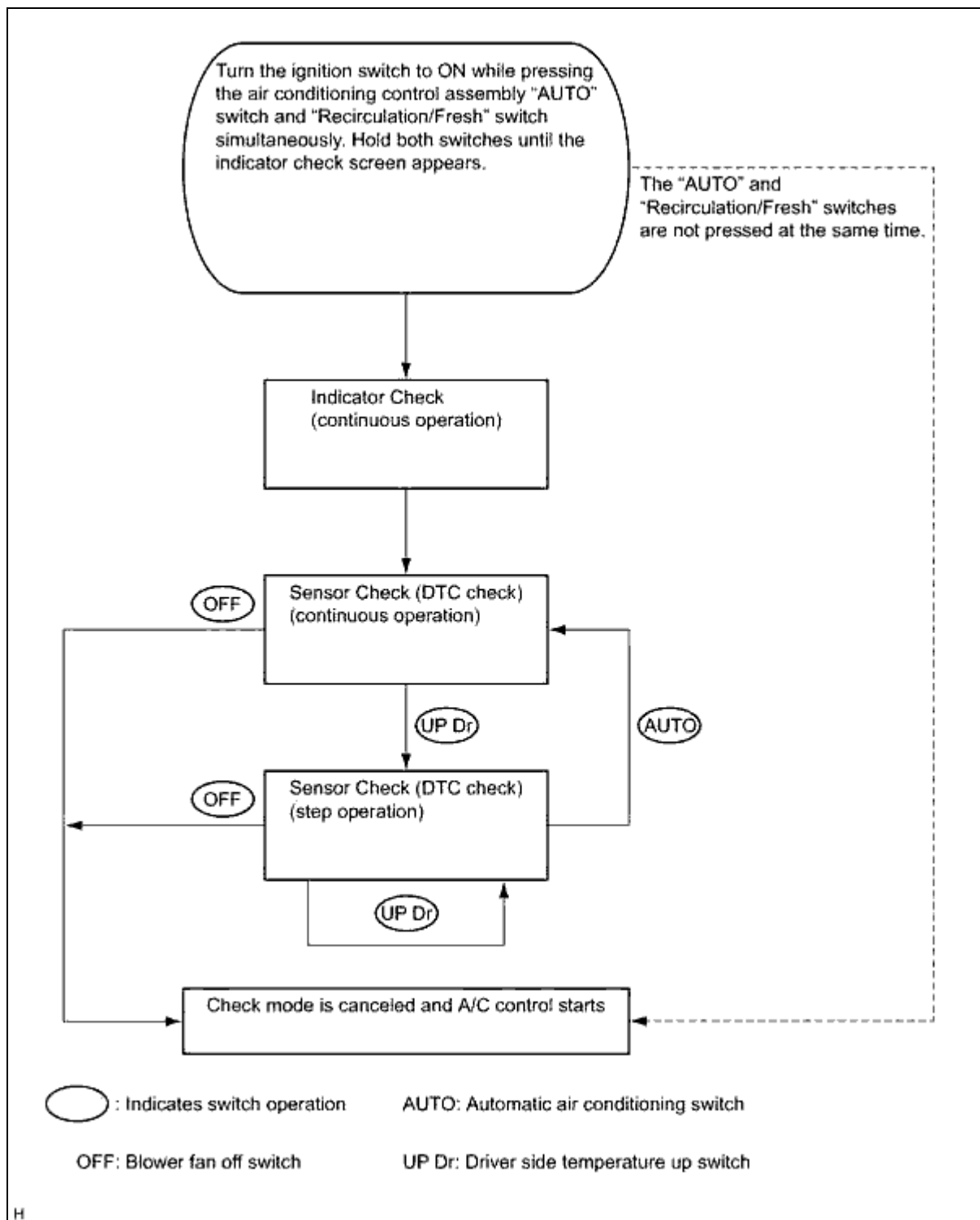
- (a) Air conditioning system data and the Diagnostic Trouble Codes (DTCs) can be read through the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the Techstream to check for malfunctions and perform troubleshooting.

2. CHECK DLC3

- (a) Check the DLC3  .

3. LIST OF OPERATION METHODS

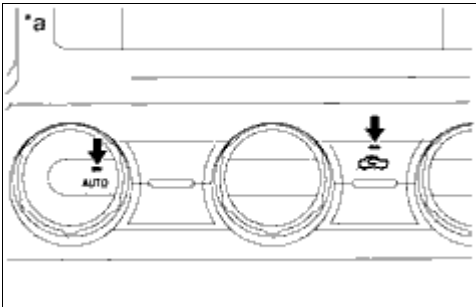
- (a) By operating each of the air conditioning control switches as shown in the diagram below, it is possible to enter diagnostic check mode.



4. INDICATOR CHECK

- (a) Turn the ignition switch off.

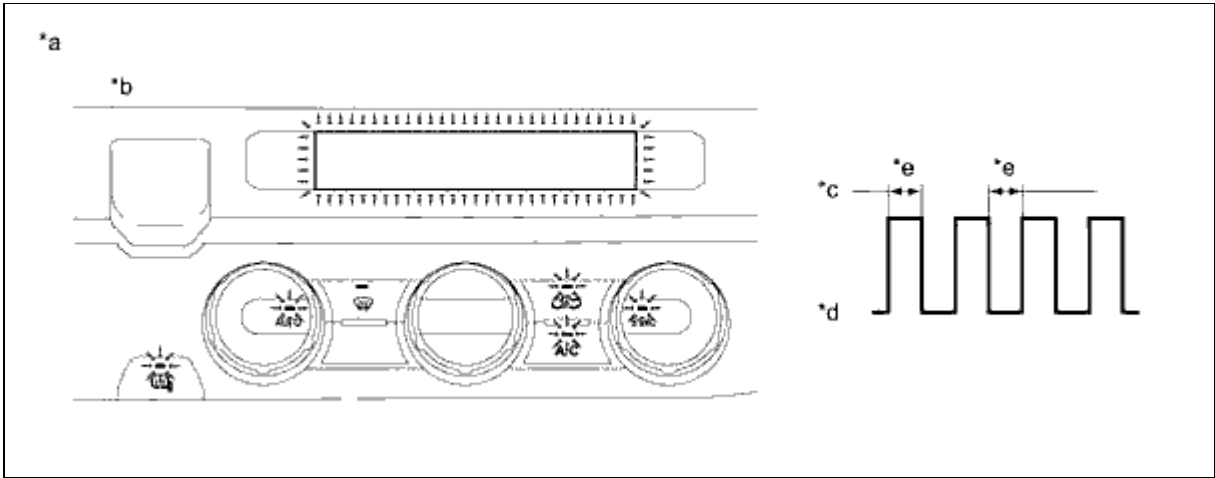
- (b) Turn the ignition switch to ON while pressing the air conditioning panel "AUTO" switch and "Recirculation/Fresh" switch simultaneously. Hold both switches until the indicator check screen appears.



Text in Illustration

*a	Example
----	---------

- (c) The indicator check is automatically performed when panel diagnosis is activated. Check that the indicators light up and go off 4 times at 1 second intervals continuously.



Text in Illustration

*a	Example	*b	State of indicator check
*c	On	*d	Off
*e	1 second	-	-

HINT:

- The sensor check automatically starts when the indicator check is completed.
- Press the "OFF" switch to cancel check mode.

5. SENSOR CHECK (DTC CHECK)

- (a) Start the engine and warm it up.
(b) Perform the indicator check.

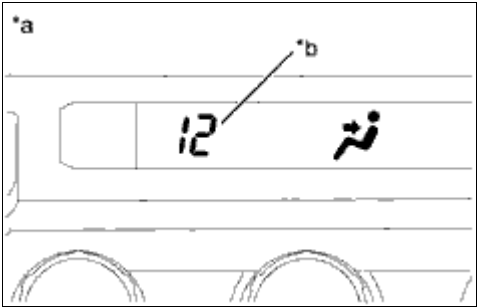
HINT:

After the indicator check is completed, the system enters DTC check mode automatically.

(c) Read the DTCs displayed on the display.

Text in Illustration

*a	Example
*b	DTC



NOTICE:

In sensor check mode, which is automatically entered after indicator check mode, troubleshooting may be partially performed. Be sure to perform the sensor check again.

HINT:

Refer to Diagnostic Trouble Code Chart for details of the codes



- When there are no problems, DTC 00 is output.
- As an example, the illustration shows that DTC 12 is output.

(d) If the steps are difficult to read because they change automatically, press the "driver side TEMP UP" 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 "driver side TEMP UP" switch is pressed.

HINT:

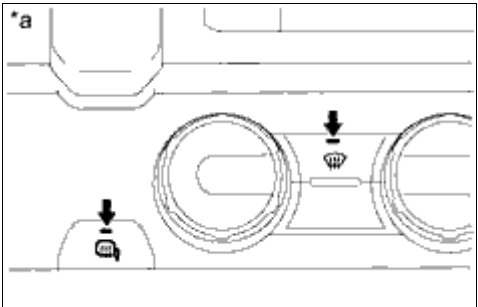
Press the "OFF" switch to finish panel diagnosis.

6. SENSOR CHECK (CLEAR DTC)

(a) During the sensor check, press the "Mirror Heater" switch and "Rear DEF" switch simultaneously.

Text in Illustration

*a	Example
----	---------



Last Modified: 11-13-2015	6.6 S	Doc ID: RM000001O7Z0CPX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): DIAGNOSTIC TROUBLE CODE CHART; 2016 MY Tacoma [08/2015 -]		

DIAGNOSTIC TROUBLE CODE CHART

Air Conditioning System

DTC CODE	DETECTION ITEM	MEMORY	SEE PAGE
B1411/11	Room Temperature Sensor Circuit	Memorized (4 seconds or more)	INFO
B1412/12	Ambient Temperature Sensor Circuit	Memorized (4 seconds or more)	INFO
B1413/13	Evaporator Temperature Sensor Circuit	Memorized (4 seconds or more)	INFO
B1422/22	Compressor Lock Sensor Circuit	Memorized (3 seconds or more)	INFO
B1423/23	Pressure Sensor Circuit	-	INFO
B1431/31	Air Mix Damper Position Sensor Circuit (Passenger Side)	Memorized (4 seconds or more)	INFO
B1432/32	Air Inlet Damper Position Sensor Circuit	Memorized (4 seconds or more)	INFO
B1433/33	Air Outlet Damper Position Sensor Circuit	Memorized (4 seconds or more)	INFO
B1436/36	Air Mix Damper Position Sensor Circuit (Driver Side)	Memorized (4 seconds or more)	INFO
B1441/41	Air Mix Damper Control Servo Motor Circuit (Passenger Side)	Memorized (16 seconds or more)	INFO
B1442/42	Air Inlet Damper Control Servo Motor Circuit	Memorized (16 seconds or more)	INFO
B1443/43	Air Outlet Damper Control Servo Motor Circuit	Memorized (16 seconds or more)	INFO
B1446/46	Air Mix Damper Control Servo Motor Circuit (Driver Side)	Memorized (16 seconds or more)	INFO
B14B2	Lost Communication with Front Panel LIN	Memorized (10 seconds or more)	INFO
U0100	Lost Communication with ECM	-	INFO
U0142	Lost Communication with Main Body ECU	-	INFO
U0155	Lost Communication with Combination Meter	-	INFO



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000001GUF0CDX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): DTC CHECK / CLEAR; 2016 MY Tacoma [08/2015 -]		

DTC CHECK / CLEAR

1. DTC CHECK USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Trouble Codes.
- (e) Check for DTCs.

2. DTC CLEAR USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Trouble Codes.
- (e) Clear the DTCs.



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000000PM60E3X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

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

1.	VEHICLE BROUGHT TO WORKSHOP
-----------	------------------------------------

NEXT



2.	INSPECT BATTERY VOLTAGE
-----------	--------------------------------

(a) Inspect the battery voltage.

Standard Voltage:

11 to 14 V

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

NEXT



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

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

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

B **GO TO CAN COMMUNICATION SYSTEM**

A

4.	CHECK FOR DTC*
-----------	-----------------------

- (a) Check for DTCs and note any code that is output.
- (b) Clear the DTCs.
- (c) Recheck for DTCs. Based on the DTCs output above, try to force the air conditioning system to output DTCs by simulating the conditions indicated by the DTC.

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

B **GO TO DIAGNOSTIC TROUBLE CODE CHART**

A

5.	PROBLEM SYMPTOMS TABLE
-----------	-------------------------------

- (a) Refer to Problem Symptoms Table .

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) Panel diagnosis (indicator check, sensor check)

(b) Data List / Active Test INFO

(c) Terminals of ECU INFO

(d) On-vehicle Inspection

(e) Inspection

NEXT



7.	ADJUST, REPAIR OR REPLACE
-----------	----------------------------------

NEXT  **END**



Last Modified: 11-13-2015	6.6 J	Doc ID: RM000000TS60C8X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): IG Power Source Circuit; 2016 MY Tacoma [08/2015 -]		

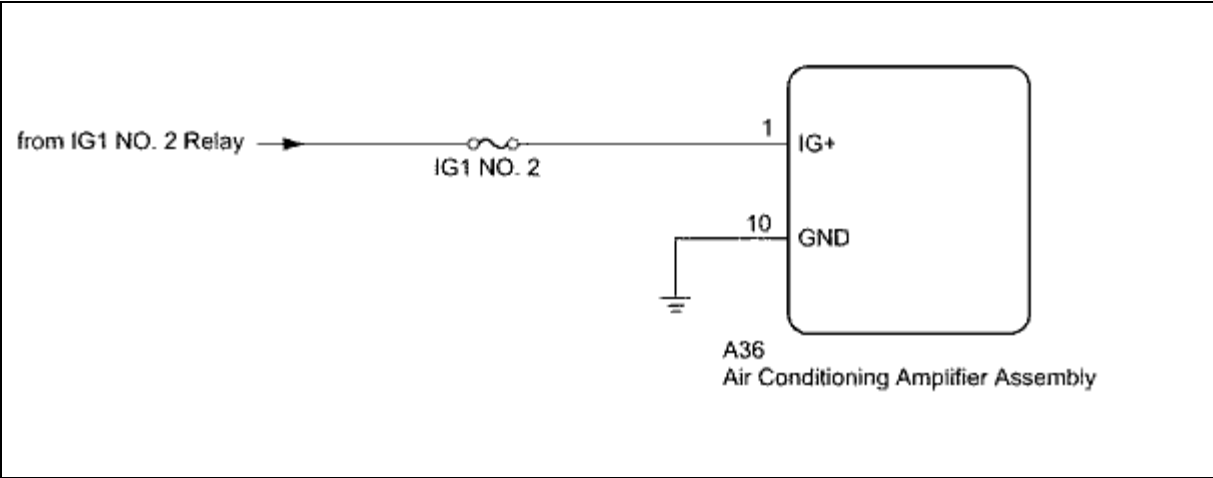
IG Power Source Circuit

DESCRIPTION

The main power source is supplied to the air conditioning amplifier assembly when the ignition switch is turned to ON.

The power is used for operating the air conditioning amplifier assembly, servo motors, etc.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:
Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - IG POWER SOURCE)
----	--

- (a) Disconnect the A36 air conditioning amplifier assembly connector.
- (b) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A36-1 (IG+) - Body ground	Ignition switch off	Below 1 V

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A36-1 (IG+) - Body ground	Ignition switch ON	11 to 14 V

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



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

- (a) Disconnect the A36 air conditioning amplifier assembly connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A36-10 (GND) - Body ground	Always	Below 1 Ω

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

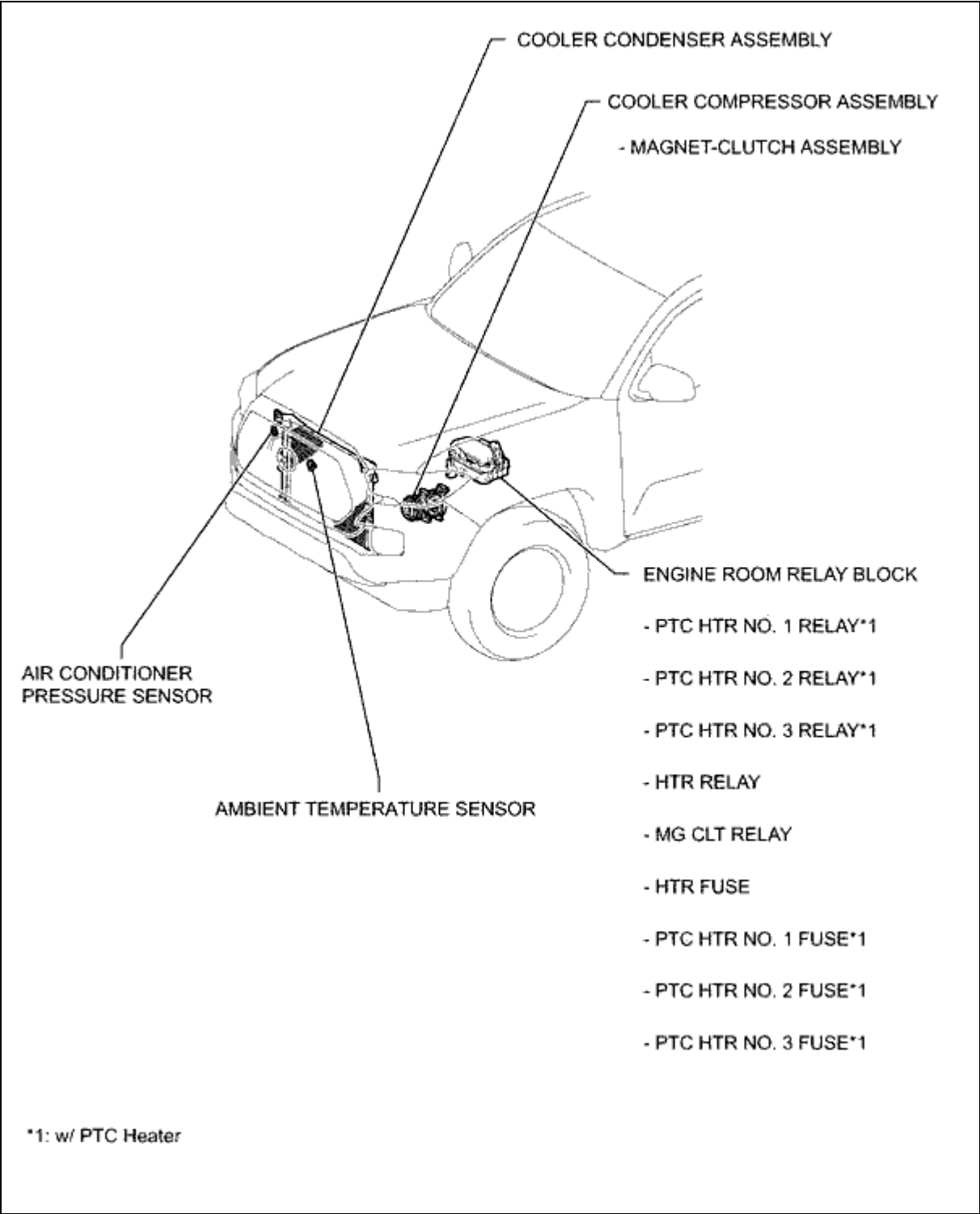
OK  **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**



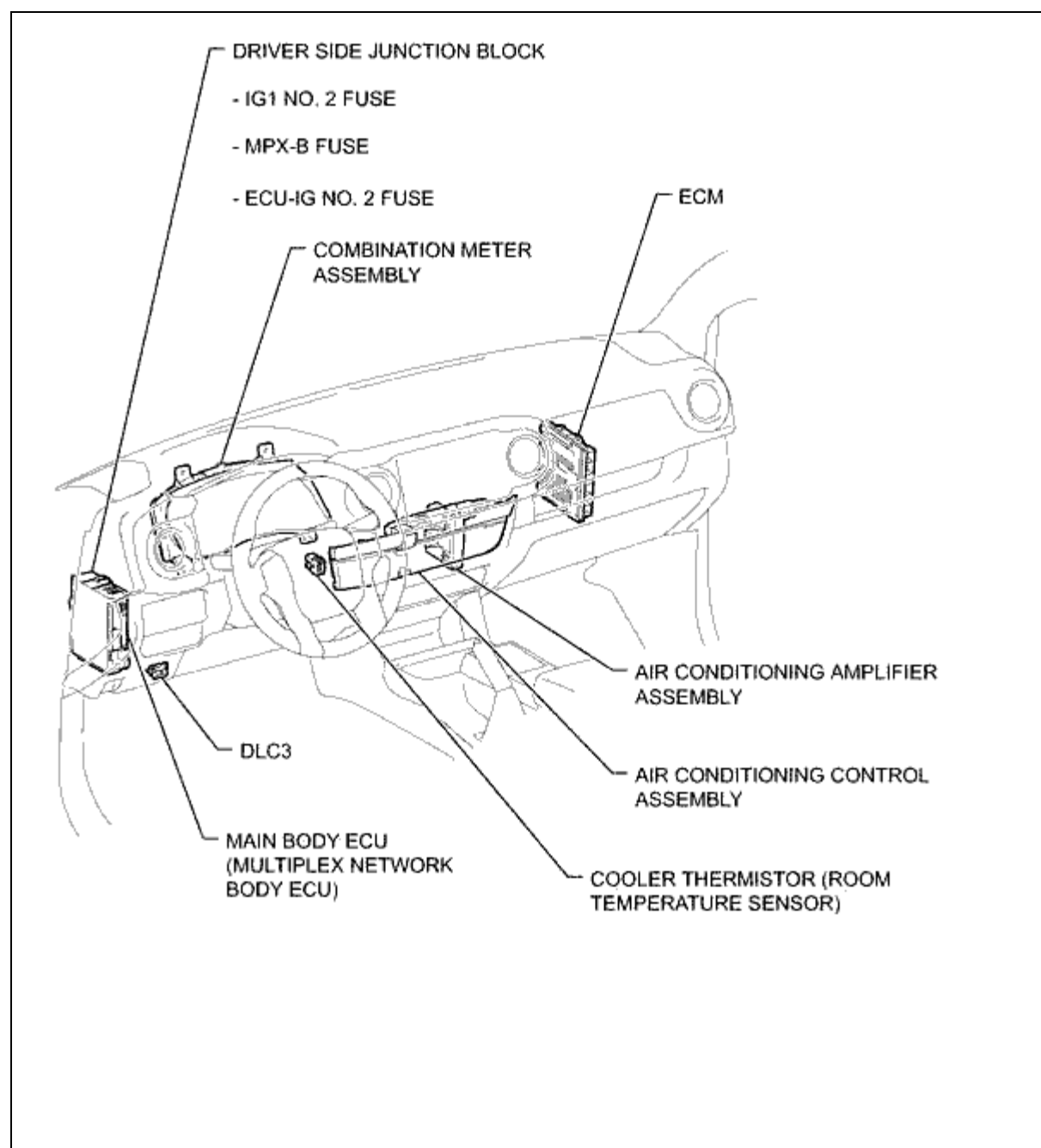
Last Modified: 11-13-2015	6.6 R	Doc ID: RM0000031BK056X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

PARTS LOCATION

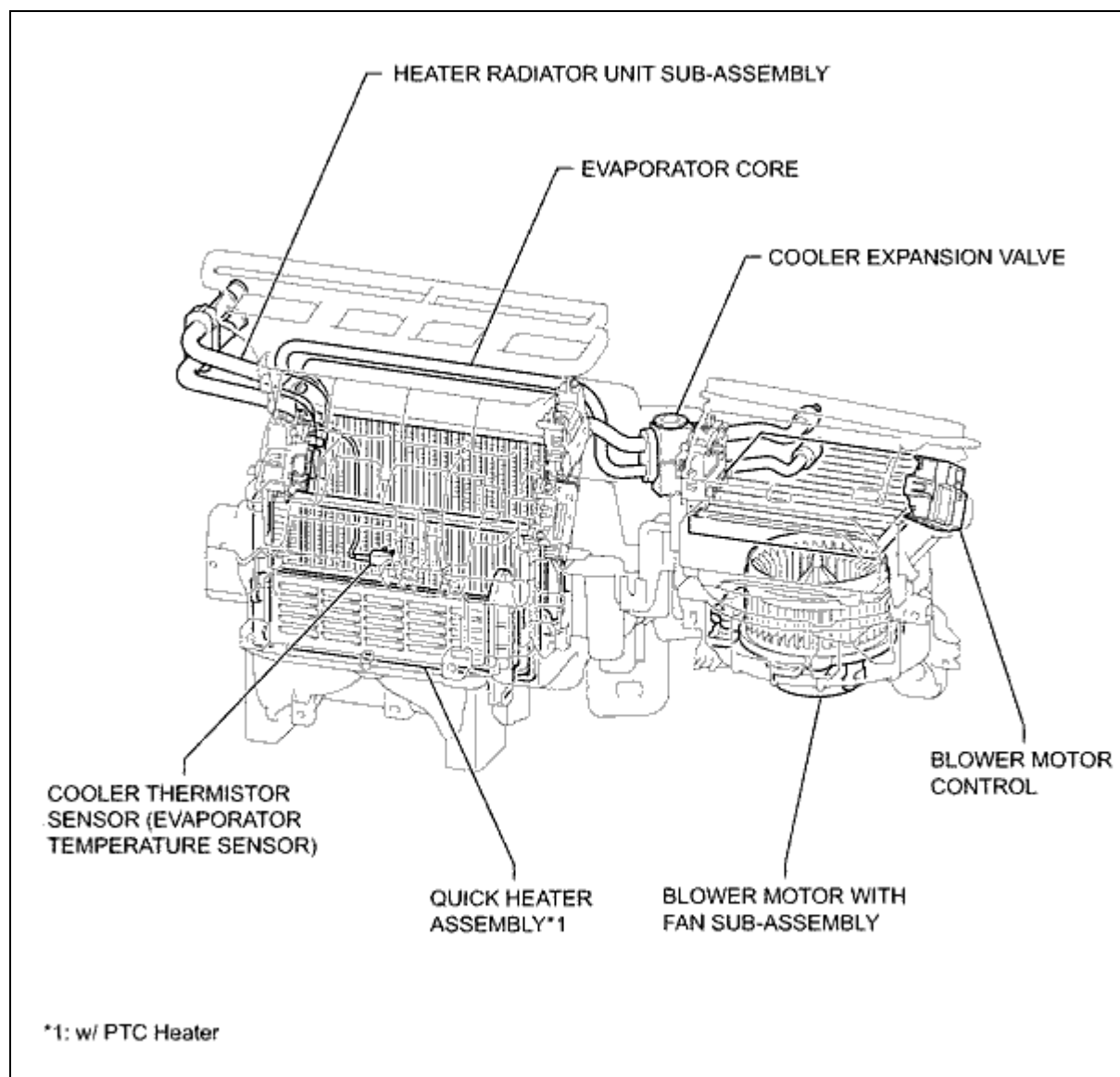
ILLUSTRATION



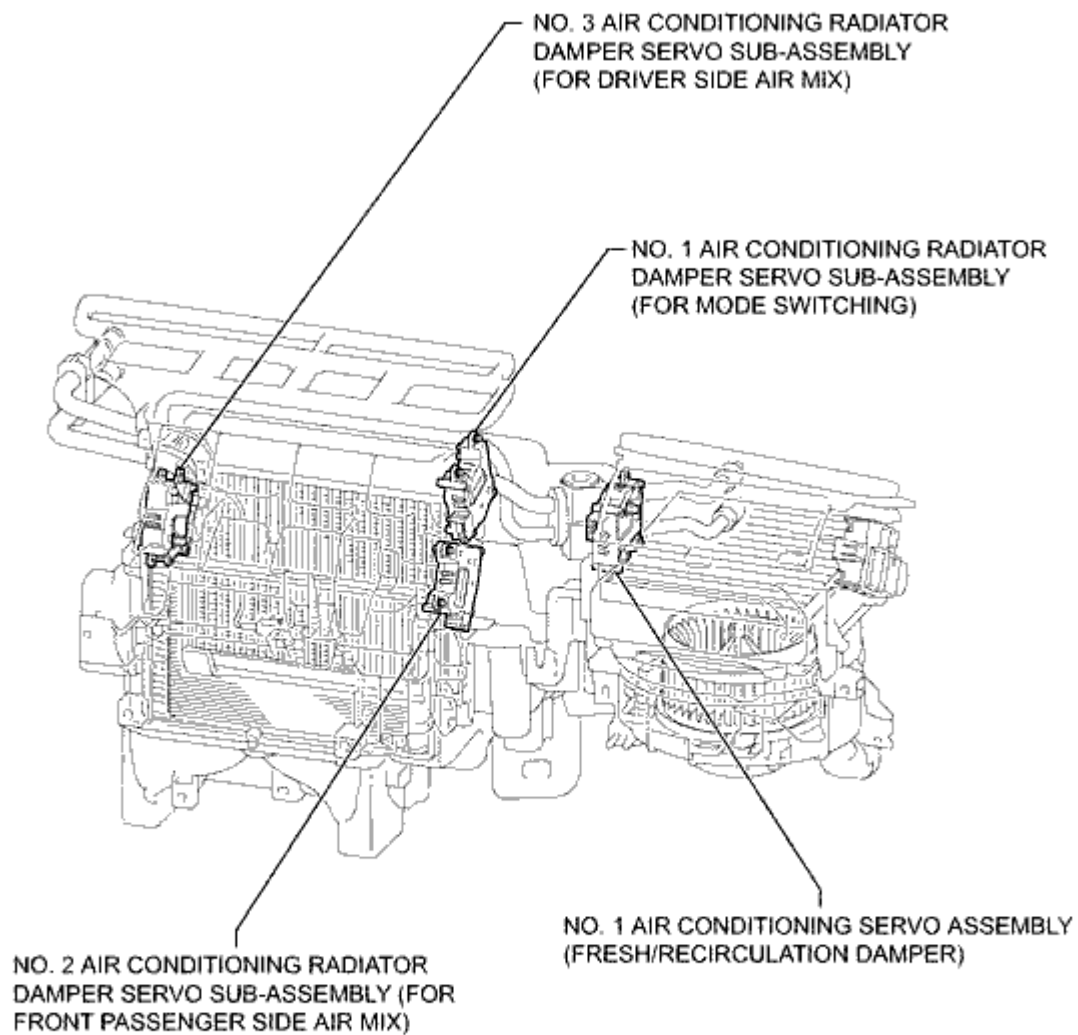
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



Last Modified: 11-13-2015	6.6 L	Doc ID: RM000000Y5Q0E8X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. EXPRESSIONS OF IGNITION SWITCH

HINT:

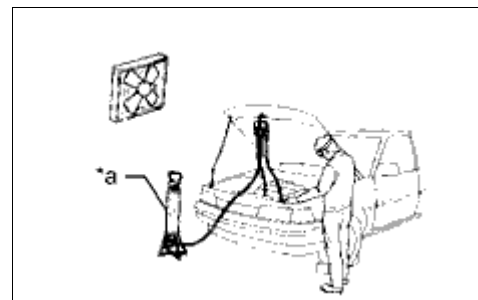
The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

EXPRESSION	IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Ignition Switch off	LOCK	Off (Lock)
Ignition Switch ACC	ACC	On (ACC)
Ignition Switch ON	ON	On (IG)
Engine Start	START	On (Start)

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

Text in Illustration

*a	Charging Cylinder
----	-------------------



3. ALWAYS WEAR EYE PROTECTION

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

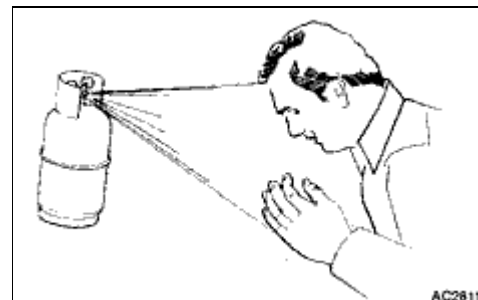
If liquid refrigerant gets in your eyes or on your skin:

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

CAUTION:

Do not rub your eyes or skin.

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



5. PRECAUTIONS FOR REFRIGERANT HFO-1234yf [R1234yf] (for HFO-1234yf (R1234yf))

- (a) Refer to the precaution for refrigerant HFO-1234yf [R1234yf] [INFO](#) .

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

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

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

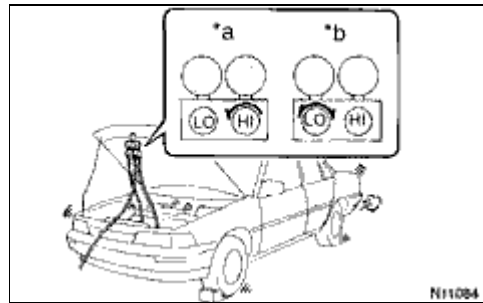
If there is not enough refrigerant in the A/C system, oil lubrication will be insufficient and the compressor may be damaged.

Necessary care should be taken to avoid this.

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

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

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



Text in Illustration

*a	Wrong
*b	Okay

10. BE CAREFUL NOT TO OVERCHARGE SYSTEM WITH REFRIGERANT

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

11. DO NOT OPERATE ENGINE AND COMPRESSOR WITH NO REFRIGERANT

CAUTION:

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

12. SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

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

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.



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Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Air Conditioning System

SYMPTOM	SUSPECTED AREA	SEE PAGE
All functions of the air conditioning system do not operate	IG power source circuit	INFO
	Back-up power source circuit	INFO
	Air conditioning control panel circuit	INFO
	Air conditioning amplifier assembly	INFO
Air flow control: No blower operation	Blower motor circuit	INFO
	Air conditioning control panel circuit	INFO
	Air conditioning amplifier assembly	INFO
Air flow control: No blower control	Blower motor circuit	INFO
	Air conditioning control panel circuit	INFO
	Air conditioning amplifier assembly	INFO
Air flow control: Insufficient air flow	Blower motor circuit	INFO
	Air conditioning amplifier assembly	INFO
Temperature control: No cool air comes out	Refrigerant volume	-
	Refrigerant pressure	-
	Air conditioning pressure sensor circuit	INFO
	Air conditioning compressor magnetic clutch circuit	INFO
	Compressor lock sensor circuit	INFO
	Air mix damper position sensor circuit (for driver side)	INFO
	Air mix damper position sensor circuit (for front passenger side)	INFO
	Air mix damper control servo motor circuit (for driver side)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Air mix damper control servo motor circuit (for front passenger side)	INFO
	Evaporator temperature sensor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Cooler expansion valve	INFO
	Air conditioning control panel circuit	INFO
	Air conditioning amplifier assembly	INFO
	ECM	INFO
Temperature control: No warm air comes out	Air mix damper position sensor circuit (for driver side)	INFO
	Air mix damper position sensor circuit (for front passenger side)	INFO
	Air mix damper control servo motor circuit (for driver side)	INFO
	Air mix damper control servo motor circuit (for front passenger side)	INFO
	Evaporator temperature sensor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	PTC heater circuit*1	INFO
	Air conditioning control panel circuit	INFO
	Air conditioning amplifier assembly	INFO
	ECM	INFO
	Refrigerant volume	-
	Refrigerant pressure	-
Temperature control: Output air is warmer or cooler than the set temperature or response is slow	Air conditioning compressor magnetic clutch circuit	INFO
	Compressor lock sensor circuit	INFO
	Automatic light control sensor circuit	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Air mix damper position sensor circuit (for driver side)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Air mix damper position sensor circuit (for front passenger side)	INFO
	Air mix damper control servo motor circuit (for driver side)	INFO
	Air mix damper control servo motor circuit (for front passenger side)	INFO
	Air inlet damper position sensor circuit	INFO
	Air inlet damper control servo motor circuit	INFO
	PTC heater circuit*1	INFO
	Heater radiator unit sub-assembly	INFO
	Cooler expansion valve	INFO
	Air conditioning control panel circuit	INFO
	Air conditioning amplifier assembly	INFO
	ECM	INFO
	Air mix damper position sensor circuit (for driver side)	INFO
Temperature control: No temperature control (only Max. cool or Max. warm)	Air mix damper position sensor circuit (for front passenger side)	INFO
	Air mix damper control servo motor circuit (for driver side)	INFO
	Air mix damper control servo motor circuit (for front passenger side)	INFO
	Room temperature sensor circuit	INFO
	Ambient temperature sensor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Automatic light control sensor circuit	INFO
	Air conditioning control panel circuit	INFO
	Air conditioning amplifier assembly	INFO
Temperature control: Output air temperature is different between left and right registers (the set temperature is the same for both)	Refrigerant volume	-
	Refrigerant pressure	-
	Air mix damper position sensor circuit (for driver side)	INFO
	Air mix damper position sensor circuit (for front passenger side)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Air mix damper control servo motor circuit (for driver side)	INFO
	Air mix damper control servo motor circuit (for front passenger side)	INFO
	Automatic light control sensor circuit	INFO
	Air conditioning amplifier assembly	INFO
No air inlet control	Air inlet damper position sensor circuit	INFO
	Air inlet damper control servo motor circuit	INFO
	Air conditioning control panel circuit	INFO
	Air conditioning amplifier assembly	INFO
No air flow mode control	Air outlet damper position sensor circuit	INFO
	Air outlet damper control servo motor circuit	INFO
	Air conditioning control panel circuit	INFO
	Air conditioning amplifier assembly	INFO
Quick heater assembly does not operate*1	PTC heater circuit	INFO
	Air conditioning amplifier assembly	INFO
	ECM	INFO
Diagnostic trouble codes (DTCs) are not recorded. Set mode is cleared when ignition switch is off	Back-up power source circuit	INFO
	Air conditioning amplifier assembly	INFO

*1: w/ PTC Heater



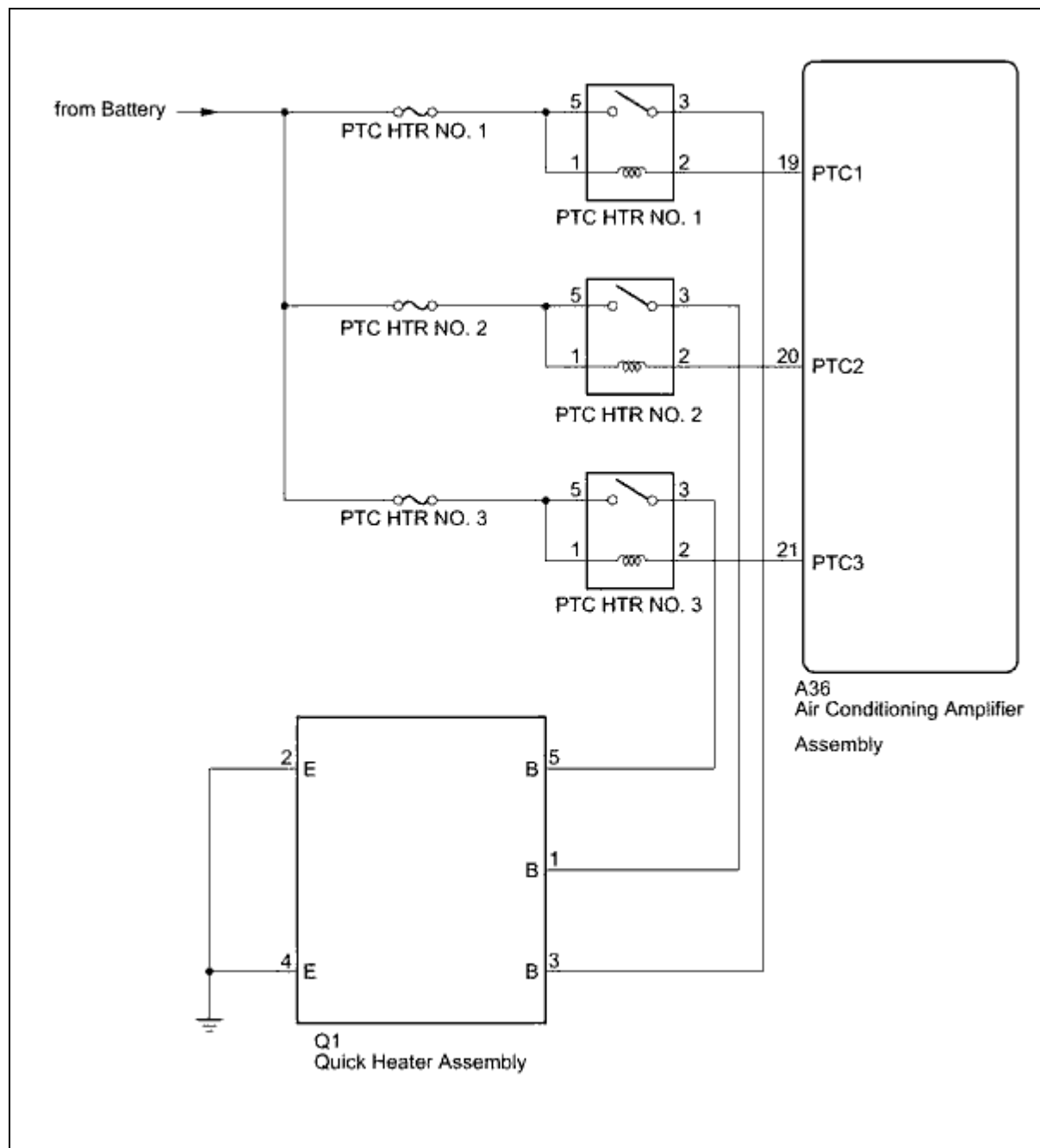
Last Modified: 11-13-2015	6.6 J	Doc ID: RM000002YPT03DX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): PTC Heater Circuit; 2016 MY Tacoma [08/2015 -]		

PTC Heater Circuit

DESCRIPTION

PTC HTR heater relays are closed in accordance with signals from the air conditioning amplifier assembly and power is supplied to the quick heater assembly installed on the radiator heater unit.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1. PERFORM ACTIVE TEST USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

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

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

Air Conditioner

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Heater Active Level	Quick heater assembly	Min.: 0, Max.: 3	-

OK:

Heater Active Level changes normally.

NG  **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

OK



2.	INSPECT PTC HTR RELAY
-----------	------------------------------

(a) Remove the PTC HTR relays.

(b) Inspect the PTC HTR relays  .

NG  **REPLACE PTC HTR RELAY**

OK



3.	CHECK HARNESS AND CONNECTOR (PTC HTR RELAY - POWER SOURCE CIRCUIT)
-----------	---

(a) Remove the PTC HTR relays.

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

Standard Voltage:

PTC HTR NO. 1

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 1-1 - Body ground	Always	11 to 14 V
PTC HTR NO. 1-5 - Body ground	Always	11 to 14 V

PTC HTR NO. 2

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 2-1 - Body ground	Always	11 to 14 V
PTC HTR NO. 2-5 - Body ground	Always	11 to 14 V

PTC HTR NO. 3

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 3-1 - Body ground	Always	11 to 14 V
PTC HTR NO. 3-5 - Body ground	Always	11 to 14 V

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



4.	CHECK HARNESS AND CONNECTOR (PTC HTR RELAY - AIR CONDITIONING AMPLIFIER ASSEMBLY)
-----------	--

- (a) Remove the PTC HTR relays.
- (b) Disconnect the A36 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

PTC HTR NO. 1

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 1-2 - A36-19 (PTC1)	Always	Below 1 Ω
PTC HTR NO. 1-2 or A36-19 (PTC1) - Body ground	Always	10 k Ω or higher

PTC HTR NO. 2

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 2-2 - A36-20 (PTC2)	Always	Below 1 Ω
PTC HTR NO. 2-2 or A36-20 (PTC2) - Body ground	Always	10 k Ω or higher

PTC HTR NO. 3

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 3-2 - A36-21 (PTC3)	Always	Below 1 Ω
PTC HTR NO. 3-2 or A36-21 (PTC3) - Body ground	Always	10 k Ω or higher

OK



5.	CHECK HARNESS AND CONNECTOR (QUICK HEATER ASSEMBLY - PTC HTR RELAY AND BODY GROUND)
-----------	--

- (a) Remove the PTC HTR relays.
- (b) Disconnect the Q1 quick heater assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

PTC HTR NO. 1

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 1-3 - Q1-3 (B)	Always	Below 1 Ω
Q1-2 (E) - Body ground	Always	Below 1 Ω
Q1-4 (E) - Body ground	Always	Below 1 Ω
PTC HTR NO. 1-3 or Q1-3 (B) - Body ground	Always	10 k Ω or higher

PTC HTR NO. 2

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 2-3 - Q1-1 (B)	Always	Below 1 Ω
Q1-2 (E) - Body ground	Always	Below 1 Ω
PTC HTR NO. 2-3 or Q1-1 (B) - Body ground	Always	10 k Ω or higher

PTC HTR NO. 3

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 3-3 - Q1-5 (B)	Always	Below 1 Ω
Q1-4 (E) - Body ground	Always	Below 1 Ω
PTC HTR NO. 3-3 or Q1-5 (B) - Body ground	Always	10 k Ω or higher

OK



6.	INSPECT QUICK HEATER ASSEMBLY
-----------	--------------------------------------

(a) Remove the quick heater assembly  .

(b) Inspect the quick heater assembly  .

NG  **REPLACE QUICK HEATER ASSEMBLY**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000001O7U0ATX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

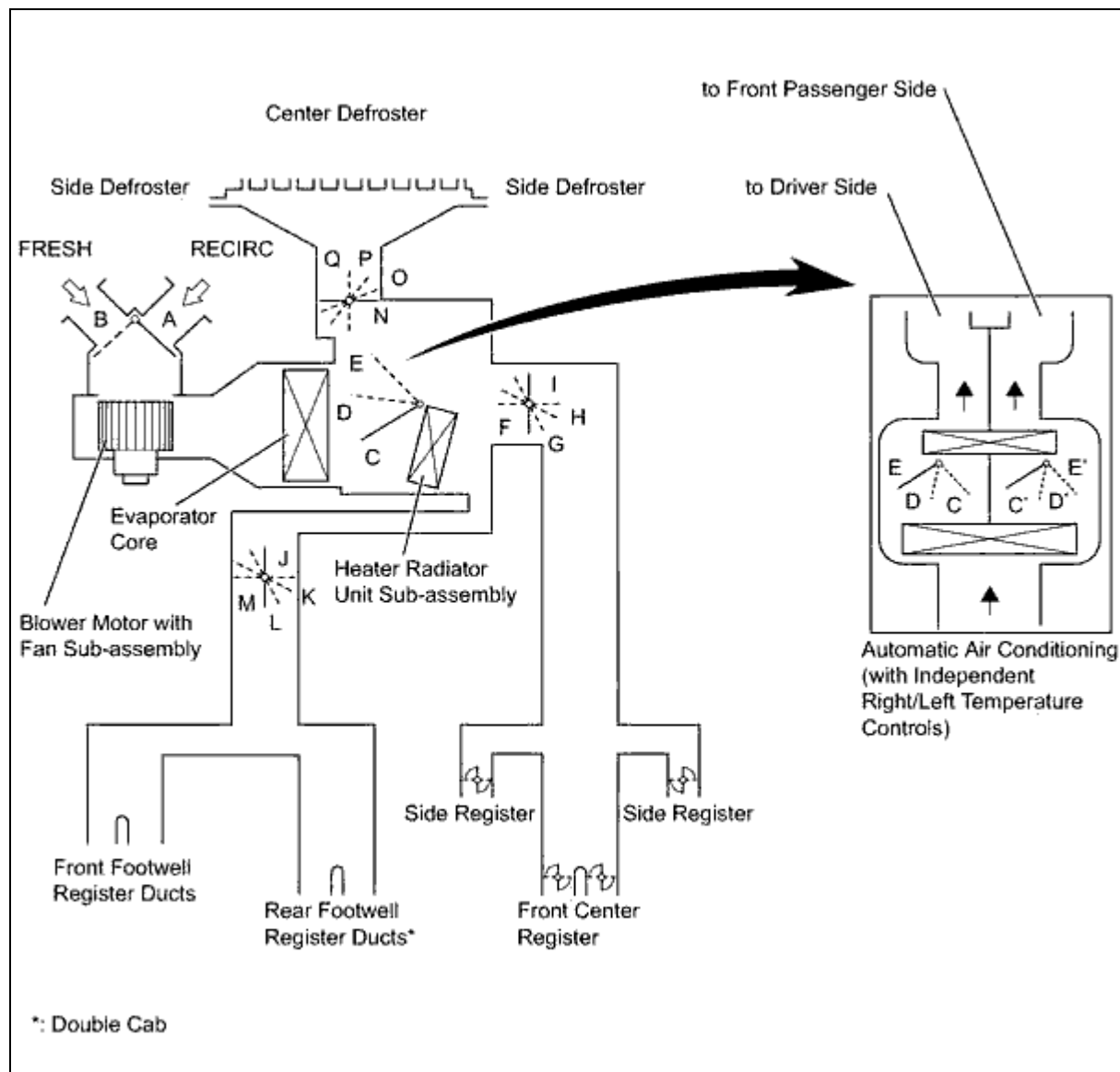
1. GENERAL

(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 Temperature 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.
Left and Right Independent Control	The temperature setting for the driver and front passenger is controlled independently in order to provide a separate vehicle interior temperature for the right and left side of the vehicle. Thus, air conditioning control that accommodates occupant preferences has been realized.
Blower Control	Controls the blower motor in accordance with the airflow volume that has been calculated by 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 neural network control based on the input signals from various sensors.
	In accordance with the engine coolant temperature, ambient air temperature, amount of sunlight, required blower, outlet temperature, and vehicle speed conditions, this control automatically switches the blower outlet to foot and defroster mode to prevent the windows from becoming fogged up when the ambient air temperature is low.
Air Inlet Control	Automatically controls the air inlet control damper to achieve the calculated outlet air temperature that is required.
	Drives the air inlet servo motor (damper servo sub-assembly) according to the operation of the air inlet control switch and moves the dampers to the fresh or recirculation position.
	Automatically moves the damper to the recirculation position to cool the cabin quickly when the air conditioning is auto mode.
Compressor Control	Controls the compressor with magnet clutch assembly to turn on or off based on the signals from various sensors.
Diagnosis	A Diagnostic Trouble Code (DTC) is stored in the memory when the air conditioner amplifier assembly detects a problem with the air conditioning system.

2. MODE POSITION AND DAMPER OPERATION

(a) Mode Position and Damper Operation



Functions of Main Dampers

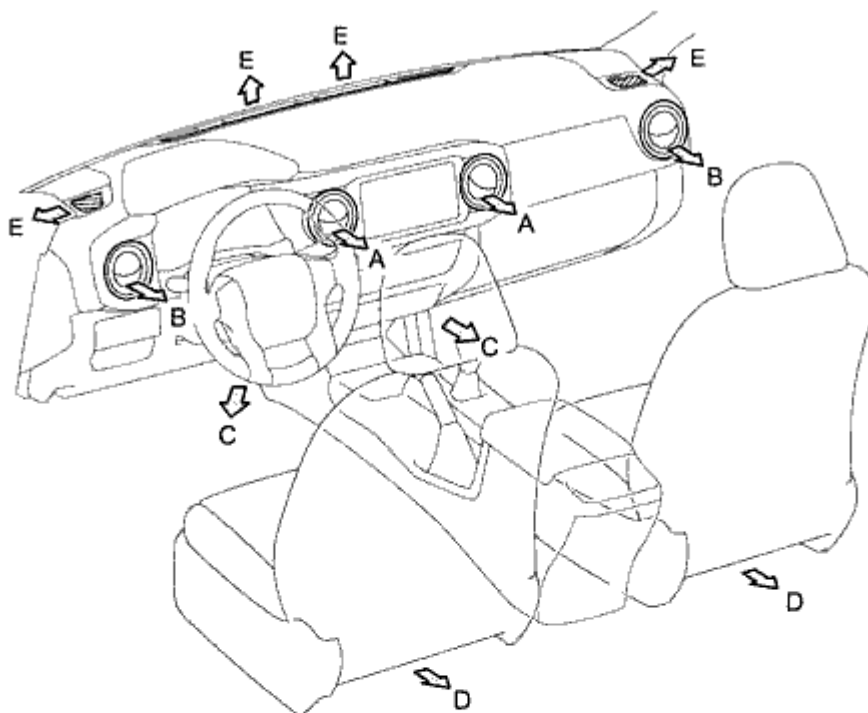
CONTROL DOOR	OPERATION POSITION		DOOR POSITION	OPERATION
Air Inlet Control Door	FRESH		A	Brings in fresh air.
	RECIRCULATION		B	Recirculates internal air.
Air Mix Control Door	MAX COLD to MAX HOT Temperature Setting		C - D - E (C' - D' - E')	Varies the mixture ratio of warm air and cool air in order to regulate the temperature continuously between hot and cold.
Mode Control Door		FACE	F, J, N	Air blows out of the front center register and side register.
		BI-LEVEL	G, L, N	Air blows out of the front center register, side register and front and rear footwell register ducts*.
		FOOT	H, M, O	Air blows out of the front and rear footwell register ducts*. In addition, air blows out slightly from the front and rear center register*, side register and defroster.

CONTROL DOOR	OPERATION POSITION		DOOR POSITION	OPERATION
		FOOT AND DEFROSTER	H, M, P	Defrosts the windshield through the center defroster, side defroster, side register, front and rear center register ducts*, while air is also blown out from the front and rear footwell register ducts*.
		DEFROSTER	I, J, Q	Defrosts the windshield through the center defroster, side defroster.

*: for Double Cab

3. AIR OUTLETS AND AIRFLOW VOLUME

(a) Air Outlets and Airflow Volume

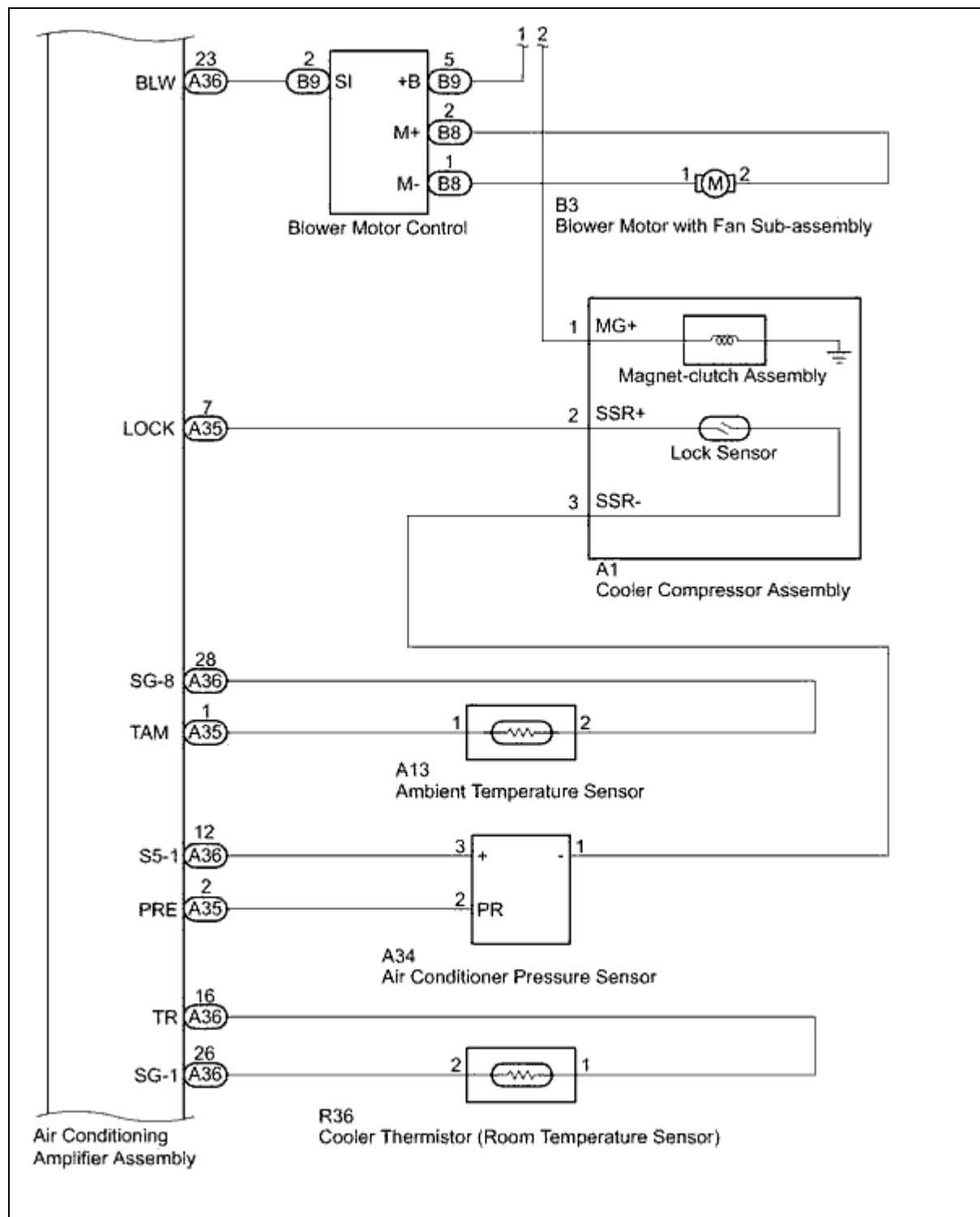


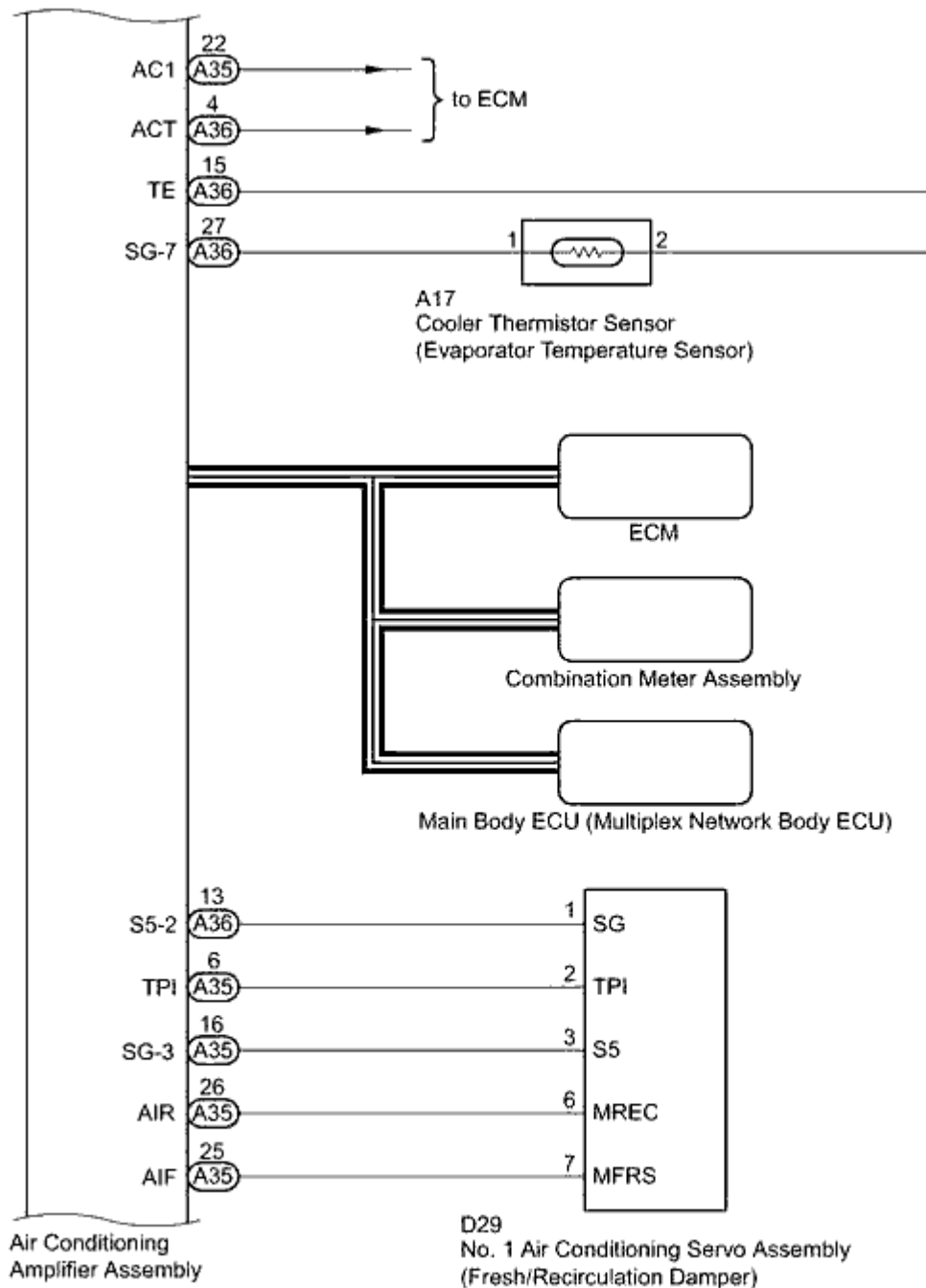
MODE	Select mode		A	B	C	D	E
	Auto	Manual					
 FACE	●	●	○	○	—	—	—
 B/L	●	●	○	○	○	○	—
 FOOT	●	●	○	○	○	○	○
 F/D	●	●	○	○	○	○	○
 DEF		●	—	—	—	—	○

HINT:

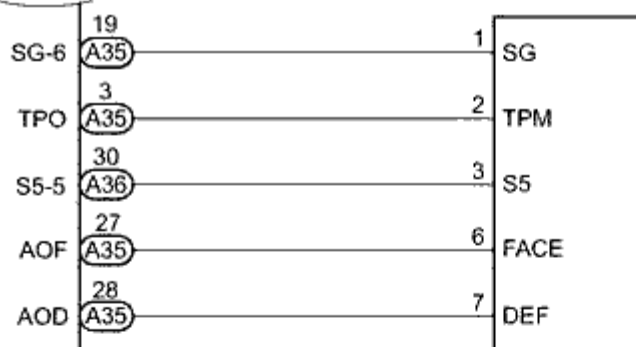
The size of each circle ○ indicates the ratio of airflow volume.



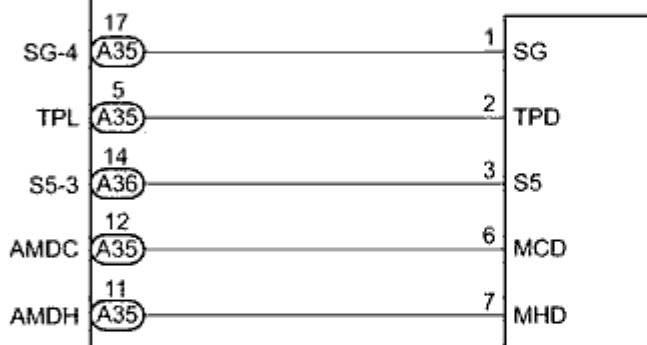




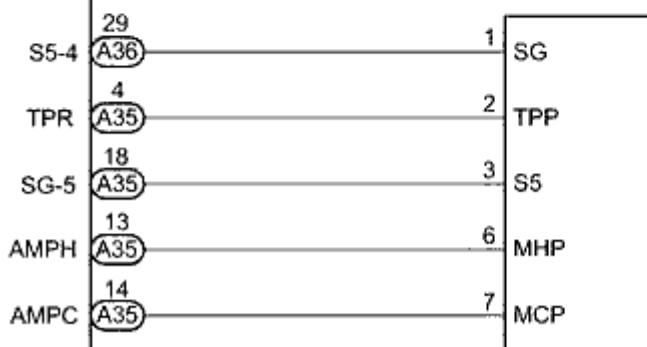
≡ : CAN Communication Line



D32
No. 1 Air Conditioning Radiator Damper Servo
Sub-assembly (for Mode Switching)



D30
No. 3 Air Conditioning Radiator Damper Servo
Sub-assembly (for Driver Side Air Mix)



D31
No. 2 Air Conditioning Radiator Damper Servo
Sub-assembly (for Front Passenger Side Air Mix)

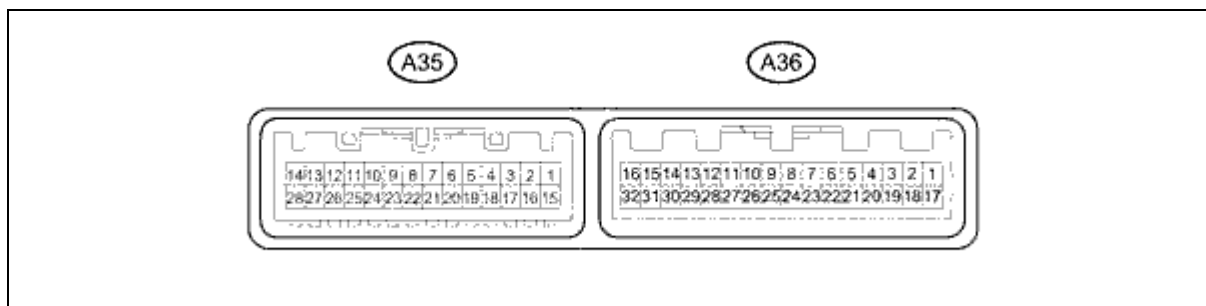
Air Conditioning
Amplifier Assembly



Last Modified: 11-13-2015	6.6 U	Doc ID: RM0000026DR09AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. AIR CONDITIONING AMPLIFIER ASSEMBLY



HINT:

Check from the rear of the connector while it is connected to the air conditioning amplifier assembly.

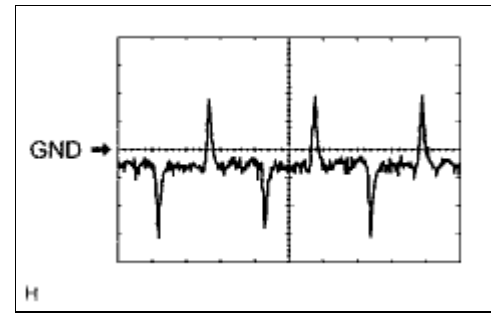
TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
A35-1 (TAM) - A36-28 (SG-8)	W - LG	Ambient temperature sensor signal	- Ignition switch ON - Ambient temperature: 25°C (77°F)	1.35 to 1.75 V
			- Ignition switch ON - Ambient temperature: 40°C (104°F)	0.9 to 1.2 V
A35-2 (PRE) - A36-10 (GND)	V - W-B	Air conditioner pressure sensor signal	- Engine running - Air conditioning system operating - Refrigerant pressure: Abnormal pressure (more than 3025 kPa (30.8 kgf/cm² , 439 psi))	4.71 V or higher
			- Engine running - Air conditioning system operating - Refrigerant pressure: Abnormal pressure (less than 176 kPa (1.8 kgf/cm² , 26 psi))	Below 0.74 V
			- Engine running - Air conditioning system operating - Refrigerant pressure: Normal pressure (less than 3025 kPa	0.74 to 4.71 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
			(30.8 kgf/cm ² , 439 psi) and more than 176 kPa (1.8 kgf/cm ² , 26 psi))	
A35-3 (TPO) - A35-19 (SG-6)	B - L	Mode damper position sensor signal	• Ignition switch ON • Mode switch: DEF	4.43 to 4.53 V
			• Ignition switch ON • Mode switch: FACE	0.47 to 0.57 V
A35-4 (TPR) - A35-18 (SG-5)	G - GR	Air mix damper position sensor (for front passenger side) signal	• Ignition switch ON • Set temperature switch (for front passenger side): MAX HOT	4.45 to 4.55 V
			• Ignition switch ON • Set temperature switch (for front passenger side): MAX COOL	0.45 to 0.55 V
A35-5 (TPL) - A35-17 (SG-4)	V - R	Air mix damper position sensor (for driver side) signal	• Ignition switch ON • Set temperature switch (for driver side): MAX HOT	4.45 to 4.55 V
			• Ignition switch ON • Set temperature switch (for driver side): MAX COOL	0.45 to 0.55 V
A35-6 (TPI) - A35-16 (SG-3)	LG -V	Air inlet damper position sensor signal	• Ignition switch ON • Recirculation/Fresh switch: Fresh	1.63 to 1.73 V
			• Ignition switch ON • Recirculation/Fresh switch: Recirculation	3.27 to 3.37 V
A35-7 (LOCK) - A36-10 (GND)	G - W-B	A/C lock sensor signal	• Engine running • Blower switch: LO • A/C switch: on	Pulse generation (See waveform 1)
A35-10 (MGC) - A36-10 (GND)	G - W-B	Magnetic clutch operation signal	• Engine running • Blower switch: LO • A/C switch: off	11 to 14 V
			• Engine running • Blower switch: LO • A/C switch: on	Below 1 V

*1: w/ PTC Heater

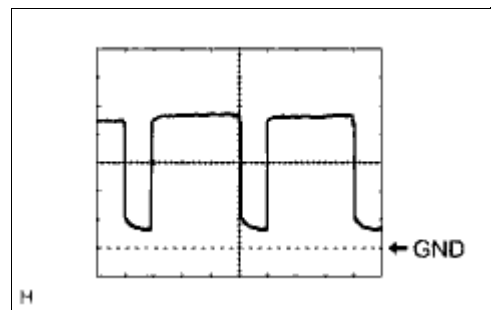
(a) Waveform 1:

ITEM	CONTENT
Terminal No.	A35-7 (LOCK) - A36-10 (GND)
Tool Setting	200 mV/DIV., 10 ms./DIV.
Vehicle Condition	• Engine running • Blower switch: LO • A/C switch: on

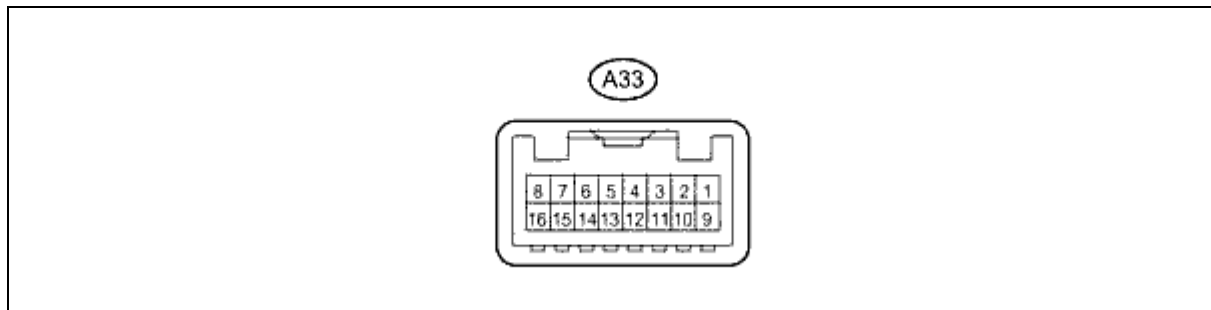


(b) Waveform 2:

ITEM	CONTENT
Terminal No.	A36-23 (BLW) - A36-10 (GND)
Tool Setting	1 V/DIV., 500 μ s./DIV.
Vehicle Condition	• Ignition switch ON • Blower switch: LO



2. AIR CONDITIONING CONTROL ASSEMBLY



HINT:

Check from the rear of the connector while it is connected to the air conditioning control assembly.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
A33-8 (IG+) - A33-1 (GND)	LG - W-B	Power source (IG)	Ignition switch off	Below 1 V
			Ignition switch ON	11 to 14 V
A33-1 (GND) - Body ground	W-B - Body ground	Ground for air conditioning control assembly	Always	Below 1 Ω
A33-2 (STX) - A33-1 (GND)	SB - W-B	LIN communication signal	Ignition switch ON	Pulse generation

3. ECM INFO



Last Modified: 11-13-2015	6.6 C	Doc ID: RM0000017SQ0C0X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Automatic Air Conditioning System): U0100,U0142,U0155; Lost Communication with ECM; 2016 MY Tacoma [08/2015 -]		

DTC	U0100	Lost Communication with ECM
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DTC	U0142	Lost Communication with Main Body ECU
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DTC	U0155	Lost Communication with Combination Meter
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DESCRIPTION

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREA
U0100	No communication with ECM	• CAN communication system • ECM
U0142	No communication with main body ECU	• CAN communication system • Main body ECU (multiplex network body ECU)
U0155	No communication with combination meter	• CAN communication system • Combination meter assembly

INSPECTION PROCEDURE

PROCEDURE

1.	GO TO CAN COMMUNICATION SYSTEM
-----------	---------------------------------------

HINT:

Refer to CAN Communication System [INFO](#) .

NEXT  **END**



for 2GR-FKS INFO

- Inspect the fuses for circuits related to this system before performing the following procedure.

PROCEDURE

1. CHECK FOR DTC (CAN COMMUNICATION SYSTEM)

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

Result

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

B ► GO TO CAN COMMUNICATION SYSTEM

A

2. INSPECT MG CLT RELAY

(a) Remove the MG CLT relay.

(b) Inspect the MG CLT relay INFO.

NG ► REPLACE MG CLT RELAY

OK

3. CHECK HARNESS AND CONNECTOR (MG CLT RELAY - POWER SOURCE CIRCUIT)

(a) Remove the MG CLT relay.

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
MG CLT-1 - Body ground	Ignition switch ON	11 to 14 V
MG CLT-5 - Body ground	Ignition switch ON	11 to 14 V

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



4.	CHECK HARNESS AND CONNECTOR (MG CLT RELAY - AIR CONDITIONING AMPLIFIER ASSEMBLY AND MAGNET-CLUTCH ASSEMBLY)
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- (a) Remove the MG CLT relay.
- (b) Disconnect the A14 air conditioning amplifier assembly connector.
- (c) Disconnect the A1 magnet-clutch assembly connector.
- (d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
MG CLT-2 - A14-18 (MGC)	Always	Below 1 Ω
MG CLT-3 - A1-1 (MG+)	Always	Below 1 Ω
MG CLT-2 or A14-18 (MGC) - Body ground	Always	10 k Ω or higher
MG CLT-3 or A1-1 (MG+) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



5.	INSPECT MAGNET-CLUTCH ASSEMBLY
-----------	---------------------------------------

- (a) Remove the magnet-clutch assembly  .
- (b) Inspect the magnet-clutch assembly  .

NG  **REPLACE MAGNET-CLUTCH ASSEMBLY**

OK



6. INSPECT AIR CONDITIONING AMPLIFIER ASSEMBLY

(a) Reconnect the A14 air conditioning amplifier assembly connector.

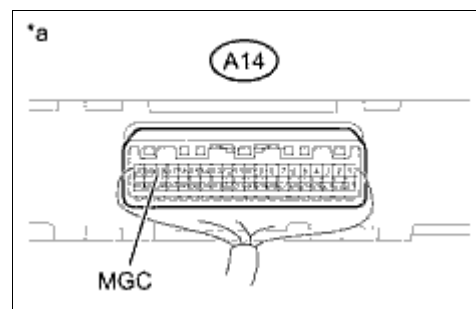
(b) Reconnect the A1 magnet-clutch assembly connector.

(c) Reinstall the MG CLT relay.

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-18 (MGC) - Body ground	• Engine idling • "A/C" switch off → on • Blower switch: LO • Magnet-clutch assembly: off → on	11 to 14 V → Below 1 V



Text in Illustration

*a	Component with harness connected (Air Conditioning Amplifier Assembly)
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NG ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

OK ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STK0B6X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): B1412; Ambient Temperature Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	B1412	Ambient Temperature Sensor Circuit
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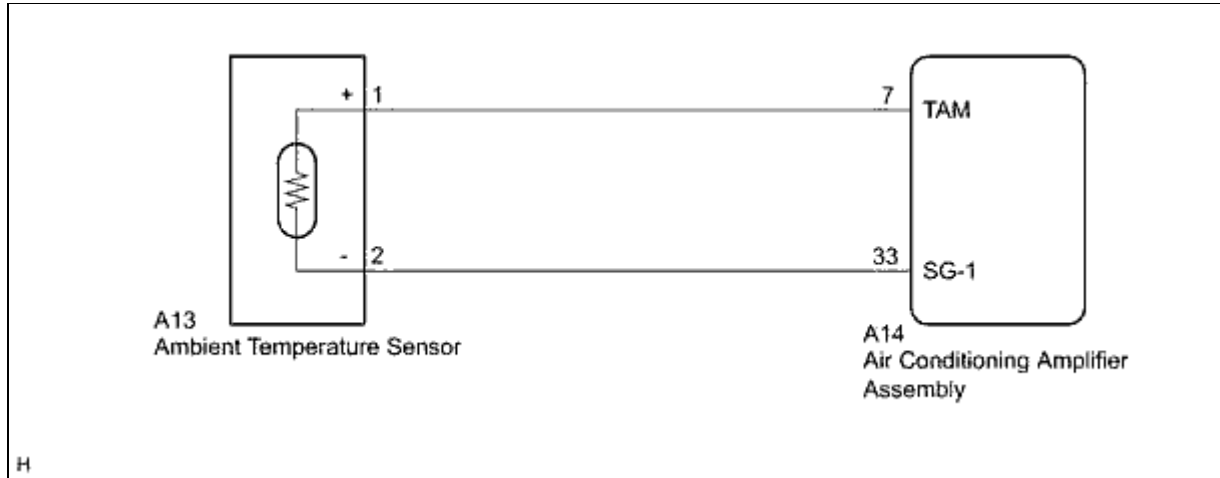
DESCRIPTION

The ambient temperature sensor is installed in front of the condenser to detect the ambient temperature which is used to control the air conditioning system AUTO mode. This sensor is connected to the air conditioning amplifier assembly and detects fluctuations in the ambient temperature. This data is used for controlling the cabin temperature. The sensor sends a signal to the air conditioning amplifier assembly. 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 air conditioning amplifier assembly applies a voltage (5 V) to the ambient temperature sensor and reads voltage changes due to changes in the resistance of the ambient temperature sensor.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1412	Open or short in cooler thermistor (ambient temperature sensor) circuit	• Ambient temperature sensor • Harness or connector • Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (e) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Ambient Temp Sensor	Ambient temperature sensor / Min: -23.30°C (-9.94°F) Max: 65.95°C (150.71°F)	Actual ambient temperature displayed	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A



2. INSPECT AMBIENT TEMPERATURE SENSOR

- (a) Remove the ambient temperature sensor  .
- (b) Inspect the ambient temperature sensor  .

NG ► REPLACE AMBIENT TEMPERATURE SENSOR

OK



3.

CHECK HARNESS AND CONNECTOR (AMBIENT TEMPERATURE SENSOR - AIR CONDITIONING AMPLIFIER ASSEMBLY)

- (a) Disconnect the A13 ambient temperature sensor connector.
- (b) Disconnect the A14 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-7 (TAM) - A13-1 (+)	Always	Below 1 Ω
A14-33 (SG-1) - A13-2 (-)	Always	Below 1 Ω
A14-7 (TAM) or A13-1 (+) - Body ground	Always	10 k Ω or higher
A14-33 (SG-1) or A13-2 (-) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STL0COX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): B1413; Evaporator Temperature Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	B1413	Evaporator Temperature Sensor Circuit
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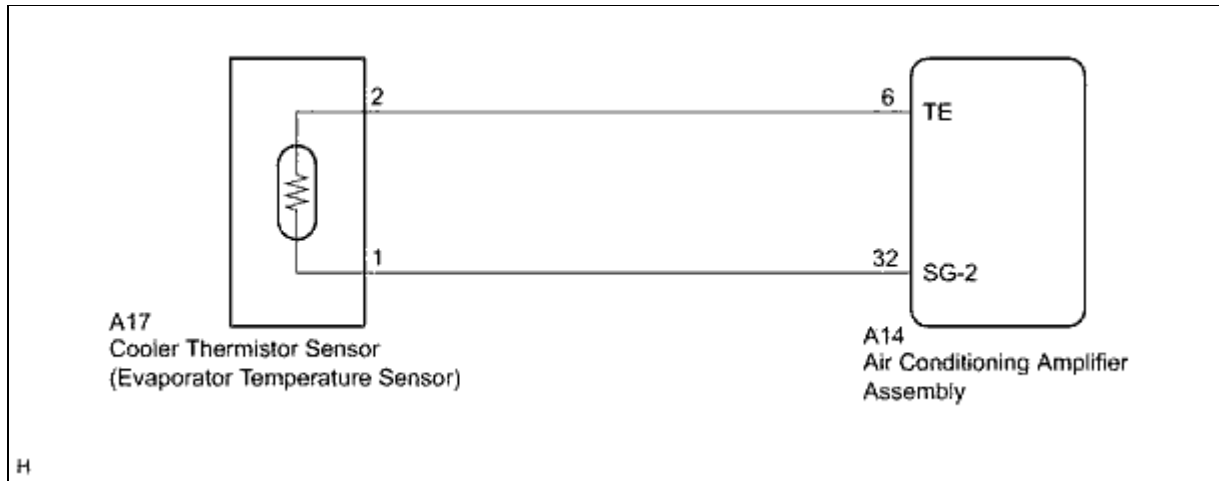
DESCRIPTION

The cooler thermistor sensor (evaporator temperature sensor) is installed on the evaporator in the air conditioner unit to detect the temperature of the cooled air that has passed through the evaporator and is used to control the air conditioning. It sends signals to the air conditioning amplifier assembly. The resistance of the cooler thermistor sensor (evaporator temperature sensor) 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 air conditioning amplifier assembly applies voltage (5 V) to the cooler thermistor sensor (evaporator temperature sensor) and reads voltage changes as the resistance of the cooler thermistor sensor (evaporator temperature sensor) changes. This sensor is used for frost prevention.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1413	Open or short in cooler thermistor sensor (evaporator temperature sensor) circuit	• Cooler thermistor sensor (Evaporator temperature sensor) • Harness or connector • Air conditioning amplifier assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

--	--

1. READ VALUE USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Data List.
- (e) Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Evaporator Fin Thermistor	Cooler thermistor sensor (Evaporator temperature sensor) / Min.: -29.70°C (-21.46°F) Max.: 59.55°C (139.19°F)	Actual evaporator temperature displayed	-

OK:

The display is as specified in the Normal Condition column.

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

B ► PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ► REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A



2. INSPECT COOLER THERMISTOR SENSOR (EVAPORATOR TEMPERATURE SENSOR)

- (a) Remove the cooler thermistor sensor (evaporator temperature sensor)  .
- (b) Inspect the cooler thermistor sensor (evaporator temperature sensor)  .

NG ► REPLACE COOLER THERMISTOR SENSOR (EVAPORATOR TEMPERATURE SENSOR)

OK



3.

CHECK HARNESS AND CONNECTOR (COOLER THERMISTOR SENSOR (EVAPORATOR TEMPERATURE SENSOR) - AIR CONDITIONING AMPLIFIER ASSEMBLY)

- (a) Disconnect the A17 cooler thermistor sensor (evaporator temperature sensor) connector.
- (b) Disconnect the A14 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-6 (TE) - A17-2	Always	Below 1 Ω
A14-32 (SG-2) - A17-1	Always	Below 1 Ω
A14-6 (TE) or A17-2 - Body ground	Always	10 k Ω or higher
A14-32 (SG-2) or A17-1 - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM0000026BV0B8X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): B1422; Compressor Lock Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	B1422	Compressor Lock Sensor Circuit
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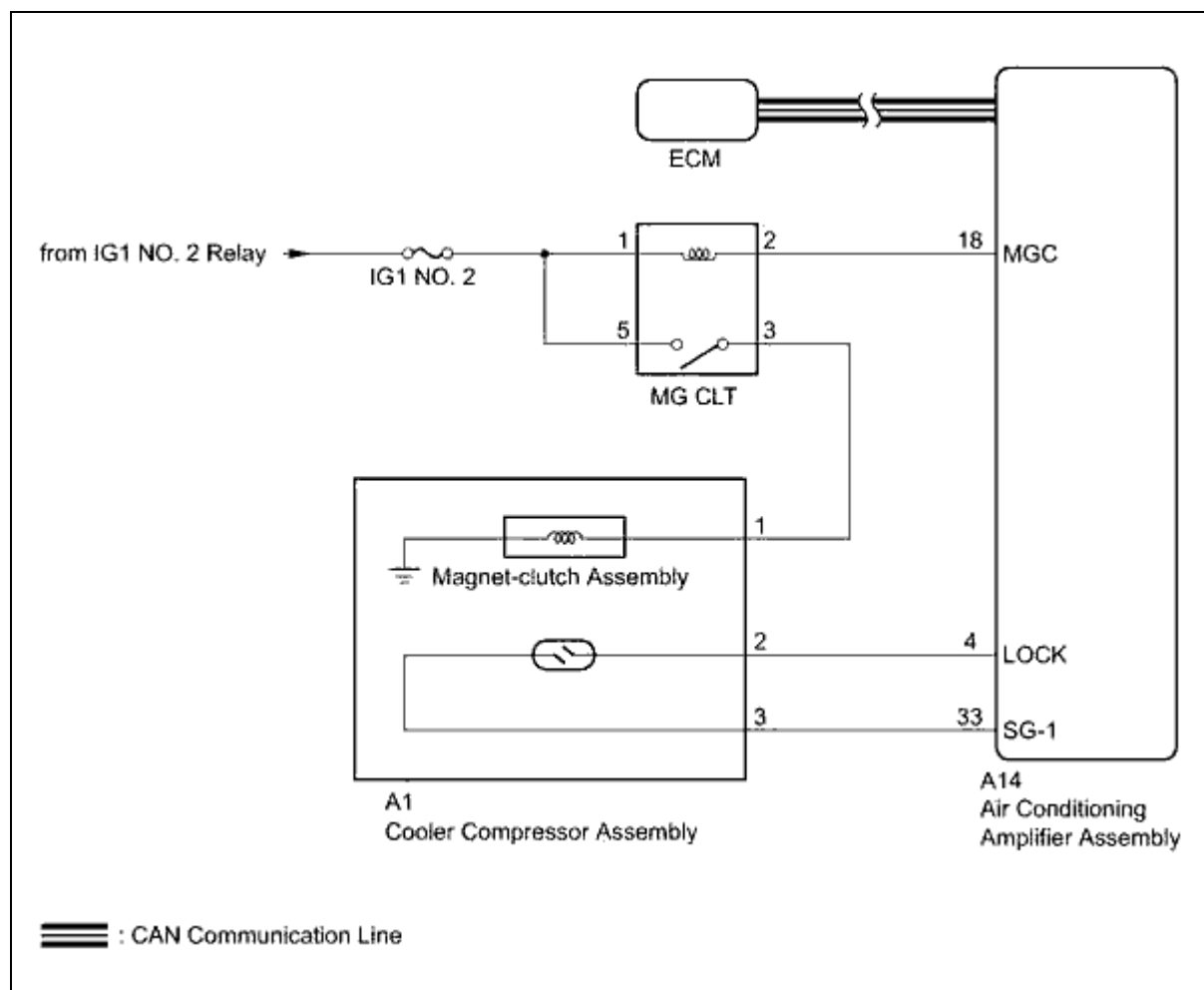
SYSTEM DESCRIPTION

The ECM sends the engine speed signal to the air conditioning amplifier assembly via CAN communication.

The air conditioning amplifier assembly reads the difference between compressor speed and engine speed. When the difference becomes too large, the air conditioning amplifier assembly determines that the compressor is locked, and turns the magnet-clutch assembly off.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1422	Open or short in A/C lock sensor circuit	• Magnet-clutch assembly • Cooler compressor assembly • Harness or connector • Air conditioning amplifier assembly • CAN communication system

WIRING DIAGRAM



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

OK



2.	INSPECT COOLER COMPRESSOR ASSEMBLY
----	---

(a) Remove the cooler compressor assembly  .

(b) Inspect the cooler compressor assembly  .

NG  REPLACE COOLER COMPRESSOR ASSEMBLY

OK



3.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - COOLER COMPRESSOR ASSEMBLY)
----	---

(a) Disconnect the A1 cooler compressor assembly connector.

(b) Disconnect the A14 air conditioning amplifier assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-4 (LOCK) - A1-2	Always	Below 1 Ω
A14-33 (SG-1) - A1-3	Always	Below 1 Ω
A14-4 (LOCK) or A1-2 - Body ground	Always	10 k Ω or higher
A14-33 (SG-1) or A1-3 - Body ground	Always	10 k Ω or higher

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

B  PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE

C ▶ REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY

A ▶ REPAIR OR REPLACE HARNESS OR CONNECTOR



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000000STP0EPX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): B1423; Pressure Sensor Circuit; 2016 MY Tacoma [08/2015 -]		

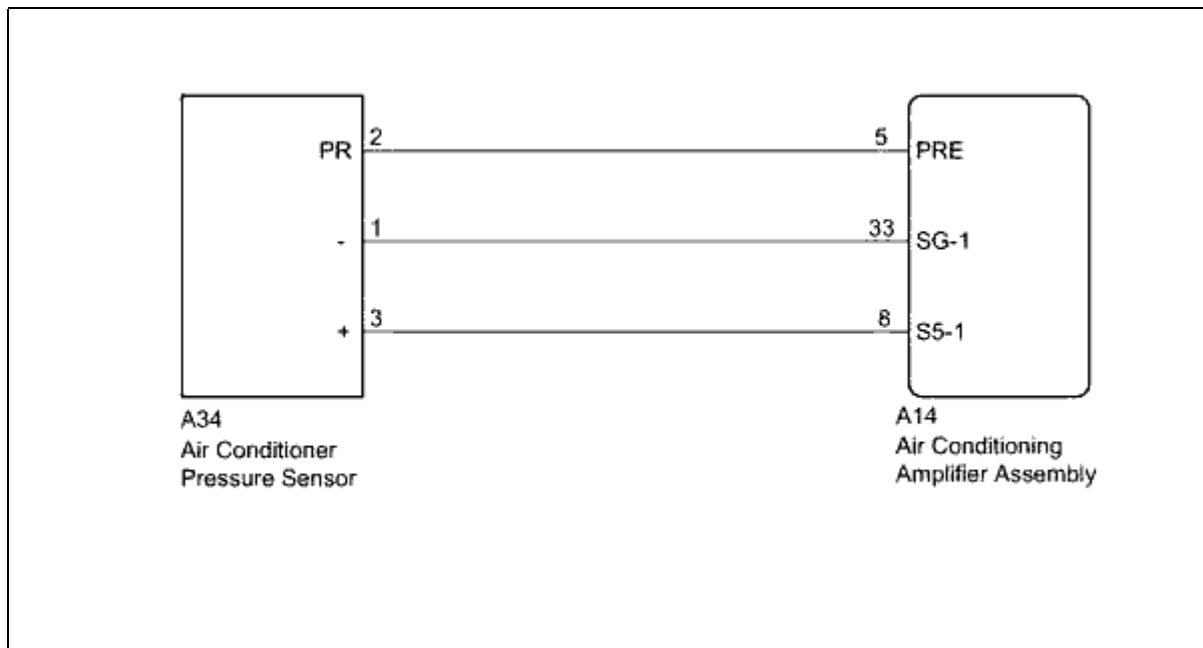
DTC	B1423	Pressure Sensor Circuit
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DESCRIPTION

This DTC is stored if refrigerant pressure on the high pressure side is extremely low (176 kPa (1.8 kgf/cm² , 26 psi) or less) or extremely high (3140 kPa (32.0 kgf/cm² , 455 psi) or more). The air conditioner pressure sensor, which is installed on the pipe on the high pressure side to detect refrigerant pressure, sends a refrigerant pressure signal to the air conditioning amplifier assembly. The air conditioning amplifier assembly converts this signal to a pressure value according to the sensor characteristics and uses it to control the compressor.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1423	• Open or short in air conditioning pressure sensor circuit • Refrigerant pressure on the high pressure side is extremely low (176 kPa (1.8 kgf/cm² , 26 psi) or less) or extremely high (3140 kPa (32.0 kgf/cm² , 455 psi) or more).	• Air conditioner pressure sensor • Harness or connector • Air conditioning amplifier assembly • Cooler expansion valve (blocked, stuck) • Cooler condenser assembly (blocked, deterioration of cooling capacity due to dirt) • Cooler dryer (moisture in the refrigerant cycle cannot be absorbed) • Cooling fan system (cooler condenser assembly cannot be cooled down) • A/C system (leaks, blocked)

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT)

- Disconnect the A34 air conditioner pressure sensor connector.
- Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A34-3 (+) - Body ground	Ignition switch ON	4.75 to 5.25 V

NG **GO TO STEP 5**

OK



2. CHECK HARNESS AND CONNECTOR (GROUND CIRCUIT)

- Disconnect the A34 air conditioner pressure sensor connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A34-1 (-) - Body ground	Always	Below 1 Ω

NG  **GO TO STEP 6**

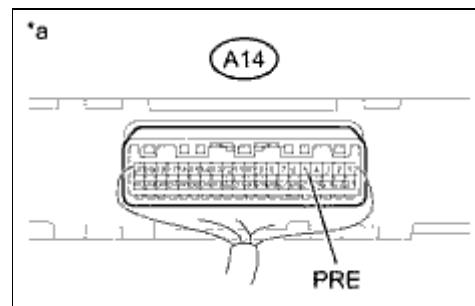
OK



3.	INSPECT AIR CONDITIONING PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)
-----------	---

(a) Reconnect the A34 air conditioner pressure sensor connector.

(b) Remove the air conditioning amplifier assembly with the connectors still connected  .



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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A14-5 (PRE) - Body ground	Ignition switch ON (A/C: off)	0.74 to 4.71 V

Text in Illustration

*a	Component with harness connected (Air Conditioning Amplifier Assembly)
----	---

HINT:

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

NG  **GO TO STEP 7**

OK



4. INSPECT AIR CONDITIONING PRESSURE SENSOR (SENSOR SIGNAL CIRCUIT)

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

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

NOTICE:

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

HINT:

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

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

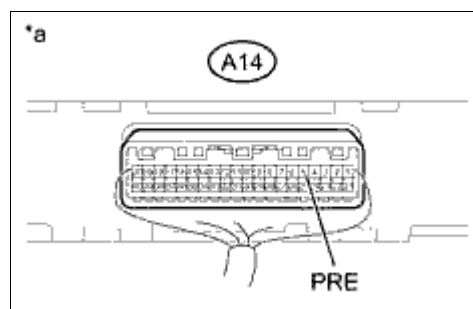
Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-5 (PRE) - Body ground	Refer to above "Procedure Condition"	0.74 to 4.71 V

Text in Illustration

*a	Component with harness connected (Air Conditioning Amplifier Assembly)
----	---

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



B ► **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

C ► **GO TO STEP 13**

A ► **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

5.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONER PRESSURE SENSOR)
-----------	--

- (a) Reconnect the A34 air conditioner pressure sensor connector.
- (b) Disconnect the A14 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A34-3 (+) - A14-8 (S5-1)	Always	Below 1 Ω
A34-3 (+) or A14-8 (S5-1) - Body ground	Always	10 k Ω or higher

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ► **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

6.	CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONER PRESSURE SENSOR)
-----------	--

- (a) Reconnect the A34 air conditioner pressure sensor connector.
- (b) Disconnect the A14 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A34-1 (-) - A14-33 (SG-1)	Always	Below 1 Ω
A34-1 (-) or A14-33 (SG-1) - Body ground	Always	10 k Ω or higher

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK ► **REPLACE AIR CONDITIONING AMPLIFIER**

ASSEMBLY

7.

CHECK HARNESS AND CONNECTOR (AIR CONDITIONING AMPLIFIER ASSEMBLY - AIR CONDITIONING PRESSURE SENSOR)

- (a) Reconnect the A34 air conditioner pressure sensor connector.
- (b) Disconnect the A14 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A34-2 (PR) - A14-5 (PRE)	Always	Below 1 Ω
A34-2 (PR) or A14-5 (PRE) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



8.

INSPECT FOR A/C SYSTEM LEAK

- (a) Install a manifold gauge set.
- (b) Recover the refrigerant from the A/C system using a refrigerant recovery unit.
- (c) Evacuate the A/C system and check that vacuum can be maintained in it.

OK:

Vacuum can be maintained in the A/C system.

HINT:

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

NG  **GO TO STEP 12**

OK



9.

CHARGE SYSTEM WITH REFRIGERANT

- (a) Use a refrigerant recovery unit to recover refrigerant.
- (b) Evacuate the A/C system.
- (c) Add an appropriate amount of refrigerant.

for HFC-134a(R134a) INFO

for HFO-1234yf(R1234yf) INFO

HINT:

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

NEXT



10.	RECHECK FOR DTC
------------	------------------------

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

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

NOTICE:

If refrigerant pressure on the high pressure side becomes high, the DTC will be set. It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the A/C operates for a while.

HINT:

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

RESULT	PROCEED TO
DTC B1423/23 is output	A
DTC B1423/23 is not output	B

NOTICE:

If the DTC was set due to an insufficient or excessive amount of refrigerant, the problem may have been solved after performing the previous step. However, the root cause of insufficient refrigerant may be

refrigerant leaks. The root cause of excessive refrigerant may be adding too much refrigerant when the level was insufficient. Therefore, identify and repair the area where refrigerant leaks from as necessary.

B ► **END**

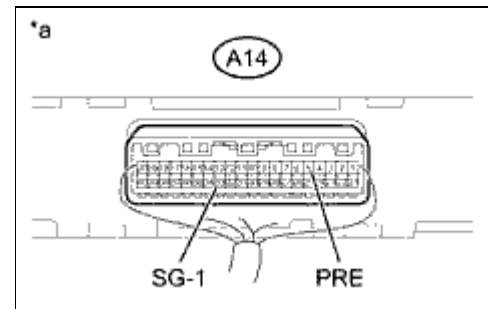
A

11. INSPECT AIR CONDITIONER PRESSURE SENSOR

- (a) Install a manifold gauge set.
- (b) Reconnect the A34 air conditioner pressure sensor connector.
- (c) Turn the ignition switch to ON.
- (d) Measure the voltage according to the value(s) in the table below.

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A14-5 (PRE) - A14-33 (SG-1)	Refrigerant pressure: (less than 3140 kPa (32.0 kgf/cm ² , 455 psi) and more than 176 kPa (1.8 kgf/cm ² , 26 psi))	0.74 to 4.71 V



Text in Illustration

*a	Component with harness connected (Air Conditioning Amplifier Assembly)
----	---

NG ► **REPLACE AIR CONDITIONING PRESSURE SENSOR**

OK ► **REPLACE AIR CONDITIONING AMPLIFIER ASSEMBLY**

12. REPAIR A/C SYSTEM LEAK

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

for HFC-134a(R134a) **INFO**

for HFO-1234yf(R1234yf) **INFO**

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

(c) Evacuate the A/C system.

RESULT	PROCEED TO
for HFC-134a(R134a)	A
for HFO-1234yf(R1234yf)	B

B ► CHARGE SYSTEM WITH REFRIGERANT

A ► CHARGE SYSTEM WITH REFRIGERANT

13.	INSPECT COOLING FAN SYSTEM
------------	-----------------------------------

(a) Check that the cooling fan(s) operates normally.

HINT:

Refer to cooling fan system.

for 2TR-FE 
for 2GR-FKS 

RESULT	PROCEED TO
OK	A
NG (for 2TR-FE)	B
NG (for 2GR-FKS)	C

B ► GO TO COOLING FAN SYSTEM

C ► GO TO COOLING FAN SYSTEM

A



14.	CHARGE SYSTEM WITH REFRIGERANT
------------	---------------------------------------

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

(b) Evacuate the A/C system.

(c) Add an appropriate amount of refrigerant.

for HFC-134a(R134a) 
for HFO-1234yf(R1234yf) 

HINT:

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

NEXT

15.	RECHECK FOR DTC
------------	------------------------

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

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

NOTICE:

If refrigerant pressure on the high pressure side becomes high, the DTC will be set. It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the air conditioning operates for a while.

HINT:

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

RESULT	PROCEED TO
DTC B1423/23 is output	A
DTC B1423/23 is not output	B

A



16. REPLACE COOLER EXPANSION VALVE

(a) Replace the cooler expansion valve with a new one [INFO](#) .

HINT:

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

NEXT



17. CHARGE SYSTEM WITH REFRIGERANT

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

(b) Evacuate the A/C system.

(c) Add an appropriate amount of refrigerant.

for HFC-134a(R134a) [INFO](#)

for HFO-1234yf(R1234yf) [INFO](#)

HINT:

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

NEXT



18. RECHECK FOR DTC

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

ITEM	CONDITION
Vehicle Doors	Fully open
Temperature Setting	MAX COLD
Blower Speed	HI

ITEM	CONDITION
A/C Switch	On
R/F Switch	Recirculation
Interior Temperature	25 to 35°C (77 to 95°F)
Engine Speed	2000 rpm

NOTICE:

If refrigerant pressure on the high pressure side becomes high, the DTC will be set. It is necessary to measure the voltage for a certain amount of time (approximately 10 minutes) because the DTC may be set after the air conditioning operates for a while.

HINT:

- When the outside air temperature is low (below -1.5°C (29.3°F)), the compressor stops due to operation of the ambient temperature sensor and the evaporator temperature sensor to prevent the evaporator from freezing. In this case, perform the inspection in a warm indoor environment.
- If refrigerant pressure is not normal after replacing the cooler expansion valve with a new or known good one, the condenser or pipes may be clogged due to dirt, dust or other foreign matter. In this case, clean or replace the cooler condenser assembly or pipes.

RESULT	PROCEED TO
DTC B1423/23 is not output	A
DTC B1423/23 is output	B

B ► **CLEAN OR REPLACE COOLER CONDENSER ASSEMBLY OR PIPE**

A ► **END**



Last Modified: 11-13-2015	6.6 U	Doc ID: RM000001GFL08UX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. DATA LIST

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

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

- Connect the Techstream to the DLC3.
- Turn the ignition switch ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Air Conditioner / Data List.
- Check the value(s) by referring to the table below.

Air Conditioner

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Ambient Temp Sensor	Ambient temperature sensor / Min.: -23.30°C (-9.94°F) Max.: 65.95°C (150.71°F)	Actual ambient temperature displayed	-
Adjusted Ambient Temp	Adjusted ambient temperature / Min.: -30.80°C (-23.44°F) Max.: 50.80°C (123.44°F)	-	-
Evaporator Fin Thermistor	Cooler thermistor sensor (evaporator temperature sensor) / Min.: -29.70°C (-21.46°F) Max.: 59.55°C (139.19°F)	Actual evaporator temperature displayed	-
Evaporator Target Temp	Evaporator target temperature / Min.: -327.68°C (-557.82°F) Max.: 327.67°C (621.81°F)	Evaporator target temperature displayed	-
Engine Coolant Temp	Engine coolant temperature sensor / Min.: 1.30°C (34.34°F) Max.: 90.55°C (194.99°F)	Actual engine coolant temperature displayed	-
Regulator Pressure Sensor	Air conditioner pressure sensor / Min.: -66.22 psi (gauge)	Actual pressure is displayed	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
	Max.: 477.68 psi (gauge)		
Electric Heater Count*1	Maximum heater operation level / Min.: 0 Max.: 3	Maximum possible operation level of quick heater assembly (PTC heater) displayed	-
Electric Heater Active Level*1	Actual heater operation level / Min.: 0 Max.: 3	Actual operation level of quick heater assembly (PTC heater) displayed	-
Refrigerant Gas Type	Refrigerant gas type / R134a or 1234yf	Refrigerant gas type displayed	-
Number of Trouble Codes	Number of trouble codes / Min.: 0 Max.: 255	Number of DTCs displayed	-

*1: w/ PTC Heater

2. ACTIVE TEST

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

- Connect the Techstream to the DLC3.
- Turn the ignition switch ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Air Conditioner / Active Test.
- Check the operation by referring to the table below.

Air Conditioner

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Magnetic Clutch Relay	Air conditioning system operation	OFF, ON	-
Mirror Heater Relay	Mirror heater	OFF, ON	-
Electrical Fan	Electrical Fan	OFF, ON	-
Heater Active Level*1	Quick heater assembly	Min.: 0, Max.: 3	-

*1: w/ PTC Heater



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000001MYG08JX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. DESCRIPTION

- (a) Air conditioning system data and the Diagnostic Trouble Codes (DTCs) can be read through the Data Link Connector 3 (DLC3) of the vehicle. When the system seems to be malfunctioning, use the Techstream to check for malfunctions and perform troubleshooting.

2. CHECK DLC3

- (a) Check the DLC3  .



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Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): DIAGNOSTIC TROUBLE CODE CHART; 2016 MY Tacoma [08/2015 -]		

DIAGNOSTIC TROUBLE CODE CHART

Air Conditioning System

DTC CODE	DETECTION ITEM	MEMORY	SEE PAGE
B1412	Ambient Temperature Sensor Circuit	Memorized (4 seconds or more)	INFO
B1413	Evaporator Temperature Sensor Circuit	Memorized (4 seconds or more)	INFO
B1422	Compressor Lock Sensor Circuit	Memorized (3 seconds or more)	INFO
B1423	Pressure Sensor Circuit	-	INFO
U0100	Lost Communication with ECM	-	INFO
U0142	Lost Communication with Main Body ECU	-	INFO
U0155	Lost Communication with Combination Meter	-	INFO



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000001GUF0CEX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): DTC CHECK / CLEAR; 2016 MY Tacoma [08/2015 -]		

DTC CHECK / CLEAR

1. DTC CHECK USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Trouble Codes.
- (e) Check for DTCs.

2. DTC CLEAR USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Air Conditioner / Trouble Codes.
- (e) Clear the DTCs.



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Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

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

1.	VEHICLE BROUGHT TO WORKSHOP
-----------	------------------------------------

NEXT



2.	INSPECT BATTERY VOLTAGE
-----------	--------------------------------

(a) Inspect the battery voltage.

Standard Voltage:

11 to 14 V

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

NEXT



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

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

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

B  **GO TO CAN COMMUNICATION SYSTEM**

A

4.	CHECK FOR DTC*
-----------	-----------------------

- (a) Check for DTCs and note any code that is output.
- (b) Clear the DTCs.
- (c) Recheck for DTCs. Based on the DTCs output above, try to force the air conditioning system to output DTCs by simulating the conditions indicated by the DTC.

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

B **GO TO DIAGNOSTIC TROUBLE CODE CHART**

A

5.	PROBLEM SYMPTOMS TABLE
-----------	-------------------------------

- (a) Refer to Problem Symptoms Table .

RESULT	PROCEED TO
Fault is not listed in Problem Symptoms Table	A
Fault is listed in Problem Symptoms Table	B

B **Go to step 8**

A

6.	OVERALL ANALYSIS AND TROUBLESHOOTING*
-----------	--

- (a) Data List / Active Test

(b) Terminals of ECU 

(c) On-vehicle Inspection

(d) Inspection

NEXT



7.	ADJUST, REPAIR OR REPLACE
----	---------------------------

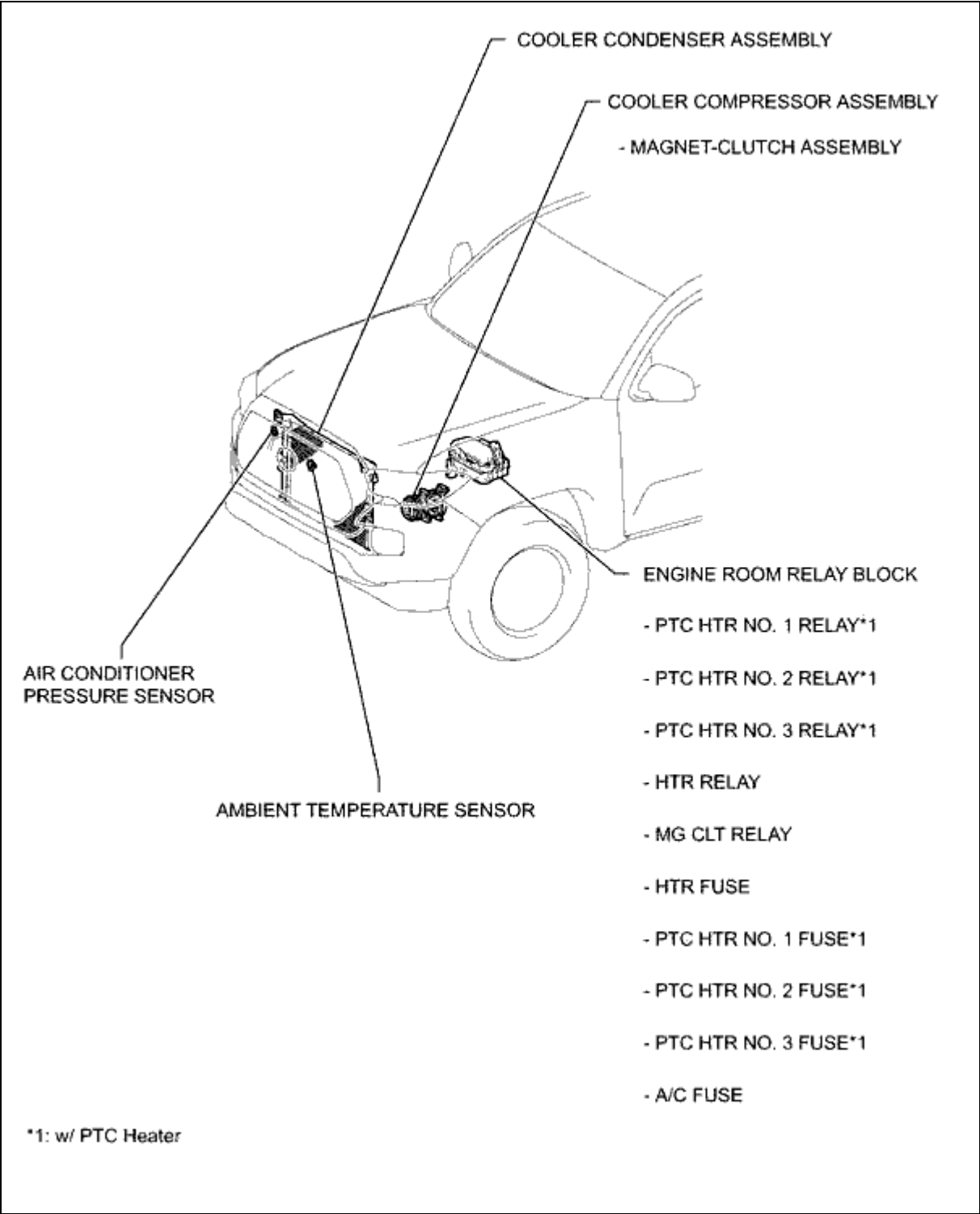
NEXT  **END**



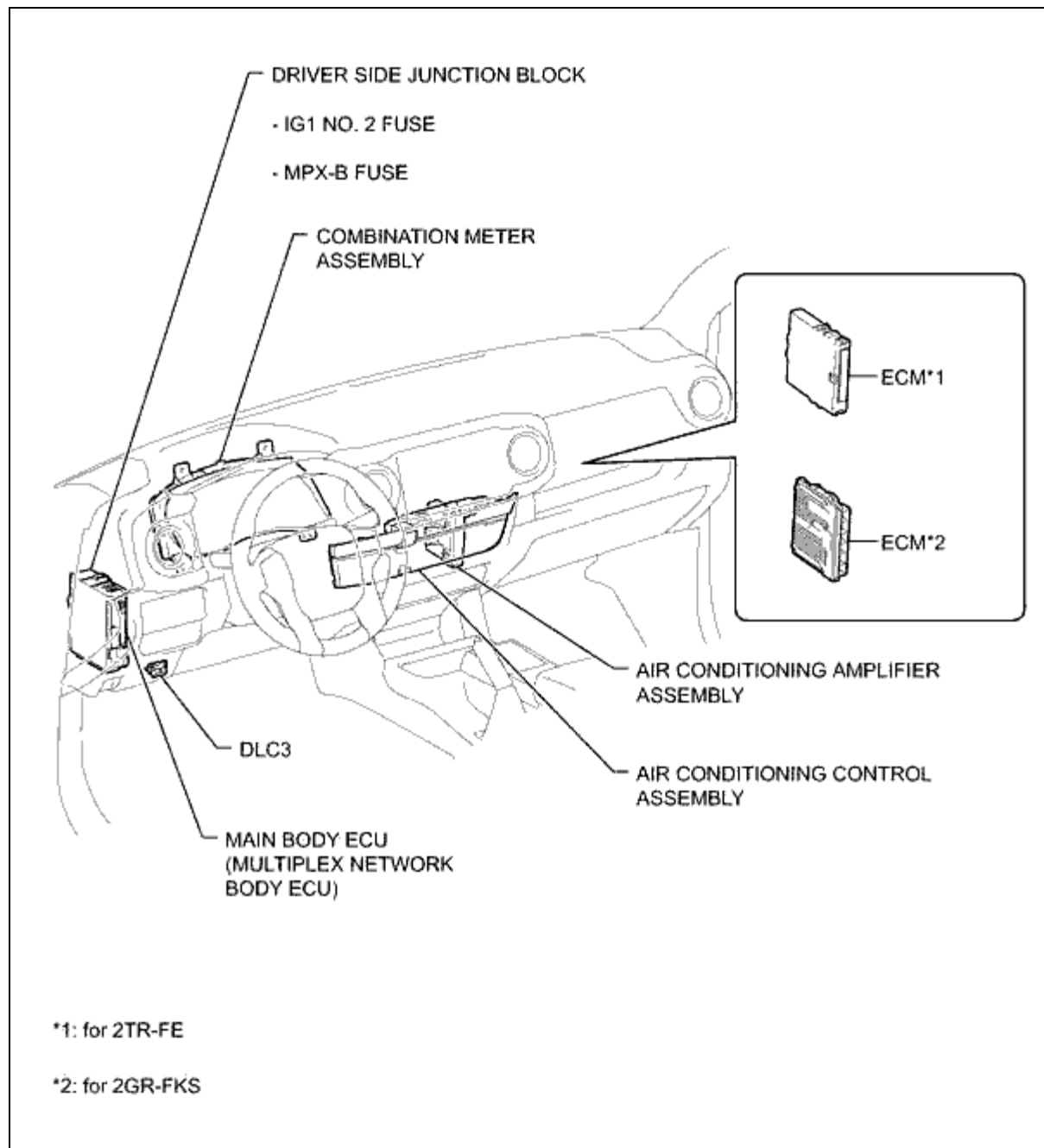
Last Modified: 11-13-2015	6.6 R	Doc ID: RM0000016A600KX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

PARTS LOCATION

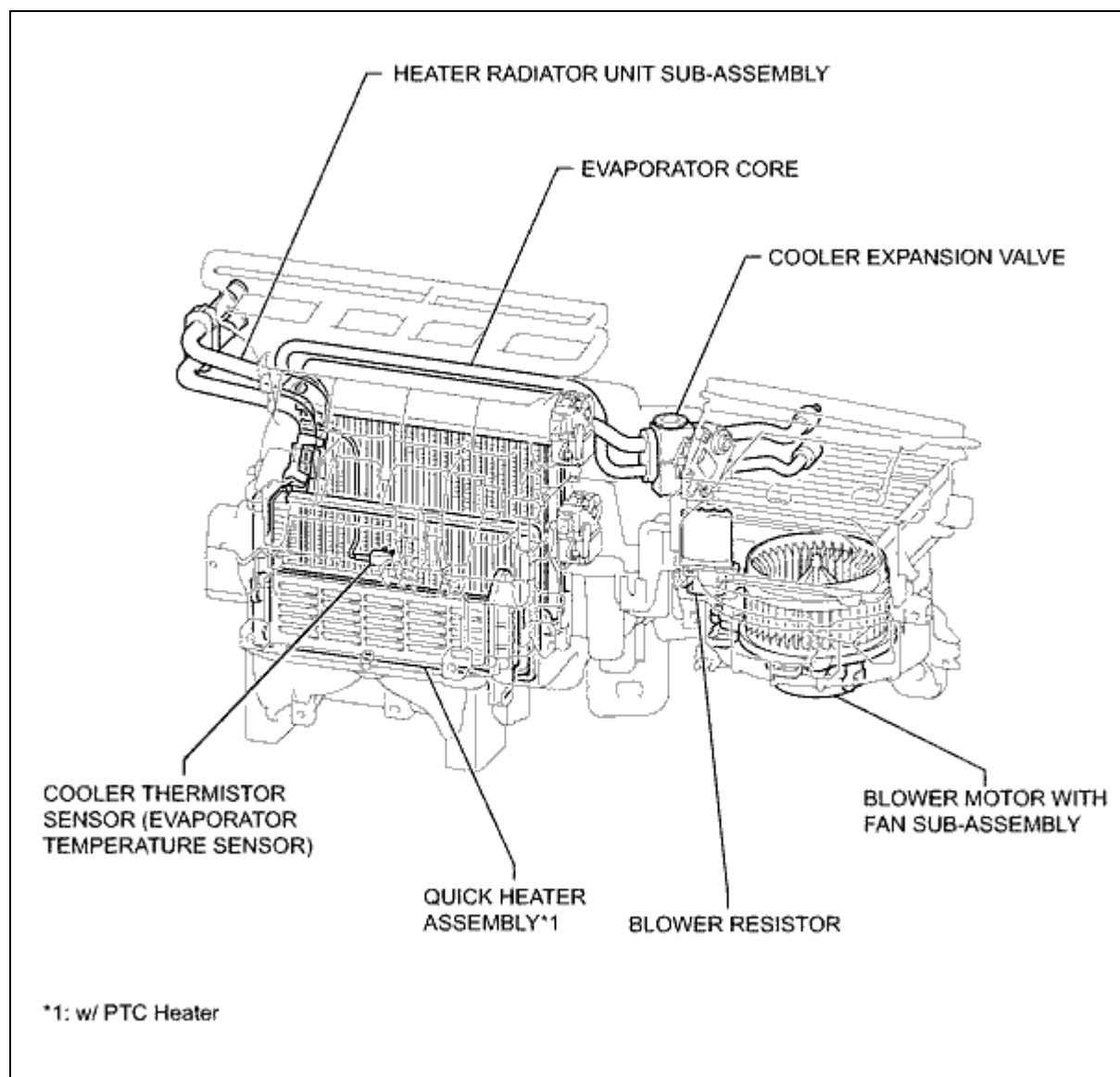
ILLUSTRATION



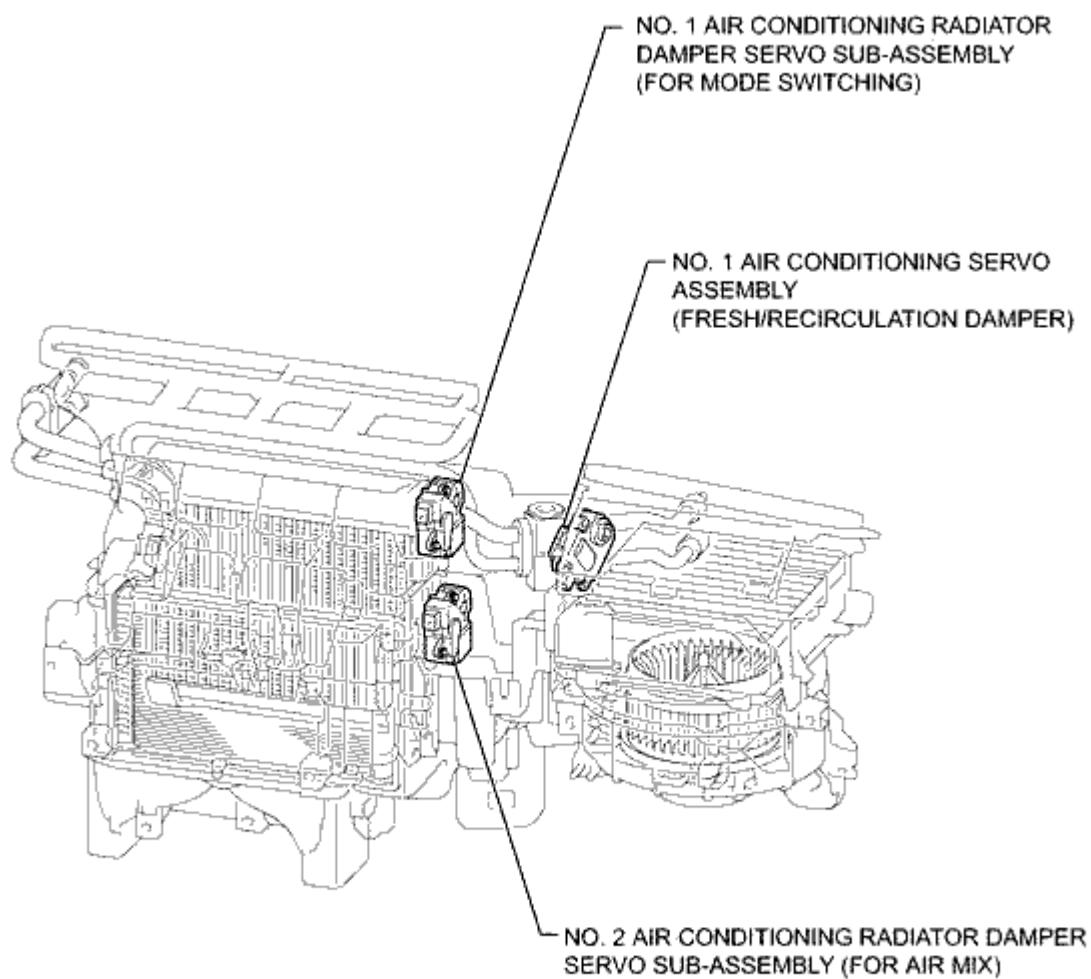
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



Last Modified: 11-13-2015	6.6 L	Doc ID: RM0000016A500MX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. EXPRESSIONS OF IGNITION SWITCH

HINT:

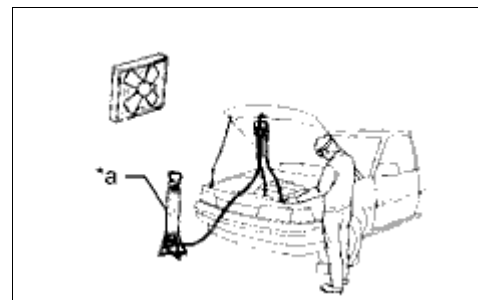
The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

EXPRESSION	IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Ignition Switch off	LOCK	Off (Lock)
Ignition Switch ACC	ACC	On (ACC)
Ignition Switch ON	ON	On (IG)
Engine Start	START	On (Start)

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

Text in Illustration

*a	Charging Cylinder
----	-------------------



3. ALWAYS WEAR EYE PROTECTION

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

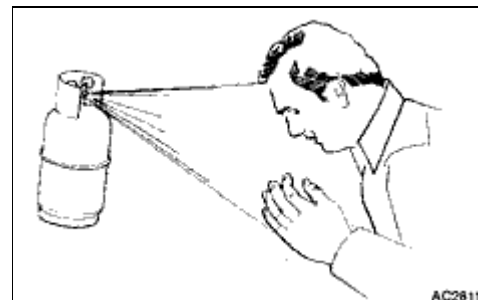
If liquid refrigerant gets in your eyes or on your skin:

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

CAUTION:

Do not rub your eyes or skin.

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



5. PRECAUTIONS FOR REFRIGERANT HFO-1234yf [R1234yf] (for HFO-1234yf (R1234yf))

- (a) Refer to the precaution for refrigerant HFO-1234yf [R1234yf] [INFO](#) .

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

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

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

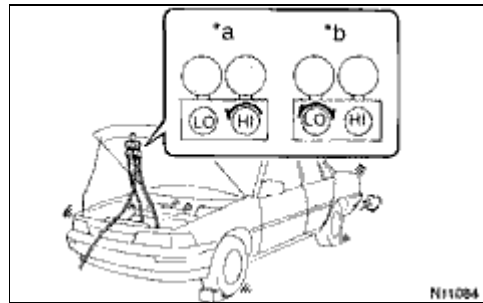
If there is not enough refrigerant in the A/C system, oil lubrication will be insufficient and the compressor may be damaged.

Necessary care should be taken to avoid this.

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

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

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



Text in Illustration

*a	Wrong
*b	Okay

10. BE CAREFUL NOT TO OVERCHARGE SYSTEM WITH REFRIGERANT

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

11. DO NOT OPERATE ENGINE AND COMPRESSOR WITH NO REFRIGERANT

CAUTION:

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

12. SUPPLEMENTAL RESTRAINT SYSTEM (SRS)

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

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.



Last Modified: 11-13-2015	6.6 T	Doc ID: RM0000016A800MX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

SYMPTOM	SUSPECTED AREA	SEE PAGE
No Cool Air Comes Out:	Volume of refrigerant	-
	Air conditioner pressure sensor circuit	INFO
	Air conditioning compressor magnetic clutch circuit	INFO
	Compressor lock sensor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Air conditioner amplifier assembly	INFO
	Wire harness or connector	-
No Cool Air Comes Out:	Blower resistor	INFO
	Blower motor with fan sub-assembly	INFO
	Air conditioning control assembly	INFO
	Wire harness or connector	-
No Cool Air Comes Out:	No. 2 air conditioning radiator damper servo sub-assembly (for air mix)	INFO
	Air conditioning control assembly	INFO
	Wire harness or connector	-
No Cool Air Comes Out:	Volume of refrigerant	-
	Blower motor performance check	-
	Air mix damper servo full travel check	-
	Recirculation damper servo operation check	-
No Engine Idle-up when A/C Switch ON	Air conditioner amplifier assembly	INFO
	SFI system (2TR-FE)	INFO
	SFI system (2GR-FKS)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Wire harness or connector	-
No Warm Air Comes Out:	Blower resistor	INFO
	Blower motor with fan sub-assembly	INFO
	Air conditioning control assembly	INFO
	Wire harness or connector	-
No Warm Air Comes Out:	No. 2 air conditioning radiator damper servo sub-assembly (for air mix)	INFO
	PTC heater circuit*1	INFO
	Air conditioning control assembly	INFO
	Wire harness or connector	-
No Warm Air Comes Out:	Volume of engine coolant	-
	Air conditioning control assembly	INFO
	Blower motor performance check	-
	Air mix damper servo full travel check	-
	Recirculation damper servo operation check	-
	Heater radiator	-
Air Not Coming From Desired Outlets:	Blower resistor	INFO
	Blower motor with fan sub-assembly	INFO
	Air conditioning control assembly	INFO
	Wire harness or connector	-
Air Not Coming From Desired Outlets:	No. 2 air conditioning radiator damper servo sub-assembly (for air mix)	INFO
	Air conditioning control assembly	INFO
	Wire harness or connector	-
Windshield Fogging:	Volume of refrigerant	-
	Air conditioner pressure sensor circuit	INFO
	Air conditioning compressor magnetic clutch circuit	INFO
	Compressor lock sensor circuit	INFO
	Evaporator temperature sensor circuit	INFO
	Air conditioner amplifier assembly	INFO
	Wire harness or connector	-
Windshield Fogging:	Blower resistor	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Blower motor with fan sub-assembly	INFO
	Air conditioning control assembly	INFO
	Wire harness or connector	-
Windshield Fogging:	No. 2 air conditioning radiator damper servo sub-assembly (for air mix)	INFO
	Air conditioning control assembly	INFO
	Wire harness or connector	-
Windshield Fogging:	Volume of refrigerant	-
	Blower motor performance check	-
	Air mix damper servo full travel check	-
	Recirculation damper servo operation check	-
Defrosting Insufficient:	Blower motor with fan sub-assembly	INFO
	Mode doors: Check cooling, heating & door operation	-
	Mode control servo motor: Hot air not coming, Go to no hot air comes out	-
	Mode control servo motor: Cold air not coming, Go to no cold air comes out	-
Noise:	Blower motor: Inspect blower motor for debris/cracks	-
	Fresh air intake area: Inspect fresh air intake area for debris	-
Noise:	Cooler compressor: Cooler compressor incorrectly fitted	-
	Air conditioning compressor magnetic clutch circuit	INFO
	Refrigerant charge amount	-
	Compressor mounting bracket: Compressor mounting bracket incorrectly fitted	-
	A/C lines secure & not grounded	-
Odor (Cycle through blower speed, mode, temperature to define odor type when engine is running and A/C switch is ON. (Musty smell, coolant oil smell))	Wet carpet: Inspect water, engine coolant or oil leaks	-
	A/C drain tube: Inspect water, engine coolant or oil leaks	-

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Fresh air intake area: Inspect water, engine coolant or oil leaks	-
	Heater hose: Inspect water, engine coolant or oil leaks	-
	Evaporator: Inspect water, engine coolant or oil leaks	-
	Evapo case: Inspect water, engine coolant or oil leaks	-
Air Not Coming from Desired Outlets (Cycle the mode lever and check airflow for outlets when engine is running, A/C switch is ON.)	Blower motor with fan sub-assembly	INFO
	No. 1 air conditioning radiator damper servo sub-assembly (for mode switching)	INFO
	Mode doors: Check cooling, heating & door operation	-
	Wire harness or connector	-
	Air conditioning control assembly	INFO
The temperature control dial is rotated to the MAX A/C position, but the MAX A/C mode is not activated.	No. 2 air conditioning radiator damper servo sub-assembly (for air mix)	INFO
	Air conditioning control assembly	INFO
	Air conditioning amplifier assembly	INFO
	Wire harness or connector	-
Quick heater assembly does not operate*1	PTC heater circuit	INFO
	Air conditioning amplifier assembly	INFO
	ECM (for 2TR-FE)	INFO
	ECM (for 2GR-FKS)	INFO

*1: w/ PTC Heater



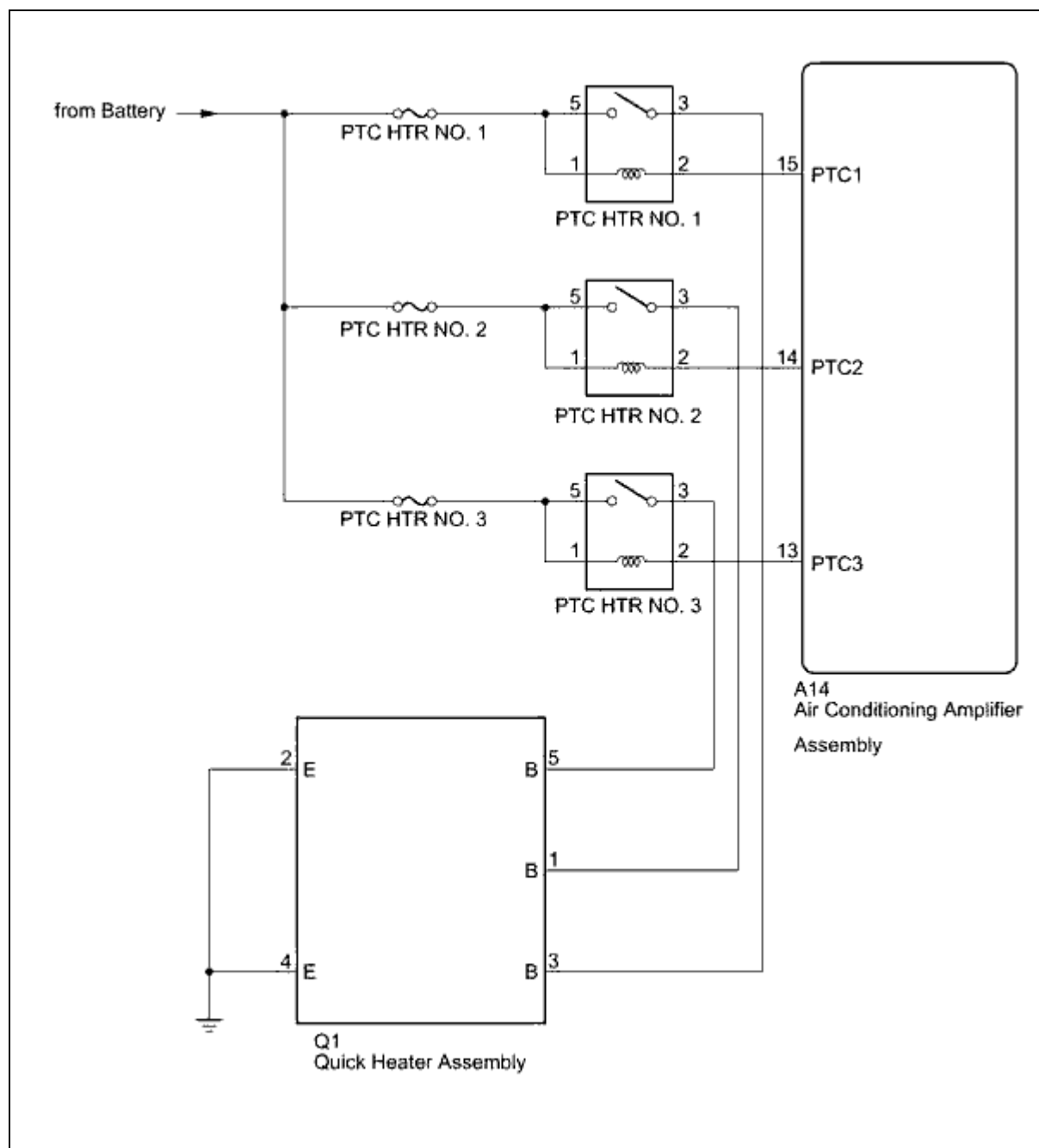
Last Modified: 11-13-2015	6.6 J	Doc ID: RM000002YPT03EX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): PTC Heater Circuit; 2016 MY Tacoma [08/2015 -]		

PTC Heater Circuit

DESCRIPTION

PTC HTR heater relays are closed in accordance with signals from the air conditioning amplifier assembly and power is supplied to the quick heater assembly installed on the radiator heater unit.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1. PERFORM ACTIVE TEST USING TECHSTREAM

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.

(c) Turn the Techstream on.

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

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

Air Conditioner

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Heater Active Level	Quick heater assembly	Min.: 0, Max.: 3	-

OK:

Heater Active Level changes normally.

NG  **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE**

OK



2.	INSPECT PTC HTR RELAY
-----------	------------------------------

(a) Remove the PTC HTR relays.

(b) Inspect the PTC HTR relays  .

NG  **REPLACE PTC HTR RELAY**

OK



3.	CHECK HARNESS AND CONNECTOR (PTC HTR RELAY - POWER SOURCE CIRCUIT)
-----------	---

(a) Remove the PTC HTR relays.

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

Standard Voltage:

PTC HTR NO. 1

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 1-1 - Body ground	Always	11 to 14 V
PTC HTR NO. 1-5 - Body ground	Always	11 to 14 V

PTC HTR NO. 2

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 2-1 - Body ground	Always	11 to 14 V
PTC HTR NO. 2-5 - Body ground	Always	11 to 14 V

PTC HTR NO. 3

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 3-1 - Body ground	Always	11 to 14 V
PTC HTR NO. 3-5 - Body ground	Always	11 to 14 V

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



4.	CHECK HARNESS AND CONNECTOR (PTC HTR RELAY - AIR CONDITIONING AMPLIFIER ASSEMBLY)
-----------	--

- (a) Remove the PTC HTR relays.
- (b) Disconnect the A14 air conditioning amplifier assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

PTC HTR NO. 1

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 1-2 - A14-15 (PTC1)	Always	Below 1 Ω
PTC HTR NO. 1-2 or A14-15 (PTC1) - Body ground	Always	10 k Ω or higher

PTC HTR NO. 2

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 2-2 - A14-14 (PTC2)	Always	Below 1 Ω
PTC HTR NO. 2-2 or A14-14 (PTC2) - Body ground	Always	10 k Ω or higher

PTC HTR NO. 3

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 3-2 - A14-13 (PTC3)	Always	Below 1 Ω
PTC HTR NO. 3-2 or A14-13 (PTC3) - Body ground	Always	10 k Ω or higher

OK



5.	CHECK HARNESS AND CONNECTOR (QUICK HEATER ASSEMBLY - PTC HTR RELAY AND BODY GROUND)
-----------	--

- (a) Remove the PTC HTR relays.
- (b) Disconnect the Q1 quick heater assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

PTC HTR NO. 1

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 1-3 - Q1-3 (B)	Always	Below 1 Ω
Q1-2 (E) - Body ground	Always	Below 1 Ω
Q1-4 (E) - Body ground	Always	Below 1 Ω
PTC HTR NO. 1-3 or Q1-3 (B) - Body ground	Always	10 k Ω or higher

PTC HTR NO. 2

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 2-3 - Q1-1 (B)	Always	Below 1 Ω
Q1-2 (E) - Body ground	Always	Below 1 Ω
PTC HTR NO. 2-3 or Q1-1 (B) - Body ground	Always	10 k Ω or higher

PTC HTR NO. 3

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
PTC HTR NO. 3-3 - Q1-5 (B)	Always	Below 1 Ω
Q1-4 (E) - Body ground	Always	Below 1 Ω
PTC HTR NO. 3-3 or Q1-5 (B) - Body ground	Always	10 k Ω or higher

OK



6.	INSPECT QUICK HEATER ASSEMBLY
-----------	--------------------------------------

(a) Remove the quick heater assembly  .

(b) Inspect the quick heater assembly  .

NG  **REPLACE QUICK HEATER ASSEMBLY**

OK  **REPLACE AIR CONDITIONING AMPLIFIER
ASSEMBLY**



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000001O7U0AUX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

1. GENERAL

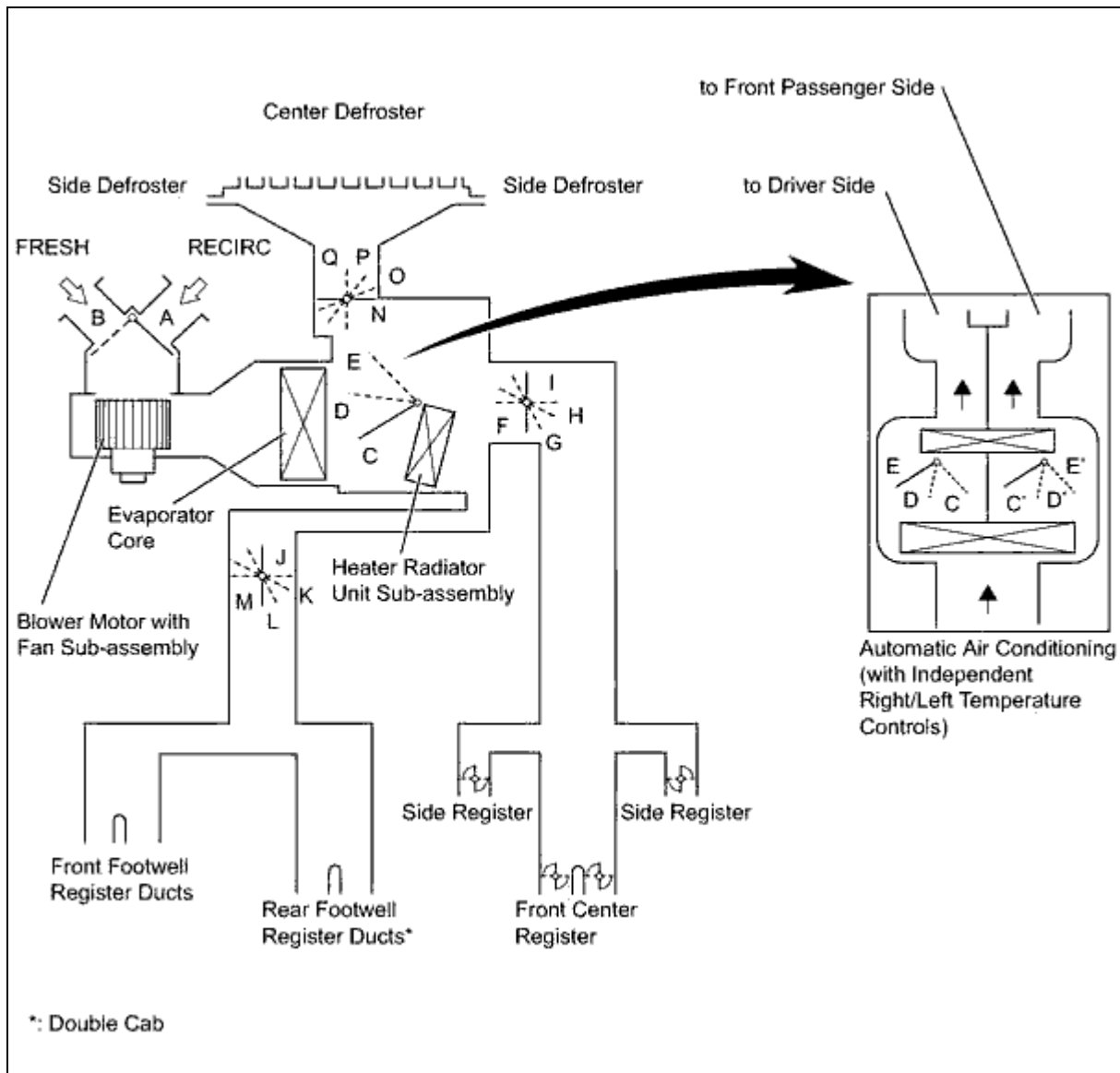
(a) The air conditioning system has the following controls.

CONTROL	OUTLINE
Manual Control	The air conditioner amplifier assembly controls the damper positions (air inlet control damper, air mix control damper and mode control damper) and blower speed in accordance with the positions of the switches (temperature control dial, blower dial, mode select dial and air inlet control switch).
Air Inlet Control	Drives the air inlet servo motor (damper servo sub-assembly) according to the operation of the air inlet control switch and moves the dampers to the fresh or recirculation position.
Compressor Control	Controls the compressor with magnet clutch assembly to turn on or off based on the signals from various sensors.
MAX Air Conditioning Control	When the temperature control dial is turned to the MAX A/C position, the air conditioner amplifier assembly performs the following control to improve cooling efficiency: • Turns the compressor with magnet clutch assembly on. • Activates the air inlet servo motor (damper servo sub-assembly) to set the air inlet control damper to the recirculation position.*
Diagnosis	A Diagnostic Trouble Code (DTC) is stored in the memory when the air conditioner amplifier assembly detects a problem with the air conditioning system.

*: for Double Cab

2. MODE POSITION AND DAMPER OPERATION

(a) Mode Position and Damper Operation



Functions of Main Dampers

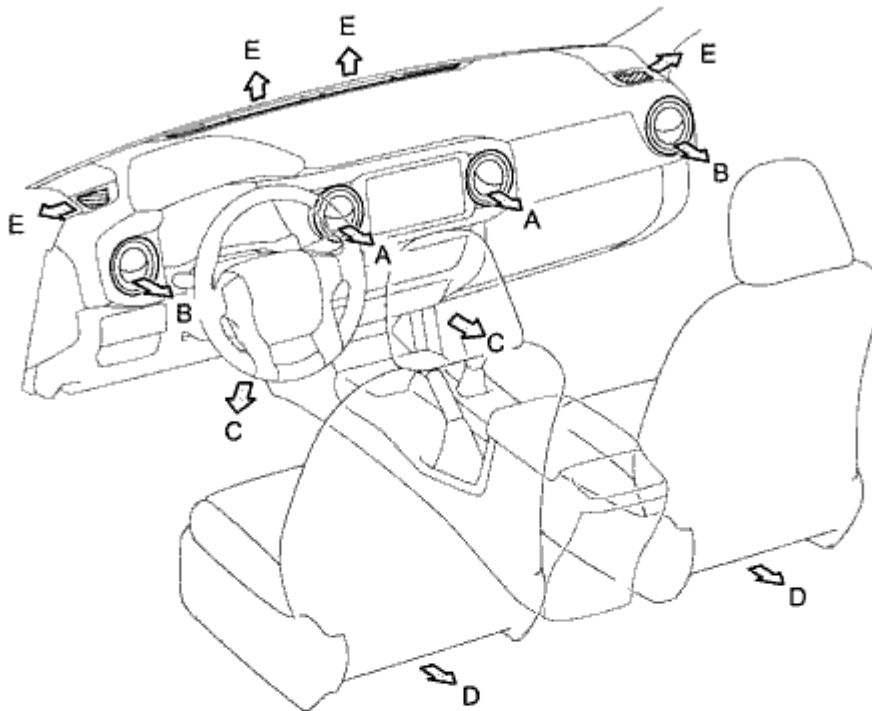
CONTROL DOOR	OPERATION POSITION		DOOR POSITION	OPERATION
Air Inlet Control Door	FRESH		A	Brings in fresh air.
	RECIRCULATION		B	Recirculates internal air.
Air Mix Control Door	MAX COLD to MAX HOT Temperature Setting		C - D - E (C' - D' - E')	Varies the mixture ratio of warm air and cool air in order to regulate the temperature continuously between hot and cold.
Mode Control Door		FACE	F, J, N	Air blows out of the front center register and side register.
		BI-LEVEL	G, L, N	Air blows out of the front center register, side register and front and rear footwell register ducts*.
		FOOT	H, M, O	Air blows out of the front and rear footwell register ducts*. In addition, air blows out slightly from the front and rear center register*, side register and defroster.

CONTROL DOOR	OPERATION POSITION		DOOR POSITION	OPERATION
		FOOT AND DEFROSTER	H, M, P	Defrosts the windshield through the center defroster, side defroster, side register, front and rear center register ducts*, while air is also blown out from the front and rear footwell register ducts*.
		DEFROSTER	I, J, Q	Defrosts the windshield through the center defroster, side defroster.

*: for Double Cab

3. AIR OUTLETS AND AIRFLOW VOLUME

(a) Air Outlets and Airflow Volume



MODE	A	B	C	D	E
 FACE	○	○	—	—	—
 B/L	○	○	○	○	—
 FOOT	○	○	○	○	○
 F/D	○	○	○	○	○
 DEF	—	—	—	—	○

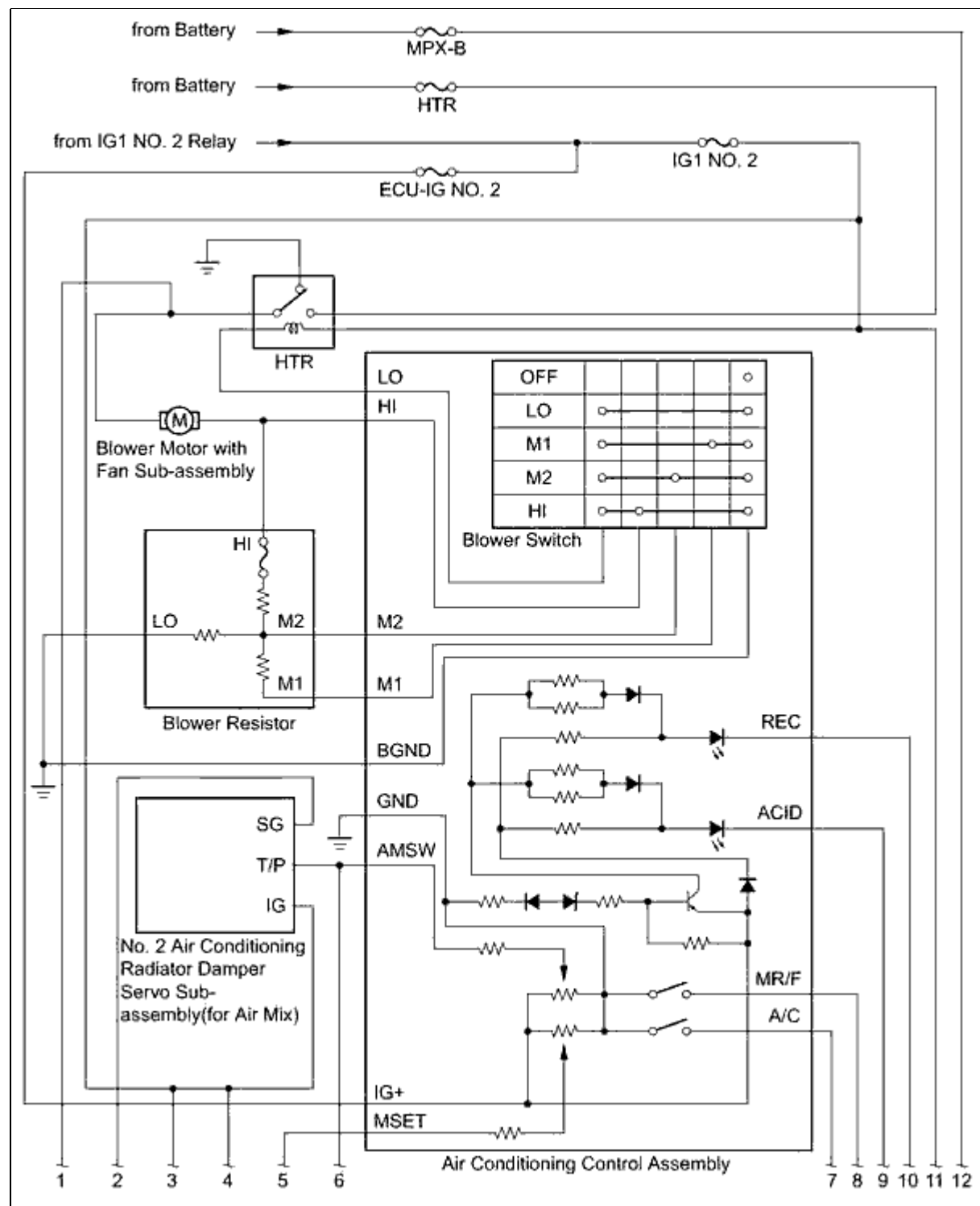
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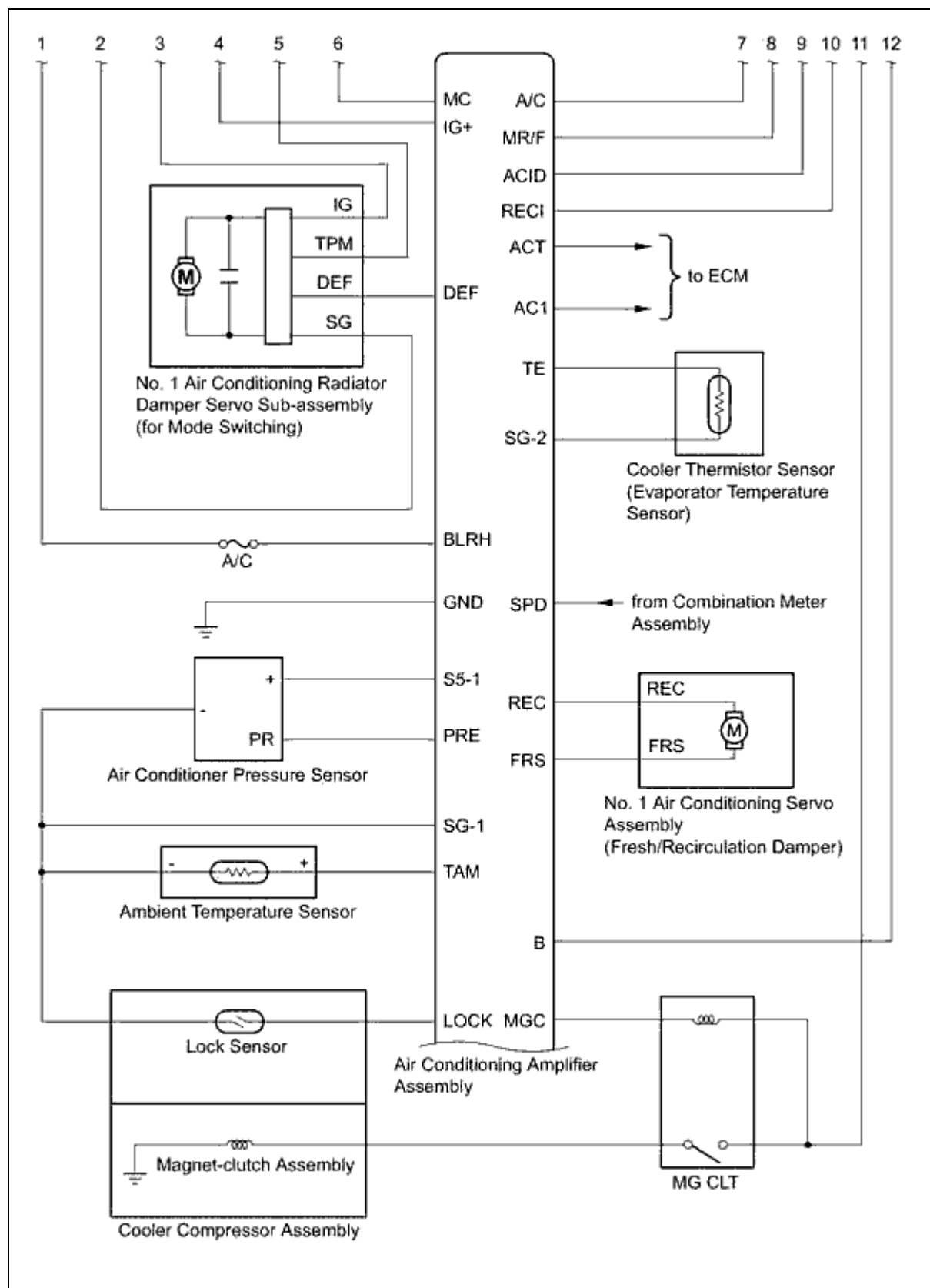
The size of each circle ○ indicates the ratio of airflow volume.

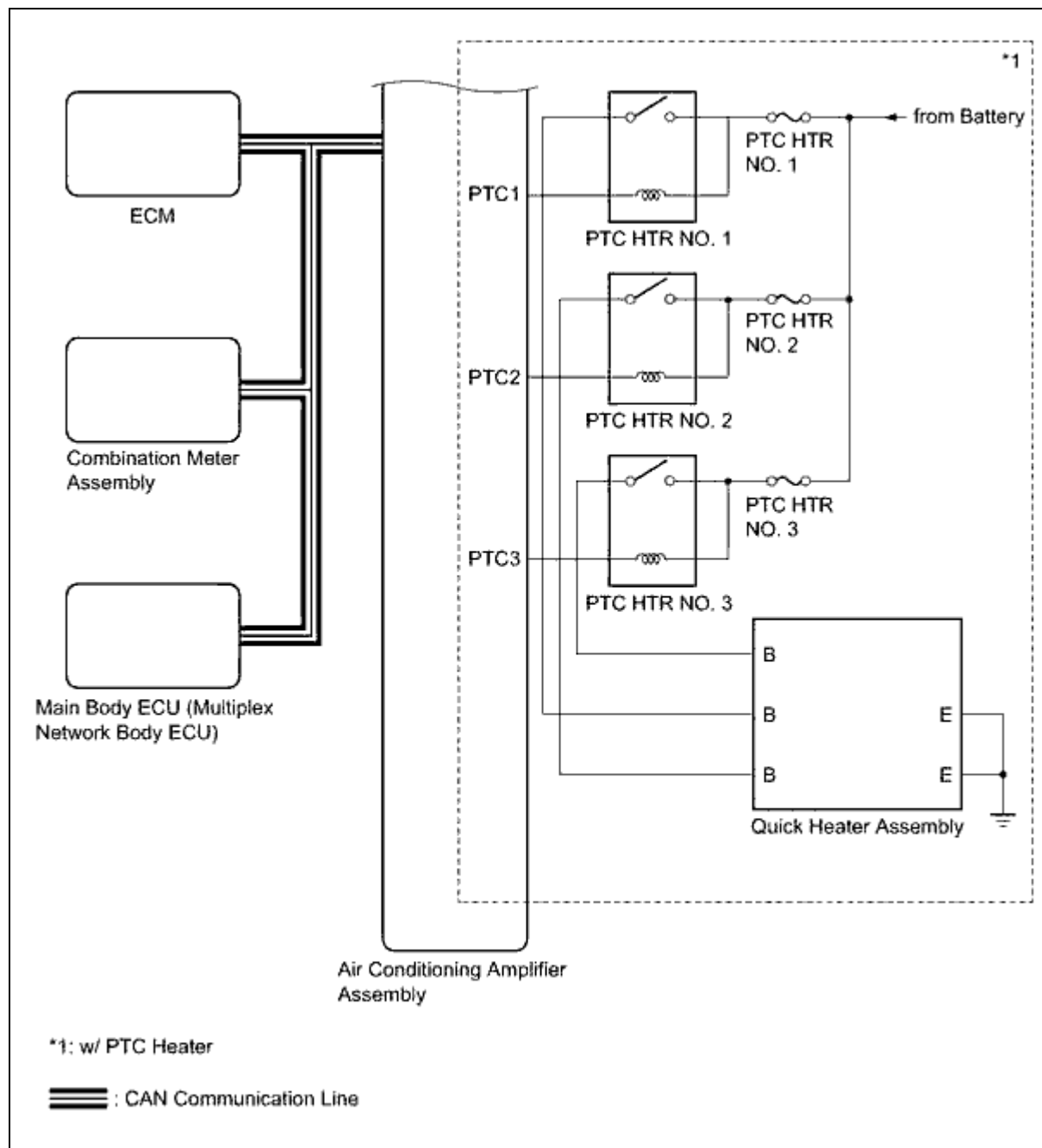


Last Modified: 11-13-2015	6.6 U	Doc ID: RM0000016A900KX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

SYSTEM DIAGRAM



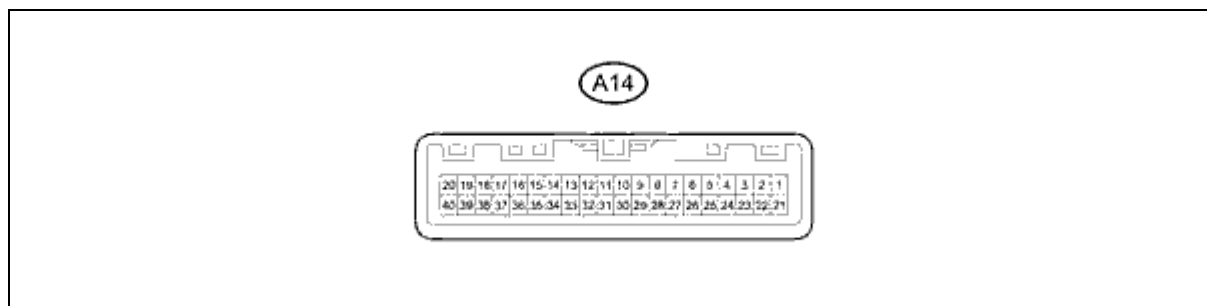




Last Modified: 11-13-2015	6.6 U	Doc ID: RM0000016A700KX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. AIR CONDITIONING AMPLIFIER ASSEMBLY



HINT:

Check from the rear of the connector while it is connected to the air conditioning amplifier assembly.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
A14-1 (IG+) - A14-12 (GND)	P - W-B	Power source (IG)	Ignition switch ON	11 to 14 V
			Ignition switch off	Below 1 V
A14-2 (BLRH) - A14-12 (GND)	SB - W-B	Blower switch signal	- Ignition switch: ON - Blower switch: off	Below 1 V
			- Ignition switch: ON - Blower switch: on	11 to 14 V
A14-3 (MC) - A14-12 (GND)	BE - W-B	Air mix select switch signal	- Ignition switch: ON - Air mix switch: except MAX A/C	1 to 14 V
			- Ignition switch: ON - Air mix switch: MAX A/C	Below 1 V
A14-4 (LOCK) - A14-12 (GND)	G - W-B	A/C lock sensor signal	- Engine running - Blower switch: LO - A/C switch: on	Pulse generation (See waveform 1)
A14-5 (PRE) - A14-12 (GND)	V - W-B	Air conditioner pressure sensor signal	- Engine running - Air conditioning system operating - Refrigerant pressure: Abnormal	4.71 V or higher

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
			pressure (more than 3025 kPa (30.8 kgf/cm ² , 439 psi))	
			• Engine running • Air conditioning system operating • Refrigerant pressure: Abnormal pressure (less than 176 kPa (1.8 kgf/cm² , 26 psi))	Below 0.74 V
			• Engine running • Air conditioning system operating • Refrigerant pressure: Normal pressure (less than 3025 kPa (30.8 kgf/cm² , 439 psi) and more than 176 kPa (1.8 kgf/cm² , 26 psi))	0.74 to 4.71 V
A14-6 (TE) - A14-32 (SG-2)	B - GR	Evaporator temperature sensor signal	• Ignition switch ON • Evaporator temperature: 0°C (32°F)	1.7 to 2.1 V
			• Ignition switch ON • Evaporator temperature: 15°C (59°F)	0.9 to 1.3 V
A14-7 (TAM) - A14-33 (SG-1)	W - LG	Ambient temperature sensor signal	• Ignition switch ON • Ambient temperature: 25°C (77°F)	1.35 to 1.75 V
			• Ignition switch ON • Ambient temperature: 40°C (104°F)	0.9 to 1.2 V
A14-8 (S5-1) - A14-12 (GND)	SB - W-B	Power supply for air conditioner pressure sensor	Ignition switch off	Below 1 V
			Ignition switch ON	4.5 to 5.5 V
A14-9 (ACT) - A14-12 (GND)	R - W-B	Compressor operation signal	• Ignition switch ON • A/C switch: off	Below 1 V
			• Ignition switch ON • A/C switch: on	4.75 to 5.25 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
A14-10 (CANH)	L	CAN communication system	-	-
A14-11 (CANL)	W	CAN communication system	-	-
A14-12 (GND) - Body ground	W-B - Body ground	Ground for main power supply	Always	Below 1 Ω
A14-13 (PTC3) - A14-12 (GND)*1	P - W-B	Quick heater operation signal	• Engine running • Blower switch off • Temperature settings: MAX HOT • Engine coolant temperature 65°C or lower • Ambient temperature 10°C or lower	11 to 14 V
			• Engine running • Blower switch on • Temperature settings: MAX HOT • Engine coolant temperature 65°C or lower • Ambient temperature 10°C or lower	Below 1 V
A14-14 (PTC2) - A14-12 (GND)*1	W - W-B	Quick heater operation signal	• Engine running • Blower switch off • Temperature settings: MAX HOT • Engine coolant temperature 65°C or lower • Ambient temperature 10°C or lower	11 to 14 V
			• Engine running • Blower switch on • Temperature settings: MAX HOT • Engine coolant temperature 65°C or lower • Ambient temperature 10°C or lower	Below 1 V
A14-15 (PTC1) - A14-12 (GND)*1	V - W-B	Quick heater operation signal	• Engine running • Blower switch off • Temperature settings: MAX HOT • Engine coolant temperature 65°C or lower • Ambient temperature 10°C or	11 to 14 V

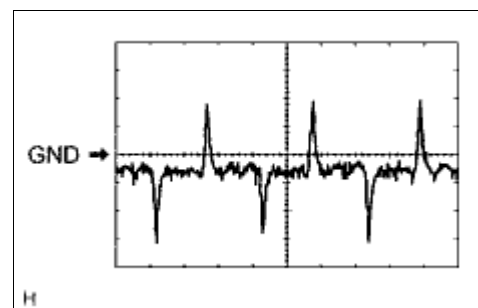
TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
			lower	
			• Engine running • Blower switch on • Temperature settings: MAX HOT • Engine coolant temperature 65°C or lower • Ambient temperature 10°C or lower	Below 1 V
A14-18 (MGC) - A14-12 (GND)	G - W-B	Magnetic clutch operation signal	• Engine running • Blower switch: LO • A/C switch: off	11 to 14 V
			• Engine running • Blower switch: LO • A/C switch: on	Below 1 V
A14-20 (REC) - A14-12 (GND)	R - W-B	Recirculation/Fresh switch signal	• Ignition switch: ON • Recirculation/Fresh switch switch: FRESH to RECIRCULATION	11 to 14 V (Servo motor operating)
A14-21 (B) - A14-12 (GND)	LG - W-B	Power source (Back-up)	Always	11 to 14 V
A14-22 (DEF) - A14-12 (GND)	R - W-B	Mode switch signal	• Ignition switch: ON • Mode switch: except DEF	1 to 14 V
			• Ignition switch: ON • Mode switch: DEF	Below 1 V
A14-26 (MR/F) - A14-12 (GND)	SB - W-B	REC switch operation signal	• Ignition switch: ON • REC switch: off	4 to 5 V
			• Ignition switch: ON • REC switch: on	Below 1 V
A14-27 (A/C) - A14-12 (GND)	GR - W-B	A/C switch operation signal	• Ignition switch: ON • A/C switch: off	4 to 5 V
			• Ignition switch: ON • A/C switch: on	Below 1 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
A14-32 (SG-2) - Body ground	GR - Body ground	Ground for evaporator temperature sensor	Always	Below 1 Ω
A14-33 (SG-1) - Body ground	LG - Body ground	Ground for air conditioner pressure sensor, ambient temperature sensor, A/C lock sensor	Always	Below 1 Ω
A14-35 (ACID) - A14-12 (GND)	B - W-B	A/C switch LED signal	- Ignition switch: ON - Blower switch: on - A/C switch: off	11 to 14 V
			- Ignition switch: ON - Blower switch: on - A/C switch: on	Below 3 V
A14-37 (AC1) - A14-12 (GND)	BE - W-B	Compressor operation signal	- Ignition switch ON - A/C switch: off	11 to 14 V
			- Ignition switch ON - A/C switch: on	Below 1 V
A14-40 (FRS) - A14-12 (GND)	V - W-B	Recirculation/Fresh switch signal	- Ignition switch: ON - Recirculation/Fresh switch: RECIRCULATION to FRESH	11 to 14 V (Servo motor operating)

*1: w/ PTC Heater

(a) Waveform 1:

ITEM	CONTENT
Terminal No.	A14-4 (LOCK) - A14-12 (GND)
Tool Setting	200 mV/DIV., 10 ms./DIV.
Vehicle Condition	- Engine running - Blower switch: LO - A/C switch: on



2. ECM (2TR-FE) INFO

3. ECM (2GR-FKS) INFO



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Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING SYSTEM (for Manual Air Conditioning System): U0100,U0142,U0155; Lost Communication with ECM; 2016 MY Tacoma [08/2015 -]		

DTC	U0100	Lost Communication with ECM
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DTC	U0142	Lost Communication with Main Body ECU
------------	--------------	--

DTC	U0155	Lost Communication with Combination Meter
------------	--------------	--

DESCRIPTION

DTC NO.	DTC DETECTING CONDITION	TROUBLE AREA
U0100	No communication with ECM	• CAN communication system • ECM
U0142	No communication with main body ECU	• CAN communication system • Main body ECU (multiplex network body ECU)
U0155	No communication with combination meter	• CAN communication system • Combination meter assembly

INSPECTION PROCEDURE

PROCEDURE

1.	GO TO CAN COMMUNICATION SYSTEM
-----------	---------------------------------------

HINT:

Refer to CAN Communication System [INFO](#) .

NEXT  **END**



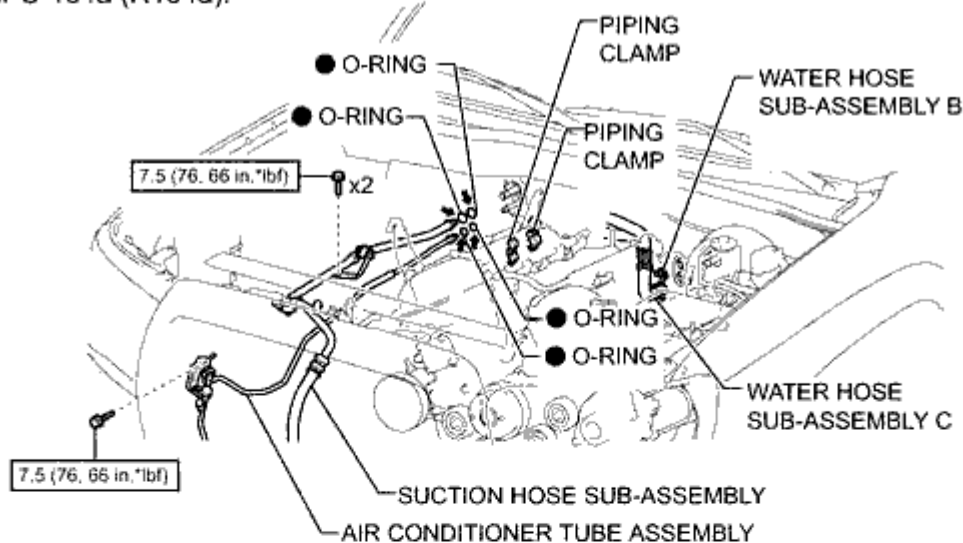
Last Modified: 11-13-2015	6.6 K	Doc ID: RM0000016AX00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING UNIT: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

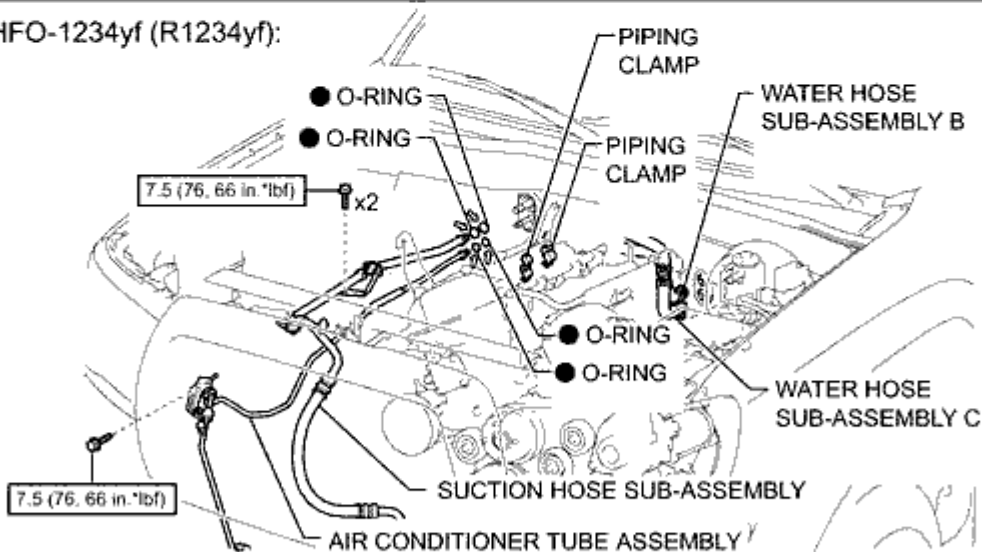
ILLUSTRATION

for 2GR-FKS:

for HFC-134a (R134a):



for HFO-1234yf (R1234yf):



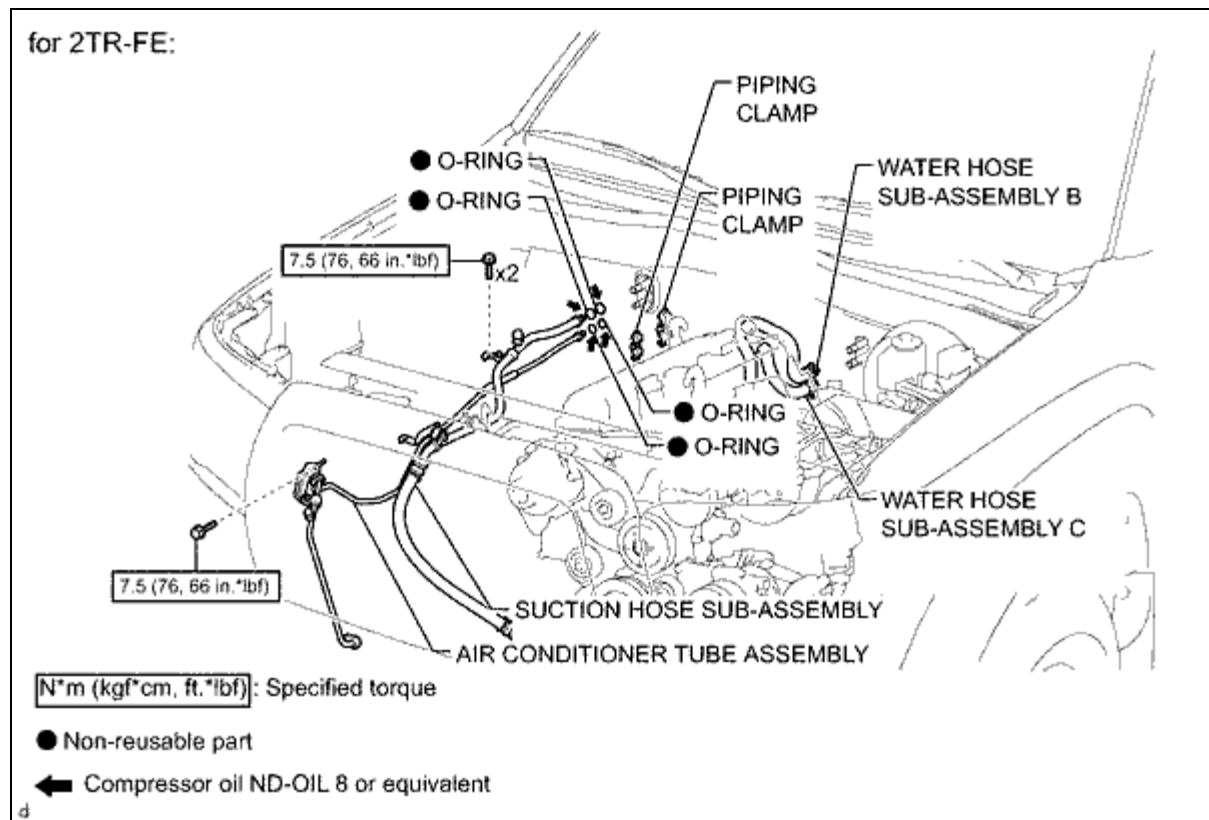
[N*m (kgf*cm, ft.*lbf)]: Specified torque

● Non-reusable part

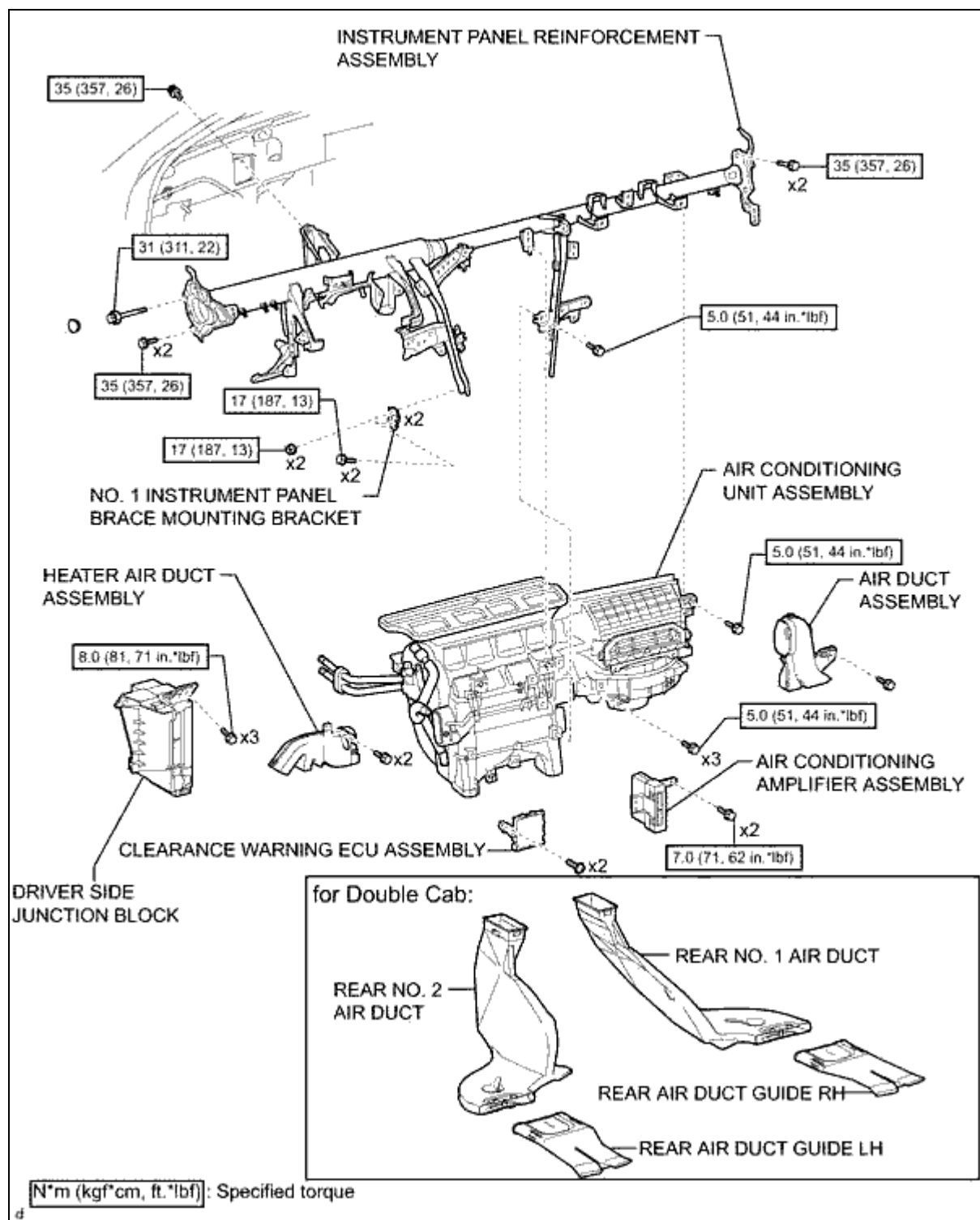
← Compressor oil ND-OIL 8 or equivalent

↩ Compressor oil ND-OIL 12 or equivalent

ILLUSTRATION

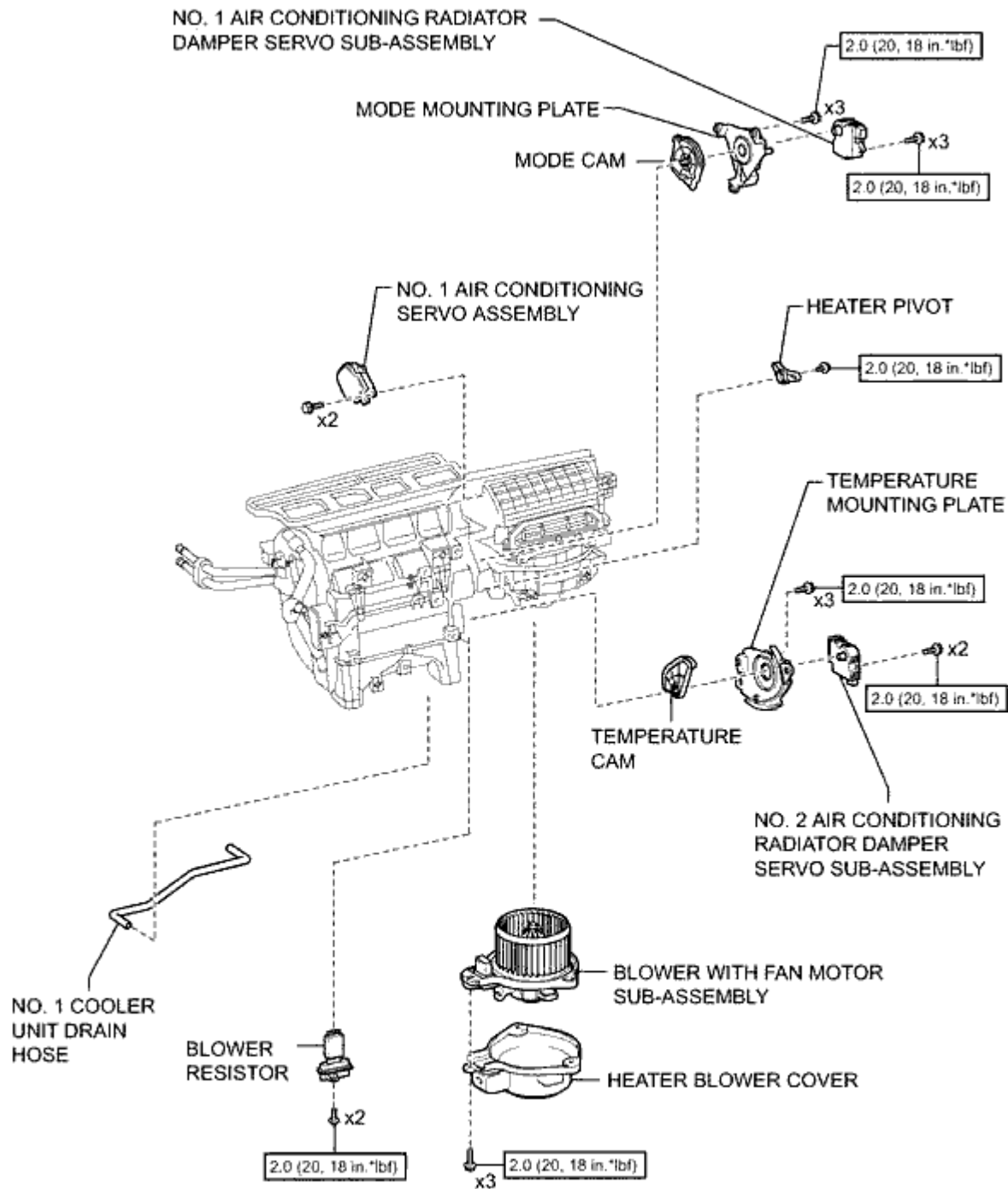


ILLUSTRATION



ILLUSTRATION

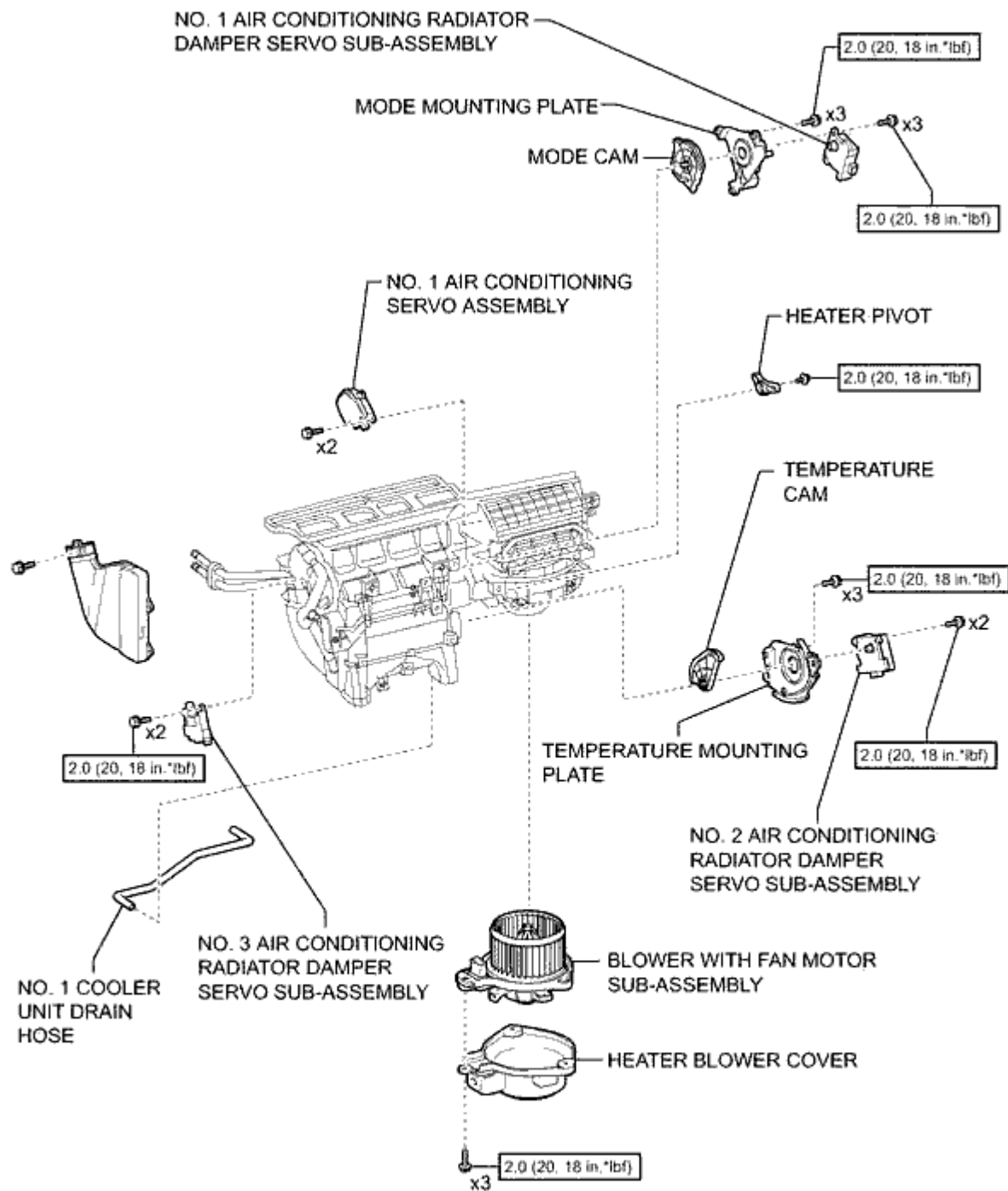
for Manual Air Conditioning System:



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

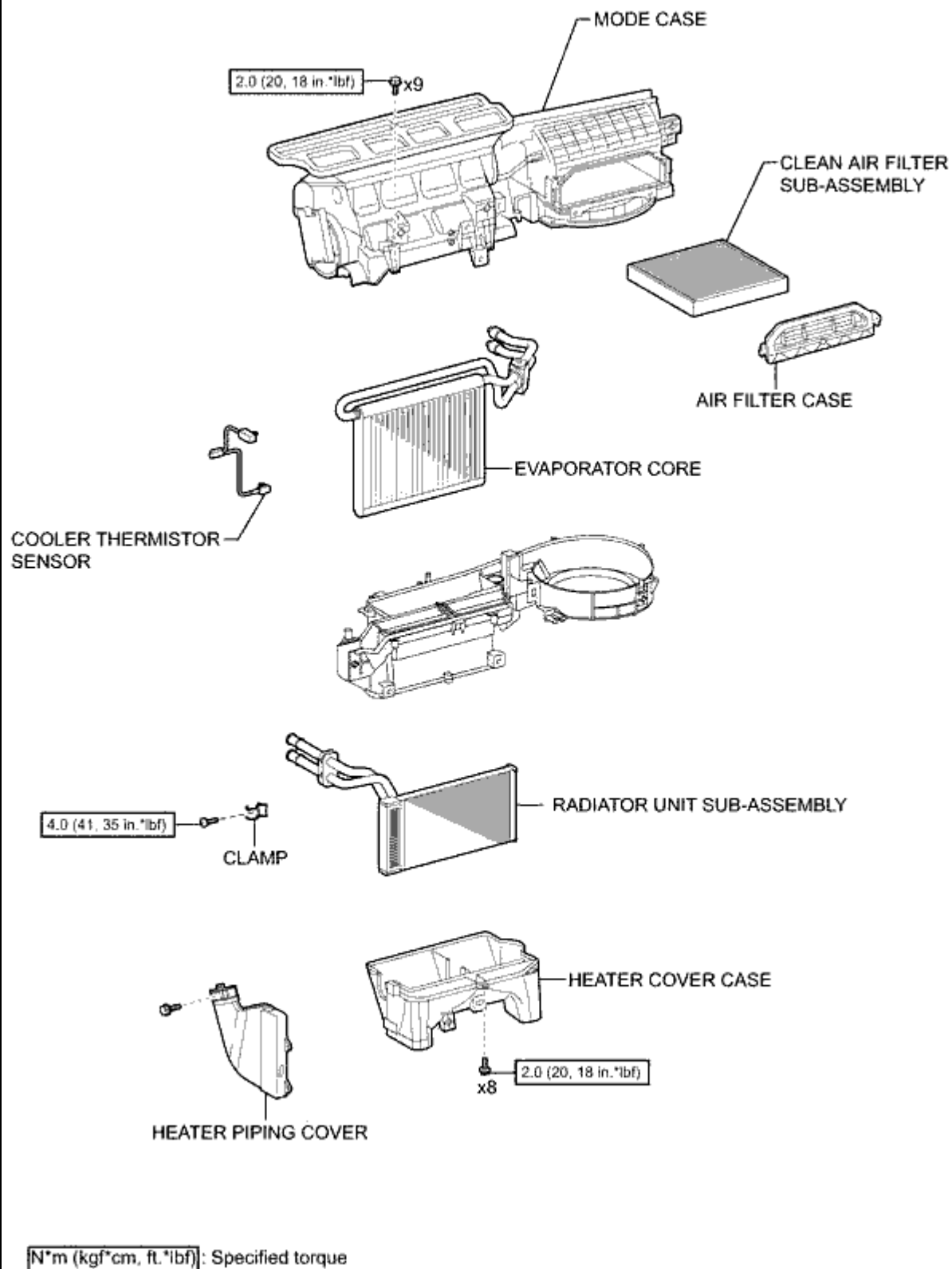
ILLUSTRATION

for Automatic Air Conditioning System:



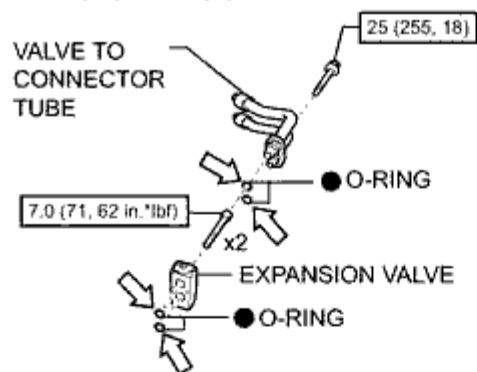
[N*m (kgf*cm, ft.*lbf)] : Specified torque

ILLUSTRATION

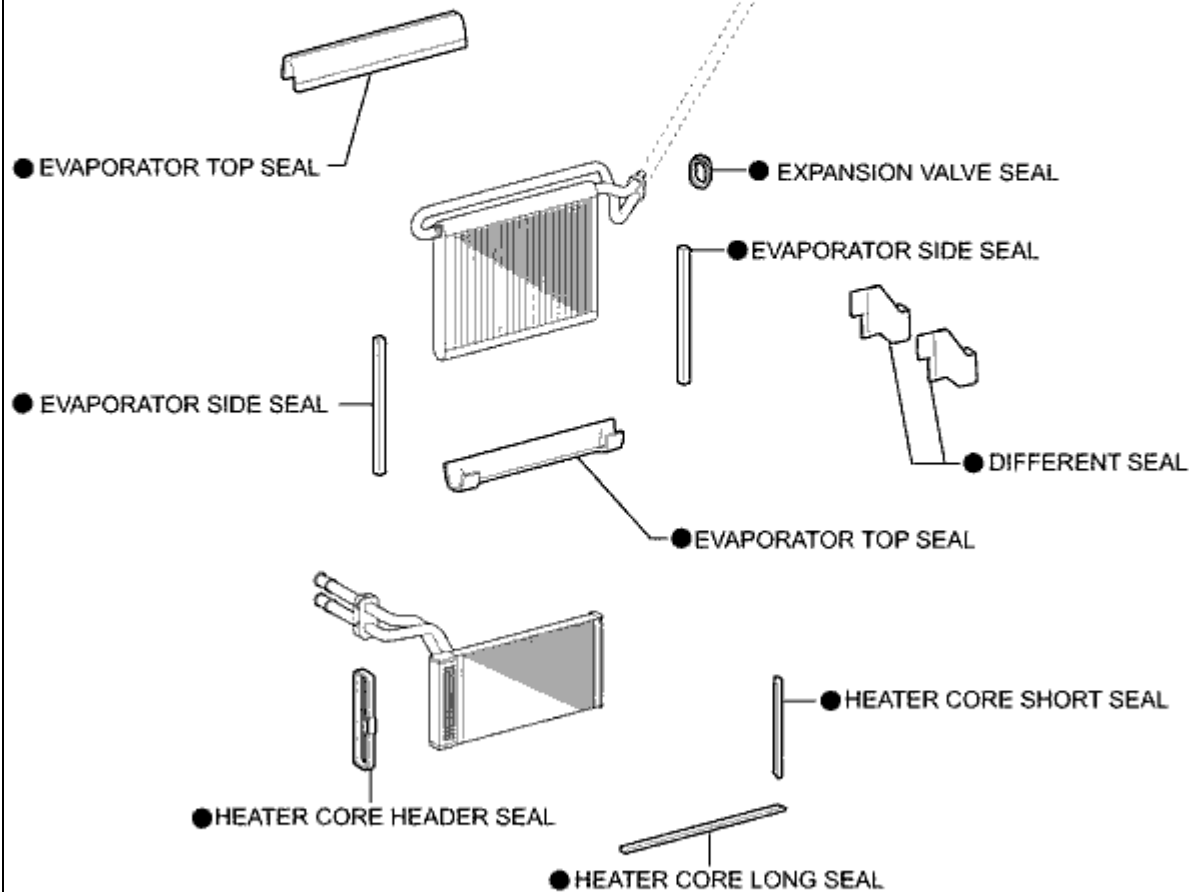
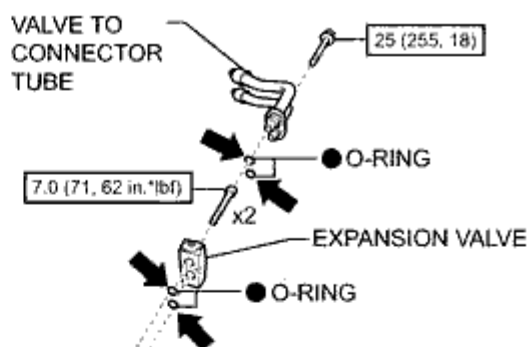


ILLUSTRATION

for HFO-1234yf (R1234yf):



for HFC-134a (R134a):



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

● Non-reusable part

➡ Compressor oil ND-OIL 8 or equivalent

➡ Compressor oil ND-OIL 12 or equivalent

d

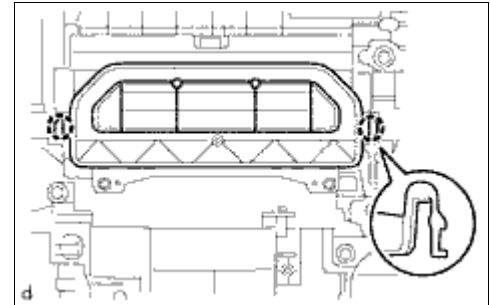


Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016AZ00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING UNIT: DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

DISASSEMBLY

1. REMOVE CLEAN AIR FILTER SUB-ASSEMBLY

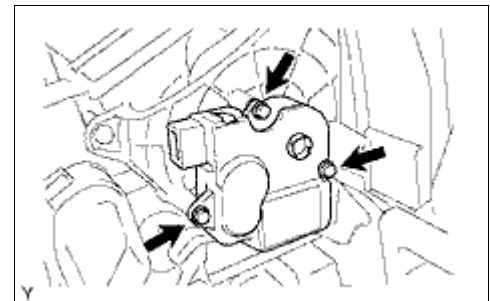
- (a) Disengage the 2 claws to remove the air filter case.



- (b) Remove the clean air filter sub-assembly.

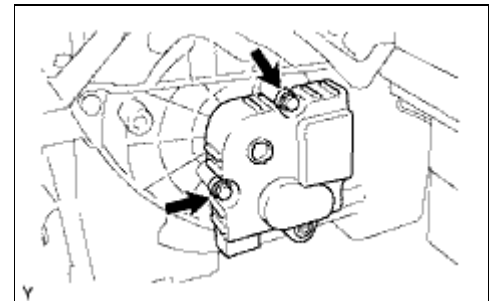
2. REMOVE NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY

- (a) Remove the 3 bolts and No. 1 air conditioning radiator damper servo sub-assembly.



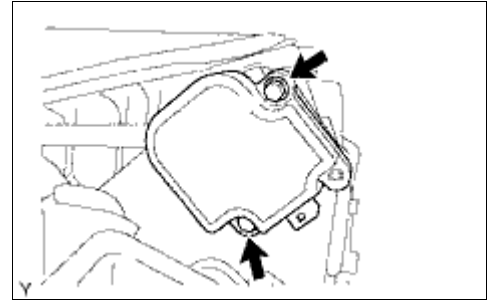
3. REMOVE NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY

- (a) Remove the 2 bolts and No. 2 air conditioning radiator damper servo sub-assembly.



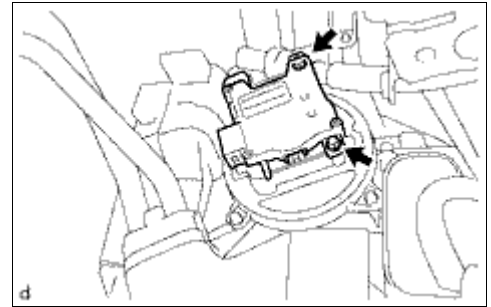
4. REMOVE NO. 1 AIR CONDITIONING SERVO ASSEMBLY

- (a) Remove the 2 bolts and No. 1 air conditioning servo assembly.



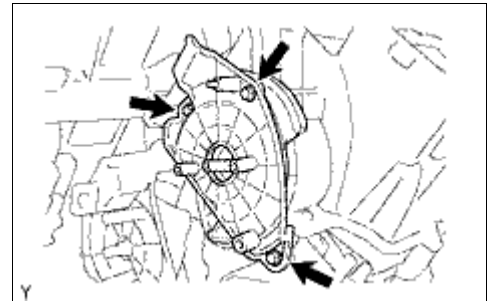
5. REMOVE NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (for Automatic Air Conditioning System)

- (a) Remove the 2 bolts and No. 3 air conditioning radiator damper servo sub-assembly.

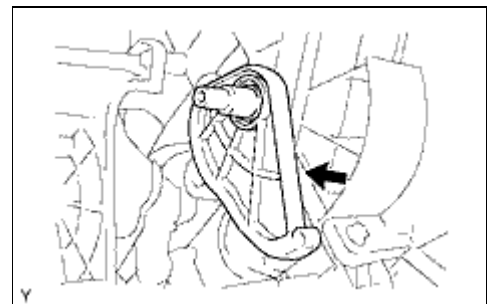


6. REMOVE HEATER RADIATOR UNIT SUB-ASSEMBLY

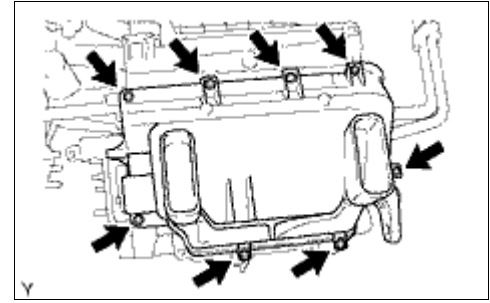
- (a) Remove the 3 bolts and temperature mounting plate.



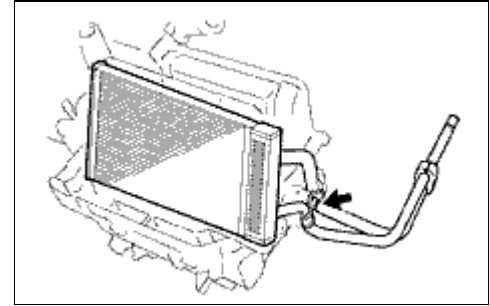
- (b) Remove the temperature cam.



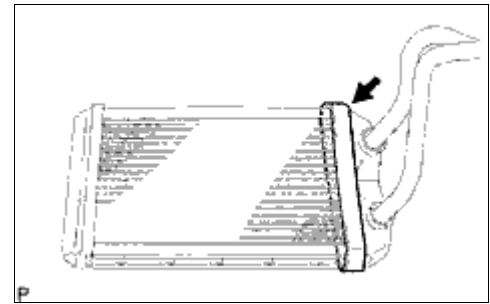
(c) Remove the 8 bolts and heater cover case.



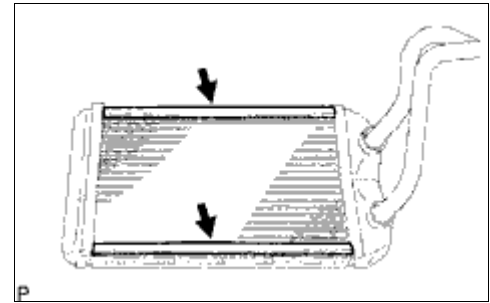
(d) Using a T30 "TORX" socket wrench, remove the bolt, clamp and heater radiator unit sub-assembly.



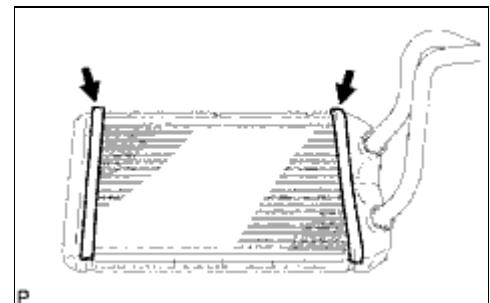
(e) Remove the heater core header seal from the right side of the heater radiator unit sub-assembly.



(f) Remove the 2 heater core long seals from the upper and lower sides of the heater radiator unit sub-assembly.

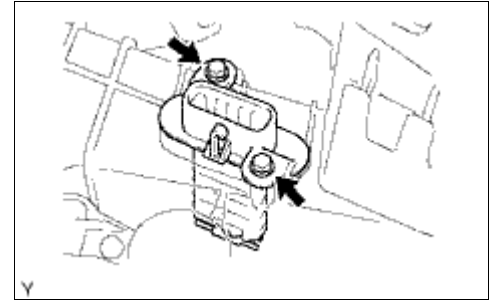


(g) Remove the 2 heater core short seals to both sides of the heater radiator unit sub-assembly.



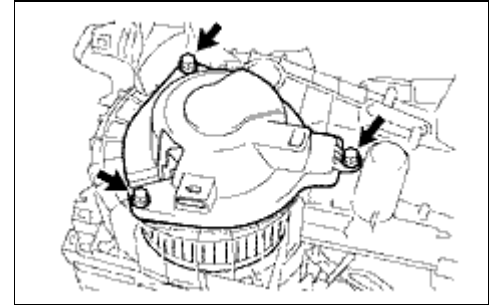
7. REMOVE BLOWER RESISTOR (for Manual Air Conditioning System)

(a) Remove the 2 bolts and blower resistor.



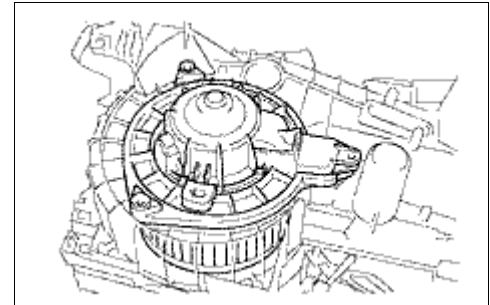
8. REMOVE HEATER BLOWER COVER

(a) Remove the 3 bolts and heater blower cover.



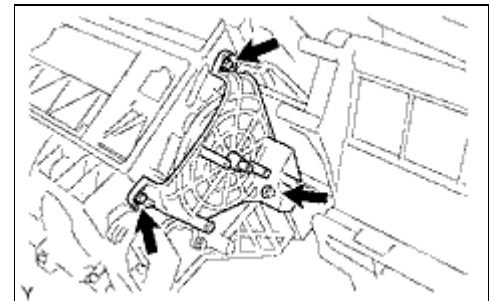
9. REMOVE BLOWER WITH FAN MOTOR SUB-ASSEMBLY

(a) Remove the blower with fan motor sub-assembly.

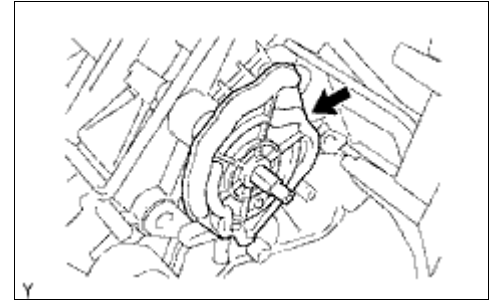


10. REMOVE EVAPORATOR CORE

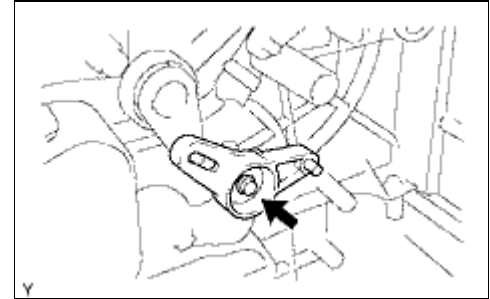
(a) Remove the 3 bolts and mode mounting plate.



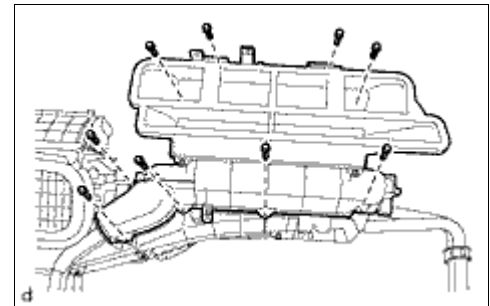
(b) Remove the mode cam.



(c) Remove the bolt and heater pivot.



(d) Remove the 9 bolts and mode case.



(e) Remove the evaporator core as shown in the illustration.

HINT:

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

Compressor oil:

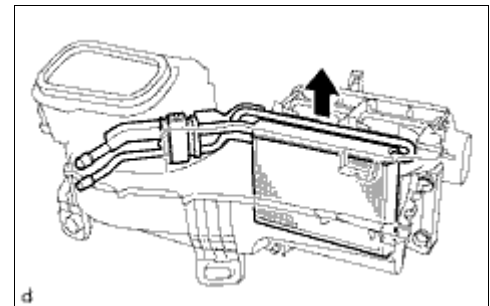
for HFC-134a (R134a)

ND-OIL 8 or equivalent

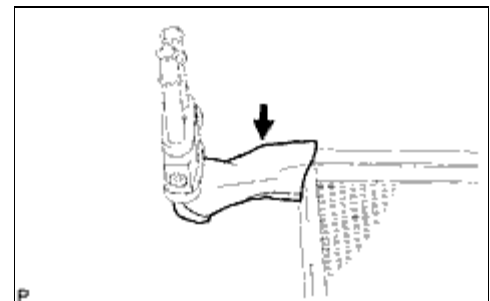
for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

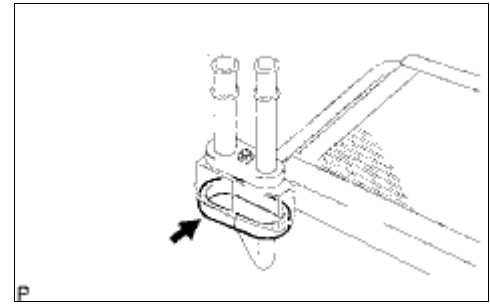
Add 40 cc (1.4 fl.oz.)



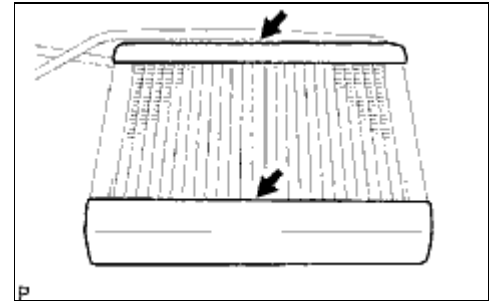
(f) Remove the 2 different seals from the evaporator inlet and outlet pipes.



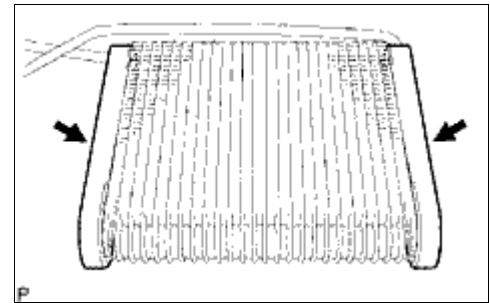
- (g) Remove the expansion valve seal from the periphery of the expansion valve protrusions on the back side of the expansion valve.



- (h) Remove the evaporator top seal from the upper side and the evaporator bottom seal to the lower side of the evaporator core.

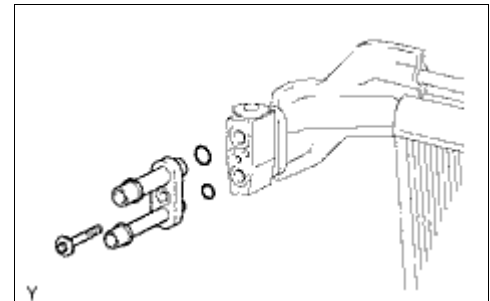


- (i) Remove the evaporator side seal from both sides of the evaporator core.



11. REMOVE VALVE TO CONNECTOR TUBE

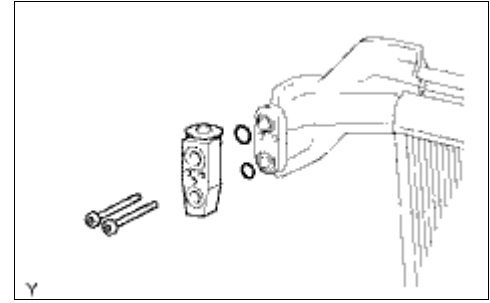
- (a) Using an E10 "TORX" socket wrench, remove the bolt and valve to connector tube.



- (b) Remove the 2 O-rings from the valve to connector tube.

12. REMOVE EXPANSION VALVE

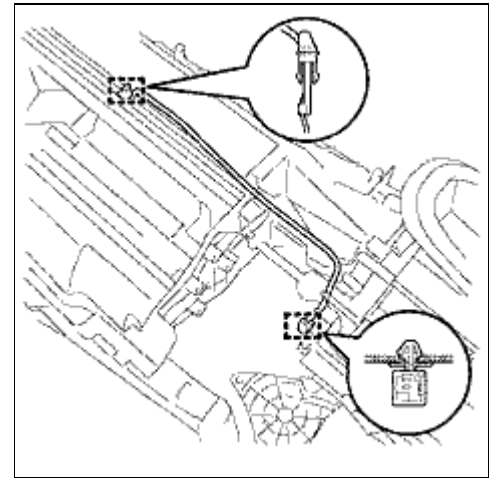
- (a) Using a T25 "TORX" socket wrench, remove the 2 bolts and expansion valve.



- (b) Remove the 2 O-rings from the expansion valve.

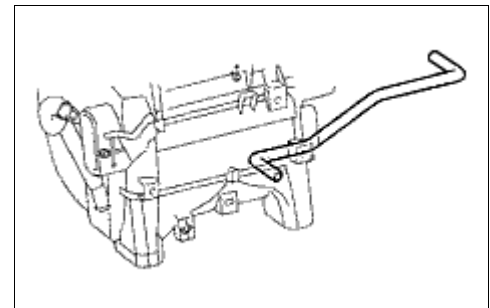
13. REMOVE COOLER THERMISTOR SENSOR

- (a) Disengage the 2 clamps to remove the cooler thermistor sensor.



14. REMOVE NO. 1 COOLER UNIT DRAIN HOSE

- (a) Remove the No. 1 cooler unit drain hose.

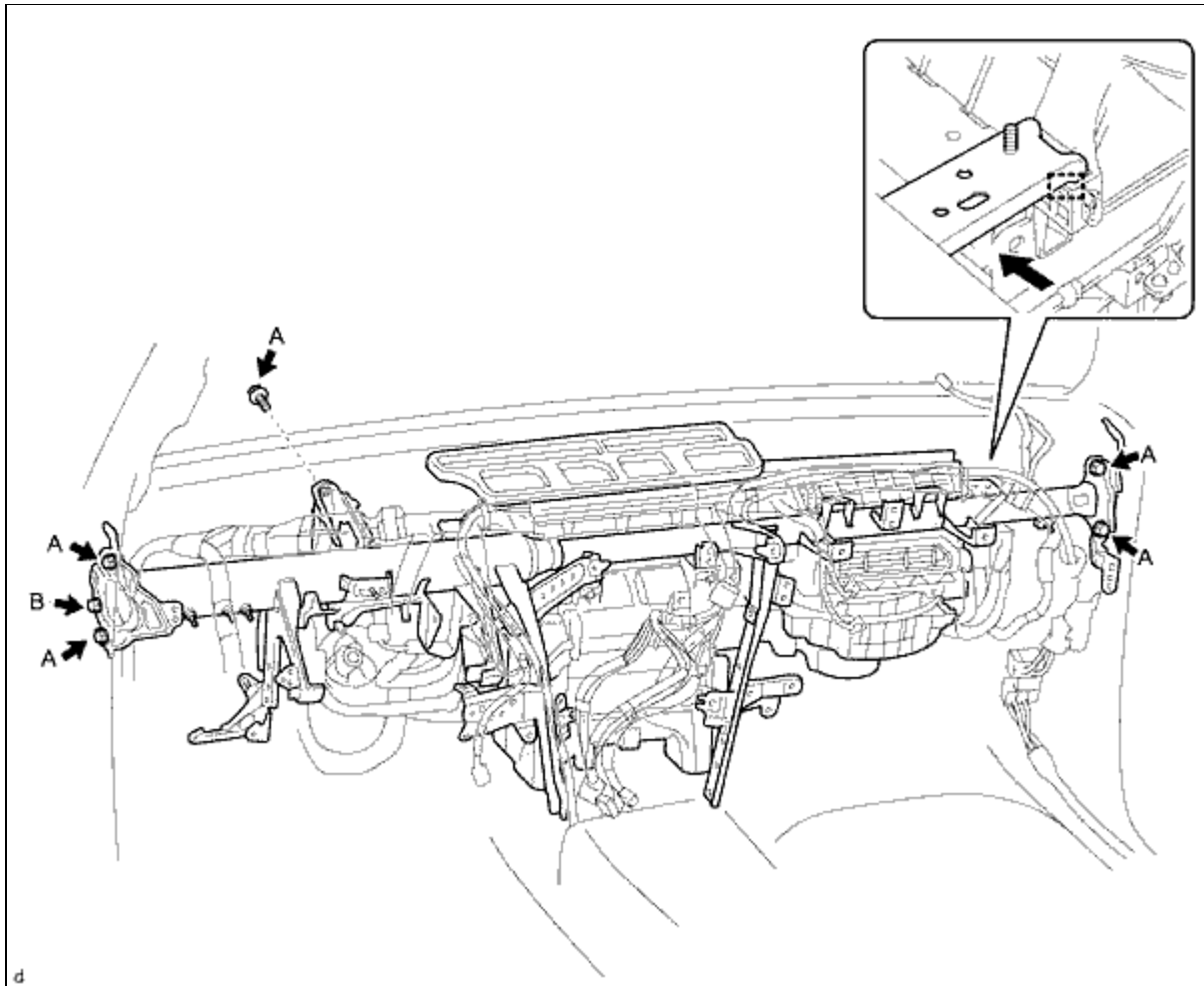


Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016HH025X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING UNIT: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL AIR CONDITIONING UNIT ASSEMBLY

- (a) Temporary install the air conditioning unit assembly.
- (b) Insert the bracket hook into the holes of the reinforcement bracket, and temporary install the instrument panel reinforcement assembly.



- (c) Install the instrument panel reinforcement with the 6 bolts.

Torque:

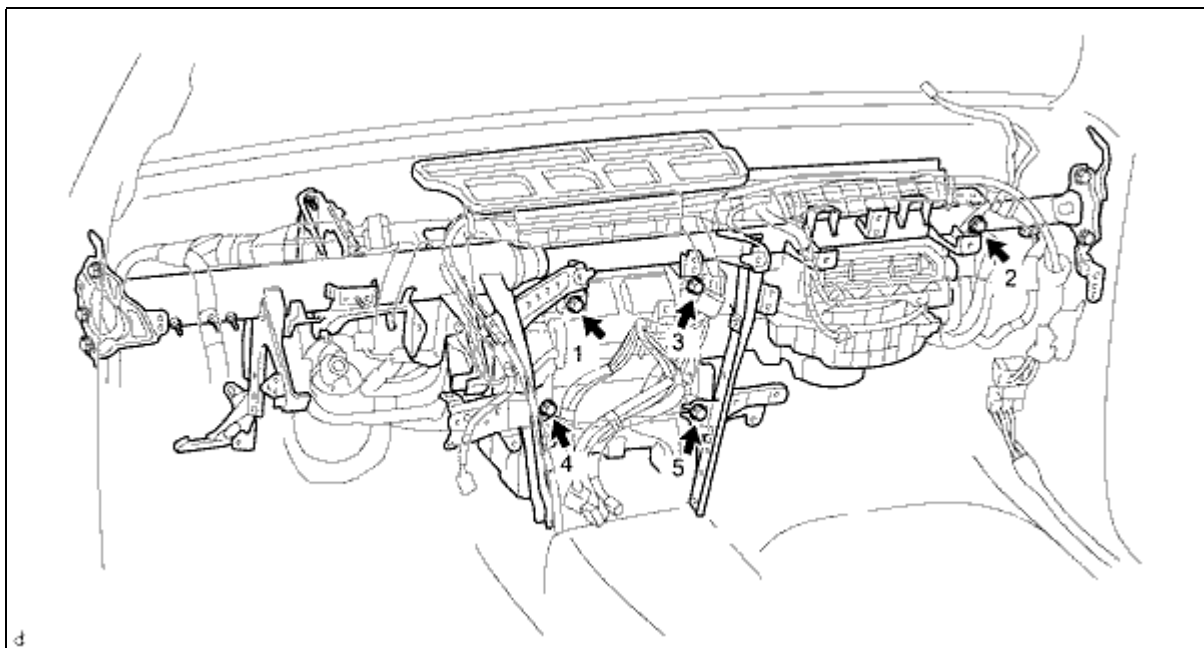
Bolt A -

35 N·m {357 kgf·cm, 26ft·lbf}

Bolt B -

31 N·m {311 kgf·cm, 22ft·lbf}

- (d) Install the 5 bolts in the order shown in the illustration.



Torque:

5.0 N·m {51 kgf·cm, 44in·lbf}

- (e) Engage the 16 clamps.
- (f) Connect the 2 ground wires with the 2 bolts.
- (g) Connect the 2 airbag connectors.
- (h) Engage the 4 clamps to install the instrument panel wire assembly.
- (i) Connect the 5 connectors.

2. INSTALL AIR CONDITIONING AMPLIFIER ASSEMBLY

- (a) Install the air conditioning amplifier assembly with the 2 bolts.

Torque:

7.0 N·m {71 kgf·cm, 62in·lbf}

- (b) Connect the 2 connectors.

3. INSTALL CLEARANCE WARNING ECU ASSEMBLY

INFO

4. INSTALL DRIVER SIDE JUNCTION BLOCK

- (a) Install the driver side junction block with the 3 nuts.

Torque:

8.0 N·m {82 kgf·cm, 71in·lbf}

5. INSTALL ECM (for 2TR-FE)

INFO

6. INSTALL ECM (for 2GR-FKS)

INFO

7. INSTALL NO. 1 INSTRUMENT PANEL BRACE MOUNTING BRACKET

- (a) Install the No. 1 instrument panel brace mounting bracket with the bolt and nut.

Torque:

17 N·m {173 kgf·cm, 13ft·lbf}

HINT:

Use the same procedure for both sides.

8. INSTALL AIR DUCT ASSEMBLY

- (a) Engage the claw to install the air duct assembly.
- (b) Install the bolt.

9. INSTALL HEATER AIR DUCT ASSEMBLY

- (a) Install the heater air duct assembly with the 2 bolts.

10. INSTALL REAR NO. 1 AIR DUCT (for Double Cab)

- (a) Engage the 2 claws to install the rear No. 1 air duct.
- (b) Install the bolt.

11. INSTALL REAR AIR DUCT GUIDE RH (for Double Cab)

- (a) Engage the 4 claws to install the rear air duct guide RH.
- (b) Put the floor carpet back down.

12. INSTALL REAR NO. 2 AIR DUCT (for Double Cab)

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

13. INSTALL REAR AIR DUCT GUIDE LH (for Double Cab)

- (a) Engage the 4 claws to install the rear air duct guide LH.
- (b) Put the floor carpet back down.

14. INSTALL INSTRUMENT PANEL SAFETY PAD

INFO

15. INSTALL STEERING COLUMN ASSEMBLY

INFO

16. INSTALL WINDSHIELD WIPER MOTOR AND LINK

INFO

17. CONNECT WATER HOSE SUB-ASSEMBLY C (for 2TR-FE)

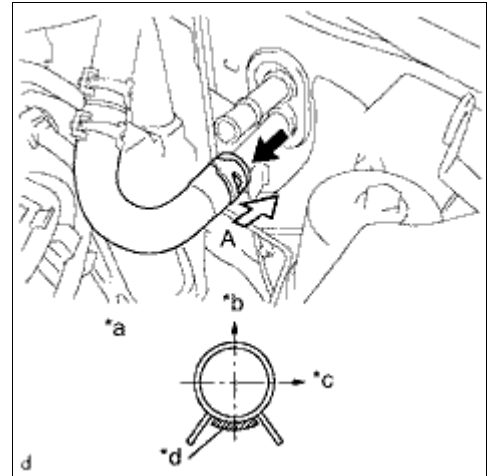
- (a) Install the water hose sub-assembly C to the heater radiator assembly.

Text in Illustration

*a	View A
*b	Up Side
*c	LH Side
*d	Marking (White)

HINT:

Perform the installation with the hose clip and mark at the correct angle.



18. CONNECT WATER HOSE SUB-ASSEMBLY C (for 2GR-FKS)

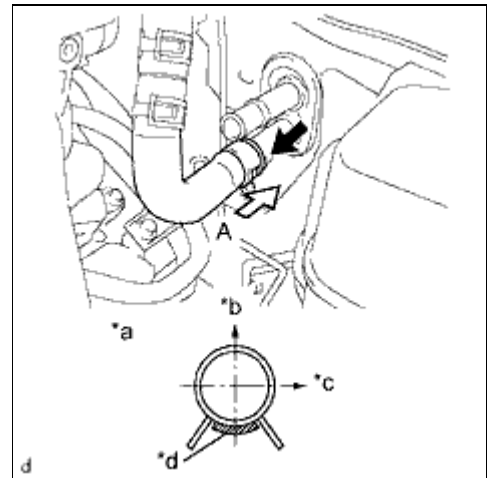
- (a) Install the water hose sub-assembly C to the heater radiator assembly.

Text in Illustration

*a	View A
*b	Up Side
*c	LH Side
*d	Marking (White)

HINT:

Perform the installation with the hose clip and mark at the correct angle.



19. CONNECT WATER HOSE SUB-ASSEMBLY B (for 2TR-FE)

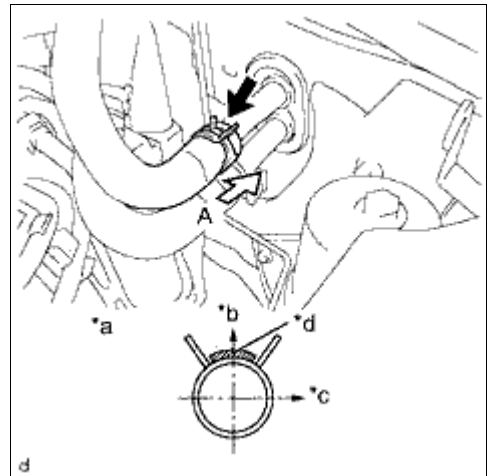
- (a) Install the water hose sub-assembly B to the heater radiator assembly.

Text in Illustration

*a	View A
*b	Up Side
*c	LH Side
*d	Marking (White)

HINT:

Perform the installation with the hose clip and mark at the correct angle.



20. INSTALL WATER HOSE SUB-ASSEMBLY B (for 2GR-FKS)

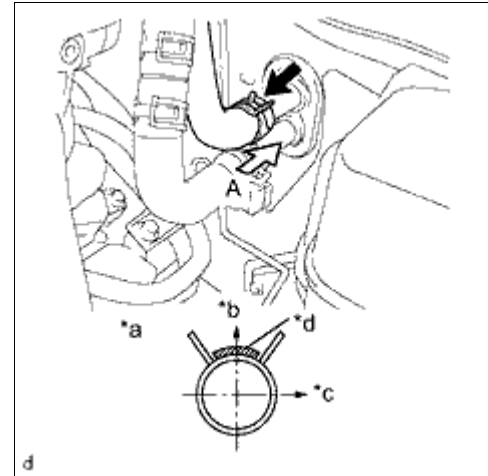
- (a) Install the water hose sub-assembly B to the heater radiator assembly.

Text in Illustration

*a	View A
*b	Up Side
*c	LH Side
*d	Marking (White)

HINT:

Perform the installation with the hose clip and mark at the correct angle.



21. INSTALL AIR CONDITIONING TUBE ASSEMBLY

- (a) Apply compressor oil to 2 new O-rings and install them onto the hose.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

- (b) Install the air conditioner tube assembly and piping clamp.

HINT:

Check that the claw of the piping clamp is correctly fitted.

- (c) Engage the 2 clamps to install the air conditioner tube assembly.

- (d) Install the bolt.

Torque:

7.5 N·m {76 kgf·cm, 66in·lbf}

22. INSTALL SUCTION HOSE SUB-ASSEMBLY

- (a) Apply compressor oil to 2 new O-rings and install them onto the pipe.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

- (b) Install the air conditioner tube assembly and piping clamp.

HINT:

Check that the claw of the piping clamp is correctly fitted.

- (c) Install the bracket with the 2 bolts.

Torque:

7.5 N·m {76 kgf·cm, 66in·lbf}

23. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque:

5.4 N·m {55 kgf·cm, 48in·lbf}

24. ADD ENGINE COOLANT (for 2TR-FE) [INFO](#)

25. ADD ENGINE COOLANT (for 2GR-FKS) [INFO](#)

26. CHECK FOR ENGINE COOLANT LEAK (for 2TR-FE) [INFO](#)

27. CHECK FOR ENGINE COOLANT LEAK (for 2GR-FKS) [INFO](#)

28. CHARGE AIR CONDITIONING SYSTEM WITH REFRIGERANT [INFO](#)

29. WARM UP ENGINE [INFO](#)

30. INSPECT FOR REFRIGERANT LEAK [INFO](#)

31. PLACE FRONT WHEELS FACING STRAIGHT AHEAD

32. INSPECT SRS WARNING LIGHT

[INFO](#)

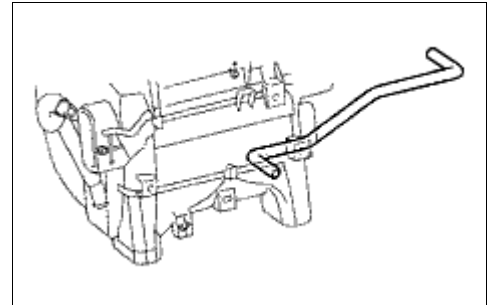


Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016B000AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING UNIT: REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

REASSEMBLY

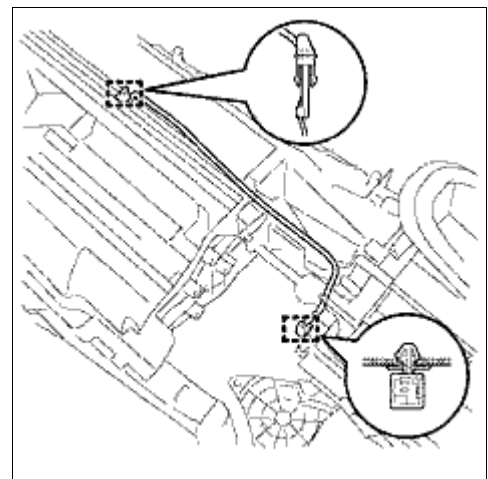
1. INSTALL NO. 1 COOLER UNIT DRAIN HOSE

- (a) Install the No. 1 cooler unit drain hose.



2. INSTALL COOLER THERMISTOR SENSOR

- (a) Engage the 2 clamps to install the cooler thermistor sensor.



3. INSTALL EXPANSION VALVE

- (a) Apply sufficient compressor oil to 2 new O-rings and the fitting surface of the expansion valve.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

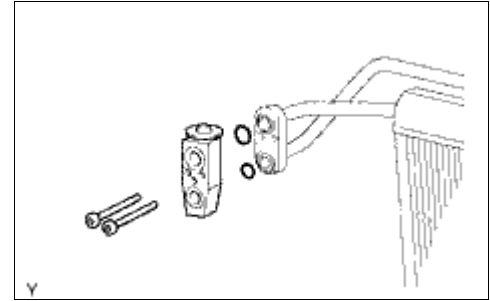
ND-OIL 12 or equivalent

- (b) Install the 2 O-rings onto the expansion valve.

- (c) Using a T25 "TORX" socket wrench, install the expansion valve with the 2 bolts.

Torque:

7.0 N·m {71 kgf·cm, 62in·lbf}



4. INSTALL VALVE TO CONNECTOR TUBE

- (a) Apply sufficient compressor oil to 2 new O-rings and fitting surface of the valve to connector tube.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

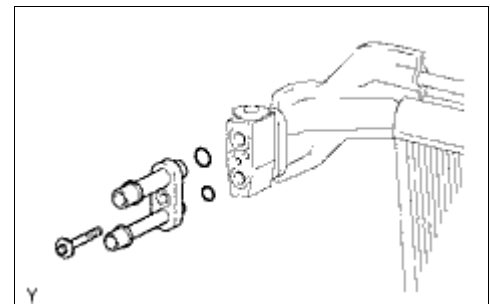
ND-OIL 12 or equivalent

- (b) Install the 2 O-rings onto the valve to connector tube.

- (c) Using an E10 "TORX" socket wrench, install the valve to connector tube with the bolt.

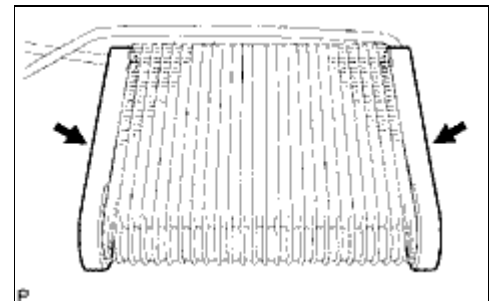
Torque:

25 N·m {255 kgf·cm, 18ft·lbf}

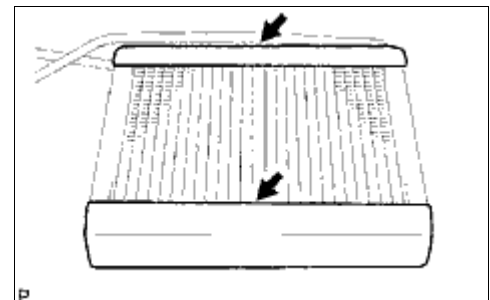


5. INSTALL EVAPORATOR CORE

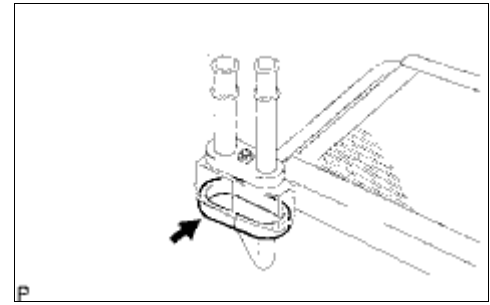
- (a) Install a new evaporator side seal to both sides of the evaporator core.



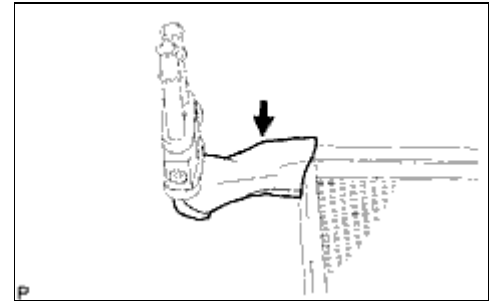
- (b) Install a new evaporator top seal to the upper side and the evaporator bottom seal to the lower side of the evaporator core.



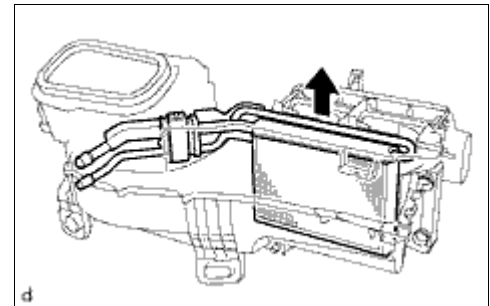
- (c) Install a new expansion valve seal to the periphery of the expansion valve protrusions on the back side of the expansion valve.



- (d) Install 2 new different seals to the evaporator inlet and outlet pipes.



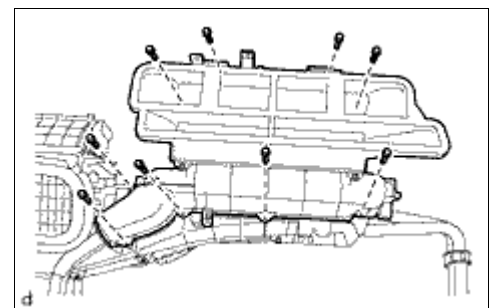
- (e) Install the evaporator core.



- (f) Install the mode case with the 9 bolts.

Torque:

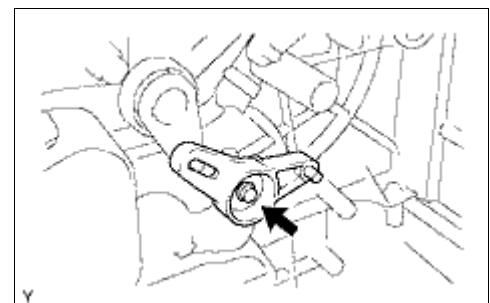
2.0 N·m {20 kgf·cm, 18in·lbf}



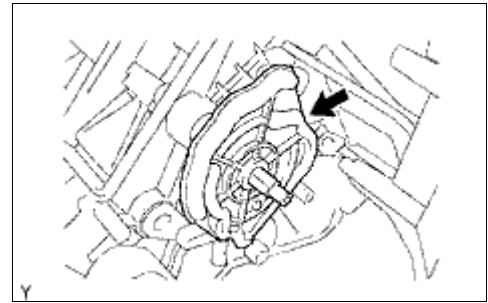
- (g) Install the heater pivot with the bolt.

Torque:

2.0 N·m {20 kgf·cm, 18in·lbf}



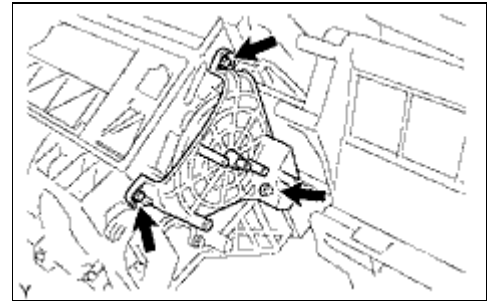
(h) Install the mode cam.



(i) Install the mode mounting plate with the 3 bolts.

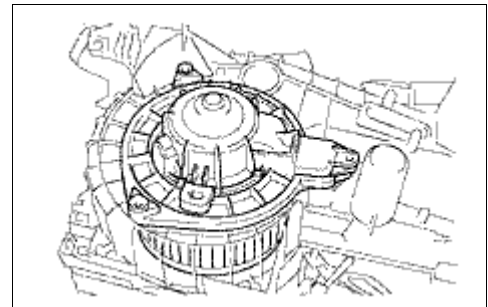
Torque:

2.0 N·m {20 kgf·cm, 18in·lbf}



6. INSTALL BLOWER WITH FAN MOTOR SUB-ASSEMBLY

(a) Install the blower with fan motor sub-assembly.

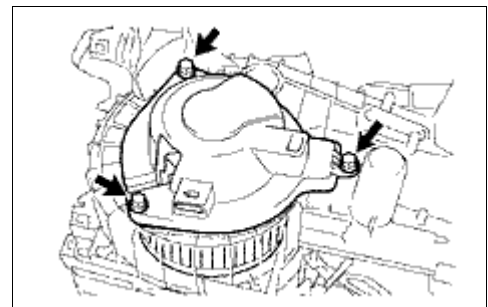


7. INSTALL HEATER BLOWER COVER

(a) Install the heater blower cover with the 3 bolts.

Torque:

2.0 N·m {20 kgf·cm, 18in·lbf}

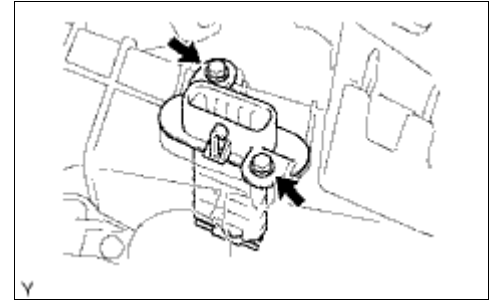


8. INSTALL BLOWER RESISTOR (for Manual Air Conditioning System)

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

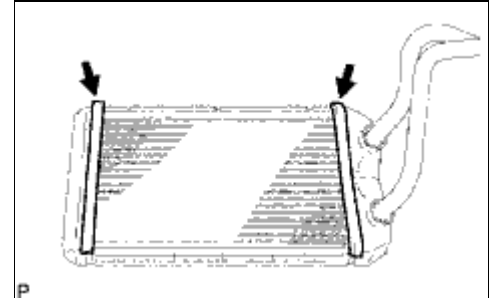
Torque:

2.0 N·m {20 kgf·cm, 18in·lbf}

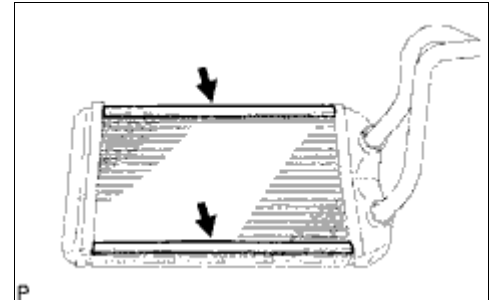


9. INSTALL HEATER RADIATOR UNIT SUB-ASSEMBLY

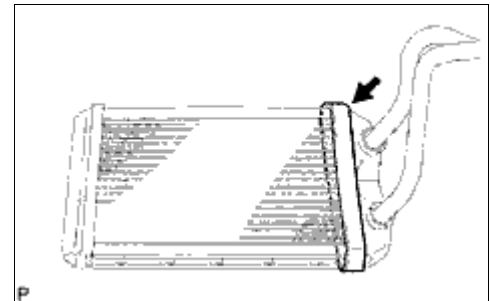
(a) Install 2 new heater core short seals to both sides of the heater radiator unit sub-assembly.



(b) Install 2 new heater core long seals to the upper and lower sides of the heater radiator unit sub-assembly.



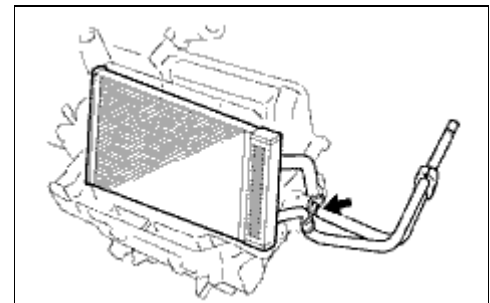
(c) Install a new heater core header seal to the right side of the heater radiator unit sub-assembly.



(d) Using a T30 "TORX" socket wrench, install the heater radiator unit sub-assembly with the bolt and clamp.

Torque:

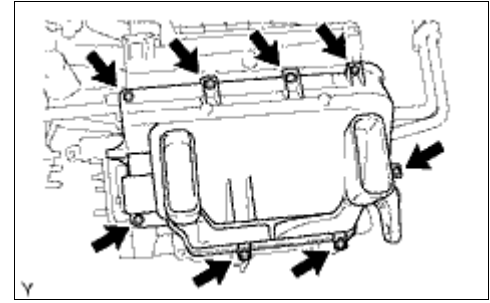
4.0 N·m {41 kgf·cm, 35in·lbf}



(e) Install the heater cover case with the 8 bolts.

Torque:

2.0 N·m {20 kgf·cm, 18in·lbf}



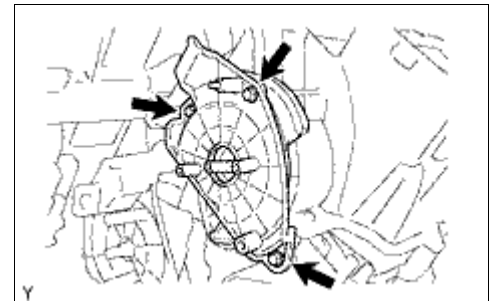
(f) Install the temperature cam.



(g) Install the temperature mounting plate with the 3 bolts.

Torque:

2.0 N·m {20 kgf·cm, 18in·lbf}

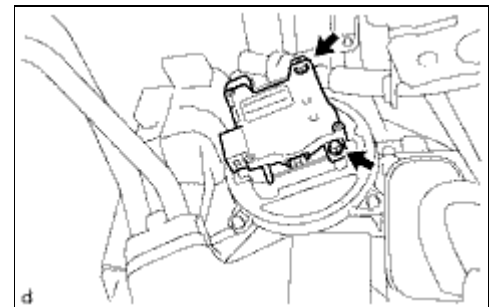


10. INSTALL NO. 3 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY (for Automatic Air Conditioning System)

(a) Install the No. 3 air conditioning radiator damper servo sub-assembly with the 2 bolts.

Torque:

2.0 N·m {20 kgf·cm, 18in·lbf}

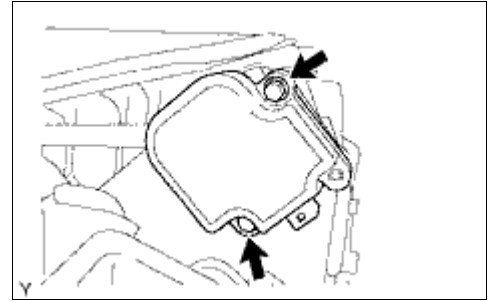


11. INSTALL NO. 1 AIR CONDITIONING SERVO ASSEMBLY

- (a) Install the No. 1 air conditioning servo assembly with the 2 bolts.

Torque:

2.0 N·m {20 kgf·cm, 18in·lbf}

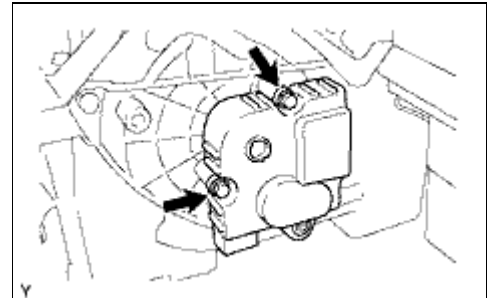


12. INSTALL NO. 2 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY

- (a) Install the No. 2 air conditioning radiator damper servo sub-assembly with the 2 bolts.

Torque:

2.0 N·m {20 kgf·cm, 18in·lbf}

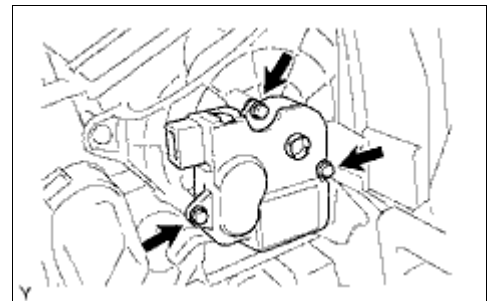


13. INSTALL NO. 1 AIR CONDITIONING RADIATOR DAMPER SERVO SUB-ASSEMBLY

- (a) Install the No. 1 air conditioning radiator damper servo sub-assembly with the 3 bolts.

Torque:

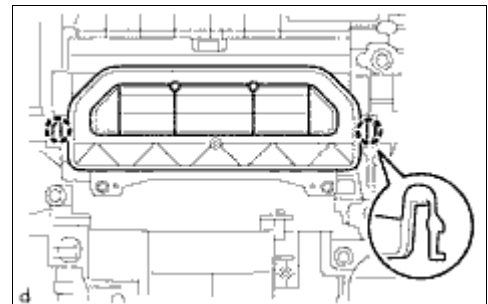
2.0 N·m {20 kgf·cm, 18in·lbf}



14. INSTALL CLEAN AIR FILTER SUB-ASSEMBLY

- (a) Install the clean air filter sub-assembly.

- (b) Engage the 2 claws to install the air filter case.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016AY023X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR CONDITIONING UNIT: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. PRECAUTION

INFO

2. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

INFO

3. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

Wait for at last 90 seconds after disconnecting the cable to prevent the airbag from deploying.

4. DRAIN ENGINE COOLANT (for 2TR-FE)

INFO

5. DRAIN ENGINE COOLANT (for 2GR-FKS)

INFO

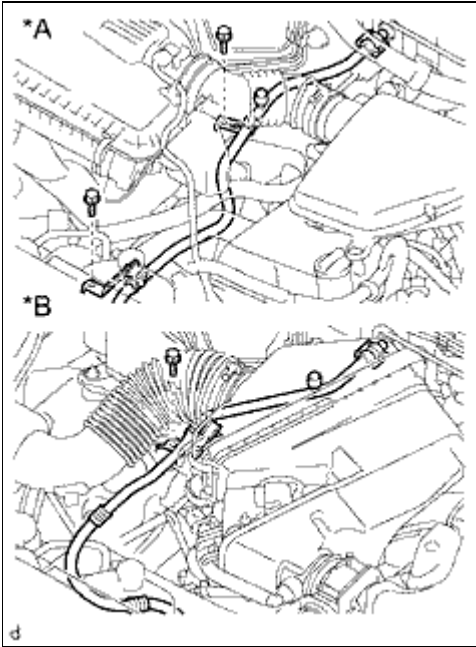
6. DISCONNECT SUCTION HOSE SUB-ASSEMBLY

(a) for 2TR-FE:

- (1) Remove the 2 bolts to separate the suction hose sub-assembly.

Text in Illustration

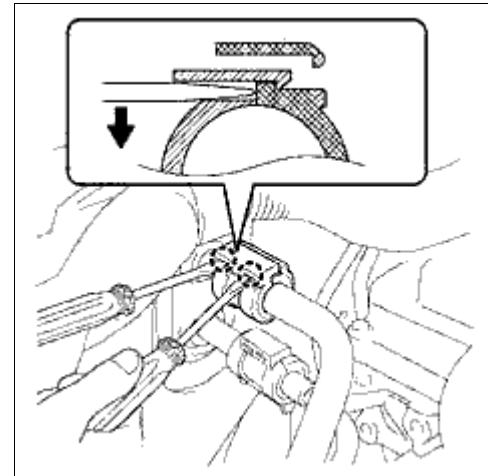
*A	for 2TR-FE
*B	for 2GR-FKS



(b) for 2GR-FKS:

- (1) Remove the bolt to separate the suction hose sub-assembly.

- (c) Insert 2 screwdrivers into the 2 piping clamp slots, and while holding them down, disengage the piping clamp claws and piping clamp.



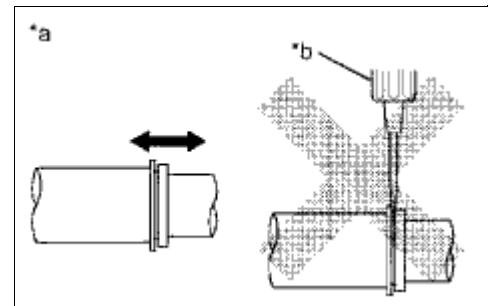
- (d) Disconnect the suction hose sub-assembly.

Text in Illustration

*a	Disconnect the tube by hand
*b	Screwdriver

NOTICE:

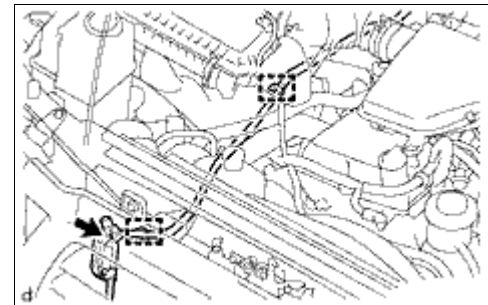
- Do not use a screwdriver or any other tool to disconnect the suction hose sub-assembly.
- Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering.



- (e) Remove the 2 O-rings from the suction hose sub-assembly.

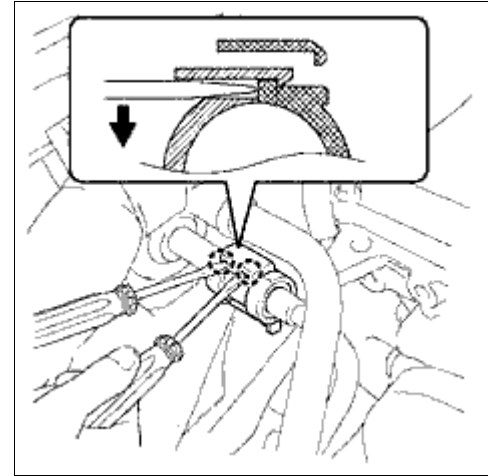
7. DISCONNECT AIR CONDITIONING TUBE ASSEMBLY

- (a) Remove the bolt.



- (b) Disengage the 2 clamps to separate the air conditioner tube assembly.

- (c) Insert 2 screwdrivers into the 2 piping clamp slots, and while holding them down, disengage the piping clamp claws and the piping clamp.



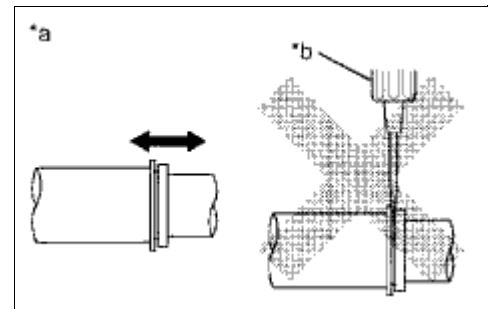
- (d) Disconnect the air conditioner tube assembly.

Text in Illustration

*a	Disconnect the tube by hand
*b	Screwdriver

NOTICE:

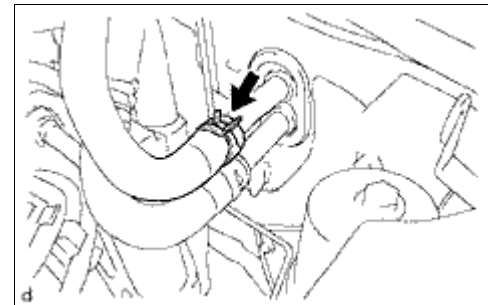
- Do not use a screwdriver or any other tool to disconnect the air conditioner tube assembly.
- Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering.



- (e) Remove the 2 O-rings from the air conditioner tube assembly.

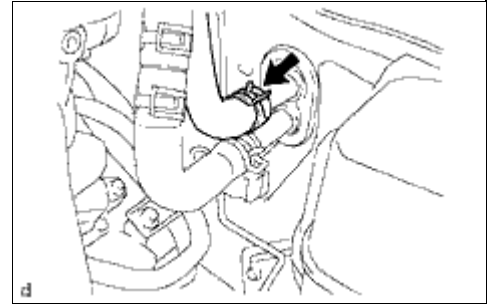
8. DISCONNECT WATER HOSE SUB-ASSEMBLY B (for 2TR-FE)

- (a) Loosen the hose clip and disconnect the water hose sub-assembly B from the heater radiator assembly.



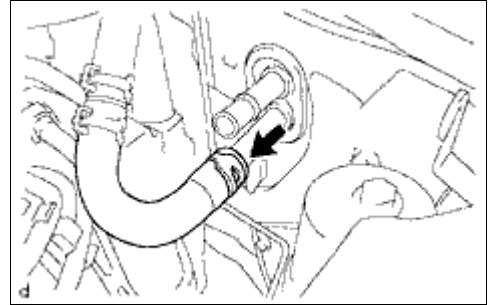
9. DISCONNECT WATER HOSE SUB-ASSEMBLY B (for 2GR-FKS)

- (a) Loosen the hose clip and disconnect the water hose sub-assembly B from the heater radiator assembly.



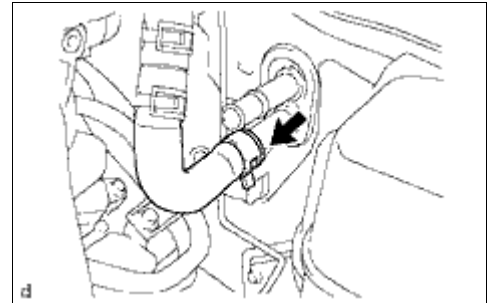
10. DISCONNECT WATER HOSE SUB-ASSEMBLY C (for 2TR-FE)

- (a) Loosen the hose clip and disconnect the water hose sub-assembly C from the heater radiator assembly.



11. DISCONNECT WATER HOSE SUB-ASSEMBLY C (for 2GR-FKS)

- (a) Loosen the hose clip and disconnect the water hose sub-assembly C from the heater radiator assembly.



12. REMOVE WINDSHIELD WIPER MOTOR AND LINK

INFO

13. REMOVE STEERING COLUMN ASSEMBLY

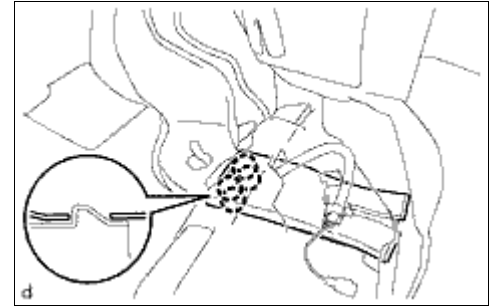
INFO

14. REMOVE INSTRUMENT PANEL SAFETY PAD

INFO

15. REMOVE REAR AIR DUCT GUIDE LH (for Double Cab)

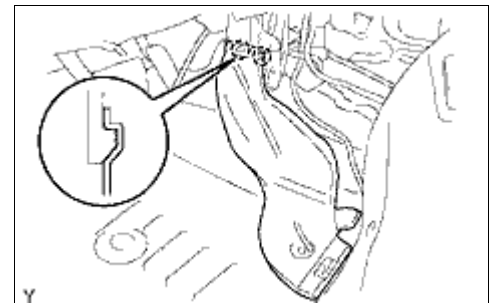
(a) Fold back the floor carpet.



(b) Disengage the 4 claws to remove the rear air duct guide LH.

16. REMOVE REAR NO. 2 AIR DUCT (for Double Cab)

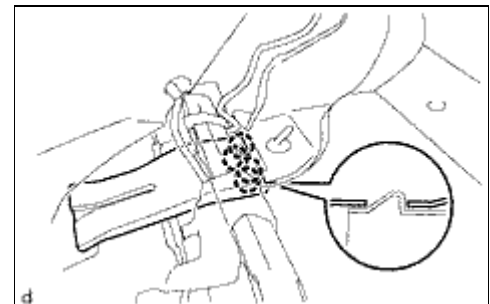
(a) Disengage the 2 claws to remove the rear No. 2 air duct.



17. REMOVE REAR AIR DUCT GUIDE RH (for Double Cab)

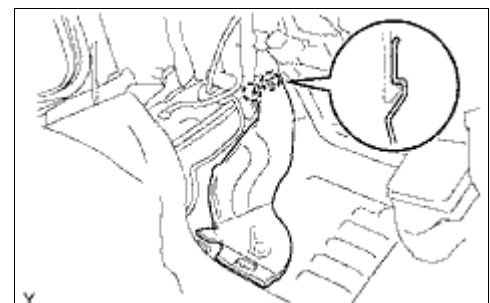
(a) Fold back the floor carpet.

(b) Disengage the 4 claws to remove the rear air duct guide RH.



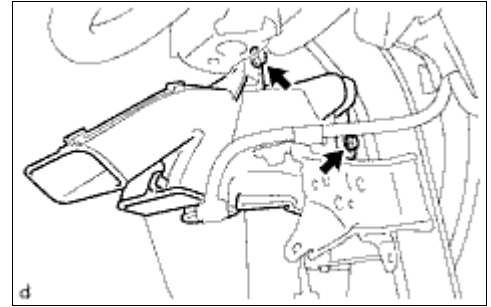
18. REMOVE REAR NO. 1 AIR DUCT (for Double Cab)

(a) Disengage the 2 claws to remove the rear No. 1 air duct.



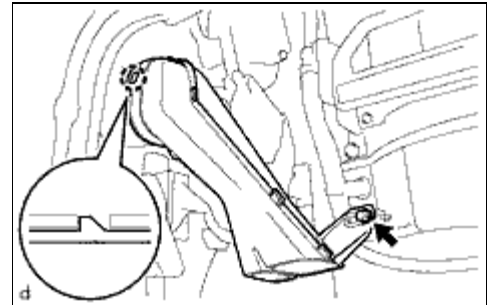
19. REMOVE HEATER AIR DUCT ASSEMBLY

- (a) Remove the 2 bolts and heater air duct assembly.



20. REMOVE AIR DUCT ASSEMBLY

- (a) Remove the bolt.



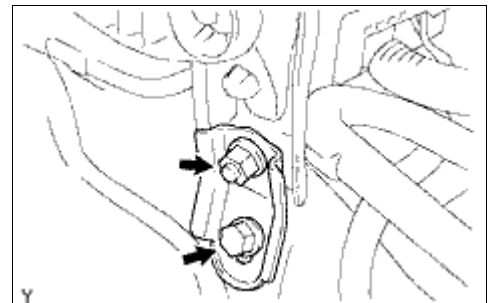
- (b) Disengage the claw to remove the air duct assembly.

21. REMOVE NO. 1 INSTRUMENT PANEL BRACE MOUNTING BRACKET

- (a) Remove the bolt and nut, and No. 1 instrument panel brace mounting bracket.

HINT:

Use the same procedure for both sides.



22. REMOVE ECM (for 2TR-FE)

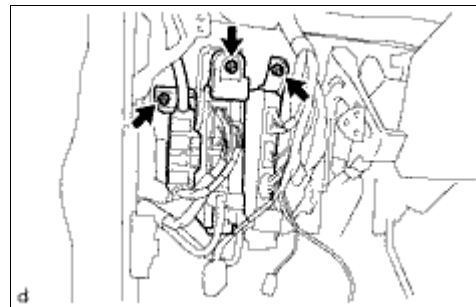
INFO

23. REMOVE ECM (for 2GR-FKS)

INFO

24. SEPARATE DRIVER SIDE JUNCTION BLOCK

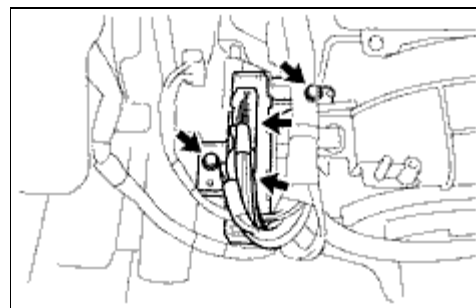
(a) Remove the 3 nuts to separate the driver side junction block.



25. REMOVE CLEARANCE WARNING ECU ASSEMBLY INFO

26. REMOVE AIR CONDITIONING AMPLIFIER ASSEMBLY

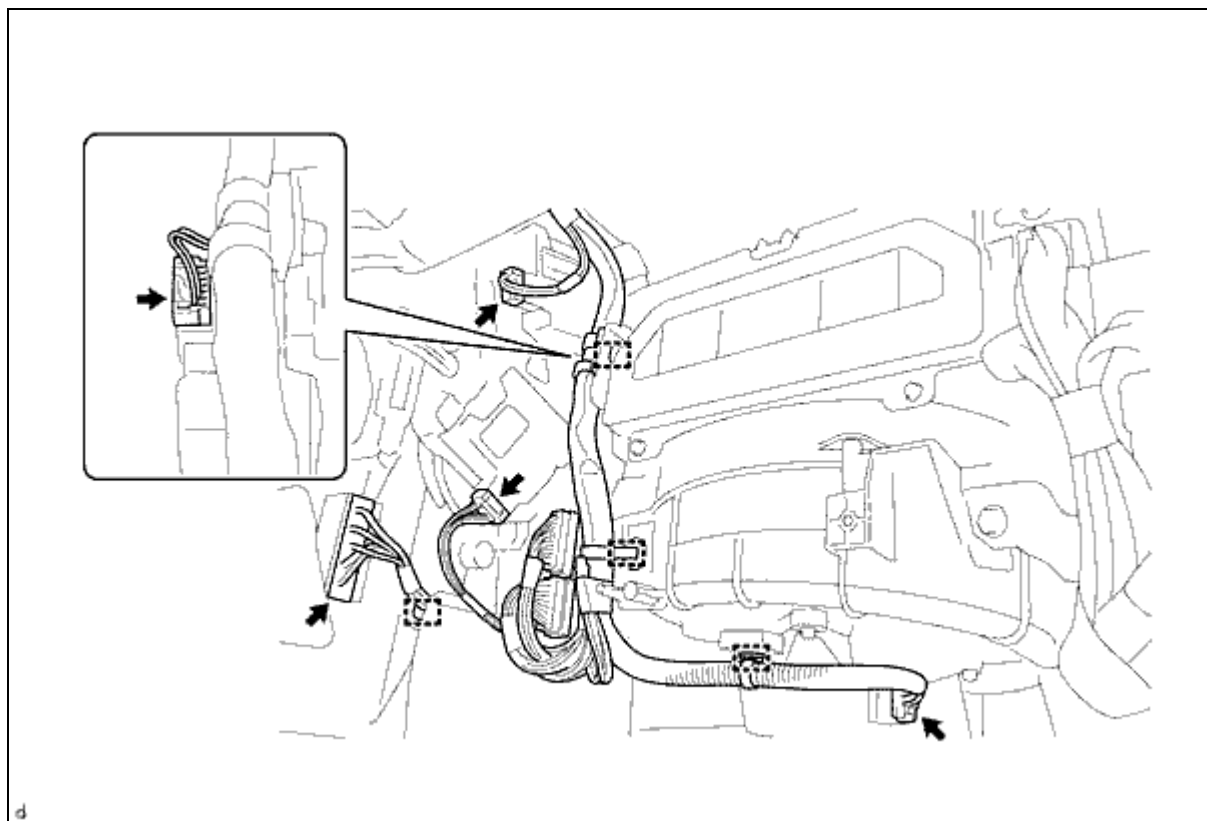
(a) Disconnect the 2 connectors.



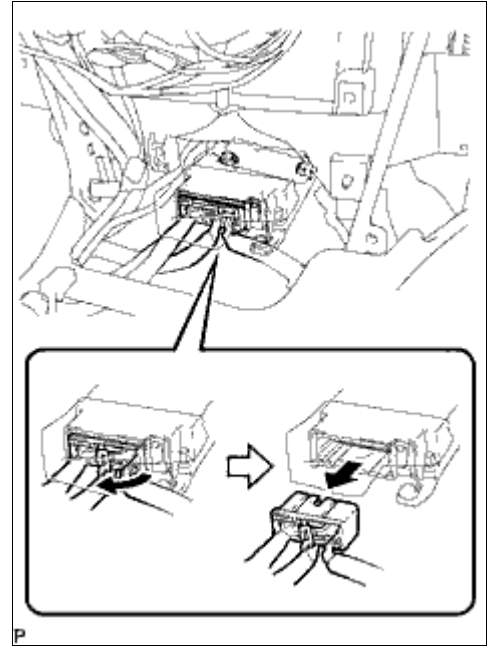
(b) Remove the 2 bolts and air conditioning amplifier assembly.

27. REMOVE AIR CONDITIONING UNIT ASSEMBLY

(a) Disconnect the 5 connectors.

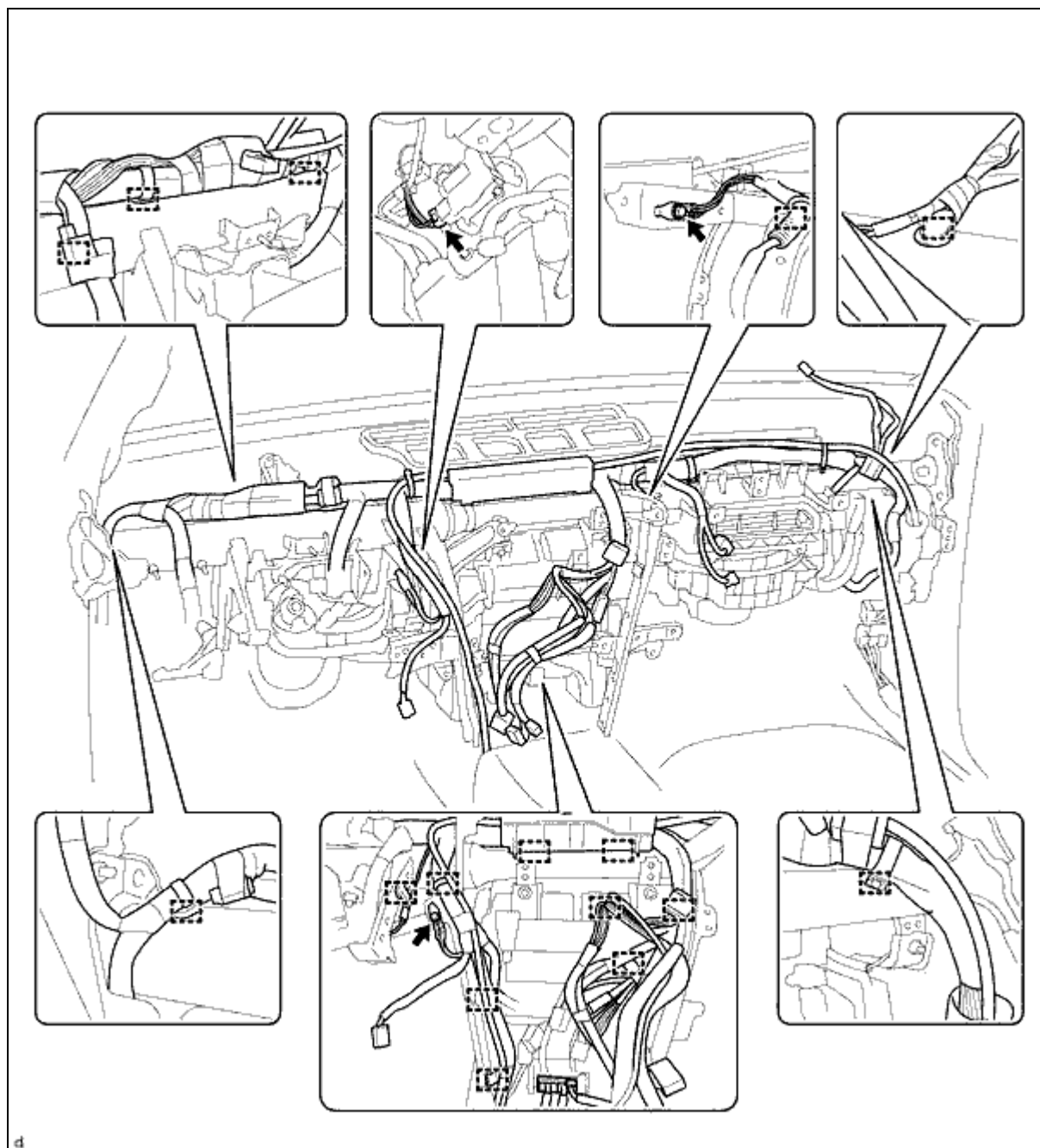


(b) Disengage the 4 clamps to separate the instrument panel wire assembly.



(c) Disconnect the airbag connectors as shown in the illustration.

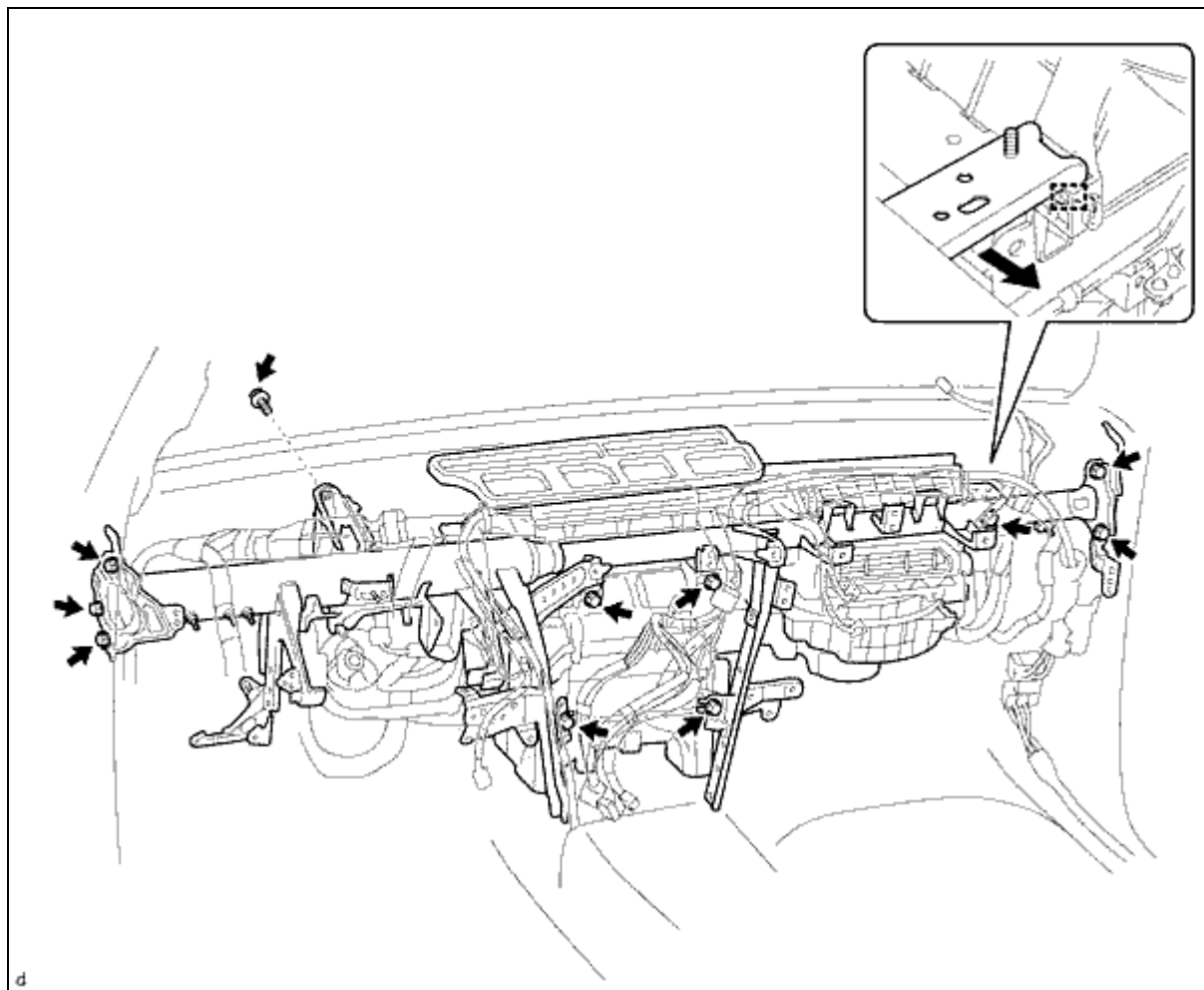
(d) Remove the 2 bolts to disconnect the 2 ground wires.



(e) Disconnect the connector.

(f) Disengage the 16 clamps.

(g) Remove the 11 bolts.



(h) Disengage the reinforcement hook of the air conditioning unit assembly as shown in the illustration, and remove the instrument panel reinforcement assembly.

(i) Remove the air conditioner unit assembly.



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AN00WX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR INLET CONTROL SERVO MOTOR: INSPECTION; 2016 MY Tacoma [08/2015 -]		

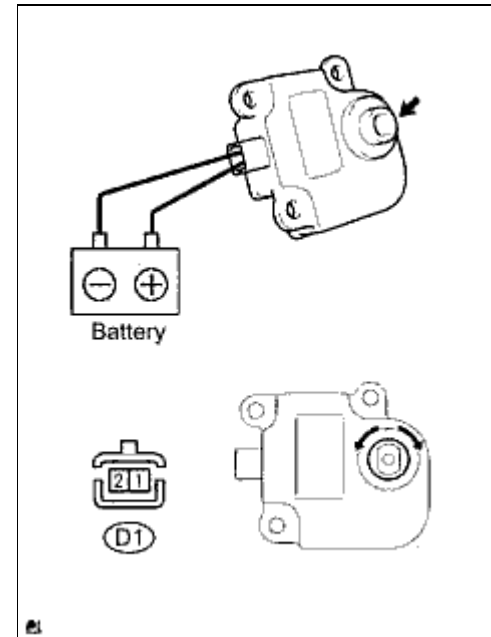
INSPECTION

1. INSPECT AIR INLET CONTROL SERVO MOTOR

(a) Inspect the servo motor operation.

- (1) Connect the positive (+) lead from the battery to terminal 1 (FRS) and negative (-) lead to terminals 2 (REC), then check that the shaft rotates clockwise smoothly.
- (2) Connect the positive (+) lead from the battery to terminal 2 (REC) and negative (-) lead to terminal 1 (FRS) then check that the shaft rotates counterclockwise smoothly.

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



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AN00XX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR MIX CONTROL SERVO MOTOR: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

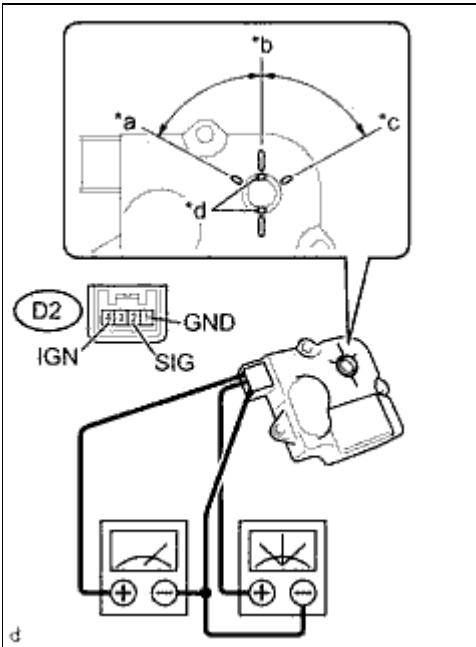
1. INSPECT AIR MIX CONTROL SERVO MOTOR (for Manual Air Conditioning System)

- (a) Inspect the servo motor operation.

Text in Illustration

*a	0 V
*b	6V
*c	12 V
*d	Notches

- When 12 V is applied between terminals 4 (IGN) and 1 (GND), and 0 V is applied between terminals 2 (SIG) and 1 (GND), check that the line connecting the 2 notches moves to the 0 V position.
If the result is not as specified, replace the air mix control servo motor.
- When 12 V is applied between terminals 4 (IGN) and 1 (GND), and 6 V is applied between terminals 2 (SIG) and 1 (GND), check that the line connecting the 2 notches moves to the 6 V position.
If the result is not as specified, replace the air mix control servo motor.
- When 12 V is applied between terminals 4 (IGN) and 1 (GND), and between terminals 2 (SIG) and 1 (GND), check that the line connecting the 2 notches moves to the 12 V position.
If the result is not as specified, replace the air mix control servo motor.

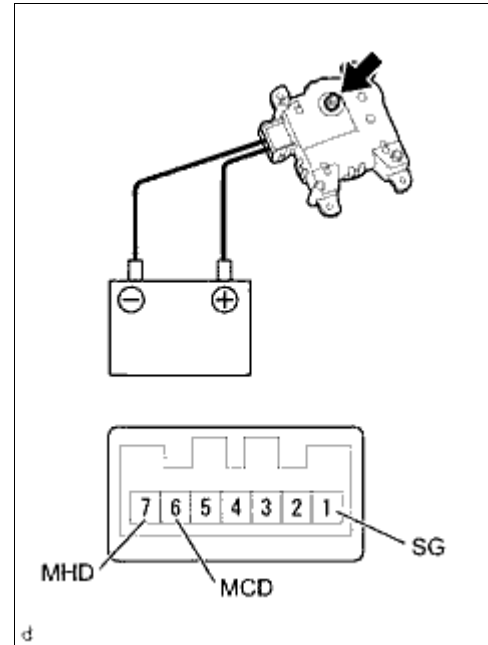


2. INSPECT AIR MIX CONTROL SERVO MOTOR (for Automatic Air Conditioning System)

(a) Inspect the servo motor operation.

- (1) Connect the positive (+) lead from the battery to terminal 7 (MHD) and negative (-) lead to terminals 1 (SG), then check that the shaft rotates clockwise smoothly.
- (2) Connect the positive (+) lead from the battery to terminal 6 (MCD) and negative (-) lead to terminal 1 (SG) then check that the shaft rotates counterclockwise smoothly.

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



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AN00VX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AIR OUTLET CONTROL SERVO MOTOR: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT MODE CONTROL SERVO MOTOR

(a) Inspect the servo motor operation.

- (1) When 12V is applied between terminals 4 (IGN) and 1 (GND), and 0V is applied between terminals 2 (SIG) and 1 (GND), check that the line connecting the 2 notches moves to the 0V position.

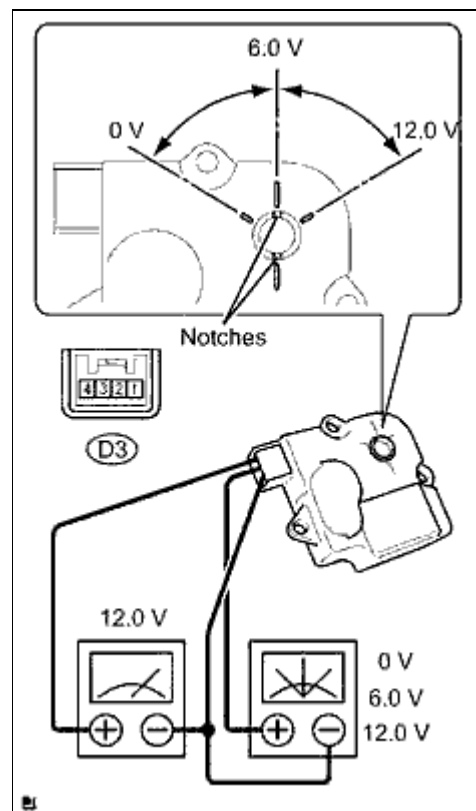
If the result is not as specified, replace the mode control servo motor.

- (2) When 12V is applied between terminals 4 (IGN) and 1 (GND), and 6V is applied between terminals 2 (SIG) and 1 (GND), check that the line connecting the 2 notches moves to the 6V position.

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

- (3) When 12V is applied between terminals 4 (IGN) and 1 (GND), and between terminals 2 (SIG) and 1 (GND), check that the line connecting the 2 notches moves to the 12V position.

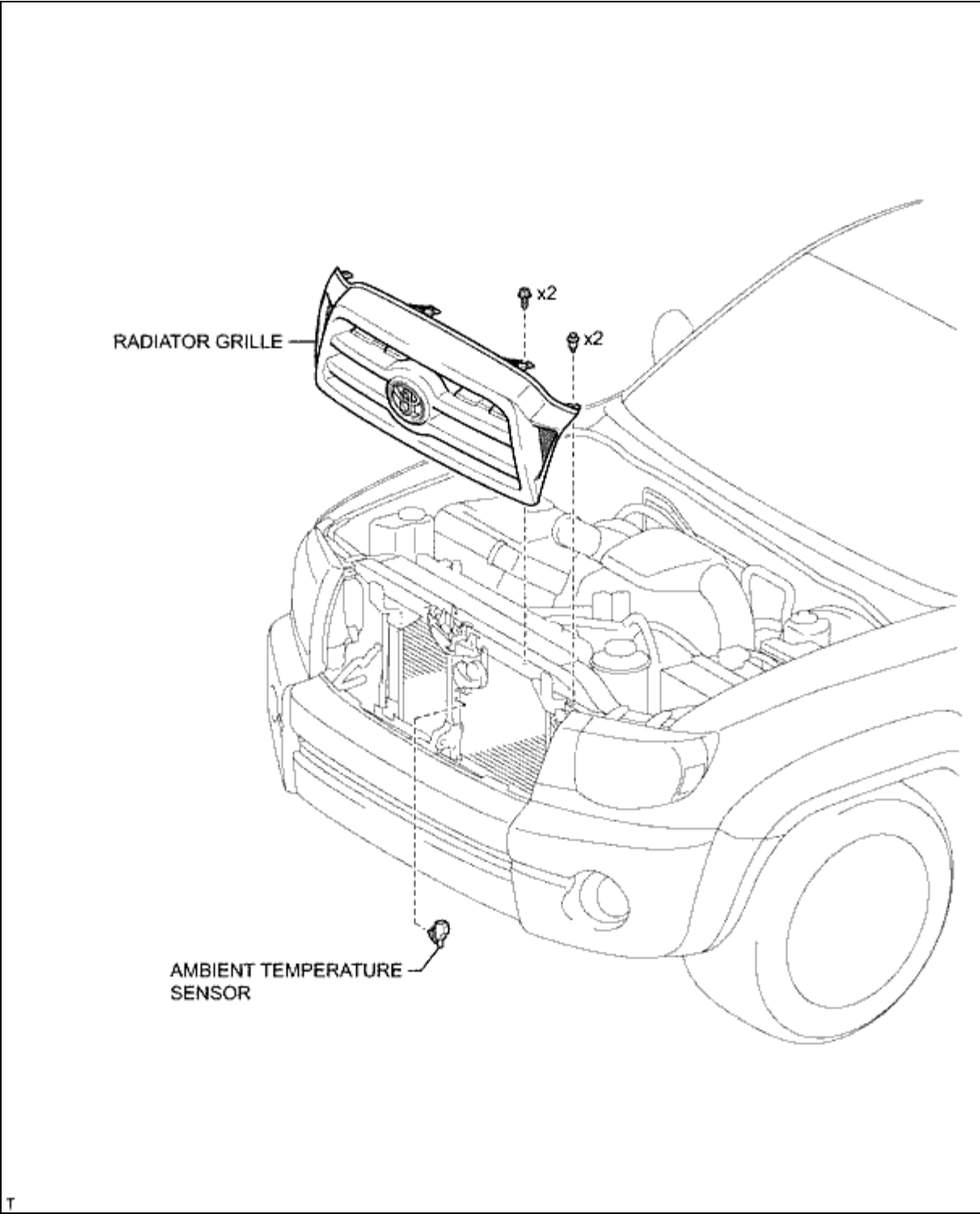
If the result is not as specified, replace the mode control servo motor.



Last Modified: 11-13-2015	6.6 K	Doc ID: RM000003N5L007X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION





Last Modified: 11-13-2015	6.6 G	Doc ID: RM00000201P0B3X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: INSPECTION; 2016 MY Tacoma [08/2015 -]		

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:

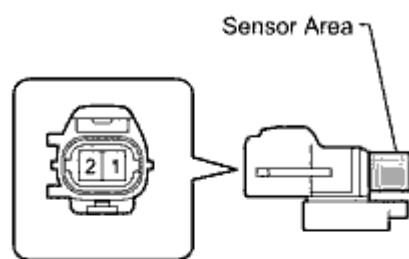
- Even slightly touching the sensor may change the resistance value. Be sure to hold the sensor connector.
- When measuring, the sensor temperature must be the same as the ambient temperature.

HINT:

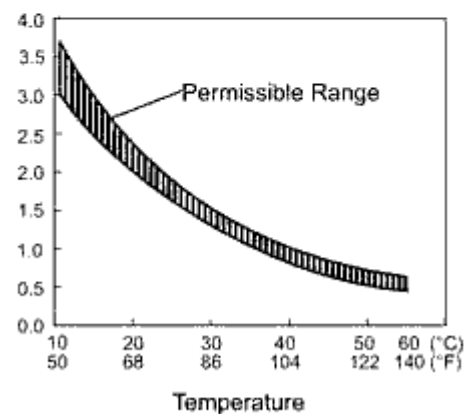
As the temperature increases, the resistance decreases (see the graph).

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

Component without harness connected:
(Ambient Temperature Sensor)



Resistance (kΩ)

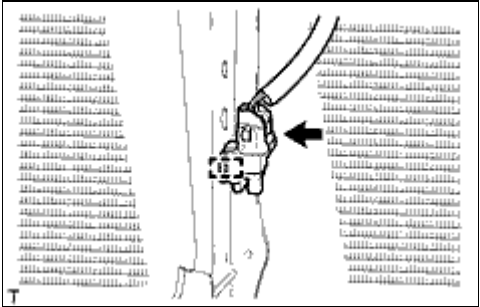


Last Modified: 11-13-2015	6.6 A	Doc ID: RM000003N5K007X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL AMBIENT TEMPERATURE SENSOR

- (a) Engage the harness clamp and install the ambient temperature sensor.
- (b) Connect the connector.



2. INSTALL RADIATOR GRILLE INFO



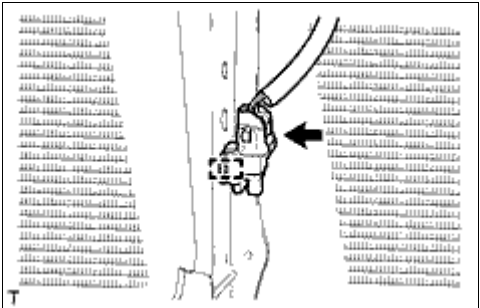
Last Modified: 11-13-2015	6.6 A	Doc ID: RM000003N5M007X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: AMBIENT TEMPERATURE SENSOR: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE RADIATOR GRILLE INFO

2. REMOVE AMBIENT TEMPERATURE SENSOR

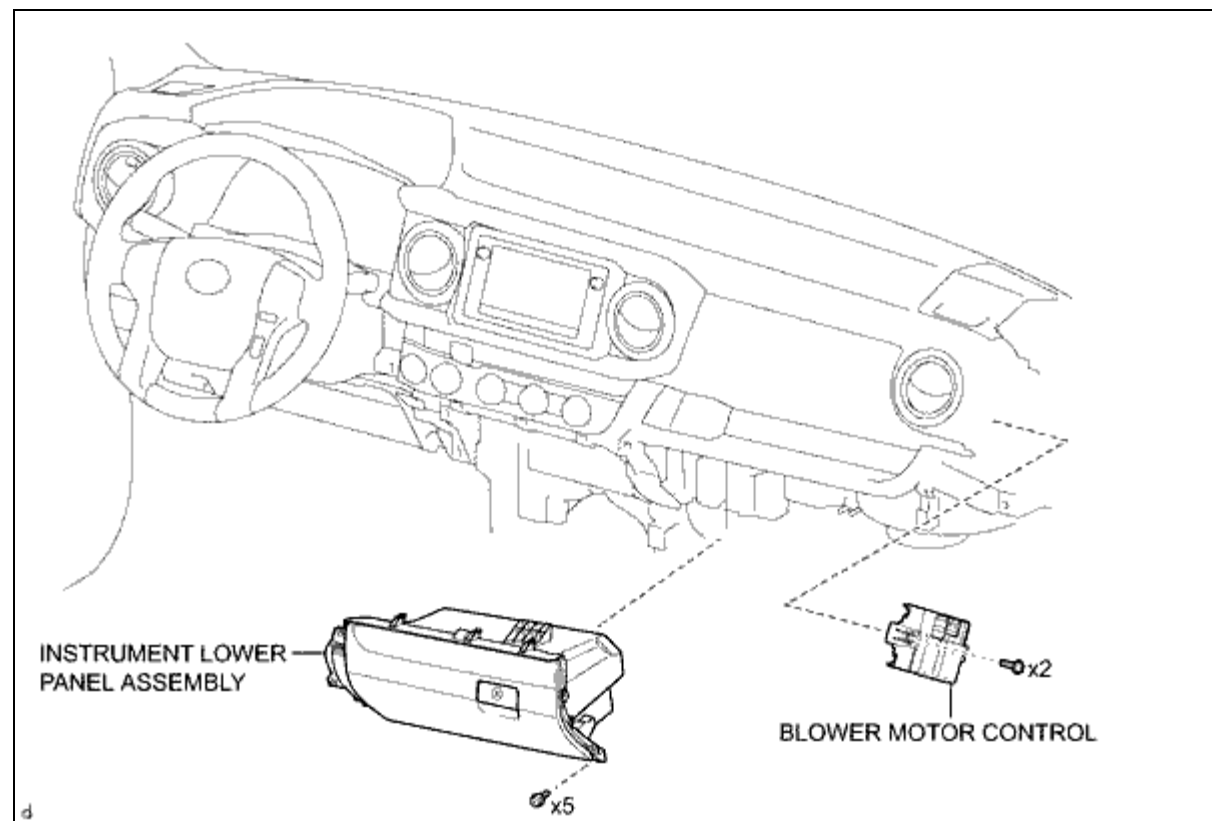
- (a) Disengage the harness clamp.
- (b) Disconnect the connector and remove the ambient temperature sensor.



Last Modified: 11-13-2015	6.6 K	Doc ID: RM000005VRU000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: BLOWER MOTOR CONTROLLER: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VRT000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: BLOWER MOTOR CONTROLLER: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL BLOWER MOTOR CONTROL

- (a) Install the blower motor control with the 2 screws.
- (b) Connect the 2 connectors.

2. INSTALL ECM (for 2GR-FKS)

INFO

3. INSTALL ECM (for 2TR-FE)

INFO

4. INSTALL INSTRUMENT LOWER PANEL ASSEMBLY

INFO

5. INSTALL LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY

INFO



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VRV000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: BLOWER MOTOR CONTROLLER: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY

INFO

2. REMOVE INSTRUMENT LOWER PANEL ASSEMBLY

INFO

3. REMOVE ECM (for 2TR-FE)

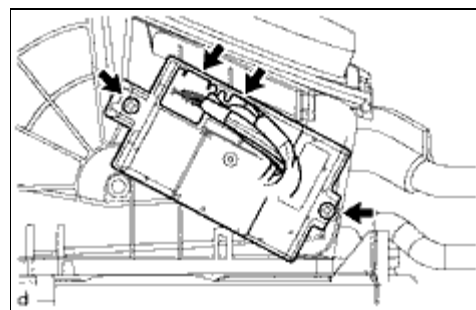
INFO

4. REMOVE ECM (for 2GR-FKS)

INFO

5. REMOVE BLOWER MOTOR CONTROL

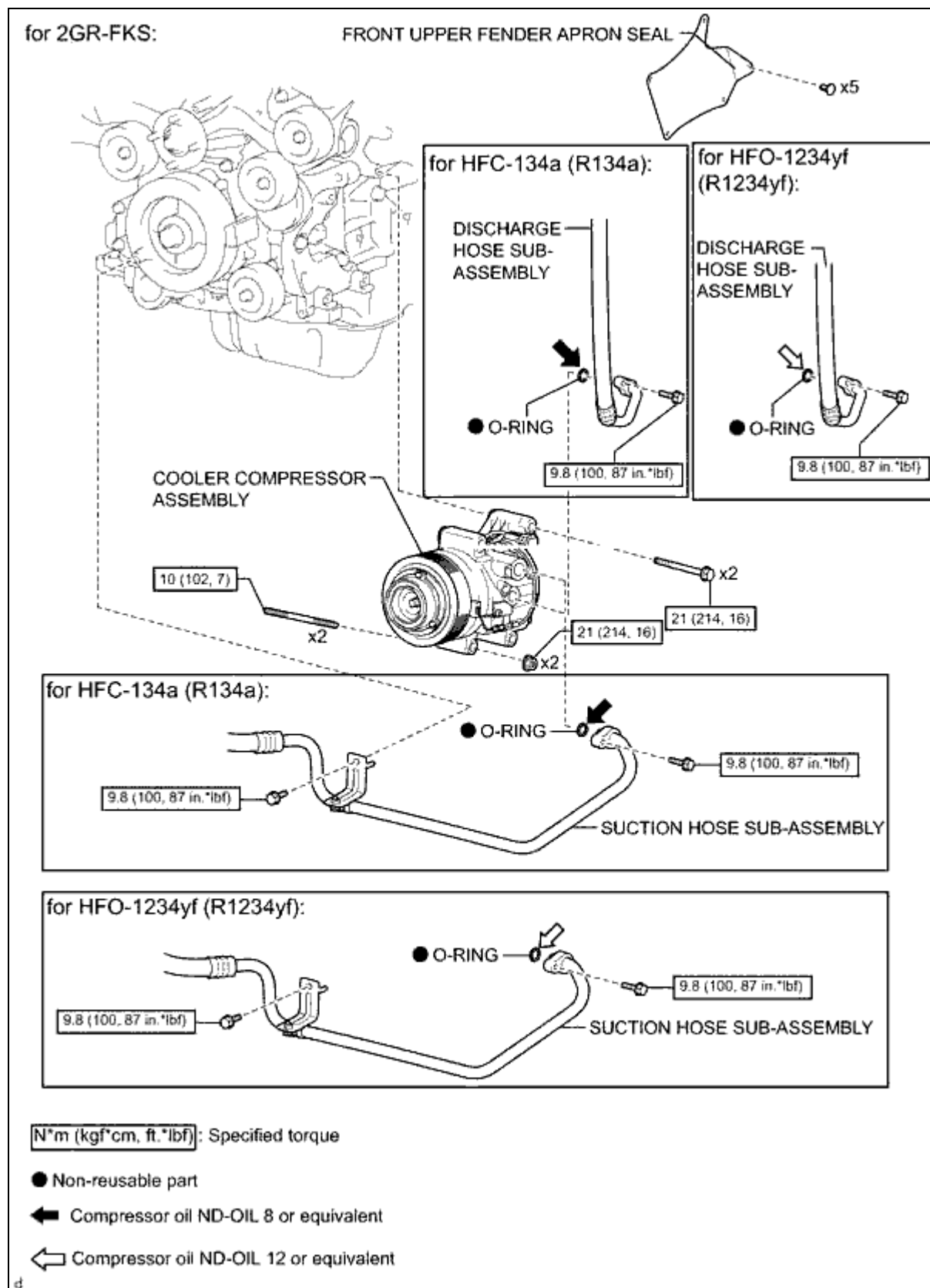
(a) Disconnect the 2 connectors.



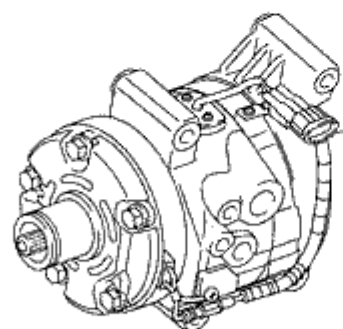
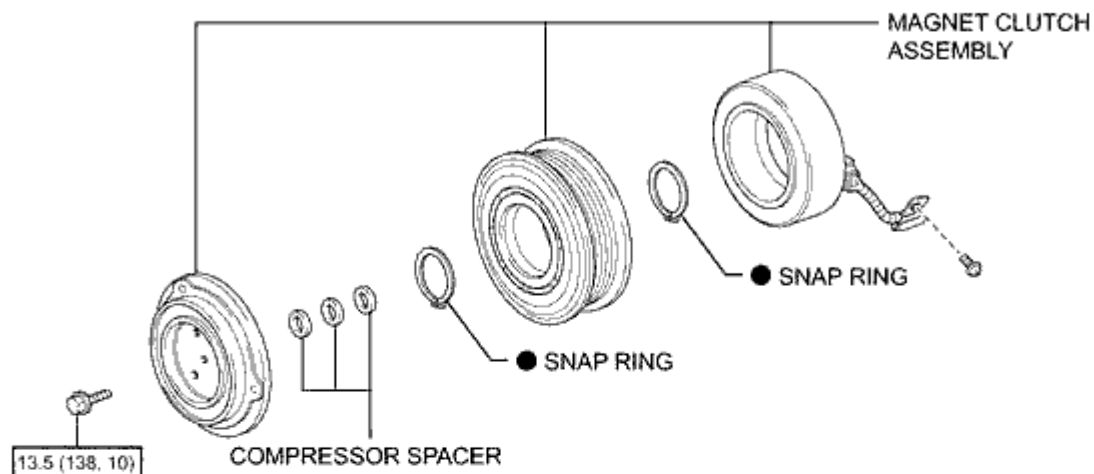
(b) Remove the 2 screws and blower motor control.



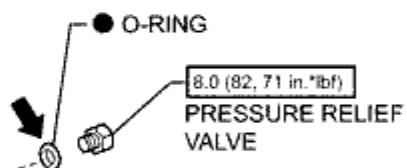
ILLUSTRATION



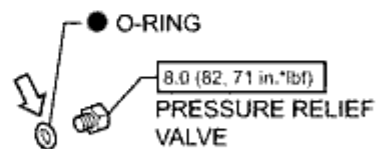
ILLUSTRATION



for HFC-134a (R134a):



for HFO-1234yf (R1234yf):



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

● Non-reusable part

← Compressor oil ND-OIL 8 or equivalent

↶ Compressor oil ND-OIL 12 or equivalent

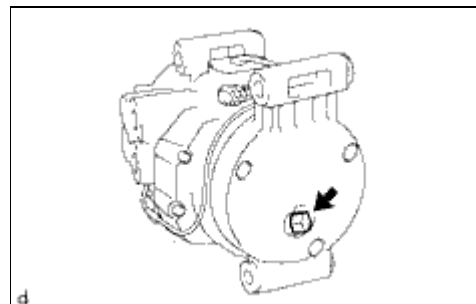


Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016AL0ACX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: COMPRESSOR: DISASSEMBLY; 2016 MY Tacoma [08/2015 -]		

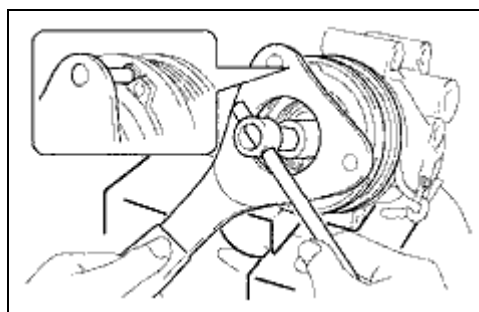
DISASSEMBLY

1. REMOVE PRESSURE RELIEF VALVE

- (a) Remove the pressure relief valve and O-ring.



2. REMOVE MAGNET CLUTCH ASSEMBLY



- (a) Secure the cooler compressor assembly in a vise between aluminum plates.
 (b) Using SST, hold the magnet clutch hub.

SST: 09985-00260

- (c) Remove the bolt, magnet clutch hub and compressor spacer.

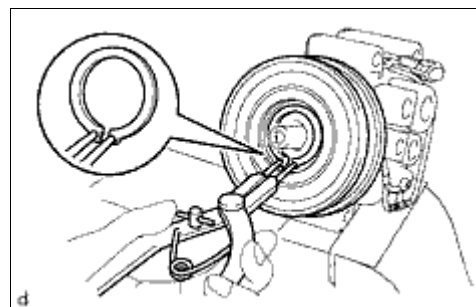
HINT:

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

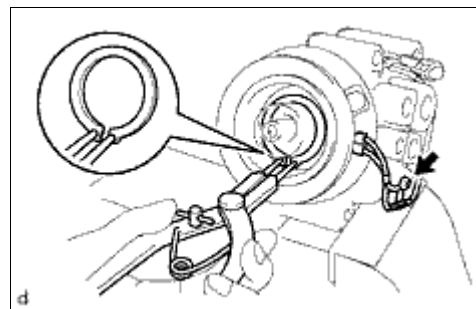
- (d) Using a snap ring expander, remove the snap ring and magnet clutch rotor.

NOTICE:

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



(e) Remove the screw to separate the wire harness.



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



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AI06WX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: COMPRESSOR: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT MAGNET CLUTCH ASSEMBLY

(a) Inspect the magnet clutch assembly.

Text in Illustration

*a

Component without harness connected (Magnet Clutch Assembly)

The diagram shows a magnet clutch assembly with a three-terminal connector labeled 3, 2, and 1. Terminal 1 is labeled MG+. The assembly is connected to a battery with a negative (-) and positive (+) terminal. A label 'd' is at the bottom left of the diagram.

- (b) Confirm that the magnet clutch hub and magnet clutch rotor lock when the battery positive lead is connected to terminal 1 (MG+) of the magnet clutch, and the negative lead is connected to the ground wire.

If the result is not as specified, replace the magnet clutch assembly.

2. INSPECT A/C LOCK SENSOR

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

Text in Illustration

*a

Component without harness connected (A/C LOCK SENSOR)

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2 (SSR+) - 3 (SSR-)	20°(68°F)	160 to 320 Ω

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

The diagram shows an A/C lock sensor with a three-terminal connector labeled 3, 2, and 1. Terminals 2 and 3 are labeled SSR- and SSR+ respectively. The sensor is connected to a battery with a negative (-) and positive (+) terminal. A label 'd' is at the bottom left of the diagram.

Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016TQ00BX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: COMPRESSOR: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. ADJUST COMPRESSOR OIL

(a) for HFC-134a (R134a):

- (1) When replacing the compressor and magnetic clutch with new ones, after gradually discharging the refrigerant gas from the service valve, drain the following volume of oil from new compressor and magnetic clutch before installation.

Standard:

(Oil capacity inside a new compressor and magnetic clutch: 150 + 15 cc (5.1 + 0.51 fl.oz.)) - (Remaining oil amount in the removed compressor and magnetic clutch) = (Oil amount to be removed when replacing the compressor)

NOTICE:

- When checking the compressor oil level, observe the precautions on the cooler removal/installation.
- If a new compressor and magnetic clutch are installed without removing some oil remaining in the pipes of the vehicle, the oil amount becomes too large. This prevents heat exchange in the refrigerant cycle and causes refrigerant failure.
- If the volume of oil remaining in the removed compressor and magnetic clutch is too small, check for oil leakage.
- Be sure to use ND-OIL 8 or equivalent for compressor oil.

(b) for HFO-1234yf (R1234yf):

- (1) When replacing the compressor and magnetic clutch with new ones, after gradually discharging the refrigerant gas from the service valve, drain the following volume of oil from new compressor and magnetic clutch before installation.

Standard:

(Oil capacity inside a new compressor and magnetic clutch: 150 + 15 cc (5.1 + 0.51 fl.oz.)) - (Remaining oil amount in the removed compressor and magnetic clutch) = (Oil amount to be removed when replacing the compressor)

NOTICE:

- When checking the compressor oil level, observe the precautions on the cooler removal/installation.
- If a new compressor and magnetic clutch are installed without removing some oil remaining in the pipes of the vehicle, the oil amount becomes too large. This prevents heat exchange in the refrigerant cycle and causes refrigerant failure.
- If the volume of oil remaining in the removed compressor and magnetic clutch is too small, check for oil leakage.
- Be sure to use ND-OIL 12 or equivalent for compressor oil.

2. INSTALL COOLER COMPRESSOR ASSEMBLY (for 2TR-FE)

(a) Using an E8 "TORX" socket wrench, temporarily install the cooler compressor assembly with the 2 stud bolts.

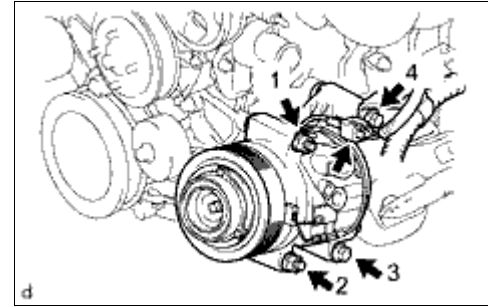
Torque:

10 N·m {102 kgf·cm, 7ft·lbf}

- (b) Install the 2 nuts and 2 bolts in the order shown in the illustration.

Torque:

21 N·m {214 kgf·cm, 16ft·lbf}



- (c) Connect the connector.

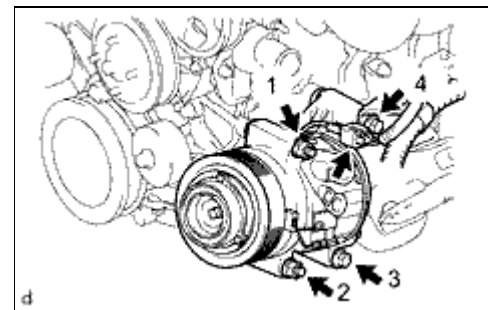
3. INSTALL COOLER COMPRESSOR ASSEMBLY (for 2GR-FKS)

- (a) Using an E8 "TORX" socket wrench, temporarily install the cooler compressor assembly with the 2 stud bolts.

- (b) Install the 2 nuts and 2 bolts in the order shown in the illustration.

Torque:

21 N·m {214 kgf·cm, 16ft·lbf}



- (c) Connect the connector.

4. INSTALL DISCHARGE HOSE SUB-ASSEMBLY

- (a) Remove the vinyl tape from discharge hose sub-assembly and connecting portion of the cooler compressor assembly.
- (b) Apply sufficient compressor oil to a new O-ring and fitting surface of the cooler compressor assembly.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

- (c) Install the O-ring to the discharge hose sub-assembly.
- (d) Install the discharge hose sub-assembly to the cooler compressor assembly with the bolt.

Torque:

9.8 N·m {100 kgf·cm, 87in·lbf}

5. INSTALL SUCTION HOSE SUB-ASSEMBLY (for 2TR-FE)

- (a) Remove the vinyl tape from the suction hose sub-assembly.
- (b) Apply sufficient compressor oil to a new O-ring and fitting surface of the cooler compressor assembly.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

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

(d) Install the suction hose sub-assembly to the cooler compressor assembly with the bolt.

Torque:

9.8 N·m {100 kgf·cm, 87in·lbf}

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

Torque:

7.5 N·m {76 kgf·cm, 66in·lbf}

6. INSTALL SUCTION HOSE SUB-ASSEMBLY (for 2GR-FKS)

(a) Remove the vinyl tape from the suction hose sub-assembly.

(b) Apply sufficient compressor oil to a new O-ring and fitting surface of the cooler compressor assembly.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

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

(d) Install the suction hose sub-assembly to the cooler compressor assembly with the bolt.

Torque:

9.8 N·m {100 kgf·cm, 87in·lbf}

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

Torque:

7.5 N·m {76 kgf·cm, 66in·lbf}

7. INSTALL FRONT UPPER FENDER APRON SEAL

(a) Install the front upper fender apron seal with the 5 clips.

8. INSTALL GENERATOR ASSEMBLY (for 2GR-FKS)

INFO

9. INSPECT FAN AND GENERATOR V BELT (for 2TR-FE)

INFO

10. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque:

5.4 N·m {55 kgf·cm, 48in·lbf}

11. CHARGE AIR CONDITIONING SYSTEM WITH REFRIGERANT

INFO

12. WARM UP ENGINE

INFO

13. INSPECT FOR REFRIGERANT LEAK

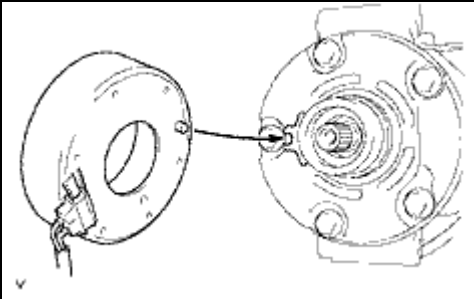
INFO



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016TR0ACX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: COMPRESSOR: REASSEMBLY; 2016 MY Tacoma [08/2015 -]		

REASSEMBLY

1. INSTALL MAGNET CLUTCH ASSEMBLY

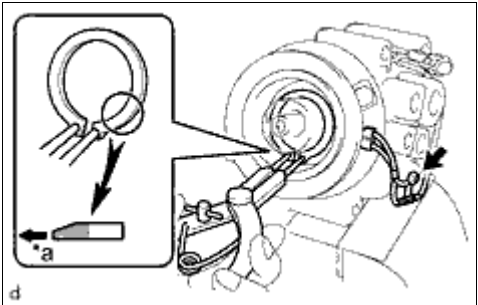


- (a) Secure the cooler compressor assembly in a vise between aluminum plates.
- (b) Install the magnet clutch stator with the parts shown in the illustration.

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

Text in Illustration

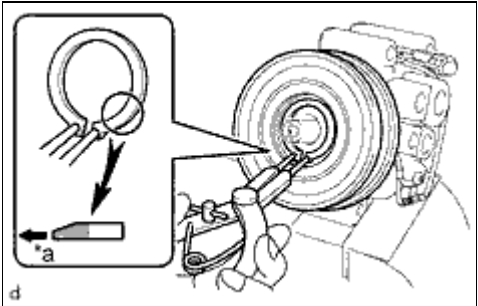
*a	Inside
----	--------



- (d) Install the wire harness with the screw.
- (e) Using a snap ring expander, install the magnet clutch rotor and a new snap ring with the chamfered side facing up.

Text in Illustration

*a	Inside
----	--------



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

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

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

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

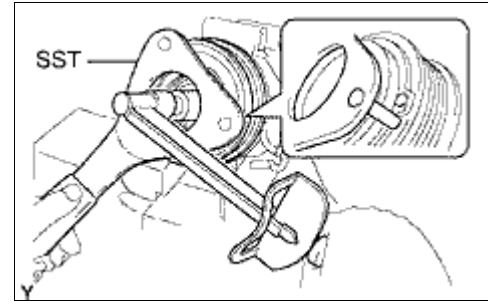
SST: 09985-00260

Torque:

13.5 N·m {138 kgf·cm, 10ft·lbf}

NOTICE:

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



2. INSTALL PRESSURE RELIEF VALVE

(a) Apply sufficient compressor oil to a new O-ring and fitting surface of the pressure relief valve.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

(b) Install a new O-ring onto the pressure relief valve.

(c) Install the pressure relief valve.

Torque:

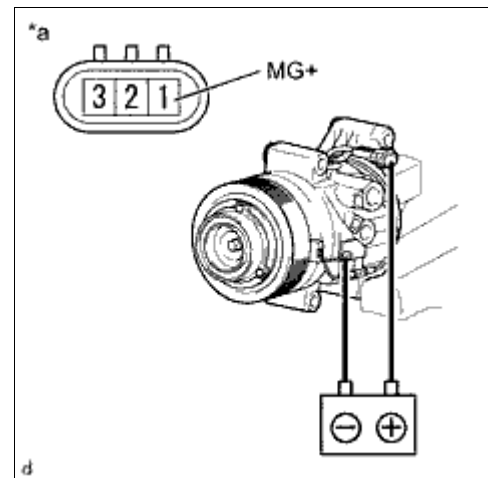
8.0 N·m {82 kgf·cm, 71in·lbf}

3. INSPECT MAGNET CLUTCH CLEARANCE

(a) Secure the cooler compressor assembly in a vise between aluminum plates.

Text in Illustration

*a	Component without harness connected (Magnet Clutch Assembly)
----	---



(b) Set the dial indicator to the magnet clutch hub.

(c) Connect the battery positive lead to terminal 1 (MG+) of the magnet clutch connector and the negative lead to the ground wire. Turn the magnet clutch on and off and measure the clearance.

Standard clearance:

0.30 to 0.60 mm (0.012 to 0.024 in.)

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

Compressor spacer thickness:

0.2 mm (0.008 in.)

0.3 mm (0.012 in.)

0.5 mm (0.020 in.)

NOTICE:

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

(d) Remove the compressor and magnetic clutch from the vise.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016AK00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: COMPRESSOR: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

INFO

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

3. REMOVE FAN AND GENERATOR V BELT (for 2TR-FE)

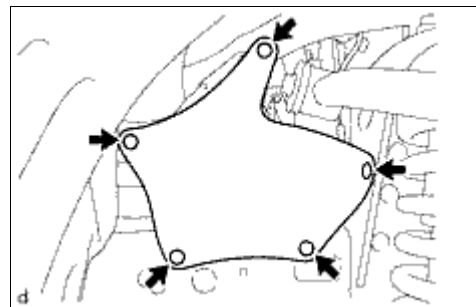
INFO

4. REMOVE GENERATOR ASSEMBLY (for 2GR-FKS)

INFO

5. REMOVE FRONT UPPER FENDER APRON SEAL

- (a) Using a clip remover, disengage the 5 clips to remove the front upper fender apron seal.

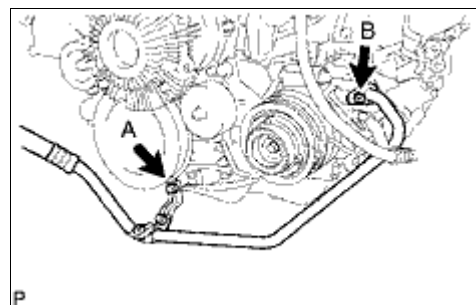


6. DISCONNECT SUCTION HOSE SUB-ASSEMBLY (for 2TR-FE)

- (a) Remove the bolt A.
- (b) Remove the bolt B to disconnect the suction hose sub-assembly.
- (c) Remove the O-ring from the suction hose sub-assembly.

NOTICE:

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

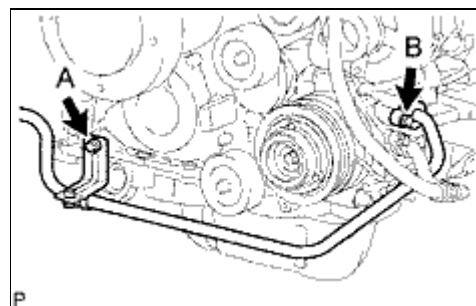


7. DISCONNECT SUCTION HOSE SUB-ASSEMBLY (for 2GR-FKS)

- (a) Remove the bolt A.
- (b) Remove the bolt A to disconnect the suction hose sub-assembly.
- (c) Remove the O-ring from the suction hose sub-assembly.

NOTICE:

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

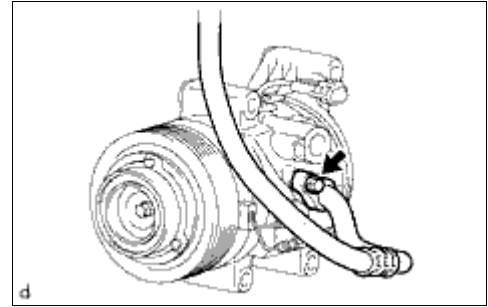


8. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY

- (a) Remove the bolt to disconnect the discharge hose sub-assembly.
- (b) Remove the O-ring from the discharge hose sub-assembly.

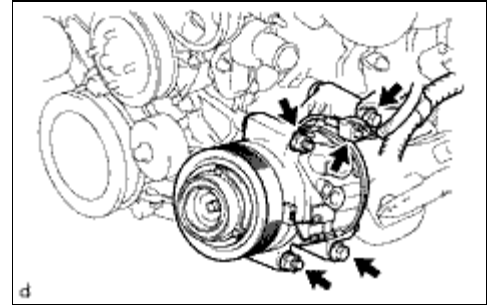
NOTICE:

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



9. REMOVE COOLER COMPRESSOR ASSEMBLY (for 2TR-FE)

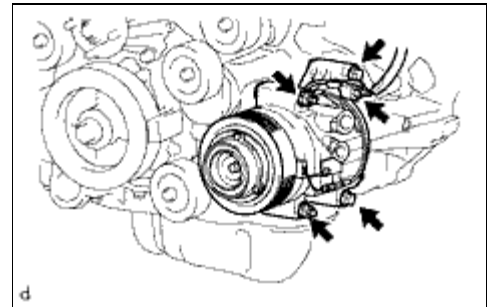
- (a) Disconnect the connector.



- (b) Remove the 2 bolts and 2 nuts.
- (c) Using an E8 "TORX" socket wrench, remove the 2 stud bolts and cooler compressor assembly.

10. REMOVE COOLER COMPRESSOR ASSEMBLY (for 2GR-FKS)

- (a) Disconnect the connector.



- (b) Remove the 2 bolts and 2 nuts.
- (c) Using an E8 "TORX" socket wrench, remove the 2 stud bolts and cooler compressor assembly.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016B100AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: CONDENSER: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

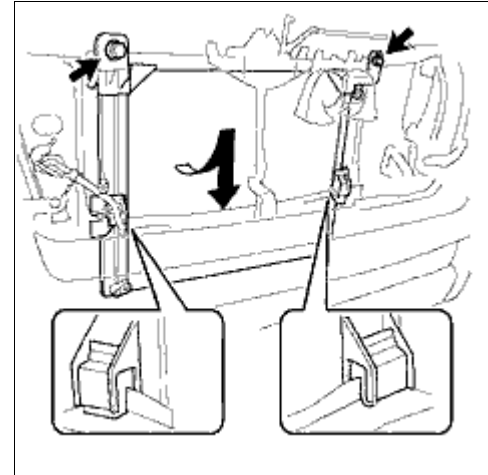
1. INSTALL COOLER CONDENSER ASSEMBLY

- (a) Engage the 2 claws to install the 2 condenser upper brackets.
- (b) Engage the 2 claws to install the 2 condenser lower brackets.

- (c) Lift the cooler condenser assembly up from the rear side of the vehicle, and install the condenser lower brackets onto the upper part of the radiator lower supports with the 2 bolts.

Torque:

9.0 N·m {92 kgf·cm, 80in·lbf}



2. INSTALL AIR CONDITIONING TUBE ASSEMBLY

- (a) Remove the vinyl tape from the air conditioning tube assembly and connecting part of the cooler condenser assembly.
- (b) Apply sufficient compressor oil to a new O-ring and fitting surface of the cooler condenser assembly.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

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

Torque:

9.8 N·m {100 kgf·cm, 87in·lbf}

3. INSTALL DISCHARGE HOSE SUB-ASSEMBLY

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

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

(c) Install the O-ring to the discharge hose sub-assembly.

(d) Install the discharge hose sub-assembly to the cooler condenser assembly with the bolt.

Torque:

9.8 N·m {100 kgf·cm, 87in·lbf}

4. INSTALL RADIATOR ASSEMBLY (for 2TR-FE)

INFO

5. INSTALL RADIATOR ASSEMBLY (for 2GR-FKS)

INFO

6. CHARGE AIR CONDITIONING SYSTEM WITH REFRIGERANT INFO

7. WARM UP ENGINE INFO

8. INSPECT FOR REFRIGERANT LEAK INFO



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016B400AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: CONDENSER: ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. INSPECT COOLER CONDENSER ASSEMBLY

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

NOTICE:

Do not damage the fins of the condenser assembly.

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

2. INSPECT FOR REFRIGERANT LEAK

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



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016B300AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: CONDENSER: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

INFO

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

3. REMOVE RADIATOR ASSEMBLY (for 2TR-FE)

INFO

4. REMOVE RADIATOR ASSEMBLY (for 2GR-FKS)

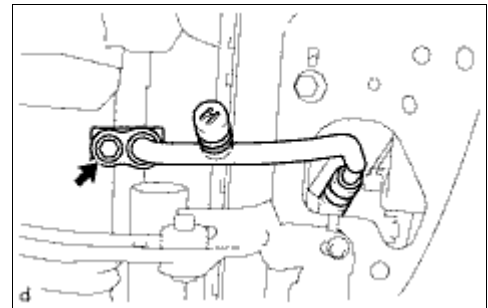
INFO

5. DISCONNECT DISCHARGE HOSE SUB-ASSEMBLY

- Remove the bolt to disconnect the discharge hose sub-assembly from the cooler condenser assembly.
- Remove the O-ring from the discharge hose sub-assembly.

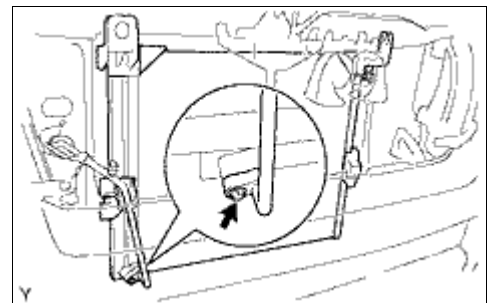
NOTICE:

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



6. DISCONNECT AIR CONDITIONING TUBE ASSEMBLY

- Remove the bolt to disconnect the air conditioning tube assembly from the cooler condenser assembly.

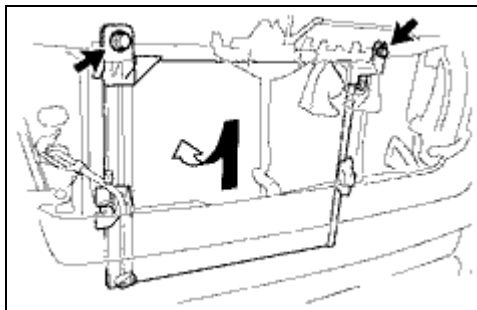


- Remove the O-ring from the air conditioning tube assembly.

NOTICE:

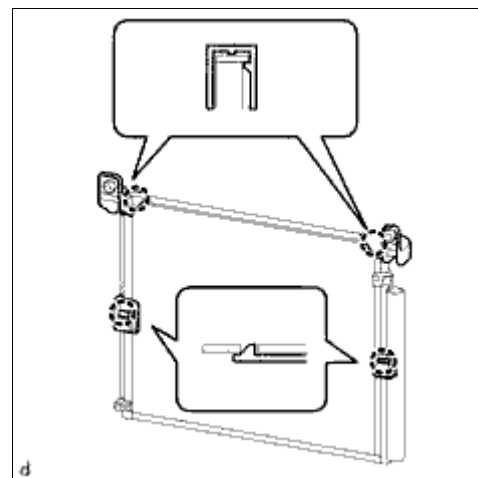
Seal the openings of the disconnected parts using vinyl tape to prevent moisture and foreign matter from entering.

7. REMOVE COOLER CONDENSER ASSEMBLY



- (a) Remove the 2 bolts.
- (b) Lift the cooler condenser assembly up, disengage the fitting of the condenser lower bracket to remove the cooler condenser assembly from the rear side of the vehicle.

- (c) Disengage the 2 claws to remove the 2 condenser upper brackets.



- (d) Disengage the 2 claws to remove the 2 condenser lower brackets.
- (e) Remove the cooler condenser assembly.

HINT:

At the time of installation, please refer to the following instructions. If installing a new condenser, add compressor oil to the condenser.

Compressor oil:

for HFC-134a (R134a)

ND-OIL 8 or equivalent

for HFO-1234yf (R1234yf)

ND-OIL 12 or equivalent

Add 40 cc (1.4 fl.oz.)



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AO00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: FRONT BLOWER MOTOR: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT BLOWER MOTOR

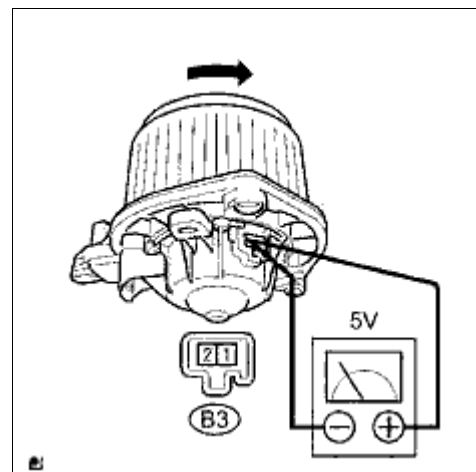
(a) Inspect the blower motor.

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

CAUTION:

- Use safety glasses
- Do not use battery power, use DC power supply (30 A).
- Do not operate the motor and fan assembly at over 5 V.
- Be sure to hold the motor in a stable and safe way.

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



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AP00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: FRONT BLOWER RESISTOR: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

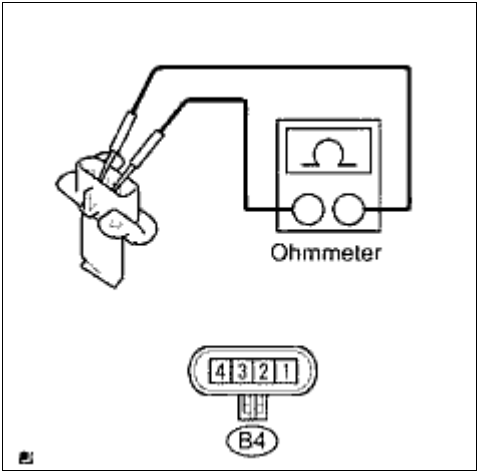
1. INSPECT BLOWER RESISTOR

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

Standard:

TESTER CONNECTION	SPECIFIED CONDITION
1 (M1) - 3 (COMMON)	0.792 to 0.968 Ω at 20°C (68°F)
2 (M2) - 3 (COMMON)	0.342 to 0.418 Ω at 20°C (68°F)
4 (Lo) - 3 (COMMON)	2.07 to 2.53 Ω at 20°C (68°F)

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

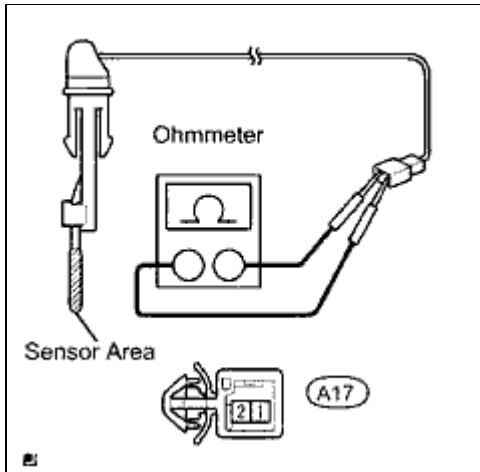


Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AQ00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: FRONT EVAPORATOR TEMPERATURE SENSOR: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT COOLER THERMISTOR SENSOR

(a) Check the resistance.



(1) Measure the resistance and check the results in accordance with the values in the table below.

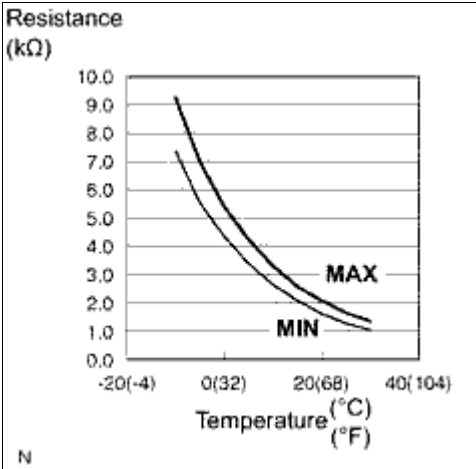
Standard:

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

If the result is not as specified, replace the cooler thermistor sensor.

NOTICE:

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



HINT:

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



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AS00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: HEATER RELAY: INSPECTION; 2016 MY Tacoma [08/2015 -]		

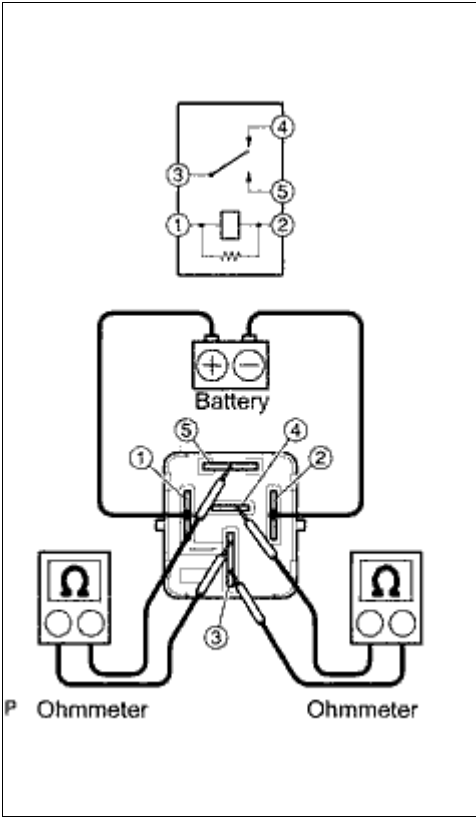
INSPECTION

1. INSPECT HEATER RELAY

- (a) Check the resistance.
- (1) Using an ohmmeter, measure the resistance between each terminal.
- Standard:

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

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



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AR00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: MAGNETIC CLUTCH RELAY: INSPECTION; 2016 MY Tacoma [08/2015 -]		

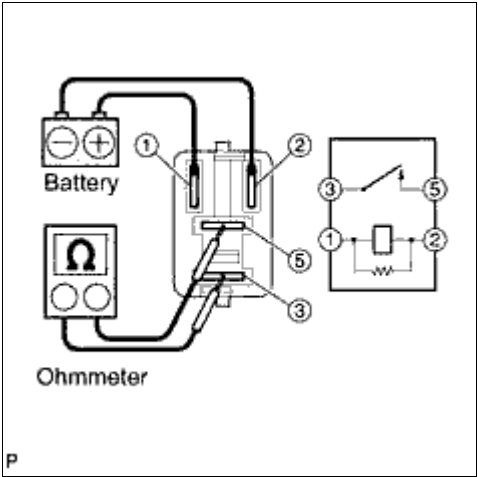
INSPECTION

1. INSPECT MAGNET-CLUTCH RELAY

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

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

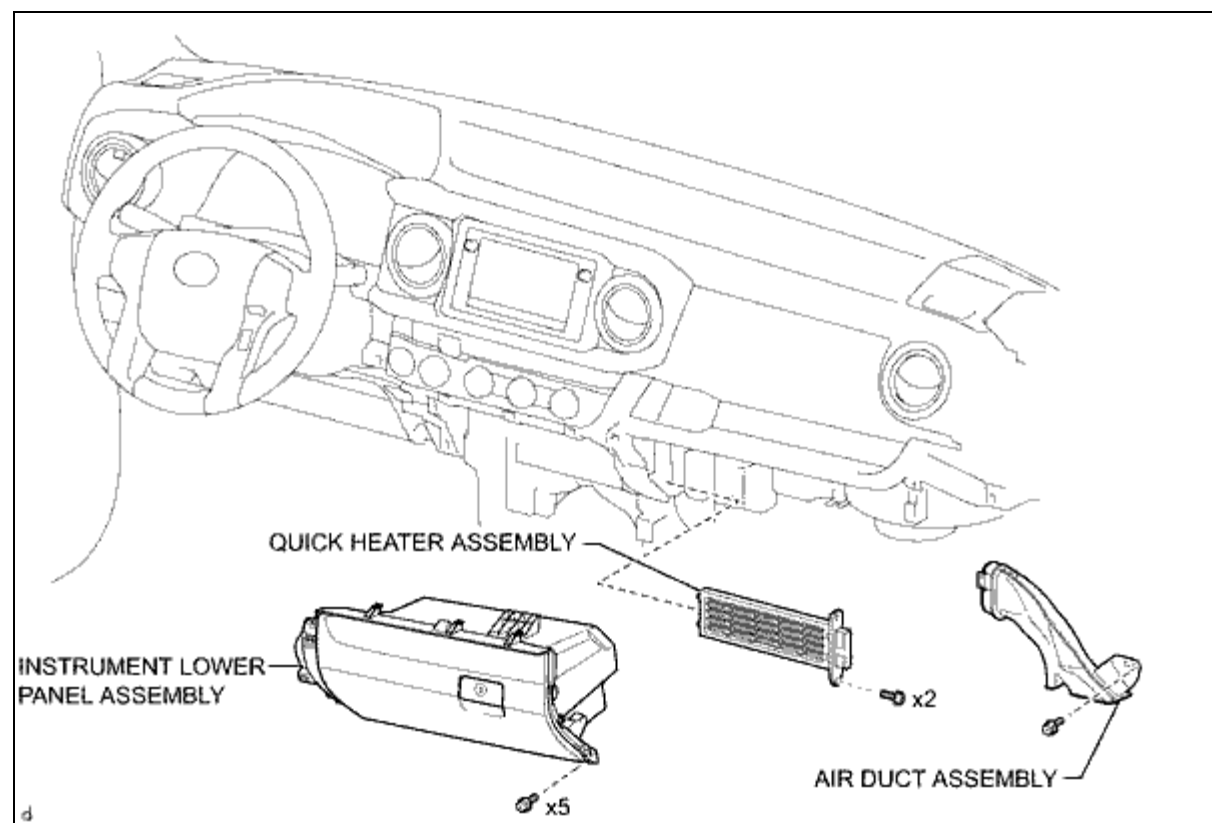
If the result is not as specified, replace the relay.



Last Modified: 11-13-2015	6.6 K	Doc ID: RM000005VRN000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: PTC HEATER ASSEMBLY: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 11-13-2015	6.6 G	Doc ID: RM000005VRM000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: PTC HEATER ASSEMBLY: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT QUICK HEATER ASSEMBLY

(a) Check the resistance.

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

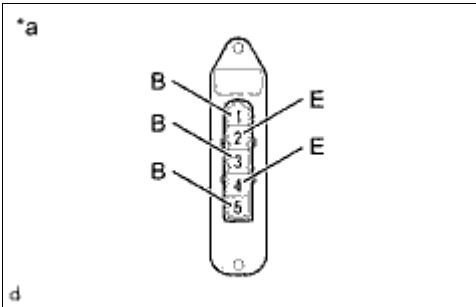
Text in Illustration

*a	Component without harness connected (Quick Heater Assembly)
----	--

Standard Resistance:

TESTER CONNECTION (TERMINAL CODE)	SWITCH CONDITION	SPECIFIED CONDITION
1(B) - 2(E)	Always	Below 1 Ω
3(B) - 2(E)	Always	Below 1 Ω
3(B) - 4(E)	Always	Below 1 Ω
5(B) - 4(E)	Always	Below 1 Ω

If the specified condition is not met, replace the quick heater assembly.



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VRL000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: PTC HEATER ASSEMBLY: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL QUICK HEATER ASSEMBLY

- (a) Install the quick heater assembly with the 2 screws.
- (b) Connect the connector.

2. INSTALL AIR DUCT ASSEMBLY [INFO](#)

3. INSTALL INSTRUMENT LOWER PANEL ASSEMBLY [INFO](#)

4. INSTALL LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY

[INFO](#)



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VRO000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: PTC HEATER ASSEMBLY: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY

INFO

2. REMOVE INSTRUMENT LOWER PANEL ASSEMBLY

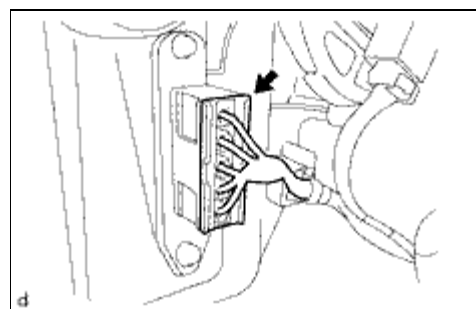
INFO

3. REMOVE AIR DUCT ASSEMBLY

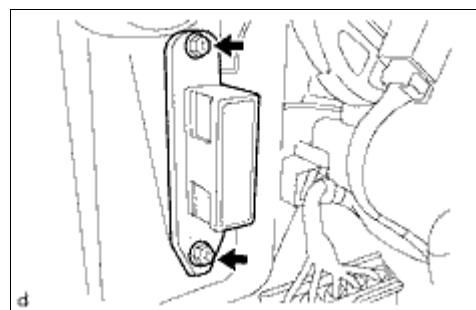
INFO

4. REMOVE QUICK HEATER ASSEMBLY

(a) Disconnect the connector.



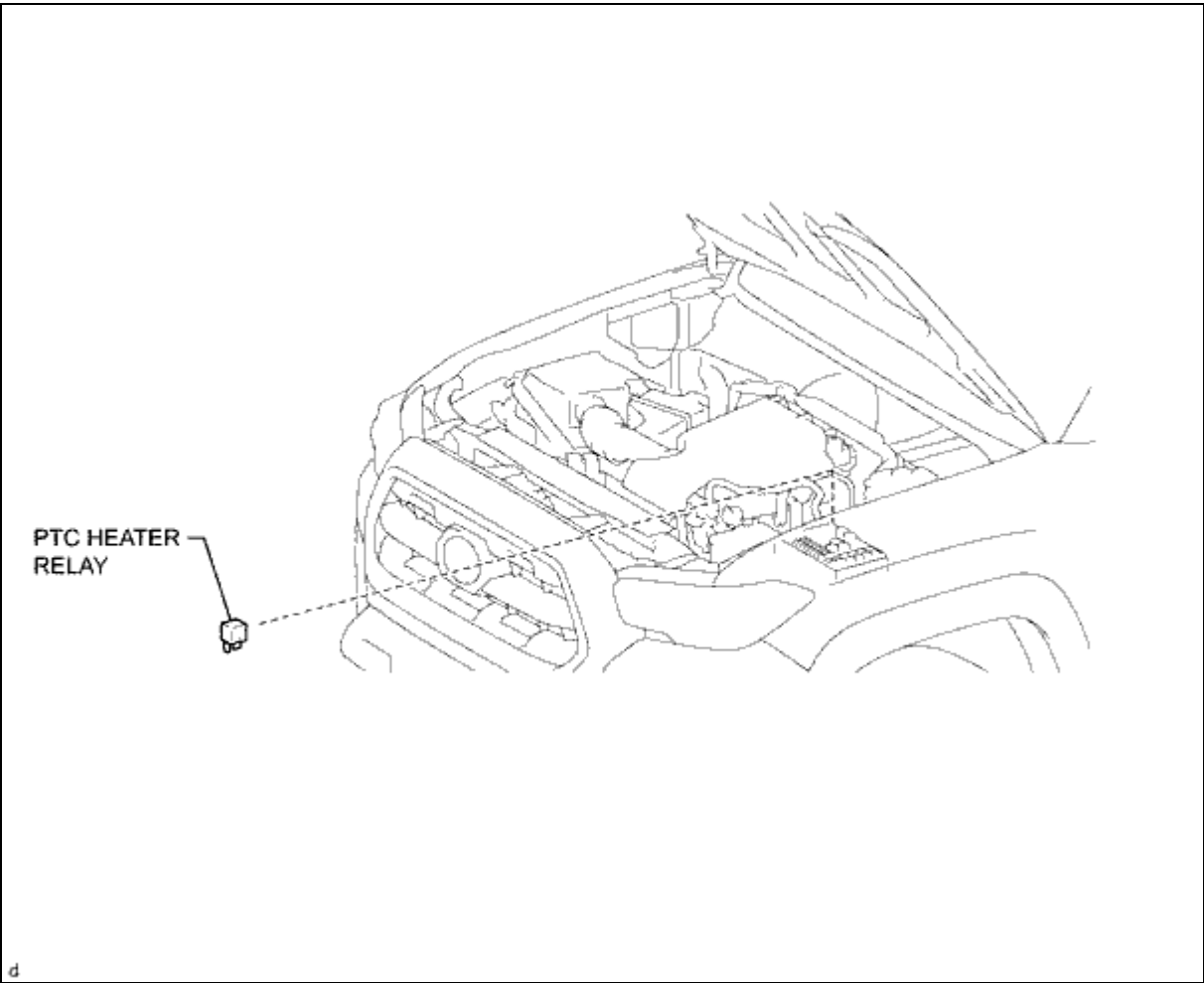
(b) Remove the 2 screws and quick heater assembly.



Last Modified: 11-13-2015	6.6 K	Doc ID: RM000005VRR000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: PTC HEATER RELAY: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 11-13-2015	6.6 G	Doc ID: RM000005VRQ000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: PTC HEATER RELAY: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

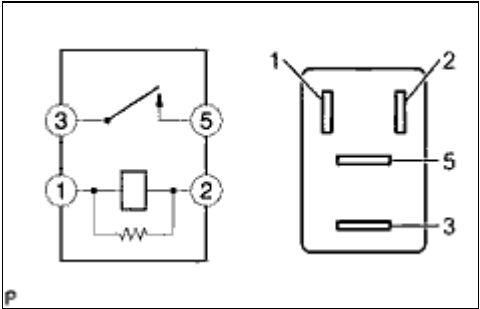
1. INSPECT PTC HEATER RELAY

(a) Check the resistance.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
3 - 5	Battery voltage not applied to terminals 1 and 2	10 kΩ or higher
3 - 5	Battery voltage applied to terminals 1 and 2	Below 1 Ω



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



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VRP000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: PTC HEATER RELAY: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL PTC HEATER RELAY

- (a) Install the ptc heater relay.

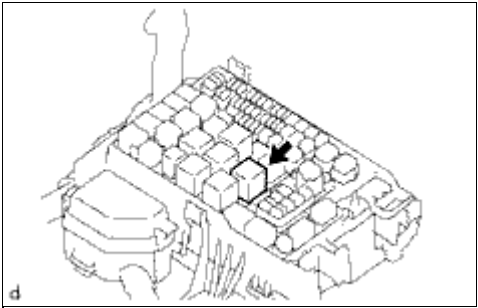


Last Modified: 11-13-2015	6.6 A	Doc ID: RM000005VRS000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: PTC HEATER RELAY: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE PTC HEATER RELAY

(a) Remove the ptc heater relay.



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000016AU00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: REFRIGERANT (for HFC-134a(R134a)): ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

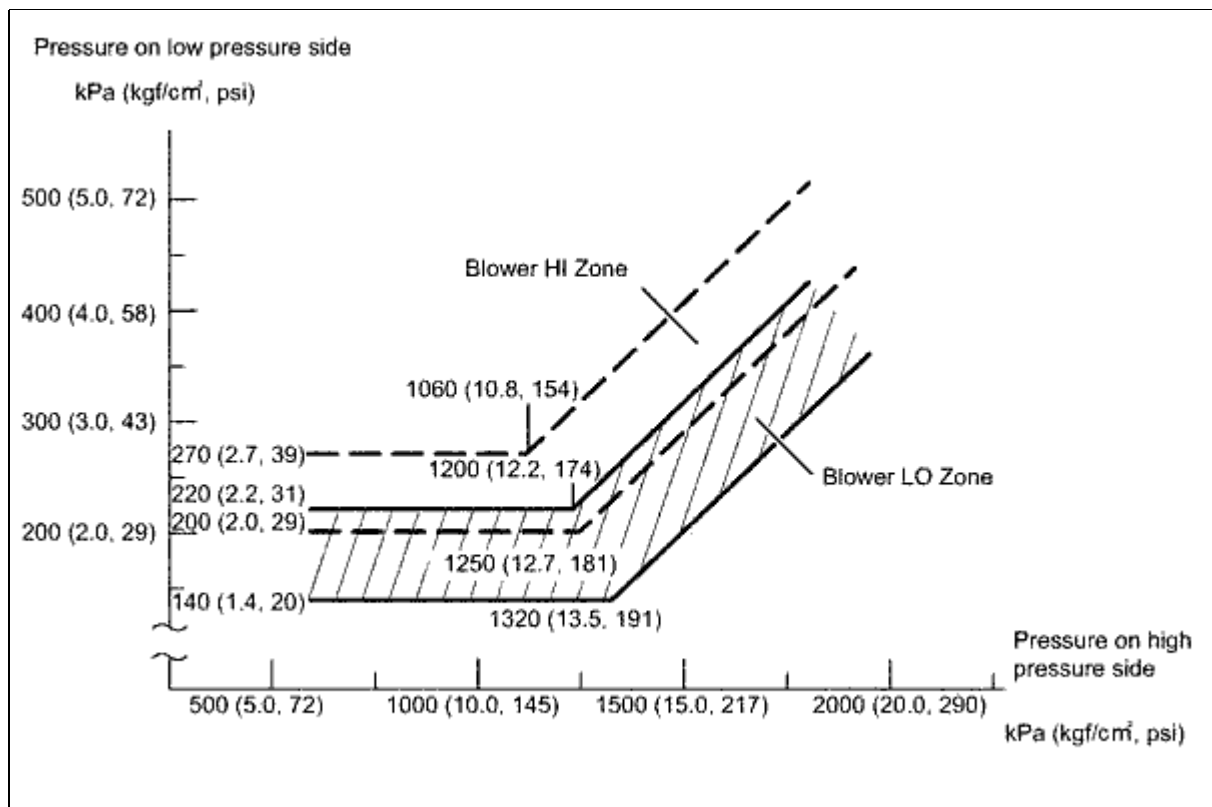
1. INSPECT REFRIGERANT PRESSURE WITH MANIFOLD GAUGE SET

(a) This is a method to specify trouble areas by using a manifold gauge set. Read the manifold gauge pressure when the following conditions are established.

Test conditions:

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

Gauge readings (Reference)



(1) When the refrigerant volume is proper:

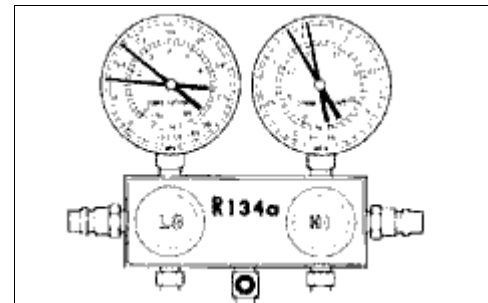
Gauge reading:

Low pressure side:

150 to 250 kPa (1.5 to 2.5 kgf/cm² , 22 to 36 psi)

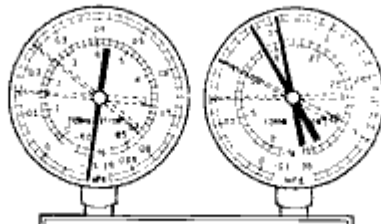
High pressure side:

1370 to 1570 kPa (14.0 to 16.0 kgf/cm² , 199 to 228 psi)



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

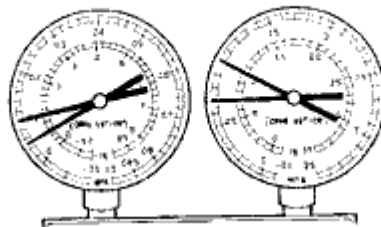
Condition: Air conditioning system periodically repeats proper and improper function.



SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
During operation, pressure on low pressure side cycles between normal and vacuum	Moisture in refrigeration system freezes at expansion valve orifice, causing temporary stop of cycle. However, when melted, normal state restored	- Drier overly saturated - Moisture in refrigeration system freezes at expansion valve orifice and blocks refrigerant circulation	- Remove moisture from cycle by repeatedly evacuating air - Supply appropriate volume of new refrigerant

(3) When cooling is insufficient:

Condition: Air conditioning system does not function effectively.

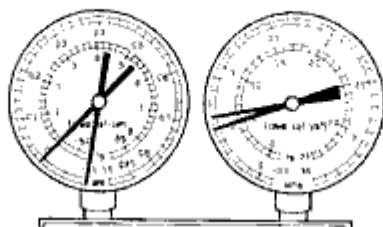


SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
- Pressure low on both low and high pressure sides - Cooling	Gas leakage from refrigeration system	- Insufficient refrigerant - Refrigerant leakage	- Check for gas leakage and repair if necessary - Supply appropriate volume of new refrigerant - If indicated pressure value

SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
performance insufficient			close to 0 when connected to gauge, create vacuum after inspecting and repairing the location of leakage

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

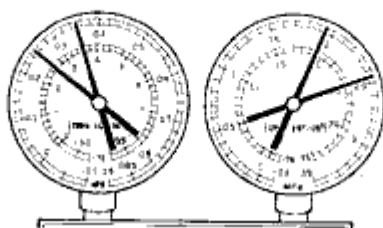
Condition: Air conditioning system does not function effectively.



SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
- Pressure low on both low and high pressure sides - Frost exists on piping from condenser to A/C unit	Refrigerant flow obstructed by dirt in condenser	Condenser clogged	Replace condenser

(5) When the refrigerant does not circulate:

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

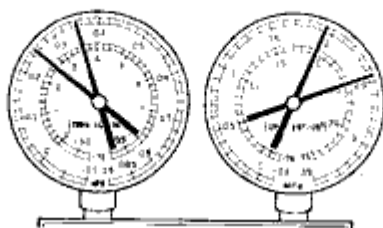


SYMPTOMS	PROBABLE CAUSES	DIAGNOSIS	CORRECTIVE ACTIONS
- Vacuum indicated on low pressure side, and extremely low pressure indicated on high pressure side - Frost or condensation seen on piping on both sides of condenser or expansion valve	- Refrigerant flow obstructed by moisture or dirt in refrigeration system - Refrigerant flow obstructed by gas leakage from expansion valve	Refrigerant does not circulate	- Check expansion valve - Clean expansion valve by blowing air - Replace condenser - Evacuate air and charge appropriate volume of new

SYMPTOMS	PROBABLE CAUSES	DIAGNOSIS	CORRECTIVE ACTIONS
			refrigerant 5. For gas leakage from expansion valve, replace expansion valve

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

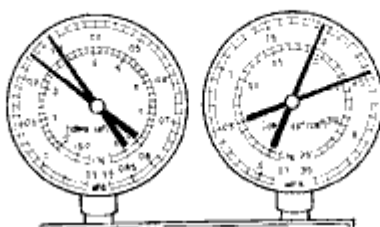
Condition: Air conditioning system does not function effectively.



SYMPTOMS	PROBABLE CAUSES	DIAGNOSIS	CORRECTIVE ACTIONS
Pressure extremely high on both low and high pressure sides	- Excessive refrigerant - Cooling performance of condenser insufficient	- Excessive refrigerant - Cooling performance of condenser insufficient	- Clean condenser - Check condenser fan motor operation - If 1 and 2 normal, check the amount of refrigerant and supply appropriate volume of refrigerant

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

Condition: Air conditioning system does not function.

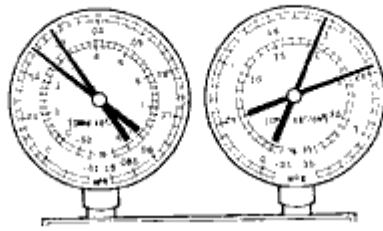


NOTE: These gauge indications occur when the refrigeration system opens and the refrigerant is charged without vacuum purging.

SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTIONS
- Pressure extremely high on both low and high pressure sides - The low pressure piping too hot to touch	Air in refrigeration system	- Air in refrigeration system - Vacuum purging insufficient	- Check whether compressor oil dirty or insufficient - Evacuate air and charge new refrigerant

(8) When the expansion valve malfunctions:

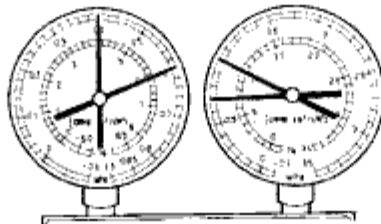
Condition: Air conditioning system does not function effectively.



SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
- Pressure extremely high on both low and high pressure sides - Frost or condensation on piping on low pressure side	Trouble in expansion valve	- Excessive refrigerant in low pressure piping - Expansion valve too wide open	Replace expansion valve

(9) When the compressor is defective:

Condition: Air conditioning system does not function.



SYMPTOMS	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
- Pressure extremely high on both low and high pressure sides - Pressure extremely low on high pressure side	Internal leakage in compressor	- Compression failure - Leakage from damaged valve or broken sliding parts	Repair or replace compressor



Last Modified: 11-13-2015	6.6 A	Doc ID: RM0000016AT00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: REFRIGERANT (for HFC-134a(R134a)): REPLACEMENT; 2016 MY Tacoma [08/2015 -]		

REPLACEMENT

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

- (a) Start up the engine.
- (b) Turn the A/C switch to ON.
- (c) Operate the cooler compressor with an engine speed of approximately 1,000 rpm for 5 to 6 minutes to circulate the refrigerant and collect the compressor oil remaining in each component into the cooler compressor.
- (d) Stop the engine.
- (e) Recover the refrigerant from the A/C system using a refrigerant recovery unit.

2. CHARGE AIR CONDITIONING SYSTEM WITH REFRIGERANT

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

Standard:

570 to 630 g (20.10 to 22.22 oz.)

SST: 09985-20010

09985-02010

09985-02050

09985-02060

09985-02070

09985-02080

09985-02090

09985-02110

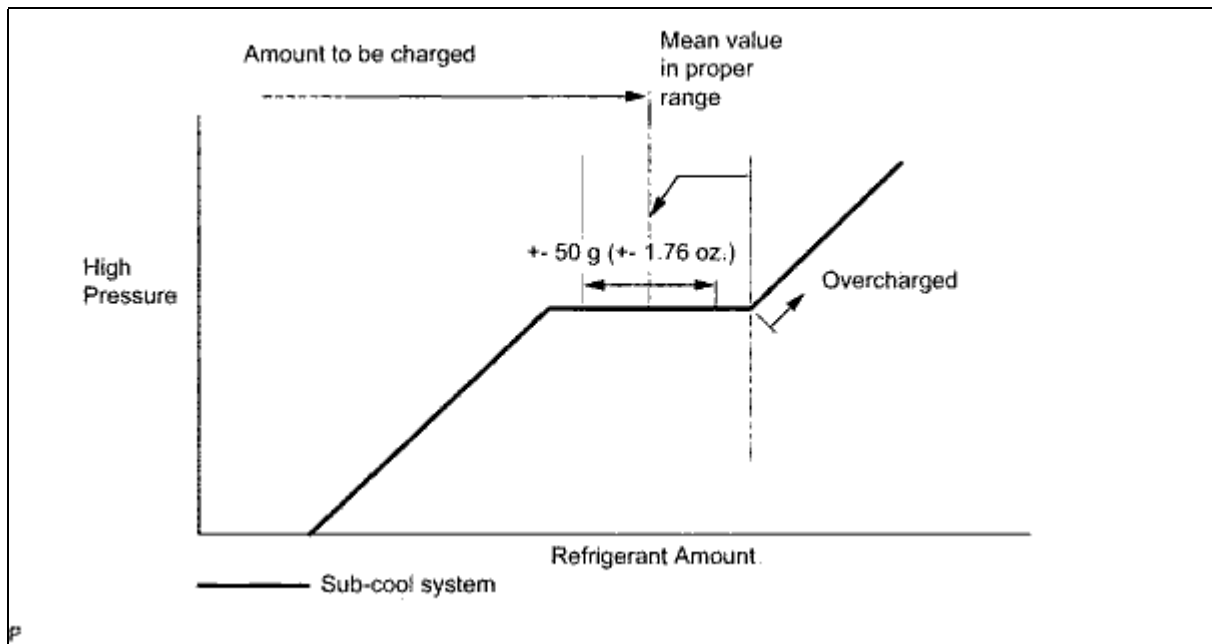
09985-02130

09985-02140

09985-02150

NOTICE:

Do not start the engine before charging it with refrigerant as the cooler compressor does not work properly without any refrigerant. This could cause the compressor to overheat.



3. WARM UP ENGINE

NOTICE:

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

4. INSPECT FOR REFRIGERANT LEAK

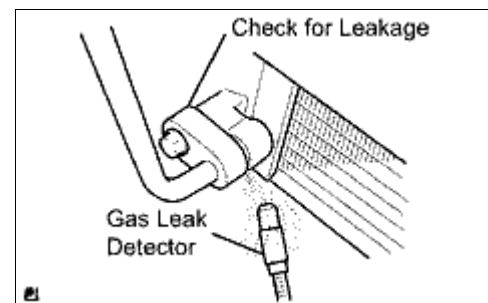
(a) After recharging the refrigerant gas, check for refrigerant gas leakage using a halogen leak detector.

(b) Perform the operation under these conditions:

- Stop the engine.
- Secure good ventilation (the gas leak detector may react to volatile gases other than refrigerant, such as evaporated gasoline or exhaust gas).
- Repeat the test 2 or 3 times.
- Make sure that some refrigerant remains in the refrigeration system.

When compressor is off: approximately 392 to 588 kPa (4 to 6 kgf/cm² , 57 to 85 psi)

(c) Using a gas leak detector, check the refrigerant line for leakage.



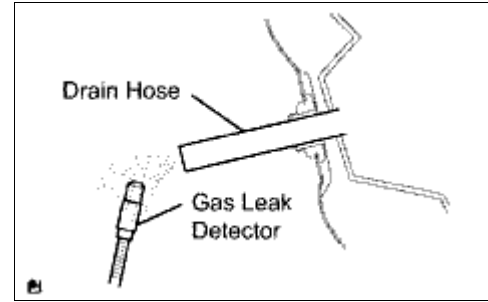
- (d) Bring the gas leak detector close to the drain hose with the detector power off.

HINT:

- After the blower motor has stopped, leave the cooling unit for more than 15 minutes.
- Place 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 other volatile gases.

HINT:

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



- (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.



Last Modified: 11-13-2015	6.6 G	Doc ID: RM000001R8Z051X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: REFRIGERANT (for HFO-1234yf(R1234yf)): ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

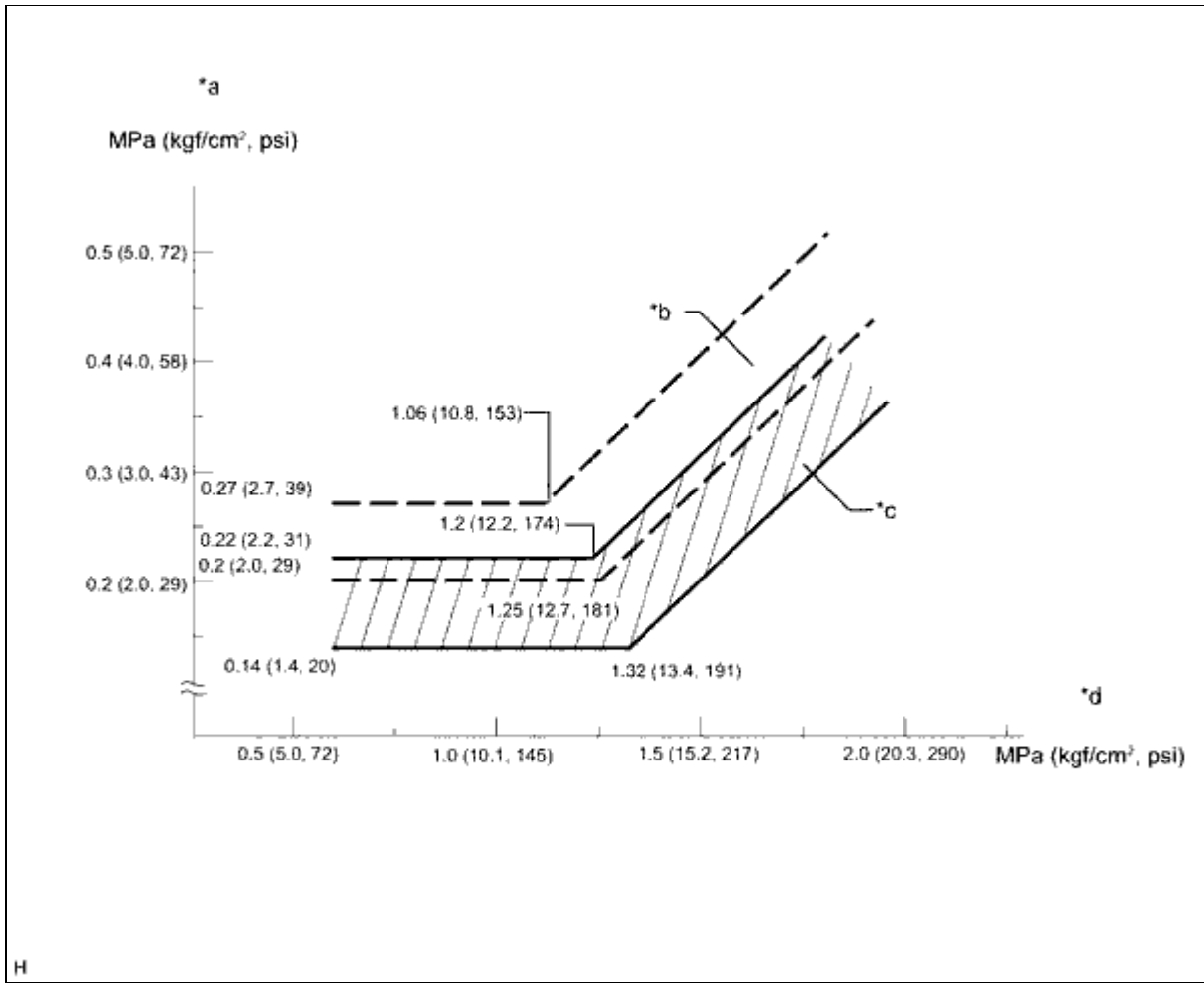
1. INSPECT REFRIGERANT PRESSURE

(a) This method uses a refrigerant recovery unit set to locate problem areas. Read the refrigerant pressure when the test conditions are established.

Test conditions:

- Temperature at the air inlet with the air recirculation switch set at RECIRC is 30 to 35°C (86 to 95°F).
- Engine is running at 1500 rpm.
- All doors are fully open.
- Blower speed control switch is set to HI.
- A/C switch is on.

Gauge readings (Reference):



Text in Illustration

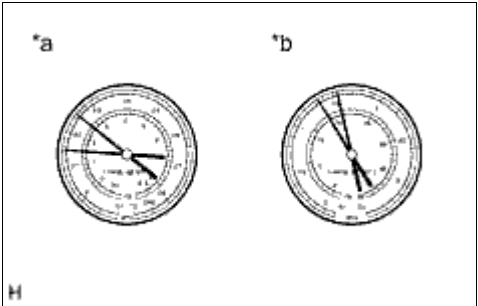
*a	Pressure on low-pressure side	*b	Blower HI Zone
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*c	Blower LO Zone	*d	Pressure on high-pressure side
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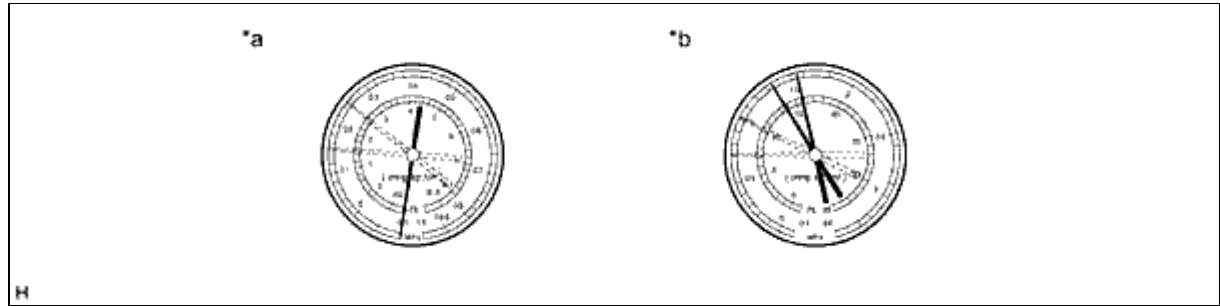
(1) Normally functioning refrigeration system.

Gauge Reading:

PRESSURE SIDE	REFRIGERANT VOLUME
Low	0.15 to 0.25 MPa (1.5 to 2.5 kgf/cm ²)
High	1.37 to 1.57 MPa (14 to 16 kgf/cm ²)



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

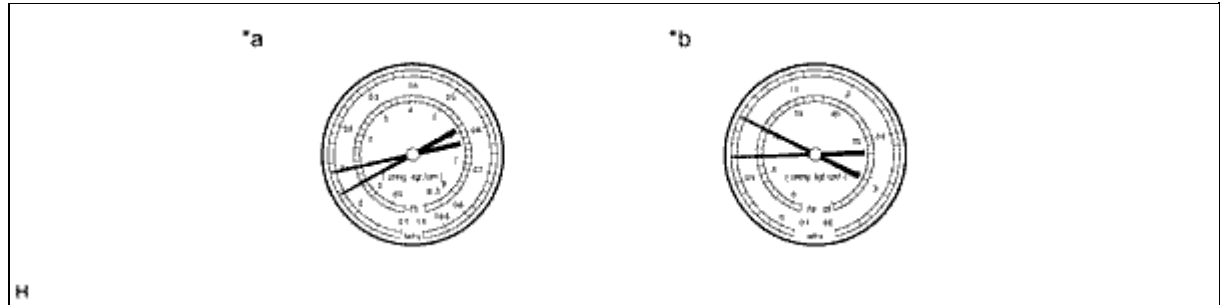


Text in Illustration

*a	Low Pressure Side	*b	High Pressure Side
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SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
During operation, pressure on low pressure side cycles between normal and vacuum	Moisture in refrigeration system freezes at expansion valve orifice, causing temporary stop of cycle. However, when melted, normal state is restored.	- Dryer is overly saturated - Moisture in refrigeration system freezes at expansion valve orifice and blocks refrigerant circulation	- Remove moisture from cycle by repeatedly evacuating air - Supply appropriate volume of new refrigerant

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

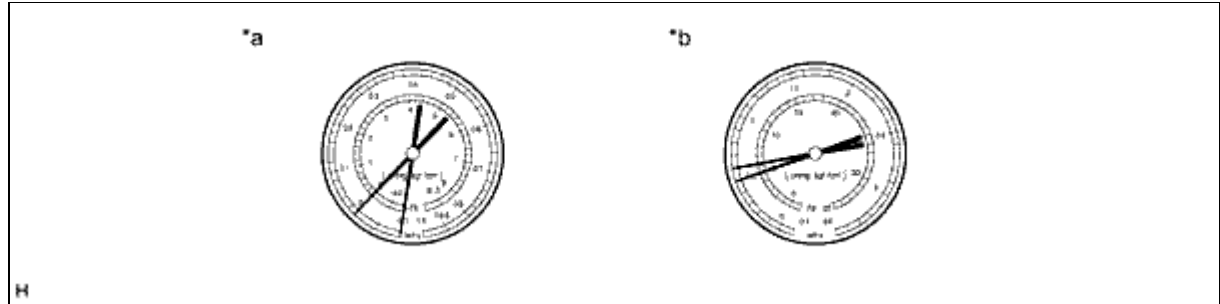


Text in Illustration

*a	Low Pressure Side	*b	High Pressure Side
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SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
- Pressure low on both low and high pressure sides - Cooling performance insufficient	Gas leakage from refrigeration system	- Insufficient refrigerant - Refrigerant leakage	- Check for gas leakage and repair if necessary - Supply appropriate volume of new refrigerant - If indicated pressure value close to 0 with gauge connected, create vacuum after inspecting and repairing location of leakage

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

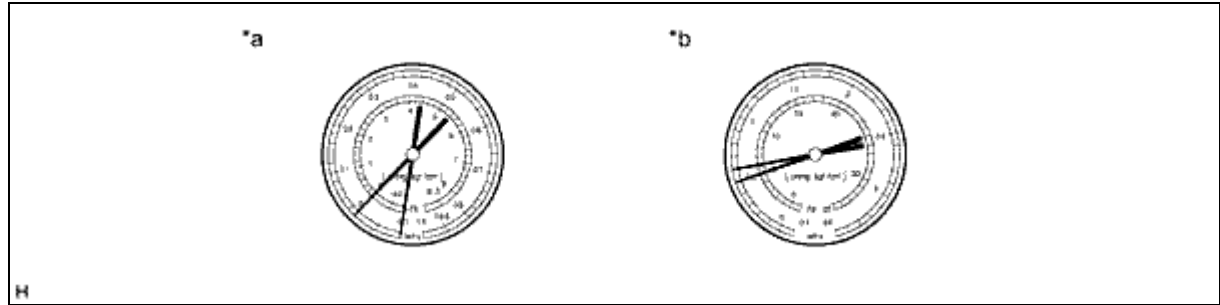


Text in Illustration

*a	Low Pressure Side	*b	High Pressure Side
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SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
- Pressure low on both low and high pressure sides - Frost exists on piping from condenser to A/C unit	Refrigerant flow obstructed by dirt in condenser	Condenser clogged	Replace condenser

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

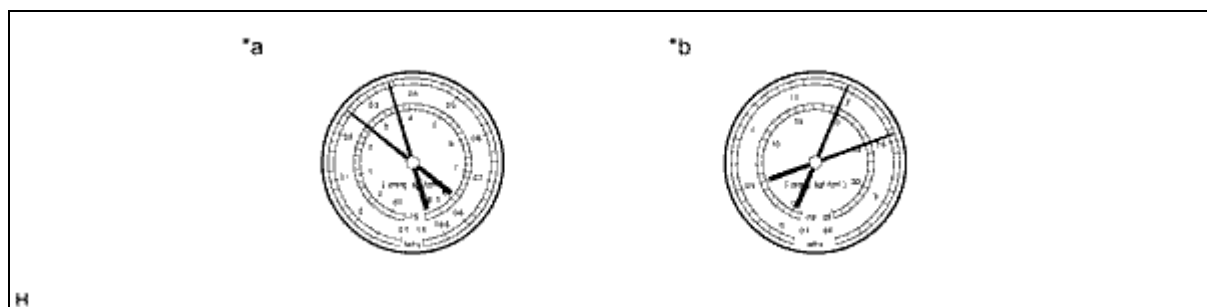


Text in Illustration

*a	Low Pressure Side	*b	High Pressure Side
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SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Vacuum indicated on low pressure side, and extremely low pressure indicated on high pressure side • Frost or condensation seen on piping on both sides of condenser or expansion valve	• Refrigerant flow obstructed by moisture or dirt in refrigeration system • Refrigerant flow obstructed by gas leakage from expansion valve	Refrigerant does not circulate	1. Check expansion valve refrigerant 2. Clean expansion valve using compressed air 3. Replace condenser 4. Evacuate air and charge system with appropriate volume of new refrigerant 5. For gas leakage from expansion valve, replace expansion valve

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



Text in Illustration

*a	Low Pressure Side	*b	High Pressure Side
----	-------------------	----	--------------------

SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
Pressure extremely high on both low and high-pressure sides	• Excessive refrigerant • Cooling performance of condenser insufficient	• Condenser is dirty • Condenser fan motor is malfunctioning • Excessive refrigerant	1. Clean condenser 2. Check condenser fan motor operation 3. If actions taken in 1 and 2 do not solve problem, check amount of refrigerant and adjust amount of refrigerant to appropriate amount

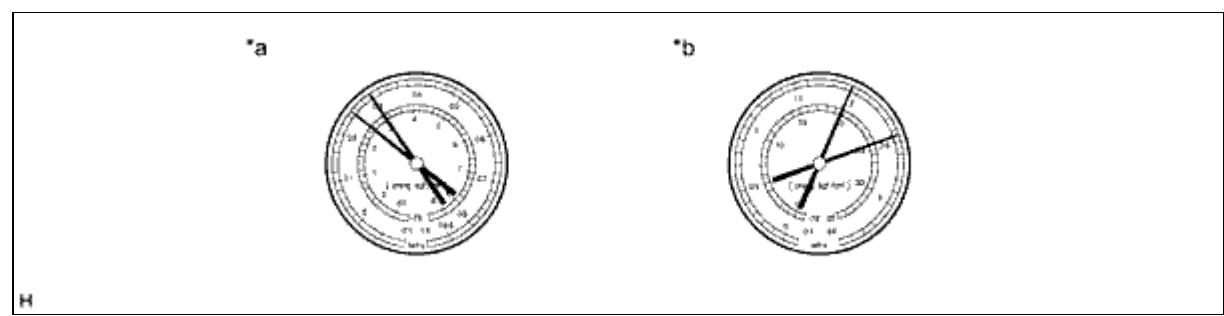
(7) The A/C system does not function due to air in the refrigeration system.

CAUTION:

The low-pressure piping may be very hot and cause serious burns.

NOTICE:

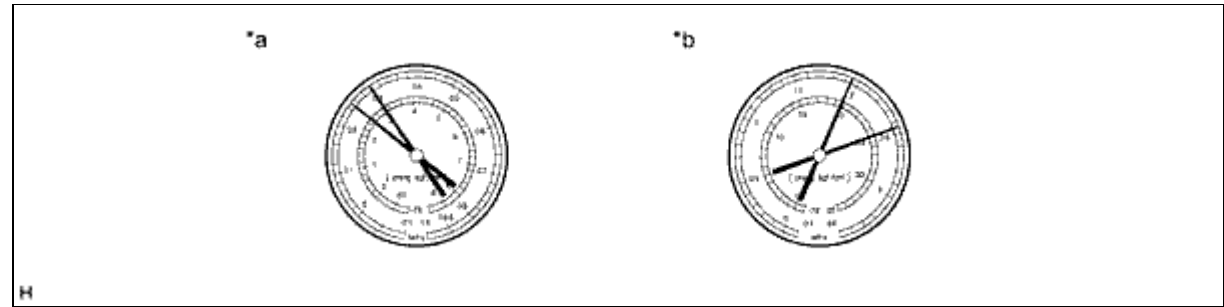
These gauge indications occur when the refrigeration system opens and the system is charged with refrigerant without vacuum purging.



Text in Illustration

*a	Low Pressure Side	*b	High Pressure Side
SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Pressure extremely high on both low and high-pressure sides • Low-pressure piping is too hot to touch	Air in refrigeration system	• Air in refrigeration system • Vacuum purging insufficient	1. Check if compressor oil is dirty or insufficient 2. Evacuate air and charge system with new refrigerant

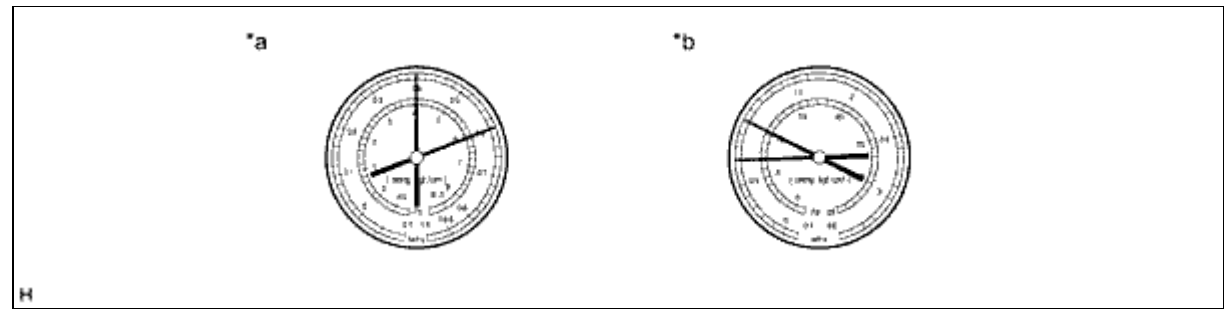
(8) The A/C system does not function effectively due to an expansion valve malfunction.



Text in Illustration

*a	Low Pressure Side	*b	High Pressure Side
SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Pressure extremely high on both low and high-pressure sides • Frost or condensation on piping on low-pressure side	Problem with expansion valve	• Excessive refrigerant in low pressure piping • Expansion valve open too widely	Replace expansion valve

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



Text in Illustration

*a	Low Pressure Side	*b	High Pressure Side
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SYMPTOM	PROBABLE CAUSE	DIAGNOSIS	CORRECTIVE ACTION
• Pressure extremely high on both low and high-pressure sides • Pressure extremely low on high pressure side	Internal leakage in compressor	• Compression failure • Leakage from damaged valve or broken sliding parts	Repair or replace compressor



Last Modified: 11-13-2015	6.6 L	Doc ID: RM000002LKO00SX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: REFRIGERANT (for HFO-1234yf(R1234yf)): PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. PRECAUTIONS FOR REFRIGERANT HFO-1234yf (R1234yf)

(a) Compatibility

- (1) The parts used in the refrigerant cycle, the compressor oil, etc. of the HFO-1234yf (R1234yf) system are not compatible with the conventional HFC-134a (R134a) system.

(b) HFO-1234yf (R1234yf) Refrigerant

- (1) Always use HFO-1234yf (R1234yf) as the refrigerant.

NOTICE:

- Do not charge the system with refrigerant near open flames, as HFO-1234yf (R1234yf) is combustible.
- When charging the system with refrigerant, make sure the area is well ventilated (especially be careful in areas where the gas can easily accumulate such as under lifts and in garage pits, as the gas is heavier than air).
- Follow any local regulations regarding combustible gases.
- Be sure to use a refrigerant recovery unit that is compatible with HFO-1234yf (R1234yf) systems.

HINT:

The shape of the service port for refrigerant charging has an exclusive design conforming to international standards for HFO-1234yf (R1234yf) to prevent improper refrigerant charging.

(c) Compressor Oil

- (1) Always use ND-OIL 12 as the compressor oil.

NOTICE:

The oil used for HFC-134a (R134a) systems (ND-OIL 8) does not work well in HFO-1234yf (R1234yf) systems. If the oil used for HFC-134a (R134a) systems (ND-OIL 8) is used in an HFO-1234yf (R1234yf) system, it will result in degradation of the refrigerant and deterioration of resin parts.

- (2) When parts of the air conditioning system are removed, quickly block off any areas that are exposed to the outside air with plugs, vinyl tape, etc., as the oil used for HFO-1234yf (R1234yf) systems absorbs moisture easily.

- (3) Do not allow the compressor oil to splash, as the oil used for HFO-1234yf (R1234yf) systems has harmful effects on acrylic resins.

(d) Evacuation

- (1) When evacuating the system, be sure to use a refrigerant recovery unit, refrigerant recycler and refrigerant charger that are compatible with HFO-1234yf (R1234yf) systems.

(e) Refrigerant Gas Leak Inspection

- (1) Use a gas leak detector to check for refrigerant gas leaks.

HINT:

Be sure to use a gas leak detector that is compatible with HFO-1234yf (R1234yf) systems.

- (2) Ignition switch off when checking for refrigerant leaks.

HINT:

- If the engine is running when checking for leaks, the leaking gas becomes diluted in the air by the fan and

blower and detection becomes more difficult.

- If the air conditioning system is operating when checking for leaks, the refrigerant pressure in the system decreases and it becomes harder for gas to leak.
- If the air conditioning system is operating when checking for leaks, an electronic gas leak detector will react to the sudden change in humidity due to the humid air from the drain hose and a faulty judgment will be made.

2. PRECAUTIONS RELATED TO REMOVAL AND INSTALLATION OF PARTS

(a) In case refrigerant gets in your eyes

- (1) Do not rub your eyes with your hands or a handkerchief.
- (2) Consult an eye doctor.

(b) Handling of Refrigerant (Container)

- (1) Do not heat the container. If the container is directly heated or put into boiling water, the pressure inside the can will become abnormally high and the can may burst.
- (2) Do not drop or strike the container.
- (3) Do not bring the container anywhere near your face. Also, always wear eye protection.

(c) Pipe Installation

- (1) Always use new O-rings.

HINT:

When removing an O-ring, use an object with a soft tip so as not to damage the piping.

- (2) Apply a sufficient amount of compressor oil (ND-OIL 12) to the O-ring.
- (3) Route the hoses in the way they are naturally shaped. Do not twist or forcibly bend the hoses.
- (4) Do not use cloth gloves, etc. as fibers adhered to O-rings can lead to refrigerant gas leaks.



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Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: REFRIGERANT (for HFO-1234yf(R1234yf)): REPLACEMENT; 2016 MY Tacoma [08/2015 -]		

REPLACEMENT

1. RECOVER REFRIGERANT FROM REFRIGERATION SYSTEM

- (a) Start the engine.
- (b) Operate the cooler compressor under the conditions shown below:

ITEM	CONDITION
Engine Speed	Idling
Operating Time	3 minutes or more
A/C Switch Status	On
Blower Switch Status	HI
Set Temperature	MAX COOL

This causes most of the compressor oil from the various components of the A/C system to collect in the A/C compressor.

NOTICE:

It is not necessary to operate the cooler compressor if the A/C does not operate because of compressor lock, etc.

- (c) Stop the engine.
- (d) Recover the refrigerant from the A/C system using a refrigerant recovery unit.

NOTICE:

Be sure to use a refrigerant recovery unit that is compatible with HFO-1234yf (R1234yf) systems.

HINT:

Use the refrigerant recovery unit in accordance with the manufacturer's instruction manual.

2. CHARGE AIR CONDITIONING SYSTEM WITH REFRIGERANT

HINT:

Charge refrigerant in accordance with the equipment manual.

- (a) Perform vacuum purging using a refrigerant recover unit.

NOTICE:

Be sure to use a refrigerant recovery unit that is compatible with HFO-1234yf (R1234yf) systems.

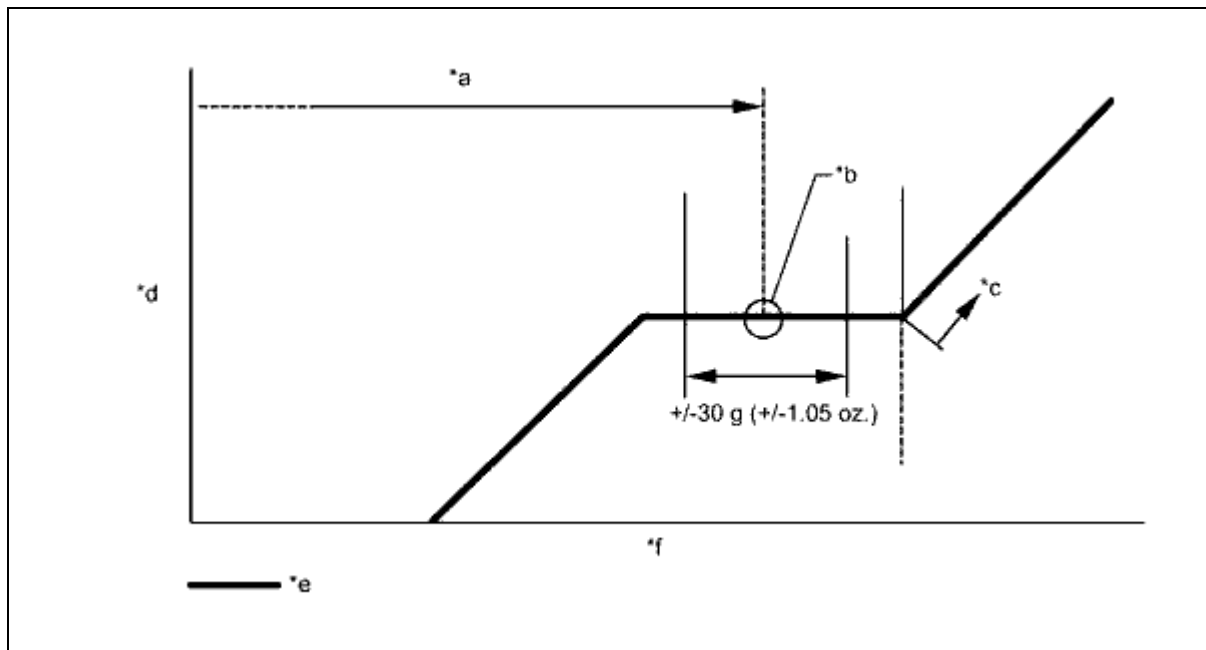
- (b) Charge refrigerant HFO-1234yf (R1234yf).

Standard:

480 to 530 g (16.93 to 18.69 oz.)

NOTICE:

Make sure the amount of refrigerant is within 30 g of the specified amount.



Text in Illustration

*a	Amount to be charged	*b	Mean value in proper range
*c	Overcharged	*d	Pressure
*e	Sub-cool system	*f	Refrigerant amount

NOTICE:

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

3. WARM UP ENGINE

(a) Warm up the engine at less than 1640 rpm for 2 minutes or more after charging the refrigerant.

NOTICE:

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

4. INSPECT FOR REFRIGERANT LEAK

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

HINT:

Be sure to use a gas leak detector that is compatible with HFO-1234yf (R1234yf) systems.

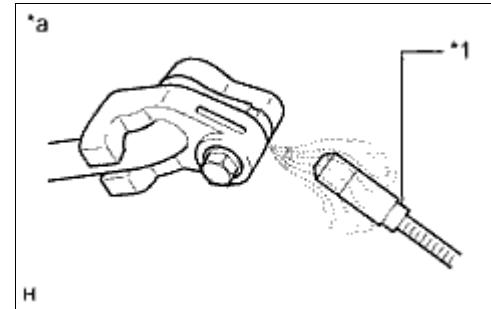
(1) Perform the operation observing the following instructions:

- Stop the engine.
- Secure good ventilation (the gas leak detector may react to volatile gases other than refrigerant, such as evaporated gasoline or exhaust gas).
- Repeat the test 2 or 3 times.
- Make sure that some refrigerant remains in the refrigeration system.

HINT:

When the compressor is off: approximately 392 to 588 kPa (4.0 to 6.0 kgf/cm² , 57 to 85 psi).

- (2) Using a gas leak detector, check the refrigerant line for leakage.



- (3) If a gas leak is not detected from the drain hose, remove the blower motor control (blower resistor) from the cooling unit. Insert the sensor of the gas leak detector into the unit and check for gas leakage.
- (4) Disconnect the pressure switch connector and wait for approximately 20 minutes. Bring the gas leak detector close to the pressure switch and check for gas leakage.

Text in Illustration

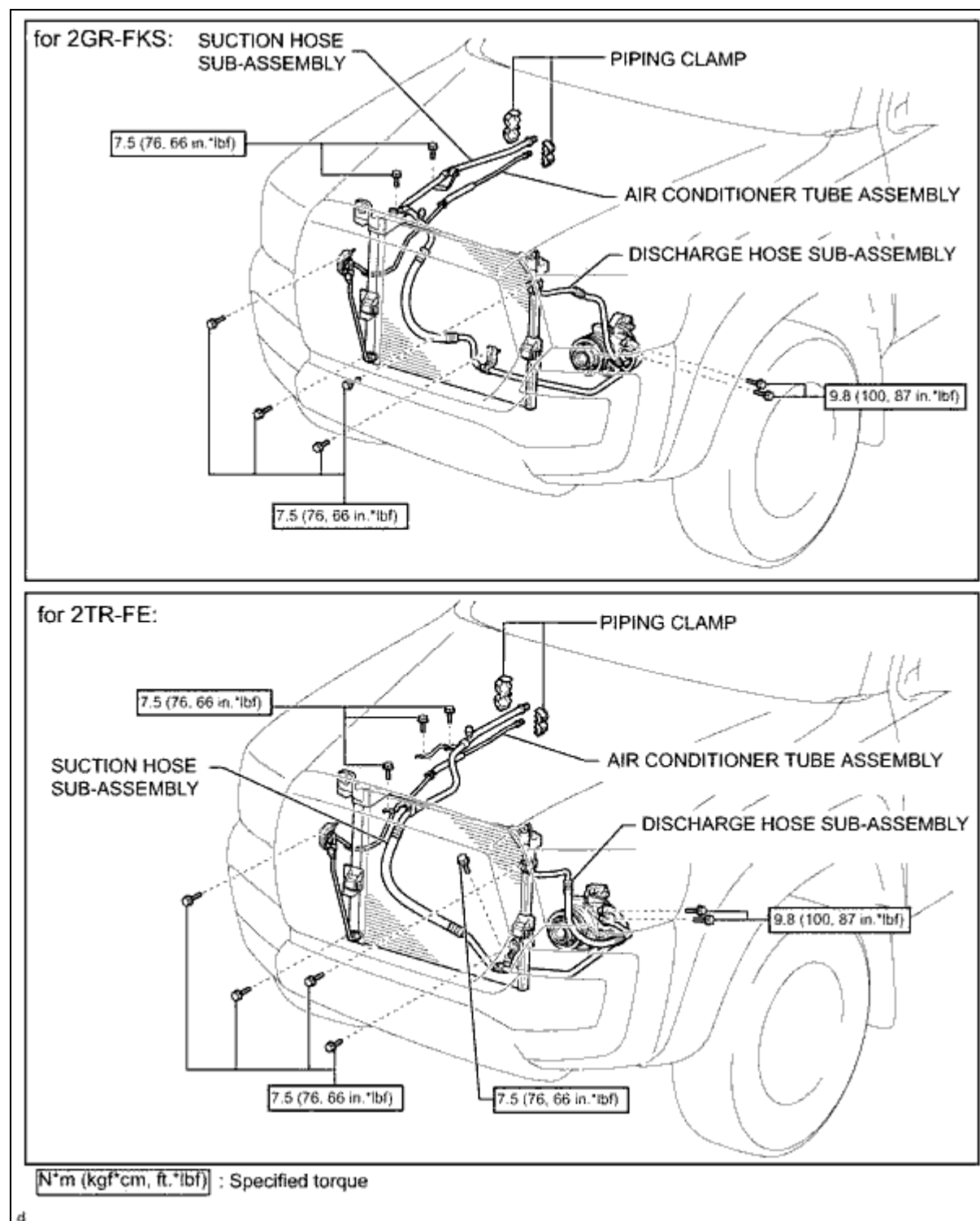
*1	Gas Leak Detector
*a	Check for Leakage



Last Modified: 11-13-2015	6.6 K	Doc ID: RM0000016AV00AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: REFRIGERANT LINE: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

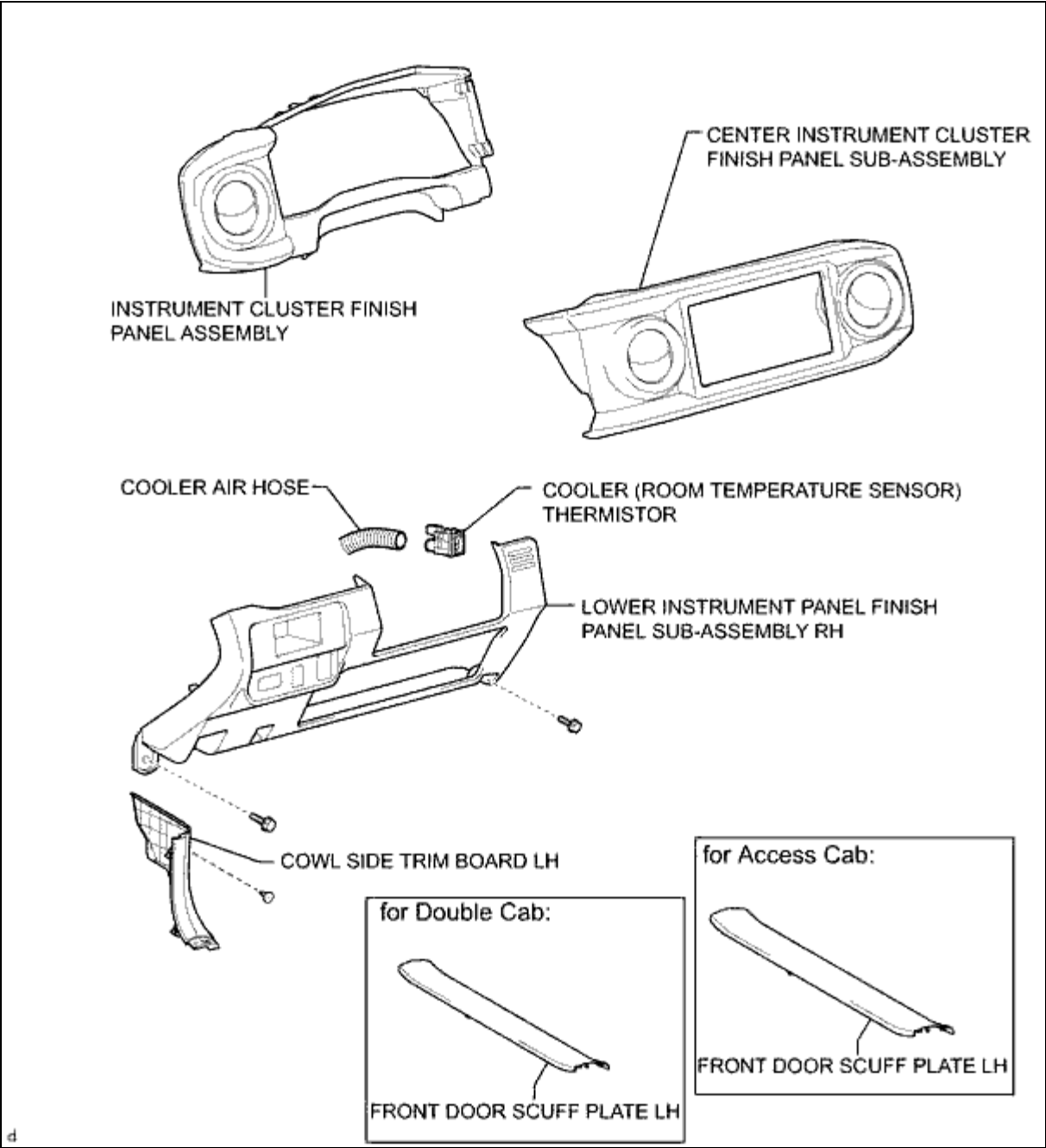
ILLUSTRATION



Last Modified: 11-13-2015	6.6 K	Doc ID: RM000005VRF000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: ROOM TEMPERATURE SENSOR: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



Last Modified: 11-13-2015	6.6 G	Doc ID: RM000005VRE000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: ROOM TEMPERATURE SENSOR: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT COOLER (ROOM TEMPERATURE. SENSOR) THERMISTOR

(a) Check the resistance.

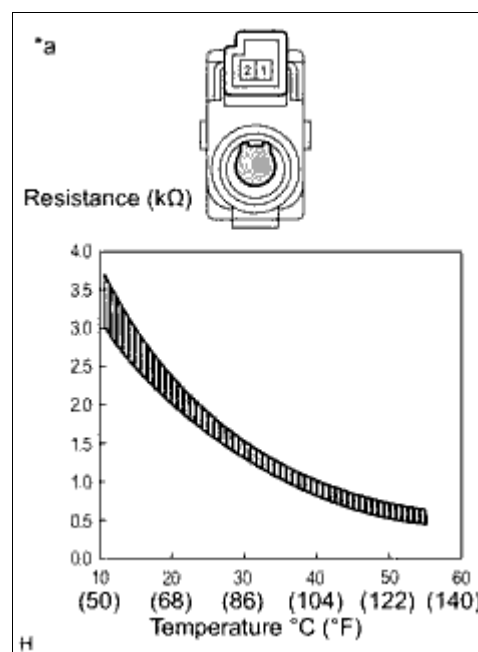
(1) Measure the resistance according to the value(s) in the table below.

Text in Illustration

*a	Component without harness connected (cooler thermistor (room temperature sensor))
*b	Sensing Portion
*c	Resistance (kΩ)
*d	Temperature (°C (°F))

Standard Resistance:

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



NOTICE:

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

If the result is not as specified, replace the cooler thermistor (room temperature sensor).



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Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: ROOM TEMPERATURE SENSOR: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL COOLER (ROOM TEMPERATURE SENSOR) THERMISTOR

- (a) Connect the cooler air hose.
- (b) Connect the connector.
- (c) Engage the 2 claws to connect the cooler (room temperature sensor) thermistor.

2. INSTALL INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH [INFO](#)

3. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY [INFO](#)

4. INSTALL INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY [INFO](#)

5. INSTALL COWL SIDE TRIM BOARD LH [INFO](#)

6. INSTALL FRONT DOOR SCUFF PLATE LH (for Access Cab) [INFO](#)

7. INSTALL FRONT DOOR SCUFF PLATE LH (for Double Cab) [INFO](#)



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Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: AIR CONDITIONING: ROOM TEMPERATURE SENSOR: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

1. REMOVE FRONT DOOR SCUFF PLATE LH (for Double Cab) [INFO](#)

2. REMOVE FRONT DOOR SCUFF PLATE LH (for Access Cab) [INFO](#)

3. REMOVE COWL SIDE TRIM BOARD LH [INFO](#)

4. REMOVE CENTER INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY [INFO](#)

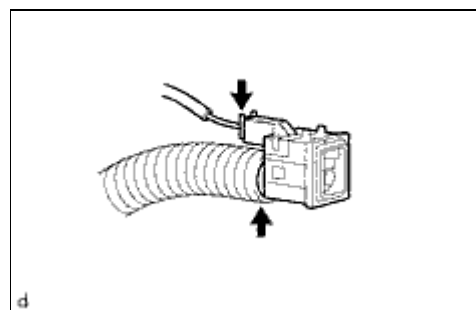
5. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY [INFO](#)

6. REMOVE INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH [INFO](#)

7. REMOVE COOLER (ROOM TEMPERATURE SENSOR) THERMISTOR

(a) Disengage the 2claws to disconnect the cooler (room temperature sensor) thermistor.

(b) Disconnect the connector.



(c) Disconnect the cooler air hose to remove the cooler (room temperature sensor) thermistor.

