Vehicle Standard (Australian Design Rule 35/06 – Commercial Vehicle Brake Systems) 2018

Made under section 7 of the *Motor Vehicle Standards Act 1989*

Explanatory Statement

Issued by the authority of the Minister for Urban Infrastructure and Cities

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1. LEGISLATIVE CONTEXT

Vehicle Standard (Australian Design Rule 35/06 – Commercial Vehicle Brake Systems) 2018 is made under the *Motor Vehicle Standards Act 1989* (the Act). The Act enables the Australian Government to establish nationally uniform standards that apply to new road vehicles when they are first supplied to the market in Australia. The Act applies to such vehicles whether they are manufactured in Australia or imported.

The making of the vehicle standards necessary for the Act's effective operation is provided for in section 7, which empowers the Minister to "determine vehicle standards for road vehicles or vehicle components".

Vehicle Standard (Australian Design Rule 35/06 – Commercial Vehicle Brake Systems) 2018 (ADR 35/06) is being made to replace Vehicle Standard (Australian Design Rule 35/05 – Commercial Vehicle Brake Systems) 2013 (ADR 35/05), which was determined in 2013 to mandate Electronic Stability Control (ESC) for light commercial vehicles, and Brake Assist Systems for light passenger and light commercial vehicles. It is necessary to make a new standard rather than an amendment as the requirements for some categories of heavy vehicles have increased in stringency and the text as last determined has been substantially altered.

2. CONTENT AND EFFECT OF ADR 35/06 – COMMERCIAL VEHICLE BRAKE SYSTEMS

2.1. Overview of the ADR

The function of this standard is to specify braking requirements on commercial vehicles and large passenger vehicles to ensure safe braking under normal and emergency conditions. The standard also contains provisions for some light passenger vehicles.

2.2. Effect of the ADR

This vehicle standard is being made to implement Phase II of the National Heavy Vehicle Braking Strategy (NHVBS) for heavy omnibuses, prime movers, and short wheel based rigid vehicles. It introduces mandatory requirements for a Vehicle Stability Function incorporating both rollover control and directional control (otherwise known as Electronic Stability Control or ESC for heavy vehicles) to be fitted to omnibuses with a Gross Vehicle Mass (GVM) exceeding 5 tonnes and prime movers and short wheel based[1] rigid vehicles with a GVM exceeding 12 tonnes.

[1] Short wheelbase for this standard refers to vehicles where 'Cab-over engine vehicles' have a wheelbase not exceeding 4.5 metres and conventional (bonneted) vehicles have a wheelbase not exceeding 5.0 metres.
'Cab-over engine vehicle' means a vehicle where more than half of the engine length is rearward of the foremost point of the windshield base and the steering wheel hub is in the forward quarter of the vehicle length. Definition from United Nations Regulation No. 29 Revision 2 — Uniform provisions concerning the approval of vehicles with regard to the protection of the occupants of the cab of a commercial vehicle

ESC for heavy vehicles is a driver assistance technology designed to improve both the vehicle stability and directional control. The rollover control function automatically decelerates a vehicle when it detects, based on the measurement of vertical tyre loads or at least lateral acceleration and wheel speeds, that the vehicle is at risk of a rollover. This is achieved by automatically applying the brakes on at least one axle of the vehicle, together with automatic reductions in engine power and engine braking. Heavy vehicles equipped to tow a trailer will also send a control signal to brake the towed trailer. The directional control function acts to bring a vehicle back on course when it detects based on the measurements of steering wheel angle and the vehicle yaw (angular acceleration) rate that the vehicle is not following the course intended by the driver. This is achieved by the system automatically and selectively braking individual wheels to generate the forces needed to bring the vehicle back on track.

Exemptions from mandatory fitment of ESC are provided for articulated buses, route service buses, and trucks and buses 'designed for off-road use' (note: 'designed for off-road use' is defined in Appendix 1 of the ADR).

This standard, together with two recent and associated ADRs 88/00 (Electronic Stability Control Systems) and 89/00 (Brake Assist Systems), also restructures the ADR requirements for brake systems on light vehicles, to align with the latest international standards adopted by the United Nations (UN) World Forum for the Harmonization of Vehicle Regulations. This will enable the light vehicle industry to continue the current practice of utilising UN approvals to demonstrate compliance to the ADR requirements.

The standard will apply to vehicles of ADR category MB (passenger vans), MC (four-wheel drives or sports utility vehicles), MD (light omnibuses), ME (heavy omnibuses), NA (light goods vehicles), NB (medium goods vehicles) and NC (heavy goods vehicles). The standard will also apply to certain category LEG (three-wheeled) vehicles. New models of light vehicles (ADR category LEG, MB, MC and NA vehicles) will need to be certified to this standard from 1 July 2019. Medium and heavy vehicles (category MD, ME, NB and NC vehicles) will need to be certified to this standard from 1 November 2020 and 1 January 2022, for new models and all new vehicles respectively. There is no mandatory application date for all other vehicles (i.e. light vehicle models established in the market before 1 July 2019). They may comply with this vehicle standard or may continue to comply with earlier versions of this vehicle standard, as applicable for the particular vehicle category. Category MB, MC or NA vehicles complying with the requirements of ADR 31/… will also be accepted as complying with this standard.

Category MB, MC and NA vehicles certified to this standard will also need to be certified to ADR 88/… and ADR 89/... This will ensure these categories of vehicles continue to be fitted with both ESC and a Brake Assist System, as is currently required by ADR 35/05. Complementary explanatory statements are available for ADRs 88/00 and 89/00.

2.3. Incorporated Documents

This standard incorporates references to a number of standards of a highly technical nature. These standards are typically accessed by vehicle manufacturers and test facilities as part of their professional library.

Clause 3, Clause 9, and Appendices 2 and 3 of this standard incorporate references to the UN Regulation No. 13 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES OF CATEGORIES M, N AND O WITH REGARD TO BRAKING (R 13). Appendix 2 of this standard also incorporates a reference to the UN Regulation No. 13-H – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF PASSENGER CARS WITH REGARD TO BRAKING SYSTEMS (R 13-H). These are international standards for road vehicle braking systems.

Clause 5.1.13 of this standard incorporates a reference to AS 4945-2000 (Commercial road vehicles - Interchangeable quick connect/release couplings for use with air-pressure braking systems). This standard specifies requirements for the design, dimensions and identification of couplings for air-pressure braking systems on towing vehicles, trailers and semitrailers.

Clause 5.1.12., Clause 5.1.14.2 and Appendix 4 of this standard incorporate references to ISO 11992:2003, including ISO 11992-1:2003, and ISO 11992-2:2003 and its Amd.1:2007. These standards specify requirements for communication between towing vehicles and trailers with a maximum permissible laden mass greater than 3,500 kg, including specifications for the physical and data link layer of the electrical connections, and the parameters and messages for electronically controlled braking systems (i.e. ESC and Antilock systems) and running gear equipment (i.e. systems for steering, suspension and tyres).

Clause 5.7.5 of this standard incorporates references to ISO 3583:1984. This standard specifies characteristic for two types (A and B) of connections used for checking response times and pressure levels for compressed-air braking equipment on road vehicles, as well as the open space requirements that shall surround the pressure test connection and the protection against corrosion.

Clause 5.8 and Appendix 4 of this standard incorporates references to ISO 7638-1:2003 and ISO 7638-2:2003. These standards specify dimensions, contact allocation and test requirements for electrical connectors used between towing vehicles and trailers. ISO 7638-1 connectors are used for brake and running gear systems with a 24 V nominal supply voltage, while ISO 7638-2 connectors are used for brake and running gear systems with a 12 V nominal supply voltage.

Appendix 3 – Annex 1 incorporates references to ASTM E1136-93 and ASTM E1337-90. These standards specify a standard reference test tyre, and a method for determining the peak braking coefficient of road test surfaces, respectively.

In accordance with subsections 14(1)(b) and 14(2) of the *Legislation Act 2003,* each of these standards are incorporated as in force at the commencement of the Determination.

The UN Regulations (including R 13 and R 13-H), may be freely accessed online through the UN World Forum for the Harmonization of Vehicle Regulations (WP.29). The WP.29 website is **www.unece.org/trans/main/welcwp29.html**.

AS 4945-2000 is available for purchase only, through SAI Global. Vehicle manufacturers and test facilities access this standard as part of their professional

library and it has been referenced in the ADRs since ADR 35/02 was introduced in 2007.

ISO 11992:2003 (including ISO 11992-1:2003, and ISO 11992-2:2003 and its Amd.1:2007), ISO 3583:1984, ISO 7638-1:2003 and ISO 7638-2:2003 are all available for purchase only through the International Organization for Standardization (ISO) and various associated national standards bodies. These standards have been referenced in the ADRs, other national/regional vehicle standards and international vehicle standards for many years. Vehicle manufacturers and test facilities access these standards as part of their professional library.

ASTM E1136-93 and ASTM E1337-90 may be freely accessed online through the ASTM International Reading Room. This requires the user to register using an email and password. The ASTM International Reading Room website is **www.astm.org/readinglibrary/**.

3. BEST PRACTICE REGULATION

3.1. Benefits and Costs

There are costs associated with mandating ESC for heavy prime movers and omnibuses, but the related Regulation Impact Statement (RIS), which considers the changes for both trucks and buses under ADR 35 and trailers under ADR 38, shows that there will be positive net benefits. Overall, this standard will contribute towards an estimated reduction in road trauma of 126 lives and 1101 serious injuries (over a period of 35 years), for ADRs 35 and 38 combined. This includes around $217 million in net benefits.

The changes for light vehicles, together with the recent and associated ADRs 88/00 and 89/00, are largely machinery (administrative) in nature, and so are expected to have very little or no regulatory impact, including in terms of both the benefits and costs of regulation.

3.2. General Consultation Arrangements

It has been longstanding practice to consult widely on proposed new or amended vehicle standards. For many years there has been active collaboration between the Commonwealth and the state/territory governments, as well as consultation with industry and consumer groups. Much of the consultation takes place within institutional arrangements established for this purpose. The analysis and documentation prepared in a particular case, and the bodies consulted, depend on the degree of impact the new or amended standard is expected to have on industry or road users.

Depending on the nature of the proposed changes, consultation could involve the Technical Liaison Group (TLG) and the Australian Motor Vehicle Certification Board (AMVCB), the Strategic Vehicle Safety and Environment Group (SVSEG) and the Safe Vehicles Theme Group (SVTG), the Transport and Infrastructure Senior Officials' Committee (TISOC) and the Transport and Infrastructure Council (the Council).

- TLG consists of technical representatives of government (Australian and state/territory), the manufacturing and operational arms of the industry (including organisations such as the Federal Chamber of Automotive Industries and the Australian Trucking Association) and of representative organisations of consumers and road users (particularly through the Australian Automobile Association). AMVCB consists of the government members of TLG.
- SVSEG consists of senior representatives of government (Australian and state/territory), the manufacturing and operational arms of the industry and of representative organisations of consumers and road users (at a higher level within each organisation as represented in TLG). SVTG consists of the government members of SVSEG.
- TISOC consists of state and territory transport and/or infrastructure Chief Executive Officers (CEOs) (or equivalents), the CEO of the National Transport Commission, New Zealand and the Australian Local Government Association.
- The Council consists of the Australian, state/territory and New Zealand Ministers with responsibility for transport and infrastructure issues.

Editorial changes and changes to correct errors are processed by the Department of Infrastructure and Regional Development (the Department). This approach is only used where the amendments do not vary the intent of the vehicle standard.

Proposals that are regarded as significant need to be supported by a RIS meeting the requirements of the Office of Best Practice Regulation (OBPR) as published in *the Australian Government Guide to Regulation* and the Council of Australian Governments' *Best Practice Regulation: A Guide for Ministerial Councils and National Standard Setting Bodies.*

3.3. Specific Consultation Arrangements for this Vehicle Standard

The consultation process has been ongoing and detailed in nature. Following completion of Phase I of the NHVBS in 2013, an Industry Reference Group (IRG) was established by the Department to help with implementation, including any necessary follow-on amendments to ADRs 35 and 38, as well as to provide input and expertise towards implementation of Phase II. The IRG comprised representatives of heavy truck, trailer and bus manufacturers and operators as well as brake system suppliers and the National Heavy Vehicle Regulator (NHVR). This standard has been developed in close consultation with the IRG over the period 2015-18 and discussed a number of times at SVSEG, AMVCB and TLG meetings.

In accordance with OBPR requirements, a consultation RIS and draft ADR were released for a six-week public consultation period in December 2017. The RIS conforms to the requirements established by the OBPR in relation to regulatory proposals where the decision maker is the Australian Government's Cabinet, the Prime Minister, minister, statutory authority, board or other regulator. The OBPR reference number for the RIS is 23081.

4. STATEMENT OF COMPATIBILITY WITH HUMAN RIGHTS

The following Statement is prepared in accordance with Part 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011.*

4.1. Overview of the Legislative Instrument

ADR 35/06 is being made to replace ADR 35/05. It introduces mandatory requirements for ESC to be fitted to omnibuses with a GVM greater than 5 tonnes and prime movers and short wheel based rigid vehicles with a GVM greater than 12 tonnes.

4.2. Human Rights Implications

ADR 35/06 does not engage any of the human rights and freedoms recognised or declared in the international instruments listed in section 3 of the *Human Rights (Parliamentary Scrutiny) Act 2011*.

4.3. Conclusion

ADR 35/06 is compatible with human rights, as it does not raise any human rights issues.