

Chapter 3

Detentions of trains due to existing deficiencies/constraints at stations

Availability of clear platform at the station is primary requirement for inward trains. Due to non-availability of path (platform/line), the trains have to wait at outer signal or the adjacent station until the platform is vacated by pre-occupied trains. The platform could be occupied by trains due to their stoppage at the stations, non-availability of adequate stabling/pit lines, non-availability of clear path further, late start of trains from the platforms due to reasons such as non-availability of locos, crew etc. Audit examined the divisional records of control data and Train Signal Register (TSR) maintained at station and Empty Coaching Rake Movement (ECRM) register maintained at station for the month of March 2017 at all the selected stations. Audit analysed the quantum of detention and reasons for the same at outer signal/adjacent stations, enroute from outer signal/adjacent station to the selected stations and at the selected stations. Audit also analysed the causes of detention of trains on account of unusual running time allotted in time table between two stations, late start of trains from originating stations etc., due to lack of proper coordination amongst various departments of Railways. Detentions per trains in respect of the selected station on account of various reasons are given below:

Table 3.1 (a) – Detention per train during March 2017 for through trains							
Station	No. of coaching trains passing through	Average number of originating/terminating trains per day	Average detention at adjacent stations/outer stations for coaching trains (in minutes)	Average enroute detention of coaching trains from outer signal/adjacent station to the selected stations (in minutes)	Range of enroute detention of coaching trains from outer signal/adjacent station to the selected stations (in minutes)	Average detention at platforms (excess stoppage than the prescribed period) of coaching trains (in minutes)	Average detention at adjacent stations/outer stations for Goods trains (in minutes)
Patna	59	100	19	11	1 to 85	14	29
Mughalsarai	112	28	20	18	1 to 49	10	21
New Delhi	76	166	25	14	0 to 92	15	0
Delhi	77	186	24	18	1 to 162	13	0
Kanpur Central	303	25	19	7	1 to 124	10	100
Allahabad	172	18	23	6	0 to 23	17	31
Mathura	180	10	15	13	0 to 178	7	34
Howrah	3	104	9	7	1 to 54	10	7
Jaipur	54	43	19	7	1 to 87	8	91
Bhopal	132	26	0	17	1 to 153	8	33
Itarsi	146	14	8	11	1 to 209	10	43
Ahmedabad	58	84	0	6	0 to 23	7	28
Vijayawada	122	72	24	10	0 to 23	11	75
Chennai Central	19	138	17	4	1 to 25	0	0
Nagpur	102	20	22	6	0 to 99	12	59
Total	1615	1034					

Table 3.1 (b) –Detention per train during March 2017 for originating and terminating trains

Station	Average number of originating trains per day	Average number of terminated trains per day	Average detention at platform (after termination of train) (beyond 30 minutes) of coaching trains (in minutes)	Average detention of coaching trains due to late start of trains from station (in minutes)	Range of detention of coaching trains due to late start from station (in minutes)	Average detention of platform return coaching trains beyond 75 minutes of termination in a week (in minutes)
Patna	50	50	28	46	1 to 460	133
Mughalsarai	14	14	16	30	2 to 140	125
New Delhi	83	83	0	16	2 to 205	0
Delhi	93	93	0	23	2 to 490	0
Kanpur Central	12	13	60	66	5 to 350	0
Allahabad	9	9	102	60	5 to 463	0
Mathura	5	5	26	74	1 to 315	0
Howrah	52	52	33	20	6 to 64	240
Jaipur	21	22	32	39	2 to 350	0
Bhopal	13	13	0	12	3 to 50	243
Itarsi	7	7	21	46	5 to 250	193
Ahmedabad	42	42	56	10	1 to 165	104
Vijayawada	36	36	21	21	5 to 105	83
Chennai Central	69	69	44	6	1 to 45	1517
Nagpur	10	10	60	28	5 to 135	20
Total	516	518				

As can be seen from the tables above,

- Through passenger trains were detained on an average for 15 to 25 minutes per train in all the selected stations except Howrah, Bhopal, Itarsi and Ahmedabad.
- The detention of goods trains were significantly higher and ranged on an average from 21 to 100 minutes per goods train at all the selected stations except Delhi, New Delhi, Howrah and Chennai Central.
- Passenger trains were also detained enroute on an average for 10 to 18 minutes at outer signal/ adjacent station, before reaching Patna, Mughalsarai, New Delhi, Delhi, Mathura, Bhopal, Itarsi and Vijayawada. The maximum detention was more than 100 minutes in a single case for Delhi, Kanpur Central, Mathura, Bhopal and Itarsi.
- Passenger trains were stopped beyond their stoppage time at the selected stations for 10 to 17 minutes at Patna, Mughalsarai, New Delhi, Delhi, Kanpur Central, Allahabad, Howrah, Bhopal, Vijayawada and Nagpur.
- Passenger trains were started late by 15 to 74 minutes from their scheduled time from all the selected stations except, Bhopal, Ahmedabad and Chennai Central. The maximum detention ranged from 100 to 165 minutes in a single case for all the selected stations except Howrah, Bhopal and Chennai Central.
- Platform return trains were detained beyond the prescribed time of 75 minutes at the terminating stations for more than 100 minutes on an average at Patna, Mughalsarai, Howrah, Bhopal, Itarsi, Ahmedabad and Chennai Central.

- On the selected 15 stations, average 516 trains are terminated per day, which again originate from the station after maintenance or stabling (where no maintenance required) as per their schedule time. There are provision for pit lines and stabling line at the stations for such maintenance/stabling purpose. For these 516 terminated trains, only 79 pit lines and 62 stabling lines are available at these selected stations. At Patna station, there are 2 pit lines and 3 stabling lines for handling of average 50 terminated trains per day. Similarly, at Mathura, Jaipur, Vijayawada and Nagpur stations, availability of pit/ stabling line was not commensurate with the number of trains terminating at the these stations.
- Lack of adequate facility of pit lines and stabling at the stations results in engagement of platforms for a considerable period by the train waiting for maintenance in the pit lines or for stabling. Alternatively, in absence of availability of pit lines, trains are also shifted to the other pit lines located at adjoining stations subject to availability. This also results in engagement of track connected to the adjoining station for that purpose and engagement of engine and empty haulage of rakes.

Detailed audit observations related to detention of trains are discussed below:

3.1 Total detention at stations as per Control Data maintained by Divisions

The complete operation of passenger and goods trains on a division, in every aspect, is controlled by the Control unit of the Operating department. This involves systematic timing, working and loading of all trains, both goods and passenger, and to keep close touch with the operation of continuous sections and divisions so as to avoid congestion. Further, on the basis of the experience gained, the Control unit of the Operating department suggests improvements to eliminate constraints that lead to congestion. Audit noticed that the trains originating/terminating/passing through the divisions of selected stations were detained for about 24412 hours during March 2017, as can be seen from the table below:

Zonal Railway	Division	Total Detention during March 2017 (in hours)
ECR	Danapur	2640
	Mughalsarai	557
NR	Delhi	4166
NCR	Allahabad	10108
	Agra	2425
ER	Howrah	525
NWR	Jaipur	433
WCR	Bhopal	822
WR	Ahmedabad	213
SCR	Vijayawada	1667
SR	Chennai	491
CR	Nagpur	365
Total		24412

From the above, it can be seen that detention were significantly high in respect of Patna, New Delhi, Delhi, Kanpur Central, Allahabad, Mathura and Vijayawada stations during March 2017. The main reasons for detention were non-availability of path, level crossing, rescheduling, loco failure, Alarm Chain pulling, Engineering etc. Non-availability of clear line/path was one of the main reasons for detention of trains at outer signal/adjacent station/ *en-route* before the last station. In overall 32 *per cent* cases, reasons for detention were non-availability of clear path/traffic. The percentage was more than 40 *per cent* in respect of Danapur, Allahabad, Chennai and Nagpur divisions. Audit also noticed that in Bhopal division, the reasons for detention were not recorded in the Control data and in Allahabad, Agra and Vijayawada division, the records for the same were partially maintained.

Annexure I

3.2 Total detention at stations as per Train Signal Registers (TSR) of the selected stations and adjoining/preceding stations

Train Signal Registers (TSR) is maintained at stations to record mainly the actual movement of trains at the station where it is being maintained. In case of any detention, the reason for such detention should be recorded in the Register. Audit analysed manual data (TSR, Station Working Rule etc.) pertaining to the month of March 2017, in respect of operation of trains at selected stations and their adjoining stations. Audit noticed that for want of line/platforms at selected stations, inward trains have to be detained at adjacent stations for more than their scheduled prescribed stoppage time. Cases were also noticed when the inward trains were detained at outer signal of the selected stations for want of line/platform. During the month of March 2017, at 54 adjacent stations to the 15 selected stations, 4248 passenger trains were detained for 77,989 minutes (beyond the time of five minutes). In addition, 5902 goods trains were detained for 2,72,242 minutes at the outer signal/ adjacent stations. It was seen that coaching trains were detained for an average 18 minutes at the outer signals/adjacent stations. The goods trains were detained for much longer period and the detention was almost 46 minutes per train. Audit observed that specific reasons for detention outside the station were not recorded in TSR in a number of cases.

Annexure 2

Audit observed that trains originated from the stations were delayed due to late start from the originating station itself. Audit analysed the causes of detention of trains on account of late start of trains from originating stations. On review of Train Signal Registers (TSR) maintained at the selected 15 stations for the month of March 2017, Audit observed that 7310 trains were detained for 2409 hours at originating stations. Out of these 7310 trains, 6317 trains were detained for up to 30 minutes, 496 trains detained for half an hour to one hour and 497 trains detained for more than an hour. The main reason (38 *per cent*) for delay in originating trains i.e. late start of train from originating stations was 'want of path'. Other reasons were link rake, absence of loco, crew, etc.

During Exit Conference (March 2018), Railway Board stated maximum detention at preceding station was for terminating trains. They stated that reasons for detention were invariably recorded by the station authorities and that strict monitoring was being done at Zonal Railway and Railway Board level for analysing reasons for detention through the data available in Coaching Operations Information System (COIS). Audit, however, found that in some of the selected/ preceding stations, no reasons were recorded in the TSR. Non-filling of prescribed registers may have serious implications in terms of control of movement on the tracks, inability to analyse causes of delays or mishaps etc. and is also indicative of loose supervisory control. Railways need to see how widespread this problem is and ensure that critical traffic records are fully maintained and non-essential registers/returns discontinued.

3.3 Detention of non-stop passenger trains at adjoining stations

Audit reviewed the detention of those trains in the month of March 2017 which had no scheduled stoppages on these preceding stations, but where the trains were stopped and detained for a considerable period. Total 7853 trains were detained at 38 adjacent stations for want of line/ platforms at 11 selected stations. Of which, 4907 trains (60.86 per cent) did not have the stoppage as per the time table at these adjacent stations. The total detention of these 4907 trains was about 38443 minutes at the adjacent stations, i.e. almost eight minutes per train.

Annexure 3

3.4 *En route* detention of trains

The *en route* movement of trains from adjoining stations to the 15 selected stations during March 2017 were examined to analyse the actual time taken beyond allowed time between these stations (adjoining and the selected stations). From 41 adjoining station, 12992 trains took more time than allotted to reach the selected station leading to unavoidable *en route* detention of 99973 minutes (1666 hrs) during the month of March 2017. Out of these 12992 trains, 5596 trains took more than five minutes than the allowed time to reach the selected station from the adjoining/preceding.

Audit further analysed the detention of trains *en route* in excess of 30 minutes more than the time allowed between the adjacent stations and selected stations. It was further noticed that 421 trains took 30 minutes or more over and above the allowed time to reach the selected stations from its adjacent stations causing total detention of 24559 minutes during March 2017. 309 trains on way to New Delhi (Delhi sadar), Delhi (Delhi Shahadara,) Kanpur Central (Kanpur Bridge), Allahabad (Prayag) and Bhopal stations (Vidisha) took 30 minutes or more time than the allowed time from their adjacent stations and detained for 16701 minutes i.e. on an average 54 minutes per train. Extra time taken to the cover the short distances between the adjacent stations and selected stations caused loss of punctuality.

Annexure 4

3.5 Detention of trains at station due to excess stoppage than the scheduled stoppage time

Trains are detained at stations beyond their scheduled stoppage time due to operational reasons such as non-availability of path, as some other train is already in the section. This results in occupation of platform line of the station for more time and creates congestion at station and further impacts the timing of incoming trains. The reason for such detentions is required⁸ to be recorded in the record maintained at the station for that purposes and remedial measures should be taken to resolve such issues by proper planning and execution.

Audit noticed that the reason for such detention was not recorded in most of the cases in the TSR maintained at selected stations. Out of 15 selected stations, in 14 stations, 12230 trains were detained (i.e. stopped more than the scheduled stoppage time) on the platforms. The total detention assessed by Audit during the month of March 2017 for these 11902 trains as 120363 minutes. Significantly higher number of trains were detained at Mughalsarai (1033 trains), Kanpur Central (2970 trains), Jaipur (1270 trains) and Itarsi (1343 trains) stations. The detention at almost all the adjacent stations was more than 10 minutes, for ten stations reviewed in Audit. The stoppage of trains for more than the scheduled stoppage time resulted in line congestion and caused not only delays of these trains, but the incoming trains to that station were also delayed.

Annexure 5

3.6 Occupation of line/platform by Platform Return Trains

Platform return trains are those trains which have been scheduled to be returned from the platform itself with new number after cleaning, watering etc. These trains are allowed⁹ one hour and 15 minutes time for cleaning, watering etc. and are not sent to washing pits/yards etc. for maintenance. Out of the 15 selected stations, on nine stations¹⁰, 65 platform return trains were being operated. Audit reviewed that running of these platform return trains and noticed that 40 platform return trains, engaged the platforms significantly more time than the allowed time of 75 minutes leading to engagement of platforms for 37230 minutes in a week's¹¹ time.

3.7 Occupation of running lines by empty rakes of terminated trains

There should be a fixed time for removal of the empty rake of a terminated train from the running line. Detentions of such rake at station for more than the prescribed time results in detention of other trains at outer signal and adjacent stations for want of availability of platform at the destination station. Empty Coaching Rake Movement (ECRM) Register is

⁸ Para II (iv) of Chapter 1 of Duty of Deputy Station Master Outdoor

⁹ Railway Board vide letter No. 2003/M(C)/141/19 dated 02.03.2006

¹⁰ Patna, Mathura, Howrah, Bhopal, Itarsi, Ahmedabad, Vijaywada, Chennai Central, Nagpur

¹¹ Engagement of platform was assessed for a week of month of March 2017. Normally trains were run on weekly basis, i.e. weekly, bi-weekly, tri-weekly, daily. Considering this detention was assessed for one week.

prescribed for monitoring the movement of terminated coaching rakes after termination at station.

The norms of time for stay of terminated trains at station have not been prescribed by railways. Assuming that a time of thirty (30) minutes is considered sufficient for the terminated trains at Platform to complete necessary formalities before proceeding to washing pit/stabling line, Audit reviewed the time taken by various trains to proceed to washing pit/stabling lines at terminating stations.

Audit observed that non-maintenance of ECRM register by stations concealed the abnormal stay of terminated trains at platforms in three stations viz. New Delhi, Delhi and Bhopal stations. In the absence of such information, it is difficult for the railways to monitor and take corrective action to optimally use the platforms. Audit reviewed the ECRM register of the remaining 12 stations and noticed that 3500 terminated trains were detained at platforms beyond 30 minutes with a total detention of 151488 minutes during March 2017. 382 trains were detained more than one to three hours and 55 trains were detained by more than three hours beyond 30 minutes after termination.

Annexure 6

3.8 Abnormal time allowed to some trains in comparison to the other trains of same category between a pair of stations

Audit analysed the Working Time Table of 12 selected divisions of ten Zonal Railways. Audit noticed that out of 409 trains, run directly from the preceding stations to the selected stations¹², 169 trains had been allotted unusually more time in comparison to the same category¹³ of trains run between these pair of stations. Audit assessed total 42734 hours loss of the coach/engine hour for the period under review, on the basis of extra time allotted over and above the time allotted for other train(s) of similar category. Due to allowing extra/slack time to such trains, the rake (coaches and engine) of these trains had to be detained on the stations till its scheduled departure, in case it reaches to that station on normal time.

Annexure 7

To further substantiate the above observation, Audit compared the data of actual time taken by the trains that were allotted unusually more time from the station record (TSR) of these stations. Audit test checked data of 88 trains in March 2017, which were allotted unusually more time and noticed that the actual time taken was much less than their allotted time. Out of these 88 trains, 40 trains took 50 *per cent* less time; 51 trains took 50 *per cent* to 75 *per cent* less time and 27 trains took more than 75 *per cent* less time of the time allowed in working time table.

Annexure 8

¹² Patna, Mughalsarai, New Delhi, Delhi, Kanpur, Allahabad, Mathura, Jaipur, Bhopal, Itarsi, Vijayawada and Nagpur

¹³ Mail/Express was compared to Mail/Express, Passenger was compared to Passenger, MEMU was compared to MEMU, etc.

During Exit conference (March 2018), with regard to different time being allowed to different trains between the same pair of stations, Railway Board stated that between the terminating station and the station preceding it, a recovery time is kept in the time table so as absorb delays due to operational constraints.

Thus, due to inadequate station line and platform capacity, trains were detained before reaching the stations at outer signals and adjacent preceding stations. Trains were also detained enroute as clear path was not available to proceed further. Platform return trains and terminated trains were also detained at platforms due to constraints in moving them further. Infrastructure such as platforms and facilities for stabling and/or maintenance, were not adequate, which led to delay in arrival of inbound trains, delay in departure of outbound trains and trains were also detained on way to depots for maintenance. Due to these constraints, there were large differences in the timings allowed for various trains to cover a similar distance between a station and its adjacent station. There is a need to provide adequate lines, platforms and maintenance facilities so as to minimise the detention of trains and sub-optimal utilisation of coaching stock. Critical traffic registers and records need to be maintained properly, so as to strengthen supervisory control.