MINISTRY OF TRANSPORTS AND INFRASTRUCTURE
ROMANIAN RAILWAY AUTHORITY - AFER

ROMANIAN RAILWAY INVESTIGATING BODY

INVESTIGATING REPORT

of the railway accident happened on the 2nd of September 2012, in the railway station Bucuresti Noi, consisting in the derailment of the first two axles, in the running direction of the locomotive EA 40-0526-0, hauling the freight train no. 84796-1

Final edition
The 8th of February 2013

NOTICE

Concerning the railway accident happened on the 2nd of September 2012, at 19:47 o'clock, in the Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti, at the entry on the exit route from the line 1C of the railway station Bucurestii Noi to the railway station Bucuresti Triaj, Switch Cabin 17, cconsisting in the derailment of the first 2 axles in the running direction of the locomotive EA 40-0526-0, hauling the freight train no. 84796-1 (belonging to the freight undertaking SNTFM „CFR Marfa" SA), Romanian Railway Investigating Body performed an investigation, according to the provisions of the Government Decision no. 117/2010. Through the performed investigation, the information concerning the occurrence of this accident were gathered and analyzed, the conditions were established and the causes determined.

The investigation of Romanian Railway Investigating Body did not aim to establish the guilty or the responsibility in this case.

Romanian Railway Investigating Body did not identify safety recommendations, not considering necessary to take corrective measures for the improvement of the railway safety and the prevention of the accidents

Bucharest, the 8th of February 2013

Approved by

Director,
Nicolae SANDU

I ascertain the compliance with the legal provisions concerning the investigation and the drawing up of this investigating report that
I submit for approval
Chief investigator
Eugen ISPAS

This notice is part of the Report for the investigation of the railway accident happened on the 2nd of September 2012, at 19:47 o'clock, in the Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti, at the entry on the exit route from the line 1C of the railway station Bucurestii Noi to the railway station Bucuresti Triaj, Switch Cabin 17, cconsisting in the derailment of the first 2 axles in the running direction of the locomotive EA 40-0526-0, hauling the freight train no. 84796-1 (belonging to the freight undertaking SNTFM „CFR Marfa" SA)

SUMMARY

A. PREAMBLE

A.1. Introduction

Romanian Railway Investigating Body, hereinafter referred to as OIFR, performs investigation in accordance with the provisions of the *Law no. 55/2006* on the railway safety, hereinafter referred as *Railway Safety Law,* well as of the *Regulation for the investigation of the accidents and incidents, for the development and improvement of Romanian railway and subway safety*, approved by the Government Decision no. 117/2010, hereinafter referred as Investigation Regulation.

OIFR investigation aims to improve the railway safety and to prevent the railway incidents or accidents.

The investigation is performed independently from any inquiry and does not aim to establish the guilty or the responsibility.

I.2. Investigation process

According to the art 19, patgraph 2 from the *Railway Safety Law*, corroborated with the art. 48 from the *Investigation Regulation*, OIFR, for the railway accidents and incidents, has to start an investigation and make investigation commissions for gathering and analyzing the technical information, establishment of the occurence conditions, including the causes definition and, if case, issuing safety recommendations for the prevention of some similar accidents and for the improvement of the railway safety.

Taking into account the informative note of the General Traffic Safety Inspectorate from CNCF „CFR" SA, from the 3rd of September 2012, as well as the notification paper of the Regional Traffic Safety Inspectorate from the the Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti concerning the accident occurred on the 2nd of September 2012, at around 19,50 o'clock, in the Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti, in the running of the freight train no. 84796-1 (belonging to the freight undertaking SNTFM „CFR Marfa" SA), consisting in the derailmment of the first 2 axles in the running direction of the locomotive Ea 40-0526-0, hauling the train, at the entry on the exit route from the line 1C of the railway station Bucurestii Noi, group C, to the railway station Bucuresti Triaj – Switch Cabin no. 17 and taking into account that the railway event is defined as accident according to the provisions of the art. 17, paragraph (1), point b) from the Investigation Regulation, OIFR director decided to start an investigation and to appoint an investigation commission.

Through the Decision no. 95, from the 4th of September 2012 of OIFR director, the investigation commission was appointed, consisting in staff belonging to OIFR, Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti and to the Zonal Freight Centre Bucuresti, as follows :

- Eduard Stoian - IDSSCI Department Head - main investigator;
- Visalon Daniel - Regional Inspector Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti - membre;
- Cătănescu Viorel - Regional Inspector Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti - membre;
- Dumitrache Florin - Regional Inspector - Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti - membre.

B.INVESTIGATION REPORT SUMMARY

On the 2nd of September 2012, at around 19:50 o'clock, in the Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti, in the running of the freight train no. 84796-1 (belonging to the freight undertaking SNTFM „CFR Marfa" SA), in the railway station Bucurestii Noi, at the exit from the goup C of the station, at the passing over the trailled switch no. 9C,(passing to heel of switch) a railway accident occurred, consisting in the derailmment of the first 2 axles in the running direction of the hauling locomotive Ea 40-0526-0.

Following this accient, the traffic between the railway stations Bucurestii Noi and Bucuresti Banasea was closed at the moment of the accident occurrence up to 10,25 o'clock, on the 3rd of September 2012.

Two freight trains had a delay of 1587 minutes and there was no delayed passenger train.
The accident did not generate casualties or deads

The direct cause of this accident is the climbing of the right wheel flange, from the axle no. 6 (first in the running direction) because of loss of the guiding capacity, generated by the technical condition of the sleepers, that did not allow a suitable fastening.
The contributing factors were :

- the use of the special sleepers that through their length could not ensure the fastening of all rails corresponding to those two directions of the switch no. 9C (their length ensured the fastening only for 3 rails)

Underlying cause

Keeping in operation of the unsuitable sleepers in the switch no. 9C, because of the lack of supply with the all requested quantity of special sleepers for the switches. For this reseason, one used recovered special sleepers, but with shorter lengths against the assembly plan, that did not ensure the fastening of those 4 rails corresponding to those two directions of the switch no. 9C.

Root causes

None

Safety recommendations

None

C. INVESTIGATING REPORT

C.1. Accident presentation

On the 2nd of September 2012, the freight train no.84796-1 belonging to the freight undertaking SNTFM „CFR Marfa" SA, hauled by the locomotive EA 40-0526-0 (belonging to the Zonal Freight Centre Constanta – Palas Depot, was dispatched from the railway station Mintia to the railway station Agigea Nord.

The train run without problem between Mintia and Bucurestii Noi. The freight train no. 84796-1 left the railway station Chiajna, at 19:26 o'clock and run to the railway station Bucurestii Noi, where it stopped at around 19:45 o'clock and after running 295 m, at around 19:47 o'clock, at a speed of 11 km/h , the first two axles of the bogie no. 1 from the hauling locomotive EA 40-0526-0 derailed on the trailled switch no. 9C.

After the train stop, the driver left the locomotive and found out that the two axles in the running direction, that is the axles no. 5 and 6, were derailed.

Then, the driver notified the movements inspector from the railway station Bucurestii Noi, by the radio-telephone equipment from the locomotive.

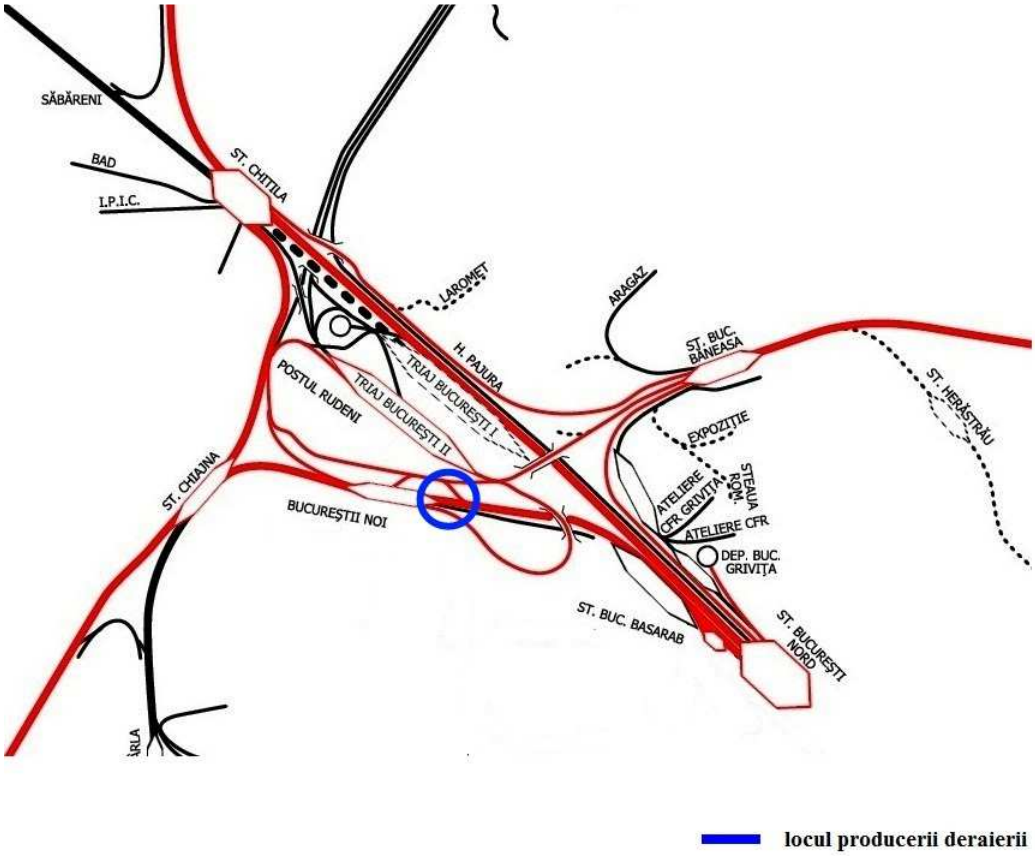
Taking into account these conditions and according to the provisions of the Regulation for the Investigation of the accidents and incidents, for the improvement and development of Romanian railway and subway safety, the event was notified as railway accident, at the accident place going representatives of the Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti, Zonal Freight Centre Bucuresti of SNTFM „CFR Marfa" SA, of Romanian Railway Safety Authority and of Romanian Railway Investigating Body.

Findings at the derailment place:

- the place where the train stopped, the locomotive was in the area of a board crossing and with two axles derailed in the running direction, the right wheels being fallen outside the track, and the link one fallen between the rails;
-
- from the first trace of over-climbing of the right rail (it corresponding to the outside rail of the curve of the switch no. 9c) one found out specific derailment traces on 25 m:

The specialists arrived at the accident place found out the derailment of the first two axles in the running direction (axles no. 5 and 6) from the locomotive EA 40-0526-0, on the trailled switch no. 9C, to the deflecting section.

The accident place is presented in the picture 1



Drawing no. 1 – derailment place

Following the accident, the traffic between the railway stations Bucurestii Noi and Bucuresti Banasea was closed from the accident occurrence up to 10:25 o'clock, on the 3rd of September 2012.

This accident generated the delay of 1587 minutes at 2 freight trains.

Following the accident did not result without casualties or deads.

The derailed locomotive was rerailed at 3:57 o'clock on the 3rd of September 2012 and the traffic between the railway stations Bucurestii Noi and Bucuresti Baneasa was restauration at 10:25 o'clock on the same date.

Following the notification of this railway accident, made according to the provisions of the specific regulations, at the accident place presented the specialists of OIFR, Romanian Railway Safety Authority, public railway infrastructure manager CNCF „CFR" SA and freight undertaking SNTFM „CFR Marfa" SA.

According to the classification of the accidents, stipulated at the art. 7, paragraph (1), letter b) from the *Investigation Regulation*, the derailment of the locomotive EA 40-0526-0, hauling the freight train no. 84796-1 from the 3rd of September 2012 is defined as **railway accident** according to the **art. 7, point 1, letter b.**

C.2. Accident circumstances

C.2.1. Involved parties

The infrastructure and superstructure of the track where the accident happened are administrated by CNCF „CFR" SA. The maintenance of the superstructure is made by the employees of the Permanent Way District 1 Bucurestii Noi from the Track Section L1 - Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti.

The hauling locomotive EA 40-0562-0 and the wagons of the train no. 84796-1 are owned by the freight undertaking SNTFM „CFR Marfa" SA.

The communication equipment from the locomotive is owned by the railway undertaking SNTFM "CFR Marfa" ans maintained by its employees.

C.2.2.Composition and the equipments of the train

The freight train no. 84796-1, consisting in 38 wagons (empty), 152 axles, 943 gross tonnage, 595 m length, was hauled by the locomotive EA 40-0526-0 belonging to the freight undertaking

C.2.3. Presentation of the railway equipments involved in the accident

C.2.3.1 Lines

Route presentation

By reference to the track alignment, the switch no. 9C from the railway station Bucurestii Noi is situated on a plaine line with cross level embankment.

Superstructure presentation

The derailment occurred on the curve of the switch no. 9C from the railway station Bucurestii Noi The switch no. 9C is situated on the running line Bucuresti Triaj, Switch Cabin no. 17 – Bucrestii Noi and has the next characteristics:

- rail type **49**;
- tangent **tg=1/9**;
- spring points **Af**;
- radius **R=300m**;
- **left** deviation;
- locking system – **inside locking with clips**.

C.2.3.2 Equipments

The traffic from the railway station Bucurestii Noi-Group C-Bucuresti Triaj Switch Cabin no. 17 is made according to the free pass system and running order handed over by the movements inspector from the railway station Bucurestii Noi to the engine driver, because of some occupied track section.

C.2.3.3 Wagons

The train wagons are series Fals, with wheel-base of 9,00 m, length between the buffers 14,54 m and tare 25 t.

- the front ait cock of the air brake pipe (5 atm.) was on "open" position along the train, excepting the rear wagon;
- 9 wagons had the automatic brake off, and 4 wagons had the hand brake out of service;
- load selectors were operated in the proper position, that is on "empty"

C.2.3.4 Locomotive

The next findings were found aut at the locomotive involved in the event:

- the cock KD2 was on quick brake;

- the safety and vigilence equipment for the punctual control of the speed was sealed and in service;
- the brake equipment was in service.

C.2.4 Communication means
The communication between the driver and the movements inspectors was ensured through radio-telephone equipments.

C.2.5. Start of the railway emergency plan
Soon after the railway accident, the intervention plan for the removal of the damages and for the re-stauration of the traffic was made in accordance with the information flow stipulated in the Investigation Regulation, approved by the Government Decision no. 117/2010, according which, at the accident place came the representatives of the railway public infrastructure administrator CNCF „CFR" SA, of the railway undertaking SNTFM „CFR Marfă" SA, of Romanian Railway Authority – AFER and of the Operative Department of the Railway Police.
The re-railing of the derailed wagon was made with local means

C.3. Accident consequences
C.3.1. Fatalities and injuries

None

C.3.2. Material damages

The value of the material damages, according to the estimations drawn up by the owner of the rolling stock, intervention means and the railway public infrastructure administrator, is:

Material damages	RON
At the locomotive – according to the estimation no.T2/410/2012 of the Depot Bucureşti Triaj	Blank paper
at the lines – according to the estimation no. 1765/2012 of the Track Section L 1 Bucureşti	Blank paper
At the sequence of operations – according to the estimation no. 329/2012 from the from the Permanent Way District Bucureşti - Mechanization Department	8719,35
TOTAL	**8719,35**

C.3.3. Consequences of the accident in the traffic
The accident affected the railway traffic, generating the delay of 2 freight trains of 1587 minutes.

C.4. External circumstances

On the 3rd of September 2012, between the hours 19:00 and 20:00, the visibility was good, the temperature was about 25^0 C.

The visibility of the light signals was in accordance with the provisions of the specific regulations in force

C.5 Investigation course
C.5.1 Summary of the involved staff testimonies
There was no need to question the involved staff

C.5.2. Safety management system

At the moment of the accident, CNCF "CFR" SA, as manager of the railway infrastructure, had implemented its own railway safety management system, according to the provisions of the Law on the railway safety and of the Minister of Transports' Order no. 101/2008 on the granting of the safety authorization to Romanian railway infrastructure administrator/manager, getting**:**

- Safety Authorization – Part A, identification number ASA 09002 – by which Romanian Railway Safety Authority, from Romanian Railway Authority – AFER agrees the acceptance of the safety management system of the railway infrastructure manager;
- Safety Authorization – Part B, identification number ASB 09007 – by which Romanian Railway Safety Authority, from Romanian Railway Authority – AFER agrees the acceptance of the dispositions taken by railway infrastructure manager in order to comply with the specific requirements necessary to ensure the railway infrastructure safety, in the designing, maintenance and operation, including if case, maintenance and operation of the system for the traffic control and signalling.

At the moment of the accident occurrence, SNTFM "CFR Marfa" SA, as railway undertaking had implemented its own railway safety management, according to the provisions of the *Law on the railway safety* and of the Minister of Transports Order no. 535/2007 for the approval of the norms for the granting of the railway transpot licenses and the safety certificates in order to perform railway transport on Romanian railways, got:

- Safety Certificate – Part A, no. 0024 – by which Romanian Railway Safety Authority, from Romanian Railway Authority – AFER agrees the acceptance of safety management system of the railway undertaking, in accordance with the national legislation;
- Safety Certificate – Part B, no. 0060 – by which Romanian Railway Safety Authority, from Romanian Railway Authority – AFER agrees the acceptance of the dispositions taken by the railway company in order to comply with the specific requirements necessary for the safety operation on the relevant network, in accordance with the national legislation.

C.5.3 Norms and regulations. Sources and references for the investigation

In the investigation of the railway accident one took into account the next :

norms and regulations

- Regulation for the train running and railway vehicle shunting no. 005, approved by Minister of Transports, Constructions and Tourism's Order no. 1816 from the 26th of october 2005;
- Instructions for the technical inspection and the maintenance of the wagons in operation no. 250, approved by Minister of Transports, Constructions and Tourism's Order no. 1817 from the 26th of October 2005;
- Instructions for the activity of the locomotive staff no. 201, approved by the Minister of Transports, Constructions and Tourism's Order no. 2229 from the 23rd of November 2006;
- Instruction for the establishement of the terms and order of the track inspections no. 305 approved by Order of Minister of Transports no. 71/17.02.1997;
- Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge no. 314/1989;
- Instruction for speed restrictions, track renting and cut of power supply no. 317, approved by Order of Minister of Transports' no. 417/08.03.2004.

sources and references

- copies of the documents enclosed to the investigation file;

- photos taken soon after the railway accident by the members of the investigation commission;
- documents on the maintenance of the lines, provided by the persons in charge with their maintenance;
- sheet for the approval of the speed restrictions, decade 01 – 15 September 2012 of the Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti;
- results of the measurements made soon after the accident at the superstructure and derailed wagon;
- inspection and interpretation of the technical condition of the elements involved in the accident: infrastructure and rolling stock.

C.5.4 Operation of the technical equipments, infrastructure and rolling stock

C.5.4.1 Data found out on the lines

Findings and measurements at the line, after the derailment and wagon liftting

1. the freight train no. 84796-1 was dispatched from the line no. 1C, trailling the switch no. 9C to the deflecting section.
2. at the accident moment, the traffic over the switch no. 9C was made with speed restriction of 15 km/h, because its unsuitable sleepers..
3. the sleepers of the switch no. 9C, were mostly re-used, most of them having failures that did not allow the fastening of the metallic plates, by the fastening of the coach screws, especially between the last switch joint (switch end joint) and the overclimbing point (point 0)
4. between the last joint of the switch and the point 0 one identified special slepers (sleepers with length over 2,60 m), that by their length could not ensure the fastening of those 4 rails (corresponding to those 2 directions of the switch), as it is stipulated in the assemblying project of the switch – photo no. 1.

Photo no. 1

5. On the right side in the running direction

- at 4 m, measured from the tip joint of the switch no. 9C to its toe joint one identified the first overclimbing trace of the head of the connetion rail on the right side in the running direction (corresponding to the outside rail of the switch curve) – point 0;

- from the point 0, in the running direction of the train, on 1070 mm, on the running surface of this rail head one observed firts running trace of the flange of the right wheel, followed by the wheel fall outside the track;
- those 3 sleepers from those 1070 mm on which the flange of the right wheel run (the sleeper from the point 0 and the next 2 sleepers in the running direction of the train) had cracks on the vertical direction against the direction of the coach crews fastening – photo no. 2;

Photo no. 2

- at the sleeper from the point 0, on the upper side,one observed specific trace of metallic plate displacement along the sleeper. Also, on the right side, at the rod of a coach screw one observed gap in the sleeper – photo no. 3;
-

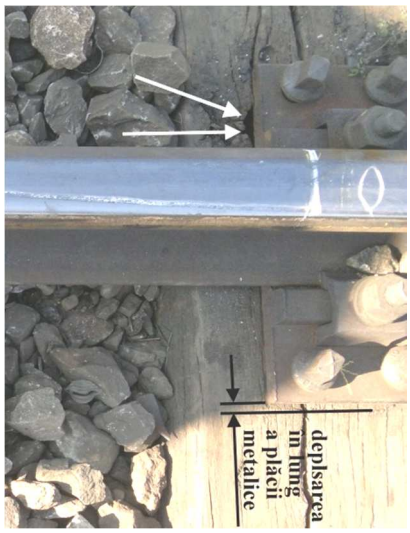


Photo 3

- from the point of the right wheel fall, the specific derailment traces continue on the right side of the connection rail corresponding to the outside rail of the curve of the switch and of the curved points, the traces made by the flange of wheel being on the upper side of the sleepers, on the metallic elements for the fastening of the metallic plates and on the first and second met spacer for the curve switch keeping (the 4th and the 3rd counted from the tip of the switch to the heel of the curved points);
- after the hit of the second spacer for the curve switch keeping, the wheel climbed, opposite it, the right stock rail, running with the tyre 6050 mm;

- after running this distance, the flange of this wheel climbed the running surface of the right stock rail, running a distance of 1410 mm (the second running trace of the flange of the wheel on the rail head), then it left the running surface of the stock of the rail, hitting on its right side the shoulder of the slide chair from the curved points tip and the horizontal screws for the fastening of the box for the locking of the right stock rail – photo no. 4;

Photo no. 4

- at 560 mm measured from the first joint of the right stock rail heel, on the running surface of the stock rail and continuing on the running surface of the rail of the stock rail panel between the switches no. 9C and 7C, one found aut the 3rd trace of running of the wheel flange, with a length of 1910mm – photo no. 5;

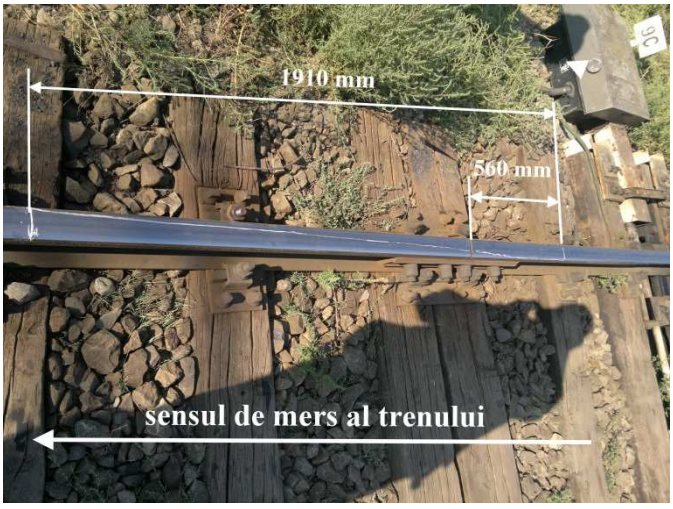


Photo no. 5

- after this point, the specific derailment traces were found out on the metallic elements for the fastening of the rails and metallic plates and on the sleepers, on the right side of the rail between the switches no. 9C and 7C;

6. *<u>On the left side in the running direction</u>*

- In the point 0, the coach screws could not ensure the fastening of the metallic plates on the sleeper because the sleeper was cracked – photo no. 6;

Photo no. 6

- starting with this point and up to the 4th met spacer for the curve of switch keeping (the 8th slide chair counted from the points of switch tongue to the points heel), in the train running direction, between the rails, one found out specific derailment traces on the upper sides of the vertical screw rods, from the right side of the connection rail, corresponding to the inner rail of the switch curve (some rods were broken);
- from this spacer for curve of switch keeping one did not found out derailment traces up to the points of the switch toe, where the derailment traces reappear between the track rails on the right side of the curved stock rail and the connection rail (left rail) of the track panel between the switches no. 9C and 7C, on the rods of the vertical screws and on the horizontal nuts from the first joint of the switch no. 9;

7. From the climbing point (point 0), reversely to the train running direction, one marked on the field pegs from 2,5 m to 2,5 m (pegs no. 0-5), last peg (peg no. 5) being on the deflecting section no. 1C, at 370 mm against the last joint of the switch no. 9C. In the counted pegs, one performed checking, static condition, of the gauge and the cross level of the track using the ruler.

Following this checking resulted that in some points the tolerances for the operation of the gauge and of the cross level accepted by the provisions of Instruction of norms and tolerances for the track construction and maintenance – lines with standard gauge no. 314/1989, were exceeded, as follows:

a. gauge tolerance was exceeded in the pegs no. 0,1 and 2 with 2 mm, 6 mm and 12 mm;
b. cross level tolerance was exceeded in the pegs no. 9 and 7 with 4mm and 2 mm.

8. There were no wears at the metallic parts of the switch (connection rails, built-up common crossing, check rail opposite the built-up common crossing) that lead to the derailment.

C.5.4.2 *Data on the operation of the rolling stock and its technical equipments*
One did not find out any problem in the rolling stock operation.

C.6 Analysis and conclusions

C.6.1 Conclusions on the technical condition of the track superstructure

Taking into account the characteristics of the line presented in the chapter C.2.3.1 *Lines*, mentioned in *Presentation of the railway equipments involved in the accident*, as well as the findings and mneasurements made at the line, after the derailment, presented in the chapter *C.5.4.1 – Data on the lines*, one can state that the technical condition of the switch no. 9C could influence the derailment.

C.6.2 Analysis and conclusions on the train derailment occurence

From the analysis of the findings from the accident site, of the technical condition of the switch no. 9C and of the photos, one can conclude that the railway accident happened in the next conditions:

- at the passing over the switch no. 9C (trailled to the deflecting section), the right wheel of the first axle, after passing over the toe joint of crossing (at about 4,0 m) against this joint, climbed the rail head from the right side, coresponding to the outside rail of the switch curve, run with the flange of wheel on the running surface of the rail, about 1,07 m, falling outside the running track. Climbing of the right wheel of the first axle was possible in the conditions where a part of the sleepers had failures that allowed horizontal and vertical displacement of the running track, under the dynamic forces applied by the rolling stock in its running on the track;
  In its running, as hauling loomotive, it run over sleepers that because their failures (cracks in the direction of the coach screw fastening, mechanical wears and crushing of the surface under the metallic plates) allowed the horizontal and vertical displacement under the dynamic forces applied by the rolling stock on the track. Cumulation of the dynamics forces efectts led to the climbing of the right wheel of the first axle on the head of the outside rail of the curve of the switch no. 9C;
  - at the same time with the right wheel fall, the left wheel of the same axle fell;
  - the locomotive run with the first axle derailed up to the board crossing from the track panel between the switches no. 9C and 7C, where following the impact with its slabs also the second axle derailed, then the locomotive stopped because the measures for the train brake taken by the driver

D. ACCIDENT CAUSES

D.1. Direct cause

The direct cause of this accident is the climbing of the right wheel flange, from the axle no. 6 (first in the running direction) because of loss of the guiding capacity, generated by the technical condition of the sleepers, that did not allow a suitable fastening.
The contributing factors were :

- the use of the special sleepers that through their length could not ensure the fastening of all rails corresponding to those two directions of the switch no. 9C (their length ensured the fastening only for 3 rails)

D.2 Underlying cause

Keeping in operation of the unsuitable sleepers in the switch no. 9C, because of the lack of supply with the all requested quantity of special sleepers for the switches. For this reseason, one used recovered special sleepers, but with shorter lengths against the assembly plan, that did not ensure the fastening of those 4 rails corresponding to those two directions of the switch no. 9C.

D.3 Root causes
None

E. SAFETY RECOMMENDATIONS
None

This Investigating Report will be transmitted to Romanian Railway Safety Authority, to the public railway infrastructure administrator CNCF „CFR" SA and to the railway freight undertaking SNTFM „CFR Marfă" SA.

Bucuresti
The 8th of February 2013

Members of the investigation commission:

- Eduard Stoian - IDSSCI Department Head - main investigator;
- Visalon Daniel - Regional Inspector Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti - membre;
- Cătănescu Viorel - Regional Inspector Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti - membre;
- Dumitrache Florin - Regional Inspector L Branch of the Regional Center for Railway Operation, Maintenance and Repairs Bucuresti - membre.