

Correspondent	Support ADR 110/00	Comments	Official Departmental Response
<b>Public Comment Summary on ADR 110/00 Hydrogen-Fuelled Vehicles Safety Related Performance</b>			
Amy R		<ol style="list-style-type: none"> <li>1. Raised the question of how these standards are better for climate change and the environment than petrol or diesel cars?</li> </ol>	<ol style="list-style-type: none"> <li>1. National road vehicle standards for safety, anti-theft and emissions. Introduction of these ADRs is not based on environmental change policy but they are expected to help achieve Net Zero with regard to tail pipe emissions. Additionally, recent studies have demonstrated benefits to the environment with the introduction of hydrogen vehicles. <a href="#">Hydrogen vehicle information   Green Vehicle Guide</a>  <a href="#">California's early transition to electric vehicles: Observed health and air quality co-benefits - ScienceDirect</a>  <a href="#">How climate-friendly is an electric car?   University of Technology Sydney (uts.edu.au)</a></li> </ol>
Scott Nargar Hyundai Motor Company Australia (HMCA)	Support if amended	<ol style="list-style-type: none"> <li>1. Notes that Hyundai’s current NEXO model is certified to the UN Regulation No. 134/00 adopted in the ADR and EU Regulation 79/2009.</li> <li>2. Requested that ADR 110/00 accept both UN R134/00 and UN R134/01 to minimize the administrative burden on manufacturers, noting that the difference between the series is only additional label requirements for light and heavy omnibus, light and heavy goods vehicles.</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted.</li> <li>2. Noted, majority of consultation feedback is for current series of amendments to be in place. This includes UN R134/01.</li> </ol>
Rob Sharp Transport for NSW (TfNSW)	Support	<ol style="list-style-type: none"> <li>1. Suggested it is preferable to use a more general term which applies to all types of vehicles which may be powered by hydrogen, such as “hydrogen vehicle”.</li> <li>2. Suggested a diagram to avoid confusion and to</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted. The terms and definitions in the ADR will align with that defined in the UN regulation.</li> <li>2. Noted. Additional diagrams in the ADR or UN regulation compilation would deviate from agreed international standards development. Clause 7.2.4.1 specifies “<i>The container shall be mounted in a position which is</i></li> </ol>

		<p>clarify the requirements in clause 7.2.4.1 which specifies hydrogen storage system requirements.</p> <ol style="list-style-type: none"> <li>3. Suggested that guidance on suitable materials for construction of hydrogen containers be referenced in the ADR. Example, external guidelines in Vehicle Standards Bulletins or Australian Standards.</li> <li>4. Raised that the Australian market does not have comprehensive testing facilities for locally manufactured vehicles including modified and Individual Constructed Vehicles (ICVs) to meet technical requirements in the ADR.</li> <li>5. Proposes that the Commonwealth review (Vehicle Standards Bulletin (VSB) 14 to ensure it reflects contemporary developments in hydrogen vehicle manufacturing to accommodate light vehicle modifications and ICVs.</li> <li>6. Raised that ADR 110/00 impacts on NSW Authorized Inspection Scheme (AIS). Requested that the Commonwealth assist in increasing skills and training, including funding and support. This will enable third-party AIS providers to capably assess ongoing ADR compliance.</li> </ol>	<p><i>rearward of a vertical plane perpendicular to the center line of the vehicle and located 420 mm rearward from the front edge of the vehicle.”</i> This clause has been agreed on at the UN Working Groups in agreement with manufacturers and other Contracting Parties. The Department’s view is that this clause is clear for technical staff reading the standard.</p> <ol style="list-style-type: none"> <li>3. The ADRs are performance based and so are the UN Regulations. Material selection for the compressed hydrogen storage system is for the manufacturer to determine based on the testing and durability requirements.</li> <li>4. Noted. The ADR allows for exemptions which are clearly set out and in line with any exemptions in the UN regulations. These have been consulted on separately with stakeholders to implement the recommended option. Further exemptions may be given according to section 19(3) of the <i>RVS Rules 2019</i> for ICVs that comply with the ADRs to an extent that makes them suitable for use on a public road in Australia.</li> <li>5. The ADRs apply to new vehicles when first supplied to market. Modification of vehicles in-service and their compliance is a matter for the state and territory road authorities. Furthermore, there may be a role for members of the Australian Motor Vehicle Certification Board (AMVCB) in consultation with industry, user groups, government agencies and individuals with an interest in modifying light vehicles and/or building ICVs to consider. The <i>National Code of Practice for Light Vehicle Construction and Modification</i> (VSB 14) has been prepared by members of the AMVCB in consultation with industry. The Department provides the website as a service only.</li> <li>6. As hydrogen and electric vehicles are a transitional alternative drive system, it will allow industry, state and territory governments sufficient time to implement resources, training and public education during this uptake phase. The Australian Government “Australia’s National Hydrogen Strategy” identifies a significant opportunity to develop new</li> </ol>
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<p>Michael Ross National Heavy Vehicle Regulator (NHVR)</p>	<p>Support</p>	<ol style="list-style-type: none"> <li>1. Supportive of the proposed draft of ADR 110/00.</li> <li>2. Asked if the conformity of production requirements that will be applied in Australia be as stringent as those in UN R134? If not are there any notable risks that should be considered?</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted.</li> <li>2. Noted. For applicants that comply with ADR 110/00 by way of an approval to UN Regulation No. 134, conformity of production will be managed through the UN 1958 Agreement processes. For applicants that comply with the technical requirements set out in the ADR, conformity of production will be managed in accordance with RVSA arrangements. We do not expect significant risks associated with either option.</li> </ol>
<p>Murray Newton Hyzon Motors</p>	<p>Support</p>	<ol style="list-style-type: none"> <li>1. Supported ADR 110/00.</li> <li>2. Requested that provisions be made for alternatives to destructive testing in Appendix A clause 7.2. Suggested the Department consider the following recommendations as alternative provisions to mandating destructive testing: <ol style="list-style-type: none"> <li>a) The allowance of component-based approval to satisfy tests 7.2, 7.2.1 and 7.2.2. This would allow for major fuel system components (Compressed Hydrogen Storage System (CHSS), Thermally-activated Pressure Relief Device (TPRD), Check Valve, Automatic Shut-Off Valve, and associated leakage sensors) that already carry a component type approval.</li> <li>b) Simulation based alternative to testing in clause 7.2 and 7.2.3. This would include a</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Noted.</li> <li>2. Noted. Crash testing requirements do not apply to heavy vehicles. For heavy vehicles the fuel system shall instead be subject to the relevant alternative accelerations outlined in clause 7.2. Discussions on simulation-based testing and their validation methods for passive safety related UN regulations are in progress at the relevant UN working group. The Department will continue to monitor these developments.</li> </ol>

		computer simulation-based alternative to post-crash container displacement.	
Rickman Smith Government of South Australia. Department of Infrastructure and Transport	Support	<ol style="list-style-type: none"> <li>1. Supported the draft ADR.</li> <li>2. Provided a detailed submission relating to Nominal Working Pressure (NWP), including temperature related tests, system pressures and component dependability. In addition, requested the Department engage with stakeholders on creating an Australian Standard (AS) to address issues with Hydrogen Fuel Cell Vehicle (HFCV) components for the local market.</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted.</li> <li>2. All new compressed hydrogen storage systems produced for on-road vehicle service shall have an NWP of 70 MPa or less and a service life of 15 years or less. The UN regulation requires all containers tested shall have a burst pressure within <math>\pm 10</math> per cent of burst pressure of new storage containers (BPO) and greater than or equal to a minimum BP of 225 per cent NWP. Performance requirements of CHSS and components are extensive in the UN regulation. The Department will continue to monitor the situation and will engage further with industry groups regarding any need for an Australian Standard.</li> </ol>
Kate Johnson Australian Automobile Association (AAA)	Support	<ol style="list-style-type: none"> <li>1. Supports the Commonwealth's efforts and encourages continued participation in UN forums and harmonization of UN Regulations.</li> <li>2. Supports the implementation dates.</li> <li>3. Believes that if there are any costs associated with these ADRs which would be passed onto consumers then they should be quantified by the Department and details released for consideration.</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted.</li> <li>2. Final implementation dates will be determined as part of the ADR, following consultation by the Department with industry and decision by the Minister.</li> <li>3. Noted, the Department consulted with industry on the compliance status of their products already being supplied to the Australian market. The light vehicle industry claimed almost 100 per cent of their hydrogen vehicles already comply with the requirements in the UN Regulation or are built to comply with the UN Regulations. The compliance burden associated with these ADRs is minimal to none as vehicles already comply with these UN regulations, therefore this means that there will be no additional cost in the light vehicle segment.</li> </ol>
Peter Wright Council of Heritage Motor Clubs NSW Inc (CHMC)		<ol style="list-style-type: none"> <li>1. Supports the position that it is mandatory for all HFCVs to comply with a new ADR on a "must comply, if fitted" basis.</li> <li>2. Proposed that not only ADR 110/00 be applicable to new and future vehicles, but</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted. ADRs apply to new vehicles when first supplied to market and in-service or aftermarket regulation is a jurisdiction matter.</li> <li>2. For older type vehicles, alternative pathways are available via State and Territory government policies, VSBs and certification procedures.</li> <li>3. Noted. The <i>National Code of Practice for Light Vehicle Construction</i></li> </ol>

		<p>acknowledge and reference road vehicle components are fitted to historic ICE vehicles with conversions to hydrogen power.</p> <ol style="list-style-type: none"> <li>3. Notes that VSB 14 is eight years old.</li> <li>4. Raised that ADR 110/00 does not appear to be addressing what is a developing sector in Australia which is converting older vehicles with hydrogen drive components.</li> <li>5. Raised that there is a need for the ADR's to also ensure that the standards for components used for conversions are suitable for, and applicable in conversions in older vehicles. This would unduly disadvantage the operation and registration of those vehicles.</li> <li>6. Recommends that ADR 110/00 not be limited in its coverage. This is to ensure the use of components for conversions are safely and appropriately fitted to historic ICE vehicles, should the owners so desire.</li> <li>7. Raised that the National Road Vehicle Standards administers "road vehicle components" and interpreted that this applies to components that would be used in converting historic ICE vehicles to hydrogen power.</li> <li>8. Strongly supports the Purpose and Operation stated in the Explanatory Statement.</li> <li>9. Raised that they were unaware of any direct consultation on ADR 110/00 with the relevant historic vehicle industry peak bodies, stakeholders or consumers to date. Asked if such consultation has taken place, please</li> </ol>	<p><i>and Modification</i> (VSB 14) has been prepared by members of the Australian Motor Vehicle Certification Board.</p> <ol style="list-style-type: none"> <li>4. ADRs apply to new vehicle when first supplied to the Australian market. Older vehicles are considered a safety issue in ANCAP testing results. State and Territory governments are reviewing the safety aspect of older type vehicles on the road. Older type vehicles being converted are normally show vehicles, club cars and driven on club registration. See point 1 above.</li> <li>5. Noted, see point 3 and 4 above.</li> <li>6. Noted, see point 5 above.</li> <li>7. A component type approval is one option applicants for a vehicle type approval or approval of a Model Report may use to demonstrate compliance with applicable national road vehicle standards. Please refer to the Department website for more information to gain an understanding on how the CHMC may use this pathway. These components in the UN Regulation apply to components fitted to new vehicles supplied to the market.</li> <li>8. Noted.</li> <li>9. The Department proposed the introduction of these new ZEV ADRs through the standard consultative forums SVSEG, TLG and AMVCB in early 2022. Additionally, the Department consulted with the public by posting on the Department's website for an eight-week public comment period which ended on the 27 March 2023.</li> </ol>
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		advise with whom and when.	
John Ryan ANCAP	Support	<ol style="list-style-type: none"> <li>1. Strongly supports the implementation of ADR 110/00.</li> <li>2. Supports the proposed timeframes for implementation of ADR 110/00.</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted.</li> <li>2. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister.</li> </ol>
Natasha Cerexhe and Joe Kremzer Australian Hydrogen Council	Support	<ol style="list-style-type: none"> <li>1. Supports the Australian Government’s approach to the ensuring the safety of Australian road vehicles.</li> <li>2. Raised that the new ADRs do not address issues with heavy transport vehicles. Noted that a significant barrier in the current ADRs relating to width and steer axle load weight exists. They support calls for the ADRs to reviewed more broadly to allow greater uptake of Zero Emission Vehicles (ZEVs).</li> <li>3. Recommended that the development of ADR 110/00 be undertaken as part of a broader review of the ADRs based on feedback provided by industry in the development of the National Electric Vehicle Strategy.</li> <li>4. With regard to ADR 110/00, AHC considers the proposed rules to be generally fit for purpose. However, we note that the requirements for destructive testing may restrict the ability for participants in Australia’s developing electric vehicle industry to compete with established OEM.</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted.</li> <li>2. Noted. Refer to the Australian Government safer freight vehicle work for vehicle width. Weight limits are set through state and territory governments.</li> <li>3. ADR 110/00 has been circulated with peak industry bodies through the Department’s established consultation forums. Further development of ADR 110/00 (UN R134) occurs through the UN Working Groups which the Department participates in. Developing unique requirements for local manufacturers in the ADR would deviate from the Government’s policy to harmonize with international standards. Regulations based on internationally agreed standards provide consumers with access to the safest vehicles from the global market at the lowest cost.</li> <li>4. Imported vehicles for the Australian market must meet other ADR requirements. Also, depending on vehicle category for example, heavy vehicles are exempt from certain test requirements.</li> </ol>
Jamie Vistnes Fire and Rescue NSW		<ol style="list-style-type: none"> <li>1. Considers that the standards should include the requirements for an emergency rescue sheet and an emergency response guide that is publicly available for all vehicles.</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted. An ANCAP RESCUE app has been designed to assist first responders in Australia stay safe on our roads when attending crash events. <a href="#">ANCAP RESCUE App   Vehicle Rescue App for First Responders</a> Furthermore,</li> </ol>

		<p>2. Noted that in clause 7.1.7 of Appendix A there is no requirement for light passenger vehicles for labelling as per Annex 6 which is for light and heavy omnibuses and medium and heavy goods vehicles. Requested a clarification why this is the case.</p>	<p>ANCAP will seek Rescue Cards from vehicle manufacturers each time ANCAP rates a vehicle. These Rescue Cards are designed to assist first responders in quickly identifying in-vehicle hazards, such as High Voltage (HV) batteries to minimize risks and safely free occupants from vehicles post crash.</p> <p>Adding a unique requirement to the ADR would go against the Australian government’s policy to harmonize with international regulations and therefore not allow for the safest and cheapest vehicles supplied to the Australian market.</p> <p>2. Light and heavy omnibuses and medium and heavy goods vehicles which are vehicle categories M2/N2 and M3/N3 are commercial vehicles carrying large quantities of hydrogen fuel and therefore carry a bigger risk. The label in Annex 6 is large in size. In Australia the requirements for number plate labelling for hydrogen vehicles is so they can be identified as an alternative fuel source vehicle. Excluding WA all other state and territories in Australia require this label to be displayed on the number plate for light vehicles.</p>
<p>Mark Hammond Truck Industry Council (TIC)</p>	<p>Support</p>	<p>1. Fully supports ADR 110/00 subject to implementation timing.</p> <p>2. Supports the alternative standards in the draft ADRs and requested that the Department acknowledge, that if future alternative regulations are developed, particularly from Japan or USA, that these will be considered for adoption as alternatives.</p> <p>3. Noted that clauses 6.3 and 6.4 refer to light vehicle test procedures for vehicles with a Gross Vehicle Mass (GVM) of 3.5t or less. TIC do not believe that these test procedures are suitable for vehicles above 3.5t GVM. TIC recommended vehicle categories above 3.5t</p>	<p>1. Noted.</p> <p>2. Noted. The Department will consider alternative standards from other markets based on their availability and suitability to the Australian conditions.</p> <p>3. Noted. ADR 110/00 has been updated to remove heavy vehicles (vehicles with a GVM above 3.5t) from being subject to crash tests.</p> <p>4. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister.</p> <p>5. Noted.</p>

		<p>GVM should be removed from these clauses in the ADR.</p> <p>4. TIC and TIC members do not support the implementation dates for ADR 110/00. Given the minimum 60 working day regulatory timeline for Vehicle Type Approvals (VTAs) under the <i>Road Vehicle Standards Act 2018</i> (RVSA) if the applicability date is set for November 2023. TIC proposes the following introduction dates:</p> <ul style="list-style-type: none"> <li>• New models 1 November 2024,</li> <li>• All models 1 November 2025.</li> </ul> <p>5. Further, TIC and TIC members believe that any future amendments to UN R134 should be mandated in ADR 110/XX with an appropriate introduction date plus 2 years for NEW Australian models and 1 November after the European introduction NEW model introduction date plus 3 years for ALL Australian models. Alternatively, TIC would also accept 1 November after the European ALL model introduction date plus 2 years.</p>	
Luke Hardy Bus Industry Confederation (BIC)	Support	<p>1. Noted that applicability dates are not acceptable and recommend the following dates:</p> <ul style="list-style-type: none"> <li>• New Models 1 November 2024</li> <li>• All Vehicles 1 November 2025.</li> </ul>	<p>1. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister.</p>
Confidential submission	Support	<p>1. Supports the introduction of ADR 110/00 at the earliest possible timeframe.</p>	<p>1. Noted.</p>
Greg Forbes Heavy Vehicle		<p>1. Noted their satisfaction that the proposed ADRs represent best practice requirements for</p>	<p>1. Noted. 2. Manufacturers are not required to gain a UN approval to certify their</p>



Industry Australia  
(HVIA)

vehicle safety. However, raised concerns on the availability of local testing facilities for local manufacturers. Noted that for this reason the HVIA does not agree with the Office of Impact Analysis (OIA) assessment.

2. Raised that any testing requirements related to complete vehicles or vehicle subsystems must be able to be completed wholly with Australia. Tests included in the ADRs as mandatory must not necessitate the international transport of complete vehicles, nor vehicle subsystems, for certification tests. Doing so would impose prohibitive costs on local manufacturers.
3. Furthermore; if compliance by component-level testing is allowed, HVIA seeks greater clarity on any specific requirements the Department would have to avoid whole of vehicle testing, and on the evidence that the Department will require to satisfy itself that vehicles are compliant when tested on a component by component basis. If compliance by component-level testing is not allowed, HVIA strongly advocates for the revision of the testing requirements.
4. Raised that the timelines may be too ambitious in view of the testing requirements.
5. Raised the request that the Department investigate whether there are inconsistencies between the proposed ADRs and dangerous goods and worksafe legislation across the country.
6. Highlighted that in clause 7.1.3.2 for vehicle

products to the ADR, they may also submit documentation showing test results to the technical requirements of the ADR. Manufacturers are also importing components for assembly in the local market. Depending on components, they are able to be accessed with a UN approval prior to importation and assembly.

3. Manufacturers are importing components for assembly in the local market. Depending on components, they are able to be accessed with UN approval prior to importation. The ADR allows for the certification of components for ZEVs built locally by accepting test reports to the technical requirements of the UN regulation.
4. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister.
5. The ADRs do not regulate dangerous goods and work safe legislation.
6. The Department can confirm that ADR 110/00 sets out procedures for the exhaust system regarding hydrogen concentration levels leaving the exhaust discharge whereas ADR 42/05 specifies exhaust system positioning with regard to the vehicle. There is no apparent inconsistency here.

		<p>exhaust systems, the position of exhaust outlets is also covered separately in ADR 42/05. Exhaust outlets should not be subjected to the restrictions as outlined in ADR 42/05 and other compliance issues with the introduction of new ADRs.</p>	
<p>Ashely Sanders Federal Chamber of Automotive Industries (FCAI)</p>	<p>Support</p>	<ol style="list-style-type: none"> <li>1. Supported the ADRs implementation timing of <ul style="list-style-type: none"> <li>• 1 November 2024 New Models</li> <li>• 1 November 2026 All Models.</li> </ul> </li> <li>2. Recommended the Department ensures the requirements are not in advance of international timing and to ensure sufficient lead time for attaining UN approvals and updating Australian Vehicle Type Approval (VTA) through the Road Vehicle Regulator (ROVER) system.</li> <li>3. Raised that ROVER and timing to achieve VTA assessments is a major concern, not just for these proposed ADRs, but for VTAs in general.</li> </ol>	<ol style="list-style-type: none"> <li>1. Final implementation dates will be determined as part of the ADR, following further consultation by the Department with industry and decision by the Minister.</li> <li>2. Noted, see point 1 above.</li> <li>3. Noted. This to be raised with the ROVER team for consideration. Currently process time is under the 60 days.</li> </ol>