



MINISTRY OF
CONSTRUCTION AND TRANSPORT
TRANSPORTATION SAFETY BUREAU

FINAL REPORT (EXTRACTION)



2022-0345-5
(HU-10209)

Railway incident / Other
Maklár, 26th March 2022

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 26 March 2022, at 12:54 pm, the train № 5525 left track I at Maklár station's upside end with a signal at danger and stopped in front of the wrongly positioned № 2 switch. After the situation was clarified, the traffic manager repositioned the switch and the train continued to Fűzesabony station.

Prior to the occurrence, there was a failure of the signalling equipment on the interstation track between Fűzesabony and Maklár stations, which required the issuance of a Written Order (regarding the technology to be used) for the train departing from Maklár. The traffic manager also encountered an IT error when issuing the Written Order. This put him in a stress situation which led him to make a series of mistakes, one of which was not checking the position of the switches before the train started.

Given that the traffic manager was performing his 9th independent service after his training at the time of the incident, the investigation also covered the process and content of the training of the staff. In the course of this examination, the IC found that

- the specific training did not provide the traffic manager with the necessary knowledge to issue a Written Order, and the training system allows staff to do so with incomplete knowledge;
- on the other hand, training also provides many skills that the worker will not need in the course of their work;
- and the training does not include non-technical skills that would help to cope with breakdowns in stressful situations;
- during supervised practice, the actual training is not carried out by the training organisations, and essential decisions are taken outside these organisations.

The TSB issues a safety recommendation on the revision of the rules on non-technical training and supervised practical work.

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 traffic manager started the train towards an incorrectly positioned switch because he had not carried out the switch check;
- b) the previous failure to issue a written order had put him in a stressful situation which led him to make a series of mistakes.

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:

- a) When the necessary written order was being issued
 - the IT system was not performing its job support function due to an unidentified error;
 - the computer displayed an error message that did not help the user to eliminate the error;
 - and the traffic manager was unable to prepare the written order.
- b) Occupancy of the switch
 - the traffic manager misinterpreted the feedback from the safety installation;
 - because feedback can be misinterpreted, especially for novice staff.
- c) In the course of his work, the traffic manager was faced with conflicting objectives: his safety duties and the need to keep to the timetable;
- d) The training did not provide the traffic manager with the necessary knowledge to issue a Written Order.

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:

- a) the training system tries to provide much more knowledge than will be needed in the workplace;
- b) the training does not include so-called non-technical skills that would greatly support the proper application of professional knowledge;
- c) within the practical part of traffic-related independence training, decisions which have a significant impact on the process and content of work under supervision are taken outside the training organisation, although this would be the responsibility of the training body under the legislation.

5.2 Additional notes

Risk increasing factors that are unrelated to the occurrence of the incident:

- a) the locomotive driver of the train № 5525 accepted the incomplete Written Order (but still correctly built up his situational awareness);
- b) after the incident, the regional manager spoke to the traffic controller in a tone that added to his stressful state;
- c) the locomotive drivers of trains № 544 and 5525 were travelling at speeds exceeding the speed limit on some of the open line road crossings.

5.3 Proven procedures, good practices

It helped to reduce the consequences of the occurrence and avoid a more serious outcome that

To reduce the consequences of the incident and to avoid a more serious outcome, the locomotive driver of the train № 5525 was alert and stopped his train when he noticed the incorrectly positioned switch.

5.4 Lessons learnt

If the training of staff is rigidly based only on a knowledge of technological rules (knowledge of instructions), it does not guarantee that the knowledge acquired will be applied safely and well in all circumstances.

Part of the training linked to the training organisation (supervised work) is in fact carried out by the railway company, with decisions taken independently of the training organisation. In theory, the training provides a full range of knowledge (including knowledge that is not necessary for the job), but in practice it provides only limited knowledge, depending on the railway company's decision and depending on the area.

6. SAFETY RECOMMENDATION

Safety recommendations, together with the findings and conclusions in the final investigation report, represent important information for the further improvement of railway safety. Accordingly,

The addressees of safety recommendations can be the rail transport authority (ÉKM VHF), other agencies and authorities, the European Union Railway Agency (ERA) and another EU Member State. The organisations responsible for implementation (the entities that implement the safety recommendations) are, within their respective areas of responsibility, the contracting railway undertakings, infrastructure managers, maintenance organisations and other actors in the railway industry. Accordingly:

- The authorities responsible for safety shall take action as necessary to ensure that safety recommendations are duly taken into consideration and applied where appropriate.
- The organisations responsible for introducing such safety recommendations shall start, with no delay, the risk assessment and risk management activities related to the contents of such safety recommendation within the procedural framework of their safety management system.

Within 90 days of the issue of the safety recommendation, they shall report back to the IC on the actions taken or planned or on their non-acceptance (with justification) of such safety recommendation.

6.1 BA2022-0345-5-01

During the investigation, the IC found that the training of railway staff is rigidly based only on knowledge of technological rules (knowledge of instructions), which does not ensure that the knowledge acquired is applied safely and well in all circumstances. Problems in working in stressful situations and in safety-critical communication have led to dangerous incidents and accidents, both in the events currently under investigation and in other incidents. The TSB therefore issues the following safety recommendation:

Number: **BA2022-0345-5-01**

Addressed to: **Railway Authority Department, Ministry of Construction and Transport**

Responsible for introduction: **Railway Authority Department, Ministry of Construction and Transport**

The TSB recommends that the basic training of railway staff should include the teaching of non-technical skills, with appropriate additions to the training programmes.

If the recommendation is adopted and implemented, staff members will apply the rules they have learned more reliably in situations other than normal operations.

6.2 BA2022-0345-5-02

Although the training of railway staff is carried out by training organisations (on the basis of a training licence), the supervised work training of traffic managers is carried out with the infrastructure manager. Substantive decisions for this part of the training are taken by the infrastructure manager, i.e. outside the competence of the training organisation. This contradicts the fact that the training is carried out by the training organisation on the basis of a training authorisation, and the transfer of theoretical

knowledge provided by the training organisation's theoretical material is no longer provided relating to the entire railway network. The TSB therefore issues the following safety recommendation:

Number: **BA2022-0345-5-01**

Addressed to: **Minister responsible for transport**

Responsible for introduction: **Minister responsible for transport**

TSB recommends that

- **the actors in the training system clarify the place of supervised work in the training system, in particular the identity of the organisation providing it, and**
- **develop appropriate training rules that are enforceable and respected in practice.**

If the recommendation is adopted and implemented, the organisation making decisions on supervised work will be the same as the one authorised to do so by the training regulations, and the roles and responsibilities will be clarified.

6.3 BA2022-0345-5-03

During the investigation, the IC found that the training of railway staff is rigidly based only on knowledge of technological rules (knowledge of instructions), which does not ensure that the knowledge acquired is applied safely and well in all circumstances. Problems in working in stressful situations and in safety-critical communication have led to dangerous situations and accidents, both in the events currently under investigation and in other incidents. The TSB therefore issues the following safety recommendation:

Number: **BA2022-0345-5-03**

Addressed to: **Minister responsible for transport**

Responsible for introduction: **Minister responsible for transport**

The TSB recommends that the regulation(s) on rail staff training should include the provision of non-technical training for staff.

If the recommendation is adopted and implemented, staff members will apply the rules they have learned more reliably in situations other than normal operations.