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TyreAsia

TRACKING THE TYRE WORLD

Dr Xiaoguang Yang

SENSORS ADD MORE SAFETY

TIRE TECHNOLOGY EXPO 2018

Gerald Böse, CEO, Koelnmesse

World Of Tyres Now In Cologne

COLLECTIVE INSANITY; DOING THE SAME THING AND EXPECTING DIFFERENT RESULT

Adam Gosling

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By Adam Gosling*

If someone was to offer your business an increased income, with reduced effort and less hazard, would you refuse? Many people do. Why?

When an offer of reduced fuel consumption is made most people's eyes light up. For a transport company a cost reduction of 1 – 3% is a not inconsiderable sum. When this loss reduction is then also tied to a decreased mechanical maintenance bill why are people staring the gift horse in the mouth and saying "no thanks." Add a life improvement for tyres which also yields a reduced roadside break down rate, improving availability and productivity and one can only wonder why the bean counters aren't all over this aspect of modern road vehicles in a flash.

Tyres of all sizes require the same maintenance, a simple low cost exercise, checking and maintaining the inflation level at the required and appropriate level.

A tyre's prime function is to contain the air or inflation medium. A modern tyre does this so well that many people ASSuME (yes, it is written deliberately like that) the inflation pressure is okay BUT, in a lot of cases they are not. There is a saying that to assume makes an "ass out of you and me." Not checking tyre inflation pressures on a regular basis is assuming the tyres are okay, how do you know? You ASSuME!

TyreSafe Australia has recently conducted a tyre condition survey on passenger cars prior to being serviced by a very large highly reputable organisation. As the vehicles were delivered to the service centre the tyres were inspected, tread depths measured and inflation pressures recorded.

A previous pilot study had evidenced that in excess of 60% of the sample had tyres that were underinflated when compared to the vehicle manufacturers minimum inflation requirement. The subsequent study confirmed the prior evidence, more than 1 in every 2 cars was unsafe from a tyre's perspective.

Inflation factor

When a tyre is operated in an under-inflated state not only does the tyre wear out faster, the vehicle uses more fuel, the wheel bearings and drive-line life decreases but the braking and steering of the vehicle is impaired. So that when the driver looks up from their phone and realises the traffic in front has stopped and stamps on the brakes the vehicle will not react as the driver (and vehicle designer) expects. If the tyres are not evenly inflated the vehicle may swerve into another lane even in front of oncoming traffic, at best it may just rear end the car in front.

The effort taken to verify the cars tyre pressures are correct takes less than 5 minutes a week. A very small investment for your own and that of your family's' safety.

For a commercial trucking company tyre costs are amongst the highest, yet are the most uncontrolled. Fuel is highly regulated with records of the fuel dispensed readily available and the ECU computers on-board recording fuel burn. Many firms have driver

Tyre testing (Photo courtesy: calspan.com)

scorecards when the lowest fuel burn rate becomes a competition along with reduced braking, collision avoidance and harsh steering. All these aspects are all based upon the tyre, if the tyre doesn't perform because the inflation pressure is low then all these aspects will be increased.

When a tyre fails catastrophically it will wrought considerable damage to the vehicle as the tyre disassembles in motion.

With 20kg of tread rubber flapping around every revolution of the tyre the damage, to the mudguards, brake and air lines, electrical fittings is considerable even if the driver brings the vehicle to a stop quickly. At worst (and with particular reference to steer tyres) a total loss of control event may result in serious or fatal injuries and substantial property loss. The replacement fibreglass engine cover of a modern truck may cost upwards of USD$7000 to replace, because a $800 tyre has come apart. For a cab over truck the bursting tyre may well be directly under the driver's seat.

A tyre may not fail after a single low inflation event but the structure of the tyre has been compromised and the retreadability of the tyre is downgraded.

Tyre structure

The tyres structure is compromised every time the tyre is run either under-inflated or overloaded, a tyre knows no difference. The main structural radial cords (body cords) fatigue and break resulting in what is known on the industry as a zipper failure. If a tyre has experienced an under inflation event (<80% specified cold inflation level) the tyre should be inspected by a competent tyre service person who knows what signs to look for. Just simply inflating the tyre is placing the person inflating the tyre as well as the driver and the general public in danger.

This short video produced by ATS Euromaster is the best explanation of the phenomenon. (https://www.youtube.com/watch?v=294Wu6O0uW0)

For the simple exercise of ensuring a tyre is appropriately inflated safety can be maintained AND income can be maximised.

For many years now electronic gauges have been available to measure engine and transmissions, pressures and temperatures. Many truck drivers laugh when I ask them when did they last open the engine cover, remove the radiator cap and use a thermometer to check the coolant temperature, they laugh hard until I ask them what is the difference in checking your tyres with a manual gauge? You have to stop the truck, check each tyre individually which of course takes time, just like checking coolant temperature with a thermometer! They stop laughing and change the subject.

Tyre pressures reveal many aspects of vehicle maintenance. A binding brake can be identified before it becomes a red hot hazard, wheel bearings in failure mode generate heat which affects the tyre pressures abnormally and even failing suspension components will affect tyre pressures as will out of specification alignment.

Why do so many ignore the low hanging fruit that is tyre maintenance? Why not install a pressure monitoring device that will repay the investment many times over without considering the reputational damage as a result of a poor safety record? How many engines have failed since the advent of engine temperature gauges in cab for the driver to observe? How many tyres continue to fail as a result of low pressure? Why?

Do something different, check your tyres, don't ASSuME! The only person that's looks like an ass is the one on the side of the road changing a tyre that has come apart.

Look after your tyres and when you call upon them to look after you they will be ready and able to do so. Ignore your tyres at your own peril.

**** Adam Gosling heads TyreSafe Australia (tyresafe.com.au) providing guidance and direction for mining and transport fleets around the globe. He is an executive committee member of TransafeWA (http://transafewa.com.au/about-us/)***