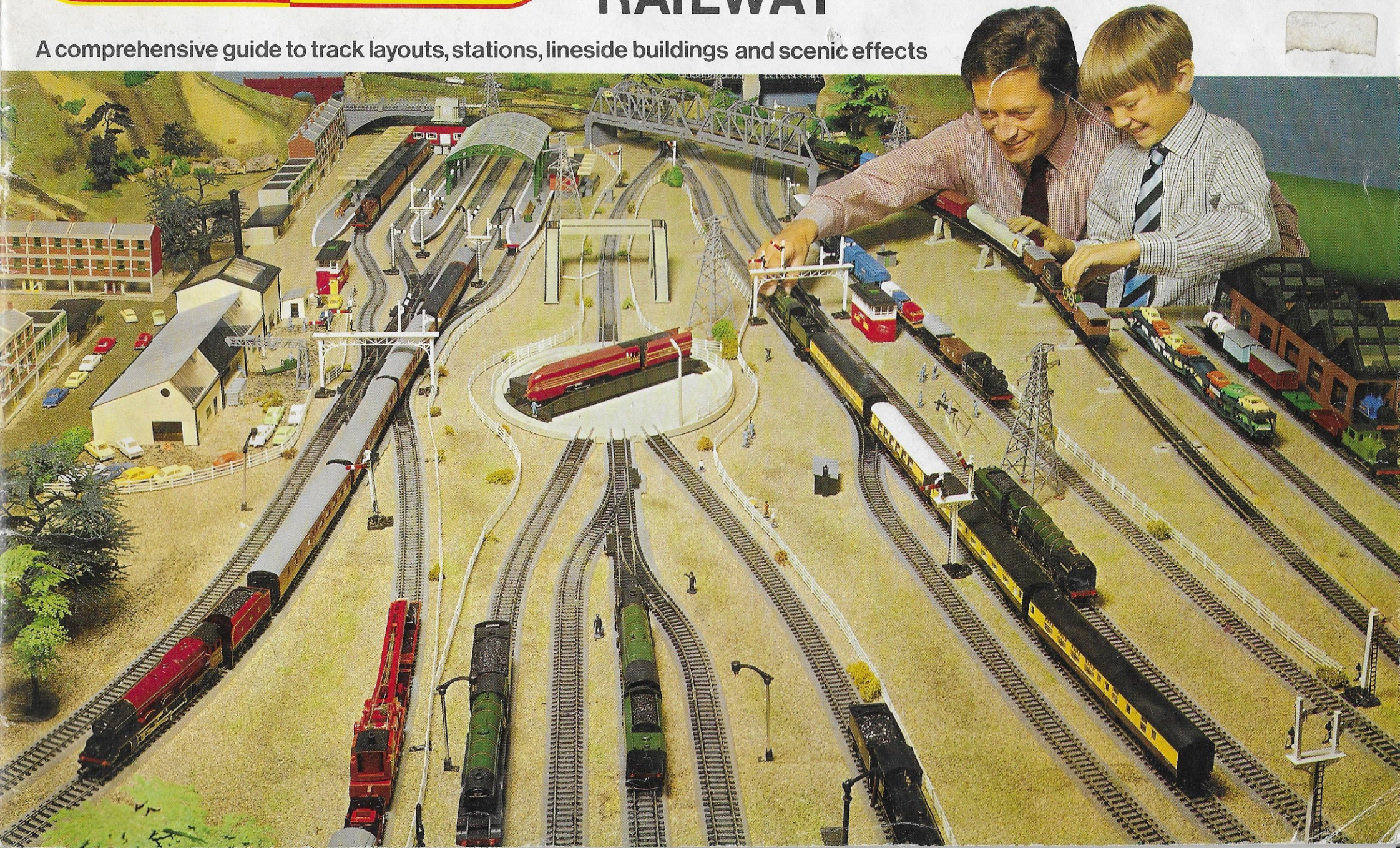




MODEL RAILWAY Track Plans

A comprehensive guide to track layouts, stations, lineside buildings and scenic effects





Introduction

Planning, building and running a model railway can provide hours of pleasure for young and old. A large part of the fun comes from putting your own ideas into practice.

In this book we set out the many basic principles that have been built into the Tri-ang Hornby System and provide ideas for layouts to help you get started on the right lines.



The Scene on the front cover is not part of one of the track plans in this book, but shows what can be achieved using buildings, accessories and scenic materials on your layout.

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Selecting a site for your railway

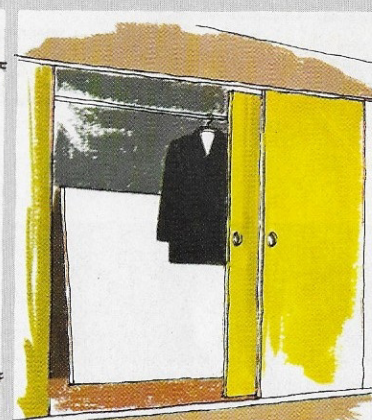
To get the maximum fun from your model train set you will wish to build the basic oval of track into a layout which is a miniature model of a real railway. This is not as difficult as it sounds and will be made easier if you consider planning and adding to your layout while it is pinned semi-permanently to a baseboard. In this way you will not need to relay your layout each time it is used.

Is lack of space your major problem? It can be solved with a 6' x 4' (183 x 122 cms.) baseboard which may be lifted and stored when not in use. As you can see from the first plans in the book it is surprising what can be done on this size of layout – and you will have room for accessories and scenery too.

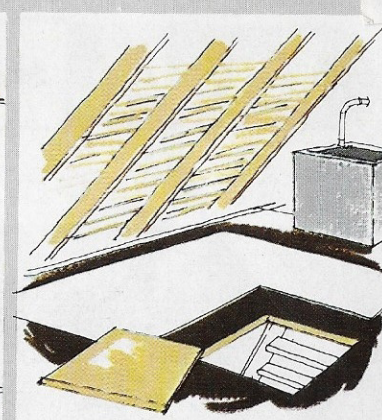
Layouts can be simply stored and here are some suggestions illustrating how you can put them away when not in use. No mention is made of storage in the family garage, but if there is space the layout can be lowered from the rafters, or housed permanently on a shelf around the walls. It may be necessary to construct a detachable section to bridge the width of the garage to make a circular layout. It will also be possible in some homes to slide a layout under the bed and when required rest it on the bed to operate.



1 Stand the layout behind your wardrobe. The wardrobe can be pulled several inches from the wall and the layout will stand on one end and be concealed. Loose fittings will have to be stored before putting the layout away.



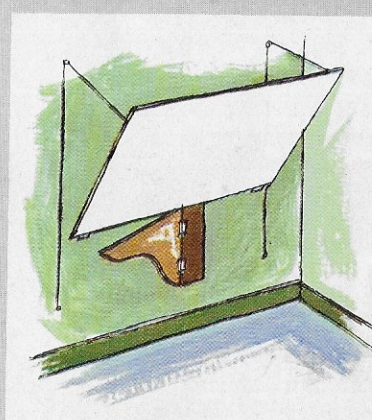
2 Many homes now have large built-in cupboards into which a layout can be stood up flat against the rear wall.



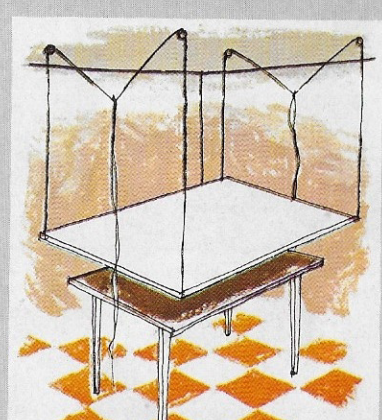
3 In many older houses, it is possible to construct a permanent train layout in the loft. The layout board can be laid flat on the joists or raised on legs. This type of layout is only limited in area by the size of loft.



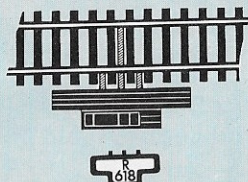
4 End to end layouts are popular with keen modellers who like to model in great detail a small section of a railway. Using a shelf, the wall can be made as a scenic backdrop. Such a layout may be left permanently in any room.



5 Your layout will take up very little space if it is hinged to the wall like the extension flap of a table. A folding flap will support the table when in position.

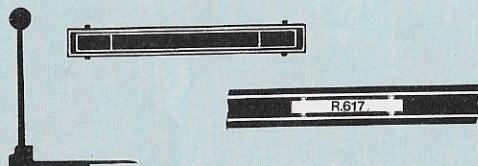


6 A layout can be pulled up to the ceiling when not in use. Pulleys should be fixed into roof beams. This method is also ideal for the garage. The cords suspending the layout are freed before use and the layout rested on a table.



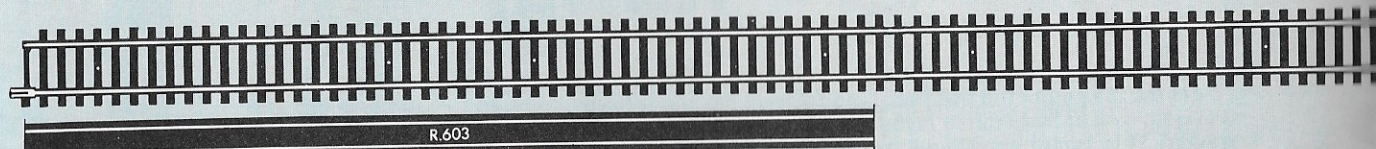
The correct positioning of the R.618 Power Clip, which feeds current from the Power Controller into the track, is a critical feature of wiring your Tri-ang Hornby layout. On Page 11 the principles of positioning the Power Clip are explained and on Page 29 the wiring diagram is shown.

The Power Clips on the Track Plans have been carefully positioned to follow these principles and it is recommended to achieve trouble free running that the positioning is adhered to.



The Uncoupling Ramp R.617 allows lifelike train movements to be carried out on your railway. Clipped to the track at the entrance to sidings or near the end of station platforms, trains may be uncoupled by movements of the locomotive without touching by hand.

The Marker Sign shows the exact position of the Uncoupling Ramp on the far side of layouts when concealed by a passing train.



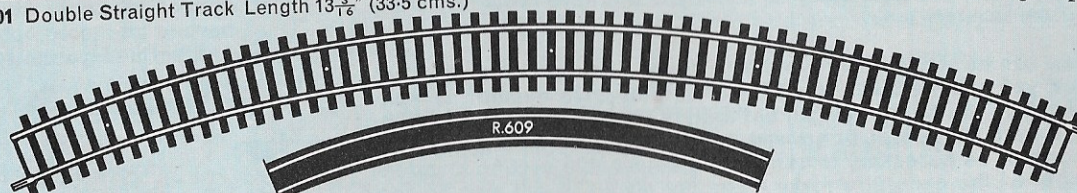
R.603 Long Straight Track Length $26\frac{3}{8}"$ (67 cms.)



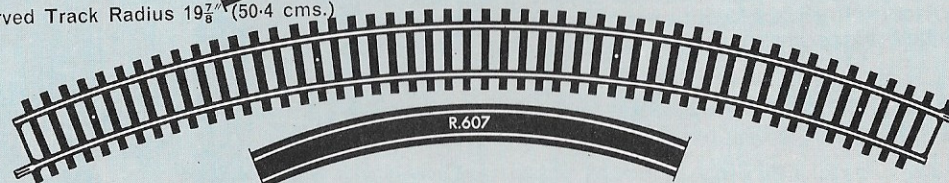
R.601 Double Straight Track Length $13\frac{3}{8}"$ (33.5 cms.)



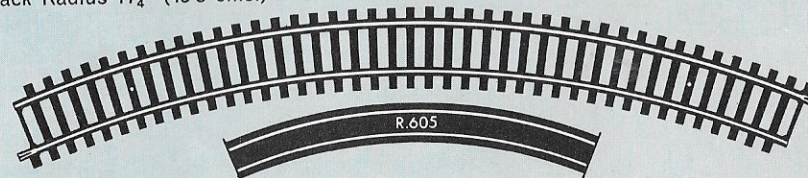
R.610 Quarter Straight Track Length $1\frac{1}{2}"$ (3.8 cms.)



R.609 Double Curved Track Radius $19\frac{7}{8}"$ (50.4 cms.)

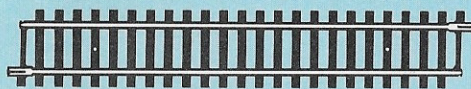
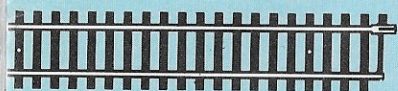


R.607 Double Curved Track Radius $17\frac{1}{4}"$ (43.8 cms.)

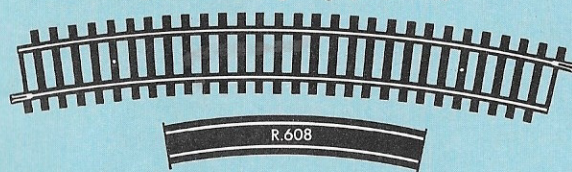


R.605 Double Curved Track Radius $14\frac{5}{8}"$ (37.2 cms.)

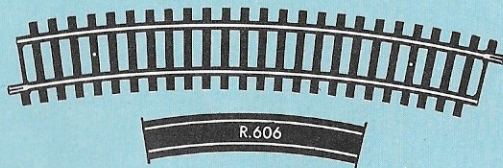
on track plans



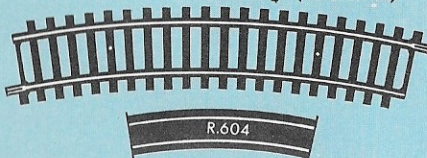
R.600 Straight Track Length $6\frac{5}{8}"$ (16.8 cms.)



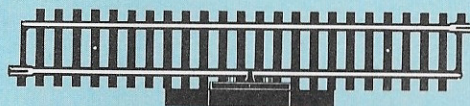
R.608 Curved Track Radius $19\frac{7}{8}"$ (50.4 cms.)



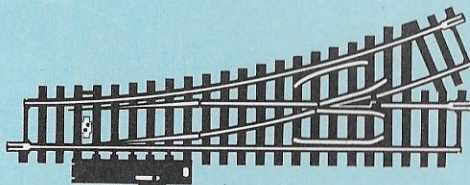
R.606 Curved Track Radius $17\frac{1}{4}"$ (43.8 cms.)



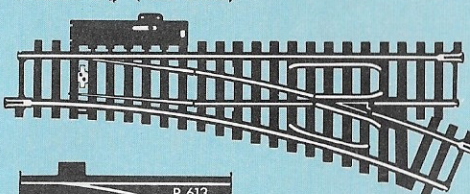
R.604 Curved Track Radius $14\frac{5}{8}"$ (37.2 cms.)



R.616 Isolating Track $6\frac{5}{8}"$ (16.8 cms.)



R.612 Left Hand Point Length $6\frac{5}{8}"$ (16.8 cms.)
Radius $17\frac{1}{4}"$ (43.8 cms.)



R.613 Right Hand Point Length $6\frac{5}{8}"$ (16.8 cms.)
Radius $17\frac{1}{4}"$ (43.8 cms.)

The track shown on the layouts in this book is International System 6 Finer Scale Track. Tri-ang Hornby Super 4 track has identical geometry to System 6 track and all the layouts can be constructed with Super 4 track.

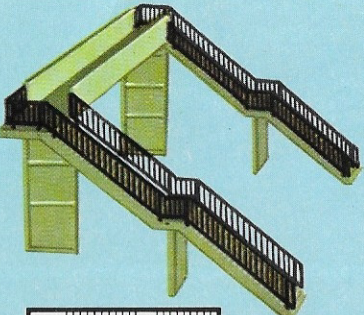
By means of the Converter Track R.476, length $2\frac{7}{8}"$ (7.3 cms.) it is possible to join Super 4 track to System 6 track. If both types of track are used on one of the Track Plans, care must be taken to place the Converter Tracks symmetrically in the layout.

The Super 4 Track Equivalents can easily be converted from the System 6 track symbols in the Track Plans by using the Track Equivalents Conversion Table below.

Track Equivalents Conversion Table

System 6 Track Part No.	Track Description	Super 4 Track Part No.
R.600	Straight Track	R.481
R.601	Double Straight Track	R.480
R.603	Long Straight Track	R.489
R.604	Curved Track – 1st Radius	R.484
R.605	Double Curved Track – 1st Radius	R.483
R.606	Curved Track – 2nd Radius	R.486
R.607	Double Curved Track – 2nd Radius	R.485
R.608	Curved Track – 3rd Radius	R.642
R.609	Double Curved Track – 3rd Radius	R.646
R.610	Quarter Straight Track	R.482
R.612	Left Hand Point	R.490
R.613	Right Hand Point	R.491
R.617	Uncoupling Ramp	R.488
R.618	Power Clip	R.487
R.629	Level Crossing	R.495
R.654	Inclined Piers (illustrated on page 6)	R.457
R.655	High Level Piers (illustrated on page 6)	R.453

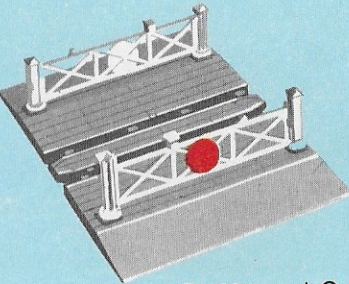
Station Buildings and



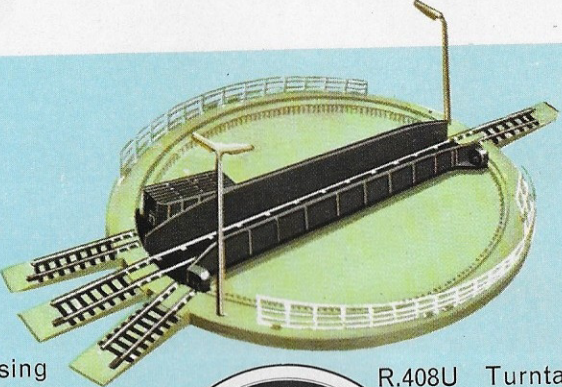
R.71A Footbridge



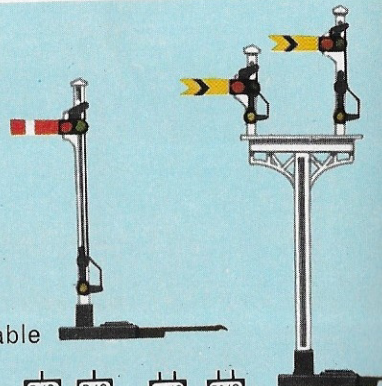
R.145 Signal Box



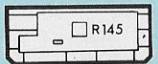
R.629 Level Crossing



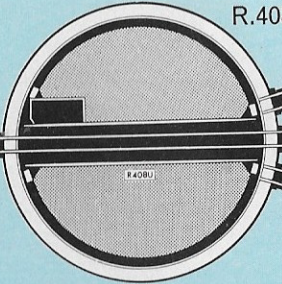
R.408U Turntable



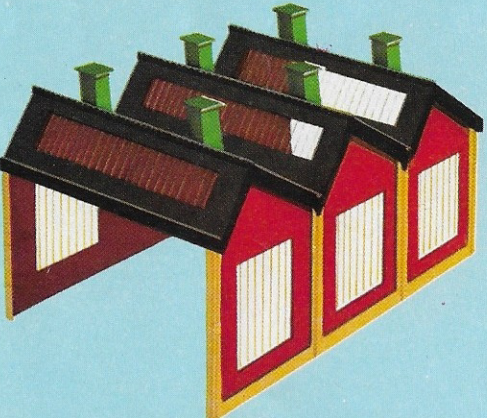
R.43HU Home Signal
R.142DU Distant Junction Signal



R.629



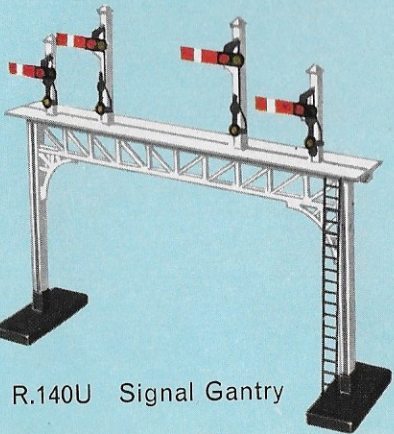
R.408U



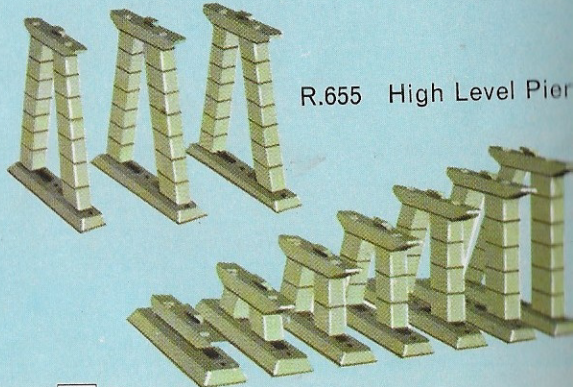
R.146 Engine Shed



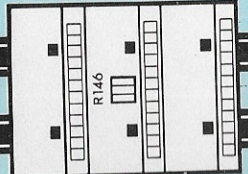
R.675 Freightliner Crane



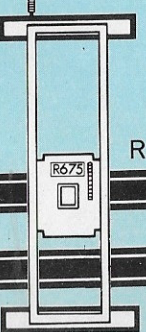
R.140U Signal Gantry



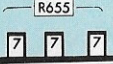
R.655 High Level Pier
R.654 Inclined Pier



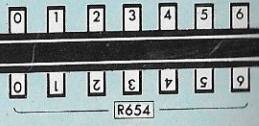
R.146



R.675

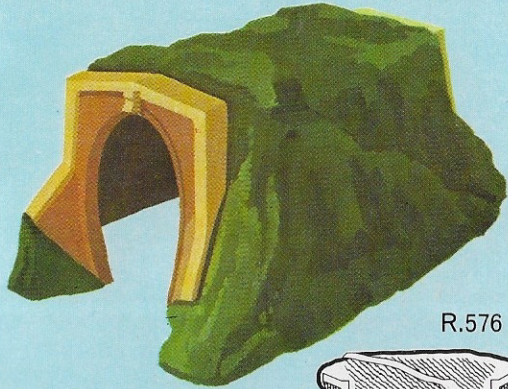


R.655

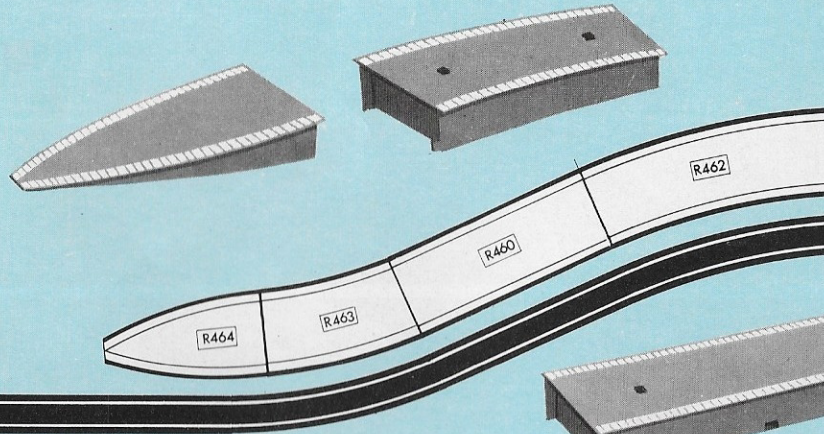
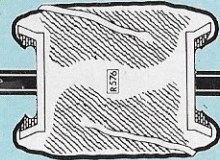


R.654

Lineside Accessory Symbols

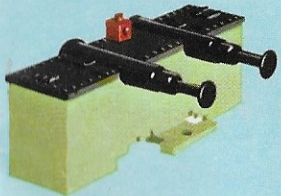


R.576 Tunnel

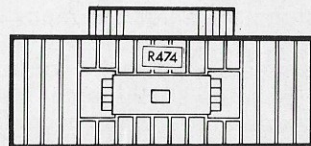
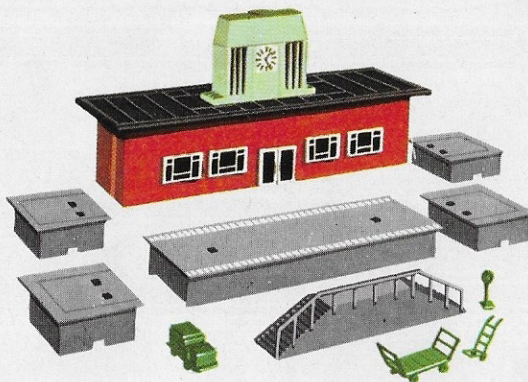


- R.464 Platform Ramp
- R.462 Curved Platform, Large Radius
- R.463 Curved Platform, Small Radius
- R.460 Straight Platform

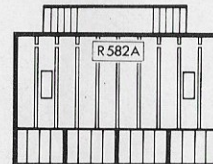
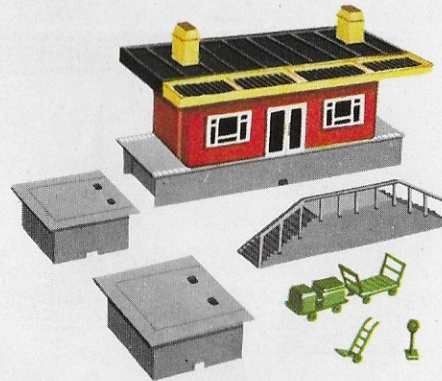
R.394U Hydraulic Buffer Stop



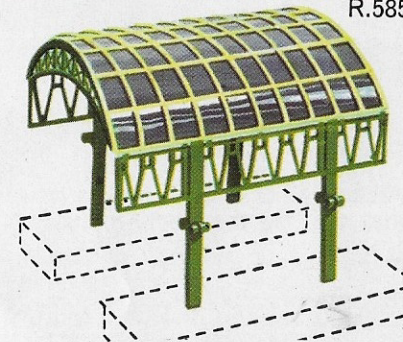
R.494U Buffer Stop



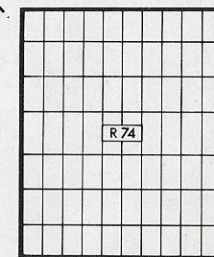
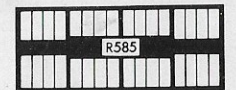
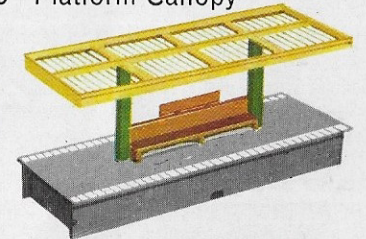
R.474 Terminus Building



R.582A Ticket Office



R.585 Platform Canopy



R.74 Roof Unit



R.472 Waiting Room

Signals and important Track

How to use them and where to fit them on your layout.

Semaphore Signals

Tri-ang Hornby Semaphore Signals are provided with base clips which fit into straight or curved sections of Tri-ang Hornby track (Fig. 1). These locate the Signal at the correct position in relation to the track and prevent it being knocked down accidentally, yet avoid the need to fix it to a baseboard.

The Signal Arms are operated manually by a lever situated on the appropriate upright (Fig. 2). When the Signal Arm is in the horizontal position it indicates danger ahead and a train must stop. When the Signal is "pulled off" the Signal Arm moves in an upward direction and a train may then pass.

Signals are normally positioned to the left of the track to the oncoming train. Lengths of railway track are divided into "Sections" and only one train may be in a Section at any one time, thus avoiding the danger of a collision. It is the job of the signalman to indicate whether a train may enter a Section since the driver may not always be able to see for himself whether the line ahead is clear.

The end of each Section is marked by a Home Signal. This has a red arm with white bar and squared end. Distant Signals (Fig. 3) have yellow arms, black chevrons and "V" ends and are situated before Home Signals to give the driver a warning of the setting of the next Home Signal he will encounter.

One track Section will always be arranged to end immediately after a station and the Home Signal marking the Section end is then known as the Starter (Fig. 4).

Where a track approaches points, Junction Signals are used. These have two Arms, one on a short post and one on a long. The long one indicates the more important route. In Figure 5 a train travelling from A encounters first a Distant Junction Signal, which gives warning of the Home Junction Signal at B. This marks the end of a Section as do the two Home Signals at C and D which are starters.

The Signal Gantry carries four Home Signals and is a convenient means for signalling a double Junction. A Signal Box or Cabin will most usually be found adjacent to a Home Signal.

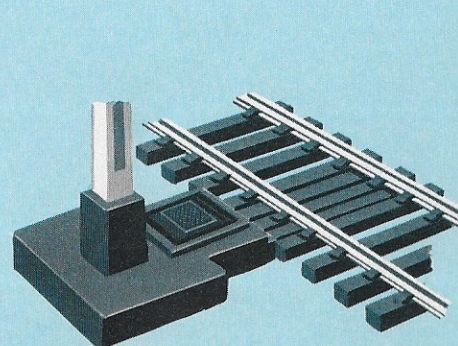


Fig. 1 Clip-fit of Signal Base

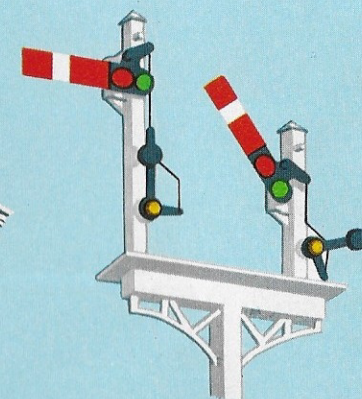


Fig. 2 Operation of Signal Arms—Home Signals

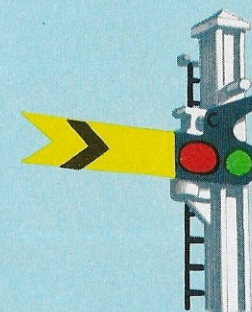


Fig. 3 Distant Signal

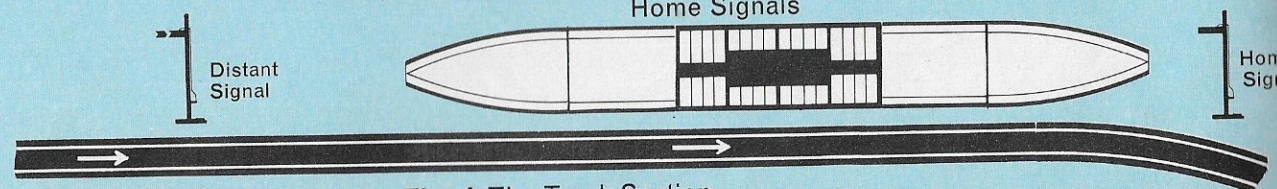


Fig. 4 The Track Section

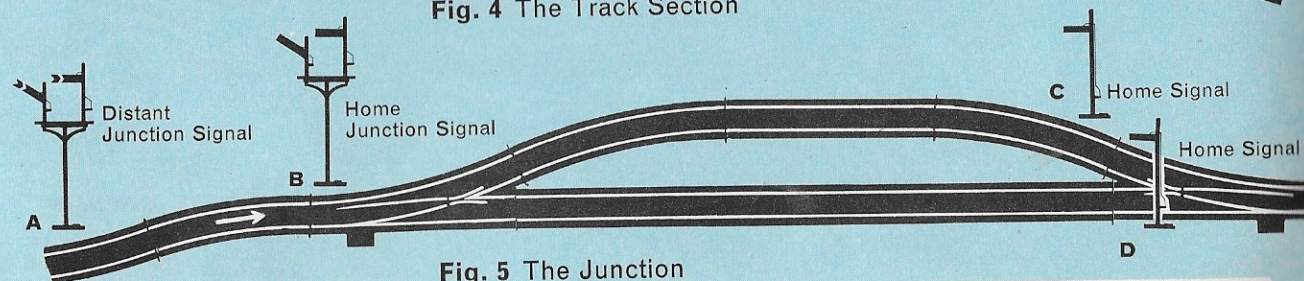
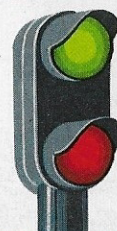


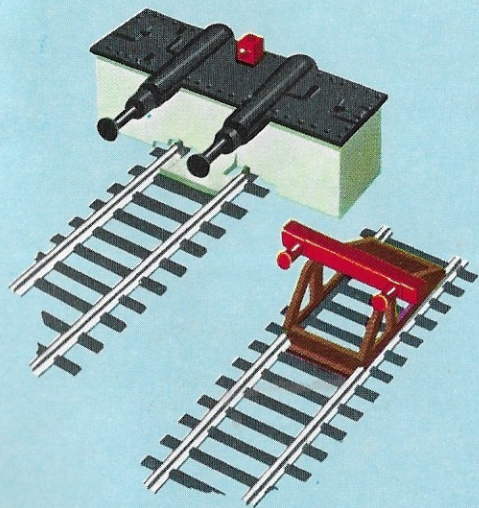
Fig. 5 The Junction



Colour Light Signals

Colour light signals are used in many instances on modern railways. Being electrical in operation, whereas semaphore signals are normally controlled manually from a Signal Box, the sections can be made larger and more sections operated from one box.

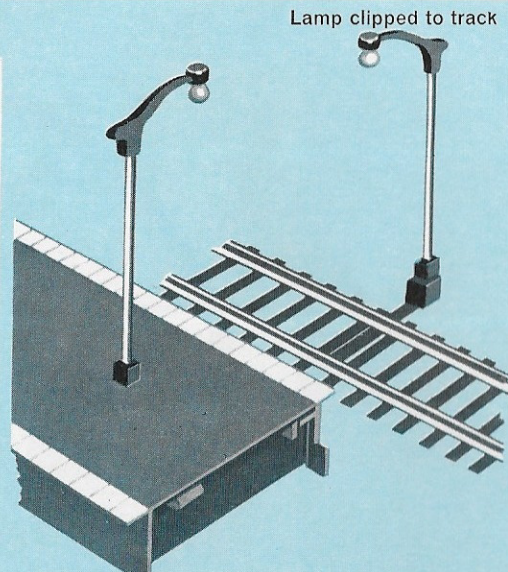
side Equipment



Buffers

Buffer Stops are fitted wherever a length of track comes to a dead end, to prevent rolling stock over-running and becoming derailed. Goods sidings will normally have a simple stop unit, whereas a terminus station or passenger siding may have hydraulic telescopic buffers to minimise any shock to passenger coaches and, of course, passengers in the event of a brake failure.

The former type is represented on Tri-ang Hornby by R.494U Buffer Stop and the latter by R.394U Hydraulic Buffer Stop. Both models Clip Fit to Tri-ang Hornby track.

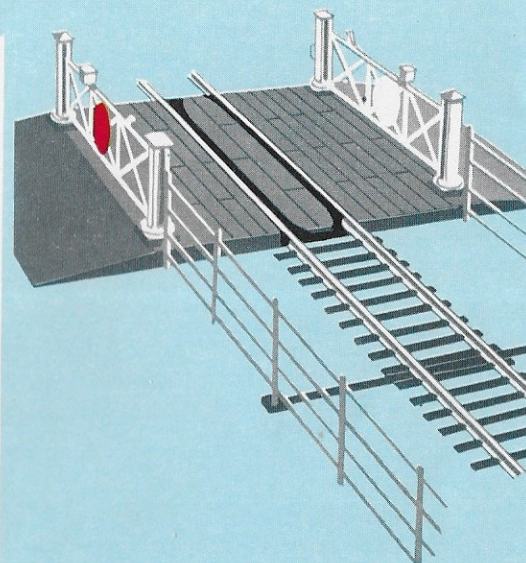


Lamp fitted to platform

Station Lamps

A model railway layout really comes to life when illuminated.

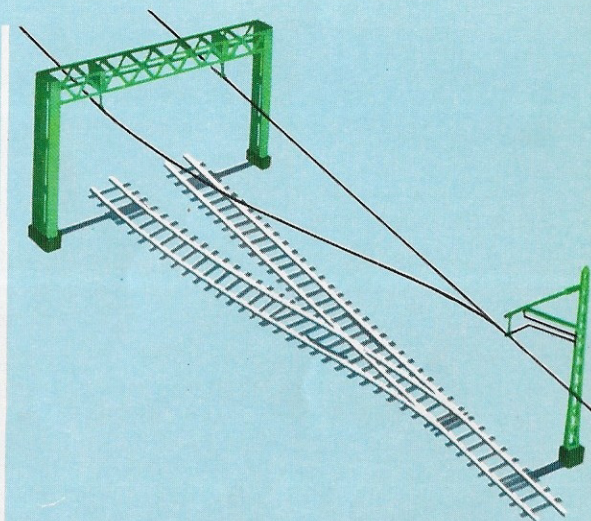
Tri-ang Hornby Station Lamps are designed to fit straight and curved platform units or, by the addition of track fittings (which are included with the lamps) they may be Clip Fitted to Tri-ang Hornby track sections. In this way they will light up a goods yard so that you may shunt, and indeed operate your whole layout, in a darkened room. Wiring details are given on page 28.



Trackside Fencing and Level Crossings

In Great Britain and many other countries the law requires, quite sensibly, that all active railway lines shall be effectively fenced so that people and animals cannot stray onto the railway track. Also that where a public highway crosses a railway line, means shall be provided to close the highway access when a train is due to pass.

Tri-ang Hornby provides for both these situations with the R.299U Trackside Fencing and R.629 Level Crossing. These accessories Clip Fit to the track and will give a very neat and tidy finish to your layout.



The Catenary - Overhead Power Supply

Many electric trains around the world are powered from overhead catenary through their roof-mounted pantographs. The system is particularly effective where snow and ice would otherwise settle on and cover a ground level conductor rail.

Tri-ang Hornby have single track masts and double track gantries (for straight track only) which Clip Fit to the track and from which the powered catenary wire is suspended by means of special fittings. Additional clips to provide for catenary wires over points are normally available through Tri-ang Hornby Service Dealers.

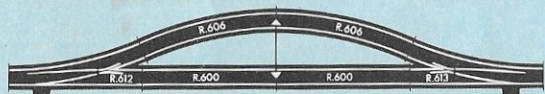
Sections of Layout Construction

BASIC GEOMETRY

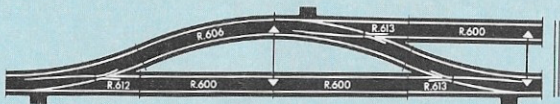
The standard spacing between Tri-ang Hornby track centres is $2\frac{5}{8}$ " (6.7 cms). In keeping with real railway practice, this allows trains to pass each other on curves without knocking into each other. This important dimension is referred to as

"Standard track centres" and marked $\updownarrow$

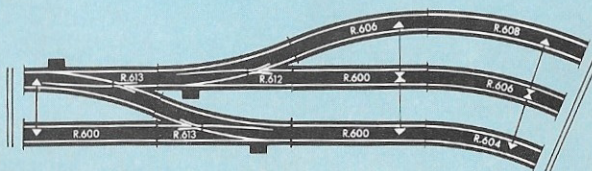
Where track ends terminate equally they are marked $\parallel$



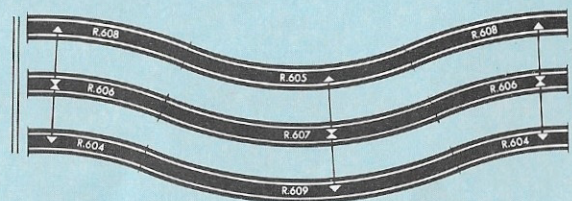
Construction of passing loops with standard track centres. The loop can be extended by adding equal lengths of straight track to both loop and main line.



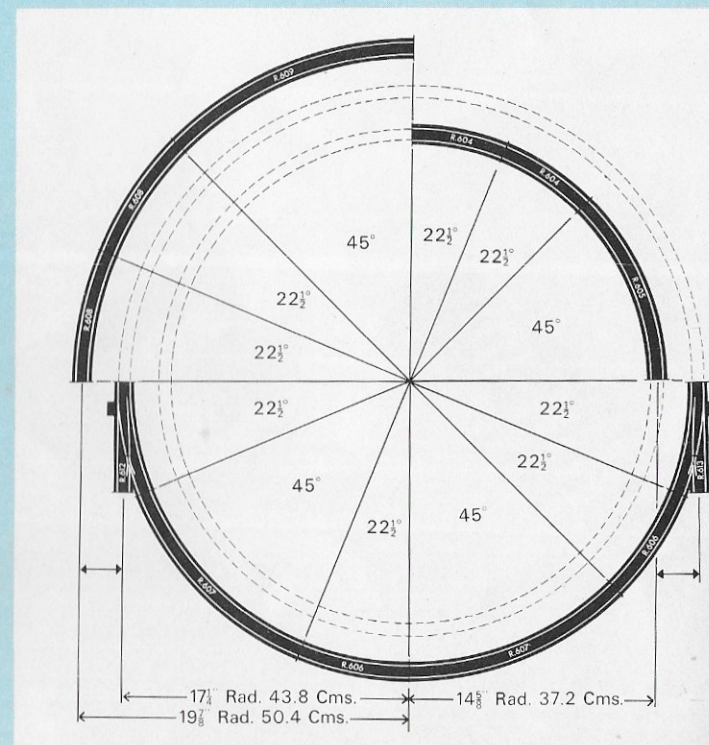
Substitution of point (R.613) for second radius curve (R.606) gives correct width spacing for parallel tracks at standard track centres and introduces a crossover.



The addition of a further point allows three radii of track to be constructed at standard track centres.



By using the three radii of track and varying first and third radii alternatively on the outside tracks, a variety of reverse curves at standard track centres can be constructed.



The three radii of track require either 8 double or 16 curves to complete a circle; Double curves pass through 45° of a circle, curves through $22\frac{1}{2}^\circ$. The standard track centres are maintained throughout the full 360° . The radius of the points is that of the 2nd curve.

How **Tri-ang** **HORNBY** Points work

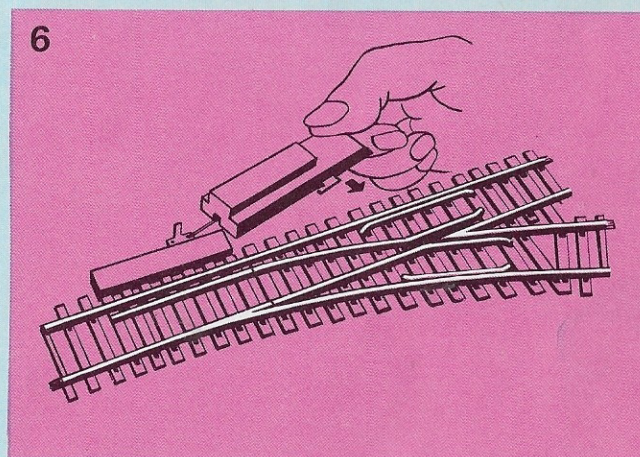
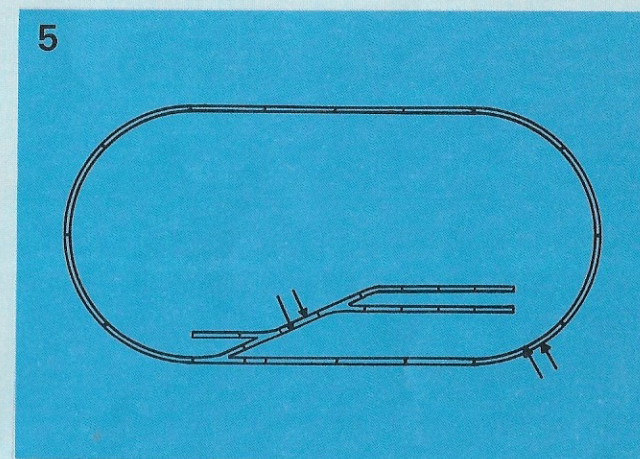
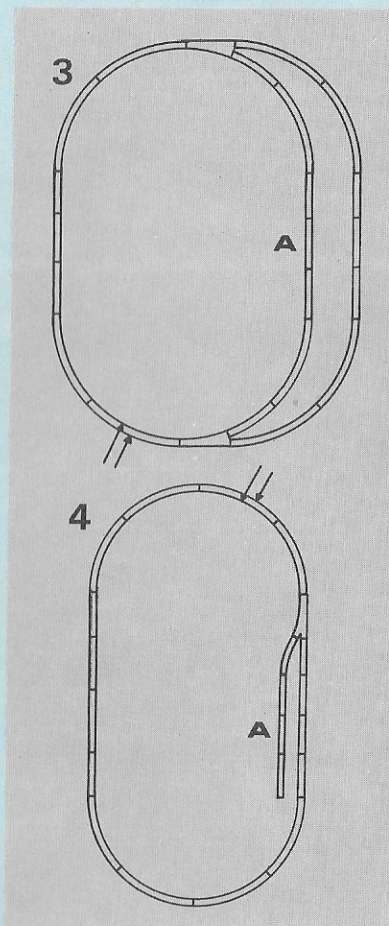
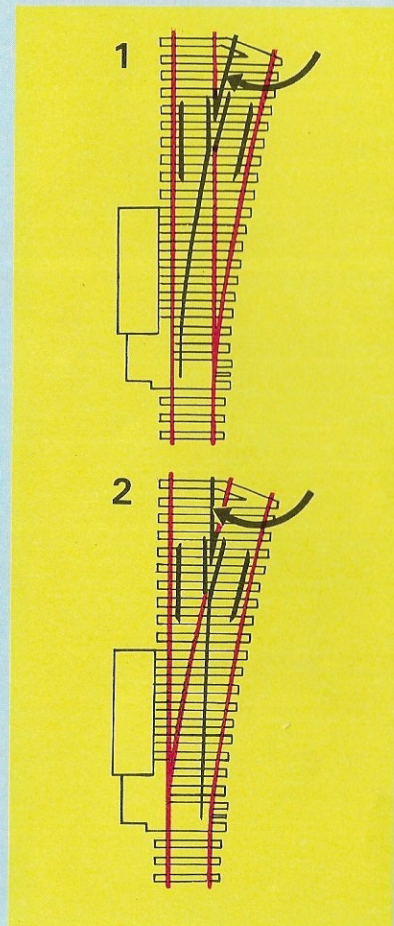
The first addition that you will wish to make to your train set oval to have more fun is a point. Points allow real railway movements to be planned and the introduction of different items of rolling stock, stations, buildings and signals and even more exciting, a second locomotive.

Tri-ang Hornby points not only allow trains to change from one track to another but being "self isolating" they direct the electric current to flow only in the direction they are switched.

When the point is set to the straight track (Fig. 1) the small section of black rail (arrowed) is not energised with electricity. In the second illustration (Fig. 2) the short section of straight rail (arrowed) is "dead". By careful positioning of the power clip, this feature allows more than one loco on a layout.

The two illustrations (Figs. 3 & 4) show passing loop (for island platform) and siding, the two small arrows denoting the power clip where current enters the rail. The positioning of the power clip is most important. If it were placed incorrectly, at A, then the train would receive no current if the points were set for it to run round the outside oval. But because the power clip is correctly positioned a locomotive will receive electricity in either the siding or loop when the point is switched to that line.

Because the points are self isolating, if set to the outside oval (Fig. 3) a second loco could rest "dead" on the inner loop or in the siding whilst another train ran past.



On the more advanced track layout (Fig. 5), an extra power clip will allow one locomotive to be run in the siding on shunting operations, whilst another train is run on the main line. As a Layout is made larger additional locomotives can be run on the layout if protected by points and supplied from further power clips.

Fig. 6 shows the introduction of the electric point motor which simply clips to the point base. It is very useful when a point cannot be reached conveniently by hand from the control position on a layout. Operated by a lever frame the wiring required to electrify your points is shown on page 28.

PLAN

1

Oval Layout with Siding

First stage extension to train set introducing station, level crossing and signal

The first five plans in this book are designed to be built up progressively, starting from a train set oval and sharing the same baseboard. It is recommended that a baseboard of 6' x 4' (183 cms. x 122 cms.) which is a convenient size for storage in the house (see page 3) is used.

This layout can be built up to allow true to life train movements with many interesting accessories incorporated on the baseboard.

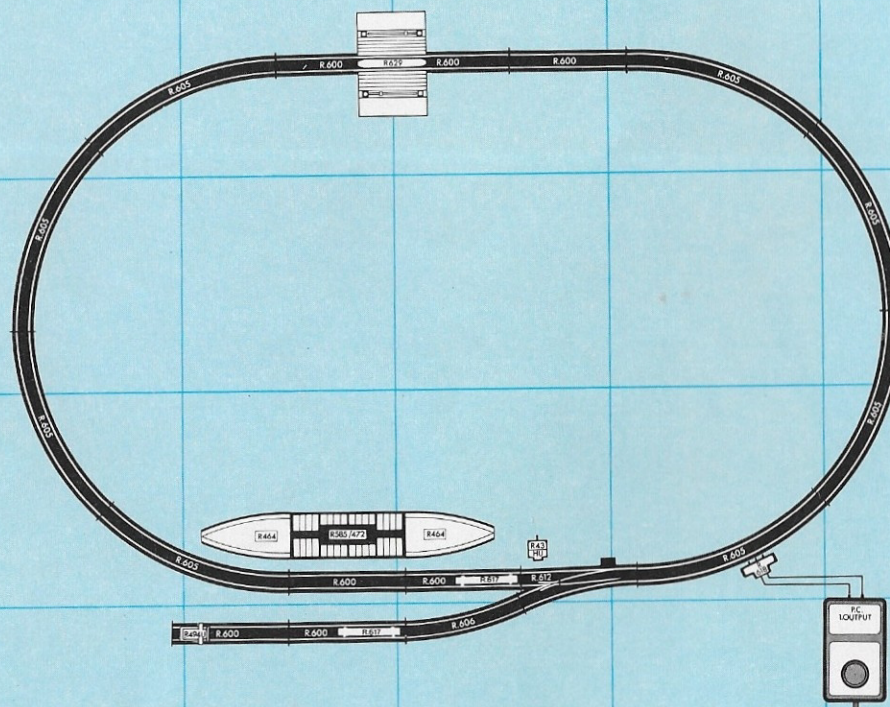
The plans have been printed on a grid of 12" (30.5 cms.) squares allowing the overall dimensions to be seen at a glance and making the track laying an easier task. It is suggested that the modeller reads the section on modelling scenery (pages 30 & 31) before commencing to plan and make a layout.

Parts used

R.43HU - 1	R.605 - 8
R.494U - 1	R.606 - 1
R.464 - 2	R.612 - 1
R.472 - 1	R.617 - 2
R.585 - 1	R.618 - 1
R.600 - 7	R.629 - 1

Power Controller 1 Output - 1

Space Required
4' 6" x 3' 3"
137 cms. x 99 cms.



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PLAN

2

Passing Loop Added

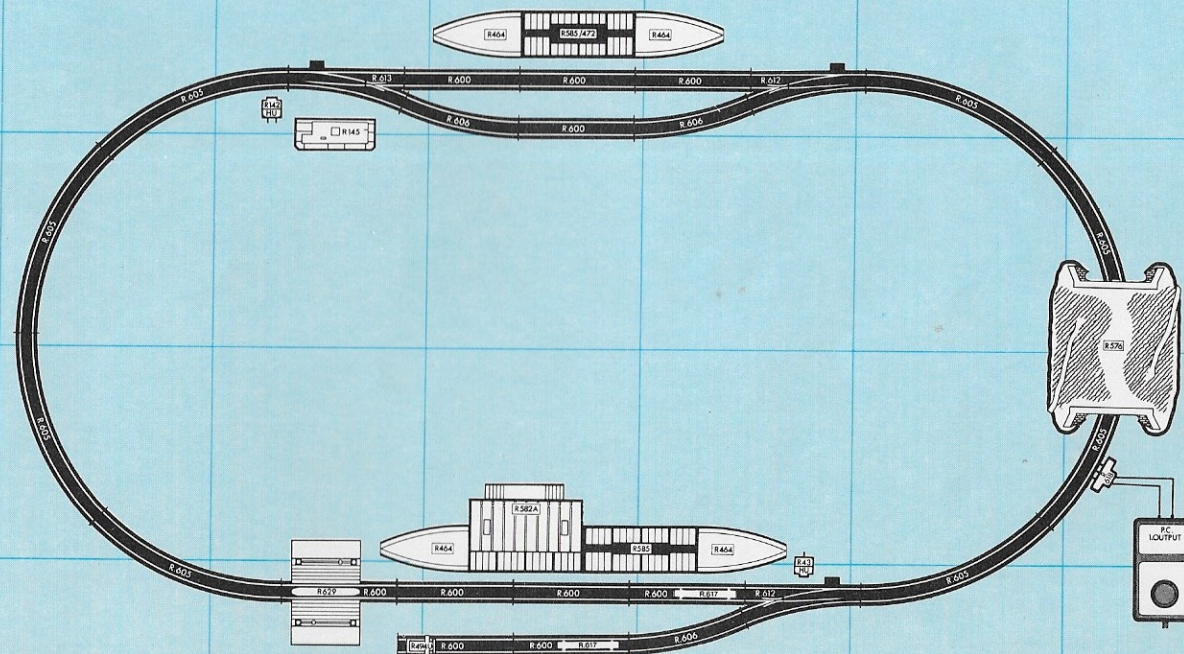
Introducing a second train and adding tunnel, signal box and second station

Parts Used

R.43HU - 1	R.600 - 10
R.142HU - 1	R.605 - 8
R.145 - 1	R.606 - 3
R.464 - 4	R.612 - 2
R.472 - 1	R.613 - 1
R.494U - 1	R.617 - 2
R.576 - 1	R.618 - 1
R.582A - 1	R.629 - 1
R.585 - 2	

Power Controller 1 Output - 1

Space Required:
5' 9" x 3' 3"
175 cms. x 99 cms.



PLAN

3

Extension of Passing Loop

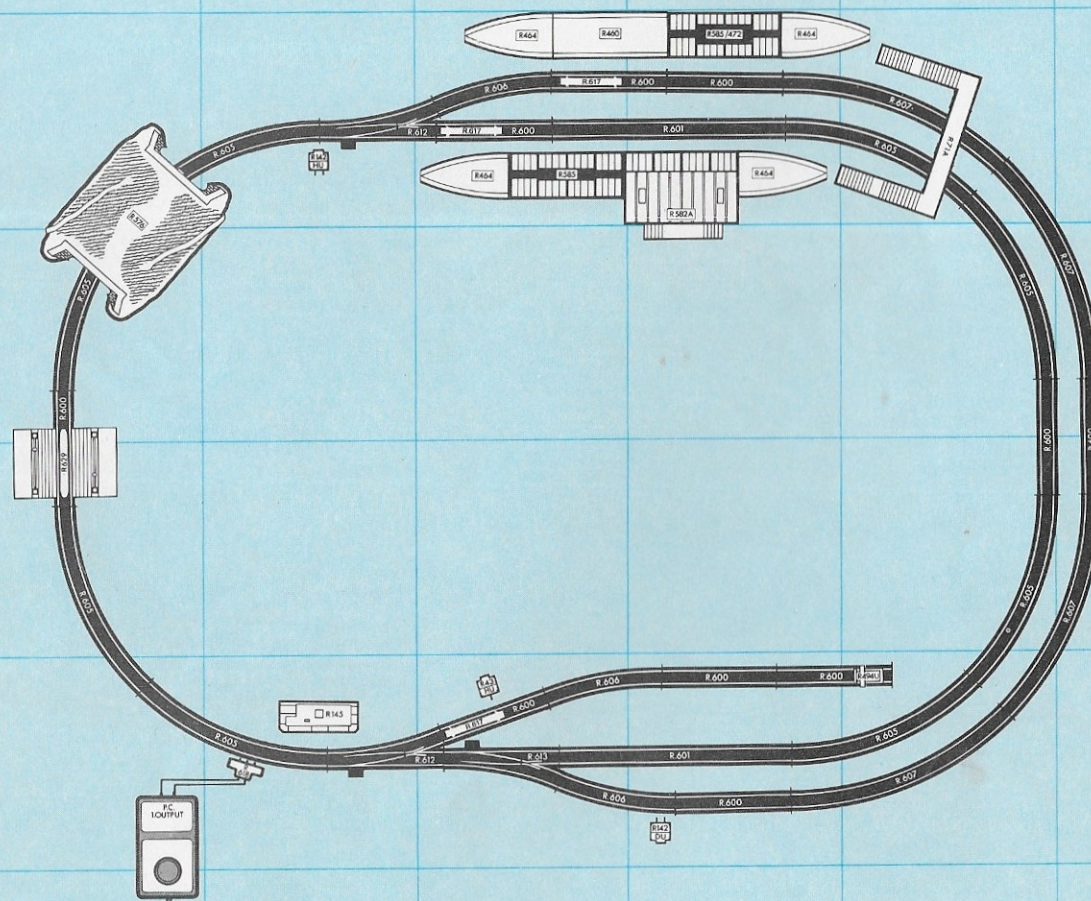
Allowing two trains to operate alternatively and introducing second radius curves and footbridge

Parts Used

R.43HU - 1	R.585 - 2
R.71A - 1	R.600 - 10
R.142HU - 1	R.601 - 2
R.142DU - 1	R.605 - 8
R.145 - 1	R.606 - 3
R.460 - 1	R.607 - 4
R.464 - 4	R.612 - 2
R.472 - 1	R.613 - 1
R.494U - 1	R.617 - 3
R.576 - 1	R.618 - 1
R.582A - 1	R.629 - 1

Power Controller 1 Output - 1

Space Required
5' 6" x
167 cms. x 122 cms.



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PLAN

4

Shunting Yard Added

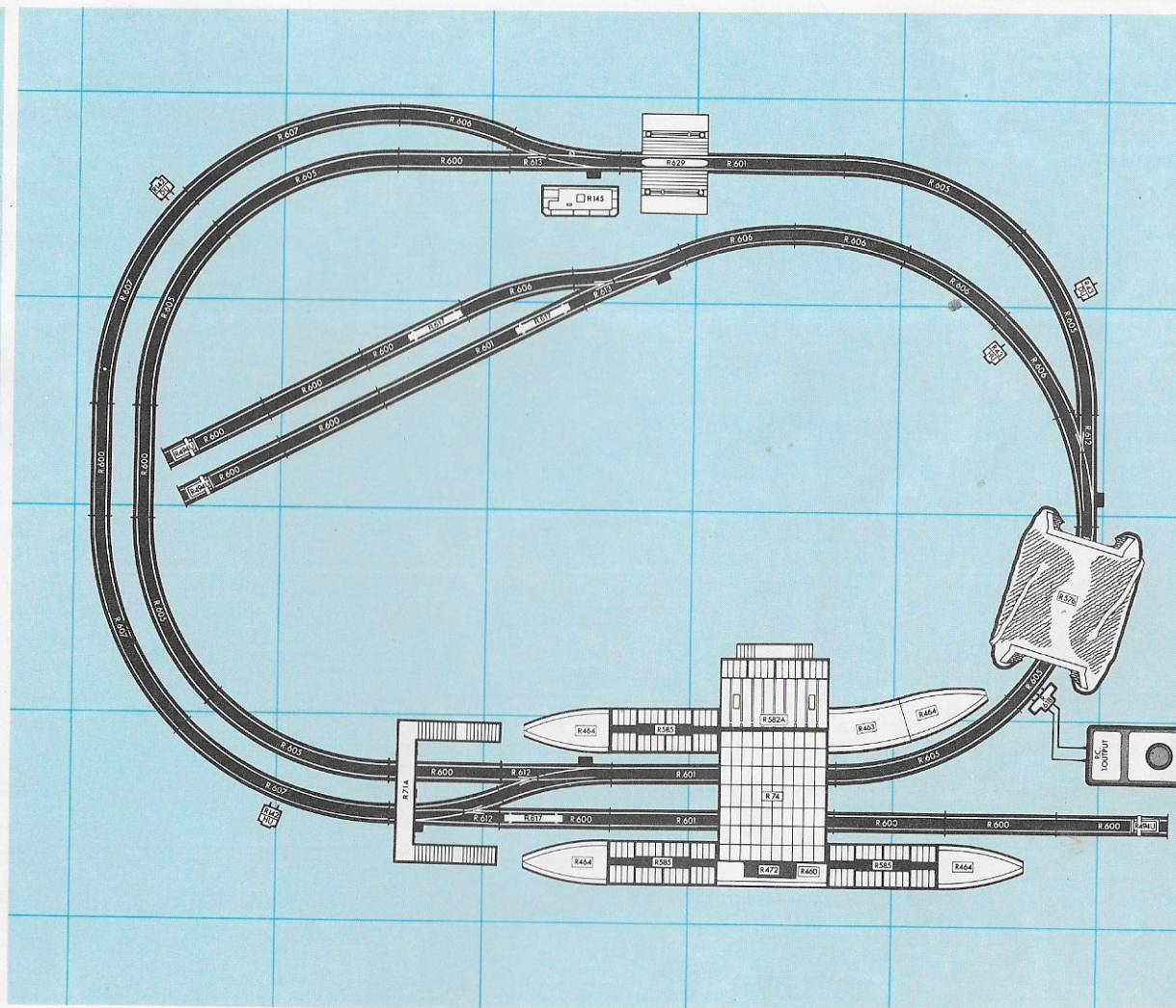
Introducing station roof unit and curved platform

Parts Used

R.43HU - 1	R.582A - 1
R.43DU - 1	R.585 - 3
R.71A - 1	R.600 - 13
R.74 - 1	R.601 - 4
R.142HU - 1	R.605 - 8
R.142DU - 1	R.606 - 6
R.145 - 1	R.607 - 4
R.460 - 1	R.612 - 3
R.463 - 1	R.613 - 2
R.464 - 4	R.617 - 3
R.472 - 1	R.618 - 1
R.494U - 3	R.629 - 1
R.576 - 1	

Power Controller 1 Output - 1

Space Required:
5' 6" x 4'
167 cms. x 122 cms.



PLAN

5

First Double Track Circuit

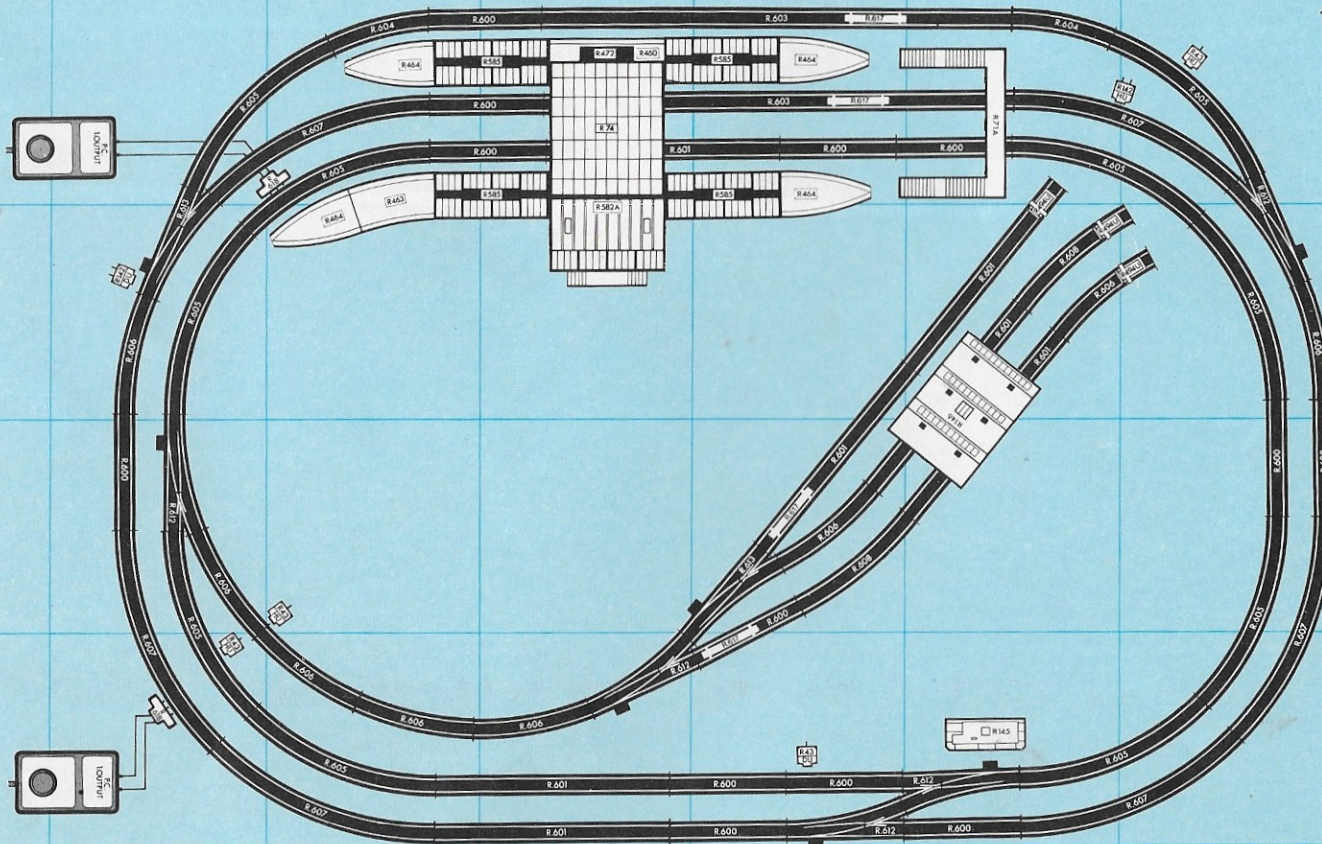
Passing loop allows two trains to operate simultaneously and introduces engine shed

Parts Used

R.43HU - 3	R.585 - 4
R.43DU - 1	R.600 - 13
R.71A - 1	R.601 - 7
R.74 - 1	R.603 - 2
R.142HU - 1	R.604 - 2
R.142DU - 1	R.605 - 10
R.145 - 1	R.606 - 8
R.146 - 1	R.607 - 6
R.460 - 1	R.608 - 2
R.463 - 1	R.612 - 5
R.464 - 4	R.613 - 2
R.472 - 1	R.617 - 4
R.494U - 3	R.618 - 2
R.582A - 1	

Power Controller 1 Output - 2

Space Required
6' x
183 cms. x 122 cms.



Tri-ang
Regd. Trade Mark

HORNBY