How Wheel Bearings Work

Ralph Seekins

Driving down the road on our annual Chitina dip-netting trip, we came across a pickup along the road hitched to a trailer missing one of its wheels. I'd seen that many times before and I'll bet you have as well. More than likely, a wheel bearing had failed and caused the axle spindle to get so hot it had broken off and the wheel went flying down the road all by itself. The owner was greatly inconvenienced and was in for a relatively expensive repair.

So how does a damaged trailer axle relate to cars and trucks? Well, over the years, we've performed lots of repairs related to wheel bearings on people's cars and trucks. So, I thought we might discuss why wheel bearings are on your vehicle, how they work and how you can help keep them safely doing their job.

Basically, things roll a whole lot better than they slide. Obviously, your vehicle's wheels need to roll down the road and need to be attached to the car in a way that lets them roll smoothly and quietly while they support the weight of the vehicle. That's where wheel bearings come into play. They allow the wheels to turn on an appropriately sized axle with minimum resistance and they carry the weight of the entire vehicle. Depending on the weight capacity of the vehicle, each wheel may need to safely carry up to 2,500 or more pounds. Each manufacturer installs wheel bearings designed to meet the vehicle's operating requirements.

Modern vehicles generally use "factory sealed" wheel bearings that contain the proper amount and type of grease necessary for their operation – unlike older style "hand packed" bearings that use separate seals to hold the grease in place. Today's sealed bearings are generally designed to last without maintenance somewhere in the 150,000 mile range. However, for a number of reasons, they don't always last that long. For example, the bearing's seals are pretty good at keeping grease in but not so good at keeping moisture out. So, a vehicle operated in and through a lot of water may experience bearing failures more often than one operated in a clean, dry environment. And, as we all know, extreme cold weather like we experience here in Interior Alaska is a lot harder on seals of all kinds than is milder lower 48 weather. Overloading your vehicle can also cause premature bearing failure.

Once a seal breaks, grease leaks out and contaminants like dirt and water get in. The bearing is suddenly in a lot of trouble. In short time, it starts to internally eat itself up.

The first thing you might experience with a failing wheel bearing is a strange "rumbling" or "growling" noise coming from somewhere near one of the wheels. Or, you might notice a little grease splattering out from the center on one of the wheels. That noise and/or those grease splatters are telling you: "Please take me to the hospital as soon as possible. I have a problem." The sooner you address that problem the better. Just like that trailer we saw on the Richardson, a failed bearing could potentially cause the vehicle to suddenly lose a wheel – a serious and life-threatening situation.

A good automotive technician will check each wheel for noise, grease leakage and any looseness whenever it is in for any kind of service – factory sealed bearings or not. Bearings that aren't factory sealed should be cleaned, inspected, re-packed and re-sealed at least every 15,000 to 20,000 miles.

If you are a do-it-yourselfer, take the time to read up on how to check for wheel bearing problems. If you aren't, and suspect there might be a problem, take the time to stop by your trusted service provider. Most, like our own QuickLane Tire and Auto Center, will give you a quick, no obligation, no cost analysis

Ralph Seekins has more than 41 years' experience in the automotive industry. He started as a mechanic, worked in sales, and for the past 34 years, has been the owner of Seekins Ford Lincoln.