Session 3b: Brakes

Development of the Australian Brake Balance Code of Practice

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The paper describes a current project to develop an Australian Brake Balance Code of Practice that is applicable to heavy combination vehicles. Brake balance occurs when the braking forces per tonne of load carried by each axle are about the same. A vehicle with good brake balance will exhibit good directional control and achieve short stopping distance during heavy braking. Achievement of good brake balance on heavy combination vehicles is a challenging task because of the large number of axles involved and because axle weights change dramatically as the load is altered. It is a particular problem in Australia because of the wide range of vehicle models and braking systems that exist.

The Australian marketplace has locally manufactured trucks and trailers together with a range of North American, European and Japanese vehicles. Chinese manufactured heavy trailers are now available. Significant differences occur in the brake system designs and the technology levels across the range of vehicles. Furthermore, Australia is a leading country with use of long combination vehicles, which by nature have a large number of axle groups.

The Australian Road Transport Suppliers Association (ARTSA) is developing the Code of Practice in co-operation from other Australian transport associations and with support from three government agencies. The Code aims to provide guidance at on three aspects:

1. Specification stage. What is the likely brake performance of a proposed combination vehicle?
2. Problem solving. What can be done to improve the brake balance performance of a problem vehicle?
3. Regulatory considerations. What approaches are available to set standards for brake balance performance?

Some of the elements of the Code are:

• Proposed principles on which the assessment of brake performance is based.
• Identification of Figures of Merit that can be applied to the assessment of brake balance.
• A ‘technology map’ that identifies the likely outcome of mixed brake technologies on trucks and trailer(s) in combination.
• A brake calculator that estimates the Figures of Merit of a potential combination vehicle.
• A review of modern brake technologies (including electronic controls) aimed at educating the marketplace about advantages and issues.
• Testing and assessment procedures.
• Guidance on amelioration of problems.