



# COMMERCIAL FLEET TIRE DIGEST

The authoritative guide to reducing commercial tire expenditures from Pressure Systems International, the manufacturer of the Meritor Tire Inflation System by PSI™

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## Tire/Wheel End Balance and Runout:

Contact PSI for a Tires 101 class for your drivers

Fleets have different perspectives on tire/wheel balancing. Assemblies that are out of balance can lead to vibration, irregular tire wear leading to early tire removals and driver discomfort. Understanding balance and tire runout can be confusing. An out of balance rotating assembly exists when there is an unequal distribution of weight about the rotating axis.

A tire/wheel assembly can be static or dynamic out of balance. If there is a static out of balance, the assembly will **bounce**. Appropriate sized weights will bring the assembly into static balance. The standard practice is to put half the weight on one side of the wheel and half the weight on the other side. Just because the assembly is statically balanced does **not** mean that it is dynamically balanced.

Dynamic imbalance causes the assembly to **wobble**. Dynamic balancing systems tell you how much weight to put on each side of the wheel and what location to place it. If an assembly is dynamically balanced it is also in static balance. Dynamic balancing considers assembly balance in two planes while static balance takes into account only a single plane.

Runout is an up/down or side to side visible movement when the assembly is rotated. It can be measured by using a runout gauge that has a needle. There are two kinds of runouts, radial and lateral. If when you place the runout gauge

a given distance from the centerline of the tread and rotate the assembly the distance between the needle and the tread remains constant, that assembly has zero runout. If there is a radial runout, its effect is to raise and lower the vehicle as it moves along and the result is a vertical hop or bounce.

Lateral runout can be measured by placing the runout gauge near the tire sidewall. When the assembly is rotated and the distance between the needle and the sidewall is constant, the lateral runout is zero. When there is lateral runout, the result is a side to side movement of the rotating assembly which leads the vehicle traveling alternatively right and left. The driver would feel a shimmy or wobble.

Fleets are typically encouraged to check their tire/wheel assembly balance on the steering axle. In most cases, if a driver reports a vehicle vibration issue, getting the steer tires in balance will usually solve the vehicle vibration issue. It is also recommended to balance the drive tires if the driver's seat vibrates.

Keeping your tire/wheel assemblies in balance will help maximize tire removal miles and keep your drivers happy.



Runout Gauge

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## Q&A PSI ANSWERS YOUR QUESTIONS

**Q:** With my tire prices continuing to escalate I am considering using retreads on both my steer and drive wheel positions...is this OK?

**A:** Most fleets currently use retreads on the drive position. Retreads can legally be used on the steer axle (except for school busses); however we are unaware of any line-haul fleets that currently use retreads on their steers. Vocational fleets such as innercity pickup and delivery and waste fleets sometimes run retreads on the steer axle.