



Scalefour Society

Conductor Rail Supports

Introduction These components have been chosen to represent the most common types of conductor rail support on the Southern Railway (and Southern Region and its post-privatisation successors) and London Transport subsurface systems. The supports are designed to set scale 150lb/yard conductor rail section at the correct heights relative to the running rails.

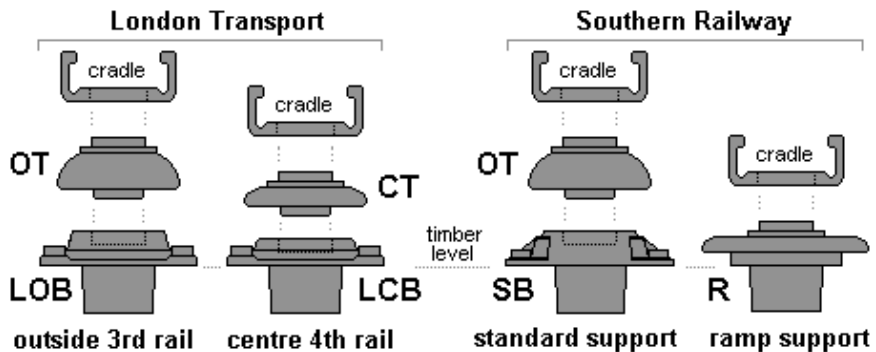
Identification of parts

- **LOB** (3 off) - LT Outside Base
- **LCB** (3 off) - LT Centre Base
- **CT** (3 off) - LT Centre Top
- **OT** (6 off) - Outside Top for SR standard and LT
- **SB** (6 off) - SR Base
- **R** (1 off) - low support for end of SR Ramp

On each sprue, there are 22 components, identified around its perimeter.

The mixture on each sprue provides 3 outside and 3 centre supports for LT modellers, and 6 standard supports and 1 ramp support for SR modellers. Sufficient etched rail cradles are provided on the fret for either.

The intended combinations The 4 combinations allowed for in the mixture of components are:

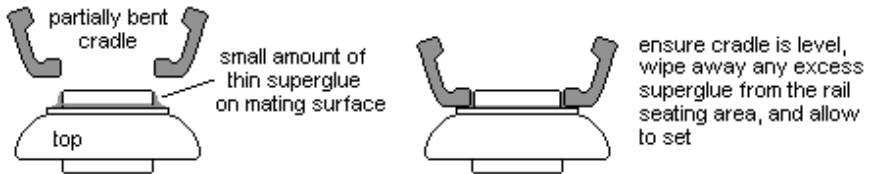


Note the orientation of the bases LOB, LCB and SB with respect to the cradle – the longer dimension of all the bases should align with the timber axis.

Overall method of assembly The cradle is intended to be attached to the top with thin superglue. The remainder of the assembly can be completed with solvent.

Attaching the cradle to the top The most critical joint in these components is that between the etched rail cradle and the top of the insulator. It is far easier to make this joint on the workbench, with the components still on their sprue if you like, than on the layout. After detaching from the fret (see →), it is strongly recommended that the etched cradles be at least partially bent up before attaching to the insulator using a **cradle bending jig**. →

Thin superglue is recommended for attaching the etched rail cradle to the top of the insulator. (5-minute epoxy can be used as a slightly less effective and more time-consuming alternative.) The hole in the etch locates over the small spigot on the top of the insulator. Cleanliness is *essential* between mating surfaces when supergluing – a light abrading of the top of the insulator with a clean glass fibre brush will help.



Preparation of timbers The tapered locating peg on the underside of each base is designed to fit into a hole punched into a timber with a standard Society timber punch tool (or a 1.2mm or 1.3mm hole drilled into a wooden or plastic timber). For wooden timbers, solvent is recommended to attach the base to the timber, with the timber having been treated with Polypipe (see note overleaf) over the mating area. For plastic timbers, an alternative to drilling a hole is to cut/file off the locating peg and secure directly to the plastic timber surface with solvent.

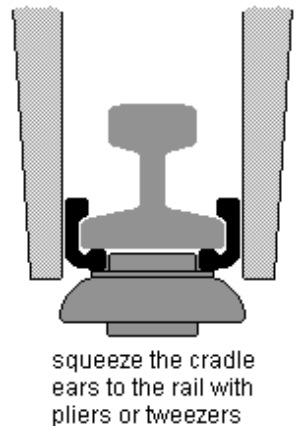
Methods of installing the supports on a layout

The cradles should be squeezed gently ('nipped') around the foot of the conductor rail to hold them in position with pliers or strong tweezers.

Nipped cradles+tops can, with care, be threaded onto rail, so you may wish to secure the cradle+top to its base (the peg on the top locates in the hole in the top of the base), or fix the bases on the layout timbers and then secure the rail+cradle+top assembly.

You may wish to delay the nipping of the cradles to the conductor rail section until installing the actual conductor rails on a layout.

Bear in mind your requirement for ramps; some LT ramps will not permit threading of cradles once the ramps have been attached to the ends of conductor rails.



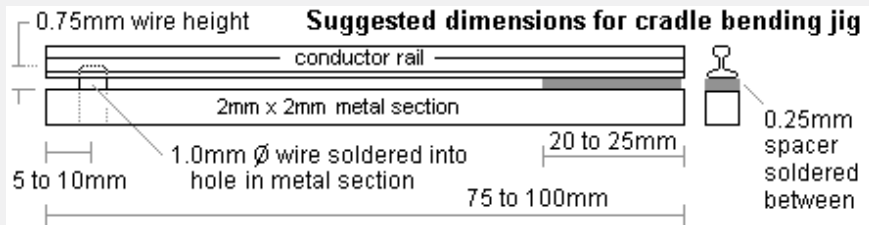
Detaching the etched rail cradles from the fret



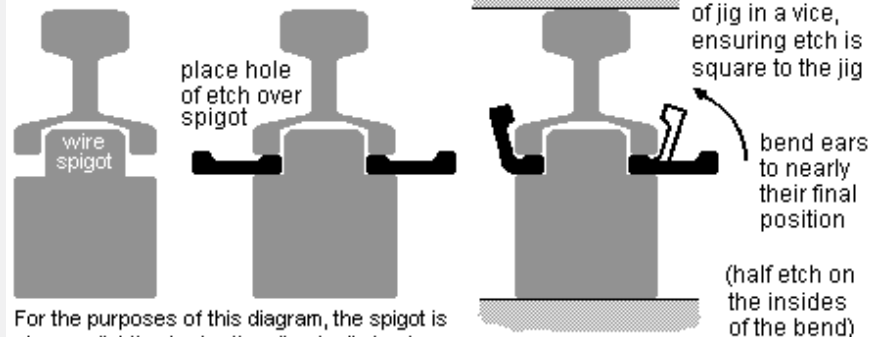
scalpel cuts either side of each cradle

Cradle bending jig A simple homemade bending jig can be made from conductor rail and near-equivalent metal section. The purpose of the jig is to start the half-etch bends symmetrically about the centre of the etch, and for the bends to be made intimate with the shape of the foot of the conductor rail section.

Making the jig Take a piece of conductor rail and a piece of 2mm x 2mm metal section, about 75 to 100mm long. Drill a 1.0mm diameter shallow hole in the underside of the rail (to a depth where it just breaks through to the web of the rail), and a through hole in the metal section, approximately 5 to 10mm from one end. Get the holes as accurately in the middle of each piece as you can. Slightly dome an end of a short length of 1mm diameter wire, and solder it into the hole of the metal section so that the tip of the wire protrudes approximately 0.75mm from the surface. Examine the soldered joint closely and remove any excess solder. File the metal section adjacent to the 1mm wire spigot so that it is the same width (nominally 1.83mm) as the foot of the conductor rail. Hold the pieces together so that the wire spigot fits, and then solder the pieces together at the far end, for a distance of approximately 20 to 25mm, with the same length of approximately 0.25mm thick spacer between the mating faces.



Using the cradle bending jig



For the purposes of this diagram, the spigot is shown slightly shorter than it actually is - in practice, it extends slightly through the rail web.

General guidelines on fitting conductor rails to their supports

- These components are small and delicate, and thus have little inherent strength, so it is essential that conductor rails are bent precisely to the shape needed on a layout before holding them in their supports.
- The design of the cradle is such that the foot of the rail is intentionally held only lightly, to allow unstressed temperature expansion and contraction.
- Conductor rails can be clipped in and lifted out of the cradles when fitting, but this process will inevitably weaken the bond between the cradle and the insulator top, and will also weaken the half-etch bends.
- A spot of superglue or impact adhesive between occasional cradles and the rail will secure the overall position of the rail.

Painting and finishing The sprue is moulded in an ivory colour, to represent the porcelain parts of the supports, and these can therefore be left unpainted or weathered to taste. The metal base clamps around the porcelain should be painted in a light or dark rust colour, as should the ears of the cradle. Conductor rail components tend to acquire a layer of dark grey carbonised dust from collector shoes and light brown dust from ballast, but rain usually keeps the porcelain parts of recently-installed insulators reasonably clean. It is easier to paint the base clamps before adding the supports to the layout.

Further reading and contact advice Please refer to <http://clag.org.uk/3rd-4th.html> for details on how to set out conductor rail supports. You may also find the following pages useful:

<http://www.clag.org.uk/crs.html> (for notes on the use of the components)

<http://www.clag.org.uk/crs-drilling-jig.html> (for details on the CRS drilling jig)

Recommended solvent The sprue plastic is ABS. Recommended solvents are 'Daywat', 'Butanone', or Methyl Ethyl Ketone. Solvent should be used very sparingly.

Note on Polypipe 'Polypipe' is a commercial solvent gel used by plumbers for welding plastic pipes and tubes. It can be brushed, sparingly, over wooden timbers, and will impregnate the wooden surface, to aid subsequent solvent bonding of plastic components. A wipe of ordinary solvent onto the wood before applying Polypipe, or diluting the Polypipe with normal solvent, will aid the impregnation. Bostik PVC Weld Cement M5417 is an equivalent to Polypipe.

This product is a joint development of the Scalefour Society and Exactoscale Limited.

Scalefour Society: <http://www.scalefour.org>

(September 2005, instructions revised October 2016 to reflect the demise of Exactoscale)