

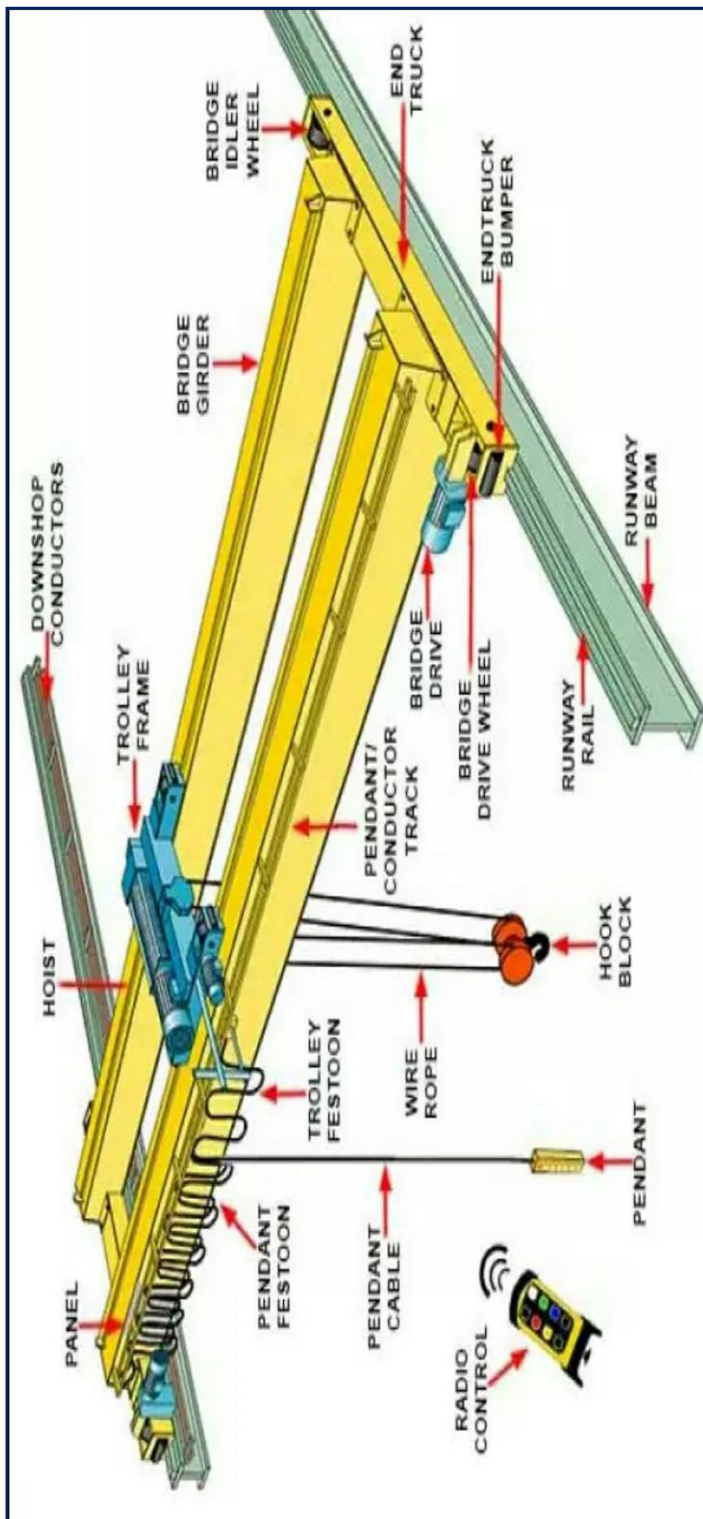
## DO'S AND DON'TS FOR CRANE OPERATOR

### DO'S

- Clean walkway, control cabinets, etc. regularly.
- Take up slack in slings and cables gradually.
- Provide good access to crane from the floor.
- Secure all covers after maintenance.
- Turn off main switch when operator leaves cab.
- Remove main fuses when maintenance has to be carried out on crane.
- Report immediately any adjustments that should be made on the crane to the Foreman.
- Regularly test the brakes, limit switch and controls before you start your "shift" on the crane.

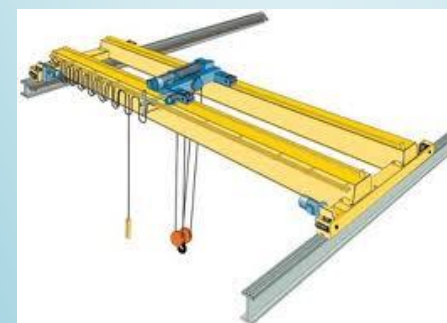
### DON'TS

- Run bridge or trolley up against the stops, ease it gently.
- Use limit switches as regular stops.
- Pick up a load at an angle or drag slings, hooks, or loads along the floor with the crane.
- Let the block swing excessively.
- Brake too hard and stop crane suddenly.
- Overload the crane.
- Jerk a load off the floor.
- Leave tools etc, loose on cranes runway after maintenance.
- Leave hook blocks hanging at head height over gangway or aisles.
- Step on cross shaft or when crane is in motion.
- Let the block lie on the ground so that hoist cables become loose as this will cause cables to jump the sheaves and may result in broken cables.



**if'pe e/; jsy**  
**WEST CENTRAL RAILWAY**

**KNOWLEDGE CENTRE**  
**FOR**  
**EOT (ELECTRIC OVERHEAD**  
**TRAVELING) CRANE MAINTENANCE**



**EOT CRANE**

**Coach Rehabilitation Workshop**

(An ISO: 9001, ISO:14001, ISO:50001, OHSAS:18001 Certified Workshop)

**West Central Railway,**

**Nishatpura, Bhopal (MP) – 462010**

## CHARACTERISTIC AND FUNCTION OF OVERHEAD CRANE

The general purpose overhead travelling crane belongs in the material handling machineries which are operated repeatedly and for a short time according to its working character. It consists of the single/double-girder bridge which is made of metal structure, the hoisting mechanism composed of mechanical parts and components, the traversing and travelling mechanisms, and the electrical equipment and so on. The hoisting mechanism and traversing mechanism on the trolley are used to accomplish the material lifting and lowering motions and traversing motion along the main girder, and the travelling mechanism is used to complete the movement of crane along the workshop. Each of mechanisms is controlled in the operator's cab (or remote control unit or pushbutton box/ Pendant Control on the floor) via the electrical equipment. The crane handling operation of different materials can be realized by the different lifting implements such as hook, grab and magnetic chuck.

## GENERAL MAINTENANCE INSTRUCTIONS

### CRANE RUNWAY

Runway rail alignment and span should be carefully checked at least once a year.

Rails should be both level and parallel. Joints should be free from wide gaps and worn edges causing wear to the wheel surfaces and bearings.

Rails should be checked for span in increments of not more than 3 meters of runway length Runway rail alignment should never be allowed to deviate more than 6 mm as the danger of wheel flanges Scrubbing the rail head can do irreparable damage on the wheels and place undue strain on mechanical and structural components.

### MOTORS

When checking slip rings and brush holders, it is necessary to remove metal and carbon dust from the box. The rings are to be wiped with the cotton cloth. If there is no dust or oil on the ring, the cloth could be soaked in petrol. 'Scorched' rings can be polished with fine emery paper

Worn out brushes should be replaced by spare ones. Bearings of motors should be checked and washed with petrol, and the lubricant changed every 8 to 12 months. Lubricant should be added every 3 to 6 months. It should be noted that the lubricant fills no more than 2/3rds of the bearing housing.

### BRAKES

The brake shoe clearance must be equal and is adjusted by the shoe clearance adjuster bolt. In case the shoe is to be replaced, the stroke adjuster nut should be slackened and the brake released by operating the hand lever. The shoe pivot pin should then be removed and the shoe replaced. Always keep spare shoes with new linings ready for immediate replacements.

### MASTER CONTROLLERS

The main supply must be isolated before the master controller is opened. The contact surface will become dark and rough to arcing, but this does not affect the functioning and the contacts are not be cleaned. If the silver contact facing is burnt down the contact must be replaced. To remove, unscrew the contact stud and replace with new silver tipped contact stud.

### Gears

Gears should be inspected at least every six months. During a checkup care should be paid to the condition of working surfaces, degree of teeth, wear and correctness of meshing (especially during the first week of gear working). Normally gear should not make a sharp or cyclic sound. Axial shifting of gears is not permissible. Gearbox should not leak. The oil level should stay between the markings on the dip stick. The first change of oil in the gearbox should be after 150 hours of operation.

### Bearings

When checking roller bearings care should be paid to their fastening in the bodies, tightness of covers, condition of packing and lubrication. When normally operated bearings should not heat much, nor squeak as a result of dirt, insufficient lubrication, damage of some elements or friction of rotating parts against the body.

### Wire Rope

The reliability and soundness of wire rope for further use should be determined by the number of broken strand per day. During routine check-up, imperative to thoroughly inspect and tighten fastening of rope ends on drum.

To prevent untimely wear of ropes, they should be lubricated with the recommended lubricant.

### Travelling Wheels

Travelling wheels should not have cracks or worn collar rims. The rolling surface of the wheels should be clear of hollows and dents.

### PERMISSIBLE WEAR

Part	Description	Permissible Wear limit (decrease in Size)
Gears	<ul style="list-style-type: none"><li>First part of gearing</li><li>Other Gears</li></ul>	<ul style="list-style-type: none"><li>10% of tooth thickness on p.c.d</li><li>20% of tooth thickness on p.c.d</li></ul>
Wheels	<ul style="list-style-type: none"><li>Flanges</li><li>Tread</li></ul>	<ul style="list-style-type: none"><li>50% of full Size</li><li>30% of full size. (When the difference in diameter of right side and left side wheels exceeds 1.5%, remachine or change the wheel</li></ul>
Sheaves	Groove Diameter	50% of Wire rope diameter
Brake Lining	Thickness	50% of full Size
Wire Rope	No. Of breakage of wires	10% of total strands per every 300mm length over the entire length.

## **Contact Person:-**

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