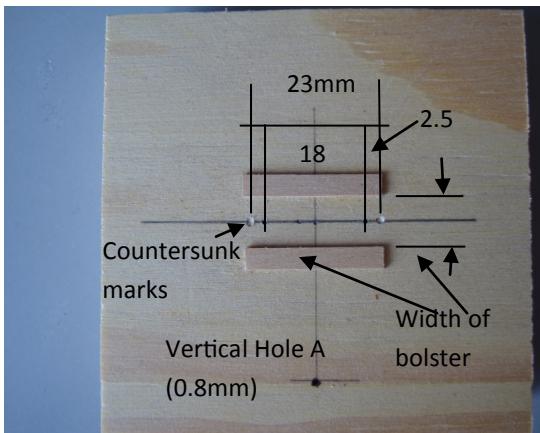


# Palatine Models

## Twin torsion bar bogie conversion kit

The twin torsion bar bogie conversion kit has been designed to give a smooth and resilient ride for coaches weighing from 200—300 grams and to convert single torsion bar bogies which often fracture at the soldered joints.

A simple jig will aid assembly and this is simply made from a 3 inch square piece of 6mm plywood. The photo below is from our full bogie kit but the same dimensions



can be used but for this kit it is not necessary to use the 0.8mm holes.

The wooden strips are P4 sleeper strip glued down to locate the bolster during assembly. Dimples the width of the rivet head are made at 23mm centres to support rivets during assembly.

The design assumes wheels with the standard 26mm over pin-point axles. 0.15mm packing washers are supplied to be placed behind the bearing flanges when axle lengths are shorter than 26mm.

### Existing bogie

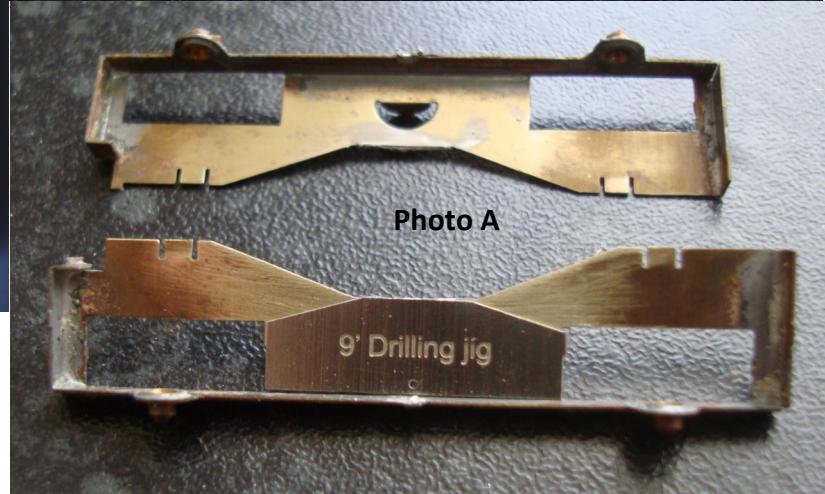
1. Dis-assemble bogie removing centre lugs and making top of sideframes flat.
2. Clean up sideframe ready for soldering.

### Bolster

1. Remove the bolsters from the fret and fold the 'ears' back on themselves making a 180 bend. Fold lines are to the INSIDE. Solder them ensuring they are flat. Fold the sides to 90 degrees.
2. Clear the etched holes with a 0.85mm drill and lightly countersink the top and bottom.

### Sides

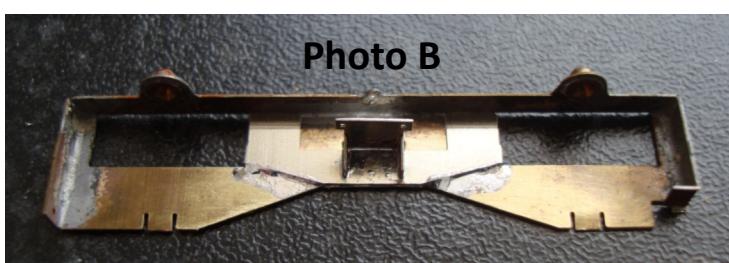
1. Place drilling jig on sideframe and fold locating lugs down to make jig central. *Photo A*.
2. Drill 0.85mm hole using hole in jig as a locating point.
3. Fold up torsion bar bracket and locate on sideframe us-

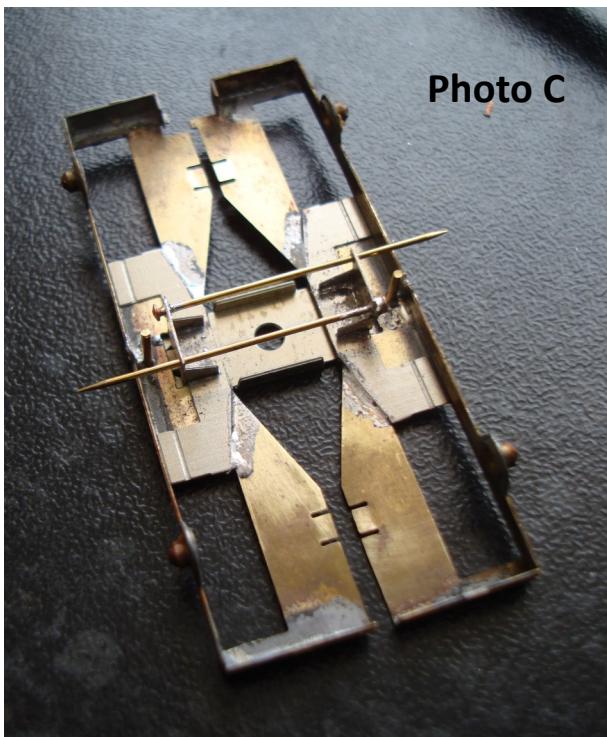


ing locating lugs. Solder bracket to sideframe before removing locating lugs. *Photo B*.

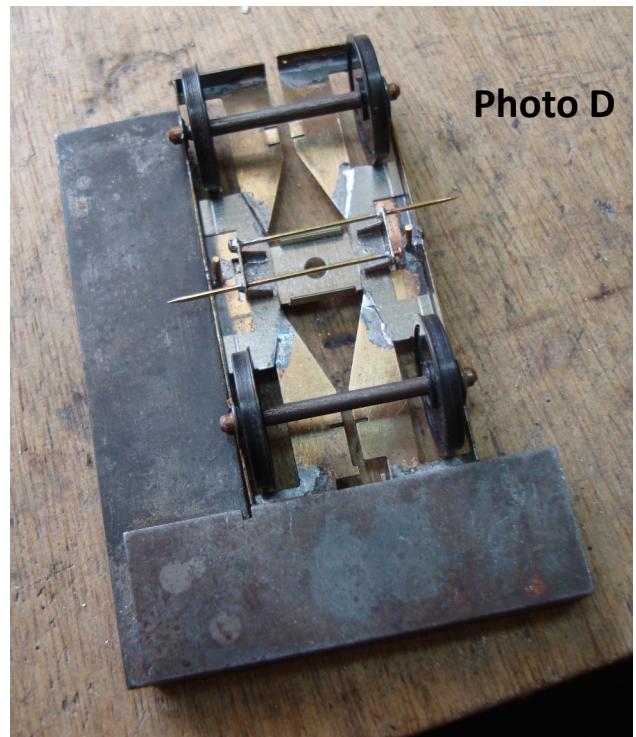
### Assembly

1. Insert 2 rivets in the holes through the top of the bolster, invert and place on the jig ensuring the heads locate in the countersinks and place 0.4mm card spacer to maintain gap between bolster and side frame. (The etch frame can be used if required).
2. Invert the side and place over the rivet.
3. Solder rivet to the sideframe being careful to avoid soldering the rivet to the bolster. After soldering the bolster must be free to move.
4. Thread the brass pins through the torsion bar bracket holes and solder one end only at diagonally opposite ends. *Photo C*
5. Remove from jig and insert wheels and place on a flat surface, still inverted. Hold sides together and solder remaining ends of torsion bars ensuring that axles have no end float but





**Photo C**



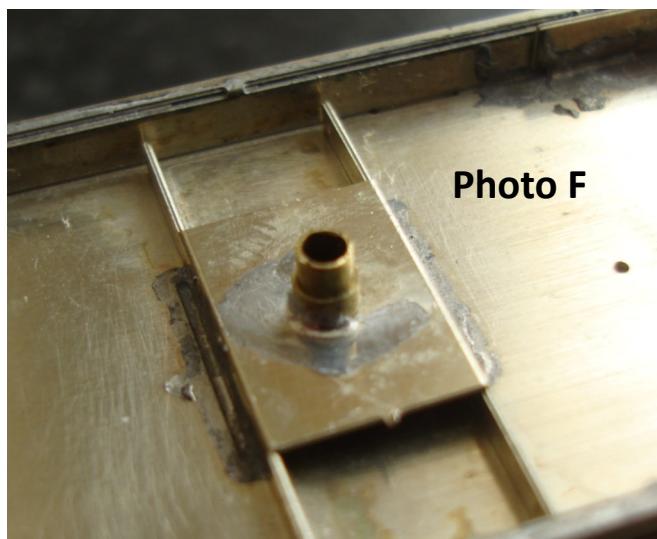
**Photo D**

still revolve freely. Before soldering check that the bogie is square. *Photo D*.

6. Trim torsion bar ends to within 0.5mm of outside of brackets to leave space for cosmetic bolster spring detail. Trim rivets.

#### Coach underframe

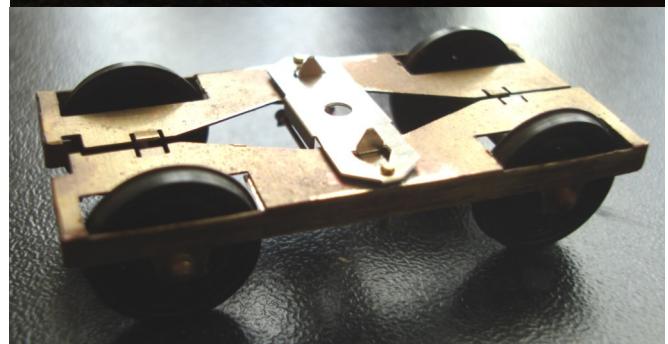
1. Prepare 2 lengths of the 2.5mm diameter tube 5mm long.
2. Assemble the tube to the coach underframe with an M2 screw and solder the nut and tube in place. Remove screw. *Photo E*.
3. Bend up the bogie supports on one end and strengthen with solder once they are at the correct height.
4. Cut and place 3mm diameter tube 2mm long over the 2.5mm tube at the other end and check ride height. When satisfied solder the 3mm collar in place over the 2.5mm tube. *Photo F*.



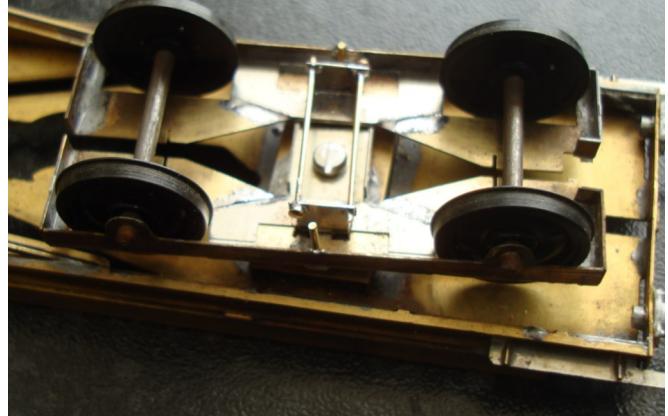
**Photo F**



**Photo E**



**View of completed bogie**



*Note: If you wish to make the torsion bars longer you can make the bracket assembly narrower by shortening them at the half etch line. This is intended for bogies which have no bolster castings.*