

Research and Development

RDSO is the sole R & D Organisation of Indian Railways and functions as the technical advisor to Railway Board, Zonal Railways and Production Units. One of the major roles that RDSO has played is that of developing and maintaining standards and specifications which ensure that all different technologies are able to work together as a system, which permit Indian Railways to operate seamlessly without any technology limitations.

RDSO also offers international consultancy services in matters pertaining to design, testing and inspection of railway equipments as well as survey for construction of new lines. The significant accomplishments of RDSO in the sphere of research and development have always attracted worldwide attention. Some of the important activities during the year are given below:-

Safety

- Development of Train Collision Avoidance System (TCAS)
- Development of Advanced Auxiliary Warning System (AAWS)
- Inspection for enabling Accident Site Communication Systems Consisting of Remote Quick Deployable Auto Acquiring Suitcase Type Portable VSAT and Accident Site Equipments
- Field Trial of Tap Changers with K Class Oil instead of Insulating Mineral Oil, Classified as 'O'
- Development of Compressors with Oil Free Technology
- Development of High Reach Pantographs with Auto Dropping Device
- Modification of Bogie Mounting Nose in Trade Bogies
- Development of Emergency Light Unit- Reliable Safety Equipment to cope up with Disaster
- Conducting Oscillation Trials of the Rolling Stock Design for Safe Running
- Improved Specification for LED based Battery Operated Flashing Hand Signal Lamp
- Amendment in the Specification of LED Based Flashing Tail Lamp

- Development and Standardization of Safety items viz Scotch Block, Wedge, Skid and Padlock

Passenger Amenities

- Development of Roof Mounted AC Package Unit for Double Decker AC Coaches (with EOG System)
- Development of Roof Mounted Ventilation Unit for 3 Phase EMU for MRVC Phase II Project for Mumbai Sub-Urban Services
- Provision of Testing Facilities for Assessing Fire Retardant Performance of Furnishing Material

Infrastructure

- Managed Media converter (Ethernet to Optical Signal)
- Modification in colour of Coach Guidance Board from 'RED' to 'WHITE'
- SMPS based Telecom Integrated Power Supply System for Station
- Setting up of a state-of-the-art Centre for Railway Research (CRR) at IIT Kharagpur
- Setting up of full fledged Composite Development Centre at RDSO

Operational Efficiency

- Alternate Drive gear system suitable for 200 Kmph
- Improved design Breather assembly for 25 KV AC Electric locomotives
- Provision of Speed Caution Board for Negotiating Rising Gradients
- Elimination of Control Unit by adoption of coil protection unit to improve reability of Vacume Circuit Breaker
- Improvement in reliability of power supply system in Self Generating AC coaches
- Head On Generation (HOG)– Energy efficient Green technology in Use
- Development of the Design of Special Wagons to Cater to the Bulk Cement Industry
- Design and Development of Parcel Van and Brake Van

Indigenous Development

- Development of Design Document for High Rise OHE for Running Double Stack Container
- Design and Development of Roof Mounted AC package Unit for Metro Railway, Kolkata
- Indigenous development of advanced software embedded for signalling systems
- Common Rail Electronic Direct Injection System (CREDI) for Alco Engines.
- Design and Development of Turbocharger to Suit Miller Cycle Timings for Higher Fuel Efficiency and Reduced Emissions.
- Maintenance Schedule of Track Machines issued to Railways.

Inspection and Quality Audit

- New Standards of Infrastructure, Manufacturing, Testing and Quality Assurance Systems to qualify as Railway Wagon Builder (G 105) have been implemented.
- Various steps have been taken to take care of the field problems being faced in maintenance of wagons e.g. Modification of door locking arrangement of BCNHL wagon, issues related to maintenance of CTRBs, conducting of quality audits, issues related to tank wagons, air brake etc.
- Inspection of several thousand MT of welded component of steel bridge girders for zonal railways.
- Inspection of several rolling stock and Track components viz improved SEJs, CMS crossings, Bogies, bearings etc.
- Inspection of 158 nos. of ultrasonic testing equipments

Consultancy

- Technical Consultancy for MRVC Phase-II project under which seventy two new AC EMU rakes with state of the Art Technology with regeneration of more than 30% will be introduced during the year 2014-15 and 2015-16.
- Technical Consultancy to Dedicated Freight Corridor Corporation India Limited (DFCCIL) for finalizing Specification of 2 X 25 KV Scott connected Traction Power Transformer and track side Auto Transformer etc.

- 09 technical papers were presented to different training centre of Indian Railways viz IRISEN/Pune, IRIEEN/Nasik Road, STC etc. during last year.

Tests and Trials

- Route clearance study on rake of maximum nos. of 11 AC EOG Double Decker coach (width 3050 mm) + two LHB Power Car in Up as well as Down direction between Habibganj and Indore stations.
- Oscillation trials of WAP-4 locomotive up to a maximum test speed of 155 kmph over AGC – GWL Section of North Central Railway.
- Oscillation and EBD trials of Rapid Metro Rail Gurgaon Ltd coaches.
- Oscillation and EBD trials of SG Bengaluru metro coaches.
- Oscillation trials of 4-wheeler BG self- propelled Over Head Equipment inspection car over Secunderabad–Wadi section of South-Central Railway upto a maximum test speed of 85 km/h in Empty and Loaded conditions.
- Trials of 8 wheeler OHE Installation Car (DETC/ Underslung) successfully completed, in Palghat–Podanur Section of Southern Railway during 2014.
- During the year, a total of 85,589 track Km have been recorded by Track Recording Cars.
- Development of New Techniques for AT Welding of Rails Directorate with one shot crucible auto tapping technique.



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