

Railway Minister Reviews Progress of Kavach Implementation

Indigenous Universal Braking Algorithm Developed under Kavach by Railways to Help in Faster Implementation of Kavach 4.0

AI Based Centralised Monitoring Platform, “Suraksha” under Kavach will Alert Traffic Monitors for Unusual Events & Thus Help Ensure Our Safe Journey by Their Timely Action

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Union Minister for Railways Shri Ashwini Vaishnaw reviewed the progress of Kavach, the indigenously developed Automatic Train Protection (ATP) system of Indian Railways. The meeting focused on accelerating deployment, and leveraging advanced technology to ensure more efficient train operations.

Technological Advancements Driving Kavach

Indian Railways has introduced several cutting-edge enhancements in Kavach. The Universal Braking Algorithm (UBA), which standardizes braking curves across different manufacturers, ensures interoperability and eliminates repetitive trials. Significant upgrades in baseline software, AI-driven design automation, and integration interfaces for locomotives, interlocking systems, and track machines are further strengthening system robustness.

A centralized monitoring platform, SURAKSHA, is being developed as a unified Operations Management System to enable real-time monitoring, and predictive maintenance of Kavach installations.

Progress So Far

So far Kavach has been installed on 3,103 Route Km. Kavach Work is currently in progress on 24,427 route kilometers, including high-density and high-utilization corridors.

As part of Version 4.0 deployment:

- 1,638 route kilometers have already been commissioned on key corridors such as Delhi–Mumbai and Delhi–Howrah.
- Recently, Indian Railways has commissioned Kavach on 190 Route Kilometres of Prayagraj–Kanpur Section of Delhi–Howrah High-Density Corridor.
- 7,100 route kilometers have trackside installations underway.
- Optical Fiber Cable (OFC) has been laid over 8,921 km, supported by 1,183 telecom towers and Kavach Data Centres installations across 767 stations.
- Kavach has been installed on 4,277 locomotives.

- Work is in progress on 8,979 locomotives.

Expansion Plans

Kavach installation is a complex process. To further expand its implementation, Railway is planning to expand Kavach network by 9,000 Route Km in next two years and thereafter it is expected to grow upto 10,000 Route Km per year.

Dharmendra Tewari/ Dr. Nayan Solanki/ Ritu Raj

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