



A BIG WELCOME TO WINTER, OR SHALL WE SAY, A BIG WELCOME TO AIR CTI WEATHER.

AIR CTI staff look at the coming rains and realise that this will be where the great divide occurs – those with AIR CTI and those without AIR CTI.

In the saturated soils the farmer that uses AIR CTI will have little, if any, rutting. He won't suffer from soil compaction and will have maximum yield. His spreader will run at greater fuel economy and he will finish his work quicker.

The beekeeper with AIR CTI is able to drive to location and then lower the hives off his vehicle with a forklift immediately placing them in position. This is because his vehicle has the capacity to inflate/deflate tyre pressure on the run to the optimal level and thus achieve maximum traction and mobility. The beekeeper without AIR CTI just gets bogged or must unload his hives considerable distance from the final location and then use valuable time locating them with his forklift.

The logger with AIR CTI drops his tyre pressure down within a minute and simply drives out of the mud and slush. The logger without AIR CTI needs to wait around for assistance to tow him out.

www.youtube.com/watch?v=P0IV3fQMRVg
www.youtube.com/watch?v=S7vVgimNAXs

The Fleet Manager without AIR CTI can look forward to drivers taking more days off due to vibration induced fatigue. They can look forward to more tyre wear, more punctures and more blown tyres. The Fleet Manager with AIR CTI will look at the company bottom line and smile.

The key to traction, the key to safe braking, the key to stopping jackknifing, the key to minimising Whole Body Vibration, the key to minimising tyre wear, the key to minimising tyre punctures and blowouts, the key to reducing sedimentation, the key to driver comfort all come down to the same thing – optimising tyre pressures and the easiest and best way to do this is by using a Central Tyre Inflation system.

Without any false modesty, the best Central Tyre Inflation system in the world is Australia's own AIR CTI system.

For more information on Central Tyre Inflation please contact Andrew or Chet via the details in the footer below.



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In this week's newsletter I would like to continue on with the second part of our submission to the National Transport Commission.

In the March edition I covered the first five researched points, I now follow on and start at point 6;

6. **Research by the RAND Corporation** (connected to point 3, newsletter issue 6, previously),
https://www.rand.org/content/dam/rand/pubs/research_reports/RR1000/RR1057/RAND_RR1057.pdf

EVALUATING THE IMPACT OF WHOLE-BODY VIBRATION (WBV) ON FATIGUE AND THE IMPLICATIONS FOR DRIVER SAFETY,

Nevertheless, based on the available data and specific modelling assumptions, model estimates suggest that the performance decrements associated with WBV exposure may be comparable to 22 hours of sleep restriction. In turn, prior work has shown that under sleep-deprived conditions, participants show performance increments that are equivalent to being legally impaired, based on a blood-alcohol content exceeding the legal limit."

7. **ROADEXIII Northern Periphery**
<http://www.roadex.org/wp-content/uploads/2014/01/TPCS-Trial-RIII.pdf>

TYRE PERFORMANCE

Tyre performance results from the trial have been very positive, and hard measurement data has been obtained. In summary, these include:

- Extended tyre life, with even tread wear and "dramatically lowered damage";
- Less tyre changes needed;
- Even tread wear across twin tyre assemblies;
- One puncture – by a nail;
- No blowouts;
- 30% increase in life of drive tyres
- Tyres capable of being re-grooved for first time
- Potential for Michelin "4 lives" tyre management

This data confirms the reported improvement in tyre performance from Canada and Swedish trials. Perhaps the most notable improvement in tyre performance was the recorded increase in performance of the drive tyres of the test vehicle. The owner of the Highland trial vehicle normally expected his drive tyres to last 50,000 - 60,000 km in the past. His vehicles were regularly sent into sites where wheel spin of the drive tyres was common and this had a significant effect on the usable life of the tyres. With TPCS (Tyre Pressure Control Systems) fitted, wheel spin on the drive tyres was reduced and their usable life was extended to 79,000 km, an increase of 32% over the previous maximum expectation. This distance travelled was subsequently extended to 108,500 km after regrooving by Michelin UK, equating to an improvement of 81% over the previous maximum life, with an expectation of a further 10,000 km with similar usage.



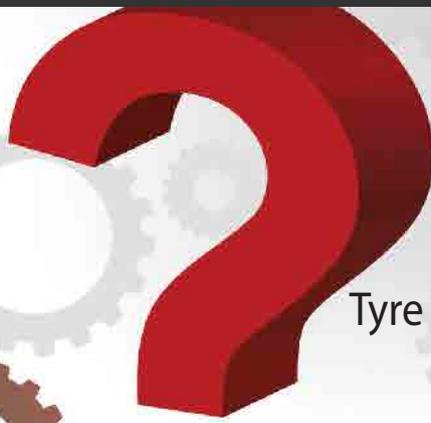
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PERCEPTIONS OF OPERATORS

The general perceptions of the operators involved in the trial were equally positive. Drivers reported a smoother vehicle ride and improved comfort in the cab with TPCS. Owners and managers were optimistic about the benefits to vehicles through reduced vibration and extended vehicle life. Health and safety issues were a concern for both drivers and managers. All felt that the improved traction, less wheel spin, fewer tyre changes and reduced vehicle recovery incidents were positive contributions to improved health and safety. Accidents were more likely to happen in timber operations when the driver was out of the safety of the cab. TPCS was seen to have positive benefits in reducing the need for the driver to dismount from the vehicle."

8. RESULTS FROM SKOGFORSK NO. 4 2006

Skogforsk's framework program, Swedish Road administration, Fermgruppen+ other forest enterprises
Paul Granlund

FIVE MILLION KM COVERED IN CTI PROJECT

"Mechanical reliability, low repair costs, improved driver environment, reduced tyre wear, lower fuel consumption – these are just some of the findings from a three-year CTI-evaluation project for Swedish conditions."

"...fuel consumption per cubic metre of timber transported was actually reduced."

"Driver comfort was improved thanks to the reduced vibration experienced with CTI."

"The project findings clearly demonstrate that it is feasible to introduce CTI on a wide scale in Sweden"

Experience over five million kilometres

- Low repair costs
- Improved driver conditions
- Reduced puncture risk

Economics

- CTI reduces vibration and shaking when a vehicle is driven unladen. Because there is less wear and tear on the rig, a higher estimated residual value could be justified, together with lower costs for servicing and repairs.
- Tyres last longer with less wheelspin. Also, the vehicle always operates with the right tyre pressures, which results in even wear.
- A one per cent or more reduction in fuel consumption per ton-kilometre.



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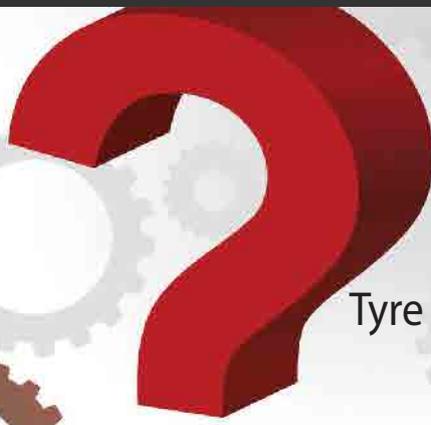
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9. **STUDY ON SOME SAFETY-RELATED ASPECTS OF TYRE USE**

Stakeholder information and discussion document MOVE/C4/2013-270-1
European Commission Directorate-general for Mobility and Transport, Unit C4, 4/110
B-1049 Brussels
Belgium

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Date: May 27, 2014

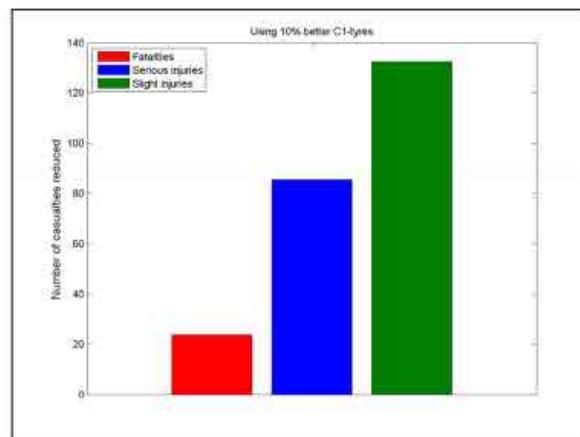


Figure 13: Potential reduction in casualties with 10% improved grip level using accident statistics from The Netherlands.

An analysis has been done on the impact of grip level using accident statistics in The Netherlands. The figure above shows the potential reduction of traffic fatalities and injuries when a 10% increase in tyre grip is assumed. The reduced number of traffic fatalities is about 3-4% of the total number in The Netherlands, which is significant.

Note that AIR CTI can reduce stopping distance by 15%



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10. **IMPACTS OF CENTRAL TYRE INFLATION SYSTEMS APPLICATION ON FOREST TRANSPORTATION - REVIEW**

Dr Mohammad Reza Ghaffaryan
University of the Sunshine Coast
April 2017

"Thee reduced wheel slip results in improving traction from 17 to 19% under different surface conditions and axle loads (ASHMORE, SIROIS 1987, STUROS et al. 1995)"

"Short-term benefits have been identified over the course of the 13 months trial in respect of tire life, tyre management, vehicle traction, vehicle mobility and extended hauling seasons, confirming the results of similar trials in Canada and Sweden."

"The experience with CTIS/TPCS in the UK has also inducted that this technology can claim up to 34% better traction in sand and 17% in mud based on the results found by FERIC (ARMSTONG 2008)."

"Nevada Automotive Test Center (1987) and KREYNS (1994) indicted that fuel consumption can be improved between 1 to 3% when trucks are equipped with reduced tire pressures ..."

"In a trial in Saskatchewan BRADLEY (2003) stated that the fuel consumption improvement through using reduced pressure of tyres varied from 3 to 21% overall,..."

"MOORE and SOWA (1997) stated that each year approximately 1,500 km of Forest Service gravel roads require resurfacing at an average cost of USD 9,000/km for gravel replacement. With variable tyre pressure technology, the wearing action on these roads could be reduced by 10 to 25%. Another trial conducted by the USDA Forest Service (USDA Forest Service 1993) compared the vibration level of conventional and CTIS equipped trucks. The trucks with high inflation pressure (conventional trucks) recorded vertical energy about six times higher than CTIS equipped trucks. The conventional truck exhibited four times the part failures and eight times greater cost of repairs than the trucks with lowered tyre pressures. It is clear that the use of lowered tyre pressure, under the right conditions, can reduce maintenance costs and significantly improve the comfort of the driver."

"FPinnovations projects have also proved that applying tyre pressure management systems can increase the service life of drive tyres from 27% to 90% (CARME 2006)."

"A Canadian study showed that the number and severity of vibration-related repairs were reduced by 30 and 26% and the ride was improved as well (BRADLEY 1993)...Swedish timber trucks equipped with CTIS reported lower incidents of punctuated tyres compared to normal trucks where the risk of bursting tyres due to overheating was also reduced (GRANLUND 2006)."

"...BERGKVIST et al. (2007) added that Swedish experience with CTIS showed low repair cost, improved driver environment and reduced tire wear."

**All the best for the coming month
The AIR CTI Team**



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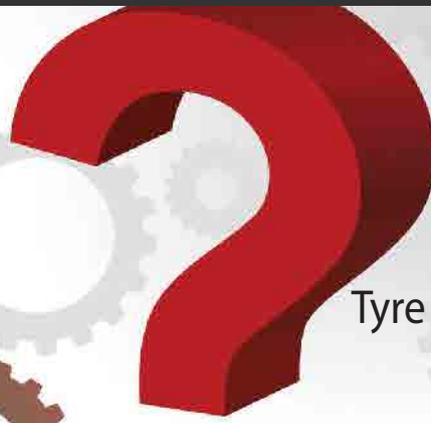
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TECHNICAL TALK



AIR CTI THE ULTIMATE Tyre Pressure Management System

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AIR CTI wishes to bring to our readers attention, and highly recommend, the following the following conference hosted by the Australian Road Transport Suppliers Association (ARTSA).

ARTSA Global Leaders Summit

Date: Tuesday 8 of May 2018

Venue: Melbourne Exhibition and Convention Centre

Booking: Online



Global Truck & Trailer LEADERS SUMMIT

Hosted by  ARTSA
AUSTRALIAN ROAD TRANSPORT
SUPPLIERS ASSOCIATION

THE RULES ARE CHANGING

There are no rules in a disruptive world

What does disruption mean for the logistics and heavy vehicle industry? Consider recent disruptors: Amazon, Uber, AirBnB, Tesla, BitCoin, Blockchain, autonomous vehicles...

The list is growing. These companies and initiatives are driving major changes in the way we consume services and also the products we use.

The ARTSA Global Leaders Summit on the 8th May 2018 in Melbourne will discuss these kinds of disruptors, and what that means in terms of opportunities for the heavy vehicle sector.

The event will be opened by **Dr Alan Finkel AO, Australia's Chief Scientist** and will feature four sessions covering many of the issues that arise from disruption including innovation, productivity as well as advances in propulsion, automation, telematics and regulatory reform.

Plenary sessions will consider the future for efficiency gains and the hurdles that need to be cleared in order to capture these opportunities.

It is a Heavy Vehicle Leaders Summit without parallel and one that will be immediately followed by the Megatrans 2018 event also held at the same venue in Melbourne.

We invite you to be a part of this game-changing event in May 2018.



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