COMMERCIAL FLEET TIRE DIGEST

VOLUME II INDEX

P.S.I.™ 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 2 ISSUE 1 JANUARY 2008

Tire and Fuel Prices Continue to Rise

"Tire prices continue to rise" "Diesel fuel exceeds $3.50 a gallon" Fleet managers read these headlines on a routine basis and know that their company's profits will be affected quite dramatically.

Let's analyze costs associated with a typical 500 truck linehaul fleet that averages 6.5 miles/gallon with each vehicle traveling an average of 120,000 miles per year. At $3.50 per gallon for diesel, this fleet will pay $64,615 (18,462 gallons @ 3.50/gal) for fuel for just one tractor for the year. For their 500 trucks, the annual fuel bill will be $32.3 million. And, what if fuel prices increase 5% during 2008? That would tack on an additional $1.6 million for the year.

The cost of a new commercial radial truck tire typically exceeds $300, but can vary depending on specific wheel position, initial tread depth, tire compound, and manufacture. Of course, the more tires you purchase, the better (or lower) the buying price. Tires are compounded and designed to meet the needs of the various service vocations out in the real world. Some tires are designed to maximize fuel economy, others are designed to maximize removal mileage, and still others are designed to minimize chip/chunk when a tire goes off the road. And there are also tires which are designed to run well in a plethora of operating conditions. Most fleets calculate their bottom line tire costs by using cost per mile…….not the initial buying price. A tire may have a high purchase price but performs better for fuel economy and removal mileage versus a lower price tire. The true measure of a tire's success is cost per mile when it comes to removal mileage. So let's assume that our 500 truck linehaul fleet uses steer tires that average 120,000 miles to removal and cost $325 each. With this fleet averaging 120,000 miles a year, the steer tires will last for one (1) year and the cost per mile calculates to $0.0027 ($325.00/120000 = .0027) for each tire. Fuel efficient tires are becoming more and more popular as fuel prices continue to escalate. Even by being very conservative, if using fuel efficient tires will allow our 500 linehaul fleet to cut just 1% from their annual fuel bill, yearly savings would be $323,000.

To insure a fleet maximizes tire mileage and has the best fuel economy, maintaining proper tire inflation pressure is critical. Tire costs increase significantly when tires are run under-inflated because irregular wear will develop leading to premature tire removal. And on the fuel side, running underinflated will cause greater sidewall flexing leading to excess heat and heat is a tire's worst enemy. Tires running under-inflated by 20% will lead to a minimum reduction in fuel economy of at least 2%. Implementing a serious tire inflation program and utilizing automatic tire inflation systems which adds air whenever the tire is below specification is the best way to mitigate the increased tire and fuel costs facing commercial fleets.

PSI can offer you a Tires 101 Class by contacting Al Cohn

acohnpsi@aol.com

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Q & A PSI ANSWERS YOUR QUESTIONS

Q. How often should I be inspecting my tires?

A. During the driver morning walk-around, tires should be checked for any sidewall damage, tread punctures, and irregular wear patterns. Tire inflation pressures should be checked at least once per week with a calibrated air pressure gauge. If your trailer tires are equipped with an automatic tire inflation system, tire air pressures should be checked when the light that is illuminated on the front of the trailer stays on for greater than 10 minutes.

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VOLUME 2 ISSUE 2 FEBRUARY 2008

Tire Tread Depths - How to Measure & Why its Important

TREAD DEPTH GAUGE

When you purchase a tire, whether it's a new tire or a retread, the amount of rubber (more commonly called "tread depth") has a direct impact on your fleet's bottom line. Tires come in a variety of designs and there are typical ranges of tread depth sometimes known in the tire industry as "non-skid".

Tire Location	Tread Depth Range
Steer	18/32"- 22/32"
Drive	22/32" - 32/32"
Trailer	12/32" - 14/32"

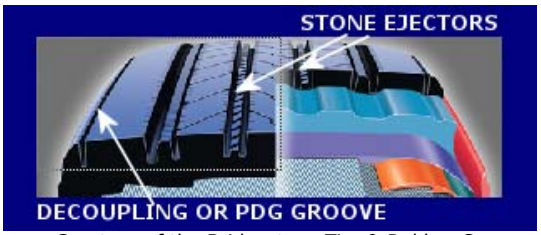
In the U.S. and most of Canada tread depth is always measured in 32nd's of an inch. But the rest of the world measures tread depth in millimeters (mm). I mention millimeters because the majority of tread depth gauges have both units of measures on their gauges (see picture). It is important for your mechanics and drivers who actually measure tire tread depth to be aware that (2) forms of measurement are indicated on the gauge; it is quite easy to read the wrong "column" on the gauge and record the millimeter column in place of inches. One inch = 32/32" = 25.4 mm

Tread depths need to be checked and recorded because DOT has a legal limit - 4/32" for steer tires and 2/32" of rubber for drive and trailer tires. That means that if any spot in the major grooves of a steer tire are found to be 4/32" or less, that tire must be removed from service. However, it can either be retreaded or moved to the trailer and run down to 2/32" minimum before entering the retreading process. Drive tires would be required to be removed from service or retreaded when any major groove reaches 2/32" of rubber to be safe. Most fleets have found over the years that running the tire down to 2/32" will reduce the number of tire casings that are acceptable for retreading because with so little rubber to protect the casing, cuts, punctures, and stone drilling down to the steel belts becomes a problem. To protect your fleet's tire investment, it is better to remove the tire in the 6/32" – 8/32" range to maximize your retreadability.

For trailer tires, if it's a virgin casing, it is best to remove the tire in the 4/32" range to maximize the casing for retreadability. However, if the trailer tire is in its second or third retread life, taking the tire down to 2/32" could certainly maximize your investment.

Most modern tire designs have stone ejectors built into the bottom of the tire's grooves. This is a great invention to prevent stones from getting embedded inside the groove. Without stone ejectors, stones will stay embedded in the bottom of the groove which may lead to stone holding & eventually stone drilling, damaging the steel belts.

Stone ejectors protrude up 2/32" – 3/32" inch from the bottom of the groove. If you measure the tires tread depth incorrectly on top of a stone ejector, the measurement will be off significantly. This would result in a tire coming out of service prematurely which will adversely affect your tire budget.



Courtesy of the Bridgestone Tire & Rubber Co.

The last tip about measuring tread depth: never measure in the decoupling groove which is found in many steer tire designs to reduce irregular wear. This outside decoupling groove is sometimes known as a PDG groove (Pressure Distribution Groove) and they may be very deep or may be very shallow – but it is not the same depth as the major tire grooves.

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VOLUME 2 ISSUE 3 MARCH 2008

Day in the Life of a Trailer Tire

In the February issue we mistakenly gave credit for the photo we used.

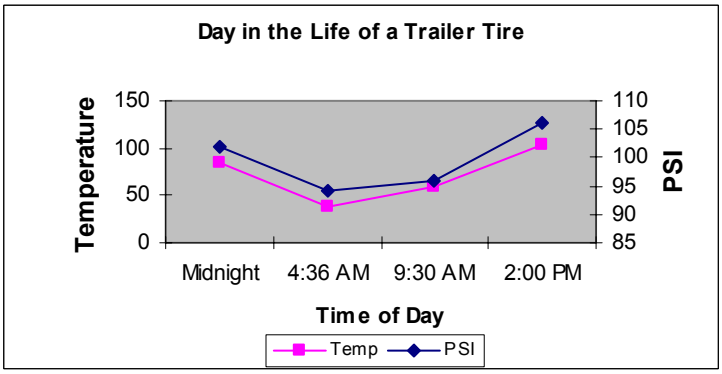
The proper credit for the photo should go to Bridgestone Firestone North American Tire, LLC

In just 24 hours, a commercial truck tire sure can take a lot of abuse. A trailer tire with 12/32" of tread depth will make over 250,000 revolutions in a typical 500 mile travel day. During that day, it will experience changes in load weight, speed and ambient temperatures which influence how the tire will perform and how air pressure will be affected.

As we always remind you, air is what carries the load in the trailer. A loaded 295/75R22.5 dual trailer tire is rated to carry a maximum 5675 pounds at 110 PSI. However, trailer tires historically carry less load weight – closer to 4,000 actual pounds. It is important to understand that the rated load and inflation which is marked on the sidewall of the tire is the MAXIMUM load carrying capacity at a given pressure. Because fleet operations vary – it is up to each company to determine the actual air pressure needed based on their worst case actual tire load scenario. For instance, if you inflated trailer tires to the pressure marked on the sidewall but the actual load/tire was only 4,000 pounds, the tire footprint would not even be close to optimum. Tires would develop significant irregular wear leading to bad fuel economy, lower mileage, and poor traction. We recommend that each fleet perform actual weight studies to determine their worst case tire load and work with their tire professional to determine the optimum tire pressure. All the tire manufacturers have a tire load/inflation chart on their respective web sites.

Once you establish the best tire pressure for your tires, keep in mind that air pressure changes with temperature. But exactly how much? As an example, let's take a look at a trailer tire just sitting under a loaded trailer for 24 hours: At midnight on a calm, Texas evening, a thermocouple attached to the wheel recorded a temperature of 84° F and the outside dual trailer tire was measured to be 102 PSI. By 4:36 AM, the temperature outside dropped significantly to 38°F and the corresponding tire air pressure dipped 8 PSI to 94 PSI. Five hours later (9:30 AM), with the sun rising, the temperature at the wheel-well was now 59°F and the tire air pressure shot back up to 96 PSI. By 2:00 PM, the hottest part of the day, the temperature was recorded to be 103° F at the wheel, with the actual tire pressure increasing a full 10 PSI to 106 PSI in just five hours.

So, during the course of one day, the tire pressure ranged from 94 PSI on the low end to 106 PSI on the high-side; and this was for a non-moving trailer.



Once the trailer starts running down the highway at full load, the air pressure will increase an average of 14% in only 20 minutes. If a driver actually checked his tire pressure on a "hot" tire, just coming off the road, he would think that the tire was significantly over-inflated. This is not the case. Tires are designed to take into account dramatic pressure changes depending on load, speed, and ambient temperature conditions.

Running your tires with the recommended air pressure ALL the time, will keep the tires running cool, maximize mileages, maximize fuel economy, and minimize those expensive roadside service calls.

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VOLUME 2 ISSUE 4 APRIL 2008

Cost of Fuel and Your Tires

On April 23rd, the cost of one barrel of oil was $115.00 and diesel fuel reached well over $4 per gallon in many states. Economic news continues to be gloomy. Many analysts who predicted a significant turnaround by the third quarter are now backing off those forecasts.

The price of a barrel of oil affects both a fleet's number one overall cost - fuel; as well as their highest maintenance cost item, tires. Both costs can be reduced with proper tire inflation. Commercial tire prices have risen by over 5% so far this year, and they will continue to rise because of the raw materials used in the manufacture of a commercial truck tire. As an example, natural rubber has doubled in price over the last couple of years. Natural rubber is used extensively in commercial truck tires because it runs cooler than synthetic rubber. Steel is another major ingredient in truck tires; those prices are rising too. Oils, carbon black, anti-oxidants, anti-ozonants, and various resins are also used in compounding today's truck tires. And guess what….these ingredients are all by-products of that $110 barrel of oil.

If your fleet's tire expenses continue to escalate, what can you do to help offset those costs? Maximizing tire removal miles, increasing vehicle fuel economy, and reducing tire related roadside service calls are all required to reduce tire costs. The easiest way to accomplish all three is to implement a serious tire inflation program.

For trailers, it can be quite straightforward if automatic tire inflation systems are used. Maintaining the proper air pressure at ALL the times is the secret to success and automatic tire inflation systems do that for you. Keeping the tire running cool with the proper footprint will maximize fuel economy, reduce uneven or irregular wear, and increase your retreadability. As for the tractor, since automatic tire inflation systems are not yet widely available for these applications, steer and drive tires must be checked at least weekly on a line-haul fleet and daily on tires that see mixed-service operations. Your shop must be checking tire pressures with a calibrated air pressure gauge (verified versus a master gauge); and if it is not accurate, it should be thrown away. It can take up to 10 minutes to check pressure on 10 tires, but it is really worth the effort. Flow-through valve caps are more expensive than conventional steel caps (plastic caps are not a serious option) but they allow the operator to do a pressure check without removing the cap. Conventional valve caps tend to be lost quite readily, especially in the colder weather.

Fleets report that if they can increase their miles per gallon by even 1/10th (6.6 versus 6.5 miles/gallon), the savings is about $85,000 per year (for a line-haul fleet of 100 vehicles each traveling 120,000 miles per year). And the best way to increase that miles/gallon is by keeping your tires properly inflated.

Q & A PSI ANSWERS YOUR QUESTIONS

Q. About 40% of the time my loads are very light and 60% of the time I carry very heavy paper products. I tend to develop a significant amount of uneven wear on my trailer tires. How do I determine the correct air pressure to be running?

A. Air carries the load. You must determine your air pressure based on your worst case or heaviest load. Weigh your trailer axle when fully loaded with the heavy paper (worst case load scenario) and divide by the number of trailer tires on that axle. Once you know the load/tire, use the tire load-inflation tables available on your tire manufacturer's web sit to determine the correct air pressure to be running. Irregular wear will be minimized by keeping your tires properly inflated.

Utility Trailer presented with inaugural Athena Award for promoting the use of MTIS™ with ThermALERT™ wheel-end heat sensing technology.

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VOLUME 2 ISSUE 5 MAY 2008

Fuel, Fuel, Fuel

Wow, the cost of a gallon of diesel fuel still has not peaked. Every commercial fleet is looking for ways to mitigate this rising cost by increasing fuel economy and minimizing any unnecessary miles.

The factors that can affect vehicle fuel economy are:

Loads: Heavy loads or light loads? Obviously, light loads are the best for maximizing fuel economy; however, when you charge your customers by tonnage they are not particularly good for the fleet's bottom line.

Speed: Higher speeds have been well documented as a major contributor to bad fuel economy. Many fleets are now lowering their maximum speeds to 62-63 mph. Again this is good for increasing fuel economy but it may now take longer to complete trips.

Vehicle Make and Model: Just about all of the Class 6, 7, and 8 vehicle producers offer fuel efficient tractors with a complete aerodynamic package. Trailer manufacturers also offer various aerodynamic fairings.

Road surfaces also can significantly affect fuel economy. The smoother the road surface the better the fuel economy. Today's roads can be made from asphalt, concrete, macadam, and even mixtures which contain "shells" creating anything but a smooth surface. Rough road surfaces may be good for traction, but very poor if your goal is to maximize fuel economy. Additionally tires can wear out more rapidly due to the abrasive nature of some road surfaces. A good example are the roads in the state of Florida. The Florida DOT builds their highway roads with a mixture that includes the shells mentioned above. The combination of shells in the road surface and the state's high ambient temperatures substantially decrease the expected life of a commercial vehicle tire.

Type of Service: The specific service routine or duty cycle of a fleet will also affect fuel economy. Pure Line Haul service (New York to California) would get the best fuel economy versus poorer fuel economy for regional, local service or severe duty vocational fleets which involve a high degree of vehicle turning, stopping and starting, and poor surface conditions.

Drivers can also have a major impact on fuel consumption. The driver that does not rapidly accelerate, is easy on turns, shifts gears at the appropriate time, and knows how to brake effectively, gets the best fuel economy. The new, young and aggressive drivers (just out of truck driving school) tend to have an adverse effect on the fuel economy equation. In addition to mentor programs, fuel bonuses and other programs to encourage drivers to pay more attention to fuel economy, many fleets are adopting automated manual transmissions to offset the impact new drivers have on fuel consumption.

Tires, have a major impact on fuel economy, on top of their own escalating cost that is affected by oil prices – so it's a double whammy! As we mentioned last month, next to the cost of fuel, tires are the highest expense for most fleets; as the price of a barrel of oil increases (now at over $125), cost of diesel goes up and so do tire prices. That's because almost all of the raw materials that are required to compound/build a commercial truck tire are oil based. Tires affect fuel economy when they are run underinflated. The slow loss of air pressure can occur from leaking valve stems, osmosis through the tire casing, and those very common slow "leakers" due to tread punctures. A vehicle running on underinflated tires will consume more fuel than a vehicle with properly inflated tires.

Understanding the factors that affect fuel economy will help today's maintenance manager to choose the right strategy to maximize fuel economy and maximize profits.

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VOLUME 2 ISSUE 6 JUNE 2008

How to Calculate Your Fleet's Tire Budget

Calculating your annual tire budget can be a complex and daunting task. The best way to begin is to look at and understand your fleet's costs in the following categories:

- New tire purchases (steer, drive, trailer, dollie)
- Retread purchases
- New tires/retreads purchased on-the-road
- Selling used casings
- Tire repair materials
- Valve stems and valve caps
- Warranty claims
- Annual tire rebates
- Labor cost to mount/dismount a tire.

Commercial truck tires can typically last for several years, but there are many variables that will determine how long they will last in your fleet. Here's one example:

If you purchase new steer tires for a line-haul operation where each truck travels 100,000 miles per year, those original steer tires should average from 120,000 to 175,000 miles to removal which equates to 14 to 20 months. At that point the casing gets sent out to be retreaded (takes about 1-2 weeks to get them back in service) with a deep 26/32" tread depth for the drive tire position. This first retread could last another two years before it can be retreaded again for trailer use with a 12/32" tread depth. As a trailer tire, it may last another two or three years since the average trailer mileage may be only one third of the annual tractor mileage.

This is just one example; however the tread-wear or miles per 32nd of each tire will vary depending on specific vehicle make/model, route, load, driver, tire manufacturer and design. Any of these variables would change the above calculation, so you can see how quickly calculating an annual tire budget for an entire fleet can become very complicated. The more variables within a fleet the more complex the calculation is. For these reasons, larger fleets typically employ a tire manager to oversee the process and to maximize tire performance. There are numerous tire management software packages on the market to help the tire maintenance manager track these costs and make decisions about tires based on facts…real data generated by your fleet.

Treadwear can be dramatically affected in a negative way if all those highly engineered tires are not run at the specified air pressure ALL the time. Tire budgets will increase dramatically when tires are run underinflated because of the excess heat being generated. Tie this excessive heat with a tire footprint that has become distorted because of the low inflation pressure, and mileage will be significantly reduced…and the tire budget will increase.

Q & A PSI ANSWERS YOUR QUESTIONS

Q. How does water/moisture affect my tires?

A. Moisture is only bad where there is a puncture. Moisture can penetrate through the punctured inner liner and may cause rust/corrosion to occur to the steel casing. It is important to inspect all tires at every available opportunity and make necessary repairs on a timely basis.

To All Fathers, especially to those serving in the Armed Forces

HAPPY FATHER'S DAY

NOTICE:
If you have trailers effected by the flooding in the Mid-west, contact your ArvinMeritor representative or PSI for the Meritor Tire Inflation System by PSI inspection procedure.

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VOLUME 2 ISSUE 7 JULY 2008

Drivers & Your Tires

Drivers can have an enormous impact on your tire expenses, before they leave on a trip and while they are on the road. During their morning walk-around, it is important for drivers to visually inspect tires for any sign of irregular wear, cuts, snags, and punctures; and report that information to the maintenance department either directly or through a log book entry.

But what about checking the tire air pressures during the walk-around? It does take time to check the air pressure on 18 tires (unless you use a Billy club…which is not recommended but still occurs); and how does the driver know that the pressure gauge he's using is even accurate? After checking the air pressure, it is also possible that a valve core can stick causing the tire to lose air. The driver, of course, would need to know what the recommended air pressure is for steer, drive, and trailer tires. Many fleets have different specs for air pressure depending on wheel position.

Even if the driver completes these checks, what if he (or she) finds that the inside dual drive tires are all 10 PSI too low. If he's on the road, will he actually take the vehicle to a truckstop to get air? The driver does not own the vehicle so why should he care if the tire is 10 PSI underinflated. This is exactly why it is so important to give your drivers a Tires 101 update on a regular basis. Most drivers have no idea that the tires on his 18 wheeler may have cost over $6000. During a Tires 101 course, drivers need to hear about tires and how they can influence:

- tire removal mileage
- fuel economy
- retreadability
- tire related roadside service calls

Drivers must fully understand that their jobs depend on helping their employer do everything in their power to get the most out of their $6000 tire investment. If the driver understands that there is a direct correlation between running tires underinflated and fuel economy he could save the company close to $1000 per year in fuel alone. There's more that the driver can do: If the driver, in a morning walk-around, can identify a possible vehicle alignment condition based on steer tire irregular wear, that tractor could be fixed and the tires saved from early removal. And his driving habits matter as well - if the driver does not accelerate aggressively and makes smooth turns, tires will last a lot longer as the tread rubber will not be scrubbed off as quickly.

Many fleets today recognize the role the driver can play in maximizing their tire budget. Most have some sort of incentive program for those drivers who can generate the most miles on their tires and can consistently get the best fuel economy by keeping their tires properly inflated ALL the time. Having a program to educate drivers on these issues can save your company in a very short time, especially with fuel close to $5.00 per gallon.

Go to http://www.bigtrucktv.com /channels / suppliers /PSI to see for yourself how MTIS can reduce your fuel costs

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Q & A PSI ANSWERS YOUR QUESTIONS

Q. If I overinflate my tires will that not be better for fuel economy?

A. Yes, fuel economy may improve slightly but there are many negatives to consider:
- You may exceed the PSI capacity of the wheel
- Tire tread wear mileage will drop because of fast centerline wear
- Drivers will be unhappy because they will be "bouncing" all over the highway
- Traction will significantly decrease

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VOLUME 2 ISSUE 8 AUGUST 2008

Information on a Tire Sidewall (what does it all mean)

There are hundreds of tire manufacturers around the world and combined they make thousands of different tire brands. Additionally, in the commercial truck tire world, tires are designed to run on specific wheel positions (steer, drive, and trailer) in specific service vocations (linehaul, regional, pickup & delivery, on-off road and others).

There is a lot of information cured into a truck tire sidewall that gives you valuable information about that specific tire:

- Tire Manufacturer
- Tire Brand
- Tire size
- Tire load range
- DOT number
- Retread DOT number
- Inflation Pressure
- Maximum tire load
- Safety warning
- Tire Materials
- Directional Tire
- Regroovable

- Tire manufacturer and brand is clearly visible on the tire sidewall in the largest font letter/numbers on both sides of the tire.
- Tire sizes are broken down into standard aspect ratio and low profile. For instance, a 11R22.5 is a standard aspect ratio tire. 11 is the nominal tread width measured in inches. R is for radial, and 22.5 is the wheel diameter measured in inches. The aspect ratio by default is about 90 which means that the tire sidewall width is 90% the width of the tread. In low profile sizes such as the 295/75R22.5, 295 is the tread width measured in mm's and 75 is the aspect ratio. In this case the sidewall is a lot narrower than the standard aspect ratio tire size (90 for standard; 75 for the low profile). The smaller this number, the less sidewall area.
- It is important to understand DOT numbers. The Dept. of Transportation requires a 12 digit number on new tires. Every new tire manufacturer has been assigned a 2-letter/number designation which can be found on the DOT website (http://www.nhtsa.dot.gov/cars/rules/manufacture/).

Retreaders each have a 3-letter designation preceeded by the letter R (for retread). An example of new tire DOT number would be MJ 37 AB3D 1508. MJ is the manufacturer's plant code, 37 is the tire size, AB3D is the design code, and 1508 designates the week and year the tire was built (15th week of 2008). Retread DOT numbers have only 7 digits (preceeded by the R for retread) designating plant code and date of production. If a tire has been retreaded twice, there will be three numbers on the tire - the new DOT number and two retread DOT numbers. This indicates to you how old the tire casing is (or how many times it has been retreaded).

- The tire load/inflation pressure listed on the tire sidewall is the highest load capacity that the tire can handle for a given pressure. Your actual pressures should be determined by the worst case load scenario that the tire will see in real life.
- Load range is just a letter designation for the load carrying capacity of the tire. The higher the letter in the alphabet...the larger is the load capacity.
- There will always be a mounting/dismounting safety warning.
- The type of material used in the tire construction (ie. steel) will be listed with the number of plys.
- Some tires are only designed to run in a single direction; in that case the tire has an arrow that shows the direction the tire needs to be mounted. And most tires say "regroovable" which means that after the tire is worn, there is additional undertread available if you are interested in regrooving versus retreading.

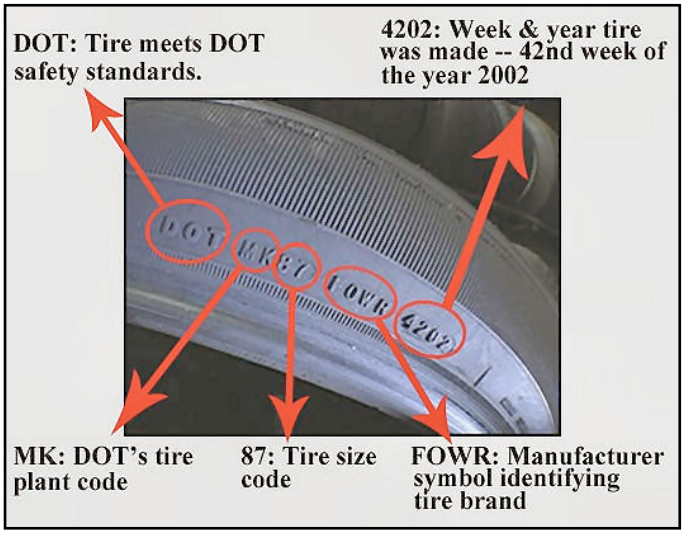

Photo used courtesy of Technology & Maintenance Council

Get your tire questions answered by PSI's tire expert at
http://www.psitiredigest.com/askpsi.html

THE INFLATION SYSTEM

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VOLUME 2 ISSUE 9 SEPTEMBER 2008

T.R.E.A.D. Act - What's it all about?

PSI Celebrates the 15th Anniversary of automatic tire inflation - developed in San Antonio in 1993. Today MTIS™ by PSI is the most widely used system in North America.

TREAD Act is the acronym for "Transportation Recall Enhancement, Accountability, & Documentation Act". In 2000, the fatalities associated with the roll over of Ford Explorers equipped with Firestone tires became a major consumer safety issue, and NHTSA (National Highway Traffic Safety Administration) became involved. Congressional hearings were held in September of the same year culminating in the quick passage (18 hours) by Congress of the TREAD Act.

Because of the acronym, the public probably thinks that the TREAD Act is only about the tread rubber on Firestone tires...but it is not. There are 3 major components:

- It requires that vehicle manufacturers report to NHTSA when they conduct a safety recall in either the US or in a foreign country
- Vehicle manufacturers need to report information related to defects, reports of injury or death related to its products, as well as other relevant data in order to comply with "Early Warning" requirements
- There is criminal liability when a vehicle manufacturer intentionally violates the new reporting requirements when a safety-related defect has subsequently caused death or serious bodily injury

In addition, there are a number of other provisions which mostly address manufacturers of tires and guidance to NHTSA on reporting data for:

- Tire Labeling Standard
- Tire Testing Standards
- Tire Pressure Monitoring Systems/ Automated Tire Inflation Systems

The "Early Warning" requirement is the heart of the TREAD Act, enabling NHTSA to collect data, notice trends, and warn consumers of potential defects in vehicles.

There are no current regulations on tire pressure monitoring/inflating systems for commercial truck tires. However it's important to note that NHTSA is currently running field evaluations of various systems. It is felt that within the next few years there will be new regulations ensuring that truck tires are always run at the recommended tire inflation pressure; or at a minimum, that they have a pressure monitoring system installed.

The NHTSA website www.nhtsa.dot.gov has additional information about the TREAD Act.

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Q & A PSI ANSWERS YOUR QUESTIONS

Q. Can you recommend a good, reliable air pressure gauge?

A. The standard stick gauges that most people use today are accurate when they are brand new out of the box to +/- 3 PSI. That means that a tire could be measured to be 97 PSI with one gauge and the same tire could be as high as 103 PSI with another gauge. If you drop the gauge on the concrete shop floor a few times, depending on how the gauge lands and bounces, it will affect the internal spring, and the result is that the gauge accuracy will decrease. There is only one type of "Stick" gauge that is adjustable all others may not be recalibrated.

You must check the accuracy of your pressure gauges using a master gauge that can be purchased at any of the tire supply companies. If the gauge does not give the correct answer, throw it away and get a new one.

P.S.I.™ 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 2 ISSUE 10 OCTOBER 2008

Your scrap tire pile and what it can tell you to save you money

PSI Celebrates the 15th Anniversary of automatic tire inflation - developed in San Antonio in 1993. Today MTIS™ by PSI is the most widely used system in North America.

It's an excellent idea for fleets to analyze their scrap tire pile on a regular basis, because there is an amazing amount of information there that can save your company a lot of money.

Industry reports clearly show that over 75% of tires in a scrap tire pile did not come out of service simply due to being worn out (down to the minimum allowed DOT tread depth of 2/32" for drive and trailer tires). If you have a perfect tire management program & you retread, scrap tire analysis would reveal that there are NO virgin casings in the pile and the retreads were removed from service because they were worn out (no premature casing failures). But in the real world this just does not happen....issues such as low inflation, over loads, running too fast, and vehicle alignment all contribute to early tire removals. Most fleets (about 90%) utilize retreads because they typically cost about 1/3 of a new tire.

Fleets should work closely with their tire professionals to insure that they understand how to do a proper inspection. The information that should be recorded and entered into a computer database for easy analysis includes:

- Tire Make/Model
- Tire Size
- Original DOT Number
- Each Retread DOT Number
- Lowest tread depth
- Treadwear condition
- # casing repairs
- Removal Reason

Many tire companies offer software to help in this process, or you can use Microsoft Excel to create your own. It is fairly easy to record the appropriate data but the key to maximizing the benefits of having this information is the analysis. You will want to play the "10 question" game – one question/answer will generate a follow up question/answer and ultimately bring you to some conclusions that can assist you in making decisions to mitigate the growing cost of commercial tires:

- How many tires in the scrap pile are original casings, how many are first retreads and how many are second caps?

- You can determine the average age of the casings in your scrap pile by analyzing the DOT numbers from both original tires and retreads. How does that average match up to your own specification for casing age?

- What is the average removal tread depth of the virgin tires and each group of retreads. If the average tread depth is significantly higher than 2/32" then the tires have come out of service prematurely. Why were the tires removed early? If you analyze the removal conditions, you can answer that question.

- If the majority of the second retreads had 10/32" of rubber remaining, this would indicate that you should NOT be retreading a second time...tires are probably experiencing some sort of fatigue/durability issue.

- If you discovered that the typical cause of removal of the new tires was sidewall damage that would indicate that the drivers need to be trained on how NOT to hit every curb.

- If you determine that tires had a high percentage of one sided shoulder wear, then you need to take a serious look at vehicle alignment issues.

- If your tires have circumferential shoulder/sidewall zipper breaks, this would let you know that tires are being run with little or no air for an extended period of time.

These are just a few examples of what you can do with real data. The key to success is to figure how to get the most miles possible from each tire – the cost of which continues to escalate.

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Tires & Inflation Pressure

Happy Holidays from everyone at PSI and

Commercial Fleet Tire Digest.

May you and your family have a joyous holiday season.

One of the most common questions regarding commercial truck tires is: "What air pressure should I be running in my tires"?

The basic fact is that air is what carries the load; but the dilemma is that truck tires see a wide range of loads varying dramatically between heavy and light. Diminishing loads during the course of a single day are also very common. For instance, delivery trucks and fuel tankers start heavy and by the end of the day they are empty. A fleet must base their tire specification on the heaviest load expected.

In the past, many fleets chose a single inflation pressure for steer, drive, and trailer tires because it was easy for the guys in the shop. In actuality, there should be three (3) different air pressure specifications for steer, drive, and trailer tires; and that spec must be based on the worst case load scenario for each tire position. It is preferable to be at a higher PSI than to be too low, because underinflated tires can lead to premature tire removals due to a variety of reasons which we have discussed in previous Tire Digest issues.

A fleet may know that they are running 80,000 lbs GVW, but to determine the proper tire inflation pressure, you must know the worst case load for each wheel position.

Using the same portable weigh scales that law enforcement uses is one way to determine that number.

The result will let you know the recommended PSI based on specific wheel position. Load/inflation tables can be found on all tire manufacturers websites. You will only need to know the tire size, load range, and worst case load weight to find the recommended air pressure. The air pressure listed on these load/inflation tables is based on checking tire pressure at ambient conditions of 70° F. In the following examples, adjustments are made for different ambient air temperatures:

If you check tire pressure when it is 0° F outside, you need to make an adjustment based on a rule of thumb that for every 10° F difference, air pressure should be adjusted + or - 2 PSI. So for this example, measured tire air pressure should be 14 PSI LOWER than shown on load/inflation tables (-70°/10 or -7 x 2 PSI = -14 PSI).

If ambient temperature is 100° F when you check tire pressure, you will need the measured air pressure to be 6 PSI HIGHER (+30/10 or +3 x 2 PSI = +6 PSI)

Bottom line: You need to do a little homework to understand if your tires are over or underinflated based on the ambient air temperature.

Tire Position/Worse Case Load Example

Tire Size: 295/75R22.5 Load Range: G
Ambient Temperature when checking tire pressure: 20° F
Worst Case Load Scenario:

Tire Position	LOAD/ Tire	Total Axle Load
Steer Tire	6175 lbs.	12,350 lbs.
Drive Tire	4885 lbs.	19,540 lbs.
Trailer Tire	4885 lbs.	19,540 lbs.

Load/Inflation Example
Tire Worse Case Load/Position
Tire Pressure Checked at 20°F

Tire Position	Worst Case Load for Each Tire	PSI from Tire Infl Table	Adjust for Temperature	Correct PSI at 20° F
Steer Tire	6175 lbs.	110 PSI	-50F from 70F adjust -10 PSI	100 PSI
Drive (Dual)	4885 lbs.	80 PSI	-50F from 70F adjust -10 PSI	70 PSI
Trailer	4885 lbs. Same as Drive	80 PSI	-50F from 70F adjust -10 PSI	70 PSI

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