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 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

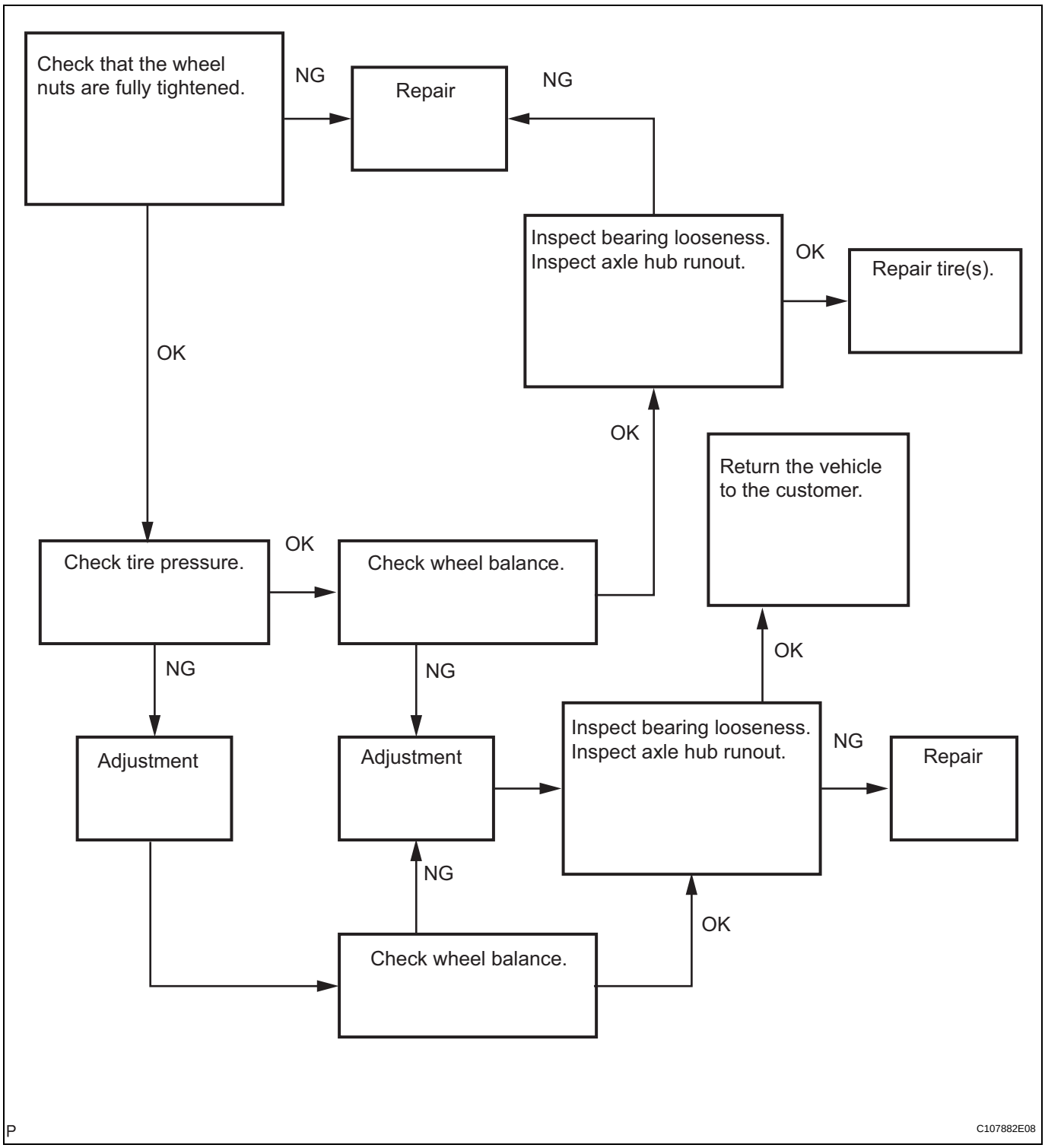
(a) If replacing a tire, be sure to check the grommet of the tire valve for damage. If the grommet is damaged, replace the grommet, washer, and the nut.

(b) If tires and wheels are replaced, register the transmitter ID (see page TW-15).

HOW TO PROCEED WITH TROUBLESHOOTING

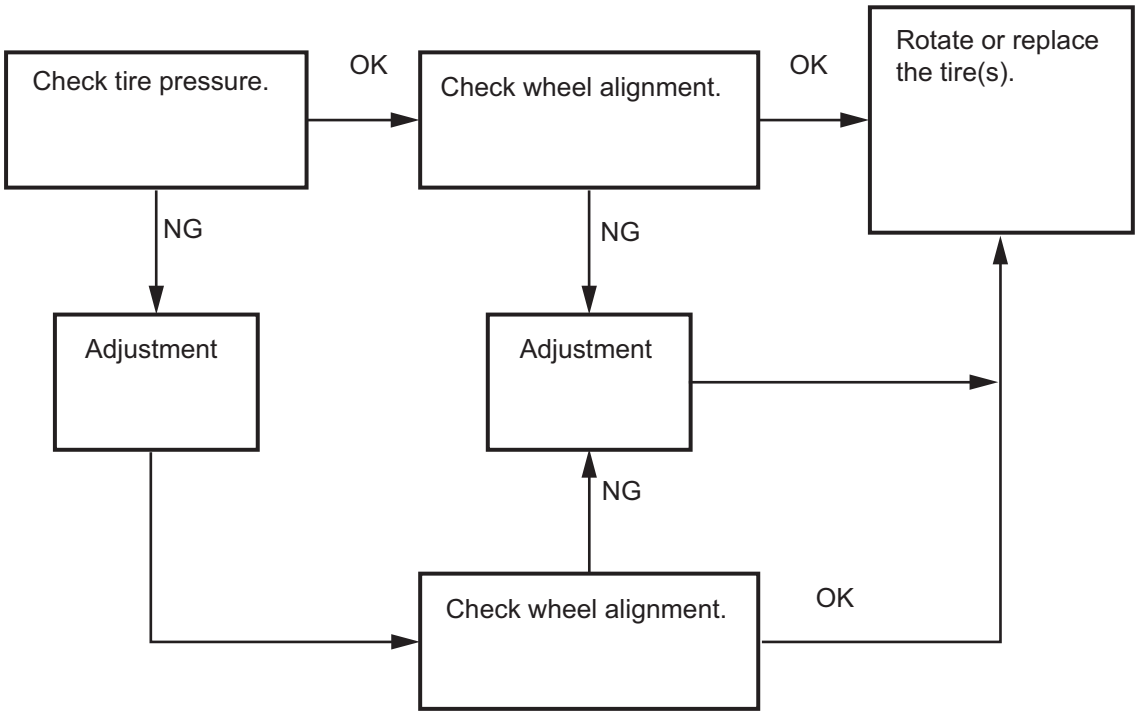
1. DIAGNOSIS OF TIRE VIBRATION

(a) Inspection procedure



2. DIAGNOSIS OF IRREGULAR TIRE WEAR

(a) Inspection procedure


Check tire pressure.
OK
Check wheel alignment.
OK
Rotate or replace the tire(s).
NG
NG
Adjustment
Adjustment
NG
Check wheel alignment.
OK
P
C107883E01

INSPECTION

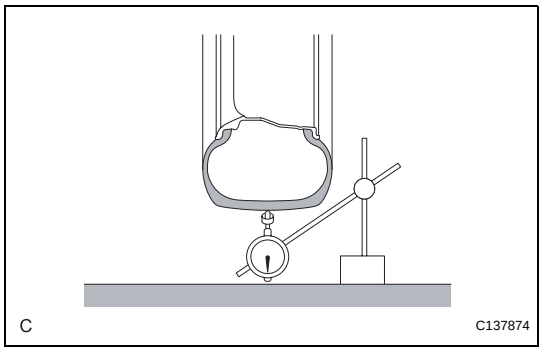
1. INSPECT TIRE

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

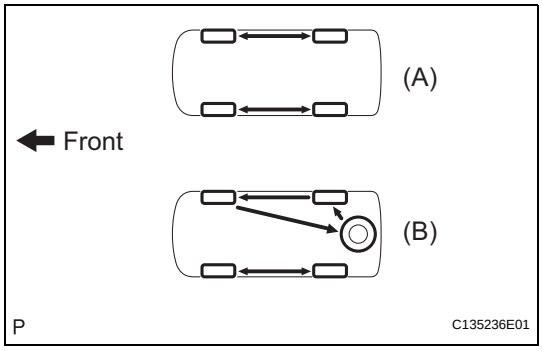
Cold tire inflation pressure

Tire size	Front kPa (kgf*cm^2, psi)	Rear kPa (kgf*cm^2, psi)
P215/60R16 94V	210 (2.1, 31)	210 (2.1, 31)
P215/55R17 93V	220 (2.2, 32)	220 (2.2, 32)

When driving under the above vehicle conditions at sustained high speeds above 160 km/h (100 mph), in countries where such speeds are permitted by-law, inflate the front and rear tires to 240 kPa (2.4 kgf*cm^2, 35 psi) provided that it does not exceed the maximum cold tire inflation pressure molded on the tire sidewall.

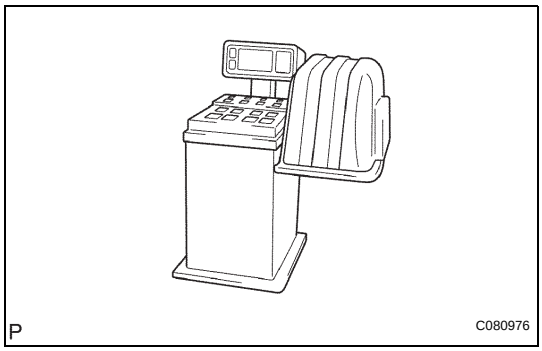


(b) Using a dial indicator, check the runout of the tires.
Tire runout:
1.4 mm (0.055 in.) or less



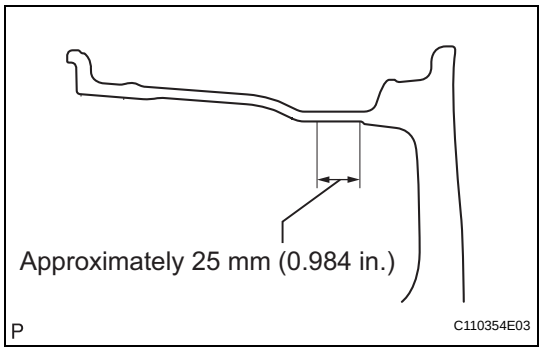
2. ROTATE TIRE

(a) Rotate the tires as shown in illustration (A). If the vehicle is equipped with a grand spare tire, rotate the tires as shown in illustration (B).



3. INSPECT WHEEL BALANCE

(a) Check and adjust the off-the-car balance.
(b) Steel wheel
(1) If necessary, check and adjust the on-the-car balance.
Imbalance after adjustment:
8.0 g (0.018 lb.) or less.



(c) Except for steel wheel

(1) If necessary, check and adjust the on-the-car balance.

Imbalance after adjustment:
8.0 g (0.018 lb.) or less.

NOTICE:

- **Remove dirt, oil and water from the surface where the balance weight is to be adhered with a cleaning detergent.**
- **Do not touch the sticking surface of the tape.**
- **Adhere the sticking type balance weight to the flat position shown in the illustration.**
- **Push the balance weight securely with a finger to adhere it to the position.**
- **Do not reuse the balance weight.**

HINT:

The inner side balance weight should be installed by clipping it to the rim.

4. INSPECT BEARING LOOSENESS

(See page AH-5 for FRONT AXLE, AH-15 for REAR AXLE)

5. INSPECT AXLE HUB RUNOUT

(See page AH-6 for FRONT AXLE, AH-15 for REAR AXLE)

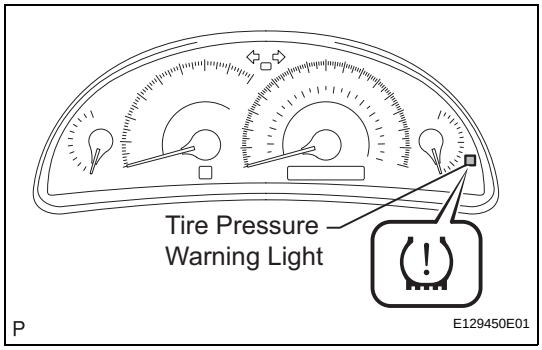
TIRE PRESSURE WARNING SYSTEM

PRECAUTION

1. EXPRESSIONS OF IGNITION SWITCH

(a) The type of ignition switch used on this model differs according to the specification of the valves

Switch Type		Ignition Switch (position)	Engine Switch (condition)
Expression	Ignition switch off	LOCK	Off
	Ignition switch on (IG)	ON	On (IG)
	Ignition switch on (ACC)	ACC	On (ACC)
	Engine start	START	Start



2. 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 blink (come on after blinking for 1 minute) if there is an open in the tire pressure warning light circuit.)

NOTICE:

Check the ground spare tire as well since this system monitors pressure of all tires including the ground spare tire.

Cold tire inflation pressure

Tire size	Front kPa (kgf/cm^2, psi)	Rear kPa (kgf/cm^2, psi)
P215/60R16 94W	210 (2.1, 31) *1 240 (2.4, 35)*2	210 (2.1, 31) *1 240 (2.4, 35)*2
P215/55R17 93V	220 (2.2, 32) *1 240 (2.4, 35)*2	220 (2.2, 32) *1 240 (2.4, 35)*2

*1: For driving under 100 mph (160 km/h)

*2: For driving at 100 mph (160 km/h) or over

(b) When the tire pressure warning light blinks (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).

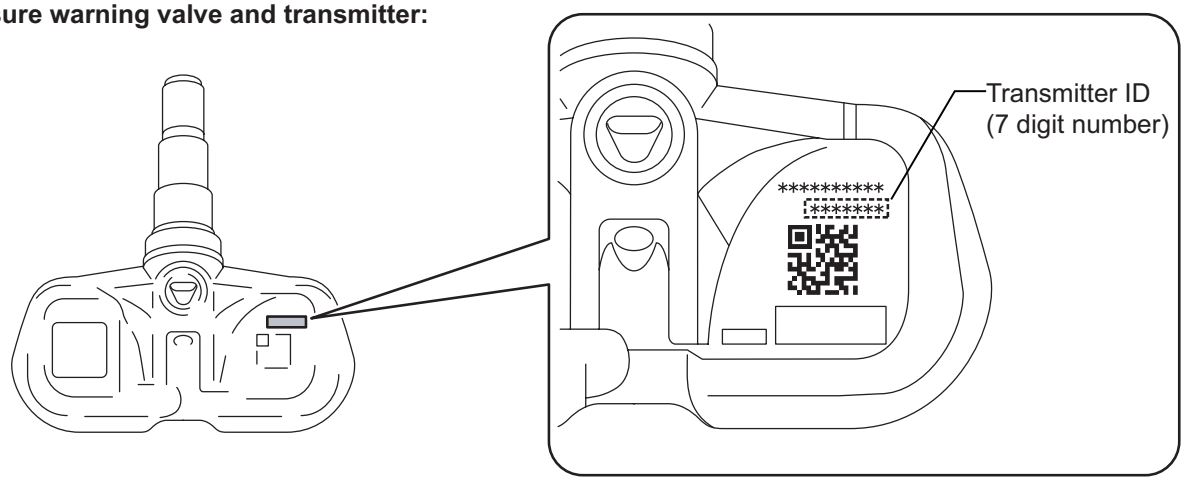
(d) When replacing the tire pressure warning ECU;

(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.

(e) When replacing the tire pressure warning valve and transmitter;
(1) Take a note of the 7 digit number (transmitter ID) written on the 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:



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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-18) 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 (0.2 kgf/cm^2, 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.

3. IN CASE OF TIRE AND WHEEL REPLACEMENT

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

TW

4. 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 or the tire pressure warning valve and transmitter
- Installing tire(s) which require different tire pressure

HINT:

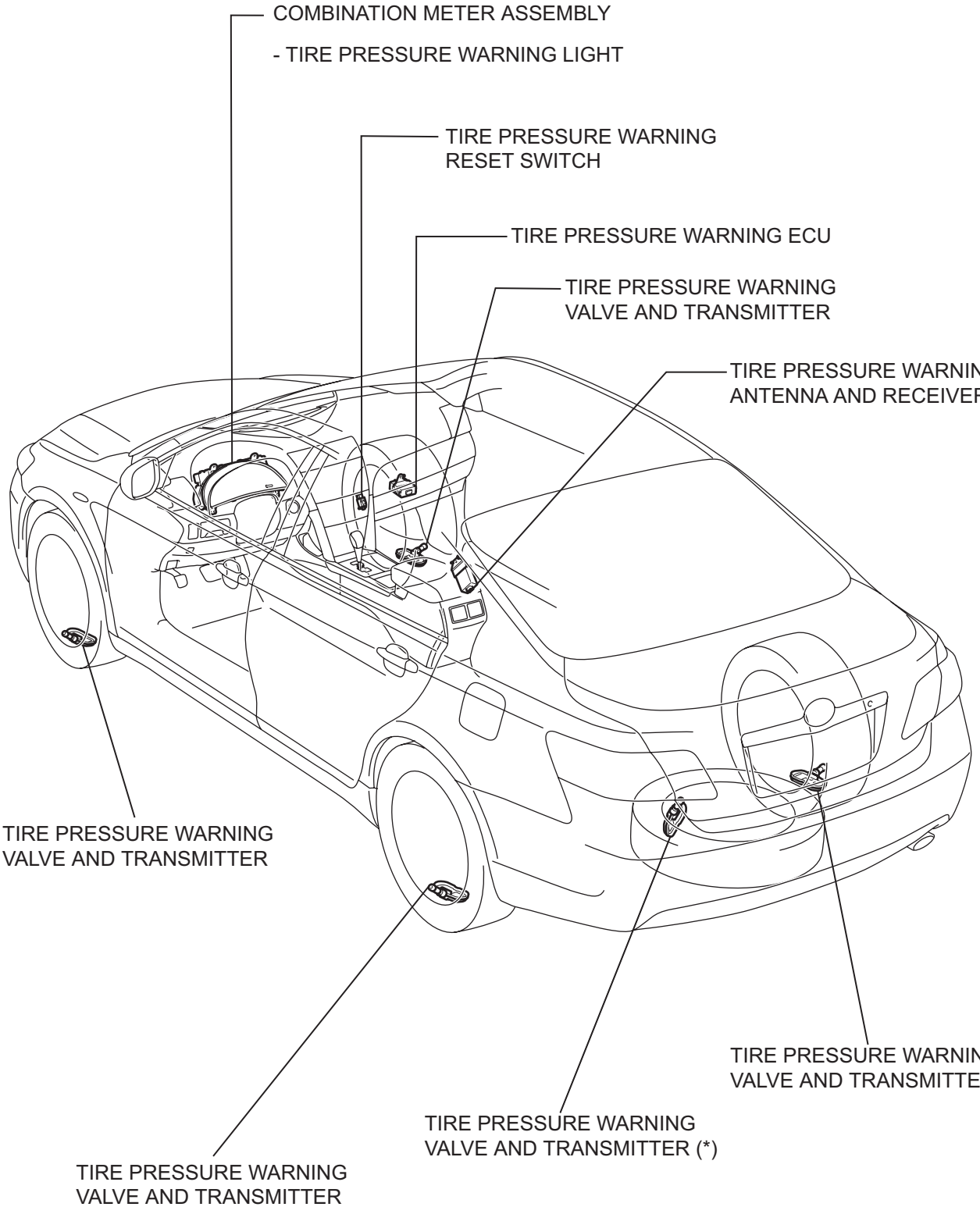
The tire pressure warning system will not operate properly if it is not initialized (See page TW-18).

5. FAIL-SAFE FUNCTION

(a) When a system malfunction occurs in the tire pressure warning system, the tire pressure warning light blinks (comes on after blinking for 1 minute) and informs the driver of the system failure.

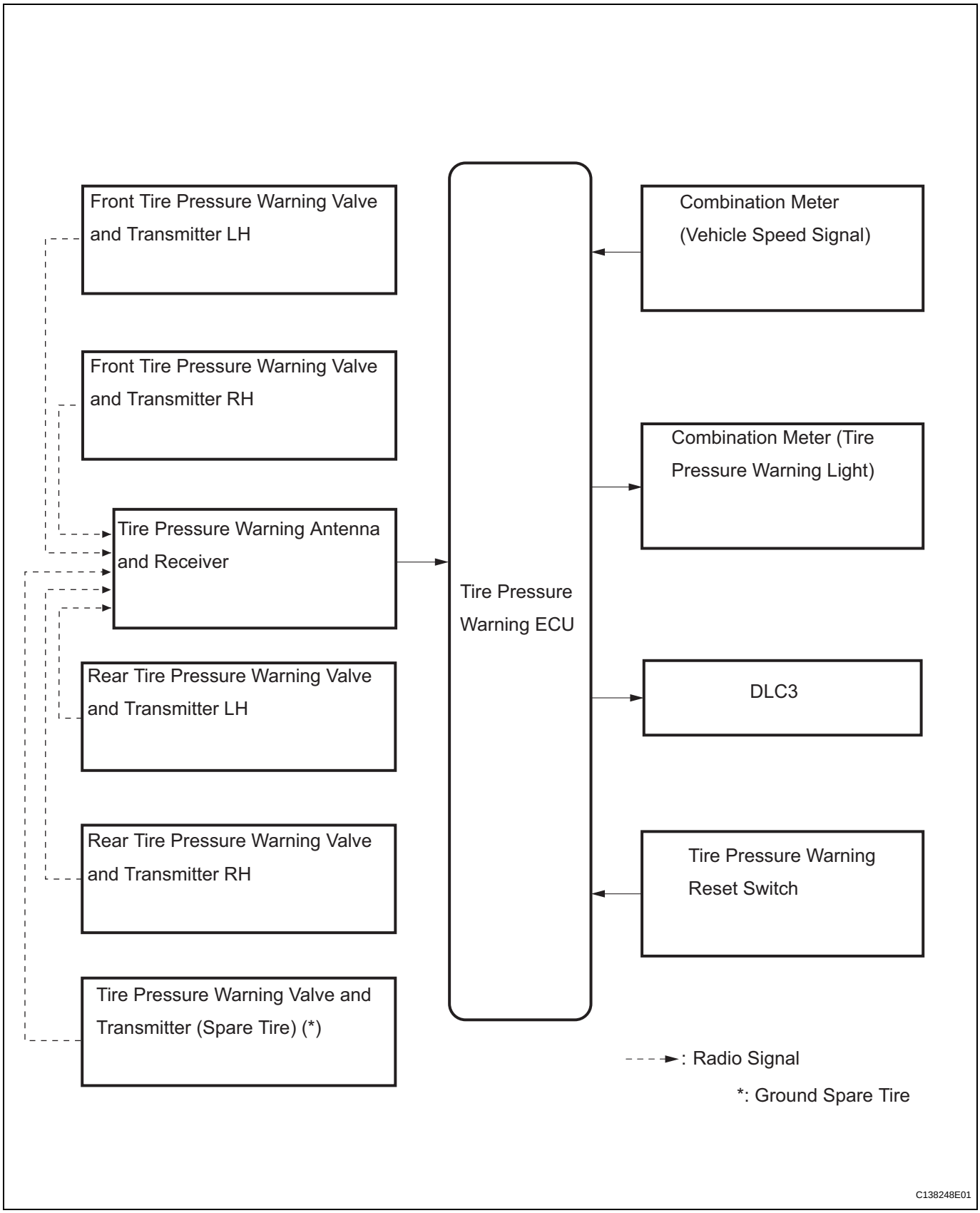
(b) The result of this diagnosis is stored in the tire pressure warning ECU.

PARTS LOCATION



TW

SYSTEM DIAGRAM

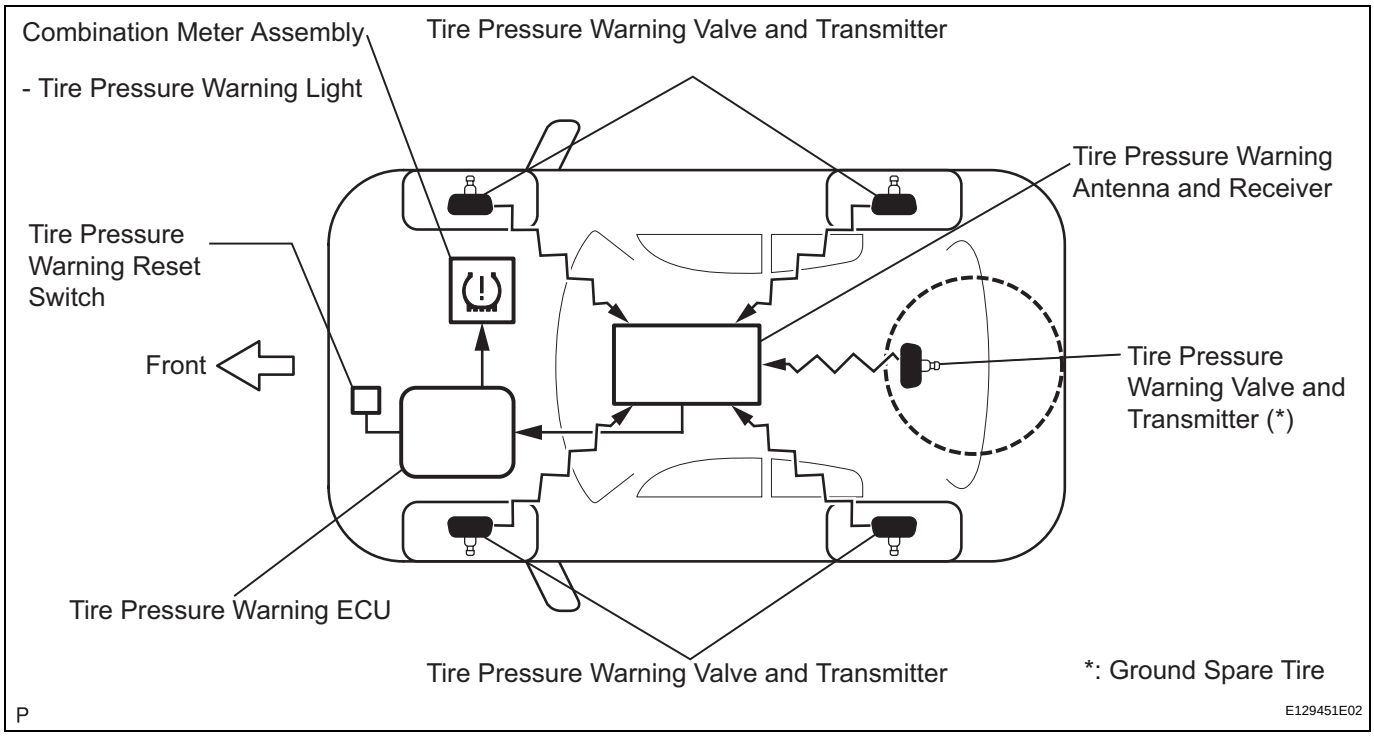


SYSTEM DESCRIPTION

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 monitor 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. 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.
- When the ground spare tire is not within the receivable range of the electric wave, a signal may not be received because the ground spare tire is fixed. Accordingly, the system may not function properly. If there is a possibility that the tire pressure warning system does not receive a signal from the grounde spare tire, rotate the tire 90°.
- 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 sensor.
- 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 code and verify that it is a normal code.

3. 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 the 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 air 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.

4. 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 (including the full-size spare tire) 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 on (IG). 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 (including the ground spare tire) have been received.

HOW TO PROCEED WITH TROUBLESHOOTING

The intelligent tester can be used at steps 3, 7 and 9.

1	Vehicle Brought to Workshop

NEXT

2	Customer Problem Analysis

NEXT

TW

3	Check Tire Pressure Warning Light and Indicator Condition

(a) Turn the ignition switch on (IG).
(b) Record the condition of the tire pressure warning light on the combination meter assembly.
(c) Refer to the "TIRE PRESSURE WARNING LIGHT AND INDICATOR CHART" section of the DIAGNOSIS SYSTEM for checking the condition of the tire pressure warning light (See page TW-24).

NEXT

4	DTC Check and Clear

→ DTC is output: Go to step 5
→ DTC is not output: Go to step 6

5	DTC Chart

→ Go to step 8

6	Problem Symptom Confirmation

→ Symptom does not occur: Symptom simulation
→ Symptom occurs: Go to step 7

7	Problem Symptoms Table

→ Go to step 9

8	Circuit Inspection

(a) Refer to PRECAUTION (See page TW-6).
(b) Refer to SYSTEM DESCRIPTION (See page TW-11).
(c) Set the tire pressures to the appropriate specified values.
(d) Perform initialization (See page TW-18).
(e) Perform test mode procedure (See page TW-20).
  (1) Check for a DTC (See page TW-28).
  (2) Clear the DTC.
  (3) Identify the transmitter corresponding to a DTC.
(f) Perform registration of the transmitter ID (See page TW-15).
(g) Check the terminals of ECU (See page TW-23).
(h) Refer to DATA LIST / ACTIVE TEST (See page TW-29).

NEXT

9	Repair

NEXT

10	Confirmation Test

(a) Check for a DTC (See page TW-28).
(b) Perform initialization (See page TW-18).
(c) Confirm that the initialization has been completed.

NEXT

End

REGISTRATION

1. READ TRANSMITTER ID

Prepare the all transmitter ID data before starting registration.

HINT:

- Read the registered transmitter IDs that are stored in the ECU using the intelligent tester and note them down.
- If reading stored transmitter IDs is impossible due to malfunctions of components such as the tire pressure warning antenna and receiver, remove the tires from the wheels and check the IDs located on the tire pressure warning valves and transmitters (See page TW-6).
- When replacing the tire pressure warning ECU, read the IDs stored in the old ECU using the intelligent tester.
- When replacing the tire pressure warning valves and transmitters, note down the IDs written on the tire pressure warning valves and transmitters.

2. REGISTER TRANSMITTER ID

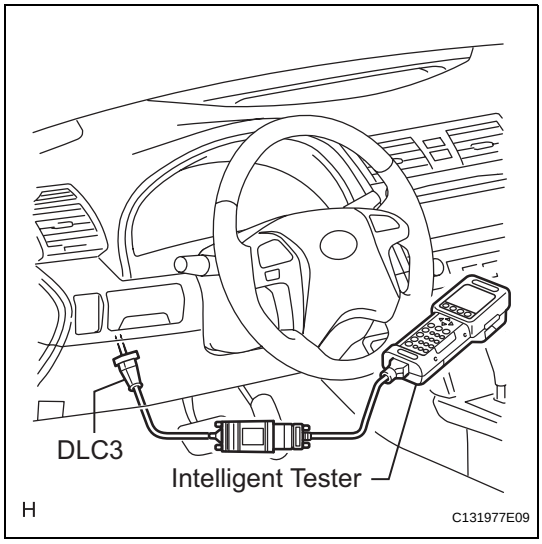
NOTICE:

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.

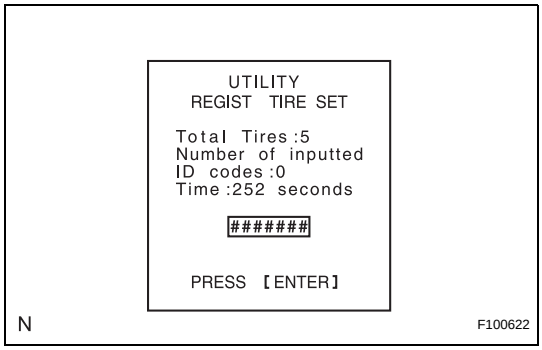
(a) Connect the intelligent tester to DLC3 (Procedure "A").

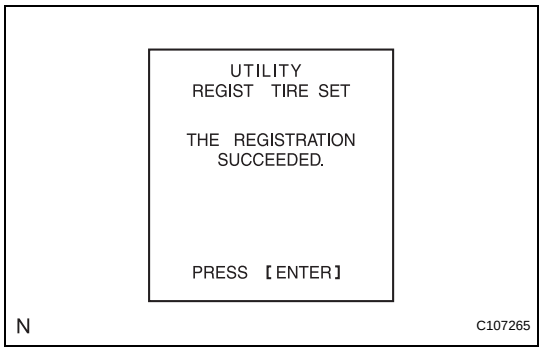
(b) Turn the ignition switch on (IG) (Procedure "B").

(c) Select the REGIST TIRE following the intelligent tester screen (UTILITY - REGIST TIRE) (Procedure "C").



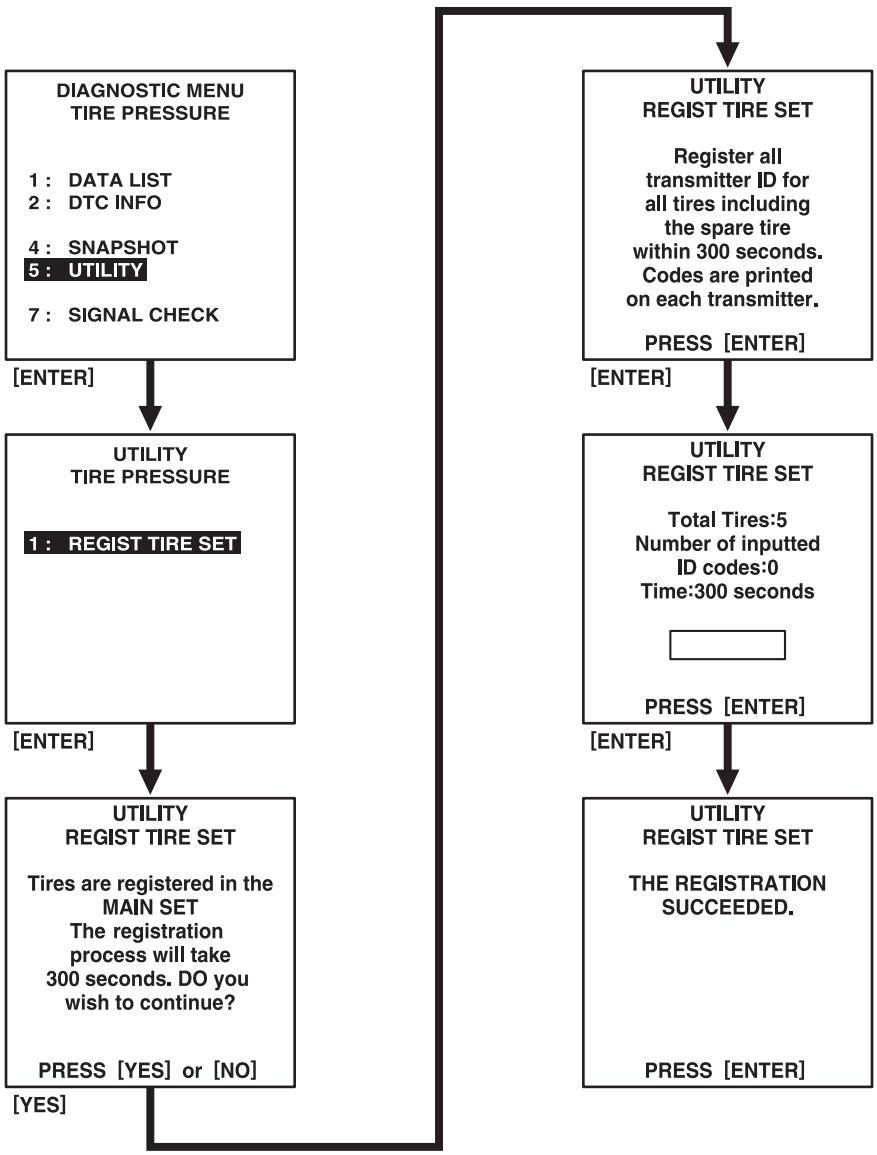
(d) Input the IDs (ID1 to ID4 or ID5) using the intelligent tester and transmit them to the tire pressure warning ECU (Procedure "D").





(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.

Registration Procedure



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3. CONFIRMATION OF TRANSMITTER ID REGISTRATION

(a) Connect the intelligent tester to DLC3 (ignition switch is off).
(b) Turn the ignition switch on (IG).
(c) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.

(d) Confirm that the data of tire pressure of all tires (including the ground spare tire) are displayed on the intelligent tester screen.
NOTICE:
- **It may take up to 1 minute or more to update the tire pressure data.**
- **If the IDs have not been registered, some of DTC C2171/71 is set in the tire pressure warning ECU after 51 minutes or more.**

INITIALIZATION

1. INITIALIZATION

NOTICE:

- **Perform initialization after the transmitter ID registration is completed.**
- **Initialization is necessary after replacing any of the ECU, tires with different tire pressure, or tire pressure warning valve and transmitter, or when a new vehicle is delivered.**
- **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/cm^2, 2.9 to 4.3 psi) above the specified value.**

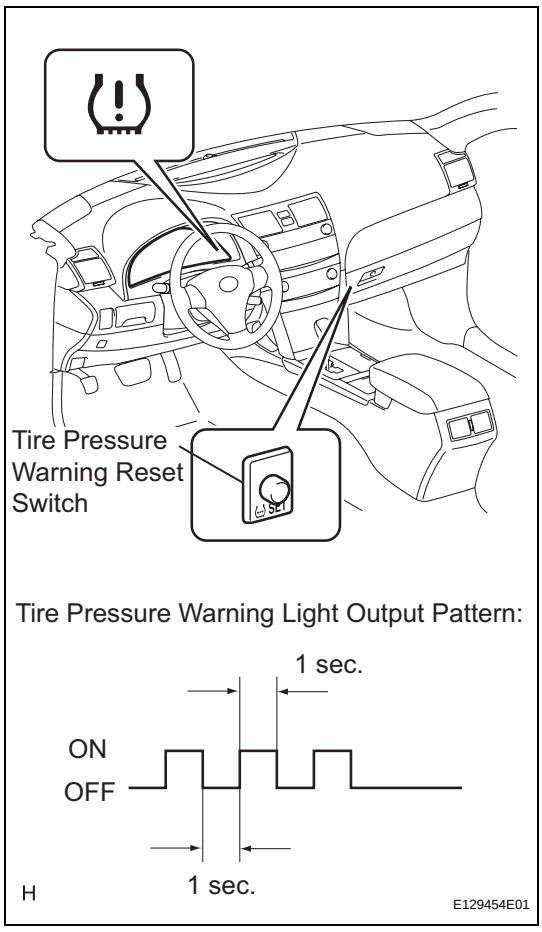
(a) Set the air pressure of all wheels, including the ground spare tire, to the specified value.

TW

Cold tire inflation pressure

Tire size	Front kPa (kgf/cm^2, psi)	Rear kPa (kgf/cm^2, psi)
P215/60R16 94W	210 (2.1, 31) *1 240 (2.4, 35)*2	210 (2.1, 31) *1 240 (2.4, 35)*2
P215/55R17 93V	220 (2.2, 32) *1 240 (2.4, 35)*2	220 (2.2, 32) *1 240 (2.4, 35)*2

*1: For driving under 100 mph (160 km/h)
*2: For driving at 100 mph (160 km/h) or over

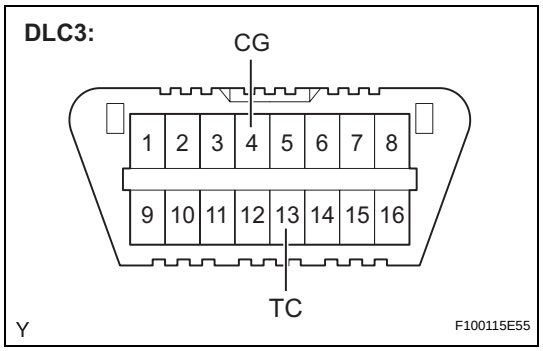


(b) Keep the tire pressure warning reset switch pressed for 3 seconds or more with the ignition switch on (IG).

(c) 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 the wheels. Initialization will be canceled if the ignition switch is turned off during initialization.



(d) Wait for 2 or 3 minutes with the ignition switch on (IG).

NOTICE:

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

(e) Confirm that the initialization has been completed using the intelligent tester.

(1) Change the mode to test mode using intelligent tester and check that test DTCs have been stored.

- The test DTCs will not be indicated until the system initialization is complete.
- After the initialization has been completed successfully, the test DTCs (C2181/81 to C2191/91) are indicated.

NOTICE:

The following operations can be used instead of above procedure

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

HINT:

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

TW

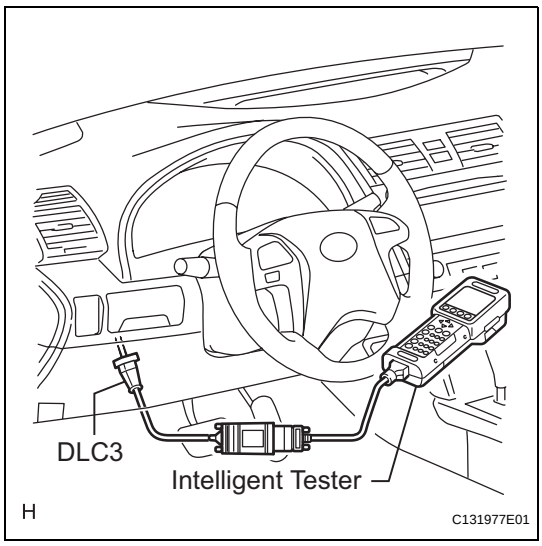
TEST MODE PROCEDURE

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.

(a) Make sure that the ignition switch is off.
(b) Connect the intelligent tester to DLC3.
(c) Turn the ignition switch on (IG).
(d) Select the TEST MODE on intelligent tester.
(e) Confirm that the tire pressure warning light in the combination meter blinks at 0.125 second intervals.

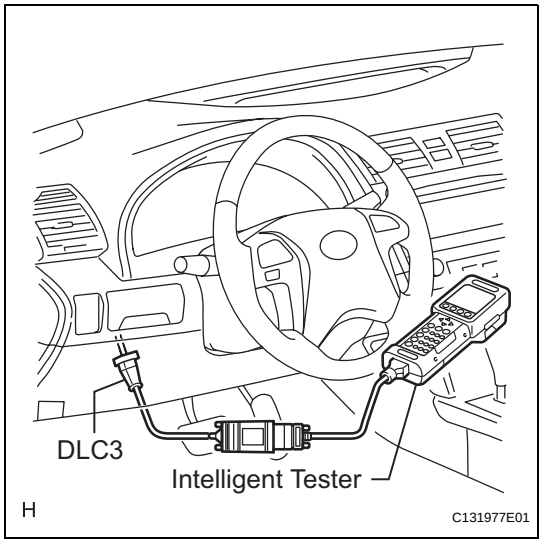


2. PERFORM SIGNAL CHECK

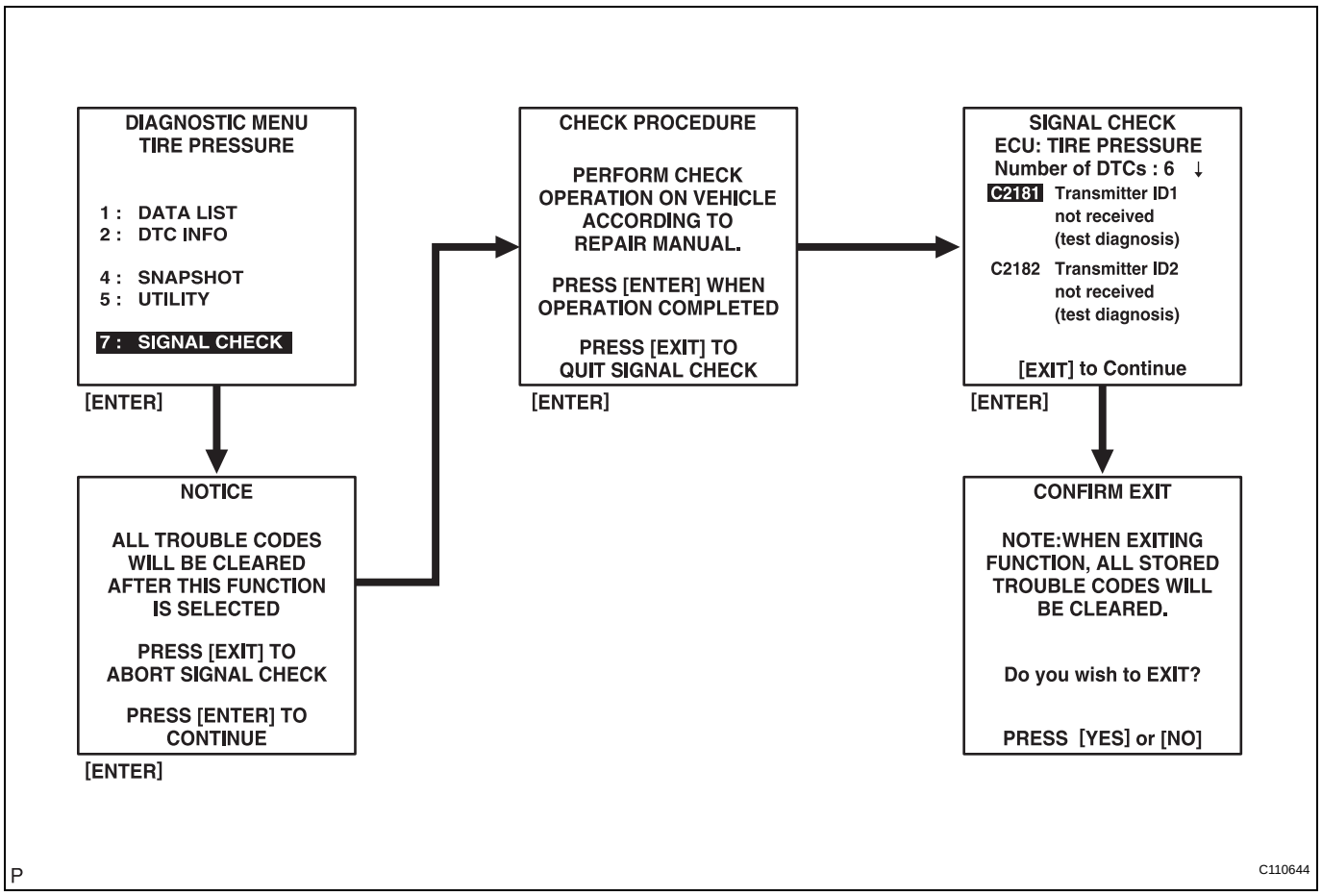
HINT:

- 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.

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



(d) Select the SIGNAL CHECK on intelligent tester.



(e) Drive the vehicle at 12 mph (20 km/h) or more for 10 seconds or more. For checking the vehicle speed signal (C2191/91).

(f) Loosen the valve core and rapidly reduce the pressure (at least 40 kPa (0.41 kg/cm^2, 5.8 psi) within 30 seconds or more). For checking the transmitter data (C2181/81 to C2185/85).
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 C2185/85	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 indicator light.

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

(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 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
C2181/81 (TW-38)	Transmitter ID1 not received	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU
C2182/82 (TW-38)	Transmitter ID2 not received	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU
C2183/83 (TW-38)	Transmitter ID3 not received	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU
C2184/84 (TW-38)	Transmitter ID4 not received	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU
C2185/85 (TW-38)	Transmitter ID5 not received	• Tire pressure warning valve and transmitter • Tire pressure warning antenna and receiver • Wire harness or connector • Tire pressure warning ECU
C2191/91 (TW-61)	Vehicle speed signal error	• Vehicle speed sensor • Combination meter assembly • Wire harness or connector • Tire pressure warning ECU

PROBLEM SYMPTOMS TABLE

HINT:

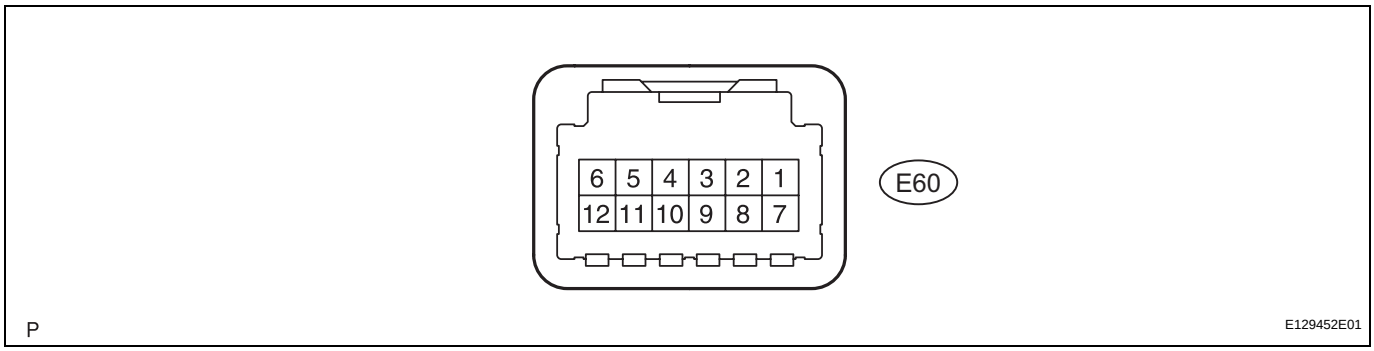
- Use the table below to help determine the cause of the problem symptom. The potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect 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 system does not operate.	1. Tire pressure warning valve and transmitter	TW-77
	2. Tire pressure warning antenna and receiver	TW-73
	3. Power source circuit	TW-67
	4. TC and CG terminal circuit	TW-69
	5. Combination meter assembly	ME-15
	6. Tire pressure warning ECU	TW-82
DTC check cannot be done.	1. Power source circuit	TW-82
	2. TC and CG terminal circuit	TW-69
	3. Tire pressure warning ECU	TW-82
Tire pressure warning light malfunctions (Remains on).	1. Tire pressure check	TW-3
	2. Initialization	TW-18
	3. Tire pressure warning ECU connector poorly connected	TW-24
	4. Tire pressure warning light circuit	TW-65
	5. Tire pressure warning ECU	TW-82
Tire pressure warning light malfunctions (Blinking).	1. Check DTC	TW-28
	2. Tc and CG terminal circuit	TW-69
	3. Test mode (SIGNAL CHECK)	TW-20
	4. Tire pressure warning ECU	TW-82
Initialization cannot be done.	1. Test mode (SIGNAL CHECK)	TW-20
	2. Tire pressure reset switch	TW-85
	3. Tire pressure warning ECU	TW-82

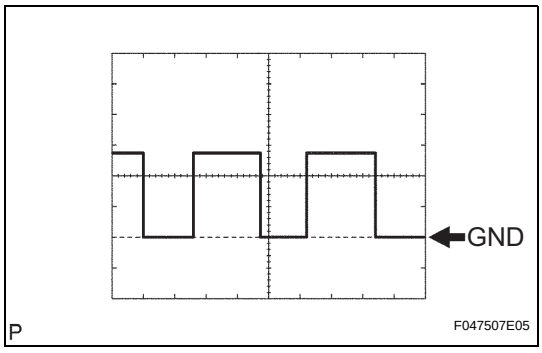
TERMINALS OF ECU

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



TW

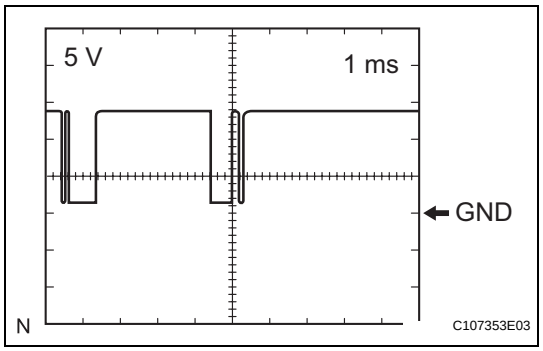
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
IG (E60-7) - GND (E60-9)	B - W-B	IG power source	Ignition switch on (IG)	10 to 16 V
SPD (E60-2) - GND (E60-9)	V - W-B	Vehicle speed signal	Ignition switch on (IG)	Pulse generation (See waveform 1)
SIL (E60-10) - GND (E60-9)	GR - W-B	Diagnostic communication terminal	• Ignition switch on (IG) • Intelligent tester is connected to DLC3	Pulse generation (See waveform 2)
IND (E60-5) - GND (E60-9)	L - W-B	Tire pressure warning light signal	Ignition switch on (IG)	10 to 16 V
RF5V (E60-6) - GND (E60-9)	LC - W-B	Tire pressure warning antenna and receiver power source	Ignition switch on (IG)	4.5 to 5.5 V
CLSW (E60-1) - GND (E60-9)	O - W-B	Tire pressure warning reset switch	• Ignition switch on (IG) • Tire pressure warning reset switch on	8 to 15V
RDA (E60-12) - GND (E60-9)	G - W-B	Tire pressure warning antenna and receiver signal	• Ignition switch on (IG) • The Tire pressure warning antenna and receiver is not connected	9 to 16 V
GND2 (E60-11) - GND (E60-9)	BR - W-B	Tire pressure warning antenna and receiver ground	Always	Below 1 Ω



1. Waveform 1 (Reference)

(a) Waveform

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



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

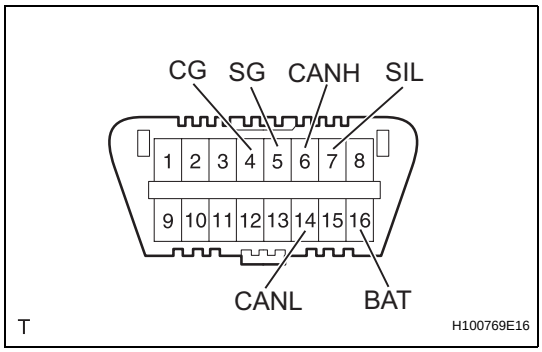
Standard voltage:

11 to 14 V

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

2. CHECK DLC3

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



TW

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 power 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 on (IG) and attempt to use the tester. If the display indicates that a communication error has occurred, there is a problem either with the vehicle or with the tester.

- If communication is normal when the tester is connected to another vehicle, inspect 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.

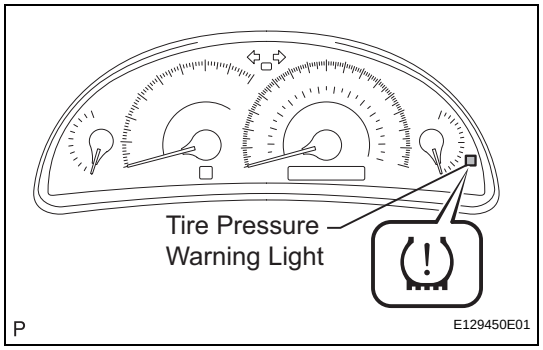
3. DIAGNOSIS SYSTEM

(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-28).

(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-20).



4. CHECK WARNING LIGHT

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

(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.

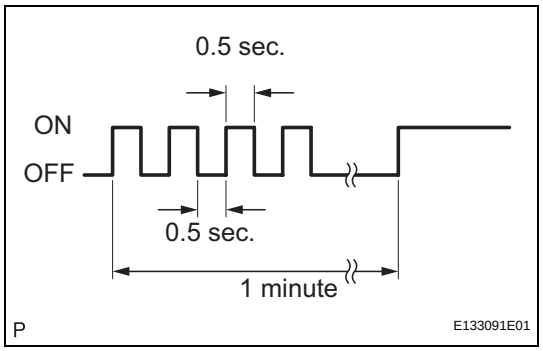
Trouble Area	See procedure
Tire pressure warning light circuit	TW-65

5. TIRE PRESSURE WARNING LIGHT AND INDICATOR CHART

HINT:

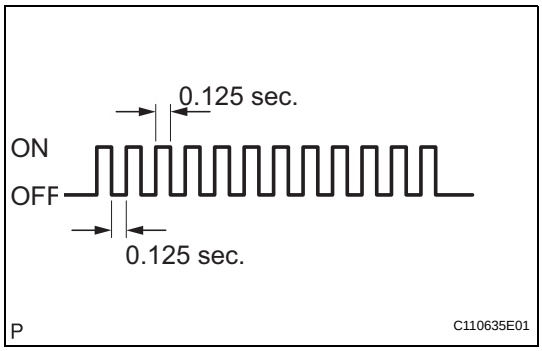
The table below indicates the state of the tire pressure warning light and indicator after the ignition switch is turned on (IG).

	Immediately after turning the ignition switch on (IG)	Always					
		Warning light output pattern					
	Comes on for 3 sec.	Goes off	Comes on	Blinks (*1)	Blinks (*2)	Blinks (*3)	Outputs DTC
Normal	○	○	-	-	-	-	-
Low tire pressure	○	-	○	-	-	-	-
System fail	○	-	-	○	-	-	-
Test mode	○	-	-	-	○	-	-
Initialization	○	-	-	-	-	○	-
ECU connector poorly connected	-	-	-	○	-	-	-
TC ground	○	-	-	-	-	-	○

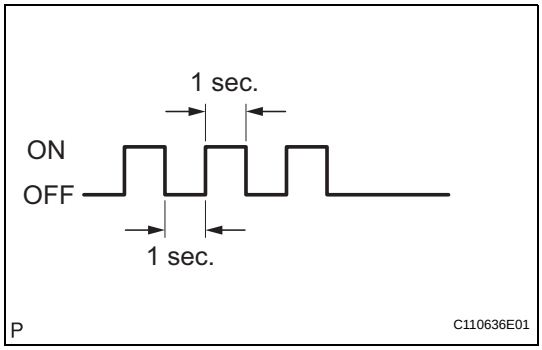


*1: Comes on and goes off repeatedly at 0.5 second intervals, and comes on after 1 minute.

TW



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



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

DIAGNOSTIC TROUBLE CODE CHART

HINT:

- If no abnormality is found when the parts are inspected, inspect the tire pressure warning ECU.
- If a malfunction 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 No." in the DTC chart.

TIRE PRESSURE WARNING SYSTEM

DTC No.	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-34
C2112/12	Transmitter ID2 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-34
C2113/13	Transmitter ID3 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-34
C2114/14	Transmitter ID4 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-34
C2115/15	Transmitter ID5 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-34
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-38
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-38
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-38
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-38
C2125/25	No Signal from Transmitter ID5 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-38
C2141/41	Transmitter ID1 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-46
C2142/42	Transmitter ID2 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-46

DTC No.	Detection Item	Trouble Area	See page
C2143/43	Transmitter ID3 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure waning ECU	TW-46
C2144/44	Transmitter ID4 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-46
C2145/45	Transmitter ID5 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-46
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
C2169/69	Abnormal Temperature Inside ID5 Tire	1. Tires 2. Tire pressure warning valve and transmitter 3. Tire pressure warning ECU	TW-49
C2176/76	Receiver Error	1. Tire pressure warning antenna and receiver 2. Wire harness or connector 3. Tire pressure warning ECU	TW-55
C2171/71	Transmitter ID not Registered	Tire pressure warning ECU	TW-53
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. Tire pressure warning reset switch 5. Wire harness or connector	TW-58
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-38
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-38
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-38

DTC No.	Detection Item	Trouble Area	See page
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-38
C2185/85	Transmitter ID5 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-38
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-61

DATA LIST / ACTIVE TEST

1. DATA LIST

(a) Connect the intelligent tester to DLC3.
(b) Turn the ignition switch on (IG).
(c) Following the display on the intelligent tester, read "DATA LIST".

Item	Measurement item/ Range (Display)	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 or 1 or 2 or 3 or 4 or 5	0 to 5 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.: FFFFFFF	The ID No. registered in the transmitter ID1 is displayed	-
REGIT ID2 CODE	Registered ID2 code/min.: 0, max.: FFFFFFF	The ID No. registered in the transmitter ID2 is displayed	-
REGIT ID3 CODE	Registered ID3 code/min.: 0, max.: FFFFFFF	The ID No. registered in the transmitter ID3 is displayed	-
REGIT ID4 CODE	Registered ID4 code/min.: 0, max.: FFFFFFF	The ID No. registered in the transmitter ID4 is displayed	-
REGIT ID5 CODE	Registered ID5 code/min.: 0, max.: FFFFFFF	The ID No. registered in the transmitter ID5 is displayed	-
TRANS STATUS	ID code transmission status/ FINISH or NOW	FINISH or NOW	-
TIREPRESS1	ID1 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS2	ID2 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS3	ID3 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS4	ID4 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS5	ID5 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIRE TEMP1	ID1 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	-
TIRE TEMP2	ID2 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	-
TIRE TEMP3	ID3 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	-
TIRE TEMP4	ID4 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	-

Item	Measurement item/ Range (Display)	Normal Condition	Diagnostic Note
TIRE TEMP5	ID5 temperature in tire/ min.: -40°C (-40°F), max.: 215°C (419°F)	Actual tire temperature	-
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	-
BATT VOLT5	ID5 battery voltage/ OVER or LESS	OVER	-
SELECT SW INFO	Select switch setting information/ WITH or WITHOUT	WITH or WITHOUT	-
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	-
INIT THRESHOLD5	ID5 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 DTC recorded/ min.: 0, max.: 255	Min.: 0, Max.: -	-

DIAGNOSTIC TROUBLE CODE CHART

HINT:

- If no abnormality is found when the parts are inspected, inspect the tire pressure warning ECU.
- If a malfunction 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 No." in the DTC chart.

TIRE PRESSURE WARNING SYSTEM

DTC No.	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-34
C2112/12	Transmitter ID2 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-34
C2113/13	Transmitter ID3 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-34
C2114/14	Transmitter ID4 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-34
C2115/15	Transmitter ID5 Operation Stop	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-34
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-38
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-38
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-38
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-38
C2125/25	No Signal from Transmitter ID5 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-38
C2141/41	Transmitter ID1 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-46
C2142/42	Transmitter ID2 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-46

DTC No.	Detection Item	Trouble Area	See page
C2143/43	Transmitter ID3 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure waning ECU	TW-46
C2144/44	Transmitter ID4 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-46
C2145/45	Transmitter ID5 Error	1. Tire pressure warning valve and transmitter 2. Tire pressure warning ECU	TW-46
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
C2169/69	Abnormal Temperature Inside ID5 Tire	1. Tires 2. Tire pressure warning valve and transmitter 3. Tire pressure warning ECU	TW-49
C2176/76	Receiver Error	1. Tire pressure warning antenna and receiver 2. Wire harness or connector 3. Tire pressure warning ECU	TW-55
C2171/71	Transmitter ID not Registered	Tire pressure warning ECU	TW-53
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. Tire pressure warning reset switch 5. Wire harness or connector	TW-58
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-38
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-38
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-38

DTC No.	Detection Item	Trouble Area	See page
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-38
C2185/85	Transmitter ID5 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-38
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-61

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

DTC	C2115/15	Transmitter ID5 Operation Stop

DESCRIPTION

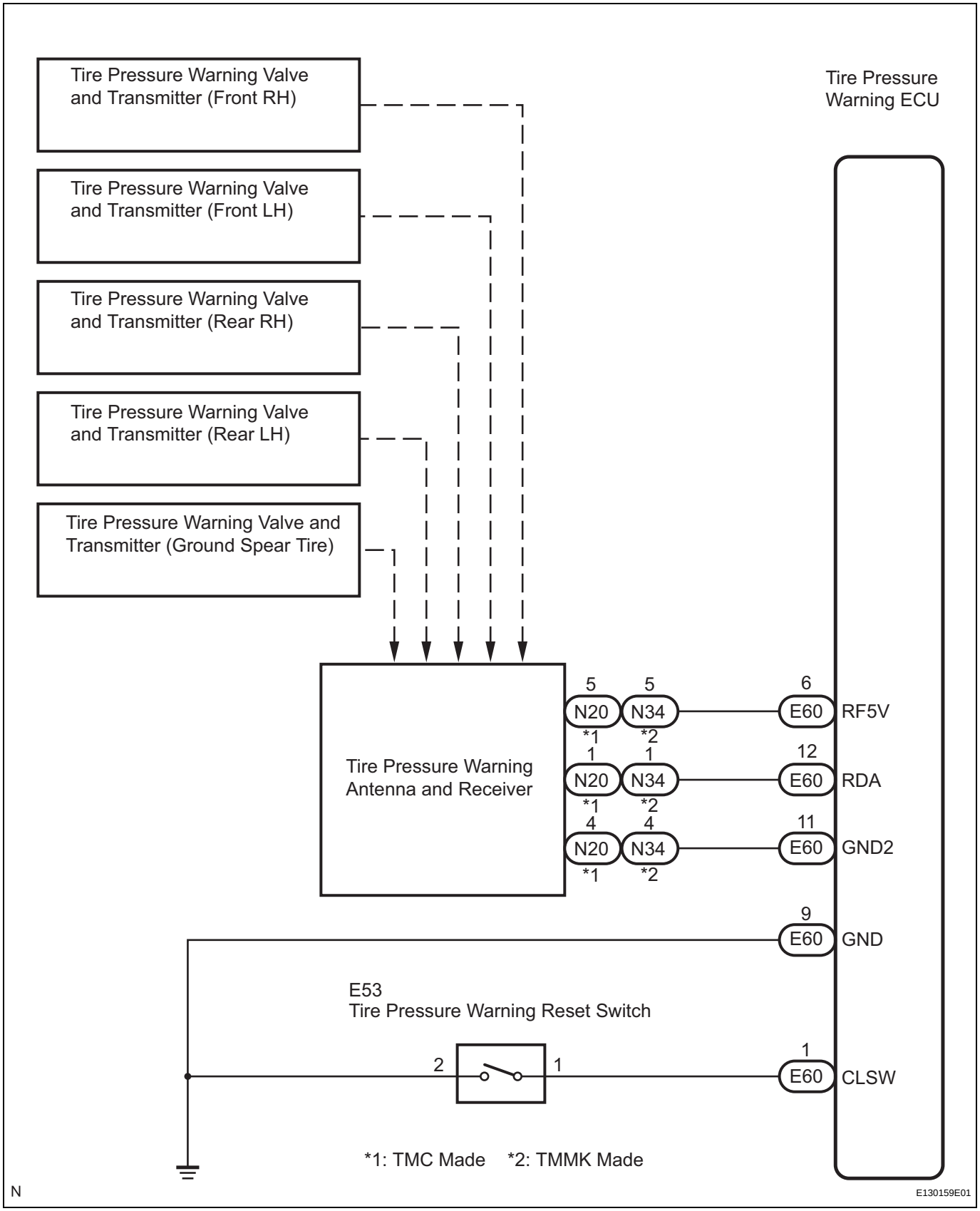
The tire pressure warning valve and transmitters that are installed in the tire and wheel assemblies measure the air pressures of the tires. The measured values are transmitted to the tire pressure warning antenna and receiver on the body as radio waves and then sent to the tire pressure warning ECU. 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, forcibly transmit the signals by releasing the tire pressure rapidly. The stored DTC is cleared when the signal transmission is resumed.

DTC No.	DTC Detecting Condition	Trouble Area
C2111/11 C2112/12 C2113/13 C2114/14 C2115/15	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.
- DTC C2115/15 are used only when the vehicle is equipped with a ground spare tire.

WIRING DIAGRAM



TW

INSPECTION PROCEDURE

NOTICE:

- **It is necessary to perform initialization (See page TW-18) 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.**

HINT:

Set the tire pressure to the specified value.

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)
P215/60R16 94 V	210 (2.1, 31)	210 (2.1, 31)
P215/55R17 93 V	220 (2.2, 32)	220 (2.2, 32)

TW

(b) Connect the intelligent tester to the DLC3.

(c) Turn the ignition switch on (IG) and turn the tester ON.

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

Item	Measurement Item/Range (display)	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure / min.:0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf / cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS2	ID2 tire inflation pressure / min.:0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf / cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS3	ID3 tire inflation pressure / min.:0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf / cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS4	ID4 tire inflation pressure / min.:0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf / cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS5	ID5 tire inflation pressure / min.:0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf / cm^2, 92.2 psi)	Actual tire inflation pressure	-

(e) Rapidly release the pressures from each wheel by approximately 40 kPa (0.4 kgf / cm^2, 5.8 psi) /30 seconds or more.

(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 1 minute or more 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 (including the ground spare tire). 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 malfunction in transmission or reception function (See page TW-23)

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

OK

END

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	C2125/25	No Signal from Transmitter ID5 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)
DTC	C2185/85	Transmitter ID5 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.

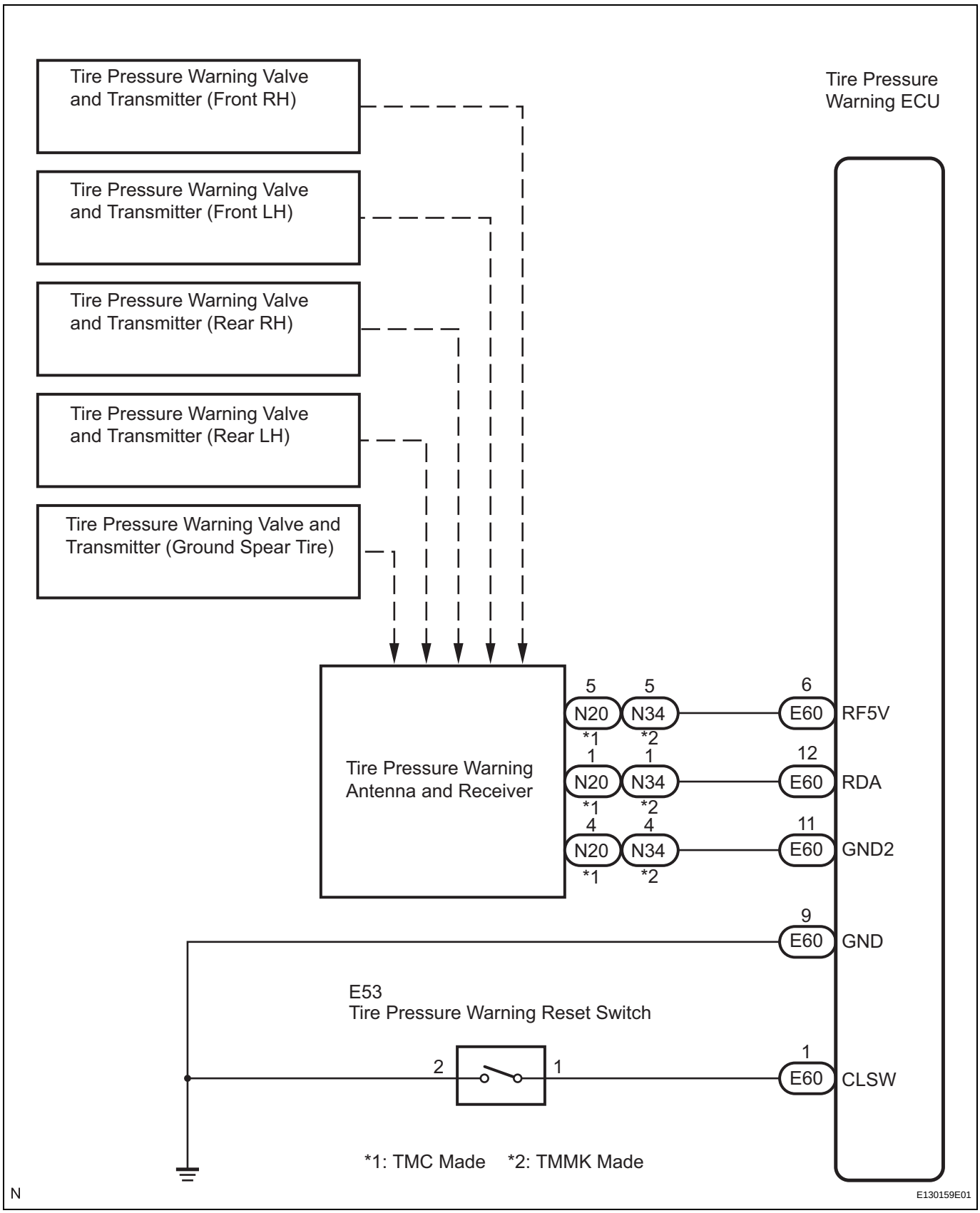
DTCs from C2121/21 to C2125/25 can only be cleared by using the tester. DTCs from C2181/81 to C2184/84 or C2185/85 can be cleared when the transmitter in the tire pressure warning valve and transmitter sends a forced transmission signal or test mode ends. DTCs from C2181/81 to C2184/84 or C2185/85 are output only in test mode.

DTC No.	DTC Detecting Condition	Trouble Area
C2121/21 C2122/22 C2123/23 C2124/24 C2125/25	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 C2185/85	Malfunction 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.
- DTCs C2125/25 and C2185/85 are used only when the vehicle is equipped with a ground spare tire.

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-18) 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.**

HINT:

Set the tire pressure to the specified value.

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 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)
P215/60R16 94V	210 (2.1, 31)	210 (2.1, 31)
P215/55R17 93V	220 (2.2, 32)	220 (2.2, 32)

(b) Select "Tire inflation Pressure" by following the prompts displayed on the intelligent tester.

Item	Measurement Item/Range (display)	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS2	ID2 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-

Item	Measurement Item/Range (display)	Normal Condition	Diagnostic Note
TIREPRESS3	ID3 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS4	ID4 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS5	ID5 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-

(c) Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.41 kg/cm^2, 5.8 psi) within 30 seconds.

(d) Check the DATA LIST.

NOTICE:

- **It takes about 1 minute or more to display the updated tire pressure data.**
- **When no "Tire Inflation Pressure" data has 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 "Tire Inflation Pressure" data corresponds to each tire.**

(e) After confirming that one of "Tire Inflation Pressure" data for one tire (ID1 to ID4 or ID5) has changed, repeat this procedure one by one. Identify the transmitter that corresponds to DTC.

Result

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

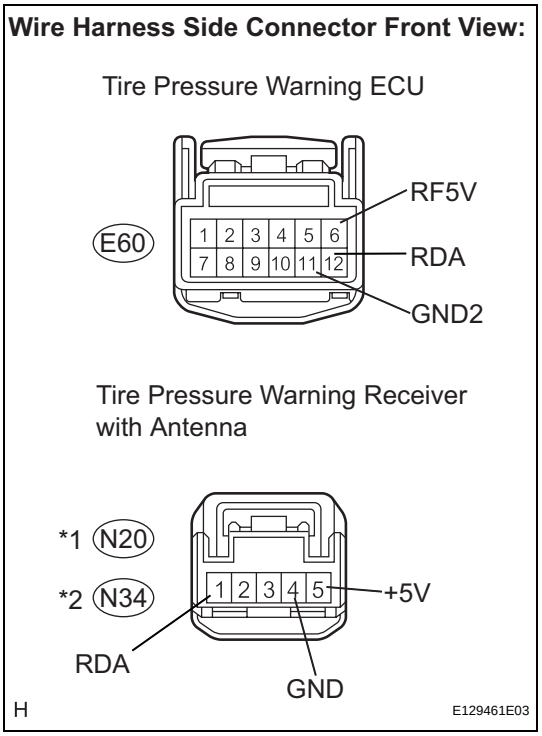
A → **Go to step 4**

B → **END**

C

3 CHECK HARNESS AND CONNECTOR (ECU - RECEIVER)

Wire Harness Side Connector Front View:



(a) Disconnect the E60 ECU connector.

(b) Disconnect the N20 receiver connector.*1

(c) Disconnect the N34 receiver connector.*2

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

Standard resistance

Tester Connection	Specified Condition
E60-12 (RDA) - N20-1 (RDA)*1 E60-12 (RDA) - N34-1 (RDA)*2	Below 1 Ω
E60-11 (GND2) - N20-4 (GND)*1 E60-11 (GND2) - N34-4 (GND)*2	
E60-6 (RF5V) - N20-5 (+5V)*1 E60-6 (RF5V) - N34-5 (+5V)	

HINT:
- *1: TMC Made
- *2: TMMK Made

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

OK

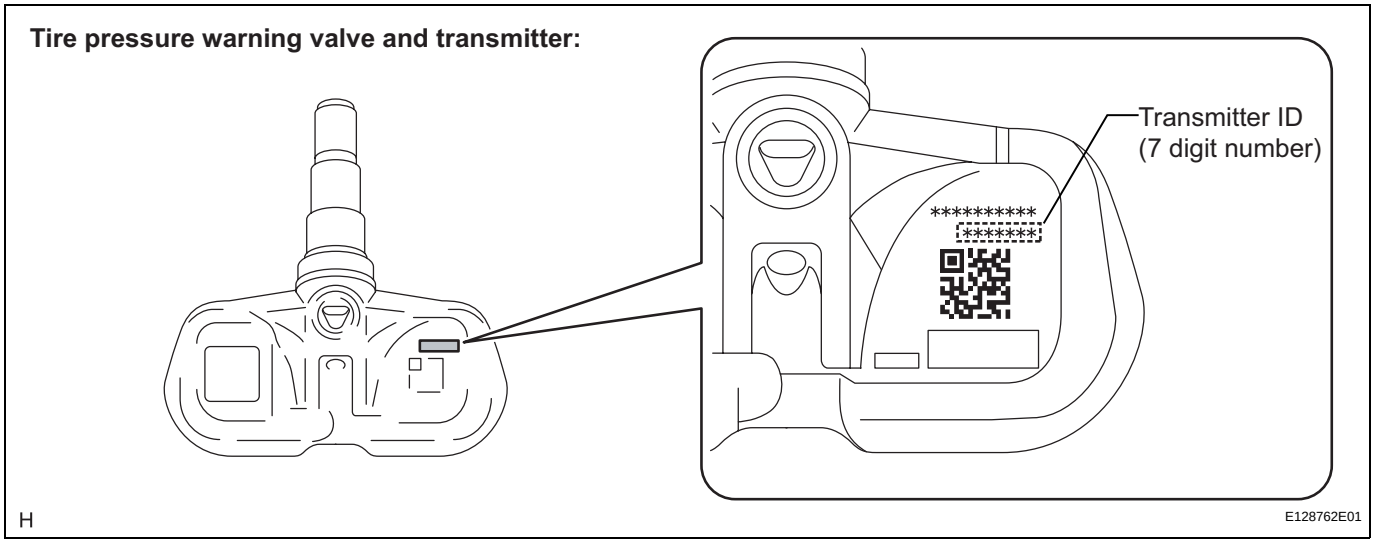
4 INSPECT TIRE PRESSURE WARNING VALVE AND TRANSMITTER

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

Item	Measurement Item/Range (Display)	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.
REGIT ID5 CODE	Registered ID5 code/ min.: 0, max.: FFFFFF*	The ID No. registered in the transmitter ID5 is displayed	*: Displayed only when the ID No. is not registered.

(b) Check the ID number on the identified transmitter by removing it from the tire and wheel.

TW



TW

(c) Confirm that the ID number on the transmitter and recorded transmitter ID match.
Result

Result	Proceed to
Match	A
Do nor match	B

B → **Go to step 6**

A

5	REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

HINT:
(See page TW-77)

NEXT

6	REGISTRATION OF TRANSMITTER ID

(a) Perform registration (See page TW-15).
(b) Set the tire air pressure of all wheels to the specified value (For the specified value, See step 2).

NEXT

7	PERFORM INITIALIZATION

(a) Perform initialization (See page TW-18).

NEXT

8	READ VALUE OF DATA LIST

(a) Turn the ignition switch off, and then turn it on (IG).

(b) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.
HINT:
It may take up to 1 minute or more to display the tire pressure data.

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

A

END

DTC	C2141/41	Transmitter ID1 Error

DTC	C2142/42	Transmitter ID2 Error

DTC	C2143/43	Transmitter ID3 Error

DTC	C2144/44	Transmitter ID4 Error

DTC	C2145/45	Transmitter ID5 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 Detecting Condition	Trouble Area
C2141/41 C2142/42 C2143/43 C2144/44 C2145/45	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 253°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.
- DTC 2145/45 is used only when the vehicle is equipped with ground spare tire.

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-18) 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	IDENTIFY TRANSMITTER CORRESPONDING TO DTC

(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)
P215/60R16 94W	210 (2.1, 31) *1 240 (2.4, 35)*2	210 (2.1, 31) *1 240 (2.4, 35)*2
P215/55R17 93V	220 (2.2, 32) *1 240 (2.4, 35)*2	220 (2.2, 32) *1 240 (2.4, 35)*2

*1: For driving under 100 mph (160 km/h)
*2: For driving at 100 mph (160 km/h) or over

(b) Display the "Tire Inflation Pressure" data for each wheel using the intelligent tester.

(c) Rapidly reduce the tire pressure for each wheel at least 40 kPa (0.41 kg/cm^2, 5.8 psi) within 30 seconds. If "Tire Inflation Pressure" displayed on the tester (ID1 to ID4 or ID5) does not change, the tire pressure monitor valve corresponds to the DTC that was detected.
HINT:
- Identify the malfunctioning tire pressure monitor valve by repeatedly decreasing the tire pressure for each tire.
- Record which "TIREPRESS" data (ID1 to ID4 or ID5) corresponds to each tire.

Item	Measurement Item/Range (display)	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS2	ID2 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS3	ID3 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS4	ID4 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS5	ID5 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-

(d) Check the DATA LIST.

Result

Condition	Detection Condition
One of "Tire Inflation Pressure" data (ID1 to ID4 or ID5) changed.	**Normal**
"Tire Inflation Pressure" data did not change.	**Transmitter corresponding to DTC**

NOTICE:
- **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.**
- **Record the transmitter ID and position of transmitters that are normal.**

(e) When the "TIREPRESS" data (ID1 to ID4 or ID5) 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 or ID5) have changed, identify the malfunctioning tire pressure warning valve and transmitter using recorded ID numbers and output DTC.

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

NEXT

2	REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

(a) Replace the identified tire pressure warning valve and transmitter with a new one.
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 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).
(b) Set the tire air pressure of all wheels to the specified value (For the specified value, see step 1).

NEXT

4	CHECK DTC

(a) Check for a DTC (See page TW-28).

Result

Condition	Proceed to
Any of the DTCs from C2141/41 to C2144/44 or C2145/45 are output.	A
Any of the DTCs from C2141/41 to C2144/44 or C2145/45 are not output.	B

B → END

A

REPLACE TIRE PRESSURE WARNING ECU

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

DTC	C2169/69	Abnormal Temperature Inside ID5 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 Detecting Condition	Trouble Area
C2165/65 C2166/66 C2167/67 C2168/68 C2169/69	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.
- DTC 2169/69 is used only when the vehicle is equipped with ground spare tire.

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-18) 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.**

HINT:

Set the tire pressure to the specified value.

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**

OK

2	IDENTIFY TRANSMITTER CORRESPONDING TO DTC

(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)
P215/60R16 94W	210 (2.1, 31) *1 240 (2.4, 35)*2	210 (2.1, 31) *1 240 (2.4, 35)*2
P215/55R17 93V	220 (2.2, 32) *1 240 (2.4, 35)*2	220 (2.2, 32) *1 240 (2.4, 35)*2

*1: For driving under 100 mph (160 km/h)
*2: For driving at 100 mph (160 km/h) or over

(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 kg/cm^2, 5.8 psi) within 30 seconds.

(d) Check the DATA LIST

Item	Measurement Item/Range (display)	Normal Condition	Diagnostic Note
TIREPRESS1	ID1 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS2	ID2 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS3	ID3 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS4	ID4 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-
TIREPRESS5	ID5 tire inflation pressure/ min.: 0 kPa (0 kgf/cm^2, 0 psi), max.: 637.5 kPa (6.48 kgf/cm^2, 92.2 psi)	Actual tire inflation pressure	-

Result

Condition	Detection Condition
One of "Tire Inflation Pressure" data (ID1 to ID4 or ID5) changed.	Normal
No "Tire Inflation Pressure" data changed.	Transmitter corresponding to DTC

NOTICE:

- **It takes about 1 minute or more to display the updated data.**
- **When no "TIREPRESS" data has 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 that is normal condition.**

(e) When the "TIREPRESS" data (ID1 to ID4 or ID5) 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 or ID5) has changed, identify the malfunctioning tire pressure warning valve and transmitter based on the recorded ID numbers and output DTC.

NEXT

3	REPLACE TIRE PRESSURE WARNING VALVE AND TRANSMITTER

(a) Replace the identified tire pressure warning valve and transmitter with a new one.

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 be replaced should be checked using tester and recorded.

NEXT

4	CHECK REGISTRATION OF TRANSMITTER ID

(a) Register the transmitter ID for 4 or 5 wheels (See page TW-15).

(b) Set the tire 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)
P215/60R16 94W	210 (2.1, 31) *1 240 (2.4, 35)*2	210 (2.1, 31) *1 240 (2.4, 35)*2
P215/55R17 93V	220 (2.2, 32) *1 240 (2.4, 35)*2	220 (2.2, 32) *1 240 (2.4, 35)*2

*1: For driving under 100 mph (160 km/h)

*2: For driving at 100 mph (160 km/h) or over

NEXT

5	PERFORM INITIALIZATION

(a) Perform initialization (See page TW-18).

NEXT

6	CHECK DTC

(a) Check for a DTC (See page TW-18).

Result

Condition	Proceed to
Any of the DTCs from C2165/65 to C2168/68 or C2169/69 are output.	A
Any of the DTCs from C2165/65 to C2168/68 or C2169/69 are not output.	B

B → END

TW

A

REPLACE TIRE PRESSURE WARNING ECU

DTC	C2171/71	Transmitter ID not Registered

DESCRIPTION

The IDs of each tire pressure warning valve and transmitters are registered to the tire pressure warning ECU.
When the ECU detects that an ID is not the one of registered IDs, or cannot receive an ID signal, a DTC is output.

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-18) after registration (See page TW-15) the transmitter IDs into the tire pressure warning ECU after the ECU have been replaced.**

1	CONFIRM REGISTRATION CONDITION (REGISTERED ID CODES)

(a) Connect the intelligent tester to the DLC3 connector.
(b) Turn the ignition switch ON (IG) and turn the tester ON.
(c) Select REGIT ID CODE by following the prompts displayed on the intelligent tester.

OK:

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

OK → **REPLACE TIRE PRESSURE WARNING ECU**

NG

2	PERFORM REGISTRATION (TRANSMITTER ID)

(a) Register the transmitter IDs for all the wheels (See page TW-15).
(b) Set the tire pressure of all the wheels to the appropriate specified values.

NEXT

3	READ VALUE ON DATA LIST

(a) Check the DATA LIST (See page TW-29).
(b) Select "TIREPRESS" by following the prompts displayed on the intelligent tester.
HINT:
It may take up to 1 minute or more to display the tire pressure data.

Result

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

B → REPLACE TIRE PRESSURE WARNING ECU

A

END

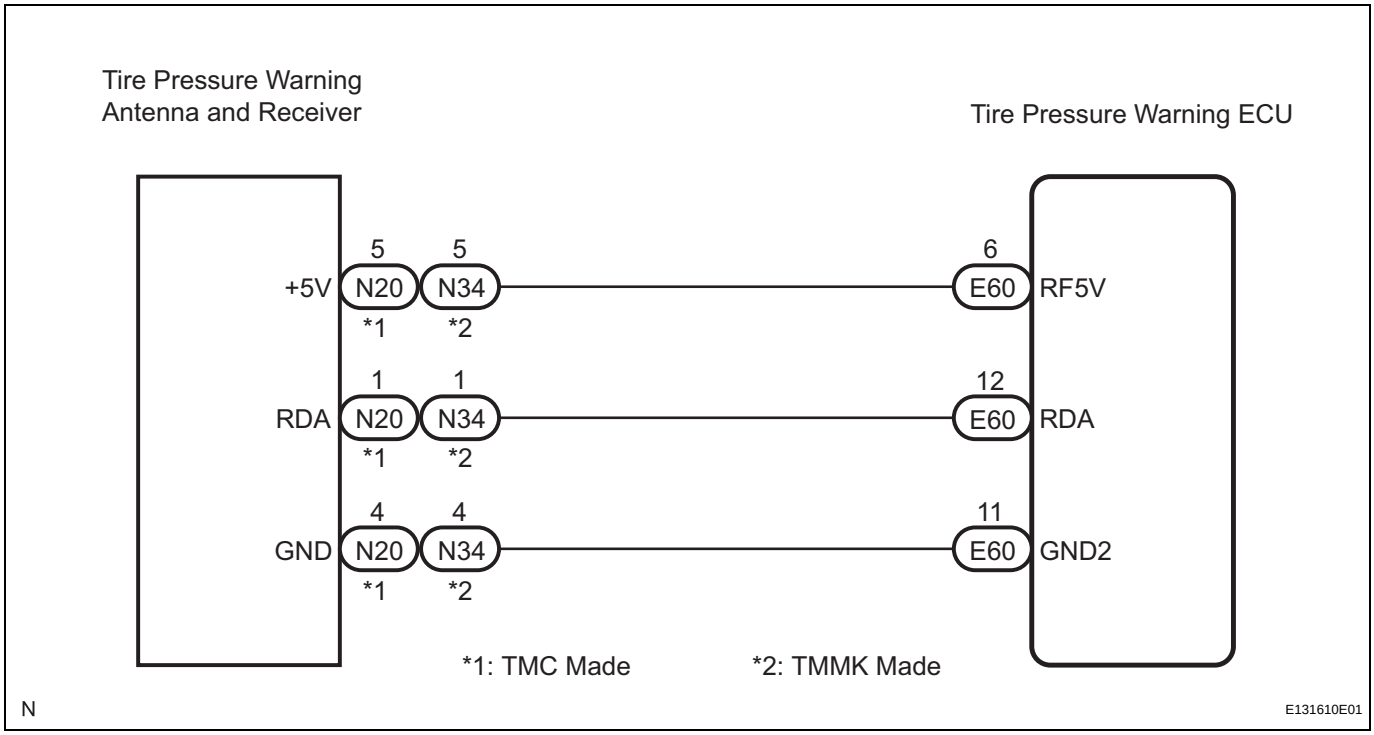
DTC	C2176/76	Receiver Error

DESCRIPTION

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

DTC No.	DTC Detection Condition	Trouble Area
C2176/76	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



TW

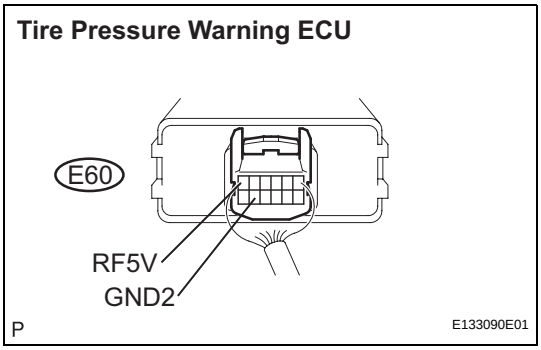
INSPECTION PROCEDURE

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-18) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU have been replaced.**

1 CHECK TIRE PRESSURE WARNING ECU

Tire Pressure Warning ECU



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

Standard voltage

Tester Connection	Switch Condition	Specified Condition
E60-6 (RF5V) - E60-11 (GND2)	Ignition switch ON (IG)	4.5 to 5.5 V

NG → **Go to step 5**

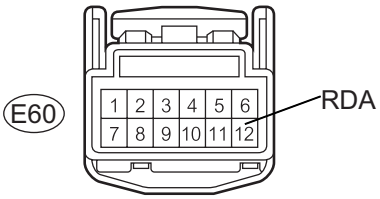
OK

TW

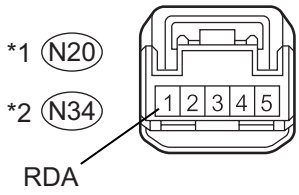
2 CHECK WIRE HARNESS (ECU - RECEIVER)

Wire Harness Side Connector Front View:

Tire Pressure Warning ECU



Tire Pressure Warning Antenna and Receiver



(a) Disconnect the E60 ECU connector.
(b) Disconnect the N20 receiver connector.*1
(c) Disconnect the N34 receiver connector.*2
(d) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Specified Condition
E60-12 (RDA) - N20-1 (RDA)*1 E60-12 (RDA) - N34-1 (RDA)*2	Below 1 Ω

HINT:
- *1: TMC Made
- *2: TMMK Made

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

OK

3 REPLACE TIRE PRESSURE WARNING ANTENNA AND RECEIVER

NEXT

4 CHECK DTC

(a) Check for DTC (See page TW-28).

OK:

DTC is not output.

HINT:
- It is necessary to register IDs when replacing the tire pressure warning ECU (See page TW-15).
- Read the IDs on the DATA LIST before removing the tire pressure warning ECU. Register the ID in the new tire pressure warning ECU.

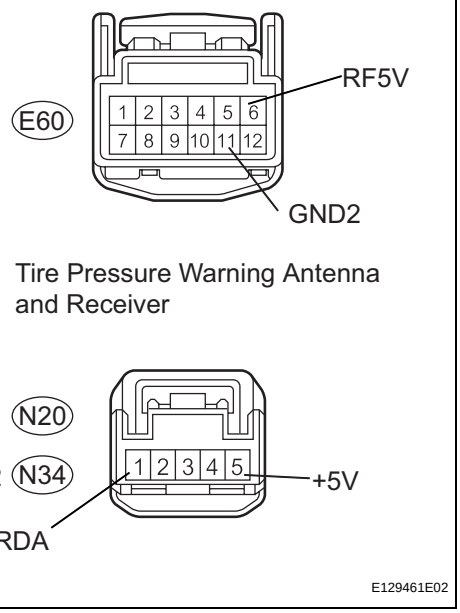
NG → REPLACE TIRE PRESSURE WARNING ECU

OK

END

5 CHECK HARNESS AND CONNECTOR (ECU - RECEIVER)

Wire Harness Side Connector Front View:



(a) Disconnect the E60 ECU connector.
(b) Disconnect the N20 receiver connector.*1
(c) Disconnect the N34 receiver connector.*2
(d) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Specified Condition
E60-11 (GND2) - N20-4 (GND)*1 E60-11 (GND2) - N34-4 (GND)*2	Below 1 Ω
E60-6 (RF5V) - N20-5 (+5V)*1 E60-6 (RF5V) - N34-5 (+5V)*2	

HINT:
- *1: TMC Made
- *2: TMMK Made

Result

Result	Proceed to
OK	A
OK (When troubleshooting accordance with PROBLEM SYMPTOMS TABLE)	B
NG	C

A → REPLACE TIRE PRESSURE WARNING ECU

C → REPAIR OR REPLACE HARNESS OR CONNECTOR AND REPLACE TIRE PRESSURE WARNING ECU

B

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

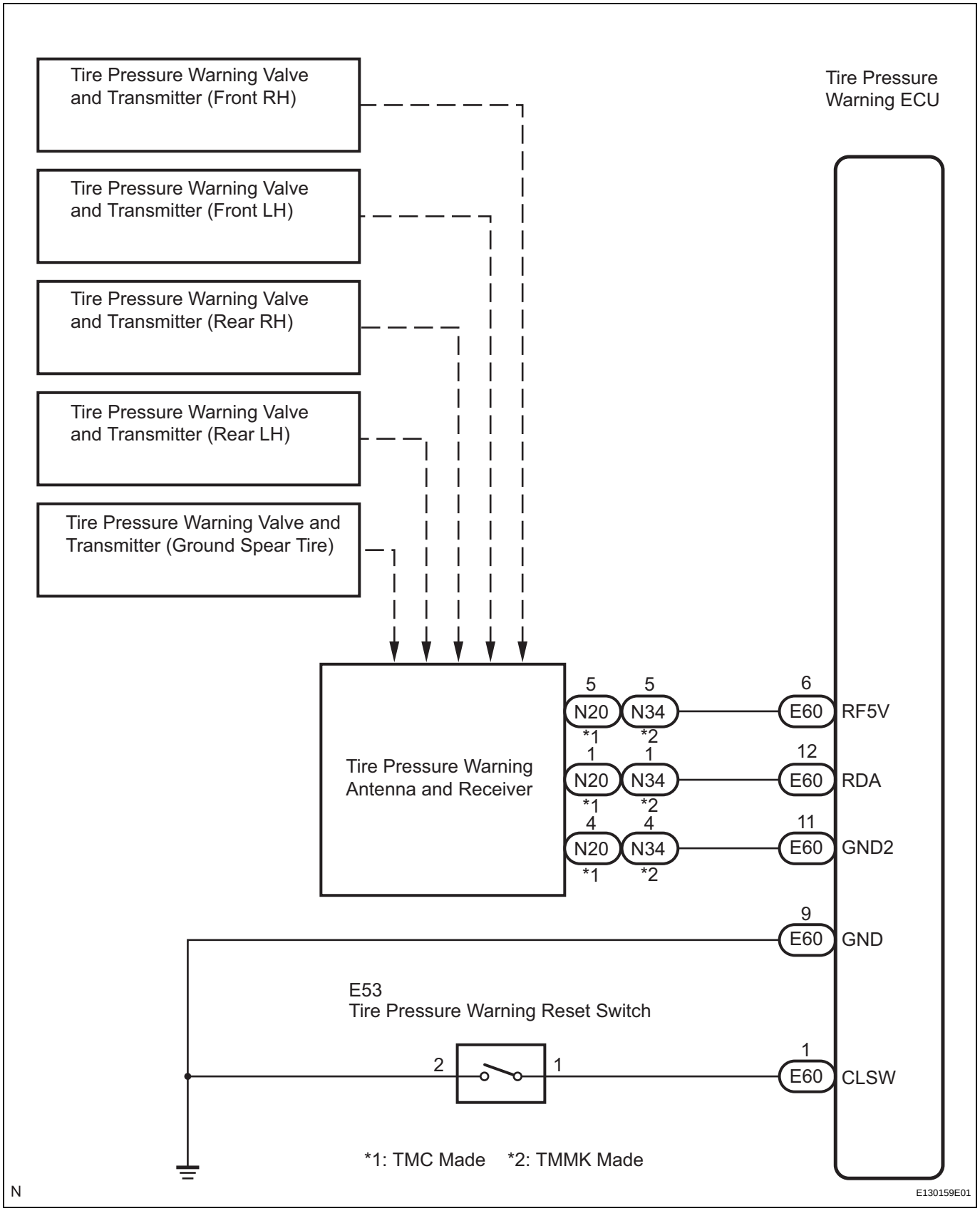
DTC	C2177/77	Initialization not Completed

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 • Tire pressure warning reset switch • Wire harness or connector

WIRING DIAGRAM



TW

INSPECTION PROCEDURE

1	CHECK DTC

(a) Check for a DTC.

Result

Condition	Proceed to
Only DTC C2177/77 is output.	A
DTC C2177/77 and any of the DTCs from C2121/21 to C2125/25 are output.	B (See page TW-38)

B → REPAIR CIRCUITS INDICATED BY OUTPUT DTCS

A

TW

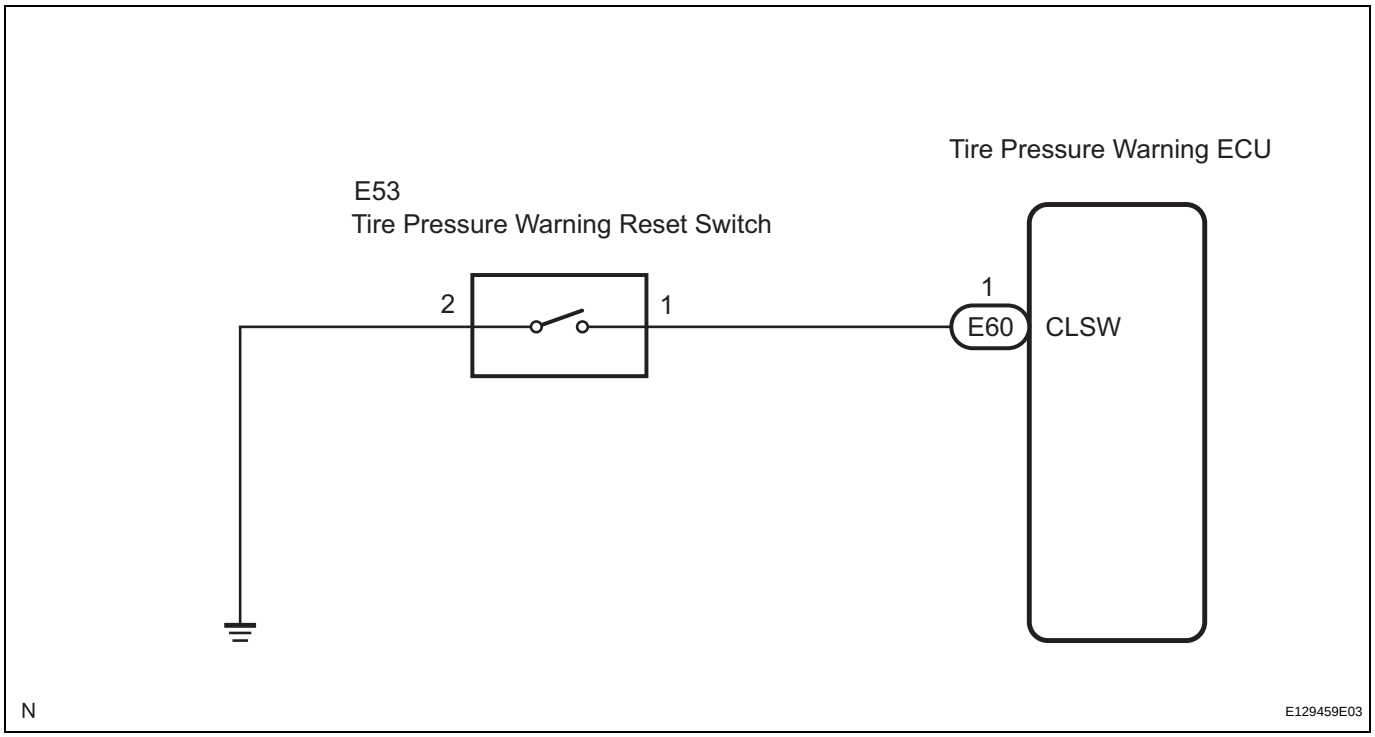
REPLACE TIRE PRESSURE WARNING ECU

Tire Pressure Warning Reset Switch Circuit

DESCRIPTION

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

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK TIRE PRESSURE WARNING RESET SWITCH FUNCTION

(a) Perform the tire pressure warning reset switch test in TEST MODE PROCEDURE (See page TW-20).

OK:

Reset switch ON:

Tire pressure warning light comes on.

Reset switch OFF:

Tire pressure warning light blinks.

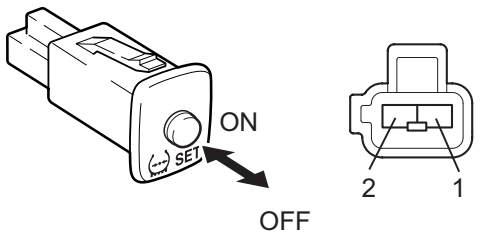
NG → **Go to step 2**

OK

END

2	INSPECT TIRE PRESSURE WARNING RESET SWITCH

Tire Pressure Warning Reset Switch:



P C107260E01

(a) Disconnect the tire pressure warning reset switch connector.
(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

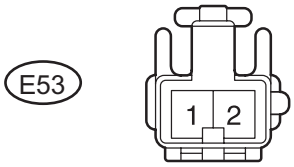
NG → **REPLACE TIRE PRESSURE WARNING RESET SWITCH**

TW

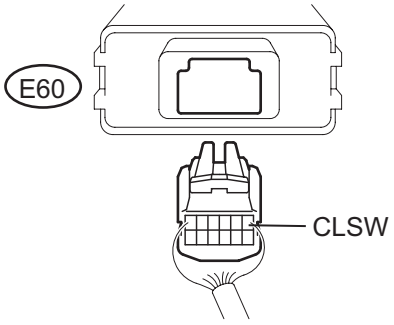
OK

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

Tire Pressure Warning Reset Switch: (harness side connector)



Tire Pressure Warning ECU:



P C111010E06

(a) Disconnect the tire pressure warning reset switch E53 connector and tire pressure warning ECU E60 connector.
(b) Measure the resistance according to the value(s) in the table below.
Standard resistance

Switch Condition	Specified Condition
E60-1 (CLSW) - E53-1	Below 1 Ω
E60-1 (CLSW) - Body ground	10 kΩ or higher
E53-2 - Body ground	Below 1Ω

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

OK

REPLACE TIRE PRESSURE WARNING ECU

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 Detecting Condition	Trouble Area
C2191/91	Speed sensor circuit malfunction	• Vehicle speed sensor • Tire pressure warning ECU • Combination meter • Wire harness or connector

WIRING DIAGRAM

TW

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-18) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU after the ECU have been replaced.**

1	READ VALUE ON INTELLIGENT TESTER

(a) Connect the intelligent tester to DLC3.
(b) Turn the ignition switch on (IG), and turn the intelligent tester on.
(c) Select the item below in the Data List, and read the value displayed on the intelligent tester.

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

METER

Item	Normal Condition
VEHICLE SPD	Almost same as actual vehicle speed

(d) Check that the values indicated on the tester and on the combination meter are the same.
OK:
Vehicle speed indicated on the intelligent tester indicates the actual speed.

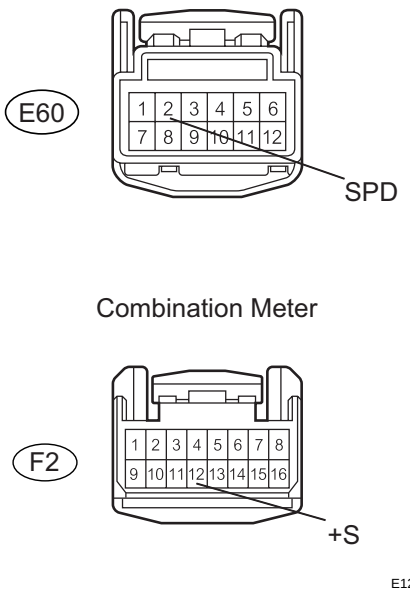
NG → **GO TO METER / GAUGE SYSTEM**

OK

TW

2 CHECK HARNESS AND CONNECTOR (ECU - COMBINATION METER)

Wire Harness Side Connector Front View:



(a) Disconnect the E60 ECU connector.
(b) Disconnect the F2 meter connector.
(c) Measure the resistance according to the value(s) in the table below.
Standard resistance

Tester Connection	Specified Condition
E60-2 (SPD) - F2-12 (+S)	Below 1 Ω
E60-2 (SPD) - Body ground	10 kΩ or higher

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

OK

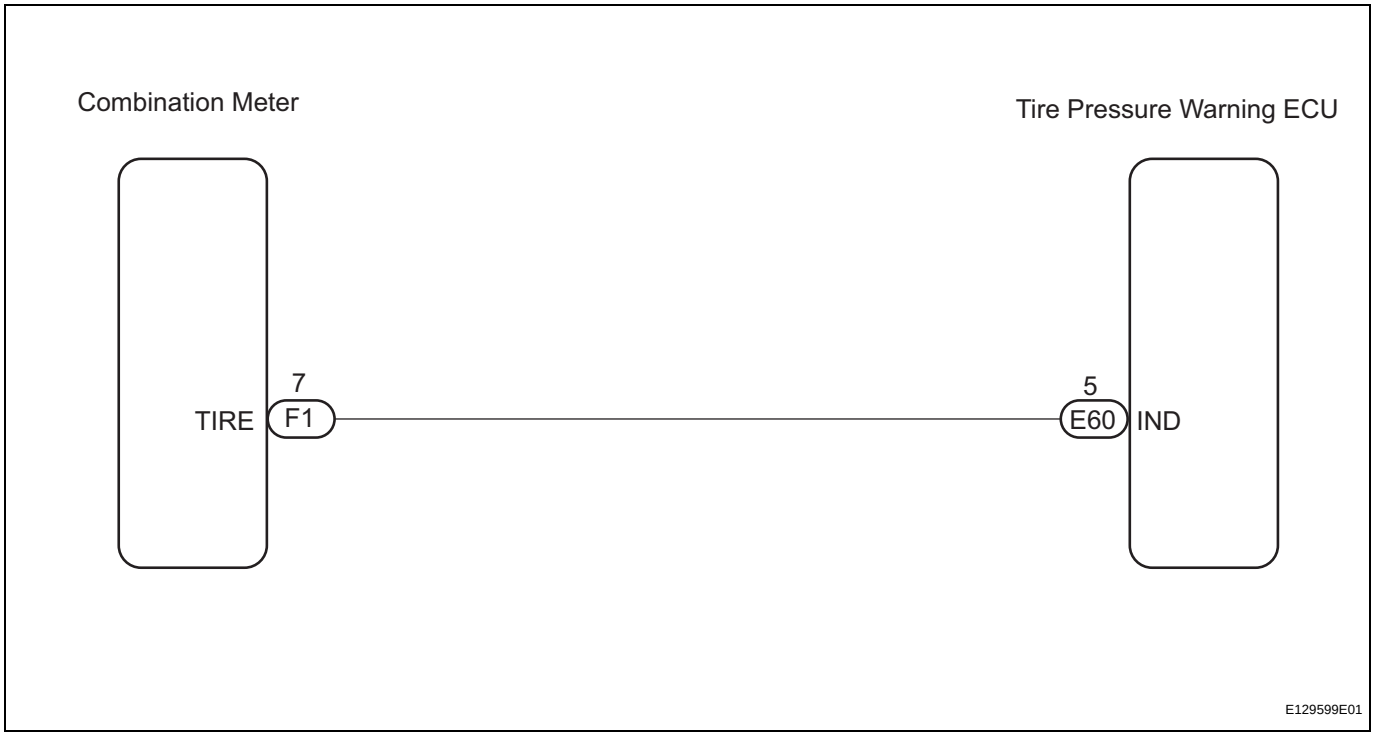
REPLACE TIRE PRESSURE WARNING ECU

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 make the tire pressure warning light blink and output the DTC.

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

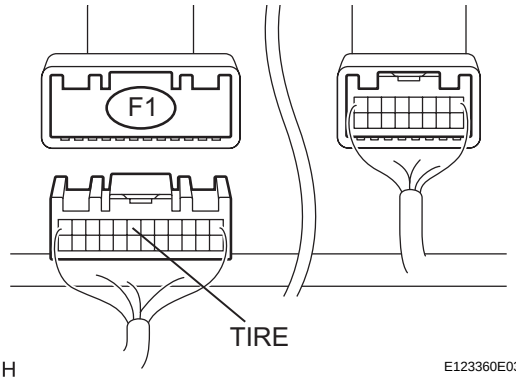
It is necessary to perform initialization (See page TW-18) after registration (See page TW-15) of the transmitter IDs into the tire pressure warning ECU, after the ECU have been replaced.

HINT:

This procedure must be performed according to the PROBLEM SYMPTOMS TABLE.

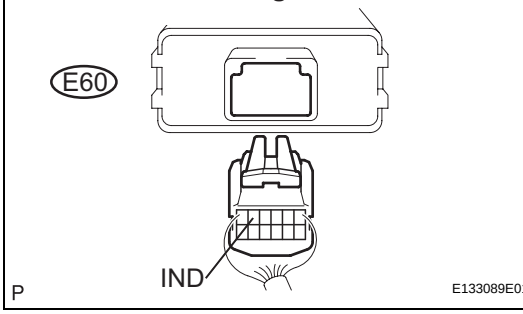
1	CHECK HARNESS AND CONNECTOR (COMBINATION METER - TIRE PRESSURE WARNING ECU)

Combination Meter Assembly Wire Harness View:



(a) Disconnect the F1 combination meter connector.

Tire Pressure Warning ECU



(b) Disconnect the E60 tire pressure warning ECU connector.

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

Standard resistance

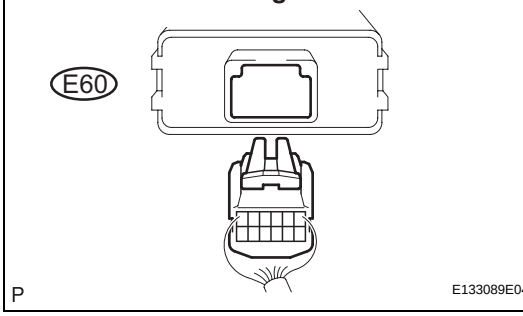
Tester Connection	Specified Condition
F1-7 (TIRE) - E60-5 (IND)	Below 1 Ω
F1-7 (TIRE) - Body ground	10 kΩ or higher

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

OK

2	INSPECT COMBINATION METER

Tire Pressure Warning ECU



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

(b) Turn the ignition switch on (IG), check the condition of the tire pressure warning light illumination.

Result

Condition	Proceed to
Illuminates	A
Does not illuminate	B

B → **REPLACE COMBINATION METER**

A

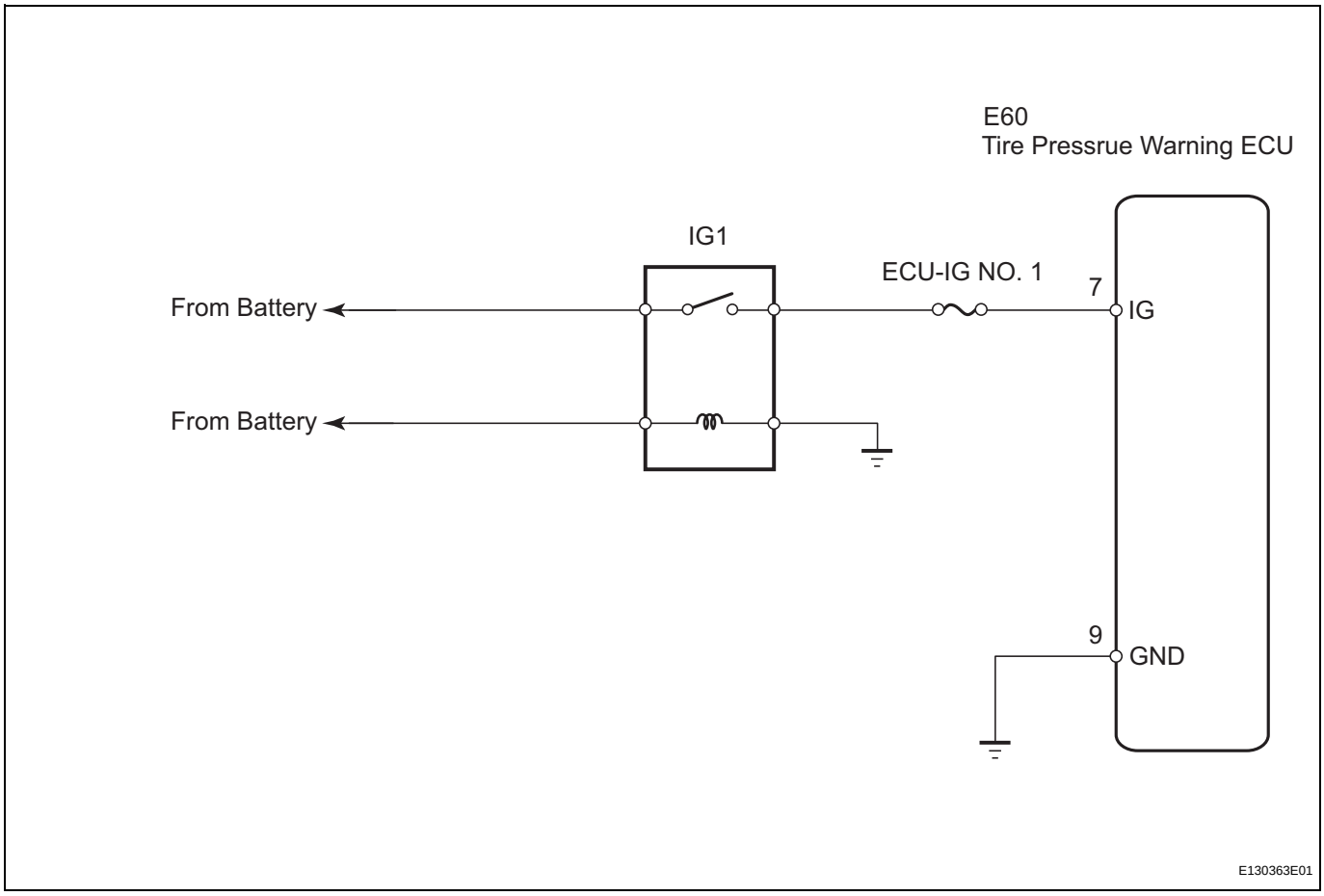
REPLACE TIRE PRESSURE WARNING ECU

ECU Power Source Circuit

DESCRIPTION

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

WIRING DIAGRAM



INSPECTION PROCEDURE

NOTICE:

It is necessary to register an ID code after replacing the tire pressure warning valve and transmitter and/or the tire pressure warning ECU (See page TW-15).

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.

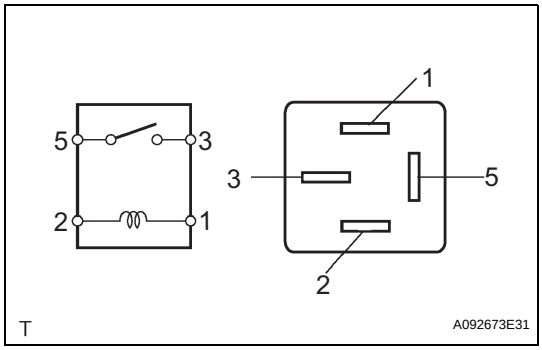
Standard resistance:

Below 1 Ω

NG → **REPLACE FUSE**

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

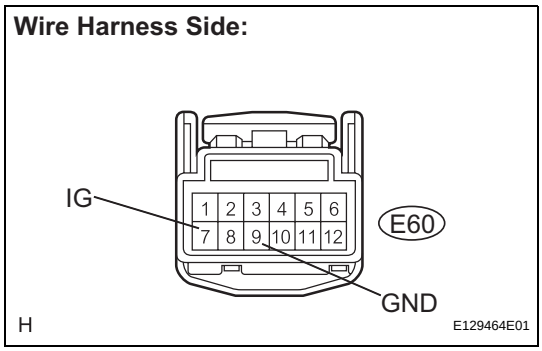
Tester Connection	Specified Condition
3 - 5	10 kΩ or higher
	Below 1 Ω (When battery voltage is applied to terminals 1 and 2)

NG → REPLACE IG1 RELAY

TW

OK

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



(a) Disconnect the E60 ECU connector.
(b) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Switch Condition	Specified Condition
E60-7 (IG) - Body ground	Ignition switch on (IG)	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	Specified Condition
E60-9 (GND) - Body ground	Below 1 Ω

NG → REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

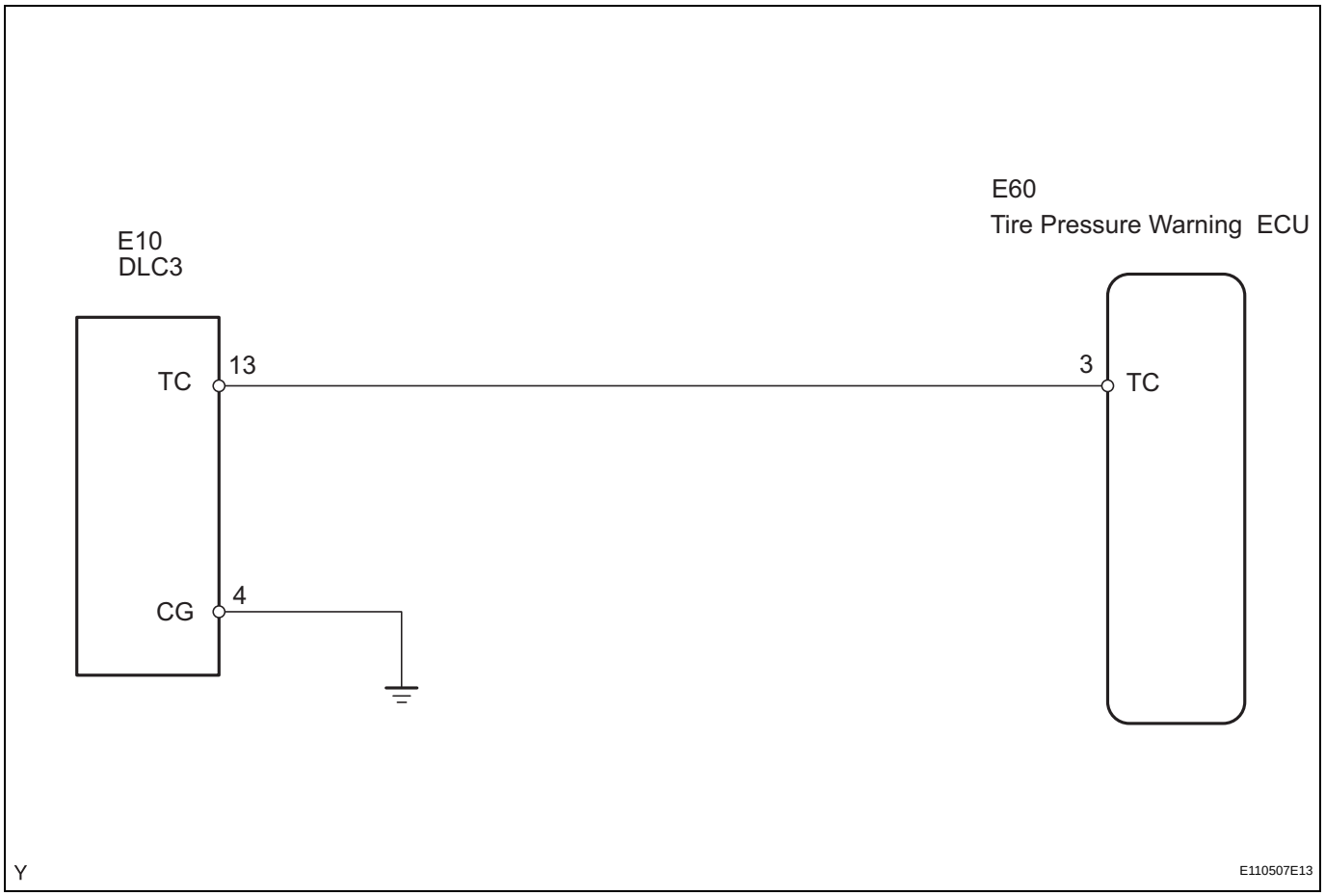
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

TC and CG Terminal Circuit

DESCRIPTION

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

WIRING DIAGRAM



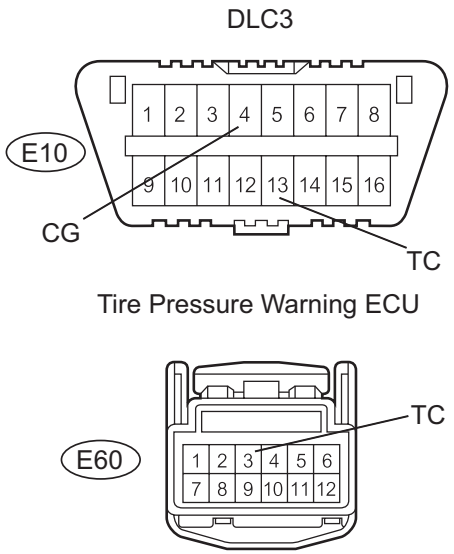
HINT:
When each warning light blinks continuously, a ground short in the wiring of terminal TC of the DLC3 or an internal ground short in an ECU connected to this circuit may have occurred.

INSPECTION PROCEDURE

NOTICE:
It is necessary to register an ID code after replacing the tire pressure warning valve and transmitter and/or the tire pressure warning ECU (See page TW-15).

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

Wire Harness Side:



(a) Disconnect the E60 ECU connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Specified Condition
E60-3 (TC) - E10-13 (TC)	Below 1 Ω
E10-4 (CG) - Body ground	

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

OK

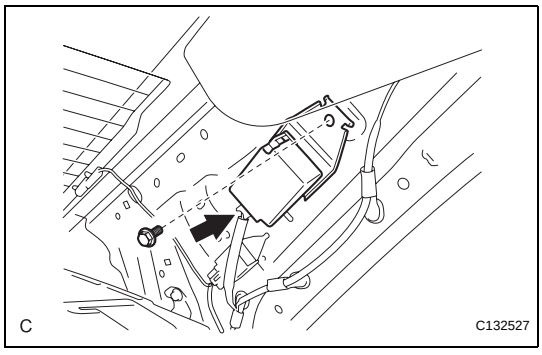
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

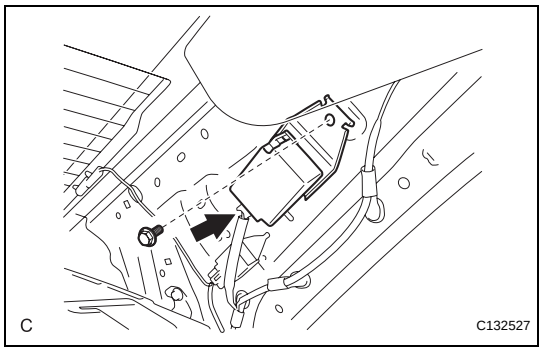
TW

TW

REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE REAR SEAT CUSHION ASSEMBLY (for Fixed Seat Type) (See page SE-77)**
3. **REMOVE REAR SEAT HEADREST ASSEMBLY (for Fixed Seat Type)**
4. **REMOVE REAR CENTER SEAT HEADREST ASSEMBLY (for Fixed Seat Type)**
5. **REMOVE REAR SEATBACK ASSEMBLY (for Fixed Seat Type) (See page SE-77)**
6. **REMOVE REAR SEAT CUSHION ASSEMBLY (for Fold Down Seat Type) (See page SE-47)**
7. **REMOVE REAR SIDE SEATBACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-48)**
8. **REMOVE REAR SEAT HEADREST ASSEMBLY (for Reclining Seat Type)**
9. **REMOVE REAR SEAT CUSHION ASSEMBLY (for Reclining Seat Type) (See page SE-62)**
10. **REMOVE REAR SEATBACK COVER (for Reclining Seat Type) (See page SE-63)**
11. **REMOVE SEPARATE TYPE REAR SEATBACK ASSEMBLY LH (for Reclining Seat Type) (See page SE-63)**
12. **REMOVE INNER ROOF SIDE GARNISH LH (See page IR-26)**
13. **REMOVE TIRE PRESSURE WARNING RECEIVER ASSEMBLY**
    (a) Remove the bolt.
    (b) Disconnect the connector and remove the tire pressure warning receiver assembly.





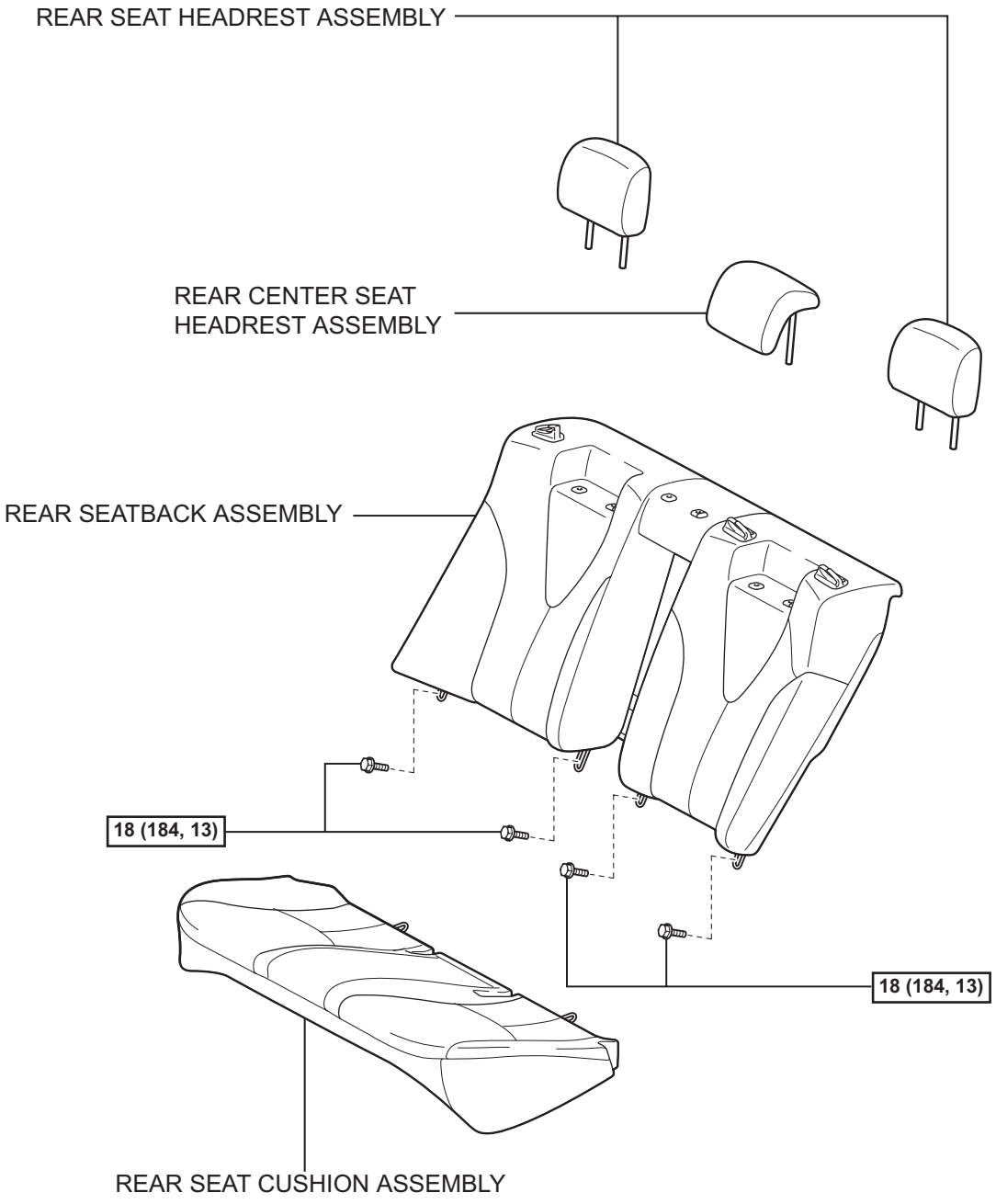
INSTALLATION

1. **INSTALL TIRE PRESSURE WARNING RECEIVER ASSEMBLY**
   (a) Connect the connector to the tire pressure warning receiver assembly.
   (b) Install the tire pressure warning receiver assembly with the bolt
   Torque: 7.5 N*m (77 kgf*cm, 66 in.*lbf)
2. **INSTALL INNER ROOF SIDE GARNISH LH (See page IR-52)**
3. **INSTALL REAR SEATBACK ASSEMBLY (for Fixed Seat Type) (See page SE-84)**
4. **INSTALL REAR CENTER SEAT HEADREST ASSEMBLY (for Fixed Seat Type)**
5. **INSTALL REAR SEAT HEADREST ASSEMBLY (for Fixed Seat Type)**
6. **INSTALL REAR SEAT CUSHION ASSEMBLY (for Fixed Seat Type) (See page SE-84)**
7. **INSTALL REAR SIDE SEATBACK ASSEMBLY LH (for Fold Down Seat Type) (See page SE-57)**
8. **INSTALL REAR SEAT CUSHION ASSEMBLY (for Fold Down Seat Type) (See page SE-58)**
9. **INSTALL REAR SEATBACK ASSEMBLY LH (for Reclining Seat Type) (See page SE-72)**
10. **INSTALL REAR SEATBACK COVER (for Reclining Seat Type)**
11. **INSTALL REAR SEAT HEADREST ASSEMBLY (for Reclining Seat Type)**
12. **INSTALL BENCH TYPE REAR SEAT CUSHION ASSEMBLY (for Reclining Seat Type) (See page SE-73)**
13. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
14. **INSPECT TIRE PRESSURE WARNING SYSTEM**
    HINT:
    (See page TW-20)

TIRE PRESSURE WARNING RECEIVER (w/ Antenna)

COMPONENTS

for Fixed Type:



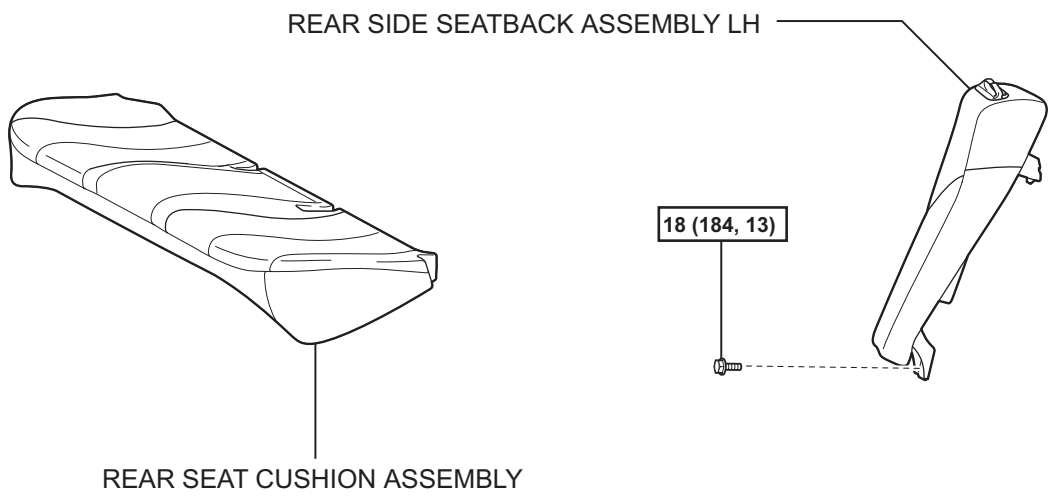
N*m (kgf*cm, ft.*lbf): Specified torque

P

B136589E05

TW

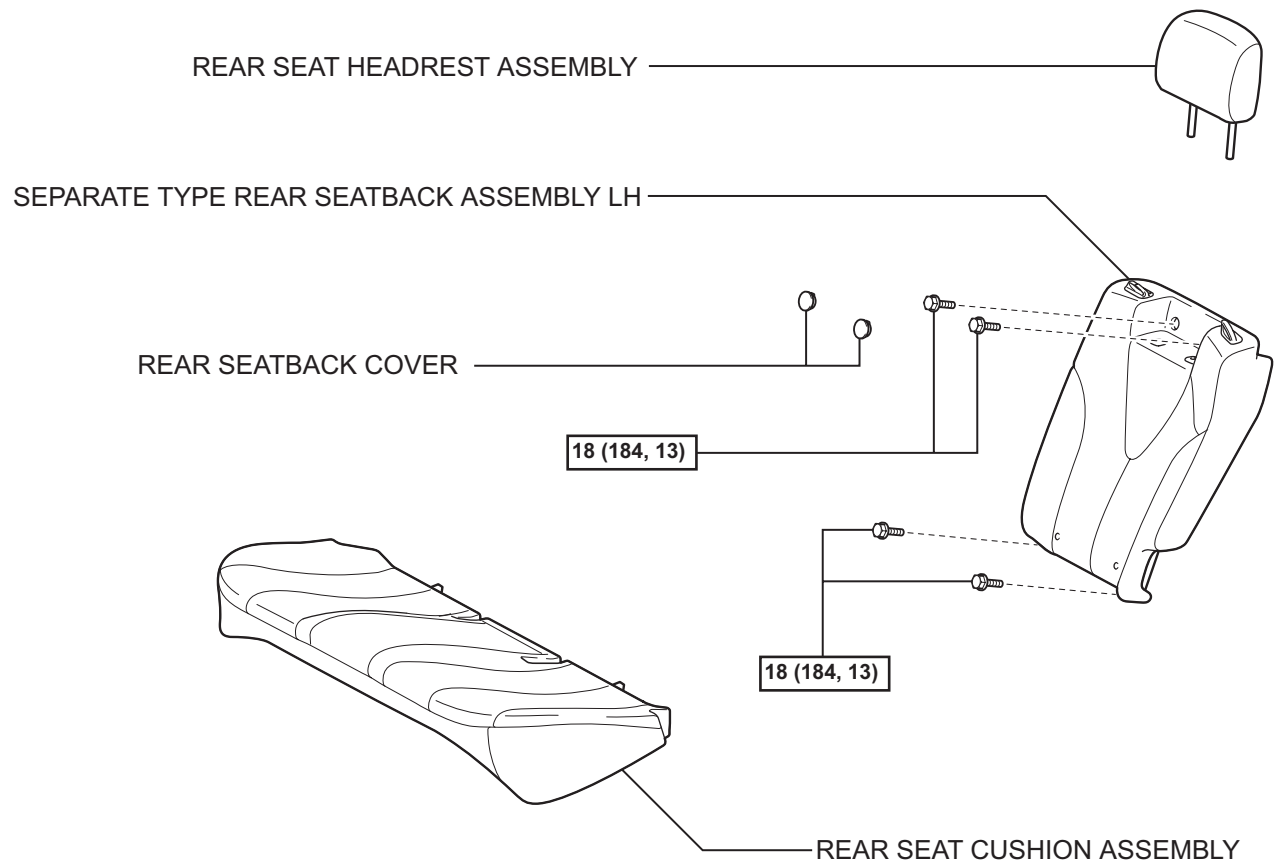
for Fold Down Seat Type:



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

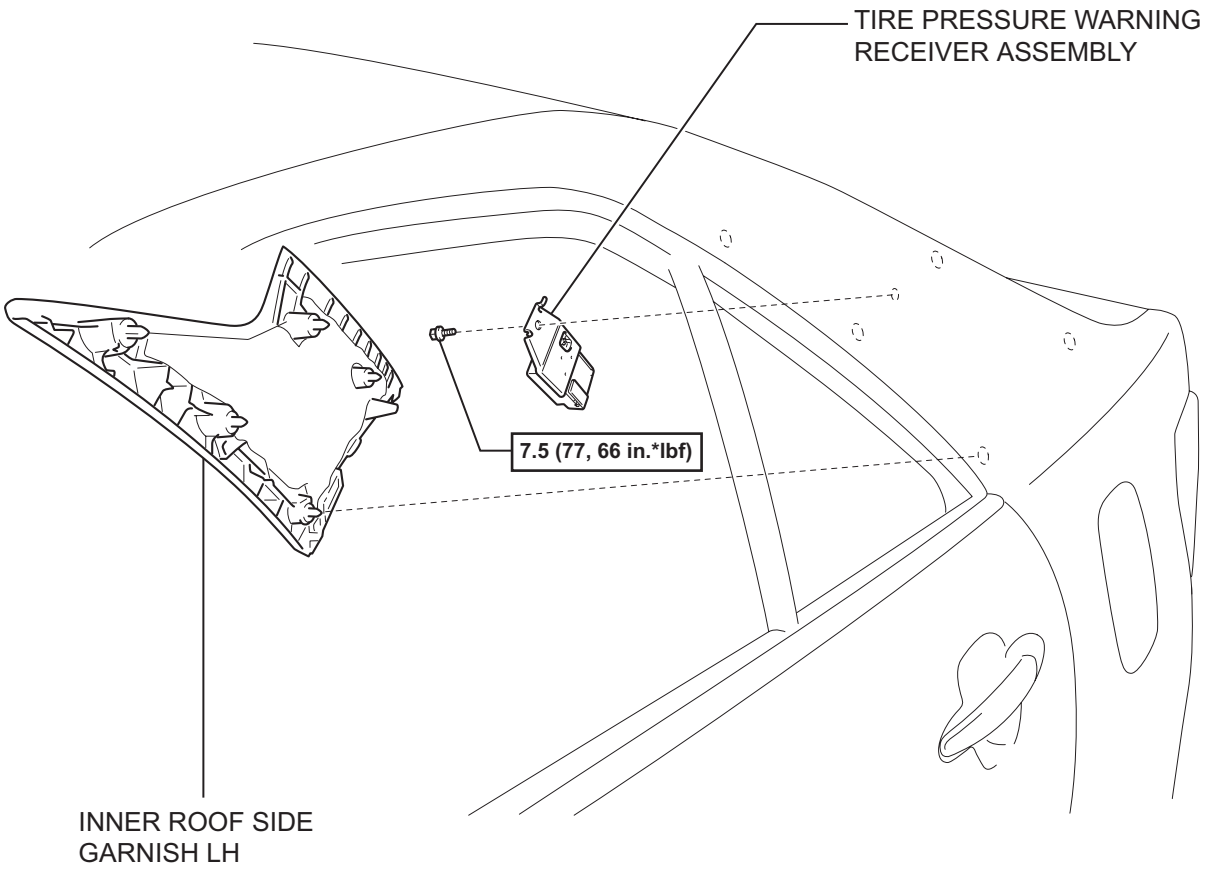
C139029E01

for Reclining Seat Type:



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

C135237E01



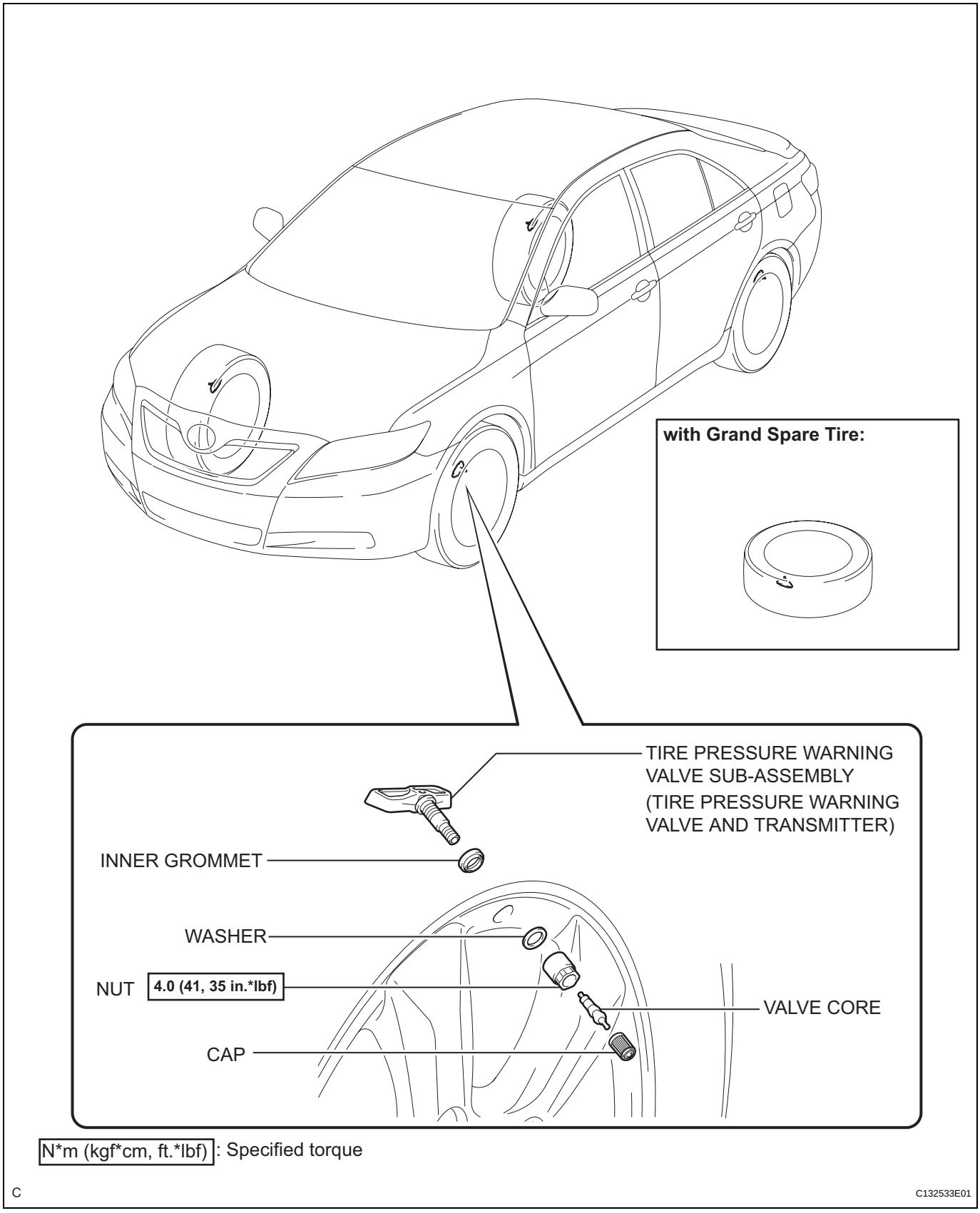
N*m (kgf*cm, ft.*lbf): Specified torque

C

C132530E01

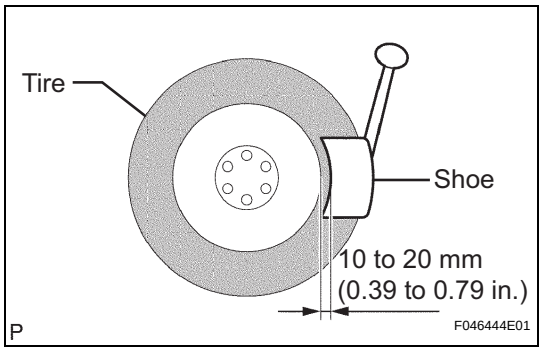
TIRE PRESSURE WARNING VALVE AND TRANSMITTER

COMPONENTS



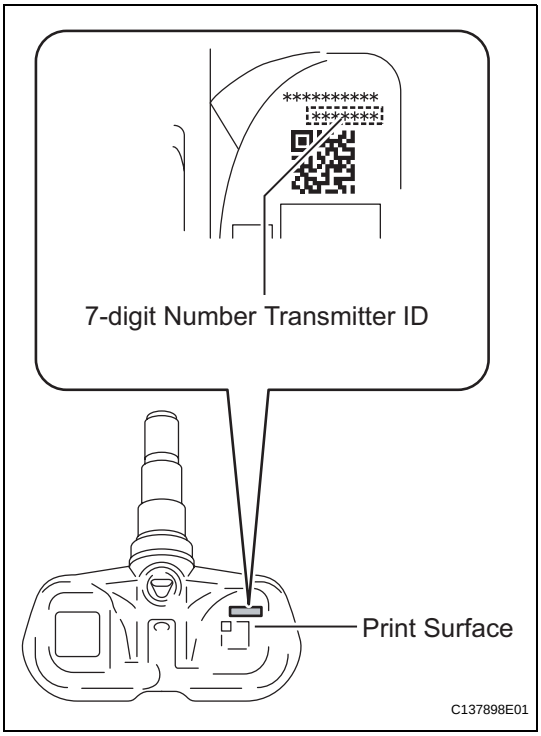
REMOVAL

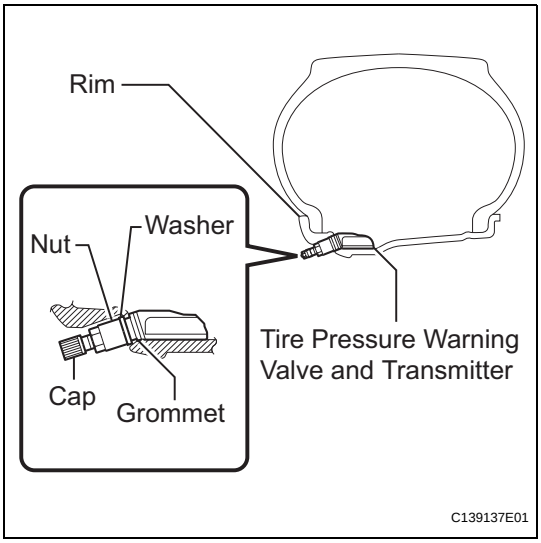
1. **REMOVE FRONT WHEEL**
2. **REMOVE REAR WHEEL**
3. **REMOVE GRAND SPARE TIRE (w/ Grand Spare Tire)**
4. **REMOVE TIRE PRESSURE WARNING VALVE SUB-ASSEMBLY**
   (a) Remove the valve core and cap, and release the air from the tire.
   (b) After ensuring that a sufficient amount of air has been released, 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 inside the tire.
   HINT:
   Keep the removed cap, valve core, nut, and washer.



   (c) After dropping the tire pressure warning valve and transmitter into the tire, disengage the bead using the shoe of the tire remover.
   NOTICE:
   Be careful not to damage the tire pressure warning valve and transmitter due to interference between the tire pressure warning valve and transmitter 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, washer, and nut.

TW





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 print surface can be seen.

NOTICE:

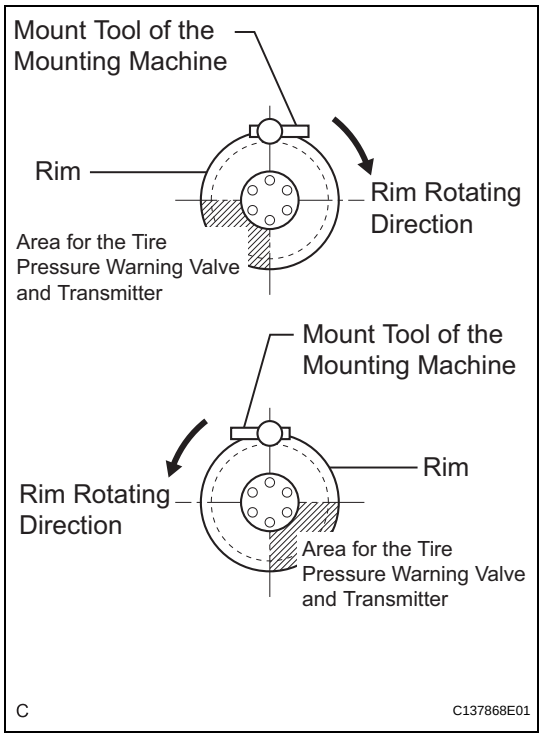
- **Check that there is no visible deformation, damage, or other abnormalities on the tire pressure warning valve and transmitter.**
- **Check that there is no foreign matter on the inner grommet and around the rim hole.**
- **If the tire pressure warning valve and transmitter is installed in the reverse direction, 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).**

(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:

- **Do not tighten the nut further after tightening it 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 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 as shown in the illustration.
NOTICE:
- **If the tire pressure warning valve and transmitter is positioned outside this area, it will be interfered with the tire bead, and may cause damage to the tire pressure warning valve and transmitter.**
- **If the use 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:
Do not tighten the nut further after tightening it 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)

4. **INSTALL GRAND SPARE TIRE (w/ Grand Spare Tire)**

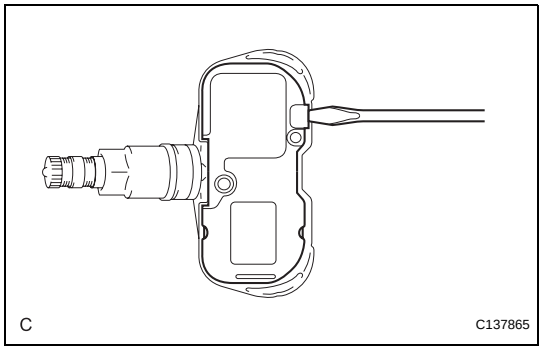
5. **INSPECT TIRE**
HINT:
(See page TW-3)

6. **REGISTER TRANSMITTER ID**
HINT:
(See page TW-15)

7. **INSPECT TIRE PRESSURE WARNING SYSTEM**
HINT:
(See page TW-20)

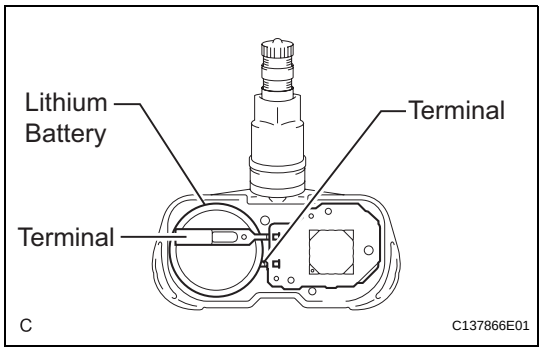
DISPOSAL

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

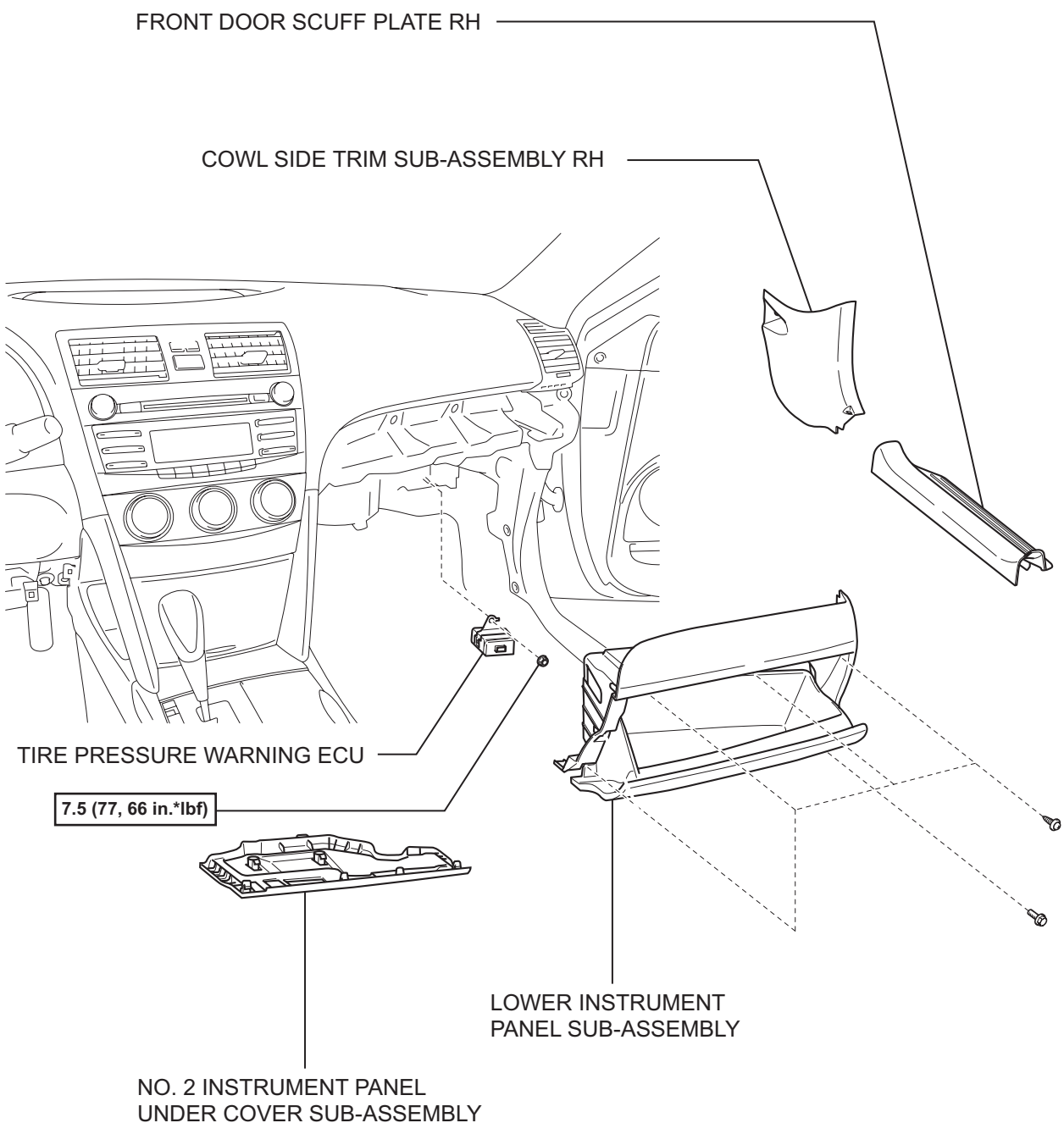
(a) Use the tip of a screwdriver to pry off the back cover.



(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.

TIRE PRESSURE WARNING ECU

COMPONENTS



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

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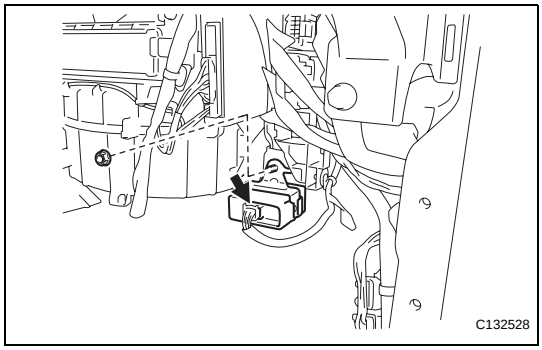
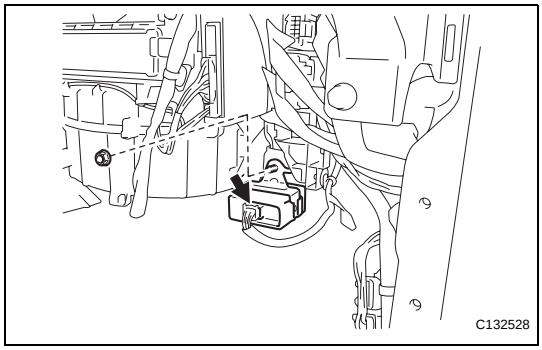
TW

REMOVAL

NOTICE:
Before removing the tire pressure warning ECU, read the registered transmitter IDs of all wheels and write them down to use for re-registration of transmitter IDs (See page TW-15).

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE FRONT DOOR SCUFF PLATE RH (See page IR-26)**
3. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-26)**
4. **REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See page IP-23)**
5. **REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY (for TMC Made) (See page IP-23)**
6. **REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY (for TMMK Made) (See page IP-24)**
7. **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: 7.5 N*m (77 kgf*cm, 66 in.*lbf)
2. **INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY (for TMC Made) (See page IP-55)**
3. **INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY (for TMMK Made) (See page IP-56)**
4. **INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See page IP-56)**
5. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-55)**
6. **INSTALL FRONT DOOR SCUFF PLATE RH (See page IR-55)**
7. **CONNECT CABLE TO BATTERY NEGATIVE TERMINAL**

8. **REGISTER TRANSMITTER ID**
HINT:
(See page TW-15)

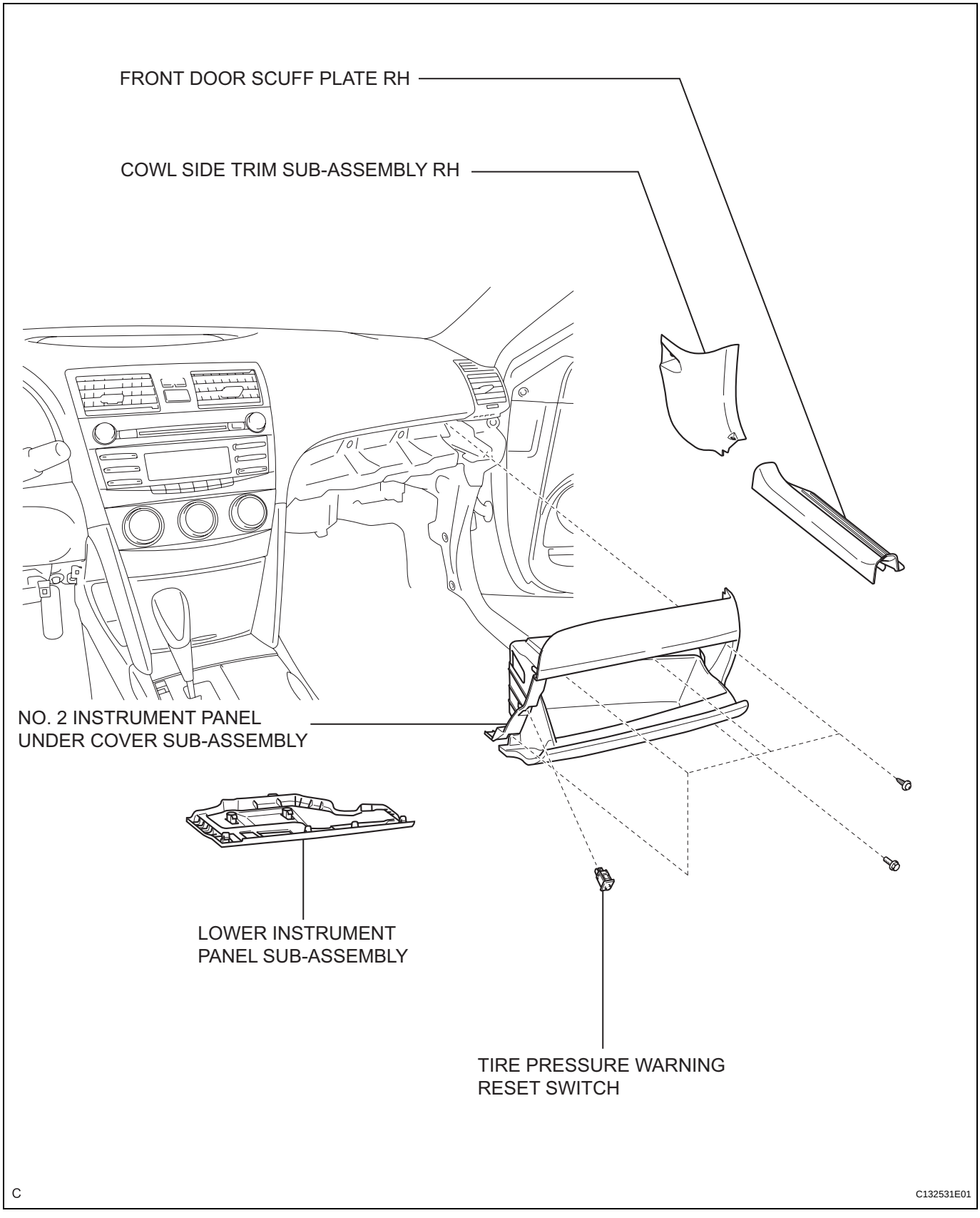
9. **INITIALIZE SYSTEM**
NOTICE:
- **Be sure to register the transmitter IDs of all tires including the grand spare tire in the ECU before initialization.**
- **Be sure to inflate all tires including the grand spare tire to the proper inflation pressure before initialization.**

HINT:
(See page TW-18)

10. **INSPECT TIRE PRESSURE WARNING SYSTEM**
HINT:
(See page TW-20)

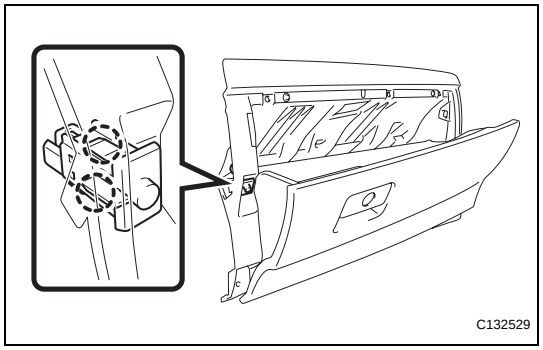
TIRE PRESSURE WARNING RESET SWITCH

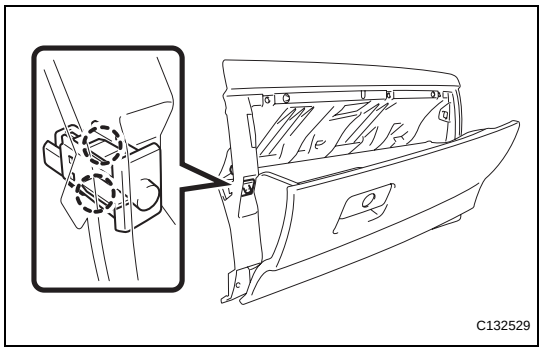
COMPONENTS



REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
2. **REMOVE FRONT DOOR SCUFF PLATE RH (See page IR-26)**
3. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-26)**
4. **REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See page IP-23)**
5. **REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY (for TMC Made) (See page IP-23)**
6. **REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY (for TMMK Made) (See page IP-24)**
7. **REMOVE TIRE PRESSURE WARNING RESET SWITCH**
   (a) Disengage the 2 claws and remove the tire pressure warning reset switch from the lower instrument panel sub-assembly.


C132529


C132529

INSTALLATION

1. **INSTALL TIRE PRESSURE WARNING RESET SWITCH**
   (a) Engage the 2 claws to install the tire pressure warning reset switch.
2. **INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY (for TMC Made) (See page IP-55)**
3. **INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY (for TMMK Made) (See page IP-56)**
4. **INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY (See page IP-56)**
5. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY RH (See page IR-55)**
6. **INSTALL FRONT DOOR SCUFF PLATE RH (See page IR-55)**
7. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
8. **INITIALIZE SYSTEM**
   NOTICE:
   Be sure to inflate all tires including the grand spare tire to the proper inflation pressure before initialization.
   HINT:
   (See page TW-18)

9. INSPECT TIRE PRESSURE WARNING SYSTEM

HINT:

(See page TW-20)