



MINISTRY FOR
TECHNOLOGY AND INDUSTRIAL
TRANSPORTATION SAFETY BUREAU

FINAL REPORT (EXTRACTION)



2021-0688-5
(HU-10088)

Railway accident / Derailment
Rákospalota-Újpest, 13th July 2021

Translation

This document is the translation of Points 1, 5 and 6 of Hungarian version of the Final Report. Although efforts have been made to translate the mentioned parts of the Final Report as accurately as possible, discrepancies may occur. In this case, the Hungarian Final Report is the authentic, official version.

Basic principles of the safety investigation

The purpose of the safety investigation fulfilled by Transportation Safety Bureau (TSB) as National Investigation Body of Hungary is to reveal the causes and circumstances of serious railway accidents, railway accidents and railway incidents and propose recommendations in order to prevent similar incidents. The safety investigation is not intended to examine and determine fault, blame or liability in any form.

The findings of the safety investigation are based on an assessment of the evidence available and obtained by TSB in the course of the investigation, taking into account the principles of a fair and impartial procedure. In the Final Report, the persons involved in the occurrence shall be referred to by the positions and duties they had at the time of the occurrence.

The Final Report shall not have binding force and no appeal proceedings may be initiated against it.

This safety investigation has been carried out by TSB pursuant to relevant provisions of

- Act CLXXXIV of 2005 on the safety investigation of aviation, railway and marine accidents and incidents;
- Commission Implementing Regulation (EU) 2020/572 of 24 April 2020 on the reporting structure to be followed for railway accident and incident investigation reports;
- in the absence of other related regulation of the Act CLXXXIV of 2005, the TSB conducts the investigation in accordance with Act CL of 2016 on General Public Administration Procedures.

Act CLXXXIV of 2005 is to serve compliance with Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety.

The competence of the TSB is based on Government Regulation № 230/2016. (VII.29.) on the assignment of a transportation safety body and on the dissolution of Transportation Safety Bureau with legal succession.

The safety investigation is independent of other investigations, administrative infringement or criminal proceedings, as well as proceedings initiated by employers in connection with the accident or incident.

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1. SUMMARY

On 13 July 2021, at 11:50 a.m., on track VI of Rákospalota-Újpest station, the loaded freight train № 45296, which was leaving the closed track under signal control, derailed on the diamond crossing with slips № 23, and a carriage fell over on its side.

The leading axle of the 19th car of the train rolled onto the switch tongue at the end “b” of the diamond crossing 23 at 22 km/h and crossed the switch tongue. In the switching zone, the wagon got back on the track in the wrong direction, towards Fót, but during the process, it derailed the 18th wagon in front of it with its traction gear tightened, so the 18th wagon derailed, turned crossways on the tracks and turned over.

During the investigation it was found that the affected switch tongue of the diamond crossing 23 was not perfectly aligned with the stock rail, which was confirmed by post-event tests and the damage caused by the derailed wheel on the switch tongue. In addition, the wheel of the derailed car was sharper than the usual operational state, but still within the relevant size limits and the pair of wheels was worn asymmetrically.

No further indirect causes behind the direct causes of the derailment were identified. Therefore, the TSB does not intend to issue a safety recommendation.

However, the railway infrastructure manager arranged for an immediate inspection of the switches at the station, and the replacement and calibration of the switches' locking mechanisms began.

5. CONCLUSIONS

5.1 Summary

5.1.1 Direct causes

Acts, mistakes, events or conditions or a combination thereof the elimination or avoiding of which could probably have prevented the accident or incident:

- a) the switch tongue in the switch № 23 was not properly aligned with the stock rail; and
- b) the wheels of the first freight wagon to derail were worn, within limits but beyond the operational state;
so the wheels rolled up onto the switch tongue.

5.1.2 Indirect causes

Acts, mistakes, events or conditions which influenced the occurrence by increasing its probability, accelerating the effects or the severity of the consequences, but the elimination of which would not have prevented the occurrence: no such factor was identified by the IC.

5.1.3 Systemic factors

Causal or contributing factors of organisational, management, social or regulatory nature which are likely to have an effect on similar or related occurrences, particularly including regulatory framework conditions, the design and use of the safety management systems, the skills of the personnel, the procedures and maintenance: no such factor was identified by the IC.

5.2 Actions taken

The safety organisation of the railway infrastructure manager has drawn the attention of the infrastructure manager's Regional Directorate to the critical condition of the switch and track network at Rákospalota-Újpest station. An immediate inspection of the switches was requested and the replacement of the switches' locking mechanisms and the measurement of the switches were started.

The railway company that operates the train has included the check of the proper condition of the wheels in its next training session (the first training session in 2022) for its wagon inspectors.

5.3 Additional notes

No risk-increasing factors were identified by the IC that could not be linked to the occurrence of the incident.

5.4 Proven procedures, good practices

The IC identified no factors which would have mitigated the consequences of the occurrence or would have helped avoiding more a serious outcome.

After discovering a fault in the switch at the № 17 crossing siding, the signalman stopped the train and only allowed it to proceed after he inspected the switch. The derailment, however, occurred on a different switch (№ 23), independently of this suspected fault.

5.5 Lessons learnt

Although the investigation of the incident did not reveal any deeper causes, it can be seen that

- asymmetrical wheel wear, which can be detected by regular inspection, is a symptom of abnormal bogie running and the resulting safety hazards, and
- hidden faults in the switches that could lead to accidents can be avoided by monitoring and maintaining them, if the necessary resources (e.g. staff) are provided.

6. SAFETY RECOMMENDATION

The investigation of the occurrence did not reveal any cause that could justify a safety recommendation.