



## Model Rail Terminology

### **Alternating Current/AC**

The electric current that flows alternately through each wire in a rapid sequence called 'a cycle'. The normal mains electricity supply is powered by Alternating Current/AC.

### **Ampere or Amp**

The current flowing in an electrical circuit.

### **Armature**

The revolving part of an electric motor.

### **Back-to-Back**

The measurement between the backs of the running wheels on rolling stock.

### **Ballast**

Usually stone chippings, or similar material, which support the sleepers and hold them in place on the ground.

### **Baseboard**

The structure on which to build a model railway layout.

### **Bogie**

An assembly which supports the wheels on a coach, freight wagon or locomotive. Each bogie usually holds two or three pairs of wheels.

### **Brushes**

Pieces of carbon fitted into a holder on either side of the commutator on an electric motor. These are often copper or phosphor-bronze strips that touch either side of the commutator.

### **Buffer Beam**

The traverse beam at either end of a locomotive, coach or wagon which carries the buffers. Sometimes called a headstock.

### **Catch Point**

A single trailing point blade set into an ascending track to derail wagons that have come uncoupled and are running back down a hill. A catch point prevents runaways colliding with a following train.

### **CDU (Capacitor Discharge Unit)**

Used to store power so that several point motors may be operated simultaneously.

### **Catenary**

Overhead wires and their supports for carrying electricity above the railway.

### **Chair**

Metal clips that hold the rail and are bolted or spiked to the sleepers.

### **Check-Rail**

A rail inside the running rails seen on curves and points to keep the flanges of the wheels from riding up on the opposite rail.

### **Colour Light Signal**

A signal that uses only coloured lights to provide an indication of how far in front of the train the line is clear.

### **Common Return**

A wire connecting one side of the running rail which returns the current from all round the track or layout.

**Commutator**

The slotted copper segments at the end of the armature on an electric motor, which transfers the current from the brushes to the coils wound on the armature.

**Connecting Rod**

The rod on locomotives which connects the piston rod (on the crosshead) to the driving wheel. The little end of the connecting rod is at the piston rod end and the big end is at the driving wheel end.

**Controller**

An instrument controlling the speed and direction of a model locomotive by means of a variable resistance, variable transformer or by an electronic circuit.

**Coupling Rod**

The rod connecting the large wheels of a locomotive.

**Crank**

The pivot point or pin where the connecting rod joins the driving wheels.

**Crosshead**

The two parallel pieces of metal connecting the piston rod which slide in the side bar and transmit power to the connecting rod.

**Crossing**

The diamond formed by two tracks where they cross one another.

**Crossover**

A crossing from one set of rails to another.

**Cutting**

A section of railway line where the surrounding countryside is at a higher level than the line and the ground has been dug away to put in the line.

**Cut-Out**

A safety switch which cuts out the electrical supply in the event of a short circuit or overload. Modern cut-out switches can often be reset by pressing a button.

**DCC (Digital Command and Control)**

The application of computer technology to control the movements of locomotives. Each locomotive is fitted with a decoder (or 'chip') which is uniquely programmed and recognises its own identity and responds only to those control signals which are addressed to it. DCC also allows a wide range of extras including controllable lighting and on-board sound.

**Diamond**

The centre portion of an acute angled crossing.

**DC (Direct Current)**

The opposite of Alternating Current/AC. DC is a current which flows in one direction. Most model railway locomotives work on a Direct Current of 12V.

**Disc Wheels**

Wheels which are solid, i.e. have no spokes. Sometimes a disc wheel will have holes around its circumference.

**Distant Signal**

A semaphore signal giving the driver advanced warning of the position of the next home signal, allowing him to slow the train if it were at danger. The facing arm of the distant signal is yellow with a fish tail.

**Double Crossover**

Two crossovers superimposed on one another, i.e. in a facing and trailing direction.

**Embankment**

A section of railway line where the surrounding countryside is at a lower level than the line and the ground has been built up to put in the line.

**Facing Point**

A turnout or point which faces the oncoming trains.

**Fiddle Yard**

Used on model layouts to store complete trains which can be ready to run out of the fiddle yard onto the main circuit of the layout. It can also be used for changing trains.

**Fine Scale**

A smaller scale nearer to the true scale of the prototype., i.e. Fine Scale '00' gauge is often described as EM Gauge.

**Fishplate**

A metal plate which clamps on the end of two abutting rails to make sure the rail is in line. On a model railway a metal fishplate will conduct electricity across the gap. If an isolated section is required then a plastic fishplate is used.

**Flyover**

A bridge carrying railway tracks over another railway line instead of having them cross on the same level.

**Footplate**

The cab floor of a locomotive, or the plate of platform running along each side of a locomotive's boiler.

**Four Aspect Signal**

A colour light signal using four lights. From top to bottom in order, the lights are yellow, green, yellow, red. A red indication means the next section contains a train. A single yellow light (using the lower yellow aspect) means the next section is clear but there is a train in the following section. A double yellow means the next two sections are clear but there is a train in third section. A green indicates that the next three sections are clear.

**Gantry**

Bridge or walkway over railway tracks on which several signals are mounted.

**Gauge**

The distance between running rails of the railway track - 4ft 8½in (1mtr 43cm) in England.

**Gears**

Large and small toothed or cog wheels which mesh with each other to give an increase or decrease in speed.

**Ground Frame**

Small signal box or lever frame often seen in shunting yards. It does not usually control signals or points for a main line but for sidings and yards.

**Handrail**

A rod or tube along the boiler of a locomotive to act as handgrips for the loco crew. They can also be found on cab sides and brake vans to assist the passenger in getting on and off the vehicle.

**Home Signal**

The signal which controls entry into a section. It either shows the line is clear (the signal arm would be up) or another train is ahead (the signal arm would be horizontal).

**Inner Home Signal**

A home signal within station limits where an outer home signal is positioned. The inner home signal is in advance of the outer home and usually to the rear of the signal box.

**Jinty**

The nickname for a six wheel side tank locomotive designed by Sir Henry Fowler for shunting and light freight duties.

**Junction Signal**

Any signal that has more than one route and is capable of displaying an indication of which route has been selected. A junction indicator will also be fitted to a junction signal to inform the driver which way a junction is set, by means of white lights.

### **Kettle**

A lineside boiler for filling locomotive boilers directly with hot water.

### **King Lever**

A lever in a signal box which cuts out the box's control and allows its signals and points to be controlled remotely from another box or automatically via track circuits.

### **Kip**

A hump at the top of a rope-hauled railway to prevent wagons or carriages accidentally running back down the incline; An incline on which wagons are built to be run off by gravity as required, usually at a colliery, to feed a loading point.

### **Lever Frame**

The assembly which holds the signal and point levers in a signal box or ground frame. A lever frame is made up of slots for the levers to operate in and allows for them to be locked together.

### **Live Steam**

A method of powering a locomotive, as opposed to electric current. Hornby was the first manufacturer to commercially produce a Live Steam locomotive, powered entirely by steam, in '00' gauge.

### **Loading Gauge**

The size limit for locomotives, freight and passenger rolling stock over a specific stretch of railway. This is measured horizontally in relation to position of platform edges and tunnel walls, for example, and vertically in relation to bridge and tunnel heights. The loading gauge can vary considerably for the same track gauge, especially in other parts of Europe and North America; A metal frame, often found in freight yards, suspended over the track to indicate the limit an open freight wagon may be safely loaded.

### **Lower Quadrant Signal**

A semaphore signal that lowers its arm to indicate the line ahead is clear.

### **Louvers**

Horizontal slots cut into the sides of diesel and electric locomotives and certain goods vans to give ventilation.

### **Main Frame**

The strong metal sides of the chassis of a locomotive in which holes are drilled for axles. They also carry the spacing pieces and fixings for the locomotive's motor.

### **Multiple Unit**

A set of coaches which are self-powered and have a driving compartment at each end. Multiple Units are usually powered by electric motors or diesel engine.

### **Narrow Gauge**

A railway running on tracks having a closer distance between the rails than normal.

### **NEM Coupling**

A standard universal type of coupling that can be fitted by means of a small socket on the underside of most locomotives and rolling stock. It enables models from different manufactures to be run coupled together.

### **Ohm**

The measurement of the resistance in an electrical circuit.

### **Outer Home Signal**

An additional signal placed before the home signal that protects trains shunting back past the home signal. It also indicates station limits at the approach end of a station.

### **Overload**

Where the electrical load (i.e. several model locomotives running at the same time) requires more power than the transformer or controller can give.

**Pantograph**

A metal assembly on the roof of an electric unit to collect current from overhead wire.

**Point**

One railway track turning into two or three tracks, or the crossing of one track with another.

**Point Motor**

An electric motor or solenoid used for changing the points.

**Point Rodding**

The rodding or wires which move the point either from an electric motor or solenoid or from the lever in a signal box.

**Power Unit**

Transformer and rectifier used to convert the mains electricity (normally 240V AC) to the smaller voltage required by a model railway controller (normally 12V DC) or Digital Command and Control systems (DCC).

**Prototype**

The full size locomotive, coach or wagon; Full size railway practice.

**Push/Pull**

A type of train where the carriages are kept permanently coupled to the locomotive which pulls them in one direction then pushes them in the other.

**Rain Strips**

Curved pieces of wood or metal fixed on a coach roof to prevent the rain running down the sides when the doors are opened.

**Ramp**

The sloping end of a station platform; Sloping object in the centre of the running rails in model railways usually used for uncoupling.

**Ready-To-Run**

A model which can be taken straight out of the box, placed on your layout, and run. All Hornby locomotives and rolling stock are manufactured as 'ready-to-run'.

**Rectifier**

An electrical item used for changing Alternating Current (AC) to Direct Current (DC).

**Relay**

An electrical device for switching currents to other circuits; The opening or closing of a circuit. A relay can also be used in place of a point motor.

**Resistance**

A measurement of electricity; A substance which reduces the flow of electricity.

**Reverse Loop**

A model railway track which loops 180° to turn trains round to the direction from which they came.

**Reversing Switch**

Electrical switch which changes the polarity of the electrical supply to the model railway and thus reverses the direction of the locomotive.

**Rolling Stock**

Anything with wheels on it which can run on the track including locomotives, carriages, freight wagons and maintenance vehicles.

**Saddle**

The cradle in which the smokebox end of the boiler of a locomotive rests.

**Scale**

The relationship in size between the model and the full size item.

**Scissors Crossover**

The facing and trailing crossovers between two adjacent tracks.

**Section**

In railway terms a length of track, usually between two signals.

**Semaphore Signal**

A signal that uses a moving arm to indicate the state of the line ahead. Having the signal arm pointed horizontally usually indicates that the next section contains a train. A raised or lowered arm indicates the line is clear. The arm also has coloured filters fitted which are moved in front of a lamp when the signal arm moves to help drivers see the signal at night.

**Short Circuit**

The negative and positive wires of an electrical supply touching one another. One example of a short circuit is when a metal object, i.e a screwdriver, is placed on the track providing a path for electricity from one electrical circuit to another.

**Shunting**

The movement required to re-arrange the position of wagons or coaches in a train; To pick-up and set-down wagons in a goods train.

**Shunting Signal**

A smaller than normal signal that is used specifically to indicate whether or not particular shunting moves may take place. A shunting signal is usually represented on a modern image layouts with a colour light ground signal.

**Signal Box**

A building from which the surrounding points and signals are operated. May contain either a lever frame or in more modern signal boxes a panel containing switches and coloured lights.

**Six-foot Way**

The distance between two railway lines on a railway.

**Sleeper**

The wooden or concrete beam on which the rails rest and are kept in position by a chair.

**Slide Bar**

The two parallel metal bars or strips in which the crosshead slides, forming part of the valve gear.

**Solenoid**

The effect of a current passed round the coil of a solenoid producing a forced magnetism which pulls the solenoid's centre core down, providing energy to operate points and signals. A solenoid is similar in action to a relay.

**Spectacle Plate**

Windows at the cab front enabling the driver and fireman to have forward vision.

**Splashers**

The coverings on the upper part of a footplate protecting the driver and fireman from being splashed by rain or mud.

**Spur Drive**

The drive through a chain of gears.

**Spring Motor**

A clockwork mechanism.

**Starting Signal**

An extra signal placed at the departure end of a platform to allow trains to run into the station and stop, even though there is a train in the next section.

**Three Aspect Signal**

A colour light signal using three lights. From top to bottom, in order, the lights are green, yellow and red. A red light means the next section contains a train. A yellow light means the next section is clear but there is a train in the following one. A green indicates the next two sections are clear.

**TOPS (Total Operations Processing System)**

A computer-based program developed by British Rail to monitor the movements of all freight and passenger rolling stock, and locomotives. The system was introduced in the early 1970s to record every movement of freight traffic and non-multiple unit passenger trains. The information is broadcast live to a central computer to form a comprehensive and up-to-the-minute picture of the freight and passenger traffic situation over the whole of the rail network.

**Trailing Points**

Turnouts (points) or crossovers which are against the direction of travel, i.e. a train has to reverse to pass over them.

**Two Aspect Signal**

A colour light signal using two lights. A two aspect signal can either be yellow and green, or red and green. As with other colour light signal formations, a yellow aspect means the next section is clear but there is a train in the following one. A green indicates the next two sections are clear.

**Turnout**

See point.

**Uncoupling Ramp**

A ramp fitted under or between the rails on a model railway to remotely uncouple rolling stock. It is not a prototypical example, but uncoupling ramps can often be seen in hump shunting yards.

**Underframe**

The chassis of a wagon or coach.

**Upper Quadrant Signal**

A semaphore signal which raises its arms to indicate the line ahead is clear.

**Valve Gear**

The mechanism used to power the driving wheels and pistons of a locomotive. In most steam locomotives the valve gear is exposed, although in Bulleid's West Country Class, for example, the chain-driven valve gear is enclosed within the body.

**Vestibule**

The corridor connection between coaches, usually a flexible gangway to enable passengers to pass between coaches in a train.

**Volt**

An electrical measurement meaning the pressure of electricity in the supply.

**Watt**

A unit of electrical measurement to describe the energy produced. A watt is the number of volts multiplied by the number of amps.

**Wheel Arrangements**

The arrangement of wheels on a locomotive. There are many varieties of wheel arrangements for steam and diesel locomotives depending on the number of leading, driving, trailing or load bearing wheels there are.

**'Y' Point**

A turnout in the shape of a letter 'Y'; A single track turning into two parallel tracks.