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| **Introduction and Overview to Rail Vehicle Systems, Operation and Maintenance** **Course 100**  |
| **Glossary of Terms**December 2020 |
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| Rail Car Training Consortium |

**REVISION INDEX**

Any additions, deletions, or revisions are to be listed below.

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| **Revision No.** | **Date** | **Section** | **Description of Change** | **Revision Author** |
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How to Use the Participant Guide

Purpose of the Course

Course 100: Introduction and Overview to Rail Vehicle Systems, Operation and Maintenance provides participants with an overview to the rail vehicle systems as well as preparing to work on those systems in a rail car maintenance facility.

Approach of the Book

Each Module begins with an outline, a statement of purpose and objectives, and a list of key terms. The outline will discuss the main topics to be addressed in the Module. A list of *key terms* identifies important terminology that will be introduced in this Module. *Learning objectives* define the basic skills, knowledge, and abilities course participants should be able to demonstrate to show that they have learned the material presented in the Module. *Exercises* are built in throughout the course materials to assist the participants in learning and reviewing key information.

This glossary accompanies and applies to terms found in the Rail Car Consortium’s [Course 100: Introduction and Overview of Rail Vehicle Systems, Operation and Maintenance](https://www.transittraining.net/courseware/details/course-100-introduction-and-overview-of-rail-vehicle-systems-operation).

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| **A Car** | A rail vehicle typically consists of two cars, A car and B car. The car bodies tend to be similar, and in some cases, can operate from either end. |
| **Actuated** | Some rail lights are actuated by an event such as a door opening or brakes being applied. |
| **Air Supply Unit** | Power of the pneumatic braking system, which provides pressurized air to the brake system. |
| **Announcements** | Messages that occur in various forms and may happen over a loud speaker or via radio. |
| **Approach Boundary** | Consist of boundary levels determined by distance to protect from exposed live parts and arc flashes or blasts. |
| **Arc Blast** | Consist of luminous electrical discharge across a gap between conductors of high voltages and high-amperage currents arc, or travel, through air. Arc blast consists of the wave of energy produced. |
| **Arc Flash** | Consist of luminous electrical discharge across a gap between conductors of high voltages and high-amperage currents arc, or travel, through air. The arc flash is the luminous electrical discharge. |
| **Articulation Section** | Also referred to as the C car, serves as a small linking car body to the A car and B car. |
| **Automatic External Defibrillator (AED)** | Used when cardiac arrest personnel need immediate help until emergency officials arrive.  |
| **Automatic Train Control (ATC)** | The movement of rail rapid vehicles is regulated for the purposes of safety and efficiency. |
| **Automatic Train Operation (ATO)** | A subsystem which performs the functions normally performed by the motorman of operator. |
| **Automatic Train Protection (ATP)** | Assists in enforcement of safe operation of the system and imposes speed limits both to maintain safe train separation and to operate trains in accordance with civil speed restrictions. |
| **Automatic Train Supervision** | Controls the arrival and departure of trains from all stations, first by automatic equipment at the wayside and secondly by central control computer programs automatically called into operation to accomplish minor schedule adjustments. |
| **Axles** | What rotate allowing the wheels to roll on the rail.  |
| **B Car** | Rail vehicle typically consists of two cars, A car and B car. These car bodies tend to be similar, and in some cases, can operate from either end.  |
| **Background Communication** | Consists of data information networks and systems that are not usually apparent to train occupants, but run silently in the background between units. |
| **Battery Jack** | Used for lifting heavy sets of batteries. |
| **Bearings** | High precision parts that allow the wheels to spin with low friction and carry the entire weight of the vehicle. |
| **Block Style** | Type of battery with 5 individual cells together in a casing. |
| **Blue Flag** | Sometimes in the form of a blue cone or blue tag, are used throughout many shop environments alerting of the presence of different type of work being performed and associated dangers. |
| **Brake Caliper** | The assembly which houses the brake pads and pistons. |
| **Bulletin** | Resource for rail vehicle work. |
| **Bump Cap** | A plastic protective cap that protects the head when there is a possibility of striking the head against a hard, stationary object or to reduce the risk of exposure to abrasions or lacerations.  |
| **C Car** | Joins the A car and B car |
| **Cab Area** | Area where train operator is stationed |
| **Cable Car** | A railway with individually controlled vehicles that are attached to a moving cable that is located below the street surface and powered by engines or motors at a central location not on board the vehicle. |
| **Catenary** | Overhead bare copper wire suspended from above and parallel to the running rail.  |
| **Catwalk** | A narrow walkway or bridge-type structure either suspended from a structure or self-supporting and often used in industrial installations to access areas high from ground.  |
| **Center Truck** | Also known as a trailer truck and has no motor.  |
| **Collector Shoes** | Collects power on the third rail |
| **Commuter Rail** | Type of rail service that uses an electric or diesel electric railway for passenger trains.  |
| **Compressor** | Commonly referred to as the heart of the HVAC system. |
| **Condenser** | Uses water or air to remove heat from the refrigerant. |
| **Corrective Maintenance** | Reactive and unscheduled maintenance that occurs in response to an unanticipated required repair encountered during the preventive maintenance process.  |
| **Coupler** | Locks two rail vehicles together. |
| **DC Disconnect** | Shop power supply for overhead and third rail power.  |
| **Dedicated Heating Units** | May be located under the seats or along the baseboards. They create heat by passing electricity through a series of wires or wire coils.  |
| **Defective Equipment** | Equipment that does not function as it should. |
| **Derailing** | Vertical stiffness |
| **Diameter** | A size number or direct measurement and refers to the circumference measurement of the fastener. |
| **Drive Type** | Configuration of the top of the head of the screw and includes types such as Phillips, Allen or Slotted. |
| **Dynamic Braking** | Use of an electric traction motor that propels the vehicle as generators when slowing the rail vehicle.  |
| **Dynamic Envelope** | Also referred to kinematic envelope, is the clearance required for a train and its cargo to overhand due to any combination of loading, lateral motion, or suspension failure.  |
| **Electronic Control Unit** | The brains of the pneumatic braking system. |
| **Emergency Evacuation Plan** | Provides direction for how to safely exit a building in an emergency that requires building inhabitants to leave.  |
| **Evaporator** | Used in an air-conditioning system to allow a compressed refrigerant to evaporate from liquid to gas while absorbing heat in the process.  |
| **Exposed** | Electrical hazards may exist if wires are exposed |
| **Eye Wash Station** | Located in maintenance and repair areas where there may be exposure to materials hazardous to the eyes and sight.  |
| **Fastener Type** | Can be considered by category of fastener, drive type, and head style.  |
| **Fire Alarm** | Devices that work to warn people both visually and audibly of the presence of smoke, fire or other possible emergencies.  |
| **Flange** | Keeps wheels on the track. |
| **Flash Protection Boundary** | Electric shock boundary that is intended to protect against arc flash. |
| **Fork Lift** | Used for the movement of heavier items and/or light maintenance around the rail vehicle maintenance and repair shop. |
| **Frame Assembly** | A casted of welded steel construction, composed of two same parts welded in the center.  |
| **Friction Braking** | The two major types of friction braking include pneumatic braking systems and hydraulic braking systems.  |
| **Gearbox** | Transmits the torque of the motor through to the hollow shaft coupling into the axle.  |
| **General First Aid Kit** | Contain items such as band aids, antiseptic wash, and ace bandages.  |
| **Grade** | Indicates the strength of the material. |
| **Ground** | The reference point that voltages are measured. |
| **Ground Brush Devices** | Active for current returns, at least one per axle. |
| **Ground brushes** | Provide protection for the axle box bearings for all types of current.  |
| **Grounding** | Three prong plugs that assure the equipment is grounded. |
| **Head Diameter** | An aspect of the fastener diameter that refers to the size of the head measured across the flats.  |
| **Head Style** | Refers to the shape or style of the head of the fastener, such as flat, oval, round or hex.  |
| **Heavy Maintenance** | Also referred to as rebuilds or heavy overhaul, occurs when a vehicle is taken out of service for a large repair such as a motor rebuild. |
| **Heavy Rail** | Characterized by high speed and rapid acceleration, this type of transit has capacity for a heavy volume of passenger traffic. |
| **High Visibility Vest** | Includes a minimum square inch of reflective stripping and background fabric material, reflective and washing performance, and should be tested in accordance with ASTM standards.  |
| **Hoist** | A type of lift tool used in rail vehicle maintenance. |
| **Housekeeping** | The maintenance and upkeep of the workplace itself. |
| **Hydraulic Lift** | Used for lifting the rail vehicle.  |
| **Inclined Plane** | Railway operating over exclusive right-of-way on steep grades with powerless vehicles propelled by moving cables attached to the vehicle and powered by engines or motors at a central location on board the vehicle.  |
| **Insulation** | Plastic or rubber covering of bare wire, prevents conductors from coming in contact with each other as well as coming in contact with people.  |
| **Jib Crane** | Used to move components from the floor to a work table.  |
| **Job Hazard Analysis** | A method of analyzing a workplace or job task to identify the existing or potential hazard(s). |
| **Job Safety Briefing** | A form of regular communication and important for shop safety in most rail vehicle shops.  |
| **Joyce Jack**  | An OEM brand of electric jacks that work in a way so that all lifts act in tandem to lift entire car.  |
| **Lead Acid** | Commonly used battery.  |
| **Light Rail** | Mode of rail service that operates using either single, two or three vehicle passenger trains.  |
| **Main Breaker** | Also known as high-speed circuit breaker, is a single contact breaker, thermally rated for the design current.  |
| **Material** |  |
| **Measuring Tools** | Used to measure areas of the rail vehicle including wheel, brake actuators, and busing pins.  |
| **Mechanical Coupler** | Part of the coupler assembly that makes physical connection between rail transit vehicles.  |
| **Metering Device** | Responsible for metering the correct amount of refrigerant to the evaporator. |
| **Motor Truck** | A type of truck that is also referred to as a power truck. The motor truck is complex with a motor and two propulsion axle assembly.  |
| **Mushrooms** | Also referred to as emergency cut-out switches. These switches provide the means to stop power to the third rail or overhead catenary line.  |
| **Nickel Cadmium (NiCad)** | A commonly used battery.  |
| **Overhead Bridge Crane** | A type of crane that provides heavier capacity for cars.  |
| **Pantograph** | Mounted on the roof of the vehicle is hinged to provide an electrical path to vehicles while providing an up and down motion. |
| **Personal Protective Equipment** | Equipment worn to minimize exposure to a variety of hazards.  |
| **Pinch Point** | A place where it’s possible for a body part to be caught between moving machine parts or between moving and stationary machine parts.  |
| **Pneumatic Braking** | High pressure air is used to create the friction forces necessary to slow or stop the rail vehicle.  |
| **Pneumatic Coupler** | Provides a self-sealing valve assembly mounted to a coupler assembly that allows for air pressure equalization between coupled rail vehicles.  |
| **Pneumatic Power Tool** | Can be driven by compressed air either supplied by an air compressor or driven by portable smaller cylinders containing compressed carbon dioxide for portability.  |
| **Pocket Tracks** | Tracks that are physically separate from revenue or normal maintenance tracks and intended to be a holding/parking area for rail cars that aren’t currently in revenue service or having maintenance performed on it, are adjacent to the maintenance shop.  |
| **Potential Electrical Hazard** | Hazards that may happen even when all steps have been taken to ensure electrical safety.  |
| **Predictive Maintenance** | Maintenance based on the actual condition of the rail vehicle, rather than on a preset schedule.  |
| **Preventive Maintenance** | Scheduled maintenance procedures at predetermined time intervals.  |
| **Preventive Maintenance Plan** | A structured approach to making sure that any equipment used in a system is functioning with the highest possible degree of efficiency.  |
| **Primary maintenance** | Includes on-vehicle repair on the floor or in a pit area. |
| **Propulsion** | The electrical system that powers transportation rail vehicles. |
| **Rail Test Bulletin** | Bulletins which address the addition of parts which were not available for the original test of the product when it was new.  |
| **Reactive Maintenance** | “run it till it breaks.” No action of effort is taken to maintain the equipment as the OEM intended.  |
| **Running Maintenance** | The day-to-day maintenance or replacement for basic operation.  |
| **Running Rails** | Serve as the ground return.  |
| **Running Stability** | Lateral stiffness of the vehicle. |
| **Safety Data Sheet (SDS)** | A type of resource common in any place where chemicals, cleaners, oils, and other potentially harmful or hazardous materials exist.  |
| **Safety Oversight** | Resources that provide guidelines, and sometimes laws, pertaining to the safety of the work environment.  |
| **Scheduled Maintenance** | Preventive maintenance procedures at predetermined time intervals.  |
| **Secondary Maintenance** | Pertains to a component that is pulled for maintenance somewhere else besides the shop floor or pit areas.  |
| **Service Bulletin** | OEM updates regarding specific equipment or parts.  |
| **Shift Briefing** | Small meetings where shift team members and supervisors can discuss planned work for the day.  |
| **Shop Status Board** | Used to communication daily or weekly messages and updates for employees. |
| **Shop Tag** | Contain information about parts and equipment that are pulled for service.  |
| **Standardized Operating Procedure (SOP)** | Written document developed by each agency to describe a process used by a department.  |
| **Supply Air Heater** | Type of HVAC unit that have coils near the evaporator and that generate heat.  |
| **Surge Arrestor** | An appliance designed to protect electrical devices from voltage spikes.  |
| **Technical Manual** | Manual that provides information for the maintenance and repair work for all rail vehicles and their related parts.  |
| **Testing** | A basic part of the preventive maintenance plan which involves examination of the equipment to ensure that each device is functioning properly as designed.  |
| **Third Rail** | A method of providing electric power to a railway train, through a semi-continuous rigid conductor placed alongside or between the rails of a railway track.  |
| **Thread Count** | Pertains to machine thread fasteners.  |
| **Torque Wrench** | Commonly used for specific torque application when fastening nuts or bolts for preventing over or under-tightening.  |
| **Track Brakes** | A form of brakes unique to rail borne vehicles.  |
| **Trucks** | The heart of the railcar. Include the means by which the car rolls down the track (wheels and axles), is propelled (propulsion motors) and is stopped (brakes). |
| **Unsuspended Axle** | Resilient wheel |
| **Wheels** | The connection between the car and the track with many important functions.  |
| **Work Order** | Housed in computers or laptops, with information about the inspection, maintenance and repair work completed on each vehicle.  |