

This LAP examines: • The differences in the roadworthiness inspection, service and maintenance (process and requirements) for hydrogen L category vehicles compared to conventional vehicles, • The responsible authorities/independent bodies to carry out technical inspections • The requirements to operate a testing centre/service and maintenance company for hydrogen vehicles;

Is there a difference in the service and maintenance inspection (process and requirement) for a hydrogen vehicle compared to a conventional vehicle?
a - motorcycles (and bikes)

a - A component is being developed for an certain time of use (filling cycles of all life time) after which it should be replaced. It has to be described in a manual how the service should be applied and which components need what periodical inspection. These requirements are stated in Directive 79 (Hydrogen components > 30 bar), also vehicle is described. The manufacturer (OEM) is responsible for the manual. If there is a second party concerned who makes the final input to the vehicle, this might be a part that could be missing in the manual. Also directive 406 is applicable for the more detailed aspects (implementation measurements). The requirements are for the maintenance / service companies. In the Netherlands, however, motorcycles are exempted from the General Periodic Inspection regulation that applies to other vehicles. The reason is that the government estimates that the vulnerability of the motorcyclist is thus high that she / he keeps the motorcycle properly maintained for the sake of his / her own safety. As a result, there seems to be little profit with a periodic inspection (costs / benefits). This also applies for the still rare motorcycle that works on hydrogen / fuel cell.

b - quadracycles If yes, please specify, e.g. what are the specific maintenance needs and service requirements for hydrogen vehicles?

b - A component is being developed for an certain time of use (filling cycles of all life time) after which it should be replaced. It has to be described in a manual how the service should be applied and which components need which periodical inspection. These requirements are stated in Directive 79 (Hydrogen components > 30 bar), also vehicle is described. The manufacturer (OEM) is responsible for the manual. If there is a second party concerned who makes the final input to the vehicle, this might be a part that could be missing in the manual. Also directive 406 is applicable for the more detailed aspects (implementation measurements). The requirements are for the maintenance / service companies.

Which vehicles are subject to technical inspections (roadworthiness tests)?

The framework is the same as for conventional vehicles. A company needs to be accredited by RDW. a) technical i. motorcycles (and bikes) ii. quadracycles – A company still needs to be accredited by RDW. b) legislative / certification i. motorcycles (and bikes) ii. quadracycles - This accredited company might become accredited for vehicles with the exemption for busses. This will be the responsibility of the governmental authority.

Is there a framework and if yes, what are the requirements to operate a testing, inspection and certification (service and maintenance) company for hydrogen vehicles? a) technical i. motorcycles (and bikes) ii. quadracycles b) legislative / certification i. motorcycles (and bikes) ii. quadracycles

The framework is the same as for conventional vehicles. A company needs to be accredited by RDW.

Which are the responsible authorities/independent bodies to carry out technical inspections?

a - motorcycles (and bikes)

a) technical i. motorcycles (and bikes) ii. quadracycles – A company still needs to be accredited by RDW. b) legislative / certification i. motorcycles (and bikes) ii. quadracycles - This accredited company might become accredited for vehicles with the exception for busses. This will be the responsibility of the governmental authority.

b - quadracycles

b - National governmental body (Netherlands RDW) is responsible for appointing accrediting companies for the inspection. The RDW (Road Traffic Department) is an independent governing body of the Dutch government. Testing, inspection and certification for the purpose of service and maintenance is done by RDW recognised companies. This system (accreditation system and not a governmental inspection) is rather unique in Europe. Depending on the difficulty of the inspections this could be performed by a service company (in the Netherlands APK (Algemene periodieke keuring – General periodic inspection) accredited companies).

Is it a barrier?: Yes

Type of Barrier: Operational barriers

Assessment Severity: 1

Assessment: The system for repair and maintenance of a hydrogen vehicle still needs to be organized. This is a requirement to

implement before the hydrogen vehicles will be more on the road. Busses are inspected by the Governmental authority and not by individual service companies. Busses is an exception to the rule This may come into play for trains/ships etc if they are used for public transportation. The system needs to come in place.

National Legislation

- **Wegenverkeerswet 1994 (Road Traffic Act)**

The Road Traffic Act 1994 (Wvw) forms the basis for all traffic regulations. The starting point here is the smoothness and flow of traffic, and that no one should cause hindrance or danger on the road

- **Regeling voertuigen (Vehicle regulations) Regulations implementing chapters III and VI of the 1994 Road Traffic Act (Regeling voertuigen**

In the vehicles regulation the requirements are set for the various vehicles.

- **Arrangement for implementation of Chapters III and VI of the 1994 Road Traffic Act (Vehicle Regulations).**

EU Legislation

- **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 Text with EEA relevance (with effect from 20 May 2018)**

This Directive establishes minimum requirements for a regime of periodic roadworthiness tests of vehicles used on public roads. This applies to vehicles with a design speed exceeding 25 km/h of the following categories: M1, M2 and M3 (passenger motor vehicles, N1, N2 and N3 (motor vehicles for the carriage of goods, O3 and O4 (trailers over 3,5 tonnes) L (two or three wheels over 125cm³).

Glossary

Service and maintenance

A motor vehicle service is a series of maintenance procedures carried out at a set time interval or after the vehicle has travelled a certain distance. The service intervals are specified by the vehicle manufacturer in a service schedule and some modern cars display the due date for the next service electronically on the instrument panel. Technical inspection (roadworthiness test) means an inspection designed to ensure that a vehicle is safe to be used on public roads and that it complies with required and mandatory safety and environmental characteristics.

Bikes, Motorcycles, Quadracycles

Hydrogen fuel cell vehicle means a vehicle powered by a fuel cell that converts chemical energy from hydrogen into electric energy, for propulsion of the vehicle. L-category vehicles comprise powered two-, three- and four-wheel vehicles, including powered cycles, two- and three-wheel mopeds, two- and three-wheel motorcycles, motorcycles with side-cars, light and heavy quadri-mobiles.