



A BIG WELCOME TO ALL OUR AIR CTI NEWSLETTER READERS,

AIR CTI is dedicated to the safety of all the great individuals who work in the transport industry and as such our Managing Director, Mr Chet Cline, regularly attends association and trade conferences to promote the concept of optimal tyre pressure.

At present one such project AIR CTI have been instrumental in, is the development of a Tyre Management Code of Practice to be accepted and implemented through the Transport Sector.

In this endeavor AIR CTI has approached, and offered assistance to, the National Transport Commission as the company believes the management of tyres has not been addressed adequately. At issue is the detail of the proposed recommendation number 3 item (b) as detailed below:

Proposed recommendation 3: That the NHVR review and revise the PBS standards by EOFY 2018/19 and every seven years thereafter. The initial review should include (but not be limited to) consideration of:

- (a) the effects of new technology and catering to future technology;
- (b) **the management of tyres in PBS assessments and ongoing vehicle operations;**
- (c) whether there is a continued need for four PBS levels; and
- (d) the best way to assess a vehicle's impact on local amenity, public health and the environment, or whether these matters should be left to access guidelines.

The AIR CTI submission is as below;

1. At present many heavy vehicle operators do not adhere to the tyre manufacturer's recommendations and do not run their heavy vehicles at the optimal tyre pressure. Without going into a lot of details there seems to be resistance by the industry and a failure to adapt and maximise the capabilities of the radial tyre. However, we do not want to point the finger we just want to ensure that the Australian transport industry uses world best practice.
2. It is the consideration of AIR CTI and all tyre manufacturers that there is an optimal recommended tyre pressure for individual load/tyre terrain speed events and that failure to adhere to the manufacturer's recommendations produces adverse outcomes that are not safe and detrimental to all stakeholders.
3. It is highly and strongly recommended that the management of tyres, which is inclusive of tyre pressure maintenance AND ADHERANCE TO MANUFACTURER'S RECOMMENDATIONS, be made mandatory and that failure to do so is akin to having a defective vehicle thereby deeming it unroadworthy.
4. It is noted that at present the PBS will specify types of tyres and even brands of tyres yet stop short at the most critical point and not insist on optimal tyre pressure. Clearly this must be an oversight since specifying the force transfer mechanism into the pavement, ie tyres etc is only as good as the weakest link in the chain. If the tyre pressure is not at the optimal level then the failure of the system is ensured at this weak link.



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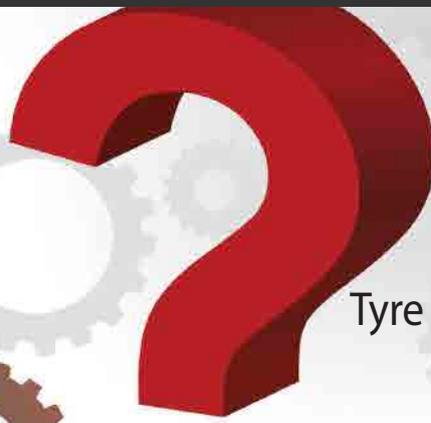
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To support the AIR CTI application researched material was referred to:

REFERENCED AND RESEARCHED MATERIAL

1. A tyre that is not at the manufacturer's recommended or optimal level is considered overinflated or underinflated. Both cause unnecessary problems.

Let me quote from Michelin, a company AIR CTI consider to be the standard setter and the best and most influential tyre manufacturer in the world.

<https://michelintransport.in/right-pressure>

RIGHT PRESSURE



UNDER OR OVER INFLATION

Under-inflation or over-inflation of your tyres can generate cost and danger. The performance of the tyre life, driving comfort, good traction and braking are influenced by inappropriate inflation pressure.

Under-inflation generates excessive flexing of the tyre casing which results in tyre overheating, increase of rolling resistance and premature wear. In extreme cases under-inflation can cause tyre damages.

Likewise over-inflation can affect tyre life. This leads to reduced grip and irregular wear especially in drive axle fitment.

PRESSURE OF INFLATION

The inflation pressures of tyres for commercial vehicles must be adapted to the load, speed and conditions of use. Respecting the pressure of inflation is a prime factor in ensuring the vehicle is safe when driving.

How do I determine the pressure of inflation?

The fully loaded vehicle must be weighed by axle. In the meantime, you should use the basic pressures in the MICHELIN table "Basic pressures for common conditions of use."

Over inflation is bad for comfort, grip and the tyre's longevity.

Insufficient pressure of inflation leads to an abnormal rise in the tyre's temperature, leading to irreversible deterioration of its inner parts. This may cause destruction of the tyre with a sudden blowout.

The consequences of running with insufficient pressure of inflation are not necessary immediate and may even become apparent after correction. The pressure of inflation should be regularly checked "when cold" each time the vehicle returns to the garage using an accurate and regularly checked pressure gauge (according to the maker's recommendations).



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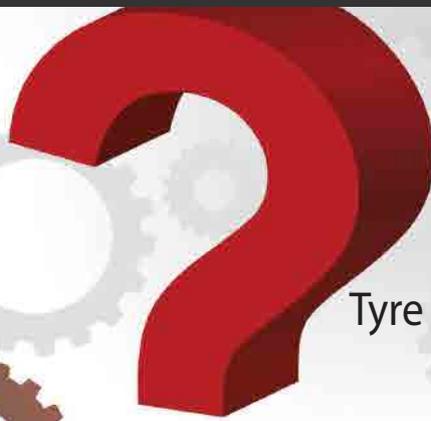
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TECHNICAL TALK



AIR CTI THE ULTIMATE Tyre Pressure Management System

Page 3



"Any inflated tyre mounted on a rim contains explosive energy. The use of damaged, mismatched or improperly assembled tyre/rim parts can cause the assembly to burst apart with explosive force. If you are struck by an exploding tyre, rim part or the air blast you can be seriously injured or killed."

**Reference is made here to the unfortunate death of Mr Wayne MacDonald and the subsequent recommendations made the Central Queensland Coroner, Mr David O'Connell, File No.: 2010 /4299*

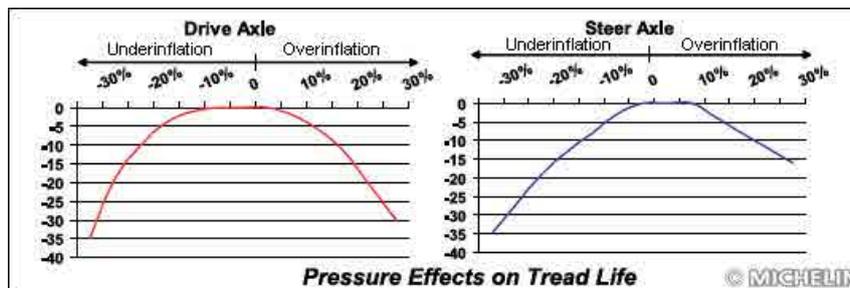
At paragraph [97], item 3,

"That the industry investigate, and implement within two years, remote, or wireless, tyre pressure sensing equipment to allow operators to monitor tyre pressures from within the cabin of the truck"

EFFECTS OF TYRE LIFE

Inflation Pressure

The most critical factor in tyre maintenance is proper inflation. No tyre or tube is completely impervious to loss of air pressure. To avoid the hazards of underinflation, lost air must be replaced. Inflation pressure has a direct impact in tyre pressure – tread and endurance – as shown in the following charts.



"Driving on any tyre that does not have the correct inflation pressure is dangerous and will cause tyre damage. Any under inflated tyre builds up excessive heat that may result in sudden tyre destruction. Pressures which are too high can lead to more rapid and uneven wear as well as being more vulnerable to road hazard damage. Consult a Michelin tyre dealer or Technical Data Book for the proper inflation pressures for your application."

Note:

The above tables refer to the United States of America. Australia roads are rated one of the worst in the western world by the International Roughness Index (IRI) (In fact www.theglobaleconomy.com/rankings/roads_quality/ ranks Australia at 41st. Below such countries as Namibia, Chile and Rwanda – the USA is ranked 14th) and thus, due to the poor condition of our infrastructure, the above charts are considerably steeper.



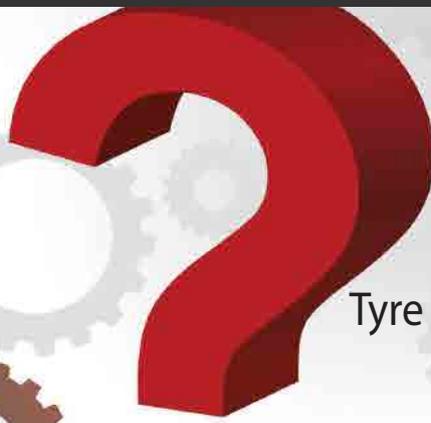
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2. Research conducted by ARTSA confirm a 15% higher average deceleration by a vehicle using optimal tyre pressure when compared with a vehicle using high pressure tyres.

Document available on request.

3. Research by ARTSA refer to fitting a central tyre inflation system to reduce in-cabin vibrations.

Document available on request.

4. Research by the Oregon State University,
<http://agris.fao.org/agris-search/search.do?recordID=MY2001050052>

SUMMARY

Significant benefits to the road, vehicle, driver and environment are all possible when tyre inflation pressures are set to match the hauling condition; defied by speed, load, terrain, and road surface strength. Low tyre pressure as can be used on non-paved, low speed roads in order to minimise road and vehicle damage, maximise vehicle traction and mobility, allow reduced depths of surfacing on new roads, minimise sediment production, and provide a safer, more comfortable working environment for the driver.

"The studies have shown that the largest benefits from variable tyre inflation will be seen when vehicles are operating on non-paved roads that experience high levels of rainfall, steep road grades, rough terrain, and poor surfacing material or no surfacing material."

Document available on request.

5. Research by the United States Department of Agriculture Forest Service,
<https://forest.moscowfsl.wsu.edu/cgi-bin/engr/library/searchpub.pl?pub=1995g>

"CENTRAL TYRE INFLATION (CTI) REDUCES SEDIMENT UP TO 84%"

Document available on request.

That concludes part one of this months newsletter, stay tuned as we will continue with Part 2 next month. Until then,

**Drive safe, tell your family you love them
and
check your tyre pressure!**

Regards The AIR CTI Team.



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