



Green Transport Partnership

A Glance at Clean Freight Strategies: Automatic Tire Inflation Systems

ATIs reduce tire wear, save fuel, and reduce emissions of greenhouse gases and other pollutants. They typically pay for themselves in under two years.

What is the challenge?

When not properly inflated, tires wear out faster and increase fuel consumption. Tire makers estimate that 30 percent of all truck trailer tires are underinflated. This can be caused by slow leaks and changes in temperature. Low tire pressure is most common on truck trailers, which may not be maintained as well as truck tractors.

Tests by tire makers show that lowering truck tire pressure by 14.5 pounds per square inch (psi) from the recommended pressure can result in a five to 10-percent increase in tire rolling resistance, causing a one to two-percent increase in fuel consumption.

Underinflated tires wear faster, leading to higher tire costs for fleet owners. An industry "rule of thumb" states that every 10 percent of underinflation causes a 10-percent increase in tire wear. Underinflated tires also cause more frequent blow-outs and punctures, requiring costly road service.

Constant pressure to truck tires means:

- annual tire maintenance savings of at least \$280
- annual fuel savings of \$140 or more
- fewer roadside emergencies

What is the solution?

Automatic tire inflation (ATI) systems monitor and continually adjust the level of pressurized air to tires, maintaining proper tire pressure automatically. No action is required by the driver. One type of system uses the vehicle's existing air-brake compressor to supply all of the tires from a central source. Another type of ATI system uses self-contained compressors mounted on each hub that are powered by the rolling motion of the wheels. Both systems keep tires properly inflated even while moving.

The results are in...

ATI systems typically extend tire life by 10 percent. ATIs also eliminate the need to check tire pressure manually, saving time for the driver or maintenance staff. Installing an ATI system on the truck drive axles and trailer costs about \$800 but saves a total of \$280 per year in maintenance costs. For a typical long-haul combination truck, reduced fuel consumption results in additional savings of \$145 per year. In total, these savings pay for the initial cost of ATI systems within two years.

Next Steps

Several manufacturers currently produce ATIs for the U.S. The devices are used extensively on logging trucks to allow drivers to easily lower tire pressure when moving from a paved surface to a dirt road. ATIs can be installed easily on existing trucks and trailers. Check with your truck dealer about these devices or contact the American Trucking Associations at www.trucking.org.