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GOVERNMENT OF INDIA

MINISTRY OF TOURISM AND CIVIL AVIATION

(COMMISSION OF RAILWAY SAFETY)

RAILWAY ACCIDENT INVESTIGATION

REPORT

on

DERAILMENT

of

173 UP PASSENGER TRAIN

at

NEW MISAMARI STATION, NORTHEAST FRONTIER RAILWAY,

on

16TH JUNE, 1969

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SUMMARY

1. Date	16th June 1969.
2. Time	12.18 hrs.
3. Railway	Northeast Frontier Railway
4. Gauge	Meter.
5. Location	Km. 111/16-17 at New Misamari Station.
6. Nature of Accident	Derailment.
7. Train involved	No. 173 Up Passenger train.
8. Consisting of	8 bogie coaches.
9. Engine No.	YP Engine No. 2129.
10. Estimated Speed	15 to 20 Km. P. H.
11. System of operation	Absolute Block System
12. Number of tracks	Single Line Section.
13. Gradient	1 in 600 rising.
14. Weather	Clear, sunny & hot.
15. Visibility	Good.
16. Casualties	Killed—1 Injured—Grievous—3, Simple—2.
17. Cause	Buckling of track due to creep.
18. Persons held responsible	Supervisory staff of the Engineering Department.



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

From :

The Additional Commissioner of Railway Safety,
South Eastern Circle,
6, Esplanade East, Calcutta-1.

To :

The Secretary to the Government of India,
Ministry of Tourism & Civil Aviation,
New Delhi.

Through : The Commissioner of Railway Safety, Lucknow.

Sir,

In accordance with Rule 10 of Railway Board's Notification No. 59-TTV/42/1 dated 11-4-66, I have the honour to submit herewith the report on my Inquiry in connection with the derailment of No. 173 Up Rangiya-Rangapara North Passenger train which took place at 12.18 hours on 16th June 1969 at New Misamari station of the Northeast Frontier Railway.

2. The Accident.—On 16-6-69, No. 173 Up Passenger train left Belsiri station at 12.10 hrs. right time. It was arranged to be received on line No. 1 (platform line) at New Misamari station for which the facing points had been correctly set and locked and the relevant signals taken off. As the train was approaching the station at about 12.18 hrs., the trailing trolley wheels of the rearmost coach (No. GTGG 2040) derailed at Km. 111/16-17, 114 meters (374') short of Km. 112 post. The derailed wheels travelled in this condition on the sleepers for a distance of about 84 meters (275 ft.), when they were swerved out by the lead rails of the trailing cross-over connecting the main line with the shunting neck. On account of this swerving, the right wheels went off the sleepers on to the formation while the left wheels guided by the lead rails, entered the gap between the switch rail and the stock rail, hit the check blocks, jumped the right hand rail and continued to travel on the edge of the sleepers till the derailed trolley hit the Rangiya-end abutment of Bridge No. 293 (1 x 40' girder). As a result of the derailed rear trolley hitting the ballast wall masonry, the whole coach was disturbed and thrown out. The front trolley also jumped in such a way that the right side wheels were hanging in the air and the left side wheels travelled on the right edge of the bridge timbers. The coach continued to travel in this condition, gradually tilting and its front lower end hit the Rangapara North-end abutment and damaged the ballast wall. The coach, travelling further in the tilted condition, damaged the cross-over track between the main line (line No. 3) and the 1st loop (line No. 2) and ploughed through the trailing turnout damaging the crossing and the wing rails considerably. The coach capsized beyond the trailing points in front of the West Cabin. The remaining portion of the train came to a stop without derailing or being affected in any manner.

3. Casualties.—As a result of the accident, one person lost his life, having jumped out of the ill-fated coach, while five others were injured, injuries of three being of a grievous nature.

4. The Inquiry.—The Inquiry into the above accident was conducted by me at Rangapara North on the 18th & 19th of June 1969. Shri J. A. Raj, Divisional Superintendent, Alipurduar Junction, Shri G. F. Velloze, Transportation Superintendent (Safety) and Shri S. K. Majumder, Engineer-in-Chief (General) were present throughout the Inquiry. Shri G. Chandra, Deputy Chief Mechanical Engineer (General) and other Divisional Officers assisted me as and when required during the investigations.

5. The Deputy Commissioner and the Superintendent of Police, Tezpur and the Superintendent of Railway Police, Haflong were duly advised about the Inquiry but were neither present nor represented except for Shri T. Rahman, Deputy Superintendent of Railway Police, Luming, who attended for a short period on the morning of 19-6-1969.

6. I visited the Military General Hospital and the Civil Hospital at Tezpur on the morning of the 18th June to satisfy myself that the injured persons were being looked after properly.

7. The evidence of 35 witnesses has been recorded.

NOTE : (i) The words 'right' and 'left', 'front' and 'rear' etc. used in this report are with reference to the direction of travel of the train.

(ii) The distances from Rangiya Junction of the various places mentioned in the report are as given below :—

	Kms.
Rangiya Junction	0
Belsiri	107
New Misamari	113
Rangapara North	123
Tezpur (via Rangapara North)	150
Alipurduar Junction	219

NOTE : 17 to 18 Telegraph plates are provided in each kilometer length.

8. **The Train.**—The train consisted of 8 bogie coaches hauled by a YP Engine No. 2129. The approximate length and weight of the train inclusive of the engine were 168.56 metres (552.88 ft.) and 358.27 tonnes respectively. The train was fully vacuum-braked. The vacuum in the engine and brake van were 45 and 40 cms. respectively and 14 cylinders out of 16 on the train were operative.

9. The engine was fitted with a speedometer but had no speed recorder. The marshalling order of the train was as under :—

Engine No. 2129 YP.

1. Coach	No. GTY 1052	—	Generating Third Class Ladies Compartment	IRS Steel
2. "	No. GTY 1190	—	Generating Third Class Ladies Compartment	IRS Steel
3. "	No. ZFT 514	—	First & Third Class	IRS Wooden
4. "	No. GTY 1552	—	Generating Third Class Ladies Compartment	IRS Steel
5. "	No. FST 437	—	First, Second & Third Class	IRS Wooden
6. "	No. GSYT 775	—	Generating Second Ladies Third Class	IRS Steel
7. "	No. TLR 2310	—	Third, luggage & brake	IRS Wooden
8. "	No. GTCG 2040	—	Generating, Third	ICF Steel

NOTE :— None of the coaches was overdue periodic overhaul and all the coaches were of steel construction except the 3rd, 5th & 7th. The derailed coach was an I.C.F. steel coach with anti-telescopic body built in the year 1965.

10. **Passenger Occupation.**—The train was fairly crowded, the total passenger accommodation and occupation of the train being as follows :—

Class	Accommodation	Occupation
1st Class	21	21
2nd Class	31	40
3rd Class	404	440
	<u>456</u>	<u>501</u>

11. Damage: Rolling stock.—The damage was confined to the derailed coach No. 3TCG 2040 (ICF) and that too mostly to the undergear.

- (a) Three pairs of wheels were lying near the track ahead of bridge No. 293 while one remained attached to the coach. The right rear wheel of the rear bogie had two dent marks on the flange indicating the point of mount and drop and had grazing mark over the periphery for 1.16 metres length (3'-8") corresponding with the length of the riding mark on the rail table. It had also a bluish dent mark on the right side front wheel which corresponded to a hit on the damaged portion of the crossing.
- (b) All the 8 primary coil springs were found in position of which 2 of the right side rear trolley were broken fresh. Of the secondary coil springs, 4 on the leading wheels of the leading trolley were intact while the other 4 of the trailing wheels were found lying scattered along the track between bridge No. 293 and the place where the coach capsized. All the 8 secondary coil springs of the rear trolley were also found lying scattered of which 2 were found in the bed of the river one having bent and the other broken fresh.
- (c) Dash pots and dash pot washers were found lying scattered from a point 97.5 metres (320') to 207 metres (680') ahead of the point of mount. All the dash pots (portion attached to the coach) were intact and appeared lubricated. 2 of the dash pot guides of the rear trolley leading right wheels were bent and cracked.
- (d) A dent mark was found on the bottom of the leading trolley right shock absorber and the rear trolley one (right) was found broken fresh.
- (e) Leading trolley right bottom axle box spring housing was bent and broken.
- (f) The rear trolley right equalising stay was broken fresh and the left one bent. The leading trolley right hand side equalising stay was bent.
- (g) The right anchor links of both the leading and rear trollies were bent.
- (h) Leading trolley right (inner) and left (outer) and the rear trolley right (outer) and left (inner) bolster swing links had dropped out.
- (i) The leading and rear trolley right front and trailing trolley left rear axle box safety straps were found broken fresh.
- (j) The rear trolley left side top cover of the side bearer was bent.
- (k) Rear vacuum cylinder was inactive and the vacuum chamber was found broken due to corrosion.
- (l) Rear truss bar of the leading wheels and both truss bars of the rear wheels were bent along the safety brackets.
- (m) Coupling end buffer drawbar was found bent and had to be gas-cut for uncoupling.
- (n) Right side bottom portion body panel was badly bent, dented and torn and front end panel right bottom corner was badly dented and torn. Rear end panel was torn at the bottom.
- (o) The battery box and dynamo were badly damaged and the broken battery box was found lying 196 metres (643') ahead of the point of mount.

12. Permanent way.—There was very little damage to the track upto about 168 metres (550') from the point of mount except that some of the sleepers got crushed and had to be replaced. The track however was badly damaged in the cross over portion between the main and the loop lines and the crossing body of the turnout of the loop was completely destroyed. The total damage to the track was thus 105 metre-gauge sleepers, 3 pairs of 60 lb. rails 39' long, 1 pair 50 lb. rails 40' long, crossing body 60 lb. with fittings, 1 pair of lead rails 60 lb. and 1 Tongue rail.

The ballast walls and parapets of the 1 x 40' girder bridge were badly damaged.

13. Signalling gear.—Signalling gear was damaged to a considerable extent which included damage to the point indicators, lock bars, point rodding and signal wires.

14. The estimated total cost of damage is as follows :—

	Rs.
(i) Rolling Stock	18,063
(ii) Permanent Way	19,000
(iii) Signalling & Interlocking	5,725
	<hr/> 42,788 <hr/>

15. **The Relief.**—After the accident, the Guard of the train came out and with the help of the military personnel rescued the passengers who were trapped inside the capsized coach. In the mean time the station staff also arrived at the site of the accident and first-aid was rendered to the injured with the help of the Guard's First-Aid Box. Being a military area, army doctors came and attended on the injured and transferred the serious cases to the Military Medical Inspection Room at New Misamari.

16. In the meanwhile information of the accident was conveyed to Rangapara North control at 12.32 hrs. and the Medical Van was called at 12.40 hrs. Medical Van with the Assistant Medical Officer and his staff left Rangapara North at 13.05 hrs. and arrived New Misamari at 13.25 hrs. By the time the Medical Van arrived, the injured had already been removed and the Assistant Medical Officer found that none was left at site. He, then went to the Railway Station and took charge of the two injured persons and removed them to the Medical Relief Van. He also went to the Military Medical Inspection Room, where one of the injured lady passengers had been taken, and brought her by army ambulance to the railway station and put her in the Medical Relief Van, giving her whatever further treatment was necessary. The remaining two injured, who were army personnel, were attended to by the army doctors and taken to the General Hospital at Tezpur. The three injured on the Military Relief Van were brought to Rangapara North Hospital from where they were transferred to Tezpur Civil Hospital next morning. They were progressing satisfactorily when I saw them on the morning of the 18th June 1969.

17. **The Restoration.**—The relief train from Rangapara North left at 13.30 hrs. and arrived New Misamari at 13.55 hrs. The damaged track was repaired by 19.00 hrs. and line No. 3 of Misamari was cleared for through running at 21.45 hrs. on the same day.

18. 173 Up Passenger train was allowed to proceed to Rangapara North at 15.40 hrs. after detaching the affected coach and arrived Rangapara North at 18.30 hrs. (3 hrs. 20 mts. late). Only two other trains were affected viz. 177 Up Passenger which was detained at Majbat for 3 hrs. 47 mts. and 174 Down Passenger train which started from Rangapara North 8 hrs. 5 mts. late on account of this accident.

II. LOCAL CONDITIONS

19. The accident took place at Km. 111/16-17 where the track is on the straight for a length of 2 kilometers in the rear and for another one kilometer in the front towards Rangapara North. The bank consists of clayey soil with a height of bank of about 4' (1.22 meters). There is a rising gradient of 1 in 600 from Km. 111/12-13 upto Km. 112/0-1 and thereafter, after a level of 75' for the Girder bridge, it is 1 in 400 falling. The countryside is plain and cultivated. There are no level crossings in the vicinity within one kilometer of the site of accident. There is a 1×40' girder bridge at Km. 112/0-1 about 400' (121.92 meters) ahead of the point of derailment.

20. The Divisional headquarters are at Alipurduar while those of the Divisional Engineer, Assistant Engineer, Assistant Medical Officer, Assistant Mechanical Engineer, Assistant Traffic Superintendent, Permanent Way Inspector and Assistant Permanent Way Inspector are at Rangapara North.

21. Rangiya to Rangapara North is a controlled section, the headquarters of the control being at Rangapara North.

22. **The Permanent Way.**—The permanent way consists of 60 lbs. RBS rails, 12 meters long, laid in 1962, the rail wear being within 1%. It is laid with CST-9 sleepers to N+3 density upto Km. 111/8-9 with wooden sleepers (Sal & others-treated, mixed) at the joints. From Km. 111/8-9 onwards the track is laid with wooden sleepers, density varying between N+2 and N+3.

23. The track was ballasted with 2" size broken stone ballast having 6" to 7" depth of cushion. Some shortage was however noticed in the boxing of ballast, the sleepers being boxed to half their depth only.

24. **Weather and Visibility.**—The accident occurred during mid-day when it was clear, sunny and hot. Being day-light, the visibility was normal.

III. INSPECTIONS, OBSERVATION AND TESTS

25. I carried out Inspection of the site in the forenoon of 18th June 1969 in company with the Engineer-in-Chief (General), N. F. Railway and other Railway Officers. The point of mount on the right hand rail was noted and it was observed that the derailment took place on a straight track. CST-9 sleepers with wooden sleepers at the joints have been laid to N+3 density upto Km. 111/8-9 (there being 17 to 18 telegraph posts in a kilometer length). From Km. 111/8-9 the track is laid entirely with wooden sleepers (N+2 to N+3 density) upto the point of derailment at Km. 111/16-17.

26. The detailed measurements of the track were recorded by the Assistant Permanent Way Inspector in the presence of the supervisory staff of other departments. From these measurements it is seen that the gauge was 3/16" slack at the point of mount and generally varied between 1/8" tight to 1/8" slack. The cross levels without load varied upto 1/4" (5/16" at a few spots), the right rail being lower. Cross levels under load were recorded only at a few points due to limited availability of traffic block and were satisfactory.

27. The condition of the track was generally satisfactory in respect of rails, sleepers and ballast. However, heavy creep was noticed in the length laid with wooden sleepers and no creep anchors were provided to arrest the same. A little shortage was also noticed in the boxing of ballast, the sleepers being boxed to half their depth only.

28. It was observed that the joints were jammed for as many as 24 consecutive rail lengths in rear of the point of mount and there were nearly as many rail lengths behind these, where the joints were wide open upto as much as 1/2" to 5/8". It was difficult to determine the exact amount of creep on account of the joint sleepers not having been properly spaced but one could see at places, creep to the extent of 15" to 16". The detailed measurements of the gaps at joints in the wooden portion of the track are enclosed as Annexure I.

29. Although at the time of my inspection the track had been repaired, I was informed that immediately after the accident the track was found distorted upto about 9". The measurements of the distorted track were taken by the Inspector of Works with reference to the right hand rail of the adjacent track (shunting neck). The maximum lateral distortion was 12 1/2" (6 1/2" towards the right and 6" towards left).

30. The derailed coach No. GTCG 2040 was also inspected by me and it was seen that the damage to the coach was mostly confined to the undergear and was fresh in nature, which could be attributed to the derailment and the capsizing of the coach. The broken springs found at site were sent to the Chief Chemist and Metallurgist for testing. According to his report there were no defects in them which could have caused or contributed to the derailment.

31. The site of the accident was again inspected on the afternoon of 19th June 1969 to observe the marks of the derailed wheels in greater detail and tally the damage of the coach as recorded. From the wheel marks and the damage the probable sequence of the derailment was established.

IV. SUMMARY OF EVIDENCE

32. **Shri A. K. Dutta, Guard of 173 Up Passenger.**—stated that at about 12.20 hrs. while the train was approaching New Misamari inner home signal, he got a severe jerk and fell

down from his seat. He could not immediately apply the vacuum brake due to a subsequent jerk and he could notice from his window that the last coach had derailed and was passing over the bridge. After it cleared the bridge, he applied the brake and the train came to a stop. According to him the speed of the train was about 20 Km. P.H. There was no jerking or rough running of the train prior to the accident.

33. **Shri Rampujan Pandey, Driver of 173 Up Passenger** stated that the train left Rangiya and arrived at the previous station Belsiri Right Time. He started from Belsiri also Right Time and as the train was approaching New Misamari West Cabin, at about 12.20 hrs., he got a jerk and immediately brought the train to a stop. The speed of his train at the time he got the jerk was observed by him as 15 Km. P.H. on the speedometer.

34. **Shri Dharmaraj Singh, Relieving Pointsman, Rangapara North** stated that he was travelling in the affected coach. As the train was approaching New Misamari station he heard the sound of metal being struck and the coach began jerking violently and commenced to capsize as it passed the bridge. The speed of the train was estimated by him to be 15 Km. P.H.

35. **Shri A. S. Ansari, Assistant Station Master, Khandikar** was travelling with his family in the affected coach. After the train passed the home signal of New Misamari he heard the sound of a thud and soon after he found the coach to have derailed.

36. **Shri D. N. Sen Gupta, Traffic Inspector, North Lakhimpur** reached New Misamari station at 13.35 hrs. in the medical van from Rangapara North. He witnessed the measurement of the track being taken by the APWI along with the TXR. He noticed a portion of the track buckled.

37. **Shri S. B. Chakraborty, Station Master, Belsiri** stated that 173 Up Passenger arrived at 12.08 hrs. on 16-6-69 and left at 12.10 hrs. He did not receive any report from any of the drivers regarding rough running or bad running between New Misamari and Belsiri at any time prior to the accident.

38. **Shri S. K. Chakraborty, Head Train Examiner, Rangapara North** arrived at the site in the auxiliary van along with the medical van. He checked the damage to the affected coach and could not find any defect which could have led to the derailment. His senior Train Examiner Shri Sen Gupta along with the Traffic Inspector and the APWI were taking measurements of the track and from the readings it could be seen that the track had distorted and buckled to a maximum of 9½". On the next day also he learnt from his senior TXR that the track had buckled again on two occasions after the passage of 173 Up and 174 Down passenger trains.

39. **Shri S. R. Sen Gupta, Senior Train Examiner, Rangapara North** arrived at the site of accident in the medical van from Rangapara North. He along with the Traffic Inspector and the APWI inspected and measured the track for 300' in the rear of the point of derailment. He noticed buckling of the track at the spot where the wheel first mounted the rail.

40. **Shri R. K. Mazumdar, Train Examiner, Rangapara North** assisted the Senior Train Examiner Shri Sen Gupta to take the Track measurements after the accident along with the Traffic Inspector and the Assistant Permanent Way Inspector. He noticed that the track had badly buckled and distorted. On the next day when he was present at the site along with the senior TXR and the Traffic Inspector, he observed that after passage of 173 Up and 174 Down trains the track got distorted again and this was also seen by the Divisional Superintendent.

41. **Shri N. N. Goswami, Assistant Mechanical Engineer, Rangapara North** arrived at the site at 18.10 hrs. by road with the Dy. Chief Mechanical Engineer from Guahati where he had gone for a meeting. He was told by the TXR who had witnessed the measurements of the track that at the point of the wheel mounting, the track was found to have buckled by about 9". On the next day when 173 Up passenger passed over the same portion of the line he along with other officers also witnessed the same behaviour of the track.

42. **Shri G. Chandra, Deputy Chief Mechanical Engineer.** reached the site by road at 18.30 hrs. He stated that he was told by the Assistant Engineer that at the point

where the wheel had mounted the rail the track had distorted by 9". The distorted track had been repaired when he arrived. He noticed 14 consecutive rail joints jammed and 5" creep. (He considered creep to be the length by which joints were out of square).

43. **Shri Jhabura Mate of Gang No. 18** worked at Km. 110/4-5 on 16-6-69 picking up slacks. In the length where the derailment took place, he had done picking up of slacks on the date prior to the accident. About $\frac{1}{4}$ " lifting up of the track was involved in slack picking work. (The fact that the gangs had worked in the above lengths was corroborated from the gang Work Order Book and the Gang Chart).

44. **Shri P. K. Mukherjee, Assistant Permanent Way Inspector, Rangapara North** was trollying towards Tezpur when at about 13.00 hrs. he was informed of the accident. He returned to Rangapara North, where he joined the Relief Train leaving at 14.00 hrs. On reaching the site he surveyed the damage to the bridge and the permanent way and took track measurements jointly with the Train Examiner and Traffic Inspector, Rangapara North. He had last inspected the section on 9-6-69 and had noticed some joints were jammed between Km. 111 and Km. 112 in the portion laid with wooden sleepers. (From his inspection note book it was seen that he also trolled on this section on 12-6-69 but did not record the work of Gang No. 18 in whose jurisdiction the derailment took place as the gang was on rest on that day). He was aware that no creep anchors had been provided in this length and he did notice the heavy creep but thought that he would get the creep adjusted after the work in the adjacent section of Permanent Way Inspector Vishwanath Charali was finished as the pulling back gang was busy there at that time.

45. **Shri B. N. Singh, Permanent Way Inspector, Rangapara North** was on leave on the date of the accident and on return the next day, he visited the site. When asked how did he explain the jamming of joints and the creep, he stated that in February 1969 when the Assistant Permanent Way Inspector took measurements, there was no creep against the creep posts but jamming of joints and creeping of rails were observed in between.

NOTE : This is on account of the fact that the creep posts have been provided against each of the kilometer posts where the track is not subject to creep (due to presence of CST-9 sleepers on the one end & points and crossings on the other) while in between there is creep due to presence of wooden sleepers without creep anchors.

He informed the Assistant Engineer about the creep but was told that the work of adjusting it should be done after the staff were released from the adjacent section where they were working at that time. (The Assistant Engineer confirmed that the Permanent Way Inspector had asked for the 'pulling back' gang). The witness further said that it was not necessary to get the 'pulling back' gang for such a small length but he could not do this work with his own labour as he had no blacksmith or carpenter who are very necessary for the work of adjusting creep. He noticed the deficiency of creep anchors but there were no anchors in his stock. He expected the supply as he had received a letter from a firm that about 1000 anchors would be supplied. He last inspected the section on 19-5-69 with Divisional Engineer and Assistant Engineer. The post of Permanent Way Inspector, Rangapara North was created in September 1968 and he was posted against the same. He had however not been supplied with a push trolley and he was not able to carry out his inspection work as much as he would have liked to. He took the opportunity of accompanying his APWI whenever possible and also AEN and DEN. He had an APWI and a Permanent Way Mistry under him. While the APWI inspects his portion of the section by a push trolley, the permanent Way Mistry is using his material trolley for the purpose.

46. **Shri Dunglela, Assistant Engineer, Rangapara North** arrived at the site of the accident with the Divisional Engineer by motor trolley within an hour of the accident. He noticed distortion of the track at the point of derailment. On 10th June 1969 when motor trollying from Rangapara North to Mailongdisa he had observed excessive creep and jamming of rail joints for a long length as also a few kinks in the portion where derailment occurred. It was at about 13.00 hrs. and the sectional gang was taking mid-day rest. He pointed out to them from the running trolley that they should attend to this portion. However he did not consider this to be of a serious nature. He had been incharge of the sub-division for the last two years and was aware that there were no creep anchors provided in this length of the track laid with wooden sleepers. He was in correspondence for the supply of creep anchors of which there had been a shortage. He understood that orders for purchase

of anchors had already been placed by the Store Department in November 1966. In August 1968 he had placed another indent of 50,000 anchors. Supply of anchors was recently made which was handed over for use on another section where the track is entirely laid with wooden sleepers. He was aware that his PWI had no trolley for inspection purposes. Apart from indenting for it, he had also attempted to improvise one but was handicapped due to inadequacy of parts. Headquarters office had also been moved for sanction of artisan staff for the PWI but the sanction had not so far been received.

47. **Shri S. C. Mukherjee, Divisional Engineer, Rangapara North** stated that as Rangiya to Rangapara Section for most of its length is provided with cast iron sleeper track this small bit with wooden sleepers was lost sight of for provision of anchors.

V. DISCUSSION

48. **Time of the Accident.**—The train was running Right Time throughout its journey from Rangiya and left Belsiri the previous station Right Time at 12.10 hrs. According to the Driver and the Guard, the time when they received the jerk was 12.20 hrs. The Assistant Station Master on duty at New Misamari came out on the platform at 12.15 hrs. and subsequently saw that the approaching train stopped near the West Cabin. Considering the fact that the Driver and Guard might have made an observation error of a minute or two in observing the time and that the train was due to arrive New Misamari station at 12.20 hrs., the time of derailment can be taken as 12.18 hrs. which is also the time in the original message issued by the Railway.

49. **Probable cause of the Accident.**—A mid-sectional derailment can occur on account of one or more of the following causes :—

- (i) Excessive speed of the train.
- (ii) Defects in the locomotive or rolling stock.
- (iii) Obstruction on the track or tampering with it.
- (iv) Defects in the permanent way.

50. **Excessive speed of the train.**—The Driver noticed the speedometer indication at the time he received the jerk to be 15 Km. P.H. Shri Dharamraj Singh, Pointsman travelling in the affected coach who is an independent witness also stated that it was running slow and at a speed of about 15 Km. P. H. The Guard's estimate when he got the jerk, however, puts the speed at about 20 Km. P. H. As the train was very near New Misamari station where it was scheduled to stop, 15 to 20 Km. P. H. being the speed at the time of derailment is reasonable and accepted. The maximum permissible speed of the track at the point of derailment is 65 Km. P. H. for a YP loco. Excessive speed therefore could not have been a cause for this derailment.

51. **Defects in the locomotive or rolling stock.**—The engine and all the coaches except the rear most safely passed and were intact. The affected coach is an I. C. F. built coach manufactured in 1965 and its next periodic overhaul was due in April 1970. It suffered heavy damage to its undergear but a detailed check and examination revealed that this damage was caused as a result of the accident and there was no defect which could have caused or contributed to the derailment. The test reports of the broken parts sent to Chemist and Metallurgist for examination also are satisfactory. Any defect in the coach as being the cause is also ruled out.

52. **Obstruction on the track or tampering.**—The accident occurred in broad day light and the track was found intact after the accident without any obstruction. There is thus no possibility of an obstruction on or interference with the track.

53. **Defects in the permanent way.**—It was observed that there was heavy creep upto 16" and jamming of 24 joints in succession. The weather at the time of the accident was sunny and hot. After the accident it was noticed that the track was distorted to an extent of about 12". After the track was repaired, it got distorted again the next day after the passage of trains. These facts lead to the conclusion that the derailment was caused as a result of the distortion of track due to excessive heat when the conditions were most favourable for such distortion, on account of the jamming of joints and heavy creep. The heavy creep in this portion took place in the absence of creep anchors in the track laid with wooden sleepers. It has come out in the evidence

that the track was attended to by the gang, the previous day when picking up of slacks was done in this length and this also must have disturbed its stability.

54. **Responsibility.**—The primary responsibility for this accident, therefore, rests on the Assistant Permanent Way Inspector and the Permanent Way Inspector, Rangapara North as according to para 204 of Way & Works Manual they had to ensure that the track was safe in all respects for the passage of trains and it was their duty to get the heavy creep adjusted when the same was noticed in February 1969. The length involved being a short one, perhaps they did not consider it to be so serious and overlooked the fact that it is weakest link in the chain that fails, however small it may be. The Divisional Engineer has also accepted that this fact was overlooked.

55. It may however, be said here in favour of these two persons that they were seriously handicapped on account of not having been equipped properly. The fact that the Permanent Way Inspector had asked for the 'pulling back' gang, has been confirmed by the Assistant Engineer. The Permanent Way Inspector could have adjusted the creep with his own labour but he had no blacksmith and carpenter and these are considered to be essential for this work.

56. As a result of the recommendations of the Railway Accidents Committee, 1962 (Kunzru Committee) 11 posts of PWIs and 12 posts of APWIs were sanctioned in April 1968 in the first phase and the actual distribution of these posts was made in September 1968. In addition, 41 posts of APWIs have further been sanctioned in the second phase, though not yet filled. The post of PWi Rangapara North was created in the first phase and brought into operation from 15-9-1968 when the present incumbent Shri B. N. Singh was posted. Although over 8 months have passed since his posting, he has not so far been provided with either a push trolley for his inspections or the artisan staff required for the proper discharge of his duties. He also did not have creep anchors in his stock which could have been fitted to arrest the creep.

57. As regards the artisan staff not being available with the PWi it has been explained by the Railway that the administration felt that there was a possibility of achieving economy in this respect by combining the existing staff in the same category at the same station and the District Engineers were instructed to examine this possibility of such adjustment and submit proposals for only those additional staff which were inescapable and whose work could not be managed by redistribution or combination of duties. It was mentioned that a full set of staff under a PWi comprise of two skilled, two semi-skilled and four unskilled men. The total number for 11 PWIs would have meant 88 posts and in view of the need for stringent economy the Administration was examining all possibilities of limiting expenditure to the absolute minimum by all possible adjustments and all the additional posts under the different District Engineers were to be sanctioned at a time after considering the over all position. I feel that there has been undue delay in the matter of deciding this issue. Even though it may be admitted that there is need for stringent economy, it has to be appreciated that this economy cannot be effected at the cost of safety. The combining of such essential posts between different subordinates does not, appear to be in the interests of safety and efficiency. Further, it was the duty of the Railway Administration to make sure that even if the staff required by the PWIs was not sanctioned suitable arrangements were made to give them relief by sanctioning temporary posts till the matter was finally decided or instructions issued for redistributing the work of the existing artisan staff. It is no use having posts in the supervisory cadre and stationing men unless the necessary staff is available to them for functioning efficiently.

58. With regard to the provision of trollies it is said that necessary action has been initiated through the stores department. It has further been stated that meanwhile the PWIs could make use of their APWIs' trollies. As the arrangement is not conducive to efficient working on account of the PWIs and APWIs having separate functions to perform, the Railway Administration should expedite and ensure that trollies are arranged for all the newly created posts as expeditiously as possible, where justified.

59. A demand of 50,000 anchors was placed by District Engineer, Rangapara North on Chief Engineer, Pandu in April 1967 and another demand of 50,000 in June 1968, in connection with the running of Diesel locomotives.

Supply of 45,000 anchors against the earlier indent has already been arranged and is being provided in the track, giving priority to more important sections. The section, where

the accident took place being small in length, had a lower priority and was lost sight of as mentioned by the Divisional Engineer.

The other demand has not so far been met as the running of Diesels on this section is not yet contemplated.

60. I consider, that the failure on the part of the PWI and the APWI to adjust creep or provide anchors in this length should be viewed in the light of the facts narrated in paras 55 to 59 and suitable consideration shown to them. The failure in this case has also been in not making available to the PWI, the staff to enable him to carry out his normal functions, when the additional posts of PWIs were sanctioned and the Jurisdiction reviewed. I am sure this aspect will be examined by the Railway in detail and suitable action taken to rectify matters.

61. It is understood that the oiling of fishplates and fishbolts was carried out in April 1969. According to para 637(f) of the Way & Works Manual, creep, if it is heavy, must be adjusted before the work of lubrication of joints is undertaken. Lubrication of joints, when such heavy creep was there, perhaps only worsened the matters and the Permanent Way Inspector and the Assistant Permanent Way Inspector acted unwisely in this respect.

62. It was also unfortunate that the Assistant Engineer noticed kinky track when he trolled on 10th June and did not take any action to issue suitable instructions to the gang except 'just pointing out from the running trolley'. He also did not inform APWI, Rangapara North about it. He said he did not consider the kinks to be of a serious nature as such kinks are found frequently in the track. He should, however, have realised that a kinky track with continuously jammed joints for long length could be indicative of dangerous conditions and he, therefore, also has to share the responsibility to a certain extent.

VI. CONCLUSION

63. Having inspected the site and the rolling stock and after considering all facts and essential evidence on record, I have come to the conclusion that the derailment was caused by the distortion of the track on a hot day, on account of excessive creep and jamming of joints continuously for a long length, there being no anchors provided. The disturbance to the track caused by picking of slacks on the previous day and the lubrication of joints carried out in April 1969, without adjusting the creep, aggravated the situation.

64. I hold Permanent Way Inspector, B. N. Singh and Assistant Permanent Way Inspector P. K. Mukherjee primarily responsible. Consideration however has to be shown to them on account of the handicaps under which they were working. The Assistant Engineer, Dunglela also has to share responsibility in not taking action with regard to the defects noticed by him on 10th June 1969.

65. From what has been mentioned in paras 54 to 60, it is seen that there was administrative failure in as much as that the organisation failed to ensure the efficient working of the maintainance set up and for this the Railway Administration has to share responsibility and accept the blame. I am sure, suitable steps will be taken to ensure availability of adequate maintenance staff and survey the entire track on the Railway to satisfy that there are no sections where anchors are necessary but have not been provided.

66. I am satisfied that the injured were given prompt attention at site and were properly looked after later, in the hospitals.

VII. RECOMMENDATIONS

67. A detailed survey should be carried out on the entire Railway to find out the sections where anchors are necessary but have not been provided and it should be ensured that suitable action is taken and the work is completed as expeditiously as possible, and in any case before the beginning of next summer season.

68. It is essential that while creating additional posts of PWIs and APWIs, arrangements are simultaneously made to provide the full complement of staff required by them as also to

Calcutta,

(Sd.)(ARYA BHUSHAN)

Additional Commissioner of Railway Safety,
South Eastern Circle.



ANNEXURE I

Measurement of creep, expansion gaps, length of rails and density of sleeper of track between KM 111 and site of accident.

No. of Rails	Length of Rails		Creep in reference to existing sleeper position		Gap at points		Sleeper density	Height of bank	Remarks I-Left rail when proceeding towards increasing mileage. R-Right Rail do.
	L	R	L	R	L	R			
1	12m	12m	0	+1 1/2"	3/8"	1/2"	N+3	5'-0"	
2	12m	12m	+1 1/2"	+1 5/8"	1/8"	1/2"	N+3	(At Km 111/0-1)	
3	12m	12m	+1 3/8"	+1 3/8"	1/16"	1/2"	N+3	Creep post at	
4	12m	12m	0	+1 1/8"	1/8"	1/2"	N+3	Km 111 CST-9	
5	12m	12m	+3 3/4"	+4 1/2"	1/2"	1/2"	N+3	Sleepers and	
6	12m	12m	+7/8"	+1"	1/2"	3/8"	N+3	wooden joint	
7	12m	12m	+1 1/2"	+2 3/8"	3/16"	3/8"	N+3	sleeper.	
8	12m	12m	+3 1/8"	+4 1/8"	3/16"	1/16"	N+3		
9	12m	12m	+1 1/2"	+1 5/8"	1/2"	1/8"	N+3		
10	12m	12m	+5/8"	+2 1/2"	1/16"	1/16"	N+3		
11	12m	12m	+1 5/8"	+2 3/8"	1/16"	3/8"	N+3	7'-0" at Km 111/2	
12	12m	12m	-1/2"	+1"	3/8"	3/8"	N+3		
13	12m	12m	+1"	+3 1/2"	1/2"	1/8"	"		
14	12m	12m	+1 1/2"	+2 1/2"	1/4"	0	"		
15	12m	12m	+5/8"	+3 1/2"	1/16"	1/8"	N+2	(Density less due	
16	12m	12m	+1 5/8"	+3 3/8"	3/8"	3/16"	N+3	to slab end of	
17	12m	12m	+1 3/4"	+4"	1/4"	1/32"	"	Bridge No. 290).	
18	12m	12m	+1 1/2"	+2"	3/8"	1/4"	"		
19	12m	12m	-1 7/8"	-3/8"	3/8"	3/8"	"		
20	12m	12m	+1 1/4"	+2 5/8"	1/4"	1/8"	"		
21	12m	12m	+4 1/2"	+5 1/2"	3/8"	1/4"	"		
22	12m	12m	+1 1/2"	+1"	3/8"	3/8"	N+2		
23	12m	12m	+1 1/2"	+2 1/2"	1/8"	1/4"	N+3		
24	12m	12m	+3 1/8"	+3 7/8"	5/16"	3/8"	N+3		
25	12m	12m	-2 1/2"	-1 1/2"	3/8"	1/4"	N+3		
26	11m	11m			3/8"	1/2"	—	Bridge No. 291.	
27	12m	12m			1/32"	1/4"	—		
28	12m	12m			1/4"	0"	N+5	(wooden) Bridge approach. 10'-0"	
29	12m	12m	+1 1/4"	+2"	0	0	N+3	at Km 111/5.	
30	12m	12m	+2 1/2"	+3 1/8"	0	0	N+3		
31	12m	12m	+3 1/2"	+4 1/8"	0	0	N+3		
32	12m	12m	+3 1/2"	+3"	0	0	N+3		
33	12m	12m	+2 1/2"	+2 3/8"	0	0	N+3		

ANNEXURE I—contd.

No. of Rails	Length of Rails		Creep in reference to existing sleeper position		Gap at Points		Sleeper density	Height of bank	Remarks L—Left rail when proceeding towards increasing mileage. R—Right Rail do.
	L	R	L	R	L	R			
34	12m	12m	+1"	+2.7/8"	0	0	N+3		
35	12m	12m	+2"	+1.3/4"	0	0	"		
36	12m	12m	+2.1/8"	+3.3/8"	0	0	"		
37	12m	12m	+4 1/2"	+5"	0	0	"		
38	12m	12m	+6 1/2"	+6"	0	0	"		
39	12m	12m	+2.3/4"	+3 1/2"	0	1/8"	"		
40	12m	12m	+2.5/8"	+2.7/8"	0	1/32"	"		
41	12m	12m	+1/2"	+2 1/2"	0	0	"		
42	12m	12m	+2"	+2.5/8"	1/32"	1/8"	"		
43	12m	12m	+1.3/4"	+2"	1/32"	3/8"	"		
44	12m	12m	+1.3/8"	+2.7/8"	3/16"	1/2"	"		
45	12m	12m	+2.3/8"	+4.7/8"	1/4"	1/2"	"		
46	12m	12m	+4.3/8"	+6.3/4"	1/2"	1/2"	"		
47	12m	12m	+4.3/4"	+3 1/2"	1/2"	5/8"	"		
48	12m	12m	+5"	+8"	3/8"	3/8"	"		
49	12m	12m	+7/8"	+3.1/4"	1/2"	5/8"	"		
50	12m	12m	+6.7/8"	+8.3/4"	1/2"	5/8"	"		
51	12m	12m	+7 1/2"	+9 1/2"	5/8"	1/2"	N+4		
52	12m	12m	+7 1/2"	+8 1/2"	3/8"	5/8"	N+3		
53	12m	12m	+6 1/2"	+8 1/2"	5/8"	5/8"	"		
54	12m	12m	+1.1/8"	+4.1/8"	1/2"	3/8"	"		
55	12m	12m	+9 1/2"	+5 1/2"	1/2"	1/4"	N+2		
56	12m	12m	+1"	+5"	1/2"	5/8"	N+3		
57	12m	12m	+3.1/4"	+6 1/2"	1/2"	5/8"	"		
58	12m	12m	+2.1/8"	+4 1/2"	1/2"	1/2"	N+4		
59	12m	12m	+11 1/2"	+12 1/2"	3/16"	5/8"	"		
60	12m	12m	+3 1/2"	+7"	1/4"	3/8"	N+3		
61	12m	12m	+9 1/2"	+15"	1/2"	1/2"	"		
62	12m	12m	+9.3/8"	+13 1/2"	1/4"	1/2"	N+2		
63	12m	12m	+6.7/8"	+10.5/8"	0	5/8"	N+2		
64	12m	12m	+5.3/4"	+10.1/4"	1/64"	1/2"	N+3		
65	12m	12m	+9.5/8"	+16"	0	3/8"	N+1		
66	12m	12m	+8.3/4"	+13 1/2"	0	5/8"	N+3		
67	12m	12m	+3.3/8"	+10 1/2"	0	1/4"	N+2		
68	12m	12m	+2.3/8"	+9.3/8"	0	1/2"	N+2		
69	12m	12m	+1 1/2"	+8 1/2"	0	1/16"	N+3		

GST-9 ended
Wooden sleepers
started.

9'—0" at KM 111/
10.

ANNEXURE I—concl'd.

No. of Rails	Length of Rails		Creep in reference to existing sleeper position		Gap at points		Sleeper density	Height of bank	Remarks L—Left rail when proceeding towards increasing mileage. R—Right Rail do.
	L	R	L	R	L	R			
70	12m	12m	+6½"	+13½"	0	1/8"	N+2		
71	12m	12m	+12"	+20"	0	0	N+2	Sleeper displaced.	
72	12m	12m	+3"	+10·1/8"	0	0	N+2		
73	12m	12m	+7·1/8"	+12½"	0	0	N+2		
74	12m	12m	+3½"	+10"	0	0	"		
75	12m	12m	+6·1/8"	+14"	0	0	N+3		
76	12m	12m	—3·3/4"	+3½"	0	0	N+2	Sleeper displaced.	
77	12m	12m	—5"	+3½"	0	0	N+2		
78	12m	12m	—8·3/4"	+17·7/8"	0	0	N+1	Sleeper shifted and	
79	12m	12m	—2·5/8"	+4·3/8"	0	0	N+3	displaced.	
80	12m	12m	—5·1/8"	+3·7/8"	0	0	N+3		
81	12m	12m	—1/8"	+7·5/8"	1/8"	0	"		
82	12m	12m	+7·7/8"	+16·7/8"	1/64"	0	N+2		
83	12m	12m	+5·3/8"	+15·5/8"	1/64"	0	N+4		
84	12m	12m	+6"	+14"	0	0	N+3		
85	12m	12m	+11"	+16·5/8"	1/64"	0	N+3		
86	12m	12m	+6½"	+13·7/8"	0	0	N+3		
87	12m	12m	+10½"	+18½"	0	0	"		
88	12m	12m	+12½"	+21½"	0	0	N+2		
89	12m	12m	+5½"	+13·3/8"	0	0	N+3		
90	12m	12m	+9"	+15"	0	0	N+3		
91	12m	12m	+11"	+17"	0	0	N+2	4'—0" at Km 111/16.	
92	12m	12m	+9"	+14"	0	0	N+2		
93	12m	12m	—6·1/8"	—1·1/8"	0	0	N+2		
94	12m	12m	+2"	+9"	0	0	N+1	10'—10½" ahead of mounting point.	

Incidental Observations made by the Commission of Railway Safety in connection with Derailment of No. 173 Up Rangiya-Rangapara North Passenger at New Misamari Station, N. F. Railway on 16-6-1969.

1. Although the Assistant Engineer reached the site of the accident within one hour, no action was taken by him to get the distortion of the track measured. The distortion of track was measured later, with reference to the adjacent track and shown on the plan. No signed copies of the measurements of this distortion, taken at the spot jointly by various subordinates were available. This method of measurement with reference to the adjacent track is not quite satisfactory and may not reveal the actual conditions in case the adjacent track is not in correct alignment. The right procedure should have been to measure the distortion of rails on the affected track itself and these measurements should have been recorded and signed by an officer, preferably the Assistant Engineer, in token of his satisfying about their correctness.

2. It was learnt that on an average about 15 to 20 springs need to be replaced, on account of breakage, at Gauhati alone. From the records supplied to me for the period March 1967 to August 1967 it was seen that 80 springs had to be replaced. From Chemist & Metallurgist's report on some of these breakages, it is seen that these breakages have been attributed to fatigue cracks and imperfect tampering. As breakage of springs in a coach may at times, seriously jeopardise safety, it is most important that this matter is given urgent consideration and quality of springs improved.

3. Coach No. NF GTCG 2040 (ICF) was built in 1965. One of the vacuum Chambers on this coach was found having excessive corrosion. The causes for such speeding corrosion may be investigated and suitable remedial measures taken in case this is a common complaint.

Railway Board have remarked as under on paras 67 and 68 of the Report and on the above noted Incidental Observations

Paras 67 & 68 of the Report :

These are accepted and necessary instructions are being issued to all the Railways.

Incidental Observations :

No. 1—The Railway is being asked to take action against the AEN for his lapse, apart from his responsibility for the bad maintenance of the track.

Suitable instructions on the subject are also being issued to all the Railways.

No. 2—Necessary action has been taken by the Railway in this regard.

No. 3—The RDSO is being asked to suggest ways and means to overcome the problem of corrosion and issue instructions to all the Railways accordingly.