Status report / Activity Plan of Evap Task Force

26th Sep., 2017
Mayumi “Sophie” Morimoto (JASIC)
• The discussion on drafting sealed fuel tank system test procedure (GTR 19 amendment 1) is completed.
  • Improved the flowchart and made it consistent with text.
  • Reviewed numbering of paragraphs to make it easier to read.
  • Slightly modified the description of audit/witness tests to make it clear.
• The test procedure of semi-sealed fuel tank system, bi-fuel gas vehicles, and other issues will be discussed at next stage, after January GRPE meeting.

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Get approval of revised EVAP gtr
Get IWG approval of sealed tank sys. test procedure after drafting.
Changes on Flow Chart

- **Before** (WLTP-19-07e_Appendix)
  - Separate flow chart among different systems.

- **After** (WLTP-20-06e_appendix)
  - One comparable flow chart.
  - Added paragraph numbers.

Consolidated the flow chart (Thanks to Bill-san)
5.6. The responsible authority shall not grant type approval if the information provided is insufficient to demonstrate that the evaporative emissions are effectively limited during the normal use of the vehicle. The responsible authority may audit or witness any part of the tests described in Annex 1, or if there is reasonable doubt regarding the efficiency of the evaporative controls, request to repeat any part of the tests described in Annex 1.

*Paragraph 5.6 was added in GTR19 Amendment 1.*

**Deleted the Description of Audit/Witness Tests**

*Paragraph 5.6 was added in GTR19 Amendment 1.*
## Main Discussion Points on Technical Issues and Conclusion

<table>
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<th>Discussion Points</th>
<th>Conclusion</th>
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| **A: Test sequence**  
Whether to make the test sequence on 1 flow or have separate flows.  | Keep both as options;  
Option 1: 1 flow  
Option 2: separate flow on measurement of puff loss and DBL |
| **B: Condition before puff loss loading**  | 20°C to 35°C, using first 11 hours of DBL |
| **C: How to measure depressurisation puff loss overflow**  
By auxiliary canister or by SHED  | Keep 2 options  
Measure by auxiliary canister or SHED |
| **D: Relief Pressure Requirement of sealed fuel tank**  | Relief pressure shall be 30 kPa or more. If less, do DBL tests on 30°C to 38°C |
| **E: Limit for overflow puff loss emissions after the tank depressurization**  | Result of measurement should not be changed within the tolerance of ± 0.5 gram. |
| **F: Requirement of tank pressure before refueling**  | Fully depressurised to reach a pressure less than 2.5 kPa above ambient pressure in normal vehicle operation and use. |
| **G: Definition of sealed fuel tank system**  
(Re-opened issue)  
Whether to include BMW proposed semi-sealed fuel tank system or not.  | Kept as current  
A fuel tank system where the fuel vapours do not vent during parking over the 24-hour diurnal cycle. |
| **H: Selection of test vehicle within EVAP family**  
(Re-opened issue)  | Worst case vehicle. However use the road load setting of the interpolation family vehicle H with the highest cycle energy demand in the EVAP family. |
Conclusions

- After intensive and many fruitful discussions among experts since 2016,

ALL missions EVAP TF initially had are COMPLETED successfully.

- GTR 19 amendment 1 (WLTP-20-06e_Appendix) will be submitted as GRPE working document. This document is expected to be reviewed and approved during 78\textsuperscript{th} GRPE session.
Thank you very much for your attention!
① No fuel vapour flow into the canister during parking because the control valve kept closed.
② Fuel vapour into the puff loss canister only before refueling.
(The relief pressure valve opens when the refueling event starts, then closes after tank pressure goes down.)
**Discussion points of Sealed Tank System Test Procedure**

**Non Sealed Tank System Test procedure**

- **Fuel drain and refill**
- **Pre-conditioning**
- **Soak**
  - 23 +/- 3 °C
- **Canister loading**
  - 2g breakthrough
- **Test drive**
  - WLTC purge cycle
- **Hot Soak**
  - Min 23 °C / Max 31 °C for 60 min
- **Soak**
  - 23 +/- 3 °C
- **1st and 2nd day Diurnal**
  - Start 20 °C to Max 35 °C 24 hrs for 2 days

**Sealed Tank System Test Procedure**

- **Drain and refill**
  - 15% refill
- **Tank pressure relief**
  - by opening fuel lid and/or cap
- **Canister loading**
  - 2g breakthrough
- **Canister purge**
  - 85% fuel consumed equivalent
- **Soak inside SHED**
  - temperature, duration, ,,,
- **Canister loading**
  - loading by opening the fuel lid
  - overflow vapor limit
- **Fuel drain and refill**
  - 40% refill to be consisted with non-sealed system
- **Battery fully charge**
  - OVC-HEV only

**Relief Pressure Requirement for Sealed Tank System**

- "A series of procedure" OR "Separate procedure for puff loss loading volume"

**2g breakthrough to be replaced by puff loss loading.**