Has the Good News Masked the Real Heavy Vehicle Crash picture?

Safety Improvements have been made

Over the last decade heavy vehicle fatal crashes for both rigid and articulated trucks have trended downwards. As well, the uptake of Performance Based Standards vehicles has grown significantly also adding to national safety outcomes. The continued uptake of the National Heavy Vehicle Accreditation Scheme, Trucksafe, ISO 39001 at the margin, and a renewed focus on CoR have been claimed to have added further improvements to our heavy vehicle safety outcomes.

Since 2012 three heavy vehicle truck accident reports have been commissioned that focussed on the behaviour of the Australian High Productivity Vehicles (HPVs) that become operational after being assessed and certified through the Performance Based Standards (PBS) processes. The time period spanned by these PBS Safety reports was from 2009 to 2019 inclusive. In each case the benefits in lower major crash rates for PBS vehicles ranged between 46% to 63%, a great outcome. However, this major crash analysis also compared the conventional heavy vehicle fleet safety performance to the ever-growing PBS fleet.

How has the heavy conventional combination truck fleet performed over the last 11 years?

The conventional heavy truck fleet accident crash rates, for the non -PBS fleets, are presented in Table 1. These crash rates span the three time periods that published data is available. The definition of a 'major crash' draws on the NTI/NTARC definition of a crash that involves $50,000 in losses. This definition has been adopted here. The five heavy vehicle truck combinations examined in this article are:

- Semi-trailers - 6 axle or 7 axle twin-steer
- Heavy Rigid Trucks with 3 or 4 axles with a 3 or 4 axle dog trailer (non PBS)
- B-Doubles
- Double Road Trains (Road Train Type I)
- Triple Road Trains (Road Train Type II)

The crash rate performance over the period 2009/12 to 20016/19, presented in Table 1, shows four key results:

The major crash rates have gotten worse across four of the five conventional heavy combinations, especially the Rigid truck and Dog combinations, by 112%. The B-Double category has gotten worse by 60%, double road trains by 27% and triple road trains by 10%. The single semi-trailer crash rate improved by 8%, the only statistical highlight.

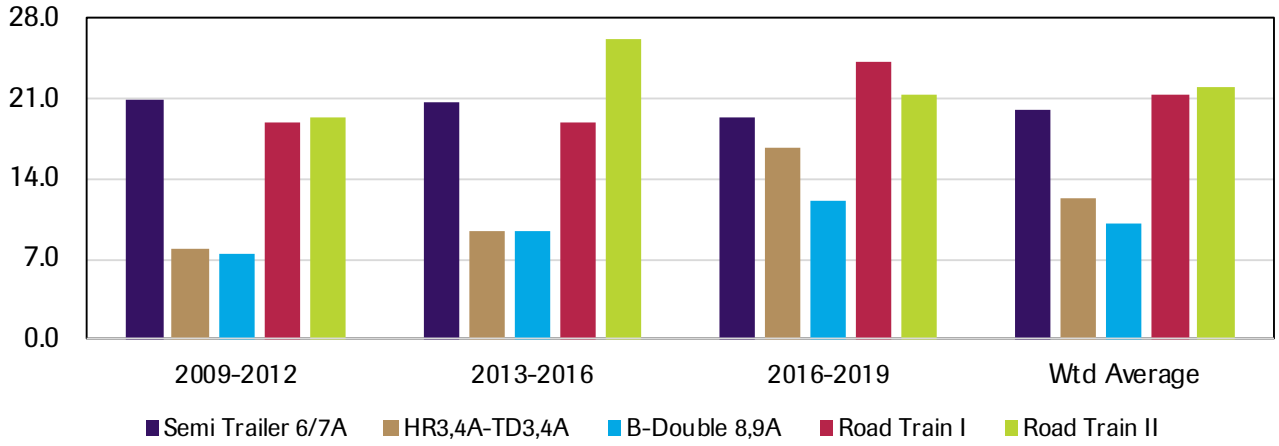
Table 1: Major Crash Rates per 100 million kilometres by Vehicle Type 2009 - 2019

Truck type	2009-2012	2013-2016	2016-2019	Crash Rate Improvement over Period	Weighted Average rate over period
Semi Trailer 6/7A	20.9	20.6	19.3	8%	20.1
HR3,4A-TD3,4A	7.9	9.5	16.7	-112%	12.3
B-Double 8,9A	7.5	9.4	12.0	-60%	10.1
Road Train I	18.9	18.9	24.1	-27%	21.2
Road Train II	19.3	26.1	21.2	-10%	22.0

Sources: Austroads 2014, NTC 2017, NHVR 2021 (From ILI, CILTA and NTARC data)

Figure 1 presents these results, along with the weighted average crash rates calculated over the examined 11 year period.

Figure 1: Major Crash Rates Australian Conventional Heavy Truck Combinations (2009-2019)



Source: Derived from Table 1

Table 2 adds another dimension when comparing the major crash rates between the heavy truck categories. The benchmark used is the conventional B-Double, which is now the workhorse of the Australian heavy vehicle fleet. It also has the lowest crash rate in this group. (The only vehicle combinations that have lower major crash rates, when compared to the conventional B-Double, are B-coupled B-Triples and other PBS B-Double configurations.) The specific 'weighted average' crash rates in Table 1 are used to compare the other truck combinations against the conventional B-Double in the Table 2.

When viewed this way the B-Double, as a benchmark, when compared against itself, it has a comparison crash rate ratio of 1 and is 0% worse than itself. Other results are obviously more pronounced.

In terms of major crash rates per 100 million kilometres, the B-Double performs:

- 100% better than the standard semi-trailer,
- 111% and 119% better when compared against the double and triple road trains respectively and
- 23% better that the conventional Truck and Dog combinations.

Table 2: Major Crash Rates comparison to a B-Double benchmark

Truck type	B-Double comparison crash ratio[1]	Crash Rate worse than B-Double
Semi Trailer 6/7A	2.0	100%
HR3,4A-TD3,4A	1.23	23%
B-Double 8,9A	1.00	0%
Road Train I	2.11	111%
Road Train II	2.19	119%

Note: rate per 100 million kilometres, 2009 – 2019. 1. Derived from weighted average crash rates over an 11-year period

How should these results be interpreted?

The results in Tables 1 and 2 should also sit alongside an important background statistic, published by the National Truck Accident Research Centre (NTARC). Some 60% to 65% of the time, for non-fatal major truck crashes, the insured truck is at fault. This can lead to the conclusion that a driver improvement is necessary and possibly that road train and semi-trailer operations need closer examination, at both a driver and a configurational behaviour level. For Road Trains at least, do drivers understand converter dolly behaviour especially on regional and remote roads?

The poor, and worsening, crash performance by four of the heavy vehicle classes in Table 1, especially by the conventional Rigid Truck and Dog Trailer configurations which have declined by 112%, as well as the deterioration in B-Double performance itself, down by 60%, also needs a greater focus.

Where have the PBS fleets got it right but the larger conventional heavy fleets got it wrong? At the end of the day the PBS fleets are the tip of the heavy truck iceberg, but what about the remainder of the iceberg, this being the conventional heavy trucks, which still need ongoing attention.

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