GRSG 118th session

UN Regulation No. 93

OICA comments to proposal

ECE/TRANS/WP.29/GRSG/2020/10 (EC)

based on

ECE/TRANS/WP.29/GRSG/2019/19

as amended by

GRSG-117-48
Summary

➢ Context

➢ Active safety measures

➢ Importance of the definition of G category

➢ Off-road vehicles as “machinery on wheels”

➢ Conclusion
GPS

➢ **Context**

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3 proposals

ECE/TRANS/WP.29/GRSG/2020/10 contains 3 proposals:

1. Amendment to scope
   Removing category G vehicles exemptions to reduce the possibility of inappropriate exemptions
   Challenged by OICA

2. Elongated cabs
   Introduction of new configurations for complying with strong CO₂ requirements
   Supported by OICA for fast introduction (2020)

3. Test setup
   Improving approval efficiency
   Supported by OICA for fast introduction (2020)
Amendment to scope

➢ Current:

1.3. The requirements to this regulation do not apply to:
1.3.1. off-road vehicles of category N2G and N3G
1.3.2. vehicles such that their use is incompatible with the provisions of front underrun protection.

➢ EC proposal:

Paragraph 1.3., amend to read:

1.3. Vehicles where any FUP (e.g. fixed, removable, foldable, adjustable, etc.) is incompatible with their on-road use may be partly or fully exempted from this Regulation, subject to the decision of the Type Approval Authority.

Paragraphs 1.3.1. and 1.3.2. shall be delete
Off-road vehicles

➢ Low number of vehicles
➢ Global truck configuration
➢ Machinery on wheels for professionals
➢ Operation in construction sites
➢ National certification and registrations
GPS

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Active safety measures

Active safety systems prevent/avoid the accident while FUP only mitigates the consequences of the accident.

Active safety functions are currently progressively introduced:
- VRU detection – Vulnerable Road User
- LDWS – Lane Departure Warning System
- CSF – Corrective Steering Function
- ESF – Emergency Steering Function
- ACSF-B1 – Automatically Commanded Steering Function
- ALKS - Automatic Lane Keeping System
- AEBS - Advanced Emergency Braking System…
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Importance of G-category in § 1.3

➢ Benefits of referring G category in scope
  ▪ Harmonization: Current text refers to definitions common to all contracting parties (RE.3)
  ▪ Discriminative tool: Reference to G category is the best tool to discriminate the vehicles to exempt
  ▪ Others regulations: The Category G definition is used in multiple regulations where there are specific off-road requirements.

➢ Consequences of not referring to G category in scope
  ▪ Regulated requirements: Isolation of UN R93 from the other regulated texts referring to the category G vehicles.
  ▪ Contradictions with national and regional off-road legislations/authorities.
  ▪ Fragmentation of the market
  ▪ Loss of one criterion (approach angle) in G category identification
Compliance with UN R58 and R73 already limits flexibility in reaching the 6 criteria

UN R93 FUP would remove 1 criterion from the list of 6 criteria
Architecture, design, performances

- Low FUP beam implies short front overhang
- Consequences
  - On architecture: “cab-over-engine” versus “conventional vehicles”
  - On design: components to be re-located
  - On performances: examples for active safety sensors, emissions components, AC components and more
Cascade of regulatory consequences

Losing the category G status implies

- Review of the compliance to specific regulations
- Example of other regulations and designs areas impacted:

<table>
<thead>
<tr>
<th>Regulated texts</th>
<th>Design regulated impacts</th>
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<tr>
<td>UN R51 – Sound emissions</td>
<td>Increase of masses and dimensions</td>
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<tr>
<td>UN R13 – Brakes</td>
<td>CO2 increase and pay load lost</td>
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<td>EU 2017/2400 – CO₂ emission declaration</td>
<td>Towing device</td>
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<td>UN R48 – Lights</td>
<td>Cab access and steps</td>
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<td>UN R61 – External Projections</td>
<td>Emissions, performances</td>
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<td>Spray suppressions</td>
<td>Redimensioning of the driveline</td>
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<td>Other and new regulations such Noise/CO₂/Direct vision/VRU/Euro 7/…</td>
<td>Sensors for vision, driving help …</td>
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<tr>
<td>National legislations for off-road vehicles</td>
<td>Other sensors technology…</td>
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<td>…</td>
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</table>
Losing the G-category will impact the non-UN requirements to fulfil:

Examples of additional off-road standards/specifications

- ISO 11228-1
  Ergonomics to move a FUP estimated at 75 kg on 2.2 meters

- Specific approach angle requirements in fire brigade EN 1846 standard,

- Mobility classification of federal armed forces.
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Securing a FUP requires consequent re-design of a number of parts and functions (regulated and not regulated) in a very much packed front-low bumper volume:

- Off-road application vehicles are in rough working environments.
- Rough vehicle operation create damages and FUP integrity may be impacted.
- Technical challenge in making FUP compatible with protection plates underneath the vehicle, plates needed to protect vital parts.
- If electrically operable or moveable FUP, will need additional space.
- Impact on the masses and dimensions
A moveable FUP (currently not existing) would require specific protections to guarantee its function integrity:

- Dirt environment damages to the mechanism in case of a moveable FUP.
- Protection of deployment mechanisms
- A foldable or partly foldable FUP could make the vehicle longer
- Impact on the masses and dimensions and packaging
A moveable FUP could make the vehicle longer and will increase the front axle load:

- Impacts on the Mass & Dimensions of the vehicle.
- Economic operation impact:
  - Operator to mount and dismount the FUP when leaving/entering the working areas,
  - Implying dedicated operators with specific tools and locations at both entrance and exit of construction sites,
  - Additional check to be performed to secure FUP function integrity
  - May be double operations because of ergonomic working requirements,
  - Time and cost impacts for end users.
A FUP on a category G vehicles may have to withstand forces higher than those of UN R93 test forces to secure the daily operation.
Examples of **applications where the equipment is overtaking the FUP-function**

These vehicles trucks are not designed with a UN R93 compliant FUP.
Examples of non-AWD and AWD vehicles, specific application vehicles, construction equipment

Implementing a FUP on these vehicles will impact the application by reducing the approach angle to values such as $\pm 15^\circ$. 

Machinery on wheels
Conclusion

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Conclusions

➢ **Active safety systems prevent/avoid the accident.**

➢ The definition of **G category is a tool to discriminate** the vehicles at the time a regulation is applied. This tool must continue to exist in UN R93
  - For avoiding consequent redesigns impacts to fulfil all necessary regulations, standards and design requirements
  - For avoiding non-negligible cost and time impacts
  - For avoiding important end-customer application costs and productivity constraints
  - For avoiding fragmentation of the UN markets between national and regional off-road legislations

➢ **G vehicles are “machinery on wheels”:**
  - Small fleet, low mileage
  - No accidentology background
  - Front end (under the bumper) much equipped and sophisticated
Conclusions

OICA recommends:

➢ Keeping the scope of UN R93 unchanged.

➢ Introducing the elongated cab configuration
   » Support ECE/TRANS/WP.29/2020/83

ECE/TRANS/WP.29/2020/83
GRSG 118th session
UN R93 category G vehicles exemption