

# HyLAW London Workshop

## Application Area 2: Transport – Automotive, Marine



**HyLAW**  
Hydrogen law





# Transport

**Introduction** – what’s covered:

This application area covers two vehicle categories

- **Cars, buses and trucks**
- **Motorcycles, quadricycles, bicycles**

It looks at provisions and procedures for type approval and registration of hydrogen powered vehicles and requirements for maintenance and service in comparison with conventional vehicles

It also looks at whether there are undue restrictions imposed on hydrogen powered vehicles using the road infrastructure and parking facilities to ascertain whether there are legal, operational and economic barriers hindering deployment

There is a separate section covering **marine vessels**. This will be covered by Alexandru Floristean and is timely in that the UK has the first hydrogen powered vessel due to commence operations in Scotland



# Transport – cars, buses, trucks

- **Legal framework – type approval**
- Directive 2007/46 79(to be replaced by a Regulation with effect from 1 September 2020) establishes a framework for the type approval of motor vehicles classes M (passenger cars and buses), N (trucks), O (trailers), and of systems and components intended for such vehicles.
- The vehicle safety issues are covered by Regulation (EC) No.661/2009 80on the general safety of motor vehicles (General Safety Regulation). The Framework Directive is amended by Regulation (EC) No. 79/200981 (Hydrogen Safety Regulation) with the aim to specify harmonized safety requirements for hydrogen powered vehicles based on an internal combustion engine or a fuel cell. It contains general requirements for the type approval of hydrogen systems and components.
- Detailed technical specifications and test procedures implementing the general provisions of the Hydrogen Safety Regulation are laid down in the Commission Regulation (EU) No. 406/201082 (Hydrogen Safety Implementing Regulation). In addition, the Framework Directive lists a number of separate technical Directives, EU Regulations and UNECE Regulations the vehicle must comply with in order to obtain type approval. The UNECE Regulations listed in Part II of Annex IV are recognized as being equivalent to the corresponding separate Directives or Regulations in as much as they share the same scope and subject matter.
- The Directive 2007/46 is substantially transposed in all partner countries. The EU Regulations are binding in their entirety and directly applicable in all Member States.



# Transport – cars, buses, trucks

- **Legal framework – service & maintenance**
- Roadworthiness package consists of three directives:
  - Directive 2014/45/EU on periodic roadworthiness tests,
  - Directive 2014/47/EU on technical roadside inspections for commercial vehicles and
  - Directive 2014/46/EU on vehicle registration documents.
- The Roadworthiness package extends the scope of existing testing to new categories of vehicles, as well as lays down new requirements for the standard and quality of testing, test equipment and skills and training of testing personnel. Testing facilities and equipment used in testing centres should fulfil the requirements set out for carrying out roadworthiness tests. A training system including initial training and periodic refreshers or an appropriate examination should be introduced Directive 2014/45/EU of the European Parliament and of the Council of 3 April 2014 on periodic roadworthiness tests for motor vehicles and their trailers and repealing Directive 2009/40/EC
- Directive 2014/47/EU of the European Parliament and of the Council of 3 April 2014 on the technical roadside inspection of the roadworthiness of commercial vehicles circulating in the Union and repealing Directive 2000/30/EC
- Directive 2014/46/EU of the European Parliament and of the Council of 3 April 2014 amending Council Directive 1999/37/EC on the registration documents for vehicles
- Under Directive 2014/45/EU each Member State shall ensure that vehicles registered in its territory are periodically tested by testing centres authorized by the Member State. Directive 2014/45 is transposed into national legislation of the partner countries.



# Transport – cars, buses, trucks

## Assessment – UK

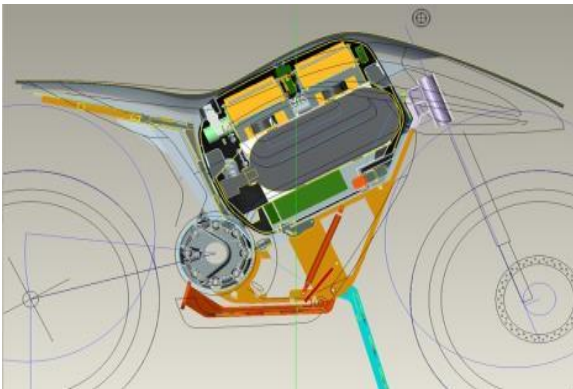
- For road going operations there are no restrictions on FCEV and hydrogen combustion vehicle movement – although there are 9 UK road tunnels which do apply ADR restrictions and which can restrict use by certain types of alternatively fuelled vehicles.
- Fuel cell buses operating in London are currently routed to avoid tunnels
- The Channel Tunnel currently prohibits the carriage of FCEVs on the Shuttle (together with LPG and CNG powered vehicles) although there is no legal basis for this prohibition
- There are no legal restrictions on FCEVs and hydrogen combustion vehicles being parked in conventional parking stations although car park operators can apply specific limitations, in particular for underground car parks; restrictions do apply for FC and hydrogen powered buses and trucks

## Recommendations

- Harmonise the implementation of the type approval requirements and procedures for hydrogen powered vehicles across the EU
- Develop clear and unified rules for service and inspection companies for FCEV and hydrogen powered vehicles
- Develop guidelines and manuals for hydrogen vehicles service and maintenance companies and testing centres including specific requirements for work with high pressure gases and on high voltage electricity systems (for FCEV), precautionary measures for work in workplaces where potentially explosive atmospheres may occur and provisions for staff qualification. The guides shall provide instructions for dealing with different types of emergency situations

## Assessment – motorcycles, quadricycles, bicycles

- L category vehicles comprise seven vehicle subcategories including powered cycles and two-wheel mopeds (L1e), three wheel mopeds (L2e), two (L3e) and three wheel motorcycles (L4e), powered tricycles (L5e), and light (L6e) and heavy (L7e) quadricycles. Each subcategory is further distinguished, making up a total number of 25 sub-subcategories. The diversity of types, powertrains, and utility patterns of these vehicles makes this category as one of the most diverse
- Regulation (EU) No 168/2013 and its delegated and implementing acts comprise a comprehensive package of measures for the safety, emissions control and placement on the market of motorcycles, tricycles and quadricycles. It specifically applies to the type approval of hydrogen combustion and hydrogen fuel cell vehicles L category.





## Assessment – motorcycles, quadricycles, bicycles

- There is very limited experience with deployment of L category vehicles; The Suzuki Burgman fuel cell scooter was approved under EWVTA and is currently in fleet trial operation with the Metropolitan Police with day to day service provided by the Metropolitan Police and additional service provided by Suzuki (and fuel cell service provided by Intelligent Energy)
- The key challenges have been related to availability of hydrogen refueling facilities and the interface between a ‘small fill’ H<sub>2</sub> cylinder (current HRS provision is for refueling cylinders of 2kg H<sub>2</sub> and above) – and thereby the necessity of using a mobile re-fueler, with a separate set of issues to be resolved





## Recommendations - motorcycles, quadricycles, bicycles

- EU legislation regulating the type approval of L category vehicles and in particular of hydrogen powered vehicles is in force, but the national type approval authorities and bodies do not have extensive practical experience with this types of hydrogen vehicles.
- It is important to minimise the possibility for different interpretation and application of type approval requirements by national type approval authorities. Coordinated activities and exchange of information under the management of the new Forum for exchange of Information and Enforcement aimed at harmonisation of the type approval process for vehicles M and N categories, could facilitate the unified implementation of the type approval procedures for hydrogen powered L category vehicles
- L category motorcycles, bikes and quadricycles are currently excluded from the requirements of periodical roadworthiness inspections at EU level although new legislation from 1 January 2022 will cover the requirements for roadworthiness testing to the two-and three wheel motorcycles, powered tricycles and heavy quadricycles, with a design speed exceeding 25 km/h and an engine displacement of more than 125 cm<sup>3</sup> (subject to Member State acceptance – they have the right to exclude them from testing and adopt alternative safety measures for technical control of these vehicles)
- Develop guidelines and manuals for service and maintenance of hydrogen powered motorcycles and quadricycles including specific requirements for work with high pressure gases and on high voltage electricity systems (for FCEV), include precautionary measures for work in workplaces where potentially explosive atmospheres may occur and provisions for qualification of the staff



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