

**GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS**

**LOK SABHA
UNSTARRED QUESTION NO. 2712
TO BE ANSWERED ON 04.12.2019**

ASSESSMENT OF ANTI-COLLISION DEVICES

**+2712. SHRI MANSUKHBHAI DHANJIBHAI VASAVA:
SHRI CHHATAR SINGH DARBAR:**

Will the Minister of RAILWAYS be pleased to state:

- (a) whether the Government has conducted any assessment regarding effectiveness of various technological devices including anti-collision devices installed for safety and to check accidents;**
- (b) if so, the details and the outcome thereof; and**
- (c) the present status and current condition of these equipment?**

ANSWER

MINISTER OF RAILWAYS AND COMMERCE & INDUSTRY

(SHRI PIYUSH GOYAL)

(a) to (c): A Statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (c) OF UNSTARRED QUESTION NO. 2712 BY SHRI MANSUKHBHAI DHANJIBHAI VASAVA AND SHRI CHHATAR SINGH DARBAR TO BE ANSWERED IN LOK SABHA ON 04.12.2019 REGARDING ASSESSMENT OF ANTI-COLLISION DEVICES

(a) : Yes, Sir.

(b) & (c): Safety is accorded the highest priority by Indian Railways and all possible steps are undertaken on continuous basis to prevent accidents and to enhance safety. Various technological devices for safety and their present status are as under:-

➤ **Anti Collision Device (ACD) developed by Konkan Railway Corporation Limited (KRCL) was provided as a pilot project on 1736 Route km on Northeast Frontier Railway (NFR). Complex operational and technical problems were experienced during these trials, which could not be fully resolved by KRCL due to design limitation of ACD. As such, proliferation of ACD has not been undertaken. Presently following different Automatic Train Protection (ATP) systems are existing on Indian Railways:**

- i. Automatic Train Protection (ATP) System called Train Protection and Warning System (TPWS) based on European Train Control System Level-1 (ETCS L-1) Technology has been implemented on 345 Route km (200 Route km Delhi-Agra Section, 117 Route km Chennai Suburban section and 28 Route km of Metro Railway Kolkata).**

- ii. **An earlier version of ATP system called Auxiliary Warning System (AWS) is presently functional on 413 Route km in the Mumbai suburban section of Central Railway (289 Route km) and Western Railway (124 Route km).**
 - iii. **Train Collision Avoidance System (TCAS) is an indigenous Automatic Train Protection (ATP) System being developed by Indian Railways in association with 3 Indian manufacturers. The system has been installed on Lingampalli – Vikarabad – Wadi and Vikarabad - Bidar section (250 Route km) on South Central Railway. Product of all the 3 Indian Manufactures has been approved for developmental orders for speeds up to 110 kmph in Absolute Block Signalling section.**
 - iv. **An ATP system based on European Train Control System Level-2 (ETCS L-2) is being implemented/planned on Indian Railways as under:**
 - **Provision of ETCS L-2 System on 4 sections on Nagpur – Badnera, Jhansi – Bina, Yerraguntla – Renigunta & Vizianagaram – Palasa sections totaling to 640 Route km.**
 - **In connection with works of raising of speed up to 160 kmph, ETCS L-2 system is proposed to be implemented on Delhi – Mumbai and Delhi – Howrah sections.**
- **Electrical/Electronic Interlocking System. Provision of modern signaling also improves through put and line capacity. By quicker**

operation of signaling gears, the operation time is reduced and trains can be dealt one after another quickly. Centralized Electronic/Electrical Interlocking Systems, Centralized operation of points and signals are being provided by replacing old mechanical lever frame systems. These systems have been provided at 5974 stations up to 31.10.2019.

- **Track Circuiting of stations to enhance safety for verification of track occupancy by electrical means instead of human element is completed at about 6118 stations upto 31.10.2019.**
- **Block Proving by Axle Counter(BPAC) Hitherto, complete train arrival was informed by Guard to the Station staff after which only, line clear for the next train could be granted. This loses significant time in the train operation. In order to reduce this time loss, Axle Counters for automatic clearance of block section (BPAC) are being provided for ensuring complete arrival of train before granting of line clearance for next train. BPAC has been provided at 5509 block sections up to 31.10.2019.**
- **Interlocking of Level Crossing Gates to protect Level Crossing Gate with signals to avoid accidents have been done at 11497 gates up to 31.10.2019.**
- **Vigilance Control Devices (VCD). Vigilance Control Devices (VCD) are being provided on electric locomotives to ensure safety. As it**

is a safety device, its effectiveness is checked regularly. VCD is a device which takes intermittent inputs through positive actions from the driver like sounding of horn, operation of master controller, application of brakes and pressing of button to judge his alertness every 60 seconds and applies brakes if found lacking to stop train thereby ensuring safety. All Electric locomotives are equipped with VCD to ensure safety.

- **Wheel Impact Load Detectors (WILDs) have been installed at various locations to identify defective wheels & bearings and provide Alerts to get it rectified in time by taking corrective action so that accidents may be avoided. Comparative better results have been received.**
- **Online Monitoring of Rolling Stocks (OMRSs) having WILD and Acoustic Bearing Defect detection functionalities also have been installed for prevention of accidents by providing Online monitoring of Rolling stock and their efficacy is still being observed. 17 Numbers of. Wheel Impact load detectors (WILD) have been installed over Indian Railways during 2006-2018, And 09 Online**

Monitoring of Rolling Stock (OMRSs) have been installed during 2017-19.

- **Fog Pass Device: Fog PASS Devices have been provided to working crew in fog prone areas. This is portable equipment issued to Loco Pilots while working trains during fog season, which guides Loco Pilot about incoming signal location.**
- **Diesel Locomotives are provided with Vigilance Control Devices (VCD) for checking alertness of Loco Pilots.**
- **Remote Monitoring and Management of Locomotives and Trains (REMMLOT) – this enables remote monitoring of Diesel Locomotives. This enable focused counseling and training of crew mainly who are prone to unsafe working. REMMLOT also monitors condition of locomotive and facilitates preventive maintenance of locomotives.**
