Vehicle Standard (Australian Design Rule 35/07 – Commercial Vehicle Brake Systems) 2022

Made under section 12 of the *Road Vehicle Standards Act 2018*

Explanatory Statement

Approved by The Hon Kevin Hogan MP, Assistant Minister to the Deputy Prime Minister

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1. LEGISLATIVE AUTHORITY

Vehicle Standard (Australian Design Rule 35/07 – Commercial Vehicle Brake Systems) 2022 (ADR 35/07) is made under section 12 of the *Road Vehicle Standards Act 2018* (the RVSA). Section 12 of the RVSA allows the Minister to determine National Road Vehicle Standards.

2. PURPOSE AND OPERATION

2.1. Overview of the regulatory framework

The RVSA establishes a regulatory framework to regulate the importation and first supply of road vehicles to the market in Australia. The core principle of this framework is that vehicles which comply with appropriate standards are suitable for provision to the market in Australia. The Australian Design Rules (ADRs) have set out those standards since the early 1970s. At that time, they were applied cooperatively by the Australian Motor Vehicle Certification Board representing the Commonwealth and state and territory governments. In 1989, this arrangement was replaced by the MVSA and the Australian Design Rules were determined as national standards.

Under the RVSA, the ADRs are National Road Vehicle Standards intended to make vehicles safe to use, control the emission of gas, particles or noise, secure vehicles against theft, provide for the security marking of vehicles and promote the saving of energy. The ADRs are applied to vehicles as criteria for approval under various regulatory pathways set out in the Road Vehicle Standards legislation. Vehicles approved under these regulatory pathways can be provided to the market in Australia for use in transport. ADRs apply equally to imported and locally manufactured vehicles.

2.2. Overview of the ADR

ADR 35/07 expands the applicability of the 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) under the preceeding ADR 35/06, to all categories of omnibuses (ADR category MD and ME vehicles) and goods vehicles over 3.5 tonnes Gross Vehicle Mass (GVM) (ADR category NB and NC vehicles).

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, buses specially designed with spaces for standing passengers, and trucks and buses 'designed for off-road use' (note: 'designed for off-road use' is defined in Appendix 1 of the ADR).

ADR 35/07 also requires vehicles to meet a range of other brake system design and performance requirements to ensure safe braking under normal and emergency conditions. These include service brake system effectiveness, park brake, secondary brake, service brake fade, partial failure, antilock and service brake compatibility requirements. These have all been taken from the preceeding ADR 35/06.

3. MATTERS INCORPORATED BY REFERENCE

3.1. Legislative Instruments

Clause 3.3 includes a reference to the Australian Design Rule 31/… – Brake Systems for Passenger Cars (ADR 31). ADR 31 prescribes brake system requirements for light passenger and light commercial vehicles (ADR category MA, MB, MC and NA vehicles), to ensure safe braking under normal and emergency conditions.

Clause 3.4 includes a reference to the Australian Design Rule 33/... – Brake Systems for Motorcycles and Mopeds (ADR 33). ADR 33 prescribes brake system requirements for motorcycles and mopeds, to ensure safe braking under normal and emergency conditions.

Clauses 3.7 and 9.1.2 include references to the Australian Design Rule 88/… – Electronic Stability Control (ESC) Systems (ADR 88). ADR 88 prescribes requirements for ESC systems on light passenger and light commercial vehicles (ADR category MA, MB, MC and NA vehicles), to reduce the risk of crashes involving a loss of directional control of the vehicle, including those resulting in vehicle rollover.

Clause 3.7 also includes a reference to the Australian Design Rule 89/… – Brake Assist Systems (BAS) (ADR 89). ADR 89 specifies requirements for BAS on light passenger and light commercial vehicles (ADR category MA, MB, MC and NA vehicles), to maximise braking performance in emergency conditions.

Clause 4.1.1 includes a reference to the Vehicle Standard (Australian Design Rule Definitions and Vehicle Categories) 2005 (which may also be cited as the Australian Design Rule – Definitions and Vehicle Categories). This sets out definitions for many terms used in the ADRs, including the vehicle categories used in ADR applicability tables.

The ADRs may be freely accessed online through the Federal Register of Legislation. The website is www.legislation.gov.au.

In accordance with subsection 12(2) of the RVSA, each of these ADRs are incorporated as in force or existing from time to time. In the case of the ADRs, the ellipses (…) indicates the version(s) (e.g. 00, 01 etc.) of the ADR in force at the time.

3.2. Other Documents

ADR 35/07 incorporates references to a number of technical standards that are routinely accessed by vehicle manufacturers as part of their professional library, including to ensure that vehicles comply with existing vehicle identification requirements in many other countries/regions of the world.

Australian Standards

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.

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. While not freely available, AS 4945-2000 is readily accessible and widely used by vehicle manufacturers, and the Department of Infrastructure, Transport, Regional Development and Communications (the Department) is investigating options to make it available free of charge.

Section 12 of the RVSA allows the Minister to incorporate a broad range of documents, including as in force or existing at a particular time or as in force from time to time, when making national road vehicle standards. This ensures that Australia's legislative framework is well-prepared for future developments in the international road vehicle space.

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.

American Society for Testing and Materials (ASTM) International Standards

Annex 1 of Appendix 3 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.

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/.

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.

International Organization for Standardization

Clause 5.1.12., Clause 5.1.14.2 and Appendix 4 of this standard incorporate references to ISO 11992:2003 (Road Vehicles – Interchange of Digital Information on Electrical Connections between Towing and Towed Vehicles), 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 (b) and (c) include references to ISO 3583:1984 (Road vehicles – Pressure test connection for compressed-air pneumatic braking equipment). This standard specifies the main characteristics of two types (A and B) of connections used for checking response times and pressure levels for compressed-air braking equipment, 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 7638:2003 (Road Vehicles – Connectors for the Electrical Connection of Towing and Towed Vehicles) including ISO 7638 1:2003 and ISO 7638 2:2003. This standard specifies the 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.

Annex 2 of Appendix 3 includes a reference to ISO 15037-2:2002 (Road vehicles – Vehicle dynamics test methods – General conditions for heavy vehicles and buses). This standard specifies general conditions for measuring the dynamic responses (e.g. velocity, acceleration pitch, roll, yaw etc.) of heavy vehicles during dynamic tests.

ISO standards are all available for purchase only from the ISO and various associated national standards bodies. While not freely available, these ISO standards are all readily accessible and widely used by vehicle manufacturers, and the Department is investigating options to make them available free of charge.

In accordance with subsections 14(1)(b) and 14(2) of the *Legislation Act 2003*, each of these documents are incorporated as in force on the date this vehicle standard is made.

Section 12 of the RVSA allows the Minister to incorporate a broad range of documents, including as in force or existing at a particular time or as in force from time to time, when making national road vehicle standards. This ensures that Australia's legislative framework is well-prepared for future developments in the international road vehicle space.

United Nations

Clause 3, Clause 9, and Appendices 2 and 3 incorporate references to the United Nations Regulation No. 13 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES OF CATEGORIES M, N AND O WITH REGARD TO BRAKING (R 13). Appendix 2 also incorporates a reference to the United Nations 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.

The United Nations 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.

In accordance with subsections 14(1)(b) and 14(2) of the *Legislation Act 2003*, each of these UN documents are incorporated as in force on the date this national road vehicle standard is made.

4. CONSULTATION

4.1. 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.

Proposals that are regarded as significant need to be supported by a Regulation Impact Statement (RIS) meeting the requirements of the Office of Best Practice Regulation (OBPR) as published in the *Australian Government Guide to Regulatory Impact Analysis* or the *Regulatory Impact Analysis Guide for Ministers' Meetings and National Standard Setting Bodies*.

4.2. Specific Consultation Arrangements

A consultation RIS was posted on the Department's website for a six-week public comment period, which closed on 4 October 2019. Formal feedback to the RIS was received from members of the public, state government agencies, industry and road user organisations. A majority of the feedback strongly supported the implementation of a new ADR 35/07 mandating ESC for omnibuses, and for goods vehicles over 3.5 tonnes GVM.

ADR 35/07 was developed over the period 2019-2021 in consultation with the Technical Liaison Group (TLG) and the Strategic Vehicle Safety and Environment Group (SVSEG). A draft of the ADR was circulated in July 2020 to SVSEG and TLG for comment as part of the consultation. A further draft was published on the Department website in June 2021 as part of a broader public consultation process on regulatory options to increase the uptake of safer freight vehicles in Australia.

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).

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).

5. REGULATORY IMPACT

5.1. Regulation Impact Statement

A RIS was completed to analyse the policy options to increase the fitment of Advanced Emergency Braking (AEB) systems to new heavy vehicles supplied to the Australian market. This RIS also considered the case for expanding the applicability of the mandatory requirements for a Vehicle Stability Function under the preceeding ADR 35/06, to all categories of omnibuses (ADR category MD and ME vehicles) and goods vehicles over 3.5 tonnes GVM (ADR category NB and NC vehicles). The OBPR reference number for the RIS is 25313.

5.2. Benefits and Costs

Based on the benefit-cost analysis in the RIS, ADR 35/07 is estimated to save 23 lives and prevent 412 serious injuries. The implementation of ADR 35/07 at the same time as ADR 97/00 (AEB for omnibuses and goods vehicles over 3.5 tonnes GVM) is estimated to provide a total net benefit of $141 million (i.e. for both ADRs).

6. STATEMENT OF COMPATIBILITY WITH HUMAN RIGHTS

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

6.1. Overview

ADR 35/07 is made to supersede ADR 35/06. It specifies brake system requirements on commercial vehicles, large passenger vehicles and some light passenger vehicles, to ensure safe braking under normal and emergency conditions.

6.2. Human Rights Implications

ADR 35/07 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*.

6.3. Conclusion

ADR 35/07 is compatible with human rights, as it does not raise any human rights issues.