

## Flat Spotting on PLT Tyres

### What is flat spotting?

Flat spotting describes the flattening of a tyre due to standing under vehicle load for a period of time on a single area of the tyre tread. This can lead to the tyre developing a flat spot in the area that was in contact with the ground.

The main factors which influence tyre flat spotting are:

- The length of time the tyres are standing still under load
- The amount of tyre deformation (inflation pressure/load)
- The ambient temperature and the temperature of the tyre



In operation, flat spotting may create a vehicle vibration due to the tyre being “out of round” (radial run out). Depending on the type of flat spot, the vibration normally disappears after a short driving distance as the flat spot is driven out.

In some cases however the vibration may remain evident for a longer period.

**There are two types of tyre flat spotting.**

### **1. Temporary flat spotting.**

This occurs when the vehicle has been parked for an extended time period (for example at the airport while on vacation or business trip) The combination of driving at high speed or in high ambient temperatures, combined with the extended parking period may cause the tyres to temporarily flat spot. Some drivers even notice a slight vehicle vibration every morning after their vehicle has been parked overnight after a long and/or fast period of driving.

This type of flat spotting normally disappears after a short driving distance as the tyres reach their operating temperature and regain their original shape.



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### **2. Semi-permanent flat spotting.**

This occurs when the tyres have been standing still under vehicle load for a long time period of several weeks or months.

Typical situations where this can happen are:

Long vehicle shipment periods, for example between continents

Long pre-delivery storage of vehicles at the factory or at the dealer

Winter storage of for example classic cars

Exposure of the tires to high temperatures for example in body repair shop paint ovens

The long standing times, especially if they are combined with high temperatures and/or low tyre inflation pressures can lead to quite severe flat spotting that is not removed by normal driving

### **Tips to avoid temporary flat spotting**

Under-inflated tyres are more sensitive to flat spot. Don't operate your tyres underinflated or overloaded.

If you will be driving for long distances at high speeds with heavy loads, then increase the inflation pressures of your tyres according to the vehicle manufacturer's recommendations

A slight increase (+0.2 Bar) in tyre inflation pressure will lead to lower tyre running temperatures and less tyre deflection. Thereby reducing flat spotting. *Important – Never exceed the max. recommended cold inflation pressures for your tyres*

If your car is to be parked for long period of time without driving, then slightly increasing the inflation pressures (+0.2 Bar) of the tyres before parking will help to reduce tyre deformation and flat spotting.

### **Tips to eliminate semi-permanent tire flat spot**

In case the flat spot persists and the vehicle vibration does not disappear after a short driving distance, the following method should eliminate the condition:

Check and adjust the tyre pressures and check tyres/wheels for any visual damage

Drive the vehicle more than 15 minutes for 12-16km at 80km/h to get the tyres warm

Immediately after driving, raise the vehicle completely off the ground to relieve the tyres from the load.

Increase the tyre pressure to 4 bar and keep the vehicle on the poster ramp for at least 4 hours or overnight, if possible, to allow the tyres to cool down

*Reset the tyre pressure to the recommended values*

If the vibration is still present prior to wheel balancing, then remove the tyre and exchange it with a new one.