Rumney Models – S Scale 16T Mineral Wagon Chassis Instructions
SB.13 & SB.16

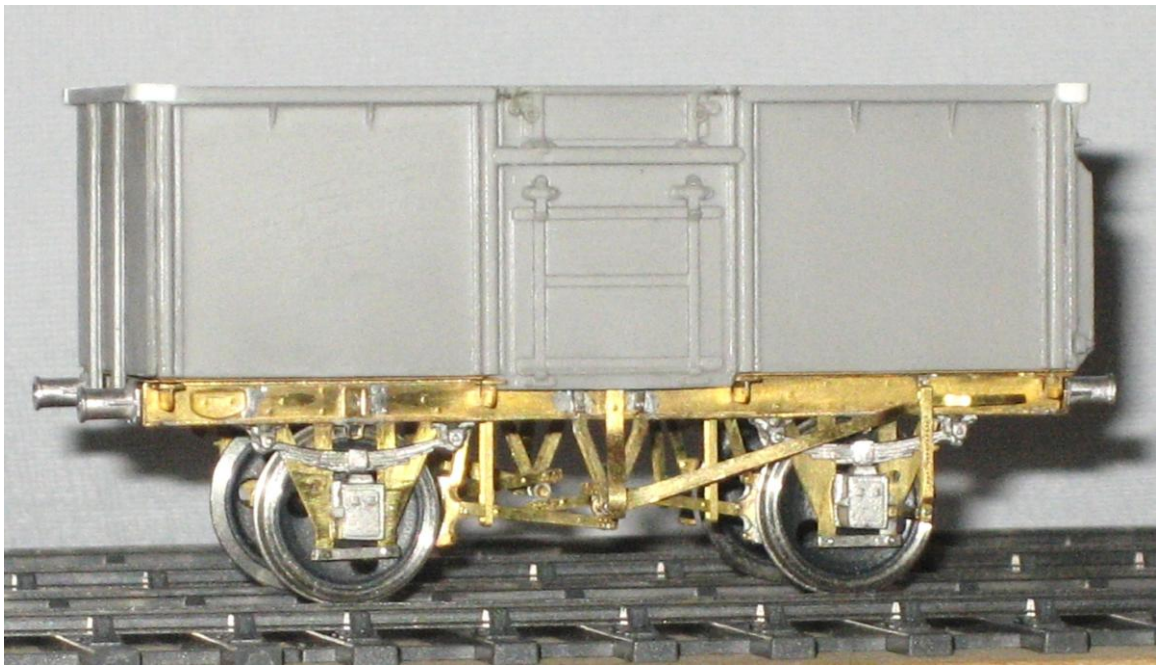
Notes

These instructions cover the following chassis kits:

SB.13 BR 16T Morton welded
SB.16 BR 16T Independent welded

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 to fit the Alan Gibson cast whitemetal bodies available via the S Scale society.

Note that all the photos are of my 4mm wagons. Construction is the same for both scales.



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. 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
SB.13	BR	Morton	Welded	1/108, *1/111*, *1/117*
SB.16	BR	Independent	Welded	*1/102 (BR W-Iron)*, 1/104, *1/106*, *1/114*

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". 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.

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

Welded and Riveted Chassis

Kit SB.16 comes 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.

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 steel guitar wire soldered to the etched spring/bearing carriers. For this you will need a suitable flux. I use Carr's Black label.

There are two types of spring carriers included to try and cover various different possible weights. In 4mm wagon bodies are generally plastic so we use 0.008" wire and an individual axle loading of 25g as getting any more weight in is a real pain. As S Scale bodies are often whitemetal heavier weights need to be taken into account. The following table should tell you which spring wire and spring carrier to use:

Total wagon mass	Spring carrier	Guitar wire gauge
50-60g	11A	0.008"
90-100g	11B	0.009"
130-140g	11B	0.010"

The chassis is designed to produce a buffer centre height, when the kit is completed and weighted/sprung as above of 16.42mm when using scale wheels. Different makes of wheel may affect the ride height depending on their diameter.

The chassis is designed to use 2mm outside diameter bearings (i.e. standard 4mm scale wagon bearings), either pin point or parallel.

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
0.9mm - Main brake cross shaft and Morton clutch brake levers
1.0mm - Alignment pins

If you feel that 0.31mm wire is a bit light then you can drill out the holes and use 0.4mm wire instead. In truth I was undecided as to which size to use as the prototype bolts they generally represent fall somewhere in between. It is obviously easier though to make holes bigger if desired.

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

Component List

Note: Not all parts are on both chassis kits.

1 - Chassis top plate
2 - W-Iron assembly
3 - Solebars
4 - Solebar overlays (welded chassis – both kits)
4r - Solebar overlays (riveted chassis – SB.16)

5 - Additional vees (independent brakes – SB.16)
6 - Side support brackets

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

11A - Spring Carriers (see notes above)
11B - Spring Carriers (see notes above)
12 - Bearing washers
13 - Axle keeps

14 - Solebar detailing

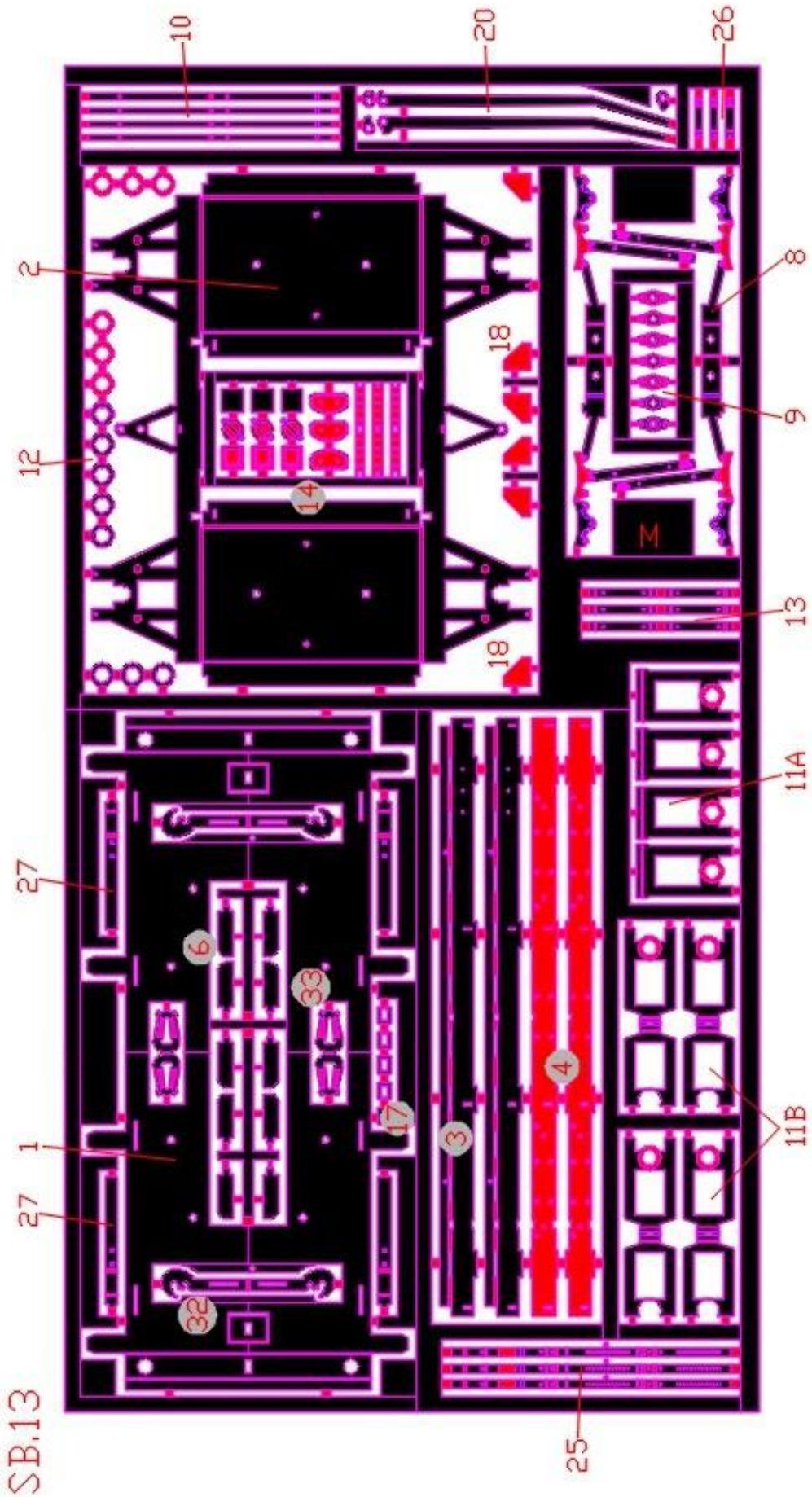
17 - Coupling pocket detail (welded chassis – both kits)
17r - Coupling pocket detail (riveted chassis – SB.16)
18 - Solebar/Headstock corner plates (welded chassis – both kits)
18r - Solebar/Headstock corner plates (riveted chassis – SB.16)

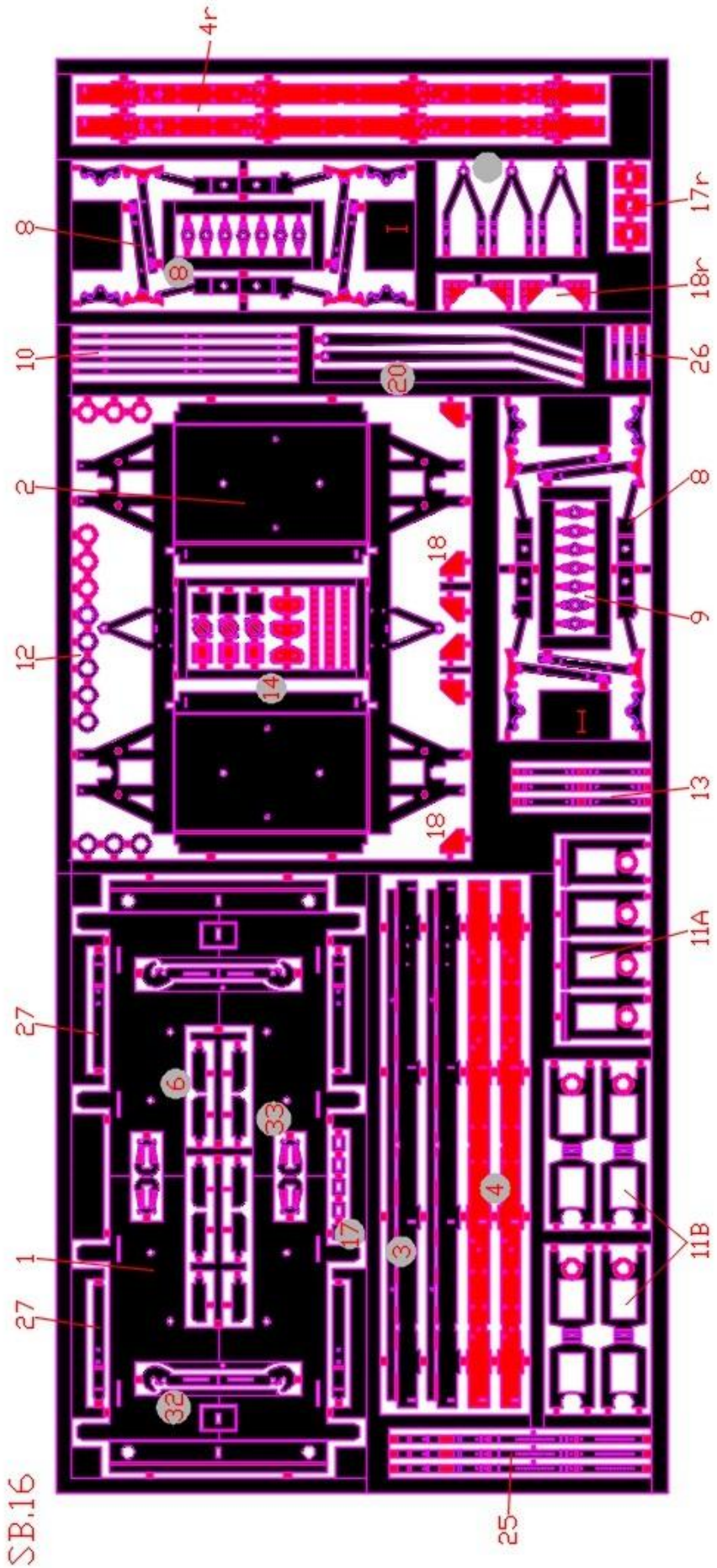
20 - Brake levers

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

27 - Door springs

32 - Coupling hooks
33 - Instanter links


SB.13
10
20
26
2
8
18
9
12
14
M
13
18
11A
27
6
33
4
1
17
3
27
11B
32
25


4r
8
8
17r
18r
10
20
26
2
18
8
9
12
14
18
13
11A
27
6
33
4
17
3
11B
1
27
32
25
SB.16

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.

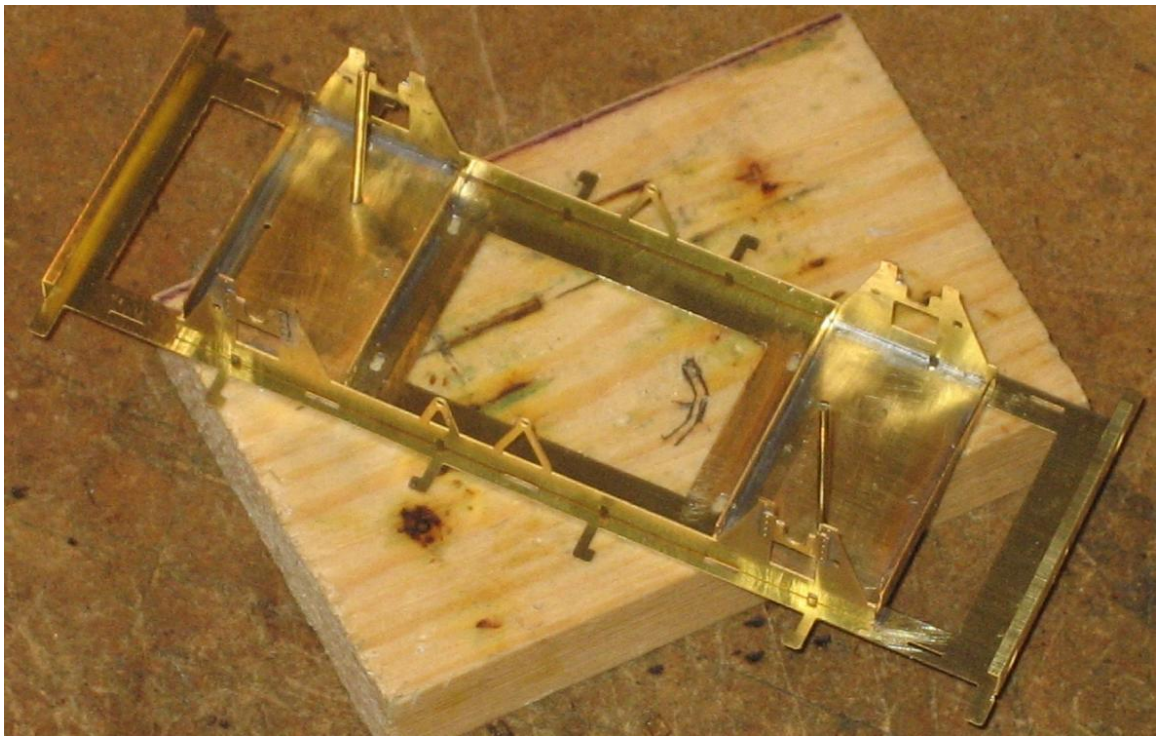
Start with the chassis top plate (1). Push out the half etched rivets on the headstocks if you are modelling a wagon with a riveted chassis. I find the easiest way to do this is with a drop head rivet press with the fret placed over one of those ubiquitous green cutting mats. Remove from the fret.

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 0.9mm wire. If necessary drill out the holes on the backs of the W-Irons as per your prototype (they did vary) using a 1mm 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 or 4r) of your choice, if there is a choice, from the fret. See notes on page 2.

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).

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.

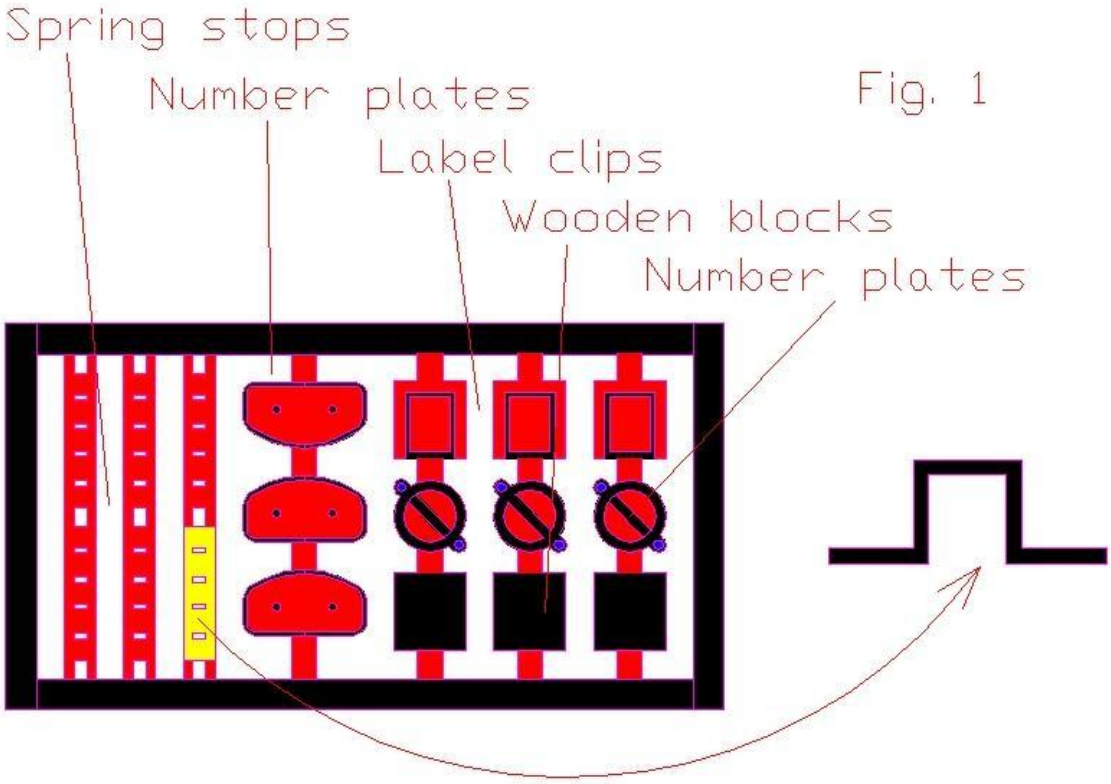
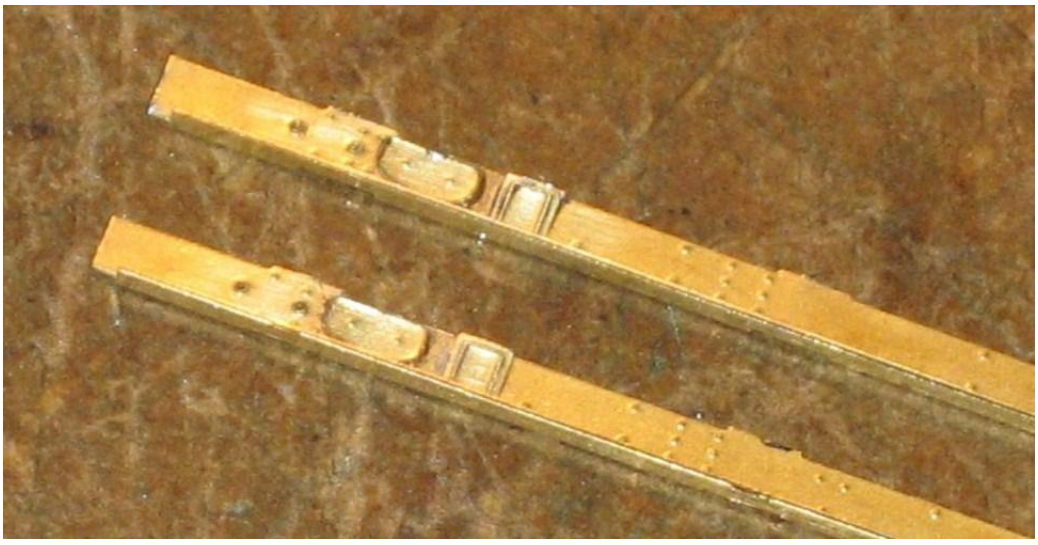
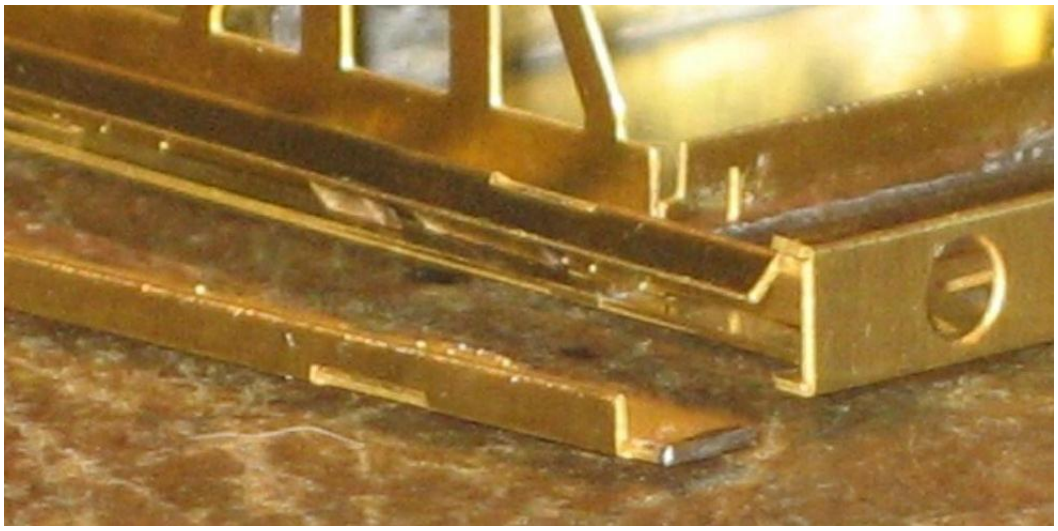


Fig. 1



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.

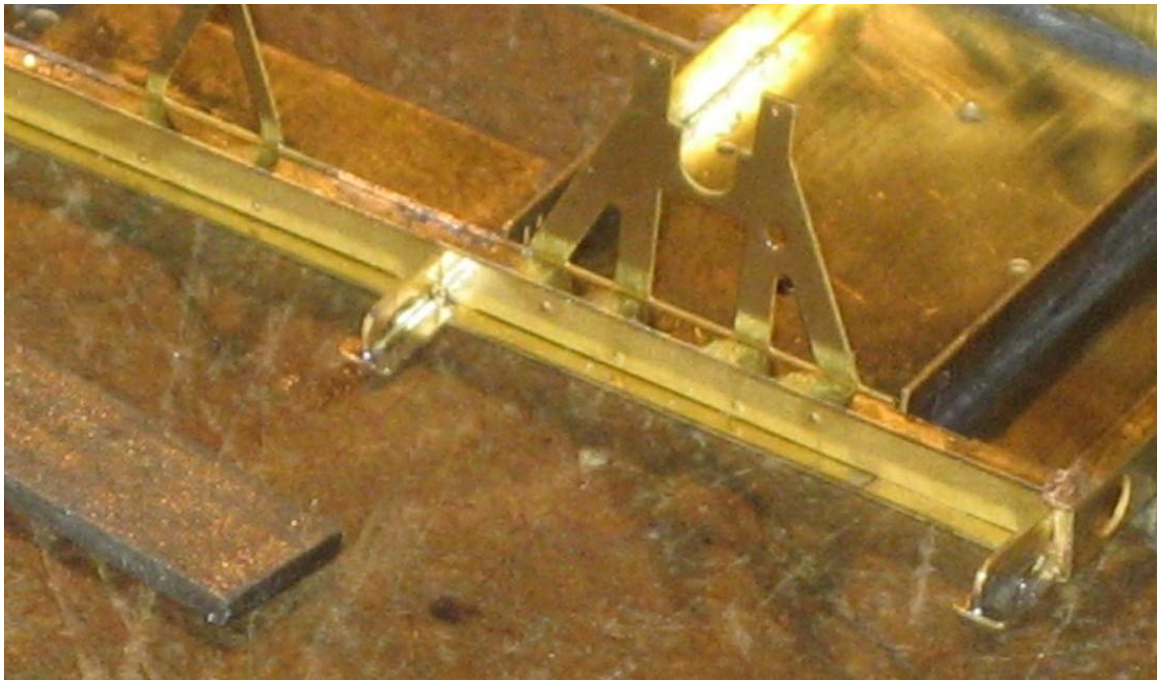


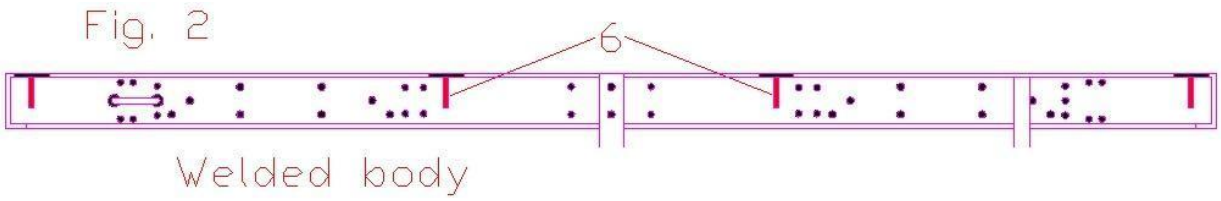
Additional vees for independent brakes

Those wagons fitted with independent brakes (SB.16) 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 0.9mm 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

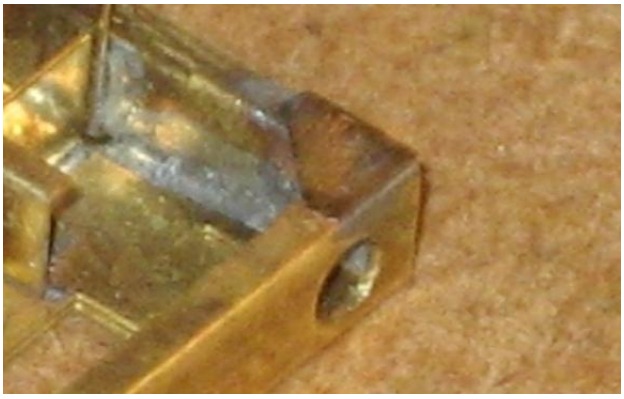
Remove the connecting tags from the side support brackets (6). The real things were formed of T section and this has been replicated by etching the top part of the T on the chassis top plate. The side support brackets can be located in the slots through the solebars and solebar detailing. They can be 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.





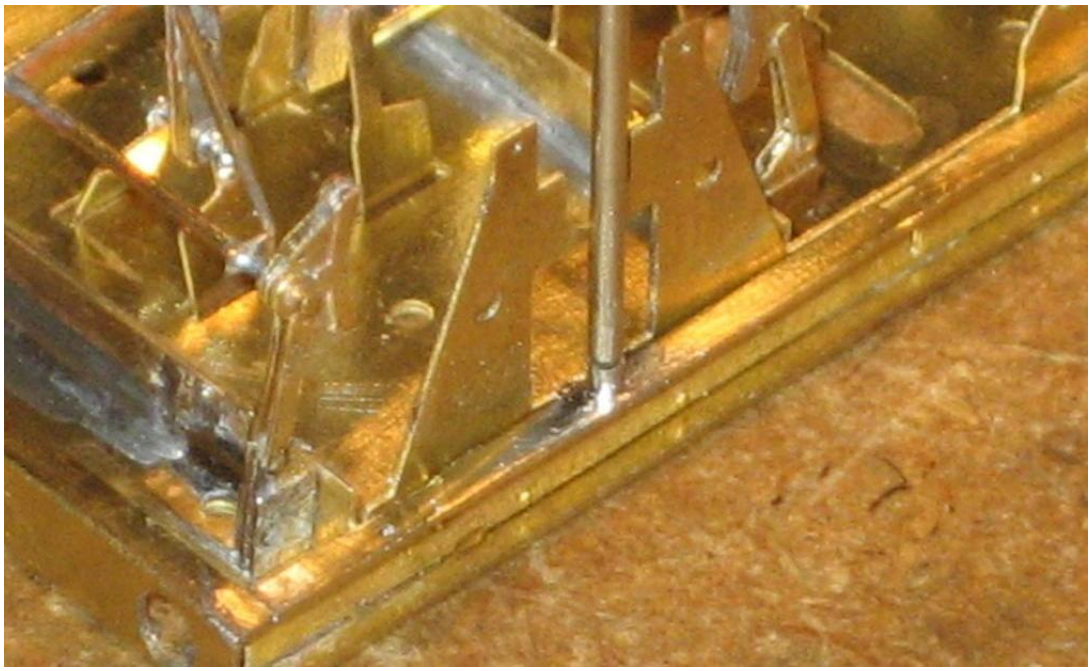
Corner Plates

The corner plates (18 or 18r) can also be added now. These go on the bottom of the corners of the chassis. 18 are for welded chassis and 18r are for riveted chassis.



Spring Stops

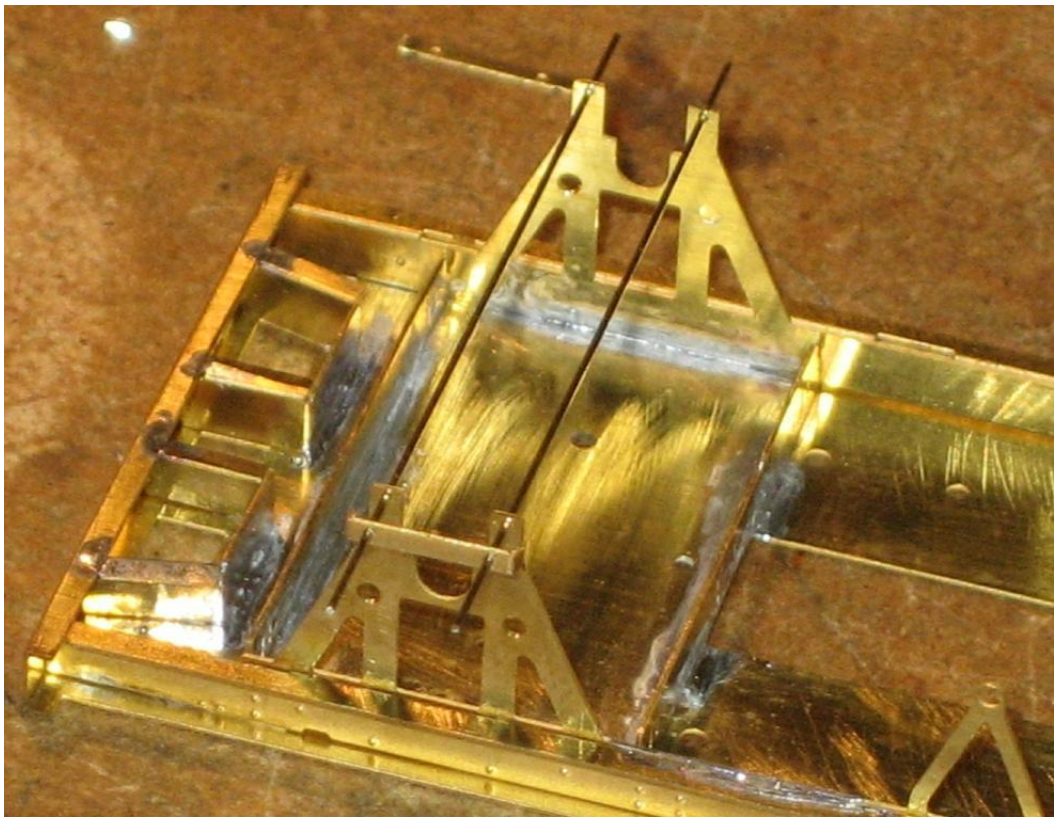
There are 6 fabricated spring stops on the solebar detailing fret (see Fig. 1) which can be folded up and then soldered in place. I find a small pair of self closing tweezers good for this. Some wagons had round pattern spring stops. I have used 1mm wire for these. I cut almost all the way through the wire with a piercing saw and then solder in place. The cut can then be completed without the soldered joint breaking.



Axle keeps

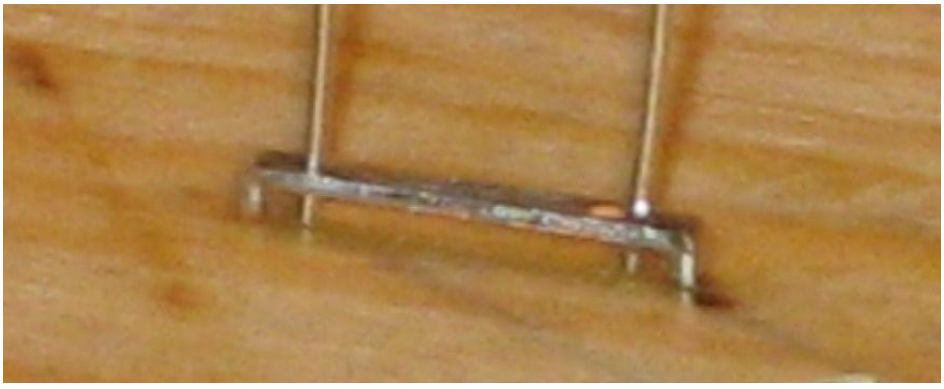
The axle keeps (13) are designed to be removable if you wish in order to allow the wheel sets to be easily dropped out. They can be soldered permanently in place but either way you will need to make sure the holes will accept 0.31mm wire before removing them from the fret.

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.



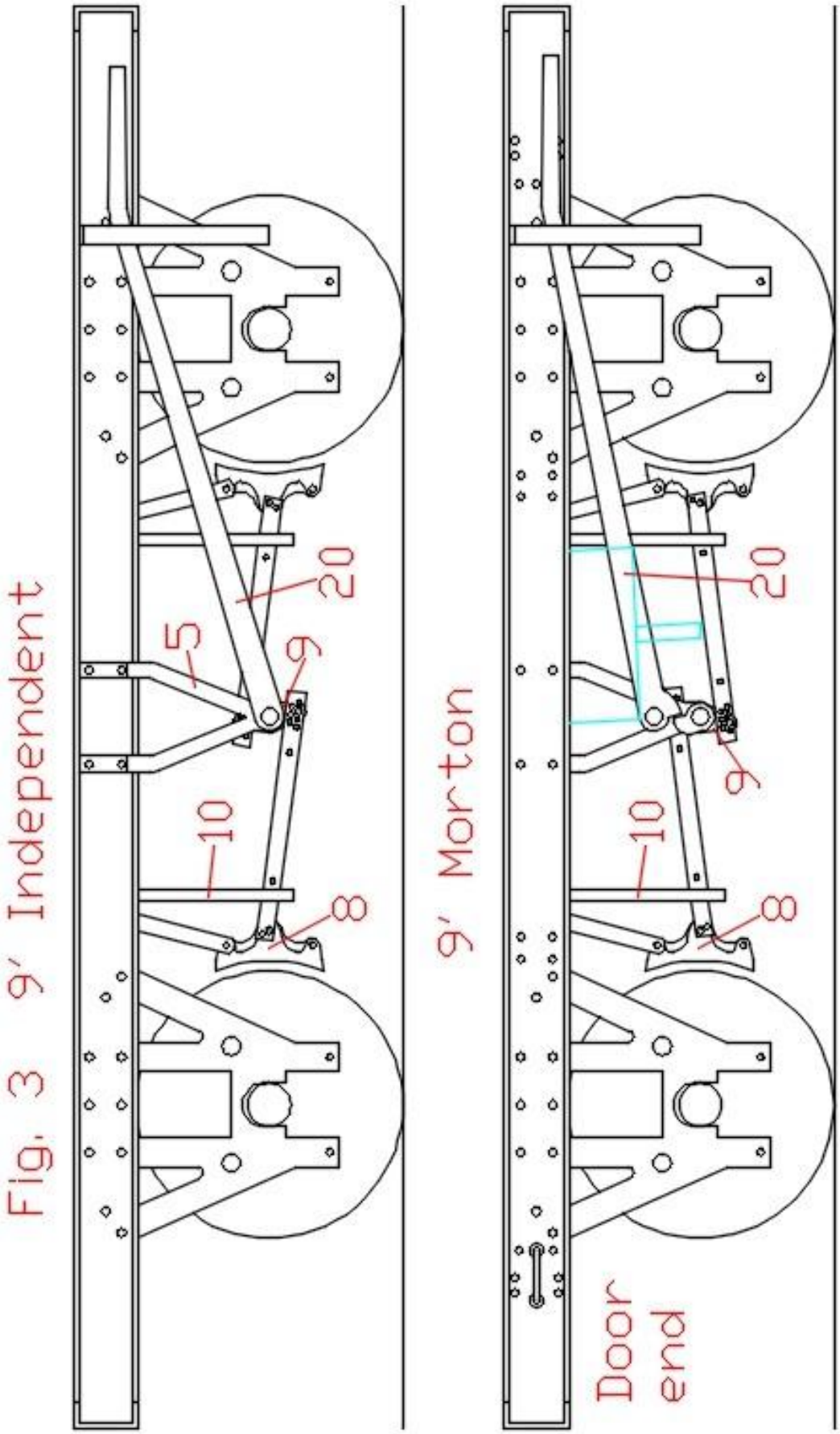


Fig. 3 9' Independent
20
5
9
10
8
9' Morton
20
9
10
8
Door
end

Brake shoes and brakegear

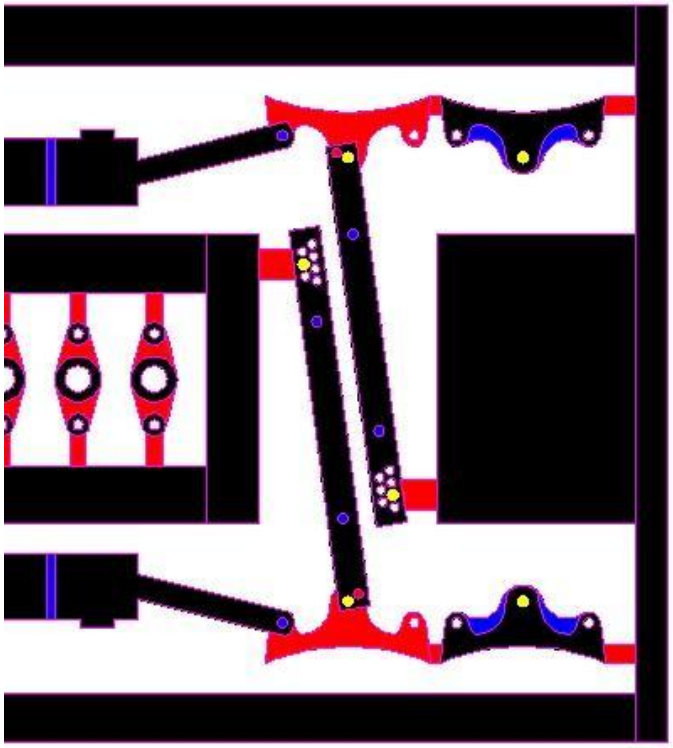
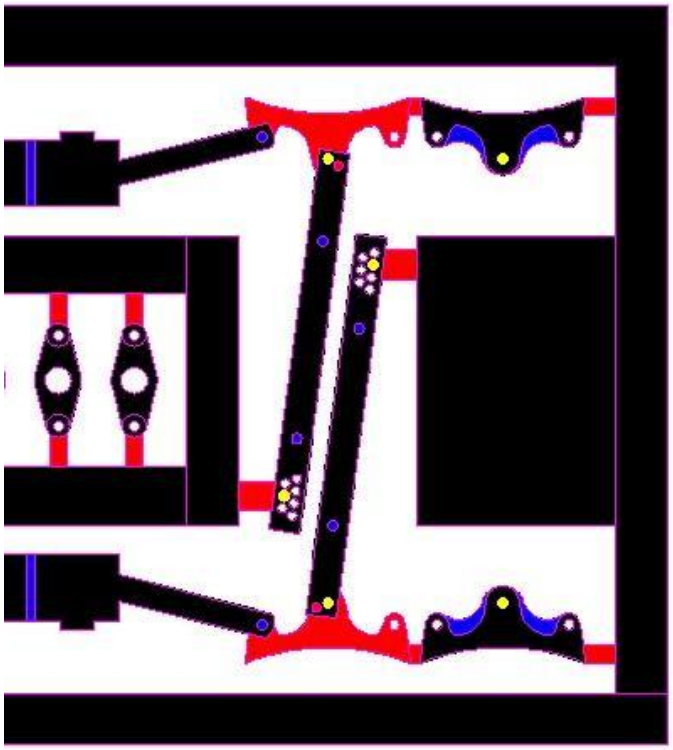


Fig. 4



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.

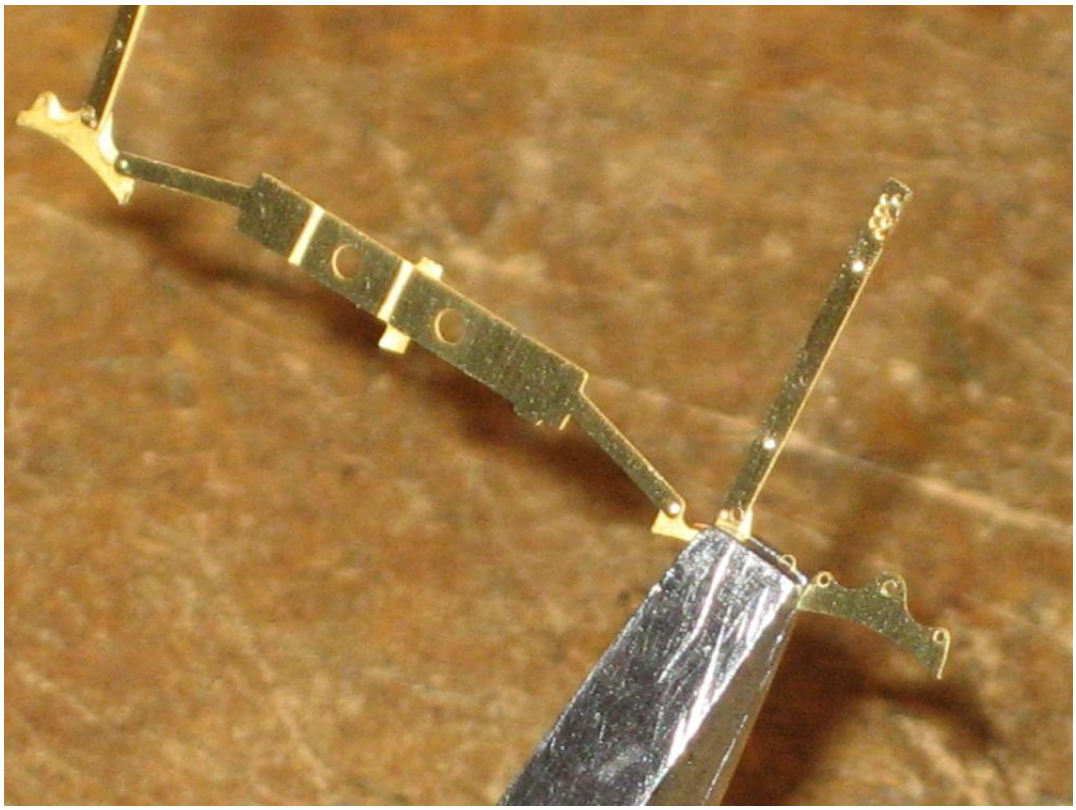
You need to make sure the appropriate holes in the brake shoes can accept 0.31mm wire as this will be used to align/pin everything. Refer to Fig. 4. The holes that need to be able to accept the wire are marked in yellow. I have shown one side of the Morton cam set and non- Morton cam or independent set.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

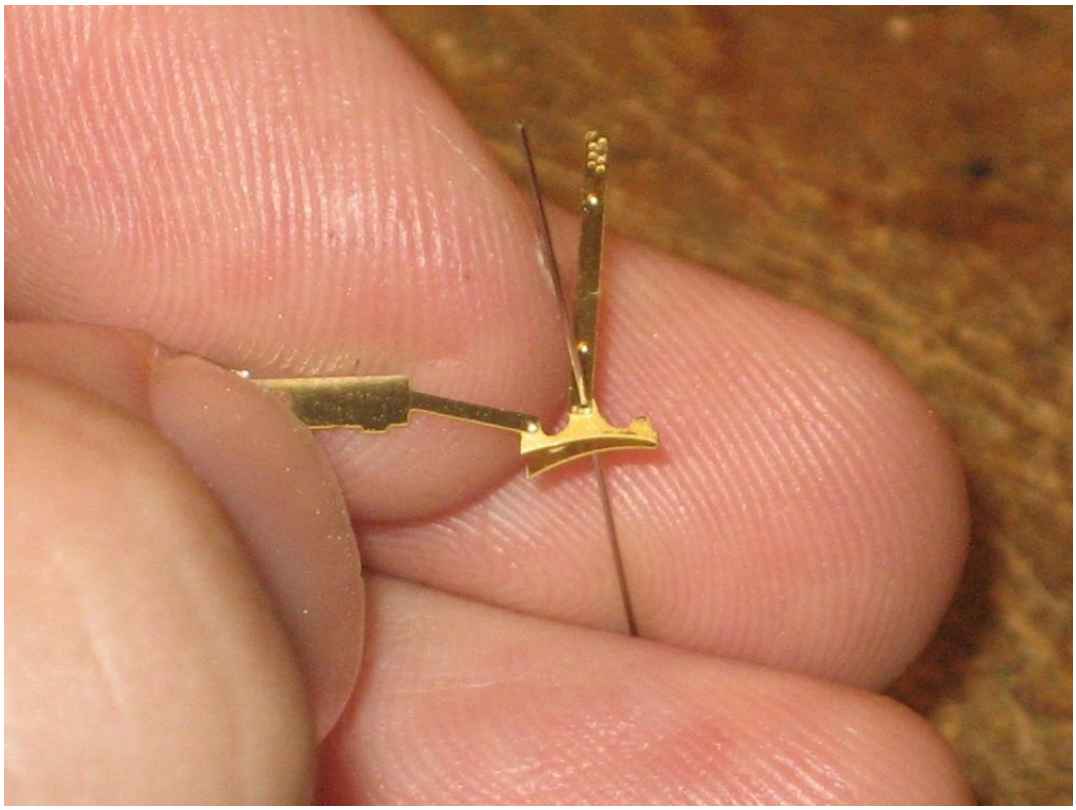
It is best to do one set at a time leaving the other set on the fret. This will avoid mixing parts up when dealing with brakes where the two sides are different. Those sets intended for the Morton cam side of wagons fitted with this type of brake gear or the RCH lifting link brakegear fitted to the heavier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

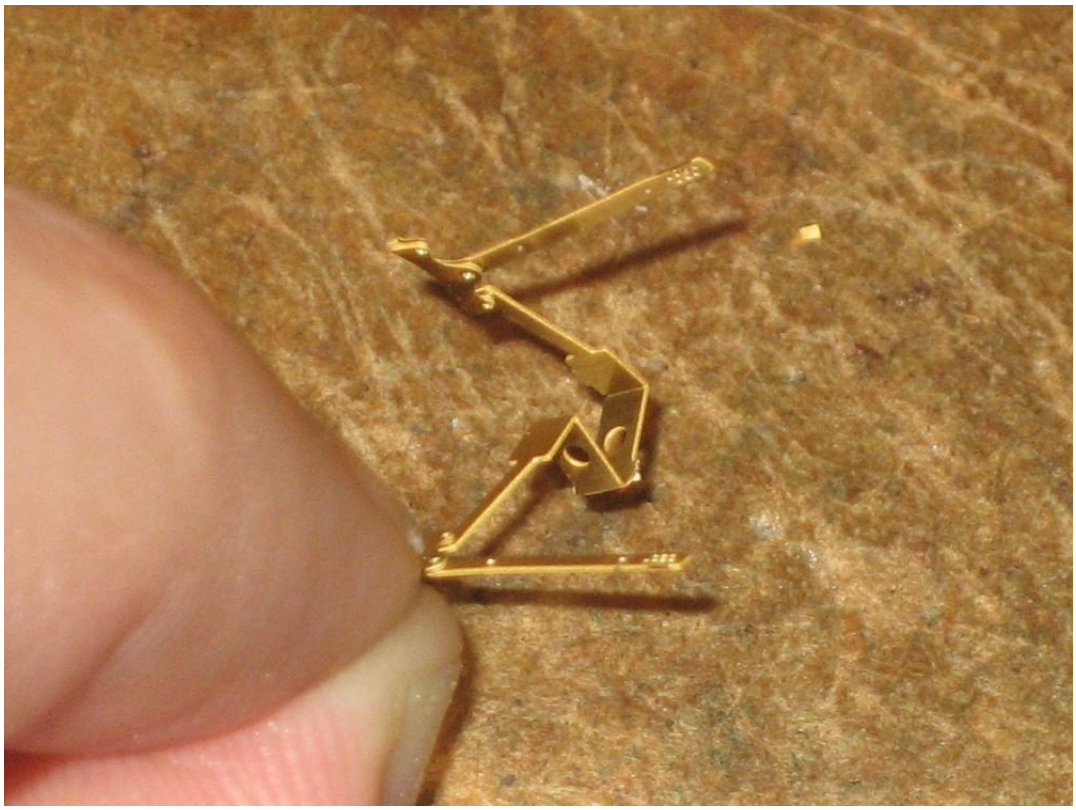
If you wish press out the half etched rivets at the top of the hanger bracket. I use a drop head rivet press for this with the parts held on one of those ubiquitous green cutting mats. Remove from the fret and fold the brakes up. This will distort the push rod so you will need to straighten it afterwards.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

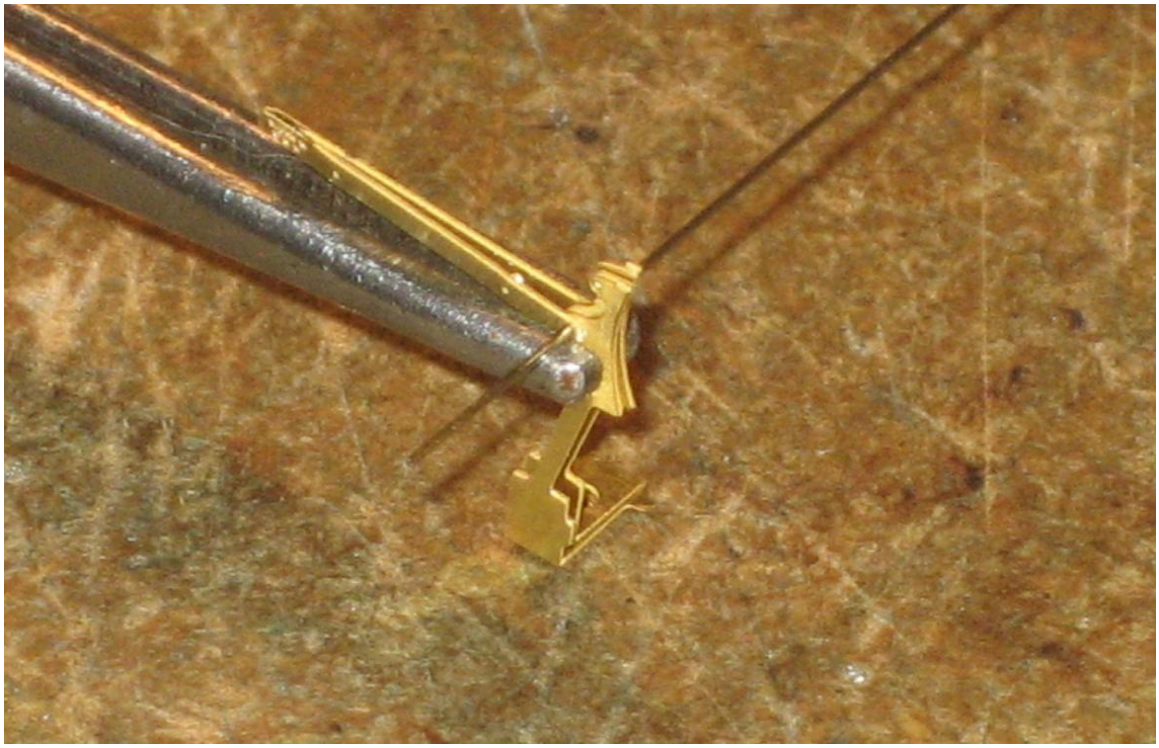
This brake shoe assembly then need to be folded up. There are three fold lines in the centre of the assembly. These need to be folded through 90° except for the centre one (the line between the holes) which needs to be folded through 180° with the fold line on the outside. A length of 0.31mm wire can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







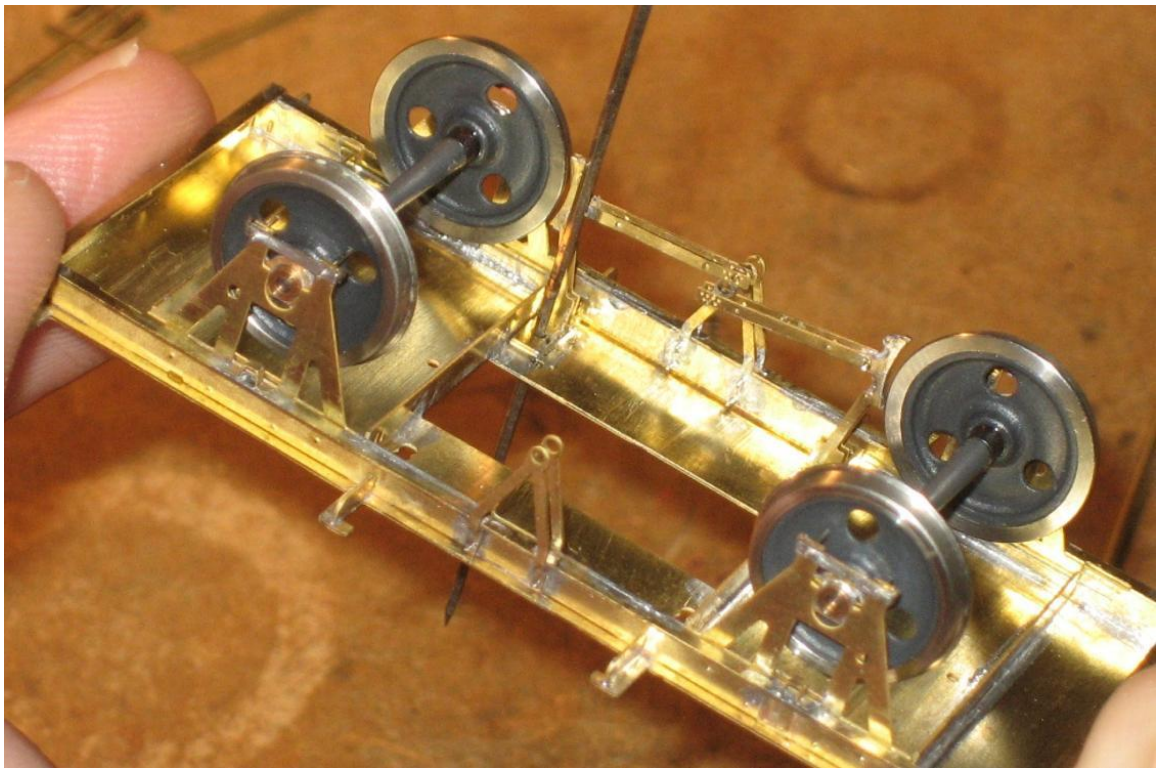


The push rod cranks (9) need to be tackled next. There are two sorts of push rod cranks. One set have half etched areas to match the profile of the prototype and the other are solid. You will need two cranks for each set of brakegear.

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.

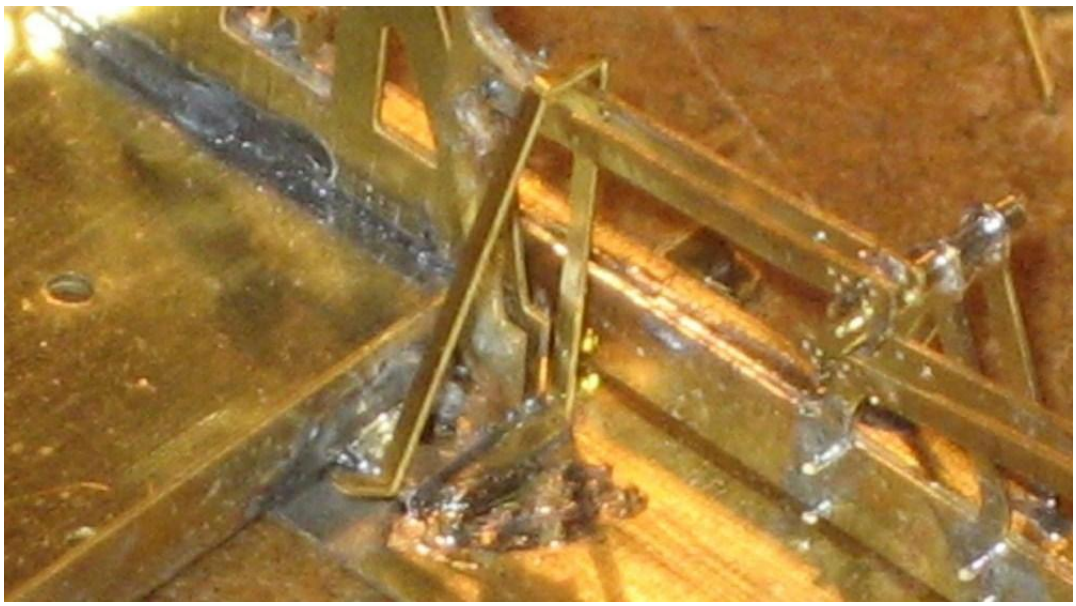
Once complete trim the wire so that it extends approximately 1mm either side of the crank. The crank can then be fitted to the push rods by gently prising the push rods apart and locating the wire into the holes. Once both sets of brake shoes have been added to the crank the wire pins can be trimmed back and then this whole assembly can be fitted to the wagon.

There are tabs on the brake shoes that locate into slots in the W-Iron assembly (2). Once in place they can be soldered to the chassis top plate. 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.



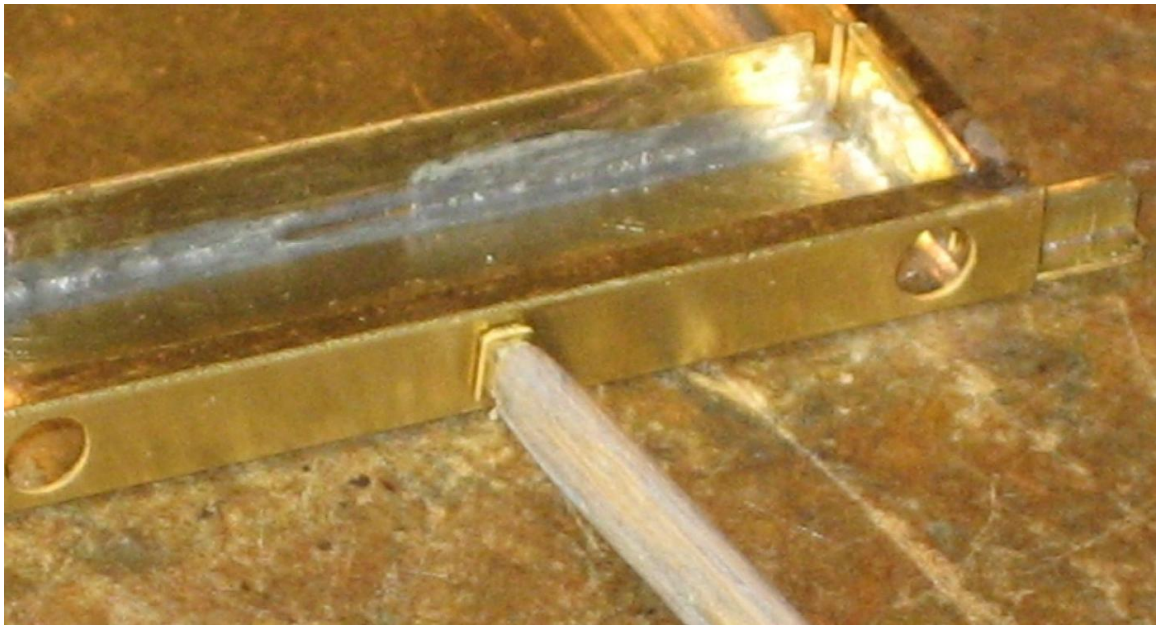
Safety Loops

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 or 17r). 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. 5. 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.

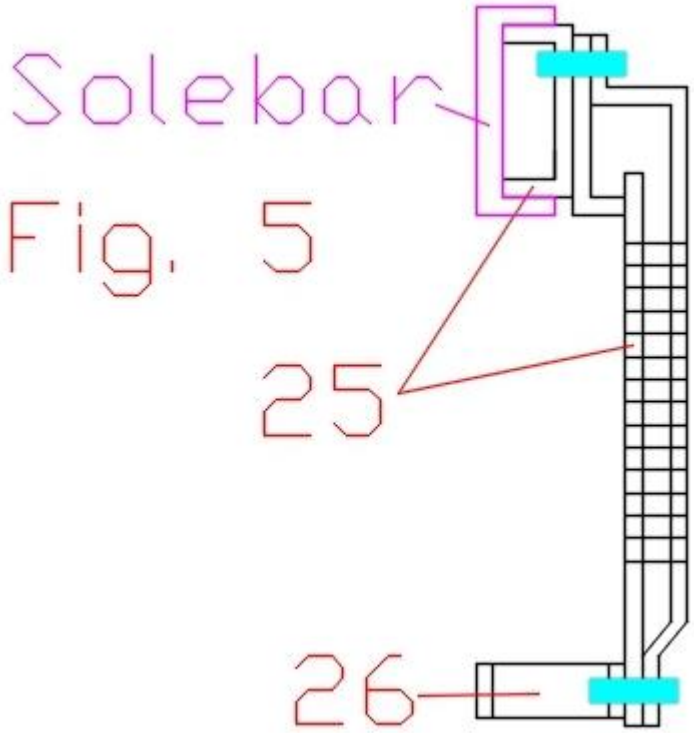
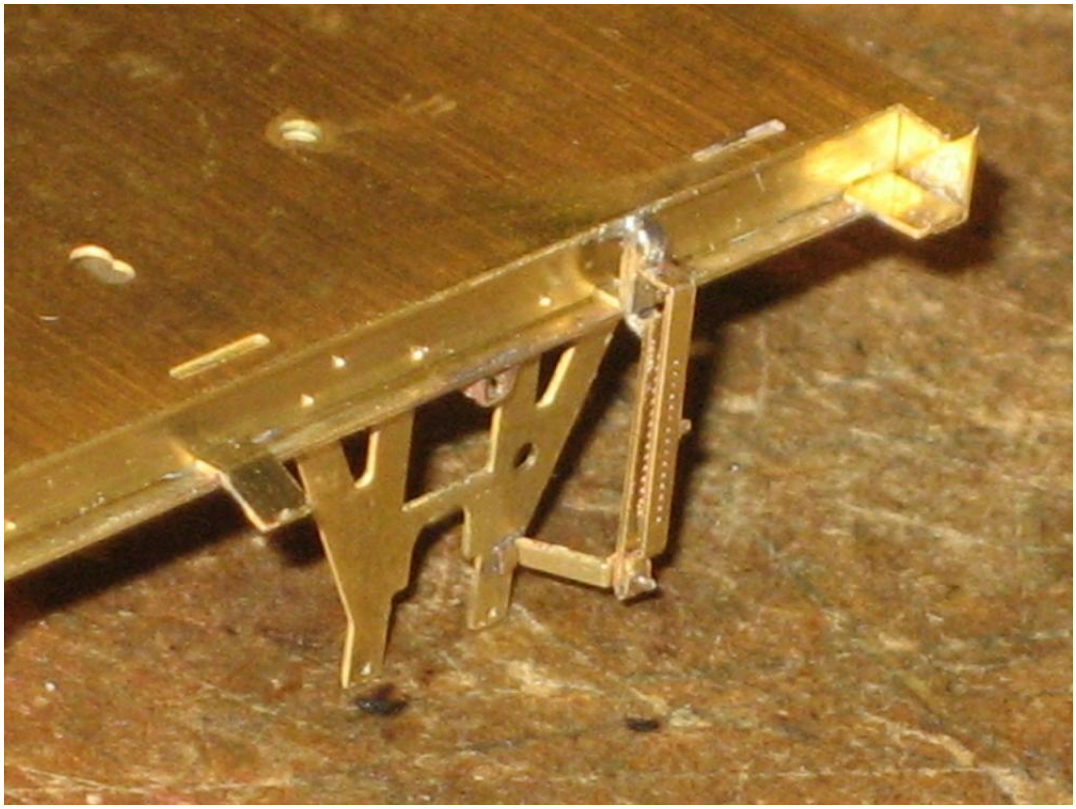


Fig. 5



Axleboxes and springs

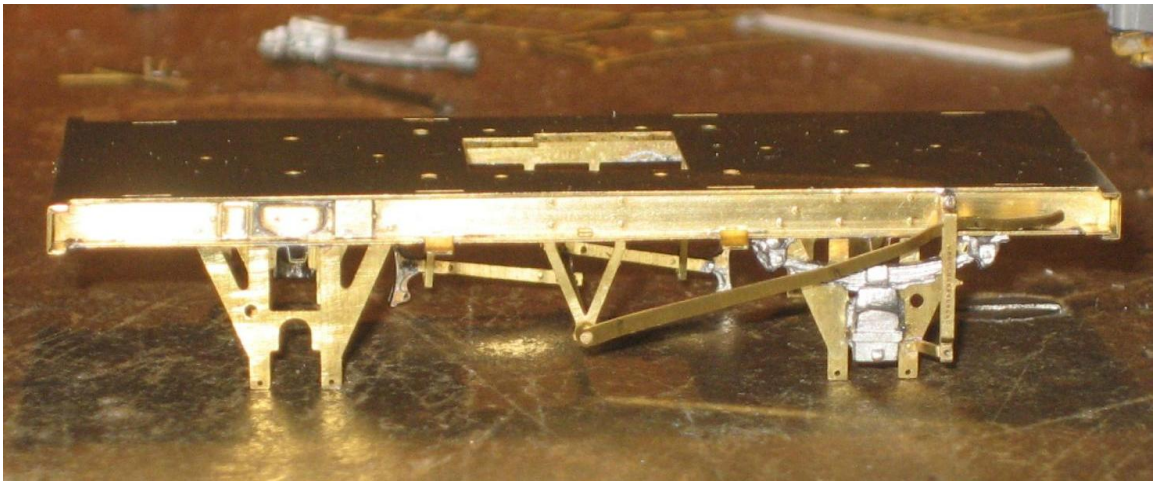
Now is a good time to fit the cast axle boxes and springs. It will make life easier when bending up the brake levers as they should be bent, like the prototype, to clear the axleboxes and springs. The back of the axleboxes will of course need slotting to allow the wheel bearings to move with the springs 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 0.9mm wire to form the brake shaft and solder in place.

Make sure the holes in the brake levers and cams (20) can accept 0.9mm 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 0.9mm 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.



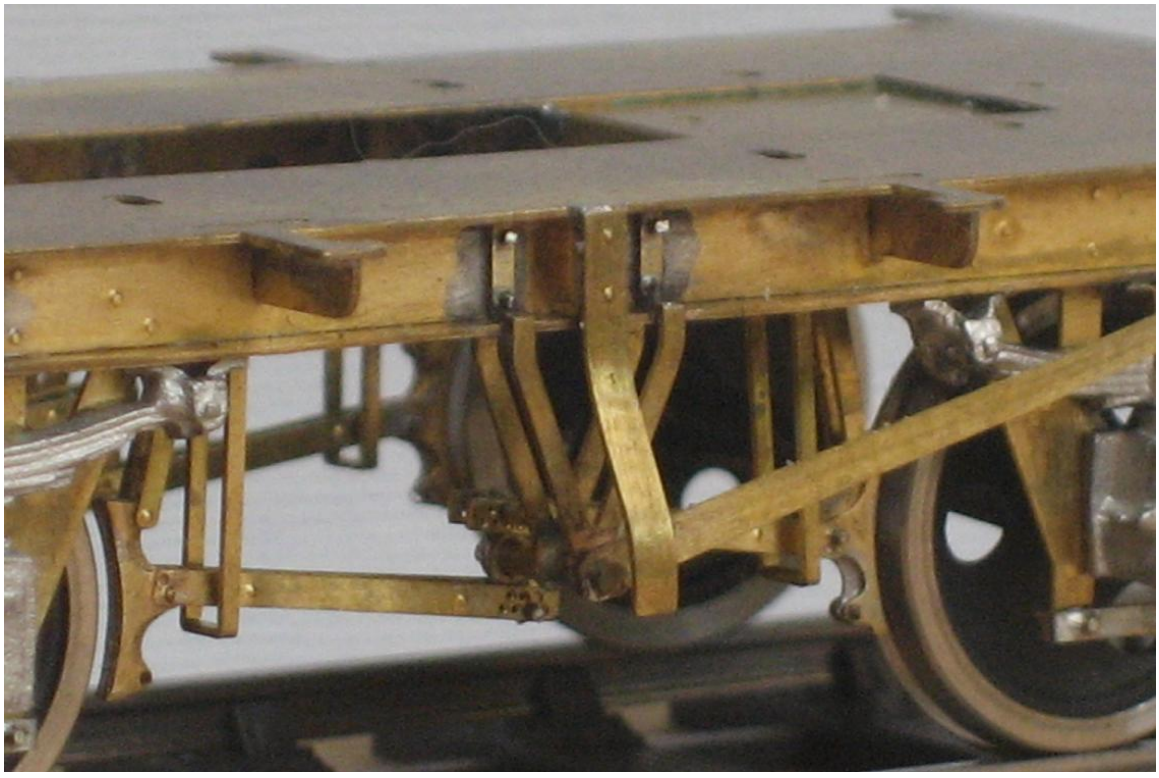
Independent brake levers

Cut two short lengths of 0.9mm 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 0.9mm 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.



Coupling hooks and Instanter links

I've included etched coupling hooks and instanter links on the chassis. They are both designed to fold double and then be soldered together. You may wish to round off the edges of the coupling hook as they were cast in real life and don't look very flat. There are guides for the coupling hooks located towards the ends of the chassis top plate. I included these to make sure that the coupling hook stays straight when fitted. Simply fold down if you want to use.

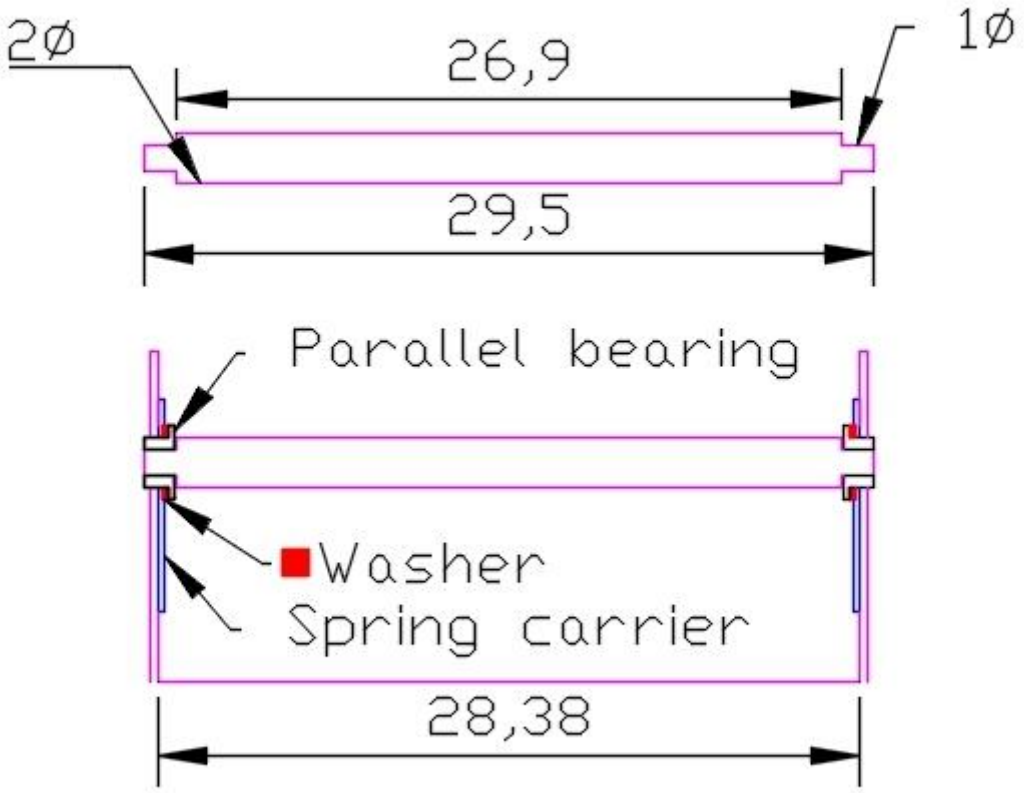
Spring Carriers

I have left this section until last as the total weight of the wagon will need to be assessed to choose the correct setup for the spring carriers. See the technical notes at the beginning of these instructions.

The spring carriers (11A or 11B) 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 chassis is specifically set up to use Exactoscale 2mm x 1mm parallel bearings with 29.5mm long axles. This is longest practical length when turning down pin point axles. The ends of the axles should be reduced to 1mm diameter and extend so that the remaining 2mm diameter section is 26.9mm long.

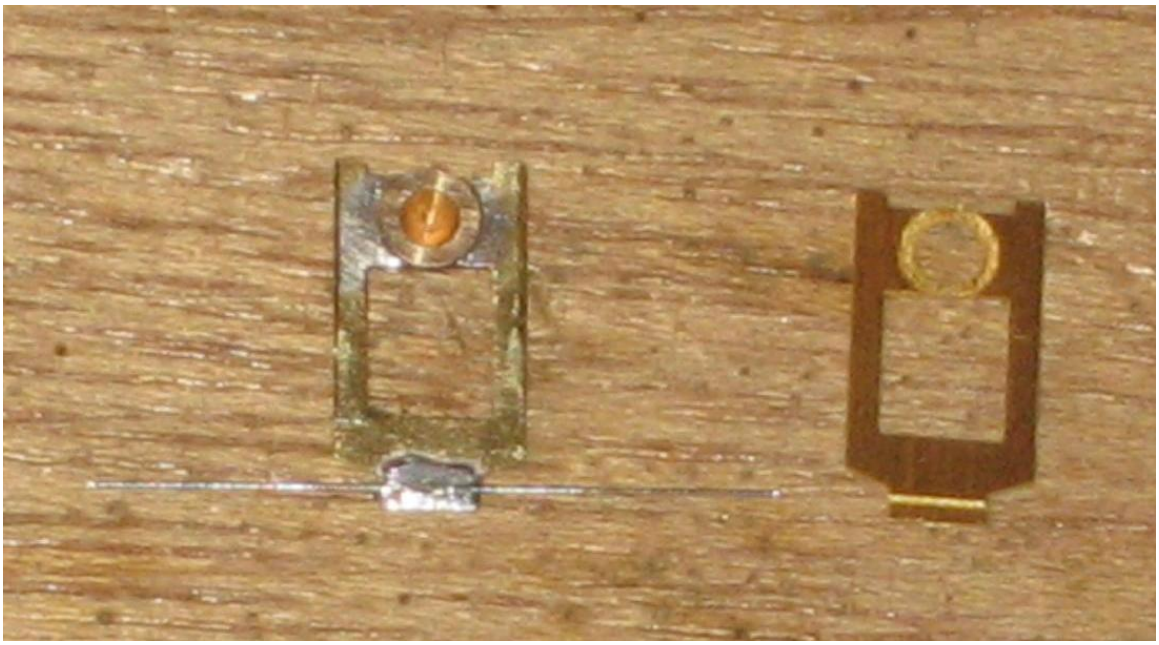
If using parallel axles then 1 full thickness bearing washers (12) should be fitted between the spring carrier and the bearing.



If you wish to use pin point bearings then you may need to take out any lateral movement in the axle. 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 from the cast axleboxes than is necessary. I have used Exactoscale waisted pin point bearings which are just about perfect for the job with only occasional ones that require packing out.

Spring carriers 11B will need folding double and soldering together. Because of the heavier weights that they are designed to take I felt it would be beneficial to make them a bit heftier.

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 10mm either side of the point where it is attached to the carrier.



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 and 3 have details.

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 headstocks from the ends of the Gibson kits. 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 the setting laid out at the beginning of these instructions. If you need to add significant weight then it may be a good idea to try to make a false floor 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 interior but it isn't too noticeable on most types and saves trying to work around the brakegear. If you need to add a little more weight then simply add a little lead flashing between the solebars.

Finally

Thanks must go to the staff of The Buckinghamshire Railway Centre at Quainton 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 2016

Suppliers List

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

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