

MD Alignment

Are Alignments on Trucks and Buses a GREEN procedure or a Money Drain (Part 25)

Road Wander or a feeling of directional instability, can be caused by loose components such as drag links, universal joints in the steering column, missing bolts in the rear suspension and many more. In addition, air in the steering fluids can contribute to this. Once those “usual suspects” have been checked we wind up with three classic items.

First improper toe setting. If the toe is out while driving there will be a fight between the two steering tires for directional control resulting in Road Wander. A proper “As Driven” toe measurement normally will find the problem. This concept is discussed in Part 3 of this series.

Second is improper or too low a caster setting. Power steered vehicles require a minimum of 2 degrees caster for long wheel based and tandem drive vehicles to a normal max of about 6 degrees of caster for short wheel base vehicles. Please keep in mind that the higher the caster setting the more rapid the steer tire wear and the rougher the ride. Improper caster is usually the result of using different caster shims in the leaf spring stacks. This attempt to “twist” the caster in the axle causes wrap up in the springs and torsional twisting of the axle that will increase and decrease as bumps are hit. This causes directional instability.

Third is an imbalance between the tread depth of the steer tires and the drive tires. The sensitivity of the steer can be affected by having new (deep tread) tires on one end of the vehicle and almost worn out tires on the other end. This is more pronounced on single drive vehicles than on tandem drives. It does not seem to matter which way the imbalance is set up. Tall on the front vs short on the rear can be just as sensitive as the opposite condition. This is caused by the speed of reaction to directional inputs. With mostly worn tires on the front, for example, there is little tread squirm and rapid directional response while with new or tall tread tires on the rear there is a lag in the



MD Alignment

response due to tread squirm. This difference in response rate causes the feeling of instability in directional control.

In the next and last post I will try to summarize the concept of alignments as a GREEN procedure.

