Preface to Part 1, Modelling in 7mm scale

A brief introduction

There are many reasons why people make models of railways and railway equipment and there is a large range of differing scales and gauges in use. Almost since the beginning of the hobby 'O' gauge has been a popular gauge to work in. Historically 'O' gauge referred to a track gauge of 1¼" or 32mm but is now almost universally taken to mean models built to a scale of 7mm to the foot or 1:43.54, usually rounded off to 1:43.5. Prototype can be of Standard, Broad or any of the narrow gauges and all are catered for, by the Gauge O Guild, the object of which, as stated in the rules, is to advance railway modelling in the scales and gauges associated with the designation O. This introduction seeks to outline the main variants of track and wheelset standards used by 7mm scale modellers at the present time and to help the newcomer to choose the most appropriate for him or her to work in.

A scale of 1:43.5 makes models, which are a good size and easily handled while it is relatively easy to apply and appreciate fine details. Locomotives can be powered by electricity, either from the rails using a 2 rail system, a third rail, overhead catenary or stud contact, or from rechargeable batteries, or by other power sources such as clockwork, steam or even miniature internal combustion engines. They can be controlled through the track or by radio control. Wagons and carriages have a satisfying weight which makes them behave in a very proto-typical fashion. Their size also makes taking them on to an outdoor railway a pleasant way of enjoying gardening.

Standard Gauge Models

Models of Standard Gauge prototypes are by far the most popular amongst modellers and have been so since the earliest days of model railways when models bore little resemblance to the prototype. The relatively simple construction methods used in making these toys, the need to run them on the floor round sharp curves, powered by steam, clockwork, or electricity, usually at totally unrealistic speeds, led to the adoption of oversize wheel and track dimensions with very deep wheel flanges and extra wide treads, to make road holding as reliable as conditions would permit.

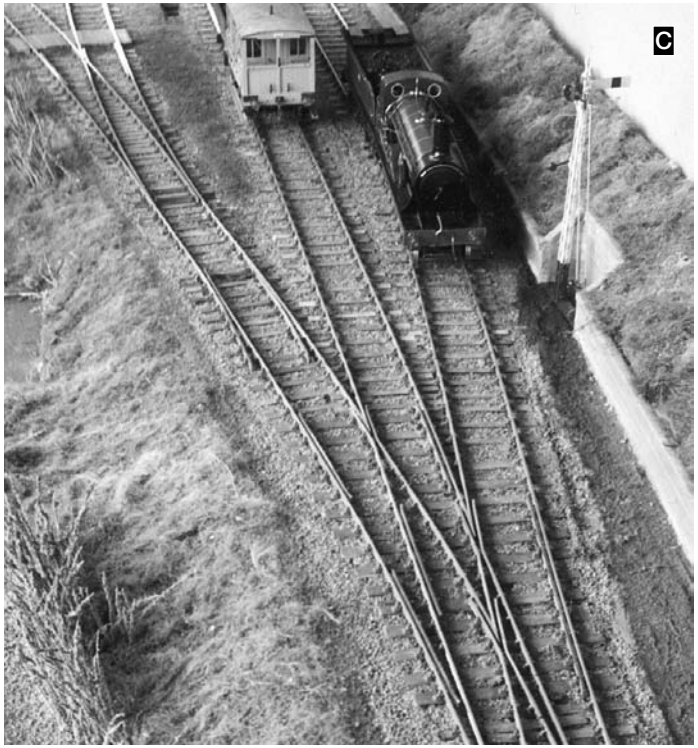
As modelmaking techniques and expectations developed track dimensions became closer to true scale and to-day a growing number of modellers work to exact scale dimensions. There are now recognised standards that will meet the needs of anyone desiring to follow railway modelling at a number of different levels. However modellers do not always adopt the latest developments but decide to work with what is established and they feel comfortable with. This is particularly so for existing layouts, as it is often very costly in both time and money to change ones collection of models and equipment to a different standard. Newcomers to 7 mm scale must appreciate this and should carefully consider which standard best meets their particular requirements and aspirations.

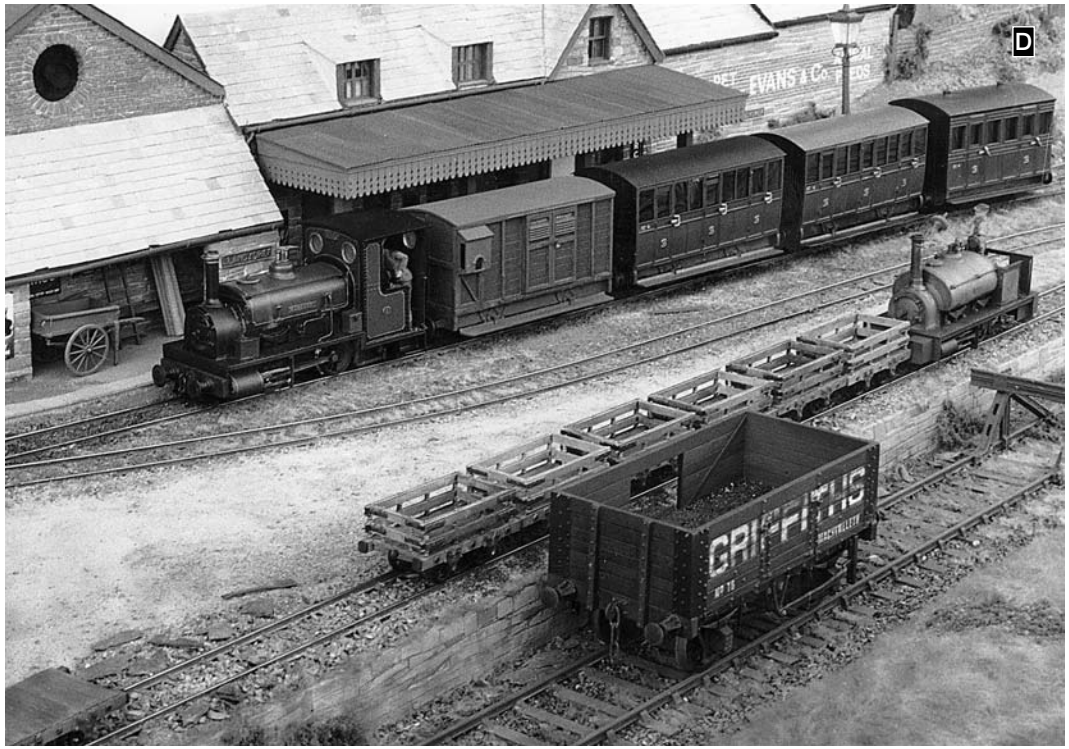
Today there are three distinct British track and wheelset standards in regular use. It is important to realise, however, that all three are based on the same scale, 7mm/ft, and that much of the equipment, components and kits on the market can be assembled to comply with any of the standards. In particular, rail sections are no longer associated with particular track standards.

The standards apply only to the dimensions of track and wheelsets. They are not related to the faithfulness of reproduction of a prototype nor to the amount of detail incorporated in a model. There now follows a brief description of each standard with an outline of its advantages and disadvantages.

Coarse Standard

Progress in railway modelling has tended to be dominated by developments in track; its cost, availability and durability. The first draft of the standard listed today in the Guild Manual as Coarse was published by the British Railway Modelling Standards Bureau in 1941. Before that date, apart from track gauge, there were no generally adopted standards in railway modelling in the UK. The first standard, 'O Standard', was developed from existing commercially available O gauge track and wheelsets. Since it was readily available, vast quantities were produced and much is still in existence. The track gauge used is 32mm. Few newcomers adopt the standard but there are still a substantial number of devotees who continue to add to their systems. Many club layouts and test tracks have crossings laid to Coarse Standard, which permit use by the greatest variety of rolling stock.





A. Loco and carriage sidings on an outdoor line. Trackwork is to Coarse Standard with stud contact pick-up.
B. Outdoor line with trackwork to Fine Standard with 2-rail pick-ups.
C. ScaleSeven trackwork forming a station approach, with 2-rail pick-ups.
D. Llandydef Station transfer siding showing the comparison in size between the Standard Gauge track in the foreground and the Narrow Gauge siding.

Advantages

- The deeper flange and wider tread ensures the wheels are more tolerant of bad track.
- Track is compatible with most 32mm gauge wheelsets.
- Second-hand models tend to be priced towards the bottom end of the market.

Disadvantages

- Trackwork crossing dimensions are overscale with wide crossing gaps and point throws.
- Wheel back to back size is less than scale, which may necessitate altered dimensions for loco frames and some distortion of bodywork.
- Kits with inside frames may require modification to accommodate Coarse Standard wheelsets.

Fine Standard

This is by far the most commonly used standard to-day. Fine Standard, commonly described incorrectly as fine scale, has been developed to give a fair compromise between appearance and ease of use. Track gauge is 32mm which brings the outer face of standard wheel sets to almost the scale distance apart thus preserving appearance yet permitting overwidth wheels.

Advantages

- Fine Standard is the nearest to true scale dimensions of any 32mm gauge standard (including the American NMRA standard, etc.)
- As the standard leaves a greater than scale clearance between the wheel flanges and the rails, models will run round curves much sharper than scale.
- Ready to run models through the trade are almost always use fine standard wheelsets. (Imported models will usually have Universal wheelsets).

Disadvantages

- Wheel back to back size is less than scale, which may necessitate altered dimensions for loco frames and some distortion of bodywork.
- Crossing dimensions are over scale with increased clearances which some modellers may consider gives a less than satisfactory appearance.

Scale Seven

Developed from the prototype, Scaleseven uses exact scale crossing dimensions and a gauge of 33mm.

Advantages

- Prototype drawings used for model construction do not require modifications to accommodate wheelsets.
- Trackwork can be an exact copy of the prototype.

Disadvantages

- Wheelsets and track are not compatible with any of the 32mm gauge standards.
- Reduced tolerances demand a high standard of workmanship.
- Rolling stock requires sprung or compensated wheelsets.
- Curves must be closer to prototype than other standards.

Modelling other track gauges using 7mm scale

As well as standard gauge, 7 mm scale is also used to model railways with other gauges. There are distinct advantages of using the scale due to the wide availability of components and parts that can be used. The increased bulk of models in 7mm scale allows models to be built and motorised which would be beyond the skills of most modellers in smaller scales. This applies in particular to diminutive prototypes; older prototypes often with tiny boilers and spindly wheels can make exquisite subjects.

Broad Gauge

Modelling any of the broad gauge systems can be done using components intended for the three standards outlined above. All wheel and track

dimensions remain the same with the exception of those based on the track gauge which must be increased to suit the chosen prototype. There are few commercial items available specifically for the broad gauges.

Narrow Gauge

Modellers who follow the narrow gauges can be split into two broad categories. Those who build their models onto existing commercially available track systems, 00, EM, TT, N or Z Gauge which approximate to 2'3", 2'6", 1'6", 1'3" and 10½" gauge and those who choose to model the exact track gauge and build their own trackwork. Both options permit the use of all the general components aimed at 7mm scale such as buildings, figures, scenic details, etc. but there are other considerations, listed below.

Using commercial track

Advantages

- Ready to run locomotive chassis are available from the trade with a wide range of body kits to fit them.
- Ready made track systems.

Disadvantages

- Wheel standards must be compatible with the track standard and so will not necessarily conform with the prototype.
- Track systems available use out of scale track geometry, sleeper length, spacing etc. (Some commercial NG track is available in 00 gauge)

Using true scale track

Advantages

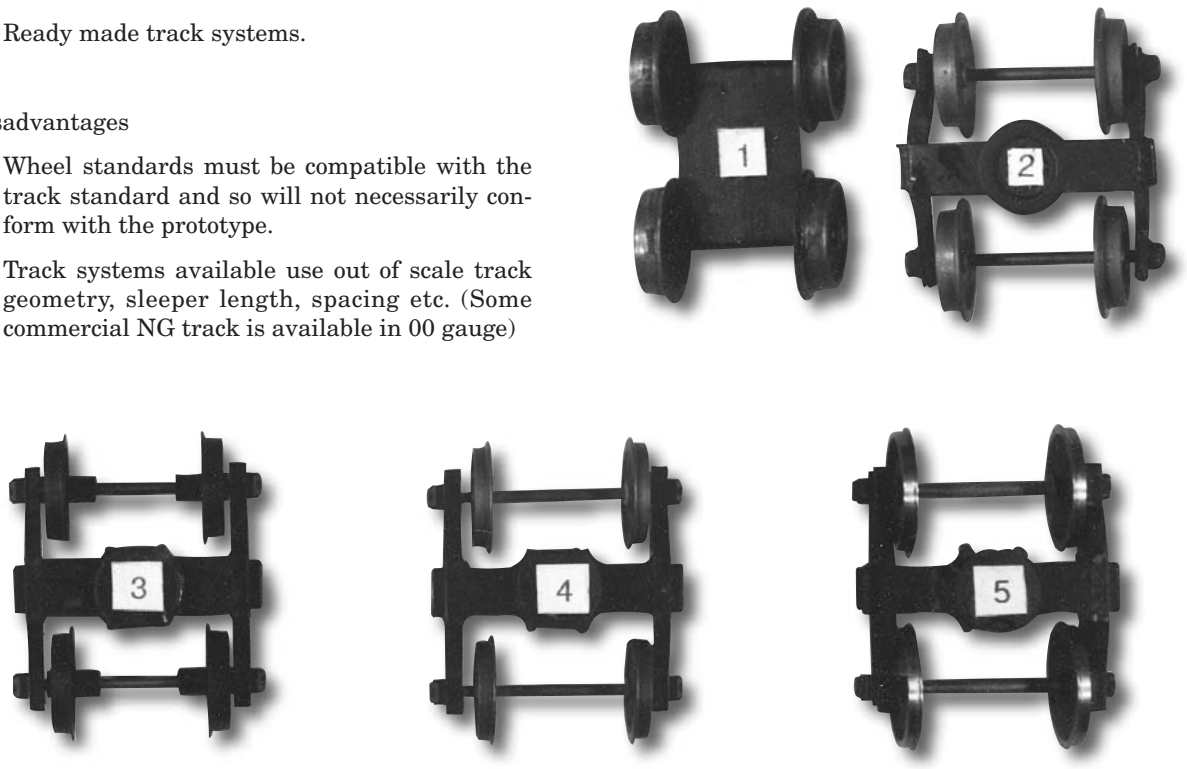
- Trackwork can conform to prototype design.
- True track gauge eliminates distortion of rolling stock.

Disadvantages

- Track has to be hand built.
- Locomotive & rolling stock wheels not readily available.

Using O gauge track but a different scale

There are a significant number of modellers who use a Gauge O track and wheelset standard in conjunction with a different scale. Scales of 16mm/ft is common, which running on 32mm track gives exact 2ft gauge. The size of models built to this scale makes them more akin to model engineering.



A series of bogies showing the development over the years. 1: Pre BRMSB 2: Coarse Standard 3: Universal Standard 4: Fine Standard 5: ScaleSeven Standard