

Informal Group on Gaseous Fuelled Vehicles (GFV)

Status report 72nd GRPE January 2016



Meetings GFV Group

- 42nd GFV meeting
 - 27 October 2015 EC (DG Growth), Brussels
- 43rd GFV meeting
 - 13 January 2016 Geneva



GFV items

The development of a new UN Regulation for heavy-duty dual-fuel retrofit systems (HDDF-RS).

- A new regulation will include the requirements for the type approval of retrofit systems intended to be installed on a heavy duty diesel vehicle to enable its operation either in diesel mode or in dual-fuel mode.
- Only Euro V and EEV vehicles will be included in this release of the regulation.



GFV items

Status of the new HDDF retrofit system (HDDF-RS) regulation

- An informal document available for the GRPE to review.
- Informal Document GRPE-72-12
- Draft proposal is the result of developments in the GFV informal group and the work done in the heavy duty dual-fuel task force (HDDF-TF).
- Some (mainly administrative) provisions still need to be finalized. Those parts are marked in the document with a grey font color.
- GFV intends to submit a working document for the 73rd session of GRPE.



GFV items

HDDF retrofit type approval process

UNECE

Engine Retrofit System

Extensions and actual applications

Installation manual

National

The complete installation of all gas components/systems on the vehicles to be checked by the national authority based on

-ECE Regulations on HDDF-RS (retrofit systems) **emissions (new)**

-ECE Regulation R110 (CNG/LNG) and R67(LPG) **safety**



GFV items

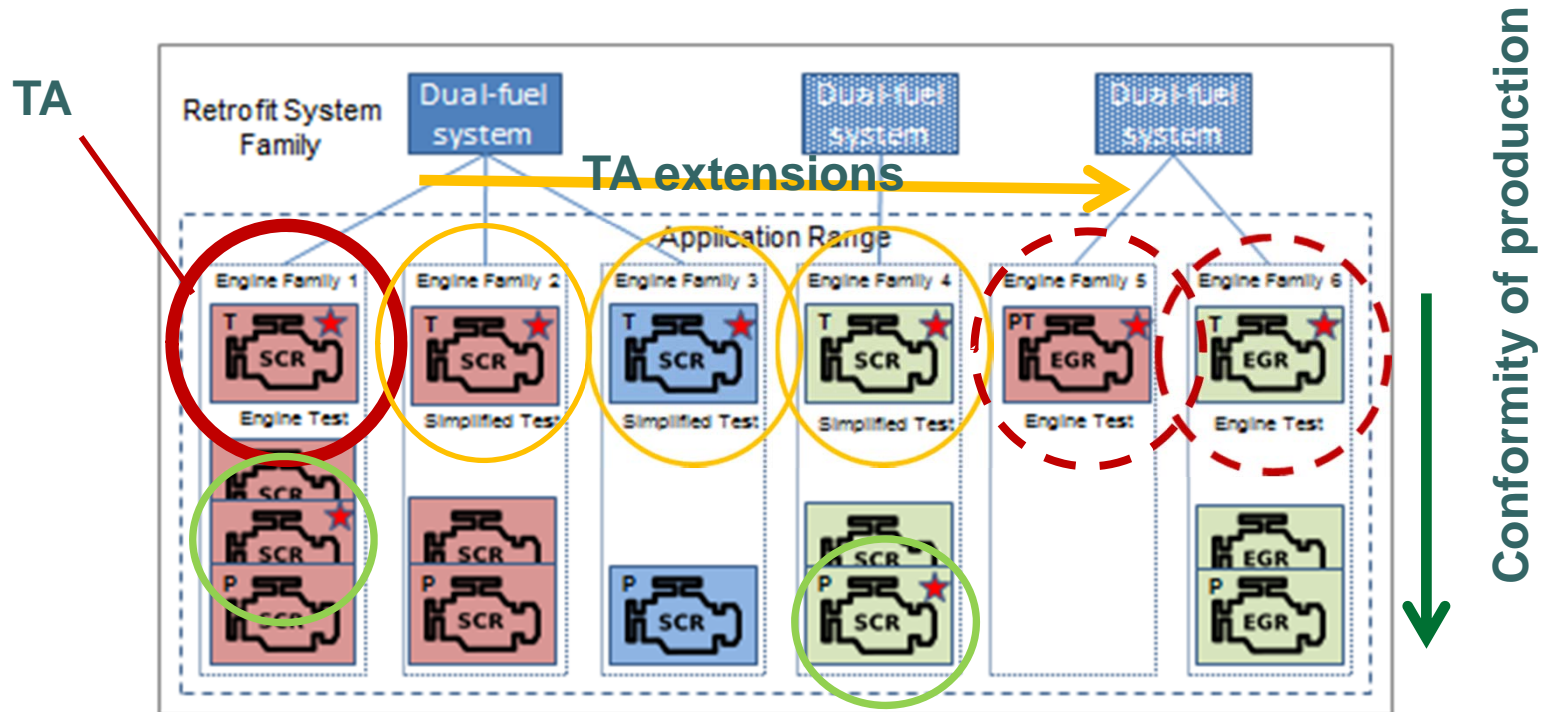
HDDF engine retrofit type approval process

- Emission Tests:
 - Initial Type Approval: Engine test
 - Type Approval extension: Simplified test
- Simplified test
 - Back-to-back comparison between a test in diesel mode and a test in dual-fuel mode.
 - Measurement on an engine test bench, on a chassis dyno or on the road at the choice of the manufacturer.
 - Discussion on the simplified test methods and specifically on chassis dyno testing is still ongoing.

GFV items

HDDF engine retrofit system family and application range

System Family, AR and Actual Applications ★





GFV items

HDDF engine retrofit type approval process

- **OPTION 1** (~~Possibility to claim CO₂ reduction~~)
 - All emission limits for dual-fuel mode as specified in the applicable R49 series of amendments apply
- **OPTION 2**
 - The NO_x, NMHC, PM and CO emission limits for dual-fuel mode as specified in the applicable R49 series of amendments apply;
 - The CH₄ emissions shall not exceed the following GER dependent CH₄ limit:
 $CH_4 \leq 6.84 * GER/100$ AND $CH_4 \leq 6$ [g/kWh]

Torque test and CAN communication requirements specified



GFV items

DHHF-RS

Timing/roadmap

GFV intends to submit a working document for the 73rd session of GRPE.

- January 2016 72- GRPE: informal document (GRPE-72-12)
- June 2016 73- GRPE: working document (planned)
- November 2016 WP.29: WP.29 document (anticipated)



GFV items

Other items

- **Supplement to R115 retrofit (bi-fuel): ECE/TRANS/WP.29/GRPE/2016/5**
 - proposed to eliminate the communication of the CO2 emissions and power figures of each specific vehicle and leaving the communication only for the tested (parent) ones.
 - calculate the CO2 emissions in gas mode multiplying the CO2 factor for that specific vehicle.



GFV items

Information exchange on gaseous fuelled vehicle related issues in other forums (GRSG, WP.15)

- **The LNG-TF (GFV) is finalized (closed)**
 - LNG is included in R110 (2013)
- **GRSG (general safety) (R.110) :**
 - Adoption of ISO LNG fuel connector standard
 - Discussion of aluminum parts on LNG tanks
- **WP.15 (ADR/ Dangerous Goods Vehicles)**
 - CNG, LNG and LPG allowed to fuel ADR-certified vehicles (2017)
 - Gaseous fuel limits on trucks being debated May 2016 WP15



Next steps GFV

○ Next meetings of GFV-IWG

- 23 February 2016 GFV (Brussels, RDW)
- GFV request to GRPE for a ½ day meeting during the 73-GRPE
