GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

LOK SABHA
UNSTARRED QUESTION NO. 1639
TO BE ANSWERED ON 10.12.2025

OPERATIONAL SPEED OF VANDE BHARAT TRAINS

1639. SHRI RADHAKRISHNA:

Will the Minister of RAILWAYS be pleased to state:

(a) whether the operational speed of Vande Bharat trains is currently lower than their designed speed due to limitations in track conditions along various routes;

(b) if so, the details of the routes where Vande Bharat trains are unable to operate at their full potential speed;

(c) the status of ongoing/proposed track upgradation, signalling improvements, and related infrastructure works required to enable higher operational speeds for Vande Bharat trains; and

(d) the details of the timelines for completing such upgradation works and achieving higher permissible speeds on major corridors?

ANSWER

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

(SHRI ASHWINI VAISHNAW)

(a) to (d) Upgradation and improvement of railway tracks on Indian Railways to increase the speed potential have been carried out in a big way during last 11 years. Improvement of track infrastructure is a continuous and ongoing process over Indian Railways. The following

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measures are being taken by Indian Railways to upgrade railway tracks:

i. Modern track structure consisting of 60kg, 90 Ultimate Tensile Strength (UTS) rails, Wider and heavier Pre-stressed Concrete Sleepers (PSC) with elastic fastening, fan-shaped layout turnout on PSC sleepers and Steel Channel/H-beam Sleepers on girder bridges are being used while carrying out primary track renewals.

ii. The Thick Web Switches and Weldable CMS Crossings are being used in turnout renewal works.

iii. Supply of 130m/260m long rail panels have been increased to avoid welding of joints, thereby improving safety.

iv. Thick Web Switch Expansion Joints are being used in place of earlier Conventional/Improved SEJs.

v. Adoption of better welding technology for rails i.e. Flash Butt Welding.

vi. Adoption of mechanized system for track maintenance using high output plain tampers and points & crossing tampers for improved maintainability & reliability of track.

vii. Deployment of state-of-the-art modern machines including Rail Grinding Machines to further improve asset reliability.

viii. Mechanisation of track laying activities through use of track machines like PQRS, TRT, T-28 etc.

ix. Interlocking of Level Crossing (LC) Gates for enhancing safety at LC gates.

x. Use of advanced USFD testing technique of rail and welds by Phased Array technology.

xi. Deployment of Integrated Track Monitoring Systems (ITMS) and Oscillation Monitoring System (OMS) for comprehensive health assessment to ascertain optimal maintenance requirements.

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xii. Adoption of portable Track Measuring Trolley for continuous recording of track parameters in yards.

xiii. Using web enabled Track Management System (TMS) for integration and data analytics of the track inspection records received through various sources to enable precise maintenance inputs.

xiv. Electrical/Electronic Interlocking Systems with centralized operation of points and signals in place of old mechanical signalling have been provided at 6656 stations as on 31.10.2025.

xv. Interlocking of Level Crossing Gates (LC) has been provided at 10098 Level Crossing Gates upto 31.10.2025 for enhancing safety at LC Gate.

xvi. Axle counters for automatic clearance of Block Section, BPAC (Block Proving Axle Counter) are provided to ensure complete arrival of train without manual intervention before granting line clear to receive next train and to reduce human element. These systems have been provided on 6142 Block Sections up to 31.10.2025.

xvii. Automatic Block Signalling (ABS) that enhances line capacity within existing track infrastructure has been provided at 6341 Route km upto 31.10.2025.

xviii. Kavach is a highly technology intensive system, which requires safety certification of highest order. Kavach was adopted as a National ATP system in July 2020. Kavach is provided progressively in phased manner. Kavach has already been deployed on 1,465 RKm on South Central Railway. Presently, the work is in progress on Delhi-Mumbai and Delhi-Howrah corridors (approximately 3,000 RKm). Kavach has been successfully commissioned over 633 Route Km of Palwal - Mathura - Nagda section (Delhi – Mumbai route) and 105 Route Km of Howrah - Bardhaman section (Delhi - Howrah route).

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As a result of above measures, there has been significant increase in speed potential of the tracks. The details of speed potential of railway tracks during 2014 vis-a-vis 2025 are as under:

Sectional Speed (kmph)	2014		2025 (up to Nov'25)	
	Track Km	%	Track Km	%
130 & above	5,036	6.3	23,010	21.8
110 - 130	26,409	33.3	60,726	57.5
< 110	47,897	60.4	21,936	20.8
Total	79,342	100	1,05,672	100

On Indian Railways(IR), the average speed of the train services, including Vande Bharat services, is dependent inter alia on the Maximum Permissible Speed (MPS) of the section, track structure, geometry along the route including gradients and curves, topographical conditions, number of stoppages enroute, line capacity utilisation of sections, maintenance works in the section etc. Accordingly, the Vande Bharat train services have been charted at the Maximum Permissible Speed of the respective sections over which the trains are being operated.

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