Safety Learning System based on Analysis of Recent Accidents

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The Norwegian Safety Investigation Authority (NSIA) investigate accidents in a safety perspective.
HEAD-ON COLLISION BETWEEN TWO BUSES, 17th NOVEMBER 2017

- Head on collision in on a slippery road.
- One bus driver was killed instantly, and the other was critically injured

Source: NSIA 2019/04
HEAD-ON COLLISION BETWEEN TWO BUSES, 17th NOVEMBER 2017

Collision speed:

~34 km/h

~33 km/h

Source: NSIA 2019/04
### Table: Requirement areas for bus safety regulations

<table>
<thead>
<tr>
<th>Requirement area</th>
<th>Basis/legal act</th>
<th>Latest directive, regulation, rules</th>
<th>Entry into force in Norway</th>
<th>Applies to vehicle groups</th>
</tr>
</thead>
<tbody>
<tr>
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<td>M₁ M₂ M₃ N₁ N₂ N₃ O₁ O₂ O₃</td>
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<tr>
<td></td>
<td>UNECE 107</td>
<td>UNECE 107.05</td>
<td>16/11/2016</td>
<td>X X</td>
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<tr>
<td>52B: Strength of body</td>
<td>EC 661/2009</td>
<td>EU 523/2012</td>
<td>11/12/2012</td>
<td>X X</td>
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<tr>
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<td>UNECE 66</td>
<td>UNECE 66.02</td>
<td>19/08/2010</td>
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<td>UNECE 94</td>
<td>UNECE 94.02</td>
<td>23/06/2011</td>
<td>X</td>
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<tr>
<td>54: Collision from side</td>
<td>96/27/EC</td>
<td></td>
<td>25/11/1997</td>
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<td></td>
<td>UNECE 95</td>
<td>UNECE 95.03</td>
<td>16/11/2016</td>
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<tr>
<td>57A: Front underrun protective devices</td>
<td>EC 661/2009</td>
<td>EU 523/2012</td>
<td>11/12/2012</td>
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<td>UNECE 93</td>
<td>UNECE 93.00</td>
<td>27/02/1994</td>
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<tr>
<td>71: Strength of driver’s cab</td>
<td>EC 661/2009</td>
<td>EU 2015/166</td>
<td>15/06/2015</td>
<td>X X X</td>
</tr>
</tbody>
</table>

*Source: NSIA 2019/04*
HEAD-ON COLLISION BETWEEN TWO BUSES, 17th NOVEMBER 2017

[Diagram of buses with markings for requirements and voluntarily preferred features]

Source: NSIA 2019/04
1.5 years after the accident, 6 safety recommendations were issued.

We focus on two recommendations:

- Introduce crash protection requirements for drivers as a criterion in connection with tenders for new public transport services.

- Consider using national regulations as the basis for improving the crashworthiness of buses used in transport for which a permit is required in Norway.
FOLLOW UP PROCESS OF SAFETY INVESTIGATIONS

2021

Akershus county authority and Ruter started making crash protection criteria in tenders for new public transport services:

NEW Tender Requirements for buses 2021

....constructions that meet requirements in accordance with UNECE-R93, roundabout UNECE-R66 and the like.

Electronic stability control ESP or similar

5.16 Passive safety system
All buses must be equipped with collision protection for the driver in accordance with requirements of UNECE-R29.

The operator must document that any similar collision protection is equivalent to UNECE-R29.

2023

Norwegian public road authority suggested that new regulations (R29) was implemented by the road authorities 01.10.2023:

Public consultation held: 3-25th May 2023

Status: Implemented
FOLLOW UP-PROCESS
THE NORWEGIAN ROAD SUPERVISORY AUTHORITY

Improved Safety

Follow up and implemented measures

Accident

Safety investigation and Recommendations

Road Supervisory Authority Norway
FOLLOW UP-PROCESS
THE NORWEGIAN ROAD SUPERVISORY AUTHORITY

Improve Safety

Follow up and implemented measures

Safety investigation and Recommendations

Accident
SIMILAR SAFETY INVESTIGATIONS ON BUS ACCIDENTS IN LOW SPEED

Report on head-on collision at Tangen 11 March 2021

- Collision speeds: 55 km/h and 36 km/h
- One bus driver was killed instantly.

Investigation of a head-on collision in Fredrikstad 28 December 2022

ONGOING INVESTIGATION
- Low collision speeds
- One bus driver was killed instantly, and the other was critically injured.
Safety investigations of road traffic accidents discovers safety issues in Norway

Is it possible learn more and faster from in-depth investigations internationally?