

# TIRE AND WHEEL SYSTEM

## PRECAUTION

### 1. REMOVAL AND INSTALLATION OF TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- (a) When installing a tire, make sure that the tire pressure warning valve and transmitter does not interfere with the tire bead in order to prevent damage to the sensor.
- (b) After completing the operation, remove the valve core to rapidly release air and check that the warning light comes on. If not, the system may have a defect.
- (c) If there is air leakage, tighten the nut to 4.0 N\*m (41 kgf\*cm, 35 in.\*lbf) and push the valve core 2 or 3 times to remove any dirt attached to the valve core. If there is still air leakage, replace the grommet, the washer and the nut all together.
- (d) When installing the tire pressure warning valve and transmitter, check whether the rim, grommet, washer and nut are clean. Use a manufacturer-specified cap.
- (e) When putting air into the tire, first install the tire pressure valve straight onto the stem of the tire pressure warning valve and transmitter.

### 2. TIRE AND WHEEL REPLACEMENT OR TIRE ROTATION

- (a) When replacing the tires, be sure to check if the grommet of the tire valve is damaged. If so, replace the grommet together with the washer and nut.
- (b) When the tires and wheels are replaced, make sure to register the transmitter ID.

#### **NOTICE:**

**Transmitter IDs of all tires including spare on vehicle should be correspond to IDs registered in ECU.**

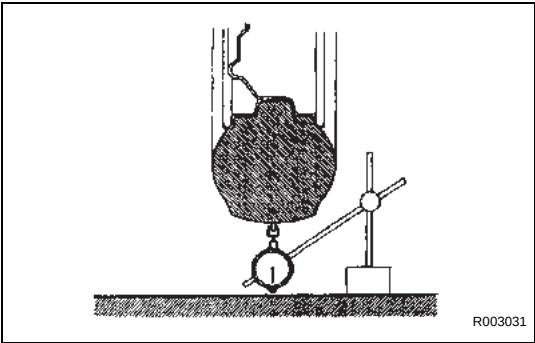
INSPECTION

1. INSPECT TIRES

- (a) Check the tires for wear and proper inflation pressure.

Cold tire inflation pressure

| Tire Size       | Front Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Rear Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Spare Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) |
|-----------------|------------------------------------------------|-----------------------------------------------|------------------------------------------------|
| P215/70R15 97S  | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P255/45R18 99V  | 240 (2.4, 35)                                  | 240 (2.4, 35)                                 | 240 (2.4, 35)                                  |
| P245/75R16 109S | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |
| P265/70R16 111T | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P265/65R17 110S | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |

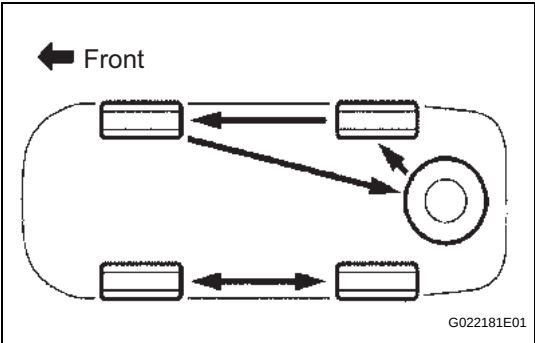


- (b) Using a dial indicator, check the tire runout.

**Tire runout:**  
**3.0 mm (0.118 in.) or less**

2. ROTATE TIRES

**HINT:**  
See the illustration on the left for how to rotate the tires, when you include the spare tire in the rotation.



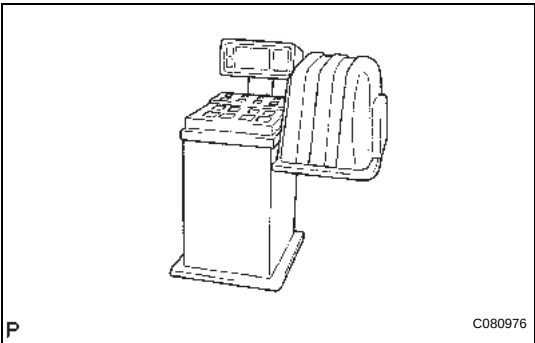
3. INSPECT WHEEL BALANCE

- (a) Perform off-car balancing.
- (b) If necessary, perform on-car balancing.

**Imbalance after adjustment:**  
**8 g (0.018 lb) or less**

4. INSPECT FRONT AXLE HUB BEARING (See page [AH-1](#))

5. INSPECT REAR AXLE HUB BEARING (See page [AH-2](#))



# TIRE PRESSURE WARNING SYSTEM

## PRECAUTION

### 1. TIRE PRESSURE WARNING SYSTEM PRECAUTION

- (a) Under the following conditions, the system may not function properly;
- Areas, facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
  - Devices using similar radio frequencies are used in the vehicle.
  - Large amounts snow or ice are stuck to the vehicle, especially on the wheels and around the wheel houses.
  - The battery of the transmitter is depleted.
  - Tires and wheels without tire pressure warning valves and transmitters are used.
  - Snow tires and tire chains are used.
  - If wheels other than the specified ones are used, the system may not function properly because different radio waves are transmitted from the tire pressure warning valve and transmitter.
  - Depending on the tire type, the tire pressure warning valve and transmitter may not function properly even though the specified wheels are used.
  - The system may not function properly if it is initialized with tire pressures which are not the specified values.
- (b) Tire and wheel replacement or tire rotation.
- After tires or wheels are replaced, it is necessary to register the transmitter IDs of the new tire pressure warning valve and transmitters (See page [TW-11](#) ).
  - It is not necessary to register the transmitter IDs when only tire rotation is performed.
  - When a tire needs to be removed from a wheel, first drop the tire pressure warning valve and transmitter into the tire (See page [TW-95](#) ).

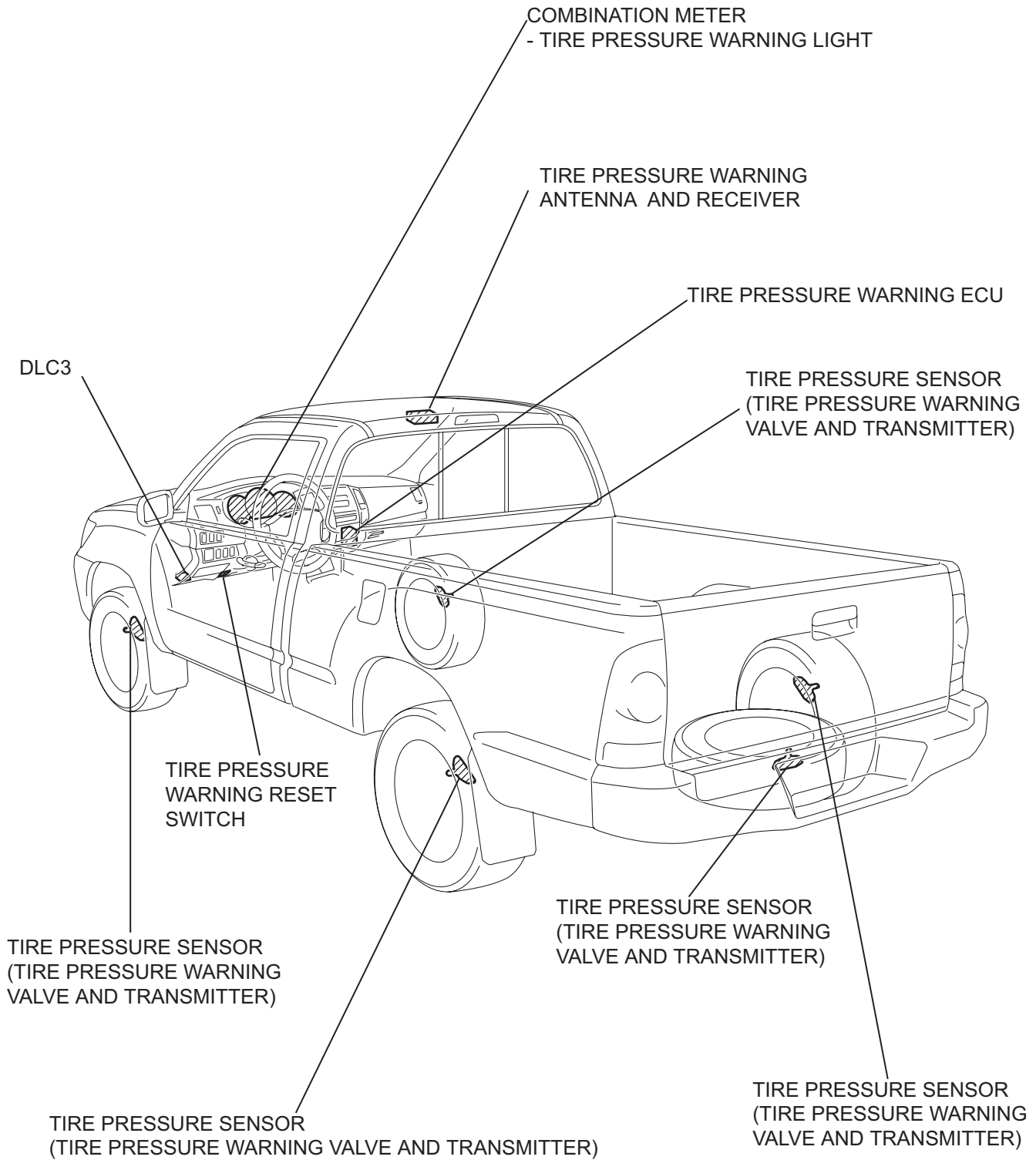
**NOTICE:**

**Always drop the tire pressure warning valve and transmitter into the tire first. Otherwise, the tire bead and tire pressure warning valve and transmitter come into contact with each other, causing damage to the tire pressure warning valve and transmitter.**

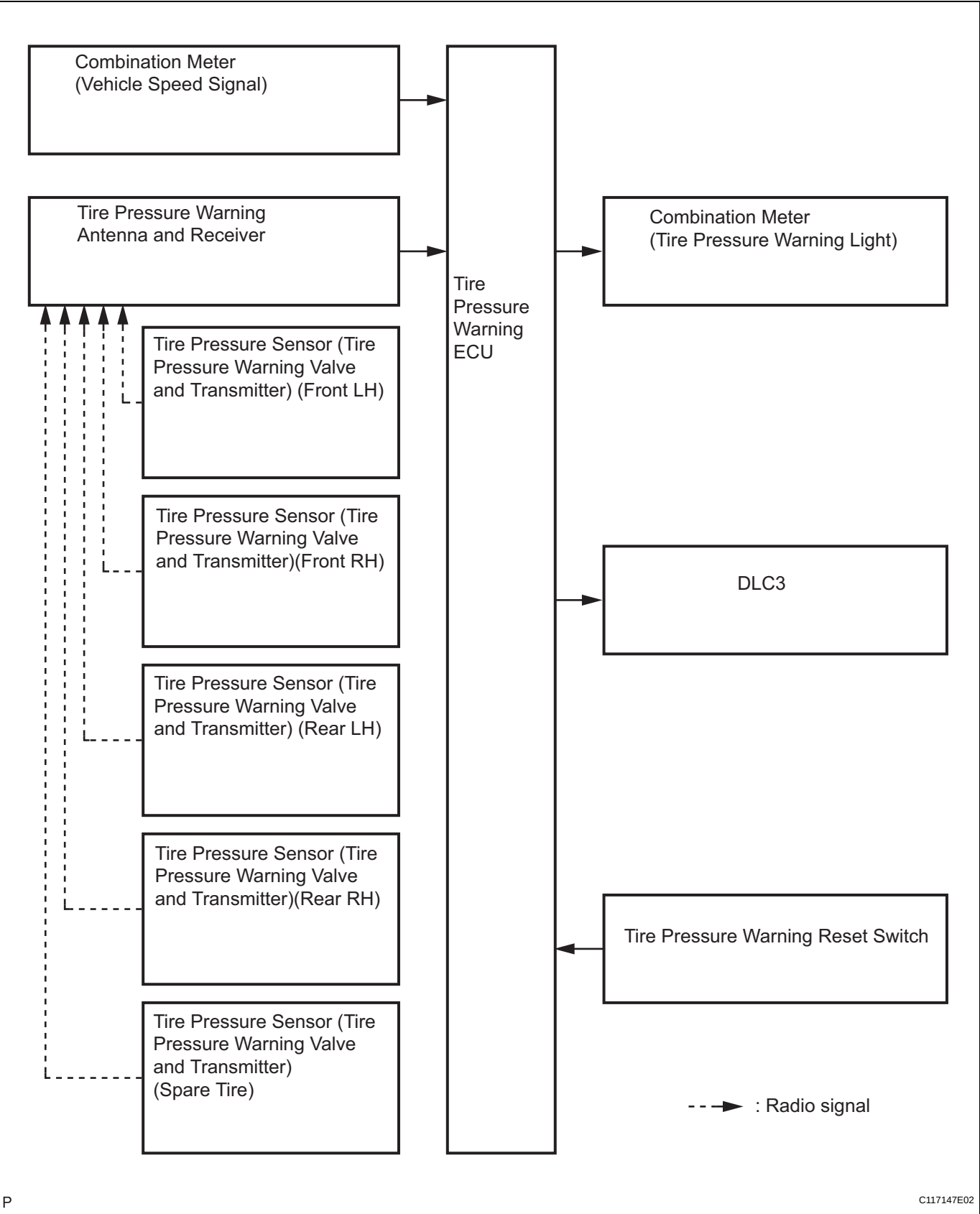
- The initialization is necessary to reset the warning threshold in accordance with variant tire pressure settings due to tire types.

- (c) When replacing the tire pressure warning ECU and the tire pressure warning valves and transmitters; It is necessary to perform the initialization (See page [TW-15](#) ) after the registration (See page [TW-11](#) ).
- (d) Precautions about the tire pressure;
- The tire pressures decrease naturally.
  - In winter, tire pressures may decrease due to low ambient temperatures (tire pressure decreases by approximately 10 kPa (0.2 kgf/cm<sup>2</sup>, 1.45 psi) for every 10°C (50°F) drop in the ambient temperature).
- Therefore, the tire pressure warning is more likely to operate if the tire pressures are not adjusted appropriately.
- If the daily temperature variation is large, pressurize the tires high so that the tire pressures are suitable under cold conditions. Incorrect tire pressure warning operation becomes less likely.

## PARTS LOCATION



SYSTEM DIAGRAM

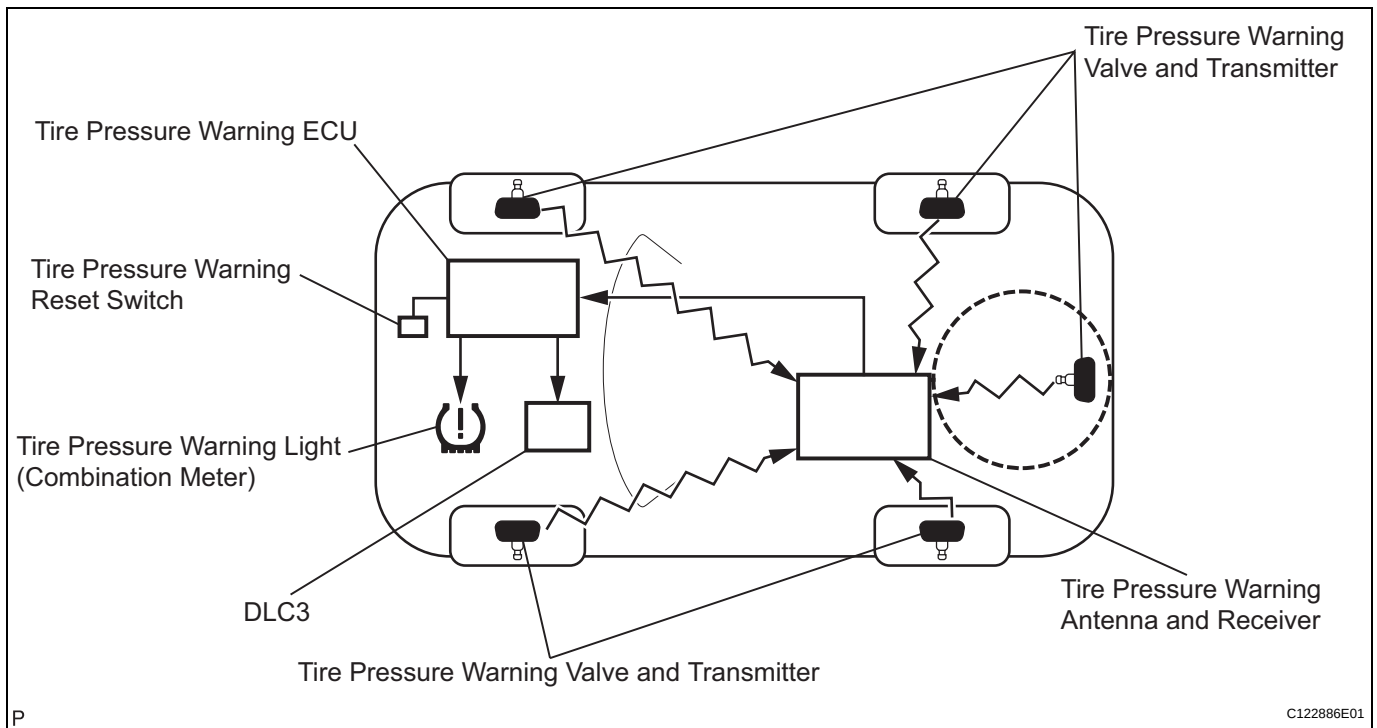


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## SYSTEM DESCRIPTION

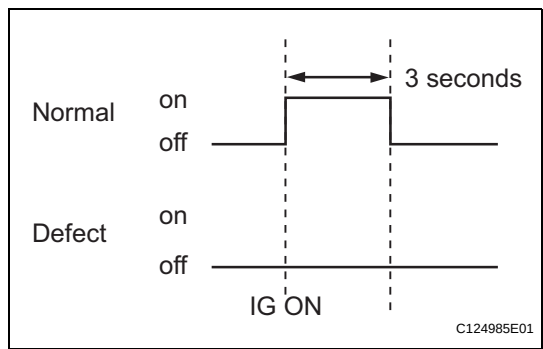
### 1. DESCRIPTION OF SYSTEM

- (a) Tire pressure sensors (pressure warning valves and transmitters) are installed in tire and wheel assemblies. The sensors measure the air pressures and internal temperatures of the tires. The measured values and transmitter IDs are transmitted to the tire pressure warning antenna and receiver on the body as radio waves and then sent to the tire pressure warning ECU. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure value is less than this threshold, the tire pressure warning light in the combination meter comes on.
- The tire pressure warning reset switch has been adopted in order to reset the warning threshold in accordance with variant tire pressure settings due to tire types and installation positions.
  - The tire pressure warning valves and transmitters may not be used on wheels other than those originally fitted on the vehicle due to the air valve angle of the tire pressure warning valve and transmitter.



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- (b) After removing and installing the ECU or a tire pressure warning valve and transmitter, check that the normal code is output.



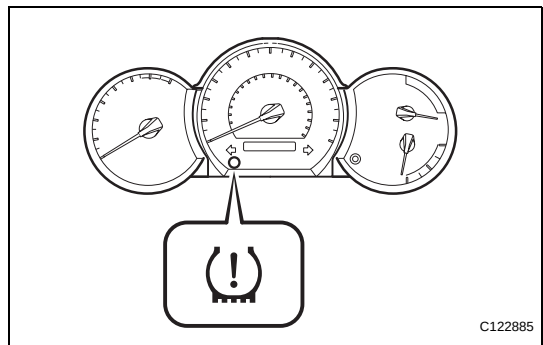
2. INITIAL CHECK

- (a) The tire pressure warning light comes on for 3 seconds after the ignition switch turned ON, and then goes off.

HINT:

If the warning light does not come on for 3 seconds, trouble shoot the tire pressure warning light circuit.

| Trouble Area                        | See Procedure         |
|-------------------------------------|-----------------------|
| Tire pressure warning light circuit | <a href="#">TW-61</a> |



3. FAIL-SAFE FUNCTION

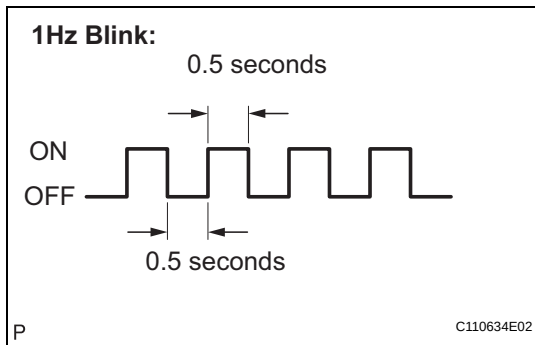
- (a) When a malfunction occurs in the tire pressure warning system, the tire pressure warning light blinks to indicate the system failure.
- (b) The result of this diagnosis is stored in the tire pressure warning ECU.

4. TIRE PRESSURE WARNING LIGHT CHART

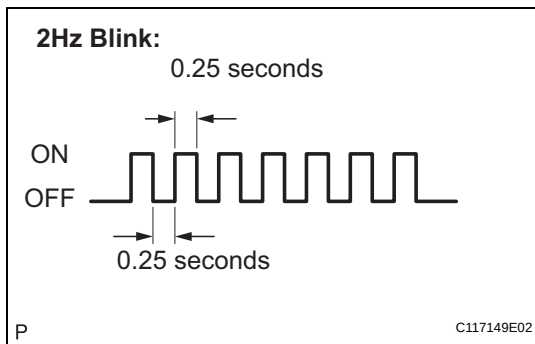
HINT:

The table below indicates the state of the tire pressure warning light after the ignition switch is turned on.

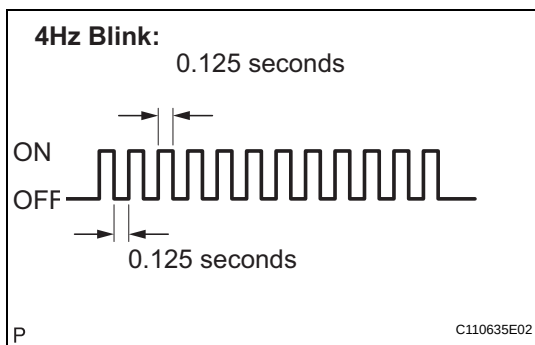
| Condition                     | Immediately after IG turned ON | Always   |          |             |             |             |             |                                       |
|-------------------------------|--------------------------------|----------|----------|-------------|-------------|-------------|-------------|---------------------------------------|
|                               | Comes on for 3 seconds         | Goes off | Comes on | Blinks (*1) | Blinks (*2) | Blinks (*3) | Outputs DTC | Comes on 3 times (1 second intervals) |
| Normal                        | ○                              | ○        | -        | -           | -           | -           | -           | -                                     |
| Low tire pressure             | ○                              | -        | ○        | -           | -           | -           | -           | -                                     |
| System failure                | ○                              | -        | -        | ○           | -           | -           | -           | -                                     |
| ECU connector connection poor | -                              | -        | ○        | -           | -           | -           | -           | -                                     |
| TC grounded (no DTCs output)  | ○                              | -        | -        | -           | ○           | -           | -           | -                                     |
| TC grounded (DTCs output)     | ○                              | -        | -        | -           | -           | -           | ○           | -                                     |
| Test mode                     | ○                              | -        | -        | -           | -           | ○           | -           | -                                     |
| Entering initialization       | ○                              | -        | -        | -           | -           | -           | -           | ○                                     |



\*1: Blinks at 0.5 second intervals (1Hz).



\*2: Blinks at 0.25 second intervals (2Hz).



\*3: Blinks at 0.125 second intervals (4Hz).

## 5. FUNCTIONS OF COMPONENTS

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| Components                                  | Function                                                                                                                                                                                                                                                                                          |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tire pressure warning valve and transmitter | Consists of sensor, transmitter, and built-in battery. Measures tire pressure and internal temperature, transmits measurement values and transmitter ID to tire pressure warning antenna and receiver.                                                                                            |
| Tire pressure warning antenna and receiver  | Receives signals from tire pressure warning valves and transmitters and transmits them to tire pressure warning ECU.                                                                                                                                                                              |
| Tire pressure warning ECU                   | Receives signals from tire pressure warning antenna and receiver, and identifies them as vehicle's own signals. If measurement values less than standard or malfunctions occur in tire pressure warning system, transmits signals to combination meter to illuminate tire pressure warning light. |
| Tire pressure warning light                 | Located in combination meter, indicates decreases in tire pressure, high internal tire temperatures and system failures.                                                                                                                                                                          |
| Tire pressure warning reset switch          | Allows tire pressure warning system to enter initialization mode when tire or wheel replacement, or tire rotation performed.                                                                                                                                                                      |

# HOW TO PROCEED WITH TROUBLESHOOTING

The intelligent tester can be used at step 4.

1

VEHICLE BROUGHT TO WORKSHOP

NEXT

2

CUSTOMER PROBLEM ANALYSIS

NEXT

3

CHECK TIRE PRESSURE WARNING LIGHT CONDITION

- (a) Turn the ignition switch to the ON position.
- (b) Record the condition of the tire pressure warning light in the combination meter.
- (c) Refer to the TIRE PRESSURE WARNING LIGHT CHART section of the DIAGNOSIS SYSTEM when checking the condition of the tire pressure warning light (See page [TW-23](#) ).

NEXT

4

DTC CHECK AND CLEAR

DTC OUTPUT: GO TO STEP 5

DTC NOT OUTPUT: GO TO STEP 6

5

DTC CHART

GO TO STEP 8

6

PROBLEM SYMPTOM CONFIRMATION

SYMPTOM DOES NOT OCCUR: GO TO STEP 7

SYMPTOM OCCURS: GO TO STEP 8

7

CIRCUIT INSPECTION WITH TROUBLESHOOTING

- (a) Refer to PRECAUTION (See page [TW-3](#) ).
- (b) Refer to SYSTEM DESCRIPTION (See page [TW-7](#) ).

- (1) Initial check.
- (2) Tire pressure warning light chart.
- (c) Set the tire pressures to the appropriate specified values.
- (d) Perform initialization (See page [TW-15](#) ).
- (e) Perform test mode procedure (See page [TW-17](#) ).
  - (1) Check for a DTC (See page [TW-26](#) ).
  - (2) Clear the DTC.
  - (3) Identify transmitter corresponding to DTC.
- (f) Perform initialization (See page [TW-15](#) ).
- (g) Perform registration the transmitter ID (See page [TW-11](#) ).
- (h) Check the terminals of ECU (See page [TW-22](#) ).
- (i) Refer to DATA MONITOR / ACTIVE TEST (See page [TW-28](#) ).

NEXT

**8** REPAIR

NEXT

**9** CONFIRMATION TEST

- (a) Check for a DTC (See page [TW-26](#) ).
- (b) Perform initialization (See page [TW-15](#) ).
- (c) Confirm that the initialization has been completed.

NEXT

END

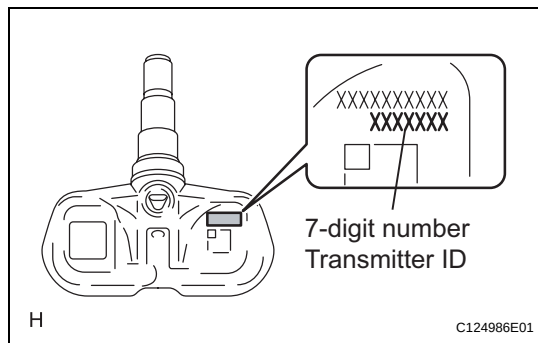
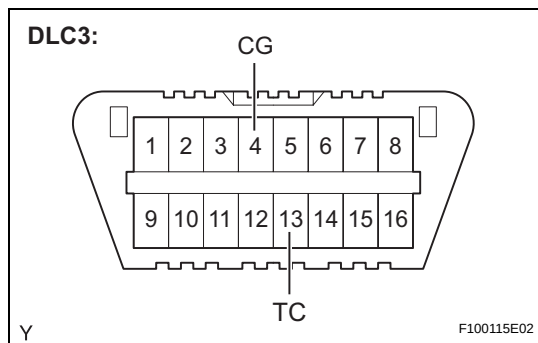
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## REGISTRATION

### 1. REGISTER TRANSMITTER IDs

#### NOTICE:

- Register the transmitter IDs after the tire pressure warning ECU or the tire pressure warning valve and transmitters have been replaced.
- If the transmitter IDs cannot be registered, the tire pressure warning ECU is probably in initialization mode. Initialization mode can be terminated by making a short circuit between terminals TC and CG of the DLC3 connector.
- In order to avoid damage to the tire pressure warning valve and transmitters, observe the instructions when removing and installing the tire pressure warning valve and transmitters.



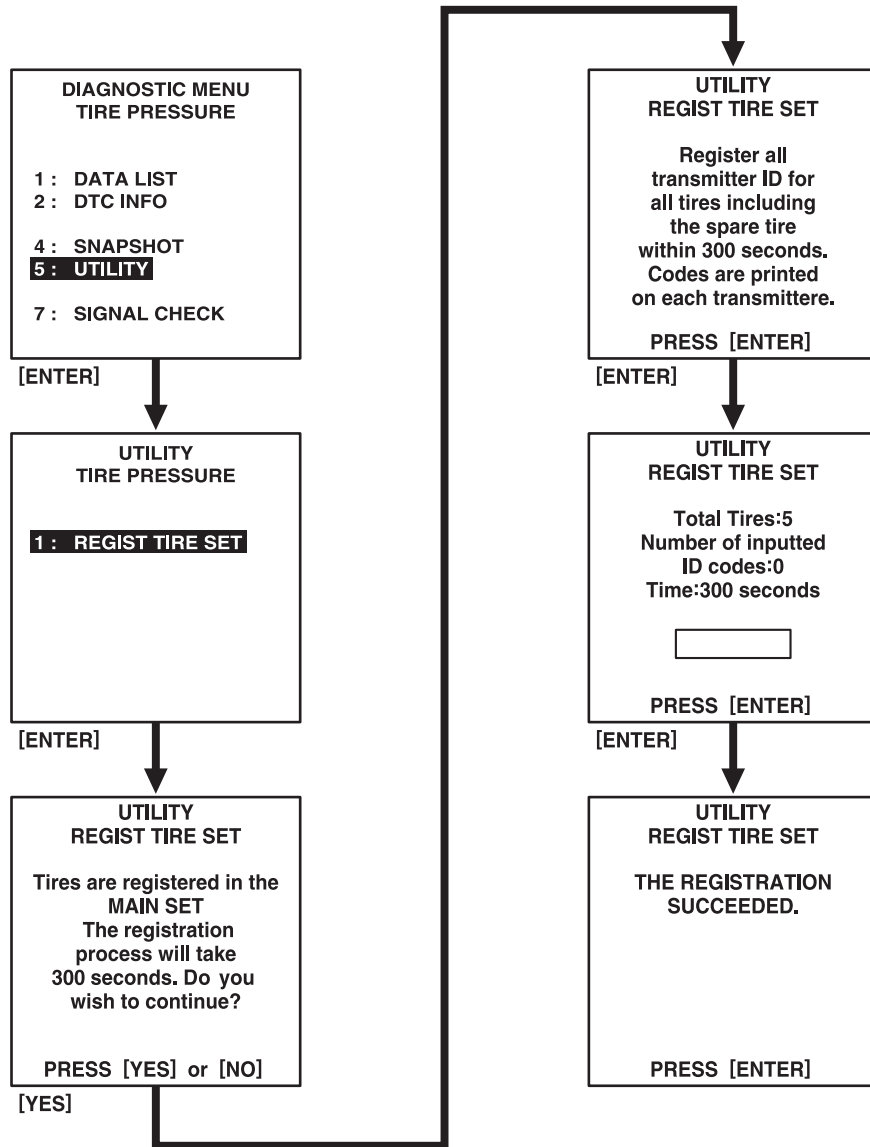
- (a) Prepare the all transmitter ID data before starting registration.

#### HINT:

- Read the registered transmitter IDs that are stored in the ECU using the intelligent tester and note them down.
  - If reading stored transmitter IDs is impossible due to malfunctions of components such as the tire pressure warning antenna and receiver, remove the tires from the wheels and check the IDs located on the tire pressure warning valves and transmitters (See page [TW-95](#) ).
  - When replacing the tire pressure warning valves and transmitters, note down the IDs written on the tire pressure warning valves and transmitters.
- (b) Connect the intelligent tester to the DLC3.
- (c) Turn the ignition switch to the ON position.

- (d) Select the REGIST TIRE by following the prompts displayed on the intelligent tester screen (UTILITY - REGIST TIRE).

## Registration Procedure



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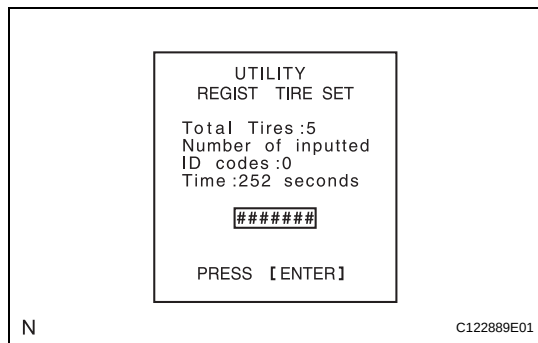
C122895E01

**NOTICE:**

- The previously registered IDs will be deleted from the memory when the registration is completed.
- If the procedures of the registration are not completed within 5 minutes, the mode returns to normal operation mode.

- When the system is in initialization mode after the reset switch has been operated, the registration is disabled until the initialization process is canceled or completed.

(e) Input the IDs (ID1 to ID5) using the intelligent tester and transmit them to the tire pressure warning ECU.

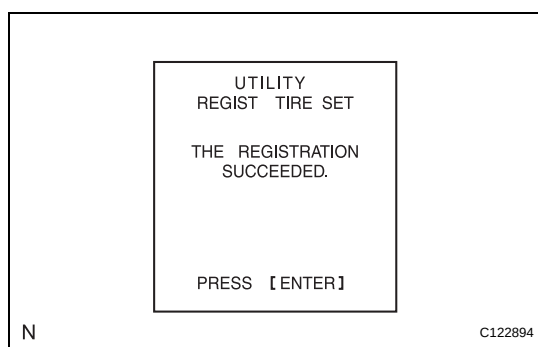


(f) When the ID transmission has successfully been completed, the message shown in the illustration appears on the tester screen.

(g) Turn the ignition switch to the OFF position, and then turn to the ON position.

(h) Select "SIGNAL CHECK" on the intelligent tester (See page TW-28 ).

(i) Confirm that the transmitter IDs and the data of tire pressure of all the tires are displayed on the intelligent tester screen.



| Item           | Measurement Item/<br>Range (Display)                                                                                            | Normal Condition                               |
|----------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| REGIT ID1 CODE | Registered ID1 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID1 displayed |
| REGIT ID2 CODE | Registered ID2 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID2 displayed |
| REGIT ID3 CODE | Registered ID3 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID3 displayed |
| REGIT ID4 CODE | Registered ID4 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID4 displayed |
| REGIT ID5 CODE | Registered ID5 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID5 displayed |
| TIREPRESS1     | ID1 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Actual tire pressure                           |
| TIREPRESS2     | ID2 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Actual tire pressure                           |
| TIREPRESS3     | ID3 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Actual tire pressure                           |
| TIREPRESS4     | ID4 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Actual tire pressure                           |

| Item       | Measurement Item/<br>Range (Display)                                                                                            | Normal Condition     |
|------------|---------------------------------------------------------------------------------------------------------------------------------|----------------------|
| TIREPRESS5 | ID5 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Actual tire pressure |

**NOTICE:**

- It may take up to 1 minute to update the tire pressure data.
  - If the IDs have not been registered, DTC C2171/71 is set in the tire pressure warning ECU after approximately 30 minutes.
- (j) Disconnect the intelligent tester with the ignition switch turned OFF.

INITIALIZATION

1. INITIALIZATION

NOTICE:

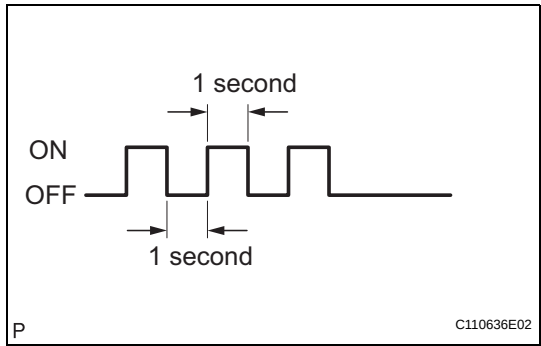
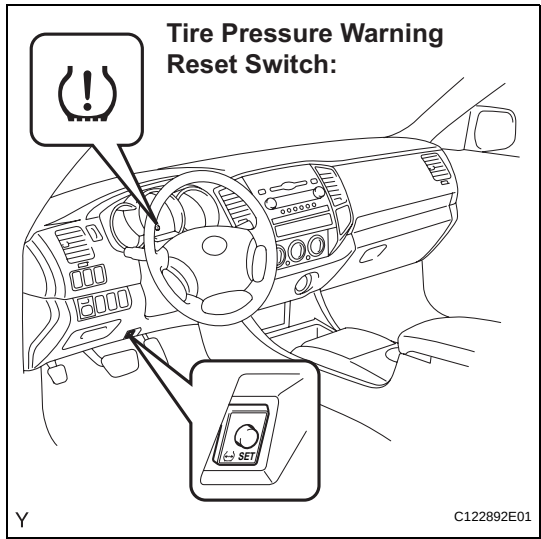
- Perform the tire pressure warning system initialization after the transmitter ID registration has been completed.
- The initialization is necessary when one of the following situations applies:
  - Tire pressure warning ECU is replaced.
  - Tires are replaced with those of different pressures.
  - Tire pressure warning valves and transmitters are replaced.
  - Vehicle is newly delivered.

(a) Set the tire pressures of all the wheels, including the spare tire, to the appropriate specified values.

| Tire Size          | Front Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Rear Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Spare Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) |
|--------------------|------------------------------------------------|-----------------------------------------------|------------------------------------------------|
| P215/70 R15        | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P255/45 R18        | 240 (2.4, 34)                                  | 240 (2.4, 34)                                 | 240 (2.4, 34)                                  |
| P245/75 R16        | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |
| P265/70 R16 (ORP)* | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P265/65 R17        | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |

\*: Used on Off Road Package Models

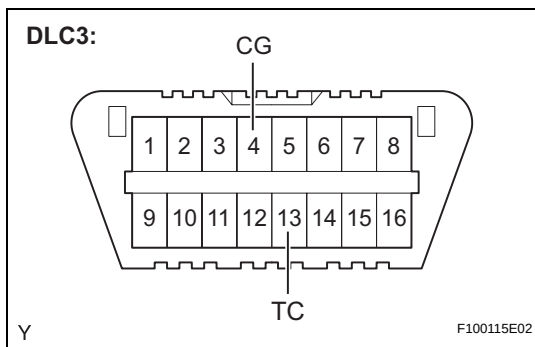
(b) Press the tire pressure warning reset switch for 3 seconds or more with the ignition switch in the ON position.



(c) Check that the tire pressure warning light blinks 3 times at 1 second intervals.

HINT:

The initialization is complete when the tire pressure warning ECU has received signals from all of the wheels.



- (d) Wait for 2 or 3 minutes with the ignition switch ON.
- NOTICE:**
- The initialization is normally completed within 2 to 3 minutes.
  - If the initialization has not been completed successfully, DTC C2177/77 is set approximately 20 minutes after driving starts.
  - The initialization can be terminated by making a short circuit between terminals TC and CG of the DLC3 connector.
- (e) Confirm that the initialization has been completed using the intelligent tester.
- (1) Change the mode to test mode using intelligent tester and check that test DTCs have been stored.
- The test DTCs will not be indicated until the system initialization is complete.
  - After the initialization has been completed successfully, the test DTCs (C2181/81 to C2191/91) are indicated.

**NOTICE:**

The following operations can be used instead of above procedure:

1. Turn the ignition switch from OFF to ON.
2. Monitor the tire pressure values of all the wheels using intelligent tester.
3. If the tire pressure values cannot be displayed on the intelligent tester screen, the initialization has failed.
4. It takes 2 to 3 minutes to display the tire pressure data.

**HINT:**

- In winter, as the tire pressure may decrease depending on the ambient temperature, increase the tire pressure by 20 kPa (0.2 kgf/cm<sup>2</sup>, 2.9 psi) to 30 kPa (0.3 kgf/cm<sup>2</sup>, 4.3 psi) above the specified value after confirmation that the initialization has been completed.

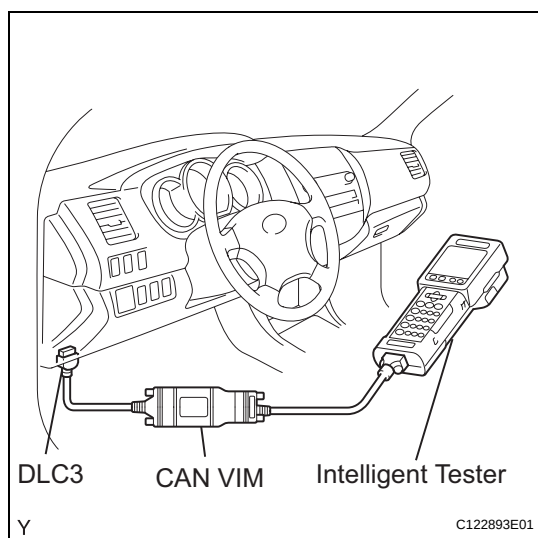
## TEST MODE PROCEDURE

### 1. ENTER TEST MODE

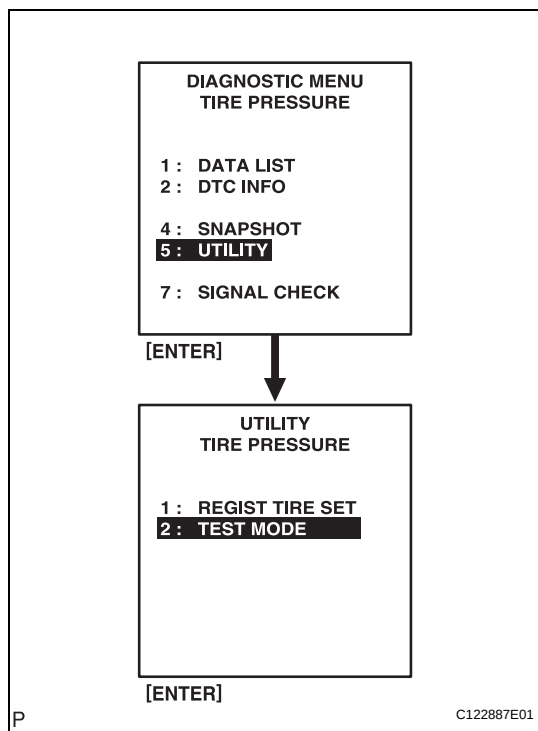
HINT:

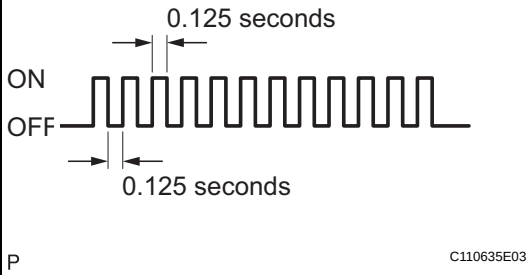
- The operation of the tire pressure warning reset switch can be checked in TEST MODE.
- During TEST MODE, the system cannot be initialized by pressing the tire pressure warning reset switch. The tire pressure warning reset switch circuit can be inspected in this mode.

- Make sure that the ignition switch is off.
- Connect the intelligent tester with CAN VIM to the DLC3.
- Turn the ignition switch to the ON position and turn the tester ON.



- Select TEST MODE on the intelligent tester.



**Test Mode Blinking Pattern (4Hz):**

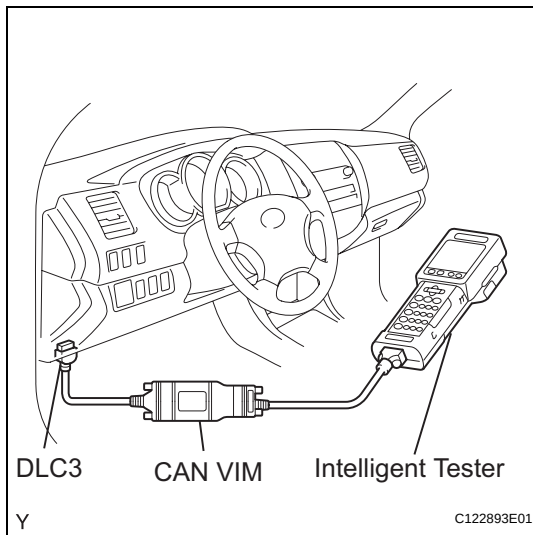
- (e) Confirm that the tire pressure warning light in the combination meter blinks at 0.125 second intervals (4Hz).

**HINT:**

- When starting the signal checks, the tire pressure warning ECU sets all the signal check DTCs first.  
After the signal checks for each inspection item have been completed, the DTCs of the items that are determined to be normal by the tire pressure warning ECU are cleared.  
The DTCs for other inspection items may not be cleared when only a certain signal is inspected.
- When the mode returns from signal check mode to normal mode, all the signal check DTCs are cleared.

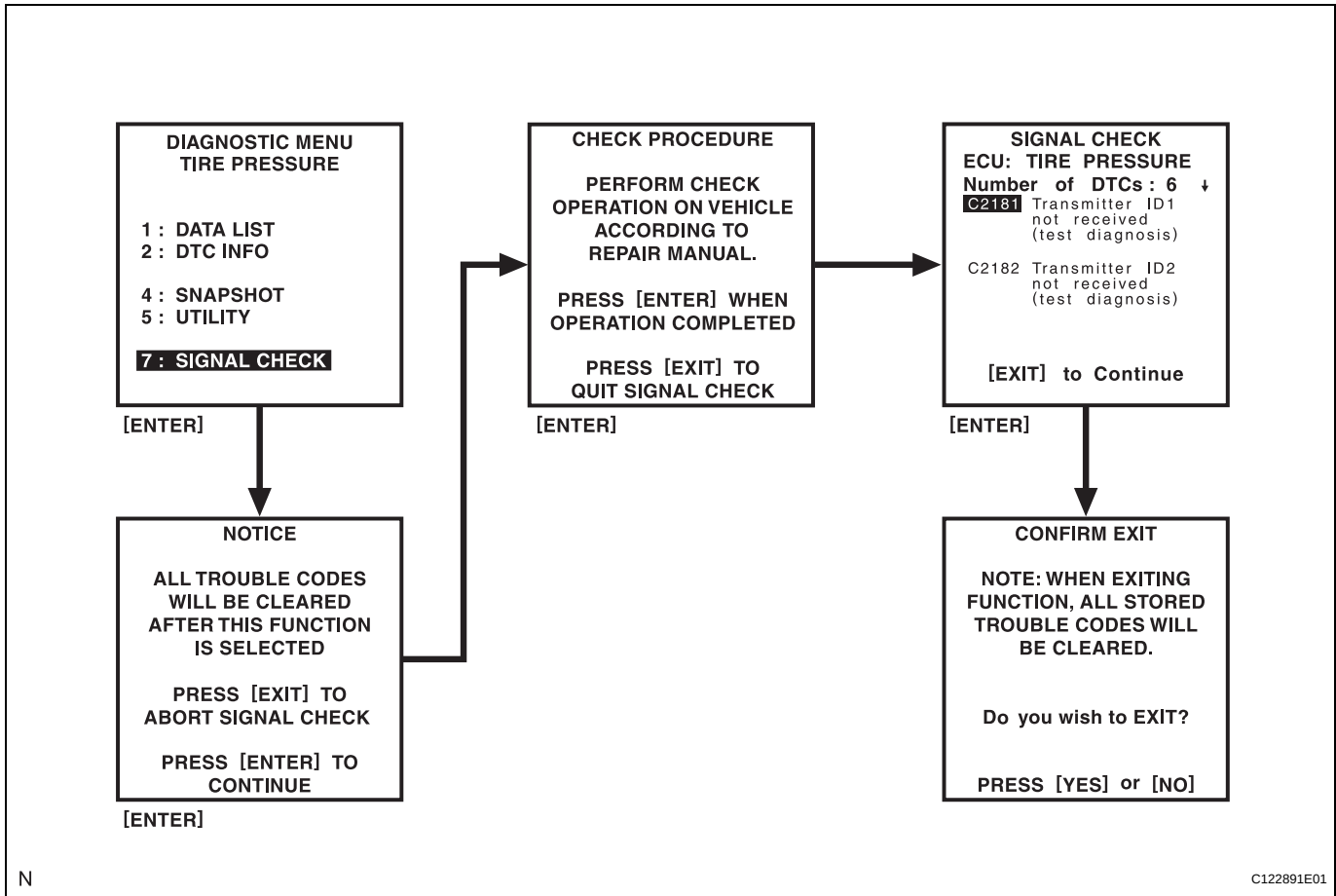
**TEST MODE CODE**

| SIGNAL CHECK DTC     | Test Signal                | SIGNAL CHECK DTC Clear Condition                                                                                                    |
|----------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| C2181/81 to C2185/85 | Transmitter Data           | Data received from the tire pressure warning valve and transmitter which has transmitter ID registered in tire pressure warning ECU |
| C2191/91             | Vehicle Speed Signal       | Vehicle speed of 12 mph (20 km/h) or more detected for 3 seconds or more                                                            |
| -                    | Tire Pressure Reset Switch | -                                                                                                                                   |

**2. PERFORM SIGNAL CHECK**

- Make sure that the ignition switch is off.
- Connect the intelligent tester with CAN VIM to the DLC3.
- Turn the ignition switch to the ON position and turn the tester ON.

(d) Select the SIGNAL CHECK on the intelligent tester.

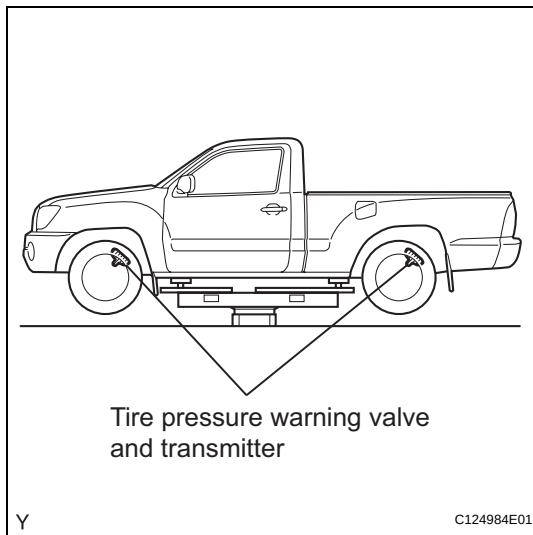


(e) Check the transmission data (for DTCs from C2181/81 to C2185/85)

(1) Set the tire pressures to the appropriate specified values.

| Tire Size          | Front Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Rear Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Spare Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) |
|--------------------|------------------------------------------------|-----------------------------------------------|------------------------------------------------|
| P215/70 R15        | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P255/45 R18        | 240 (2.4, 34)                                  | 240 (2.4, 34)                                 | 240 (2.4, 34)                                  |
| P245/75 R16        | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |
| P265/70 R16 (OPR)* | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P265/65 R17        | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |

\*: Used on Off Road Package Models



- (2) Jack up the vehicle.
- (3) Rapidly release the tire pressure of all the tires to 40 kPa (0.4 kgf/cm<sup>2</sup>, 5.8 psi)/ 30 seconds or more one by one.

HINT:

- It may take up to 1 minute to update the tire pressure data.
- The tire pressure warning light that is blinking at 0.125 second intervals will come on for 1 second when the tire pressure warning ECU receives the transmission data.
- If the transmission data have not been received, reset the tire pressures to the appropriate specified values and rotate the tires 90 to 270 degrees. Then recheck for the transmission data again.

- (f) Check the vehicle speed signal (for DTC C2191/91)

- (1) Drive the vehicle at 12 mph (20 km/h) or more for 10 seconds or more.

HINT:

The tire pressure warning light that is blinking at 0.125 second intervals will come on for 1 second when the tire pressure warning ECU receives the transmission data.

- (g) Check the tire pressure warning reset switch

HINT:

Since there is no test mode code for the reset switch, check the reset switch by observing the status of the tire pressure warning light.

- (1) Press the tire pressure warning reset switch.
- (2) Check the tire pressure warning light blinking pattern.

## Result

| Test Signal                        | Normal Condition                                                                                                                                                    |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tire Pressure Warning Reset Switch | <ul style="list-style-type: none"> <li>• Switch ON: Tire pressure warning light comes on</li> <li>• Switch OFF: Tire pressure warning light blinks (4Hz)</li> </ul> |

- (h) Read the test mode code.
  - (1) After the signal check has been completed, check for signal check DTCs to confirm the system status (See page TW-26 ).
- (i) Clear the DTCs.
 

HINT:

When the mode returns from signal check mode to normal mode, all the signal check DTCs are cleared.
- (j) End SIGNAL CHECK
 

After SIGNAL CHECK has finished, turn the ignition switch off and disconnect the tester.

HINT:

If a trouble code is displayed during the test mode DTC check, check the circuit indicated by the code. For details of each code, refer to the relevant page listed under respective "DTC No." in the table below.

## TEST MODE DTCs

| DTC No.                                       | Detection Item               | Trouble Area                                                                                                                                                                                                                         |
|-----------------------------------------------|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C2181/81<br>(See page <a href="#">TW-37</a> ) | Transmitter ID1 not received | <ul style="list-style-type: none"> <li>• Tire pressure warning antenna and receiver</li> <li>• Each tire pressure warning valve and transmitter</li> <li>• Tire pressure warning ECU</li> <li>• Wire harness or connector</li> </ul> |
| C2182/82<br>(See page <a href="#">TW-37</a> ) | Transmitter ID2 not received | <ul style="list-style-type: none"> <li>• Tire pressure warning antenna and receiver</li> <li>• Each tire pressure warning valve and transmitter</li> <li>• Tire pressure warning ECU</li> <li>• Wire harness or connector</li> </ul> |
| C2183/83<br>(See page <a href="#">TW-37</a> ) | Transmitter ID3 not received | <ul style="list-style-type: none"> <li>• Tire pressure warning antenna and receiver</li> <li>• Each tire pressure warning valve and transmitter</li> <li>• Tire pressure warning ECU</li> <li>• Wire harness or connector</li> </ul> |
| C2184/84<br>(See page <a href="#">TW-37</a> ) | Transmitter ID4 not received | <ul style="list-style-type: none"> <li>• Tire pressure warning antenna and receiver</li> <li>• Each tire pressure warning valve and transmitter</li> <li>• Tire pressure warning ECU</li> <li>• Wire harness or connector</li> </ul> |
| C2185/85<br>(See page <a href="#">TW-37</a> ) | Transmitter ID5 not received | <ul style="list-style-type: none"> <li>• Tire pressure warning antenna and receiver</li> <li>• Each tire pressure warning valve and transmitter</li> <li>• Tire pressure warning ECU</li> <li>• Wire harness or connector</li> </ul> |
| C2191/91<br>(See page <a href="#">TW-55</a> ) | Vehicle speed signal error   | <ul style="list-style-type: none"> <li>• Vehicle speed sensor</li> <li>• Combination meter</li> <li>• Tire pressure warning ECU</li> <li>• Wire harness or connector</li> </ul>                                                      |

## PROBLEM SYMPTOMS TABLE

Read values of DATA LIST using the intelligent tester, and confirm that the tire pressure data of all the tires are displayed.

When those data cannot be displayed, perform the troubleshooting procedure related to DTCs C2121/21 to C2125/25 which indicate transmission or reception malfunctions first.

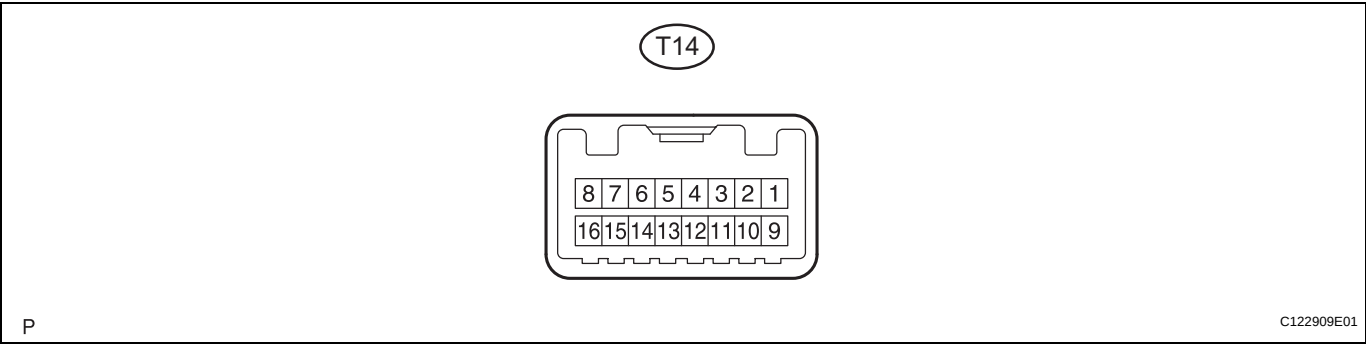
If there are no problem, inspect the following Problem Symptoms Table.

### TIRE PRESSURE WARNING SYSTEM

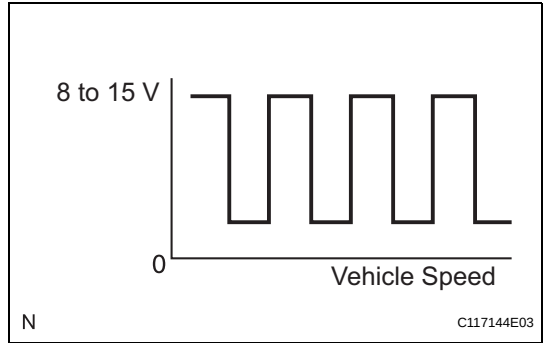
| Symptom                                                                            | Suspected area                                 | See page               |
|------------------------------------------------------------------------------------|------------------------------------------------|------------------------|
| Tire pressure warning light does not illuminate, despite tire pressure decreasing. | 1. Initialization                              | <a href="#">TW-15</a>  |
|                                                                                    | 2. Tire pressure warning valve and transmitter | <a href="#">TW-95</a>  |
|                                                                                    | 3. Combination meter                           | <a href="#">ME-63</a>  |
|                                                                                    | 4. Tire pressure warning ECU                   | <a href="#">TW-103</a> |
| Tire pressure warning light does not illuminate.                                   | 1. Combination meter                           | <a href="#">ME-63</a>  |
|                                                                                    | 2. Tire pressure warning ECU                   | <a href="#">TW-103</a> |
| Tire pressure warning light remains illuminated (goes off during initial check).   | 1. Power source circuit                        | <a href="#">TW-63</a>  |
|                                                                                    | 2. Tire pressure warning ECU                   | <a href="#">TW-103</a> |
| Tire pressure warning light remains illuminated (comes on during initial check).   | 1. Tire pressures                              | <a href="#">TW-1</a>   |
|                                                                                    | 2. Initialization                              | <a href="#">TW-15</a>  |
|                                                                                    | 3. Combination meter                           | <a href="#">ME-63</a>  |
|                                                                                    | 4. Tire pressure warning valve and transmitter | <a href="#">TW-95</a>  |
|                                                                                    | 5. Tire pressure warning ECU                   | <a href="#">TW-103</a> |
| Unable to perform initialization, despite reset switch being operated.             | 1. Tire pressure warning reset switch circuit  | <a href="#">TW-58</a>  |
|                                                                                    | 2. Combination meter                           | <a href="#">ME-63</a>  |
|                                                                                    | 3. Tire pressure warning ECU                   | <a href="#">TW-103</a> |

TERMINALS OF ECU

HINT:  
Inspect the connector from the back side while the connector are connected.

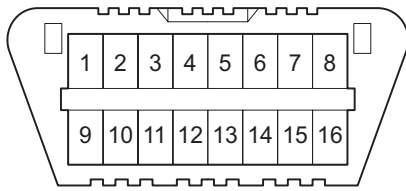


| Symbols (Terminal No.)        | Terminal Description                                    | Condition                                                                                              | Specified Condition                  |
|-------------------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------|
| IG (T14-2) - GND (T14-11)     | IG power source                                         | IG switch ON                                                                                           | 10 to 16 V                           |
| SPD (T14-3) - GND (T14-11)    | Vehicle speed signal                                    | Vehicle running                                                                                        | Pulse generation<br>(See waveform 1) |
| SIL (T14-4) - GND (T14-11)    | Diagnosis tester communication line                     | IG switch ON and communication not performed with tester                                               | 8 to 15 V                            |
| IND (T14-6) - GND (T14-11)    | Tire pressure warning light output signal               | IG switch ON:<br>1. Tire pressure warning light ON<br>2. Tire pressure warning light OFF               | 1. 8 V or more<br>2. Below 0.5 V     |
| RDA (T14-7) - GND (T14-11)    | Tire pressure warning antenna and receiver input signal | IG switch ON and tire pressure warning antenna and receiver not connected                              | 9 to 16 V                            |
| RF5V (T14-8) - GND (T14-11)   | Tire pressure warning antenna and receiver power source | IG switch ON                                                                                           | 4.5 to 5.5 V                         |
| CALSW (T14-10) - GND (T14-11) | Tire pressure warning reset switch                      | IG switch ON:<br>1. Tire pressure warning reset switch ON<br>2. Tire pressure warning reset switch OFF | 1. Below 0.5 V<br>2. 8 to 15 V       |
| GND (T14-11) - Body ground    | Ground                                                  | Always                                                                                                 | Below 1 Ω                            |
| TC (T14-12) - GND (T14-11)    | TC terminal                                             | Terminal TC not connected                                                                              | 8 to 15 V                            |
| GND2 (T14-16) - GND (T14-11)  | Tire pressure warning antenna and receiver ground       | Always                                                                                                 | Below 1 Ω                            |



1. Waveform 1

DLC3:



Y

F100115E31

## DIAGNOSIS SYSTEM

### 1. CHECK BATTERY VOLTAGE

**Standard voltage:**

**11 to 14 V**

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

### 2. CHECK DLC3

- (a) The vehicle's tire pressure warning ECU conforms to ISO 14230 and ISO 9141-2 for communication protocol. The terminals arrangement of the DLC3 complies with ISO 15031-3 and meets the ISO 14230 and ISO 9141-2 formats.

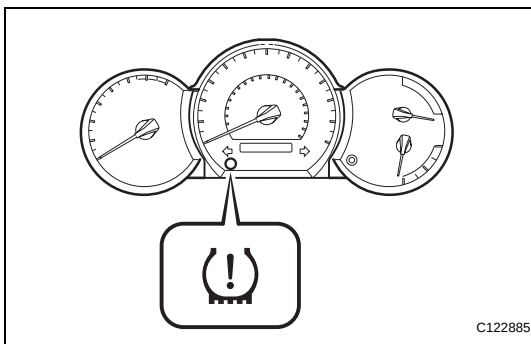
Verify the conditions listed in the table below

| Terminal No. (Symbol) | Connection/<br>Voltage or Resistance                 | Condition           |
|-----------------------|------------------------------------------------------|---------------------|
| 7 (SIL)               | Bus + Line/<br>Pulse generation                      | During transmission |
| 4 (CG)                | Chassis Ground to Body Ground/<br>1 $\Omega$ or less | Always              |
| 16 (BAT)              | Battery Positive to Body Ground/<br>11 to 14 V       | Always              |

#### HINT:

If the intelligent tester display shows a communication error message when the cable of the intelligent tester is connected to the DLC3, the ignition switch is turned ON and the tester is turned ON, there is a problem on the vehicle side or tester side.

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



C122885

### 3. DIAGNOSIS SYSTEM

#### (a) Warning light

- (1) When there is a problem in the tire pressure warning system, the tire pressure warning light blinks at 0.5 second intervals (1Hz).

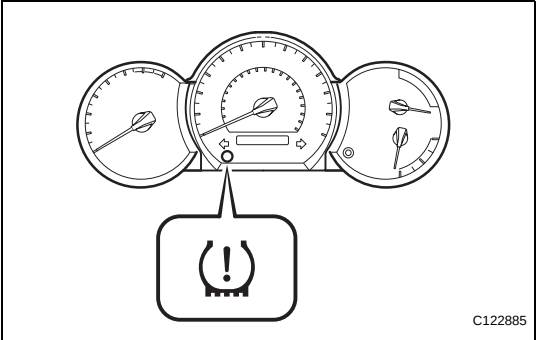
#### NOTICE:

**When the malfunction has been repaired, the tire pressure warning light does not come on.**

#### (b) Normal mode

- (1) DTCs are stored in the tire pressure warning ECU and can be read by observing the blinking patterns of the tire pressure warning light or by using the intelligent tester (See page [TW-26](#) ).

- (c) Test mode
  - (1) By switching from normal mode to test mode (signal check), the tire pressure warning receiver, each tire pressure warning valve and transmitter and vehicle speed sensor can be inspected (See page TW-17 ).



4. CHECK WARNING LIGHT

- (a) Turn the ignition switch to the ON position.
- (b) Check that the tire pressure warning light comes on for 3 seconds. If the warning light does not come on for 3 seconds, troubleshoot the tire pressure warning light circuit.

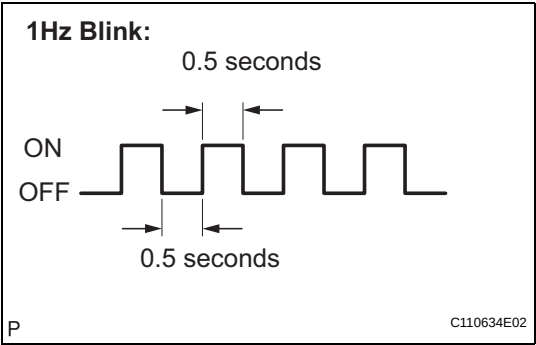
| Trouble Area                        | See Procedure         |
|-------------------------------------|-----------------------|
| Tire pressure warning light circuit | <a href="#">TW-61</a> |

5. TIRE PRESSURE WARNING LIGHT CHART

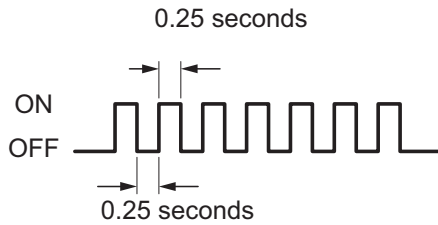
HINT:

The table below indicates the state of the tire pressure warning light after the ignition switch is turned on.

| Condition                     | Immediately after IG turned ON | Always   |          |             |             |             |             |                                       |
|-------------------------------|--------------------------------|----------|----------|-------------|-------------|-------------|-------------|---------------------------------------|
|                               | Comes on for 3 seconds         | Goes off | Comes on | Blinks (*1) | Blinks (*2) | Blinks (*3) | Outputs DTC | Comes on 3 times (1 second intervals) |
| Normal                        | ○                              | ○        | -        | -           | -           | -           | -           | -                                     |
| Low tire pressure             | ○                              | -        | ○        | -           | -           | -           | -           | -                                     |
| System failure                | ○                              | -        | -        | ○           | -           | -           | -           | -                                     |
| ECU connector connection poor | -                              | -        | ○        | -           | -           | -           | -           | -                                     |
| TC grounded (no DTCs output)  | ○                              | -        | -        | -           | ○           | -           | -           | -                                     |
| TC grounded (DTCs output)     | ○                              | -        | -        | -           | -           | -           | ○           | -                                     |
| Test mode                     | ○                              | -        | -        | -           | -           | ○           | -           | -                                     |
| Entering initialization       | ○                              | -        | -        | -           | -           | -           | -           | ○                                     |



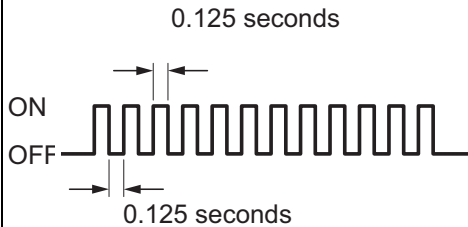
\*1: Blinks at 0.5 second intervals (1Hz).

**2Hz Blink:**

P

C117149E02

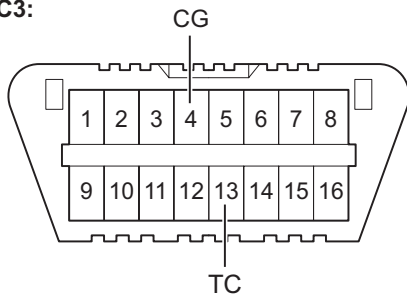
\*2: Blinks at 0.25 second intervals (2Hz).

**4Hz Blink:**

P

C110635E02

\*3: Blinks at 0.125 second intervals (4Hz).

**DLC3:**

Y

F100115E02

**DTC CHECK / CLEAR****1. CHECK DTC (USING SST CHECK WIRE)**

(a) Check DTCs.

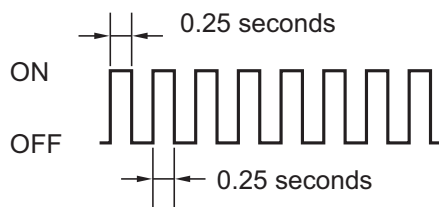
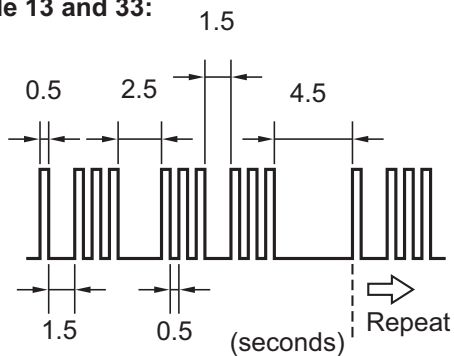
(1) Using SST, connect terminals TC and CG of the DLC3.

**SST 09843-18040**

(2) Turn the ignition switch to the ON position.

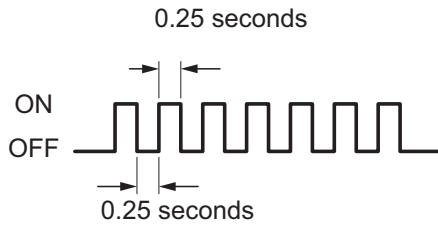
**TW**

(3) Read and record any DTCs indicated by the tire pressure warning light in the combination meter. Refer to the illustration for examples of the normal system code and DTCs 13 and 33.

**Normal System Code:****Code 13 and 33:**

N

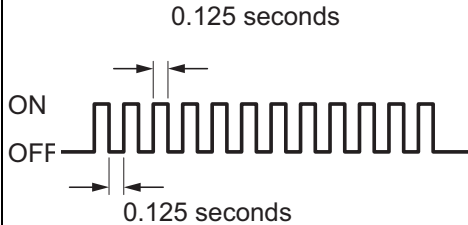
C122890E01

**2Hz Blink:**

P

C117149E02

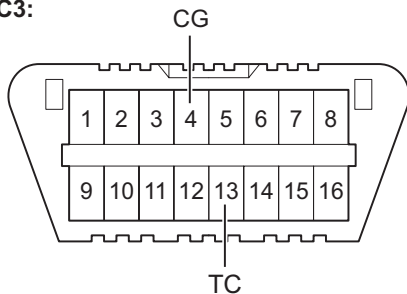
\*2: Blinks at 0.25 second intervals (2Hz).

**4Hz Blink:**

P

C110635E02

\*3: Blinks at 0.125 second intervals (4Hz).

**DLC3:**

Y

F100115E02

**DTC CHECK / CLEAR****1. CHECK DTC (USING SST CHECK WIRE)**

(a) Check DTCs.

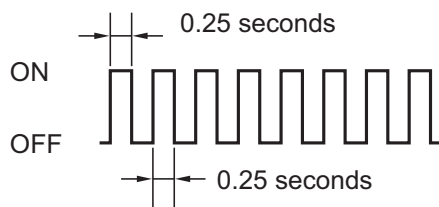
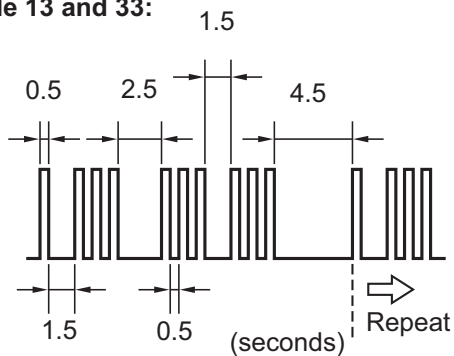
(1) Using SST, connect terminals TC and CG of the DLC3.

**SST 09843-18040**

(2) Turn the ignition switch to the ON position.

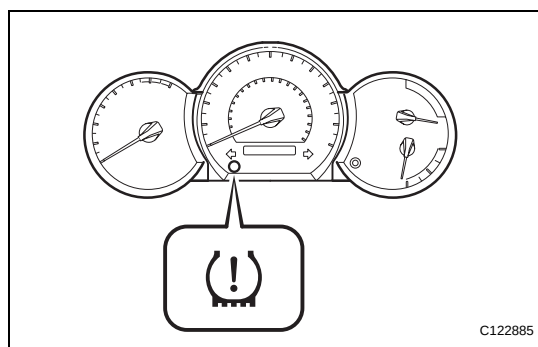
**TW**

(3) Read and record any DTCs indicated by the tire pressure warning light in the combination meter. Refer to the illustration for examples of the normal system code and DTCs 13 and 33.

**Normal System Code:****Code 13 and 33:**

N

C122890E01

**HINT:**

- If the tire pressure warning light does not indicate any DTCs or the normal system code, inspect the tire pressure warning light circuit and TC and CG terminal circuit.

| Trouble Area                        | See Procedure         |
|-------------------------------------|-----------------------|
| Tire pressure warning light circuit | <a href="#">TW-61</a> |
| TC and CG terminal circuit          | <a href="#">TW-66</a> |

- If 2 or more malfunctions are indicated simultaneously, the lowest numbered DTC is displayed first.

(4) Refer to the Diagnostic Trouble Code Chart (See page [TW-30](#)) for DTC information.

(5) After completing the check, turn the ignition switch off and remove the SST from the DLC3.

**SST 09843-18040**

## 2. CHECK DTC (USING INTELLIGENT TESTER)

(a) Check DTCs.

(1) Connect the intelligent tester with CAN VIM to the DLC3.

(2) Turn the ignition switch to the ON position and turn the tester ON.

(3) Read the DTCs by following the prompts on the tester screen.

**HINT:**

Refer to the intelligent tester operator's manual for further details.

## 3. CLEAR DTC

**HINT:**

After repairing the malfunctions, clear the DTCs.

(a) Connect the intelligent tester with CAN VIM to the DLC3.

(b) Turn the ignition switch to the ON position.

(c) Clear the DTCs by following the prompts on the tester screen.

**HINT:**

Refer to the intelligent tester operator's manual for further details.

## 4. IDENTIFY TIRE PRESSURE WARNING VALVE AND TRANSMITTER CORRESPONDING TO DTC

(a) Set the tire pressures to the appropriate specified values.

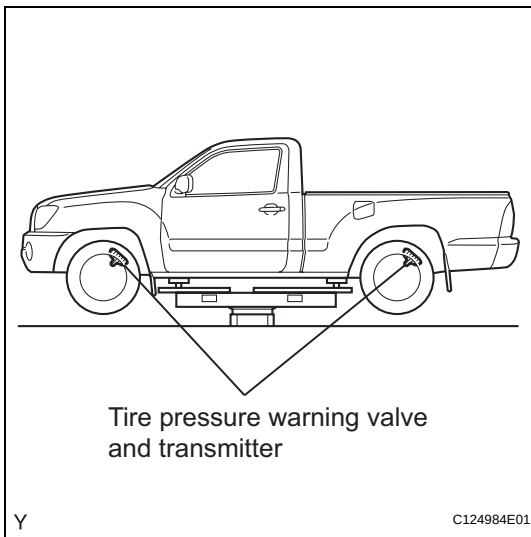
| Tire Size          | Front Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Rear Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Spare Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) |
|--------------------|------------------------------------------------|-----------------------------------------------|------------------------------------------------|
| P215/70 R15        | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P255/45 R18        | 240 (2.4, 34)                                  | 240 (2.4, 34)                                 | 240 (2.4, 34)                                  |
| P245/75 R16        | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |
| P265/70 R16 (OPR)* | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P265/65 R17        | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |

\*: Used on Off Road Package Models

DLC3 CAN VIM Intelligent Tester

Y

C122893E01



- (b) Jack up the vehicle.
- (c) Select TIREPRESS by following the prompts displayed on the intelligent tester.

| Item       | Measurement Item/<br>Range (Display)                                                                                                      |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| TIREPRESS1 | ID1 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS2 | ID2 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS3 | ID3 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS4 | ID4 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS5 | ID5 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |

TW

- (d) Rapidly release the tire pressure from any tire to 40 kPa (0.4 kgf/cm<sup>2</sup>, 5.8 psi)/ 30 seconds or more.
- (e) Check the DATA LIST.

### Result

| Display                                    | Detection Condition              |
|--------------------------------------------|----------------------------------|
| One of TIREPRESS data (ID1 to ID5) changes | Normal                           |
| None of TIREPRESS data change              | Transmitter corresponding to DTC |

#### HINT:

- When none of the TIREPRESS data (IDs 1 to 5) change, rotate the tires 90 to 270 degrees and recheck.
  - When the transmitter is normal, record the tire location and the transmitter ID.
- (f) Repeat this procedure to identify the malfunctioning tire pressure warning valve and transmitter.

## DATA LIST / ACTIVE TEST

### 1. DATA LIST

- (a) Connect the intelligent tester to the DLC3.
- (b) Turn the ignition switch to the ON position and turn the tester ON.
- (c) Read DATA LIST by following the prompts on the tester screen.

| Item           | Measurement Item/<br>Range (Display)                                                                                            | Normal Condition                               | Diagnostic Note                                                                                                                                                                                                         |
|----------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MODE STATUS    | Tire pressure warning system mode/<br>NORMAL, REG 2nd, REG M or TEST                                                            | NORMAL: Normal mode<br>TEST: Test mode         | -                                                                                                                                                                                                                       |
| TIRE           | Registered ID number of tire/<br>0 or 1, 2, 3, 4, 5                                                                             | 0 to 5 displayed                               | -                                                                                                                                                                                                                       |
| INITIAL SW     | Tire pressure warning reset switch/<br>ON, OFF                                                                                  | ON: Switch ON<br>OFF: Switch OFF               | <ul style="list-style-type: none"> <li>Tire pressure warning reset switch</li> <li>Wire harness or connector</li> <li>Tire pressure warning ECU</li> </ul>                                                              |
| VEHICLE SPEED  | Vehicle speed reading/<br>minimum: 0 km/h (0 mph)<br>maximum: 255 km/h (158 mph)                                                | Actual vehicle speed                           | <ul style="list-style-type: none"> <li>Speed indicated on combination meter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                               |
| REGIT ID1 CODE | Registered ID1 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID1 displayed | Registration of transmitter ID                                                                                                                                                                                          |
| REGIT ID2 CODE | Registered ID2 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID2 displayed | Registration of transmitter ID                                                                                                                                                                                          |
| REGIT ID3 CODE | Registered ID3 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID3 displayed | Registration of transmitter ID                                                                                                                                                                                          |
| REGIT ID4 CODE | Registered ID4 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID4 displayed | Registration of transmitter ID                                                                                                                                                                                          |
| REGIT ID5 CODE | Registered ID5 code/<br>minimum: 0<br>maximum: FFFFFFFF                                                                         | ID No. of registered transmitter ID5 displayed | Registration of transmitter ID                                                                                                                                                                                          |
| TRANS STATUS   | ID code transmission status/<br>FINISH or NOW                                                                                   | FINISH or NOW                                  | -                                                                                                                                                                                                                       |
| TIREPRESS1     | ID1 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Actual tire pressure                           | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Wire harness or connector</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> |
| TIREPRESS2     | ID2 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Actual tire pressure                           | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Wire harness or connector</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> |
| TIREPRESS3     | ID3 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Actual tire pressure                           | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Wire harness or connector</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> |

| Item            | Measurement Item/<br>Range (Display)                                                                                                            | Normal Condition                        | Diagnostic Note                                                                                                                                                                                                         |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TIREPRESS4      | ID4 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi)                 | Actual tire pressure                    | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Wire harness or connector</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> |
| TIREPRESS5      | ID5 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi)                 | Actual tire pressure                    | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Wire harness or connector</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> |
| TIRE TEMP1      | ID1 temperature in tire/<br>minimum: - 40 °C (- 40 °F)<br>maximum: 120 °C (248 °F)                                                              | Actual internal tire temperature        | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| TIRE TEMP2      | ID2 temperature in tire/<br>minimum: - 40 °C (- 40 °F)<br>maximum: 120 °C (248 °F)                                                              | Actual internal tire temperature        | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| TIRE TEMP3      | ID3 temperature in tire/<br>minimum: - 40 °C (- 40 °F)<br>maximum: 120 °C (248 °F)                                                              | Actual internal tire temperature        | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| TIRE TEMP4      | ID4 temperature in tire/<br>minimum: - 40 °C (- 40 °F)<br>maximum: 120 °C (248 °F)                                                              | Actual internal tire temperature        | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| TIRE TEMP5      | ID5 temperature in tire/<br>minimum: - 40 °C (- 40 °F)<br>maximum: 120 °C (248 °F)                                                              | Actual internal tire temperature        | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| BATT VOLT1      | ID1 battery voltage/<br>OVER or LESS                                                                                                            | OVER                                    | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| BATT VOLT2      | ID2 battery voltage/<br>OVER or LESS                                                                                                            | OVER                                    | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| BATT VOLT3      | ID3 battery voltage/<br>OVER or LESS                                                                                                            | OVER                                    | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| BATT VOLT4      | ID4 battery voltage/<br>OVER or LESS                                                                                                            | OVER                                    | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| BATT VOLT5      | ID5 battery voltage/<br>OVER or LESS                                                                                                            | OVER                                    | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        |
| INIT THRESHOLD1 | ID1 initial low-pressure threshold<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Threshold pressure after initialization | -                                                                                                                                                                                                                       |
| INIT THRESHOLD2 | ID2 initial low-pressure threshold<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Threshold pressure after initialization | -                                                                                                                                                                                                                       |
| INIT THRESHOLD3 | ID3 initial low-pressure threshold<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Threshold pressure after initialization | -                                                                                                                                                                                                                       |
| INIT THRESHOLD4 | ID4 initial low-pressure threshold<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Threshold pressure after initialization | -                                                                                                                                                                                                                       |

| Item            | Measurement Item/<br>Range (Display)                                                                                                            | Normal Condition                           | Diagnostic Note |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|-----------------|
| INIT THRESHOLD5 | ID5 initial low-pressure threshold<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) | Threshold pressure after<br>initialization | -               |
| #CODES          | Number of DTC recorded/<br>minimum: 0<br>maximum: 255                                                                                           | Minimum: 0<br>Maximum: 255                 | -               |

## DIAGNOSTIC TROUBLE CODE CHART

### HINT:

If a malfunction code is displayed during the DTC check, inspect the circuit relevant to that code. For details of each code, refer to the page listed under "See page" in the table below.

### DTC chart of Tire Pressure Warning

| DTC No.  | Detection Item                 | Trouble Area                                                                                                                                                                         | See page |
|----------|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| C2111/11 | Transmitter ID1 Operation Stop | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter (Forced transmission of transmitter ID)</li> <li>Tire pressure warning ECU</li> </ul>             | TW-33    |
| C2112/12 | Transmitter ID2 Operation Stop | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter (Forced transmission of transmitter ID)</li> <li>Tire pressure warning ECU</li> </ul>             | TW-33    |
| C2113/13 | Transmitter ID3 Operation Stop | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter (Forced transmission of transmitter ID)</li> <li>Tire pressure warning ECU</li> </ul>             | TW-33    |
| C2114/14 | Transmitter ID4 Operation Stop | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter (Forced transmission of transmitter ID)</li> <li>Tire pressure warning ECU</li> </ul>             | TW-33    |
| C2115/15 | Transmitter ID5 Operation Stop | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter (Forced transmission of transmitter ID)</li> <li>Tire pressure warning ECU</li> </ul>             | TW-33    |
| C2121/21 | No Signal from Transmitter ID1 | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> | TW-37    |
| C2122/22 | No Signal from Transmitter ID2 | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> | TW-37    |
| C2123/23 | No Signal from Transmitter ID3 | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> | TW-37    |
| C2124/24 | No Signal from Transmitter ID4 | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> | TW-37    |
| C2125/25 | No Signal from Transmitter ID5 | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> </ul> | TW-37    |
| C2141/41 | Transmitter ID1 Error          | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> </ul>                                                                                        | TW-43    |
| C2142/42 | Transmitter ID2 Error          | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> </ul>                                                                                        | TW-43    |

| DTC No.  | Detection Item                               | Trouble Area                                                                                                                                                                                                            | See page              |
|----------|----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| C2143/43 | Transmitter ID3 Error                        | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> </ul>                                                                                                                           | <a href="#">TW-43</a> |
| C2144/44 | Transmitter ID4 Error                        | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> </ul>                                                                                                                           | <a href="#">TW-43</a> |
| C2145/45 | Transmitter ID5 Error                        | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> </ul>                                                                                                                           | <a href="#">TW-43</a> |
| C2165/65 | Abnormal Temperature Inside ID1 Tire         | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire</li> </ul>                                                                                                             | <a href="#">TW-46</a> |
| C2166/66 | Abnormal Temperature Inside ID2 Tire         | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire</li> </ul>                                                                                                             | <a href="#">TW-46</a> |
| C2167/67 | Abnormal Temperature Inside ID3 Tire         | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire</li> </ul>                                                                                                             | <a href="#">TW-46</a> |
| C2168/68 | Abnormal Temperature Inside ID4 Tire         | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire</li> </ul>                                                                                                             | <a href="#">TW-46</a> |
| C2169/69 | Abnormal Temperature Inside ID5 Tire         | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire</li> </ul>                                                                                                             | <a href="#">TW-46</a> |
| C2171/71 | Transmitter ID not Registered                | <ul style="list-style-type: none"> <li>Tire pressure warning ECU</li> <li>Transmitter ID registration condition</li> </ul>                                                                                              | <a href="#">TW-49</a> |
| C2176/76 | Receiver Error                               | <ul style="list-style-type: none"> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning ECU</li> <li>Wire harness or connector</li> </ul>                                                      | <a href="#">TW-51</a> |
| C2177/77 | Initialization not Completed                 | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul>                                                                                        | <a href="#">TW-54</a> |
| C2181/81 | Transmitter ID1 not Received (Test Mode DTC) | <ul style="list-style-type: none"> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> <li>Wire harness or connector</li> </ul> | <a href="#">TW-37</a> |
| C2182/82 | Transmitter ID2 not Received (Test Mode DTC) | <ul style="list-style-type: none"> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> <li>Wire harness or connector</li> </ul> | <a href="#">TW-37</a> |
| C2183/83 | Transmitter ID3 not Received (Test Mode DTC) | <ul style="list-style-type: none"> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> <li>Wire harness or connector</li> </ul> | <a href="#">TW-37</a> |
| C2184/84 | Transmitter ID4 not Received (Test Mode DTC) | <ul style="list-style-type: none"> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> <li>Wire harness or connector</li> </ul> | <a href="#">TW-37</a> |
| C2185/85 | Transmitter ID5 not Received (Test Mode DTC) | <ul style="list-style-type: none"> <li>Tire pressure warning antenna and receiver</li> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> <li>Wire harness or connector</li> </ul> | <a href="#">TW-37</a> |

| DTC No.  | Detection Item                             | Trouble Area                                                                                                                                                  | See page              |
|----------|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| C2191/91 | Vehicle Speed Signal Error (Test Mode DTC) | <ul style="list-style-type: none"><li>• Vehicle speed sensor</li><li>• Tire pressure warning ECU</li><li>• Combination meter</li><li>• Wire harness</li></ul> | <a href="#">TW-55</a> |

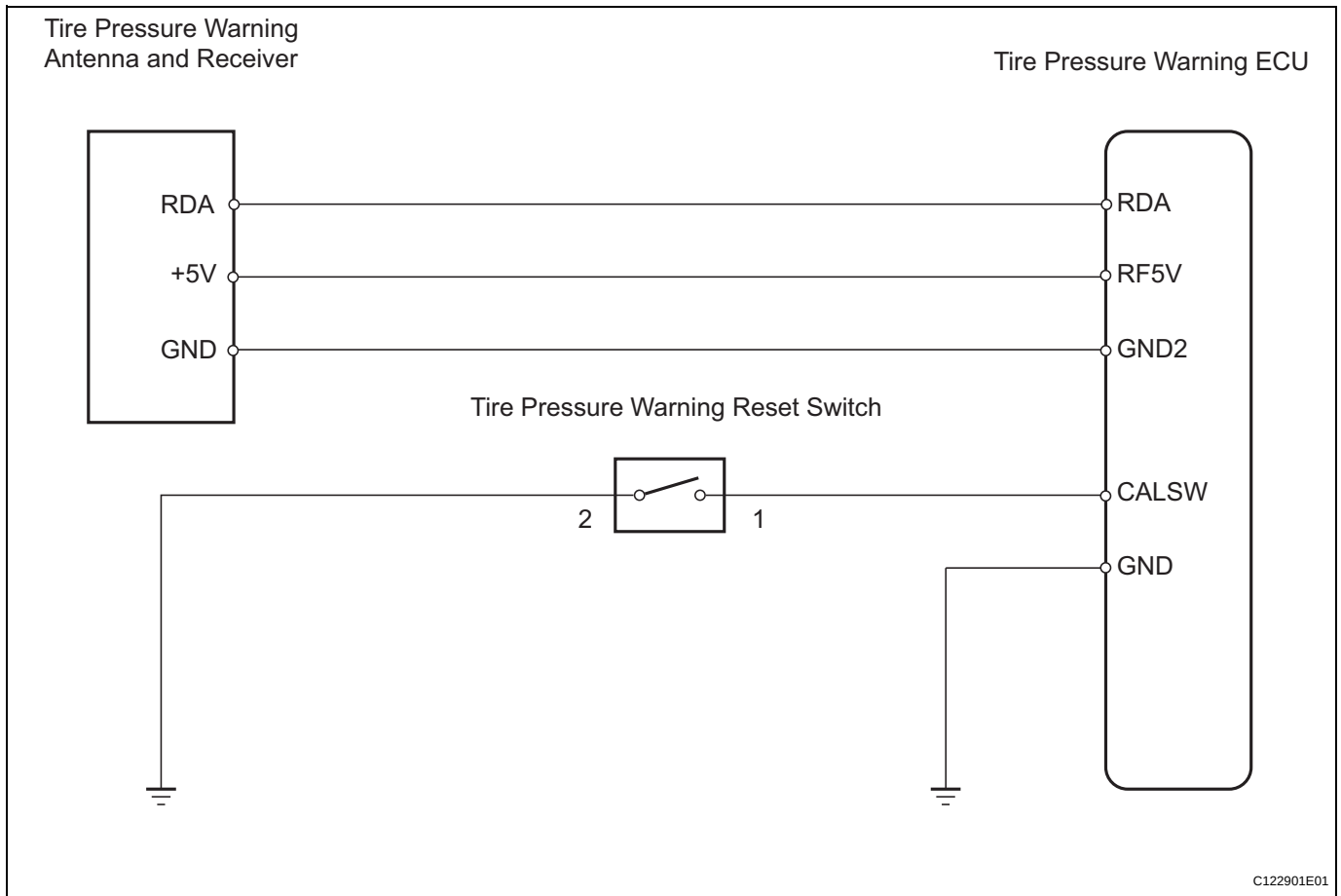
|            |                 |                                       |
|------------|-----------------|---------------------------------------|
| <b>DTC</b> | <b>C2111/11</b> | <b>Transmitter ID1 Operation Stop</b> |
| <b>DTC</b> | <b>C2112/12</b> | <b>Transmitter ID2 Operation Stop</b> |
| <b>DTC</b> | <b>C2113/13</b> | <b>Transmitter ID3 Operation Stop</b> |
| <b>DTC</b> | <b>C2114/14</b> | <b>Transmitter ID4 Operation Stop</b> |
| <b>DTC</b> | <b>C2115/15</b> | <b>Transmitter ID5 Operation Stop</b> |

## DESCRIPTION

Tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the air pressures of the tires. The measured values are transmitted to the tire pressure warning antenna and receiver on the body as radio waves and then sent to the tire pressure warning ECU. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure values are less than this threshold, the warning light in the combination meter comes on. The tire pressure warning ECU stores a DTC when the tire pressure warning valve and transmitter stops transmitting signals. At this time, forcibly transmit the signals by releasing the tire pressure rapidly. The stored DTC is cleared when the signal transmission is resumed.

| <b>DTC No.</b>                                           | <b>DTC Detecting Condition</b>                                         | <b>Trouble Area</b>                                                                                                                                                          |
|----------------------------------------------------------|------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C2111/11<br>C2112/12<br>C2113/13<br>C2114/14<br>C2115/15 | Tire pressure warning valve and transmitters stop transmitting signals | <ul style="list-style-type: none"> <li>• Tire pressure warning valve and transmitter (Forced transmission of transmitter ID)</li> <li>• Tire pressure warning ECU</li> </ul> |

## WIRING DIAGRAM



TW

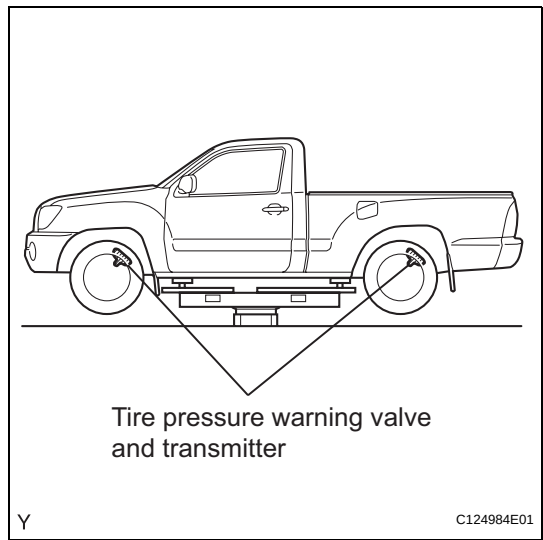
## NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-28](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the tire pressure warning ECU and/or tire pressure warning valve and transmitter have been replaced.

1

PERFORM FORCIBLY TRANSMIT TRANSMITTER ID (ALL WHEELS)

- (a) Set the tire pressures to the appropriate specified values.



- (b) Jack up the vehicle.
- (c) Connect the intelligent tester to the DLC3.
- (d) Turn the ignition switch ON and turn the tester ON.
- (e) Select TIREPRESS by following the prompts displayed on the intelligent tester.

| Items      | Measurement Item/<br>Range (Display)                                                                                           |
|------------|--------------------------------------------------------------------------------------------------------------------------------|
| TIREPRESS1 | ID1 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS2 | ID2 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS3 | ID3 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS4 | ID4 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS5 | ID5 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |

- (f) Rapidly release the pressures from each wheel by approximately 40 kPa (0.4 kgf/cm<sup>2</sup>, 5.8 psi)/ 30 seconds or more.

- (1) Check that the each tire pressure data displayed on the intelligent tester screen changes.

**OK:**

**The each tire pressure data displayed on the intelligent tester screen changes with the value of the tire pressure.**

**NOTICE:**

- It may take up to 1 minute to display the updated tire pressure data.
- When none of the TIREPRESS data (IDs 1 to 5) change, reset the tire pressure to the appropriate specified value and rotate the tires 90 to 270 degrees and recheck.

- (2) After confirming that the all of the tire pressure data displayed on the intelligent tester screen have changed, set the tire pressures to the appropriate specified values.

**HINT:**

If the tire pressure data displayed on the intelligent tester screen has not changed after rechecking, go to the other troubleshooting procedure related to DTCs C2121/21 to C2125/25 which indicate transmission or reception malfunctions (See page [TW-37](#) ).

NG

INSPECT OTHER PROBLEM  
(MALFUNCTION IN TRANSMISSION OR  
RECEPTION FUNCTION)

OK

END

|            |                 |                                                     |
|------------|-----------------|-----------------------------------------------------|
| <b>DTC</b> | <b>C2121/21</b> | <b>No Signal from Transmitter ID1</b>               |
| <b>DTC</b> | <b>C2122/22</b> | <b>No Signal from Transmitter ID2</b>               |
| <b>DTC</b> | <b>C2123/23</b> | <b>No Signal from Transmitter ID3</b>               |
| <b>DTC</b> | <b>C2124/24</b> | <b>No Signal from Transmitter ID4</b>               |
| <b>DTC</b> | <b>C2125/25</b> | <b>No Signal from Transmitter ID5</b>               |
| <b>DTC</b> | <b>C2181/81</b> | <b>Transmitter ID1 not Received (Test Mode DTC)</b> |
| <b>DTC</b> | <b>C2182/82</b> | <b>Transmitter ID2 not Received (Test Mode DTC)</b> |
| <b>DTC</b> | <b>C2183/83</b> | <b>Transmitter ID3 not Received (Test Mode DTC)</b> |
| <b>DTC</b> | <b>C2184/84</b> | <b>Transmitter ID4 not Received (Test Mode DTC)</b> |
| <b>DTC</b> | <b>C2185/85</b> | <b>Transmitter ID5 not Received (Test Mode DTC)</b> |

## DESCRIPTION

Tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the air pressures of the tires. The measured values are transmitted to the tire pressure warning antenna and receiver on the body as radio waves and then sent to the tire pressure warning ECU. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure values are less than this threshold, the warning light in the combination meter comes on. The tire pressure warning valve and transmitter constantly sends radio waves to the tire pressure warning antenna and receiver.

Under the following conditions, the tire pressure warning antenna and receiver is unable to receive the signals from the tire pressure warning valve and transmitters, and a DTC is output.

- Areas, facilities, or devices that use similar radio frequencies are located in the vicinity of the vehicle.
- Devices using similar radio frequencies are used in the vehicle.

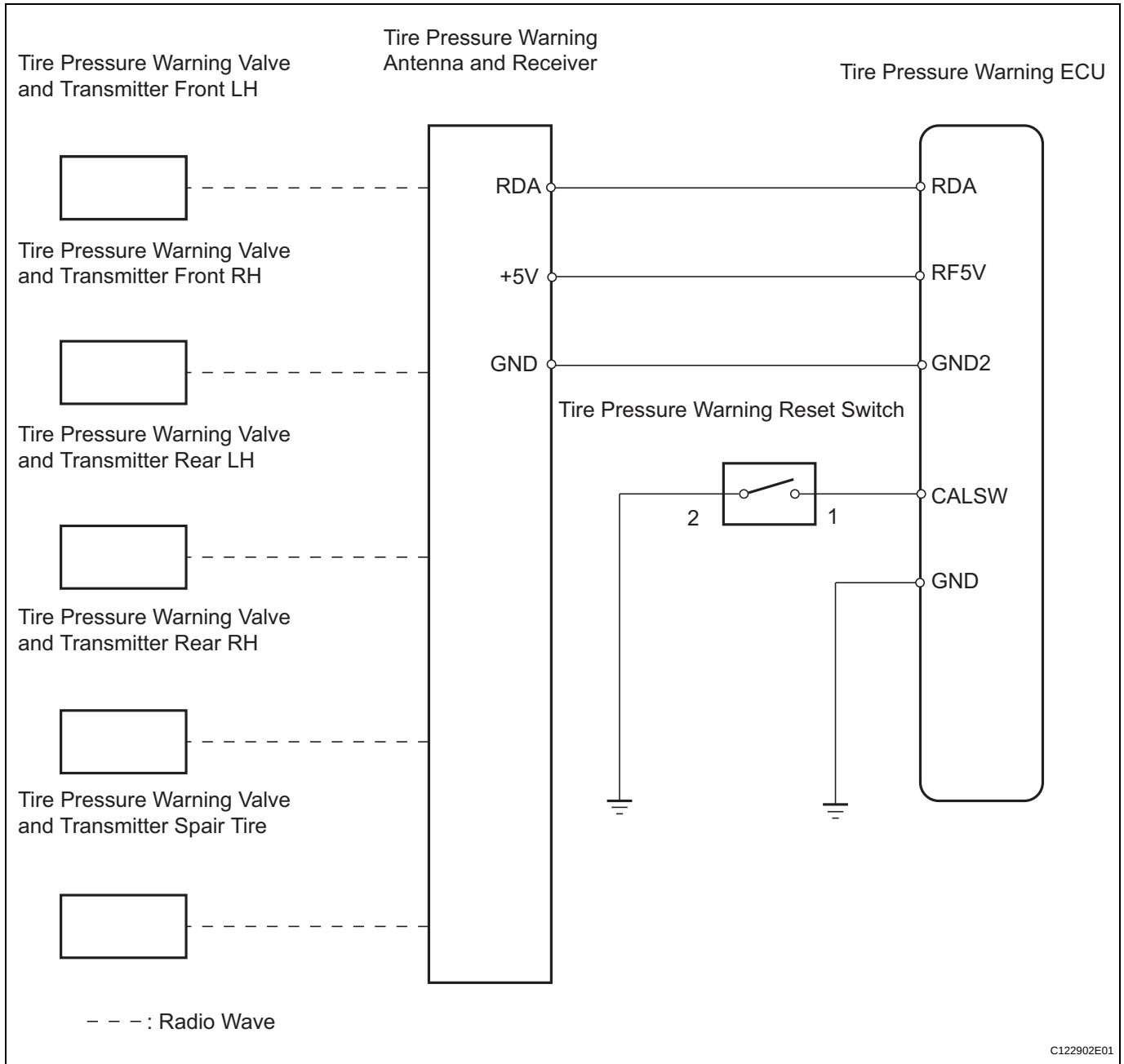
### HINT:

When no signals are received for 30 minutes or more, a DTC is output.

DTCs C2121/21 to C2125/25 can only be cleared by using the tester. DTCs C2181/81 to C2185/85 can be cleared when the transmitter in the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs C2181/81 to C2185/85 are output only in test mode.

| <b>DTC No.</b>                                           | <b>DTC Detection Condition</b>                                                                                                                          | <b>Trouble Area</b>                                                                                                                                                                                                             |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C2121/21<br>C2122/22<br>C2123/23<br>C2124/24<br>C2125/25 | When no signals received for 30 minutes or more, vehicle speed of 5 mph (8 km/h) or more detected and still no signals received for 12 minutes or more. | <ul style="list-style-type: none"> <li>• Tire pressure warning antenna and receiver</li> <li>• Tire pressure warning valve and transmitter</li> <li>• Tire pressure warning ECU</li> </ul>                                      |
| C2181/81<br>C2182/82<br>C2183/83<br>C2184/84<br>C2185/85 | Malfunction in transmission / reception circuit                                                                                                         | <ul style="list-style-type: none"> <li>• Tire pressure warning antenna and receiver</li> <li>• Tire pressure warning valve and transmitter</li> <li>• Tire pressure warning ECU</li> <li>• Wire harness or connector</li> </ul> |

## WIRING DIAGRAM



TW

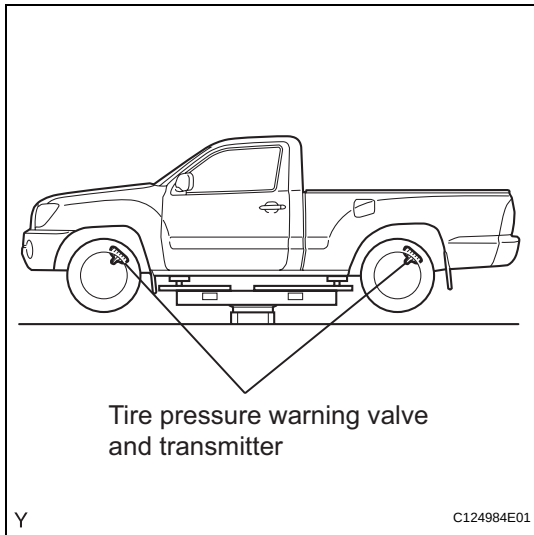
## NOTICE:

- Tires and wheels without tire pressure warning valves and transmitters are used.
- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-28](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the tire pressure warning ECU and/or tire pressure warning valve and transmitter have been replaced.

1

IDENTIFY TRANSMITTER (CORRESPONDING TO DTC)

- (a) Set the tire pressures to the appropriate specified values.



- (b) Jack up the vehicle.  
 (c) Select TIREPRESS by following the prompts displayed on the intelligent tester.

| Item       | Measurement Item/<br>Range (Display)                                                                                            |
|------------|---------------------------------------------------------------------------------------------------------------------------------|
| TIREPRESS1 | ID1 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS2 | ID2 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS3 | ID3 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS4 | ID4 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS5 | ID5 tire pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |

- (d) Rapidly release the tire pressure from any tire to 40 kPa (0.4 kgf/cm<sup>2</sup>, 5.8 psi)/ 30 seconds or more.  
 (e) Check the DATA LIST.

TW

## Result

| Condition                                  | Detection Condition              |
|--------------------------------------------|----------------------------------|
| One of TIREPRESS data (ID1 to ID5) changed | Normal                           |
| No TIREPRESS data changed                  | Transmitter corresponding to DTC |

## NOTICE:

- It may take up to 1 minute to display the updated tire pressure data.
  - When none of the TIREPRESS data (IDs 1 to 5) change, reset the tire pressure to the appropriate specified value and rotate the tires 90 to 270 degrees and recheck.
  - When the transmitter is normal, record the tire location and the transmitter ID.
- (f) When one of TIREPRESS data (IDs 1 to 5) changes, repeat the same procedure on the rest of tires one by one to identify which tire pressure warning valve and transmitter the DTC corresponds to.  
 (g) Inspect all transmitters of the tires.

## Result

| Result                               | Proceed to |
|--------------------------------------|------------|
| One or more of transmitters abnormal | A          |
| All normal                           | B          |
| All abnormal                         | C          |

B

END

C

Go to step 3

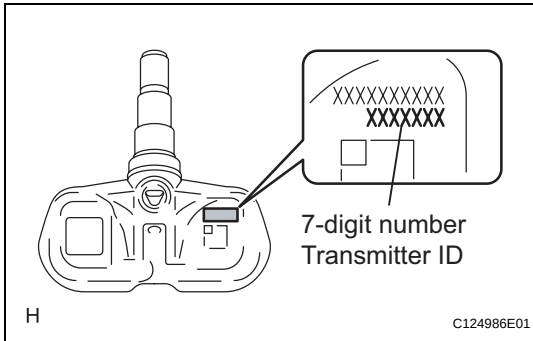
A

2

## INSPECT TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- (a) Select REGIT ID CODE by following the prompts displayed on the intelligent tester.

| Item           | Measurement Item/<br>Range (Display)                    |
|----------------|---------------------------------------------------------|
| REGIT ID1 CODE | Registered ID1 code/<br>minimum: 0<br>maximum: FFFFFFFF |
| REGIT ID2 CODE | Registered ID2 code/<br>minimum: 0<br>maximum: FFFFFFFF |
| REGIT ID3 CODE | Registered ID3 code/<br>minimum: 0<br>maximum: FFFFFFFF |
| REGIT ID4 CODE | Registered ID4 code/<br>minimum: 0<br>maximum: FFFFFFFF |
| REGIT ID5 CODE | Registered ID5 code/<br>minimum: 0<br>maximum: FFFFFFFF |



- (b) Remove the identified tire pressure warning valve and transmitter from the tire, and check its ID number (See page [TW-95](#) ).

- (c) Check whether the recorded transmitter ID and the actual transmitter ID match.

**Result**

| Result    | Proceed to |
|-----------|------------|
| Matched   | A          |
| Unmatched | B          |

A

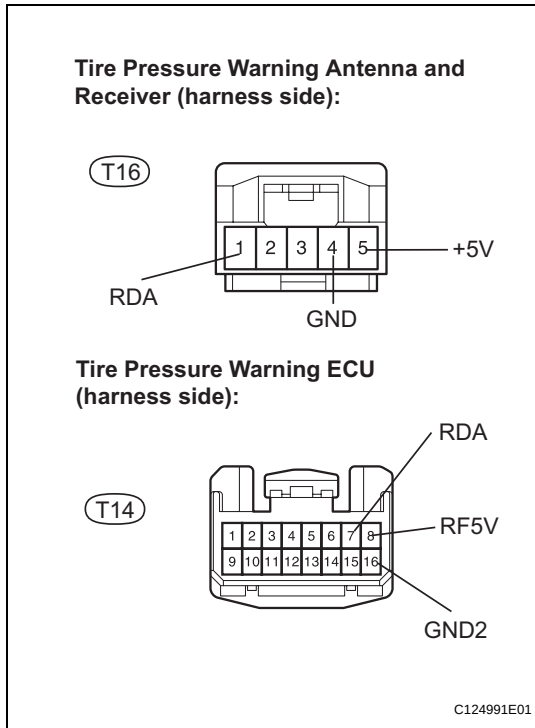
REPLACE TIRE PRESSURE WARNING  
VALVE AND TRANSMITTER

B

## PERFORM REGISTRATION (TRANSMITTER ID)

TW

### 3 CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING RECEIVER - TIRE PRESSURE WARNING ECU)



- (a) Disconnect the connectors from the tire pressure warning ECU and tire pressure warning antenna and receiver.
- (b) Measure the resistance.

#### Standard resistance

| Tester Connection           | Specified Condition     |
|-----------------------------|-------------------------|
| RDA (T14-7) - RDA (T16-1)   | Below 1 $\Omega$        |
| RF5V (T14-8) - +5V (T16-5)  | Below 1 $\Omega$        |
| GND2 (T14-16) - GND (T16-4) | Below 1 $\Omega$        |
| RDA (T14-7) - Body ground   | 10 k $\Omega$ or higher |
| RF5V (T14-8) - Body ground  | 10 k $\Omega$ or higher |
| GND2 (T14-16) - Body ground | 10 k $\Omega$ or higher |

NG

**REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

### 4 READ VALUE OF DATA LIST (TIREFPRESS)

- (a) Turn the ignition switch to the OFF position, and then turn it to the ON position.
- (b) Read the TIREFPRESS data on the intelligent tester screen.

**OK:**

**All tire pressures readings are equal to the specified values.**

**NOTICE:**

**It may take up to 1 minute to display the data.**

OK

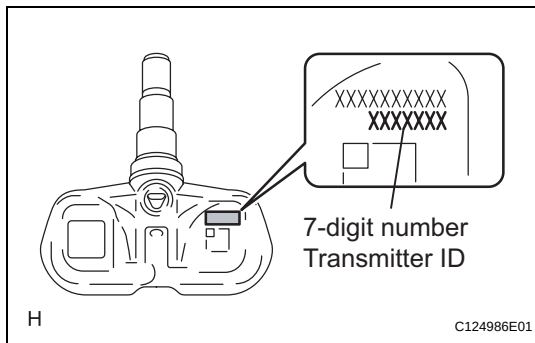
**END**

NG

### 5 CHECK ID CODE (TIRE PRESSURE WARNING VALVE AND TRANSMITTER)

- (a) Select REGIT ID CODE by following the prompts displayed on the intelligent tester.

| Item           | Measurement Item/<br>Range (Display)                    |
|----------------|---------------------------------------------------------|
| REGIT ID1 CODE | Registered ID1 code/<br>minimum: 0<br>maximum: FFFFFFFF |



| Item           | Measurement Item/<br>Range (Display)                    |
|----------------|---------------------------------------------------------|
| REGIT ID2 CODE | Registered ID2 code/<br>minimum: 0<br>maximum: FFFFFFFF |
| REGIT ID3 CODE | Registered ID3 code/<br>minimum: 0<br>maximum: FFFFFFFF |
| REGIT ID4 CODE | Registered ID4 code/<br>minimum: 0<br>maximum: FFFFFFFF |
| REGIT ID5 CODE | Registered ID5 code/<br>minimum: 0<br>maximum: FFFFFFFF |

- (b) Remove tire pressure warning valve and transmitter from any of tire, and check its ID number (See page [TW-95](#) ).
- (c) Check whether the recorded transmitter ID and the actual transmitter ID match.

**Result**

| Result    | Proceed to |
|-----------|------------|
| Matched   | A          |
| Unmatched | B          |

**A****REPLACE TIRE PRESSURE WARNING  
ANTENNA AND RECEIVER****B****PERFORM REGISTRATION (TRANSMITTER ID)****TW**

|            |                 |                              |
|------------|-----------------|------------------------------|
| <b>DTC</b> | <b>C2141/41</b> | <b>Transmitter ID1 Error</b> |
| <b>DTC</b> | <b>C2142/42</b> | <b>Transmitter ID2 Error</b> |
| <b>DTC</b> | <b>C2143/43</b> | <b>Transmitter ID3 Error</b> |
| <b>DTC</b> | <b>C2144/44</b> | <b>Transmitter ID4 Error</b> |
| <b>DTC</b> | <b>C2145/45</b> | <b>Transmitter ID5 Error</b> |

## DESCRIPTION

Tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the air pressures of the tires. The measured values are transmitted to the tire pressure warning antenna and receiver on the body as radio waves and then sent to the tire pressure warning ECU. The ECU compares the measured air pressure values with the air pressure threshold. When the measured air pressure values are less than this threshold, the warning light in the combination meter comes on. When the internal circuits of the tire pressure warning valve and transmitters are defected, these DTCs are output.

| DTC No.                                                  | DTC Detection Condition                                                                                                                                                                                                                                                                                                                                                                                                                                       | Trouble Area                                                                                  |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| C2141/41<br>C2142/42<br>C2143/43<br>C2144/44<br>C2145/45 | <ul style="list-style-type: none"> <li>If ERROR signal received 3 times consecutively, tire pressure warning valve and transmitter determined to be defective.</li> <li>This occurs in situations where tire pressure outside range 0 to 637.5 kPa (0 to 6.5 kgf / cm<sup>2</sup>, 0 to 92.5 psi), tire internal temperature outside specified range - 40 to 120°C (- 40 to 248°F), or error occurs in tire pressure warning valve and transmitter</li> </ul> | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> </ul> |

## NOTICE:

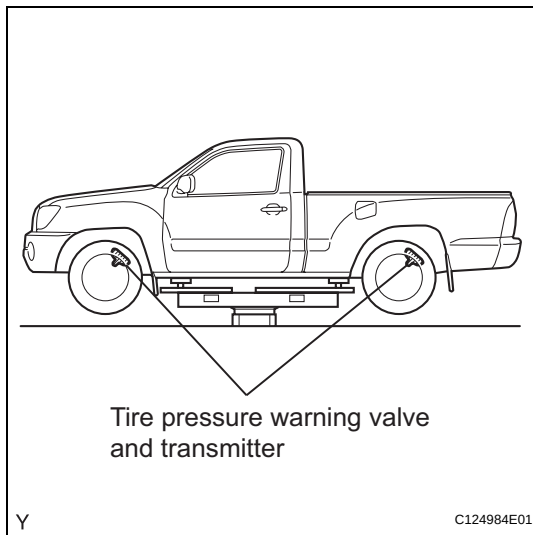
- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-28](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the tire pressure warning ECU and/ or tire pressure warning valve and transmitter have been replaced.

|          |                                                    |
|----------|----------------------------------------------------|
| <b>1</b> | <b>IDENTIFY TRANSMITTER (CORRESPONDING TO DTC)</b> |
|----------|----------------------------------------------------|

- (a) Set the tire pressures to the appropriate specified values.

| Tire Size          | Front Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Rear Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) | Spare Wheel<br>kPa (kgf/cm <sup>2</sup> , psi) |
|--------------------|------------------------------------------------|-----------------------------------------------|------------------------------------------------|
| P215/70 R15        | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P255/45 R18        | 240 (2.4, 34)                                  | 240 (2.4, 34)                                 | 240 (2.4, 34)                                  |
| P245/75 R16        | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |
| P265/70 R16 (ORP)* | 200 (2.0, 29)                                  | 220 (2.2, 32)                                 | 220 (2.2, 32)                                  |
| P265/65 R17        | 200 (2.0, 29)                                  | 200 (2.0, 29)                                 | 200 (2.0, 29)                                  |

\*: Used on Off Road Package Models



- (b) Jack up the vehicle.  
 (c) Select TIREPRESS by following the prompts displayed on the intelligent tester.

| Item       | Measurement Item / Range (Display)                                                                                                        |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| TIREPRESS1 | ID1 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS2 | ID2 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS3 | ID3 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS4 | ID4 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS5 | ID5 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |

**NOTICE:**

**It may take up to 1 minute to display the updated data.**

- (d) Rapidly release the tire pressure from any tire to 40 kPa (0.4 kgf/cm<sup>2</sup>, 5.8 psi).

**HINT:**

- Identify the malfunctioning tire pressure warning valve and transmitter by rapidly releasing the tire pressures from each tire.
- Record which TIREPRESS data (ID1 to ID5) corresponds to each tire.

- (e) Check the DATA LIST.

**Result**

| Display                                    | Detection Condition              |
|--------------------------------------------|----------------------------------|
| One of TIREPRESS data (ID1 to ID5) changes | Normal                           |
| None of TIREPRESS data change              | Transmitter corresponding to DTC |

**NOTICE:**

- When none of the TIREPRESS data (IDs 1 to 5) change, reset the tire pressure to the appropriate specified values and rotate the tires 90 to 270 degrees and recheck.
  - When the transmitter is normal, record the tire location and the transmitter ID.
- (f) When one of the TIREPRESS data (IDs 1 to 5) changes, repeat the same procedure on the rest of tires one by one to identify which tire pressure warning valve and transmitter the DTC corresponds to.

- (g) When all the TIREPRESS data (IDs 1 to 5) has been changed, identify the malfunctioning tire pressure warning valve and transmitter by using recorded ID numbers and output DTC.
- (h) Set the tire pressures to the appropriate specified values.

NEXT

REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

|            |                 |                                             |
|------------|-----------------|---------------------------------------------|
| <b>DTC</b> | <b>C2165/65</b> | <b>Abnormal Temperature Inside ID1 Tire</b> |
| <b>DTC</b> | <b>C2166/66</b> | <b>Abnormal Temperature Inside ID2 Tire</b> |
| <b>DTC</b> | <b>C2167/67</b> | <b>Abnormal Temperature Inside ID3 Tire</b> |
| <b>DTC</b> | <b>C2168/68</b> | <b>Abnormal Temperature Inside ID4 Tire</b> |
| <b>DTC</b> | <b>C2169/69</b> | <b>Abnormal Temperature Inside ID5 Tire</b> |

**DESCRIPTION**

Tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the internal temperature of the tires. The measured values are transmitted to the tire pressure warning antenna and receiver on the body as radio waves and then sent to the tire pressure warning ECU. If the measured temperatures exceed the specified temperature, the tire pressure warning ECU determines it as a malfunction, outputs DTCs, and blinks the tire pressure warning light.

| <b>DTC No.</b>                                           | <b>DTC Detecting Condition</b>                                     | <b>Trouble Area</b>                                                                                             |
|----------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| C2165/65<br>C2166/66<br>C2167/67<br>C2168/68<br>C2169/69 | Tire internal temperature exceeds 119 °C (246.2°F) more than once. | <ul style="list-style-type: none"> <li>• Tire</li> <li>• Tire pressure warning valve and transmitter</li> </ul> |

**NOTICE:**

It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the tire pressure warning valve and transmitter have been replaced.

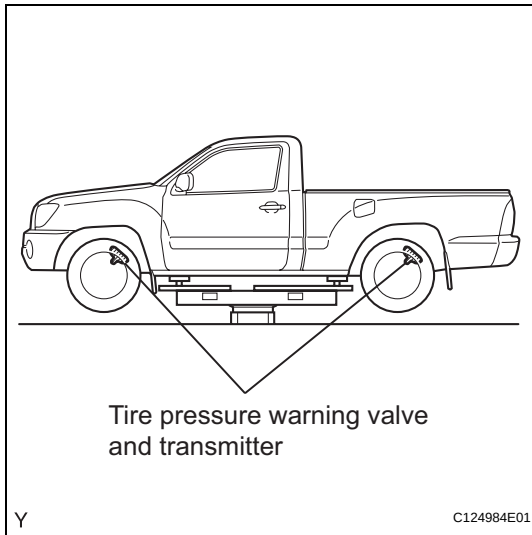
**TW**

|          |                                                    |
|----------|----------------------------------------------------|
| <b>1</b> | <b>IDENTIFY TRANSMITTER (CORRESPONDING TO DTC)</b> |
|----------|----------------------------------------------------|

- (a) Set the tire pressures to the appropriate specified values.

| <b>Tire Size</b>   | <b>Front Wheel<br/>kPa (kgf/cm<sup>2</sup>, psi)</b> | <b>Rear Wheel<br/>kPa (kgf/cm<sup>2</sup>, psi)</b> | <b>Spare Wheel<br/>kPa (kgf/cm<sup>2</sup>, psi)</b> |
|--------------------|------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|
| P215/70R 15        | 200 (2.0, 29)                                        | 220 (2.2, 32)                                       | 220 (2.2, 32)                                        |
| P255/45 R18        | 240 (2.4, 34)                                        | 240 (2.4, 34)                                       | 240 (2.4, 34)                                        |
| P245/75 R16        | 200 (2.0, 29)                                        | 200 (2.0, 29)                                       | 200 (2.0, 29)                                        |
| P265/70 R16 (ORP)* | 200 (2.0, 29)                                        | 220 (2.2, 32)                                       | 220 (2.2, 32)                                        |
| P265/65 R17        | 200 (2.0, 29)                                        | 200 (2.0, 29)                                       | 200 (2.0, 29)                                        |

\*: Used on Off Road Package Models



- (b) Jack up the vehicle.  
 (c) Select TIREPRESS by following the prompts displayed on the intelligent tester.

| Item       | Measurement Item/<br>Range (Display)                                                                                                      |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| TIREPRESS1 | ID1 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS2 | ID2 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS3 | ID3 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS4 | ID4 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |
| TIREPRESS5 | ID5 tire inflation pressure/<br>minimum: 0 kPa (0 kgf/cm <sup>2</sup> , 0 psi)<br>maximum: 637.5 kPa (6.5 kgf/cm <sup>2</sup> , 92.5 psi) |

- (d) Rapidly release the tire pressure from any tire to 40 kPa (0.4 kgf/cm<sup>2</sup>, 5.8 psi)/ 30 seconds or more.

#### Result

| Display                                    | Detection Condition              |
|--------------------------------------------|----------------------------------|
| One of TIREPRESS data (ID1 to ID5) changed | Normal                           |
| No TIREPRESS data changed                  | Transmitter corresponding to DTC |

#### NOTICE:

- It may take up to 1 minute to display the updated data.
  - When none of the TIREPRESS data (IDs 1 to 5) change, reset the tire pressure to the appropriate specified value and rotate the tires 90 to 270 degrees and recheck.
  - When the transmitter is normal, record the tire location and the transmitter ID.
- (e) When one of the TIREPRESS data (IDs 1 to 5) changes, repeat the same procedure on the rest of tires one by one to identify which tire pressure warning valve and transmitter the DTC corresponds to. Set the tire pressures to the appropriate specified values.
- (f) When all the TIREPRESS data (IDs 1 to 5) has been change, identify the malfunctioning tire pressure warning valve and transmitter by using recorded ID numbers and output DTC.

**2****CHECK TIRES**

Check the that the tires are not flat, and there are no indications of air pressure decreases.

**NG****REPLACE TIRES AND TIRE PRESSURE  
WARNING VALVE AND TRANSMITTERS****OK****REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER**

**DTC****C2171/71****Transmitter ID not Registered****DESCRIPTION**

The IDs of each tire pressure warning valve and transmitters are registered to the tire pressure warning ECU.

When the ECU detects that an ID is not the one of registered IDs, or cannot receive an ID signal, a DTC is output.

**NOTICE:**

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-28](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the tire pressure warning ECU and/ or tire pressure warning valve and transmitter have been replaced.

**1****CONFIRM REGISTRATION CONDITION (REGISTERED ID CODES)**

- Connect the intelligent tester to the DLC3 connector.
- Turn the ignition switch to the ON position and turn the tester ON.
- Select REGIT ID CODE by following the prompts displayed on the intelligent tester.

**OK:**

The registered transmitter ID codes are displayed on the intelligent tester screen.

**OK****REPLACE TIRE PRESSURE WARNING ECU****NG****2****PERFORM REGISTRATION (TRANSMITTER ID)**

- Register the transmitter IDs for all the wheels (See page [TW-11](#) ).
- Set the tire pressures of all the wheels to the appropriate specified values.

**NEXT****3****READ VALUE OF DATA LIST**

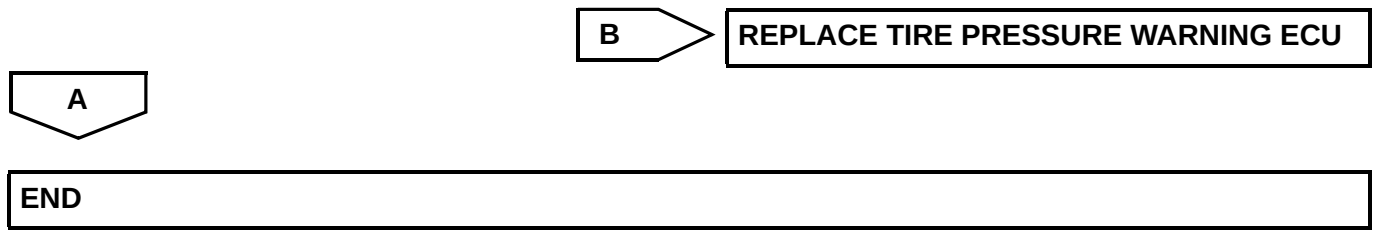
- Check the DATA LIST (See page [TW-28](#) ).
- Select TIREPRESS by following the prompts displayed on the intelligent tester.

**HINT:**

It may take up to 1 minute to display the tire pressure data.

**Result**

| Condition                                                 | Proceed to |
|-----------------------------------------------------------|------------|
| All tire pressure readings are equal to specified values. | A          |
| Tire pressure values not display.                         | B          |



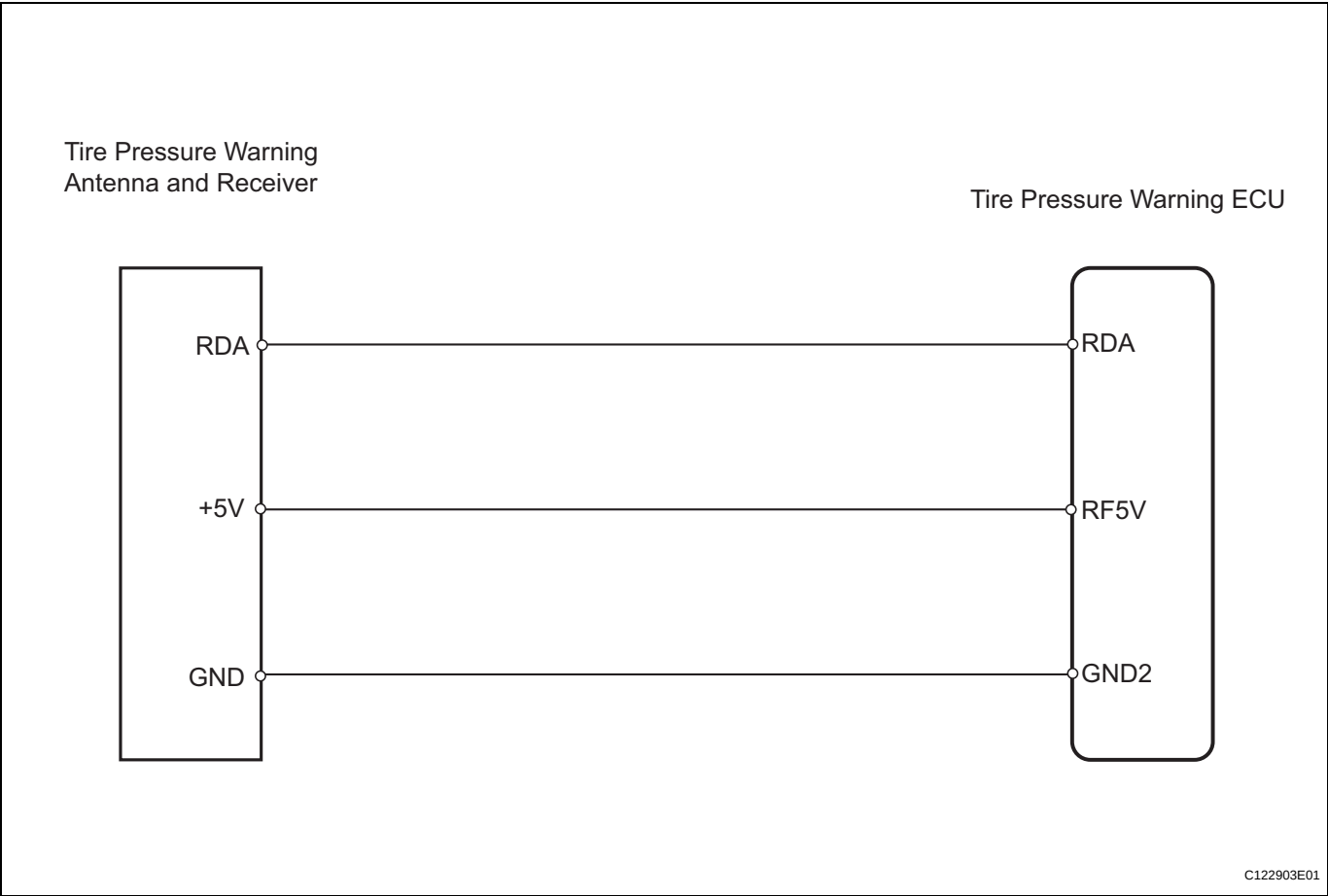
|     |          |                |
|-----|----------|----------------|
| DTC | C2176/76 | Receiver Error |
|-----|----------|----------------|

DESCRIPTION

The signals are transmitted to the tire pressure warning antenna and receiver on the body as radio waves and then sent to the tire pressure warning ECU.

| DTC No.  | DTC Detection Condition                                                                                                                                                    | Trouble Area                                                                                                                                                   |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C2176/76 | When either of following detected: <ul style="list-style-type: none"><li>EEPROM in tire pressure warning ECU malfunction</li><li>Terminal RF5V shorted to ground</li></ul> | <ul style="list-style-type: none"><li>Tire pressure warning antenna and receiver</li><li>Tire pressure warning ECU</li><li>Wire harness or connector</li></ul> |

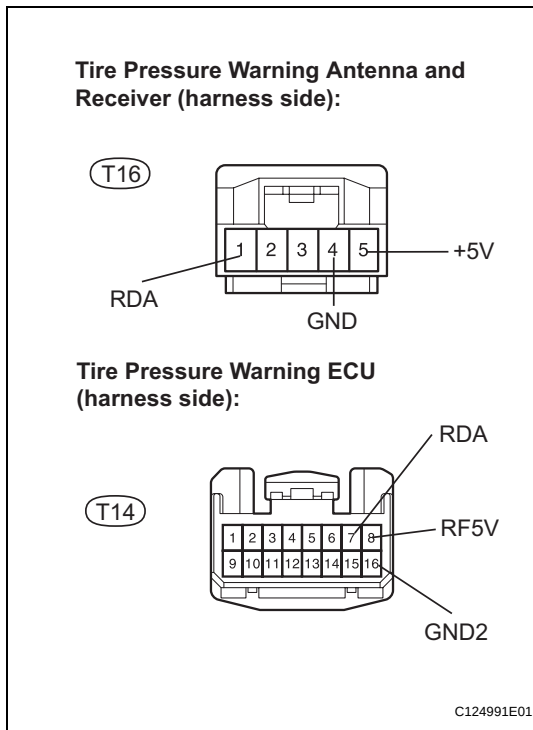
WIRING DIAGRAM



NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page TW-28 ).
- It is necessary to perform initialization (See page TW-15 ) after registration (See page TW-11 ) the transmitter IDs into the tire pressure warning ECU after the ECU have been replaced.

# 1 CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU - TIRE PRESSURE WARNING RECEIVER)



(a) Disconnect the connectors from the tire pressure warning antenna and receiver and tire pressure warning ECU.

(b) Measure the resistance.

## Standard resistance

| Tester Connection           | Specified Condition     |
|-----------------------------|-------------------------|
| RDA (T14-7) - RDA (T16-1)   | Below 1 $\Omega$        |
| RF5V (T14-8) - +5V (T16-5)  | Below 1 $\Omega$        |
| GND2 (T14-16) - GND (T16-4) | Below 1 $\Omega$        |
| RDA (T14-7) - Body ground   | 10 k $\Omega$ or higher |
| RF5V (T14-8) - Body ground  | 10 k $\Omega$ or higher |
| GND2 (T14-16) - Body ground | 10 k $\Omega$ or higher |

(c) Reconnect the connectors.

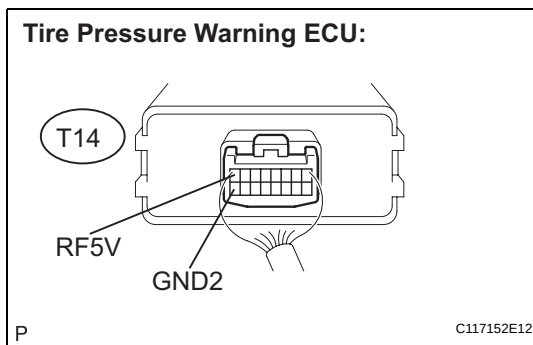
NG

**REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

TW

# 2 INSPECT TIRE PRESSURE WARNING ECU



(a) Turn the ignition switch to the ON position.

(b) Measure the voltage of the terminals between RF5V and GND2 of the tire pressure warning ECU.

## Standard voltage

| Tester Connection            | Specified Condition |
|------------------------------|---------------------|
| GND2 (T14-16) - RF5V (T14-8) | 4.5 to 5.5 V        |

NG

**REPLACE TIRE PRESSURE WARNING ECU**

OK

# 3 INSPECT TIRE PRESSURE WARNING ECU

- Replace the tire pressure warning ECU with a normally functioning or new one.
- Register the transmitter IDs again (See page [TW-11](#) ).
- Perform TEST MODE PROCEDURE (See page [TW-17](#) ).
- Perform the forcible transmission of all the transmitter IDs.

(e) Confirm that DTCs C2181/81 to C2185/85 are cleared.

Result

| Result           | Proceed to |
|------------------|------------|
| DTCs all cleared | A          |
| DTCs not cleared | B          |

A

REPLACE TIRE PRESSURE WARNING ECU

B

REPLACE TIRE PRESSURE WARNING ANTENNA AND RECEIVER

**DTC****C2177/77****Initialization not Completed****DESCRIPTION**

The initialization procedure starts when the tire pressure warning reset switch is pressed for 3 seconds or more with the ignition switch in the ON position.

The tire pressure warning ECU registers the tire pressure data by the signals from the tire pressure warning valve and transmitter, and start the tire pressure warning light blinking 3 times at 1 second intervals.

| DTC No.  | DTC Detection Condition                                                                                     | Trouble Area                                                                                                                     |
|----------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| C2177/77 | Initialization not complete after vehicle driven at 5 mph (8 km/h) or more for total of 20 minutes or more. | <ul style="list-style-type: none"> <li>Tire pressure warning valve and transmitter</li> <li>Tire pressure warning ECU</li> </ul> |

**NOTICE:**

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-28](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the tire pressure warning ECU and/or tire pressure warning valve and transmitter have been replaced.

**1****CHECK DTC**(a) Check for DTCs (See page [TW-26](#) ).**Result**

| Result                             | Proceed to |
|------------------------------------|------------|
| DTC C2177 output with another DTCs | A          |
| Only DTC C2177 output              | B          |

**TW****HINT:**

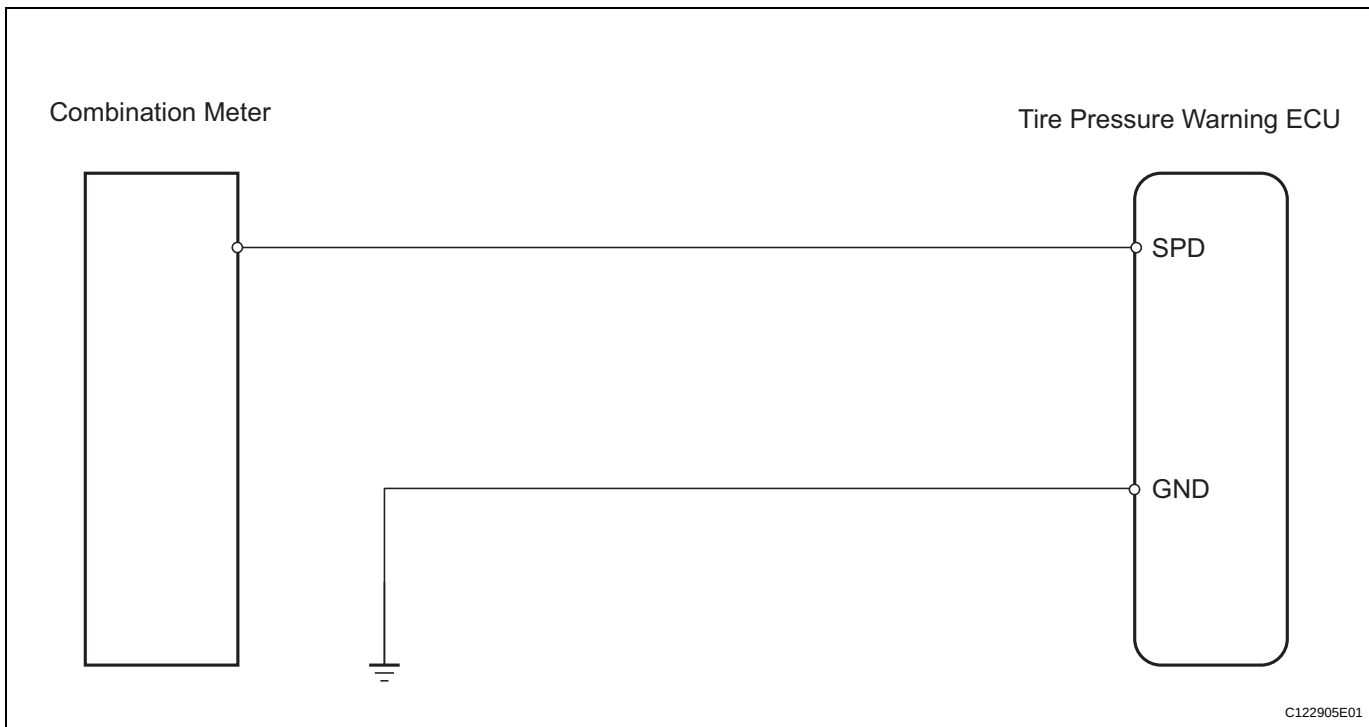
- When the tire pressure warning ECU receives no signals for several minutes after the initialization procedure has finished, a DTC is output.
- When only DTC C2177 is output, refer to the other troubleshooting procedure (See page [TW-37](#) ).

**B****GO TO OTHER PROBLEM (MALFUNCTION IN TRANSMISSION OR RECEPTION)****A****INSPECTION PROCEDURE RELEVANT TO OUTPUT DTC**

**DTC****C2191/91****Vehicle Speed Signal Error (Test Mode DTC)****DESCRIPTION**

The tire pressure warning ECU receives a speed signal from the combination meter. This DTC is stored upon entering test mode, and cleared when a vehicle speed signal of 12 mph (20 km/h) is detected for 3 seconds or more. The DTC is output only during test mode.

| DTC No.  | DTC Detection Condition                  | Trouble Area                                                                                                                                                            |
|----------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C2191/91 | Speed sensor signal circuit malfunction. | <ul style="list-style-type: none"> <li>Combination meter</li> <li>Vehicle speed sensor</li> <li>Tire pressure warning ECU</li> <li>Wire harness or connector</li> </ul> |

**WIRING DIAGRAM****NOTICE:**

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-28](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the tire pressure warning ECU and/or tire pressure warning valve and transmitter have been replaced.

**HINT:**

Start the inspection from step 1 when using the intelligent tester, and start from step 2 when not using the intelligent tester.

**1****READ VALUE OF INTELLIGENT TESTER**

- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position, and turn the intelligent tester on.

- (c) Select the item shown in the table below from the DATA LIST, and read the value displayed on the intelligent tester.

HINT:

Enter the following menus: Chassis/TPWS/DATA LIST

### VEHICLE SPEED

| Item          | Normal Condition     |
|---------------|----------------------|
| VEHICLE SPEED | Actual vehicle speed |

- (d) Check that the values indicated on the tester and on the combination meter are the same.

**OK:**

Vehicle speed displayed on the intelligent tester indicates the actual vehicle speed.

**OK**

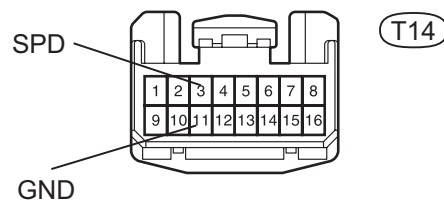
**REPLACE TIRE PRESSURE WARNING ECU**

**NG**

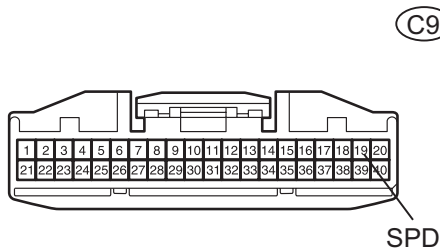
**2**

## CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU - COMBINATION METER)

**Tire Pressure Warning ECU (harness side):**



**Combination Meter (harness side):**



C124992E01

- (a) Disconnect the connectors from the combination meter and tire pressure warning ECU.  
(b) Measure the resistance.

**Standard resistance**

| Tester Connection          | Specified Condition     |
|----------------------------|-------------------------|
| SPD (T14-3) - SPD (C9-19)  | Below 1 $\Omega$        |
| SPD (T14-3) - Body ground  | 10 k $\Omega$ or higher |
| GND (T14-11) - Body ground | Below 1 $\Omega$        |

Reconnect the connectors.

**NG**

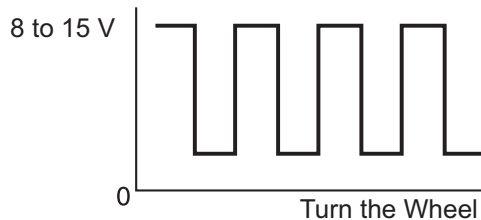
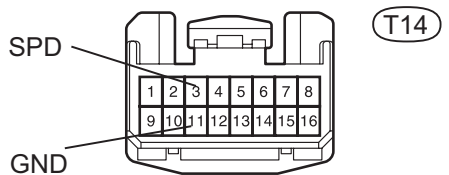
**REPAIR OR REPLACE HARNESS OR CONNECTOR**

**OK**

**TW**

### 3 INSPECT TIRE PRESSURE WARNING ECU

Tire Pressure Warning ECU  
(harness side):



C124993E02

- (a) Disconnect the connector from the tire pressure warning ECU.
- (b) Check the voltage
  - (1) Move the shift lever to the neutral position.
  - (2) Jack up one of the rear wheels.
  - (3) Turn the ignition switch to the ON position.
  - (4) Measure the voltage between terminals SPD and GND of the tire pressure warning ECU as the rear tire is turned slowly.

**OK:**

**Voltage is generated intermittently.**

**HINT:**

As the vehicle speed (wheel revolution speed) increases, the cycle of the fluctuation in the waveform becomes faster.

**NG**

**CHECK COMBINATION METER (SPEED SIGNAL CIRCUIT)**

**OK**

**REPLACE TIRE PRESSURE WARNING ECU**

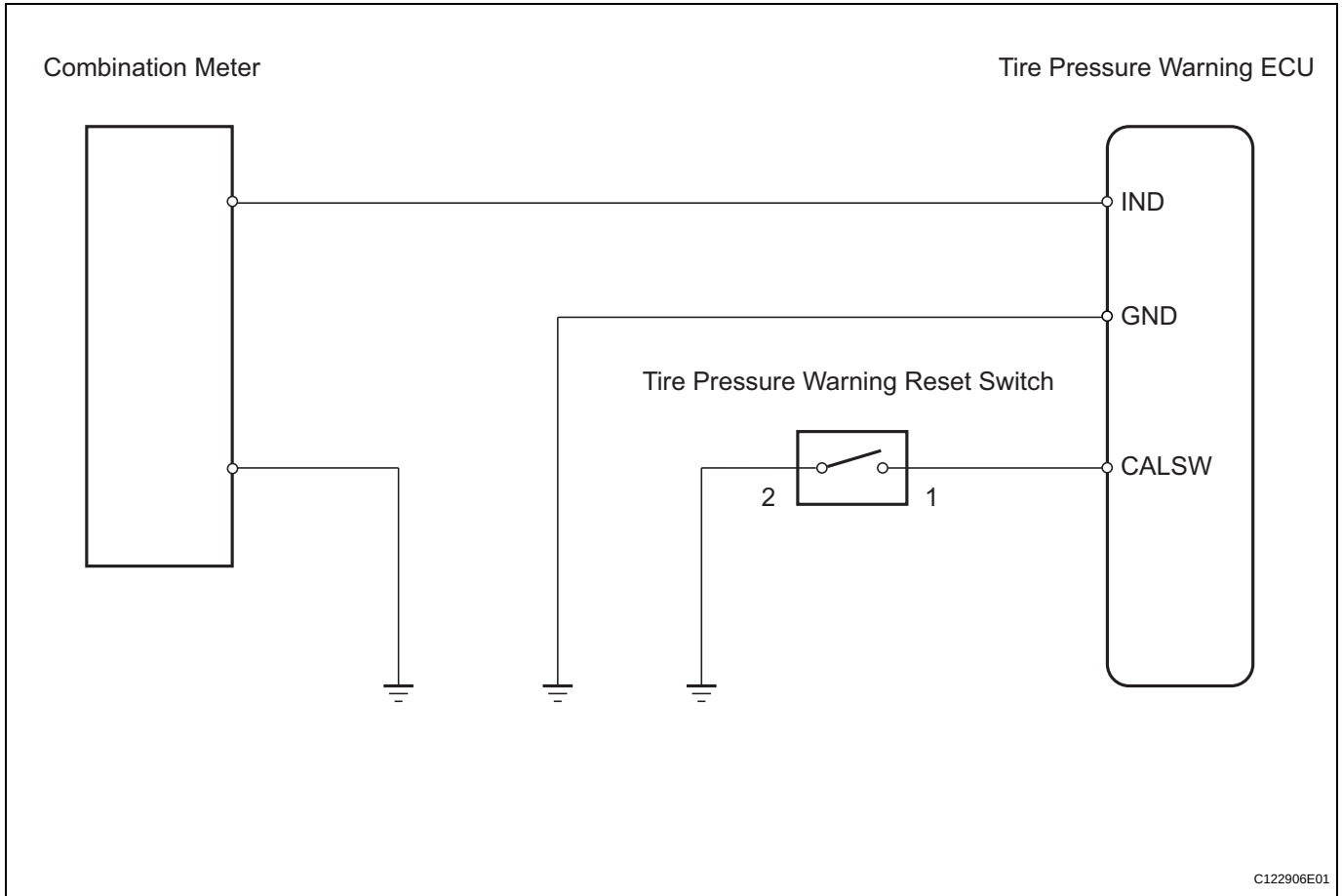
## Tire Pressure Warning Reset Switch Circuit

### DESCRIPTION

Tire pressure warning reset switch is adopted for initialization of the tire pressure warning threshold. When the tire pressure warning reset switch is pressed for 3 seconds or more, the tire pressure data is registered in the tire pressure warning ECU.

The tire pressure warning reset switch condition is checked through the DATA MONITOR using the intelligent tester or by conducting the TEST MODE PROCEDURE.

### WIRING DIAGRAM



TW

#### NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-28](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the ECU have been replaced.

1

READ VALUE OF DATA LIST (INITIAL SW)

- Connect the intelligent tester to the DLC3 connector.
- Turn the ignition switch to the ON position and turn the tester ON.
- Select INITIAL SW by following the prompts displayed on the intelligent tester.

## Standard

| Item       | Condition                                      | Specified Condition |
|------------|------------------------------------------------|---------------------|
| INITIAL SW | Tire pressure warning reset switch<br>OFF → ON | Display<br>OFF → ON |

NG

Go to step 2

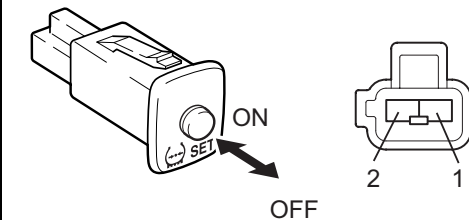
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2

## INSPECT TIRE PRESSURE WARNING RESET SWITCH

Tire Pressure Warning Reset Switch:



- (a) Disconnect the connector from the tire pressure warning reset switch.  
 (b) Measure the resistance between terminals 1 and 2 of the tire pressure warning reset switch.

## Standard resistance

| Switch Condition | Specified Condition     |
|------------------|-------------------------|
| ON               | Below 1 $\Omega$        |
| OFF              | 10 k $\Omega$ or higher |

NG

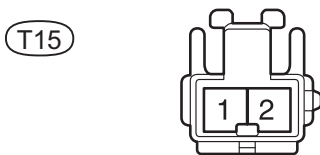
REPLACE TIRE PRESSURE WARNING RESET SWITCH

OK

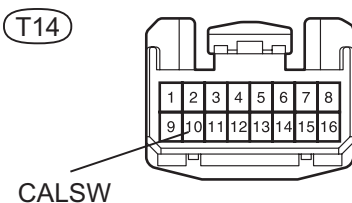
3

## CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING RESET SWITCH-TIRE PRESSURE WARNING ECU)

Tire Pressure Warning Reset Switch (harness side):



Tire Pressure Warning ECU (harness side):



- (a) Disconnect the connector from the tire pressure warning ECU.  
 (b) Measure the resistance.

## Standard resistance

| Tester Connection            | Specified Condition     |
|------------------------------|-------------------------|
| CALSW (T14-10) - T15-1       | Below 1 $\Omega$        |
| CALSW (T14-10) - Body ground | 10 k $\Omega$ or higher |
| T15-2 - Body ground          | Below 1 $\Omega$        |

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

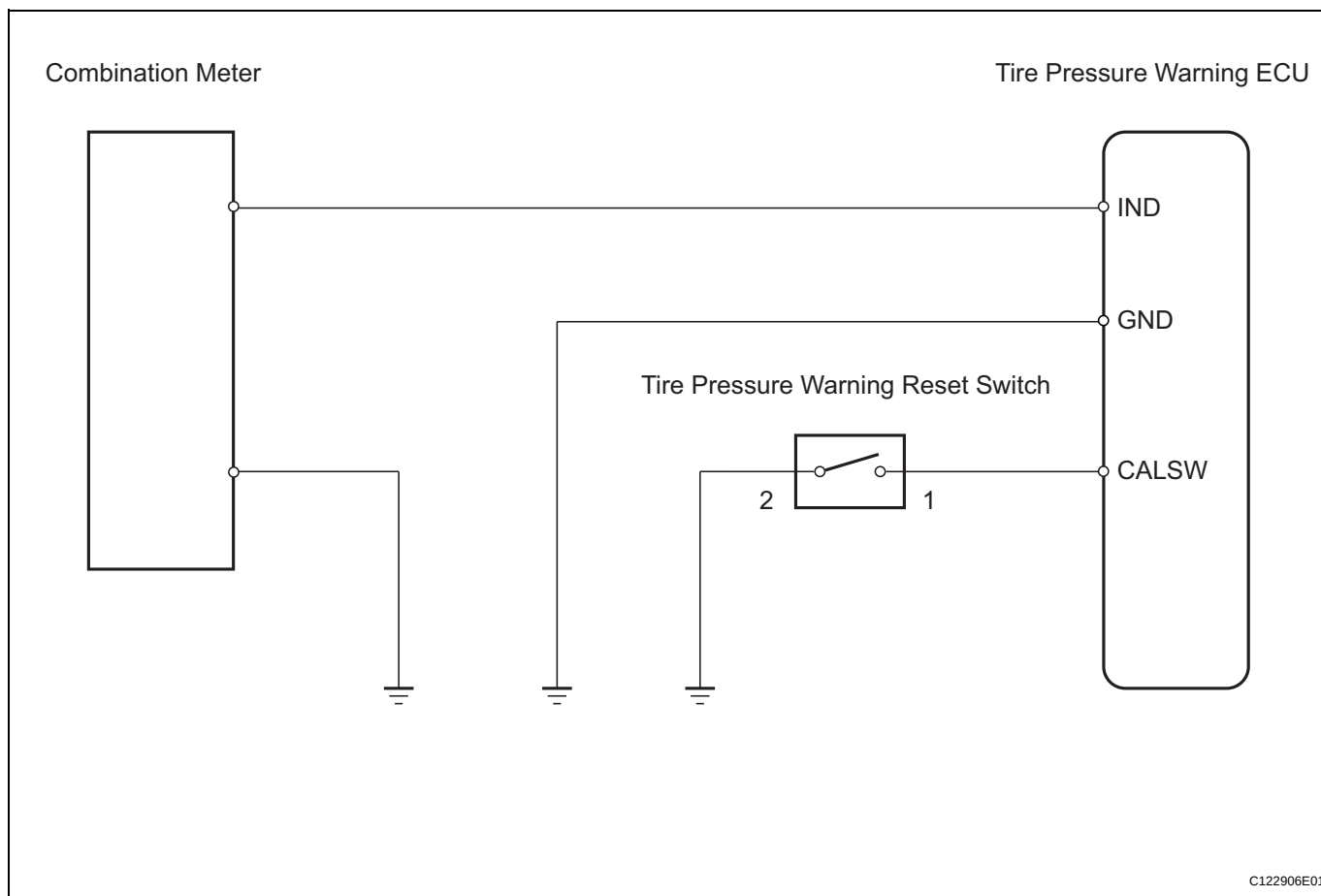
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

## Tire Pressure Warning Light Circuit

### DESCRIPTION

If the tire pressure warning ECU detects a malfunction, the tire pressure warning light comes on and the tire pressure monitor is cancelled simultaneously. At this time, the ECU stores DTCs in the memory. Connecting terminals TC and CG of the DLC3 causes the tire pressure warning light to blink and output DTCs.

### WIRING DIAGRAM

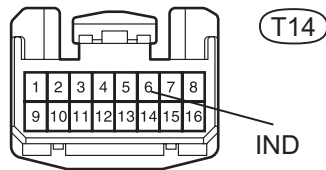


### NOTICE:

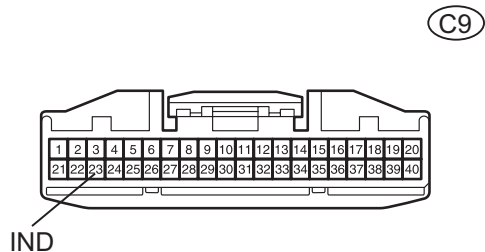
- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-26](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the tire pressure warning ECU and/or tire pressure warning valve and transmitter have been replaced.

# 1 CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU - COMBINATION METER)

Tire Pressure Warning ECU  
(harness side):



Combination Meter (harness side):



C124992E02

- Disconnect the connectors from the tire pressure warning ECU and combination meter.
- Measure the resistance.

## Standard resistance

| Tester Connection         | Specified Condition     |
|---------------------------|-------------------------|
| IND (T14-6) - IND (C9-23) | Below 1 $\Omega$        |
| IND (T14-6) - Body ground | 10 k $\Omega$ or higher |

- Reconnect the connectors.

NG

**REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

TW

# 2 INSPECT COMBINATION METER

- Disconnect the connector from the tire pressure warning ECU.
- Turn the ignition switch to the ON position, check the condition of the tire pressure warning light illumination.

## Result

| Condition           | Proceed to |
|---------------------|------------|
| Illuminates         | A          |
| Does not illuminate | B          |

B

**REPLACE COMBINATION METER**

A

**REPLACE TIRE PRESSURE WARNING ECU**

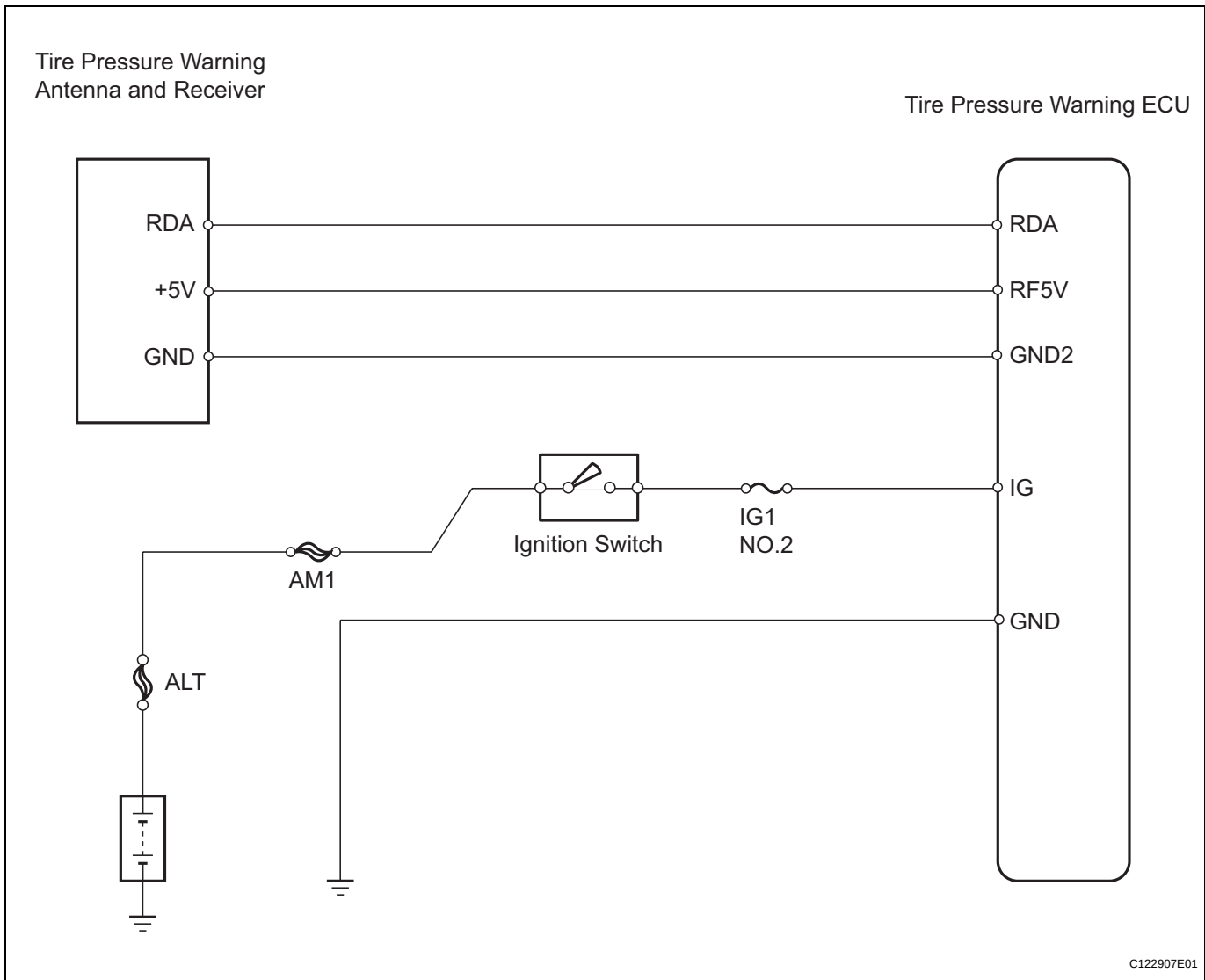
## ECU Power Source Circuit

### DESCRIPTION

This circuit supplies power to the tire pressure warning ECU. The power is also supplied to the tire pressure warning antenna and receiver via the ECU.

The tire pressure warning system is disabled, when the system circuit has a defect. At This time the tire pressure warning light on the combination meter will come on.

### WIRING DIAGRAM



#### NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-28](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the ECU have been replaced.

1

INSPECT BATTERY

(a) Check the battery voltage.

**Standard voltage:**  
**11 to 14 V**

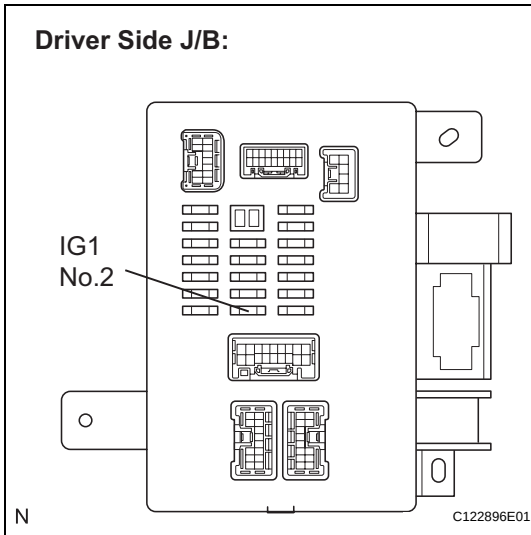
**NG**

**CHECK AND REPAIR CHARGING SYSTEM**

**OK**

## 2 INSPECT FUSE (IG1 No.2)

**Driver Side J/B:**



- Remove the IG1 No.2 fuse from the driver side J/B.
- Measure the resistance of the IG1 No.2 fuse.

**Standard resistance:**  
**Below 1  $\Omega$**

- Reinstall the IG1 No.2 fuse.

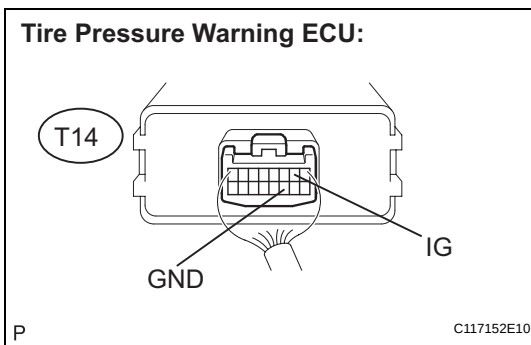
**NG**

**CHECK SHORT CIRCUIT IN COMPONENTS  
AND WIRES CONNECTED TO FUSE**

**OK**

## 3 INSPECT TIRE PRESSURE WARNING ECU

**Tire Pressure Warning ECU:**



- Remove the tire pressure warning ECU with the connector connected.
- Turn the ignition switch to the ON position.
- Measure the voltage.

**Standard voltage**

| Tester Connection         | Specified Condition |
|---------------------------|---------------------|
| IG (T14-2) - GND (T14-11) | 10 to 16 V          |

**NG**

**Go to step 4**

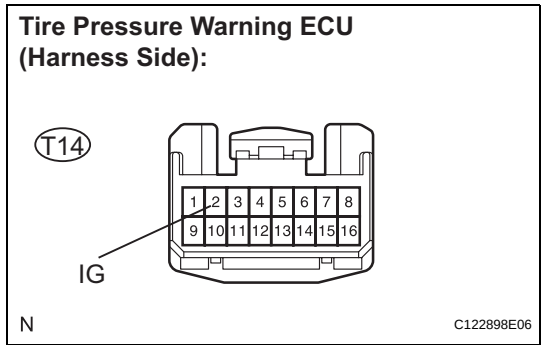
**OK**

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

**TW**

4

CHECK HARNESS AND CONNECTOR (BATTERY - TIRE PRESSURE WARNING ECU)



- (a) Disconnect the connector from the tire pressure warning ECU.
- (b) Turn the ignition switch to the ON position.
- (c) Measure the voltage.
- Standard voltage**

| Tester Connection        | Specified Condition |
|--------------------------|---------------------|
| IG (T14-2) - Body ground | 10 to 16 V          |

- (d) Reconnect the connector.

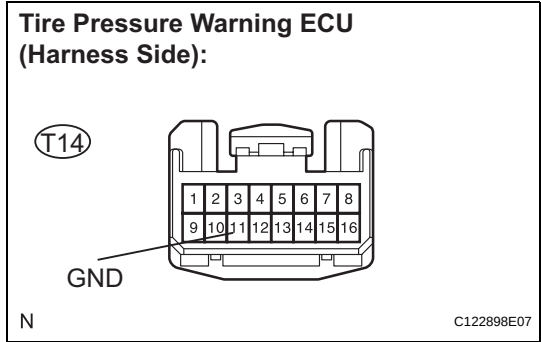
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5

CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU - BODY GROUND)



- (a) Disconnect the connector from the tire pressure warning ECU.
- (b) Measure the resistance.
- Standard resistance**

| Tester connection          | Specified Condition |
|----------------------------|---------------------|
| GND (T14-11) - Body ground | Below 1 $\Omega$    |

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

## TC and CG Terminal Circuit

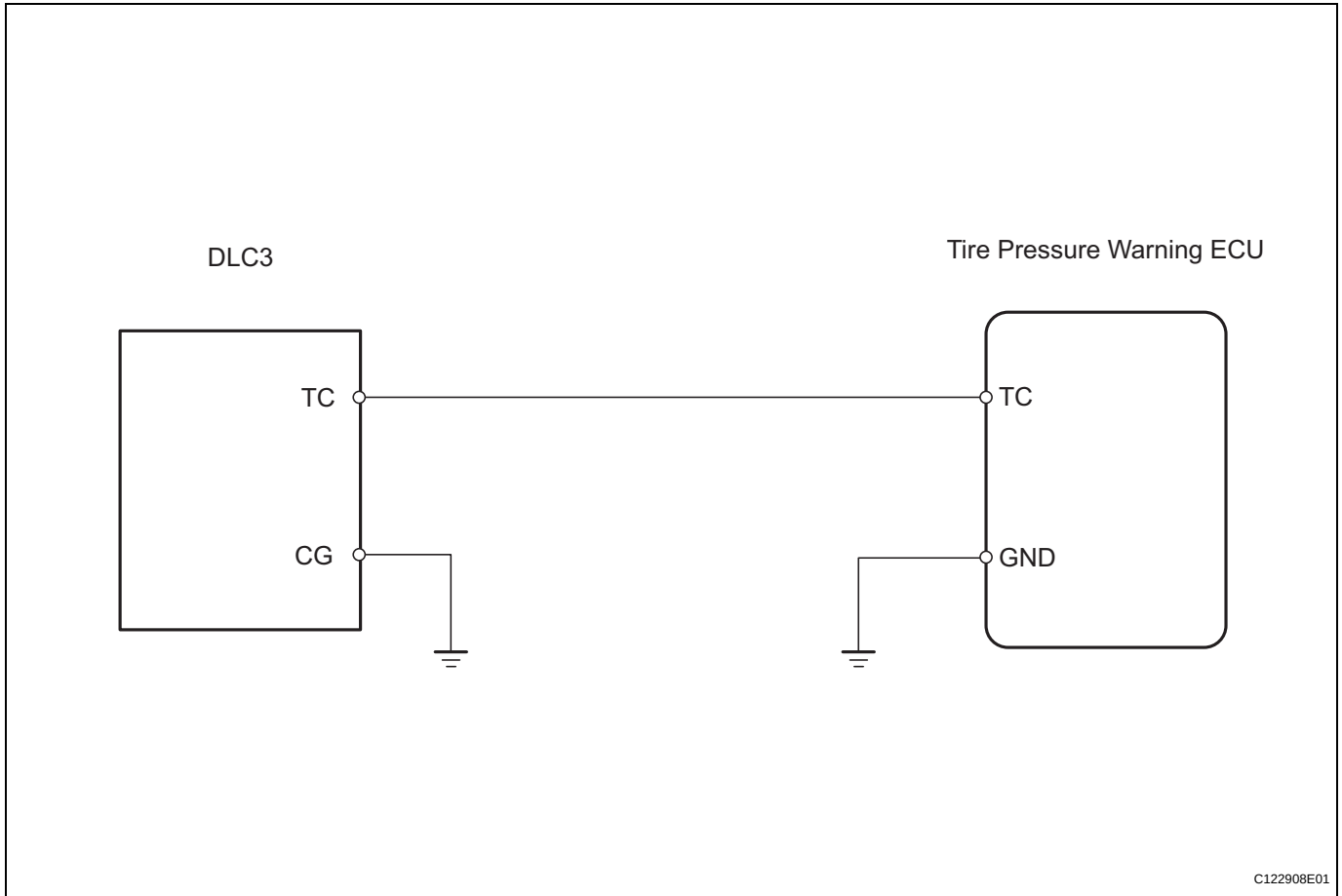
### DESCRIPTION

DTC output mode is set by connecting terminals TC and CG of the DLC3. The stored DTCs are indicated by the blinking patterns of the tire pressure warning light.

### WIRING DIAGRAM

HINT:

When all the warning lights continue blinking, a ground short in the wiring of terminal TC of the DLC3 is suspected.

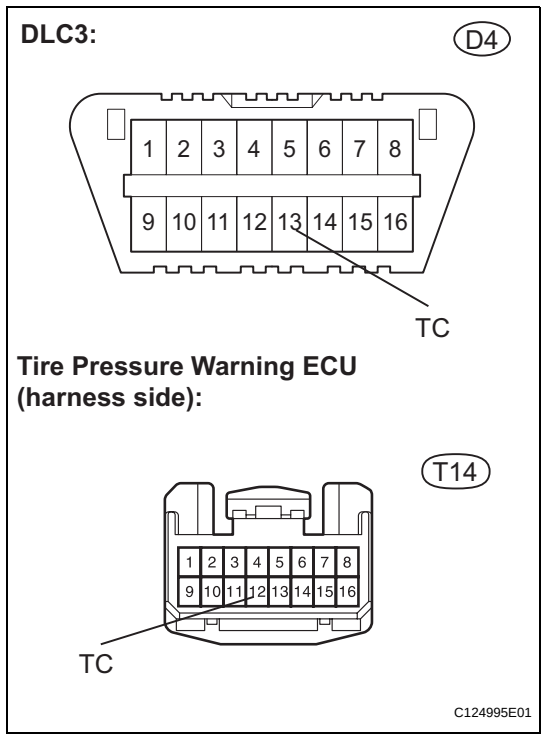


### NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and note them down before removal (See page [TW-28](#) ).
- It is necessary to perform initialization (See page [TW-15](#) ) after registration (See page [TW-11](#) ) the transmitter IDs into the tire pressure warning ECU after the tire pressure warning ECU and/or tire pressure warning valve and transmitter have been replaced.

1

CHECK HARNESS AND CONNECTOR (DLC3 - TIRE PRESSURE WARNING ECU)



(a) Disconnect the connector from the tire pressure warning ECU.

(b) Measure the resistance.

**Standard resistance**

| Tester Connection        | Specified Condition |
|--------------------------|---------------------|
| TC (T14-12) - TC (D4-13) | Below 1 Ω           |

(c) Reconnect the connector.

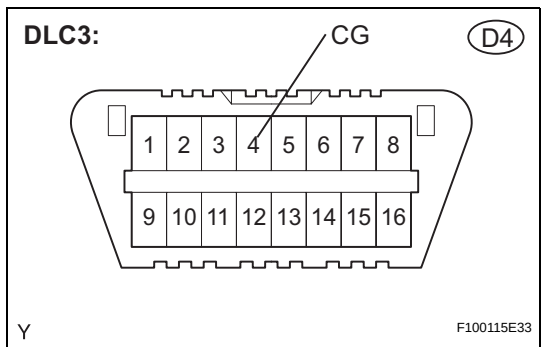
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2

CHECK HARNESS AND CONNECTOR (DLC3 - BODY GROUND)



(a) Measure the resistance.

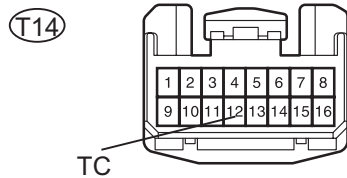
**Standard resistance**

| Tester Connection       | Specified Condition |
|-------------------------|---------------------|
| CG (D4-4) - Body ground | Below 1 Ω           |

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

**3****CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU - BODY GROUND)****Tire Pressure Warning ECU  
(Harness Side):**

(a) Disconnect the connector from the tire pressure warning ECU.

(b) Measure the resistance.

**Standard resistance**

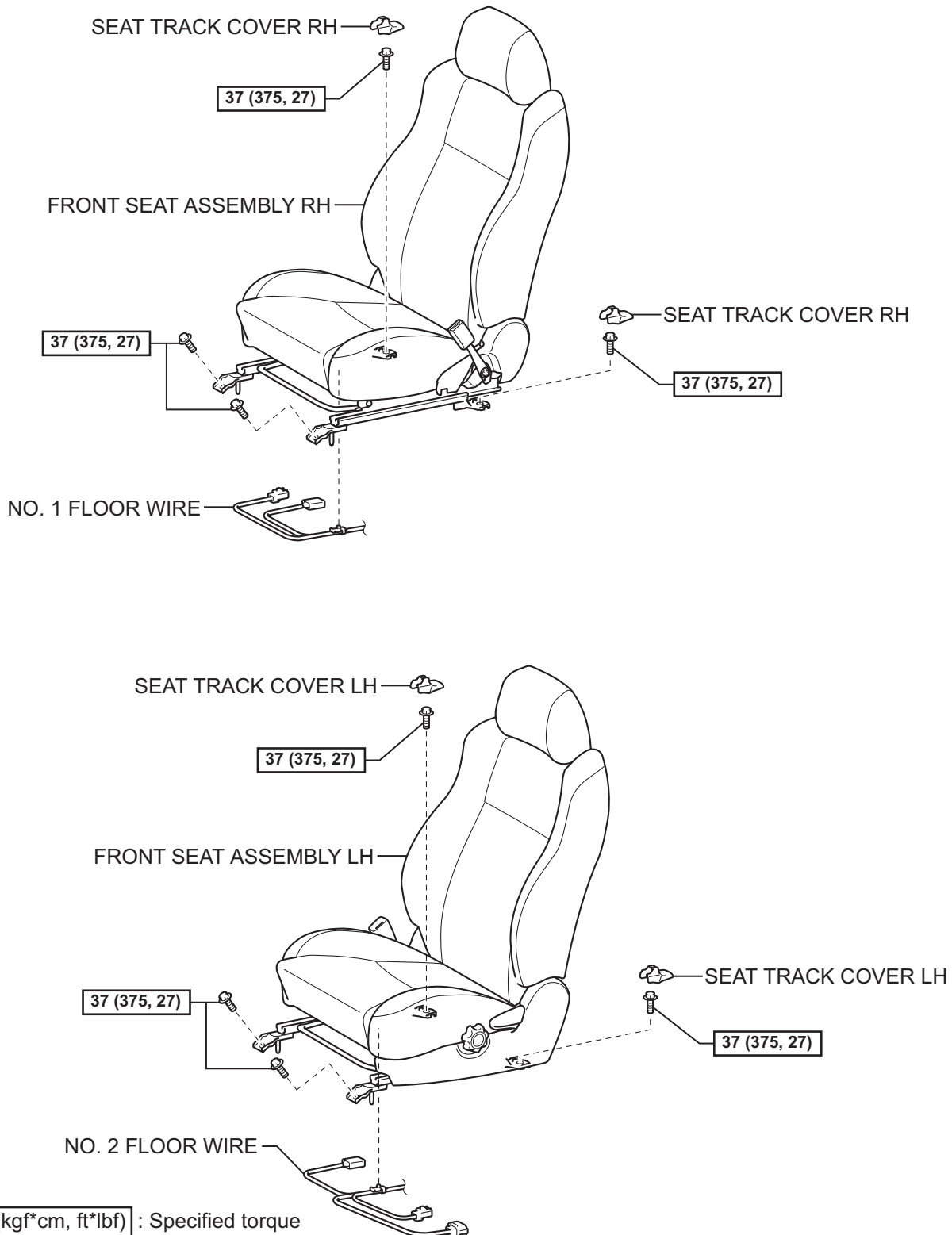
| Tester Connection         | Specified Condition     |
|---------------------------|-------------------------|
| TC (T14-12) - Body ground | 10 k $\Omega$ or higher |

**NG****REPAIR OR REPLACE HARNESS OR  
CONNECTOR AND EACH ECU****OK****REPLACE TIRE PRESSURE WARNING ECU**

# TIRE PRESSURE WARNING RECEIVER

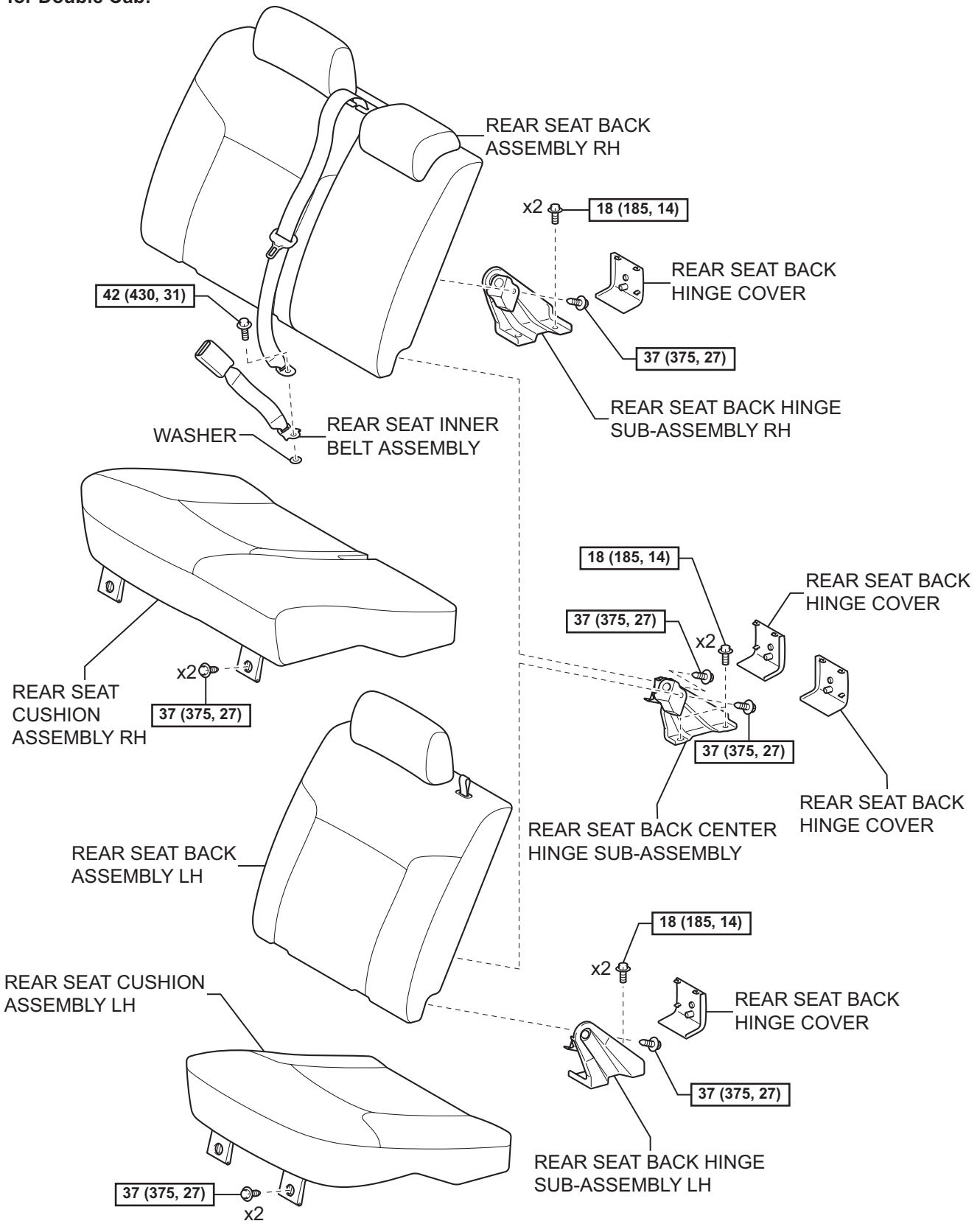
## COMPONENTS

for Double Cab:



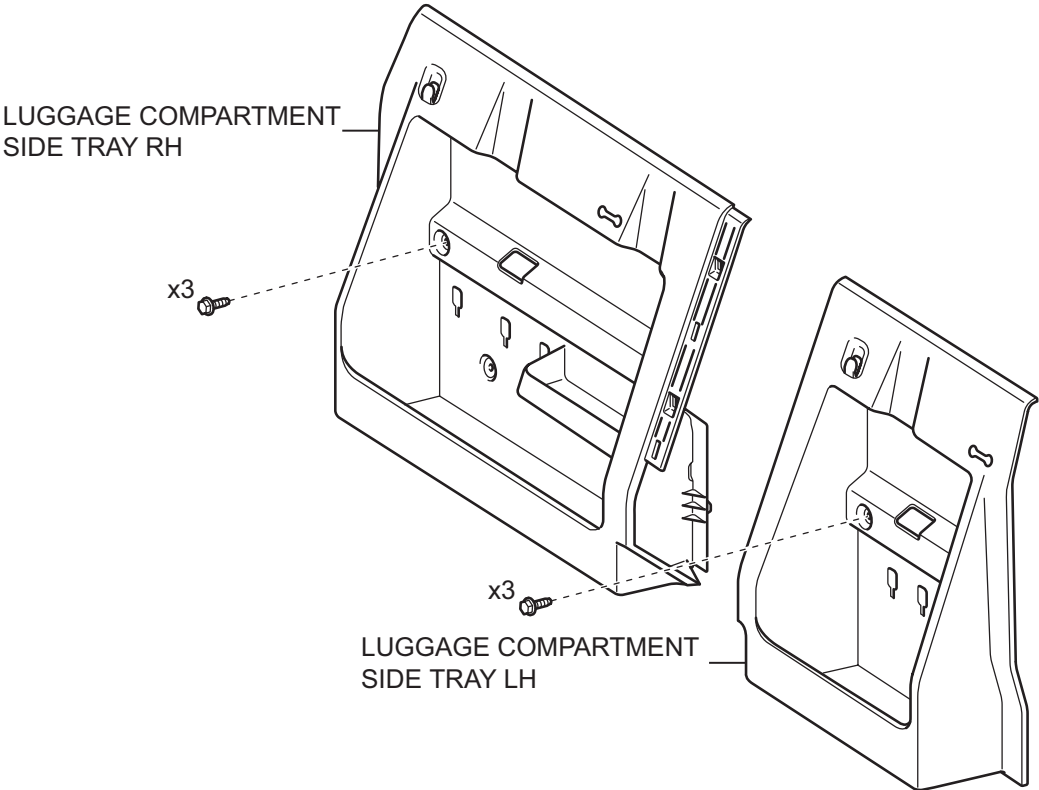
TW

for Double Cab:

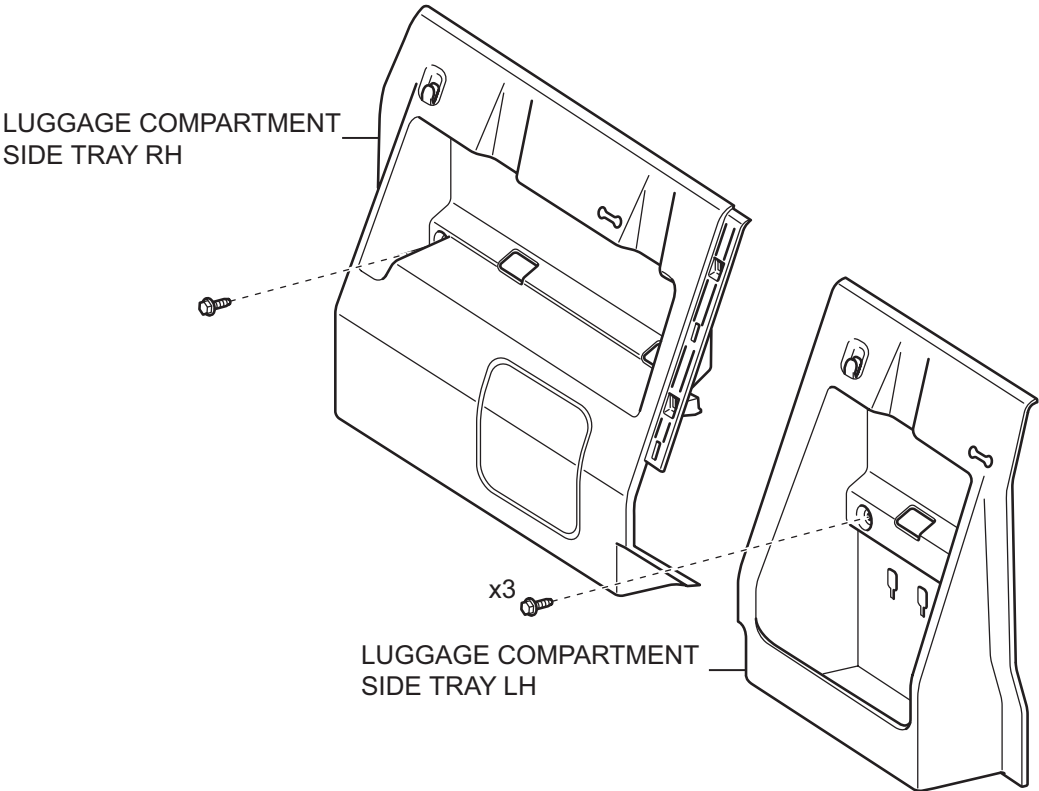


N\*m (kgf\*cm, ft\*lb) : Specified torque

for Double Cab:

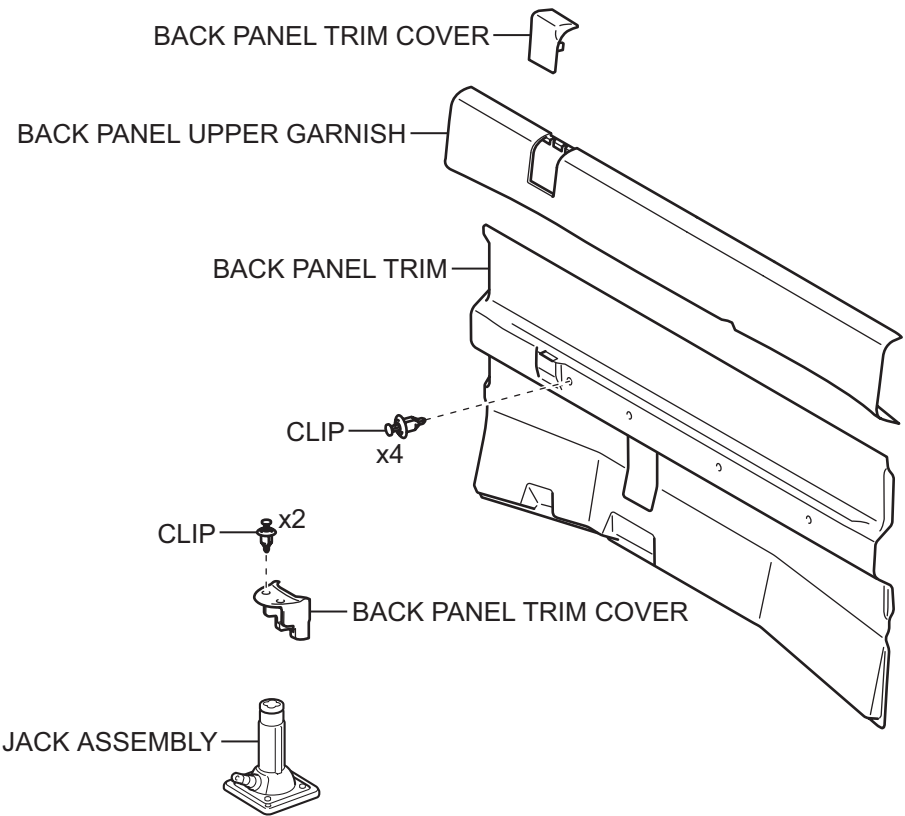


w/ Woofer:

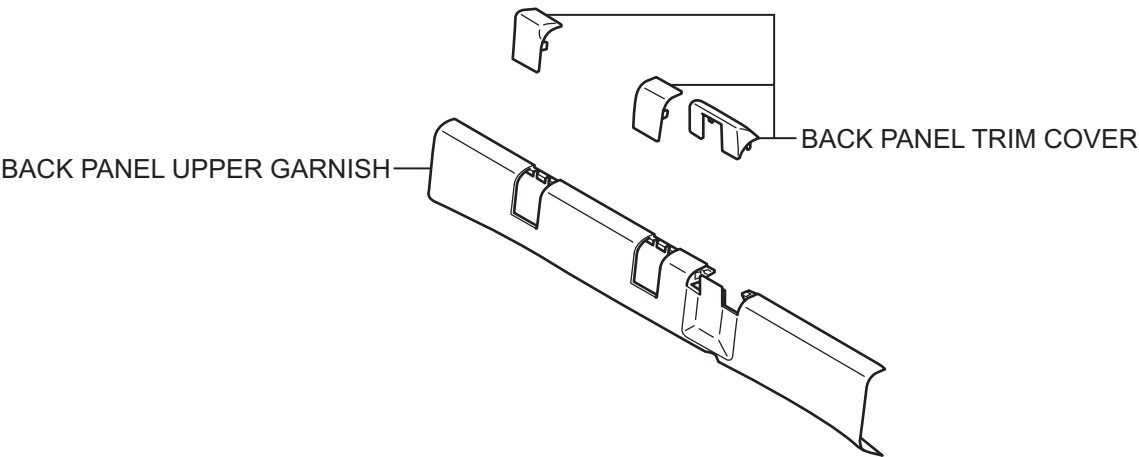


TW

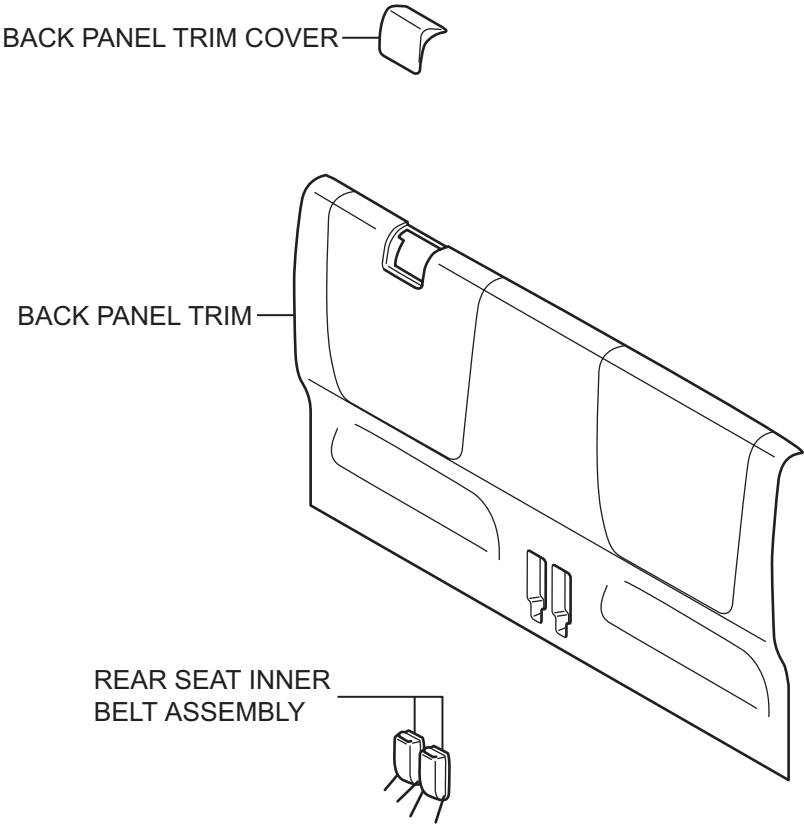
for Regular Cab on Separate Seat Type:



for Regular Cab on Bench Seat Type:

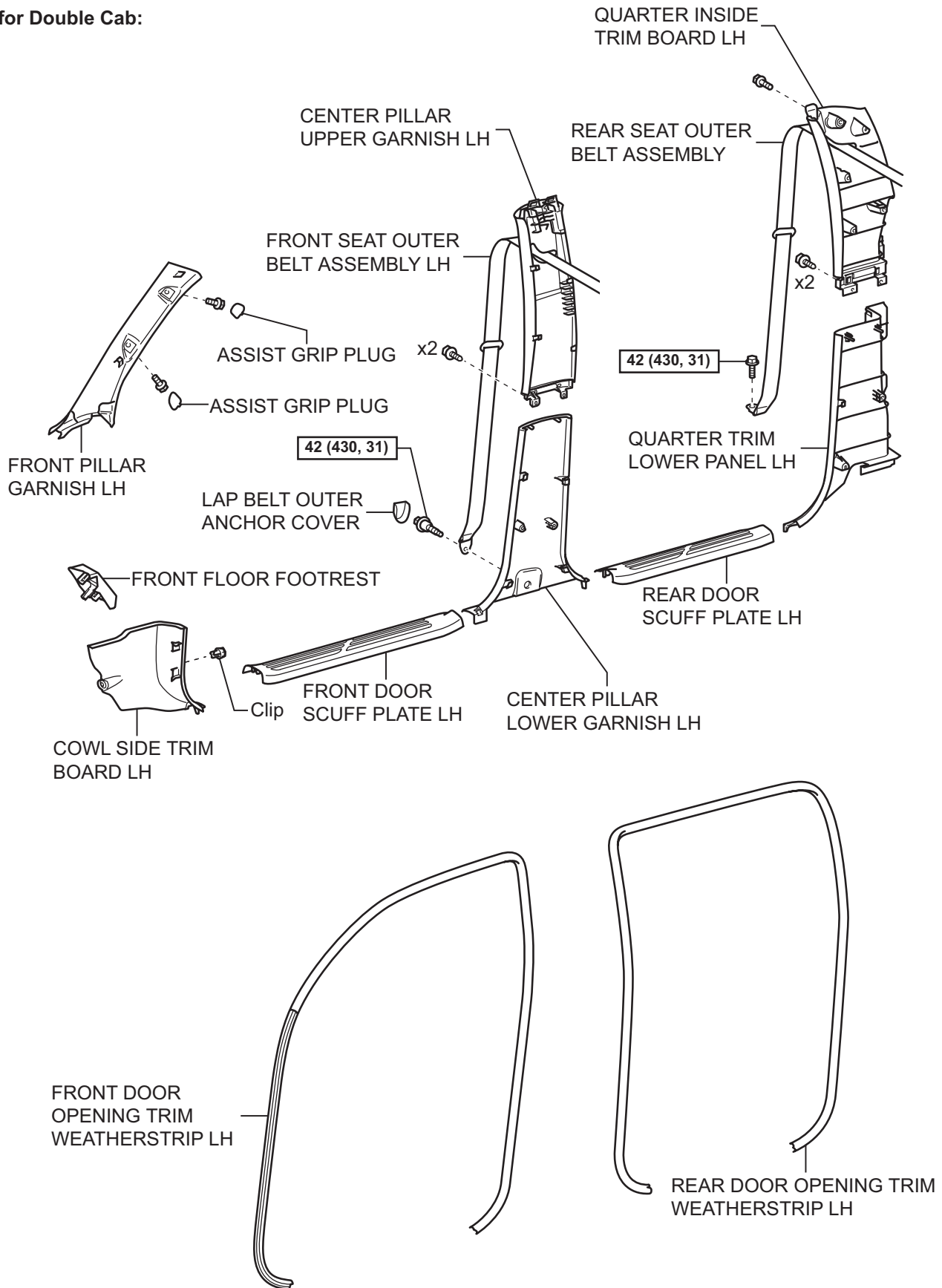


for Access Cab:

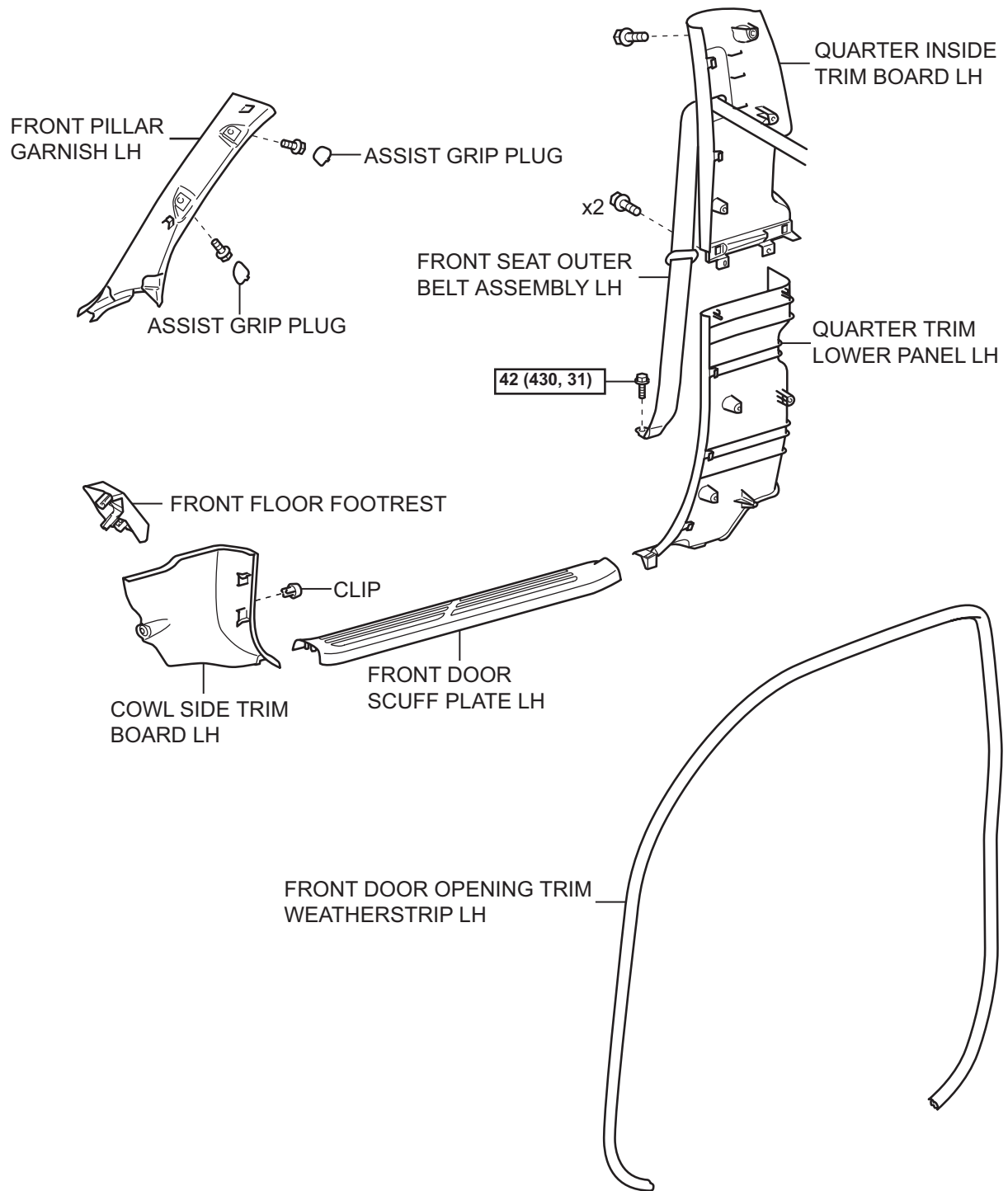


TW

for Double Cab:



for Regular Cab:

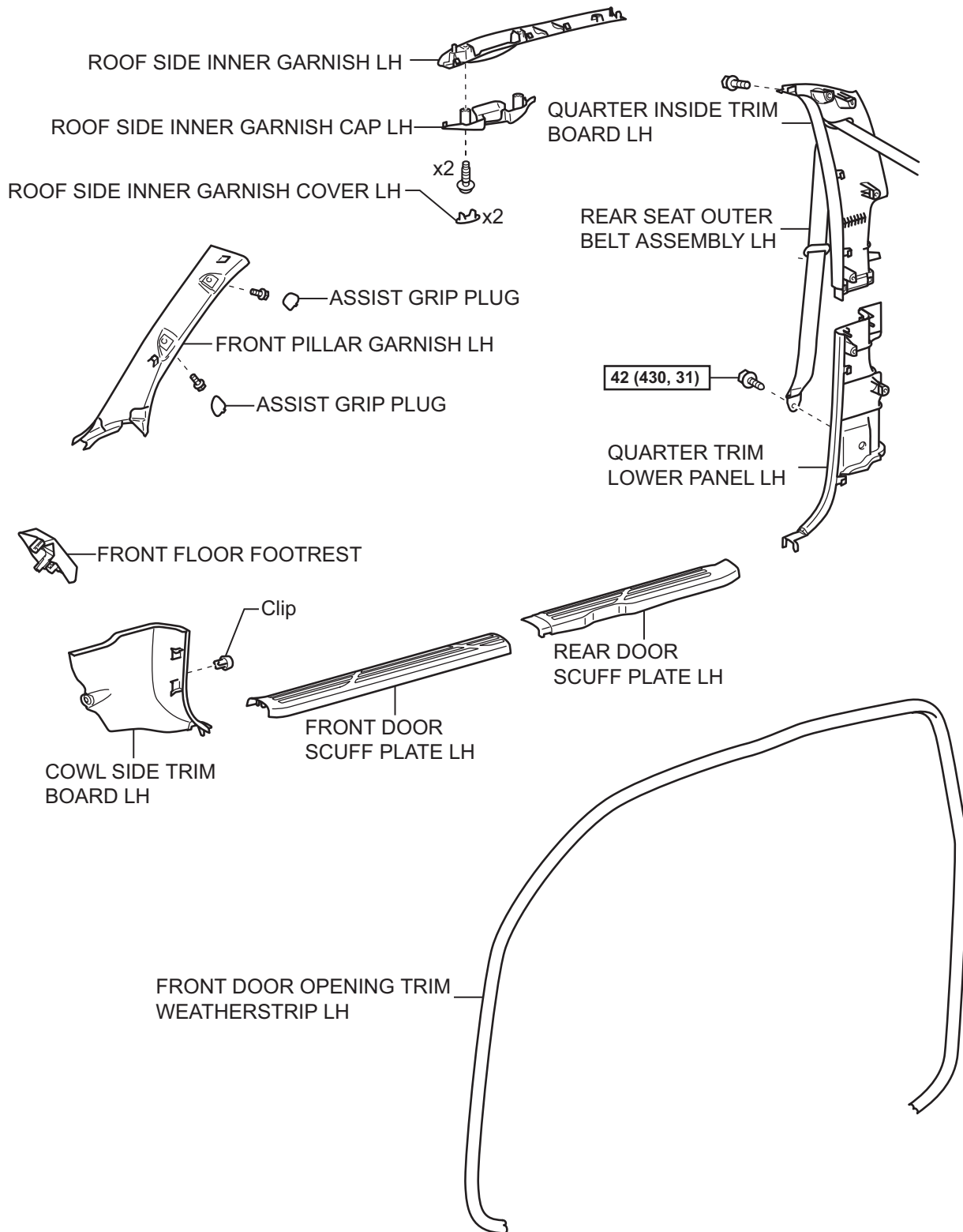


$\boxed{\text{N*m (kgf*cm, ft*lb)}} : \text{Specified torque}$

H

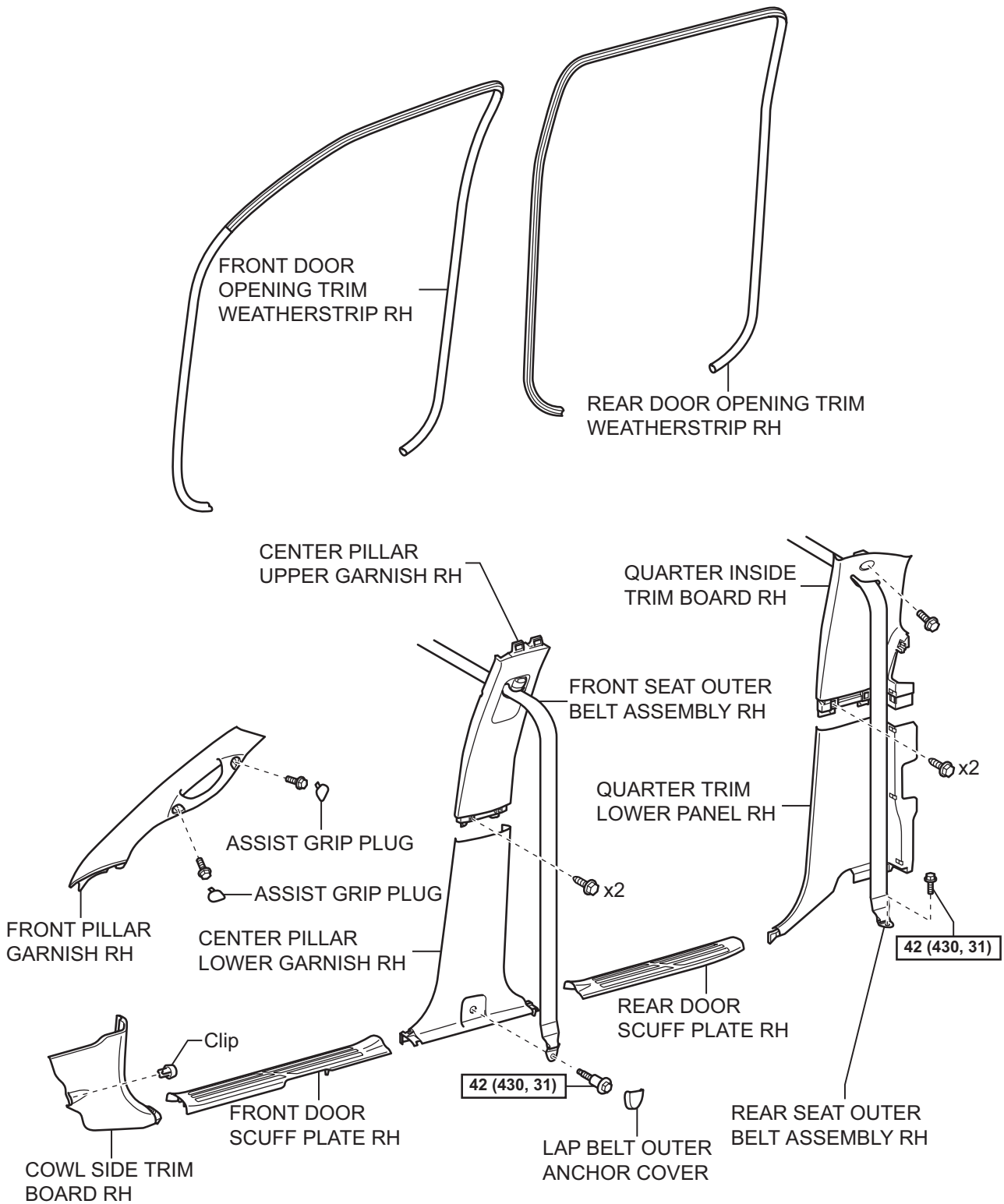
TW

for Access Cab:



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

for Double Cab:



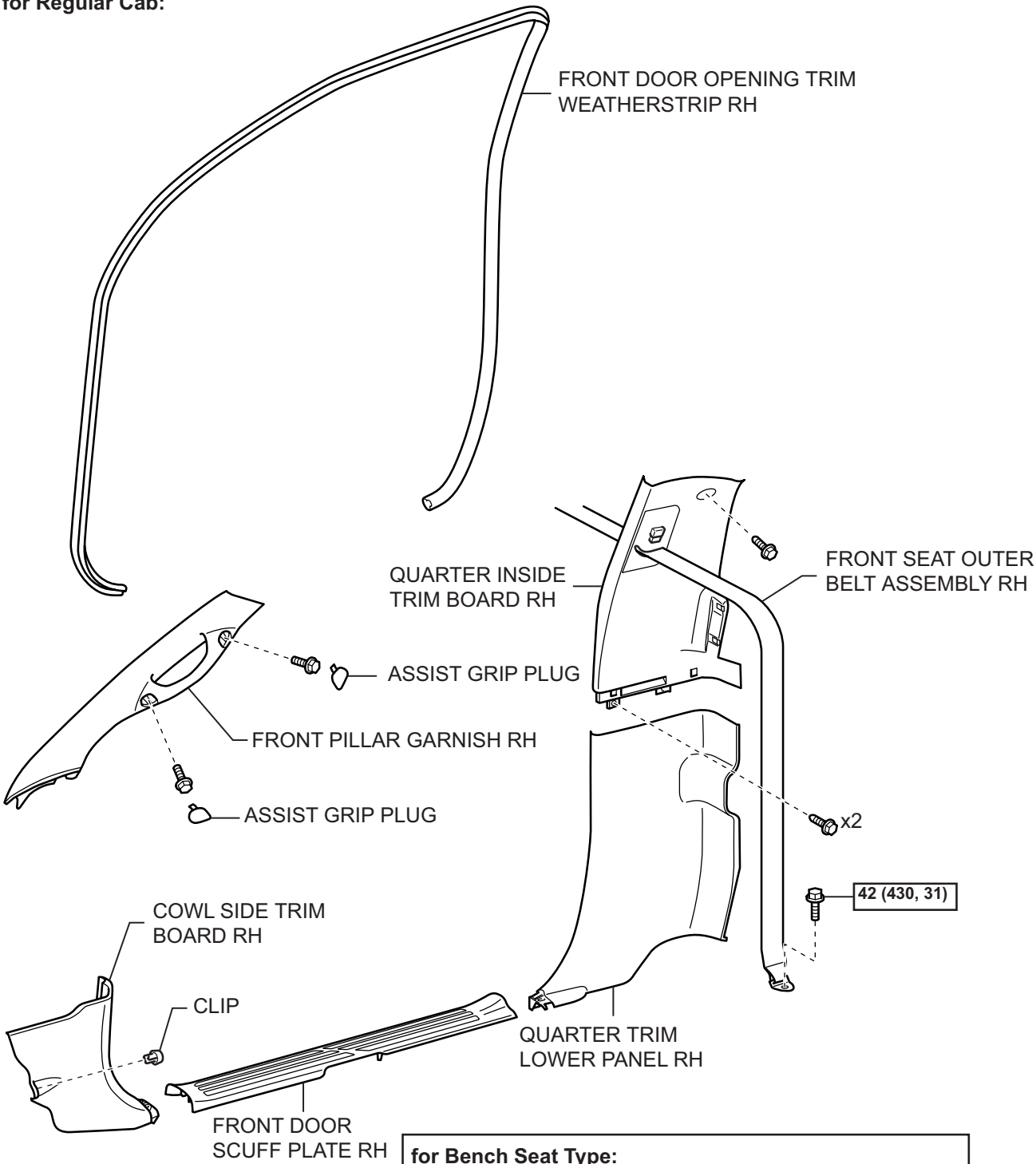
**N\*m (kgf\*cm, ft\*lb)** : Specified torque

H

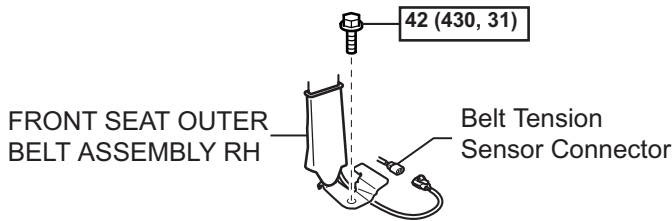
B087409E03

TW

for Regular Cab:

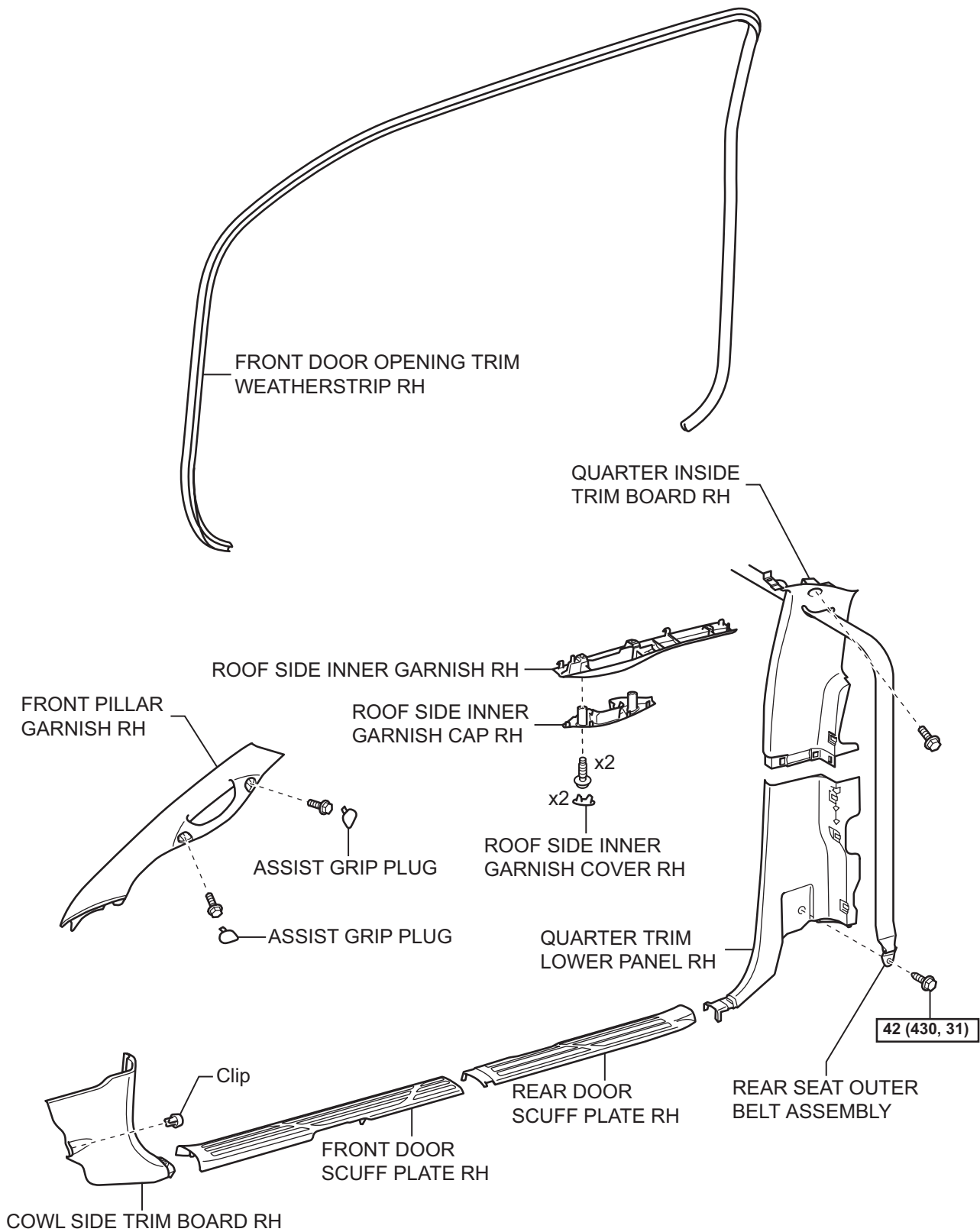


for Bench Seat Type:



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

for Access Cab:



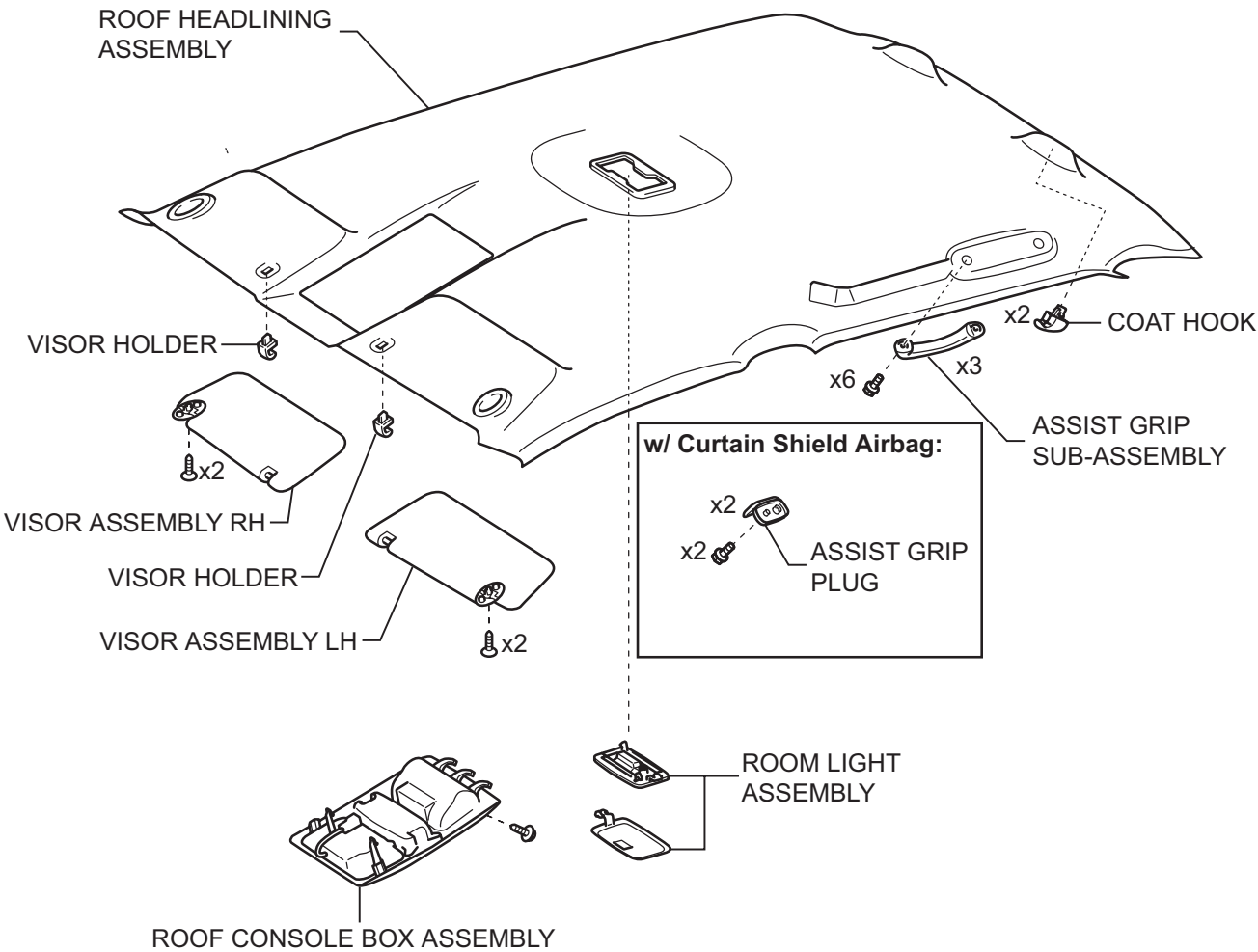
$\boxed{\text{N*m (kgf*cm, ft*lb)}} : \text{Specified torque}$

H

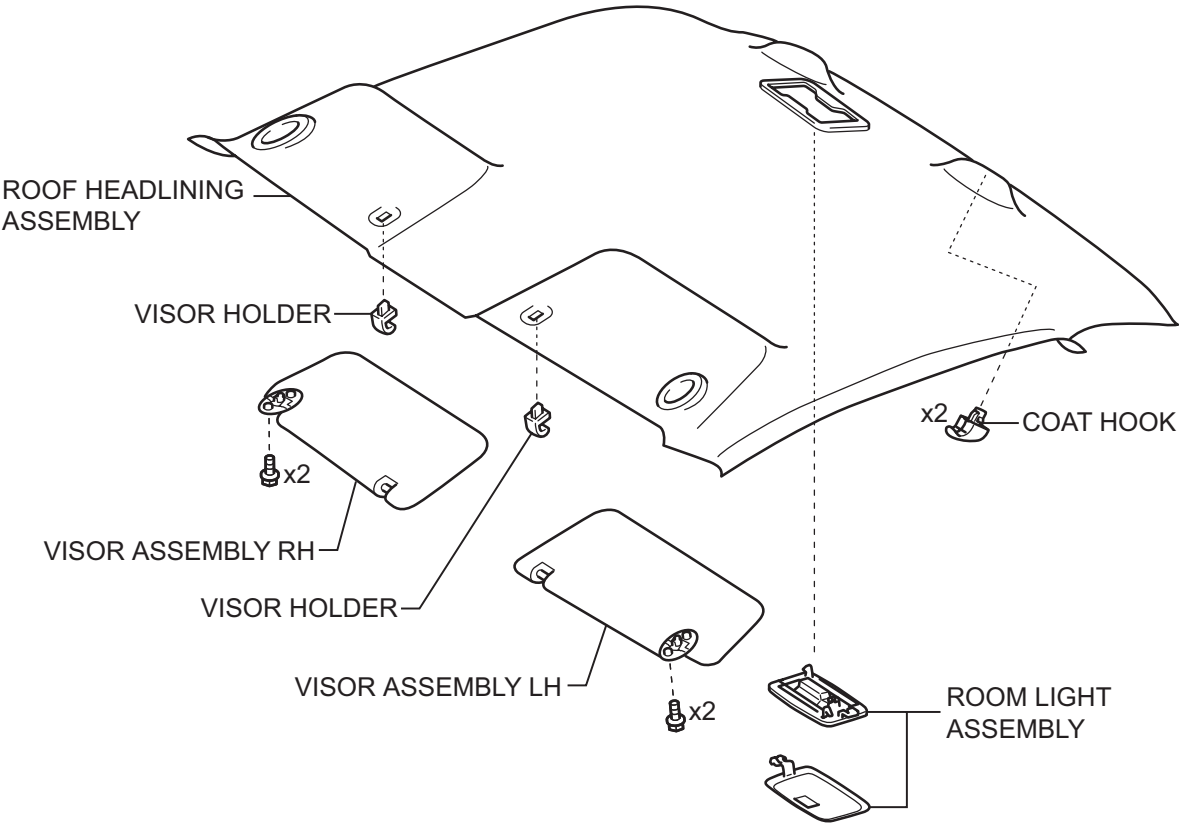
B087434E03

TW

for Double Cab:

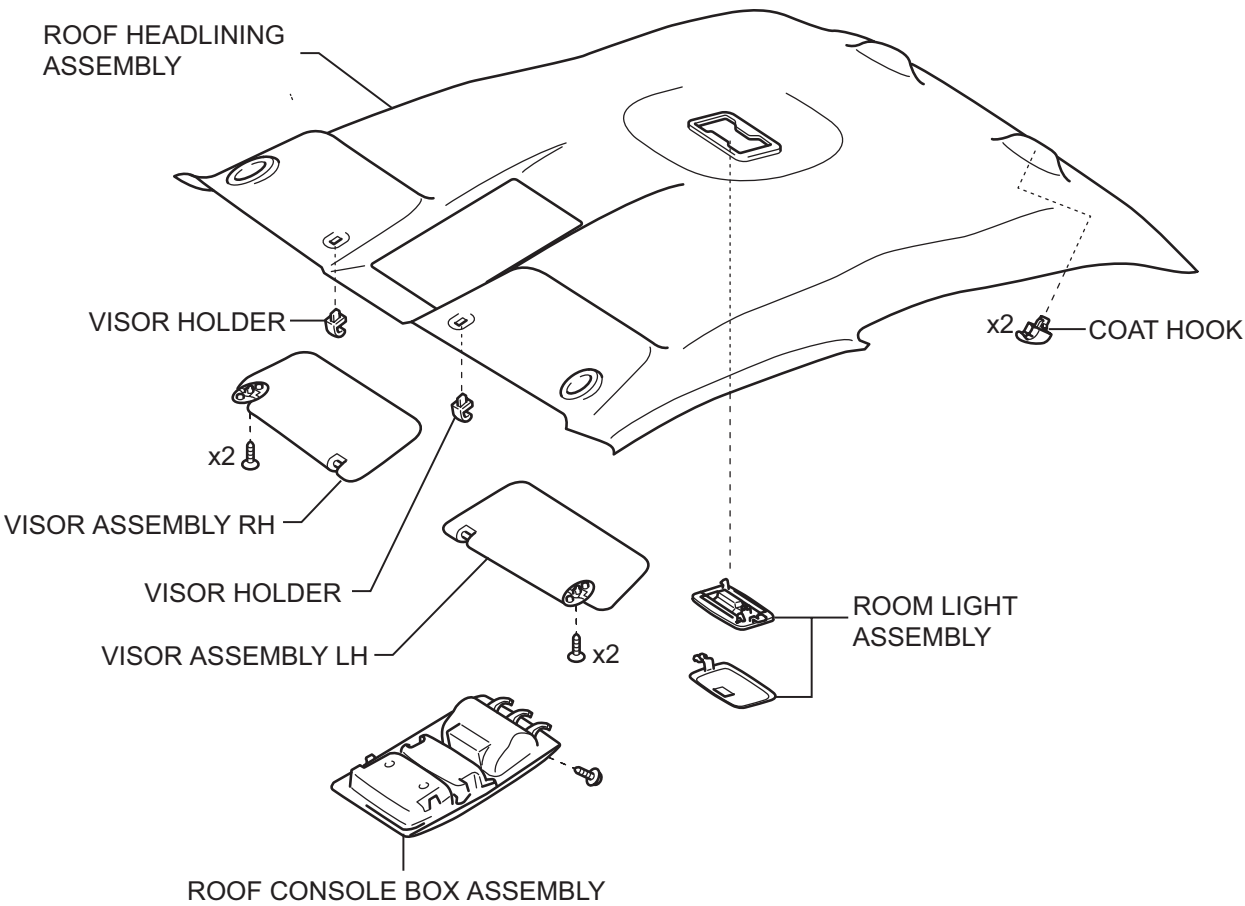


for Regular Cab:

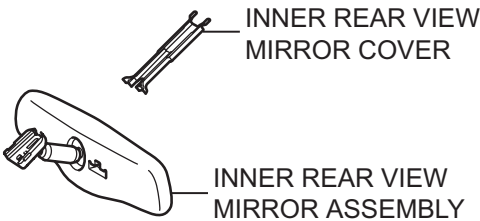


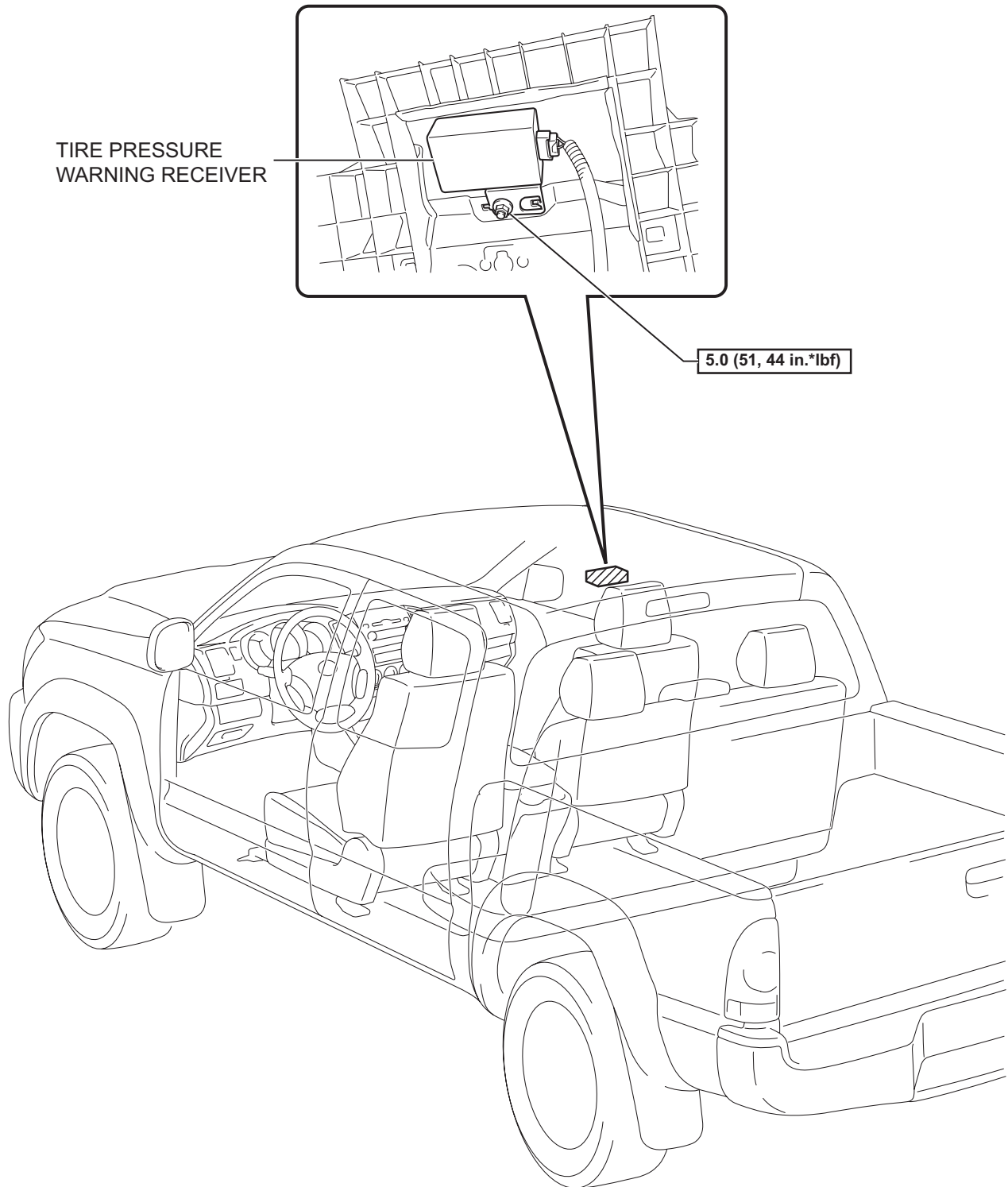
TW

for Access Cab:



w/ EC Mirror:





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

## REMOVAL

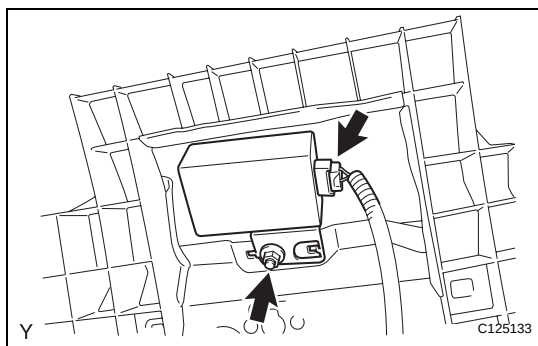
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE SEAT TRACK COVER LH (for Double Cab) (See page [SE-23](#))
3. REMOVE SEAT TRACK COVER RH (for Double Cab) (See page [SE-38](#))
4. REMOVE FRONT SEAT ASSEMBLY LH (for Double Cab) (See page [SE-23](#))
5. REMOVE FRONT SEAT ASSEMBLY RH (for Double Cab) (See page [SE-38](#))
6. REMOVE REAR SEAT CUSHION ASSEMBLY LH (for Double Cab) (See page [SE-71](#))
7. REMOVE REAR SEAT CUSHION ASSEMBLY RH (for Double Cab) (See page [SE-82](#))
8. REMOVE REAR SEAT BACK HINGE COVER (for Double Cab) (See page [IR-12](#))
9. REMOVE REAR SEAT BACK ASSEMBLY LH (for Double Cab) (See page [SE-71](#))
10. REMOVE REAR SEAT BACK ASSEMBLY RH (for Double Cab) (See page [SE-82](#))
11. REMOVE REAR SEAT BACK HINGE SUB-ASSEMBLY LH (for Double Cab) (See page [SE-71](#))
12. REMOVE REAR SEAT BACK HINGE SUB-ASSEMBLY RH (for Double Cab) (See page [SE-82](#))
13. REMOVE REAR SEAT BACK CENTER HINGE SUB-ASSEMBLY (for Double Cab) (See page [SE-71](#))
14. REMOVE LUGGAGE COMPARTMENT SIDE TRAY LH (for Double Cab) (See page [IR-16](#))
15. REMOVE LUGGAGE COMPARTMENT SIDE TRAY RH (for Double Cab) (See page [IR-16](#))
16. REMOVE BACK PANEL TRIM COVER (for Regular Cab) (See page [IR-42](#))
17. REMOVE BACK PANEL TRIM COVER (for Access Cab) (See page [IR-64](#))
18. REMOVE BACK PANEL UPPER GARNISH (for Regular Cab) (See page [IR-43](#))
19. REMOVE JACK ASSEMBLY (for Regular Cab on Separate Seat Type)
20. REMOVE BACK PANEL TRIM COVER (for Regular Cab on Separate Seat Type) (See page [IR-43](#))
21. REMOVE REAR SEAT INNER BELT ASSEMBLY (for Access Cab) (See page [IR-64](#))

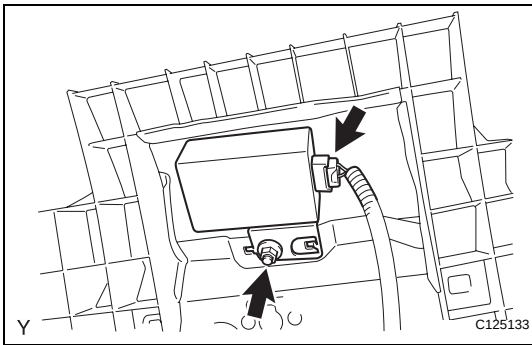
22. REMOVE BACK PANEL TRIM (for Regular Cab on Separate Seat Type) (See page [IR-43](#))
23. REMOVE BACK PANEL TRIM (for Access Cab) (See page [IR-64](#))
24. REMOVE FRONT FLOOR FOOTREST (See page [IR-1](#))
25. REMOVE FRONT DOOR SCUFF PLATE LH (for Double Cab) (See page [IR-12](#))
26. REMOVE FRONT DOOR SCUFF PLATE LH (for Regular Cab) (See page [IR-40](#))
27. REMOVE FRONT DOOR SCUFF PLATE LH (for Access Cab) (See page [IR-61](#))
28. REMOVE FRONT DOOR SCUFF PLATE RH (for Double Cab) (See page [IR-12](#))
29. REMOVE FRONT DOOR SCUFF PLATE RH (for Regular Cab) (See page [IR-40](#))
30. REMOVE FRONT DOOR SCUFF PLATE RH (for Access Cab) (See page [IR-61](#))
31. REMOVE REAR DOOR SCUFF PLATE LH (for Double Cab) (See page [IR-13](#))
32. REMOVE REAR DOOR SCUFF PLATE LH (for Access Cab) (See page [IR-61](#))
33. REMOVE REAR DOOR SCUFF PLATE RH (for Double Cab) (See page [IR-13](#))
34. REMOVE REAR DOOR SCUFF PLATE RH (for Access Cab) (See page [IR-61](#))
35. REMOVE COWL SIDE TRIM BOARD LH (for Double Cab) (See page [IR-12](#))
36. REMOVE COWL SIDE TRIM BOARD LH (for Regular Cab) (See page [IR-40](#))
37. REMOVE COWL SIDE TRIM BOARD LH (for Access Cab) (See page [IR-61](#))
38. REMOVE COWL SIDE TRIM BOARD RH (for Double Cab) (See page [IR-12](#))
39. REMOVE COWL SIDE TRIM BOARD RH (for Regular Cab) (See page [IR-40](#))
40. REMOVE COWL SIDE TRIM BOARD RH (for Access Cab) (See page [IR-61](#))
41. REMOVE ROOF SIDE INNER GARNISH COVER LH (for Access Cab) (See page [IR-62](#))
42. REMOVE ROOF SIDE INNER GARNISH COVER RH (for Access Cab) (See page [IR-62](#))
43. REMOVE ROOF SIDE INNER GARNISH CAP LH (for Access Cab) (See page [IR-62](#))

44. REMOVE ROOF SIDE INNER GARNISH CAP RH (for Access Cab) (See page [IR-62](#))
45. REMOVE ROOF SIDE INNER GARNISH LH (for Access Cab) (See page [IR-65](#))
46. REMOVE ROOF SIDE INNER GARNISH RH (for Access Cab) (See page [IR-65](#))
47. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP LH (for Double Cab) (See page [IR-13](#))
48. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP LH (for Regular Cab) (See page [IR-40](#))
49. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP LH (for Access Cab) (See page [IR-62](#))
50. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH (for Double Cab) (See page [IR-13](#))
51. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH (for Regular Cab) (See page [IR-40](#))
52. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH (for Access Cab) (See page [IR-62](#))
53. REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP LH (for Double Cab) (See page [IR-13](#))
54. REMOVE REAR DOOR OPENING TRIM WEATHERSTRIP RH (for Double Cab) (See page [IR-13](#))
55. REMOVE FRONT PILLAR GARNISH LH (for Double Cab) (See page [IR-13](#))
56. REMOVE FRONT PILLAR GARNISH LH (for Regular Cab) (See page [IR-41](#))
57. REMOVE FRONT PILLAR GARNISH LH (for Access Cab) (See page [IR-62](#))
58. REMOVE FRONT PILLAR GARNISH RH (for Double Cab) (See page [IR-14](#))
59. REMOVE FRONT PILLAR GARNISH RH (for Regular Cab) (See page [IR-41](#))
60. REMOVE FRONT PILLAR GARNISH RH (for Access Cab) (See page [IR-63](#))
61. REMOVE LAP BELT OUTER ANCHOR COVER (for Double Cab) (See page [IR-15](#))
62. REMOVE CENTER PILLAR LOWER GARNISH LH (for Double Cab) (See page [IR-15](#))

63. REMOVE CENTER PILLAR LOWER GARNISH RH (for Double Cab) (See page [IR-16](#))
64. REMOVE CENTER PILLAR UPPER GARNISH LH (for Double Cab) (See page [IR-16](#))
65. REMOVE CENTER PILLAR UPPER GARNISH RH (for Double Cab) (See page [IR-16](#))
66. REMOVE QUARTER TRIM LOWER PANEL LH (for Double Cab) (See page [IR-17](#))
67. REMOVE QUARTER TRIM LOWER PANEL LH (for Regular Cab) (See page [IR-43](#))
68. REMOVE QUARTER TRIM LOWER PANEL LH (for Access Cab) (See page [IR-65](#))
69. REMOVE QUARTER TRIM LOWER PANEL RH (for Double Cab) (See page [IR-17](#))
70. REMOVE QUARTER TRIM LOWER PANEL RH (for Regular Cab) (See page [IR-43](#))
71. REMOVE QUARTER TRIM LOWER PANEL RH (for Access Cab) (See page [IR-65](#))
72. REMOVE QUARTER INSIDE TRIM BOARD LH (for Double Cab) (See page [IR-17](#))
73. REMOVE QUARTER INSIDE TRIM BOARD LH (for Regular Cab) (See page [IR-44](#))
74. REMOVE QUARTER INSIDE TRIM BOARD LH (for Access Cab) (See page [IR-65](#))
75. REMOVE QUARTER INSIDE TRIM BOARD RH (for Double Cab) (See page [IR-17](#))
76. REMOVE QUARTER INSIDE TRIM BOARD RH (for Regular Cab) (See page [IR-44](#))
77. REMOVE QUARTER INSIDE TRIM BOARD RH (for Access Cab) (See page [IR-65](#))
78. REMOVE INNER REAR VIEW MIRROR ASSEMBLY (w/ EC Mirror) (See page [IR-11](#))
79. REMOVE ROOM LIGHT ASSEMBLY (for Double Cab) (See page [IR-17](#))
80. REMOVE ROOM LIGHT ASSEMBLY (for Regular Cab) (See page [IR-44](#))
81. REMOVE ROOM LIGHT ASSEMBLY (for Access Cab) (See page [IR-66](#))
82. REMOVE ROOF CONSOLE BOX ASSEMBLY (for Double Cab) (See page [IR-18](#))
83. REMOVE ROOF CONSOLE BOX ASSEMBLY (for Access Cab) (See page [IR-66](#))
84. REMOVE ASSIST GRIP SUB-ASSEMBLY (for Double Cab) (See page [IR-18](#))

85. REMOVE ASSIST GRIP PLUG (for Double Cab) (See page [IR-19](#))
86. REMOVE VISOR ASSEMBLY LH (for Double Cab) (See page [IR-19](#))
87. REMOVE VISOR ASSEMBLY LH (for Regular Cab) (See page [IR-45](#))
88. REMOVE VISOR ASSEMBLY LH (for Access Cab) (See page [IR-67](#))
89. REMOVE VISOR ASSEMBLY RH (for Double Cab) (See page [IR-19](#))
90. REMOVE VISOR ASSEMBLY RH (for Regular Cab) (See page [IR-45](#))
91. REMOVE VISOR ASSEMBLY RH (for Access Cab) (See page [IR-67](#))
92. REMOVE VISOR HOLDER (for Double Cab) (See page [IR-19](#))
93. REMOVE VISOR HOLDER (for Regular Cab) (See page [IR-45](#))
94. REMOVE VISOR HOLDER (for Access Cab) (See page [IR-67](#))
95. REMOVE COAT HOOK (for Regular Cab) (See page [IR-45](#))
96. REMOVE COAT HOOK (for Access Cab) (See page [IR-67](#))
97. REMOVE COAT HOOK (for Double Cab) (See page [IR-20](#))
98. SEPARATE ROOF HEADLINING ASSEMBLY (for Regular Cab)
99. SEPARATE ROOF HEADLINING ASSEMBLY (for Double Cab)
100. SEPARATE ROOF HEADLINING ASSEMBLY (for Access Cab)
101. REMOVE TIRE PRESSURE WARNING RECEIVER
  - (a) Disconnect the connector.
  - (b) Remove the nut and the tire pressure warning receiver.





## INSTALLATION

1. **INSTALL TIRE PRESSURE WARNING RECEIVER**
  - (a) Install the tire pressure warning receiver with the nut.  
**Torque: 5.0 N\*m (51 kgf\*cm, 44 in.\*lbf)**
  - (b) Connect the connector.
2. **INSTALL ROOF HEADLINING ASSEMBLY (for Double Cab)**
3. **INSTALL ROOF HEADLINING ASSEMBLY (for Regular Cab)**
4. **INSTALL ROOF HEADLINING ASSEMBLY (for Access Cab)**
5. **INSTALL COAT HOOK (for Double Cab)** (See page [IR-22](#))
6. **INSTALL COAT HOOK (for Regular Cab)** (See page [IR-47](#))
7. **INSTALL COAT HOOK (for Access Cab)** (See page [IR-69](#))
8. **INSTALL VISOR HOLDER (for Double Cab)** (See page [IR-22](#))
9. **INSTALL VISOR HOLDER (for Regular Cab)** (See page [IR-47](#))
10. **INSTALL VISOR HOLDER (for Access Cab)** (See page [IR-70](#))
11. **INSTALL VISOR ASSEMBLY LH (for Double Cab)** (See page [IR-22](#))
12. **INSTALL VISOR ASSEMBLY LH (for Regular Cab)** (See page [IR-48](#))
13. **INSTALL VISOR ASSEMBLY LH (for Access Cab)** (See page [IR-70](#))
14. **INSTALL VISOR ASSEMBLY RH (for Double Cab)** (See page [IR-22](#))
15. **INSTALL VISOR ASSEMBLY RH (for Regular Cab)** (See page [IR-48](#))
16. **INSTALL VISOR ASSEMBLY RH (for Access Cab)** (See page [IR-70](#))
17. **INSTALL ASSIST GRIP PLUG (for Double Cab)** (See page [IR-23](#))
18. **INSTALL ASSIST GRIP SUB-ASSEMBLY (for Double Cab)** (See page [IR-23](#))
19. **INSTALL ROOF CONSOLE BOX ASSEMBLY (for Double Cab)** (See page [IR-23](#))
20. **INSTALL ROOF CONSOLE BOX ASSEMBLY (for Access Cab)** (See page [IR-70](#))

21. INSTALL ROOM LIGHT ASSEMBLY (for Double Cab)  
(See page [IR-24](#))
22. INSTALL ROOM LIGHT ASSEMBLY (for Regular Cab)  
(See page [IR-48](#))
23. INSTALL ROOM LIGHT ASSEMBLY (for Access Cab)  
(See page [IR-71](#))
24. INSTALL INNER REAR VIEW MIRROR ASSEMBLY  
(w/ EC Mirror) (See page [IR-30](#))
25. INSTALL QUARTER INSIDE TRIM BOARD LH (for  
Double Cab) (See page [IR-24](#))
26. INSTALL QUARTER INSIDE TRIM BOARD LH (for  
Regular Cab) (See page [IR-48](#))
27. INSTALL QUARTER INSIDE TRIM BOARD LH (for  
Access Cab) (See page [IR-71](#))
28. INSTALL QUARTER INSIDE TRIM BOARD RH (for  
Double Cab) (See page [IR-25](#))
29. INSTALL QUARTER INSIDE TRIM BOARD RH (for  
Regular Cab) (See page [IR-49](#))
30. INSTALL QUARTER INSIDE TRIM BOARD RH (for  
Access Cab) (See page [IR-71](#))
31. INSTALL QUARTER TRIM LOWER PANEL LH (for  
Double Cab) (See page [IR-25](#))
32. INSTALL QUARTER TRIM LOWER PANEL LH (for  
Regular Cab) (See page [IR-49](#))
33. INSTALL QUARTER TRIM LOWER PANEL LH (for  
Access Cab) (See page [IR-72](#))
34. INSTALL QUARTER TRIM LOWER PANEL RH (for  
Double Cab) (See page [IR-25](#))
35. INSTALL QUARTER TRIM LOWER PANEL RH (for  
Regular Cab) (See page [IR-49](#))
36. INSTALL QUARTER TRIM LOWER PANEL RH (for  
Access Cab) (See page [IR-72](#))
37. INSTALL CENTER PILLAR UPPER GARNISH LH (for  
Double Cab) (See page [IR-26](#))
38. INSTALL CENTER PILLAR UPPER GARNISH RH (for  
Double Cab) (See page [IR-26](#))
39. INSTALL CENTER PILLAR LOWER GARNISH LH (for  
Double Cab) (See page [IR-26](#))
40. INSTALL CENTER PILLAR LOWER GARNISH RH (for  
Double Cab) (See page [IR-26](#))
41. INSTALL LAP BELT OUTER ANCHOR COVER (for  
Double Cab) (See page [IR-27](#))
42. INSTALL FRONT PILLAR GARNISH LH (for Double  
Cab) (See page [IR-28](#))

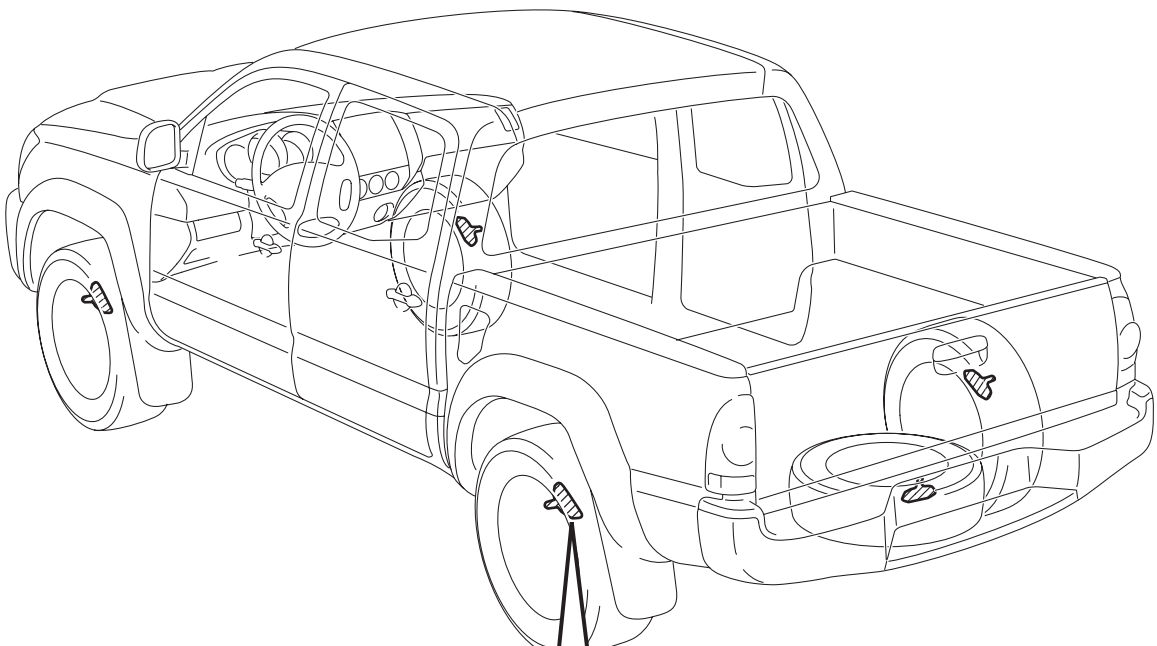
43. INSTALL FRONT PILLAR GARNISH LH (for Regular Cab) (See page [IR-51](#))
44. INSTALL FRONT PILLAR GARNISH LH (for Access Cab) (See page [IR-74](#))
45. INSTALL FRONT PILLAR GARNISH RH (for Double Cab) (See page [IR-28](#))
46. INSTALL FRONT PILLAR GARNISH RH (for Regular Cab) (See page [IR-52](#))
47. INSTALL FRONT PILLAR GARNISH RH (for Access Cab) (See page [IR-74](#))
48. INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP LH (for Double Cab) (See page [IR-28](#))
49. INSTALL REAR DOOR OPENING TRIM WEATHERSTRIP RH (for Double Cab) (See page [IR-28](#))
50. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH (for Double Cab) (See page [IR-29](#))
51. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH (for Regular Cab) (See page [IR-52](#))
52. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP LH (for Access Cab) (See page [IR-74](#))
53. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH (for Double Cab) (See page [IR-29](#))
54. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH (for Regular Cab) (See page [IR-52](#))
55. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH (for Access Cab) (See page [IR-74](#))
56. INSTALL ROOF SIDE INNER GARNISH LH (for Access Cab) (See page [IR-71](#))
57. INSTALL ROOF SIDE INNER GARNISH RH (for Access Cab) (See page [IR-71](#))
58. INSTALL ROOF SIDE INNER GARNISH CAP LH (for Access Cab) (See page [IR-75](#))
59. INSTALL ROOF SIDE INNER GARNISH CAP RH (for Access Cab) (See page [IR-75](#))
60. INSTALL ROOF SIDE INNER GARNISH COVER LH (for Access Cab) (See page [IR-75](#))
61. INSTALL ROOF SIDE INNER GARNISH COVER RH (for Access Cab) (See page [IR-75](#))

62. INSTALL COWL SIDE TRIM BOARD LH (for Double Cab) (See page [IR-29](#))
63. INSTALL COWL SIDE TRIM BOARD LH (for Regular Cab) (See page [IR-52](#))
64. INSTALL COWL SIDE TRIM BOARD LH (for Access Cab) (See page [IR-75](#))
65. INSTALL COWL SIDE TRIM BOARD RH (for Double Cab) (See page [IR-29](#))
66. INSTALL COWL SIDE TRIM BOARD RH (for Regular Cab) (See page [IR-52](#))
67. INSTALL COWL SIDE TRIM BOARD RH (for Access Cab) (See page [IR-75](#))
68. INSTALL REAR DOOR SCUFF PLATE LH (for Double Cab) (See page [IR-29](#))
69. INSTALL REAR DOOR SCUFF PLATE LH (for Access Cab) (See page [IR-75](#))
70. INSTALL REAR DOOR SCUFF PLATE RH (for Double Cab) (See page [IR-29](#))
71. INSTALL REAR DOOR SCUFF PLATE RH (for Access Cab) (See page [IR-75](#))
72. INSTALL FRONT DOOR SCUFF PLATE LH (for Double Cab) (See page [IR-29](#))
73. INSTALL FRONT DOOR SCUFF PLATE LH (for Regular Cab) (See page [IR-52](#))
74. INSTALL FRONT DOOR SCUFF PLATE LH (for Access Cab) (See page [IR-75](#))
75. INSTALL FRONT DOOR SCUFF PLATE RH (for Double Cab) (See page [IR-29](#))
76. INSTALL FRONT DOOR SCUFF PLATE RH (for Regular Cab) (See page [IR-52](#))
77. INSTALL FRONT DOOR SCUFF PLATE RH (for Access Cab) (See page [IR-75](#))
78. INSTALL FRONT FLOOR FOOTREST (See page [IR-1](#))
79. INSTALL BACK PANEL TRIM (for Regular Cab on Separate Seat Type) (See page [IR-49](#))
80. INSTALL BACK PANEL TRIM (for Access Cab) (See page [IR-72](#))
81. INSTALL REAR SEAT INNER BELT ASSEMBLY (for Access Cab) (See page [IR-72](#))
82. INSTALL BACK PANEL TRIM COVER (for Regular Cab on Separate Seat Type) (See page [IR-50](#))
83. INSTALL JACK ASSEMBLY (for Regular Cab on Separate Seat Type)

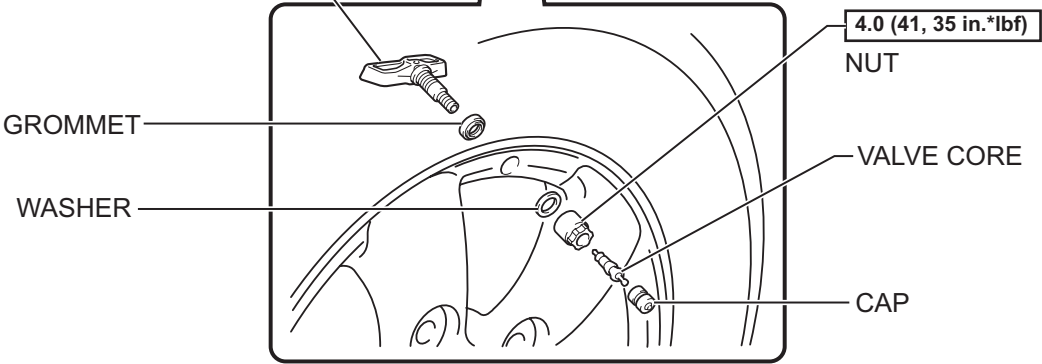
84. INSTALL BACK PANEL UPPER GARNISH (for Regular Cab) (See page [IR-50](#))
85. INSTALL BACK PANEL TRIM COVER (for Regular Cab) (See page [IR-50](#))
86. INSTALL BACK PANEL TRIM COVER (for Access Cab) (See page [IR-73](#))
87. INSTALL LUGGAGE COMPARTMENT SIDE TRAY RH (for Double Cab) (See page [IR-25](#))
88. INSTALL LUGGAGE COMPARTMENT SIDE TRAY LH (for Double Cab) (See page [IR-26](#))
89. INSTALL REAR SEAT BACK CENTER HINGE SUB-ASSEMBLY (for Double Cab) (See page [SE-77](#))
90. INSTALL REAR SEAT BACK HINGE SUB-ASSEMBLY LH (for Double Cab) (See page [SE-77](#))
91. INSTALL REAR SEAT BACK HINGE SUB-ASSEMBLY RH (for Double Cab) (See page [SE-90](#))
92. INSTALL REAR SEAT BACK ASSEMBLY LH (for Double Cab) (See page [SE-77](#))
93. INSTALL REAR SEAT BACK ASSEMBLY RH (for Double Cab) (See page [SE-90](#))
94. INSTALL REAR SEAT BACK HINGE COVER (for Double Cab) (See page [IR-30](#))
95. INSTALL REAR SEAT CUSHION ASSEMBLY LH (for Double Cab) (See page [SE-78](#))
96. INSTALL REAR SEAT CUSHION ASSEMBLY RH (for Double Cab) (See page [SE-90](#))
97. INSTALL FRONT SEAT ASSEMBLY LH (for Double Cab) (See page [SE-34](#))
98. INSTALL FRONT SEAT ASSEMBLY RH (for Double Cab) (See page [SE-47](#))
99. INSTALL SEAT TRACK COVER LH (for Double Cab) (See page [SE-34](#))
100. INSTALL SEAT TRACK COVER RH (for Double Cab) (See page [SE-48](#))
101. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL  
Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)  
(See page [IN-5](#))

# TIRE PRESSURE WARNING VALVE AND TRANSMITTER

## COMPONENTS



TIRE PRESSURE WARNING  
VALVE AND TRANSMITTER



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

## REMOVAL

1. REMOVE FRONT TIRE
2. REMOVE REAR TIRE
3. REMOVE SPARE TIRE
4. REMOVE TIRE PRESSURE WARNING VALVE AND TRANSMITTER
  - (a) Remove the valve core and the cap, and release air from the tire.
  - (b) After ensuring that air is sufficiently released, remove the nut and washer that are used to fix the tire pressure warning valve and transmitter and drop the valve sensor inside the tire.

HINT:

Keep the removed cap, valve core, nut and washer.

- (c) After dropping the tire pressure warning valve and transmitter into the tire, disengage the bead using the shoe of the tire remover.

**NOTICE:**

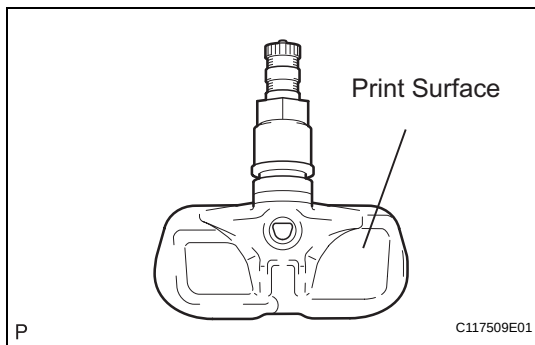
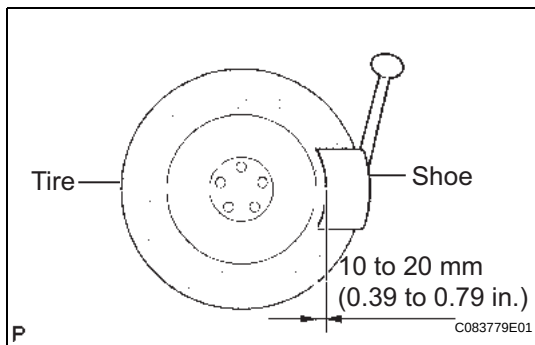
**Do not damage the tire pressure warning valve and transmitter because of interference between the sensor and tire bead.**

- (d) Remove the bead on the upper side.
- (e) Take the valve sensor out of the tire and remove the bead on the valve.

HINT:

Check that there are no cracks or damage to the grommet. If any damage is found, replace the grommet together with the washer and nut.

**TW**



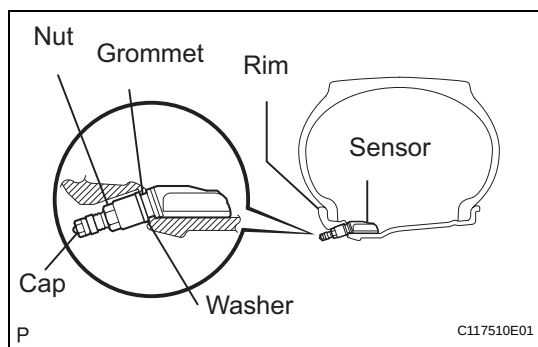
## INSTALLATION

1. INSTALL TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- (a) Insert the tire pressure warning valve and transmitter into the valve installation hole. Insert it from the inside of the rim so that the print surface can be seen.

**NOTICE:**

- Check that there is no visible deformation, damage or other abnormalities in the transmitter.
- Check that there is no foreign matter on the inner grommet and around the rim hole.
- If installed in the reverse direction, the tire pressure warning valve and transmitter may be damaged or fail to transmit signals when running at high speed.
- If installing a new tire pressure warning valve and transmitter, write down the ID number before installation.
- It is necessary to register the ID in the ECU after installation (See page [TW-11](#)).



- (b) Install the washer onto the tire pressure warning valve and transmitter from the rim side and tighten it with the nut.

**Torque: 4.0 N\*m (41 kgf\*cm, 35 in.\*lbf)**

**NOTICE:**

- The specified torque only applies the first time washer is used.
  - Check that there is no foreign matter on the washer or nut.
  - If the tire pressure warning valve and transmitter is removed when the tire is removed for replacement, check that there is no damage or cuts, and no foreign matter such as mud, dirt or sand attached to the grommet. Replace the grommet with a new one if necessary.
  - Check that there is no oil, water or lubricant around the rim hole, tire pressure warning valve and transmitter, washer and nut. Failing to check may result in improper installation.
- (c) After the tire is inflated, the valve nut may be loose. Retighten the nut to the specified torque and then check for air leaks with soapy water.

**Torque: 4.0 N\*m (41 kgf\*cm, 35 in.\*lbf)**

**NOTICE:**

The specified torque only applies the first time washer is used.

- (d) Set the wheel disc to the mounting machine and install the lower tire bead. Position the main body of the valve sensor in the shaded area shown in the illustration.

**NOTICE:**

If the valve sensor is positioned outside this area, it generates interference with the tire bead, causing possible damage to the valve sensor.

- (e) Install the upper bead.

**NOTICE:**

Make sure that the tire bead and tool do not interfere with the main body of the valve sensor and that the valve sensor is not interfered with the bead.

**2. INSTALL FRONT WHEEL**

**Torque: 113 N\*m (1,152 kgf\*cm, 83 ft.\*lbf)**

**3. INSTALL REAR WHEEL**

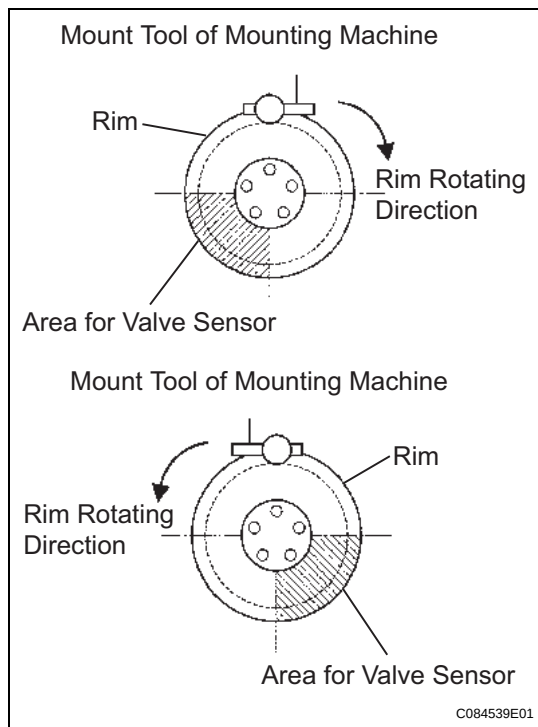
**Torque: 113 N\*m (1,152 kgf\*cm, 83 ft.\*lbf)**

**4. INSTALL SPARE TIRE**

**5. REGISTER TRANSMITTER ID (See page TW-11)**

**6. INSPECT TIRE PRESSURE WARNING SYSTEM (See page TW-11)**

TW



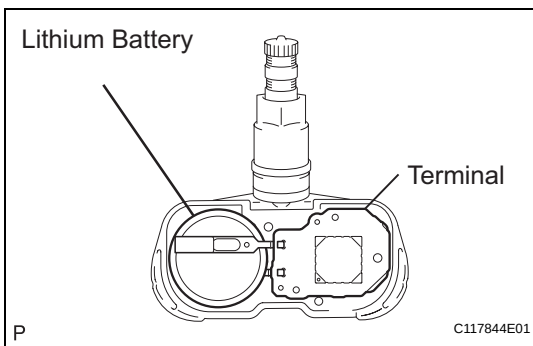
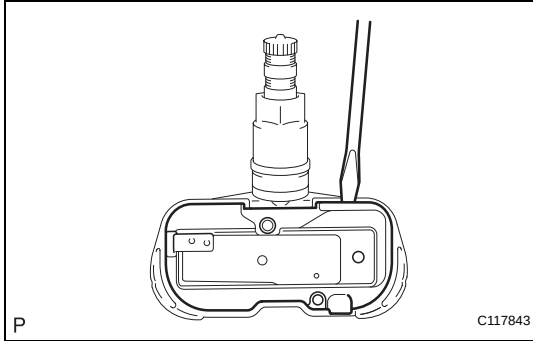
## DISPOSAL

### HINT:

The tire pressure warning valve and transmitter is powered by a lithium battery. When disposing of the tire pressure warning valve and transmitter, remove the battery and dispose of it correctly.

### 1. DISPOSE OF TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- (a) Using a screwdriver, pry off the cover. Remove the back cover.



- (b) Remove the battery and cut the 2 terminals which connect the battery and base board.

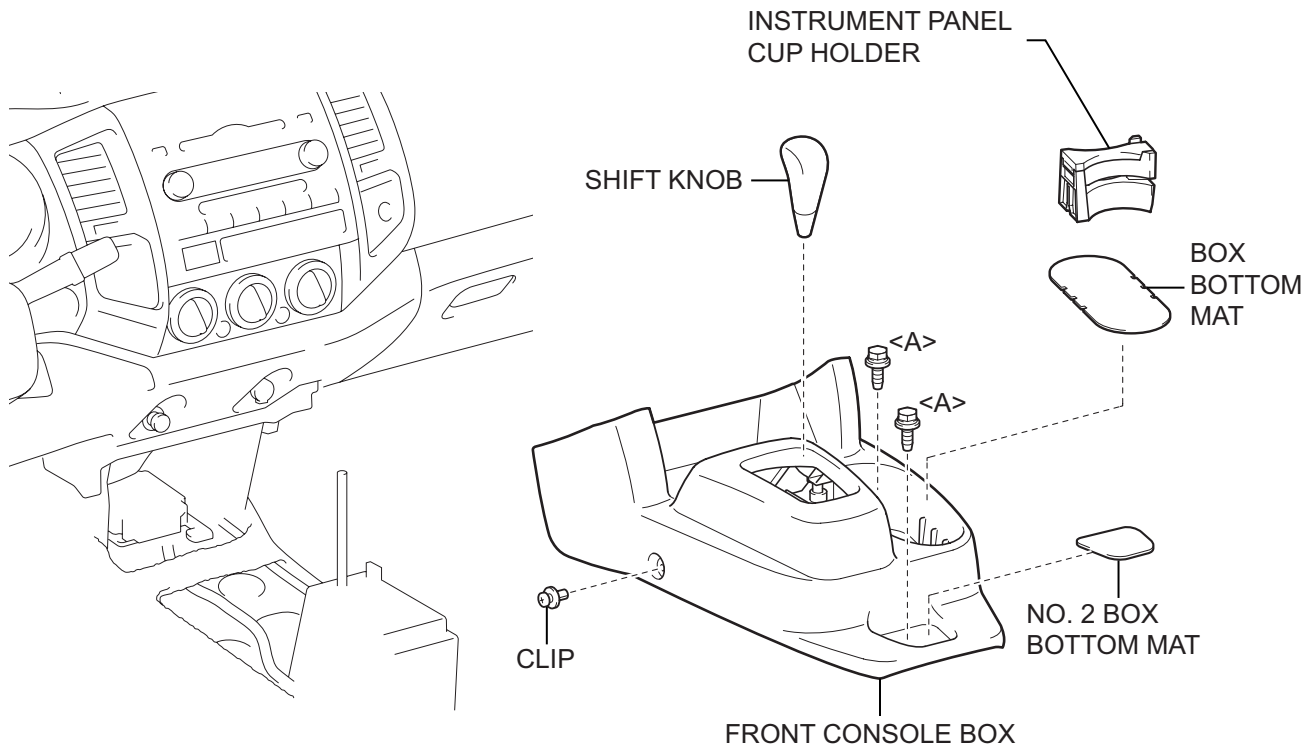
### HINT:

The battery and base board covered with silicone resin are exposed.

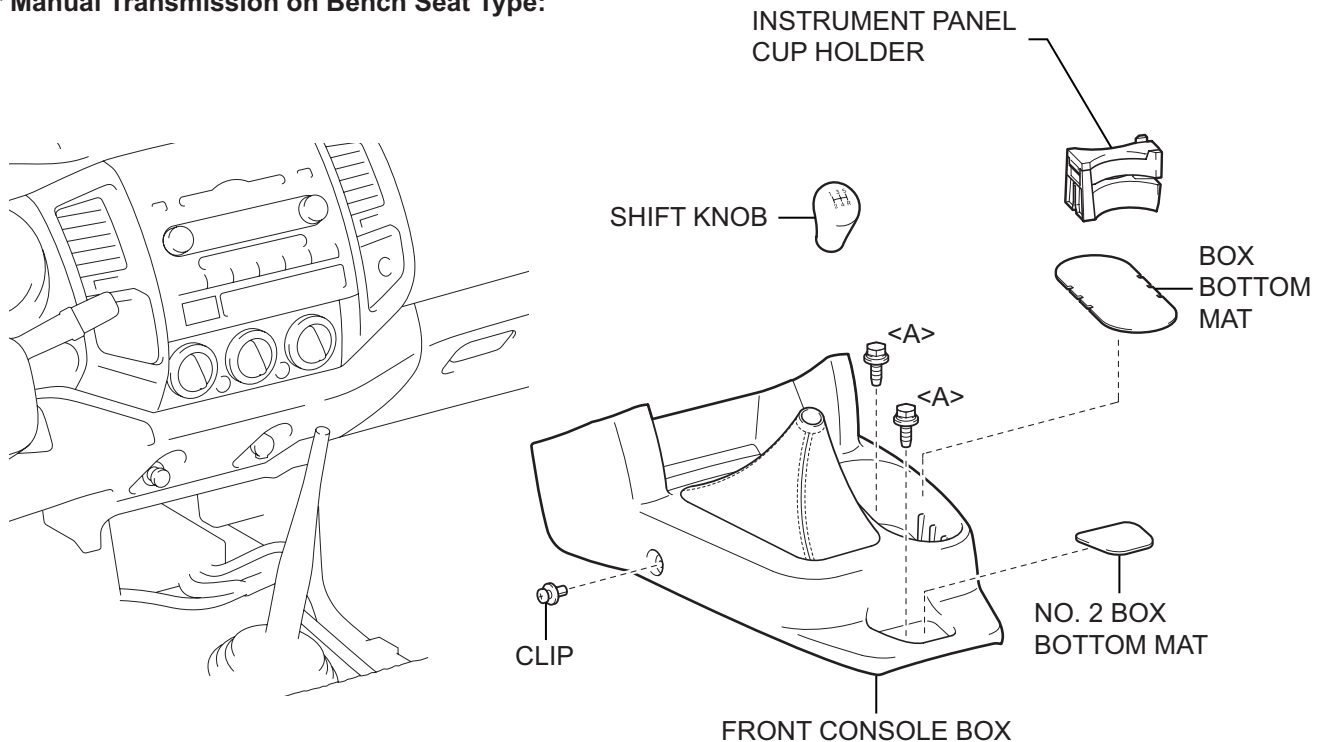
# TIRE PRESSURE WARNING ECU

## COMPONENTS

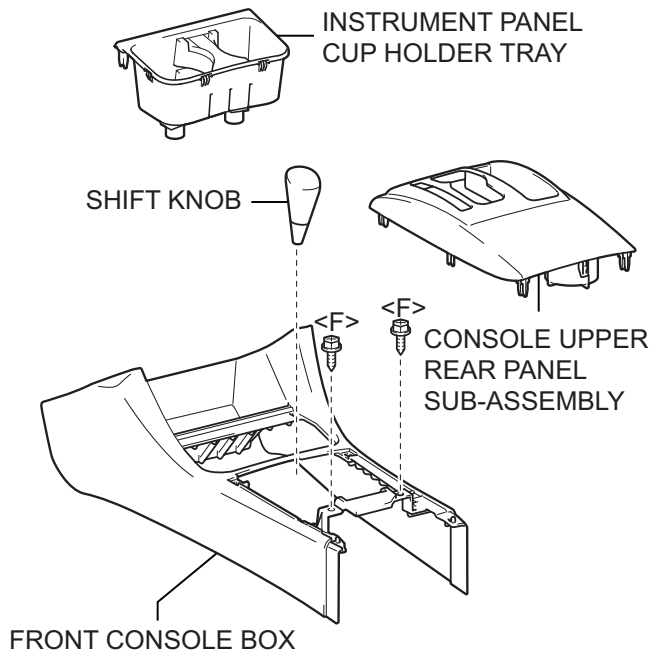
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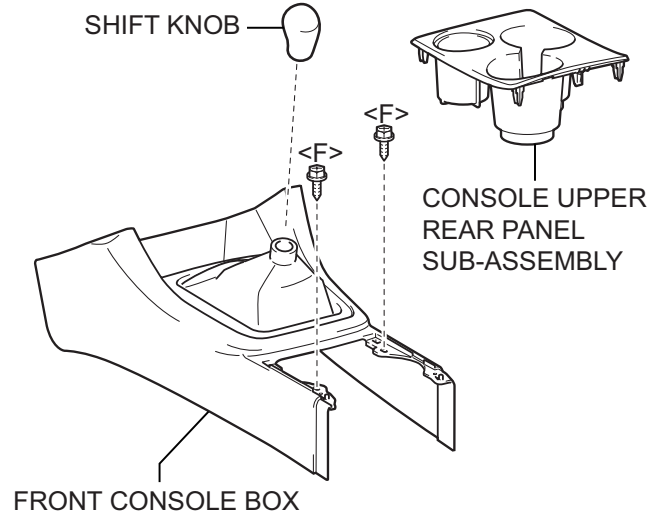
for Manual Transmission on Bench Seat Type:



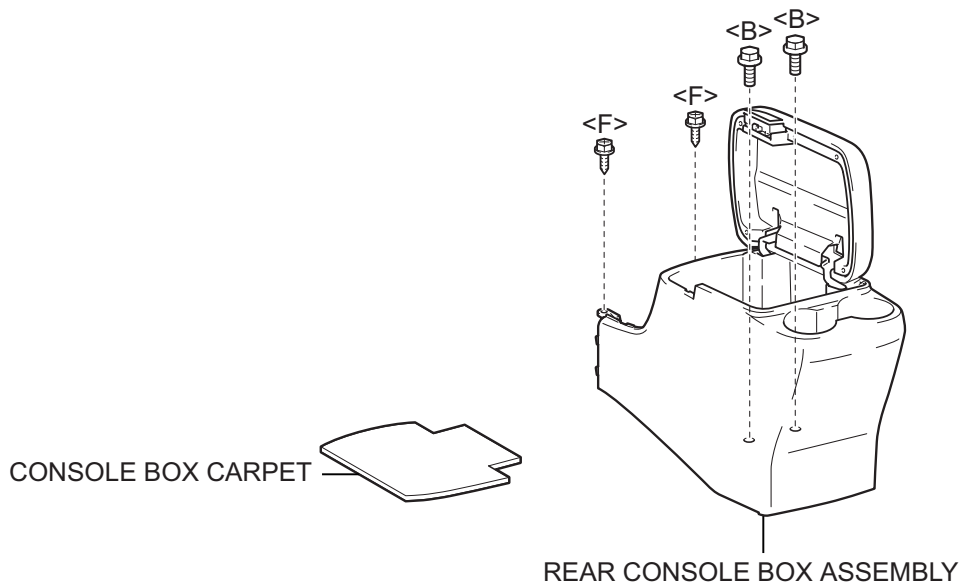
for Automatic Transmission  
on Separate Seat Type :



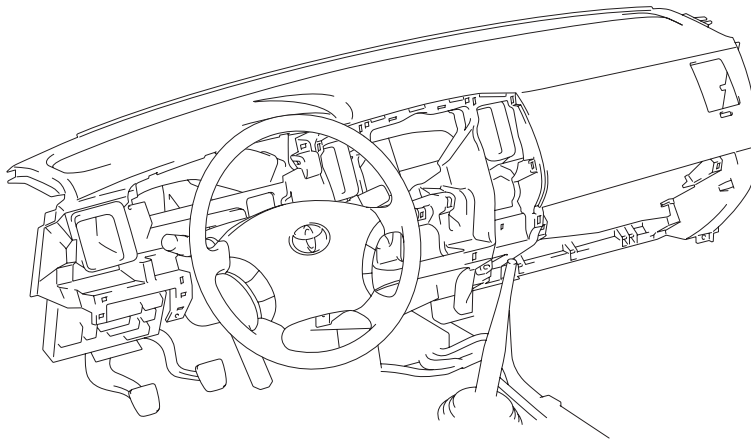
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on Separate Seat Type:



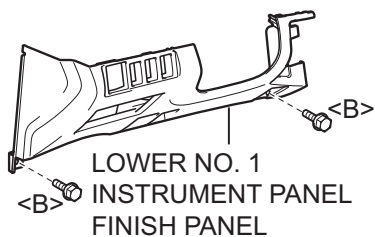
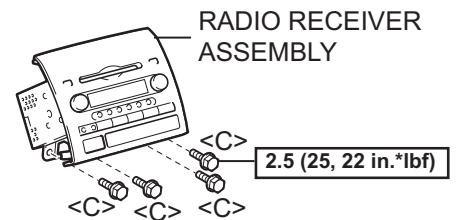
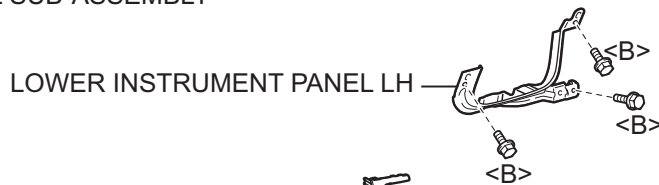
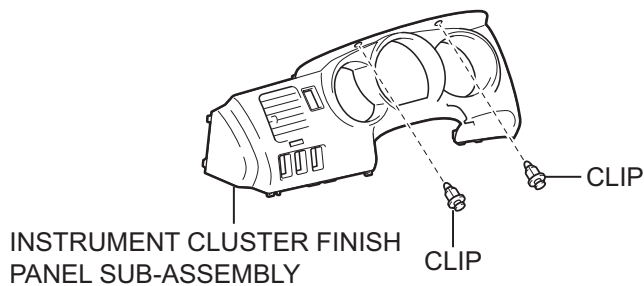
for Separate Seat Type:



TW

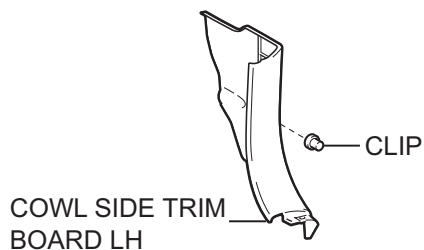


INSTRUMENT CLUSTER  
CENTER FINISH PANEL  
SUB-ASSEMBLY



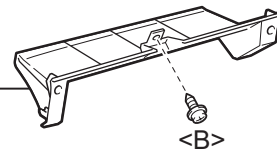
**for Automatic Transmission:**  
INSTRUMENT PANEL UNDER TRAY

**for Manual Transmission:**  
INSTRUMENT PANEL HOLE COVER

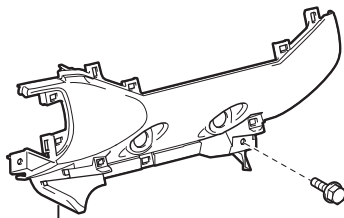


N\*m (kgf\*cm, ft\*lbf) : Specified torque

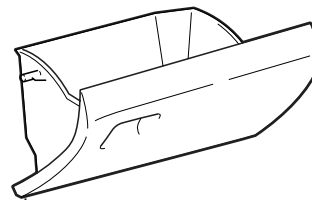
INSTRUMENT PANEL LOWER  
FINISH PANEL SUB-ASSEMBLY RH



INSTRUMENT LOWER COVER  
SUB-ASSEMBLY



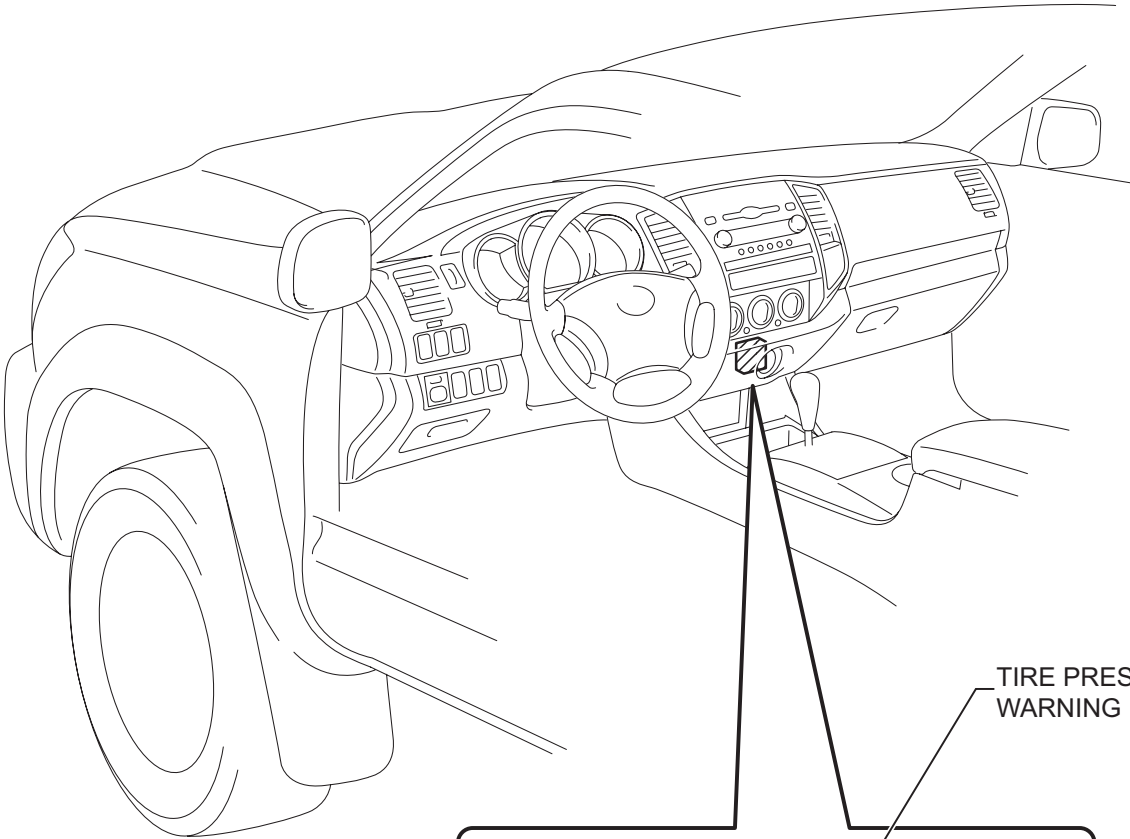
GLOVE COMPARTMENT  
DOOR ASSEMBLY



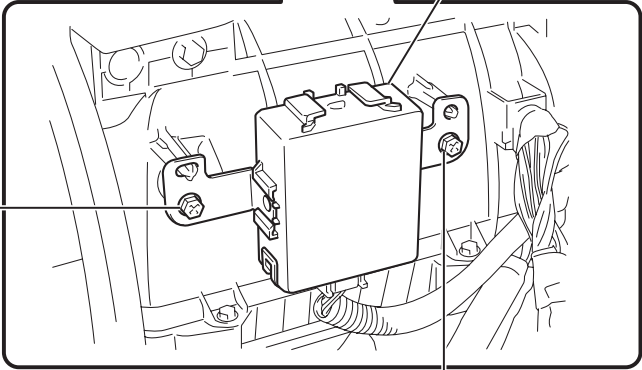
GLOVE COMPARTMENT  
DOOR STOPPER



TW



TIRE PRESSURE  
WARNING ECU



5.5 (56, 49 in.\*lbf)

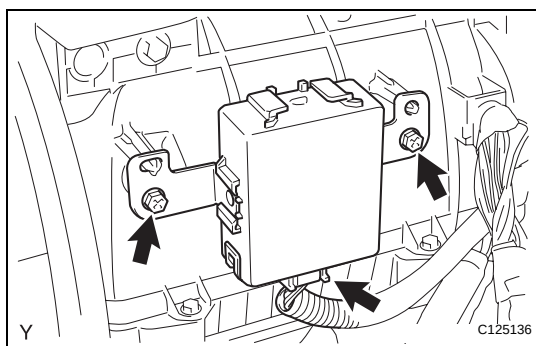
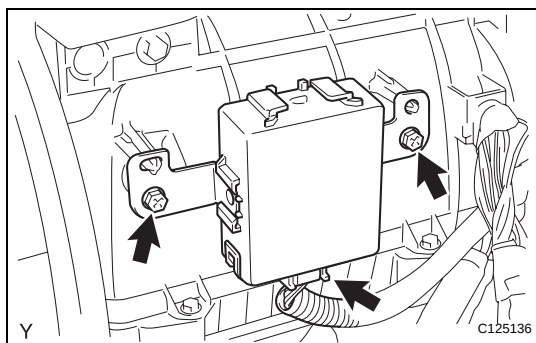
5.5 (56, 49 in.\*lbf)

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

## REMOVAL

1. BOLT, SCREW AND NUT TABLE (See page [IP-7](#))
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
3. REMOVE FRONT FLOOR FOOTREST (See page [IR-1](#))
4. REMOVE FRONT DOOR SCUFF PLATE LH (for Regular Cab) (See page [IR-40](#))
5. REMOVE FRONT DOOR SCUFF PLATE LH (for Access Cab) (See page [IR-61](#))
6. REMOVE FRONT DOOR SCUFF PLATE LH (for Double Cab) (See page [IR-12](#))
7. REMOVE COWL SIDE TRIM BOARD LH (for Regular Cab) (See page [IR-40](#))
8. REMOVE COWL SIDE TRIM BOARD LH (for Access Cab) (See page [IR-61](#))
9. REMOVE COWL SIDE TRIM BOARD LH (for Double Cab) (See page [IR-12](#))
10. REMOVE INSTRUMENT PANEL UNDER TRAY (for Automatic Transmission) (See page [IP-9](#))
11. REMOVE INSTRUMENT PANEL HOLE COVER (for Manual Transmission) (See page [IP-9](#))
12. REMOVE CONSOLE UPPER REAR PANEL SUB-ASSEMBLY (for Automatic Transmission on Separate Seat Type) (See page [IP-9](#))
13. REMOVE CONSOLE UPPER REAR PANEL SUB-ASSEMBLY (for Manual Transmission on Separate Seat Type) (See page [IP-9](#))
14. REMOVE REAR CONSOLE BOX ASSEMBLY (for Separate Seat Type) (See page [IP-10](#))
15. REMOVE INSTRUMENT PANEL CUP HOLDER TRAY (for Automatic Transmission on Separate Seat Type) (See page [IP-10](#))
16. REMOVE FRONT CONSOLE BOX (for Automatic Transmission on Separate Seat Type) (See page [IP-10](#))
17. REMOVE FRONT CONSOLE BOX (for Manual Transmission on Separate Seat Type) (See page [IP-11](#))
18. REMOVE FRONT CONSOLE BOX (for Automatic Transmission on Bench Seat Type) (See page [IP-11](#))
19. REMOVE FRONT CONSOLE BOX (for Manual Transmission on Bench Seat Type) (See page [IP-11](#))
20. REMOVE AIR CONDITIONING CONTROL ASSEMBLY (See page [IP-12](#))

21. REMOVE RADIO RECEIVER ASSEMBLY (See page [AV-69](#))
22. SEPARATE HOOD LOCK CONTROL LEVER SUB-ASSEMBLY (See page [ED-3](#))
23. REMOVE LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL (See page [IP-12](#))
24. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (See page [IP-12](#))
25. REMOVE INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY (See page [IP-13](#))
26. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY (See page [IP-13](#))
27. REMOVE INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH (See page [IP-14](#))
28. REMOVE LOWER INSTRUMENT PANEL LH (See page [IP-14](#))
29. REMOVE INSTRUMENT LOWER COVER SUB-ASSEMBLY (See page [IP-14](#))
30. REMOVE TIRE PRESSURE WARNING ECU
  - (a) Disconnect the connector.
  - (b) Remove the 2 screws and the tire pressure warning ECU.



## INSTALLATION

1. INSTALL TIRE PRESSURE WARNING ECU
  - (a) Install the tire pressure warning ECU with the 2 screws.  
Torque: 5.5 N\*m (56 kgf\*cm, 49 in.\*lbf)
  - (b) Connect the connector.
2. INSTALL INSTRUMENT LOWER COVER SUB-ASSEMBLY (See page [IP-20](#))
3. INSTALL LOWER INSTRUMENT PANEL LH (See page [IP-20](#))
4. INSTALL INSTRUMENT PANEL LOWER FINISH PANEL SUB-ASSEMBLY RH (See page [IP-20](#))
5. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY (See page [IP-20](#))
6. INSTALL INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY (See page [IP-21](#))
7. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (See page [IP-21](#))

8. INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL (See page [IP-22](#))
9. CONNECT HOOD LOCK CONTROL LEVER SUB-ASSEMBLY (See page [ED-8](#))
10. INSTALL RADIO RECEIVER ASSEMBLY (See page [AV-70](#))
11. INSTALL AIR CONDITIONING CONTROL ASSEMBLY (See page [IP-22](#))
12. INSTALL FRONT CONSOLE BOX (for Manual Transmission on Bench Seat Type) (See page [IP-22](#))
13. INSTALL FRONT CONSOLE BOX (for Automatic Transmission on Bench Seat Type) (See page [IP-23](#))
14. INSTALL FRONT CONSOLE BOX (for Manual Transmission on Separate Seat Type) (See page [IP-23](#))
15. INSTALL FRONT CONSOLE BOX (for Automatic Transmission on Separate Seat Type) (See page [IP-24](#))
16. INSTALL INSTRUMENT PANEL CUP HOLDER TRAY (for Automatic Transmission on Separate Seat Type) (See page [IP-24](#))
17. INSTALL REAR CONSOLE BOX ASSEMBLY (for Separate Seat Type) (See page [IP-24](#))
18. INSTALL CONSOLE UPPER REAR PANEL SUB-ASSEMBLY (for Manual Transmission on Separate Seat Type) (See page [IP-25](#))
19. INSTALL CONSOLE UPPER REAR PANEL SUB-ASSEMBLY (for Automatic Transmission on Separate Seat Type) (See page [IP-25](#))
20. INSTALL INSTRUMENT PANEL HOLE COVER (for Manual Transmission) (See page [IP-25](#))
21. INSTALL INSTRUMENT PANEL UNDER TRAY (for Automatic Transmission) (See page [IP-25](#))
22. INSTALL COWL SIDE TRIM BOARD LH (for Regular Cab) (See page [IR-52](#))
23. INSTALL COWL SIDE TRIM BOARD LH (for Access Cab) (See page [IR-75](#))
24. INSTALL COWL SIDE TRIM BOARD LH (for Double Cab) (See page [IR-29](#))
25. INSTALL FRONT DOOR SCUFF PLATE LH (for Regular Cab) (See page [IR-52](#))
26. INSTALL FRONT DOOR SCUFF PLATE LH (for Access Cab) (See page [IR-75](#))
27. INSTALL FRONT DOOR SCUFF PLATE LH (for Double Cab) (See page [IR-29](#))

28. INSTALL FRONT FLOOR FOOTREST (See page [IR-1](#))
29. CONNECT CABLE TO NEGATIVE BATTERY  
TERMINAL  
Torque: 3.9 N\*m (40 kgf\*cm, 35 in.\*lbf)  
(See page [IN-5](#))
30. REGISTER TRANSMITTER ID (See page [TW-11](#))
31. INSPECT TIRE PRESSURE WARNING SYSTEM  
(See page [TW-11](#))