Presentation on Ballast cleaning machine (BCM)

Locomotive Engineering
Ballast Cleaning Machine

- BCM being manufactured by BHEL Jhansi, Comprises mainly of two parts:
  a.) Power Car
  b.) Working Unit
Ballast Cleaning Machine
(Power Car)

- Power car comprises of one no. KTA 38L Cummins make diesel engine.(1120 hp).
- Traction Alternator TA 6301AZ
- Twin Impeller Blower 10000cfm
- Aux. generator AG2513
- IR make Compressor model 15T.
- Screw Coupler with hook.
- Roof mounted radiator with fan hydraulically driven.
- Dynavane filter.
Ballast Cleaning Machine

- **Screening Unit**: Has steel wire and the shape of aperture is square.
- Vibration of screen is caused by two electro motors with eccentric wheels.
- Fixed at 25deg longitudinal slope.
Ballast Cleaning Machine

- **Lifting Unit**: Purpose is for complete lifting and freeing from rail bed while enables easier excavation of ballast and keeping the track in geometric position until first required amount of cleaned ballast is put into place.
**Conveyor belt for excavated materials**: The conveyor belt transports the ballast from receiving hoppers to the screening units. The whole conveyor belt is fixed to the frame as sliding unit which enables flexibility of the conveyor belt so that even in the full excavation mode the ballast can be transferred either to storage wagons or to the side of the track.
Ballast Cleaning Machine

- **Conveyor belt for Ballast**: The conveyor belt transports screened ballast from screening unit to the equipment for returning the ballast to the ballast bed.
**Ballast Cleaning Machine**

- **Conveyor Belt for Spoil**: Transports the spoil from underneath the screening unit to the swiveling conveyor and is able to transport the spoil along with oversized ballast, when the machine is in full excavation mode. Fixed rigidly to the frame and at the upper end of the conveyor is a receiving hopper that feeds the swiveling conveyor in any position.
Ballast Cleaning Machine

- **Swiveling Conveyor Belt**: The conveyor belt transports the spoil to either into muck wagons at the front of the machine or to the side of the track. This is equipped with safety mechanism (sensors) to prevent the infringement of the parallel tracks and or to prevent with exterior obstacles e.g. Masts, Posts, Trees etc.
Ballast Cleaning Machine

- **Ballast Placement Unit**: for optimal placement of cleaned ballast back to rail bed under the rail bed in both plain track and points crossing. The unit consists of front and rear ballast divider, satellite conveyor and lateral conveyor. This equipment is placed on a satellite which is wheeled and towed during work mode and is located between bogies of the machine.
Ballast Cleaning Machine

- **Front Divider**: receives the ballast from the conveyor and places the ballast under the rails via outside of the rails. This is the first pouring. In case of excess ballast at pouring, it is placed on the satellite conveyor.
Ballast Cleaning Machine

- The satellite conveyor transports excess ballast to the rear divider.
- Rear Divider: The rear divider receives the ballast from the conveyor and places the ballast at the center of the track. In the event there is excess of ballast at this pouring, it is placed on the shoulders of the track.