GRRF Meeting
20 - 24 February 2012

L-category vehicle EU type-approval legislation

Obligatory fitting of advanced brake systems
Introduction

• Scope of the Commission proposal (1)

  ▪ Framework related to **APPROVAL** and **MARKET SURVEILANCE**
    of L-category (light) vehicles on the Union market

  • Manufacturers can obtain approval for L-category vehicle types (W V T A), systems, components and separate technical units intended for such vehicles in one Member State.

  • If it meets the Union technical requirements then the manufacturer can market it EU-wide with no need for further tests or checks. Registration must be granted on simple presentation of a certificate of conformity.
Introduction

- Scope of the Commission proposal (2)
  - 2-wheel or 3-wheel vehicles

<table>
<thead>
<tr>
<th>Category &amp; Category Name</th>
<th>Sub category &amp; Sub category name</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>L1e, light two-wheel vehicle</td>
<td>L1A e powered cycle</td>
<td><img src="image1" alt="Example" /></td>
</tr>
<tr>
<td></td>
<td>L1B e Moped</td>
<td><img src="image2" alt="Example" /></td>
</tr>
<tr>
<td>L2e Three-wheel moped</td>
<td></td>
<td><img src="image3" alt="Example" /></td>
</tr>
<tr>
<td>L3e, motorcycle</td>
<td>A1, A2, A3 &lt; 130 km/h ≥130 km/h</td>
<td><img src="image4" alt="Example" /></td>
</tr>
<tr>
<td>L4e, motorcycle with side car</td>
<td></td>
<td><img src="image5" alt="Example" /></td>
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<tr>
<td></td>
<td></td>
<td><img src="image6" alt="Example" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category &amp; Category Name</th>
<th>Sub category &amp; Sub category name</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>L5e, tricycles</td>
<td></td>
<td><img src="image7" alt="Example" /></td>
</tr>
<tr>
<td>L5Be Commercial tricycles</td>
<td></td>
<td><img src="image8" alt="Example" /></td>
</tr>
</tbody>
</table>
**Introduction**

- **Scope of the Commission proposal (3)**
  - **Quadricycles**

<table>
<thead>
<tr>
<th></th>
<th>L6Ae Light quad</th>
<th>L6e, Light quadricycle</th>
<th>L6Be Light mini car</th>
</tr>
</thead>
<tbody>
<tr>
<td>L7e,</td>
<td>L7Ae On-road quad</td>
<td>L7e, Heavy quadricycle</td>
<td>L7Be All Terrain Vehicles</td>
</tr>
<tr>
<td></td>
<td>L7Be All Terrain Vehicles</td>
<td>L7Be Heavy mini car</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L7Be All Terrain Vehicles</td>
<td>L7Be Heavy mini car</td>
<td></td>
</tr>
</tbody>
</table>
Introduction

- Vehicles not in the scope of the Commission proposal (4)
  - maximum design speed not exceeding 6 km/h;
  - exclusively intended for use by the physically handicapped;
  - exclusively intended for pedestrian control;
  - exclusively intended for use in competition under on-road or off-road conditions;
  - exclusively intended for use by the armed forces, law enforcement agencies, civil defence services, fire brigades or public-works bodies;
  - agricultural or forestry vehicles, machines, motor vehicles
  - primarily intended for off-road use and designed to travel on unpaved surfaces;
  - light powered cycles ≤ 250 Watt and ≤ 25 km / h with pedal assistance;
  - self-balancing machines;
  - vehicles not equipped with at least one seating position.
Identified concerns and objectives – L-category vehicles

• Identified concerns in the EU related to L-category vehicles:
  ▪ the complexity of the current legal framework;
  ▪ the level of emissions and its increasing share in total road transport emissions, which are decreasing overall;
  ▪ safety aspects related to type-approval requirements for vehicles;
  ▪ the lack of a legal framework for vehicles fitted with new technologies;
  ▪ the entry of products into the EU market which do not comply with the current type-approval requirements regarding functional vehicle safety and/or environmental protection.

• Main Objective
  ▪ Efficiently and effectively address the above listed issues.
Examples of features addressed by proposed Regulation

- The proposal for the codecision Regulation includes the following features, among many others:
  - Market surveillance;
  - Obligatory fitting of Advanced Brake Systems;
  - Abandon 74 kW power restriction;
  - Anti-tampering measures;
  - Re-categorisation;
  - Access to repair and maintenance information;
  - New emission steps Euro 3, Euro 4, Euro 5 (and Euro 6 for L3e motorcycles only);
  - Evaporative emission requirements
  - Dedicated anti-tampering measures;
  - Mandatory fitting of Automatic Headlamp On feature.
Safety measures

- Safety measures why?

  - Powered Two Wheeler (PTW) riders face a much higher risk of a fatal or serious accident than other drivers. The fatality rate per million kilometres travelled is, on average, **18 times greater** than passenger cars, and, in 2006, PTWs accounted for **2%** of distance travelled, but accounted for **16%** of road deaths in the EU-25 (ETSC, 2007).

  - While other road transport modes have shown significant decreases in fatalities and serious injuries over time, those for PTWs have exhibited much lower decreases or remained static.

  - Compare 1994 and 2009 in the next graph
Safety measures

- Safety measures why?

Evolution of fatalities in EU road accidents

Source: CARE (EU road accidents database)
Safety measures

• Safety measures why?

- In 2009 4970 Powered Two Wheeler (PTW) riders died in road accidents.

- In addition the number of heavily injured riders is estimated to be 5.5 to 13 times higher than the number of fatalities (27,335 – 64,610 riders) in the EU-27.

- The number of slight injuries, which is even more difficult to estimate, might be between 12 to 28 times higher (59,640 – 139,160 riders) in the EU-27.
Safety measures

- Safety: condition of being safe; freedom from danger, risk, or injury.

- Two primary safety fields
  - Accident avoidance
    - Human being
    - Technical features of the vehicle (approval requirements)
    - The environment in which the vehicle is operated
  - Mitigation of injuries
    - Protection just before / during the crash
    - Protection after the accident
Safety measures

• Assessed Advanced Brake Systems (not abbreviated as ABS in this presentation):
  
  ▪ Anti-lock Brake Systems (ABS)
    • preventing wheel lock during emergency braking
  
  ▪ Combined Brake Systems (CBS)
    • both front- and rear-wheel brakes of the PTW responding to a single actuator (brake pedal and/or lever) and
      • automatic distribution of the braking force between the two wheels, thereby reducing the risk of, but not necessarily preventing, wheel lock
  
• Advanced brake systems have been shown via predictive and retrospective accident studies to significantly reduce the risk of fatal and serious injuries, yet are fitted to a relatively small proportion of the EU fleet.
Safety measures - Impact Assessment

• Essential questions after pros and cons of policy options listed when developing measures:
  
  ▪ How to be effective in achieving the objective?
    • effectiveness: doing "right" things, i.e. setting right targets to achieve an overall goal (the effect)

  ▪ How to be efficient in achieving the objective?
    • efficiency: doing things in the most economical way (good input to output ratio, time = money)

  ▪ Coherence of the option with overarching EU objectives, strategies and priorities

  ▪ Consideration of potential (undesirable) side effects.
Safety measures - Impact Assessment

• Advanced Brake Systems - summary impact assessment

  ▪ Qualitative and quantitative analysis policy options regarding obligatory fitting of advanced brake systems

  • **Option 1**: No policy change;

  • **Option 2**: Anti-lock Brake Systems on all Powered Two Wheelers (PTWs);

  • **Option 3**: Anti-lock Brake Systems on PTWs with cylinder capacity >125 cm$^3$ and advanced brake systems (Combined Brake System (CBS) and/or Anti-lock Brake Systems) on motorcycles with 50 cm$^3$ < cylinder capacity ≤125 cm$^3$;

  • **Option 4**: To make mandatory the fitting of Advanced Brake Systems (Combined Brake System (CBS) and/or Anti-lock Braking Systems) on those motorcycles which conform to the performance criteria defined by the A2 driving licence. Obligatory fitting of Anti-lock Brake Systems on all other L3 category motorcycles;

  • **Option 5**: Industry self obligation.
Safety measures - Impact Assessment

- Advanced Brake Systems - summary impact assessment
  - Preferred option: a combination of options 3 and 4,
  - Over a 10 year period the following data were estimated

<table>
<thead>
<tr>
<th></th>
<th>Low</th>
<th>Best estimate</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fatality reduction</strong></td>
<td>2,799</td>
<td><strong>5,332</strong></td>
<td>11,331</td>
</tr>
<tr>
<td><strong>Monetary benefit (million euro)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatality avoidance</td>
<td>€ 2,383</td>
<td>€ 4,539</td>
<td>€ 9,646</td>
</tr>
<tr>
<td>Mitigation heavy injuries</td>
<td>€ 739</td>
<td>€1,407 - €3,268</td>
<td>€ 6,945</td>
</tr>
<tr>
<td>Mitigation slight injuries</td>
<td>€ 95</td>
<td>€182 - €409</td>
<td>€ 868</td>
</tr>
<tr>
<td><strong>Cost (million euro)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>€ 1,602</td>
<td>€ 3,463</td>
<td>€ 2,597</td>
</tr>
<tr>
<td><strong>Estimated benefit to cost ratio</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accident avoidance</td>
<td>1.2</td>
<td>2.4 – 3.2</td>
<td>6.7</td>
</tr>
<tr>
<td>Casualty mitigation</td>
<td>1.1</td>
<td>2.0 – 2.6</td>
<td>5.6</td>
</tr>
</tbody>
</table>
Safety measures – Proposed measures

• Advanced Brake Systems

• Consequence of preferred option: new sub classification L3e two-wheel motorcycles

  ▪ Generic classification criteria L3e motorcycle:

    1. length ≤ 4000 mm and
    2. width : ≤ 2000 mm and
    3. height ≤ 2500 mm and
    4. two wheels and powered by propulsion as listed under Article 4(3) and
    5. maximum mass = technically permissible mass declared by the manufacturer and
    6. two-wheel vehicle that cannot be classified as category L1e two-wheel moped (> 50 cm³ or > 45 km/h or maximum continuous rated or net power > 4000 W) and
Safety measures - Proposed measures

- Advanced Brake Systems - summary impact assessment
  - Consequence of preferred option: new sub classification L3e two-wheel motorcycles, continued;
  - Specific classification criteria L3e motorcycles coherent with driving licence Directive.

<table>
<thead>
<tr>
<th>Sub-categories</th>
<th>Subcategory name</th>
<th>Supplemental sub-classification criteria:</th>
</tr>
</thead>
<tbody>
<tr>
<td>L3e - A1</td>
<td>Low-performance motorcycle</td>
<td>(7) engine capacity ≤ 125 cm³ and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8) maximum continuous rated or net power ≤ 11 kW and</td>
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<td></td>
<td></td>
<td>(9) power / weight ratio ≤ 0.1 kW/kg.</td>
</tr>
<tr>
<td>L3e - A2</td>
<td>Medium-performance motorcycle</td>
<td>(7) maximum continuous rated or net power ≤ 35 kW and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8) power / weight ratio ≤ 0.2 kW/kg and</td>
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<td></td>
<td></td>
<td>(9) not derived from a vehicle equipped with an engine of more than double its power and</td>
</tr>
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<td></td>
<td></td>
<td>(10) L3e vehicle that cannot be classified under supplemental sub-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>classification criteria (6) to (7) of sub-category L3-A1.</td>
</tr>
<tr>
<td>L3e - A3</td>
<td>High-performance motorcycle</td>
<td>(7) any other vehicle of the L3e category that cannot be classified</td>
</tr>
<tr>
<td></td>
<td></td>
<td>according to the classification criteria of subcategories L3e-A1 or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>L3e-A2.</td>
</tr>
</tbody>
</table>
Safety measures - Proposed measures

• Advanced Brake Systems

  ▪ Some uncertainty exists in the percentage of the fleet equipped with Anti-lock Braking Systems or Combined Braking Systems.

  ▪ The number of PTWs with optional uptake of Anti-lock Braking and/or Combined Braking Systems is largely unrecorded.

  ▪ EC measures are designed to increase the fitment of advanced brake systems in order to realise the predicted safety benefits available with these technologies.
Safety measures - Proposed measures

- Advanced Brake Systems – Commission proposed Regulation, Annex VIII, obligatory fitting of advanced brake systems make part of the proposed enhanced functional safety requirements.

  - As 01 January 2017 for all new L3e motorcycles:
    
    a. new motorcycles of the L3e–A1 subcategory which are made available, registered and entering into service are to be equipped with either an Anti-lock or a Combined Brake System or both types of advanced brake systems, at the choice of the vehicle manufacturer;

    b. new motorcycles of subcategories L3e–A2 and L3e–A3 which are sold, registered and entering into service to be equipped with an Anti-lock Brake System.

  - Exemption:
    - Enduro and Trial motorcycles are proposed to be exempted from the obligatory fitting of advanced brake systems.
Safety measures – European Council and Parliament

• Advanced Brake Systems – Commission proposal

  ▪ The proposal (codecision act) for market surveillance and approval of L-category vehicles is currently under scrutiny by the European Council and Parliament

  ▪ Issues under discussion:

    • **Split** as of which classification limits L3e motorcycles shall be equipped with Anti-lock Brake Systems;

      ▪ European Parliament IMCO committee voted positively on all L3e motorcycles to be equipped with Anti-lock Brake Systems;

      ▪ The European Parliament has a separate impact assessment conducted, available before plenary vote (19 April 2012);

      ▪ Council supports Commission proposal;

    • Obligation to equip motorcycles with Anti-lock Brake System active on **both wheels**;

    • **On/Off Switch** Anti-lock Brake System.
Proposed legal structure

- Anticipated structure regulation on market surveillance and approval of L-category vehicles.

- **Co-decision** act (anticipated adoption, 2012)

- **Delegated** acts (anticipated adoption 2012, pending EP plenary vote)
  - Regulation on environmental and propulsion performance requirements (REPPR);
  - Regulation on vehicle **functional safety requirements** (RVFSR);
  - Regulation on vehicle construction requirements (RVCR).

- **Implementing** act (anticipated adoption 2012, pending EP plenary vote)
  - Regulation on administrative requirements (RAR)

- This whole legal package listed above is proposed to become first applicable as of **01 January 2014**.
Next steps

• Completion of 4 policy studies as input to drafting of delegated acts:
  ▪ Durability requirements (near completion);
  ▪ Powertrain tampering prevention measures (near completion);
  ▪ International (UNECE) environmental requirements (start);
  ▪ Conformity of Production requirements (start).

• Stakeholders are kindly invited to provide input through: Matthew.Smith@Ecorys.com

• Bilateral meetings with stakeholders;

• Drafting and vote of 3 delegated act;

• Drafting of the implementing act.

• Next Motor Cycle Working Group meeting: 17 April 2012.
More information?

THANK YOU FOR YOUR ATTENTION!

Contact: Secretariat DG ENTR, automotive unit D.5
T: +32 (2) 29 91976 or (2) 29 53298
E-mail: entr-automotive-industry@ec.europa.eu