COMMERCIAL FLEET TIRE DIGEST

VOLUME III INDEX

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™

VOLUME 3 ISSUE 1 JANUARY 2009

Effect of Speed, Load & Inflation on Tires

The Tire & Rim Association, along with all tire manufacturers, publish on-line & in their engineering publications, several very important tables showing the relationships between load, inflation, and speed. Since air is what carries the load, the proper inflation pressure is based on the worst case load that the tire experiences running down the highway. These tables indicate the proper inflation based on load weight, but also adjusted for various speed conditions.

For every size commercial tire, there is a specific line item in these tables that lists the maximum tire load for inflation pressures typically ranging from a low of 70 PSI up to 120 PSI. Each tire size also lists the maximum tire load for both single and dual usage. When running as duals, the maximum load is always lower (5% to 13% lower depending on specific tire size). This is because the four dual tires do not each carry the same load due to technical issues such as unbalanced loads and crown of the road. Dual loads are lower versus running the same tire size as a single to protect the tire which carries the highest load; an example: 295/75R22.5 LR G tire is listed in the table (dual tire) at 5675 lbs @ 100 PSI. The same size running as a single tire is rated at a higher load of 5780 lbs @ 100 PSI (105 lbs higher load capacity as a single). The tables also show that if your actual tire loads are less, let's say a maximum of 5000 lbs/tire (295/75R22.5), you would be OK to run only 85 PSI and still carry the load.

There are many service vocations such as logging, where a vehicle may run at 65 MPH on the highway but then must go on an unpaved road to pick-up the logs for a few miles. These roads typically have a maximum speed allowed of 35 MPH to keep severe road rutting from occurring. Because speed is a variable that can change normal recommended load/inflation ranges, there are tables that will show a higher load capacity if a vehicle has a low maximum speed; an example: 35 MPH max speed, 11R24.5 tire size - According to the low speed load/inflation table, if your maximum load per tire is 5500 lbs. maximum and your max speed is 35 MPH, you can run at 74 PSI. Lower pressure in the tire will allow a longer tire footprint which spreads the load over a larger surface area helping to extend the service life of the road itself. Since an operation like logging runs at two distinctly different maximum speeds (65 MPH vs. 35 MPH), the PSI in the tires should be adjusted as the maximum allowed speed changes.

There is even a load/inflation table that shows the load change and pressure change associated with running at a variety of speeds. If you have a vehicle just creeping along (moving the space shuttle into position is a good example), the maximum tire load can more than double from the normal published load, (increase 140%) as long as you increase the pressure 40 PSI. Another example from the same table shows that if you have a vehicle that never goes higher than 30 MPH. In this case the load can increase 24% with a 10 PSI increase in inflation pressure.

Bottom line: Work with your tire professionals to determine that you are running the appropriate pressure for the loads you are carrying based on your maximum speed.

Q & A PSI ANSWERS YOUR QUESTIONS

Q. We have a new group of drivers & mechanics that require an update on tires & how to maximize performance...any suggestions?

A. Of course you can work with your tire supplier to provide this important service. At PSI we offer a Tires 101 class to assist drivers/mechanics understand how to maximize mileage, increase retreadability, fuel efficiency & how to diagnose tire issues.

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VOLUME 3 ISSUE 2 FEBRUARUY 2009

Be Nice to Your Tires

February is the month when we send candy and flowers to the people who are closest to us. Tires are like your good friends, if you are nice to them, they'll be nice to you. They will run a very long time with multiple retreads and not cause you problems and headaches in the process.

Here are some of my recommendations on how to be nice to your tires:

Tires take a tremendous amount of daily abuse. In a typical 500 mile driving day, each tire will rotate about 267,500 revolutions. Every time the tire makes just one revolution, the sidewall flexes, which generates heat in addition to the heat generated by the friction of the road. High ambient air temperature and road temperature will magnify this number. And, if the tire is running underinflated, there is additional heat generated because the sidewall deflection is considerably higher. Continuing to run underinflated for a long period of time, the heat can reach such a point where the rubber compounds begin to break down and cause a tire failure. Heat is a tire's worst enemy and keeping the tire running at the proper inflation pressure will help the tire run nice and cool maximizing your mileage, fuel economy, and retreadabiity.

So, how to keep tires running at the proper inflation pressure when it is almost impossible to tell if a commercial truck tire is over, under, or at the specified air pressure by just looking at it. Many drivers still kick the tire sidewall or beat on the tread with a baseball bat to see if the tire is OK, but trust me, the only thing a baseball bat will tell you is if the tire is completely flat, 0 PSI. Seriously, you wouldn't kick your good friend or beat them with a baseball bat! Air is what carries the load. If you are running underinflated, even 10 PSI, all of the key performance parameters go down. Buying and using a calibrated air pressure gauge is the best $20 investment you can make. You should also check your gauge versus a master gauge at any truckstop for accuracy on a regular basis, because the most common stick gauges can go bad very, very quickly.

How often should you be inspecting your tires? Answer is - it depends. You could check tires on Monday morning and find that the pressures are good with no signs of punctures or road hazards. However, over the course of a day, week, month, a lot of bad things can happen to your tires. You could check tire pressures before you leave the facility and shortly thereafter roll over a piece of steel and develop a slow leaker in a matter of minutes. These are reasons why Tire Pressure Monitoring Systems (TPMS) and Automatic Tire Inflation Systems (ATIS) were developed. TPMS will alert the driver that he has a tire inflation issue but requires human intervention to find air and pump it into the tires. ATIS lets the driver know he has a tire issue while air is automatically being added as he is driving down the road. He won't be stuck on the side of the road waiting for a service call. Road "alligators" can be from new tires or from retreads – the common denominator is that they ran underinflated for an extended period of time which eventually caused the tire to blow out.

Remember, be nice to your tires and they will be nice to you. Happy Valentines Day.

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Q & A PSI ANSWERS YOUR QUESTIONS

Q. When I drive in Arizona and Florida, I see a lot more rubber debris on the road versus up north. Are there more bad retreads in those two(2) states?

A. Heat has always been a tires nemesis. Running underinflated in hot ambient states (like Florida and Arizona) will magnify the amount of rubber on the road (alligators). Those alligators are not just retreads, if a new tire or a retread runs underinflated, eventually the tire will fail. Keeping your tires running at the specified operating pressure and rubber on the road will be dramatically reduced.

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VOLUME 3 ISSUE 3 MARCH 2009

Rubber on the Road - Causes

In December 2008, The National Highway & Traffic Safety Administration (NHTSA) published a 214-page report entitled "Commercial Medium Tire Debris Study". NHTSA outsourced Virginia Tech Transportation Institute (VTTI) who then subcontracted the University of Michigan Transportation Research Institute (UMTRI) to study tire debris collected from the side of the road at five sites in the US.

The team collected 1,496 "alligators" and their report was summarized in their 214-page publication. There is a lot of excellent general information in the report about new tires and retreads including how tires are built, their individual components; fleets and their tire programs are also discussed. You can download the entire report on the NHTSA website at (www.nhtsa.gov) by searching for report number "DOT HS 811 060". The following are conclusions and recommendations from the study:

The authors examined 300 discarded tire casings from truck stops and 1,196 tire fragments collected from the highway system.

The top three 3 reasons why the 300 tire casings were removed from service were:
1. Road Hazards (32%)
2. Maintenance/Operational Factors (30%)
3. Overdeflected Operation (underinflation) (14%)

Less than 10% of these casings showed any manufacturing or process related conditions. The vast majority of this 10% were retread process issues.

Of the 1,196 tire fragments analyzed, 18% were from new tires, 68% from retreads, & 14% were undetermined. The top four reasons why these tires failed were:

1. Road Hazards (39%)
2. Excessive Heat (30%)
3. Maintenance/Operation (14%)
4. Manufacturing/Process (14%)

The excessive heat category is due to the tire being run underinflated. There are three reasons why a tire is run underinflated:
- Osmosis through the tire casing
- Punctures in the tread area (very common)
- Valve core leaking

The report's overall study conclusions found that the proportion of tire debris from retreads and new tires is similar to the estimated proportion of retread and new tires in service. While the motoring public believes that the rubber found on the highway (alligators) are always due to unsafe retreads, the study results clearly demonstrate that retreads are just as reliable as new tires. However, if a tire is run underinflated, whether it's a new tire or a retread, it will eventually fail and lead to rubber on the road.

Bottom line: Keeping your tires running at the specified air pressure will significantly reduce the amount of rubber on the road and save you money.

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Q&A PSI ANSWERS YOUR QUESTIONS

Q. I see more and more widebase tires being run on the drive position. Is there really an advantage?

A. Widebase tires like the 445/50R22.5 size continue to grow each year on both drive and trailer position. When used with aluminum wheels, there is a significant weight savings of up to 1200 lbs when these tires are used on the drive/trailer position. Fuel economy is improved (less rolling resistance with one tire vs. two) and traction is same as with duals. Since the drive position is a high torque application, fleets do report less miles to removal but it does vary based on the specific application.

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VOLUME 4 ISSUE 3 APRIL 2009

Radial Tire & Wheel Service Manual

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Recently, the Technology & Maintenance Council (TMC) of the American Trucking Association published their new bible for the trucking fleet maintenance shop and we recommend it for any fleet running their own service facility. The Radial Tire & Disc Wheel Service Manual is one of those "everything you ever wanted to know" reference books covering radial tires and disc wheels. What makes this manual so special is that it was edited by the leading tire and wheel experts in the field today. All this valuable information can now be found in a single 200-page glossy bound book complete with hi-resolution color photos. When it comes to better understanding proper procedures & guidelines for selecting, servicing, and maintaining tubeless radial tires and disc wheels on Class 6 – 8 commercial vehicles, this is the must-have book.

There are four (4) major sections plus an appendix that includes a glossary of terms, tire recordkeeping codes, tire locations codes, DOT & OSHA regulations effecting tires and wheels.

Section I is dedicated to basic information about tires, wheels, valve stems, and factors affecting tire life. For every mechanic that works with tires & wheels, Section I is a great background of fundamental knowledge. How to read a tire sidewall, matching tires and inflation pressure, and how to care for aluminum wheels are all important tools to help make the correct decisions when it comes to your tire program. The Factors Affecting Tire Life sub-section will allow the fleet to determine how to maximize their tire removal miles.

Section II covers proper service procedures. Proper mounting and demounting tires are discussed in detail. Understanding the details of vehicle jacking and lifting is critical if you wish to minimize OSHA related incidents in your fleet. Inspecting wheels and valve stems is very important along with how to do a proper scrap tire analysis. Scrap tires can tell you a lot about your fleet operations. Tire & wheel assembly balance & run-out are also reviewed in this section.

Section III deals with tire and wheel maintenance. How to measure tread depths & everything you wanted to know about tire inflation pressure are detailed here. Alignment, irregular tire wear and even how to properly store your tires are included. Re-treading & steel wheel refinishing are two other important subjects covered in this section.

Section IV is about tire/wheel management programs to help you accurately calculate tire cost/mile. You will also learn about how to run a proper tire evaluation at your fleet.

The successful fleet manager can utilize this manual for an on-going training program with drivers and mechanics. It is a valuable investment for every fleet.

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Q&A PSI ANSWERS YOUR QUESTIONS

Q. What is the difference between TPMS and ATIS inflation systems?

A. TPMS refers to "tire pressure monitoring systems". These systems alert the driver of their individual tire pressures. Sometimes these systems tell the exact air pressure of each tire while other systems have a red light/green light display button. Human intervention is required to find/add air when the tire is low. ATIS are "automatic tire inflation systems". Air is AUTOMATICALLY add to the tire whenever the tire is below the spec air pressure deter-

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Tires and Your Fleet's Bottom Line

Tires are the #1 maintenance cost for today's trucking fleets, and they continue to escalate in pricing primarily because of the oil based raw materials, natural rubber, and steel used in their manufacture. When you take into account that there are 18 or more tires on a typical tractor-trailer, fleets have a major investment. Maintaining proper tire pressure can minimize this cost.

The recommended tire inflation pressure specification is based on the worst case load that the tire will see in actual service. Each tire position, steer, drive, and trailer may have different inflation pressure specifications. Running all tires to one air pressure specification can result in a less-than-optimal tire footprint, which can lead to early tire removal due to irregular wear and reduced fuel economy.

It is important to understand that ALL drive tires should have the same air pressure specification. The same goes for ALL trailer tires. You do not want to have different air pressures on the first drive axle versus the second drive axle. It is also important to match tire circumferences as closely as possible. A smaller overall diameter tire will make more revolutions than a large OD tire which leads to scrubbing and fast/irregular tire wear.

Even after tires are inflated to the optimal air pressure, they still need to be periodically checked because they will lose air over time. There are three primary reasons for this:

1. Slow leaking punctures in the tread area is the number one reason why tires lose air. A nail in the tread can lead to tires losing several psi per day & in just a few days; the tire will be significantly underinflated.

2. Osmosis will also lead to air loss over time. Just like a balloon, a tire/wheel assembly will lose air by just sitting. Depending on the specific tire make/model, tires will lose one to two psi per month (and sometimes as much as three or four psi). Although it doesn't sound like very much, consider that a tire that started with 100 psi will be down in the low to mid 80 psi range in a year with this slow loss of air pressure.

3. A tire will lose air due to leaking valve stems. In cold weather, checking a tire pressure may even cause the valve core to stick leading to further air loss.

Tires should be checked with a calibrated air pressure gauge on a regular basis depending on specific service vocation. The more off-road activity, the more frequent should be the pressure checks.

Trailer tires are typically the most neglected wheel position. Inside dual tires are notorious for being significantly underinflated because those inside tires are difficult to access and require time/effort to maintain the proper inflation pressure. If that inside dual tire is at 70 psi and the outside dual tire at 100 psi (a very common scenario), this will lead to even worse fuel economy since the inside tire is making more revolutions than the outside tires and causing significant scrubbing of the tread rubber. Irregular wear will also be generated which also will result in reduced fuel economy.

The best solution to maintaining the proper inflation pressure in your trailer tires all the time is to use an automatic tire inflation system (ATIS). With these systems air is added automatically whenever the tire is below the inflation specification.

Q&A PSI ANSWERS YOUR QUESTIONS

Q. When is a tire considered flat?

A. The industry concensus is when a tire is 20% below the fleet's tire inflation specification, that tire is considered flat and must be removed and inspected. There is a reason why a tire is 20% underinflated. You should work with your tire professional if you have any question about the integrity of a suspect tire.

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VOLUME 3 ISSUE 6 JUNE 2009

What To Do With Your Tire Data

In the May 25 issue of Transport Topics there was a great article by Mindy Long on Tire Pressure Management, if you missed it, go to http://www.ttnews.com/articles/printopt.aspx?storyid=21976

Every fleet wants to have the very best tire program. The goal is to maximize tire life, fuel economy, minimize tire related roadside service calls, and maximize the number of retreads. It is not an easy task because it takes generating serious tire performance data which unfortunately takes a significant amount of time and a lot of manual labor.

Even tracking tire mileage is difficult. The easy method is to record the odometer or hubometer reading when the tire is applied and again when the tire comes out of service. You also need to record the tread depth at the lowest spot on the tire. If your removal specification is 6/32" of remaining rubber and a tire is removed at 8/32" or 10/32", the mileage calculation would be misleading. It would be impossible to always hit the exact remaining tread depth spec. Therefore, only looking at final removal miles will not tell the fleet manager the entire story. You also need to look at treadwear measured in miles/32".

As an example, if a steer tire starts out at 20/32", is taken out of service at 120,000 miles with 8/32" of rubber, miles/32" = 120,000/12 (20/32"-8/32") = 10,000 miles/32". Tires running on the steer axle will have different miles/32 versus tires running on either the drive or trailer positions. Tires on the first drive axle will have a different wear rate versus tires on the second drive axle because when a vehicle turns, the pivot point is the first drive axle, which means that the tires on the second drive axle tend to scrub and have a faster wear rate. The more turning a tractor does the bigger the difference in miles/32" between the tires on the first drive versus the second drive axle. It is very important to compare apples to apples (tire/axle position) when reviewing miles/32" tire data.

Since 90% of fleets run retreads, retread miles/32" data is generated the same way as new tires. But when you go to analyze the data, you'll want to keep the results separate from new tire performance. Another piece of the puzzle is retreadability. You can only measure retreadability by keeping track of how many times a casing is retreaded. This requires working very closely with the shop that does your retreading. If your goal is two retreads per tire casing and you discover that you are only averaging 1.5 retreads for your trailer tires, you need to start analyzing why. Is it a specific tire design or type? Is it because your tire inflation pressures are running 10% too low? Is it because your loads are too high or you are running too fast? Lots of questions and it takes time and much data to reach the proper conclusions.

Measuring fuel economy is really tough for even the most experienced fleet manager: Tractors are not always married to the same trailer, loads vary, drivers vary, tires vary, and routes vary. To calculate the effect that tires have on fuel economy, you need to keep track of miles/gallon for each individual vehicle and have a really large sample size to nullify all the variables that come into play. Tracking three or four tractor trailers will not tell you anything conclusive when it comes to the effect that tires play in the fuel economy equation.

Keeping track of tire related roadside service calls is probably the easiest to follow, but it is difficult to analyze without good, solid data. Why did the tire have a downtime to begin with: Did it hit the curb, did it run with little or no air for an extended period of time, or is it running over every nail on the back roads? Again, this takes serious data to answer these questions, but you need to know the answers so you can design the best possible tire program for your fleet.

Tires are the second highest maintenance cost next to fuel, so it is clearly worth the effort to capture the appropriate data and make good, solid, business decisions. The worst scenario is to make tire decisions based on perceptions. You must look at real data from a large enough sample size.

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VOLUME 3 ISSUE 7 JULY 2009

How Your Drivers Can Help Your Tire Budget

Drivers can play a significant role in a fleet's tire program. Simply giving new drivers a one time "Tires 101" fifteen minute class is just not enough. With the proper training, drivers can be the fleet's early warning system for potential tire issues. The morning driver walk-around needs to include a serious look at the tires. So what should the driver be looking for during this walk-around?

- Tires should wear smooth and even. If the driver sees evidence of shoulder cupping, depressed rib wear, alternate lug wear, diagonal wear, one sided wear, fast centerline wear, or erratic wear, he or she needs to write this up and get the mechanics involved. It may be a simple misalignment (toe in or toe out) or it may be an issue with the suspension system. It could also be due to underinflation or mismatched dual tires. Sometimes it could be related to tire manufacturing itself such as a missed nail hole during the retreading process.
- Measuring tread depths is another task that a driver can easily be trained to perform. Every fleet has a target removal tread depth based on wheel position. It's important to try to hit this target in order to maximize tire mileage while protecting the casing prior to retreading. As an example, if the target tread depth removal point is 4/32" for your trailer tires & the tires come out of service with 2/32" because nobody was checking….the result may negatively affect the casing because of stone drilling. Low tread depth makes the casing more susceptible to puncture damage.
- Checking the tire sidewalls for any signs of distortion is another easy check that drivers can perform. Curb damage may lead to tire sidewall issues that show up as cuts and/or rubber chunking. Sometimes you can even see a sidewall bubble develop.
- One of the most important checks a driver can do is to check his tire pressures with a calibrated air pressure gage. These gages need to be checked for accuracy on a regular basis, because they are notorious for going bad very quickly. Most drivers check their steer tire air pressures but drives and trailers are typically very neglected, especially the inside duals. Heat is a tires worst enemy, so keeping ALL your tires properly inflated will go a long way in maximizing tire mileage, reducing uneven wear, and increasing your fuel economy.

Drivers are not experts in tires, but being able to identify potential tire issues early on can go a long way in reducing a fleets annual tire budget. Keeping your drivers involved with your tire program will significantly reduce your tire costs.

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Q&A PSI ANSWERS YOUR QUESTIONS

Q: I have a 2003 Kenworth and run over 125,000 miles/year. I have 175,000 miles on my current steer tires but they are now developing outside shoulder wear on the outer edge of the outside shoulder rib. Is this normal or should I pull the tires? Tread depth is still 6/32.

A: Based on your average miles driven per year, you are in a line-haul service vocation. The wear condition you describe on your steer tires is very normal for slow wear rate applications. If you were doing city driving with lots of turning, you would not see fast outside shoulder wear but the tread rubber would just be scrubbing off very rapidly. This leads to mileages well under 100,000 before the tires have to be removed. Removal mileages for steer tires in the 175 - 200,000 range is excellent for line haul operations. Legal pull point for steer tires is 4/32.

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VOLUME 3 ISSUE 8

AUGUST 2009

How Age Affects Your Tires

The debate about how age affects tires is ongoing. For instance, some fleets say five years is their magic number while others say as much as ten years is acceptable. As rubber is bombarded by weather and the sun's UV rays year after year, the rubber compounds can develop weather/ozone related cracking. These same compounds can become "stiffer" as the tire ages. Questions about how age affects tires have been discussed for many years with fleets, new tire manufacturers and tire retreaders. Currently there are several industry task forces looking into what are acceptable age limit for tires:

- How long can a tire sit in a warehouse before it is mounted?
- Can a tire be stored outside for long periods of time?
- Trailer tires can last for many years and still have plenty of rubber...is it ok to be eight or ten years old before it is retreaded?
- How old can a casing be before it is retreaded?

To maximize your fleet's tire budget by using tires as long as they are useful, but not too long, it's important to be able to calculate the age of specific tire casings. You can do this by looking at all of the Department of Transportation (DOT) numbers branded on the tire sidewall. Understanding how to read a DOT number is very important. You certainly do not want to mount a "new" tire that has been sitting in some warehouse for the last ten years! Nor do you want to discard a tire before its useful life is done.

The Federal Government mandates that all tires be stamped with a DOT number when the tire is manufactured regardless if it was produced in the US or outside the country. If a truck tire is used domestically on equipment then it must have a DOT number. In addition, every time a casing is retreaded, a retread DOT number must be branded on the tire sidewall as well. Any tires that are manufactured and imported from outside the US should be checked to make sure that the DOT is clearly visible on the tire sidewall (only one side of the tire is required to have the DOT number). If there is no DOT number, do NOT mount that tire on any of your equipment.

To use this information to its full potential, it's important to know what the number means – the DOT number is not just a series of digits, but rather a code that defines particulars about that tire. DOT numbers are comprised of 11 digits. From an age standpoint, the last four digits will tell you the week and year the tire was produced. So - 0209 would mean that the tire was manufactured the second week of 2009; 2604 equates to the twenty sixth week of 2004.

Retread numbers are longer – 13 digits beginning with the letter "R" followed by a 3 digit "retread manufacturer ID code". Every retread facility is assigned a three digit code by the government. It is very critical to know which retread facility capped your casing in case there are any performance issues down the road. Your can find a list of retreaders' assigned numbers by going to http://www.retread.org/Government/index.cfm/ID/180.htm The last four digits, as with the new tire DOT number, is the week and year the casing was retreaded. By law, the retread DOT number must be permanently applied to the tire, so you can determine the number of times a specific tire has been retreaded and also the age of the casing. Many fleets have a specification as to the number of times they will allow a tire to be retreaded.

All of the digits of the new tire DOT and retread DOT number that come before the last four digits are codes that identify the manufacturing plant, tire size, and tire type. For the most part, this is not particularly important information to find in the DOT number because the tire brand and size are clearly visible on both tire sidewalls. However, it is important to some fleets to record the entire DOT number in their record keeping systems if they want to analyze the correlation between tire performance and specific brands, tire types and sizes, and weeks of production. A good database system could take this information to identify trends that could be very useful to know. It might point out reasons to rethink your tire purchasing decisions or give you details to help you get more from your tire budget.

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VOLUME 3 ISSUE 9 SEPTEMBER 2009

Are Widebase Tires Right for You?

There is no question, the market continues to grow for the widebase tires and the 445/50R22.5 is the most popular size. While some refer to these tires as "Super Singles", the correct generic term for one tire replacing two (2) duals is widebase tires. "SuperSingle" is a trademarked name associated with widebase tires produced by The Goodyear Tire & Rubber Company.

This tire is not for every fleet but does have significant benefits under the right set of fleet operations. Benefits include a weight savings since there is only one (1) tire and one (1) aluminum wheel. This compares to a dual tire assembly with two (2) tires and two (2) wheels. There is nearly a 1000 pound weight savings for a tractor/trailer changing from dual tires and steel wheels to widebase tires with aluminum wheels on both the drive/trailer positions.

It's important to note that a widebase tire is NOT double the width of two (2) duals. A 295/75R22.5 dual tire is approximately 11" wide. The tread width of a 445/50R22.5 widebase tire is about 17" or 70% of the combined 22" width of the two (2) duals. Why is this important? It means that the one widebase tire is doing more "work" than two (2) duals making proper air pressure especially critical to successful performance.

Widebase tire advantages include:

- Drivers report that they really like the way the widebase tires handle going down the highway. This is possibly because the tires are so wide that typical road rutting found on today's highways actually becomes a non-issue with these tires.
- Fuel economy is another advantage to running widebase tires. Less weight is the most significant reason for this fuel economy advantage.
- Many fleets spec widebase tires because the weight savings allows them to carry extra payload. This is especially true for vehicles carrying bulk loads. For a truck operator, payback on the cost of adding widebase tires can be very quick if they can add 1000 pounds of load per run.
- When widebase tires were initially introduced, there was a limited supply of replacement tires available which caused concern for those fleets considering switching. This is no longer an issue as the tire manufacturers have increased their production of widebase tires; now if you do have a tire downtime, most dealers stock this tire.

A few disadvantages include:

- Since there is only one (1), if you do have a problem with a widebase tire, there is no limp-home capability. We certainly do not recommend limping home on any bad tire, even with duals, but it does happen in the real world. For this reason, automatic tire inflation systems are very popular with fleets that run widebase tires on their trailers. If you do have a puncture, air will automatically be added allowing you to get back to base without being delayed by an emergency roadside service call.
- Since widebase tires are significantly heavier and larger than a dual tire, they are not popular with your typical tire changer. He (or she) can't just pick up the tire and throw it on the pickup!

Something unique to widebase is the type of wear pattern that develops when tires are running over or underinflated. With dual tires, if the tire is overinflated, fast centerline wear will develop. If you are underinflated, then fast shoulder wear is the result. But widebase tire wear characteristics are just the opposite. Underinflated widebase tires will lead to fast centerline wear and overinflation will result in fast shoulder wear. This is because widebase tires have a steel wraparound ply to insure that the wide tread will lay flat and not "grow".

We suggest that you work with your tire professional to determine if widebase tires are the solution for your fleet.

Initial S.7 Task Force Meeting on widebase tires is being held at TMC Fall Meeting in Raleigh NC on 9/14 at 2:00 PM www.truckline.com/IndEvents/TMCFall2009

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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™

VOLUME 3 ISSUE 10 OCTOBER 2009

Get Your Tires Ready For Winter

Winter season is fast approaching and now is the perfect time to revisit your tire program. To maximize winter traction and minimize roadside service calls you should try to run tires with plenty of tread still remaining. Many fleets try to time their tire program so that October is the month when new drive tires (or retreads) replace those drive tires that are below 6/32" remaining tread depth. The Department of Transportation legal limit for tread depth is 4/32" for steer tires and 2/32" for drives and trailers. However, in order to protect your valuable casings for retreading and to maximize your traction and even to reduce punctures, most fleets do not take their tires down to the legal minimum.

A common mistake when checking tread depths is to check only one spot on the tire in only one groove. Tires do not always wear evenly around the tire or across the tread surface. It is worth the time and effort to check all the primary grooves across the entire tread surface. The legal limit is based on the "fastest wearing groove" or FWG. If you measure four (4) grooves of your trailer tire and your tread depth readings are 5, 4, 3, and 2/32", that tire must come out of service since the FWG groove is at 2/32". If you only measured the inside groove and found it to be 4/32, you would believe it was OK when, in fact, it clearly must come out of service.

You should also get in the habit of measuring tires consistently. One suggestion is to always measure in two (2) spots around the tire (close to 180 degrees apart) in each tread groove. If you are recording the information in your computer system, measure from the inside shoulder and go out. Why would this be important? For example, if you are recording higher tread depths on the inside shoulder versus the outside shoulder, this will give a clue as to what possible alignment changes may need to occur on the vehicle.

Another very important practice you should include when measuring tread depths is to make sure you have a tread depth gauge that is accurate (calibrated) and that you insert the gauge at the bottom of the groove. People forget that many tire designs have an intermittent "stone ejector" which is a raised surface at the bottom of many grooves. This will distort your tread depth readings by about 2/32".

When measuring tread depths it is a good time to make note of any indications of irregular wear that may be developing. Irregular wear not only leads to premature tire removals but can adversely affect your fuel economy. If that tire has shoulder cupping or high/low lug wear or just "ugly" wear, the tire will not be running smooth down the highway and will have a negative impact on your fuel usage. The reason why tires develop irregular wear is not always clear. Work with your tire professional to help identify potential issues that could be causing irregular wear on any wheel position.

Contact Al Cohn at 210-508-6260 to setup your Tires 101 Class for Drivers/ Mechanics

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Q&A PSI ANSWERS YOUR QUESTIONS

Q: I always put 100 PSI in all my tires: steer, drive, and trailer. I checked all the pressures Monday morning and I made sure they were all exactly 100 PSI. One week later I checked the same tires with the same gauge, tires were 95 - 105 PSI. Why the differences?

A: There are several possible reasons for the variations:

- Ambient temperature was different
- If the sun was beating down on one side of the vehicle, those outside duals can be 5 to 10 PSI higher than the inside duals
- Possible slow leaking nail puncture in the tread
- Make sure that the tires were "cold" when checking the pressures

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How to Run a Good Tire Evaluation

Fleets today have a wide variety of tire makes and models they can spec on their tractors, trailers and dollies. There are tires with deep tread depth, shallow treads, different rib designs and lug patterns, and special directional tires. Some models claim to maximize fuel economy while others claim to give extended tire life with great traction. Some tire manufacturers claim their casings can survive two or even three retread cycles.

With so many choices, it is important to make the best business decision to find the right solution for your specific operating scenario. Performing a thorough tire evaluation can help you do that. The most important consideration when running your tire evaluation is choosing a large enough sample size so that statistically at the end of the evaluation you can state unequivocally that Tire A outperformed Tire B or C.

Real world fleet testing on different tire designs has many parameters that must be considered, and you want to be sure that you minimize as many variables as you can. The following are the primary variables that will affect tire performance.

Make/Model/Age of Vehicle

You should choose tractors and trailers that are the same make/model with similar vehicle mileage. Comparing tires on a new tractor versus the same tires on a tractor with 500,000 miles would give you misleading results.

Duty Cycle

Service vocation will play a very large role in how tires perform. Tires on tractors that are running from California to New York in a straight line will give significantly higher mileages than tires on tractors that are in a combination of line-haul and pickup/delivery i.e. P&D with lots of turning will lead to faster tire wear.

Age of Tires

If you are running a serious tire evaluation, you will want to run new tires or new retreads. It is almost impossible to run an evaluation on tires that are 30% or 40% worn when you begin tracking the data.

Drivers

We all know that a driver can have a serious impact on his vehicle's performance. If possible, choose drivers that have been around awhile. I was once involved in an evaluation at a small fleet where the same tire designs were evaluated on 10 trucks where 10 drivers where assigned to those same trucks for over a year. All the trucks had similar routes and loads. After 12 months, the steer tires had a very wide range of treadwear between the 10 trucks. It turned out there was a direct correlation between the experience and age of the driver and how the tires performed. The worst tire performance was turned in by the 25 year old "hotshot" driver from Texas. The best results were from Charlie who had been driving for 35 years.

Remember, a good evaluation is always well thought through:

What trucks & trailers

What drivers

What routes & loads

What data do I need to record

- tread depths
- wear conditions
- fuel data
- punctures
- roadside service calls

Taking the time up front to do your homework will result in a successful real-world tire evaluation that will give you the information you need to make the right tire choice for your fleet.

Happy Holidays from everyone at PSI and

Commercial Fleet Tire Digest.

May you and your family have a joyous holiday season.

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