

WT

SECTION

ROAD WHEELS & TIRES

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

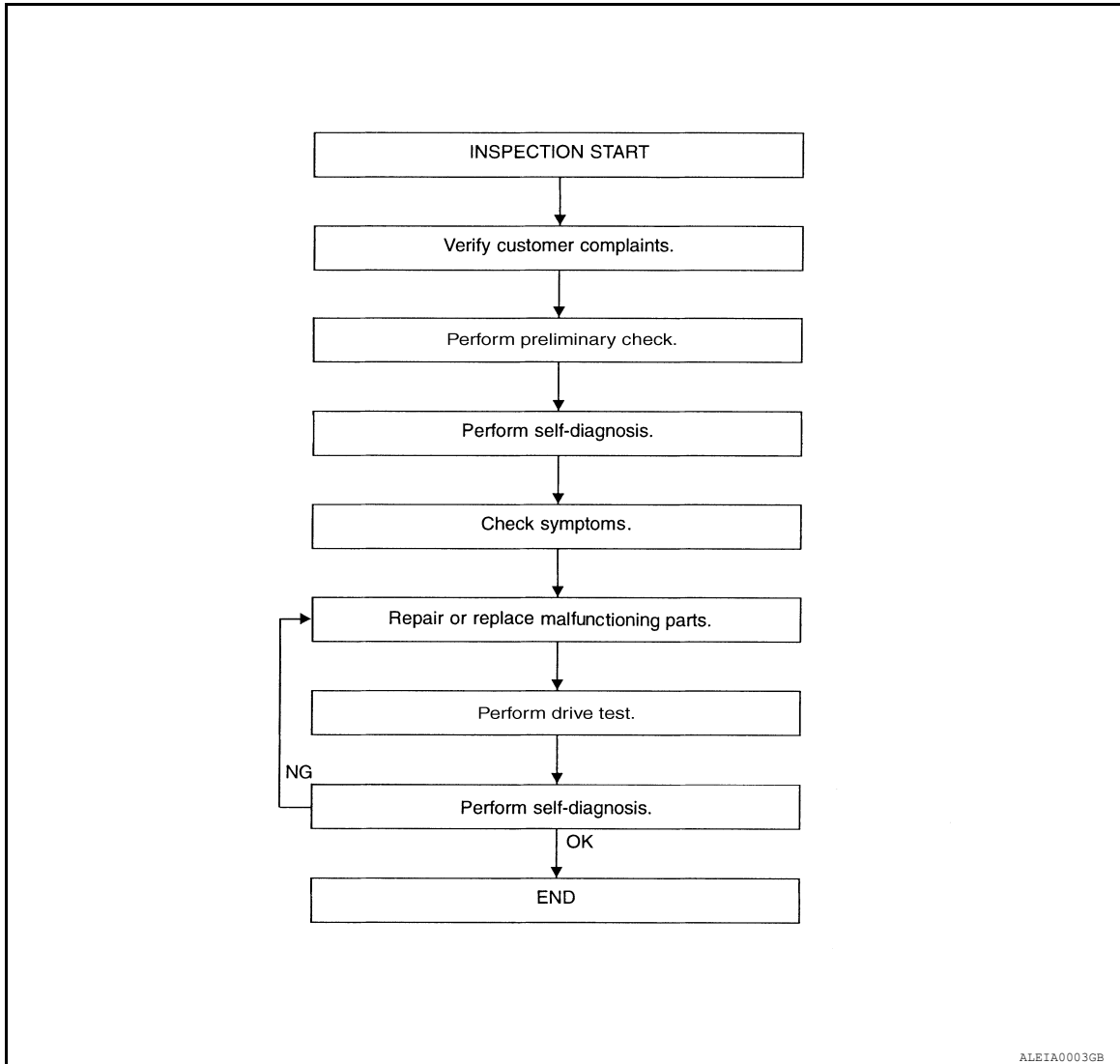
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Repair Work Flow

INFOID:0000000011562759

WORK FLOW



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

[WT-33. "Self-Diagnosis \(With CONSULT\)"](#) [WT-40. "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 Diagnostic Result". Refer to [WT-33. "Self-Diagnosis \(With CONSULT\)"](#) or [WT-34. "Self-Diagnosis \(Without CONSULT\)"](#).

>> GO TO 4.

4.SYMPTOM

Check for symptoms. Refer to [WT-40. "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 Diagnostic Result". Refer to [WT-33. "Self-Diagnosis \(With CONSULT\)"](#) or [WT-34. "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:0000000011562760

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-58, "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-41, "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 [BCS-28, "AIR PRESSURE MONITOR : CONSULT Function \(BCM - AIR PRESSURE MONITOR\)"](#).

NO >> Replace battery in transmitter activation tool.

ID REGISTRATION PROCEDURE

< BASIC INSPECTION >

ID REGISTRATION PROCEDURE

Description

INFOID:000000011562761

This procedure must be performed after replacement of a transmitter, BCM or rotation of the wheels.

Work Procedure

INFOID:000000011562762

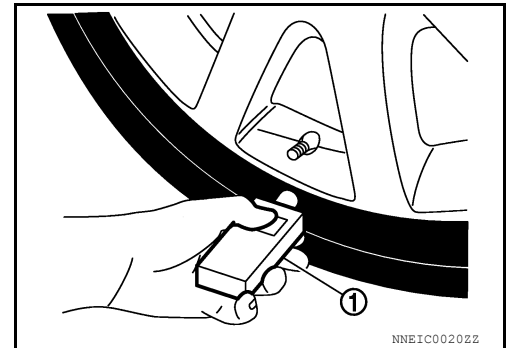
TPMS ID registration can be performed using one of the following procedures:

- Transmitter Activation tool [KV48105501 (J-45295-A)] with CONSULT (preferred method)
- Signal Tech II tool [– (J-50190)] with CONSULT (preferred method)
- Signal Tech II tool [– (J-50190)] without CONSULT
- CONSULT only

TPMS REGISTRATION WITH TRANSMITTER ACTIVATION TOOL [KV48105501 (J-45295-A)]

With CONSULT

1. Turn the ignition switch ON.
2. Using CONSULT, select “WORK SUPPORT” in BCM (AIR PRESSURE MONITOR). Then, select “ID REGIST.”
3. Select “Start” on “ID REGIST” screen.
4. Hold the transmitter activation tool [KV48105501 (J-45295-A)] (1) against the side of the left front tire, near the valve stem.
5. With the tool held at a 0 to 15 degree angle to the tire, press and hold the transmitter activation tool button until the indicator lamp turns OFF (approximately 5 seconds).
6. Repeat steps 4 and 5 for the remaining tires in this order: right front, right rear and left rear.



7. When ID registration is complete, check the following pattern at each wheel.

Sequence	ID registration position	Turn signal lamp	CONSULT
1	Front LH	2 blinks	“Yet (red)” ↓ “Done (green)”
2	Front RH		
3	Rear RH		
4	Rear LH		

8. After the ID registration procedure for all wheels is complete, press “End” on the CONSULT to finish ID registration.
9. Test drive the vehicle to ensure that the TPMS lamp is OFF and no warning messages are present.

TPMS REGISTRATION WITH SIGNAL TECH II TOOL [– (J-50190)]

NOTE:

The Signal Tech II must be updated with software version 1.1.48 or newer in order to perform the below procedures. The Signal Tech II software updates can only be downloaded from a CONSULT unit with ASIST. Other versions of ASIST will not show the updates.

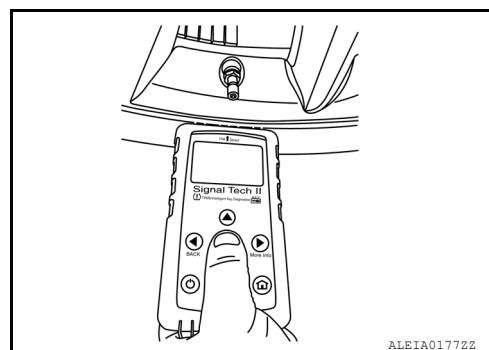
With CONSULT

1. Adjust the tire pressure for all tires to the recommended value. Refer to [WT-58, "Tire"](#).
2. Turn the ignition switch ON.
3. Using CONSULT, select “WORK SUPPORT” in BCM (AIR PRESSURE MONITOR). Then, select “ID REGIST.”
4. Select “Start” on “ID REGIST” screen.
5. Turn on the Signal Tech II tool [– (J-50190)].

ID REGISTRATION PROCEDURE

< BASIC INSPECTION >

6. Hold the Signal Tech II against the side of the left front tire, near the valve stem.
7. With the tool held at a 0 to 15 degree angle to the tire, select "Activate Sensor" from the main menu, then press and release the "OK" button to activate the sensor. Once the sensor is activated, the vehicle parking lamps will flash and the sensor ID will appear on the CONSULT screen.
8. Repeat steps 6 and 7 for the remaining tires in this order: right front, right rear and left rear.
9. When ID registration is complete, check the following pattern at each wheel.

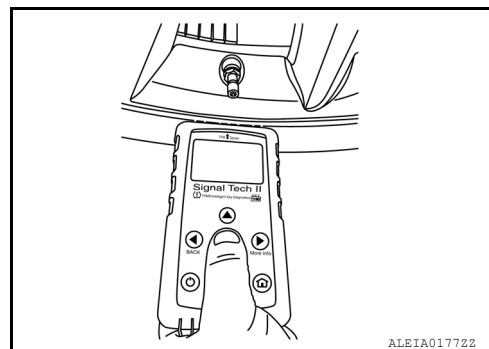


Sequence	ID registration position	Turn signal lamp	CONSULT
1	Front LH	2 blinks	"Yet (red)" ↓ "Done (green)"
2	Front RH		
3	Rear RH		
4	Rear LH		

10. Once all sensors have been activated, select "End" on the CONSULT to finish ID registration.
11. Test drive the vehicle to ensure that the TPMS lamp is OFF and no warning messages are present.

⊗ Without CONSULT

1. Adjust the tire pressure for all tires to the recommended value. Refer to [WT-58, "Tire"](#).
2. Turn on the Signal Tech II tool [– (J-50190)] and select "TPMS Check" from the main menu.
3. Select vehicle model and year.
4. When prompted, hold the Signal Tech II against the side of the left front tire, near the valve stem.
5. With the tool held at a 0 to 15 degree angle to the tire, press and release the "OK" button to activate the sensor. Once the sensor is activated, the tool will sound a tone and the tire pressure will be displayed.
6. Repeat steps 4 and 5 for the remaining tires in this order: right front, right rear and left rear.
7. When prompted, connect the tool to the data link connector. The tool will connect to the BCM, read the VIN, read sensor IDs and check for TPMS DTCs. Along with DTCs detected, one of the following will be displayed next to each wheel:
 - N/A - Not applicable because no ID found by the tool
 - OK - Wheel and sensor are in original position
 - NEW - New ID found compared to BCM
 - RT - Wheel has been rotated
 - Low Press - Low tire pressure
8. If no DTC is present or the repair has been completed, press the "OK" button to register the IDs and clear DTCs.
9. Test drive the vehicle to ensure that the TPMS lamp is OFF and no warning messages are present.
10. Print a Signal Tech II Audit Report for your records. Refer to the Signal Tech II User Guide for instructions.



TPMS REGISTRATION WITH CONSULT ONLY

Ⓟ With CONSULT

1. Adjust the tire pressure for all wheels to match the list below.

Tire position	Tire pressure kPa (kg/cm ² , psi)
Front LH	240 (2.4, 35)
Front RH	220 (2.2, 32)
Rear RH	200 (2.0, 29)
Rear LH	180 (1.8, 26)

ID REGISTRATION PROCEDURE

< BASIC INSPECTION >

2. Turn the ignition switch ON.
3. Using CONSULT, select "WORK SUPPORT" in BCM (AIR PRESSURE MONITOR). Then, select "ID REGIST."
4. Select "Start" on "ID REGIST" screen.
5. Drive the vehicle at a speed greater than 40 km/h (25 MPH) for 3 minutes or more.
6. After ID registration for all wheels is complete, press "End" on the CONSULT to finish ID registration.

ID registration position	CONSULT
Front LH	"Yet (red)" ↓ "Done (green)"
Front RH	
Rear RH	
Rear LH	

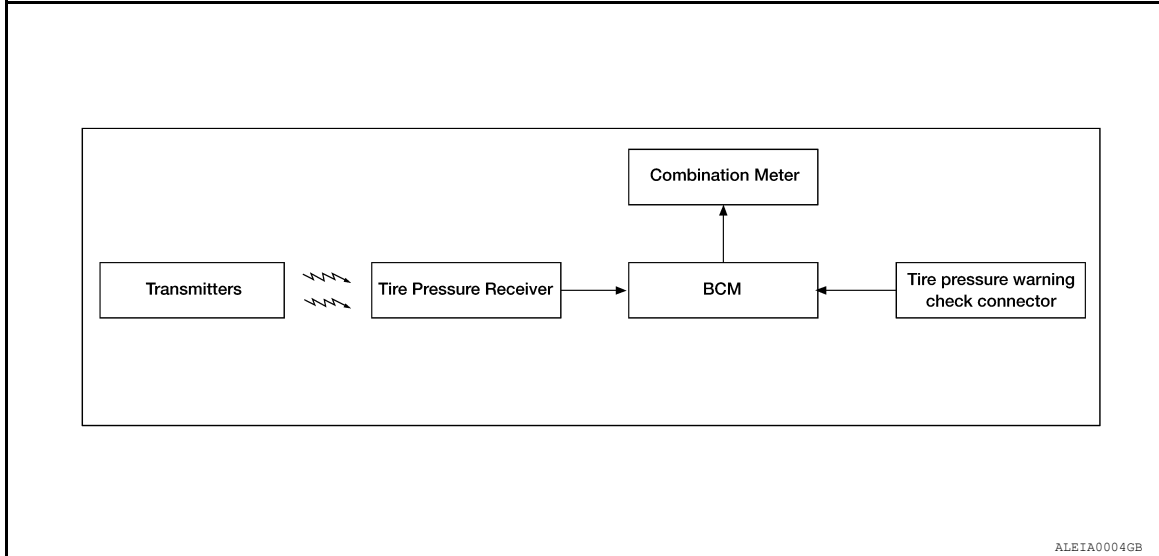
7. Adjust the tire pressures for all tires to the recommended value. Refer to [WT-58, "Tire"](#).
8. Test drive the vehicle to ensure that the TPMS lamp is OFF and no warning messages are present.

SYSTEM DESCRIPTION

TPMS

System Diagram

INFOID:0000000011562763



System Description

INFOID:0000000011562764

DESCRIPTION

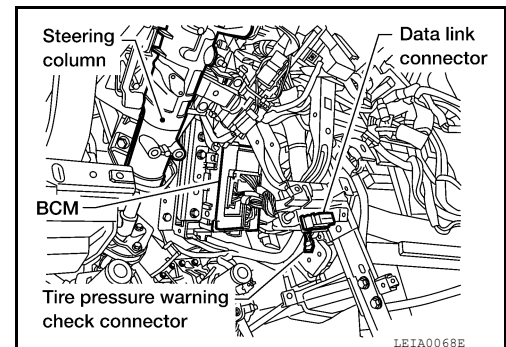
During driving, the tire pressure monitoring system receives the signal transmitted from the transmitter installed in each wheel, and turns on the low tire pressure warning lamp when the tire pressure becomes low. The control unit (BCM) for this system has pressure judgement and self-diagnosis functions.

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. A CHECK TIRE PRES warning message will also be displayed in the vehicle information display.

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.



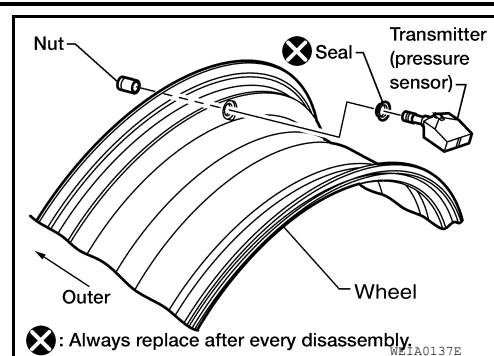
Condition	Low tire pressure warning lamp
System normal	On for 1 second after ignition ON
Tire less than 193 kPa (2.0 kg/cm ² , 28 psi) [Flat tire]	ON
TPMS malfunction	After key ON, flashes once per second for 1 minute, then stays ON

TRANSMITTER

TPMS

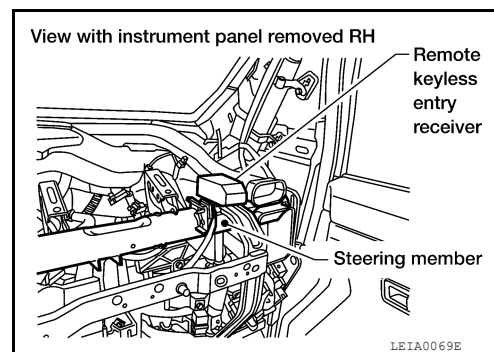
< SYSTEM DESCRIPTION >

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.



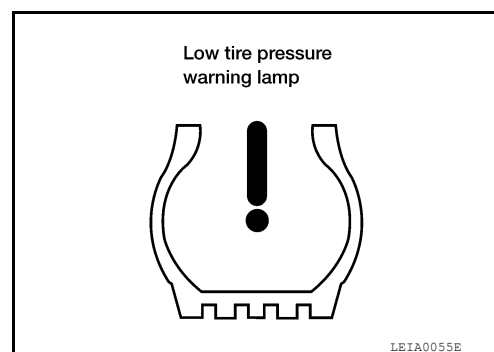
REMOTE KEYLESS ENTRY RECEIVER

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.



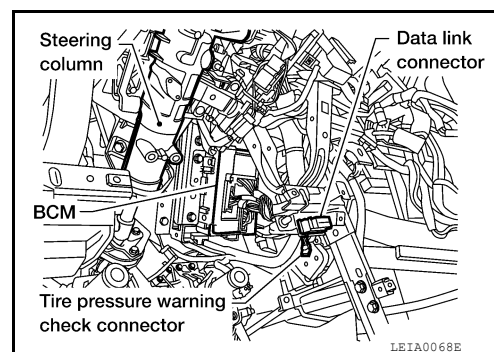
COMBINATION METER

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.



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-13. "Self-Diagnosis \(Without CONSULT\)"](#). The tire pressure warning check connector is located behind the lower portion of the instrument panel LH.

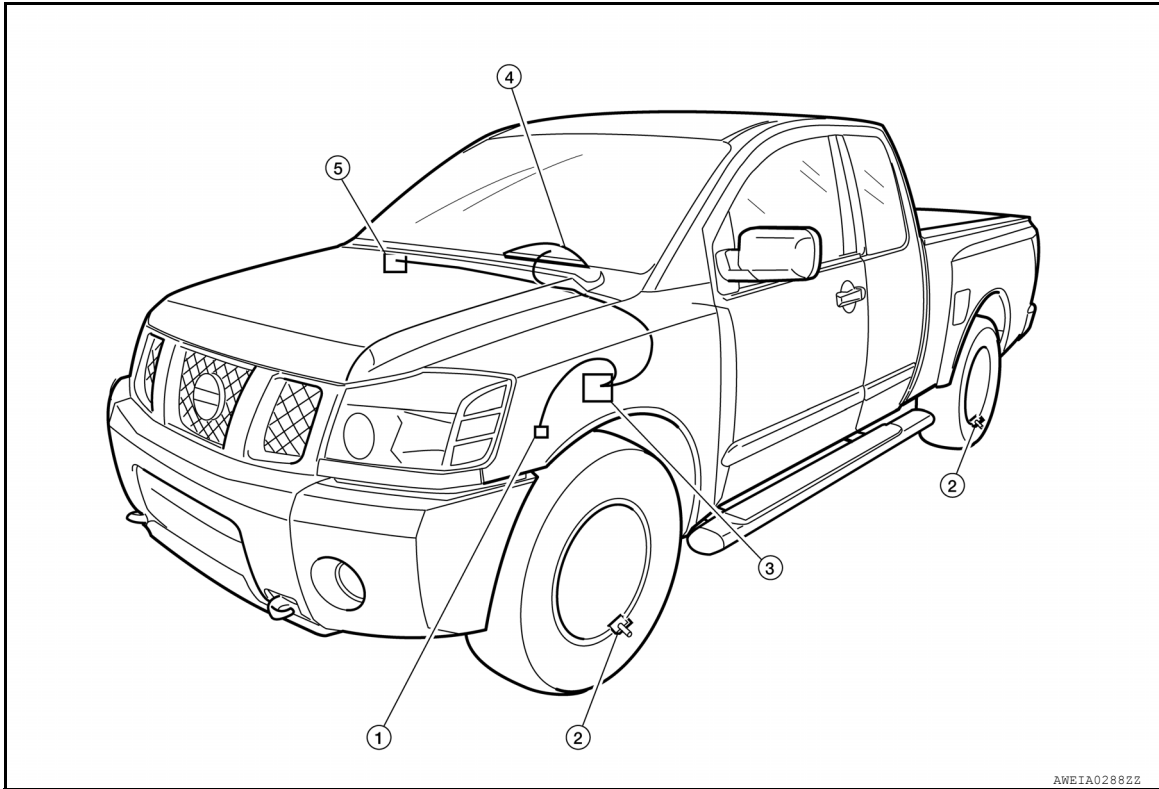


TPMS

< SYSTEM DESCRIPTION >

System Component

INFOID:0000000011562765



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

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DIAGNOSIS SYSTEM (BCM)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (BCM)

CONSULT Function (BCM - COMMON ITEM)

INFOID:000000011868039

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	- The vehicle specification can be read and saved. - The vehicle specification can be written when replacing BCM.
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			x	x	x		
Rear window defogger	REAR DEFOGGER			x	x			
Warning chime	BUZZER			x	x			
Interior room lamp timer	INT LAMP			x	x	x		
Remote keyless entry system	MULTI REMOTE ENT			x	x	x		
Exterior lamp	HEADLAMP			x	x	x		
Wiper and washer	WIPER			x	x	x		
Turn signal and hazard warning lamps	FLASHER			x	x			
Air conditioner	AIR CONDITIONER			x				
Combination switch	COMB SW			x				
BCM	BCM	x	x			x	x	x
Immobilizer	IMMU		x	x	x			
Interior room lamp battery saver	BATTERY SAVER			x	x	x		
Vehicle security system	THEFT ALM			x	x	x		
RAP system	RETAINED PWR			x	x	x		
Signal buffer system	SIGNAL BUFFER			x	x			
TPMS	AIR PRESSURE MONITOR		x	x	x	x		
Panic alarm system	PANIC ALARM				x			

CONSULT Function (BCM - AIR PRESSURE MONITOR)

INFOID:000000011868040

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-45. "DTC Index"](#).

DATA MONITOR

Monitor Item	Condition	Specification
VEHICLE SPEED	Drive vehicle	Vehicle speed (km/h or mph)
AIR PRESS FL	• Drive vehicle for a few minutes. - or • Ignition switch ON and activation tool is transmitting activation signals.	Tire pressure (kPa, kg/cm ² or psi).
AIR PRESS FR		
AIR PRESS RR		
AIR PRESS RL		
ID REGST FL1	Ignition switch ON.	Registration ID: Green. No registration: Red.
ID REGST FR1		
ID REGST RR1		
ID REGST RL1		
WARNING LAMP	Ignition switch ON.	Low tire pressure warning lamp on: ON. Low tire pressure warning lamp off: OFF.
BUZZER	Ignition switch ON.	Buzzer in combination meter on: ON. 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 WT-6. "Description" .
ID READ	The registered ID number is displayed.

Self-Diagnosis (Without CONSULT)

INFOID:0000000011562768

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.

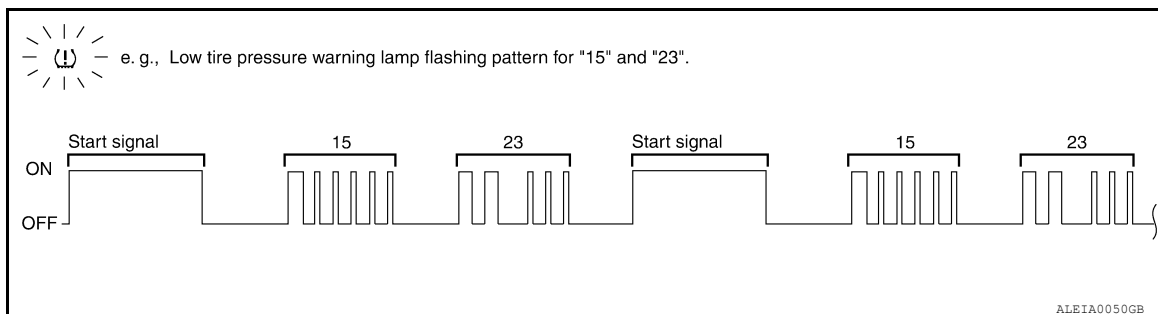
- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

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".

Flash Code	Malfunction part	Reference page
15 16 17 18	Tire pressure dropped below specified value. Refer to WT-9, "System Description" .	—
21 22 23 24	Transmitter no data (FL) Transmitter no data (FR) Transmitter no data (RR) Transmitter no data (RL)	WT-15
31 32 33 34	Transmitter checksum error (FL) Transmitter checksum error (FR) Transmitter checksum error (RR) Transmitter checksum error (RL)	WT-17
35 36 37 38	Transmitter pressure data error (FL) Transmitter pressure data error (FR) Transmitter pressure data error (RR) Transmitter pressure data error (RL)	WT-19
41 42 43 44	Transmitter function code error (FL) Transmitter function code error (FR) Transmitter function code error (RR) Transmitter function code error (RL)	WT-17
45 46 47 48	Transmitter battery voltage low (FL) Transmitter battery voltage low (FR) Transmitter battery voltage low (RR) Transmitter battery voltage low (RL)	WT-17
52	Vehicle speed signal	WT-21
54	Vehicle ignition signal	WT-23

C1708 - C1711 DATA FROM TRANSMITTER NOT BEING RECEIVED

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

C1708 - C1711 DATA FROM TRANSMITTER NOT BEING RECEIVED

Description

INFOID:0000000011562769

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

DTC Logic

INFOID:0000000011562770

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. Refer to [WT-6, "Work 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.
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-15, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000011562771

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-56, "Removal and Installation"](#).

3.PERFORM ID REGISTRATION

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

Is there a tire that cannot register ID?

YES >> Replace malfunctioning transmitter, then GO TO 5. Refer to [WT-54, "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.

5.ID REGISTRATION AND VEHICLE DRIVING

1. Carry out ID registration of all transmitters. Refer to [WT-6, "Work 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.
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.

Special Repair Requirement

INFOID:0000000011562772

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

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

< DTC/CIRCUIT DIAGNOSIS >

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

Description

INFOID:0000000011562773

One or more transmitters are malfunctioning internally.

DTC Logic

INFOID:0000000011562774

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-17, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000011562775

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, "Work 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.

2. REPLACE TRANSMITTER

1. Check low tire pressure warning lamp again for flashing, replace malfunctioning transmitter. Refer to [WT-54, "Transmitter \(Pressure Sensor\)"](#).
2. Carry out ID registration of all transmitters. Refer to [WT-6, "Work Procedure"](#).

Can ID registration of all transmitters be completed?

YES >> GO TO 3.

NO >> GO TO [WT-15, "Diagnosis Procedure"](#).

3. 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 >> Replace malfunctioning transmitter, and perform Step 3 again.

Special Repair Requirement

INFOID:000000011562776

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

C1716 - C1719 TRANSMITTER PRESSURE MALFUNCTION

< DTC/CIRCUIT DIAGNOSIS >

C1716 - C1719 TRANSMITTER PRESSURE MALFUNCTION

Description

INFOID:0000000011562777

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

DTC Logic

INFOID:0000000011562778

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. Refer to [WT-6, "Work 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.
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-19, "Diagnosis Procedure"](#).

Diagnosis Procedure

INFOID:0000000011562779

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-58, "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, "Work 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-54. "Transmitter \(Pressure Sensor\)".](#)
NO >> GO TO 3.

3.ID REGISTRATION AND VEHICLE DRIVING

1. Carry out ID registration of all transmitters. Refer to [WT-6. "Work 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.
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.

Special Repair Requirement

INFOID:0000000011562780

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

C1729 VEHICLE SPEED SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

C1729 VEHICLE SPEED SIGNAL

Description

INFOID:0000000011562781

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

DTC Logic

INFOID:0000000011562782

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 Diagnostic Result" mode in "AIR PRESSURE MONITOR" of "BCM".
2. Check display contents on "SELF DIAG RESULT" screen.

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

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

Diagnosis Procedure

INFOID:0000000011562783

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.PERFORM SELF DIAGNOSTIC RESULT FOR COMBINATION METER

CONSULT

Perform "Self Diagnostic Result" for "METER M&A". Refer to [MWI-28, "CONSULT Function \(METER/M&A\)"](#).

Are any DTCs detected?

- YES >> Refer to [MWI-45, "DTC Index"](#).
NO >> GO TO 2.

2.CHECK BCM INPUT/OUTPUT SIGNAL

Check BCM input/output signal values. Refer to [BCS-36, "Reference Value"](#).

Is the Inspection result normal?

- YES >> Check pin terminal and connection of each harness connector for malfunctioning conditions.
NO >> GO TO 3.

3.PERFORM BCM CONFIGURATION

Perform the BCM configuration. Refer to [BCS-4, "CONFIGURATION : Work Procedure"](#).

>> GO TO 4.

C1729 VEHICLE SPEED SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

4.INSPECTION START

1. Turn ignition switch ON.
2. Check "Self Diagnostic Result" of "BCM" using CONSULT.
3. Touch "ERASE".
4. Perform DTC Confirmation Procedure. Refer to [WT-23. "DTC Logic"](#).

Is the 1st trip DTC C1729 displayed again?

- YES >> Replace BCM. Refer to [BCS-56. "Removal and Installation"](#).
NO >> Inspection End.

Special Repair Requirement

INFOID:0000000011562784

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

C1735 IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

C1735 IGNITION SIGNAL

Description

INFOID:0000000011562785

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:0000000011562786

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
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 Diagnostic Result" mode in "AIR PRESSURE MONITOR" of "BCM".
2. Check display contents on SELF DIAG RESULT screen.

Is C1735 displayed in the self-diagnosis display?

- YES >> Refer to [WT-23, "Diagnosis Procedure"](#).
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000011562787

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-36, "Reference Value"](#).

Are the inspection results normal with the ignition switch ON?

- YES >> GO TO 2.
NO >> Check CAN system. Refer to [LAN-50, "CAN System Specification Chart"](#).

2.BCM POWER SUPPLY

Check BCM power supply (ignition ON). Refer to [BCS-31, "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.

C1735 IGNITION SIGNAL

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace BCM. Refer to [BCS-56. "Removal and Installation"](#).

Special Repair Requirement

INFOID:0000000011562788

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:0000000011867236

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

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 ² , psi
AIR PRESS FR	Front right tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RL	Rear left tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RR	Rear right tire air pressure value	kPa, kg/cm ² , 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

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
	PANIC button of key fob is pressed	On
KEYLESS UNLOCK	UNLOCK button of key fob is not pressed	Off
	UNLOCK button of key fob is pressed	On
LIGHT SW 1ST	Lighting switch OFF	Off
	Lighting switch 1st	On
OIL PRESS SW	- Ignition switch OFF or ACC - Engine running	Off
	Ignition switch ON	On
OPTICAL SENSOR	Bright outside of the vehicle	Close to 5V
	Dark outside of the vehicle	Close to 0V
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
TURN SIGNAL L	Turn signal switch OFF	Off
	Turn signal switch LH	On
TURN SIGNAL R	Turn signal switch OFF	Off
	Turn signal switch RH	On
VEHICLE SPEED	While driving	Equivalent to speedometer reading
WARNING LAMP	Low tire pressure warning lamp in combination meter OFF	Off
	Low tire pressure warning lamp in combination meter ON	On

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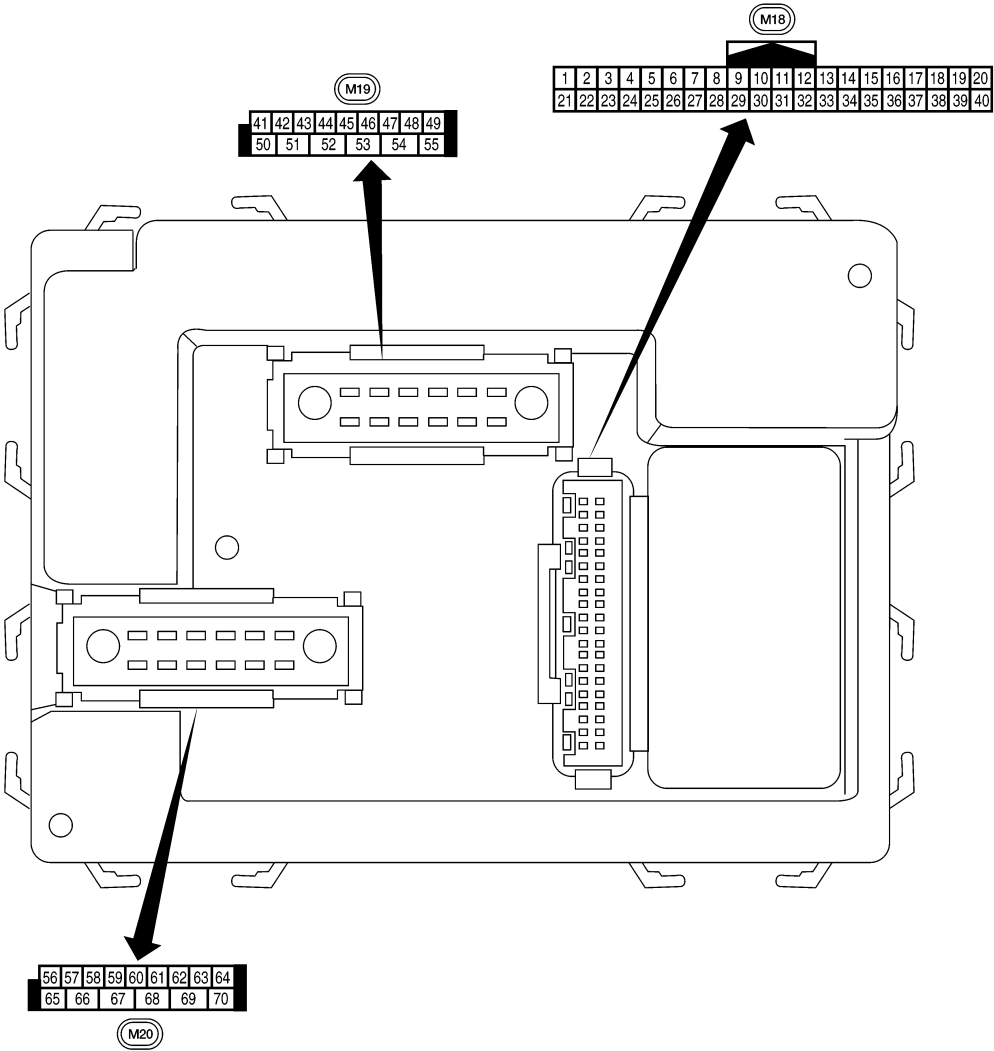
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal Layout

INFOID:0000000011867237



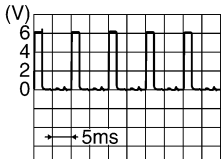
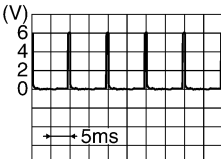
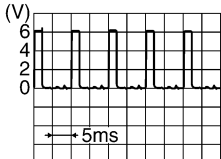
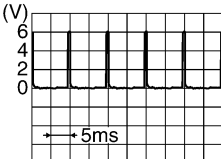
Physical Values

AWMIA15422Z

INFOID:0000000011867238

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)	0V
					OFF (driver door closed)	Battery voltage
2	SB	Combination switch input 5	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	
3	G/Y	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	
4	Y	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	
5	G/B	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	
6	V	Combination switch input 1				
9	R/G	Brake switch	Input	ON	Brake pedal depressed	Battery voltage
					Brake pedal released	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)			OFF (closed)	Battery voltage
		Rear door switch upper RH (King Cab)				
13	GR	Rear door switch RH (Crew Cab)	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
15	L/W	Tire pressure warning check connector	Input	OFF	—	5V
18	P	Remote keyless entry receiver and optical sensor (ground)	Output	OFF	—	0V

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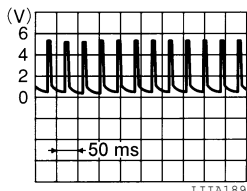
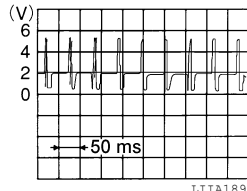
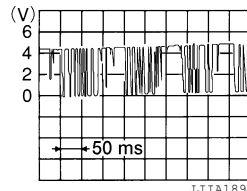
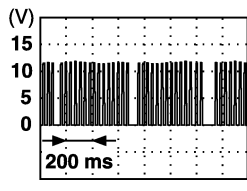
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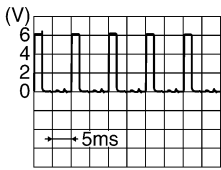
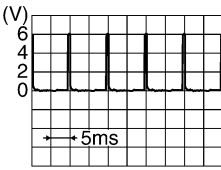
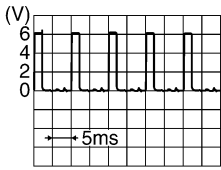
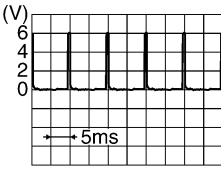
BCM (BODY CONTROL MODULE)

< 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	 LITA1893E
20	G/W	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	 LITA1894E
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 LITA1895E
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	 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

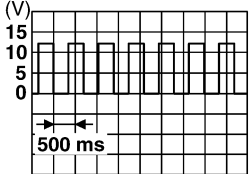
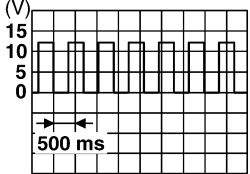
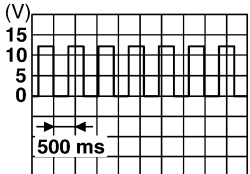
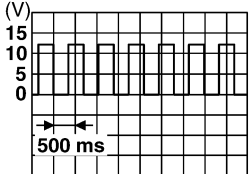
BCM (BODY CONTROL MODULE)

< 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 Wiper dial position 4	 SKIA5291E
33	R/Y	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
34	L	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
35	O/B	Combination switch output 2	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 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)			OFF (closed)	Battery voltage
		Rear door switch upper LH (King Cab)				
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

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	 SKIA3009J
52	G/B	Trailer turn signal (left)	Output	ON	Turn left ON	 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	 SKIA3009J
61	G/Y	Turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
63	L	Interior room/map lamp	Output	OFF	Any door switch	ON (open) 0V OFF (closed) 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
67	B	Ground	Input	ON	—	0V

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	
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:000000011867242

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

FUNCTION

Self-Diagnostic Results Mode

Diagnostic item	Diagnostic item is detected when ...	Reference page
[NO-DATA] - FL [C1708] [NO-DATA] - FR [C1709] [NO-DATA] - RR [C1710] [NO-DATA] - RL [C1711]	Data from FL transmitter cannot be received. Data from FR transmitter cannot be received. Data from RR transmitter cannot be received. Data from RL transmitter cannot be received.	WT-15. "Diagnosis Procedure"
[CHECKSUM- ERR] - FL [C1712] [CHECKSUM- ERR] - FR [C1713] [CHECKSUM- ERR] - RR [C1714] [CHECKSUM- ERR] - RL [C1715]	Checksum data from FL transmitter is malfunctioning. Checksum data from FR transmitter is malfunctioning. Checksum data from RR transmitter is malfunctioning. Checksum data from RL transmitter is malfunctioning.	WT-17. "Diagnosis Procedure"
[PRESSDATA- ERR] - FL [C1716] [PRESSDATA- ERR] - FR [C1717] [PRESSDATA- ERR] - RR [C1718] [PRESSDATA- ERR] - RL [C1719]	Air pressure data from FL transmitter is malfunctioning. Air pressure data from FR transmitter is malfunctioning. Air pressure data from RR transmitter is malfunctioning. Air pressure data from RL transmitter is malfunctioning.	WT-19. "Diagnosis Procedure"
[BATT - VOLT - LOW] - FL [C1724] [BATT - VOLT - LOW] - FR [C1725] [BATT - VOLT - LOW] - RR [C1726] [BATT - VOLT - LOW] - RL [C1727]	Battery voltage of FL transmitter drops. Battery voltage of FR transmitter drops. Battery voltage of RR transmitter drops. Battery voltage of RL transmitter drops.	WT-19. "Diagnosis Procedure"
VHCL_SPEED_SIG_ERR [C1729]	Vehicle speed signal is in error.	WT-21. "Diagnosis Procedure"
IGN_CIRCUIT_OPEN [C1735]	Ignition signal is in error.	WT-23. "Diagnosis Procedure"

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.

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Self-Diagnosis (Without CONSULT)

INFOID:000000011867243

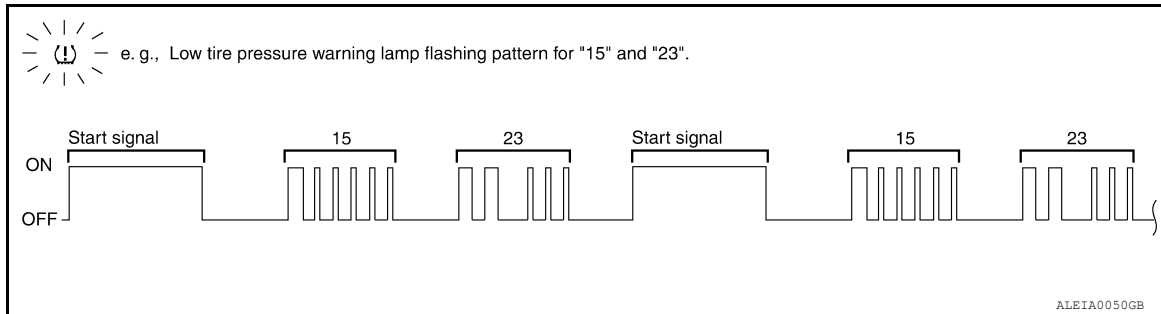
NOTE:

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 16 17 18	Tire pressure dropped below specified value. Refer to WT-9, "System Description" .	—
21 22 23 24	Transmitter no data (FL) Transmitter no data (FR) Transmitter no data (RR) Transmitter no data (RL)	WT-15, "Diagnosis Procedure"
31 32 33 34	Transmitter checksum error (FL) Transmitter checksum error (FR) Transmitter checksum error (RR) Transmitter checksum error (RL)	WT-17, "Diagnosis Procedure"
35 36 37 38	Transmitter pressure data error (FL) Transmitter pressure data error (FR) Transmitter pressure data error (RR) Transmitter pressure data error (RL)	WT-19, "Diagnosis Procedure"
41 42 43 44	Transmitter function code error (FL) Transmitter function code error (FR) Transmitter function code error (RR) Transmitter function code error (RL)	WT-17, "Diagnosis Procedure"
45 46 47 48	Transmitter battery voltage low (FL) Transmitter battery voltage low (FR) Transmitter battery voltage low (RR) Transmitter battery voltage low (RL)	WT-17, "Diagnosis Procedure"

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Flash Code	Malfunction part	Reference page
52	Vehicle speed signal	WT-21, "Diagnosis Procedure"
54	Vehicle ignition signal	WT-23, "Diagnosis Procedure"

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TIRE PRESSURE MONITORING SYSTEM

< WIRING DIAGRAM >

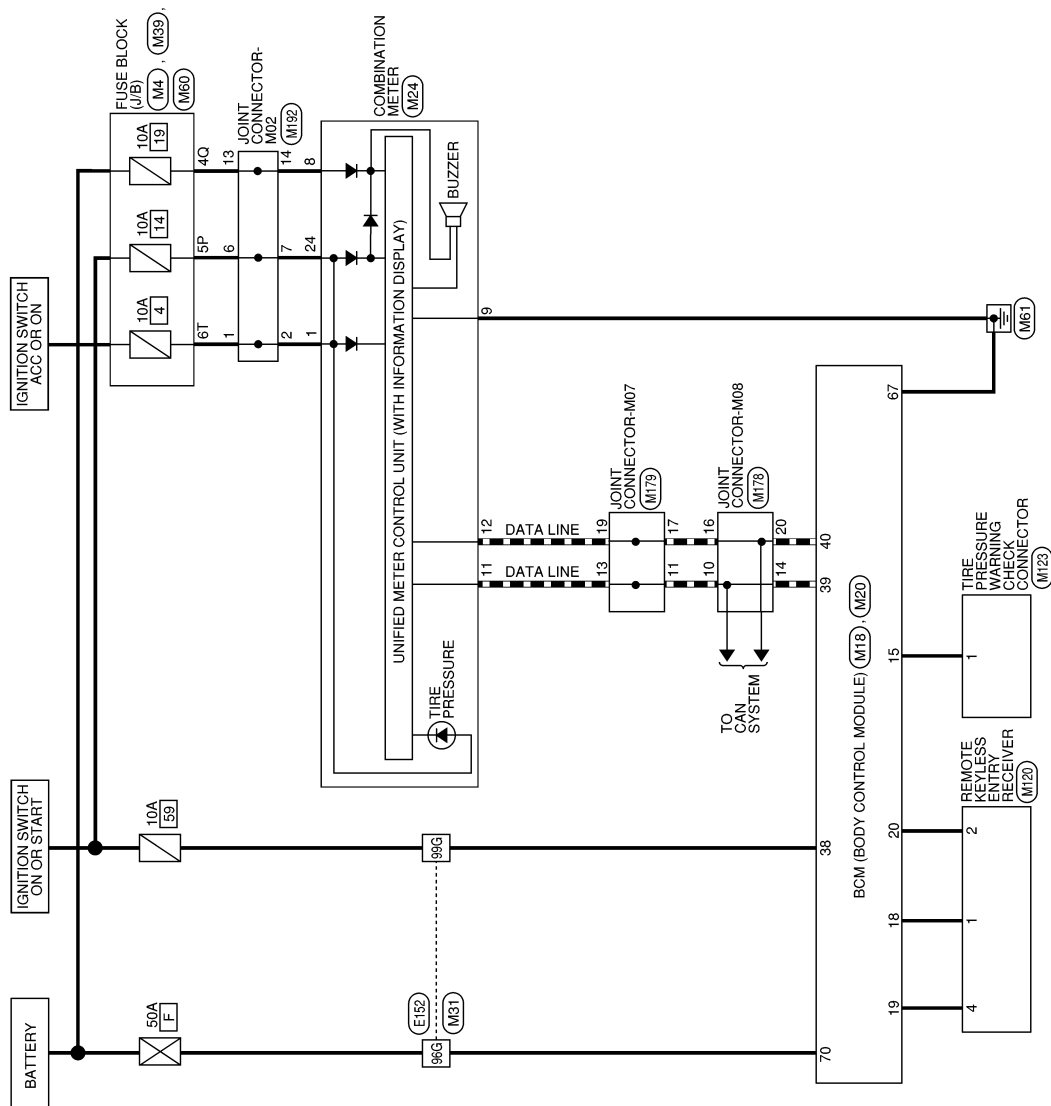
WIRING DIAGRAM

TIRE PRESSURE MONITORING SYSTEM

Wiring Diagram

INFOID:0000000011562794

TIRE PRESSURE MONITORING SYSTEM



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TIRE PRESSURE MONITORING SYSTEM

< WIRING DIAGRAM >

TIRE PRESSURE MONITORING SYSTEM CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

7P	6P	5P	4P	3P	2P	1P
16P	15P	14P	13P	12P	11P	10P
9P	8P					



Terminal No.	Color of Wire	Signal Name
5P	O/L	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

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
20	G/W	KEYLESS TUNER OUTPUT
38	W/L	IGN SW
39	L	CAN-H
40	P	CAN-L

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

56	57	58	59	60	61	62	63	64
65	66	67	68	69	70			



Terminal No.	Color of Wire	Signal Name
67	B	GND (POWER)
70	W/B	BAT (F/L)

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21



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

TIRE PRESSURE MONITORING SYSTEM

< WIRING DIAGRAM >

Connector No.	M39
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

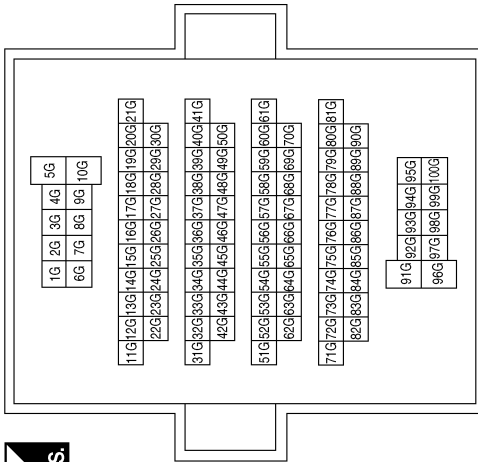


30	20	10
80	70	60
50	40	

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

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

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



Connector No.	M123
Connector Name	TIRE PRESSURE WARNING CHECK CONNECTOR
Connector Color	WHITE



2	1
---	---

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

Connector No.	M120
Connector Name	REMOTE KEYLESS ENTRY RECEIVER
Connector Color	WHITE



1	2	3	4
---	---	---	---

Terminal No.	Color of Wire	Signal Name
1	P	—
2	G/W	—
4	V/W	—

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



2T	1T
6T	5T
4T	3T

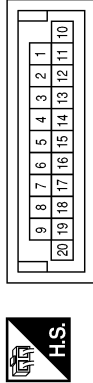
Terminal No.	Color of Wire	Signal Name
6T	O	—

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TIRE PRESSURE MONITORING SYSTEM

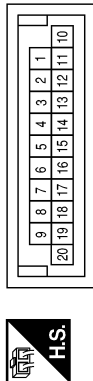
< WIRING DIAGRAM >

Connector No.	M179
Connector Name	JOINT CONNECTOR-M07
Connector Color	WHITE



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

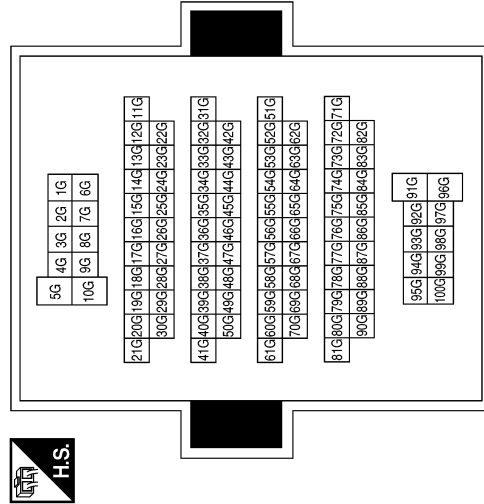
Connector No.	M178
Connector Name	JOINT CONNECTOR-M08
Connector Color	WHITE



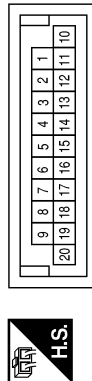
Terminal No.	Color of Wire	Signal Name
10	L	-
14	L	-
16	P	-
20	P	-

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



Terminal No.	Color of Wire	Signal Name
1	O	-
2	O	-
6	O/L	-
7	O/L	-
13	Y/R	-
14	Y/R	-

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TPMS

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

TPMS

Symptom Table

INFOID:0000000011562795

Symptom	Reference
Low tire pressure warning lamp does not come on when ignition switch is turned ON.	WT-41
Low tire pressure warning lamp stays on when ignition switch is turned ON.	WT-42
Low tire pressure warning lamp flashes when ignition switch is turned ON.	WT-43
Hazard warning lamps flash when ignition switch is turned ON.	WT-44
ID registration cannot be completed.	WT-45

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:0000000011562796

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.SELF-DIAGNOSTIC RESULT CHECK

Using CONSULT, check display contents of BCM in "Self Diagnostic Result".

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

YES >> Malfunction in CAN communication system. Refer to [LAN-50, "CAN System Specification Chart"](#).

NO >> GO TO 2.

2.CHECK COMBINATION METER

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Replace combination meter. Refer to [MWI-95, "Removal and Installation"](#).

3.CHECK LOW TIRE PRESSURE WARNING LAMP

Disconnect BCM harness connector.

Does the low tire pressure warning lamp activate?

YES >> Replace BCM. Refer to [BCS-56, "Removal and Installation"](#).

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:0000000011562797

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-31. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-56. "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

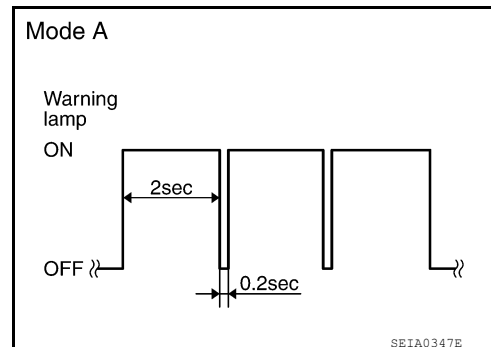
INFOID:0000000011562798

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 ID registration. Refer to [WT-6, "Work Procedure"](#).



Regarding Wiring Diagram information, refer to [WT-36, "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

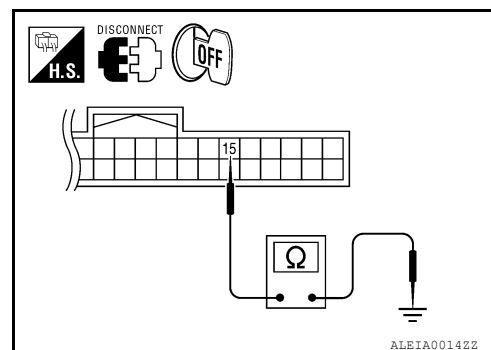
Check continuity between BCM harness connector M18 terminal 15 and ground.

Continuity should not exist.

Is the inspection result normal?

YES >> Replace BCM. Refer to [BCS-56, "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:0000000011562799

DIAGNOSTIC PROCEDURE

1.CHECK BCM GROUND CIRCUIT

Check BCM ground circuit. Refer to [BCS-31. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace BCM. Refer to [BCS-56. "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:0000000011562800

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, "Work Procedure"](#).

Can ID registration of all transmitters be completed?

YES >> Inspection End.

NO >> GO TO [WT-15, "Diagnosis Procedure"](#).

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NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

< SYMPTOM DIAGNOSIS >

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000011562801

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

Reference page			Possible cause and SUSPECTED PARTS																										
Symptom	TIRES	Noise	×	×	×	×	×	×		×	×	×	×		×	×													
		Shake	×	×	×	×	×		×		×	×	×		×	×													
		Vibration			×				×			×	×	×		×													
		Shimmy	×	×	×	×	×	×	×			×	×	×		×													
		Shudder	×	×	×	×	×		×			×	×	×		×													
		Poor quality ride or handling	×	×	×	×	×		×			×	×	×															
	ROAD WHEEL	Noise	×	×			×			×	×	×		×	×	×													
		Shake	×	×			×					×	×		×	×													
		Shimmy, shudder	×	×			×					×	×		×	×													
		Poor quality ride or handling	×	×			×					×	×		×														
			Out-of-round		Imbalance		Incorrect tire pressure		Uneven tire wear		Deformation or damage		Non-uniformity		Incorrect tire size		DIFFERENTIAL		FRONT AXLE AND FRONT SUSPENSION		REAR AXLE AND REAR SUSPENSION		TIRES		ROAD WHEEL		BRAKE		STEERING
			WT-50		WT-51		WT-58		FSU-5, "Front Wheel Alignment"		—		—		WT-58		FAX-4, "NVH Troubleshooting Chart" (FFD), DLN-190, "NVH Troubleshooting Chart" (RFD) M226, DLN-215, "NVH Troubleshooting Chart" (RFD) M226 ELD		FAX-4, "NVH Troubleshooting Chart" (FAX), FSU-4, "NVH Troubleshooting Chart" (FSU)		RAX-4, "NVH Troubleshooting Chart" (RAX), RSU-4, "NVH Troubleshooting Chart" (RSU)		Refer to TIRES in this chart.		Refer to ROAD WHEEL in this chart.		BR-6, "NVH Troubleshooting Chart"		ST-5, "NVH Troubleshooting Chart"

x: Applicable

PRECAUTIONS

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PRECAUTION

PRECAUTIONS

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

INFOID:0000000011562802

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 three minutes before performing any service.

Service Notice and Precautions for TPMS

INFOID:0000000011875196

WARNING:

Radio waves could adversely affect electric medical equipment. Those who use a pacemaker should contact the electrical medical equipment manufacturer for the possible influences before use.

- Low tire pressure warning lamp blinks for 1 minute, then turns ON when any malfunction occurs except low tire pressure. Erase the self-diagnosis memories for Tire Pressure Monitoring System (TPMS), or register the ID to turn low tire pressure warning lamp OFF. For ID registration, refer to [WT-6. "Work Procedure"](#).
- ID registration is required when replacing or rotating wheels, replacing tire pressure sensor or BCM. Refer to [WT-6. "Work Procedure"](#).
- For easy fill tire alert function, refer to the following.
 - When inflating the tires, park the vehicle in the safe area and ensure the safety of the working area.
 - Read and understand the easy fill tire alert function prior to use.
 - Inflate the tires one at a time.
 - If there is no response for approximately 15 seconds or more after inflating the tires, cancel the use of the easy fill tire alert function or move the vehicle approximately 1 m (3.2 ft) backward or forward to try again. The air filler pressure may be weak or out of service area.
 - Despite the high-precision TPMS pressure sensor, an indicated value may differ from that of the pressure gauge.
 - Air pressure is measured rather high due to the rise in tire air temperature after driving.
 - If TPMS is malfunctioning, the easy fill tire alert is unusable.
- Replace grommet seal, valve core and valve cap of tire pressure sensor in TPMS when replacing each tire by reaching the wear limit. Refer to [WT-54. "Exploded View"](#).
- Because the tire pressure sensor conforms to North America radio law, the following items must be observed.
 - The sensor may be used only in North America.

PRECAUTIONS

< PRECAUTION >

- It may not be used in any method other than the specified method.
- It must not be disassembled or modified.

Precautions for Road Wheel

INFOID:0000000011875197

- Genuine NISSAN aluminum wheel is designed for each type of vehicle. Use it on the specified vehicle only.
- Use Genuine NISSAN parts for the wheel nuts.
- Always adjust the wheel balance prior to using them. For the balance weights, use Genuine NISSAN aluminum wheel weights.
- Use caution when handling the aluminum wheels because they can be easily scratched. When removing dirt, do not use any abrasives, a wire brush or other items that may scratch the coating. Use a neutral detergent if a detergent is needed.
- After driving on roads scattered with anti-icing salts, wash off the wheels completely.
- When installing road wheels onto the vehicle, always wipe off any dirt or foreign substances to prevent them from being trapped between the contact surfaces of wheel.
- Never apply oil to nut and bolt threads.

PREPARATION

< PREPARATION >

PREPARATION

PREPARATION

Special Service Tool

INFOID:0000000011562804

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-50190) Signal Tech II	• 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 • Check Intelligent Key relative signal strength • Confirm vehicle Intelligent Key antenna signal strength • Compatible with future sensors • Equipped with a display
KV48105501 (J-45295-A) Transmitter activation tool	• Activate TPMS transmitter IDs • Compatible with future sensors • Equipped with a display (KV48105501 only)

Commercial Service Tool

INFOID:0000000011562805

Tool name	Description
Power tool	Loosening nuts, screws and bolts

WHEEL

< PERIODIC MAINTENANCE >

PERIODIC MAINTENANCE

WHEEL

Inspection

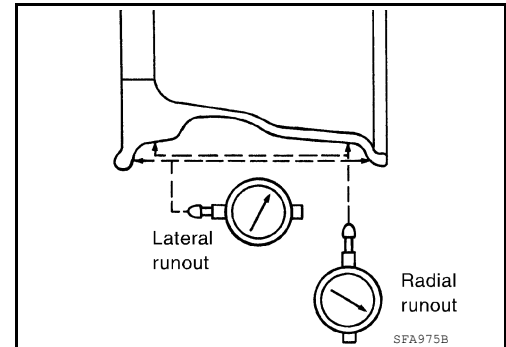
INFOID:0000000011562806

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-58, "Road Wheel"](#).



STEEL WHEEL

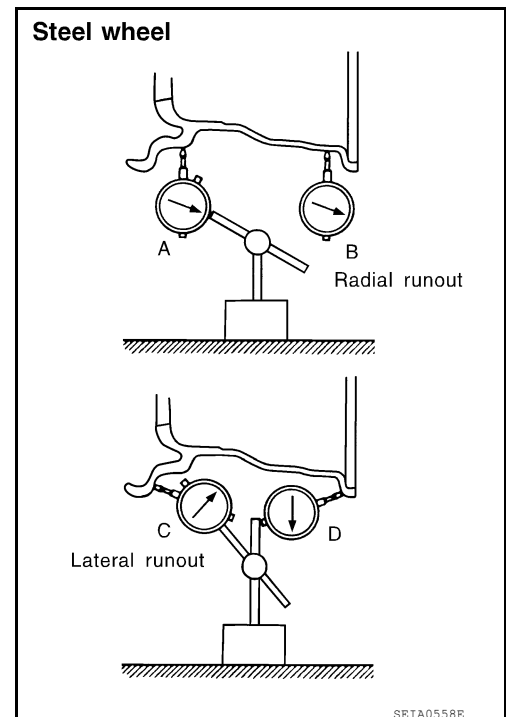
1. Check tires for wear and improper inflation.
2. Check wheels for deformation, cracks, and other damage. If deformed, remove wheel and check wheel runout.
 - a. Remove tire from wheel and mount on a balancer machine.
 - b. Set two dial indicators as shown.
 - c. Set each dial indicator to 0.
 - d.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

Radial runout = (A+B)/2

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-58, "Road Wheel"](#)



WHEEL AND TIRE ASSEMBLY

< PERIODIC MAINTENANCE >

WHEEL AND TIRE ASSEMBLY

Balancing Wheels

INFOID:0000000011562807

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)

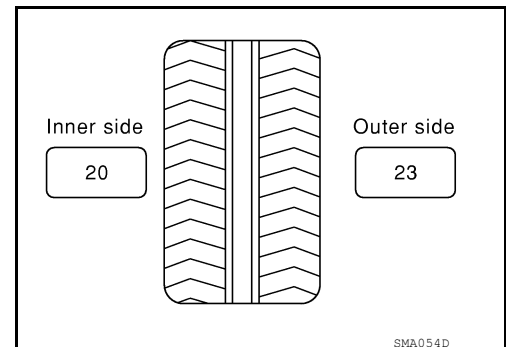
NOTE:

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 >

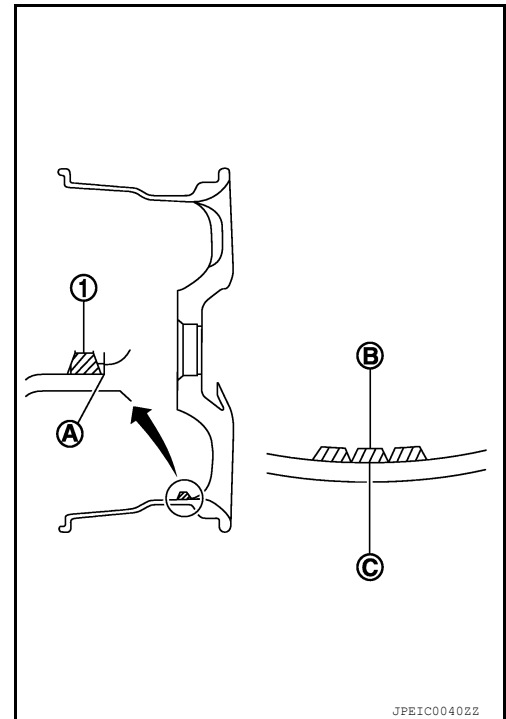
3. Install balance weight in the position shown.

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.



4. 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.

5. Start balancer machine again.

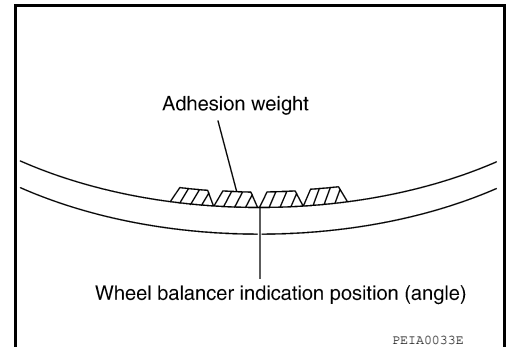
6. Install balance weight on inner side of road wheel in the balancer machine indication position (angle).

CAUTION:

- Do not install more than two balance weights.

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

8. 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 WT-58, "Road Wheel" .	

Rotation

INFOID:0000000011562808

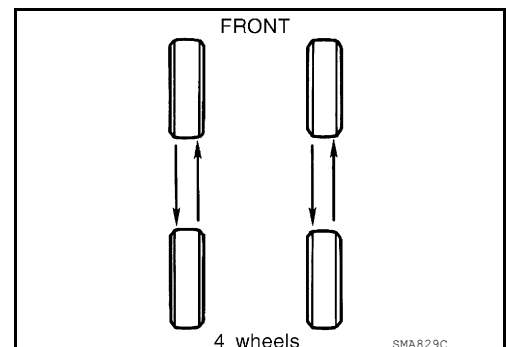
TIRE ROTATION

- Follow the maintenance schedule for tire rotation service intervals. Refer to [MA-5, "FOR NORTH AMERICA : General Maintenance"](#) (United States and Canada), or [MA-7, "FOR MEXICO : General Maintenance"](#) (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 wheels.**

A

B

C

D

WT

F

G

H

I

J

K

L

M

N

O

P

TRANSMITTER

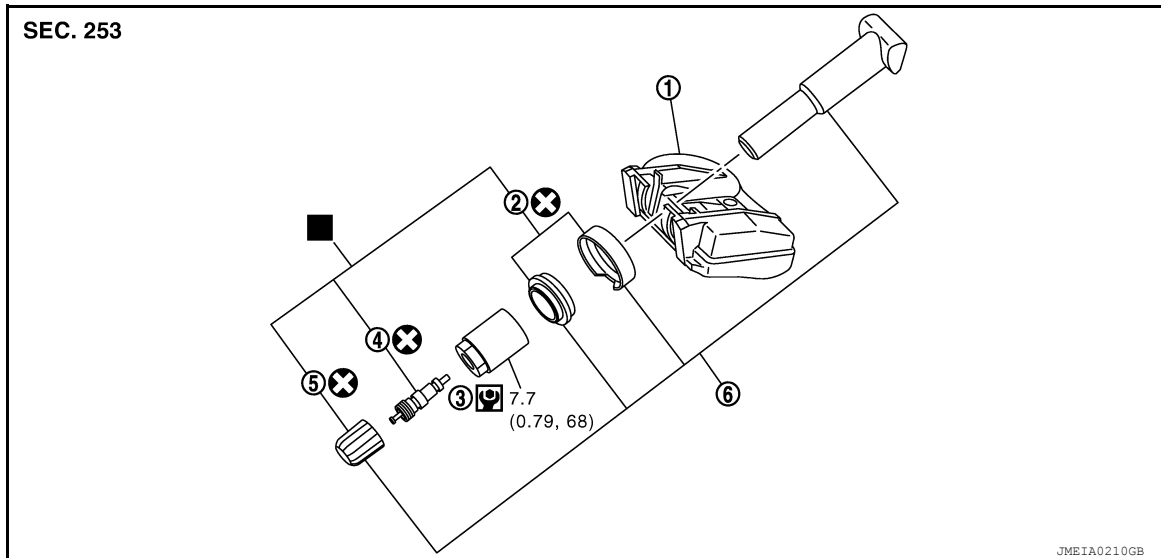
< UNIT REMOVAL AND INSTALLATION >

UNIT REMOVAL AND INSTALLATION

TRANSMITTER

Exploded View

INFOID:0000000011562809



- | | | |
|--|-------------------------|------------------------|
| 1. Transmitter (tire pressure sensor) | 2. Washer/ Grommet seal | 3. Valve stem nut |
| 4. Valve core | 5. Valve cap | 6. Valve stem assembly |
| ■: Parts that are replaced as a set when the tire is replaced. | | |

Transmitter (Pressure Sensor)

INFOID:0000000011562810

REMOVAL

1. Remove wheel and tire using power tool. Refer to [WT-50, "Inspection"](#).
2. Remove valve cap and valve core to deflate the tire.

NOTE:

If the tire is to be reused, apply a matching mark on the tire in line with the position of the valve stem assembly for the purpose of wheel and tire balance adjustment after installation.

3. Remove the valve stem nut and allow transmitter (1) to fall into tire.
4. Lubricate the tire outside bead well with a suitable non-silicone lubricant, and remove outside of tire from the wheel.

CAUTION:

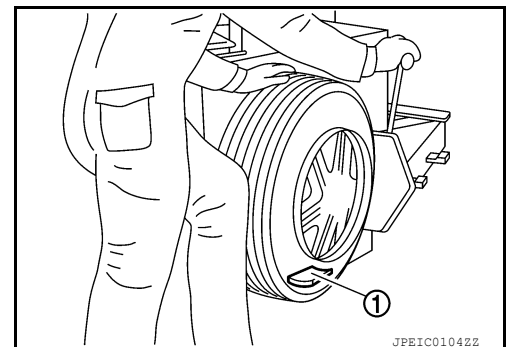
- Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.
- Be sure not to damage the wheel or transmitter.
- Do not allow lubricant to make contact with transmitter.
- Verify that the transmitter (1) is at the bottom of the tire while performing the above.

5. Lubricate the tire inside bead well with a suitable non-silicone lubricant, and remove inside of tire from the wheel.

CAUTION:

- Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.
- Be sure not to damage the wheel.

6. Set tire onto the tire changer turntable so that the transmitter inside the tire is located close to the valve stem hole in the wheel.



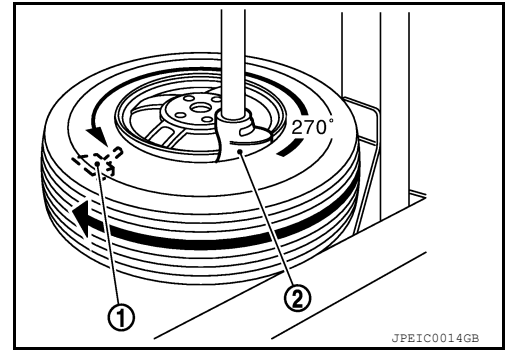
TRANSMITTER

< UNIT REMOVAL AND INSTALLATION >

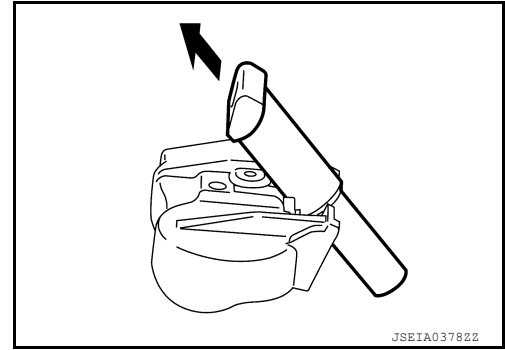
- Turn tire so that the valve stem hole in the wheel is at the bottom and bounce so that the transmitter (1) inside the tire is near the valve stem hole in the wheel. Carefully lift tire onto turn table and position the valve stem hole in the wheel (and transmitter) 270 degrees from mounting/dismounting head (2).

CAUTION:

Do not damage the wheel or transmitter.



- Remove the transmitter from the tire.
- Remove the grommet seal and washer.
- Remove the valve stem in the direction shown by the arrow (↙).



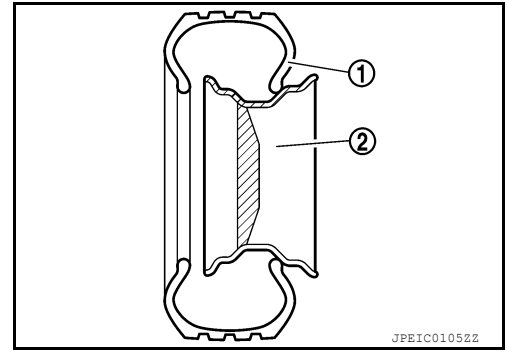
INSTALLATION

- Apply a suitable non-silicone lubricant to the tire inside bead.

CAUTION:

- Replace the valve stem assembly if the valve stem has deformations, cracks, damage, or corrosion.
- Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.
- Do not drop or strike the transmitter. Replace the transmitter if it has been dropped from higher than one meter.

- Install the tire inside bead (1) onto the wheel (2) in the position shown.

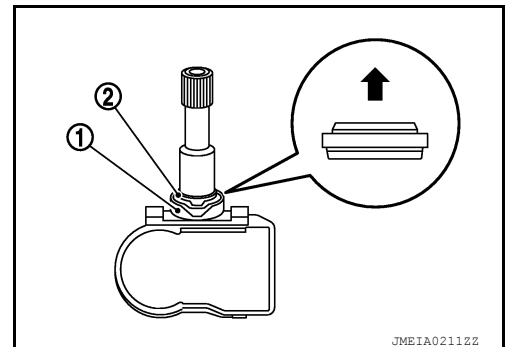


- Install the valve stem to the transmitter.
- Install the washer (1) onto the valve stem, and then install the grommet seal (2) onto the valve stem.

CAUTION:

- Do not reuse grommet seal or washer.
- Check the direction of the grommet seal.
- Insert the grommet seal all the way to the base.

↑ : Outside

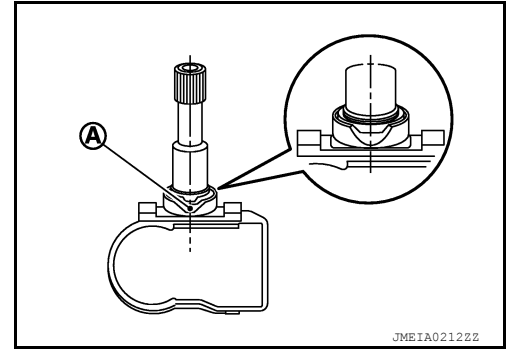


TRANSMITTER

< UNIT REMOVAL AND INSTALLATION >

CAUTION:

Direct the cut part (A) of the washer to the center of the valve stem as shown.

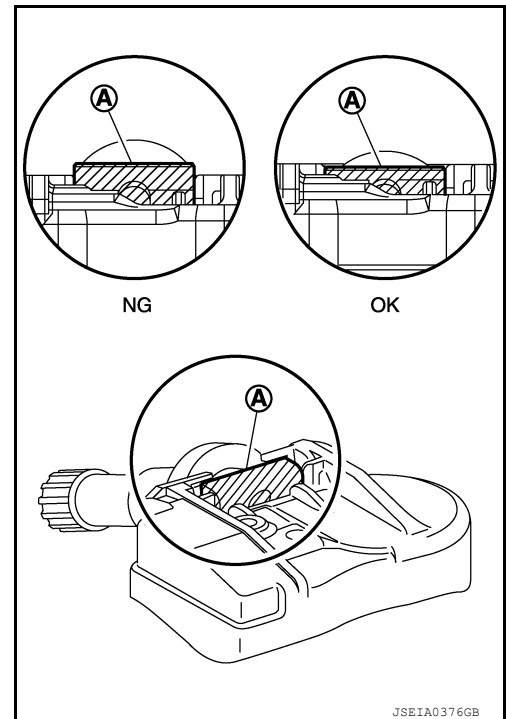


5. Follow the procedure below and install the transmitter to the wheel.

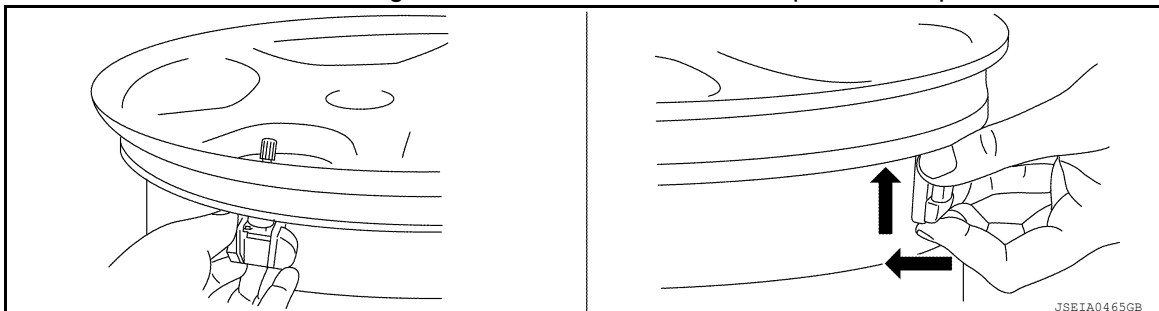
- a. Check the position of the valve stem (A) before installing transmitter to the wheel.

CAUTION:

The base of the valve stem must be positioned in the groove of the metal plate as shown.



- b. Hold transmitter as shown and press the transmitter in the direction shown by the arrow (↔) to bring into absolute contact with the wheel. Tighten the valve stem nut to the specified torque.



Valve stem nut tightening torque : Refer to [WT-54, "Exploded View"](#).

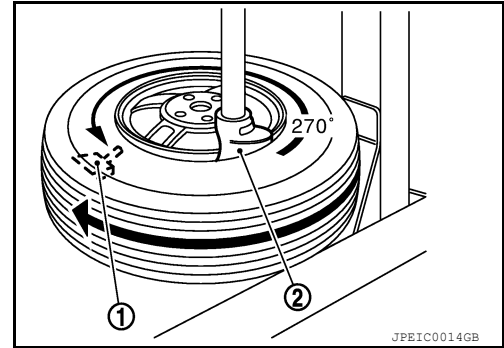
CAUTION:

- Do not reuse valve core and valve cap.
- Check that grommet seal is free of foreign matter.
- Check that grommet seal contacts horizontally with wheel.
- Check again that the base of valve stem is positioned in the groove of the metal plate.
- Manually tighten valve stem nut all the way to the wheel. (Do not use a power tool to avoid impact.)

TRANSMITTER

< UNIT REMOVAL AND INSTALLATION >

- Do not tighten valve stem nut to more than the specified torque. It may cause grommet seal damage.
 - Do not tighten valve stem nut to less than the specified torque. It may cause an air leak.
6. Place wheel on turntable of tire machine. Ensure that transmitter (1) is 270 degrees from mounting/dismounting head (2).
CAUTION:
Do not touch transmitter with mounting head.
 7. Apply a suitable non-silicone lubricant to the tire outside bead.
CAUTION:
 - Do not use silicone lubricant. Use of silicone lubricant will deteriorate the tire and wheel.
 - Do not allow lubricant to make contact with transmitter.
 - When installing, check that the tire does not turn together with the wheel.
 8. Install the tire outside bead onto the wheel as normal.
NOTE:
If the tire is being reused, align the matching mark applied on the tire with the position of the valve stem assembly for the purpose of wheel and tire balance adjustment after installation. Make sure that the tire does not rotate relative to wheel.
 9. Install the valve core and inflate tire. Refer to [WT-58, "Tire"](#).
CAUTION:
Do not reuse valve core.
 10. Install the valve cap.
CAUTION:
Do not reuse valve cap.
 11. Balance the wheel and tire. Install wheel and tire in the appropriate position on vehicle. Refer to [WT-51, "Balancing Wheels"](#).
 12. Perform the ID registration procedure. Refer to [WT-6, "Work Procedure"](#).



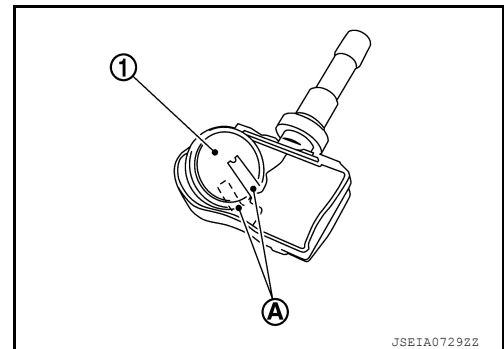
NOTE:
If replacing the transmitter, then the ID registration procedure must be performed.

Disposal

INFOID:000000011868699

- CAUTION:**
 - When discarding transmitter, remove battery (1) from transmitter.
 - Dispose of battery according to the law and local regulations.

1. Remove battery from transmitter.
NOTE:
The battery is sealed to the transmitter with urethane.
 - a. Remove urethane from transmitter.
 - b. Cut battery terminal (A), then remove battery from transmitter.



SERVICE DATA AND SPECIFICATIONS (SDS)

< SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Road Wheel

INFOID:0000000011562811

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	0.9 (0.035) or less
	Radial mm (in)	0.3 (0.012) or less	0.8 (0.031) or less	0.4 (0.016) 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:0000000011562812

Unit: kPa (kg/cm², 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)