

## Good practices for protection measures in vehicle handling and transportation

### 1) Background

#### **Introduction**

This document originates from the discussions of the Quality Working Group meeting held in June 2025, where the idea was raised to develop good practices to reduce damages when handling vehicles. Its purpose is to identify and share good practices for vehicle protection, as well as to encourage constructive dialogue and continuous enhancement of existing practices.

The scope of this document is limited to passenger cars (PCs) – other vehicle types are not covered.

#### **Areas of focus**

The group identified five key areas that are particularly exposed to transport-related damages:

1. Driver's door and side panels – among the most exposed areas
2. Front and rear bumpers – among the most exposed areas
3. Rims and tyres
4. Driver's door sill
5. Bonnet and roof

#### **Scope and content**

The document showcases various technical solutions applied directly to vehicles, as well as protective measures aimed at shielding vehicles from external impacts during transport.

This document outlines good practices for protection equipment applied by OEMs at the end of the production line. It refers to protective materials applied to sensitive vehicle areas, such as bumpers or door edges (e.g. wrap guards or foam protection). While this topic falls outside the scope of the present guide, it is recommended that all adhesive materials be tested prior to application to ensure they can be removed easily and without leaving any residue on the vehicle surface.

It should be noted that one protection method – Full Body Cover (FBC) – is not explicitly covered in this document, although it is a recognised solution for protecting the entire exterior of a vehicle. ECG has already published dedicated manual<sup>1</sup> focusing specifically on the use of FBCs within the vehicle supply chain, which may be consulted separately.

In addition, this document recognises the important role of Logistics Service Providers (LSPs), who have implemented effective operational measures to reduce damage risks. The working group has reviewed these practices and included further recommendations where relevant.

#### **Cost–Benefit considerations**

A cost-benefit analysis is not performed here – it should be conducted by each OEM before introducing new equipment or operational practices.

Such an analysis should take into account that the investment into a new protection equipment comes with a cost and the application of some methods have an impact on manpower and therefore on productivity. On the other hand, the application of protection equipment and processes lead to less damages and thus shorter lead times, as well better customer satisfaction.

Overall, this document aims to support informed decision-making and promote continuous improvement in vehicle protection practices across the supply chain.

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<sup>1</sup> <https://www.ecgassociation.eu/publications-and-reports/full-body-covers-in-the-supply-chain/>

## 2) Vehicle parts most exposed to damages in handling

### a) Driver's door and side panels

- Problematic area for the complete logistics chain (rail, road, maritime transport and terminal handling).
- Driver's door is the vehicle area which is one of the most exposed to damages (door edge paint chips during transport).
- Good solutions to protect:

#### OEM-side:

- Install a wide enough foam protection on the door edge – covering also the front area of the rear door for a better protection. *(See picture 2 below.)*
- It should be long enough to cover the full length of the door. If the door has a curve, it might make it impossible to use one piece of foam protection and thus two pieces could be applied.
- The smaller foam pad may not cover all areas of risk.



(Source: UCM Global)

#### Operational consideration (temporary protection):

- Portable magnetic door edge protection pad
  - magnet woven into the cloth so no metal-to-metal contact
  - it can be used on terminals, trucks and train or in any situation where the space is limited



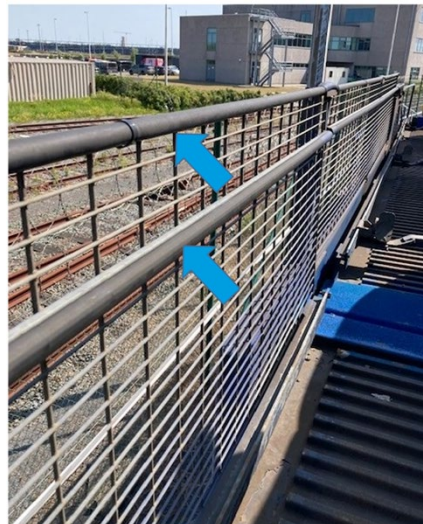
(Source: UCM Global)



(Source: BLG Autorail)

- Process to protect the vehicles on rail wagons:
  - additional person opens the door for the driver and places a foam pad against the rail guard to protect the door (*See on the left*)

- Open rail wagons have applied foam protection in many cases but these have to be maintained regularly (*See on the right*)



(Source: ICO Terminals)

b) Front and rear bumpers

- Problematic area for the complete logistics chain (rail, road, maritime transport and terminal handling).
- Front and rear bumpers are vehicle areas which are one of the most exposed to damages. These can happen on the front side or on the underside of the bumper (especially on ramps).
- Good solution to protect:

OEM-side:

- Film/wrap guard applied on the bumper protects from scuffs



(Source: UCM Global)

- Under-bumper foam can also be applied

Operational consideration (temporary protection):

- Good operational practices: slow speed when going up ramps; ramps are set at good angle; holes closed on the truck deck, etc.

### c) Rims & tyres

- Problematic area for the complete logistics chain (rail, road, maritime transport and terminal handling).
- Good solution: plastic cover applied on the wheel rim
- Possible issues in maritime transport:
  - Tyre protection limits the ability to lash through the wheels on board vessels
  - Taking off the plastic cover can also lead to damages
- If the plastic cover is damaged it should be mentioned in the damage report for a better liability establishment.
- Some OEMs ask for the damaged protection to be removed to check for damages to the wheel rim.

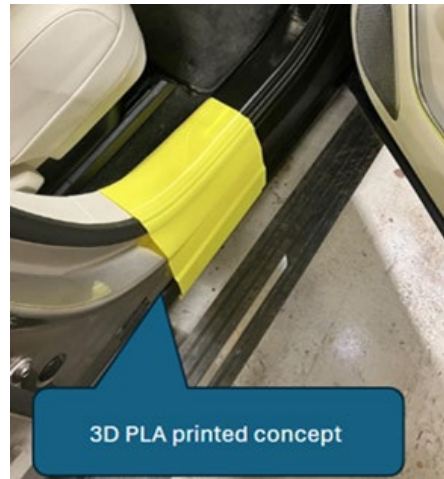


(Source: Mosolf)

d) Driver's door sill



- Problematic area for the complete logistics chain (rail, road, maritime transport and terminal handling).
- 3 sensitive areas to protect:
  - Door's lower part
  - Door sill
  - B-pillar – it can be scuffed as the driver or the stevedore gets in the vehicle
- Good solution: complete coverage of the door sill and the lower part of the driver's door
- The shorter covers may not protect all areas of risk
- If the protection is damaged, it has to be noted on the damage report.
- Some OEMs ask for the protection to be removed if it is loose or damaged.



Source: JLR  
 Prototype material – it would cover the whole sill

e) Bonnet and roof

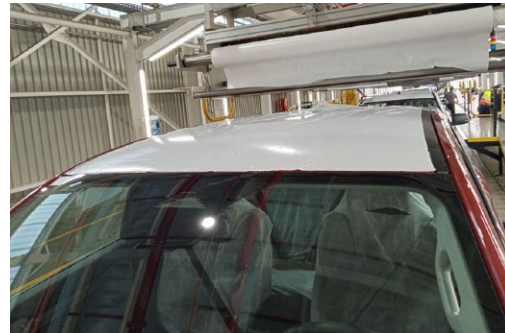
- Transport mode:
  - Problematic area for maritime terminals, due to potential environmental (e.g. dirt, bird lime, hail) or industrial fallout
  - Open road transporter units (e.g. hail damage, scratches etc.)
  - Open rail wagons (e.g. hail damage, rail dust)
- Good solution to protect:

OEM-side

- Wrap-guard applied on high-risk areas
  - Some OEMs ask for the protection to be removed if it is loose or damaged.



(Source: JLR)



(Source: UCM Global)

- Chemical protection – it was a practice for long in the industry but it had to be discontinued due to the fact that the chemical agent (copolymer or wax) was not complying with the ISO standards for biodegradation. Some tests are now ongoing to develop a new type of chemical with similar properties.

LSP-side

- Covered storage could be used to limit the risk of industrial and environmental fallout.

f) Other sensitive areas

Vehicle interior:

- Floor carpet protection



(Source: UCM Global)

Key fobs & cards:

- Key fobs can be stolen or damaged, therefore they have to be protected but they still need to be usable during transport



(Source: Mosolf)

Other loose items:

- Best practice is to group them in a sealed transparent plastic bag

### 3) Final remarks

This document provides guidance on good practices within the FVL industry for both OEMs and LSPs, with the aim of reducing the risk of damage.

The recommendations outlined here are not exhaustive and may be further developed as new insights emerge. Stakeholders are encouraged to contact ECG with any suggestions to support the continuous improvement of this document.

ECG gratefully acknowledges the valuable contributions of industry experts and members of the Quality Working Group, whose input has been instrumental in the development of this document.