Are Alignments on Trucks and Buses a GREEN procedure or a Money Drain (Part 10)

In order to talk about Inflation we need to set up some standards by which we can consider the matter. First of all, tires should be inflated properly for the load they are carrying. In other words, more load requires more air in the same size tire. Second, 20% under inflation reduces tire life by 20% but 20% over inflation only reduces tire life by 5%. Or, more air is better than less air. Third, it is common for a commercial tire to loose 3 to 5% inflation in 30 days operation. So if you know the minimum pressure required for a load, and you start with that pressure, you can be reasonably certain that you will be under inflated in a month.

Next let's consider the typical tires and loads used in the US for highway applications. The most common tire size is a 295/75R22.5 or a 275/80R22.5 which are basically the same tire from two different companies. These are also typically in a load range G rating but there is a trend to move to a load range H. For our purposes we will stick with the G rated tire. Inflations nationwide tend to be 100 PSI in the front, drive and trailer tires. This is simple and easy for the mechanics to maintain. Loads on the axles are 12,000 LBS on the steer axle and 17,000 LBS on drive and trailer axles. This means that each steer tire is carrying 6,000 LBS while the drive and trailer tires are carrying 4,250 LBS.

Since the steer tires are carrying 50% more load than the drive or trailer tires but they are all inflated to the same pressure, somebody has too much air or somebody has too little or a combination of both. To sort out what's right or wrong I have referred to the 2014 Continental Tire Data Guide on page 33. This is the Load and Inflation Chart and it includes both the 295 and the 275 tire sizes. Both of the tires in a dual application carrying 4300 LBS require a MINIMUM 75 PSI cold inflation according to the chart and for a single tire carrying 6,175 LBS a MINIMUM 110 PSI cold inflation. As tire temps increase the pressure will rise but you should NEVER have less than the specified pressure at cold inflation to carry that load.

At 100 PSI the steer axle can only carry 11,600 LBS while at the same pressure the drive or trailer axles can carry 21,000 LBS. The real question is what works? For 40 years we have run dual wheel pressures from 90 to 100 PSI and found it produces satisfactory tire performance. No one I have ever met claims that they run 75 PSI in

the rears, let alone that they are happy with that pressure. On the other hand, we are constantly complaining about the performance of the steer tires. But when I bring up more pressure in the steers, you would think I was speaking against the local sports team. Burn him at the stake! Run him out of town! If you run the tires over inflated they will wear on the edges! Do the dual tires wear on the edges? They are being run 33% over inflated!

But the sidewall of the tire says that 110 is the Max pressure for the tire! WRONG!!! The sidewall specifies the Max LOAD for the tire and in order to run that load it also specifies the MINIMUM PSI for that load. You can run more air than that but you should NEVER, EVER run less air than that if you have that load on the tire. And if you run minimum pressures you leave no margin for unexpected changes. For example, how much load is on the steer axle when you apply the brakes? Load shifts to the front axle at the worst possible time for the tire.

There are more things to talk about with regard to inflation so I will continue this in Post 11 and 12.

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