

TIRE AND WHEEL SYSTEM

PRECAUTION

1. REMOVAL AND INSTALLATION OF THE TIRE PRESSURE WARNING VALVE SUB-ASSEMBLY

- (a) When installing a tire, make sure that the tire pressure warning valve sub-assembly does not interfere with the tire bead in order to prevent damage to the tire pressure warning valve sub-assembly.
- (b) After completing the operation, remove the valve core to rapidly release the air in the tire and check that the tire pressure warning light comes on. If the warning light does not come on, the system may be defective.
- (c) If there is air leakage, tighten the nut to a torque of 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 air continues to leak, replace the grommet, washer, and nut.
- (d) When installing the tire pressure warning valve sub-assembly, 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 sub-assembly.

2. TIRE AND WHEEL REPLACEMENT

- (a) If replacing a tire, be sure to check the grommet of the tire valve and transmitter for damage. If the grommet is damaged, replace the grommet.
- (b) If tires, wheels and tire valve and transmitter are replaced, register the transmitter ID (See page [TW-15](#)).

TW-2

TIRE AND WHEEL – TIRE AND WHEEL SYSTEM

HOW TO PROCEED WITH TROUBLESHOOTING

- 1. VEHICLE PULLING DIAGNOSIS
- 2. DIAGNOSTICS OF TIRE VIBRATION

1 CHECK THAT WHEEL NUTS ARE FULLY TIGHTENED

NG REPAIR

OK

2 CHECK TIRE PRESSURE

NG Go to step 5

OK

3 CHECK WHEEL BALANCE

NG Go to step 7

OK

4 INSPECT BEARING LOOSENESS AND AXLE HUB RUNOUT

NG REPAIR

OK

REPLACE TIRE(S)

5 ADJUSTMENT

NEXT

6 CHECK WHEEL BALANCE

OK Go to step 8

NG

TW

7

ADJUSTMENT

NEXT

8

INSPECT BEARING LOOSENESS AND AXLE HUB RUNOUT

NG

REPAIR

OK

RETURN VEHICLE TO CUSTOMER

3. DIAGNOSIS OF IRREGULAR TIRE WEAR

1

CHECK TIRE PRESSURE

NG

Go to step 3

OK

2

CHECK WHEEL ALIGNMENT

NG

Go to step 5

OK

TIRE ROTATION OR REPLACE TIRE(S)

3

ADJUSTMENT

NEXT

4

CHECK WHEEL ALIGNMENT

NG

Go to step 5

OK

TIRE ROTATION OR REPLACE TIRE(S)

TW

TW-4

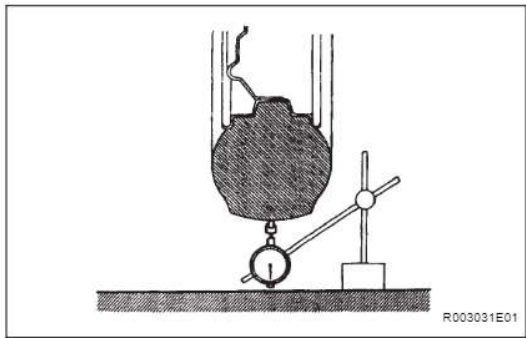
TIRE AND WHEEL – TIRE AND WHEEL SYSTEM

5

ADJUSTMENT

NEXT

TIRE ROTATION OR REPLACE TIRE(S)

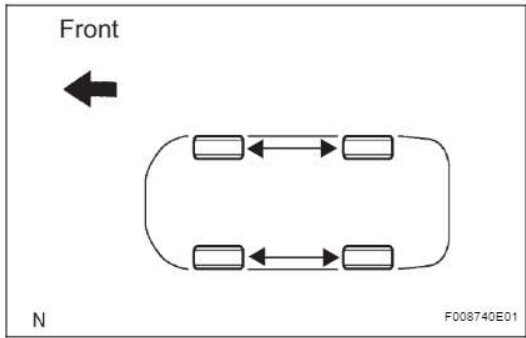


INSPECTION

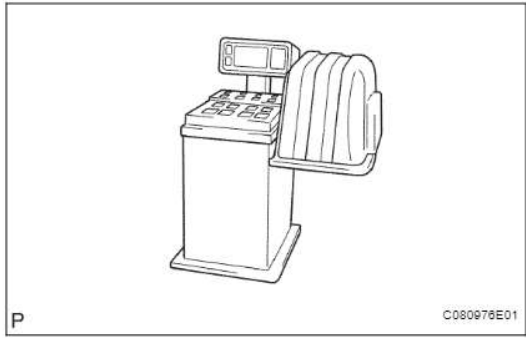
1. INSPECT TIRE
- (a) Check the tires for wear and proper inflation pressure.
- Cold tire inflation pressure

Tire Size	Front Pressure	Rear Pressure
215/45 ZR 17	220 kPa (2.2 kgf/cm ² , 32 psi)	200 kPa (2.0 kgf/cm ² , 29 psi)
205/55 R 16	220 kPa (2.2 kgf/cm ² , 32 psi)	200 kPa (2.0 kgf/cm ² , 29 psi)

- (b) Using a dial indicator, check the tire runout.
- Tire runout:
- 1.4 mm (0.055 in.) or less



2. ROTATE TIRES
- HINT:
- Rotate the tires as shown in the illustration.



3. INSPECT WHEEL BALANCE
- (a) Check and adjust the off-the-car balance.
- (1) Steel wheel
- Imbalance after adjustment:
- 8.0 g (0.018 lb) or less
- HINT:
- If necessary, check and adjust the on-the-car balance.
- (2) Others (Non-steel wheel)
- Imbalance after adjustment:
- 8.0 g (0.018 lb) or less
- HINT:
- If necessary, check and adjust the on-the-car balance.
4. INSPECT BEARING LOOSENESS
- (a) Inspect the bearing looseness (see page [AH-6](#)) for front.
- (b) Inspect the bearing looseness (see page [AH-17](#)) for rear.

5. INSPECT AXLE HUB RUNOUT

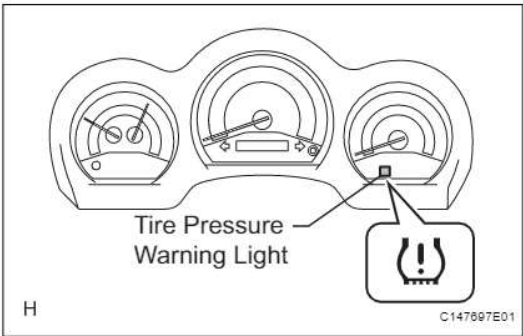
- (a) Inspect the axle hub runout (see page [AH-6](#)) for front.
- (b) Inspect the axle hub runout (see page [AH-17](#)) for rear.

TIRE PRESSURE WARNING SYSTEM

PRECAUTION

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

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



Cold tire inflation pressure

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
215/45ZR17	220 (2.2, 32)	200 (2.0, 29)
P205/55R16	220 (2.2, 32)	200 (2.0, 29)

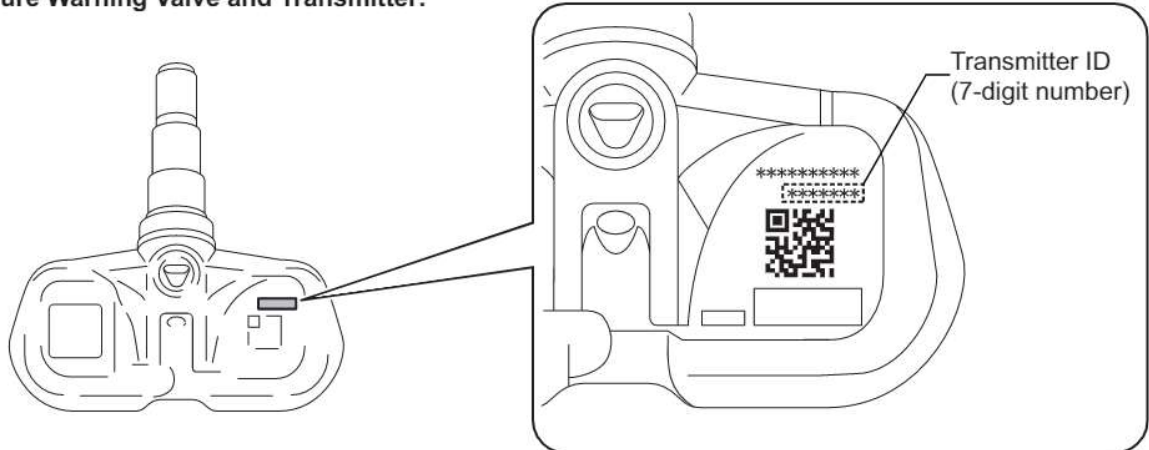
- 1. TIRE PRESSURE WARNING SYSTEM PRECAUTION**
- (a) When the tire pressure warning light comes on, immediately check the tire pressure of the tire and adjust it to the specified value. (The tire pressure warning light will come on after blinking for 1 minute if there is an open in the tire pressure warning light circuit.)
 - (b) When the tire pressure warning light comes on after blinking for 1 minute, there is a malfunction in the system. Check for DTCs.
 - (c) It is necessary to register the transmitter ID in the tire pressure warning ECU after replacing the tire pressure warning valve and transmitter and/or tire pressure warning ECU (See page TW-15).
 - (d) When replacing the tire pressure warning ECU;
 - (1) Using the DATA LIST, read the transmitter IDs registered in the ECU and make a note of them before removing the tire pressure warning ECU.
 - (2) Register the transmitter IDs after installing a new tire pressure warning ECU.

TW-6

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

- (e) When replacing the tire pressure warning valve and transmitter;
- (1) Take a note of the 7-digit number (transmitter ID) written on the new tire pressure warning valve and transmitter when replacing it. Register the transmitter IDs in the tire pressure warning ECU after replacing the tire pressure warning valve and transmitter and installing the tires and wheels on the vehicle.

Tire Pressure Warning Valve and Transmitter:



E128762E11

NOTICE:

The transmitter ID is written on the tire pressure warning valve and transmitter. It will be unable to be read after installing the tire pressure warning valve and transmitter on the tire and wheel. Therefore, take a note of the transmitter ID before installing the tire pressure warning valve and transmitter.

- (f) 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-19) after the registration (See page TW-15).
- (g) Precautions about the tire pressure;
- The tire pressures decrease naturally.
 - In winter, tire pressure may decrease due to low ambient temperatures (tire pressure decreases by approximately 10 kPa (0.1 kgf/cm², 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.

2. IN CASE OF TIRE AND WHEEL REPLACEMENT

- (a) When the tires and wheels are replaced, always ensure that each transmitter ID is correctly registered.

TW

3. IN CASE OF REPLACEMENT OF TIRE PRESSURE WARNING ECU, TIRE PRESSURE WARNING VALVE AND TRANSMITTER, OR TIRE(S) WITH DIFFERENT TIRE PRESSURE

- (a) Initialize the tire pressure warning system after any of the following is performed:
- Replacing the tire pressure warning ECU and/or the tire pressure warning valve and transmitter.
 - Installing tire(s) which require different tire pressure.
 - When rotating the tires on vehicles differing with front rear tire inflation pressures.
 - When changing the tire inflation pressure by changing traveling speed or load weight, etc.

HINT:

The tire pressure warning system will not operate properly if it is not initialized (See page [TW-19](#)).

4. FAIL-SAFE FUNCTION

- (a) When a system malfunction occurs in the tire pressure warning system, the tire pressure warning light comes on after blinking for 1 minute and informs the driver of the system failure.
- (b) The result of this diagnosis is stored in the tire pressure warning ECU.

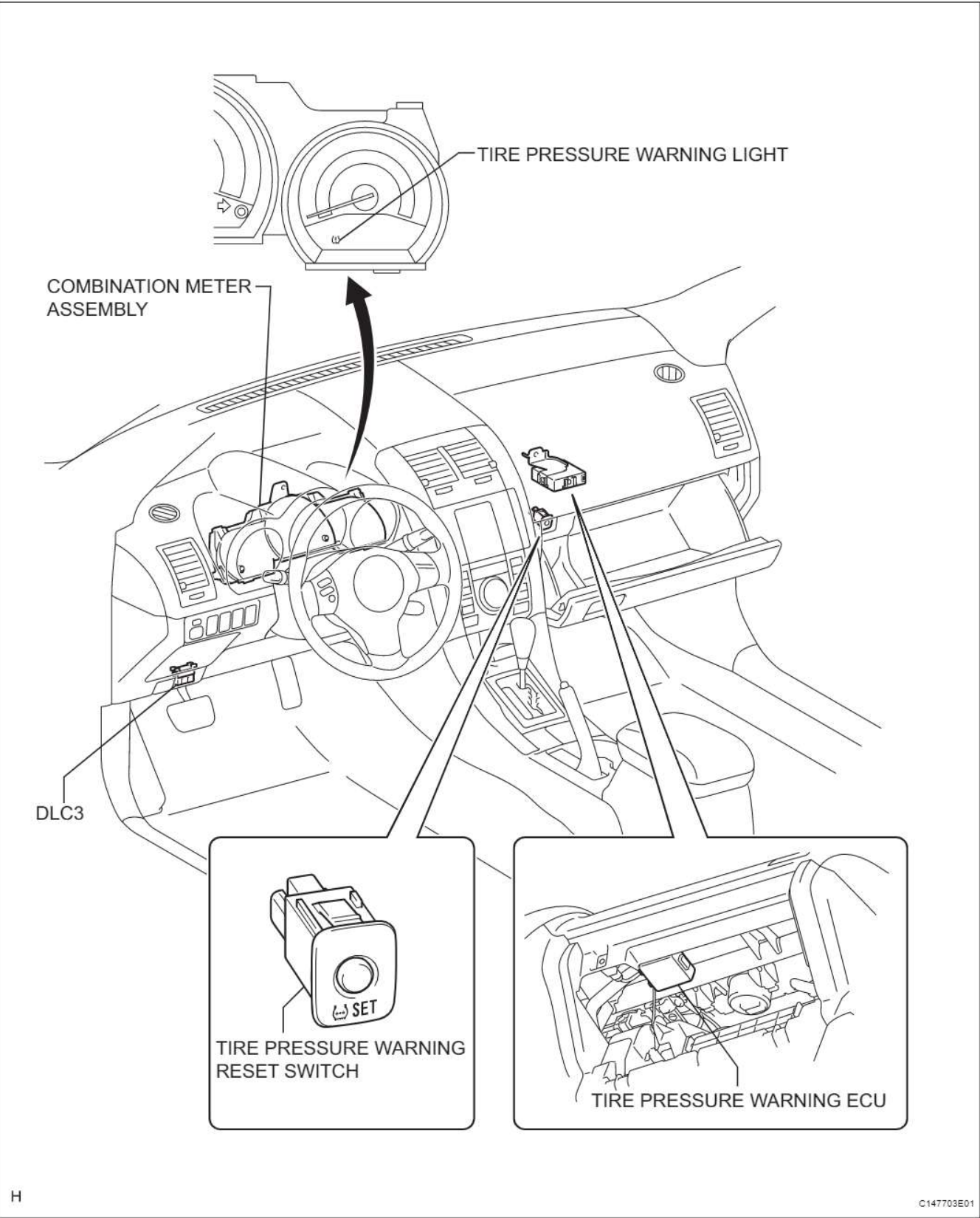
5. CHECK TIRE PRESSURE AFTER REPAIRS

- (a) After repairs, confirm that the actual tire pressures are displayed in DATA LIST (See page [TW-30](#)).

TW-8

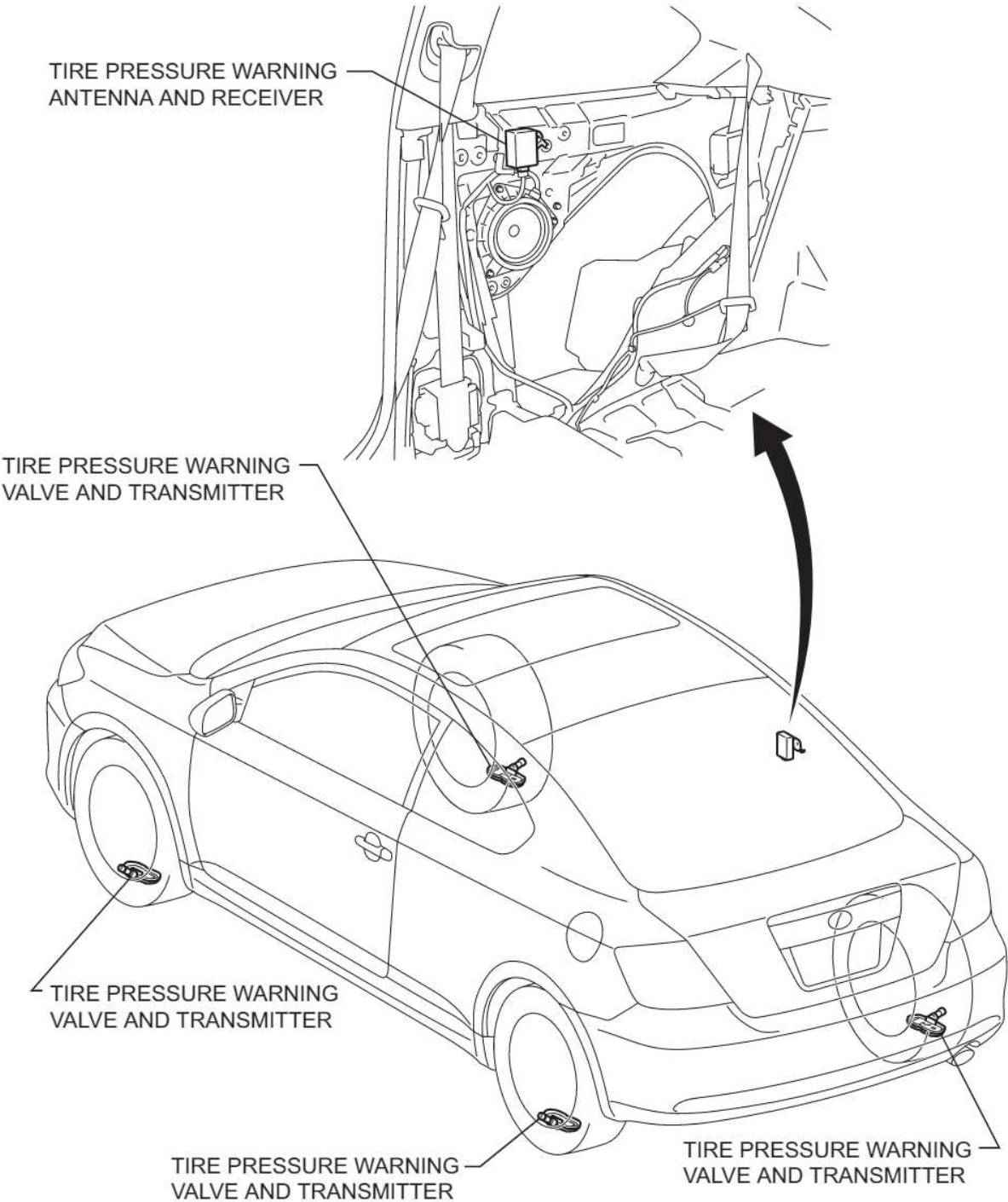
TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

PARTS LOCATION



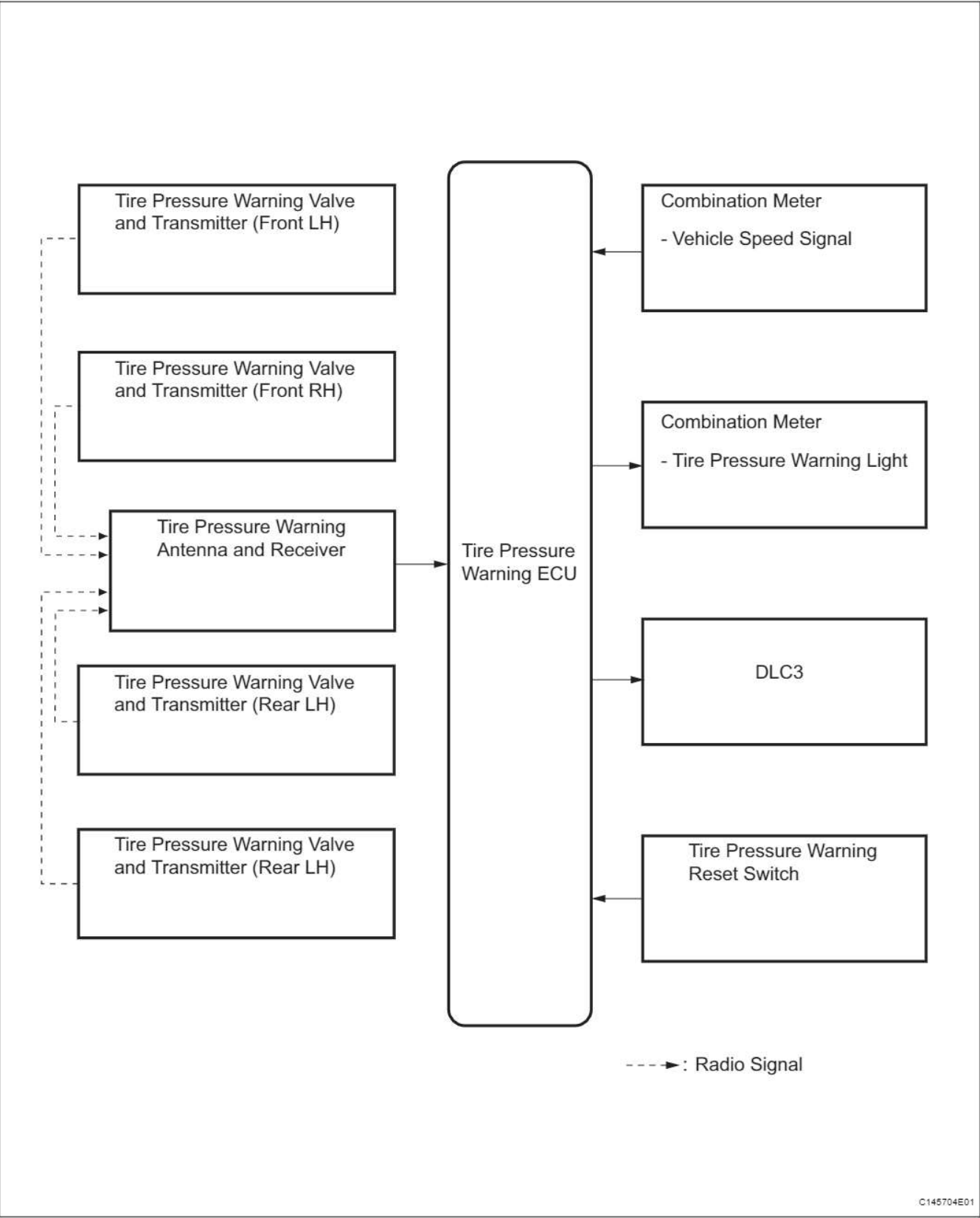
TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-9



TW

SYSTEM DIAGRAM



TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM**TW-11****HINT:**

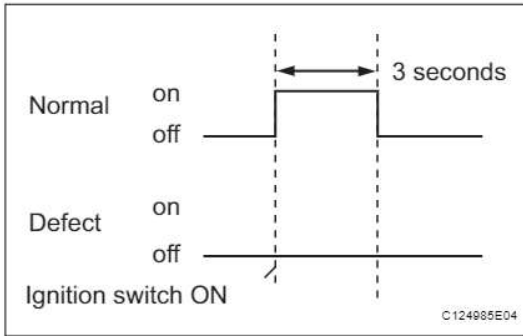
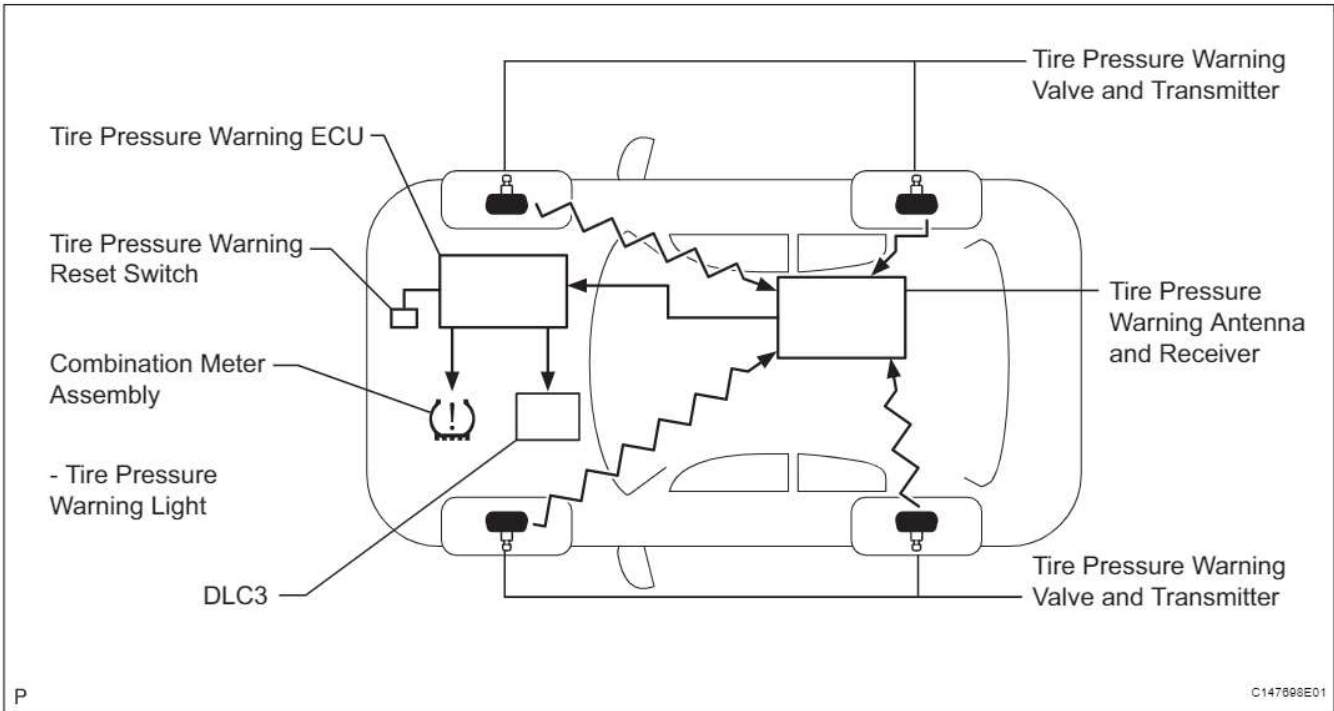
The tire pressure warning valve and transmitter sends information on the temperature inside the tire, the ID, and the tire pressure.

TW

SYSTEM DESCRIPTION

1. DESCRIPTION OF SYSTEM

- (a) A tire pressure warning valve and transmitter is equipped with a tire pressure sensor and a transmitter and is installed in a tire wheel assembly. The sensor measures the tire pressure. The measured value and transmitter ID 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 from the tire pressure warning antenna and receiver. If the transmitter ID has already been registered, the ECU compares the measured air pressure value with the standard value. When the value is less than the standard value registered in the tire pressure warning ECU, the warning light on the combination meter comes on.
- For the differences in the air pressure settings by the type of tires, a tire pressure warning reset switch has been adopted.



2. INITIAL CHECK

- (a) The tire pressure warning light turns on for 3 seconds after the ignition switch is turned to the ON position and then goes off.
- HINT:
If the warning light does not turn on for 3 seconds, trouble shoot the pressure warning light circuit.

Trouble Area	See page
Tire pressure warning light circuit	TW-69

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM**TW-13****3. WHEN TIRE PRESSURE WARNING LIGHT IS LIT**

- (a) When the tire pressure warning light does not go off, or when it comes on during driving, check tire pressure. If the tire pressure warning light comes on within several hours after adjusting the tire pressure, the tire may have a slow air leak.
- (b) Under the following conditions, the system may not function properly.
 - Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
 - A radio device of similar frequency is used in the vehicle.
 - A large amount of snow or ice is stuck to the vehicle, especially onto the wheels and around the wheel houses.
 - The battery of the sensor has been depleted.
 - The tires without tire pressure warning valve and transmitter are used.
 - Tire chains are used.
 - If any wheels other than the specified ones are used, the system may not function properly because interference may prevent the radio waves from being correctly transmitted from the tire pressure warning valve and transmitter.
 - Depending on the tire type, the system may not function properly even though the specified wheels are used.
- (c) The average usage life of the grommet of the tire pressure warning valve and transmitter is approximately 5 years, at which time it must be replaced.
Re-tighten the valve nut if the valve is leaking air, although it is less than 5 years old and there is no problem with grommets.
- (d) After removing and installing the ECU or a sensor, check for a diagnostic trouble code and verify that it is a normal code.

4. FUNCTION OF COMPONENTS

Components	Function
Tire pressure warning valve and transmitter	Combined as a single unit with a disc wheel air valve, it measures tire pressure and temperature and transmits an ID number for measurement value and identification. Built-in the battery.
Tire pressure warning antenna and receiver	Receives and transmits a necessary signal from the transmitter to the tire pressure warning ECU.
Tire pressure warning ECU	Receives a signal from the receiver and identifies it as vehicle's own signal. If the measured value is equal to or lower than the specified value, it transmits a signal so that the tire pressure warning light on the combination meter comes on.
Tire pressure warning light	Located in the combination meter, it informs the driver of lowered tire air pressure and system failure.
Tire pressure warning reset switch	Enters the initialization mode for tire or wheel replacement.

TW

5. TIRE PRESSURE WARNING RESET SWITCH

- By operating the tire pressure warning reset switch, the tire pressure warning ECU can be set to issue a warning at an inflation pressure that corresponds to the type of tires.
Therefore, the dealer must set the warning threshold to the proper value in order to comply with the local regulations.
- Operate the tire pressure warning reset switch only after the inflation pressures of all tires have been adjusted on the vehicle.
- To initialize the system, press and hold the tire pressure warning reset switch for 3 seconds or longer with the ignition switch in the ON position. After the initialization process has started, the warning light blinks 3 times (1 second on, 1 second off).
- During initialization, the tire pressure warning valve and transmitter measures the inflation pressure of the tires, and registers the signals that are transmitted into the tire pressure warning ECU at a frequency of once per minute. The initialization process is completed when signals from the all tires have been received.

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use the following procedures to troubleshoot the tire pressure warning system.
- *: Use the intelligent tester.

1 VEHICLE BROUGHT TO WORKSHOP

NEXT

2 CUSTOMER PROBLEM ANALYSIS

- (a) Interview the customer to confirm the trouble.

HINT:

It is important to collect as much specific information as possible from the customer to allow for a quick repair.

NEXT

3 ADJUST TIRE PRESSURE

- (a) Adjust all tire pressures to the standard values.

Result

Condition	Proceed to
Tire pressure warning light goes off.	A
Tire pressure warning light remains on.	B

A

Go to step 9

B

4 CHECK FOR DTC*

- (a) Check for DTC (See page [TW-29](#)).

Result

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

B

Go to step 6

A

5 DTC CHART

- (a) Refer to DIAGNOSTIC TROUBLE CODE CHART (See page [TW-32](#)).

TW

TW-16

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

NEXT

Go to step 7

6

PROBLEM SYMPTOMS TABLE

- (a) Refer to PROBLEM SYMPTOMS TABLE (See page [TW-24](#)).

NEXT

7

CIRCUIT INSPECTION*

- (a) Refer to ELECTRONIC CIRCUIT INSPECTION PROCEDURE (See page [IN-34](#)).

NEXT

8

REPAIR OR REPLACE

- (a) Repair or replace parts based on the diagnosis result.

NEXT

9

CONFIRMATION TEST

- (a) Check the DATA LIST to confirm that the tire inflation pressure has been received (See page [TW-30](#)).
- (b) Perform initialization (See page [TW-19](#)).
- (c) Confirm that the initialization has been completed.

NEXT

END

TW

REGISTRATION

1. DESCRIPTION OF CODE REGISTRATION

It is necessary to register the transmitter ID in the tire pressure warning ECU when replacing the tire pressure warning valve and transmitter and/or tire pressure warning ECU.

(a) Before registration

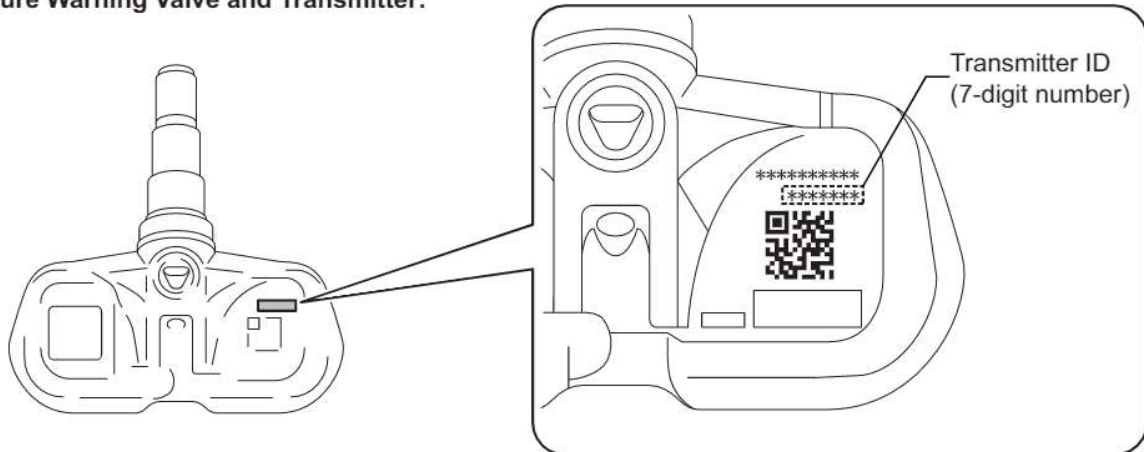
(1) In case of tire pressure warning ECU replacement.

- Read the registered transmitter IDs that are stored in the old 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-5](#)).

(2) In case of tire pressure warning valve and transmitter replacement.

- When replacing the tire pressure warning valves and transmitters, note down the IDs written on the tire pressure warning valves and transmitters.
- Take a note of the 7-digit number (transmitter ID) written on the tire pressure warning valve and transmitter.

Tire Pressure Warning Valve and Transmitter:



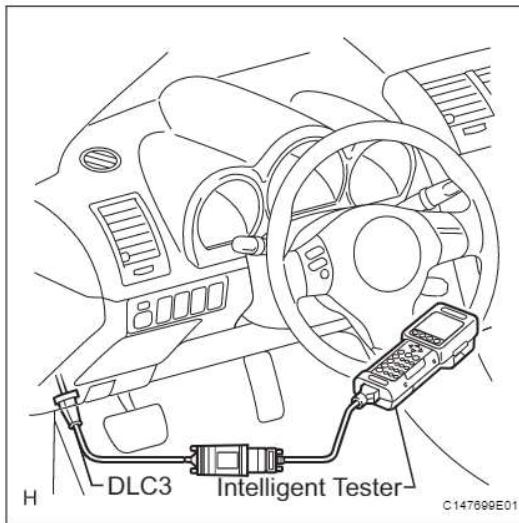
NOTICE:

The transmitter ID is written on the tire pressure warning valve and transmitter. It will be unable to be read after installing the tire pressure warning valve and transmitter on the tire and wheel. Therefore, take a note of the transmitter ID before installing the tire pressure warning valve and transmitter.

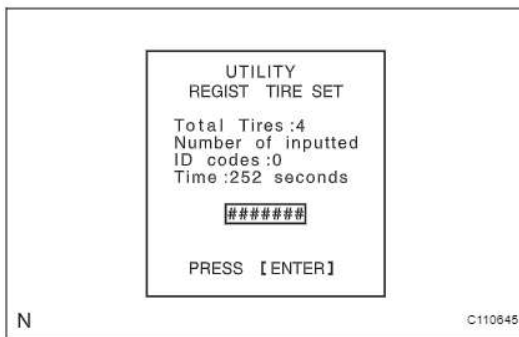
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TW-18

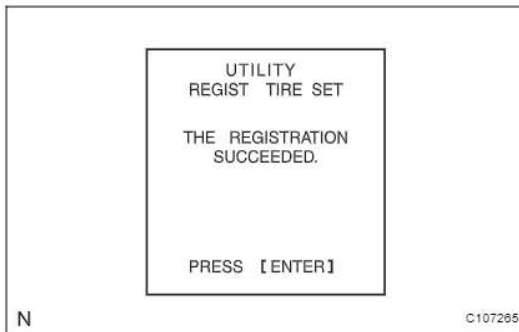
TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

**2. REGISTER TRANSMITTER ID**

- (a) Connect the intelligent tester to DLC3 (Procedure "A").
- (b) Turn the ignition switch to the ON position (Procedure "B").
- (c) Select REGIST TIRE following the intelligent tester screen (UTILITY - REGIST TIRE) (Procedure "C").



- (d) Input the IDs (ID1 to ID4) using the intelligent tester and transmit them to the tire pressure warning ECU (Procedure "D").



- (e) Set the ID transmission condition to "ID Registration is complete" (Procedure "E").

HINT:

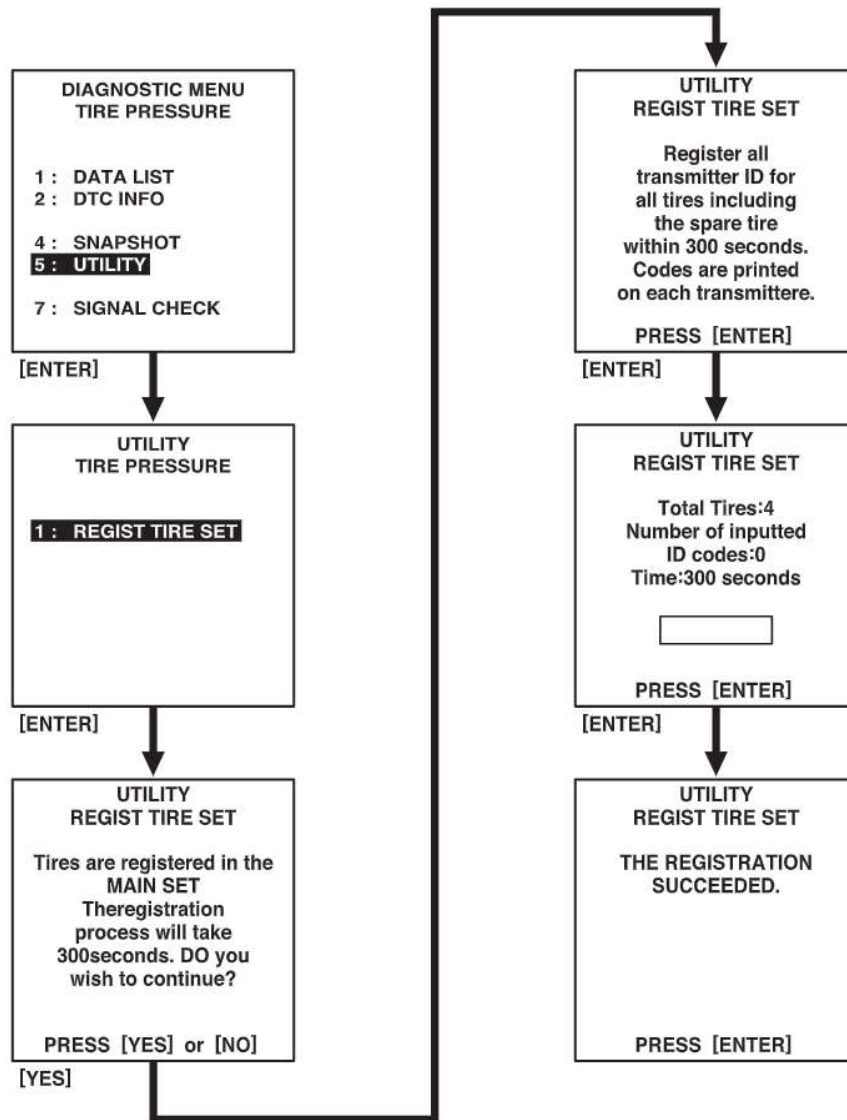
- The previously registered IDs will be deleted from the memory when the registration is completed.
- If the procedures "C" to "D" are not completed within 5 min., the mode will return to the normal operation mode.
- When the system is in initialization mode after the tire pressure warning reset switch has been operated, the registration is disabled until the initialization process is canceled or completed.

TW

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-19

Tester menu flow (for reference):



P

C147700E01

TW

3. CONFIRMATION OF TRANSMITTER ID REGISTRATION

- Connect the intelligent tester to DLC3 (ignition switch is off).
- Turn the ignition switch to the ON position.
- Following the display on the intelligent tester.
- Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TW-20**TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM**

- (e) Confirm that the data of tire pressure of all tires are displayed on the intelligent tester screen.

NOTICE:

- It may take up to about 2 or 3 minute or more 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 51 minutes or more.
- If normal pressure values are displayed, the IDs have been registered correctly.
- If the tire pressure values are not displayed after a few minutes, the IDs may be incorrect or the system may have a malfunction.

TW

INITIALIZATION

1. DESCRIPTION OF INITIALIZATION

- (a) Perform initialization in the following cases:
- Before delivery of a new vehicle.
 - After replacement of the tire pressure warning ECU*.
 - After replacement of the tire pressure warning valve and transmitter.
 - Specified tire pressure changes depending on the size or type of the tire.
- *: Perform initialization after the transmitter ID registration is completed (See page [TW-15](#)).
- (b) Before initialization
- (1) Set the air pressure of all wheels to the specified value.

Cold tire inflation pressure

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
215/45ZR17	220 (2.2, 32)	200 (2.0, 29)
P205/55R16	220 (2.2, 32)	200 (2.0, 29)

NOTICE:

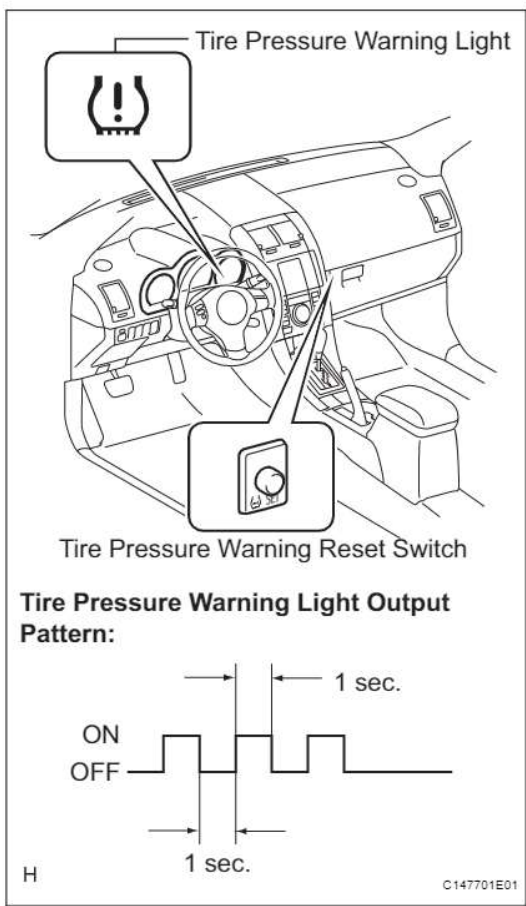
Perform the tire pressure adjustment after the vehicle has sufficiently cooled down. If the vehicle is not sufficiently cooled down, increase the air pressure by 20 to 30 kPa (0.2 to 0.3 kgf/cm², 2.9 to 4.3 psi) above the specified value.

2. INITIALIZATION PROCEDURE

- (a) Make sure that the ignition switch is off.
- (b) Connect the intelligent tester to the DLC3.
- (c) Turn the ignition switch to the ON position.
- (d) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

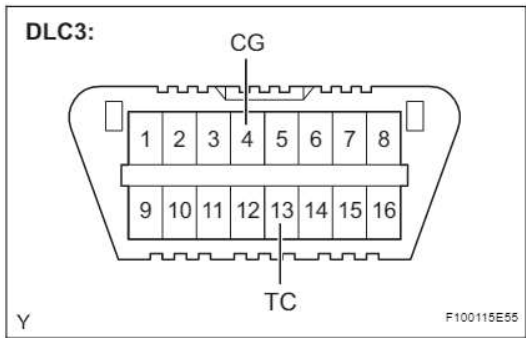
TW-22

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM



- (e) Press the tire pressure warning reset switch within 30 seconds after turning the ignition switch to the ON position. Keep the tire pressure warning reset switch pressed for 3 seconds or more with the ignition switch in the ON position.
- (f) Check that the tire pressure warning light blinks 3 times (1 second ON, 1 second OFF).

HINT:
Initialization will be completed if signals are received from all wheels.



- (g) Wait for 2 or 3 minutes with the ignition switch in the ON position.

- NOTICE:**
- The initialization is normally completed within 2 to 3 minutes.
 - If the initialization has not been completed successfully, DTC C2177/77 is set after approximately 20 minutes.
 - The initialization can be terminated by making a short circuit between terminals TC and CG of the DLC3 connector.

3. CHECK THAT INITIALIZATION HAS BEEN COMPLETED

- (a) Confirm that the data of tire pressure of all tires are displayed on the intelligent tester screen.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-23

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

HINT:

*: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 (See page [TW-37](#)).

NOTICE:

The following operations can be used instead of above procedure:

1. Monitor the tire pressure values of all the wheels using the intelligent tester.
2. If the tire pressure values cannot be displayed on the intelligent tester screen, initialization has not been completed. If the tire pressure values cannot be confirmed on the tester screen correctly, the data have not been received.
3. It takes about 2 or 3 minutes to display the tire pressure data.

TW

TW-24

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

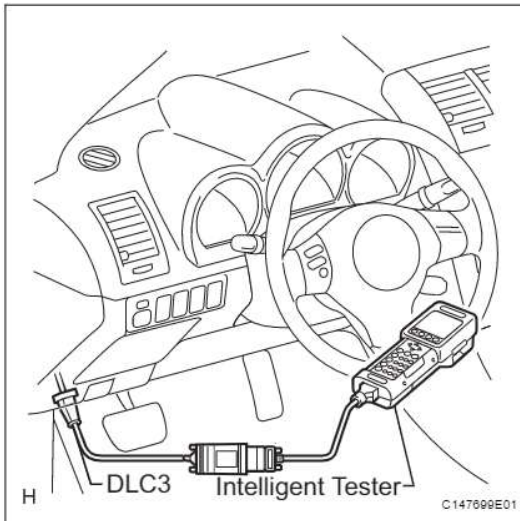
TEST MODE PROCEDURE

1. ENTER TEST MODE

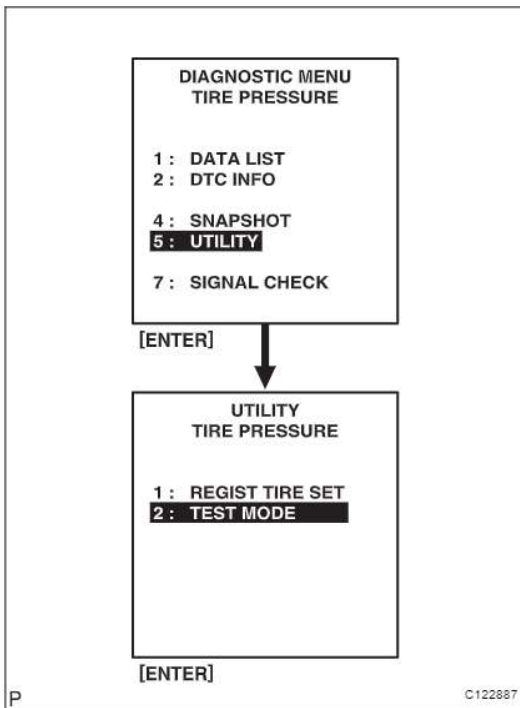
HINT:

- Operation of the tire pressure warning reset switch can be checked in TEST MODE.
- During TEST MODE, the system is not initialized by pushing the tire pressure warning reset switch. The circuit of the tire pressure warning reset switch can be inspected during this mode.

- Make sure that the ignition switch is off.
- Connect the intelligent tester to DLC3.
- Turn the ignition switch to the ON position.
- Check that the tire pressure warning light comes on for 3 seconds and then goes off.

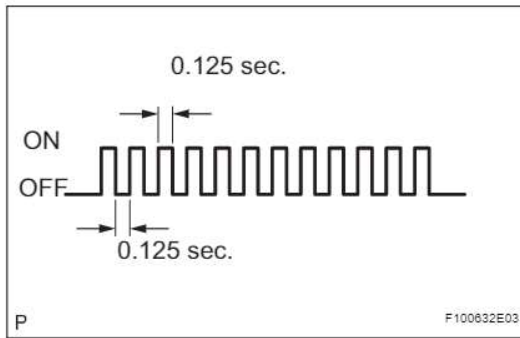


- Select TEST MODE on the intelligent tester.



TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-25



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

2. PERFORM SIGNAL CHECK

HINT:

- When entering signal check mode, the tire pressure warning ECU sets all the signal check DTCs first. After completing signal check for each inspection item, the DTCs for systems that are determined to be normal by the tire pressure warning ECU will be erased.

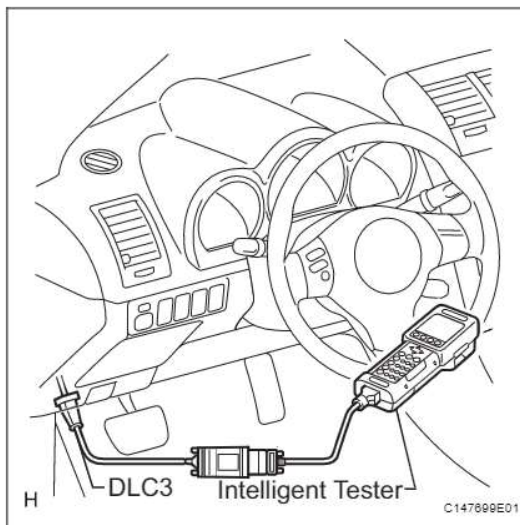
The DTCs for other inspection items may not be erased when only a certain signal is inspected.

- When signal check returns to normal mode, all the signal check DTCs will be erased.

- Make sure that the ignition switch is off.
- Connect the intelligent tester to DLC3.
- Turn the ignition switch to the ON position.
- Select SIGNAL CHECK on the intelligent tester.

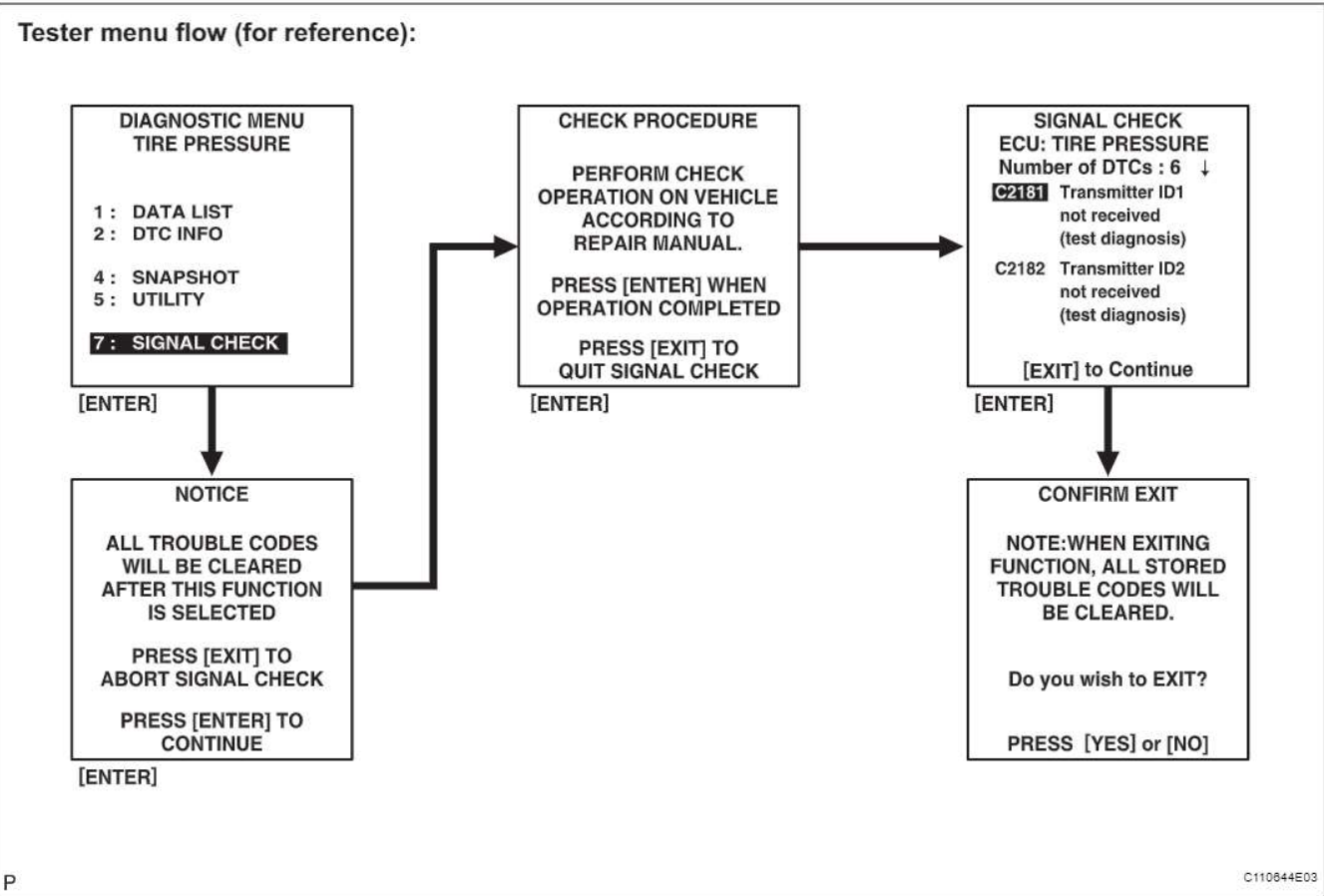
HINT:

Every time the test mode DTC erasure conditions are satisfied, the tire pressure warning light comes on for 1 second. Then, the tire pressure warning light blinks at 0.125 second intervals.



TW

TW-26TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM



- (e) Drive the vehicle at 12 mph (20 km/h) or more for 10 seconds or more to check the vehicle speed signal (C2191/91).
- (f) Loosen the valve core and rapidly reduce the pressure (at least 40 kPa (0.41 kg/cm², 5.8 psi) within 30 seconds or more) to check the transmitter data (C2181/81 to C2184/84).
- HINT:
The transmitter ID can be transmitted by rapidly reducing the tire pressure.
- (g) Check that the tire pressure warning system test mode DTCs are erased.

SIGNAL CHECK DTC	Test Signal	Signal Check DTC Clear Condition
C2181/81 to C2184/84	Transmitter Data	Receive data from the transmitter which has a registered ID in the tire pressure warning ECU
C2191/91	Vehicle Speed Signal	Vehicle speed of 12 mph (20 km/h) or more is detected for 3 seconds or more

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

Test Signal	Normal Condition
Tire Pressure Warning Reset Switch	- Switch ON: TPWS indicator comes on - Switch OFF: TPWS indicator blinks

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-27

(i) Result

HINT:

After the signal check is completed, check for a DTC and signal check DTC to confirm the system status.

Condition	Procedure
SIGNAL CHECK DTC is output	Repair the faulty part and enter SIGNAL CHECK again
SIGNAL CHECK DTCs are cleared	No problem

(j) End of SIGNAL CHECK

After completing the test mode (SIGNAL CHECK), turn the ignition switch off and disconnect the intelligent tester.

DTC of SIGNAL CHECK (TEST DIAGNOSIS) function:

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

DTC No.	Detection Item	Trouble Area	See procedure
C2181/81	Transmitter ID1 not received	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU	TW-37
C2182/82	Transmitter ID2 not received	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU	TW-37
C2183/83	Transmitter ID3 not received	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU	TW-37
C2184/84	Transmitter ID4 not received	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU	TW-37
C2191/91	Vehicle speed signal error	• Vehicle speed sensor • Combination meter assembly • Wire harness or connector • Tire pressure warning ECU	TW-65

TW

PROBLEM SYMPTOMS TABLE

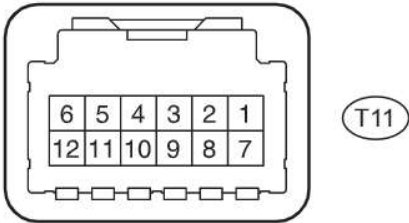
- HINT:
- Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.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

TIRE PRESSURE WARNING SYSTEM:

Symptom	Suspected Area	See page
Tire pressure warning light does not illuminate, despite tire pressure decreasing	1. Initialization	TW-19
	2. Check DATA LIST (Tire inflation pressure)	TW-30
Tire pressure warning light does not illuminate	Tire pressure warning light circuit	TW-69
Tire pressure warning light remains illuminated (Goes off during initial check)	1. ECU power source circuit	TW-71
	2. Tire pressure warning light circuit	TW-69
Tire pressure warning light remains illuminated (Comes on during initial check)	1. Tire pressure adjustment	TW-3
	2. Initialization	TW-19
	3. Tire pressure warning light circuit	TW-69
	4. ID code check (Registration)	TW-15
	5. Check DATA LIST (Tire inflation pressure)	TW-30
Initialization cannot be done	Tire pressure reset switch circuit	TW-67
DTC check cannot be done	1. ECU power source circuit	TW-71
	2. TC and CG terminal circuit	TW-73

TERMINALS OF ECU

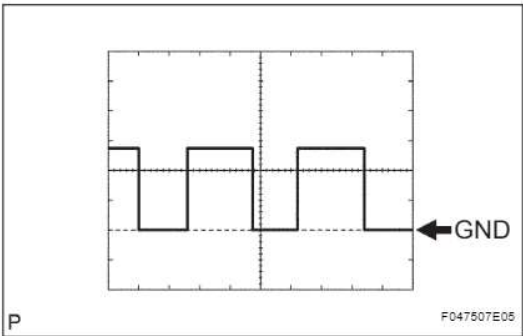
HINT:
Inspect the connectors from the back side while the connectors are connected.



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Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
T11-1 (CLSW) - T11-9 (GND)	GR - W-B	Tire pressure warning reset switch	- Ignition switch on - Tire pressure warning reset switch on	8 to 15 V
T11-2 (SPD) - T11-9 (GND)	L - W-B	Vehicle speed signal	Ignition switch on	Pulse generation (See waveform 1)
T11-5 (IND) - T11-9 (GND)	LG - W-B	Tire pressure warning light signal	Ignition switch on	10 to 16 V
T11-6 (RF5V) - T11-9 (GND)	O - W-B	Tire pressure warning antenna and receiver power source	Ignition switch on	4.5 to 5.5 V
T11-7 (IG) - T11-9 (GND)	R - W-B	IG power source	Ignition switch on	10 to 16 V
T11-10 (SIL) - T11-9 (GND)	P - W-B	Diagnostic communication terminal	- Ignition switch on - Intelligent tester is connected to DLC3	Pulse generation (See waveform 2)
T11-11 (GND2) - T11-9 (GND)	BR - W-B	Tire pressure warning antenna and receiver ground	Always	Below 1 Ω
T11-12 (RDA) - T11-9 (GND)	V - W-B	Tire pressure warning antenna and receiver signal	- Ignition switch on - The tire pressure warning antenna and receiver is not connected	9 to 16 V

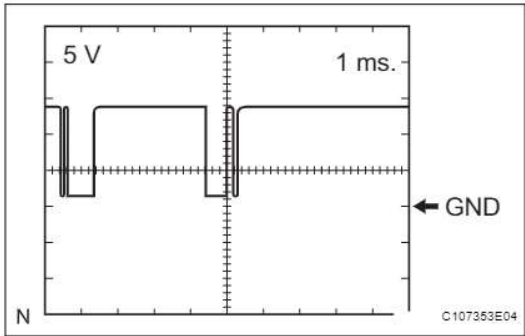


1. Waveform 1 (Reference)
(a) Waveform

Item	Contents
Terminal	SPD - GND
Tool setting	5 V/DIV., 200 ms./DIV.
Vehicle condition	While driving at approximately 12 mph (20 km/h)

TW-30

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM



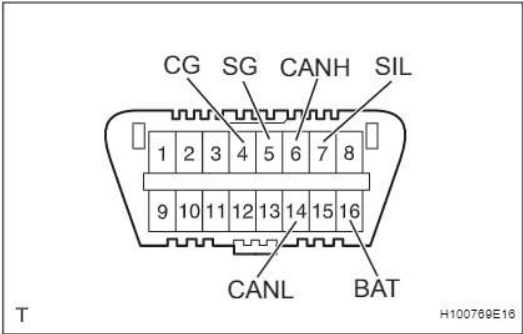
2. Waveform 2 (Reference)

(a) Waveform

Item	Contents
Terminal	SIL - Body ground
Tool setting	5 V/DIV., 1 ms./DIV.
Vehicle condition	Communicating using intelligent tester

DIAGNOSIS SYSTEM

1. CHECK BATTERY VOLTAGE
- Standard voltage:
11 to 14 V
- If the voltage is below 11 V, recharge the battery before proceeding to the next step.
2. CHECK DLC3
- (a) The ECU uses ISO 15765-4 for communication protocol. The terminal arrangement of the DLC3 complies with SAE J1962 and matches the ISO 15765-4 format.



Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
SG (5) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	CAN bus line	Ignition switch off*	54 to 69 Ω
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch off*	200 Ω or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch off*	200 Ω or higher
CANH (6) - BAT (16)	HIGH-level CAN bus line	Ignition switch off*	6 kΩ or higher
CANL (14) - BAT (16)	LOW-level CAN bus line	Ignition switch off*	6 kΩ or higher

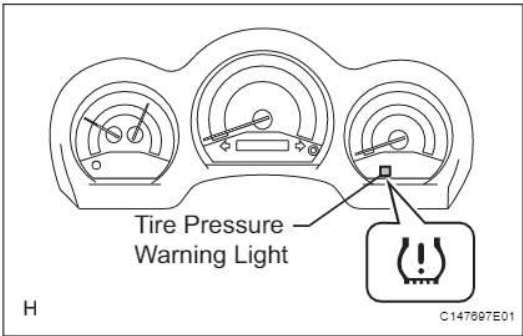
- NOTICE:
- *Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the ignition switch, or any other switches or the doors.
- (b) If the result is not as specified, DLC3 may have a malfunction. Repair or replace the harness and connector.
- HINT:
- Connect the cable of the intelligent tester to DLC3, turn the ignition switch to the ON position and attempt to use the tester. If the display indicates that a communication error has occurred, there is a problem either with the vehicle or with the tester.
- If communication is normal when the tester is connected to another vehicle, inspect DLC3 of the original vehicle.
 - If communication is still not possible when the tester is connected to another vehicle, the problem may be in the tester itself. Consult the Service Department listed in the tester's instruction manual.

TW-32

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

3. DIAGNOSIS SYSTEM

- (a) DTCs (Normal mode)
- (1) DTCs are memorized in the tire pressure warning ECU and read by the blinks of the tire pressure warning light or by using the intelligent tester (See page TW-29).
- (b) Test mode
- (1) By switching from normal mode into test mode (input signal check), you can inspect the tire pressure warning antenna and receiver, each tire pressure warning valve and transmitter, and vehicle speed sensor (See page TW-21).



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 check result is not normal, proceed to the troubleshooting for the tire pressure warning light circuit.

Trouble Area	See procedure
Tire pressure warning light circuit	TW-69

5. TIRE PRESSURE WARNING LIGHT AND INDICATOR CHART

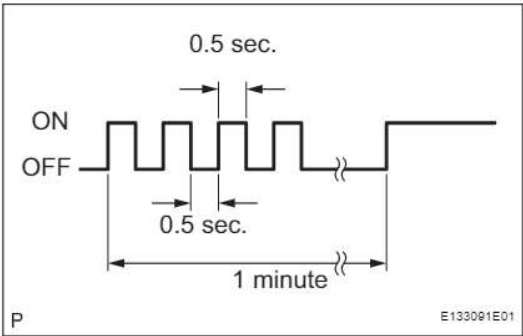
HINT:

The table below indicates the state of the tire pressure warning light and indicator after the ignition switch is turned to the ON position.

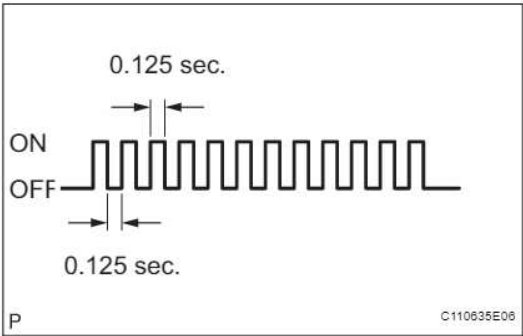
	Immediately after turning the ignition switch to the ON position	Always						
		Warning light output pattern						
		Comes on for 3 sec.	Goes off	Comes on	Blinks (*1)	Blinks (*2)	Blinks (*3)	Blinks (*4)
Normal	○	○	-	-	-	-	-	-
Low tire pressure	○	-	○	-	-	-	-	-
System fail	○	-	-	○	-	-	-	-
Test mode	○	-	-	-	○	-	-	-
Initialization	○	-	-	-	-	○	-	-
ECU connector poorly connected	-	-	-	○	-	-	-	-
TC ground (DTC is output)	○	-	-	-	-	-	-	○
TC ground (DTC is not output)	○	-	-	-	-	-	○	-

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

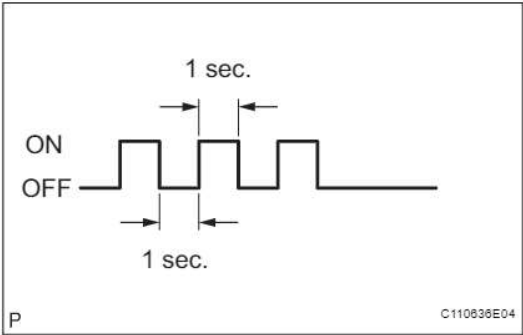
TW-33



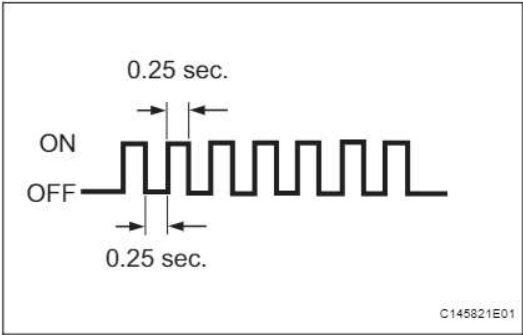
*1: Comes on and goes off repeatedly at 0.5 second intervals, and comes on after 1 minute.



*2: Comes on and goes off repeatedly at 0.125 second intervals.



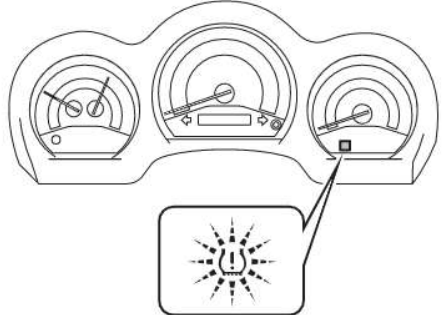
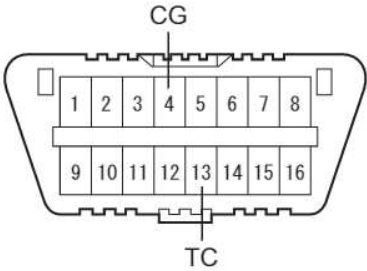
*3: Blinks 3 times (1 second on, 1 second off).



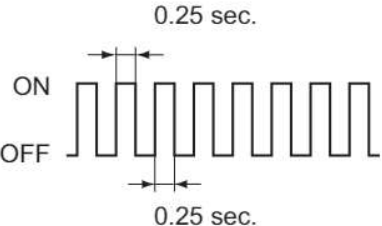
*4: Comes on and goes off repeatedly at 0.25 second intervals.

TW

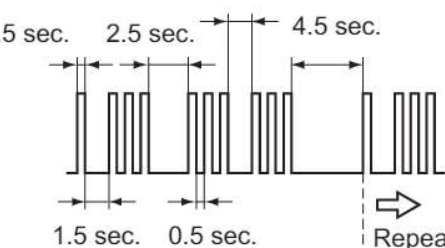
DLC3:



Normal System Code:



Code 13 and 33:



H

C147702E01

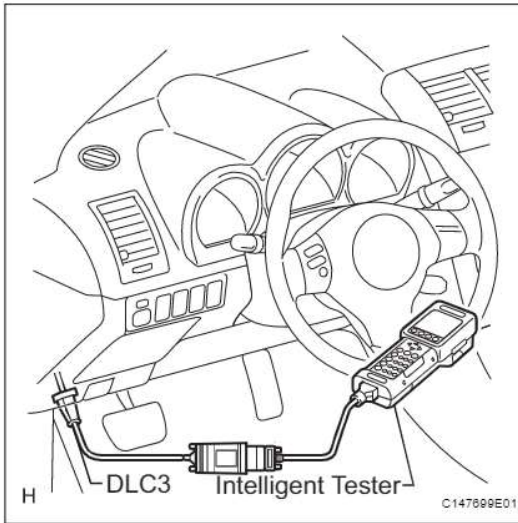
DTC CHECK / CLEAR

1. DTC CHECK (USING SST CHECK WIRE)

- (a) Check for DTCs.
- (1) Using SST, connect terminals TC and CG of DLC3.
- SST 09843-18040**
- (2) Turn the ignition switch to the ON position.
- (3) Read and record any DTCs from the tire pressure warning light on the combination meter. Refer to the illustration as examples of a normal system code and codes 13 and 33.
- HINT:
- If the tire pressure warning light does not indicate any DTCs or the normal system code, inspect the tire pressure warning light circuit or TC and CG terminal circuit.

Trouble Area	See procedure
Tire pressure warning light circuit	TW-69
TC and CG terminal circuit	TW-73

- If 2 or more malfunctions are indicated at the same time, the lowest numbered DTC is displayed first.
- (4) Refer to the Diagnostic Trouble Code Chart (See page [TW-32](#)) for DTC information.
- (5) After completing the check, turn the ignition switch off and remove SST from DLC3.
- SST 09843-18040**



2. DTC CHECK (USING INTELLIGENT TESTER)

(a) Check for DTCs.

- (1) Connect the intelligent tester to the DLC3.
- (2) Turn the ignition switch to the ON position.
- (3) Read the DTCs following the prompts on the tester screen.

HINT:

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

(b) Clear the DTCs.

HINT:

After repairing the malfunctions, clear the DTCs.

- (1) Connect the intelligent tester to DLC3.
- (2) Turn the ignition switch to the ON position.
- (3) Clear the DTCs following the prompts on the tester screen.

HINT:

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

TW-36

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

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

NOTICE:

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

- (a) Make sure that the ignition switch is off.
- (b) Connect the intelligent tester to DLC3.
- (c) Turn the ignition switch to the ON position.
- (d) Following the display on the intelligent tester, read "DATA LIST".

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
MODE STATUS	Tire pressure warning system mode/ NORMAL or REG 2nd or REG M or TEST	NORMAL: Normal mode TEST: Test mode	-
MAIN TIRE	Number of main tire ID to be registered/ 0, 1, 2, 3, 4	0 to 4 should be displayed	-
INITIAL SW	Tire pressure warning reset switch/ ON, OFF	ON: Switch on OFF: Switch off	-
VEHICLE SPEED	Vehicle speed reading/ min.: 0 km/h (0 mph), max.: 255 km/h (158 mph)	Actual vehicle speed	Speed indicated on the combination meter
REGIT ID1 CODE	Registered ID1 code/ min.: 0, max.: FFFFFFFF*1	The ID No. registered in the transmitter ID1 is displayed	-
REGIT ID2 CODE	Registered ID2 code/ min.: 0, max.: FFFFFFFF*1	The ID No. registered in the transmitter ID2 is displayed	-
REGIT ID3 CODE	Registered ID3 code/ min.: 0, max.: FFFFFFFF*1	The ID No. registered in the transmitter ID3 is displayed	-
REGIT ID4 CODE	Registered ID4 code/ min.: 0, max.: FFFFFFFF*1	The ID No. registered in the transmitter ID4 is displayed	-
TRANS STATUS	ID code transmission status/ FINISH or NOW	FINISH or NOW	-
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*2
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*2
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*2

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-37

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.* ²
TIRE TEMP1	ID1 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	If -40°C (-40°F) is displayed, the data have not been received.
TIRE TEMP2	ID2 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	If -40°C (-40°F) is displayed, the data have not been received.
TIRE TEMP3	ID3 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	If -40°C (-40°F) is displayed, the data have not been received.
TIRE TEMP4	ID4 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	If -40°C (-40°F) is displayed, the data have not been received.
BATT VOLT1	ID1 battery voltage/ OVER or LESS	OVER	-
BATT VOLT2	ID2 battery voltage/ OVER or LESS	OVER	-
BATT VOLT3	ID3 battery voltage/ OVER or LESS	OVER	-
BATT VOLT4	ID4 battery voltage/ OVER or LESS	OVER	-
INITIAL SW INFO	Tire pressure warning reset switch setting information/ WITH or WITHOUT	WITH or WITHOUT	-
INIT THRESHOLD1	ID1 initial threshold of low-pressure/ min.: 0 kPa (0 kgf/cm ² , 0 psi), max.: 637.5 kPa (6.48 kgf/cm ² , 92.2 psi)	Tire pressure after initialization	-
INIT THRESHOLD2	ID2 initial threshold of low-pressure/ min.: 0 kPa (0 kgf/cm ² , 0 psi), max.: 637.5 kPa (6.48 kgf/cm ² , 92.2 psi)	Tire pressure after initialization	-
INIT THRESHOLD3	ID3 initial threshold of low-pressure/ min.: 0 kPa (0 kgf/cm ² , 0 psi), max.: 637.5 kPa (6.48 kgf/cm ² , 92.2 psi)	Tire pressure after initialization	-
INIT THRESHOLD4	ID4 initial threshold of low-pressure/ min.: 0 kPa (0 kgf/cm ² , 0 psi), max.: 637.5 kPa (6.48 kgf/cm ² , 92.2 psi)	Tire pressure after initialization	-
# CODES	Number of DTCs recorded/ min.: 0, max.: 255	Min.: 0, Max.: -	-

HINT:

*¹: Displayed only when the ID No. is not registered.*²: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTSS C2121/21 to C2124/24 (See page [TW-37](#)).

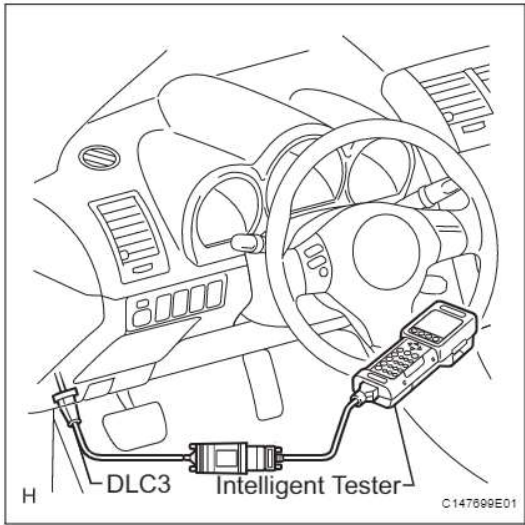
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METER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SPEED METER	Vehicle speed/ Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual vehicle speed (When driving)	-

TW-38

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM



- 2. ACTIVE TEST**
- Performing the ACTIVE TEST using the intelligent tester allows the meters, indicators and other items to be operated without removing any parts. Performing the ACTIVE TEST as the first step in troubleshooting is one way to save diagnostic time. It is possible to display the DATA LIST on the intelligent tester during the ACTIVE TEST.
- (a) Make sure that the ignition switch is off.
 - (b) Connect the intelligent tester to the DLC3.
 - (c) Turn the ignition switch to the ON position.
 - (d) Enter the following menus: DIAGNOSIS / OBD/ MOBD / METER / ACTIVE TEST.

METER:

Tester Display	Test Part	Control Range	Diagnostic Note
TIRE PRESS WARN	Tire Pressure Warning Light	OFF / ON	Confirm that the vehicle is stopped with the engine idling

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-39

DIAGNOSTIC TROUBLE CODE CHART

HINT:

If a trouble code is displayed during the DTC check, inspect the circuit listed for that code. For details of each code, refer to the relevant page listed under respective "DTC Code" in the DTC chart.

TIRE PRESSURE WARNING SYSTEM:

DTC Code	Detection Item	Trouble Area	See page
C2111/11	Transmitter ID1 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-35
C2112/12	Transmitter ID2 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-35
C2113/13	Transmitter ID3 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-35
C2114/14	Transmitter ID4 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-35
C2121/21	No Signal from Transmitter ID1 in Main Mode	1. Tire pressure warning valve and transmitter 2. Tire pressure warning antenna and receiver 3. Wire harness or connector 4. Tire pressure warning ECU	TW-37
C2122/22	No Signal from Transmitter ID2 in Main Mode	1. Tire pressure warning valve and transmitter 2. Tire pressure warning antenna and receiver 3. Wire harness or connector 4. Tire pressure warning ECU	TW-37
C2123/23	No Signal from Transmitter ID3 in Main Mode	1. Tire pressure warning valve and transmitter 2. Tire pressure warning antenna and receiver 3. Wire harness or connector 4. Tire pressure warning ECU	TW-37
C2124/24	No Signal from Transmitter ID4 in Main Mode	1. Tire pressure warning valve and transmitter 2. Tire pressure warning antenna and receiver 3. Wire harness or connector 4. Tire pressure warning ECU	TW-37
C2141/41	Transmitter ID1 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-45
C2142/42	Transmitter ID2 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-45
C2143/43	Transmitter ID3 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-45
C2144/44	Transmitter ID4 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-45
C2165/65	Abnormal Temperature Inside ID1 Tire	1. Tires 2. Tire pressure warning valve and transmitter 3. Tire pressure warning ECU	TW-49
C2166/66	Abnormal Temperature Inside ID2 Tire	1. Tires 2. Tire pressure warning valve and transmitter 3. Tire pressure warning ECU	TW-49
C2167/67	Abnormal Temperature Inside ID3 Tire	1. Tires 2. Tire pressure warning valve and transmitter 3. Tire pressure warning ECU	TW-49
C2168/68	Abnormal Temperature Inside ID4 Tire	1. Tires 2. Tire pressure warning valve and transmitter 3. Tire pressure warning ECU	TW-49
C2171/71	Transmitter ID not Registered	Tire pressure warning ECU	TW-53
C2176/76	Receiver Error	1. Tire pressure warning antenna and receiver 2. Wire harness or connector 3. Tire pressure warning ECU	TW-55
C2177/77	Initialization not Completed	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU 3. Tire pressure warning antenna and receiver 4. Wire harness or connector	TW-57

TW

TW-40**TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM**

DTC Code	Detection Item	Trouble Area	See page
C2181/81	Transmitter ID1 not Received (Test Mode DTC)	1. Tire pressure warning valve and transmitter 2. Tire pressure warning antenna and receiver 3. Wire harness or connector 4. Tire pressure warning ECU	TW-37
C2182/82	Transmitter ID2 not Received (Test Mode DTC)	1. Tire pressure warning valve and transmitter 2. Tire pressure warning antenna and receiver 3. Wire harness or connector 4. Tire pressure warning ECU	TW-37
C2183/83	Transmitter ID3 not Received (Test Mode DTC)	1. Tire pressure warning valve and transmitter 2. Tire pressure warning antenna and receiver 3. Wire harness or connector 4. Tire pressure warning ECU	TW-37
C2184/84	Transmitter ID4 not Received (Test Mode DTC)	1. Tire pressure warning valve and transmitter 2. Tire pressure warning antenna and receiver 3. Wire harness or connector 4. Tire pressure warning ECU	TW-37
C2191/91	Vehicle Speed Signal Error (Test Mode DTC)	1. Vehicle speed sensor 2. Tire pressure warning ECU 3. Combination meter 4. Wire harness or connector	TW-65

TW

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-41

DTC	C2111/11	Transmitter ID1 Operation Stop
DTC	C2112/12	Transmitter ID2 Operation Stop
DTC	C2113/13	Transmitter ID3 Operation Stop
DTC	C2114/14	Transmitter ID4 Operation Stop

DESCRIPTION

The 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 value is 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, the signals can be forcibly transmitted by releasing the tire pressure rapidly. The stored DTC is cleared when the signal transmission is resumed.

DTC No.	DTC Detection Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14	Tire pressure warning valve and transmitters stop transmitting signals	- Tire pressure warning valve and transmitter - Tire pressure warning ECU

HINT:

It is necessary to perform the procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE**NOTICE:**

It is necessary to perform initialization (See page [TW-19](#)) after registration (See page [TW-15](#)) of the transmitter IDs into the tire pressure warning ECU after the ECU and/or valve and transmitter have been replaced.

1	PERFORM FORCED TRANSMISSION OF TRANSMITTER ID OF ALL WHEELS
----------	--

- (a) Set the tire pressure to the specified value.

Cold tire inflation pressure

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
215/45ZR17	220 (2.2, 32)	200 (2.0, 29)
P205/55R16	220 (2.2, 32)	200 (2.0, 29)

TW

- (b) Make sure that the ignition switch is off.
 (c) Connect the intelligent tester to the DLC3.
 (d) Turn the ignition switch to the ON position and turn the tester on.
 (e) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

TW-42

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

HINT:

*: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 (See page TW-37).

- (f) Rapidly release the pressures from each wheel by approximately 40 kPa (0.4 kgf/cm², 5.8 psi) within 30 seconds.
- (1) Check that each tire pressure data displayed on the intelligent tester screen has changed.

OK:

Each tire pressure data displayed on the intelligent tester screen will change to the value of the tire pressure.

NOTICE:

- It takes about 2 or 3 minute to display the updated tire pressure data.
 - When the "TIREPRESS" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck it.
- (2) After confirming that all of the tire pressure data displayed on the intelligent tester screen have changed, set the tire pressure to the appropriate specified values.

HINT:

If the tire pressure data displayed on the intelligent tester screen has not changed after rechecking, go to other problem procedure (for malfunctions in transmission or reception function) (See page TW-24).

NG

**INSPECT OTHER PROBLEM
(MALFUNCTION IN TRANSMISSION OR
RECEPTION FUNCTION)**

OK

END

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-43

DTC	C2121/21	No Signal from Transmitter ID1 in Main Mode
DTC	C2122/22	No Signal from Transmitter ID2 in Main Mode
DTC	C2123/23	No Signal from Transmitter ID3 in Main Mode
DTC	C2124/24	No Signal from Transmitter ID4 in Main Mode
DTC	C2181/81	Transmitter ID1 not Received (Test Mode DTC)
DTC	C2182/82	Transmitter ID2 not Received (Test Mode DTC)
DTC	C2183/83	Transmitter ID3 not Received (Test Mode DTC)
DTC	C2184/84	Transmitter ID4 not Received (Test Mode DTC)

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the air pressure 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 value is less than this threshold, the warning light in the combination meter comes on.

The tire pressure warning valve and transmitters constantly send radio waves to the tire pressure warning antenna and receiver.

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

- 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 51 minutes or more, a DTC is output.

DTCs from C2121/21 to C2124/24 can only be cleared by using the tester. DTCs from C2181/81 to C2184/84 can be cleared when the transmitter in the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2184/84 are output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24	These DTCs are detected when no signals are received for 51 minutes or more.	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU
C2181/81 C2182/82 C2183/83 C2184/84	Malfunctions in the transmitting/receiving circuit	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU

HINT:

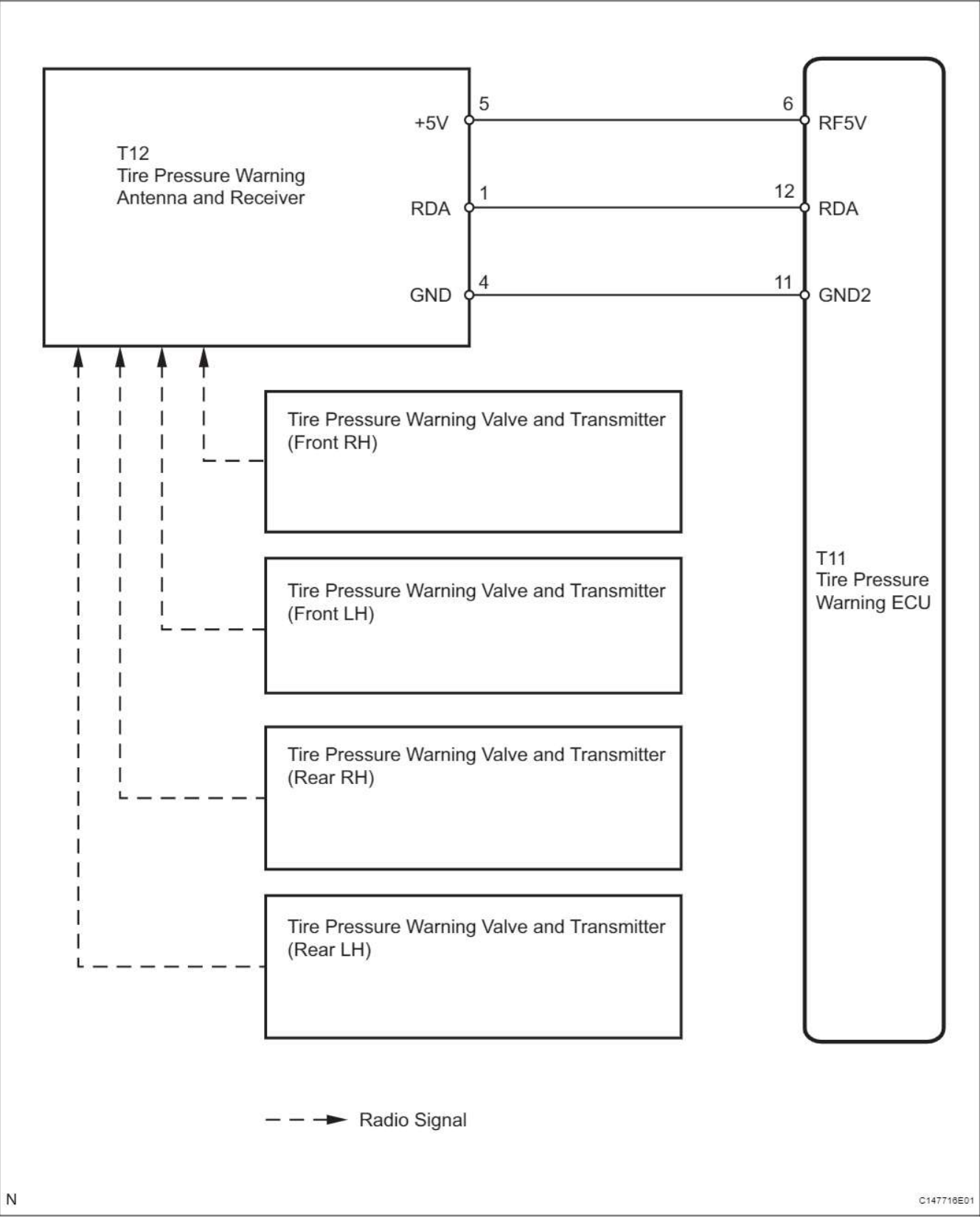
It is necessary to perform the procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

TW

TW-44

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and write them down before removal.
- It is necessary to perform initialization (See page TW-19) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU and/or valve and transmitter have been replaced.

1 CHECK FREQUENCY RECEIVING CONDITION

- (a) Check if the vehicle is not located in areas such as described below:
- (1) Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
HINT:
If the vehicle is located in areas described above, the tire pressure warning light may come on only in a particular area.
 - (2) Devices using similar radio frequencies are used in the vehicle.
- OK:**
Facilities, or devices that use similar radio frequencies are not located in the vicinity of the vehicle.
- HINT:**
Radio frequency may be interrupted due to surroundings or devices installed by the user.

NG

CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2 IDENTIFY TRANSMITTER CORRESPONDING TO DTC

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

Cold tire inflation pressure

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
215/45ZR17	220 (2.2, 32)	200 (2.0, 29)
P205/55R16	220 (2.2, 32)	200 (2.0, 29)

- Make sure that the ignition switch is off.
- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position.
- Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.

TW

TW-46

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS2	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS3	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS4	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.

- (f) Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.41 kg/cm², 5.8 psi) within 30 seconds.

- (g) Check the DATA LIST.

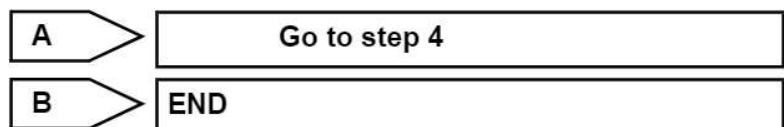
NOTICE:

- It takes about 2 or 3 minute to display the updated tire pressure data.
- When "TIREPRESS" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck it.
- Record the transmitter ID of which "TIREPRESS" data corresponds to each tire.

- (h) After confirming that one of the "TIREPRESS" data for one tire (ID1 to ID4) has changed, repeat this procedure one by one. Identify the transmitter that corresponds to the DTC.

Result

Condition	Proceed to
One or more of transmitters abnormal	A
All normal	B
All abnormal	C

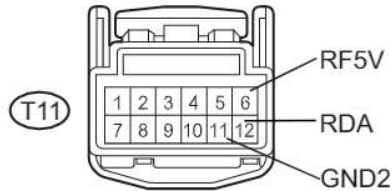
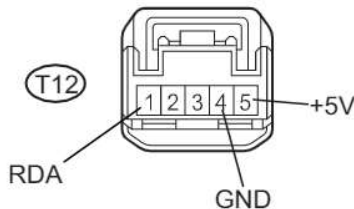


C

TW

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-47

3 CHECK HARNESS AND CONNECTOR (ECU - RECEIVER)**Front View of Wire Harness Connector (to Tire Pressure Warning ECU):****Front View of Wire Harness Connector (to Tire Pressure Warning Antenna and Receiver):**

H

E129461E23

- Disconnect the T11 ECU connector.
- Disconnect the T12 receiver connector.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
T11-12 (RDA) - T12-1 (RDA)	Always	Below 1 Ω
T11-11 (GND2) - T12-4 (GND)		
T11-6 (RF5V) - T12-5 (+5V)		10 k Ω or higher
T11-12 (RDA) - Body ground		
T11-11 (GND2) - Body ground		
T11-6 (RF5V) - Body ground		

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4 INSPECT TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- Make sure that the ignition switch is off.
- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position.
- Select REGIT ID CODE by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

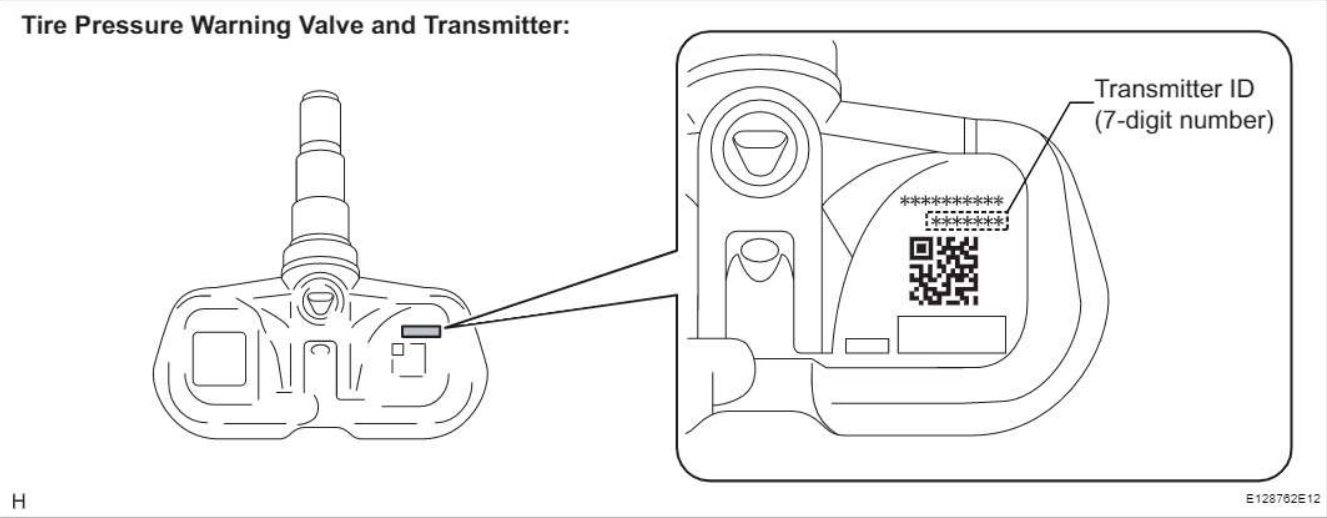
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
REGIT ID1 CODE	Registered ID1 code/ min.: 0, max.: FFFFFF*	The ID No. registered in the transmitter ID1 is displayed	*: Displayed only when the ID No. is not registered.
REGIT ID2 CODE	Registered ID2 code/ min.: 0, max.: FFFFFF*	The ID No. registered in the transmitter ID2 is displayed	*: Displayed only when the ID No. is not registered.
REGIT ID3 CODE	Registered ID3 code/ min.: 0, max.: FFFFFF*	The ID No. registered in the transmitter ID3 is displayed	*: Displayed only when the ID No. is not registered.
REGIT ID4 CODE	Registered ID4 code/ min.: 0, max.: FFFFFF*	The ID No. registered in the transmitter ID4 is displayed	*: Displayed only when the ID No. is not registered.

- Check the ID number on the identified transmitter by removing it from the tire and wheel.

TW

TW-48

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM



- (f) Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result

Result	Proceed to
Match	A
Do not match	B

B

Go to step 6

A

5

REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- (a) Replace the tire pressure warning valve and transmitter (See page [TW-79](#)).

NEXT

6

REGISTRATION OF TRANSMITTER ID

- (a) Perform registration (See page [TW-15](#)).

NEXT

7

PERFORM INITIALIZATION

- (a) Perform initialization (See page [TW-19](#)).

NEXT

8

READ VALUE ON DATA LIST

- (a) Make sure that the ignition switch is off.
(b) Connect the intelligent tester to the DLC3.
(c) Turn the ignition switch to the ON position.

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-49

- (d) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS2	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS3	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS4	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.

HINT:

It may take about 2 or 3 minute until the values are displayed.

Result

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

A

END

B

9

REPLACE TIRE PRESSURE WARNING ANTENNA AND RECEIVER

- (a) Replace the tire pressure warning antenna and receiver (See page TW-76).

NEXT

10

READ VALUE ON DATA LIST

- (a) Make sure that the ignition switch is off.
 (b) Connect the intelligent tester to the DLC3.
 (c) Turn the ignition switch to the ON position.
 (d) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS2	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS3	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.

TW

TW-50

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS4	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.

HINT:
It may take about 2 or 3 minute until the values are displayed.

Result

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

B

REPLACE TIRE PRESSURE WARNING ECU
(See page [TW-83](#))

A

END

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-51

DTC	C2141/41	Transmitter ID1 Error
DTC	C2142/42	Transmitter ID2 Error
DTC	C2143/43	Transmitter ID3 Error
DTC	C2144/44	Transmitter ID4 Error

DESCRIPTION

The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the air pressure 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 value is less than this threshold, the warning light in the combination meter comes on. When the internal circuit of the tire pressure warning valve and transmitter is malfunctioning, this DTC is output.

DTC No.	DTC Detection Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44	If an "ERROR" signal is received 3 times consecutively, the tire pressure warning valve and transmitter will be judged as defective and a DTC will be output. This will happen in situations where the inflation pressure is outside the range 0 to 637.5 kPa (0 to 6.48 kgf/cm ² , 0 psi to 92.2 psi), the temperature inside the tire is outside the specified range -40 to 120°C (-40 to 248°F), or an error occurs in the tire pressure warning valve and transmitter or the surrounding area.	• Tire pressure warning valve and transmitter • Tire pressure warning ECU

HINT:

It is necessary to perform the procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE**NOTICE:**

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and write them down before removal.
- It is necessary to perform initialization (See page TW-15) after registration (See page TW-19) of the transmitter IDs into the tire pressure warning ECU after the ECU and/or valve and transmitter have been replaced.

1	IDENTIFY TRANSMITTER CORRESPONDING TO DTC
----------	--

TW

- (a) Set the tire pressure to the specified value.

Cold tire inflation pressure

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
215/45ZR17	220 (2.2, 32)	200 (2.0, 29)
P205/55R16	220 (2.2, 32)	200 (2.0, 29)

- (b) Make sure that the ignition switch is off.
 (c) Connect the intelligent tester to the DLC3.
 (d) Turn the ignition switch to the ON position.
 (e) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TW-52

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

- (f) Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.41 kg/cm², 5.8 psi) within 30 seconds. If "TIREPRESS" displayed on the tester (ID1 to ID4) does not change, the tire pressure warning valve and transmitter corresponds to the DTC that was detected.

HINT:

- Identify the malfunctioning tire pressure warning valve and transmitter by repeatedly decreasing the tire pressure for each tire.
- Record which "TIREPRESS" data (ID1 to ID4) corresponds to each tire.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

HINT:

*: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 (See page TW-37).

- (g) Check the DATA LIST.

Result

Condition	Detection Condition
One of "TIREPRESS" data (ID1 to ID4) changed.	Normal
"TIREPRESS" data did not change.	Transmitter corresponding to DTC

NOTICE:

- When the "TIREPRESS" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then forcibly transmit the transmitter ID and recheck it.
 - Record the transmitter ID and position of transmitters that are normal.
- (h) When the "TIREPRESS" data (ID1 to ID4) has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to a DTC.
- (i) When all of the "TIREPRESS" data (ID1 to ID4) have changed, identify the malfunctioning tire pressure warning valve and transmitter using recorded ID numbers and output DTC.
- (j) Set the tire pressures to the appropriate specified values.

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-53

NEXT

2 REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- (a) Replace the identified tire pressure warning valve and transmitter with a new one (See page [TW-79](#)).

HINT:

- Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.
- The IDs for the tire pressure warning valve and transmitter not to be replaced should be checked using the tester and recorded.

NEXT

3 REGISTRATION OF TRANSMITTER ID

- (a) Register the transmitter ID for all wheels (See page [TW-15](#)).

NEXT

4 PERFORM INITIALIZATION

- (a) Perform initialization (See page [TW-19](#)).

NEXT

5 READ VALUE ON INTELLIGENT TESTER

- (a) Make sure that the ignition switch is off.
 (b) Connect the intelligent tester to the DLC3.
 (c) Turn the ignition switch to the ON position.
 (d) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

TW

TW-54

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

HINT:
*: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 (See page TW-37).

Result

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

A → REPLACE TIRE PRESSURE WARNING ECU
(See page TW-83)

B

END

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-55

DTC	C2165/65	Abnormal Temperature Inside ID1 Tire
DTC	C2166/66	Abnormal Temperature Inside ID2 Tire
DTC	C2167/67	Abnormal Temperature Inside ID3 Tire
DTC	C2168/68	Abnormal Temperature Inside ID4 Tire

DESCRIPTION

Each tire pressure warning valve and transmitter measures the internal temperature of its tire as well as tire pressure, and transmits the information to the tire pressure warning ECU along with the transmitter ID. If the measured temperature is out of the specified range, the tire pressure warning ECU recognizes it as a malfunction, outputs DTCs, and blinks the tire pressure warning light.

DTC No.	DTC Detection Condition	Trouble Area
C2165/65 C2166/66 C2167/67 C2168/68	Temperature inside the tire exceeds 119°C (246.2°F) more than once.	• Tires • Tire pressure warning valve and transmitter • Tire pressure warning ECU

HINT:

It is necessary to perform the procedure to identify the tire pressure warning valve and transmitter that is malfunctioning because it cannot be identified by the output DTC.

INSPECTION PROCEDURE**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.
- It is necessary to perform initialization (See page [TW-19](#)) after registration (See page [TW-15](#)) of the transmitter IDs into the tire pressure warning ECU after the ECU and/or valve and transmitter have been replaced.

1	CHECK TIRES
----------	--------------------

- (a) Check the tire is not flat, and there is no indication of air pressure drop.

OK:

Tire is normal.

HINT:

If a tire is damaged, the tire pressure warning valve and transmitter may also have been damaged at the same time.

NG

REPLACE TIRE AND TIRE PRESSURE WARNING VALVE AND TRANSMITTER (See page [TW-79](#))

OK

2	IDENTIFY TRANSMITTER CORRESPONDING TO DTC
----------	--

- (a) Set the tire pressure to the specified value.

TW

TW-56

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

Cold tire inflation pressure

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
215/45ZR17	220 (2.2, 32)	200 (2.0, 29)
P205/55R16	220 (2.2, 32)	200 (2.0, 29)

- (b) Display the "TIREPRESS" data for each wheel using the intelligent tester.
- (c) Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.41 kgf/cm², 5.8 psi) within 30 seconds.
- (d) Check the DATA LIST.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

HINT:

*: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 (See page TW-37).

- (e) When the "TIREPRESS" data (ID1 to ID4) has changed, repeat this procedure to identify the tire pressure warning valve and transmitter that corresponds to a DTC.
- (f) When all of the "TIREPRESS" data (ID1 to ID4) have changed, identify the malfunctioning tire pressure warning valve and transmitter based on the recorded ID numbers and output DTC.

Result

Condition	Detection Condition
One of "TIREPRESS" data (ID1 to ID4) changed.	Normal
No "TIREPRESS" data changed.	Transmitter corresponding to DTC

NOTICE:

- It takes about 2 or 3 minute to display the updated data.
- When "TIREPRESS" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then forcibly transmit the transmitter ID and recheck it.
- Record the transmitter ID and position in normal condition.

NEXT

3

REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- (a) Replace the identified tire pressure warning valve and transmitter with a new one (See page [TW-79](#)).

HINT:

- Before installing a new tire pressure warning valve and transmitter, read and write down its transmitter ID.
- The IDs for the tire pressure warning valve and transmitter not to be replaced should be checked using the tester and recorded.

NEXT

4

REGISTRATION OF TRANSMITTER ID

- (a) Register the transmitter ID for all wheels (See page [TW-15](#)).

NEXT

5

PERFORM INITIALIZATION

- (a) Perform initialization (See page [TW-19](#)).

NEXT

6

READ VALUE ON INTELLIGENT TESTER

- (a) Make sure that the ignition switch is off.
 (b) Connect the intelligent tester to the DLC3.
 (c) Turn the ignition switch to the ON position.
 (d) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS2	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS3	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.
TIREPRESS4	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.

TW

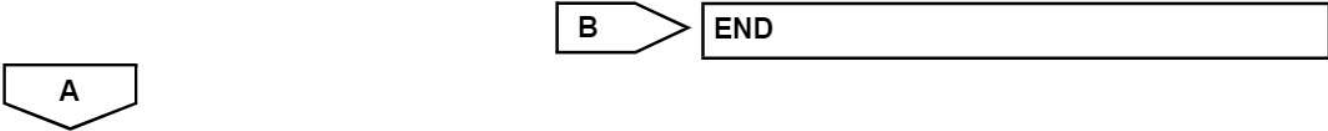
TW-58

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

HINT:
It may take about 2 or 3 minute or until the values are displayed.

Result

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



REPLACE TIRE PRESSURE WARNING ECU (See page [TW-83](#))

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-59

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 the registered IDs, or cannot receive an ID signal, this DTC is output.

DTC No.	DTC Detection Condition	Trouble Area
C2171/71	Transmitter ID code is not registered. (When an ID code is unregistered for 51 minutes or more)	Tire pressure warning ECU

INSPECTION PROCEDURE**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.
- It is necessary to perform initialization (See page TW-19) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU has been replaced.

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

- Make sure that the ignition switch is off.
- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position.
- Select REGIT ID CODE by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
REGIT ID1 CODE	Registered ID1 code/ min.: 0, max.: FFFFFFFF*	The ID No. registered in the transmitter ID1 is displayed	*: Displayed only when the ID No. is not registered.
REGIT ID2 CODE	Registered ID1 code/ min.: 0, max.: FFFFFFFF*	The ID No. registered in the transmitter ID2 is displayed	*: Displayed only when the ID No. is not registered.
REGIT ID3 CODE	Registered ID1 code/ min.: 0, max.: FFFFFFFF*	The ID No. registered in the transmitter ID3 is displayed	*: Displayed only when the ID No. is not registered.
REGIT ID4 CODE	Registered ID1 code/ min.: 0, max.: FFFFFFFF*	The ID No. registered in the transmitter ID4 is displayed	*: Displayed only when the ID No. is not registered.

OK:

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

NG**Go to step 2****OK****TW****REPLACE TIRE PRESSURE WARNING ECU (See page TW-83)**

TW-60

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

2 PERFORM REGISTRATION (TRANSMITTER ID)

- (a) Register the transmitter IDs for all the wheels (See page [TW-15](#)).

NEXT**3 READ VALUE ON DATA LIST**

- (a) Make sure that the ignition switch is off.
 (b) Connect the intelligent tester to the DLC3.
 (c) Turn the ignition switch to the ON position.
 (d) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

HINT:

*: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 (See page [TW-37](#)).

Result

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

B

REPLACE TIRE PRESSURE WARNING ECU
 (See page [TW-83](#))

A**END**

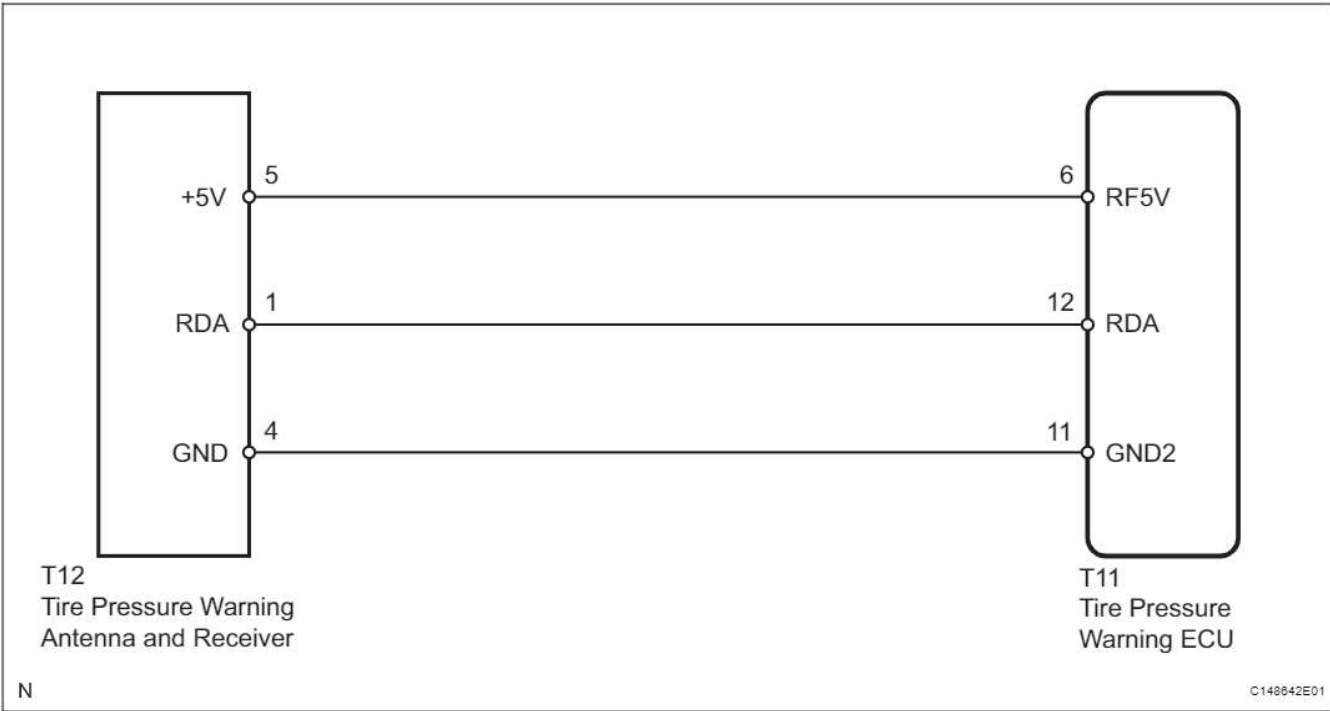
DTC	C2176/76	Receiver Error
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DESCRIPTION

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	DTC is stored when any of the following is detected: - Malfunction in the tire pressure warning ECU internal circuit. - Terminal RF5V is shorted to ground. - Malfunction in the tire pressure warning antenna and receiver internal circuit.	- Tire pressure warning antenna and receiver - Wire harness or connector - Tire pressure warning ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and write them down before removal.
- It is necessary to perform initialization (See page TW-19) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU has been replaced.

TW

TW-62

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

1

CHECK HARNESS AND CONNECTOR (ECU - RECEIVER)

Front View of Wire Harness Connector
(to Tire Pressure Warning ECU):

Front View of Wire Harness Connector
(to Tire Pressure Warning Antenna
and Receiver):

H

E129461E24

- (a) Disconnect the T11 ECU connector.
- (b) Disconnect the T12 receiver connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
T11-6 (RF5V) - T12-5 (+5V)	Always	Below 1 Ω
T11-12 (RDA) - T12-1 (RDA)		
T11-11 (GND2) - T12-4 (GND)		
T11-6 (RF5V) - Body ground	Always	10 kΩ or higher
T11-12 (RDA) - Body ground		
T11-11 (GND2) - Body ground		

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2

CHECK TIRE PRESSURE WARNING ECU

Rear View of Wire Harness Connector
(to Tire Pressure Warning ECU):

P

E133090E05

- (a) Reconnect the T11 ECU connector.
- (b) Turn the ignition switch to the ON position.
- (c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Switch Condition	Specified Condition
T11-6 (RF5V) - T11-11 (GND2)	Ignition switch ON	4.5 to 5.5 V

NG

REPLACE TIRE PRESSURE WARNING ECU
(See page [TW-83](#))

OK

REPLACE TIRE PRESSURE WARNING ANTENNA AND RECEIVER (See page [TW-76](#))

DTC	C2177/77	Initialization not Completed
-----	----------	------------------------------

DESCRIPTION

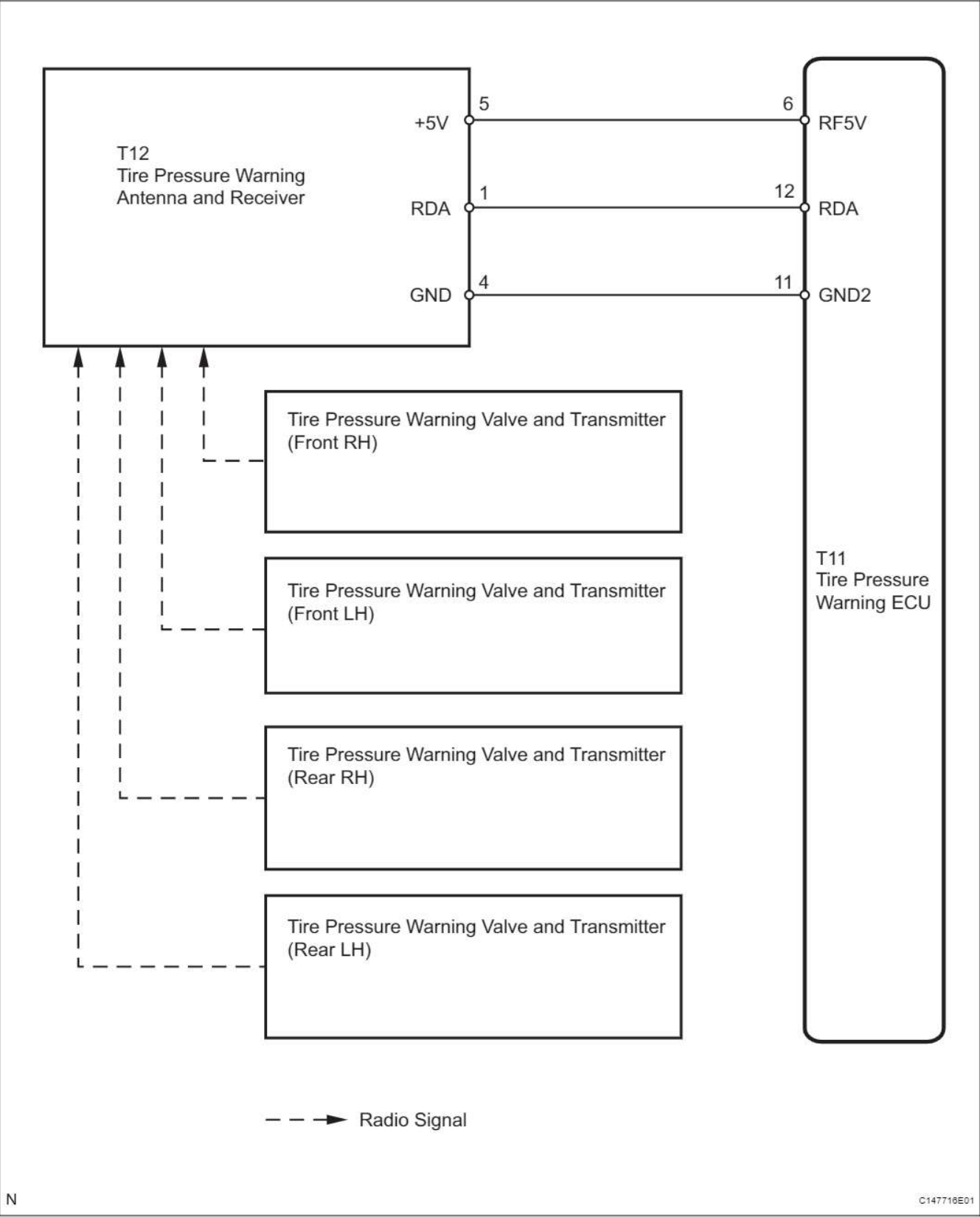
Initialization is necessary after replacing any of the ECU, tires with different tire pressure, or tire pressure warning valve and transmitter, after rotating the tires or when a new vehicle is delivered.

DTC No.	DTC Detection Condition	Trouble Area
C2177/77	Initialization is not completed after vehicle speed of 5 mph (8 km/h) or more continues for 20 minutes or more (total).	• Tire pressure warning valve and transmitter • Tire pressure warning ECU • Tire pressure warning antenna and receiver • Wire harness or connector

TW-64

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

WIRING DIAGRAM



TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-65

INSPECTION PROCEDURE

NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the old ECU using the intelligent tester and write them down before removal.
- It is necessary to perform initialization (See page TW-19) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU and/or valve and transmitter has been replaced.

1 CHECK FREQUENCY RECEIVING CONDITION

- (a) Check if the vehicle is not located in areas such as described below:
- (1) Facilities or devices that use similar radio frequencies are located in the vicinity of the vehicle.
HINT:
If the vehicle is located in areas described above, the tire pressure warning light may come on only in a particular area.
 - (2) Devices using similar radio frequencies are not located in the vicinity of the vehicle.
- OK:**
Facilities, or devices that use similar radio frequencies are not located in the vicinity of the vehicle.
- HINT:**
Radio frequency may be interrupted due to surroundings or devices installed by the user.

NG

CHECK IF ANY DEVICE IS INSTALLED BY USER

OK

2 IDENTIFY TRANSMITTER CORRESPONDING TO DTC

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

Cold tire inflation pressure

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
215/45ZR17	220 (2.2, 32)	200 (2.0, 29)
P205/55R16	220 (2.2, 32)	200 (2.0, 29)

TW

- Make sure that the ignition switch is off.
- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position.
- Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

TW-66

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

HINT:

*: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 (See page TW-37).

- (f) Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.41 kg/cm², 5.8 psi) within 30 seconds.

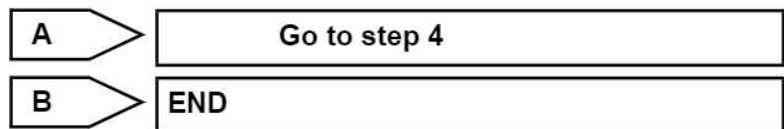
- (g) Check the DATA LIST.

NOTICE:

- It takes about 2 or 3 minute to display the updated tire pressure data.
 - When "TIREPRESS" data has not changed, reset the tire pressure to the appropriate specified value and rotate the tire 90 to 270 degrees. Then rapidly release the tire pressure and recheck it.
 - Record the transmitter ID of which "TIREPRESS" data corresponds to each tire.
- (h) After confirming that one of "TIREPRESS" data for one tire (ID1 to ID4) has changed, repeat this procedure one by one. Identify the transmitter that corresponds to a DTC.

Result

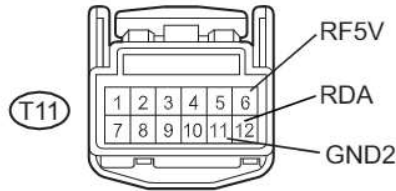
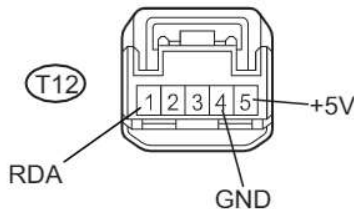
Condition	Proceed to
One or more of transmitters abnormal	A
All normal	B
All abnormal	C



C

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-67

3 CHECK HARNESS AND CONNECTOR (ECU - RECEIVER)**Front View of Wire Harness Connector (to Tire Pressure Warning ECU):****Front View of Wire Harness Connector (to Tire Pressure Warning Antenna and Receiver):**

H

E129461E28

- Disconnect the T11 ECU connector.
- Disconnect the T12 receiver connector.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
T11-12 (RDA) - T12-1 (RDA)	Always	Below 1 Ω
T11-11 (GND2) - T12-4 (GND)		
T11-6 (RF5V) - T12-5 (+5V)		
T11-12 (RDA) - Body ground		10 k Ω or higher
T11-11 (GND2) - Body ground		
T11-6 (RF5V) - Body ground		

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4 INSPECT TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- Make sure that the ignition switch is off.
- Connect the intelligent tester to the DLC3.
- Turn the ignition switch to the ON position.
- Select REGIT ID CODE by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

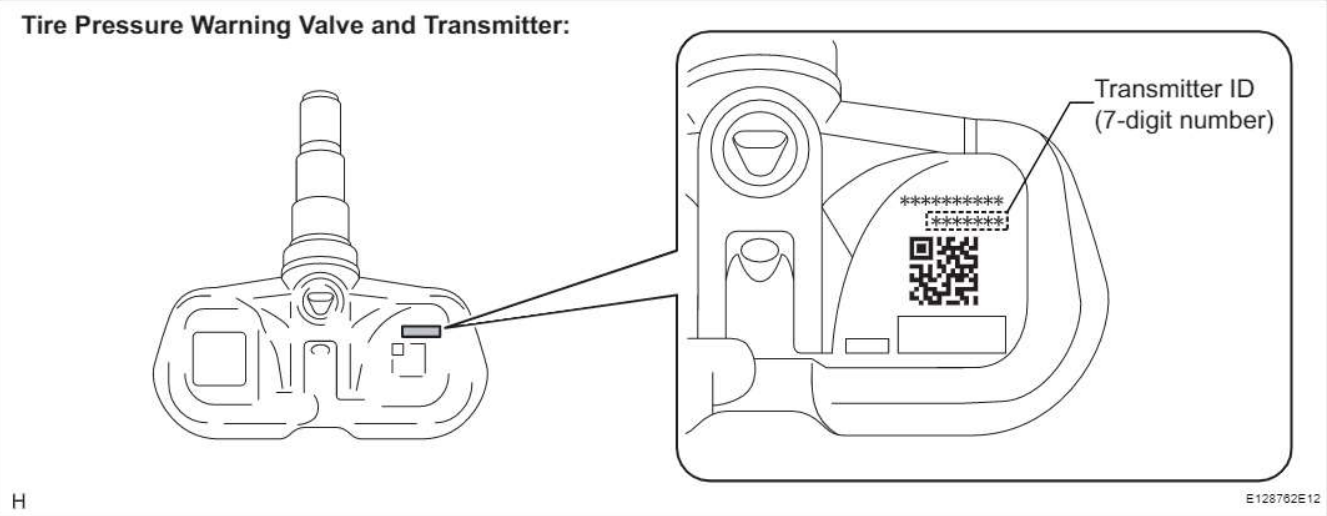
Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
REGIT ID1 CODE	Registered ID1 code/ min.: 0, max.: FFFFFFF*	The ID No. registered in the transmitter ID1 is displayed	*: Displayed only when the ID No. is not registered.
REGIT ID2 CODE	Registered ID2 code/ min.: 0, max.: FFFFFFF*	The ID No. registered in the transmitter ID2 is displayed	*: Displayed only when the ID No. is not registered.
REGIT ID3 CODE	Registered ID3 code/ min.: 0, max.: FFFFFFF*	The ID No. registered in the transmitter ID3 is displayed	*: Displayed only when the ID No. is not registered.
REGIT ID4 CODE	Registered ID4 code/ min.: 0, max.: FFFFFFF*	The ID No. registered in the transmitter ID4 is displayed	*: Displayed only when the ID No. is not registered.

- Check the ID number on the identified transmitter by removing it from the tire and wheel.

TW

TW-68

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM



- (f) Confirm that the ID number on the transmitter and recorded transmitter ID match.

Result

Result	Proceed to
Match	A
Do not match	B

B

Go to step 6

A

5

REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

- (a) Replace tire pressure warning valve and transmitter (See page [TW-79](#)).

NEXT

6

REGISTRATION OF TRANSMITTER ID

- (a) Perform registration (See page [TW-15](#)).

NEXT

7

PERFORM INITIALIZATION

- (a) Perform initialization (See page [TW-19](#)).

NEXT

8

READ VALUE ON DATA LIST

- (a) Make sure that the ignition switch is off.
(b) Connect the intelligent tester to the DLC3.
(c) Turn the ignition switch to the ON position.

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

TW-69

- (d) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

HINT:

*: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 (See page TW-37).

Result

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

A

END

B

9

REPLACE TIRE PRESSURE WARNING ANTENNA AND RECEIVER

- (a) Replace the tire pressure warning antenna and receiver (See page TW-76).

NEXT

10

READ VALUE ON DATA LIST

- (a) Make sure that the ignition switch to the ON position.
 (b) Connect the intelligent tester to the DLC3.
 (c) Turn the ignition switch to the ON position.
 (d) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

TIRE PRESSURE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS2	ID2 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

TW

TW-70**TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM**

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
TIREPRESS3	ID3 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*
TIREPRESS4	ID4 tire inflation pressure/ min.: -100 kPa (-1 kgf/cm ² , -14 psi), max.: 537.5 kPa (5.4 kgf/cm ² , 78 psi)	Actual tire inflation pressure	If -100 kPa (-1 kgf/cm ² , -14 psi) is displayed, the data have not been received.*

HINT:

*: It may take about 2 or 3 minutes until the values are displayed. If the values are not displayed after a few minutes, perform troubleshooting according to the inspection procedure for DTCs C2121/21 to C2124/24 (See page [TW-37](#)).

Result

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

B

REPLACE TIRE PRESSURE WARNING ECU
(See page [TW-83](#))

A**END**

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. This DTC is output only in test mode.

DTC No.	DTC Detection Condition	Trouble Area
C2191/91	Speed sensor circuit malfunction	• Vehicle speed sensor • Tire pressure warning ECU • Combination meter • Wire harness or connector

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and write them down before removal.
- It is necessary to perform initialization (See page TW-19) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU has been replaced.

TW

1	READ VALUE ON INTELLIGENT TESTER
---	----------------------------------

- (a) Make sure that the ignition switch is off.
- (b) Connect the intelligent tester to the DLC3.
- (c) Turn the ignition switch to the ON position.
- (d) Select the item below in the Data List, and read the value displayed on the intelligent tester.

TW-72

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

HINT:

Enter the following menus: DIAGNOSIS / OBD/MOBD /
METER / DATA LIST.

METER:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
SPEED METER	Vehicle speed/ Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual vehicle speed	-

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

OK:

The vehicle speed displayed on the tester changes depending in the actual vehicle speed.

NG

GO TO METER / GAUGE SYSTEM (See page [ME-4](#))

OK

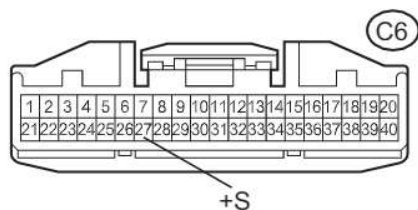
2

CHECK HARNESS AND CONNECTOR (ECU - COMBINATION METER)

Front View of Wire Harness Connector
(to Tire Pressure Warning ECU):



Front View of Wire Harness Connector
(to Combination Meter):



- (a) Disconnect the T11 ECU connector.
(b) Disconnect the C6 meter connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
T11-2 (SPD) - C6-27 (+S)	Always	Below 1 Ω
T11-2 (SPD) - Body ground		10 k Ω or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

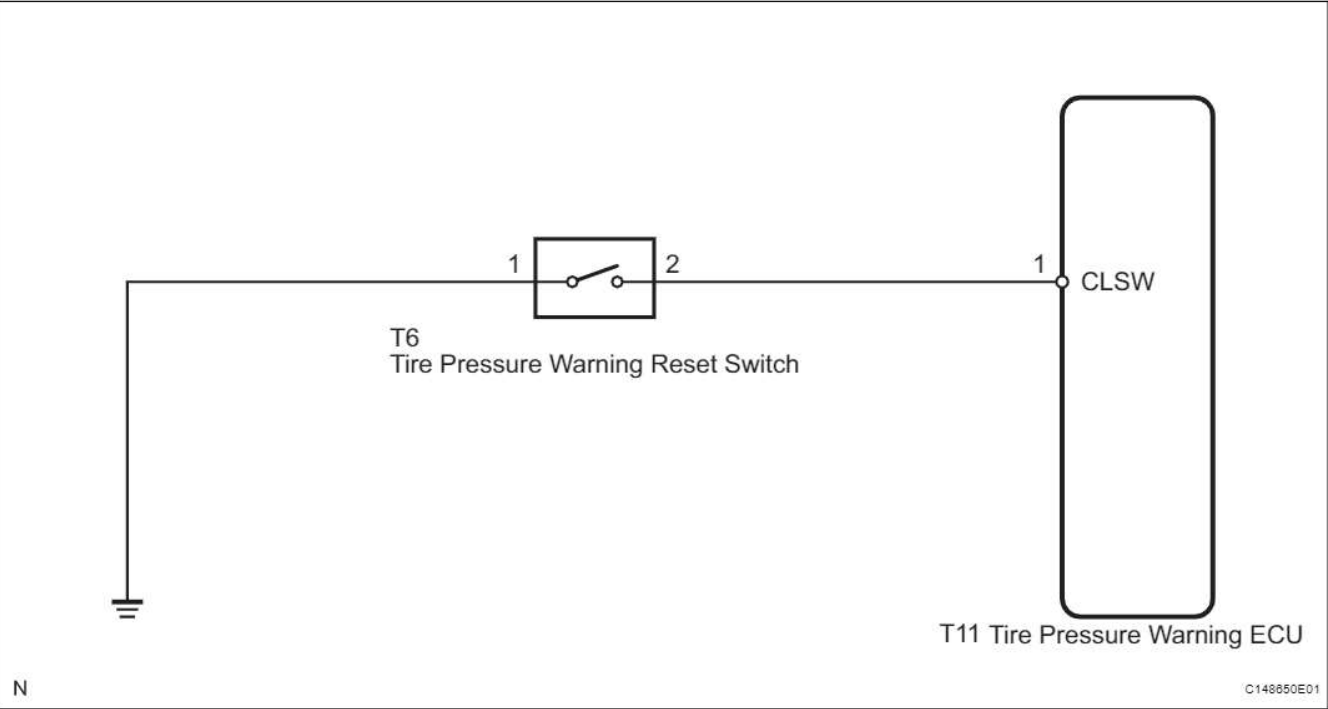
REPLACE TIRE PRESSURE WARNING ECU (See page [TW-83](#))

Tire Pressure Warning Reset Switch Circuit

DESCRIPTION

Receiving a signal from the tire pressure warning reset switch, the tire pressure warning ECU and receiver indicate the initialization of the tire pressure warning system.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and write them down before removal.
- It is necessary to perform initialization (See page TW-19) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU has been replaced.

1	CHECK TIRE PRESSURE WARNING RESET SWITCH FUNCTION
---	---

OK

(a) Perform the tire pressure warning reset switch test in TEST MODE PROCEDURE (See page TW-21).

OK:

Reset switch ON:

Tire pressure warning light comes on.

Reset switch OFF:

Tire pressure warning light blinks.

NG

Go to step 2

END

TW

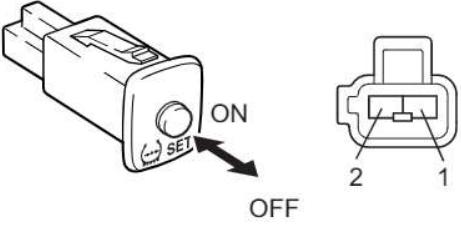
TW-74

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

2

INSPECT TIRE PRESSURE WARNING RESET SWITCH

Tire Pressure Warning Reset Switch:



P

C107280E01

- (a) Remove the tire pressure warning reset switch.
- (b) Measure the resistance between terminals 1 and 2 of the tire pressure warning reset switch when the tire pressure warning switch is ON and OFF.

Standard resistance

Switch Condition	Specified Condition
ON	Below 1 Ω
OFF	10 kΩ or higher

NG

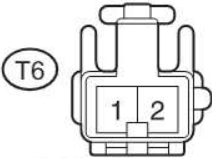
REPLACE TIRE PRESSURE WARNING RESET SWITCH (See page TW-86)

OK

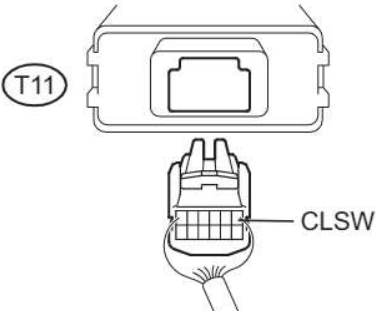
3

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

Front View of Wire Harness Connector (to Tire Pressure Warning Reset Switch):



Rear View of Wire Harness Connector (to Tire Pressure Warning ECU):



P

C111010E13

- (a) Disconnect the tire pressure warning reset switch T6 connector and tire pressure warning ECU T11 connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Switch Condition	Condition	Specified Condition
T11-1 (CLSW) - T6-1	Always	Below 1 Ω
T11-1 (CLSW) - Body ground		10 kΩ or higher
T6-2 - Body ground		Below 1 Ω

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE TIRE PRESSURE WARNING ECU (See page TW-83)

Tire Pressure Warning Light Circuit

DESCRIPTION

If the ECU detects trouble, the tire pressure warning light blinks (comes on after blinking for 1 minute) and tire pressure monitor is cancelled at the same time. At this time, the ECU records a DTC in the memory. Connect terminals TC and CG of DLC3 to blink the tire pressure warning light and output the DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and write them down before removal.
- It is necessary to perform initialization (See page [TW-19](#)) after registration (See page [TW-15](#)) of the transmitter IDs into the tire pressure warning ECU after the ECU has been replaced.

HINT:

This procedure must be performed according to PROBLEM SYMPTOMS TABLE.

TW-76

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

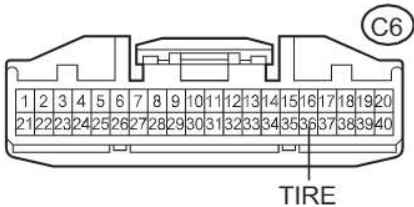
1

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

Front View of Wire Harness Connector
(to Tire Pressure Warning ECU):



Front View of Wire Harness Connector
(to Combination Meter):



H

©147705E02

(a) Disconnect the C6 combination meter connector.

(b) Disconnect the T11 tire pressure warning ECU connector.

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

Standard resistance

Tester Connection	Condition	Specified Condition
C6-36 (TIRE) - T11-5 (IND)	Always	Below 1 Ω
C6-36 (TIRE) - Body ground		10 kΩ or higher

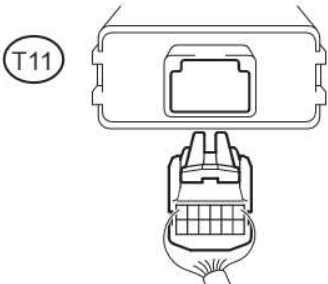
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

2

INSPECT COMBINATION METER

Rear View of Wire Harness Connector
(to Tire Pressure Warning ECU):



P

E138170E01

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

(b) Turn the ignition switch to the ON position, check if the tire pressure warning light illuminates.

Result

Condition	Proceed to
Illuminates	A
Does not illuminate	B

B

REPLACE COMBINATION METER (See page ME-44)

A

REPLACE TIRE PRESSURE WARNING ECU (See page TW-83)

https://cardiagn.com/tire-wheel-07-scion-tc/

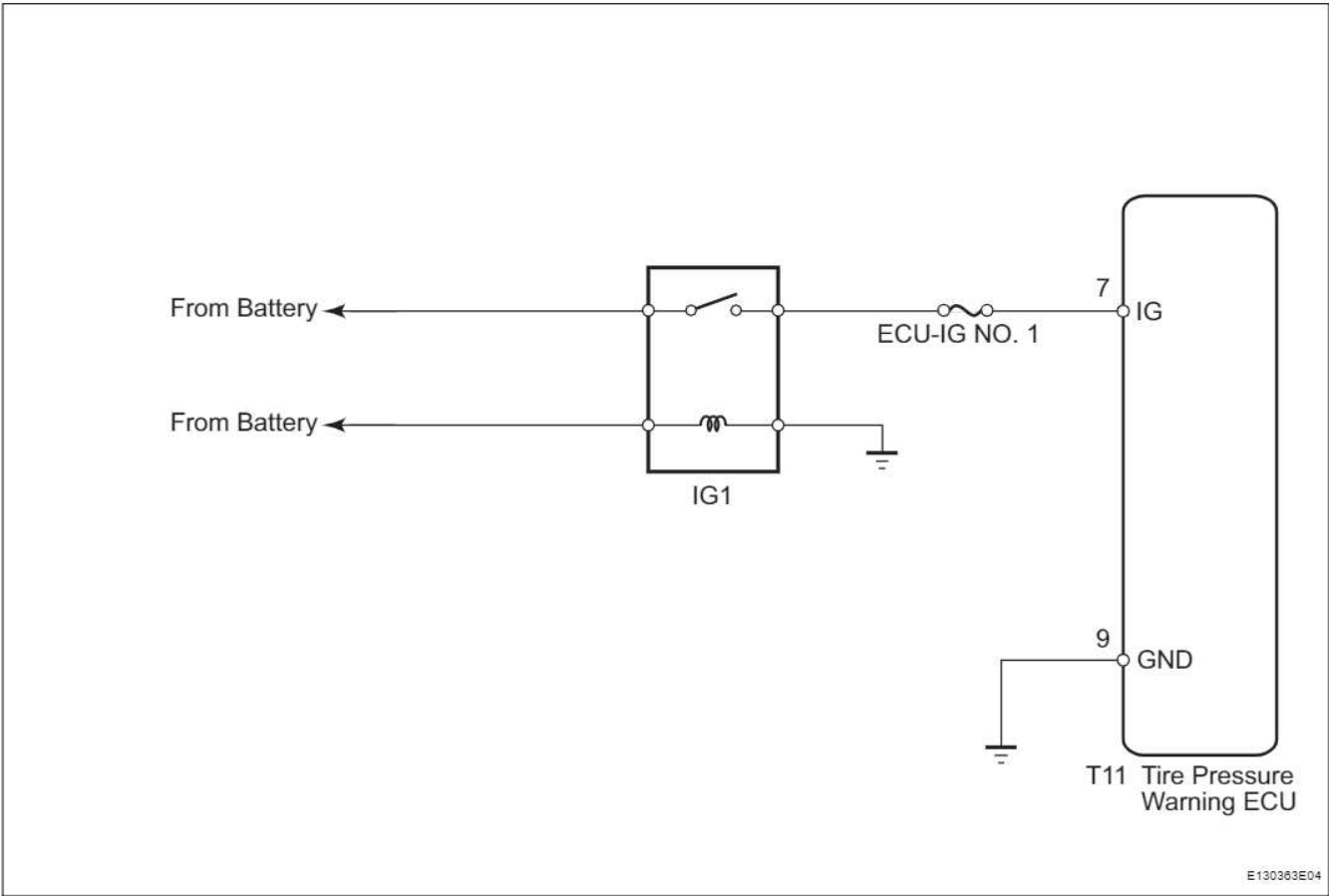
77/97

ECU Power Source Circuit

DESCRIPTION

This is the power source for the tire pressure warning ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and write them down before removal.
- It is necessary to perform initialization (See page TW-19) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU has been replaced.

TW

1	INSPECT FUSE (ECU-IG NO. 1)
(a) Remove the ECU-IG NO. 1 fuse from the instrument panel junction block.	
(b) Measure the resistance of the fuse.	
Standard resistance: Below 1 Ω	
NG	REPLACE FUSE

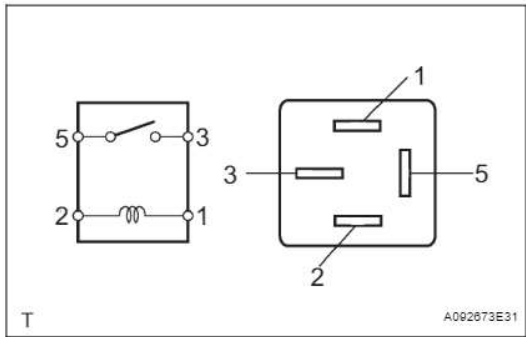
TW-78

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

OK

2

INSPECT IG1 RELAY



- (a) Remove the IG1 relay from the instrument panel junction block.
- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

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

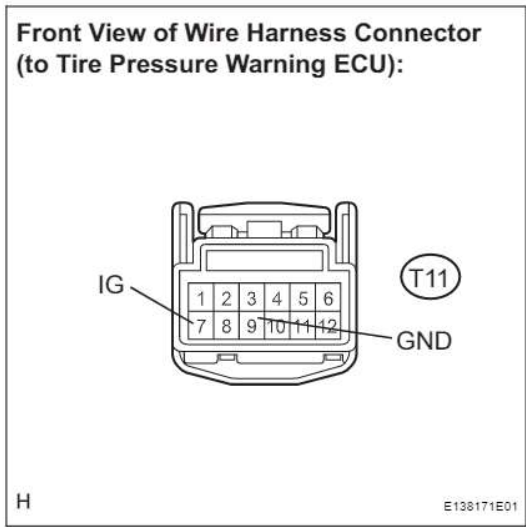
NG

REPLACE IG1 RELAY

OK

3

CHECK HARNESS AND CONNECTOR (ECU - BATTERY AND BODY GROUND)



- (a) Disconnect the T11 ECU connector.
- (b) Measure the voltage according to the value(s) in the table below.
- Standard voltage**

Tester Connection	Switch Condition	Specified Condition
T11-7 (IG) - Body ground	Ignition switch on	10 to 14 V
	Ignition switch off	Below 1 V

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

Tester Connection	Condition	Specified Condition
T11-9 (GND) - Body ground	Always	Below 1 Ω

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

TW

OK

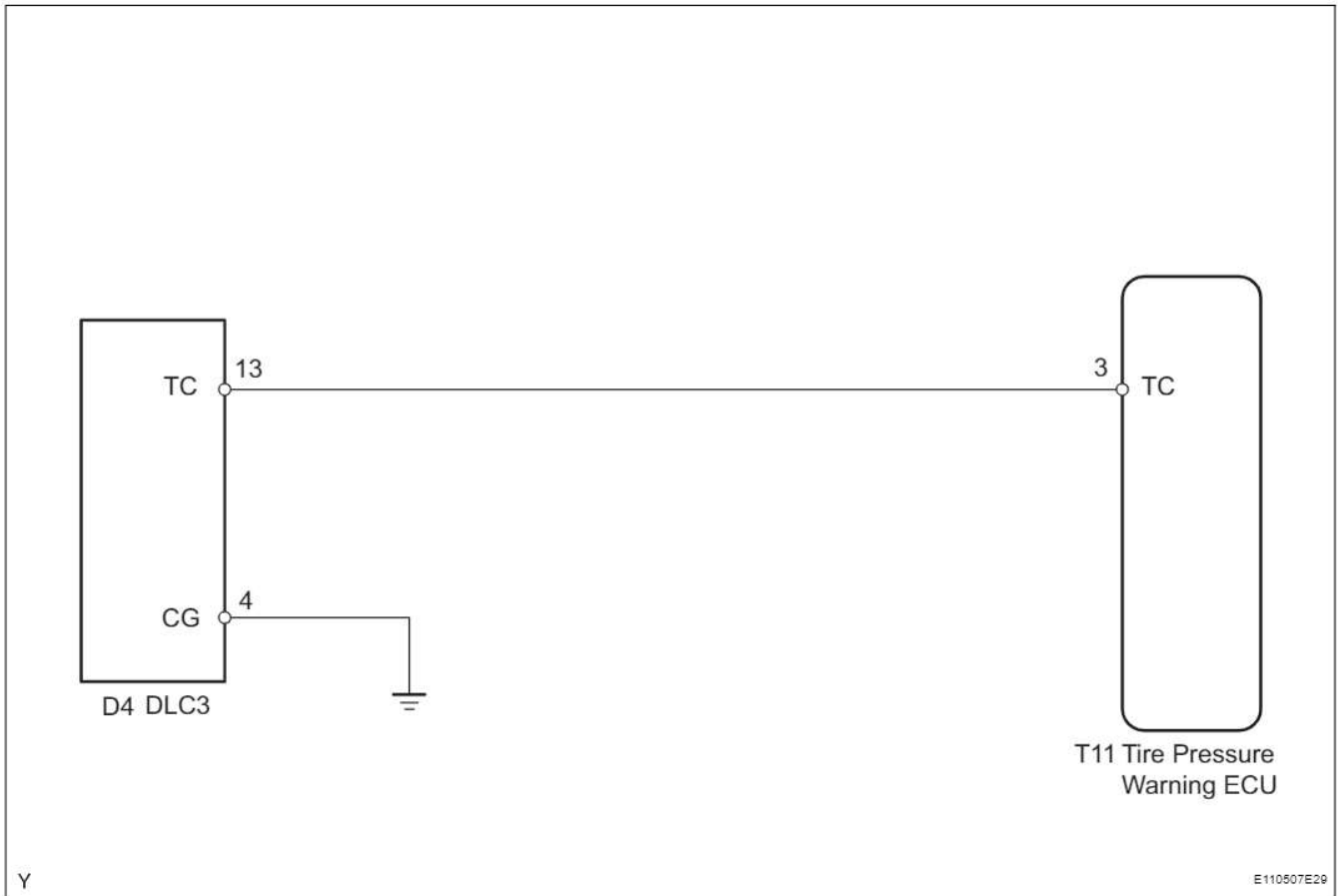
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (See page TW-24)

TC and CG Terminal Circuit

DESCRIPTION

DTC output mode is set by connecting terminals 13 (TC) and 4 (CG) of the DLC3. The DTCs are indicated by blinks of the tire pressure warning light.

WIRING DIAGRAM



HINT:

When each warning light blinks continuously, a ground short in the wiring of terminal TC of the DLC3 or an internal ground short in an ECU connected to this circuit may have occurred.

INSPECTION PROCEDURE

NOTICE:

- When replacing the tire pressure warning ECU, read the IDs stored in the ECU using the intelligent tester and write them down before removal.
- It is necessary to perform initialization (See page TW-19) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU and/or valve and transmitter have been replaced.

TW

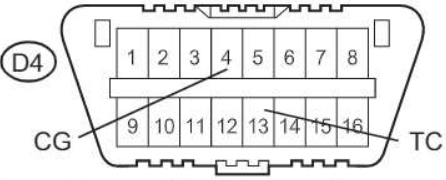
TW-80

TIRE AND WHEEL – TIRE PRESSURE WARNING SYSTEM

1

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

Front View of Wire Harness Connector
(to DLC3):



Front View of Wire Harness Connector
(to Tire Pressure Warning ECU):



H

E129465E04

- (a) Disconnect the T11 ECU connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
T11-3 (TC) - D4-13 (TC)	Always	Below 1 Ω
D4-4 (CG) - Body ground		

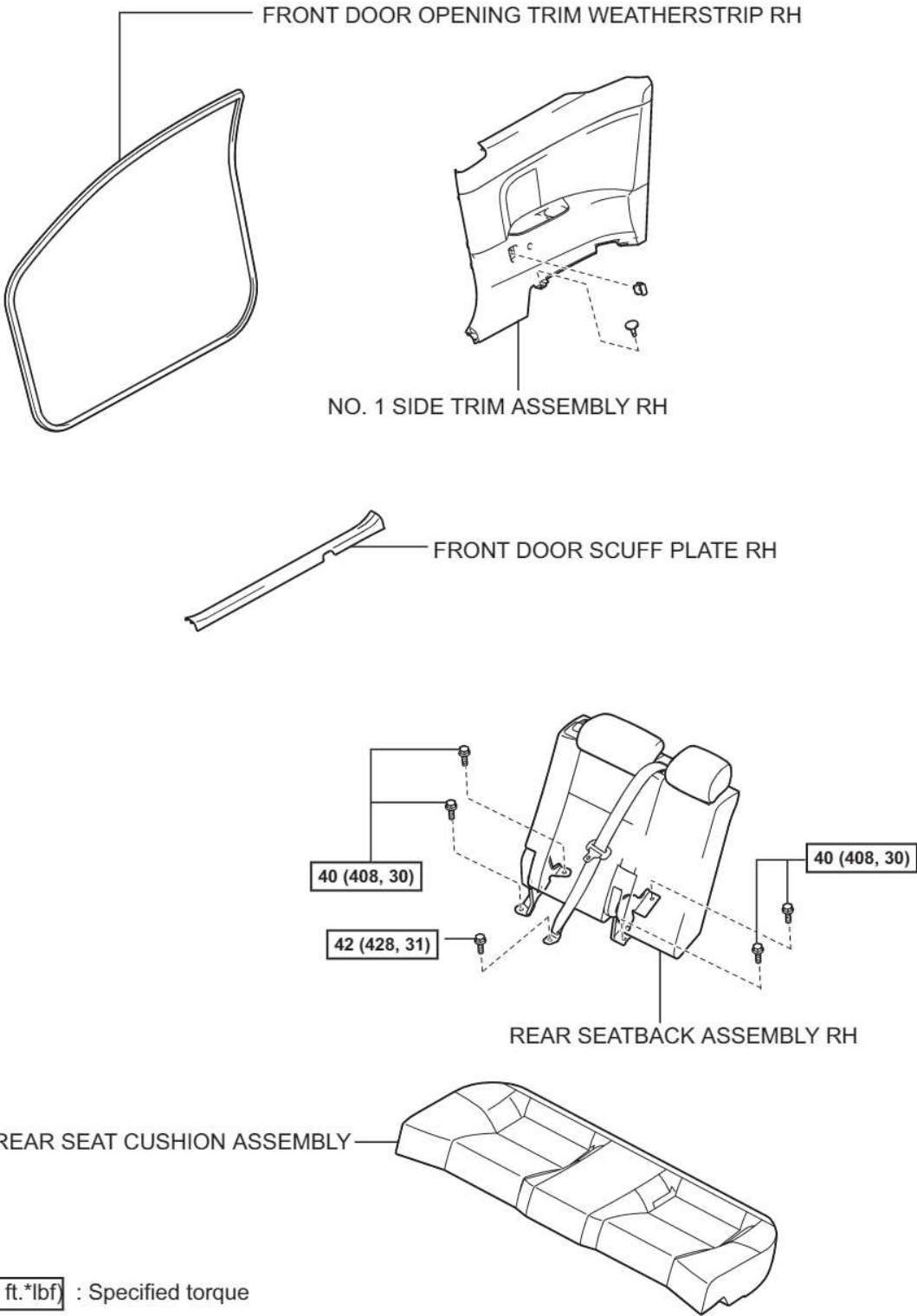
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (See page TW-24)

TIRE PRESSURE WARNING RECEIVER
COMPONENTS

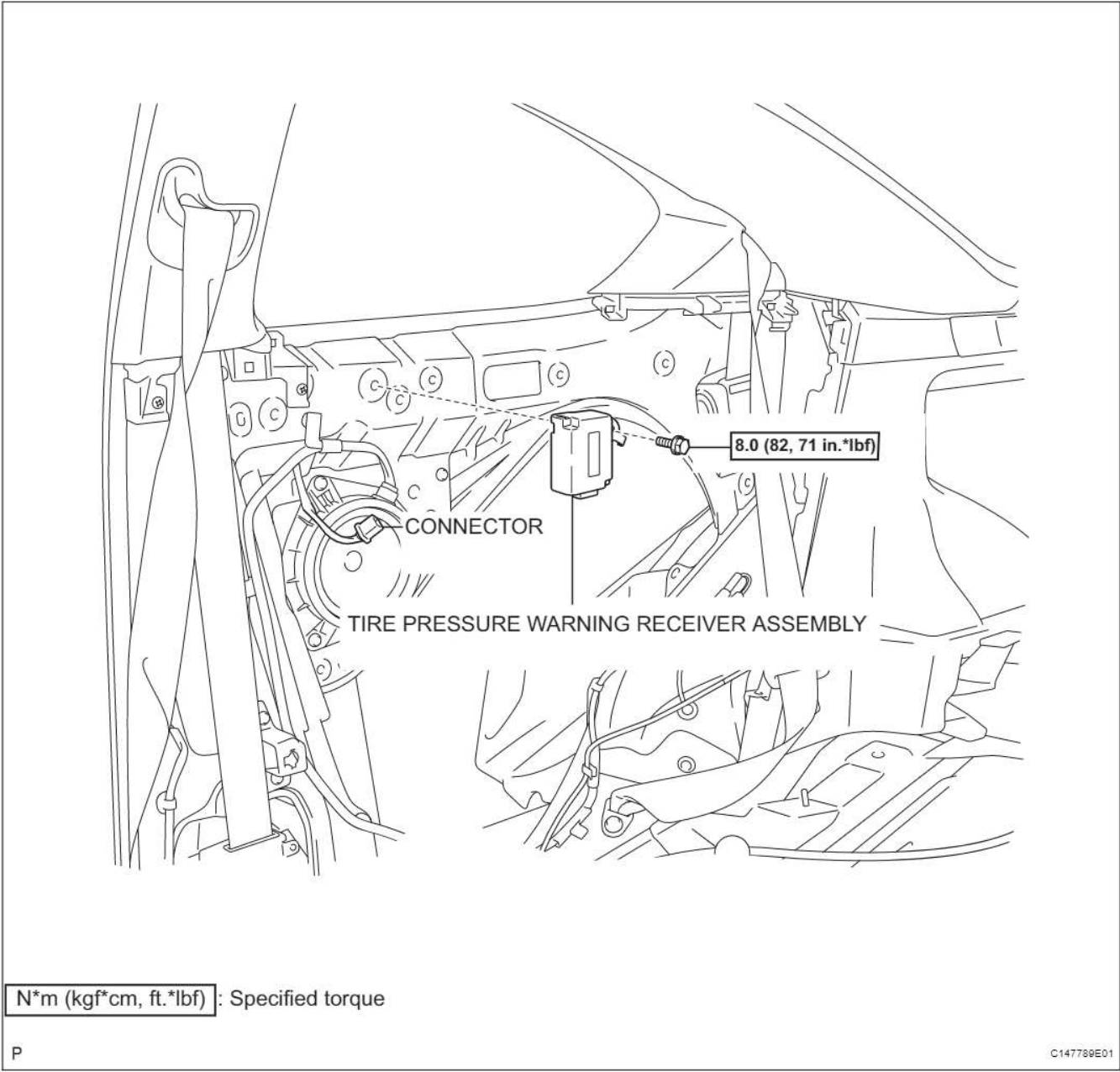


TW

C150388E01

TW-76

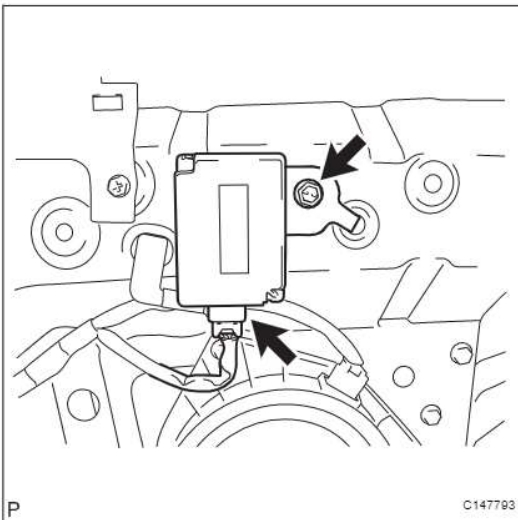
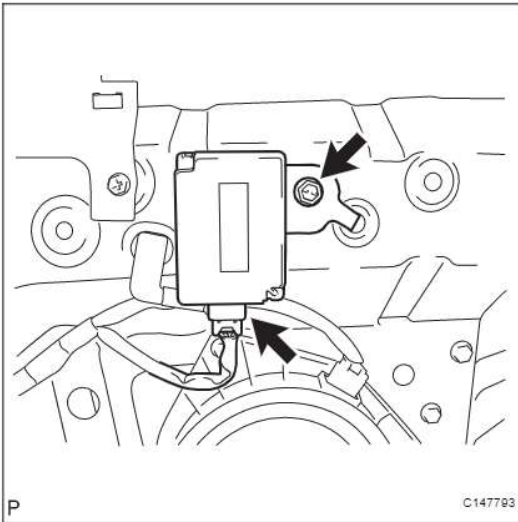
TIRE AND WHEEL – TIRE PRESSURE WARNING RECEIVER



TW

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE FRONT DOOR SCUFF PLATE RH (See page [IP-19](#))
3. REMOVE REAR SEAT CUSHION ASSEMBLY (See page [SE-17](#))
4. REMOVE REAR SEATBACK ASSEMBLY RH (See page [SE-18](#))
5. REMOVE FRONT DOOR OPENING TRIM WEATHERSTRIP RH
6. REMOVE NO. 1 SIDE TRIM ASSEMBLY RH (See page [IR-10](#))
7. REMOVE TIRE PRESSURE WARNING RECEIVER ASSEMBLY
 - (a) Disconnect the connector.
 - (b) Remove the bolt and the tire pressure warning receiver assembly.



INSTALLATION

1. INSTALL TIRE PRESSURE WARNING RECEIVER ASSEMBLY
 - (a) Install the tire pressure warning receiver assembly with the bolt.
Torque: 8.0 N*m (82 kgf*cm, 71 in.*lbf)
 - (b) Connect the connector.
2. INSTALL NO. 1 SIDE TRIM ASSEMBLY RH (See page [IR-19](#))
3. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH
4. INSTALL REAR SEATBACK ASSEMBLY RH (See page [SE-28](#))
5. INSTALL REAR SEAT CUSHION ASSEMBLY (See page [SE-29](#))
6. INSTALL FRONT DOOR SCUFF PLATE RH (See page [IP-22](#))
7. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

TW

TW-78**TIRE AND WHEEL – TIRE PRESSURE WARNING RECEIVER**

8. PERFORM INITIALIZATION**NOTICE:**

Some systems need initialization after reconnecting the cable to the negative battery terminal (See page [IN-23](#)).

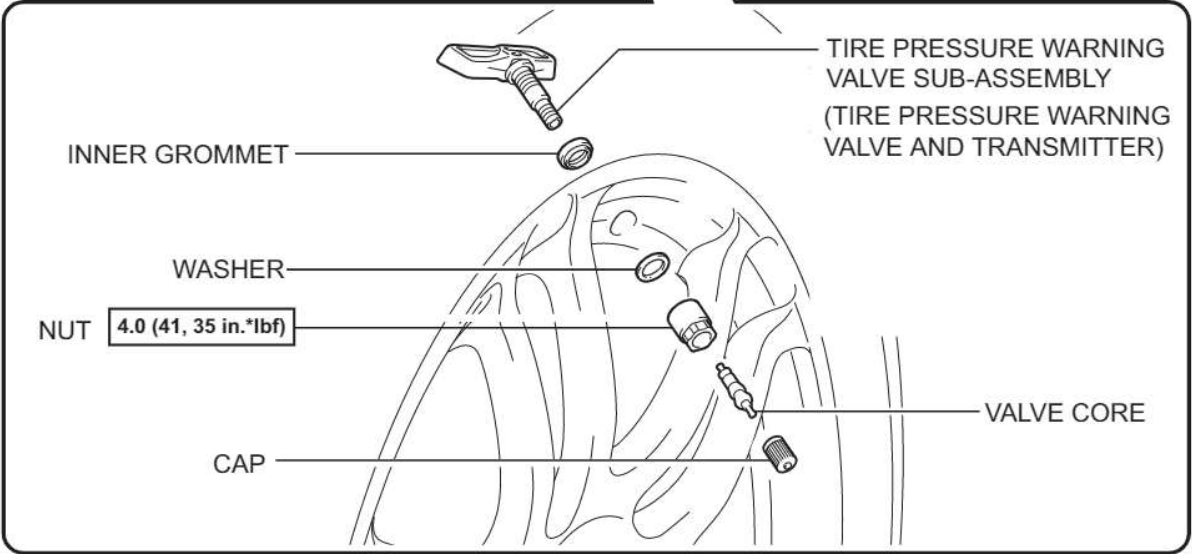
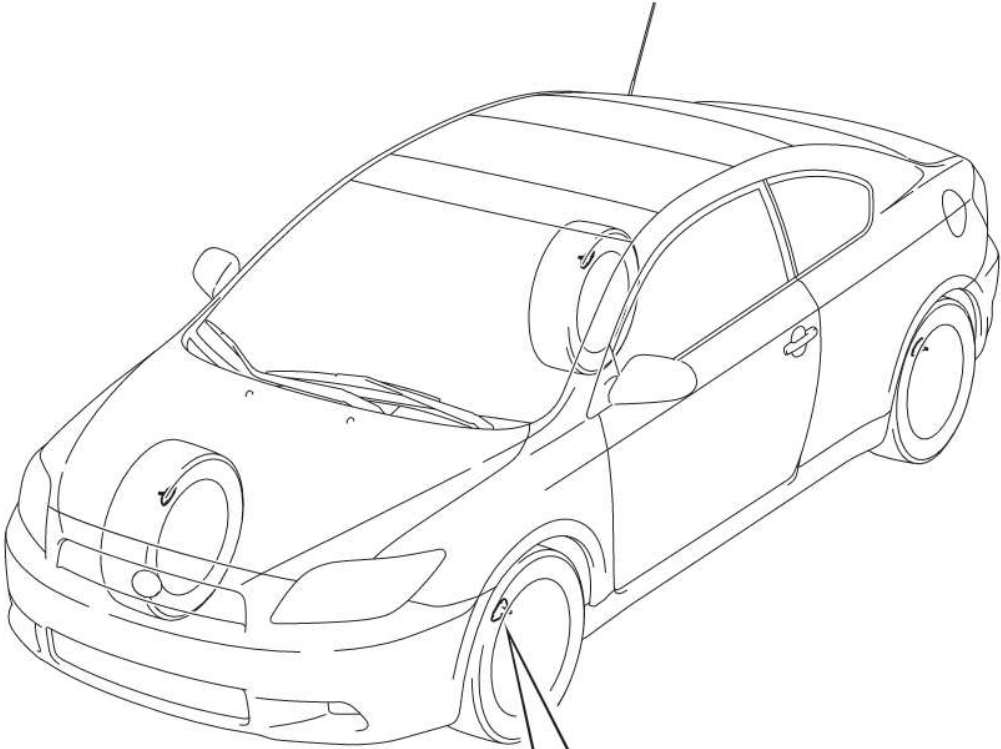
9. INSPECT TIRE PRESSURE WARNING SYSTEM**HINT:**

See page [TW-21](#).

TW-78

TIRE AND WHEEL – TIRE PRESSURE WARNING VALVE AND TRANSMITTER

TIRE PRESSURE WARNING VALVE AND TRANSMITTER COMPONENTS



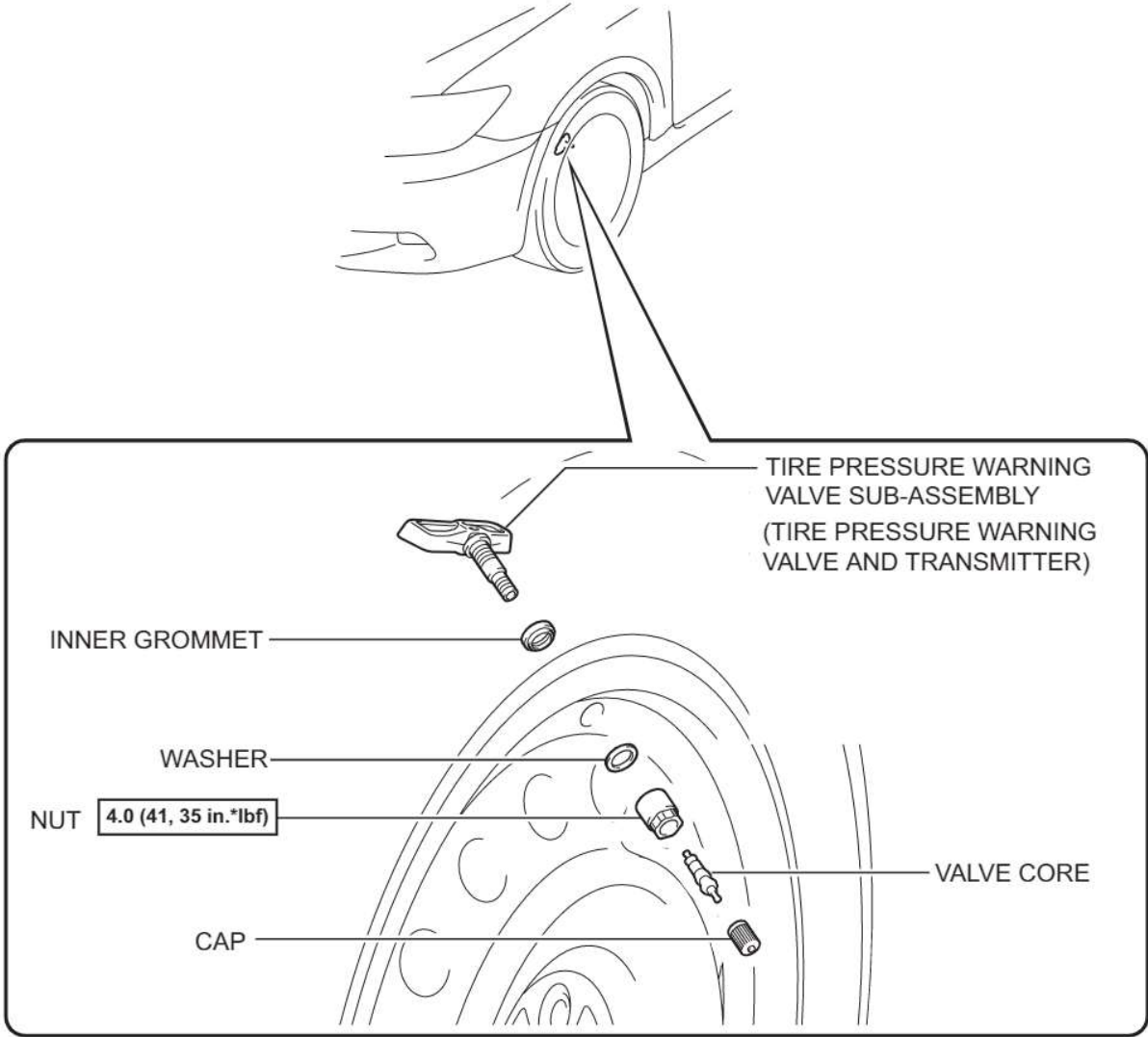
N*m (kgf*cm, ft.*lbf) : Specified torque

P

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TIRE AND WHEEL – TIRE PRESSURE WARNING VALVE AND TRANSMITTER

TW-79



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

P

C147791E01

TW

TW-80

TIRE AND WHEEL – TIRE PRESSURE WARNING VALVE AND TRANSMITTER

REMOVAL

1. REMOVE FRONT WHEEL
2. REMOVE REAR WHEEL
3. REMOVE TIRE PRESSURE WARNING VALVE SUB-ASSEMBLY

- (a) Remove the valve core and cap, and release the air from the tire.
- (b) After ensuring that a sufficient amount of air has been released, remove the nut and washer that are used to secure the tire pressure warning valve and transmitter. Drop the tire pressure warning valve and transmitter into 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.

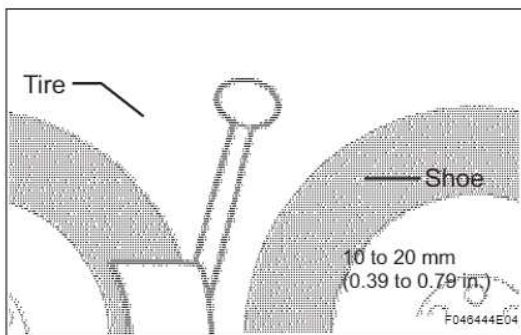
NOTICE:

Be careful not to damage the tire pressure warning valve and transmitter due to interference between the valve and the tire bead.

- (d) Remove the bead on the upper side in the usual way.
- (e) Take out the tire pressure warning valve and transmitter from the tire and remove the bead on the lower side in the usual way.

HINT:

Check that no cracks or damage are identified on the grommet. If any damage is found, replace the grommet.



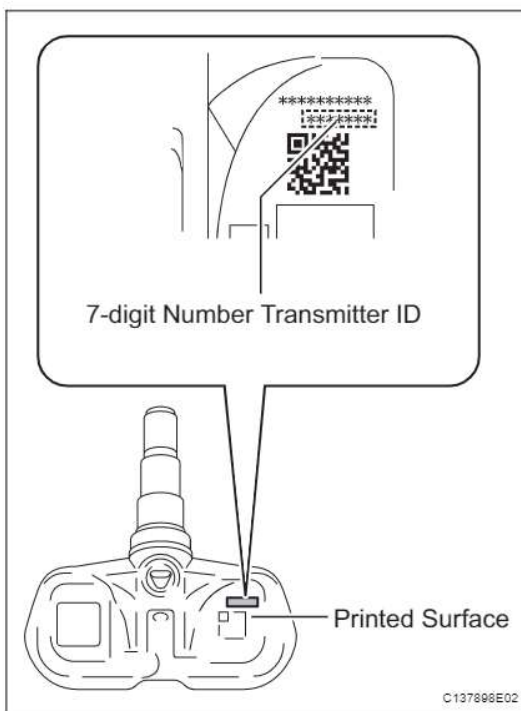
INSTALLATION

1. INSTALL TIRE PRESSURE WARNING VALVE SUB-ASSEMBLY

- (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 printed surface can be seen.

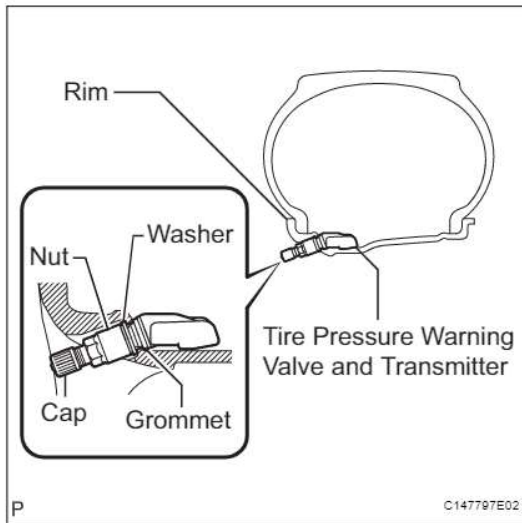
NOTICE:

- Check that there is no visible deformation, damage, or other abnormalities on the tire pressure warning valve and transmitter.
- Check that there is no foreign matter on the inner grommet and around the rim hole.
- If the tire pressure warning valve and transmitter is installed upside down, it may be damaged or fail to transmit signals when running at high speeds.
- 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-15).



TIRE AND WHEEL – TIRE PRESSURE WARNING VALVE AND TRANSMITTER

TW-81

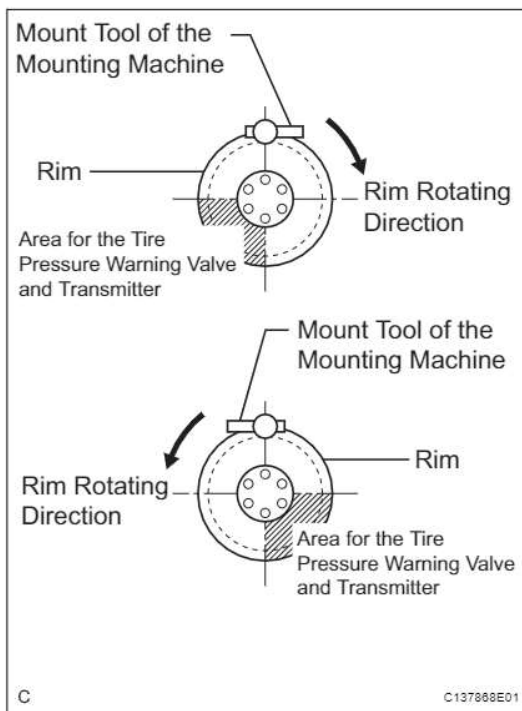


- (b) Install the washer on the tire pressure warning valve and transmitter from the rim side and tighten the nut.

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

NOTICE:

- No further tightening is required once the nut is tightened to the specified torque.
- Check that there is no foreign matter on the washer and nut.
- If the tire and tire pressure warning valve and transmitter have been removed, check that there is no damage or cuts visible, and no foreign matter, such as mud, dirt, or sand is attached to the grommet. Replace the grommet with a new one if any of the defects mentioned above are found.
- Check that there is no oil, water, or lubricant around the rim hole, tire pressure warning valve and transmitter, washer, and nut. Failing to do so may result in improper installation.



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

NOTICE:

- If the tire pressure warning valve and transmitter is positioned outside this area, it will interfere with the tire bead, and may cause damage to the tire pressure warning valve and transmitter.
 - If application of lubricant is required when installing the bead, do not apply the lubricant directly to the tire pressure warning valve and transmitter.
- (d) Install the upper bead.
- NOTICE:**
Make sure that the tire bead and tool do not interfere with the main body of the tire pressure warning valve and transmitter and that it is not clamped by the bead.
- (e) 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:

No further tightening is required once the nut is tightened to the specified torque.

2. INSTALL FRONT WHEEL

Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

3. INSTALL REAR WHEEL

Torque: 103 N*m (1,050 kgf*cm, 76 ft.*lbf)

TW

TW-82**TIRE AND WHEEL – TIRE PRESSURE WARNING VALVE AND TRANSMITTER**

4. INSPECT TIRE

HINT:

See page [TW-3](#).**5. REGISTER TRANSMITTER ID**

HINT:

See page [TW-15](#).**6. INSPECT TIRE PRESSURE WARNING SYSTEM**

HINT:

See page [TW-21](#).

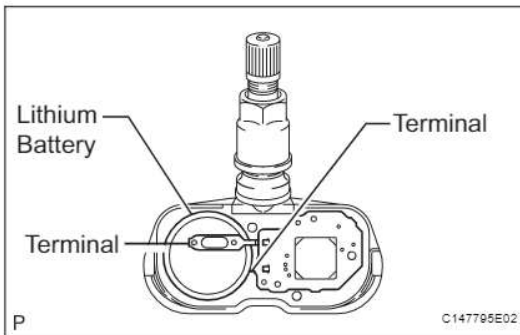
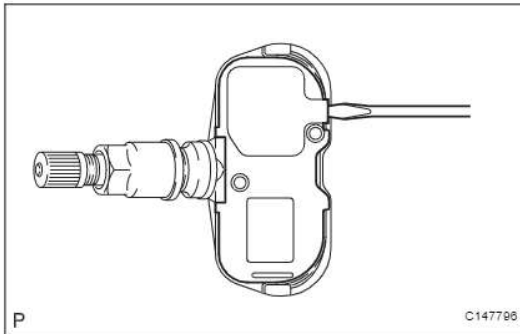
DISPOSAL

HINT:

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

1. DISPOSE OF TIRE PRESSURE WARNING VALVE SUB-ASSEMBLY

- (a) Use the tip of a screwdriver to pry off the back cover.

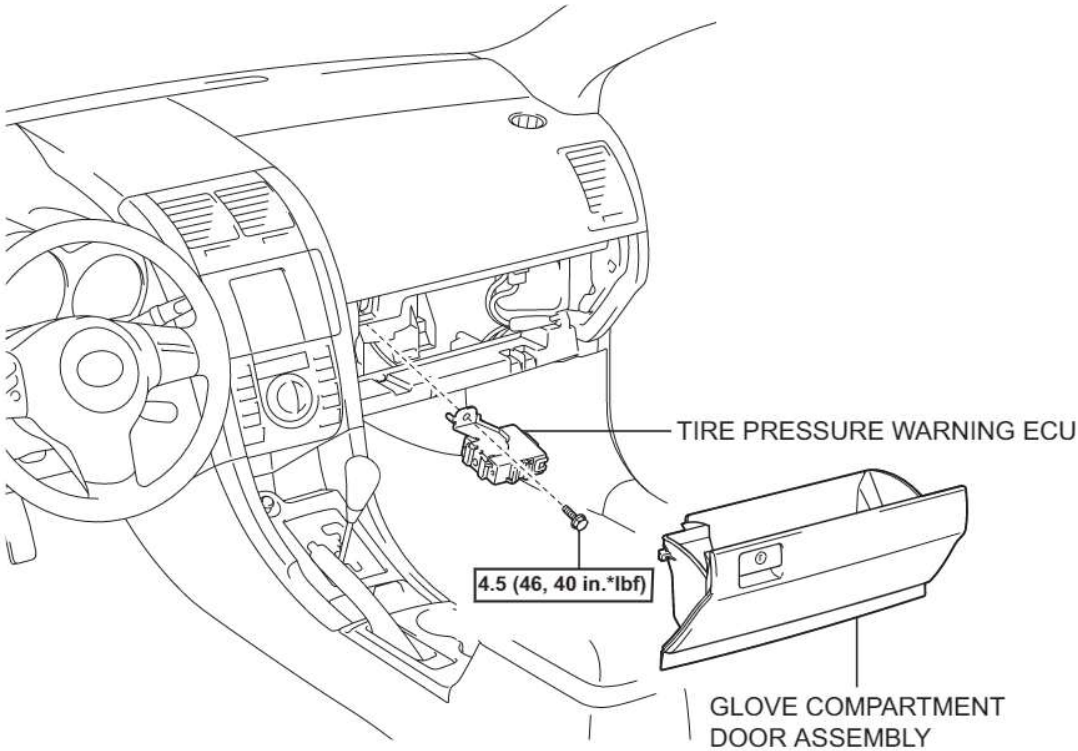


- (b) The battery and base board covered with resin are exposed. While taking out the battery, cut the 2 terminals that connect the battery to the base board.

HINT:

The battery and base board are covered with silicon.

TIRE PRESSURE WARNING ECU
COMPONENTS



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

P

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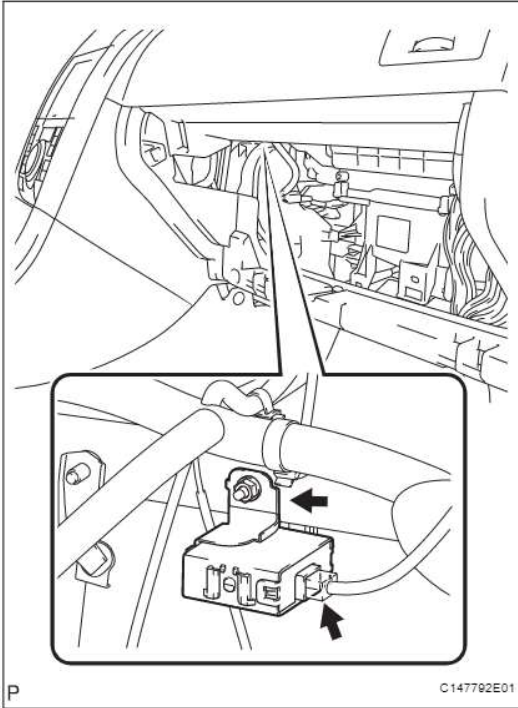
TW

TW-84

TIRE AND WHEEL – TIRE PRESSURE WARNING ECU

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY (See page [IP-6](#))
3. REMOVE TIRE PRESSURE WARNING ECU
 - (a) Remove the nut.
 - (b) Disconnect the connector and remove the tire pressure warning ECU.



INSTALLATION

1. INSTALL TIRE PRESSURE WARNING ECU
 - (a) Connect the connector to the tire pressure warning ECU.
 - (b) Install the tire pressure warning ECU with the nut.
Torque: 4.5 N*m (46 kgf*cm, 40 in.*lbf)
2. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY (See page [IP-11](#))
3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
4. PERFORM INITIALIZATION

CAUTION:

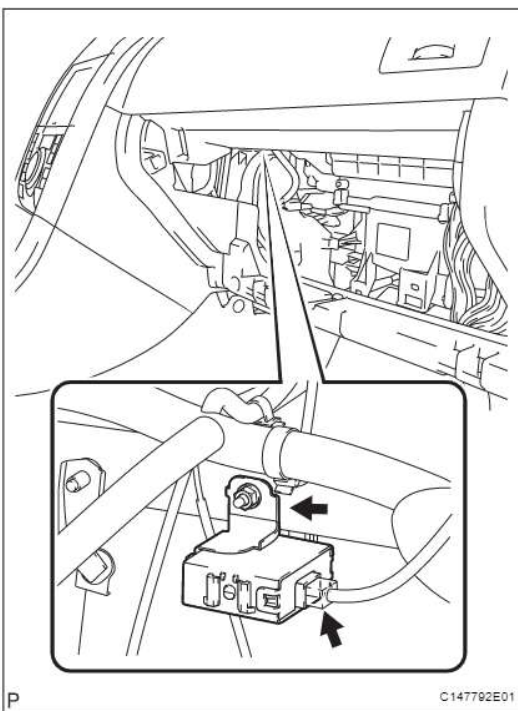
Some systems need initialization after reconnecting the cable to the negative battery terminal (See page [IN-23](#)).
5. REGISTER TRANSMITTER ID

HINT:

See page [TW-15](#).
6. INSPECT TIRE PRESSURE WARNING SYSTEM

HINT:

See page [TW-21](#).



7. INITIALIZE SYSTEM**NOTICE:**

- Be sure to register the transmitter IDs of all tires including the full-size spare tire in the ECU before initialization.
- Be sure to inflate all tires including the full-size spare tire to the proper inflation pressure before initialization.

HINT:

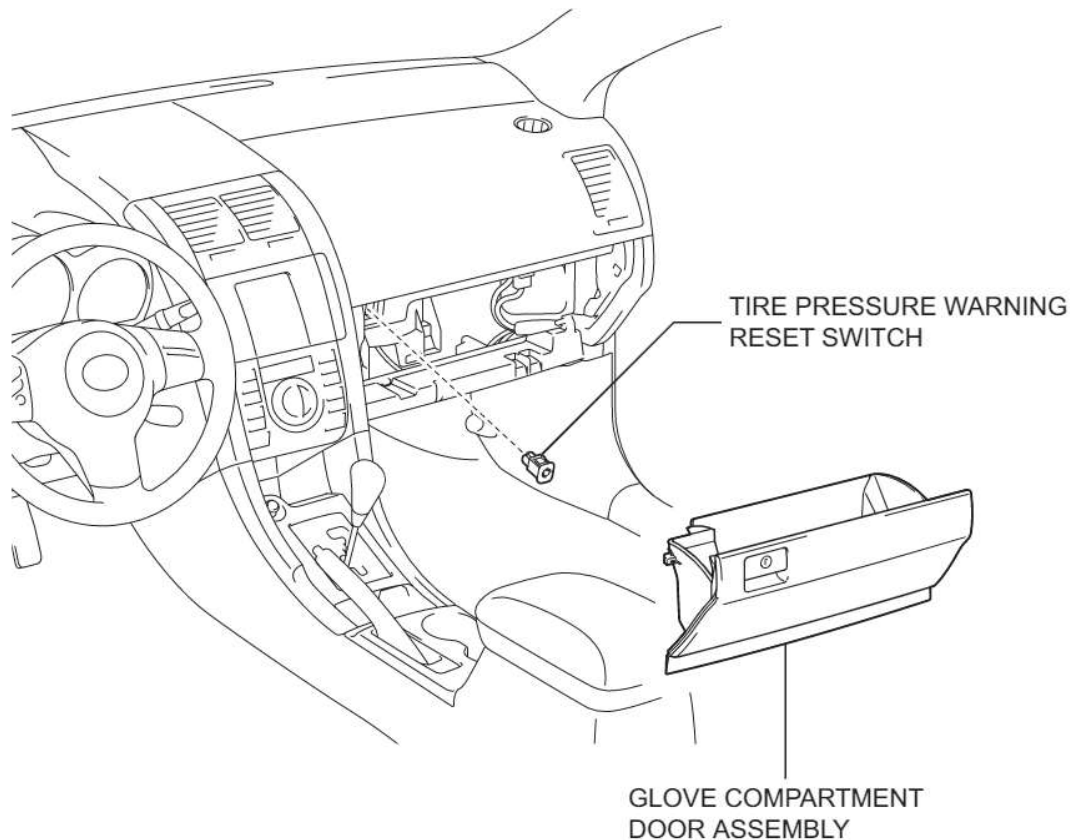
See page [TW-19](#).

TW-86

TIRE AND WHEEL – TIRE PRESSURE WARNING RESET SWITCH

TIRE PRESSURE WARNING RESET SWITCH

COMPONENTS



TW

P

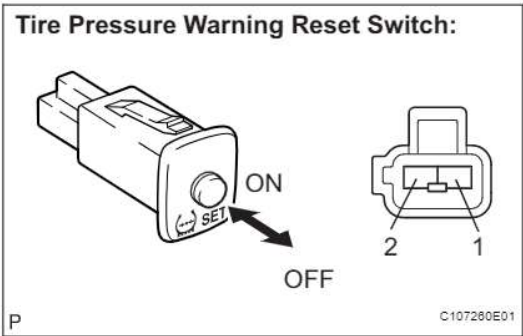
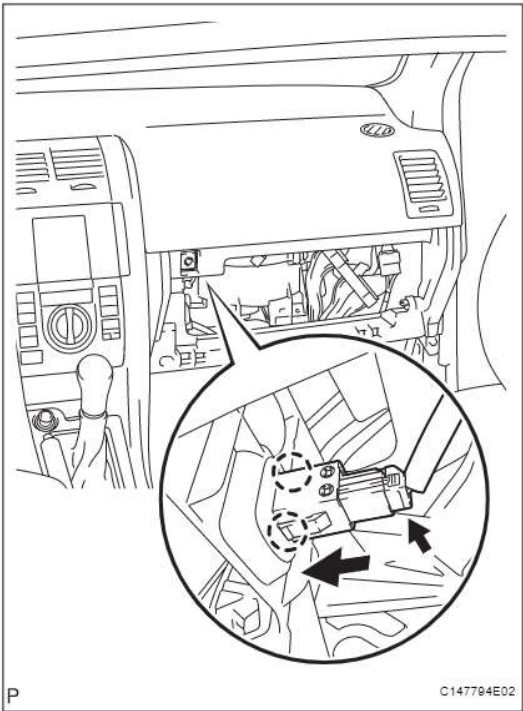
C147788E01

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE GLOVE COMPARTMENT DOOR ASSEMBLY (See page IP-6)
3. REMOVE TIRE PRESSURE WARNING RESET SWITCH

(a) Disconnect the connector.

(b) Disengage the 2 claws and remove the tire pressure warning reset switch from the instrument panel assembly.



INSPECTION

1. INSPECT TIRE PRESSURE WARNING RESET SWITCH

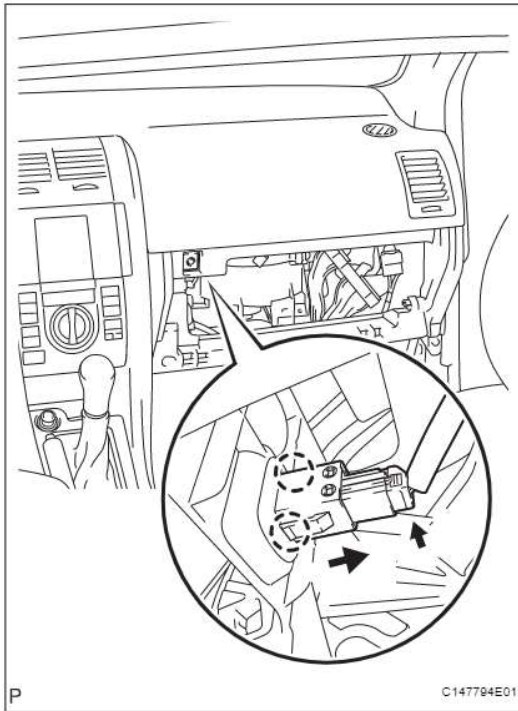
(a) Remove the tire pressure warning reset switch.

(b) Measure the resistance between terminals 1 and 2 of the tire pressure warning reset switch when the tire pressure warning switch is ON and OFF.

Standard resistance

Switch Condition	Specified Condition
ON	Below 1Ω
OFF	10 kΩ or higher

If the result is not as specified, replace the tire pressure warning reset switch.

TW-88**TIRE AND WHEEL – TIRE PRESSURE WARNING RESET SWITCH****INSTALLATION****1. INSTALL TIRE PRESSURE WARNING RESET SWITCH**

- (a) Engage the 2 claws to install the tire pressure warning reset switch to the instrument panel assembly.
- (b) Connect the connector.

2. INSTALL GLOVE COMPARTMENT DOOR ASSEMBLY (See page [IP-11](#))**3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL****4. PERFORM INITIALIZATION**
NOTICE:

Some systems need initialization after reconnecting the cable to the negative battery terminal (See page [IN-23](#)).

5. INSPECT TIRE PRESSURE WARNING SYSTEM

HINT:

See page [TW-21](#).