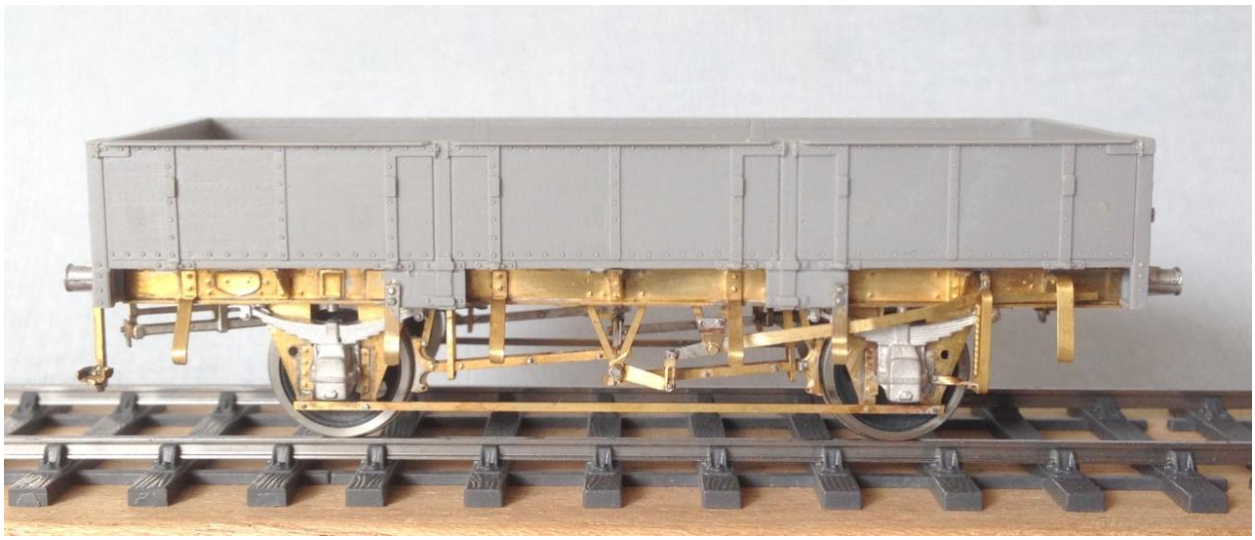
Rumney Models
BR 20T Grampus Wagon Chassis Instructions

Notes

This set of instructions covers the Rumney Models BR 20T Grampus wagon chassis kit B.34. It is designed to provide an accurate unfitted underframe for diagram 1/572 wagons and is designed for use with the Parkside kit.



The prototypes were BR's standard ballast wagon and nearly 4000 unfitted examples were built in the 1950s. They were allocated to all of the regions and examples could still be seen in service in the 1980s.

The Grampus were built by works all over the country but despite this exhibited very little variation over the course of their build and indeed working lives. The only thing that did seem to vary was the brake lever guards. The majority had GWR ratchet type brake lever guards, showing the wagons parentage in the GWR Tunny design, but some had RCH pin type guards. Provision is made for both types in the kit.

This kit is slightly different to other Rumney Models chassis in that it is designed to use the headstock on the Parkside moulded ends. The intricacies of the ironwork in the corners makes removing the plastic headstock very tricky, so this task has been avoided.

Read through the instructions first and familiarise yourself with the components. Drawings and photographs taken during the construction of the test etches are included to attempt to make my waffle clearer. Note that not all the photos are of these particular chassis but suitably illustrate the item in question.

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

Everyone has their own soldering methods. I use a temperature controlled soldering iron with predominantly 145° solder and La-Co paste flux.

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 individual springs made from 0.008" steel guitar wire soldered to the etched spring/bearing carriers. For this you will need a suitable flux. I use Carr's Black label. If the finished vehicle is weighted to 50g with the weight evenly distributed then this will produce a spring deflection of 0.5mm. Don't be tempted to up the gauge of spring wire. Even moving up to 0.009" springs will have a significant effect on the spring deflection. Also don't over weight the wagon or the springs will not have enough upwards movement before they hit the axleguards. Think of the 50g total as an ideal weight but also a maximum. There are notes on weighting the wagon at the end of the instructions.

The chassis is designed to produce a buffer centre height, when the kit is completed and weighted to 50g of 13.8mm when using Exactoscale wheels. The Exactoscale wheels are 13.4mm (3'1½") in diameter. Different makes of wheel may slightly affect the ride height depending on their diameter.

Materials list

Several sizes of wire are needed to build the chassis. Eileen's Emporium are good source for these and they do a mixed sizes pack if you don't want to buy large quantities.

0.31mm - Most of the brakegear, tie bars, brake lever guards, safety loops, baskets, corner steps
0.4mm - Body side door springs
0.8mm - Main brake cross shaft
1.0mm - Alignment pins for the axleguard assemblies and brakegear frets

You will also require items such as buffers and axleboxes and springs as well as couplings to complete.

For buffers I would recommend those produced by Lanarkshire Model Supplies. They are by far the best around and a lot of types of buffers are available pre drilled for fitting sprung buffer heads. This service is particularly useful for some of the heavy duty buffers with their large 2.5mm shanks. The quality is excellent. Grampus wagons generally had 1' 6" spindle buffers with the 4 rib variety (Lanarkshire Models code B003) being most common.

Metal buffer heads are available from MJT or Wizard Models should you wish to spring them.

The unfitted Grampus had 7 leaf springs and could be seen with a variety of BR heavy duty oil axleboxes. Rumney Models produces suitable 7 leaf spring castings with BR 2 part (FN.07), BR 2 part square (FO.07), BR welded with horizontal lugs (FP.07) and BR welded with vertical lugs (FQ.07) axleboxes.

Rumney models produces coupling hooks suitable for these (B.94) and also BR Instanter links (B.95A). These can be found in the 4mm section of the Rumney models website under Wagon Detailing. Exactoscale supply links and these are available through C&L.

Contact details for the above suppliers can be found at the end of these instructions.

Component List

1 - Chassis top plate
2 - Axleguard assembly
3 - Riveted axlebox guide overlay
4 - Solebars
5a - Solebar detailing overlays - for use with solebar brackets
5b - Solebar detailing overlays - for use without solebar brackets
6 - Solebar detailing
7a - Solebar brackets - Vertical
7b - Solebar brackets - Horizontal

8 - Buffer springing unit

9 - Main brakegear
10 - Brake shoe infill
11 - Push rod cranks
12 - Push rod infill
13 - Push rod safety loops

14 - Spring Carriers
15 - Bearing washers
16 - Axle tiebars

17a - Solebar door springs (main type)
17b - Solebar door springs (brake lever guards)

18 - Underframe trussing plate
19 - Basket outer end stop
20 - Basket inner end fill

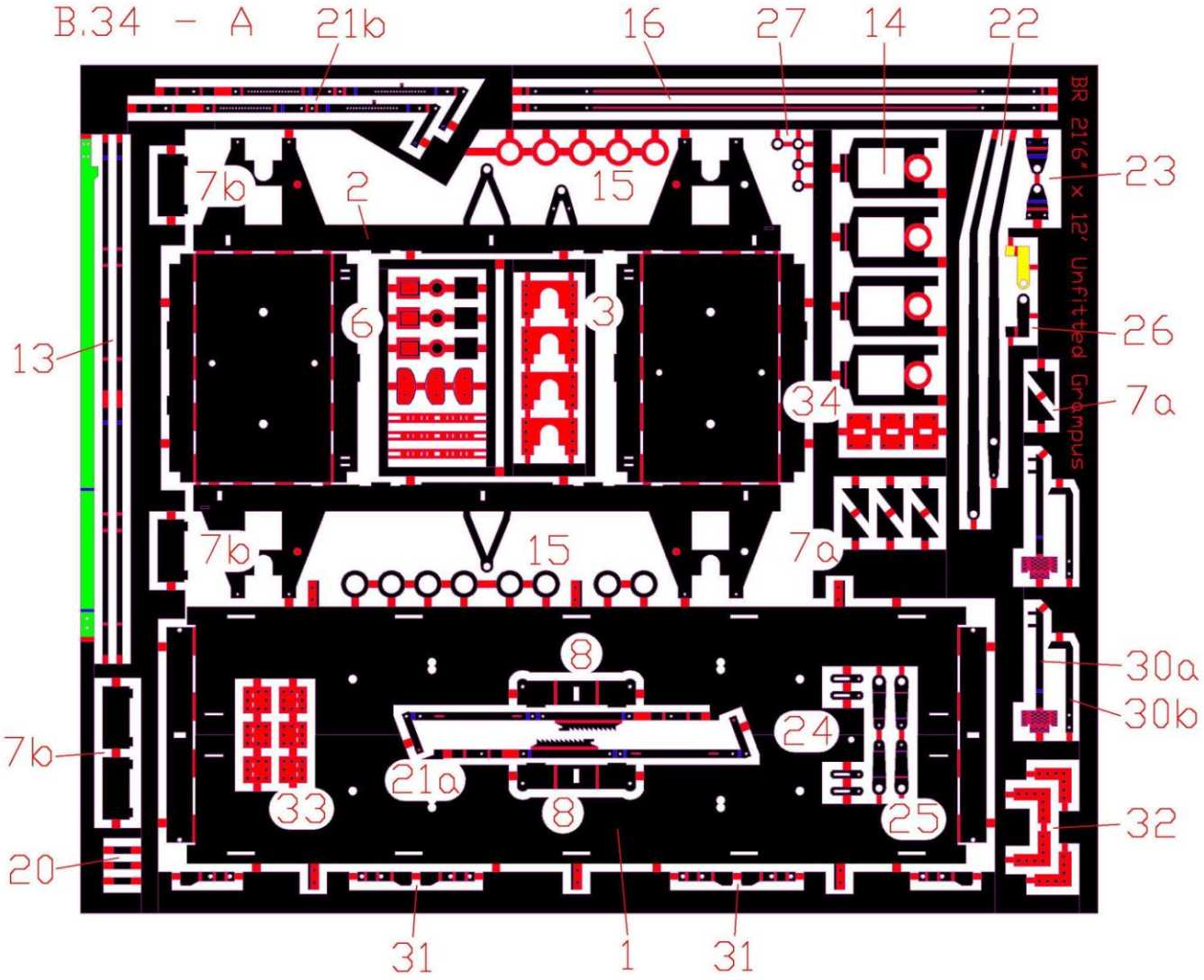
21a - Brake lever guard/bracket/stay (GWR type)
21b - Brake lever guard/bracket/stay (BR type)
22 - Brake levers
23 - Secondary brake lever vee overlay
24 - Lifting links
25 - Lifting link cranks
26 - Brake lever actuator
27 - Brake lever washers

28 - Buffer drilling jig
29 - Body door springs
30a - Corner step
30b - Corner step angle

31 - Buffer retainers
32 - Solebar/Headstock corner plates
33 - Solebar/Headstock bracing
34 - Coupling pocket detail

A drilling jig is included as an aid for fitting the body side door springs and corner steps. This is shaded green on the parts diagram.

A - Grampus baskets (nickel silver etch)


B.34 - A
21b
16
27
14
22
BR 21'6" x 12' Unfitted Grampus
23
7b
2
15
26
13
6
3
34
7a
7b
15
7a
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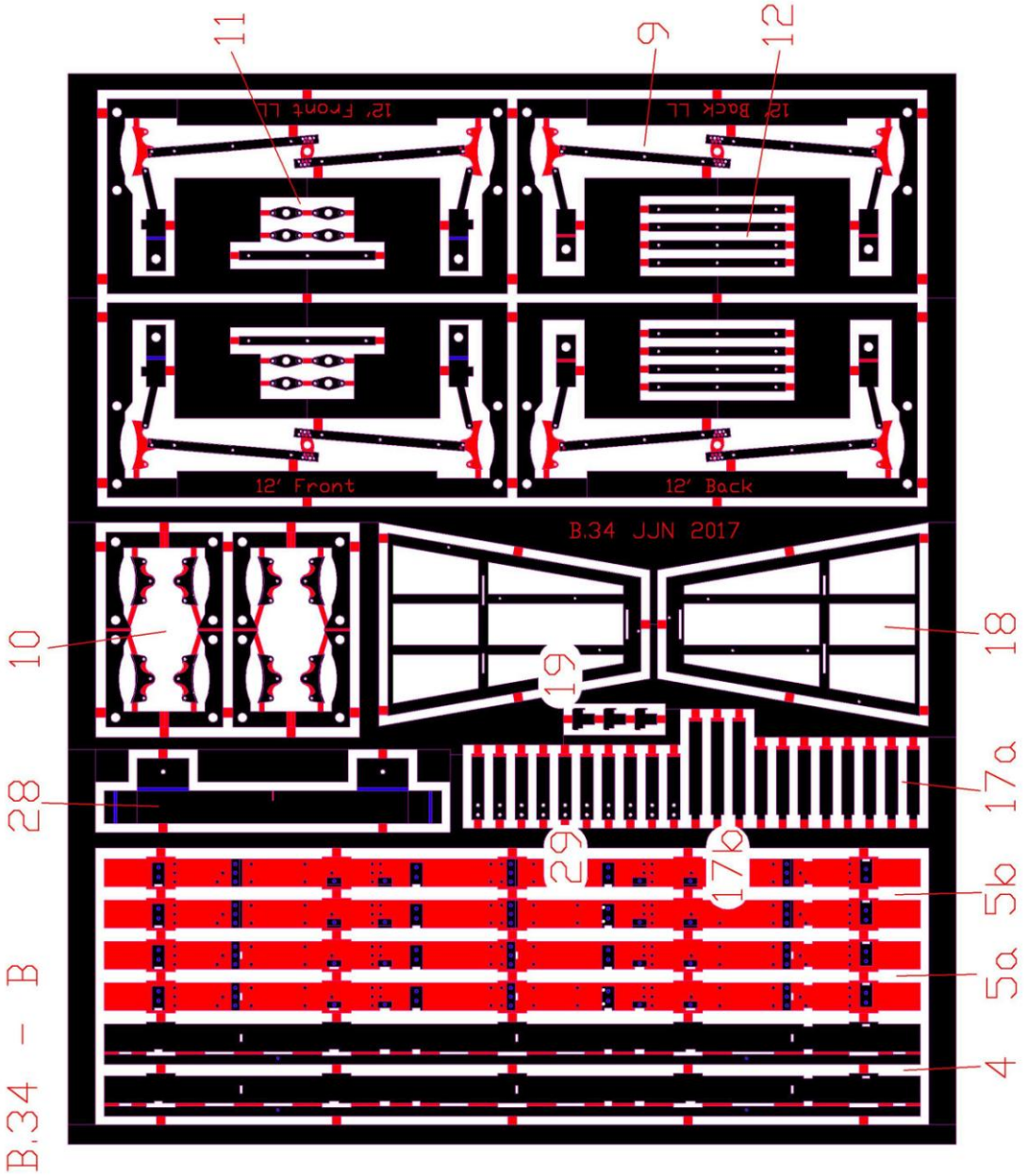

11
9
12
12' Front LL
12' Back LL
12' Front
12' Back
B.34 JJN 2017
10
19
18
28
29
17b
17a
5b
5a
4
B.34 - B

BR Grampus - Unfitted

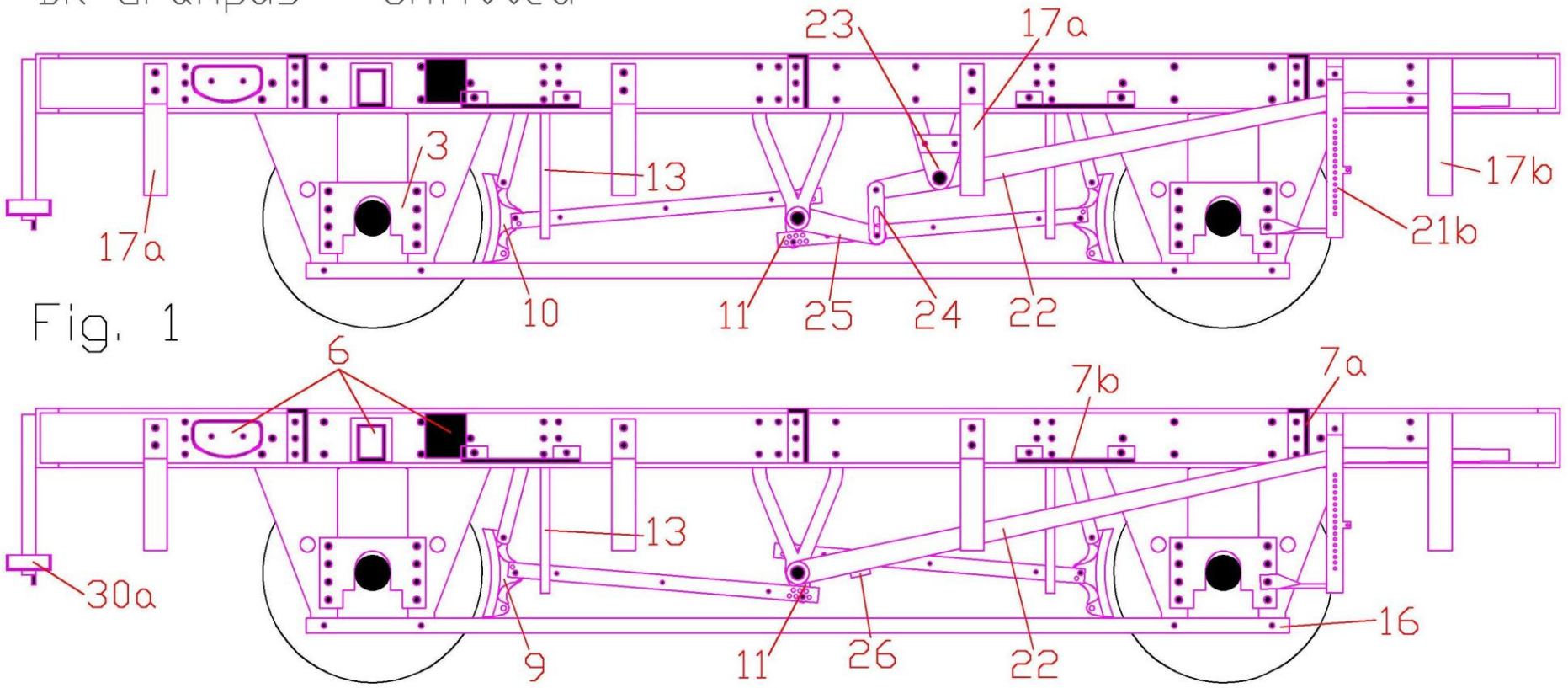


Fig. 1

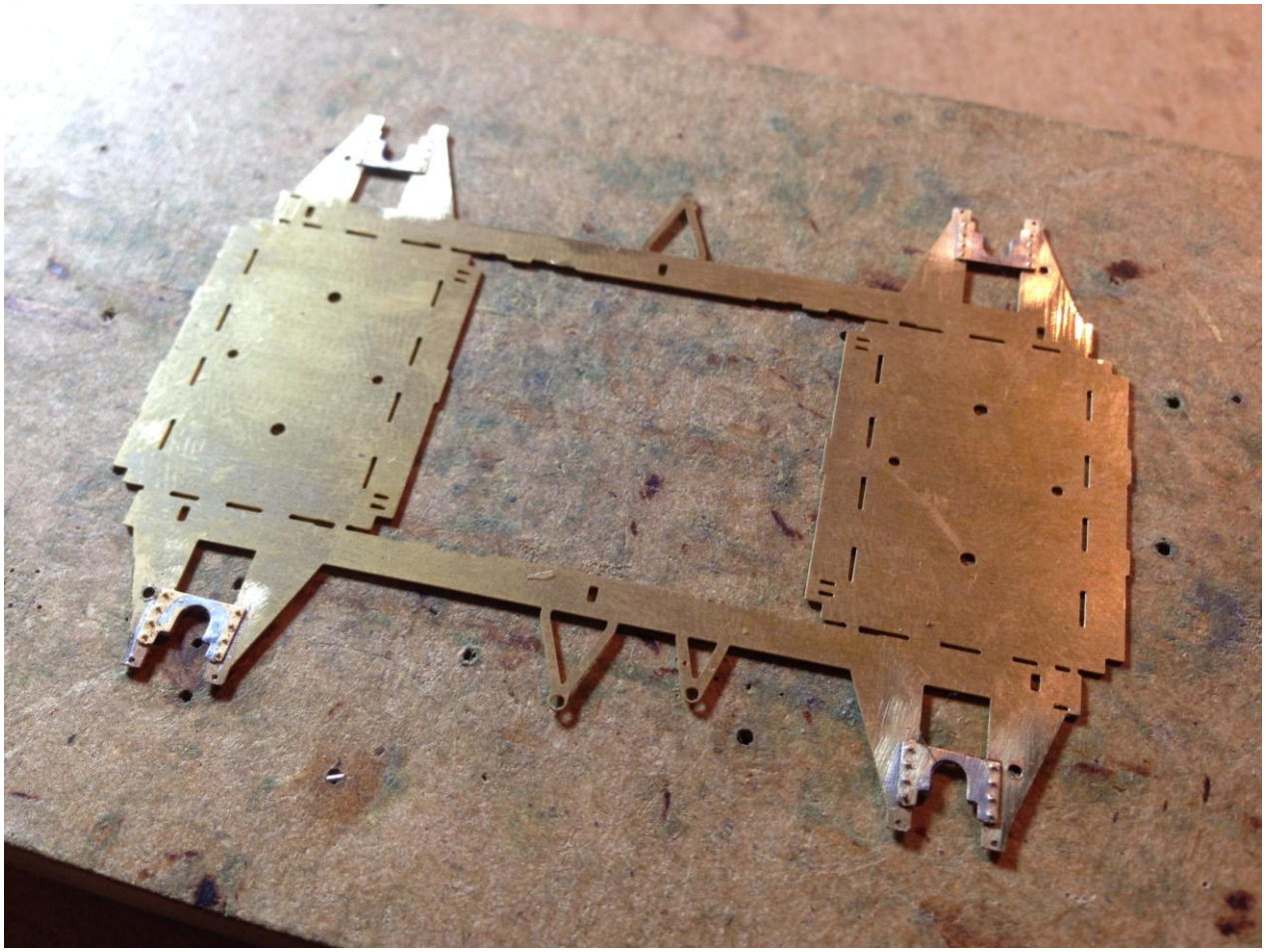
Construction

Main Chassis

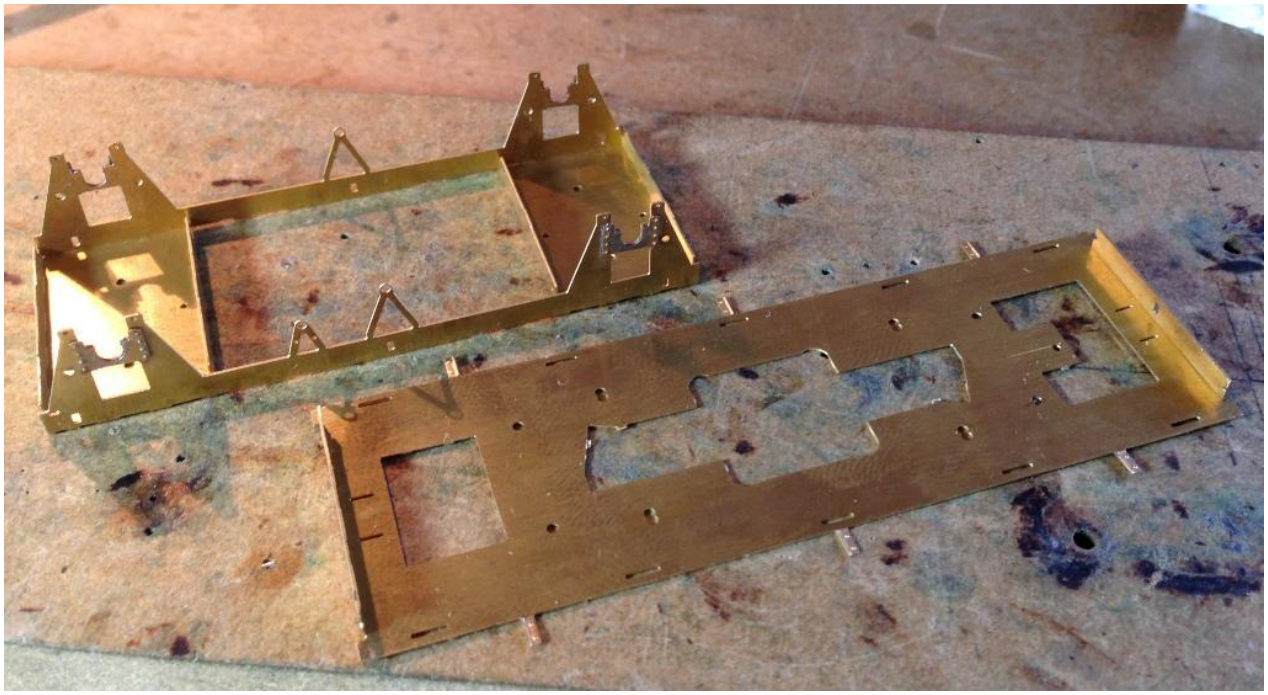
Start with the chassis top plate (1). Remove the detailing parts from the centre making a note of what's what and remove the chassis top plate from the fret. Clean up any connecting tags and fold up the ends.

Check that all the holes in the in the vees on the axleguard assembly (2) will accept 0.8mm wire. Check that the small holes in the secondary brake lever vee will accept 0.31mm wire. If necessary drill out the holes on the backs of the axleguards as per your prototype (they did vary) using a 0.85mm drill then remove from the fret. Remove the detailing from the middle of the axleguard assembly and clean up connecting tags.

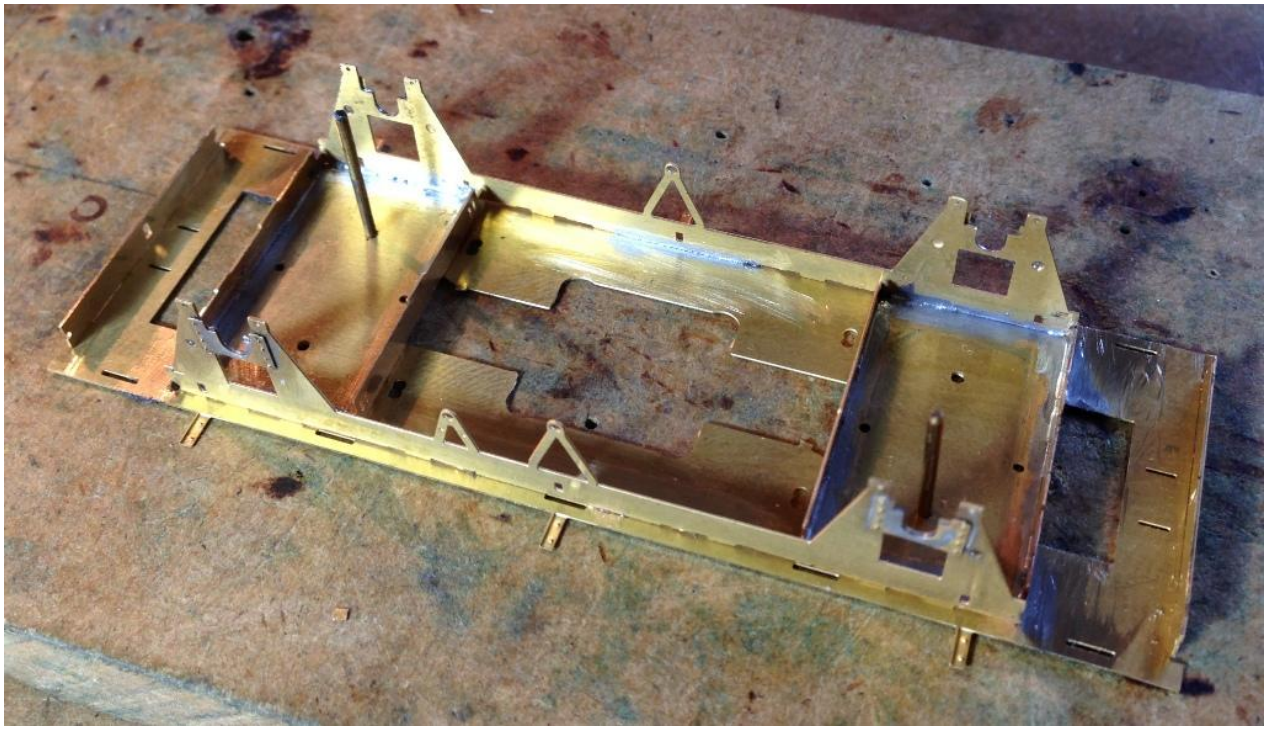
Etched riveted axlebox guide overlays (3) are included on the fret. Use the slots for the axles as a guide and solder in place. Make sure they will end up on the outside of the axleguard, i.e. on the side without the fold lines.



Carefully fold up the sides and the four spring supports. Make sure that the sides are at 90° and adjust if necessary. Reinforce the fold lines with solder.



The chassis top plate and the axleguard assembly then need to be soldered together. There are 1mm diameter holes on both the top plate and axleguard assembly to aid location. Using short lengths of 1mm wire with the ends tapered slightly pin the two parts together. You may need to open out the holes slightly but make sure the wire is a tight fit. Solder the two parts together and then remove the locating pins. I have noticed a tendency for the top plate to lift in the centre when the solebars are fitted so make sure area around the vees on the axleguard assembly are soldered to the top plate.



Next remove the solebars (4) from the fret and fold into an L shape. I find the best way to do this is in a vice.

Remove the solebar overlays (5a or 5b) of your choice from the fret. Overlays 5a assume that you are going to fit the solebar brackets. If you don't fancy these parts use 5b.

As a result of the etching process there should be a curve through them with the ends closer to you if looking at the rivet detail side. Carefully bend them so that the curve is reversed slightly and that the ends are further away when looking at the rivet detail. This can easily be done between thumb and forefinger but take care not to put any folds into it.

Now is probably the easiest time to attach the solebar detailing to the solebars so I shall cover this now before returning to the business of assembling the chassis.

Solebar detailing

The solebar detailing (6) comes contained in its own little fret. See Fig. 2 below. On it you will find fabricated axle spring stops, two sorts of number plates, label clips and a rectangle that is actually a block of wood on the real thing. I have no idea what the purpose of the last item is but it was quite common. By far the most common type of number plate was the D type. The positions of all this stuff varied so check your prototype. The details can be soldered on or glued. If you wish to glue the detail on its best left until the chassis is assembled.

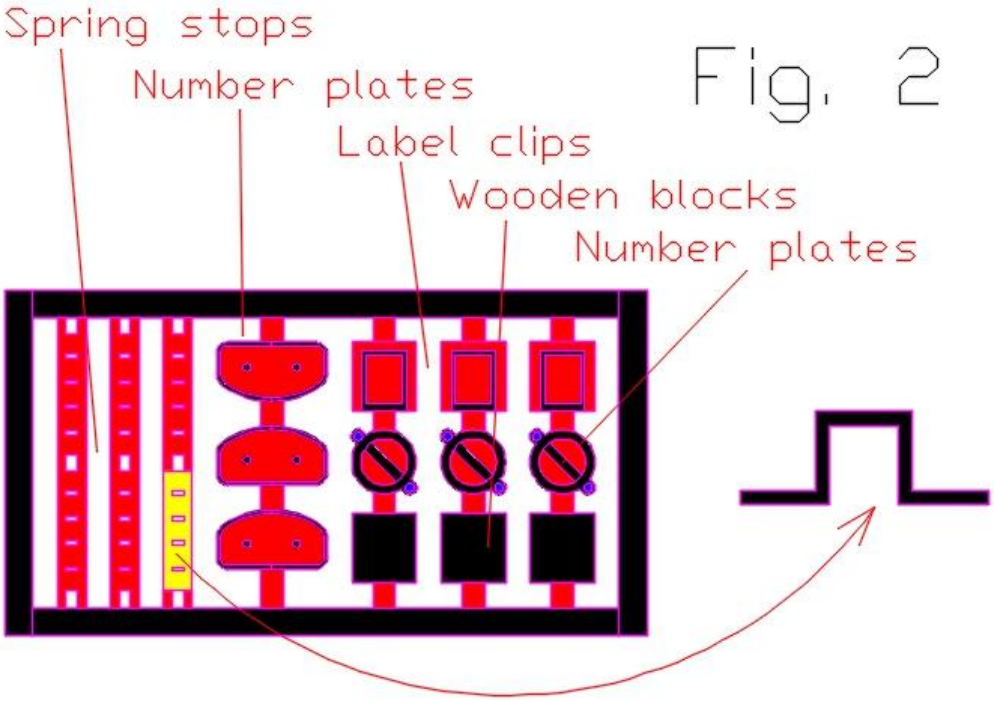
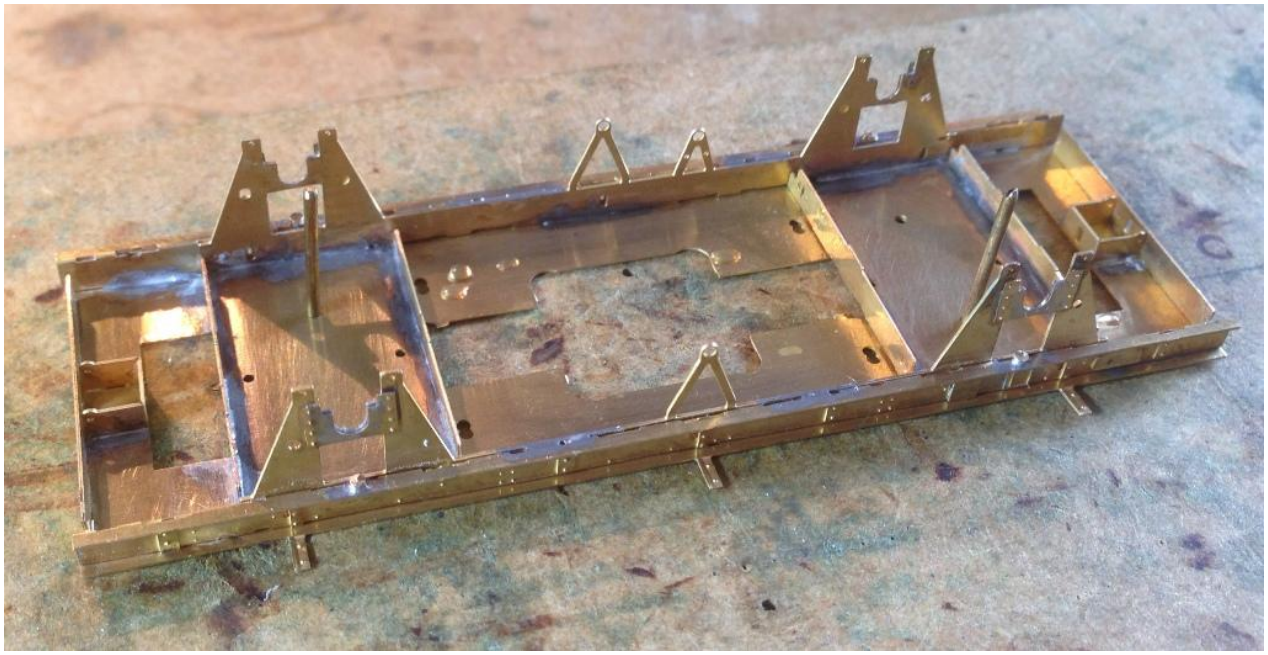


Fig. 2

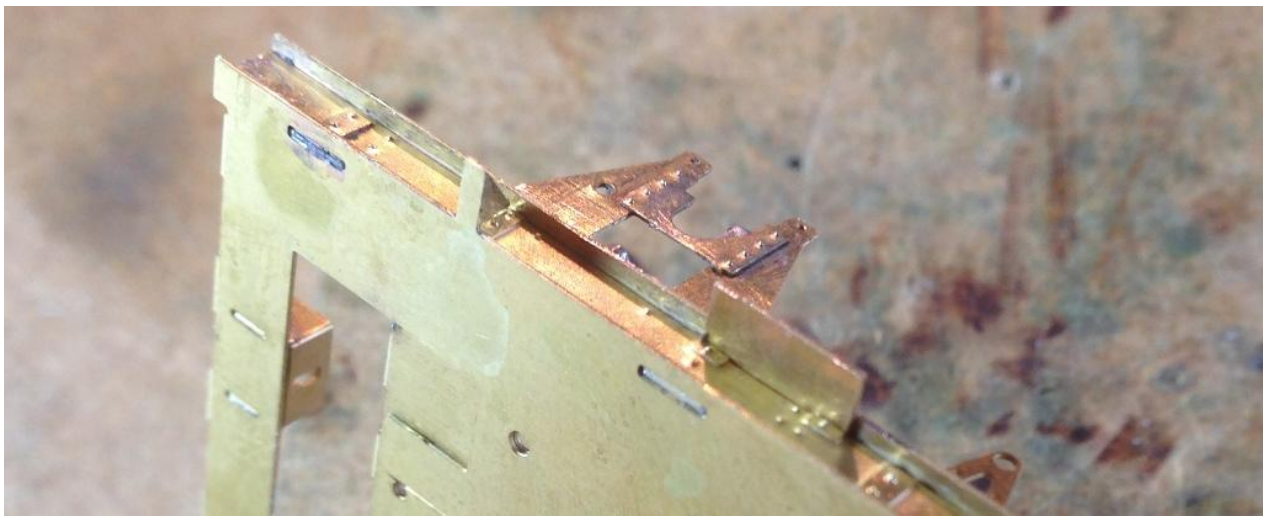
The solebar overlays are designed to fit into the slots in the solebars. The completed solebar then locates into the slots in the chassis top plate. Locate the solebar detailing overlay in the solebar and tack solder in pace. Note that there is a right way up for all the overlays (if in doubt the notches for the brake lever guards, side support brackets and door springs should coincide with those in the solebar) and also a correct side for the solebar detailing on chassis, i.e. the rivets in the centre of the detailing should line up with the vees. See Fig. 1 if you are unsure. Do one solebar at a time and lightly solder in place once happy with the fit.

The solebars can now be fitted to the chassis. There are slots and tabs to aid location and the ends go into the channel that is the headstock. Don't forget that the solebars have a correct side, as outlined above. Once in place then the solebar can be soldered in place. The fold line on the headstock can now be reinforced with solder if you wish.



Solebar Brackets

If you wish now is the time to fit the solebar brackets. There are two types, vertical (7a) and horizontal (7b). You will need to have used solebar overlays 4a if you want to use them. In all cases the tabs are inserted into slots in the solebars and then soldered in place. For the vertical brackets there are 'tongues' on the chassis top plate to assist with this. The horizontal brackets fit along the bottom of the solebar at the points where the body side door springs are attached to the body. See Fig. 1 for more clarity on positioning.

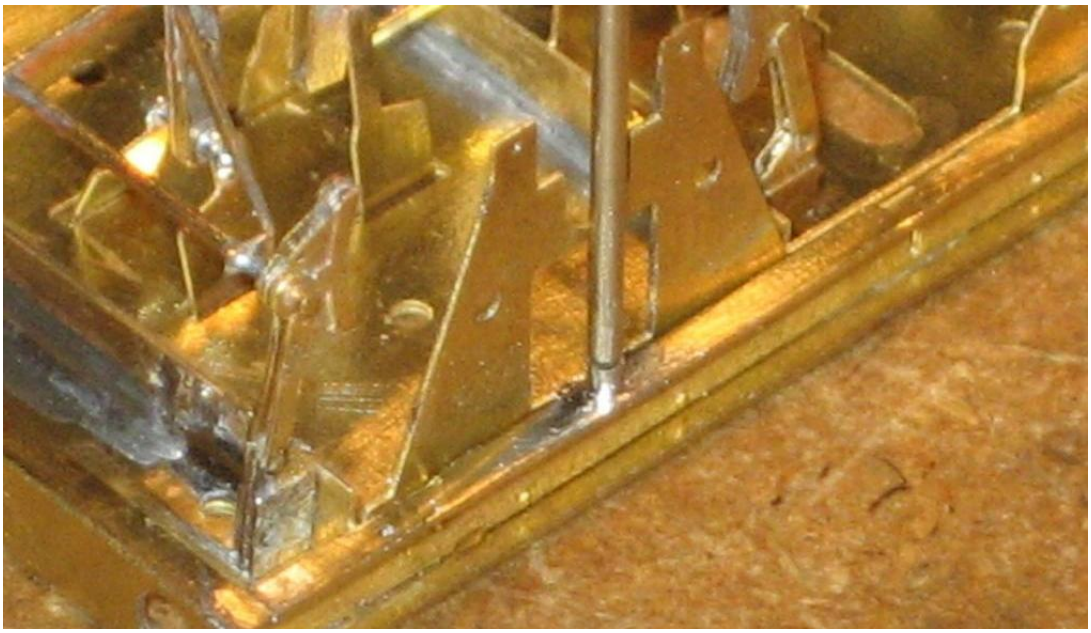


Buffer Springing Unit

My preference is to fit buffer springs made from guitar wire rather than coil springs. The buffer springing unit (8) follows on from the development of my buffer springing kits (Rumney Models B.93A and B.93B). It simply folds into a C shape and locates into slots at the ends of the chassis top plate to provide fulcrum points for guitar wire springs. Remove from the fret, locate and then solder in place.

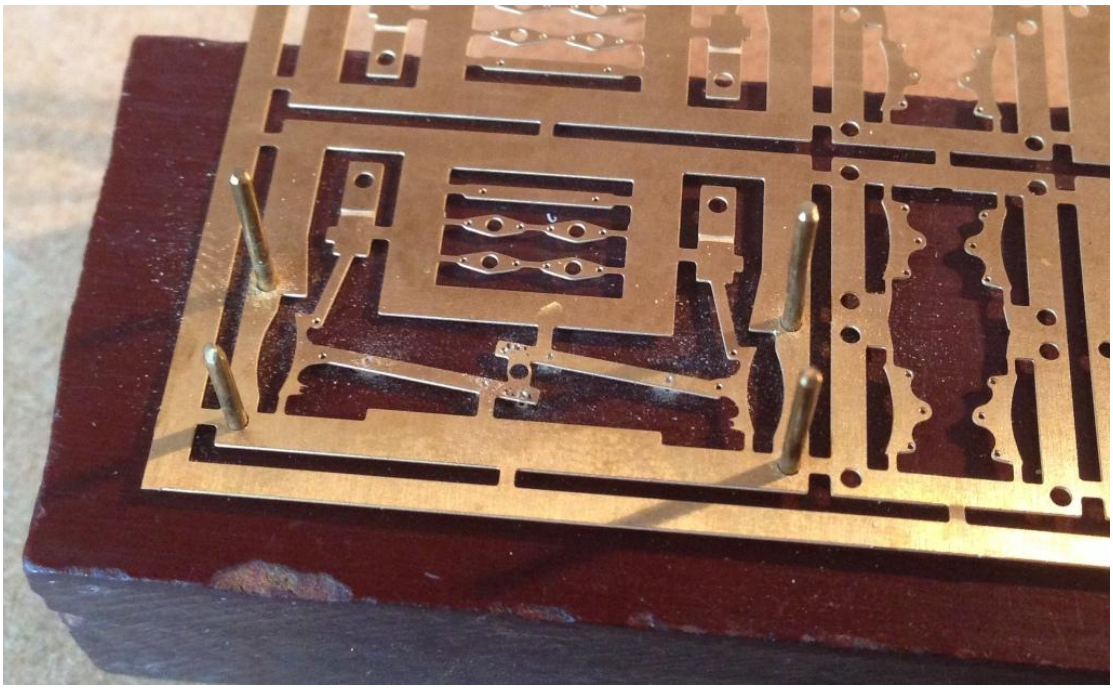
Spring Stops

Both fabricated and round section springs stops could be found on the Grampus. There are 6 fabricated spring stops on the solebar detailing fret (see Fig.2) which can be folded up and then soldered in place. I find a small pair of self closing tweezers good for this. For round pattern spring stops I use 1mm wire. I cut almost all the way through the wire with a piercing saw and then solder in place. The cut can then be completed without the soldered joint breaking and the top gently filed flat.



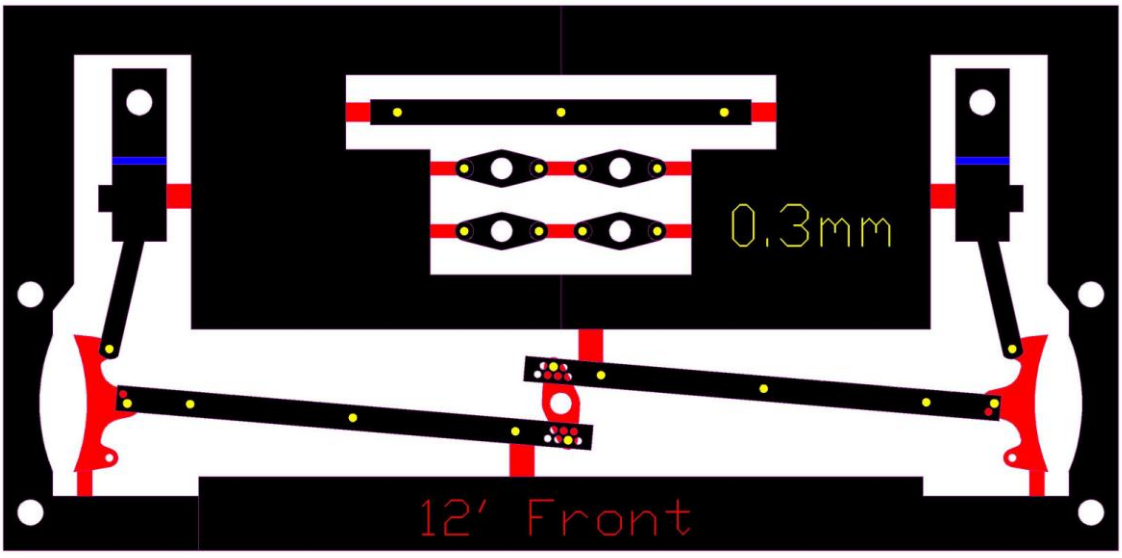
Brakegear

The first step is to create a jig to aid assembling everything. Use a suitable piece of wood or mdf. Use the etch as a guide. Drill through the main brakegear (9) parts labelled **front** with the writing **facing** towards the wood. The larger holes are 1mm diameter and the smaller ones 0.3mm. If you are unsure which holes you should be drilling through see Fig. 3 below. If you are making a 4 shoe Morton chassis you will need two jigs, one for each side.

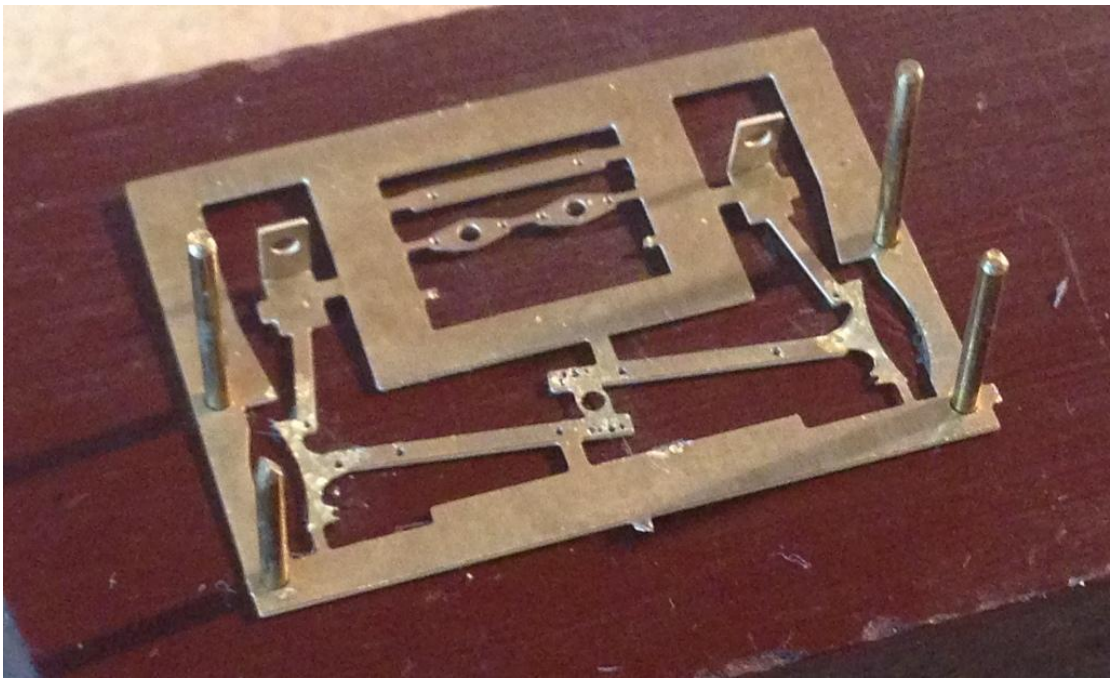


Check that the small holes in the fret can accept 0.31mm wire. These are marked in yellow on Fig. 3 below. I find it easier to locate the hole from the side with no writing.

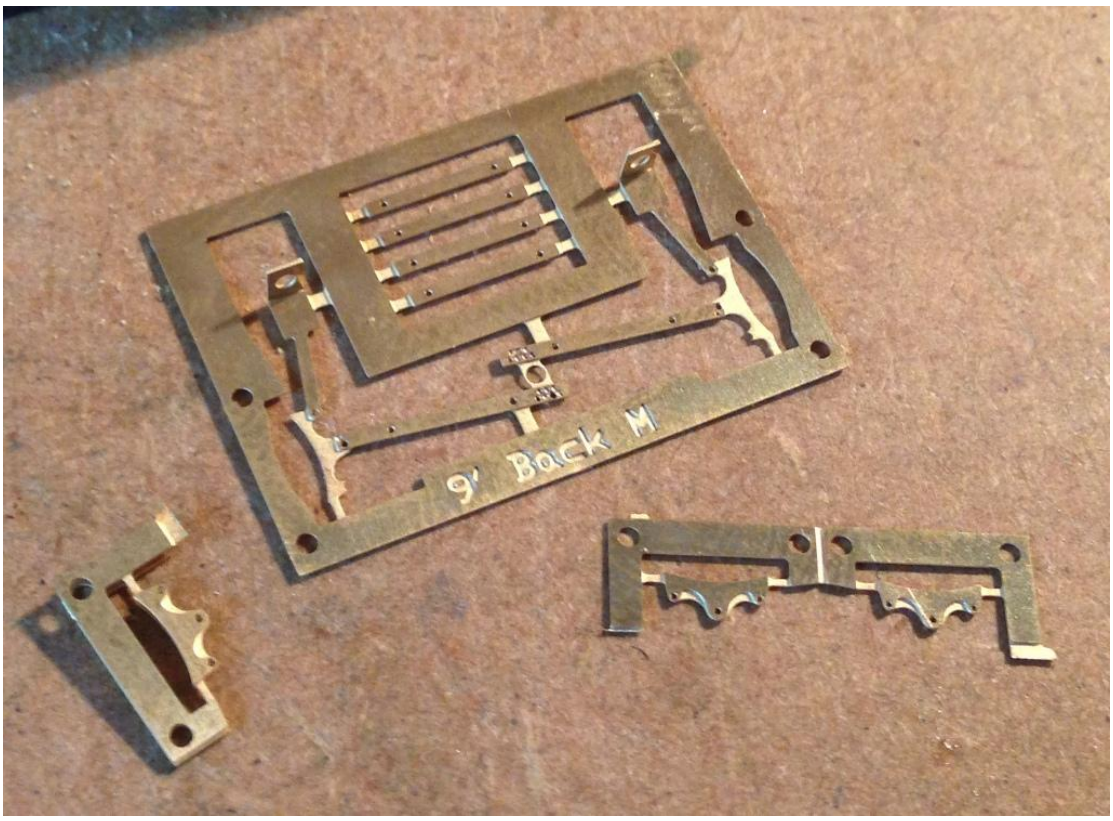
Fig. 3



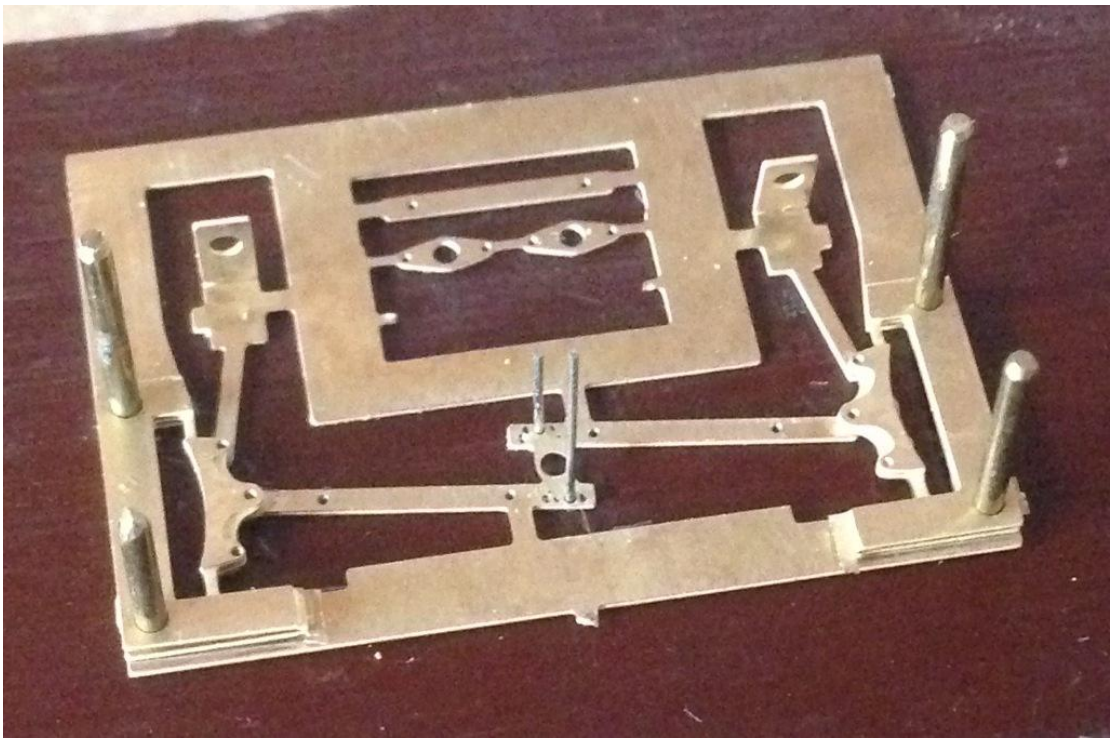
Remove the push rod cranks (11) and push rod infill (12) (if required). Carefully fold up the feet on the part labelled **front** and pin to the jig using short lengths of 1mm wire, writing side facing down.



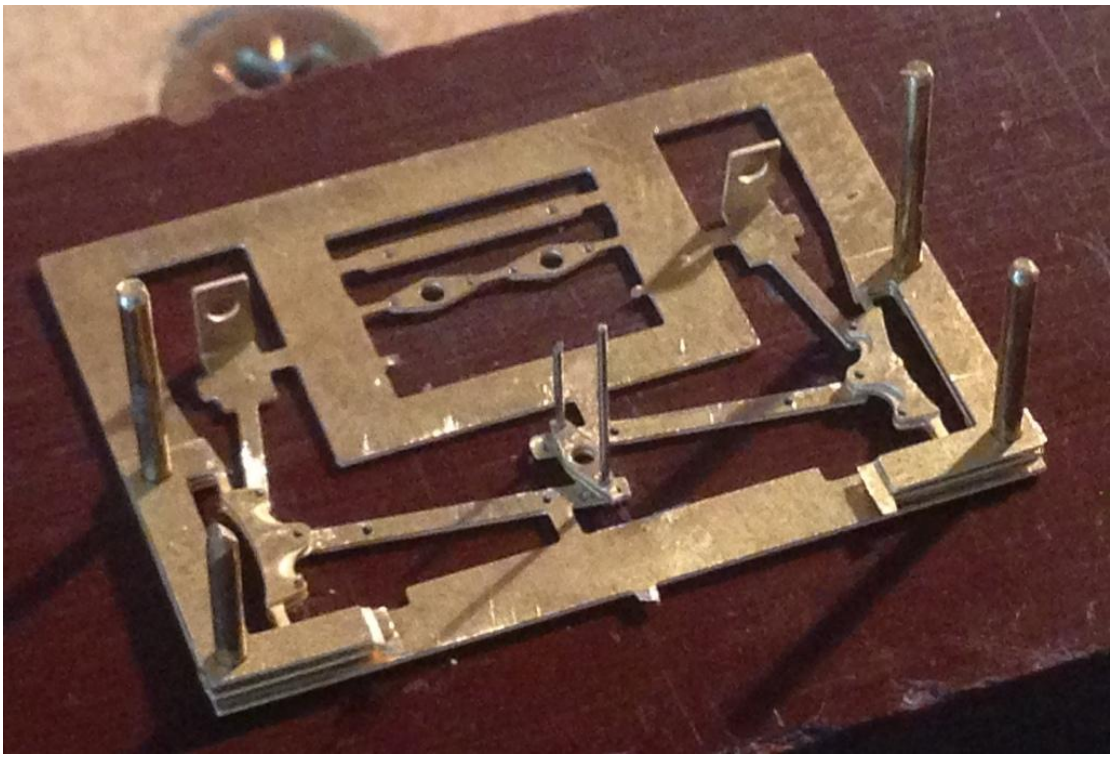
Take the brake shoe infills (10) and fold double with the fold line on the outside.



Place the brake shoe infill over the front using the 1mm wire rods to align everything. Insert two short lengths of 0.31mm wire onto the holes where the push rods join the brake shaft cranks.

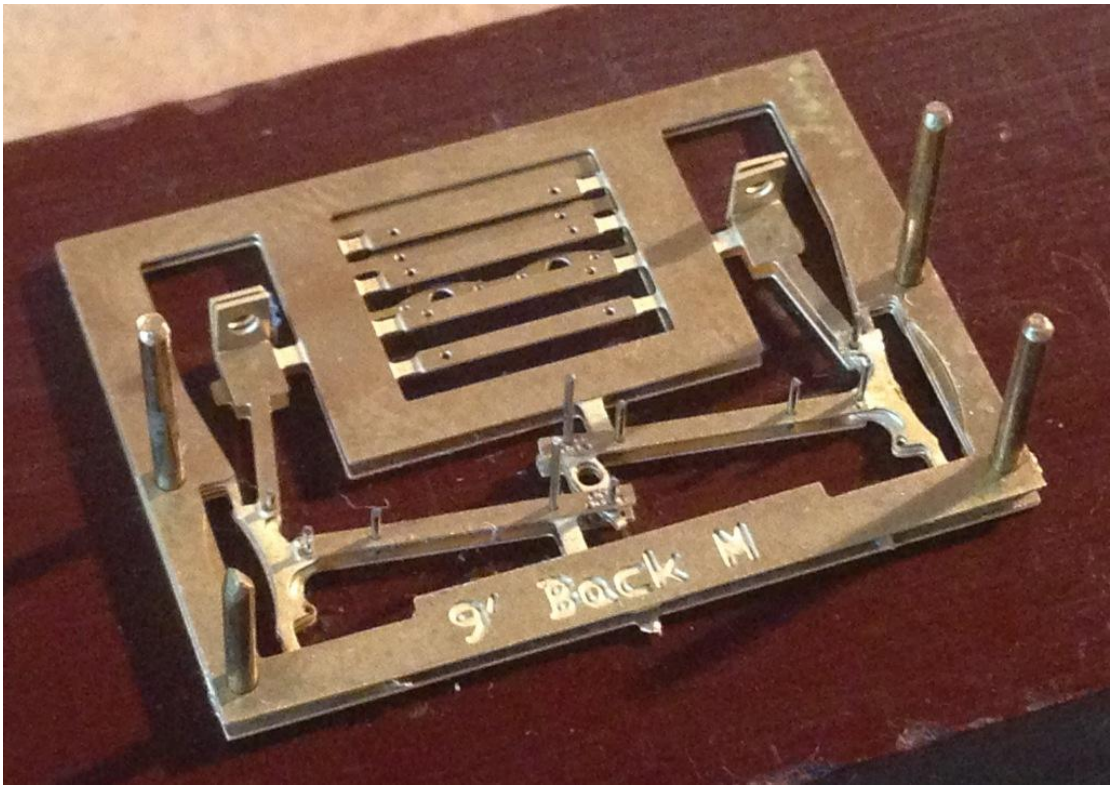


Fold up one set of push rod cranks and place onto the two lengths of 0.31mm wire.



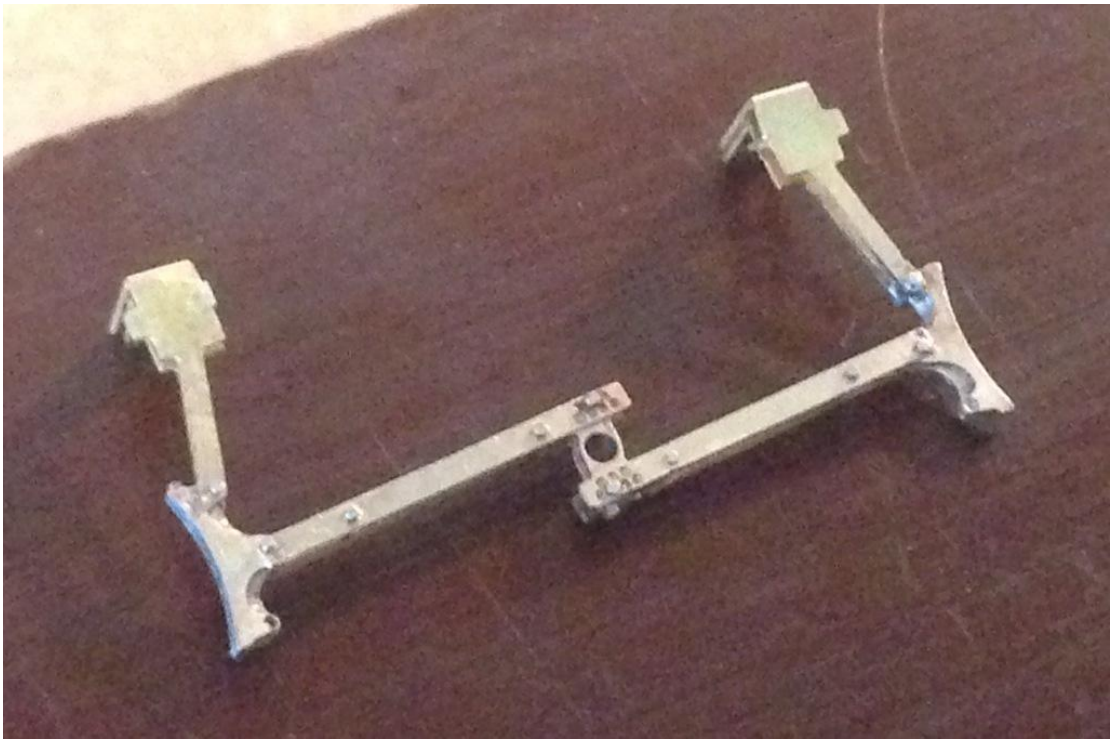
If you wish to use the push rod infill pieces provided then repeat the process for the cranks with theses parts.

Carefully fold up the feet on the **back** part of the brakegear and pin onto the assembled layers with the writing visible and facing away from everything else. Make sure all the bits of wire go where they should. Fill the remaining holes with 0.31mm wire making sure it goes all the way through.

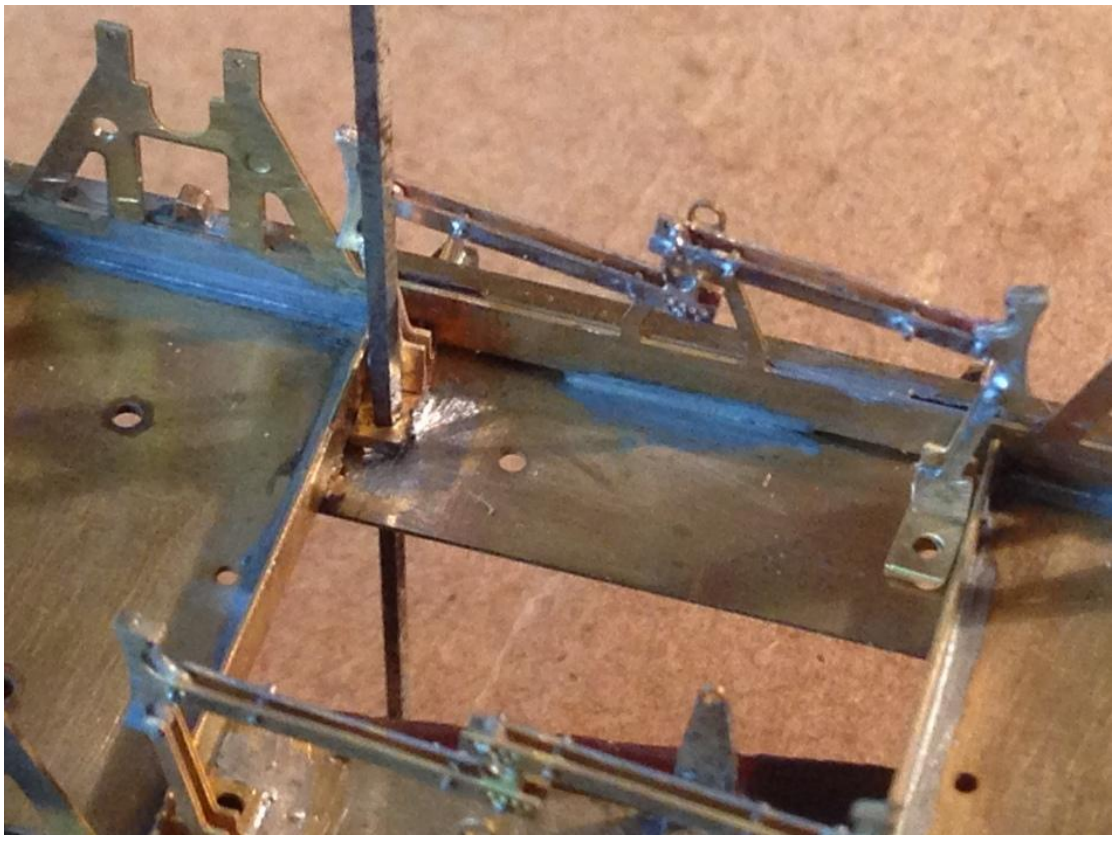


Solder the layers together paying particular attention to the brake shoes (I found it best to apply solder to the long curved edge) and the joints where the wire meet the etch.

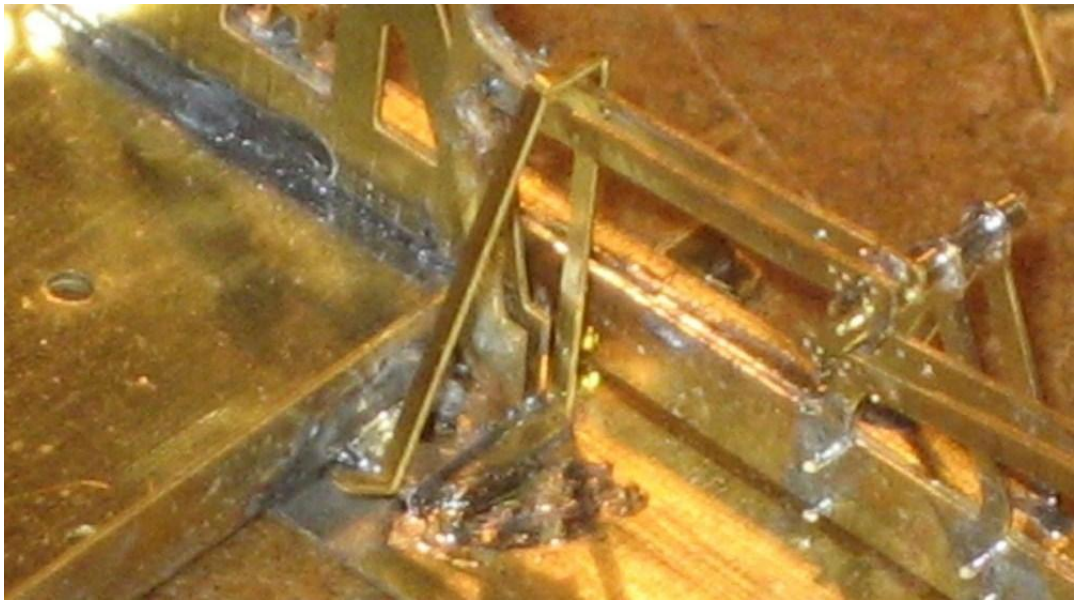
Carefully remove the brakegear from the fret; I used a piercing saw. Clean up any tags that are left and also the wire to represent bolt heads.



The brakegear can be fitted to the wagon using the tabs and slots. Gently bend the shoes to get the tabs into the slots. Use something suitable to pin the brakegear to the chassis through the holes in the feet while you solder them in place.



Finally the push rod safety loops (13) can be fitted. These fold up and once wrapped around the push rods can be soldered in place hard up against the base of the brake shoes.

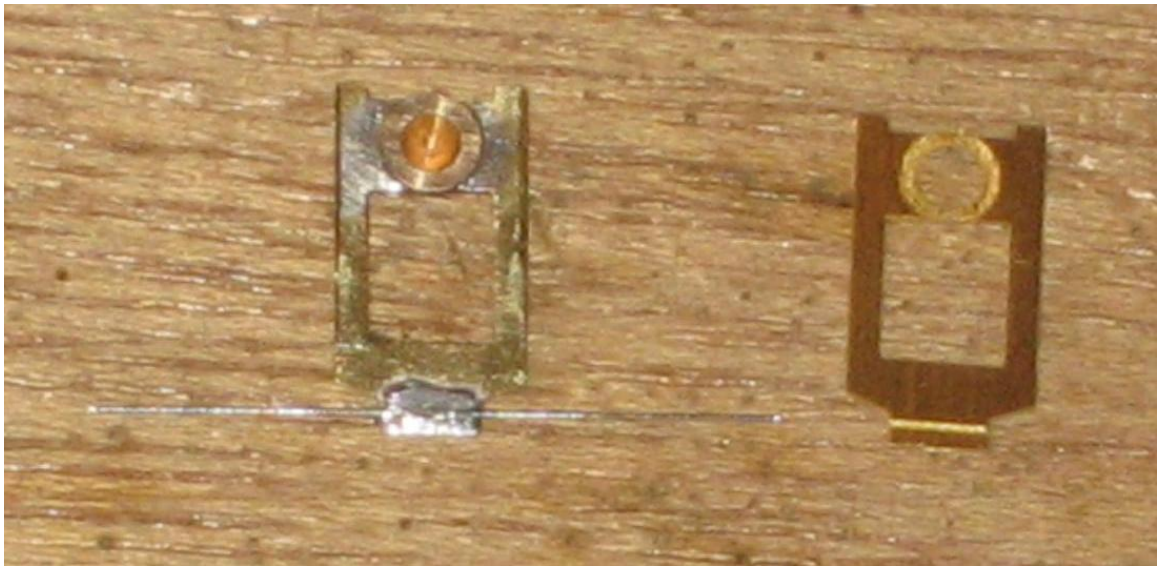


Spring Carriers

The spring carriers (14) can now be assembled. They are designed so that the springing wire is soldered to the carrier using the half etched slot as a guide. As mentioned in the preamble a suitable flux will be necessary. I use Carr's Black Label.

The distance between the backs of the W-Irons is a bit larger when compared with other systems and works out at 24.5mm. This is deliberate and I make no apologies for it. The advantage of this measurement is that if using pin point axles you don't have to hunt around for bearings that are deep enough but you may find that the carriers need packing out a little to take up any slop. Bearing washers (15) are included for this purpose. There should be a good fit between the axles and the bearings with ideally no sideways movement at all. If using pinpoint axles use a waisted type of bearing to avoid having to remove any more material form the cast axleboxes than is necessary. I have used Exactoscale waisted pin point bearings which are just about perfect for the job with only occasional ones that require packing out. Due to the removable nature of the tiebars you can easily use Exactoscale parallel axles and bearings. If doing so then you will need to pack the bearings out on the back of the spring carriers before soldering them in place due to the length of the axle. Use the bearing washers provided. I have built chassis with Exactoscale parallel axles and used one half etched washer and one full width washer to pack the bearing out. This leaves the outer edge of the bearing 0.25mm beyond the W-Iron and provides 1mm of bearing surface for the axle.

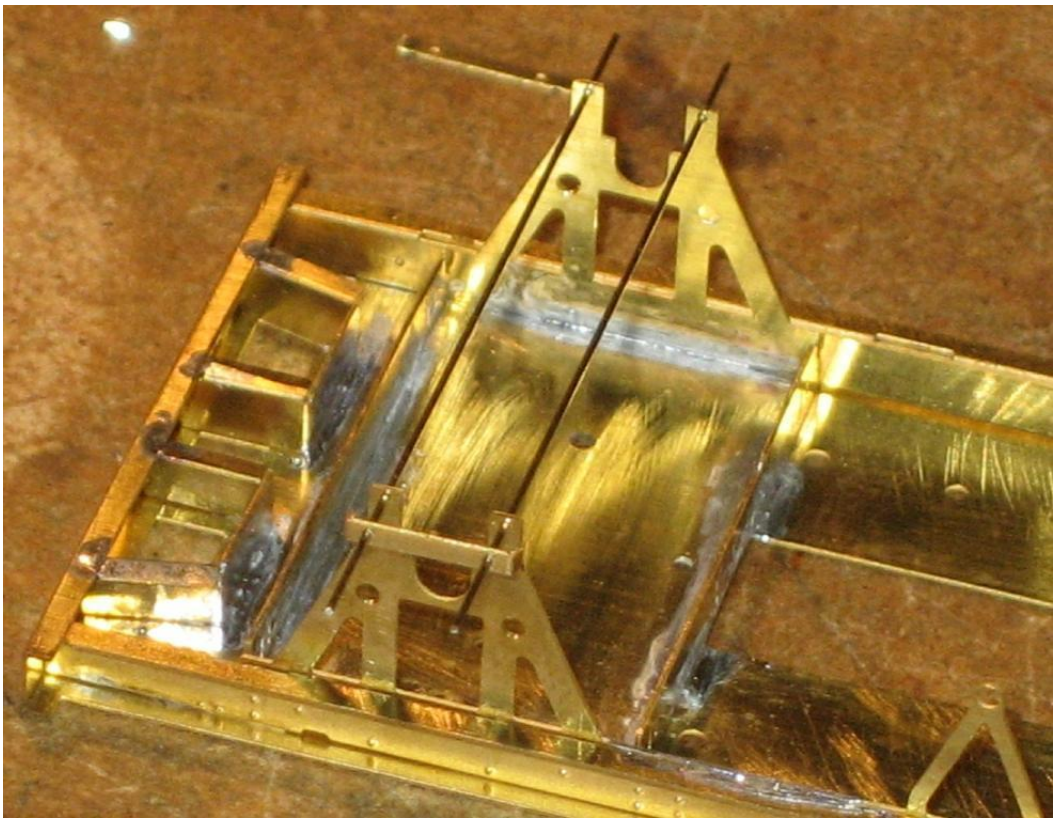
I find the easiest way to assemble the spring carriers is to make a small jig consisting of an off cut of wood with a 2mm hole drilled into it. The spring carrier can then be placed so the half etched guide slot for the spring is facing towards you and the bearing locates through the hole in the carrier and the wood. The bearing can then can be soldered in place. The spring wire can then be located in its half etched guide slot and soldered in place using a suitable flux. I use Carr's black label. The spring wire needs to extend at least 7mm either side of the point where it is attached to the carrier.



Tiebars

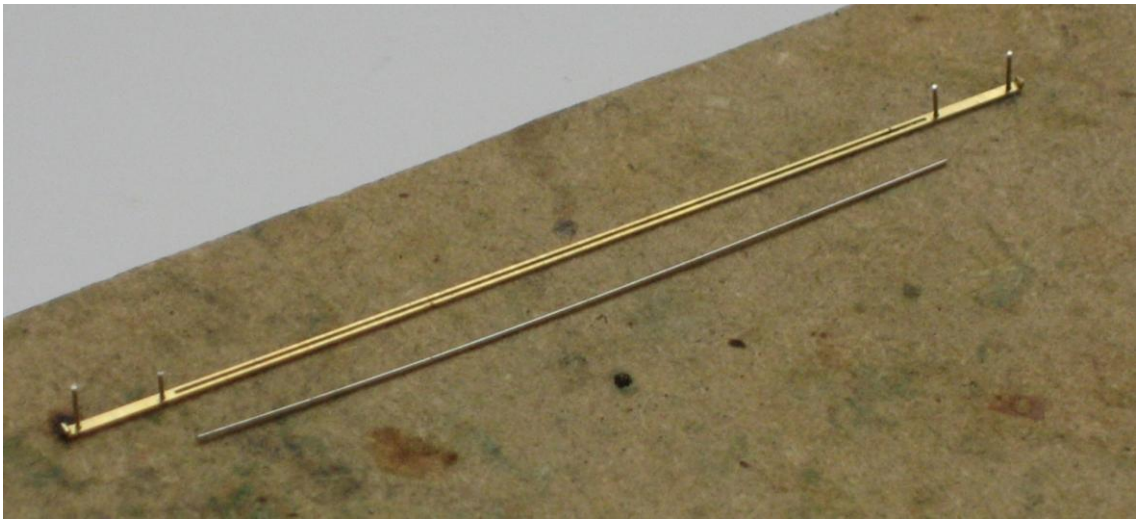
There are tiebars (16) included which are designed to be removable if you wish in order to allow the wheel sets to be easily dropped out. They can be soldered permanently in place but either way you will need to make sure the holes will accept 0.31mm wire before removing them from the fret.

If you are not planning on making them removable then they can be pinned and soldered to the axleguards. Remove from the fret and fold the ends up. Thread lengths of 0.31mm wire through the tiebar and holes in the axleguard and the corresponding holes on the opposite axleguard. Solder in place. Fit the other axle guard and solder in place. Trim the wire so that it represents bolt heads on the tiebars but extends approximately 0.5mm from the back of the axleguard. These pins will prevent the springs from becoming disengaged from their slots.



If you want to make them removable to allow the axles to be dropped out then you will need to solder 0.31mm pins through the holes in the tiebars. I find the easiest way of doing this is to use one pair of holes as a jig and drill a pair of 0.3mm holes into a piece of scrap wood. Short lengths of 0.31mm wire can then be threaded through the axle guards locating into the holes in the wood. These can then be soldered in place and filled back to represent bolt heads before folding up the ends.

Fold the ends and locate two short lengths of 0.31mm wire through the holes and into the holes drilled into the wood. Solder the wire in place and whilst still pinned to the wood file the wire back to represent bolt heads. Remove and trim the other end of the wire. You will need to make sure there is at least 0.75mm of wire projecting from the back of the tiebars otherwise the spring carriers will be able to fall out of place when everything is assembled. It is also a good idea to leave at least one of the pins in the axle guard as long as possible to give you somewhere to hold them when painting. Once the tiebars and the chassis are painted they can be tack glued together on final assembly. The glued joint can be broken and the tie bars removed if you find it necessary to remove the wheels at any point.



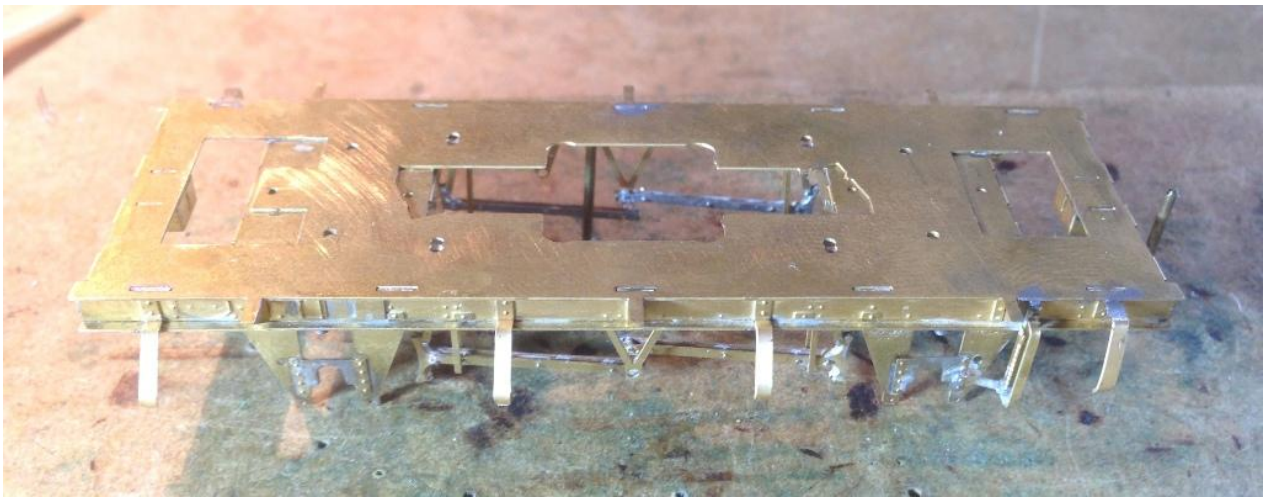
I find long tiebars are quite fragile on their own and so reinforce the back of mine with 0.31mm wire. There are slots etch on the back of the tiebars to help with this.

Door Springs

Solebar door spring (main type) (4a)

Solebar door spring (brake lever) (4b)

Two types of solebar door spring are included on the fret. There is a main type (5a) and one that goes over the brake lever (5b). Remove from the fret and fold up as per the photographs above. locate into slots in the solebar and solder in place. The best place to do this is where the door spring meets the bottom ledge of the solebar. There are also body side door springs on the fret but we shall deal with these later when we look at the body.



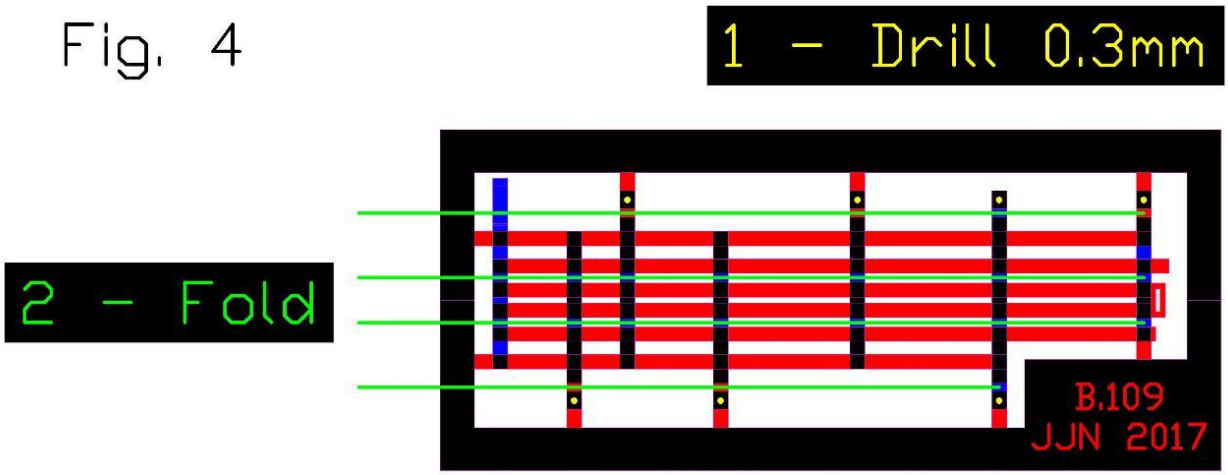
Baskets

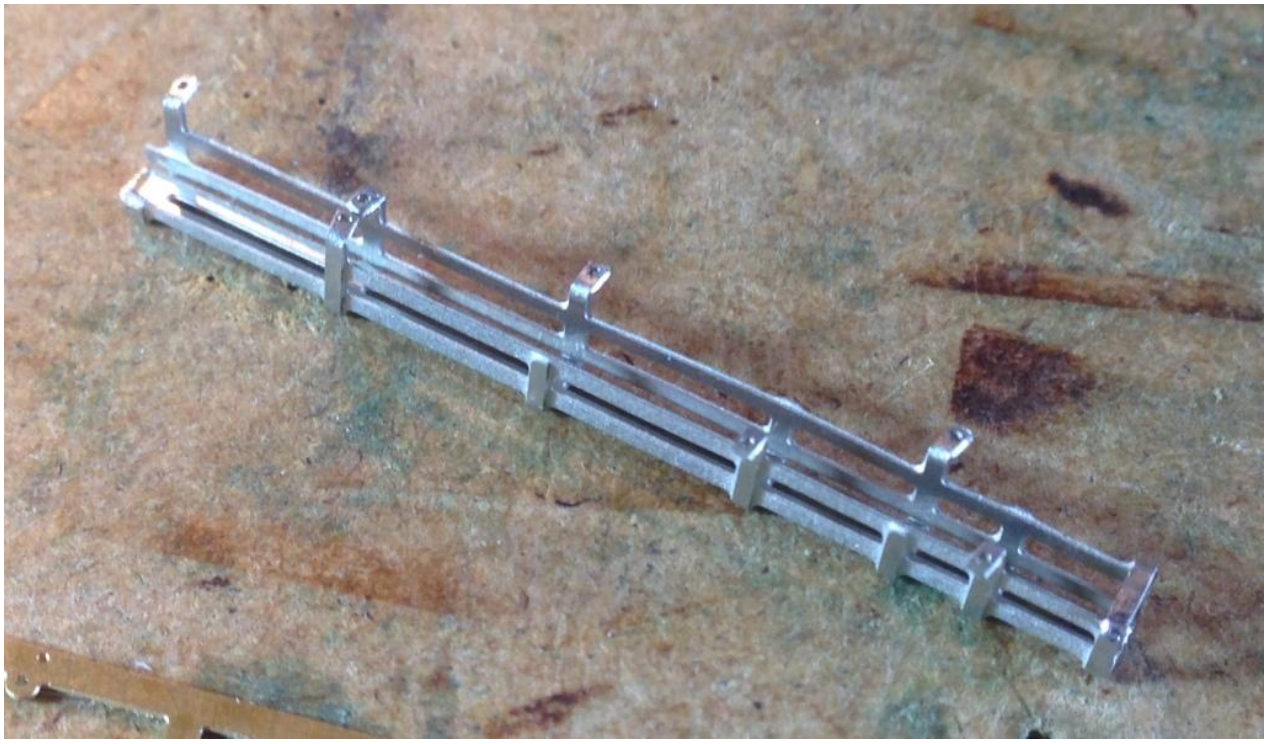
The baskets (A) are designed to be a simple fold up affair. They are etches in a thicker material than the rest to try and give a better impression of the construction of the real thing. They are designed to be pinned to the underframe trussing plate (18) which is then soldered to the chassis.

Firstly drill out the holes on the baskets (A) 0.3mm, see Fig.4. Then remove the baskets from the fret and fold along the green lines in Fig. 1. Note that not all folds are on the same side and all the folds should be through 90° with the fold lines on the inside.

Remove the basket drilling jig from the fret and place onto a scrap piece of wood or mdf. Orientate the jig as per Fig.5 and drill 0.3mm holes into the wood. Pin the basket onto the wood using 0.31mm wire and solder the wire pins in place. These can then be trimmed to represent bolt heads.

Fig. 4





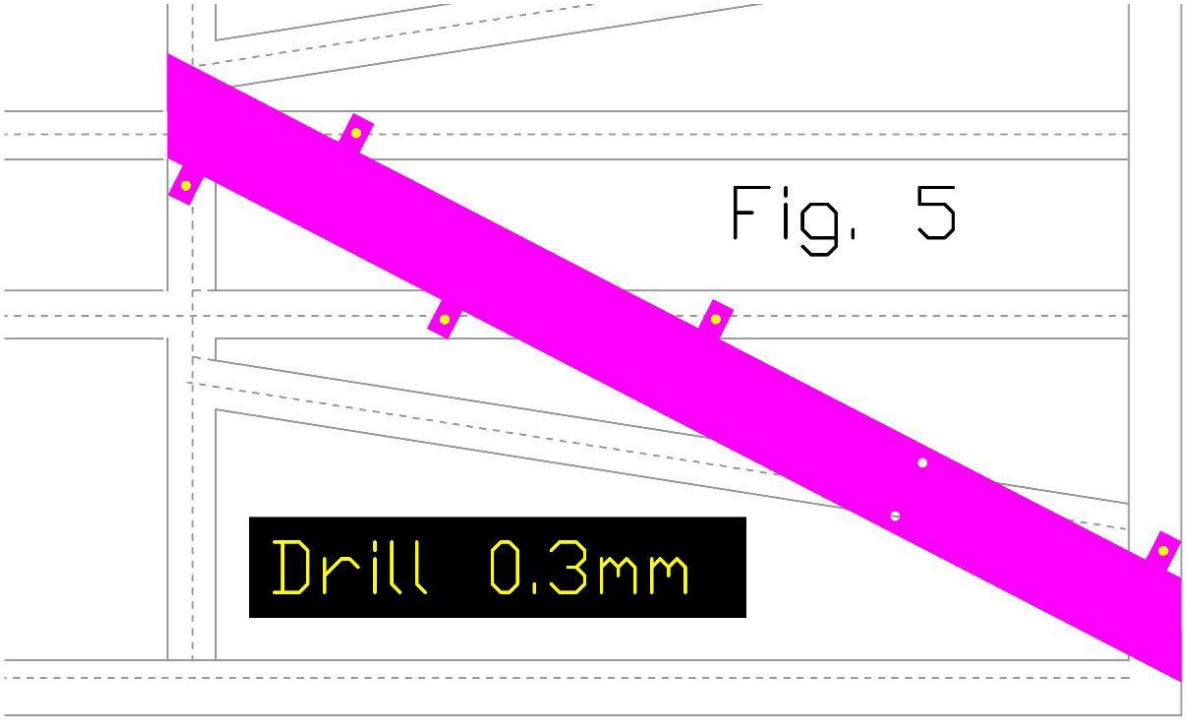


Fig. 5
Drill 0.3mm

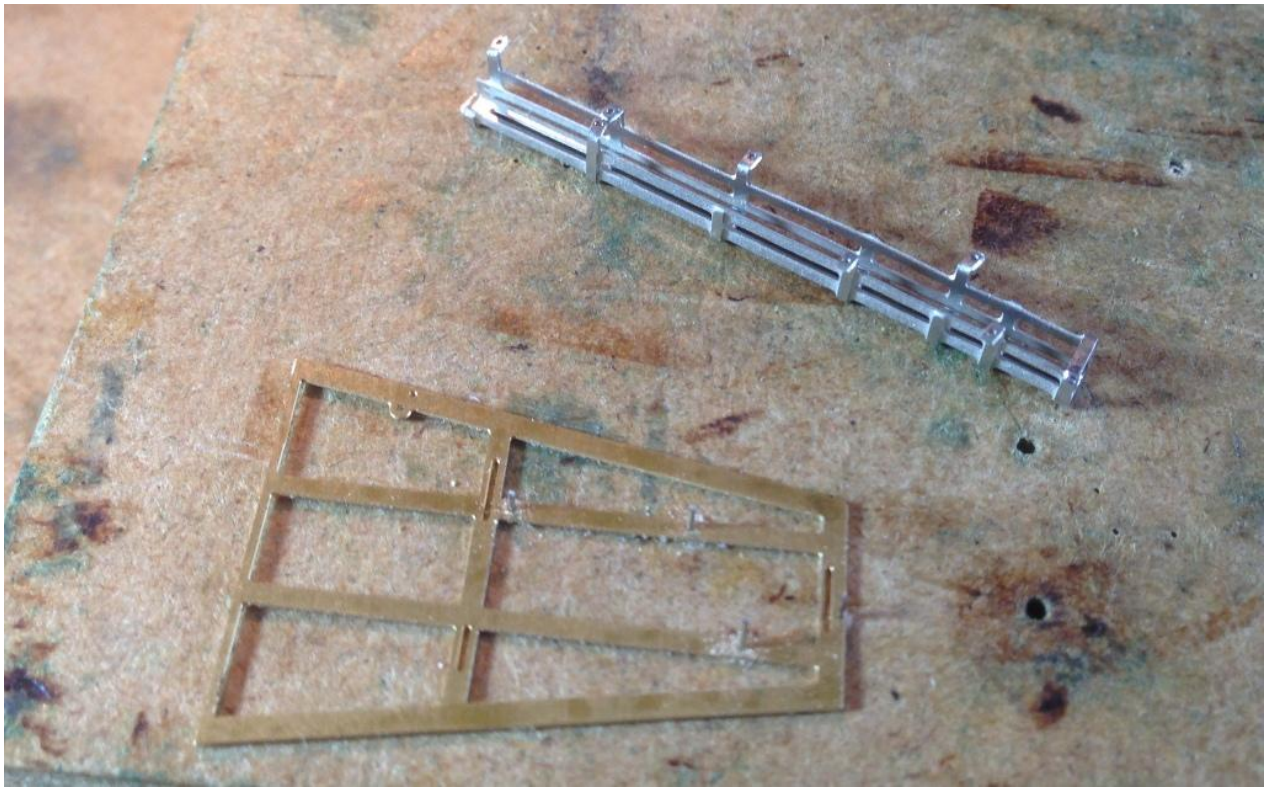
Basket viewed from outer end and showing the basket outer end stop (2)

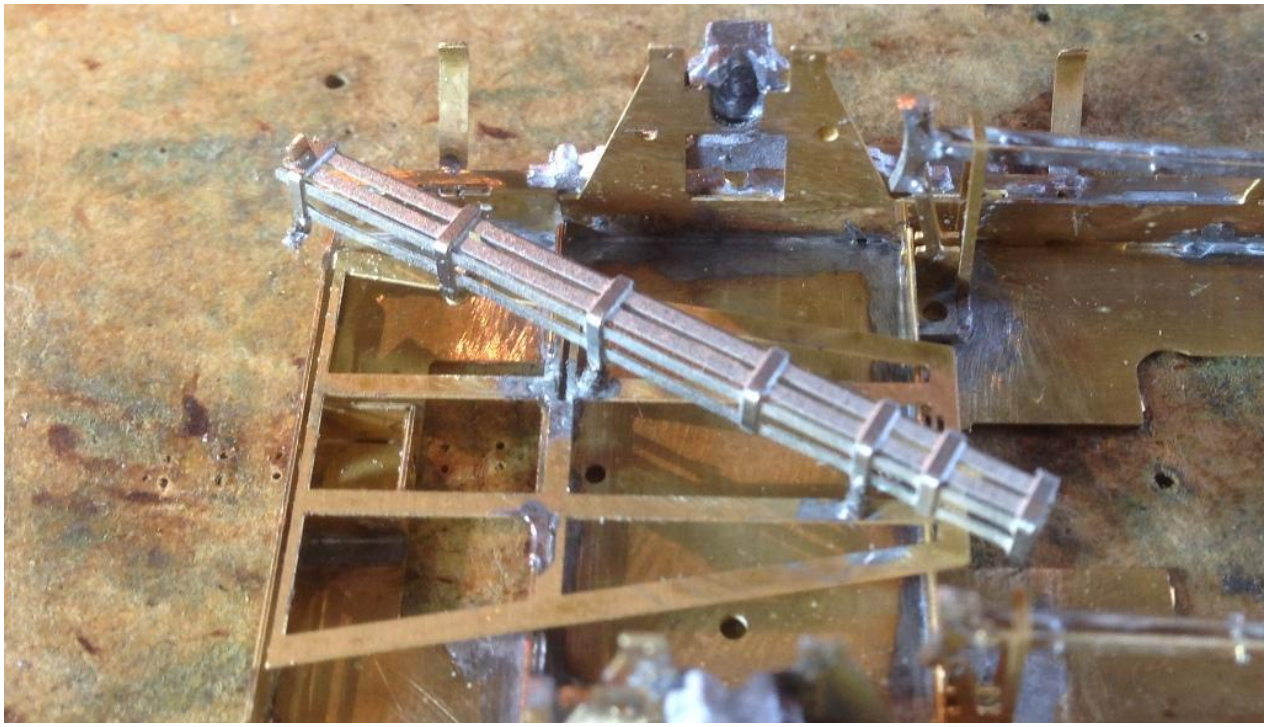
Solder in place the basket outer end stop (2), this goes into the slot at one end of the basket. Use the picture above for reference. The basket inner end fill (3) can also be soldered in place if required. This is one of those things that seemed like a good idea on the drawing board but extremely fiddly in real life. I left mine off. Use the picture below as a guide.

Basket viewed from the inside and showing the basket inner end fill (3)

The basket can now be attached to the underframe trussing plate. Make sure that the trussing plate is the right way up (see photos below and solder the two together.

This basket assembly is now ready to be fixed to the underframe. There are tabs and slots to aid with this. These are also designed to make sure it's all fitted the correct way around. Solder to the underframe.



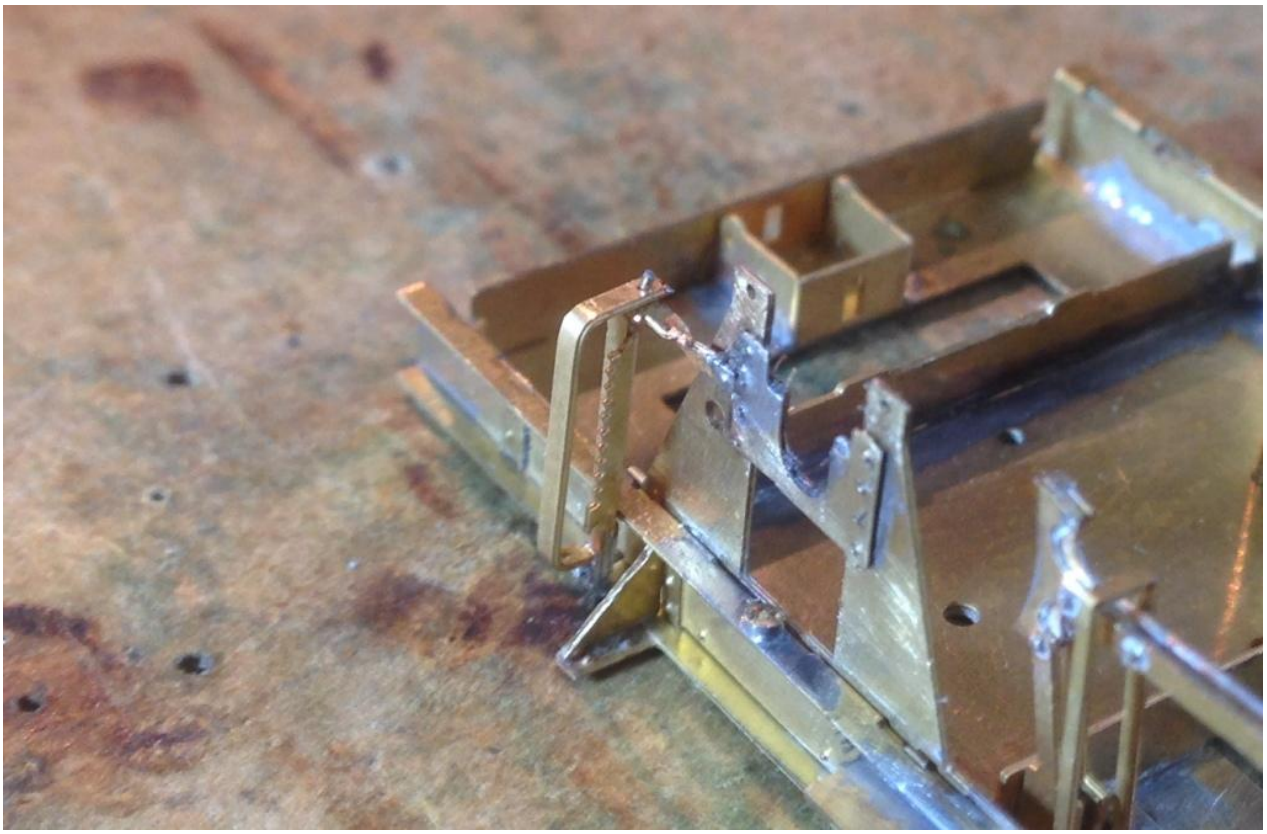


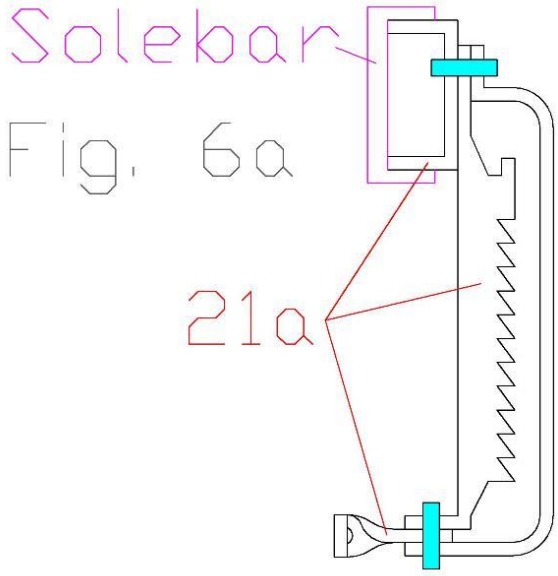
Brake Lever Guards

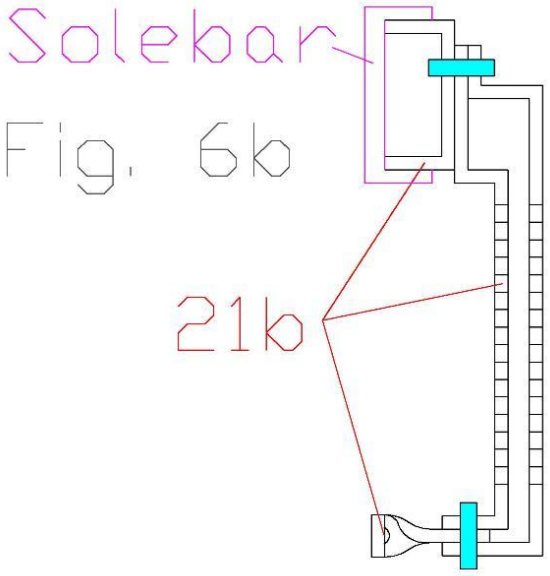
There are two types as mentioned in the preamble, a GWR ratchet type (21a) and an RCH pin type (21b). In either case make sure that the holes in the brake lever guard/bracket/stay (21a or 21b) can accept 0.31mm wire and remove the type you want from the fret.

GWR Ratchet Type

Separate the lever guard from the lever guard bracket. Fold the toothed part up and then the rest of the lever guard along with the lever guard and bracket referring to Fig. 6a below. You should also fold the stay through 180° with the fold line on the outside whilst you're doing this. The front of the guard is curved at the top and the bottom. There are half etched markers to aid with the location of these bends. Push out the rivet and twist the end of the stay to fit against the axleguard. Solder a length of 0.31mm wire through the holes where the lever guard and stay meet to represent a bolt. Solder the lever guard and bracket together using 0.31mm wire to align them. Trim the wire on both the front and back to represent a bolt. The whole assembly can then be located in the solebar and soldered in place. There are slots in the solebar to receive the lever guard brackets.







RCH Pin Types

Separate the lever guard from the lever guard bracket. Fold the lever guard along with the lever guard bracket referring to Fig. 6b above. Fold the stay through 180° with the fold line on the outside whilst you're going along (you will also need to push out the rivet and twist the end of the stay to fit against the axleguard. Solder a length of wire through the holes where the lever guard and stay meet to represent a bolt). Solder the lever guard and bracket together using 0.31mm wire to align them. Trim the wire on both the front and back to represent a bolt. The whole assembly can then be located in the solebar and soldered in place. There are slots in the solebar to receive the lever guard brackets.

Axleboxes and springs

Now is a good time to fit the cast axle boxes and springs. It will make life easier when bending up the brake levers as they should be bent, like the prototype, to clear the axleboxes and springs. The back of the axleboxes will of course need slotting to allow the wheel bearings to drop out if making them removable.

Brake levers

Firstly make sure that the holes in the following items can accept the correct size of wire then remove from the fret.

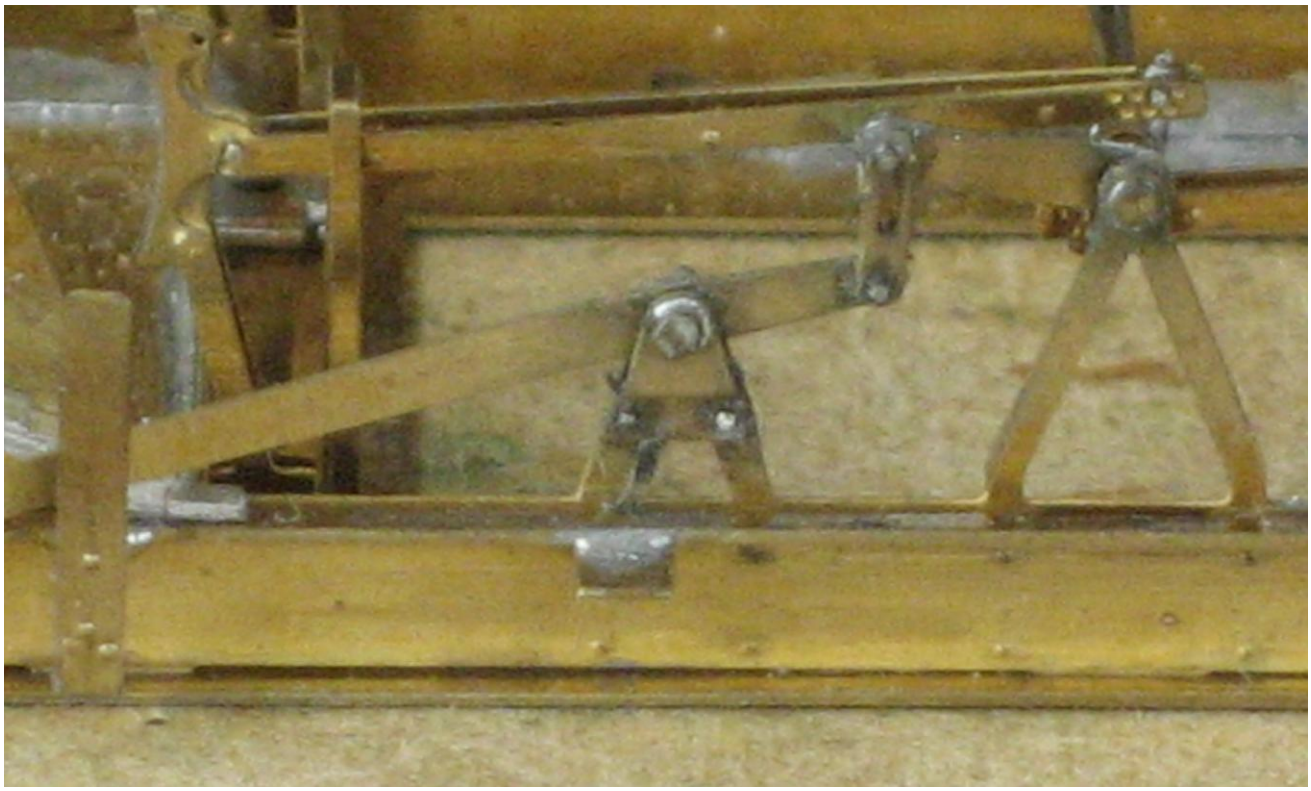
Brake levers (22) 0.8mm and 0.31mm
Secondary brake lever vee overlay (23) 0.31mm
Lifting links (24) 0.31mm
Lifting link cranks (25) 0.8mm and 0.31mm
Brake lever actuator (26) 0.8mm
Brake lever washer (27) 0.8mm

Note that there are two types of lifting link cranks (24). The crank goes behind the brake shaft vee and then is bent to align with the brake lever and lifting links. There is a solid crank to be bent up prototypically or one with half etched fold lines to make things easier if required.

Lifting link brake lever

A piece of 0.31mm wire needs to be soldered in place so that it projects at least 1mm on both sides at the end of the lifting link brake lever. If you are in any doubt this is the lever with two holes in. This will enable you to locate the lifting link in place. The same thing needs to be done with the lifting link crank (25) of your choice. A short length of 0.8mm wire needs to be soldered through the brake lever. The easiest way of doing these pins is to follow a similar method to the pins in the axle guards by drilling holes in a piece of scrap soft wood to accept the appropriate size of wire and then soldering in place.

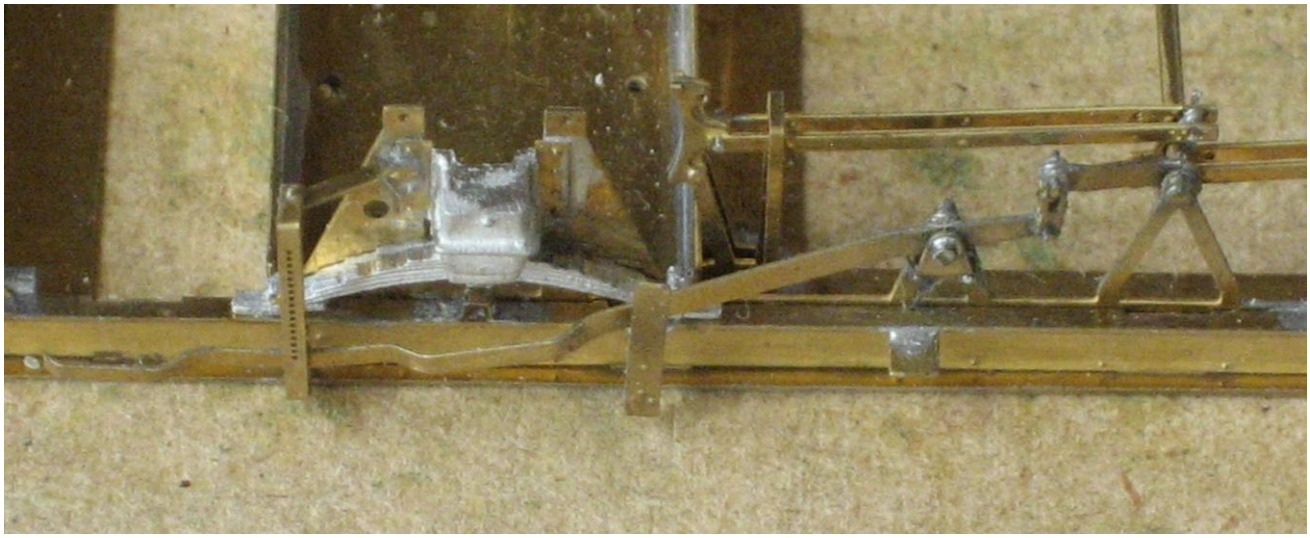
The brake lever needs to be bent up as per the prototype clearing the axleboxes and then cranked for the handle. Check on the model and adjust until you are happy with the shape. Once you are happy with the shape the brake lever can be soldered in place. You will need to fix the secondary brake lever vee overlay (23) in place at the same time. There are 0.31mm holes in it and the vee on the axleguard assembly for short wire pins to aid this.



The lifting link crank can now be bent or folded to shape depending on type. Note that the crank goes behind the vee. Adjust if necessary so that it aligns with the brake lever when placed behind the main brake shaft vee. At this time remove the brake lever actuator from the fret and fold the small tab on it through 90°.

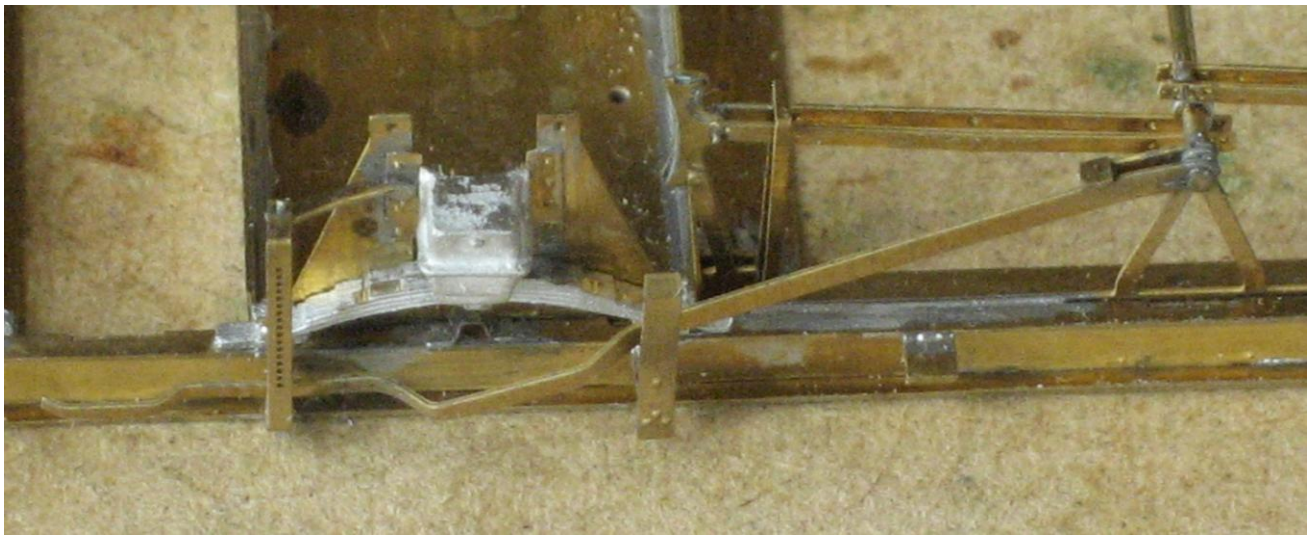
Cut a length of 0.8mm wire to form the brake shaft. This should extend approximately 0.5mm from each of the vees. Locate through the vees with the lifting link crank and brake lever actuator threaded on to it. Note that the brake lever actuator should be arranged so that the tab faces outwards from the chassis. It will go up against the bottom of the brake lever on that side. Tack solder the brake shaft in place making sure you leave the crank and actuator free.

Next fit the lifting links in place joining up the brake lever and the lifting link crank and solder in place. Note that there should be two lifting links, one on either side of the lever/crank. I find some aluminium soldering clips are handy when doing this as it’s a bit of a fiddle. A washer can be added to the brake shaft on the outside of the vee and the lifting link crank soldered in place.



Non-lifting link brake levers

As with the lifting link brake lever this needs to be bent up as per the prototype clearing the axleboxes and then cranked for the handle. Check on the model and adjust until you are happy with the shape. Solder in place. You can then solder the brake lever actuator (26) in place so that the tab is up against the bottom of the brake lever.



Body Detailing

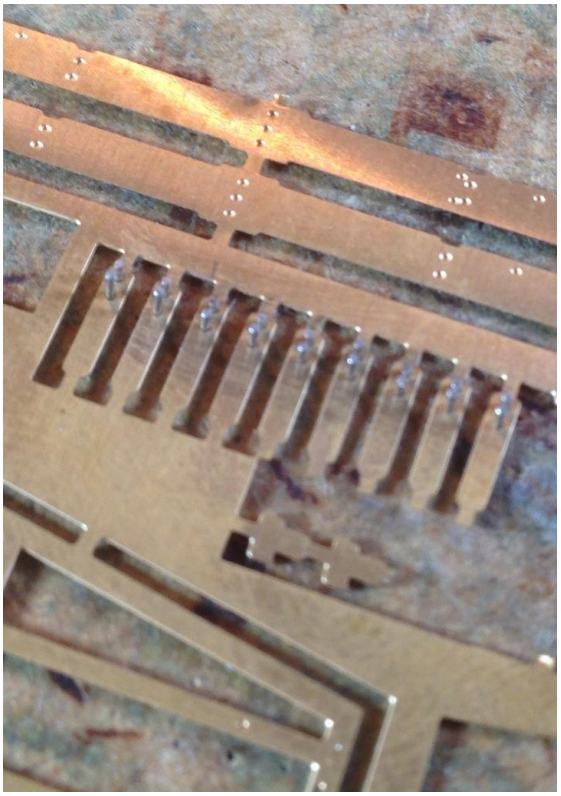
The current Parkside body is intended to produce a vacuum braked version and as such there are a few things on it that will need to be removed to produce a body suitable for an unfitted wagon. These modifications include:

- Removing the small cleats along the body side and ends. I used an X-Acto chisel blade (#17) with half the tip broken off so that it would fit in the ends.
- Removing the buffers and their backing plates. Again an X-Acto chisel blade (unbroken this time) was used.
- Removing the coupling pocket. The unfitted wagons generally had a riveted pocket. Replacement etched parts are included on the fret.

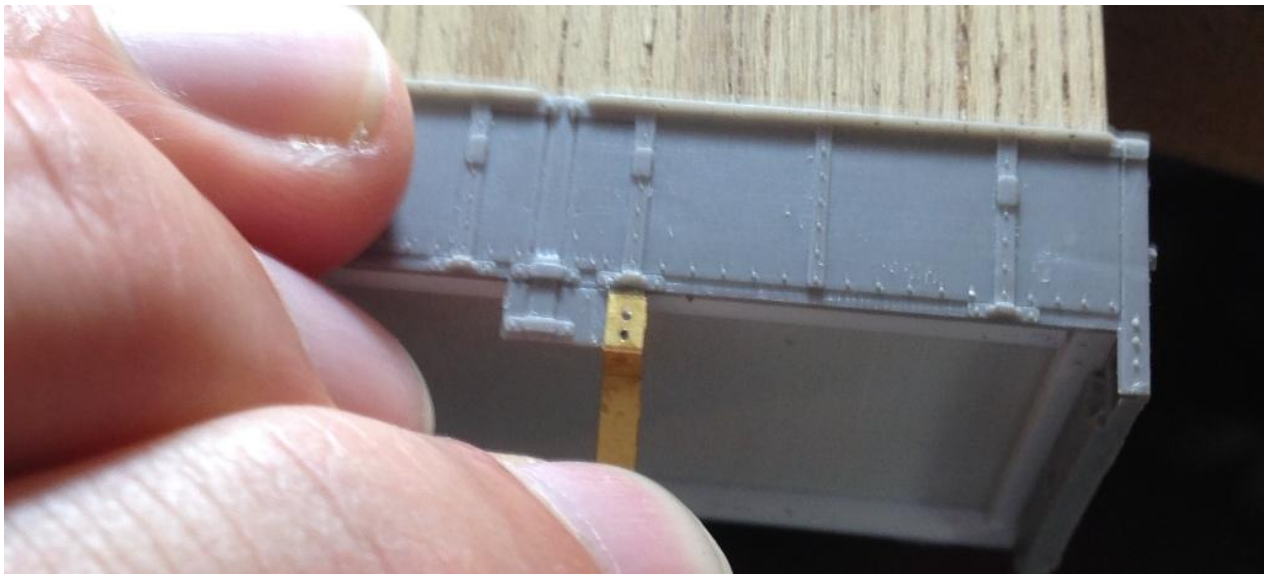
With the buffers removed the buffer drilling jig (28) can be used to drill holes for more suitable replacements. Remove from the fret and fold up. The jig fits along the bottom of the end moulding. Drill 0.5mm holes through the plastic headstock. These can then be opened out to 2mm in increments in order to accept whitemetal cast buffers.

With the excess detail removed and holes for replacement buffers drill the body can be built put together. I made a new floor for mine from 0.5mm plasticard. This was spaced 1.5mm from the bottom of the body to leave room for lead ballast to be fitted.

Whilst still attached to the fret drill a series of 0.4mm holes using the body side door springs (29) as a guide into scrap piece of wood or mdf. Insert short lengths of 0.4mm these holes and solder to the door springs. File the wire down to represent rivets. The springs can then be removed from the fret and the connecting tags cleaned up. Bend the ends of the springs as per the photograph below.



The brass fret included a drilling jig for the body side door springs (29) and corner steps. This is the part shaded green on the parts list. Fold up the jig and use to drill holes into the body for the body side door springs. I rested the part with the two holes in against the body where the door springs go and pushed the folded part up against the bottom of the body (see photo below). Note that the centre line of the door springs should correspond with the centre line of the door hinges.

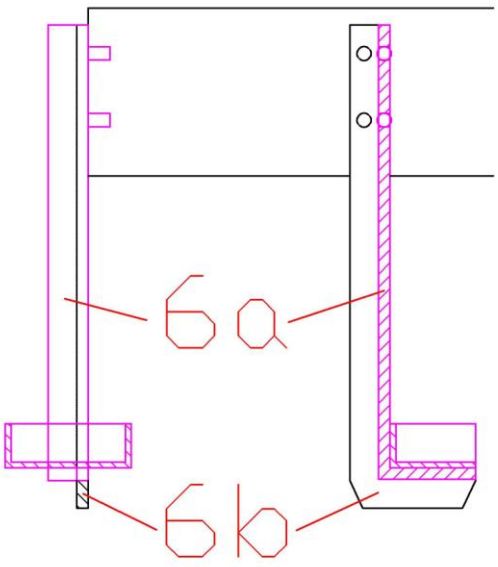


Steps

The steps are attached to the headstock by angle and to try and replicate this, the etched version comes in two parts. There is the corner step (30a) and the corner step angle (30b). Part 30a is obviously the important one and the angle part can be left off if you think it's too fiddly. Fig. 7 and the photo below give a good idea of the overall arrangement. The parts are designed to be pinned to the headstock and a drilling jig is included to aid with this. This is the part coloured green on the parts diagram.

To construct the step fold up the three sides around the step and then fold this back on the part that makes up the front of the angle. There is also a fold line in this part which should be folded through 90° with the fold line on the inside and goes up against the back of the step. This can then all be soldered together.

Fig. 7



If you want to make use of the corner step angle (30b) I think the best way to assemble the two parts is to use the drilling jig to drill four holes into a scrap piece of wood or mdf, fit the assembled corner step into the left hand pair of holes, pin the corner step angle into the right hand pair of holes using 0.31mm wire and solder together. The wire can then be tidied up to represent bolt heads.

Use the drilling jig to drill four holes into the headstock between the iron work and buffer as shown in the picture and glue the assembled step into place.

The body and chassis need to be glued together to fit the remaining items. If, like me you have made a recess for lead ballast to be fitted then the lead will need to be fitted now and the body and chassis glued together along the back of the headstock. Use either Araldite (or similar) or super glue as you prefer.

Buffer retainers

My preferred method of springing buffers is to use guitar wire leaf springs behind the headstock rather than coil springs in the buffer housing. To this end I have introduced buffer springing jigs that are suitable for most of my underframes (Rumney Models kits B.93A and B.93B). Due to the nature of the tank wagon underframes it is not possible to fit this system retrospectively so the chassis includes this set up as part of it. Buffer retainers (31) are fitted to the buffer shanks and then a 25mm length of guitar wire spring is fed through the holes in the buffer springing unit (8). The wire bears on the buffer retainers.

To fit the buffer retainers, remove from the fret and check the fit of the buffer head shanks in the holes; adjust if necessary. Fold the buffer retainer into a C shape, leaving the top unfolded for the moment. Place the buffer head shank through the buffer casting on the wagon and then slide the retainer onto the shank though the holes. Hold the retainer bottom with a pair of self closing tweezers and solder in place so that the head of the buffer should be 6mm from the face of the headstock. Use very little flux or you may encounter problems with the shank rusting. Once the retainer is firmly soldered in place you can fold the top over. Note that there is a correct side to fit the buffers. The retainer bottom comes with a wedge on one side which should face towards the solebars. This will prevent the buffer retainer from rotating sufficiently for the wire to become disengaged.

Obviously if you wish to leave the fitting of sprung buffers until after the wagon is painted then leave until later.

The gauge of the spring wire necessary may vary depending on your train lengths but 0.011” is a good place to start. It maybe that you personally want a harder or softer wire in which case simply replace with a heavier or lighter gauge of guitar wire.

Be aware though that the spring rate will change rapidly with the change in gauge. If you fit something like 0.008" wire then there maybe virtually no springing effect, conversely if you fitted 0.015" you may find that you might as well have made the buffers rigid. Guitar wire of suitable gauges can be had in single strings from good music shops.

Final Solebar and Headstock detailing

There are a few items left to fit, Solebar/Headstock corner plates (32), Solebar/Headstock bracing (33) and coupling pocket detail (34).

The corner plates go on the bottom of the underframe in the corner between solebar and headstock. The bracing is fitted to the well in the solebar and hard up against the headstock. This needs to be folded into and L shape using the etched slots to locate the fold. The longer side goes up against the solebar.

The coupling pocket can be glued in place. You may need to open out the hole for the coupling hook before fitting. Check and then glue the coupling pocket in place.

Finally the hole in the basket foot that goes against the underside of the headstock can be filled. Use the hole in the foot to drill a 0.3mm hole into the plastic headstock and then glue or solder a length of 0.31mm wire in place. Trim to represent a bolt head.

Painting

I use Halfords grey primer in a tin through an airbrush with cellulose thinners to prime just about everything, including plastic bodies. The primer is synthetic and has no adverse effects on the types of plastics used on RTR railway models and kits. The cellulose thinners used evaporate so quickly that they don't have time to attack the plastic. You can then put your choice of paint over the top including cellulose. Don't use the red oxide in a tin on plastic though as it won't adhere to plastic and the paint will just come off.

Notes on wagon bodies and weighting

The suspension on the underframe is designed to work optimally under a 50g load. I never find there is enough room for the amount of lead necessary to get up to this figure on the shorter wagon types. To overcome this problem I make a new floor and recess it from the bottom so that there is room for a piece of lead flashing to go between the new floor and the underframe. This does reduce the depth of the wagon but it isn't too noticeable on most types and saves trying to work around the brakegear.

Finally

Finally thanks must go to Tom Silsbury for the assistance he has provided in producing the baskets, door springs and corner steps for this kit and also for the prototype photographs that accompany this set of instructions. These are used with permission and the copyright for them resides with Tom.

Last but certainly not least if you haven't come across the wonderful resource for BR wagon photos that is Paul Bartlett's website then I would thoroughly recommend a visit to: http://paulbartlett.zenfolio.com/

Justin Newitt - September 2017

Suppliers List

Eileen's Emporium (wire and sundries)
Unit 19.12 Highnam Business Centre
Newent Road
Gloucester
GL2 8DN
UK
www.eileensemporium.com

Lanarkshire Models and Supplies (buffers)
9 Nairn Avenue
Blantyre
G72 9NF
www.lanarkshiremodels.com

MJT (buffer heads)
Dart Castings
17 Hurst Close
Staplehurst
Tonbridge
Kent
TN12 0BX
www.dartcastings.co.uk

Wizard Models (buffer heads)
PO Box 70
Barton upon Humber
DN18 5XY
www.wizardmodels.co.uk