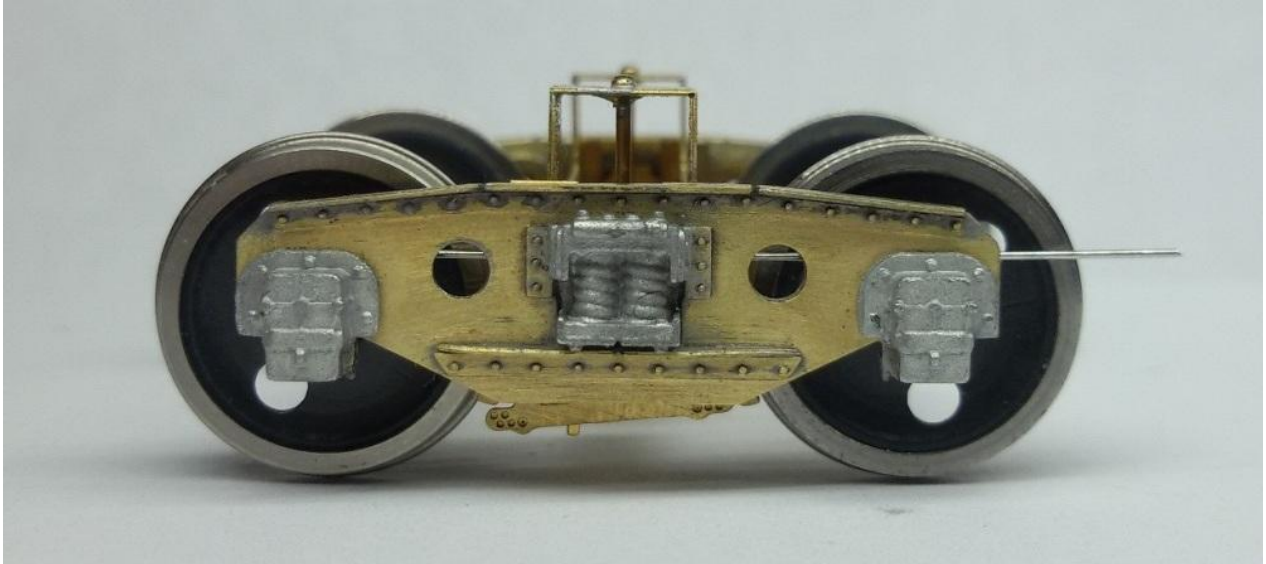


# Rumney Model 5'6" Plate Freight Bogie Instructions

## Notes

This set of instructions covers Rumney Models kits G.01, G.02, G.04 & G.05. These kits build into accurate, sprung, 5'6" plate freight bogies covering GWR and BR prototypes. They consist of an etched bolster along with etched sideframes and cast whitmetal journals and bolster springs.

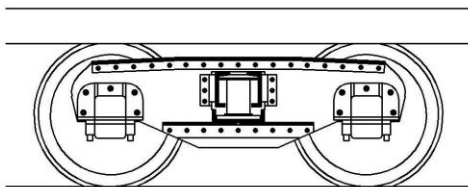


The bogies are designed to be built with sprung sideframes though they can be built compensated by substituting a much thicker gauge of wire. The sideframes and bolster are held in place by the spring wire and they can be easily disassembled for easy removal of the wheels should the need arise. You will need 2mm top hat bearings to complete along with your choice of 3'1" wheels. Note that waisted type bearings are not suitable for these bogies as the cosmetic and functional parts of the sideframes rely on the bearing to align them.

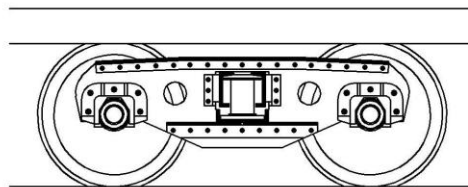
The following diagram outlines the four types covered. The basic assembly for all of them is exactly the same.

## BR 5' 6" Plate Freight Bogies

### G.01 Oil Bearings

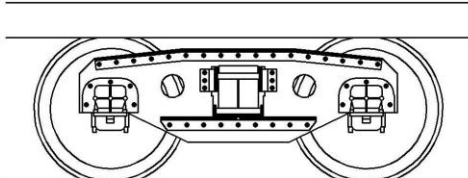


### G.02 Roller Bearings

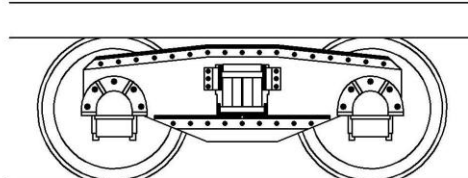


## GWR 5' 6" Plate Freight Bogies

### G.04 Standard



### G.05 Heavy Duty



## Construction Notes

Read through the instructions first and familiarise yourself with the components. Drawings and photographs are included to attempt to make my waffle clearer.

**All fold lines are through 90° with the fold line on the inside unless stated otherwise.**

Check all holes before removing parts from the fret. The drawing process for etching if you use a CAD program as I do is extremely accurate but the actual etching process itself not an exact science. If the fret is slightly over etched then there is no problem but if they are under etched the holes will need enlarging. I find that this is easiest to do before removing parts from the fret. The hole sizes will be noted at the appropriate points.

## Technical

The suspension is designed to use thin section steel wire (guitar strings). The exact size that you'll need will depend on the weight of the body. **0.012"** wire is included with the kits but you may wish to use a different size depending on the following information. Consider the weights as an ideal for each size of wire and adjust the wagon weight accordingly.

Wire diameter (thousands of an inch)	Wagon weight (grams)
11	50
<b>12 (included)</b>	<b>75</b>
13	100
14	140

## Materials list

M2 bolt and nut  
2.5mm x 2mm tube for pivot (optional)

Top hat pin point bearings and 3'1" wheels with pinpoint axles (do not use waisted type bearings)

Eileen's Emporium (bolts and tubes)  
Unit 19.12 Highnam Business Centre  
Newent Road  
Gloucester  
GL2 8DN  
[www.eileensemposium.com](http://www.eileensemposium.com)

Alan Gibson (top hat bearings)  
PO Box 597  
Oldham  
OL1 9FQ  
[www.alangibsonworkshop.com](http://www.alangibsonworkshop.com)

## Parts List

- |                               |                           |
|-------------------------------|---------------------------|
| 1 - Bolster                   | 8 - Top angle overlay     |
| 2 - Inner side                | 9 - Bolster guide overlay |
| 3 - Journal detail (not G.02) | 10 - Lower angle flange   |
| 4 - Spacing washers           | 11 - Lower angle overlay  |
| 5 - Brakegear detail          | 12 - Bogie pivot base     |
| 6 - Outer Side                | 13 - Bogie pivot frame    |
| 7 - Side detail overlay       |                           |

The area shaded green on the parts diagrams is a bearing depth measuring jig for determining if the spacing washers are required and, if so, what thickness.

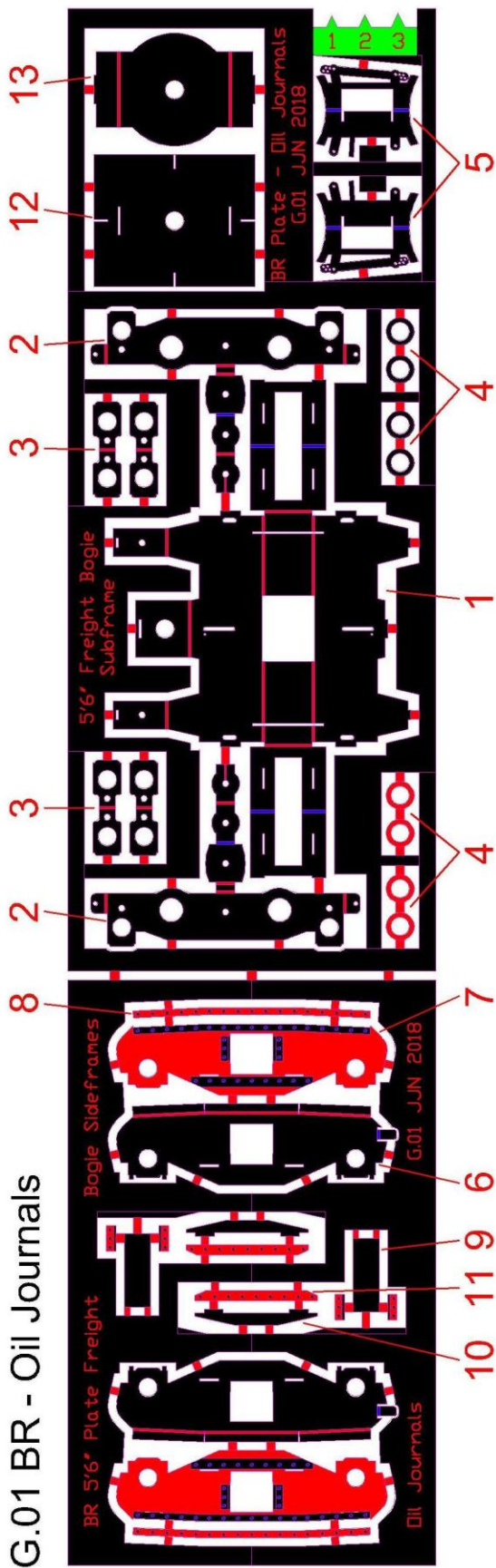
Brass lace pins x 4

Whitemetal journals x 8

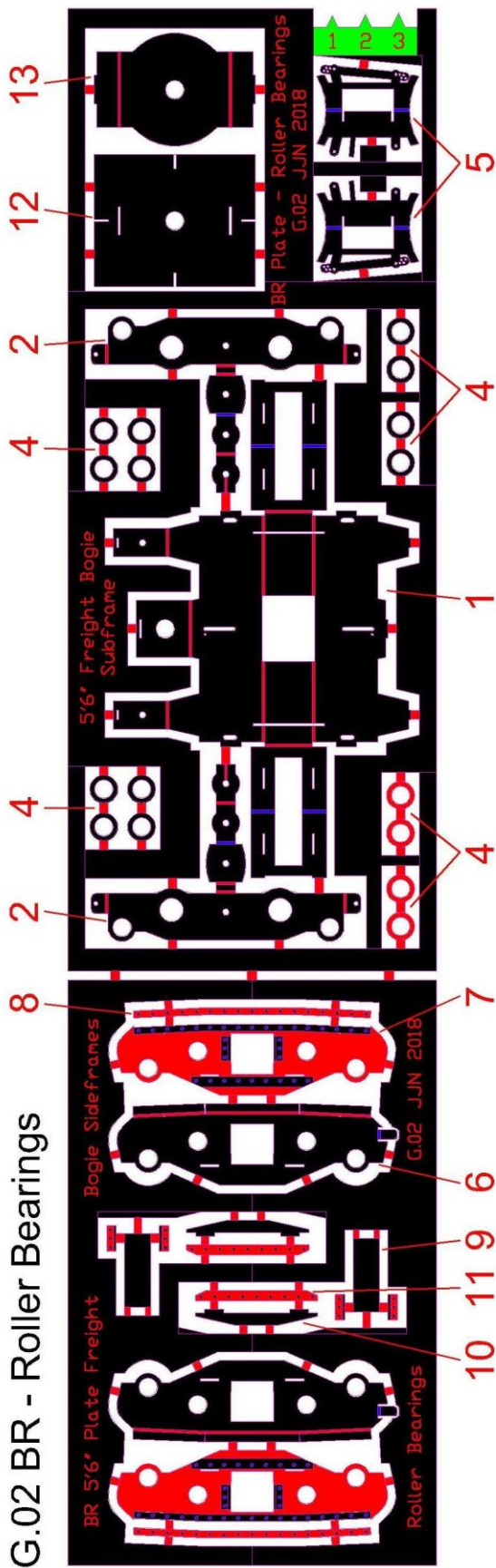
Whitemetal bolster x 4

Parts Diagram G.01 & G.02

G.01 BR - Oil Journals

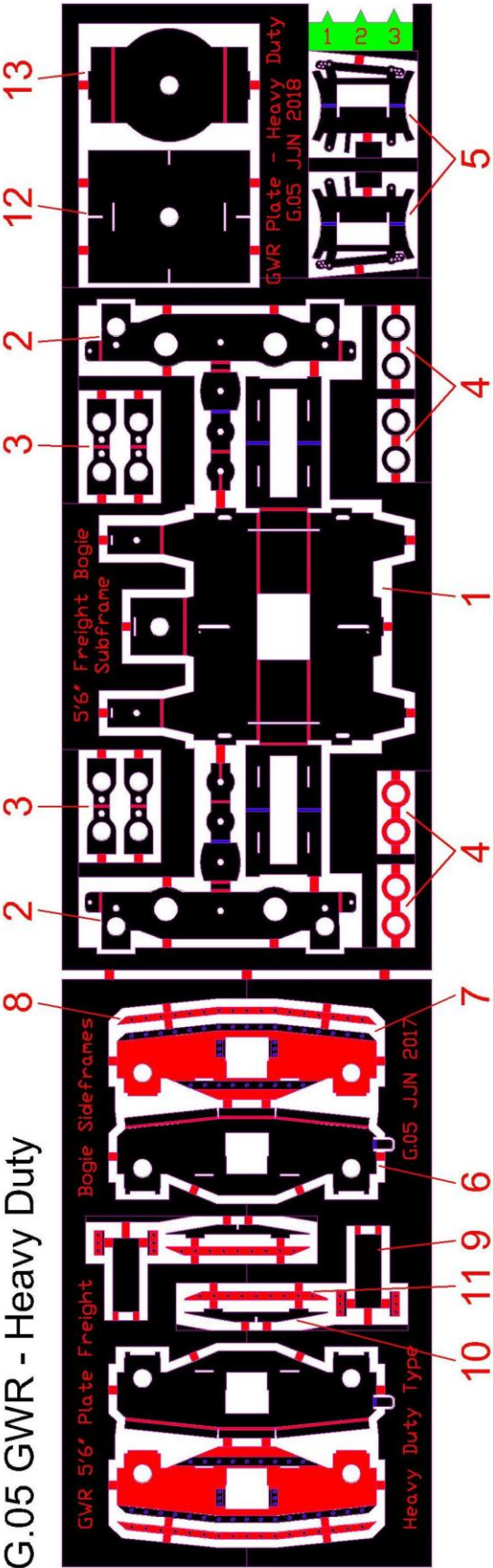
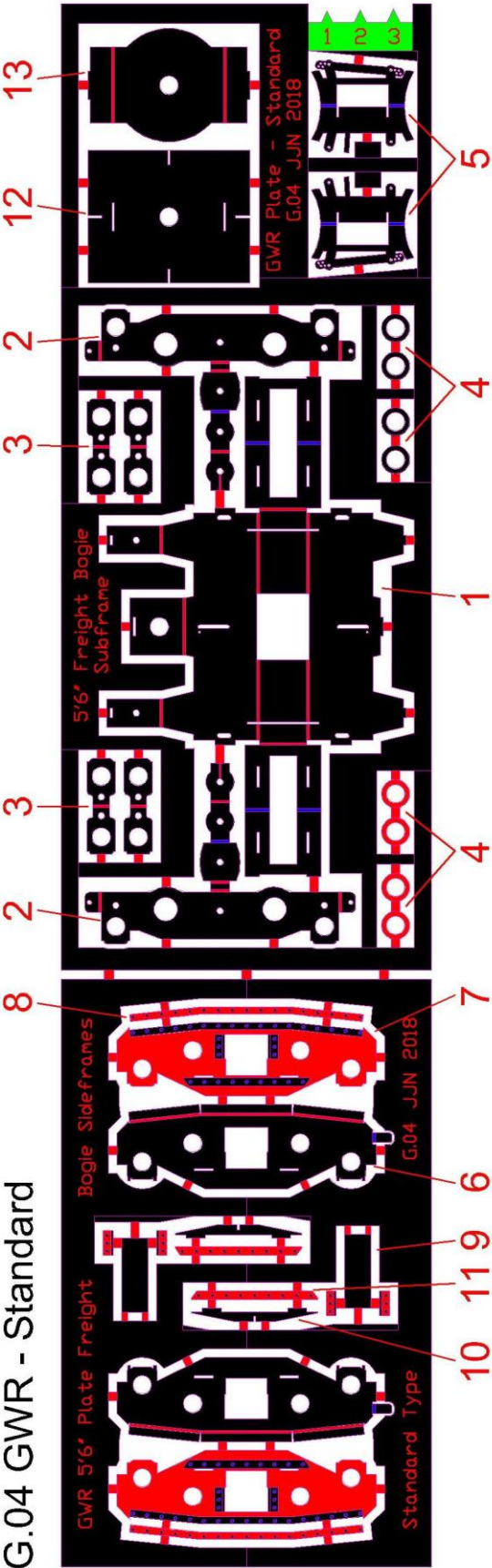


G.02 BR - Roller Bearings





Parts Diagram G.04 & G.05



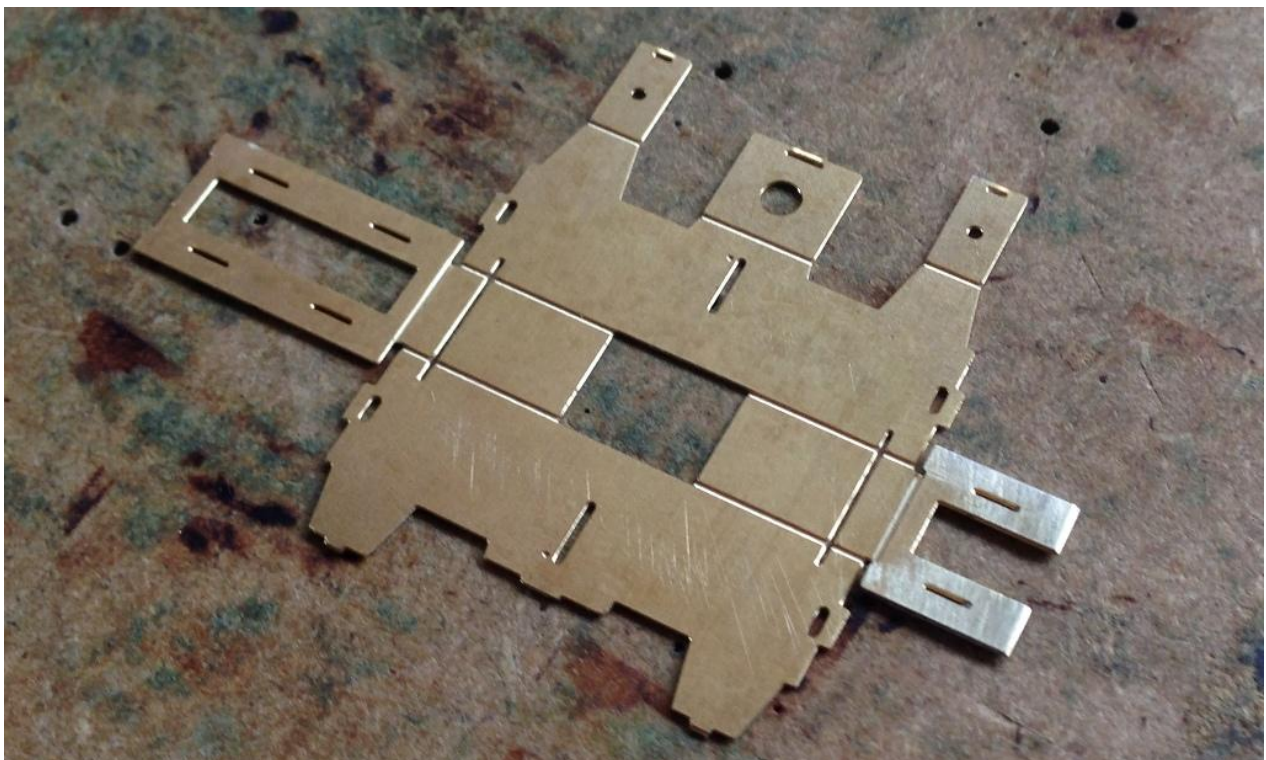
## Construction

### Bolster

Start with the bolster (1). Make sure that the two small holes can accept the 0.7mm shank of the lace pins and remove from the fret. Clean up any connecting tags.

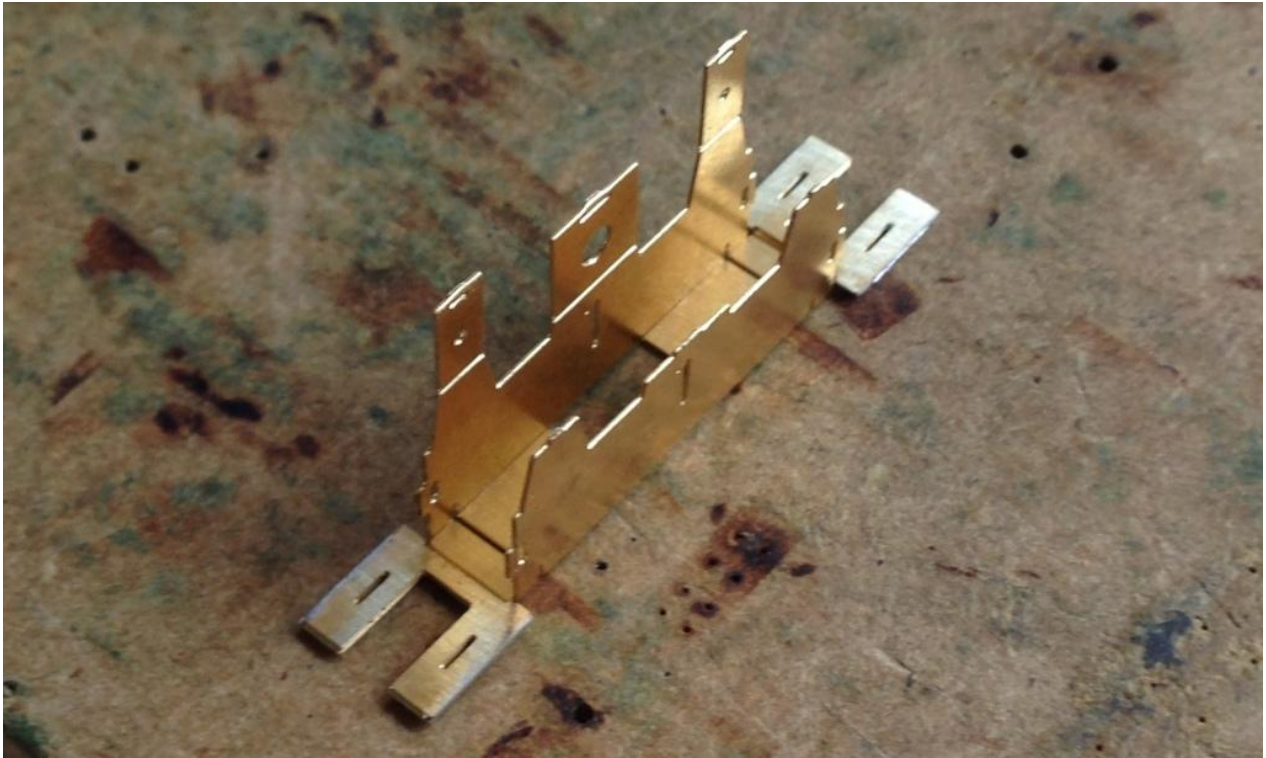
The basic idea for the interface with the sideframes is a cam (which allows for a degree of rotational movement) sliding in a slot. A degree of care will be needed when assembling these parts to get a nice working fit as both parts are made from two layers of etch. Go slowly and carefully.

Fold the ends of the bolster that will make up the slot through 180° with the fold line on the outside (see following picture). Make sure that the two faces are hard up against each other (use a pair of pliers to make sure) and solder together along the outer edges. Be cautious with the amount of solder used so as not to get any in the slots for the locating tabs.

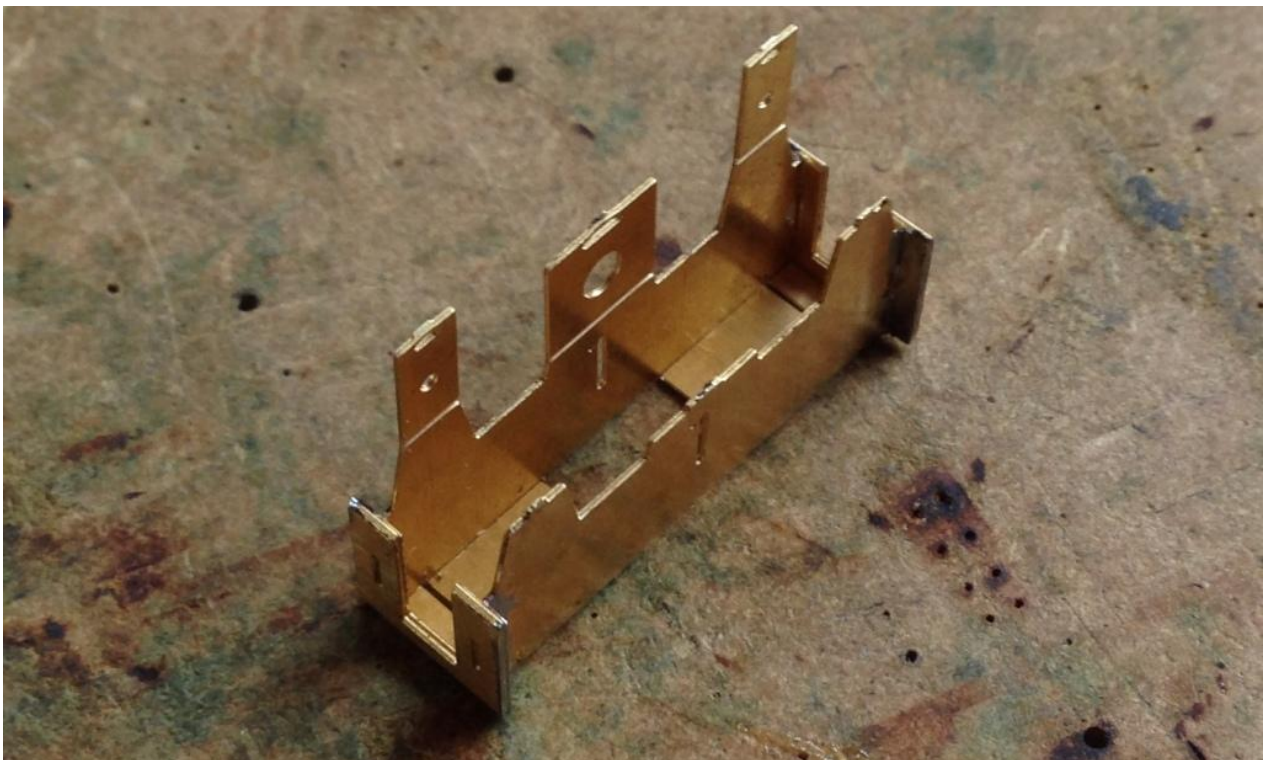




Once you are happy with both ends, fold up the sides of the bolster.

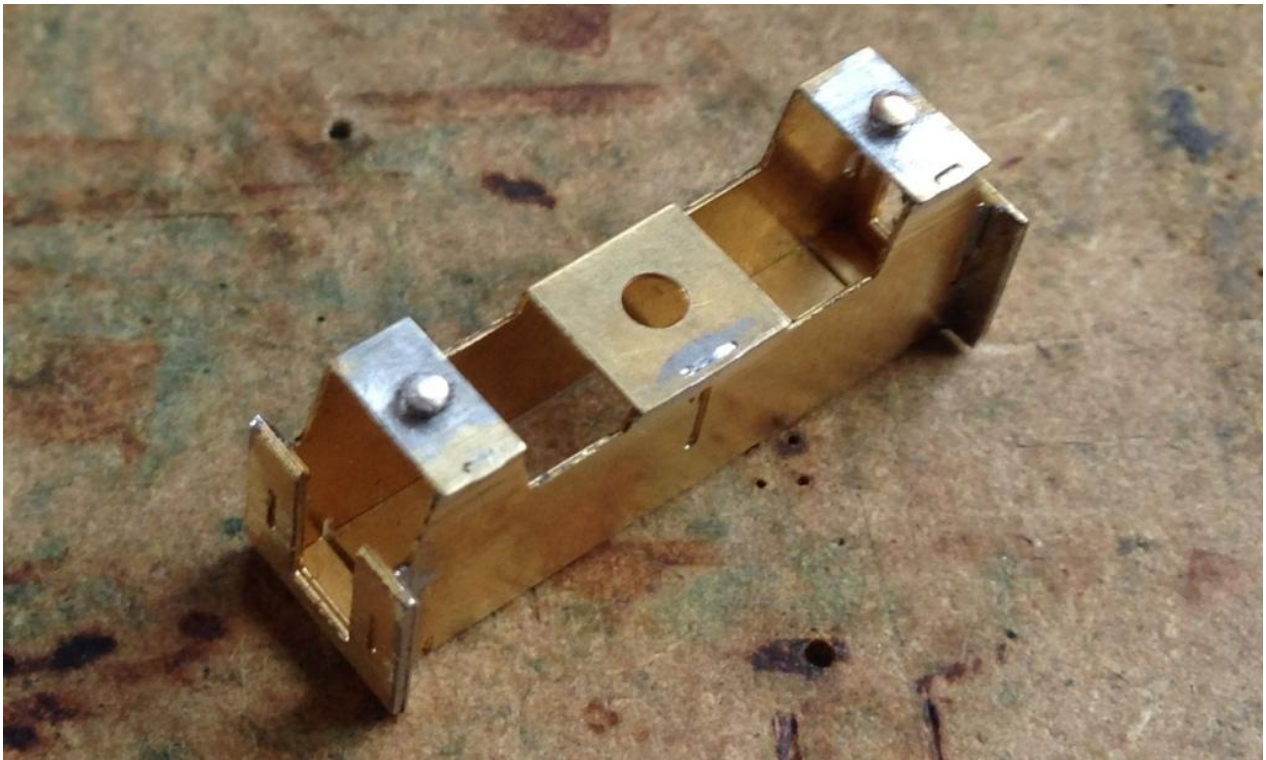


Then fold the ends up so that the slots engage with the tabs on the bolster sides. Solder the sides to the sides from the outside corner. Make sure the parts are hard up against each other and only use a little solder so you avoid getting any on the inside face of the ends between the bolster sides.





Fold over the three top parts so the tabs and slots engage and solder in place. Solder the lace pins in place and then cut the shank of the pins so that only a little remains beneath the top. Retain the shank of the lace pins as this will be put to good use later.

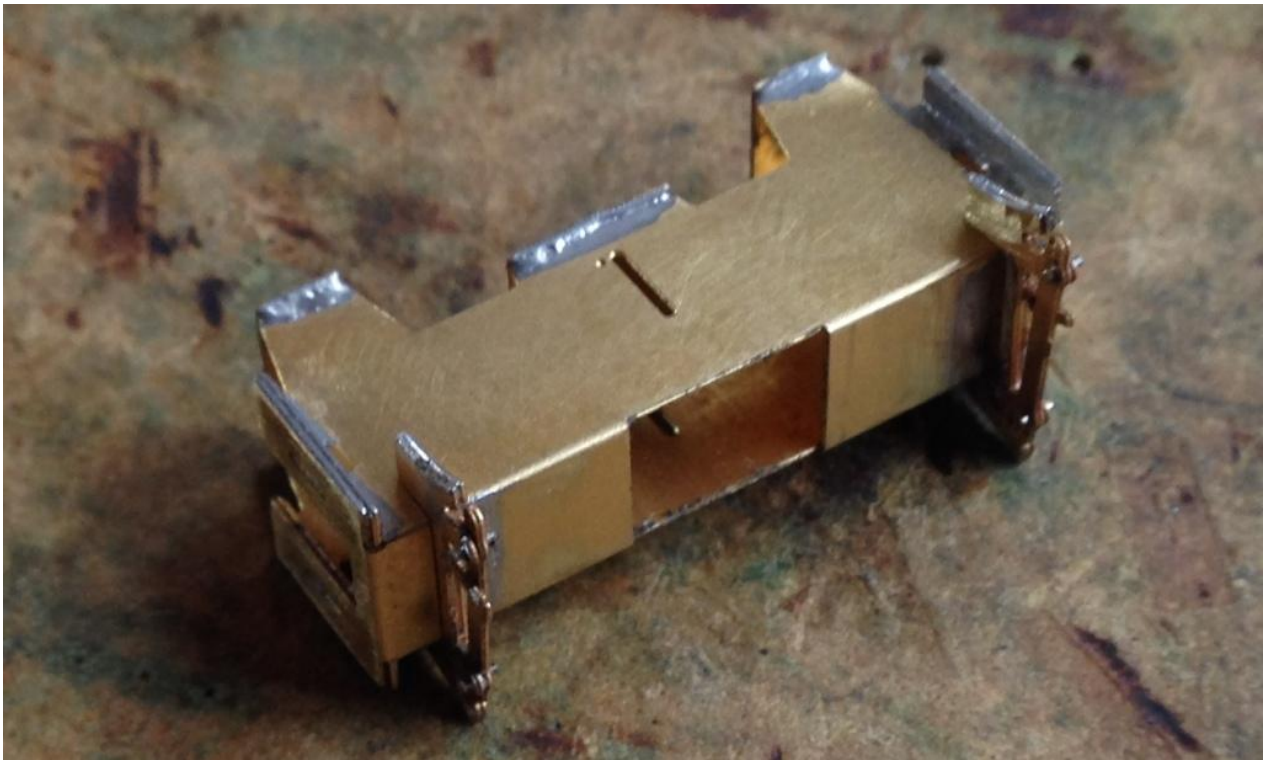


The brakegear detail (5) comes as a simple fold double part. Remove from the fret and fold about the middle so that the fold is through 180° with the fold line on the outside. Use the part to drill a pair of 0.3mm holes into an off cut of wood or mdf. Insert two short lengths of 0.31mm wire into the holes and through the brakegear detail. Solder the wire in place and the two halves of the brakegear detail together. Trim the wire to resemble bolts.





Insert the brakegear detail into the slots on the underneath of the bolster. The two sets of brakegear detail for each bogie form a mirrored pair and should be arranged the thin push rod going between the two brake shoes is towards the outside of the bolster.



### **Functional Sideframes**

Make sure the small holes on the inner sides (2), except those on the two small fold out tabs at the ends, can accept the shanks of the lace pins (0.7mm) and remove from the fret. Clean up any connecting tags.





As mentioned before the functional part of the sideframes consists of a cam that fits into the slots in the sides of the bolster. The cam consists of three parts, two smaller and one larger which need to be folded up. Start with the fold line furthest from the main part of the side and fold through  $180^\circ$  with the fold line on the outside. Repeat for the next fold line. You will end up with the arrangement illustrated in the previous picture.

The next two fold lines either side of a short bar are through  $90^\circ$  and will trap the small parts of the cam against the sideframe.



Fold up the two tabs at the ends which will become the fulcrum points for the spring wire.



At this point use the sideframe to create a jig using a piece of scrap wood or mdf onto which everything can be placed. This will mean drilling two 2mm diameter holes where the bearings will go, a 0.7mm hole through the cam and two 0.7mm holes just above the bearing holes. Use two short lengths of 2mm diameter rod to keep align things in the bearing holes.

Insert a length of the lace pin shank through the cam and into the jig. Solder the cam in place making sure the various parts are hard up against each other. Again use only the minimum of solder and try and keep it from spreading along the sideframe (a paste flux maybe useful here). Once in place trim the length of lace pin shank.



Make sure the small holes on the journal detail (3) can accept the shanks of the lace pins (0.7mm) and remove from the fret. If you are constructing G.02 then you will need to use full thickness spacing washers (4) instead which can be fitted when the bearings go in. Fold the two halves of each of the journal detail through 180° with the fold line on the outside. Place the journal detail onto the jig using two short lengths of the lace pin to make sure everything is aligned. Solder in place and also reinforce the fold lines between the sideframes and the small end tabs.





Trim the lace pins so that it is flush with the sideframe on both sides.

You will need to make sure the slot created in the cam is free from any solder. Use some fine wet and dry paper (1200ish) folded double to remove any remnants of solder. Offer the sideframe up to the slot in the bolster to check the fit. You may need to polish the outer surface of the bolster sides and perhaps deepen the slot in the cam a little using the wet and dry paper. The cam should be able to slide freely up and down in the slot but without any slop. Take your time getting a nice fit.



Once you are happy with the fit of the sideframes and the bolster the top hat bearings can be inserted and soldered in place. When everything is assembled there should ideally be no lateral movement of the axle in the bearings, the points of the axle should run in the points of the bearings. In order to gauge whether you need any spacing washers (4) to take out any slop the kit comes with a measuring jig. This is the bit shaded green on the parts diagram. There are three triangles on the jig labelled 1, 2 and 3 which measure the depth of the bearing. If the depth of the bearing corresponds to 1 (i.e. the back of the flange on the bearing sits against the flat part of the jig connecting the three triangles) then you don't need any washers. If it corresponds to setting 2 then you will need a half etched spacing washer and if it corresponds to 3 then you'll need a full thickness washer. Don't assume that the depth of all bearings in a packet is the same. Check each one and use the appropriate washer.

Use the construction jig created with the 2mm rods removed to solder the bearings in place with the appropriate washer. If you are constructing G.02 you will also need to solder in 2 full thickness washers along with any for the depth for each of the bearings.

### **Cosmetic Sideframes**

The cosmetic part of the sideframe comes in two parts, the outer side (6) and a side detail overlay (7). For creating the rivet detail there is a choice of methods. If you don't mind pressing out half etched rivets there are half etched holes on the back of the side detail overlay. These should be pressed out before soldering anything together. If you don't like pressing out rivets then there are rivet strips in the form of overlays for the top angle (8), the bolster guides (9) and lower angle (11). On top of that there is the lower angle flange (10) which slots and tabs into place.

Remove the outer side (6) and the side detail overlay (7) from the fret and clean up any connecting tags. Fold up the flange on the top of the outer side to form the angle. If you wish to press out the rivets on the side detail overlay now is the time to do so. Use the construction jig created for the functional sideframes to align the side detail overlay on top of the outer side and solder the two together. Note that there is a small tab at one end of the outer side. This is used to retain the spring wire so be careful not to solder it in place. If you have pushed out the rivets then simply insert the lower angle flange (10) into the slots, solder in place and you are done and can skip the next few steps. If not then read on.

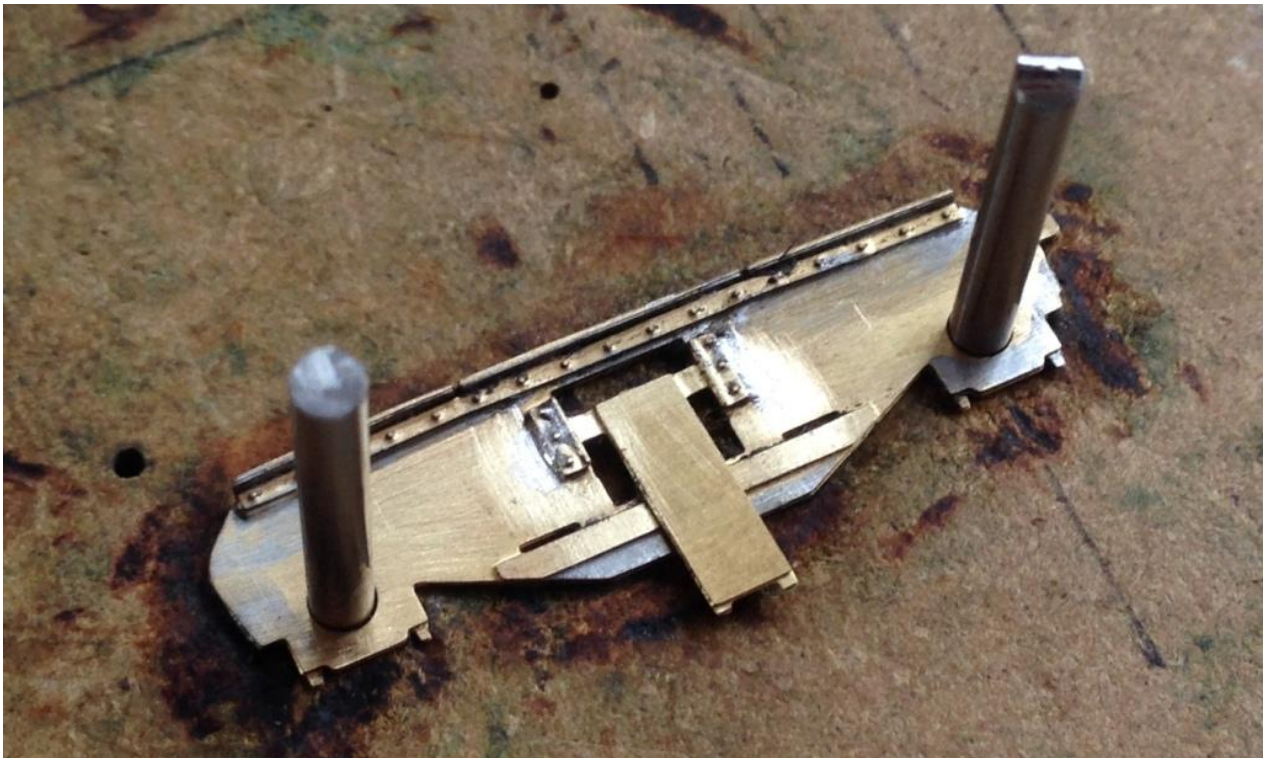




Carefully tidy up the top angle overlay (8) and solder in place.



Next remove the bolster guide overlay (9) from the fret. Note that the bar connecting the two little detail parts should be retained until the overlays are soldered in place (see photo below). Use the connecting bar to locate the two overlays and solder in place. You can then use something like a small scalpel or chisel blade to cut the connecting tags.



Remove the lower angle flange (10) and solder in place using the slots and tabs to locate.





Carefully tidy up the lower angle overlay (11) and solder in place.



Dress the edges of the flanges on the top and lower angles with a file and remove from the jig.

The cosmetic sides can then be soldered to the functional sides using the top hat bearings to align everything.



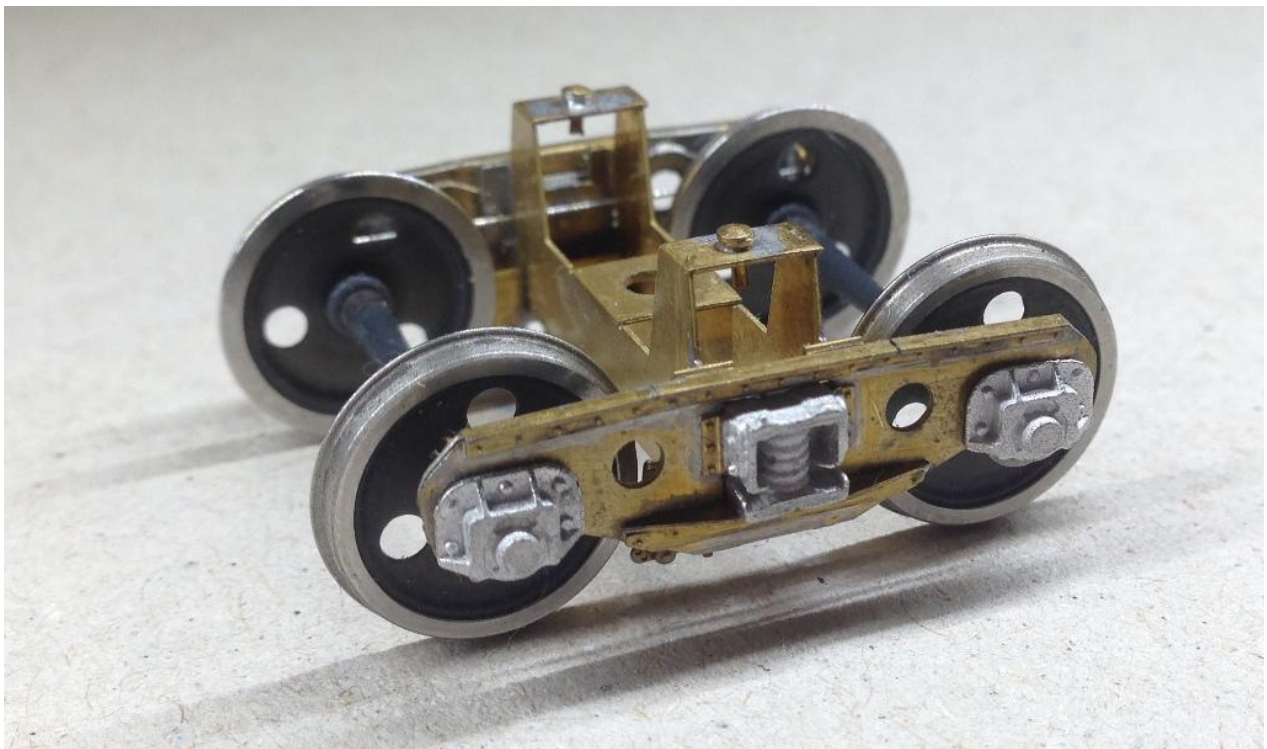
Once soldered in place the castings can be cleaned up and fitted. You may need to deepen the holes in the journal castings to fit over the top hat bearings. You can use a 2mm drill bit to do this but I also enlisted the help of one of my new favourite tools to do the job, a 2mm Dremel high speed cutter held in a pin vice (accessory #193). Warning: Don't try it in an electric drill as it will eat the casting!

The castings can then be glued or soldered in place.

## **Assembly**

The sideframes and bolster are held together by the spring wire. On final assembly wire should be cut and bent to form an L shaped spring approximately 27mm x 2mm. The sideframes and bolster can be assembled and then the spring wire passed through the fulcrum tabs on the sideframe and through the slots in the bolster. If the spring is fitted so that the end that forms the L is at the end with the little spring retaining tab on the cosmetic sideframe then the tab can be folded over to retain the spring. The retaining tab is only going to last so long though if it is repeatedly opened and closed. At this stage you may want to just try test assembling the bogie with a long piece of wire (say half of that provided) and then paint/blacken it before final assembly.

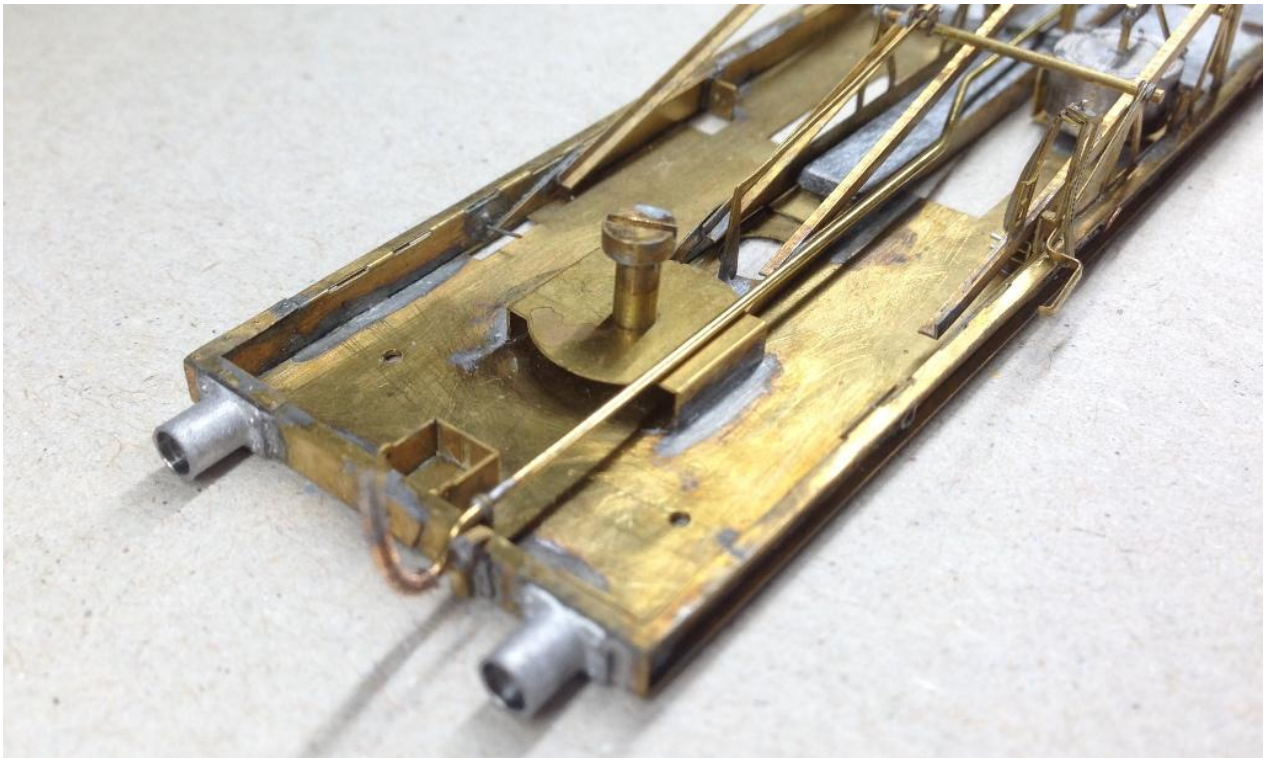
I haven't mentioned wheels yet. I fitted mine after I'd assembled the bogie with the spring wires. I did this by twisting one side as far as it would go and twisting the other in the opposite direction which gave just enough room to fit the wheels. Alternatively you can assemble the wheels at the same time as you put the bolster together and then add the spring wire. This is a bit of a three handed job though.



## **Location**

The bogie is designed to be retained using an M2 bolt and the fret provides for a locating plate made up of two parts; a bogie pivot base (12) and a bogie pivot frame (13). Solder an M2 nut over the hole in the bogie pivot frame on the side with the two fold lines. The bogie pivot frame can then be folded up and soldered to the bogie pivot base using the tabs and slots to locate the two parts. This unit can then be fitted to the underside of the wagon. The thread of the bolt will need to be 6mm long.

I dislike using the thread of a bolt as a bearing surface area so sleeved mine with a 4mm length of 2.5 x 2 mm tubing. If doing this you will need to open out the hole in the top of the bolster to 2.5mm.



### **Ride Height**

If the bogie pivot base is mounted directly to the floor then the arrangement of the bolster should leave the wagon sitting a little low. This is deliberate to allow for some leeway with different arrangements. The height can be increased by adding packing pieces above the bearing pins on the bolster. You could use plasticard or brass for this and set the height via the buffer centres. This should be about 13.8mm.

### **Couplings**

Provision has been made for fitting AJs to the bogies. There is a pair of small holes etched into the bolster and a slot along the centre line. If you want working AJs then you will need to arrange the coupling so that it starts off heading towards the centre of the wagon before doubling back on itself and passing through the bolster in order to get sufficient length to allow it to uncouple.

### **Painting**

It is recommended that the working parts of the bogie are chemically blackened rather than painted. The outside of the sideframes can then be primed (if you wish) and painted. If you wish to paint the entire bogie then make sure you don't get any paint around the sideframe/bolster cam area.

### **Finally**

Thanks must go to the GWS at Didcot, the East Somerset Railway and the Avon Valley Railway who have helped greatly in the preparation of these kits.

Justin Newitt 2018