SECTION WT
ROAD WHEELS & TIRES

CONTENTS

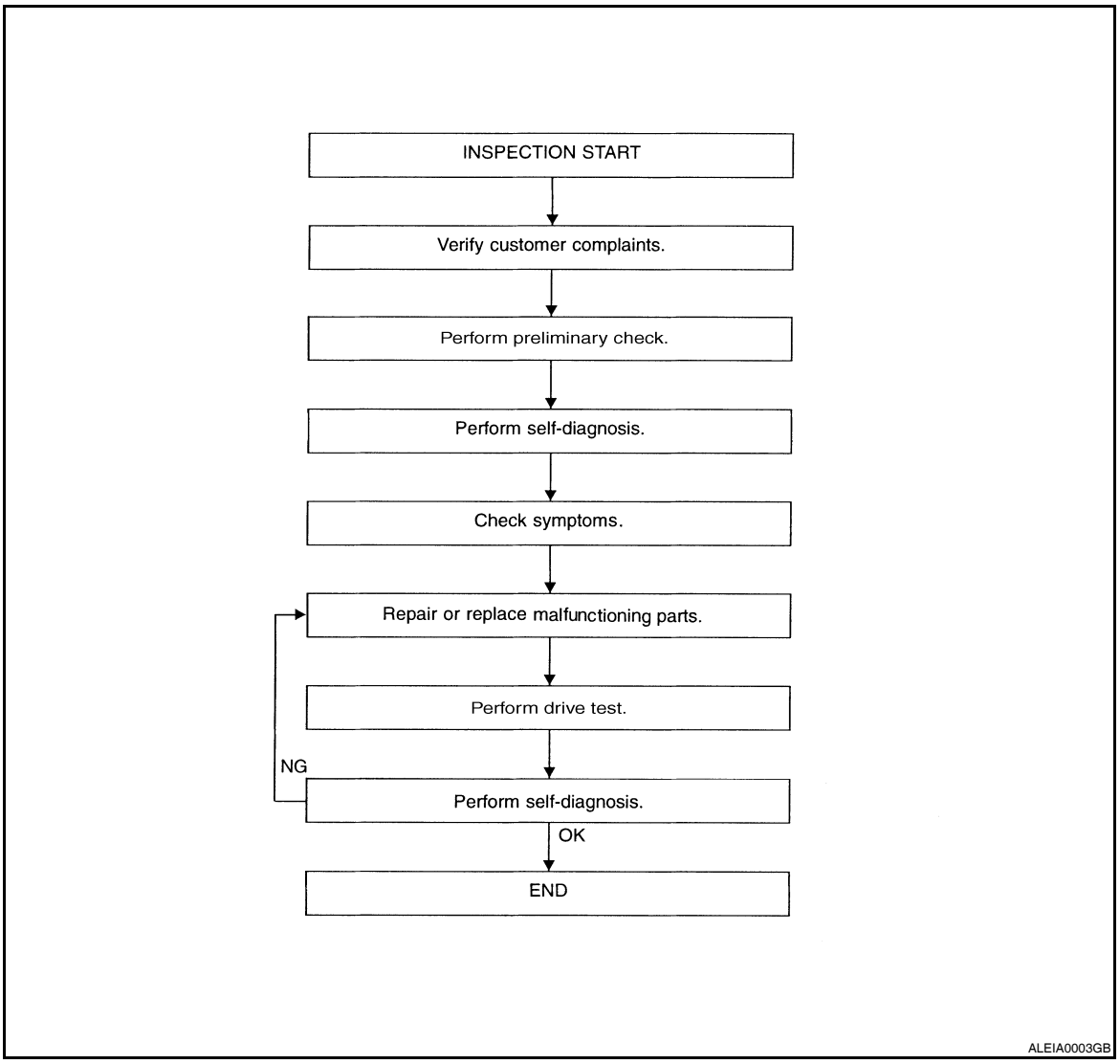
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Repair Work Flow

INFOID:0000000003788393

WORK FLOW



WT-5, "Preliminary Check" WT-32, "Self-Diagnosis (With CONSULT-III)" WT-35, "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

3.SELF-DIAGNOSIS

Perform SELF-DIAGNOSIS. Refer to WT-32, "Self-Diagnosis (With CONSULT-III)" (with CONSULT-III) or WT-33, "Self-Diagnosis (Without CONSULT-III)" (without CONSULT-III).

>> GO TO 4

4.SYMPTOM

Check for symptoms. Refer to WT-35, "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-32, "Self-Diagnosis (With CONSULT-III)" (with CONSULT-III) or WT-33, "Self-Diagnosis (Without CONSULT-III)" (without CONSULT-III).

Are any DTC's displayed?

YES >> GO TO 5
NO >> Inspection End.

INSPECTION AND ADJUSTMENT

Preliminary Check

INFOID:0000000003788394

1. TIRE PRESSURE

Check all tire pressures. Refer to WT-51, "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-36, "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-III Function (BCM)".
NO >> Replace battery in transmitter activation tool.

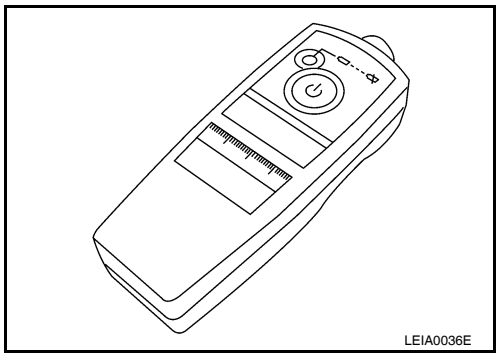
Transmitter Wake Up Operation

INFOID:0000000003788395

NOTE:
This procedure must be done after replacement of a low tire pressure warning transmitter or BCM. New replacement transmitters are provided "asleep" and must first be "woken up" using Transmitter Activation Tool J-45295 before ID registration can be performed.

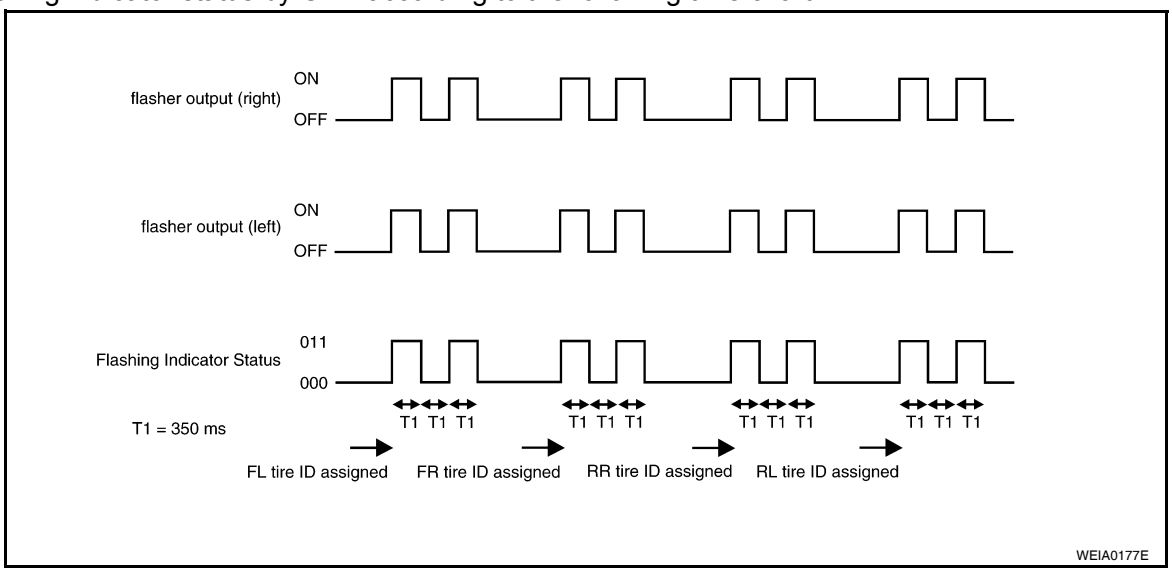
1. Turn ignition switch ON. Push the transmitter activation tool against the tire near the front left transmitter. Press the button for 5 seconds. The hazard warning lamps flash per the following diagram.

Tool number : (J-45295)



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.



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

ID Registration Procedure

INFOID:0000000003788396

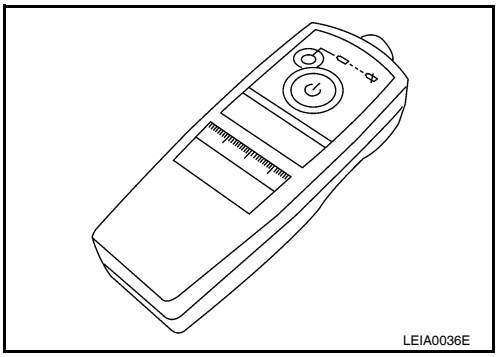
ID REGISTRATION WITH TRANSMITTER ACTIVATION TOOL

NOTE:

This procedure must be done after replacement of a low tire pressure warning transmitter or BCM. New replacement transmitters are provided "asleep" and must first be "woken up" using Transmitter Activation Tool J-45295 before ID registration can be performed.

1. Connect CONSULT-III.
2. Select "ID REGIST" under BCM.
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-III
1	Front LH	2 times flashing	“YET” ↓ “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 low tire pressure warning transmitter or BCM. New replacement transmitters are provided "asleep" and must first be "woken up" using Transmitter Activation Tool J-45295 before ID registration can be performed.

1. Connect CONSULT-III.
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^2, 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-III
Front LH	“YET” ↓ “DONE”
Front RH	
Rear RH	
Rear LH	

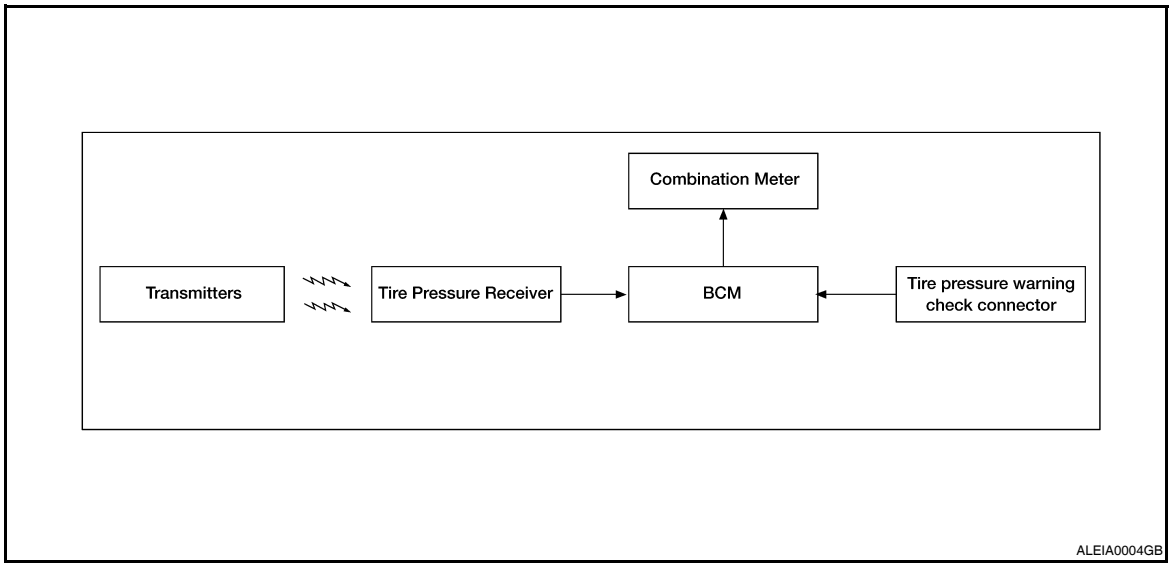
5. Inflate all tires to proper pressure. Refer to WT-51, "Tire".

FUNCTION DIAGNOSIS

TPMS

System Diagram

INFOID:0000000003788397

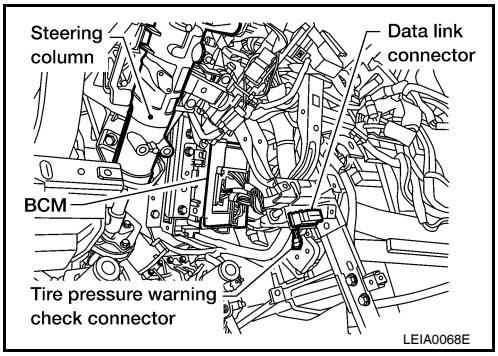


System Description

INFOID:0000000003788398

BODY CONTROL MODULE (BCM)

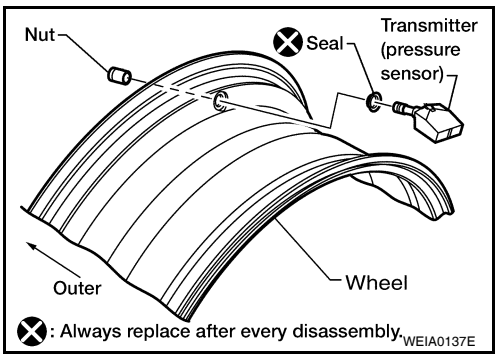
The BCM is shown with the lower instrument panel LH removed. The BCM reads the air pressure signal received by the remote keyless entry receiver, and controls the low tire pressure warning lamp as shown below. It also has a self-diagnosis function to detect a system malfunction.



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

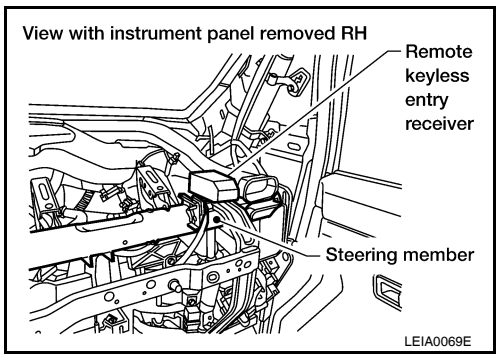
TRANSMITTER

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.



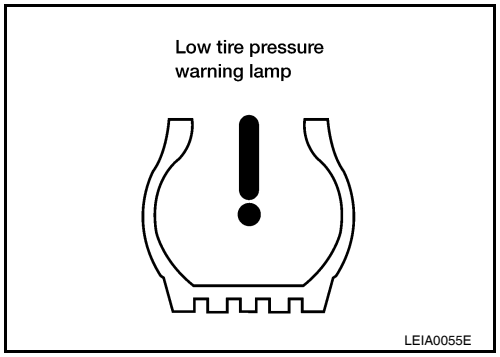
REMOTE KEYLESS ENTRY RECEIVER

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.



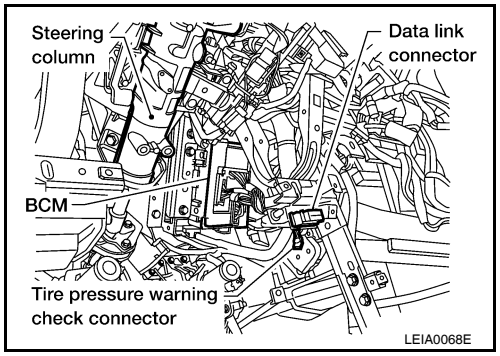
COMBINATION METER

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.



TIRE PRESSURE WARNING CHECK CONNECTOR

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

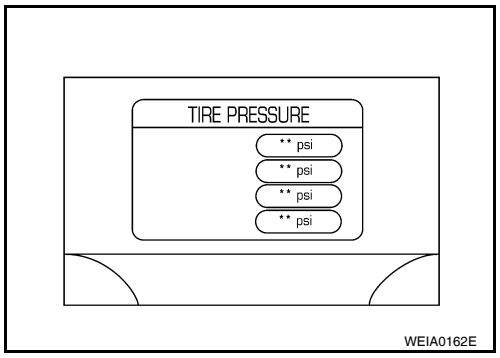


DISPLAY UNIT (with NAVI)

Displays the air pressure of each tire.

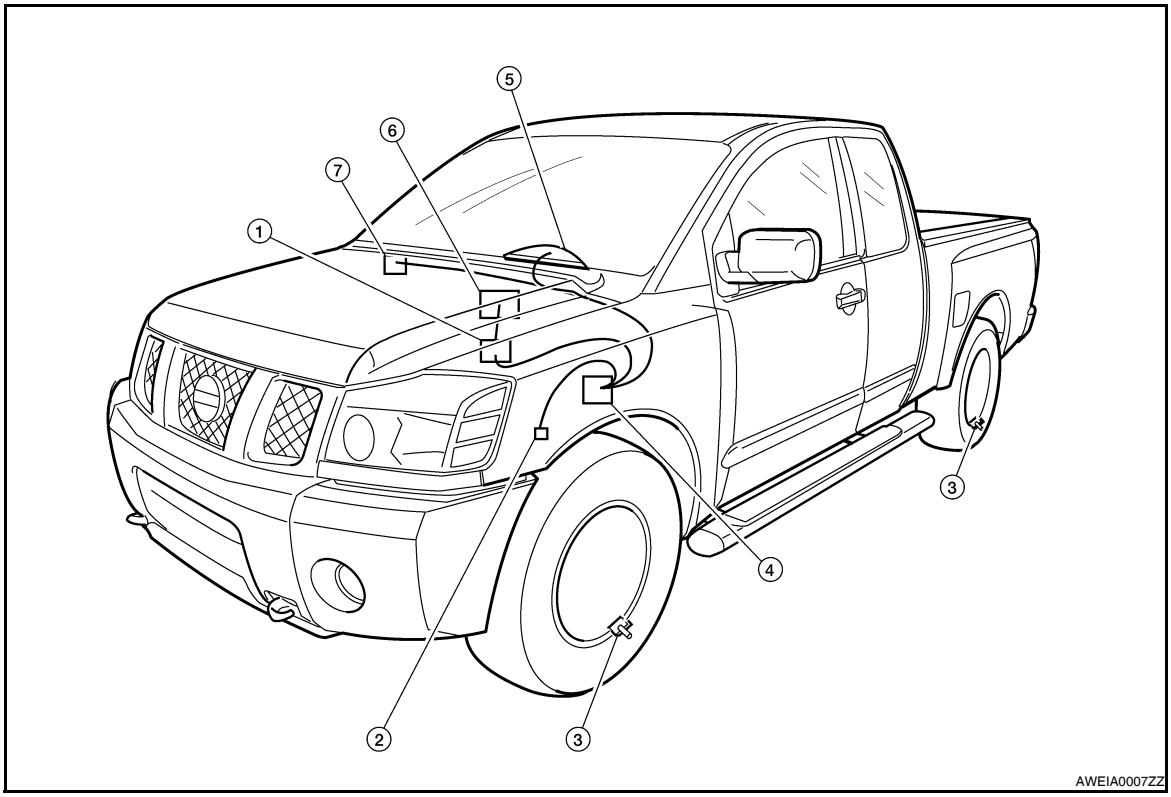
NOTE:

After the ignition switch is turned on, the pressure values will not be displayed until the data of each wheel is received.



System Component

INFOID:0000000003788399



1. Display control unit M95 (with NAVI)
2. Tire pressure warning check connector M123
3. Transmitter
4. BCM M18, M20
5. Combination meter M24
6. Display unit M93 (with NAVI)
7. Remote keyless entry receiver M120

DIAGNOSIS SYSTEM (BCM)

CONSULT-III Function (BCM)

INFOID:0000000003788400

CONSULT-III DIAGNOSTIC MODES

CONSULT-III can display each diagnostic item using the diagnostic test modes shown following.

Diagnostic mode	Description
Work Support	Supports inspections and adjustments. Commands are transmitted to the BCM for setting the status suitable for required operation, input/output signals are received from the BCM and received data is displayed.
Data Monitor	Displays BCM input/output data in real time.
Active Test	Operation of electrical loads can be checked by sending drive signal to them.
Self-Diagnostic Results	Displays BCM self-diagnosis results.
CAN Diag Support Monitor	The result of transmit/receive diagnosis of CAN communication can be read.
ECU Identification	BCM part number can be read.
Configuration	Performs BCM configuration read/write functions.

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.

CONSULT-III Application to Tire Pressure Monitoring System

ITEM	SELF-DIAGNOSTIC RESULTS	DATA MONITOR
Front - Left transmitter	×	×
Front - Right transmitter	×	×
Rear - Left transmitter	×	×
Rear - Right transmitter	×	×
Warning lamp	—	×
Vehicle speed	×	×
CAN Communication	×	×

× : Applicable

– : Not applicable

Data Monitor Mode

MONITOR	CONDITION	SPECIFICATION
VHCL SPEED	Drive vehicle.	Vehicle speed (km/h or MPH)
AIR PRESS FL AIR PRESS FR AIR PRESS RR AIR PRESS RL	• Drive vehicle for a few minutes. or • Ignition switch ON and activation tool is transmitting activation signals.	Tire pressure (kPa or psi)

MONITOR	CONDITION	SPECIFICATION
ID REGST FL1 ID REGST FR1 ID REGST RR1 ID REGST RL1	Ignition switch ON	ID not registered: YET ID registered: DONE
WARNING LAMP		Low tire pressure warning lamp on: ON Low tire pressure warning lamp off: OFF

NOTE:

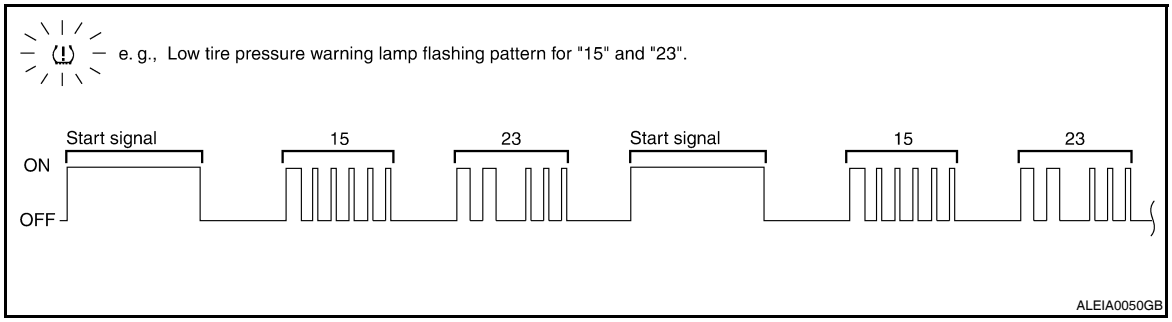
Before performing the self-diagnosis, be sure to register the ID, or the actual malfunction location may be different from that displayed on CONSULT-III.

Self-Diagnosis (Without CONSULT-III)

INFOID:0000000004162021

SELF DIAGNOSTIC PROCEDURE (WITHOUT CONSULT-III)

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-8, "System Description".	—
21 22 23 24	Transmitter no data (FL) Transmitter no data (FR) Transmitter no data (RR) Transmitter no data (RL)	WT-14
31 32 33 34	Transmitter checksum error (FL) Transmitter checksum error (FR) Transmitter checksum error (RR) Transmitter checksum error (RL)	WT-16
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-18
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-16
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-16

Flash Code	Malfunction part	Reference page
52	Vehicle speed signal	WT-19
54	Vehicle ignition signal	WT-20

COMPONENT DIAGNOSIS

C1708 - C1711 DATA FROM TRANSMITTER NOT BEING RECEIVED

Description

INFOID:0000000003788402

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

DTC Logic

INFOID:0000000003788403

DTC DETECTION LOGIC

DTC	CONSULT-III	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-III 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:0000000003788404

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-III.

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.
NO >> Replace BCM, then GO TO 3. Refer to BCS-53, "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-49, "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-III 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.
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-III 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:0000000003788405

Perform preliminary check. Refer to WT-5, "Preliminary Check".

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

Description

INFOID:0000000003788406

One or more transmitters are malfunctioning internally.

DTC Logic

INFOID:0000000003788407

DTC DETECTION LOGIC

DTC	CONSULT-III	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-III 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:0000000003788408

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

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

2.REPLACE TRANSMITTER

1. Check low tire pressure warning lamp again for flashing, replace malfunctioning transmitter. Refer to WT-49, "Transmitter (Pressure Sensor)".
2. Carry out ID registration of all transmitters.

Can ID registration of all transmitters be completed?

YES >> GO TO 3
NO >> GO TO WT-14, "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-III 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:0000000003788409

Perform preliminary check. Refer to WT-5, "Preliminary Check".

C1716 - C1719 TRANSMITTER PRESSURE MALFUNCTION

Description

INFOID:0000000003788410

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

DTC Logic

INFOID:0000000003788411

DTC DETECTION LOGIC

DTC	CONSULT - III	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-III 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:0000000003788412

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-51, "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-III within 15 minutes after vehicle speed becomes 17 km/h (11 MPH).

Does “DATA MONITOR ITEM” display 64 psi or more?

YES >> Replace transmitter. Refer to WT-49, "Transmitter (Pressure Sensor)". GO TO 3.
NO >> GO TO 3

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-III 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:0000000003788413

Perform preliminary check. Refer to WT-5, "Preliminary Check".

C1729 VEHICLE SPEED SIGNAL

Description

INFOID:0000000003788414

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

DTC Logic

INFOID:0000000003788415

DTC DETECTION LOGIC

DTC	CONSULT - III	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-19, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000003788416

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-III Function (METER/M&A)".

C1735 IGNITION SIGNAL

Description

INFOID:0000000003788417

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

DTC Logic

INFOID:0000000003788418

DTC DETECTION LOGIC

DTC	CONSULT - III	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-20, "Diagnosis Procedure".
NO >> Inspection End.

Diagnosis Procedure

INFOID:0000000003788419

MALFUNCTION CODE NO. 54 (DTC C1735)

1.CAN IGNITION SIGNAL

Check BCM IGN RLY signal with CONSULT-III. 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-58, "CAN System Specification Chart".

2.BCM POWER SUPPLY

Check BCM power supply (ignition ON). Refer to BCS-30, "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-53, "Removal and Installation".

ECU DIAGNOSIS

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:0000000004162022

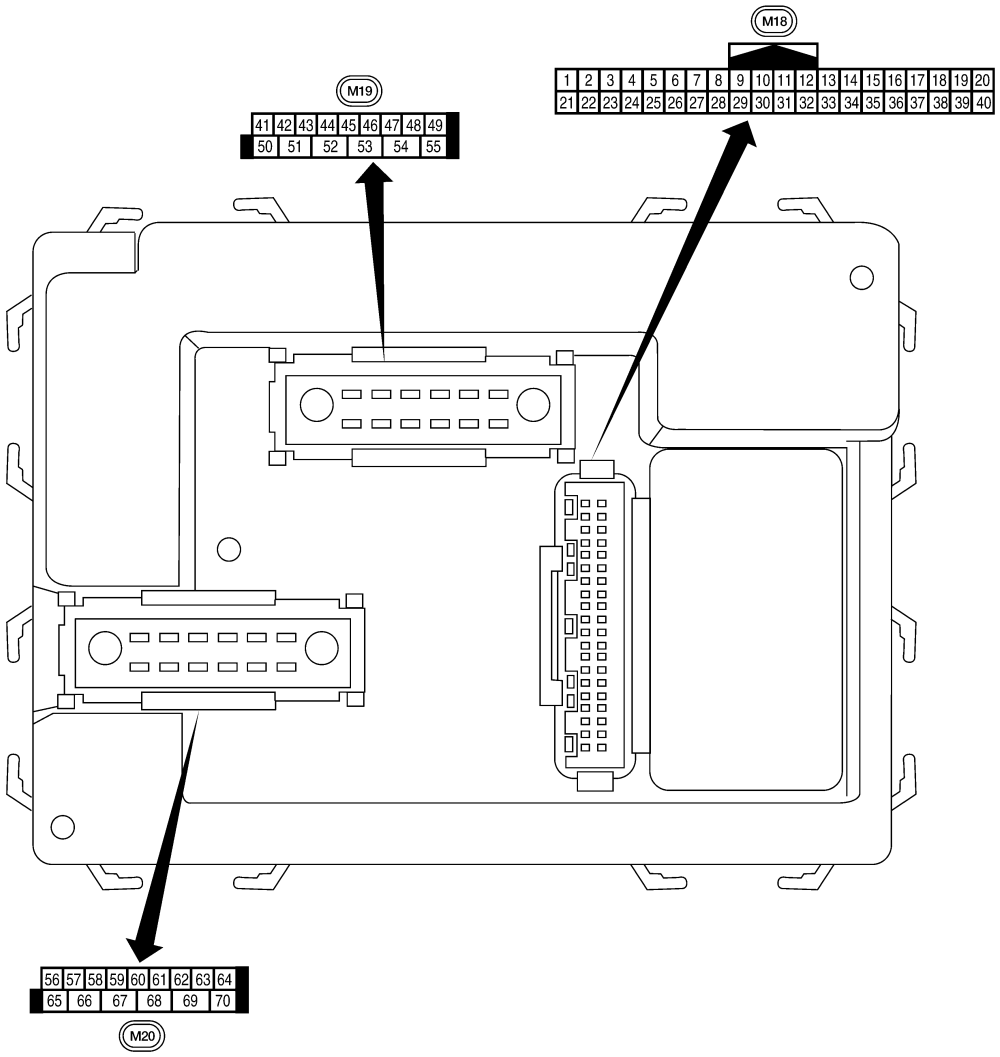
VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
AIR COND SW	A/C switch OFF	OFF
	A/C switch ON	ON
AUT LIGHT SYS	Outside of the room is dark	OFF
	Outside of the room is bright	ON
AUTO LIGHT SW	Lighting switch OFF	OFF
	Lighting switch AUTO	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
ENGINE RUN	Engine stopped	OFF
	Engine running	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
LIGHT SW 1ST	Lighting switch OFF	OFF
	Lighting switch 1st	ON
HEADLAMP SW1	Headlamp switch OFF	OFF
	Headlamp switch 1st	ON

Monitor Item	Condition	Value/Status
HEADLAMP SW2	Headlamp switch OFF	OFF
	Headlamp switch 1st	ON
HI BEAM SW	High beam switch OFF	OFF
	High beam switch HI	ON
H/L WASH SW	**NOTE:** The item is indicated, but not monitored	OFF
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 ON SW	Key is removed from key cylinder	OFF
	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
KEYLESS UNLOCK	UNLOCK button of key fob is not pressed	OFF
	UNLOCK button of key fob is pressed	ON
OIL PRESS SW	• Ignition switch OFF or ACC • Engine running	OFF
	Ignition switch ON	ON
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
RKE LOCK AND UN-LOCK	**NOTE:** The item is indicated, but not monitored	OFF
		ON
TAIL LAMP SW	Lighting switch OFF	OFF
	Lighting switch 1ST	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

Terminal Layout

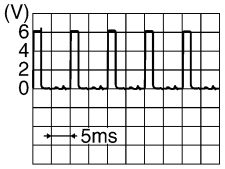
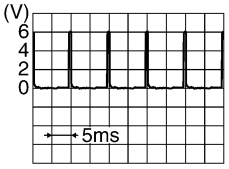
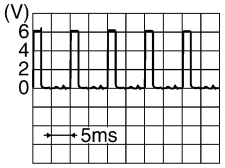
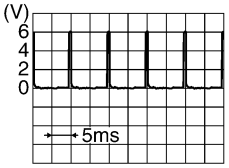
INFOID:0000000004190607

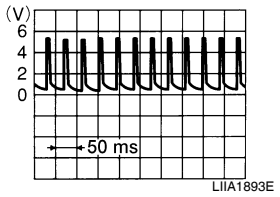
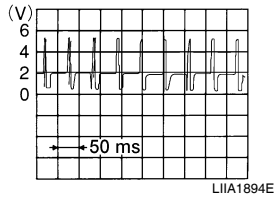
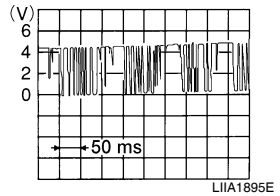
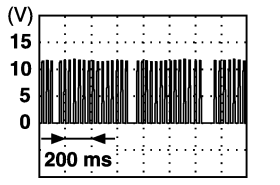


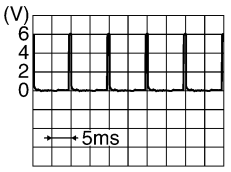
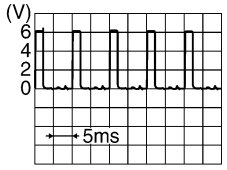
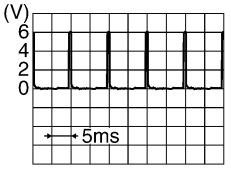
LIIA2443E

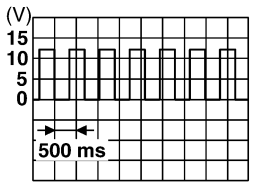
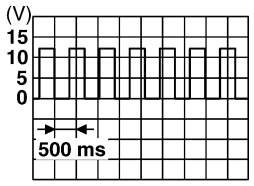
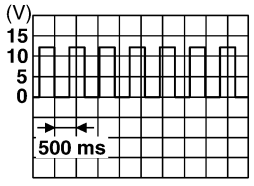
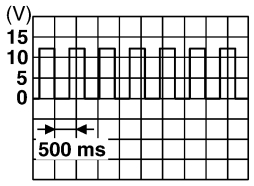
Physical Values

INFOID:0000000004190608

Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
1	BR/W	Ignition keyhole illumination	Output	OFF	Door is locked (SW OFF)	Battery voltage
					Door is unlocked (SW OFF)	0V
2	SB	Combination switch input 5	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
3	G/Y	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	Y	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	G/B	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	V	Combination switch input 1				
9	Y/B	Rear window defogger switch (Crew Cab)	Input	ON	Rear window defogger switch ON	0V
					Rear window defogger switch OFF	5V
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)	0V
					OFF (closed)	Battery voltage
15	L/W	Tire pressure warning check connector	Input	OFF	—	5V

Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
18	P	Remote keyless entry receiver and optical sensor (ground)	Output	OFF	—	0V
19	V/W	Remote keyless entry receiver (power supply)	Output	OFF	Ignition switch OFF	 LIIA1893E
20	G/W	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	 LIIA1894E
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 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	 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

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 inserted	0V
38	W/L	Ignition switch (ON)	Input	ON	—	Battery voltage
39	L	CAN-H	—	—	—	—
40	P	CAN-L	—	—	—	—
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

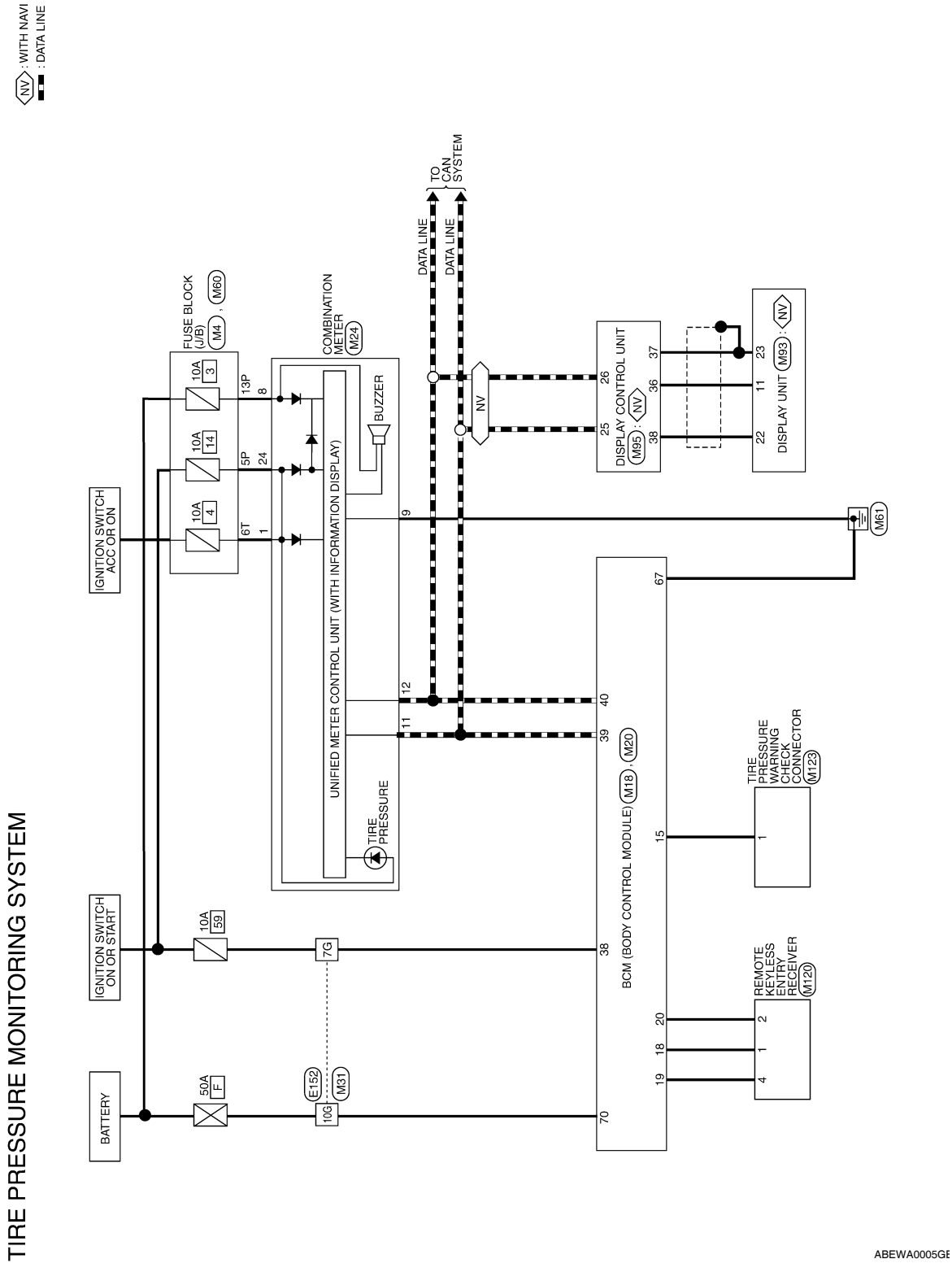
Terminal	Wire color	Signal name	Signal input/ output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
51	G/Y	Trailer turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
52	G/B	Trailer turn signal (left)	Output	ON	Turn left ON	 SKIA3009J
56	R/G	Battery saver output	Output	OFF	30 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
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 — ON (open)	0V
					Any door switch — 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

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

Wiring Diagram

INFOID:0000000003788421

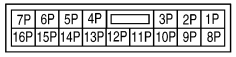
TIRE PRESSURE MONITORING SYSTEM



TIRE PRESSURE MONITORING SYSTEM CONNECTORS

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

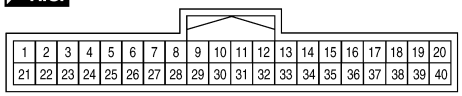
H.S.



Terminal No.	Color of Wire	Signal Name
5P	O/L	–
13P	P	–

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

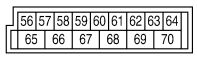
H.S.



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.	M20
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	BLACK

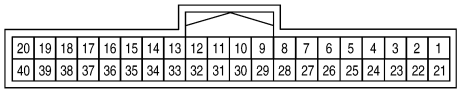
H.S.



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

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE

H.S.



Terminal No.	Color of Wire	Signal Name
1	O	ACCESSORY
8	Y/R	BATTERY (TYPE A*)
8	P	BATTERY (TYPE B*)
9	B	GND (POWER)
11	L	CAN-H
12	P	CAN-L
24	O/L	RUN_START

ABEIA0011GB

*: REFER TO HARNESS LAYOUT OF PG SECTION FOR DEFINITION OF TYPE A AND TYPE B.

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

H.S.

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

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

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

H.S.

1	2	3	4

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

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

H.S.

5G	4G	3G	2G	1G
	9G	8G	7G	6G
10G				

21G	20G	19G	18G	17G	16G	15G	14G	13G	12G	11G
	30G	29G	28G	27G	26G	25G	24G	23G	22G	
41G	40G	39G	38G	37G	36G	35G	34G	33G	32G	31G
	50G	49G	48G	47G	46G	45G	44G	43G	42G	
61G	60G	59G	58G	57G	56G	55G	54G	53G	52G	51G
	70G	69G	68G	67G	66G	65G	64G	63G	62G	
75G		74G	73G	72G	71G					
		80G	79G	78G	77G	76G				

Terminal No.	Color of Wire	Signal Name
7G	W/L	–
10G	W/B	–

Connector No.	M95
Connector Name	DISPLAY CONTROL UNIT
Connector Color	WHITE

H.S.

26	28	30	32	34	36	38	40	42	44	46	48	50	52	54	56
25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55

Terminal No.	Color of Wire	Signal Name
25	L	CAN-H
26	P	CAN-L
36	B/W	DCU-DSP
37	SHIELD	BUS_GND
38	L	DSP-DCU

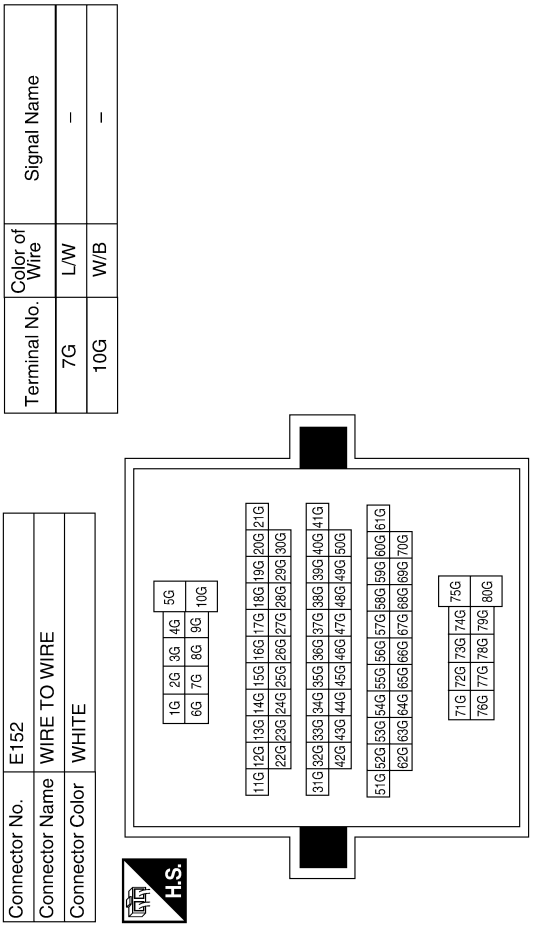
Connector No.	M93
Connector Name	DISPLAY UNIT
Connector Color	WHITE

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
11	B/W	DCU-DPS
22	L	DSP-DCU
23	SHIELD	BUS_GND

ABEIA0012GB



ABEIA0013GB

Self-Diagnosis (With CONSULT-III)

INFOID:0000000003788422

FUNCTION

Self-Diagnostic Results Mode

Diagnostic item	Diagnostic item is detected when ···	Reference page
LOW - PRESSURE - FL [C1704] LOW - PRESSURE - FR [C1705] LOW - PRESSURE - RR [C1706] LOW - PRESSURE - RL [C1707]	Tire pressures dropped below specified value. Refer to WT-8, "System Description".	—
[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-14
[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-16
[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-18
[CODE- ERR] - FL [C1720] [CODE- ERR] - FR [C1721] [CODE- ERR] - RR [C1722] [CODE- ERR] - RL [C1723]	Function code data from FL transmitter is malfunctioning. Function code data from FR transmitter is malfunctioning. Function code data from RR transmitter is malfunctioning. Function code data from RL transmitter is malfunctioning.	WT-16
[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-16
VHCL_SPEED_SIG_ERR [C1729]	Vehicle speed signal is in error.	WT-19
IGN_CIRCUIT_OPEN [C1735]	Ignition signal is in error.	WT-20

NOTE:

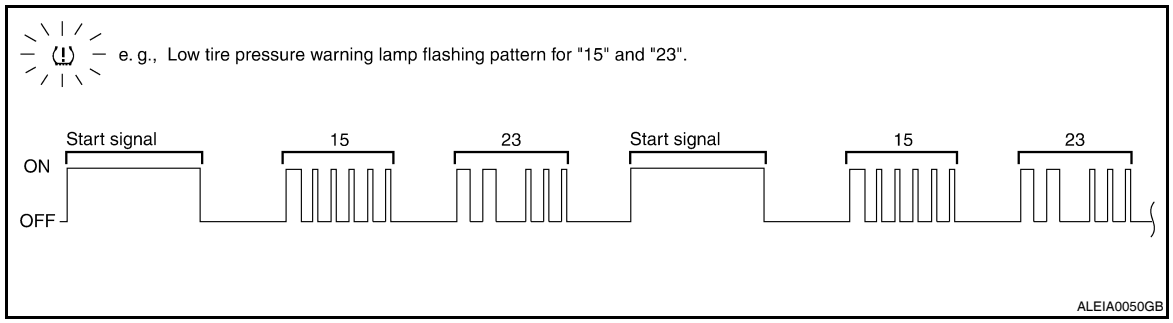
Before performing the self-diagnosis, be sure to register the ID or else the actual malfunction location may be different from that displayed on CONSULT-III.

Self-Diagnosis (Without CONSULT-III)

INFOID:0000000003788423

SELF DIAGNOSTIC PROCEDURE (WITHOUT CONSULT-III)

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-8, "System Description".	—
21 22 23 24	Transmitter no data (FL) Transmitter no data (FR) Transmitter no data (RR) Transmitter no data (RL)	WT-14
31 32 33 34	Transmitter checksum error (FL) Transmitter checksum error (FR) Transmitter checksum error (RR) Transmitter checksum error (RL)	WT-16
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-18
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-16
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-16
52	Vehicle speed signal	WT-19
54	Vehicle ignition signal	WT-20

SYMPTOM DIAGNOSIS

TPMS

Symptom Table

INFOID:0000000003788424

Symptom	Reference
Low tire pressure warning lamp does not come on when ignition switch is turned on.	WT-36
Low tire pressure warning lamp stays on when ignition switch is turned on.	WT-37
Low tire pressure warning lamp flashes when ignition switch is turned on.	WT-38
Hazard warning lamps flash when ignition switch is turned on.	WT-39
Tire pressure information in display unit does not exist.	WT-41
ID registration cannot be completed.	WT-41

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:0000000003788425

DIAGNOSTIC PROCEDURE

1.SELF-DIAGNOSTIC RESULT CHECK

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

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

YES >> Malfunction in CAN communication system. Refer to LAN-58, "CAN System Specification Chart".

NO >> GO TO 2

2.CHECK COMBINATION METER

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

Inspection results OK?

YES >> GO TO 3

NO >> Replace combination meter. Refer to MWI-103, "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-53, "Removal and Installation".

NO >> Check combination meter operation.

LOW TIRE PRESSURE WARNING LAMP STAYS ON

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

INFOID:0000000003788426

DIAGNOSTIC PROCEDURE

1.BCM CONNECTORS

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

Are any of the BCM connectors loose or damaged?

YES >> Repair or replace damaged parts.
NO >> GO TO 2

2.BCM POWER SUPPLY AND GROUND CIRCUITS

Check BCM power supply and ground circuits. Refer to BCS-30, "Diagnosis Procedure".

Are the BCM power supply and ground circuits OK?

YES >> Replace BCM. Refer to BCS-53, "Removal and Installation".
NO >> Repair BCM circuits.

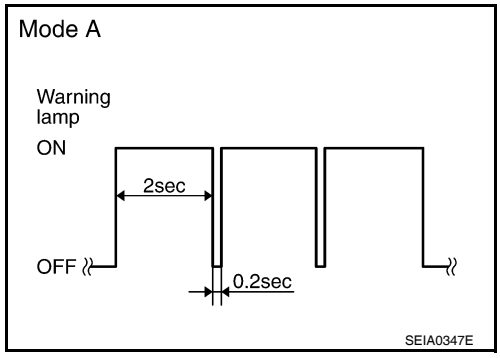
LOW TIRE PRESSURE WARNING LAMP BLINKS

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

INFOID:0000000003788427

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".



DIAGNOSTIC PROCEDURE

1.CHECK BCM CONNECTORS

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

Inspection results OK?

YES >> GO TO 2
NO >> Repair or replace damaged parts.

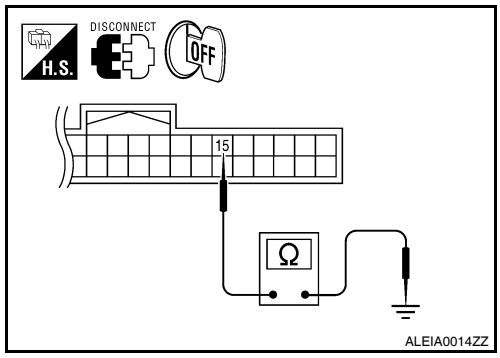
2.CHECK TIRE PRESSURE WARNING CHECK CONNECTOR CIRCUIT

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

Continuity should not exist.

Does continuity exist?

YES >> Repair circuit for short to ground.
NO >> Replace BCM. Refer to BCS-53, "Removal and Installation".



HAZARD WARNING LAMPS FLASH

Hazard Warning Lamps Flash When Ignition Switch Is Turned On

INFOID:0000000003788428

DIAGNOSTIC PROCEDURE

1.CHECK BCM GROUND CIRCUIT

Check BCM ground circuit. Refer to BCS-30, "Diagnosis Procedure".

Is BCM ground circuit OK?

YES >> Replace BCM. Refer to BCS-53, "Removal and Installation".
NO >> Repair BCM ground circuit.

"TIRE PRESSURE" INFORMATION IN DISPLAY UNIT DOES NOT EXIST

"TIRE PRESSURE" Information in Display Unit Does Not Exist

INFOID:0000000003788429

DIAGNOSTIC PROCEDURE

1.SELF-DIAGNOSTIC RESULT CHECK

Using CONSULT-III, check display contents in self-diagnostic results.

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

YES >> Malfunction in CAN communication system.
NO >> GO TO 2.

2.CHECK DISPLAY UNIT

Perform display unit self-diagnosis. Refer to AV-198, "AUDIO UNIT : Diagnosis Description".

Inspection results OK?

YES >> Replace BCM. Refer to BCS-53, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

ID REGISTRATION CANNOT BE COMPLETED

ID Registration Cannot Be Completed

INFOID:0000000003788430

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".

NOISE, VIBRATION, AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000003788431

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

Reference page			WT-45	WT-46	WT-51	WT-47	—	—	WT-51	FAX-4, "NVH Troubleshooting Chart" (FFD), DLN-187, "NVH Troubleshooting Chart" (RFD) M226, DLN-212, "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-5, "NVH Troubleshooting Chart"	ST-5, "NVH Troubleshooting Chart"
Possible cause and SUSPECTED PARTS			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
Symptom	TIRES	Noise	×	×	×	×	×	×		×	×	×	×		×	×
		Shake	×	×	×	×	×		×		×	×	×		×	×
		Vibration			×				×		×	×	×			×
		Shimmy	×	×	×	×	×	×	×		×	×	×		×	×
		Shudder	×	×	×	×	×		×		×	×	×		×	×
		Poor quality ride or handling	×	×	×	×	×		×		×	×	×			
	ROAD WHEEL	Noise	×	×			×			×	×	×		×	×	×
		Shake	×	×			×				×	×		×	×	×
		Shimmy, shudder	×	×			×				×	×		×	×	×
		Poor quality ride or handling	×	×			×				×	×		×		

×: Applicable

PRECAUTION

PRECAUTIONS

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

INFOID:0000000003788432

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.**

Precaution for work

INFOID:0000000003788433

- After removing and installing the opening/closing parts, be sure to carry out fitting adjustments to check their operation.
- Check the lubrication level, damage, and wear of each part. If necessary, grease or replace it.

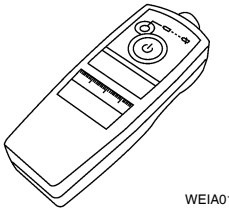
PREPARATION

PREPARATION

Special Service Tool

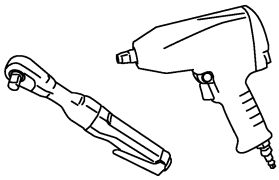
INFOID:0000000003788434

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

Tool number (Kent-Moore No.) Tool name	Description
KV991B1000 (J-45295) Transmitter activation tool  WEIA0144E	• Transmitter wake up operation • ID registration procedure

Commercial Service Tool

INFOID:0000000003788435

Tool name	Description
Power tool  PBIC0190E	Removing wheel nuts

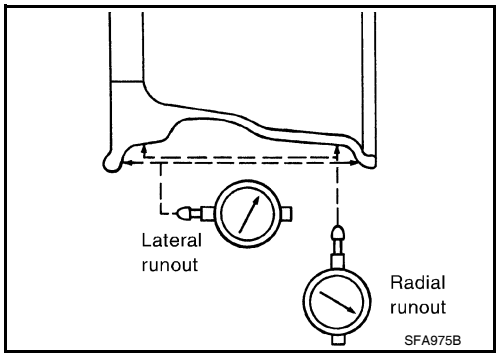
ON-VEHICLE MAINTENANCE

WHEEL

Inspection

INFOID:0000000003788436

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.
   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.
   a. Remove tire from wheel and mount wheel on a tire balance machine.
   b. Set dial indicator as shown in the illustration. Refer to WT-51, "Road Wheel".
3. Check front wheel bearings for looseness.
4. Check front suspension for looseness.



WHEEL AND TIRE ASSEMBLY

Balancing Wheels

INFOID:0000000003788437

Removal

1. Remove inner and outer balance weights from the wheel.
   CAUTION:
   Be careful not to scratch the wheel during removal.
2. Using releasing agent, remove double-faced adhesive tape from the wheel.
   CAUTION:
   After removing double-faced adhesive tape, wipe clean traces of releasing agent from the wheel.

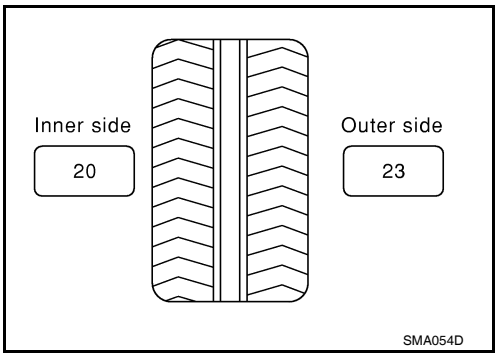
Wheel Balance Adjustment

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 tire balance machine has adhesion balance weight mode settings and drive-in weight mode setting, select and adjust a drive-in weight mode suitable for wheels.

1. Set wheel on wheel balancer using the center hole as a guide. Start the tire balance machine.
2. When inner and outer imbalance values are shown on the wheel balancer indicator, multiply outer imbalance value by 1.6 to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value and install it to the designated outer position of, or at the designated angle in relation to the road wheel.
   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 wheel.**

   Indicated imbalance value × 5/3 = balance weight to be installed
   Calculation example:
   23 g (0.81 oz) × 5/3 = 38.33 g (1.35 oz) = 40 g (1.41 oz) balance weight (closer to calculated balance weight value)
   Note that balance weight value must be closer to the calculated balance weight value.
   Example:
   37.4 g = 35 g (1.23 oz)
   37.5 g = 40 g (1.41 oz)

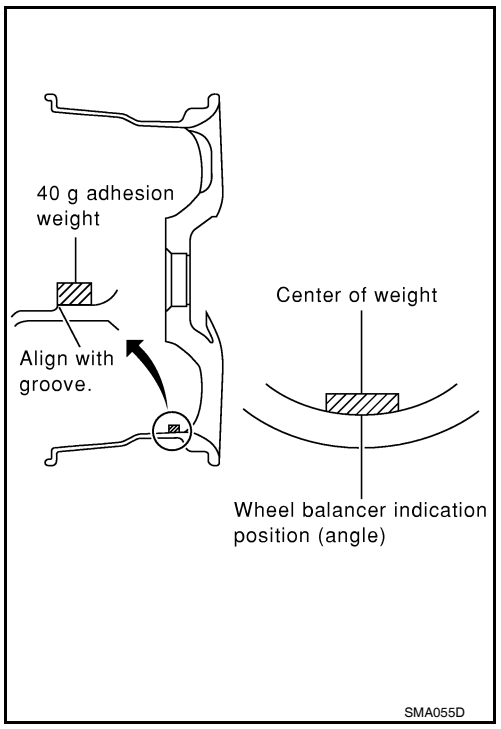


a. Install balance weight in the position shown.

b. When installing balance weight to wheels, set it into the grooved area on the inner wall of the wheel as shown so that the balance weight center is aligned with the wheel balancer indication position (angle).

CAUTION:

- **Always use Genuine NISSAN adhesion balance weights.**
- **Balance weights are not reusable; always replace with new ones.**
- **Do not install more than three sheets of balance weights.**



c. 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 of another.

3. Start wheel balancer again.

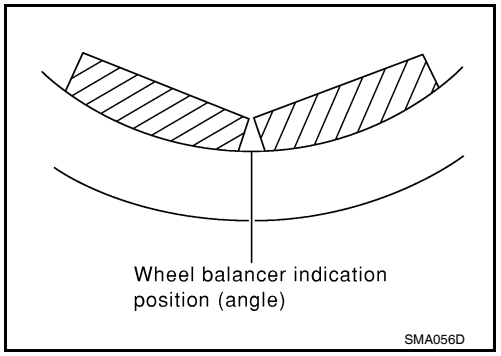
4. Install drive-in balance weight on inner side of road wheel in the wheel balancer indication position (angle).

CAUTION:

Do not install more than two balance weights.

5. Start wheel balancer. Make sure that inner and outer residual imbalance values are 5 g (0.18 oz) each or below.
   - If either residual imbalance value exceeds 5 g (0.18 oz), repeat installation procedures.

Wheel balance (Maximum allowable imbalance):



Maximum allowable imbalance	Dynamic (at rim flange)	5 g (0.18 oz) (one side)
	Static (at rim flange)	10 g (0.35 oz)

Rotation

INFOID:0000000003788438

NOTE:

Follow the maintenance schedule for tire rotation service intervals. Refer to MA-6, "Schedule 1", MA-8, "Schedule 2" .

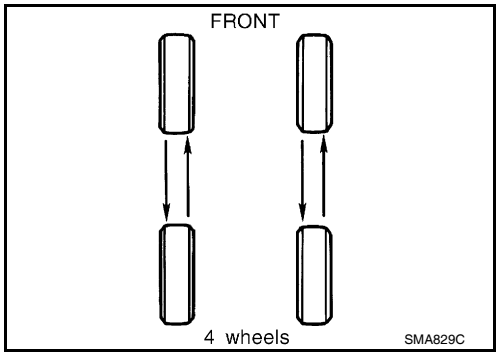
1. Rotate the tires on each side from front to back as shown. Do not include the spare tire when rotating the tires.

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

CAUTION:

When installing wheels, tighten them diagonally by dividing the work two to three times in order to prevent the wheels from developing any distortion.

2. Adjust the tire pressure to specification. Refer to WT-51, "Tire".



3. After the tire rotation, retighten the wheel nuts after the vehicle has been driven for 1,000 km (600 miles), and also after every wheel and tire have been installed such as after repairing a flat tire.

REMOVAL AND INSTALLATION

REMOVAL AND INSTALLATION

Transmitter (Pressure Sensor)

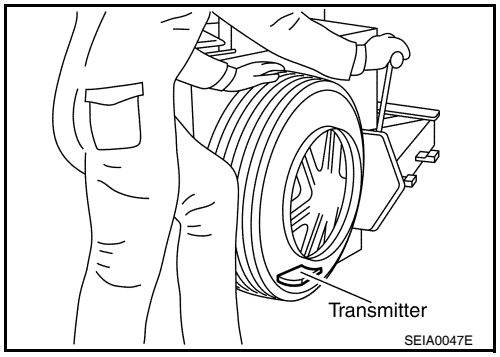
INFOID:0000000003788439

REMOVAL

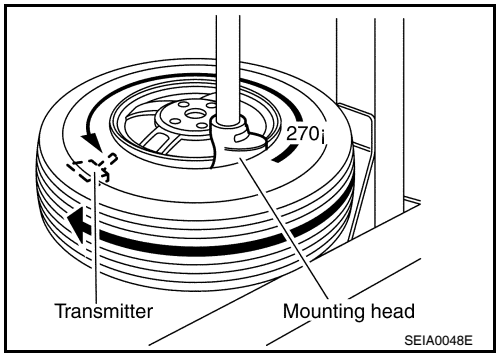
CAUTION:

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. Ensure 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 ensure transmitter is near valve hole. Carefully lift tire onto turntable and position valve hole (and transmitter) 270 degrees from mounting/dismounting head.
4. Lubricate tire well, and remove top side of tire. Reach inside the tire and remove the transmitter.
5. Remove the second side of the tire as normal.

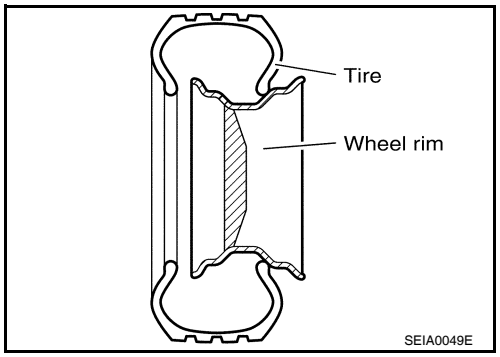


INSTALLATION

CAUTION:

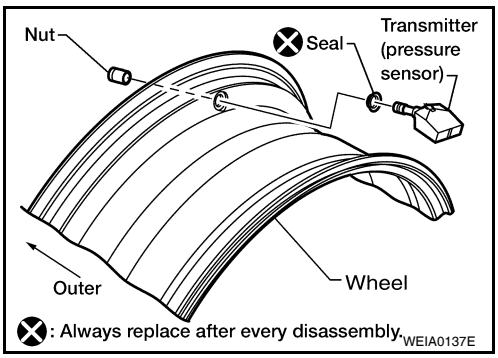
DO NOT use center hole cone-type clamping machines to hold the wheel assembly during tire removal/installation or balancing or damage to the wheel paint, cladding or chrome may result. Use only rim-type or universal lug-type clamping machines to hold the wheel assembly during servicing.

1. Place first side of tire onto rim.

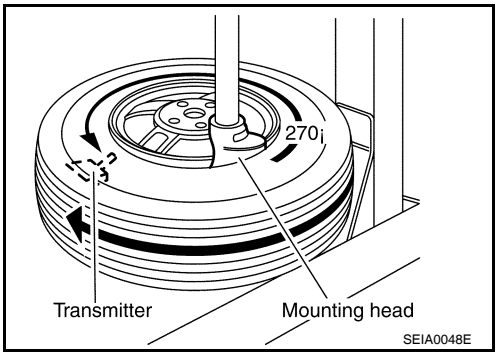


2. Mount transmitter on rim and slowly tighten transmitter nut to specification.
   CAUTION:
   Do not over tighten transmitter nut.

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



3. Place wheel on turntable of tire machine. Ensure that transmitter is 270 degrees from mounting/dismounting head.
   NOTE:
   Do not touch transmitter with mounting head.
4. Lubricate tire well, and install second side of tire as normal. Ensure that tire does not rotate relative to rim.
5. Inflate tire and balance wheel and tire assembly. Refer to WT-46, "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-149, "ADJUSTMENT OF STEERING ANGLE SENSOR NEUTRAL POSITION : Special Repair Requirement" .

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Road Wheel

INFOID:0000000003788440

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:0000000003788441

Unit: kPa (kg/cm^2, psi)

Tire size	Air pressure	
	Conventional tire	Spare tire
Full size spare tire	—	240 (2.4, 35)
P265/70R18	240 (2.4, 35)	—
P275/70R18	240 (2.4, 35)	—
P275/60R20	240 (2.4, 35)	—