

Safety Alert of THE MONTH

September 2011

PLEASE PASS THIS ON TO PEOPLE AND ORGANIZATIONS IN BC'S FOREST INDUSTRY

He had gotten an early start that morning and hoped to avoid the heavy traffic the 600 Road had seen that week. It would be a long day of driving since there were a couple of hours between each of the blocks he planned to visit. He started to mentally run through the list of blocks and was reminded he had to check in with the tire shop when he got back to town and while he was at it he should double check on the parts they had ordered for the buncher. Slowing for a corner, he called his kilometers as a loaded logging truck appeared around the bend. 'Better move a little further off the road' he thought as he maneuvered the truck towards the shoulder. Nothing happened. He had no steering control. He gritted his teeth as the truck veered right and headed for the ditch, bouncing roughly off the road. He rolled to a stop and climbed out shaken.

"Hey man, are you ok?" It was the logging truck driver, who had seen him go off the road and stopped. "Yeah, I'm alright I guess. I just don't know what happened. One minute I was fine, the next I couldn't steer worth nothin'." The truck driver pointed to the front end of the truck, "Well that could be why" The far side tire was splayed off to the right while the left one pointed straight ahead. "Looks like a tie rod failure. Happened to another guy just last week up the Huckleberry. They just don't make 'em the way they used to."

Our crew trucks take a beating by putting in a lot of miles on rough bush roads or difficult access to blocks which can put additional stress on the components and lead to an unexpected failure.

A tie rod is one of the most vital components of the steering system in your truck. At a glance, it looks like a long structural rod, which serves as a tie, and bears only tensile loads. The tie rod has two ends – an inner end and an outer end. Just like the spoke of a bicycle tire the ends leading to the center of the wheel are the inner ends and the outer ends are on the edge of the wheel.



Tie rod failure



Tie Rod Assembly

The tie rod is responsible for the transfer of force from the central steering link of your truck, or to the steering knuckle from the rack gear. This is what makes the wheels of your truck turn.

Tie rod ends can be connected in numerous ways, but generally the ends are threaded then passed through shackles (metal component, usually U shaped, which is fastened with the use of a bolt or pin diagonally through the opening) or drilled holes, and further affixed using nuts and bolts.

Wear occurs most commonly on the tie rod ends.

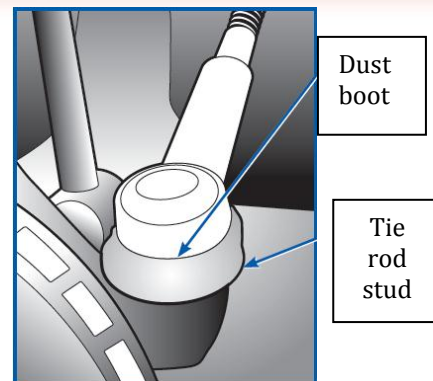


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Tie rod ends are covered by a dust boot which functions as shield protecting from pollutants that can cause corrosion and wearing of the tie rods. Poor lubrication of the joint can cause additional pressure on parts, something also caused by careless driving.

“Most steering component failures are from constant back force from bad driving habits” says Rick Bitten, a master mechanic with Western Forest Products “Every time someone hits a pot hole or a rock, an impact is absorbed by the steering component. This creates wear.”



Tie rod ends should be replaced as per manufacturer’s recommendations although be aware that the additional stress of driving bush roads may mean you will need to replace them earlier.

In most cases, a failure will mean the vehicle can be maneuvered to the side of the road without incident. But loss of steering control on difficult roads, in heavy traffic situations or on sharp corners could be potentially deadly.

Preventative inspections, maintenance and replacement can keep crews safe and minimize expensive downtime or costly repairs from unexpected failures.

Some simple ways to integrate this information into your safety management system are:

- Update your inspection form to include a check of the front suspension and steering. The frequency of this inspection will depend on your mileage and the conditions you drive in. You may wish to consult the owners manual or ask a qualified mechanic to develop suitable training for your operators who are conducting inspections. With less mechanically inclined operators you might include other indications of front end trouble including uneven tire wear, play in the steering wheel or rough, uneven steering.
- Call your mechanic or repair shop and ask them to inspect the steering linkages. Let them know it has been an issue for other forestry contractors and you would like it included on your fleet inspections.
- Update inspection forms for other mobile equipment. Heavy equipment, ATV’s, Rhino’s and snowmobile’s may have steering linkages that could fail similar to your vehicle. Let your mechanic know how much abuse the equipment takes and to include this inspection as part of their on-going maintenance. What may be acceptable wear for a recreational user may quickly become a dangerous issue in a production forestry environment.

*Have you had a tie rod end failure? What steps has your company taken to prevent reoccurrence?
Share your story – email maguire@bcforestsafe.org*

