2014 Review of the Motor Vehicle Standards Act 1989

Australia is moving away from vehicle manufacturing, with an increase in imported vehicles. So a reason for Australia to adopt UN Regulations as the primary motor vehicle standard. **The UNECE vehicle design rules can be more stringent regarding safety, and thus a more compelling reason for Australia to adopt the UNECE regulations.**

The review questions if some additional capacity to permit variations, with an emphasis on different standards for Australian trucks. **Perhaps, but please do not overlook this opportunity to improve Australian truck design and do embrace some of the better UNECE standards.**

Referring to the *Terms of Reference* for the *2014 Review of the* Motor Vehicle Standards Act 1989*:*

- **Risk exposure of the motoring public:** Since 1988 there has been an increase in both the number of heavy vehicles and the average distance travelled by heavy vehicles. In 1988, heavy vehicles travelled 13.4B km accounting for 8.7% of the total distance travelled by the Australian fleet. By 2012, the 19.4B km travelled by heavy vehicles accounted for 8.4% of the distance travelled by the Australian fleet – raising the community's exposure to risk.
- **Risks and costs to the community: vehicle safety and environmental performance:** Over the past 40 years, improvements in vehicle safety and the regulation of safety features have contributed significantly to road trauma reduction. Over the past decade, fatalities from road accidents in Australia have fallen by 25%. Even so, it is estimated that the current cost to the community of road accidents is around $27 billion per annum. Vehicle safety technologies currently being mandated and future technologies have the potential to significantly reduce road fatalities and injuries in the future. Motor vehicles make a major contribution to urban air pollution. Motor vehicle emission control has therefore been prominent in government air quality management strategies, including the Commonwealth's *Fuel Quality Standards Act 2000*. Vehicle fuel efficiency standards for road vehicles are applied through the ADRs.
- **Wider community costs:** Vehicles with lower safety standards generally create greater costs to the community. The costs of injuries and deaths are borne by friends and family members, employers and the wider community. The community also pays for this through higher insurance premiums and taxation. Impacts of emissions on the wider community and environment are a key reason for their regulation – including the imposition of national standards for air quality. . . . Health impacts of particulate matter and nitrogen dioxide emissions can also adversely affect acute and chronic health conditions. Moreover, particulate matter and nitrogen dioxide contribute to Australia's greenhouse gas profile.

Improve Australian truck design, for safety and fuel efficiency / emissions.

The impact that road crashes have on society is significant, costing the Australian economy approximately $15 billion per year. Crashes involving heavy commercial vehicles (a goods carrying vehicle with a Gross Vehicle Mass (GVM) greater than 3.5 tonnes) colliding with passenger cars, motorcycles, bicycles and pedestrians have an increased likelihood of producing a severe injury or fatality. This is mainly due to the incompatibility in mass and geometry between heavy vehicles and other road users. . . .

Aggregate data and previous research has shown that crashes involving trucks colliding with passenger cars, motorcycles, bicycles and pedestrians have an increased likelihood of producing a severe injury or fatality. This increase is in large part due to the incompatibility between vehicles due to geometric and mass differences. The compatibility of a vehicle is a combination of its crashworthiness and its aggressivity when involved in crashes with vehicles in the fleet. While crashworthiness focuses on the capability of a vehicle to protect its occupants in a collision, aggressivity is measured in terms of the casualties to occupants of the other vehicle involved in the collision. From *Regulation Impact Statement for Underrun Protection*, Jul-2009, Department of Infrastructure, Transport, Regional Development and Local Government, Australian Government, partial link www.comlaw.gov.au/.../F2009L03609/c2b84633-6b10-447a-8d0c-fbc2...

Please do not overlook this opportunity to improve Australian truck design for the safety of other road users, in particular vulnerable road users. Over the last decade, cyclist casualties (fatalities and injuries) have increased markedly, while in the same period casualties for all road users have decreased.

In South Australia there have been some horrific bicycle-truck incidents, e.g. truck turning left across a man's path; woman under the wheels of truck overtaking too closely; man run over multiple times by several trucks on a country highway.

More widely known nationally:

- In 2011 Richard Pollett was cycling in Kenmore, Brisbane, when struck by an overtaking truck and killed. The outcome could have been different if the truck was fitted with better exterior mirrors and in-vehicle camera. http://blogs.crikey.com.au/theurbanist/2013/05/08/are-cyclists-mere-obstacles-to-motorists
- In Mar-2010 James Cross was cycling in Hawthorn, Melbourne, when a parked vehicle 'doored' him, throwing him under a truck where he died. The outcome could have been different if the truck was fitted with well-designed underrun panels all around. http://theconversation.com/want-safer-cycling-dont-dismiss-dooring-6918

Cyclist fatalities from trucks are over-represented

Queensland Transport has analysed crash data for all crashes involving bicycle riders in Queensland from 1994 to 2001. Trucks were involved in 3% of crashes involving bicycle riders but accounted for 18% of rider fatalities. The crashes involving trucks (particularly those involving articulated trucks) were more severe than for other bicycle crashes. *Cycling and heavy vehicles*, Queensland Transport, Queensland Government, http://www.tmr.qld.gov.au/~/media/Travelandtransport/Cycling/Bike%20user%20guide/Technical%20information/C7_Cycling_and_heavy_vehicles.pdf

Safer mirrors on Australian trucks and buses.

EU law requires trucks to be fitted with exterior 'blind spot mirrors' that give drivers a wider field of vision than conventional mirrors. 'Blind spot mirrors' have already helped reduce the number of accidents involving trucks and vulnerable road users like motorcyclists, cyclists and pedestrians. *Blind spot mirrors / Road Safety / Mobility and Transport*, 28-Nov-2013, European Commission, http://ec.europa.eu/transport/road_safety/topics/vehicles/blind_spot_mirrors/index_en.htm

In Australia ADR 14 *Rear Vision Mirrors* does not mandate for the safer mirrors, although permits UNECE Regulation 46 as an alternative standard. http://www.comlaw.gov.au/Details/F2006L02663

Safer in-vehicle cameras on Australian trucks and buses.

Reversing cameras are not unusual on new private vehicles, especially 4WDs. Public buses are fitted with cameras to record any on-road incidents that occur in front of the bus. It is time to mandate for cameras on trucks and buses to supplement mirrors and thus increase the driver's field of view. http://blogs.crikey.com.au/theurbanist/2012/08/06/why-do-trucks-buses-still-rely-on-mirrors

Safer truck underrun panels (front, back and side).

I understand that there are Australian design guides for truck front underrun panels, but not rear or side underrun panels.

Truck front underrun panels are covered in Vehicle Standard (Australian Design Rule 84/00 – Front Underrun Impact Protection) 2009. http://www.comlaw.gov.au/Details/F2009L03609

Currently, Australia only has Australian Design Rule (ADR) 42/04 – General Safety Requirements, Clause 8 Rear Bumpers for Semi-trailers, to respond to the underrun problem. This ADR is relevant to rear underrun crashes between semi-trailers and other road users. This contrasts with the European Union, Japan, United States, some Latin American and Asian countries that have had regulations in place for some time for side and rear UP and more recently for front UP. *Regulation Impact Statement for Underrun Protection,* Jul-2009, Department of Infrastructure, Transport, Regional Development and

Local Government, Australian Government, partial link www.comlaw.gov.au/.../F2009L03609/c2b84633-6b10-447a-8d0c-fbc2...

The EU designs for truck underrun panels are superior to the Australian design. *Review of Truck Safety: Stage 1: Frontal, Side and Rear Underrun Protection*, 2002, Monash University Accident Research Centre, J Lambert and G Rechnitzer, http://www.monash.edu.au/miri/research/reports/muarc194.html

Trucks without side underrun panels can 'suck' cyclists under the wheels: Due to the side 'wind' force exerted on bicycle riders from heavy vehicles, roads should be designed to provide satisfactory clearances between the bicycle envelope and the vehicle. *Guide to Road Design Part 3: Geometric Design*, 2009, Austroads.

However, most Australian roads with bicycle lanes, have the bicycle and travel lanes marked such that there is not the recommended overtaking distances between bicycles and trucks.

Well-designed truck underrun panels are needed for car occupant safety. When a small car slides under a truck, occupant protection measures in the car are unlikely to engage.

When a heavy commercial vehicle and a passenger car, or vulnerable road user such as a motorcycle, bicycle or pedestrian collide, the results are nearly always more serious for the passenger car occupants or the vulnerable road user than for the heavy commercial vehicle occupants. This is especially true if the front of a smaller vehicle slides under the front or the rear end of a heavy commercial vehicle as happens in a heavy vehicle underrun crash. The high risk of injury to other vehicle occupants from underrun crashes is a result of the lack of compatibility between the colliding vehicles. Vehicle mass, stiffness and geometry affect compatibility. A smaller vehicle under-rides a heavy commercial vehicle to the extent that the heavy commercial vehicle's front or rear extremity enters the occupant compartment or space of the smaller vehicle. Such occupant space intrusion frequently leads to serious injuries or fatalities.

When an underrun crash between vehicles occurs, there are two noticeable outcomes. The first, as described above, is the trauma from the exposure of the smaller vehicle's occupants to impacts with the interior compartment of their vehicle, occupant protection measures in the smaller vehicle being unlikely to engage. The second is the likelihood of further collisions arising from the loss of control of the heavy vehicle. This follows from damage to the steering or braking components of the heavy vehicle by the smaller vehicle. *Regulation Impact Statement for Underrun Protection,* Jul-2009, Department of Infrastructure, Transport, Regional Development and Local Government, Australian Government, partial link www.comlaw.gov.au/.../F2009L03609/c2b84633-6b10-447a-8d0c-fbc2...

Mandatory underrun panels on trucks on all sides would also reduce fatalities and injury severity for car occupants. *A Cost-Benefit Analysis of Heavy Vehicle Underrun Protection*, Monash University Accident Research Centre, Narelle Haworth and Mark Symmons, http://acrs.org.au/files/arsrpe/RS030141.pdf

Underrun panels to increase fuel efficiency and decrease emissions.

In 2006 estimated that Australia's greenhouse gas emissions included 17% from all transport, with 6% being from heavy vehicles. *South Australia's Freight Transport Infrastructure*, Mar-2006, South Australian Freight Council, http://www.safreightcouncil.com.au/SAFCInfraPrioritiesPaper2-Mar06.pdf

Better small truck design could save lives and decrease emissions.

In Europe there is currently lobbying for small truck design to be improved. The 'Direct Vision Lorry' concept would increase the driver's field of view in front and to the sides of the truck by 50% compared to today's truck designs and could save hundreds of cyclists' and pedestrians' lives. *Direct-vision lorries to save hundreds of lives – study*, 23-Sep-2014, Transport & Environment, http://www.transportenvironment.org/press/direct-vision-lorries-save-hundreds-lives-%E2%80%93-study

The changed cab design would also improve aerodynamics of the vehicle, and thus reduce fuel use and emissions.