



SERVICE BULLETIN

Classification:

WT13-005

Reference:

NTB13-088

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September 26, 2013

LOW TIRE PRESSURE WARNING SYSTEM; BULLETINS SUMMARY

APPLIED VEHICLES: All vehicles with:
 Tire Pressure Monitor System (TPMS)
 Or Low Tire Pressure Warning System (LTPWS)

SERVICE INFORMATION

This bulletin has compiled Tire Pressure Monitor System (TPMS) and Low Tire Pressure Warning System (LTPWS) information for:

- Basic Diagnosing of TPMS/LTPWS systems.
- Aftermarket wheels.
- Inflating/deflating tires with TPMS/LTPWS sensors.
- Moving TPMS/LTPWS wheel assemblies from one vehicle to another and TPMS/LTPWS sensor registration.
- Radio Frequency interference causing a "No Data" (C1708, C1709, C1710, C1711) condition.
- Sensor leaks.
- Air pressure changes with altitude and ambient temperatures.

Nissan Bulletins are intended for use by qualified technicians, not 'do-it-yourselfers'. Qualified technicians are properly trained individuals who have the equipment, tools, safety instruction, and know-how to do a job properly and safely. NOTE: If you believe that a described condition may apply to a particular vehicle, DO NOT assume that it does. See your Nissan dealer to determine if this applies to your vehicle.

Basic Diagnosing of TPMS/LTPWS systems

If the TPMS/LTPWS warning light is illuminated (continuously or flashing):



The TPMS/LTPWS system can be diagnosed by turning the ignition to the "OFF" and then to the "ON" position (engine not required to be running).

NORMAL OPERATION:

If the TPMS/LTPWS warning light is continuously illuminated (not flashing), the TPMS/LTPWS is operating normally and has detected low tire pressure in one of the tires.

- Leave the ignition in the "ON" position* (engine is not required to be running) and set the tire pressure to the recommended pressure shown on the vehicle's tire pressure placard.
- Leaving the ignition in the ON position may allow the TPMS/LTPWS to detect the corrected tire pressure more quickly on 2009 and newer models (WITHOUT having to drive the vehicle).

NOTE:

- Normal tire pressure maintenance is not covered under warranty.
- Some 2011 and newer models will display an alert in the Vehicle information display near the speedometer. The alert will read "Check Tire Pressure", or similar, and will

**CHECK TIRE
PRESSURE**

MALFUNCTION PRESENT:

If the TPMS/LTPWS warning light is flashing for approximately one minute, there is a TPMS/LTPWS system malfunction. Check the DTC and refer to the Service Manual for repair instructions.

Aftermarket wheels

- Refer to **Irregularities of TPMS/LTPWS Sensor sealing surface** later in this bulletin.
- Aftermarket accessory wheels may also have the sensor stem in the incorrect orientation (Figure 1). This may cause the sensor to not transmit “data” when the wheel starts to rotate or may prevent the transmitted data from reaching the TPMS/LTPWS antenna.



Figure 1

Inflating/deflating tires with TPMS/LTPWS sensors

Filling tires with nitrogen

The TPMS/LTPWS sensors can be damaged if the sensors are at the 6 O'clock position (closest to the ground) when the tires are deflated.

- When filling the tires with nitrogen, the vehicle should either be raised off the ground on a lift, or the wheels individually removed from the vehicle to prevent damaging the TPMS/LTPWS wheel sensors.

IMPORTANT: The vehicle should be raised or individual wheels removed to prevent the rims from contacting the ground when deflated.

- Improper use of tire inflator tools can break the stem of a Tire Pressure Monitor System (TPMS) sensor.
- The type of stem breakage shown in Figure 2 is not considered a warrantable repair.

Please refer to the following examples of recommended and not recommended tire pressure filling tools.



Figure 2

Not Recommended tire inflator tools.

Long heavy hose with Lock-on air chuck or wheel at 6 O'clock



Deep well or dual head air chucks



Air chucks with handles or



Figure 3

Recommended tire inflating tools.

Shallow well air chucks



Air chucks with flexible hose (no extensions)



Figure 4

Moving TPMS/LTPWS wheel assemblies from one vehicle to another and TPMS/LTPWS sensor registration

Moving TPMS/LTPWS wheel assemblies

TPMS/LTPWS sensors can have different part numbers from model to model and may not operate correctly or operate at all.

CAUTION:

- New style and old style TPMS components are not compatible and cannot be interchanged.
 - Swapping of new style and old style components will cause the TPMS to stop operating correctly.
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- If further confirmation of the TPMS sensor part number is required, review the part number of the originally installed equipment before replacement.

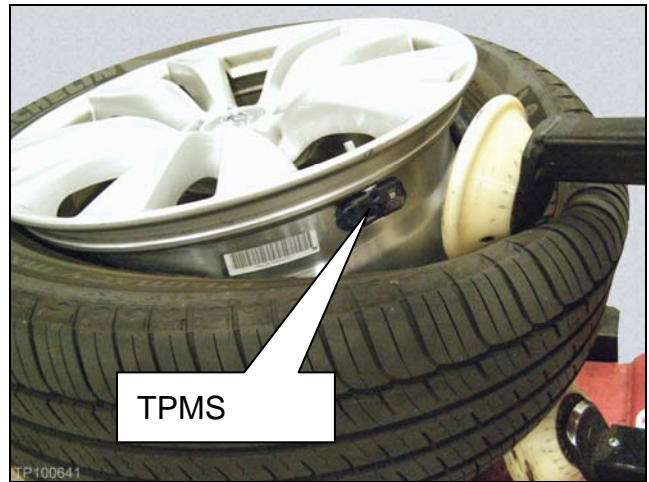


Figure 5



Figure 6



Figure 7

Compare part numbers

To confirm the latest part numbers, always consult the appropriate parts catalog when replacing or exchanging TPMS sensors, receivers, or control modules.

TPMS/LTPWS sensors must be registered to each vehicle every time the wheels are swapped

TPMS/LTPWS wheel sensors must be registered each time the wheels are rotated, swapped or replaced so that the sensors operate correctly and send the correct tire pressure from the new wheel location.

If tires are rotated or service is required on a vehicle's Tire Pressure Monitor System/Low Tire Pressure Warning System (TPMS/LTPWS), the Signal Tech II (special tool J-50190), Tire Pressure Sensor Activation Tool J-45295, or Transmitter Activation tool (J-45295-A) can be used to register TPMS/LTPWS sensors.

NOTE: Failure to update Signal Tech II may lead to misdiagnosis of vehicles built after February 28, 2010.

- The latest software is available on the CONSULT III PC at: ASIST > Tools & Equipment > Nissan TECH-MATE > Nissan TECH MATE Web Site > Service tools > Signal Tech II.
- If you should encounter problems with updating, contact Techmate at 1-800-662-2001.
- Future updates will be released as needed. Check ASIST frequently for this information.

NOTE: Refer to the appropriate chapter and section of the Electronic Service Manual (ESM) for the model specific procedure to register and diagnose TPMS/LTPWS systems.

NOTE: Tire Pressure Sensor Activation Tool **J-45295** will not work on some vehicles.



Instead use:

- Transmitter Activation tool (**J-45295-A**) with C-III plus (preferred method)
- Or
- Signal Tech II (J-50190) with C-III plus

Radio Frequency interference causing a “No Data” (C1708, C1709, C1710, C1711) condition

Radio Frequency (RF) interference can cause a No Data condition and may be caused by any device that is transmitting RF on the same or similar frequency that the TPMS/LTPWS sensors are on and is not covered under warranty.

Smart cell phone chargers (Figure 8), aftermarket DVD's players, etc. should be removed from the vehicle first and then the vehicle retested before further diagnostic is performed.



Figure 8

Sensor leaks

Sensor leaks can be caused by irregularities of the wheel TPMS/LTPWS sensor sealing surface, corrosion caused by aftermarket tire sealers and damaged TPMS/LTPWS sensor seals. Seals are available individually.

Aftermarket Tire Sealers

Aftermarket tire sealants and/or aerosol repair kits should not be used (refer to the vehicle's Owner's Manual).

- Some aftermarket tire sealers and/or aerosol repair kits contain chemicals and propellants that can cause damage to TPMS/LTPWS sensors.

NOTE: Damage caused by use of aftermarket tire sealants contrary to recommendations in the vehicle Owner's Manual is not covered under the Nissan New Vehicle Limited Warranty.

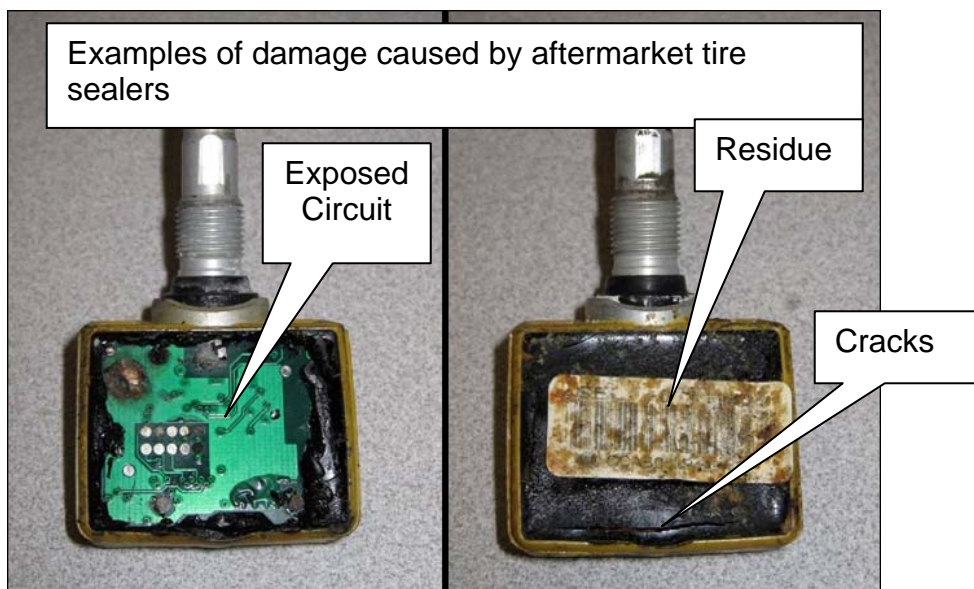


Figure 9

Irregularities of TPMS/LTPWS Sensor sealing surface

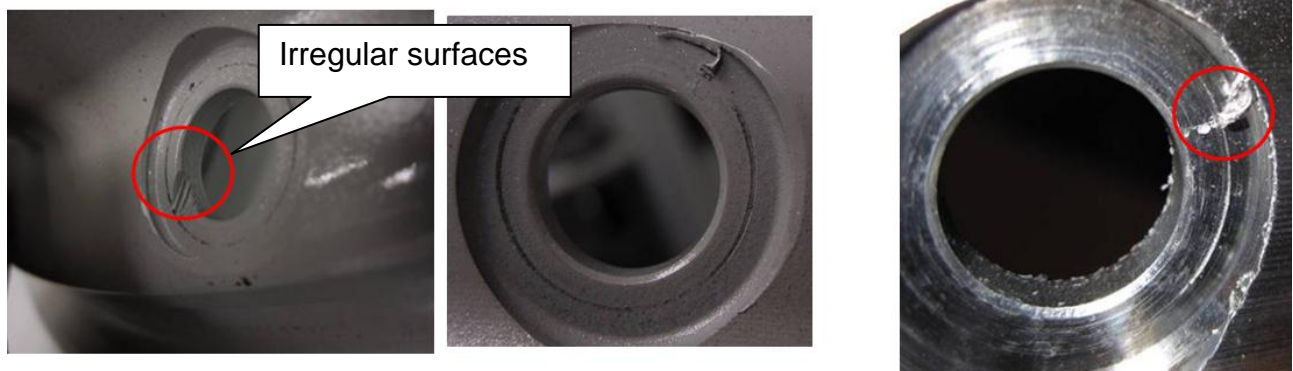


Figure 10

Irregular sealing surfaces, contamination oil, etc., may allow an air leak to form between the wheel and TPMS/LTPWS sensors.

TPMS/LTPWS seals

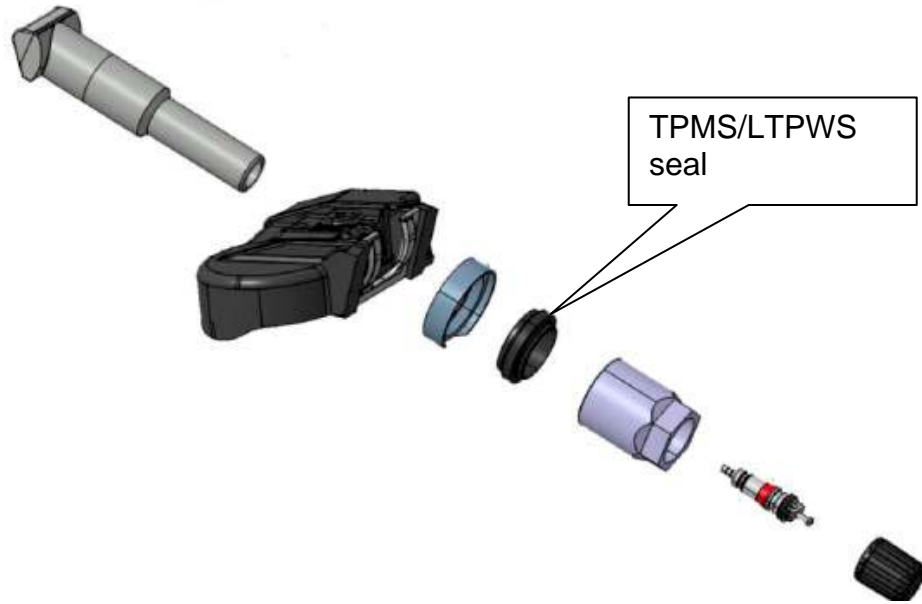


Figure 11

The TPMS/LTPWS seals can also be the source of a tire low pressure condition and are available individually.

- Do Not replace the TPMS/LTPWS sensor assembly for a leaking seal. Replace just the seal.

NOTE: Figure 11 is for reference only and may appear to be different depending on the model and year that is being serviced.

Air pressure changes with altitude and ambient temperatures

The air pressure inside a tire can change due to several factors, such as:

- Seasonal temperature change
- Tire temperature change due to driving
- Natural pressure loss over time

Compensate for the above temperature factors when adjusting and setting tire pressure.

Each vehicle is equipped from the factory with a TIRE AND LOADING INFORMATION label.

This label lists the COLD tire pressure setting for the original tires on the specific vehicle.

NOTE: Tires are considered COLD after the vehicle has been parked for 3 or more hours, or driven less than 1 mile at moderate speeds.

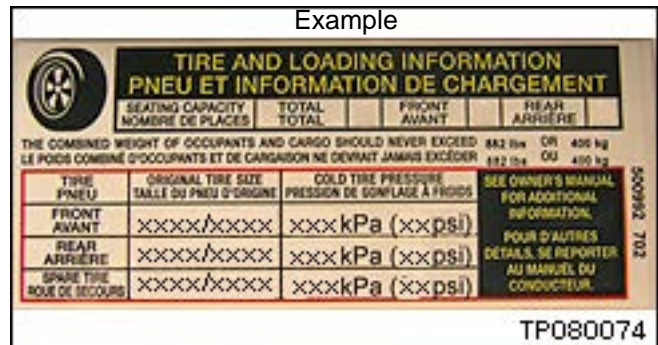


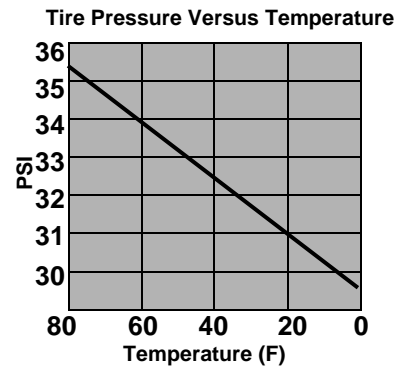
Figure 12

When setting / adjusting tire pressure, make sure to use an accurate tire pressure gauge.

Use the following information for reference:

Temperature:

- Tire pressure changes approximately **0.8 psi for every 10°F of temperature change**. As temperature decreases, pressure decreases.
- Tire pressure may change 3 - 5 psi between a Cold reading and a reading taken just after the vehicle has been driven for several miles.
- Seasonal temperature change can result in tire pressure that is low enough to turn on the Low Tire Pressure Warning Light.



Graph 1 - Example

Example 1 – Seasonal Temperature Change:

- The temperature of the vehicle is 70°F after sitting in the shop.
- Ambient temperature outside the shop is 30°F or will soon fall to 30°F due to seasonal change.
- Recommended pressure on the TIRE AND LOADING INFORMATION label is 35 psi.
- The tire pressure should be compensated an additional +3 psi and adjusted to 38 psi to avoid dropping below the label value when the vehicle experiences cooler ambient air temperature.
- Compensation should also be used in the PDI process as needed.

Example 2 – WARM Tires:

- A vehicle arrives to the dealer after being driven across town.
- The WARM tire pressure reading is 32 psi.
- Recommended COLD tire pressure on the TIRE AND LOADING INFORMATION label is 35 psi.
- The tire pressure should be compensated an additional +3 psi and adjusted to 38 psi to avoid dropping below the label value when the tires cool.

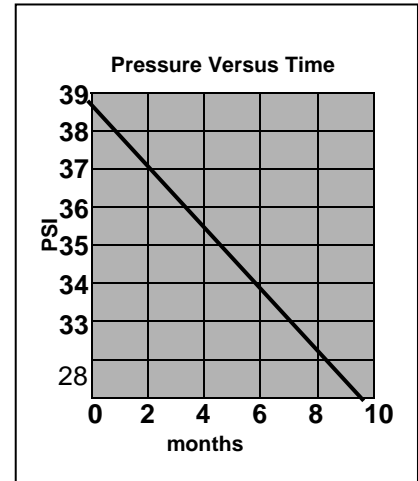
Natural tire pressure loss over time:

- Vehicle tire pressure can naturally decrease by approximately 1.0 - 1.5 psi per month. This will vary due to seasonal temperature change.
- After 6 to 8 months tire pressure may be low enough to turn ON the Low Tire Pressure Warning Light.

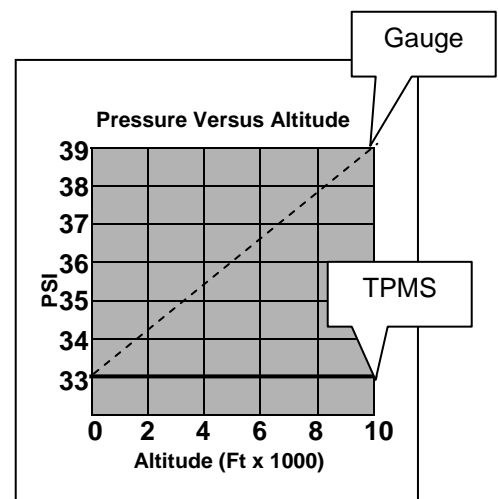
High Altitude

- At high altitude locations, a standard tire pressure gauge may show the tire pressure higher than the TPMS system. If the gauge reading is not accounted for, this could result in turning ON the Low Tire Pressure Warning Light.
- Standard tire pressure gauge readings increase about 1.0 psi for every 2,200 ft of altitude increase above sea level (up to 10,000 ft). See Graph 3.
- For example, if the TIRE AND LOADING INFORMATION label reads 33 psi, then at an elevation of 5,280 ft, the cold inflation pressure using a gauge should be increased 2.5 psi to 35.5 psi."

NOTE: In Graph 3, C-III, Signal Tech II, or the vehicle information display (if equipped) would show a tire pressure of 33 psi. If needed, use C-III or Signal Tech-II to confirm tire pressure.



Graph 2 – Example



Graph 3 - Example

NOTE:

- After correcting the tire pressure, the vehicle may need to be driven at speeds above 16 mph to activate the TPMS and turn off the low tire pressure warning light.
- If pressure compensation for temperature is used, the pressure should be re-checked and adjusted at a later time when the tires are cold.