Rail Accident and Incident Investigation Unit

# Summary
# Safety Investigation Report
## Runaway of a passenger train
## Mechelen - 24/05/2024

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July 2025

**REPORT VERSION TABLE**

| Version number | Subject of revision | Date |
|---|---|---|
| 1.0 | First version | 28/07/2025 |

*Any use of this report with a different aim than of accident prevention - for example in order to attribute liability - individual or collective blame in particular - would be a complete distortion of the aims of this report, the methods used to assemble it, the selection of facts collected, the nature of questions posed and the ideas organising it, to which the notion of liability is unknown. The conclusions which could be deduced from this would therefore be abusive in the literal sense of the term.*
*In case of contradiction between certain words and terms, it is necessary to refer to the Dutch version.*

# SUMMARY

At 09:09 a.m., passenger train E3458 arrives at Mechelen station on platform 5 with a five-minute delay. There are a train attendant and two train drivers on board: one train driver drives the E3458 and a second train driver rides along as a passenger. Passenger train E3458 consists of two railcars: AM931 (head) and AM902.

Due to catenary problems at Brussels-Schuman, realtime changes are made. As a result, there is a change to the train service between Mechelen and Brussels-Luxemburg, and train E3458 has to uncouple into E3480 (railcar 902) and E3481 (railcar 931). The departure of E3480 at Mechelen station is scheduled at 09:12 a.m.. The changed schedule states that the train driver of E3481, which departs an hour later, will perform the uncoupling. During the uncoupling manoeuvre, the other train driver is on the platform in Mechelen. The train attendant is on board AM931.

The train driver, who is in the driver's cab of AM931, performs a first uncoupling attempt. This first attempt fails after which he makes a second attempt. The second uncoupling attempt is successful (the two railcars are separated), but during this uncoupling manoeuvre, railcar 902 runs away at around 09:13 a.m. with about 30 passengers and without railway undertaking staff on board heading for Muizen. The train driver on the platform sounds an alarm with his service mobile phone and Central Dispatch is informed.

The runaway railcar runs through a switch on track B of line 53 and comes to a standstill after a train passenger actuates the emergency signal.


Less than one kilometre away, freight train E48514 is on the same track. The train driver receives an emergency call from Central Dispatch via the GSM-R to perform an emergency braking and immediately leave the driver's cab.

After the initial findings on site and an exchange meeting with the parties involved, the RAIIU decided to open a safety investigation into this incident.

The direct cause of the runaway is that the railcar is not braked on the slope during uncoupling.

A contributing factor is that the actions carried out deviate from the prescribed procedures.

Due to catenary problems at Brussels-Schuman, train traffic is disrupted and changes to the train service are implemented. Such unexpected changes can create time pressure for train drivers.

Due to a cabling fault, the coupling lamp does not light up. The uncoupling lamp functioned correctly, but did not attract the train driver's attention sufficiently.

After a failed uncoupling, the procedure for performing a second uncoupling attempt is not applied.

After the first uncoupling attempt fails, the train driver deactivates the driver's cab. This action is not provided for in the uncoupling procedure in the HLT (train driver's manual). Under normal circumstances, this causes the air pressure in the automatic brake pipe to drop and the carriage to be braked. However, due to a cabling fault in AM902, this does not happen. The pressure in the automatic brake pipe remains at 5 bar and the brakes remain released.

The train driver performing the uncoupling does not put his GSM-R radio into service and therefore cannot transmit a GSM-R alarm at the time of the runaway. Besides, his service mobile phone is not used, leading to delays regarding the initial alarm. The alarm is raised by the second train driver on the platform, using his service mobile phone, after which Central Dispatch transmits an alarm call via the GSM-R.

A contributing factor is that due to cabling faults, the railcar operates abnormally.

Due to a cabling fault, the automatic brake pipe is not emptied when the driver's cab is deactivated, preventing the brakes of the railcar from being activated. This anomaly goes unnoticed.

In addition, the coupling lamp is not working due to a cabling fault, which means there is no visual confirmation that both railcars are still coupled. Furthermore, there is no visual observation of the uncoupling lamp by the train driver regarding the success of the uncoupling. The uncoupling is continued without visual confirmation of the uncoupling lamp being lit.

A systemic factor is that the risks associated with the change to the schedule have not been sufficiently managed as part of the uncoupling procedure.

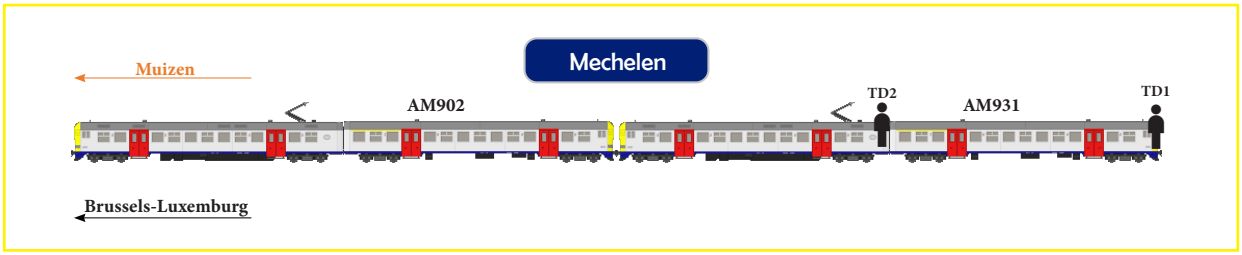
The change to the timetable schedule is not planned in advance and is not evaluated for potential risks. This puts the train drivers in a situation where they have to perform actions that were not procedurally described: the uncoupling is performed by another train driver, from a different driver's cab, and afterwards, the railcar has to depart in a different direction of travel than described in the *train driver's manual* (HLT).

**The RAIIU recommends the DRSI to ensure that the SNCB/NMBS works out all realistically foreseeable scenarios for the safe execution of an uncoupling, including the possibilities in the event of changes to the schedule. For each scenario identified, the SNCB/NMBS evaluates and documents the risks.**

A systemic factor is that the *train driver's manual* (HLT) and the *train attendant's manual* are not aligned, leading to different expectations about the allocation of tasks in joint operations.

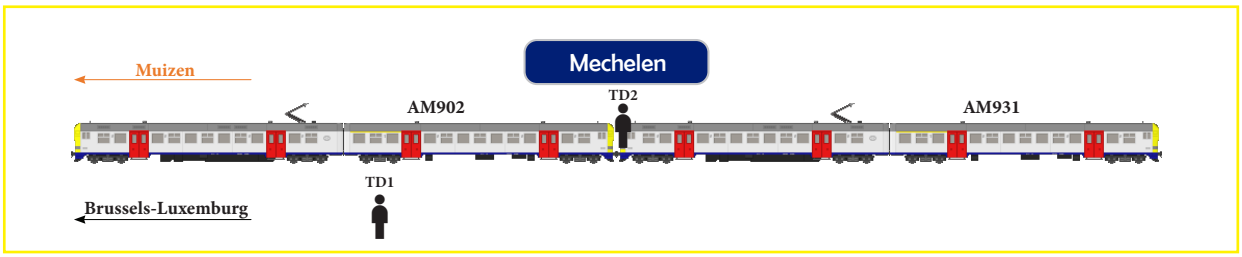
The HLT is incomplete and leaves room for interpretation. The uncoupling procedure applied on the day of the incident is not prescribed in the *train driver's manual* (HLT) because these specific circumstances are not included. The HLT does not provide a situation in the quick uncoupling procedure where the front section does not continue in the initial direction of travel after uncoupling.

The situation prior to the uncoupling on arrival in Mechelen:




*TD1: the train driver arriving in Mechelen with the convoy; after uncoupling, he would leave with AM902.*
*TD2: the train driver performing the uncoupling; he was due to leave an hour later with AM931.*

The situation when performing the uncoupling:




In addition, the *train attendant's manual* does not explicitly mention the same requirements for the role of the train attendant. These non-harmonised guidelines create ambiguity about train crew responsibilities in shared operations.

**The RAIIU recommends the DRSI to ensure that the SNCB/NMBS aligns the content of the *train driver's manual* (HLT) and the *train attendant's manual*.**

A systemic factor is that irregularities in the cabling of the railcar were not identified during maintenance, nor during the post-maintenance check.

The cabling faults of the railcar go unnoticed during the maintenance of the rolling stock prior to the incident.

**The RAIIU recommends the ECM SNCB/NMBS Technics to verify the proper functioning of the components involved in the maintenance during the maintenance of the rolling stock before it is returned into service, to ensure that technical anomalies are identified in time.**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