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Designing a Good Tire Evaluation

Commercial trucking fleets are always trying to lower their tire cost/mile. According to the September 2015 study by ATRI the average cost per mile in 2014, depending on the specific service vocation, had increased to .029 per mile in 2009. Maximizing tire removal miles and increasing the number of tire casings that can make it through multiple retread cycles will keep tire cost/mile numbers low. The tire make and model that you are running in your fleet on steer, drive, and trailer positions can have a major impact on your tire cost/mile number.

Tires may all look round and black but they do not all have the same performance characteristics. The materials and construction that go into the development of a radial truck tire can be quite different from one tire make/model to another. Additionally, tire manufacturers introduce new tires on a continuing basis.

So how do you know if making a tire change in your fleet will be advantageous? The only way is to track tires on a given number of tractors and trailers. In RP230B, TMC recommends a sample size of thirty. Tracking tires on thirty vehicles is what it takes to do a statistically sound tire evaluation. For small operations with few trucks and trailers, a reduced number of vehicles can be evaluated as long as they represent a meaningful percent of the total fleet size.

Why such a large recommended sample size? It's because there are many parameters that can affect tire removal miles:

- Driver
- Route (Service Vocation)
- Load
- Vehicle Make/Model
- Speed
- Vehicle Alignment
- Tire Inflation Pressure

The driver has a huge effect on tire performance. Industry studies done over the years show that the driver can affect tire mileages by up to 30%. An aggressive

driver with turning and braking can scrub the tread off tires very quickly.

Vehicle route also plays a big role in tire mileage. Travelling over hills and mountains is a lot tougher on tires than running on flat terrain.

And weight matters: If a driver is hauling a load of paper chips, fuel economy and tire removal mileages are typically very good when compared to a driver hauling steel products.

Of course the specific vehicle make/model, and in what type of operation they are used, has a major impact on tire removal mileages. For instance, "Steer Tire A" may average 200,000 miles to removal on one vehicle model running in linehaul service while the same steer tire may see only 175,000 miles on a different vehicle configuration.

The faster a vehicle travels down the highway, the more friction and therefore heat is generated by the tire. Heat is a tire's worst enemy and the result is the rubber becomes hotter and softer, and tire miles are reduced.

Vehicle alignment of both the tractor and trailer are crucial to tires running smoothly and evenly down the highway. In some cases, while the tractor may have perfect alignment the trailer may not. This will adversely affect not only trailer tire wear, but the tractor tires will also be affected with uneven wear.

Maintaining proper tire inflation pressure is not only important to maximizing fuel economy but tire mileages will be reduced if they are not running at the recommended tire inflation pressure which will lead to excessive tire heat buildup and early tire removals.

It is obvious that with so many variables affecting tire mileage the sample size needs to be significant to run a serious tire evaluation. Running only a few tires on an evaluation will lead to inconclusive results and waste a lot of time and effort. It's always a good idea to work with your tire professional when designing a test to evaluate a new tire design in your fleet.