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ISO ACTIVITIES PRESENTED TO HYDROGEN AND FUEL CELL VEHICLES (HFCV)

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ISO/TC 197

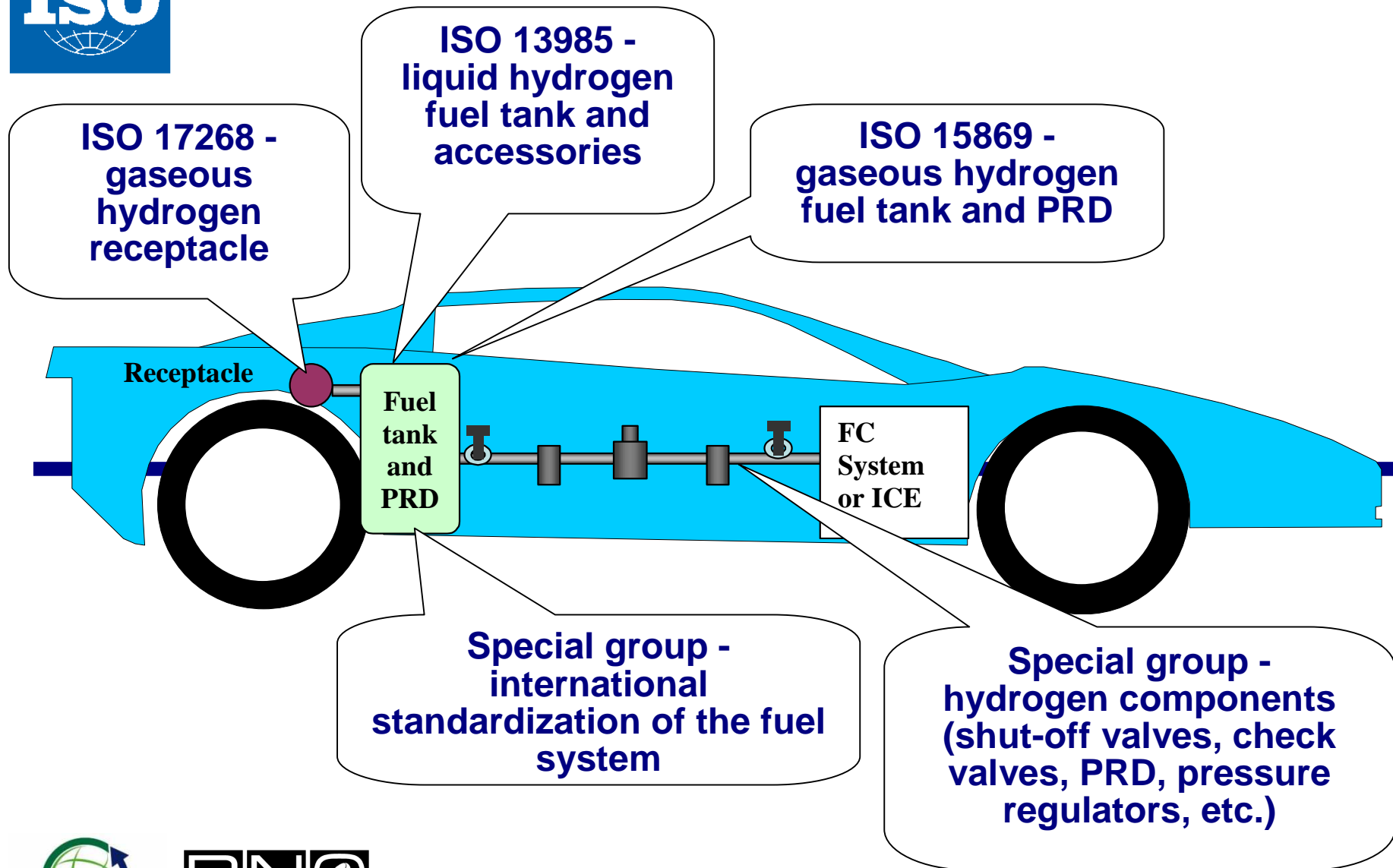
Hydrogen technologies

ISO/TC197

- **Scope:** Standardization in the field of systems and devices for the production, storage, transport, measurement and use of hydrogen
- **Full work programme** covers infrastructure, automotive and transportable applications



Automotive Fuel system



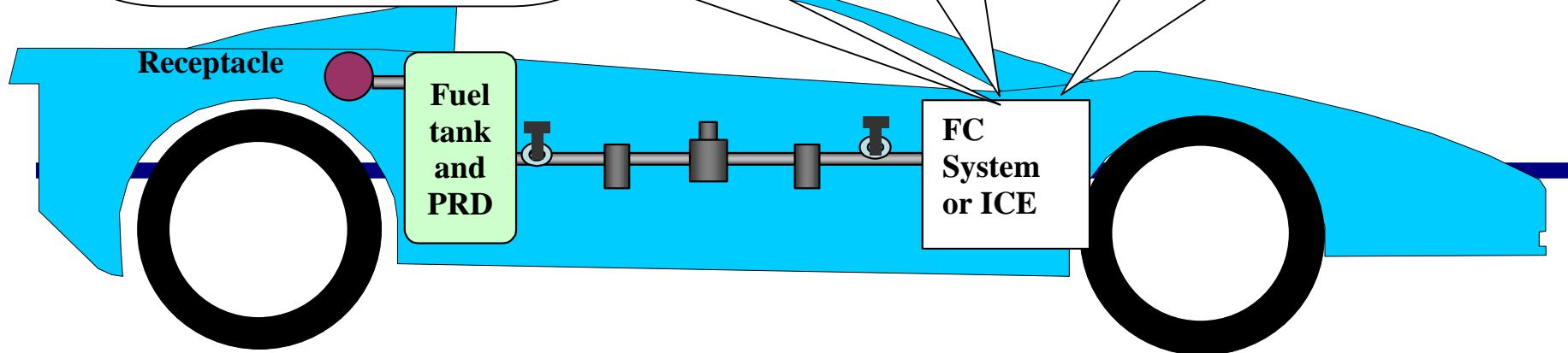


Automotive electrical safety and EMC

ISO 23273-3 - protection of persons against electric shocks (ISO/TC 22)

IEC 62282-2 - FC module (IEC/TC105)

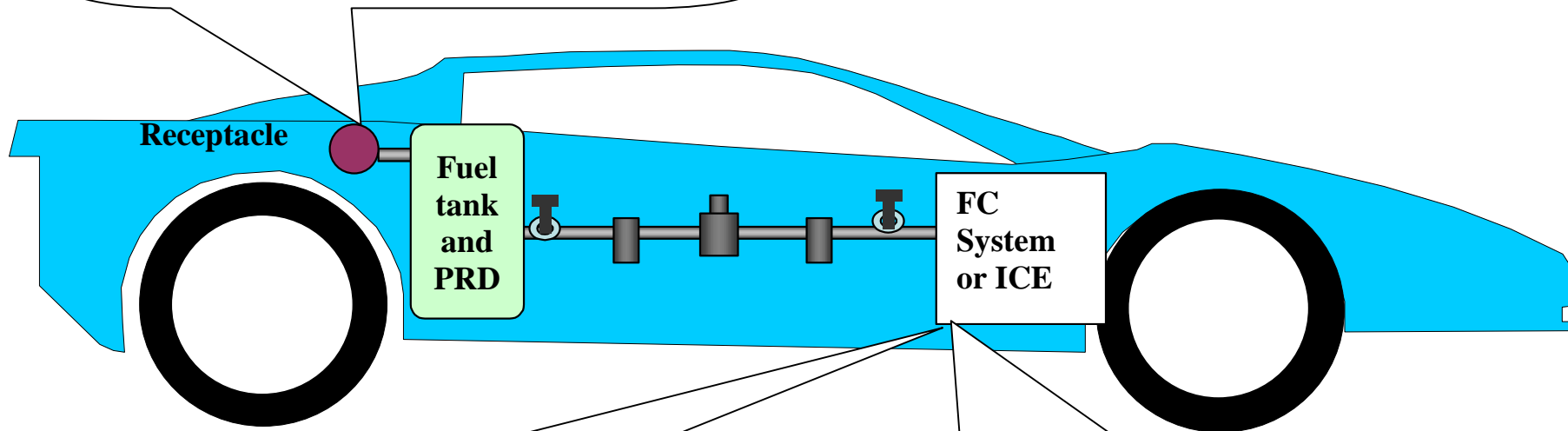
ISO 11451 - EMC susceptibility measurements (ISOTC 22)





Automotive fuel specification and energy consumption

ISO 23828 - energy consumption measurement (ISO/TC22)



ISO 14687-1 - fuel specification for hydrogen ICE vehicles

ISO/TS 14687-2 - fuel specification for PEM fuel cell applications for road vehicles





ISO/TC 197 activities

ISO/TC197

- **Fuelling connectors**

- **ISO 17268:2006** Compressed hydrogen surface vehicle refuelling connection devices
 - Published standard
 - Covers the receptacle (vehicle) and nozzle (refuelling station)
 - Covers the 25 MPa and 35 MPa profile
 - Revision underway to incorporate the 70 MPa profile

- **Fuel tanks**

- **ISO 13985:2006** Liquid hydrogen — Land vehicle fuel tanks
 - Published standard
 - Covers the fuel tank and accessories (PRD of the inner tank and outer jacket, shut-off valves, non-return valves, overfill protection, pressure maintaining system)





ISO/TC 197 activities

ISO/TC197

- **Fuel tanks (continued)**

- **ISO 15869** Gaseous hydrogen and hydrogen blends — Land vehicle fuel tanks
 - Proceeding to DIS 3 circulation
 - Covers the fuel tank and PRD
 - Includes a special approach for qualifying design of on-board four-wheel passenger vehicles (e.g., cars and buses)

- **Hydrogen fuel systems**

- Special group looking at defining a path forward for international standardization of hydrogen fuel systems for vehicles.

- **Hydrogen components**

- Special group looking at the development of hydrogen components standards
- Examples: pressure relief devices, shut-off valves, pressure regulators





ISO/TC 197 activities

ISO/TC197

• Fuel quality

- **ISO 14687-1:1999/Cor. 2001** Hydrogen fuel – Product specification — Part 1: All applications except proton exchange membrane (PEM) fuel cell applications for road vehicles
 - Published standard
 - Covers the fuel specification for ICE
- **ISO/TS 14687-2** Hydrogen Fuel — Product Specification — Part 2: PEM fuel cell applications for road vehicles
 - The TS is under publication
 - The WG is developing an international standard (aligned with global research programs)
 - Covers fuel specification for PEM fuel cell applications for road vehicles





ISO/TC 197 activities

ISO/TC197

- **Fuelling stations**

- **ISO 20012** Gaseous hydrogen — Fuelling stations
 - The TS has been approved
 - The WG is developing an international standard
- **ISO 13984:1999** Liquid hydrogen — Land vehicle fuelling system interface
 - Published standard
 - Covers the interface of liquid hydrogen refuelling and dispensing systems





Thank You

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