

Government of India  
Ministry of Civil Aviation  
(Commission of Railway Safety)

No.T-13011/1/2011/CC/188-

Dated : 19.05.2011

From,

The Commissioner of Railway Safety,  
Central Circle,  
Churchgate Station Bldg. Annexe,  
2<sup>nd</sup> Floor, Maharshi Karve Road,  
**Mumbai 400 020.**

To,  
The Chief Commissioner of Railway Safety,  
Ashok Marg,  
**Lucknow.**

Sir,

**Sub** : Fire in 12951 Dn, Mumbai Central - New Delhi, Rajdhani Express at about 02.11 hrs of 18.04.2011 at Km.743/20 Between Vikramgarh Alot and Thuria stations of Nagda - Kota, BG Double line Electrified section of Kota Division of West Central Railway.

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**1.1 Preamble :**

In accordance with Rule 3 of the Statutory Investigation into 'Railway Accident Rules, 1998' published by the Ministry of Civil Aviation, Government of India, under their Notification dated December 17, 1998, I have the honour to submit herewith the Preliminary Report of my Statutory Inquiry into the above mentioned accident.

**1.2 Inspection and Inquiry :**

I was informed of the accident at about 05.00 hrs on 18.04.2011 by Chief Safety Officer, West Central Railway Jabalpur. CSO informed that three coaches of 12951 Dn Rajdhani Express had been burnt and there had been no injury to any passengers. I asked CSO/WCR to make arrangements for my inspection of the site. I told him that I would be inquiring into the accident and that the clues should be preserved.

- 1.2.2** I reached Nagda at 08.18 hrs on 19.04.2011 by 12903 Dn, Golden Temple Mail. From Nagda, I proceeded to site by Special train and reached site at about 12.30 hrs. I inspected the site of accident and the 3 burnt coaches, involved in the accident, kept at Thuria. I was accompanied by CSO/WCR, DRM/Kota, CRSE, CCM/PS, CESE, CESE/WR and other officers of WCR HQ Jabalpur, Officers of Kota Division of WCR, officers of WR HQ, Mumbai division of Western railway and Director IRCTC were also present during site inspection and inspection of burnt coaches. Railway had arranged photographs of site, photographs of burnt coaches and clues had been preserved. Joint observation of site and burnt coaches were got recorded by Railway Administration.
- 1.2.3** Based on my instructions, notifications were published in the local news papers of Mumbai, Delhi, Indore and Kota, intimating members of the public having knowledge, relating to the accident to tender their evidences, before the CRS, at the Statutory Inquiry, commencing from 09.00 hrs on 20<sup>th</sup> April 2011 in VIP lounge, Platform No.1 at Nagda and at 09.00 hrs on 21<sup>st</sup> April, 2011 at the Railway Officer's Club, Kota or to write to the Commissioner of Railway Safety, Central Circle, 2nd floor, Churchgate Station building Annexe, Maharshi Karve Road, Churchgate, Mumbai 400 020.
- 1.2.4** The Inquiry commenced at 09.00 hrs on 20.04.2011 in VIP lounge, platform No.1 at Nagda and continued upto 19.30 hrs. On 21.04.2011, the inquiry commenced at 09.00 hrs in Railway Officer's club, Kota and continued upto 18.30 hrs.
- 1.2.5** Evidences of 57 persons were recorded during the inquiry. In addition, Appreciation Report of 17 Railway officers and staff travelling in Rajdhani Express had also been received. None of the passengers of Rajdhani Express and public had attended the inquiry.

Following officers of WCR and WR attended the inquiry at Nagda and Kota :-

**(a) Officers who attended inquiry on 20.04.2011 at Nagda :**

CSO/WCR, CRSE/WCR, CCM/PS/WCR, CESE/WCR, DRM/Kota, CESE/WCR, CCM/PS/WR and other officers of WR HQs., Kota Division, Ratlam Division of WR and Mumbai Central Division of WR.

**(b) Officers who attended inquiry on 21.04.2011 at Kota :**

CSO/WCR, CRSE/WCR, CCM/PS/WCR, CESE/WCR, CPRO/WCR, DRM/Kota, CESE/WCR and other officers of WCR HQs, WR HQs., Kota Division, and Mumbai Central Division of WR.

Other officers of WR and WCR were called in the inquiry as and when required.

Civil and Police authorities did not attend the inquiry.

### **1.2.6 Preservation of Clues :**

Photographs of site and affected coaches were arranged by the Railway. Detailed observations of site and fire affected coaches were got recorded by Railway Administration.

Records of concerned stations and Control offices were preserved and produced in the inquiry.

### **1.3 The Accident :**

- 1.3.1** 12951 DN, Mumbai Central - New Delhi, Rajdhani Express (herein after, referred to as 'the Rajdhani Express', 'the train' or '12951 Dn') hauled by WAP7 loco No.30252 (GZB shed) with 19 LHB coaches (1-AC 1<sup>st</sup>, 4 – AC 2 Tier, 10-AC-3 Tier, 2 Pantry Cars, 2 Power Cars) left Nagda at 01.47 hrs (28 minutes late) and passed run through Vikrampur Alot station at 02.08 hrs of 18.04.2011. Some time after that, Alarm Chain was pulled by on board Electrical staff from front Pantry Car (9<sup>th</sup> from engine) due to smoke in Pantry Car. Train stopped at 02.11 hrs at kms.743/28 (loco position), after entering Thuria yard. At 02.13 hrs, Loco Pilot of the train informed SM/Thuria, Guard of Rajdhani and on board TXR about fire in train. SM/Thuria informed Control at 02.18 hrs about fire in Rajdhani Express. Fire could not be extinguished. Passengers got down from adjacent coaches. Railway staff and Pantry staff got down from Pantry Car. Traction Power had been cut off by Traction Power Control at 02.18 hrs.

Fire spread in adjoining B6 and B7 AC three Tier coaches. First fire brigade from VMA reached site at 03.30 hrs. Fire brigade from TAAL arrived at the site at about 04.00 hrs. Other fire brigades reached site at 04.10 hrs and 06.15 hrs. OHE snapped at 02.55 hrs. Pantry Car and AC 3 Tier coaches B6, B7 were completely burnt. AC 3 Tier coach B5 was also affected. Passengers of B5, B6 and B7 coaches got down before spread of fire in these coaches. Railway staff available at site and Pantry Car staff alerted and assisted passengers in getting down from these coaches before spread of fire in these coaches. Prompt action taken by Railway Staff and Pantry Car Staff is highly appreciated. Relief Diesel Engine from Kota end reached site at 04.00 hrs, with the help of this Diesel Engine affected coaches were decoupled and separated from the train. Fire was extinguished at 06.10 hrs. Train with 15 coaches left Thuria station for onward journey at 08.21 hrs by AC loco. Breakfast was arranged for passengers at Kota and lunch was arranged at Mathura junction.

- 1.3.2** The train stopped at 02.11 hrs, at that time fire was only in Pantry Car. No effort was made by on board TXR to decouple Pantry Car from adjoining B6 and B7 AC 3 Tier coaches. No efforts were made by officers present in Control Room, Kota to ensure that Pantry Car was detached from rest of train to prevent fire in other coaches. OHE above affected Pantry Car was snapped at 02.55 hrs (as per Appreciation Report submitted by Shri S.N.Singh, CELE/CR, Shri P.S.Baghel/CBE/CR and Shri P.S.Meena, Dy.CEE(TRD)HQ/WR, who were travelling in train and were present at site) and there was sufficient time to detach affected Pantry Car by charging OHE. This action would have saved burning of B6 & B7 AC 3 Tier coaches.
- 1.3.3** 'Right' and 'Left', 'Rear' and 'ahead' and 'before' and 'after' referred hereinafter are with reference to the direction of the train.

**1.4 Casualties :**

I regret to report that in the accident, 1 passenger was grievously injured and 2 passengers suffered simple injuries (out of 2, 1 was on duty Railway staff).

**1.5 Passenger Occupancy :**

Against carrying capacity of 960 passengers, the train was estimated to be carrying 977 passengers including RAC passengers.

## **II. RELIEF MEASURES**

**2.1 Intimation :**

Smoke in front Pantry Car was seen by Shri Gajanan Khanvilkar, AC Fitter Grade-I, travelling in front Pantry Car, he immediately ran towards panel and switch off earthing device to cut off power supply of Pantry Car and informed Shri Shambhu Nath, Electrical Fitter Grade-II (who was also travelling in front Pantry Car) to pull Alarm Chain, who pulled Alarm Chain, and train stopped at 02.11 hrs, at km.743/28 (loco position) after entering Thuria Yard. At 02.13 hrs, Loco Pilot of the train informed SM, Thuria about fire in the train. SM, Thuria informed Control at 02.18 hrs about fire in the Rajdhani Express. Divisional Officers were informed by Control. Immediately, thereafter, medical van, fire brigade, ART and diesel power were ordered from Kota and Ratlam.

**2.1.2** Details regarding the time of ordering, starting and arrival of the medical van are as under :

Description	Time of (in hours)		
	Ordering	Departure	Arrival at Site
ARME/Kota	2.27	2.42	5.46
ARME/Ratlam	2.31	3.05	Reached VMA at 04.25 hrs and returned to Ratlam at 08.30 from VMA

**2.2 Medical Attention :**

3 injured passengers were given medical assistance at site by medical team, who reached site. Subsequently, on arrival of the train at New Delhi, one injured passenger was attended by Northern Railway Civil Hospital. He was discharged after giving POP cast.

Ex-Gratia payment of Rs.5000/- to each passenger travelling in B-5, B-6 and B-7, AC-3 Tier coaches (affected coaches) were paid on arrival of train at New Delhi.

**2.3 Restoration :**

Consequent to the fire accident, through rail communication was disrupted on both Dn and Up lines. Both Up and Down lines cleared for traffic at 07.45 hrs.

**III. COMPOSITION OF THE TRAIN AND DAMAGES**

**3.1 Composition and Marshalling :**

**3.1.1 Locomotive :**

The train was hauled by WAP7 locomotive No.30252. The locomotive was weighing 123 tonnes. The length of loco was 20.565m. The locomotive was equipped to haul air brake trains. Headlight, speedometer and speed recorder provided on the locomotive were in working order. The Cab No.1 of the loco was leading.

**3.1.2 Coaches :**

The 12951 Dn Rajdhani Express consisted of 19 coaches. The composition is tabulated below :

Sr.No . from Loco	Coach No.	Class	Body & Type	Built Year	Date of POH	Return Date	Remarks
1	038520 WR	LWLRRM	LHB/RCF	08/03	W3-PL-29.04.10	05/13	
2	091070 WR	LWACCN	LHB/RCF	06/09	RCF- 06/2009	09/12	
3	031110 WR	LWACCN	LHB/RCF	03/03	W3-PL-12.03.10	03/13	
4	031050 WR	LWACCN	LHB/RCF	06/03	W3-PL-18.09.09	09/12	
5	031300 WR	LWACCN	LHB/RCF	12/03	W3-PL-28.12.09	01/13	
6	031410 WR	LWACCN	LHB/RCF	04/04	W3-PL-28.04.10	05/13	
7	031040 WR	LWACCN	LHB/RCF	06/03	W3-PL-26.08.09	09/12	Burnt at trailing (South end) - <b>B5</b>
8	091030 WR	LWACCN	LHB/RCF	02/09	RCF - 02/2009	04/12	Complete- ly burnt – <b>B6</b>
9	048010 WR	LWACCB	LHB/RCF	03/04	W3-PL-11.01.11	01/14	Complete- ly burnt – <b>Pantry Car</b>
10	031340 WR	LWACCN	LHB/RCF	02/04	W3-PL-27.03.10	04/13	Complete- ly burnt- <b>B7</b>
11	031060 WR	LWACCN	LHB/RCF	06/03	W3-PL-12.09.09	09/12	
12	031090 WR	LWACCN	LHB/RCF	06/03	W3-PL-31.07.09	08/12	
13	030580 WR	LWACCW	LHB/RCF	03/03	W3-PL-26.08.09	09/12	
14	090510 WR	LWACCW	LHB/RCF	01/09	RCF- 16.04.09	04/12	
15	090540 WR	LWACCW	LHB/RCF	01/09	RCF- 16.04.09	04/12	
16	030650 WR	LWACCW	LHB/RCF	12/03	W3-PL-27.03.10	04/13	
17	038040 WR	LWACCB	LHB/RCF	03/03	W3-PL-22.03.10	03/13	
18	030260 WR	LWFAC	LHB/RCF	03/03	W3-PL-06.02.10	02/13	
19	038580 WR	LWLRRM	LHB/RCF	06/03	W3-PL-26.03.10	04/13	

Primary maintenance of the rake had been done on 17.04.2011 at Mumbai Central Maintenance Depot.

The length of the train excluding locomotive was 456 m and its total weight was 950 tonnes.

The brake power available was 100% as per Brake Power Certificate issued at Mumbai Central/Western Railway.

### 3.2 Damages :

#### 3.2.1 Locomotive :

There was no damage to locomotive.

#### 3.2.2 Coaches :

Damages to and disposition of the coaches were as stated below :

Sr.No. from Loco	Coach No.	Disposition	Damaged
7	031040 WR, LWACCN	B-5	Burnt at trailing (South end) - <b>B5</b>
8	091030 WR, LWACCN	B-6	Completely burnt – <b>B6</b>
9	048010 WR, LWACCB	Pantry Car	Completely burnt – <b>Pantry Car</b>
10	031340 WR, LWACCN	B-7	Completely burnt- <b>B7</b>

Cost of the damages to the coaches has been estimated to be approx. Rs.2.3 crores.

#### 3.2.3 Permanent Way :

There was no damage to Permanent Way.

#### 3.2.4 Signalling & Telecommunication :

There was no damage to S&T installations.

#### 3.2.5 Overhead Equipment :

OHE above Pantry Car melted and snapped at 02.55 hrs.

The total cost of damages to overhead equipment was estimated to be Rs.2,000/-.

### 3.2.6 Total Cost of Damages :

Total cost of damages to Railway assets was as under :-

Locomotive	:	Rs.NIL
Coaches	:	Rs.2,30,00,000/-
Permanent Way	:	Rs.NIL
S&T	:	Rs.NIL
OHE	:	Rs.2,000/-
<b>Total</b>	:	<b>Rs.2,30,02,000/-</b>

## IV. LOCAL CONDITIONS

### 4.1 The Section and the Site :

**4.1.1** The accident occurred on Down line at km.743/20 between Vikramgarh Alot and Thuria stations of Nagda-Kota BG double line electrified section of Kota division. The site lies in Ratlam Civil District of Madhya Pradesh State.

### 4.2 Headquarters :

#### 4.2.1 Permanent Way :

Incharge of maintenance of Pway are Divisional Engineer/South/Kota, Asstt. Divisional Engineer/Samgarh and Sr.Section Engineer/Vikramgrah Allot.

#### 4.2.2 Coach Maintenance :

Primary maintenance of the rake was done by Mumbai Central Coaching Depot.

#### 4.2.3 Control :

The Control office is located at Kota.

### 4.3 Signalling and System of Train Working :

Trains on Nagda-Kota BG section worked on Absolute Block System. Signalling is MACL with double distant signals.



#### 4.4 Permanent and Temporary Speed Restrictions :

Maximum permissible speed for Rajdhani Express in the section is 130 kmph. There was no permanent and temporary speed restriction on Down line in the vicinity of the site on the day of accident.

#### 4.5 The Kilometerages :

The kilometrages of the various points mentioned in the Report , reckoned from Churchgate are as under :

Station	Kms. from Mumbai
Churchgate	000.00
Nagda	695.97
Vikramgarh Alot	735.735
Level Crossing No.21	736/30-32
Thuria	744.195
Kota	920.950
Mathura	1244.950

### V. SALIENT FEATURES

- 5.1 At the time of accident, it was night time, visibility was good under headlight condition and weather was also clear.
- 5.2 The train running from Nagda to Vikramgarh Alot was incidence free. The train passed Vikramgarh Alot at 02.08 hrs and alright signal was exchanged by SM/Vikramgarh Alot. The train while passing LC No.21B at km.736/30-32 at about 02.09 hrs was also incidence free.
- 5.3 Alarm chain was pulled by Shri Shambhunath, Electrical Fitter Grade-II from fire affected Pantry Car. At the time when Alarm Chain was pulled, train was running at a speed of 130 kmph. Train stopped in 47 seconds after travelling 881 meters. Train stopped at 02.11 hrs. When train stopped loco was at km. 743/28. When train stopped, Loco Pilot saw fire in the train at about 02.13 hrs. He immediately informed SM/Thuria, Guard and on board TXR.

- 5.4** Shri Gajanan Khanvilkar, AC fitter, Grade I, who was travelling in affected Pantry Car had seen smoke in Pantry Car on hot plate counter. He had seen one Pantry Car staff coming out of Hot plate counter area. He traveled up to Power Panel and turned the 'earth device' to 'off' position to cut off power supply of Pantry Car. He came back to his seat and asked Shri Shambhunath, Electrical Fitter Grade II (who was travelling in Pantry Car) to pull Alarm Chain. Till he turned the earth device to 'Off' position, AC of Pantry Car was working. When he was going to Power Panel he could not find anybody sleeping in passage and near Power Panel, even though 2 Pantry Car staff was sleeping in passage and 3 Pantry Car Staff were sleeping near Power Panel. When he got down from Pantry Car, he saw smoke from Pantry, he had not seen flames from Pantry Car.
- 5.5** Pantry Car Asstt. Supervisor, Shri Pavan Kumar got up at about 02.10 hrs, he had seen smoke in Pantry Car, and he saw somebody pulling chain from Pantry Car. He went to B-6 coach and pulled the chain. When he got up, AC system of Pantry Car was working. When he got down from B-6, he had seen flames on roof of Pantry Car.
- 5.6** 19 staff of Pantry Car was sleeping in the Pantry Car. 8 staff were sleeping on proper berths provided in the Pantry Car. 11 staff were sleeping on floor and on the counters of Pantry Car at various places. (3 staff were sleeping on floor near Power Panel, 2 staff were sleeping on floor in passage, 2 staff was sleeping on floor near hot case, 2 staff were sleeping on counters on both sides, 1 staff was sleeping on floor near store room and 1 staff was sleeping on Cabinet between hot case and deep freezer.
- 5.7** MCB of hot plate 1 & 2 was found in 'On' position. Tuffen glass opposite to Hot plate 1 & 2 was molten & vaporized. On hot plate element No.1 badly burnt and discoloured stainless steel Bhagoni was found, one burnt jhara, (some sort of frying spoon) was found inside this bhagoni, molten glass was also found on Jhara, Molten glass was on the cooking platform panel. Near hot plate element No.2, one more badly burnt bhagoni was found.
- 5.8** Chimney above hot plate element 1 & 2 was totally burnt and turned by 90° to 0° and it was in hanging position. Chimney above hot plate 3 & 4 was totally burnt and tilted from 90° position to 45°. Chimney above hot plates 5 & 6 was also burnt, but it was almost fitting in position, tuffen glass opposite to hot plate element 3 & 4 was found molten.
- 5.9** Roof on top of hot plate elements 1 & 2 was bent upward, metallic members supporting the roof (car line) were burnt and deshaped due to local heating. These members above other hot plates were almost in original shape.

- 5.10** Hot plate counter is nearer to right side (East side) of coach. Right side of coach was found more burnt and damaged than left side (west side) of coach.
- 5.11** Two numbers of unused & partially burnt fire extinguishers found on the floor adjoining Hot plate No.1.
- 5.12** One square iron masala dani found in burnt condition near hot plate.
- 5.13** Electrical Power panel was found burnt and its change over handle was intact and found in 'Off' position. All HRC fuses were fitted but they were found in burnt condition. Transformer, primary and secondary fuses found normal and externally burnt, doors of Power Panel having signs of burning on the outer side and inner side was almost intact comparatively less burnt.
- 5.14** In initial inquiry at site after accident, Pantry Car Asst. Supervisor, Shri Pavan Kumar misbehaved with Sr.DEE(G)/Kota and refused to give any information about the accident and said that "I will give (statement) to DRM & GM".
- 5.15** Difference of the time between Control and SPM was 6 minutes. The watch of SPM was advance by 6 minutes w.r.t Control time. When Alarm Chain was pulled, speed of train was 130 kmph. After ACP train stopped in 47 seconds, after travelling distance of 881 meters. On ACP "Full Service" application done by LP through A-9.
- 5.16** Simulation Test of "spreading of fire when oil is overheated" was done on 21.04.2011 at 11.00 hrs in Gymnasium Room of Officer's Club of Kota. During Simulation Test following observations were recorded :
- (i) 15 minutes after switching on heater, oil temperature reached 188°C.
  - (ii) 25 minutes after switching on heater, oil fumes with smoke started at oil temperature of 273°C.
  - (iii) 36 minutes after switching on heater, level of fumes with smoke increased & suffocation started in room at oil temperature of 350°C.
  - (iv) 40 minutes after switching on heater oil in 'patila' catches fire and flames started. Temperature at that time was higher than 365°C. One extinguisher was used but flames did not subside. Fire could not be extinguished by using 2 more fire extinguishers.
- 5.17** Short circuit 'Simulation Test' was conducted on 21.04.2011 (18.45 hrs) at Officers Club/Kota. Simulation Test indicates that, as soon as short circuit takes place, MCB automatically tripped within millisecond & power supply switched off automatically.

## **VI. PROVISIONAL FINDINGS**

- 6.1** On the basis of the evidence so far collected, I have come to prima facie conclusion that, incidence of the fire in 12951 Dn, Mumbai Central-New Delhi, Rajdhani Express at about 02.11 hrs of 18.04.2011 at km. 743/20 between Vikramgarh Alot and Thuria stations of Nagda-Kota BG double line electrified section of Kota Division of West Central Railway occurred due to "Failure of other than Railway Staff"

## **VII. RECOMMENDATIONS**

- 7.1** I am making following Immediate Recommendations :

- (i) Arrangements of locking hot plate switches and MCB should be made. After completing work in Pantry Car at about 22.30 hrs, Electrical staff travelling in Pantry Car should lock hot plate switches and MCB, and entry should be made and signed in the register by Electrical staff and Asst. Supervisor of Pantry Car. In the morning at notified time, lock should be opened by Electrical staff duly making entry in the register.
- (ii) Smoke detector should be installed in Pantry Cars and all AC coaches. Smoke detector should activate hooter in coach, Loco & Guards compartment and there should be automatic brake application.
- (iii) 'State of the art' fire fighting system based on latest technology should be installed in Pantry Cars in consultation with experts.
- (iv) Separate reservation chart of Pantry Car and Power Car should be published like reservation chart of other coaches. Train checking staff should permit only those persons in Pantry Car & Power Car (Railway staff and Pantry Car Staff) whose names are appearing in reservation chart of Pantry Car.
- (v) Safety announcement similar to those made in aircraft (before taking off) should be made in Rajdhani and Shatabdi trains to inform passengers about safety precaution to be taken, in case of emergencies.

Yours faithfully,

**(CHETAN BAKSHI)**  
Commissioner of Railway Safety  
Central Circle, Mumbai

No.T-13011/1/2011/CC/188-

Mumbai, Dated : 19.05.2011

Copy forwarded to :

1. The Secretary (Safety), Railway Board, Ministry of Railways, Rail Bhavan, Raisina Road, New Delhi 110 001.
2. The General Manager, Central Railway, Mumbai CST.

**(CHETAN BAKSHI)**  
Commissioner of Railway Safety  
Central Circle, Mumbai