R E P U B L I C OF B U L G A R I A

NATIONAL AIR, MARITIME AND RAILWAY TRANSPORT, ACCIDENTS INVESTIGATION BOARD (NAMRTAIB)

Dyakon Ignatiy str., Sofia 1000
tel. (+359 2) 940 9317
Fax: (+3592) 940 9350

bskrobanski@mtc.government.bg
bskrobanski@abv.bg

FINAL REPORT

of

Investigation of significant accident – Run out and collision of two employees during work by Fast train No2654 between the stations Telish-Gorni Dabnik, track 2 on 06.06.2024

Sofia 2024

OBJECTIVE OF INVESTIGATION AND EXTENT OF RESPONSIBILITY

The National Air, Maritime and Railway Transport Accidents Investigation Board (NAMRTAIB), which is an independent body performs the investigation of significant accidents, accidents and incidents. The National Board is within the Council of Ministers (CM) of the Republic of Bulgaria, and aims to find the circumstances and causes that led to the accidents and incidents occurrence in order to improve the safety and to avoid such in future as the priority is given to avoiding significant accidents.

The investigation, which the NAMRTAIB performed is independent from any judicial investigation, and does not include the determination of fault or responsibility.

The investigation is performed in accordance with the requirements of DIRECTIVE (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway transport safety, the Railway Transport Act (RTA), Ordinance No59 dated 5.12.2006 on the rail transport safety management, as well as per Agreement dated 11.04.2023 on the interaction during investigation of accidents and incidents in the air, maritime and railway transport between the Prosecutor's Office of the Republic of Bulgaria, Ministry of Interior, and the National Air, Maritime and Railway Transport Accidents Investigation Board.

The Investigation reports follow the requirements of REGULATION (EU) 2020/572 of the Commission dated 24 April 2020 on the reporting structure for railway accident and incident investigation reports.

TABLE OF CONTENTS

ABBREVIATIONS, USED IN THE REPORT

BDZ PP EOOD – State enterprise for passenger transport
FT – Fast train
TDRC – Train Dispatching Radio Connection
TOS – Train Operation Schedule
SE NRIC – State enterprise „National railway Infrastructure Company "(railway infrastructure manager)
EI – Electrical Interlocking
RS – Vratsa railway section (division at SE NRIC)
RTA – Railway Transport Act
HSLCA – Healthy and Safe Labor Conditions
TOU – Traffic organization unit
RAEA/NSA – Railway Administration Executive Agency, National Safety Authority
km – Kilometre along the rail track
OCL – Overhead contact line (catenary)
ST – Shunting train
MoI – Ministry of Interior
SL – Shunting locomotive
ORDINANCE No 13 dated 30.12.2005 for ensuring healthy and safe labor conditions in the rail transport
ORDINANCE No 58 – on the rules for the technical operation, train traffic and signalling in the rail transport
Ordinance № 59 – Ordinance on the rail transport safety management
NAMRTAIB – National Air, Maritime, and Railway Transport Accidents Investigation Board (Safety Investigation Body of the Republic of Bulgaria)
NIS – National Investigation Service (pre-trial investigation body at the prosecutor's office)
TF – Task Force
SE – Signalling equipment
RRS – Rail Rolling Stock
RTORI – Rules of technical operation of the railway infrastructure of SE NRIC
TGM – Transport group manager
RITS – Regional inspection Transport Safety at SE NRIC
RSPSM – Rail self-propelled specialized machine
RD MoI – Regional Division of the Ministry of Interior
ECM – Entity in Charge of Maintenance
CRW – Construction repair works
SMS – Safety Management System
TWMR – Train work management and reporting manual
TI – Technical inspection
HTM – Heavy Track Machinery
TOSAMD – Train operation and station activity management Division (division of SE NRIC)
DCCM – Device for communications, connections and messages in stations
UMHAT – University multi-disciplinary hospital for active treatment
PQC – Professional qualification centre at SE NRIC
PQC – Professional qualification centre at Holding BDZ EAD

1. Summary

1.1. *Brief description of the event.*

At the Telish - Gorni Dabnik interstation, track No. 1 was closed to the movement of trains and vehicles with a telegram from the Director General of SE NRIC dated 23.05.2024 to carry out SRR.

Due to the production necessity for the implementation of the main SRR on the rail track by order of the director of the Vratsa Railway Section on 06.06.2024 from Telish station at 21:08 p.m. RSPM No. 99529423013-2 departed with two engine drivers for work on the rail track in the Telish - Gorni Dabnik interstation, track No. 1 at km 165+500. The chief engineer and head of the transport group were also traveling in RSPM No. 99529423013-2.

RSPM No. 99529423013-2 arrived at the place of work at km 160A+100. There were tamped about 100÷150 meters of rail track. The RSPM was brought into transport position and continued the movement to km 165+484 around 21:50 p.m. The accompanying chief engineer and head of the transport group travelled with the engine driver in the first cabin of the RSPM. From the RSPM, the transport group leader descended to the left in the direction of traffic towards track No. 2. The chief engineer remained in the cabin to check the data entered in the RSPM computer with those of the project. The two engine drivers began preparations to bring the machine from transport to working position.

FT No. 2654 in a composition with 3 coaches B4, 119 tons with locomotive No. 91520044137-5 after carrying out a technical inspection and test "A" at Varna station departed according to schedule. In the section from Varna station to Gorni Dabnik station, the train moved according to the telegrams issued to change the train schedule. At Gorni Dabnik station, the train arrived at 21:52 to meet train No. 20103. After transit passing of train No. 20103 at 21:58 p.m., the traffic manager on duty took action to ensure the movement of train No. 2654 with Telish station on track No. 2. At 21:59 p.m. the train left one minute late. During the movement of the train on current track No. 2, after exiting in a left curve, the locomotive crew saw on current track No. 1 white lights of RSPM No. 99529423013-2 and issued a "Caution" signal. At the time of passing of FT No. 2654 with RSPM No. 99529423013-2, the locomotive crew heard a blow from the front of the locomotive and the locomotive driver made a quick stop. The train stopped at km 164+769 at 22:03 p.m. On inspection of the locomotive by the locomotive crew, it was found that the air wires for 5.0 and 9.5 bar on the left side of the locomotive were disconnected, the handle of the 9.5 bar tap was deformed and part of a signal vest was on the wire for 9 .5 bar.

During the preparation of RSPM No. 99529423013-2 for work, the engine driver saw the oncoming train and also heard a collision. The impact was also heard by the other operator in the control cabin of the machine. The two drivers, hearing the noise of the impact, looked and saw the chief engineer lying next to the RSPM near track No. 1. The two engine drivers see blood and parts of the corpse of the transport group leader on track No. 2. At 22:05 p.m., the RSPM driver reported to the national emergency number 112.

At around 00:30 a.m., an emergency medical doctor arrived at the interstation at the scene of the accident and provided first aid to the injured employee. Due to bad terrain conditions and the impossibility of moving the car on the highway to the place, at 01:00 a.m. the victim was transported from km 164+486 along track No. 1 to Gorni Dabnik station with RSPM No. 99529423013-2, after which he was taken to the UMACH in city of Pleven.

At 02:40 a.m. a team of pre-trial proceedings from the NIS arrived at the scene of the accident and began inspections of track No. 1 and track No. 2.

At around 05:00 a.m. on track No. 1, the procedural-investigative actions by the investigative bodies for the pre-trial proceedings were completed.

At 05:06 a.m., by order of the senior train dispatcher, the movement of trains was temporarily restored on track No. 1 until the completion of the procedural and investigative actions on track No. 2.

At around 06:00 a.m. on track No. 2, the procedural-investigative actions by the investigative authorities for the pre-trial proceedings were completed.

At 06:30 a.m. the train traffic was restored on track № 2 with speed under schedule.

Fig. 1.1. Locomotive № 91524400137-5 after the accident.

Fig. 1.2. RSPM № 99529423013-2 after the accident.

1.2. Location and time of the event occurrence.

The event occurred between the Telish and Gorni Dabnik stations on track No. 2 at 22:03 p.m. The rail track is in a left curve with radius R=2000 meters, slope 9.50 ‰ in ascent from km 165+484 to km

164+769, centre distance between track no 1 and track no 2 = 4.62 meters, unevenness between track No. 1 and track No. 2 - track No. 1 is lower by 460 mm (fig. 1.2).

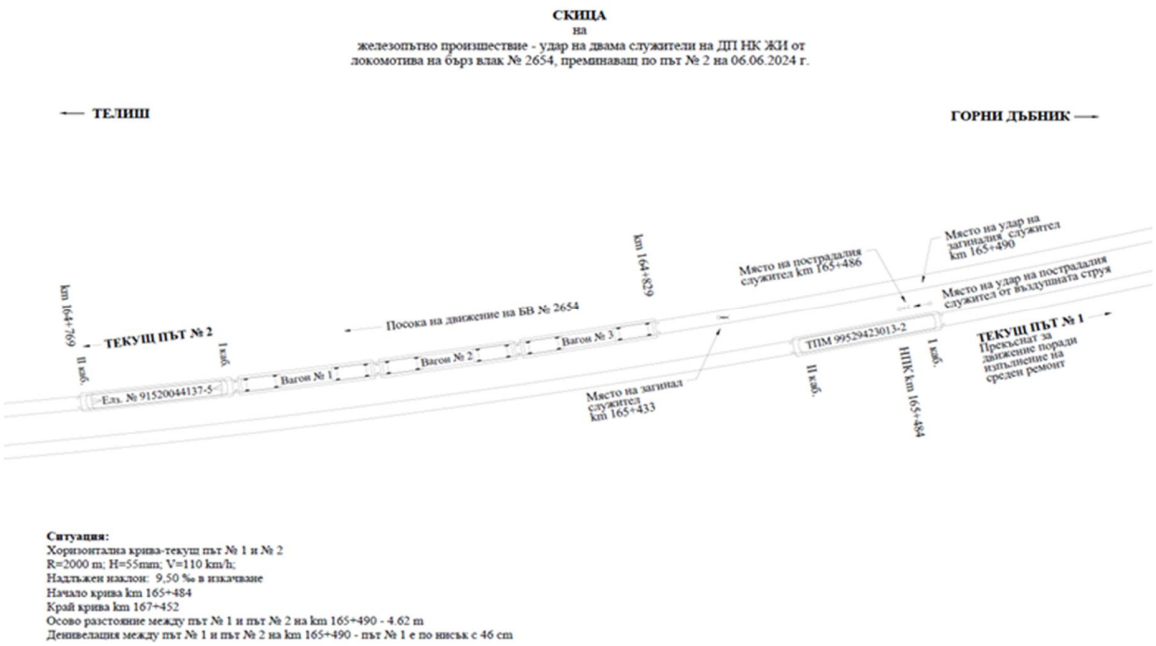


Fig. 1.3. Scheme of the place of the accident between the stations Gorni Dabnik – Telish

1.3. Factors determining and contributing the event.

A determining factor for the occurrence of the event is unsecured security and signalling with the necessary portable signals at the workplace.

A contributing factor to the occurrence of the accident was the brightly shining five ice headlights of RSPM No. 99529423013-2, located on track No. 1 for preparation of work, which blinded the locomotive crew, driving the locomotive of FT No. 2654, when the train exited from the left curve.

1.4. Direct causes and consequences of the event.

The direct cause of the accident was that the two employees of the RSPM got off from the side of the adjacent current track No. 2, which violated the gauge of the adjacent track and entered the danger zone.

The consequences of the event was that one employee was run over on track No. 2. The second employee, when getting off the RSPM from the side of track No. 2, entered the danger zone and was caught by the air jet of the train passing at 91 km/h, which spun him and he fell by eye near the RSPM on track No. 1, where the two drivers of the RSPM found him alive.

1.5. Safety recommendations and addressees to which they are addressed.

In order to prevent other similar accidents, the Investigation Commission proposes to the National Safety Authority (RAEA) safety recommendations related to the SE NRIC and "BDZ Passenger Services" EOOD.

- Recommendation 1, proposes that SE NRIC and BDZ PP EOOD familiarize the interested personnel with the contents of this report;
- Recommendation 2 proposes that the SE NRIC "Occupational Health and Safety Inspection" undertake systematic inspections regarding the quality of the briefings conducted by the managers and the entries in the briefing books;
- Recommendation 3 proposes that the State Health and Safety Inspection at Work organize and conduct trainings for managers conducting personnel briefings, paying particular attention to the accompanying dangers in the types of works on the rail track (manual and mechanized);
- Recommendation 4 proposes that the SE NRIC "Inspection of health and safety at work" carry out inspections in the divisions regarding analysing and supplementing the risk assessment in connection with the issued alarm bulletin of 19.06.2024;
- Recommendation 5 proposes to the SE NRIC, for sites performed in an economic manner by the relevant divisions, to prepare and approve technology for carrying out the relevant type of repair;
- Recommendation 6, proposes to BDZ PP EOOD that the locomotive staff, managing traction rolling stock when crossing sections with single and double rail track lines, on which repair works are carried out on the railway infrastructure, be alert, ready for a quick stop.

2. Investigation

2.1. Decision for starting the investigation.

Decision to initiate a safety investigation was made by the member of Management Board of the NAMRTAIB in the Republic of Bulgaria, leading the investigation of railway accidents and incidents as per art. 22, paragraph 3 of Directive (EU) 2016/798 of the European Parliament and the Council. Given the severity of the accident and its impact on the railway safety, the investigation was focused on establishing the causes and the analysis, aimed at preventing other accidents of a similar nature at the SE NRIC.

2.2. Motives for the decision to initiate the investigation.

The member of the Management Board of the NAMRTAIB, leading the railway investigation section, took the decision to initiate the investigation based on art. 20, paragraph 1 (a) and (c) of Directive (EU) 2016/798, art. 115к, paragraph 1, item 1 of RTA, and art. 76, par. 1, item 1 of Ordinance No 59 dated 5.12.2006.

The investigation was initiated in view of the circumstances that led to the running over of one employee and another, who suffered serious injuries from the air jet of the passing fast train No. 2654 on the adjacent track of current track No. 2 along the Telish - Gorni Dabnik interstation.

2.3. Scope and restrictions of the investigation.

The scope of the investigation included and analysed the organizational and human factor, the Safety Management System related to the repair and maintenance of the railway infrastructure, including the risk assessment with the registered hazards of the manager of the railway infrastructure, listed in the normative acts.

Restrictions and delays during the investigation were not allowed.

2.4. Competences of the persons, involved in the investigation.

In accordance with the requirements of Art. 22, paragraph 1 of Directive 2016/798, the Safety Investigation Commission is headed by the member of the Management Board of the NAMRTAIB, the head of the railway investigation department. The members of the commission are independent external experts - qualified persons from higher transport educational institutions, experts in the field of human and organizational factors with qualifications in railway infrastructure, railway rolling stock and operation and management of railway transport.

2.5. Communication and consultations with the persons and entities, involved in the event.

The Commission determined the parameters of the investigation and coordinated its actions with the Task Force, which includes heads of divisions and transport safety authorities of the two entities (SE NRIC and BDZ PP EOOD). The Task Force collected all documents, samples, materials and written statements of the personnel of the two entities in accordance with the requirements of Ordinance No. 59. The materials and documents were provided to the member of the Management Board of the NAMRTAIB. At the scene of the accident, the Investigation Commission conducted an interview with the locomotive crew of locomotive No. 91520044137-5, servicing FT No. 2654, the train's transport crew (train chief and conductor), the two RSPM drivers, the head of the Pleven RC, the head of the Vratsa Railway Station and the traffic manager on duty at Gorni Dabnik station. It reviewed the statements of the persons related to the accident. Additional information for the investigation was requested and provided by SE NRIC and BDZ PP EOOD. An interview was conducted with the transport safety authorities of both entities and with the occupational safety and health authorities at the Vratsa B Railway Section.

2.6. Extent of cooperation from the participating entities.

During the investigation conducted by the Commission at the NAMRTAIB, the management of the railway enterprise BDZ PP EOOD and SE NRIC provided full cooperation and the necessary set of materials and documents concerning the CRW. The order for the implementation of the CRW on the rail track in the Telish - Gorni Dabnik section, track No. 1, was provided. Access was provided to RSPM No.

99529423013-2, located in the Vratsa Railway Section base, for conducting inspections and decoding the records from the RSPM recording device.

2.7. Methods and techniques of investigation and analysis.

On 06.06.2024 at 22:30 p.m., the member of the Management Board of the NAMRTAIB with competence to investigate railway accidents received a written notification via SMS on the mobile phone from the central dispatcher on duty at the railway infrastructure manager with the text:

"At 22:00 p.m., train No. 2654 BDZ PP hit employees of the Vratsa Railway Section at the Gorni Dabnik - Telish track 2 single. The employees were working on the closed track 1 Telish - Gorni Dabnik."

The member of the Management Board of the NAMRTAIB with the competence to investigate railway accidents with external experts, left and arrived at around 00:30 a.m. at the scene of the accident in the Gorni Dabnik - Telish interstation, track No. 2. They conducted several inspections of the place where one employee was run over on track No. 2. They conducted inspections of the place where the seriously injured employee was near track No. 2. Interviews were conducted with the two RSPM drivers, with the head of the Pleven RS and with the head of the Vratsa Railway Section. Inspections of the stopped FT No. 2654 were conducted in the interstation. Traces and remains of the clothes and body of the run over employee were clearly visible on the plot of the train locomotive. An interview was conducted with the locomotive crew and the train transport crew. For about 50 meters on track No. 2, remnants of clothes and the body of the run-over employee were visible. Upon arrival at Gorni Dabnik station, checks were made of the station logs and books regarding the movement of the train in the direction of Telish station. An interview was conducted with the shift traffic manager on duty at Gorni Dabnik station.

After arriving at the scene of the accident, the pre-trial investigation authorities from the National Investigation Service (NIS), together with the member of the Management Board of the NAMRTAIB with competence to investigate railway accidents, organized and conducted joint inspections. The pre-trial investigation authorities from the NIS drew up a report after the inspections of the scene and seized materials for expert examinations.

At 05:00 a.m. on 07.06.2024, the inspections on track No. 1 were completed and a written permit was given by the NIS and NAMRTAIB bodies to the head of the Task force for the temporary restoration of train traffic and the release of the RSPM from supervision, which was moved to Gorni Dabnik station.

At 05:06 a.m., by order of the senior train dispatcher, train traffic was restored on track No. 1 until the completion of the inspections on track No. 2.

At 06:00 a.m., the inspections on track No. 2 by the investigative bodies in the pre-trial proceedings were completed and a written permit was given by the NIS and NAMRTAIB bodies to the head of the Task Force for the restoration of train traffic.

At 06:30 a.m., the movement of trains on track No. 2 was restored according to the schedule.

On 11.06.2024 The Investigation Commission at the NAMRTAIB conducted an interview with the locomotive crew of locomotive No. 91520044137-5, which served FT 2654 on 06.06.2024. On the same date, it also conducted an interview with the drivers of RSPM No. 99529423013-2, witnesses to the accident.

On 13.06.2024, the Head of the Investigation Commission and external experts inspected the documents and instruction books at the Cherven Bryag railway section. The Cherven Bryag railway section is the workplace of the run-over employee - head of the transport group.

On 20.06.2024 The head of the Investigation Commission, together with external experts, conducted new inspections of the accident site at the Gorni Dabnik - Telish interstation, where some control measurements of the situation on the rail track in the area of the accident were also carried out, as well as an overview of the visibility from track No. 2 to track No. 1.

On 26.07.2024, after the recovery of the seriously injured employee, the Investigation Commission conducted an interview in the area of the Pleven Railway District (the employee's workplace), due to restrictions on the movement of the injured employee.

On 31.07.2024, the Investigation Commission visited the Vratsa Railway Section and requested additional documents in connection with clarifying the circumstances of the accident. An external

company has deciphered the records from the RSPM recording device, which recorded the work and movement on 06.06.2024.

The investigation commission at the NAMRTAIB, after receiving the documents and materials from the Task Force, continued the investigation of the accident until the draft final report was prepared.

2.8. Difficulties faced during the investigation.

During the time of the Investigation Commission at the NAMRTAIB did not encounter any difficulties. The representatives of the two entities – SE NRIC, BDZ PP EOOD and the Task force assisted the Investigation Commission.

2.9. Interaction with the judicial authorities.

In accordance with the requirements of the Agreement on Cooperation between the Pre-Trial Authorities, the Prosecutor's Office of the Republic of Bulgaria, the Ministry of Interior and the NAMRTAIB, effective from 11.04.2023, the investigation actions were coordinated. The pre-trial authorities of the NIS and the head of the safety investigation from the NAMRTAIB coordinated the boundaries of the accident scene and the sequence of investigation actions in order to safely handle and preserve the established evidence. The Ministry of Interior authorities guarded the accident site, as well as all traces of the vehicle and did not allow evidence to be moved or destroyed during the inspections. Only the investigation authorities of the NAMRTAIB, NIS, the Ministry of Interior, Forensic Medicine authorities and representatives of the two entities related to the accident were allowed within the scope of the guarded area. The movement of trains between the stations Telish and Gorni Dabnik on track No. 1 and track No. 2 was stopped during the inspections. Independent parallel inspections were carried out in connection with safety and pre-trial proceedings. The investigation into the pre-trial proceedings was carried out by competent investigative bodies of the NIS, under the supervision of a supervising prosecutor from the Pleven District Prosecutor's Office. Media access to the scene was restricted.

2.10. Other important information for the investigation context.

2.10.1. Materials provided by the pre-trial proceedings – NIS:

The Investigation Commission on Safety at NAMRTAIB required from NIS, the following materials on the investigation that were provided regarding:

1. <u>Heads of transport group:</u>

● Forensic medical expertise of examination № 50/24 with reg. № 561/24 dated 21.06.2024 of NIS:

- Conclusion of the forensic medical expertise:
  "The cause of the death is gross anatomical, absolutely incompatible with life damage to almost all internal organs and bones of the skeleton, as a result of severe mechanical trauma, inflicted with extremely great force (the so-called inertial trauma).";
  There is a direct causal relation between the above-described injuries and the traumatic injuries found and described above";
  Based on the morphology and localization of the injuries and the data from the inspection of the scene, we believe that the most likely mechanism of obtaining the above-described injuries is the following":
  - "Shocking of the worker's body (most likely in his right lateral chest and abdominal-pelvic area) with a detail from the front left part of the locomotive;
  - Attaching the body to the so-called "lattice" of the locomotive, which moves low above the rails;
  - Subsequent dragging on the track;
  - Body rollover and falling between the two rails
  - Subsequent run over (passing of the wheels) through the right hand and right leg“
- "All injuries are life-threatening and are inflicted instantaneously or in a very short time interval (seconds).
- The study did not identify any traumatic injuries whose mechanism of occurrence could not be explained by the mechanism of a railway accident described above.

- "Blood was taken during the examination to test the blood alcohol concentration at the time of death."

● Protocol for chemical examination for determination of alcohol in blood No. A-181/2024 with entry No. 561/24 of 10.09.2024 of the NIS:

- "The blood submitted for testing contained ethyl alcohol with a final concentration of 0.70 ‰;
- Upon opening the test tube for analysis, a strong odour of decomposition that the blood undergoes after death is detected. For this reason, it cannot be determined with complete accuracy whether the detected concentration of ethyl alcohol is a result of alcohol consumption or is due to the decomposition process that has begun.

2. <u>For chief engineer:</u>

● Forensic medical expertise of documents and materials (written data) № 91/2024 with reg. № 561/24 dated 21.06.2024 of NIS:

- Discussion of the data and conclusion:
- The medical records show that he suffered the following traumatic injuries:

1. "Chest trauma, manifested in fracture of ribs on the right (from the fifth to the eleventh along the posterior axillary line and fracture of the sixth rib along the mid-axillary line), minor haemorrhage, penetration of air into the right chest cavity (so-called hem pneumothorax)";
2. "Lumbar trauma, expressed in fracture of the right lateral processes of the first and second lumbar vertebrae"
3. "Traumas to the upper and lower extremities, expressed as:
   - Fracture of the right knee cap;
   - Fracture of the tibia of the lower leg of the right leg in the upper third;
   - Burst of the tibia of the lower leg of the left leg in the lower third;
   - Multi fragmentary fracture in the area of the "head" of the second bone of the palm of the left hand";
4. "The injuries are the result of blunt trauma."
5. "The mechanism of their causation can be well explained by the circumstances of contact with the strong air current of passing railway transport."

2.10.2. Materials provided by the Labour Inspection Pleven.

By letter No. 24087939/30.09.2024, the Directorate of Labour Inspection - Pleven was provided with documents and materials regarding the investigation of an accident at the Vratsa Railway Section, which occurred on 06.06.2024 at the Telish - Gorni Dabnik interstation. The materials and documents include a Protocol of an inspection carried out on 29.07.2024, explanations from the RSPM drivers, as well as from the injured employee - chief engineer, a chronology of events from the date of the accident, documents from the employment files of the individuals and orders.

3. Description of the event

3.1. Information on the event and the context.

3.1.1. Description of the event type.

In the Telish - Gorni Dabnik interstation, track No. 1 is closed to train traffic with Telegram No. 662 of 23.05.2024 of the Director General of the State Enterprise NRIC for the implementation of CRW from km 160+367 to km 169+023. In implementation of the above-mentioned telegram, on 06.06.2024 from Telish station at 21:08 p.m., RSPM No. 99529423013-2 departed for work on the rail track at km 165+500 in the Telish - Gorni Dabnik interstation, track No. 1. Due to the production need to implement basic CRW on the rail track with RSPM No. 99529423013-2, order No. 509/05.06.2024 was issued to the Director of the Vratsa Railway Section. In the first cabin of RSPM No. 99529423013-2, employees of the Pleven CR at the Vratsa Railway Section - chief engineer and head of the transport group - were also traveling.

RSPM No. 99529423013-2 arrived at the work site at around 21:50 p.m. The transport group leader got out of the first cabin, on the left in the direction of the machine's movement. The chief engineer remained in the cabin to verify the data in the RSPM computer with those in the site project. The drivers began preparations for bringing the machine into working position. The driver, the first person to bring the machine into working position, got out of the machine on the right.

FT No. 2654 consisting of 3 passenger coaches B4, 12 axles, 119 tons with locomotive No. 91520044137-5, serviced by a locomotive and assistant locomotive driver, departed from Varna station according to the schedule. In the section from Varna station to Gorni Dabnik station, the train moved according to the issued telegrams for changing the train schedule. At Gorni Dabnik station, the train arrived at 21:52 p.m. to meet with FT No. 20103. After passing FT No. 20103 at 21:58, the traffic manager on duty ensured the movement of FT No. 2654 to Telish station on track No. 2. After receiving consent from Telish station, he prepared the route and opened the entrance signal. The train departed at 21:59 p.m. with a one-minute delay. When the train was moving on current track No. 2, the locomotive crew, after exiting a left curve, saw white ice lights of the RSPM on current track No. 1 and gave the signal "Caution". At the moment of FT No. 2654 passing the RSPM, the locomotive crew heard a blow from the front of the locomotive and the locomotive driver took a quick stop. The train stopped at 22:03 p.m. at km 164+769. During the inspection of the locomotive by the locomotive crew, it was found that the air lines for 5.0 and 9.5 bar, as well as part of the signalling clothing, had been disconnected.

During the preparation of the RSPM for work, the driver I saw the oncoming train and also heard the impact. The impact was also heard by the driver II, who was in the second control cabin. The two drivers, hearing the noise of the impact, looked up and saw the employee lying next to the machine. The sketch of the accident showed that the same was found at km 165+486. The written statements of the two RSPM drivers show that there were traces of blood and parts of the body of the transport group leader on track No. 2. The sketch of the accident showed that a large part of the body was located at km 165+433. At 22:05 p.m., the driver II of the RSPM called the national emergency number 112 about the accident. At 22:10 p.m., he received a call back from the national emergency number 112 to specify the location of the accident.

At around 00:30 a.m., a doctor from the Pleven Emergency Medical Service arrived at the scene of the accident to provide first aid to the injured person. Due to poor terrain conditions and the inability to move the ambulance to the scene of the accident, the injured person was loaded onto the ambulance and transported to Gorni Dabnik station, after which he was taken to the Pleven Emergency Medical Service by the ambulance. The ambulance was returned to the scene of the accident.

After the completion of the inspections by the pre-trial authorities, the ambulance was released and moved to Gorni Dabnik station to clear track No. 1.

At 05:06 a.m., track No. 1 was temporarily opened for train traffic by order of the senior train dispatcher.

After the completion of the inspections by the pre-trial authorities, the remains of the run-over employee were taken away. FT No. 2654 was moved to Telish station at 05:55 a.m.

3.1.2. Date, punctual time and location of the event.

The accident occurred on 06.06.2024 at 22:03 p.m. during the movement of FT No. 2654, in the Gorni Dabnik - Telish interstation on track No. 2, which hit and ran over the employee - transport group leader, and the air jet from the passing train spun the employee - chief engineer, who was standing at an oversized distance between track No. 1 and track No. 2, who fell face down to the RSPM on track No 1.

3.1.3. Description of the event location:

Fig. 3.1. Route of movement of FT № 2654 and RSPM № 99529423013-2 to the place of the accident.

- Origin destination station of movement of FT № 2654 (Varna station);
- Main stations along the alignment;
- Final destination station of movement of FT № 2654 (Vratsa station);
- Origin destination station of movement of RSPM № 99529423013-2;
- Location of the accident – km 165+490 between the stations Gorni Dabnik and Telish;
- Track, which FT № 2654 has passed before the change of train crew of FT № 2654;
- Track, which FT № 2654 has passed after the change of the train crew of FT № 2654;
- Track, which FT № 2654 was about to pass;
- Track that RSPM № 99529423013-2 has passed.

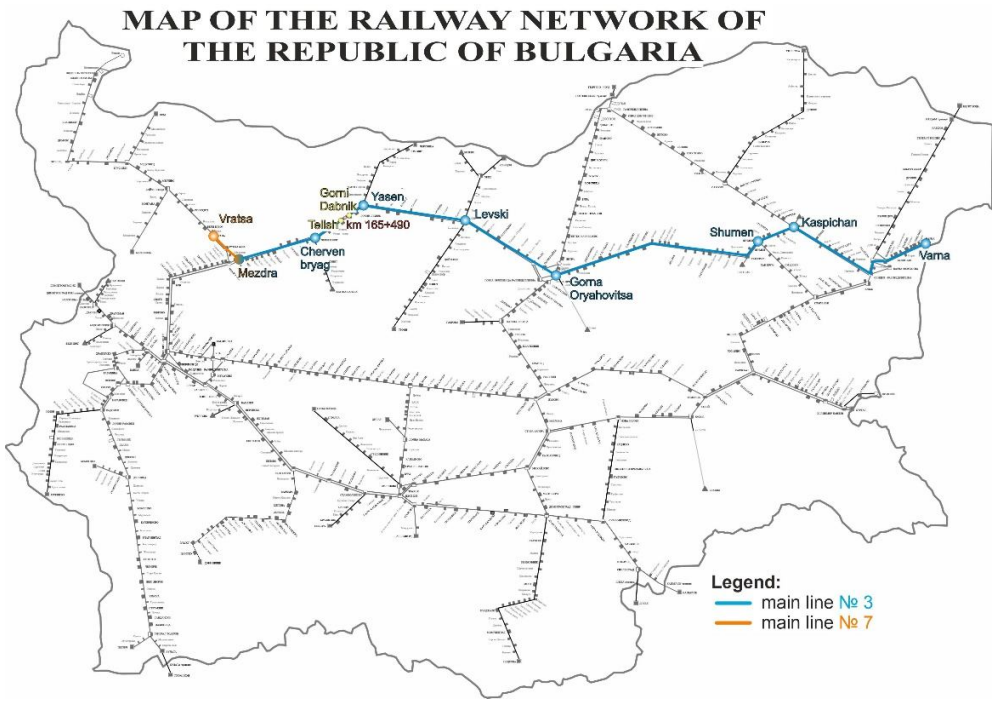


Fig. 3.2. Layout of the place of the accident along the rail network.

3.1.3.1. Location of the place of the accident (fig. 3.3).
Geographic width: 43°22'32.49"N
Geographic length: 24°17'43.04"E

Fig. 3.3. Accident location between the stations Gorni Dabnik – Telish.

3.1.3.2.Meteorological and geographic conditions at the time of the event on 06.06.2024

- In the dark part of the day at around 22:03 p.m. (under data downloaded from the speedometer of the locomotive of FT № 2654);
- Air temperature: 19ºC;
- Weather – clear;
- Wind – 14 km/h, West/North-west;
- Average relative humidity 31 %;
- There are no registered rains.

3.1.3.3. Performance of construction activities on the site or in vicinity.

By order of the General Director of the State Enterprise NRIC, the Vratsa Railway Section was permitted to carry out a night-time tamping of the rail track on the Telish - Gorni Dabnik track No. 1 section with a complete interruption of train traffic in the period from 31.05. to 28.06.2024.

By order of the Director of the Vratsa Railway Section, it was ordered to carry out a night-time tamping of the rail track on 05/06 and 06/07.06.2024 from km 160+367 to km 169+023 on the Telish - Gorni Dabnik track No. 1 section. The night-time work of the RSPM was carried out under the control of a chief engineer and a transport group leader. From the inspections of the scene, it is evident that the accident occurred in the RSPM work area - km 165+484 of the rail track.

3.1.3.4. Fatalities, injuries and material damages:
3.1.3.5.Employees of the railway infrastructure manager or railway undertaking.
Fatality- one employee of the railway infrastructure manager.

3.1.3.6. Other persons officially connected with the location of the event.
Seriously injured – an employee of the railway infrastructure manager.

3.1.3.7. Passengers.
None.

3.1.3.8. External persons.
None.

3.1.3.9. Cargo, luggage or other property.
None.

3.1.3.10.Rolling stock, infrastructure and environment.
- Material damages of locomotive № 91520044137-5 – None;
- Material damages of coach – None;
- Material damages to the rail track – None;
- Material damages to the catenary – None;
- Material damages to the signalling equipment – None;
- Material damages to the environment – None;

3.1.4. Description of other consequences, including the event impact on the usual activity of the participants.

In the period from 22:00 p.m. on 06.06. to 05:06 a.m. on 07.06.2024 on track No. 1 and from 22:00 p.m. on 06.06 to 06:30 a.m. on 07.06.2024 on track No. 2, the railway infrastructure manager and the railway undertakings have generated additional costs for changing the train schedule and capacity in the section.

- Delayed trains of railway undertakings – none;
- Cancelled trains – 5 units – 32.00 BGN;
- Scheduled trains of railway undertakings – none;
- Delayed passenger trains – 1 unit – 621.60 BGN;
- Costs for recovery funds – none;
- Total other costs: 653.60 BGN.

3.1.5. Identity of the participants and their functions.

Railway infrastructure:

The National Railway Infrastructure Company provides equal and non-discriminatory access to all licensed and certified railway undertakings for the transport of passengers and cargo on the railway infrastructure of the Republic of Bulgaria.

Personnel of SE NRIC in relation to the accident:
- Chief Engineer in RS Vratsa;
- Head of Transport Group at Vratsa RS;
- Engine driver of RSPM;

Railway undertaking:

BDZ PP EOOD has a license and a Single safety certificate, which guarantees performing of safe railway services for passenger transport along the railway network of the Republic of Bulgaria.

Personnel of BDZ PP EOOD involved in the accident:
- Locomotive driver, locomotive of locomotive № 91520044137-5 of FT № 2654;
- Assistant locomotive driver, locomotive of locomotive № 91520044137-5of FT № 2654;

3.1.6. Description of the respective parts of the railway infrastructure and signalling system:

3.1.6.1. Type of the track, railway switch, rail crossing etc.

The Telish - Gorni Dabnik interstation, track No. 1, is 9,756 meters long. A second main rail track line passes through the northern part of the country and connects the western with the eastern railway network. The rail track has rails of type S 49, sleepers of type ST-4 and fastening K and PAK-68I. Tracks No. 1 and No. 2 are in a horizontal left curve with a radius R=2,000 meters, cant H=50 mm, longitudinal slope 9.50 ‰ in the ascent. The axial distance between track No. 1 and track No. 2 is 4.62 meters. The difference in level between track No. 1 and track No. 2 in the accident area - track No. 1 is lower by 460 mm. Medium repairs are being carried out on the rail track (screening of the ballast prism and partial replacement of unusable reinforced concrete sleepers). The mileage from Gorni Dabnik station to Telish station decreases, the rail track is in a left curve. Gorni Dabnik station has three accepting and receiving tracks on a second main conventional railway line, double-track, electrified (Fig. 3.4).
Telish station is with five receiving-accepting tracks on the second main conventional rail line, double-

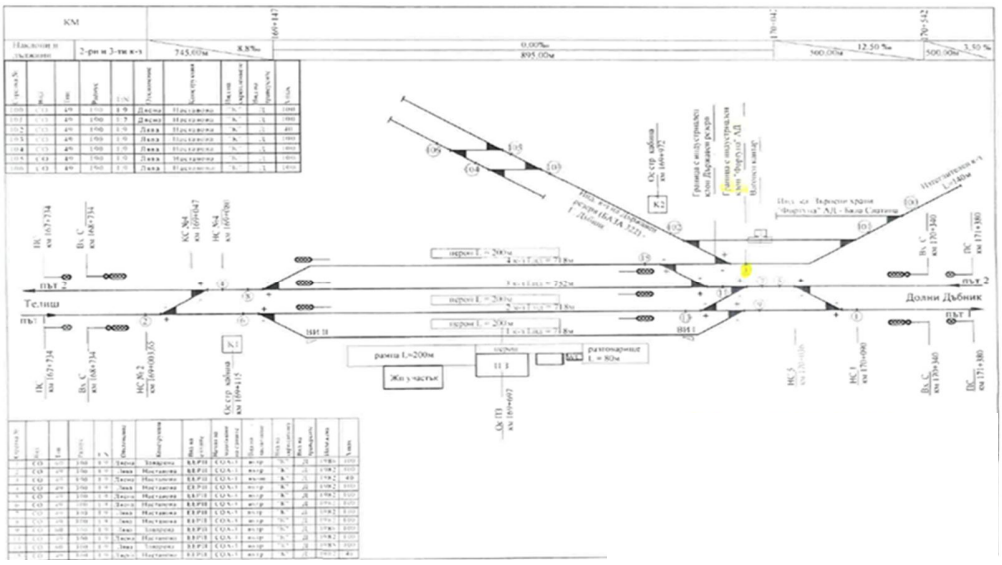


Fig. 3.4. Scheme of Gorni Dabnik station

track, electrified (fig. 3.5).

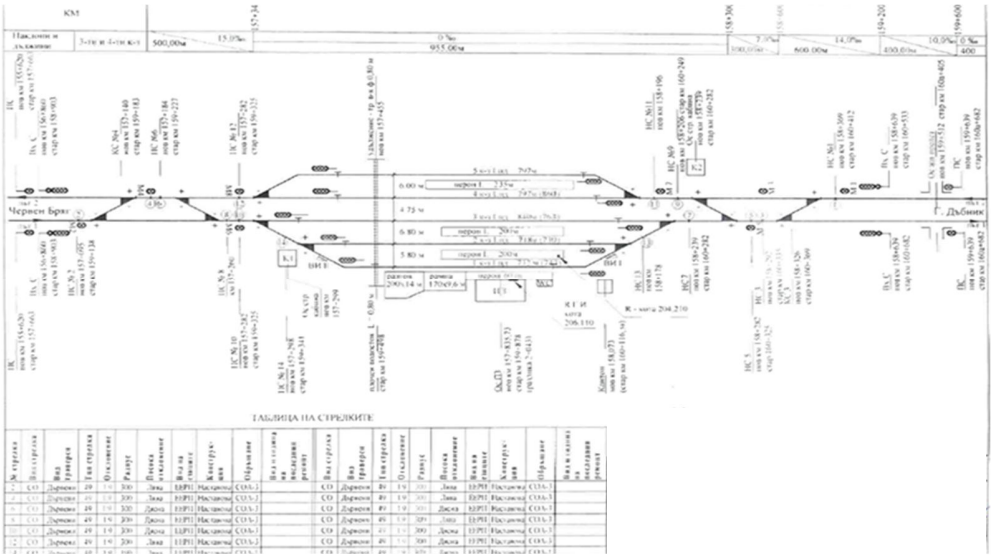


Fig. 3.5. Scheme of Telish station

3.1.6.2.Interstation block system, station interlocking, type of signalling and messages.

Interstation block system

The interstation Gorni Dabnik - Telish is equipped with SABS, the movement of trains was impersonal on a double-track railway line - serviceable;

Interlocking

Gorni Dabnik station RRI WSSB – serviceable;

Telish station RRI 70 – serviceable.

Type of signalling

The entrance and exit semaphores at the Gorni Dabnik and Telish stations are according to speed signalling - functional

3.1.6.3. Train protection systems.

Gorni Dabnik - Telish stations do not have train protection systems. The stations and interstation are equipped with a train dispatcher radio link (TDRL), with the help of which radio connections are made between the locomotive driver and the traffic manager on duty, with the train dispatcher, with individual stations and with the trains in the relevant railway section - serviceable.

Locomotive No. 91520044137-5 is equipped with alertness device and tape tachygraphy type "Hasler RT9" and tachometer type "Hasler A16" - working order.

Locomotive No. 91520044137-5 is equipped with TDRL.

3.1.7.Other information referring the event.

3.1.7.1.Train documents of FT 2654.

The train documents „Way-bill“, „Accompanying sheet „and, Brake mass certificate“(fig. 3.6, 3.7, 3.8, 3.9, 3.10, 3.11) are in compliance with the movement and technical condition of the train from the presented data.

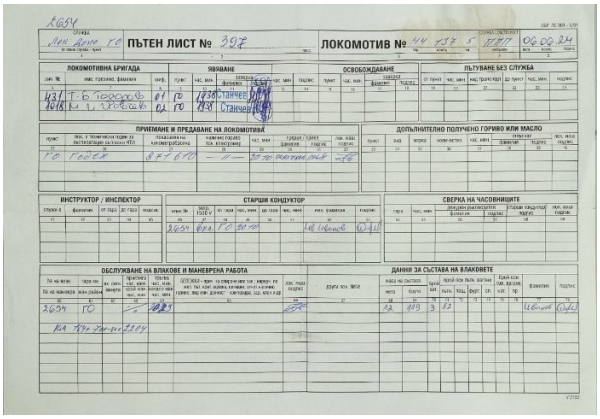


Fig. 3.6. Way-bill of locomotive № 91520044137-5 – front part

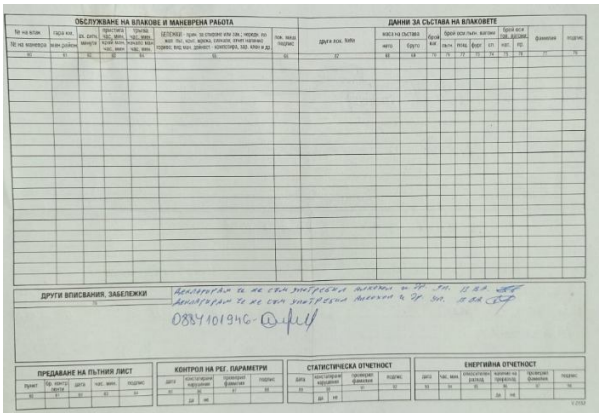
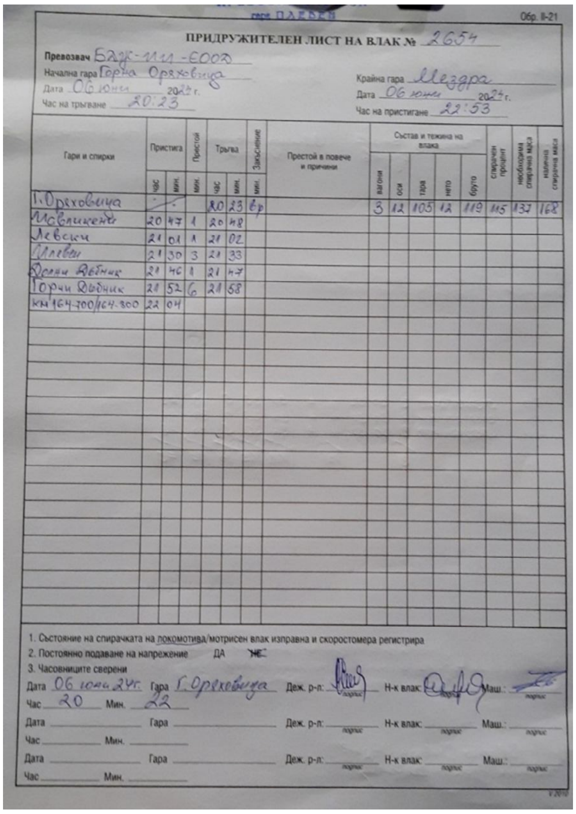


Fig. 3.7. Way-bill of locomotive № 91520044137-5 – rear part



ПРИДРУЖИТЕЛЕН ЛИСТ НА ВЛАК № 2654

Обр. II-21

Превозвач: БДЖ-ПП-ЕООД

Начална гара: Горна Оряховица

Дата: 06 юни 2024 г.

Час на тръгване: 20:23

Крайна гара: Мездра

Дата: 06 юни 2024 г.

Час на пристигане: 22:53

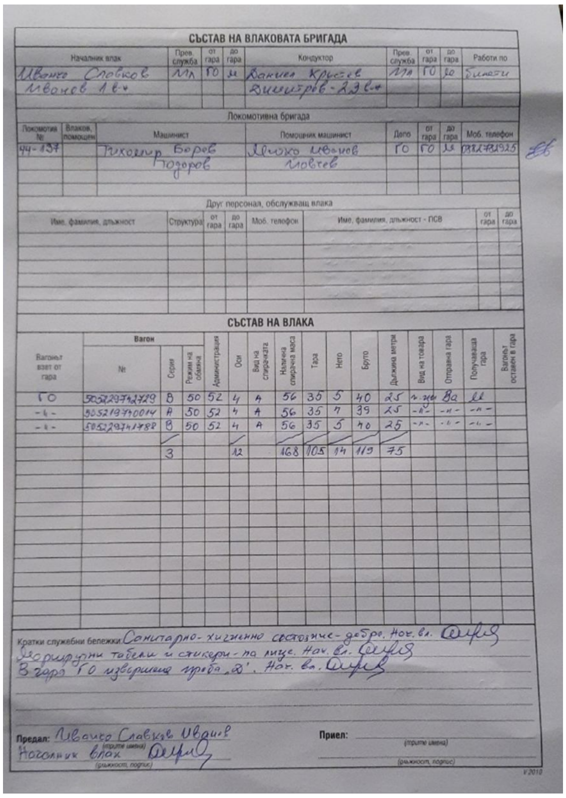
Гари и спирки	Пристига час	Пристига мин.	Престой мин.	Тръгва час	Тръгва мин.	Закъснение	Престой в повече и причини	вагони	оси	тара	нето	бруто	спирачен процент	необходима спирачна маса	налична спирачна маса
Г. Оряховица				20	23	бр		3	12	105	14	119	115	137	168
Павликени	20	47	1	20	48										
Левски	21	01	1	21	02										
Плевен	21	30	3	21	33										
Долни Дъбник	21	46	1	21	47										
Горни Дъбник	21	52	6	21	58										
км 164+700/164+300	22	04													

1. Състояние на спирачката на локомотива/мотрисен влак изправна и скоростомера регистрира
2. Постоянно подаване на напрежение ДА НЕ
3. Часовниците сверени

Дата 06 юни 24 г. Гара Г. Оряховица Деж. р-л: Н-к влак: Маш.:

Час 20 Мин. 22

Fig. 3.8. Accompanying sheet of FT № 2654 – front



СЪСТАВ НА ВЛАКОВАТА БРИГАДА

Началник влак: Иванчо Славков Иванов

Локомотивна бригада — Локомотив №: 44-154; Машинист: Тихомир Боров Позоров; Помощник машинист: Илко Иванов Ловчев; от гара ГО до гара Мз

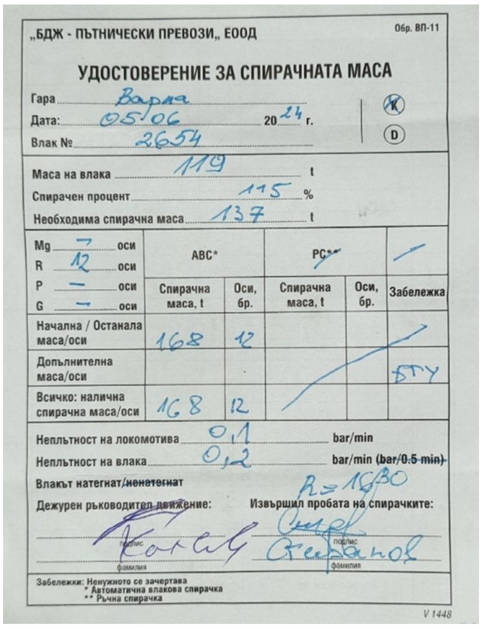
СЪСТАВ НА ВЛАКА

Вагоны взет от гара	№	Серия	Режим на обмена	Администрация	Оси	Вид на спирачката	Налична спирачна маса	Тара	Нето	Бруто	Дължина метри	Вид на товара	Отправна гара	Получаваща гара
ГО	50522974 2729	B	50	52	4	A	56	35	5	40	25		Вр	Мз
-"-	50521974 0014	A	50	52	4	A	56	35	7	39	25		-"-	-"-
-"-	50522974 1788	B	50	52	4	A	56	35	5	40	25		-"-	-"-
	3				12		168	105	14	119	75			

Кратки служебни бележки: Санитарно-хигиенно състояние - добро. Нач. вл. ...

Предал: Иванчо Славков Иванов, Началник влак

Fig. 3.9. Accompanying sheet of FT № 2654 – rear



„БДЖ - ПЪТНИЧЕСКИ ПРЕВОЗИ„ ЕООД Обр. ВП-11

УДОСТОВЕРЕНИЕ ЗА СПИРАЧНАТА МАСА

Гара: Варна

Дата: 05.06 2024 г.

Влак №: 2654

Маса на влака: 119 t

Спирачен процент: 115 %

Необходима спирачна маса: 137 t

Mg — оси; R 12 оси; P — оси; G — оси

	ABC* Спирачна маса, t	ABC* Оси, бр.	PC** Спирачна маса, t	PC** Оси, бр.	Забележка
Начална / Останала маса/оси	168	12			
Допълнителна маса/оси					БТУ
Всичко: налична спирачна маса/оси	168	12			

Неплътност на локомотива: 0,1 bar/min

Неплътност на влака: 0,2 bar/min (bar/0.5 min)

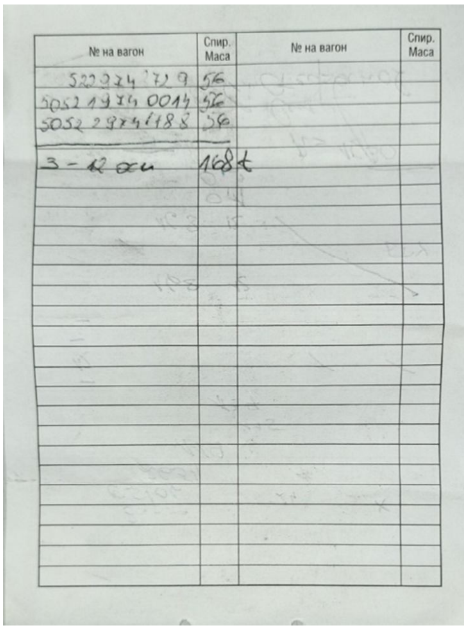
Влакът натегнат/ненатегнат

R = 1680

Дежурен ръководител движение: Извършил пробата на спирачките:

Забележки: Ненужното се зачертава; * Автоматична влакова спирачка; ** Ръчна спирачка

Fig. 3.10. Brake mass certificate of FT № 2654 – front part



№ на вагон	Спир. Маса	№ на вагон	Спир. Маса
5052 2974 2729	56		
5052 1974 0014	56		
5052 2974 1788	56		
3 – 12 оси	168 t		

Fig. 3.11. Brake mass certificate of FT № 2654 – rear part

3.2. Factual description of the occurred.

3.2.1. Immediate sequence of events that led to the accident, including:

3.2.1.1. Actions that the involved in the event persons undertook.

On 06.06.2024, the Vratsa railway section submitted a request to TOCMD Sofia for movement of RSPM No. 99529423013-2 with a route from Cherven Bryag station to Telish station;

At 20:10 p.m. according to a log entry for dispatcher orders Rev. II-76. The head of the transport group requested permission from the traffic manager on duty at the Cherven Bryag station to move RSPM No. 99529423013-2 from the first blind track to the first station track;

At 20:11 p.m., the transport group leader received permission from the traffic manager on duty at the Cherven Bryag station to move RSPM No. 99529423013-2;

At 21:20 p.m., the head of the transport group derailed RSPM No. 99529423013-2 from the first blind to the first station track;

At 20:22 p.m. RSPM No. 99529423013-2 departed from Cherven Bryag station to Telish station as work train No. 20437;

At 20:45 p.m. the train arrived at Telish station;

At 21:10 p.m., the traffic manager on duty handed over form II-A (order for movement under special conditions), left for work from Telish in the direction of Gorni Dabnik station on track No. 1 (which was closed to regular train traffic).

3.2.1.2. Rolling stock and technical facilities functioning.

Until the time of the accident, locomotive No. 91520044137-5, serving FT No. 2654, was technically sound. The passenger coaches in the train were technically sound. The locomotive and coaches were regularly registered in the European Vehicle Register (EVR).

During the time of movement and operation, RSPM No. 99529423013-2 was technically serviceable. The National Safety Authority has issued a vehicle type permit - DUOMATIC 09-32 CSM sleeper tamping machine with European identification number: BG 5920174002 in the European Vehicle Register (EVR).

3.2.1.3. Operational system functioning.

The operational system for managing train traffic between the Gorni Dabnik - Telish stations before and after the accident was functional and functioning normally. Train traffic between the Gorni Dabnik - Telish stations was carried out in two directions only on track No. 2. The movement of trains on track No. 1 has been stopped due to construction and repair activities on the rail track. The interstation is double-track and with normal operation of the operating system, the movement of trains was impersonal.

After the occurrence of the accident, the operational system for managing train traffic between Gorni Dabnik - Telish did not function from 22:00 on 06/06/2024 to 06:30 on 07/06/2024.

3.2.2. Sequence of the events from the beginning of the occurrence until the end of the rescue services actions:

3.2.2.1. Undertaken measures for protecting and guarding the event location.

Around 10:50 p.m., the authorities of the Pleven Police Department of the Ministry of Interior arrived at the scene of the accident. The place of the accident in the interstation was located in a rugged area and access was only possible with a high-terrain vehicle. The bodies of the Ministry of Interior, the NIS, the head of the safety investigation of the NAMRTAIB and the interested officials of the entities were admitted to the site.

3.2.2.2. Actions of the emergency rescue services

At around 00:30 a.m., an emergency medical doctor arrived at the interstation at the scene of the accident and provided first aid to the injured employee.

At 01:00 a.m. the victim was transported from km 164+486 along track No. 1 to Gorni Dabnik station with RSPM No. 99529423013-2.

At 2:00 a.m. the victim was transferred to the emergency vehicle and taken to the city of Pleven for treatment;

At 05:20 a.m., a second ambulance arrived at the Gorni Dabnik station to take the run over employee to Forensic Medicine - Pleven;

At 05:45 a.m. from the Gorni Dabnik station, a machine of catenary RSPM No. 99529436811-4 left on track No. 2 to the scene of the accident with a paramedic from the Forensic Medicine, the remains of the corpse were loaded onto the machine and it was driven back to the station;

At 6:00 a.m., the corpse of the run-over employee from Gorni Dabnik station was taken by car to Forensic Medicine - Pleven.

3.2.2.3. Actions of the emergency rehabilitation services

Non applicable

3.2.2.4.Actions that SE NRIC and BDZ PP EOOD undertook for recovering the schedule and capacity along the railway line

On 07.06.2024, at around 05:30 a.m. after the completion of the procedural-investigative actions by the investigative bodies of the pre-trial proceedings from the NIS and the safety investigative bodies from the NAMRTAIB at the Gorni Dabnik - Telish interstation on tracks 1 and 2, written permission was given to the head of the Task Force for the restoration of the schedule and capacity in the interstation;

At 04:40 a.m. RSPM No. 99529423013-2 was moved from the intermediate station on road No. 1 to Gorni Dabnik station to start train traffic on track No. 1;

At 05:06 a.m., the senior train dispatcher at TOU Sofia temporarily restored the movement of trains and vehicles between the Gorni Dabnik - Telish stations on track No. 1.

At 06:05 a.m. FT No. 2654 from the interstation on track No. 2 was moved to Telish station and the same departed in the direction of Mezdra station;

At 06:30 a.m., the train dispatcher at TOU Sofia restores the movement of trains and vehicles between Gorni Dabnik - Telish track No. 2 according to the schedule.

4. Analysis of the event

4.1. Participation and responsibilities of the entities, involved in the event

4.1.1. Railway undertaking

Analysis of the movement of FT № 2654.

The traffic analysis of FT No. 2654 was made in the traffic section from the departure from Gorni Dabnik station to the stop at km 164+769.

A decryption was prepared of the downloaded data from the recording device of locomotive No. 91520044137-5, at the head of FT No. 2654 on 06.06.2024.

The registration of the main and most important parameters of the movement of the locomotive, respectively of the train, in speedometer installations "Hasler" system was done by recording on the speedometer control tape:

• Track speed (V-S);

• Astronomical time by graphing and printing on the tape, as well as travel and stay time (T chart);

• Distance travelled for individual track sections (through perforations on the tape – 2.5 mm = 0.5 km);

The following additional parameters can also be registered on the speedometer tape of RT9 type devices (such as those on locomotive no. 91520044137-5):

• Pressure in the main air duct;

• Direction of movement;

• Turning on the rheostat brake;

• Activation of the automatic brake (pneumatic registration);

The speedometer tape is checked to determine:

• Whether the prescribed maximum speed of the train has been observed;

• Whether the speed was limited to the prescribed speed when crossing a section that must be crossed at a limited speed;

• Whether the duration of the reduced speed movement was respected, i.e. to travel a distance equal to the length of the reduction plus the length of the entire train;

• Whether there were any unplanned stops on the intermediate station;

• Whether there were any slippages of the locomotive;

• Whether a decrease in pressure has been registered in the main air brake duct when performing the various tests;

• How the train's automatic air brake was used and how the rheostat brake was used;

• Availability of additional registrations in accordance with those provided for each series of TRRS (traction rolling stock);

• Availability of all records for the relevant TRRS.

The speedometer control tapes can also be used for other clarifications in the movement of trains, namely:

• Delays in departure and arrival;

• Stopping in front of closed signals and at stations;

• When calculating energy consumption, etc.

Fig. 4.1. Tape tachograph

Fig. 4.2. Tachometer

The speedometer control tapes are regarded as a valuable objective document in the investigation of railway safety accidents.

Any falsification of the speedometer tape, intentional destruction or deliberate impact of the clock or recording mechanism is considered a violation of transport safety.

Locomotive No. 91520044137-5 is equipped with a "Hasler" type speedometer installation, which consists of a three-phase alternating current collector converter (geber) driven by one of the locomotive's wheelset. The resulting three-phase voltage with a variable frequency depending on the speed of movement drives the mechanical speedometer synchronous electric motors mounted on it. One speed measuring device is installed in each of the locomotive cabins: the recording device (tape tachograph) RT9 in cabin No. 1 (fig. 4.1) and the non-recording device (tachometer) A16 in cabin No. 2 (fig. 4.2). The two speedometers have a range of 0÷150 km/h.

The tape tachograph measures and displays on an overview dial the following data when the locomotive is moving:

• Track speed in km/h;
• Time in hours and minutes;
• The entire distance travelled in km (odometer);

The tachometer measures and displays on a clear dial the same data that the tape tachograph displays, without the distance travelled and without recording the information. It is electrically connected to the tachograph, and if the power cable is interrupted, the two devices stop recording the speed of movement.

The recording equipment of the RT9 tachograph records the following basic parameters:

• Track speed in km/h;
• Astronomical time, as well as the time of travel and stay;
• The distance travelled for individual track sections;

- Other parameters of the locomotive.

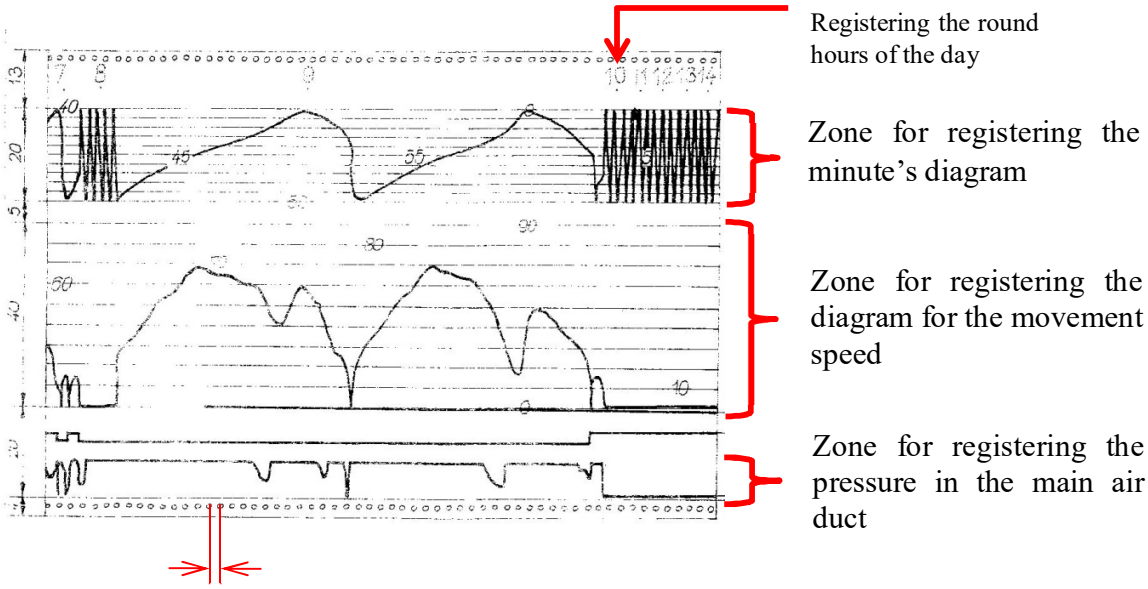


Fig. 4.3.

The recording (speedometer) tape is made of waxed paper. It has linear fields for recording the information transmitted by the tape tachograph (Fig. 4.3). The speedometer tape is a valuable objective source of data for the precise determination of the beginning, course and end of movement-related processes.

On the speedometer tape are registered:

• Track speed in km/h;
• Astronomical time;
• Travel time;
• The time of stay;
• The distance travelled for individual track sections;
• Air pressure in the main air duct (main air duct);

Other data (optional).

The locomotive crew of FT No. 2654 took over the train from Gorna Oryahovitsa station. FT No. 2654 departed from Gorna Oryahovitsa station at 20:23 p.m. (on time) (fig. 4.4, pos. 1, fig. 4.5, pos. 1). It moved according to the currently valid schedule, respected the schedule, section speeds and speed reductions, with the maximum speed reaching 125 km/h in the Resen - Pavlikeni interstation (fig. 4.4, item 2), where the permissible speed for the train is 130 km/h (fig. 4.5, item 2)

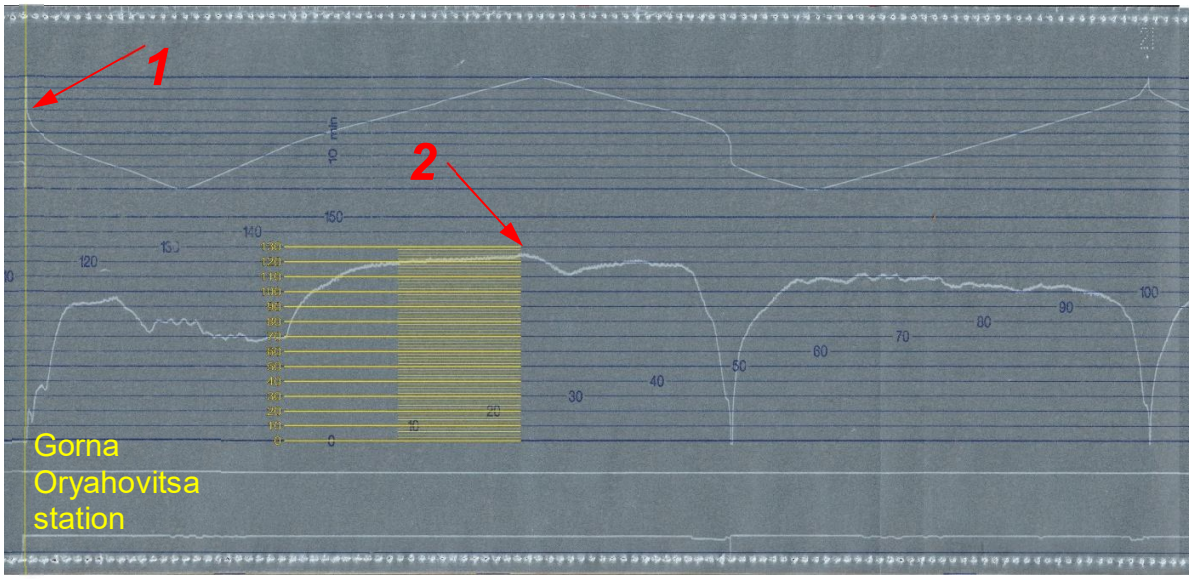


Fig. 4.4.

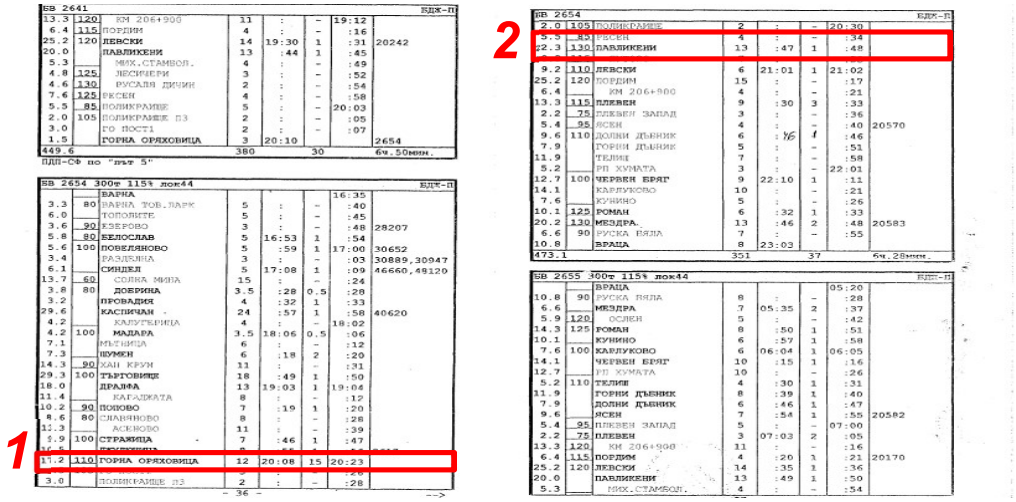


Fig. 4.5.

FT No. 2654 arrived at Gorni Dabnik station at 21:53:00 p.m.(fig. 4.6, item 1). It stayed at the station for 6 minutes and left at 21:59:10 p.m. (Fig. 4.6, item 2). The train accelerated and reached a speed of 32 km/h after 50 seconds, having travelled about 250 meters (Fig. 4.6, item 3). At that speed, it moved about 250 meters for about 20 seconds, after which the speed decreased to 29 km/h (Fig. 4.7, item 1)

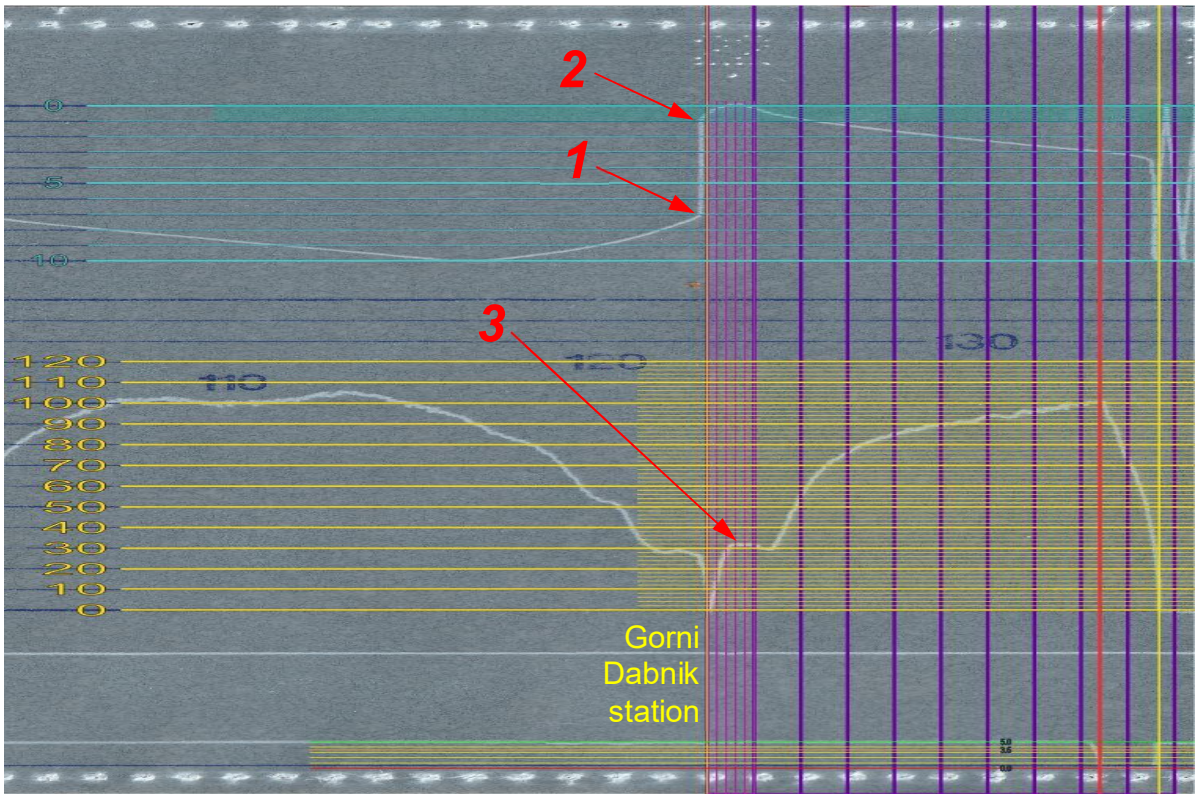


Fig. 4.6.

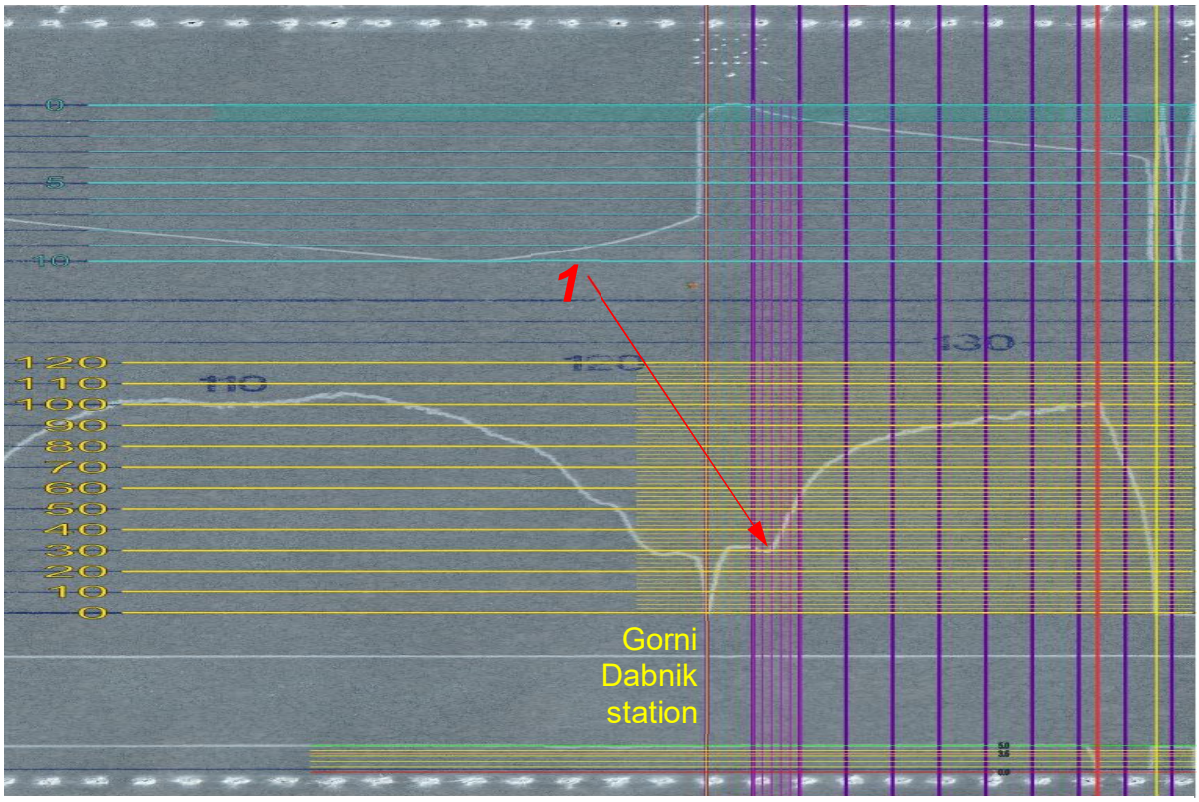


Fig. 4.7.

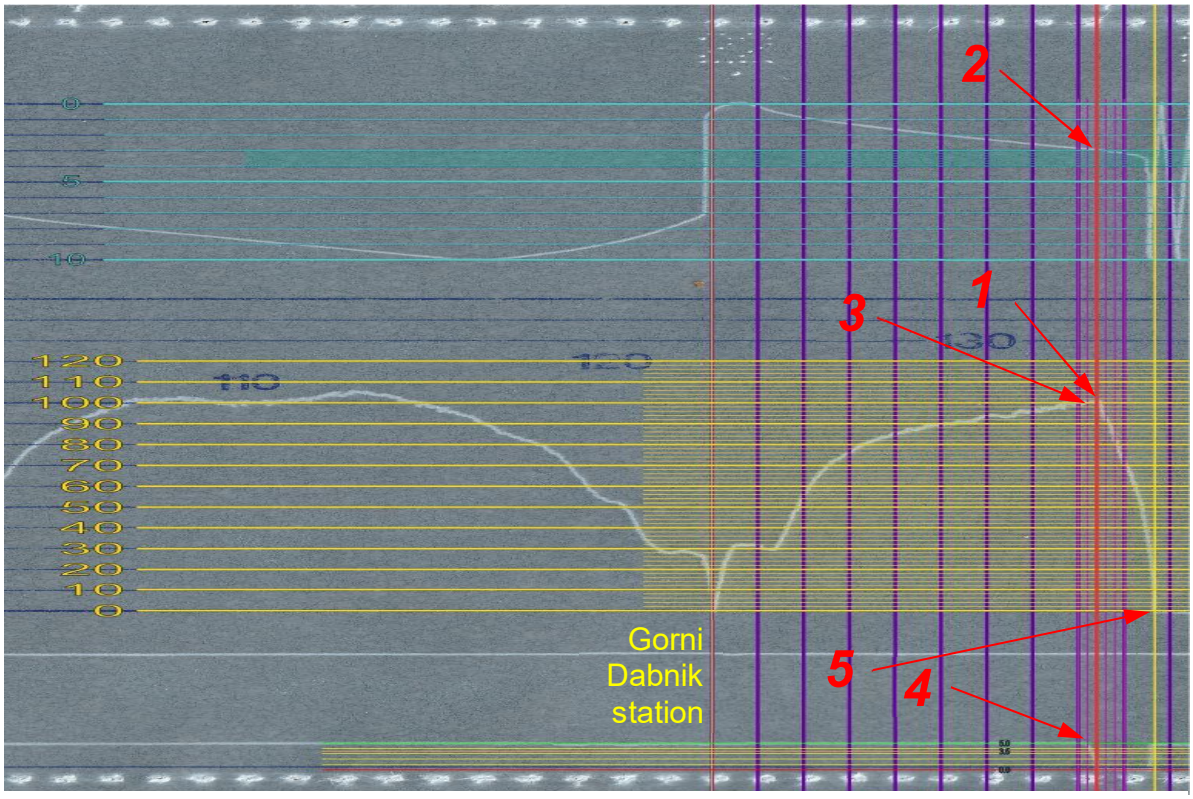


Fig. 4.8.

At 22:00:35 p.m., after having travelled about 650 meters from departure from Gorni Dabnik station, the train started to increase speed (fig. 4.7, item 1) and reached a maximum value of 91 km/h (fig. 4.8, pos. 1) at a permissible speed of 110 km/h (fig. 4.9), exactly 4 minutes after departure from Gorni Dabnik station (fig. 4.8, pos. 2), after traveling 4200 meters. About 100 meters before reaching the maximum speed, i.e. after it has travelled about 4100 meters, at a speed of 90 km/h (Fig. 4.8, item 3), the automatic train brake was activated in the fast stop mode and the pressure in the main air duct decreased to 0.0 bar (Fig. 4.8, item 4), time during which the train travelled 100 meters. The speed continued to increase up to 91 km/h, after which it sharply started to decrease and at 22:03:35 p.m., it reached a value of 0 km/h. The train stopped at km 164+769, having travelled about 4,800 meters since its departure from Gorni Dabnik station (fig. 4.8, item 5). From the moment of application of the automatic train brake in rapid stop mode to the final settling, the train travelled 800 meters, which was the braking distance, and from the moment of reaching the maximum speed in the interstation (91 km/h) to the settling of km 164+769 passed 700 meters

Analysis of the movement of RSPM № 99529423013-2 (TPM 0932 CSM).

От ДП „НКЖИ" № 662 Д. 23.05.2024 г.
БВ 2654 "БДЖ-ПП" ЕООД 115% лок.44 1-13.06

	ГОРНИ ДЪБНИК	-	21:52	6	21:58 20103
110	ТЕЛИШ	7	: -	-	22:05
	ХУМАТА РП	3	: -	-	:08
100	ЧЕРВЕН БРЯГ	9	22:17	1	:18
	КАРЛУКОВО	10	: -	-	:28
	КУНИНО	5	: -	-	:33
125	РОМАН	6	:39	1	:40
130	МЕЗДРА	13	22:53	-	: -

Fig. 4.9.

Rail self-propelled specialized machines (RSPM) type TPM 0932 CSM are equipped with an analogue tachograph for registering and recording information from the journey and operation of the machine.

The analogue tachograph (Fig. 4.10) is a calibrated recording device designated for vehicles operated under the EC driving hour's rules. It can record time, speed, distance and the various activities of the driver on a circular paper chart covered with wax. Each tachograph card can record a period of twenty-four hours. When the chart is placed in the analogue tachograph head, the device must be closed and locked. Metal pins (pins) are pressed against the gearbox and activities pre-planned by the driver are

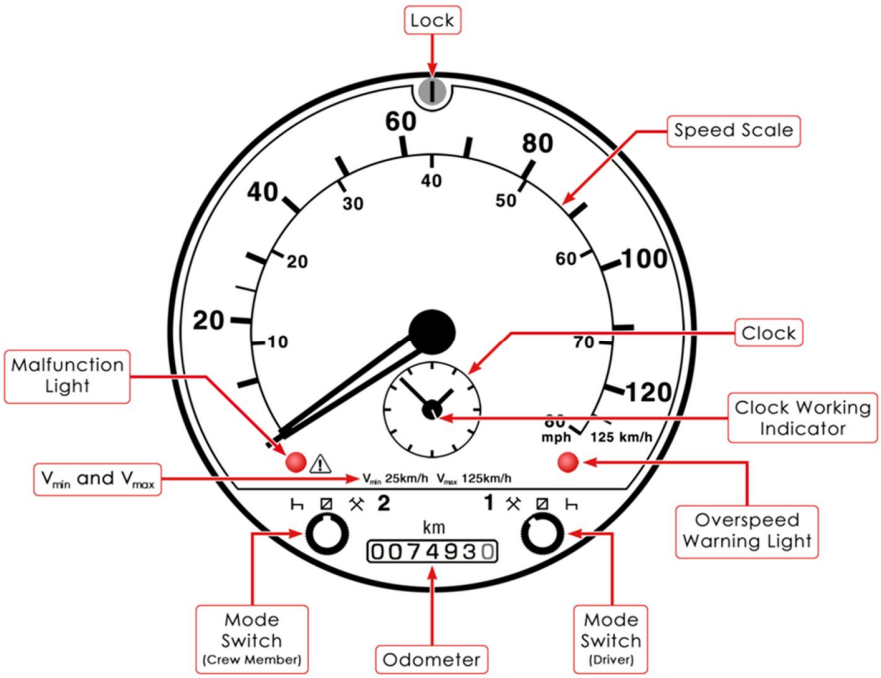


Fig. 4.10.

set via activity mode switches.

The case containing the diagram and the clock reset mechanism is equipped with a lock and key (Fig. 4.10, item "Lock").

The regulations provide for four modes of operation, with any analogue tachograph manufactured after 1 January 1996 automatically changing the driver mode to "Moving" when the vehicle is in motion (Fig. 4.10, item "Mode Switch").

In order for information to be recorded and for the analogue tachograph to work properly, a pie chart is placed in it (Fig. 4.11). When operating the machine, the operator must select the correct activity by turning the switch to the appropriate symbol/mode.

For the tachographs installed on RSPM owned by SE NRIC, the switching to the driving mode and to the other modes takes place automatically when the vehicle starts and stops.

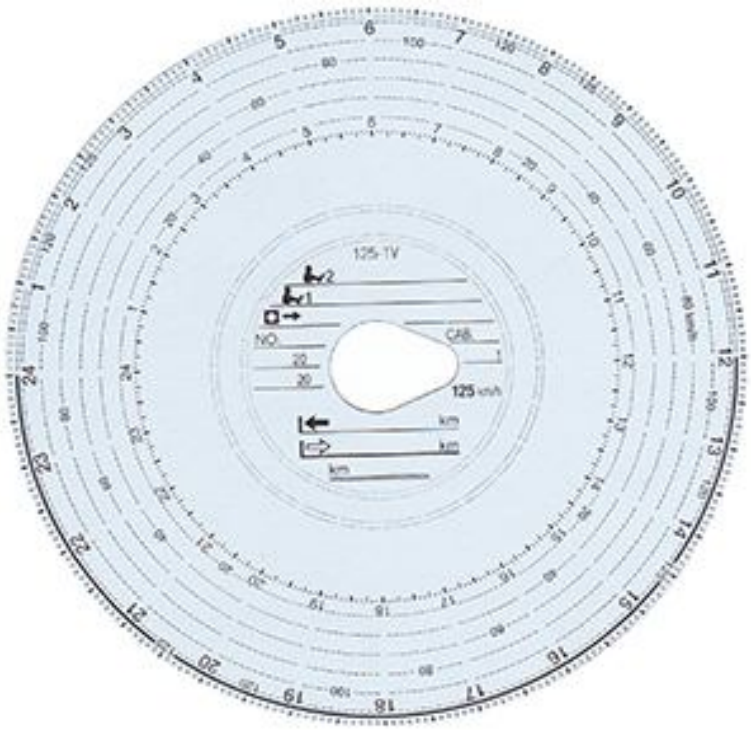


Fig. 4.11. Round chart

The symbols for activity regime, used for the analogue tachographs are displayed in table 4.1:

Table 4.1

	Motion	Automatically selected as the drive activity when the machine is in motion.
	Availability	For a period of work when the driver knows in advance how long he will have to wait to perform another activity.
	Other work	Periods when the driver is not moving, waiting to work or taking a break or rest.
	Interruption/rest	Time during the workday when the driver takes a "break" and can do whatever he wants, or when he takes a "rest" between one workday and the next.

Drivers can select 'other work' and the movement will automatically be recorded when the vehicle is in motion. If either "Availability" or "Interruption/Rest" is required, this must be explicitly selected.

It is the driver's responsibility to ensure that the correct operating mode is always recorded by the analogue tachograph recording equipment.

The analogue tachograph clock is set from inside the 'head' unit with the head in the 'open' position - most analogue tachographs have a thumb drive to adjust the clock. Care must be taken when setting the time, as the clock on the face of the instrument is 12-hour, but the cart covers a 24-hour period, therefore the clock must be rotated twice in 12 hours for one rotation of the chart. When you set the clock to 03:00 AM for example, you need to make sure the cart is properly positioned to record at 03:00 AM and not 3:00 PM.

The clock must always show the official time in the country.

Analogue tachographs have a minimum of three recorders configured as follows:

• The outermost recorder records the speed. Speed is recorded in response to inputs from the vehicle's transmission system. The faster it moves, the higher the scribe is driven.

• The following scribe records the mode. Other Work, Availability, and Break/Rest are recorded in response to the position the driver has placed the activity mode switch.
• The innermost scribe records the distance. The distance is recorded in response to inputs from the vehicle's transmission system and the odometer recorder moves up and down as the chart rotates. The speed at which it moves depends on the speed of the vehicle. This creates a series of linked and synchronized values of distance travelled and movement speed. The distance between the two extreme positions of the diagram corresponds to 5 km of track travelled by the vehicle. Line segments parallel to the two end circles indicate that the vehicle was stationary and not moving.
• The time recording chart is connected to the clock by mounting on a pear-shaped chamber inside the tachograph. The clockwork mechanism turns the cam and therefore the analogue tachograph circuit. Accordingly, while the chart rotates, the scribes press the wax on the chart and record the necessary events and complete the activities at the given time.
At the beginning of the duty, it is necessary to fill in the entries in the central field:
• Name and surname;
• The starting place of duty;
• The start date of the duty;
• The 12-digit registration number of the vehicle;
• The initial mileage as shown on the vehicle's odometer.
It is not correct to write entries that go outside the central field area, as they may be perceived as obscuring the tachograph record. If, for example, the starting location is so long that it does not need to be shortened to fit in the space provided, the full entry should be written on the back of the chart, rather than obscuring the scribe's trace on the front.
The clock in the tachograph head must be set correctly and show the current time in the country. Be sure to check that the clock is correctly set for AM or PM, noting that both times are displayed identically on the 12 o'clock dial of the analogue tachograph.
After the manual recording is completed and the time checked, the chart should be placed in the tachograph head or cassette, as appropriate, and the tachograph should be closed and locked.
Duties for the day should then be recorded using the mode switches to ensure that the appropriate type of work or rest is displayed.
Tachograph cards provide space on their reverse side for the driver to manually record any additional information that needs to be completed in connection with any vehicle detention or in the event of a breakdown of the tachograph equipment.
At the end of the day you have to unlock the tachograph head or open the module cassette and remove the tachograph card. You must then complete the manual entry in the central field by entering the following:
• The duty's final location (even if it is the same as the starting location).
• The end date of duty (even if it is the same as the start date).

- The final mileage as shown on the machine's odometer.

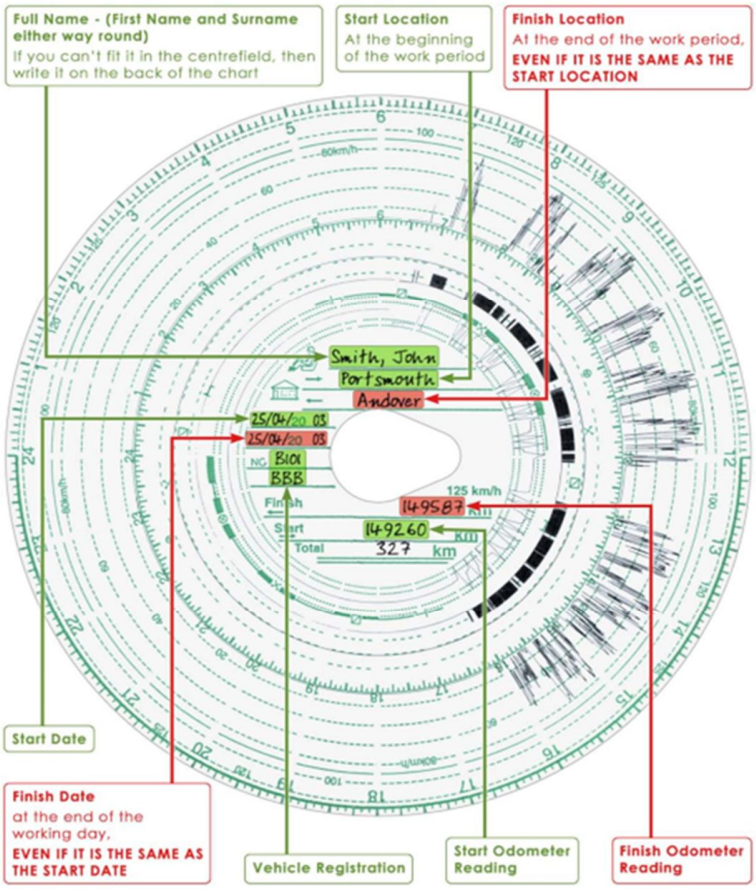


Fig. 4.12. Example of filling in the manual data of the tachograph

The tachographs used in a part of the RSPM operated by SE NRIC comply with the Operating Instructions for the recording speedometer (tachograph) KTCO 1318-27, mounted on RSPM UNIMAT 09-32 4S and DUOMATIK 09-32 CSM of SE NRIC, approved by Order No. 2105/17.10.2016 of the Director General of the SE NRIC.

The analysis of the movement of RSPM No. 99529423013-2 (TPM 0932 CSM) was made on the basis of the circular diagram (tacho washer) provided by the Vratsa railway section in connection with the present investigation.

The analysis covers the time from the acceptance of the vehicle by the drivers serving it at the Cherven Bryag station until the arrival at the Gorni Dabnik station after the completion of the operational-investigative actions of the investigative authorities and is illustrated in fig. 4.13.

At the beginning, it is necessary to specify that the tachograph clock was calibrated incorrectly, therefore the registrations on the chart do not correspond to the real astronomical time, but differ from it by 12 hours (see instructions above), as a result of which the recorded values of the time also differ by 12 hours, which is why the two times - the one marked on the diagram and the actual one (placed in parentheses) are indicated in the analysis below. In addition, it is necessary to note that the manual entries were also made incorrectly, because some of them entered the registration area (in this case, the area of registration of the distance travelled by the vehicle) (Fig. 4.13, item 1).

The start of operation of the vehicle was registered at 08:16 (20:16) hours (Fig. 4.13, item 2). The vehicle started and reached a speed of about 15 km/h, then the speed decreased to 0 km/h. Immediately after that it took off again, reaching about 25 km/h and again dropping to 0 km/h. Apparently, the vehicle was parked on a receiving-outgoing track at Cherven Bryag station for departure to Telish station (fig. 4.13, item 3). During these movements, the vehicle travels about 1500 meters for 2 minutes until 08:18

(20:18) hours. There is a 6-minute rest, after which the vehicle started, accelerated to 52 km/h, decelerated to 40 km/h, accelerates to 45-46 km/h and continued at this speed for 4-5 minutes, covering about 3500 meters, accelerated to 55 km/h, decreased again to 43 km/h, accelerated again to 79 km/h, decreased to 68 km/h and so for 4 minutes the speed fluctuated between 68 and 78 km/h, traveling 2500 meters in the interval (Fig. 4.13, pos. 4). At 08:41 (20:41) the speed decreased to 29 km/h, briefly increased to 32 km/h, then rapidly decreased to 0 km/h and settled at Telish station at 08:43 (20: 43) hours (fig. 4.13, item 5), and the total distance travelled from the departure from Cherven Bryag station is about 18 km (fig. 4.13, item 6). From 08:43 (20:43) hours to 09:08 (21:08) hours, the machine stayed at Telish station. At 09:08 (21:08) the clock started, accelerated to 23 km/h, then slew down to 19 km/h, accelerated again to 21 km/h and again slew down to 0 km/h, passing in 5 minutes about 1400 meters (fig. 4.13, pos. 7). At 09:19 (21:19) hours work began on the Telish - Gorni Dabnik interstation around km 160A+500, which continued until 09:22 (21:22) hours. That was followed by a rest of 3 minutes and again work for about 2.5 minutes until 09:28 (21:28) hours (Fig. 4.13, pos. 8).

After resting for 16 minutes, at 09:44 (21:44) the vehicle started in Drive mode, accelerated to 5 km/h, decelerated to 0 km/h, then accelerated to 23 km/h. The speed then fluctuated from 23 km/h to 17 km/h for 4 minutes from 09:45 (21:45) to 09:49 (21:49) hours, during which time the vehicle travelled about 2,000 meters. That was followed by an increase in speed to 29 km/h for one minute, speed fluctuations around 21-27 km/h for another minute, a decrease in speed to 6 km/h and a further increase to 40 km/h with fluctuations between 40 and 35 km/h for 3 minutes, during which the machine travelled another 3,000 meters. The total distance travelled by the machine from departure at 09:44 (21:44) hours to 09:51 (21:51) hours was 5,700 m (Fig. 4.13, item 9).

From 09:50 (21:50) hours to 13:00 (01:00) hours for 3 hours and 10 minutes, the machine was stationary at km 165+490 – the place of the accident.

At 13:00 (01:00) hours RSPM No. 99529423013-2 departed from km 165+490 to Gorni Dabnik station, accelerated to 37 km/h, then the speed decreased to 25 km/h and then fluctuated between 25 and 32 km/h for 5 minutes, decreased to 22 km/h, increased to 25 km/h and then decreased to 0 km/h for 3 minutes and at 13:10 (01:10) settled at Gorni Dabnik station. From its departure from km 165+490 to Gorni Dabnik station, the machine travelled about 4,250 meters in 10 minutes (fig. 4.13, item 10).

From 13:10 (01:10) hours to 13:21 (01:21) hours for 11 minutes RSPM No. 99529423013-2 stayed at Gorni Dabnik station (fig. 4.13, item 11).

At 13:21 (01:21) RSPM No. 99529423013-2 departed for the Gorni Dabnik - Telish interstation, accelerated to 25 km/h, slew down to 20 km/h, accelerated again to 29 km/h, slew down to 10 km/h , accelerated to 32 km/h from 13:21 (01:21) hours to 13:26 (01:26) hours for 5 minutes, traveling 2750 meters, then the speed varied between 32 km/h and 27 km/h from 13:26 (01:26) hours to 13:29 (01 :29) hours for 3 minutes, covering 1,300 meters. From 32 km/h, the speed decreased to 0 km/h and at 13:30 (01:30) hours, it again settled at the accident site at km 165+490. From the departure from Gorni Dabnik station to the establishment of km 169+490, RSPM No. 99529423013-2 covers 4,250 meters (fig. 4.13, item 12).

From 13:30 (01:30) hours to 16:35 (04:35) hours RSPM No. 99529423013-2 is at the scene of the accident. At 16:35 (04:35) the clock departed in the direction of Gorni Dabnik station, accelerated to 52 km/h, slew to 30 km/h, accelerated again to 38 km/h, then slew to 0 km/h at 16: 41 (04:41) hours, covering 3200 meters in 6 minutes. RSPM rested for about 1.5 minutes, then started at 16:42 (04:42) hours, increased speed to 30 km/h, slew down to 0 km/h and stopped again at 16:44 (04:44) hours, covering about 800 meters in 3 minutes. Stayed from 16:44 (04:44) hours to 16:47 (04:47) hours for 3 minutes and sets off again, increasing speed to 34 km/h and then slowing to 0 km/h, traveling 100 meters for 2 minutes. It then idled for about 0.5 minutes and started again, reaching a speed of 10 km/h and immediately after that the speed decreased to 0 km/h. Thus, at 16:50 (04:50) RSPM No. 99529423013-2 was established in place at Gorni Dabnik station and this was the last traffic registration (fig. 4.13, item 13).

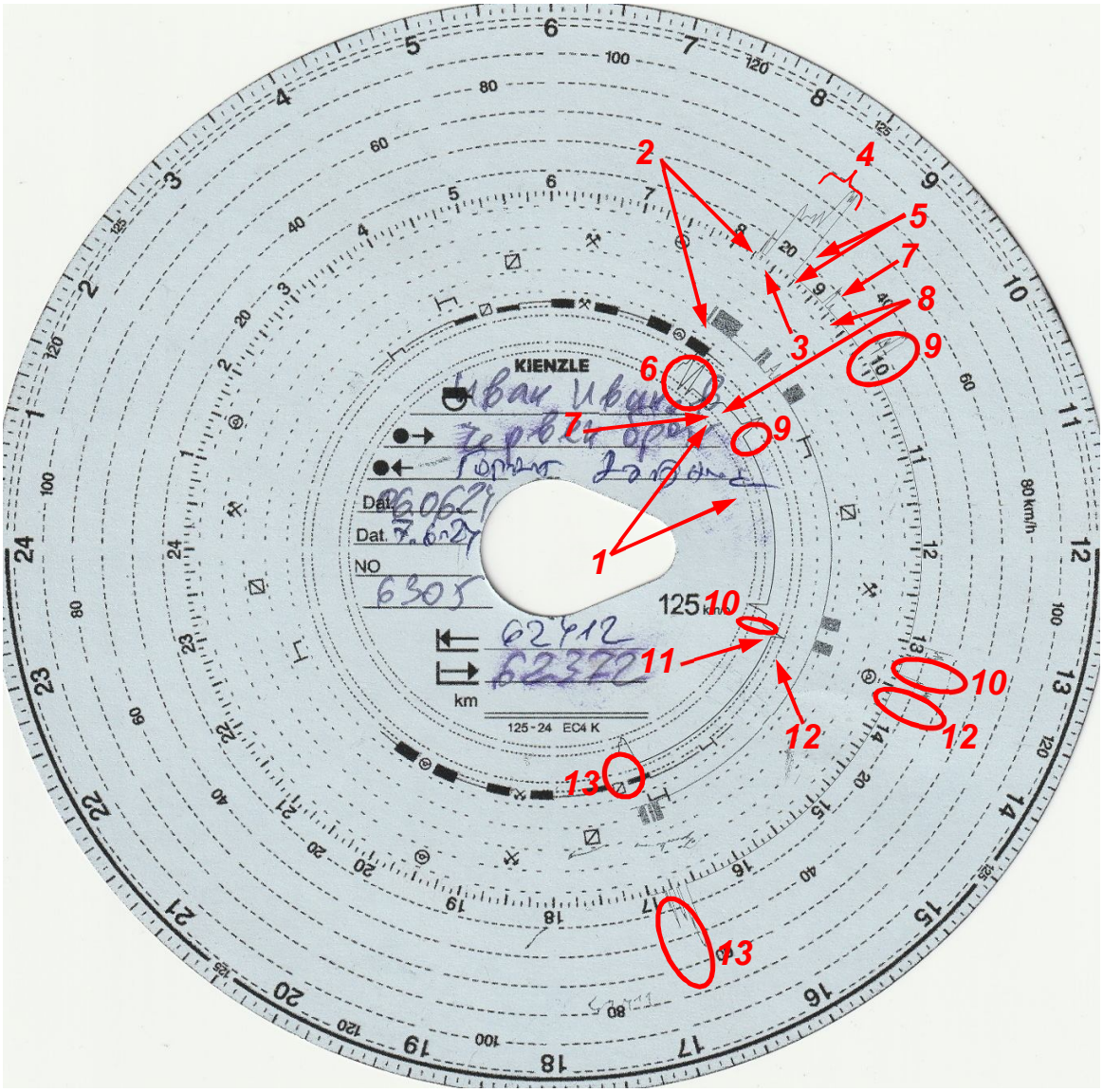


Fig. 4.13. Round registering chart of RSPM № 99529423013-2

At 21:50 p.m. RSPM No. 99529423013-2 arrived and settled at km 165+496 (in accordance with the data of the recording device) to start work on the rail track. Around 9:55 p.m., a transport group leader got off the machine on the left between track 1 and track 2 and ended up in the siding of current track 2.

Around 22:00 p.m., the chief engineer descended from the left between track 1 and track 2 from RSPM 99529423013-2 and found himself in the danger zone for broken gauge on current track 2.

At 22:03 p.m. FT No. 2654 passed, hit and run over the transport group leader standing on the track, and the chief engineer who got off the RSPM, the air jet from the passing train turned and it fell to the rail of current track No. 1 under the RSPM.

4.1.2. Infrastructure manager.

Analysis of the railway infrastructure condition

Description of the place where the employees were run over and injured

a. At km 165+490 between the stations Gorni Dabnik and Telish track No. 2, the employee of FT No. 2654 was hit on the track;

b. The place of the body of the employee who was run over was at km 165+433;

c. After stopping, the locomotive of FT No. 2654 was located on track No. 2 km 164+769;

d. The employee injured by FT No. 2654 was located between track 1 and track 2 at km 165+486;
e. RSPM was at kilometre 165+496 on track No. 1 to start work;
f. The distance between Telish and Gorni Dabnik stations is 11,862 m.
g. The permissible speed for passenger trains in the interstation is 110 km/h.
h. At the time of the impact, the train was moving at a speed of 91 km/h.
i. The rail track on both tracks is non-maintained, with type S49 rails, on reinforced concrete sleepers ST-4 and fastening PAK-68 I.
j. Visibility during daylight hours when driving on track No. 2 from Gorni Dabnik station to Telish station was greater than 300 m.
k. The space between the two tracks was filled with ballast.
l. The gauge of the locomotive to the left of the axis in the direction of movement on current track No. 2 was 1575 mm.
m. The place of the employee injured by the air jet was at a smaller distance of 2787 mm from the axis of current track No. 2, that was, in the "dangerous zone of violated gauge".

4.1.3. Entities in charge of the technical maintenance

Infrastructure manager

SE NRIC has a Certificate of a structure responsible for maintenance with EIN BG /31/0020/ 0003, valid from 01.07.2020 to 30.06.2025.

SE NRIC has a Certificate of a structure responsible for vehicle maintenance with EIN BG/31/0023/0001, valid from 22.03.2023 to 21.03.2028.

Railway undertaking

"BDZ-Passenger Transport" EOOD holds a Certificate of a structure responsible for maintenance with EIN BG /31/0021/0001, valid from 19/04/2021 to 18/04/2026;

4.1.4. Manufacturers or providers of rolling stock and railway products.

Non-applicable.

4.1.5. National Safety Authority.

Railway Administration Executive Agency is the National Safety Authority for railway transport in the Republic of Bulgaria.

4.1.6. Notified bodies or Risk assessment bodies.

"TINSA" EOOD owns Permit No. 002-2 for carrying out activities to evaluate activities of a subsystem or a part of a subsystem with the requirements of the national safety rules or with the technical rules, valid from 15.07.2021.

Scope of permission

Subsystems:

- Energy;
- Infrastructure;
- Control, command and signalling;
- Rolling stock - freight wagons;
- Rolling stock - locomotives and passenger rolling stock.

"TINSA" EOOD holds Certificate No. BG/36/0021/0001 for an assessment body for performing an independent assessment of the implementation of the risk management procedure and its results, valid from 05.02.2023 to 02.04.2026.

Scope of evaluation activities

Structural areas of the railway system:

- Infrastructure;
- Energy;
- Control, command and signalling on railway lines;
- On-board control, command and signalling;

- Rolling stock.

Functional areas of the railway system:

- Traffic operation and management;
- Maintenance;
- Telematic applications for freight and passengers.

Assessing the overall coherence of risk management:

- The organization;
- The methodology;
- Technical aspects necessary to assess the compliance and completeness of the risk assessments and the safety level of the system.

4.1.7. Certifying bodies of the entities in charge of the technical maintenance.

The Railway Administration Executive Agency as the National Safety Authority for railway transport performs certification of the entities in charge of the vehicles maintenance (ECM) in accordance with Directive 2004/49/EC and Regulation (EU) 445/2011, as per Ordinance No 59 on the railway transport safety management and on the maintenance functions in accordance with Directive 2004/49/EC and Regulation (EU) 445/2011.

From June 16, 2020 the RAEA performs certification of the ECM as per the Commission Implementing Regulation (EU) 2019/779 of 16 May 2019 laying down detailed provisions on a system of certification of entities in charge of maintenance of vehicles pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulation (EU) No 445/2011.

4.1.8. Persons or entities involved in the event, documented or not in the respective safety management systems or indicated in register.

Railway infrastructure

• SE NRIC implements Safety Procedure SP 2.09 "Methodology for determining, assessing and managing of the risk" version 05 effective from 01.03.2019, part of the SMS.

Railway undertaking

● BDZ PP EOOD implements the Procedure of "Integrated Management System" - P-2-15, "Management of Safety of Passenger Transportation. Monitoring and information" from 25.03.2024, and Safety Risk Assessment Methodology in BDZ PP EOOD from 23.02.2012.

4.2. Rolling stock and technical facilities.

4.2.1. Factors, deriving from the design of the rolling stock, railway infrastructure or technical facilities.

Non-applicable.

4.2.2. Factors deriving from the installation and placing into service of the rolling stock, railway infrastructure and technical facilities.

Non-applicable.

4.2.3. Factors deriving from manufacturers or another provider of railway products

Non-applicable.

4.2.4. Factors, deriving from the technical maintenance and/or modification of the rolling stock or the technical structures.

Non-applicable.

4.2.5. Factors due to the entity in charge of the technical maintenance, workshops for technical maintenance and other technical maintenance service providers.

Non-applicable.

4.2.6. Other factors or consequences considered as involved within the investigation objectives.

Non-applicable.

4.3. Human factor

4.3.1. Individual human characteristics:

4.3.1.1. Training and development, including skills and experience.

Railway undertaking:

- Locomotive driver of locomotive No. 91520044137-5:

Certificate of legal capacity No. 21908 acquired legal capacity for "Locomotive driver", training conducted in the period 25.02.÷19.07.2019, training institution PQC - BDZ, issued by RAEA;

Locomotive driving license BG 71 2021 0046, issued by RAEA;

Certificate No. VII-1151 for occupying the position of "Locomotive Machinist" in BDZ PP EOOD, issued on 08.11.2021.

Additional certificate No. 71 2021 0046 from BDZ PP EOOD for rolling stock for which the driver is allowed to drive - Electrical series 43, 44, 45.00 from 12.07.2021 on the national railway infrastructure of the Republic of Bulgaria until 12.06.2024.

● Assistant locomotive driver of locomotive No. 91520044137-5:

Certificate of legal capacity No. 20090 acquired legal capacity for "Assistant Locomotive Driver", training conducted in the period 26.06.÷20.10.2017, training institution PQC - BDZ, issued by RAEA;

Certificate No. VII-1335 for holding the position of "Assistant Locomotive Driver" in BDZ PP EOOD, issued on 27.09.2023.

Railway infrastructure:

● Chief Engineer at Vratsa Railway Section:

Diploma No. 020165, professional qualification "Construction Engineer", training conducted in the period 10.03.1999÷13.03.2003, educational institution VTU "Todor Kableshkov";

Certificate No. 541 for occupying the position of "Chief Engineer" in Vratsa Railway Section from 17.03.2022.

● Head of the transport group at the Vratsa railway section:

Certificate of legal capacity No. I-1779, acquired legal capacity "Construction technician for maintenance and repair of railway lines and facilities", training conducted in the period 04.17. ÷ 03.10.2006, training institution PQC at SE NRIC, issued by RAEA;

Certificate No. 1091 for occupying the position of "Transport group manager" in Vratsa railway section from 01.06.2022.

• Engine Driver 1st person of RSPM No. 99529423013-2:

Certificate of legal capacity No. 8499, acquired legal capacity for "Engine driver RSPM", training conducted in the period 28.11.2007 ÷ 25.03.2008, training institution PQC at SE NRIC, issued by RAEA;

Certificate No. 28 for holding the position of "Engine driver RSPM" in Vratsa Railway Section, issued on 15.03.2022.

Locomotive driving license BG 71 2016 0432, issued by RAEA;

Additional certificate No. 71 2016 0432 from the Vratsa railway section for rolling stock for which the driver is allowed to drive - RSPM 09 - 32 CSM from 28.02.2023 on the national railway infrastructure of the Republic of Bulgaria until 28.02.2026.

• Engine driver II person of RSPM No. 99529423013-2:

Diploma No. 23846 for acquired legal capacity for "Engine driver RSPM", training conducted in the period 31.08.1988÷15.09.1991, training institution VNVTU "Todor Kableshkov";

Certificate No. 215 for holding the position of "Engine driver RSPM" in Vratsa railway station from 15.03.2022.

Locomotive driving license BG 71 2016 0445, issued by RAEA;

Additional certificate No. 71 2016 0445 from the Vratsa Railway section for rolling stock for which the driver is allowed to drive - RSPM 09 - 32 CSM from 28.02.2023 on the national railway infrastructure of the Republic of Bulgaria until 28.02.2026.

4.3.1.2. Medical and personal circumstances, which influence the event, including the presence of physical and psychological stress.

Railway undertaking:

• Locomotive driver of locomotive No. 91520044137-5:

Card for periodical medical examinations dated 05.10.2023, issued by the Multidisciplinary Transport Hospital - Gorna Oryahovitsa;

Conclusion: fit for a locomotive driver.

Psychological certificate No. 1130/05.11.2021, issued by the Psychological Laboratory for Railway Transport in Gorna Oryahovitsa at the National Multidisciplinary Transport Hospital - Sofia for a locomotive driver.

Conclusion: admitted for a period of 3 years.

• Assistant locomotive driver of locomotive No. 91520044137-5:

Card for periodical medical examinations dated 15.04.2024, issued by the Multidisciplinary Transport Hospital - Gorna Oryahovitsa;

Conclusion: suitable for Assistant Locomotive Driver;

Psychological certificate No. 274/11.03.2021, issued by the Psychological Laboratory of Railway Transport in Gorna Oryahovitsa at the National Multidisciplinary Transport Hospital - Sofia for Assistant Locomotive Driver.

Conclusion: admitted for a period of 3 years.

Railway infrastructure:

● Chief Engineer at Vratsa Railway Section:

Unified health information file dated 05.10.2007, issued by the Multidisciplinary Transport Hospital - Gorna Oryahovitsa;

Conclusion – fit for chief engineer;

● Head of the transport group at the Vratsa railway section:

Unified health information file from 28.11.2017, issued by the National Multidisciplinary Transport Hospital - Sofia.

Conclusion - transport suitable for a group leader.

• Engine driver 1st person of RSPM No. 99529423013-2:

Unified health information file dated 19.01.2024, issued by the Multidisciplinary Transport Hospital - Gorna Oryahovitsa;

Conclusion – suitable for Engine driver of RSPM;

Psychological certificate No. 1142/08.11.2021, issued by the Psychological Laboratory for Railway Transport in Gorna Oryahovitsa at the National Multidisciplinary Transport Hospital Sofia for Engine driver of RSPM;

Conclusion: admitted for a period of 3 years.

• Engine driver II person of RSPM No. 99529423013-2:

Card for periodic medical examination dated 30.10.2023, issued by the National Multidisciplinary Transport Hospital Sofia;

Conclusion: suitable for Engine driver of RSPM;

Psychological certificate No. 564/13.07.2020, issued by the Railway Transport Psychological Laboratory in Gorna Oryahovitsa at the Sofia National Multidisciplinary Transport Hospital for an RSPM Engine driver.

Conclusion: admitted for a period of 5 years.

4.3.1.3.Fatigue

Railway undertaking:

• Locomotive driver of locomotive No. 91520044137-5:

Rest: from 06/05/2024 hour 20 minutes 25 until 06.06.2024 hour 19 minutes 40

Started work: 06.06.2024 hour 19 minutes 40 – (11 hours and 15 minutes)

• Assistant locomotive driver of locomotive No. 91520044137-5:

Rest: from 05.06.2024 hour 20 minutes 25 until 06.06.2024 hour 19 minutes 40
Started work: 06.06.2024 hour 19 minutes 40 – (11 hours and 15 minutes)

Railway infrastructure:

● Chief Engineer at Vratsa Railway Section:
Rest: from 06/06/2024 at 07:00 a.m. to 06/06/2024 at 20:00 a.m.
Started work: 06.06.2024 hour 20 minutes 00 – (13 hours and 00 minutes)
• Head of the transport group at the Vratsa railway section:
Rest: from 06/06/2024 at 07:00 a.m. to 06/06/2024 at 20:00 a.m.
Started work: 06.06.2024 hour 20 minutes 00 – (13 hours and 00 minutes)
• Engine driver 1st person of RSPM No. 99529423013-2 :
Rest: from 06/06/2024 at 07:00 a.m. to 06/06/2024 at 20:00 a.m.
Started work: 06.06.2024 hour 20 minutes 00 (13 hours and 00 minutes)
● Engine driver II person of RSPM No. 99529423013-2:
Rest: from 06/06/2024 at 07:00 a.m. to 06/06/2024 at 20:00 a.m.
Started work: 06.06.2024 hour 20 minutes 00 (13 hours and 00 minutes)

4.3.1.4.Motivation and attitudes
Non-applicable

4.3.2. Work related factors:
4.3.2.1.Tasks planning.

Railway infrastructure:

• SE NRIC –manager carries out maintenance, repair and operation of the railway infrastructure. Prepares a year-round timetable for the movement of all categories of trains on the main and secondary railway lines. Prepares schedules and timetables for additionally requested trains and vehicles submitted by the railway undertakings for movement on the railway network.

Railway undertaking:

• "BDZ-Passenger Transport" EOOD - a national railway carrier that transports passengers according to an approved Train Movement Schedule and Plan for composing the trains under a contract for the carriage of passengers with the state.

4.3.2.2.Constructive particularities of the facilities that influence the connection human-machine.
Non-applicable.

4.3.2.3.Communication means.
The communication links in Gorni Dabnik and Telish stations are carried out with the DCCM 8.
In the two cabins of FT № 2654, TDRC devices are installed for direct radio communication from the locomotive driver to the traffic managers on duty at the stations in the section;
The operational staff working on a shift basis in the SE NRIC and BDZ PP EOOD are provided with service mobile phones in case of emergency need for quick communication.

4.3.2.4.Practices and processes.
Non-applicable.

4.3.2.5.Operation rules, local instructions, staff requirements, prescriptions for technical maintenance and applicable standards.

Railway infrastructure

• SE NRIC implements national and departmental normative acts, part of SMS, relevant to the activities of the manager of the railway infrastructure.
- Collection of Instructions for safe work during construction, repair and maintenance of the rail track and facilities;

- Instruction for safe operation with RSPM on a double-track railway line;
- Instruction for labour safety in the repair of heavy track machinery;
- Instruction on labour safety when operating heavy track machinery;
- Instructions for safe work with a sleeper machine;
- Instructions for safe operation with ballast planer Geismar RGL 600;
- Instructions for safe work with a dynamic stabilizer;
- Instructions for safe operation with a ballast press machine;
- Instructions for safe operation of the Plasser&Theurer – Unimat 09-32/4s combined sleeper for railway switches and rail track.

Order of the director of the Vratsa railway section for the operation of night operating "windows" with RSPM No. 99529423013-2 on 05/06 and 06/07/2024. from 10:00 p.m. to 06:00 a.m. in the conditions of complete disruption of rail track No. 1 in the Telish - Gorni Dabnik interstation, where medium repair work was carried out on the rail track.

Railway undertaking

● BDZ PP EOOD implements the national and departmental normative acts, which are part of the SMS in the Integrated Management System from 03.25.2024, which includes:

- Procedure P-2-8 – Repair and maintenance of traction rolling stock;
- Procedure P-2-6 – Management of transport activity;
- Procedure P-2-10 – Control and operation of the track transport system;
- Procedure P-2-11 – Repair control. Report and commissioning of TPRRS and passenger coaches;
- Instructions for the work of a locomotive driver and assistant locomotive driver in "BDZ-Passenger Transport" EOOD;
- Instruction on the order and method of performing the operational inspections of TPS MV;
- Prescriptions for the inter-repair runs and the cyclicality and planned inspections and repairs of ETPS and EMU - EOOD, PP_PLS 100/23.

4.3.2.6.Working time of the involved personnel.

• In accordance with the requirements for the implementation of Ordinance No. 50 of 28.12.2001. and the Labour Code:

The personnel involved in the accident at the SE NRIC worked a full work week, eight-hour day.

The personnel involved in the accident of BDZ PP EOOD works on a 12-hour work shift, for which a cumulative calculation of working time is applied.

4.3.2.7. Risk treatment practices.

Railway infrastructure

• SE NRIC applies safety procedure SP 2.09 „Methods of evaluation, assessment and management of the risk „version 05 effective from 01.03.2019, which is part of the SMS.

Railway undertaking

• "BDZ-Passenger Transport" EOOD implements the following procedures:

- Methodology for safety risk assessment in BDZ PP EOOD;
- Quality procedure PK-2-15 "Safety management of passenger transport. Monitoring and exchange of information';
- Register of hazards during operation, repair and maintenance of road transport in BDZ PP EOOD.

4.3.2.8. Context, machinery, equipment and indications for shaping the working practices

Non-applicable.

4.3.3. Organizational factors and tasks:

4.3.3.1.Planning of the working force and the working load.

BDZ PP EOOD and SE NRIC in accordance with the requirements of the European and national normative acts, the entities have approved methodologies and models of good European practices and

professional experience. The work is planned and related to the staff directly responsible for the safety and operation of railway transport in accordance with the norms prescribed in the SMS.

4.3.3.2.Communications, information and teamwork.

Non-applicable.

4.3.3.3.Recruitment, staffing requirements, resources

Railway undertaking:

• In BDZ PP EOOD, the selection of personnel is carried out according to an established "Human Resources Management System", which includes:

o Recruitment and selection rules;

o Rules for appointment and changes in employment relationships;

o Rules for staff training and development;

o Rules for ensuring HSWC, Ecology, and organization of the activity of STM.

The entity's personnel are selected and appointed with the relevant legal capacity, professional qualification and skills for working in the management and executive staff.

Railway infrastructure.

• SE NRIC has an approved "Strategy for Human Resources Management 2021÷2025".

In the SE NRIC, the selection of personnel is carried out according to the established "Rules for recruitment, selection and appointment of personnel in the central administration of the SE NRIC" in force from 01.12.2020.

The recruitment, selection and appointment of personnel is carried out by the "Human Resources Management" department, which is responsible for:

- Recruitment;
- Maintaining a database of the personnel;
- Creation of a system of selection techniques for recruitment;
- Carrying out the selection together with the head of the unit;
- Documenting the process and communicating with staff;
- Appointment.

4.3.3.4.Implementation management and supervision.

Non-applicable

4.3.3.5.Compensation (remuneration).

Railway undertaking:

● BDZ PP EOOD has approved "Internal rules for wages" effective from 01.07.2013, which regulate the general conditions for the organization of wages:

- Formation and distribution of funds for salary in the company;
- Determination and amendment of the basic salaries by position;
- Determination of the types and amounts of additional and other remunerations;
- Regulation of the order and manner of payment of staff salaries.
- Determination of minimum values and/or ranges of basic salaries.

Railway infrastructure

• SE NRIC has approved "Internal rules for wages" in force from 01.09.2024, which regulate issues related to the wages of the company's personnel:

- General provisions for the organization of the salary in the entity;
- Determining and distributing the funds for wages - sources, order and way of forming the remuneration;
- Determination and amendment of wages and additional remuneration;
- Regulation, order and method of payment of wages.

4.3.3.6.Leadership, powers related issues.

Non-applicable.

4.3.3.7.Organizational culture.
Non-applicable.

4.3.3.8.Legal issues (including the respective European and national rules and provisions).
Non-applicable.

4.3.3.9.Regulatory framework conditions and safety management system application.
Railway undertaking.

- Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety;
- Commission Delegated Regulation (EU) 2018/762 of 8 March 2018 establishing common safety methods on safety management system requirements pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulations (EU) No 1158/2010 and (EU) No 1169/2010;
- COMMISSION IMPLEMENTING REGULATION (EU) 2019/779 of 16 May 2019 laying down detailed provisions on a system of certification of entities in charge of maintenance of vehicles pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulation (EU) No 445/2011;
- COMMISSION IMPLEMENTING REGULATION (EU) No 402/2013 of 30 April 2013 on the common safety method for risk evaluation and assessment and repealing Regulation (EC) No 352/2009;
- Railway Transport Act;
- ORDINANCE No 59 dated 5.12.2006 on the railway transport safety management.

Railway infrastructure.

- Directive (EU) 2016/798 of the European Parliament and of the Council of 11 May 2016 on railway safety;
- Commission Delegated Regulation (EU) 2018/762 of 8 March 2018 establishing common safety methods on safety management system requirements pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulations (EU) No 1158/2010 and (EU) No 1169/2010;
- COMMISSION IMPLEMENTING REGULATION (EU) 2019/779 of 16 May 2019 laying down detailed provisions on a system of certification of entities in charge of maintenance of vehicles pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulation (EU) No 445/2011;
- COMMISSION IMPLEMENTING REGULATION (EU) No 402/2013 of 30 April 2013 on the common safety method for risk evaluation and assessment and repealing Regulation (EC) No 352/2009;
- Railway Transport Act;
- ORDINANCE No 59 dated 5.12.2006 on the railway transport safety management.

4.3.4. Environmental factors:
4.3.4.1.Labour conditions (noise, illumination, vibrations).
Non-applicable for SE NRIC and BDZ PP EOOD.

4.3.4.2. Meteorological and geographic conditions.
Described in detail in item 3.1.3.2.

4.3.4.3. Construction works, performed on the spot or in very proximity.
Described in detail in item 3.1.3.3.

4.3.5. Any other significant factor for the investigation objectives.
Non-applicable.

4.4. Feedback and control mechanisms, including risk and safety management, as well as monitoring processes:

4.4.1. Regulatory framework conditions.

Commission Delegated Regulation (EU) 2018/761 of 16 February 2018 establishing common safety methods for supervision by national safety authorities after the issue of a single safety certificate or a safety authorisation pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulation (EU) No 1077/2012

Commission Delegated Regulation (EU) 2018/762 of 8 March 2018 establishing common safety methods on safety management system requirements pursuant to Directive (EU) 2016/798 of the European Parliament and of the Council and repealing Commission Regulations (EU) No 1158/2010 and (EU) No 1169/2010

ORDINANCE No 59 dated 5.12.2006 on the railway transport safety management.

4.4.2. Processes, methods and results from the activities on the risk assessment and monitoring that the involved entities performed:

Railway undertaking.

● "BDZ-Passenger Transport" EOOD implements the Quality Management System PK 2-15 "Safety Management of Passenger Transportation. Monitoring and exchange of information." In section 6.7. "SMS implementation control, item 6.7.2. "Periodic control of the implementation of the SMS is carried out through internal audits: monthly and complex. Comprehensive audits are conducted once a year of all safety-related structures.'

● In accordance with the requirements of the "Methodology for safety risk analysis and assessment in force from 23.02.2012", the railway enterprise BDZ PP EOOD prepares and presents monthly reports for the current year, as well as a complex (annual) audit report for the previous year regarding risk monitoring.

Railway Infrastructure Manager

SE NRIC implements a safety procedure PB 2.09 "Methodology for determining, assessing and managing risk" version 05 effective from 01.03.2019, which is part of the SMS.

The Safety and Health at Work Inspection applies the following legal acts in connection with risk assessment, work equipment, as well as the work of the Committees on working conditions in the divisions of the railway:

- SHLCA – law on health and safety at work from 23.12.1997;
- Ordinance No. 5/11.05.1999 about the order, method and periodicity of performing the risk assessment;
- Ordinance No. 7/23.09.1999 for the minimum requirements for health and safety working conditions at workplaces and when using work equipment;

4.4.2.1.Entities in charge of the technical maintenance.

Railway undertaking

● "BDZ-Passenger Transport" EOOD has a Certificate of a structure in charge of maintenance with EIN BG /31/0021/ 0001, valid from 19.04.2021 to 18.04.2026.

Railway infrastructure

● SE NRIC has a Certificate of a structure in charge of maintenance with EIN BG /31/0020/ 0003, valid from 01.07.2020 to 30.06.2025.

● SE NRIC has a Certificate of a structure in charge of maintenance of vehicles with EIN BG/31/0023/ 0001, valid from 22.03.2023 to 21.03.2028.

4.4.2.2.Producers and all other participants.

Non-applicable.

4.4.2.3.Reports for independent risk assessment.

No assessment has been made by an Independent Assessor (AsBo) of any changes in operating conditions or factors relevant to the occurred accident.

4.4.3. Safety management system of the involved:

Railway undertaking.

● "BDZ-Passenger Transport" EOOD implements the "Methodology for Analysis and Assessment of Safety Risk", which is part of the SMS.

Railway infrastructure.

● SE NRIC implements a safety procedure SP 2.09 "Methodology for determining, assessing and managing the risk" version 05 effective from 01.09.2019, which is part of the SMS.

4.4.4. Safety Management System of the entities in charge of the technical maintenance.

Railway undertaking.

● "BDZ-Passenger Transport" EOOD implements an approved "Safety Management System" effective from 27.09.2022, which regulates the technical maintenance of traction and non-traction rolling stock.

Railway infrastructure

● SE NRIC implements Safety Procedure WP 7.01 "Regulations for maintaining the signalling system (Signalling equipment)", which is part of the SMS;

● SE NRIC implements approved "Rules for current maintenance of a rail track" in force from 2021.

4.4.5. Results from the supervision, performed by the National Safety Authority.

The results of the performed audits and inspections regarding the functioning of the Safety Management System of SE NRIC and "BDZ-Passenger Transport" EOOD in accordance with the requirements of Regulation (EU) 2018/761, Regulation (EU) No. 1169/2010, Regulation No. 56 and Ordinance No. 59 to satisfy the specific requirements of European legislation and national rules for the design, maintenance and operation of the managed railway infrastructure, show that the companies maintain an SMS and can fulfil the requirements provided for in the relevant legal acts.

● *Railway infrastructure:*

1. In the period from 25.04.2023 to 05.05.2023, the National Safety Authority (RAEA) carried out an annual planned supervision of the SMS of SE NRIC for the renewal of the Safety Certificate in accordance with Delegated Regulation (EU) 2018/762 of the Commission for the establishment of common safety methods in relation to the requirements for SMS according to Directive (EU) 2016/798, no inconsistencies were found.

2. In the period from 22.04.2024 to 15.05.2024, the National Safety Authority (RAEA) carried out an annual planned supervision of the SE NRIC to establish common safety methods in relation to the requirements of the SMS according to Directive (EU) 2016/798 no discrepancies were found.

● *Railway undertaking:*

In the period from 08/02/2021 to 19/02/2021, the National Safety Authority (RAEA) carried out a scheduled annual audit of the SMS of "BDZ-Passenger Transport" EOOD.

In the period from 22.11.2022 to 09.12.2022, the National Safety Authority (RAEA) conducted an audit under the SMS for the issuance of a unified safety certificate of "BDZ-Passenger Transport" EOOD.

In the period from 23.10.2023 to 03.11.2023, the National Safety Authority (RAEA) carried out a planned annual audit of the SMS of "BDZ-Passenger Transport" EOOD.

4.4.6. Permits, certificates and assessment reports, provided by the National Safety Authority or other Conformity Assessment Bodies:

4.4.6.1.Safety Authorization of the involved infrastructure manager.

● SE NRIC has a Safety Authorization IN EC BG 21/2023/0001, valid from 01/07/2023 to 30/06/2028;

4.4.6.2.Safety certificates of the involved railway undertaking..

●,, BDZ-Passenger Transport" EOOD has a Single Safety Certificate with IN EC BG 10 2022 0298, valid from 31/12/2022 to 30/12/2027;

4.4.6.3.Certificate of Assessment body for risk assessment.

"TINSA" Ltd. holds Certificate EIN BG/36/0021/0001 of an assessment body for performing an independent assessment on the implementation of the risk management procedure, valid from 02.05.2021 to 02.04.2026.

4.4.6.4. Authorizations for placing in service of permanently fixed equipment and permits for placing on the market of vehicles.

Non-applicable.

4.4.7.Other system factors.

Non-applicable.

4.5. Previous similar cases.

In 2023÷2024, NIB - BG conducted an investigation with a final report and safety recommendations of a similar nature of a significant railway accident with two employees of the manager of the railway infrastructure being run over during work at Sectional post 4 - Iliantsi interstation on 07.11.2023.

5. Conclusions

5.1. Summary of the analysis for the event causes.

The Investigation Commission carried out several inspections of the accident site, locomotive No. 91520044137-5, serving FT No. 2654 and RSPM No. 995294230132.

The documents and materials requested and provided by the NIS, the "Labor Inspection - Pleven" Directorate and the Task Force were reviewed and analysed, and violations of regulations were identified.

The Health and Safety Inspection at Work did not control the analysis and completion of the risk assessment, work equipment, the work of the committees on working conditions and compliance with the following legal acts by the personnel in the railway divisions and facilities in the SE NRIC:

• **HSLCA:**

"Art. 29, item 1. They discuss every quarter the overall activity of health protection and ensuring the safety of workers and propose measures for its improvement;

"Art. 33. Every worker is obliged to take care of his health and safety, as well as the health and safety of other persons directly affected by his activity, in accordance with his qualifications and the instructions given by the employer."

• **Ordinance No. 5/11.05.1999** on the order, method and periodicity of risk assessment:

"Art. 3. The risk assessment covers:

item 2. Work equipment;

item 5. The organization of work;"

"Art. 11, para. 1: The risk assessment is revised when:

item 4. There are conditions for the assessment to be improved;"

• **Ordinance No. 13 of 30.05.2005** on ensuring healthy and safe working conditions in railway transport:

"Art. 11. Everyone working in railway transport is obliged to take care of his safety and health, as well as the safety and health of other persons affected by his activity, in accordance with the requirements of this regulation, the normative acts on health and safety at work , the railway regulations and the employer's instructions.'

"Art. 28, para. 1. Upon the approach of a train, shunting train, locomotive or other vehicle, the official moving along the track or the current track, retreats outside the gauge and, if possible, at a distance of more than 4 m, without standing in the gauge of another track or road. "

• **Ordinance No. 58 of 2.08.2006** on the rules for technical operation, train movement and signalling in railway transport:

"Art. 160. It is not allowed:

Item 1. Commencement of works endangering the life and health of workers or the safety of transport traffic before the place of their execution has been signalled;"

"Art. 391. In cases where renewal or mechanized intermediate repair of adjacent tracks is carried out in a certain section of a multi-track railway, the speed is limited to 25 km/h on standard railway lines and lower than 10 km/h on narrow-gauge lines, and the train driver is not notified of this, the train is stopped at a pre-signal braking distance in front of the place and the driver is notified of the speed allowed for passage.'

• **TOR** - Rules for technical operation of the railway infrastructure of the State Enterprise "National Railway Infrastructure Company":

"Art. 324, para. 1. All officials in the SE NRIC carrying out activities related to the operation, repair and maintenance of the railway infrastructure, as well as the persons carrying out construction, repair or other activities in the expropriation zone or in the zone of the restrictive construction line of the railway infrastructure are obliged to comply and apply the requirements and regulations for the introduction and removal of reductions in train running speeds.

para. 2. Speed reductions are introduced in all cases where, depending on the degree of danger, it is not necessary to stop traffic on the railway infrastructure in a given section, until the causes endangering the safety of transport and/or the safety and health of passengers, railway officials and/or third parties.'

"Art. 326, para. 1. All sections requiring a reduction in speed must be signalled according to the requirements of Ordinance No. 58 under the control of legally competent officials from the regional

operating divisions responsible for the railway, with the exception of the cases regulated in the current normative acts and these rules."
"Art. 334. A temporary speed reduction is introduced:
Item 7. When carrying out activities related to the maintenance and repair of the railway infrastructure, when this is necessary or required.
Item 8. In the case of construction and repair activities carried out on adjacent tracks or in close proximity to them, when this is necessary or required."
"Art. 336, para. 1. Technological reductions can be introduced when:
item 1. Basic and medium repair or current maintenance of the rail track;
item 4. Major repair of the railway in a "window" or on the second track in the case of double-track railway lines;
para. 2. The beginning of the period for the introduction of technological speed reductions is determined depending on the plan and technology for carrying out construction and repair activities.
para. 5. Technological reductions can be:
i. 1. With a one-time introduction of a speed reduction with a validity period according to Art. 331 of these rules;
i. 2. With repeated periodic introduction of short-term speed reductions within eight hours, until the completion of site activities requiring speed reduction.
para. 6. In the cases under para. 5, item 1 the notification of the interested persons about the introduction of a speed reduction is carried out at least 24 hours before the beginning of the period of its effect.
para. 7. In the cases under para. 5, item 2 when the activities under para. 2 are carried out according to the technology providing for repeated introduction of speed reductions with different fronts, the relevant head of the operating division of the SE NRIC issues an order regulating:
i. 1. The general order and procedures for the introduction and removal of these speed reductions;
i. 2. The time for their duration;
i. 3. The period during which they will be introduced - its beginning and end;
i. 4. The specific officials entitled to introduce and remove short-term reductions;
i. 5. The rate of movement after removal of short-term reductions.'
"Art. 349, para. 1. The manager of construction or repair works on the railway infrastructure, having the necessary legal capacity, organizes and signals the places requiring a temporary reduction of speed, ordering the placement of the relevant signals in case the relevant works or processes will continue for a longer period of time from 24 hours after they start.'
"Art. 359, para. 1. The repairs of the railway, facilities and devices are carried out while ensuring the safety of the transports, in accordance with the requirements of the current normative acts.
"Art. 364. (1) It is prohibited:
Item 1. Starting work before the work site is signalled according to the requirements of Ordinance No. 58."

The instruction book does not record how the movement of the work group to the place of work will be carried out:
- The place of work is not specified in writing from which kilometre it will start;
- The workplace is not signalled in accordance with the requirements of the normative acts;
- Security is not provided at the workplace in accordance with the requirements of the normative acts and no control of the work on site has been carried out.

5.2. Undertaken measures after the event occurrence.

The railway infrastructure manager has taken the following measures after the occurrence of the event:

• Order No. 543/07.06.2024 of the director of the Vratsa Railway Section, when working on a double-track section immediately before leaving for the place of work, the person performing the functions of a senior on the machine must secure the safety stops on the steps of the machine platform, as and the doors of the carriages on the side of the railway on a double track;

• Letter No. RI-21790/10.06.2024 of the Chief Safety Inspector of the NRIC in connection with the Alert Bulletin regarding occupational accidents in June 2024 for the personnel in operation to conduct an extraordinary briefing;

• Order No. 601/20.06.2024 of the director of the Vratsa Railway Section to conduct an extraordinary briefing of all units and railway sections in the region of the Vratsa Railway Section;

• Order No. 812/02.08.2024 of the director of the Vratsa Railway Section on amendments and additions to Order No. 543 when working in a double-track section of the railway, in order to prevent its use for getting off or boarding, to secure the two doors of the RSPM on the side of the adjacent rail track.

5.3. Additional findings.

In the course of the investigation, the Investigation Commission was provided with Technology for the repair of the site "Mechanized screening of the rail track in the Telish - Gorni Dabnik interstation, track No. 1 from km 160+367 to km 169+023 with a length of 9756 m"

In item II. item 6 and item 10 in the Repair Technology is described:

"t. 6. The speed of movement of trains on track No. 2 in the Telish - Gorni Dabnik interstation in the area of the repaired section for the day should be limited to 25 km/h with signals for a short-term reduction in speed."

For work during the dark part of the day in item 6, there is no speed limit.

"t. 10. For the work during the dark part of the day, the Vratsa Railway Section shall provide the necessary lighting at the work sites, in accordance with the requirements of the regulatory documents."

During the investigation, the Investigation Commission found no lighting on the work site.

In item III, item 4. in the Technology for carrying out the repair, it is written:

"item 4: During the implementation of the CRW and the accompanying activities during the movement of work vehicles, under no circumstances should the gauge of the catenary under voltage be violated and the construction gauge of the current track No. 2 in the Telish - Gorni Dabnik interstation and the tracks in service at the stations.'

6. Safety recommendations

In order to improve the safety in the rail transport, the Chairperson of the Investigation Commission at NAMRATIB proposes to the Railway Administration Executive Agency (RAEA) the following safety recommendations adapted to SE NRIC and BDZ PP EOOD.

- Recommendation 1, proposes that SE NRIC and BDZ PP EOOD familiarize the interested personnel with the contents of this report;
- Recommendation 2 proposes that the SE NRIC "Occupational Health and Safety Inspection" undertake systematic inspections regarding the quality of the briefings conducted by the managers and the entries in the briefing books;
- Recommendation 3 proposes that the State Health and Safety Inspection at Work organize and conduct trainings for managers conducting personnel briefings, paying particular attention to the accompanying dangers in the types of works on the rail track (manual and mechanized);
- Recommendation 4 proposes that the SE NRIC "Inspection of health and safety at work" carry out inspections in the divisions regarding analysing and supplementing the risk assessment in connection with the issued alarm bulletin of 19.06.2024;
- Recommendation 5 proposes to the SE NRIC, for sites performed in an economic manner by the relevant divisions, to prepare and approve technology for carrying out the relevant type of repair;
- Recommendation 6, proposes to BDZ PP EOOD that the locomotive staff, managing traction rolling stock when crossing sections with single and double rail track lines, on which repair works are carried out on the railway infrastructure, be alert, ready for a quick stop.

With reference to the requirements of art. 24, paragraph 2 of Directive (EU) 2016/798, and art. 91, paragraph 3 of Ordinance No 59 dated 5.12.2006, the member of the Management Board of NAMRATIB on 31.10.2024 provides a final report that contains information on the investigation of the accident with formulated and agreed safety recommendations in order to improve safety in railway transport.

In accordance with Art. 26, paragraph 3 of Directive (EU) 798/2016, that the National Safety Authority (RAEA) and other bodies or structures to which the safety recommendations are addressed, to report regularly to the member of the management board of the NAMRATIB on the measures taken or planned as a result (sequence) from the recommendations.

Chairperson:
Dr Eng. Boycho Skrobanski
Deputy President of the NAMRTAIB AB