# Making the industry safer -Reducing accidents in FVL

## 2024 incidents & analysis

**APRIL 2025** 



**ECCG** The Association of European Vehicle Logistics

## About ECG

ECG, the Association of European Vehicle Logistics, has been the voice of the Finished Vehicle Logistics industry in Europe since 1997. ECG represents the interests of more than 200 member companies and partners, from family-owned SMEs to multi-nationals, and is the major champion of the European vehicle logistics sector.

ECG represents all transport models at EU level- road, rail, maritime and fluvial. ECG members provide transport, distribution, storage, preparation, and post-production

services to manufacturers, importers, car rental companies, and vehicle leasing operators in the 27 Member States of the European Union as well as Norway, Switzerland, Turkey, the United Kingdom, and beyond. They own or operate more than 470 car-carrying ships, 14,000 purpose-built railway wagons, 23 river barges, and 26,000 road transporters. As a major employer, the finished vehicle logistics sector plays an important role in contributing to the economic success of the European Union. Today, ECG members have an aggregate turnover of €21.3bn and their economic impact on companies associated with the sector is estimated at €56bn. More than 210,000 Europeans are employed directly by our members.

## About the Health & Safety Working Group

The ECG Health & Safety Working Group (H&S WG) was established in 2018 with the aim of improving driver safety in Finished Vehicle Logistics (FVL) and road transport. Initially, the group focused on addressing the risk of falls from height and issued key recommendations for their prevention. The Working Group is structured into five sub-groups, with Sub-Group 1 (SG1) and 4 (SG4) currently active.

SG1 is dedicated to collecting and analysing data on **severe accidents** and **near misses** that occur during the loading and unloading operations on trucks. Its main objective is to identify emerging trends and guide the efforts of other sub-groups.

SG2 is tasked with developing and enhancing loading and unloading standards for car transporters. This sub-group produced the <u>ECG Guidelines – Safe Loading Process</u>, which are available in 14 European languages and use visuals and brief instructions to ensure that drivers follow safe loading and unloading practices.

SG3 focused on creating standards for safe environments within hubs and compounds, resulting in the publication of the <u>ECG Guidelines – Safe Yard Design</u>.

SG5 conducts risk assessments and evaluates the safety features of car transporters, with the goal of improving the equipment used in FVL.

The latest initiative, led by SG4, focuses on addressing safety challenges faced by drivers during deliveries or collections at dealerships and other remote locations. This work of the sub group was prompted by a growing number of incidents, particularly where drivers are required to unload vehicles on public roads amidst active traffic. In response, SG4 established a structured retailer escalation process to support operators in managing safety issues at retailer sites.



## **Executive summary**

The <u>fifth edition</u> of "*Making the Industry Safer: Reducing Accidents in FVL*" presents a detailed analysis of **severe incidents** and **near misses** submitted through the incident reporting website, developed by the Health & Safety Working Group (H&S WG) in 2018. This platform is designed to gather information on incidents during loading/unloading operations on trucks. The aim of the website is to create a database of incidents that can be analysed and used to share insightful information and contribute to drivers' safety.

In 2024, a total of 125 incidents were submitted, with 113 relevant cases included in this analysis. It is important to note that incidents that were uploaded but not included in this report are not related to the loading and unloading operations (i.e. traffic collisions).

The data reveals a slightly different trend compared to previous years: while **Slips & Trips (S&Ts)** continue to be the most commonly reported incident type, **Collisions** have emerged as the second most reported category. **Falls from Height** and **Roll-offs** remain consistently among the most frequently reported loading/unloading incidents, with no significant changes compared to previous years.

The analysis shows that **12% of incidents were classified as Serious but Recoverable**, a noticeable decrease from the 25-30% in 2022-2023 reporting period. The severity of incidents reported reinforces the importance of preventive measures to reduce serious outcomes, while also highlighting a positive trend in near-miss reporting. Fortunately, no unrecoverable or fatal incident has been reported for 2024.

Crucially, the majority of these incidents, especially Roll-offs, could have been **prevented by consistently following the ECG Guidelines – Safe Loading Process**. For LSPs, this reinforces the importance of fully integrating these guidelines into **driver training programmes** and day-to-day operations.

We recognise that many incidents across the industry likely remain unreported, which impacts the accuracy and completeness of the analysis. To gain a comprehensive understanding of the most critical risks and develop effective, targeted recommendations, it is vital that more LSPs actively contribute by reporting incidents. Every submission plays a crucial role in helping the industry learn, evolve, and collectively improve safety standards for all drivers.

Therefore, it is of the greatest importance to submit incidents on our database so the analysis can be as accurate and informative as possible.

Together, we can make the industry safer.



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## List of Abbreviations

3PC	3 Points of Contact
EPB	Electronic Parking Brake
FVL	Finished Vehicle Logistics
H&S WG	Health & Safety Working Group
LSP	Logistic Service Provider
OEM	Original Equipment Manufacturer
S&Ts	Slips and Trips
SG	Sub-Group

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## **1** Overview

This chapter provides an overview of the incidents reported and analysed for 2024 and a comparison with incidents reported from 2019 – 2023.

113 loading/unloading incidents have been analysed for 2024 as shown, in Fig.1 below.



## Fig.1 Breakdown of incidents 2024

#### Slips & Trips remain the most frequently reported incidents during loading/unloading

As in the reports for the period 2019 – 2023, Slips & Trips (S&Ts) are the most common type of incident reported for 2024 occurring during loading/unloading operations. Out of 45 incidents reported, 16% were Serious but Recoverable injuries (such as fractures) whilst 84% were Less than Serious.

#### Other loading/unloading incidents

In addition to S&Ts, the following categories are included under loading/unloading incidents:

- 12 Roll-offs were reported where only one incident had Serious but Recoverable injuries, while rest of them resulted in Near Misses.
- **Fall from height** proportionally led to more severe incidents in 2024. 6 incidents were reported, from which 64% led to a Serious but Recoverable injuries.
- 5 **Drive-offs** were reported for 2025: 2 resulted in Serious but Recoverable injuries while 3 were Near Miss.
- The category of **Impact/Contact** refers to incidents where drivers hit a body part against a fixed structure of the truck/trailer. In 2024 5 incidents were reported which resulted in Less than Serious injuries.

- 4 incidents were reported under the category **Material/Machine failure** resulting in Less than Serious injuries and Near misses.
  - $\circ~$  1 incident was related to failure of safety rails when driver leaned on them during unloading
  - 1 incident occurred due to a technical fault in the trailer, where a burst hydraulic hose caused oil to splash onto the driver.
  - In a separate case, the hydraulic lifting system malfunctioned, leading to the upper deck to collapse.
- 5 incidents were reported under the category 'Entrapment between mobile parts of the truck'. 1 incident was reported as Serious but Recoverable, 1 as Near Miss and 3 as Less than Serious injuries.
- Strains & Sprains are ergonomic injuries that occurred from material (e.g. chocks/lashes) /machine (e.g. pulling out the ramp) handling. Typically, when drivers are performing certain operations, especially pulling out ramps, they often experience back pain. In 2024, 4 incidents reported resulted in Less than Serious injuries and 1 was Near Miss.

#### **Other incidents**

Besides the loading/unloading category, in this report the following incidents are analysed:

- 22 incidents were reported under the category 'Collision'. Collisions usually happened during the manoeuvring car in the yard during loading/unloading. 15 collisions occurred were car-car, 4 car-man, 3 were car-object. Notably 78% of collisions reported were Near misses, while 15% were Less than Serious and 1 incident resulted in Serious but Recoverable injuries.
- For 2024 3 **Transport incidents** were reported and 1 incident occurred during **Delivery at retailers**. Although this report is not focusing on traffic collisions, 3 incidents that were included in this report are analysed as the traffic accident happened as a result of a mistake during loading/unloading operations. Usually this is linked to the improper deck adjustment.

#### 1.1 Comparison to 2019-2024 Incidents

Figure 2a presents a comparison of incident ratios and key trends reported from 2019 to 2024. While several categories of common incidents remain consistent with previous years, it's important to highlight that some LSPs have begun submitting incidents that fall outside the predefined categories in our online reporting form. As a result, certain incident types were not captured in earlier analyses, making it difficult to establish broader conclusions across the full reporting period.

## Fig. 2a - Breakdown of loading and unloading incidents (2019 - 2024)

50% 47% 45% 43% 41% 40% 20% 19% 17% 15% 15% 13% <sup>14%</sup> 12% 10<u>%</u> 11% 10% 10% <mark>9%</mark> 8% 8% 8% 7% 7% 7% 6% 6% 6% 5% 4% 5% 5% 5% 4%4% 4% 4% 4% 4%4% 4% 4% 3% 3% **B%** 2% 2% 2% 2%2% 2% 2% 1% 2021 2022 2023 2024 2019 2020 Slips & Trips Material/Machine handeling/failure Impact injury Roll off Fall-From-Height Drive off Collisions Accident during transport Accident during delivery at retailers Entrapment between mobile parts of truck Strains & Sprains

- Slips & Trips remain the most frequently reported type of loading and unloading incident, although their proportion has gradually decreased—from 50% in 2019 to 41% in 2024. This trend, along with the diversification of incident types over time, suggests improved reporting precision and broader incident recognition.
- Roll offs have shown a moderate decline in 2024, registering at 11%, down from the 15–20% range observed between 2019 and 2022. However, this marks a slight increase compared to 2023 where 7% of incidents reported where under this category.
- Fall from Height incidents dropped to 5% in 2024, showing a notable decrease compared to higher levels seen in 2019, 2020, and 2023 (10–13%). The current rate aligns more closely with those observed in 2021 and 2022.
- Collisions have increased noticeably in 2024, making up 17% of reported incidents nearly double the 2019–2023 average of around 10%.
- Drive offs remain consistently low, accounting for about 5% of incidents throughout the observed period.
- Material/Machine Handling/Failures and Strains & Sprains, which were not captured in earlier years, have both emerged more recently and each represent 5% of reported incidents in 2024.

It's also noteworthy to compare severity of accidents reported for the period 2019-2024 as shown in Fig. 2b below.



## Fig. 2b - Severity breakdown (2019-2024)

Figure 2b illustrates that most reported incidents continue to result in some form of injury, despite a notable increase in the reporting of incidents that were Near Misses in 2024, which accounted for 35% of all cases.

**Less than Serious** incidents are making up around **50–55%** of all cases from 2019 to 2024. However, trends in more severe categories highlight some key shifts:

Serious but Recoverable incidents have varied year to year, peaking at 30% in 2022, and declining slightly to 12% in 2024, after a spike at 25% in 2023.

## 2 Breakdown of high-risk incidents

The following section provides an in-depth breakdown of the different types of high-risk incidents reported in 2024. For the purposes of the report, *high-risk incidents* are defined as *those which occur very frequently and/or can cause potentially serious injuries when they do occur.* 

#### 2.1 Slips & Trips (S&Ts)

## Slips & Trips cover a broad range of incidents linked to walking on the truck/trailer or yard, standing-on and accessing decks.

#### Key highlights

- 45 Slips & Trips reported in 2024: 13 incidents led to Serious but Recoverable injuries, 36 incidents resulted in Less than Serious injuries and 1 Near miss
- 13 incidents are linked to poor deck preparation and walking on decks (i.e. stepping on open drop-holes)
- 11 incidents reported are caused by poor environmental conditions (i.e. rain, snow)
- 6 incidents are caused by uneven surfaces in yards (i.e. driver stepped on potholes)
- 2 incidents due to drivers jumping off decks/ladders – non-compliant with the ECG Guidelines - Safe Loading Process

S&Ts constitute the majority of the incidents reported for 2024. This type of incident can happen both during loading/unloading when drivers are walking on the truck/trailer or when walking in the yard or at retailers. Environmental conditions (i.e. slippery surfaces due to snow/ice) are also a contributing factor to some incidents. All incidents reported for 2024 resulted in some form of injury.

As noted in the previous reports, most of the incidents that occurred can be linked to the lack of compliance with <u>ECG</u> <u>Guidelines - Safe Loading</u>

<u>Process</u>. The Guideline provides key indications on how to minimize the risk of such incidents especially during deck preparation, walking, standing and accessing decks.



Fig. 3 – Areas where S&Ts occurred in 2024

#### 2.1.1 What causes S&Ts?

Fig. 4 provides an overview on the actions performed by the drivers when S&Ts occurred:



31% of S&Ts occurred when drivers were walking. Drivers tripping in holes and/or walking over gaps on trailer decks are common, however most incidents in this category occur due to uneven and/or slippery surfaces in the yard.

Other factors leading to S&Ts are:

- Exiting/Entering car without 3PC led to 16% of S&Ts in 2024.
- Unsafe lashing/chocking caused 16% of S&Ts in 2024.
- Climbing on/off trailer/truck unsafely (including jumping) led to 11% of S&Ts in 2024.

#### 2.1.2 Why are S&Ts caused?

As discussed in previous reports, the following reasons lead to S&Ts:

- Some incidents reported in 2024 can be attributed to the drivers' **lack of awareness** about the truck/trailer design. This type of incident typically includes situations where a driver walks and trips over holes or gaps on a truck/trailer.
- Environmental factors led to a number of S&Ts in 2024. This refers to incidents that happened due to inadequate environmental conditions (i.e. slippery surfaces due to snow/ice/rain).
- Lack of drivers concentration/distraction is the third contributory factor. This can be applied to both loading/unloading operations and when walking in the yards. It is important that companies at all times raise awareness about risks leading to S&Ts.

#### 2.2 Roll-offs

A roll-off incident is one where a car without a driver rolls off an inclined plane e.g. from an angled truck deck, or from parking on a slope, due to improper parking or securing (chocking/lashing).

#### Key highlights

- 12 Roll-offs reported in 2024: 1 incident led to Less than Serious injuries and 11 were Near misses
- 10 incidents reported showed noncompliance with loading safety fundamentals recommended in the ECG Guidelines – Safe Loading Process.

92% of Roll-offs reported in 2023 resulted in no injuries. However, these types of incidents have a high potential to result in some form of injury as when a vehicle rolls off it moves through an area where other drivers/yard operators may be working and where other vehicles are parked causing either a car-man or car-car collision. In the 2024 report, 1 incident resulted in car-truck collision, 2 in car-car collision and 9 incidents didn't have any collision.

#### 2.2.1 Factors leading to Roll-offs

As highlighted in previous reports, ensuring that vehicles are properly secured during loading, unloading, and deck adjustment operations is essential to prevent roll-offs.

According to the ECG Guidelines – Safe Loading Process, the key Loading Safety Fundamentals include:

- Applying 4-step parking process and verifying that the vehicle is securely parked (refer to Figure 5).
- Chocking the vehicle immediately after exiting to prevent unintended movement.
- Securing the vehicle with lashings before releasing the brake or gear.



Fig.5 – 4-Step Parking Process

Roll-offs typically occur due to errors at three key stages, as highlighted in previous reports:

- In 3 cases, drivers failed to properly secure the vehicle, indicating that the 4-Step Parking Process was not followed. Additionally, they neglected to apply chocks and secure the vehicle with lashings.
- In 4 cases, drivers forgot to chock and lash a fixed axle before releasing the vehicle.
- In 1 case, the vehicle was not adequately secured, resulting in a roll-off during transport.

In the 2024 report, 6 incidents were noted during unloading, 5 during loading and 1 during transport.

As outlined in previous reports, one contributing factor to roll-offs is the vehicle's position on the truck or trailer, especially on the upper deck. In 2024, 6 incidents originated from the upper deck, 5 from the lower deck and 1 from the loading ramp.

Another potential cause identified in earlier reports is the complexity of the Electronic Parking Brake (EPB) system. However, the 2024 incident data lacks sufficient detail to confirm this as a contributing factor.



Fig. 6 – Areas where roll-offs occurred in 2024

#### 2.3 Falls from height

Falls from height commonly occur during loading and unloading operations on the upper deck of trucks or trailers. Since drivers perform these tasks without external fall protection, the risk of such incidents is significantly elevated. These falls often lead to severe outcomes, including Fatal, Unrecoverable, or Serious but Recoverable injuries. Fortunately, none of the incidents reported in 2024 led to Fatal or Unrecoverable injuries.

#### Key highlights

- > 6 Falls from height reported were Less than Serious
- 4 incidents happened due to structural failure (i.e. safety rails).
- 1 case happened from the ladder, 1 from the loading ramp and 4 on the trailer upper deck.



Fig. 7 – Areas where falls from height occurred in 2024

#### 2.3.1 What causes falls from height?

In the 2024 report, **70% of the Fall from Height incidents are caused by safety rails failure**. Drivers often rely on these rails for balance and support while entering or exiting vehicles or while moving along the upper deck. Although rail failures sometimes end only in Near Misses, this year's data show they can also escalate into serious falls from height. As stipulated in the 2023 report it is important to:

- Inspect and service rails routinely. Corrosion weakens them over time, reducing their load-bearing capacity.
- Emphasize proper use in driver training. Rails are not engineered to hold a person's full weight; yet drivers often pull on them when standing up after lashing or chocking.
- Follow the ECG Guidelines Safe Loading Process. Before loading or unloading, drivers must visually confirm that all rails are in place and free of damage.

#### 2.4 Drive-offs

# Drive-off incidents are those where a driver loading a car drives-off from the truck. This can be caused by either improper control of the acceleration/braking of the car, or by mis-steering the car off the deck.

The 2024 incident data reported on the website do not offer enough details to draw conclusion

#### Key highlights

- 5 Drive-offs reported in 2024: 2 incidents led to Serious but Recoverable injuries and 3 Near misses
- All drive-offs occurred from the upper deck

on the exact cause of drive offs. In 2 cases, the reports attribute the drive-off to driver error—specifically, confusing the brake pedal with the accelerator.

1 case occurred due to the unproper chocking/lashing of the vehicle: during the **transportation** the driver had to brake to avoid collision with another vehicle. The vehicle that was placed in the first position drove off and fell to the ground.

Information on the handbrake was not provided for these types of incidents. Therefore, no firm conclusion can be drawn as to whether the type of handbrake influenced drive-offs.

#### 2.5 Collisions

Collision incidents involve one or more moving vehicles colliding with other vehicles, individuals or fixed objects. Depending on the vehicle and speed involved, the consequences of collisions can vary from near misses to much more serious incidents.

#### Key highlights

22 incidents reported for 2024 from which 1 resulted in Recoverable but Serious injuries, 4 in Less than Serous injuries and 17 were Near misses. Compared to the 2021/22 report where collision incidents resulted either in Near Misses or Less than Serious injuries, in the 2023 report there are 4 incidents resulting in Recoverable but Serious injuries causing car-man collisions.

In 2024 4 reported incidents were car-man, 14 car-car, 3 car-object. From the incidents observed, in most cases '**not paying attention**' was listed as a factor leading to collisions.

Typically, these incidents involve movement in the yard (when driving or walking) without checking if there is any vehicle moving around.

As stipulated in the <u>ECG Guidelines – Safe Yard Design</u>, it is important that all loading areas are adequately spaced and correctly marked in order to minimize risk of collisions.

#### 2.6 Transport incidents

Under the section '*Other incidents*' next to the collisions and fire incident, incidents that occur during transportation are included. For the purpose of this report not all transport incidents are analysed (i.e. traffic collisions). The focus of this report are incidents related to or occurring during loading/unloading operations in yards. It is important to make sure that vehicles are safely loaded at all times to prevent any type of transport accidents.

#### Key highlights

> 3 incidents during transport reported resulted in Near miss

In 2 cases, transport incident occurred due to incorrect deck adjustment: the driver forgot to adjust the upper platform after loading. During transport, when passing under a tunnel, one of the vehicles on the upper platform hit the roof. In the <u>ECG Guidelines – Safe Loading</u> <u>Process</u> it is highlighted that the final step before leaving the site is to adjust decks properly to prevent incidents. 1 incidents happened due to improper lashing. When driver was in a traffic and suddenly had to break, the car drive off from the first position.

## **3** Summary points for the industry

In this section we provide a set of recommendations for different stakeholders in FVL industry, as well some brief concluding remarks.

#### 3.1 Key recommendations

#### 3.1.1 Method/man

Following the reports for the 2019-2024 period, this analysis again shows that some incidents occurred, such as S&Ts, Roll-offs and Falls from Height, because the **ECG Guidelines – Safe Loading Process** were not followed. It is essential that all LSPs adopt the guidelines to train and audit their drivers if we are to reduce the number of the incidents. Additionally, it is important that LSPs raise awareness with drivers on the causes of incidents and share these main causes with drivers during training.

The following fundamentals are highlighted in the Guidelines which help in preventing incidents:

#### Slips & Trips

- > Use 3PC when moving on upper deck
- > Preparing decks correctly to avoid walking near holes, chocks or lashes
- Identify designated safe areas on the truck when walking
- > No running/jumping or walking backwards

#### **Roll-off**

- Always follow 4-step parking process (see Fig. 5)
- Always lash a fixed axle before deck manipulation

Train drivers on specific vehicles brands/models

#### Fall from Height

- > Visually confirm that safety rails are present and damage-free
- Lower deck as much as possible when loading top decks; Work from the ground up
- Be aware of the environment in order to avoid missteps and stumbling

#### 3.1.2 Machine

In order to minimize incidents such as S&Ts, Roll-offs and Fall from Height, LSPs and OEMs should work together with trailer manufacturers towards finding breakthrough solutions for safer design of car transporters. Several incidents reported (S&Ts, Fall from Height) are directly linked to the failure of safety poles. Therefore, it is important that LSPs perform regular checks and maintenance of the safety poles (i.e. perform visual inspection and stress tests) in order to avoid any incident.

During the training process, each driver should be acquainted with the trailer structures and its specificities. The same should be done with experienced drivers during refresher training sessions.

#### 3.1.3 Environment

A significant number of incidents reported were collisions that happened during loading/unloading operations in a yard.

<u>ECG Guidelines – Safe Yard Design</u> gives key recommendations on how to ensure loading areas can be laid out in order to minimize the risk of yard incidents:

- Loading areas should be adequately spaced and correctly marked.
- Loading areas should be regularly cleaned to avoid S&Ts in the yard.

Additionally, it was noted that certain incidents during delivery at retailers happened due to the inadequate conditions for unloading. It is important that the industry works towards common minimum standards for safe delivery in order to minimize/limit the risk of incidents for drivers.

#### 3.2 Concluding remarks

The analysis of 2024 incidents shows similar trends to those found in the 2019-2023 period. Therefore, it is important to highlight the complexity of loading and unloading operations and potential safety risks to truck drivers. By combining knowledge from different LSPs, OEMs and trailer manufacturers we can make the sector safer by identifying common factors which lead to accidents.

In order to gain an in-depth picture and minimize incidents happening in the FVL industry, it is of the utmost importance that companies continue to report on incidents – both **severe** 

**accidents** and **near misses**. Only by sharing we can improve current standards and provide breakthrough solutions for safer and more efficient operations.

Some incidents in this analysis highlighted non-compliance with the *ECG Guidelines – Safe Loading Process*. We therefore urge all operators to **fully adopt** the Guidelines and use them as a key point during training, auditing and supervision of drivers.