HONDA
The Power of Dreams

Honda Comments – CARB ONMC Rulemaking

Regulation Language & Test Procedures

Honda Motor Co., Ltd.
American Honda Motor Co., Inc.
January 16, 2024

Appendix A

No.	Draft Legislation	Comment
Appendix A § 1958.2 (b)(1)	This requirement includes only the OBD monitors and functions that are related to emissions control systems and associated components, not those associatedexclusively with functional safety or other items unrelated to emissions.	<Confirm> European regulations require MI lighting and diagnostic trouble code for parts whose torque decreases in the event of a failure. However, will this be exempted under CARB's regulation?

COMMISSION DELEGATED REGULATION (EU) No 44/2014

ANNEX12

3.3.6. Unless otherwise monitored, any other powertrain component connected to a computer relevant for the environmental performance and/or functional safety, triggering any programmed 'limp-home' operating mode which significantly reduces engine torque, e.g. to safeguard powertrain components. Without prejudice to the list Ap2-1 the relevant diagnostic trouble code shall be stored.

3.5.1. The OBD system shall incorporate a malfunction indicator readily perceivable to the vehicle operator. The MI shall not be used for any purposes other than to indicate emergency start-up or limp-home routines to the driver. The MI shall be visible in all reasonable lighting conditions. When activated, it shall display a symbol in conformity with ISO 2575:2010, symbol F.01. A vehicle shall not be equipped with more than one general purpose MI for emission-related problems or powertrain faults leading to significantly reduced torque. Separate specific purpose tell-tales (e. g. brake system, fasten seat belt, oil pressure, etc.) are permitted. The use of red colour for an MI is prohibited.

Appendix A

No.	Draft Legislation	Comment
Appendix A § 1976 (c) Test Procedures	(5) For model year 2028, up to 70% of the motorcycles sold by a manufacturer may be equipped with evaporative emissions control systems that meet the standards in subsection (b)(2) and test procedures in subsection (c)(2) applicable for model years 1986-2027. For model year 2029, up to 40% of the motorcycles sold by a manufacturer may be equipped with evaporative emissions control systems that meet the standards in subsection (b)(2) and test procedures in subsection (c)(2) applicable for model years 1986-2027.	<Proposal> Honda propose that, for the phase-in of EVAP after 2028MY, a table similar to that for exhaust gas/OBD be included.

Exhaust Emission

(5) Manufacturers, except small volume manufacturers, shall certify at least the following percentage of their street-use motorcycles produced and delivered for sale in California to the standards in section 1958, subsection (h)(1) according to the following phase-in schedule:

Model Year	Total Percent (%) of Street-Use Motorcycles certified to the Standards of Section 1958(h)(1)
2028	30%
2029	60%
2030 and subsequent	100%

OBD

(1) Manufacturers, except small volume manufacturers, shall equip at least the following percentage of their 2028 and subsequent model year Class III street-use motorcycles produced and delivered for sale in California with an On-Board Diagnostics (OBD) system and shall meet all requirements of this section, in accordance with the phase-in schedule in the table below:

Phase-In Schedule for OBD

Model Year	Minimum % of Class III Street-Use Motorcycles Equipped with OBD
2028	30%
2029	60%
2030	100%

<Proposal>

Evaporative Emission

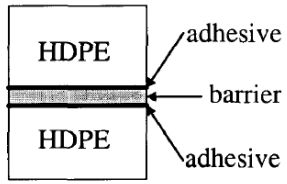
Model Year	Total Percent(%) of street-Use Motorcycles to the Standards of Diurnal:1.0 g/day and Hot soak:0.2 g/day
2028	30%
2029	60%
2030 and subsequent	100%

Appendix B2 TP-934

No.	Draft Legislation	Comment
APPENDIX B2 4	Slosh testing may be omitted for metal fuel tanks and plastic fuel tanks that do not use surface barrier treatments for evaporative emissions control.	<Proposal> The slosh test for multi-layer fuel tanks with a barrier layer, rather than plastic tanks without barrier treatment, should be omitted from the slosh test in the same way as for metal fuel tanks. EPA's fuel tank permeation testing guidelines also allow for the omission of one or more durability tests for metal fuel tanks and multilayer fuel tanks if evidence is provided.

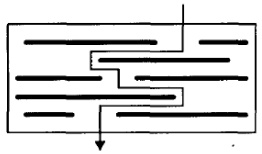
CCD-05-14

Plastic Fuel Tanks: Multi-layer fuel tank constructions have been used in automotive applications for many years. The traditional design is for an inner and outer shell of high-density polyethylene HDPE with a thin ethylene vinyl alcohol (EVOH) barrier layer in-between (usually making up about 3% of the total material used in the fuel tank). Also, adhesion layers are used between the EVOH and HDPE for better material bonding. These fuel tanks may either be blow-molded or thermoformed.



Multi-Layer Construction

Another approach that has been used to reduce permeation from fuel tanks has been to blend nylon or EVOH into the HDPE used in blow-molded fuel tanks.[4] The additive creates overlapping barrier platelets. Based on the provisions of 40 CFR 1051.245(e)(3) and 1051.515(d), manufacturers may exclude one or more of the durability tests (pressure cycling, UV exposure, and fuel sloshing) tests for plastic fuel tanks, provided the manufacturer includes a statement in their application that based on their good engineering judgment, fuel tanks, fuel cap, gaskets, fittings, O-rings, and other permeable surfaces are durable and that fuel tank permeation emissions would not be affected by such durability testing



Non-Continuous Barrier Platelets

For fuel tanks using a barrier treatment, barrier coating, or any post-processing step,[5] we require that the manufacturer perform the pressure-vacuum and slosh testing. If these fuel tanks are exposed to direct sunlight, as installed, they are also subject to the UV testing requirement. However, based on the provisions of 40 CFR 1051.515(d), manufacturers may omit the UV exposure portion of the durability test for vehicles with these types of fuel tanks, provided the manufacturer includes in the application for certification a statement that, except in extremely rare circumstances, the fuel tanks will never be exposed to direct sunlight when installed in production vehicles.

[4] This is often known by the trade name "Selar."

Proposal statement 1

The slosh test may be omitted for metal fuel tanks or multi-layer fuel tanks with barrier layers.

Proposal statement 2

If a multi-layer fuel tank is equivalent to a metal fuel tank, and if fuel permeation is not affected, then the TP-901 durability test should be omitted, not just the slosh test.

Proposal statement 3

If it can be proven that the durability deterioration coefficient of the multi-layer fuel tank permeation test is 0, the durability test of TP-901 should be omitted.

Appendix B2 TP-934

No.	Draft Legislation	Comment
APPENDIX B2 4	Evaporative emissions control systems that utilize carbon canisters shall meet the requirements of Appendix B before durability testing of Section 4 or service accumulation.	<Confirm> Is it correct that the 150 load/purge cycle test in 10.2.1 can be omitted if the canister is equipped with specifications that meet the carbon canister performance requirements?

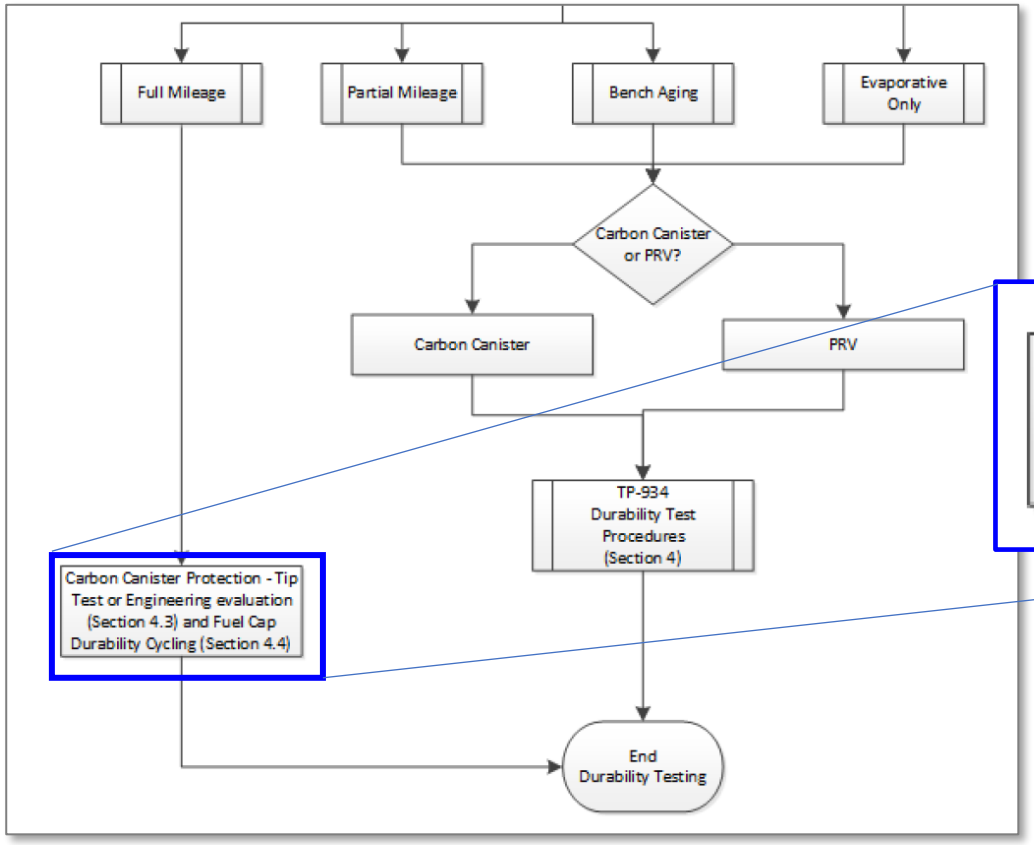
10.2 Appendix B – Carbon Performance Requirements
The carbon performance procedure of Section 10.2.1 must be conducted prior to the carbon canister durability procedures of Section 4.1. **A manufacturer may use the carbon performance data provided by the canister vendor; if the vendor certifies that the carbon has met the carbon performance criteria according to Section 10.2.1.**

10.2.1 A maximum loss of 12% or less of butane working capacity is required following 150 load/purge cycles as well as preconditioning and purge with warm 77° F ± 4° F (25° C ± 2° C) dry air. A common cycle is measuring the change in butane working capacity following the procedure in Section 5.2.1 performing the load/purge using 150 cycles of load with a mixture of 50 percent gasoline (or butane) vapor/air loaded at 40 grams/hr, and purged each time with a minimum of 300 bed volumes of dry air per flow rates specified in Section 5.2.1. The canister butane working capacity must be recalculated according to Section 5.2.1. The initial BWC should be established before fuel exposure of between 10 and 100 BWC cycles and the final BWC should be established after 150 cycles of fuel exposure by performing not more than 10 BWC cycles.

If the canister manufacturer's data can prove performance with a BWC loss of 12% or less after 150 load/purge cycles, is there no need for 150 load/purge cycles for TP-934 initially?

Appendix B2 TP-934

No.	Draft Legislation	Comment
APPENDIX B2 4	demonstrate that the alternative durability test procedures are representative of end of useful life. A vehicle that has completed the full useful life service accumulation with the evaporative components installed throughout the duration of service accumulation may be exempt from the vibration durability requirements (Section 4.1.1), whichever are applicable. Durability testing shall include the steps outlined in Figure 2.	<Proposal> If you perform full endurance with Figure 2, you will only need to perform 4.3 Tip Test and 4.4 Fuel Cap Durability Cycling. Therefore, if a full endurance test is carried out, 4.1 Carbon Canister Test and 4.2 Pressure Vent (Relief) Valve are considered to be omitted, but in the text on the left, only 4.1.1 is omitted, making it an unmatched condition. We also request that 4.1 Carbon Canister Test and 4.2 Pressure Vent (Relief) Valve be omitted.



Proposal statement

A vehicle that has completed the full useful life service accumulation with the evaporative components installed throughout the duration of service accumulation may be exempt from the **carbon canister test (Section 4.1) and PRV test (Section 4.2)**, whichever are applicable. Durability testing shall include the steps outlined in Figure 2.

Carbon Canister Protection - Tip Test or Engineering evaluation (Section 4.3) and Fuel Cap Durability Cycling (Section 4.4)

We believe that carrying out a full durability test on a completed vehicle and testing it individually would require double testing, which is unreasonable.

Appendix B2 TP-934

No.	Draft Legislation	Comment
APPENDIX B2 4	Vehicles that have undergone partial mileage service accumulation with carbon canisters may use a hybrid approach to complete the vibration durability portion (Section 4.1.1) of this test procedure. If evaporative components have gone through a fraction of the useful life through service accumulation, then the remainder fraction of the useful life mileage may be applied to the number of cycles to complete durability testing for each section.	<Proposal> When performing partial endurance in Figure 2, only 4.1.1 can be shortened by the partial endurance distance on the completed vehicle, but we would like to request expansion for 4.1 Carbon Canister Test and 4.2 Pressure Vent (Relief) Valve. Considering that component durability is a simulation of the durability of a completed vehicle, it should be applied not only to canister vibration but also to canister cooling and heating and PRV durability.

When performing partial durability, only 4.1.1 is applicable.

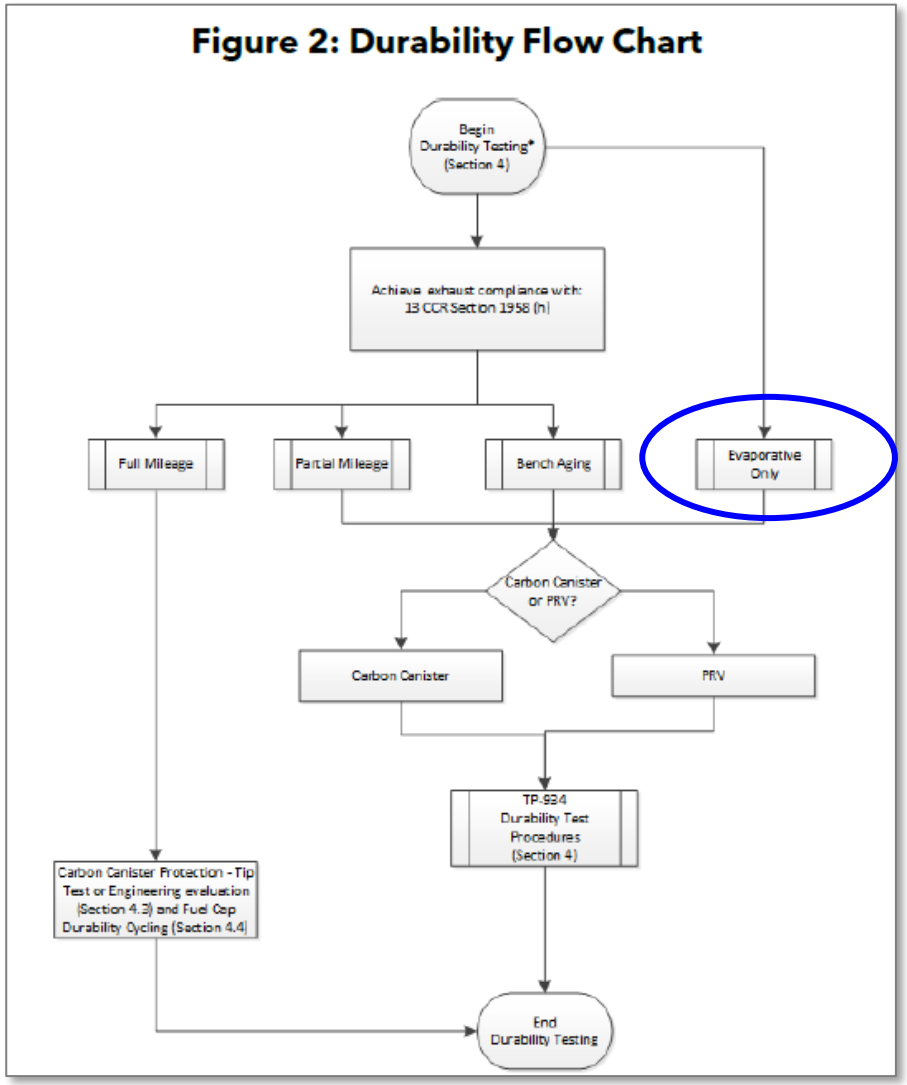
- Example: Vehicle completed 20,000km of service accumulation and useful life is 50,000km.
- 20,000 / 50,000 = 0.4 * 100% = 40% completed.
- 100% - 40% = 60% remaining.
- For carbon canister vibration cycling, the remaining cycles would be = 60% * 10,000,000 = 6,000,000 to complete vibration durability testing.

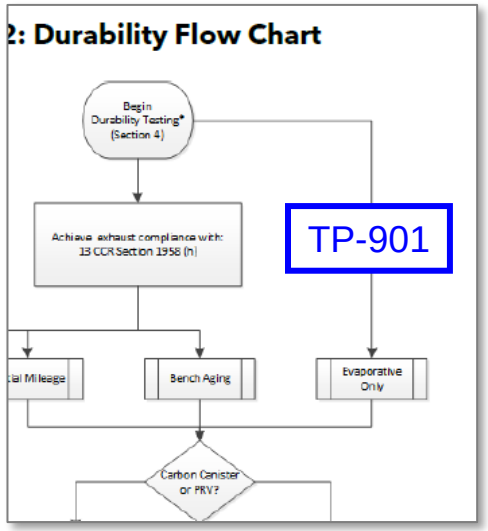
Proposal statement 1

Vehicles that have undergone partial mileage service accumulation with carbon canisters may use a hybrid approach to complete the **carbon canister test (Section 4.1) and PRV test (Section 4.2)** of this test procedure.

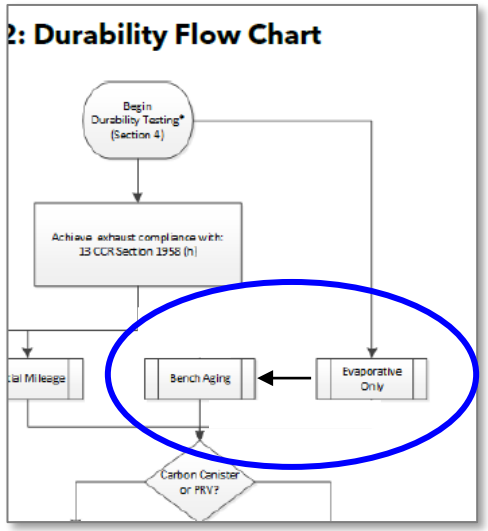
Appendix B2 TP-934

No.	Draft Legislation	Comment
APPENDIX B2 4	**Figure 2: Durability Flow Chart** Evaporative Only	<Confirm> What is the test procedure for Evaporative Only?





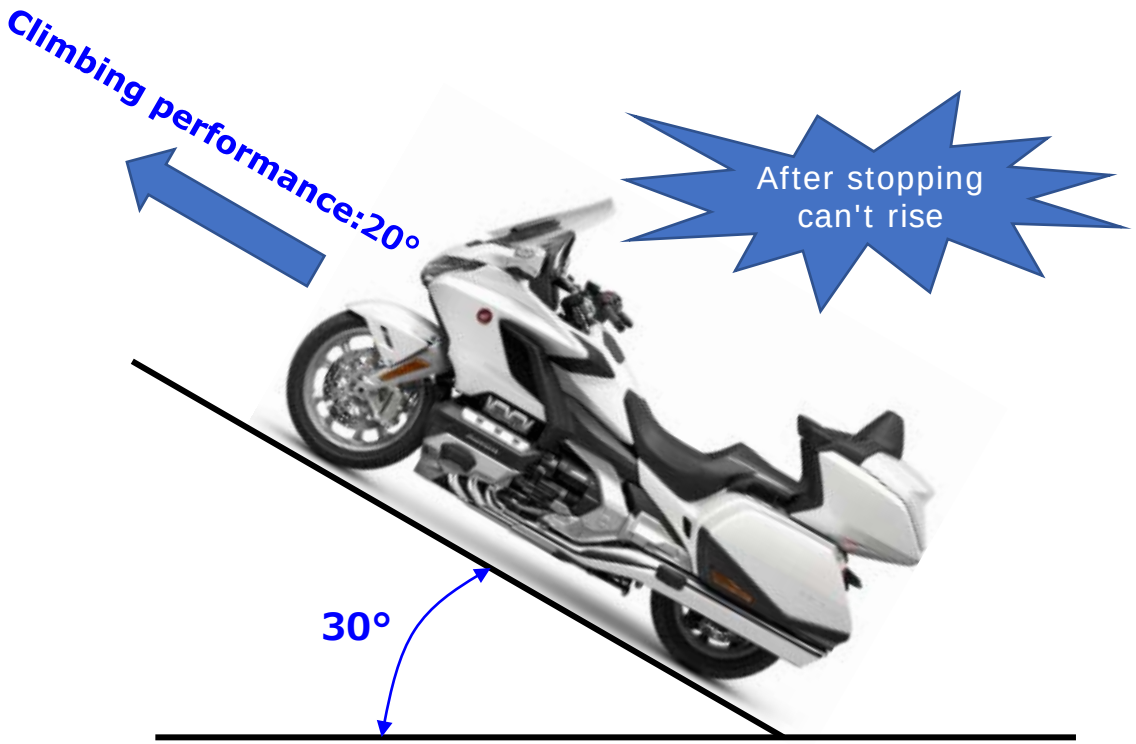
-Are you talking about a rig test using TP-901?



-Bench Aging refers to catalyst deterioration, so is it related to this?

Appendix B2 TP-934

No.	Draft Legislation	Comment
APPENDIX B2 4.3 Carbon Canister Protection - Tip Test	4.3.1.1 In less than 5 seconds, orient the vehicle such that the travel axis is tilted X degrees above and below the horizontal plane. See Figure 3 for a schematic. Hold the vehicle for 60 or more seconds, or such longer period of time as a manufacturer may choose, in both the positive and the negative position. **X shall be defined as 30° ± 2° for two-wheel ONMCs** as identified in Figure 3 below.	<Proposal> When performing a TIP test on a heavy vehicle, restarting the vehicle after stopping in the middle of a slope may exceed its slope climbing capability (approximately 20 degrees) and may not be able to climb the slope, which is extremely dangerous. I would like to request that the requirements be relaxed and an angle that allows restart after a stop be added.



Appendix B2 TP-934

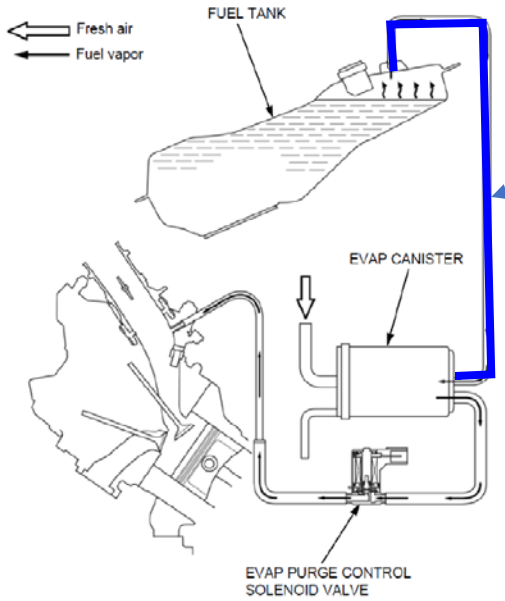
No.	Draft Legislation	Comment
APPENDIX B2 5.1	a) Precondition the whole vehicle or fuel system rig continuously following one of the following 3 options defined below: 1. Soak continuously for a total of 3,360 hours while maintaining an ambient temperature no less than 68ºF;	<Confirm> If the endurance equipment is in ambient conditions, there may be cases where the ambient conditions are below 20°C. Since the EVAP component is mounted near the engine, when driving, the temperature of the EVAP component often exceeds the ambient conditions due to the engine's exhaust heat. From the perspective of testing the durability of the EVAP component, if the temperature of the EVAP component exceeds 20°C, it can be considered as soak time. Therefore, is it possible to measure the ambient temperature near the EVAP component during endurance with a completed vehicle filled with E10 fuel?

"We propose that if the temperature around the EVAP device component during exhaust gas endurance exceeds 20°C, it can be added as soak time."

Appendix B2 TP-934

No.	Draft Legislation	Comment
APPENDIX B2 5.1	d) Alternatively, the fuel tank, fuel line system, and/or vapor vent line system can be preconditioned as separate components from the whole vehicle as long as the reason for the separate component preconditioning is accepted by CARB prior to vehicle certification and the components are subjected to the equivalent preconditioning required for a whole vehicle. Acceptance will be based on verification of good engineering judgement used to ensure components are subjected to conditions similar to what would be found on the vehicle during preconditioning. These conditions include, but are not limited to, physical deformations, fuel fill volume for tanks, and fuel reservoir for fuel hoses and related components. **Vapor vent lines must be exposed to liquid fuel for component preconditioning.** This requirement only applies to separate component preconditioning and not to the fuel system preconditioning that is connected to filled fuel tanks. All components that are installed on the vehicle must be attached as it would be on a factory production vehicle.	<Confirm> It is difficult to immerse the vapor line in liquid fuel in the completed vehicle state. Is it okay to soak individual vapor line parts in fuel and then assemble them into the vehicle?

System figure of evaporative Emission control



"It is reasonable to conduct the test in the same condition as the completed vehicle (the vapor line is in the vapor state)."