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# Dual-fuel engines and vehicles Rules for retrofitting Diesel engines

## GRPE65

### Geneva 17 January 2013

# Manufacturing dual-fuel engines background

- Currently most dual-fuel engines are a result of modifying already type-approved Diesel engines.
  - ✓ Dual-fuel retrofit is simply a particular retrofit case
  - ✓ Other common retrofit operations are:
    - Installing after-treatment systems (see the future REC regulation)
    - Installing kits (including downgrading kits).
    - Tuning the engine.
  
- To avoid uncontrolled precedents, there is a need for setting basic retrofit rules instead of multiplying non-consistent individual specific requirements:
  - ✓ REC rules should be considered as a basis
  - ✓ Only what is dual-fuel fuel specific should be addressed by GFV/HDDF.

# Certifying retrofitted dual-fuel (diesel-methane) engines

## Possible procedures

	PROs	CONs
REC	<ul style="list-style-type: none"> <li>• Very solid retrofit principles.</li> <li>• Applicable to HDVs</li> </ul>	<ul style="list-style-type: none"> <li>• Dedicated solely to Emission Control Devices</li> </ul>
R115	<ul style="list-style-type: none"> <li>• Existing regulation.</li> <li>• Dedicated to gas retrofit</li> </ul>	<ul style="list-style-type: none"> <li>• No possibility to set general (not gas-specific) retrofit principles.</li> <li>• Not applicable to HDVs without substantial modifications (e.g. to address solely vehicle retrofit).</li> <li>• Risks of generating several inconsistencies with the today's LDV requirements</li> </ul>
New reg	<ul style="list-style-type: none"> <li>• full freedom on the content and structure.</li> <li>• May not be limited to gas retrofit.</li> <li>• Introduce consistency (R83+R115 vs R49+REC+Rxx)</li> </ul>	<ul style="list-style-type: none"> <li>• Administrative constraints (new Regulation)</li> </ul>



## Certifying retrofitted dual-fuel (diesel-methane) engines summary of the OICA position

- GRPE to first set clear general definitions and retrofit principles before starting any work on dual-fuel retrofit
  - ✓ GFV/HDDF to apply them to dual-fuel retrofit
- Consider separately TA of an engine retrofit from TA of a vehicle retrofitted with an approved engine. (like in R49)
- Ensure a fair competition among the possible manufacturing processes and do not generate loop holes (no relaxed route).
- Prefer the development of a new Regulation for specifying Dual-Fuel retrofit (likely less time demanding, more consistent regarding the split HDV-LDV).