KÖZLEKEDÉSBIZTONSÁGI SZERVEZET

TRANSPORTATION SAFETY BUREAU

FINAL REPORT

2009-627-5
RAILWAY INCIDENT

Devecser-Tüskevár
9 December 2009

Freight train no. 90043

The sole objective of the 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 is not the purpose of this activity to apportion blame or liability.

This present investigation was carried out on the basis of

- Act CLXXXIV of 2005 on the technical investigation of aviation, railway and marine accidents and incidents (hereinafter referred to as Kbvt.),
- MET Decree 7/2006. (II. 27.) on the regulations of the technical investigation of serious railway accidents, railway accidents and incidents.
- In absence of other related regulation of the Kbvt., the Transportation Safety Bureau of Hungary carried out the investigation in accordance with Act CXL of 2004 on the general rules of administrative authority procedure and service,
- The Kbvt. and the MET Decree 7/2006. (II. 27.) jointly serve the compliance with the following EU acts:
  Directive 2004/49/EC of the European Parliament and of the Council of 29 April 2004 on safety on the Community's railways and amending Council Directive 95/18/EC on the licensing of railway undertakings and Directive 2001/14/EC on the allocation of railway infrastructure capacity and the levying of charges for the use of railway infrastructure and safety certification (Railway Safety Directive)

The competence of the Transportation Safety Bureau of Hungary is based on Government Decree 278/2006 (XII. 23.).

Under the aforementioned regulations

- The Transportation Safety Bureau of Hungary shall investigate serious railway accidents.
- The Transportation Safety Bureau of Hungary may investigate railway accidents and incidents which - in its judgement - would have resulted in serious accidents in other circumstances.
- The technical investigation is independent of any administrative, infringement or criminal procedures.

This present final report shall not be binding, nor shall an appeal be lodged against it.

Incompatibility did not stand against the members of the IC.

Persons participating in the technical investigation did not act as experts in other procedures concerning the same case and shall not do so in the future.

The IC shall safe keep the data having come to their knowledge in the course of the technical investigation. Furthermore, the IC shall not be obliged to make the data – regarding which the owner of the data could have refused its disclosure pursuant to the relevant act – available for other authorities.

This present final report

was based on the draft report prepared by the IC and accepted by the Director-General of TSB. The draft report was sent to the relevant parties - defined by law - for reflections. At the same time, the relevant parties and organisations were also informed and invited to the closing discussion of the draft report.

The following organisations were represented at the closing discussion which was held on 31 August 2010:

1. NTA
2. MÁV Zrt.

ABBREVIATIONS

BIV Zrt.	Balaton Industrial Railways Plc.
TSB	Transportation Safety Bureau
Kbvt.	Act CLXXXIV of 2005 on the technical investigation of aviation, railway and marine accidents and incidents
MÁV Zrt.	Hungarian State Railways Plc. (Magyar Államvasutak Zártkörűen Működő Részvénytársaság)
NTA	National Transport Authority
SZIR	Forwarding-control Information System
IC	Investigating Committee

SUMMARY

Type of occurrence	**railway incident**
Character	**railway vehicle broke loose**
Date of occurrence	**9 December 2009**
Location of occurrence	**Devecser-Tüskevár**
Type of railway system	**national**
Type of movement	**freight train**
Fatalities/injuries	**-**
Infrastructure manager	**MÁV Zrt.**
Extent of damage	**points were split open**
Registration number of the involved train(s)	**90043**
Operator	**Balaton Industrial Railways Plc. (Balatoni Iparvasút Zrt.)**
State of Registry	**Republic of Hungary**

Location of the occurrence

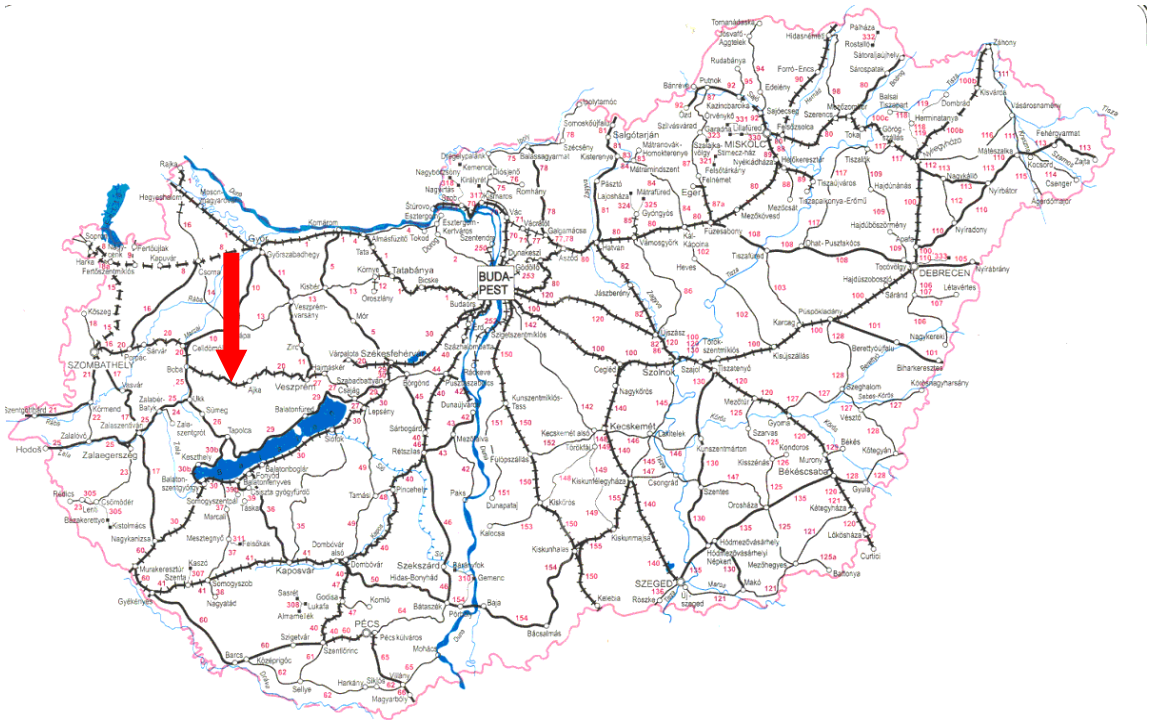

Figure 1: The location of the incident on the railway map of Hungary

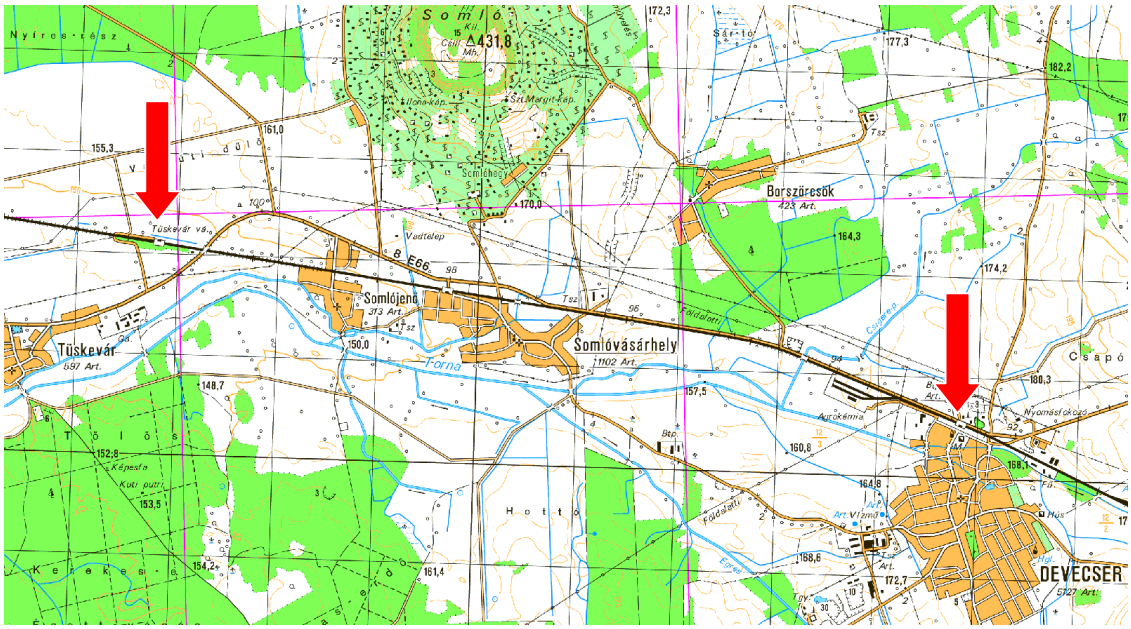

Figure 2: the location of the incident on a more detailed map

Reports and notifications

The head of traffic operations control of MÁV Zrt. reported the occurrence to the TSB duty services at 11:54 hrs on 9 December 2009.

The on duty personnel of TSB reported the occurrence to the TSB's head of department on duty and to the accident investigator on duty at 11:57 hrs on 9 December 2009.

Investigating Committee

The Director-General of TSB appointed the following Investigating Committee (hereinafter referred to as IC) to investigate the railway incident on 9 December 2009:

Investigator-in-charge	Gábor Chikán	accident investigator
Member of IC	Flórián Gula	accident investigator

Overview of the investigation

The IC conducted a site survey on 9 December 2009 at the station where the incident occurred, and another site survey at the headquarters of the railway undertaking on 11 December 2009. In the course of the site surveys, the IC

- interviewed witnesses and other persons concerned;
- requested and received the necessary documents and
- evaluated the strip chart recorder.

Overview of the occurrence

On 9 December 2009 freight train with two Czech locomotives (series 740) running from Ostrava to Ajka-Bauxitrakodó - carrying coal - was separated at Devecser station as the rest of its route was going to be on a hilly area.

While the train was waiting for departure, its crew left it - without stopping the locomotive and locking the wagons - and went to the traffic office. As a consequence, the train broke loose (as the station is on a slight incline), split points no. 1 open and rolled towards Tüskevár station.

The crew was unable to stop the train either at the area of Devecser station or on the open track. It was eventually stopped by the movements inspector of Tüskevár station - who had been notified about the incident - with two double scotch blocks. Beforehand he arranged for train no. 905 (which was to arrive at Tüskevár) to be stopped at the neighbouring station.

The IC established the following:

- the train was not braked adequately,
- although it is not directly connected to the above, no brake test was conducted on the train,
- the crew left the train contrary to the regulations,
- the locomotive was not equipped with a train control system prescribed for this railway line,
- the vigilance warning device - on which the buttons, handles and signs were labelled in a language unknown to the engine-driver - was disabled,
- the operation licence of one of the locomotives had expired before the time of the occurrence and it was given to a different railway undertaking (not the one that operated the locomotive).

Furthermore, it is difficult or in some cases not possible for certain railway undertakings to gain knowledge about the railway line.

The IC issues safety recommendations in order to rethink/review the rules on gaining ‘line-knowledge’ as well as to harmonise the language of the signs on the control panels of locomotives with the language knowledge of engine-drivers.

1 FACTUAL INFORMATION

1.1 Course of events

On 9 December 2009 a freight train carrying coal (running from Ostrava to Ajka-Bauxitrakodó) entered Hungary at Rajka station, with 24 loaded wagons. From Rajka the freight train (no. 48227) was forwarded by Balaton Industrial Railways Plc to its Czech partner with two (series 740) locomotives.

After the locomotive was put onto the other end of the train and the crew changed at Porpác station, the train departed towards Devecser where it arrived at 9:07 hrs. The train was separated here on track no. IV - as the rest of its route was going to be on a hilly area. 12 wagons stayed there secured with scotch blocks and the other 12 wagons were forwarded to Ajka-Bauxitrakodó.

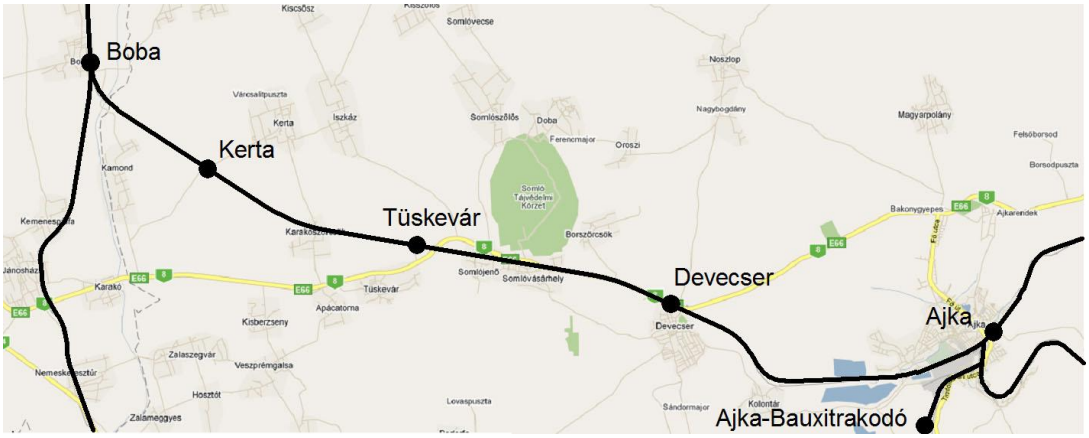

Figure 3: the location of the stations mentioned in this report

Afterwards, the two locomotives went back to Devecser (running solo) to collect the remaining 12 wagons. The locomotives arrived at track no. III at 10:58 hrs from where they shunted to track no. IV to be coupled onto the wagons.

The crew of the train went into the traffic office to do some administrative tasks. According to them, the train was only braked with its auxiliary brake; the brake valve was not in 'end-position'.

While they were in the traffic office, the signal box indicated (by an acoustic signal) that points no. 1 had been split open; this is when the crew realised that the train had broken loose. The movements inspector notified the neighbouring station. In the meantime the crew tried to reach the train by running and cycling after it and then by the trainee movements inspector's car as well but their effort proved unsuccessful. The engine-driver attempted to jump onto the train at an LC but he was unable to do so as the train was accelerating. Two other personnel drove to the neighbouring station (Tüskevár).

Meanwhile, delayed passenger train no. 905 was en route from Boba to Devecser. The crew at Devecser station telephoned Tüskevár to warn them about the train having broken loose. The movements inspector of Tüskevár station did not answer the phone as he thought the phone call must have been an inquiry about the delayed train, therefore he first called Kerta station to ask about the delayed train. During this phone conversation, permission was given to train no. 905 to run between Kerta and Tüskevár stations.

It was only after the above phone call that Tüskevár station contacted Devecser and learnt about the train which had broken loose. Then the movements inspector immediately revoked the permission from train no. 905 and placed two double scotch blocks onto the transit main track of the station.

The train ran onto the scotch blocks and while pushing them forwards it began to decelerate. By opening the Ackermann switch, it stopped at section no. 1012.

1.2 Injuries to persons

No one was injured.

1.3 Damage to railway vehicles

None.

1.4 Damage to infrastructure

Points were split open but were not damaged.

1.5 Other damage

As a consequence of the occurrence:

- 2 trains were partially cancelled
- 5 trains were delayed by altogether 331 minutes.

1.6 Personnel information

The crew of train no. 9004:

Engine-driver	
Age	**51 years**
Gender	**male**
Engine-driver qualification gained	**in 1978**
Last training course	**November 2009**
Line knowledge	**valid**
Medical certificate valid	**July 2011**
On duty since (on the day of the occurrence)	**5:00 hrs**
Finishing last duty	**5:00 hrs on 8 December** (the day before the occurrence)

The engine-driver was trained for this type of locomotive in the Czech Republic. (there is an exam documentation on this in Czech language). When he began to drive on railway lines in the territory of Hungary, a Czech colleague accompanied him on his first routes.

Shunter	
Age	**44 years**
Gender	**male**
Last training course	**November 2009**
Medical certificate valid	**November 2011**
On duty since (on the day of the occurrence)	**5:00 hrs**

Finishing last duty	**5:00 hrs on 8 December** (the day before the occurrence)

Note: there were monthly training courses at the railway undertaking.

1.7 Train information

Registration number	**90043**
Train type	**freight train**
Vigilance warning device	**disabled**
Registration number of locomotives	**740 604-4 assisting locomotive 740 618-4 traction (remote controlled)**
Owner of locomotives	**OKD Doprava**
Owner of wagons	**OKD Doprava**
Number of wagons	**12 Eaos type wagons**
Length of train	**170 m**
Total mass	**914 t + 2x72 t = 1058 t**
Prescribed braked weight percentage	**23%**
Actual braked weight percentage	**61%**
Prescribed parking brake percentage	**5%**

1.7.1 The locomotives

Mass of the locomotives

- According to the data in their operation licence: 72 t
- According to the data of SZIR: 64 t

1.7.2 The operation licence of locomotive no. 740 604-4

The operation licence is on the name of BIV Zrt as operator

It is valid until the termination of the lease contract.

The locomotive is equipped with a vigilance warning device. It may only run solo or with an assisting locomotive (as part of a double traction) on railway lines with built-in train control system (in the absence of exemption from 12.3.11 of F.2.Traffic Regulations).

1.7.3 The operation licence of locomotive no. 740 618-4

The licence is on the name of EUROCOM Zrt. as operator (it is not transferrable) and was valid until 31 January 2009 (it expired before the time of the occurrence).

The locomotive equipped with MIREL VZ1 type device may run in vigilance mode without restrictions (having regard to its exemption from 12.3.11 of F.2.Traffic Regulations) with one engine-driver and one lookout personnel.

1.8 Station information

Devecser

There are six tracks at the station, four of which are arrival tracks (II-V). The main transit track is track no. III. The open track is protected by dead-end tracks and industrial tracks from tracks. I, V and VI.

The area of the station slopes (1.8 ‰) towards the end point (Tüskevár).

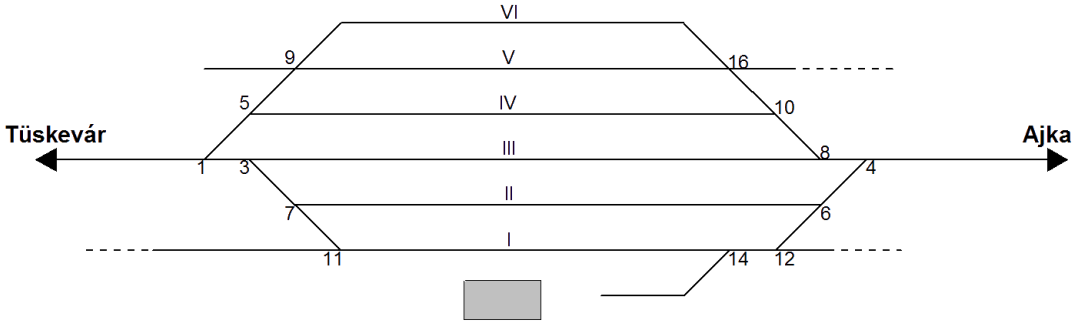

Figure 4: Track network of Devecser station

Tüskevár

There are three arrival tracks and a dead-end track at the station. It slopes towards the end point (Kerta).

1.9 Description of the rail track and the signal box

The speed limit on the rail track in the section concerned is 100 km/h.

The track continuously slopes towards the end point. The level difference between the two stations is 25 metres. See the details of the slopes in the table below.

start (section)	degree (‰)	length (m)
914+54	7,0	200
916+54	5,6	250
919+04	1,8	197
Devecser station, traffic office		
921+01	1,8	260
923+61	2,5	399
927+60	6,0	43
928+03	5,4	320
931+23	5,5	400
935+23	4,2	410
939+33	3,2	320
942+53	3,9	250
945+03	3,0	460
949+63	2,5	490
954+53	3,0	900
963+53	4,0	200
965+53	2,3	300
968+53	1,0	300
971+53	0,4	320
974+73	0,8	435
979+08	3,6	200
981+08	4,5	400
985+08	3,4	650
991+58	0,8	300
994+58	0,1	400

998+58		

1.9.1 Signal boxes at the stations

There are D55 type signal boxes at both stations, by which the points that are connected to it can be set centrally and monitored continuously. Thus, if the points are split open, a signal immediately appears on the control panel.

1.9.2 The train control system on the locomotive

There are Czech train control systems on the locomotives which cannot be operated on the Hungarian railway network. The train control system and vigilance warning device was disabled.

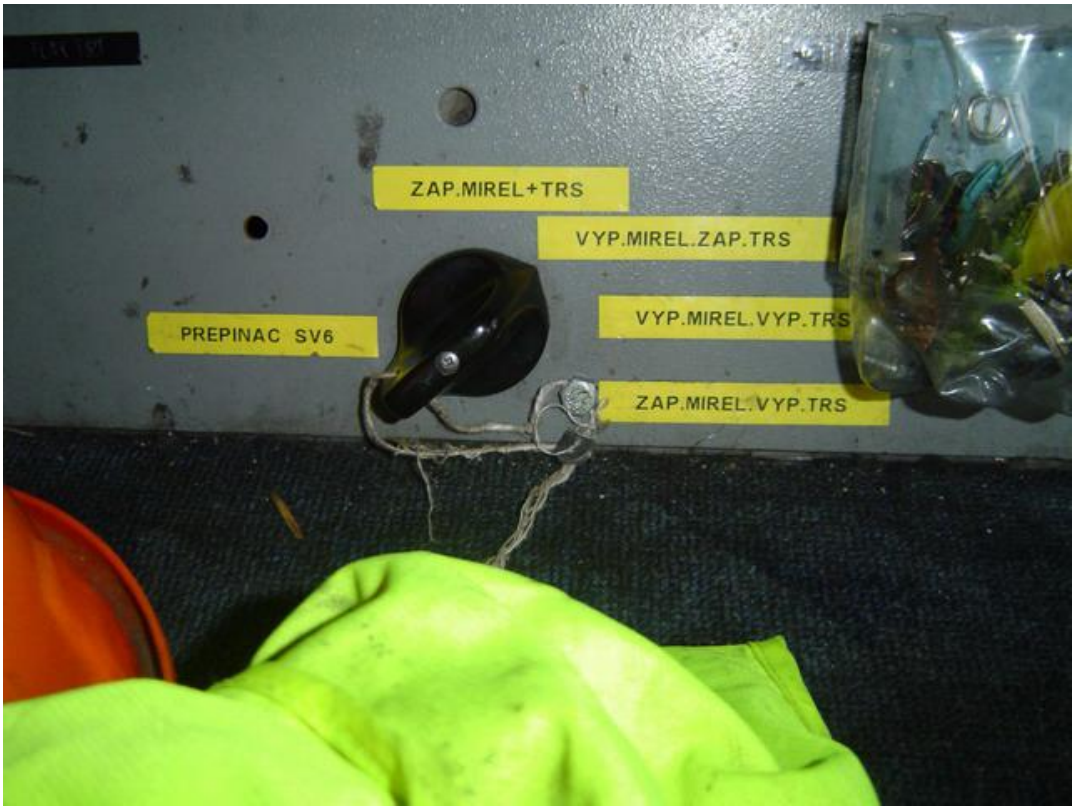

Figure 5: The switch of the train control device on the locomnotive (Photo: VBO)

This switch is only labelled in a foreign language (see Figure 5). According to the knowledge of the engine-driver, the switch should be used as shown in the photo when travelling on the railways in Hungary. However, he did not know what the other (Czech) labels/signs meant.

According to the translation obtained by the IC, the meanings of labels are as follows (the switch was in the position indicated with yellow colour):

PREPINAC SV6	SV6 switch (the name of the switch)
ZAP. MIREL + TRS	Mirel and TRS on (line radio system)
VYP. MIREL, ZAP. TRS	Mirel off, TRS on
VYP. MIREL, VYP. TRS	Mirel off, TRS off
ZAP. MIREL, VYP. TRS	Mirel on, TRS off

1.10 Data recorders of railway vehicles

MIREL type speedometer and data recorder was operating on both locomotives. For the time-proportional movement diagram of the assisting locomotive, see Figure 6 below. The distance-proportional diagram was not available for the IC.

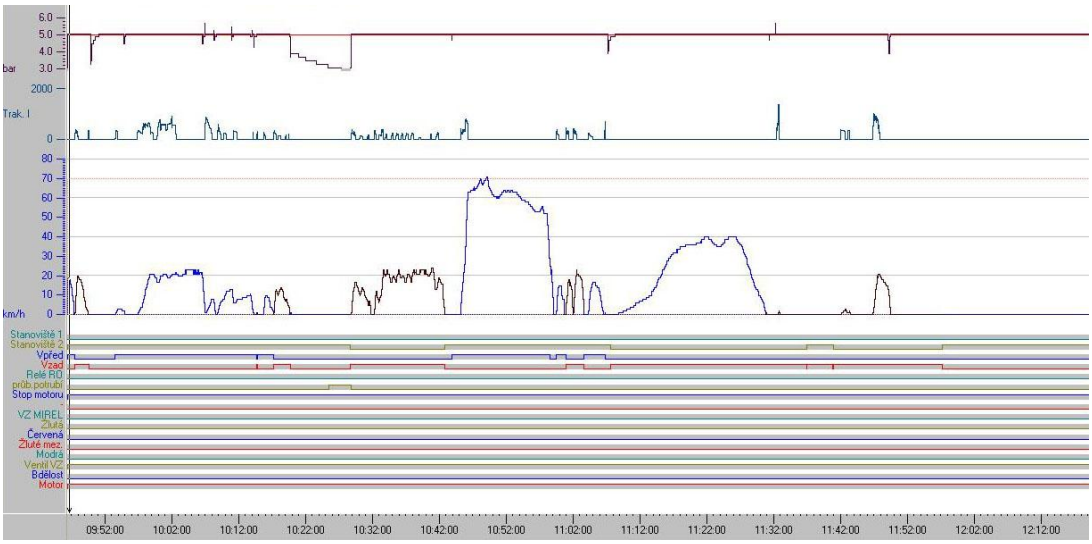

Figure 6: the data recorder of locomotive no. 740 604-4

The blue and the black lines indicate the direction of the movement.

1.11 Communications

The movements inspectors used the service telephone (used only between railway stations) to request permission and to inform each other about the occurrence. The telephone operated normally and had no relevance in the investigation.

1.12 Meteorological information

The weather conditions had no effect on the course of events, therefore their detailed analysis was not required.

1.13 Survival aspects

No one was injured and there was no life-threatening situation in the course of events.

However, the following might have been potential risks:

- If the delayed passenger train had run as scheduled, it could have collided with the train running free between Devecser and Tüskevár stations.
- in order to stop the train, the engine-driver tried to jump up onto it even though it was running relatively fast.

1.14 Tests and research

The IC did not conduct test and research.

1.15 Organisational and management information

The description of the organisational and management information is not required for the investigation.

1.16 Rules and regulations

1.16.1 Parking

According to 5.2.22.1 of Regulations E.2, the train shall be kept standing by either the auxiliary or parking brake of the locomotive.

1.16.2 Leaving the locomotive

According to 6.3 Chapter I of Regulations E.1, the engine-driver may leave the train - with the permission of the movements inspector - when he has shut down the engines, secured the locomotive against free run and locked it.

1.16.3 Stopping trains running free

According to 5.3 of F.2. Traffic Regulations, two double scotch blocks shall be kept at every station which shall be placed onto the rail track in the event of trains breaking loose. The train running free may be received on a dead-end track or it can be delayed depending on whether or not there is another train approaching the station.

1.16.4 Running on rail tracks equipped with train control system

According to 12.3.11 of F.2. Traffic Regulations, only locomotives equipped with the appropriate train control system may run regularly on such rail tracks.

1.17 Additional information

1.17.1 Loading capacity of locomotives

From traction aspects, the Devecser-Ajka section belongs to the so called '10th loading section'. The maximum load for 740 series locomotives with which trains can accelerate to high speed is 1250 tonnes.

Maximum 2400 tonnes can be forwarded with 50 km/h.

Previously, the wagons had been forwarded in one train with 2 locomotives to Ajka-Bauxitrakodó, therefore more load could be carried. However, as some locomotives were inoperative, it was decided that the train would be separated at Devecser and forwarded to Ajka-Bauxitrakodó in two parts.

1.17.2 Routes

The routes of the train involved in the incident with the corresponding timetables in the traffic operation system:

2009/132282/5	**Rajka OH. (18:00) – Bauxitrakodó ipvk. (4:00)** *International freight train* According to timetable: 15:30 – 03:24
2009/146464/1	**Bauxitrakodó ipvk. (9:00) – Devecser** *Locomotive running solo, no timetable available in the system*
2009/146465/1	**Devecser (8:30) – Bauxitrakodó ipvk.** *Domestic freight train, no timetable available in the system*

2009/132344/2 **Bauxitrakodó ipvk. (7:00) – Rajka OH. (16:00)**
International freight train
According to timetable: 7:00 – 17:36

1.18 Previous occurrences of a similar character

TSB has not investigated occurrences in which trains broke loose before.

Nonetheless, such incidents have occurred on numerous occasions on the Székesfehérvár-Szombathely railway line with serious consequences. This shows the possible dangers of the track layout in this area.

2 ANALYSIS

2.1 Movements

As the IC only possessed the time-proportional recordings, the distances are estimated (based on the area measurements - see Figure 7). The known distance between Ajka and Devecser is 12.7 kms.

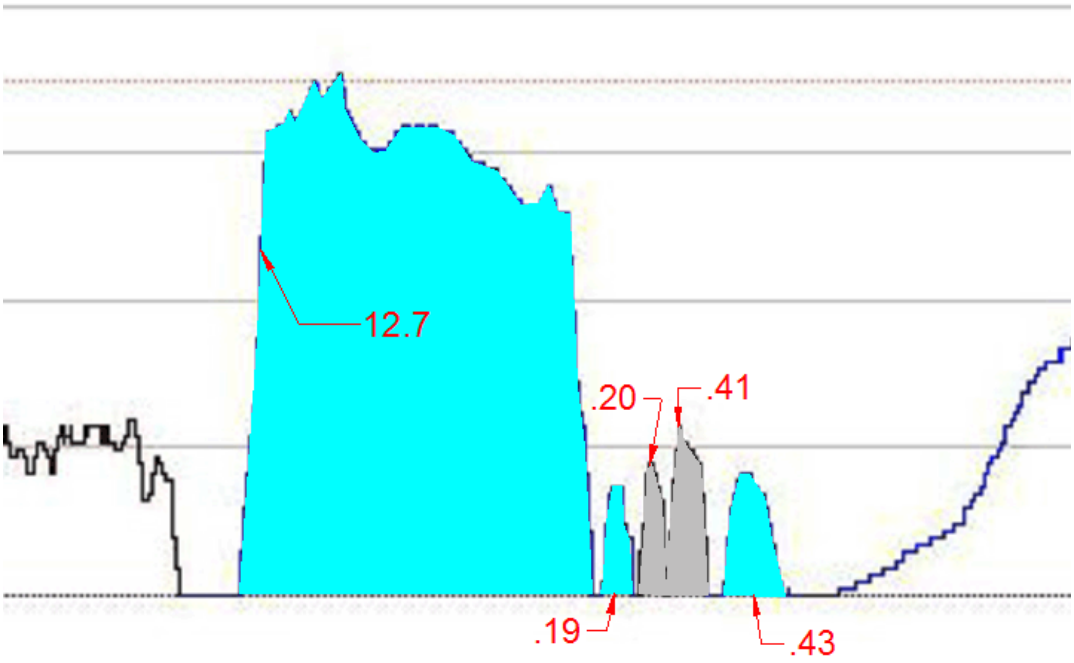

Figure 7: distance estimates on the recording

According to the recording, the locomotive went back from Ajka-Bauxitrakodó to Devecser station and then its movements were the following:

1. kb. 190 m movement towards Tüskevár,
2. kb. 200 m movement towards Ajka,
3. kb. 410 m movement towards Ajka,
4. kb. 430 m movement towards Tüskevár.

First the locomotive ran until the rear of the 170-metre-long train and then was coupled to the train (movements 3 and 4 - the distance between the traffic office and the outermost points). According to the recordings, the locomotive was coupled to the train 2 minutes before the ‘free run’.

Based on the clock of the data recorder, the train broke loose at 11:09 hrs and it stopped at 11:31 It ran free for 22 minutes, during which its maximum speed was 40 km/h. The distance ran was 9.1 kms, that is, the train rolled with an average speed of 25 km/h.

2.1.1 Time available to secure the train

As said above, the locomotive was coupled to the train 2 minutes before the train broke loose.

After the coupling, the crew went to the traffic office. Two minutes is not enough for the crew to inspect the train to its full length after the coupling, check the brakes and take actions to secure the train from running free (remove the scotch

block previously placed onto the track to the end-point side of the train and place in front of the locomotive).

On the contrary to the statement of the crew, the IC believes that no break test was done before the train broke loose, neither the rear signal (tail light) was put onto the rear of the train. Furthermore, the previously placed scotch blocks could only have been removed between the first and second movements.

Therefore, while the locomotive was coupled onto the train, it was kept standing only by the remaining brake effect from a pneumatic braking done 2 hours before.

2.1.2 The train breaking loose

After the coupling, the re-pressurisation of the main brake line results in loss of (previous) braking effect as a consequence of the train may break loose, if no other brake is applied.

There was no scotch block under the train by this time; - according to the crew - only the auxiliary brake was put in a position which does not ensure full braking effect. This could also have been released due to the vibration of the locomotive (its engine was in operation). Pursuant to the relevant regulation (see **Hiba! A hivatkozási forrás nem található.**) the brake shall be put in a position which ensures full braking effect. (According to his statement, the engine-driver knew that the brake lever may shift from the position not ensuring full braking effect.)

The IC thinks that the train can break loose during the re-pressurization of the brake system the same way as when the auxiliary brake is not used.

2.2 Parking

The train was parked on a track sloping 2,5‰. In order to keep the track standing still, 2% brake percentage is needed. This requires the following braked weight:, which is ensured by the pneumatic brake of the locomotive

1058 t x 2% = 22 t

Thus, when complying with the relevant regulation (see 1.16.1), the train does not break loose.

2.3 Locomotives

2.3.1 Train control system

The locomotives were not equipped with the train control system required for this rail track, therefore they should not have run (and forward wagons) on this railway line (see 1.16.4). Exemption from this rule may be granted.

- The lack of this exemption is specified in the technical operation licence of the assisting locomotive (740 604-4), therefore it may only run with an assisting locomotive (as part of a double traction) on railway lines with built-in train control system,
- The traction locomotive was in possession of this exemption (740 618-4).

In theory, if the locomotives had been coupled and run in different (reverse) order, they would have complied with the regulations.

The operation licence of the traction locomotive (740 618-4) was invalid as

- it was given to a different operator,

- and it was valid for a definite time period (until 31 January 2009) and expired by before the incident occurred.

The IC thinks that the above facts are not directly connected to the occurrence as the exemption and/or the reverse order of the locomotives would not have changed the physical circumstances (the disabled train control system does not stop the train running free).

2.3.2 Disabling the vigilance warning device

The train control function of locomotive 740 604-4 cannot be used in the Hungarian railways (see. 1.7.2). At the time of the occurrence, not only the train control function was disabled but the vigilance warning function as well.

Therefore, it was incapable of stopping the train automatically when it broke loose in the absence of the engine-driver.

The knowledge of the engine-driver (according to which the device should be disabled or switched off in the Hungarian railway lines) and the operation licence (according to which the locomotive is only equipped with a vigilance warning device) are not in harmony.

The switch of the device is only labelled in a foreign language (see Figure 5). The crew did not know the meaning of the labels/signs, they only knew about its disabling function (position).

As it can be seen in the photo, the lead seal of the switch is too long, which allows the switch to be positioned without tearing the seal. Thus it does not serve its function.

2.4 Leaving the locomotive

According to the statements of the crew, they tested the brakes and removed the previously placed scotch blocks from under the train after the coupling of the locomotive onto the train, and then they went into the traffic office. However, they did not

- shut down the engines,
- secure the locomotive against free run, and
- lock it (see 1.16.2).

The fact that the train was not secured against free run is directly connected to to occurrence of the incident.

It could not be established whether or not the movements inspector gave permission to the crew to leave the locomotive.

2.5 Traffic circumstances

According to the schedule, passenger train no. 905 should have been running in the railway section between Tüskevár and Devecser at the time of the occurrence. However, this train was delayed by 13 minutes, therefore it was still before Kerta when the incident occurred. Although Tüskevár station gave the permission to run between Kerta and Tüskevár, the permission was then revoked before the train departed from Kerta.

The movements inspector of Kerta stopped the train (differing from the schedule) and directed it to track no. III in order to free the main transit line of the station.

As the movements inspector of Tüskevár station did not answer the phone when Devecser called (supposing that it was inquiring about the delayed passenger

train), he was only later informed about the danger and he gave the permission for the fast train to run on the same track as the freight train was running free in opposing direction. This action created even more risk.

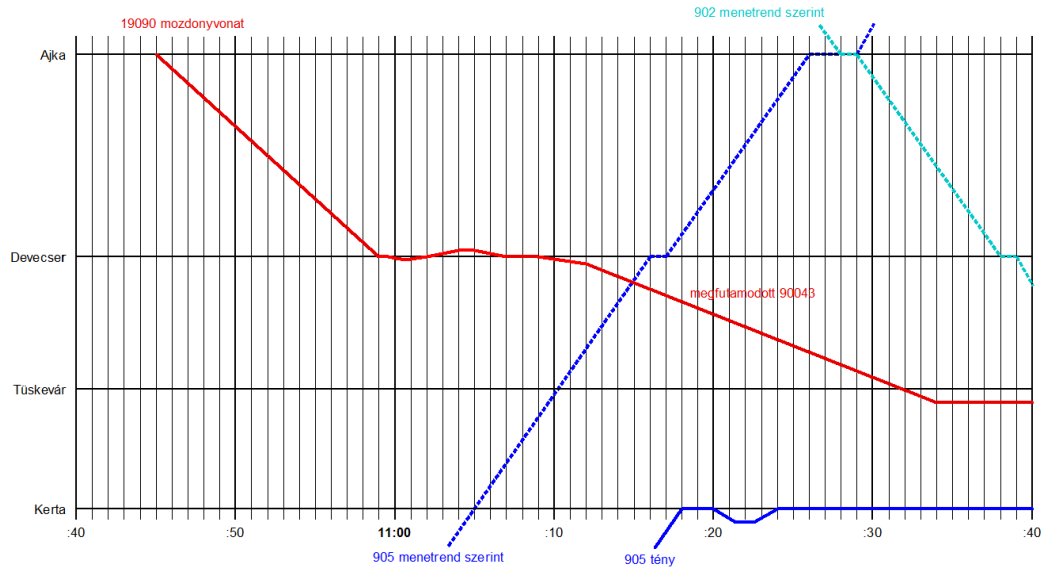

Figure 8: traffic circumstances when the freight train broke loose

2.5.1 Choosing the right track to receive trains

The movements inspector of Devecser station received train no. 48227 on track no. IV where half of the wagons had to be stored for a few hours. It would have been safer if the wagons had been parked on a dead-end track (e.g. track no. V).

2.5.2 Routes

The time data of the routes and the timetables (which are handled alt with in the same system) given to the trains are not in harmony with each other. E.g. route Rajka OH. – Bauxitrakodó ipvk. is 18:00-4:00 hrs while its timetable is 15:30-3:34 hrs.

There was a mistake in the order of the trains. The order based on the prescribed procedures is as follows:

- Loaded freight train from Rajka to Bauxitrakodó (separated at Devecser),
- Locomotive running solo back to Devecser,
- Freight train (with the second part of the train) from Devecser to Bauxitrakodó,
- Empty (unloaded) freight train back to Rajka..

The times of these movements according to the routes:

- 18:00 – 4:00 (15:30 – 3:24 in the timetable)
- 9:00 – n.a.
- 8:30 – n.a.
- 7:00 – 16:00 (7:00 – 17:36 in the timetable)

The third and the fourth case are clearly impossible as the train cannot depart before its locomotive and/or wagons arrive.

2.6 Stopping the train

The movements inspector of Devecser notified the movements inspector of the neighbouring station (Tüskevár) who had previously given permission to train no. 905 to run between Kerta and Tüskevár.

As this permission was revoked before the train would have entered the section, there was no other train which would have caused further dangers when attempting to stop the freight train running free. (Otherwise it should have been directed to a dead-end track where it could have derailed endangering the storage building and traffic office, or it should have been derailed by switching the points accordingly.)

Applying the relevant rule, the movements inspector switched the points to lead trains onto the main transit track and placed two double scotch blocks onto the rail track in order to stop the broken away train. According to the crew, the scotch blocks were efficient as they slowed down the train. The actually stopping was done by the pneumatic brake by opening the Ackermann switch of the train.

It is most probable that the double scotch blocks would have stopped the train on a little bit longer distance; the Ackermann switch just expedited the stopping and made it safer. (The double scotch blocks may get stuck on the points or at other intersections, crossings etc. and cause derailment or they may burst forth from under the wheels. In this case, the train pushed the scotch blocks through the points area without problems.)

2.6.1 Remark

The relevant section of the Traffic Regulations is as follows (see also in 1.16.3):

> **"5.3.1.** In order to stop trains running free […depending on the circumstances, one or two…] scotch blocks shall be kept near at hand, at an easily accessible place. Instead of one double scotch blocs, two double scotch blocks may also be applied."

The IC presumes that the text is faulty. The underlined expression should be 'double scotch blocks' correctly.

2.7 Gaining line-knowledge

The engine-driver had already known this railway line. He had driven on this line before on his own, at those times, however, he had yet not known the line well and drove the train according to the verbal orders of his superior.

The reason for this was - according to the operator of the locomotive - that if a railway undertaking wishes to run a train on a route not known before, the only way to do so would be that the crew would have to travel on the trains of other railway undertakings (which are competitors) to gain knowledge of the given line/route. This solution would not be ideal.

Furthermore, they did not know how they could possibly request another engine-driver or other personnel who has good knowledge knows the route well and could help direct the engine-driver.

3 CONCLUSIONS

3.1 Factual statements directly connected to the occurrence of the accident

The crew left the train without taking the required measures to secure the train against free run and to lock it.

The vigilance warning device of the locomotive was disabled, therefore it was unable to serve its train-stopping function when the train broke loose.

3.2 Factual statements indirectly connected to the occurrence of the accident

The operation licence of the traction locomotive was invalid. According to its operation licence, the assisting locomotive had no permission to run on this railway line as an assisting locomotive.

At Devecser station, the track which was chosen to park the wagons on had no safety dead-end track.

The movements inspector of Tüskevár station did not answer the phone when Devecser called, therefore he was informed about the occurrence with a delay.

3.3 Other risk factors

It is difficult for certain railway undertakings (not regularly running on the Hungarian railways) to gain knowledge about the railway lines.

The switches on the locomotive were labelled on a foreign language unknown to the crew. Nor did they have any knowledge of the functions of the switch.

4 SAFETY RECOMMENDATIONS

Such occurrences can be prevented by complying with the relevant regulations. However, in order to draw attention to the importance of compliance and to the indirect causes, the IC issues the following safety recommendations:

BA-2009-627-5-01

As in was the case in this present occurrence there is a risk that railway vehicles do not possess valid operation licence or they do not comply with the regulations in their licence.

In order to keep a record of and control the relevant information easier, the IC recommends the NTA to summarise all restrictions and exemptions in the operation licence of railway vehicles separately and in a clear, concise manner.

This way, the essential elements of the operation licence related to traffic can be known more easily and their documentation and monitoring can be made simpler and more reliable.

BA-2009-627-5-02

The IC recommends the NTA and the infrastructure managers on openly accessible railway lines to create a system in order to monitor the operation licences of railway vehicles, with special emphasis on their validity, restrictions and exemptions while demanding of railway undertakings to provide the required information. .

By implementing this recommendation, it could be ensured that vehicles not in possession of valid operation licence or not complying with the conditions in their licence will not run on the railway network.

BA-2009-627-5-03

When railway undertakings wish to run trains on new routes, at present they can only go on journeys to get to know the route on the trains of their competitors. Another possibility is to request another member of staff to go with them, however, the infrastructure manager has no obligation to grant such requests.

Therefore, the IC recommends the NTA to review the relevant regulations as to whether or not it is ensured for all railway undertakings without discrimination that locomotive crews can gain knowledge of the routes or may request assisting staff. If necessary, the relevant regulations should be amended accordingly.

By implementing this recommendation, it could be ensured that the staff of every railway undertaking is able to gain knowledge of the railway lines/routes.

BA-2009-627-5-04

The IC has found in the course of the investigation that the locomotive crew did not know the functions of the switches on the locomotive adequately, therefore - despite previous trainings - they were not sure how to operate them.

Therefore the IC recommends the NTA to obligate railway undertakings to provide traction vehicle staff with standard, concise ‘type’-documents which include the essential safety information and handling/operation rules in a language known to the staff. Engine-drivers should have the opportunity to get to know these documents. A

By implementing this recommendation, there would be less chance that crews make mistakes and the gained knowledge can be applied with more confidence and more accuracy.

Budapest, ….. December 2010

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NOTE:
This present document is the translation of the Hungarian version of the Final Report.
Although efforts have been made to translate it as accurately as possible, discrepancies may occur.
In this case, the Hungarian is the authentic, official version.