Vehicle Standard (Australian Design Rule 72/01 – Dynamic Side Impact Occupant Protection) 2025

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

Explanatory Statement

Approved by the Hon Catherine King MP, Minister for Infrastructure, Transport, Regional Development and Local Government

January 2025

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1. LEGISLATIVE AUTHORITY

1.1. National Road Vehicle Standards

Vehicle Standard (Australian Design Rule 72/01 – Dynamic Side Impact Occupant Protection) 2025 (also referred to as the Australian Design Rule 72/01 – Dynamic Side Impact Occupant Protection, the Australian Design Rule 72/01, or ADR 72/01), is made under the *Road Vehicle Standards Act 2018* (RVSA). The RVSA enables the Australian Government to establish nationally uniform standards that apply to new road vehicles or road vehicle components when they are provided to the market in Australia. The RVSA applies to vehicles or components whether they are manufactured in Australia or imported.

The making of the vehicle standards necessary for the RVSA's effective operation is provided for in section 12, which empowers the Minister to "determine standards for road vehicles or road vehicle components".

1.2. Exemption from Sunsetting

ADR 72/01 is exempt from the sunsetting provisions of the *Legislation Act 2003.*

Source of the Exemption

A standard made under section 12 of the RVSA is not subject to the sunsetting provisions of section 50 of the *Legislation Act 2003* through section 12 of the *Legislation (Exemptions and Other Matters) Regulation 2015* (table item 56C). A similar exemption was previously granted in respect of national road vehicle standards made under section 7 of the *Motor Vehicle Standards Act 1989* (MVSA) (item 40, section 12 of the *Legislation (Exemptions and Other Matters) Regulation 2015*). This exemption is important to ensure that ADR 72/01 continues to remain in force, and available to regulators and industry.

Intergovernmental dependencies

The exemption concerns ADRs, which facilitate the establishment and operation of the intergovernmental vehicle standard regime that Commonwealth, State and Territory governments rely on to regulate the safety of vehicles on public roads.

The Commonwealth uses the ADRs as the basis on which approvals to supply types of road vehicles to the market are granted under the Road Vehicle Standards Rules 2019. States and territories use the ADRs as the primary criteria on which vehicles are assessed for road worthiness. This 'in-service' aspect is dependent on the date of manufacture, which determines the applicable version of the ADRs against which the vehicle can be assessed. The ability to rely on national standards is particularly relevant given the long service life of vehicles – the average age of vehicles in Australia is over 10 years.

While the ADRs are regularly updated to reflect changes in technology, it is not possible to apply these new standards retrospectively to vehicles that are already in use. With former ADRs kept on the Federal Register of Legislation, State and Territory governments can use them to ensure vehicles continue to comply with the ADRs that were in force when they were first supplied to the market.

In the event that the Commonwealth could not justify the maintenance of the ADRs, State and Territory governments would be compelled to create their own vehicle standards. Whilst this could mean adopting the substance of the lapsed ADRs as an interim measure, the differing needs and agendas of each State and Territory government may result in variations to in-service regulations. Having different vehicle standards across the states and territories would make the scheme operate contrary to the underlying policy intent of the RVSA which is to set nationally consistent performance-based standards.

Commercial dependencies

The effect on vehicle manufacturers to redesign existing models to comply with new ADRs would present a burden and be a costly and onerous exercise. Manufacturers should not be expected to continually go back to redesign existing vehicles. Furthermore, ongoing product recalls to comply with new ADRs would undermine consumer confidence with significant financial impact to manufacturers. This exemption allows vehicle manufacturers to focus their efforts to ensure new models supplied to the market continue to comply.

Reviews of Australian Design Rules

ADRs are subject to regular reviews, as resources permit, and when developments in vehicle technology necessitates updates to requirements. Reviews of the ADRs ensure the ongoing effectiveness of a nationally consistent system of technical regulations for vehicle design, which are closely aligned, wherever appropriate with leading international standards such as United Nations (UN) regulations. This method facilitates the rapid introduction of the latest safety devices and technological advances into the Australian market, while also contributing to the industry's cost competitiveness in the domestic market. Where a review results in a new or amended ADR, these changes are subject to full parliamentary scrutiny.

1.3. International Harmonisation

A majority of Australian road vehicle standards such as ADR 72/01, are closely harmonised with international regulations, which are developed by the UN World Forum for Harmonization of Vehicle Regulations. Harmonisation ensures that vehicles built to the most recent safety, environmental and anti-theft standards are supplied to the Australian market at the least cost and that Australia has access to the latest vehicle technologies. In contrast, more Australian specific standards would require vehicles to be designed, developed and produced specifically for the relatively small Australian market. Unless needed to achieve legitimate policy objectives, a market specific standard would generally result in a significantly lower net benefit and benefit-cost ratio, than if costs were amortised over a number of markets, such as occurs with UN regulations.

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 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. The RVSA commenced in full and replaced the MVSA on 1 July 2021. A two-year transition period was provided between 1 July 2021 and 30 June 2023.

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.

2.2. Overview of the ADR

Clause 2 clarifies that the purpose of ADR 72 is to reduce the risk of serious and fatal injury of vehicle occupants if the vehicle is struck in the door area by another vehicle (lateral impact crash). This is achieved through setting requirements for the behaviour of the structure of the passenger compartment in lateral collisions. More specifically by managing the magnitude and distribution of dynamic forces applied to the occupants during a crash. It is measured by determining the impact on anthropomorphic test devices.

To meet the technical requirements of UN R95 as incorporated in Appendix A, the vehicle structure must offer protection for the front row occupants in the passenger compartment, including contacts with interior fittings in a crash. The passenger compartment is the space for occupant accommodation. The passenger compartment is bounded by the roof, floor, side walls, doors outside glazing, front bulkhead and the plane of the rear compartment bulkhead or the plane of the rear-seat back support.

The vehicle structure and any other occupant protection countermeasures (e.g. side airbags) need to be designed to limit the severity of impact to the anthropomorphic test device (ES-2 side impact dummy), when the vehicle is impacted at a speed of 50 km/h by a mobile deformable barrier designed to simulate the front of a passenger car. The test speed has been chosen to cover the speed for most vehicle-to-vehicle side impact crashes, which typically occur in urban driving situations.

The objective is to mitigate the injury to the occupants of the vehicle and minimise the types of injuries typically sustained in side impact crashes. The required tests therefore specify the minimum performance requirements of the structure of the vehicle. These are measured on anthropomorphic test devices, especially the impact to the head, thorax (chest), abdomen, and pelvis, because research into the biomechanics of impact injuries has demonstrated that those body regions collectively account for the vast majority of serious injuries from side impact crashes.

Recognising that ejection from the vehicle during a side impact crash could have serious implications, the regulation requires that no door shall open on its own accord during and post impact lateral collision. Further recognising that gaining fast access to occupants inside the vehicle after a crash is equally important, there is also a requirement that the doors on the non-struck side of the vehicle are to unlock automatically if the door locks were activated. In the case of category NA vehicles, an evacuation may be done via a window, if the necessary design allowed for it and tools are provided and easily accessible. The purpose of this is to allow first responders to gain access into the vehicle.

Taking into consideration the rise in electrical vehicles, recent amendments to the regulation extend protection for the occupants from direct contact with live High Voltage (HV) parts in the passenger compartment, as well as by the barriers and enclosures. The minimum requirements specified in the regulation related to voltage limits are accepted globally amongst experts as generally safe working voltages in preventing electric shock and ensuring safe handling.

Other post-crash requirements relate to fuel leakage to limit the risk of the vehicle catching fire and electrolyte spillage from the Rechargeable Electric Energy Storage System (REESS) to ensure limited human contact with the corrosive/toxic substance.

ADR 72/01 also extends protection to first responders attending crash scenes and others against electrical shock, fire, explosion and electrolyte leakage from the REESS into the passenger compartment.

Sub-clause 3.1 requires all light passenger and goods vehicles, i.e. ADR vehicle categories MA, MB, MC and NA, to comply with ADR 72/01 from 1 November 2026 for new models and 1 November 2028 for all new vehicles.

Clause 4 establishes where defined terms are to be found.

Clause 5 determines that all vehicles meet the technical requirements set out in Appendix A of this standard, as varied by clause 6 (Exemptions and Alternative Procedures). Appendix A is the UN Regulation No. 95 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO THE PROTECTION OF THE OCCUPANTS IN THE EVENT OF A LATERAL COLLISION, incorporating the 05 series of amendments to this regulation. Alternatively, vehicles may meet one of the Alternative Standards under clause 7.

Sub-clause 6.1 provides exemptions from the requirements of Appendix A which relate to gaining a UN R95 Approval. These exemptions are allowed because they are not a requirement to gain an approval for vehicle supply to the market in Australia, where the Commonwealth administers approvals through the RVSA and the ADRs.

Sub-clause 6.2 clarifies that paragraphs 5.1.1 and 5.1.1.2 of Appendix A are to be substituted with the requirements specified in sub-clauses 6.2.1 to 6.2.2 of the ADR. These sub-clauses ensure that the side impacted during the test is by default the driver's side, except where the design and construction of the vehicle results in the side opposite the driver being the worst case.

Sub-clause 6.3 clarifies that paragraph 5.1.2 of Appendix does not apply for vehicle manufacturers seeking to meet the requirements set out in Appendix A of this standard, as varied by clause 6 (Exemptions and Alternative Procedures).

Sub-clause 6.4 clarifies that vehicle manufacturers are to demonstrate the requirement in paragraph 5.2 of Appendix A to the satisfaction of a "Testing Facility" instead of a "Technical Service" which is not a defined entity under the RVSA. These results are instead to be retained in the "supporting information" as defined in the Road Vehicle Standards Rule 2019.

Sub-clause 6.5 clarifies that vehicle manufacturers who choose to lock all the doors manually (in accordance with paragraph 5.2.2.1 in Annex 4 of Appendix A) are not required to further demonstrate to a "Technical Service" that no door will open in case of the impact. These results are instead to be retained in the "supporting information" as defined in the Road Vehicle Standards Rule 2019.

Sub-clause 6.6 clarifies that vehicle manufacturers who choose to lock all the doors manually (in accordance with paragraph 5.2.2.1 in Annex 4 of Appendix A) are not required to further demonstrate to a "Technical Service" that the side doors on the non-struck side are unlocked after the impact. These results are instead to be retained in the "supporting information" as defined in the Road Vehicle Standards Rule 2019.

Sub-clause 6.7 clarifies that vehicle manufacturers in agreement with the "Testing Facility" shall perform the test with all or parts of the electric power train in a state where there is no electrical energy stored in the system. This is allowed providing that the vehicle manufacturer can demonstrate testing in this state introduces no negative influence on the test result. If tested in this state, the vehicle manufacturer is to prove protection from electrical shock through either physical protection or isolation resistance and appropriate additional evidence. These results are to be retained in the "supporting information" as defined in the Road Vehicle Standards Rule 2019.

Sub-clause 6.8 clarifies that vehicle manufacturers may as an alternative to the requirements in paragraph 6.2 in Annex 4 of Appendix A, demonstrate the seat-belts or safety-belts shall be of a type conforming to the Australian Design Rule 4/…[1] – Seatbelts, and mounted on anchorages conforming to the Australian Design Rule 5/…[1] – Anchorages for Seatbelts.

Sub-clause 6.9 allows ISO 6487:2015 to be used and complied with as an alternative to ISO 6487:2000 or ISO 6487:1987 (wherever either of these earlier versions of ISO 6487 are specified in Appendix A).

Sub-clause 6.10 clarifies that clause 6 (Exemptions and Alternative Procedures) takes precedence in the event there is a conflict between clause 6 and Appendix A.

Clause 7 (Alternative Standards) sets out standards which are considered to be acceptable alternatives to ADR 72/01. Each of the alternative standards specify that it relates to the technical requirements within the referenced standard. This means that applicants are able to use UN approvals or test reports that demonstrate compliance with the relevant technical requirements specified in those clauses.

[1] The ellipsis (…) indicates the version(s) of the ADR in force at the '*Date of Manufacture*'.

3. MATTERS INCORPORATED BY REFERENCE

3.1. Other Legislative Instruments

Sub-clause 4.1.1 of this standard 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.

Sub-clause 6.8 of this standard includes references to the Australian Design Rule 4/…[1] – Seatbelts and the Australian Design Rule 5/…[1] – Anchorages for Seatbelts. These ADRs specify requirements for seatbelts and seatbelt anchorages, respectively.

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

In accordance with paragraph 12(2)b of the RVSA, each of these ADRs are incorporated as in force or existing from time to time.

3.2. Other Documents

International Organization for Standardization

Paragraphs 2.5, 7.1.1, 7.1.2, 7.1.3 and 7.1.4 in Annex 4 of Appendix A and paragraphs 6.1.2.2, 6.3.2, 6.3.3.4, 6.6.2.2, 6.6.2.3 and 6.6.2.4 in Annex 5 of Appendix A include references to ISO 6487:1987. Paragraphs 5.2.2, 5.5.3, 5.6.5, 5.7.7, 5.10.5, 5.11.7, 5.11.8, 5.12.6 and 5.12.7 in Annex 6 of Appendix A include references to ISO 6487:2000. These documents have been superseded by ISO 6487:2015. These documents specify requirements and gives recommendations for measurement techniques involving the instrumentation used in impact tests carried out on road vehicles. The requirements are aimed at facilitating comparisons between results obtained by different testing laboratories, while the recommendations will assist such laboratories in meeting those requirements. They are applicable to instrumentation including that used in the impact testing of vehicle subassemblies.

Paragraph 5.2.2, 5.6.5 and 5.10.5 in Annex 6 of Appendix A, include a reference to SAE J211 (March 1995). This document provides guidelines and recommendations for the technique of measurement used in impact tests. The aim is to achieve uniformity in instrumentation practice and in reporting test results. Use of the document provides a basis for meaningful comparisons of test results from different sources.

Paragraph 4.2 of Annex 5 in Appendix A, include a reference to ISO 9002 Quality management systems. This document provides guidance regarding the intent of ISO 9001:2015 which contains the actual requirements an organization must comply with to become ISO 9001 registered.

ISO standards are all available for purchase only from the ISO and various associated national standards bodies. While not freely available, ISO 6487:2015, 90001:2015 and SAE J211 (March 1995) are readily accessible and widely used by vehicle manufacturers and test facilities as part of their professional libraries. Subject to copyright conditions, people may view a copy of ISO 6487:2015, 90001:2015 and SAE J211 (March 1995) at the Offices of the Department of Infrastructure, Transport, Regional Development, Communications and the Arts in Canberra. ISO 6487:1987 and 6487:2000 are not required for the purposes of the ADR, as the references to these standards in Appendix A are replaced with ISO 6487:2015 through the variation under clause 6.9 of the ADR.

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 paragraph 14(1)(b) and subsection 14(2) of the *Legislation Act 2003*, each of these ISO standards are incorporated as in force on the date this national road vehicle standard is made.

United Nations Regulations and/or Resolutions

Clause 7.1 includes a reference to the 05 series of amendments of UN Regulation No. 95 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO THE PROTECTION OF THE OCCUPANTS IN THE EVENT OF A LATERAL COLLISION FOR M_1 AND N_1 VEHICLES (UN R95). This is an international standard for Specific Requirements for the Occupant Protection in a Dynamic Side Impact Crash to passenger vehicles, forward-control passenger vehicles, off-road passenger vehicles and light goods vehicles.

Clause 7.2 includes a reference to the 04 series of amendments of UN Regulation No. 95 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO THE PROTECTION OF THE OCCUPANTS IN THE EVENT OF A LATERAL COLLISION FOR M_1 AND N_1 VEHICLES (UN R95). This is an international standard for Specific Requirements for the Occupant Protection in a Dynamic Side Impact Crash to passenger vehicles, forward-control passenger vehicles, off-road passenger vehicles and light goods vehicles.

Clause 7.3 includes a reference to the 03 series of amendments of UN Regulation No. 95 – UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO THE PROTECTION OF THE OCCUPANTS IN THE EVENT OF A LATERAL COLLISION FOR M_1 AND N_1 VEHICLES (UN R95). This is an international standard for Specific Requirements for the Occupant Protection in a Dynamic Side Impact Crash to passenger vehicles, forward-control passenger vehicles, off-road passenger vehicles and light goods vehicles.

Paragraph 1 and Annex 3 of Appendix A include footnote references to the Consolidated Resolution on the Construction of Vehicles (R.E.3.), document ECE/TRANS/WP.29/78/Rev.6.

In accordance with paragraph 14(1)(b) and subsection 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.

UN Regulations and Resolutions 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.

Paragraph 1.1 of Annex 6 in Appendix A clarifies that the side impact dummy including the instrumentation and calibration requirements are described in technical drawings and a user manual deposited with the UN, Palais des Nations, Geneva, Switzerland and may be consulted on request at the secretariat. The dummy shall correspond with the specification of the ES-2 dummy. The number of the table of contents of the technical drawing is: No. E-AA-DRAWING-LIST-7-25-032 dated on 25 July 2003. The complete set of ES-2 technical drawings and the ES-2 User Manual are deposited with the United Nations Economic Commission for Europe (UNECE), Palais des Nations, Geneva, Switzerland and may be consulted on request at the secretariat.

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 an Impact Analysis (IA) meeting the requirements of the Office of Impact Analysis (OIA) as published in the *Australian Government Guide to Policy Impact Analysis.*

4.2. Specific Consultation Arrangements

The Department consulted with the peak light vehicle industry organisation during 2023/24 on a proposal to update ADR 72. Industry fully supports updating the standard for dynamic side impact occupant protection to include the 05 series of amendments to UN R95, with the technical requirements of the 04 series and 03 series of amendments to UN R95 as acceptable alternative standards.

Public comment was sought on a proposed ADR 72/01 from 22 September to 17 November 2023.

A draft ADR 72/01 was published on the Department's website. The Department provided two ways to comment: 1) Emailing the feedback form to the Vehicle Standards Section email address; or 2) Mailing the provided feedback form to the Vehicle Standards postal address.

A notice was published in the Department's Road Vehicle Standards newsletter in September 2023 to inform senior representatives of state and territory governments, and representative bodies for the manufacturing industry and road user groups.

Formal feedback was received from members of the public, state government agencies, industry, road user groups and road safety advocates. There was broad support for the implementation of a new ADR 72/01 to update the requirements for the protection of vehicle occupants in a side impact collision, especially with regard to electric and hydrogen-fuelled cell vehicles.

5. REGULATORY IMPACT

The making of a new version of ADR 72 (ADR 72/01) will provide a positive net benefit to the economy. A Preliminary Assessment (OIA23-05379) conducted by the Department reasoned that the impacts of updating the ADR requirements to harmonise fully with the latest international vehicle standard were minor in nature. This view is supported by the light vehicle industry.

Based on the information provided, the Office of Impact Analysis (OIA) was satisfied the proposal is unlikely to have any more than minor regulatory impact, as most light passenger and commercial vehicles already meet the series of amendments to the UN Regulation 95 this standard would align with. As such, the preparation of an Impact Analysis was not required by the OIA.

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 72/01 prescribes safety requirements with respect to occupant safety in a side impact collision, to passenger cars, forward-control passenger vehicles, off-road passenger vehicles and light goods vehicles. The purpose of the regulation is to reduce the risk of serious and fatal injury of vehicle occupants if the vehicle is struck in the door area by another vehicle (lateral impact crash). This standard extends the requirements to protect first responders attending crash scenes and others against electrical shock, fire, explosion and electrolyte leakage from the REESS into the passenger compartment.

6.2. Human Rights Implications

ADR 72/01 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 72/01 is compatible with human rights, as it does not raise any human rights issues.