Rumney Models – 16T Mineral Wagon Chassis Instructions
B.13-B.18

Notes

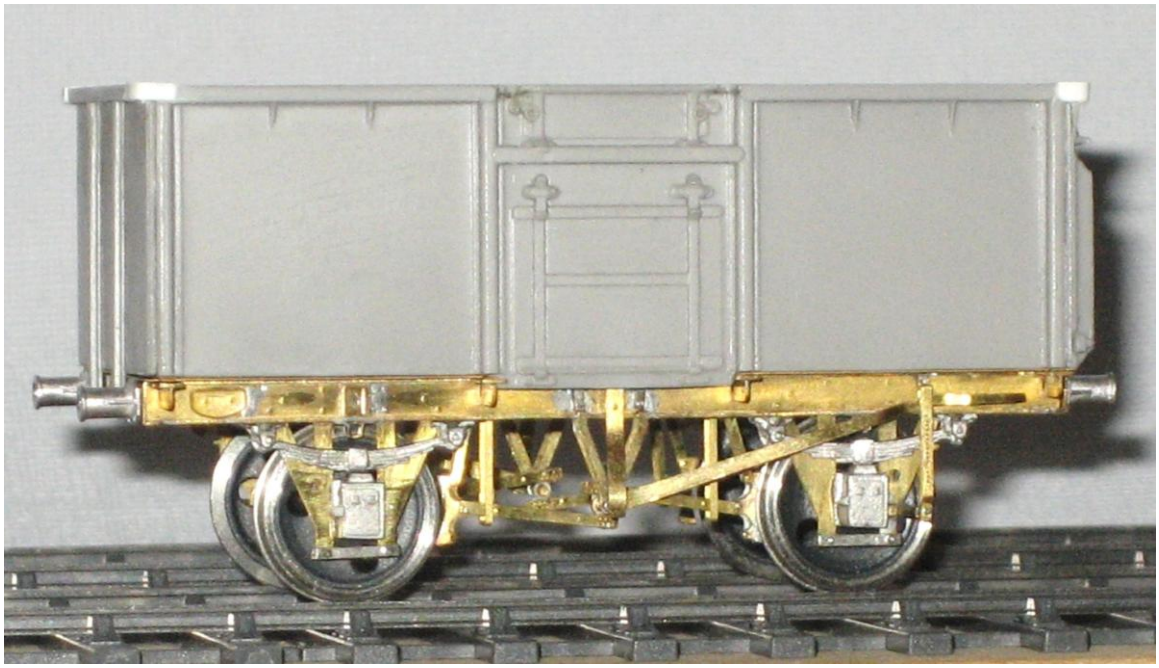
These instructions cover the following chassis kits:

B.13 BR 16T Morton welded
B.14 Additional vacuum brake parts
B.15 BR 16T Morton riveted
B.16 BR 16T Independent welded
B.17 BR 16T Independent riveted
B.18 Additional RCH W-Iron Parts for Independent Brake Minerals – LMS & LNER

The following kits are currently in preparation. These instructions will be updated with additional construction photographs and parts diagrams as the kits become available.

B.19 RCH 16T Independent slope sided
B.20 RCH 16T Independent French type

All the kits are for steel solebar fitted prototypes and provide a complete chassis that can be painted separately from the body. They are all designed around Parkside Dundas bodies but other bodies may be used such as the Airfix and Bachmann ones. The Bachmann 16T mineral body will fit the appropriate chassis with a little modification to remove the side support brackets.



The Prototypes

The history of 16T minerals is quite complicated for what was essentially a box on wheels and there were numerous diagrams issued to cover very similar vehicles.

The following table shows how the chassis kits relate to the prototype and the model body around which it is designed. Note that those diagrams listed in italics are not exactly the same as the model body listed, however the differences in dimensions were very slight. See notes below.

Chassis	W-Iron	Brakegear	Body	Prototype Diagrams	Model body
B.13	BR	Morton	Welded	1/108, *1/111*, *1/117*	Parkside 1/108
B.15	BR	Morton	Riveted	1/109	Parkside 1/109
B.16	BR	Independent	Welded	*1/102 (BR W-Iron)*, 1/104, *1/106*, *1/114*	Parkside 1/108
B.17	BR	Independent	Riveted	*1/103 (BR W-Iron)*, 1/105	Parkside 1/109
B.18	RCH	Independent	Welded	*LMS diagram 2109*	Parkside 1/108 + B.16
			Riveted	*LNER diagram 188*	Parkside 1/109 + B.17
B.19	RCH	Independent	Slope Sided	1/100	Parkside slope sided
B.20	RCH	Independent	French	1/112	Parkside French type

As with all things concerning the BR wagon fleet exactly what happened was not quite as straightforward as laid out above and there was some overlap between brakegear etc. For example the first lots of 1/108 and 1/109 wagons were built with independent brakes and the last lot of 1/106 wagons had Morton brakes as well as two batches of 1/114s. ‘An Illustrated History of BR Wagons Volume 1’ by Bartlett, Larkin, Mann, Silsbury and Ward is worth a read for more in depth information if you have, or can get hold of, a copy. There may well be other comprehensive histories around.

Diagrams listed in italics above:

Diagrams 1/106 and 1/111 covered mineral wagons built to LMS diagram 2134 which seemed to essentially be diagram 2109 types but with top doors. These were slightly larger than the 1/104 and 1/108 types. The difference however was a matter of 2 cubic feet in capacity. The diagram 1/111 vehicles didn’t have trap doors. Diagram 1/117 were almost identical to the 1/111 types except for an increase in height by the massive amount of 1/16”. If you don’t mind about fractions of a millimetre then you can use the Parkside 1/108 body along with either chassis B.13 or B.16 depending on the brake type to model these diagrams. 1/106 and 1/111 had both types of brakes but 1/117 had Morton brakes except for the batch that was built with clasp brakes. My chassis kit B.04 is suitable for these. The Parkside 1/108 and 1/109 bodies will need modifying to represent the earlier 1/102-LMS 2109 and 1/103-LNER 188 minerals. This principally involves removing the top doors on the sides.

If that last paragraph has just confused you further then get hold of a copy of ‘An Illustrated History of BR Wagons Volume 1’.

Notes on etch B.14 Additional vacuum braking parts:

The vacuum braking of 16T minerals using the BR clasp brake wasn't entirely satisfactory as there were issues with damage to the brakegear. When it came to fitting more 16T minerals with vacuum brakes in the mid 1960s it was decided to simply to convert the unfitted Morton 2 shoe brakegear to fitted Morton 4 shoe brake gear. This etch provides additional components to convert chassis B.13 to the vacuum braked type. The fret includes brakegear, tie bars, solebar detailing overlays, BR swan neck vacuum pipe brackets, vacuum cylinder actuators and lamp irons. There are sufficient components to convert two chassis. Details of how the parts are used will be noted at the appropriate points in construction.

Notes on etch B.18 Additional RCH W-Iron Parts for Independent Brake Minerals:

My initial plan for modelling the early LMS and LNER type minerals was to use the Cambrian kits. This has proved to be difficult as the kits are all over the place. They are 1mm too short but more importantly the spacing of the stanchions on each of the sides isn't same! I think better results can be achieved using Parkside bodies and a bit of kit bashing. B.18 contains RCH W-Irons and appropriate solebar overlays for use with either B.16 or B.17 depending on whether you are modelling a riveted or welded bodied example. Simply replace the W-Iron assembly and solebar overlays in either B.16 or B.17 with those contained in B.18 at the appropriate point in construction.

Welded and Riveted Chassis

Some of the 16T mineral wagon chassis kits come with a choice of solebar overlays to represent welded or riveted chassis. Most 16T minerals seemed to have had welded chassis but there were some, particularly the early ones, that had riveted. It should be obvious which ones are which but in case you're in any doubt the welded type have less rivets on them. In the case of welded chassis only the vees and W-Irons were riveted to the solebars. Figures A and B give further details for the solebars in kits B.16 and B.18.

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 chassis covered by this set of instructions but they will suitably illustrate the point 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/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 (you would need to weight the wagon to around 90g to get the same 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

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
0.8mm - Main brake cross shaft and Morton clutch brake levers
1.0mm - Alignment pins

You will also require items such as wheels, bearings, buffers, axleboxes and springs as well as couplings to complete. Vacuum pipes will be needed if building a fitted Morton 16T mineral.

If you wish to use brass L section for the tie bars on vacuum braked 16T minerals (B.14) instead of the etched examples provided then you will need approximately 85mm of 1mm x 1mm brass L section per wagon.

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. The vast majority of wagons that are covered by these chassis will have had 1'6" buffers including the Morton vacuum braked vehicles. Lanarkshire Model Supplies do various suitable 2 rib and 4 rib examples. As always check your prototype. If making the buffers sprung then MJT and Wizard models do turned heads and springs. Lanarkshire model supplies also do cast vacuum pipes. I prefer making them from metal wire as I find the whitemetal ones a bit fragile.

Axleboxes and spring castings: Currently no one does as 6 leaf spring and also most of the axleboxes used on these wagons are unavailable. Plans are in hand to address this. Currently there are various types of castings available from MJT and Wizard models.

For couplings I use Masokits coupling hooks and Exactoscale links, either 3 link or instanter. The Exactoscale instanter links are particularly good. These are available through C&L.

Vacuum cylinders will be needed if constructing a fitted Morton brake 16T mineral. I am about to produce castings for 18" and 21" vacuum cylinders.

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 overlays

5 - Additional vees (independent brakes)
6 - Side support brackets
7 - Additional body support brackets (B.16, B.17 and B.18)

8 - Brake shoes/push rods
9 - Push rod cranks
10 - Push rod safety loops

11 - Spring Carriers
12 - Bearing washers
13 - Axle keeps/Tiebars

14 - Solebar detailing

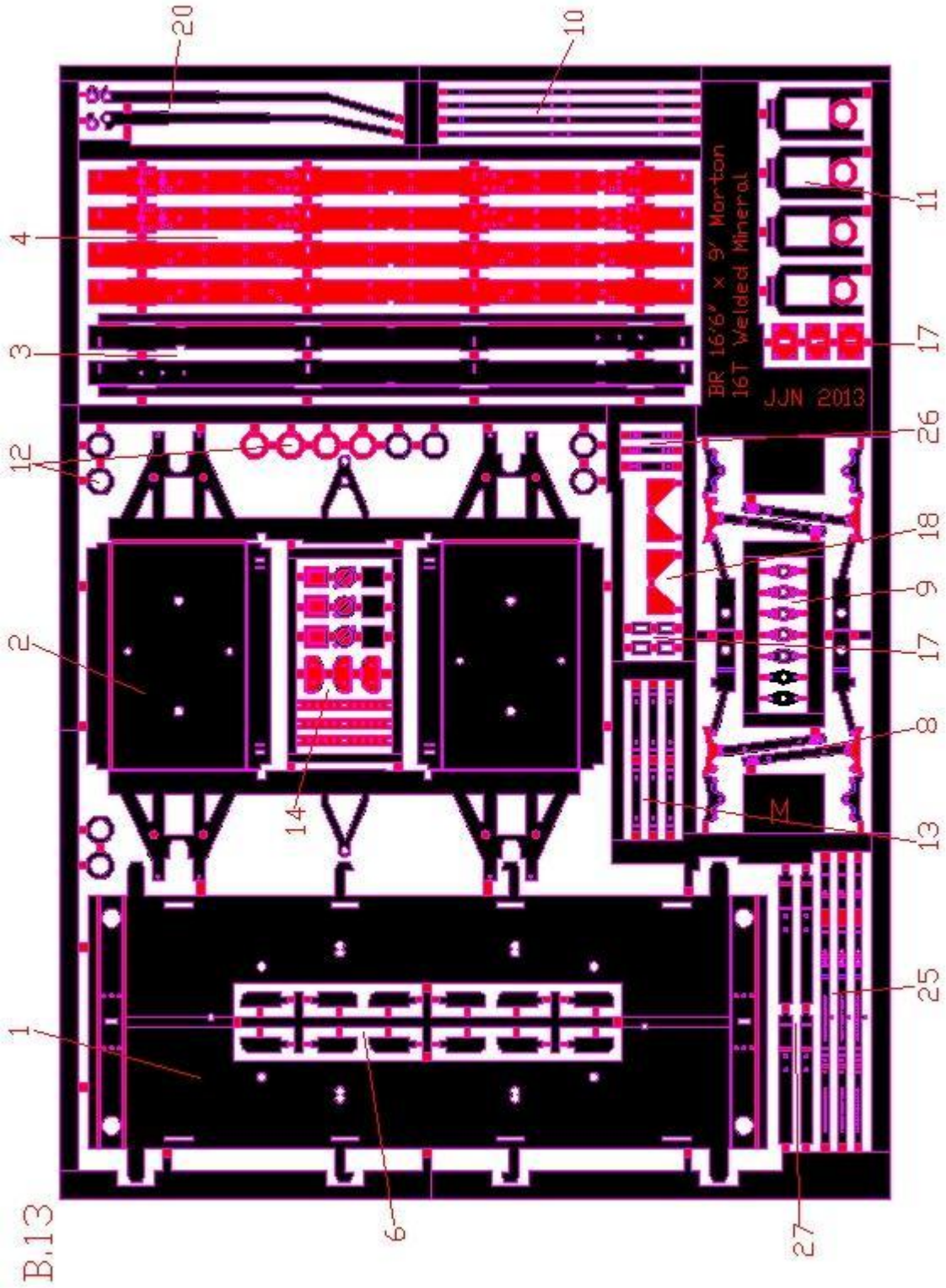
17 - Coupling pocket detail
18 - Solebar/Headstock corner plates
19 - Solebar/Headstock rivet plates (B.17)

20 - Brake levers

24 - Brake lever washers
25 - Brake lever guards/brackets
26 - Brake lever guard stays

27 - Door springs
28 - Wagon body top corner plates (riveted body types)

29 - Vacuum cylinder actuators (B.14 only)
30 - Lamp Irons (B.14 only)
31 - BR swan neck vacuum pipe brackets (B.14 only)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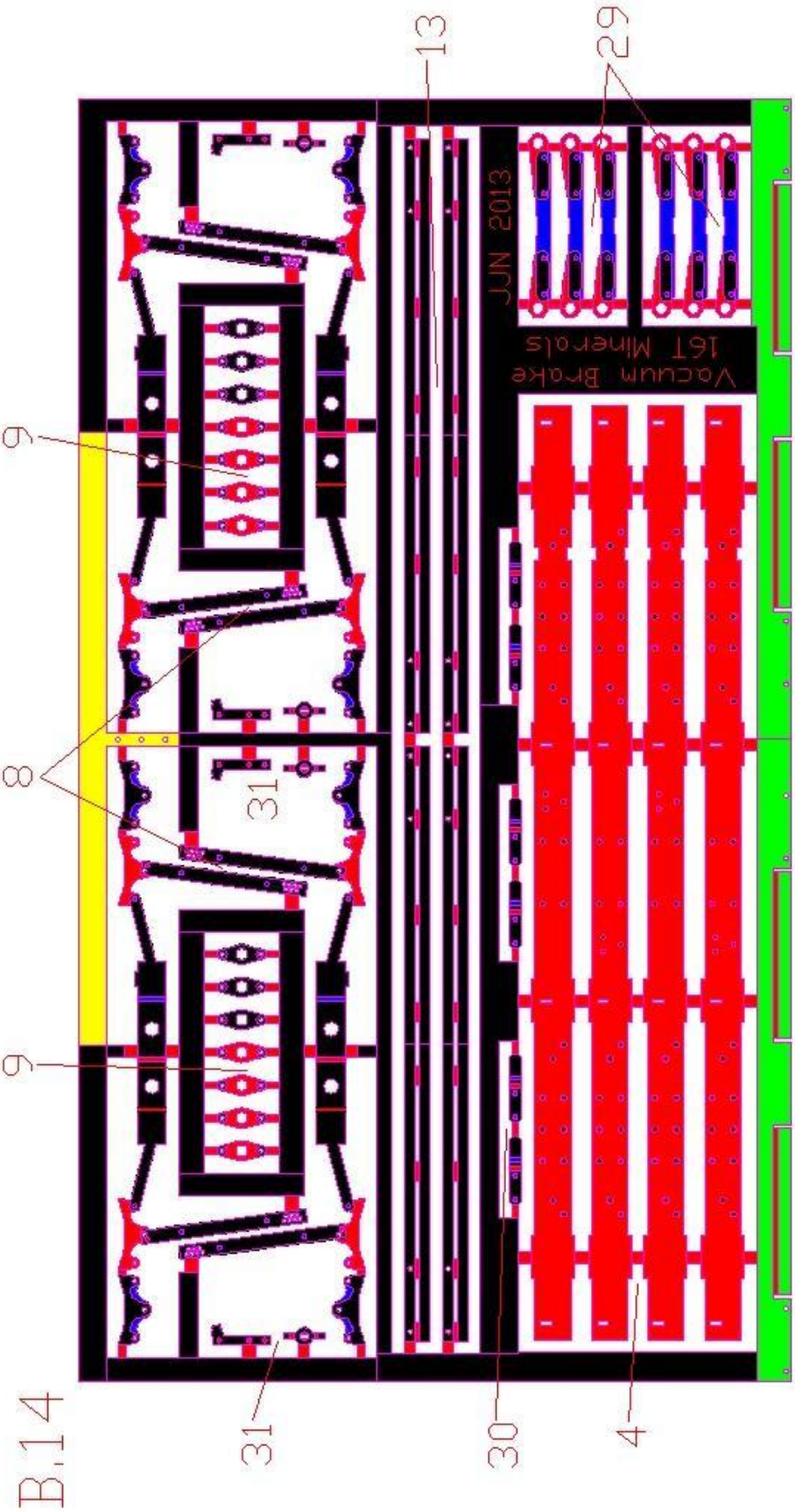
BR 16'6" x 9' Morton
16T Welded Mineral
JJN 2013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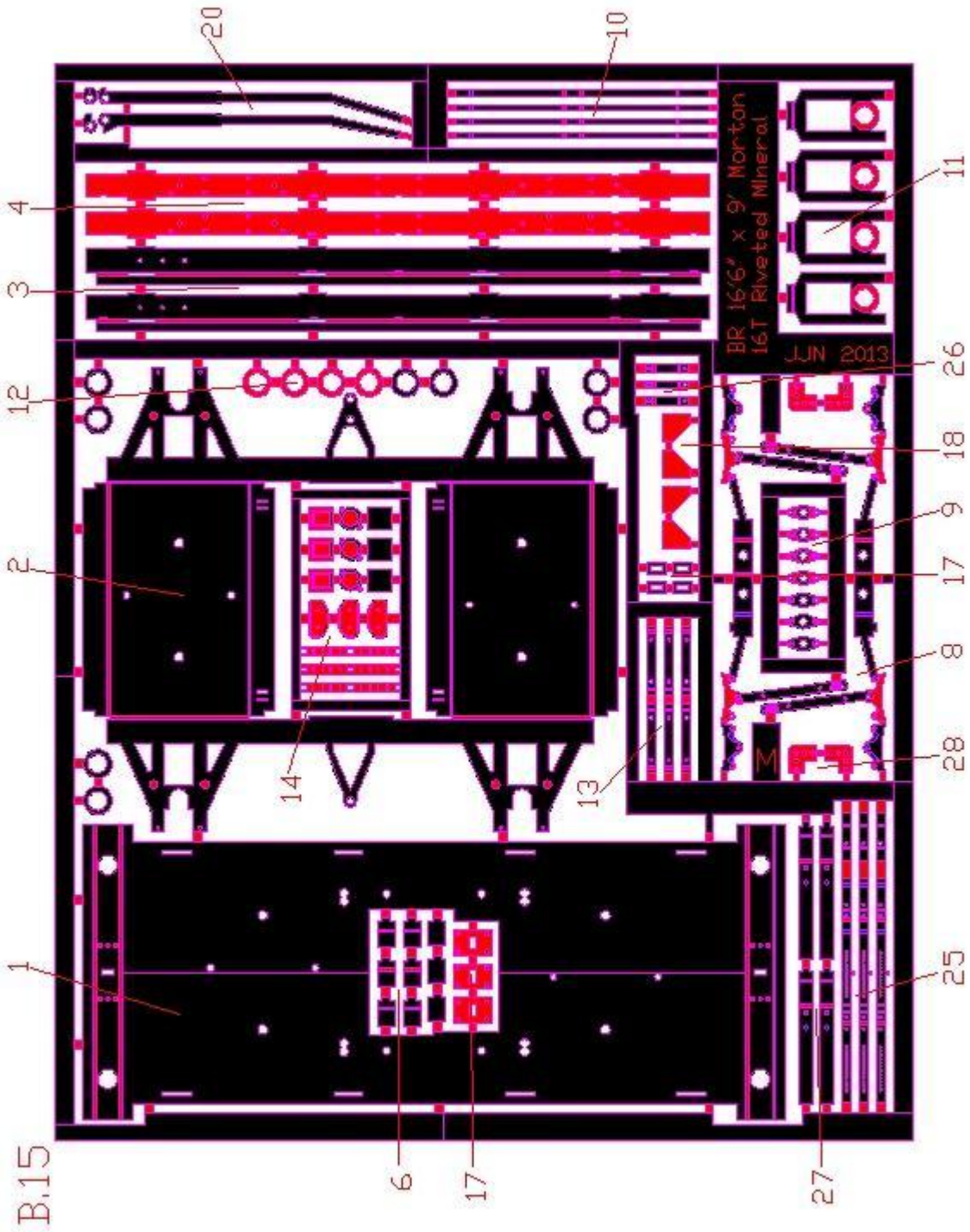
Vacuum Brake
16T Minerals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BR 16'6" x 9' Morton
16T Riveted Mineral
JUN 2013
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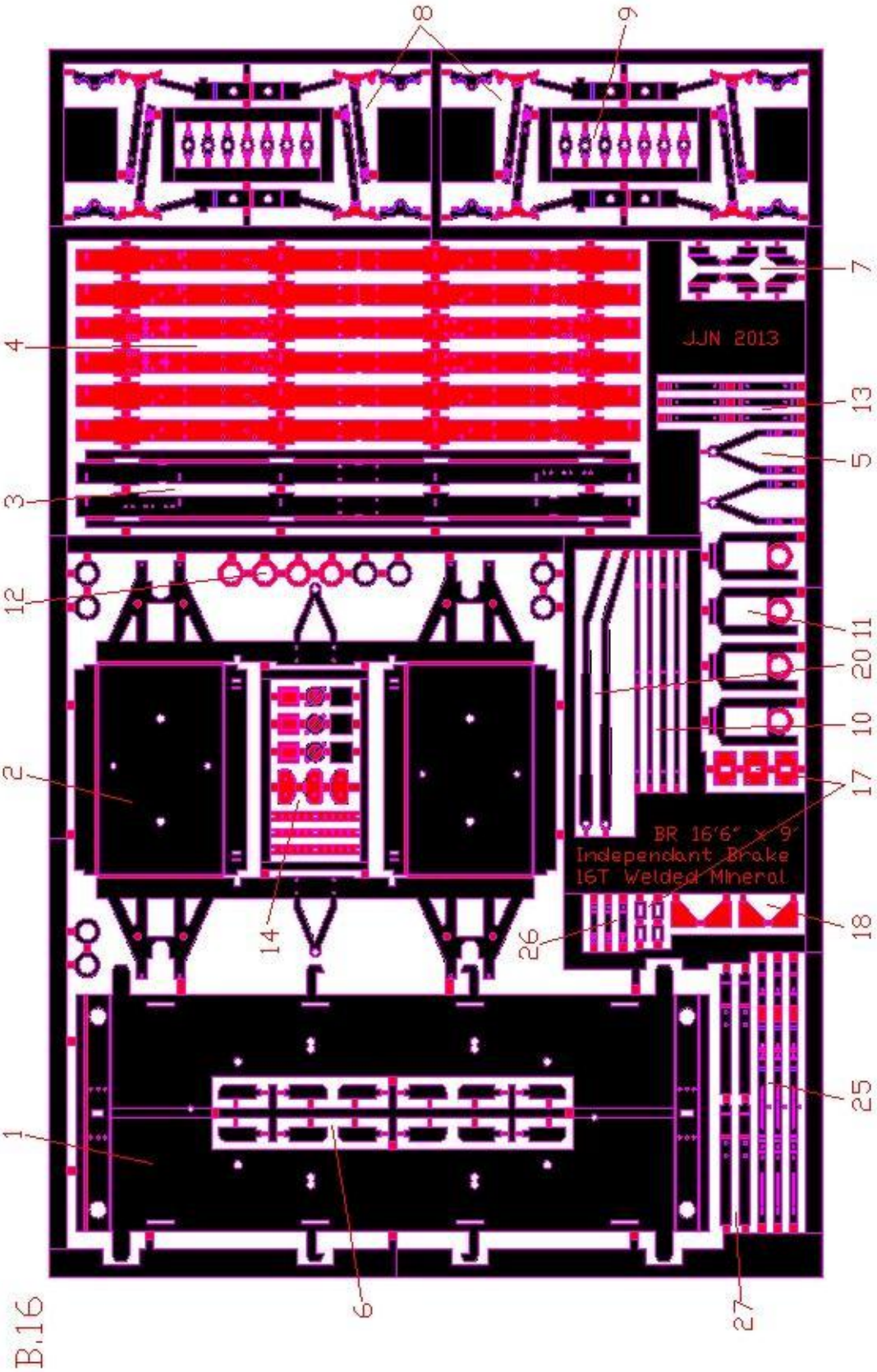
B.15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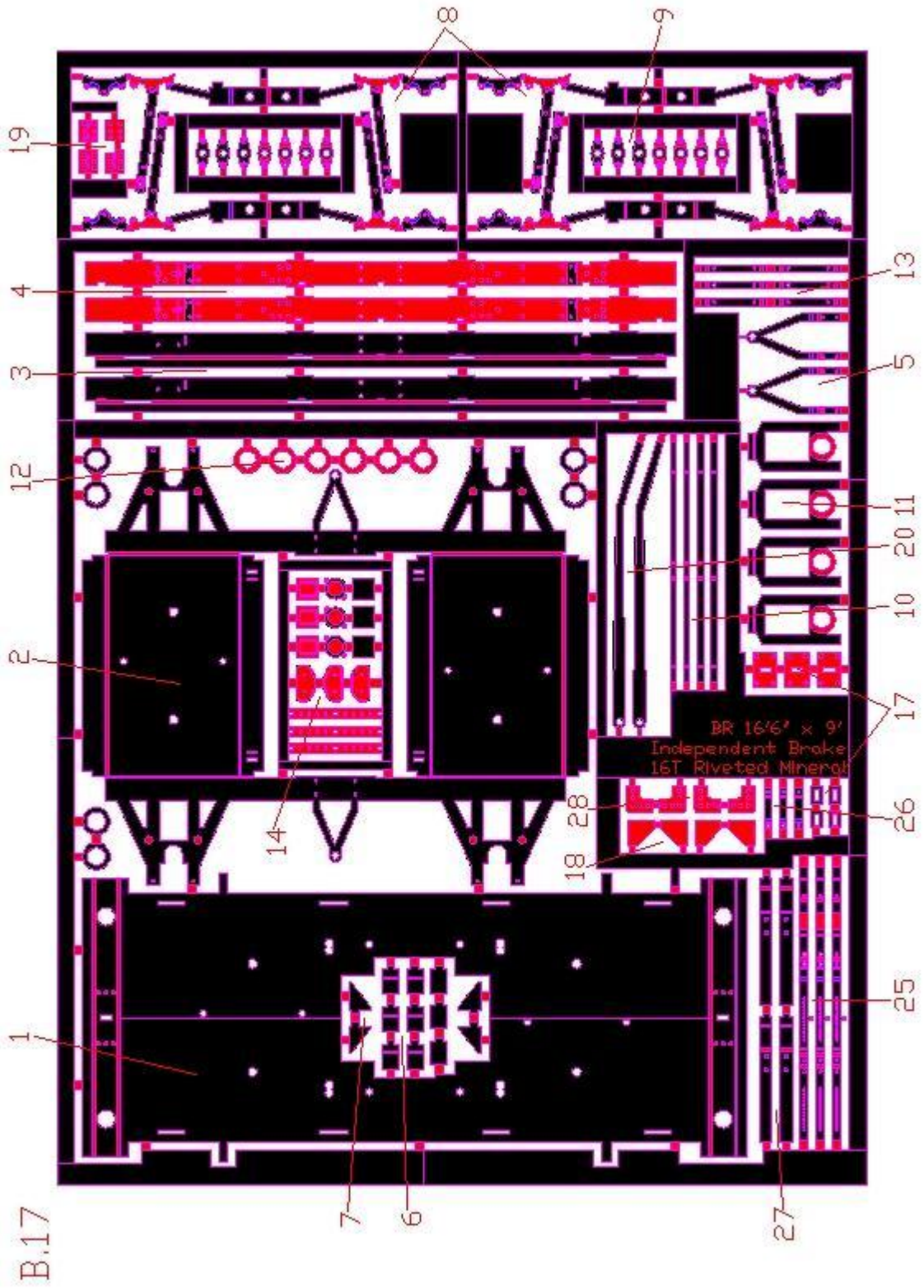
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BR 16'6" x 9'
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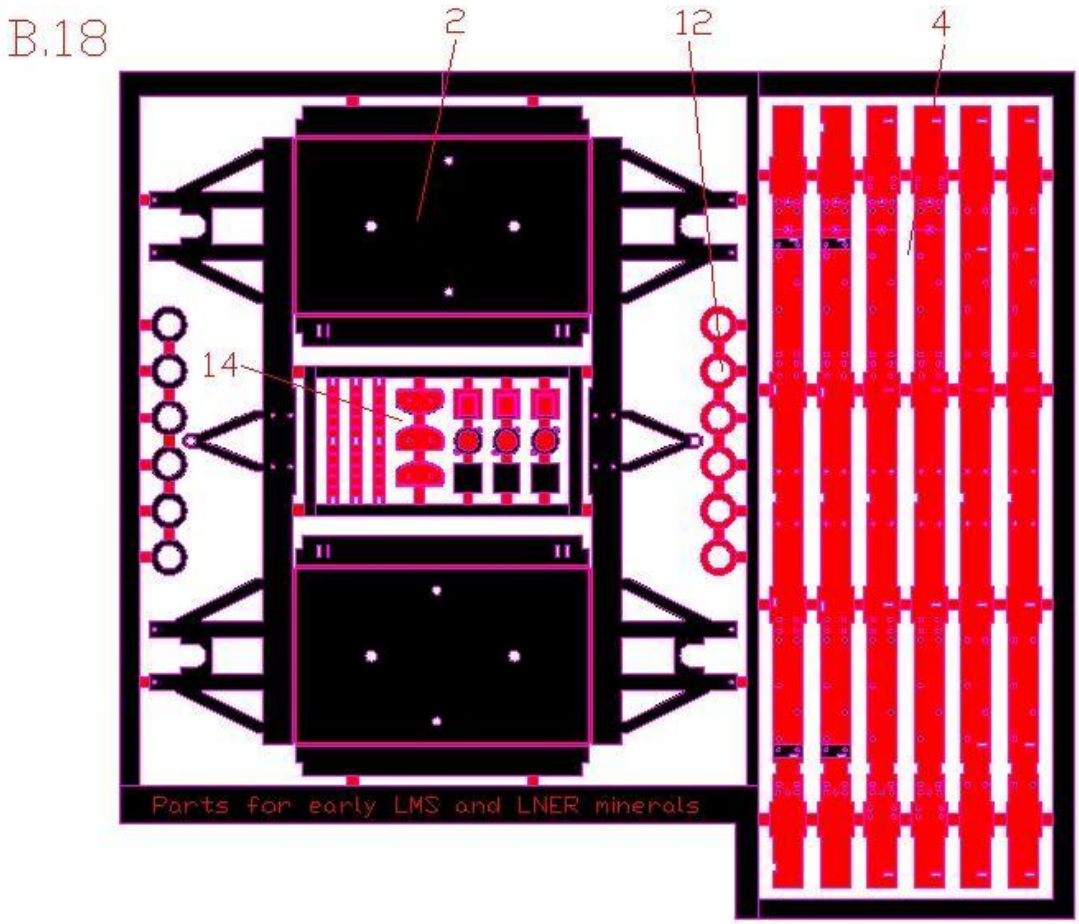
B.18
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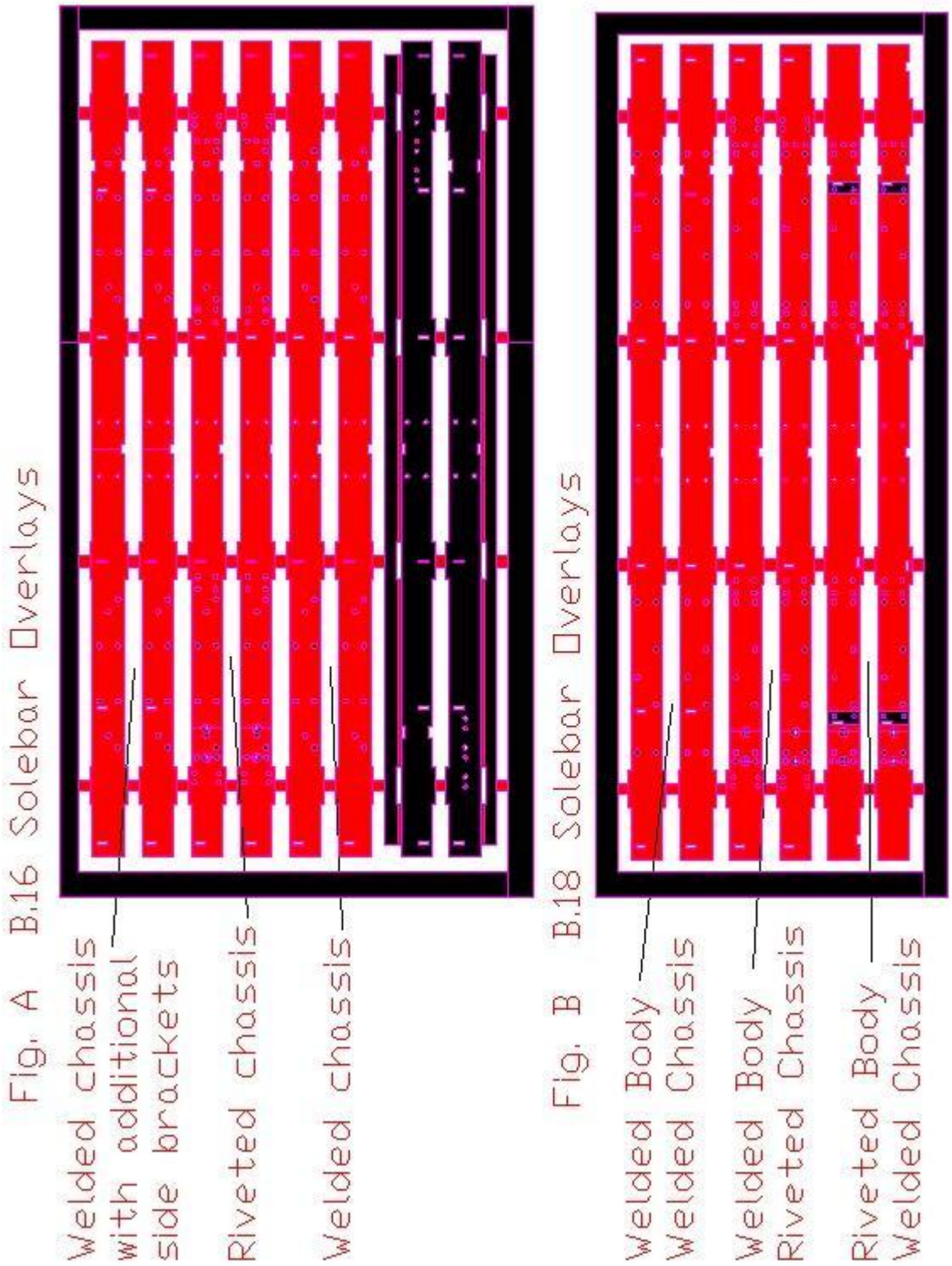
Parts for early LMS and LNER minerals

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.

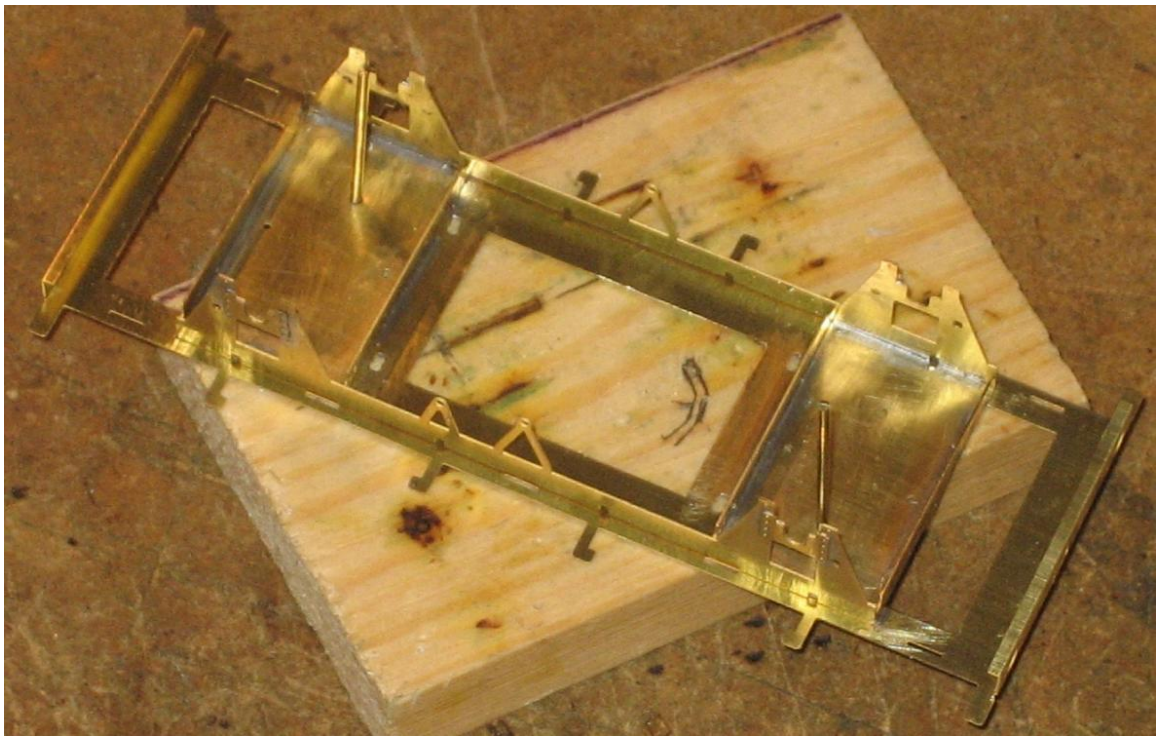
Start with the chassis top plate (1). Push out the half etched rivets on the headstocks if you are modelling a wagon with a riveted chassis. I find the easiest way to do this is with a drop head rivet press with the fret placed over one of those ubiquitous green cutting mats. Remove from the fret.

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. If necessary 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.

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 the solebar overlays (4) of your choice, if there is a choice, from the fret. Figures A and B give details of the solebars included with B.16 and B.18. Also see notes on page 3.

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 the notches for the brake lever guards, side support brackets and door springs should coincide with those in the solebar) and also a correct side for the solebar detailing on chassis B.14, B.15, B.17, B.18 (when used with B.17). Details are as follows.

In the case of B.14 there are the rivets for the vacuum cylinder brackets which should go to the right of the vee on the Morton clutch side and to the left on the other.

In the case of the riveted bodied 16T minerals B.15, B.17 and B.18 (when used with B.17) there are only three side support brackets on each side, two in the centre and one at the end. The end bracket goes where the door is. Arrange the solebars so that the door is to the left on the Morton cam/brake shoe side. Indeed the arrangement was like this for all as built Morton 2 shoe brake minerals. It did vary on wagons re-bodied in the 1970s though. See Figs. 2 and 3a for an illustration.

Do one solebar at a time and lightly solder in place once happy with the fit.

Some early welded chassis had horse hooks despite the holes in the w-irons. If appropriate there are holes in the solebar that can be used to drill 0.3mm holes through the solebar detailing overlay to locate them.

Now is probably the best 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 (13) comes contained in its own little fret. See Fig. 1 below. On it you will find fabricated axle spring stops, two sorts of number plates, label clips and a rectangle that is actually a block of wood on the real thing. I have no idea what the purpose of the last item is but the rectangular block of wood was quite common. By far the most common type of number plate were the D type but the circular ones could also be found on early build steel minerals. If you're really brave there are half etched holes that can be pressed out to represent the rivets on the round type. The positions of all this stuff varied so check your prototype. The details can be soldered on or glued. If you wish to glue the detail on its best left until the chassis is assembled.

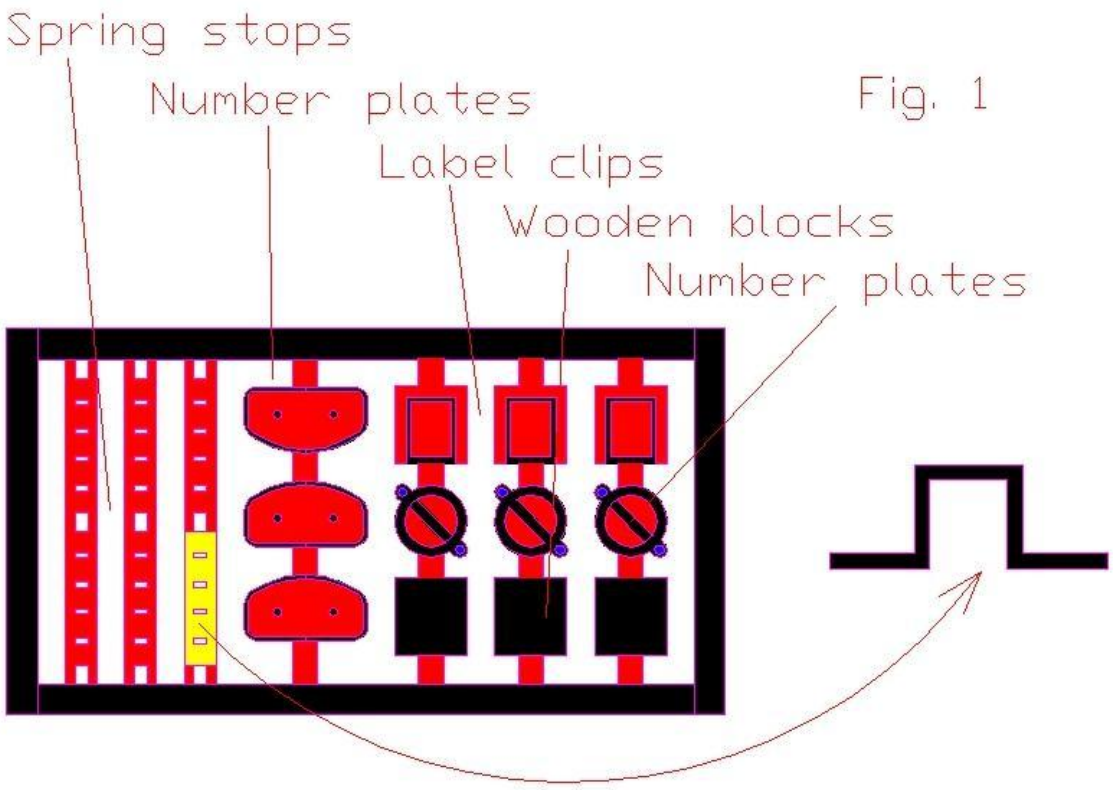
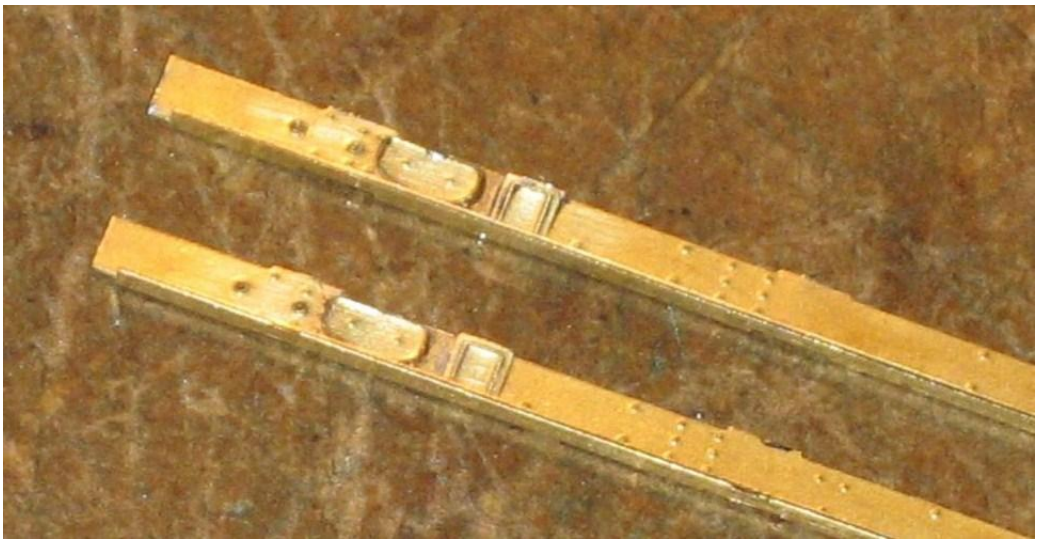
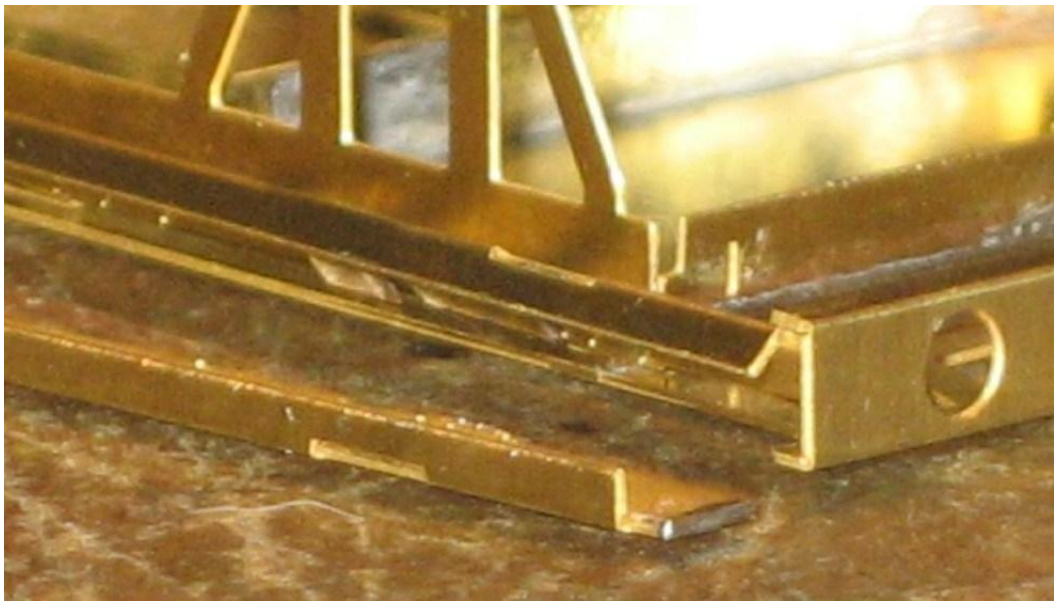


Fig. 1



Main Chassis Continued…

The solebars can now be fitted to the chassis. There are slots and tabs to aid location and the ends go into the channel that is the headstock. Don't forget that the solebars have a correct side, as outlined above, except for unfitted welded Morton and Independent chassis. 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.



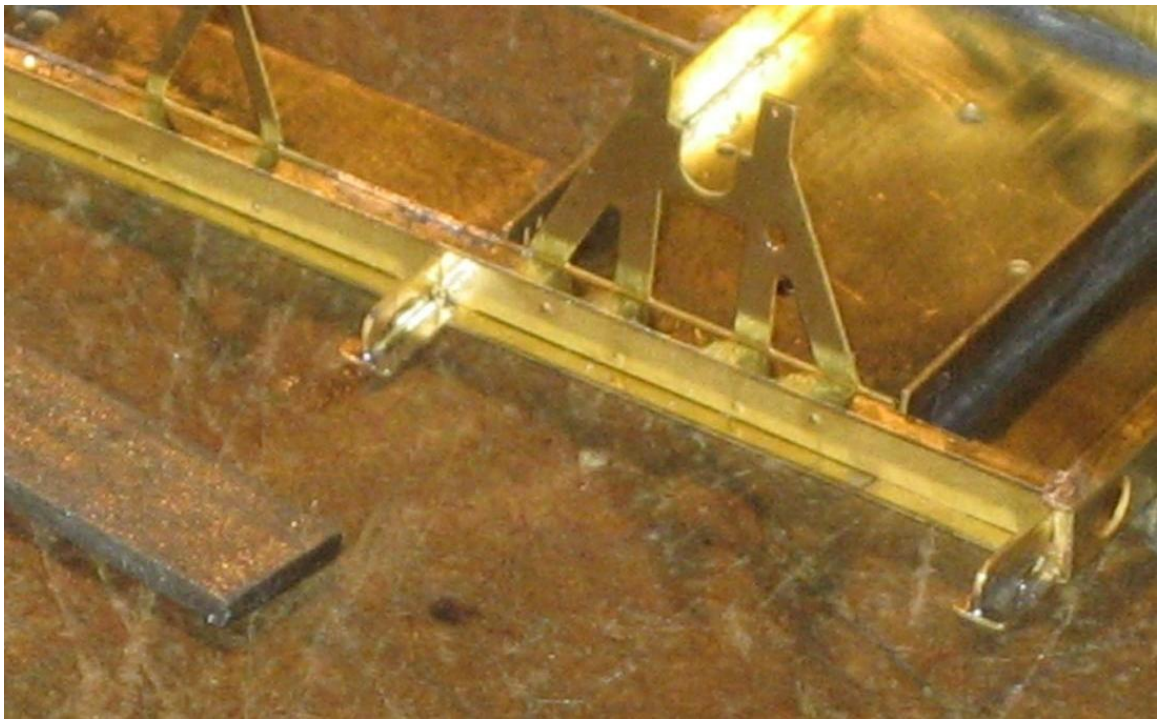
Additional vees for independent brakes

Those wagons fitted with independent brakes had double vees on each side. There are additional vees (5) included on the appropriate chassis for this. Make sure that the holes in the additional vees and also the holes in the centre of the solebars will accept 0.31mm wire and in the hole for the brake shaft can accept 0.8mm wire. Fold the vees to fit into the solebar. Both fold lines are through 90°. Use 0.31mm wire to align the vees in place to the solebar. I used 4 pieces doing both vees at the same time. Solder in place and tidy up the wire to represent bolt heads on the solebar.

Wagon side support brackets

There are two types of side support brackets (6) depending on the whether the vehicle body was of riveted or welded construction. The welded types were formed of T section and this has been replicated by etching the top part of the T on the chassis top plate. The riveted types had brackets that attached to the side stanchions. These are located to the solebar via slots and tabs. Fig. 2 gives the general idea.

Taking the welded types first. 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 support brackets have been arranged to match the models stated in the notes at the beginning of the instructions.

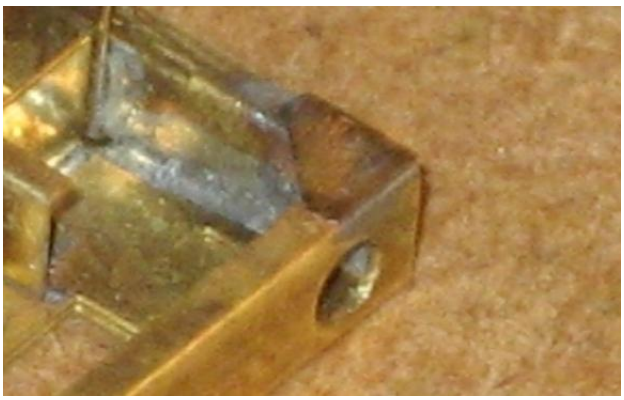


The riveted types are located to the solebar using tabs and slots in a similar manner to the welded types. You need to make sure the connecting tabs are removed completely. Note that the brackets on the centre stanchions on the riveted 16T mineral chassis have fold lines in them and they should be bent so that the part that extends out from the solebar is angled downwards.

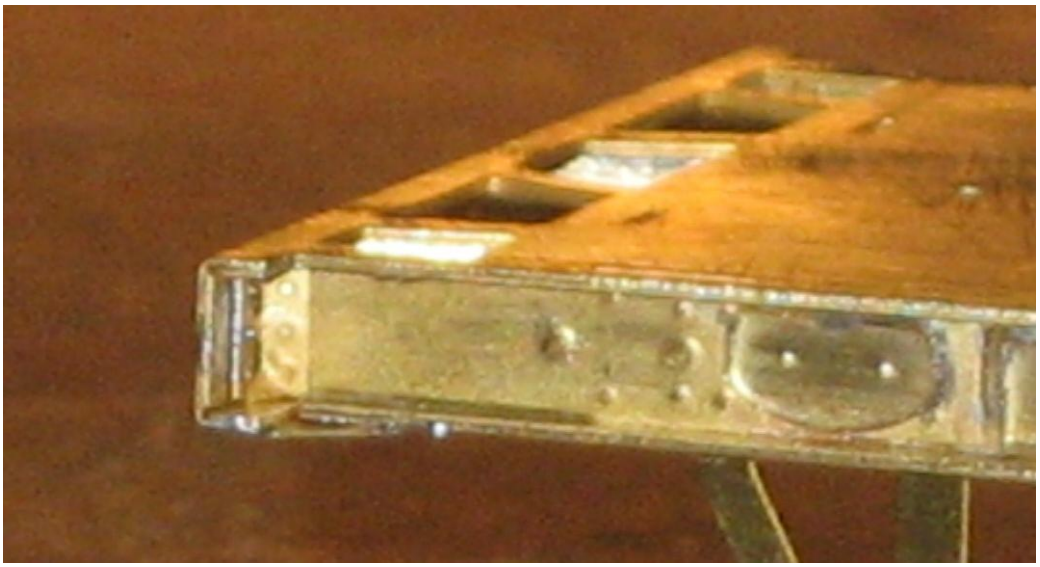
There are also additional body support brackets (7) for use with B.16, B.17 and B.18. These were L shaped on the prototype. See Fig. 2 for details. I have etched them in a similar manner to the welded side support brackets. The top of the L is etched as part of the main chassis top plate. The vertical parts locate into the solebar. The exception is B.16 where they are a fold up L that locate into the solebar. 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 bracket. If in doubt about how they are arranged the Ls always face to the centre of the wagon.

Corner Plates

The corner plates (18) can also be added now. These go on the bottom of the corners of the chassis.

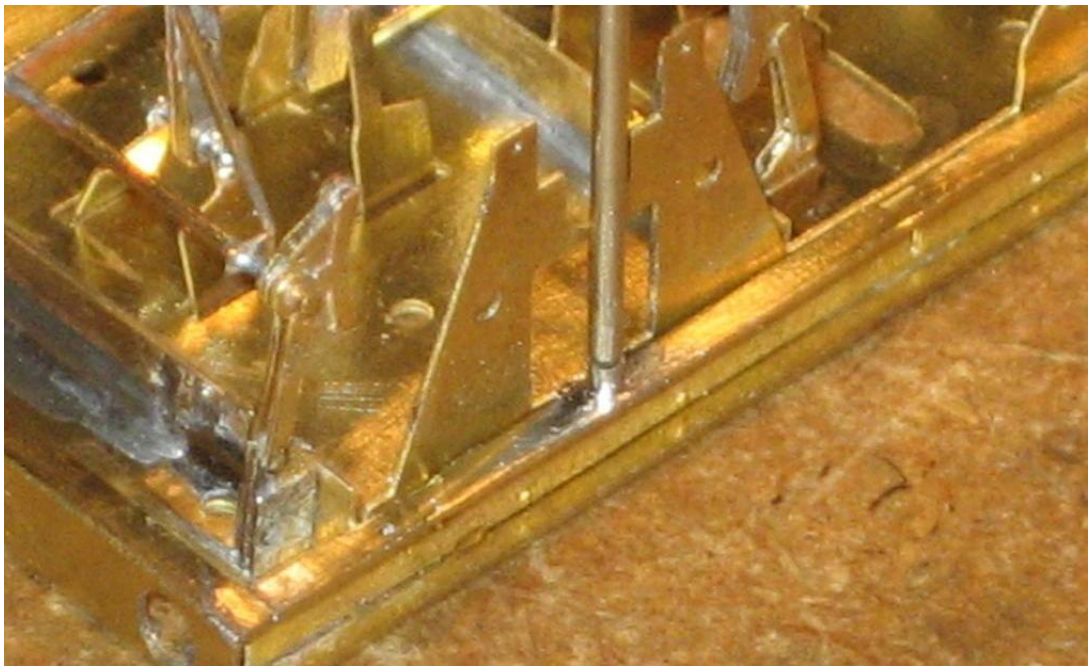


There are solebar/headstock rivet plates (19) for use with riveted chassis in kit B.17. These need to be folded into an L using the slots as a guide for the fold. Solder in place in the corner between solebars and headstocks. Note that the side of the L with two sets of rivets goes against the solebar.



Spring Stops

There are 6 fabricated spring stops on the solebar detailing 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 soldered joint breaking.



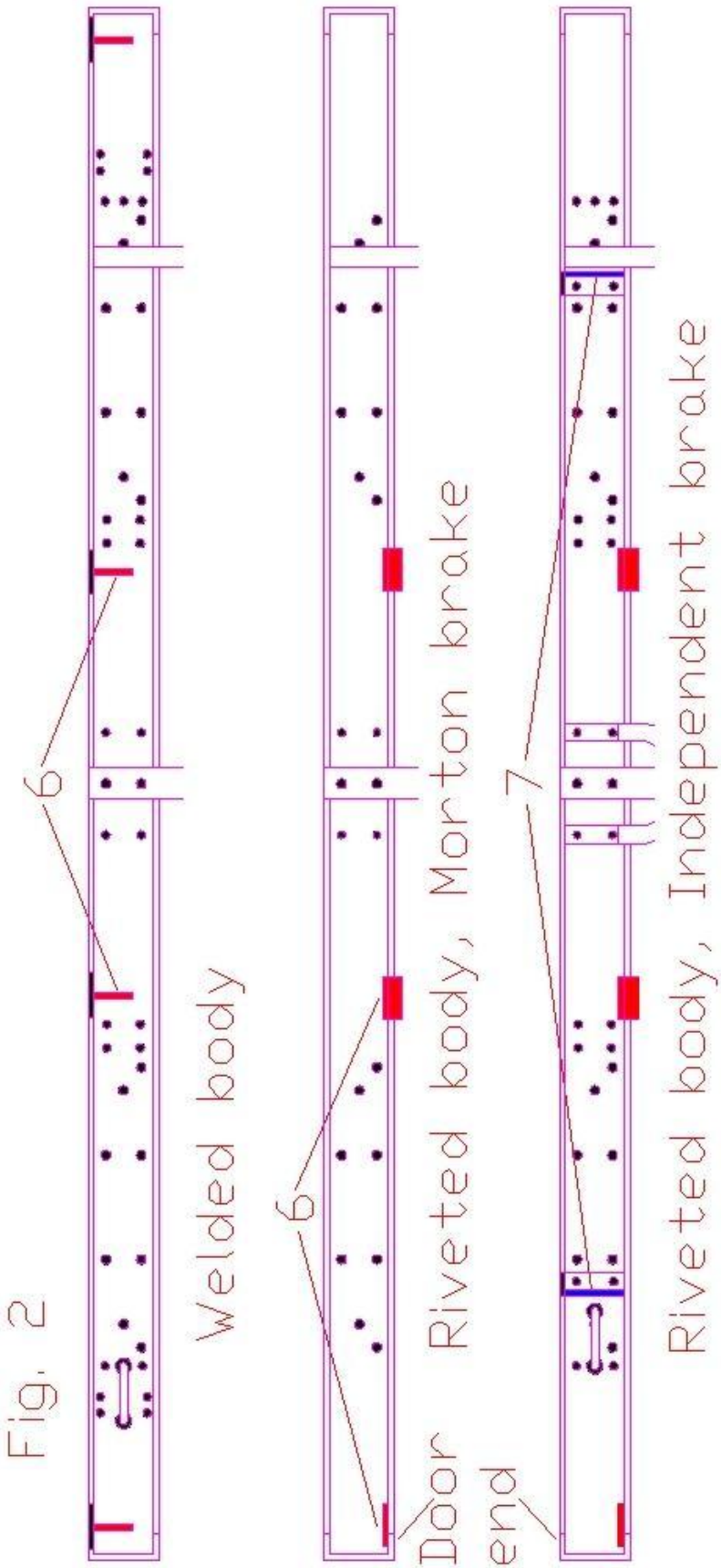

6
Welded body
6
Door end
Riveted body, Morton krake
7
Riveted body, Independent krake

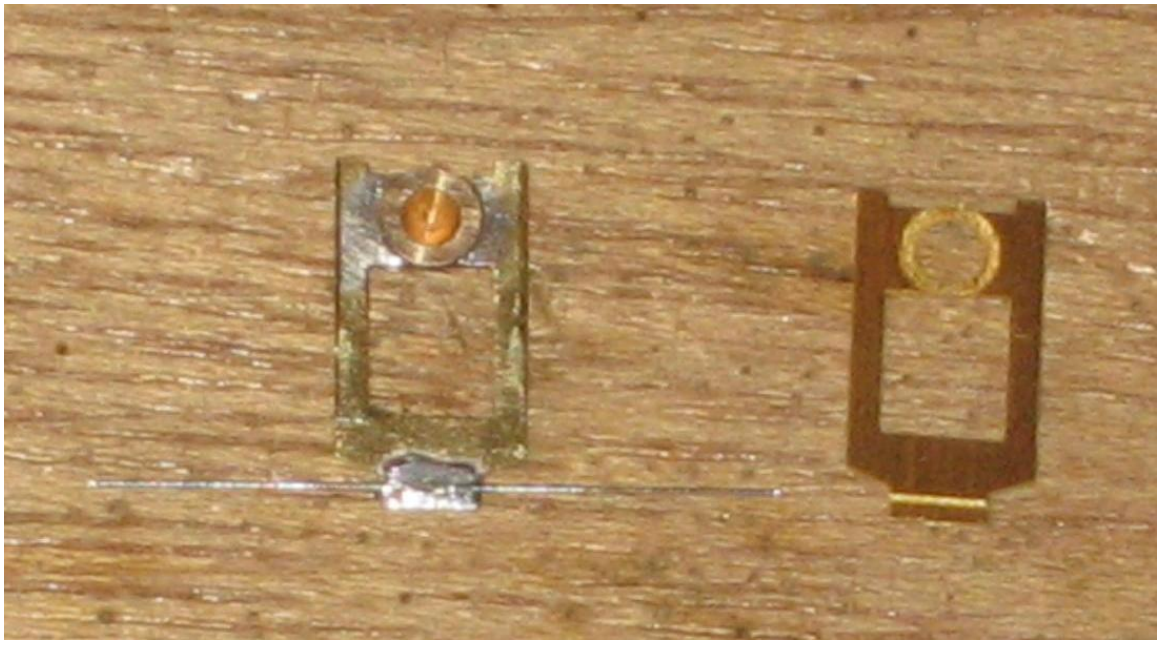
Fig. 2

Spring Carriers

The spring carriers (11) can now be assembled. They are designed so that the springing wire is soldered to the carrier using the half etched slot as a guide. As mentioned in the preamble a suitable flux will be necessary. I use Carr's Black Label.

The distance between the backs of the W-Irons is a bit larger when compared with other systems and works out at 24.5mm. This is deliberate and I make no apologies for it. The advantage of this measurement is that if using pin point axles you don't have to hunt around for bearings that are deep enough but you may find that the carriers need packing out a little to take up any slop. Bearing washers (12) 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 the half etched guide slot for the spring is facing towards you and the bearing locates through the hole in the carrier and the wood. The bearing can then can be soldered in place. The spring wire can then be located in its half etched guide slot and soldered in place using a suitable flux. I use Carr's black label. The spring wire needs to extend at least 7mm either side of the point where it is attached to the carrier.

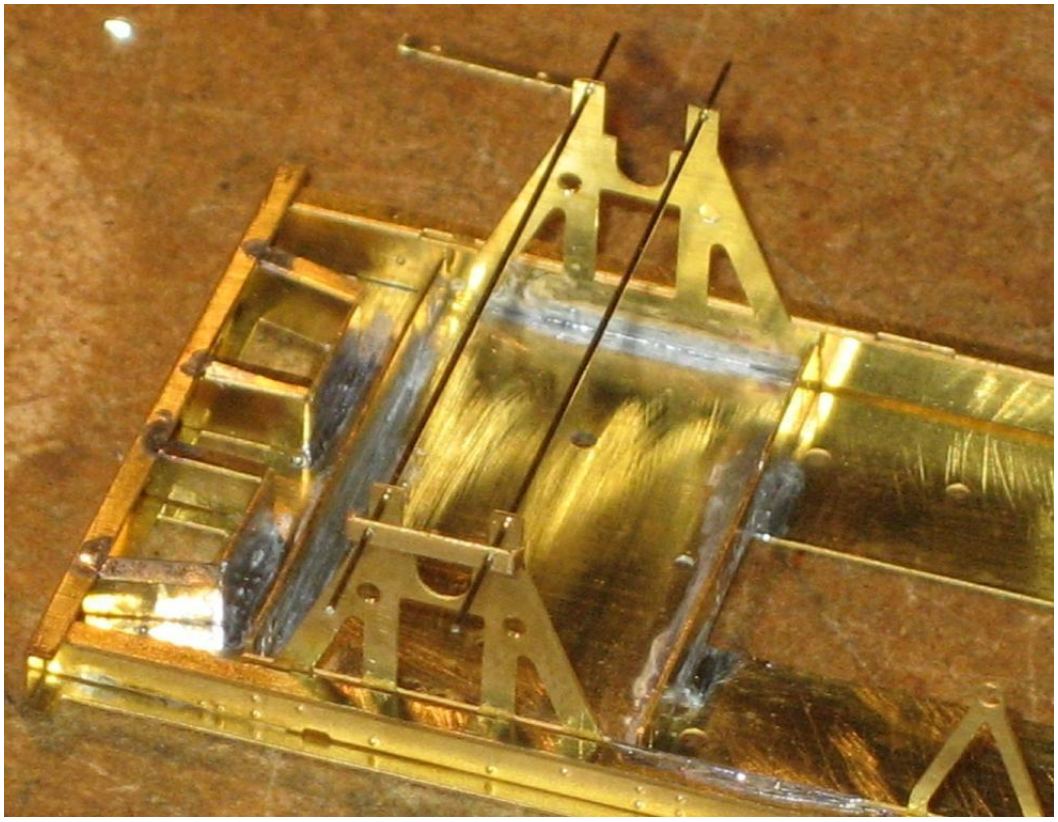


Spring carriers (11)

Axle keeps/Tiebars

There are axle keeps or tiebars (13) included depending on the type of chassis. These 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.

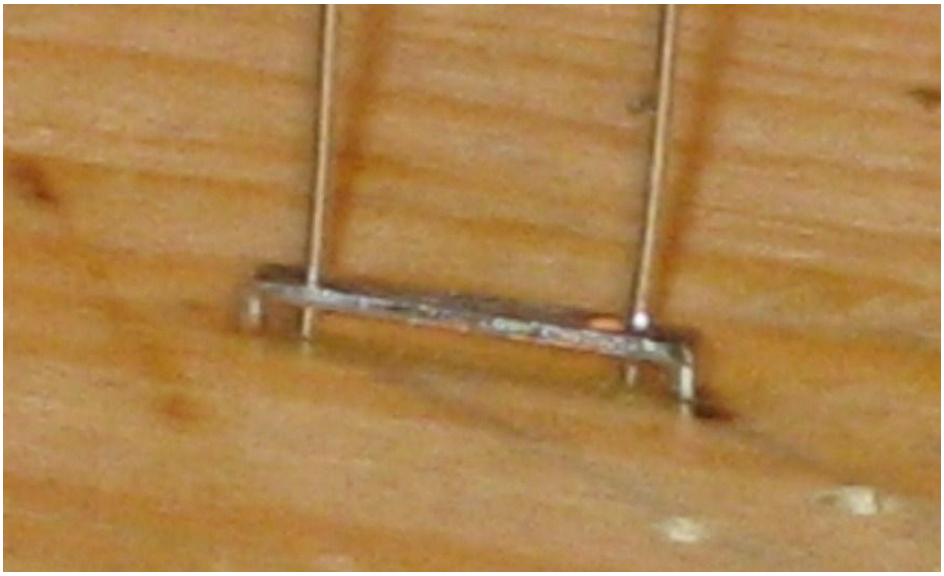
If you are not planning on making them removable then they can be pinned and soldered to the W-Irons. Remove from the fret and fold the ends up. Thread lengths of 0.31mm wire through the axle guard and holes in the W-Iron and the corresponding holes on the opposite W-Iron. Solder in place. Fit the other axle guard and solder in place. Trim the wire so that it represents bolt heads on the 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 tie 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.

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.



The tie bars for the vacuum braked Morton vehicles, covered by B.14, were interesting for the fact that they were made of L section rather than flat bar or rod. I have designed the tie bars on B.14 to be folded up although given the amount of material to hold this may not be very easy. It can be done though with care and the components held firmly in a vice though.

An alternative is to use 1mm x 1mm brass L section. I have included a jig on the fret to enable holes for locating pins to be drilled to match those on the W-Irons. This is shown in green on the parts diagram for B.14. There are four fold out sections which need to be folded through 90°. Strips of 42mm long brass L section can then be tack soldered in place against the jig and the holes used as guides for drilling the L section in the correct places.

In both cases once either folded up or drilled out the pins can be soldered in place on the tie bars if making removable or the tie bars soldered permanently in place to the W-Irons as described above.

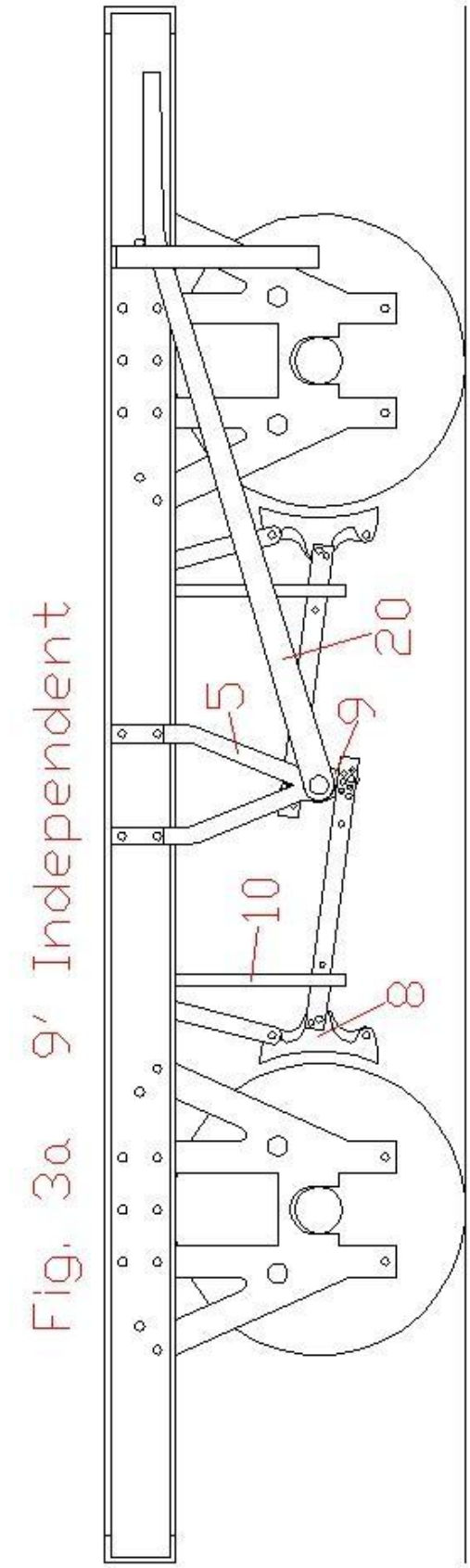
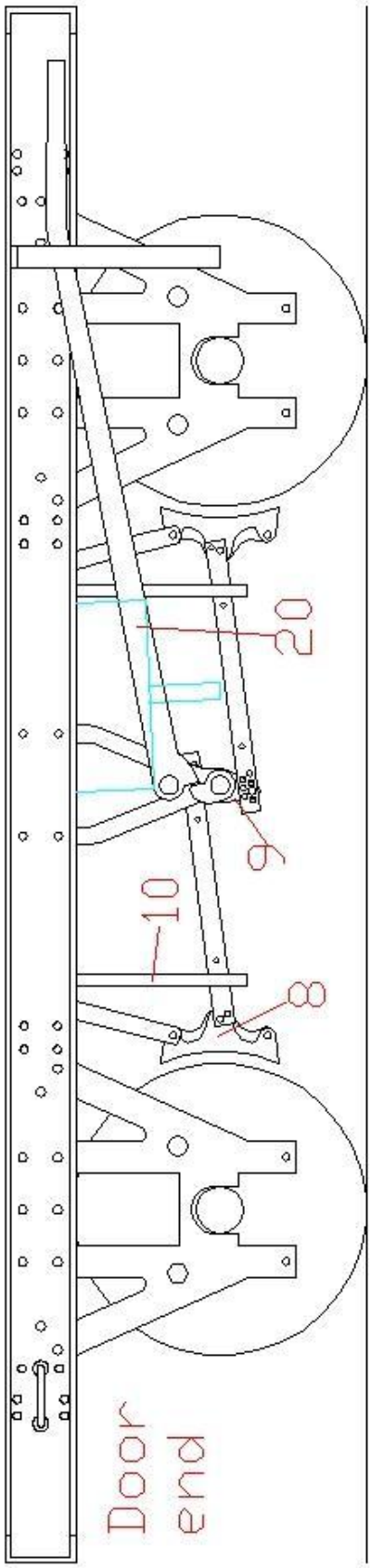


Fig. 3a 9' Independent



9' Morton

Brake shoes and brakegear

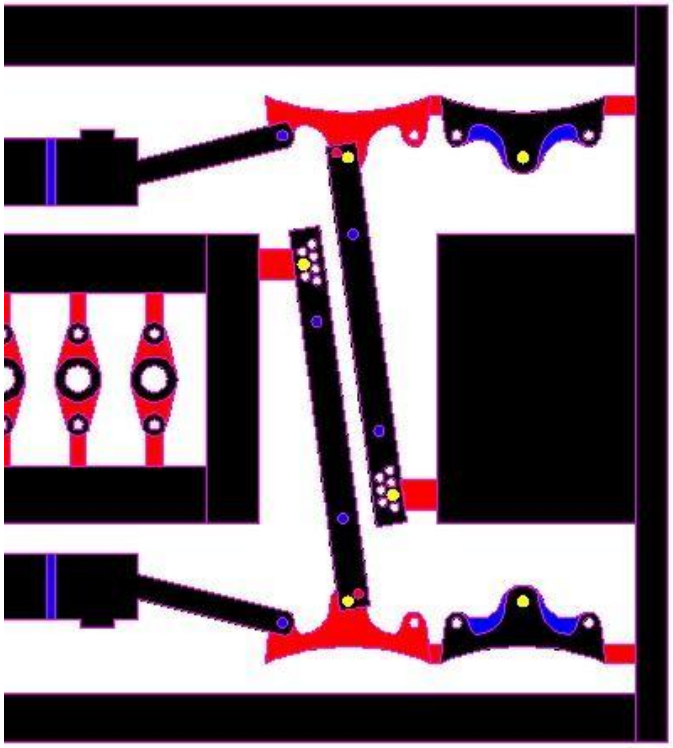
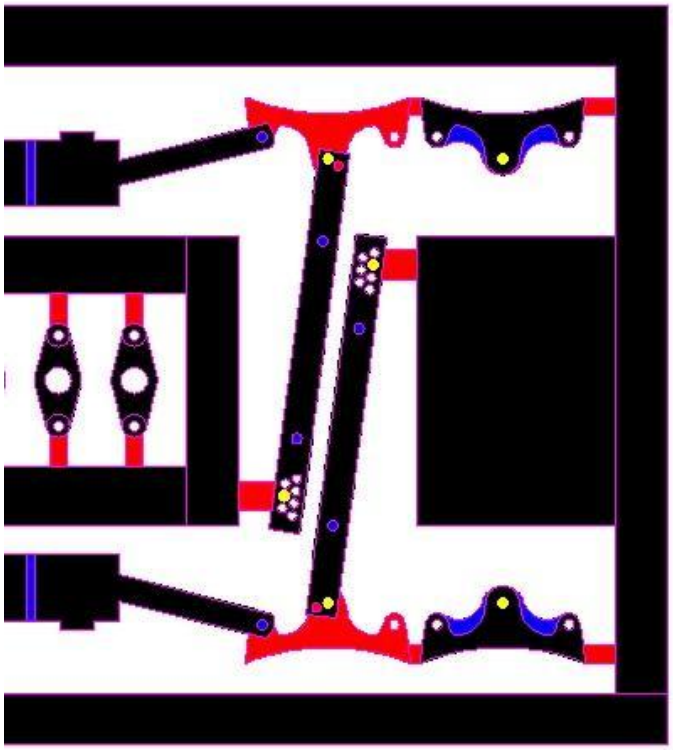


Fig. 4



The brake shoes (8) are etched with integral push rods 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. They are rather delicate until folded up and soldered together so take care. Once assembled though they are quite robust so don't be afraid to tweak them to get them to line up properly on the chassis. The shoes are deigned to be in line with the edge of the flange on Exactoscale wheels.

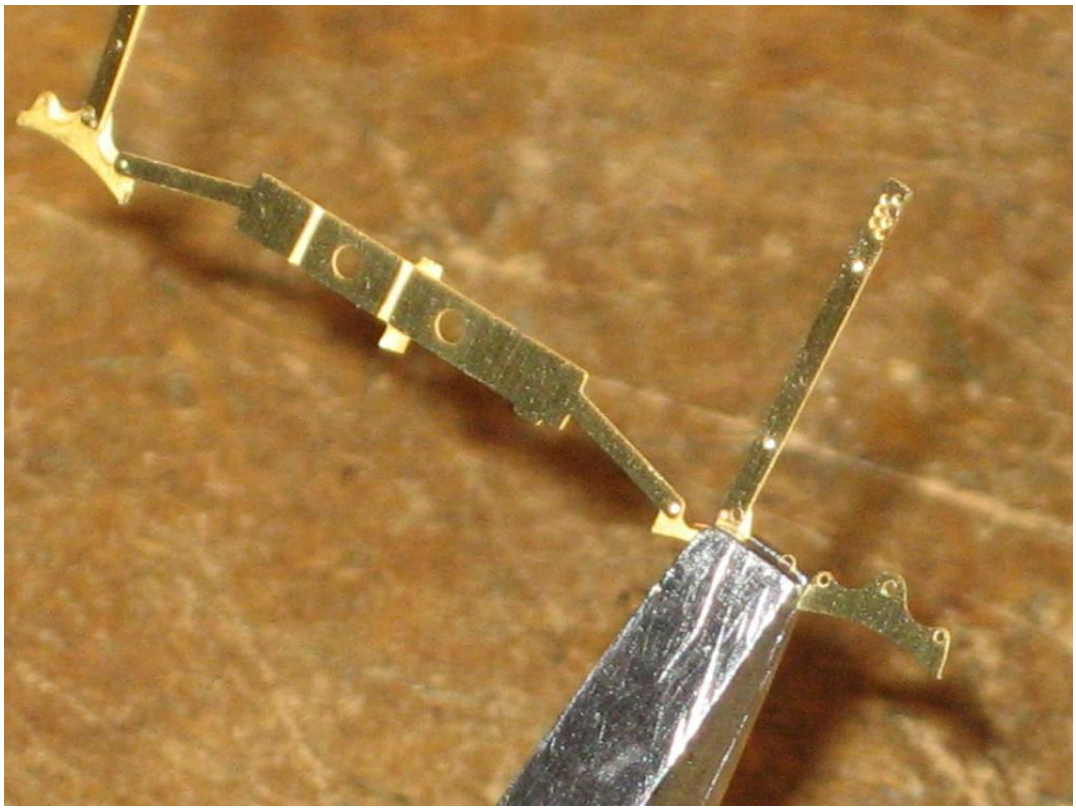
You need to make sure the appropriate holes in the brake shoes can accept 0.31mm wire as this will be used to align/pin everything. Refer to Fig. 4. The holes that need to be able to accept the wire are marked in yellow. I have shown one side of the Morton cam set and non- Morton cam or independent set.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

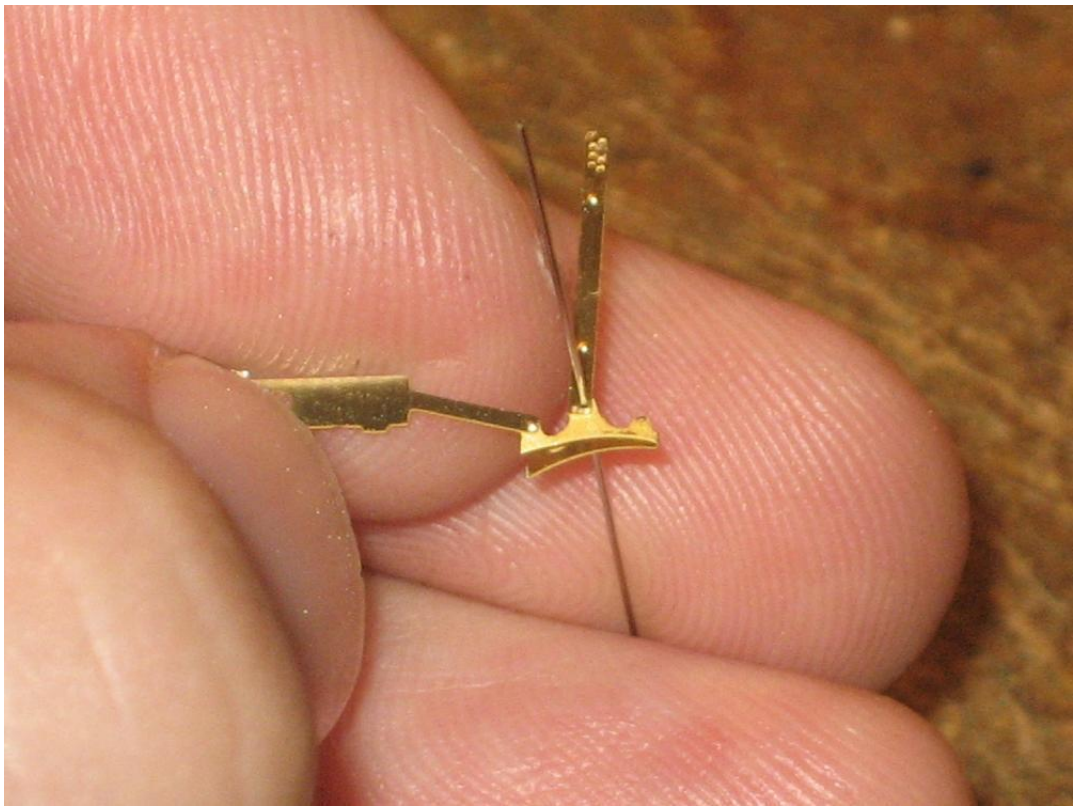
It is best to do one set at a time leaving the other set on the fret. This will avoid mixing parts up when dealing with brakes where the two sides are different. Those sets intended for the Morton cam side of wagons fitted with this type of brake gear or the RCH lifting link brakegear fitted to the heavier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

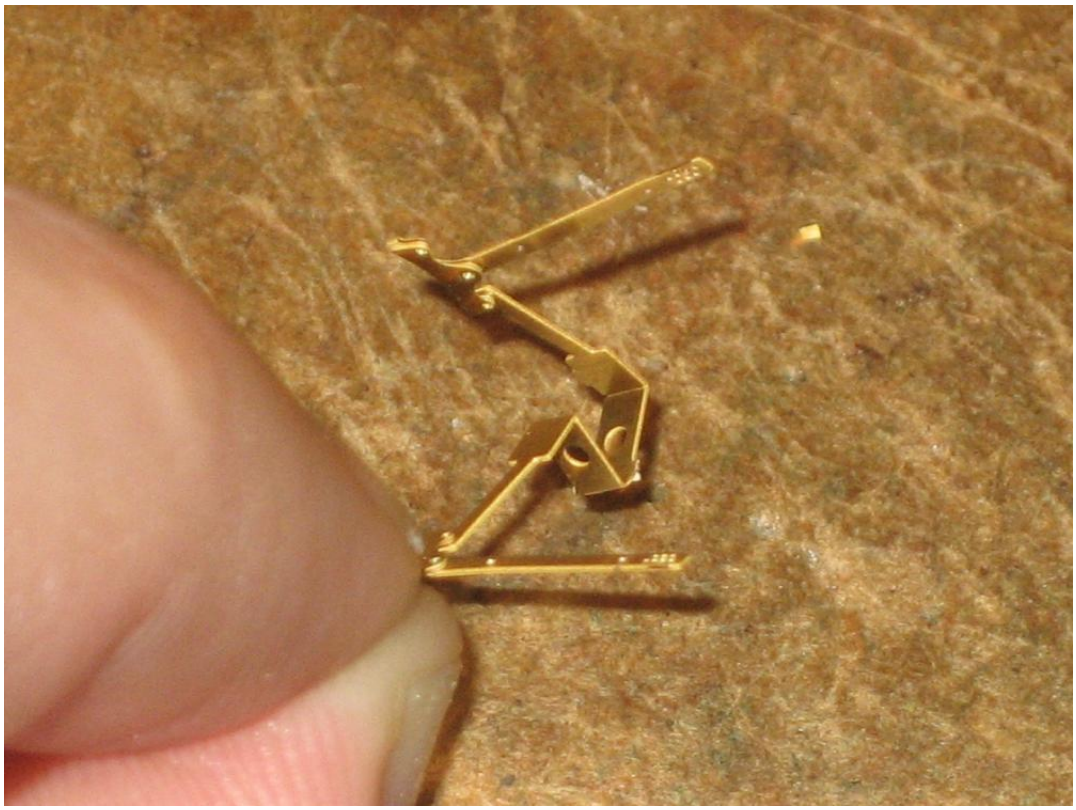
If you wish press out the half etched rivets at the top of the hanger bracket. I use a drop head rivet press for this with the parts held on one of those ubiquitous green cutting mats. Remove from the fret and fold the brakes up. This will distort the push rod so you will need to straighten it afterwards. 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 or 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.

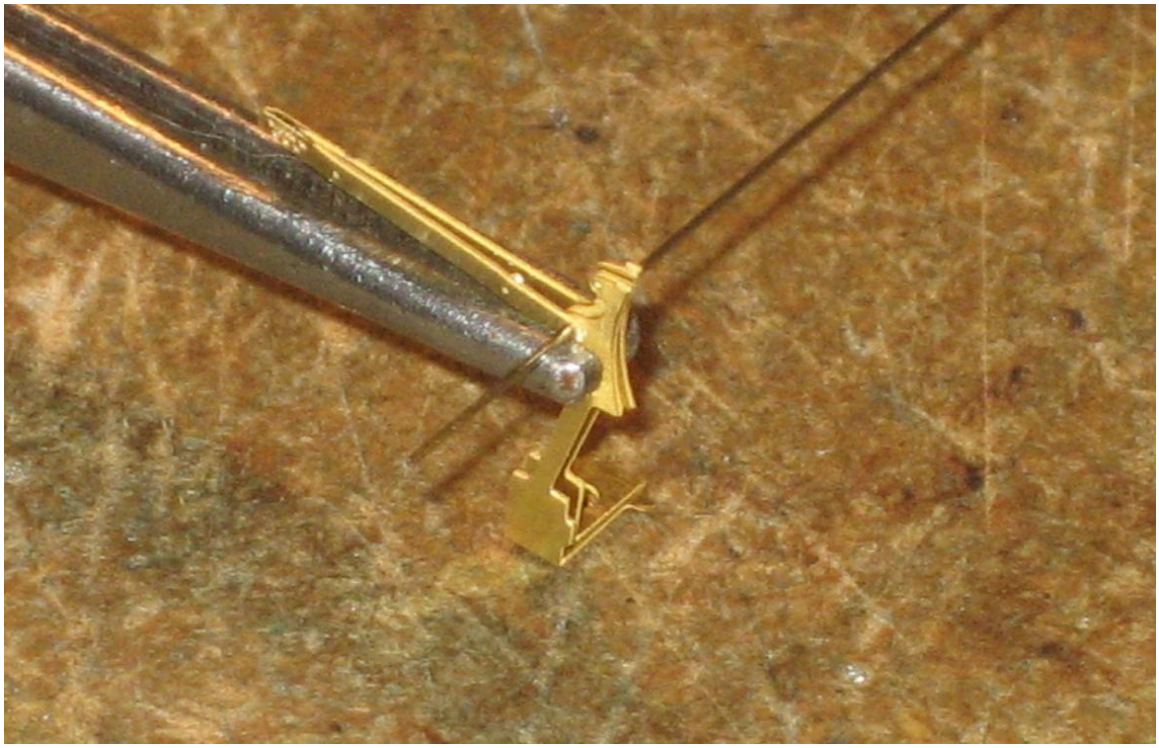
This brake shoe assembly then need to be folded up. There are three fold lines in the centre of the assembly. These need to be folded through 90° except for the centre one (the line between the holes) which needs to be folded through 180° with the fold line on the outside. A length of 0.31mm wire can 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.









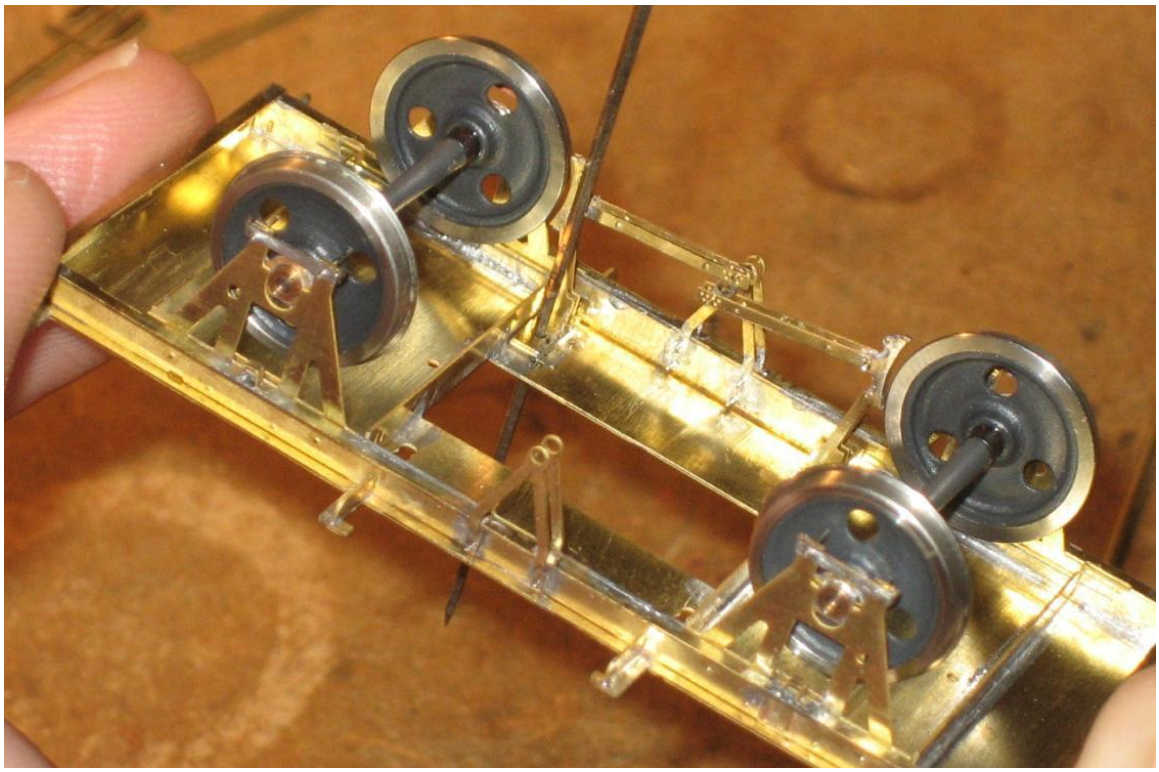
The push rod cranks (9) need to be tackled next. There are two sorts of push rod cranks. One set have half etched areas to match the profile of the prototype and the other are solid. You will need two cranks for each set of brakegear.

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.

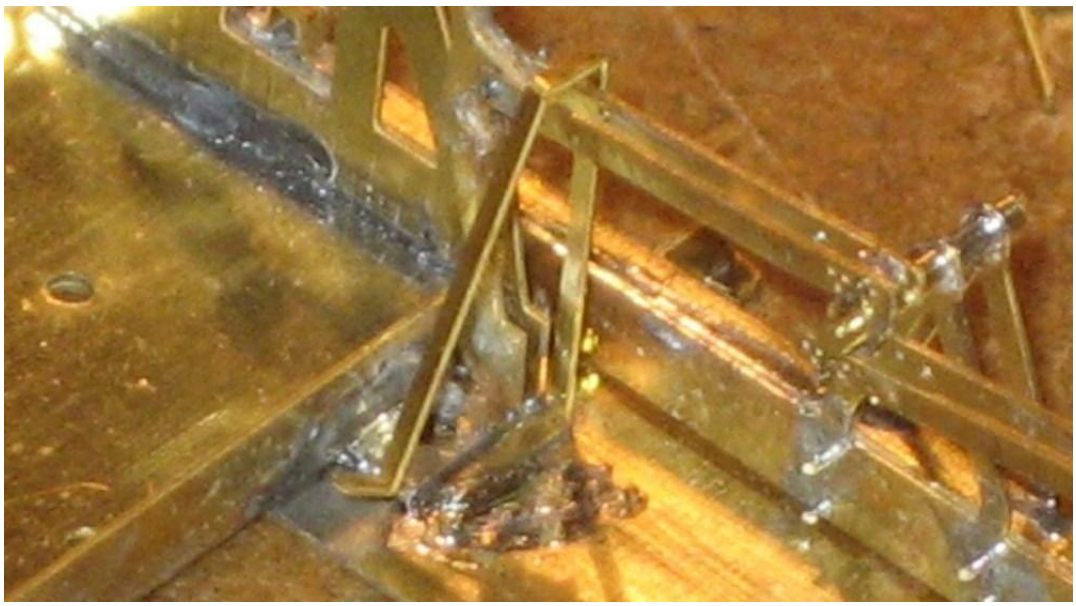
Make sure that for Morton 4 shoe brake examples that the brake shoes go on the correct sides. For Morton 2 shoe chassis the brakegear goes on the same side as the Morton cam. If in doubt refer to prototype pictures or Fig. 3a.

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.



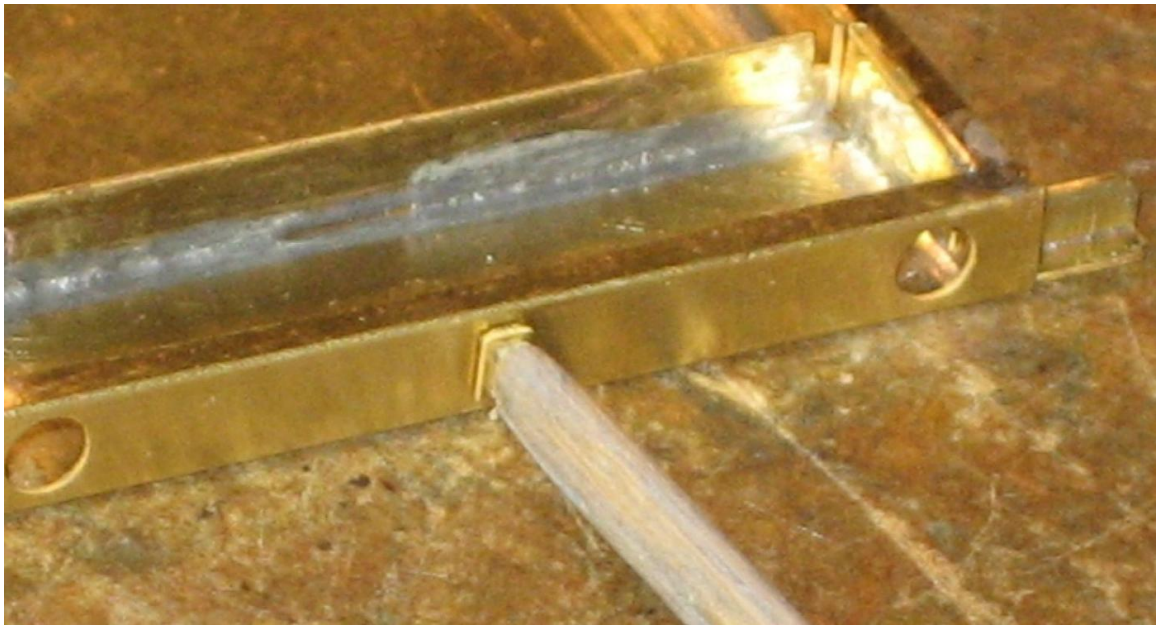
Safety Loops

The safety loops (10) 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.



Headstock detailing

Now is a good time to fit the coupling pocket detail (17). There are up to two types depending on the chassis, 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



Brake Lever Guards

Make sure that the holes in the brake lever guard/bracket (25) and the lever guard stays (26) 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. Solder the lever guard and bracket together using 0.31mm wire to help 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.

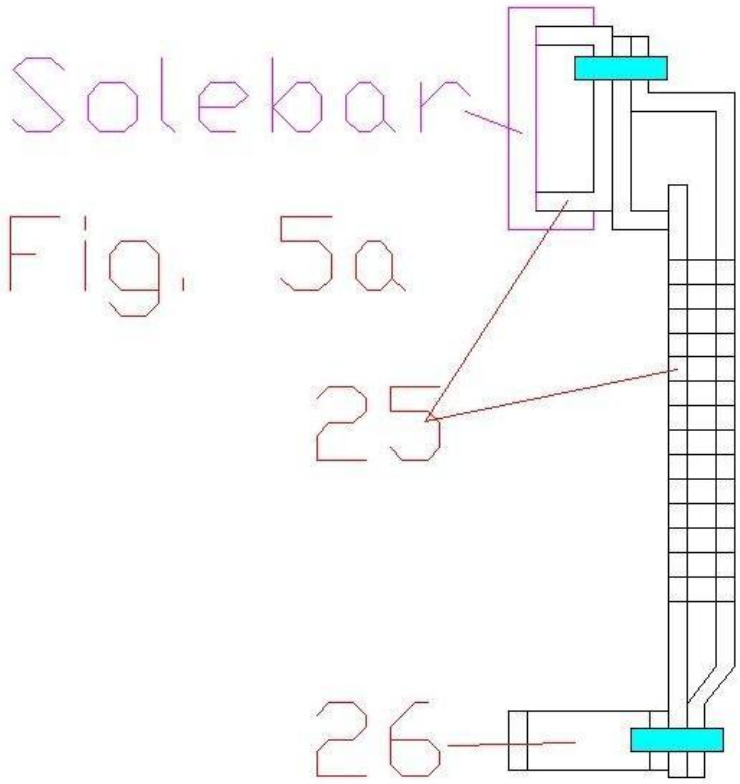
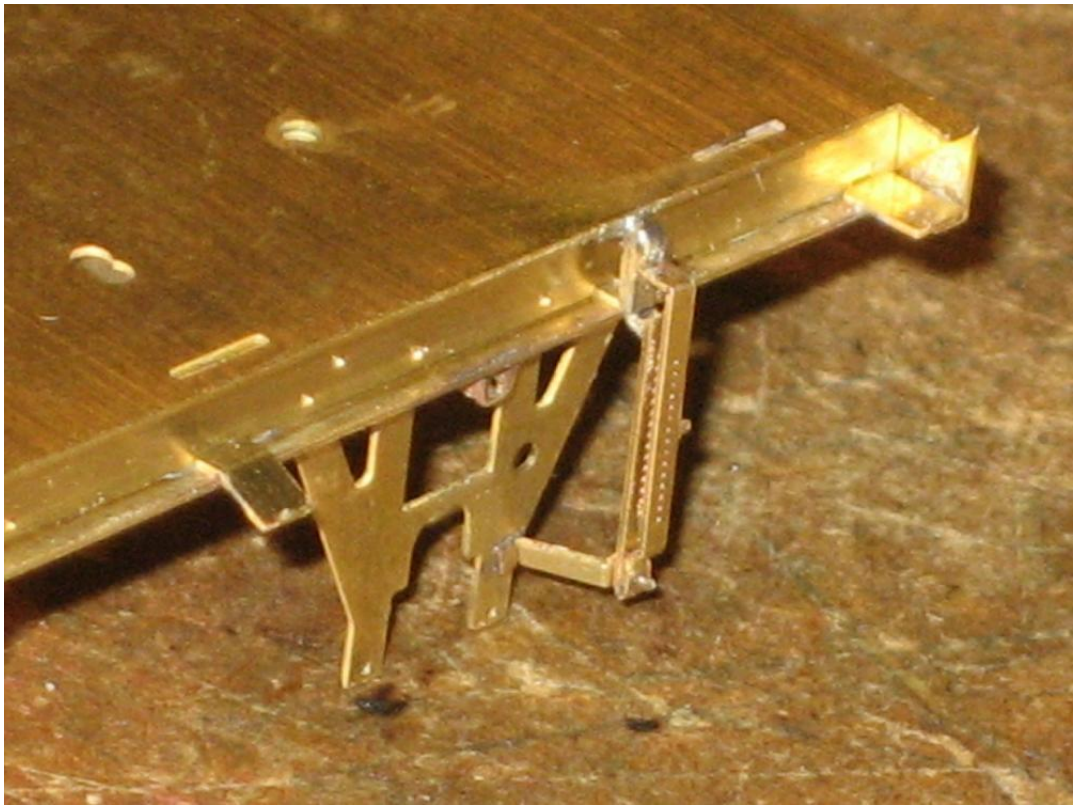


Fig. 5a



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 should be removed for the 16T types.

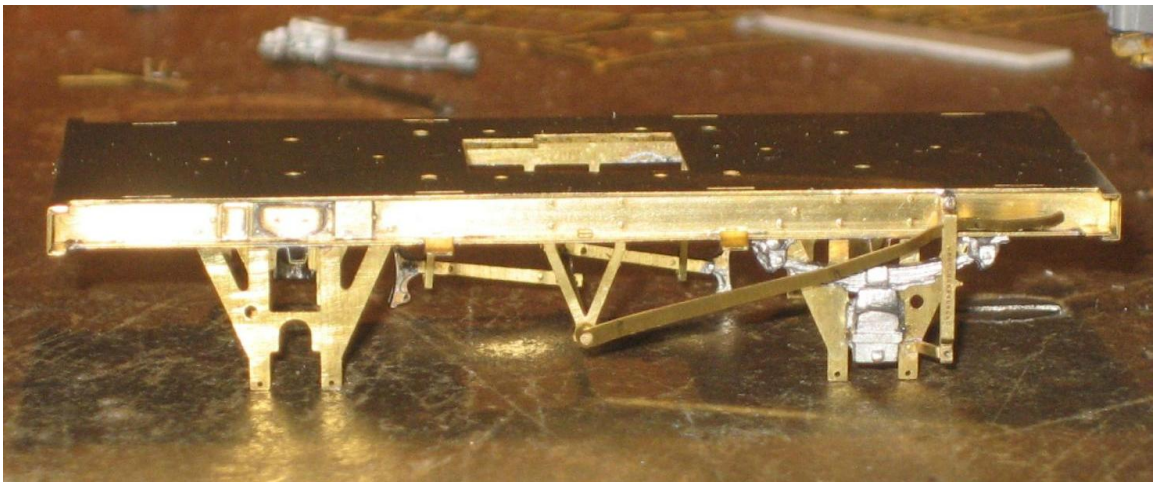
Morton brake levers

Cut a length of 0.8mm wire to form the brake shaft and solder in place. Note that if you are making a fitted 16T mineral using B.14 then you will need to fold up and fit the vacuum cylinder actuators as you do this.

Check that the vacuum cylinder actuators (29) 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 cylinders are in place. Note that there are two vacuum cylinders on these wagons. Solder the brake shaft in place and trim the ends if necessary. The vacuum cylinders can be added now or later and then the two halves of the vacuum cylinder actuator soldered together and to the brake shaft.

Make sure the holes in the brake levers and cams (20) 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.



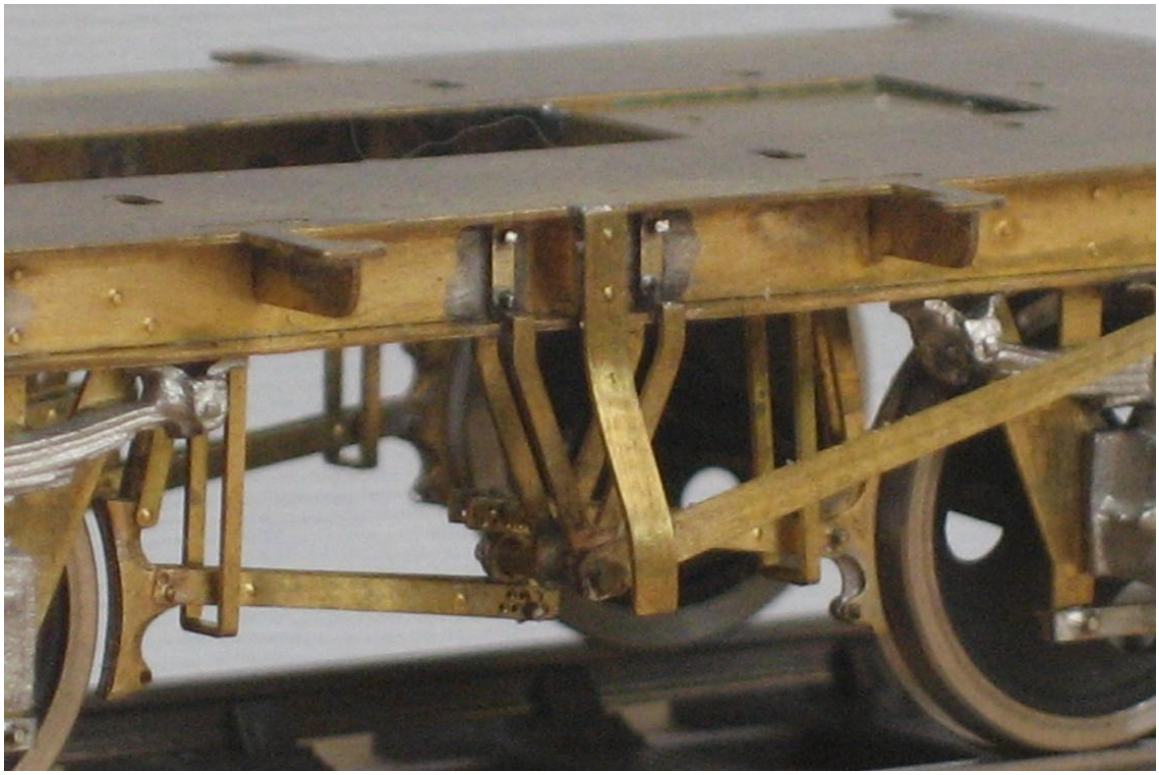
Independent brake levers

Cut two short lengths of 0.8mm wire to act as the brake shafts. These should extend approximately 0.5mm from the front vee and then be long enough to pass through the crank in the brakegear. Solder in place to the vees. I haven't found it necessary to solder them to the cranks.

Make sure the holes in the brake levers (20) can accept 0.8mm wire. 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.

Door Springs

Door spring (27) are located into slots in the solebar and solebar overlays. 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 at the top.



Wagon body top corner plates for riveted wagons.

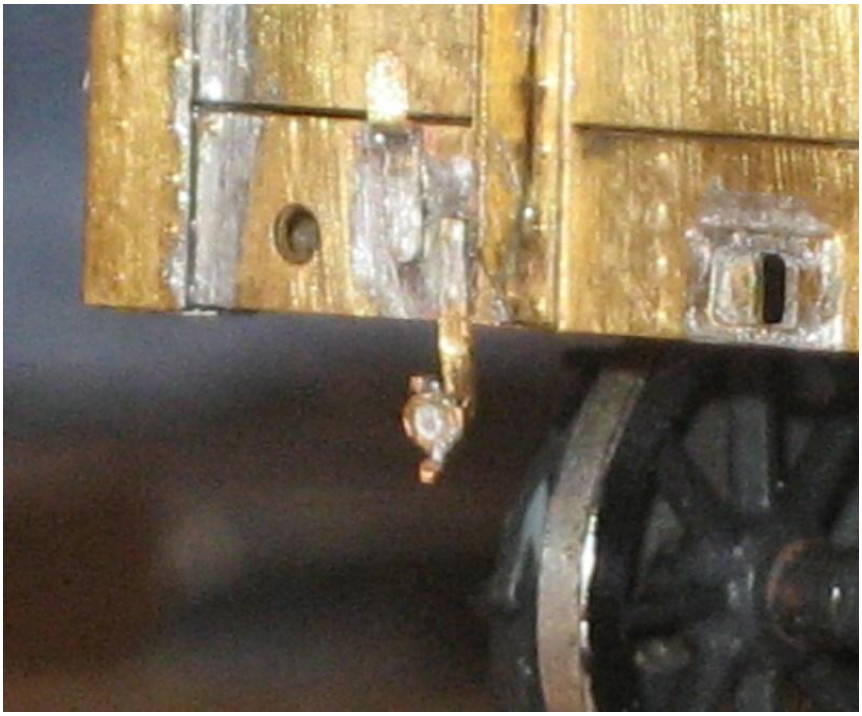
I have included riveted wagon body top corner plates (28) for use with riveted bodies if necessary. They fit in the top four corners of the body. Most welded body types had similar welded corner plates. I haven't done any of these as making them from 0.005" plastic sheet will produce a better stronger result. You can attach them to the finished body using superglue or epoxy resin.

A note on orientating wagon bodies

For the welded body/Morton brake minerals there is a correct way around for the body. It should be arranged so that the door is to the left on the Morton cam side. The exceptions to this rule were those wagons that were re-bodied in the 1970s where there was no discernable pattern so check your prototype. Figs. 2, 3a and 3b have details. For the 16T riveted body types the door should go at the end where there is a side support bracket as noted earlier.

BR swan neck vacuum pipe brackets for B.14

There are two pairs of BR swan neck vacuum pipe brackets (31) included with B.14. 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.



Lamp Irons for B.14

Lamp Irons (30) are also included with B.14 for fitting to the wagon body. There are half etched holes that need to either be pressed out or drilled out depending on whether you want to pin them to the body or not. If you want to pin them you can use 0.31mm wire for this. They can then be folded up and the fold lines reinforced with solder. If fitting to the headstock they can be 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. 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 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. I never find there is enough room for the amount of lead necessary to get up to this figure on the shorter wagon types. To overcome this problem I make a new floor and recess it from the bottom so that there is room for a piece of lead flashing to go between the new floor and the underframe. This does reduce the depth of the wagon but it isn't too noticeable on most types and saves trying to work around the brakegear. The longer 21/24½T types shouldn't present a problem as there is enough room.

Finally

Thanks must go to the staff of The Buckinghamshire Railway Centre at Quainton; The GWS at Didcot; Rocks by Rails at Cottesmore 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 2015

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

MJT (axleboxes and spring castings)
Dart Castings
17 Hurst Close
Staplehurst
Tonbridge
Kent
TN12 0BX
www.dartcastings.co.uk

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

ABS (vacuum cylinders)
39 Napier Road
Hamworthy
Poole
Dorset
BH15 4JX