



KÖZLEKEDÉSBIZTONSÁGI  
SZERVEZET

TRANSPORTATION SAFETY  
BUREAU

# **ANNUAL REPORT 2008**

## **Transportation Safety Bureau**

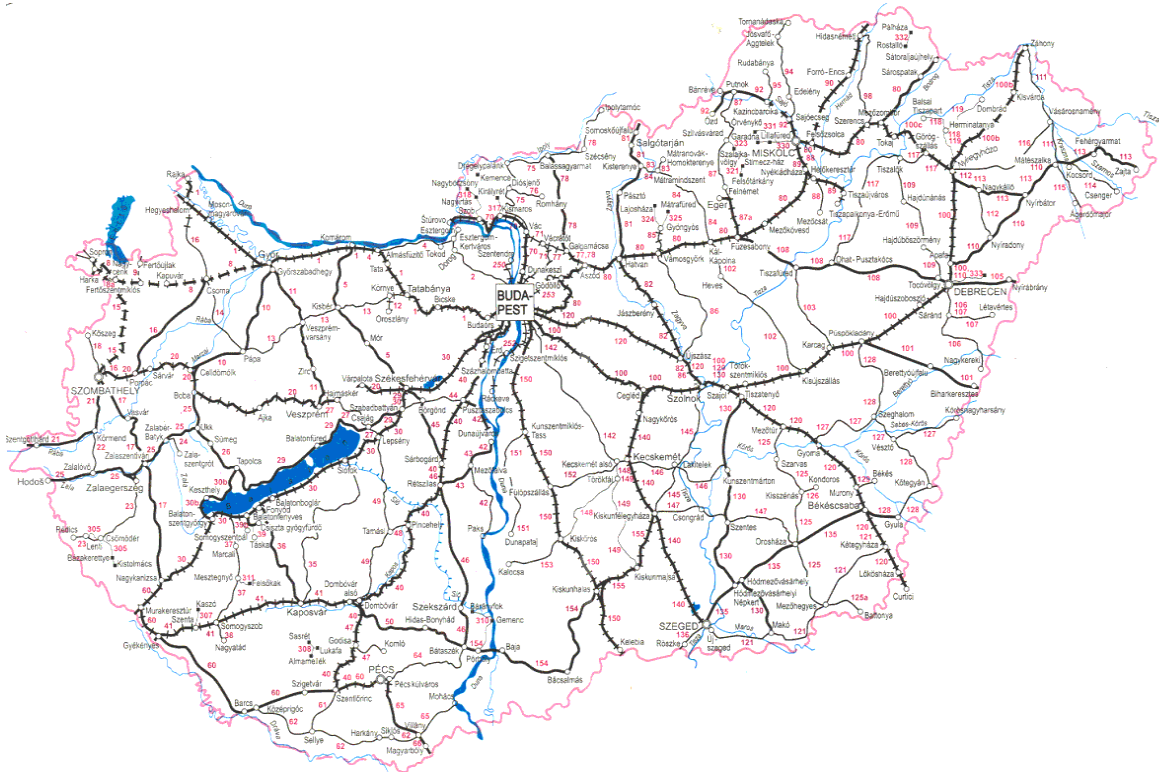
### **Hungary**



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## MAIN CHARACTERISTICS OF RAIL TRANSPORT IN HUNGARY



### CHARACTERISTICS OF THE RAILWAY LINES OF HUNGARY

Main lines	5200 km
Secondary lines	2700 km
Other lines	400 km
<b>Total</b>	<b>8300 km</b>
Electrified lines (out of total)	2800 km
Lines equipped with track condition and occupancy detection (out of total)	2178 km
Number of protected level crossings	2846
Total number of level crossings	5981

## SUMMARY

The Republic of Hungary fully implemented all essential requirements concerning accident investigation of the Railway Safety Directive 2004/49/EC in its national law. The Transportation Safety Bureau was established on 1<sup>st</sup> January 2006 as the legal successor of Civil Aviation Safety Bureau (founded in 2002). TSB operates in a multimodal form. Its main duty is the independent technical investigation of aviation, railway and marine accidents and incidents. Within the organisational framework of TSB, the Railway Department began to operate on 1<sup>st</sup> March 2006, thus 2008 was the second full year of its operation.

In 2008, four suburban railways received the permission / licence for operation and thus they are now under the scope of authority of Act CLXXXIV of 2005 on the technical investigation of aviation, rail and marine accidents and incidents. As a result, the independent technical investigations have been extended to a transport mode carrying over 50 million passengers annually.

In 2008, there was one occurrence (serious accident) on the railways which the Railway Department of TSB was obliged to investigate pursuant to the regulations.

In addition to the above mentioned occurrence, TSB decided at its own discretion to conduct independent technical investigation into 16 further occurrences.

During year 2008, TSB issued 28 safety recommendations regarding 11 completed investigations. The majority of these recommendations were accepted by the addressees. Furthermore, TSB issued one safety recommendation in connection with a serious accident prior to the completion of the investigation, in which it recommended immediate preventive actions which were accepted and implemented by the operator.

Taking European tendencies into consideration, in 2008, the railway department put special emphasis on the investigation of suicides, accidents in LCs where people were run over and those caused by rolling stock in motion.

Accidents in LCs were considered as priority to the department in 2008. Weighing up the circumstances and consequences of the reported occurrences, the TSB investigated six such accidents.

<b>Abbreviations</b>	
CASB	Civil Aviation Safety Bureau
IC	Investigating Committee
LC	Level crossing
Máv Zrt.	Hungarian State Railways Plc.
NTA	National Transport Authority (the National Safety Authority of Hungary)
TSB	Transportation Safety Bureau

## 1. INTRODUCTION

The Transportation Safety Bureau of Hungary (TSB) as a multimodal organisation for the investigation of accidents was established on 1<sup>st</sup> January 2006.

The Annual Report 2008 of TSB - in accordance with Article 23/3 of the Railway Safety Directive 2004/49/EC - gives an account on the following:

- the implementation of 2004/49/EC Railway Safety Directive into the Hungarian law,
- the relations of TSB with other concerned organisations,
- the philosophy and process of the independent technical investigation at TSB,
- the overview of the past 12 months from transport safety point of view,
- the experiences of the independent technical investigations carried out by TSB,
- the safety recommendations issued by TSB and the provisions made in relation to the recommendations, and
- the participation of TSB in the work of the European Railway Agency.

### 1.1 Legal basis - The implementation of the Safety Directive in the Hungarian law

The Republic of Hungary implemented all essential requirements concerning accident investigation of the Railway Safety Directive 2004/49/EC in Act CLXXXIV of 2005 on the technical investigation of aviation, rail and marine accidents and incidents. Based on the Directive, Transportation Safety Bureau was established on 1<sup>st</sup> January 2006 which – as a multimodal organisation - is responsible for the independent technical investigation of aviation, railway and marine accidents and incidents.

The detailed regulations of the technical investigation are included in the decrees of Act CLXXXIV of 2005 which were separately issued for the three modes of transports by the Minister for Economy and Transport. The decree on the regulations of the technical investigation of serious railway accidents, railway accidents and incidents (7/2006 GKM) was issued on 27<sup>th</sup> February 2006.

Within the organisational framework of TSB, the Railway Department began to operate on 1<sup>st</sup> March 2006 pursuant to the regulations.

**The national Act guarantees the complete independence of TSB from all other actors of the concerned transport sector.** The Act defines the objective of the independent technical investigation as follows:

“The objective of the independent technical investigation is to reveal the causes and circumstances of serious railway accidents, accidents and incidents and to initiate the necessary technical measures and make recommendations in order to prevent similar cases in the future.” It also states that “it is not the purpose of the investigation carried out by TSB to apportion blame or legal liability”.

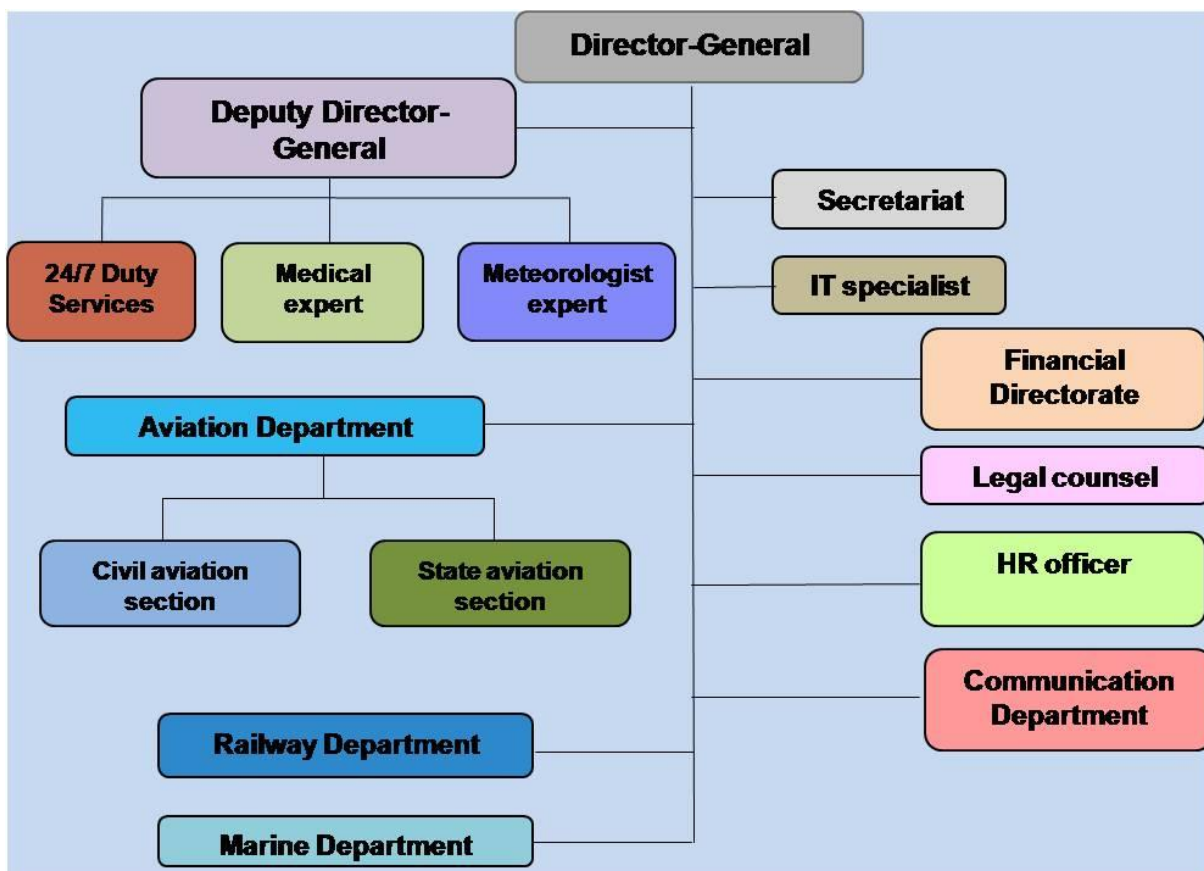
The Act contains the rights and responsibilities of the investigators defined in the Safety Directive.

According to the national regulations:

- All aviation, railway and marine occurrences shall be reported to TSB.
- The members of the Investigating Committee of TSB are authorized to be present at the site of any occurrence and to conduct the technical investigation parallel with the police investigation (if there is one).
- Based on the results of the investigation, TSB is entitled to issue safety recommendations and recommend immediate preventive actions before the completion of the investigation, if necessary. The implementation of safety recommendations is not obligatory, however, the addresses must report to TSB once a year whether they have accepted or rejected them. (The addresses must forthwith respond to the recommended immediate preventive actions.)
- The anonymity of the relevant parties is guaranteed. TSB shall make public the final reports on the results of the technical investigation. However, the final report shall not contain data based on which the relevant parties can be identified. The final report shall not be used in criminal procedures.

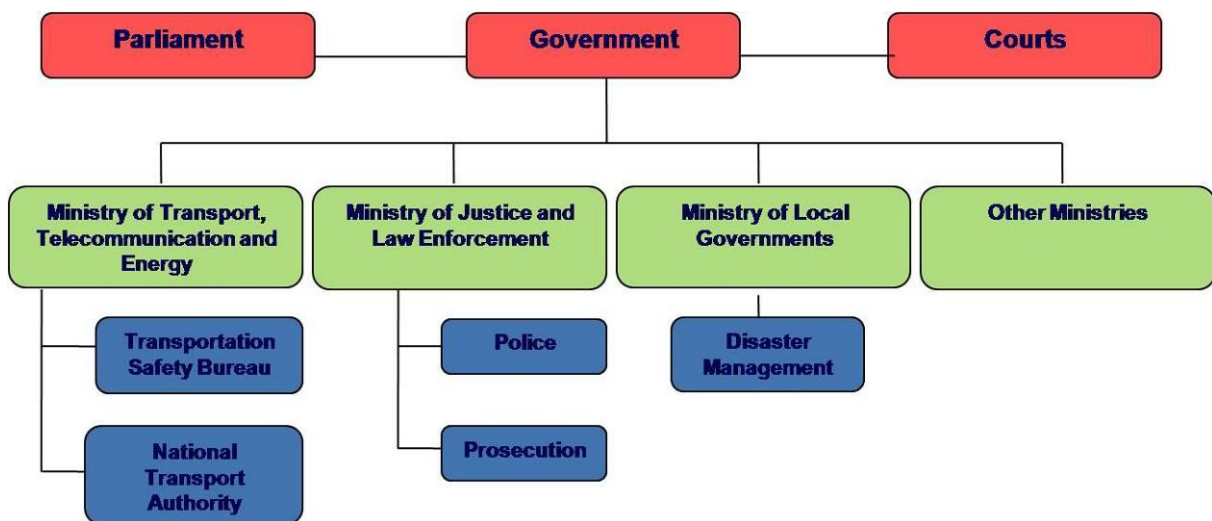
While the provisions of the Safety Directive are fully implemented regarding the independent technical investigation, the powers of the National Transport Authority are curtailed by the fact that the national safety rules have not yet been issued up to the present. Thus the NTA does not have a right to prepare the rules and regulations, only approves them.

## 1.2 Organisation of Hungarian TSB



- TSB regards prevention as the main objective of its activity. TSB endeavours to share the findings, the results and the experiences of the technical investigations with a wide circle of organisations in the profession as well as with the civil sector.
- The predecessor of TSB was the Civil Aviation Safety Bureau which conducted investigations in the field of aviation between 2002 and 2005 in line with Directive 94/56/EC establishing the fundamental principles governing the investigation of civil aviation accidents and incidents.
- TSB was established on 1<sup>st</sup> January 2006. The Aviation Department and the 24/7 Duty Services operated from the beginning of 2006 and the other departments and units grew gradually during the year. The Railway and the Marine Department began to work officially on 1<sup>st</sup> March 2006. The total number of permanent staff at the end of 2006 was 50 which increased to 57 by the end of 2007. The reason behind this increase is that since 1<sup>st</sup> July 2007, the Aviation Department of TSB has been conducting investigations into occurrences involving state (military and police) aircraft as well, which required further human resources.
- The Railway Department – in accordance with the regulations – began its work on 1<sup>st</sup> March 2006 with 5 employees delegated by the Safety Directorate of Hungarian State Railways Plc. (MÁV Zrt).
- The Railway Department consists of 9 investigators and the Head of Department.

### 1.3 Organisational flow of Hungarian TSB



- TSB is supervised by the Ministry of Transport, Telecommunication and Energy. The Director General of TSB works under direct supervision of the Minister. According to the national law, the Minister shall not instruct TSB in matters concerning the independent investigations.
- The Minister reports to the government annually on the activities of TSB, the lessons learned from the independent investigations, the processes and trends concerning transportation safety.



- The Ministry for of Transport, Telecommunication and Energy is the national regulator.
- The general rules regarding the operation of the railways are currently defined by the state-owned MÁV Zrt, the largest operator in Hungary. The National Transport Authority only assents to the amendments to the rules.
- Based on the outcome of the investigations, TSB may issue safety recommendations to the other actors of the concerned transportation sector (operators, legislators, etc). The implementation of safety recommendations is not compulsory, however, the addressees are obliged to compile an annual report on their response (acceptation, implementation, or refusal).
- TSB is authorized to get access to all data relevant to the occurrence in question (including data stored on data recorders).
- The Investigating Committee of TSB may conduct its site investigation simultaneously with the police investigation.
- TSB and the police may help each other's work with exchange of factual data and results of expert analyses. The IC may withhold information obtained in the course of the investigation from other authorities in occurrences when the owner of the information would have had the right to do so.
- TSB, the police and the disaster management mutually inform each other about the received occurrence reports.

## **1.4 Overview of the last 12 months**

The most important change in 2008 was that four suburban railways received the permission / licence for operation and thus they are now under the scope of authority of Act CLXXXIV of 2005 on the technical investigation of aviation, rail and marine accidents and incidents. As a result, the independent technical investigations have been extended to a transport mode carrying over 50 million passengers annually.

### **1.4.1 Reports**

The number of reports on railway occurrences increased by 100 within one year, which however, does not mean that railway transport became less safe. This number most probably reflects the actual number of occurrences. TSB thinks that by 2008 - after one and a half years of its existence - reporting became routine, and it is likely that the number of reported occurrences will settle around the current number in the future. (There was a similar tendency in the field of aviation, where it took a bit more time to develop a routine in reporting and in cooperation due to the large number of the concerned parties.)

In September 2008, the Budapest Transport Company also began to report occurrences happening on the suburban railways. Two occurrences (people were run over in both cases) were reported to the TSB in 2008.

**Reported railway occurrences in 2006/2007/2007 by category**

Category of occurrence	Number of occurrences		
	2006*	2007	2008
Serious accident	0	1	1
Accident	155	247	324
Incident	20	230	253
<b>Total</b>	<b>324</b>	<b>478</b>	<b>579</b>

\* since 1 March 2006

**Reported occurrences in 2007/2008 by content**

Number of occurrences in 2007/2008		478	578
Accident	Collision	14	224
	Derailment	19	19
	Accident at LC	90	81
	Accident to persons caused by rolling stock in motion (excluded suicides)	104	229*
	Fire	15	12
	Other		
	– movements approaching each other	2	4
	– SPAD	2	1
– trains running on occupied track section	1	1	
– overhead contact line	67	64	
Incident	91	107	
Suicides	73	38*	

\* see 3.2.

## 2. INVESTIGATION PROCESS

### 2.1 Independent basis of the investigation

Pursuant to the national law, TSB is independent of all persons and organisations whose interests are contrary to the duties of the investigating organisation, in particular:

- authorities granting permission to put vehicles into service,
- authorities granting permission and controlling the operation and the maintenance of the vehicles,
- authorities issuing driving licences,
- the organisation operating the transport infrastructure,
- transport companies,
- railway undertakings
- the organisation determining railway tariffs,
- the organisation distributing routes,
- the safety authority and
- all regulators in the field of railways.

Under the national law, the civil servants of TSB shall not be the owners, senior officials or employees of the above mentioned organisations.

The Director-General and the Investigating Committee of TSB shall not be instructed in their scope of duties concerning the technical investigation.

### 2.2 Accident investigation philosophy of TSB Hungary

Under the Hungarian regulations, TSB shall investigate serious railway accidents.

The definition of 'serious accident' under the national regulations - in accordance with the Railway Safety Directive 2004/49/EC – is as follows:

*“Any train collision or derailment of trains, resulting in the death of at least one person or serious injuries to five or more persons or extensive damage to rolling stock, the infrastructure or the environment of at least HUF 500 million and any other similar accident with an obvious impact on railway safety regulation or the management of safety”.*

Apart from serious accidents, the national regulations permit TSB to investigate other occurrences - at its own discretion - that may have an impact on the safety of rail transport as well as on the regulations and management of railway safety.

In 2008, there was one serious railway accident in Hungary which TSB was obliged to investigate pursuant to the current regulations.

TSB availed itself of the opportunity provided by the regulations to decide which occurrences – apart from serious accidents – are to be investigated. TSB based its decisions regarding which occurrences require investigation on the following fundamental principles:

- **occurrences resulting in serious injuries to persons, extensive material damage and/or hindering railway transport significantly,**
  - **the latent danger of the occurrence can be considered significant – irrespective of its actual consequences,**
  - **accidents or incidents recurring at the same site or in the same manner**
- should be investigated.

## **2.3 The investigation process of TSB**

The Duty Services of TSB (dispatchers) receive the reports of the occurrences 24 hours a day.

The members of the Investigating Committee (IC) are appointed by the Director-General. The IC consists of one field investigator technician and at least one accident investigator. In case of more serious or complicated occurrences, one of the heads of department on duty and/or the spokesperson of TSB may be present on the site.

If an occurrence is not obliged to be investigated under the law, the head of the concerned department may decide whether or not to conduct an investigation.

The Investigating Committee carries out the site survey (parallel with other authorities) and decides on the direction of the investigation, the required technical and technological examinations as well as selecting the organisations and/or experts to be initiated in the investigation if necessary.

The draft reports on the occurrences are discussed by a board made up of the heads of departments of TSB.

The relevant parties of the investigation may make reflections on the draft report within 60 days from the date of receipt which are to be evaluated when compiling the final report. After this 60-day-period, TSB convenes a meeting for a final discussion with the participation of the representatives of the persons and organisations concerned. Subsequently, the final report is made public.

All the three major departments of TSB have a separate 'Investigators' Manual' which lays down the methodological and technical requirements based on which the investigations shall be conducted by the investigators of TSB, taking the special characteristics of the given mode of transport into account.

### **2.3.1 The practice of final discussions**

During the year 2008, the practice of final discussions became general in the process of compiling final reports. According to Hungarian law, the concerned parties have 60 days to reflect on the draft report. The investigators may decide whether or not to include the parties' comments in the final report. The purpose of the final discussions is that all concerned parties can hear the comments sent in reflection to the draft report as well as the viewpoint of TSB regarding the comments before the completion and publication of the final report.

### 3. INVESTIGATIONS / RECOMMENDATIONS

For practical reasons, this chapter deals with the closed investigations together with the safety recommendations issued in the course of or after the completion of the investigation.

#### 3.1 Overview of investigations conducted by TSB

In 2008, there was one serious railway accident in Hungary which TSB was obliged to investigate. TSB conducted investigations - at its own discretion - on 16 further occasions, based on the fundamental principles listed in 2.3.

##### Investigations commenced in 2006/2007/2008 by the amount of damages

Amount of damages	Number of occurrences		
	2006	2007	2008
Over HUF 500 million (Euro 2 million)	-	1	-
HUF 100-500 million	2	2	2
HUF 0-100 million	12	4	11
No damages	2	5	4

##### Occurrences investigated in 2006/2007/2008 by injuries to persons

	Fatal 2006/2007/2008			Serious 2006/2007/2008			Minor 2006/2007/2008		
	Passenger	-	-	3	1	4	6	7	4
Railway staff	-	1	2	1	-	1	-	1	-
LC user	2	3	11	5	1	1	6	-	2
Trespasser	-	2	-	-	-	-	-	-	-

##### Investigated occurrences in 2006 and 2007 by their presumed cause (based on the reports)

Cause of the occurrence	Number of occurrences*		
	2006	2007	2008
<b>Human factor</b>	<b>12</b>	<b>8</b>	<b>12</b>
- personnel of railway undertaking	5	2	6
- other person	7	6	6
<b>Technical factor</b>	<b>5</b>	<b>4</b>	<b>5</b>
- defect in the track	1	2	4
- defect of the rolling stock	4	2	1

\* Data may contain accumulation

### 3.2 High priority topics in 2008

Taking European tendencies into consideration, in 2008, the railway department put special emphasis on the investigation (and data processing) of suicides, accidents caused by rolling stock in motion and LC accidents with pedestrians or vehicles.

What makes it difficult to assess these occurrences is that only such cases can be considered suicides which - according to law - are committed wilfully. Based on our experiences, however, this is not always the case and the police often close cases when people are run over stating that 'no sign indicating criminal act was found', and wilful self-harm is not mentioned or mentioned as a mere possibility. Therefore it is difficult to evaluate the fact that the number of injuries caused by railway vehicles increased to 229 in 2008, from 104 in 2007. (Besides the suspected but not officially declared suicides, the fact that more less serious occurrences are reported also contribute to the doubling of the number.) At the same time, 38 cases were considered suicide in 2008 in comparison with 73 in 2007.

In 2008, TSB also put special emphasis on accidents occurred at level crossings. Weighing up the circumstances and consequences of the reported occurrences, TSB investigated six occurrences.

Although accidents in LCs protected with warning lights are usually caused by the lack of attention of car drivers or their wilful breaking of rules, it is worth following the statistics. According to the collected information, there are a few significant areas where such accidents were more frequent than elsewhere. The railway department conducted more thorough investigations into occurrences primarily where the locations were the same.

Such location was LC no. AS41 between Tocóvölgy and Balmazújváros where more collisions occurred within a short time period.

Another such location was LC no. AS380 between Csajág and Balatonkenese where trains collided with cars on four occasions.

### 3.3 Investigations commenced in 2008

Date 2008	Occurrence	Classification
07.01.	Locomotive of passenger train departing from Tarcál station derailed with one bogie and one axle.	railway accident
10.01.	Train ran over two men - who were cutting trees - between Hejőkeresztúr and Nyékládháza stations. The two men died in the accident.	railway accident
07.02.	A tank wagon of train departing from Budafok – Háros station derailed.	railway accident
07.03.	Passenger train collided with a car at LC AS41 between Tocóvölgy and Balmazújváros stations.	railway accident (series of events)
21.03.	Two locomotives departing from Szerencs station at the same time scratched each other's sides.	railway accident
26.03.	Two wagons of freight train approaching Kőbánya felső station derailed.	railway accident
29.04.	Passenger train collided with a car at LC AS41 between Tocóvölgy and Balmazújváros stations.	railway accident (series of events)
08.05.	Passenger train collided with a car at LC AS347 at Farád station.	railway accident
05.16.	Passenger train collided with a car at LC AS41 between Tocóvölgy and Balmazújváros stations.	railway accident (series of events)
14.07.	Locomotive ran over two men - working on the rail track - while shunting at Budapest Ferencváros station (one man died and the other suffered serious injuries).	railway accident
22.07.	Freight train derailed at points no. 6 when approaching Rákos station.	railway accident
02.08.	3 carriages of passenger train derailed between Kurd and Szakály-Hőgyész stations. (2 people suffered serious, 7 minor injuries)	railway accident
14.08.	Passenger train collided with a car at an unprotected LC between Vámosgyörk and Gyöngyös stations. (5 people died)	railway accident
30.08.	Freight train passed exit signal "A" indicating 'Stop' at Ceglédbercel-Cserő station and broke points no.4 open, the it collided with a wagon standing on platform III of the station.	railway accident
06.09.	Passenger train collided with a car at LC SR1 when approaching Lövő station.	railway accident
09.09.	One loaded wagon of freight train derailed with 2 axles when departing from Székesfehérvár station.	railway accident
06.10.	Passenger train IC560-1 collided with the rear of passenger train 2537 with high speed between Pilis and Monor stations (4 people died, 4 suffered serious and 40 minor injuries).	serious railway accident

### 3.4 Investigations completed in 2008 with the issued recommendations

In 2008, the Railway Department of TSB completed the investigation of 16 occurrences with final reports. Safety recommendations were issued in connection with 11 occurrences.

## INVESTIGATIONS COMPLETED IN 2008

### 2006-020



A heavy lorry drove onto LC no. SR1 at Vásárosnamény station regardless of the red lights and collided with a passenger train. No one was injured. There were material damage and traffic was hindered.

The IC established the indirect cause in the course of the site survey as follows: the road and the railway track run parallel for an 80-metre-length and then the road intersects the railway with a small bend towards the level crossing. Prior to the accident, the car and the train had been running in the same direction, thus the driver of the car had not seen the running train, however while approaching and turning onto the LC, he should have seen the warning lights of the LC.

The IC did not consider it necessary to issue safety recommendations.

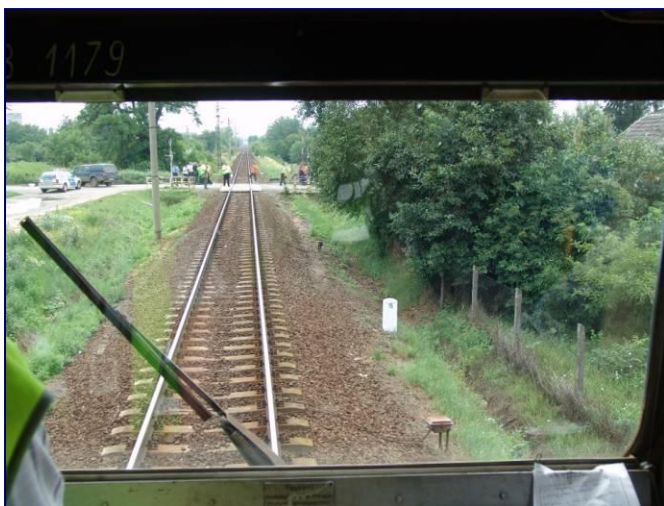


**2006-023**

An Opel Vectra type car collided into the side of an electric locomotive of a passenger train running from Budapest-Déli pu. to Balatonfüred. The collision occurred between Érd-elágazás and Tárnok stations at level crossing no. AS15 protected with warning lights and half-barrier. The warning lights were dark towards the road - as a consequence of an error. Four people were travelling in the car, three of whom suffered minor and one person serious injuries as a result of the collision.

The technical investigation established the direct causes of the accident as follows:

- On the right side of the track towards Érd-elágazás, the overhanging vegetation hindered visibility, thus the so called “narrowed visibility triangle” ( $L_v=600$  m) was not assured.
- The train was approaching LC AS15 with 88 km/h speed regardless the previously received order though the locomotive radio.
- When LC no. AS15 became dark (inoperative), no immediate measures were taken to inform the train at the station nearest to the LC about it.
- The car did not comply with the traffic regulations when driving onto the LC.



The IC established in the course of the investigation that the regulations regarding the assurance of the so called ‘visibility triangle’ are adequate. Nevertheless, the overhanging vegetation hindered visibility at the time of the accident, therefore the accident would not have been avoidable even if the driver of the car had complied with traffic regulations. Based on the site survey, only approximately 30 metres of the rail track is visible from the LC, and

the train runs this distance within 1 second, therefore there would be no chance for safe crossing.

The IC established the indirect cause of the accident as follows:

The LC became inoperative as a consequence of the fact that the cables between a transformer and the endpoint of the insulated rail had been stolen at the previous block section (between Tárnok and Érd-alsó stations).

### **Safety recommendations**

**The IC issued the following safety recommendations in the course of the investigation suggesting immediate preventive actions:**

**BA 23.1:** The IC recommends Máv Zrt. to take internal measures by which the following regulation can be enforced: “good visibility shall be ensured in a suitable ‘visibility triangle’ according to the characteristics of the LCs and their way of protection” (Regulation no. D.5, point 3.9.8 on the “Traffic safety inspection of level crossings and pedestrian crossings”).

*accepted - implemented*

**BA 23.2:** The IC recommends Máv Zrt. that Appendix 7 (1.169) of F.2. Traffic Regulations should be complemented with the following: “if warning lights on the open track are unserviceable and if error correction has been performed, it shall be entered in the Station Log in detail”.

Based on the findings of the investigation, the IC considers it necessary that if LCs on the open track become inoperative, this fact should be entered into the log of the neighbouring station in details as this way the events can be reconstructed easier subsequently.

*accepted - implemented*

**BA 23.3:** The IC recommends Máv Zrt. that 15. 233 of F.2. Traffic Regulations should be complemented with the following: “on railway lines on which there is block section traffic, movements inspectors shall apply signals to trains which have not been informed by a ‘written instruction’ on the failure of open track warning lights, which ensure that the trains are able to stop in front of the given level crossings”. This way it would be possible to reduce the speed of the train more directly and quickly, which would prevent accidents.

*rejected*

**BA 23.4:** The IC recommends that a technical solution should be worked out so that on rail tracks equipped with automatic block signals, when these block signals are switched to ‘Stop-position’, the locomotives would receive 75 Hz alternating-current coded signals from the track circuit (i.e. signal – long pause – signal). This would enforce the automatic and immediate stopping of trains by means of a technical solution. Furthermore, time-lags and chances of faults due to human factors could be reduced further. After stopping, the train would only be able to depart again when the situation has been clarified.

*accepted – implementation on newly built tracks*

**Based on the findings of the investigation, the IC issued further safety recommendations to MÁV Zrt. as follows:**

**BA2006-0023-5-05:** The IC recommends MÁV Zrt. that the mobile phone communications - concerning the organisation of the traffic - of the chief signal box and the traffic control personnel of MÁV Zrt should be recorded.

*accepted – no measures taken*

**BA2006-0023-5-06:** The IC recommends Máv Zrt. that the telephone communications of traffic operation personnel (i.e. the movements inspectors of neighbouring stations – at least on the main railway lines) should be recorded.

*accepted – partially implemented*

**BA2006-0023-5-07:** The IC recommends Máv Zrt. that the communications (landline and mobile phone) of signal box dispatchers should be recorded.

*accepted – partially implemented*

**BA2006-0023-5-08:** The IC recommends the NTA and Máv Zrt. that in future procurements and permissions preference should be given to signal boxes which can record operations.

*accepted - implemented*

## **2006-027**



The control car of a passenger train which was at the rear of the train derailed with all four axles at a level crossing under construction between Rákospalota-Újpest and Fót stations (track section 12+32). The train was running with a speed of 20 km per hour. There was no injury. As a result of the accident, a 6-metre-long section of the track was damaged.

Construction and rebuilding works were in progress at the level crossing the day before the accident occurred. The level crossing is in track section No. 12+35, with asphalt road surface and easer-rails. As the work had not been finished the previous day, the crossing was temporarily opened for the traffic with a 20 km per hour speed limit.

During the construction work, the rails and the bedding were also removed and replaced in its entirety at the LC and on an approximately 22.5 metre length. According to the local chief inspector who lead the replacement work, the temperature of the rails at the opening of the track panel was +25°C and +20°C when fixing the clips at dawn respectively.

The difference between the rail temperatures at dawn (when fixing the clips) and in the afternoon at the time of the accident was at least +20°C.

When examining the geo-screws of the connecting sections, the IC established that only those screws were loosened which were needed for the replacement of the track section, while the other screws were not. Therefore the so called 'breathing' of the track was not ensured. The neutral temperature of the track at the time of its construction was +20°C.

According to the interviews, some gaps were left between the connecting rail ends. Nevertheless, this was not sufficient to offer resistance to the significant temperature increase. There was no lateral support which could have resisted the pressure arising from the change of temperature in the rails. The stability of the track was not ensured. The sleeper ends were loose and free and there were not enough ballast chips between the rails. No measures were taken in order to prevent the deformation or shifting of the rails at the connecting points, therefore the rails were shifting from the untouched section towards the opened section. Due to the above reasons, the track shifted sideways and vertically. The extent of the shifting was as high as it lead to the derailment of the train. The final thrust to the shifting of the track panel was the centripetal force arising when the train was running in a bend.

### **Safety recommendation**

**BA 27.1:** In order to maintain transport safety, the IC recommends MÁV Zrt. to take measures during construction work requiring dismantling of track panels without gaps - when weather conditions may affect the work - so that railway traffic shall not be started before ensuring the stability and sufficient transversal and longitudinal resistance of the reconstructed track section and before the bedding has temporarily or permanently been resettled.

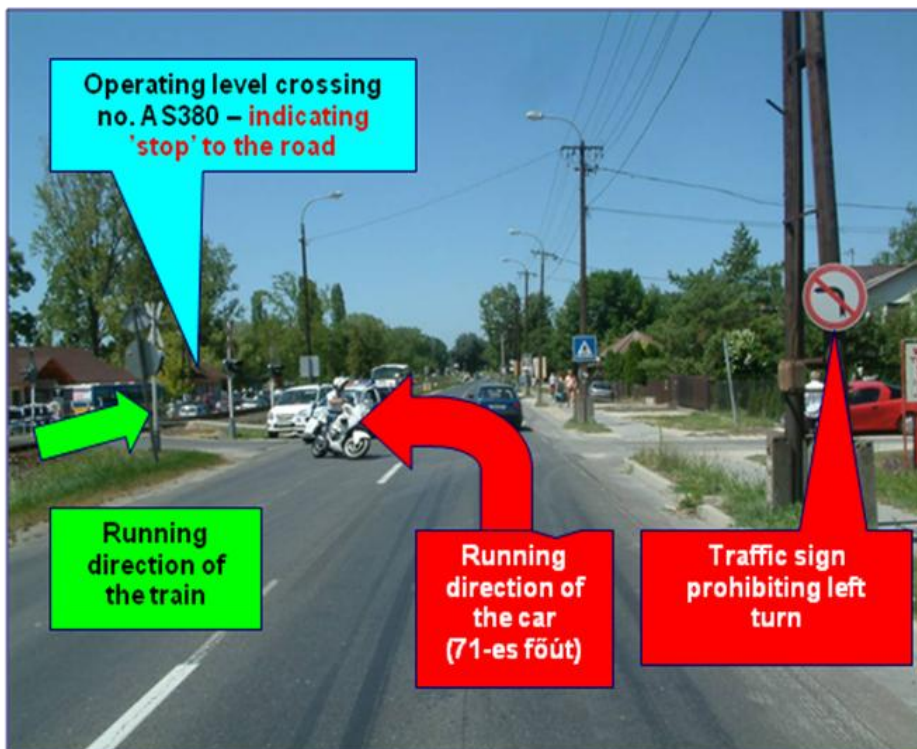
*accepted - implemented*

**2006-033/2006-029/2006-073/2007-220**

The locomotive of a passenger train running from Budapest-Déli station (Budapest Southern Railway Station) to Balatonfüred collided with a Ford Fiesta type car between Csajág and Balatonkenese stations in railway section no. 380+29, at level crossing no. AS380 secured with warning lights giving stop signal towards the road. The car turned onto the LC from road o. 71 regardless of the red 'Stop' signals. Following the collision, the train pushed the car in front of itself on a 209.9 metre distance. After the train had stopped, the spilling fuel in the engine compartment of the car ignited. The engine driver and the arriving police extinguished the fire with a fire extinguisher. As a consequence of the collision, the pregnant woman sitting on the front right seat died of her injuries. The driver of the car suffered serious, life-threatening skull injuries.

Three similar accidents occurred at LC no. AS380 in the space of almost a year. On all four occasions, the damaged cars were driving on main and turned left onto the LC regardless of the "No left turn" traffic sign. LC no. AS380 and its warning lights were operating normally in all cases.

The direct causes of the accidents were the non-compliance with road traffic regulations.



The investigation also established that there are two other considerably safer LCs in either direction, one 500 metres and the other 700 metres from the LC at which the accidents occurred. Both nearby LCs are not only protected with half barrier and warning lights but there are also turning lanes and acceleration lanes leading onto them.

**Safety recommendation**

**BA2006-0033-5-01:** The IC recommends the National Transport Authority that it should - together with the bodies concerned - re-examine the position of LC no. AS380. The NTA should also consider whether it is justified to maintain LC no. AS380 - taking into consideration that LC no. SR2 at Balatonkenese station approximately 500 metres away is secured with warning lights and half barrier, and LC no. AS373 approximately 700 metres away in the direction of Lake Balaton are much safer and there are turning lanes to both latter LCs - or whether the application of other technical instruments should be ordained.

*accepted – no measures taken*

## **2006-040**



At Balatonmárfürdő station, the engine-driver of passenger train “A” started the train regardless of the “Stop” sign of the V2 exit signal after the indication of the chief ticket inspector. The Unified Train Control and Vigilance Warning Installation on the locomotive stopped the train with emergency braking. The train split point no. 3 open which had been set to deviating direction to give way to another train (“B”) approaching the station from the opposite direction. Train “A” then stopped at point no. 1. Having noticed train “A”, the engine-driver of train “B” entering into the station immediately applied the emergency brake and stopped approximately 50 metres from train “A” (standing opposite). No one was injured.

Train “A” was running behind schedule, therefore the other trains did not ‘meet’ according to schedule. According to technological regulations for Balatonmárfürdő station, passenger train “A” should arrive at the first track in bypassing direction. In the meantime, passenger train “B” arrived from Balatonszentgyörgy direction at the “Stop” entry signal of Balatonmárfürdő station and stopped according to regulations. Having returned from the engine bay to the driver’s cab, the engine-driver of train “A” noticed from the side view mirror that the platform was unoccupied (the passengers had got on/off) and the chief ticket inspector was signalling out the train, so he brought he train into motion. At the same time, a “Line Clear” (yellow-green) signal appeared on the entry signal for train “B”, and therefore the engine-driver started the train.

The investigation established the following:

- Neither locomotive had a radio able to keep contact with the Central Traffic Control Office, which would have made it simpler and safer to communicate with other trains and traffic control and alert them in case of danger.
- Not all the stations have the required Station Instructions and the training and the knowledge of employees (ticket inspectors, chief ticket inspectors) working on the sections of line no.30 controlled by the Central Traffic Control Office is not sufficient.
- The personnel on train “A” (ticket inspector, chief ticket inspector) did not perform their work as prescribed in the relevant regulations. Primarily, this was due to human factors, however, the fact that they receive instructions from various control offices and that they are assigned for only certain sections on the line also hampers cooperation and effective work.
- At Siófok station, the chief ticket inspector of train “A” told the ticket inspector to have some rest, so from then on he performed the duties (signalling out train) alone.

- The chief ticket inspector of train “A” worked out of routine, and forgot that he should signal out trains only when there is “Line Clear” signal on the exit signal.
- The time allotted for duty handover (and the tasks involved in this process) for the engine-driver of train “A” at Balatonszentgyörgy station was not enough due to the tight schedule and the delays. Knowing this, the engine driver had started preparing for the duty handover on the way and at the previous station, which diverted his attention and increased the risks of an accident.
- The following facts could have contributed to the decreasing of the driver’s attention and made him prone to make mistakes: the engine driver was on his 6<sup>th</sup> shift within 8 days, he had always begun his work at night; and in the summer heat, the temperature in the driver’s cab was 38-40 °C with no air-conditioning.
- Disregarding the “Stop” signal was owing to human factors to which the above described circumstances also contributed. According to the account of other employees working on this line, it happens several times that chief ticket inspectors signal out trains regardless of the “Stop” signal (or without even looking at the given signals).

### **Safety recommendations**

**BA2006-0040-5-01:** The IC recommends MÁV Zrt. that the locomotive radio system should be made suitable for safe and reliable communication.

*accepted – implementation subject to financial resources*

**BA2006-0040-5-02:** The IC recommends the National Transport Authority to check whether all members of traffic operation staff on railway line no. 30 have taken the examination on the current Executive Regulations on the line.

*accepted – implemented by MÁV Zrt. (did not fall within the scope of authority of the National Transport Authority)*

**BA2006-0040-5-03:** The IC recommends the NTA to authorize the personnel - who are not authorized at present to signal out trains - working at stations controlled by the Central Traffic Operation Control Office (KÖFI) to signal out trains (similar to the movements inspectors at bigger stations who are authorized to do so) as they have more possibility to ensure the safe departure of trains than those who work in the Central Traffic Operation Control Office.

*rejected*

**BA2006-0040-5-04:** The IC recommends MÁV Zrt. that during the modernisation of locomotives, they should work out a solution so that engine-drivers would be least affected by the outside temperature during their work.

*accepted – implementation in progress*

## **2006-044**



A freight train was running from Tiszatenyő to Pusztapó and its 16<sup>th</sup> wagon (self-discharging wagon carrying ballast chips) tilted to its side, its side door opened and damaged some installations and masts beside the track at Pusztapó station. The engine driver noticed the event from the rear-view mirror and stopped the train immediately by applying emergency brake.

The freight train was going to a place where a railway construction company was performing track reconstruction work during which the single-track main line was rebuilt into a double-track main line. Having left Tiszatenyő station, the train stopped on the open track for about 10 minutes and then it was approaching Pusztapó station. When the train arrived at Pusztapó station, the side door of the 16<sup>th</sup> wagon had already been open.

The IC conducted tests to check the operation of the control levers, and established that even when moving the levers only slightly, the release valve of the self-discharging wagon was being slowly re-pressurized and after about 8-10 minutes, the side door shifted to tilted position. This slight shift of the lever was hardly visible.

Based on the available information, the IC established that the most probable cause of the accident was the technical failure of the Ua type self-discharging wagon and the uncertain/insufficient operation of the levers. As there was no information on where exactly the side door opened, the IC had no possibility to examine other circumstances and contributing factors.

The IC did not consider necessary to issue safety recommendations, however, it draw the attention of the concerned parties (especially the supervisory authority and railway construction companies) that particular attention should be paid to the revelation and correction of similar technical deficiencies and failures.



**2006-048**

A freight train of BRKS a. s. Slovakian railway undertaking was signalled out from platform no. XVI at Komárom marshalling yard in the direction of Komarno. The first freight car derailed with 4 shafts and the second freight car with 2 shafts at the common crossing of switch no. 428.

No one was injured in the course of the accident. The rail track was slightly damaged. Neither the locomotive nor the surface elements of the safety installation suffered damage.

The investigation established that the accident was caused by a scotch block left under the first pair of wheels of the first freight car. (While checking the train at the station, no one noticed or removed the scotch block from under the train.)

In the course of the investigation, the IC found - independent of the accident - that point 26 of Station Regulations is not in accordance with 5.1 and 5.2 of F.2. Traffic Regulations. Station Regulations of Komárom prescribes the use of a certain type of scotch block to secure the trains from braking away. On the contrary, F.2. Traffic Regulations permits the use of a different type (and shape) of scotch block.

**Safety recommendations**

**BA2006-048-5\_01:** The IC recommends the introduction of an instrument or sign which makes the scotch block clearly visible from longer distance as well.

*rejected*

**BA2006-0048-5-02:** The IC recommends that point 26 of Station Regulations of Komárom should be revised.

*accepted - implemented*

## **2006-069**



The control car of a passenger train collided with a concrete mixer lorry between Pécel and Isaszeg stations. The concrete mixer fell onto the rail track as a consequence of a road accident at Nagytartcsa junction.

As a consequence of the collision:

- the driver of the lorry, the chief ticket inspector and a passenger suffered serious and another passenger minor injuries,
- the control car of the train derailed and sustained substantial damage,
- one overhead line mast broke and fell, and the shunting overhead line also broke,
- the left track sustained substantial damage on an approximately 30-metre-distance,
- the lorry was written off,
- the liquid concrete flowing onto the track and the wreckage of the vehicles blocked both rail tracks.

According to the owner of the lorry, the driver must have been unable to turn left in the sharp bend at the junction due to the high speed he was driving with, therefore he chose to turn right, however, he was not able to make that either, so eventually he drove straight on and fell onto the rail track - breaking the roadside barrier - from approximately 3-metre-height.

Safety recommendation was not issued.

**2006-151**

24<sup>th</sup> wagon of a Romanian freight train derailed between Debrecen and Ebes stations on the open track. The train was running with the wheels of its 24<sup>th</sup> wagon running beside the rails on the concrete sleeper on an approximately 7-kilometre-distance until Ebes station. When running through the left (transit) main track of Ebes station, the derailed axle of the arriving train tore the trackage of point no. 3 which lay in the train's path. Subsequently, it broke the BODÁN plate of level crossing SR 1 in. As a consequence, the train separated between the 23<sup>rd</sup> and the 24<sup>th</sup> wagons, four more wagons derailed and two toppled onto their side. When the train separated, it stopped with emergency braking.

These types of wagons are suitable for transporting cereals, grains, crops or alum earth. The wagons are usually filled from silos through an opening ('mouth') on the top of the wagon and are emptied - by way of gravitation - through the hopper openings on the bottom of the wagons.

The hopper cover is a 800 x 900 x 10 mm steel plate to which two 30 mm racks are welded on either side. Furthermore, two 2 mm iron plates are welded onto the end of each rack in order to avoid 'over-opening'. The function of this iron plate is to ensure that the hopper cover does not fall in case it is not closed back properly. The welding seam of the iron plate was dirty and covered with rust, which leads to the conclusion that it is a result of a previous fracture. When the hopper cover fell, the 2-2 welded racks got torn off and the cover got stuck between the 2<sup>nd</sup> pair of wheels of the first bogie of the 24<sup>th</sup> wagon and the sleeper. As a consequence, the wheel flange was lifted up towards the upper surface of the rail and the wagon derailed. The marks of the derailment were visible all the way from section no. 2177+40 to Ebes station. The IC found two more hopper covers in the section which fell down as the train was running on derailed course, however, they did not cause further derailment.

The IC examined the positions of the hopper covers of the 10 bottom-discharging wagons (10 grain carrier wagons, altogether 30 covers), these were as follows:

Missing:	5 (all found at the site)
Found in closed position:	2
Found half-open:	3
Found in open position:	20

Some of the above mentioned iron plates were missing from the examined hopper covers. A

The shifting and displacement of the covers were caused by the vibration and longitudinal swings while the train was running.

### **Safety recommendations**

**BA2006-0151-5\_01:** The IC recommends the Romanian investigating body to draw the attention of the owner and the maintenance and repair personnel of the concerned vehicles to the dangers of the missing securing plates as well as to the importance of their replacement.

*accepted – implemented*

**BA2006-0151-5\_02:** The IC recommends MÁV Cargo Zrt. that during the inspection of wagons, particular attention should be paid to checking the closed position of the hopper opening covers.

*accepted – implemented*

**BA2006-0151-5\_03:** The IC recommends MÁV Gépészet Zrt. that during the maintenance work of such wagons, particular attention should be paid to the checking of securing plates and their replacement as required.

*accepted – implemented*

**2006-161**



Passenger train A - running from Szolnok to Jászapáti - collided into the rear of another passenger train (B) - running from Szolnok to Budapest Keleti pu - being stopped at entry signal "N" (indicating "Stop") at Szolnok junction, on the left track between Szolnok and Újszász stations.

The first train was about to depart at the moment of the collision as the "Line-clear" signal had appeared on the signal. The engine-driver had already released the brakes for departure. As a result of the collision, the train rolled 46 metres forward, and since the pressurised air system got damaged, the brakes were activated automatically.

The accident occurred as a result of passenger train B passing block signal 669/a indicating "Stop", to which it previously received the yellow pre-signal.

Having reviewed the relevant traffic regulations, the IC established that they regulate the current traffic situation adequately.

As such occurrences can be avoided by complying with the relevant rules, the IC did not issue safety recommendations.

## **2006-175**



The 5th wagon of a freight train derailed, fell onto its left side, blocking both tracks between Lébény-Mosonszentmiklós and Kimle stations. Most of the sweet corn which the wagon carried flowed out of the wagon. As a consequence of the derailment, the concrete sleepers of the right track sustained damage on an approximately 1600 metre distance and had to be replaced. On a further 200 metre distance it was damaged to such an extent that the track had to be rebuilt.

The examination certificate of the freight wagon was valid at the time of the accident. Further data on the maintenance of the wagon was not available. The net weight of the wagon was 21 300 kg and the (admitted) weight of the cargo was 60 000 kg.

The direct cause of the accident was that the second axle of rear bogie got overheated and broke at the left wheel.

The indirect cause of the accident was that the train was not immediately stopped upon noticing irregularities (unusual rumbling noise and sparks) at the later derailed wagon. The irregularity was noticed at two stations. The movements inspector of the first station informed the staff at the next station that there was a strange noise coming from wagons 5 and 6. The movements inspector of the second station saw sparks coming from wagon 6 and warned the movements inspector of the following station to stop and check wagon 6. However, the train never made it to that station.

The concerned parties do not agree on the amount of the damages, which could be between 140 million and 360 million HUF.

### **Safety recommendation**

**BA2006-0175-5-01:** In order to prevent accidents caused by technical failures which can be noticed during wagon inspection, the IC recommends MÁV Zrt. that in the trainings of traffic staff, particular attention should be paid to the process of wagon inspection, possible arising problems and their causes as well as the to importance of necessary immediate preventive actions to be taken.

*accepted – implemented*

### **2007-017**

A passenger train (“A”) departed from Zagyvapálfalva station towards Kisterenye, while another passenger train (“B”) was running from Kisterenye to Zagyvapálfalva on the same track. Having realised the emergency situation, the movements inspectors of both stations arranged for the trains to be stopped. The trains stopped on the open track, approximately 4400 metres from each other. There was no injury or material damage.

The investigation established that train “A” departed from Zagyvapálfalva station without permission in the current traffic regulations.

The fact that the engine-driver was doing his work as a matter of routine is likely to have contributed to the occurrence. Normally, - if trains run according to the usual schedule - trains ‘meet’ at the same stations, and there are certain places where trains do not normally meet. Work at such places can become routine-like after a while; and according to the daily routine, trains depart from the stations as soon as the passengers have got on/off. This routine poses risks in times when trains do not run according to schedule, - e.g. when there are delays - this is exactly what happened as train “A” was running behind schedule on the day of the occurrence and the train departed immediately after the passengers have got on/off.

### **Safety recommendation**

**BA 2007-0017-5-01:** The IC recommends MÁV Zrt (as the infrastructure manager) to introduce such working order/procedure on single-track lines and the relevant stations where there is no possibility for trains to meet by which the above described risks are avoidable.

*Partially accepted – implementation planned in a different way*

## **2007-047**



Between Almásfüzitő and Komárom stations at section no. 998+42, EUREGIO passenger train no. 9438 running from Tatabánya to Wien Südbahnhof (Vienna Southern Railway Station) with a speed of approximately 101 km/h collided with freight train no. 45224 which was running in front of the passenger train in the same direction with the speed of 9-10 km/h.

The engine driver of the passenger train died at the site of the accident, two passengers suffered serious injuries, another four passengers, the chief ticket inspector of the passenger train and the engine driver of the freight train suffered minor injuries.

The electric locomotive (registration number 1116-017) of the passenger train owned by ÖBB sustained serious damage. 5 cars of the DB-owned freight train derailed, 4 of which sustained serious damage. The right track of the railway line sustained serious damage in approximately 120-meter-length, while the left track sustained less serious damage in approximately 30-meter-length. The catenaries over both tracks broke and two catenary supports fell. The amount of the damages exceeded 500 million HUG (2 million Euros).

It was found in the course of the investigation that the line signal box between Almásfüzitő and Komárom stations did not operate normally and the block signals were dark at the time of the accident.

According to the regulations in force, trains can run with the maximum speed of 15 km/h, and the compliance is assured by the vigilance warning device and train control installation.

The direct cause of the occurrence of the accident was the switching the “EVM 120 vigilance warning device and train control installation” of the locomotive of train no. 9438 over to shunting mode and back to operation. As a result of this act, the train control installation stopped functioning as a speed limiting device and therefore the train exceeded the speed limit six-sevenfold.

The indirect cause of the occurrence of the accident was that the traffic regulations in force at the time of the accident did not permit the switchover to 'station-distance traffic' which would have been safer in the given situation.

The IC examined the question asked by the relatives of the deceased engine-driver as to whether it was possible that A “Line Clear” signal appeared for a moment on the block signals between Almásfüzitő-felső and Komárom stations but it was not recorded on the data recorder of the locomotive. The IC established that such a situation is impossible because the construction of the signal box does not allow for that. As there were trains in each block section at the time of the accident, the block signals could only show “Stop” signals. Moreover, the batteries were discharged to such an extent that the block signals could not operate at all.



## Safety recommendations

Prior to the closing of the investigation, the IC recommended the following immediate preventive actions to the National Transport Authority:

**BA2007-0047-5-01:** Until new regulations are issued, the IC recommends that F.2 Traffic Regulations should be complemented with the following: in track sections installed with automatic block signals, if it is not possible to ascertain the traffic conditions by evaluating the light signals (reports) on the signal box, the switchover to station-distance traffic should be ordered. Furthermore, the IC recommends a new regulation which permits the traffic operation staff to switch over to “station-distance traffic” before the arrival of the technical staff - if circumstances require doing so.

*accepted - implemented*

**BA2007-0047-5-02:** The IC recommends that F.2 Traffic Regulations should be further complemented with the following: light signals should be considered unserviceable, if the signalling (reporting) on their normal operation ceases.

*accepted – implementation in progress*

Upon completion of the investigation, the IC issued further safety recommendations in the Final report as follows:

**BA2007-0047-5-03:** The IC recommends railway undertakings operating traction vehicles to work out a solution to be able to control switchovers from train mode to shunting mode on the train control installations of locomotives and other traction-vehicles by checking the recordings of strip chart recorders – automatically where possible. This way, engine drivers would be obliged to operate the installation as prescribed.

Particular attention should be paid to check the operating of these installations as when the checks are not frequent and therefore the chance to reveal non-compliance with the rules is less, it is more likely that engine drivers act contrary to the rules. If the checks were more effective, non-compliance would be revealed easier and therefore infringements were less frequent.

*accepted – implementation in progress*

**BA2007-0047-5-04:** The IC recommends railway undertakings employing engine

drivers that in the recurrent education of engine drivers, particular attention should be paid to special solutions and principles of signal boxes and train control installations which influence their daily work. (E.g. the recognition of the yellow light signal recorded by EVM 120 vigilance warning device and train control installation on insulated rail sections turning D/SR1 entry signal to “Stop” position at Almásfüzitő station.)

The IC considers it important that engine drivers should be aware of technical solutions and processes differing from the usual, as this way, misunderstandings can be avoided and there is less chance to make decisions - owing to a possible wrong evaluation of the situation - that endanger safety.

*accepted - implemented*

## **2007-371**



A passenger train collided with a car at a level crossing (with no barriers) between Mártély and Mindszent stations. As a consequence, the driver and one passenger of the car died at the site of the accident.

In the course of the site survey, the IC established that the so called “reduced visibility triangle” was assured. The speed limit for the road at the LC was 40 km/h. The car was driving on the road parallel with the rail track, in opposite direction with the train. Upon approaching the LC, the engine-driver gave out a “Warning!” signal. Having noticed that the car wouldn’t be able to stop before the LC, he applied emergency brake but could not avoid the collision.

Safety recommendation was not issued.

## **2007-462**

Two children climbed up on top of the Zaes tank wagon stored on track XII of the private-sidings at Kaba station. One of the children suffered an electric shock. The child suffered serious, life-threatening injuries and was taken to hospital by an ambulance helicopter.

The IC conducted a field investigation in course of which it surveyed the site and the surroundings of the incident as well as collecting information on the operation of the station and of how the wagons are stored at the station.

It was also noted that there had been similar accidents at two other stations.

The IC stated that on tracks where wagons are stored permanently, there is no need to keep the overhead contact lines under voltage as it is an additional source of danger. The danger is increased by the fact that the stored wagons are not closed off, and therefore unauthorised personnel - children among them - can climb up on them unhindered.

## **Safety recommendations**

**BA2007-462-5-01:** In order to reduce the number of accidents in which the involved persons suffer electric shock as a result of climbing up on permanently stored wagons, the IC recommends MÁV Zrt. that these wagons should be stored on tracks without overhead contact lines or the contact lines should be off voltage. The wagons should also be kept at physically fenced off areas.

*rejected – due to property protection and financial considerations*

**BA2007-462-5-02:** In order to reduce the number of accidents in which the involved persons suffer electric shock as a result of climbing up on permanently stored wagons, the IC recommends the National Committee for Accident Prevention that they should include the source of dangers of railway transport (e.g. possibilities of suffering electric shock, jumping on and off moving railway vehicles, dangers of crossing railway lines, etc.) in their curriculum within the framework of their educational activities.

*no response*

## **2008-201**



A train collided with a car at a level crossing protected with warning lights - operating normally - at Farád station. As a consequence of the accident, the driver of the car died at the site.

In the course of the investigation, the IC established that the so called reduced visibility triangle at the LC was not assured from one direction. It was also noted that there had been 2 fatal accidents and one with considerable material damage and minor injuries in the previous 18 months at this LC.

### **Safety recommendations**

In the course of the investigation, the IC issued an immediate preventive action as follows:

**BA2008-201-5-01:** The IC recommends GYSEV Zrt. - as the infrastructure manager - to supplement LC no. AS 347 between Rábatamási and Csorna station in section 347+25 with half barriers.

*accepted - implemented*

### 3.5 Other recommendations

In 2008, TSB issued further 3 safety recommendations prior to the completion of the investigations suggesting immediate preventive actions. Two of these cases were closed in 2008 and the safety recommendations issued in the course of the investigation were incorporated into the final reports.

**In the third case - a serious railway accident - the IC issued the following safety recommendation in the course of the investigation:**

**BA2008-0446-5-01**

The IC recommends MÁV Zrt. to revise 4.2.2. of the Appendix of E.1. Regulations for traction vehicle staff and consider narrowing its scope, and initiate its modification accordingly.

This safety recommendation was issued because the IC considers the current regulations too general, which prescribe disabling the speed limiting function of train control systems in cases when it would not be necessary. The IC however, thinks that maintaining this function would definitely be justified.

Accepted - implemented

### 3.6 Experiences of the technical investigations

The Railway Department was established in March 2006. Based on the experience that have been gathered since then, the following observations can be made:

- Similarly to other modes of transport where TSB investigates accidents and incidents, the majority of the occurrences was caused by human factors. Among the technical causes, the defects of the rail track are the most frequent.
- In accordance with EU directives, TSB addresses most of its safety recommendations to the National Transport Authority whose scope of authority is unfortunately still limited. In this regard, there was no positive change in the last 12 months; the national safety rules were not issued in 2008 regardless of the EU requirements. Therefore, the NTA can still only approve of the rules, it cannot codify them. As a consequence TSB received numerous answers to safety recommendations from NTA that they agree with them, however, they have no authority to implement them.
- From the railway safety point of view, it was a favourable change that, in 2007, the NTA established a separate department which conducted regular inspections in 2008 TSB still maintains that the supervisory authority of the NTA remained limited and does not extend to the general railway operation.

### 3.7 International cooperation

The Railway Department of TSB conducted a partial investigation on two occasions in 2008 where wagons owned by Hungarian companies were involved in derailments in Austria. In both cases, the accident investigating organisation of Austria requested assistance from TSB with regard to the technical issues concerning the wagons.

#### Participation in technical investigations upon request from foreign investigating organisations:

<b>12. 09. 2008</b>	Lgss type wagon owned by a Hungarian company derailed at Linz marshalling yard.	Railway accident
<b>18. 10. 2008</b>	Lgss type wagon owned by a Hungarian company derailed at Pöchlarn station.	Railway accident

The TSB actively participates in the work of the European Railway Agency. TSB also indicated its intention to participate in the committee of the ERA dealing with investigation methodology whose work is to start in 2009.

## 4. SUMMARY OF RECOMMENDATIONS

In 2007, the Railway Department of TSB closed the investigation of 16 occurrences with final report and issued 28 safety recommendations to 11 occurrences.

#### Summary of responses to safety recommendations issued in 2007/2008

	<b>2007</b>	<b>2008</b>
<b>Accepted and implemented</b>	4	15
<b>Accepted and partially implemented</b>	2	2
<b>Accepted, implementation in progress</b>	7	3
<b>Accepted, no information on implementation</b>	-	3
<b>Rejected</b>	2	4
<b>No answer</b>	-	1

Reasons for rejection of safety recommendations issued in 2008 included lack of financial resources and costly implementation with regards to required manpower. On one occasion, the addressee of the safety recommendation calling for a change in the relevant rules in force found them adequate therefore it rejected the recommendation.

3.4 contains a detailed list of the issued safety recommendations.