

Mechanical Department Highlights for 2021-22

1. Operationalization of Indo-Nepal Cross Border Railway

The first ever international contract for operationalization of Indo-Nepal Cross Border Railway between Jaynagar and Kurtha stations of Nepal Railway has been started by KRCL with two up and two down train services every day.

Nepal Railway Company has engaged Konkan Railway Corporation Limited for Operations & Maintenance support for a period of one year. As part of this agreement, Konkan Railway will undertake operations & maintenance of trainsets, provide training to Nepalese employees, supply of 26 expert manpower and minimum equipment, create basic systems for railway operations and provide technical support for maintenance of track and signalling systems.

Two 5 Car DEMU Trainsets have already been supplied by Konkan Railway to Government of Nepal against contract awarded to KRCL by the Government of Nepal. These rakes have been manufactured by Integral Coach Factory, Chennai and have modern technology and features.

Konkan Railway has already trained 48 Nepalese officials, which have been deployed on ground for start of railway operations alongwith Konkan Railway team. The joint working of Nepal Railway Company with Konkan Railway under support from the Governments of both India and Nepal will help Nepal to build a robust railway system and will help in strengthening the relationships between the two countries.

2. Commencement of Electric Traction Operations :

The Electric Traction operations for freight services was started in February 2021 and has now gained traction with almost 100% freight trains running on electric traction. About 886 freight trains run in year 2021-22 with electric locomotives in Roha-Ratnagiri and Thokur-Verna section.

The operation of passenger trains with electric locomotives has also been started with 16515/16516 YPR-KAWR and 50103/50104 DIVA-RN Passenger. The loco links for all coaching trains have also been prepared for operations expected to start shortly.

All running staff and supervisors have been trained inhouse with more than 30000 men days of training upto 2021-22. The inhouse training ensured huge monetary saving to KRCL as well as improved availability of running staff for train operations.

3. Conversion of Coaching Trains to LHB Coaches: All Mail Express and Passenger rakes being maintained by KRCL have been converted from ICF to LHB. The maintenance of these rakes including SS1/SS2 schedules is being carried at Coach Care Centre, Madgaon and Hubli/Mysore Workshops with support of South Western Railway. Requisite facilities and training of staff for maintenance has been ensured. All requisite resources including training of staff has been arranged in the depot.

4. Operations & Maintenance of Tower Wagons and Utility Vehicle (UTV) : In order to improve the reliability of Track Machines, Utility Vehicles and Tower Wagons, USFD testing of axles was started for the first time in KRCL with assistance of Central Railway. USFD testing of all such vehicles has been completed. In-house capability of USFD testing is also being developed. KRCL has inducted 06 Tower Wagons (DETCs) for construction and maintenance of OHE. The maintenance set up for these Tower Wagons (DETCs) have been made in-house. Department has also started Operation and Maintenance of one newly inducted UTV machine without additional human resource.

5. Quality and Environment Management System Certifications : Coach Care Centre, Madgaon has successfully completed re-certification of 'Integrated Management System (IMS)' for service of cleaning, upkeep, maintenance and repairs of coaches from UK Certification & Inspection Limited. IMS covers Quality Management System (QMS), Environment Management

System (EMS) and Occupational Health & Safety Management (OHAS).

The contract for certification of Environment Management System (EMS) ISO 14001:2015 for Madgaon and Ratnagiri Railway stations of KRCL has also been awarded and the certification work is under process

6. International Railway Equipment Exhibition (IREE-2021), New Delhi : Mechanical Department led KRCL's participation in the International Railway Equipment Exhibition (IREE-2021) at New Delhi from 16th to 18th December 2021. Various innovative and technology based solutions developed by KRCL such as Automated Train Examination System (ATES), Track Machines Management System (TMMS) and Railway Track Monitoring System (RTMS) were displayed in the exhibition along with other major Infrastructural and International Projects being undertaken by the Corporation.

7. Rolling Stock Component Factory Project (RSCF) : The construction of Rolling Stock Component Factory (RSCF) for Central Railway is progressing well. The project is expected to be completed by March 2023. The work of design and construction of the factory for overhauling of rolling stock components was awarded to KRCL by Central Railway with approved project cost of Rs.402.35 Cr.

The progress during the financial year 2021-22 is Rs.36.35 Cr against the target of Rs.35 Cr and total booking so far has been Rs.139.96 Cr which is approximate (34.57%).

The work has been slowed down due to inadequate funds provided by Central Railway and Covid-19 pandemic. Now the work is progressing well and expected to be completed by March 2022.

The cluster-1 of the factory being constructed for overhauling of LHB bogies is expected to be completed and made operational by July 2022.

It is planned to overhaul 300 LHB bogies per month in the factory. Railway Board has given target of 300 LHB bogies in the factory for the year 2022-23.

8. Automated Train Examination System (ATES) and SMART Yard Projects : KRCL has installed and commissioned 03 ATES systems in Allahabad-Kanpur section of North Central Railway during this year. The system has accordingly been upgraded to work at speed over 120 kmph on trunk routes of Indian Railways. Konkan Railway is further upgrading the ATES technology to include Artificial Intelligence (AI) and Machine Learning (ML) based advance vision processing system.

KRCL has also been awarded a contract from Jabalpur division of WCR for supply, installation and commissioning of 02 nos. Hot Box Detector (HBD) at ET-JBP (DN mainline) and KTE-JBP (UP mainline). This contract has been awarded through competitive bidding.

9. Rail Track Monitoring and Alert System (RTMAS) : KRCL is developing an Artificial Intelligence based Track Monitoring System (RTMAS). RTMAS is a cloud-based server solution for monitoring the vulnerable cuttings in KR route for any treefall, boulder fall/soil slip or any other obstruction in the railway track and to alert the concerned authorities. In this system Robust Machine Learning and Artificial Intelligence algorithms are used for image processing. Its RailView module installed alongside the railway line, has the provision to incorporate multiple cameras and consists of high-speed image processing and analyzing system. The RTMAS cloud server is equipped with powerful GPU based image processing and object detection algorithms.

KRCL is developing this system with support of C-DAC and initial trial runs have been successful. The location identified for the pilot project implementation is Dasgaon Tunnel & cutting. This system is expected to be installed and commissioned by 22nd April 2022.

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