THE INFLATION SYSTEM™

COMMERCIAL FLEET TIRE DIGEST

The authoritative guide to reducing commercial tire expenditures from Pressure Systems International, the manufacturer of the Meritor Tire Inflation System by PSI™

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Ambient Temperature and Its Effect on Tire Pressure

What is the relationship between tire air pressure and ambient temperature? Fleet managers need to fully understand this issue in order to optimize their tire performance.

Tires are designed to run at a given load at a specified inflation pressure. And that **inflation pressure is based on measuring the air pressure at typical room temperature of 70° F.** But what if you are checking tire air pressures in the middle of winter in Minnesota and it is 0° F. Under these conditions, what is the proper air pressure?

The rule of thumb is that air pressure will change 2 PSI for every 10° F change in ambient temperature.

Basis: 100 psi @ 70° F Measuring at 0° F in Minnesota, there will be a DROP in tire air pressure of approximately 14 PSI (2 psi X ((70-0)/10)) Bottom line: Tire now has 86 PSI (100 – 14)

Conversely, if you were in Phoenix Arizona in the middle of August and the ambient temperature was 120°F, the pressure would now **increase** 10 PSI to 110 PSI (2 psi X (120 – 70)/10)

The above calculations are relevant when checking a "cold" tire…..a tire that has been sitting for at least several hours. But what happens to a "hot" tire as it runs down the highway? If you were running 65 MPH, fully loaded, and added 100 PSI into your tire before you left the terminal (ambient 70° F), after only 20 minutes, that same tire would measure 114 PSI because of the increasing tire temperatures (assuming the ambient temperature is still 70° F when you measured the tire.) This is why you should **always tell your drivers to never check a "hot" tire**…they will think it is overinflated and will start taking air out. But it is actually exactly where the tire needs to be. Tires reach a steady state air pressure after 20 minutes of riding down the highway.

By running tires at the specified air pressure, you will maximize your tire mileages, retreadability, traction and your vehicle fuel economy.

The simplest and best way to insure that your air pressure is always correct is thru the use of an automatic tire inflation system. Keeping tires running "cool" by running at recommended tire pressure is the secret to minimizing your tire expenditures.

Visit ArvinMeritor Booth #822 at TMC in Tampa to see a demonstration of the new Meritor Tire Inflation System by PSI (MTIS™) with the ThermALERT™ feature that warns of elevated wheel end temperatures.

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Q & A PSI ANSWERS YOUR QUESTIONS

Q: What happens to tire air pressure when my truck is at sea level (Philadelphia) versus a mile up the mountain (Denver, Co)?

A: Tire air pressure changes very little as altitude changes. If you measured tire air pressure to be 100 PSI in Philadelphia, that same tire would measure 102 PSI in Denver…assuming that the ambient air temperature was the same in both cities.