



ELEMENTS OF SAFETY PRACTICES IN RAILWAY PASSENGER TRAIN OPERATIONS

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Evolution of Train Engines





Sample of Coaches & Wagons



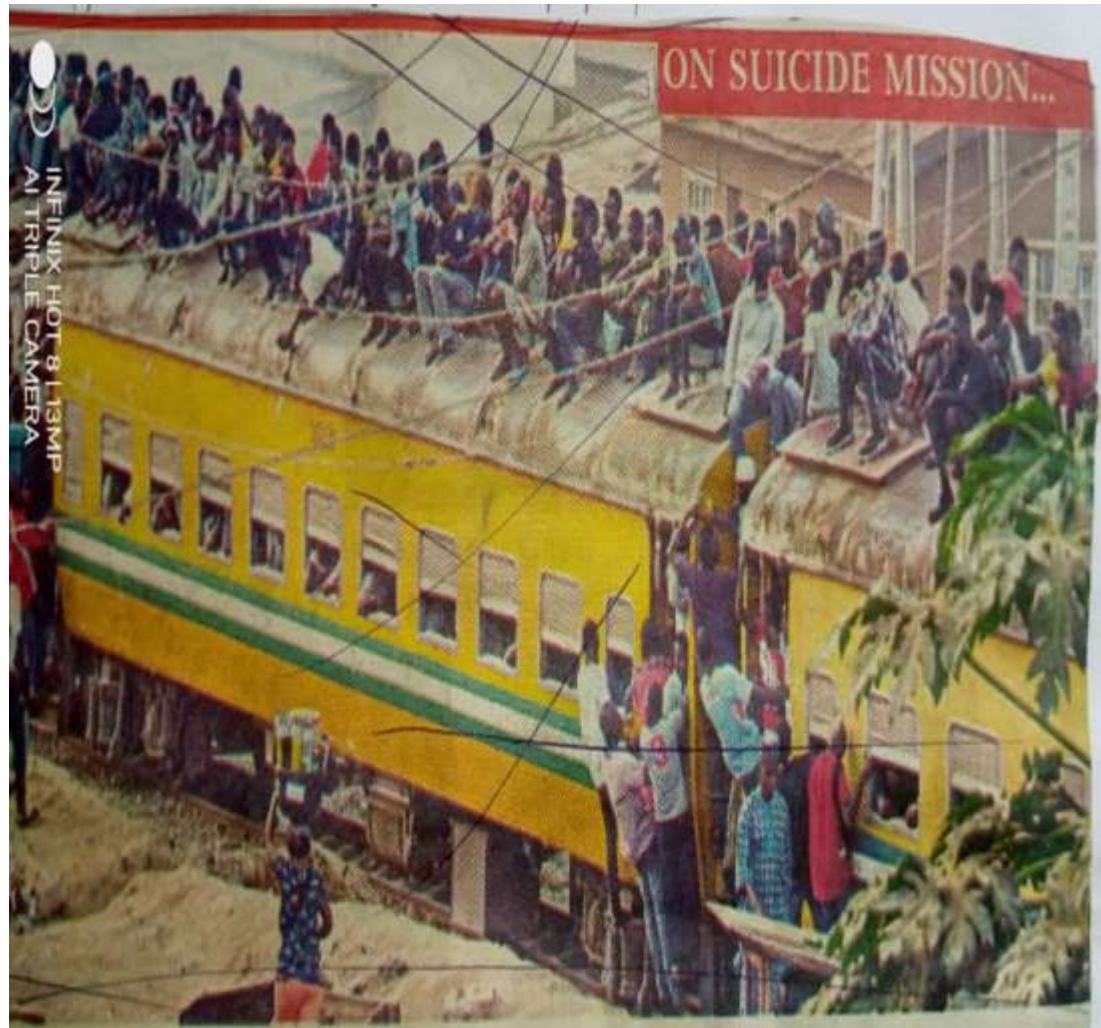


Passenger Train Compartment





Sights of Train Congestion Vs Safety





Facility for Safe Boarding of Trains





Traction or Pull defines the Train

- Train speeds and their effect on train safety
- ❖ Coal or steam traction
- ❖ Diesel compression and traction
- ❖ Diesel electric traction
- ❖ Electric traction or train



Causes of Train Accidents

LEVEL CROSSINGS AND TRACK CURVES



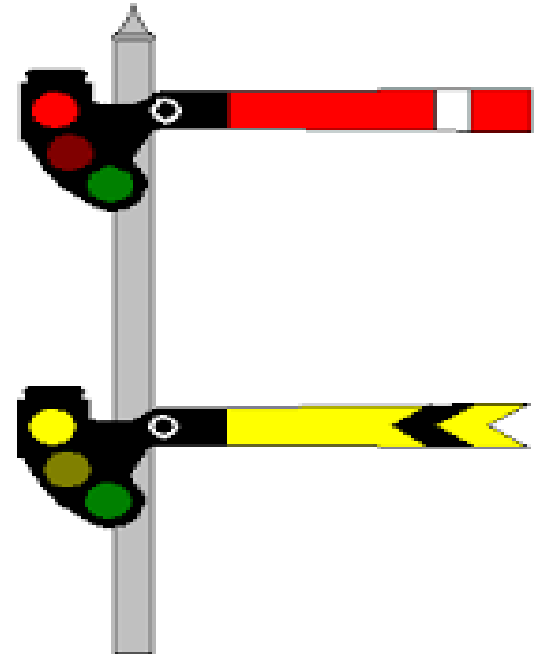


Level Crossing Scenes





Train Stop Signals





Rail Track Obstructions & Safety Issues





Activities Infringing Safety

- ☐ Walking on the track
- ☐ Wearing ear piece on, while walking near a moving train
- ☐ Trading on the track
- ☐ Stabling parcels or cars on the track
- ☐ Walking pets on the track
- ☐ Leaving wastes on the track
- ☐ Removing ballast stones from the track
- ☐ Tampering with track materials or stabled trains
- ☐ Erosion, land slides and wash-outs
- ☐ Drawing the automatic 'Stop Chain' in Passenger trains



Walking on the Track



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Sources of Train Accidents





Walking Pets on the Train Track





The Nature of Ballast on the Track





Factors that Limit Train Speeds

- Designed Train engine speeds
- Designed speeds over Points and Crossings on the track
- Gaping points or setting of wrong points
- Check rails and Level Crossings
- Wheel Flange path
- Train load and hauling power
- Station limits and the philosophy of 'Block Station'
- Concept of 'Block Section' and 'Block Station'
- Authority to Proceed



Track Design and Layout





Aspects of Points, Crossings





Issues in Train Safe Operations

- Train speeds
- Crossings
- Points
- Check rails
- Vacuum Brake System Vs Air Break System
- Automatic Buffer Coupler Vs Flexible Coupler
- Siding Lines
- Adequate Distance
- Station Limits and shutting regulations

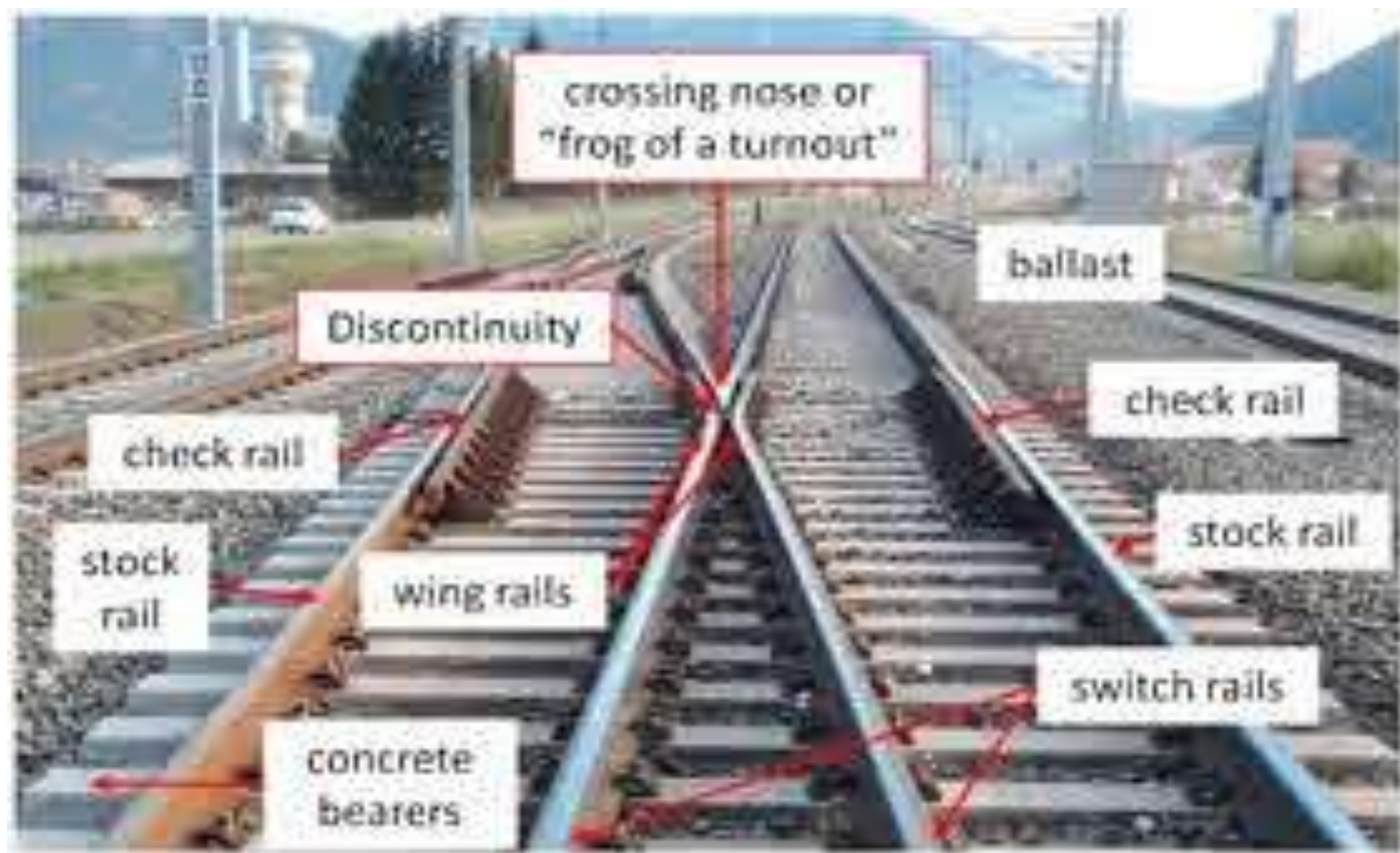


Inside of Passenger Compartments





Importance of Crossings in Train Operations and Capacity Building





Importance of Points & Wheel Flanges



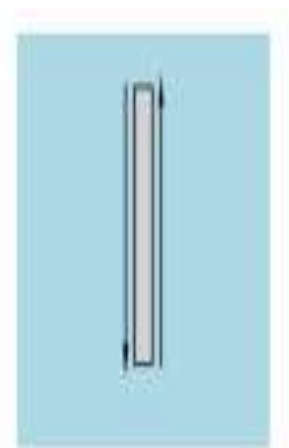
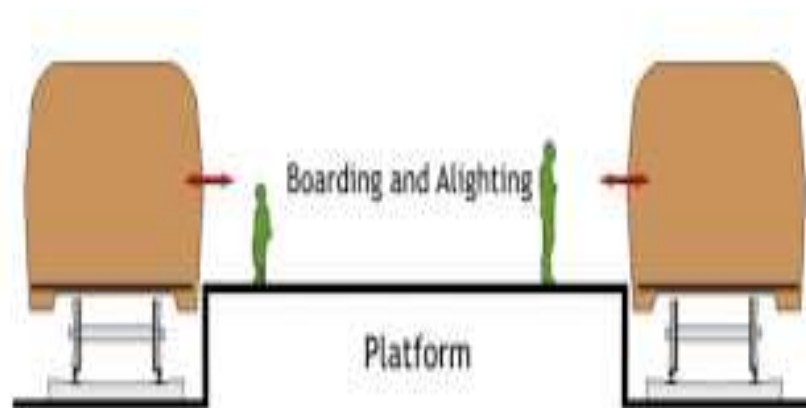


Design of Coach Doors and their Safety Implication





Importance of Boarding Platforms





Importance of Train Starting Signals



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Train Ticketing System

- ❖ Card tickets
- ❖ Paper tickets
- ❖ Concession tickets
- ❖ Seasonal ticket
- ❖ Privilege ticket Orders
- ❖ Excursion tickets
- ❖ ** Era of Electronic Ticketing (e-ticketing system)



Faces of the New Gauge & Trains

Standard Gauge



New Train Station



Passenger Compartment



New Train Set





Conclusions

- ☐ Economy in costs
- ☐ Environmental friendly
- ☐ Large bulk movers
- ☐ High safety standards
- ☐ Fixed track System
- ☐ Long hauls

THE END -

