



M.D. Alignment

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If you have comments or suggestions with regard to this or any of our bulletins, contact me at:
mike_beckett@mdalign.com

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Freightliner Cascadia's with Rack "N" Pinion Steering

We have been getting reports of premature wear on the outside edge of the right front steer tire on this model truck. At first we pursued the normal alignment issues and found in most cases the problem did not go away. After further investigation we have come to the conclusion that the wear starts while the truck is in a turn. This Rack system allows the wheels to make up to 50 degree turns from straight ahead. Combining the King Pin Inclination (KPI) and the Caster that is normal in this axle with this severe a wheel cut causes the inside tire to lean up on the outside edge inducing rapid tire wear. Once the pattern is started, the rib will continue to drag while in the straight ahead position resulting in premature shoulder wear.

There are other makes and models of trucks that list 50 degree and higher wheel cuts but we are not getting complaints on these. We are not sure what is causing the wear to focus on the Rack systems but we want to try reducing the wheel cuts and see if it solves the tire wear issue.

Drivers tend to make sweeping left turns and tight right turns which places most of the severe pressure on the outside of the right front tire. Without trying to re-engineer the truck, the simple solution is to adjust the steering stops on the axle to prevent a wheel cut of more than 40 degrees or 2 turns of the steering wheel. In its normal arrangement, the steering wheel will turn 2 ½ turns and it is the last ½ turn that causes the problem in our view.

It seems that owners of the truck will have a choice of tight turns or tire life.