

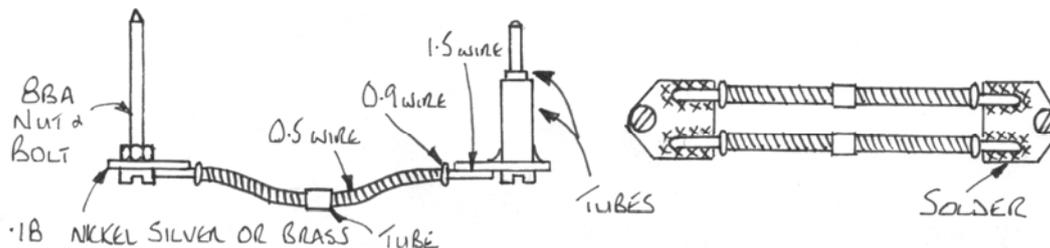
## Tales from Barlow Works

### Project Gresley

#### Part Ten:- Rigid Couplings

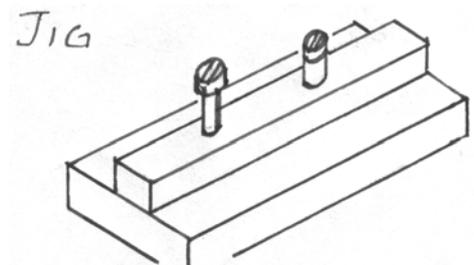
The real Gresley coaches would be coupled together with buckeye couplers and there would be vacuum and steam heat pipes between the coaches. As I wanted to run my coaches in a fixed rake I decided to make a rigid coupling between the coaches that looks like the connecting hoses. As the buckeye coupling could not be seen under the corridor connections it was left off. Obviously if you are building just one coach there is no point in producing these couplings but for a rake of coaches they save a lot of time trying to couple up the coaches under the corridor connections.

The coupling uses brass tubes that slide inside one another and a 8ba bolt down the centre to give the freedom of movement at one end, and a 30mm 8ba bolt at the other to locate in a hole in the coach floor at the other end. You will also require 1.5mm brass rod, 0.9mm brass rod, some 0.5mm copper wire (conductors in telephone extension cable) and some tube with an internal diameter of 1.5mm.



We need to start by preparing the coaches ready for the couplings. On my coaches I turned up two brass inserts to be super glued into the coach floor, one tapped 8ba and the other with a clearance hole for 8ba. These were glued into holes into the coach floor just behind the buffer beam. If you don't have access to a lathe then a couple of squares of brass should be ok, one with an 8ba bolt soldered on and one with a clearance hole, super glued to the coach floor. Remember to make holes in the interior partition floor as well, to allow the bolts to pass through. As I was building a rake of five coaches it is easier to make the couplings in a jig so they are all the same.

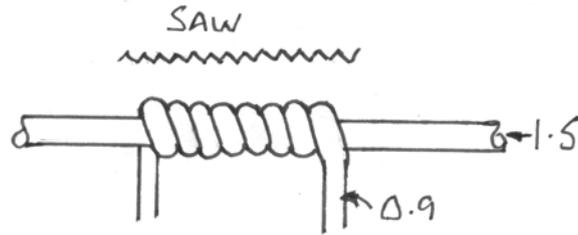
My jig was simply a length of wood on edge glued to a base with two holes in it to screw in the 8ba bolts. On one end I made a spacer to hold the coupling off the jig the same height as the tubes at the other end. We require two lengths of tube, the smaller one having a hole that will accept an 8ba bolt and a larger one that slides over the smaller one. The larger tube should be just long enough to clear the buffer beam when it is soldered to the



fixing plate (if you are using a bolt soldered to a piece of brass the tube will need to be shorter to allow for the thickness of the bolt). Mine was 7mm long. Solder the outer tube to the fixing plate, preferably with 224 degree solder if you have it, as we will be soldering the hoses to this plate later with 145 degree solder. Run a drill down the tube so that the inner tube will pass right through and clean up. The inner tube passes through the fixing plate and the tube and should be about 1mm longer than the outer tube and fixing plate. When the 8ba bolt is tightened up it holds the inner tube in place and the outer one is free to rotate. The bolt head should be wide enough to hold the outer tube in place but if not just add an 8ba washer. The other fixing plate just has an 8ba clearance hole with a 30mm bolt and nut tightened up in it.

Fix the two assemblies into the jig with the spacer in place into the pre drilled holes. The final distance apart should depend on the sort of radius the coaches are required to run round. I made mine 40mm long as my coaches would need to go round a 5ft 6in radius in places. If your ruling radius is less than this the couplings will have to be a couple of mm longer but if you are going round scale curves then

it is possible to just have the buffers touching, adjust the length accordingly. With the two assemblies in place offer up some 1.5mm brass rod and form it with a slight curve in the centre. Thread on a short



length of tube that has an inside diameter of 1.5mm, about 4mm should do. This will represent the hose connections. Solder the 1.5mm rod in place between the fixing plates with 145 degree solder. Repeat for the other side. Give the tube a touch of solder to hold it in place. Take some 0.9mm rod and form it into a spiral around the 1.5mm rod, about 5 or 6 turns should do. Clamp up in the vice and with a razor saw cut through the windings of 0.9mm rod. When you have cut through you should be left with some "C" shaped links. Thread a couple of these onto each hose near to the fixing plate to represent the unions on the hose. Nip the links together with pliers and give a touch of solder to hold in place. Finally to represent the hose I used the single strand conductors from telephone cable which is 0.5mm copper wire. Wind this round the hoses between the union and the central connector on both hoses and then run solder over the wire to hold everything in place.

Finally to fit the couplings simply screw into place under the coach. I found it best to remove the threads from the end of the 30mm 8ba bolt as it made an annoying grating noise when the coaches were moving and also filing the bolt to a point made it easier to locate in the hole under the coach.

That is the coach now completed, the next sections will deal with the teak finish and the final detailing after painting and varnishing.