

## COMMERCIAL FLEET TIRE DIGEST

# VOLUME VII INDEX

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## SmartWay & Its Technology Program

It is hard to believe that the EPA SmartWay program was launched in 2004, more than eight years ago. The program's goal is to reduce transportation related emissions by creating incentives to improve supply chain fuel efficiency. There are five components of the SmartWay program:

- Transport Partnership: Works with freight carriers and shippers to benchmark operations, track fuel consumption and improve performance.
- SmartWay Vehicle Program: Identifies light-duty cars and small trucks which demonstrate superior fuel efficiency.
- Finance Program: Makes investing in fuel-saving equipment easier for trucking fleets.
- International Interests: Provides guidance and resources to countries that want to develop similar programs.
- Technology Program: A testing, verification, and designation program to help fleets identify equipment and technologies that save fuel and lower emissions. Low rolling resistance fuel efficient tires (LRRT) fall under this SmartWay Technology Program for both new tires and retreads.

There are over one hundred new tire designs and several retreads that are on the SmartWay Verified Technology list. The complete list can be found at <http://www.epa.gov/smartway/technology/tires.htm>. The new tire and retreads listed were tested on a wheel dynamometer and demonstrated a 3% or more improvement in fuel economy relative to the best selling new tires or the best selling retread tires available in the market.

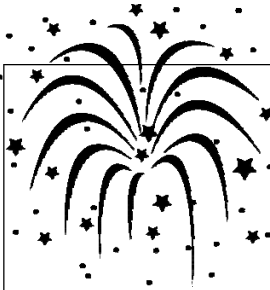
There are two very important points that SmartWay discusses in their dialogue

about low rolling resistant tires and fuel efficiency:

- **To generate the minimum 3% percent improvement in fuel economy you must use the tires from the Verified List on ALL wheel positions (steer, drive, and trailer)**
- **AND the tires must be properly inflated to the manufacturer's specification**

To help the environment by improving fuel economy and reducing emissions with low rolling resistance tires it's required that they are run at the recommended pressure ALL the time. In fact, tires that run underinflated will completely negate the fuel economy improvement that you would expect to receive by purchasing the more expensive low rolling resistance new tires and retreads. Trailer tires are historically the worst maintained tires. Numerous industry studies have shown that trailer tires 10%, 20% and even 30% underinflated (especially those inside duals) are common. When tires are run underinflated the footprint length increases which generates higher rolling resistance and also increases sidewall flexing. The sidewall flexing in combination with the longer footprint generates higher heat which is the tire's worst enemy. Tires that run with little or no air for an extended period of time will fail leading to those road alligators that we all see on our nation's highways.

The key here is proper inflation. Automatic tire inflation systems (ATIS) and tire pressure monitoring systems (TPMS) have been tested by the Federal government on non-LRRT tires showing that they increase fuel economy by 1.4% when a tractor has TPMS and a trailer has ATIS. The combination of these proper inflation technologies and LRRT tires on the SmartWay Verified List will generate even better fuel efficiency and overall performance for your fleet.



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20th  
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# COMMERCIAL FLEET TIRE DIGEST

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

VOLUME 7 ISSUE 2

FEBRUARY 2013

## Choosing the Correct Tire Pressure

To Order a  
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copy of the  
complete  
Volume VI  
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Tires are designed to carry a specific load at a given air pressure. The higher the pressure the more load a tire can handle. Of course there is a maximum load and pressure limit for any given tire size and load range.

It is a legal requirement that the maximum tire load at a specific pressure be molded onto both tire sidewalls during the manufacturing process. For example, the very common 295/75R22.5 Load Range "G" tire can carry a maximum load of 5,675 pounds at 100 psi as a dual tire configuration. A Load Range "H" of the same size can carry a maximum load as a dual tire of 6,005 pounds at 120 psi. A higher load range simply means that the tire can carry additional load because the tire manufacturer typically uses a heavier gauge & higher tensile strength wire in the casing and belt package. In this example, the approximate 6% increase in tire carrying capacity or 330 pounds for the Load Range "H" tire should only be spec'd if you really need to carry the additional load. Load Range "H" tires are always more expensive than the Load Range "G" tires.

should be spec'ing at your fleet. This is why all of the tire manufacturers publish what is known as a "tire load-inflation" table for every tire size. Just do an internet search for **load inflation tables** and you will readily find these tables.

The recommended procedure in choosing the correct air pressure is always based on your worst case load scenario. To use the load inflation tables, first determine the heaviest load your fleet is hauling. Using portable weigh scales or the scales at your local truck stop, measure the actual load either across the axle or on a specific tire. The load-inflation table lists the maximum tire load at pressures ranging typically from 70 to 120 psi. But be careful, if the tire is a dual trailer tire then make sure you read the "dual" line and not the "single" line. The load capacity of a single tire versus the same tire used in the dual configuration is somewhere in the 7 – 10% higher load capacity range.

The whole concept of choosing the correct pressure for your worst case load scenario is to insure that you have the proper tire footprint maximizing treadwear, minimizing irregular wear, increasing fuel economy, and keeping the tire running cool so that the casing will make it successfully through the re-tread process.

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Just because the tire says it can support so much load at a given pressure does NOT imply that is the proper pressure you

## Q&A PSI Answers Your Questions

**Q.** I recently began spec'ing widebase trailer tires with my new trailer purchases. Tires are running fine but concerned about retreading these tires. Any experience in this matter?

**A.** Widebase tires are doing the work of two dual tires. A 445/50R22.5 widebase is about 18" wide. Two dual 11R22.5's are 22" of tread width. Widebase tires are doing more "work" with every tire revolution. They generate higher heat than a dual tire because they are bigger and heavier. If tires are properly maintained with the recommended air pressure, you can expect one retread.



# COMMERCIAL FLEET TIRE DIGEST

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VOLUME 7 ISSUE 3

MARCH 2013

## Tires & Fuel Economy Testing

Stop and see PSI  
and the Meritor  
Tire Inflation  
System (MTIS)  
by PSI  
at  
Mid America  
Truck Show –  
Booth #12069

Tires play a major role in overall vehicle fuel economy and every fleet would like to maximize it and at the same time, get the most tire removal miles. With fuel prices on the rise again and tire prices at record costs, fleets are evaluating the latest and greatest fuel efficient tires to determine what is the best choice for their operation. In some cases the fuel efficient tires have less initial tread depth versus the non-fuel efficient designs. While less rubber is better for fuel economy it will reduce the total miles to removal. If a fleet is currently averaging 15,000 miles/32" on their 30/32" drive tire design and now purchases more fuel efficient drive tires with only 26/32", the difference of 4/32" equates to a reduction of 60,000 miles. Historically, even though the tire removal miles may be lower, the one to three percent increase in vehicle fuel economy gained by specifying the more expensive fuel efficient tires is clearly the winner when it comes to total cost savings.

How is the best way to test various tire designs for maximum fuel efficiency in your fleet? There is a Type II and a Type III fuel test procedure available as approved test methods by both TMC and SAE.

The Type II procedure uses a control vehicle that is NOT modified in any way during the actual test. The control vehicle's tires should be equipped with the current tires spec'd by the fleet. The fuel consumption of this control vehicle is used to generate the baseline data from the real world conditions during the test period. The test vehicle is first equipped with the SAME tires as on the control vehicle to determine the vehicle effect. The next phase is to replace the tires on the test vehicle with the new tires the fleet wishes to evaluate for fuel economy. It is strongly recommended to weigh the amount of fuel that is used to be most accurate in calculating fuel economy.

What is different about a Type III fuel economy test procedure? You need to choose two identical vehicles: A & B. Vehicle "A" is equipped with one set of tires that will be compared to another set of tires on Vehicle "B". The test consists of two runs or segments. In the first segment, Vehicle "A" runs the control tires and Vehicle "B" runs the test tires. In the second segment the tires are swapped between the two vehicles.

To find out more details about these two different procedures and how to do the actual calculations, read RP 1102 and 1103 at TMC or you can visit the SAE website (sae.org) and search for Type II and Type III Fuel Test Procedures.

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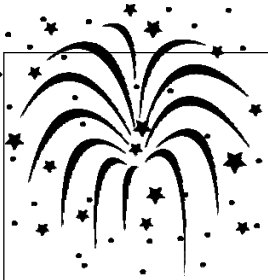
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## Q&A PSI Answers Your Questions

**Q.** I purchased tires that were marketed as fuel efficient tires that have been running for about a year. It appears my fuel economy is up but mileages are going to be less based on the current tread depth. Is that normal to have faster wear rates with fuel efficient tires?

**A.** Many fleets report that tire removal miles are somewhat lower with fuel efficient tires. In some cases the fuel efficient tread may have an initial tread depth that is 2 or 3/32" less than the equivalent non-fuel efficient tire. Less rubber is always better for fuel economy. A worn tire has the highest fuel economy. Some fuel efficient tread compounds are not always the best for treadwear. Better fuel economy far outweighs any loss in early tire removals

## Evaluating Tire & Wheel Related Products/Systems at Your Fleet



PSI  
20th Anniversary  
Fleet Technology  
Event  
May 7-8  
San Antonio, TX

Having recently returned from the Mid America Truck Show with its more than 1000 vendors, I was again amazed at how many tire and wheel ancillary products are available. They include balancers, sealants, rim and wheel coatings, tire dressings, valve hardware, repair materials, fastener locking devices, repair materials, tire pressure monitors, and automatic tire inflation systems. An excellent source on how to evaluate these types of products at your fleet can be found in Recommended Practice RP-242 published by the Technology Maintenance Council of the American Trucking Association.

The first step in the process is to establish exactly what will be evaluated including the claimed feature and benefits of the product. The expected return on investment calculation is critical to see if the product makes sense from a financial standpoint. To determine ROI you will require purchase price, maintenance costs and disposal and/or recyclability costs. Then the second step is to establish how product performance is measured. Is it tire removal miles, cost per mile, reduction in tire related roadside service calls, improved fuel economy or simply less maintenance time?

The next step in the process is to work out the details for the specific field evaluation. This step takes the most time and needs to be well thought out. There is nothing worse than running a new product for a year or two and then discover that the proper data was not tracked and/or the sample size was so small that the driver effect far outweighed

the actual test results. From a statistical standpoint, the minimum sample size is thirty or more. In real world testing, products can fail, become lost, or involved in an accident. At the end of the test, the goal is to have a sample size of at least thirty of the control group and thirty of each test product. Make sure that the time frame of the test takes into account all the various weather conditions and geographies. Taking interim measurements during the test is very useful to insure that the product is really doing what it was designed to accomplish.

The fourth step in the process is to conduct the evaluation. Meeting first with your drivers and mechanics will go a long way towards completing a successful test. These folks need to buy into the evaluation up front. During the evaluation try to assure that there is no change in the use or maintenance of the product. Don't change the normal routine.

Step five is to analyze the data once the evaluation has been completed. This can be a very difficult task to do correctly. There will be an abundance of data to review. Creating graphs and charts will visibly point out any erroneous data. Include standard deviations in all your calculations.

The final step in the evaluation process is to physically write a report. It is always a good idea to share the information with all the people that participated to show your appreciation. At the end of the day everyone will know if the new product performed like it should and had met your ROI requirements. Bottom line is to purchase products that improve your fleet operations while reducing your costs.

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# COMMERCIAL FLEET TIRE DIGEST

*The authoritative guide to reducing commercial tire expenditures from  
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VOLUME 7 ISSUE 5

MAY 2013



May 27, 2013 is  
Memorial Day.  
Please  
remember all  
men and women  
who have died in  
military service  
to the  
United States.

## What is Trending in Trucking?

The last several months have been industry conference and tradeshow season. Just about every week there has been a major event somewhere in the country. The good news coming out of these events is that monthly Class 8 truck sales have climbed above 20,000 units for five consecutive months. Trailer sales have also been strong this year. Other issues being discussed during these trucking industry conferences include:

Federal Motor Carriers ruling regarding Hours of Service (HOS), attracting new drivers and retaining existing drivers, EPA SmartWay program, Compliance Safety Accountability (CSA) program, reducing carbon footprint (improving fuel economy), and roadability of the current intermodal chassis pool. When it comes to commercial tires, the hot subject is using innovative new materials to help improve fuel economy without adversely affecting removal mileage and traction. That's because as the world population continues to grow from 7 billion in 2011 to an estimated 9.2 billion (30% increase) by 2050, there will be continued pressure on all natural resources and reducing the carbon footprint.

The HOS rule was implemented to make sure truck drivers can get the rest they need to operate safely when on the road. The rule was designed to reduce fatigue related crashes involving trucks and to save lives with the final rule reducing, by twelve, the maximum number of hours a truck driver can work within a week. Under the old rule, truck drivers could work on average up to eighty-two hours within a seven-day period. The new rule limits a driver's work week to seventy hours.

In addition, truck drivers cannot drive after working eight hours without first taking a break of at least thirty minutes. Drivers can take the thirty-minute break whenever they need rest during the eight-hour window. In the new rule, the eleven hour daily driving limit is still valid. There is also a "34-hour restart" provision that allows drivers to restart the clock on their work week by taking at least 34 consecutive hours off-duty. The restart provision occurs only once during a seven-day period.

EPA SmartWay program has been in existence for several years now and has been a winner. Fleets are more conscientious in reducing carbon footprint & improving fuel economy by spec'ing fuel efficient tires and maintaining proper tire air pressure all the time, using APU's, reducing idling time, and spec'ing equipment with aerodynamic fairings.

The CSA program has had a dramatic game changing effect on both fleets and drivers since both are penalized for running trucks and trailers with equipment issues. Lights, tires, and brakes have been the major contributors to roadside violations. Because of CSA, drivers want to be driving only the newest and best maintained equipment to insure that penalty points are not assigned to them. When it comes to the intermodal industry and chassis, the subject is all about making sure that the chassis meets the stringent roadability regulations.

Keeping up with new rules, regulations, and new technology are real benefits to attending as many of these industry events as your schedule allows.

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# COMMERCIAL FLEET TIRE DIGEST

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VOLUME 7 ISSUE 6

JUNE 2013

## Inspecting Your Tires

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

[al.cohn@psi-atis.com](mailto:al.cohn@psi-atis.com)

To be proactive with your tire program is always a good thing. As the average tire price has increased considerably over the last three years along with fuel in the \$4.00 per gallon range, maximizing fuel economy and tire removal miles is a goal of every fleet. A serious commercial fleet tire program includes a thorough education of Tires 101 for both technicians and drivers. A Tires 101 class is not a single event when a new tech or driver hires into the organization, but must be an on-going process.

Fuel economy improvement will have the largest impact on reducing your overall maintenance budget. If you can gain even a conservative 2% in vehicle fuel economy improvement through a combination of purchasing fuel-efficient tires and automatic tire inflation systems, the payback will be almost immediate. As you evaluate fuel efficient tires, keep in mind that depending on the specific make and model, some may have less non-skid or tread depth versus the tires you are comparing them against. Less initial tread will give better fuel efficiency but will also result in less tire removal miles. What you save in fuel costs is well worth the trade off.

Drivers and technicians must understand that tires are a significant fleet investment and must be taken seriously. Maintaining proper tire inflation pressure all the time will result in the "perfect" tire

footprint and lead to nice smooth even wear. If irregular tire wear develops because of alignment and/or underinflation, the result is that tires will be removed early from service reducing their useful life, and fuel economy also drops because the tires no longer have an even tread pattern as they rotate down the highway.

The morning walk-around by drivers is an important part of any tire program. Drivers are the early warning system to tire issues. Punctures, sidewall damage, leaking valve stems, and uneven tread patterns can be identified by trained drivers. However, simply thumping the tread with a club and kicking the tire sidewall is only going to identify a completely flat tire. By industry definition, a tire is considered flat and should be taken out of service if the tire is 20% lower than the fleet air pressure specification. There is a reason why a tire has lost 20% of its air. Just re-inflating the tire is not recommended because it will continue to lose air. Dismounting the tire from a wheel and doing a thorough inspection is the proper course of action.

The TMC of the American Trucking Association publishes the Radial Tire & Wear Conditions guidebook which explains the reason why you see specific tread patterns. This is an excellent source of information about what causes tires to develop irregular wear and how to rectify the problem.

Fleets need to be working closely with their tire professionals to help optimize their tire program.

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## Q&A PSI ANSWERS YOUR QUESTIONS

**Q.** I have 3 different stick pressure gauges in the shop and I get 3 different answers when we check the same tire. What gauge is recommended?

**A.** Brand new stick gauges out of the box are only accurate to +/- 3 psi. When gauges are dropped on a concrete floor, the gauge will only become even less accurate. Checking your gauges versus a master gauge is the only way to determine if your gauge is accurate. Stick gauges are available in the market which are adjustable and can be calibrated.



# COMMERCIAL FLEET TIRE DIGEST

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VOLUME 7 ISSUE 7

JULY 2013



*Thanks to our troops serving around the world for protecting our independence and freedom !*

## Spec'ing the Right Tires

Determining the proper steer, drive, and trailer tire to run in your fleet is not always as straight forward as one may think. Most fleets have vehicles that see a variety of specific service vocations and their tire specifications generally reflect that. For instance, spec'ing a fuel efficient steer tire is probably the correct choice for those vehicles running in line-haul applications going from coast to coast; but other vehicles, which are running more regional service with a high percentage of city driving with a lot more turning, will want to spec a deeper tread regional steer tire. Additionally many fleets have multiple tire makes/models for each wheel position on the same vehicle based on the application. This will of course make life much more complicated since you will probably be working with multiple tire vendors. In many cases based on your own independent testing, you may discover that tire manufacturer A has a wonderful trailer tire that is really fuel efficient plus gives long miles. Tire manufacturer B may have a drive design that yields the longest removal miles and is not sensitive to heavy and light loads. The list can go on and on. Many fleets today are working with multiple tire companies because of the diverse product offerings.

It becomes very important to evaluate various tire products, both new tires and retreads on a regular basis to optimize tire performance and keep your tire

budget in line. Not only do your tractors and trailers change based on your current equipment purchase plans, but tire companies come out with new and improved products on a regular basis. The more vehicle models you have running in your fleet in combination with the various service vocations will determine the number of testing variables and what tires to spec on the specific wheel positions.

Whenever you do run a tire evaluation you will want to choose a sample size which is large enough so that at the completion of the test (which may last a year or longer) you have enough data to make it statistically valid. It is not worth the time and the considerable effort to run only a couple of vehicles on an evaluation as the driver effect will certainly outweigh anything you were hoping to learn about a specific tire make/model. A serious tire evaluation involves getting your whole team on board to understand that a test is underway and what variables you are recording. Vehicle make and model, ID, mileage, tread depth, pressure, and wear conditions all need to be recorded on a regular basis. If a tire gets damaged during the test it is important that you at least have the last inspection data to use in your analysis.

The bottom line is to take the time up front to determine what vehicles and tires you wish to evaluate prior to initiating a serious field test. Then you will be able to run a data analysis to determine which tire works best on which vehicle model in what service vocation and on which wheel position.

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## Q&A PSI ANSWERS YOUR QUESTIONS

**Q.** What is the most accurate type of truck tire tread depth gauge?

**A.** The most accurate gauge is a digital readout type however it really is only required for tire engineers who are looking to decimal point accuracy when evaluating various prototype tire designs. The standard probe type gauge is just fine for fleets to measure tread depth as long as it shows a zero value when measuring on a flat surface. Trick is not to measure at the top of a stone ejector located at various spots around the bottom of a groove.





# COMMERCIAL FLEET TIRE DIGEST

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VOLUME 7 ISSUE 8

AUGUST 2013

## Mileage or Fuel Economy?

*Happy Labor  
Day  
From  
PSI  
Tire Digest!*

What is the goal of every tire program? In the past, a serious tire program always included maximizing tire removal miles and getting the most retreads on every casing which would lead to improved total cost/mile. Today, maximizing miles and retreads is still important but fuel economy is now included at the top of that list.

Let's assume you are operating a one hundred truck line-haul fleet and are averaging 6.0 miles/gallon. Your vehicles run 100,000 miles/year. Now as the tire fleet manager you are considering purchasing fuel efficient drive tires to improve fuel economy. The fuel efficient drive tire design has 28/32" tread depth versus your current control or "regular" drive tire which has 30/32" of rubber. In many cases, in addition to tire design and compound enhancements to build a fuel efficient tire, tire engineers begin with less initial tread depth to reduce tire weight and heat buildup; all of which leads to improved fuel economy. Your current drive tires last three years running an average 300,000 miles and cost \$400/each. If you currently average 15,000 miles per 32" of tread, the reduction of 2/32" of rubber (28/32" vs. 30/32") means that your new fuel efficient drive tires will last 270,000 not the 300,000 miles that you're getting from your current tires, a 10% mileage reduction. In addition, the new fuel efficient tire has a 10% price premium, costing \$440/each.

So the question is, since the fuel efficient tire costs 10% more and it gives you 10% less removal miles, is it really worth the 2% improvement in fuel economy expected? It sounds like more bad than good until you do the math.

Two percent improvement in fuel economy will give you 6.12 miles/gallon instead of the 6.0 you are getting with the control tires.

Each of your trucks will use 16,667 gallons fuel/year/truck at 6.0 miles/gallon and 16,339 gallons fuel/year/truck at 6.12 miles/gallon. This is a savings of 328 gallons per year/truck; at \$4.00 for a gallon of diesel, there is a fuel **savings of \$131,200** for your one hundred truck fleet. It's a simple calculation to determine if the reduction in miles/tire and the added acquisition cost of fuel efficient tires is worth it for the potential money you will save on fuel.

The cost/mile of the control tires =  $\$400 \times 8 \text{ tires} / 300,000 \text{ miles} = \$0.11$

The cost/mile of the fuel efficient tires =  $\$440 \times 8 \text{ tires} / 270,000 \text{ miles} = \$0.13$

The 10% loss in removal miles plus the added cost for the tire will increase tire cost/mile by \$0.002 (\$0.13-\$0.11).

For your fleet:

The fuel efficient tire cost over (3) years =  $100 \text{ trucks} \times 270,000 \text{ miles} \times \$0.13 = \$352,000$ .

The control tire cost over (3) years =  $100 \text{ trucks} \times 300,000 \text{ miles} \times \$0.11 = \$330,000$ .

Difference of tire cost over (3) years = \$22,000

Versus the fuel savings with fuel efficient tires at 2% MPG increase =  $\$131,200/\text{year} \times (3) \text{ years} = \$393,600$ .

So what does all this mean? Over a three year period you will be paying \$22,000 more for your fuel efficient tires but the fuel savings at only 2% improvement gets you \$393,600 saved! It is obvious what the better decision is for your fleet.

Of course, if you do not maintain proper tire inflation the advantage in fuel economy will be dramatically reduced and may negate the added initial cost for the fuel efficient tires.

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VOLUME 7 ISSUE 9

SEPTEMBER 2013



September,  
as well as  
throughout the  
year, is a good  
time to  
remember those  
lost on 9/11/01  
- We should  
never forget.

## Tire Tread Design Options

When a commercial fleet is in the market for new tires the number of options for possible replacement tires is large. Not only are there a number of tire manufacturers to choose from, but each typically offers a full menu of tire designs. The semantics may change between tire companies but there are basically four categories of tires to choose from:

- Linehaul
- Regional
- Pickup & Delivery (Urban)
- Vocational

The difference between linehaul and regional is that linehaul trucks make runs over 500 miles and can generate as much as 200,000 miles/year with a tag team. Regional hauls are usually around 250 miles each and generate anywhere between 30,000 and 80,000 miles per year.

Pickup & Delivery (P&D) operations involve more city driving with lots of stops and low mileages. 20,000 – 60,000 miles/year is typical for this type of service.

Vocational operations see both on and off road duties and include specialty markets such as refuse, logging, construction, and utility.

On occasion, some fleets may run vehicles which see a combination of these four categories. This makes it more difficult to always pick the best tire for their specific application.

Regardless of the specific type of service vocation, every fleet wants to maximize tire removal miles, maximize the number of retreads, have great traction in all weather conditions and in the case of linehaul and regional fleets, to maximize fuel economy. P&D along with vocational service tend to scrub the rubber off so quickly

which, in combination with all the turning, make fuel economy a non-issue. Trucks that run in the city and in on/off road environments also are looking for resistance to chipping/chunking of the tread and elimination of any stone holding and drilling issues which will adversely affect retreadability for them.

Tires which run on the steer and trailer wheel positions are usually rib designs that have grooves running circumferentially around the tire. Sometimes the grooves are straight and other designs can be zigzagged. Zigzagged grooves are better for city driving where you need more traction. The straight grooved tires are better for fuel economy and linehaul operations.

Tires designed with lugs are used on the drive position because they are superior for traction. Some drive tires have open shoulders where the lugs are located 360 degrees around the tire including the shoulder. This design is found on tires designed for on/off road applications where traction is the most important factor. A closed shoulder drive tire has wide shoulder ribs that are resistant to side forces. This allows for the use of deep treads found in linehaul tires. If the tread depth is too deep with lug drive tires, the lugs will tend to squirm and generate a high degree of irregular wear which leads to early tire removal.

With all the choices available to a fleet manager, it is always recommended to work closely with your tire professional to fully understand all the tradeoffs when it comes to choosing the proper tread design. And of course, keeping your tires properly inflated can only help maximize tire life, retreadability, and fuel economy and keep your costs in line. A good source of more detailed information on this subject of tire selection can be found in TMC's RP 220 - Tread design selection.

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## Tire Cost Control Program

New commercial tire prices have not been rising this year nearly as precipitously as during 2011 and early 2012. This is a good thing for fleets as they can now concentrate on keeping their overall tire program costs in check. Having said this, *The Rubber Economist Ltd* as recently as October 2<sup>nd</sup> stated that consumption of two major raw materials that go into producing truck tires, natural rubber and many oil based materials such as carbon black and various oils/resins, is poised to increase. According to *The Rubber Economist Ltd* this will diminish the current surplus of these materials and boost prices. Case in point, China had a six-month slowdown in natural rubber use but now that use is starting to climb. China uses 35% of the world's supply of natural rubber so when China's and the rest of Asia's economies kick into high gear that is when rubber pricing will start to climb and we will likely see the next jump in tire prices.

So what is important to consider when reviewing your tire program? Keeping track of the most important parameters which include both new and retread tire removal miles is an obvious key metric. Tracking removal miles on a regular basis will help identify any possible action items. If the removal miles start trending down, is it because of maintenance issues such as vehicle alignment or running tires underinflated. Or is it due to a new routes

or different loads? If the mileage trend is moving up in the positive direction then you need to make sure you identify exactly what changes created this good news. It is possible that a recent change in tire model in combination with more frequent pressure checks was the key to success.

Often fleets identify that Tires 101 training for both their mechanics and drivers can have a significantly positive effect on their tire program. This training should not occur for just a few minutes on the first day the technicians and drivers hire into your company. Training needs to be ongoing. Being able to identify specific tire wear patterns and their cause is really important to fully comprehend because there are so many various types of irregular wear conditions that can develop during a tire life. Drivers can be an early warning call when it comes to alignment and underinflation conditions. A good example is identifying steer tires that have either inside or outside shoulder wear, which is clearly an alignment issue that can be easily corrected. Another example is a tire with 360 degree erratic irregular wear that happens when a tire is run underinflated for an extended time. This is when you need to be looking more closely at your tire inflation program.

Our team at PSI is always available to present a Tires 101 class for your drivers, technicians, and maintenance team. Contact [al.cohn@psi-atis.com](mailto:al.cohn@psi-atis.com) to schedule a session for your fleet.

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## Q&A PSI ANSWERS YOUR QUESTIONS

**Q.** I downloaded the tire load/inflation table for the 295/75R22.5 size. Should I use the average load/tire to determine the recommended pressure?

**A.** NO. The recommended tire pressure is always based on the worst case which is the highest tire load scenario. Air is what supports and carries the load for a tire.



# 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 7 ISSUE 11

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## Trailer Tires & Inflation Pressure



Happy Holidays  
from  
PSI  
and  
Commercial  
Fleet Tire Digest.

Commercial fleets have a difficult decision to make when deciding what tire pressure specification is the best for their operation. In the past, it was very common for fleets to simply choose one tire pressure for all their tires regardless whether the tire was run on the steer, drive, or trailer position. This made the life of the mechanics and tire buster's job easy because they only had to recall one number. If there were three different tire pressure specs or more, then it made for confusion and errors. It is important to understand that air carries the load and the minimum proper tire inflation should always be based on the worst case tire load scenario. Tire/Load inflation charts which are available on tire company websites show the maximum load at a given tire pressure for every size tire. You do need to be careful reading these charts since the maximum load for each tire size is listed for running that tire as a single and a different load when the tire is run as a dual position.

Fleets often set trailer pressure specs at the higher range of the recommended pressure as listed on the tire/load inflation charts to allow for loss of air that is likely to develop on trailer tires over time. Trailers, unlike tractors, may not come back to the shop for months and months. Over time, tires are going to lose air due to osmosis through the casing and slow leaking tread area punctures. Sometimes the valve core will leak and also lead to loss in air pressure

As an example, a review of the load/inflation tables for the popular 295/75R22.5 Load Range G tire as a dual shows that the maximum load that size tire can handle at 100 psi would be 5,260 pounds. If you multiply by four 295/75R22.5 tires @ 100 psi across the axle the total max axle load calculates to 21,040 pounds. However, typical 53' van trailers are equipped with 17,000 lb axles

unless they have a 10' spread and then the axles are rated at 20,000 pounds. A fully loaded 17,000 pound trailer axle equates to an individual dual tire load of 4,250 pounds. Using the load/inflation tables, a load of 4,250 pounds requires only 75 psi. We know of not even a single fleet that is running 75 psi. The most common pressure specs for fleets is 85 – 110 psi

By setting the specified tire pressure higher, it allows for the loss of air between maintenance checks and higher tire pressures will improve vehicle fuel economy, which is the goal of most fleets today. The payback in increasing vehicle fuel economy even 2% by keeping the tires properly inflated to your fleet's specification ALL the time is the goal of every fleet. Higher pressures will keep the tire running cool which will significantly help maximize the casing retreadability.

Automatic tire inflation systems are so popular among fleets today because with them trailer tires will constantly maintain the fleet specified pressure. Trailer tires are always the most neglected on a tractor-trailer. Inside duals are historically worse for proper tire inflation because they are just not checked very frequently. It requires bending down, getting dirty, and reaching your arm between the wheel hand holes to measure a tire pressure. With automatic tire inflation systems, if the tires don't get checked they'll still continue to run at the fleet's preferred tire pressure resulting in long life and tires that look good. Minimizing irregular wear will lead to improved fuel economy because the tire is smooth and even. And of course expensive and costly tire related roadside service calls are significantly reduced and/or eliminated. Even with multiple tire punctures, the automatic tire inflation systems will still maintain the proper tire inflation spec as the vehicle is running down the highway.

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