Requestor (e.g. OICA)	Ref. Clause No./ Annex (e.g. B 3.4)	Text (existing draft 21. Sept. 2009)	Proposed change by the Requestor	Comment (justification for change)
JASIC	**4.2 Storage system (P13)**	**National regulations**: Japanese(add Japan's 35MPa regulation)	1.Container TECHNICAL STANDARD FOR CONTAINERS OF COMPRESSED HYDROGEN VEHICLE FUEL DEVICES **JARI S 001**(2004) 2.Component TECHNICAL STANDARD FOR COMPONENTS OF COMPRESSED HYDROGEN VEHICLE FUEL DEVICES **JARI S 002**(2004)	
JASIC	**4.3 ELECTRIC SAFETY (P13)**	**National regulations**: Add Japan's Electric Safety regulations	Add Japan's Electric Safety regulations **Japanese Attachment 110** TECHNICAL STANDARD FOR PROTECTION OF OCCUPANTS AGAINST HIGH VOLTAGE IN ELECTRIC VEHICLES AND HYBRID ELECTRIC VEHICLES **Japanese Attachment 111** TECHNICAL STANDARD FOR PROTECTION OF OCCUPANTS AGAINST HIGH VOLTAGE AFTER COLLISION IN ELECTRIC VEHICLES AND HYBRID ELECTRIC VEHICLES	
JASIC	**5.1.2.2.2** **(P14)**	Expected Service: worst-case = lifetime of most stressful fuelings (empty-to-full fuelings) under expected (typical) usage; 15 years at full-fill parking; and 10 service-station over-pressurization events. Need rationale for 15 years limitation. 15 years is currently in the Japanese regulation.	**The usage time of the container should be limited to 15 years.**	**There are data that indicate that on the market the vehicle lifetime range reaches its peak after about 15-16 years of usage and goes down thereafter (Source: Sierra Research Report No. SR2004-09-04, p. 15).** **However, these data represent the average lifetime range of scrapped vehicles and do not cover the worst-case range. In the worst case (vehicle with the longest range), it may be possible that the vehicle has driven more distance even after the 15 years; in this case, the number of lifetime fuelings may exceed 1,840 (x 3 = 5,500), the number based on which the durability evaluation has been made. It should also be noted that the existing CNG vehicle regulation includes the usage time limit. For these reasons, JASIC believes that the 15-years limitation should be provided.**

JASIC	**5.1 Hydrogen storage system (P26)**	The upper limit of NWP shall not be lower than 70 MPa. Members will submit rationale to support setting upper limit or not.	**The upper limit of NWP should be 70 MPa.**	**The upper limit of NWP should be revised only after the hydrogen embrittlement safety is ensured. With the upper limit of NWP set at 70 Mpa, the highest pressure is 87.5 Mpa, which is 125% NWP. The facilities at hydrogen stations require the pressurization to higher than this 87.5 Mpa (100 MPa or more). The equipment capable of evaluating the hydrogen embrittlement under such high pressure is limited. If the upper limit of NWP is not provided, the result of hydrogen embrittlement evaluation may be insufficient.**
JASIC	**5.1 Hydrogen storage system (P26)**	This section specifies the requirements for the integrity of the compressed hydrogen storage system. The hydrogen storage system consists of the high pressure storage container(s) and closures of openings into the high pressure storage container(s). Closures include the temperature-activated pressure relief device(s) (TPRD), check valve(s), shut-off valve(s) and all components, fittings and fuel lines between the storage container(s) and the closure device(s) that isolate high pressure hydrogen from the remainder of the fuel system and the environment. A check valve prevents reverse flow in the vehicle fill line. A shut-off valve between the storage container and the vehicle fuel system defaults to the closed position when unpowered.	This section specifies the requirements for the integrity of the compressed hydrogen storage system. The hydrogen storage system consists of the high pressure storage container(s) and closures of openings into the high pressure storage container(s). Closures include the temperature-activated pressure relief device(s) (TPRD), check valve(s), shut-off valve(s) and all components, fittings and fuel lines ~~between the storage container(s) and the closure device(s)~~ that isolate high pressure hydrogen from the remainder of the fuel system and the environment. Closures of the temperature-activated pressure relief device(s) (TPRD), check valve(s) and shut-off valve(s) shall be mounted directly on or within each container. A check valve prevents reverse flow in the vehicle fill line. A shut-off valve between the storage container and the vehicle fuel system defaults to the closed position when unpowered.	**See the risk assessment on the three valves, which was submitted by Japan at the last meeting in Ottawa.**

JASIC	**5.2 Vehicle fuel system** **(P38)**	open issue: Airtightness test	**Airtightness, etc. of piping requirement** **Piping, etc. shall be durable and sturdy, with airtightness from external atmosphere under general-use pressure, allowing no gas leakage when tested for airtightness of piping.** **Test procedure** **With the motor vehicle held stationary and the pressure applied to piping, etc., check to see if hydrogen gas leakage is present at confirmable sections of the piping, etc. from the high-pressure section to the fuel cell stack (the engine in vehicles other than fuel cell vehicles), using a gas detector or detector liquid, such as soap water.** **1. Hydrogen leak detection is performed with the fuel cell stack, etc. activated.** **2. Hydrogen leak detection is performed, mainly at joints, by using gas leak detector or detecting agent (e.g., soap solution).** **3. When the gas leak detector is used, detection is performed by letting the detector suck in air for about 10 seconds at locations as close to piping, etc. as possible.** **4. When the gas detecting agent is used, hydrogen gas leak detection is performed immediately after applying the agent. In addition, visual check is also performed a few minutes after the application of agent in order to check for bubbles caused by trace leaks.**	**1. Basic Concept** **Due to its low molecular weight, hydrogen leaks more easily than other gases. Also, because it diffuses extensively, there is a risk of explosion when hydrogen-air mixtures that are within the flammable range accumulate in an enclosed space. For these reasons, the Japanese standards are designed based on the following three principles:** **a. No hydrogen leaks shall occur.** **b. If any hydrogen should leak, it shall be detected and shut off.** **c. If any hydrogen should leak, it shall not accumulate and/or enter closed or semi-closed spaces.** **2. Hydrogen Leak Test for the Piping System** **Since it is essential that no hydrogen leaks occur in the hydrogen system, including the fuel piping system, the standards state that no gas leaks shall occur in the hydrogen system.** **Although the permissible hydrogen leak amount at the time of crashes is specified as a performance requirement, the crash test conditions (speed, crash point, crash direction) merely represent the most statistically-probable conditions observed in data on many traffic accidents in various regions and do not cover all the possible conditions.** **The purpose of this crash test requirement is to prevent dangerous leaks even in the unusual situations under the normal use and thus does not ensure that no hydrogen leaks will occur under any condition. Likewise, the requirement to install hydrogen sensors in the vehicles is designed to ensure safety in the event of any hydrogen leak based on Principles b and c.** **For these reasons, some kind of provision will be necessary to confirm that no hydrogen leaks occur (Principle a). As regards the piping system, the performance requirement to test new vehicles for leaks at the specified locations on the hydrogen system with valve checker or gas detector will be necessary.** *** Additional Explanation** **This standardization is necessary because, under the Japanese Safety Regulations, the same tests as those performed on in-use vehicles at the time of periodic inspection must be performed on new vehicles at the time of type approval testing as well.**

JASIC	**5.3.4 Marking** **(P41)**	Members are requested to provide information for the marking.	**<u>Close to the receptacle:</u>** **1. <u>Number of containers installed</u>** **2. <u>Limitation of fueling time</u>** **3. <u>Duration of validity of the test result</u>** **4. <u>Maximum fueling pressure (NWP)</u>** **5. <u>Chassis No.</u>** **6. <u>5,500 times or 11,250 times (under discussion)</u>** **<u>On the vehicle:</u>** **<u>1. Symbol and No. of the container</u>** **<u>2. Symbols and Nos. of attachments</u>** **<u>3. Limitation of fueling time</u>** **<u>4. Chassis No.</u>** **<u>On the container:</u>** **<u>1. Code of the name of the Technical Service</u>** **<u>2. Name or code of the container manufacturer</u>** **<u>3. Type of high-pressure gas (CHG)</u>** **<u>4. Classification of the container (VH3 or VH4)</u>** **<u>5. Symbol of the container</u>** **<u>6. Inner volume</u>** **<u>7. Date (day/month/year) at which the container passed the test</u>** **<u>8. Limitation of fueling time</u>** **<u>9. Pressure for pressure-resistance test</u>** **<u>10. Maximum fueling pressure</u>** **<u>11. Allowed scar depth of CFRP parts</u>**	
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