SECTION WT
ROAD WHEELS & TIRES

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PRECAUTION

PRECAUTIONS

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

INFOID:0000000013523954

Risk of injury

There is a risk of injury caused by parts becoming projectiles if uncontrolled deployment of air bag or seat belt pre-tensioner occurs, or by storing air bag with the deployment side facing downwards. When scrapping air bag or seat belt pre-tensioner by means of controlled deployment, there is also a danger present if a sufficiently safe distance is not maintained, or if opening using cutting torches or other cutting tools, or due to smelting or if parts that are not yet triggered are exposed to a blaze or a smoldering fire at landfills.

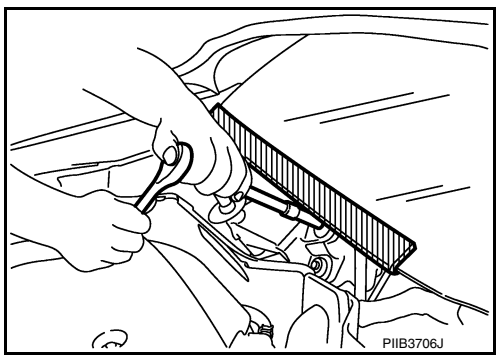
Safety instructions/precautions

- Removed air bag must always be stored with deployment side facing up.
- Acquisition, transportation, storage, testing and assembly work should only be performed or supervised by properly trained personnel.
- Install air bag or seat belt pre-tensioner immediately following retrieval from storage.
- Air bag and seat belt pre-tensioner must be protected from flying sparks, open fires and temperature exceeding 100°C (212°F).
- Never transport air bag and seat belt pre-tensioner in the passenger compartment. Store them securely in the luggage room of the vehicle in their original replacement part packaging and secure them so that they cannot slip around.
- Never allow air bag and seat belt pre-tensioner to come into contact with grease, oil, or cleaning agents.
- Perform system tests using approved testing equipment only, and only when the units are properly installed and the vehicle is unoccupied.
- Before the initial hookup of the battery or an external power supply, the ignition must be switched on and the vehicle unoccupied.
- Air bag and seat belt pre-tensioner that fall from a height of more than 0.5 m must be replaced.
- When scrapping by means of controlled deployment of air bag and seat belt pre-tensioner, a safe distance of at least 10 m must be maintained.
- Before starting work on air bag and seat belt pre-tensioner and work on components that are connected to air bag and seat belt pre-tensioner or require and intervention in their electric circuit (e.g. when removing the steering wheel):
  - Disconnect any external power sources (e.g. charger).
  - Disconnect and insulate ground line of battery
- Before starting bodywork in combination with welding or retrofitting, during which work is performed on uninsulated, current-carrying lines or require an intervention in their electric circuit (e.g. when removing the steering wheel):
  - Disconnect any external power sources (e.g. charger).
  - Disconnect and insulate ground line of battery.
  - During welding, disconnect plug connection and from control unit of air bag.
- When the air bag deploys, the pyrofuse activates and the power source from the battery is disconnected. This prevents possible fires caused by electric leakage after an accident occurs.

Precaution for Procedure without Cowl Top Cover

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When performing the procedure after removing cowl top cover, cover the lower end of windshield with urethane, etc to prevent damage to windshield.

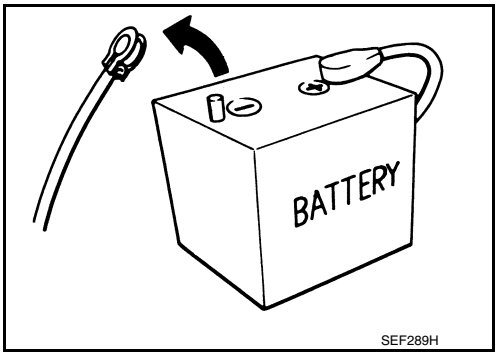


Precautions for Removing Battery Terminal

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When disconnecting the battery terminal, pay attention to the following.
- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

BR08DE	: 4 minutes	YD25DDTi	: 2 minutes
D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		



NOTE:
ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:
- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.

NOTE:
If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.

NOTE:
The removal of 12V battery may cause a DTC detection error.

Service Notice and Precautions for Road Wheel and Tire

INFOID:0000000013523957

ROAD WHEEL
- Genuine aluminum wheel is designed for each type of vehicle. Use it on the specified vehicle only.
- Use Genuine parts for the wheel bolts.
- Always use them after adjusting the wheel balance. For the balance weights, use Genuine 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.

TIRE
- With the development of wider and flatter tire cross-sections in the last few years and with Runflat tires, the assembly and disassembly of tires have grown more and more complex.
- Essential prerequisites for trouble-free use and proper and smooth operation of tires are correct assembly carried out by a professional and correct positioning on the rim.
- To ensure this, the upper sidewalls and the upper raised beads on the inside, in particular, must have a temperature of at least 15°C.
- Rubber is a bad conductor of heat, which is why a cold tire must be kept in a temperature-controlled environment for a sufficient period of time until the inner linings have heated up to at least 15°C.

- The room temperature is measured and read off at eye level.
- A temperature of 19°C at eye level would mean a temperature of approx. 16°C at ground level. Assuming room temperature of at least 19°C:
  NOTE:
  - Store tires with initial temperature of 0°C and higher for at least 2 h.
  - Store tires with initial temperature of under 0°C for at least 2.5 h.
- Do not place cold tires directly on the ground for warming them up; place them on an insulated mat, a pallet or on something even higher.
- To make sure that cold tires absorb heat from the ambient air as quickly as possible, they should not be stacked up, but stored separately.
- Apart from absorption of heat from the ambient air (max. 50°C), there is no other procedure for heating up the tires without causing damage to them.
  CAUTION:
  Tires should never be exposed to a radient heater or a hot air blower for the purpose of heating them up, since damaging surface temperatures can be reached very quickly.

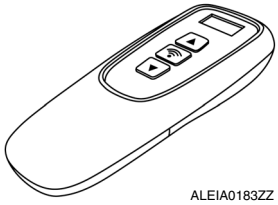
PREPARATION

PREPARATION

Special Service Tool

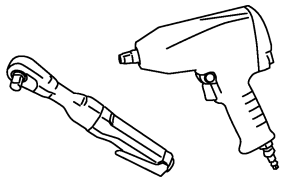
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The actual shapes of TechMate tools may differ from those of special service tools illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-50190) Signal tech II  ALEIA0131ZZ	• Activate and display TPMS tire pressure sensor IDs • Display tire pressure reported by the TPMS tire pressure sensor • Read TPMS DTCs • Register TPMS tire pressure sensor IDs • Test remote keyless entry keyfob relative signal strength • Compatible with future sensors • Equipped with a display
KV48105501 (J-45295-A) Tire pressure sensor activation tool  ALEIA0183ZZ	• Activate TPMS tire pressure sensor IDs • Compatible with future sensors • Equipped with a display (KV48105501 only)

Commercial Service Tools

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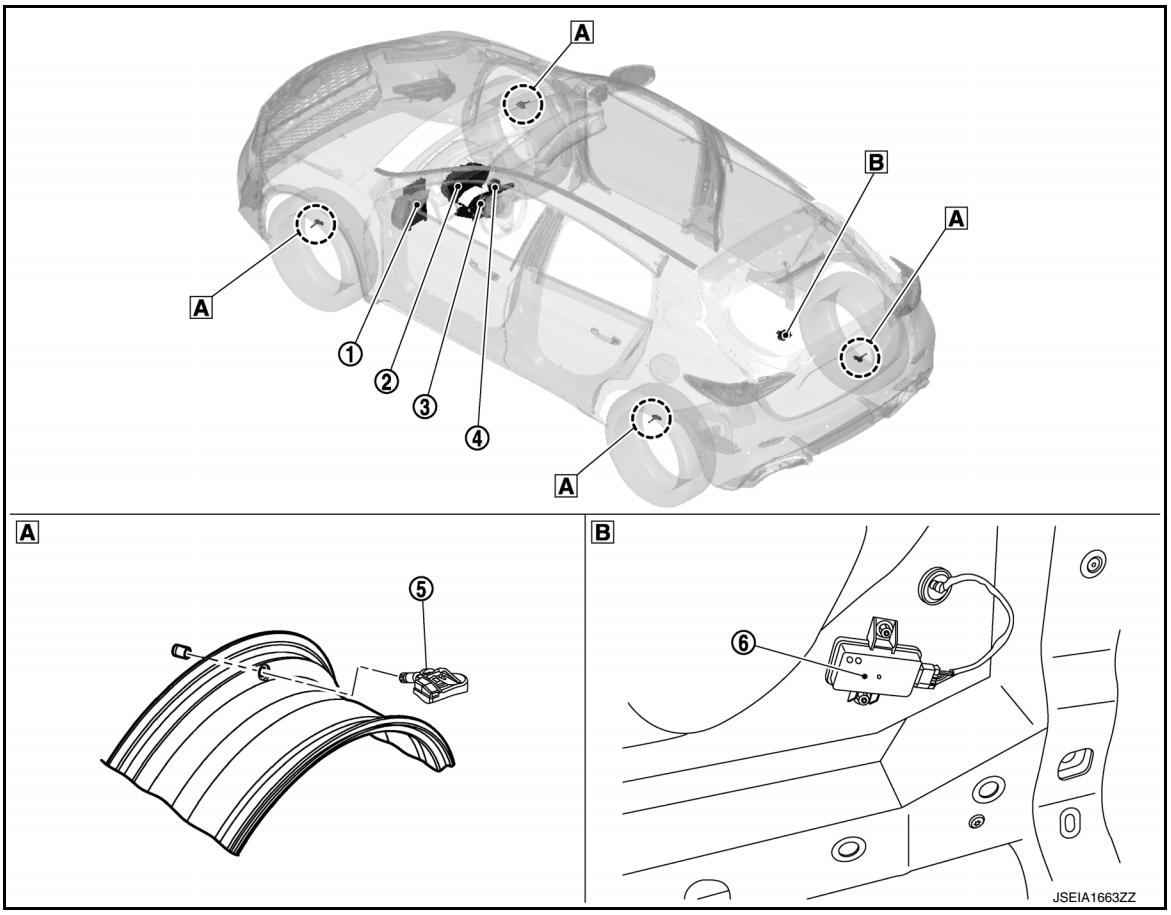
Tool name	Description
Power tool  PBIC0190E	Loosening wheel bolts

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000013523959



A Wheel

B Under body

No.	Component parts	Function
①	BCM	Mainly transmits the following signals to low tire pressure warning control unit via CAN communication. • Ambient temperature signal Refer to BCS-8, "BODY CONTROL SYSTEM : Component Parts Location", for detailed installation location.
②	Combination meter	Mainly receives the following signals from low tire pressure warning control unit via CAN communication. • Low tire pressure warning lamp signal • TPMS warning massage signal Mainly receives the following signals from steering column control module via CAN communication. • Steering switch signal Mainly transmits the following signals to low tire pressure warning control unit via CAN communication. • Vehicle speed signal (meter) • TPMS operation request signal Refer to MWI-7, "METER SYSTEM : Component Parts Location", for detailed installation location.

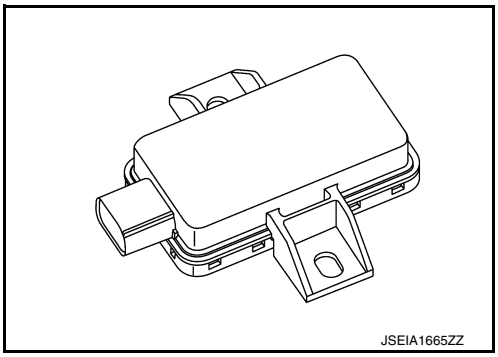
No.	Component parts	Function
③	Steering column control module	Mainly transmits the following signals to combination meter via CAN communication. • Steering switch signal Refer to BCS-9, "STEERING COLUMN CONTROL SYSTEM : Component Parts Location", for detailed installation location.
④	Electronic ignition switch control unit	Mainly transmits the following signals to low tire pressure warning control unit via CAN communication. • Ignition switch ON signal • Battery voltage signal Refer to PCS-5, "Component Parts Location", for detailed installation location.
⑤	Tire pressure sensor	WT-8, "Tire Pressure Sensor".
⑥	Low tire pressure warning control unit	WT-8, "Low Tire Pressure Warning Control Unit".

Low Tire Pressure Warning Control Unit

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LOCATION

The low tire pressure warning control unit is located at the right rear on the underfloor above the rear axle.



FUNCTION

The low tire pressure warning control unit has the following functions:
- Reading in of signals
- Evaluation of input factors
- Transfer of information

Reading in of Signals

The input factors are read in over the following connections:
- Two-way radio
- CAN communication line

Two-way radio
- The signals from the each tire pressure sensors are read in via radio.

CAN communication line
- The signals are read in from each control unit via CAN communication. For detail, refer to WT-10, "System Description".

Evaluation of Input Factors

The input factors that have been read in are evaluated by the integrated microprocessor whereupon the information is then sent.

Transfer of Information

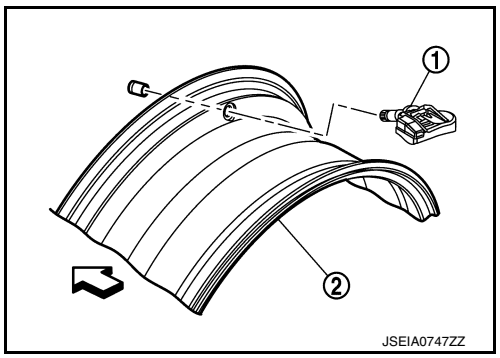
The information are sent to each control unit via CAN communication. For detail, refer to WT-10, "System Description".

Tire Pressure Sensor

INFOID:0000000013523961

The tire pressure sensor ① integrated with the valve is installed in each wheel ②, and transmits the detected tire pressure and tire temperature signal in the form of the radio wave. The radio signal is received by the low tire pressure warning control unit.

⇦ : Outside



SYSTEM

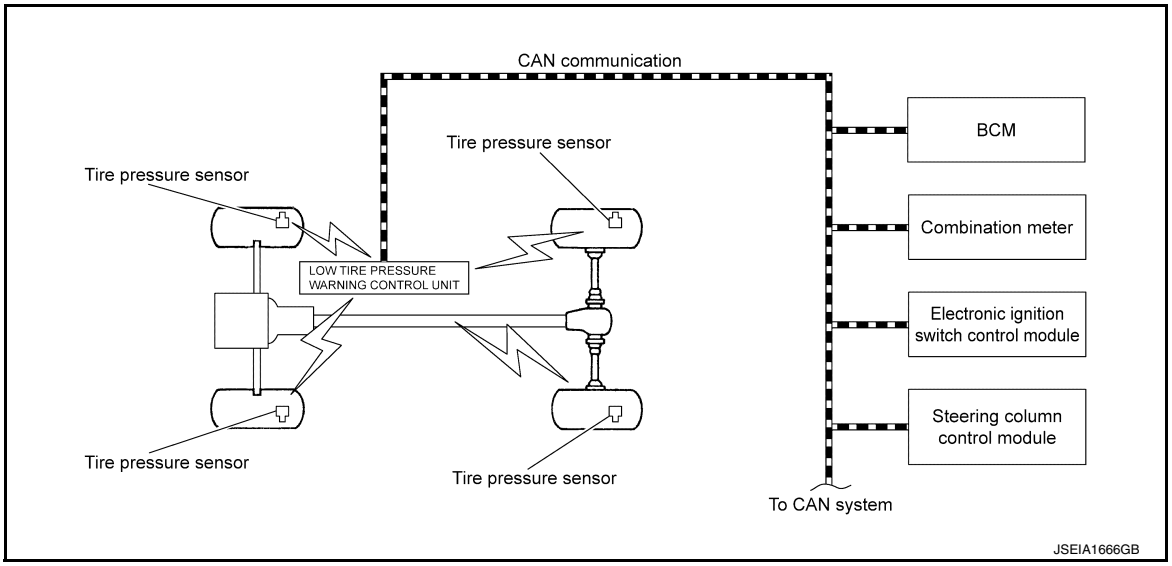
System Description

INFOID:0000000013523962

- The TPMS (Tire Pressure Monitoring System) assists the driver by monitoring the tire pressure, thereby contributing to active safety.
- The TPMS (Tire Pressure Monitoring System) monitors the air pressure in the individual tires. A previously stored specified pressure is used as a comparison value for the front wheels and rear wheels.
- If a relevant loss of pressure occurs, a warning message is issued to the driver, when possible with the affected location.
- The tire pressure measuring range covers from 0 to 637.5 kPa (6.375 bar, 6.5 kgf/cm^2, 92.4 psi) .
- The TPMS (Tire Pressure Monitoring System) comprises the following sub functions:

- Tire pressure sensing function
- Warning message function
- Manual restart function
- Automatic fill detection function
- Automatic teach-in process function for low tire pressure warning control unit
- Run-on function

SYSTEM DIAGRAM



INPUT/OUTPUT SIGNAL

Major signal transmission between each unit via communication lines is shown in the following table.

Component parts	Signal description
BCM	Mainly transmits the following signals to low tire pressure warning control unit via CAN communication. • Ambient temperature signal
Combination meter	Mainly receives the following signals from low tire pressure warning control unit via CAN communication. • Low tire pressure warning lamp signal • TPMS warning massage signal Mainly receives the following signals from steering column control module via CAN communication. • Steering switch signal Mainly transmits the following signals to low tire pressure warning control unit via CAN communication. • Vehicle speed signal (meter) • TPMS operation request signal

Component parts	Signal description
Steering column control module	Mainly transmits the following signals to combination meter via CAN communication. • Steering switch signal
Electronic ignition switch control unit	Mainly transmits the following signals to low tire pressure warning control unit via CAN communication. • Ignition switch ON signal • Battery voltage signal

TIRE PRESSURE SENSING FUNCTION

- The TPMS (Tire Pressure Monitoring System) continuously monitors the tire pressure for all rotating wheels, while driving. The 4 tire pressure sensors send out data telegrams during a journey every 60 seconds to the low tire pressure warning control unit.
- These data telegrams contain the pressure, tire air temperature, wheel identifier (wheel ID) and status information (direction of rotation, operating mode, etc.).
- The data are transmitted by radio to the low tire pressure warning control unit.
- The low tire pressure warning control unit incorporates the outside temperature and the vehicle speed into the warning logic.
- BCM transmits the ambient temperature signal to low tire pressure warning control unit via CAN communication.
- Combination meter transmits the vehicle speed signal (meter) to low tire pressure warning control unit via CAN communication.

WARNING MESSAGE FUNCTION

- The TPMS (Tire Pressure Monitoring System) continuously evaluates the data telegrams of the tire pressure sensors.
- When a relevant pressure loss is detected at a tire, the low tire pressure warning control unit sends the request to display a warning message to combination meter via CAN communication.
- Refer to WT-13, "INFORMATION DISPLAY (COMBINATION METER) : Low Tire Pressure Warning", for each warning massage.
- The warning messages are made up of the following sub-functions:
- Soft warning function
- Hard warning function
- Leak detection function (rapid pressure loss)

Soft Warning Function

- The soft warning is issued during the journey. Tires lose air over the course of time through diffusion. A comfort function therefore notifies the driver in good time about the need to correct tire pressures.
- The warning threshold is defined as follows: Pressure loss is 12% or more for 8 minutes.
- If, during a journey, the tire pressure on at least one wheel is permanently below the warning threshold, a warning tone is set and stored in the memory of the low tire pressure warning control unit. A warning is issued in the information display and the low tire pressure warning lamp is actuated.
- The warning message is canceled if one of the following events occurs:
- Filling to specified pressure
- Successful automatic fill detection
- Manual restart

Hard Waning Function

- During vehicle travel, the hard warning informs the driver of any significant, safety-relevant pressure loss.
- The warning threshold is defined as follows: Pressure loss is 20% or more.
- If the tire pressure drops below the value specified by the warning threshold, then at the latest after 5 minutes a warning message is shown in the information display and the low tire pressure warning lamp is actuated.
- During the subsequent driving cycles, the low tire pressure warning lamp remains actuated until the problem is rectified.
- If the instantaneous tire pressure increases to the specified pressure or if a manual restart of the tire pressure monitor is performed, then the low tire pressure pressure warning lamp is automatically extinguished and the warning message also goes out.

Leak Detection Function (Rapid Pressure Loss)

- If while driving a progressive pressure loss is detected in a particular time section (gradient), a tire defect has to be assumed.
- In this case a warning is triggered even before the triggering criterion for the hard warning is reached.

- The warning is generally issued at the latest 120 seconds after the start of a pressure loss [20 kPa (0.2 bar, 0.2 kgf/cm^2, 2.9 psi) per 1 minute] and is shown on the information display in the combination meter as a warning message "Warning! Tire defect".
- A warning message is canceled for one of the following events:
- Filling to specified pressure
- Successful automatic fill detection
- Manual restart
- When switching the ignition on again after a leak warning message, the low tire pressure warning lamp in the combination meter is initially actuated. If, after starting a journey, the pressures match the specified value again, the low tire pressure warning lamp goes off.

MANUAL RESTART FUNCTION

Manual restart operation: Refer to WT-19, "Tire Pressure Display".

AUTOMATIC FILL DETECTION FUNCTION

- Automatic fill detection takes place, if at the start of a journey a pressure change of more than 20 kPa (0.2 bar, 0.2 kgf/cm^2, 2.9 psi) has been detected at a least 2 wheels.
- For comparison, temperature-compensated and filtered pressure values are drawn on and compared against the values for the last journey.
- After approx. 5 minutes journey and a successful plausibility check, the new tire pressures are automatically adopted as specified values. A pressure differential between the right and left wheel of 17% or more is regarded as implausible.

AUTOMATIC TEACH-IN PROCESS FUNCTION FOR LOW TIRE PRESSURE WARNING CONTROL UNIT

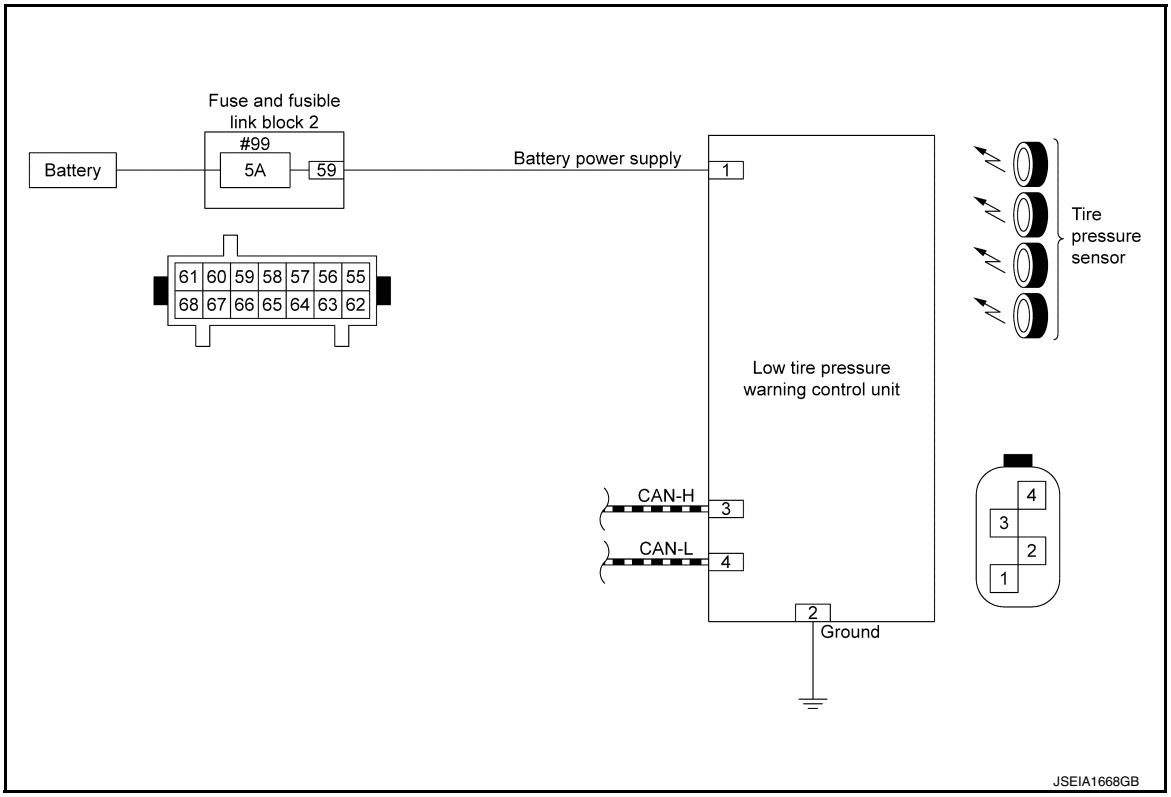
- Following an extended parking period of 19 minutes or more, the automatic detection and localization of the tire pressure sensors is started when the journey starts.
- A new tire pressure sensor is taught in automatically after driving for max. 10 minutes.
- Side localization is conducted by evaluating the rolling direction, based on right-left information from the tire pressure sensors.
- In the case of axle assignment the rear wheels which are closer to the receiver receive stronger signals than the front wheels which are further away. The reception levels for the tire pressure sensors on the rear axle are greater than on the front axle.

RUN-ON FUNCTION

After turning the ignition switch OFF, the low tire pressure warning control unit remains active for 19 minutes, and it can receive signals from the tire pressure sensors by radio frequency.

Circuit Diagram

INFOID:0000000013523963



WARNING/INDICATOR/CHIME LIST

WARNING/INDICATOR/CHIME LIST : Warning Lamp/Indicator Lamp

INFOID:0000000013523964

Name	Design	Layout/Function
Low tire pressure warning lamp		For layout, refer to MWI-8, "METER SYSTEM : Design". For function, refer to MWI-28, "WARNING LAMPS/INDICATOR LAMPS : Low Tire Pressure Warning Lamp".

WARNING/INDICATOR/CHIME LIST : Warning/Indicator (On Information Display)

INFOID:0000000013523965

Name	Function
Low tire pressure warning	Refer to WT-13, "INFORMATION DISPLAY (COMBINATION METER) : Low Tire Pressure Warning".
Tire pressure menu display	Refer to WT-16, "INFORMATION DISPLAY (COMBINATION METER) : Tire Pressure Menu Display".

INFORMATION DISPLAY (COMBINATION METER)

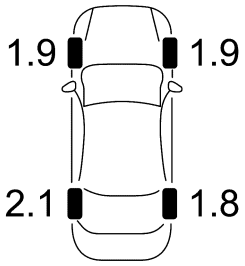
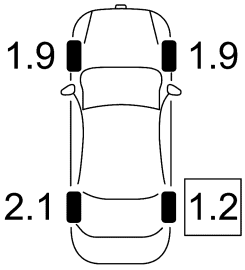
INFORMATION DISPLAY (COMBINATION METER) : Low Tire Pressure Warning

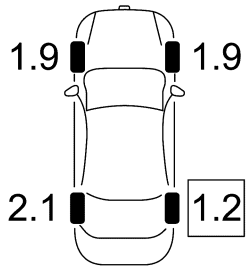
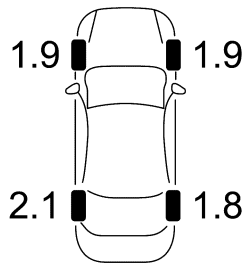
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DESIGN/PURPOSE

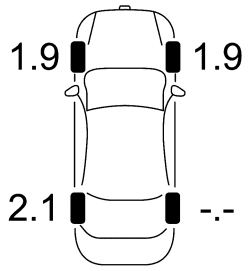
The warning message is displayed in the vehicle information display with the low tire pressure warning lamp when following conditions;

- Low tire pressure
- System malfunction

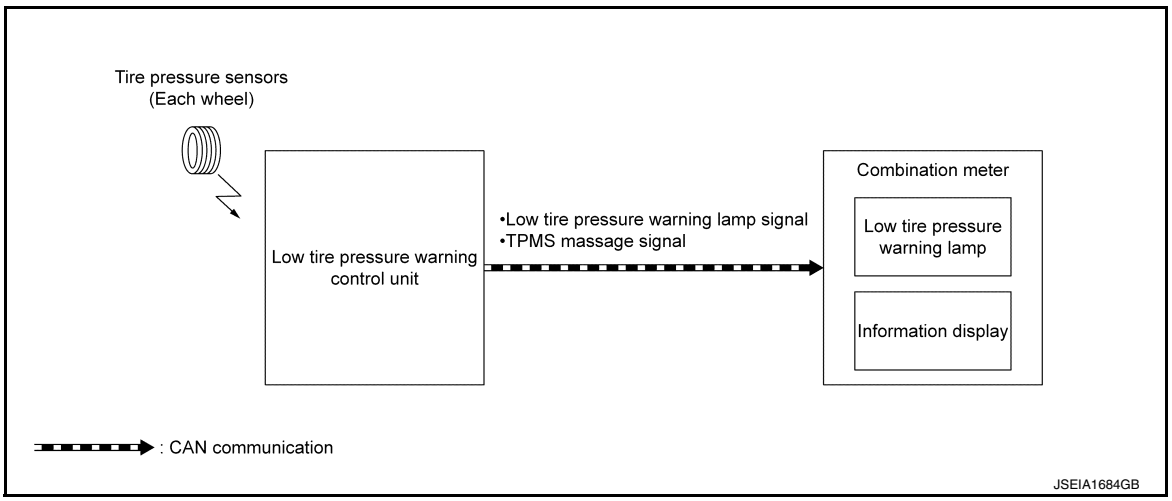
Design Massage	Description	Low tire pressure warning lamp	Voice announce
—	• The TPMS (Tire Pressure Monitoring System) is nonfunctional. • Possible causes are: - Combination meter is unable to receive valid CAN signals from low tire pressure warning control unit. - Low tire pressure warning control unit is nonfunctional. (shutoff of TPMS due to malfunction)	Turns ON after blinking 1 minute.	OFF
Tyre press. monitor inoperative			
 JSEIA1669ZZ	• The tire pressure monitor system determined a minor pressure loss of 12% during the preceding ignition cycle. • Notification of the due tire pressure correction is issued while driving	ON	OFF
Correct the tyre pressure			
 JSEIA1670ZZ	• The TPMS (Tire Pressure Monitoring System) has detected a tire pressure loss of 20% or more. • The corresponding wheel position is assigned.	ON	ON
Rectify tyre pressure			
 JPNIA1907ZZ	• The TPMS (Tire Pressure Monitoring System) has detected a significant pressure loss of 20% or more in one or more tires. • The wheel position is not assigned.	ON	ON
Tyre pressure Check tyres			

Design Massage	Description	Low tire pressure warning lamp	Voice announce
 JSEIA1670ZZ Warning tyre defect	• The TPMS (Tire Pressure Monitoring System) has detected a rapid pressure loss [20 kPa (0.2 bar, 0.2 kgf/cm^2, 2.9 psi) or more per 1 minute] in one or more tires. • The corresponding wheel position is assigned.	ON	ON
 JPNIA1907ZZ Tyre pressure Caution Tyre malfunction	• The TPMS (Tire Pressure Monitoring System) has detected a rapid pressure losss [20 kPa (0.2 bar, 0.2 kgf/cm^2, 2.9 psi) or more per 1 minute] in one or more tires. • The wheel position is not assigned.	ON	ON
 JSEIA1669ZZ Correct the tyre pressure	The TPMS (Tire Pressure Monitoring System) has detected filling of the tire, but the new tire air pressure values are implausible. The previous warning thresholds are retained.	OFF	OFF
— Tyre press. monitor inoperative No wheel sensors	• The low tire pressure warning control unit is unable to receive signals from the tire pressure sensors. • Possible cause is: - Wheels fitted without tire pressure sensor.	Turns ON after blinking 1 minute.	OFF
— Tyre press. monitor currently unavailable	• The TPMS (Tire Pressure Monitoring System) is temporarily inactive because of transmission interference or because the voltage is too high or too low.	Turns ON after blinking 1 minute.	OFF

< SYSTEM DESCRIPTION >

Design Massage	Description	Low tire pressure warning lamp	Voice announce
 JSEIA1671ZZ Wheel sensor(s) missing	• The tire pressure monitoring system does not detect all the tire pressure sensors. • Possible causes are: - Spare tire fitted without tire pressure sensor - Tire pressure sensor defective - Tire pressure sensor battery flat - Excess temperature	Turns ON after blinking 1 minute.	OFF
— Tyre press. monitor restarted	Operation feedback after manual restart.	OFF	OFF
— Please correct tyre pressure	Prompt to correct pressure in the event of slight pressure loss or implausible filling.	OFF	OFF

SYSTEM DIAGRAM



SIGNAL PATH

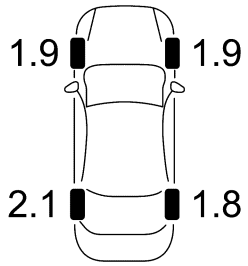
- The low tire pressure warning control unit receives a signal transmitted from the tire pressure sensors installed in each wheel.
- The low tire pressure warning control unit detects following condition, it sends the signal to combination meter via CAN communication.
- Low tire pressure
- System malfunction
- According to the signal, combination meter displays warning massage on information display.

INFORMATION DISPLAY (COMBINATION METER) : Tire Pressure Menu Display

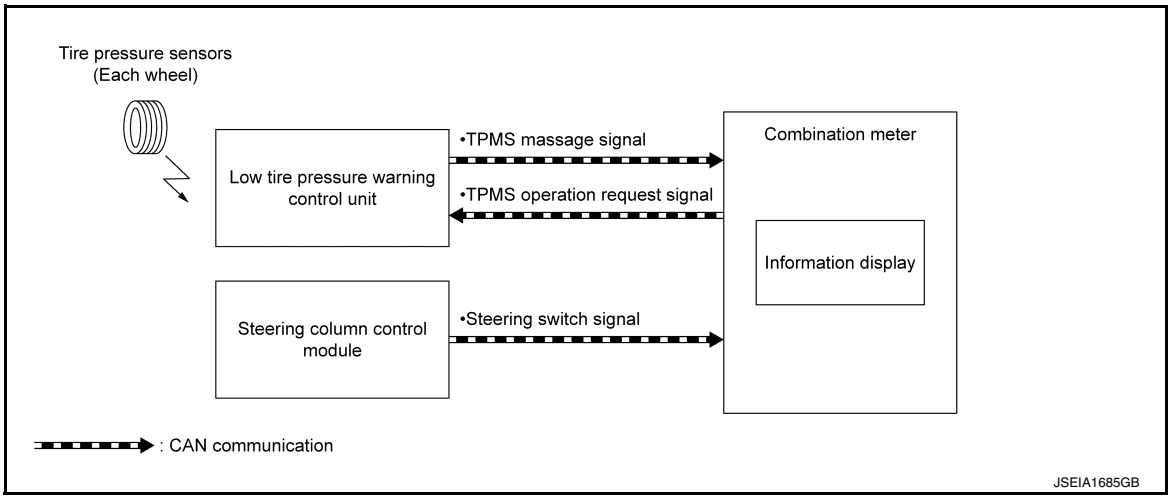
INFOID:0000000013523967

DESIGN/PURPOSE

The tire pressure menu displays can be called up in the combination meter over the left multifunction steering wheel button group in the "Service/tire pressure" menu.

Design Massage	Description
—	• The TPMS (Tire Pressure Monitoring System) is not available after turning the ignition switch ON.
Tyre pressure monitor only available as soon as ignition is on	
 JSEIA1669ZZ	• Normal condition, display of pressure display: - No malfunction - Wheels detected and assigned to positions - Current pressure signals are available
TYRE PRESS.	
—	• Status picture of TPMS (Tire Pressure Monitoring System) with manual restart
Use current pressures as new reference values Confirm with OK	
—	• Status picture in event of malfunction, the TPMS (Tire Pressure Monitoring System) is nonfunctional. • Possible causes are: - System shutoff due to malfunction (diagnosis malfunction entry) or low tire pressure warning control unit nonfunctional (shutoff due to malfunction) - Temporary malfunction (over voltage/under voltage, radio interference) - The combination meter does not receive any messages from the low tire pressure waning control unit
Tyre pressure monitor inoperative	
—	• Status indication of TPMS (Tire Pressure Monitoring System) after ignition restart. • There are still no high frequency signals from the left front tire pressure sensor, right front tire pressure sensor, left rear tire pressure sensor and right rear tire pressure sensor. • If the wheels are already known to the system, the pressure display appears shortly after the start of a journey. • In the case of new wheels, it can take a few minutes until the position identification is programmed.
Tyre pressures will be displayed after a few minutes of driving	
—	• The tire pressure sensors are all missing. • Possible causes are: - TPMS (Tire Pressure Monitoring System) does not receive any signals from the tire pressure sensors. - Wheels without tire pressure sensors are installed.
Tyre pressure monitor inoperative No wheel sensors	

SYSTEM DIAGRAM



SIGNAL PATH

- The low tire pressure warning control unit receives a signal transmitted from the tire pressure sensors installed in each wheel.
- The steering column control module transmits the steering switch signal to combination meter.
- The combination meter transmits the TPMS operation request signal to the low tire pressure warning control unit.
- The low tire pressure warning control unit transmits TPMS massage signal to combination meter.
- According to the signals, combination meter displays menu display on information display.

OPERATION

Tire Pressure Display

INFOID:0000000013523968

DESCRIPTION

Tire pressure display has the following function.

- Tire pressure menu display
- Restarting TPMS

NOTE:

Restarting TPMS must be performed in the following case.

- After tire pressure adjustment
- After tire or road wheel replacement
- After performing tire rotation

OPERATING FOLLOW

Tire Pressure Menu Display

1. Check that the ignition switch is in the ON position.
2. Press the “◀” or “▶” button on steering switch (left) to select the [Serv.] menu.
3. Press the “▲” or “▼” button to select the [Tyre pressure] menu.
4. Press “OK” button to confirm.

For each menu display, refer to WT-16, "INFORMATION DISPLAY (COMBINATION METER) : Tire Pressure Menu Display".

Restarting TPMS

1. Check that the ignition switch is in the ON position.
2. Press the “◀” or “▶” button on steering switch (left) to select the [Serv.] menu.
3. Press the “▲” or “▼” button to select the [Tyre pressure] menu.
4. Press “OK” button to confirm.
5. When performing restart, press “OK” button again.
6. When canceling restart, press “↩” button.

DIAGNOSIS SYSTEM (LOW TIRE PRESSURE WARNING CONTROL UNIT)

CONSULT Function

INFOID:0000000013523969

APPLICATION ITEMS

CONSULT can display each diagnostic item using the diagnostic test modes as follows.

Diagnostic test mode	Function Description
Self Diagnostic Result	Self-diagnostic results and freeze frame data can be read and erased quickly.*
Data Monitor	Monitor the input/output signal of the low tire pressure warning control unit (tire pressure receiver) in real time.
Work support	Components can be quickly and accurately adjusted.
Active Test	Send the drive signal from CONSULT to the actuator. The operation check can be performed.
ECU Identification	Parts number of low tire pressure warning control unit (tire pressure receiver) can be read.
Re/programming, Configuration	Writes the vehicle specification into the low tire pressure warning control unit.

*: The following diagnosis information is erased by erasing.
- DTC
- Freeze frame data (FFD)

SELF DIAGNOSTIC RESULT

Refer to STC-16, "DTC Index".

When “CRNT” is displayed on self-diagnosis result.
- The system is presently malfunctioning.

When “PAST” is displayed on self-diagnosis result.
- System malfunction in the past is detected, but the system is presently normal.

FREEZE FRAME DATA (FFD)

The following vehicle status is recorded when DTC is detected and is displayed on CONSULT.

Freeze Frame Data Item	Unit	Display item
Original Odometer Value	km	Display the odometer value stored when the respective DTC is detected for the first time.
Most Recent Odometer Value	km	Display the odometer value stored when the respective DTC is detected for the last time.
Frequency Counter	0 – 255	Display the frequency counter defined as the total number of times the DTC status has changed from “stored - not active” to “active”.
Ignition cycle counter	0 – 255	Display the number of consecutive operation cycles recorded since a DTC first became stored -not active and is no longer an active DTC. This information is needed for Self-healing functionality.

DATA MONITOR

NOTE:
The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor Item (Unit)	Description
LOW BATTERY COUNTER 1	Display the low battery counter of front left tire pressure sensor.
LOW BATTERY COUNTER 2	Display the low battery counter of front right tire pressure sensor.
LOW BATTERY COUNTER 3	Display the low battery counter of rear right tire pressure sensor.
LOW BATTERY COUNTER 4	Display the low battery counter of rear left tire pressure sensor.
WHEEL SENSOR ID 1	Display the identification number of front left tire pressure sensor.
WHEEL SENSOR ID 2	Display the identification number of front right tire pressure sensor.

Monitor Item (Unit)	Description
WHEEL SENSOR ID 3	Display the identification number of rear right tire pressure sensor.
WHEEL SENSOR ID 4	Display the identification number of rear left tire pressure sensor.
BATTERY VOLTAGE (Volts)	Display the voltage supplied to low tire pressure warning control unit.
TRANSMITTER ID 1	Display the identification number of front left tire pressure sensor.
TRANSMITTER ID 2	Display the identification number of front right tire pressure sensor.
TRANSMITTER ID 3	Display the identification number of rear right tire pressure sensor.
TRANSMITTER ID 4	Display the identification number of rear left tire pressure sensor.
RIGHT COUNTER TX ID 1	Display number of right WAL function codes received from front left tire pressure sensor.
LEFT COUNTER TX ID 1	Display number of left WAL function codes received from front left tire pressure sensor.
UNKNOWN COUNTER TX ID 1	Display number of unknown WAL function codes received from front left tire pressure sensor.
RIGHT COUNTER TX ID 2	Display number of right WAL function codes received from front right tire pressure sensor.
LEFT COUNTER TX ID 2	Display number of left WAL function codes received from front right tire pressure sensor.
UNKNOWN COUNTER TX ID 2	Display number of unknown WAL function codes received from front right tire pressure sensor.
RIGHT COUNTER TX ID 3	Display number of right WAL function codes received from rear right tire pressure sensor.
LEFT COUNTER TX ID 3	Display number of left WAL function codes received from rear right tire pressure sensor.
UNKNOWN COUNTER TX ID 3	Display number of unknown WAL function codes received from rear right tire pressure sensor.
RIGHT COUNTER TX ID 4	Display number of right WAL function codes received from rear left tire pressure sensor.
LEFT COUNTER TX ID 4	Display number of left WAL function codes received from rear left tire pressure sensor.
UNKNOWN COUNTER TX ID 4	Display number of unknown WAL function codes received from rear left tire pressure sensor.
RF statistics LF: missed blocks	Display the RF statistics LF: missed blocks.
Left front RSSI count	Display the Left front RSSI count.
Left front percentage (%)	Display the Left front percentage.
RF statistics RF: missed blocks	Display the RF statistics RF: missed blocks.
Right front RSSI count	Display the Right front RSSI count.
Right front percentage (%)	Display the Right front percentage.
RF statistics RR: missed blocks	Display the RF statistics RR: missed blocks.
Right rear RSSI count	Display the Right rear RSSI count.
Right rear percentage (%)	Display the Right rear percentage.
RF statistics LR: missed blocks	Display the RF statistics LR: missed blocks.
Left rear RSSI count	Display the Left rear RSSI count.
Left rear percentage (%)	Display the Left rear percentage.
F/L WHEEL (LH FR, RH FR, RH RR, LH RR, SPARE, NO VALUE)	Display the position that ECU thinks the front left tire pressure sensor is located.
FR LH SENSOR	Display the identification number of front left tire pressure sensor.
TIRE PRESS FL (bar)	Display the tire pressure of front left tire.
TIRE TEMPERATURE FL (°C)	Display the tire temperature of front left tire.
LH FR (CNT)	Display the average RSSI frame received from the front left tire pressure sensor.

Monitor Item (Unit)	Description
F/R WHEEL (LH FR, RH FR, RH RR, LH RR, SPARE, NO VALUE)	Display the position that ECU thinks the front right tire pressure sensor is located.
FR RH SENSOR	Display the identification number of front right tire pressure sensor.
TIRE PRESS FR (bar)	Display the tire pressure of front right tire.
TIRE TEMPERATURE FR (°C)	Display the tire temperature of front right tire.
RH FR (CNT)	Display the average RSSI frame received from the front right tire pressure sensor.
R/R WHEEL (LH FR, RH FR, RH RR, LH RR, SPARE, NO VALUE)	Display the position that ECU thinks the rear right tire pressure sensor is located.
RR RH SENSOR	Display the identification number of rear right tire pressure sensor.
TIRE PRESS RR (bar)	Display the tire pressure of rear right tire.
TIRE TEMPERATURE RR (°C)	Display the tire temperature of rear right tire.
RH RR (CNT)	Display the average RSSI frame received from the rear right tire pressure sensor.
R/L WHEEL (LH FR, RH FR, RH RR, LH RR, SPARE, NO VALUE)	Display the position that ECU thinks the rear left tire pressure sensor is located.
RR LH SENSOR	Display the identification number of rear left tire pressure sensor.
TIRE PRESS RL (bar)	Display the tire pressure of rear left tire.
TIRE TEMPERATURE RL (°C)	Display the tire temperature of rear left tire.
LH RR (CNT)	Display the average RSSI frame received from the rear left tire pressure sensor.
FR/RR SEN LOCALIZATION (OK/NG)	Display the known status of front or rear location.
LH/RH SEN LOCALIZATION (OK/NG)	Display the known status of left or right location.
LH FR TIRE PRESS SEN ID NO	Display the identification number of front left tire pressure sensor.
RH FR TIRE PRESS SEN ID NO	Display the identification number of front right tire pressure sensor.
RH RR TIRE PRESS SEN ID NO	Display the identification number of rear right tire pressure sensor.
LH RR TIRE PRESS SEN ID NO	Display the identification number of rear left tire pressure sensor.
ADC COUNTS PER DB	Display ADC count per dB.
TX PRESSURE COUNTS (bar)	Display the specific minimum pressure for front tire.
FR AXLE TIRE PRESS (bar)	Display the reference tire pressure of front tire.
RR AXLE TIRE PRESS (bar)	Display the reference tire pressure of rear tire.

WORK SUPPORT

Support Item	Description
Front or rear sensor localization was unsuccessful	Perform front or rear sensor localization.

Support Item	Description
Set autolocation disable	Perform setting that auto location function is disable.
Write identification numbers of tire pressure sensor	Perform writing identification numbers of tire pressure sensor.

ACTIVE TEST

Test Item	Description
Check left front tire pressure sensor	This test is able to check front left tire pressure sensor.
Check left rear tire pressure sensor	This test is able to check rear left tire pressure sensor.
Check right front tire pressure sensor	This test is able to check front right tire pressure sensor.
Check right rear tire pressure sensor	This test is able to check rear right tire pressure sensor.
Activation memory	This test is able to check activation memory.
Message memory	This test is able to check message memory.

ECU IDENTIFICATION

Low tire pressure warning control unit (tire pressure receiver) part number can be read.

RE/PROGRAMMING, CONFIGURATION

Refer to WT-37, "Description".

ECU DIAGNOSIS INFORMATION

LOW TIRE PRESSURE WARNING CONTROL UNIT

Reference Value

INFOID:0000000013523970

VALUES ON THE DIAGNOSIS TOOL

CAUTION:

The reference values in the table below come from the control unit calculation data. The normal values may in some cases be displayed even though the power circuit (harness) is open or shorted.

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

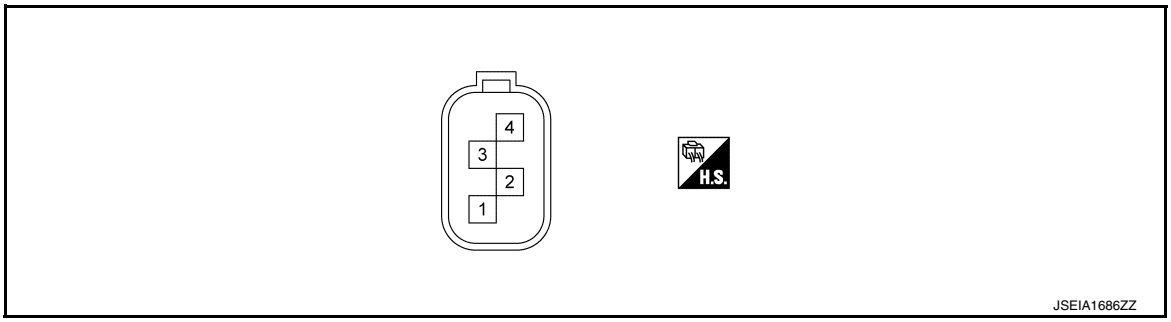
Monitor item	Condition	Display value
LOW BATTERY COUNTER 1	Ignition switch ON	0 – 255
LOW BATTERY COUNTER 2	Ignition switch ON	0 – 255
LOW BATTERY COUNTER 3	Ignition switch ON	0 – 255
LOW BATTERY COUNTER 4	Ignition switch ON	0 – 255
WHEEL SENSOR ID 1	Ignition switch ON	Display the identification number of front left tire pressure sensor.
WHEEL SENSOR ID 2	Ignition switch ON	Display the identification number of front right tire pressure sensor.
WHEEL SENSOR ID 3	Ignition switch ON	Display the identification number of rear right tire pressure sensor.
WHEEL SENSOR ID 4	Ignition switch ON	Display the identification number of rear left tire pressure sensor.
BATTERY VOLTAGE	Ignition switch ON	10.5 – 15 Volts
TRANSMITTER ID 1	Ignition switch ON	Display the identification number of front left tire pressure sensor.
TRANSMITTER ID 2	Ignition switch ON	Display the identification number of front right tire pressure sensor.
TRANSMITTER ID 3	Ignition switch ON	Display the identification number of rear right tire pressure sensor.
TRANSMITTER ID 4	Ignition switch ON	Display the identification number of rear left tire pressure sensor.
RIGHT COUNTER TX ID 1	Ignition switch ON	0 – 255
LEFT COUNTER TX ID 1	Ignition switch ON	0 – 255
UNKNOWN COUNTER TX ID 1	Ignition switch ON	0 – 255
RIGHT COUNTER TX ID 2	Ignition switch ON	0 – 255
LEFT COUNTER TX ID 2	Ignition switch ON	0 – 255
UNKNOWN COUNTER TX ID 2	Ignition switch ON	0 – 255
RIGHT COUNTER TX ID 3	Ignition switch ON	0 – 255
LEFT COUNTER TX ID 3	Ignition switch ON	0 – 255
UNKNOWN COUNTER TX ID 3	Ignition switch ON	0 – 255
RIGHT COUNTER TX ID 4	Ignition switch ON	0 – 255

Monitor item	Condition	Display value
LEFT COUNTER TX ID 4	Ignition switch ON	0 – 255
UNKNOWN COUNTER TX ID 4	Ignition switch ON	0 – 255
RF statistics LF: missed blocks	Ignition switch ON	Display the RF statistics LF: missed blocks.
Left front RSSI count	Ignition switch ON	Display the Left front RSSI count.
Left front percentage	Ignition switch ON	Display the Left front percentage. (%)
RF statistics RF: missed blocks	Ignition switch ON	Display the RF statistics RF: missed blocks.
Right front RSSI count	Ignition switch ON	Display the Right front RSSI count.
Right front percentage	Ignition switch ON	Display the Right front percentage. (%)
RF statistics RR: missed blocks	Ignition switch ON	Display the RF statistics RR: missed blocks.
Right rear RSSI count	Ignition switch ON	Display the Right rear RSSI count.
Right rear percentage	Ignition switch ON	Display the Right rear percentage. (%)
RF statistics LR: missed blocks	Ignition switch ON	Display the RF statistics LR: missed blocks.
Left rear RSSI count	Ignition switch ON	Display the Left rear RSSI count.
Left rear percentage	Ignition switch ON	Display the Left rear percentage. (%)
F/L WHEEL	Ignition switch ON	LH FR
		RH FR
		RH RR
		LH RR
		SPARE
		NO VALUE
FR LH SENSOR	Ignition switch ON	Display the identification number of front left tire pressure sensor.
TIRE PRESS FL	Ignition switch ON	Display the tire pressure of front left tire. (bar)
TIRE TEMPERATURE FL	Ignition switch ON	Display the tire temperature of front left tire. (°C)
LH FR	Ignition switch ON	0 – 255 (CNT)
F/R WHEEL	Ignition switch ON	LH FR
		RH FR
		RH RR
		LH RR
		SPARE
		NO VALUE
FR RH SENSOR	Ignition switch ON	Display the identification number of front right tire pressure sensor.

Monitor item	Condition		Display value
TIRE PRESS FR	Ignition switch ON		Display the tire pressure of front right tire. (bar)
TIRE TEMPERATURE FR	Ignition switch ON		Display the tire temperature of front right tire. (°C)
RH FR	Ignition switch ON		0 – 255 (CNT)
R/R WHEEL	Ignition switch ON		LH FR
			RH FR
			RH RR
			LH RR
			SPARE
			NO VALUE
RR RH SENSOR	Ignition switch ON		Display the identification number of rear right tire pressure sensor.
TIRE PRESS RR	Ignition switch ON		Display the tire pressure of rear right tire. (bar)
TIRE TEMPERATURE RR	Ignition switch ON		Display the tire temperature of rear right tire. (°C)
RH RR	Ignition switch ON		0 – 255 (CNT)
R/L WHEEL	Ignition switch ON		LH FR
			RH FR
			RH RR
			LH RR
			SPARE
			NO VALUE
RR LH SENSOR	Ignition switch ON		Display the identification number of rear left tire pressure sensor.
TIRE PRESS RL	Ignition switch ON		Display the tire pressure of rear left tire. (bar)
TIRE TEMPERATURE RL	Ignition switch ON		Display the tire temperature of rear left tire. (°C)
Left Rear	Ignition switch ON		0 – 255 (CNT)
FR/RR SEN LOCALIZATION	Ignition switch ON	Location is known.	OK
		Location is unknown.	NG
LH/RH SEN LOCALIZATION	Ignition switch ON	Location is known.	OK
		Location is unknown.	NG
LH FR TIRE PRESS SEN ID NO	Ignition switch ON		Display the identification number of front left tire pressure sensor.
RH FR TIRE PRESS SEN ID NO	Ignition switch ON		Display the identification number of front right tire pressure sensor.
RH RR TIRE PRESS SEN ID NO	Ignition switch ON		Display the identification number of rear right tire pressure sensor.
LH RR TIRE PRESS SEN ID NO	Ignition switch ON		Display the identification number of rear left tire pressure sensor.
ADC COUNTS PER DB	Ignition switch ON		Display ADC count per dB.

Monitor item	Condition	Display value
TX PRESSURE COUNTS	Ignition switch ON	Display the specific minimum pressure for front tire. (bar)
FR AXLE TIRE PRESS	Ignition switch ON	Display the reference tire pressure of front tire. (bar)
RR AXLE TIRE PRESS	Ignition switch ON	Display the reference tire pressure of rear tire. (bar)

TERMINAL LAYOUT



PHYSICAL VALUES

CAUTION:

When using circuit tester to measure voltage for inspection, be sure not to extend forcibly any connector terminals.

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
		Signal name	Input/Output		
1 (O)	Ground	Battery	Input	Always	8 – 16 V
2 (BR)	Ground	Ground	—	Always	0 V
3 (W)	—	CAN-H	Input/Output	—	—
4 (G)	—	CAN-L	Input/Output	—	—

DTC Index

INFOID:0000000013523971

DTC		Items (CONSULT screen terms)	Sub type (CONSULT screen terms)	Low tire pressure warning lamp	Reference
B210A	00	Power Supply circuit	[NO SUBTYPE INFORMATION]	OFF	WT-38, "DTC Description"
B210B	00	Power Supply circuit	[NO SUBTYPE INFORMATION]	OFF	WT-39, "DTC Description"
B210D	00	Power supply	[NO SUBTYPE INFORMATION]	OFF	WT-40, "DTC Description"
B210E	00	Power supply	[NO SUBTYPE INFORMATION]	OFF	WT-41, "DTC Description"
B2279	00	High frequency interference	[NO SUBTYPE INFORMATION]	OFF	WT-42, "DTC Description"
C151C	00	Tire pres sen not detected	[NO SUBTYPE INFORMATION]	ON	WT-43, "DTC Description"
C1580	00	LH/RH sen localize unsuccess	[NO SUBTYPE INFORMATION]	OFF	WT-44, "DTC Description"

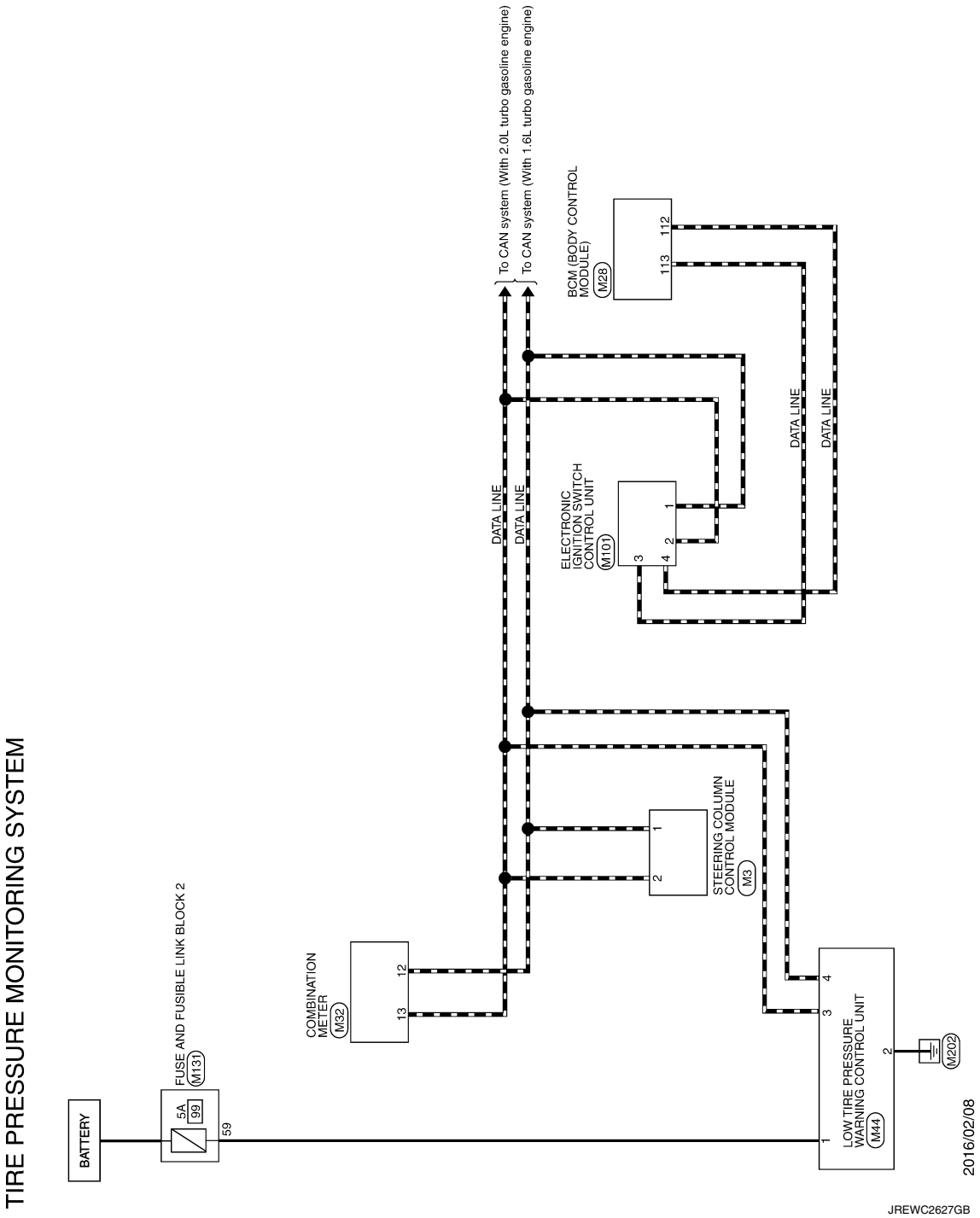
DTC		Items (CONSULT screen terms)	Sub type (CONSULT screen terms)	Low tire pressure warning lamp	Reference
C1581	00	FR/RR sen localize unsuccess	[NO SUBTYPE INFORMATION]	ON	WT-46, "DTC Description"
C1599	16	Tire pres sen battery malf	[CIRC VOLT BELOW THRESHOLD]	OFF	WT-47, "DTC Description"
C2209	00	Tire pres moni internal malf	[NO SUBTYPE INFORMATION]	ON	WT-48, "DTC Description"
P1644	00	INTERNAL CONTROL MODULE	[NO SUBTYPE INFORMATION]	OFF	WT-49, "DTC Description"
U0100	87	Communication error	[MISSING MESSAGE]	OFF	WT-50, "DTC Description"
U0155	00	COMMUNICATION ERROR (LOST)	[NO SUBTYPE INFORMATION]	OFF	WT-51, "DTC Description"
U0423	00	COMMUNICATION ERROR (INVALID)	[NO SUBTYPE INFORMATION]	OFF	WT-52, "DTC Description"
U1032	88	Chassis CAN malf	[BUS OFF]	ON	WT-53, "DTC Description"
U1131	00	Tire pres sen signal malf	[NO SUBTYPE INFORMATION]	ON	WT-54, "DTC Description"
U1162	00	FL tire pres sen comm malf	[NO SUBTYPE INFORMATION]	ON	WT-56, "DTC Description"
U1163	00	FR tire pres sen comm malf	[NO SUBTYPE INFORMATION]	ON	WT-58, "DTC Description"
U1164	00	RR tire pres sen comm malf	[NO SUBTYPE INFORMATION]	ON	WT-60, "DTC Description"
U1165	00	RL tire pres sen comm malf	[NO SUBTYPE INFORMATION]	ON	WT-62, "DTC Description"

WIRING DIAGRAM

TIRE PRESSURE MONITORING SYSTEM

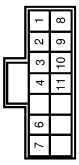
Wiring Diagram

INFOID:0000000013523972



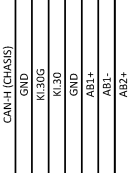
TIRE PRESSURE MONITORING SYSTEM

Connector No.	M3
Connector Name	STEERING COLUMN CONTROL MODULE
Connector Type	MB_A2045401281



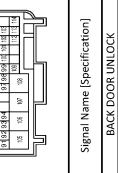
Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	CAN-L (CHASIS)
2	W	CAN-H (CHASIS)
3	BR	GND
4	R	KL30G
6	R	KL30
7	BR	GND
8	L	AB1+
9	Y	AB1-
10	V	AB2+
11	G	AB2-

Connector No.	M28
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	MB_A1665400481



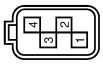
Terminal No.	Color Of Wire	Signal Name [Specification]
67	V	BACK DOOR UNLOCK
69	GR	STOP LAMP (BODY RH)
70	B	REAR TURN SIGNAL LH
71	GR	BACK-UP LAMP RH
72	Y	LICENSE PLATE LAMP RH
73	L	RR POWER WINDOW SW RH UP
74	B	RR POWER WINDOW SW RH DOWN
75	L	RR POWER WINDOW SW RH GND
76	GR	HALL SENSOR RH POWER SUPPLY
77	R	SUB BAT-
78	B	TERMINAL RELAY 15R1 CONT
80	B	REAR WIPER RELAY CONT
82	GR	TAIL LAMP (BODY LH)
83	P	TERMINAL RELAY 15R2 CONT
85	B	TAIL LAMP (BK LH)
87	R	BAT (VIA LATCHING TERMINAL RELAY 30G)
89	O	HALL SENSOR RH GND
90	V	HALL SENSOR RH SIGNAL
91	P	FUEL LEVEL SENSOR GND
92	L	FUEL LEVEL SENSOR
93	GR	FUEL LEVEL SENSOR
94	Y	FUEL FILLER LID STATUS
97	G	LATCHING TERMINAL RELAY 30G CONT 1
98	B	LATCHING TERMINAL RELAY 30G GND 1
99	W	LATCHING TERMINAL RELAY 30G GND 2
100	V	LATCHING TERMINAL RELAY 30G CONT 2
101	Y	REAR DOOR INSIDE HANDLE LAMP CONT
102	GR	AMBIENT LAMP CONT
103	V	SUB BAT RELAY CONT
105	G	RR DOOR LH UNLOCK
106	W	FUEL FILLER LID UNLOCK
107	L	RR DOOR LH LOCK
108	R	SUB BAT+
109	O	LIN (ROOF)
112	BR	CAN-L (BODY 1)
113	R	CAN-H (BODY 1)
114	B	INJECTION RELAY CONT

Connector No.	M32
Connector Name	COMBINATION METER
Connector Type	MB_A0525452726



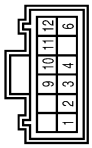
Terminal No.	Color Of Wire	Signal Name [Specification]
1	BR	GROUND
4	R	BATTERY POWER SUPPLY
12	GR	CAN-L
13	W	CAN-H
17	BR	CAN-L
18	R	CAN-H

Connector No.	M44
Connector Name	LOW TIRE PRESSURE WARNING CONTROL UNIT
Connector Type	MB_A2105404381



Terminal No.	Color Of Wire	Signal Name [Specification]
1	O	BATTERY POWER SUPPLY
2	BR	GROUND
3	W	CAN-H
4	G	CAN-L

Connector No.	M101
Connector Name	ELECTRONIC IGNITION SWITCH CONTROL UNIT
Connector Type	MB_A0265458426



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	CHASSIS CAN-L
2	W	CHASSIS CAN-H
3	R	BODY CAN 1-H
4	BR	BODY CAN 1-L
6	W	STEERING LOCK OPERATION
9	GR	REMOTE KEYLESS
10	W	POWER SUPPLY
11	BR	DIAGNOSTIC CAN-L
12	L	DIAGNOSTIC CAN-H

Connector No.	M131
Connector Name	FUSE AND FUSIBLE LINK BLOCK 2
Connector Type	MB_A2205459928

Terminal No.	Color Of Wire	Signal Name [Specification]
57	R	-
58	P	-
59	O	-
60	R	-
62	W	-
63	V	-
64	G	-
65	B	-
67	Y	-

JREWC2628GB

BASIC INSPECTION

ADDITIONAL SERVICE WHEN REPLACING LOW TIRE PRESSURE WARNING CONTROL UNIT

Description

INFOID:0000000013523973

When replacing the low tire pressure warning control unit, perform the following work. Refer to WT-31, "Work Procedure".

- Write identification numbers of tire pressure sensor
- Re/programming, Configuration

Work Procedure

INFOID:0000000013523974

1. WRITE IDTIFICATION NUMBER OF TIRE PRESSURE SENSOR

Perform write identification numbers of tire pressure sensor. Refer to WT-32, "Description".

>> GO TO 2.

2. RE/PROGRAMMING, CONFIGURATION

Perform re/programming, Configuration. Refer to WT-37, "Description".

>> WORK END

WRITE IDENTIFICATION NUMBERS OF TIRE PRESSURE SENSORS

Description

INFOID:0000000013523975

For work procedure, refer to WT-32, "Work Procedure".
This procedure must be performed:
- After replacement of a tire pressure sensor or low tire pressure warning control unit.
- After replacement of tire or road wheel.
  NOTE:
  Write identification number is unnecessary if there are no change in the positions of each wheels (tire pressure sensors) before wheel removal and after wheel installation.
- After performing tire rotation.

Work Procedure

INFOID:0000000013523976

1. WRITE IDTIFICATION NUMBER OF TIRE PRESSURE SENSOR

CAUTION:
To perform write identification number, observe the following points:
- **Never write identification number in a place where radio waves are interfered (e.g. radio tower).**
- **Never write identification number in a place close to vehicles including TPMS.**

With CONSULT
1. Turn the ignition switch ON.
2. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Work support” >> “Write identification numbers of tire pressure sensor”.

Are the identification numbers of tire pressure sensors known?

YES >> Touch “Yes”. GO TO 2.
NO >> Touch “No”. GO TO 4.

2. ENTER IDTIFICATION NUMBER

With CONSULT
1. Enter the identification numbers of all tire pressure sensors as a 8-digit number.
   NOTE:
   The first digit must be “0”.
2. Touch “Write”.

>> GO TO 3.

3. TEST DRIVE

With CONSULT
1. Perform test drive at 30 km/h (19 MPH) or more for 20 minutes or more.
2. After test drive, check the Tire pressure display on information display of combination meter. Refer to WT-19, "Tire Pressure Display".

Does the correct pressure display appear?

YES >> WORK END
NO >> GO TO 1.

4. PREPARATION BEFORE READ OUT IDETIFICATION NUMBER

1. Adjust the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".
2. Keep the tire pressure for the 2 minutes or more.

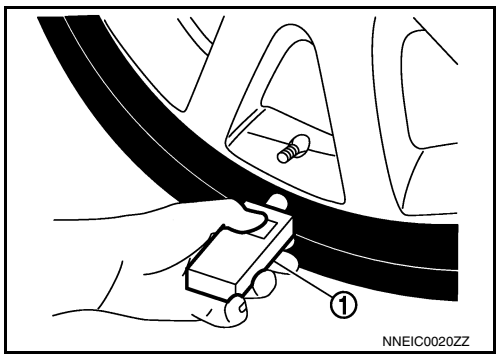
>> GO TO 5.

5. READ OUT IDETIFICATION NUMBER

With CONSULT
Perform this work for all tires.
CAUTION:
Perform the read out identification number procedure starting from the vehicle front left wheel, then repeat the procedure in the order of the front right wheel, rear right wheel, and rear left wheel.

NOTE:
Refer to the manufacture operating instructions for how to use the tire pressure sensor activation tool (J-50190 or J-45295-A).

1. Change the tire pressure at left front wheel at least 30 kPa (0.3 bar, 0.3 kgf/cm^2, 4.35 psi) until the identification number is displayed on CONSULT.
2. Contact the tire pressure sensor activation tool (J-50190 or J-45295-A) ① to the side of the tire at the location to the tire pressure sensor.
3. Press and hold the tire pressure sensor activation tool button while pushing the tool to the tire surface. (approximately for 5 seconds)
   NOTE:
   When the identification number is not displayed, rotate the tire through half a turn and then retry.
4. Check that the identifications number on CONSULT and on activation tool are same.



Is both identification number same?

YES >> GO TO 6.
NO >> Replace tire pressure sensor. Refer to WT-73, "Removal and Installation".

6. CHECK THE TIRE PRESSURE

Check the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".

>> WORK END

SET AUTO LOCATION DISABLE

Description

INFOID:0000000013523977

- Perform setting that auto location function is disable.
- For work procedure, refer to WT-34, "Work Procedure".

Work Procedure

INFOID:0000000013523978

1.SET AUTO LOCATION DISABLE

With CONSULT

1. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Work support” >> “Set autolocation disable”.
2. Touch “DISABLE”.

>> WORK END

FRONT OR REAR SENSOR LOCALIZATION WAS UNSUCCESSFUL

Description

INFOID:0000000013523979

- When DTC “C1581” is detected, perform front or rear sensor localization.
- For work procedure, refer to WT-35, "Work Procedure".

Work Procedure

INFOID:0000000013523980

1.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Erase the self-diagnosis result for “AIR PRESSURE MONITOR”.
2. Park the vehicle for 20 minutes or more.
3. Start the engine.
4. Drive the vehicle at 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
5. Stop the vehicle.
6. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “C1581” detected?

YES >> GO TO 2.
NO >> WORK END

2.PREPARATION BEFORE ACTIVE TEST

1. Adjust the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".
2. Keep the tire pressure for the 2 minutes or more.

>> GO TO 3.

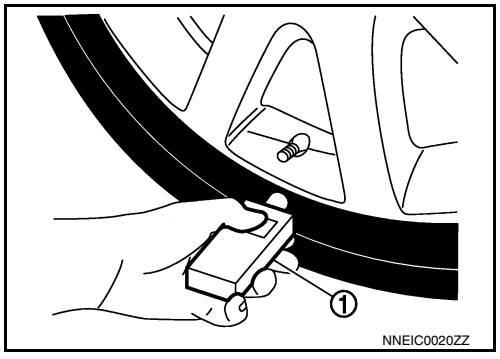
3.READ OUT TIRE PRESSURE SENSOR IDENTIFICATION NUMBER

With CONSULT

NOTE:

Refer to the manufacture operating instructions for how to use the tire pressure sensor activation tool (J-50190 or J-45295-A).

1. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Active Test” >> “Check left front tire pressure sensor”, “Check right front tire pressure sensor”, “Check right rear tire pressure sensor” and “Check left rear tire pressure sensor”.
2. Change the tire pressure at each wheel at least 30 kPa (0.3 bar, 0.3 kgf/cm^2, 4.35 psi) until the identification number is displayed on CONSULT.
3. Contact the tire pressure sensor activation tool (J-50190 or J-45295-A) ① to the side of the tire at the location to the tire pressure sensor.
4. Press and hold the tire pressure sensor activation tool button while pushing the tool to the tire surface. (approximately for 5 seconds)
   NOTE:
   When the identification number is not displayed, rotate the tire through half a turn and then retry.
5. Check that the identifications number on CONSULT and on activation tool are same.



Is both identification number same?

YES >> GO TO 4.
NO >> GO TO 1.

4.PERFORM FRONT OR REAR SENSOR LOCALIZATION

With CONSULT

1. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Work support” >> “Front or rear sensor localization was unsuccessful”.
2. Touch “START”.

Is the “COMPLETED” displayed?

YES >> GO TO 5.
NO >> Replace tire pressure sensor. Refer to WT-73, "Removal and Installation".

5. CHECK THE TIRE PRESSURE

Check the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".

>> WORK END

CONFIGURATION (TIRE PRESSURE MONITORING SYSTEM)

Description

INFOID:0000000013523981

Vehicle specification needs to be written with CONSULT because it is not written after replacing the low tire pressure warning control unit.
The configuration requires network connection. CONSULT connects to network and then it downloads the configuration data from the server. Then CONSULT writes the vehicle specification to the low tire pressure warning control unit.
Refer to WT-37, "Work Procedure".
NOTE:
For details the network connection and operation, refer to “CONSULT Operation Manual”.
The configuration no need to “save” configuration data from the low tire pressure warning control unit. The configuration data is always generated freshly at the server and then downloaded to the CONSULT.
CAUTION:
Follow the instructions listed below.
- **Complete the procedure of “Read / Write Configuration” in order.**
- **If incorrect “Read / Write Configuration”, incidents might occur.**
- **Never perform “Read / Write Configuration” except for new low tire pressure warning control unit.**

Work Procedure

INFOID:0000000013523982

1.WRITING VEHICLE SPECIFICATION

CONSULT Configuration
Perform “WRITE CONFIGURATION” for CONTROL UNIT according to “CONSULT Operation Manual”.
NOTE:
- Log in the network according to CONSULT guidance.
- For details the network connection and operation, refer to “CONSULT Operation Manual”.

>> WORK END

DTC/CIRCUIT DIAGNOSIS

B210A CONTOL UNIT POWER SUPPLY

DTC Description

INFOID:0000000013523983

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
B210A	00	Power Supply circuit (Power Supply circuit)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• 10 seconds after last engine start • TPMS is active • CAN communication is active
				Signal (terminal)	Battery power supply signal
				Threshold	Battery power supply signal < 8 V
				Diagnosis delay time	15 seconds

POSSIBLE CAUSE

Battery power supply signal received via CAN communication is too low.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine and wait for 15 seconds.
   CAUTION:
   Never drive the vehicle.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “B210A” detected?

YES >> Proceed to WT-38, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013523984

1.CHECK BATTERY AND CHARGING SYSTEM

Check battery and charging system condition. Refer to PG-102, "MAIN BATTERY : Work Procedure" and CHG-27, "Inspection Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CHECK LOW TIRE PRESSURE WARNING CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of low tire pressure warning control unit. Refer to WT-64, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace the low tire pressure warning control unit. Refer to WT-72, "Removal and Installation".
NO >> Repair or replace the malfunctioning parts.

B210B CONTOL UNIT POWER SUPPLY

DTC Description

INFOID:0000000013523985

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
B210B	00	Power Supply circuit (Power Supply circuit)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• 10 seconds after last engine start • TPMS is active • CAN communication is active
				Signal (terminal)	Battery power supply signal
				Threshold	Battery power supply signal > 16 V
				Diagnosis delay time	15 seconds

POSSIBLE CAUSE

Battery power supply signal received via CAN communication is too high.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine and wait for 15 seconds.
   CAUTION:
   Never drive the vehicle.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “B210B” detected?

YES >> Proceed to WT-39, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013523986

1.CHECK BATTERY AND CHARGING SYSTEM

Check battery and charging system condition. Refer to PG-102, "MAIN BATTERY : Work Procedure" and CHG-27, "Inspection Procedure".

Is the inspection result normal?

YES >> Replace the low tire pressure warning control unit. Refer to WT-72, "Removal and Installation".
NO >> Repair or replace the malfunctioning parts.

B210D CONTOL UNIT POWER SUPPLY

DTC Description

INFOID:0000000013523987

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
B210D	00	Power supply (Power supply)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• 10 seconds after last engine start • TPMS is active • CAN communication is active
				Signal (terminal)	Battery power supply
				Threshold	Battery power supply < 8 V
				Diagnosis delay time	15 seconds

POSSIBLE CAUSE

Battery power supply is too low.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine and wait for 15 seconds.
   CAUTION:
   Never drive the vehicle.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “B210D” detected?

YES >> Proceed to WT-40, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013523988

1.CHECK BATTERY AND CHARGING SYSTEM

Check battery and charging system condition. Refer to PG-102, "MAIN BATTERY : Work Procedure" and CHG-27, "Inspection Procedure".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair or replace the malfunctioning parts.

2.CHECK LOW TIRE PRESSURE WARNING CONTROL UNIT POWER SUPPLY AND GROUND CIRCUIT

Check power supply and ground circuit of low tire pressure warning control unit. Refer to WT-64, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace the low tire pressure warning control unit. Refer to WT-72, "Removal and Installation".
NO >> Repair or replace the malfunctioning parts.

B210E CONTOL UNIT POWER SUPPLY

DTC Description

INFOID:0000000013523989

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
B210E	00	Power supply (Power supply)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• 10 seconds after last engine start • TPMS is active • CAN communication is active
				Signal (terminal)	Battery power supply
				Threshold	Battery power supply > 16 V
				Diagnosis delay time	15 seconds

POSSIBLE CAUSE

Battery power supply is too high.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine and wait for 15 seconds.
   CAUTION:
   Never drive the vehicle.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “B210E” detected?

YES >> Proceed to WT-41, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013523990

1.CHECK BATTERY AND CHARGING SYSTEM

Check battery and charging system condition. Refer to PG-102, "MAIN BATTERY : Work Procedure" and CHG-27, "Inspection Procedure".

Is the inspection result normal?

YES >> Replace the low tire pressure warning control unit. Refer to WT-72, "Removal and Installation".
NO >> Repair or replace the malfunctioning parts.

B2279 TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000013523991

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
B2279	00	High frequency interference (No reception is possible due to high frequency interference from the sensors.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• TPMS is active • Drive the vehicle at approx. 20 km/h (12.5 MPH) or more for approx. 10 minutes.
				Signal (terminal)	—
				Threshold	Wheel sensor is no longer detected. (No data received from sensor.)
				Diagnosis delay time	10 minutes

POSSIBLE CAUSE

A source of radio frequency is near the low tire pressure warning control unit causing the wheel sensor signals to be corrupted.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine.
2. Drive the vehicle at approx. 20 km/h (12.5 MPH) or more for approx. 10 minutes.
3. Stop the vehicle.
4. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “B2279” detected?

YES >> Proceed to WT-42, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013523992

NOTE:
This is not a system error. This is a regular operating state. The replacement of low tire pressure control unit or other components of TPMS is not required.

1.MOVE THE VEHICLE

The function of an undefined tire pressure sensor was impaired by the influence of an external interference source located in the immediate vicinity. Move the vehicle from the area affected by the interference source.

>> INSPECTION END

C151C TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000013523993

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
C151C	00	Tire pres sen not detected (The tire pressure sensors were not detected.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• TPMS is active • Drive the vehicle at approx. 20 km/h (12.5 MPH) or more after parking for approx. 5 minutes or more.
				Signal (terminal)	—
				Threshold	No data received from all tire pressure sensors
				Diagnosis delay time	10 minutes

POSSIBLE CAUSE

- All wheel sensors are malfunction at the same time.
- All wheel sensors have been removed. (Winter Mode)

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Park the vehicle for 5 minutes or more.
2. Start the engine.
3. Drive the vehicle at approx. 20 km/h (12.5 MPH) or more.
4. Stop the vehicle and wait for 10 minutes.
5. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “C151C” detected?

YES >> Proceed to WT-43, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013523994

NOTE:
This is not a system error. This is a regular operating state. The replacement of low tire pressure control unit or other components of TPMS is not required.

1.CHECK THE INSTALLING STATUS OF TIRE PRESSURE SENSOR

Check the installing status of the tire pressure sensor. Refer to WT-73, "Exploded View".

NOTE:
If complete wheels with tire pressure sensors have been replaced with complete wheels without tire pressure sensors, then TPMS is not active. For activation of TPMS, complete wheels with tire pressure sensors must be installed.

>> INSPECTION END

C1580 TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000013523995

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
C1580	00	LH/RH sen localize unsuccess (Left or right sensor localization was unsuccessful.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• TPMS is active • Park the vehicle for 20 minutes or more. (Sensors will be in WAL mode after this time) • After parking, drive the vehicle at the following speed for approx. 10 minutes or more. - 20 km/h (12.5 MPH) < Vehicle speed < 120 km/h (74 MPH)
				Signal (terminal)	—
				Threshold	Left or right detection malfunction
				Diagnosis delay time	• 10 times for same wheels • 1 time for new wheels mounted

POSSIBLE CAUSE

Wheel sensors malfunctioning or no WAL information

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Park the vehicle for 20 minutes or more.
2. Start the engine.
3. Drive the vehicle at the following speed for approx. 10 minutes or more.

- 20 km/h (12.5 MPH) < Vehicle speed < 120 km/h (74 MPH)

4. Stop the vehicle.
5. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “C1580” detected?

YES >> Proceed to WT-62, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013523996

1.PREPARATION BEFORE ACTIVE TEST

1. Adjust the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".
2. Keep the tire pressure for the 2 minutes or more.

>> GO TO 2.

2.READ OUT TIRE PRESSURE SENSOR IDENTIFICATION NUMBER

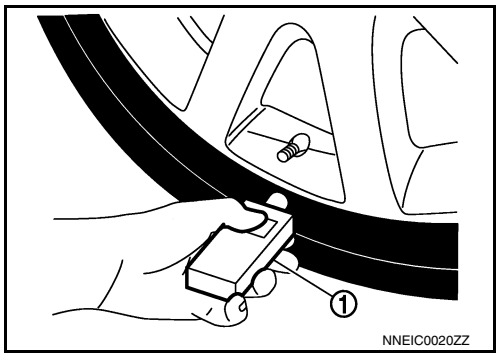
With CONSULT

NOTE:

Refer to the manufacture operating instructions for how to use the tire pressure sensor activation tool (J-50190 or J-45295-A).

1. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Active Test” >> “Check left front tire pressure sensor”, “Check right front tire pressure sensor”, “Check right rear tire pressure sensor” and “Check left rear tire pressure sensor”.

2. Change the tire pressure at each wheel at least 30 kPa (0.3 bar, 0.3 kgf/cm^2, 4.35 psi) until the identification number is displayed on CONSULT.
3. Contact the tire pressure sensor activation tool (J-50190 or J-45295-A) ① to the side of the tire at the location to the tire pressure sensor.
4. Press and hold the tire pressure sensor activation tool button while pushing the tool to the tire surface. (approximately for 5 seconds)
   NOTE:
   When the identification number is not displayed, rotate the tire through half a turn and then retry.
5. Check that the identifications number on CONSULT and on activation tool are same.



Is both identification number same?

YES >> GO TO 3.
NO >> Replace the tire pressure sensor. Refer to WT-73, "Removal and Installation".

3.CHECK THE TIRE PRESSURE

Check the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".

>> WORK END

C1581 TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000013523997

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
C1581	00	FR/RR sen localize un-success (Front or rear sensor localization was un-successful.)	[NO SUBTYPE IN-FORMATION]	Diagnosis condition	• TPMS is active • Park the vehicle for 20 minutes or more. • After parking, drive the vehicle at the 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
				Signal (terminal)	—
				Threshold	Front or rear detection malfunction
				Diagnosis delay time	• 10 times for same wheels • 1 time for new wheels mounted

POSSIBLE CAUSE

Wheel sensors malfunctioning or incorrect ECU location or error wiring to ECU.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Park the vehicle for 20 minutes or more.
2. Start the engine.
3. Drive the vehicle at 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
4. Stop the vehicle.
5. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “C1581” detected?

YES >> Proceed to WT-46, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013523998

1.PERFORM THE FRONT OR REAR SENSOR LOCALIZATION WAS UNSUCCESSFUL

With CONSULT

Perform the front or rear sensor localization was unsuccessful. Refer to WT-35, "Description".

>> INSPECTION END

C1599 TIRE PRESSURE SENSOR POWER SUPPLY

DTC Description

INFOID:0000000013523999

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
C1599	16	Tire pres sen battery malf (The tire pressure sensor battery has a malfunction.)	[CIRC VOLT BELOW THRESHOLD]	Diagnosis condition	• Ignition switch ON • CAN communication is active. • CAN communication line is connected.
				Signal (terminal)	Low battery counter signal
				Threshold	Low battery counter > 0
				Diagnosis delay time	Immediately

POSSIBLE CAUSE

Battery of the sensor at the end of life

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Turn the ignition switch ON.
   CAUTION:
   Never start the engine.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “C1599” detected?

YES >> Proceed to WT-47, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524000

1.REPLACE TIRE PRESSURE SENSOR

1. Check the tire pressure sensor battery.
2. Replace the tire pressure sensor that is low battery. Refer to WT-73, "Removal and Installation".

>> GO TO 2.

2.WRITE IDENTIFICATION NUMBERS OF TIRE PRESSURE SENSOR

With CONSULT

Perform the write identification numbers of tire pressure sensor. Refer to WT-32, "Description".

CAUTION:

Never erase the self-diagnosis result for “AIR PRESSURE MONITOR” before performing the write identification numbers of tire pressure sensor.

>> INSPECTION END

C2209 CONTROL UNIT

DTC Description

INFOID:0000000013524001

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
C2209	00	Tire pres moni internal malf (The tire pressure monitor has the internal malfunction.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	CAN communication line is connected 1 second after TPMS changes OFF mode to ON mode.
				Signal (terminal)	—
				Threshold	Internal malfunction is detected.
				Diagnosis delay time	Immediately

POSSIBLE CAUSE

Internal malfunction.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Turn the ignition switch ON.
   CAUTION:
   Never start the engine.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “C2209” detected?

YES >> Proceed to WT-48, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524002

1.PERFORM SELF-DIAGNOSIS

With CONSULT

1. Erase the self-diagnosis result for “AIR PRESSURE MONITOR”.
2. Start the engine and wait for approx. 20 seconds.
   CAUTION:
   Never drive the vehicle.
3. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “C2209” detected again?

YES >> Control unit has an internal malfunction. Replace the low tire pressure warning control unit. Refer to WT-72, "Removal and Installation".
NO >> Control unit detected an under voltage in internal circuit for a short time. INSPECTION END.

P1644 CONTROL UNIT

DTC Description

INFOID:0000000013524003

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
P1644	00	INTERNAL CONTROL MODULE (An incorrect variant coding or configuration was detected.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• Ignition switch ON • CAN communication is active
				Signal (terminal)	CAN communication signal
				Threshold	Control unit receive the signal that TPMS is not available from electric ignition switch control module
				Diagnosis delay time	Immediately

POSSIBLE CAUSE

CGW sends TPMS not available message.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Turn the ignition switch ON.
   CAUTION:
   Never start the engine.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “P1644” detected?

YES >> Proceed to WT-49, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524004

NOTE:

- This is not a system error.
- This is a regular operating state and does not justify the replacement of low tire pressure waning control unit or other components of TPMS.

1.CHECK THE SCN CODING OF ELECTRONIC IGNITION SWITCH CONTROL UNIT

Check the SCN coding of electronic ignition switch control unit.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Correct the SCN coding of electronic ignition switch control unit.

U0100 ENGINE SYSTEM

DTC Description

INFOID:0000000013524005

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
U0100	87	Communication error (Communication error)	[MISSING MESSAGE]	Diagnosis condition	• 10 seconds after last ignition switch ON • 10 seconds after last engine start • CAN communication is active • CAN communication line is connected
				Signal (terminal)	CAN communication signal
				Threshold	Message is missing
				Diagnosis delay time	0.21 seconds

POSSIBLE CAUSE

- Electrical connections may be malfunctioning.
- CAN bus may have malfunction.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine.
   CAUTION:
   Never drive the vehicle.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “U0100” detected?

YES >> Proceed to WT-50, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524006

1.PERFORM SELF-DIAGNOSIS OF ECM

With CONSULT

Perform self-diagnosis for “ENGINE”. Refer to EC-97, "CONSULT Function".

Is DTC detected?

YES >> Check the DTC. Refer to EC-142, "DTC Index".
NO >> INSPECTION END

U0155 COMBINATION METER SYSTEM

DTC Description

INFOID:0000000013524007

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
U0155	00	COMMUNICATION ERROR (LOST) (Communication with the instrument cluster has a malfunction.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• 10 seconds after last ignition switch ON • 10 seconds after last engine start • CAN communication is active • CAN communication line is connected
				Signal (terminal)	CAN communication signal
				Threshold	Message is missing
				Diagnosis delay time	1 second

POSSIBLE CAUSE

- Electrical connections may be malfunctioning.
- CAN bus may have malfunction.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine.
   CAUTION:
   Never drive the vehicle.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “U0155” detected?

YES >> Proceed to WT-51, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524008

1.CAN COMMUNICATION SYSTEM DIAGNOSIS

Perform the trouble diagnosis for CAN communication system. Refer to LAN-58, "Trouble Diagnosis Flow Chart".

Is the inspection result normal?

YES >> Perform intermittent Incident. Refer to GI-56, "Intermittent Incident".
NO >> Repair or replace the malfunctioning parts.

U0423 COMBINATION METER SYSTEM

DTC Description

INFOID:0000000013524009

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
U0423	00	COMMUNICATION ERROR (INVALID) (Implausible data were received from the instrument cluster.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• 10 seconds after last ignition switch ON • 10 seconds after last engine start • CAN communication is active • CAN communication line is connected
				Signal (terminal)	CAN communication signal
				Threshold	Control unit receive the invalid data from combination meter
				Diagnosis delay time	60 seconds

POSSIBLE CAUSE

Combination meter does not send valid values.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine.
   CAUTION:
   Never drive the vehicle.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “U0423” detected?

YES >> Proceed to WT-52, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524010

1.PERFORM SELF-DIAGNOSIS OF COMBINATION METER

With CONSULT

Perform self-diagnosis for “METER/M&A”. Refer to MWI-68, "CONSULT Function".

Is DTC detected?

YES >> Check the DTC. Refer to MWI-85, "DTC Index".
NO >> INSPECTION END

U1032 CAN COMMUNICATION

DTC Description

INFOID:0000000013524011

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
U1032	88	Chassis CAN malf (Chassis CAN communication has a malfunction.)	[BUS OFF]	Diagnosis condition	• 10 seconds after last ignition switch ON • CAN communication is active • CAN communication line is connected
				Signal (terminal)	CAN communication signal
				Threshold	CAN controller detects Bus off
				Diagnosis delay time	Immediate

POSSIBLE CAUSE

ECU unable to communicate on bus, possible wiring problem or ECU malfunction.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Turn the ignition switch ON.
   CAUTION:
   Never start the engine.
2. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “U1032” detected?

YES >> Proceed to WT-53, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524012

1.CAN COMMUNICATION SYSTEM DIAGNOSIS

Perform the trouble diagnosis for CAN communication system. Refer to LAN-58, "Trouble Diagnosis Flow Chart".

Is the inspection result normal?

YES >> Replace the low tire pressure warning control unit. Refer to WT-72, "Removal and Installation".
NO >> Repair or replace the malfunctioning parts.

U1131 TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000013524013

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
U1131	00	Tire pres sen signal malf (Signal transmission between at least one tire pressure sensor and the tire pressure monitor has a malfunction.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• TPMS is active • Drive the vehicle at approx. 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
				Signal (terminal)	Tire pressure sensor signal
				Threshold	No Frames received from tire pressure sensor(s)
				Diagnosis delay time	10 minutes

POSSIBLE CAUSE

A sensor fitted to the vehicle stops working and position of wheel sensor is unknown

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine.
2. Drive the vehicle at 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
3. Stop the vehicle.
4. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “U1131” detected?

YES >> Proceed to WT-54, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524014

1.CHECK THE INSTALLATION STATUS OF TIRE PRESSURE SENSOR

Check the installation status of tire pressure sensor. Refer to WT-73, "Exploded View".

Are the correct tire pressure sensors installed?

YES >> GO TO 3.
NO >> GO TO 2.

2.REPLACE TIRE PRESSURE SENSOR

Replace the incorrect tire pressure sensors with the correct tire pressure sensors. Refer to WT-73, "Removal and Installation".

>> GO TO 3.

3.PREPARATION BEFORE ACTIVE TEST

1. Adjust the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".
2. Keep the tire pressure for the 2 minutes or more.

>> GO TO 4.

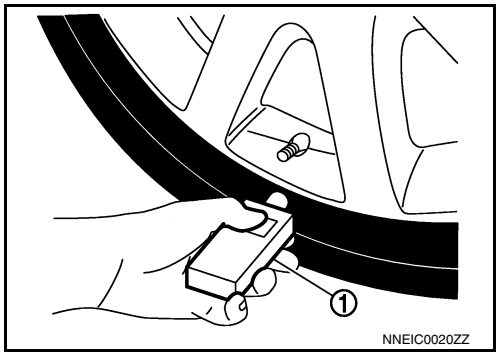
4.READ OUT TIRE PRESSURE SENSOR IDENTIFICATION NUMBER

With CONSULT

NOTE:

Refer to the manufacture operating instructions for how to use the tire pressure sensor activation tool (J-50190 or J-45295-A).

1. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Active Test” >> “Check left front tire pressure sensor”, “Check right front tire pressure sensor”, “Check right rear tire pressure sensor” and “Check left rear tire pressure sensor”.
2. Change the tire pressure at each wheel at least 30 kPa (0.3 bar, 0.3 kgf/cm^2, 4.35 psi) until the identification number is displayed on CONSULT.
3. Contact the tire pressure sensor activation tool (J-50190 or J-45295-A) ① to the side of the tire at the location to the tire pressure sensor.
4. Press and hold the tire pressure sensor activation tool button while pushing the tool to the tire surface. (approximately for 5 seconds)
   NOTE:
   When the identification number is not displayed, rotate the tire through half a turn and then retry.
5. Check that the identifications number on CONSULT and on activation tool are same.



Is both identification number same?

YES >> GO TO 5.
NO >> Replace the tire pressure sensor. Refer to WT-73, "Removal and Installation".

5.CHECK THE TIRE PRESSURE

Check the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".

>> WORK END

U1162 TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000013524015

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
U1162	00	FL tire pres sen comm malf (Front left tire pressure sensor communication has a malfunction.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• TPMS is active • Drive the vehicle at approx. 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
				Signal (terminal)	Tire pressure sensor signal
				Threshold	No frames received from front left tire pressure sensor
				Diagnosis delay time	10 minutes

POSSIBLE CAUSE

- Tire pressure sensor has reached its end of life.
- Tire pressure sensor has been damaged in wheel.
- Tire pressure sensor has been removed from wheel.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine.
2. Drive the vehicle at 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
3. Stop the vehicle.
4. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “U1162” detected?

YES >> Proceed to WT-56, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524016

1.PREPARATION BEFORE ACTIVE TEST

1. Adjust the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".
2. Keep the tire pressure for the 2 minutes or more.

>> GO TO 2.

2.CHECK TIRE PRESSURE SENSOR FUNCTION

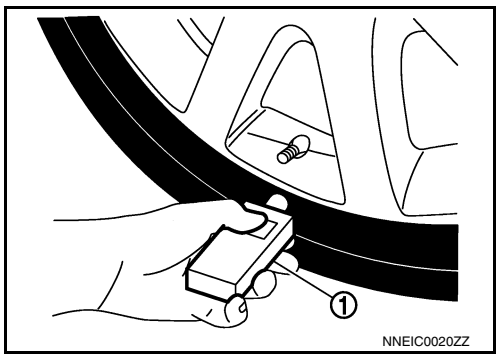
With CONSULT

NOTE:

Refer to the manufacture operating instructions for how to use the tire pressure sensor activation tool (J-50190 or J-45295-A).

1. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Active Test” >> “Check left front tire pressure sensor”.
2. Change the tire pressure at front left wheel at least 30 kPa (0.3 bar, 0.3 kgf/cm^2, 4.35 psi) until the identification number is displayed on CONSULT.

3. Contact the tire pressure sensor activation tool (J-50190 or J-45295-A) ① to the side of the tire at the location to the tire pressure sensor.
4. Press and hold the tire pressure sensor activation tool button while pushing the tool to the tire surface. (approximately for 5 seconds)
   NOTE:
   When the identification number is not displayed, rotate the tire through half a turn and then retry.
5. Check that the identifications number on CONSULT and on activation tool are same.



Is both identification number same?

YES >> GO TO 3.
NO >> Replace tire pressure sensor. Refer to WT-73, "Removal and Installation".

3.CHECK THE TIRE PRESSURE

Check the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".

>> WORK END

U1163 TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000013524017

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
U1163	00	FR tire pres sen comm malf (Front right tire pressure sensor communication has a malfunction.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• TPMS is active • Drive the vehicle at approx. 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
				Signal (terminal)	Tire pressure sensor signal
				Threshold	No frames received from front right tire pressure sensor
				Diagnosis delay time	10 minutes

POSSIBLE CAUSE

- Tire pressure sensor has reached its end of life.
- Tire pressure sensor has been damaged in wheel.
- Tire pressure sensor has been removed from wheel.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine.
2. Drive the vehicle at 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
3. Stop the vehicle.
4. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “U1163” detected?

YES >> Proceed to WT-58, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524018

1.PREPARATION BEFORE ACTIVE TEST

1. Adjust the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".
2. Keep the tire pressure for the 2 minutes or more.

>> GO TO 2.

2.CHECK TIRE PRESSURE SENSOR FUNCTION

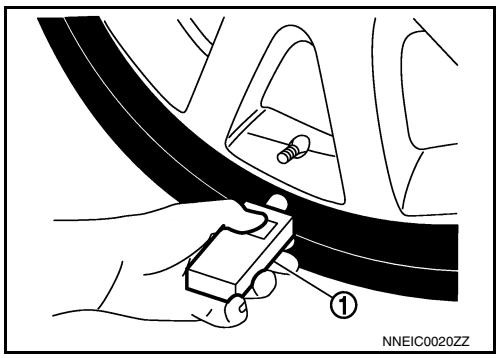
With CONSULT

NOTE:

Refer to the manufacture operating instructions for how to use the tire pressure sensor activation tool (J-50190 or J-45295-A).

1. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Active Test” >> “Check right front tire pressure sensor”.
2. Change the tire pressure at front right wheel at least 30 kPa (0.3 bar, 0.3 kgf/cm^2, 4.35 psi) until the identification number is displayed on CONSULT.

3. Contact the tire pressure sensor activation tool (J-50190 or J-45295-A) ① to the side of the tire at the location to the tire pressure sensor.
4. Press and hold the tire pressure sensor activation tool button while pushing the tool to the tire surface. (approximately for 5 seconds)
   NOTE:
   When the identification number is not displayed, rotate the tire through half a turn and then retry.
5. Check that the identifications number on CONSULT and on activation tool are same.



Is both identification number same?

YES >> GO TO 3.
NO >> Replace tire pressure sensor. Refer to WT-73, "Removal and Installation".

3.CHECK THE TIRE PRESSURE

Check the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".

>> WORK END

U1164 TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000013524019

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
U1164	00	RR tire pres sen comm malf (Rear right tire pressure sensor communication has a malfunction.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• TPMS is active • Drive the vehicle at approx. 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
				Signal (terminal)	Tire pressure sensor signal
				Threshold	No frames received from rear right tire pressure sensor
				Diagnosis delay time	10 minutes

POSSIBLE CAUSE

- Tire pressure sensor has reached its end of life.
- Tire pressure sensor has been damaged in wheel.
- Tire pressure sensor has been removed from wheel.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine.
2. Drive the vehicle at 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
3. Stop the vehicle.
4. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “U1164” detected?

YES >> Proceed to WT-60, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524020

1.PREPARATION BEFORE ACTIVE TEST

1. Adjust the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".
2. Keep the tire pressure for the 2 minutes or more.

>> GO TO 2.

2.CHECK TIRE PRESSURE SENSOR FUNCTION

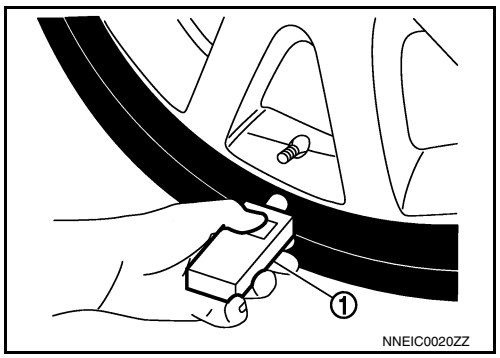
With CONSULT

NOTE:

Refer to the manufacture operating instructions for how to use the tire pressure sensor activation tool (J-50190 or J-45295-A).

1. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Active Test” >> “Check right rear tire pressure sensor”.
2. Change the tire pressure at rear right wheel at least 30 kPa (0.3 bar, 0.3 kgf/cm^2, 4.35 psi) until the identification number is displayed on CONSULT.

3. Contact the tire pressure sensor activation tool (J-50190 or J-45295-A) ① to the side of the tire at the location to the tire pressure sensor.
4. Press and hold the tire pressure sensor activation tool button while pushing the tool to the tire surface. (approximately for 5 seconds)
   NOTE:
   When the identification number is not displayed, rotate the tire through half a turn and then retry.
5. Check that the identifications number on CONSULT and on activation tool are same.



Is both identification number same?

YES >> GO TO 3.
NO >> Replace tire pressure sensor. Refer to WT-73, "Removal and Installation".

3.CHECK THE TIRE PRESSURE

Check the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".

>> WORK END

U1165 TIRE PRESSURE SENSOR

DTC Description

INFOID:0000000013524021

DTC DETECTION LOGIC

DTC		CONSULT screen terms (Trouble diagnosis content)	CONSULT screen terms [Malfunction type]	DTC detection condition	
U1165	00	RL tire pres sen comm malf (Rear left tire pressure sensor communication has a malfunction.)	[NO SUBTYPE INFORMATION]	Diagnosis condition	• TPMS is active • Drive the vehicle at approx. 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
				Signal (terminal)	Tire pressure sensor signal
				Threshold	No frames received from rear left tire pressure sensor
				Diagnosis delay time	10 minutes

POSSIBLE CAUSE

- Tire pressure sensor has reached its end of life.
- Tire pressure sensor has been damaged in wheel.
- Tire pressure sensor has been removed from wheel.

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION

With CONSULT

1. Start the engine.
2. Drive the vehicle at 20 km/h (12.5 MPH) or more for approx. 10 minutes or more.
3. Stop the vehicle.
4. Perform self-diagnosis for “AIR PRESSURE MONITOR”.

Is DTC “U1165” detected?

YES >> Proceed to WT-62, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: Refer to GI-56, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000013524022

1.PREPARATION BEFORE ACTIVE TEST

1. Adjust the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".
2. Keep the tire pressure for the 2 minutes or more.

>> GO TO 2.

2.CHECK TIRE PRESSURE SENSOR FUNCTION

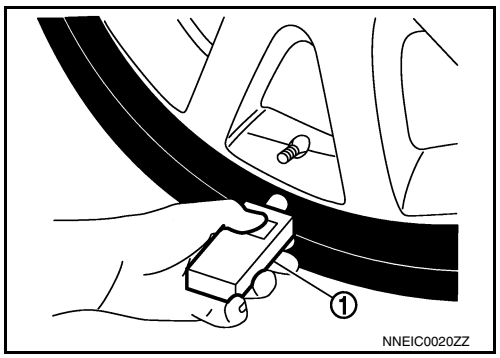
With CONSULT

NOTE:

Refer to the manufacture operating instructions for how to use the tire pressure sensor activation tool (J-50190 or J-45295-A).

1. On the CONSULT screen, select “AIR PRESSURE MONITOR” >> “Active Test” >> “Check left rear tire pressure sensor”.
2. Change the tire pressure at rear left wheel at least 30 kPa (0.3 bar, 0.3 kgf/cm^2, 4.35 psi) until the identification number is displayed on CONSULT.

3. Contact the tire pressure sensor activation tool (J-50190 or J-45295-A) ① to the side of the tire at the location to the tire pressure sensor.
4. Press and hold the tire pressure sensor activation tool button while pushing the tool to the tire surface. (approximately for 5 seconds)
   NOTE:
   When the identification number is not displayed, rotate the tire through half a turn and then retry.
5. Check that the identifications number on CONSULT and on activation tool are same.



Is both identification number same?

YES >> GO TO 3.
NO >> Replace tire pressure sensor. Refer to WT-73, "Removal and Installation".

3.CHECK THE TIRE PRESSURE

Check the all tire pressure to the specified value. Refer to WT-76, "Tire Air Pressure".

>> WORK END

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000013524023

1. CHECK LOW TIRE PRESSURE WARNING CONTROL UNIT POWER SUPPLY

1. Turn the ignition switch OFF.
2. Disconnect low tire pressure warning control unit harness connector.
3. Check the voltage between the low tire pressure warning control unit harness connector and ground.

Terminals			Voltage
(+)		(–)	
Low tire pressure warning control unit		Ground	
Connector	Terminal		
M44	1	—	Battery voltage

Is the inspection result normal?

YES >> GO TO 3.
NO >> GO TO 2.

2. CHECK LOW TIRE PRESSURE WARNING CONTROL UNIT POWER SUPPLY CIRCUIT

1. Check the 5A fuse l(#99).
2. Disconnect fuse and fusible link block 2 harness connector.
3. Check the continuity between low tire pressure warning control unit harness connector and fuse and fusible link block 2 harness connector.

Low tire pressure warning control unit		Fuse and fusible link block 2		Continuity
Connector	Terminal	Connector	Terminal	
M44	1	M131	59	Existed

4. Check the continuity between low tire pressure warning control unit harness connector and ground.

Low tire pressure warning control unit		Ground	Continuity
Connector	Terminal		
M44	1	—	Not existed

Is the inspection result normal?

YES >> Perform trouble diagnosis for battery power supply. Refer to PG-15, "Wiring Diagram - BATTERY POWER SUPPLY -".
NO >> Repair or replace error-detected parts.

3. CHECK LOW TIRE PRESSURE WARNING CONTROL UNIT GROUND CIRCUIT

Check the continuity between low tire pressure warning control unit harness connector and ground.

Low tire pressure warning control unit		Ground	Continuity
Connector	Terminal		
M44	2	—	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair or replace error-detected parts.

4. CHECK TERMINAL

1. Check the low tire pressure warning control unit pin terminals for damage or loose connection with harness connector.
2. Check the fuse and fusible link block 2 pin terminals for damage or loose connection with harness connector.

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair or replace error-detected parts.

SYMPTOM DIAGNOSIS

NOISE, VIBRATION AND HARSHNESS (NVH) TROUBLESHOOTING

NVH Troubleshooting Chart

INFOID:0000000013524024

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

Reference			WT-70, "Exploded View"	WT-70, "Inspection"	WT-67, "Adjustment"	WT-76, "Tire Air Pressure"	WT-70, "Inspection"	—	—	WT-76, "Tire Air Pressure"	NVH in DLN section.	NVH in DLN section.	NVH in FAX and FSU sections.	NVH in RAX and RSU sections.	Refer to TIRE in this chart.	Refer to ROAD WHEEL in this chart.	NVH in FAX, RAX section.	NVH in BR section.	NVH in ST section.
Possible cause and SUSPECTED PARTS			Improper installation, looseness	Out-of-round	Unbalance	Incorrect tire pressure	Uneven tire wear	Deformation or damage	Non-uniformity	Incorrect tire size	PROPELLER SHAFT	DIFFERENTIAL	FRONT AXLE AND FRONT SUSPENSION	REAR AXLE AND REAR SUSPENSION	TIRES	ROAD WHEELS	DRIVE SHAFT	BRAKE	STEERING
Symp-tom	TIRE	Noise	×	×	×	×	×	×	×	—	×	×	×	×	—	×	×	×	×
		Shake	×	×	×	×	×	×	—	×	×	—	×	×	—	×	×	×	×
		Vibration	—	—	—	×	—	—	—	×	×	—	×	×	—	—	×	—	×
		Shimmy	×	×	×	×	×	×	×	×	—	—	×	×	—	×	—	×	×
		Judder	×	×	×	×	×	×	—	×	—	—	×	×	—	×	—	×	×
		Poor quality ride or handling	×	×	×	×	×	×	—	×	—	—	×	—	×	×	—	—	—
	ROAD WHEEL	Noise	×	×	×	—	—	×	—	—	×	×	×	×	×	—	×	×	×
		Shake	×	×	×	—	—	×	—	—	×	—	×	×	×	—	×	×	×
		Shimmy, Judder	×	×	×	—	—	×	—	—	—	—	×	×	×	—	—	×	×
		Poor quality ride or handling	×	×	×	—	—	×	—	—	—	—	×	×	×	—	—	—	—

×: Applicable, —: Not applicable

PERIODIC MAINTENANCE

ROAD WHEEL

Adjustment

INFOID:0000000013524025

BALANCING WHEELS

Preparation Before Adjustment

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 traces of releasing agent from the road wheel.**

Wheel Balance Adjustment (Aluminum Wheel)

- 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 road wheels.
- The details of the adjustment procedure are different for each model of wheel balancer. Therefore, refer to each instruction manual.

1. Set road wheel on tire balance machine using the center hole as a guide. Start the tire balance machine.
2. When inner and outer unbalance values are shown on the tire balance machine indicator, multiply outer unbalance value by 5/3 to determine balance weight that should be used. Select the outer balance weight with a value closest to the calculated value above and install to the designated outer position of, or at the designated angle in relation to the road wheel.

   CAUTION:

   - **Never install the inner balance weight before installing the outer balance weight.**
   - **Before installing the balance weight, always to clean the mating surface of the road wheel.**

a. Indicated unbalance value × 5/3 = balance weight to be installed

   Calculation example:

   23 g (0.81 oz) × 5/3 = 38.33 g (1.35 oz) ⇒ 37.5 g (1.32 oz) balance weight (closer to calculated balance weight value)

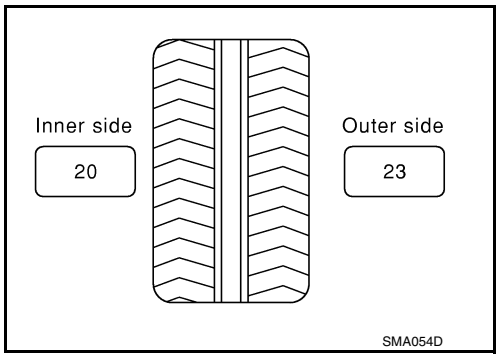
   NOTE:

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

   Example:

   36.2 ⇒ 35 g (1.23 oz)

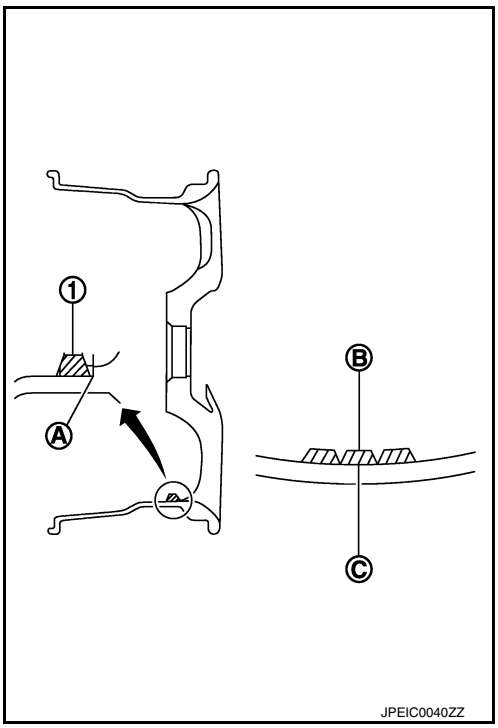
   36.3 ⇒ 37.5 g (1.32 oz)



b. Installed balance weight in the position.

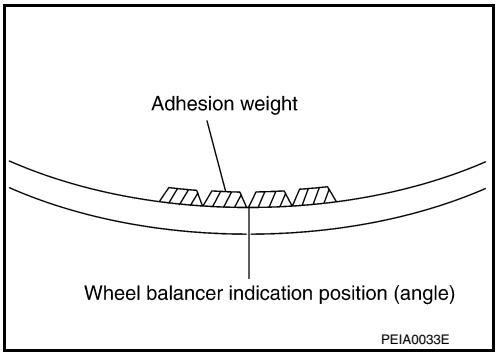
- When installing balance weight ① to road wheels, set it into the grooved area Ⓐ on the inner wall of the road wheel as shown in the figure so that the balance weight center Ⓑ is aligned with the tire balance machine indication position (angle) Ⓒ.

CAUTION:
- **Always use genuine adhesion balance weights.**
- **Balance weights are non-reusable; always replace with new ones.**
- **Never install three or more sheets of balance weight.**



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

CAUTION:
Never install one balance weight sheet on top of another.



3. Start the tire balance machine again.
4. Install drive-in balance weight on inner side of road wheel in the tire balance machine indication position (angle).

CAUTION:
Never install three or more balance weight.

5. Start the tire balance machine. Check that the inner and outer residual unbalance value is within the allowable unbalance value.

CAUTION:
If either residual unbalance value exceeds limit, repeat installation procedures.

Allowable unbalance value

Dynamic (At flange) : Refer to WT-76, "Road Wheel".

Static (At flange) : Refer to WT-76, "Road Wheel".

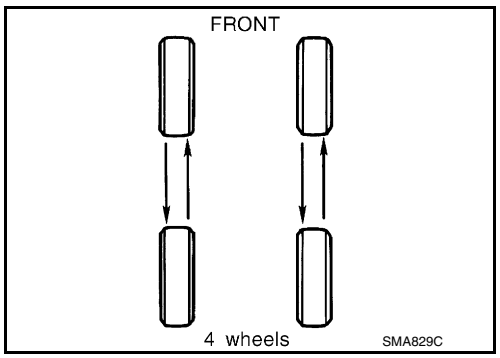
TIRE ROTATION

- Change round wheel and tire assemblies on front and rear axle.

CAUTION:
Maintain running direction of wheel and tire assembles.
Otherwise handling characteristics and handling comfort may be impaired and tire wear increased.

- Follow the maintenance schedule for tire rotation service intervals.
  - FOR NORTH AMERICA: Refer to MA-4, "FOR NORTH AMERICA : Explanation of General Maintenance".
  - FOR MEXICO: Refer to MA-5, "FOR MEXICO : General Maintenance".
- When installing the wheel, tighten wheel bolts to the specified torque. Refer to WT-70, "Exploded View".

  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.**
  - **Be careful not to tighten wheel bolt at torque exceeding the criteria.**
  - **Use genuine wheel bolts.**
- Perform the ID registration, after tire rotation. Refer to WT-32, "Description".

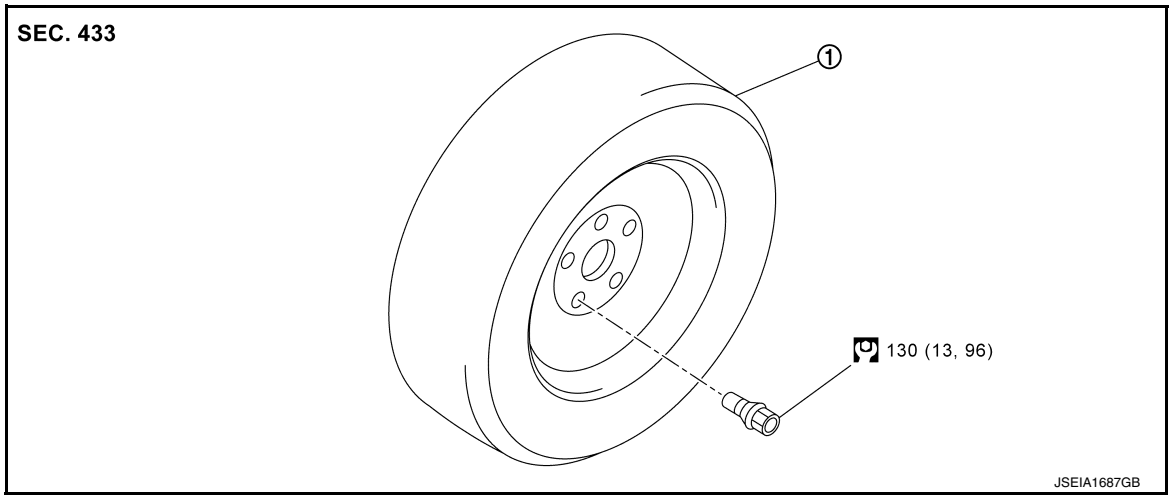


REMOVAL AND INSTALLATION

ROAD WHEEL TIRE ASSEMBLY

Exploded View

INFOID:0000000013524026



1. Tire assembly

: N·m (kg-m, ft-lb)

Removal and Installation

INFOID:0000000013524027

REMOVAL

1. Remove wheel caps.(Vehicles with wheel caps)
2. Remove wheel bolts with power tool (commercial service tool).
3. Remove tire assembly.

INSTALLATION

Note the following, install in the reverse order of removal.

- Mount tire assembly and tighten wheel bolts.

: 130 N·m (13 kg-m, 96 ft-lb)

- When replacing or rotating wheels, perform the ID registration. Refer to WT-32, "Description".

Inspection

INFOID:0000000013524028

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 aluminum wheel and mount on a tire balance machine.

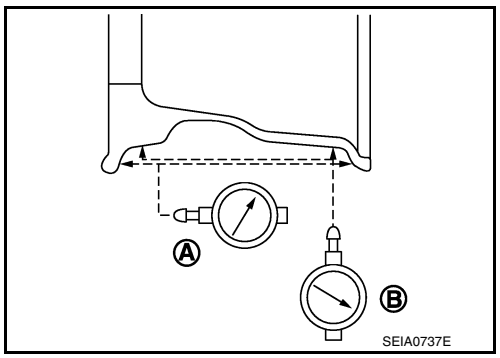
b. Set dial indicator as shown in the figure.

c. Check runout, if the axial runout Ⓐ or radial runout Ⓑ exceeds the limit, replace aluminum wheel.

Limit

Axial runout (A) : **Refer to WT-76, "Road Wheel".**

Radial runout (B) : **Refer to WT-76, "Road Wheel".**



Removal of Tire After Using a Puncture Repair Agent

INFOID:0000000013524029

CAUTION:

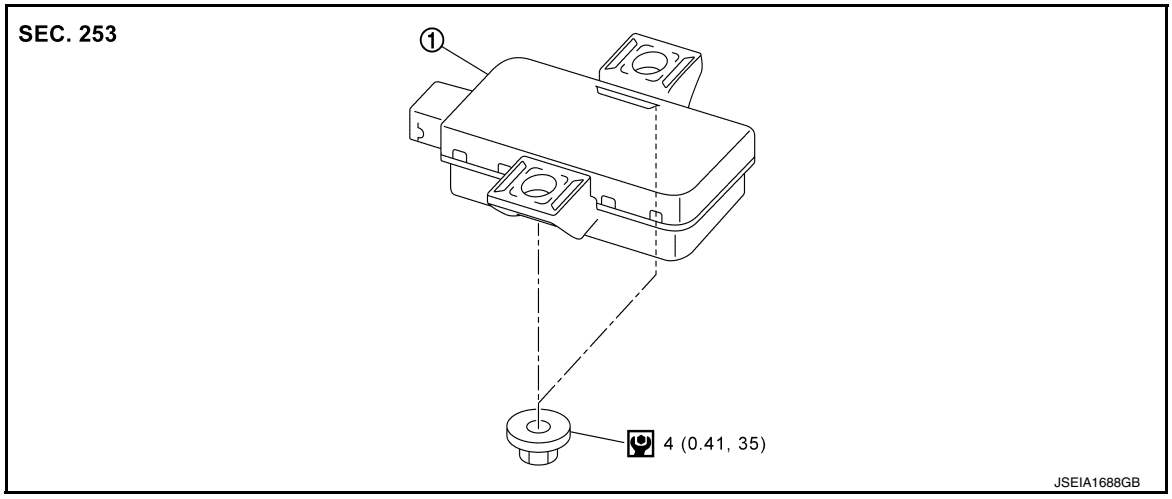
- **Never spill the sealant in the tire during repair.**
- **If the sealant spills, wipe it out with a waste cloth.**
- **Never reuse the repair kit hose used for a temporary repair of a flat tire because some of the puncture repair agent remains in the hose.**
- **After using a puncture repair agent, replace tire pressure sensor with a new one.**

1. Remove tires with power tool (commercial service tool).
2. Remove tire from road wheel, using a tire changer.
   CAUTION:
   - **When deflating a tire, cover the valve with a waste cloth to prevent the sealant from splattering.**
   - **Never spill the sealant in the tire during repair.**
   - **Wipe out sealant spilled on the road wheel, tire, tire changer, and floor with a waste cloth.**
3. Clean inside of the removed tire.
   - Fix a tire blowout, if repairable.
     NOTE:
     Sealant blocks holes caused by blowouts. These holes may not be found and repaired, depending on the level of blowout. Therefore, it is necessary to check tire air pressure frequently and replace tire with a new one, if the air pressure is decreasing.
   - Replace tire with a new one, if not repairable.
     CAUTION:
     Never dispose of tires with the sealant contained.

LOW TIRE PRESSURE WARNING CONTROL UNIT

Exploded View

INFOID:0000000013524030



① Low tire pressure warning control unit

: N·m (kg-m, in-lb)

Removal and Installation

INFOID:0000000013524031

REMOVAL

1. Read out data from low tire pressure warning control unit.
   NOTE:
   When replacing low tire pressure warning control unit.
2. Switch off ignition and remove transmitter key.
3. Lift vehicle on vehicle lift.
4. Disconnect low tire pressure warning control unit connector.
5. Remove nuts from vehicle.
6. Remove the low tire pressure warning control unit.

INSTALLATION

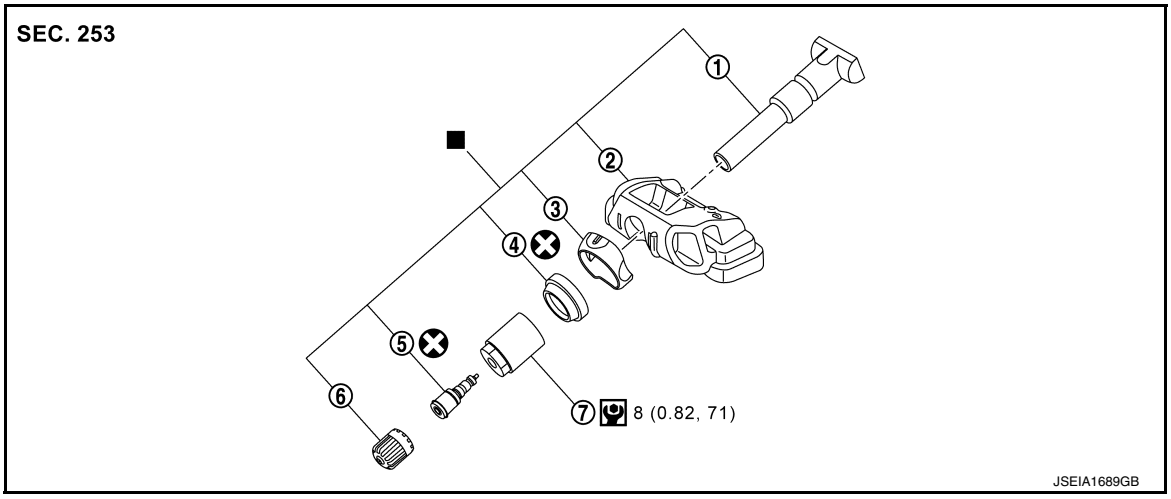
Note the following, and install in the reverse order of removal.

- Perform ID registration after replacing low tire pressure warning control unit. Refer to WT-32, "Description".
  NOTE:
  Transfer previously read out data using the diagnostic system to the new low tire pressure warning control unit.

TIRE PRESSURE SENSOR

Exploded View

INFOID:0000000013524032



① Valve body ② Tire pressure sensor ③ Washer
④ Grommet seal ⑤ Valve core ⑥ Valve cap
⑦ Valve nut

■ : Parts that are replaced as a set when the tire is replaced.

: N·m (kg-m, in-lb)

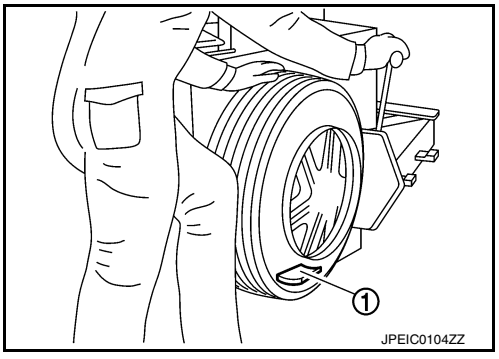
: Always replace after every disassembly.

Removal and Installation

INFOID:0000000013524033

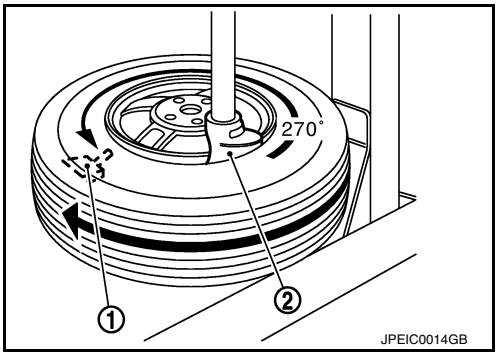
REMOVAL

1. Remove tires with power tool (commercial service tool). Refer to WT-70, "Removal and Installation".
2. Remove valve cap, valve core and then deflate tire.
   NOTE:
   If the tire is reused, apply a matching mark to the position of the tire road wheel valve hole for the purpose of wheel balance adjustment after installation.
3. Remove valve nut retaining tire pressure sensor and allow tire pressure sensor to fall into tire.
4. Use the tire changer and disengage the tire beads.
   CAUTION:
   - **Verify that the tire pressure sensor ① is at the bottom of the tire while performing the above.**
   - **Be sure not to damage the road wheel or tire pressure sensor.**



5. Apply bead cream or an equivalent to the tire beads.
6. Set tire onto the tire changer turntable so that the tire pressure sensor inside the tire is located close to the road wheel valve hole.

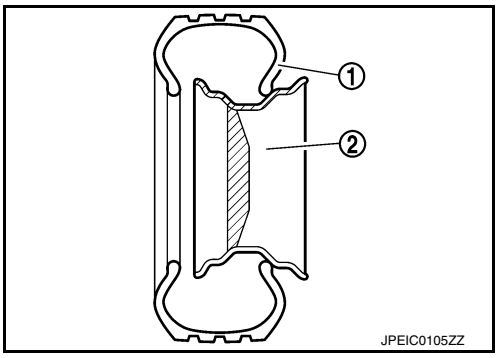
7. Turn tire so that valve hole is at bottom and bounce so that tire pressure sensor ① is near valve hole. Carefully lift tire onto turntable and position valve hole (and tire pressure sensor) 270 degree from mounting/dismounting head ②.
CAUTION:
Be sure not to damage the road wheel and tire pressure sensor.



8. Remove tire pressure sensor from tire.
9. Remove the grommet seal.
10. Remove the washer and valve body.

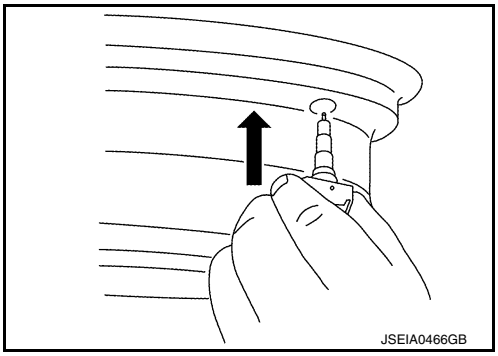
INSTALLATION

1. Clean tire pressure sensor. (When reusing tire pressure sensor)
CAUTION:
- **Only remove dirt with a clean, lint-free cloth.**
- **Do not use compressed air, solvent or cleaner.**
2. Apply bead cream or an equivalent to the tire beads.
3. Install the tire inside beads ① onto the road wheel ② in the position shown in the figure.

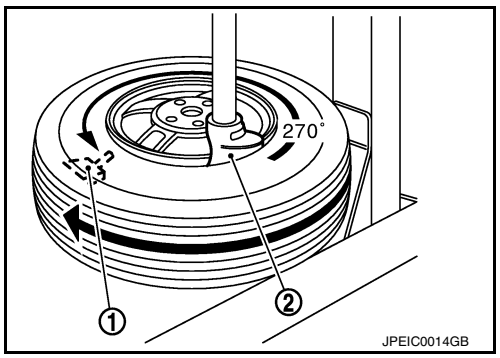


4. Install grommet seal and washer to the tire pressure sensor.
CAUTION:
- **Never reuse grommet seal.**
- **Insert grommet seal all the way to the base.**

5. Hold tire pressure sensor as shown in the figure, and press the sensor in the direction shown by arrow (⬅) to bring it into absolute contact with valve hole. After this, tighten valve nut to the specified torque.
CAUTION:
- **Never reuse valve core.**
- **Check that grommet seal is free of foreign matter.**
- **Check that grommet seal contacts horizontally with road wheel.**
- **Manually tighten valve nut all the way to the wheel. (Never use a power tool to avoid impact.)**



6. Set the tire onto the turntable so that the tire changer arm ② is at a position approximately 270° from the tire pressure sensor ①.
CAUTION:
Be sure that the arm does not contact the tire pressure sensor.



7. Install the tire outer side beads onto the road wheel.
CAUTION:
When installing, check that the tire does not turn together with the road wheel.
8. Check the tire pressure for all wheels and adjust to the specified value. Refer to WT-76, "Tire Air Pressure".
CAUTION:
The tire pressure must not exceed 330kPa (3.3kg/cm^2, 47.8psi).
NOTE:
Before adding air, align the tire with the position of the matching mark applied at the time of removal.
9. Install tires with power tool (commercial service tool). Refer to WT-70, "Exploded View".
10. Perform tire pressure sensor ID registration. Refer to WT-32, "Description".

SERVICE DATA AND SPECIFICATIONS (SDS)

SERVICE DATA AND SPECIFICATIONS (SDS)

Road Wheel

INFOID:0000000013524035

Item		Limit
Runout	Axial runout	Less than 0.3 mm (0.012 in)
	Radial runout	
Allowable unbalance	Dynamic (At flange)	Less than 5 g (0.17 oz) (one side)
	Static (At flange)	Less than 10 g (0.35 oz)

Tire Air Pressure

INFOID:0000000013524036

EXCEPT FOR MEXICO

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

Tire size		Air pressure	
		Front	Rear
235/50R18 97H	2WD	240 (2.4, 35)	
	AWD	240 (2.4, 35)	200 (2.0, 29)
235/45R19 95V		220 (2.2, 32)	

FOR MEXICO

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

Tire size	Air pressure			
	Normal condition		Full condition	
	Front	Rear	Front	Rear
235/50R18 97V	220 (2.2, 32)	210 (2.1, 30)	300 (3.0, 43.5)	
235/45R19 95V	220 (2.2, 32)		300 (3.0, 43.5)	