

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

VOLUME 4 ISSUE 11

NOVEMBER/DECEMBER 2010

## Troubleshooting Trailer Tire Wear



**Happy Holidays**  
from everyone at  
PSI and  
Commercial Fleet  
Tire Digest.

May you and your  
family have a  
joyous holiday  
season.

Trailer tires are the most prone of all the wheel positions to develop irregular or uneven tire wear patterns. Irregular wear will lead to early tire removals and increase your cost/mile. Load and air pressure are two important factors that come into play. Because most fleets do not have a consistent and constant load, trailer tires will not always have the optimum air pressure. When trailers are full, each trailer tire may be carrying 4,250 pounds (17,000 pounds per axle /4 tires = 4,250 lbs/tire) and considerably less when the trailer is empty for the return trip. When the trailer is empty, the tire footprint becomes very small because air pressure is set for the full load weight (proper tire inflation must always be based on the worst case load scenario). The result is that the tire shoulders will not be spending much time on the road surface. When you run on only the center of the tread like this, cupping and fast shoulder wear will develop. Even if you are only fully loaded 10% of the time, the recommended tire pressure must be set to accommodate the weight of the full load. The result is that the tires have the perfect air pressure when fully loaded, but will be significantly overinflated for the rest of the time. Over inflation will lead to fast shoulder wear on both shoulders. This is a very common issue with trailer tires.

What else can happen with trailer tires? Diagonal wear patterns are also a common condition. Diagonal wear is defined by localized flat spots worn diagonally across the tread at 25 – 35 degree angles which often repeat around the tread circumference.

This situation is aggravated by high speeds and empty/light loads. Additional probable causes of this condition include:

- improper bearing adjustment
- toe out
- brake skid

If your trailer tires are developing fast shoulder wear but only on one shoulder, then the typical causes are excessive camber, misaligned axle, or improper bearing adjustment. Tire pressure is not the major variable in this case.

In just about all scenarios, the trailer tires on the front axle will have longer tread life than those tires on the rear axle. This is even more prominent on those trailers that see more city driving and are turning frequently. The front trailer axle is the pivot point when the vehicle turns and the result is that the tires on the rear axle will drag and scrub the tread off faster. We have seen up to a 35% difference in wear rates between the front and rear trailer tires.

If the trailer tires look just plain ugly all around the tire....cupping, depressed ribs, random wear spots, then low tire pressure for an extended period of time is the primary culprit. Of course other factors such as the outside dual being run at 100 psi while the inside dual is at 60 psi will also aggravate the situation.

Maintaining the proper tire inflation based on your actual loads is the key to maximizing fuel economy and tread life.

## Q & A PSI ANSWERS YOUR QUESTIONS

**Q.** Do I need to manually check my trailer tire pressures if I am using the MTIS by PSI automatic tire inflation system?

**A.** There is a significant labor saving in not having to check the air pressure on your trailer tires on a routine basis unless the PSI warning light has been illuminated and the driver has informed maintenance that the light came on during the most recent trip. Having an automatic tire inflation still requires that tires should be visually inspected during the normal morning walk-around and during all PM's.

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