

Australian Standards for EV Operation, Maintenance and Repair

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**Riverina Electric Vehicle
Owners, Likers and Testers.**



DISCLAIMER

- All opinions expressed in this presentation are those of the author alone and do not represent Standards Australia, Engineers Australia or any other group of which the author is a member.
- This presentation includes extracts from the Public DRAFT Standard AS 5732 and presenter summaries from various other documents and sources. Any content should therefore be re-used with due care and checked against published versions.

WHAT WILL BE COVERED IN THIS PRESENTATION

- What is Committee EM-001 and who are its members
- What EM-001 does (and does not do)
- The recent review of Australian Standard AS 5732: 2002 Electric vehicle operations – Maintenance and repair
- Other current activities of EM-001
- Some questions the Conference organisers have posed
- Your Questions

SOME BEV'S AVAILABLE NOW IN AUSTRALIA



Hyundai Ioniq 5



Hyundai Kona



Tesla Model 3



Nissan Leaf



Volvo XC Recharge



MG ZS EV

STANDARDS COMMITTEE EM-001

- EM stands for Electric Mobility
- The Committee name is “Electric Vehicle Operations”
- Like all Standards Committees, the membership seeks to be inclusive of all stakeholders and technical experts who develop and/or approve standards and other documents through consensus.
- Members of EM-001 include the Automotive Industry Associations (such as the FCAI), learned bodies (such as the CSIRO, UTS and Swinbourne), Government Transport bodies, Regulators (ERAC), Professional Associations (such as Engineers Australia), and the Electric Vehicle Council (EVC), Energy Networks Australia (ENA), Australian Electric Vehicle Association (AEVA) and Australian Road Research Board (ARRB).

WHAT COMMITTEE EM-001 DOES

- The Committee reviews International Standards (ISO and IEC) for adoption as Australian Standards either with (or without) modification.
- Where a “gap” or significant difference is identified – a Committee may develop a Unique Australian Standard – which may also be joint with New Zealand (a good example is the Wiring Rules AS/NZS 3000 which is administered by Committee EL-1)
- Standards Committees may develop other documents that support Standards (such as a Handbook) or technical documents (guides) that may later become a Standard.
- EM-001 over-see Standards of a “general” nature relevant to Electric Vehicles (EV’s). Specialist components may fall under other Committees (such as Plugs and Sockets or Inverters for Vehicle to Grid).
- EM-001 reviews new Standards developed by other Committees that may be relevant to EV’s – such as the World first technical standard under development for Multi Function Poles by IT-269.

SOME MORE BEV'S AVAILABLE NOW IN AUSTRALIA



Tesla Model Y



Mercedes
EQA



Audi e-Tron



Electric Mini



Porsche Taycan

AS-5732 EV OPERATIONS – MAINTENANCE AND REPAIR

- This Australian Standard was developed by EM-001 and first published in 2015.
- As we are all aware, EV's are evolving rapidly – as are their supporting systems – so regular review is required.
- An issue was also identified in the 2015 Standard regarding Insulating Gloves. This led to a proposal to update AS-5732 in parallel with a review of the Insulating Gloves Standard (AS-60903) by Committee EL-068 (of which the presenter is also a member).
- When a Standard is reviewed, a committee member takes on the role of 'drafting lead' – and given the presenter's background in Electrical Safety, I took on the task.

AS-5732 CONTENTS


- The Standard is divided into seven (7) sections as follows:
 1. Scope and General (including definitions)
 2. Safe working practices
 3. General service working areas
 4. Electric Vehicle repair (service, maintenance and moving an EV)
 5. Damaged high voltage batteries
 6. Fire safety
 7. Decommissioning, reuse and recycling

AS-5732:2022 MAIN CHANGES

- Inclusion of Fuel Cell Electric Vehicles (FCEV) to the extent they share components of a BEV – but excluding any hydrogen components.
- Alignment with the updated AS 60903 Insulating Gloves standard, catering for additional classes (voltage range) of gloves made and used in Australia, and inclusion of the ‘air testing’ of gloves before each use.
- Additional guidance on Safety and PPE, in particular the wearing of arc rated clothing and an arc rated face shield when working on live HV terminals.
- Availability of an AED in proximity to the work site.
- Inclusion of sample signage for vehicles undergoing repair.

AS-5732:2022 EXAMPLE SIGNAGE

CAUTION!



**HIGH VOLTAGE VEHICLE
DO NOT TOUCH**

Technician
Responsible

CAUTION

SERVICE/REPAIR WORK IS CURRENTLY
BEING CARRIED OUT ON A PLUG-IN
ELECTRIC, HYBRID ELECTRIC, BATTERY
ELECTRIC OR PLUG-IN HYBRID ELECTRIC
VEHICLE IN THIS WORKSHOP

DO NOT TOUCH

CAUTION

HIGH VOLTAGE RECHARGEABLE ENERGY
STORAGE SYSTEM PRESENT

DO NOT TOUCH

COMPETENT PERSON ONLY TO MOVE

SOME MORE BEV'S AVAILABLE NOW IN AUSTRALIA



Polestar 2



BYD
Atto 3



MG4



Kia EV6



GWM Ora Cat

CURRENT ACTIVITIES OF COMMITTEE EM-001

- The Committee is continually reviewing International Standards (ISO and IEC) for adoption as Australian Standards either with (or without) modification.
- The Committee is contributing to proposals from parallel Committees that are developing standards relevant to EV's – such as Inverter Standards for Vehicle-to-Grid (VTG).
- EM-001 members recently peer reviewed the DRAFT Multi Function Poles technical document prepared by IT-269 which is nearing finalisation.
- A Working Group under the main Committee is currently preparing two (2) Guides for Owners of EV's – the first for Residential Owners and the second aimed at Commercial and Fleet owners. The Guides are based on some existing New Zealand Technical Standards – but will be adapted for Australia and have additional content.

QUESTIONS POSED FOR THIS CONFERENCE

- How does AS 5372 impact the maintenance of EVs for both individual and fleet owners.
- Are there specific places qualified to work on EVs – their accessibility, timeliness, parts availability etc.
- What about battery life/longevity. What happens at end of life. Who is responsible for these vehicles at end of life.
- Are EVs more fragile than ICE vehicles. Can councils leave them outside with the rest of their fleets.

YOUR QUESTIONS ??????



THE END



COROWA



WEST WYALONG