

CHAPTER I

SAFETY RECORD OF INDIAN RAILWAYS

- 1.1 Indian Railways is the largest railway network under a single management in the world. It has a route kilometrage of nearly 63,273 kms, an operating fleet of 4, 69,553 wagons (in terms of 4-wheelers), 50,724 coaching vehicles and 8,330 locomotives.
- 1.2 During 2007-2008, on an average, 17,754 trains, including 10,385 passenger carrying trains were run daily. Nearly 18 million passengers were booked daily and 804.11 million tonnes of freight traffic was loaded during the year. With such a massive utilisation of assets, safety is of paramount importance for operational efficiency. A very high priority is accorded to safety to enable Railways to achieve still greater heights of performance.

Consequential Train Accidents

- 1.3 The term 'accident' envelopes a wide spectrum of occurrences with or without significant impact on the system. Consequential train accidents include mishaps with serious repercussion in terms of loss of human life or injury, damage to railway property or interruption to rail traffic of laid down threshold levels and values. These consequential train accidents include collisions, derailments, fire in trains, road vehicles colliding with trains at level crossings, and certain specified types of 'miscellaneous' train mishaps.

Incidence of Train Accidents

- 1.4 The number of consequential train accidents decreased from 194 (excluding one train accident on Konkan Railway) during 2006-2007 to 193 (excluding one train accident on Konkan Railway) during 2007-2008. The number of train accidents per million train kilometres, which is the universally accepted safety index, also dropped from 0.23 in 2006-07 to 0.22 in 2007-2008. The continuous reduction in the number of train accidents per million train kilometres which has fallen from 5.5 in 1960-61 to 0.22 in 2007-08, is indicative of sustained improvement in safety performance. A table showing the trend of train accidents on Indian Railways since 1960-61 is attached as **Appendix -I**.

- 1.5** Out of 193 (excluding 1 train accident on Konkan Railway) train accidents that took place during 2007-2008, 178 took place on the broad gauge, 13 on the metre gauge and 2 on the narrow gauge. Freight trains were involved in 69 accidents and passenger trains in 124 accidents.

Damage to Railway Property

- 1.6** The cost of damage to railway track and rolling stock and interruption to through communication on account of train accidents during the last 5 years have been as under:-

Year	Cost of damages (Rs. in Lakhs)		Interruption to through Communication (in hrs.)
	Rolling Stock	Permanent Way	
2003-2004	4348.6	826.0	2,806
2004-2005	2225	497.1	1,692
2005-2006	2443.4	941.5	1,904.47
2006-2007	2321.7	871.3	1,148.13
2007-2008*	2970.0	1085.4	4380.52

*Excludes KRC & Metro Railway, Kolkatta.

Casualties

- 1.7** The number of casualties in train accidents is essentially fortuitous and not strictly susceptible to comparison. List of the major accidents during 2007-08 which were attended with death of 10 or more persons is attached as **Appendix- II**. The position of casualties in train accidents during the last 5 years has been as under:-

Year	Passengers	Killed			Injured			
		<u>Rly. Staff</u>	<u>Others</u>	<u>Total</u>	<u>Passengers</u>	<u>Rly. Staff</u>	<u>Others</u>	<u>Total</u>
2003-2004	135	4	155	294	302	31	159	492
2004-2005	50	5	181	236	191	12	209	412
2005-2006	168	9	138	315	483	31	113	627
2006-2007	38	6	164	208	227	24	151	402
2007-2008*	9	10	172	191	246	31	135	412

*Excludes KRC & Metro Railway, Kolkatta.

Causes of Consequential Train Accidents

1.8 Broad causes of consequential train accidents which occurred on Indian Railways during the last 5 years, i.e., 2003-2004 to 2007-2008 are as under:-

S.No	Broad Causes	2003-04	2004-05	2005-06	2006-07	2007-08
1.	Failure of Railway Staff	161	119	120	85	84
2.	Failure of Persons other than Railway Staff	107	78	86	84	81
3.	Failure of Equipment					
	(a) Rolling Stock	6	5	1	4	4
	(b) Track	9	7	6	5	3
	(c) Electrical	1	2	--	--	--
	(d) S&T	2	--	1	--	1
	(e) Rolling Stock + Track	--	--	--	--	1
4.	Sabotage	18	4	5	8	7
5.	Combination of factors	2	1	--	1	--
6.	Incidental	17	16	11	7	8
7.	Could not be established	2	2	3	--	1
8.	Under Investigation	--	--	1	1	3
	Total	325	234	234	195*	193

* Including one accident on Konkan Railway.

Note: 'Incidental' causes include acts of nature like falling of boulders, sinkage of track due to heavy rain and cattle getting run over, etc.

CHAPTER II

ACCIDENT COMPENSATION

Liability

- 2.1 The liability of the railway administration in the event of a consequential train accident attended with casualties has been defined in Section 124 of the Railways Act, 1989 as under:-

“When in the course of working a railway, an accident occurs, being either a collision between trains of which one is a train carrying passengers or the derailment of or other accident to a train or any part of a train carrying passengers, then whether or not there has been any wrongful act, neglect or default on the part of the railway administration such as would entitle a passenger who has been injured or has suffered a loss to maintain an action and recover damages in respect thereof, the railway administration shall, notwithstanding anything contained in any other law, be liable to pay compensation to such extent as may be prescribed and to that extent only for loss occasioned by the death of a passenger dying as a result of such accident, and for personal injury and loss, destruction, damage or deterioration of goods owned by the passenger and accompanying him in his compartment or on the train, sustained as a result of such accident”.

- 2.2 With effect from 1.8.1994 under Section 124-A of the Railways Act, 1989, the railway administration has also become liable to pay compensation for loss of life or injury to bonafide rail passengers who become victims of untoward incidents such as terrorist acts, violent attack, robbery, dacoity, rioting, shoot-out or arson by any person in or on any train carrying passengers, waiting hall, cloak room, reservation or booking office, platform, any place within the precincts of a railway station or the accidental falling of any passenger from a train carrying passengers. Section 124-A of the Railways Act, 1989 reads as under:-

“When in the course of working a railway an untoward incident occurs, then whether or not there has been any wrongful act, neglect or default on the part of the railway administration such as would entitle a passenger who has been injured or the dependent of a passenger who has been killed to maintain an action and recover damages in respect thereof, the railway administration shall, notwithstanding anything contained in any other law, be liable to pay compensation to such extent as may be prescribed, and to that extent only for loss occasioned by the death of, or injury to, a passenger as a result of such untoward incident:

Provided that no compensation shall be payable under this section by the railway administration if the passenger dies or suffers injury due to:-

- (a) *suicide or attempted suicide by him;*
- (b) *self-inflicted injury;*
- (c) *his own criminal act;*
- (d) *any act committed by him in a state of intoxication or insanity;*
- (e) *any natural cause or disease or medical or surgical treatment unless such treatment becomes necessary due to injury caused by the said untoward incident.”*

Explanation: For the purpose of this section, “passenger” includes

- (i) a railway servant on duty; and
- (ii) a person who has purchased a valid ticket for travelling by a train carrying passengers, on any date or a valid platform ticket and becomes a victim of an untoward incident.

Quantum of Compensation

2.3 Payment of compensation is governed by the Railway Accidents and Untoward Incidents (Compensation) Amendment Rules, 1997. Under these Rules, the amount of compensation payable in case of death is Rs.4 lakhs. For injuries, the amount varies from Rs.32,000/- to Rs.4,00,000/- depending on the nature of injury sustained.

2.4 Ex-gratia relief is given by the Railway Administration soon after an accident at the rate of Rs.15,000/- to the next of the kin of the deceased. In case of grievous injury, the ex-gratia is paid at the rate of Rs.5,000/- for upto 30 days of hospitalization. If the injured victims require indoor treatment for more than 30 days, additional ex-gratia is paid at the rate of Rs.1,000/- per week or part thereof for further six months, and if further indoor treatment is required, additional payment of Rs.500/- per week or part thereof is made for another period of six months. Ex-gratia in case of simple injury is Rs.500/-. The ex-gratia relief is intended to meet the immediate expenses and is not taken into account at the time of final settlement of compensation claims. In case of serious or special circumstances, the quantum of ex-gratia can be enhanced.

Application for Compensation

2.5 Under Section 125 of the Railways Act, 1989, it has been provided :-

“(1) An application for compensation under Section 124 or 124-A may be made to the Railway Claims Tribunal-

- (a) by the person who has sustained the injury or suffered any loss, or
- (b) by any agent duly authorised by such person in his behalf, or
- (c) where such person is a minor, by his guardian, or
- (d) where death has resulted from the accident, or untoward incident by any dependent of the deceased or where such a dependent is a minor, by his guardian.

(2) Every application by a dependent for compensation under this section shall be for the benefit of every other dependent.”

2.6 The application for compensation will be decided by Railway Claims Tribunal. 21 benches of the Tribunal have been set up at different parts of the country and they are functioning from 08.11.1989.

Applicant can now file claims at Railway Claims Tribunal (i) having jurisdiction over the place of residence of the applicant, or (ii) the place where the passenger purchases his ticket, or (iii) where the accident or untoward incident occurs, or (iv) where the place of destination station lies, as against only at the place of occurrence of accident earlier.

Interim Relief by Railway Administration

2.7 Under section 126 of Railways Act, 1989, it has been provided that if a person who has made an application for compensation under section 125, desires to be paid interim relief, he may apply to the railway administration for payment of interim relief along with a copy of the application made under that section.

2.8 The table given below shows the number of passengers killed and/or injured in train accidents and the amount of compensation paid to the victims in the last five years:-

<u>Year</u>	Number of Passengers		Compensation paid
	Killed	Injured	(Rs. In Lakhs)
2003-2004	135	302	757.07

2004-2005	50	191	513.63
2005-2006	168	483	221.63
2006-2007	38	227	500.89
2007-2008	09	245	121.37

Note: The above figures exclude KRC & Metro Railway, Kolkatta.

The amount of compensation paid during the year relates to the number of cases settled and payment made during that year and not the accidents that occurred during the year.

Liability for accidents at Level Crossings

2.9 No liability accrues in the case of collisions between trains and road vehicles at unmanned level crossings in which railway passengers are not involved and cases of persons run over by trains.

2.10 However, the victims or their dependants can claim compensation under Law of Torts by moving Motor Vehicle Accident Tribunals and the compensation is paid if any contributory negligence is proved on the part of railway administration. The Tribunal decides the quantum of compensation on merits of each case. The amount of ex-gratia paid is counted towards amount of compensation awarded by a Court of Law. However, Supreme Court of India in a judgment arising out of Civil Appeal No. 3033 of 1990 (Union of India v/s United Insurance Co. Ltd and Others) ruled that the driver and owner of the bus and the railways can all be joint tortfeasors, if proved.

2.11 As regards accidents occurring at manned level crossings, prima facie due to the negligence of railway staff, ex-gratia payment is made to the victims by the railway as per the following rates:-

(i)	In case of death	Rs.6,000/-
(ii)	Grievous Injury	Rs.2,500/-
(iii)	Simple injury	Nil

CHAPTER III

ACCIDENTS INQUIRED INTO

BY THE COMMISSION OF RAILWAY SAFETY

- 3.1** The Commission of Railway Safety functions independent of the Ministry of Railways under the administrative control of the Ministry of Civil Aviation and deals with matters pertaining to Safety of rail travel and train operation and is charged with certain inspectorial, investigative and advisory functions as laid down in the Railways Act, 1989. The Commission is headed by the Chief Commissioner of Railway Safety at Lucknow. Working under the administrative control of the Chief Commissioner of Railway Safety, there are 9 Commissioners of Railway Safety, each one exercising jurisdiction over one or more than one Zonal Railways and the Metro Railway, Kolkata and Konkan Railway Corporation Limited.
- 3.2** The principal functions of the Commission of Railway Safety are:
- (i) Inspection of new railway lines prior to authorisation for passenger traffic,
 - (ii) Periodical inspection of open lines or of any rolling stock,
 - (iii) Approval of new works and renewals affecting passenger carrying trains,
 - (iv) Inquiry under the Railways Act, 1989 into the cause of any accident on a railway,
 - (v) General advice on matters concerning safety in train operations.
- 3.3** Section 113 of Railways Act, 1989 requires intimation of serious accidents to be sent to the Commissioner of Railway Safety. Under the Statutory Investigation into Railway Accidents Rules, 1998 issued by the Ministry of Civil Aviation, a statutory inquiry by the Commissioner of Railway Safety is obligatory in every serious accident to a train carrying passengers which is attended with loss of human life, or with grievous hurt, as defined in the Indian Penal Code, to a passenger or passengers in the train or with serious damage to railway property of the value exceeding Rs.25 lakhs. While holding statutory inquiry, the Commission not only examines affected passengers but also invites members of the public to give evidence in person during the inquiry or to write to the Commission. Some of the serious accidents at manned or unmanned level crossings attended with loss of life or with grievous injury to persons travelling in road vehicles are also inquired into by the Commission of Railway Safety.

- 3.4** The Commission, in its discretion, may hold inquiry into any other accident.
- 3.5** During 2007-08, the Commission of Railway Safety inquired into 25 consequential train accidents/incidents. During the year, Commission of Railway Safety inquired into 6 Collisions, 9 Derailments, 1 accident at Manned level crossing, 4 accidents at Unmanned level crossings, 1 case of Fire in train and 4 cases of Unusual occurrences. Brief particulars of these accidents are indicated in **Appendix- IV**.
- 3.6** The Commissioner of Railway Safety stops or discontinues his inquiry whenever a Commission of Inquiry under the Commission of Inquiries Act, 1952 is appointed.
- 3.7** Justice Sagir Ahmed Commission was set up on 13.02.2001 to inquire into the collision of 3005 UP Howrah-Amritsar Mail with derailed wagons of DN Ajitwal – New Bongaigaon goods train on 02.12.2000 in Ambala -Ludhiana Section of Northern Railway. The report of the Commission is awaited.

CHAPTER IV

SAFETY MEASURES

- 4.1 Keeping in view the fact that the Railways will have to lift more originating traffic during the coming years, there is a growing emphasis on strengthening of infrastructure on the Railways. This is a continuous process and the investments made and strategies adopted in the past have vindicated this by way of reduction in the number of consequential train accidents over the years.

Railway Safety Review Committee - Recommendations

- 4.2 Railway Safety Review Committee set up in 1998 under the Chairmanship of Justice H.R. Khanna, a retired Supreme Court Judge, submitted Part-I of its report in August 1999, and Part-II in February 2001. Of the total 278 recommendations made in both the parts of the Report, 239 have been accepted fully or partially and 39 recommendations could not be accepted due to various reasons.
- 4.3 Out of accepted recommendations, 209 have already been implemented till March, 2008. The remaining fully or partially accepted recommendations are at various stages of implementation depending upon availability of resources and success of trials, etc.

Special Railway Safety Fund

- 4.4 Out of the non-lapsable Special Railway Safety Fund (SRSF) of Rs. 17,000 crore, operational since October, 2001, to wipe out the arrears of replacement of over aged assets, viz., tracks, bridges, rolling stock, signalling gears and some safety enhancement works within a fixed time frame of six years, an amount of Rs. 16,317.64 crore (about 96%) has been utilised by the end of March, 2008. Against the target of renewal of 16,538 kms. of tracks under SRSF, renewal of 15,624 kms. (94%) of track has been completed upto March, 2008 and Bridge works have been completed in case of 2191 bridges (about 96%) out of the projected target of 2286 Bridges. Further, against the target of complete renewal of signalling gears at 1448 stations, renewal has been carried out at 1315 stations (90.81%), while casual renewal has been completed at 817 stations (89.68%) out of 911 stations.

- 4.5** Currency of the above Special Railway Safety Fund (SRSF) has since expired on 31.03.2008. Majority of works to be funded through SRSF have already been completed. Few balance works which could not be completed under SRSF till March, 2008 have been shifted to 2008-09 and will be completed through regular funding. Rs. 168.54 crores have been transferred to DRF to complete the balance targeted works.
- 4.6** A high level committee was constituted in September, 2002 to review Disaster Management system over Indian Railways and to give recommendations for its strengthening and streamlining. This committee has given 111 recommendations, all of which have been accepted for implementation. 91 recommendations have since been implemented up to December, 2008 and balance recommendations are in various stages of implementation.

Track

- 4.7** The track forms the backbone of railway transportation system and therefore needs to be maintained in a safe and fit condition. To this end, it is essential to carry out not only the track maintenance operations, but also to renew the track as and when it becomes due for renewal. Out of the total Special Railway Safety Fund of Rs. 17,000 crore, Rs.7670 crore (45%) was earmarked for track renewal and an amount of Rs.8071.96 crore has been spent on track renewal upto March, 2008.
- 4.8** A total of 16538 kms. of track renewal arrears was sanctioned under SRSF out of which 15624 kms renewal has been completed as on 31.03.2008. Remaining work of track renewal will be charged under DRF during 2008-09. The track renewal arising after 01.04.2001 (upto 01.04.2001 is included in SRSF) are being renewed under Depreciation Reserve Fund. Sufficient funds are being made available under Depreciation Reserve Fund to cater such annual accruals.
- 4.9** Track structure is upgraded at the time of renewals. Sleepers are being upgraded from wooden, steel and CST-9 to PSC sleepers. Heavier section and high tensile strength rails are being used. Presently 52 kg/60 kg 90 UTS rails are used in

place of 90R, 72 UTS rails. Similarly, welded rails are used in place of earlier fish plated joints. As on 01.04.2008, following track structure existed on Broad Gauge (Main Line):

- ❖ Long Welded Rails are laid in about 84% track.
- ❖ PSC sleepers are laid in about 93% track.
- ❖ 52kg/60kg 90 UTS rails are laid in about 96.6% track.

For improving the quality of track, various types of on-track machines are in use. For improving maintenance and better asset reliability, Railways are continuing to eliminate fish plated joints on tracks by welding the joints to convert all single rails into long welded rails to the extent possible. During relaying/construction of new lines/gauge conversion also, long welded rails are laid on concrete sleepers to the extent possible. Mobile Flash Butt Welding is introduced in construction projects for this purpose. Turnouts are also being improved systematically. Concrete sleepers are being used for turnouts alongwith cast manganese steel (CMS) crossings and curved switches made of heavier rail sections for greater reliability, durability and higher permissible speeds. It is also planned to lay Thick Web Switches on Group 'A' routes and routes having annual GMT more than 20 and where CC+6+2T or CC+8+2T loaded wagons are plying.

- 4.10** Other measures taken in this direction include use of modern diagnostic aids like ultrasonic rail flaw detectors (USFD), track recording cars, use of on-track machines for maintenance of track to higher standards, controlling/reducing rail and weld failures and ensuring quality of rails during manufacture. Mechanised maintenance units (MMU) are also under trial. To monitor impact of loaded wheels on track, installation of in-motion Wheel Impact Load Detectors (WILD) at several key locations on Indian Railways was planned and these have been commissioned at 9 locations.

Rolling Stock

- 4.11** All diesel/electric sheds and major ROH Depots have been equipped with ultrasonic testing equipment for timely detection of flaws in the axles.
- 4.12** Some workshops have organised special training courses to train staff in correct procedure of carrying out ultrasonic tests.

- 4.13** To ensure and improve quality of repairs for better reliability of rolling stock, most of the workshops and some of the sheds/depots have also obtained ISO: 9001 certification.

Workshops

- 4.14** Periodic overhauling of coaches, wagons, electric locos, diesel locos, EMUs, tower cars and break down cranes, which is vital for ensuring their reliability and safety, is undertaken in workshops. During 2007-08, the workshops increased the POH outturn of coaches, including AC coaches and EMUs, as shown below:

<u>Rolling Stock</u>	<u>2006-07</u>	<u>2007-08</u>	<u>% increase</u>
BG Coaches	25959	27110	4.4
BG AC Coaches	3177	3446	8.5
BG Diesel Elect. Loco	407	409	0.5
BG Elect. Loco	419	411	-1.9

- 4.15** To adhere to laid down standard practices, regular quality audit of workshops are conducted by RDSO. During 2007-08, RDSO conducted quality audit of 4 workshops.
- 4.16** Several modifications were undertaken in workshops during 2007-08 to incorporate enhanced safety features in rolling stock, such as fitment of twin beam headlight, automatic flasher lights and air dryers on diesel locos, fitment of emergency windows in coaches, mid-life rehabilitation of coaches, provision of crashworthy features in coaches, fitment of longitudinal berths, upgraded material in coaches, cushioned seats in general class coaches, retrofitment of high capacity draft gear and high tensile coupler in wagons.

Locomotives

- 4.17** Flasher lights have been installed on all diesel locomotives to give indication to drivers of train approaching from the opposite direction on double line sections in case of mishap for prevention of further accident. All main line locomotives have been provided with auto flasher lights, which start blinking and brakes apply automatically whenever there is any discontinuity in the brake pipe due to train parting or any other reason.

- 4.18** Microprocessor based Speed Recorders, on account of having digital memory instead of paper recording, have higher reliability as compared to the conventional electromechanical speed recorders. Second-to-second analysis of driver's actions performed during the preceding three hours can be carried out in case of any eventuality. All BG main line locomotives have been provided with Microprocessor based Speed Recorders.
- 4.19** 4000 Horse Power GM Locomotives are equipped with Multi Resetting Vigilance Control Device, which monitors the alertness of the driver through all normal actions performed by him while driving, such as use of throttle handle, braking, horn etc. If driver performs no action for 20 seconds at a stretch, he gets an audio-visual indication, and if still, he does not react, the brakes come on automatically within 10 seconds. For conventional ALCO locomotives, this feature, as part of the Microprocessor based control, is being provided in all new locomotives and in existing locomotives in a phased manner. So far, 196 ALCO Locos have been provided with Microprocessor based control.
- 4.20** Air dryers are being fitted in diesel locomotives for removing moisture from the compressed air system resulting in better functioning and reliability of the air brake system of loco as well as trailing stock. About 2828 locomotives have already been fitted with air dryers.
- 4.21** An ergonomic design of loco cab has been developed by DLW in association with NID Ahmedabad to provide easy approach to various control handles/buttons. New Locomotives have already been manufactured with improved design. Existing locomotives cabs are also being upgraded in a phased manner. Till date, 850 Nos. of locomotive cabs have been modified.
- 4.22** Self-propelled Accident Relief Trains (ARTs) and Accident Relief Medical Vans (ARMVs) have been introduced and stationed at strategic locations for speedy relief operations in case of train accidents. Speed of Accident Relief Medical Vans (ARMVs) have been upgraded to the speed of Mail/Express trains.

Coaches

4.23 Indian Railways have always endeavoured to enhance fire worthiness of coaches by using more and more fire retardant furnishing materials such as Compreg Board for coach flooring, fabric upholstery for seats and berths, curtains, laminated sheets for wall & partition panelling, roof ceiling, PVC flooring, cushion material for seats and berths, FRP Window, UIC Vestibule, etc. While the efforts to incorporate fire retardancy in coach furnishing materials began in mid 1990s, specification of such furnishing materials have been periodically upgraded/revised so as to incorporate the following fire retardancy parameters in line with UIC/other international norms:

- (i) Loss of visibility due to smoke.
- (ii) Toxicity Index.
- (iii) Resistance to spread of flame
- (iv) Limiting Oxygen Index

Action is also underway at Research, Design and Standards Organisation (RDSO) Lucknow for conducting trials of a comprehensive fire and smoke detection system in one Rajdhani Rake before considering universal application. Tender for this pilot project has been floated. Suitable fire/smoke detection and suppression systems using water mist technology are also being studied at RDSO and use of such systems in Indian Railways is being explored.

4.24 Two emergency windows per AC coach have been provided to facilitate quick evacuation of passengers in the unfortunate event of an accident. The number of emergency windows in new manufactured non-AC coaches has been increased from 2 to 4 per coach. All existing Non-AC coaches have also been retrofitted with two extra emergency windows.

4.25 Progressive fitment of tight lock Centre Buffer Couplers (CBC) in lieu of screw coupling on new manufacture of ICF design coaches has been carried out with a view to prevent the coaches from climbing over each other in the unfortunate event of an accident. So far, about 500 LHB coaches & 1060 ICF design coaches have been manufactured with Centre Buffer Couplers.

- 4.26** For enhancing safety and reliability of passenger coaches, the suspension systems are being redesigned with air springs at secondary stage capable to maintain constant height at variable loads. Air springs have been developed and are being fitted in all the newly built EMU & DMU coaches for sub-urban trains. Air springs have now been developed for main line coaches as well and manufacture of such coaches will commence during 2008-09.
- 4.27** To improve upon the standards of safety, design of passenger coaches with features of crashworthiness which will absorb most of the impact energy in case of an accident or collision leaving the passenger area unaffected, has been developed. Manufacture of such coaches has commenced and about 137 crashworthy coaches have been manufactured so far.

Freight Stock

- 4.28** Cast Iron Brake Blocks have been phased out and Composite Brake Blocks have been inducted. These have much higher service life and are more reliable and cost effective.
- 4.29** Vacuum brake wagons with fabricated UIC bogies, which are less reliable and less efficient, are being phased out and these are being replaced with more reliable and efficient air brake stock with cast steel Casnub bogies.
- 4.30** All new procurement of wagons is with air brake system and this has helped in improving the productivity and safety of train operation.
- 4.31** All 4-wheeler CRT wagons which were derailment prone have been phased out.
- 4.32** All Air Brake and Guard Brake Vans have been equipped with quick coupling arrangement that permits quick coupling of detachable gauge (forming part of personal equipment of Guards) for checking the brake pipe continuity and air pressure thus ensuring safety of train before starting the journey.
- 4.33** Presently, the air brake system provided on wagons is under frame-mounted types. This system is susceptible to dropping of long components like pull/push

rods. In order to overcome this problem, Bogie Mounted Brake System (BMBS) is being provided on wagon stock.

- 4.34** All close circuit rakes are provided with 100% brake power at the time of intensive examination. Such closed circuit rakes are permitted to run upto 4500/6000 kms. on nominated circuits, subject to certain checks after unloading/loading.
- 4.35** Reliability of rolling stock depends on the quality of spares and repair work. Zonal Railways have been directed to procure safety related materials from RDSO approved sources only. The performance of the approved sources is monitored periodically.
- 4.36** Occurrence of hot boxes is a cause of concern since each case is a potential safety hazard and may lead to serious accident. For timely detection of hot axle cases, “Acoustic Bearing Detectors” are being provided.
- 4.37** Four Wheeler Tank wagons, being prone to derailments, are being phased out by 2012-13.
- 4.38** New wagons of 25 tonne axle load are being provided with state of art new track friendly bogie and bottom shelf type coupler with higher class of draft gear.
- 4.39** New design of 23 tonne axle load wagons of higher capacity is being provided with better quality coupler/draft gear from OEMs.
- 4.40** Bogies of existing wagons are being upgraded by provision of additional suspension springs, etc. and conversion to high speed modified bogie (22 HSMI).

Training of Running Staff

- 4.41** Training of drivers on simulators facilitates monitoring of their response and reaction time, which can be relayed to them for guidance and improvement. Training on this equipment exposes drivers to the intricate problems in the complex train-track dynamics and thus helps in improving driving techniques.

- 4.42** With the induction of sophisticated technology in locos and rolling stock, training of staff has been given thrust with better training facilities. Supervisors/staff are being sent for induction/refresher courses to improve their skills.
- 4.43** To provide right ambience for the running staff to take rest at outstations, the running rooms are being upgraded by providing proper ventilation, desert coolers, reading light for individual beds, clean toilets, phones, etc.
- 4.44** HOER (Hours of Employment Regulation) provisions are being followed and proper rest is being ensured before booking the drivers for train duty.

Signalling

- 4.45** Signalling plays a vital role in not only promoting safety and minimizing the impact of human error in train operation, but also in enhancing line capacity through the introduction of modern signalling systems. Indian Railways have therefore undertaken technological upgradation in signalling.
- 4.46** In order to enhance safety by reducing human dependence for verification of clearance of track, track circuiting of the complete station section has been taken up. Track circuiting has been done at 27086 locations up to March 2008. During 2008-09, track circuiting has been provided at 820 locations upto Nov' 08.
- 4.47** In order to increase efficiency and enhance safety in train operations, modern signalling systems with Route Relay/Panel/Electronic Interlocking along with Multi Aspect Colour Light Signalling in replacement of over-aged Mechanical/Multi Cabin signalling system have been provided progressively. 3914 Stations have been provided Route Relay/Panel/Electronic Interlocking as on March, 2008. During 2008-09, replacement of over-aged signalling systems has been carried out at 249 stations upto November, 2008.
- 4.48** Interlocking of level crossing gates is being done based on the volume of road-cum-rail traffic to enhance safety. The interlocking of 8,413 level crossing gates

has been completed upto March, 2008. During 2008-09, 248 level crossing gates have been interlocked upto November, 2008.

- 4.49** Provision of telephones at manned level crossing gates improves safety as it enables gatemen to communicate with the station master. Telephonic communication has already been provided at 16,263 level crossing gates upto March, 2008. During 2008-09, 190 level crossing gates have been provided with telephone upto November, 2008.
- 4.50** In order to enhance safety by automatic verification of complete arrival of train and increase line capacity by reducing block closure time Block Proving Axle Counters (BPACs) are being provided progressively. 1421 Block Sections have been provided with Block Proving Axle Counters upto March, 2008. During 2008-09, Block Proving Axle Counters have been provided at 275 Block Sections upto November, 2008.
- 4.51** In order to improve reliability and visibility of signals, outdated filament type signals are being replaced by long life highly durable LED signals 1697 stations have been provided with LED signals upto March'08. During 2008-09, 491 stations have been provided with LED signals upto November, 2008.

New Initiatives

- 4.52 Train Protection and Warning System (TPWS):** Train Protection Warning System (TPWS) has been commissioned on Chennai Central - Gummidipundi suburban section (50 Route KMs) of Southern Railway in May, 2008 as a pilot project. This system prevents 'Signal Passing At Danger' (SPAD) cases and enforces implementation of speed restriction. Second pilot project of Train Protection Warning System on Delhi-Agra section of Northern/North Central Railway is also under implementation.
- 4.53 Anti Collision Device (ACD) :** To prevent train collision in block section and to minimize the extent of damage caused by collisions, Anti-Collision Device (ACD) on Katihar-Guwahati-Dibrugarh-Ledo section of North Frontier Railway has been fully operationalized. Provision of Anti-Collision Device on Southern, South Central and South Western Railways has also been sanctioned and the work has been taken up for execution.

4.54 Train Management and Information System (TMS): This system provides efficient rail services, giving the commuters accurate information on real time basis about the status of train services. All train movements are displayed on a video projection screen in control room. TMS on Mumbai suburban section of Western Railway has been commissioned. The work of TMS on Central Railway is in progress.

4.55 Progress made in respect of provision of important safety aids as on 31-3-2008 is as under:

	System	As on 31-3-2007 (Reconciled)	As on 31-3-2008
1.	Track Circuits (No. of locations)	24499	27086
2.	Provision of RRI/PI/EI (No. of Stations)	3626	3914
3.	Interlocked Level Crossings Gates(Nos.)	8098	8413
4.	Gates provided with Telephones (Nos.)	16060	16263
5.	Last Vehicle check by Axle Counters (No. of Block Sections)	1045	1421
6.	LED Signals (No. of stations)	1308	1697

Telecommunication

Mobile Train Radio Communication

4.56 Mobile Train Radio Communication (MTRC) system for providing full duplex communication system for operational and maintenance purposes has been sanctioned on 3475 Route Kms out of a total of all A, B & C routes of 1,60,000 Route Kms approximately. This system has been successfully commissioned on Howrah-Pradhankunta (260 RKMs) of Eastern Railway, Mathura-Jhansi (270 RKMs) of North Central Railway and Guwahati - New Bogaigaon (150 Rkms) of North Frontier Railway and it is working satisfactorily. Mobile Train Radio Communication system on Delhi - Ambala (198 RKMs) route of Northern Railway has also been completed and it is being commissioned.

Communication for Managing Disasters and Crisis

4.57 For establishing communication in case of emergency, Railways have decided to provide all modern telecom facilities such as Satellite phones, ISD connection, Railway helpline numbers, etc. Further, based on the feedback received from

various Railways, it has been decided to provide Closed User Group (CUG) Mobile phones to officers and supervisors in the field so that the same can be used in case of accidents for relief and rehabilitation work. This has been implemented on all Zonal Railways & Production Units. It has also been decided to provide WLL (Wireless in Local Loop) exchange in all the Divisional ARTs (Accident Relief Trains). Directives have been issued to provide this facility through Railway's own V-SAT hub and small V-SAT terminals at all Divisional ARTs. Indian Railway Project Management Unit (IRPMU) is executing this work. IRPMU has since finalized the specifications in consultation with RDSO/Lucknow. This work is likely to be completed by March, 2009 in 42 ARTs and by December, 2009 in the balance ARTs.

Improving reliability of Safety related Communication Circuits

- 4.58** To improve the reliability of safety related communication systems, the old overhead alignments are being replaced with cable based communication system. For this purpose, optical fibre and copper cable have extensively been laid to provide communication backbone for train operations. Initially, 42,000 RKMs overhead alignments were available on Indian Railways. As the overhead alignment is having poor reliability and low efficiency, this has been replaced by 33,000 RKMs of OFC and 30,000 RKMs of Under Ground Quad Cable. About, 12,000 RKMs of OFC and 10,000 RKMs of Quad Cables works are in progress and are at different stages of completion.

Electrical Rolling Stock and Allied Infrastructure

- 4.59** All electric locomotives and EMUs/MEMUs have been provided with twin beam headlights for improving the visibility of the drivers during night time.
- 4.60** All electric locomotives have been provided with flasher light which gets automatically switched ON in case of train parting due to derailment or otherwise. RDSO has finalized the scheme so that LED based flasher light automatically switches ON due to uncoupling of electrical jumpers in case of parting/derailment in EMUs/MEMUs. Further a decision has been taken to incorporate signal from pneumatic circuit in addition to electrical jumper for switching ON flasher light for which trials are being undertaken.

- 4.61** All newly manufactured electric locos & EMUs/MEMUs are provided with air dryers for removing moisture from the compressed air system resulting in improved reliability of the braking system. The air dryers are also being fitted on existing electric locos and EMUs/MEMUs retrospectively.
- 4.62** Energy-cum-speed monitoring systems (ESMON) having digital memory are being provided on electric locomotives and EMUs/MEMUs which shall help in monitoring the performance of the drivers with regard to their skills in controlling speed and energy conservation.
- 4.63** All Wheels & Axles of electric locomotives and EMUs/MEMUs are tested with ultrasonic flaw detectors at specified intervals for detection of flaw in the material.
- 4.64** In order to arrest failure of the tyres, solid wheels are being progressively provided on EMUs/MEMUs. From 1st April, 2008 onward, solid wheels are being used in all new EMU/MEMU rakes. Further, a complete switchover to solid wheels in respect of existing EMU/MEMU coaches is also being undertaken whenever tyres of these EMUs/MEMUs need change.
- 4.65** Detailed instructions regarding maintenance practices and use of fire retardant materials on electric locos, EMUs/MEMUs and passenger coaches have been issued and reiterated.
- 4.66** Cable Head Termination System is being progressively provided on electric locomotives and EMUs/MEMUs replacing the old generation condenser bushing.
- 4.67** Vigilance Control Device for keeping drivers vigilant exists on all 3-phase locomotives. After successful trial of this device on 30 conventional locomotives, decision has been taken to provide them on another 350 conventional locos.
- 4.68** Auxiliary Warning System (AWS) has been provided in EMU trains in Mumbai suburban area so that motorman maintains speed as per aspect of the signal. TPWS (Train Protection Warning System) is being provided in EMUs working

on Southern Railway. 14 EMU rakes have so far been provided with this system.

- 4.69** Regenerative braking exist along with pneumatic braking system on 3-phase locos for the smooth control and enhancement of brake power thereby reducing the normal braking distance. On similar lines, Dynamic Braking Resistance (DBRs) are being progressively provided on all conventional electric locomotives. AC/DC EMU stocks plying in Mumbai suburban area are having regenerative braking system.
- 4.70** Simulator based training is being imparted for improving upon the driving skills and the reaction time of drivers.
- 4.71** Ergonomically designed Loco cabs already exist on 3-phase electric locos and are being provided on all conventional electric locomotives for the comfort of the crew.
- 4.72** Layout of driving cab has been standardized and is being implemented on newly built AC EMU, MEMU & AC/DC EMU stock. Railways have also been advised to modify the driver cab of existing EMU/MEMU stock having the residual life of 15 years in their respective workshops during periodical overhaul.
- 4.73** Improvement in running rooms is being provided for stress free environmental to the outstation crew.

Accident Relief Medical Equipment

- 4.74** Indian Railways have an efficient disaster management system consisting of 174 mobile accident relief vans out of which 13 are self propelled vans. Another 325 Accident Relief Medical Equipment Scale –II (ARMEs) are located at strategic locations to provide relief. The mobile units are stabled in Railway yards ready to move out at short notice. The Accident Relief Medical Vans (Scale-I) are well equipped having facility, inter-alia, of carrying out emergency procedures also. Railway Hospitals and health units also have POMKA kits (Portable Medical Kits for Accidents) for use by medical teams at the accident site.

Data base on Medical Facilities

4.75 A data base regarding non railway medical facilities available along the railway tracks, has been compiled along with details such as distance, address, telephone numbers, the capacity and nature of facilities available, etc. The data is kept with Divisional Headquarters, Control Offices, etc. which can be accessed at short notice. This information is also available on Railnet. This measure has helped in establishing expeditious relief even before Railway teams could reach the accident spot.

162 nominated long distance superfast trains, having limited stoppages and 156 'A' class stations have been provided with upgraded First aid facilities in the form of Augmented First aid boxes with added medicines, injectables and few resuscitative equipments. Frontline staff are being trained in first aid so that they can render first aid taking the help of these augmented first aid boxes at times of need.

Checks against miscreant activities in train and passenger areas

4.76 During the year 2007-08, several initiatives have been taken by the Indian Railways for providing better security to the passengers in trains and passenger areas in addition to protection of railway property. 96 Railway Stations and 96 trains have been identified as Model Stations and Model Trains, respectively, from security point of view to make them free from crime against passengers. The situation over these model stations and trains are being reviewed by the Security Directorate of Railway Board directly. Four different Flying Squads at the level of Deputy Inspector General / RPF have been constituted which are conducting surprise checks and inspecting the above railway stations and trains and submitting their reports directly to the Director General/ RPF for further administrative action.

4.77 An Integrated Security System is being installed at all the railway stations of four metro cities, namely, Chennai, Delhi, Kolkata, and Mumbai and remaining sensitive/vulnerable stations of the country.

The above system will consist of following broad areas:

- a) CCTV System.
- b) Access control.
- c) Personal and baggage screening system.
- d) Explosive detection and disposal system.

BOOT model is being adopted for railway stations of four metro cities, whereas out-right purchase model with annual maintenance contract is being adopted for implementation of the system in other sensitive/vulnerable stations of the country. The entire system will be implemented in two phases.

- 4.78** Analysis of crime statistics regarding increasing trend in the incidents of Drugging or administering drug-laced eatables to unwary passengers was also made. This revealed that tentacles of the menace have even reached South Western and Southern Zones, which were earlier free from any such crime. The victims were found mostly poor labourers especially from Bihar and Eastern U.P and uniformed personnel travelling in the general compartments. Though this offence falls under the IPC to be looked into by the Government Railway Police, various steps have been taken by the Railway Protection Force to ensure safe journey of the railway passengers.
- 4.79** With the existing manpower, RPF has undertaken train escorting and access control regulations w.e.f. 1-7-2004. At present, the RPF staff are deployed to escort on an average 1263 important trains daily covering 739 important stations all over the country. On an average, a total of 8232 RPF staff,(i.e. 4200 RPF staff deployed for escorting trains and 4032 RPF staff deployed at stations for access control duties) are deployed daily to augment the efforts of the State Governments for providing passengers security. The RPF train escorting staff are specially briefed to keep secret vigil in the general compartments to detect the drugging cases. Army Headquarters have also been requested to advise their personnel against the menace of drugging.
- 4.80** In the course of providing security to passengers and passenger areas, RPF has detected many IPC offences and arrested the criminals red-handed. The arrested criminals were handed over to GRP for further legal action. On the initiative of RPF in augmenting passenger security, from July 2004, (i.e. after amendments in the RPF Act and the Railways Act) to June 2008, 320 cases of drugging, 759 cases of luggage lifting, 182 cases of carrying illegal arms, 218 cases of chain snatching, 346 cases of pick pocketing, 1298 cases of trafficking of contraband goods, 80

cases of offences against women and 949 cases of other IPC related offences were detected by RPF personnel. In addition, 6402 minor girls and boys were also rescued and handed over to their parents or NGOs. Contribution of RPF is also evident as number of cases relating to railway property reported and registered as well as the value of property stolen decreased during the year 2007 in comparison to 2006. At the same time, RPF arrested more than 9361 criminals with recovery of stolen railway property worth Rs.29.47 crores.

- 4.81** The professional skills of the RPF personnel are being constantly upgraded through intensive training. After grant of CTI (Central Training Institute) status to RPF Academy, training modules of Sub Inspectors and ASC Probationers have been upgraded to include training in gender sensitization, customer care skills, etc. so as to make the RPF personnel passenger friendly. 13 slots have been got allocated annually for training of RPF trainers at the prestigious National Industrial Security Academy in Hyderabad. These trainers will then impart training in disaster management to other RPF personnel.
- 4.82** A Norms Committee was constituted by the Railway Board to identify security equipments required by the RPF and fix up norms and scales for the required equipments. The Committee identified 30 categories of security equipments with detailed norms and scales. After approval by Board, instructions have been issued to Chief Security Commissioners of Zonal Railways conveying sanction of an amount of Rs 60.76 crore for procurement of security equipments.
- 4.83** Considering the present security scenario of the country and the additional and new responsibilities entrusted to RPF to provide security to travelling passengers in trains and passenger areas, increase in the strength of RPF personnel is being considered. As an interim measure, 973 non-gazetted posts have been created so far and for creation of the remaining 1688 non-gazetted posts, a proposal has been put up for approval of the Cabinet. Recruitment for the post of Constable has been completed on Central, Eastern, East Central, East Coast, North Central, Northeast Frontier, North Western, Southern, South Central, Southeast Central, West Central Railways and altogether 4318 candidates have been empanelled. Efforts are being made to fill up the remaining vacancies as early as possible. Written examination for filling

1028 vacancies of Sub-Inspectors in RPF/RPSF has been completed and interview for the same will be conducted very soon.

4.84 Many steps to prevent terrorist activities on Railways have also been taken up. A Committee comprising officers from Railways, RPF, Intelligence Bureau (IB), National Security Guard (NSG), Central Industrial Security Force (CISF) and Delhi Police has been set up to prepare a 'Composite Security Plan for Railways'. The committee has submitted its report and the same is being implemented to strengthen security system of railways.

Development of Human Resources

4.85 Human resource development plays an important role, especially in training of staff with "state-of-the-art" equipments and specialization in their nature of work. Development of human resources is a continuous process and due to fast changes in the systems and processes, training has assumed greater importance. Some of the steps taken in this direction are as under:-

- (i) A comprehensive training needs analysis is usually done in respect of all the staff through a series of meetings.
- (ii) Training Modules for Induction, Refresher, Promotional and Specialized courses are reviewed after every 3-4 years.
- (iii) Special emphasis is being given to training for some of the safety categories which include competency based training.
- (iv) Yoga and meditation lessons have been introduced in training centres especially for safety categories staff to cope with stress involved in their job.
- (v) Training has been made more interesting and interactive for the running staff and supervisory staff.
- (vi) Special emphasis is given in adopting latest training methodologies such as on the job training, simulator training, multi-media interactive packages on the PC as well as computer based tutorials, etc.
- (vii) The concept of multidisciplinary training is being actively promoted and efforts are being made to set up new training facilities on multidisciplinary lines. This would help train the key functionaries in

more than one skill and faculty which would help them in ensuring safety and crisis management.

TRAIN ACCIDENTS ON INDIAN RAILWAYS SINCE 1960-61

Year	Collisions	Derailments	Level Crossing Accdts.	Fire in trains	Misc.	Total	Million Train Kms.	Incidence of accidents per million train kms.
1960 - 61	130	1415	181	405		2131	388.1	5.50
1961 - 62	124	1433	160	236		1953	396.2	4.90
1962 - 63	98	1316	168	55		1637	408.3	4.00
1963 - 64	93	1300	161	81		1635	421.9	3.90
1964 - 65	81	1035	146	31		1293	433.2	3.00
1965 - 66	74	962	123	42		1201	450.8	2.70
1966 - 67	67	876	104	50		1097	451.7	2.40
1967 - 68	66	892	111	42		1111	455.3	2.40
1968 - 69	47	684	129	48		908	460.1	2.00
1969 - 70	54	751	111	47		963	473.0	2.00
1970 - 71	59	648	121	12		840	466.5	1.80
1971 - 72	57	667	118	22		864	474.4	1.80
1972 - 73	59	598	131	25		813	473.1	1.70
1973 - 74	66	578	125	13		782	432.8	1.80
1974 - 75	66	696	140	23		925	430.1	2.20
1975 - 76	64	768	105	27		964	487.4	2.00
1976 - 77	45	633	86	16		780	511.6	1.50
1977 - 78	54	705	93	14		866	526.1	1.60
1978 - 79	55	778	86	12		931	504.1	1.80
1979 - 80	72	692	115	21		900	503.4	1.80
1980 - 81	69	825	90	29		1013	504.5	2.00
1981 - 82	87	936	84	23		1130	516.6	2.20
1982 - 83	54	653	70	20		797	530.9	1.50
1983 - 84	48	621	82	17		768	541.7	1.40
1984 - 85	39	678	65	30		812	541.1	1.50
1985 - 86	46	588	62	21		717	570.4	1.30
1986 - 87	28	538	65	13		644	582.3	1.10
1987 - 88	40	490	62	12		604	590.2	1.02
1988 - 89	30	457	55	3		545	602.2	0.90
1989 - 90	34	456	42	8		540	618.0	0.87
1990 - 91	41	446	36	9		532	617.1	0.86
1991 - 92	30	444	47	9		530	629.2	0.84
1992 - 93	50	414	51	9		524	632.3	0.83
1993 - 94	50	401	66	3		520	634.2	0.82
1994 - 95	35	388	73	5		501	641.9	0.78
1995 - 96	29	296	68	5		398	655.9	0.61
1996 - 97	26	286	65	4		381	667.1	0.57
1997 - 98	35	289	66	6		396	675.8	0.58
1998 - 99	24	300	67	6		397	686.9	0.58
1999 - 00	20	329	93	21		463	717.7	0.65
2000 - 01	20	350	84	17	2	473	723.8	0.65
2001 - 02	30	280	88	9	8	415	756.4	0.55
2002 - 03	16	218	96	14	7	351	786.2	0.44
2003 - 04	9	202	95	14	5	325	790.8	0.41
2004 - 05	13	138	70	10	3	234	810.1	0.29
2005 - 06	9	131	75	15	4	234	825.4	0.28
2006 - 07	8	96	79	4	8	195	847.8	0.23
2007 - 08	8	100	77	5	4	194	890.5	0.22

Major accidents during 2007-2008**(Attended with death of 10 or more persons)**

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1.	Dashing of one mini bus with 156 Chengalpattu - Arakkonam Passenger at Unmanned Level Crossing No.36-C between Kanchipuram - Tirumalpur stations on Chengalpattu-Arakkonam section of Madras Division of Southern Railway on 16.04.2007.	11	11
2.	Dashing of one mini-bus with 4629 Ludhiana-Ferozpur Express at Manned Level Crossing No. 40-C between Jagraon and Ajitwal Stations on Ludhiana - Ferozpur Section of Ferozpur Division of Northern Railway on 14.12.2007.	16	14

Worst accidents in each category during the year are listed below :-

(A) Collisions

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1.	Collision of 131 Up MEMU Howrah-Kharagpur with Up Bharat Darshan Special in the rear at home signal of Shyamchak Station on Balichak- Shayamchak section of Kharagpur Division of South Eastern Railway on 22.11.2007.	-	22
2.	Collision of 5404 Rail Maintenance Vehicle (RMV) of Ratnagiri with 0112 Up Madgaon-Chhatrapati Shivaji Terminus in the rear between Bhoke - Ukahi stations on Roha – Sawantwadi section of Ratnagiri Division of Konkan Railway on 28.11.2007.	-	6
3.	Collision of 5211 Darbhanga - Amritsar Jannayak Express with MDPB Goods in the rear at Bodarwar station on Paniyawah–Gorakhpur section of Varanasi Division of North Eastern Railway on 29.01.2008.	1	11

(B) Derailments

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1	Derailment of 2659 Nagercoil - Howrah Express between Duvvada and Gopalapatnam stations on Duvvada – Visakhapatnam section of Waltair Division of East Coast Railway on 11.06.2007.	3	26
2	Derailment of Dn FCI Bhim Goods between Dihakho and Mupa stations on Lumding and Half-long Hills section of Lumding Division of Northeast Frontier Railway on 25.06.2007.	7	7
3	Derailment of 4055 Dibrugarh Town -Delhi Brahmputra Mail between Rangapani – Chaterhat stations on New Jalpaiguri – Barsoi section of Katihar Division of Northeast Frontier Railway on 09.12.2007.	1	47

(C) **Manned Level Crossing Gate Accidents**

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1.	Dashing of one mini-bus with 4629 Ludhiana-Ferozepur Sutlej Express at Manned Level Crossing No. 40-C between Jagraon and Ajitwal Stations on Ludhiana-Ferozepur Section of Ferozepur Division of Northern Railway on 14.12.2007.	16	14
2.	Dashing of one truck with 2618 HNKM-Lakshdweep Mangla Express at Manned Level Crossing No.341 between Talbahat-Daulta Stations on Jhansi - Bina Section of Jhansi Division of North Central Railway on 10.02.2008.	2	-
3.	Dashing of one mini bus with 5610 Awadh Assam Express at Manned Level Crossing No.26-C between Asaudah and Bahadurgarh Stations on Shakurbasti - Bhatinda Section of Delhi Division of Northern Railway on 08.03.2008.	2	15

(D) **Unmanned Level Crossing Gate Accidents**

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1.	Dashing of one mini bus with 156 Chengalpattu-Arakkonam Passenger at Unmanned Level Crossing No.36-C between Kanchipuram - Tirumalpur stations on Chengalpattu-Arakkonam section of Madras Division of Southern Railway on 16.04.2007.	11	11
2.	Dashing of one Tata Sumo with 8101 Jammu Tawi - Muri Express at Unmanned Level Crossing No.CM-36 between Tiruldih - Suisa stations on Chandil - Muri section of Ranchi Division of South Eastern Railway on 06.07.2007.	9	5
3.	Dashing of one motor operated rickshaw with 2867 Shalimar-Digha Express at Unmanned Level Crossing No.86 between Ramnagar - Badalpur stations on Tamluk - Digha section of Kharagpur Division of South Eastern Railway on 15.01.2008.	9	3

(E) **Fire Accidents**

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1.	While the Train No. 8237 Amritsar - Bilaspur Chattisgarh Express was on run between Rohanakalan – Deoband stations on Ghaziabad - Saharanpur section of Delhi Division on Northern Railway, its 2 coaches (S-1 & S-2) caught fire on 24.02.2008.	-	03

(F) **Miscellaneous**

<u>S.No</u>	<u>Brief Particulars</u>	<u>Killed</u>	<u>Injured</u>
1.	Grazing of one Lorry engaged by RVNL with 3351 Dhanbad-Alappuzha Express at worksite between Atapattu - Ennore stations on Gudur - Chennai section of Madras Division of Southern Railway on 27.04.2007.	1	10
2.	Grazing of a Dumper with Train No. 214 Puri - Cuttack Passenger between Motari and Khurda Road stations on Khurda Road - Puri section of Khurda Road Division of East Coast Railway on 11.05.2007.	--	15
3.	Dashing of a Push Trolley (CPWI/NSD) with 2995 Bandra Terminus - Ajmer Express between Rajoushi - Hataundi stations on Chittorgarh - Ajmer section of Ajmer Division of North Western Railway on 04.08.2007.	1	3

**PARTICULARS OF ACCIDENTS DURING 2007-08
INQUIRED INTO BY COMMISSIONERS OF RAILWAY SAFETY.**

S. No.	Date	Brief particulars
1.	20-Apr-07	Dashing of a bus with train No. 7040 Nanded - Secunderabad Express at manned level crossing No. 234-A between Masaipet and Manoharabad stations on Nizamabad-Secunderabad section of Hyderabad Division of South Central Railway.
2.	27-Apr-07	Unusual occurrence of dashing of a tipper lorry with 3351 Dhanbad-Tata, Allepey Express between Attipattu Pudunagar and Ennore stations on Gudur-Chennai Central section of Chennai Division of Southern Railway.
3.	02-May-07	Dashing of a tractor thrasher with 9039 Dn Bandra-Muzzafarpur Awadh Express at Unmanned level crossing No. 267-C between Maijapur and Gonda Kachery stations on Gonda-Barabanki Section of Lucknow Division of North Eastern Railway.
4.	02-May-07	Dashing of a tractor trolley with 5028 Dn Gorakhpur-Hatia, Maurya Express at Unmanned Level Crossing No. 109-C between Bhatpar Rani and Bankata Railway Stations on Bhatni-Chapara Kachery Section of Varanasi Division of North Eastern Railway.
5.	05-May-07	Derailment of Brake Van of Up NBQ-RMC between New Baneswar and New Alipurduar stations on New Jalpaiguri - New Bongaigaon Section of Alipurduar Division of Northeast Frontier Railway.
6.	11-May-07	Unusual occurrence of injuries to travelling passengers of 214 Dn, Puri-Cuttak Passenger due to an unknown dumper negotiating too close to the passing train between Motari and Khurda Road stations on Khurda Road - Puri Section of Khurda Division of East Coast Railway.
7.	16-May-07	Unusual occurrence of emission of smoke from the brake blocks of a coach of 8104 Dn Tata-Amritsar Jallianwala Bagh Express between Katghar and Dalpatpur stations on Moradabad-Shahjahanpur section of Moradabad Division of Northern Railway.

8. 11-Jun-07 Derailment of 2659 Dn Gurdev Express (Nagercoil-Howrah Superfast Express) between Duvvada and Gopalapatnam stations on Duvvada-Vishakhapatnam Section of Waltair Division of East Coast Railway.
9. 25-Jun-07 Derailment and capsizing of Dn FCA Bhim 242 between Dihako and Mupa stations on Lumding-Badarpur section of Lumding Division of North East Frontier Railway.
10. 16-Jul-07 Dashing of 2716 Dn Amritsar-Nanded Express with a road vehicle at the Manned Level Crossing No. 93-C between Dhola Majra and Dhirpur stations on Delhi-Ambala section of Delhi Division of Northern Railway.
11. 28-Jul-07 Collision between goods trains No. N/KTT Up and VSPS/CONCOR Dn at Salpura station of Ruthiyai-Kota section of Kota Division of West Central Railway.
12. 05-Aug-07 Dashing of a truck with 288 Dn Katwa-Burddhman Passenger train at unmanned level crossing No. 5-D between Kamnara halt and Burddhman stations on Katwa-Burddhman Section of Howrah Division of Eastern Railway.
13. 07-Aug-07 Derailment of 2308 Dn Jodhpur Howrah Express between Govindpuri and Kanpur Central stations on Tundla-Kanpur Central Section of Allahabad Division of North Central Railway.
14. 24-Sep-07 Fire in 9038 Up Gorakhpur-Bandra Terminus Avadh Express between Lakodra and Palej stations on Vadodara-Surat section of Vadodara Division of Western Railway.
15. 03-Oct-07 Unusual occurrence of fire in the boiler of steam locomotive of Palace on Wheels train while it was on run between Delhi Safdarjung and Brar Square stations on Delhi Safdarjung-Patel Nagar section of Delhi Division of Northern Railway.
16. 24-Oct-07 Derailment of 4309 Dn Ujjayni Express between Kumbharaj and Vijaipur stations on Maksi-Guna, section of Bhopal Division of West Central Railway.
17. 08-Nov-07 Collision of 2176 Dn Gwalior-Howrah, Chambal Express with rear end of 2133 Dn Pune-Darbhanga, Gyan Ganga Express between Naini and Allahabad stations of Allahabad Division of North Central Railway.

18. 20-Nov-07 Dashing of a three-wheeler with 340 Dn Jodhpur - Bhatinda Passenger at unmanned level crossing No. 164-C between Rai-Ka-Bagh and Banar stations on Jodhpur-Merta Road section of Jodhpur Division of North Western Railway.
19. 28-Nov-07 Collision of Rail Maintenance Vehicle (RMV)/Ratnagiri with 0112 Up Konkan Kanya Express in the rear between Bhoke and Ukshi stations of Roha-Sawantwadi Road section of Ratnagiri Region of Konkan Railway.
20. 09-Dec-07 Derailment of 4055 Dn Brahmputra Mail between Rangapani - Nijbari stations on New Jalpaiguri - Barsoi Jn section of Katihar Division of Northeast Frontier Railway.
21. 13-Dec-07 Derailment of 2958 Up New Delhi-Ahemadabad, Swaran Jayanti Rajdhani Express between Sirohi Road and Banas stations on Marwar Jn. -Palampur, section of Ajmer Division of North Western Railway.
22. 14-Dec-07 Dashing of 4629 Up Ludhiana-Ferozepur Sutlej Express with mini bus at manned level crossing No. 40-C between Jagraon and Ajitwal stations on Ludhiana-Ferozepur section of Ferozepur Division of Northern Railway.
23. 23-Dec-07 Derailment of TL/17 Dn CSTM-Titwala EMU Suburban Local train between Kurla and Vidyavihar stations on Kurla-Kalyan section of Mumbai Division of Central Railway.
24. 29-Jan-08 Collision of 5211 Up Darbhanga-Amratsar Jannayak Express with the rear of Up MDPB Goods train at Bodarwar station yard on Gorakhpur Cantt.-Paniyahwa Section of Varanasi Division of North Eastern Railway.
25. 20-Mar-08 Derailment of Train No. 727 Madurai - Kollam Up Passenger between Valliyur and Aralvaymoli stations on Tirunelveli - Nagarcoil section of Thiruvananthapuram Division of Southern Railway.

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