

GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RAJYA SABHA
UNSTARRED QUESTION NO. 2527
ANSWERED ON 13.03.2026

FATIGUE RISK MANAGEMENT SYSTEM IN RAILWAYS

2527 SHRI SAKET GOKHALE:

Will the Minister of RAILWAYS be pleased to state:

- (a) whether the Ministry has conducted a scientific assessment on the correlation between the 22 per cent vacancy in loco pilot posts and the rising instances of "Signal Passing at Danger" (SPAD); and
- (b) the reasons as to why the Railways has not yet implemented a Fatigue Risk Management System (FRMS) similar to the aviation sector, despite repeated warnings from the All India Loco Running Staff Association about the dangers of consecutive night shifts exceeding the 11-hour duty limit?

ANSWER

MINISTER OF RAILWAYS, INFORMATION & BROADCASTING AND
ELECTRONICS & INFORMATION TECHNOLOGY

(SHRI ASHWINI VAISHNAW)

(a) & (b): Indian Railways hires Loco pilots on a regular basis looking the vacancy position. As train operation increases, and pilots retire, new positions are opened up for hiring.

The details of filling up vacancies of Loco pilots are as follow:

Year	Details
2024	18,799 vacancies were notified. Selection process already completed and 15,047 candidates empanelled
2025	9,970 vacancies were notified; First stage Computer Based Tests (CBTs) have been completed.
2026	11127 vacancies have been approved for notification.

Loco Pilots are important members of Indian Railway family who play pivotal role for moving passenger and goods traffic in safe and efficient manner. Indian Railways is committed to ensure proper working conditions for loco pilots. A number of steps have been taken towards the betterment of the working conditions of Loco Pilots and Assistant Loco Pilots of Indian Railways. Some of these steps are as follows:

- i. All running rooms have been air-conditioned.

- ii. Running staff are provided with Yoga and meditation room, reading room with newspaper and magazines for relaxing in accordance with their requirements.
- iii. Provision for subsidized meals in running rooms.
- iv. Availability of RO water filters in running rooms.
- v. Various safety drives & special counselling programs are regularly organized for checking the alertness and safety awareness among the running staff. Special safety seminars & meetings are also organized for interaction with family members of running staff for educating on role of quality rest in life of running staff.
- vi. Special drives are launched regularly to counsel running staff to boost their morale and confidence.

The hours of work and periods of rest of loco pilots and assistant loco pilots of Indian Railways are regulated by the Railways Act, 1989. As empowered by the Act, the Ministry of Railways has made the Railway Servants (Hours of Duty & Periods of Rest Rules 2005). In accordance with these Rules, the following are being followed in preparation of duty rosters of loco Pilots and Assistant Loco Pilots of Indian Railways:

- i. Total duty at a stretch (from 'sign on' to 'sign off') for running staff should not exceed 11 hours.
- ii. Running duty at a stretch should not ordinarily exceed 9 hours. Such duty may extend further provided the railway administration gives at least 2 hours notice before the expiry of 9 hours to the crew that they would be required to perform running duty beyond 9 hours with the stipulation that the total duty from 'sign on' to 'sign off' shall not exceed 11 hours.
- iii. In case the train does not reach its destination, normal crew changing point or the point where the reliever has been arranged, within the overall limit of 11 hours, and such a point is approximately one-hour journey away, the running staff shall be required to work to that point provided the maximum hours in that trip does not exceed 12 hours.
- iv. For loco pilots of all Mail/Express trains, the running duty (for the purpose of preparation of links only) should not exceed 8 hours. However, preparatory or complementary work time shall not be included within 8 hours.
- v. The above provision for running duty hours and total duty hours shall be applicable to all running staff including Loco Pilots (Mail/Express), Loco Pilots (Passenger), Loco Pilots (Freight), Motormen and Guards except wherever stated otherwise.

Duty hours of crew are regularly monitored and continuous efforts are made for ensuring adherence to Railway Servants (Hours of Duty & Period of Rest Rules, 2005) for all railway employees covered under these rules, including Loco Pilots and Assistant Loco Pilots.

Continuous efforts are also made and action taken to ensure that there are an adequate number of Assistant Loco Pilots and loco Pilots in the various Divisions of Indian Railways commensurate with the requirement of Railway traffic.

Recruitment

Recruitment done in Indian Railways during 2004-2005 to 2013-2014 vis-à-vis during 2014-2015 to 2024-2025 is given as under: -

Period	Recruitments
2004-2005 to 2013-2014	4.11 lakh
2014-2015 to 2024-2025	5.08 lakh
2025-26 till date	41,343

Railways, being central Government organization could conduct recruitment on all India basis. This is in line with Constitutional provision of right to equality in matters of public employment. Every candidate irrespective of gender, language, place of birth, region etc. fulfilling eligibility criteria is free to apply. All those who apply in response to Centralized Employment Notifications (CENs), including local candidates, are considered for recruitment on the Railways, on equal footing. No preference is given to candidates belonging to any state or Region nor is the recruitment restricted to any State or Region.

Presently, recruitment against 1,43,086 vacancies of non-gazetted personnel has been taken up on Indian Railways as per Annual Calendar 2024 and 2025.

During January to December 2024, ten Centralized Employment Notifications (CENs) for 92,116 vacancies were notified for filling up of posts of Assistant Loco Pilots (ALPs), Technicians, Sub-Inspectors, Constables in Railway Protection Force (RPF), Junior Engineers (JEs)/ Depot Material Superintendent (DMS)/ Chemical & Metallurgical Assistant (CMA), Paramedical Categories, Non-Technical Popular Categories (Graduate), Non-Technical Popular Categories (Under-Graduate), Ministerial & Isolated Categories and Level-1 categories such as Assistants, Track Maintainers and Pointsmen.

First stage/Single stage Computer Based Tests (CBTs) for 92,116 posts have been completed. Details are as under: -

Exam	Candidates	Cities	Languages
1 st Stage CBT for the post of ALP (18,799 vacancies)	18,40,347	156	15
CBT for the post of Technician (14,298 vacancies)	26,99,892	139	15
1 st Stage CBT for the post of JE/DMS/CMA (7,951 vacancies)	11,01,266	146	15
CBT for the post of RPF-SI (452 vacancies)	15,35,635	143	15
CBT for the post of RPF-Constable (4,208 vacancies)	45,30,288	147	15
CBT for Paramedical Categories (1,376 vacancies)	7,08,321	143	15
1 st Stage CBT for Non-Technical Popular Categories (Graduate) (8,113 vacancies)	58,41,774	141	15
1 st Stage CBT for Non-Technical Popular Categories (Under Graduate) (3,445 vacancies)	63,27,473	157	15
CBT for Ministerial & Isolated categories (1,036 vacancies)	4,46,013	139	15
CBT for level-1 post (32438 vacancies)	1,08,28,261	152	15
Total Candidates	3,58,59,270		

2nd stage CBTs for the posts of ALP, JE/DMS/CMA and Non-Technical Popular Categories (Graduate & Under-Graduate) have also been completed. Details are as under: -

Exam	Candidates	Cities	Languages
2 nd Stage CBT for the post of ALP (18,799 vacancies)	2,66,363	112	15
2 nd Stage CBT for the post of JE/DMS/CMA (7,951 vacancies)	1,17,339	118	15
2 nd Stage CBT for Non-Technical Popular Categories (Graduate) (8,113 vacancies)	1,21,931	129	15
2 nd Stage CBT for Non-Technical Popular Categories (Under-Graduate) (3445 vacancies)	51,978	79	15
Total Candidates	5,57,611		

Computer Based Aptitude Test (CBAT) for the post of ALP and Non-Technical Popular Categories (Graduate) and Computer based Skill Test for the post of Non-Technical Popular Categories (Graduate

and Under Graduate) and Ministerial & Isolated Categories have also been completed. Details are as under: -

Exam	Candidates	Cities	Languages
CBAT for the post of ALP	1,32,044	84	2
Translation Test for Ministerial and Isolated Categories	1,233	8	2
CBAT for the post of Non-Technical Popular Categories (Graduate)	13,616	38	2
Computer Based Typing Skill Test (CBTST) for the post of Non-Technical Popular Categories (Graduate-level)	30,341	58	2
Computer Based Typing Skill Test (CBTST) for the post of Non-Technical Popular Categories (Under-Graduate-level)	13,145	44	2
Total Candidates	1,90,379		

Panels for more than 41,000 candidates for various posts including the posts of Technicians, Junior Engineers, Paramedical Categories, Sub-Inspectors & Constable (RPF) and Assistant Loco Pilots have been finalised. Majority of them are in safety categories.

In addition, as per Annual Calendar for the year 2025, nine Centralized Employment Notifications (CENs) for 50970 vacancies have also been issued. Details are as under: -

CEN No.	Post Name	No. of Vacancies notified	Month of Notification
01/2025	Assistant Loco Pilots	9,970	March 2025
02/2025	Technician	6,238	June 2025
03/2025	Paramedical categories	434	July 2025
04/2025	Section Controller	368	August 2025
05/2025	Junior Engineer/ Depot Material Superintendent	2,585	October 2025
06/2025	Non-Technical Popular Categories (Graduate)	5,810	October 2025
07/2025	Non-Technical Popular Categories (Under-Graduate)	3,058	October 2025
08/2025	Isolated Categories	312	December 2025
09/2025	level-1	22,195	December 2025

First stage Computer Based Tests (CBTs) for 12923 posts have been completed. Details are as under: -

Exam	Candidates	Cities	Languages
Ist stage CBT for the post of ALP (9970 vacancies)	10,03,719	141	15
CBT for the post of Section Controller (368 vacancies)	4,33,748	131	15
Ist Stage CBT for the post of JE/DMS (2585 vacancies)	5,74,351	133	15
Total Candidates	20,11,818		

The RRB examinations are quite technical in nature entailing large scale mobilization of men and resources and training of manpower. Railway overcame all these challenges and successfully conducted the recruitment in a transparent manner following all laid down guidelines. No instance of paper leakage or similar malpractice has occurred during the entire process.

Further, as system improvement, the Ministry of Railways has introduced a system of publishing the annual calendar from 2024 for recruitment to various categories of Group 'C' posts. The introduction of the annual calendar is benefitting the aspirants in the following manner:

- More opportunities for candidates;
- Opportunities to those becoming eligible every year;
- Certainty of exams;
- Faster Recruitment process, Training and Appointments

Safety:

Safety is accorded the highest priority on Indian Railways. As a consequence of various safety measures taken over the years, there has been a steep decline in the number of accidents.

Number of Consequential Train Accidents has reduced as shown in the table below:-

Year	Consequential Accidents
2014-15	135
2025-26 (upto 28.02.2026)	14 (90% lesser)

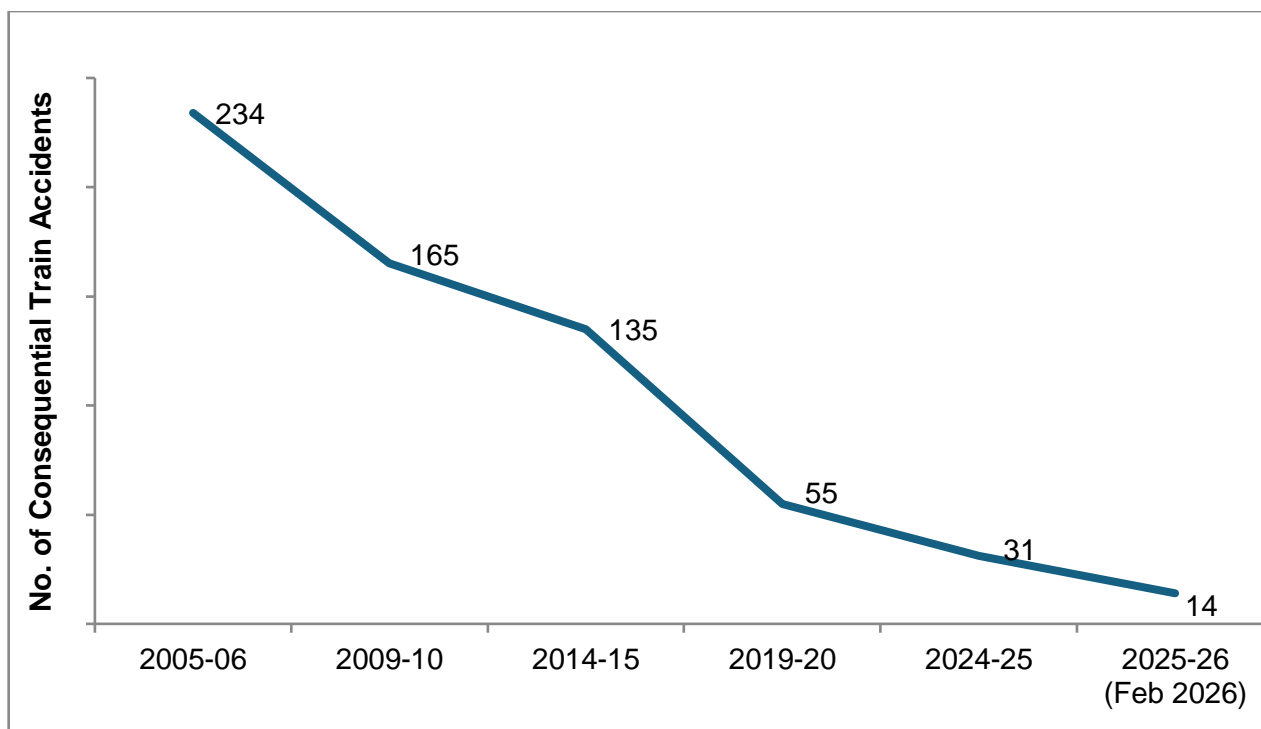
Another important index showing improvement in safety in train operations is Consequential Accident Index, the details of which are as under:-

Consequential Accident Index:-

Year	Accident Index
2014-15	0.11
2024-25	0.03 (73% lesser)

This index measures number of consequential accidents as a ratio of total running kilometers of all trains.

$$\text{Accident Index} = \frac{\text{No. of consequential accidents}}{\text{No. of trains X million kilometers run}}$$



The various safety measures, including track maintenance, taken to enhance safety in train operations are as under:-

1. On Indian Railways, the expenditure on Safety related activities has increased over the years as under:-

Expenditure/Budget on Safety related activities (Rs. in Cr.)					
2013-14	2022-23	2023-24	2024-25	2025-26	2026-27
39,200	87,336	1,01,662	1,14,022	1,17,693	1,20,389

2. Electrical/Electronic Interlocking Systems with centralized operation of points and signals have been provided at 6,665 stations up to 28.02.2026 to reduce accidents due to human failure.
3. Interlocking of Level Crossing (LC) Gates has been provided at 10,153 Level Crossing Gates up to 28.02.2026 for enhancing safety at LC Gates.
4. Complete Track Circuiting of stations to enhance safety by verification of track occupancy by electrical means has been provided at 6,669 stations up to 28.02.2026.

5. Indian Railways has gone for implementation of indigenously developed Automatic Train Protection (ATP) system, which required safety certification of highest order (SIL 4). Kavach has been adopted as a National ATP system in July 2020. Based on deployment of Kavach version 3.2 on 1465 Rkm on South Central Railway and experience gained, further improvements were made. Finally, Kavach specification version 4.0 was approved by RDSO on 16.07.2024. After extensive and elaborate trials, Kavach Version 4.0 has been successfully commissioned on 1,452 Route Kilometres, covering the high density Delhi- Mumbai and Delhi-Howrah routes as below:

SN	Section	Progress (Route Km)
(1)	Delhi-Mumbai route:	
i	Junction cabin – Palwal – Mathura –Nagda section	667
ii	Vadodara - Ahmedabad section	96
iii	Vadodara - Virar section	336
(2)	Delhi – Howrah route:	
i	Gaya Sarmatanr section	93
ii	Chota Ambana - Bardhaman – Howrah section	260

Further, track side Kavach implementation work has been taken up on 24,427 RKM covering all GQ, GD, HDN and identified sections of Indian Railways.

6. Detailed instructions on issues related with safety of Signalling, e.g. mandatory correspondence check, alteration work protocol, preparation of completion drawing, etc. have been issued.
7. System of disconnection and reconnection for S&T equipment as per protocol has been re-emphasized.
8. All locomotives are equipped with Vigilance Control Devices (VCD) to improve alertness of Loco Pilots.
9. Retro-reflective sigma boards are provided on the mast which is located two OHE masts prior to the signals in electrified territories to alert the crew about the signal ahead when visibility is low due to foggy weather.
10. A GPS based Fog Safety Device (FSD) is provided to loco pilots in fog affected areas which enables loco pilots to know the distance of the approaching landmarks like signals, level crossing gates, etc.
11. Modern track structure consisting of 60kg, 90 Ultimate Tensile Strength (UTS) rails, Prestressed Concrete Sleeper (PSC) Normal/Wide base sleepers with elastic fastening, fan shaped layout turnout on PSC sleepers, Steel Channel/H-beam Sleepers on girder bridges is used while carrying out primary track renewals.

12. Mechanisation of track laying activity through use of track machines like PQRS, TRT, T-28 etc. to reduce human errors.
13. Maximizing supply of 130m/260m long rail panels for increasing progress of rail renewal and avoiding welding of joints, thereby improving safety.
14. Ultrasonic Flaw Detection (USFD) testing of rails to detect flaws and timely removal of defective rails.
15. Laying of longer rails, minimizing the use of Alumino Thermic Welding and adoption of better welding technology for rails i.e., Flash Butt Welding.
16. Monitoring of track geometry by OMS (Oscillation Monitoring System) and TRC (Track Recording Cars).
17. Patrolling of railway tracks to look out for weld/rail fractures.
18. The use of Thick Web Switches and Weldable CMS Crossing in turnout renewal works.
19. Inspections at regular intervals are carried out to monitor and educate staff for observance of safe practices.
20. Web based online monitoring system of track assets viz. Track database and decision support system has been adopted to decide rationalized maintenance requirement and optimize inputs.
21. Detailed instructions on issues related with safety of Track, e.g. integrated block, corridor block, worksite safety, monsoon precautions, etc. have been issued.
22. Preventive maintenance of railway assets (Coaches & Wagons) is undertaken to ensure safe train operations.
23. Replacement of conventional ICF design coaches with LHB design coaches is being done.
24. All unmanned level crossings (UMLCs) on Broad Gauge (BG) route have been eliminated by January 2019.
25. Safety of Railway Bridges is ensured through regular inspection of Bridges. The requirement of repair/rehabilitation of Bridges is taken up based upon the conditions assessed during these inspections.
26. Indian Railways has displayed Statutory “Fire Notices” for widespread passenger information in all coaches. Fire posters are provided in every coach so as to educate and alert passengers regarding various Do’s and Don’ts to prevent fire. These include messages regarding not carrying any inflammable material, explosives, prohibition of smoking inside the coaches, penalties etc.
27. Production Units are providing Fire detection and suppression system in newly manufactured Power Cars and Pantry Cars, Fire and Smoke detection system in newly manufactured coaches. Progressive fitment of the same in existing coaches is also underway by Zonal Railways in a phased manner.
28. Regular counselling and training of staff is undertaken.

29. Concept of Rolling Block introduced in Indian Railways (Open Lines) General Rules vide Gazette notification dated 30.11.2023, wherein work of integrated maintenance/ repair/replacement of assets is planned up to 52 weeks in advance on rolling basis and executed as per plan.

The details of the Safety related works related to better maintenance practices, Technological improvements, better infrastructure and rolling stock etc. undertaken by Railways are tabulated below:-

S.N.	Item	2004-05 to 2013-14	2014-15 to 2024-25	2014-25 Vs. 2004-14
Technological Improvements				
1.	Use of high-quality rails (60 Kg) (Km)	57,450 Km	1.43 Lakh Km	More than 2 times
2.	Longer Rail Panels(260m) (Km)	9,917 Km	77,522 Km	Nearly 8 times
3.	Electronic Interlocking (Stations)	837 Stations	3,691 Stations	More than 4 times
4.	Fog Pass Safety Devices (Nos.)	As on 31.03.14: 90 Nos.	As on 31.03.25: 25,939 Nos.	288 times
5.	Thick Web Switches (Nos.)	Nil	28,301 Nos.	
Better Maintenance Practices				
1.	Primary Rail Renewal (Track Km)	32,260 Km	49,941 Km	1.5 times
2.	USFD (Ultra Sonic Flaw detection) Testing of Welds (Nos.)	79.43 Lakh	2 Crore	More than 2 times
3.	Weld failures (Nos.)	In 2013-14: 3699 Nos.	In 2024-25: 370 Nos.	90 % reduction
4.	Rail fractures (Nos.)	In 2013-14: 2548 Nos.	In 2024-25: 289 Nos.	More than 88% reduction
Better Infrastructure and Rolling Stock				
1.	New Track KM added (Track Km)	14,985 Km	34,428 Km	More than 2 times
2.	Flyovers (RoBs)/Underpasses (RUBs) (Nos.)	4,148 Nos.	13,808 Nos.	More than 3 times
3.	Unmanned Level crossings (Nos.) on BG	As on 31.03.14: 8,948	As on 31.03.24: Nil (All eliminated by 31.01.19)	Removed
4.	Manufacture of LHB Coaches (Nos.)	2,337 Nos.	42,677	More than 18 times
