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GOVERNMENT OF INDIA

MINISTRY OF TOURISM & CIVIL AVIATION
COMMISSION OF RAILWAY SAFETY

REPORT

on the

WORKING OF THE COMMISSION OF RAILWAY SAFETY

for

1976-77

By

COMMISSIONER OF RAILWAY SAFETY
LUCKNOW

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APPENDICES

CHAPTER I

Brief History :

1.1. (a) To exercise effective control over the construction and operation of the first railways in India, which were entrusted to private companies incorporated in the United Kingdom, Consulting Engineers were appointed under the Government of India. Later, when the Government undertook the construction of railways, the Consulting Engineers were designated as Government Inspectors. In 1883, their position was statutorily recognised. Two decades later, the Government Railway Inspectorate so called, was placed under the Railway Board which was established in 1903.

(b) Under the Indian Railway Board Act, 1905 and Notification No. 801, dated the 24th March, 1905 of the Department of Commerce and Industry, the Railway Board is vested with Powers and Functions of the Central Government under various Sections of the Indian Railways Act, 1890, in respect of all Railways in India, and is authorised to make General Rules for the operation of Railways. The Railway Board is, thus— the Safety Controlling Authority for the working and operation of Government and Company-managed railways.

(c) Section 181(3) of the Government of India Act of 1935 provided that "functions for securing the safety, both of the members of public and persons operating the railways including holding of inquiries into the cause of accidents should be entrusted to officers independent of the Federal Railway Authority".

To avoid direct subordination of the Railway Inspectorate to the Railway Board, the Pacific Locomotive Committee, headed by Lt. Col. A. H. L. Mount, then Chief Inspecting Officer of the British Railways, suggested in para 210 of their report of 1939 :

"We understand that, under the Government of India Act, 1935, it is contemplated that the Inspectorate will be separated from the control of the Railway Board. This is very desirable in so far as it will eradicate the present anomaly of the Board being the Inspecting as well as the Executive Authority. We were informed that the Board fully appreciate the position, and would welcome the change, although it appears that, in practice, Government Inspectors have generally retained freedom of judgement.....".

The principle of separation of the Railway Inspectorate from the Railway Board was endorsed in 1940 by the Central Legislature who recommended that "Senior Government Inspectors of Railways should be placed under the administrative control of some authority of the Government of India other than the Railway Board". Accordingly, the Railway Inspectorate was placed under the administrative control of the Department of Posts & Air, thereafter under the Ministry of Transport and Communications. The Administrative control over the Railway Inspectorate, which was re-designated as the Commission of Railway Safety on 1st August, 1966, is exercised by the Ministry of Tourism & Civil Aviation since May, 1967.

(d) The responsibility for safety in the working and operation of railways rests solely with the Railway Board and the zonal Railways authorities. The main task of the Commission of Railway Safety is to assist the Railway executives with a view to ensure that all reasonable precautions are taken in regard to safety of train operation. The Railway Board refers to the Commission matters relating to modification of enhancement of standards in respect of operation of trains, track, locomotives, rolling stocks and signalling—embodied in the General Rules, Rules for opening of New Lines, Manuals, I.R.C.A. Regulations, Schedules of Dimensions and other publications. Suggestions made by the Commission of Railway Safety are duly considered by the Railway Board before necessary revisions are notified.

Functions

1.2. (A) The principal functions of the Commission of Railway Safety are :—

(i) Inspection of new Railway Lines prior to authorisation for passenger traffic.

(ii) Periodical Inspections of Open Lines.

(iii) Approval of new works and renewals affecting passenger carrying lines.

(iv) Investigations into accidents, including inquiries into such accidents to passenger trains as are considered to be of a serious nature.

(v) General advice on matters concerning safety of train operation.

(B) Statutory powers of the Officers of the Commission of Railway Safety, and facilities to be afforded by railways are specified in Sections 4 to 6 of the Indian Railways Act, reproduced below :—

"*Section 4 :* (1) The Central Government may appoint persons by name or by virtue of their office, to be Inspectors of Railways.

(2) The duties of an Inspector of Railways shall be :—

(a) to inspect railways with a view to determine whether they are fit to be opened for the public carriage of passengers, and to report thereon to the Central Government as required by this Act;

(b) to make such periodical or other inspections of any railway or of any rolling

stock used thereon as the Central Government may direct;

(c) to make inquiry under this Act into the cause of any accident on a railway.

(d) to perform such other duties as are imposed on him by this Act or any other enactment for the time being in force relating to Railways.

Section 5 : An Inspector shall, for the purpose of any of the duties which he is required or authorised to perform under this Act, be deemed to be a public servant within the meaning of the Indian Penal Code (45 of 1860) and, subject to the control of the Central Government, shall for the purpose have the following powers namely :—

(a) to enter upon and inspect any railway or any rolling stock used thereon;

(b) by an order in writing under his hand addressed to the railway administration, to require the attendance before him of any railway servant and to require answers on returns to such inquiries as he thinks fit to make from such Railway servant or from the Railway Administration;

(c) to require the production of any book or documents belonging to or in the possession or control of any railway administration (except communication between a railway company and its legal advisors) which it appears to him to be necessary to inspect.

Section 6 : A railway administration shall afford to the Inspector all reasonable facilities for performing the duties and exercising the powers imposed and conferred upon him by this Act.

(C) The duties under Section 4(2)(a) and 4(2)(b) of the Indian Railways Act have been detailed in succeeding Sections 17 to 20, 22 to 24. These are—

(i) to sanction the opening of new railway lines after inspection on behalf of the Central Government.

(ii) to inspect a railway or a part of it and submit a detailed inspection report to the Central Government.

(iii) to sanction the execution of all works, including new works, affecting the safety of running lines.

(iv) to report to the Central Government any condition which may endanger the safety of travelling public and make recommendations.

(v) to inspect a closed railway prior to its re-opening.

(D) Functional duties, including field inspections, of an Inspector of Railways, since designated as Additional Commissioner of Railway Safety, are amplified among other technical publications, in the Railway Board's :—

(i) General Rules for all open lines of Railways in India administered by the Government.

(ii) Rules for opening of Railway or Section of a Railway for the public carriage of passengers.

(iii) Indian Railway's Codes of Practice for Engineering Works.

(iv) Indian Railway Way & Works and Signal Engineering Manuals.

(v) Schedule of Dimensions.

(vi) Indian Railways Conference Association Regulations.

(vii) Rules for Notices and Inquiries into accidents.

The Additional Commissioner of Railway Safety is thus responsible for the day-to-day sanctions he accords to works affecting the safety of the runing road, for dispensations agreed to under "approved special instructions" after due examination of each application, and for detailed Reports of Inspections of Open Line Sections, of New Lines, Conversions, Sections doubled, trebled or quadrupled, of Electric Traction and so on.

(E) After its separation from Railway Board in May, 1941 a post of Chief Government Inspector of Railways, since designated as Commissioner of Railway Safety, was created to enable the Ministry, under which the Railway Inspectorate was placed to exercise "effective technical control".

The Commissioner of Railway Safety directs the technical activities of the Organisation and is responsible for advising the Controlling Ministry in matters relating to recruitment of officers, transfers and promotions, budget and expenditure. The Commissioner deals principally with:—

(i) Matters appertenent to Field Inspections and statutory inquiries into accidents.

(ii) Inspection Reports of Addl. Commissioners of Railway Safety.

(iii) Reports of Statutory Inquiries held into Accidents by the Additional Commissioners. After careful study he forwards his considered opinion to the Controlling Ministry and the Railway Board with such recommendations as he feels are necessary.

(iv) Railway Board's suggestions pertaining to corrections or amendments to General Rules, Rules for Opening of a Railway, Schedules of Dimensions, the Way and Works and Signal Engineering Manuals, procedures for inquiries into accidents, Codes of practice and other publications.

(v) Preparation of Annual Report on the working of the Commission of Railway Safety.

Field duties of the Commissioner of Railway Safety consisted of inspections of sections of Railways, visits to the Railway Headquarters and Divisional Offices, Railway installations and Circle Offices. If considered necessary, he holds inquiries into accidents of an important nature.

Creation of Additional Circles & The Technical Wing :

1.3 (a) Prior to February, 1960, the Organisation consists of 4 Circles—Northern, Eastern, Southern and Western. On account of development works under the Five year plans, the work load increased very considerably, specially in the Eastern Circle which included the Eastern, South Eastern and North East Frontier Railways aggregating to 14,465 route Kilometres. An additional circle known as 'Construction Circle' was, therefore created on 1-3-1960 based at Calcutta, to deal with major projects, the Electrification on the Eastern and South Eastern Railways and the new Dandakaranya-Bolangir-Kiriburu Railway Construction.

(b) On account of considerable increase in work load, the Circles were re-organised from 11th April, 1968. With this re-organisation of the jurisdictions, Construction Circle was renamed as South Eastern Circle and Eastern as North Eastern Circle both headquartered at Calcutta.

Pursuant to the Recommendations of the Railway Accidents Inquiry Committee 1968, two more Circles of Inspection called the Central Circle and North Eastern Circle, located at Bombay and Gorakhpur respectively, were created in 1972. Central Circle started functioning with effect from 2-2-1973, and the North-Eastern Circle 21st April, 1973. The erstwhile North Eastern Circle headquartered at Calcutta was renamed as Eastern Circle.

(c) **Technical Wing :**

Pursuant to the recommendations of the Railway Accidents Committee 1962, a "Technical Wing" was set up—

> "..... to help the Commissioner of Railway Safety and the Additional Commissioners of Railway Safety to carry out.....inspections and 'Audit checks' on the quality and standard of maintenance of locomotives, rolling stock, state of equipment, safety aspects of actual practices followed by railways and observance of rules and regulations affecting the safe operation of railways".

Four posts of Deputy Commissioners of Railway Safety from Signal & Telecommunications, Electrical Traction, Mechanical Engineering and Operating Departments of the Railways were originally created but only three posts i.e. of Signalling and Telecommunication, Electric-Traction and Mechanical were filled. Efforts are being made to get an incumbent for the post from the Operating department also.

The Cadre & the personnel

1.4 (a) The functions detailed in para 1.2 are carried out on the Indian Railways by a small cadre comprising the Commissioner of Railway Safety, here-in-after referred to as C.R.S. and Circle Officers, each known as Additional Commissioner of Railway Safety here-in-after referred to as A.C.R.S.

The C.R.S. as the Head of the Organisation is the principal Technical Adviser to the Government in all matters pertaining to the Commission of Railway Safety. He is assisted by a Deputy Commissioner of Railway Safety (General) who also acts as the Leave Reserve Officer.

(b) As on 31st March, 1977, the cadre in the Commission of Railway Safety was :—

C.R.S. .	Shri D. G. Divgi, B.E., A.M.I.E. (India), Found. Fel. P.W.E. (Ind.), Found. Member Institute of Railway Transport.
A.C.R.S..	Western Circle, Bombay—Shri P. M. N. Murthy, B.Sc.,(Hons.), B.E.,F.I.E. (India) M. Inst. R. T. (Ind.), Found Fel. Inst. P.W.E. (Ind.).
A.C.R.S..	Central Circle, Bombay—Shri J. Y. Marathe, B.E.
A.C.R.S.	Eastern Circle, Calcutta—Shri S. K. Mojumder, B.C.E., M.I.E.(India).
A.C.R.S.	South Eastern Circle, Calcutta—Shri B. J. J. Rao, B.E.
A.C.R.S..	North Eastern Cricle, Gorakhpur—Shri A. V. Jacob, B.Sc., A.M.I.E., A.F.P.W.I.
A.C.R.S. .	Northern Circle, Lucknow—Shri B. P. Sastry, B.E. (Joined the Commission in November, 1976).
A.C.R.S..	Southern Circle, Bangalore—Shri K. N. Kamath, B.E. (Hons.), C.E. (Hons.), M. Inst. R. T. (India), Member Inst. of P.W. E. (India).
Dy. C.R.S. (General).	Shri Suresh Chandra, B.Sc., B.E. (Hons., M. Instt. R. T. (India), Member Ins. of P.W.E. (India).

Technical Wing :

Dy. C.R.S. (S & T).	Shri G. C. Saxena.
Dy. C.R.S. (E.T.).	Shri K. Bhojraj, B.E.
Dy. C.R.S.	Shri D. N. Dutt Choudhuri (joined the Commission in May, 1976.).
Dy. C.R.S. (Optg.)	Vacant.

Shri S. K. Mojumder took over as C.R.S. with effect from 12-4-77 consequent upon the proceeding on L.P.R. of Shri D. G. Divgi.

Jurisdiction

1.5 (a) The route Kilometrage in the jurisdiction of each Circle, on 31st March, 1977, was as under :—

Name of Circle	Headquarters	Route Kilometrage	Principal Railways
Western .	Bombay	10,336·86	Western Railway
Central .	Bombay	5,892.70	Central Railway
Eastern	Calcutta	4,437·22	Eastern Railway
South Eastern	Calcutta	7,000·13	South Eastern Railway.
Northern .	Lucknow	10,710·76	Northern Railway

Name of Cricle	Head-quarters	Route Kilometr-age	Principal Railways
North Eas-tern.	Gorakhpur	8,732·10	(i) North Eastern Railway. (ii) North East Frontier Rail-way.
Southern .	Bangalore	13,763·80	(i) Southern Rail-way. (ii) South Central Railway.

NOTE.—In addition to the above principal Rail-ways, the A.C.R.Ss. exercise jurisdiction over the various Metropolitan Transport Projects. They also exercise jurisdiction over Company Managed Railways, Port Trust Railways and District Board Lines located within their Circles.

Designation of Officers

1.6 As already mentioned earlier, the officers were originally called Government Inspectors of Railways and the Organisation the Railway Inspectorate. This designation was, however, found to be inapt and gave the public very erroneous impression of the position and status of these officers performing such important functions. It was, therefore, decided in November, 1961 to re-designate the Chief Government Inspector of Railways as Commissioner of Railway Safety and the Government Inspector as Additional Commissioners. At that time the pay scale of the Chief Government Inspector was Rs. 2,250/- p.m. (Fixed)—same as of the Divisional Commissioners in States and Additional Commissioners were in the grades viz. Rs. 1600-100-1800 (Junior) and Rs. 1800-100-2000 (Senior).

As a result of the recommendations of the Railway Accidents Committee—1962, these grades were revised upwards, the Commissioner having the same grade as of General Managers of Railways viz. Rs. 3000/- p.m. (Fixed) and Additional Commissioners being fixed in a scale higher than that of Chief Engineer viz. Rs. 2,500-125/2-2,750. With the increased in the pay scales of General Managers and Chief Engineers on the Railways, the Third Pay Commission recommended a further revision for the Commissioner as Rs. 3000-3500 and for Addl. Commissioners as Rs. 25,00-3000. Keeping in view the higher grades, the high status of these officers and the importance of the functions they perform and to give correct impression to the public as well as the Civil and Police Officers with whom they come in contact during their inquiries, it has been felt that these designations need a change again and the matter is under Government's consideration.

CHAPTER II

INSPECTION AND OTHER FIELD DUTIES

Inspection of New Lines

2.1 (a) The duties of an A.C.R.S. pertaining to the inspection of New Railway lines, including diversions, prior to their being commissioned for passenger traffic, to the use of locomotives and rolling stock, and to electrification of lines are contained in the 'Rules for the Opening of Railway or Section of Railway for the Public Carriage of Passengers'. Vide Railway Board's Notification No. 152-p of 1916, the A.C.R.S. exercise the powers under the Sections 18 and 19 of the Indian Railway Act (IX) 1890, for authorising such new works for traffic.

(b) With regard to the Inspection of New Lines, Doublings, Conversions, Electrification and Major Works, it would be unreasonable to assume that the A.C.R.S., by mere inspection of such works, can take upon himself any part of the responsibility which rests squarely on the Engineers who have supervised the progress of works from day-to-day during the period of construction. At the time of inspection by an A.C.R.S., defects if any as noticed, are pointed out and remedial measures suggested.

(c) During the year under review, the A.Cs.R.S. carried out detailed inspection of new works to the extent below:—

	Kilometres
(i) New Lines	772·115
(ii) Doubling of Sections . . .	139·70
(iii) Diversions (both permanent & temporary).	51·603
(iv) Conversion from M.G. to B.G. . .	123·79

New Minor Works

2.2 Additional Commissioner of Railway Safety are empowered to sanction new minor works affecting the running lines such as provision of new bridges, re-building or re-girdering of existing bridges, re-modelling of station yards, re-signalling works, alterations or renewals and other lines capacity works which affect the operation of passenger carrying traffic. These works after being sanctioned are executed by the Railway Officers and opened under a Safety certificate issued by them unless the A.C.R.S. decides to inspect these before their Commission.

During the year, the A.Cs.R.S. sanctioned 2825 new minor works of the above type.

Works involving infringements of Standard Dimensions

2.3 (a) On the recommendation of the Commission of Railway Safety the Railway Board sanctioned 153 works involving infringements to Standard Dimensions specified in the Schedules for Broad, Metre and Narrow Gauges. Of these 15 infringements were sanctioned as temporary measure and 138 as permanent measure.

(b) **Movement of over Dimensional Consignments.**—Various types of heavy machinery, which infringed maximum moving dimensions, were transported on the Railways, many of them from or to the sea-ports.

During the year, transport of 397 over Dimensional consignments was sanctioned on railways by Additional Commissioners of Railway Safety after due a scrutiny, subject to such conditions or speed-restrictions as were deemed necessary.

2.4 (a) **Restoration of Statutory Inspection.**—(i) In accordance with the Indian Railways Act, the Additional Commissioners of Railway Safety are required to make periodic inspections of the Railways and the rolling stock used thereon. Accordingly, such annual inspections of the Railways were being carried out by the officers of the Commission of Railway Safety till July 1953 when they were discontinued on the Government Railways, vide Railway Board's letter No. 52/W/8/53, dated 16-7-1953. The Commission of Railway Safety feels that the abolition of the periodic inspections is not in the best interests of safety.

(ii) The importance of periodic inspections of Government Railways by the Commission of Railway Safety—an independent authority was duly endorsed by the Railway Accidents Inquiry Committee, 1962 who stated in their Recommendation No. 204, "in order to allay public apprehension, we recommend that the Railway Inspectorate (re-named subsequently as the Commission of Railway Safety) as an independent body should carry out through checks of the track, Rolling stock and methods of operations and also make inspections in the nature of Audit Checks of the Safety aspect of Railway Working." Subsequently, the Railway Accidents Inquiry Committee—1968 headed by Shri K. N. Wanchoo, retired Chief Justice of India, stated in their Recommendation No. 273 "from the safety point of view, inspections by Addl. Commissioners of Railway Safety are no doubt advantageous." Having regard to the opinion voiced by these two high powered Parliamentary Committees, it is hoped that the Railway Board would soon take action to restore the statutory periodic inspection of Government Railways by the A.Cs.R.S.

(iii) While the letter of the Railway Board dated the 16th July, 1953 mentioned above relieved the Addl. Commissioners of Railway Safety of this responsibility for periodic inspection of Government Railways, it was left open to them to carry out inspections for their own purposes or to arrange adhoc visits to study particular aspects of Railway Working: Concurrently executive instructions were issued by the Administrative Ministry that detailed inspection

of zonal railways should be conducted to extent of 20% of the routes Kilometrage every year and a report submitted to the Commissioner of Railway Safety. For this purpose the A.Cs.R.S. were to make use of the facilities available during the annual inspection programmes of the General Manager. Instructions were issued by the Railway Board that wherever possible, the A.Cs.R.S. may be consulted by the General Managers before finalising their programmes sufficiently in advance and that once drawn up, the programmes should not be altered unless absolutely in-escapable. The Chairman, Railway Board also wrote to the General Managers reiterating these instructions. Cases where-in programmes are drawn up without consulting the Addl. Commissioners of Railway Safety are however continuing. The Railway Board, it is hoped, will take steps to ensure that instructions issued to General Managers are properly carried out.

(iv) Until the periodic inspections by the ACsRS are restored the Railway Board were requested that the present inspections be termed as "General Manager-cum-Additional Commissioner of Railway Safety Inspection". The Railway Board, it is hoped, will agree to this suggestion.

Railway Board's comments on para 2(4)(a)

"With regard to restoration of periodic inspections of the ACRSs, which were discontinued in terms of Board's letter No. 52/W/80/55, dated 16-7-53, it is mentioned that before issuing the said instructions, this matter was considered at the highest level in consultation with the Ministry of Communications, C.G.I.R. (now CRS) and the Ministry of Law, and it had the approval of the Minister.

It is not correct to assume that abolition of the ACRS's routine inspections had harmed the interest of safety, in any way, as the import of the revised instructions was not to stop the inspections of the ACRSs altogether, and such of the inspections as were necessary, could still be held at the discretion of the ACRSs. It was left open to the ACRSs to carry out such inspection of the Railway, or a section of a Railway, or to make ad-hoc visit to any section of a Railway to study any particular aspect of railway working which they may desire to make.

The extant instructions also provide that the ACRSs can make use of facilities available during the annual inspection programmes of the General Managers. Instructions also exist that the General Manager should invariably consult the ACRSs before finalising their inspection programmes, which should be drawn up sufficiently in advance so that the ACRSs get a fair opportunity to accompany the General Manager on the inspection tour. Regarding the CRS's observation that despite Board's instructions, cases where inspection programmes are drawn up by the General Managers without consulting the ACRSs, are continuing, the matter can be examined if details of such cases are made available to this Ministry.

This Ministry are of the view that the extant instructions should continue and no change therein is warranted".

(b) **Inspection of Open Lines.**—During the year, the A.Cs.R.S. inspected three company railways and one Port Trust Railway aggregating to 217.75 Kms. and accompanied General Managers of Government Railways during their inspections of zonal railways. In addition, they carried tour inspections of Government Railways, to the extent of 16777.40 Kms. They submitted reports of their inspections to the Commissioner of Railway Safety who in turn referred them to the Railway Board for appropriate action. Significant defects noticed during the inspection were discussed at site with the Railway Officers concerned and copies of inspection reports were also furnished to the General Managers to ensure prompt remedial measures.

(c) **New types of locomotives and rolling stock commissioned.**—On the recommendations made by the Commission of Railway Safety, the Railway Board accorded sanction to the running of 29 new types of locomotives and rolling stock during the year under review, including the operation of such locomotive and rolling stock on other routes as were already in use on certain sections of the Indian Railways. The A.Cs.R.S. under their own power authorised the running of 80 types of locomotives and rolling stock on the Railways in their jurisdictions.

CHAPTER III

INVESTIGATION INTO ACCIDENTS

Incidence of Accidents

3.1 (a) The number of accidents which occurred in 1976-77 as advised by the Railway Board on the Government Railways, including those reported under section 83 of the Indian Railways Act, 1890, are given in the table below :—

S. No.	Railways	No. of Accidents		No. of accidents under section 83 of the Indian Railways Act.	
		1975-76	1976-77	1975-76	1976-77
	Government Railways ;				
1	Central . .	1950	2023	42	41
2	Eastern . .	1318	945	34	24
3	Northern .	1989	1280	48	37
4	North Eastern .	660	518	48	48
5	Northeast Frontier.	988	259	47	51
6	Southern .	609	612	40	40
7	South Central .	548	453	57	40
8	South Eastern .	1265	1993	42	50
9	Western . .	1287	820	47	32
	TOTAL .	10614	8903	405	363

NOTE : Figures for non-Government Railways are not available.

The figures in the table do not include such occurrences as persons falling out from trains, persons run over on lines and injuries to station or line staff.

(b) For the period from 1966-67 to 1975-76 and for the year 1976-77, the incidence of train accidents on Government Managed Railways including those under Section 83 is shown in the following table.

Sl. No.	Category	66-67	67-68	68-69	69-70	70-71	71-72	72-73	73-74	74-75	75-76	76-77
	Group I											
1.	Collisions	67	66	47	54	59	57	59	66	66	64	45
2.	Derailments	876	892	684	751	648	667	598	578	696	768	633
3.	Collisions with road vehicles at level Crossings.	104	111	129	111	121	118	131	125	140	105	86
4.	Fires in trains . . .	50	42	48	47	12	22	25	13	23	27	16
	Total of items 1 to 4 . .	1097	1111	908	963	840	864	813	782	925	964	780

Regulations

3.2. (a) Rules for the guidance of the Officers of the Commission of Railway Safety for holding inquiries into Railway accidents are contained in the Ministry of Tourism & Civil Aviation Notification No. RS. 13-T(8)/71, dated the 19th April, 1973, under the caption "Statutory Investigation into Railway Accidents Rules, 1973".

All accidents as described in Section 83 of the Indian Railways Act are reported, according to Railway Notices and Inquiries into Accidents Rules, 1973 notified by the Ministry of Railways (Railway Board) in their Notification No. GSR 575, dated the 19th April, 1975,—as per Explanation below clause 3 of the Rules, these accidents include :

".....Accidents of a description usually attended with loss of human life are meant to include all accidents to passenger train like collisions, derailments, train wrecking or attempted train wrecking, cases of running over obstructions placed on the line, of passengers falling out of trains, or of fires in trains, in which no loss of life or grievous hurt as defined in the Indian Penal Code, or serious damage to Railway Property of the value exceeding Rs. 1,00,000 has actually occurred but which by nature of the accident might reasonably have been expected to occur, and also cases of land slides, or of breaches by rain or flood, which cause the interruption of any important through line of communication for at least 24 hours".

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(b) The relevant portions of para 2 of Statutory Investigations into Railway Accidents Rules, 1973, are reproduced below :—

"2(2)..... Every 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 one lakh rupees and any other accident which in the opinion of the Commissioner of Railway Safety or the Addl. Commissioner of Railway Safety requires the holding of an inquiry shall be deemed to be an Accident of such a serious nature as to require the holding of an Inquiry.

(3) Where the Commissioner of Railway Safety considers the holding of an Inquiry into an accident necessary, he may either hold the inquiry himself or direct the Additional Commissioner of Railway Safety to do so.

Explanation.—The Inquiry under this rule shall be obligatory only in those cases where the passengers killed or grievously hurt were travelling in the train. If a person travelling on the foot board or roof of a passenger train is killed or grievously hurt or if a person is run over at a level crossing or elsewhere on the railway track, an inquiry under this rule shall not be obligatory. Similarly, if in a collision between a road vehicle and a passenger train at level crossings, no passenger in the train is killed or grievously hurt, it shall not be obligatory to hold an inquiry. For the purpose of this rule, Workmen's trains or ballast trains carrying workmen shall also be treated as passenger trains and in the event of a workmen getting killed or grievously hurt as a result of an accident to the train, an inquiry under this rule shall be obligatory".

(c) If, for any reason, the Additional Commissioner of Railway Safety is unable to hold an inquiry at an early date after the occurrence of such an accident, he shall inform the Head of the Railway Administration concerned and the Railway Board accordingly and he shall also inform the Commissioner of Railway Safety of the reason why an inquiry has not been held by himself.

(d) On the receipt of the proceedings of the joint inquiry (inquiry made by a Committee of Railway Officers) from the Head of the Railway Administration in accordance with rule 15 of Railway (Notices of Inquiries into Accidents) Rules, 1973, the Additional Commissioner of Railway Safety shall scrutinise the same and in case he agrees with the findings of the joint inquiry, shall forward a copy of the report to the Commissioner of Railway Safety alongwith his views on the findings and recommendations made. If, on the other hand, the Additional Commissioner of Railway Safety after examination of the joint inquiry proceedings, considers that an inquiry should be held by himself, he shall, as soon as possible, notify the Commissioner of Railway Safety, the Railway Board and the Head of the Administration concerned of his intention to hold an inquiry and he shall at the same time fix and communicate the date, time and place for the inquiry.

Scope of Statutory Inquiries

3.3. The Additional Commissioner holds inquiries into accidents with a view to ascertaining the causes and fix the responsibility thereof on the individuals concerned. Investigations are also carried out into the question as to whether prompt and adequate steps were taken by the railway administration for relief measures e.g. first aid, medical treatment, refreshments, evacuation of injured passengers and facilities given to passengers such, as arrangements for transhipment, completion of their journey to destination, running of duplicate trains etc. As a result of his inquiry, the Additional Commissioner also makes certain recommendations, which are designed to prevent a recurrence of similar accidents, e.g. new rules or equipment for ensuring safety, improved standards of signalling, construction operation and maintenance of track, bridges etc. He also comments on matters observed by him during the course of his inquiry which may not have any bearing in the cause of the accident under investigation but generally affect the safe working of the railway and may cause accidents.

Procedure for holding inquiries

3.4. (a) Under the Statutory Investigation into Railway Accident Rules, 1973 the Additional Commissioner of Railway Safety on receiving intimation of the occurrence of a serious accident proceeds to the site by the quickest possible means and records all particulars, after careful inspection, before according sanction to the Railway for clearance of wreckage and restoration of the lines. He then carries out Tests as required and records Evidence. The emphasis has necessarily to be on the material and circumstantial evidence at site, which in almost all cases leads to the determination of the cause or causes.

(b) Officers or the local magistracy and police are advised of the inquiry and may attend the same. The press and the public are not admitted to an Additional Commissioner's Inquiry. The public is however invited through the press and the radio to give evidence at his inquiry in the capacity of witnesses. The public and the press are excluded from the inquiry because the evidance recorded by the Additional Commissioner is not given on oath or affirmation, and it is solely on the basis of his evidence that he has to determine the technical cause of the accident and fix the responsibility, if any, of railway servants and others. As the Additional Commissioner's conclusions may lead to or to be followed by, prosecutions in criminal Courts, a public hearing of the witness may prejudice the prosecution or defence and subsequent judicial proceedings.

To the suggestions made by the Railway Accidents Committee 1962, viz. "The public and

members of the union should be permitted to be present in the course of statutory inquiries into accidents", the Government held the view that "No useful purpose would be served as technical investigations are not likely to be of interest to the public".

Statutory Inquiries in 1976-77

3.5. (a) There were 30 accidents enquired into by Officers of the Commission of Railway Safety. Of those 12 were cases of Collisions between trains, 4 were cases of Collisions between trains and road vehicles on level crossings, 10 were of Derailments and 3 were cases of fire and one of Collision between a train and a camel cart standing on the road adjacent to the railway track.

(b) The accidents enquired into by the Commission are summarised below giving the significant recommendations :—

1. *Fire* in a coach of 479 Up passenger at Motipur station on North Eastern Railway on 8-4-1976.

Casualties :

One serious and two minor.

Cause :

Electric short circuit although it could not be established unequivocally.

Cost of damage to railway assets :

Rs. 40,000/-.

Recommendations :

1. It is considered necessary that Railway Officers and Supervisory staff reaching the site immediately after an accident should take down eye witnesses accounts.

2. More prompt and effective action is required by the officers and staff to project evidence which may throw light on the accident immediately after the occurrence.

3. Maintenance of train lighting on Samastipur Division of N.E. Railway requires improvement.

4. The maintenance of train lighting inspection records is unsatisfactory. Printed proformas for these records are desirable.

5. A permanent installation on coaches for testing for earthing is suggested.

6. Special attention should be paid to see that passenger train guards are equipped with all safety equipments like fire extinguishers etc.

7. The practice of working passenger trains with alarm chains blanked off for long periods requires review.

8. Action to replace the present 24 volts system by 110 volts system should be expedited.

9. Use of easily inflammable material like plywood inside coaches should be given up and fire resistant alternatives should be developed.

2. *Fire* on the roof of a motor coach of G.2Up local train between Vidyavihar and Kurla stations on Central Railways on 11-4-1976.

Casualties :

Killed—2

Injured : Grievous—2

Simple—6

Cause :

Electric short-circuit caused by stray pieces of wire in the pantograph portion of the roof.

Cost of damage to railwy assets :

Rs. 450/-.

Recommendations :

1. A manual of instructions for inspection and upkeep of electrical portion of EMU stock should be prepared.

2. Some method of insulating the metallic bases or attachments of insulators, cat walls, etc. and damaged portions of roof insulation may be found out and adopted.

3. The stray pieces of wire lodged between the main roof and the false should be cleared by blowing compressed air, in the fortnightly schedules.

4. The cross sectional surface at the edges of the false roof should be insulated.

5. The possibility of making the false roof of non-conducting material such as pressed or plain wood may be examined.

6. A proper and effective material for insulating the portion of roof under the pantograph may be found out and used.

7. Mill Board supported on some stiff shooting may be used for ceiling under the pantograph portion.

8. The small general compartment over which pantograph is mounted may be connected to the big ladies' compartment and converted into a bigger general compartment. This will provide an escape to the passengers on seeing the fire and the falling molten metal.

9. The two Feeders should be interconnected so that if one trips, the other also trips. This will stop the fire instantly and prevent reduce further damages.

10. Traction Subsidiary Rules should provide that when a buzzer is sounded, the Motorman should reduce the speed then look back for roof fire and if there is fire, he should lower the pantograph first and then bring the train to a stop.

11. A Committee of Officers from RDSO, the Central and Western Railway and the Commission of Railway Safety should review suggestions and recommendations made from time to time and submit a report listing feasible suggestions. There should be a time bound programme for implementing the suggestions.

3. *Derailment* of 59 Up Kamrup Express in New Jalpaiguri station yard on Northeast Frontier Railway on 11-5-1976.

Casualty :

One dead, eleven minor injuries.

Cause :

Accidental electrical operation of the point during the passage of the train due to erroneous wiring.

Cost of damage to railway assets :

Rs. 59,312/-.

Important Recommendations in brief :

(1) There is need for specifying what all to seize and seal in case of different types of accidents and this to be done promptly to avoid tampering with evidence.

(2) Guards should be trained to select items of higher priority out of their duties at site of accident of different types.

(3) The porthole for Crank handle operation of point machine should be kept padlocked to guard against danger of Sabotage.

(4) There is need to amend Chapter VII of G&SR to spell out in greater detail precautions to be observed in carrying out S&T works. Also rules to be laid down prescribing authority directly responsible for safe execution of S&T works.

(5) Staff to be trained to give full weight to observance of Safety rules even if such observance may result in detention to trains.

(6) The rule prescribing stopage of all operation over a motor-operated point once crank handle is issued to S&T Staff appears to require amendment to make it more practical.

4. *Collision* of Wiring train with the rear of N-9 Down local train between Vikhroli and Kanjur Marg stations of Central Railway on 24-5-1976.

Casualties :

Killed—Nil

Injured :—

	Local Train	Wiring Train	Total
Grievous .	2	3	5
Simple .	6	8	14

Cause :

Failures of Railway Staff (Wiring train having been driven without requisite care).

Cost of damage to railway assets :

Rs. 4,250/-.

Recommendations :

(1) The maintenance of the Wiring Train and the amenities for workers on that train require to be improved.

(2) Proper counselling is necessary to bring home to the staff that in suburban areas, there would not very often be adequate time to fix detonators and it would be better to light a fuse before fixing detonators. Subsidiary rules for the use of fuses should be made early.

(3) In automatic signalling area, when a train comes to a stop and the visibility is poor, a fuse should be immediately lighted and fixed in the rear of the train. When the halt exceeds 5 minutes the train should be protected as per G.R. 280.

(4) In automatic signalling area, for protecting the adjacent track, short circuiting device to put the signals at danger may be used and then the line protected over 180 metres only.

(5) The provisions of Automatic Warning System in the high density suburban sections of Central Railway required to be expedited.

(6) WDS4 engines used for hauling wiring Trains or shuttle trains on main/suburban lines should be provided with speedometers.

(7) Effective steps should be taken to ensure that the Guards carry the vacuum guage which is one of the essential items for safe operation of trains.

(8) Effective steps are necessary to ensure that batteries on the EMU coaches are properly kept charged.

(9) Effective steps should be taken to remove encroachments and unauthorised huts on Railway land close to and on either side of the site of the accident.

5. *Side-collision* of 487 Up Mixed train with a Camel-cart between Bela and Pipli stations on Western Railways on 25-5-1976.

Casualties :

Train—Killed : Nil.

Injured : 2 (grievous).

Camel Cart—Nil.

Cause :

Failure of camel cart driver.

Cost of damage to Railway assets :

Rs. 600/-.

Recommendations :

1. Doors of Narrow Gauge Coaching stock opening outward to be modified so that they open inward.

2. Till such time as the above recommendation is implemented, passengers on N.G. Sections to be cautioned through available media (including display of notices in vernacular inside the coaches) to keep the doors secured with latches during the journey.

3. Stakes to be erected at closer intervals of 0.60 metre centre to centre at locations where the road is in close proximity to railway line to serve as a more effective barrier.

6. *Side Collision* of 348 Down Fast Passenger with coupled engines at Katwa Junction station on Eastern Railway, on 25-6-1976.

Casualties :

1 Killed.

1 Injured (Grievous).

Cause :

Failure of Railway staff.

Cost of damage to Railway assets :

Rs. 78,351/-.

7. *Collision of* 346 Down passenger with the dead end buffers at Howrah station on Eastern Railway on 6-7-1976.

Casualties :

Killed—1

Injured—4 Simple

Cause :

Failure of Railway staff.

Cost of damage to Railway assets :

Rs. 400/-.

Recommendations :

(a) A certain percentage of each Class of locomotives should be specified for detailed inspections by Assistant/Divisional Mechanical Engineer every month to cover all the locomotives of each class within a specific period—say three months (if the number under each is large), giving more importance to the old ones. Similar schedule may be laid down for inspection of Diesel and Electric locomotives also.

(b) As a large number of omissions were observed in recording the repair items in the Repeated Booking Register it has been recommended that the clerk concern should be properly trained for the work and a system of check introduced to ensure that all important bookings are transferred correctly, by talling with the Engine Repair Books.

(c) Coaches Nos. ER FCS 1957 and ER WGS 4348 were due POH in June and April 1976 respectively. A more strict watch should be maintained to conform to the schedule laid down for POH.

(d) Railway Board should take an early decision regarding provision of shock absorbing Hydraulic buffers at Howrah and Sealdah stations as suggested in the report on the accident of M.202 Down Burdwan-Howrah Local train dashing against dead-end buffer of Platform No. 3 at Howrah on 1-7-73 which has been followed by two other similar accidents including the present one.

8. *Derailment* of 234 Down Mixed train between Golaghat and Furkating stations on Northeast Frontier Railways on 14-7-1976.

Casualties :

1 died, 1 grievous and 1 simple injury.

Cause :

Failure of railway equipment.

Cost of damage to Railway assets :

Rs. 33,000/-.

Recommendations :

(1) There is need for greater attention to rehabilitation of track on N.E. Railway.

(2) The need for replacing the rails on this section on overage basis may be examined by Railway Administration.

(3) There is need for enforcement of inspection schedules. The question of sanctioning posts to the extent justified by yardsticks laid down by Railway Board's Efficiency Bureau so that inspection schedules are complied with also needs attention.

(4) There is need for periodical checking of tools in use by P. Way gangs.

(5) There is need for ensuring that wagons in use on branch lines receive TXR examination at adequate intervals.

(6) In view of the fact that SMs and Guards are called upon in the course of their work to decide fitness of wagons to run practical training in this aspect should receive greater importance than hitherto.

(7) It is desirable to have only selected wagons moving on mixed trains. For this purpose, the system of marking such wagons 'M' which was in vogue before may be reviewed.

(8) The question of marshalling wagons in rear of coaches on mixed trains may again be examined. Also the possibilities of discontinuing mixed trains on the Jorhat Town-Furkating-Mariani Section by introducing goods train as soon as justified by traffic available may be kept under constant review.

(9) In order to avoid loading of wagons over due repacking, the due date may be painted prominantly below return date on the body of the wagon.

(10) More precise orders as to the Civil authority competent to give permission to start restoration work may be laid down to avoid delays in starting restoration work as happened in this case.

9. *Level crossing accident.* Collision of light engine with a bus at a level crossing on Hirri Mines siding taking off from Dadhapara station on South Eastern Railway on 16-7-1976.

Casualties :

Killed—Nil.

Injured 5 grievous.

1 simple.

Cause :

Failure of Railway staff.

Cost of damage to Railway assets :

Rs. 140/-.

Recommendations :

(1) The Motor Vehicles Act should be amended by the Central Government making provision for caution to be exercised at manned and unmanned level crossings by drivers/conductors of transport vehicles.

(2) There should be provision in the Motor Vehicles Act/or rules that conductor, while not engaged in other duties like issue of tickets, should keep a sharp look-out while motor vehicle is in motion and warn the driver in case any obstruction or danger to the motor vehicle is apprehended.

(3) Engines to run tender foremost at night should be fitted with head lights and cow catchers.

(4) The RDSO should look into the whole issue of synchronisation between the engine and the vacuum brakes in the case of locomotives and necessary action taken to remove any difficulties in the maintenance of standard equipment.

(5) Specification for construction and maintenance of level crossings should be strictly adhered to and considerable thought should be given from the safety point of view in constructing/modifying the level crossings.

(6) The importance of surprise inspections of manned level crossings, particularly at night, should be stressed and a workable schedule for such inspections should be laid down by the Railways.

(7) The Gateman should be classified based on the actual work load, as a result of job analysis where required and not on train-vehicles basis alone.

(8) All important instructions issued by the Board or a Railway should be in the form of correction slips to the concerned manual/G.R. Book or serially numbered circulars.

(9) The Subsidiary Rule No. 229(3) of South Eastern Railway should be annuled.

(10) Road vehicles should be made available at Bilaspur for use in emergencies by medical staff who are residing far away from the station.

(11) The importance of accident drills and joint inspections of accident relief trains and accident relief medical equipment vans should be reiterated.

(12) The Railway Board may issue clarification to the Railways regarding provision of 'W' and W/L whistle boards at approaches to level crossings.

10. *Fire* in 409 Up Passenger train between Jankinagar and Murliganj stations on North Eastern Railway on 23-7-1976.

Casualty :

One died and one seriously injured.

Cause :

Electrical short circuit.

Cost of damage to Railway assets :

Rs. 24,500/-.

Recommendations :

1. Recommendations 5 to 9 of the report submitted in the case of fire in 479 Up at Motipur station of N.E. Railway on 8-4-76 were repeated.

2. As the orders regarding responsibility for provision of fire extinguishers in passenger, mail and express trains issued vide Railway Board's letter No. 61/142/M(C) of 13-6-69 do not appear to be practicable without considerable additional expenditure, the Railway Board may re-examine the matter and issue fresh orders.

3. Outside all such coaches in which alarm chain is blanked off, a notice should be displayed advising passengers of this fact.

4. Maintenance of electrical equipment of coaches requires improvements.

11. *Derailment* of 59 Up Kamrup Express between Samsi and Bhaluka Road stations on Northeast Frontier Railway on 30-8-1976.

Casualty :

6 minor injuries.

Cause :

Wilful Tampering with track.

Cost of damage to railway assets :

Rs. 32,07,212/-.

Recommendations :

The Ministry of Railways should take active steps to get the State Govts. to agree to the Police and Railway Officials signing a joint factual note of the condition obtaining at site of derailment as soon as possible after the accident.

12. *Collision* of 882 Down goods train with 411 Up goods train in Yamuna Bridge station yard on Western Railway on 1-9-76.

Casuality :

Killed 2, injured 2. One grievous.

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 90,500/-

Recommendations :

1. Gumti referred to in Para VII of the Station Working Rules of Yamuna Bridge to be relocated.

2. Trains from Agra City to be brought to a stop at the Home Signal of Yamuna Bridge and then admitted into the station to ensure that they enter the yard at the stipulated speed of 10 km/h

3. Permanent speed restriction of 10 km/h at Yamuna Bridge to be notified in the Working Time Table.

4. Defects in Signalling Circuits at Yamuna Bridge to be located and set right.

5. Urgent measures to be adopted to minimise signal failures and to secure a higher standard of maintenance of signalling installations at Yamuna Bridge.

6. Central and Western Railways to keep in their loco Sheds in Agra Area an adequate number of Firemen acquainted with the Northern Railway route.

13. *Derailment* of 23 Up Patna-Hatia Express between Silli and Kita stations on South Eastern Railway on 11-10-1976.

Casualties :

Killed—1 (Driver of the train).

Injured—Grievous—5 (out of whom one is suspected).

Simple—8.

Cause :

Failure of railway equipment (Mechanical). Placement of ballast stones on rails by some miscreant(s) also contributed to the accident.

Cost of damage to railway assets :

Rs. 2,90,000/-.

Recommendations :

1. Instructions to be reiterated to loco shed for proper maintenance of 'WG' Class Engines.

2. Limits to be laid down for biassed wear on the flanges of front truck wheels of 'WG' locomotives and investigations made by Railways to identify the causes leading to such biassed wear and eliminate them.

3. Detailed reasons to be recorded in locomotive history sheet whenever major components are replaced.

4. Criteria to be laid down for realignment/local adjustment of curves on C, D and E category routes also.

5. More rigid criteria to be laid down for maintenance of transition portion of curves.

6. Instructions regarding staggering of rail joints and lubrication of outer rails on sharp curves may be reiterated and incorporated in the Way and Works Manual.

7. Cant on curves to be rounded off to one milimeter on sections where gangs are equipped with improved level cum gauge and to 2.5 mm in sections provided with conventional cant boards instead of to 5 mm as presently stipulated in Way and Works Manual. Gangs to be supplied with inverted 'U' shaped iron plate 2.5 mm thick chained to the cant board.

8. Provision and maintenance of signalling gear should be as per standards and certain deficiencies now existing to be set right early.

9. All stations on South Eastern Railway to be provided with First Aid Boxes as per the policy directive of the Railway Board.

14. *Derailment* of 52 Down Express between Khana and Talit stations of Eastern Railway, on 11-10-1976.

Casualties :

Killed—2.

Injured : Simple—2.

Cause :

Failure of railway equipment (breakage of axle guides).

Cost of damage to railway assets :

Rs. 1,67,805-.

Recommendations :

(1) Use of axle box guides manufactured by wrong production method in ICF coach No. ER4138 needs investigation and procedure of inspection be modified to prevent recurrence.

(2) Detailed examination of cracked guides to ascertain whether cracks are occurring in properly manufactured guides also should be made and in case incidence of cracks in such guides is high the design may be examined for strengthening as necessary.

(3) Use of non-standard material and wrong production method in manufacturing long shackle (hangers) of springs should be investigated.

(4) A system should be introduced to ensure that when a coach meant for slow train services is used on Mail/Express train rakes, the date of return is corrected to the 12 months schedule applicable to Mail/Express trains.

15. *Collision* of empty rake of 686 Passenger with 115 Down passenger in Tiruchirappali station yard on Southern Railway on 18-10-1976.

Casualties :

Killed—Nil.

Injured—two (one grievous and one simple).

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 5,100/-.

Recommendations :

(i) Staff not having the necessary qualification/training should not be posted for train passing duties.

(ii) Vacuum brake should be in operation on all the coaches during shunt moves of atleast rakes of more than eight coaches in the Metre Gauge yard at Tiruchirapalli Jn.

(iii) Route indicators should be provided at the shunt signals in the metre gauge yard.

16. *Derailment* of 371 Down local at Bandra station on the Western Railway on 23-10-1976.

Casualties :

Killed—2.

Injured (5 grievous and 8 minor).

Cause :

The accident was the outcome of the palm pull rods on the brake hanger assembly on the leading right wheel of the trailing bogie of the 2nd coach getting detached at their fore end and the inner palm pullrod stricking and bending the gauge and driving rods of facing Points No. 136, resulting in the points gaping and causing derailment of the coaches that followed.

Cost of damage to railway assets :

Rs. 54,000/-.

Recommendations :

(1) Existing infrastructure for maintenance of EMUs to be strengthened with commensurate inputs and change in methodology.

(2) Notification suggested by the Western Railway Administration to buttress the integrity of the brake rigging on EMUs to be considered urgently by the RDSO.

(3) Remedial measures to be adopted to ensure conformance of vital safety items such as pins, etc. to specifications.

(4) POH of EMUs in its entirety to be brought under the control of the Chief Electrical Engineer in accordance with the Railway Ministry's policy directive.

17. *Derailment* of Up Itarsi Special Goods train in the sand hump at Sukhi Sewaniyan station yard on Central Railway on 12-11-1976.

Casualties :

Killed—1.

Injured—Nil.

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 2,29,000/-.

Recommendations :

(1) Speedy and all out efforts should be made to perfect the design of the Vigilance Control Device and to manufacture this Device and its spare parts in sufficient numbers so that the Device is available in working order on all the diesel locomotives.

(2) A Device which would give only an audible warning if not operated at a specified interval with any of the 2 or 3 push buttons located suitably on the locomotive, without brake application taking place, is likely to be more acceptable to the Drivers and may be tried.

(3) Psycho-Analytical Cell of the RDSO may examine the case of Driver Shri R. S. Yadav and submit their report.

(4) Speed-graphs in addition to speedometers may be provided on diesel locomotives working through goods trains.

18. *Level Crossing Accident* Collision between light engine and bus at level crossing between Tilaya and Wazirganj stations on Eastern Railway on 15-11-1976.

Casualties :

2 Killed—(Driver and a passenger of the Bus).

16 Injured—8 Grievous.

8 Simple.

(All were bus passengers).

Cost of damage to railway assets :

Rs. 3,500/-.

Recommendations :

1. Engines starting from stations where turning facilities exist should be turned so as to avoid running tender-foremost.

2. The gate lodge should be connected with a telephone to the nearest station Tilaya. Coupled lifting barriers worked by a winch must also be provided.

3. Railway Board may issue necessary directive to the Railways for informing the Safety Controlling Authority as well as Additional Commissioner of Railway Safety whenever any equipment of a locomotive like tender brakes provided in specifications cannot be maintained and the locomotives are to run deficient of the same, as it constitutes a violation of the sanction. Suitable restrictions as considered necessary shall be imposed for such deficiency.

4. The Gateman must have a hand signal lamp turned to red at night whenever the gates are opened to road-traffic for complying with GR 229(2).

5. The diagram showing whistle boards for level crossing in Figure II under Subsidiary Rule 131-A(ii) and also in the Drivers' Rule Book of Eastern Railway should be corrected to indicate 'W/L' as per Indian Railways Way and Works Manual.

6. Speed brakers should be provided at the approach to all unmanned level crossings.

19. *Collision* between (i) OJA Spl. Up Goods train with the rear of WJD-12 Up Goods train and (ii) 78 Up Parcel Passenger with the rear of OJA-Spl. UP Goods train at Srivankateswarapalam station of South Central Railway on 17th November, 1976.

Casualties :

Killed 9 (one passenger in No. 78 Up and 8 persons in WJD-12).

Injured—

Grievous-8 (4 passengers of No. 78 Up and 4 persons in WJD-12).

Simple—17 (9 passengers of No. 78 Up, 7 in WJD-12 and the Diesel Assistant of OJA-Spl.)

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 2,87,050/-.

Recommendations :

1. During total interruption of communications, trains should be run on the authority of 159/R only during day time restricting the speed to 25 km/h. when the view is clear and to 8 km/h when the view is not clear on account of curve, fog, rain, or any other cause. Running under this authority during night shall be prohibited save under special circumstances e.g. to take a passenger train to the nearest station where facilities are available.

2. Portable wireless sets should be used for obtaining Line Clear during total interruption of communications at such stations in the coastal areas where cyclonic storms are common.

3. The distances for protection by detonators may be reduced to 125 metres and 250 metres in cases where trains are running under the authority to proceed without Line Clear.

4. The Health Unit/Hospital should supply a First-aid Box, in case it is sent for replenishment is to be detained there.

20. *Level Crossing Accident* Collision between 72. Down Passenger and a truck at Level Crossing No. 20B between Ghazipur City and Ankuspur stations on North Eastern Railway on 27-12-1976.

Casualties :

1 grievous.

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 600/-.

Recommendations :

(1) The census of the level crossing on the National and State High Ways, which are still 'B' class, should be made biennial instead of quinquennial. The census should also be taken for 7 days instead of 3 days.

(2) Proper Yardsticks to be laid down for upgradation of level crossings on the basis of census figures.

(3) Procedure for carrying out work of upgrading to be stream-lined.

(4) The rule that when gates are open to road traffic at night a hand signal lamp should be kept lit and ready showing danger signal should be implemented.

(5) In view of the extreme cold obtaining at night in winter in the area covered by North Eastern Railway gatemen should be supplied woollen great coats.

21. *Collision* between SFCD Spl. Up Goods train and the empty rake of 432 Down passenger train at Gummidipundi station on Southern Railway on 31-12-1976.

Casualties :

Killed—1.

Injured—2 (Grievous).

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 93,700/-.

22. *Collision* of 130 Down Varanasi-Asansol Passenger with the rear of IVMA Passenger at Mughalsarai on Eastern Railway on 18-1-1977.

Casualties :

26 Killed.

35 Grievous.

68 Simple.

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 2,20,000/-.

Recommendations :

(1) Lever collars to be used on the levers of departure signals also as an additional reminder, when a block section in advance is occupied by a train in sections with tokenless block working.

(2) The Railway Board may impress on the railways the need to supply wiring diagrams to Division for checking track circuits apart from functional tests.

(3) The Railway Board may impress on other Railways also the need to overhaul relays and lever frames as per provisions of Signal Engineering Manual.

(4) Advanced Starters should be as close as possible to the outer-most points and any shunting for full length trains should be either on separate shunting necks or by blocking 'forward' or 'backward' of main lines on rare occasions.

(5) Ways and means must be found to ensure that speedometers work in both the directions when it is a regular feature for engines to run tender foremost. Direction correctors may be provided in such cases.

(6) Working Time Tables should be printed correctly since they form the basis for safe working of trains.

(7) While examining staff connected with train working, doctors should consult the previous medical history and frequency of medical examination may be increased in doubtful cases.

(8) When the integrity of signalling and interlocking is in doubt in the case of an accident, the S & T officers/officials should conduct tests in the presence of other departmental officers/officials and get the result jointly signed. Necessary provisions may be made in the Signal Engineering Manual and Accident Manuals of Various Railways.

(9) The centre pivot of the bogies should be strengthened.

(10) The railways should not make ad-hoc promotion to Key posts. Men should be selected only by duly constituted Selection Committee as per rules.

(11) RDSO's letter No. SL/SPD dated 24-4-64, addressed to South Eastern Railway, laying down certain guidelines for working WP/WG class of engines tender-foremost should be circulated to all the railways for their guidance.

23. *Derailment* of 104 Down Kathgodam-Barielly Passenger in the catch-siding of Haldwani station on North-Eastern Railway on 7-2-1977.

Casualties ·

Killed—3.

Injured, Grievous—6

Simple—3.

Cause :

Inadequate Brake Power.

Cost of damage to railway assets :

Rs. 2,03,500/-.

Recommendations :

1. Ensuring provision of the minimum prescribed brake power Special vacuum examination to be done in ghat sections with gradients steeper than 1 in 100. Periodical checks by inspecting officials for ensuring compliance.

2. Suitable modification of para 177(5) of N.E. Railway's Operating Circular No. 12 to avoid undue emphasis on punctuality, to avoid safety being compromised.

3. Depth of sand in catch siding to be further examined in consultation with RDSO.

4. Grade and alignment of catch siding at Haldwani to be further examined.

5. Quality of sand in catch siding and its proper maintenance to be ensured.

6. Land adjacent to the catch siding to be kept clear of any structures.

7. Maintenance of speedometers of passenger train engines in working order to be ensured.

8. Provision of direct reception of Down trains from Kathgodam side into Haldwani without stopping at the Outer Signal to be deleted from the Station Working Rules.

9. Ultrasonic testing to detect flaws in important components of rolling stock to be carried out in sheds and workshops.

10. Rolling stock due for POH to be booked by the due date.

11. Overhauling of S.M's look up box and relays at Haldwani to be completed.

12. Repeaters for Down Outer and Home Signals and Up Outer signal to be provided in the Cabin at Haldwani.

13. Provision of locking arrangement for the lock lever after extraction of key 'Q' from the lever frame at Haldwani.

24. *Collision* of 16 Up G.T. Express with the rear of Diesel goods train at Ongole station on South Central Railway on 8-2-1977.

Casualties :

Killed—Nil.

Injured—47 (5 grievous, 42 simple).

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 1,444/-.

Recommendations :

1. The Emergency Release facility provided on Double line Block instruments should be withdrawn. Until this is given effect to, the key of the padlock on this button should be kept in the personal custody of the Station Master and whenever its use if called for private numbers should be exchanged between the Switchman and the Station Master and the reasons for the use recorded in the Emergency Release Register.

2. Regular inspection of the Train Registers by the Station Master and other Supervisory staff as per extent instructions in the Block Working Manual should be ensured.

3. Punctuality of trains should not be attempted to be achieved at the cost of any reduction in the emphasis in safety. The staff should feel assured that they would not be taken up in cases of detentions due to genuine reasons. The Railway Board may study this aspect in order to devise suitable means to reconcile the somewhat conflicting objectives of punctuality and safety.

25. *Derailment* of 387 Down Passenger at Majhgawan station on Central Railway on 17-2-1977.

Casualties :

Killed—Nil.

Injured—Grievous—2.

Cause :

Failure of Railway staff and Railway Equipment.

Cost of damage to railway assets :

Rs. 1,32,082/-.

Recommendations :

(1) For a facing Turnout on a curved track a tongue rail made of special wear resisting steel may be used on the outer rail of the curve.

(2) As a trial measure, a check rail of adequate length may be provided on the inside of a curve on the approach to a facing turnout to reduce wear and tear of the tongue rail on the outside of the curve.

(3) Written messages are not being exchanged between the TXR and the Station Master in regard to fitness of rolling stock on a starting train as laid down in Conference Rules and this must be done.

(4) A general laxity in the working of Train Examining Staff seems to have crept in and necessary corrective steps should be taken.

(5) Wrong marshalling of the train (which probably led to casualties) needs to be viewed seriously and necessary steps taken to avoid recurrence of such cases.

(6) Marshalling of Goods Stock on 387 Dn. needs to be reviewed and instructions to attach goods stock in the rear, except when unavoidable, may be issued.

(7) Between Jabalpur and Manikpur, where 387 Dn runs as a mixed train, the maximum permissible speed for a goods train will have to be adopted for 387 Dn and necessary corrections made in the Time Table.

(8) Track measurements after the accident were not taken over adequate distances as laid down and strict enforcement of the rules is necessary.

(9) The recommendation to provide speed recorders on the Passenger trains may be reconsidered.

26. *Side Collision* between 0 Up Barium-Kanpur Express and Down Garhara Goods special at Bachwara station on North Eastern Railway on 24-2-1977.

Casualties :

30 dead, 32 grievously injured and 16 with minor injuries.

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 7,02,000/-.

Recommendations :

1. In cases of human failure resulting in serious accidents as in the present case, a trained Psychologist should interview the staff responsible to find out the reasons for their failure inspite of long training and experience.

2. The orders contained in Railway Board's letter No. 69/Psych/14 of 15-10-1969 in regard to follow up action in respect of accident prone drivers need to be enforced vigorously.

3. The method of assessing accident proneness needs review.

4. There is need for a speed restriction of 15 Kmph on all Diamond Crossing except perhaps in Suburban areas where such restrictions may seriously interfere with operation.

5. There is need to enforce parameters in respect of brake power and make it mandatory that no train not satisfying these parameters be allowed to be run.

6. Frequent monitoring of observance of permanent speed restrictions by Driver's is necessary.

7. Surprise Mock drills for turning out Medical Vans should be held once a quarter.

8. The injured in a train accident should receive treatment in a Railway Hospital and for this purpose provisions of Para 711(7) of Indian Railway Medical Manual be suitably amended.

9. At junction stations where block instruments are provided in Cabins but the nomination of line is done by the Platform ASM, as distinct from the cabin ASM, the two operations granting permission to approach and lowering of signals for reception should be treated as two separate operations and private numbers should be exchanged separately for each.

27. *Collision* of Up BPQD Goods train with the rear of 76 Up Waltair-Kazipet Passenger at Kesamudram station on South Central Railway on 25-3-1977.

Casualties :

Killed—9, Injured—22 (Grievous—14), (Simple—8).

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 6,68,600/-.

Recommendations :

(1) It should be ensured that the train passing staff i.e. Assistant Station Master and Cabinman/Switchman should exchange private numbers only after ensuring that the line on which a train is to be received is clear in all respects.

(2) Railways should ensure correct marshalling of all passenger trains as per Railway Board's instructions.

(3) S.R. 36.6 may be amplified to include testing of the track circuits also.

(4) The importance of not exceeding the 10-hour rule and giving adequate rest to engine crew have to be impressed upon the Railways.

(5) It is necessary that the staff are invariably sent for medical examination by due date.

(6) The periodicity for overhauling of the 'line' relays should also be laid down.

28. *Level Crossing Accident* Collission between 131 Up Lalkua-Moradabad Passenger and a Car at Level Crossing No. 46 on Lalkua-Kashipur section of North Eastern Railway on 28-3-1977.

Casualties :

Train—3 grievous injuries and 2 simple injuries.

Car—2 dead.

Cause :

Failure of other than railway staff.

Cost of damage to railway assets :

Rs. 20/-.

Recommendations :

1. The practice on N.E. Railway of gates opening towards the track should be given up and method adopted for locking the gate improved.

2. Since a large number of cases of lorries crashing through lifting barriers have been reported on N.E. Railway, the design of these barriers should be improved to prevent such incidents or bumps provided on the approach to the gates.

3. The Railway Board should arrange with State Govt. for issue of orders that the Police Officer investigating cases of level crossing collisions should attend ACRS's Inquiries and also present before the ACRS, the road vehicle and the occupants of the same.

4. In this case also the train engine was without a Speedometer. As repeated circulars from Railway Board on the need for passenger train engine being provided with Speedometers is not being adhered to, it is recommended that the maximum permissible speed for such trains should be reduced by 15 kmph.

29. *Derailment* of 28 Up West Coast Express at Sevur station on Southern Railway on 30-3-1977.

Casualties :

Killed—9, Injuries—63, (Grievous—17 Simple—46).

Cause :

Could not be definitely established.

Cost of damage to railway assets :

Rs. 10,30,000/-.

Recommendations :

1. RDSO should study the effect of deficiency of guide rollers in MAN/BEML coaches and take suitable follow up action.

2. RDSO to explore the possibility of using alternative metal instead of brass in the manufacture of guide rollers or to devise some better means of securing the inner guide rollers to make their removal more difficult.

3. Turn-outs which are laid on the transitioned portion of curves particularly on the Main Lines and Trunk routes should be relocated wholly on the circular curve or on the straight. Pending this, a speed restriction of 75 km/h on BG and 50 km/h on MG should be imposed at these locations.

4. Photographs of deceased unidentified passengers should be exhibited at the nearest as well as the starting station.

30. *Side Collision* of Kurla Wiring Train with TH-19 Down Local train at Kurla station on the Bombay section of Central Railway on 31-3-1977.

Casualties :

Killed—Nil.

Injured—Grievous—3, Simple—4.

Cause :

Failure of Railway staff.

Cost of damage to railway assets :

Rs. 1,04,218/-.

Recommendations :

(1) Effective steps should be taken to ensure that Guards carry the vacuum gauge which is an essential item for safe operation of trains.

(2) WDS4 engines used for hauling Wiring Trains or Shuttle Trains on main/suburban lines should be provided with speedometers.

(3) For such movements cutting across the main running lines in busy suburban sections, the engine should be attached leading instead of pushing.

(4) The signal overlap should not get released for taking off signals for another train cutting across the overlap unless the train has been brought to a halt at the signal. Alternatively the movement of the train coming from Car Shed side cutting across the main lines should be completed before a train in the opposite direction is started.

Summary of Accidents enquired into by the Officers of the Commission of Railway Safety in 1976-77.

(a) *Total No. of accidents enquired into :*
30 nos.

(b) *Total No. of casualties :*

Killed 105.

Injured 445.

(excluding cases of trivial injuries).

(c) *Total cost of damage to railway assets :*

Rs. 77,31,334/-.

Incidence of Serious Accidents Inquired into during the period 1966-67 to 1976-77.

3.5(a) The comparative position of the serious accidents during the year 1976-77 with those of the preceding years and the annual average during the 10 years period from 1966-67 to 1975-76 is indicated in Appendix 'C'.

It will be observed that the total number of serious accidents during the year has continued to be high. This is a cause for concern and needs serious attention of the Railway Administration.

In the Inquiries conducted by the Commission during 1976-77, 67 recommendations were made for improving the safety of railway working. By and large the recommendations made by the Commission have been accepted by the Ministry of Railways and necessary instructions issued by them to the Railway Administrations. Some of the recommendations are under correspondence between the Commission and Railway Board. A close watch has to be kept by Railway Board to ensure that recommendations accepted by them are effectively implemented by all the Railways.

Accidents enquired into by Railway Administrations.

3.5(b) It is impossible for the Commission of Railway Safety to enquire into all accidents falling under Section 83 of the Indian Railway Act. Statutory inquiries are generally confined to important accidents of serious nature. Other accidents like averted collisions, breach of block working regulations, signals passed at danger, attempted train wrecking, collisions at level crossings, derailments and failure of rolling stock and permanent way are inquired into departmentally by the Railway Administrations concerned and the inquiry proceedings are submitted by them to the Additional Commissioner of Railway Safety for scrutiny.

During the year 1976-77, the railway administrations furnished details of 310 train accidents into which departmental inquiries were held by the railway. These are summarised under different categories in the Appendix 'B'. A Brief summary of some of these cases inquired into by the Committee of Railway Officers is given in Appendix 'B' .

A study of the proceedings of inquiries held by the railways indicated that defects in rolling stock and failure of railways staff were dominating factors for the increase in the number of derailments and collisions. A special drive for improved and efficient maintenance of rolling stock and intensive safety counselling of railway staff is therefore necesary.

A comparative study has been made of the incidence of accidents on the various railways under main categories for the past four years viz. 1973-74 to 1976-77. The comparative position has been indicated in the Appendix 'F'.

CHAPTER—IV

MAINTENANCE OF RAILWAY ASSETS AND OPERATION

4.1 Pursuant to the acceptance of a recommendation made by the Railway Accidents Committee 1962, the Commissioner of Railway Safety is required to include in the Annual Report, a general appreciation of the condition and maintenance of railway assets, with special reference to safety in train operation. The reduction or otherwise in the incidence of consequential accidents is the index of safety in train operation in so far as the public are concerned and this has been already dealt with elsewhere namely in Chapter—III. Now in this Chapter an appreciation of the State of maintenance of assets having a vital bearing on safety is given from observations made by the officers of the Commission, within the curtailed scope available for periodical inspection as brought out in Chapter—II. The level of maintenance has essentially to be judged from instances of shortcomings and features typical of the general condition.

4.2 Reports of Additional Commissioner of Railway Safety and Deputy Commissioner of Railway Safety in the Technical Wing of the Commission, on inspections of Open Line Sections, New Lines, Doublings, Divertions and Electrification, give such specific instances of shortcomings and high-light several departures from the accepted practices and procedures. Some important observations contained in these reports of inspection during the year, which were duly communicated to the concerned Railway Administrations, are summarised below in broad lines. They indicate that there is scope for further toning up of the machinery entrusted with the maintenance of assets and operation of trains on, the Indian Railways.

A. PERMANENT WAY

1. *Formation :*

1.1 *Central Railway—Wardha-Balharshah Section.*—Cess was low and irregular at a number of places in km. 846. In km. 865/9-12, the cess was low on the upside. Between Majri and Tadali, guttering has formed on the side slopes of the new bank. The side slopes may be restored and turfing may be provided thereon to prevent erosion.

On Nagpur-Amla Section—Near Km. 1028, the cess was low and irregular.

1.2 *Northern Railway.*—On the Bikaner Division, the formation in banks is generally well maintained. In cuttings however, side drains do not exist in most of the locations. Similarly, at certain locations, on banks the cess was found to be very high.

1.3 *Eastern Railway.—Garwa Road—Son Nagar Section.*—Formation is generally well maintained. At certain places, however, the cess needs to be made up.

Gaya-Patna Branch.—The cess is particularly low at km. 31/7 and 16/3-5.

1.4 *Southern Railway.*—On the Manmadurai-Tiruchchirappalli Section, the side drain in the cutting at km. 474-473/6 were chocked and need to be cleaned. Similarly, at km. 472/7-9 and 4-5, the cess was rather narrow and should be suitably widened.

1.5 *Northeast Frontier Railway.*—Formation in Silliguri-Rangiya Section was generally well maintained except that in some stretches cess was low and of inadequate width.

2. *Curves :*

2.1 *Central Railway.*—Curve at km. 877/4-16 on Wardha-Balharshah Section was checked in respect of guage, cant and versines from station 16 to 35. At stations 16 to 18, the gauge was 10 mm and 6 mm slack respectively; at other stations it was either correct or slightly slack. The cant varied from 94 mm. to 108 mm. at various stations and required adjustment. The versines at stations 18, 28, 33 and 34 varied by more than 10% with reference to the adjacent versines and required to be adjusted. Cess on the down side of the curve was too low. The inside keys on the trough sleepers were driven in Balharshah direction while the outside keys were driven in Wardha direction. As there is double track at this location, the keys on the down track should all be driven in the Balharshah direction so that none of them get loose and the creep is arrested effectively.

2.2 *South Eastern Railway.*—Curve at km. 447/5-15 on Raj-Atgarh-Barang Section was a 3° curve with a theoretical super-elevation of 70 mm. and versine of 86 mm. The curve was adequately ballasted. The super-elevation and versines were not properly marked on the outer rail and were not tallying with those shown in the curve Register. Hand greasing was being done but was not adequate. The outer rail was badly wearing out. The transition portion of the curve was not properly maintained. Versines were widely varying from stations 11 to 16 where the wear on outer rail was heavy. The curve needs re-alignment.

2.3 *Eastern Railway.*—On Garwa Road—Son Nagar Section, 2° curve (transitioned) at km. 338/1-9 had slack gauge upto 6 mm and the superelevation varied from 60 to 70 mm. There was heavy wear on the outer rail. It needs checking whether speed restriction of 65 kmph for the diesel locos is being violated.

2.4 *South Central Railway.*—On Secunderabad-Kazipet-Ramagundam Section, the greater part of the curve from km. 218/13 to 219/4 was checked and it was seen that the gauge was generally tight by 2 to 3 mm. except at one or two locations where it was 3 mm. slack. On the transition portion, both the superelevation and the versines varied considerably from the prescribed values. On the circular portion also these were irregular.

2.5 *Southern Railway.*—On Villupuram-Tiruchchirappalli Section, Curve No. 22 at km 247/14—248/6 was checked. The gauge varied from correct to 3 mm. tight. The superelevation was fairly close to the stipulated values. The versines were irregular and appreciably different from the stipulated values particularly between stations No. 5 and 8.

2.6 *South Central Railway.*—On Sholapur Gadag Section 4.34° curve at km. 250/10—251/12 was checked. Between stations 13 and 19 on the circular portion, the superelevation was fairly uniform, but the versines were irregular. At station 16, it differed from the prescribed value by 12 mm. On the transition portion also, though the superelevation was fairly uniform, the versines were irregular and differed appreciably from the prescribed values. This needs adjustment. The track is laid on wooden sleepers and it was seen that the percentage of unserviceable sleepers was rather high, being as much as 25% to 30% under some rails. Some sleepers at the joints also were unserviceable. Spot renewals should be done early in order to bring down the percentage of unserviceable sleepers. There were several loose spikes also, which should be fixed firmly after plugging the spike holes where necessary.

3. *Track Maintenance :*

3.1 *Central Railway.*—From Kalambha to Narkher on Nagpur-Amla Section, the joints were low and running was uncomfortable. The same was also the position, though to a lesser extent, at a number of other locations between Nagpur and Kalambha where old rails exist. Where joints are badly battered, it is suggested that rail ends may be cropped and then welded into short panels to improve running.

3.2 *South Eastern Railway.*—Gang No. 8 at km. 196/6-7 on Balasore-Kharagpur Section was inspected. The spirit level was out of order. There appeared to be no system of checking and correcting the spirit levels as required vide the Way and Works Manual. This needs special attention as the cross levels were found to be out because of the defective spirit level. Clips for banner flags were found short. Gangmen, fit in B1 only, were being deputed for night patrolling duties at random and were not being medically examined for fitness in 'A-3', are sent for night patrolling duties. There should not be frequent changes of night patrolmen, unless absolutely unavoidable, since the local knowledge gained by night patrolmen in a season would be lost due to changes.

3.3 *Eastern Railway.*—It was learnt that during the ultrasonic tests of rails carried out, as many as 259 rails fracture had been detected mostly in the imported rails. This indicates the necessity of strengthening the staff and equipment deployed on rail flaw detection and following the schedules laid down for periodical testing particularly on the high speed routes. The railway may confirm that the high speed routes are subjected to rail flaw detection regularly, as specified in the Additional Commissioner of Railway Safety's sanction.

3.4 *South Central Railway—DTM Unit No. 2 at km. 213/1-3 on Secunderabad-Kazipet Ramagundam Section.*—The gang was doing through packing on the up line. It was seen that the sleeper spacing was irregular being as much as 3 ft. at some places, and a number of sleepers had become unserviceable. These should be renewed as early as possible and the sleeper spacing also adjusted. It was seen that in the down line also, where the track is laid on CST-9 sleepers, the sleeper spacing was irregular at this location and needs adjustment. The equipment of the gang was checked. There were two dozen detonators of December 1966. These are outdated and should be replaced without delay. The gauge and spirit level with the gang were checked. The gauge was correct but the spirit level was out by 2 mm. Though the monthly checks of the gauge and spirit level were being carried out by the P.W.I., the results were not being recorded separately in the gang diary. Wooden sleepers provided at the joints did not have the full complement of spikes. This should be insisted upon.

3.4.1 Mate Shri Yellugudu Ramudu was tested in the rules for protection and found somewhat hesitant in regard to the action to be taken in case of a train parting. This should be explained to him by the supervisory staff.

3.4.2 The track structure on the Sholapur-Gadag Section consists of 50R an 50 ASCE rail laid mostly on wooden sleepers. Though the ASCE rails are quite old, their condition appeared satisfactory with less than 5% wear. The condition of the wooden sleepers, however, was not good. At most of the locations where the track was inspected, percentage of unserviceable sleepers was seen to be quite high—even as high as 30% in some rail lengths. It was understood that no sleeper renewals have been sanctioned on this section. The maximum permissible speed on this section being 75 kmph for passenger trains, it is essential that the percentage of unserviceable sleepers should be brought down by carrying out spot renewals urgently. Unless this is done forthwith it would be necessary to impose a suitable speed restriction on these stretches. It was also seen that many of the spikes on the unserviceable sleepers were loose. Immediate action should be taken to plug the holes and re-spike wherever this is possible.

3.5 *Southern Railway.*—The monthly check of the gauge, spirit level and straight edge of gangs was not being done regularly or where it was done, it was not recorded in the gang diary as stipulated in para 627(b)(ii) of the Indian Railway Way and Works Manual. This may be insisted upon.

3.6 *Eastern Railway.*—On Mankapur Jn.—Katra Section, Gang No. 1 at km 2/10 was checked. On this branch line section, no overhauling is being done presumably due to shortage of ballast. This is not desirable. While perhaps there may be a case for increasing intervals between overhauling by reducing quantum per gang per year to reduce expenditure on ballast on lightly worked branch lines, total giving up of overhauling will lead to running down of track. The detonators available with the gang were of 4/66. The Railway Board vide their letter No. 72/Safety (A&R)/29/5 of 15-5-1973 had permitted retention of detonators beyond 7 years on branch lines but this was subject to annual testing of each lot. No such record of testing was available. Moreover, in any case detonators are not allowed to be retained beyond 10 years as indicated in Board's letter No. 72/Safety (A&R)/29/5, dated 3-11-1976.

3.7 *Northeast Frontier Railway.*—The track between Alipurduar Jn. and Gauhati has large stretches of 60R rails laid in 1938-39 with N+3 and N+4 sleeper density. It should be apparent that the continuation of this very old track with sleeper density of N+3 on the main line is not desirable. As various ACRSS have continuously pointed out in their inspection and in their accident inquiry reports the rehabilitation of track on N.F. Railway requires special attention of the Railway Board.

3.8 *Fatwa-Islampur Light Railway:*

(a) No rail renewal has been carried out during last five years.

(b) The position regarding sleeper renewal during last two years is indicated below :—

Year	Programmed	Actual renewal done	Arrear	Remarks
1975-76 .	*15,000	Nil	*15,000	(including
1976-77 .	15,000	Nil	15,000	arrears).

Efforts must be made immediately for regular renewals apart from the large number of sleepers washed out in breaches extending over 15 kms.

(c) Ballast.

Year	Programmed	Actually put in the track	Arrears	Remarks
1975-76 .	20,000 c.ft.	Nil	20,000 cft.	10,000 cf.t. Cinders put in track.
1976-77 .	20,000 c.ft.	Nil	20,000 ctf.	12,000 c.ft.

*upto 28-2-1977

3.9 *Dehri Rohtas Light Railways.*—The position of sleeper renewals during last five years is as under :—

Year	Programmed	Actually done	Arrear	Excess
1972-73 .	7,500	7,420	80	1,401
1973-74 .	7,500	8,901		
1974-75 .	7,500	1,808	5,692	
1975-76 .	7,500	5,529	1,971	
1976-77 .	7,500	*2,534	4,966	
	Net Arrears		11,308	

*upto 28-2-1977

Efforts should be made to wipe out the arrears early.

4. *Points and Crossings:*

4.1 *Central Railway—Point No. 6-A, 1 in 12 on Steel Trough Sleepers in Hinganghat Yard.*—Cross level were out from 5 mm to 9 mm the left rail being low both on straight and curved tracks. The gauge varied from correct to 2 mm slack. The wear on the nose of the crossing was 7 mm. The bolts and fittings were loose. Alignment of the lead-curve needs improvements.

4.2 *South Eastern Railway—Point No. W.14 at Meramandoli Station.*—This was a 1 in 12 point and crossing laid with 90 lb. rails on steel sleepers, with interspersing of wooden sleepers. Full complement of dog spikes were not provided for the woolen sleepers. Mixing up of different types of sleepers is not a desirable feature. The expansion gaps at joints were excessive. One wooden sleeper at stock rail joint was found unserviceable and needed immediate replacement.

4.3 *Eastern Railway—Points No. 16 at Japla at km* 365/6-7.—90R rails 1 in 12 steel layout gauge was mostly slack specially so at the throat of crossing (+8 mm.). Cross level also varied considerably upto 20 mm. Check rail clearance on straight track was more than permissible. The entire layout needs thorough overhaul rectifying all the defects.

4.4 *South Central Railway—Point No. 22/B at Bhongir station.*— This is 90R. 1 in 12 turnout laid in 1963 and reconditioned in November 1973. The condition of the switches was satisfactory but the crossing had worn considerably as the reconditioned portion was peeling off. This should be replaced. Gauge was fairly uniform but in the crossing portion and at the toe of the switches, the cross levels were out by 12 mm. and 8 mm. respectively. It would be desirable to provide wooden blocks under the steel trough sleepers to improve the maintenance of this turnout.

4.5 *Southern Railway.*—On Villipuram-Tiruchirappalli Section, the trailing point at Ulundur was checked. It is a 1 in 12 75R IRS turnout. The condition of the fittings was good except for a few bearing plates which were rattling. Packing was not upto the mark.

Clearance were correct and the alignment was fair. Gauge was generally correct. The cross level was out appreciably at the heel of the switch and also at the nose of the crossing. This should be adjusted.

4.6 *North Eastern Railway.*—A scrutiny of the points and crossing Register maintained by PWI Kanpur/Anwarganj showed that AEN had not carried out complete inspection of all points and crossings on passenger lines as required under C/S No. 107 of 18-5-1974 to para 632(C) of IRWW Manual, let alone 10% of the other points and crossings. From the progress of the inspections carried out, there is no chance of his completing his schedule in the year.

4.7 *Northeast Frontier Railway—North Lakhimpur—Morkongselek Section.*—The Up facing point Nos. 1 and 2 at Dhemaji were inspected and found generally well maintained except that some sleepers required renewal. Point No. 1, however, had a broken point indicator lamp and it appears point indicator lamps are not being properly maintained nor lighted at night. The concerned department should take steps to put things right.

4.8 *Arah-Sasaram Light Railway—Garhani—Point No. 4 laid with 30 lb rails.*—All heel bolts are loose and gauge was about 3/16" slack. One of the bolts fixing tie bars was loose. Cross-level were generally correct. The stretcher bar was defective and needed rectification.

5. *General:*

5.1 *Central Railway.*—For the high speed track on the G.T. route, tolerances for the curves have to be reckoned on a 7.5 metre chord. For this purpose the stations should be marked at 7.5 metres spacing instead of at 10 metres spacing as at present. Similarly, proper transitioned lengths with a cant gradient of 1 in 1000 to 1 in 1200 should be provided.

5.1.1 According to the Board's orders, a First Aid Box is to be supplied to each gang but it was seen that the same has not been supplied on all sections. The same should be done early.

5.2. *Northeast Frontier Railway.*—Generally it was observed that gangs while carrying out through packing do not open out sufficiently below the level of sleepers with the result the wooden sleepers are damaged while packing. Moreover, the quality of packing itself was found unsatisfactory whenever the previous days' work was checked.

6. *Level Crossings:*

6.1 *South Eastern Railway.—On Talcher-Rajathgarh Section.*—The road approaches of level crossings were steep and the requisite level portion was not maintained beyond the gate posts. Similarly level crossings exist on other sections also.

6.2 *Eastern Railway—On Garwa Road-Son Nagar Section.*—'C' Class level crossing No. 8 at km. 338/1-9 between Untare Road and Sat-Bahini, manned due to bad visibility was inspected. It is situated on a 2° curve. The check rail clearance is about 2.3/8" (inches) which should be rectified early. There is also heavy wear on outer rail. It needs checking up whether speed restriction of 65 kmph for diesel locomotive is being violated as the superelevation (70 mm) appears to be adequate. Gauge varied upto 7 mm slack and superelevation was 65-70 mm against the designed value of 70. There were no road signs. Sri Bharati, Gateman was conversant with the rules of protection. The other Gateman Sri Sugriba was overdue vision test by 5 months at the time of inspection.

6.3 *Southern Railway.*—On Villupuram-Tiruchchirappalli Section, unmanned level crossing No. 147 at km. 184/10 was inspected. This level crossing was last opened and examined in April, 1976. The check rails were higher than the running rails and the road approaches outside the gate posts were steep. The Stop Board on the non-telegraph post side required shifting and relocation.

6.4 There were several unmanned level crossings particularly on the Manmadurai-Tiruchchirappalli section whose approaches were rather steep and there was no level portion outside the gate posts. Even between the gate posts the road surface was sloping on some of them. Suitable action may be taken to attend to such level crossings periodically in order to maintain the road surface to the proper grades.

6.5 *South Central Railway.*—On Gadag-Hubli section, even busy level crossings situated on important roads are still provided with swing type gate leaves. It is necessary that they should be progressively provided with lifting barriers in accordance with para 1602(c) of the Indian Railways Way and Works Manual. Priority may be given to the level crossings which are interlocked with station signals or protected by gate signals.

6.5.1 It appears that on the sections inspected, the stop boards on the road approaches on unmanned level crossings still exhibit the old legend. These should be repainted with the new legend in English and the vernacular according to Correction Slip No. 99, dated 20-10-72 to para 1613(b)(ii) of the Way and Works Manual.

6.5.2 Working Instructions are being supplied to the Gate Keepers in English. These should be translated into the vernacular and supplied to them.

6.6 *Northeast Railway.*—On Lucknow-Sitapur Section, Level Crossing No. 67 'B' at km 87/10-11 was inspected. The gate leaves are interconnected so that all four leaves open simultaneously. However, the actual process of opening was found to be cumbersome and time consuming. Provision of lifting barriers operated from a winch appear desirable in view of the density of road traffic. A telephone connected to

the nearby station had been provided in the duty bunk.

6.7 *Northeast Frontier Railway.*—Level Crossing No. 220-C at km. 390/2-3 on Siliguri-Rangiya section was inspected. The condition of track and road way at the level crossing is satisfactory. However, the gate leaves were not properly hung and do not get caught in the catches in the open position. The detonators were of 1967 i.e. nearly nine years old. The continued use of detonators more than seven years old on main line is against Railway Board's orders contained in their letter No. 72/Safety(A&R)/29/5 of 15-5-1976. Orders to test one detonators under the special was given but no explosion was heard. It may be checked whether this was due to failure to explode or failure to place one on the track. In any case, this set of detonators may be retested and suitable action taken.

7. *Bridges:*

7.1 *Central Railway.*—On Wardha-Balharshah Section, Wunna girder bridge 4×45.70 m girders at km. 783/13-15 was inspected. The painting of the girders was last done in November 1968 and was overdue. Cleaning and greasing of bearing was done in March, 1976. The notching done on the masonry of piers and abutmen's to show the foundation details had become indistinct and may be done again. The bridges timbers should be covered by plain or corrugated sheets to protect them from fire. The HFL is almost touching the underside of the girders and in any scheme of reconstruction of this bridge, adequate clearance should be provided.

7.2 *Northern Railway.*—Bridge No. 941 (Sukheta) 4×30′ girders spans at km. 1203/7-8 on Shahjahanpur-Balamau section was inspected. From a look at the exposed portions of the foundations and a faded bridge tablet on the abutment, it is presumed that the bridge is founded on wells, but there was no positive information about this even in the Bridge Register. This was in contravention of provisions of Indian Railway Way and Works Manual. Proper plaques in terms of the Annexure-II to para 1007 of Indian Railways Way and Works Manual should be provided. The bridge register should also contain relevant details. The track on the bridge was generally in a satisfactory condition except that 4 bridge timbers of 1963 needed renewal, gauge and cross levels were alright. A few hook bolts were loose. On some bridge timbers only one spike was seen on the inside of the guard rail. The HFL recorded in 1960 was only 6 cm below the bottom of girders and the bridge, therefore, needs to be carefully watched during floods. Flood levels other than the highest appearing on the pier should be removed.

7.3 *South Eastern Railway.*—Bridge No. 447 at km 339/6-13 (12×40 ft.) girder Bridge on Subarnarekha river on Muri-Chandil section was inspected. The girders were said to have been painted in June 1975, but the quality of painting was poor. Patch painting is already needed. No painting was done at the sleeper seats. The steel work should be carefully checked and patch painting of girders should be taken up as necessary. The girders were said to have been greased in August 1975 but no grease could be seen at site. There were no sand-bins on the trolley refuge and also at the approach on Chandil end for storing sand for use in case of fire. The spacing between the ballast wall and sleeper on the bridge on Chandil side was as much as 90 cms. as against a maximum of 51 cms prescribed. One extra sleeper should be provided at this place. The bed blocks should be provided. The bed blocks of pier No. 7 were shaken and masonry underneath showed signs of distress by developing cracks. Through bed-blocks should be provided and the masonry in distress should be pressure grouted. The timbers on the trolley refuge had perished and should be renewed. Many of the corrugated G.I. sheets used for the foot-path should be repaired. The condition of the sleepers was generally unsatisfactory. The bridges required overhauling in all respects.

7.4 *Eastern Railway.*—On Garwa Road-Son Nagar Section, Bridge No. 171 (5×60′ G) at km. 332/12-13 was inspected. The girders were provided with flat bearings. Stone bed blocks on pier Nos. 2, 3 and 4 were all shaken. The bed blocks on the Garwa Road end abutment had been pulled forward by 2″. The abutment needs recapping with continuous RCC bed blocks. Either centralised bearing should be provided or 'elastomar' bearings may be tried after pressure grouting of the bed blocks properly and recapping on the abutment. A large number of sleepers were unserviceable. It was learnt that re-sleepering was proposed to be done on receipt of new sleepers. The ends of the sleepers should be tied with 1/4″ diameter rods, properly tightened to prevent splitting. Only 3 rail screws had been used per rail seat on this bridge against 4 required. Gauge and cross level of track were within permissible limits but a number of thin sheets had been used under the bearing plates. Use of these should be avoided while re-sleepering.

7.5 *Southern Railway.*—On Villupuram-Tiruchchirappalli Section, Bridge No. 47 at km 198/11-12 (12×60′ Girders) was inspected. This timber bridge is located across river Malattar. The condition of the bridge timbers was generally good though there were about two dozen sleepers which required renewal. The gauge varied from +1 mm to −3 mm and cross levels from correct to 7 mm out. The cross levels required adjustment. Some of the hook bolts had turned as the proper notches had not been provided. Repainting of the girders was overdue. These were last painted in September, 1971 and the paint in the web portion was already scaling off. There was a proposal to extend the bridge on Tiruchchirappalli side as the HFL is higher than the bottom of the girders by 1 m. This may also be expedited. The alignment of track over the bridge needed adjustment.

7.6 *South Central Railway.*—On Solapur Gadag Section, Bhima Bridge No. 91 at km 250/3-11 (14×150' Girders) was inspected. The condition of the substructure as also the steel work of the girders was good. The painting of the girders was in progress from the Bangalkot end. H.F.L. and Banger marks had been properly painted. The gauge and cross levels were checked on six spans and it was seen that the gauge varied from correct to +4 mm. cross levels from correct to 4 mm. out. The hook bolts were all properly fitted. There were a few loose spikes on some sleepers which should be properly refixed after plugging the spike holes.

7.7 *North Eastern Railway.*—On Kanpur Anwarganj-Lucknow Jn. Section, Bridge No. 40 (4×57 m and 5×6.10 m. Girders) at km. 25/2-3 was inspected. Girders were painted in November, 1976 and greased in August, 1976. The bearings were full of coal ash on the day of inspection. The keyman should clean the bearings periodically. For this purpose and for inspection, steel ladders should be provided from the track level to bed block level on piers and abutments. The foundation details etched on top of piers may be made readable from the track by painting them in black and white back ground. Masonry required painting at places.

7.8 *Northeast Frontier Railway.*—Bridge No. 187 (2×12.2 m G) on Siliguri Rangiya section was inspected. The gauge on the bridge was slack. The bridge had recently been re-sleepered but the work had been poorly done. The hook bolts had not been arrow-marked to show their correct position. Many sleepers had been badly notched. Guard rails had not been provided with two log spikes inside. The girders of the bridge had not been provided with bed plates and the bottom flange of the girder was resting directly on the bed block. A programme for providing bed plates for all such bridges on the Railway should be drawn up. The top flange of the girders required painting under the sleepers.

8. *Signalling:*

8.1 *Central Railway—Sonegaon Station on Wardha-Balharshah Section.*—The signal failure register showed that the majority of the signal failures during the preceding 4 months were due to token getting struck in the Block instrument. The reason for this may be investigated and necessary action taken to ensure the Block Instrument function properly.

8.2 *Northern Railway.*—The signal visibility register at Pratapgarh station had many entries by Drivers of trains in the section about poor focussing of signals, defective signals, extinguished signals etc. Reasons for these may be gone into and the position rectified where necessary.

8.3 *South Eastern Railway.—Bokaro Steel City-South 'I' Cabin.*—The cabin was overhauled in September, 1974. The glasses of the cabin were broken and required to be replaced. Only 5 line blocked collars were available as against 11 required. The cabinmen should be given electrically operated hand signal lamps. The relay room was constructed adjacent to the cabin room in the first floor obstructing the view on the station side. The relay room should have been built on the ground floor where there was space. The visibility from cabins should not be impaired on any account. If this cabin was built according to any type plan, the type plan should be amended to avoid repetition in future.

8.4 *Eastern Railway—Japla Garwa Road-Son Nagar Section.*—The two block instruments at the station had been overhauled in June, 1970 and November 1974. There had been a number of failures of the Up and Down Outer & Home signals attributed to miscreat activities. The railway's security department may take necessary action in the matter.

8.5 *Northeast Frontier Railway.*—At West Cabin (NG) of Fakiragram, the Signal Overlap of the home signal on the branch line cuts the diamond crossing. Hence permission to approach on this section should not be given if reception signal for a BG train has been lowered. It is seen that necessary precautions have been written in the S.W. Rs but it may be examined whether failure to observe these cannot be obviated by interlocking.

8.6 *Arah Sasaram Light Railways.*—Glasses were found broken at both Up and Down Outer Signals of Kharadih. Expanded metal guards should be fixed in front of the glasses to prevent damage by village boys. Pulleys are still missing on signal wire stakes although there was some improvement since the previous inspection.

9. *Operation:*

9.1 *Central Railway.*—At Chandrapur on Wardha-Balharshah Section, the medical examination register showed that the Station Master Shri R.B. Dhoke was due for medical examination on 29-9-1976 but was actually sent on 1-12-76. The acknowledgement register was checked and found in order.

9.2 *South Eastern Railway.*—The maximum speed on the section from Talcher to Nergundi was 75 kmph and the booked speed of passenger trains was 72 kmph. The booked speed should be 10% less than the maximum permissible speed to enable the drivers to make up time. There have been instances in the past of Drivers exceeding the maximum permissible speed to make up time on the section.

9.3 *Eastern Railway.*—On arrival of the Inspection Special at Japla station, Goods train No. 4066 was started from line No. 5 with a starting order on a slip paper and not on the proper form meant for the purpose.

9.3.1 Two dead end sidings have been removed at Japla station alongwith one set of points and crossing at the east end without issuing any amendment to the Station Working Rules and the Diagram. This is irregular and necessary corrections should be issued at once. A Copy of the Station Working Rules Diagram duly amended should be framed and displayed in front of the A.S.M.

9.3.2 *Son Nagar Station.*—Switchman, Shri B. Prasad at the East Cabin was not sure if there were any special instructions in connection with out-of-course stoppage of Rajdhani Express. The Station Working Rules also do not contain any instruction that in such a contingency the Rajdhani Express should be stopped at the Home Signal.

9.3.3 When sanctioned for running Rajdhani Express at 130 kmph was accorded, a certificate had been given by the Chief Operating Superintendent that provision in para 5.3 of the Minutes of the Meeting held in the Chairman, Railway Board's room on 6th September, 1971 regarding stoppage of the train at Home Signal in case of out-of-course stoppage will be strictly complied with and will be specifically included in Station Working Instructions and that necessary assurance will be obtained in this regard from all staff working at station. The Station Working Rules of Son Nagar and also order stations on the Rajdhani route should be immediately checked up and any omission of this provision should be corrected.

9.4 *Southern Railway—Badami station on Sholapur-Gadag Section.*—No staff was overdue periodical medical examination. The last Correction slip No. 26 to the G & SR was not dated. The Assistant Station Master on duty (Shri S. N. Joshi) was questioned about the setting of the loop points at either end when two trains were to cross at this station and his knowledge was satisfactory. He, however, did not have his spare set of spectacles. The fog signals were of June, 1968. From the Fog Signal Register, it was seen that testing of Fog Signal was not being done annually as required. Pointsman, G.D. Kostal on duty in the Cabin did not have a clear idea regarding the use of line block collars though a board is exhibited in the cabin indicating the levers on which the collars are to be placed if any of the running lines is blocked. He should be properly educated by the Station Master in this regard.

9.4.1 The testing of detonators was not being done annually anywhere on the sections on the sections inspected as required under G.R. 70(b) and S.R. 70(e) of the South Central Railway. Moreover, according to the instructions of the Railway Board two detonators have to be tested from each batch over seven year old before extending their lief up to 10 years. Suitable steps may be taken to ensure that all the concerned supervisory staff carry out and record the results of these tests.

9.5 *Northeast Frontier Railway.*—Safety Inspection of Gohpur on North Lakhimpur-Helem section had not been regular. DSO had only carried out one inspection in February, 1977 presumably in view of GM's inspection. T.I. had inspected on 4-6-1976 and then 2-3-1977. A schedule of Station Safety Inspection must be laid down and adhered to. Detonators were of 1967 except of one lot of 1975 recently received. No record of testing could be produced.

9.5.1 9 Up Arunachal Express was seen at Mukongeselek to be marshalled not in consonance with the extent orders in that 2 non-anti-telescopic coaches were attached behind the rear SLR. Moreover, the front SLR was also marshalled with the passenger portion next to engine. Generally, it is seen that safety marshalling orders are not being complied with and that concerned officers are not alert enough to take up lapses with the result that there is indifference amongst staff in this matter. Special drive may be organised to increase consciousness among staff on the need for this marshalling even if it involves some delay at stations.

9.6 *Dehri Rohtas Light Railways.*—Tiura Pipradih-Diagram showing the quarry sidings should indicate the gradients of different sidings and yard. As regards working of the derailing switch it was represented that these points are difficult to operate by the lever near the station. There is no objection to the local operation of the points by shifting the lever to the site and making necessary provision in the Working Rules that no train should be admitted into the station when the key of the points is not in possession of the Assistant Station Master/Station Master. The key should also get locked at the point when the points are closed for admitting a load from the quarry sidings. This is essential as there is a steep gradient of 1 in 171 in the siding, falling towards the station and the driver may lose control of his load.

10. *Locomotives & Rolling Stock :*

10.1 *Central Railway.—Wardha Loco Shed.*—The incoming pits as well as the inspection pits in the shed were full of water and not draining properly. Drainage of these pits should be improved.

10.1.1 On the temporary speed Restriction Board displayed in the ALF's office, permanent speed restrictions were also shown which are not necessary. In respect of temporary speed restrictions, metal tags indicating the restricted speed were hung in some cases and paper tags in other cases. It is felt that sufficient number of metal tags should be made out and hung to show all temporary restrictions.

10.2 *Northern Railway—Washing line at Jullundur City.*—The depot undertakes primary maintenance of 12 branch line rakes with an average of five rakes per day for which purpose there is one washing line with two platforms but no examination pit for facilitating proper examination of under gear.

10.2.1 The drainage of the washing lines was poor and needs improvement. It was stated that the connecting drain outside the railway premises was not functioning properly.

10.2.2 The depot had a vacuum exhauster but there was no equipment for undertaking balanced vacuum tests for vacuum control valves, an indent for which was stated to be pending. For the present vacuum tests were being conducted with a screw arrangement by controlling the vacuum by adjustment of the screw.

10.2.3 The primary maintenance schedules of the rakes were stated to be upto date. A check of coach No. 4351 NR on one of the rakes indicated, however, that it had its flushing of water tank last done on 11-8-76, (it is due once a month). Alarm chain apparatus of the coach was also examined on 11-8-76. This was due again on 11-11-1976.

10.3 *South Eastern Railway—Hindol Road.*—Engine No. WG 8106 hauling passenger train No. 212 was checked. The hand brake in the tender was not in working order. The sanding gear was not functioning. The glass of the head light was broken. The dimmer switch was out of order.

10.3.1 Engine No. 10446 WG hauling No. 397 passenger train was checked at Rupsa. The vacuum brake in the tender was not in working order, but no entry was made in the Engine Repair Book by the Driver. The buffer light was also dirty.

10.4 *Southern Railway.*—The shunting engines in the Hubli and Gadag yards did not show the buffer lights as stipulated in S.R. 143(1)(c) of the South Central Railway General & Subsidiary Rules. It is essential that these lights should be exhibited on consideration of safety and suitable steps may be taken to ensure compliance of these instructions.

10.5 *Northeast Frontier Railway.*—The Diesel Loco Shed at Siliguri was inspected. This shed homes 88 Diesel Engines. Out of these only 58 are fitted with vigilance control device. However, all these 58 were out of commission. The main part, shortage of which prevents these being repaired is 'O' ring for a cyclic valve. These were intended in 1973 and orders were placed in April, 1976. However, out of an annual requirement of about 6,000, only 540 have so far been received. The vigilance control device is an essential safety equipment for Diesel Engines in view of the propensity of Drivers on Diesel Engines to go to sleep on the run. The fact that since 1973 they have been running without this essential safety equipment apparently shows the low priority given by the Railway Administration to its maintenance. Since cases of Drivers over-running signals while asleep have occurred on Northeast Frontier Railway and other Railways, expeditious action is required to provide Vigilance Control Device at an early date on all Diesel Engines.

10.6 *Arra-Sasaram Light Railway.*—The holdings and position of POH of the rolling stock are indicated below :—

Description	Total holding	Due POH in 1976-77 including Past Arrears	POH done (1976-77)	Arrears
1. Locomotive.	13(Steam) 2(Diesel)	10 (Steam)	3 (in progress)	10(include 3 out of service.)
2. Boiler .	16	13	3	13
3. Passenger Coaches.	39	33	Nil	33
4. Goods Vehicles.	139	134	Nil	134

The POH of rolling stock is still heavily in arrears and a special drive is absolutely essential.

10.7 *Fatwa Islampur Light Railway.*—The holding of rolling stock and the position of their POH are indicated below :—

Description	Total holding	Due POH in 1976-77 including Past arrears	POH carried out during 1976-77	Arrears
			(in progress)	
1. Locomotives.	4	3	1	2
2. Boilers .	5	4	2	2
3. Passenger Coaches	22	15	2	13
4. Wagons .	32	21	6	15

POH of locomotivse and passenger coaches are in heavy arrears reportedly due to lack of funds. Special steps must be taken to wipe off the arrears as early as possible.

10.8 *Dehri Rohtas Ligh Railway.*—Special arrangements are called for to wipe out the arrears of POH of locomotives and wagons.

11. *Means for dealing with Accident :*

11.1 *Central Railway.*—The Brake-down train in Wardha Locoshed was inspected. Coach No. 563 was due for POH on May 1976, but the POH had been arranged. The inspection Register showed that the DME had inspected the train twice in 1975 but no inspection was carried out in 1976. Against the notes in the Register, action taken column was blank. The DEN had not inspected the train during the last 2/3 years. The PWI/Wardha had inspected the train at regular intervals but his remark was merely 'inspected and found correct.' On checking some of the items, however, it was found that 2 H. S. lamps were not in working condition as the upper part of the dubber and the wick were missing. The petromax was without kerosene oil. Suitable steps may be taken to ensure that the various officials carry out the inspections as per schedule laid down in the Accident Manual and that the inspections are thorough and not perfunctory.

11.2 *Northern Railway—'A' class Accident Relief train and Accident Relief Medical Van at Rosa Shed.*—The ART and the Medical Van were painted on the outside but it was so

hurriedly done that all the vital data viz., number of the vehicle, last date of over-haul or return date were obliterated. These vans were in a dirty state inside particularly the Medical Van which should have a high degree of cleanliness. The Mechanical Van had an equipment list several years old and the AME could not say with certainty what equipment was short in the Van. From the Inspection Register it was noted that DSTE had not visited the Van during 1976-77 except during the last quarter of 1976.

11.2.1 The Medical Van was inspected by the M.S. on 11-2-1977 and the AMO was regularly inspecting it. The date expired medicines and food stuffs had been replaced. The berths used as beds for the injured were in a dirty condition and when used, would be most uncomfortable to a patient.

11.3 *South Eastern Railway—Rupesa.*—ARME Scale-II equipment at this station was primarily meant for NG Section from Rupesa to Bangriposi. Since Rupesa is not a train ordering station for NG, no engine is normally available for taking the equipment in case of accidents. The equipment appears to have been stationed at Rupesa, because it happens to be the Headquarters of AMO. The same should be shifted to Baripada where NG Loco Shed exists and Locos are available for emergencies. At least medicines can be taken quickly to any site of accident from Baripada with local doctors accompanying. AMO/Rupesa, in any case will have to go by road or other available means of transport.

11.4 *Eastern Railway.*—The contents of first aid boxes checked at several stations were mostly found to be in order excepting the deficiency of a pair of scissors at Japla and a broken box at Bihar Shariff. A set of brief instructions regarding the use of different medicines and equipment contained in the box itself. This was essential as at times of emergency the staff often get nervous and fail to take actions which would normally appear to be obvious. In such cases the instructions would be extremely useful. Further, most of the staff even after having passed the first aid course was not conversant with the use of Amalgestic Tablets, Liquid Paraffin and other items in First Aid Box.

11.5 *Southern Railway.*—The supply of elementary first aid equipment to Gangmen was decided vide Railway Boards' letter No. 69/H/2/6 dated 16-8-1971. Though five years have passed this is yet to be compiled with. It was understood that the supply had just been commenced. This may be expedited.

11.6 *North Eastern Railway.*—At Gonda, the condition of the Auxiliary tool Van was unsatisfactory. Glasses of Petromax were broken. Hydraulic Jacks tested were found inoperative. Coffee and Tea were not fresh. Tools were kept in chests anyhow and no lists were displayed to enable tools to be located as needed. The CTXR who is said to be in charge of this van does not appear to have inspected or checked this.

11.7 *Northeast Frontier Railway.*—Class 'A' Relief Train at Katihar was inspected. The tools were kept in a parcel Van as the regular tool van had gone for POH. The tool van had been inspected by AME/P on 5-11-1976 but from a quick survey it appeared that the available tools were very much less than the standard for an 'A' Class Relief Train. AME/P and DSO should jointly check with the list issued by the Head Office of the Railway whether all the tools are available in satisfactory working condition in the Relief Train.

CHAPTER V

Maintenance of brakes in tenders of Steam Locomotives

5.1 A large number of cases of steam locomotives having no brakes in their tenders came to light in course of inquiries into accidents. While lack of imported special parts coupled with absence of suitable indigenous substitute was the cause of such deficiency in A/CWD Class of locomotives, in most of the other cases there was considerable room for improvement. As the importance of effective brakes in a locomotive can not be overstressed the Commission hopes that the Railway Board will take suitable steps to prevent any complacency in the matter in placing too much reliance on the train vacuum brake.

Supply of First-Aid Boxes at stations and to Gangs

5.2 First-Aid Boxes have not been supplied at many a station and to permanent way gangs on some sections. While the position at stations has substantially improved, the position in respect of permanent way gangs still remains unsatisfactory.

Emergency lighting equipments supplied to Guards of Passenger trains

5.3 As a matter of policy, South Eastern Railway Administration went ahead with removing Kent Coupler provided at the ends of coaches. No corresponding action was, however, taken to modify the terminals of emergency lighting equipment available with the guards with the result that guards did not know and could not demonstrate how to couple the equipment to the coaches. This was pointed out from time to time, but there is no improvement in the position.

Maintenance of Level Crossings

5.4 The standard of maintenance is not upto the mark. Level and gradient portions of approach roads beyond the gate posts, particularly at unmanned level crossings, are not being maintained as per the standards laid down in the Indian Railways Way and Works Manual. Coupled gates have also not been provided even at busy level crossings as per Board's directive. These deficiencies have been pointed out to the Railways from time to time. While some action has been initiated to bring the road surface at level crossings to standards, there has been practically no progress on providing coupled gates at busy level crossings.

Up-gradation of Level Crossings

5.5 The progress on upgradation of level crossings, even where there is ample justification, is very poor mainly due to linking up of this issue with the State Governments in that the latter will have to meet the initial cost of such upgradation as per the extant procedure. There is no hope of any tangible progress on this item unless some workable solution is found in regard to sharing of cost and finding funds by both the parties.

Rail Fractures

5.6 These have steadily increased on B.G. Section of South Eastern Railway from 147 nos. in 1970 to 540 in 1976. The following section are highly vulnerable :—

(i) Anara-Chandil (both Up and Down lines).
(ii) Anuppur-Katni (Up line).
(iii) Bilaspur-Raipur (Up line).
(iv) Dongapost-Rajkharswan (Down line).

The fractures are mainly in respect of imported 90 'R' rails. Approximately 3750 kms. of track in 'A' and 'B' groups and heavy mineral routes on South Eastern Railway consist of 90 R rails, considered inadequate for the present day density of traffic and axle loads. Overloading of wagons, as permitted by the Railway Board has further aggravated the situation but the progress on track renewals is far from satisfactory on account of inadequate allotment of funds.

Shortage of Wooden Sleepers

5.7 The supply position of B.G. wooden sleepers on the Railways continues to be unsatisfactory. Local restrictions have been imposed even on trunk routes, where super-fast trains run, because of high percentage of unserviceable wooden sleepers. The need for wooden sleepers is also more on certain Railways due to extensive lengths of track circuited portions. Some alternative means, such as RCC sleepers with rubber pads, should be progressively introduced on track circuited lengths to meet the situation and ensure safety. Any dependence on wooden sleepers, evidently in short supply, will only result in further deterioration of the condition of track.

Over-loading of Wagons

5.8 The Railway Board, in their letter No. TCI/1294/75/1 dated 10/17-12-75, issued instructions that subject to certain conditions, 4/6-wheeler wagons may be overloaded to an extent of two tonnes each and bogie wagons, with certain exceptions to an extent of four tonnes each on B.G. etc. These instructions were neither sent to the Commission of Railway Safety nor was RDSO informed about this. The RDSO rightly pointed out that the practice of overloading wagons beyond design limits as detrimental to the wagon running gear as also the substructure, i.e. track and bridges.

The Railway Board has, however, not withdrawn these instructions in spite of the concerned technical departments protesting against the same. South Eastern Railway even went a step further and issued instructions at certain stations that no load adjustment should be done even if overloading is detected at weight bridges. The Railway Board may reconsider the instructions in the interest of safety.

NOTE :—The Railway Board have clarified that the instructions have been reiterated to the Railways to strictly observe the axle load restrictions vis-a-vis the provisions contained in Rules, 163 of the Goods Tariff.

Running of trains with alarm chain apparatus blanked off

5.9 It has been observed that the Railway Administration often blank off the alarm chain apparatus on passenger trains to prevent its misuse. This step, however, is a grave safety hazard to the passengers as it disconnects the means of communication between the passengers and the Driver. The provision of this means of communication is an essential equipment. Although GR 111(C) permits such blanking off 'for the time being,' it can not continue over prolonged periods. Blanking off of the alarm chain apparatus has directly resulted in casualties in two accidents on the North Eastern Railway in 1976-77 where, due to a fire in the moving train, the passengers had to jump out of the moving train resulting in fatal casualties and serious injuries to some passengers. The powers to blank off the alarm chain apparatus should be made more restrictive and this step should be resorted to only in extreme cases for a very limited and specified period. It is also suggested that the R.D.S.O, may examine if some device could be provided whereby an indication is available to the Driver in case of a fire in running trains.

Continued use in service of over-due POH Wagons

5.10 The Commission had commented on the undesirability of the Railways proposal to increase the interval between the POH of wagons in its Report for the year 1973-74. It was, however, advised by the Railway Board that safe to run aspect of wagons is checked every time a train leaves a station yard and, with the modernisation of sick-lines, more intensive repairs were being undertaken. It has, however, been observed that over-due POH wagons continue to be retained in service often without the return date being extended by a competent authority. As per extent Rules, such wagons should not be allowed to move except in the direction of the Workshops or towards the owning Railway. These instructions are also not being strictly followed. It is suggested that when the POH date is extended, the designation of the official who permits the extension, should be stencilled on the wagon. A proper record should also be maintained by the concerned official of the specific checks made and the repairs carried out before extending the POH date.

Provision of Lifting Barriers at busy Level Crossings

5.11 Provision of coupled lifting barriers operated by a winch at busy level crossings was recommended by the Railway Accident Inquiry Committee-1968. The progress of implementing this important safety recommendation has been very slow and a vigorous drive is called for to speed up the work.

Brake power on Goods trains

5.12 In respect of brake power on goods trains, the following guide lines have been laid down by the Railway Board (vide Minutes of Chief Mechanical Engineer's Conference in August 1970) :—

(i) At least 85 per cent of the cylinders should be operative (piped vehicles to be treated as so many cylinders inoperative).

(ii) The travel of vacuum cylinder piston to be not less than 90 mm and more than 115 mm to be really effective.

(iii) The average level of vacuum i.e., the average of vacuum pressures obtained on the engine and the brake-van, should not be less than 425 mm for Diesel/electric trains and 400 mm for steam trains.

It has, however, been observed that the Railways some times permit even lower pressures. From the statement submitted by the Railways to the Railway Board in respect of goods trains running without satisfying the above parameters, it is seen that the percentage of such trains, is sometimes as high as 20 per cent on certain Divisions. Such goods trains are a grave safety hazard as any mis-judgement on the part of Driver can result in a serious collision. It is essential that goods trains which do not satisfy the brake power requirements as specified, should not be permitted to run.

Inadequate maintenance of speedometers and speed-recorders

5.13 According to extent orders speedometers are provided on all passenger trains while speedometers-cum-speed recorders are provided on all Mail and Express trains. During the year whenever the engines of such trains were inspected, it was found that these appurtenances were more often in disrepair than in working order. In respect of speed-recorders, although the recorder was said to be working, the same was found not to contain the graph after closer examination. A special drive is, therefore, necessary to ensure that these appurtenances which form essential safety equipment, are maintained in proper working order.

Vigilance Control Device on Diesel Locomotives

5.14 Diesel locomotives are now being increasingly used instead of steam locomotives for haulage of both passenger and freight trains. The Driver's seats on these locomotives are quite comfortable and the Drivers are apt to fall asleep or become drowsy during the run. This inevitably leads to passing signals at Danger and likely serious accidents. In order to prevent such accidents the Vigilance Control Device is provided on each diesel locomotive but it was found during inspections that this device is in majority of cases not in working order. A special drive to keep this device in proper working order is, therefore, necessary.

Rail Flaw Detection

5.15 Although the use of ultrasonic rail flaw detector to eliminate accidents due to rail fracture was accepted by the Railway Board over a decade back, it is a matter of concern that many of the main lines are still not covered. Urgent action to expedite this is called for.

Sd./-

(D. G. DIVGI)

Commissioner of Railway Safety

5—63 C.R.S. Luck./80

APPENDIX A

LIST OF NEW RAILWAY LINES, DOUBLINGS, DIVERSIONS ETC., AUTHORISED DURING 1976-77

Between stations	Gauge	Date of opening	Kms.
(A) *New Lines*			
1. Jawanwala Shahr and Guler (N.Rly.)	BG	28-12-76	24·869
2. Maksi and Ruthiyai (W.Rly.)	BG	..	193·48
3. Amlo Block Hut and Jarangdip (Eastern Railway)	BG	10-11-76	5·81
4. Singrauli and Mahediya (E.Rly.)	BG	6-10-76	6·057
5. Bhugaon and Wagholi (C. Rly.)	BG	..	14·939
6. Beohari and Mahediya (C.Rly.)	BG	1-10-76	140·87
7. Panskura and Haldi (S.E. Rly.)	BG	1-6-76	69·60
8. Ghaziabad and New Delhi (S.E. Rly.)	BG	..	25·00
9. Cuttack and Paradeep (SE. Rly.)	BG	28-2-77	84·29
10. Jhanjharpur and Lankshabazar (N.E. Railway)	MG	10-11-76	42·96
11. Bichia and Tikunia (N. Rly.)	MG	5-2-77	29·40
12. Hassan to Sableshpur (S. Rly.)	MG	27-5-76	42·64
13. Mangalore to Subrahmanya Road (S. Rly.)	MG	27-2-77	92·20
(B) *Doublings*			
1. Jujanpathi and Murheri Rampur (Western Railway)	BG	..	8·40
2. Keshori Patan and Arnetha (W. Railway)	BG	..	11.00
3. Ravtha Road and Almiya (W.Rly.)	BG	..	12.09
4. Keladevi and Pingora (W. Railway)	BG	..	8.92
5. Kajri and Daltanganj (E.Rly.)	BG	24-6-76	10.47
6. Chianki and Kachki (E. Rly.)	BG	16-1-77	7.27
7. Lathhar and Richughuts (E. Rly.)	BG	25-6-76	14.63
8. Kumondih and Letohar	BG	7-1-77	12.62
9. Salaia and Bakhleba (C. Rly.)	BG	10-1-77	9.98
10. Ratona and Saugor (C.Rly.)	BG	28-6-76	7.15
11. Kota and Debra (C.Rly.)	BG	7-6-76	9.57
12. Sank Bridge and Sank (C. Rly.)	BG	25-6-76	0.95
13. Mohasa and Dhaura (C.Rly.)	BG	12-6-76	7.52
14. Uttukuli and Tiruppur (S. Rly.)	BG	29-6-76	13.51
15. Balharshah and Manikgarh (S.C. Railway)	BG	1-11-76	5.62
(C) *Diversions*			
1. Malhaur and Safedabad (N. Rly.)	BG	24-4-77	6.892
2. Sararmati and Chendloidya (W.Rly.)	MG	..	6.766
	BG		2.385
3. Karambeli and Vapi (W. Rly.)	BG	..	2.06
4. Bhigvan and Paphlaj (S.C. Rly.)	BG	21-5-76	33.50
(D) *Conversion*			
1. Muzaffarpur and Sonpur (N.E. Rly.)	MG	3-4-76	59.21
2. Quilon and Trivandrum	BG	13-9-76	64.58

APPENDIX 'B'

SYNOPSIS OF A FEW ACCIDENTS REPORTABLE UNDER SECTION 83 OF THE INDIAN RAILLWAYS ACT INTO WHICH DEPARTMENTAL INQUIRIES WERE HELD BY COMMITTEE OF RAIWAY OFFICERS IN THE YEAR 1976-77

NOTE.—The brief description and cause in column 3 is described as below

(a) Date of accident.....
(b) Train or Trains involved .....
(c) Location .....
(d) Nature of accident .....
(e) Cause.....

K =Killed
I = Injured

Sl. No.	Rly.	Brief Description and cause	Casualties K	Casualties I	Cost of damage to Rly. assets	Important recommendations
1	2	3	4	5	6	7
1.	C	(a) 10-4-1976			750	..
		(b) 131 Dn. Jayanti Janta Express .				
		(c) At Dhaura Station				
		(d) Derailiment				
		(e) Failure of Rolling Stock				
2.	NF	(a) 12-4-1976			6,307	..
		(b) 18Up Vaishali Express				
		(c) Kishanganj station				
		(d) Derailment				
		(e) Disregard of signals				
3.	S	(a) 13-4-1976			2,300	..
		(b) No. 6Up Mettupalaiyam Madras Express.				
		(c) Madras Central				
		(d) Derailment				
		(e) Failure of Railway staff				
4.	S	(a) 15-4-1976			685	..
		(b) No. 1069 Up Maddur Bangalore City Passenger.				
		(c) Between Nayanishalli and Bangalore City Station.				
		(d) Derailment				
		(e) Due to destruction on the rail				
5.	NE	(a) 21-4-1976			4,000	..
		(b) 288Dn. Passenger train				
		(c) Between Indara and Mau Jn. .				
		(d) Fire				
		(e) Electric Short Circuit				
6.	SE	(a) 20-5-1976		2	6,17,500	..
		(b) JCW88 and Dn. Shalimar Spl. Goods.				
		(c) At Rajgangpur station				
		(d) Collision				
		(e) Failure of Railway staff				
7.	NE	(a) 22-5-1976			24,000	..
		(b) 1 MS Up (BG) Passenger				
		(c) At Narayanpur-Anant Station				
		(d) Derailment				
		(e) Failure of Railway Staff				

1	2	3	4	5	6	7
8.	E	(a) 24-5-1976 . . . . (b) DC 154Dn. Goods train (c) Muraroi station (d) Derailment (e) Failure of Railway staff			6,56,000	..
9.	W	(a) 4-6-1976 . . . . (b) 18 Up Janta Express and 541 Dn (c) At Palgarh station (d) Collision (e) Failure of Railway staff		3	8,000	(i) Drainage should be improved to avoid track circuit failures due to undue flooding of track during monsoon. (ii) For better running of trains in case of track circuit failures, the home signals at all stations, where track-cuiting of main line exists on the trunk may provided with "Calling On" signal.
10.	C	(a) 7-6-1976 . . . . (b) 797 Dn Goods train (c) Between Nishatpura and Sukhisewania stations. (d) Derailment (e) Failure of Railway staff			16,59,800	..
11.	S	(a) 16-6-1976 . . . . (b) No. 88Up Tirumala Express (c) Between Yellabaru and Akkurti stations. (d) Derailment (e) Failure of Railway staff			6,000	(i) Engines with broken bush and dropped collars should not be allowed to run. (ii) The Engine repair book should be properly maintained.
12.	S	(a) 17-6-1976 . . . . (b) 92 Dn Raichur-Madras Central station. (c) Madras Central station (d) Derailment (e) Due to a lightly loaded wagons jumping out of the tracks.			1,516	..
13.	NF	(a) 21-6-1976 . . . . (b) 202Dn Cocher Passenger train (c) Kendupana station (d) Derailment (e) Under investigation		2	11,892	..
14.	S	(a) 26-6-1976 . . . . (b) No. 103 Dn. Madras Egmore-Tuticorin. (c) Between Veppilaipattichattiram and Satur stations. (d) Derailment (e) Failure of Railway staff			2,010	..
15.	E	(a) 27-6-1976 . . . . (b) EC 84 Dn. Goods (c) Paharpur station (d) Derailment (e) Failure of Mechanical Equipment			2,04,500	..
16.	C	(a) 30-6-1976 . . . . (b) 30 Up Howrah Bombay Express (c) Between Borkhedi and Sindi (d) Derailment (e) Failure of Railway staff			1,86,153	..

1	2	3	4	5	6	7
17.	W	(a) 6-7-1976 . . . . . . (b) No. KKF 3 Up Goods train (c) Between Vasadva and Jatpipli stations. (d) Derailment (e) Could not be established	..	1	95,000	(i) The tachograph of the speedometer should be changed every 24 hours. (ii) Train Nos. should not be changed once a load is framed and hauled over to TXR for examination.
18.	SC	(a) 22-7-1976 . . . . . . (b) Dn. SRG 2514 Goods (c) Near Bellary station (d) Collision at L-xing with Cycle Rikshaw. (e) Failure of Railway staff	2	..	..	The Gate of the level crossing should be interlocked or gate signals provided.
19.	NE	(a) 17-8-1976 . . . . . . (b) 13 Up Agra Express (c) Between Paliali and Ganj Dundwara station. (d) Derailment (e) Defect in track	..	..	..	..
20.	N	(a) 19-8-1976 . . . . . . (b) T/E and 9 bogies of 14Dn. Express (c) Between Karhigwan and Aung stations. (d) Derailment (e) Due to bursting of tyre of a wheel	..	..	99,652	..
21.	C	(a) 25-8-1976 . . . . . . (b) A/40 Up Goods train (c) Between Thakurwadi and Karjals (d) Derailment (e) Failure of Railway staff	..	..	1,96,000	..
22.	E	(a) 27-8-1976 . . . . . . (b) 6Dn. Amritsar Howrah Mail (c) Between Dumraon and Twisinganj stations. (d) Derailment (e) Due to obstruction caused by a buffalow.	..	..	..	..
23.	S	(a) 4-9-1976 . . . . . . (b) No. 313Dn. Salem Vriddhachalam Passenger (c) Between Talaivasal and Ghinnasalen stations. (d) Derailment (e) Due to breakage of an axle for which a laboratory supdt. was held responsible.	..	..	9,490	Defective axles should not be put back into service until higher authorities of depot and workshop have examined it. All communication in such matters should be specifically brought to the notice of higher authorities.
24.	S	(a) 7-9-1976 . . . . . . (b) No. 604Up. Chengliput Arkonam passenger. (c) Between Nathapatti and Kanchipuram stations. (d) Derailment (e) Due to the failure of Mechanical equipment.	..	..	14,179	..
25.	C	(a) 14-9-1976 . . . . . . (b) 9/30Up Goods train and a shunting load. (c) At Pulagaon station (d) Collision (e) Failure of Railway staff	..	3	1,98,300	..

1		3	4	5	6	7
26.	SC	(a) 24-9-1976			549	(i) Portable telephone should be made a personal equipment of the Guards at least for Express train.
		(b) No. 304Up Mahalakshmi Exp.				
		(c) Between Jayasinghpur and Miraj Express.				
		(d) Derailment				(ii) Broad Gauge Relief Train at Miraj should be equipped with tools and equipments as per standard list provided by the Railway Board.
		(e) Due to failure of mechanical Equipment.				
27.	W	(a) 14-10-1976	2	3	2,525	(i) Telephone connection between Vatva 'B' and the L-xing should be established.
		(b) 109 Dn. Passenger				
		(c) Between Vatva and Maninagar				(ii) Swing gates should be replaced by lifting barriers.
		(d) Collision at a Manned L-xing with a truck.				
		(e) Failure of truck driver				
28.	SE	(a) 27-10-1976			5,00,000	..
		(b) E/KS-268Dn. Goods				
		(c) Between Dalbhumgath and Kekpara stations.				
		(d) Derailment				
		(e) Failure of Railway staff				
29.	NF	(a) 11-11-1976	1	13	..	..
		(b) 253 Up Passenger train				
		(c) Between Ghabus and Panitola station.				
		(d) Collision at a manned L-xing				
		(e) Failure of the truck driver				
30.	E	(a) 30-11-1976			92,000	..
		(b) 50Dn. Amritsar Howrah Exp.				
		(c) At Debipur station				
		(d) Derailment				
		(f) Failure of Railway staff				
31.	NF	(a) 2-12-1976			76,000	..
		(b) 18 Up Vaishali Express				
		(c) Katihar station				
		(d) Collision				
		(e) Failure of Railway staff				
32.	N	(a) 6-12-1976			10,200	..
		(b) Engine of 1 UKN passenger				
		(c) Between Kaithal and Pahwa Road stations.				
		(d) Derailment				
		(e) Due to defect in Engine wheels poor maintenance of track.				
33.	NF	(a) 8-12-1976			19,674	..
		(b) 43Up DJ Mail train				
		(c) Kumedpur station				
		(d) Derailment				
		(e) Rail fracture				
34.	SE	(a) 25-12-1976			2,40,000	..
		(b) 526Dn. Goods				
		(c) At Sigadam station				
		(d) Derailment				
		(e) Failure of mechanical equipment				

1	2	3	4	5	6	7
35.	W	(a) 27-12-1976 . . . . . (b) Dn Water Spl and Up 1 BRC special goods. (c) At Deshdevi station (d) Head on Collision (e) Failure of Railway Staff	1	1	95,000	Conventional double line should be introduced between Kota City South Cabin and Alsia station.
36.	NE	(a) 7-1-1977 . . . . . . (b) 403Up Passenger train and SG Dn Goods train (c) At Turbitia station (d) Collision (e) Failure of Railway staff	1	8	16,700	..
37.	W	(a) 14-1-1977 . . . . . . (b) BRM-12Dn. Goods train (c) At Baimgarh station (d) Derailment (e) Failure of Railway Staff	1		1,37,000	(i) Signalling should be modified. (ii) Speed should be further restricted from 55 kmph to 40 kmph. (iii) Sand-dead end of Down lines should be extended by 30 metres. (iv) Locos should be filled with modified vigilance control device and (v) Goods trains should be subjected to carriage, wagon and brake power examination at Godhra.
38.	S	(a) 18-1-1977 . . . . . . (b) No. 98Dn. Venkatogri Express (c) Between Tammanamgutta and Kurubalakota stations. (d) Derailment (e) Sabotage	..	2	96,000	..
39.	NE	(a) 29-1-1977 . . . . . . (b) 17Up Vaishali Express (c) Between Chak Sikandar and Bidupur Stations. (d) Collision with a tractor at unmanned L-xing. (e) Failure of tractor driver . .	2	2	..	..
40.	C	(a) 29-1-77 (b) TNE Dn. Goods train and T/5 Dn. Diesel Goods train. (c) At Manmad station (d) Rear end collision (e) Failure of Railway staff	..	3	2,20,069	..
41.	SE	(a) 29-1-1977 . . . . . . (b) 331 Up Mixed train (c) Between Deogaon Road and Saintala stn. (d) Collision at unmanned L-xing with a truck. (e) Failure of the truck driver.	..	2	2,000	Traffic census to be done to consider if the L-xing needs manning.
42.	SE	(a) 3-2-1977 . . . . . . (b) Multiple Electric Engine Nos. 20426/429 WAM and stationery Down F/BT/5 Goods. (c) Between Jaraikela and Mancharpur stations. (d) Collision (e) Failure of Railway staff	..	2	1,55,000	..

1	2	3	4	5	6	7
43.	SC	(a) 8-2-1977 . . . . . (b) No. 122 Up New Delhi Madras Central Tamil Nadu Exp. (c) Between Kavali and Srivenkateswarapalem stations. (d) Derailment (e) Due to failure of mechanical equipment.	..	..	57,746·50	(i) Water tank suspension arrangement should be checked thoroughly during POH. (ii) Wooden packing and suspension straps should be replaced on time basis, after every year.
44.	S	(a) 25-2-1977 . . . . . (b) No. 19 Dn. Madras Central Trivandrum Central Mail. (c) Between Karunagapalli and Sasthankottah stations. (d) Collision at an unmanned L-xing with a Bus. (e) Failure of Bus Driver	9 (Bus occupants)	4	3,000	..
45.	N	(a) 25-2-1977 . . . . . (b) 18 Dn. Express (c) Between Gills and Kilaraipur stations. (d) Derailment (e) Due to sudden multiple rail fracture.	..	..	5,372	..
46.	W	(a) 26-2-1977 . . . . . (b) 27Up Bhavanagar Mehsana Express. (c) At Vani Road station (d) Derailment (e) Failure of Railway staff	..	..	100	..
47.	E	(a) 28-2-1977 . . . . . (b) 4705 Up P.M. Goods train (c) Between Chetar and Hichughuta station (d) Derailment (e) Failure of Mechanical Equipment	..	..	2,35,000	..
48.	N	(a) 3-3-1977 . . . . . (b) Rail Car No. 8 (c) Kalka Simla station (d) Derailment (e) Failure of Railway staff	..	3	30,000	..
49.	C	(a) 4-3-1977 . . . . . (b) 166 Up Sabarmati Express (c) Between Govindpuri and Bhimsen stations. (d) Collision with a bullock cart at an unmanned L-xing. (e) Negligence of occupants of the bullock Cart.	1	2	..	..
50.	W	(a) 6-3-1977 . . . . . (b) 794 Up Goods and RNKJ Dn. Goods. (c) At Bhakanian Bhawmi station (d) Head on collision (e) Failure of Railway staff	..	2	3,40,000	(i) Trap points should be substituted by snag dead ends. (ii) Vigilance control devices should be fitted on all diesel locomotives.

1	2	3	4	5	6	7
51	W	(a) 16-3-1977 . . . . (b) 34 Dn Janta Express (c) Between Jhotana Katosanroad (d) Collision with an oil tanker at an unmanned L-xing. (e) Failure of tanker driver		2	500	..
52	W	(a) 29-3-1977 . . . . (b) 90Dn. Passenger (c) Between Basaila and Jaroa stations. (d) Fire in a Coach (e) Could not be established			27,000	The VIR Wiring in the coach should be modified to PVC wiring which is of a flame retarding type.

NOTE.—
- N Northern Railway
- NE North Eastern Railway
- W Western Railway
- C Central Railway
- NF Northeast Frontier Railway
- S Southern Railway
- SC South Central Railway
- E Eastern Railway
- SE South Eastern Railway

APPENDIX C

Year	No. of inquires	Casualties		Damage to Rly. assets
		Killed	Injured	
1966-67	23	299	1,006	21,01,668
1967-68	19	121	443	31,85,439
1968-69	18	121	501	35,01,525
1969-70	16	192	451	40,61,54
1970-71	20	34	408	30,81,57
1971-72	18	62	287	18,59,731
1972-73	14	36	229	12,90,420
1973-74	21	106	360	41,41,633
1974-75	25	142	201	4,32,028
1975-76	30	54	271	29,02,495
Total for 10 year period . . .	204	1,167	4,157	2,85,58,057
Yearly average of the 10 year (period 1966-67 to 1975-76).	20	117	416	28,55,806
1966-67	29	106	445	77,31,334

APPENDIX D

SERIOUS ACCIDENTS ENQUIRED INTO BY THE COMMISSION UNDER MAIN CATEGORIES AND PRINCIPAL CAUSES

Nature of accidents	1966-67 to 1975-76	1976-77
Collision in station yard	42	9
Collision in Mid-section	16	..
Collision in Automatic signalling section	15	3
Derailments	57	10
Collisions at Level Crossings	22	4
Fire in trains	21	3
Miscellaneous	31	..
TOTAL	204	29

ACCIDENTS FALLING UNDER SECTION 83 IN WHICH ENQUIRY WAS CONDUCTED BY RAILWAY ADMINISTRATION DURING 1976-77

Category	N. Rly.	N.E. Rly.	N.F. Rly.	S. Rly.	S.C. Rly.	S.E. Rly.	E. Rly.	C. Rly.	W. Rly.	Total
1. *Derailments :*										
Defective Rolling stock .	4	3	3	3	3	14	1	3	1	
Defective P. Way . . .	2	..	2	..	1	2	1	..	1	
Failure of Railway staff . .	14	12	4	13	10	10	6	7	5	
Other causes . . .	5	7	5	8	7	5	8	9	8	
TOTAL . .	25	22	14	24	21	31	16	19	15	187
2. *Collisions :*										
Failure of Railway staff .	2	1	1	5	..	3	5	5	5	
Other Causes . . .	..	..	..	..	3	1	..	..	..	
TOTAL . .	2	1	1	5	3	4	5	5	5	31
3. *Fire in Trains* :										
Due to defects in rolling stock	..	..	..	..	..	1	..	..	..	
Negligence of passengers .	1	..	..	..	..	..	1	..	..	
Other Causes . . .	1	1	..	..	3	..	..	2	4	
TOTAL . .	2	1	..	..	3	3	1	2	4	
4. *Level Crossing Accidents* :										
Failure of Railway Staff .	..	1	4	1	2	3	..	..	..	
Failure of Road Users .	7	13	4	7	7	11	2	3	7	
TOTAL . .	7	14	8	8	9	14	2	3	7	72
5. OTHER ACCIDENTS .	..	..	..	..	2	..	..	..	4	6
GRAND TOTAL . . .	36	38	23	37	38	50	24	29	35	310

APPENDIX F

ACCIDENTS UNDER SECTION 83 CATEGORY AND RAILWAY-WISE FOR FOUR YEARS (1976-77)

Railways		Collisions	Derail-ments	L-xing	Fire in trains	Misc.	Total
CENTRAL	1973-74	4	17	6	..	..	27
	1974-75	5	17	6	2	..	30
	1975-76	2	23	5	..	..	30
	1976-77	5	19	3	2	..	29
EASTERN	1973-74	14	12	3	2	3	34
	1974-75	12	23	6	2	1	44
	1975-76	10	18	4	1	1	34
	1976-77	5	16	2	1	..	24
NORTHERN	1973-74	5	7	14	1	1	28
	1974-75	2	15	21	4	4	46
	1975-76	8	22	22	3	1	56
	1976-77	2	25	7	2	..	36
NORTH EASTERN	1973-74	4	22	13	1	..	40
	1974-75	1	31	14	2	..	48
	1975-76	4	27	17	3	..	51
	1976-77	2	23	16	3	..	44
NORTH EAST FRONTIER	1973-74	1	15	5	..	..	21
	1974-75	2	26	8	..	..	36
	1975-76	..	14	12	..	..	26
	1976-77	1	17	8	..	..	26
SOUTHERN	1973-74	5	12	12	2	2	33
	1974-75	2	10	18	1	7	38
	1975-76	..	25	8	..	2	35
	1976-77	5	24	8	..	..	37
SOUTH-CENTRAL	1973-74	3	14	6	1	8	32
	1974-75	2	20	10	5	4	41
	1975-76	1	38	6	1	1	47
	1976-77	3	21	9	3	2	38
SOUTH EASTERN	1973-74	11	17	3	..	3	34
	1974-75	10	31	11	..	4	56
	1975-76	8	23	8	2	6	47
	1976-77	4	31	14	1	..	50
WESTERN	1973-74	3	20	16	2	8	49
	1974-75	..	19	17	2	1	39
	1975-76	3	26	10	4	6	49
	1976-77	5	15	7	4	4	35
TOTAL	1973-74	50	136	78	9	25	298
	1974-75	36	192	111	17	21	377
	1975-76	36	216	92	14	17	375
	1976-77	32	191	74	16	6	319

APPENDIX G

LIST OF ACCIDENTS INQUIRED INTO BY OFFICERS OF THE COMMISSION OF RAILWAY SAFETY DURING 1976-77

(K Killed) (I Injured)

Sl. No.	Brief description of the accident	Causalities K	Causalities I	Damage in Rupee to Rly. assets	Cause
1	2	3	4	5	6
				Rs.	
1.	Fire in a coach of 479 Passenger at Motipur Stn. on North Eastern Rly. on 8-4-76.	..	3	40,000	Electric short circuit although it could not be established unequivocally.
2.	Fire on the roof of a motor coach of G.2Up local train between Vidyavihar and Kurla stations on Central Rlys. on 11-4-76.	2	8	450	Electric short circuit caused by stray pieces of wire in the pantograph portion of the roof.
3.	Derailment of 59 Up Kamroop Express in New Jalpaiguri Stn. Yard on N.F. Rly. on 11-5-76.	1	11	59,312	Accidental electrical operation of the point during the passage of the train due to erroneous wiring.
4.	Collision of wiring train with the rear of N-9 Dn. local train between Vikhroli & Kanjur Marg stns. of Central Railway on 24-5-76.	..	19	4,250	Failure of Rly. staff (Wiring train having been driven without requisite care).
5.	Side-Collision of 487 Up mixed train with a Camel-cart between Bela & Pipli stations on Western Railways on 25-5-76.	..	2	600	Failure of camel-cart driver.
6.	Side Collision of 348 Dn. Fast Passenger with coupled engine at Katwa Jn. station on Eastern Railway on 25-6-76.	1	1	78,351	Failure of Rly. staff.
7.	Collision of 346 Dn. Passenger with the dead end buffers at Howrah Stn. on E.R. on 6-7-76.	1	4	400	Failure of Rly. staff.
8.	Derailment of 234 Dn. Mixed train between Golaghat and Furkating stns. on N.F. Rlys. on 14-7-76.	1	2	33,000	Failure of Rly. equipment.
9.	Level Crossing—Accident Collision of light engine with a bus at a level crossing on Hirri Mines siding taking off from Dadhapara station on S.E.R. on 16-7-76.	..	6	140	Failure of Rly. staff.
10.	Fire in 409 Up Passenger train between Jankinagar and Murliganj stations on N.E. Rly. on 23-7-76.	1	1	24,900	Electric short circuit.
11.	Derailment of 59 Kamrup Express between Samsi & Bhaluka Road stations on N.F. Rly. on 30-8-76.	..	6	32,07,212	Wilful Tampering with track.
12.	Collision of 882 Dn. Goods train with 411 Up Goods train in Yamuna Bridge station yard on Western Railway on 1-9-76.	2	2	90,500	Failure of Rly. staff.
13.	Derailment of 23 Up Patna-Hatia Express between Silli & Kita stations on S.E.R. on 11-10-76.	1	13	2,90,000	Failure of Rly. equipment (Mech.) Placement of ballast stones on rails by some miscreant (s) also contributed to the Accident.
14.	Derailment of 52 Dn. Express between Khana and Talit stns. of Eastern Railway on 11-10-76.	2	2	1,67,805	Failure of Rly. equipment (Breakage of axle guides).
15.	Collision of empty rake of 686 Passenger with 115 Dn. Passenger in Tiruchirappali station yard on Southern on 18-10-76.	..	2	5,100	Failure of Rly. staff.

1	2	3	4	5	6
				Rs.	
16.	Derailment of 371 Dn. local at Bandra stn. on W.Rly. on 23-10-76.	2	5	54,000	The Accident was the outcome of the palm pull rods on the brake hanger assembly on the leading right wheel of the trailing bogie of the second coach getting detached at their fore end and the inner palm pull rod striking and bending the gauge and driving rods of facing points No. 136, resulting in the points gaping and causing derailment of the coaches that followed.
17.	Derailment of Up Itarsi Spl. goods Train in the sand hump at Sukhi Sewaniyan stn. yard of Central Rly. on 12-11-1976.	1	..	2,29,000	Failure of Rly. staff.
18.	Level Crossing Accident—Collision between light engine & bus between Tilaiya & Wazerganj stns. on Eastern Rly. on 15-11-76.	2	16	3,500	Due to the gates having been kept open permitting the bus to enter the level crossing in the face of the approaching light engine.
19.	Collision between (i) OJ A Spl. Up Goods train & (ii) 78 Up Parcel Passenger with the rear of OJ A-Spl. Up Goods train at Srivenkateswarapalam stn. of South Central Rly. on 17-11-1976.	9	25	2,87,050	Failure of Rly. staff.
20.	Level crossing Accident—Collision between 72 Dn. Passenger and a truck at L/C No. 20B between Ghazipur City and Ankuspur stations on N.E.R. on 27-12-76.	..	1	600	Failure of Rly. staff.
21.	Collision between SFCD Spl. Up Goods train and the empty rake of 432 Dn. Passenger train at Gummidipundi stn. on Southern Rly. on 31-12-76.	1	2	93,700	Failure of Rly. staff.
22.	Collision of 130 Dn. Varanasi-Asansol Pass. with the rear of IVMA Pass. at Mughalsarai on Eastern Rly. on 18-1-77.	26	103	2,20,000	Failure of Rly. staff.
23.	Derailment of 104 Dn. Kathgodam-Bareilly Pass. in the catch siding of Haldwani stn. on N.E.R. on 7-2-77.	3	9	2,03,500	Inadequate Brake Power.
24.	Collision of 16 Up G.T. Exp. with the rear of Diesel goods train at Ongole stn. on South Central Rly. on 8-2-77.	..	47	1,444	Failure of Rly. staff.
25.	Derailment of 387 Dn. Pass. at Majhgawan stn. on Central Rly. on 17-2-77.	..	2	1,32,082	Failure of Rly. staff and Rly. Equipment.
26.	Side Collision between 9 Up Barauni-Kanpur Exp. and Down Garhara Goods Special at Bachwara stn. on N.E.R. on 24-2-77.	30	48	7,02,000	Failure of Rly. staff.
27.	Collision of Up BPQD Goods train with the rear of 76 Up Waltair-Kazipet Pass. at Kesamudram stn. on S.C. Rly. on 25-3-1977.	9	22	6,68,600	Failure of Rly. staff.
28.	Level crossing Accident—Collision between 131 Up Lalkua-Moradabad Pass. and a Car at Level Crossing No. 46 on Lalkua-Kashipur section of NFR on 28-3-77.	2	5	20	Failure of other than Rly. staff.
29.	Derailment of 28 Up West Coast Exp. at Sevur stn. on South Rly. on 30-3-77.	9	63	10,30,000	Could not be established.
30.	Side Collision of Kurla Wiring Train with TH-19 Dn. Local train of Kurla stn. on the Bombay section of Central Rly. on 31-3-77.	..	7	1,04,218	Failure of Rly. staff.

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