Rumney Models – Morton Brake Wagon Chassis Instructions
Version 2 - January 2017

Notes

These instructions currently cover the following chassis kits:

B.11 BR 17'6" x 10' Morton brake
B.12 RCH 17'6" x 10' Morton brake
B.26 BR 16'6" x 9' Morton Brake – Sand Tippler

These kits are designed to build into a fully detailed and accurate 4mm Morton brake wagon chassis. Such chassis were produced in their thousands and were fitted to all manner of wagons from lowfits to opens and vans. The kits 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 are spot on in this regard.

Standard 17'6" Chassis

The two etches, B.11 and B.12, are essentially the same with detail changes to cover the variations that occurred over time. The most obvious change was the W-Irons from RCH type to BR. In fact this is slightly misleading labelling as the later wasn't really a BR type at all but a change in the RCH specs on such things it just happened to occur around nationalisation but it's convenient to refer to them as BR W-Irons. The change could well have occurred as early as 1946 and there were numerous pre-nationalisation wagons that had the latter type.

Provision is included to model the open ends as found on shock absorbing wagons. The profile of the chassis framing is different on the two kits as the specification on such matters was changed by the RCH. The actual change occurred in the early 1940s though I have been unable to narrow it down further. It had certainly occurred by the end of the war. There was a cross over period where the later type chassis pattern as found on B.11 would be on wagons with RCH W-Irons as found in B.12. If you wish to be completely accurate the top plates (1) are identical and so are interchangeable between the two kits but it's probably not worth it on vans as very little of the frame is visible and of course is no good if you model before 1947 as you'll have no need for the BR W-Iron fitted kit.

Sand Tippler

Chassis B.26 covers sand tipplers built to diagram 1/071 and 1/072 and is intended for the Red Panda body kit. I know that Bachmann also do a body but I have no idea how well it would fit the chassis. Both lots were originally built unfitted with two shoe brakes but many were converted in the mid to late fifties to four shoe brakes and given vacuum cylinders, etc. The chassis can be built in both fitted and unfitted form and with two or four shoe brakes.

Construction Notes

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 from the two Morton brake chassis but will 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 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.

Technical

The suspension is individual springs made from 0.008" steel guitar wire soldered to the etched spring 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 much travel 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

A few different 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 - Brakegear, axle guards
0.5mm - Vacuum cylinder bracket for B.26
0.8mm - Main brake cross shaft and brake lever
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.

Wagons with these underframes had 5 leaf springs and generally 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. In addition to these, earlier oil type axleboxes are in preparation and will be released in the autumn of 2017. These will included LNER cast and welded, LMS 2 part and LMS vertical platefront axleboxes as well as the RCH 2 part type, all of which are suitable for at least one of these underframes at some point. Very occasionally wagons with the B.11 or B.12 type underframes could be found with roller bearings, specifically those open wagons used on the Clayliner trains. Rumney Models does a 5 leaf spring and roller bearings (FE.05) if required. See the Rumney Models website for further details, including illustrations. They are listed under wagon castings in the 4mm scale section.

Vacuum cylinders will be needed if constructing a fitted Morton wagon. They were the 18" type on these three underframes and are available from Rumney Models (F.01). These can be found in the same place as the spring and axlebox castings.

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. 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

1 - Chassis top plate
2 - W-Iron assembly
3 - Solebars
4 - Solebar overlays
5 - Shock absorbing wagon end bracing

6 - Brake shoes/push rods
7 - Push rod cranks
8 - Push rod safety loops

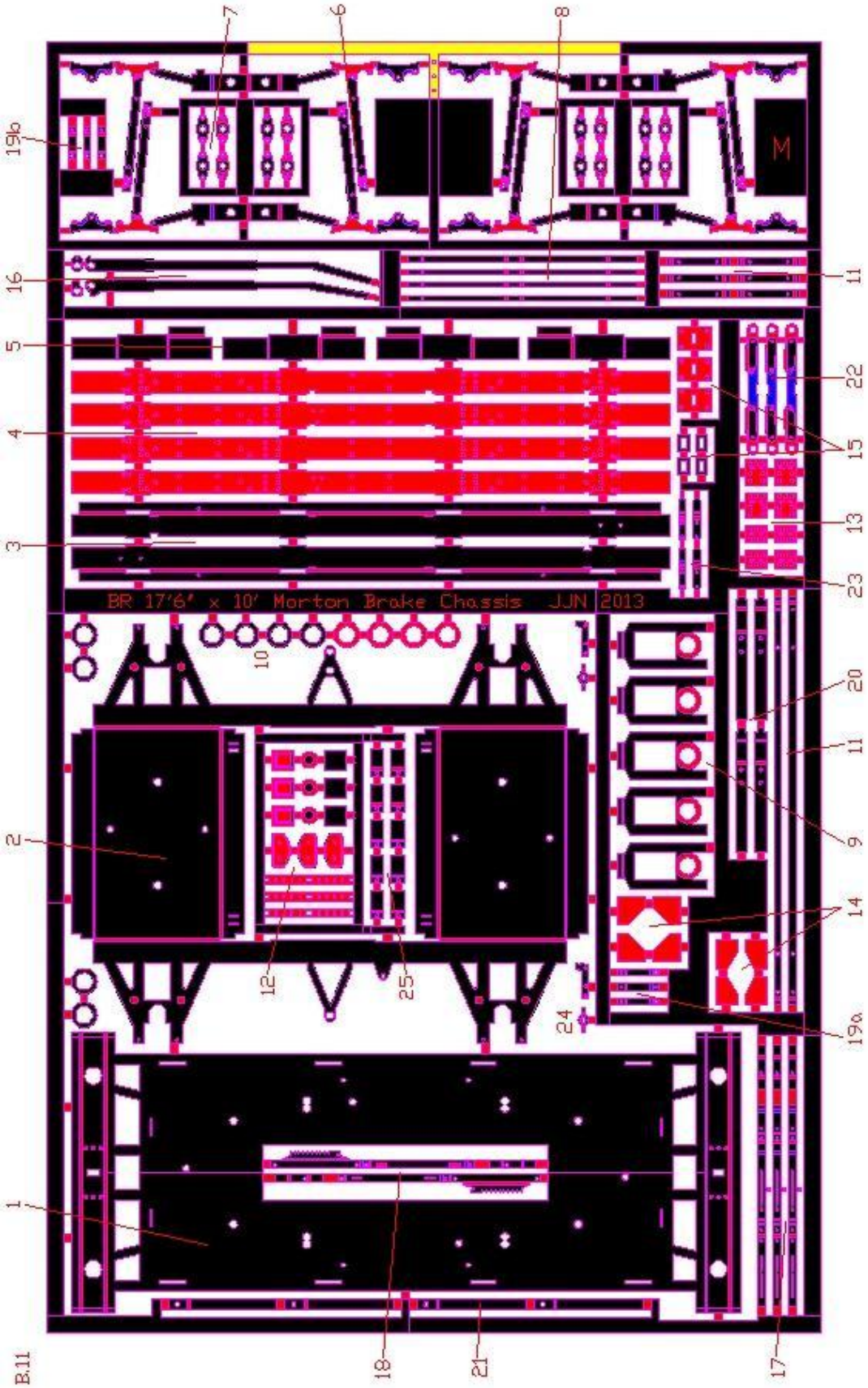
9 - Spring Carriers
10 - Bearing washers
11 - Axle guards/Tiebars

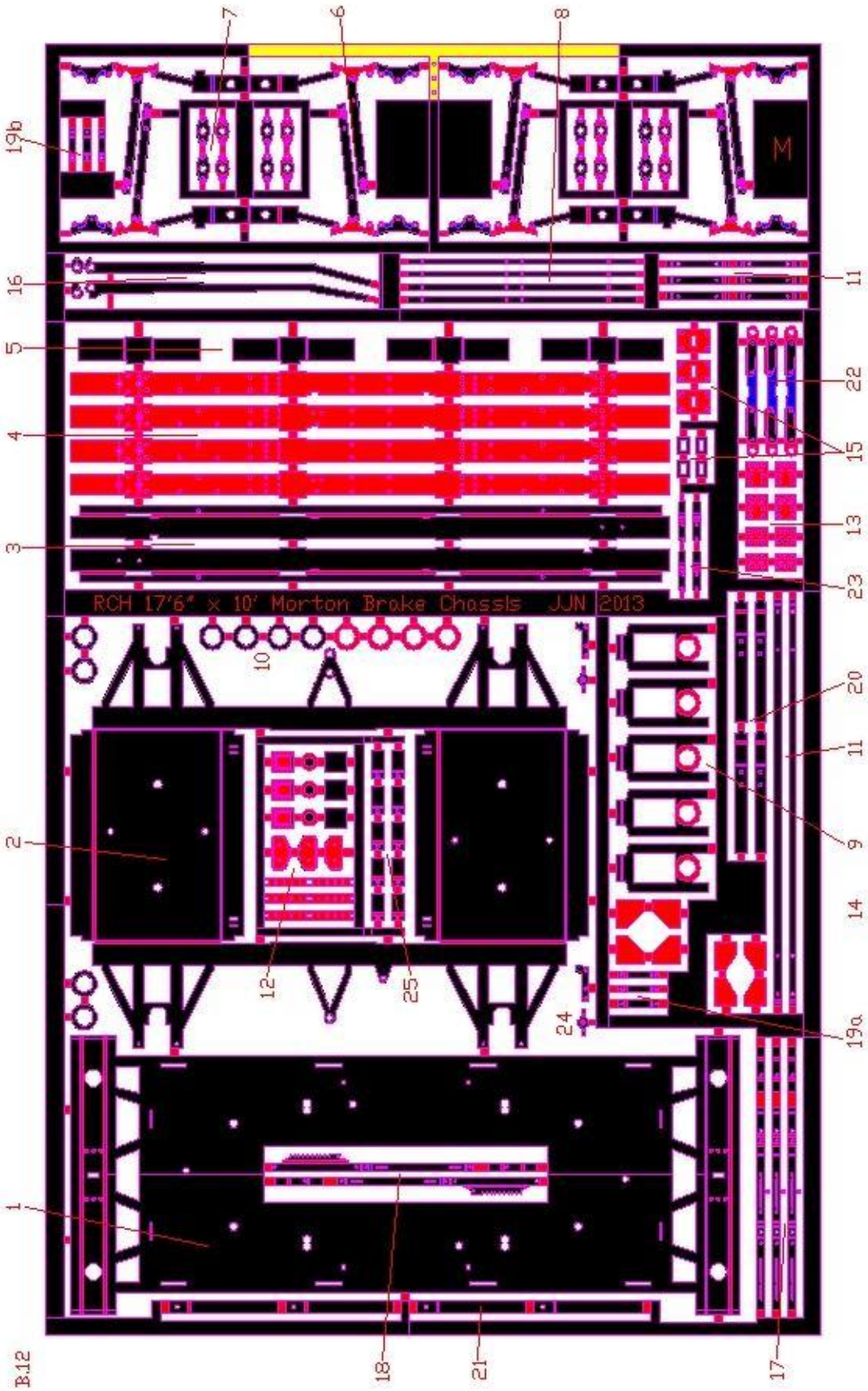
12 - Solebar detailing
13 - Solebar/Headstock rivet plates
14 - Corner plates
15 - Coupling pocket detail

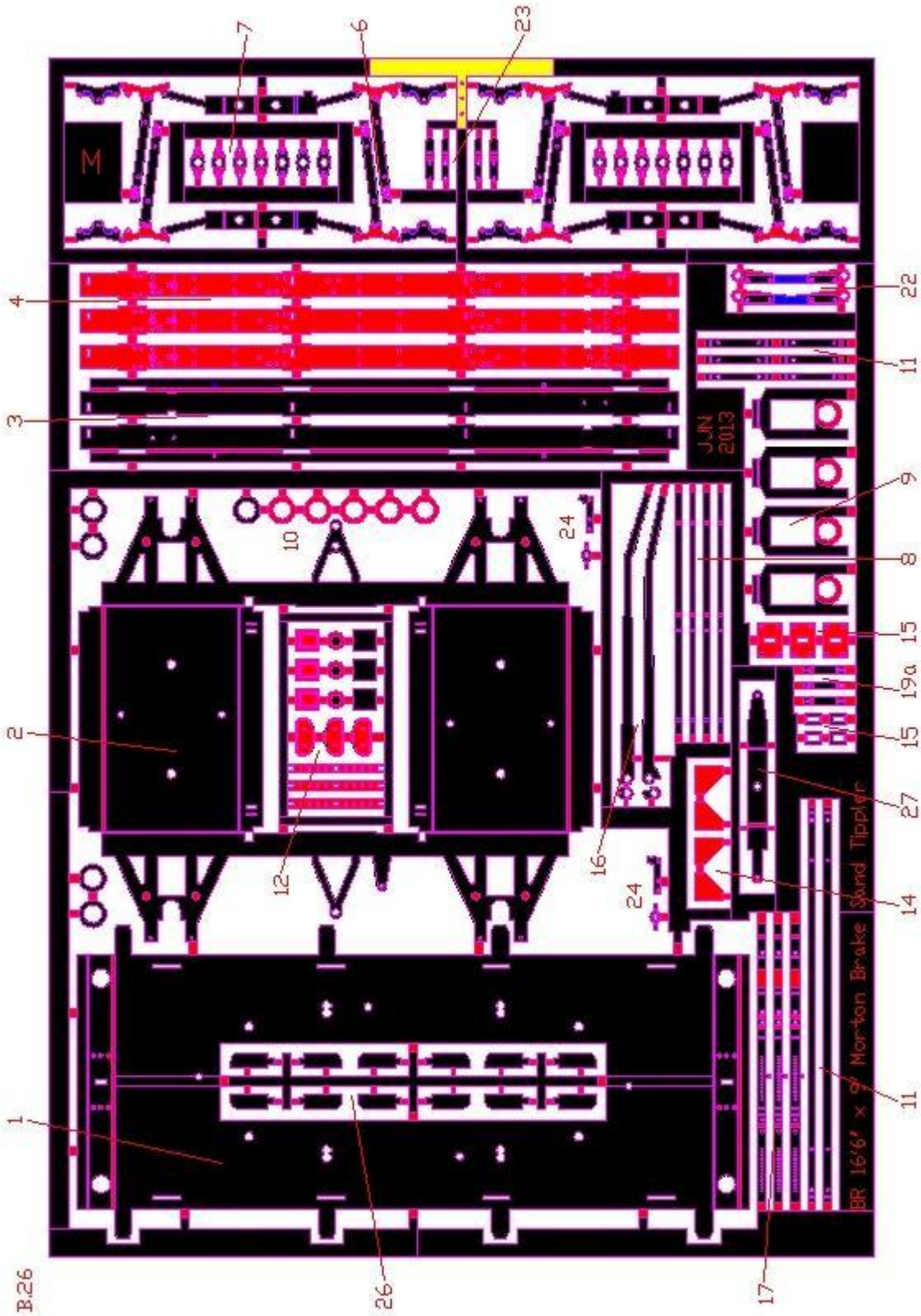
16 - Brake levers
17 - Brake lever guards/brackets
18 - GWR ratchet type brake levers/brackets
19a – Standard RCH brake lever guard stays
19b – GWR Ratchet type brake lever guard stays

20 - Door springs (Open wagon type)
21 - Door springs (Shocopen type)

22 - Vacuum cylinder actuators
23 - Lamp Irons
24 - BR swan neck vacuum pipe brackets
25 - Van stanchion support brackets
26 - Mineral type side support brackets (B.26)
27 - Vacuum cylinder brackets (B.26)


BR 17'6' x 10' Morton Brake Chassis JJN 2013
B.11


RCH 17'6" x 10' Morton Brake Chassis JUN 2013
M
B.12


M
JUN 2013
BR 16'6" x 9' Morton Brake Sand Tippler
B.26
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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). Push out the half etched rivets on the headstocks if required. Check your prototype. Many welded chassis didn't have them. I find the easiest way to do this is to use a drop head rivet press with the fret placed over one of those ubiquitous green cutting mats. Remove from the fret.

The headstocks as supplied for B.11 and B.12 are full width, however not all prototypes 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.

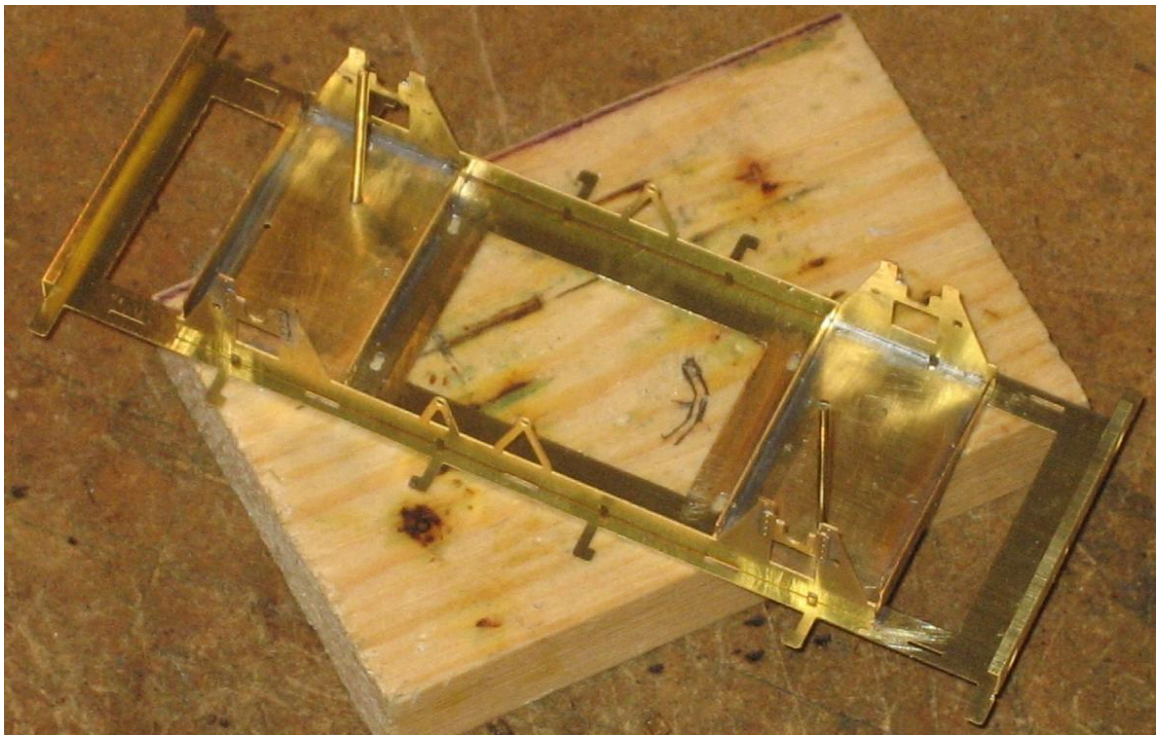
The headstocks need to be folded up. This is best done with the chassis top plate clamped to something or held in a vice to avoid distortion. There are two sets of fold lines as the headstocks need to be folded into a channel. Starting with the outermost parts of the chassis top plate fold through 90°. You can reinforce this fold line of 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.

Check that all the holes in the in the vees on the W-Iron assembly (2) will accept 0.8mm wire. For B.11 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 wish to model any of these chassis in their unfitted form then you will need to remove the vacuum cylinder bracket from the W-Iron assembly. A few seconds work with a piercing saw will take care of this.

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 W-Iron assembly then need to be soldered 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. 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 W-Iron assembly are soldered to the top plate.



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 your chosen solebar overlays (4) from the fret.

There are two sets of solebar overlays on B.11 and B.12. One pair is for opens and these have small notches etched out to locate the door springs. The centres of the door springs are set at 13.5mm on the chassis so if you want to deviate greatly from this then use the other set. For anything else use the other set. If you wish to model an unfitted chassis then you will need to remove the rivets for the vacuum cylinder. See Fig.1a. If you wish to model a BR welded chassis you will need to remove some rivets. Again see Fig.1a.

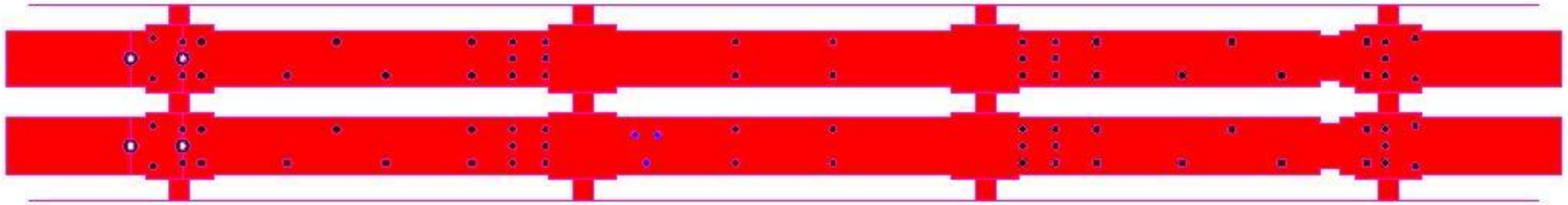
On B.26 there are three solebar overlays. Two are identical and should be used on unfitted vehicles. The other has rivets for the vacuum cylinder etched onto it. This should be used on fitted vehicles on the side where the vacuum cylinder bracket is with one of the other two on the opposite side.

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.

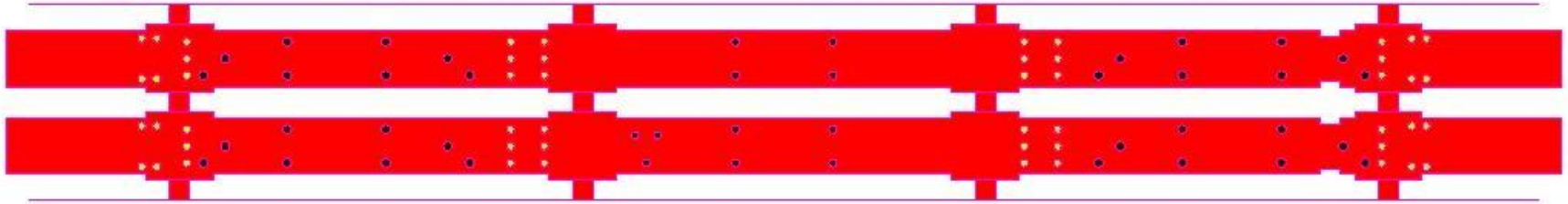
The solebar overlays are designed to fit into the slots in the solebars. The completed solebar then locates into the slots in the chassis top plate. Locate the solebar detailing overlay in the solebar and tack solder in pace. Note that there is a right way up for all the overlays (if in doubt check prototype photographs, Fig.3 or simply note that the notches for the brake lever guard should match those in the solebar).

Fig. 1a

B.12 RCH solebar detail overlays. Remove blue rivets for unfitted chassis.



B.11 BR solebar detail overlays. Remove yellow rivets for welded chassis.



Some early welded chassis had horse hooks despite the holes in the W-Irons. There are holes in the Solebar that can be used to drill 0.3mm holes through the solebar detailing overlay to locate them if they are necessary. The horse hooks on some of the early sand tipplers that were vacuum braked were often cut off nearly flush with the solebar. You can press out the solebar overlays from the rear to replicate this. If you want to do proper horse hooks then you will have to drill through the overlay 0.3mm.

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 (12) comes contained in its own little fret. See Fig.2. 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.

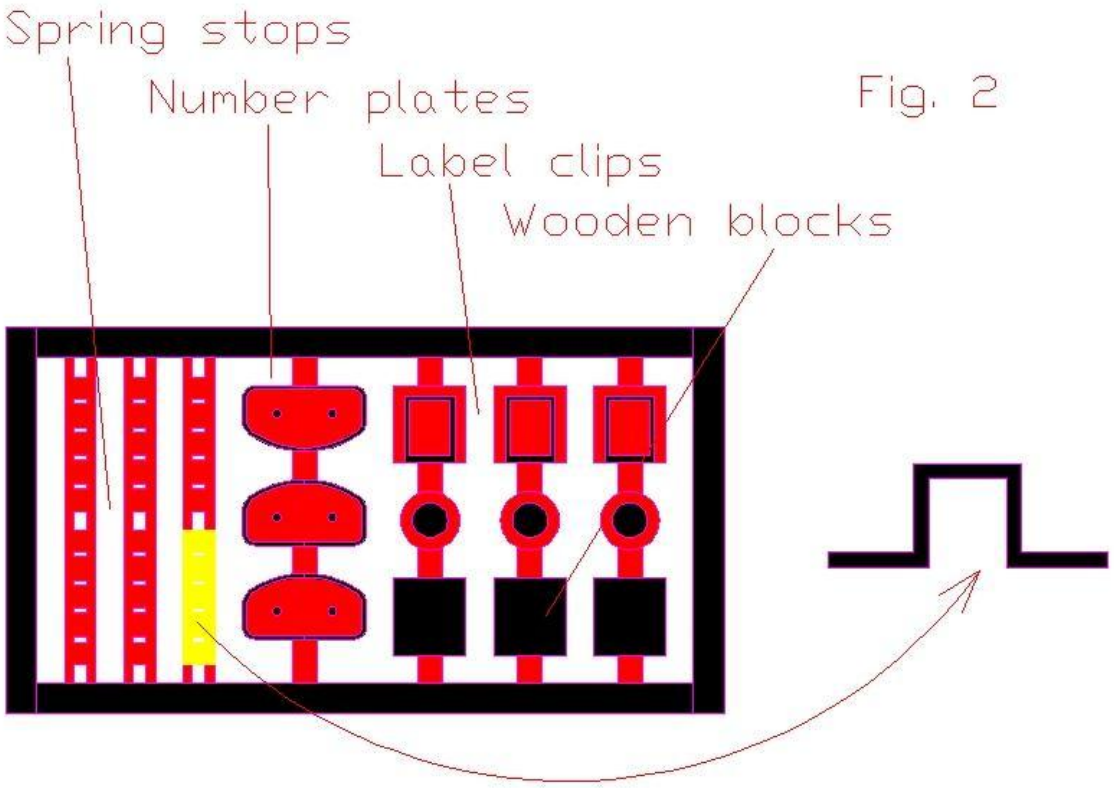
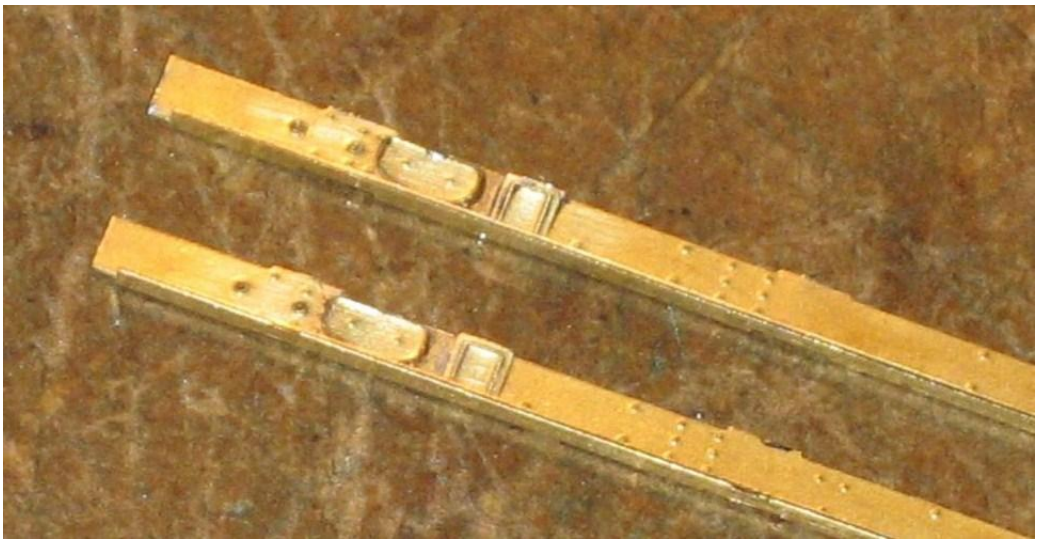


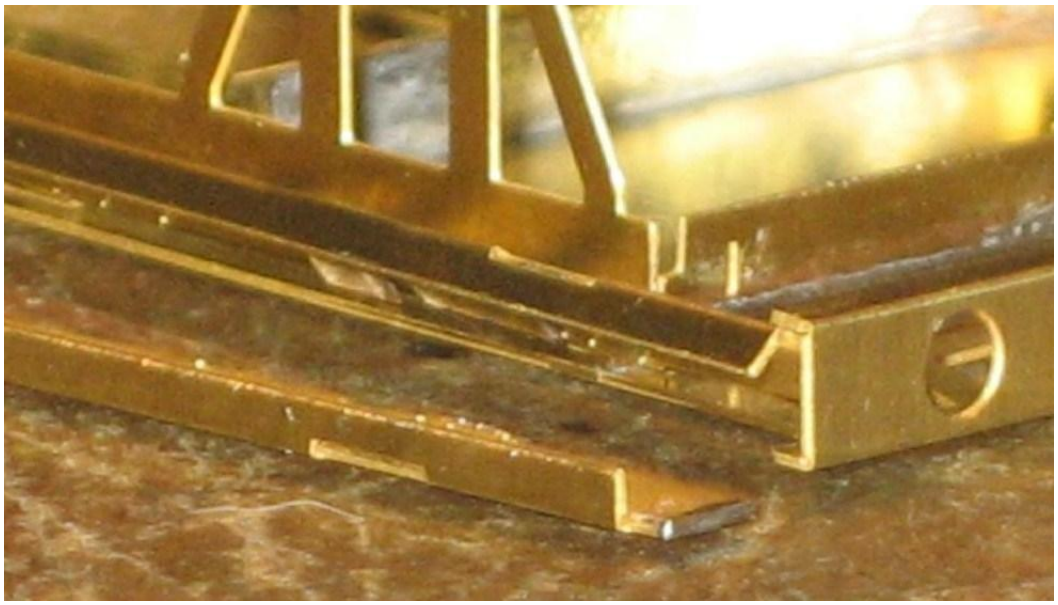
Fig. 2

Horse hooks can be formed if needed from 0.31mm wire and soldered into the holes provided (B.12) or already drilled out (B.11 and B.26).



Main Chassis Continued…

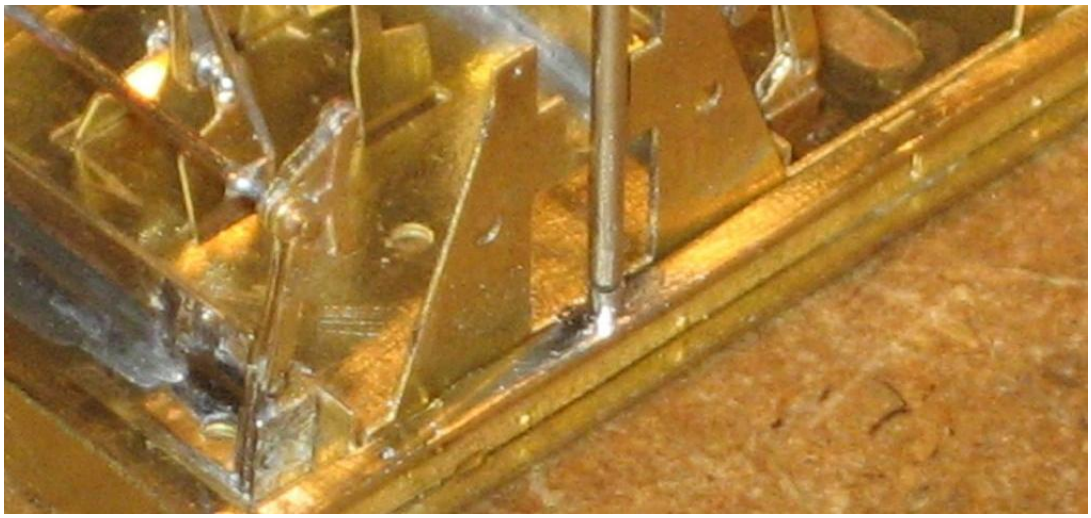
The solebars can now be fitted to the chassis. Note that there is a correct side for the solebars on all vacuum fitted wagons. The vacuum cylinder and hence the rivets on the solebar go on the non-Morton cam side. See Fig. 3. There are slots and tabs to aid location and the ends go into the channel that 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.

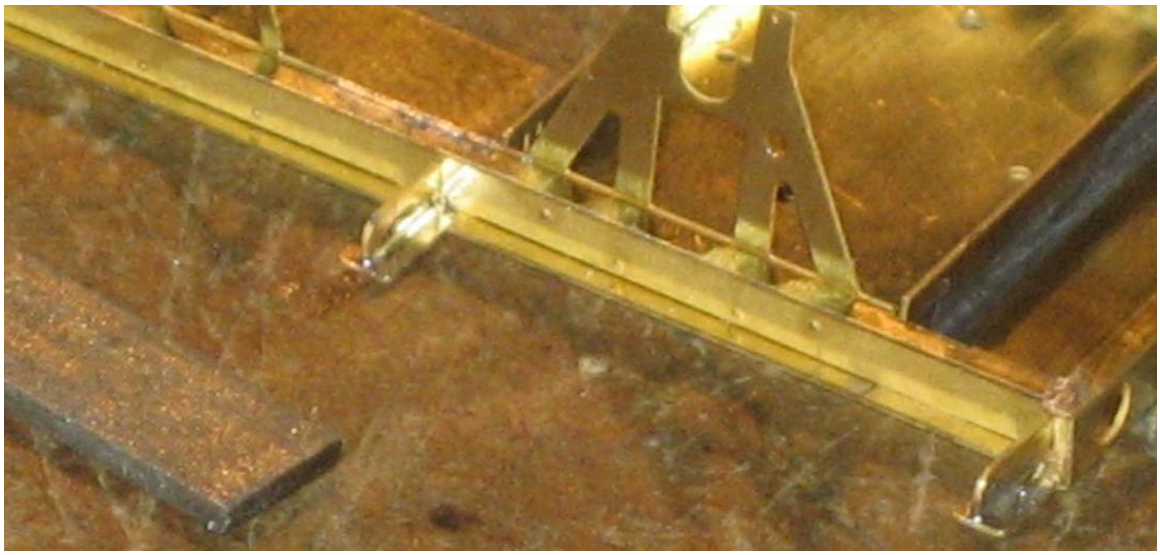
Spring Stops

There are 6 fabricated spring stops on the solebar detailing (12) 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. 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.



Mineral wagon side support brackets (B.26)

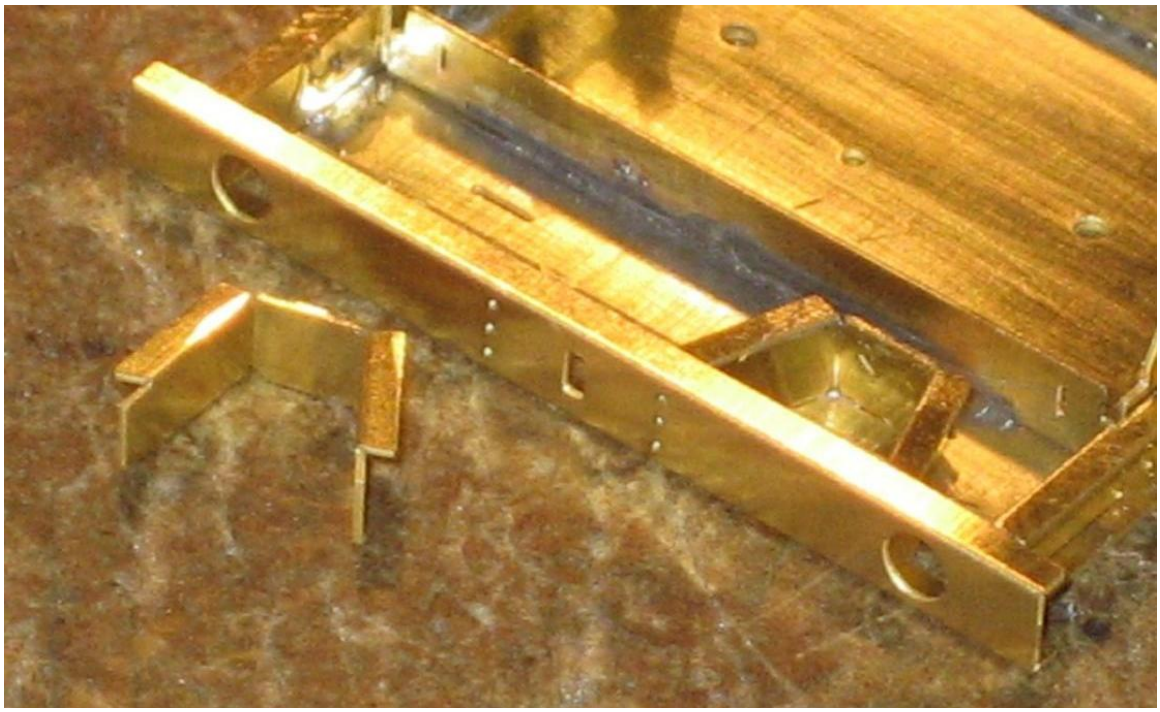
Now is a good time to fit the side support brackets (6) on the sand tipplers. These were formed of T section and this has been replicated by etching the top part of the T on the chassis top plate. The connecting tags should be removed and then they can be located in the slots through the solebars and solebar detailing. They can be soldered in place making sure that they are square to the top part of the T. The spacing for the outer support brackets have been arranged to match the Red Panda kits. The centre ones are spaced as per the prototype and can be used as a guide when gluing the centre stanchions on the Red Panda body.



Shock absorbing wagon end bracing

If building a shock absorbing wagon then the end bracing (5) can be added now. These should be folded up to follow the profile of the chassis at the ends. Note that for both B.11 and B.12 they are handed depending on which side they are for.

On the later chassis depicted in B.11 the two longitudinal central beams were made from channel while the diagonals were L section. You will need to fold the top over on the one end of the end bracing to represent this. On earlier chassis as depicted in B.12 both lots of bracing were L section and so there are no tabs to fold over. The photograph below shows and early chassis but gives the general idea. Locate in the chassis using the tabs and slots to aid alignment and solder in place.



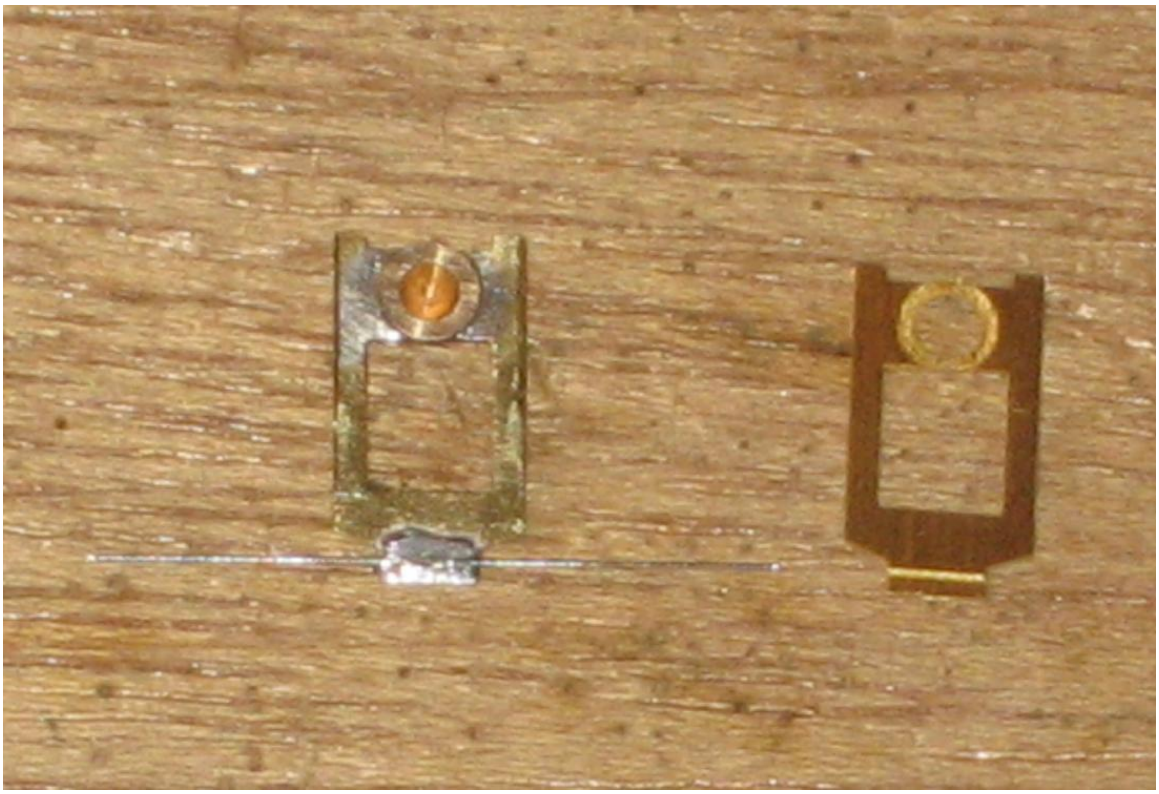
Spring Carriers

The spring carriers (9) 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 works out at 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 (10) 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 axle guards 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 that the bearing locates through the hole in the carrier and into the wood. The bearing can then can be soldered in place. The spring wire can 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.

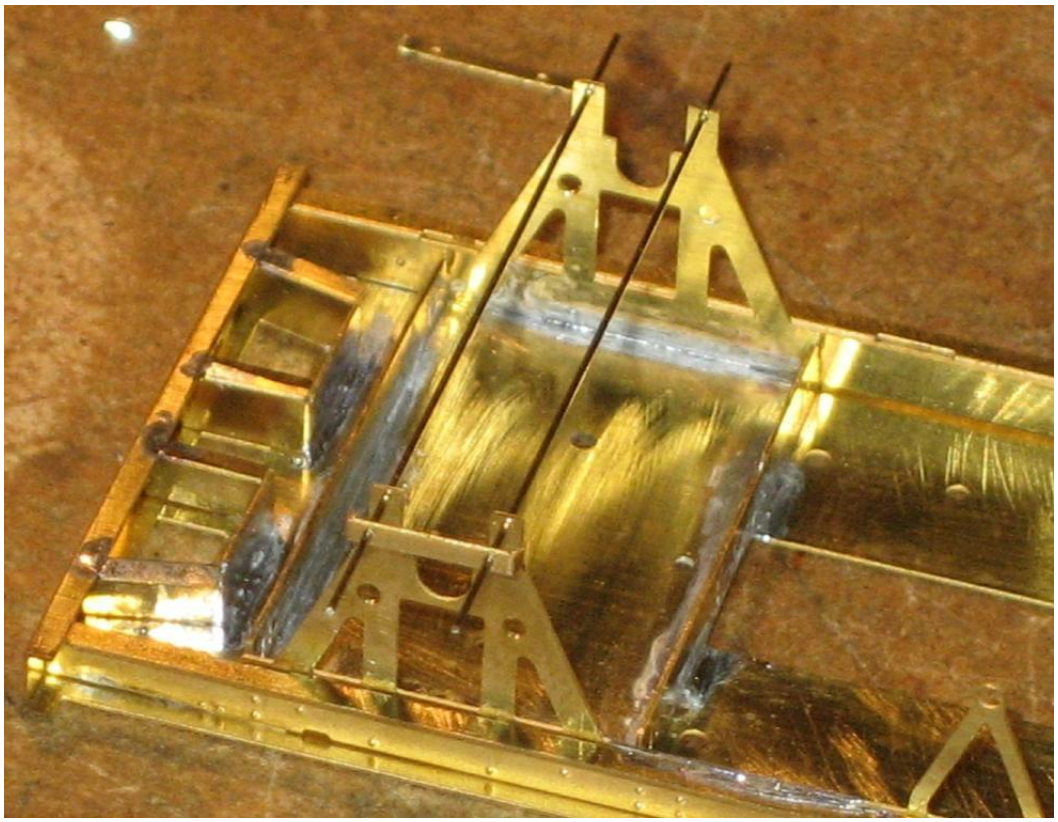


Spring carriers (9)

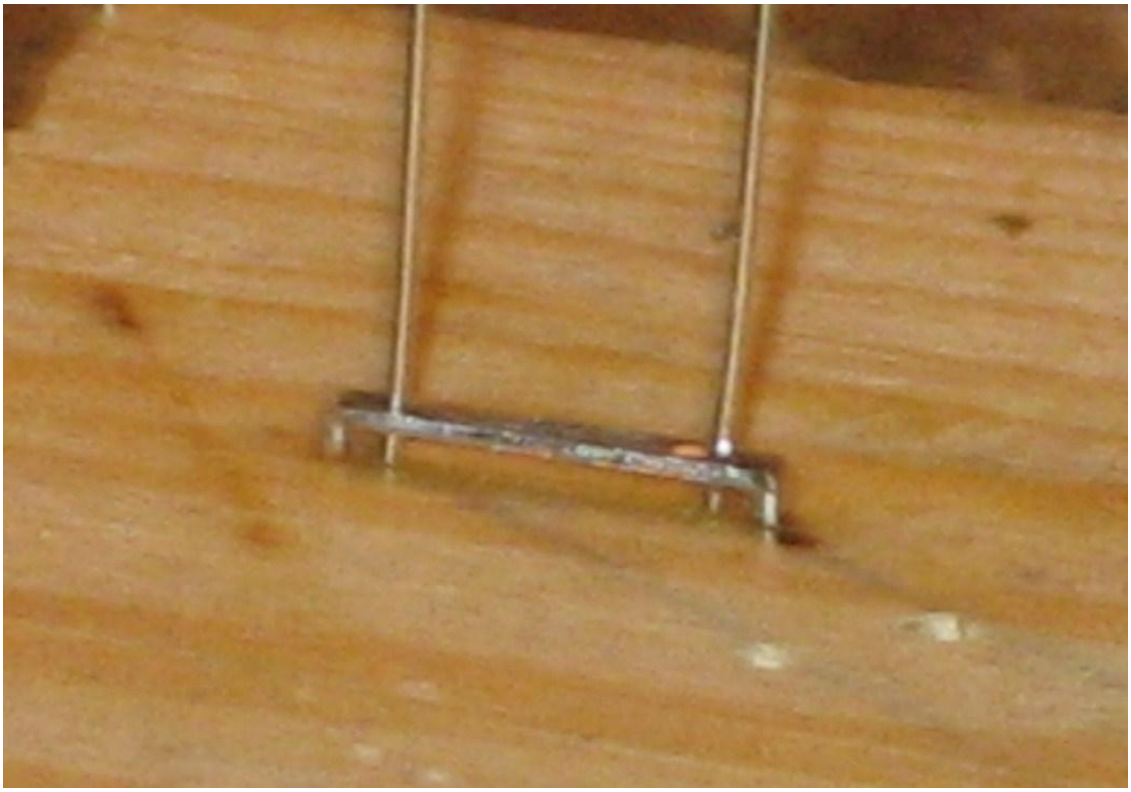
Axle guards

There are both individual axle guards and tie bars (11) included. Anything fitted would have had full length tie bars. Unfitted chassis generally had individual axle guards but check your prototype. This applies to B.11, B.12 and B.26. They are both assembled in the same way and are designed to be removable if you wish in order to allow the wheel sets to be easily dropped out. They can of course 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 an axle guard and holes in a W-Iron and then 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 tie bars 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 pins through the holes in the axle guards/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 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.



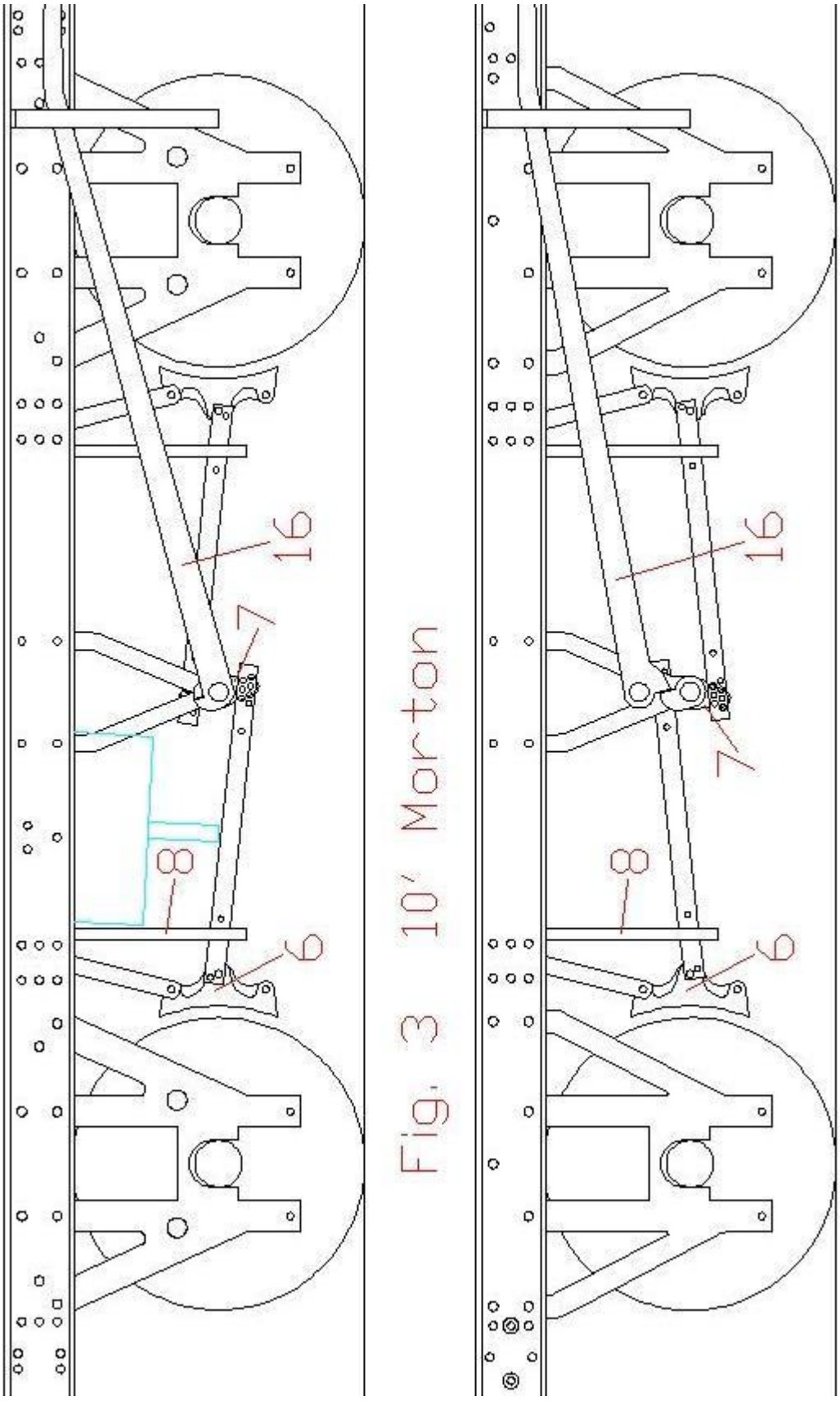


Fig. 3 10' Morton

Brake shoes and brakegear

Refer to Fig.3 for the general arrangement of the Morton brakegear.

The brake shoes (6) are etched with integral push rods and are designed to be folded up as one piece, soldered together and then tidied up afterwards. The cranks can then be added and the whole assembly soldered to the chassis.

You need to make sure the appropriate holes in the brake shoes can accept 0.31mm wire as this will be used to align/pin everything. Refer to Fig.4. The holes that need to be able to accept the wire are marked in yellow. I have shown one side of the Morton cam set and non Morton cam or independent set. The other side is simply a mirror image.

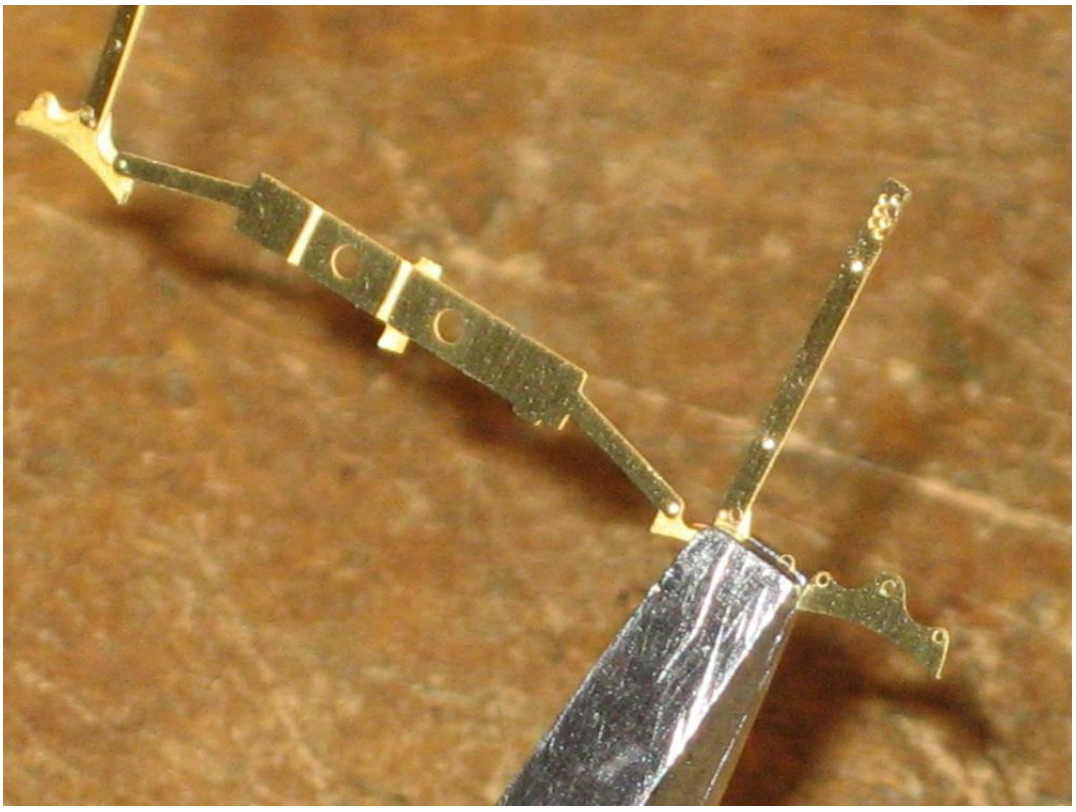
It is best to do one set at a time leaving the other set on the fret. This will avoid mixing parts up when dealing with brakes where the two sides are different. Those sets intended for the Morton cam side of wagons fitted with this type of brake gear are marked on the fret with a big M.

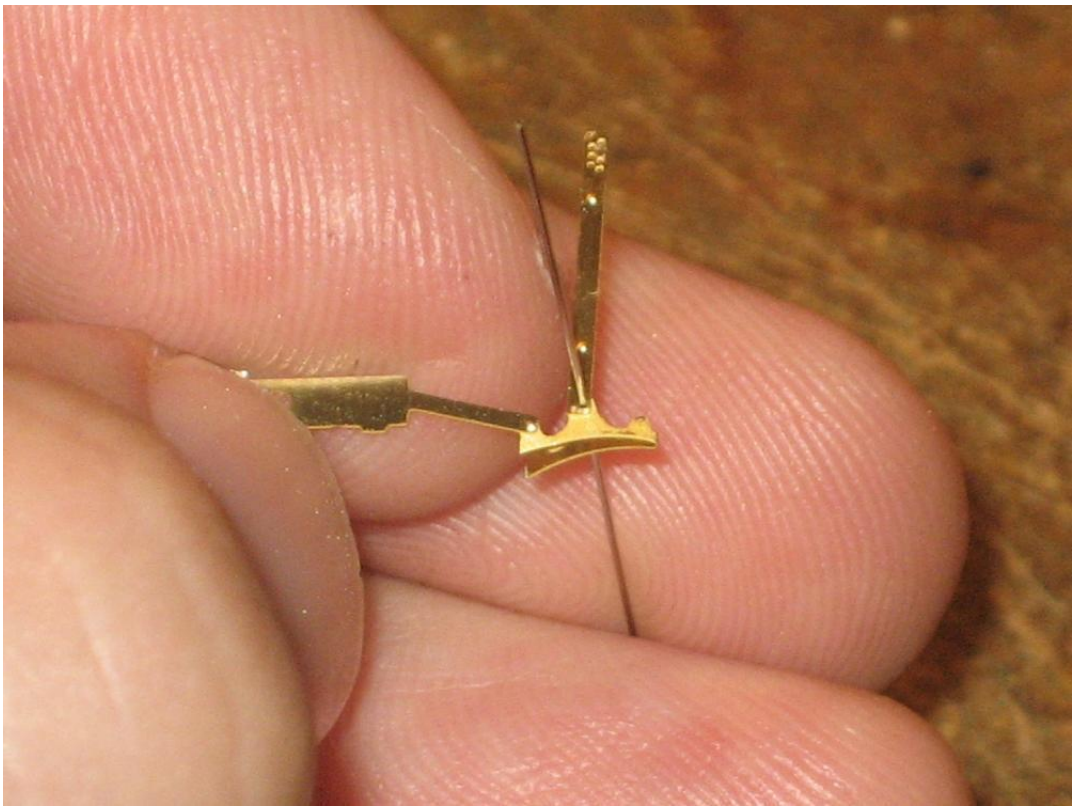
Unfitted sand tipplers had only one set of brakegear. This was on the Morton cam side as indeed it was on all unfitted wagons with two shoe Morton brakes. Fitted sand tipplers had four shoe brakes as per Fig. 3.

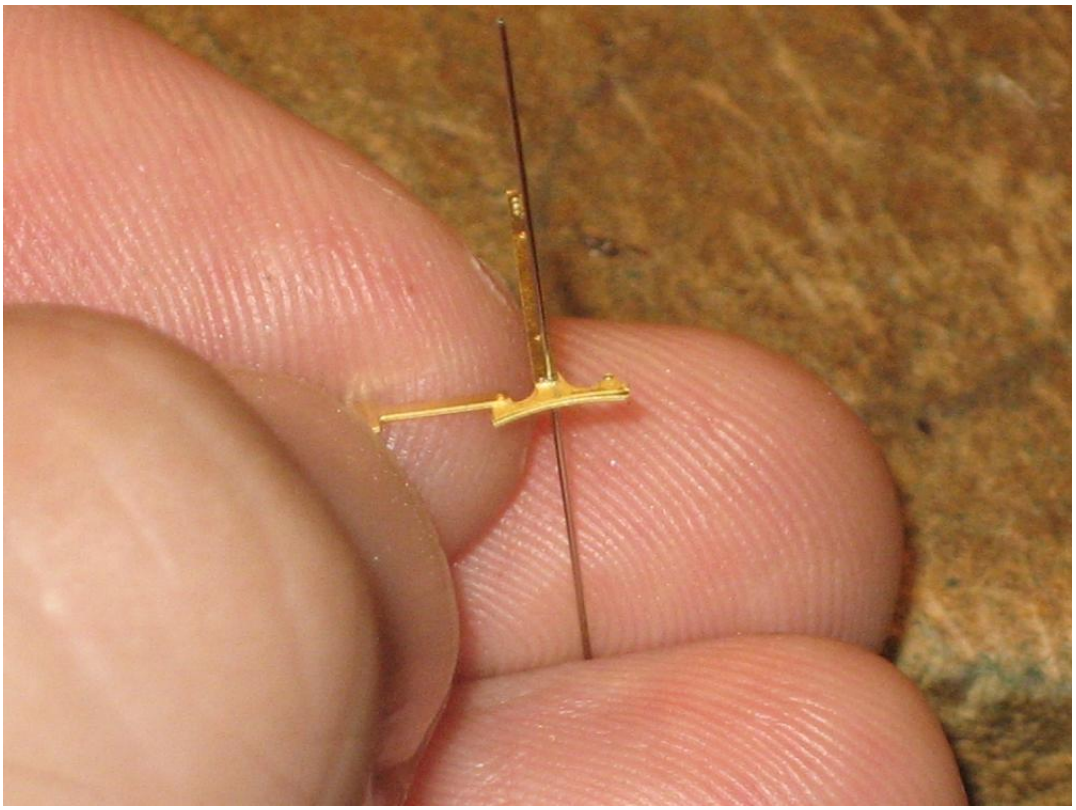
If you wish press out the half etched rivets at the top of the hanger bracket. I use a drop head rivet press for this with the parts held on one of those ubiquitous green cutting mats. This will distort the push rod so you will need to straighten it afterwards. Remove from the fret and fold the brakes up. The following photographs will provide an illustrative guide. There are two parts to each side of the brake shoes, one half etched and one full thickness. The full thickness parts will go in the middle of the shoe and need to be folded so that it is on the back of the half etched part. In order to do this successfully you must hold the half etched part with a pair of pliers so that the pliers are hard up against the full thickness part. If you don't do this they will end up misaligned. Once the fold is nearly complete thread a length of 0.31mm wire through the holes in the brake shoes and use the pliers to clamp the two parts together. The wire will ensure the parts are properly aligned. All this is much easier than this makes it sound. Repeat for the other side.

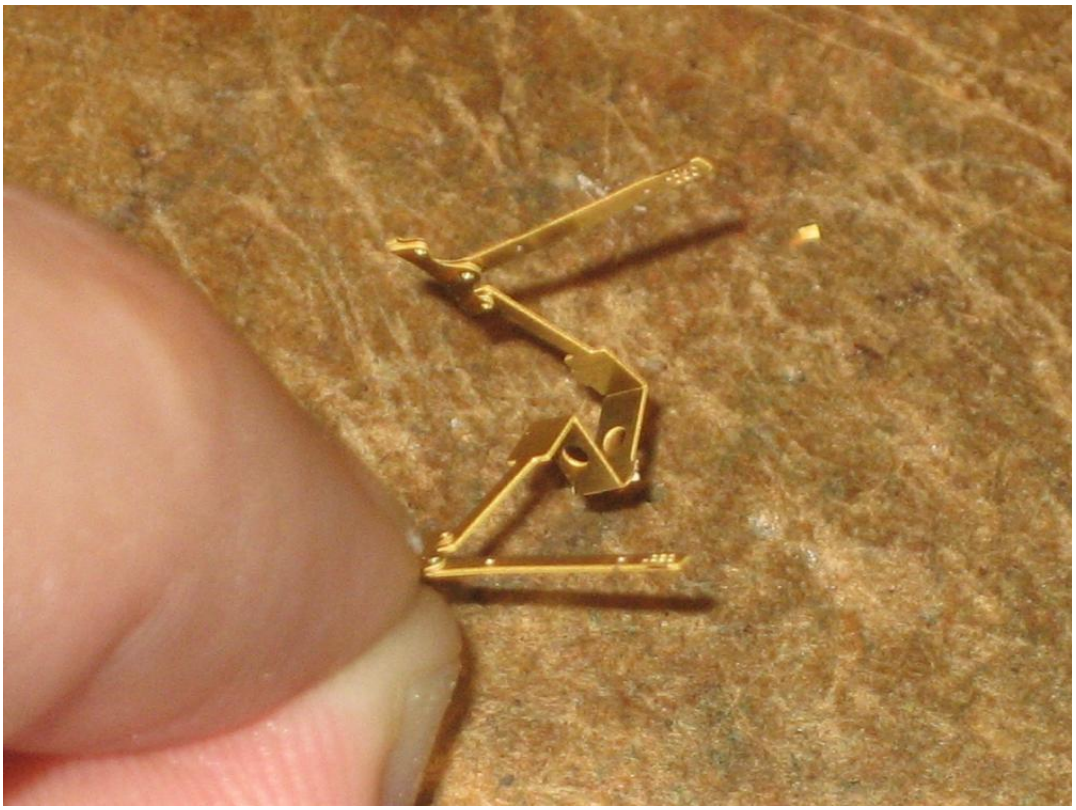
This brake shoe assembly then need to be folded up. There are three fold lines in the centre of the assembly. These need to be folded through 90° except for the centre line, the one between the holes, which needs to be folded through 180° with the fold line on the outside. A length of 0.31mm wire can be used to make sure the brake shoes are aligned and then the brake shoes clamped and solder together. The wire can be soldered in place at the same time and then trimmed to represent the bolt that is there on the prototype.

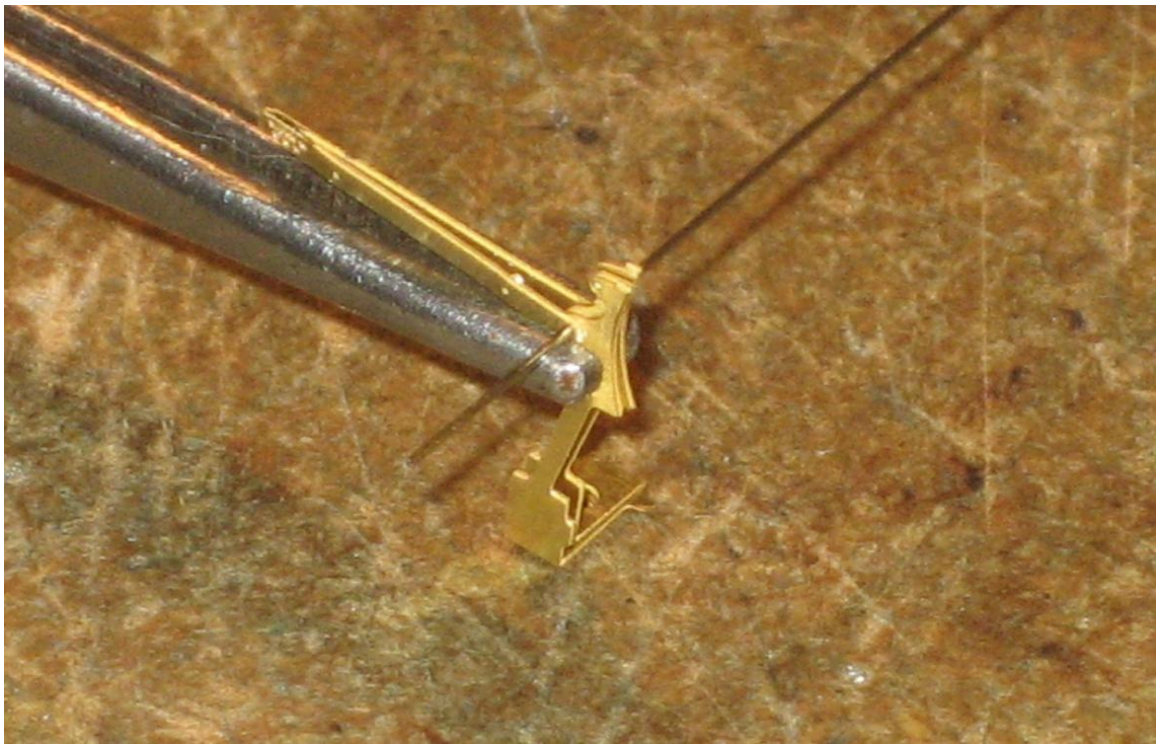
Repeat for the other brake assemblies and tidy up any tags.









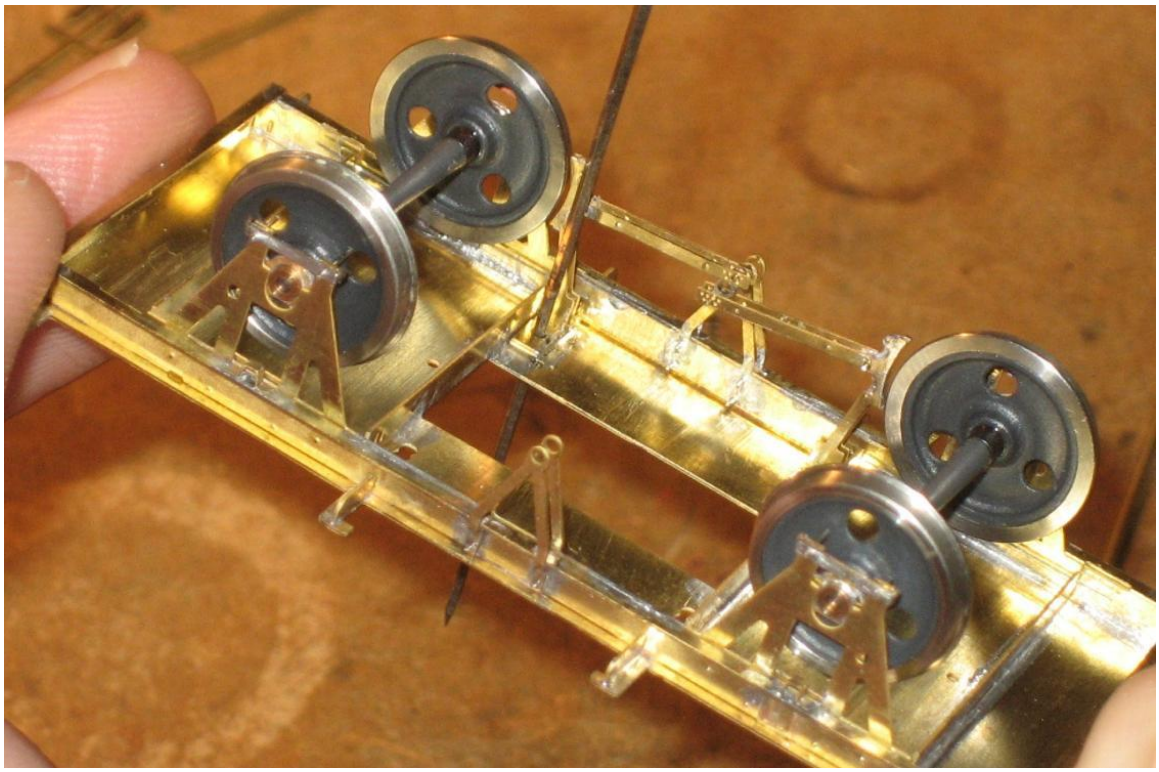


The push rod cranks (7) need to be tackled next. There are two sorts, one set having half etched areas to match the profile of the prototype and the other are solid. You will need two cranks for each set of brakegear.

Make sure that the main hole in the push rid cranks can accept 0.8mm wire and the smaller holes 0.31m wire. Whilst still on the fret use one of the cranks to drill two 0.3mm holes into a piece of scrap wood. This jig will be used to solder the two parts of the crank together. Solder the wire in place at the same time. See photo below.

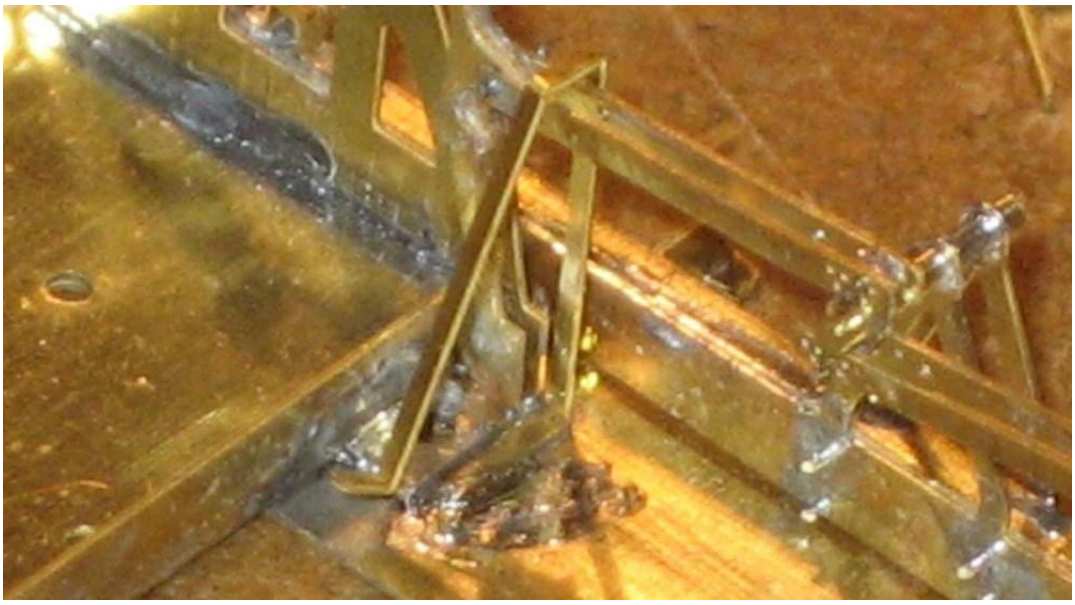
Once complete trim the wire so that it extends approximately 1mm either side of the crank. The crank can then be fitted to the push rods by gently prising the push rods apart and locating the wire into the holes. Once both sets of brake shoes have been added to the crank the wire pins can be trimmed back and then this whole assembly can be fitted to the wagon. Make sure that the two assemblies go on the correct sides. If in doubt refer to Fig. 3.

There are tabs on the brake shoes that locate into slots in the W-Iron assembly (2). The outer ones are for EM/P4 and the inner ones for OO. Once located in place they can be soldered in. Make sure that the brakes are hard up against the W-Iron assembly. The holes can also be used to help pin the brake shoes to the chassis top plate when soldering. I don’t worry about soldering the crank to the push rods or indeed to the brake shaft.



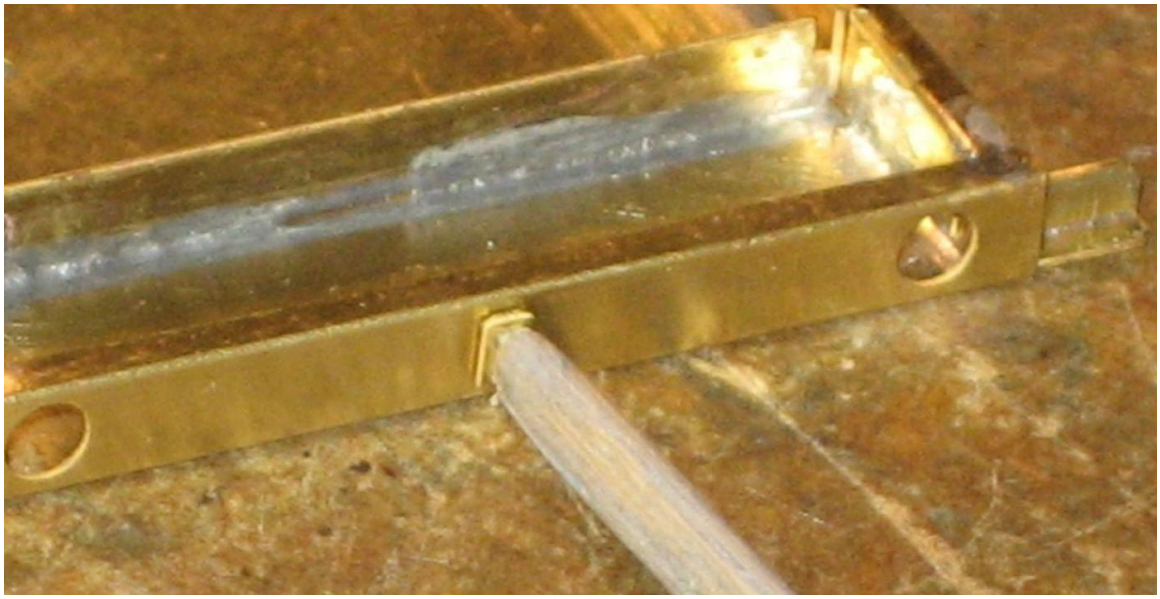
Safety Loops

The safety loops (8) can now be folded up and fixed in place. All the fold lines are through 90°. You will need to open one of the folds out slightly in order to get them around the push rods. They should go hard up against the brake shoes. Solder in place. Don’t worry about getting them perfectly aligned, the real things rarely were.



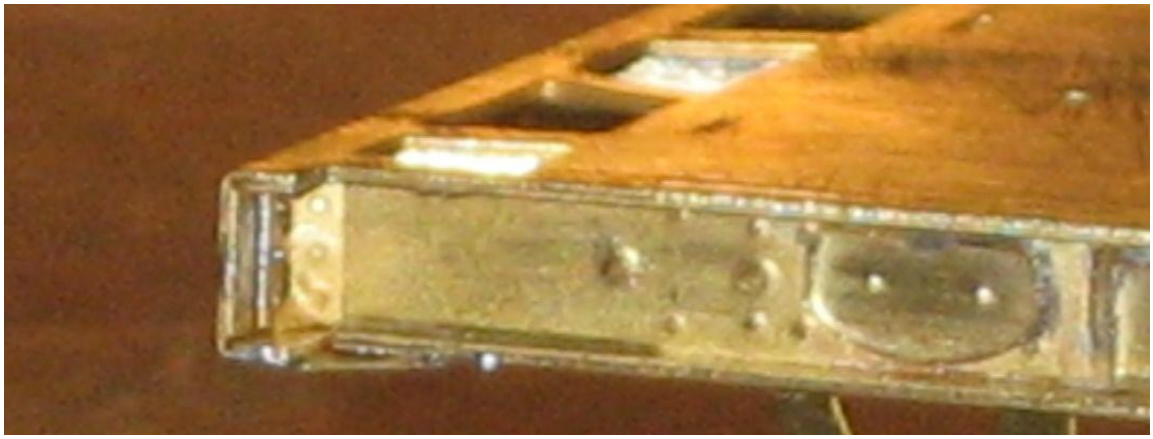
Headstock detailing

Now is as good a time as any to fit the coupling pocket detail (15). There are two types, riveted and welded. Check your prototype. Generally riveted chassis has riveted coupling pockets and welded chassis had welded coupling pocket but not always. 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



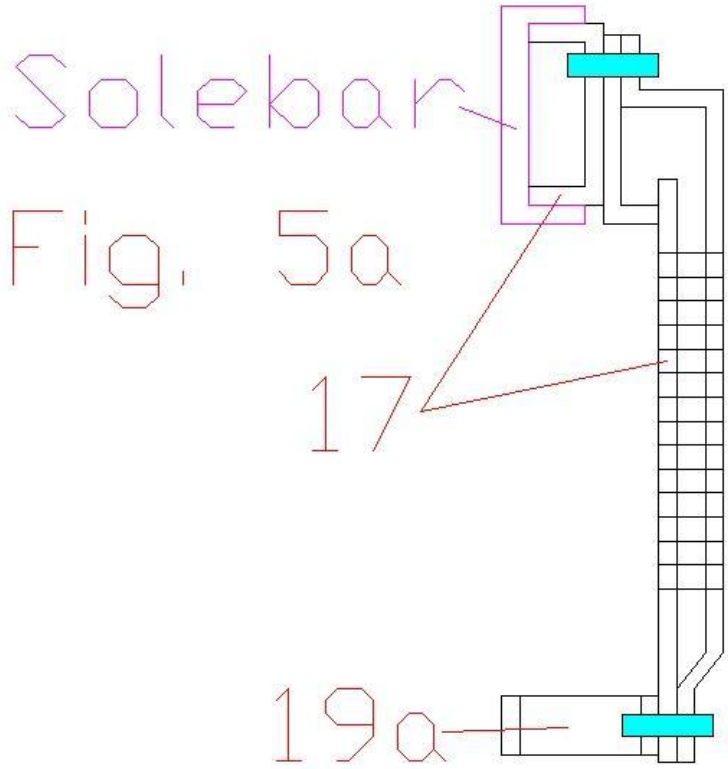
The corner plates (14) can also be added now. On B.11 and B.12 there are two types depending on whether you are making a chassis for a shock absorbing wagon or not. The type for the shock absorbing wagons suits the narrower headstock of the prototype. B.26 has a set which should be arranged so the diagonal is on the inside of the wagon.

There are solebar/headstock rivet plates (13) for use with riveted chassis (B.11 and B.12). There are two types one with two sets of rivets and one with three. Check your prototype. These need to be folded into an L using the slots as a guide for the fold. Solder in place in the corner between solebars and headstocks. The side with one lot of rivets goes against the headstock.



Brake Lever Guards

On all three kits covered by these instructions there is a set of standard RCH type lever guards (17). On kits B11 and B.12 there is also a GWR ratchet type (18). Make sure that the holes in your chosen brake lever guard and the appropriate lever guard stays (19a or 19b) can accept 0.31mm wire and remove from the fret. Separate the lever guard from the lever guard bracket. Fold the lever guard along with the lever guard bracket referring to Fig. 5a or Fig. 5b (GWR type). There are half etched slots on the ratchet type lever guard which pinpoint and aid the forming of the curved bends that are on the prototype. 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. Press out the half etched rivet on the brake lever guard stays and fold both ends through about 30°. The stay can then be pinned to the bottom of the lever guard using 0.31mm wire and then soldered to both the lever guard and the W-Iron and any excess wire trimmed off.



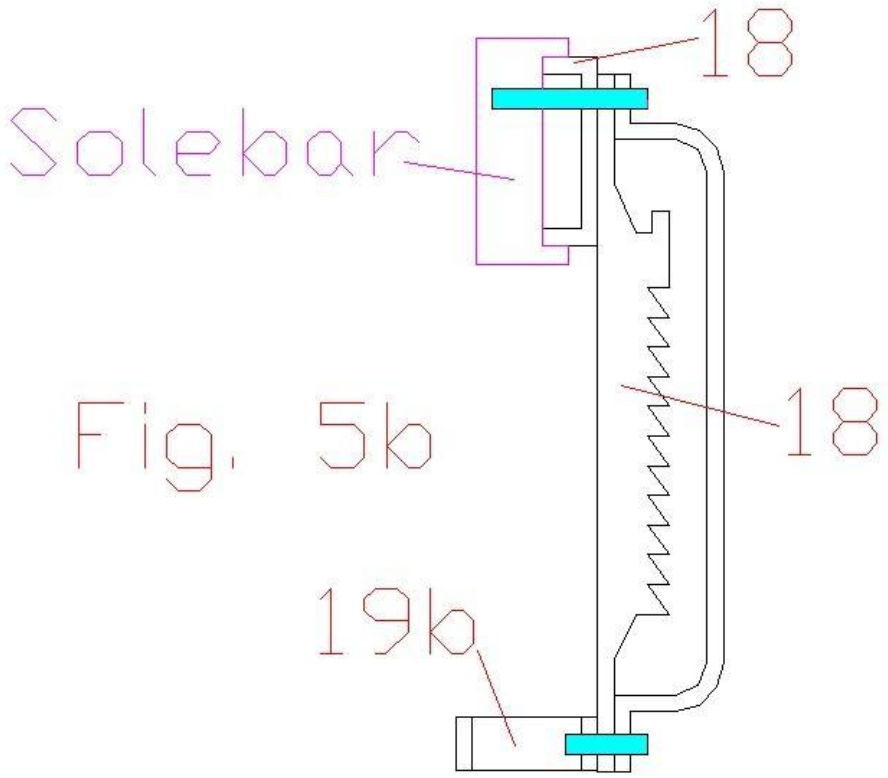
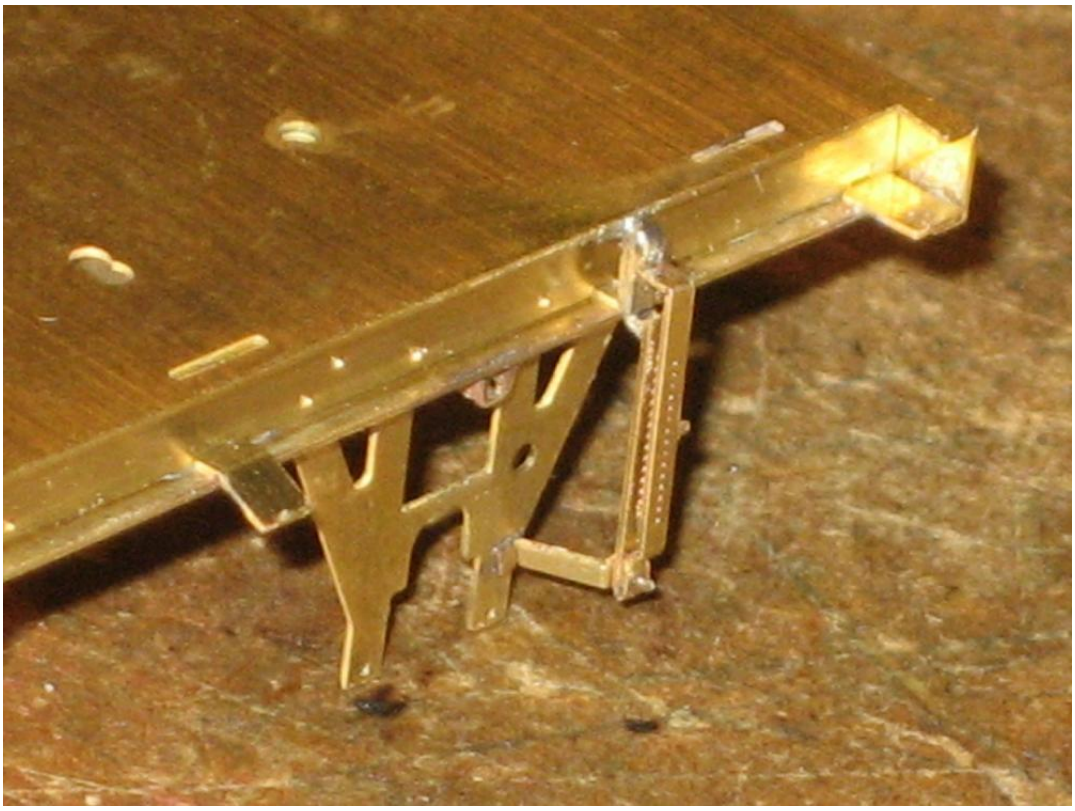


Fig. 5b



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 shaft

Cut a length of 0.8mm wire to form the main brake shaft.

If constructing a fitted chassis check that the vacuum cylinder actuators (22) can accept 0.8mm wire. 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. These can be fitted along with the brake shaft (0.8mm wire) through the vees. Leave soldering of the actuator until the vacuum cylinder is in place.

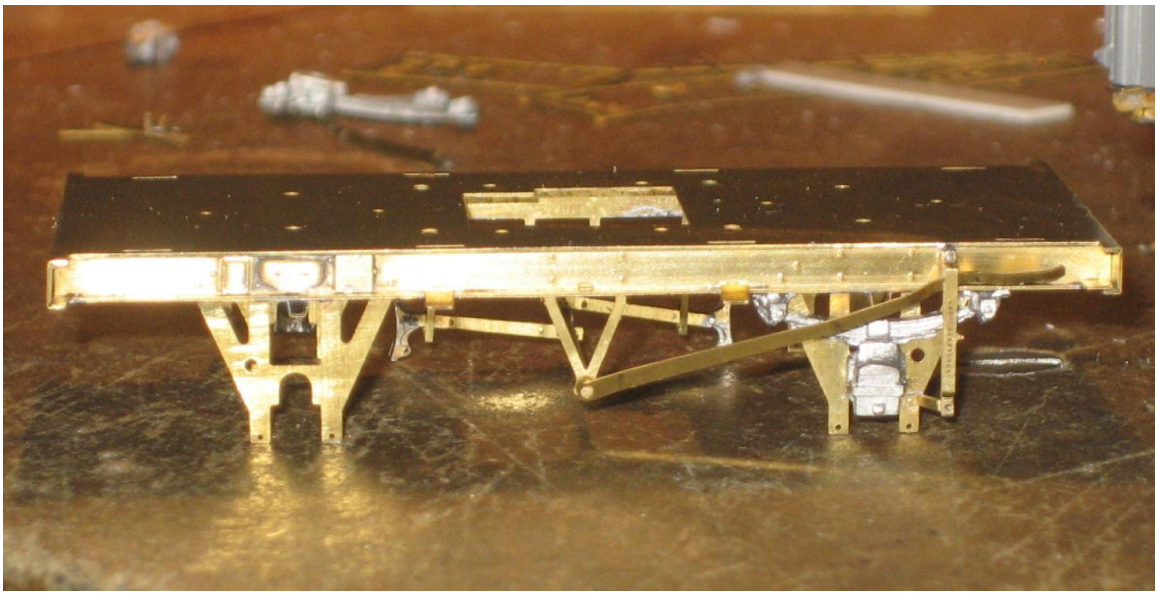
Solder the brake shaft in place and trim the ends if necessary.

The vacuum cylinder can be added now or later and then the two halves of the vacuum cylinder actuator soldered together and to the brake shaft.

Brake Levers

Make sure the holes in the brake levers (16) and the cams can accept 0.8mm wire. The levers and cams can then be removed from the fret but note that the connecting tab between the non-Morton lever and cam should be left intact. Once removed from the fret the connecting tab between the cam and the non-Morton brake lever can be folded through 180° with the fold line on the outside. Solder a short length of 0.8mm wire through the hole in the Morton cam brake lever. This will locate into the top hole on the vee. I use a hole drilled into a piece of scrap wood to aid doing this. Once soldered in place trim the wire and file so the end is flat.

The brake levers then 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. Solder the Morton cam into place in the lower hole on the appropriate vee.



Wagon side support brackets

There are brackets for the side stanchions on vans (25) included with B.11 and B.12. 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 into an L. 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.

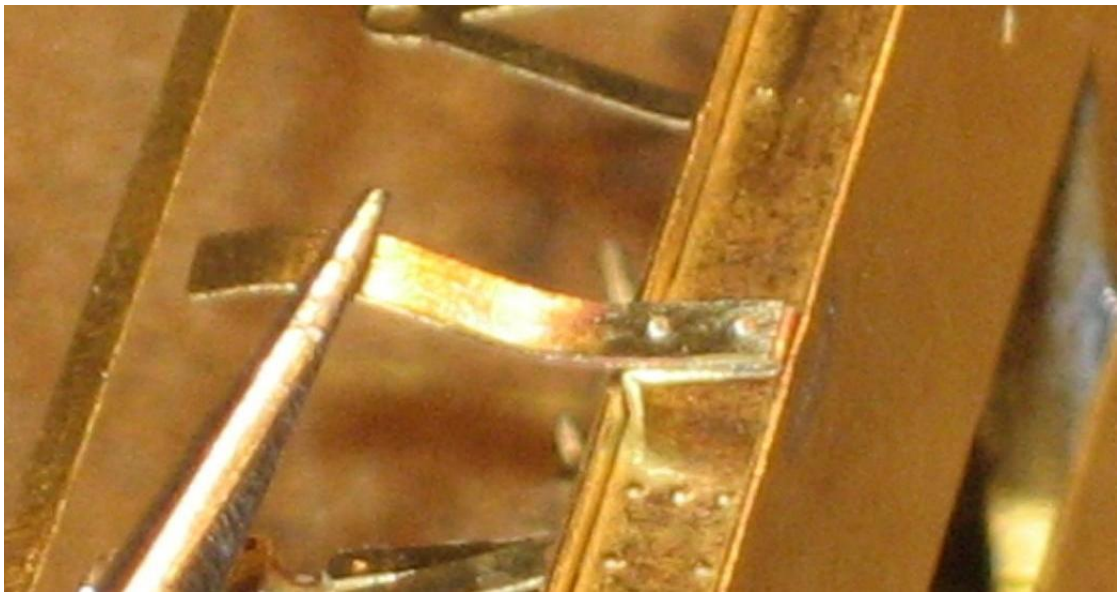
BR swan neck vacuum pipe brackets

There are two BR swan neck vacuum pipe brackets (24) included. These are quite distinctive and were fitted to a lot of BR wagons built with vacuum brakes and also those that were fitted as part of the mid-fifties vacuum braking program. They 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 (B.11 and B.12)

There are two types:

The open wagon types (20) fold up and locate into the solebar. There are slots in the solebar and solebar detailing overlays which facilitate this. In order to provide positive location for the springs they are of course fixed a set distance apart. This is 13.5mm between spring centres which seems to fit most drawings and models that I have. You could locate them in different places if you wish by simply filing off the locating tab at the end of the door springs. 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.



The Shocopen types (21) are designed to fix behind the solebar. There are locating points on the chassis behind the solebar but note that the springs should coincide with the bang plates on doors which may not be as per the drawings I used to set the locating points. The Parkside shock absorbing 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. The holes will set the door spring centres at 14.5mm. Fold the end, bend to shape, align appropriately and solder in place.

Lamp Irons

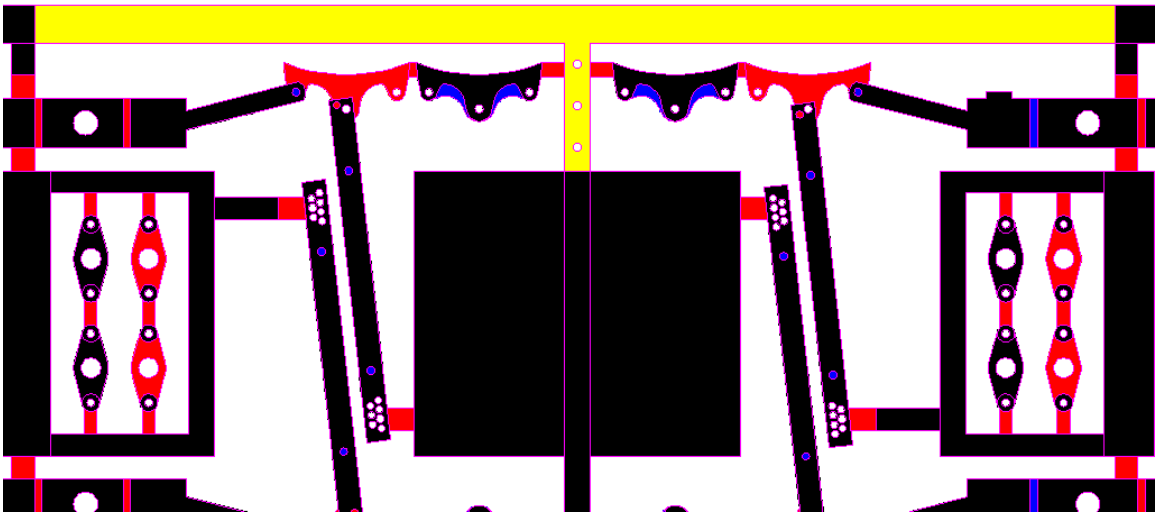
Lamp irons (23) are included for fitting to vacuum braked wagons on either the body or the headstock. Check your prototype.

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 yellow in Fig.6 and on 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.

Fig. 6



Notes for sand tipplers:

As with other vacuum braked non-XP rated wagons (and despite at least one being incorrectly labelled the sand tipplers were definitely non-XP) I have seen no evidence of them being fitted with lamp irons before the end of the sixties when guards were allowed to travel in the rear cab of a diesel loco on fitted trains instead of in a brakevan.

Vacuum cylinder brackets (B.26 only)

A vacuum cylinder bracket (27) is included in order to suspend the vacuum cylinder in its correct place below the underframe. The framing on the prototypes wouldn't allow for the vacuum cylinder to be located in its usual place up in the underframe and so they had to be arranged this way. Open out the holes at the end of the bracket to accept 0.5mm wire and fold into a channel. Locate in place using the guide hole in the centre of the bracket and the outline of the vacuum cylinder bracket on the W-Iron assembly which should also be drilled out to accept 0.5mm wire. The bracket should be arranged so that the end with the round profile goes on the outside of the wagon. A length of 0.5mm wire can be passed through the holes and everything soldered in place.

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. However don't use the red oxide in a tin on plastic 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 and 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 Buckinghamshire Railway Centre at Quainton; The GWS at Didcot and The East Anglian Railway Museum at Wakes Colne for letting me measure up 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.eileensemporium.com

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

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

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

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