



Road Train Modernisation - Access New South Wales
2019-02

AUSTRALIAN TRUCKING ASSOCIATION TECHNICAL SUBMISSION

May 2019

1. About the Australian Trucking Association

The Australian Trucking Association (ATA) is the peak body representing 50,000 businesses and 200,000 people in the Australian trucking industry. Its members include state and sector associations, some of Australia's major logistics companies and businesses with leading expertise in truck technology. Through its members, the ATA represents many thousands of trucking businesses, ranging from owner drivers to large fleets.

2. Issue impacting industry

Road train access has been improved in NSW under the Road Train Modernisation with a mandatory requirement for triaxle converter dollies with road friendly suspension. This has resulted in access nearer to major population centres which is beneficial to productivity and the economy of both NSW and the nation. However, designs need to be appropriate and meet "all requirements" of the various safety performance standards, including emergency braking and axle load distribution. **As such there does not seem to have been consideration for converter dollies operating in more populous areas where they will likely be subjected to an increased frequency of more "significant" (high pressure) braking events due to actions by other road users.**

The Australian Trucking Association (ATA) has been aware of these issues for a long period and had raised them accordingly with the then Department of Infrastructure and Transport - Vehicle Safety Standards in 2010. In particular, certain performance requirements for converter dollies having been removed from ADR 44/01, where previously requirements were included to consider the forces generated by braking and the brake torque reaction. Triaxle groups are somewhat a recent addition to converter dolly configurations (about the mid 90's), and as a result escaped performance requirements of some of the prior ADR 44/00 clauses including:

44.2.3.2.12.3. 'Converter Dolly' Configuration

'Converter Dollies' shall have a 'Single Axle' or 'Tandem Axle Group' and conform with the requirements of one of the Clauses 44.2.3.2.13.1 to 44.2.3.2.13.3.

44.2.3.2.13.3.1. The 'Converter Dolly' shall be constructed so that the torque reaction generated in the dolly by braking forces shall be carried through the dolly's 'Fifth Wheel' assembly into the 'Semi-trailer' coupled to that 'Fifth Wheel' assembly and the 'Drawbar' shall be connected to the dolly chassis through a flexible coupling which allows the 'Drawbar' to pivot relative to the dolly chassis about a horizontal axis. Any 'Tandem Axle Group' supporting such a dolly shall have a non '*Brake Reactive Suspension*' system.

44.2.3.2.13.3.2. The 'Converter Dolly' shall be constructed so that the torque reaction is transmitted through a tow coupling designed for this purpose into the drawing vehicle and the 'Drawbar' and chassis shall be integral and the dolly's 'Fifth Wheel' assembly shall be able to pivot about a horizontal axis. Any '*Tandem Axle Group*' supporting such a dolly shall have a single pivot (suspension) system.

44.2.3.2.13.3.3. The '*Converter Dolly*' shall be constructed so that the torque reaction generated in the dolly by braking forces shall be carried through a limited travel suspension fitted to the 'Tandem Axle Group' fitted to the dolly. Such a dolly shall have a '*Drawbar*' connected to the dolly chassis through a flexible coupling which allows the 'Drawbar' to pivot relative to the dolly chassis

about a horizontal axis. The 'Tandem Axle Group' supporting such a dolly shall have one of the following (suspension) systems:

3. Governing Rules

Following the ATA's submission the then Department of Infrastructure initiated a discussion paper regarding the various performance aspects of air suspension converter dollies, including axle weight distribution. To our knowledge that discussion paper (2012) has not been progressed nor made public.

The road train modernisation program has, as a result of mandating triaxle converter dollies unreasonably disadvantaged at least the better designed air suspension tandem converter dollies.

Whilst productivity gains have been achieved through PBS such as the PBS level 2B 30^{metre} A-doubles and PBS Level 3 A-doubles, interestingly these PBS A-doubles utilise a tandem axle air suspension converter dollies that is very similar to (if not the same as) the tandem axle air suspension converter dollies more generally used in road trains.

Would the RMS accept these "PBS combination tandem axle converter dollies" for use in general road trains east and of the Newell Highway?

Research completed by Roaduser Research (Dr Peter Sweatman) in about 1996 showed that converter dolly high speed dynamic performance significantly improved as wheelbase (distance from centre of the towing eye to the centre of the axle group) increased to around 4.1^{metres}; where the wheelbase was greater than 4.1^{metres} the improvement was minimal. Typically, the wheelbase of a converter dolly used in PBS 30^{metre} A-doubles is typically less than 3.6^{metres}.

The history of larger combinations has more traditionally been based on modularity (ie: adding vehicle units of consistent modules – the same trailers). The tandem axle converter dolly is commonly a replacement for a prime mover in the "modular" approach, in that the vertical load imposed into a tandem axle converter dolly is equivalent to the imposed vertical load of a 6x4 prime mover (nominally around the 13^{tonnes} mark); whereas the vertical load capacity of a triaxle dolly can far exceed that of the 6x4 prime mover that could be used to tow the semi-trailer when the combination is uncoupled into a smaller configuration (ie: road train to semi-trailer).

4. ATA Recommended Solution

The ATA Industry Technical Council does not share the view that simply changing from a tandem axle converter dolly to a triaxle converter dolly necessarily results in an improvement in dynamic performance improvement nor other safety considerations. Triaxle groups (including converter dollies) generally incur higher maintenance and operating costs than tandem groups. Some operators are moving away from air suspension converter dollies and trending back to mechanical suspensions because of issues experienced with air suspension converter dollies (including triaxle), where the dynamic issues do not significantly change, seemingly just less influenced (especially the braking reactivity) by the mechanical suspension.

The consistent question from operators is why is a tandem axle air suspension with a short wheelbase (drawbar length) converter dolly is OK in a PBS 30^{metre} A-double operation in

metropolitan area, but a similar converter dolly with a longer wheelbase (drawbar length) not acceptable in the more general road train areas (ie: east of the Newell highway)? This is confusing for all operators.

With the broader use of air suspension converter dollies and the increasing issues known to our members (including the brake reactivity of certain suspension configurations) the ATA Industry Technical Council (ITC) considered these issues in May 2018. Members initiated a project with the support of our ITC supplier partners to manufacture a prototype "rigid" drawbar converter dolly for in-service assessment by our membership. The ATA is also offered to make this converter dolly available for dynamic review by the NHVR which could include the RMS.

Some operators have been advised (perhaps an unofficial capacity by RMS Officers) that the current RMS policy in respect of requirements for triaxle converter dollies versus tandem axle converter dollies is being reviewed and that such a review will include an assessment of the dynamic performance initiated/ instigated by the RMS. However, these same RMS officers do not seem to know (or are unwilling to divulge) who at the RMS is the Project Manager for this review and/or when such research is due for completion.

The ATA would like to know:

- the scope of the proposed project;
- who is the project manager;
- who is conducting the assessment/review; and,
- how the ATA may participate and be technically involved?

Our engagement will ensure the appropriate analysis and considerations are included for a superior outcome, that can be backed by industry.

Bob Woodward
Chief Engineer - Australian Trucking Association