

RubberAsia

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**GST: GOOD FOR
TYRE INDUSTRY**
Dr RP SINGHANIA



**ON PLANTATION
DEVELOPMENT**
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RUBBER PARK KERALA

Success of India's pioneering initiative





Adam Gosling

Adam Gosling heads TyreSafe Australia (tyresafe.com.au) providing guidance and direction for mining and transport fleets around the globe. Adam is an executive committee member of TransafeWA (<http://transafewa.com.au/about-us/>) a not for profit group for heavy transport safety in Western Australia as well as contributing to Road Safety Alliances funded by the Road Safety Commission of Western Australia (<https://www.rsc.wa.gov.au/>). Further, co-operation with the RAC WA (<https://rac.com.au/about-rac>) enables enhanced safety for the general community.

IMPROPER TYRE CARE KILLS

Ignoring tyres will have catastrophic consequences. Maintaining proper tyre pressures is a simple means to ensuring personal and personnel safety with manifold positive economic returns

Acknowledgement: After my discussion on tyre education in the last edition of *Rubber Asia*, I start this column by acknowledging the great efforts of Michelin and the FIA in educating young drivers in the USA.

USA: Michelin & the FIA Improve Tyre-Safety Education For New Drivers In All 50 States 14.07.17

Crashes remain the No. 1 killer of teens in America[1], with recent federal safety data showing an alarming 12 per cent of crashes[2] involving inexperienced drivers attributed to improper tire maintenance.

Michelin and FIA launched the award-winning program "Beyond the Driving Test" in late 2014 aiming to persuade traffic-safety regulators in every state to include information about tread depth and tire pressure in their mandatory training materials for teen drivers. At the time, only a handful of states included this basic information.

<http://www.fia.com/news/usa-michelin-fia-improve-tyre-safety-education-new-drivers-all-50-states>



Sometime ago, we were asked to attend a client's office to assist them with tyre matters. The company has a transport component in their product, like many distribution operations.

Like many others, this company, ASSuMED that the tyres on their fleet were "ok". Like many other transport-related companies' margins are slim, the economy is tight and generally business is a challenge. Some company policies dictate that a product must have a positive return on investment in less than 6 months. This aspect must

Road Train



be demonstrable to satisfy the accountant types.

The problem with ASSuME'ing is it can have manifold outcomes.

Concern for workforce safety

Safety of the workforce is also of a great concern to any reasonable and wise employer. The investment in having a loyal employee who has been trained to perform to their best levels is substantial. Why would a company put such an employee's safety at risk? There surely is only a down side where lost production cost is but one of the costs endured when an "accident" happens. Let's not even consider reputational damage. How do you value that in real terms?

It has always interested me as an Engineer why procurement will negotiate for another ¼ per cent reduction in purchase price when savings of potentially 10% are available to the operation as a result of

Over a time, a tyre can lose pressure (for whatever reason); so this can effectively overload the dual pairing mate. The tyre supporting the added load experiences a higher level of fatigue

appropriate tyre management programs. In many cases, the mechanical maintenance team doesn't know about tyres: "They're just there," is not an unusual response. "We contract that out," is another.

The savings are not limited to one area of the operation. Think about vehicle component life, where the service period pushed out by 10% as a starter as well as improved fuel burn rates.

Tyres, the humble servants

Given that modern motor vehicles are a deal more efficient than in past years, one wonders why not everything has moved at the same rate of progress. Engines are now producing more power for less fuel than ever before, the level of comfort in a truck is amazing -- air conditioned with electronic displays and controls that can inform, even record, what the vehicle is experiencing. Everything is supported by the humble servants -- the tyres.

Consider the costs of recovering a specialist transport trailer that suffered a catastrophic tyre failure (resulting in a total loss fire event) rendering it unroadable 1,000 kms from the base of the vehicle maintenance operation. Luckily, the incident occurred near a site that could provide appropriate emergency services; otherwise the consequences could have been a lot worse.

Thankfully, no injuries or environmental damage were sustained.

Agreed this is a worst case scenario, though a large transport insurer reports a major percentage of trailer fires as having commenced as a wheel-end event. A binding brake, even a wheel bearing in early failure mode or axle camber all contribute to the work experienced by a tyre and the resulting temperatures the tyre experiences.

Tyres must have same inflation

When tyres are paired, there is a slight reduction in the overall load capacity, it's not "just double the load". As we learn, very early on in life, a flat tyre supports no load. Yes, I do remember my push bike days, struggling to push the bike with a flat tyre home when it was hot or wet or dark, no thanks. So, to engage the highest load capacity, the tyres' inflation must be the same, or very similar. If one of the dual pairs is supporting more load, then it's overloaded. A tyre is generally quite forgiving, a small overload will just reduce the outright life and the under-loaded tyre could develop irregular wear patterns consuming tread in odd patterns and shapes.

Over a time, a tyre can lose pressure (for whatever reason); so this can effectively overload the dual pairing mate. The tyre supporting the added load experiences a higher level of fatigue, just as you would if you had to support 50% of your mate's load. Eventually, the overloaded tyre reaches a critical failure stage where there is more heat being generated within the tyre than it can shed to the outside environment and, at highway speed, the level of heat builds until the ignition point of the tyre is reached.

This is no different to an engine working hard. Modern vehicles have alerts, audio as well as visual, to warn the driver the level of work is exceeding the capacity of the engine and temperatures are rising to critical levels. Some modern vehicles have computers which would have already been reducing the power as temperatures rose. How many engines are lost since gauges and alerts were installed into the drivers' space? However, how many tyres are lost in comparison? Why?

Technology to monitor tyres

Now think of steer tyres on most vehicles, the catastrophic failure of a steer tyre will almost always result in the loss of the vehicle and injury or death of the occupants. What is the cost of safety?

As our society becomes more complicated,

TYRE SAFETY TALK

simple solutions can often be overlooked. A recent computer virus attack was stopped by a very simple code change. It was not hard, but if you didn't know, the consequences would be huge. Tyres have been with us for many years, they are a highly developed and an evolving product; but every tyre has the same requirement, the appropriate volume of air for the load and speed to be able to perform as expected on demand. A simple solution that has fundamental benefits including extended life, reduced maintenance and improved safety would be welcomed surely.

Formal studies have shown how bearing life and component life are reduced when the pressure difference between two paired tyres (dual tyres) is greater than 5 psi, at 10 psi difference in wear rate is exponential. Consider a wheel end as a simple balance beam with each bearing supporting the same load. Now change the load at one end and transfer that load to the other end, this is what the wheel bearings experience. One is overloaded, the other is under loaded, just like the tyres.

When tyres on a vehicle are running smoothly, the driver knows how the vehicle is going to respond and perform as required when required, brake evenly,

respond in a corner safely. In a truck and trailer application, the trailer must be following the truck ahead smoothly and evenly. How does a driver understand what the tyre pressures are doing, how they are responding to work and are responding to brakes or bearings is a question that only real time monitoring can answer. Drivers have been monitoring temperatures and pressures from engines electrically for many years, now electronically even beaming the data back to the office in any part of the world.

Truck platooning is being considered as the future; but the technology to monitor our tyres in real time is available now. After all, it is fitted to many passenger cars by mandate in the majority of the global automotive market.

Ignoring tyres will have catastrophic outcomes. Why is so much wasted (tyres, fuel, wheel ends, drive-line, driver fatigue) when it doesn't have to be?

Maintaining tyre pressures is a simple means to ensuring personal and personnel safety with manifold positive economic returns.

Look after your tyres and when you need them they'll look after you. ■

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