

# WT

## SECTION

### ROAD WHEELS & TIRES

A  
B  
C  
D

WT

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# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

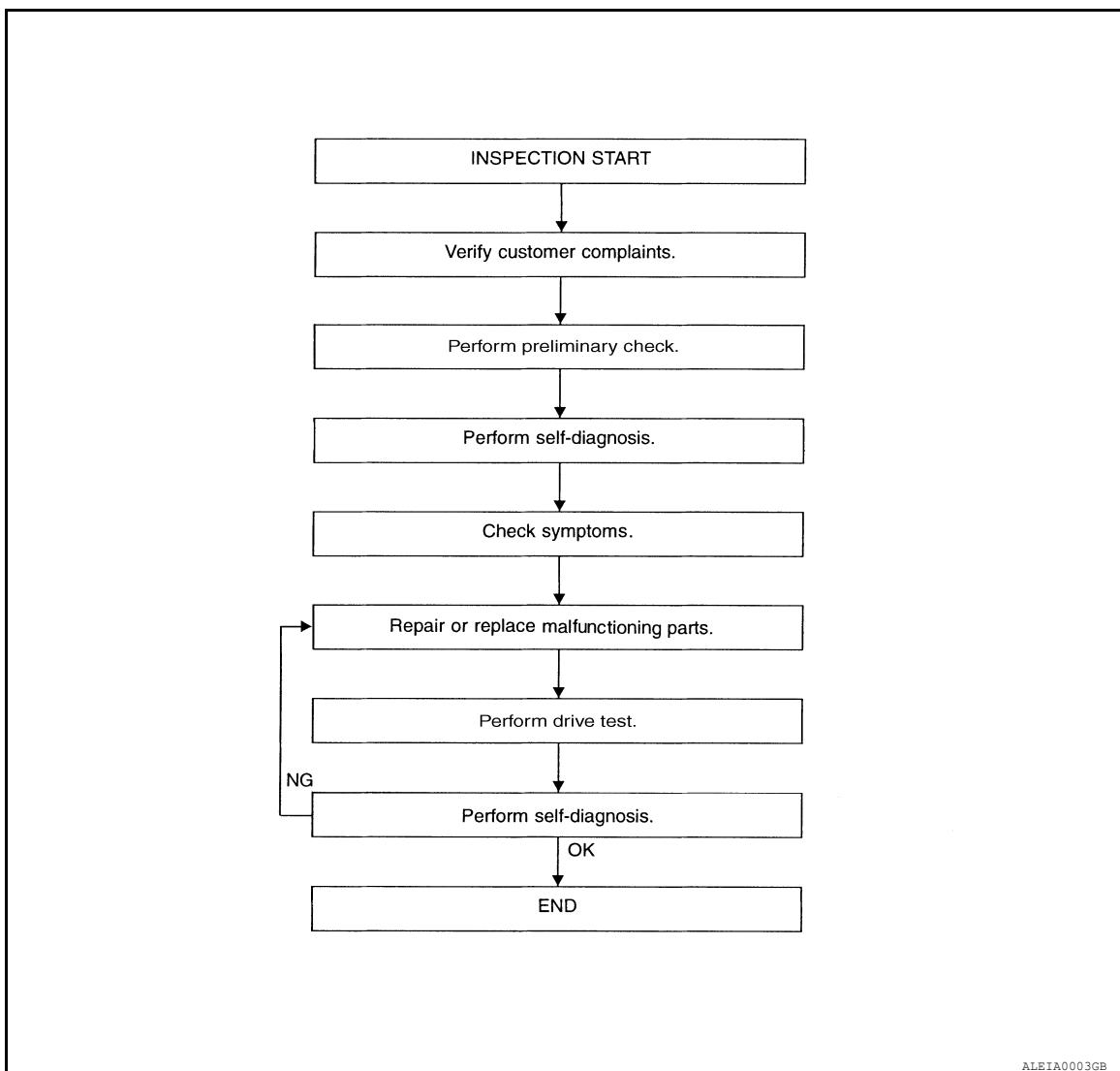
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORKFLOW

#### Repair Work Flow

INFOID:000000007948152

#### WORK FLOW



[WT-5. "Preliminary Check"](#)

[WT-31. "Self-Diagnosis \(With CON-  
SULT\)"](#)

[WT-38. "Symptom Table"](#)

#### DETAILED FLOW

##### 1. CUSTOMER INFORMATION

Interview the customer to obtain detailed information about the symptom.

>> GO TO 2

##### 2. PRELIMINARY CHECK

Perform preliminary check. Refer to [WT-5. "Preliminary Check"](#).

>> GO TO 3

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

## 3. SELF-DIAGNOSIS

Perform SELF-DIAGNOSIS. Refer to [WT-31, "Self-Diagnosis \(With CONSULT\)"](#) or [WT-32, "Self-Diagnosis \(Without CONSULT\)"](#).

>> GO TO 4

## 4. SYMPTOM

Check for symptoms. Refer to [WT-38, "Symptom Table"](#).

>> GO TO 5

## 5. MALFUNCTIONING PARTS

Repair or replace the applicable parts.

>> GO TO 6

## 6. DRIVE TEST

1. Perform a drive test.
2. Check the low tire pressure warning lamp.

>> GO TO 7

## 7. SELF-DIAGNOSIS

Perform SELF-DIAGNOSIS. Refer to [WT-31, "Self-Diagnosis \(With CONSULT\)"](#) or [WT-32, "Self-Diagnosis \(Without CONSULT\)"](#).

Are any DTCs displayed?

YES >> GO TO 5

NO >> Inspection End.

# INSPECTION AND ADJUSTMENT

< BASIC INSPECTION >

## INSPECTION AND ADJUSTMENT

### Preliminary Check

INFOID:0000000007948153

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

### 1. TIRE PRESSURE

Check all tire pressures. Refer to [WT-53, "Tire"](#).

Do tire pressures match specification?

YES >> GO TO 2.  
NO >> Adjust tire pressures to specified value.

### 2. LOW TIRE PRESSURE WARNING LAMP

Check low tire pressure warning lamp activation.

Does the low tire pressure warning lamp activate for one second when ignition switch is turned ON?

YES >> GO TO 3.  
NO >> GO TO [WT-39, "Low Tire Pressure Warning Lamp Does Not Come On When Ignition Switch Is Turned On"](#).

### 3. BCM CONNECTOR

1. Disconnect BCM harness connectors.
2. Check terminals for damage or loose connections.
3. Reconnect harness connectors.

Are BCM connectors damaged or loose?

YES >> Repair or replace damaged parts.  
NO >> GO TO 4.

### 4. TRANSMITTER ACTIVATION TOOL

Check battery in transmitter activation tool.

Is transmitter activation tool battery fully charged?

YES >> Perform self-diagnosis. Refer to [WT-11, "CONSULT Function \(BCM - AIR PRESSURE MONITOR\)"](#).  
NO >> Replace battery in transmitter activation tool.

### Transmitter Wake Up Operation

INFOID:0000000007948154

#### NOTE:

This procedure must be done after replacement of a TPMS transmitter or BCM. New replacement transmitters are provided "asleep" and must first be "woken up" using Transmitter Activation Tool J-45295 or Signal Tech II Tool J-50190 before ID registration can be performed. Use the following procedure when using the Transmitter Activation Tool J-45295.

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

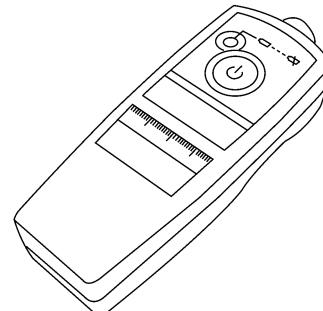
- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

# INSPECTION AND ADJUSTMENT

## < BASIC INSPECTION >

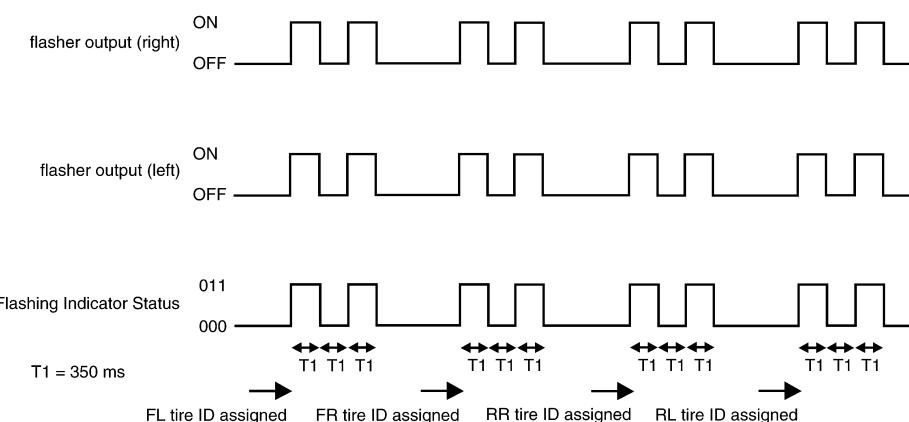
1. Turn ignition switch ON. Push the transmitter activation tool against the tire near the front left transmitter. Press the button for 5 seconds. The hazard warning lamps flash per the following diagram.

**Tool number : (J-45295)**



LEIA0036E

2. Repeat this procedure for each tire in the following order: FL, FR, RR, RL.
3. When the BCM finishes assigning each tire ID, the BCM flashes the hazard warning lamps and sends flashing indicator status by CAN according to the following time chart.



WEIA0177E

4. After completing wake up of all transmitters, make sure low tire pressure warning lamp goes out.

## ID Registration Procedure

INFOID:0000000007948155

### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

## ID REGISTRATION WITH TRANSMITTER ACTIVATION TOOL

### NOTE:

This procedure must be done after replacement of a TPMS transmitter or BCM. New replacement transmitters are provided "asleep" and must first be "woken up" using Transmitter Activation Tool J-45295 or Signal Tech II Tool J-50190 before ID registration can be performed. Use the following procedure when using the Transmitter Activation Tool J-45295.

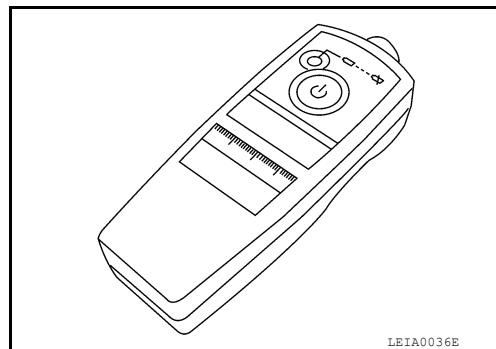
1. Connect CONSULT.
2. Select "ID REGIST" under BCM.

# INSPECTION AND ADJUSTMENT

## < BASIC INSPECTION >

3. Push the transmitter activation tool against the tire near the front left transmitter. Press the button for 5 seconds.

Tool number : (J-45295)



4. Register the IDs in order from FR LH, FR RH, RR RH and RR LH. When ID registration of each wheel has been completed, the hazard warning lamps flash.

| Step | Activation tire position | Hazard warning lamp | CONSULT              |
|------|--------------------------|---------------------|----------------------|
| 1    | Front LH                 | 2 times flashing    | "YET"<br>↓<br>"DONE" |
| 2    | Front RH                 |                     |                      |
| 3    | Rear RH                  |                     |                      |
| 4    | Rear LH                  |                     |                      |

5. After completing all ID registrations, press "END" to complete the procedure.

### NOTE:

Be sure to register all of the IDs in order from FR LH, FR RH, RR RH, to RR LH, or the self-diagnostic results display will not function properly.

## ID REGISTRATION WITHOUT TRANSMITTER ACTIVATION TOOL

### NOTE:

This procedure must be done after replacement of a TPMS transmitter or BCM. New replacement transmitters are provided "asleep" and must first be "woken up" using Transmitter Activation Tool J-45295 or Signal Tech II Tool J-50190 before ID registration can be performed.

1. Connect CONSULT.
2. Select "ID REGIST" under BCM.
3. Adjust the tire pressures to the values shown in the table and drive the vehicle at 40 km/h (25 MPH) or more for a few minutes.

| Tire position | Tire pressure kPa (kg/cm <sup>2</sup> , psi) |
|---------------|--|
| Front LH      | 250 (2.5, 36)                                |
| Front RH      | 230 (2.3, 33)                                |
| Rear RH       | 210 (2.1, 30)                                |
| Rear LH       | 190 (1.9, 27)                                |

4. After completing all ID registrations, press "END" to complete the procedure.

| Activation tire position | CONSULT              |
|--------------------------|----------------------|
| Front LH                 | "YET"<br>↓<br>"DONE" |
| Front RH                 |                      |
| Rear RH                  |                      |
| Rear LH                  |                      |

5. Inflate all tires to proper pressure. Refer to [WT-53, "Tire"](#).

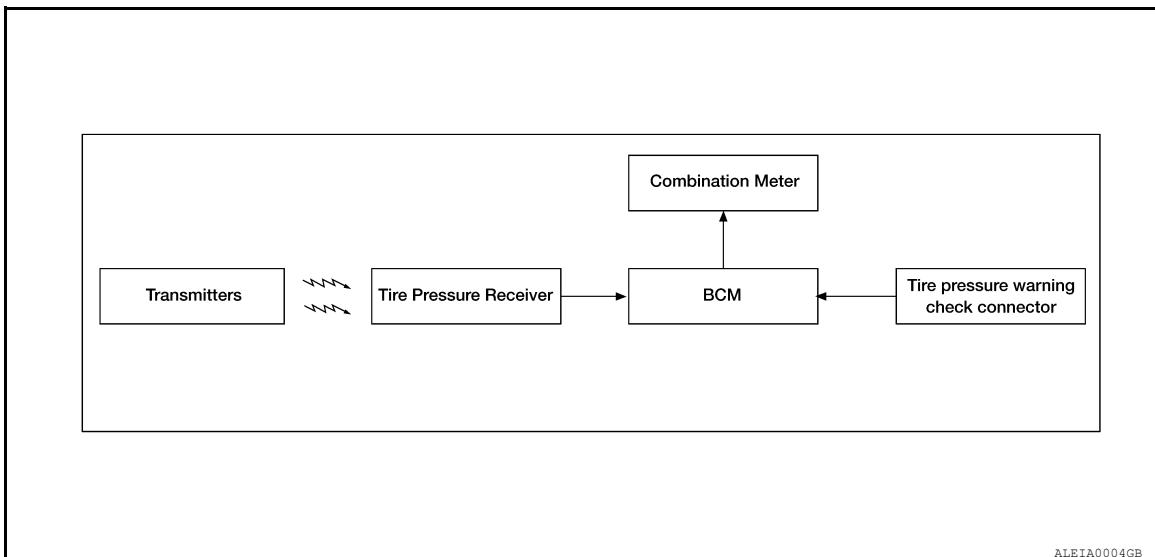
&lt; SYSTEM DESCRIPTION &gt;

# SYSTEM DESCRIPTION

## TPMS

### System Diagram

INFOID:000000007948156



ALEIA0004GB

### System Description

INFOID:000000007948157

#### DESCRIPTION

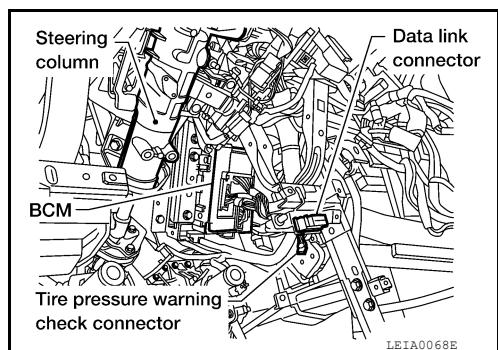
During driving, the tire pressure monitoring system receives the signal transmitted from the transmitter installed in each wheel, and turns on the low tire pressure warning lamp when the tire pressure becomes low. The control unit (BCM) for this system has pressure judgement and self-diagnosis functions.

#### FUNCTION

When the tire pressure monitoring system detects low inflation pressure or an internal malfunction, the low tire pressure warning lamp in the combination meter comes on. The malfunction is indicated by the low tire pressure warning lamp flashing.

#### BODY CONTROL MODULE (BCM)

The BCM is shown with the lower instrument panel LH removed. The BCM reads the air pressure signal received by the remote keyless entry receiver, and controls the low tire pressure warning lamp as shown below. It also has a self-diagnosis function to detect a system malfunction.

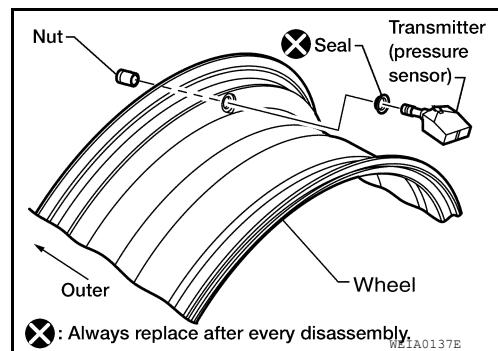


| Condition   | Low tire pressure warning lamp                                    |
|---|---|
| System normal   | On for 1 second after ignition ON                                 |
| Tire less than 193 kPa (2.0 kg/cm <sup>2</sup> , 28 psi)<br>[Flat tire] | ON  |
| TPMS malfunction  | After key ON, flashes once per second for 1 minute, then stays ON |

#### TRANSMITTER

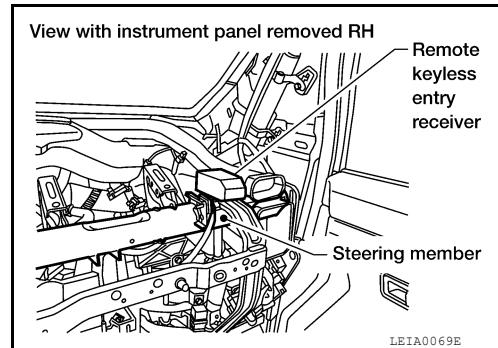
## &lt; SYSTEM DESCRIPTION &gt;

A sensor-transmitter integrated with a valve is installed in each wheel, and transmits a detected air pressure signal in the form of a radio wave. The radio signal is received by the remote keyless entry receiver.



## REMOTE KEYLESS ENTRY RECEIVER

The remote keyless entry receiver is shown with the instrument panel RH removed. The remote keyless entry receiver receives the air pressure signal transmitted by the transmitter in each wheel.

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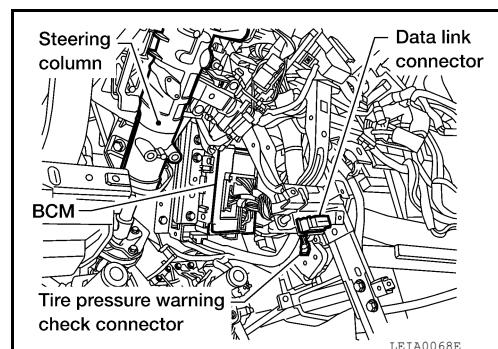
## COMBINATION METER

The combination meter receives tire pressure status from the BCM using CAN communication. When a low tire pressure condition is sensed by the BCM, the combination meter low tire pressure warning lamp is activated. A CHECK TIRE PRESSURE warning message will also be displayed in the vehicle information display. Refer to the Owner's Manual for additional information.

I  
J  
K  
L

## TIRE PRESSURE WARNING CHECK CONNECTOR

The tire pressure warning check connector can be grounded in order to initiate self-diagnosis without CONSULT. Refer to [WT-12, "Self-Diagnosis \(Without CONSULT\)"](#). The tire pressure warning check connector is located behind the lower portion of the instrument panel LH.

M  
N  
O  
P

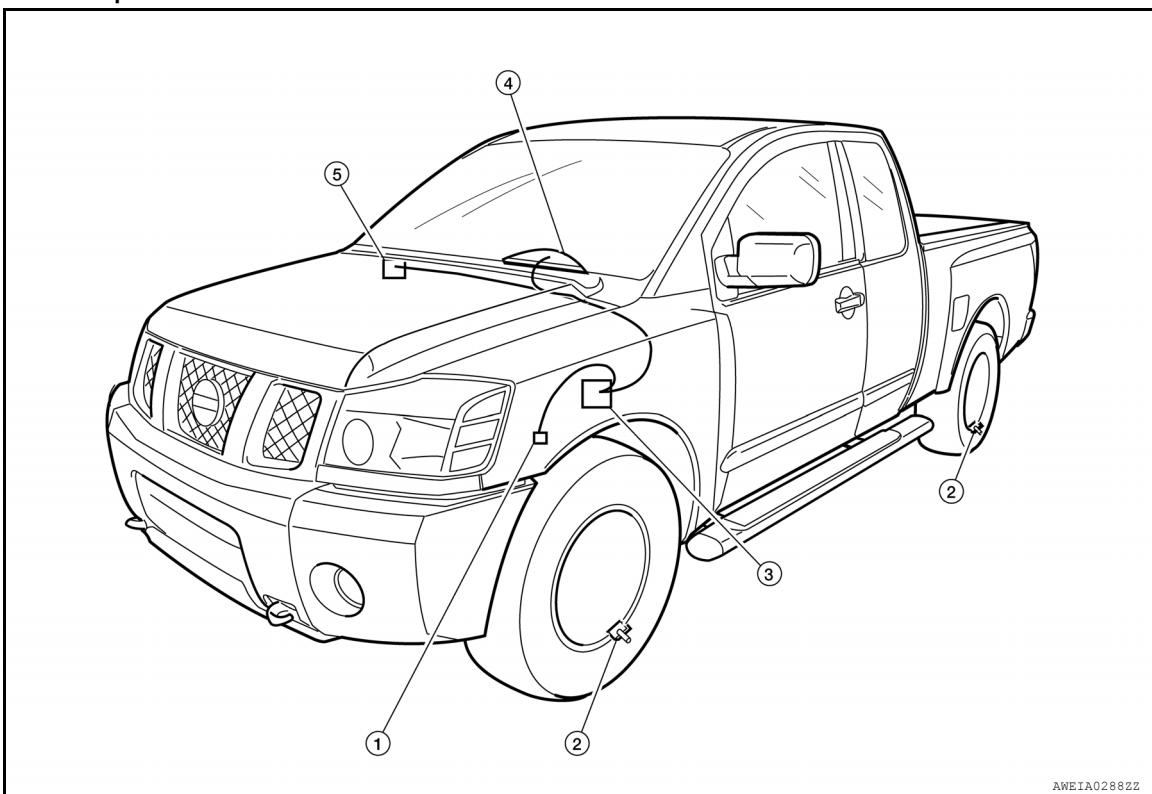
# TPMS

< SYSTEM DESCRIPTION >

## System Component

INFOID:000000007948158

AWEIA0288ZZ



1. Tire pressure warning connector M123
2. Transmitter
3. BCM M18, M20
4. Combination meter M24
5. Remote keyless entry receiver M120

# DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (BCM)

### CONSULT Function (BCM - COMMON ITEM)

INFOID:000000008986667

#### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with BCM.

| Direct Diagnostic Mode | Description  |
|------------------------|--|
| Ecu Identification     | The BCM part number is displayed.  |
| Self Diagnostic Result | The BCM self diagnostic results are displayed.   |
| Data Monitor           | The BCM input/output data is displayed in real time.   |
| Active Test            | The BCM activates outputs to test components.  |
| Work support           | The settings for BCM functions can be changed.   |
| Configuration          | <ul style="list-style-type: none"> <li>The vehicle specification can be read and saved.</li> <li>The vehicle specification can be written when replacing BCM.</li> </ul> |
| CAN Diag Support Mntr  | The result of transmit/receive diagnosis of CAN communication is displayed.  |

#### SYSTEM APPLICATION

BCM can perform the following functions.

| System                               | Sub System           | Direct Diagnostic Mode |                        |              |             |              |               |                       |
|--------------------------------------|----------------------|------------------------|------------------------|--------------|-------------|--------------|---------------|-----------------------|
|                                      |                      | Ecu Identification     | Self Diagnostic Result | Data Monitor | Active Test | Work support | Configuration | CAN Diag Support Mntr |
| Door lock                            | DOOR LOCK            |                        |                        | ×            | ×           | ×            |               |                       |
| Rear window defogger                 | REAR DEFOGGER        |                        |                        | ×            | ×           |              |               |                       |
| Warning chime                        | BUZZER               |                        |                        | ×            | ×           |              |               |                       |
| Interior room lamp timer             | INT LAMP             |                        |                        | ×            | ×           | ×            |               |                       |
| Remote keyless entry system          | MULTI REMOTE ENT     |                        |                        | ×            | ×           | ×            |               |                       |
| Exterior lamp                        | HEADLAMP             |                        |                        | ×            | ×           | ×            |               |                       |
| Wiper and washer                     | WIPER                |                        |                        | ×            | ×           | ×            |               |                       |
| Turn signal and hazard warning lamps | FLASHER              |                        |                        | ×            | ×           |              |               |                       |
| Air conditioner                      | AIR CONDITIONER      |                        |                        | ×            |             |              |               |                       |
| Combination switch                   | COMB SW              |                        |                        | ×            |             |              |               |                       |
| BCM                                  | BCM                  | ×                      | ×                      |              |             | ×            | ×             | ×                     |
| Immobilizer                          | IMMU                 |                        | ×                      | ×            | ×           |              |               |                       |
| Interior room lamp battery saver     | BATTERY SAVER        |                        |                        | ×            | ×           | ×            |               |                       |
| Vehicle security system              | THEFT ALM            |                        |                        | ×            | ×           | ×            |               |                       |
| RAP system                           | RETAINED PWR         |                        |                        | ×            | ×           | ×            |               |                       |
| Signal buffer system                 | SIGNAL BUFFER        |                        |                        | ×            | ×           |              |               |                       |
| TPMS                                 | AIR PRESSURE MONITOR |                        | ×                      | ×            | ×           | ×            |               |                       |
| Panic alarm system                   | PANIC ALARM          |                        |                        |              | ×           |              |               |                       |

### CONSULT Function (BCM - AIR PRESSURE MONITOR)

INFOID:000000008986668

#### NOTE:

# DIAGNOSIS SYSTEM (BCM)

## < SYSTEM DESCRIPTION >

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

## SELF DIAGNOSTIC RESULT

### NOTE:

Before performing Self Diagnostic Result, be sure to register the ID, or else the actual malfunction may be different from that displayed on CONSULT.

Refer to [BCS-42, "DTC Index"](#).

## DATA MONITOR

| Monitor Item  | Condition  | Specification  |
|---------------|--|--|
| VEHICLE SPEED | Drive vehicle  | Vehicle speed (km/h or mph)  |
| AIR PRESS FL  |  |  |
| AIR PRESS FR  | • Drive vehicle for a few minutes.<br>or                                     |  |
| AIR PRESS RR  | • Ignition switch ON and activation tool is transmitting activation signals. | Tire pressure (kPa, kg/cm <sup>2</sup> or psi).                                    |
| AIR PRESS RL  |  |  |
| ID REGST FL1  |  |  |
| ID REGST FR1  |  |  |
| ID REGST RR1  | Ignition switch ON.  | Registration ID: Green.<br>No registration: Red.                                   |
| ID REGST RL1  |  |  |
| WARNING LAMP  | Ignition switch ON.  | Low tire pressure warning lamp on: ON.<br>Low tire pressure warning lamp off: OFF. |
| BUZZER        | Ignition switch ON.  | Buzzer in combination meter on: ON.<br>Buzzer in combination meter off: OFF.       |

## ACTIVE TEST

| Test Item         | Description   |
|-------------------|---|
| WARNING LAMP      | This test is able to check tire pressure warning lamp operation [Off/On]. |
| ID REGIST WARNING | This test is able to check ID regist warning chime operation [Off/On].    |
| FLAT TIRE WARNING | This test is able to check flat tire warning chime operation [Off/On].    |
| HORN              | This test is able to check horn operation [On].                           |
| FLASHER           | This test is able to check turn signal lamp operation [Off/LH/RH].        |

## WORK SUPPORT

| Support Item | Description  |
|--------------|--|
| ID REGIST    | Refer to <a href="#">WT-6, "ID Registration Procedure"</a> . |
| ID READ      | The registered ID number is displayed.                       |

## Self-Diagnosis (Without CONSULT)

INFOID:0000000007948161

### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

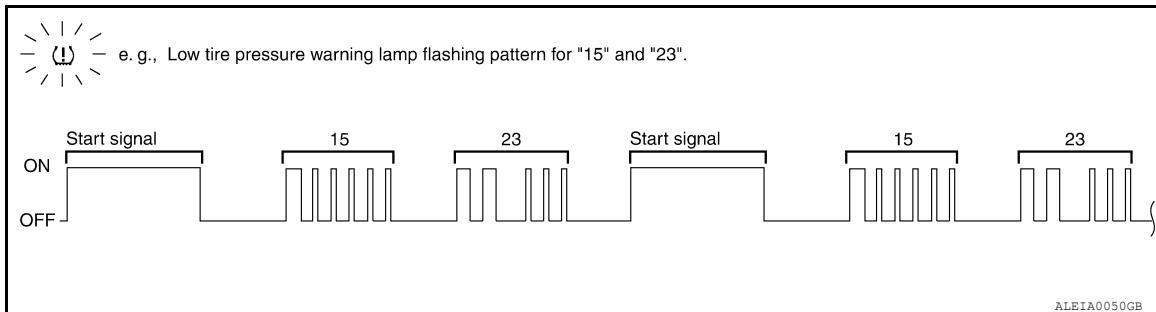
- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

## SELF DIAGNOSTIC PROCEDURE (WITHOUT CONSULT)

# DIAGNOSIS SYSTEM (BCM)

## < SYSTEM DESCRIPTION >

1. Turn ignition switch ON.
2. Ground the tire pressure warning check connector to initiate self diagnosis.
3. Compare the flashing pattern with the flash code chart below.



### NOTE:

The system is normal when the low tire pressure warning lamp flashes 5 times and continues repeating. Self-diagnosis results are erased automatically by turning the ignition switch "OFF".

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L  
M  
N  
O  
P

| Flash Code | Malfunction part   | Reference page        |
|------------|--|-----------------------|
| 15         |  |                       |
| 16         |  |                       |
| 17         |  |                       |
| 18         | Tire pressure dropped below specified value. Refer to <a href="#">WT-8, "System Description"</a> . | —                     |
| 21         | Transmitter no data (FL)   |                       |
| 22         | Transmitter no data (FR)   |                       |
| 23         | Transmitter no data (RR)   |                       |
| 24         | Transmitter no data (RL)   | <a href="#">WT-14</a> |
| 31         | Transmitter checksum error (FL)  |                       |
| 32         | Transmitter checksum error (FR)  |                       |
| 33         | Transmitter checksum error (RR)  | <a href="#">WT-16</a> |
| 34         | Transmitter checksum error (RL)  |                       |
| 35         | Transmitter pressure data error (FL)   |                       |
| 36         | Transmitter pressure data error (FR)   |                       |
| 37         | Transmitter pressure data error (RR)   | <a href="#">WT-18</a> |
| 38         | Transmitter pressure data error (RL)   |                       |
| 41         | Transmitter function code error (FL)   |                       |
| 42         | Transmitter function code error (FR)   |                       |
| 43         | Transmitter function code error (RR)   | <a href="#">WT-16</a> |
| 44         | Transmitter function code error (RL)   |                       |
| 45         | Transmitter battery voltage low (FL)   |                       |
| 46         | Transmitter battery voltage low (FR)   |                       |
| 47         | Transmitter battery voltage low (RR)   | <a href="#">WT-16</a> |
| 48         | Transmitter battery voltage low (RL)   |                       |
| 52         | Vehicle speed signal   | <a href="#">WT-20</a> |
| 54         | Vehicle ignition signal  | <a href="#">WT-21</a> |

# C1708 - C1711 DATA FROM TRANSMITTER NOT BEING RECEIVED

< DTC/CIRCUIT DIAGNOSIS >

## DTC/CIRCUIT DIAGNOSIS

### C1708 - C1711 DATA FROM TRANSMITTER NOT BEING RECEIVED

#### Description

INFOID:0000000007948162

Tire pressure data for one or more transmitters is not being received by the BCM.

#### DTC Logic

INFOID:0000000007948163

##### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

#### DTC DETECTION LOGIC

| DTC   | CONSULT          | DTC detecting condition                      |
|-------|------------------|--|
| C1708 | [NO - DATA] - FL | Data from FL transmitter cannot be received. |
| C1709 | [NO - DATA] - FR | Data from FR transmitter cannot be received. |
| C1710 | [NO - DATA] - RR | Data from RR transmitter cannot be received. |
| C1711 | [NO - DATA] - RL | Data from RL transmitter cannot be received. |

#### DTC CONFIRMATION PROCEDURE

##### 1. ID REGISTRATION AND VEHICLE DRIVING

1. Carry out ID registration of all transmitters.
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
3. Check all tire pressures with CONSULT within 5 minutes.

Does "DATA MONITOR ITEM" display tire pressure as normal without any warning lamp?

YES >> Inspection End.

NO >> Refer to [WT-14, "Diagnosis Procedure"](#).

#### Diagnosis Procedure

INFOID:0000000007948164

##### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

MALFUNCTION CODE NO. 21, 22, 23 OR 24 (DTC C1708, C1709, C1710 OR C1711)

##### 1. CHECK BCM

Drive for several minutes. Check all tire pressures with CONSULT.

Are all tire pressures displayed as 0 kPa?

YES >> GO TO 2

NO >> GO TO 3

##### 2. CHECK TIRE PRESSURE RECEIVER CONNECTOR

Check tire pressure receiver connector for damage or loose connection.

Is tire pressure receiver connector damaged or loose?

YES >> Repair or replace tire pressure receiver connector.

# C1708 - C1711 DATA FROM TRANSMITTER NOT BEING RECEIVED

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace BCM, then GO TO 3. Refer to [BCS-52, "Removal and Installation"](#).

## 3. PERFORM ID REGISTRATION

Carry out ID registration of all transmitters. Refer to [WT-6, "ID Registration Procedure"](#).

Is there a tire that cannot register ID?

YES >> Replace malfunctioning transmitter, then GO TO 5. Refer to [WT-51, "Transmitter \(Pressure Sensor\)"](#).

NO >> GO TO 4

## 4. DRIVE VEHICLE

1. Drive at a speed of 40 km/h (25 MPH) or more for several minutes without stopping.
2. Check all tire pressures with CONSULT within 15 minutes after vehicle speed becomes 17 km/h (11 MPH).

Does "DATA MONITOR ITEM" display tire pressure as normal without any warning lamp?

YES >> Inspection End.

NO >> GO TO 5

WT

## 5. ID REGISTRATION AND VEHICLE DRIVING

1. Carry out ID registration of all transmitters.
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
3. Check all tire pressures with CONSULT within 5 minutes.

Does "DATA MONITOR ITEM" display tire pressure as normal without any warning lamp?

YES >> Inspection End.

NO >> Proceed to the inspection applicable to DTC.

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## Special Repair Requirement

INFOID:000000007948165

Perform preliminary check. Refer to [WT-5, "Preliminary Check"](#).

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## C1712 - C1715, C1720 - C1723, C1724 - C1727 TRANSMITTER MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

## C1712 - C1715, C1720 - C1723, C1724 - C1727 TRANSMITTER MALFUNCTION

### Description

INFOID:0000000007948166

One or more transmitters are malfunctioning internally.

### DTC Logic

INFOID:0000000007948167

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

### DTC DETECTION LOGIC

| DTC   | CONSULT                  | DTC detecting condition                                   |
|-------|--------------------------|---|
| C1712 | [CHECKSUM - ERR] - FL    | Checksum data from FL transmitter is malfunctioning.      |
| C1713 | [CHECKSUM - ERR] - FR    | Checksum data from FR transmitter is malfunctioning.      |
| C1714 | [CHECKSUM - ERR] - RR    | Checksum data from RR transmitter is malfunctioning.      |
| C1715 | [CHECKSUM - ERR] - RL    | Checksum data from RL transmitter is malfunctioning.      |
| C1720 | [CODE - ERR] - FL        | Function code data from FL transmitter is malfunctioning. |
| C1721 | [CODE - ERR] - FR        | Function code data from FR transmitter is malfunctioning. |
| C1722 | [CODE - ERR] - RR        | Function code data from RR transmitter is malfunctioning. |
| C1723 | [CODE - ERR] - RL        | Function code data from RL transmitter is malfunctioning. |
| C1724 | [BATT - VOLT - LOW] - FL | Battery voltage of FL transmitter drops.                  |
| C1725 | [BATT - VOLT - LOW] - FR | Battery voltage of FR transmitter drops.                  |
| C1726 | [BATT - VOLT - LOW] - RR | Battery voltage of RR transmitter drops.                  |
| C1727 | [BATT - VOLT - LOW] - RL | Battery voltage of RL transmitter drops.                  |

### DTC CONFIRMATION PROCEDURE

#### 1. DRIVE VEHICLE

1. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
2. Check all tire pressures with CONSULT within 5 minutes.

Does "DATA MONITOR ITEM" display tire pressure as normal without any warning lamp?

YES >> Inspection End.

NO >> Refer to [WT-16, "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:0000000007948168

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

MALFUNCTION CODE NO. 31, 32, 33, 34, 41, 42, 43, 44, 45, 46, 47 OR 48 (DTC C1712, C1713, C1714, C1715, C1720, C1721, C1722, C1723, C1724, C1725, C1726 OR C1727)

#### 1. PERFORM ID REGISTRATION

# C1712 - C1715, C1720 - C1723, C1724 - C1727 TRANSMITTER MALFUNCTION

## < DTC/CIRCUIT DIAGNOSIS >

1. Carry out ID registration of all transmitters. Refer to [WT-6, "ID Registration Procedure"](#).
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.

>> GO TO 2

A

## 2.REPLACE TRANSMITTER

1. Check low tire pressure warning lamp again for flashing, replace malfunctioning transmitter. Refer to [WT-51, "Transmitter \(Pressure Sensor\)"](#).
2. Carry out ID registration of all transmitters.

B

Can ID registration of all transmitters be completed?

C

YES >> GO TO 3

D

NO >> GO TO [WT-14, "Diagnosis Procedure"](#).

## 3.DRIVE VEHICLE

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1. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
2. Check all tire pressures with CONSULT within 5 minutes.

F

Does "DATA MONITOR ITEM" display tire pressure as normal without any warning lamp?

G

YES >> Inspection End.

H

NO >> Replace malfunctioning transmitter, and perform Step 3 again.

## Special Repair Requirement

INFOID:000000007948169

Perform preliminary check. Refer to [WT-5, "Preliminary Check"](#).

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# C1716 - C1719 TRANSMITTER PRESSURE MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

## C1716 - C1719 TRANSMITTER PRESSURE MALFUNCTION

### Description

INFOID:0000000007948170

Air pressure data from one or more transmitters is out of range.

### DTC Logic

INFOID:0000000007948171

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

### DTC DETECTION LOGIC

| DTC   | CONSULT              | DTC detecting condition                                  |
|-------|----------------------|--|
| C1716 | [PRESSDATA - ERR] FL | Air pressure data from FL transmitter is malfunctioning. |
| C1717 | [PRESSDATA - ERR] FR | Air pressure data from FR transmitter is malfunctioning. |
| C1718 | [PRESSDATA - ERR] RR | Air pressure data from RR transmitter is malfunctioning. |
| C1719 | [PRESSDATA - ERR] RL | Air pressure data from RL transmitter is malfunctioning. |

### DTC CONFIRMATION PROCEDURE

#### 1. ID REGISTRATION AND VEHICLE DRIVING

1. Carry out ID registration of all transmitters.
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
3. Check all tire pressures with CONSULT within 5 minutes.

Does "DATA MONITOR ITEM" display tire pressure as normal without any warning lamp?

YES >> Inspection End.

NO >> Refer to [WT-18. "Diagnosis Procedure"](#).

### Diagnosis Procedure

INFOID:0000000007948172

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

MALFUNCTION CODE NO. 35, 36, 37 OR 38 (DTC C1716, C1717, C1718 OR C1719)

#### 1. CHECK ALL TIRE PRESSURES

Check all tire pressures. Refer to [WT-53. "Tire"](#).

Are there any tires with pressure of 64 psi or more?

YES >> Adjust tire pressure to specified value.

NO >> GO TO 2

#### 2. ID REGISTRATION AND VEHICLE DRIVING

1. Carry out ID registration of all transmitters. Refer to [WT-6. "ID Registration Procedure"](#).
2. Drive at a speed of 40 km/h (25 MPH) or more for several minutes without stopping.
3. Check all tire pressures with CONSULT within 15 minutes after vehicle speed becomes 17 km/h (11 MPH).

Does "DATA MONITOR ITEM" display 64 psi or more?

# C1716 - C1719 TRANSMITTER PRESSURE MALFUNCTION

## < DTC/CIRCUIT DIAGNOSIS >

YES >> Replace transmitter. Refer to [WT-51, "Transmitter \(Pressure Sensor\)"](#). GO TO 3.  
NO >> GO TO 3

A

## 3.ID REGISTRATION AND VEHICLE DRIVING

1. Carry out ID registration of all transmitters.
2. Drive at a speed of 40 km/h (25 MPH) or more for 3 minutes, and then drive the vehicle at any speed for 10 minutes.
3. Check all tire pressures with CONSULT within 5 minutes.

B

Does "DATA MONITOR ITEM" display tire pressure as normal without any warning lamp?

C

YES >> Inspection End.  
NO >> Proceed to the inspection applicable to DTC.

D

## Special Repair Requirement

INFOID:000000007948173

WT

Perform preliminary check. Refer to [WT-5, "Preliminary Check"](#).

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# C1729 VEHICLE SPEED SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

## C1729 VEHICLE SPEED SIGNAL

### Description

INFOID:0000000007948174

The vehicle speed signal is not being detected by the BCM.

### DTC Logic

INFOID:0000000007948175

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

### DTC DETECTION LOGIC

| DTC   | CONSULT            | DTC detecting condition           |
|-------|--------------------|-----------------------------------|
| C1729 | VHCL SPEED SIG ERR | Vehicle speed signal is in error. |

### DTC CONFIRMATION PROCEDURE

#### 1. CHECK SELF-DIAGNOSTIC RESULTS

1. On "SELECT DIAG MODE", select the "SELF-DIAG RESULT" screen.
2. Check display contents on "SELF-DIAG RESULT" screen.

Is the "CAN COMM CIRCUIT" displayed in the self-diagnosis display?

YES >> Refer to [WT-20, "Diagnosis Procedure"](#).

NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000007948176

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

### MALFUNCTION CODE NO. 52 (DTC C1729)

#### 1. CHECK SELF-DIAGNOSTIC RESULTS

1. On "SELECT DIAG MODE", select the "SELF-DIAG RESULT" screen.
2. Check display contents on "SELF-DIAG RESULT" screen.

Is the "CAN COMM CIRCUIT" displayed in the self-diagnosis display?

YES >> Perform trouble diagnosis for CAN communication system.

NO >> Check combination meter. Refer to [MWI-28, "CONSULT Function \(METER/M&A\)"](#).

### Special Repair Requirement

INFOID:0000000007948177

Perform preliminary check. Refer to [WT-5, "Preliminary Check"](#).

< DTC/CIRCUIT DIAGNOSIS >

## C1735 IGNITION SIGNAL

### Description

INFOID:0000000007948178

The BCM monitors the IGN ON signal on the CAN line and compares it to its direct IGN ON signal. When these two signals do not match, the BCM sets C1735.

### DTC Logic

INFOID:0000000007948179

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

WT

### DTC DETECTION LOGIC

| DTC   | CONSULT                         | DTC detecting condition                             |
|-------|---------------------------------|---|
| C1735 | IGNITION SIGNAL LINE - BCM/TPMS | BCM has detected a mismatch between IGN ON signals. |

### DTC CONFIRMATION PROCEDURE

#### 1. CHECK SELF-DIAGNOSTIC RESULTS

1. On SELECT DIAG MODE, select the SELF-DIAG RESULT screen.
2. Check display contents on SELF DIAG RESULT screen.

Is C1735 displayed in the self-diagnosis display?

YES >> Refer to [WT-21, "Diagnosis Procedure"](#).  
NO >> Inspection End.

### Diagnosis Procedure

INFOID:0000000007948180

#### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

### MALFUNCTION CODE NO. 54 (DTC C1735)

#### 1. CAN IGNITION SIGNAL

Check BCM IGN RLY signal with CONSULT. Refer to [BCS-33, "Reference Value"](#).

Are the inspection results normal with the ignition switch ON?

YES >> GO TO 2.  
NO >> Check CAN system. Refer to [LAN-46, "CAN System Specification Chart"](#).

#### 2. BCM POWER SUPPLY

Check BCM power supply (ignition ON). Refer to [BCS-28, "Diagnosis Procedure"](#).

Is the power supply with the ignition switch ON normal?

YES >> GO TO 3.  
NO >> Repair power supply as necessary.

#### 3. DRIVE VEHICLE

Clear DTC and then test drive the vehicle and check the low tire pressure warning lamp.

Does the vehicle operate without any low tire pressure warning lamp?

YES >> Inspection End.  
NO >> Replace BCM. Refer to [BCS-52, "Removal and Installation"](#).

## C1735 IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

### Special Repair Requirement

INFOID:0000000007948181

Perform preliminary check. Refer to [WT-5, "Preliminary Check".](#)

# BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

## ECU DIAGNOSIS INFORMATION

### BCM (BODY CONTROL MODULE)

#### Reference Value

INFOID:000000008986669

##### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs
- Test remote keyless entry keyfob relative signal strength

#### VALUES ON THE DIAGNOSIS TOOL

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| Monitor Item  | Condition  | Value/Status                  |
|---------------|--|-------------------------------|
| ACC ON SW     | Ignition switch OFF or ON                        | Off                           |
|               | Ignition switch ACC                              | On                            |
| AIR COND SW   | A/C switch OFF                                   | Off                           |
|               | A/C switch ON                                    | On                            |
| AIR PRESS FL  | Front left tire air pressure value               | kPa, kg/cm <sup>2</sup> , psi |
| AIR PRESS FR  | Front right tire air pressure value              | kPa, kg/cm <sup>2</sup> , psi |
| AIR PRESS RL  | Rear left tire air pressure value                | kPa, kg/cm <sup>2</sup> , psi |
| AIR PRESS RR  | Rear right tire air pressure value               | kPa, kg/cm <sup>2</sup> , psi |
| AUTO LIGHT SW | Lighting switch OFF                              | Off                           |
|               | Lighting switch AUTO                             | On                            |
| BRAKE SW      | Brake pedal released                             | Off                           |
|               | Brake pedal applied                              | On                            |
| BUCKLE SW     | Seat belt buckle unfastened                      | Off                           |
|               | Seat belt buckle fastened                        | On                            |
| BUZZER        | Buzzer in combination meter OFF                  | Off                           |
|               | Buzzer in combination meter ON                   | On                            |
| CARGO LAMP SW | Cargo lamp switch OFF                            | Off                           |
|               | Cargo lamp switch ON                             | On                            |
| CDL LOCK SW   | Door lock/unlock switch does not operate         | Off                           |
|               | Press door lock/unlock switch to the LOCK side   | On                            |
| CDL UNLOCK SW | Door lock/unlock switch does not operate         | Off                           |
|               | Press door lock/unlock switch to the UNLOCK side | On                            |
| DOOR SW-AS    | Front door RH closed                             | Off                           |
|               | Front door RH opened                             | On                            |
| DOOR SW-DR    | Front door LH closed                             | Off                           |
|               | Front door LH opened                             | On                            |
| DOOR SW-RL    | Rear door LH closed                              | Off                           |
|               | Rear door LH opened                              | On                            |
| DOOR SW-RR    | Rear door RH closed                              | Off                           |
|               | Rear door RH opened                              | On                            |

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# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS INFORMATION >

| Monitor Item  | Condition   | Value/Status |
|---------------|---|--------------|
| FAN ON SIG    | Blower motor fan switch OFF                         | Off          |
|               | Blower motor fan switch ON                          | On           |
| FR FOG SW     | Front fog lamp switch OFF                           | Off          |
|               | Front fog lamp switch ON                            | On           |
| FR WASHER SW  | Front washer switch OFF                             | Off          |
|               | Front washer switch ON                              | On           |
| FR WIPER LOW  | Front wiper switch OFF                              | Off          |
|               | Front wiper switch LO                               | On           |
| FR WIPER HI   | Front wiper switch OFF                              | Off          |
|               | Front wiper switch HI                               | On           |
| FR WIPER INT  | Front wiper switch OFF                              | Off          |
|               | Front wiper switch INT                              | On           |
| FR WIPER STOP | Any position other than front wiper stop position   | Off          |
|               | Front wiper stop position                           | On           |
| HAZARD SW     | When hazard switch is not pressed                   | Off          |
|               | When hazard switch is pressed                       | On           |
| HEAD LAMP SW1 | Headlamp switch OFF                                 | Off          |
|               | Headlamp switch 1st                                 | On           |
| HEAD LAMP SW2 | Headlamp switch OFF                                 | Off          |
|               | Headlamp switch 1st                                 | On           |
| HI BEAM SW    | High beam switch OFF                                | Off          |
|               | High beam switch HI                                 | On           |
| ID REGST FL1  | ID registration of front left tire incomplete       | YET          |
|               | ID registration of front left tire complete         | DONE         |
| ID REGST FR1  | ID registration of front right tire incomplete      | YET          |
|               | ID registration of front right tire complete        | DONE         |
| ID REGST RL1  | ID registration of rear left tire incomplete        | YET          |
|               | ID registration of rear left tire complete          | DONE         |
| ID REGST RR1  | ID registration of rear right tire incomplete       | YET          |
|               | ID registration of rear right tire complete         | DONE         |
| IGN ON SW     | Ignition switch OFF or ACC                          | Off          |
|               | Ignition switch ON                                  | On           |
| IGN SW CAN    | Ignition switch OFF or ACC                          | Off          |
|               | Ignition switch ON                                  | On           |
| INT VOLUME    | Wiper intermittent dial is in a dial position 1 - 7 | 1 - 7        |
| KEY CYL LK-SW | Door key cylinder LOCK position                     | Off          |
|               | Door key cylinder other than LOCK position          | On           |
| KEY CYL UN-SW | Door key cylinder UNLOCK position                   | Off          |
|               | Door key cylinder other than UNLOCK position        | On           |
| KEY ON SW     | Mechanical key is removed from key cylinder         | Off          |
|               | Mechanical key is inserted to key cylinder          | On           |
| KEYLESS LOCK  | LOCK button of key fob is not pressed               | Off          |
|               | LOCK button of key fob is pressed                   | On           |

# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS INFORMATION >

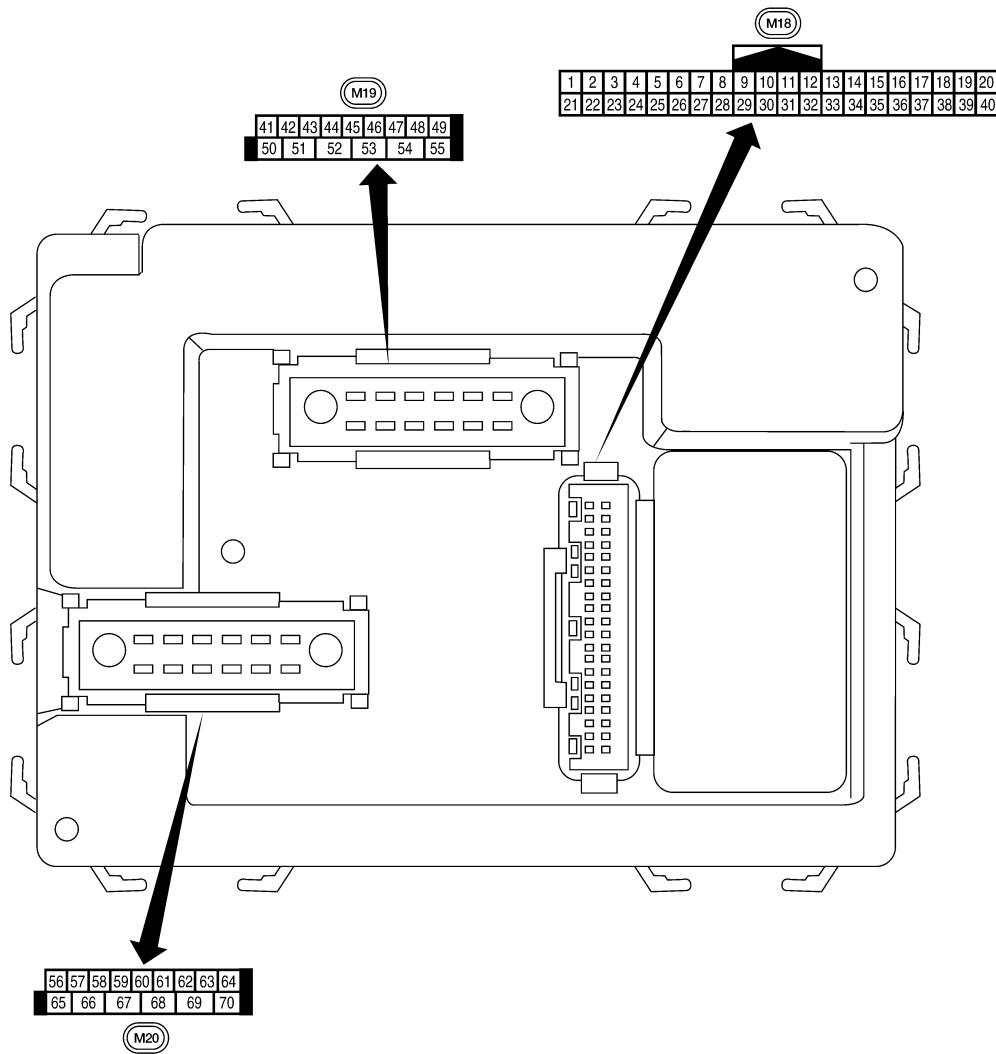
| Monitor Item   | Condition  | Value/Status                      |    |
|----------------|--|-----------------------------------|----|
| KEYLESS PANIC  | PANIC button of key fob is not pressed   | Off                               | A  |
|                | PANIC button of key fob is pressed   | On                                |    |
| KEYLESS UNLOCK | UNLOCK button of key fob is not pressed  | Off                               | B  |
|                | UNLOCK button of key fob is pressed  | On                                |    |
| LIGHT SW 1ST   | Lighting switch OFF  | Off                               | C  |
|                | Lighting switch 1st  | On                                |    |
| OIL PRESS SW   | <ul style="list-style-type: none"> <li>• Ignition switch OFF or ACC</li> <li>• Engine running</li> </ul> | Off                               | D  |
|                | Ignition switch ON   | On                                |    |
| OPTICAL SENSOR | Bright outside of the vehicle  | Close to 5V                       | WT |
|                | Dark outside of the vehicle  | Close to 0V                       |    |
| PASSING SW     | Other than lighting switch PASS  | Off                               | F  |
|                | Lighting switch PASS   | On                                |    |
| REAR DEF SW    | Rear window defogger switch OFF  | Off                               | G  |
|                | Rear window defogger switch ON   | On                                |    |
| TURN SIGNAL L  | Turn signal switch OFF   | Off                               | H  |
|                | Turn signal switch LH  | On                                |    |
| TURN SIGNAL R  | Turn signal switch OFF   | Off                               | I  |
|                | Turn signal switch RH  | On                                |    |
| VEHICLE SPEED  | While driving  | Equivalent to speedometer reading | J  |
| WARNING LAMP   | Low tire pressure warning lamp in combination meter OFF  | Off                               | K  |
|                | Low tire pressure warning lamp in combination meter ON   | On                                | L  |
|                |  |                                   | M  |
|                |  |                                   | N  |
|                |  |                                   | O  |
|                |  |                                   | P  |

# BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

## Terminal Layout

INFOID:0000000008986670



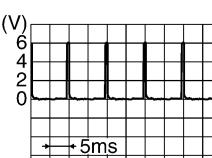
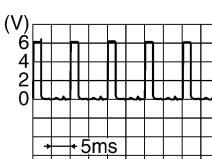
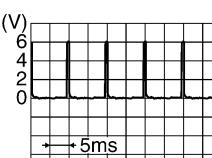
## Physical Values

LIIA2443E

INFOID:0000000008986671

# BCM (BODY CONTROL MODULE)

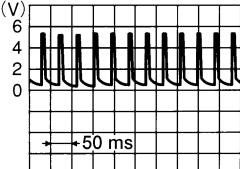
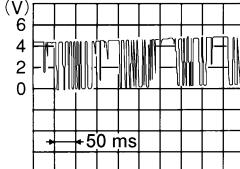
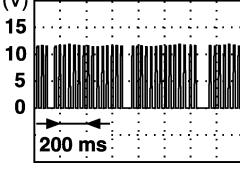
## < ECU DIAGNOSIS INFORMATION >

| Terminal | Wire color | Signal name   | Signal input/output | Measuring condition |  | Reference value or waveform (Approx.)  |
|----------|------------|---|---------------------|---------------------|--|--|
|          |            |   |                     | Ignition switch     | Operation or condition                             |  |
| 1        | BR/W       | Key ring output   | Output              | OFF                 | ON (driver door open)<br>OFF (driver door closed)  | 0V<br>Battery voltage  |
| 2        | SB         | Combination switch input 5                                | Input               | ON                  | Lighting, turn, wiper OFF<br>Wiper dial position 4 | <br>SKIA5291E   |
| 3        | G/Y        | Combination switch input 4                                | Input               | ON                  | Lighting, turn, wiper OFF<br>Wiper dial position 4 | <br>SKIA5292E   |
| 4        | Y          | Combination switch input 3                                | Input               | ON                  | Lighting, turn, wiper OFF<br>Wiper dial position 4 | <br>SKIA5291E  |
| 5        | G/B        | Combination switch input 2                                | Input               | ON                  | Lighting, turn, wiper OFF<br>Wiper dial position 4 | <br>SKIA5292E |
| 6        | V          | Combination switch input 1                                |                     |                     |  |  |
| 9        | R/G        | Brake switch  | Input               | ON                  | Brake pedal depressed<br>Brake pedal released      | Battery voltage<br>0V  |
| 11       | O          | Ignition switch (ACC or ON)                               | Input               | ACC or ON           | Ignition switch ACC or ON                          | Battery voltage  |
| 12       | R/L        | Front door switch RH (All)                                | Input               | OFF                 | ON (open)  | 0V   |
|          |            | Rear door switch lower RH (King Cab)                      |                     |                     |  |  |
|          |            | Rear door switch upper RH (King Cab)                      |                     |                     | OFF (closed)                                       | Battery voltage  |
| 13       | GR         | Rear door switch RH (Crew Cab)                            | Input               | OFF                 | ON (open)<br>OFF (closed)                          | 0V<br>Battery voltage  |
| 15       | L/W        | Tire pressure warning check connector                     | Input               | OFF                 | —  | 5V   |
| 16       | SB         | MR output   | Output              | —                   | —  | —  |
| 18       | P          | Remote keyless entry receiver and optical sensor (ground) | Output              | OFF                 | —  | 0V   |

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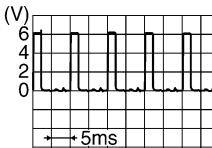
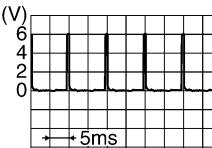
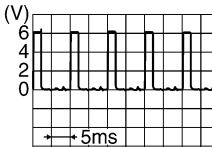
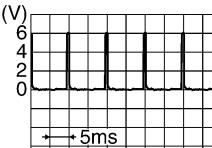
# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS INFORMATION >

| Terminal | Wire color | Signal name                                  | Signal input/output | Measuring condition |   | Reference value or waveform (Approx.)  |
|----------|------------|--|---------------------|---------------------|---|--|
|          |            |  |                     | Ignition switch     | Operation or condition  |  |
| 19       | V/W        | Remote keyless entry receiver (power supply) | Output              | OFF                 | Ignition switch OFF   | <br>LIIA1893E                           |
| 20       | G/W        | Remote keyless entry receiver (signal)       | Input               | OFF                 | Stand-by (keyfob buttons released)  | <br>LIIA1894E                           |
|          |            |  |                     |                     | When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed) | <br>LIIA1895E                           |
| 21       | G          | NATS antenna amp.                            | Input               | OFF → ON            | Ignition switch (OFF → ON)  | Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage. |
| 22       | G          | BUS  | —                   | —                   | Ignition switch ON or power window timer operates                                       | <br>PIIA2344E                         |
| 23       | G/O        | Security indicator lamp                      | Output              | OFF                 | Goes OFF → illuminates (Every 2.4 seconds)  | Battery voltage → 0V   |
| 25       | BR         | NATS antenna amp.                            | Input               | OFF → ON            | Ignition switch (OFF → ON)  | Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage. |
| 27       | W/R        | Compressor ON signal                         | Input               | ON                  | A/C switch OFF  | 5V   |
|          |            |  |                     |                     | A/C switch ON   | 0V   |
| 28       | L/R        | Front blower monitor                         | Input               | ON                  | Front blower motor OFF  | Battery voltage  |
|          |            |  |                     |                     | Front blower motor ON   | 0V   |
| 29       | W/B        | Hazard switch                                | Input               | OFF                 | ON  | 0V   |
|          |            |  |                     |                     | OFF   | 5V   |
| 31       | P/L        | Cargo lamp switch                            | Input               | OFF                 | Cargo lamp switch ON  | 0  |
|          |            |  |                     |                     | Cargo lamp switch OFF   | Battery voltage  |

# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS INFORMATION >

| Terminal | Wire color | Signal name                          | Signal input/output | Measuring condition |  | Reference value or waveform (Approx.)  |
|----------|------------|--------------------------------------|---------------------|---------------------|--|--|
|          |            |                                      |                     | Ignition switch     | Operation or condition                             |  |
| 32       | R/G        | Combination switch output 5          | Output              | ON                  | Lighting, turn, wiper OFF<br>Wiper dial position 4 | <br>SKIA5291E   |
| 33       | R/Y        | Combination switch output 4          | Output              | ON                  | Lighting, turn, wiper OFF<br>Wiper dial position 4 | <br>SKIA5292E   |
| 34       | L          | Combination switch output 3          | Output              | ON                  | Lighting, turn, wiper OFF<br>Wiper dial position 4 | <br>SKIA5291E   |
| 35       | O/B        | Combination switch output 2          | Output              | ON                  | Lighting, turn, wiper OFF<br>Wiper dial position 4 | <br>SKIA5292E |
| 36       | R/W        | Combination switch output 1          |                     |                     |  |  |
| 37       | B/R        | Key switch and key lock solenoid     | Input               | OFF                 | Key inserted                                       | Battery voltage  |
|          |            |                                      |                     |                     | Key removed  | 0V   |
| 38       | W/L        | Ignition switch (ON)                 | Input               | ON                  | —  | Battery voltage  |
| 39       | L          | CAN-H                                | —                   | —                   | —  | —  |
| 40       | P          | CAN-L                                | —                   | —                   | —  | —  |
| 41       | Y/B        | Rear defogger switch                 | Input               | ON                  | Rear defogger switch ON                            | 0V   |
|          |            |                                      |                     |                     | Rear defogger switch OFF                           | 5V   |
| 47       | SB         | Front door switch LH (All)           | Input               | OFF                 | ON (open)  | 0V   |
|          |            | Rear door switch lower LH (King Cab) |                     |                     |  |  |
|          |            | Rear door switch upper LH (King Cab) |                     |                     | OFF (closed)                                       | Battery voltage  |
| 48       | R/Y        | Rear door switch LH (Crew Cab)       | Input               | OFF                 | ON (open)  | 0V   |
|          |            |                                      |                     |                     | OFF (closed)                                       | Battery voltage  |
| 50       | R/Y        | Cargo bed lamp control               | Output              | OFF                 | Cargo lamp switch (ON)                             | 0V   |
|          |            |                                      |                     |                     | Cargo lamp switch (OFF)                            | Battery voltage  |

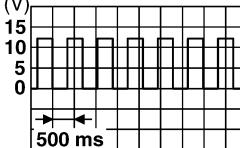
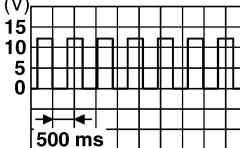
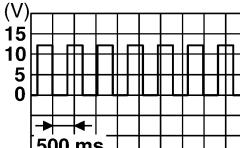
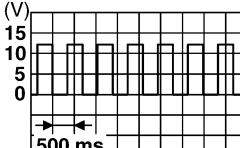
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# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS INFORMATION >

| Terminal | Wire color | Signal name   | Signal input/output | Measuring condition |  | Reference value or waveform (Approx.)  |
|----------|------------|---|---------------------|---------------------|--|--|
|          |            |   |                     | Ignition switch     | Operation or condition                         |  |
| 51       | Y/B        | Trailer turn signal (right)   | Output              | ON                  | Turn right ON                                  | <br>SKIA3009J   |
| 52       | G/B        | Trailer turn signal (left)  | Output              | ON                  | Turn left ON                                   | <br>SKIA3009J   |
| 56       | R/G        | Battery saver output  | Output              | OFF                 | 15 minutes after ignition switch is turned OFF | 0V   |
|          |            |   |                     | ON                  | —  | Battery voltage  |
| 57       | Y/R        | Battery power supply  | Input               | OFF                 | —  | Battery voltage  |
| 58       | W/R        | Optical sensor  | Input               | ON                  | When optical sensor is illuminated             | 3.1V or more   |
|          |            |   |                     |                     | When optical sensor is not illuminated         | 0.6V or less   |
| 59       | G          | Front door lock assembly LH actuator (unlock)                           | Output              | OFF                 | OFF (neutral)                                  | 0V   |
|          |            |   |                     |                     | ON (unlock)                                    | Battery voltage  |
| 60       | G/B        | Turn signal (left)  | Output              | ON                  | Turn left ON                                   | <br>SKIA3009J |
| 61       | G/Y        | Turn signal (right)   | Output              | ON                  | Turn right ON                                  | <br>SKIA3009J |
| 62       | R/W        | Step lamp LH and RH   | Output              | OFF                 | ON (any door open)                             | 0V   |
|          |            |   |                     |                     | OFF (all doors closed)                         | Battery voltage  |
| 63       | L          | Interior room/map lamp  | Output              | OFF                 | Any door switch                                | 0V   |
|          |            |   |                     |                     | ON (open)                                      | Battery voltage  |
| 65       | V          | All door lock actuators (lock)  | Output              | OFF                 | OFF (neutral)                                  | 0V   |
|          |            |   |                     |                     | ON (lock)                                      | Battery voltage  |
| 66       | G/Y        | Front door lock actuator RH and rear door lock actuators LH/RH (unlock) | Output              | OFF                 | OFF (neutral)                                  | 0V   |
|          |            |   |                     |                     | ON (unlock)                                    | Battery voltage  |

# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS INFORMATION >

| Terminal | Wire color | Signal name                     | Signal input/output | Measuring condition |   | Reference value or waveform (Approx.) |
|----------|------------|---------------------------------|---------------------|---------------------|---|---------------------------------------|
|          |            |                                 |                     | Ignition switch     | Operation or condition  |                                       |
| 67       | B          | Ground                          | Input               | ON                  | —   | 0V                                    |
| 68       | W/L        | Power window power supply (RAP) | Output              | —                   | Ignition switch ON  | Battery voltage                       |
|          |            |                                 |                     |                     | Within 45 seconds after ignition switch OFF                     | Battery voltage                       |
|          |            |                                 |                     |                     | More than 45 seconds after ignition switch OFF                  | 0V                                    |
|          |            |                                 |                     |                     | When front door LH or RH is open or power window timer operates | 0V                                    |
| 69       | W/R        | Power window power supply       | Output              | —                   | —   | Battery voltage                       |
| 70       | W/B        | Battery power supply            | Input               | OFF                 | —   | Battery voltage                       |

## Self-Diagnosis (With CONSULT)

INFOID:000000007948185

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## FUNCTION

### Self-Diagnostic Results Mode

| Diagnostic item  | Diagnostic item is detected when ...   | Reference page        |
|--|--|-----------------------|
| LOW - PRESSURE - FL [C1704]<br>LOW - PRESSURE - FR [C1705]<br>LOW - PRESSURE - RR [C1706]<br>LOW - PRESSURE - RL [C1707]                     | Tire pressures dropped below specified value. Refer to <a href="#">WT-8, "System Description"</a> .  | —                     |
| [NO-DATA] - FL [C1708]<br>[NO-DATA] - FR [C1709]<br>[NO-DATA] - RR [C1710]<br>[NO-DATA] - RL [C1711]   | Data from FL transmitter cannot be received.<br>Data from FR transmitter cannot be received.<br>Data from RR transmitter cannot be received.<br>Data from RL transmitter cannot be received.   | <a href="#">WT-14</a> |
| [CHECKSUM- ERR] - FL [C1712]<br>[CHECKSUM- ERR] - FR [C1713]<br>[CHECKSUM- ERR] - RR [C1714]<br>[CHECKSUM- ERR] - RL [C1715]                 | Checksum data from FL transmitter is malfunctioning.<br>Checksum data from FR transmitter is malfunctioning.<br>Checksum data from RR transmitter is malfunctioning.<br>Checksum data from RL transmitter is malfunctioning.                     | <a href="#">WT-16</a> |
| [PRESSDATA- ERR] - FL [C1716]<br>[PRESSDATA- ERR] - FR [C1717]<br>[PRESSDATA- ERR] - RR [C1718]<br>[PRESSDATA- ERR] - RL [C1719]             | Air pressure data from FL transmitter is malfunctioning.<br>Air pressure data from FR transmitter is malfunctioning.<br>Air pressure data from RR transmitter is malfunctioning.<br>Air pressure data from RL transmitter is malfunctioning.     | <a href="#">WT-18</a> |
| [CODE- ERR] - FL [C1720]<br>[CODE- ERR] - FR [C1721]<br>[CODE- ERR] - RR [C1722]<br>[CODE- ERR] - RL [C1723]                                 | Function code data from FL transmitter is malfunctioning.<br>Function code data from FR transmitter is malfunctioning.<br>Function code data from RR transmitter is malfunctioning.<br>Function code data from RL transmitter is malfunctioning. | <a href="#">WT-16</a> |
| [BATT - VOLT - LOW] - FL [C1724]<br>[BATT - VOLT - LOW] - FR [C1725]<br>[BATT - VOLT - LOW] - RR [C1726]<br>[BATT - VOLT - LOW] - RL [C1727] | Battery voltage of FL transmitter drops.<br>Battery voltage of FR transmitter drops.<br>Battery voltage of RR transmitter drops.<br>Battery voltage of RL transmitter drops.   | <a href="#">WT-16</a> |
| VHCL_SPEED_SIG_ERR [C1729]   | Vehicle speed signal is in error.  | <a href="#">WT-20</a> |
| IGN_CIRCUIT_OPEN [C1735]   | Ignition signal is in error.   | <a href="#">WT-21</a> |

# BCM (BODY CONTROL MODULE)

## < ECU DIAGNOSIS INFORMATION >

### NOTE:

Before performing the self-diagnosis, be sure to register the ID or else the actual malfunction location may be different from that displayed on CONSULT.

## Self-Diagnosis (Without CONSULT)

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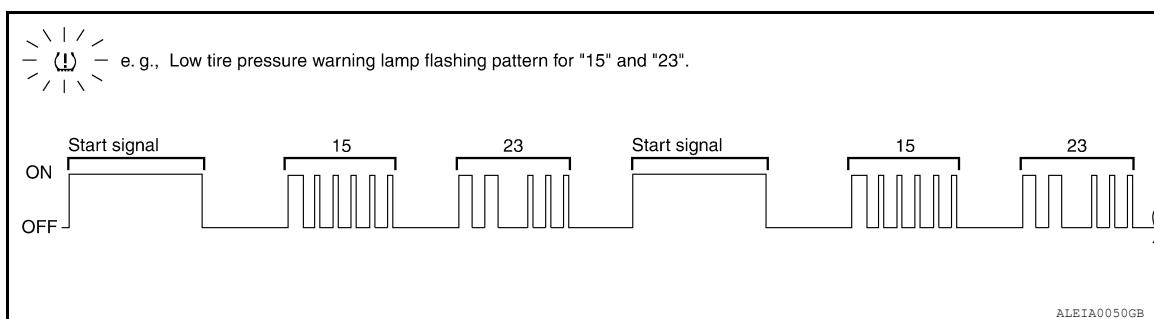
### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

## SELF DIAGNOSTIC PROCEDURE (WITHOUT CONSULT)

1. Turn ignition switch ON.
2. Ground the tire pressure warning check connector to initiate self diagnosis.
3. Compare the flashing pattern with the flash code chart below.



### NOTE:

The system is normal when the low tire pressure warning lamp flashes 5 times and continues repeating. Self-diagnosis results are erased automatically by turning the ignition switch "OFF".

| Flash Code           | Malfunction part   | Reference page        |
|----------------------|--|-----------------------|
| 15<br>16<br>17<br>18 | Tire pressure dropped below specified value. Refer to <a href="#">WT-8, "System Description"</a> .   | —                     |
| 21<br>22<br>23<br>24 | Transmitter no data (FL)<br>Transmitter no data (FR)<br>Transmitter no data (RR)<br>Transmitter no data (RL)   | <a href="#">WT-14</a> |
| 31<br>32<br>33<br>34 | Transmitter checksum error (FL)<br>Transmitter checksum error (FR)<br>Transmitter checksum error (RR)<br>Transmitter checksum error (RL)                     | <a href="#">WT-16</a> |
| 35<br>36<br>37<br>38 | Transmitter pressure data error (FL)<br>Transmitter pressure data error (FR)<br>Transmitter pressure data error (RR)<br>Transmitter pressure data error (RL) | <a href="#">WT-18</a> |
| 41<br>42<br>43<br>44 | Transmitter function code error (FL)<br>Transmitter function code error (FR)<br>Transmitter function code error (RR)<br>Transmitter function code error (RL) | <a href="#">WT-16</a> |
| 45<br>46<br>47<br>48 | Transmitter battery voltage low (FL)<br>Transmitter battery voltage low (FR)<br>Transmitter battery voltage low (RR)<br>Transmitter battery voltage low (RL) | <a href="#">WT-16</a> |

## BCM (BODY CONTROL MODULE)

### < ECU DIAGNOSIS INFORMATION >

| Flash Code | Malfunction part        | Reference page        |
|------------|-------------------------|-----------------------|
| 52         | Vehicle speed signal    | <a href="#">WT-20</a> |
| 54         | Vehicle ignition signal | <a href="#">WT-21</a> |

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# TIRE PRESSURE MONITORING SYSTEM

< WIRING DIAGRAM >

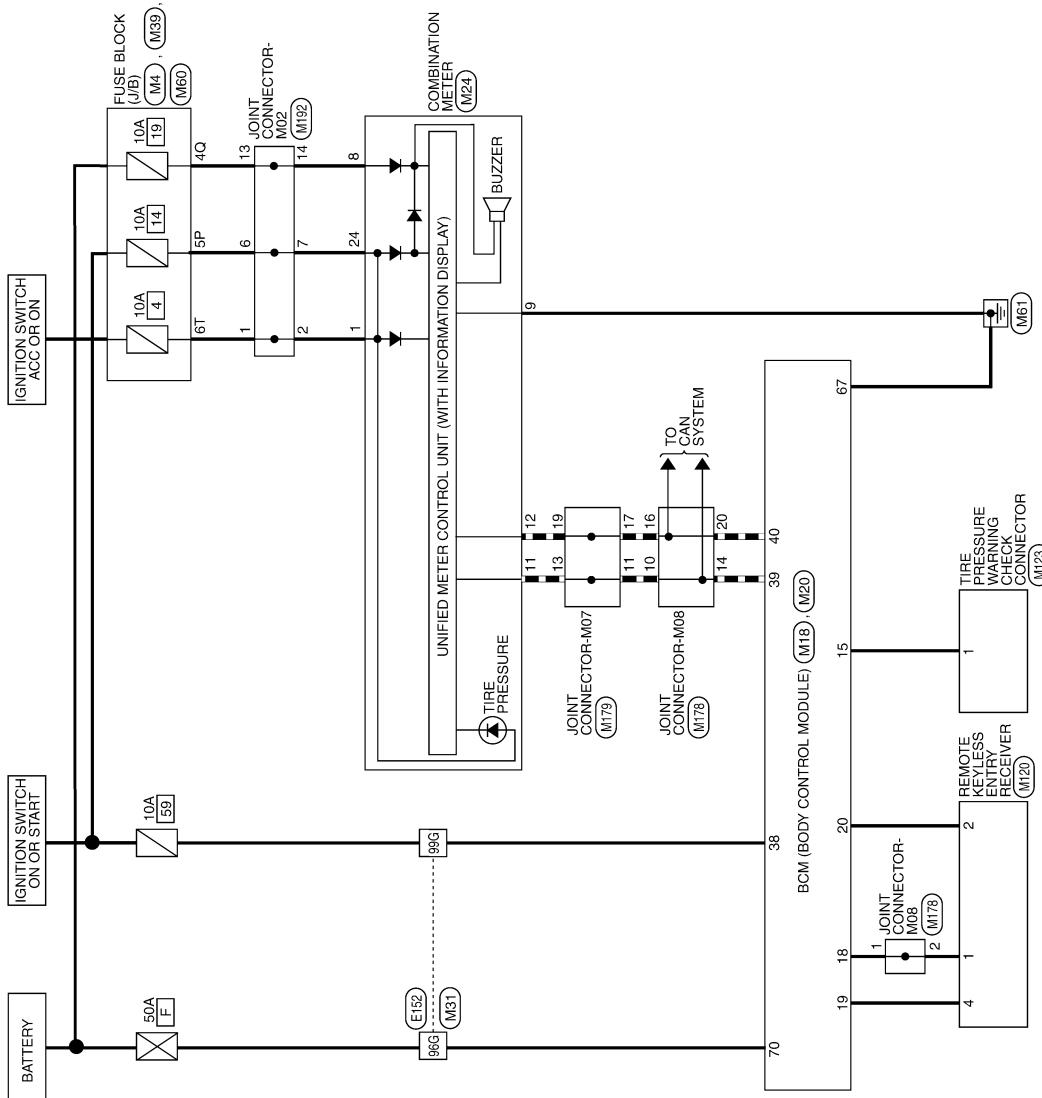
## WIRING DIAGRAM

### TIRE PRESSURE MONITORING SYSTEM

#### Wiring Diagram

INFOID:0000000007948187

#### TIRE PRESSURE MONITORING SYSTEM



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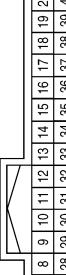
# TIRE PRESSURE MONITORING SYSTEM

< WIRING DIAGRAM >

## TIRE PRESSURE MONITORING SYSTEM CONNECTORS

| Connector No.   | Color of Wire    | Signal Name   |
|-----------------|------------------|---|
| Connector No.   | M4               |   |
| Connector Name  | FUSE BLOCK (J/B) |   |
| Connector Color | WHITE            |   |
|                 |                  |  |
|                 |                  |  |
|                 |                  |  |
| Terminal No.    | Color of Wire    | Signal Name   |
| 5P              | O/L              | —   |

| Connector No.   | Color of Wire             | Signal Name   |
|-----------------|---------------------------|---|
| Connector No.   | M18                       |   |
| Connector Name  | BCM (BODY CONTROL MODULE) |   |
| Connector Color | WHITE                     |   |
|                 |                           |   |
|                 |                           |   |
|                 |                           |  |
| Terminal No.    | Color of Wire             | Signal Name   |
| 15              | L/W                       | TPMS MODE TRIGGER SW  |
| 18              | P                         | KEYLESS AND AUTO LIGHT SENSOR GND   |
| 19              | V/W                       | KEYLESS TUNER POWER SUPPLY OUTPUT   |
| 20              | G/W                       | KEYLESS TUNER SIGNAL  |
| 38              | W/L                       | IGN SW  |
| 39              | L                         | CAN-H   |
| 40              | P                         | CAN-L   |

| Connector No.   | Color of Wire             | Signal Name  |
|-----------------|---------------------------|--|
| Connector No.   | M20                       |  |
| Connector Name  | BCM (BODY CONTROL MODULE) |  |
| Connector Color | BLACK                     |  |
|                 |                           |  |
|                 |                           |  |
|                 |                           |   |
| Terminal No.    | Color of Wire             | Signal Name  |
| 67              | B                         | GND (POWER)  |
| 70              | W/B                       | BAT (F/L)  |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | O             | ACCESSORY   |
| 8            | Y/R           | BATTERY     |
| 9            | B             | GND         |
| 11           | L             | CAN-H       |
| 12           | P             | CAN-L       |
| 24           | O/L           | RUN/START   |

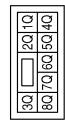
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A B C D E F G H I J K L M N O P Q R S T W

# TIRE PRESSURE MONITORING SYSTEM

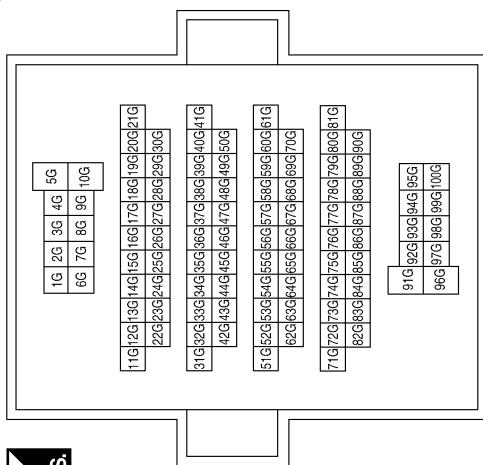
< WIRING DIAGRAM >

|                 |              |
|-----------------|--------------|
| Connector No.   | M31          |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 96G          | W/B           | —           |
| 99G          | W/L           | —           |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 4Q           | Y/R           | —           |



|                 |                  |
|-----------------|------------------|
| Connector No.   | M60              |
| Connector Name  | FUSE BLOCK (J/B) |
| Connector Color | WHITE            |

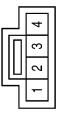


| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | L/W           | —           |
| 2            | —             | —           |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | —             | —           |
| 2            | —             | —           |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | —             | —           |
| 2            | —             | —           |



| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | —             | —           |
| 2            | —             | —           |



# TIRE PRESSURE MONITORING SYSTEM

## < WIRING DIAGRAM >

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 1            | P             | —           |
| 2            | P             | —           |
| 10           | L             | —           |
| 14           | L             | —           |
| 16           | P             | —           |
| 20           | P             | —           |

|                 |                     |
|-----------------|---------------------|
| Connection No.  | M178                |
| Connector Name  | JOINT CONNECTOR-M08 |
| Connector Color | WHITE               |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 11           | L             | -           |
| 13           | L             | -           |
| 17           | P             | -           |
| 19           | P             | -           |

| Terminal No. | Color of Wire | Signal Name |
|--------------|---------------|-------------|
| 96G          | W/B           | —           |
| 99G          | L/W           | —           |

|                 |              |
|-----------------|--------------|
| Connector No.   | E152         |
| Connector Name  | WIRE TO WIRE |
| Connector Color | WHITE        |

|                 |                     |
|-----------------|---------------------|
| Connector No.   | M192                |
| Connector Name  | JOINT CONNECTOR-M02 |
| Connector Color | GREEN               |

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&lt; SYMPTOM DIAGNOSIS &gt;

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## SYMPTOM DIAGNOSIS

### TPMS

#### Symptom Table

INFOID:000000007948188

| Symptom  | Reference             |
|--|-----------------------|
| Low tire pressure warning lamp does not come on when ignition switch is turned ON. | <a href="#">WT-39</a> |
| Low tire pressure warning lamp stays on when ignition switch is turned ON.         | <a href="#">WT-40</a> |
| Low tire pressure warning lamp flashes when ignition switch is turned ON.          | <a href="#">WT-41</a> |
| Hazard warning lamps flash when ignition switch is turned ON.                      | <a href="#">WT-42</a> |
| ID registration cannot be completed.   | <a href="#">WT-43</a> |

# LOW TIRE PRESSURE WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

## LOW TIRE PRESSURE WARNING LAMP DOES NOT TURN ON

Low Tire Pressure Warning Lamp Does Not Come On When Ignition Switch Is Turned On

INFOID:000000007948189

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### NOTE:

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

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### DIAGNOSTIC PROCEDURE

#### 1. SELF-DIAGNOSTIC RESULT CHECK

WT

Using CONSULT, check display contents of BCM in SELF-DIAGNOSIS.

Is "CAN COMM CIRCUIT" displayed in the self-diagnosis display items?

F

YES >> Malfunction in CAN communication system. Refer to [LAN-46, "CAN System Specification Chart"](#).

G

NO >> GO TO 2

#### 2. CHECK COMBINATION METER

H

Check combination meter operation. Refer to [MWI-28, "CONSULT Function \(METER/M&A\)"](#).

I

Is the inspection result normal?

J

YES >> GO TO 3

K

NO >> Replace combination meter. Refer to [MWI-93, "Removal and Installation"](#).

L

#### 3. CHECK LOW TIRE PRESSURE WARNING LAMP

M

Disconnect BCM harness connector.

N

Does the low tire pressure warning lamp activate?

O

YES >> Replace BCM. Refer to [BCS-52, "Removal and Installation"](#).

P

NO >> Check combination meter operation.

## LOW TIRE PRESSURE WARNING LAMP STAYS ON

< SYMPTOM DIAGNOSIS >

### LOW TIRE PRESSURE WARNING LAMP STAYS ON

Low Tire Pressure Warning Lamp Stays On When Ignition Switch Is Turned On

INFOID:0000000007948190

#### DIAGNOSTIC PROCEDURE

##### 1.BCM CONNECTORS

1. Turn ignition switch OFF.
2. Disconnect BCM harness connectors.
3. Check terminals for damage or loose connections.

Is the inspection result normal?

YES >> GO TO 2

NO >> Repair or replace damaged parts.

##### 2.BCM POWER SUPPLY AND GROUND CIRCUITS

Check BCM power supply and ground circuits. Refer to [BCS-28, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-52, "Removal and Installation"](#).

NO >> Repair BCM circuits.

# LOW TIRE PRESSURE WARNING LAMP BLINKS

< SYMPTOM DIAGNOSIS >

## LOW TIRE PRESSURE WARNING LAMP BLINKS

Low Tire Pressure Warning Lamp Flashes When Ignition Switch Is Turned On

INFOID:000000007948191

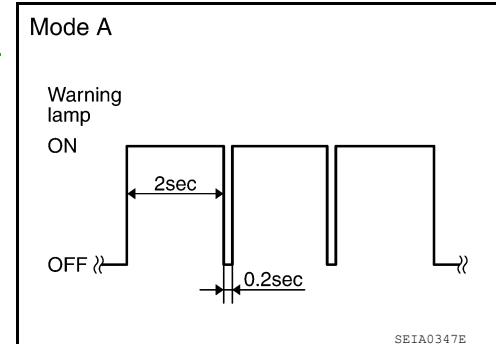
### NOTE:

If low tire pressure warning lamp flashes as shown, the system is normal.

Flash Mode A

- This mode shows transmitter status is OFF-mode.

Carry out transmitter wake up operation. Refer to [WT-5, "Transmitter Wake Up Operation"](#).



Regarding Wiring Diagram information, refer to [WT-34, "Wiring Diagram"](#).

## DIAGNOSTIC PROCEDURE

### 1. CHECK BCM CONNECTORS

1. Turn ignition switch OFF.
2. Disconnect BCM harness connectors.
3. Check terminals for damage or loose connections.

Is the inspection result normal?

YES >> GO TO 2

NO >> Repair or replace damaged parts.

### 2. CHECK TIRE PRESSURE WARNING CHECK CONNECTOR CIRCUIT

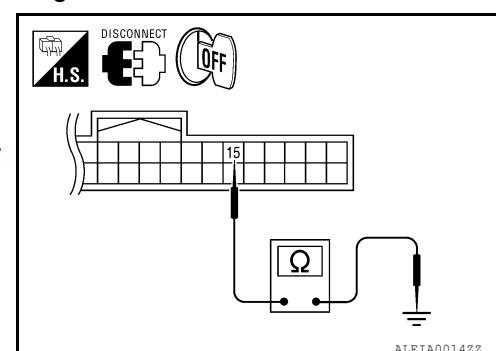
Check continuity between BCM harness connector M18 terminal 15 and ground.

**Continuity should not exist.**

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-52, "Removal and Installation"](#).

NO >> Repair circuit for short to ground.



# HAZARD WARNING LAMPS FLASH

< SYMPTOM DIAGNOSIS >

## HAZARD WARNING LAMPS FLASH

Hazard Warning Lamps Flash When Ignition Switch Is Turned On

INFOID:0000000007948192

### DIAGNOSTIC PROCEDURE

#### 1. CHECK BCM GROUND CIRCUIT

Check BCM ground circuit. Refer to [BCS-28, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES    >> Replace BCM. Refer to [BCS-52, "Removal and Installation"](#).

NO    >> Repair BCM ground circuit.

# ID REGISTRATION CANNOT BE COMPLETED

< SYMPTOM DIAGNOSIS >

## ID REGISTRATION CANNOT BE COMPLETED

### ID Registration Cannot Be Completed

INFOID:000000007948194

#### **NOTE:**

The Signal Tech II Tool (J-50190) can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information.

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

#### DIAGNOSTIC PROCEDURE

##### 1. PERFORM ID REGISTRATION OF ALL TRANSMITTERS

Carry out ID registration of all transmitters. Refer to [WT-6, "ID Registration Procedure".](#)

Can ID registration of all transmitters be completed?

YES >> Inspection End.

NO >> GO TO [WT-14, "Diagnosis Procedure".](#)

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## NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

## < SYMPTOM DIAGNOSIS >

## NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

## NVH Troubleshooting Chart

INFOID:000000007948195

Use the chart below to help you find the cause of the symptom. If necessary, repair or replace these parts.

×: Applicable

&lt; PRECAUTION &gt;

## PRECAUTION

### PRECAUTIONS

#### Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:0000000007948196

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

**WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

#### PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.

#### Precaution for Work

INFOID:0000000007948197

- When removing or disassembling each component, be careful not to damage or deform it. If a component may be subject to interference, be sure to protect it with a shop cloth.
- When removing (disengaging) components with a screwdriver or similar tool, be sure to wrap the component with a shop cloth or vinyl tape to protect it.
- Protect the removed parts with a shop cloth and prevent them from being dropped.
- Replace a deformed or damaged clip.
- If a part is specified as a non-reusable part, always replace it with new one.
- Be sure to tighten bolts and nuts securely to the specified torque.
- After installation is complete, be sure to check that each part works properly.
- Follow the steps below to clean components.
- Water soluble dirt: Dip a soft cloth into lukewarm water, and wring the water out of the cloth to wipe the dirty area.  
Then rub with a soft and dry cloth.
- Oily dirt: Dip a soft cloth into lukewarm water with mild detergent (concentration: within 2 to 3%), and wipe the dirty area.  
Then dip a cloth into fresh water, and wring the water out of the cloth to wipe the detergent off. Then rub with a soft and dry cloth.
- Do not use organic solvent such as thinner, benzene, alcohol, or gasoline.
- For genuine leather seats, use a genuine leather seat cleaner.

## PREPARATION

< PREPARATION >

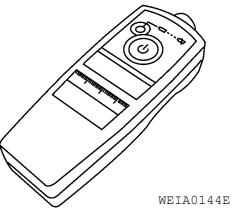
# PREPARATION

## PREPARATION

### Special Service Tool

INFOID:0000000008894430

The actual shapes of Kent-Moore tools may differ from those of special service tools illustrated here.

| Tool number<br>(Kent-Moore No.)<br>Tool name           | Description   |
|--|---|
| KV991B1000<br>(J-45295)<br>Transmitter activation tool |  <ul style="list-style-type: none"><li>Transmitter wake up operation</li><li>ID registration procedure</li></ul>   |
| —<br>(J-50190)<br>Signal Tech II                       |  <ul style="list-style-type: none"><li>Activate and display TPMS transmitter IDs</li><li>Display tire pressure reported by the TPMS transmitter</li><li>Read TPMS DTCs</li><li>Register TPMS transmitter IDs</li></ul> |

### Commercial Service Tool

INFOID:0000000008894432

| Tool name  | Description   |
|------------|---|
| Power tool |  <p>Loosening nuts, screws and bolts</p> |

&lt; PERIODIC MAINTENANCE &gt;

# PERIODIC MAINTENANCE

## WHEEL

### Inspection

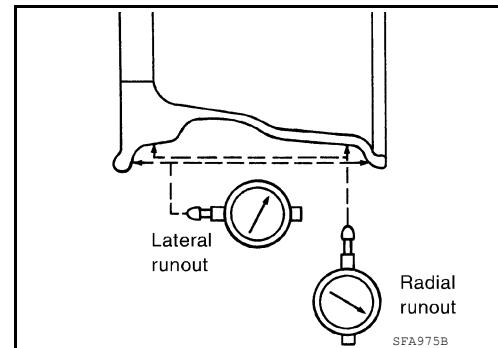
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#### ALUMINUM WHEEL

1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks and other damage. If deformed, remove wheel and check wheel runout.
  - a. Remove tire from wheel and mount wheel on a balancer machine.
  - b. Set dial indicator as shown.

**Wheel runout (Dial indicator value):**

Refer to [WT-53, "Road Wheel"](#).



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#### STEEL WHEEL

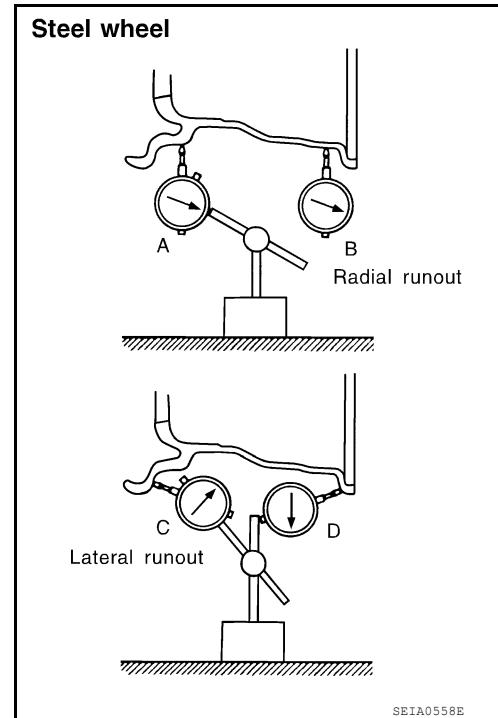
1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks, and other damage. If deformed, remove wheel and check wheel runout.
  - a. Remove tire from wheel and mount on a balancer machine.
  - b. Set two dial indicators as shown.
  - c. Set each dial indicator to 0.
  - d. Rotate wheel and check dial indicators at several points around the circumference of the wheel.
  - e. Calculate runout at each point as shown.

$$\text{Radial runout} = (A+B)/2$$

$$\text{Lateral runout} = (C+D)/2$$

- f. Select maximum positive runout value and the maximum negative value. Add the two values to determine total runout. In case a positive or negative value is not available, use the maximum value (negative or positive) for total runout. If the total runout value exceeds the limit, replace the steel wheel.

**Wheel runout : Refer to [WT-53, "Road Wheel"](#)**



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# WHEEL AND TIRE ASSEMBLY

< PERIODIC MAINTENANCE >

## WHEEL AND TIRE ASSEMBLY

### Balancing Wheels

INFOID:0000000007948201

#### BALANCING WHEELS (ADHESIVE WEIGHT TYPE)

##### Preparation Before Adjustment

Remove inner and outer balance weights from the road wheel using releasing agent. Remove double-faced adhesive tape from the road wheel.

##### CAUTION:

- Be careful not to scratch the road wheel during removal.
- After removing double-faced adhesive tape, wipe clean all traces of releasing agent from the road wheel.

##### Wheel Balance Adjustment

##### CAUTION:

- DO NOT use center hole cone-type clamping machines to hold the wheel assembly during tire removal/installation or balancing or damage to the wheel paint, cladding or chrome may result. Use only rim-type or universal lug-type clamping machines to hold the wheel assembly during servicing.
- If a balancer machine has an adhesive weight mode setting, select the adhesive weight mode setting and skip Step 2. below. If a balancer machine only has the clip-on (rim flange) weight mode setting, follow Step 2. to calculate the correct size adhesive weight.

1. Set road wheel on balancer machine using the center hole as a guide. Start the balancer machine.
2. For balancer machines that only have a clip-on (rim flange) weight mode setting, follow this step to calculate the correct size adhesive weight to use. When inner and outer imbalance values are shown on the balancer machine indicator, multiply outer imbalance value by 5/3 (1.67) to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value above and install in to the designated outer position of, or at the designated angle in relation to the road wheel.

- a. Indicated imbalance value  $\times$  5/3 = balance weight to be installed

##### Calculation example:

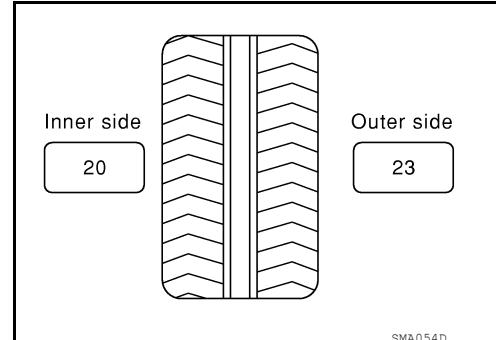
$23 \text{ g (0.81 oz)} \times 5/3 (1.67) = 38.33 \text{ g (1.35 oz)} \Rightarrow 40 \text{ g (1.41 oz)}$   
balance weight (closer to calculated balance weight value)

##### NOTE:

Note that balance weight value must be closer to the calculated balance weight value.

##### Example:

$37.4 \Rightarrow 35 \text{ g (1.23 oz)}$   
 $37.5 \Rightarrow 40 \text{ g (1.41 oz)}$



# WHEEL AND TIRE ASSEMBLY

## < PERIODIC MAINTENANCE >

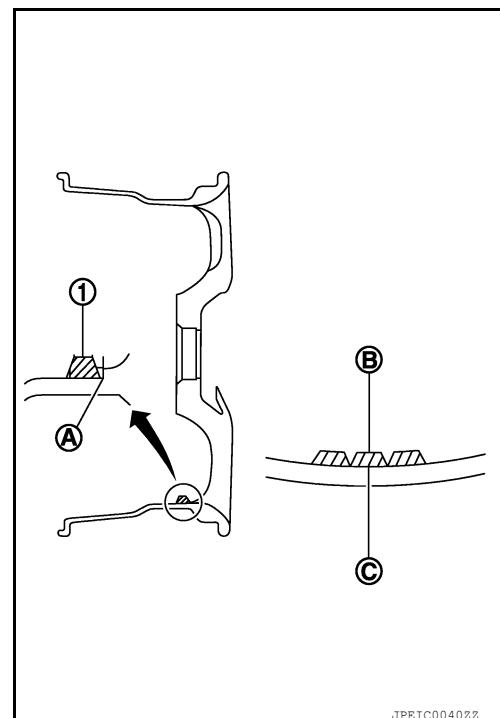
- Install balance weight in the position shown.

**CAUTION:**

- Do not install the inner balance weight before installing the outer balance weight.
- Before installing the balance weight, be sure to clean the mating surface of the road wheel.
- When installing balance weight (1) to road wheel, set it into the grooved area (A) on the inner wall of the road wheel as shown so that the balance weight center (B) is aligned with the balancer machine indication position (angle) (C).

**CAUTION:**

- Always use genuine NISSAN adhesive balance weights.
- Balance weights are non-reusable; always replace with new ones.
- Do not install more than three sheets of balance weight.



- If calculated balance weight value exceeds 50 g (1.76 oz), install two balance weight sheets in line with each other as shown.

**CAUTION:**

- Do not install one balance weight sheet on top another.

- Start balancer machine again.

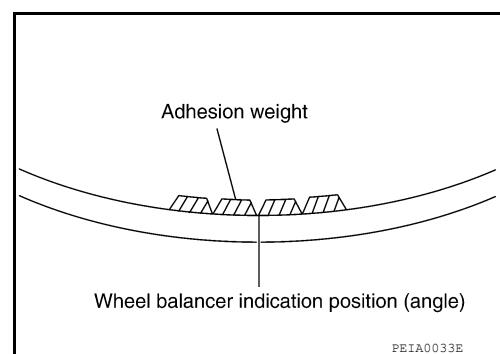
- Install balance weight on inner side of road wheel in the balancer machine indication position (angle).

**CAUTION:**

- Do not install more than two balance weights.

- Start balancer machine. Make sure that inner and outer residual imbalance values are 5 g (0.17 oz) each or below.

- If either residual imbalance value exceeds 5 g (0.17 oz), repeat installation procedures.



| Wheel balance               | Dynamic (At flange)                            | Static (At flange) |
|-----------------------------|--|--------------------|
| Maximum allowable imbalance | Refer to <a href="#">WT-53, "Road Wheel"</a> . |                    |

## Rotation

INFOID:0000000008929070

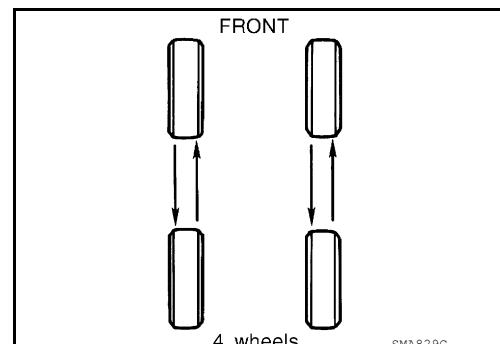
### TIRE ROTATION

- Follow the maintenance schedule for tire rotation service intervals. Refer to [MA-5, "FOR NORTH AMERICA : General Maintenance"](#) (FOR NORTH AMERICA), [MA-7, "FOR MEXICO : General Maintenance"](#) (FOR MEXICO).
- Rotate the wheel and tires front to back in the pattern as shown. When installing the wheel and tires, tighten the wheel nuts diagonally to the specified torque.

**Wheel nut tightening torque : 133 N·m (14 kg-m, 98 ft-lb)**

**CAUTION:**

- Do not include the spare wheel and tire when rotating the wheel and tires.



## **WHEEL AND TIRE ASSEMBLY**

### **< PERIODIC MAINTENANCE >**

- When installing the wheel nuts, tighten them diagonally by dividing the work two to three times in order to prevent the wheels from developing any distortion.
- Be careful not to tighten the wheel nuts to a torque exceeding specification to prevent strain on the disc rotor.
- Use genuine NISSAN wheel nuts for aluminum wheels.

# TRANSMITTER

< UNIT REMOVAL AND INSTALLATION >

## UNIT REMOVAL AND INSTALLATION TRANSMITTER

Transmitter (Pressure Sensor)

INFOID:000000007948202

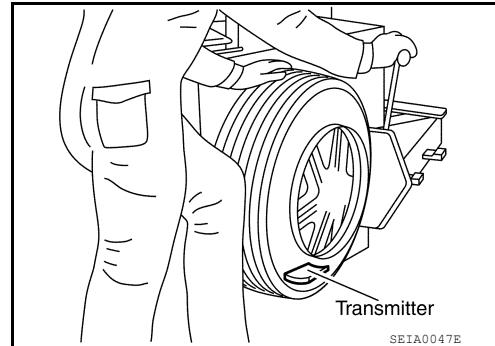
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### REMOVAL

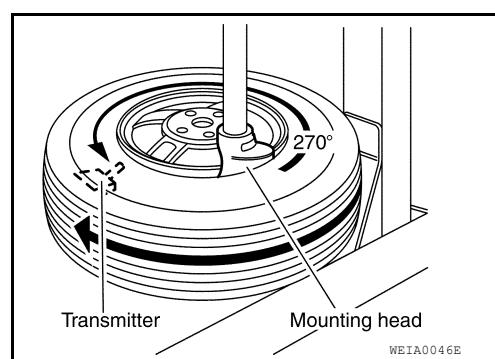
#### CAUTION:

- DO NOT use center hole cone-type clamping machines to hold the wheel assembly during tire removal/installation or balancing or damage to the wheel paint, cladding or chrome may result. Use only rim-type or universal lug-type clamping machines to hold the wheel assembly during servicing.

1. Deflate tire. Unscrew transmitter nut and allow transmitter to fall into tire.
2. Gently bounce tire so that transmitter falls to bottom of tire. Place wheel and tire assembly on tire changing machine and break both tire beads. Make sure that the transmitter remains at the bottom of the tire while breaking the bead.



3. Turn tire so that valve hole is at bottom, and gently bounce the tire to make sure transmitter is near valve hole. Carefully lift tire onto turntable and position valve hole (and transmitter) 270 degrees from mounting/dismounting head.
4. Lubricate the tire well with a suitable non silicone lubricant, and remove top side of tire. Reach inside the tire and remove the transmitter.
5. Remove the second side of the tire as normal.

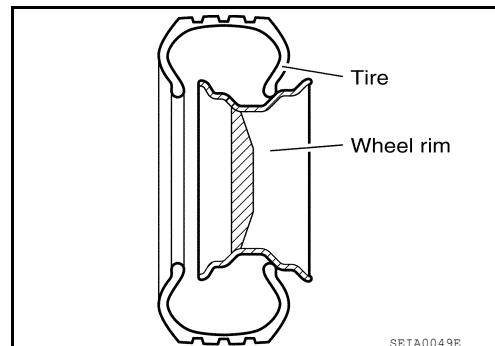


### INSTALLATION

#### CAUTION:

- DO NOT use center hole cone-type clamping machines to hold the wheel assembly during tire removal/installation or balancing or damage to the wheel paint, cladding or chrome may result. Use only rim-type or universal lug-type clamping machines to hold the wheel assembly during servicing.

1. Place first side of tire onto rim.



# TRANSMITTER

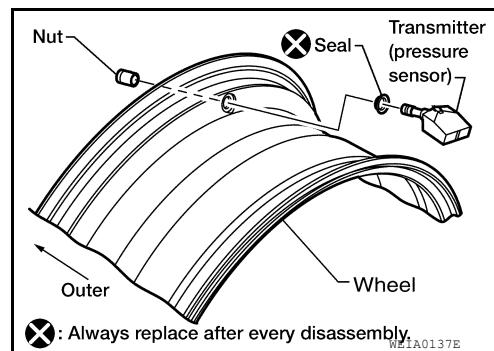
## < UNIT REMOVAL AND INSTALLATION >

2. Mount transmitter on rim and slowly tighten transmitter nut to specification.

**CAUTION:**

- Do not over tighten transmitter nut.
- Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.
- Do not reuse seal.

**Transmitter nut : 7.7 N·m (0.79 kg·m, 68 in-lb)**



3. Place wheel on turntable of tire machine. Make sure that transmitter is 270 degrees from mounting/dismounting head.

**NOTE:**

Do not touch transmitter with mounting head.

4. Lubricate tire well with a suitable non silicone lubricant, and install second side of tire as normal. Make sure that tire does not rotate relative to rim.

**CAUTION:**

- Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.

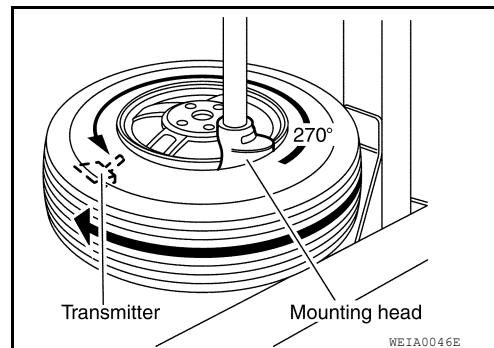
5. Inflate tire and balance the wheel and tire assembly. Refer to [WT-48, "Balancing Wheels"](#).

6. Install wheel and tire assembly in appropriate wheel position on vehicle.

**NOTE:**

If replacing the transmitter, then transmitter wake up operation must be performed. Refer to [WT-5, "Transmitter Wake Up Operation"](#).

7. Adjust neutral position of steering angle sensor. Refer to [BRC-8, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement"](#).



## SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

# SERVICE DATA AND SPECIFICATIONS (SDS)

## SERVICE DATA AND SPECIFICATIONS (SDS)

### Road Wheel

INFOID:0000000007948203

| Wheel type                  | Aluminum                | Steel                              |                     |
|-----------------------------|-------------------------|------------------------------------|---------------------|
|                             |                         | Inside                             | Outside             |
| Maximum radial runout limit | Lateral mm (in)         | 0.3 (0.012) or less                | 1.0 (0.039) or less |
|                             | Radial mm (in)          | 0.3 (0.012) or less                | 0.8 (0.031) or less |
| Maximum allowable imbalance | Dynamic (at rim flange) | Less than 5 g (0.18 oz) (per side) |                     |
|                             | Static (at rim flange)  | Less than 10 g (0.35 oz)           |                     |

### Tire

INFOID:0000000007948204

Unit: kPa (kg/cm<sup>2</sup>, psi)

| Tire size  | Air pressure      |               |
|------------|-------------------|---------------|
|            | Conventional tire | Spare tire    |
| P265/70R18 | 250 (2.5, 36)     | 250 (2.5 36)  |
| P275/70R18 | 250 (2.5, 36)     | 250 (2.5 36)  |
| P275/60R20 | 250 (2.5, 36)     | 250 (2.5, 36) |