

Low Rolling Resistance Tires

A Glance at Clean Freight Strategies

Energy and Fuel Savings

Gallons Saved
=
500 gallons

CO₂ Savings
=
5.08 Metric tons

Reduction in Fuel Consumption
=
3 %

New MPG
=
6.19 mpg

Fuel Cost Savings
=
\$1,900



Specifying single wide or low rolling resistance dual tires on a new combination truck could save \$1,900 in fuel costs, and cut almost 5 metric tons of greenhouse gas emissions per year. Fuel savings of 3% or higher begin immediately.

What is the challenge?

Tire rolling resistance accounts for nearly 13% of combination truck energy use. Most combination trucks have non low rolling resistance dual tire assemblies on the drive and trailer axles, with two sets of wheels and tires at each end of an axle. This configuration increases rolling resistance compared to single wide tires or low rolling resistance dual tires and wheels.

What is the solution?

A variety of tire options can improve truck fuel efficiency. One promising strategy is to use low rolling resistance tires either single wide or energy efficient dual tires. A single wide tire and wheel is lighter than two standard tires and wheels. Total weight savings for a typical combination truck using single wide-base tires on its drive and trailer axles ranges from 800 to 1,000 pounds. The weight savings would reduce fuel consumption, or increase cargo capacity for trucks that are weight-limited. Single wide tires have lower rolling resistance and aerodynamic drag, and generate slightly less pass-by noise than do, dual tires. Another benefit to using single wide-base tires is fewer tires need to be replaced. There are three types of wheels steel, low weight steel, and aluminum, with decreasing weight respectively. The less weight the rim holds the better fuel economy the truck will get.

Single wide tires may offer other benefits in combination truck stability. Single wide tires can improve the stability of tank trailers by allowing the tank to be mounted lower.

Materials used to reduce tire rolling resistance could decrease tire tread life slightly. However, in a test of 15 fleets driving 57 million miles using its latest wide-base tire models, one manufacturer reported that the tires wear at a rate comparable to conventional tires.

Next Steps

1 Fleet owners should consider purchasing tractors and trailers with single wide and energy efficient dual tires on their next new truck purchases.

2 Truck Fleets with non-tandem axle combination trucks should check "inch-width" laws in their states because wide-base tires may not comply. The new generation of wide-base tires has a section width of up to 17.5 inches, so these tires comply with pavement weight laws in all 50 states, for a typical tandem axle combination truck.

3 Single wide tire and wheel assemblies as a new fitment are less expensive than dual tire assemblies and provide immediate fuel economy savings. For more information, talk to your tire and truck dealers or contact the American Trucking Associations' Technology and Maintenance Council (www.trucking.org).

Savings and Benefits

Recent tests of low rolling resistance tires indicate a potential fuel economy improvement of 2 to 5 percent compared to conventional dual tires. By using low rolling resistance tires, a combination long-haul truck could save over 500 gallons of fuel per year and cut emissions of carbon dioxide (the most common greenhouse gas) by more than 5 metric tons annually. Most importantly, these environmental benefits can often be achieved while cutting costs.