

Tyre inflation management

Incorrectly inflated tyres increase both drag and fuel consumption. Monitoring by drivers can be both labour-intensive and time-consuming. Automatic monitoring/inflation systems ensure pressures remain close to ideal, removing the responsibility from drivers and thus increasing reliability/accuracy of pressure levels.

Application relevance

Correctly inflated tyres offer a genuine potential for fuel savings and emissions reductions across the full range of vehicle types from light passenger buses to heavy trucks. Automatic monitoring and inflation systems are easily fitted as an aftermarket system to most vehicles (or as OEM fitment on some new vehicles). These systems are particularly suited to long-haul applications to ensure minimum resistance when driving at high speed and open road conditions.

Establishing tyre monitoring procedures with staff or contractors can be done immediately. The use of the technology is also relatively straightforward, with automatic tyre inflation systems currently available on the market.

Potential benefits

Depending on existing practices, fuel savings from tyre inflation management systems can amount to between 1% and 4%, and tyre life extension up to 10%. Overseas manufacturers claim reductions in fuel use of 2% using automated systems, and a 10% increase in tyre life.

Key implementation considerations

The least expensive approach may be to implement a change in practice by ensuring staff or contractors are monitoring tyre pressures. This practice can generate instant savings.

If tyre inflation practices are presently optimal, it is unlikely that the automated system would realise a significant benefit, if any. However, if regular manual monitoring is inconvenient or unreliable, an automated system may be a better option. Note that the business-case justification for this should also incorporate extended tyre life as a benefit.

Examples of implementation

Various fleets

This website provides comments from fleets that have implemented one particular brand of an automatic tyre inflation system. Although testimonials indicate that the majority of savings relate to lower maintenance costs, many operators do cite an increase in fuel economy and miles per gallon. The US Environmental Protection Agency SmartWay program specifies a benefit of 0.6% increase in fuel consumption, although this is not supported by any specific case studies. For more information, see US Environmental Protection Agency 2011 [SmartWay Program website \(http://www.epa.gov/smartwaylogistics/\)](http://www.epa.gov/smartwaylogistics/) and Pressure Systems International website [Testimonials \(http://www.psi-atis.com/testimonials.htm\)](http://www.psi-atis.com/testimonials.htm).

Forest Freight

This case study undertaken by Transport Canada discusses the fuel efficiency benefits experienced by forestry products freight trucks with automatic tyre pressure control systems on unsealed surfaces. Trucks tested the use of automatic tyre pressure control systems in forestry applications across a range of surfaces. Lowering tyre pressure on gravel and mud roads was found to reduce fuel consumption by an average of 3.9%. On-highway testing was limited and provided no conclusive evidence of fuel savings due to the small sample size and variability in driver styles. For more information, see Transport Canada (2006) [FP innovation project on self-inflating tires, freight transportation case studies \(http://www.tc.gc.ca/media/documents/programs/fpinnovation-tires_1.pdf\)](http://www.tc.gc.ca/media/documents/programs/fpinnovation-tires_1.pdf). *(Opens in a new window)* 355 KB

For the full report, see [Fuel for Thought – Identifying potential energy efficiency opportunities in the Australian road and rail sectors \(http://eex.gov.au/files/2012/03/Fuel-for-Thought.pdf\)](http://eex.gov.au/files/2012/03/Fuel-for-Thought.pdf) *(opens in a new window)* PDF 1.5 MB.

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