GOVERNMENT OF INDIA
RAILWAYS
LOK SABHA

STARRED QUESTION NO:393
ANSWERED ON:20.12.2012
ANTI COLLISION DEVICE
Bais Shri Ramesh;Sivasami Shri C.

Will the Minister of RAILWAYS be pleased to state:

(a) whether the Railways have started work on installing Anti-Collision Devices to check train accidents;

(b) if so, the details thereof including the quantum of work completed along with the amount spent by the Railways thereon so far;

(c) whether any shortcomings have been noticed in the Anti-Collision Devices installed in several sections/locomotives;

(d) if so, the details thereof; and

(e) the other measures taken or proposed to be taken by the Railways in this regard ?

Answer

MINISTER OF RAILWAYS (SHRI PAWAN KUMAR BANSAL)

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

STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (e) OF STARRED QUESTION NO. 393 BY SHRI RAMESH BAIS AND SHRI SIVASAMI C. TO BE ANSWERED IN LOK SABHA ON 20.12.2012 REGARDING ANTI - COLLISION DEVICE.

(a): Yes, Madam. Development & deployment of indigenous Global Positioning System (GPS) based Anti-Collision Device (ACD) was taken up by Konkan Railway Corporation Limited (KRCL) as a pilot project on single / double line non electrified Broad Gauge section of Northeast Frontier Railway (NFR) and it has been in service trials since 2006.

(b): ACD has been implemented as a pilot project covering 1736 Route KMs and 548 Locomotives on non-electrified section of Northeast Frontier Railway (NFR) and funds to the tune of Rs.95 crores have been utilized for the purpose till March 2012. Works for provision of ACD have also been sanctioned on Eastern, East Central, East Coast, South Eastern, Southern, South Central and South Western Railways covering 6750 Route Kms (Rkms).

(c) & (d): Yes, Madam. Based on the experience of the NFR, to improve reliability and dependability of ACDs and to test its functioning on multiple lines as well as electrified routes, the specifications and design configuration were revised and the system as evolved was tried on the electrified multiple lines, automatic signalling section of the Southern Railway in 2010-2011. A large number of operational & technical problems have been experienced in Southern Railway trials which are being resolved. Anti Collision Device provided by KRCL and on trials on NFR has also operational problems and technical issues which are being resolved. It will be possible to proliferate this system on complicated and High Density Routes (HDN) on other Railways only after these issues are resolved comprehensively by KRCL.

(e): To check train accidents, other measures taken or proposed to be taken, are as under:

i. Train Protection Warning System (TPWS): TPWS is a safety system based on international Safety Standards. It eliminates the accidents caused by human error like Signal Passing at Danger and over speeding. As a pilot project, TPWS has been provided on Chennai-Gummidipundi Suburban Section of Southern Railway (50 RKms) which has been commissioned in May 2008. For pilot project on Hazrat Nizamuddin − Agra Section of Northern/North Central Railway (200 RKms) for Main line operations, track side work has been completed & presently 35 locos have been fitted with Onboard TPWS equipment. Commercial trials are being conducted on nominated trains. TPWS works (ETCS Level-1) have been approved for 3397 RKms covering Automatic Block Signalling/ High Density Routes of Indian Railways and is also being provided on Dum Dum-New Garia section of Kolkata Metro (25 RKms).

ii. Train Collision Avoidance System (TCAS): Based upon experience gained from ACD & TPWS systems, Indian Railways has now taken up development of TCAS. TCAS shall be a fusion of functionalities of TPWS & ACD and shall prevent Signal Passing at Danger & Collisions. Concept field trials of TCAS have been demonstrated and now extensive field trials are proposed to be conducted through RDSO on nominated sections on different types of rolling stock in operation on Indian Railways.

iii. Modified Automatic Signalling has been provided on Automatic Block Signalling Sections on North Central Railway and Northern Railway to handle train operations safely during fog.

iv. Vigilance Control Device (VCD) has been provided on electric as well as diesel locomotives to ensure safety.

v. Fog Safe Device (FSD) displays name of approaching signals and other critical landmarks in advance even during poor visibility condition. There are issues of reliability and effectiveness to be sorted before this device can be universally adopted for fog safety. The device is under extended trials, during which evaluation and improvements shall be done.

vi. Complete Track Circuiting in station to detect presence of a vehicle on track.

vii. Electrical/Electronic Interlocking Signalling System with centralized operation of points and signals.

viii. Axle Counters for Automatic Clearance of Block Section to enable detection of any left-over vehicle(s) in the block section.

ix. Interlocking of Level Crossing Gates.

x. Mobile Train Radio Communication (MTRC) for safe and secure communication between Loco Pilot, Guard, Station Masters, Controllers, etc.

xi. Progressive fitment of tight lock Centre Buffer Couplers (CBC) in lieu of screw coupling to prevent the coaches from climbing over each other in the unfortunate event of an accident.

xii. Increased production of superior crashworthy coaches of LHB design.

xiii. Trials of Wheel Impact Load Detectors (WILD) to monitor the impact of load on tracks when a train passes over the track to ensure that no damage is done to the track.

xiv. Use of fire retardant material in coaches as per international norms.

xv. Trial of fire and smoke detection system in coaches.

xvi. Superior air brake system in place of vacuum brake system in freight trains which facilitates better control of the train.

xvii. Increased use of superior Flash Butt Welding technology in place of Thermit Welding of rails to reduce weld failures.

xviii. Introduction of 60 Kg rails instead of 52 Kg rails for better track strength and progressive use of thick web switches in points and crossings.

xix. Use of Track Recording Cars and Portable Oscillation Monitoring Systems to detect track geometry defects for planning maintenance and adoption of mechanized track maintenance.

xx. Use of improved Ultrasonic Flaw Detector (USFD) equipments to identify weak spots/metallurgical defects in the rails not visible to naked eye.

xxi. Twin beam headlights for improving visibility during night time.

xxii. Flasher lights which get automatically switched on in case of train parting due to derailment or otherwise.

xxiii. Air dryers for improving reliability of the braking system.

xxiv. Energy-cum-speed monitoring system (ESMON) having digital memory.