



GOVERNMENT OF INDIA  
MINISTRY OF TOURISM AND CIVIL AVIATION  
(COMMISSION OF RAILWAY SAFETY)

# **RAILWAY ACCIDENT INVESTIGATION REPORT**

ON

**Collision between No 329 Up Howrah-Muzaffarpur Passenger and 45 Down Samastipur-Danapur  
Express at Sathajagat Station of North Eastern Railway at about 04.20 hours**

on

**12th November 1981**

## SUMMARY

- (1) Date    --        --        --    12-11-1981.
- (2) Time    --        --        --    04.20 hours.
- (3) Railway     ...        ..     North Eastern.
- (4) Gauge    ...        ...     ..    Broad Gauge.
- (5) Location    ..        ..     Sathajagat Station.
- (6) Nature of accident     ...     Head-on collision.
- (7) Trains involved    ..     ..    329 Up Howrah-Muzaffarpur Passenger and 45 Down Samstipur-Danapur Express.
- (8) Speed at the time of Collision. 329 Up—In excess of 30 Kmph. 45 Dn. —Stationary.
- (9) System of operation    ..     Absolute Block System.
- (10) Number of tracks in yard     Two
- (11) Alignment    ..     ..     Straight.
- (12) Gradient    ..     ..     Level.
- (13) Weather    ..     ..     Fair.
- (14) Visibility    ..     ..     Satisfactory.
- (15) Cost of damage ..     ..     Rs. 1,40,000.
- (16) Casualties    ..     ..     Killed—7  
*Injured—*  
  Grievous—15  
  Simple—34
- (17) Cause    ..     ..     ..     Driver of 329 Up passing the UP Main Home Signal in the ON position.
- (18) Persons held responsible ..    (i) Driver of 329 Up Passenger.  
  (ii) Fireman of 329 Up Passenger.
- (19) Important Recommendations (1) At all stations where Accident Relief Medical Equipment Vans are maintained, one Medical officer must always be available. If the incumbent of the post has to be away on leave or for other reasons, the Medical Officer posted to look after the duties of the nominated one, should be physically present at the Station where the equipment is located.
- (2) The half portion of anti-telescopic passenger coaches, immediately behind the engine or rearmost, may be made inaccessible to passengers, especially when these are used for unreserved accommodation and are, therefore, overcrowded, as the probability of the colliding end collapsing, with resultant casualties is high. At present, instructions are that if the passenger compartment of an anti-telescopic SLR is marshalled next the engine or rearmost, it need not be locked. This instruction may be withdrawn and the compartment made inaccessible to passengers, if marshalled next to the engine or rearmost.

(i)

GOVERNMENT OF INDIA  
MINISTRY OF TOURISM AND CIVIL AVIATION  
(COMMISSION OF RAILWAY SAFETY)

FROM

The Commissioner of Railway Safety,  
North Eastern Circle,  
Gorakhpur.

TO

The Secretary to the Government of India,  
Ministry of Tourism & Civil Aviation,  
Sardar Patel Bhawan,  
New Delhi-110001.

*Through* : The Chief Commissioner of Railway Safety, Lucknow.

SIR,

In accordance with Rule 4 of the Statutory Investigations into Railway Accidents Rules, 1973, issued vide Ministry of Tourism & Civil Aviations' notification No. RS-13-T(8)/71 dated 19-4-1973, I forward my Report on the Collision between 329 Up Howrah-Muzaffarpur Passenger and 45 Dn. Samastipur-Danapur Express at Sathajagat Station on the Samastipur-Bachwara Broad Gauge Section in the Samastipur Division of the North Eastern Railway at about 04.20 hours on the 12th November, 1981.

## 2. Inspection and Inquiry

2.1. I was informed of the accident at my residence at Gorakhpur at 05.00 hours on the 12th November through a message, delivered by hand, from the Central Control of the Railway. I reached Samastipur at 15.40 hours on the same day, travelling in a special train carrying the General Manager and other Officers of the Railway and proceeded by road to the site of accident. In company with the General Manager, Chief Operating Superintendent, Chief Signal and Telecommunication Engineer, Chief Engineer, Chief Mechanical Engineer and the Divisional Railway Manager of the Samastipur Division, of the Railway, I carried out a preliminary inspection of the site of the collision, of the engines and coaches, the East Cabin and the Station. I also visited, in company with the Railway's General Manager and Chief Medical Officer and the Divisional Railway Manager, Samastipur, the Railway Hospital at Samastipur where injured passengers needing hospitalisation had been admitted. On the 13th November, I inspected Sathajagat Station when Shri Vishwaprakash Deputy Commissioner (Signal and Telecommunication) in the Commission's Technical Wing at Lucknow inspected and tested the Signalling and Interlocking installations. In the early hours of the 14th November, I travelled on the foot-plate of the locomotive of the 329 Up Howrah-Muzaffarpur Passenger from Bachwara to Sathajagat (accompanied by Shri Vishwaprakash and the Divisional Safety Officer of the Sonpur Division of the Railway) and observed the visibility conditions of the approach signals. The same day, in the forenoon, I again visited the injured passengers in the Railway Hospital, Samastipur and recorded statements by four of them.

2.2. Notifications were published in the English and Hindi Newspapers of the area, advising members of the public, who had knowledge of the accident and who so desire to appear at the Inquiry to be conducted by me or to communicate with me by post. The District Magistrate and the Superintendent of Police of the Begusarai District of Bihar State, in whose jurisdiction the accident took place, were duly informed of the Inquiry which commenced on the afternoon of the 14th November in the office of the Divisional Railway Manager, Samastipur and completed on the 17th.

2.3. The following Senior Officers of the Railway were present at the Inquiry :—

- |                         |  |
|-------------------------|--|
| 1. Shri Surjit Roy ..   | .. Chief Traffic Safety, Superintendent.                 |
| 2. Shri B. Raghuram ..  | .. Additional Chief Mechanical Engineer.                 |
| 3. Shri V.S. Katiyar .. | .. Deputy Chief Signalling & Telecommunication Engineer. |
| 4. Shri Y. Singh ..     | .. Divisional Railway Manager, Samastipur.               |
| 5. Shri A.K. Mishra ..  | .. Senior Divisional Engineer, Samastipur.               |

Other Divisional Officers were called in as required. The District Magistrate and the Superintendent of Police, Begusarai were not represented at the Inquiry.

2.4. Evidence of 32 persons was recorded during the Inquiry, including a passenger in the 329 Up train involved in the accident and the Inspector of Railway Police, Samastipur, the rest being Officers and Staff of the Eastern and North Eastern Railways.

### 3. The Accident

3.1. At about 04.20 hours on the 12th November, on a full moon night with satisfactory visibility conditions, just after the 45 Dn. Samastipur-Danapur Express had been received and had stopped on the Platform (No. 1) Line of Sathajagat Station, the 329 Up Howrah-Muzaffarpur Passenger approached from the opposite direction and collided head-on with the stationary train. The two locomotives came to rest with their front buffers about 90 metres towards Bachwara from the centre line of the station building.

3.2. The rear end of the tender of the locomotive of the Passenger Train was lifted up and the buffers punched into the end of the Second Class coach marshalled behind causing heavy damage to the coach body and resulting in injury and death to passengers. The rake parted between the fourth and fifth coaches, the screw coupling giving way. The first coach of the Express Train, which was a Second Class compartment, with Luggage and Brake Van, sustained damages to the Guard's compartment which was near the engine, the rear wheels of the leading bogie of this coach getting derailed.

### 4. Casualties

4.1. I regret to report that, as a result of this accident 6 passengers lost their lives at the site, sixteen were grievously hurt (fifteen needing hospitalisation) and thirty four sustained simple injuries (twenty four needing hospitalisation). One Passenger (out of those hurt grievously) expired in hospital subsequently.

## II. RELIEF MEASURES

### 5. Intimation

5.1. The accident happened at Sathajagat Station. The Assistant Station Master on duty looked up the station and disappeared immediately after the accident, fearing violence from passengers; so did the Cabinman. The Guard of the 45 Dn. Express tried to convey information using his portable telephone but did not succeed. The door of the Assistant Station Master's room was broken open by passengers and information conveyed to the Sonpur Control at about 04.45 hours.

5.2. *Medical Attention*—First Aid was rendered to the injured passengers by the Guards of the two trains and by some local people. Railway Doctors, and Government Railway Police along with Railway Officers and staff reached the site by special trains with Medical and Auxiliary Vans from Barauni and Samastipur by 06.50 and 07.10 hours respectively and started rescue and relief operations. Most of the injured passengers were evacuated by Railway Medical Van which left the site at 08.10 hours reaching Samastipur by 09.30 hours, and were immediately shifted to the Railway Hospital there. Six dead bodies were removed from the first coach of the 329 Up Passenger train by 10.00 hours and brought to Samastipur in the Auxiliary Van attached to the second Medical Van which carried four injured passengers found left at the site; these and six other injured passengers who came by themselves subsequently were also admitted to the Railway Hospital at Samastipur. One lady among those injured, who developed complications, was shifted to the Medical College Hospital at Darbhanga on the 13th and expired in that Hospital on the 14th.

### 6. Restoration of Traffic

6.1. Clearance from the Police for commencing restoration work was obtained at 08.00 hours on the 12th and through running was restored with 329 Up Passenger passing via Line No. 2 at 04.08 hours on the 13th.

6.2. Eight trains were cancelled four terminated short of destination and two started ahead of the originating station, on account of this accident; no train suffered detention.

## III. THE TRAINS

### 7. Composition and Marshalling Order

7.1. 329 Up Howrah-Muzaffarpur Passenger was hauled by WP Class locomotive No. 7225 (with tender No. 7224) manufactured (in Canada) in 1949. It was provided with steam brakes on driving wheels

but the tender did not have functioning vacuum brakes. Hand brakes were inoperative. A speedometer was fitted but it was not in working order. A head light in working order was available. The trailing load consisted of 9 coaches. 4 Vacuum Brake Cylinders (out of 18) were found inoperative on these coaches. The length of the train was 223 metres and it weighed 516 tonnes.

7.2. The 45 Down Samastipur-Danapur Express was hauled by WP class locomotive No. 7072 manufactured (at Chittaranjan) in 1963. The locomotive had steam brakes on its driving wheels but no functioning brake on the tender. It was fitted with a speedometer and a headlight connected to the train lighting circuit. The trailing load consisted of 6 coaches. One out of the 12 vacuum brake cylinders was found inoperative. The train had a total length of 156 metres and weighed 405 tonnes.

## 8. Damage and Disposition

8.1. *Locomotives*—On impact, the Express train was pushed back and the locomotives came to rest face to face with their buffers interlaced. There was no derailment.

8.2. The locomotive of the 329 Up Passenger train had its cattle guard and front buffers, front hook and couplings and the front drag casting badly damaged. On its tender, buffers and vacuum cylinders covers were damaged as the rear portion of the tender body lifted and came to rest with the vacuum cylinder on the wheels of its rear bogie. The engine of the 45 Down Express had its cylinder casting cracked. Its front buffers, cattle guard and engine hook and couplings were also badly damaged and the front portion of the engine main frame bent.

8.3. *Coaches*—On the 329 Up Passenger, the first coach from the engine (GS 4151) suffered extensive damage when the tender of the engine lifted and telescoped into its front end, the buffers of the tender hitting about one metre above the coach floor. The lavatory section was destroyed and two bays smashed, causing death and injury to passengers. The second coach (GSY 3877) had its front head stock bent and floor broken. The fourth coach (GS 4260) had its rear screw coupling broken leading to parting of the rake. There was no damage to any other coach on this train. On the 45 Down Express, the first coach from the engine (SLR 5649) derailed by the rear wheels of the leading bogie. Its front head stock detached from the sole bar, and the Guard's compartment (next to the engine) was badly damaged. There was other minor damage to this coach and to the following two coaches (GS 8004 and WES 8046). No other coach was damaged or derailed.

8.4. *Cost*—The cost of damages to Rolling Stock has been estimated by the Railway Administration to be about Rs. 1,40,000, the break up being Rs. 1,00,000 for locomotives (Rs. 20,000 for WP 7225 and Rs. 80,000 for WP 7072) and Rs. 40,000 for coaches (Rs. 20,000 for GS 4151, Rs. 15,000 for SLR 5649 and Rs. 5,000 for others).

8.5. There was no significant damage to track or any other asset.

## IV. LOCAL CONDITIONS

### 9. The Section

9.1. Sathajagat Station falls in the Samastipur Division of the Railway; the Divisional Railway Manager and other Divisional Officers being stationed at Samastipur. The section between Bachwara and Samastipur is, however controlled from the Sonpur Control (Sonpur Division) the Operating Staff remaining under the administrative control of the Samastipur Division.

9.2. There are two lines between Samastipur and Bachwara—one a Broad Gauge Single Line and the other a Metre Gauge Single Line. Sathajagat is a two line crossing station for the Broad Gauge. There is no crossing station on the Metre Gauge.

### 10. The Site

10.1. The collision occurred on the platform line of Sathajagat Station, the locomotives coming to rest about 90 metres from the centre line of the station building, towards Bachwara. The platform line is the main line. Towards Bachwara, the alignment is straight for a distance of about 900 metres from the facing points (about 500 metres from the Home Signal) and takes a curve of one degree thereafter for about 400 metres. Towards Samastipur, the alignment is straight. There is no gradient.

10.2. The tract at the site of collision consists of 90 lbs rails 13 metres long, welded into panels consisting of 3 rails each on, wooden sleepers (M+4 density) on stone ballast. The formation is on embankment about 1.25 metres high.

## 11. Signalling and System of working

11.1. Sathajagat, a 'B' Class Single Line Station, has been provided with Multiple Aspect signalling of the Upper Quadrant Semaphore type. The interlocking is to Standard III. All points and signals are operated from two cabins, one at either end of the yard, worked by Cabinmen in 8 hour shifts. The Cabins have 20-Lever frames, Signals are operated by double wire levers and points and lock bars by rodding. Electrical inter slotting between Cabins has been provided along with Station Master's control over the Home and Last Stop Signals. The main line (No. 1) has been track-circuited between Starter Signals. Route holding facility by means of a two minute delay using Thermal Relays has been provided. The loop line has derailing switches at either end, but is not track circuited.

11.2. The Absolute Block System of working is in force, using Neale's Block Instruments with ball tokens.

## V. SUMMARY OF EVIDENCE

12.1. Shri Bipin Behari Singh, a passenger of 329 Up in the second bogie from the rear, stated that the train suddenly stopped a few minutes after it left Bachwara. He got down alongwith other passengers and found that the train had parted between the Sixth and Seventh coaches from the rear and its engine had collided with another train. Some passengers were injured while others were trapped inside a damaged coach. He went to the station and found it locked. Some people broke open the lock and succeeded in relaying information about the accident between 05.30 and 06.00 hours. The Medical Relief Van arrived at about 06.30 hours and left towards Samastipur along with injured passengers and dead bodies after about 45 minutes. At about 10.30 hours one M.G. train arrived and he proceeded to Samastipur by this train.

12.2. Answering questions, he stated that the accident took place at 04.17 hours. He did not see any Doctor or Guard rendering First Aid. Though it was full moon, it was somewhat foggy. When he was returning to his Compartment from the collided engines, he noticed that one Signal facing him was green. There was no headlight on the engine or lights in the coaches.

13.1. Shri S.K. Bose, Guard of 329 Up stated that the train left Bachwara at 04.11 hours for Sathajagat and was received on line No. 1 at Sathajagat when it collided with 45 Down which was standing on the same line. He fell down on his box and was hurt, but got down and proceeded towards the engine. He found the coupling broken and four coaches with engine had collided with 45 Down. He then rendered First Aid to some injured passengers and rushed to Assistant Station Master's Office from where he relayed information to Control at 05.05 hours. The speed of his train was 10 to 15 Kmph while it entered the Station.

13.2. Answering questions, he stated that he had E.L.F. and Portable Control phone with him but had no Fire Extinguisher. The vacuum was 40 cm in his brake van, when the train started from Barauni. The train was running within the time indicated in the Working Time Table. The accident took place at 04.20 hours. The distance between the parted coaches was about one coach length. While entering Sathajagat though weather was somewhat foggy, signal lights were visible. He was not able to see the Distant. The engine was giving off smoke and when he passed the Home it was Red; he assumed it had flown back. Normally, 45 and 329 do not cross at Sathajagat. After the accident, the starters towards Bachwara were showing red. The signals at Sathajagat are visible only from very near. He did not see the head light of 45 Up or any Hand Signal Lamp from the Cabin. After the collision, his brake moved back for about half a coach length. Normally he observes the home signal before the engine passes it, but on the day of the accident, due to smoke and fog, he saw it after the engine passed it. He presumed that the signal had come back to Red as at Dalsingh Sarai and other Stations on the Section.

14.1. Shri S.C. Sarkar, Assistant Station Master on duty at Sathajagat from 20.00 hours of 11-11-81 to 08.00 hours of 12-11-81 stated that the crossing of 45 with 329 was arranged by Control at Sathajagat. He granted line clear to 45 Express at about 04.00 hours. Its out report was received at 04.09 hours and the train was received on line No. 1 at 04.17 hours. 329 was to be received on Line No. 2. The witness instructed Cabinman to give slot to receive 329 Up on line No. 2 and after giving the slide to lower the signal for reception of 329 Up on line No. 2, got busy in issuing tickets to passengers. In the meantime 329 Up entered on line No. 1 and collided with the engine of 45 Down by disregarding signals. 329 Up had run faster than at the prescribed speed, as it left Bachwara at 04.15 hours and collided with 45 Down at 04.19 hours. He rang up the East Cabinman but got no response. The Porter who had gone to get the 'IN' report of 45 Dn. came back, dumped the token on the table and ran away. Some people told him not to stay there; he locked up the Station and went to the Station Master's house to seek guidance; the Station Master was afraid of being assaulted and did not go to the Station. Witness came away to Samastipur in the early hours of the 14th to see his family.

14.2. Answering questions, he stated that after reception of 45 Down on line No. 1, there was exchange of Private numbers with the West Cabin for giving Station Master's slide for reception of 329 Up on line No. 2. The track circuiting indicator in his room was showing "Line occupied" position while 45 Down was standing on line No. 1. Before giving his slide for lowering of the Home Signal of line No. 2 for reception of 329 Up, he could not exchange Private Number with East Cabin as Banarsi Singh the Cabinman on duty stated that his lantern had got extinguished. Witness knew that according to the rules, it was necessary for him to obtain the Private Number from the Cabinman before giving the slide. After the accident, all starters were showing 'red'. When a train is to be received, the practice in vogue is, the Cabinmen give the Asstt. Station Master their private numbers as soon as he gives them instructions for reception of a train indicating the line on which it is to be received. The procedure specified in the Working Rule is not practicable. The Private Number given by the Cabinman is assumed to be in confirmation of setting the route, though it is given before the actual setting. This is the practice. At the time of accident all signals were visible and burning rightly. There was bright moonlight.

15.1. Shri U.C. Tiwari, Train Controller, on duty at Sonpur from 0 hours to 06.30 hours on the 12th, stated that he planned to cross 45 Down and 329 Up at Sathajagat and accordingly advised the Assistant Station Masters at Sathajagat and Bachwara. At 04.45 hours, information of the collision was given by a passenger, who said that no staff was available at the Station. He informed the Deputy and Power Controller at 04.46 hours and at 04.50 hours asked Samastipur Control to arrange Medical Van and Break Down train; he also informed the District Magistrate and Superintendent of Police at 04.57 hours and local Doctors at 05.00 hours. At 05.10 hours, the Guard of 329 Up informed him about the accident on Control phone. As ringing on Control phone was suspended, he could not obtain further details.

15.2. Answering questions, he stated that when he took over his duty, he synchronised the clocks with the Control Clock; as no records are maintained, he could not say whether all stations were contacted. The crossing was arranged at Sathajagat as 45 Down had a crossing with 329 Up at Bachwara. The running time for 329 Up at the booked speed from Bachwara to Sathajagat is 9 minutes. He tried to speak to Sathajagat at 04.28 hours but no one was picking up the phone. He could not contact Samastipur Control as there was no ring. At 04.40 hours he informed Assistant Station Master (BG) Samastipur.

16.1. Shri S.B. Roy, DTS, Garhara stated that he left Barauni by Metre Gauge Medical Van at 06.00 hours, arriving Sathajagat at 06.45 hours. There were six dead bodies lying in the portion of GS 4151, just behind the engine of 329 Up. Some injured persons were being given first aid. The front parts of the engines were entangled with each other, the tender of the 329 Up engine had lifted off the trolley. The underframe had jammed into the coach in the rear. The rake of 329 Up had parted after 4 coaches from the engine, and there were dragging marks on the platform side sleepers for about 2 coaches.

16.2. Answering questions he stated that he was told about the accident at 04.56 hours. The medical Van was delayed because the Doctors are stationed at Garhara and it took time for them to come to Barauni. At the station, he saw that the all signals were 'ON', the slide for 'UP' Home for Line No. 2 was pulled and track indicator was showing occupied. The B.G. Medical Van from Samastipur came at about 07.00 hours. There was no complaint from passengers about looting.

17.1. Shri Shobakant Jha Line Clear Porter stated that he arrived Sathajagat on the 11th at 17.00 hours and lighted the Signal Lamps for two starters, two Homes of the Advance Starter, on the Bachwara side. He was asked by the Assistant Station Master to go and set the line clear token from Driver of 45 Down, which he did. Then he was told to get the report book signed by the Guard. While he was going to obtain the Guard's signature, he heard a loud noise. He ran away after seeing some people running and hearing talk of beating up the Station Staff.

17.2. Answering questions, he stated that he is a Casual worker and has not signed any assurance to the effect that he understood his duties. During the night of accident all the signals were visible and the starters were red. The Head light of 45 Down was burning not as bright as usual. 45 Down moved back some distance after the collision. It was not the practice to light the Distant Signals.

18.1. Shri Paras Nath Tewari, Inspector Railway Police, Samastipur, stated that he got the information at 05.30 hours on 12-11-81 and rushed to the site alongwith other Officers in a jeep and reached there at 0630 hours. He found 6 dead bodies and 32 injured persons at site and came to know that 19 persons with minor injuries had left after First Aid. The injured persons were sent to Samastipur Railway Hospital by the Barauni Medical Van and dead bodies were sent for Post Mortam to Samastipur in the B.G. Medical Van. When he got opened the East Cabin, he saw the last entries in the Cabin books were made for last train 46 Up and 92 Dn. Station Diary was missing as also the Assistant Station Master, Cabinmen and Crew of 329. There was no complaint about looting.

18.2. Answering questions he stated that when he arrived at site he found the Medical Van from Barauni already there. He was also told by certain passengers that 45 Down Express was standing at the Station while 329 Up came and collided with it. He was definite that only six bodies were at the site; they had been identified.

19.1. Shri Sardhan Singh, Driver 'B' stated that he worked with 329 Up upto Barauni and at Barauni Junction he handed over the charge to Shri Shyam Sunder, Driver.

19.2. Answering questions, he stated that he signed at Jamalpur at 20.45 hours of 11-11-81 and handed over at 03.15 hours of 12-11-81. He did not notice anything unusual with the train during its run from Jamalpur to Barauni. The brake power was all right. The brake power certificate he obtained from the previous Driver was handed over by him to the Relieving Driver at Barauni. (Some Cylinders were inoperative; he could not say how many). The Vacuum Brake of the tender was not working. Under such conditions, the train has to be kept under control from a greater distance. He had not booked the absence of the tender brakes as he knew that other engines are also deficient and brakes would not be fitted. He had worked on the Section in the night. The Signals at Sathajagat are not visible from the Driver's side until they are very close. He had booked the defective visibility at Jamalpur one or two months back. Speedometer was not in working order when he handed over the engine.

20.1. Shri Banarsi, Driver of 45 Down, stated that the train started from Samastipur at 03.30 hours on 12-11-81 and reached Sathajagat at 04.17 hours. He threw the token on the platform and it was taken by the Porter who told him a train was to be received from the Bachwara Side. Seeing the train approaching on the main line on which he was standing, he took the hand signal lamp and started proceeding towards Bachwara showing red signal to the incoming train. Before he could go more than a bogie's length, the train came and dashed against his engine. On getting back to the engine, he found that one Fireman was lying on the foot plate with coal on top of him and blood coming out from his mouth. This injured Fireman was carried to the Station which was locked up. A crowd has breaking the door open. The Guard who had come to the Station went back to the brake and with the Second Fireman tried to connect the Portable Phone. Passengers wanted first aid which he rendered. By this time, the Station was broken open.

20.2. Answering questions he replied that his departure signal was red when he looked at it while going towards Bachwara trying to stop the oncoming train. The Up Home Signal at Sathajagat are visible to the Driver only when he arrives at the level Crossing, due to curves and are not bright, but the distant signal is visible to the Fireman from sufficient distance. Both the buffer lights of his engine were burning as 'Red' while standing at Sathajagat.

21.1. Shri Mahender Singh, Second Fireman of 45 Down stated that the engine was attached to the train at 03.10 hours on 12-11-81 at Samastipur.

After reaching Sathajagat, when he came down to the footplate from the tender, the Driver told him that 329 Up was approaching on the same line. The Driver ran towards the approaching train with a Hand Signal Lamp but 329 Up dashed with their train before they could proceed far. On returning back to the engine, they found the fireman lying on the Foot plate with blood coming from his mouth. They went to the Station to find it locked and then went to the Guard for first aid.

21.2. Answering questions, he stated that he went with the Guard towards Samastipur, to put up the portable Control phone. The Guard was trembling and could not open the box. He helped the Guard to open it, but when the Guard tried to talk on portable control phone, he was not able to get the connection. Then they proceeded towards the station building, which was by this time broken open.

22.1. Shri Ramjee Thakur Cabinman, on duty at the West Cabin from 0000 hours to 0800 hours on 12-11-1981 stated that he lowered the Signal for 45 Dn passenger to be received on line No. 1 and then he received information from Asstt. Station Master that 329 Up is to be received on line No. 2. He showed the proceed Signal from the Cabin when 45 Dn. came in and put back the Signals, when he saw the tail lamp inside the fouling mark after giving private number. When he set the point for Line No. 2 and put his hand on the slot lever, he heard a crash. Hearing the agitation of the passengers, he went home to save his life.

22.2. Answering questions, he stated that the working rules had been explained to him by the Traffic Inspector and he had signed in the Assurance Register. He had given the slot for reception of 329 Up on Line No. 2 in practice the private number is given to the Assistant Station Master as soon as the Assistant Station Master tells him about the train to be received, though according to Rules, it is to be given after giving the slot. The private Number sheets are in manuscript as the printed ones are not supplied.

The head light of 45 Dn. engine was dim. There were no other lamps on this engine. He was definite that he set the route and gave the slot before the accident. He took the key of the Cabin with him when he went to his quarter.



23.1. Shri Banarsi Singh Cabinman on duty at the East Cabin from 0000 hours to 08.00 hours on 12-11-1981, stated that he took over from Cabinman Shriram Sagar. He was informed at about 0345 hours by the Assistant Station Master that the crossing of 45 Down and 329 Up has been arranged at Sathajagat and that 45 Down will be received on line No. 1 and 329 Up at Line No. 2. He gave the slot for reception of 45 Down on line No. 1. When 45 Down was coming on line No. 1, 329 Up crossed the Home Signal. He showed Red Signal and shouted but the train was in speed did not stop and collided with 45 Down. He then ran away being afraid of the approaching passengers.

23.2. Answering questions, he described procedures for receipt of a train from other direction. Private numbers are given to the Assistant Station Master in acknowledgement of having understood his instructions and not after having set and locked the route for a train to be received. He passed 330 Dn. and a light engine before the arrival of 45 Dn. He had not entered his register or the Private Number Sheets as the lamps in his Cabin were not burning properly due to bad Kerosene oil. He did not give private Numbers. 329 Up passed his Cabin at a speed normally attained in mid-section. The driver was sitting on his seat and looking ahead. He did not receive the indication of slot from the A (West) Cabin for reception of 329 Up, the setting of points can be changed only 3 minutes after putting back the Home Signal. Working Rules were explained to him after the BG Crossing Station was opened and he had signed in the Assurance Register. He did not pull the levers of the Distant and Home Signals, for reception of 329 Up, nor did he set the route; he would have done this after receiving information from the Assistant Station Master about the arrival of 45 Down. He did not put back the slot for reception of 45 Down. He did not sign in the Attendance Register when he came on duty; he reported to Assistant Station Master and signed in the Station Diary. He did not get any fault indication in his indicator board.

24.1. Shri M.A. Samad, Guard on 45 Dn. of 12-11-1981 stated that the train left Samastipur Jn. at 0330 hours (20 Minutes late) and Balsingh Sarai at 0408 and was received on Line No. 1 on proper Signal at 0417 hours. Immediately after arrival he went to the platform side door of his brakevan to look out, felt a heavy jerk and fell down. After a few minutes, he got up and went towards the engine and found that the front SLR was smashed in front and that the Engine of 329 Up had collided with his train. He went to the Station but found no staff there. He informed the Control at 0440 hours. He then gave First aid to the injured passengers, leaving Shri N.P. Sinha, Chargeman, Samastipur Workshop at the Station to remain in contact with Control. The Head Light of 329 Up was full bright and the head light of his train was also in good working order. Six passengers were found dead. After the Divisional Officers arrived, he was taken to Samastipur Railway Hospital.

24.2. Answering questions, he stated that he tried first to establish contact with the Control on his portable Control Phone but failed; though he tried different pairs of wires. There was no indication of Control Wires on the post; there was no diagram with the phone. He then went towards the Assistant Station Master's office which had been broken open by the crowd.

25.1. Shri Shyam Sunder, Driver 'A' stated that after taking proper rest upto Barauni, he took over the engine from Driver Sardhan Singh at 3 O' Clock and left Barauni at 3.45 hours. When approached Sathajagat he saw yellow aspect of the Distant Signal and this was confirmed by his Fireman. He then shut off steam and started applying vacuum brakes. On sighting the Home, he saw it dim but showing yellow. When he asked First Fireman whether the Home Signal was off, he stated that the signal was down though it was dim. When he reached the points, he found that they were set for the straight track and also noticed that the headlight of his engine was falling on one engine standing on the main line. He applied vacuum and steam brakes but his train collided with the stationary engine. He got down and found that the front buffer was broken. In the other engine one man was lying down. He went to the Station, found it locked and came back to his engine. Passengers came shouting "beat up the Driver" and to save his life he ran away towards Bachwara.

25.2. Answering questions, he stated that the headlights of his engine were in working order. Though there was some fog, the signal aspects were clearly visible. The brake power certificate was handed over to him by the earlier Driver, but he had misplaced it. The speedometer of his engine was not in working order. He had attained a speed of about 50 Kmph in the section. His tender brakes were working. He had checked them up at Barauni. He had not experienced any difficulty in sighting the Signals while approaching Sathajagat from Bachwara. The head light of the stationary engine was very dim and its buffer lights were not burning, but his engine had to white buffer lights burning. The vacuum in his engine was 45 cms on the run between Bachwara and Sathajagat. The speed of his train should have been between 15 and 18 Kmph at the Home Signal and when he approached the turn out and on application of both the steam and vacuum brakes at this speed a train should normally stop within a distance of 30 to 40 metres. There was synchronization between the steam and vacuum brakes on his engine. The token he obtained from Bachwara was still with him.

He shut off the regulator before reaching the Distant Signal and did not open it after seeing the yellow aspect of Home Signal for the Main Line. The train can come coasting upto the station for a distance of about 1.6 Km. He made three round trips from Barauni to Samastipur by 329/330 Passenger for learning the road, 2 being in the night. No Inspector or Loco Foreman accompanied him, on his first independent trip on 329 Up/330 Dn.

26.1. Shri Bateshwar Singh, First Fireman on engine of 329 Up of 12-11-81, stated that he came on duty at Barauni alongwith Driver Shyam Sunder. Weather was somewhat foggy and there was no moonlight. Signals were visible only when approached close. While approaching Sathajagat, he first saw the Zebra Board and then the distant signal showing "yellow". The driver controlled his train when they came to the Home Signal which was showing "yellow" for the Main Line No. 1. When they entered the turn-out, he saw that the train was going on the approaching main line and noticed the dim light of an engine standing on the main line. The driver tried to stop the train, but it collided. Seeing the crowd at the Station, he ran away.

26.2. Answering questions, he stated that the driver shut off the regulator at the Zebra Board, and had applied both the vacuum and steam brakes. He released the steam brake when he left the engine. The engine did not have buffer lights. Before the accident, he did not see the Cabinman of East Cabin Sathajagat exhibiting any signal.

27.1. Shri D.C. Amin, Head Train Examiner Jheel siding Howrah stated that the rake of 329 Up was attended by him and his staff on 10-11-1981 as it was to start on 11-11-81. The rake was vacuum tested by Exhauster and vacuum available was 48 Cm and 46 Cm. All vacuum cylinders were active.

27.2. Answering questions, he stated that the rake was not placed on the pit for examination, as there was no pit at the Jheel siding. At least for the last two months, since when he is working there, this particular rake has not been placed on a pit. Examination of undergear is done with difficulty by staff going under the rake. The Fit Certificate is given by the Traffic Yard Train Examiner. Marshalling of passenger rakes is done by Head Train Examiner (TT). Alarm Chains are blanked off in all Compartments on verbal orders. He had verified that all vacuum cylinders were functioning. Brake blocks were in short supply and replacement of badly worn brake blocks has been done with partially worn blocks.

28.1. Shri Dinesh Prasad Singh, Station Master, Sathajagat, stated that he was in fast asleep at his quarter when he heard a loud noise. By the time he got up, the Assistant Station Master was knocking at the door saying that two trains collided and that he was leaving the keys and going away. When he opened the door, the Assistant Station Master had gone. He went to the station in Mufti and found the passengers abusing the Station Staff. Shri S.N. Roy, Assistant Station Master Hayaghat somehow entered the Assistant Station Master's room and was sending information. The slide for reception of a train on Line No. 2 from Bachwara was pulled. Witness dared not talk to Roy and went to rescue injured passengers; Guards of both trains were giving firstaid. One passenger train was going towards Dalsinghsarai but it did not stop, though efforts were made. He went home at 0630 and returned at 0745 when Officers had arrived. The Station Diary was missing; a new Diary was opened. He therefore went to the site and started helping passengers and rendered First Aid.

28.2. Answering questions, he stated that due to shortage of printed private number books, he issued manuscript private number sheets to the Cabinman. He had not brought the shortage to the notice of superior Officers. The supply of Kerosene Oil has been over-carried by Store Van and he has to get it from the Depot. On the day of the accident, he had purchased Kerosene Oil from the Market. There was no problem in lighting Hand Signal lamps with this Kerosene Oil.

In his opinion, the cause of the accident is disregard of Signal by driver.

29.1. Shri Satyanarayan Roy, Relieving Assistant Station Master Hayaghat stated that he was travelling by 45 Dn. Express which arrived at Sathajagat at about 0419 hours. At about 04.20 hours, he felt a serious jerk and a loud noise. He jumped out and found that 329 Up had collided with 45 Down. He rushed to the Assistant Station Master's Office which was locked and surrounded by angry passengers. He searched for the Guard of 45 Down, but could not find him. When he returned to the Station, the door was broken by the angry mob. He informed Control about the accident, at about 0450 hours, posing as a passenger. In the meantime, the Guard of 45 Down, entered the Assistant Station Master's Office. They both rendered first aid to the passengers. He saw the Station Master of Sathajagat in Civilian Dress. He worked at Sathajagat upto 1000 hours and was present there upto 2000 hours.

29.2. Answering questions, he stated that immediately after the accident he noticed all the Signals including back light of Home Signal and found that they were in the 'ON' position. Visibility was good and it was clear moon light.

30.1. Shri S.R. Das, Assistant Divisional Medical Officer, Garahara stated that he received a message about the accident from Station Superintendent Barauni at 5.15 A.M. on 12-11-81, conveyed through special messenger by Dr. Jain, Divisional Medical Officer. He alongwith Dr. Jain proceeded to Barauni by Motor bike from the hospital at 0530 hours, reaching Barauni at 0545 hours. The medical Van was ready on the platform and started at 0555 hours after other members of the medical team joined. They reached at the site at 0650 hours. He found some persons lying apparently dead. After making sure they are not alive, he started giving Medical aid to the injured. By this time the Medical Van from Samastipur also arrived the site. Witness went with the injured passengers in the Medical Van to Samastipur, leaving the site at 0810 and reaching Samastipur at 0930 hours.

30.2. Answering questions, he stated that no injured person was trapped in the First coach of 329 Up or 45 Down; only the dead bodies were trapped. Assistant Divisional Medical Officer Barauni is in-charge of the Medical Van at Barauni, but he was on leave. If the Assistant Divisional Medical Officer Barauni was available, the Medical Van would have definitely reached the site earlier.

31.1. Shri K. C. Pal, Assistant Mechanical Engineer, Sahibganj, stated answering questions, that the engine hauling 329 Up involved in the accident is controlled by him. According to the engine History Book, the brake gear from the tender was removed on 9-11-81 for repairs during Schedule I. An engine without any brake on the tender is not 'fit' for passenger services, but the position of power being acute; about 25% of W.P. Locos being out of action; Loco Foreman, in consultation with Loco Fitter incharge booked this engine. Locos are out of action, waiting for material from Jamalpur shops and being under heavy repairs/P.O.H. Witness know that such locomotives are being booked out by Loco Foreman though he has no powers to do it. His Divisional Mechanical Engineer has been informed through Various letters. There is short supply of the modified types of Cross-beams and hangers of modified type. Buffer lights had been provided for engines from his shed. Witness had not checked any steam engine recently. Before a driver is booked independently witness and Loco Foreman check the number of trips taken in learning the road and ensure that assurance is given by the Driver. For the first two trips, Loco Inspector monitors the driver. (At this stage the Driver 'A' Shri Shyam Sunder was recalled and asked whether any Inspector or Loco Foreman accompanied him to monitor his first trip, but he said that only his first and second Fireman were there when he worked independently with 329 Up/330 Dn. for the first time). Witness stated that there are instructions for such monitoring issued by his Divisional Office.

32.1. Dr. J.N. Mehta, Divisional Medical Officer, Samastipur stated that he received a message at 0500 hours on telephone about the accident. He reported to the Assistant Station Master/BG Samastipur on duty at 0515 hours Medical Van left Samastipur at 0550 hours and reached the site at 0655 hours. The Relief Train from Garhara was already there and relief work was going on satisfactorily. Patients with serious injuries were shifted to Samastipur (Railway) Hospital accompanied by Railway Doctors in the Metre Gauge Van, starting from Sathajagat at 0810 hours and reaching Samastipur at 0945 hours. The Broad Gauge Van left site at 1035 hours with four injured passengers and reached Samastipur at 1210 hours. Six dead bodies were taken out of the smashed coach and were handed over to Government Railway Police Samastipur.

32.2. Answering questions, he stated that though he reached Samastipur Station at 0515 hours, the medical Van left station at 0550 hours, the delay was for attaching the engine. He gave a list of those killed and injured.

33.1 Shri K.K. Rana, Transportation Inspector, Samastipur, stated that he reached the site of accident at 12.10 hours. Restoration work had started. The engine of 45 Dn. was pushed back by the engine of 329 Up in derailed condition. Track fit certificate for line No. 2 was received at 1840 hours and for line No. 9 at 19.15 hours. As line No. 1 was occupied approach signal for line No. 1 cannot be taken off for reception of another train, since the line is track-circuited.

33.2. Answering questions, he stated that he had inspected the station on 19-9-1981 and 25-5-81. He could not explain the corrections/over writing of the dates of all the three quarterly inspection reports, produced by him. The procedure given in the Station Working Rules for reception of trains was correct (witness first gave a different procedure). During his inspections, he detected several mistakes by Assistant Station Master, Sarkar in paper Line Clear Working; the ticket portion is used and record portion is left blank. He did not know the number of occasions, paper line clear was resorted to, but in five cases on 5th, 6th August 81, such omission by Sarkar was detected. He had also noticed some deficiencies in interlocking at Sathajagat. Both Distant Signals were inoperative since January 1981; pick up apparatus has not been provided. Up Distant and Home are not visible from 'A' Cabin and repeaters are not functioning. He was not aware of shortage of private Number Sheets and of train registers, but not of Kerosene Oil. He

had travelled on foot plate sighting signals at night on 21-10-81 and 26-10-81. At Sathajagat, Distant were not lit but other signals are clear. The Up home Signal is clearly visible just after passing Distant. It did not come to his notice during inspections that the procedures followed to receive trains were not those prescribed in Working Rules.

34.1. Shri S.C. Roy, Divisional Signal and Telecommunication Engineer (Con) Muzaffarpur stated that at Sathajagat which was a M.G. Crossing Station, alterations were carried out for conversion into B.G. Crossing Station, after obtaining Commissioner of Railway Safety's sanction. It was opened by Assistant Signal and Telecommunication Engineering (Con) B.G. Samastipur and Assistant Engineer (Con) B.G. Samastipur.

34.2. Answering questions, he stated that the station has not been formally handed over to the Open Line for maintenance. When asked whether he agrees that in that case he was responsible for signalling and interlocking installations at the Station, he fainted and no further questioning was done.

35.1. Shri R.C. Rih, CWI, Garhara stated that he was informed at 22.00 hours of 12-11-1981 on phone by Assistant Mechanical Engineer that the brake power of 329 rake involved in the accident at Sathajagat station is required to be tested. It was accordingly tested on 13-11-1981 and the results were : total load = 8/16, vacuum in engine = 48 cms vacuum in rear most vehicle = 38 cms. Active cylinders were 13 and inactive cylinders 3.

36.1. Shri B. N. Nigam, Divisional Signal and Telecommunication Engineer, Samastipur stated that at 05.00 hours he was informed by the Deputy Controller and reached the site at 06.55 hours in the Medical Relief Van. As instructed by the Divisional Railway Manager, and Divisional Safety Officer he inspected the site, West Cabin and Station Master's office, recorded joint observations and seized relevant records. The 'B' class station on the Broad Gauge was commissioned by the B.G. Construction organisation on 29-12-1980 and has not been formally handed over to the Division, though the day to day maintenance was done by his staff. The signalling gears were last inspected by him on 20-9-1981 and he found the points and signals except the Distant Signals in working order.

36.2. Answering questions, he stated that he was not aware whether the Signalling and Interlocking arrangements at the station are according to the approved signalling plan. While at the other three stations on the Samastipur—Bachwara section, route holding is by track circuit between the Home Signal and facing points, the Home Signal going ON as soon as a vehicle occupies the track circuit, at Sathajagat, a 2 minute thermal delay has been provided ; changing of route is possible only 2 minutes after Home Signal is put back to ON. He admitted that there were deficiencies in maintenance. It would not have been possible to set the route and take off signals for line No. 2 within the time available after 45 Dn. was received and before the collision. During inspection it was noticed that the East Cabin had given slot for line No. 1 to West Cabin and the West Cabin had given slot for Line No. 2 to East Cabin. When he was asked to say whether the above is according to the prescribed interlocking rules for operation, unless the circuit diagrams are checked, he could not say whether the fact that indication of West Cabin having given the slot for Line No. 2 not appearing in the East Cabin was due to East Cabin having given the slot for line No. 1.

At this stage Shri G.S. Singh, Signal Inspector who was called in, stated that a typical circuit diagram as per Chief Signal & Telecommunication Engineer's wiring drawing No. 129 dated 31-7-73 was utilised for Sathajagat. Shri G.S. Singh, Signal Inspector also stated that according to this circuit diagram, the slot lever can be pulled in one cabin but the electrical slot would not come if the other Cabin had given slot for another line.

37.1. Shri Bindeshwar Nayak, a passenger of 329 Up stated that he was travelling in the first coach and had gone to the lavatory. When he came out, there was a crash and the roof fell down. The coach was dark at that time; the train had slowed down. His son sustained a fracture in the leg.

38.1. Shri Jaikant Rout, a passenger of 329 Up of 12-11-81 stated that he got in at Barauni; he was sitting in the coach next to the engine in the passage on the floor. He felt that the Driver shut the steam at the outer signal of Sathajagat and then again opened the steam. Soon after he felt a jerk and there was a collision. Passengers fell on him and he lost consciousness. When he became conscious all his clothes had been removed; he also lost a bag containing clothes, Railway pass and identity card. He had requested for his wife to be called by telegram, but she had not arrived.

39.1. Shri Ram Ratan Singh a passenger of 329 Up stated that he was travelling in the first coach of 329 Up and was on the 3rd seat. He was dozing. Suddenly he heard a loud sound and the train came to a stop. The persons on the first two benches were trapped; some of them died and some were seriously injured. He got down after ten minutes. The local Doctors and Guards gave first aid before the Medical Van came.

40.1. Shri Mahendra Sukla, Fireman 'B' of 45 Dn. stated that after they had stopped at Sathajagat station, his Driver said that another train was coming on the same line. The Driver then ran ahead raising his hands and shouting but the collision occurred and he fell down unconscious; He regained consciousness when he was being taken towards the station building for first aid.

40.2. Answering questions he stated that the headlight of 329 Up was very bright. The headlight of 45 Dn. was connected to the coach supply. The vacuum brake in the tender was working.

### OBSERVATIONS

I had a preliminary inspection of the site and the rolling stock involved in the evening of the 12th in the company of the General Manager and Heads of Departments of the Railway. On the afternoon of the 13th, I inspected the signalling installations with Shri Viswaprakash, Deputy Commissioner in the Commission's Technical Wing. It was seen that, when line No. 1 (which is track-circuited) is occupied by a train it was not possible for the Up Home Signal for this line to be taken off.

In the early hours of the 14th, I travelled (from Bachwara to Sathajagat), on the foot plate of the WP locomotive hauling 329 Up Passenger, observing the visibility of signals. The train took 12 minutes between Bachwara and Sathajagat, attaining a maximum speed of 60 Kmp. The Up Distant Signal of Sathajagat was showing 'Yellow'. The Up Home Signal for line No. 1 was also showing 'Yellow' but its visibility was restricted to about 100 metres (the focussing of the signal lamp was faulty). The Driver had to check his speed after passing the Up Distant which is located at a distance of 555 metres from the Up Home Signal (instead of 648 metres shown in the Signalling Plan).

### DISCUSSION

#### Time of the Accident

The records of the Samastipur Station, the Guard and the Controller agree on the departure of 45 Down from Samastipur at 0330 hours. At Dalsingh Sarai, the station before Sathajagat, the Guard's timings indicate departure at 0409 hours while the Station register indicates 0417 hours, a difference of eight minutes. In view of the agreement of the departure times at Samastipur, the timing of the Guard of 45 Down is considered of better reliability. 45 Down arrived at Sathajagat, according to its Guard, at 0417 hours. The collision occurred before the Up Home Signal could be taken off but after the West Cabin had put back the Down Home Signal and set the route for line No. 2. These operations take about 3 minutes as the route-holding relay will not allow the Down Home Signal to be put back (until a period of 2 minutes has elapsed) after the track circuit is occupied. The collision could not have occurred before 0420 hours and I determine the time of the accident to be 0420 hours.

#### Speed of the train at the time of the accident

It is evident that 45 down had come to a stop on Line No. 1 when 329 Up approached from the opposite direction and collided head-on. According to calculations by the Mechanical Engineering Department of the Railway, considering the absence of brakes on the engine tender and 4 inoperative cylinders (out of 18) on the trailing load, the braking distance for the Passenger train (329 Up) is about 340 metres from a speed of 60 kmph, about 200 metres from a speed of 40 kmph and about 80 metres from a speed of 20 kmph. The collision took place about 360 metres away from the facing points. According to the Driver of 329 Up, it was when he reached these points that he saw an engine standing on his line and immediately applied brakes. The driver should have been able to stop before colliding or if at all, have had a light collision, if his speed was within 60 kmph. In fact, the collision was violent and the whole rake of 45 Down was pushed back by about 45 metres. The speed of the train at the time it entered the main line at Sathajagat was therefore in excess of 60 kmph. The Cabinman of the East Cabin saw the train passing the Home Signal at a speed normally attained in midsection. I estimate that the speed of 329 Up, at the time of the collision, was in excess of 30 kmph.

#### Cause of Accident

There are only two possibilities to be considered one is that of the Driver passing the Up Home Signal at danger and the other is that of a serious failure in interlocking, making it possible for the Up Home Signal to be taken off, for the main line, with the main line occupied. According to the evidence and the observations and tests carried out by me and by the Deputy Commissioner (S & T), it was not possible for the Up (Main) Home Signal to be taken 'Off' when the track ocircuited main line was occupied by a train. It is established in evidence that 45 Down had arrived and was in occupation of the track on Line No. 1 at the time of collision. It is also established that the track circuiting had not failed. The first person to see the Asstt. Station Master's room have testified that the track occupation indicator was indicating occupation. The only possibility is, therefore, that the Driver, due to some reason, disregarded the Up Home Signal which

was in the 'ON' Position. He has stated in his evidence that he found the Up Home Signal 'Yellow'. This has been corroborated by the Fireman also, but by no one else. I consider the evidence of the Driver and Fireman totally unreliable. For instance, the Driver has stated, in answer to questions, that his engine had vacuum brakes on the tender and that he had personally verified them at Barauni, whereas, in fact, the brake gear had been removed in the Locoshed and was not available at all. Even though it was a full moon night during which the accident occurred, the Fireman did not appear to be aware of it. The evidence of the engine crew of 329 Up is not reliable and I am of the opinion that the Up Home Signal was passed by the train in the ON position.

The situation was aggravated by the Distant Signal, which, in all probability, was not lit (as testified by the Porter of the station who lit signal lamps that day and by the Transportation Inspector who had done inspections at night, observing signals). The visibility of the Home Signal was restricted to about 100 metres whereas, according to extant instructions, Multiple Aspect Upper Quadrant Stop Signals must be visible for 5 seconds at the maximum permissible speed; in this case the visibility should be 140 metres (for 100 kmph). This deficiency also should have contributed to the problem.

Another adverse fact was the absence of the required brakepower on 329 Up. Though all cylinders on the trailing load were active as per certificate issued at Jamalpur where the train engine was changed, four (out of eighteen) were found defective on examination after the accident. I have come to the conclusion that these cylinders could not have been functional before the accident and during certification, which appears to have been done as a matter of course. According to calculations given by the Mechanical Engineering Department of the North Eastern Railway, if the specified brakepower was available, the train could have stopped in 260 metres; from a speed of 60 kmph; with reduced brakepower, as actually available, this distance increased to about 340 metres which was roughly the distance from the facing point (where the driver of 329 Up saw it) to the stationary engine of 45 Down.

## CONCLUSION

### Findings

On careful consideration of the evidence at my disposal, I have come to the conclusion that 329 Up Passenger crossed the Up Home Signal at Sathajagat Station, which was in the 'ON' position and entered Line No. 1, colliding 'head-on' with the rake of 45 Down Express which had been received about 3 minutes earlier, both the Driver and the Fireman failing to identify the Signal.

### Responsibility

I am of the opinion that Shri Shyam Sunder, Driver and Shri Bateshwar Singh, Fireman of the engine No. 7225 WP hauling 329 Up Passenger, are responsible for the accident. The Driver violated G.R. 76 and G.R. 78 and the Fireman G.R. 122 and S.R. 122.1. (Extracts of Rules are at Annexure I).

### Service Record

Shri Shyam Sunder, born on 25th August, 1926, was appointed cleaner (grade Rs. 30-1/2-35) on 29-8-45 and promoted as II Fireman (grade Rs. 40-1-50) on 15-1-1948, Leading Fireman (grade Rs. 50-2-60) on 18-8-1950, Shunter Gr. 'B' (Rs. 50-5/2-80) in March, 1959, Driver Gr. 'C' (Rs. 150-240) in June, 68, Driver Gr. 'B' (Rs. 425-640) in August 1980, and Driver 'A' (scale Rs. 550-750) on 3-11-81.

He has a record of punishments for indifferent discipline, fusion of lead plugs, detention of trains and excess consumption of coal, the last recorded in March, 1977.

2. Shri Bateshwar Singh, born on 1st April, 1937, was appointed temporary cleaner (grade Rs. 30-1/2-35) on 6-12-1955. He was promoted II Fireman (grade Rs. 200—250) on 16-1-1963, Leading Fireman Gr. 'B' (grade Rs. 235—308) on 27-2-1974 and Fireman Gr. 'A' (grade Rs. 290—350) with effect from 1-6-1981.

### Relief Measures

These were adequate, except for some delay in the arrival of Relief Vans.

## REMARKS AND RECOMMENDATIONS

1. The Accident Relief Medical Equipment Vans could start from Samastipur and Barauni only one hour after the information was received. At Barauni, no Doctor was available, the nominated Medical Officer being on leave and the Officer looking after his work being stationed at Garhara from which place he had to come by road transport to Barauni. It is recommended that at all stations where Accident Relief Vans are maintained, one Medical Officer must always be available. If the incumbent of the post has to be away on leave or for other reasons, the Medical Officer posted to look after the duties of the nominated one should be physically present at the Station where the equipment is located.

1. (a) The cause for delay in turning out the Medical Van from Samastipur may be examined in detail and action taken to ensure that medical vans are turned out within the prescribed period. Mock drills involving all the Officers and Staff nominated to accompany the Accident Relief Trains must be held (and documented) every quarter so that the van and the staff nominated to man it are maintained in a state of preparedness.

2. It was revealed that procedures prescribed in the Station Working Rules are not being rigorously followed at Sathajagat, this state of affairs may prevail at other stations too. The Transportation Inspector, the Assistant Station Master and the Cabinmen were not aware of the correct procedures indicated in the Working Rules. A drive is recommended to educate the staff and to test them before obtaining their assurance that they have understood the rules. The quality of inspections by Transportation Inspectors (T.Is) and Operating Officers may also be improved. I noticed that the records of inspections produced by the T.I. had dates (of the inspections) overwritten and am not sure whether the inspections were carried out, in fact, on these dates.

2. (a) While the Assistant Station Master is not responsible for the accident, his behaviour after it took place was irresponsible. The Station Master, though he came to the Station, did not identify himself and take charge. The other Station staff also deserted their posts. The Railway Administration may take suitable corrective action.

3. The locomotive nominated to haul the 329 Up passenger was booked out from the Sahibganj shed with deficient or defective equipment, like speedometer, vacuum brakes on tender, and buffer lights. Essential spare parts required for maintenance of locomotives appear to be in short supply. Effective arrangements to ensure that locomotives are in good fettle and fitted with all necessary equipment before they are booked out may be made and loco sheds supplied with adequate quantities of fittings and spare parts. If this cannot be done, passenger services may be slowed down or curtailed as required.

4. A detailed inspection of the signalling and interlocking arrangements at Sathajagat with respect to the approved Signalling Plan, based on which the Commission accorded sanction to open this station for the Broad Gauge, was done by a team of Signalling Officers of the Railway. According to them, the installations provided were deficient when compared to the approved Signalling Plan; replacement track circuits for Home Signals had not been provided, and the distance of the Up Distant Signal (from the Home) is less than what is indicated in the Plan. The Officer who inspected, tested and commissioned this installation, and certified the signalling to have been carried out according to the approved Signalling Plan before opening it for passenger traffic may be suitably advised, as the certificate has in fact, proved incorrect. A review of all stations opened under such circumstances may also be undertaken to discover and rectify deficiencies and all concerned instructed suitably to prevent issue of incorrect Safety Certificates.

4. (a) The East Cabin is in a temporary structure on the North side of the track while a permanent Cabin structure is lying unused on the opposite side. While the reasons for this are not clear, it is recommended that the lever frame is housed in the permanent structure, and the entire apparatus maintained to better standards than observed.

It was seen that anti-tilting arrangements were not available for Shelf-type relays; they may be provided. This deficiency may be reviewed and made good at other stations also.

5. The Guard of 45 Down tried to put up his Portable Control Phone to inform the Control of the accident, since the station was locked up by the Assistant Station Master who ran away. However, in the absence of a diagram in the Portable Phone Box indicating the control wires, (no indication being available on the telegraph posts either) the Guard was not able to connect the correct wires. Proper indication of the control circuits may be provided on all telegraph posts and diagrams may also be provided in the Portable Telephone Boxes.

6. The Station was opened to traffic by the Construction Organisation of the Railway, but was stated not to have been "formally handed over" to the Open line Division. However, day-to-day maintenance was being carried out by the Open Line Division without "taking over" the station. It may be ensured that Stations are properly taken over and handed over between the Construction and Open Line Organisations so that the responsibility (for maintenance) is clear and understood by all concerned.

7. The Distant Signals at the station were, reportedly, not worked for about a year. It is doubtful whether they were even lit up. The visibility of the Up Home Signal was also not as required. The inference is that Signal Inspections by various Officers and Inspectors are not purposeful or productive of the desired results. The quality of Signal Inspections may be improved and effective follow up action may be taken, to ensure proper functioning and visibility of signals.

8. It was stated that the Alarm Chain apparatus, had been made ineffective in all coaches including the ladies' compartments on the 329 Up Passenger Rake. This is not in accordance with the extant orders of Government. A review of ladies' and other nominated compartments where the alarm Chain is to be retained on trains where "blanking off" has been approved may be made and the alarm apparatus restored as found necessary.

9. According to extant instructions, after providing for Mail/Express trains, all the available anti-telescopic SLRs should be used on Main Line Passenger trains marshalled in the same way as in the case of Main/Express trains with at least one anti-telescopic coach marshalled inside the SLR. Presumably the Railway Administration is not in possession of enough anti-telescopic SLRs to equip passenger trains at both ends. (The rake link of Eastern Railway indicates SLR at either end for 329 Up but not for 330 Down). In the present case, even though the leading coach was on ICF one, damage to its end was extensive, resulting in casualties. Urgent steps may be taken to obtain adequate number of anti-telescopic SLRs (or coaching vehicles other than passenger coaches) to be marshalled at either end of Main Line passenger trains; until such time these are available, ideally the half portion of anti-telescopic passenger coaches, marshalled immediately behind the engine or rearmost, could be made inaccessible to passengers, especially when these are used for unreserved accommodation and are therefore overcrowded, as the probability of the colliding end collapsing, with resultant casualties, is high. At present, instructions are that, if the passenger compartment of an anti-telescopic SLR is marshalled, for some reason, next to the engine or rearmost, it need not be locked. It would have been desirable to withdraw these instructions and to make the compartment inaccessible to passengers, if marshalled next to the engine or rear most: so also the Guards' compartment, if next to the engine and vacant. But under present-day conditions of overcrowding, it may be impossible to keep passengers away from such areas in practice, the risk of injury to passengers in the leading or rearmost coach, albeitan anti-telescopic one, thus continuing.

9.1. It is recommended that the anti-telescopic properties of current ICF designs may be reviewed to improve their crash-worthiness which may be assessed by suitable model or full scale tests.

9.2. The instructions for marshalling of coaches in the Howrah Division's Working Time Table No. 48 (Para 4 A. 5.2.) are not in accordance with extant orders and may be updated.

10. It was stated that the rake of 329 Up Passenger is not being examined on a pit during primary maintenance at the "Jheel Siding" at Howrah. The same may be true for other rakes too. It is desirable that the rakes of all passenger carrying trains are examined over a pit, preferably during day light, at intervals to be specified by the Chief Mechanical Engineer, if necessary by specially working the rakes to yards with suitable facilities.

11. The Railway Administration may ensure provision of adequate brake power on trains and factual certification about the effectiveness of the full braking system the brakepower certificate indicating condition of cylinders, rigging and brake blocks; surprise test checks by Officers, of trains certified by TXR may be undertaken.

Yours faithfully,

Sd/-

K. J. N. KUTTY

Commissioner of Railway Safety,  
North Eastern Circle, Gorakhpur.



## EXTRACTS OF RULES

*G.R. 76. Drivers to obey signals, and to be vigilant and cautious.*—(a) The Driver shall pay immediate attention to and obey every signal whether the cause of the signal being shown is known to him or not.

(b) He shall, not however, trust entirely to signals, but always be vigilant and cautious.

\* \* \* \* \*

*G.R. 78. Duties of Driver when Outer, Home or Routing Signal is on or defective.*—(a) The Driver of a train shall not pass an Outer, Home or Routing Signal that refers to him, when it is 'on' or defective unless, after coming to a stand, he is either given a written authority to proceed past such signal from the Station Master, or is called on by a Calling on signal.

(b) In addition to the written authority referred to in sub-rule (a) the Driver, may, where so required in the aforesaid written authority, be piloted past the defective signal by a railway servant authorised in this behalf.

\* \* \* \* \*

*G.R. 122. Driver and Fireman to keep a good look-out.*—Every Driver shall keep a good look-out while the train is in motion, and every Fireman shall also do so when he is not necessarily otherwise engaged.

\* \* \* \* \*

*S.R. 122 (1).* The Driver and the First Fireman or Diesel Assistant or Assistant Driver, as the case may be, shall identify each signal affecting the movement of the train as soon as it becomes visible, and shall call out the aspects of the signals to each other.

*Railway Board's Comments on various Paras of the Report*

*Para 1 (a) : Availability at all times of a Medical Officer at places where Accident Relief Medical Vans are stationed*—Need for all time availability of a doctor to attend casualties at the Health Units or stations where Accident Relief Medical Vans are located, cannot be denied and efforts are made to make a relieving doctor available, if the incumbent of the post has proceeded on leave or not available for sickness or for any other reason. In the present case also a relieving medical officer was available at Garhara within 2 to 3 kms. of Barauni station. Instructions are being reiterated to all the Railways to make arrangements for a medical officer to be available to attend to calls at stations where Accident Relief & Medical Equipment Vans, are located.

*Para 1 (b) : Delay in despatch of Medical Van*—For the delay in despatch of the Medical Van from Samastipur the staff responsible had been suitably disciplined. Steps had been taken by the Railway to ensure timely despatch of Accident Relief trains, as noted by CCRS.

*Para 2 & 2 (a) : Compliance of Station working Rules*—In compliance with Station Working Rules, the Railway have taken steps for periodical inspections of stations and cabins by Operator and Safety Officer, Traffic Inspectors and other supervisors to ensure that the correct procedures for movement of trains are observed. The Assistant Station Masters have been suitably disciplined for their irresponsible behaviour and desertion of their posts after accidents. The Railway have also issued directives to all concerned to prevent its recurrence.

*Para 3 : Locomotive with deficient or defective equipment*—All Railways have been instructed to launch special drives and to take appropriate remedial measures to ensure that only these locos which are in good fettle and which are fitted with necessary safety equipment are sent out of the Loco Shed for hauling trains. Separate instructions have also been issued for ensuring synchronisation of brakes on steam locomotives. System of spot checks by Officers and Inspectors has been given a fresh momentum. Railways have also been instructed that officials responsible for sending out a loco not in good fettle to haul the passenger trains may be suitably taken up.

*Para 4 : Signal and interlocking arrangement at variance with the approved plan*—Up and down distant signals at Sathajagat station have already been shifted to one Km. from the respective home signals in conformity with the sanctioned plan. The replacement of tracks from home signals to fouling marks on either end of the yard for the main run through line is in progress and application for CRS's sanction for commissioning the proposed work would be obtained by the Division concerned.

Steps have been taken that all works are done strictly as per plans approved by CRS and safety certificate given only after careful verification that actual execution and plan are not at variance.

*Para 4 (a)*—As suggested, the Railway Administration is making arrangements to instal lever frame and other equipment in the permanent cabin structure. Also anti-tilting arrangements for the Shelf-type relays has been provided at Sathajagat station. They have also asked the divisions for making such arrangements at other stations too where it does not exist.

*Para 5*—The requirement of painting of cross arms on Railways overhead alignment is stipulated in para 1504 of Telecom. Manual. Railways attention has been drawn for its compliance. As has been indicated by N.E. Railway Administration, proper indication of control circuit have since been provided by painting cross arms on Railway owned overhead alignments. All PCP sets are now provided with latest L-14 diagrams on the entire division.

*Para 6*—The station has since been made over to open Line Organisation for maintenance as suggested by CRS.

*Para 7*—The distant signals at Sathajagat was not working for sometime due to theft of cables and reverser. The deficiencies have since been rectified. Visibility of Up Home Signals have also been improved to make it easily visible from the distant signals. The Railway Administration have been asked to take steps to ensure rectification of such defects as soon as they arise.

*Para 8*—Instructions have been issued to ensure that alarm chain apparatus is not blanked off in ladies compartments as also in the postal compartments.

*Para 9*—The need for providing SLRs on Main Line passenger trains subject to availability of such stock has been impressed. It has also been considered desirable to make rearmost compartments inaccessible to the passenger by locking it in case SLR is not available for Main Line Passenger trains. CRS has at the same time appricated difficulties in implementing these suggestions in the existing increasing volume of traffic. No comments are therefore offered in this regard.

*Para 9.1*—The matter already stands referred to RDSO for making a study in the crash-worthiness of the existing ICF coaches and any improvements called for. They have been requested to expedite their study and advise the results thereof.

*Para 9.2*—The Eastern Railway has issued instructions to strictly follow existing safety marshalling which requires luggage portion of SLR to be either trailing or next to the engine as the case may be. These instructions have been included in Eastern Railway working time table which came into force from 1-4-1983.

*Para 10*—To improve primary maintenance of rakes, Works Programme sanctions exist for providing shallow pits/washing aprons on 8 lines at Jheel siding. The work of 4 lines have already been completed and the balance works are under progress.

*Para 11*—Instructions have been reiterated to all Railway to ensure strict compliance of instructions regarding brake power of passenger trains as per Conference Rules Part IV and Indian Railways Unified Maintenance Manual for Coaching stock BG. System of surprise checks by Officers and other G&W Inspectors has already been intensified to ensure that factual certification about effective brake power is recorded.

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