

**Farnham & District MRC 009 Standards**  
Version: For Use v 1.0

**Section 1 Woodwork**

Item Number	Standard	Reasoning
1.01	Definition: A <u>module</u> is a section of layout bounded by two edges which comply with the physical aspects of this standard. A <u>board</u> is a single baseboard which can make up a module in whole or in part.	Modules can be made of one or more boards. Only the two edges need to comply with the requirements given below. Electrically, all boards must comply with standard.
1.02	Module ends shall be 450mm wide and be supplied by Tim Horn Baseboards	For both 'station' and 'scenic' boards 18 inches is adequate to allow development in 009 of track plan, scenery and landscape.
1.03	Module ends must be at precisely 90 degrees to the baseboard surface.	Ensures good alignment between boards.
1.04	The end profile is designed by the supplier and includes dowelling and bolt holes	Ensures any module can be joined to any other.
1.05	The depth of the baseboard shall be 4 inches as provided by supplier	Allows Tortoise point motors to be used, if desired.
1.06	The height of the top of the baseboard above the support surface shall be 12 inches	The boards are designed to be placed on tables. Sufficient height is required above the table to allow connections to be made from board to board without tipping them over.
1.07	Each module must be self-supporting with legs adjustable by plus or minus 0.5 inches. A module made from a single board must have four legs.	Height adjustment is necessary to allow for variation in support level. If a module is made from more than two boards, then the second and subsequent boards can be 'piggybacked' off the first board, so long as it has four legs.
1.08	Modules shall be joined by the system of dowels and bolts provided by the baseboard supplier Tim Horn. Washers are required where a bolt or wing nut meets the woodwork.	The most important issue is ensuring that track at the join is level.
1.09	The front and rear surface (at least) shall be painted in the Club standard colour of grey.	A common colour will present a more pleasing appearance. The Club will hold a stock of the correct paint.
1.10	A backscene shall be provided, but can be removable. The height shall be 9" above the baseboard level	Backscenes must be provided but can be just a plain colour if desired.
1.11	Alignment dowels must be oriented as follows when looking from the rear of the baseboard. To the right the front must be a plug (male) and the rear must be a socket (female). To the left the front must be a socket (female) and the rear must be a plug (male).	This allows all boards to be joined together, including fiddle yard boards (which may be reversible) specified in section 2.05.

**Section 2 Track**

Item Number	Standard	Reasoning
2.01	Code 80 profile track shall be used.	Code 80 is the de facto standard in 009 as supplied by Peco in any of their Set track, Mainline or Crazytrack ranges
2.02	Points on through running lines shall have live frogs.	Dead frog points cause poor running which may be acceptable in yards, but not on lines used for through running. Note: independent frog switching is not required. Well-maintained switching through blade contact is acceptable.
2.03	Underlay shall be from 3mm cork laid directly on the baseboard surface	Maintains constant height between modules
2.04	One and only one track crosses module joins. The centre line of the track is placed 6 inches from the front edge edge.	Narrow gauge lines are generally single track. Note: the number of tracks across joins within a module are a matter for the builder.
2.05	Each module shall have a track entering/exiting the module at each end.	This allows modules to be joined together whether or not they are a terminus when operated alone. The only exception is fiddle yard boards which are single ended and may have a second entering/exit track also placed 6 inches from both edges to allow them to be reversible.
2.06	Track shall start 44mm from the baseboard edge and be at right angles to the module end.	See section 2.07
2.07	Module track joins are made by 87mm lengths of Peco 009 Set Track, ST-401. Each piece of such link track shall have two fishplates at each end and be modified with insulating joints on each rail in the middle.	The Set Track sections fit between the tracks on each module. The fishplates are slid along at each end to make the join. The insulating joints ensure electrical separation between modules except by the wires/connectors in 3.06
2.08	The minimum radius on through running lines shall be 12 inches	Good running can be achieved by most stock on 12 inch radius stock. On sidings a minimum radius of 9 inches is permitted.

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2.09	In passing loops, the minimum distance between track centres is 48mm.	This allows all stock (including transporter wagons) to pass.
2.10	In passing loops the minimum length between fouling points is 17 inches	This allows a loco and three long coaches to pass.
2.11	The minimum distance between a track and the front or back edge of a module shall be 3 inches	The minimum distance means that a derailed train does not fall off the edge of the board
2.12	Ballast for through running tracks shall be standardised on Woodland Scenics Fine Grey	A common colour will present a more pleasing appearance. The Club will hold a stock of the correct ballast.

**Section 3      Electrics**

Item Number	Standard	Reasoning
3.01	The modules are wired for DC control.	DC is used by most 009 modules. An individual module can be as an additional functionality of desired by the owner.
3.02	Modules are divided in to two types – 'scenic', for plain track only (i.e. without any points) and 'station' where point work and loops are required.	'Scenic' modules and 'station' modules have very different electrical requirement. Note: 'station' modules do not have to be stations, but could be mines, industries, docks, etc.
3.03	The main though line and any passing loop of 'station' boards shall be wired in accordance with diagram 1.	This wiring allows local control of individual sections on a board or hands over control to the next 'station' to the left or the right at the choice of the 'station' operator.
3.04	The section from the outermost point to the board join shall have its own section switch	Follows from normal good practice to feed points from the single-track-end.
3.05	Common return wiring shall not be used on the main though line and any passing loop of 'station' boards.	This allows control to be handed to a remote station without the possibility of electrical complications.
3.06	Each scenic module shall have four wires passing from end to end: one black and red pair and one green and yellow pair. The black and red pair shall be connected to the track on the board, black to the front rail and red to the rear rail.	The black and red pair are for control of the section. The green and yellow pair are for passing control from one 'station' to the next.
3.07	Plugs and sockets shall be standardised on Tru Connect 4mm Test Plugs and Sockets.	Available from Rapid Electronics. Stock to be held by club.
3.08	When looking from the rear of the layout plugs shall be fitted to the red and yellow wires at the right hand end and sockets to the left hand end. Black and green wires will have plugs at the left hand end and sockets at the right hand end.	Ensures any module can be joined to any other and only the correct wires can be joined together.
3.09	Wires shall extend by 6 inches from the end of the board	Allows connections to be made under the edge of the baseboard
3.10	Plugs and sockets shall be captured under the baseboard when not in use.	Allows transport of modules without snagging and damage.
3.11	When a positive voltage is applied to the outer rail the powered vehicle will move to the left.	This ensures consistency of direction and is a common standard for controllers and locos.
3.12	Control switches or rods must not stand proud of the vertical edges of the board.	To protect switches or rods from damage during transport or operation they must not stick out from the edge of the board. Possible places for control panels are to have them fully recessed in to the edge, or on the top surface accessed through the backscene and hidden by a building, or entirely separate and wired through an 'umbilical cord'. There is no requirement for points to be operated electrically.

**Section 4      Other**

Item Number	Standard	Reasoning
4.01	Couplings shall be of the hook and loop type and applied to each end of each coach or wagon unless in permanently coupled sets.	This is the most common type of coupling for 009. Suppliers include BEMO, Peco, Greenwich. Note: if desired locos/railcars may be provided only with hooks.
4.02	Coupling height shall be 5.5mm plus or minus 0.3mm	Allows interoperability of stock and reliable coupling.
4.03	Wheel profile shall be to NEM 310 with back-to-back measurement of 7.4mm.	The wheel profile is more-or-less standard, but some commercial suppliers (e.g. Dundas) run with back-to-back at 7.2mm which causes running difficulties
4.04	The main scenic colour of the first two inches of each end of each board shall be Woodland Scenics blended turf.	A common colour will present a more pleasing appearance. The Club will hold a stock of the correct material.