

# Locomotive Coupling Rods

These etches are designed to produce scale coupling rods for RTR and kit built locomotives when using scale wheels, they can also be assembled with the correct articulated joint to allow use with compensated or sprung loco chassis. **Warning! Beware of the sharp edges**

## Inside cylinder 0-6-0 'universal' coupling rods, 9'0" + 9'6" maximum, CR21

These coupling rods can be made up to suit many six coupled and some small four coupled inside cylinder locomotives.

A set of axle alignment jigs or a chassis alignment jig is almost essential to set up these rods accurately.

Start by carefully opening out the crankpin holes before removing the rods from the fret. Use a cutting broach or 1.5mm sharp drill, use light pressure to ensure you don't 'grab' the material and accidentally bend the half etched rods. Drill the small holes for the rivets with a 0.7mm drill. Make sure the holes have no rag on them by twiddling a 1/8" drill over them.

The shaped bosses provided are suitable for Caledonian and other Drummond locos eg. Southern Railway and the alternative rounded bosses for locos on the GWR, MR, NER, etc. Gently cut out a middle rod with the tongue on it and two of the centre bosses of your choice. Neatly file the edge of the boss that would butt up to the corresponding rod overlay.

Using the shank of a 1.5mm drill or a cocktail stick for alignment clamp a boss on both sides of the centre boss on the middle rod making sure you have the oil reservoirs correctly aligned. Prepare your soldering iron with a small tip and a small amount of solder, apply a liquid flux and solder around the edges of the boss. Now take one of the overlays and solder a front middle boss onto the inside of the overlay and clamp the overlay onto the middle rod using sprung hairclips and fit onto your chassis jig or axle jigs set in your chassis, mark where the cuts need to be to shorten the overlay and middle rod to match the axle centres. Cut the rods very slightly long, then gently file rods to the correct length, clamp together and check again on the axle jigs. If all is aligned then tack solder the overlay and middle rod together. If using the shaped bosses cut the second overlay to length, clean any solder off the area where it is to fit and clamp the three pieces together. The alternative rounded boss can be used by cutting the boss off the second overlay, the joint will be slightly staggered, try to place this to the back of the rods, once soldered use this boss to file the others to shape. Use the shank of the 1.5mm drill to align the bosses, clamp the middle of the rod and ensure the overlays at the bosses are also clamped down tight, spread liquid flux along the edges, touch the iron tip to the edge and slowly move along till the solder runs out, recharge the tip, spread more flux and move iron further along. Move clamp to opposite side and solder along other edge. Do the same around the bosses and ensure the bosses have sufficient solder around the outside. Now comes the delicate bit, using a fine flat needle file on the edges file the etch cusp and the solder down to a neat square edge and then draw file along the edge, this will remove any marks left when cross filing. Where the rod meets the boss use a round needle file to blend the rod to the boss. The pins on the top of the bosses on the middle layer are to represent the oil corks. The rods are etched as fish belly but one can file the rods parallel if required. Finish lightly with a fine emery stick all round. Now set the front rod on the jigs and trial fit the rear middle rod and mark where it needs to be cut to butt against the tongue of the front rod, cut the rear rod and file a slight curve on the cut end to match the tongue with a little clearance. Solder both bosses on either side of the rear middle rod and clamp the two overlays on as before but align the fork ends through the tongue with the 0.7mm drill, set up on the axle jigs with the front rod and mark where the overlays need to be cut, you may have had to cut them down a bit already to fit them on the jigs. When cut and filed to length clamp on to the middle rod once more and set up on the jigs for a double check, if okay then tack solder the overlays to the middle rod and remove from the jig and the front rod. Now solder this rod and file up as previously. After all the finishing is done check that the fork is clear of solder, use a razor saw to clean it out if necessary. Try the fit of the fork on the tongue of the first rod and if tight use a piece of fine emery and pull it through the gap a few times, fold the emery over double if it is particularly thin. If there is any solder on the shaped boss where the fork fits use a pin to clear the solder. Note! At this point make sure you make a left and right hand rod... When satisfied with the fit, slightly counter-sink the rivet hole on the back of the fork and file round the fork to tidy the cusp. To join the rods, push the rivet through all the rods (open out slightly with a broach if required) and lay them down on the rivet head, file the tail of the rivet till about 0.2mm is showing through the etches. Now put the joint in a small vice and squeeze the rivet gently whilst moving the first rod till you feel the joint starting to tighten up, and stop. Hold one end of the rod in your fingers and flick it, the rod should just swing across lightly, if too floppy then a further gentle squeeze may be required. The rods are now ready for fitting. The crankpin holes will need opening out slightly for a running fit on the standard 1.5mm scale crankpin bushes of your choice, use a jewellers broach for this.

