

Rumney Models – BR Clasp Brake Wagon Chassis Instructions Version 4 - January 2017

Notes

This set of instructions covers the BR clasp brake chassis kits B.01 through B.05.

These kits are designed to build into a fully detailed and accurate 4mm BR clasp brake wagon chassis. They are designed around Parkside and Red Panda wagon bodies though others can be used. They are however to scale length over headstocks so their suitability will depend on how accurate in length the model body being used is. The Parkside kits that I have encountered so far as well as the Red Panda Sand wagon are spot on in this regard. They follow the prototype wherever possible but are simplified in certain areas to ease construction. They are the same in principle and differ only in details. These detail differences are noted in the instructions.

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 photo are from clasp brake chassis but 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 now use a temperature controlled soldering iron with predominantly 145° solder and La-Co paste flux. For a long time I used an Antex 18W soldering iron on virtually everything with few problems.

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.

Notes for B.05

This etch is designed to convert chassis kit B.04 to the chassis used under the rare 16T riveted body clasp braked minerals. There were only a few hundred of these built by Cambrian Wagon as part of lot 2806. To use simply replace the parts in B.04 with those with corresponding numbers from B.05. The chassis is designed to fit the Parkside 1/109 body. Additional wagon body top corner plates (34) are also included for use on the body.

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 W-Irons. 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 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 - Some parts of the brakegear, axle guards
- 0.4mm - Some parts of the brakegear
- 0.5mm - Brake yokes
- 0.6mm - Brake levers
- 0.8mm - Main brake cross shaft
- 1.0mm - Alignment pins

You will also require items such as buffers, vacuum pipes, 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 heavy duty buffers with their large 2.5mm shanks. The quality is excellent. Metal buffer heads and springs are available from Wizard and MJT. Lanarkshire Models also supply cast vacuum pipes and again the quality is very good. I personally prefer to make mine from brass wire as they are a little vulnerable but if you want cast ones they are the best available.

Those wagons that featured underframes B.01 or B.03 and were fitted had 18" vacuum cylinders. Rumney Models produces castings for this type (F.01). The iron ore tippler underframe (B.02) and 16T mineral wagon underframe (B.04), when vacuum braked, had both an 18" and a 21" vacuum cylinder. In addition to the 18" vacuum cylinder castings Rumney Models also produces the 21" type (F.02).

Rumney Models produces axlebox and spring castings for all these chassis. Suitable types are summarised as follows:

B.01 & B.03 - Both of these types of underframe had 5 leaf springs with a variety of oil axleboxes. Rumney Models produces suitable 5 leaf spring castings with BR 2 part (FA.05), BR 2 part square (FB.05), BR welded (FC.05) and BR Platefront (FD.05) axleboxes. Both LNER cast and welded axleboxes could also be found on them and also occasionally LMS 2 part and RCH 2 part types. Castings for these last four types are in preparation and will be released in autumn 2017. Very occasionally wagons with the B.01 type underframe could be found with roller bearings though the only ones I can think of off the top of my head are some of the Palshocvans. Rumney Models does a 5 leaf spring and roller bearings (FE.05) if required.

B.02 - These wagons had 8 leaf springs with either roller bearings or Hybox axleboxes. Rumney Models produces 8 leaf spring castings with roller bearings (FE08). Wizard Models do Hybox axleboxes though I will look to produce this type myself in due course.

B.04 - 16T minerals had 6 leaf springs and oil axleboxes. Rumney Models produces suitable 6 leaf spring castings with BR 2 part (FA.06), BR 2 part square (FB.06), BR welded (FC.06) and BR Platefront (FD.06) axleboxes. Both LNER cast and welded axleboxes could also be found on them. Castings for these last two types are in preparation and will be released in autumn 2017.

See the Rumney Models website for further details on the vacuum cylinder plus spring and axlebox castings, including illustrations. They are listed under wagon castings in the 4mm scale section.

Rumney models produces coupling hooks suitable for these (B.94) and also BR Instantan 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. If you need screw couplings Masokits supply them and something is in preparation from Rumney Models.

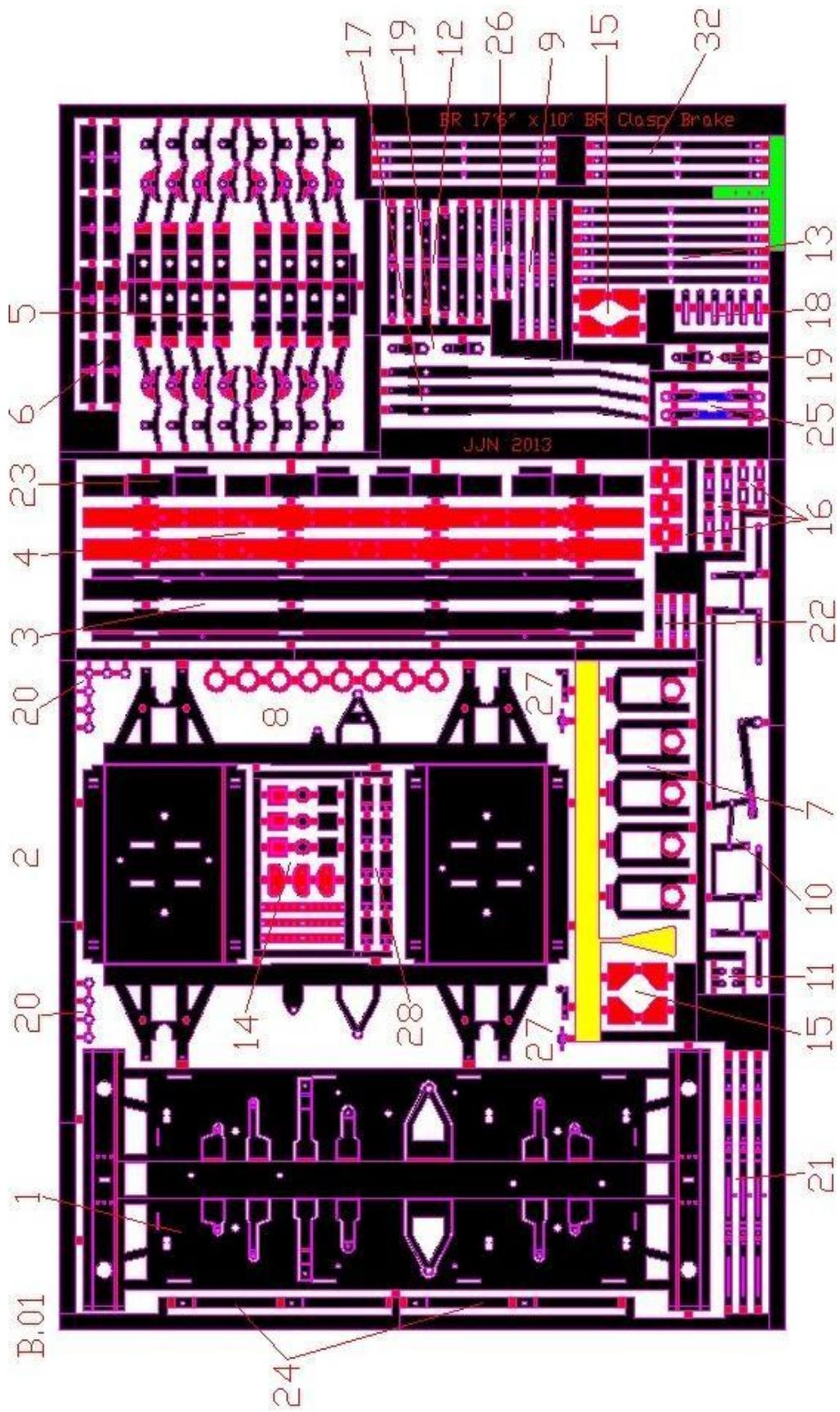
Contact details for the above suppliers can be found at the end of these instructions.

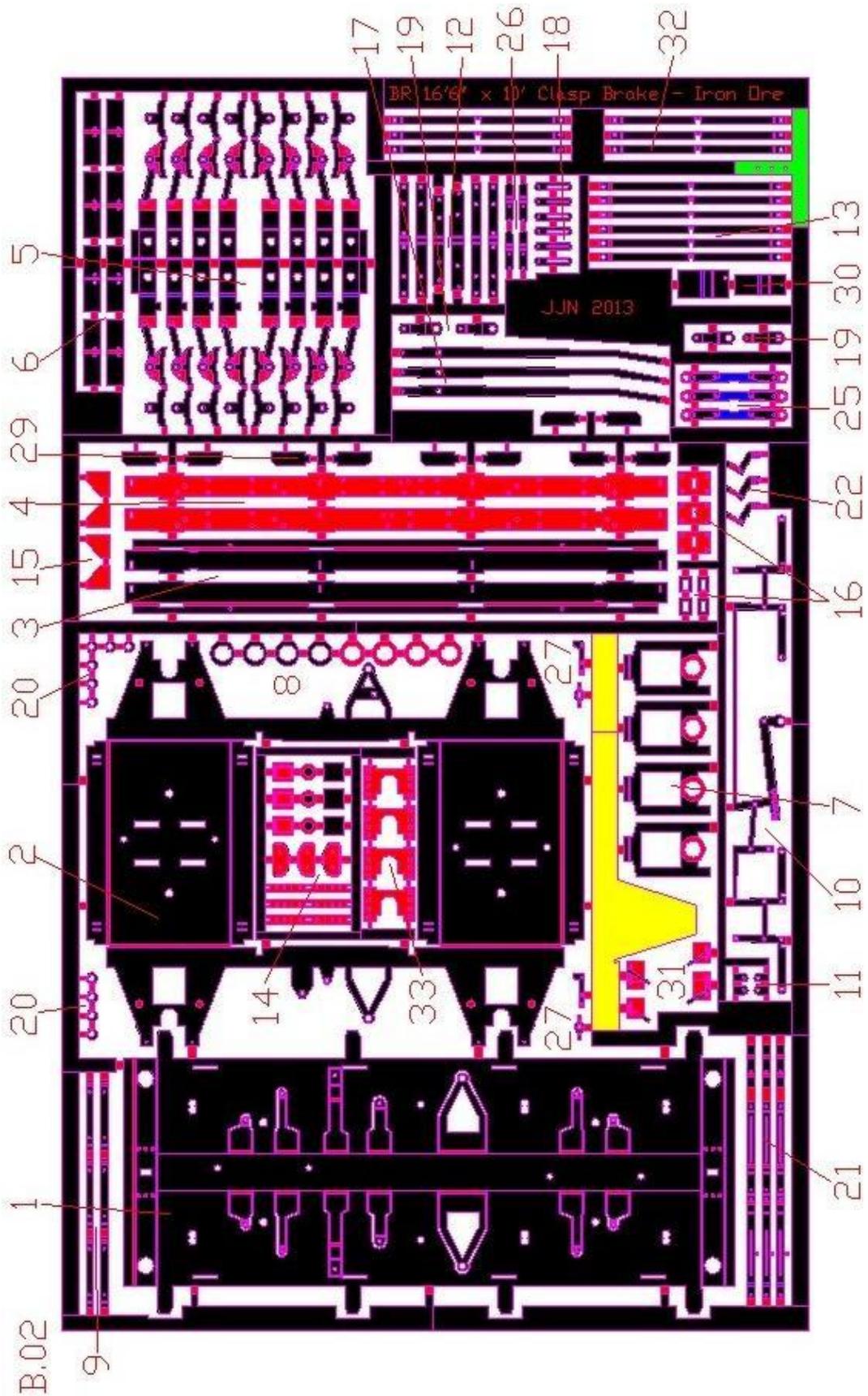
Component List

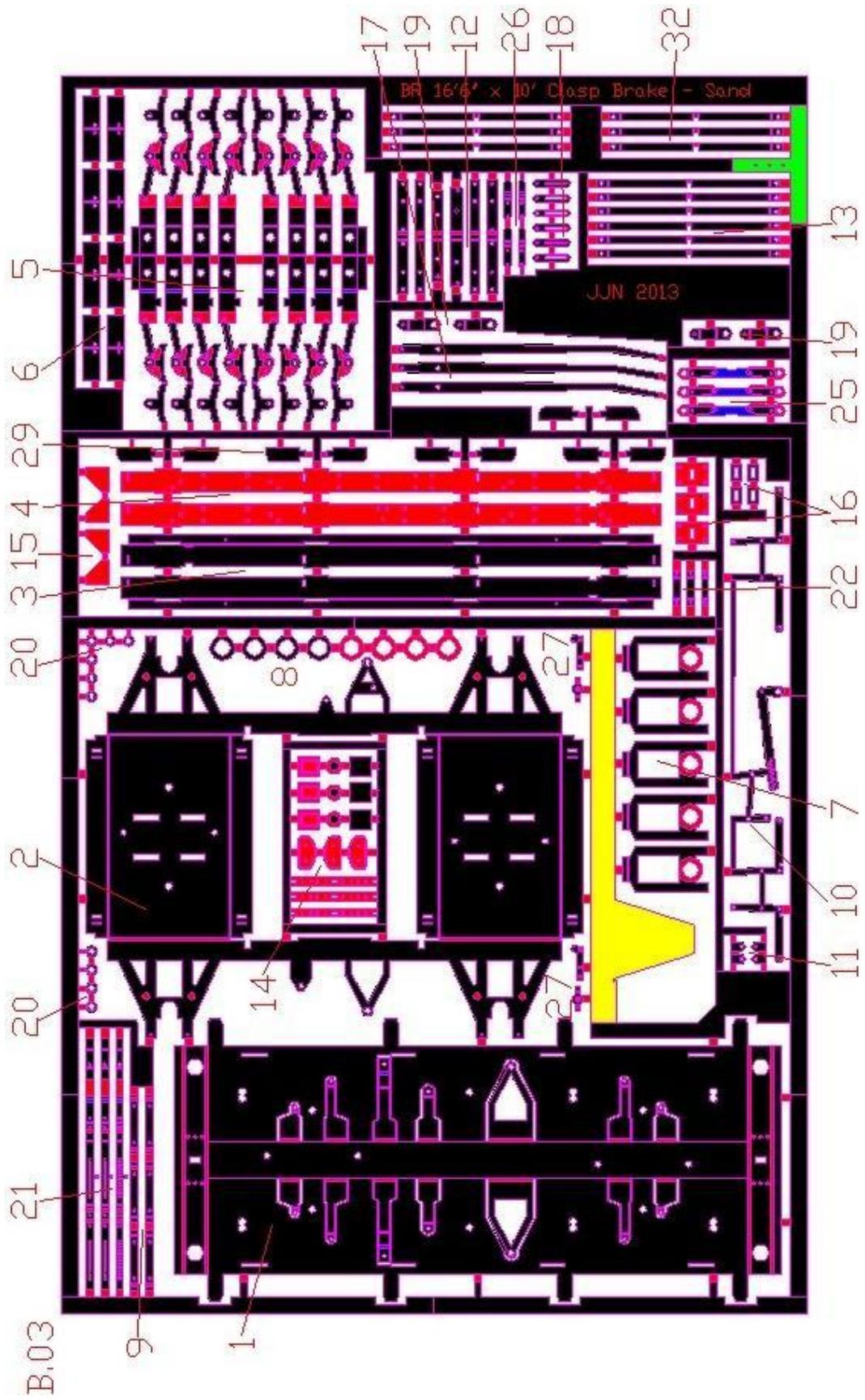
Note: Not all parts are on every chassis kit.

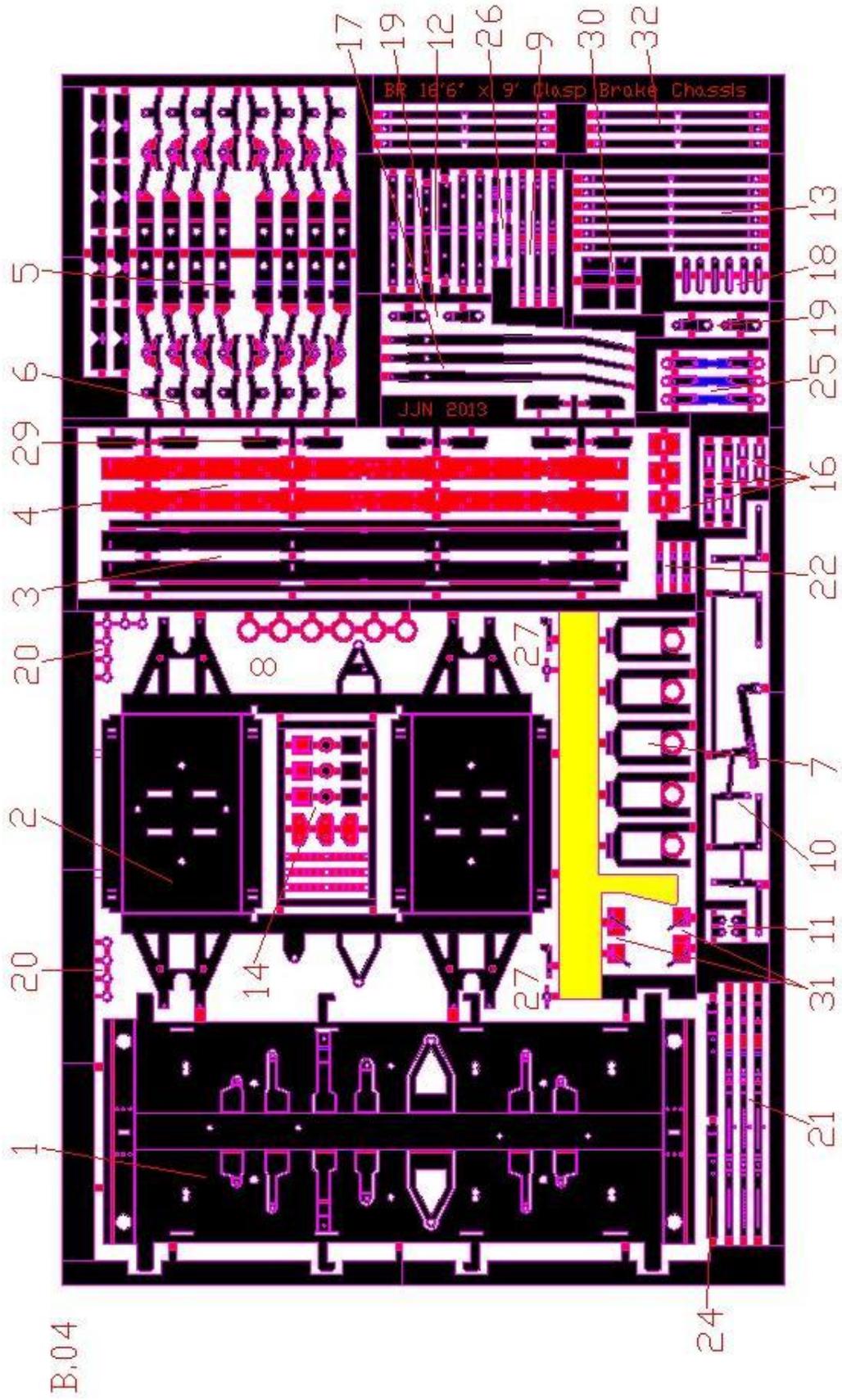
- 1 - Chassis top plate
- 2 - W-Iron assembly
- 3 - Solebars
- 4 - Solebar detailing overlays
- 5 - Clasp brakes
- 6 - Clasp brake infills
- 7 - Spring Carriers
- 8 - Bearing washers
- 9 - Axle guards
- 10 - Brakegear links
- 11 - Brake shaft crank overlays
- 12 - Brakegear overlays
- 13 - Brake Yokes (EM/P4)
- 14 - Solebar detailing
- 15 - Solebar/Headstock corner plates
- 16 - Coupling pocket detail
- 17 - Brake levers
- 18 - Lifting links
- 19 - Brake lever cranks
- 20 - Brake lever washers
- 21 - Brake lever guards/brackets
- 22 - Brake lever guard stays
- 23 - Shock absorbing wagon end bracing (B.01 10' clasp only)
- 24 - Door springs (B.01 10' clasp and B.04 9' Mineral only)
- 25 - Vacuum cylinder actuators
- 26 - Lamp Irons
- 27 - BR swan neck vacuum pipe brackets
- 28 - Van stanchion support brackets (B.01 10' clasp only)
- 29 - Mineral side support brackets (All but B.01 10 clasp)
- 30 - Changeover lever brackets (B.02 10' Iron Ore and B.04 9' Mineral only)
- 31 - Changeover lever detail (B.02 10' Iron Ore and B.04 9' Mineral only)
- 32 - Brake Yokes (OO)
- 33 - Riveted axlebox guide overlays (B.02 Iron Ore only)
- 34 - Wagon body top corner plates (B.05 only)

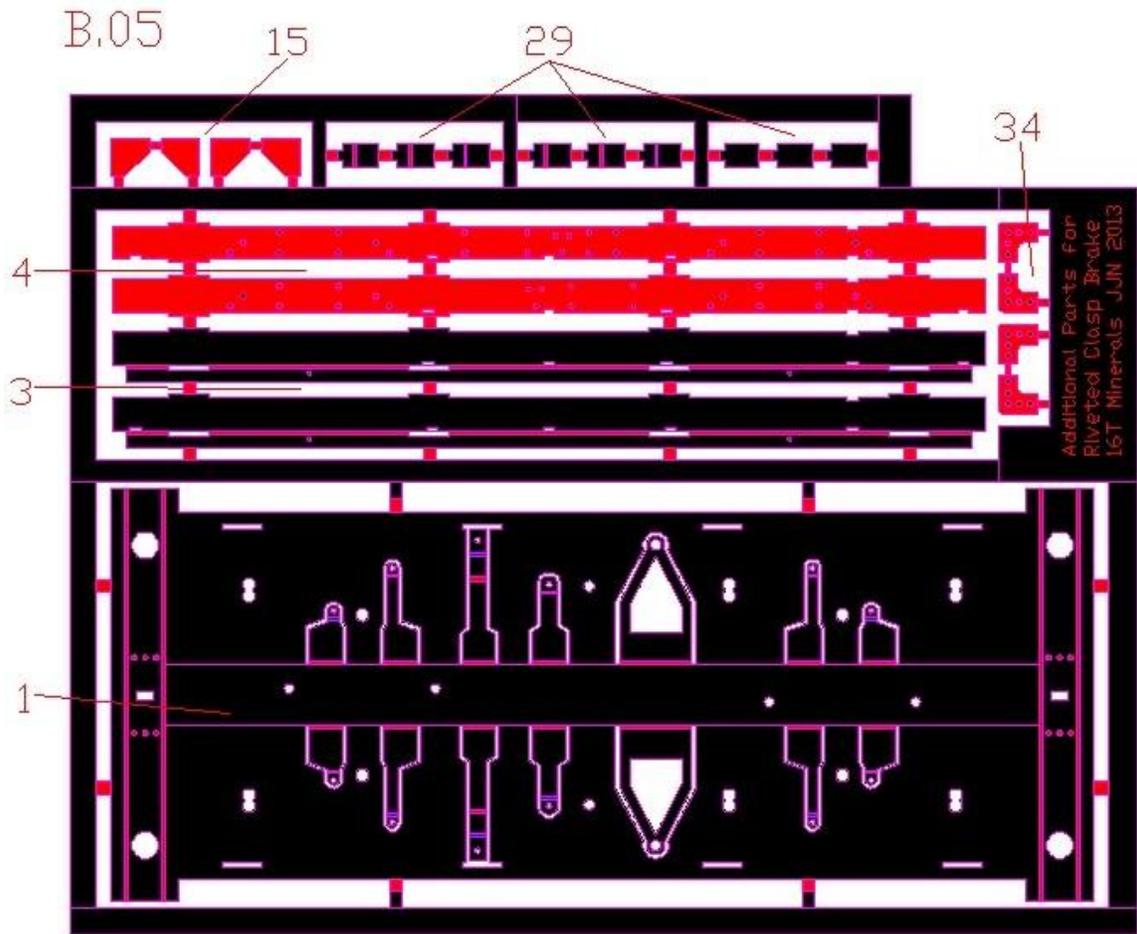
The areas shaded yellow in the parts diagrams are the jig for forming the safety loops. This area should be removed from the fret when the time comes. Note that there were different types used and I've included the type which seems most common for the chassis concerned.











Construction

Main Chassis

Firstly check the fit of your buffers in their holes in the headstocks. It may sound a bit odd starting with something that usually goes on at the end but it will be much easier to open out the holes now rather than later.

Start with the chassis top plate (1). Whilst still in the fret check the diameter of the holes in the fold out clasp brakegear brackets. They should be 0.4mm. Also check that the holes in the inner vees will accept 0.8mm wire. Adjust if necessary. Push out the half etched rivets on the headstocks. I find the easiest way to do this is with a drop head rivet press with the fret placed over one of those ubiquitous green cutting mats. Remove from the fret.

A note for those constructing B.01. The headstocks as supplied are full width, however not prototypes all were. Shock absorbing vans and opens had narrower headstocks at around 30mm, Parkside standard vans have 31.5mm headstocks, Conflats As had a distinctive taper at the ends. Now is a good time to make any adjustments necessary so that they are correct for the body the chassis is intended for. I used a piercing saw to do so.

The headstocks need to be folded up. This is best done with the chassis top plate clamped to something or held in a vice to avoid distortion. There are two sets of fold lines as the headstocks need to be folded into a channel. Starting with the outermost parts of the chassis top plate fold through 90°. You can reinforce this fold line if you wish but I haven't found need to do this. Next fold the headstocks through 90° to form a channel. Do not reinforce with solder yet.

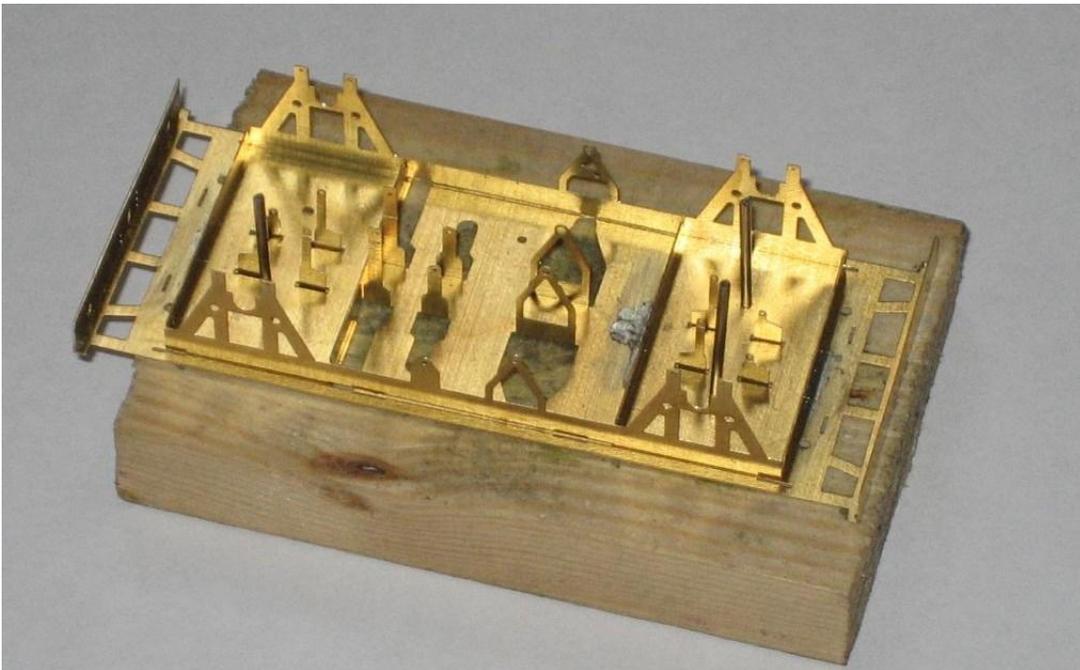
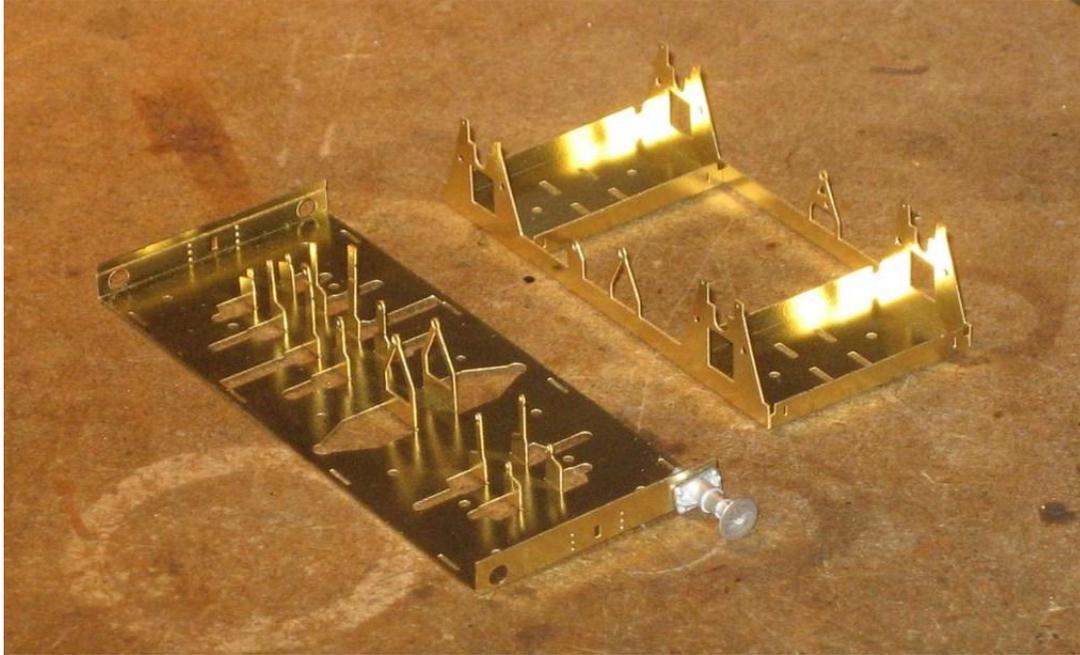
Fold out the clasp brakegear hanger brackets through 90°. These will be adjusted later but need to be at this angle for the moment. Fold out the inner vees.

Check that the main brake shaft holes in the in the vees on the W-Iron assembly (2) will accept 0.8mm wire and that the brake lever holes will accept 0.6mm wire. Drill out the holes on the backs of the W-Irons 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 W-Iron assembly and clean up connecting tags.

If you are constructing B.02 and wish to make use of the riveted axlebox guide overlays (33) included then now is by far the best time to fit them. Use the slot for the axle to align them on the W-Iron assembly and solder in place. Make sure they will be on the outside of the W-Irons when folded up.

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

The chassis top plate and the W-Iron assembly need to be solder together. There are 1mm diameter holes on both the top plate and W-Iron 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. Make sure the vees align.



Next remove the solebars (3) from the fret and fold into an L shape. I find the best way to do this is in a vice.

Remove the solebar detailing overlays (4) from the fret.

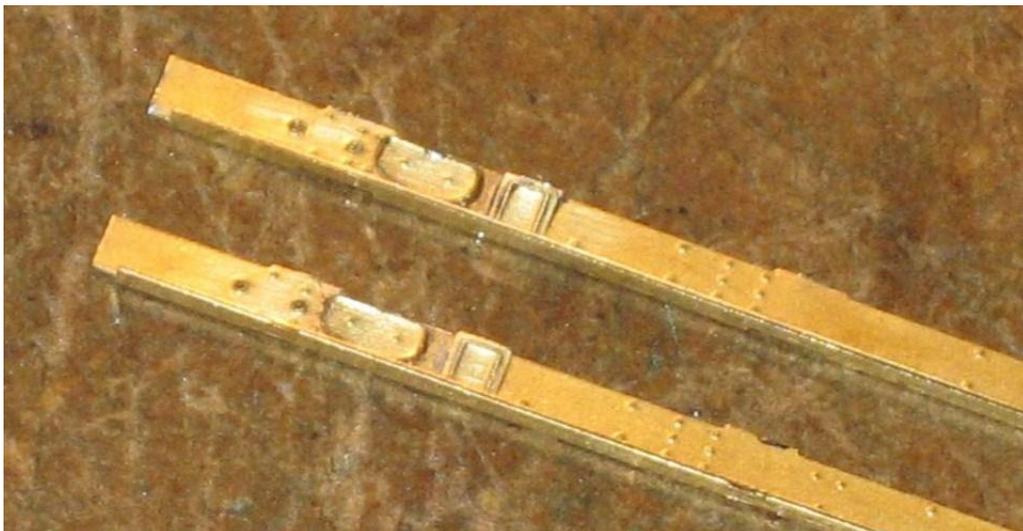
As a result of the etching process there should be a curve through them with the ends closer to you if looking at the rivet detail side. Carefully bend them so that the curve is reversed slightly and that the ends are further away when looking at the rivet detail. This can easily be done between thumb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

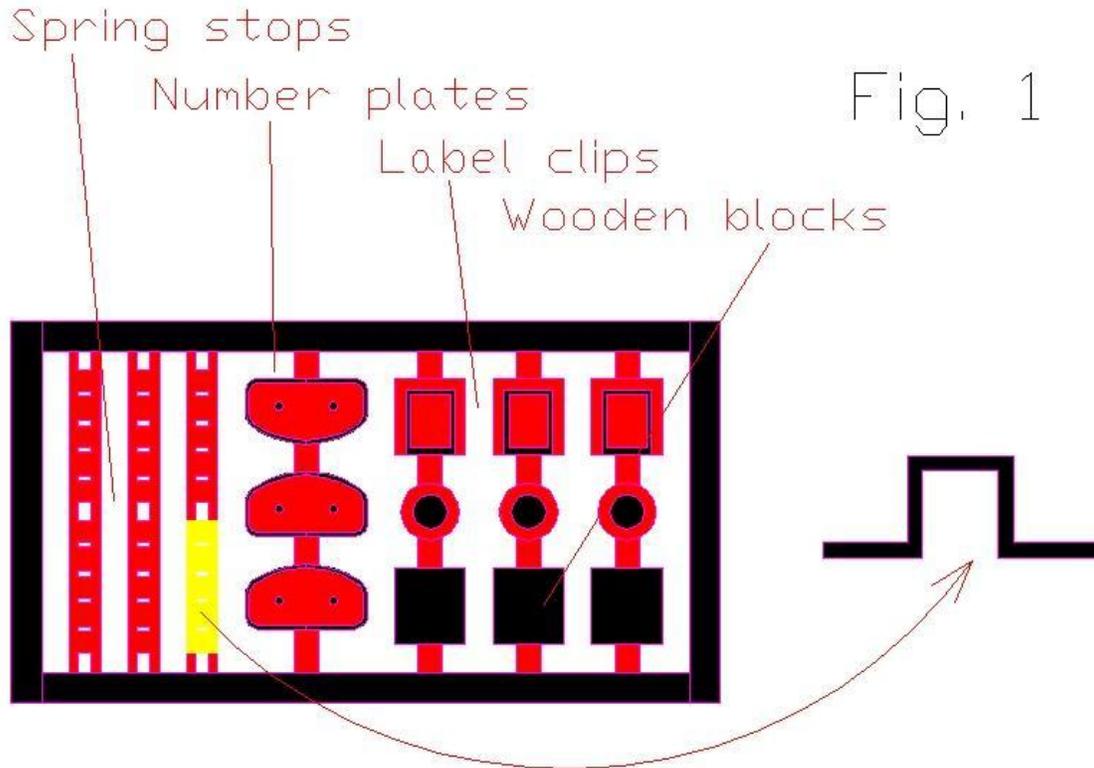
The solebar overlays are designed to fit into the slots in the solebars. The completed solebar then locates into the slots in the chassis top plate. Locate the solebar detailing overlay in the solebar and tack solder in place. Note that there is a right way up for all the overlays (if in doubt note that the notches for the brake lever guard should match those in the solebar). Also note if using B.05 that the holes for the side support brackets in the solebar detailing should match the holes in solebar.

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 (14) comes contained in its own little fret. See Fig.1. On it you will find fabricated axle spring stops, number plates, label clips, a rectangle that is actually a block of wood on the real thing and some small round dual depth plates. I have no idea what the purpose of the last two items is but the rectangular block of wood was quite common and the round plates could be found on shock absorbing vans where the springs were mounted inside the solebars. 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.

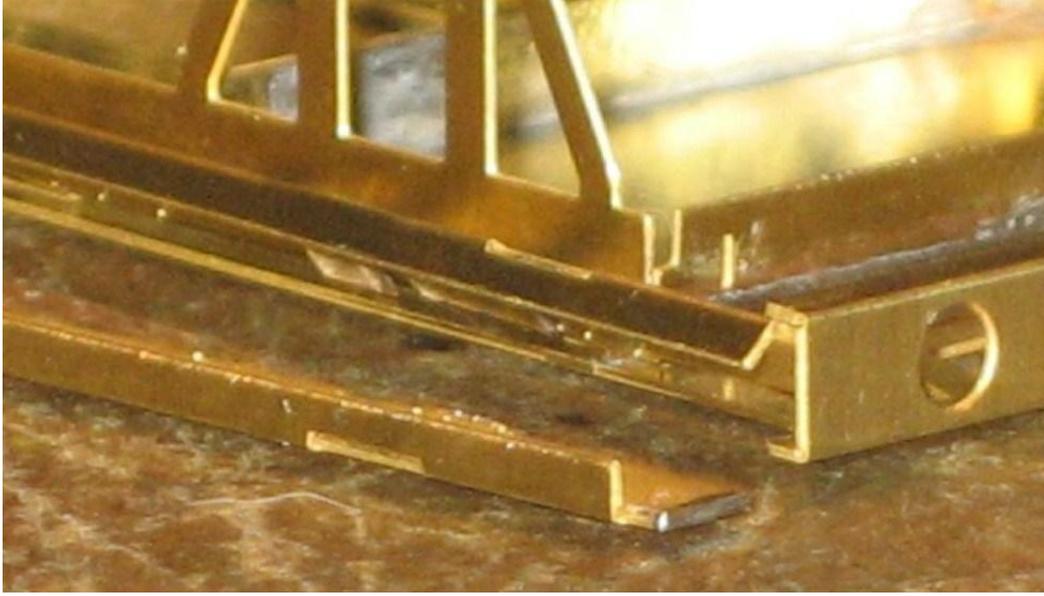




Main Chassis Continued...

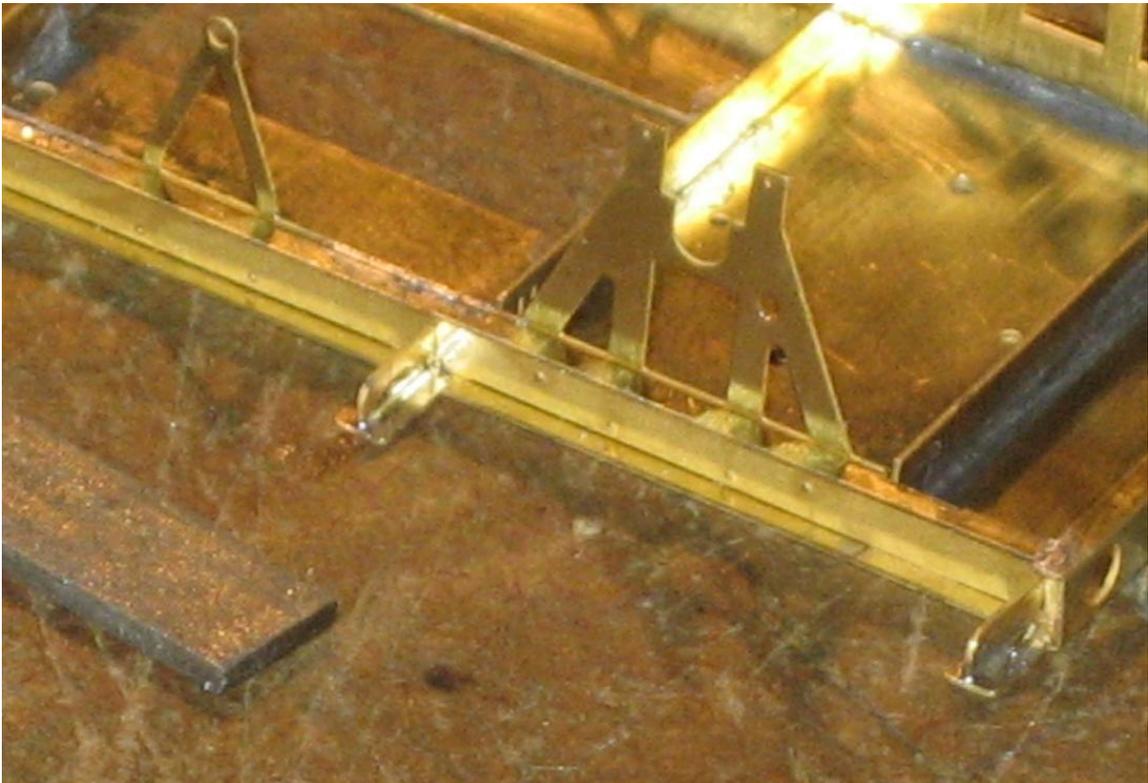
The solebars can now be fitted to the chassis. Note here is a correct side for the solebars and the rivet detail should match the vees. There are slots and tabs to aid location and the ends go into the channel that is the headstock. Fit the solebars at an angle and then straighten locating the slots and tabs at the same time. Once in place then the solebar can be soldered in place. If you have problems locating the solebar in place then you can gently bend the headstock back to allow the solebar to slot in. It is difficult to get the headstocks at 90° though if you do this though and it shouldn't be necessary. The accessible fold line on the headstock can now be reinforced with solder if you wish.

I have noticed a tendency for the top plate to lift in the centre after the solebars are fitted. There is a tab on the W-Iron assembly beneath the vees that butts up against the top plate. If you solder this tab and the top plate together this will prevent the top plate from lifting.



Mineral wagon side support brackets (B.02, B.03 & B.04)

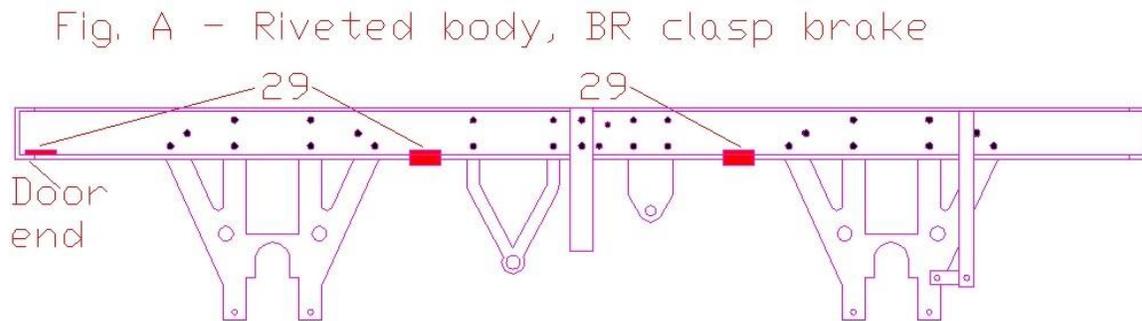
Now is a good time to add the mineral wagon side support brackets B.02, B.03 and B.04 (29) as there is less likely hood of bending the top of the bracket which is etched as part of the top plate.



The connecting tags should be removed and then they can be located in the slots through the solebars and solebar detailing and soldered to the top plate. The spacing for the support brackets have been arranged to suit the Parkside Dundas iron ore tippler (B.02), the Red Panda sand tippler arranged for the later clap brake type chassis type (B.03) and the Parkside Dundas 1/108 16T mineral wagon (B.04). Models from other manufacturers may be slightly different.

Mineral wagon side support brackets (B.05)

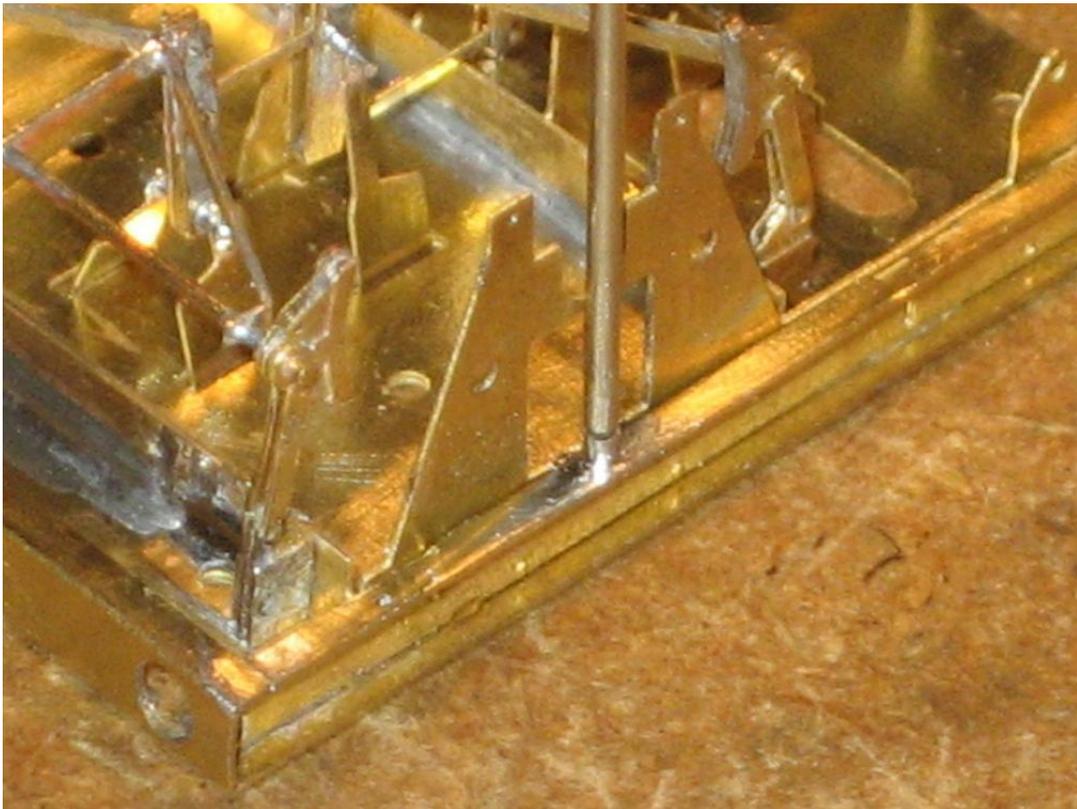
The riveted types had brackets that attached to the side stanchions. These are located to the solebar via slots and tabs. Fig. A gives the general idea.



The riveted types are located to the solebar using tabs and slots in a similar manner to the welded types. You need to make sure the connecting tabs are removed completely. Note that the brackets on the centre stanchions have fold lines in them and they should be bent so that the part that extends out from the solebar is angled downwards towards the rails.

Spring Stops

There are 6 fabricated spring stops on the solebar detailing (14) fret (see Fig.1) which can be folded up and then soldered in place. I find a small pair of self closing tweezers good for this. Some wagons had round pattern spring stops. I have used 1mm wire for these. 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 joint breaking.



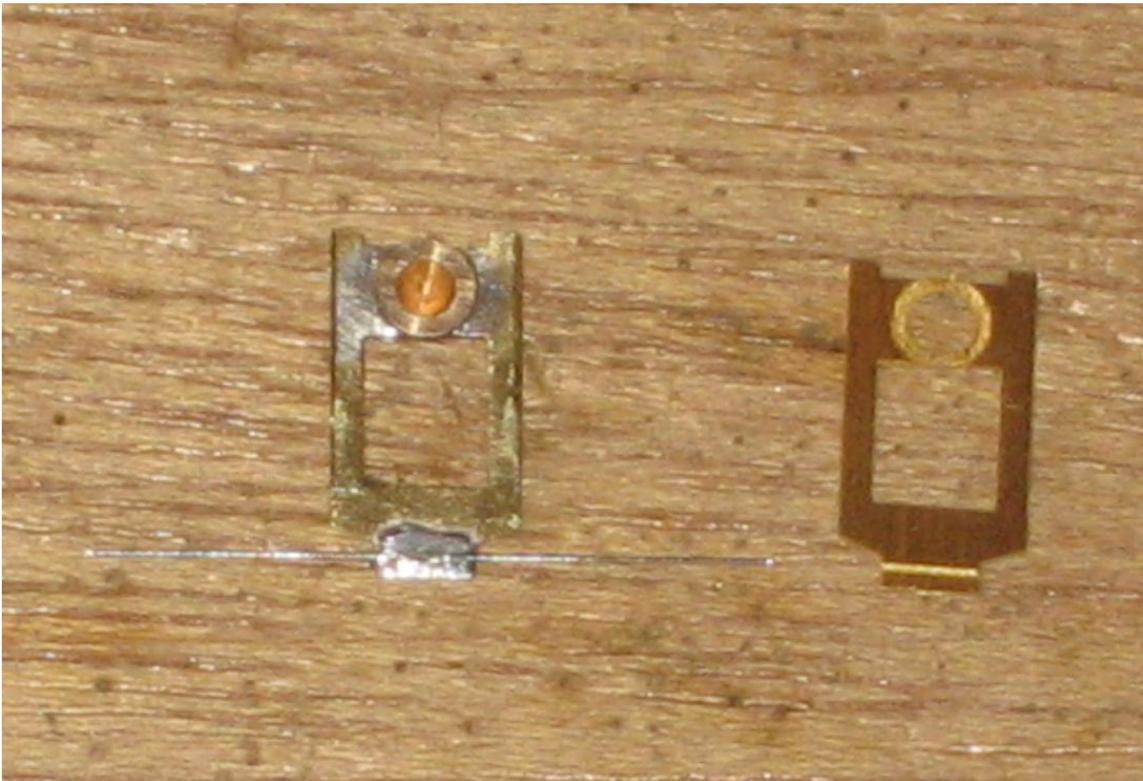
Spring Carriers

The spring carriers (7) 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.

The distance between the backs of the W-Irons is a bit larger when compared with other systems and is 24.5mm. 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 (8) 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 from 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.

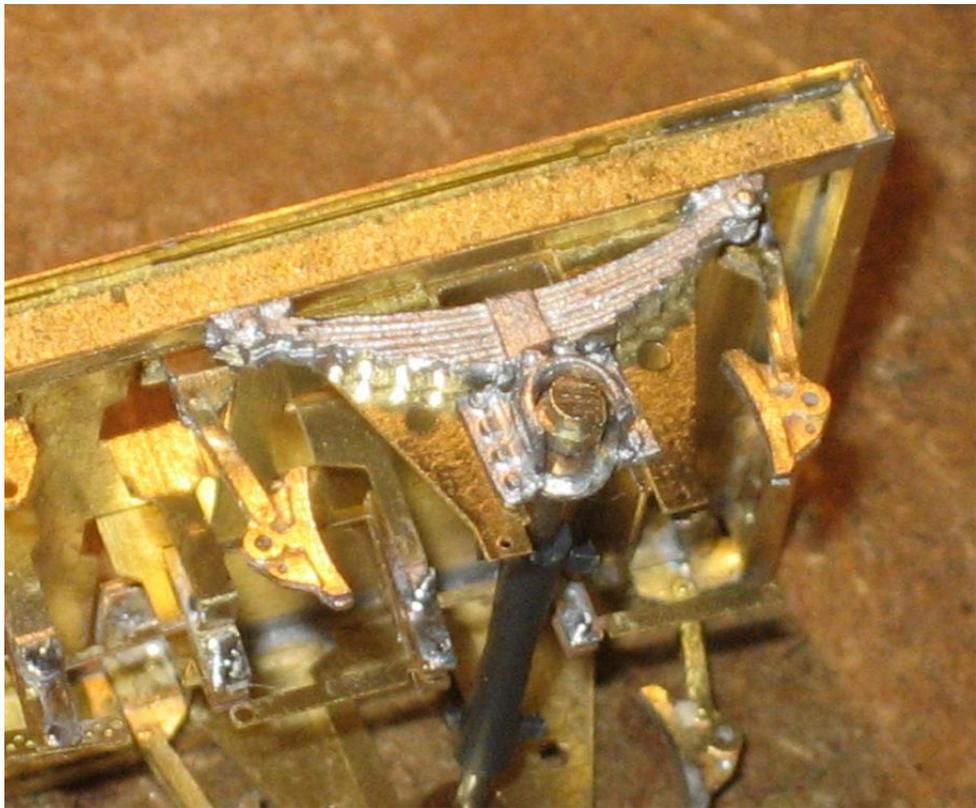
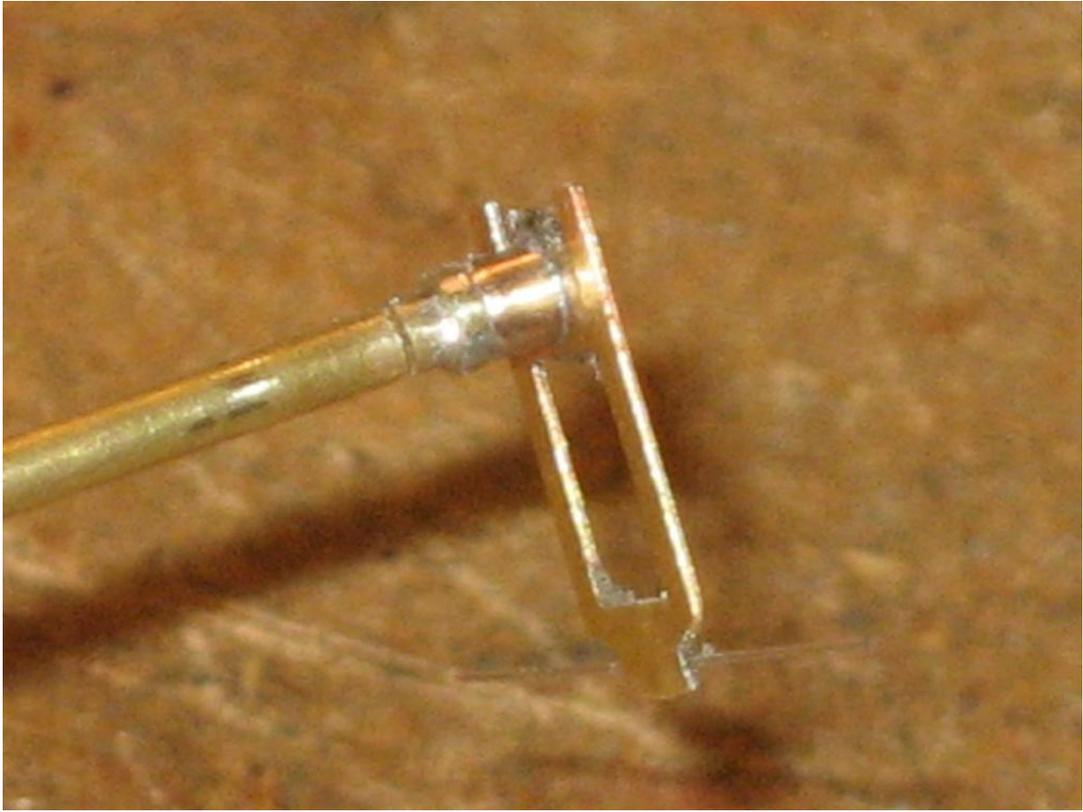
Due to the removable nature of the axle guards you can easily use Exactoscale parallel axles and bearings if you wish. If doing so then you will need to pack the bearings out on the back of the spring carriers before soldering them in place due to the length of the axle. Use the bearing washers provided.

I 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 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.



Spring carriers (7)

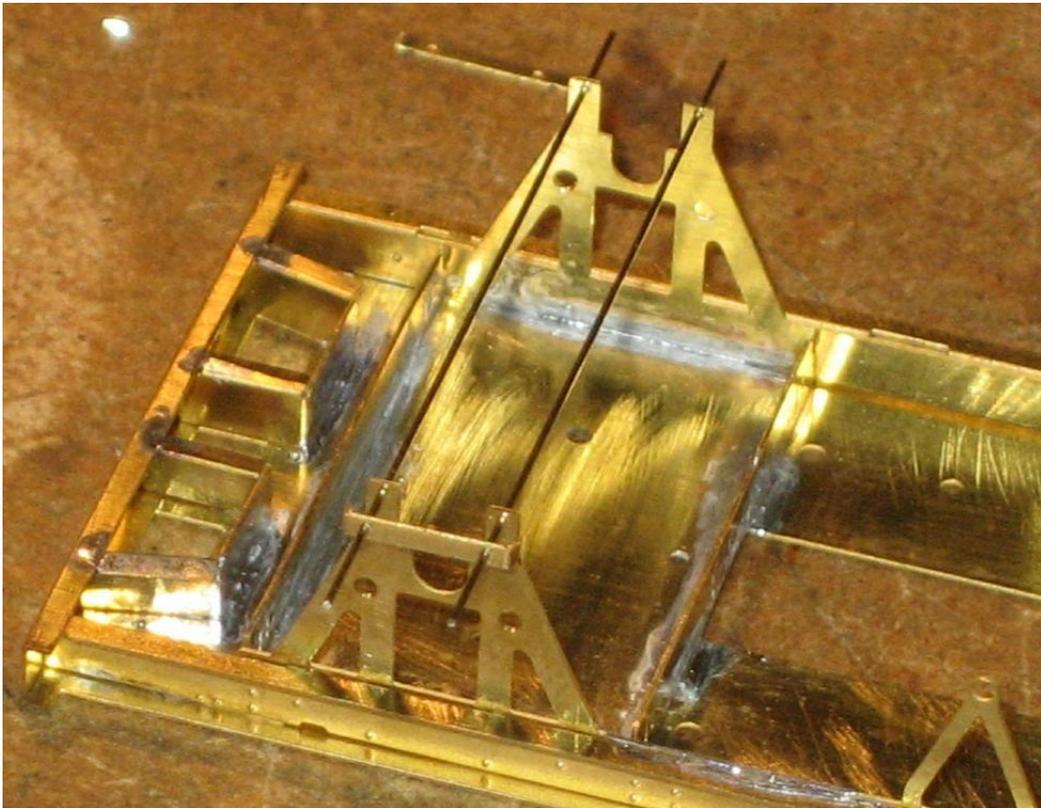
A note on roller bearings. These were fitted to a number of wagons using clasp brake chassis from the late fifties onwards. My preferred method of doing this is to extend a non-waisted pinpoint bearing using 1.5mm brass rod and a small sleeve of 2 x 1.5mm brass tube. The actual bearing part of the axlebox casting is then removed with the bearing moving up and down with the springing. Wizard Models make a suitable hooded type roller bearing axlebox casting (BRC023) as well as other non-hooded types. Extending the bearings is a bit of a fiddle and I'd like to try and get a batch of custom bearings made to make the job easier at some point.



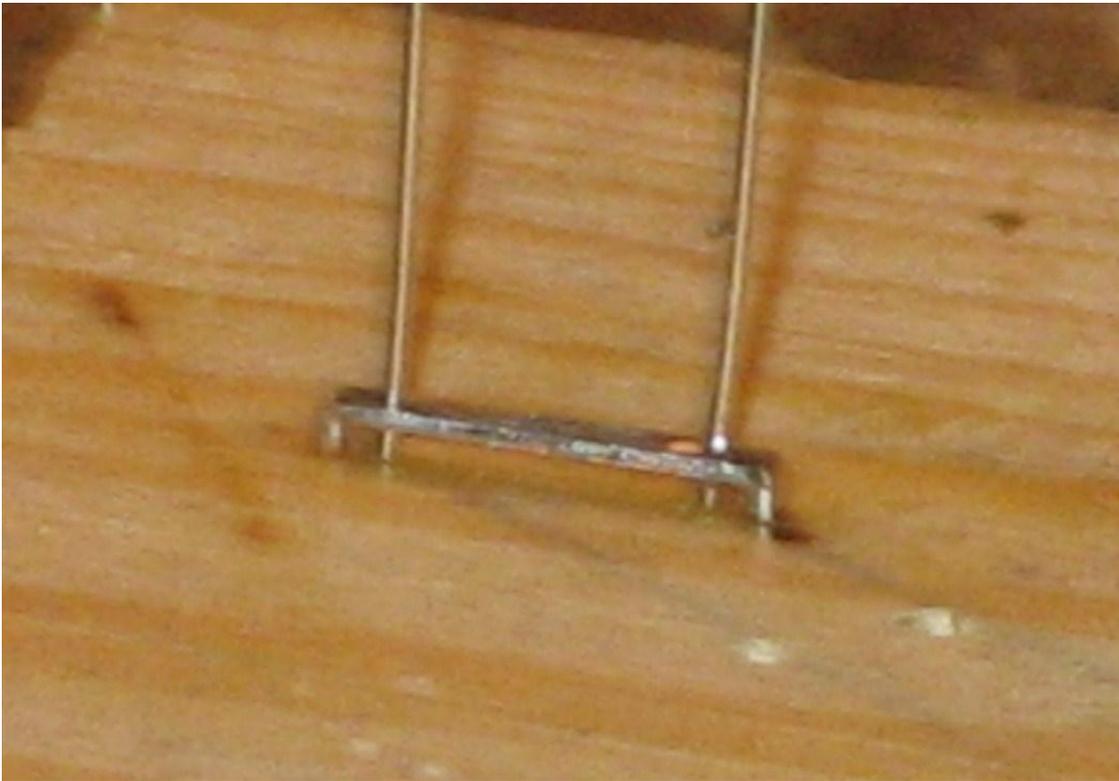
Axle guards

The axle guards (9) 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 W-Irons. Remove from the fret and fold the ends up. Thread lengths of 0.31mm wire through the axle guard and holes in the W-Iron and the corresponding holes on the opposite W-Iron. Solder in place. Fit the other axle guard and solder in place. Trim the wire so that it represents bolt heads on the front of the axle guards but extends approximately 0.5mm from the back of the W-Iron. These pins will prevent the springs from becoming disengaged from their slots.

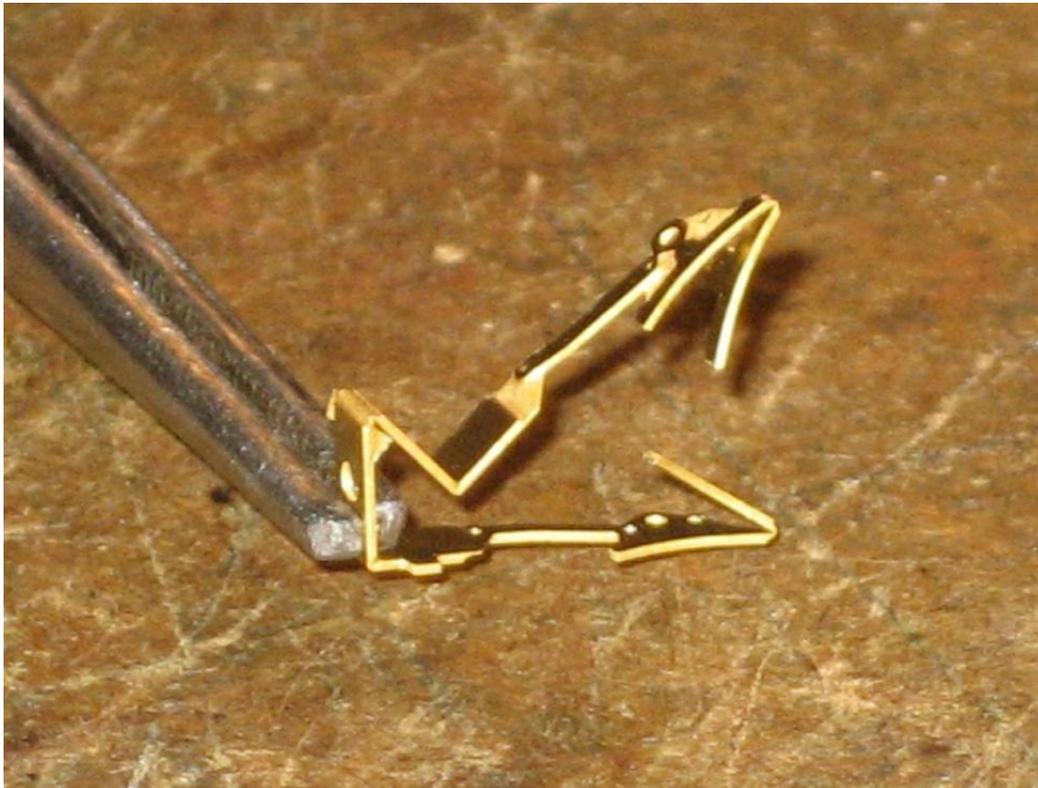


If you want to make them removable to allow the axles to be dropped out then you will need to solder 0.31mm wire 'pins' through the holes in the axle guards. I find the easiest way of doing this is to use one pair of holes as a jig and drill a pair of 0.3mm holes into a piece of scrap wood. Short lengths 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. I found it easiest to fold the ends in this order and then quickly reinforce the fold lines with solder before removing the axle guard completely. You will need to make sure there is at least 0.75mm of wire projecting from the back of the axle guards 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 axle guards 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.



Brake Shoes

The clasp brakes (5) are designed to be folded up as one piece, soldered together and then tidied up afterwards. If you wish press out the half etched rivets at the top of the hanger bracket. I use a drop head rivet press for this with the parts held on one of those ubiquitous green cutting mats. Remove from the fret and fold up. All the fold lines are through 90° except for the one between the two plates with the holes in which is through 180° with the fold line on the outside. There are four parts to the brake shoes. Two outer detail parts and two inner shoes. The inner shoe parts needs to be folded through 180° with the fold line on the outside. The four parts of the brake shoes need to be aligned and soldered in place. I do this by putting a 0.5mm drill bit through the holes for the yolk and clamp the four etched layers together using a pair of self closing tweezers. If you hold the drill in one hand you can rest the base of the tweezers on the workbench leaving one hand free for the soldering iron. It's easier than it sounds, see attached photo. Solder together. If you wish there are clasp brake infills which go between the two sides of the clasp brake assembly at the base to fill out the bracket that attaches the clasp brakes hangers to the underframes. Fold them double, fit between the two brake hangers and solder in place. This is gilding the lily really but they can be used if you wish. You can now clean up the clasp brake assembly and the shoes in particular.

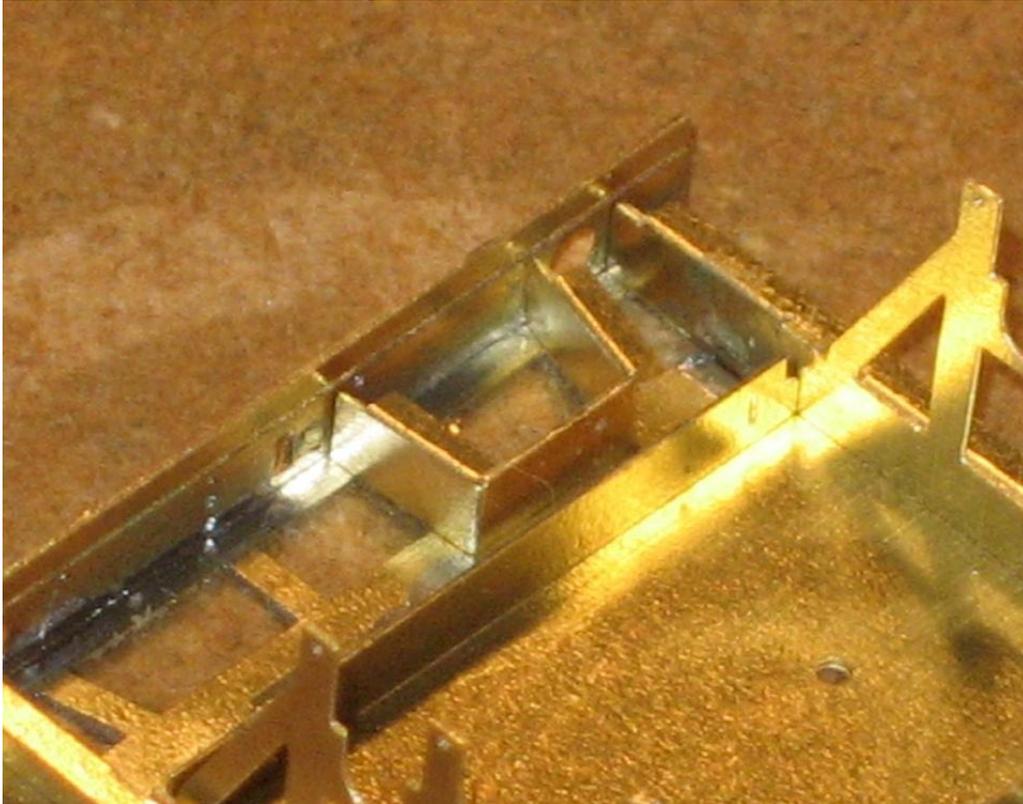




There are tabs on the clasp brakes that locate into slots in the W-Iron assembly (2). There are two different sets of slots depending on which gauge you are building to. The outer ones are for EM/P4 and the inner ones for OO. The clasp brakes can now be soldered in place on the chassis. Make sure that the clasp brakes are hard up against the W-Iron assembly. The holes can also be used to help pin the clasp brakes to the chassis top plate when soldering.

Shock absorbing wagon end bracing

Now that the brake shoes are in place you can add the end bracing (23) if building a shock absorbing wagon using B.01. These should be folded up to follow the profile of the chassis at the ends. Note that they are handed depending on which side they are for. Also fold the tops over to represent the channel section used on the real thing. This was only found on the main longitudinal beams with the angled pieces being L section. The photo shows a test chassis with incorrect channel for the angled pieces. Locate in the chassis using the tabs and slots to aid alignment and solder in place.



Brakegear

Next attention can turn to the brakegear. Check and open out where necessary the holes in the brakegear links (10), brake shaft crank overlays (11), brakegear overlays (12) and brake yolks (13 or 32 depending on gauge). Refer to the Fig. 2 for the hole sizes.

Remove the brakegear links (10) from the fret. Fold up one of the brake shaft crank overlays (11) so that it will wrap around the brake shaft crank on the brake linkage. The other is a spare. Use 0.31mm wire to align and solder in place. The brakegear overlays (12) need to be done next. Do them one at a time only removing them from the fret when necessary. Refer to the Fig. 1 again for where each one goes. Fold them up so they will wrap around the top of the brakegear links. Use the appropriate size of wire to pin them together making sure there is at least 5mm of wire protruding either side of the assembly then solder in place.

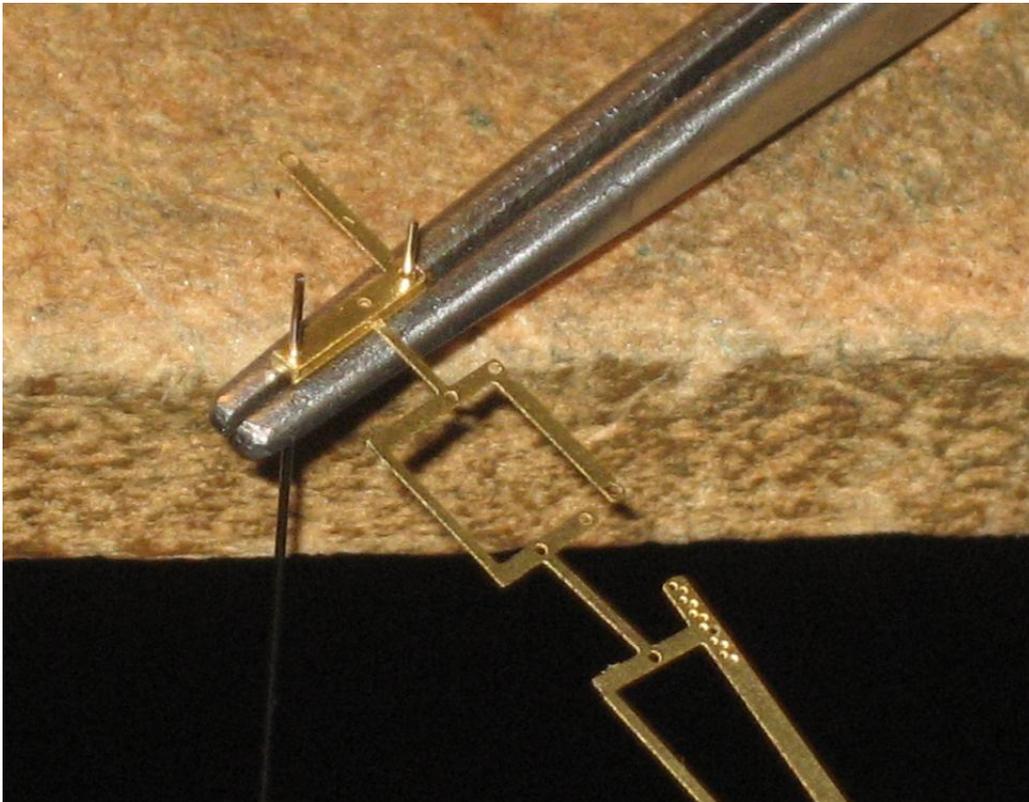


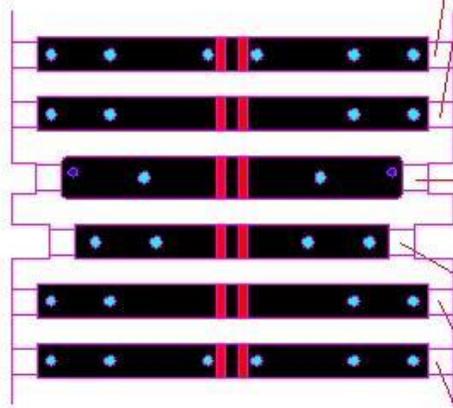
Fig. 2

0,31mm

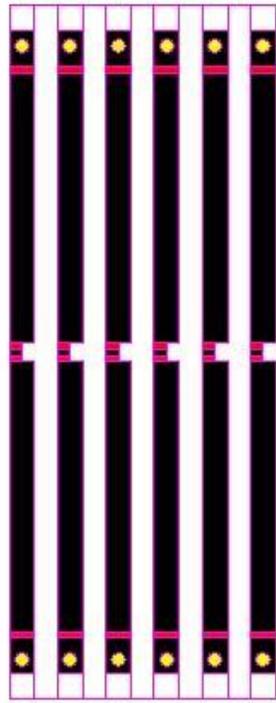
0,4mm

0,5mm

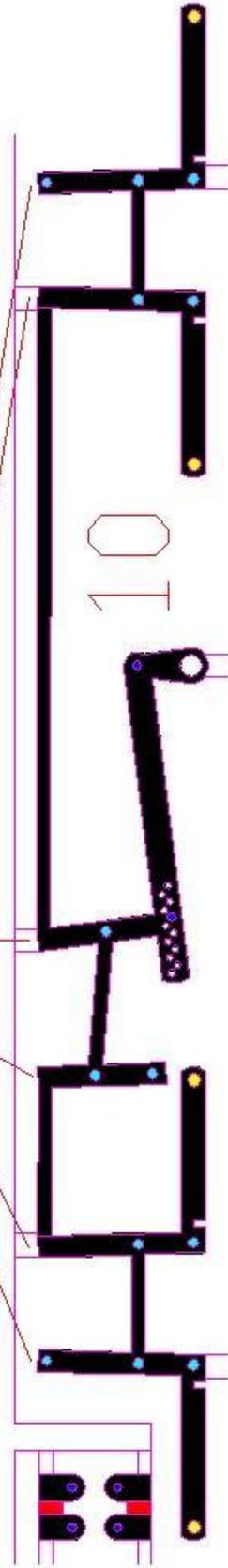
12



13



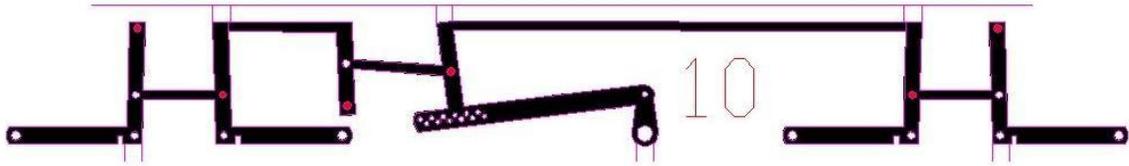
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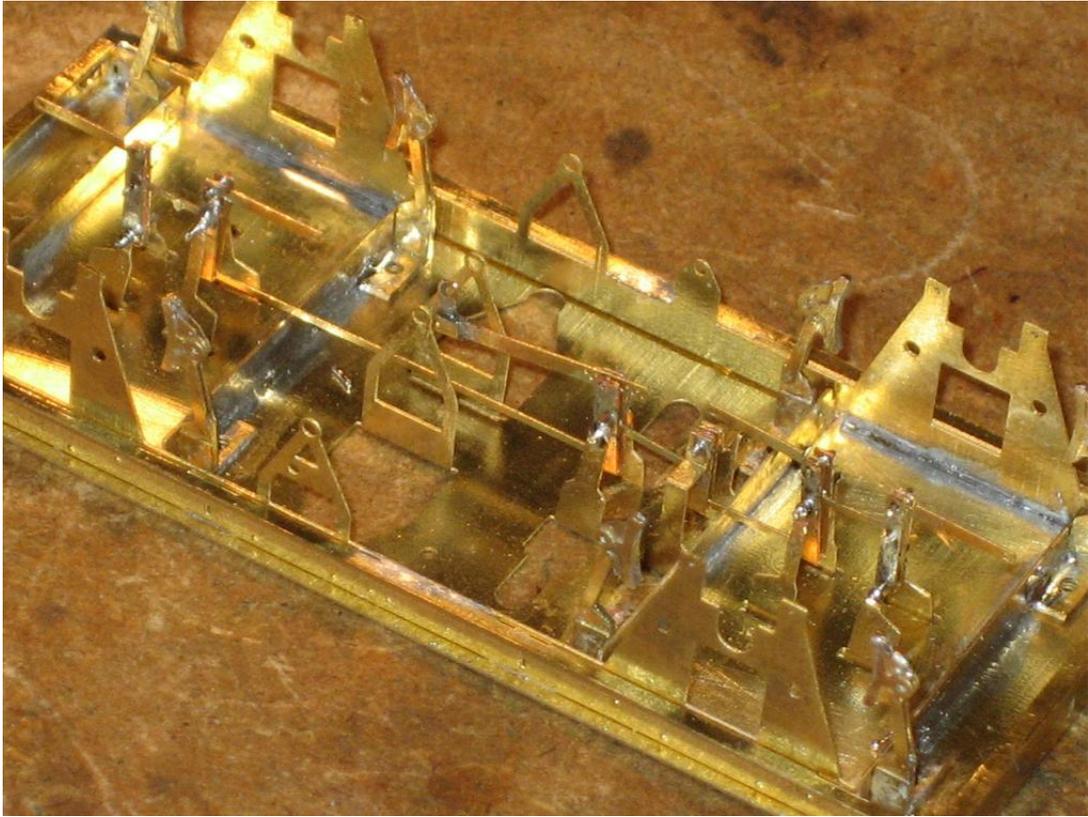
10

Once all the overlays are all in place you can trim all the connecting wires to represent bolt heads except for those noted in Fig. 3. These will be used to pin the assembly in place on the chassis.

Fig. 3



The brackets for the brake links on the chassis top plate need to be angled inwards with the ends at right angles to the chassis and parallel to brakegear links assembly. The exception to this is the bracket second out from the main brake shaft which is cranked. There is a pair of fold lines to allow this. See photos. Starting at one end and working towards the other locate the brakegear links assembly with the brackets. Once everything is in place solder together.

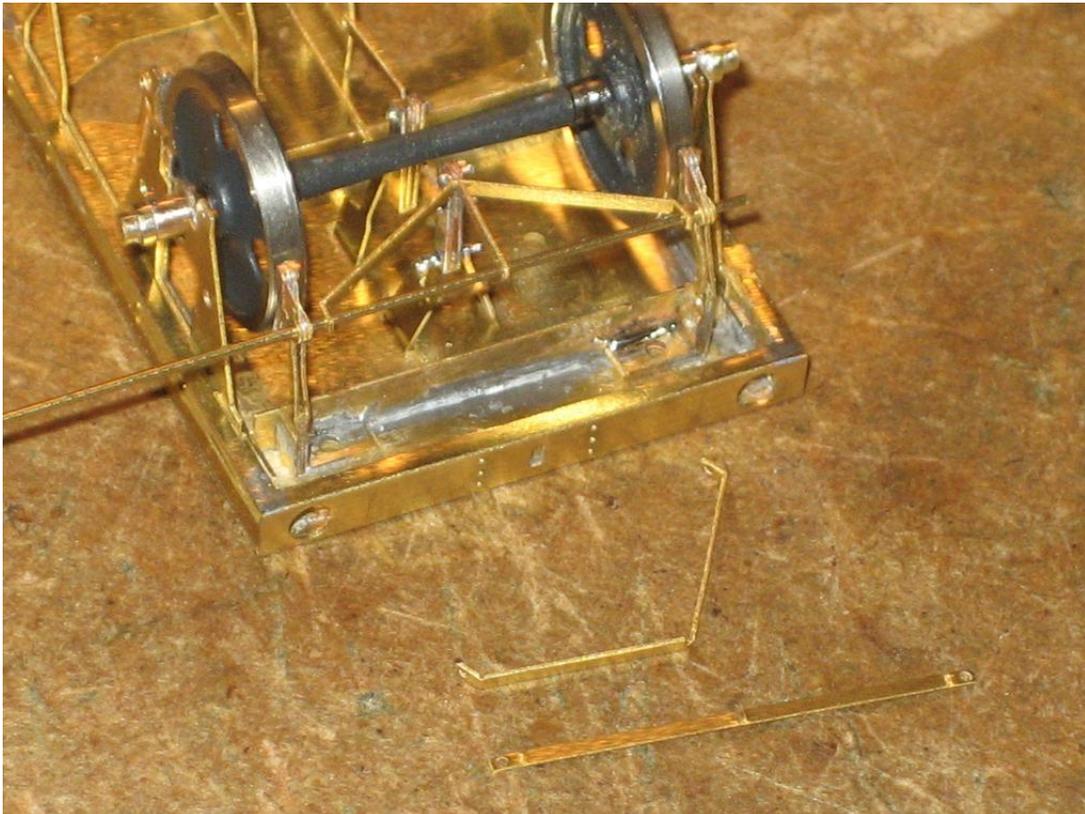






Yokes

The brake yokes, either (13) for EM/P4 or (32) for OO can be attached next. They follow the prototype in appearance. Ensure that the holes in them can accept 0.5mm wire and remove from the fret. The outer fold lines should be folded to approximately 30° and the inner fold lines to approximately 60°. Once folded they can be located to the chassis using 0.5mm wire. Note that there is a slot in the yoke which will locate in a similar slot in the brakegear links (10) so make sure they go on the correct way around. Pass a piece of 0.5mm wire through both the brake shoes and the yolk and then locate the yolk to the brakegear links. Solder everything in place and trim the wire.



Headstock detailing

Now is as good a time as any to fit the coupling pocket detail (16). There are up to three types depending on the chassis. There is a riveted overlay, a welded overlay and a channel type for fitting to vehicles with 2' ¼" buffers. Check your prototype. Solder in place using the hole for the coupling as a guide. I find the easiest way of doing this is to shape the end of a cocktail stick to fit in the slot. This can be used to align the detail on the headstock and hold it in place while you solder them together



The solebar/Headstock corner plates (15) can also be added. If using B.01 there are two types depending on whether you are making a chassis for a shoc absorbing wagon or not. The type for the shoc absorbing wagons suits the narrower headstock of the prototype. These parts go in the corners between headstock and solebar. On B.01 and B.05 the diagonal faces outwards from the chassis, the others face inwards.

Changeover levers

Lest any sanity be left by the time you're finished building one of these there are two sets of changeover levers supplied for B.02 and B.04. One is for full wagons and one for empties! The following photographs taken of the changeover levers on a Presflo at Quanton will indicate which is which. Note that the larger of the two goes on the side where the brake lever is attached to the main brake shaft vee. The two levers are connected by a 0.31mm wire that goes across the chassis. I haven't included any locating points as the position did vary so check your prototype.

Check that the holes in the changeover lever brackets (30) and the chosen changeover lever detail (31) will accept 0.31mm wire. Remove from the fret and fold up the changeover lever brackets. Solder one of the brackets to the back of the appropriate solebar. Using a piece of 0.31mm wire as a guide, solder the other changeover lever bracket on the opposite side. The wire should be square to the solebars. The ends of the actual levers on the changeover lever detail can be folded through 90° as per the prototype and then soldered onto the changeover lever brackets. Only a small quantity of solder is required or you may cover the detail. Solder the rod in place at the same time and trim flush.



Brake levers etc

Firstly make sure that the holes in the following items can accept the correct size of wire:

Brake levers (17) 0.6mm and 0.31mm
Lifting links (18) 0.31mm
Brake lever cranks (19) 0.8mm and 0.31mm
Brake lever guards and brackets (21) 0.31mm
Brake lever guard stays (22) 0.31mm
Vacuum cylinder actuators (25) 0.8mm

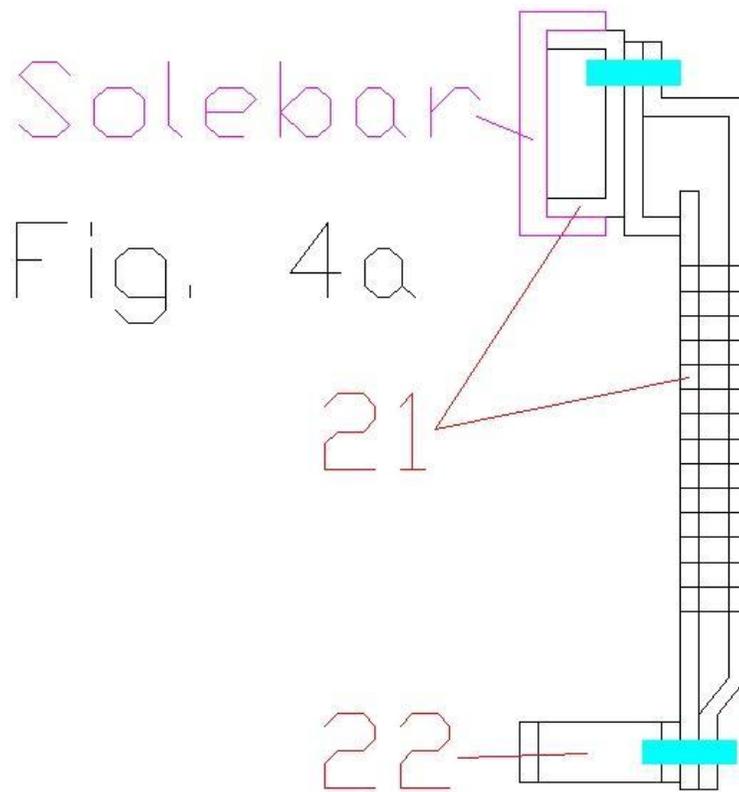
Note that the lever guard stays on the chassis fret are too short. You should use the replacement parts included.

Also note that the brake lever guards and stays on the main chassis etch for B.04 are the wrong type. You should use the replacement parts included. The parts diagram for this can be found on page 7.

Note that there are two types of brake lever cranks (19). These go behind the brake shaft vee and then are bent to align with the brake lever and lifting links. There is a solid pair to be bent up prototypically or a pair with half etched fold lines to make things easier.

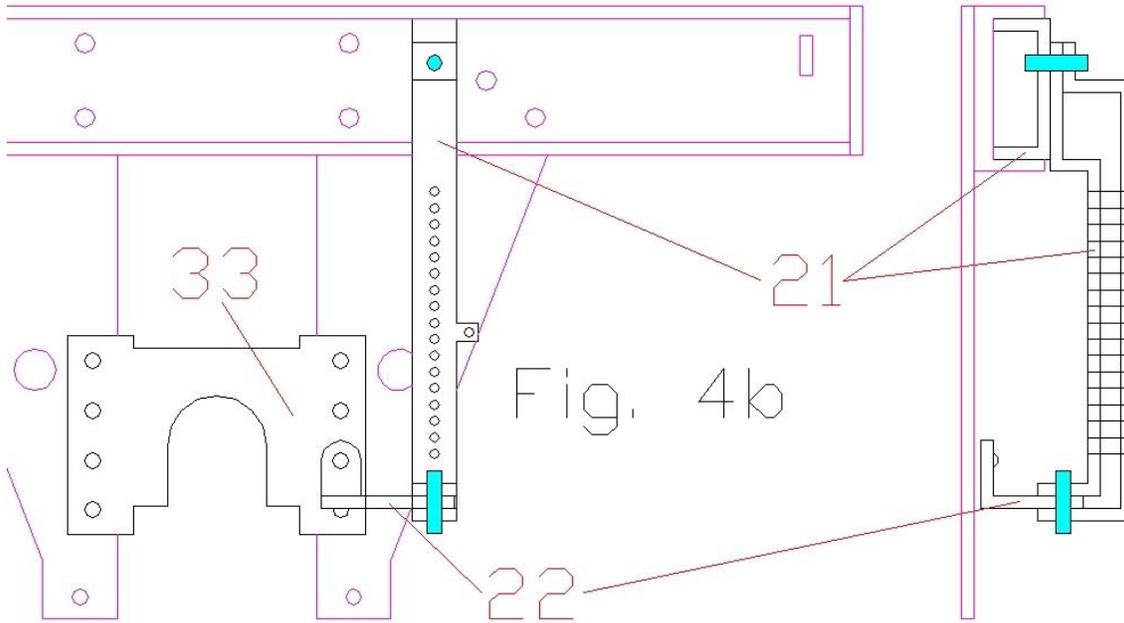
Standard lever guards for B.01, B.03 and B.04

The brake lever guards (21) can be removed from the fret and folded up. Separate the lever guard from the lever guard bracket. Fold the lever guard along with the lever guard bracket as per Fig. 4a. Press out the half etched rivet on the brake lever guard stay (22) and fold the ends through about 30°. Solder the lever guard and bracket together using 0.31mm wire. Trim the wire on both the front and back to represent a bolt. The assembly can then be located in the solebar and soldered in place. There are slots in the solebar to receive the lever guard brackets. The stay can then be pinned to the bottom of the lever guard and then soldered to both the lever guard and the W-Iron and any excess wire trimmed off.



Brake lever guards for B.02

The correct type brake lever guards for B.02 (21) can be removed from the additional fret and folded up. Separate the lever guard from the lever guard bracket. Fold the lever guard along with the lever guard bracket as per Fig. 4b. Press out the half etched rivet on the brake lever guard stay (22) and fold the end through 90°. Solder the lever guard and bracket together using 0.31mm wire. Trim the wire on both the front and back to represent a bolt. The assembly can then be located in the solebar and soldered in place. There are slots in the solebar to receive the lever guard brackets. The stay can then be pinned to the bottom of the lever guard and then soldered to both the lever guard and the W-Iron and any excess wire trimmed off. Note that the stay is actually attached to the riveted axlebox guide overlays. See Fig. 4b.



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 move with the springs and drop out if making them removable. Some types come with the riveted reinforcing strips for the axlebox guides moulded on. These are for heavy duty types and should be removed before fitting.

Brake levers

The general arrangement of the brake lever, lifting links and cranks can be found on Fig. 5 and also on the prototype photographs.

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 brake levers (17). A short length of 0.6mm wire can also be soldered in place through the brake lever with a brake lever washer (20) on either side. 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 same thing needs to be done with the brake lever cranks (19).



The brake levers need 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 levers can be soldered in place. The brake lever crank can now be bent or folded to shape depending on type. These can be fitted along with the brake shaft (0.8mm wire) and vacuum cylinder actuator(s) (25). The actuators need to have their half etched rivets pressed out and then folded over. They are designed for the ends to wrap around a 0.6mm piece of wire extending from the vacuum cylinder. Leave soldering of the actuator until the vacuum cylinder is in place. Note that the brake lever crank goes behind the vee on both sides. Adjust if necessary so that it aligns with the brake lever. Fit the lifting links in place joining up the brake lever and the brake lever crank and solder in place. Note that there should be two lifting links on both sides, one on either side of the lever/crank. A washer can be added to the brake shaft and the brake lever cranks soldered in place. The vacuum cylinder can be added now and the two halves of the vacuum cylinder actuator soldered in together and to the brake shaft.

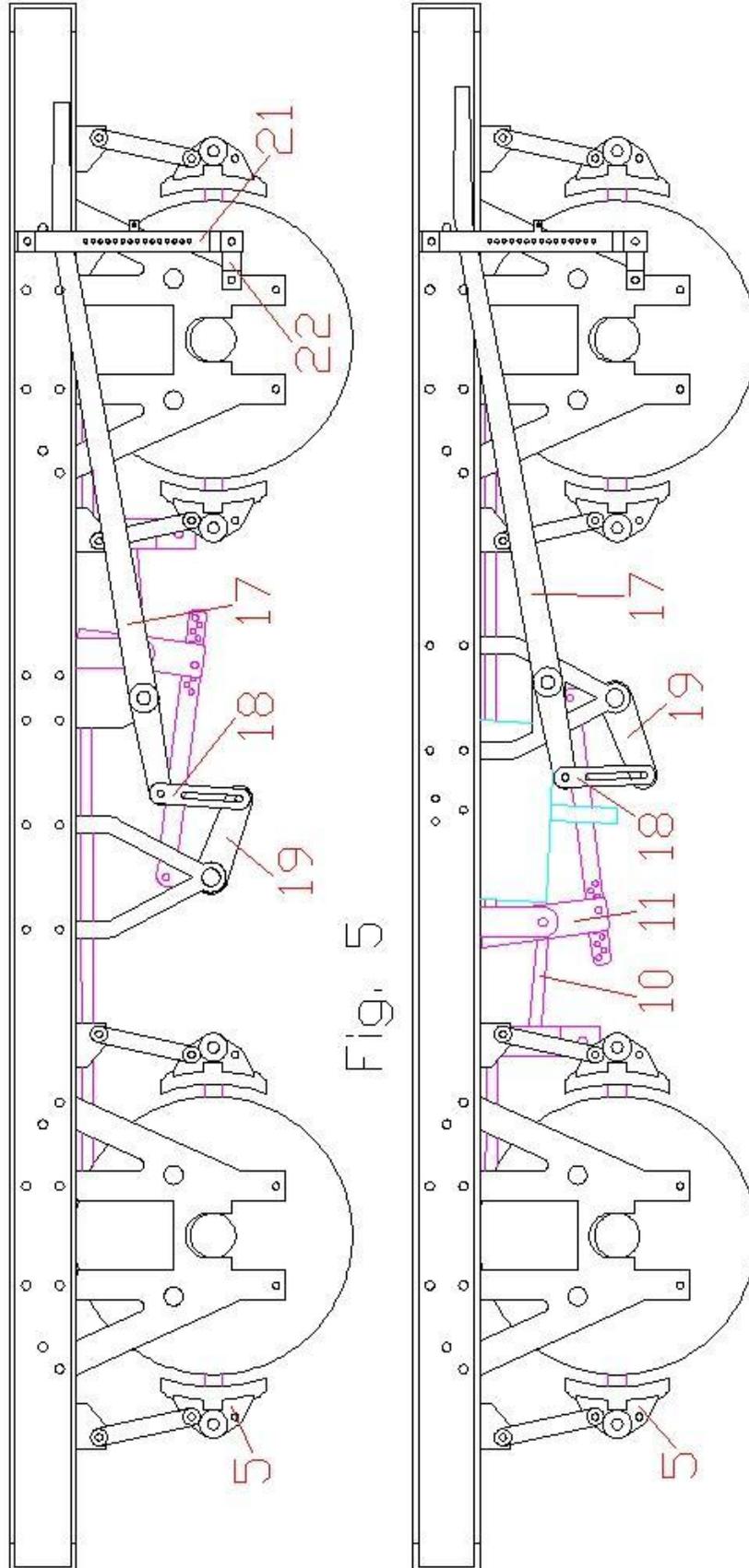


Fig. 5





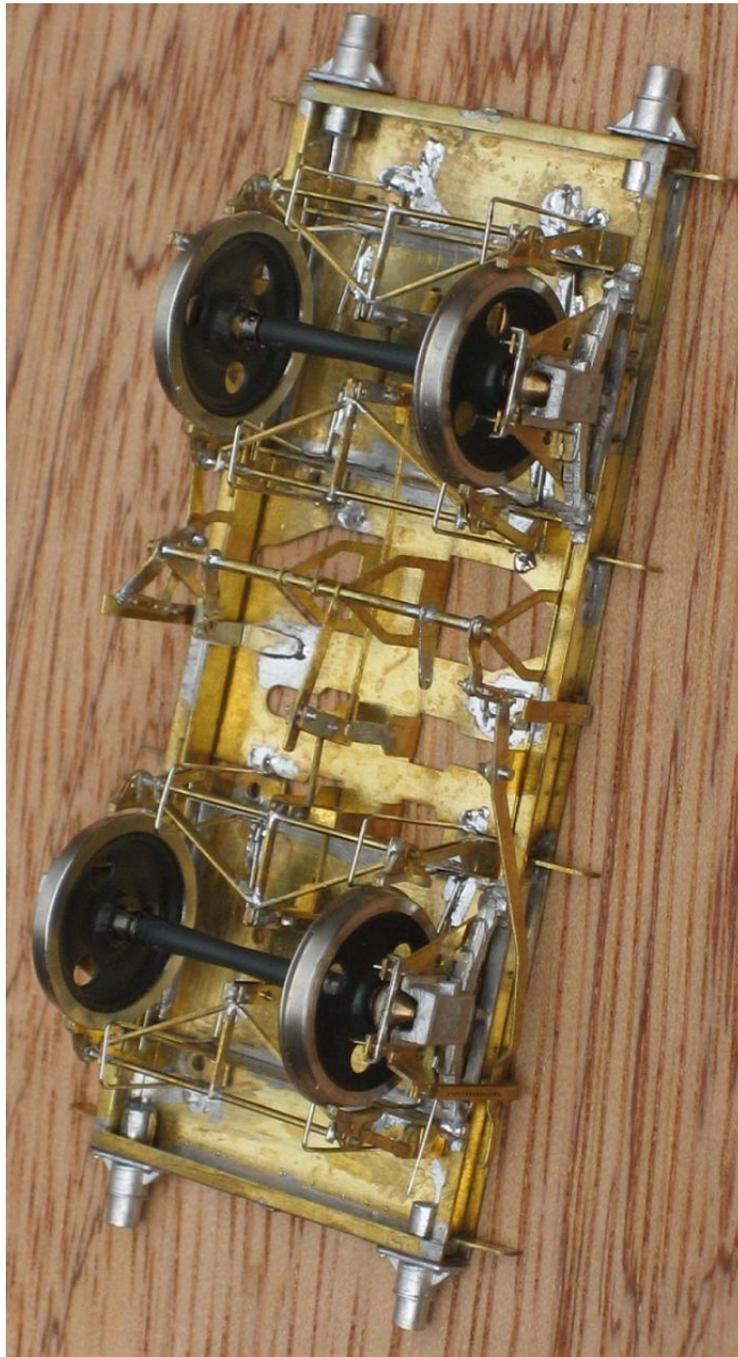
Wagon side support brackets for vans

There are brackets for the side stanchions on vans (28) for use with B.01. These are tailored for the Parkside Dundas BR standard vans. There is no alignment on the chassis for these but you can use a body as a guide. The half etched holes should be pressed out and then the bracket folded up. They can then be soldered to the inside bottom of the solebar. Technically these brackets were U shaped and there should be similar pieces at the top of the solebar as well connecting piece to which the van side stanchions are bolted. If you have spare from another you could use them on the top but they aren't easily seen. They can be shortened if necessary to suit other types of body.

In their current form they are a pain to fix in place accurately. I intend to do some add-on solebar detailing overlays and proper brackets for at least the Parkside BR standard vans which will make life much easier.

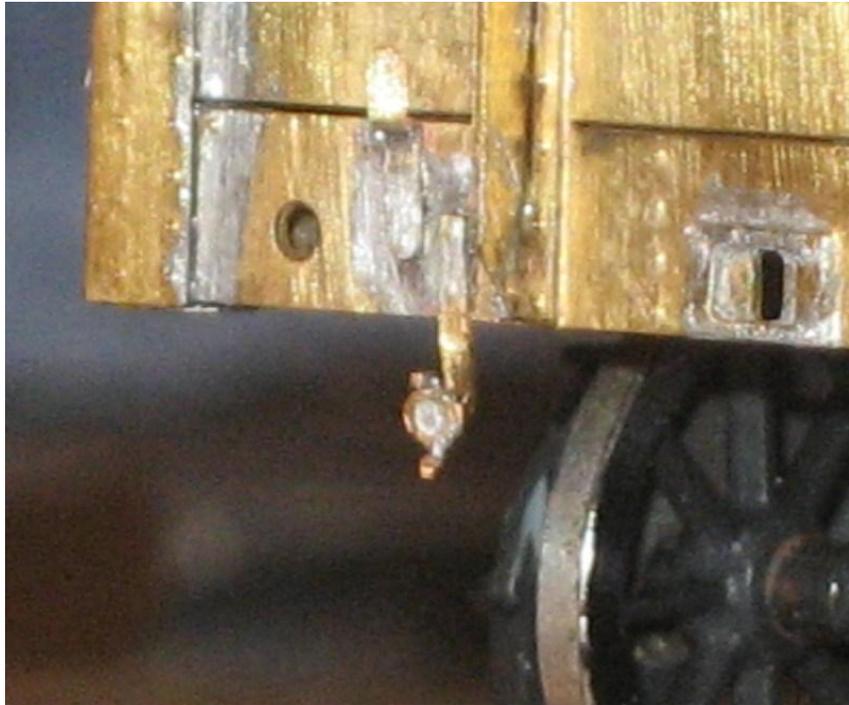
Safety loops

Formers are included on the fret for making safety loops from 0.31mm wire. These are marked in yellow on the parts diagram. There were different shapes used, even on the same type of wagon. I have included the shape I think is most appropriate though you could mix and match types depending on your prototype and whether you have the different chassis etches. Once formed they can be soldered to the chassis.



BR swan neck vacuum pipe brackets

There are two BR swan neck vacuum pipe brackets (27) included. These are quite distinctive and come in two parts. There is a bracket which attaches to the solebar and a round head that has 'tails' that fold up. Press out the rivets on the bracket and remove from the fret. Twist the base of the bracket through 90° so that the interface with the head faces away from the rivets. This bracket can then be soldered to the back of the head (the side with no half etched areas). It is easiest to do this while the head is still attached to the fret. There is a small slot to help provide a positive location. Once soldered in place the assembly can be removed from the fret and the 'tails' on the head folded out. If you're brave these fold lines can be reinforced by the use of a very small quantity of solder and a very quick soldering iron. Some step soldering might be a good idea but I haven't encountered many issues with just using 145° solder. These can then be soldered in place on the headstock.



Door Springs

There are two types:

Those supplied with B.01 are designed to fix behind the solebar for shock absorbing opens. As far as I know the BR clasp brake chassis wasn't fitted to any other type of general open goods wagon. There are locating points on the chassis but note that the springs should coincide with the bang plates on doors which may not be as per the drawing I used to set the locating points. The Parkside shoc open I have is way out from the drawing in an Illustrated History of BR Wagons Volume 1 which I used as is the Bachmann body. Fold the ends, bend to shape and align appropriately.

Those supplied with B.04 locate into the solebar. There are slots in the solebar and solebar detailing overlays which facilitate this. Push out the half etched rivets and remove from the fret. Fold up noting that the fold nearest the rivet detail should be made through 180° with the half etched line on the outside. Bend to shape and solder into position.



Lamp Irons

Lamp irons (26) are included for fitting to either the wagon body or the headstock if required. Check your prototype.

There are two pairs included, one with half etched holes for pressing out the bolt heads and one with the bolt holes etched out completely. I dislike relying on glued joints for these sorts of things on plastic bodies and so have included these for use with 0.31mm wire pins to provide a more positive location. I have also included a drilling jig which has the correct spacing for drilling holes in plastic bodies. This is the part shaded green in the parts diagram. Use a 0.3mm drill.

If you wish to use the half etched bolt type then press out the rivets whilst still in the fret and then remove and fold up and fix in place

If using the pinned type then check that the holes will accept 0.31mm wire and remove from the fret and fold up. Two short lengths of 0.31mm wire can be soldered in the holes and then the lamp iron glued in place on the body having drilled receiving holes for them. Alternatively simply glue the wire and lamp iron in place at the same time without the solder.

Note that lamp irons weren't found on all fitted wagons, at least to begin with. Those that were XP designated had lamp irons from new. Those that were non XP rated (generally mineral wagons) didn't seem to have lamp irons until such times as brake vans were no longer required on fully fitted trains. This happened when the unions agreed to guards being able to ride in the rear cab of diesel locomotives which was around 1968. After that all fitted wagons seemed to acquire lamp irons.

Painting

One of the advantages of having the chassis as a complete unit with solebars and headstocks is that you can paint it separately from the body and then glue the two together afterwards. If using an airbrush or aerosol this means you can prime it and then paint it all black with no masking at all which makes life a little easier.

I now 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 and the paint will just come off.

Notes on wagon bodies and weighting

Some modifications may be necessary to the body to get it to fit the chassis. Principally this will revolve around removing the plastic headstocks from the ends of Parkside and Red Panda kits. In some cases this will present no problems as a lot of BR built stock had a clear distinction between underframe and body with no stanchions extending from the body onto the headstock. Where there were such items though a little work will be needed to remove the headstocks and then thin down the backs of the stanchions to a near prototypical thickness. Careful use of a piercing saw and file will do the job.

The suspension on the underframe is designed to work optimally under a 50g load. As there is limited space on the underframe due to all that brakegear the best place for it is in the wagon body. This is easy enough if the wagon is a van but if it's an open wagon then some work may be needed.

I make a new floor for open wagons and minerals 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. Unloaded Conflats and Lowfits are another matter. The only solution would be to try and get as much weight as possible into the underframe.

Finally

Thanks must go to the staff of The Swanage Railway and The Buckinghamshire Railway Centre at Quainton for letting me measure up and photograph at close quarters some of the wagons in their care which have greatly helped in the preparation of these kits.

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 - Updated January 2017

Suppliers List

Eileen's Emporium
Unit 19.12 Highnam Business Centre
Newent Road
Gloucester
GL2 8DN
UK
www.eileensemposium.com

Masokits (Screw couplings)
Michael Clark
c/o 27 Crotch Crescent
New Marston
Oxford
OX3 0JL
www.scalefour.org/masokits

Lanarkshire Models and Supplies
(buffers and vacuum pipes)
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

C&L Finescale
(Exactoscale wheels, bearings and couplings)
Aran Lodge
Severn Road
Hallen
Bristol
BS10 7RZ
<http://www.finescale.org.uk>

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