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## TIRE PRESSURE AND TEMPERATURE

Using the proper tools to arrive at the correct tire pressure is critical to making your race car perform at the optimum level.

Air is about 78% nitrogen and it is free. But air also contains about 21% oxygen and water vapor. Filling a tire with 100% nitrogen has some important advantages over filling with air.

One is that nitrogen molecules are larger than oxygen molecules, so tires leak less gas over time. Another benefit is that pure nitrogen doesn't heat up as fast, so tire pressure gain is significantly less!

Another commonly overlooked factor that affects tire pressure is the temperature of the tire when the pressure is set before hitting the track. Since air or nitrogen is a gas, it expands when heated and contracts when cooled.

The rule of thumb is that for every 10 degree Fahrenheit change in air temperature, your tire's inflation pressure will change by about .8 psi (up for higher temperatures and down for lower).

For example purposes, let's assume that your two rear tires are sitting in direct sunlight with an ambient temperature of 85 degrees. The two front tires are left inside the trailer where the temperature is only 65 degrees. Prior to hitting the track for practice, all four tires are inflated to 30 psi. When the two front tires are heated to 85 degrees (same temperature as the back tires) the actual pressure in these two tires will have increased to almost 32 psi!

To get accurate tire pressures you could use a pyrometer to measure each tires temperature and then use a calculator to determine the corrected starting pressure. Unfortunately, this approach would be too slow and extremely cumbersome.

The quickest way to determine corrected tire pressures is with the Temperature Compensating Tire Gauge by Longacre. This unit can take the temperature of the tire using a traditional tire probe and will instantly compute the adjusted psi back to the standard temperature! The gauge will show you the corrected pressure that you should be putting into the tire not the actual pressure at that moment.



# Tech

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Here's another example of use for this gauge:

*Let's say your race car just came off the race track and with the tires up to operating temperature and 30 psi. Your plan is to reduce one of the tires by 5 psi. While the tire remains hot, it will continue to show 25 psi. However, when the tire cools and returns to the ambient temperature, air pressure will continue to decrease and the actual pressure could go as low as 20 psi.*

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With a Temperature Compensating Tire gauge, it will immediately perform the calculations and will show you a corrected 25 psi based upon the standard temperature.

If you don't care about correcting tire pressures back to a constant ambient temperature, this gauge will provide the following necessary functions:

*While in the Pyrometer Mode it will quickly show all 12 tire temperatures on the display at the same time, so you don't have to write them down.*

*When in the Traditional Tire Pressure Mode it will show each actual pressure. All 4 pressures, accurate to .1 psi will be stored on the display for quick, easy comparison.*

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As this is a digital gauge, it offers 1/10th of a pound resolution and is accurate throughout the range of 0-100 psi. This tire gauge will assist you in making the small subtle changes necessary to find the winners circle!

#### FEATURES:

- Easy-to-read tire gauge – to .1 psi
- Adjustable pyrometer probe tip
- Powered by 9 volt battery
- Battery life of 25 hours
- Auto shutoff after one hour
- Backlight
- Three bleed buttons – Use just 1 or all 3 for faster bleed off
- Silver case for safe, clean storage



Longacre Temperature Compensating Tire Pressure Gauge - 50370

*Longacre Racing Products*

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