



# Bob Dickman Tire Center



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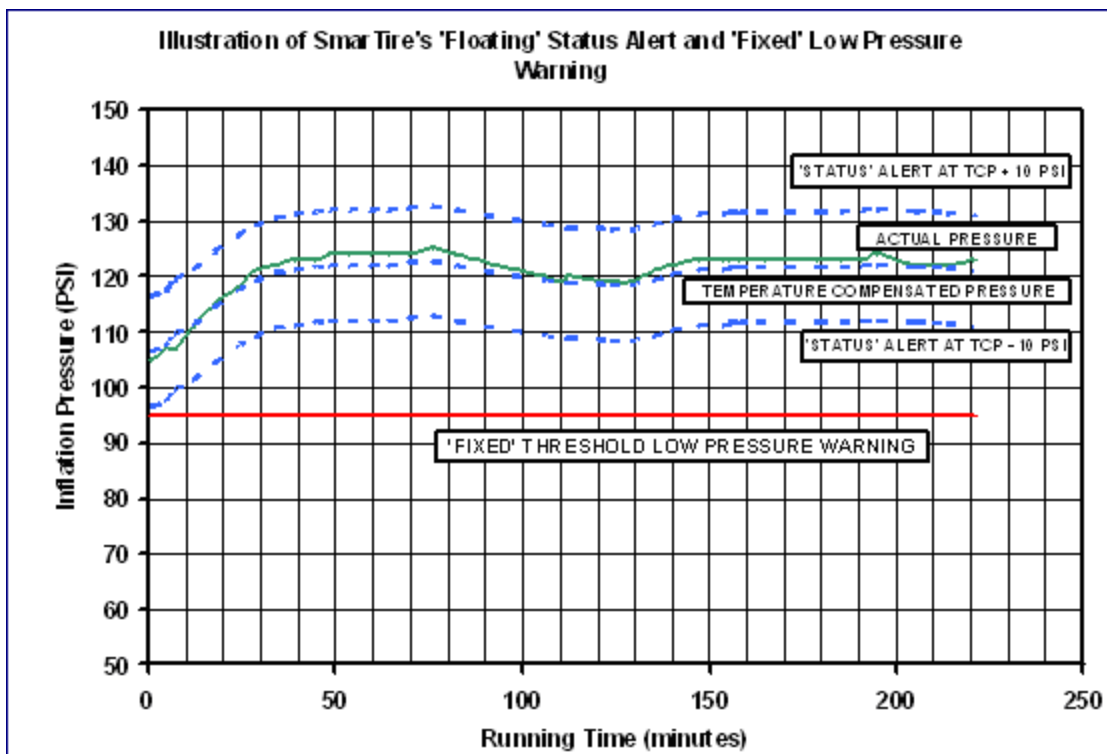
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## SmarTire's 'Floating' Pressure Status Alert and 'Low Pressure' Warning... » Understanding Temperature Compensated Readings

Pneumatic Tires, when operating on moving vehicles, build up internal heat due to sidewall and tread deflection and flexing. The level of tire heat buildup in each tire is constantly varying as a function of the following vehicle operating parameters:

- Tire size, type, manufacturer, etc.
- Weight being supported by each tire
- Speed
- Axle type (driving vs. non-driving)
- Road surface texture
- Climatic conditions

When a vehicle is driven for a period of time, the heat buildup within a tire increases the tire's inflation pressure (which in turn reduces the tire's deflection) until the heat being generated is equal to the heat being dissipated. A tire, reaching this operating state, is considered to be in 'Thermal Equilibrium'.



SmarTire's 'Floating' Status Alert ensures that tire pressure deviations are identified early enough to minimize the level of heat buildup in the tire. FIG.3 illustrates that the plus or minus 10 PSI 'Floating' alert threshold moves up and down as a function of the 'Temperature Compensated' Cold Pressure value. If the tire is operating with proper pressures, the 'Actual Tire Pressure' stays within the 'Status' range setting and no alert is activated even though the pressure level changes considerably (~20 PSI). The fixed 'Low Pressure' Warning threshold must be set sufficiently below the Cold Pressure setting (i.e. usually CP -10PSI) to not trigger nuisance alerts when temperatures fluctuate due to climatic conditions. The twenty (20) PSI 'normal' pressure buildup, to approximately 125 PSI, would have to drop to ninety-five (95) PSI, approximately thirty (30) PSI, before the fixed 'Low Pressure' warning threshold is crossed and the warning activated. Keep in mind that as the air pressure bleeds off in a perforated tire, the tire builds up extra heat due to the operating with increased deflection.

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