



Headquarters Office Central Organisation for Railway Electrification
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Double Decker Goods Trains

All of us have seen double-decker passenger trains, at least in pictures. However, Central Organisation for Railway Electrification (Prayagraj) has made possible that a double-stack Electric goods train can now ply on Railway tracks. Major hurdle in running such goods train was insufficient clearance available with overhead electric wires. However, CORE unit of Ahmadabad the unique distinction of introducing and opening for freight traffic, **the 25 KV AC Electric traction with High Rise OHE having contact wire height of 7.57 meters**, which is a first of its kind in Indian Railways and a world record. The commendable feat was achieved by the team of Railway Electrification, Ahmadabad unit under Central Organisation for Railway Electrification. The High Rise OHE route was opened for Freight traffic after a mandatory and intense Safety Inspections by Commissioner of Railway Safety, Western Circle.

Further, for the first time in entire world, the hauling of (DSC) double stack container with Electric traction was successfully introduced between Palanpur and Botad in the state of Gujarat involving 270. Route kilometers. The Electrification with High Rise OHE and subsequent hauling of double stack container by Electric Traction will boost the GREEN INDIA initiative over Indian Railway. The benefits of early completion of Railway Electrification are manifold from environmental and financial point of view. It will reduce carbon footprint by reducing dependency on Diesel locomotives & is expected to save approximately Rs 100 cores per annum thereby reducing financial burden due to import of fuel.



The maiden operational run of Double Stack Container with Electric Traction was successfully introduced on 10th June, 2020 from Palanpur to Botad via Mahesana, Viramgam & Surendranagar. Shri Y. P. Singh; General Manger of Central Organisation for Railway Electrification, has expressed his pleasure on this historical milestone despite the tough challenges of new HIGH RISE OHE and has congratulated entire team of Railway Electrification, Ahmadabad Unit consisting of Railways officials pertaining to Technical and Non-Technical both

Conventional over head equipment (OHE) was designed for Electric Traction hauling with contact wire height of 5.60m and was catering to the existing demands of Indian Railway. Subsequently, Indian Railways with an eye on maximizing freight traffic and at the same time keeping carbon emission to minimum with existing track capacity, it was imperative to run the freight trains with Double stack containers with same Line capacity and increased hauling capacity thereby necessitating the adoption of High Rise OHE with contact wire height of 7.57 meters.



The electrification with High Rise OHE had its fair share of issues with existing Electric Locomotives and also negotiating existing over line structures suited for conventional OHE. The Over line structures in the form of Foot Over Bridges, Road Over Bridges and Extra High Tension lines which were required to be raised and required high level coordination with NHAI & State R&B departments and GETCO. The timely modification of Over line structures to suit High Rise OHE involved several statutory approvals of State & Central Govt. agencies which was timely obtained. Western Railway, a major zonal railway of India, had a fair contribution in completing this work. There was problem of poor Current Collection by High Rise Pantograph of Electric Locomotive in High Rise OHE due to the Wind tunneling effect, inadequate Pantograph (current collection device) pressure resulting in high rate of oscillations.

To offset this problem Pantograph pressure was adjusted suitably after several Locomotive Run trials at various speeds and study of the results by Research Design & Standard Organisation (Research Wing of IR). Studies based on Locomotive trial runs are still going on for further improvements.

The Electrification Project with High Rise OHE from Palanpur to Botad in the state of Gujarat by Railway Electrification team of Ahmadabad involved 34710 Cu.m of Concrete, 12015 MT of steel, 1386.62 MT of copper conductor & 93 No's of Bridge masts with an approximate cost of Rs 566 Crore for Electrical, Civil and Signaling & Telecom works. Accordingly, 02 Traction sub-stations at Botad and at Surendranagar were also commissioned. Operation of trains is being conducted by Western Railway.

The electrification of Botad to Pipavav is almost in advance stage of completion and after mandatory CRS inspection, the Freight trains will be introduced with Electric Traction shortly up to Pipavav Port which is a very major connectivity to India's first port build in Public Private Partnership model and a gateway port on the west coast India for handling containers, bulk cargos & Ro-Ro cargos. The facilitating of easy access to Rail network at Pipavav port provides logistical advantage connecting the port to critical markets in the northwest part of India.

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