

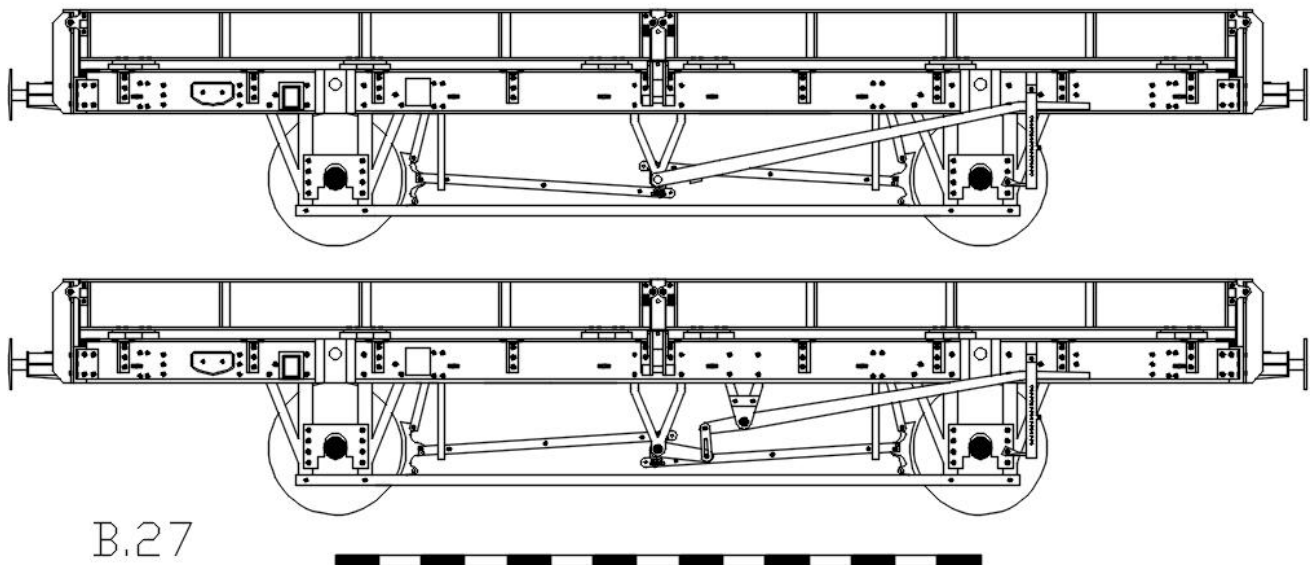
## Rumney Models – BR 20/22T Plate Wagon Chassis Unfitted RCH Lifting Link Brake

This set of instructions covers the Rumney Models chassis kits B.27. This is designed to build into a fully detailed and accurate 4mm unfitted plate wagon chassis to suit either the Parkside Dundas plate body (PC16) or the Rumney Models plate wagon bodies (C.21 or C.22).



### Prototype Information

The 20/22T plate wagons first appeared in the late 1930s when the LNER decided to build a more heavy duty version of their 12T plate wagon. The LMS soon adopted the design and built their own which were very nearly identical to the LNER wagons. Construction continued for 24 years with just minor changes to the methods used to build them and eventually changes to the brakegear.



At first the 20/22T plate wagons were of fully riveted construction. This soon changed to all welded and the final BR built unfitted plate wagons had a combination of welded sides and riveted ends. Initially all were unfitted with the RCH long link 4 shoe brakegear used. The LNER built a batch just before Nationalisation with their vacuum clasp brake but it wasn't until the later half of the 1950s that vacuum braking took full hold. There were almost 6600 plate wagons built by the start of 1955 and all but 250 were unfitted. All had three hinges per door. The last BR batches fitted with vacuum brakes had four.

The following tables give numbering and body construction details for the unfitted plate wagons:

### LMS Wagons

Numbers	Diagram	Lot	Build Dates	Axleguards	Sides	Ends
498625 – 498874	2083	1344	1944	RCH HD	Riveted	Riveted
496000 – 496049	2083	1355	1944	RCH HD	*?	*?
496050 – 496099	2083	1367	1944	RCH HD	Welded	Welded
496100 – 496199	2083	1385	1946	RCH HD	Welded	Welded
M496200 – M496249	2083	1514	1949	RCH HD	Welded	Welded

### LNER Wagons

Numbers	Diagram	Lot	Build Dates	Axleguards	Sides	Ends
211763 – 212762	123		1937/8	RCH HD	Riveted	Riveted
239569 – 239818	123		1940	RCH HD	Welded	Welded
239819 – 240068	123		1940	RCH HD	Riveted	Riveted
242219 – 242462	123		1940	RCH HD	Welded	Welded
250898 – 251397	123		1942	RCH HD	Welded	Welded
263224 – 263273	123		1943	RCH HD	Welded	Welded
265900 – 266099	123		1944	RCH HD	Welded	Welded
286509 – 286608	123		1946	RCH HD	Welded	Welded
E310481 – E310680	123		1948	RCH HD	Welded	Welded

### BR Wagons

Numbers	Diagram	Lot	Build Dates	Axleguards	Sides	Ends
B930000 – B930249	1/430	2037	6/49 to 8/49	RCH HD	Welded	Welded
B930250 – B930549	1/430	2132	10/50 to 12/50	RCH HD	Welded	Riveted
B930550 – B931049	1/430	2151	5/50 to 4/51	RCH HD	Welded	Welded
B931050 – B931589	1/431	2199	1/51 to 7/51	RCH HD **	Welded	Riveted
B931590 – B931749	1/431	2327	10/53 to 12/53	BR Plate	Welded	Riveted
B931750 – B931974	1/431	2476	7/53 to 10/53	BR Plate	Welded	Riveted
B931975 – B932824	1/431	2604	5/54 to 12/54	BR Plate	Welded	Riveted

### Notes:

\* LMS lot 1355: I cannot find any photographs any of this lot and so cannot say whether the body was riveted or welded.

\*\* BR lot 2199: The axleguards seem to have changed to the BR Plate type somewhere in this lot.

Diagram 1/430 equated to LMS diagram 2083 and 1/431 equated to LNER diagram 123. The difference between the two diagrams was the small matter of ¼" in height.

## Double Bolster Wagons

These were effectively just plate wagons with two bolsters fitted to them. Many were converted to plate wagons by simply removing the bolsters. They had distinctive pockets situated on the solebar above each axleguard. This feature would easily distinguish an ex-double bolster in use as a plate wagon from those built originally for this purpose. The Rumney Models chassis B.27 includes these pockets and entirely suitable for use under a model of a double bolster. Indeed the Rumney Models plate wagon body kit C.21 would be suitable for use on a model of a double bolster. You would just need to add the bolsters. Parkside Dundas does a kit for these (PA05).

The following tables give details for the double bolsters:

### LMS

Numbers	Diagram	Lot	Build Dates
726000 – 726199	2105	1384	1945
726200 – 726349	2105	1414	1946
726350 – 726399	2105	1258	1947
M726400 – M726499	2105	1525	1948
M726500 – M727049	2105	1536	1949

### LNER

Numbers	Diagram	Lot	Build Dates
E310381 – E310480	209		1948

I do not currently have the details for the LNER built double bolsters but I will add this when I receive my copy of LNER wagons volume 4b through the post.

### BR

Numbers	Diagram	Lot	Build Dates
B920000 – B920199	1/416	2020	6/49 to 8/49
B920200 – B920399	1/415	2035	4/49 to 7/49

### Notes:

Diagram 1/416 equated to LMS diagram 2105 and 1/415 equated to LNER diagram 209. As with the plate wagons the differences between the diagrams was minimal.

As far as I am currently aware all double bolsters had RCH heavy duty type axleguards, welded sides and welded ends.

## **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 photo are from this particular clasp brake chassis but suitably illustrate the item in question.

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

Everyone has their own soldering methods. I 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, particularly if you use a CAD program as I do, is extremely accurate but the actual etching process itself is 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 as we go along.

## **Body Notes**

If you are using the Parkside Dundas body then some work may be required to be prototypically accurate.

Pre-Nationalisation bodies were either all welded (like the Parkside one) or all riveted. If you want to use the Parkside body to produce a fully riveted plate then an awful lot of rivets will need to be added. Much easier to use the Rumney Models body C.22.

Post-Nationalisation diagram 1/431 plates had riveted ends so these will need to be added.

Given the work involved in removing the headstocks from the Parkside bodies I would give serious consideration to leaving the Parkside ends as they are and removing the headstocks from the chassis kit. You should also know that the Parkside ends are slightly under scale at 33mm. The headstocks on the chassis are to scale and are 33.45mm. If you keep the headstock on the chassis then you will need to shorten them slightly to suit the Parkside ends.

If you are using the Rumney Models body kit C.21 or C.22 then you don't need to worry about any of this. All the variations in body work are covered in the instructions.

## **Technical**

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

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

### **Materials list**

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

0.31mm - Brakegear, tie bars  
0.8mm - Main brake cross shaft  
1.0mm - Alignment pins

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

For buffers I would recommend those produced by Lanarkshire Model Supplies. The quality is excellent. There majority of plate wagons had 1'6" 4 rib spindle buffers with 14" heads (B.032). Occasionally fabricated buffers could be found. Lanarkshire do a casting for these (B.009) but they have 13" heads. As far as I know no one does a metal 14" head but MJT do 13" heads (2371) as do Wizard Models (LOC413) who also do 15" heads (LOC415). Take your pick.

Axleboxes were a real mixture. Almost all were oil. The following types could be found:

Wizard Models:

BR heavy duty 2 part oil (BRC019)  
BR all welded plate fronted axleboxes, three types (BRC020, BRC020A & BRC021)  
LMS oil (LMSC006)

MJT:

LNER oil (2243) – You will need to change the springs.  
BR/LNER 16T hopper (2257A) – These were used on lots of types of wagon.

Some wagons latterly gained roller bearings. Wizard Models do hooded (BRC023) and non-hooded (BRC022) types. MJT also do a non-hooded roller bearing (2256A).

Springs on the prototype were 7 leaf. MJT (2285) do a good casting.

Couplings it seems were mainly Instantan but 3 links and even screw couplings did appear. I use Masokits coupling hooks. I find the hooks are a bit on the big side but if you aren't using auto couplings this is a help. Masokits do a good etched screw coupling. For instantan couplings and 3 link parts I use the Exactoscale products available through C&L Finescale.

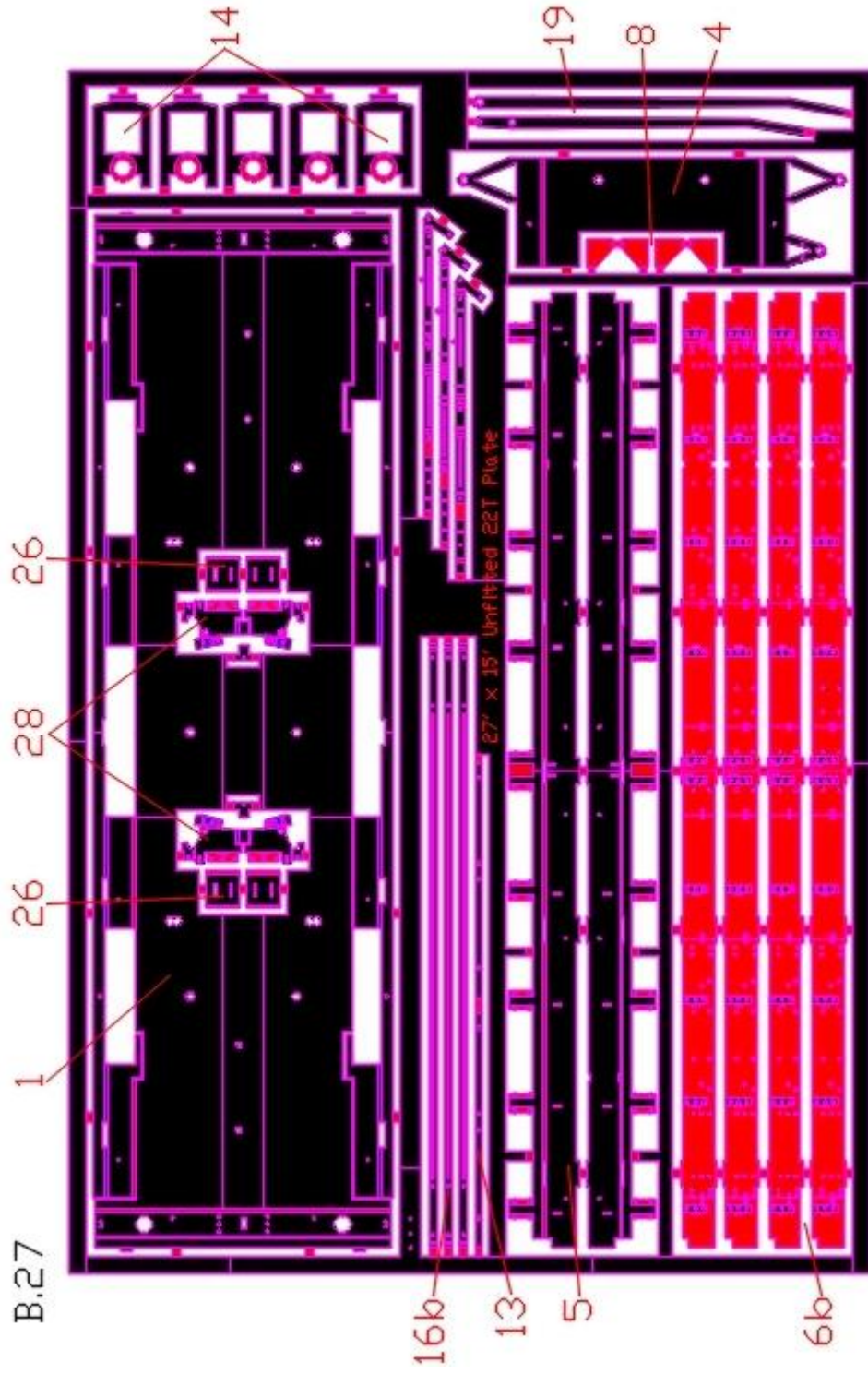
Contact details for the above suppliers can be found at the end of these instructions.

## Component List

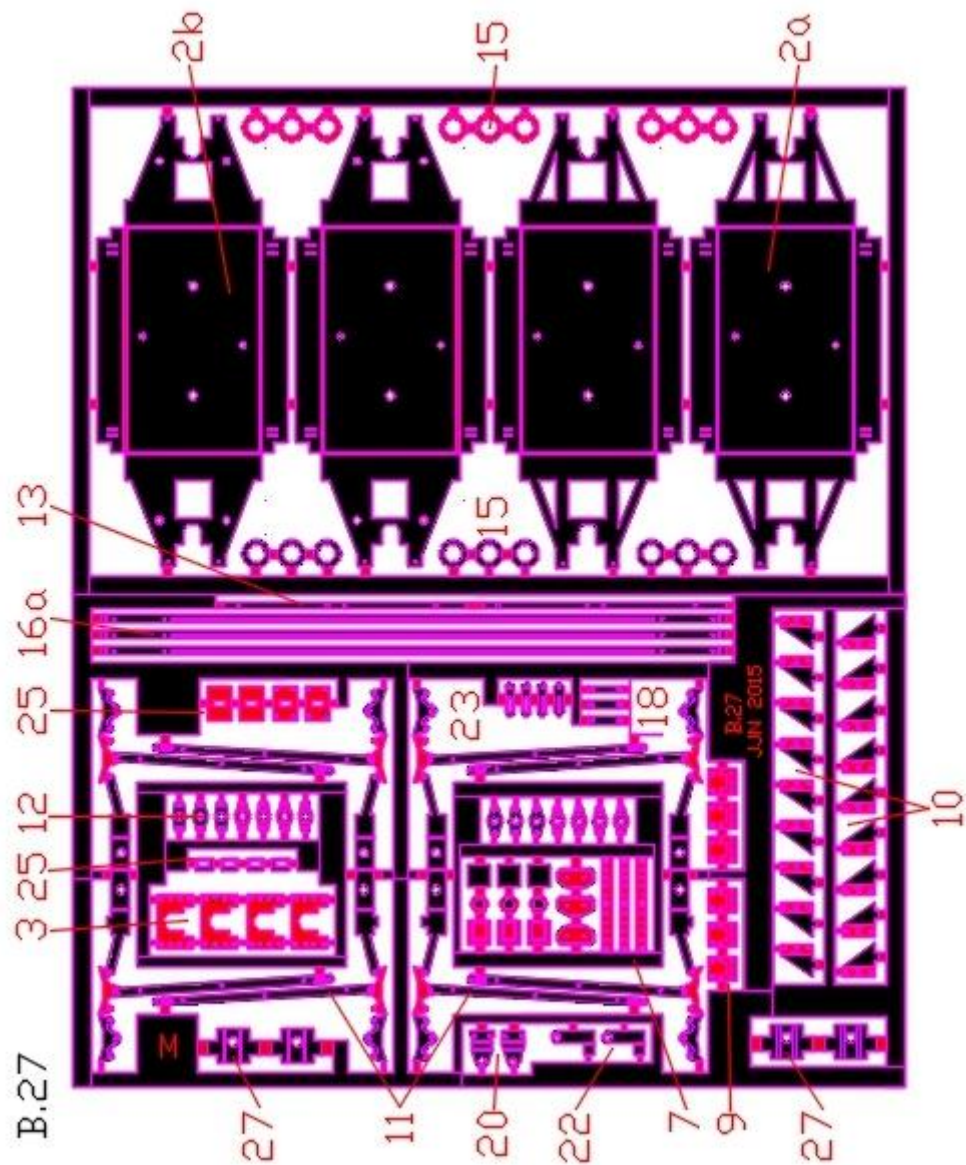
- 1 - Chassis top plate
- 2a - RCH Axleguards
- 2b - BR Axleguards
- 3 - Riveted axlebox guide overlays
- 4 - Vees
- 5 - Solebars
- 6a - RCH Solebar detailing overlays (see separate 'Parts' etch)
- 6b - BR Solebar detailing overlays
- 7 - Solebar detailing
- 8 - Solebar/headstock corner plates
- 9 - Solebar/headstock reinforcing plates
- 10 - Side support brackets
  
- 11 - Brake shoes/push rods
- 12 - Push rod cranks
- 13 - Push rod safety loops
  
- 14 - Spring carriers
- 15 - Bearing washers
- 16a - RCH tie bars
- 16b - BR tie bars
  
- 17 - Brake lever guards/brackets/stays (see separate 'Lever guards' etch)
- 18 - Brake lever guard stays
- 19 - Brake levers
- 20 - Secondary brake lever vee overlay
- 21 - Brake lever cranks (see separate 'Parts' etch)
- 22 - Brake lever actuator
- 23 - Lifting links
- 24 - Brake lever washers (see separate 'Parts' etch)
  
- 25 - Coupling pocket detail
- 26 - Double Bolster pocket - back plate
- 27 - Double Bolster pocket - front
- 28 - Central door support bracket

If your kit does not contain the separate 'Parts' etch containing the RCH solebar detailing overlays (6a), brake lever cranks (21) and brake lever washers (24) and/or the 'Lever Guard' etch for the brake lever guards (17) then contact Rumney Models for replacements.

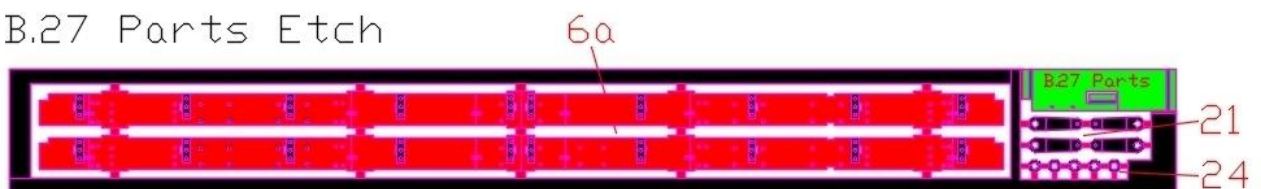
B.27







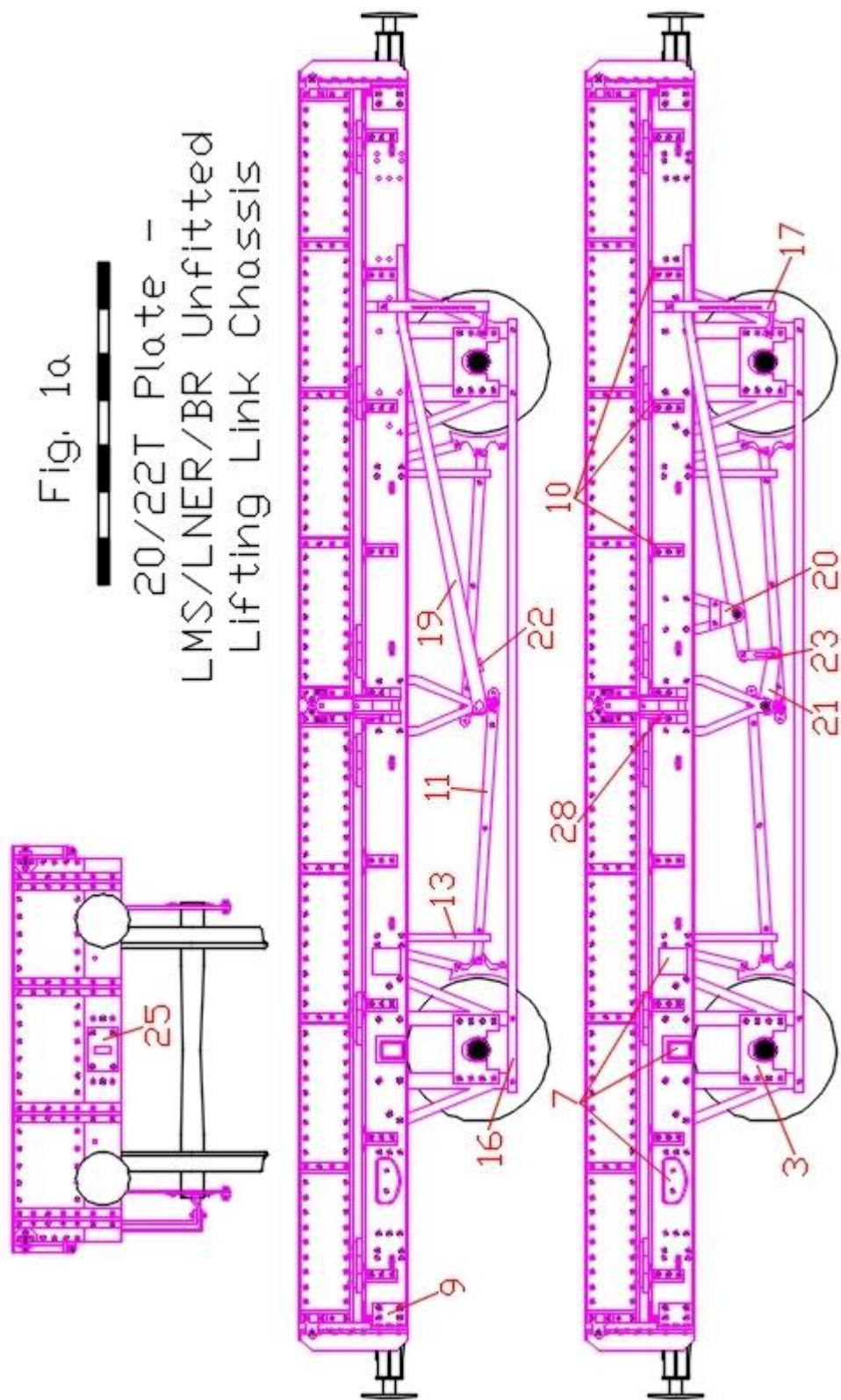
B.27 Parts Etch



B.27 Lever Guard Etch







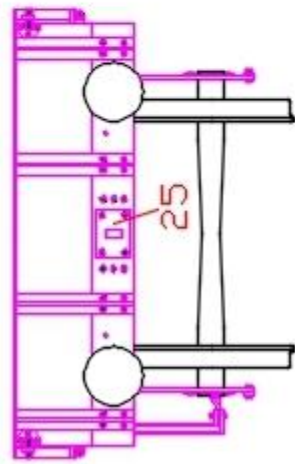
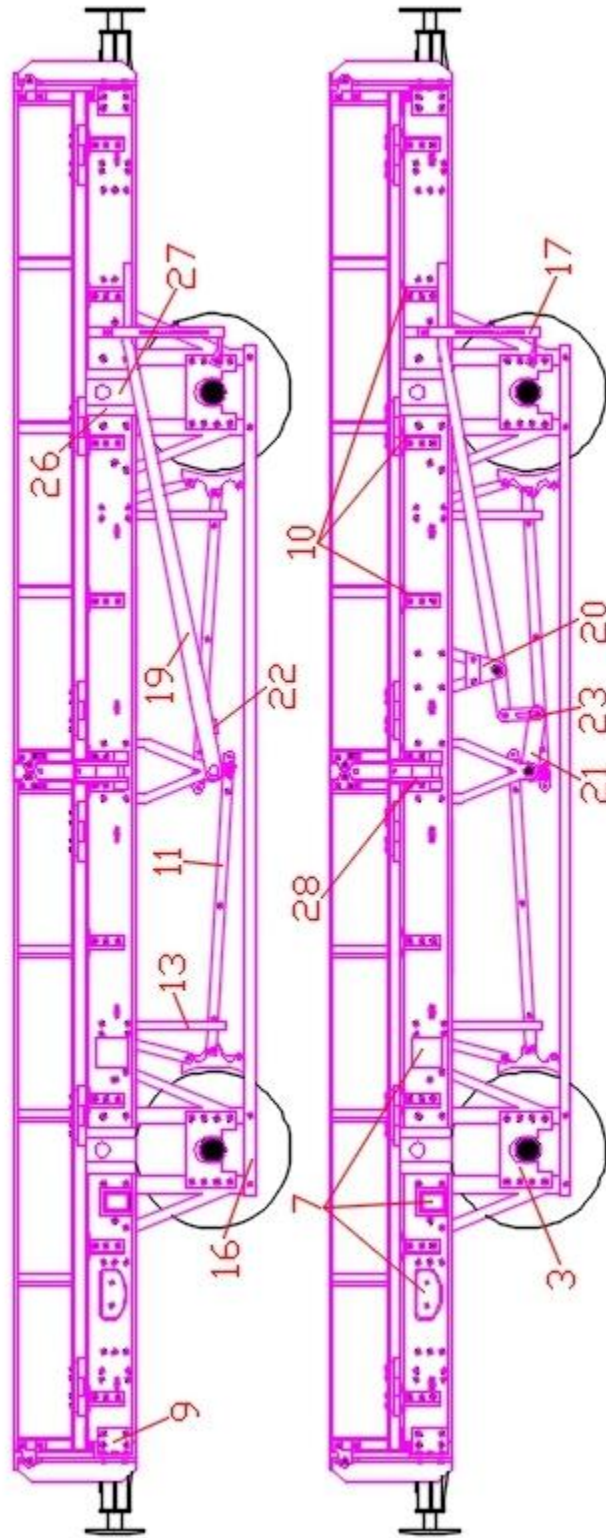


Fig. 1b



22T Double Bolster -  
LMS/LNER/BR Unfitted  
Lifting Link Chassis



## Construction

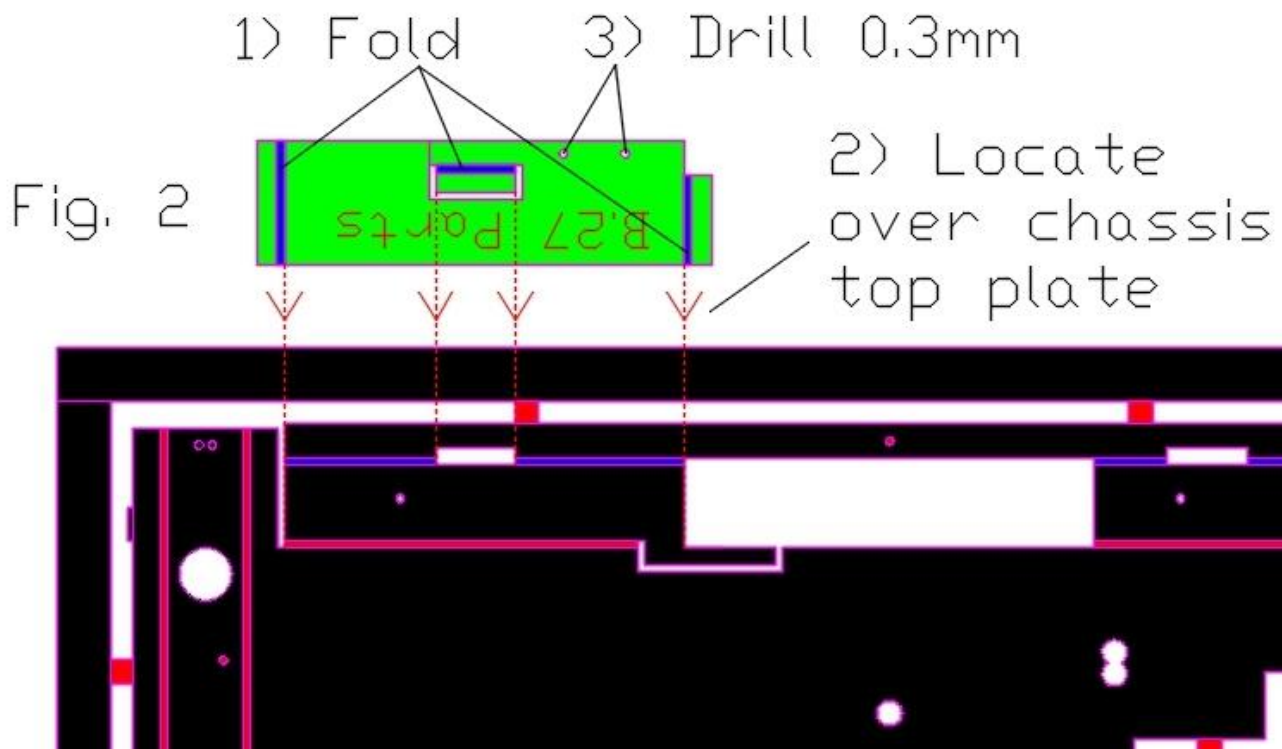
### Main Chassis

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). Press out the 6 half etched rivets on either side of the hole for the coupling hook. I use a drop head riveting tool on one of those ubiquitous green cutting mats to do this.

There are also two other small half etched circles on each headstock slightly in towards the centre from the holes for the buffers. On the real thing there were little hooks that were used for fixing ropes and this is where they were located. If you want to model them you could do so with something like 33SWG phosphor bronze and drill these holes out to locate them but beware, this is the path to madness...

Remove the chassis top plate from the fret.



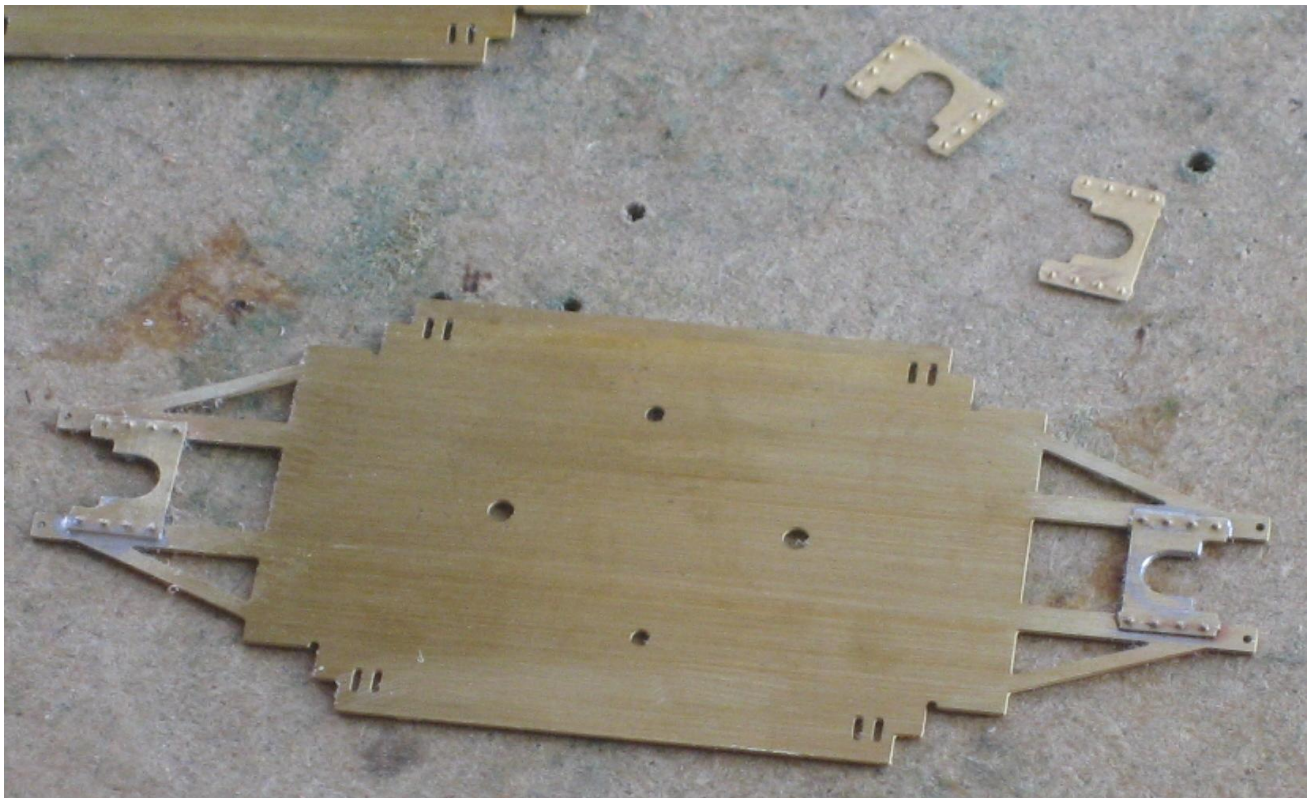
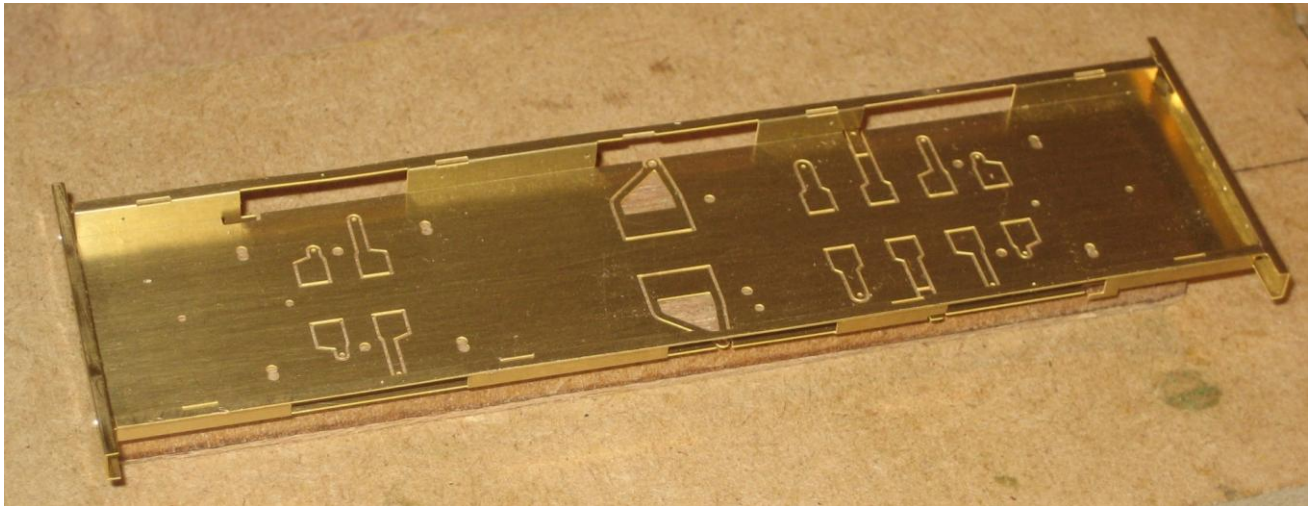
Those chassis that had RCH type axleguards also had horse hooks on the underside of the solebar. If you wish to model the horse hooks then you can do so by using 0.31mm wire formed into an L shape and soldered into holes in the bottom of the solebar. Now for some inexplicable reason the half etched circles to mark where the holes for the horse hooks have disappeared from the artwork. To rectify this issue a drilling jig is included with the 'Parts' etch to accurately locate the holes. You will need to use this before making any folds.



Refer to Fig. 2 above. Remove and fold up the drilling jig which is the green shaded area on the 'Parts' etch diagram (see page 8). Locate onto the chassis top plate and use a 0.3mm drill to create the holes. Note that the horse hooks were only found on the left hand end of each side.

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 and fold through 90°. You can reinforce this fold line if you wish but I haven't found need to do this. Next fold the headstocks through 90° to form a channel. Do not reinforce with solder yet.

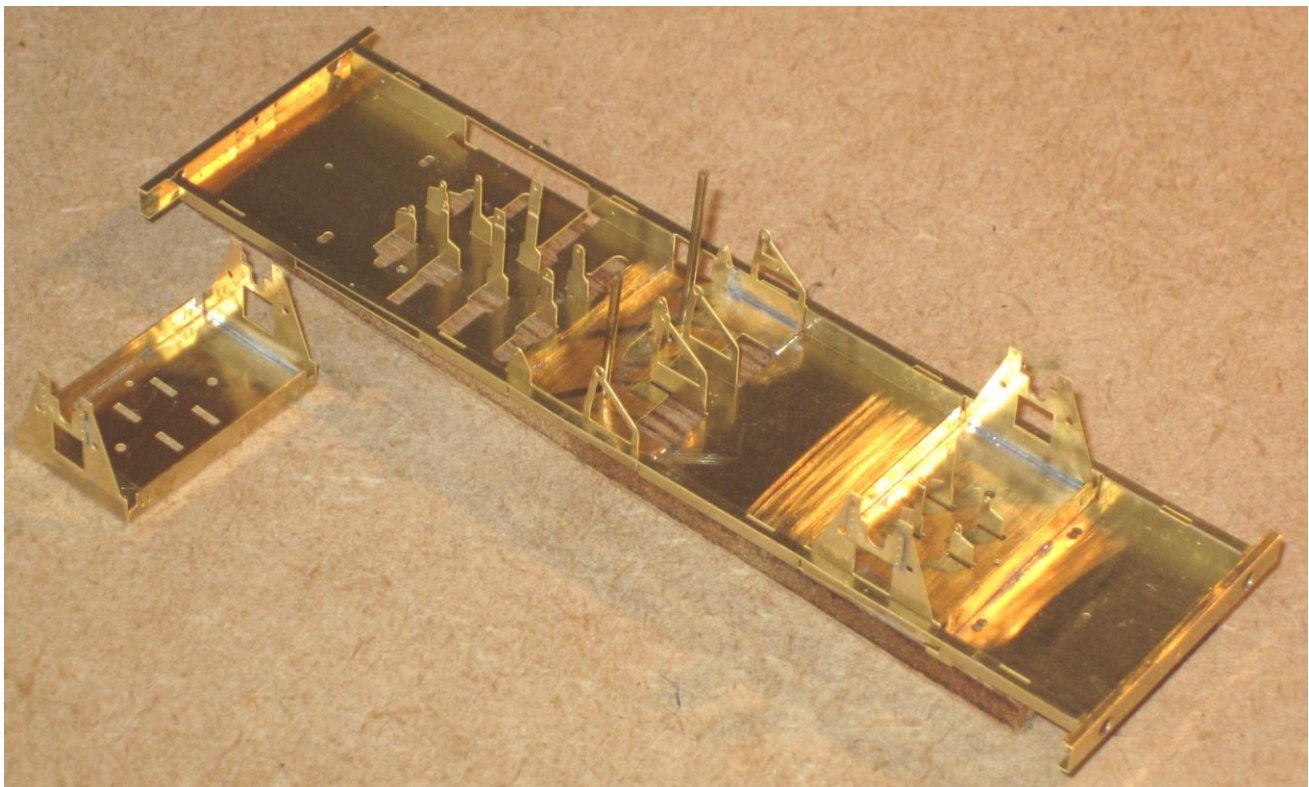
The bottoms of the solebars need to be folded up. There are two sets of fold lines along the sides of the chassis top plate on the front and one on the back. Start with the outer most fold line and fold so that the two parts either side of this line are at 90°. Repeat with the inner one.



There are two types of axleguards included with the kit, earlier RCH type (2a) or later RB Plate type (2b). Choose which type you wish to use, check that the holes in the axleguards will accept 0.31mm wire and remove from the fret. If you wish to make use of the riveted axlebox guide overlays (3) included then now is by far the best time to fit them. Use the slot for the axle to align them on the axleguard assembly and solder in place. Make sure they will be on the outside of the axleguards when folded up. Carefully fold up the sides and the four spring supports. Make sure that the sides are at 90° and adjust if necessary.

The chassis top plate and the axleguards need to be soldered together. There are 1mm diameter holes on both the top plate and axleguard 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.

Check that the main brake shaft holes in the in the Vees (4) will accept 0.8mm wire and that the brake lever holes will accept 0.6mm wire. Make sure the holes in the vacuum cylinder brackets can accept 0.5mm wire. Remove from the fret and fold up. There are two parts that make up vacuum cylinder bracket on the solebar side. The outer part needs folding over through 180° with the fold line on the outside and solder together. Solder the Vees in place on the chassis top plate using the same method as for the Axleguards. Make sure the vees align.



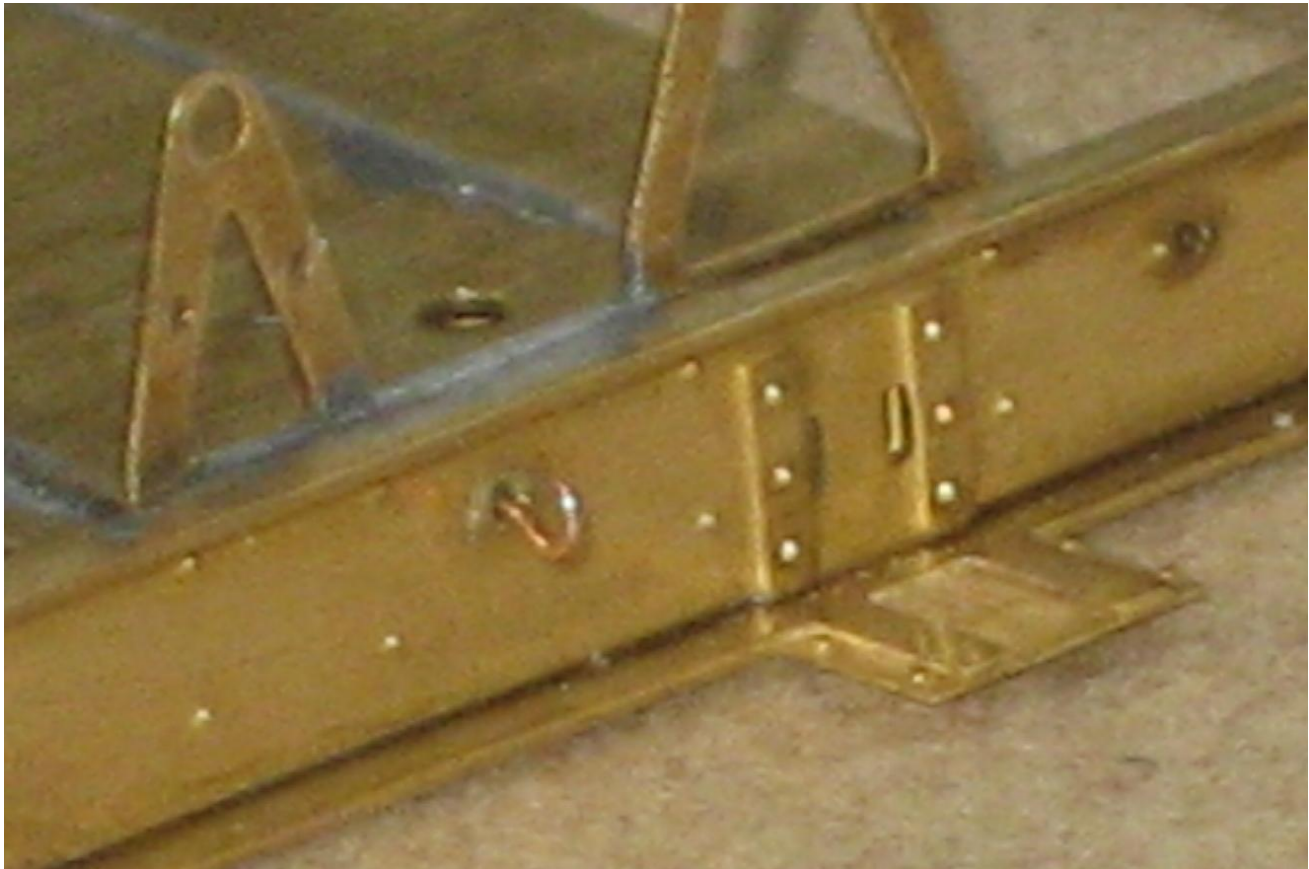
Next remove the solebars (5) from the fret and fold into an L shape. I find the best way to do this is in a vice with a couple of lengths of aluminium to extend the jaws. A hold and fold tool would be good here.

There are alternative solebar detailing overlays depending on which type of axleguards you have used either RCH (6a) or BR (6b). Locate the overlays for your choice of axleguards and remove from the fret. The RCH type are on the 'Parts' etch.



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.

There are numerous half etched circles on the back of the solebar detailing overlays that need to be pressed out to form rivets. Now is the time. Those half etched circles that are on the back of the side support brackets need pressing out. As with the headstocks there are some half etched circles that mark the position where the rope fixing hooks are can be drilled out if you want and used as locating points. Beware this path though! I speak from experience...



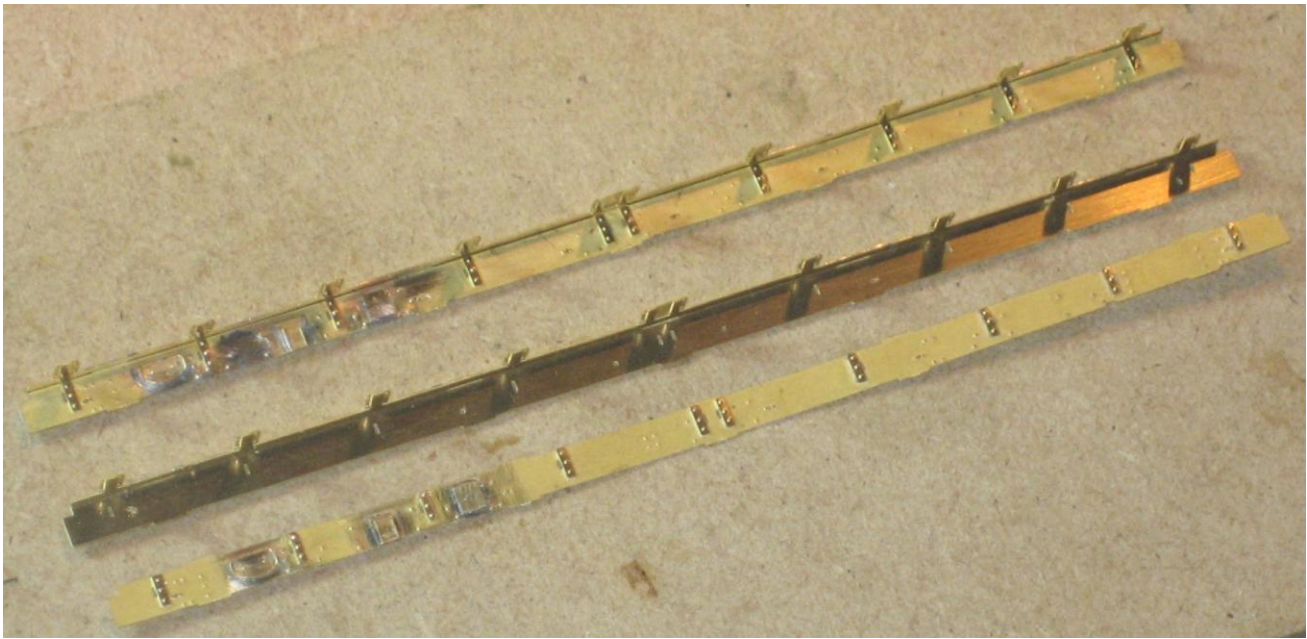
The solebar overlays are designed to fit into the slots in the solebars. The completed solebar then locates into the slots in the chassis top plate. Locate the solebar detailing overlay in the solebar and tack solder in place. Note that there is a right way up for all the overlays but given the shape of them this should be obvious.

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 (7) comes contained in its own little fret. See Fig.3 below. On it you will find 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 rectangular block is but it was made of wood was quite common. The round parts can be ignored. See Fig.1a, Fig.1b or a picture of your prototype for the position of these details. Solder in place.





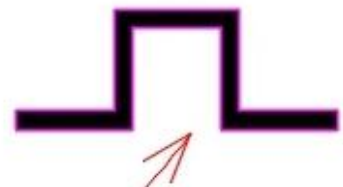
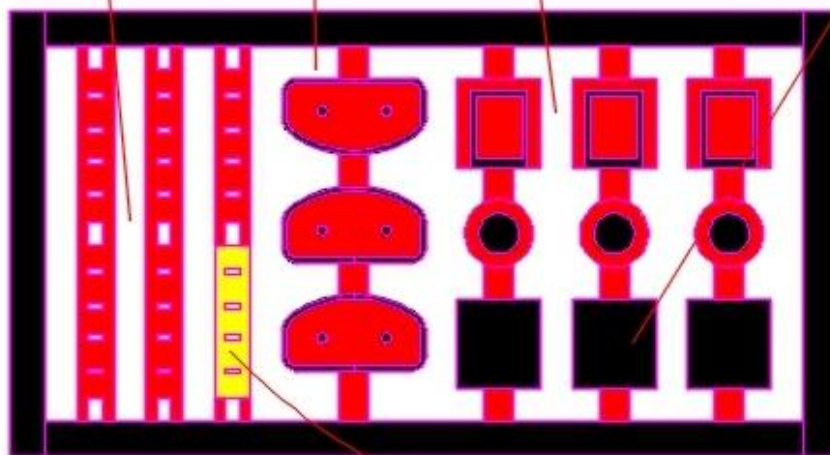
Spring stops

Number plates

Label clips

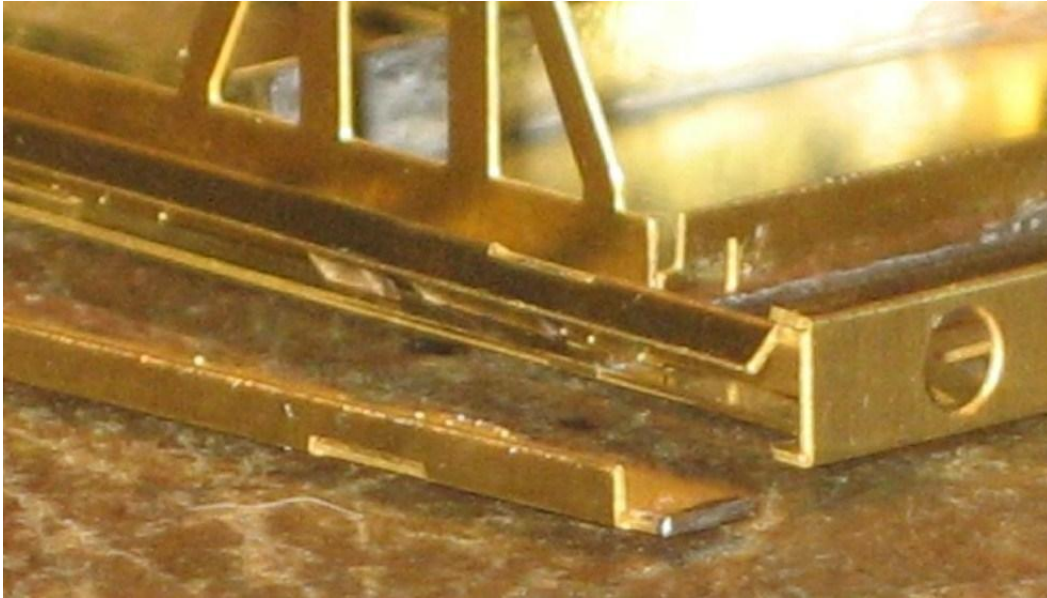
Wooden blocks

Fig. 3

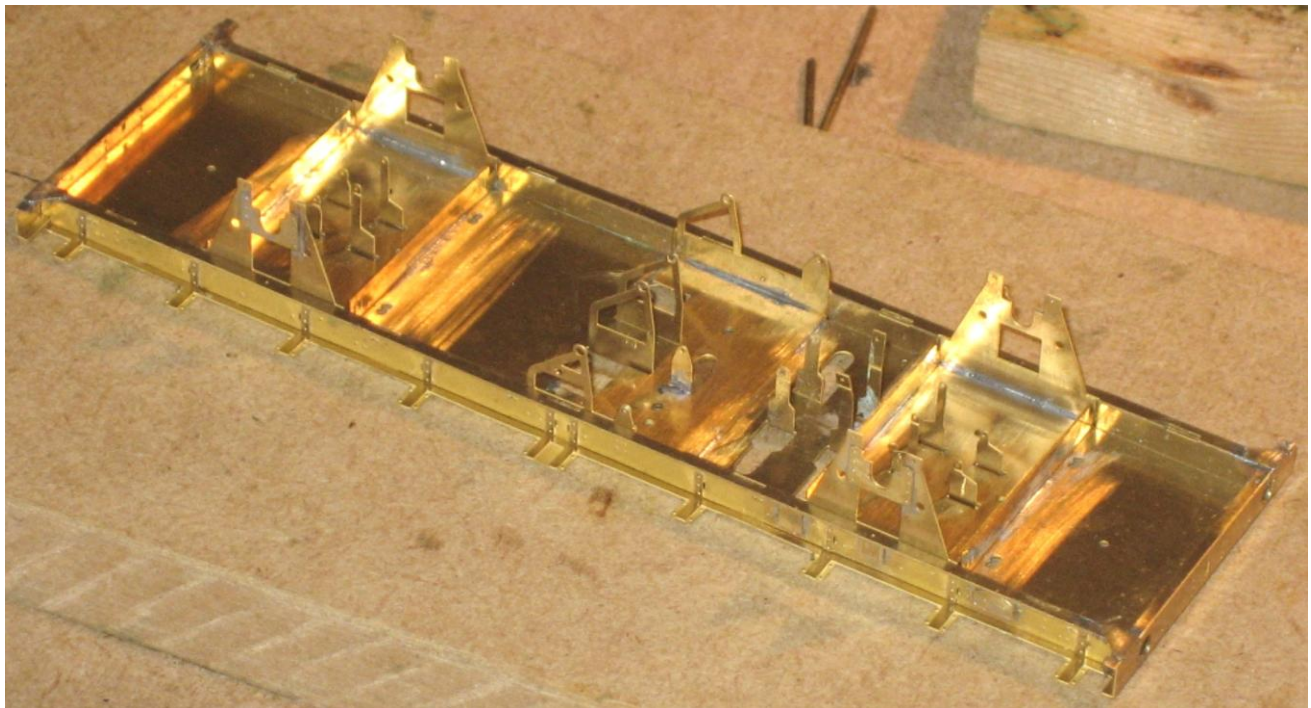


## Main Chassis Continued...

The solebars can now be fitted to the chassis. Note the correct sides for the two solebars according to the rivet pattern for the vees (again see Fig.1a or Fig.1b). 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. The accessible fold line on the headstock can now be reinforced with solder if you wish.



Now is a good time to fit the solebar/headstock corner plates (8). These locate in the four corners on the underside of the chassis. The straight edges run alongside the inside of the solebars and the outside of the headstocks. Solder in place.





### **Solebar/headstock reinforcing plates (B.09 only)**

The chassis on the unfitted plate wagons were of riveted construction. They therefore had plates that were riveted to the outside of the solebars and the inside of the headstocks to strengthen things in that area. The solebar/headstock reinforcing plates (9) need to be removed from the fret and folded into an L shape. Solder in place using Fig.1a, Fig.1b, the photograph below or a picture of the prototype as a guide.

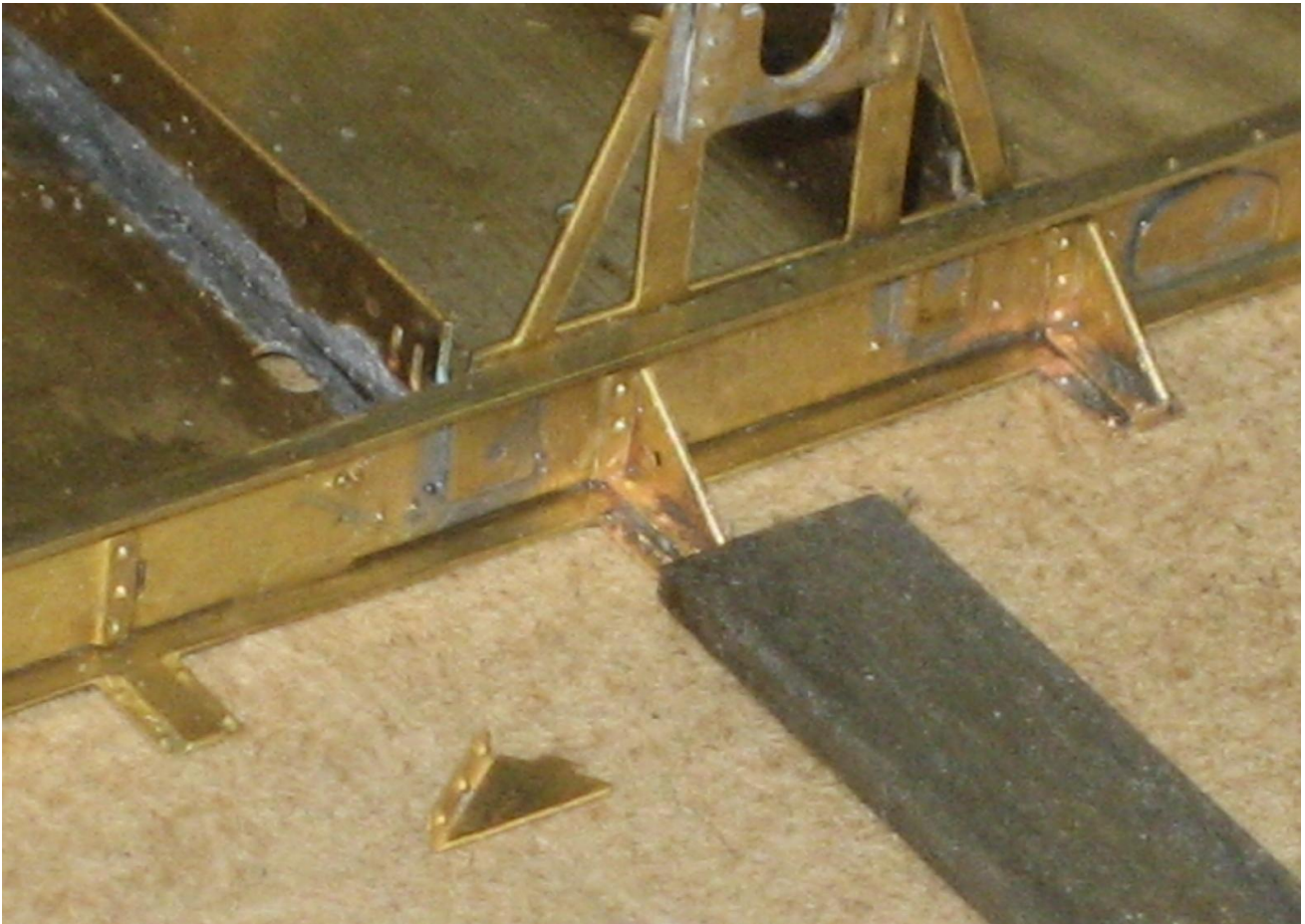
### **Horse hooks**

Now is as good a time as any to finish the horse hooks. Simply fold a piece of 0.31mm wire into a U shape and locate into the holes drilled earlier in the bottom of the solebar. There should be around 0.5mm between the wire and the solebar. Solder in place and trim the wire to represent bolts on the inside of the solebar. See the photograph above.



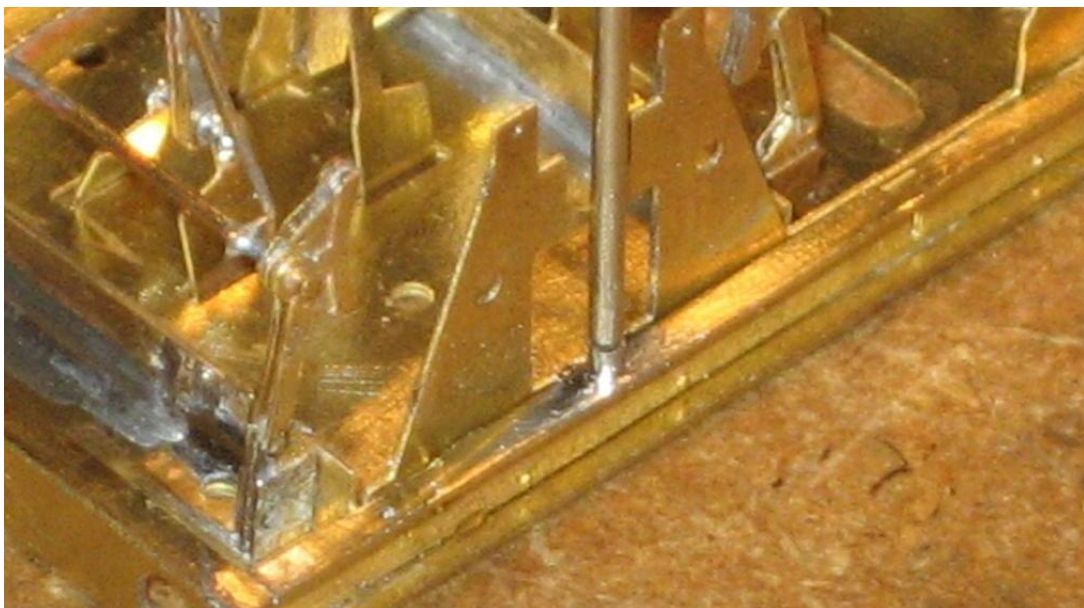
### **Side support brackets**

Now is a good time to add the short side support brackets (10). The connecting tags should be removed and then they need folding into an L shape. They can be located in place using the slots through the solebars and solebar detailing and the riveted part soldered to the top of the solebar. See the photo below. Note that there are eight on each solebar.



### Spring Stops

There are 6 fabricated spring stops on the solebar detailing (7) fret (see Fig.3 above) 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 use 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. There are four half etched circles on the bottom of the solebars marking the locating points.



## Brake shoes and brakegear

The brake shoes (11) etched with integral push rods are designed to be folded up as one piece, soldered together and then tidied up afterwards. The brake shoes can be soldered to the chassis and then the cranks can then be added. 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 designed 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. 4a for the lifting link side and Fig. 4b for the other. The holes that need to be able to accept the wire are marked in yellow.

It is best to do one set at a time leaving the other set on the fret and locate on appropriate part of the chassis. This will avoid mixing parts up and getting large gaps between brake shoes and wheels. Those sets intended for the lifting link side of the brakegear are marked on the fret with a big M.

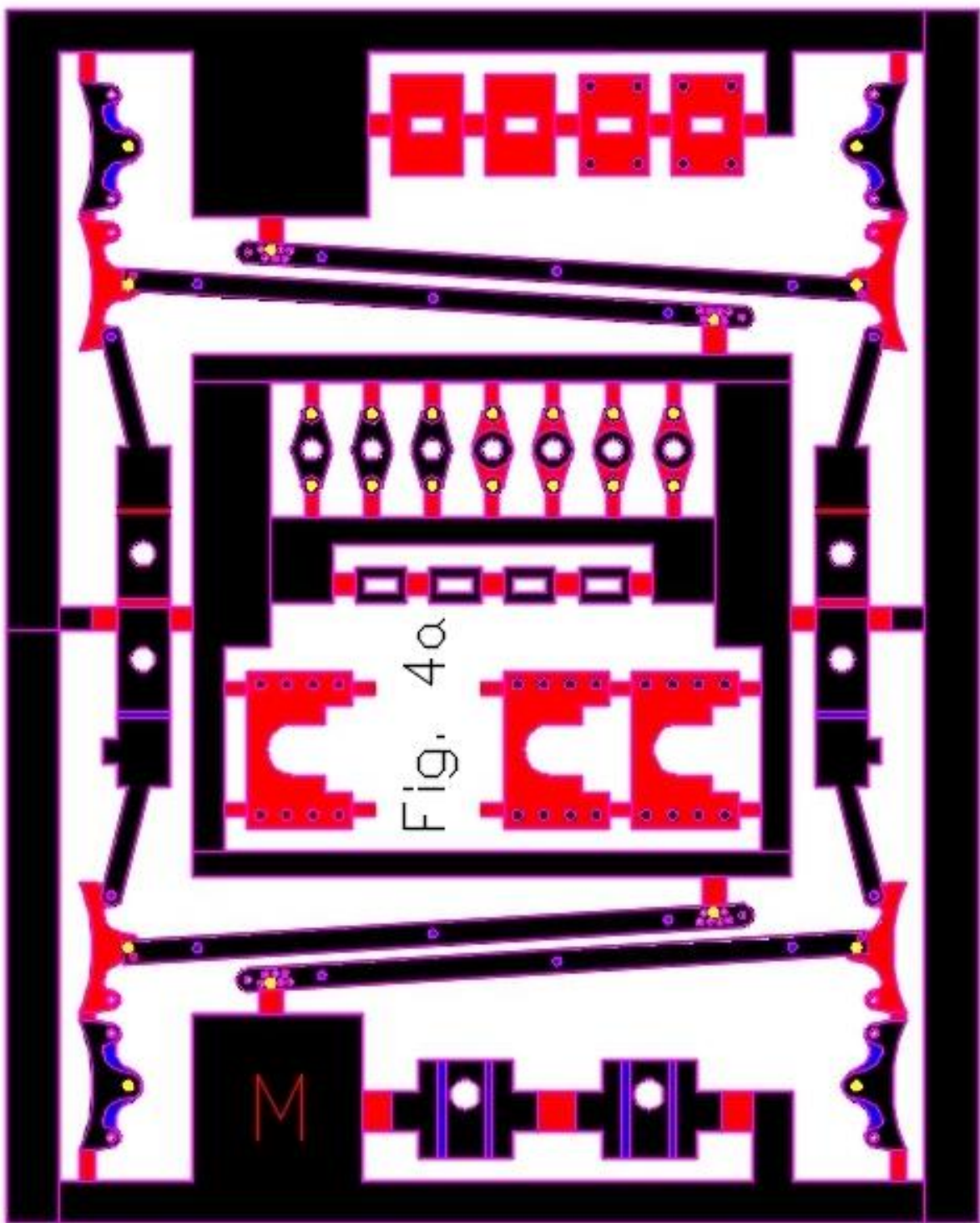
If you wish press out the half etched rivets at the top of the hanger bracket. I use a drop head rivet press for this with the parts held on one of those ubiquitous green cutting mats. Remove from the fret and fold the brakes up. This will distort the push rod so you will need to straighten it afterwards.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

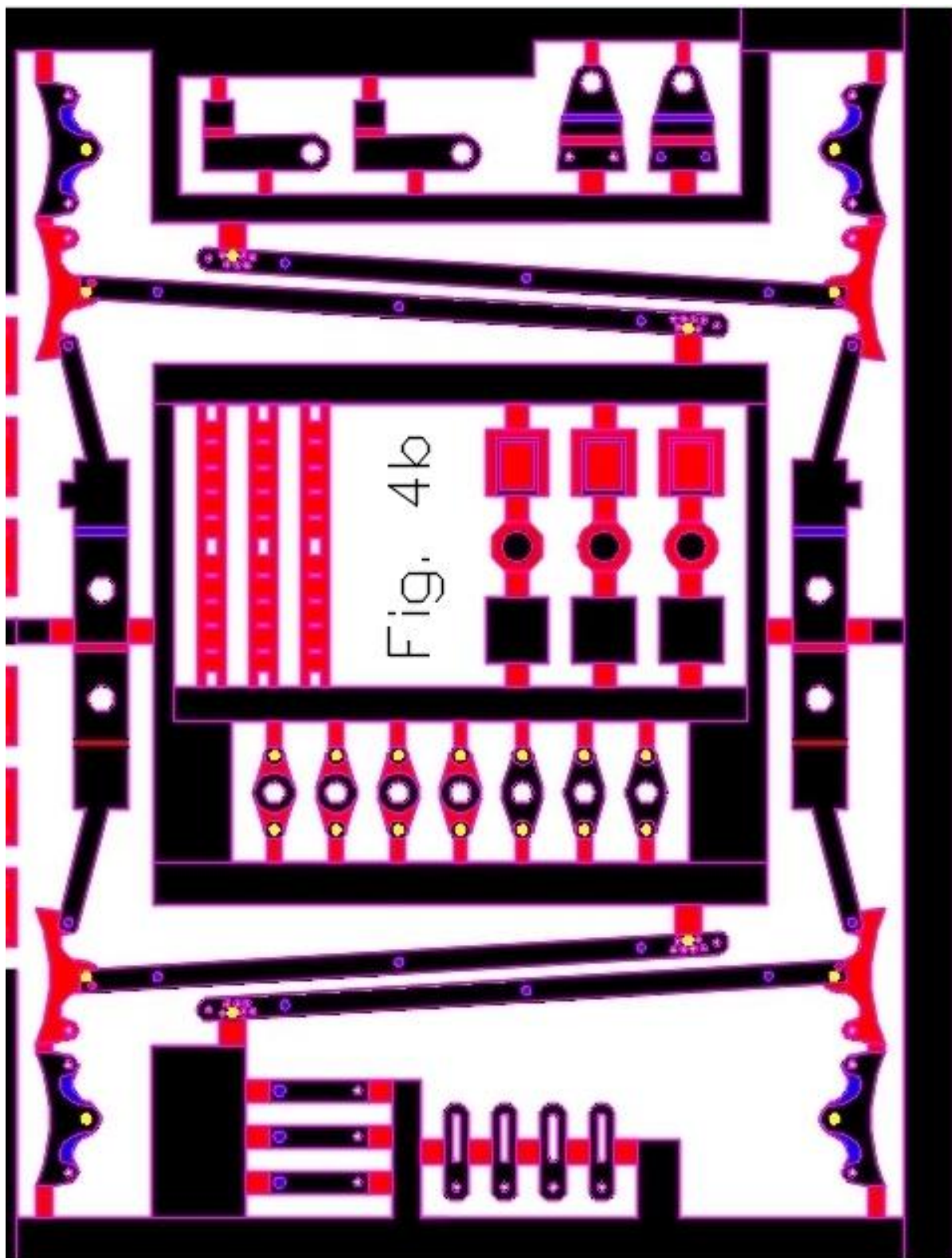
There are tabs on the brake shoes that locate into slots in the W-Iron assembly (2). The outer ones are for EM/P4 and the inner ones for OO. Make sure that brake shoes go on the correct sides. For Morton 2 shoe chassis the brakegear goes on the same side as the Morton cam. If in doubt refer to prototype pictures or Fig. 1a and Fig. 1b. 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.

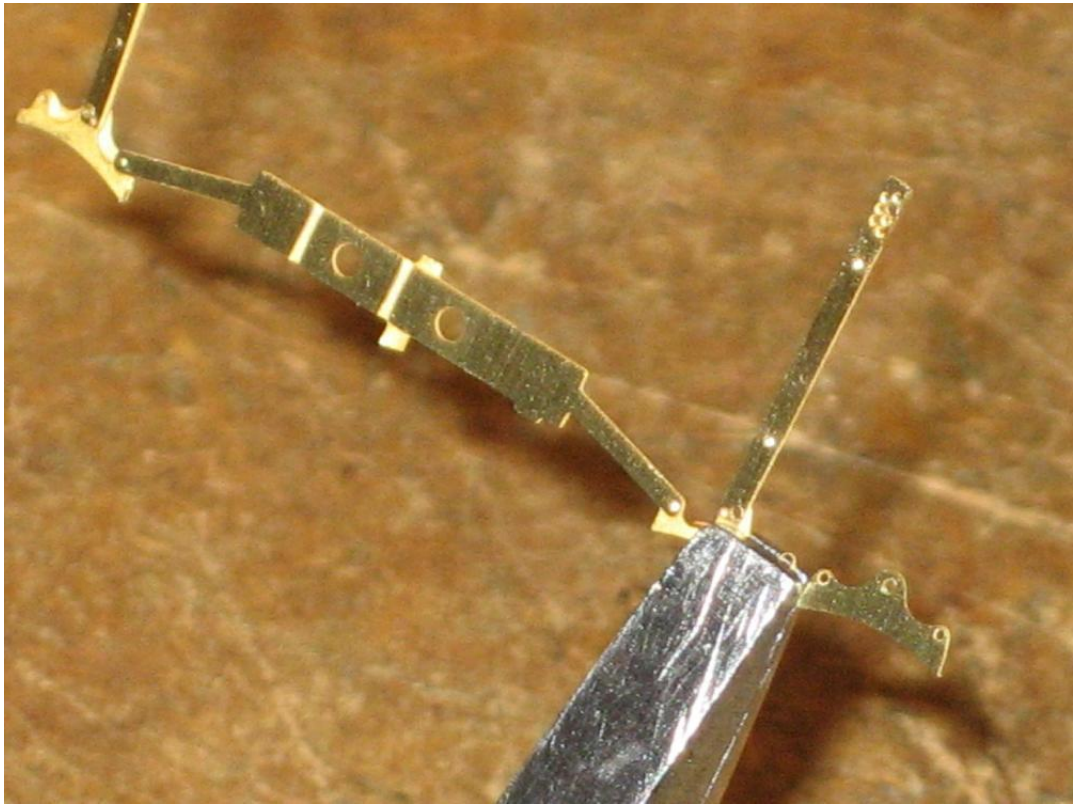
Repeat for the other brake assemblies.



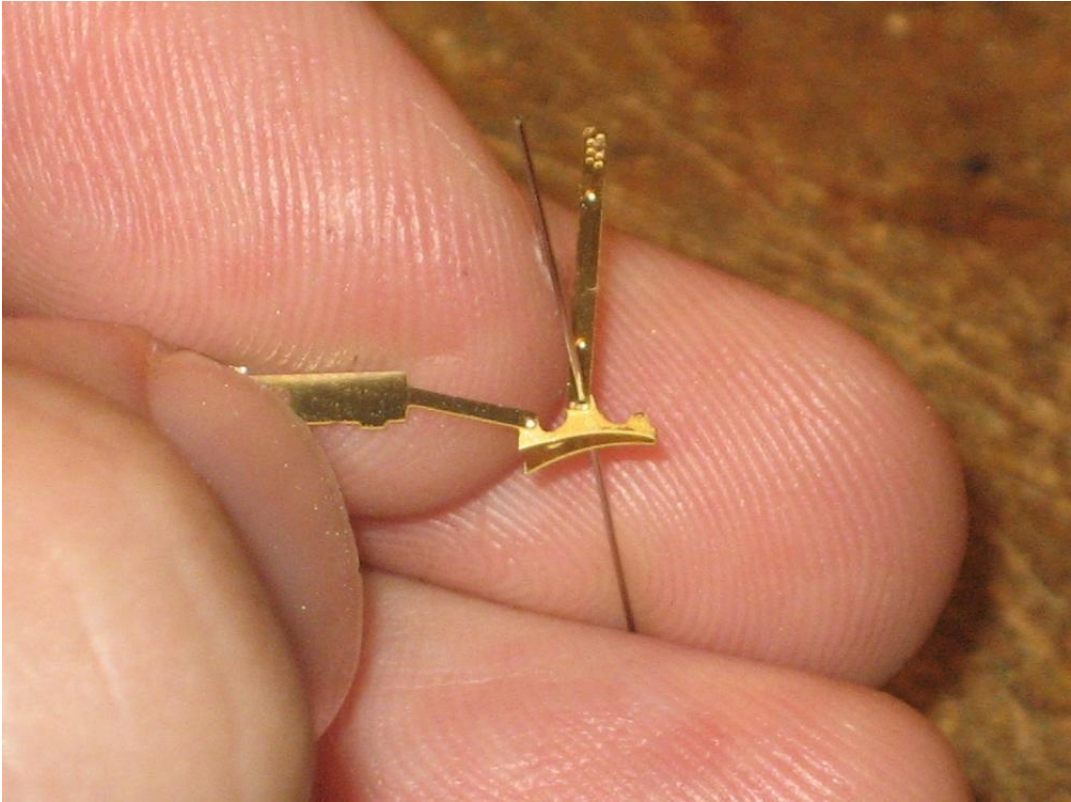


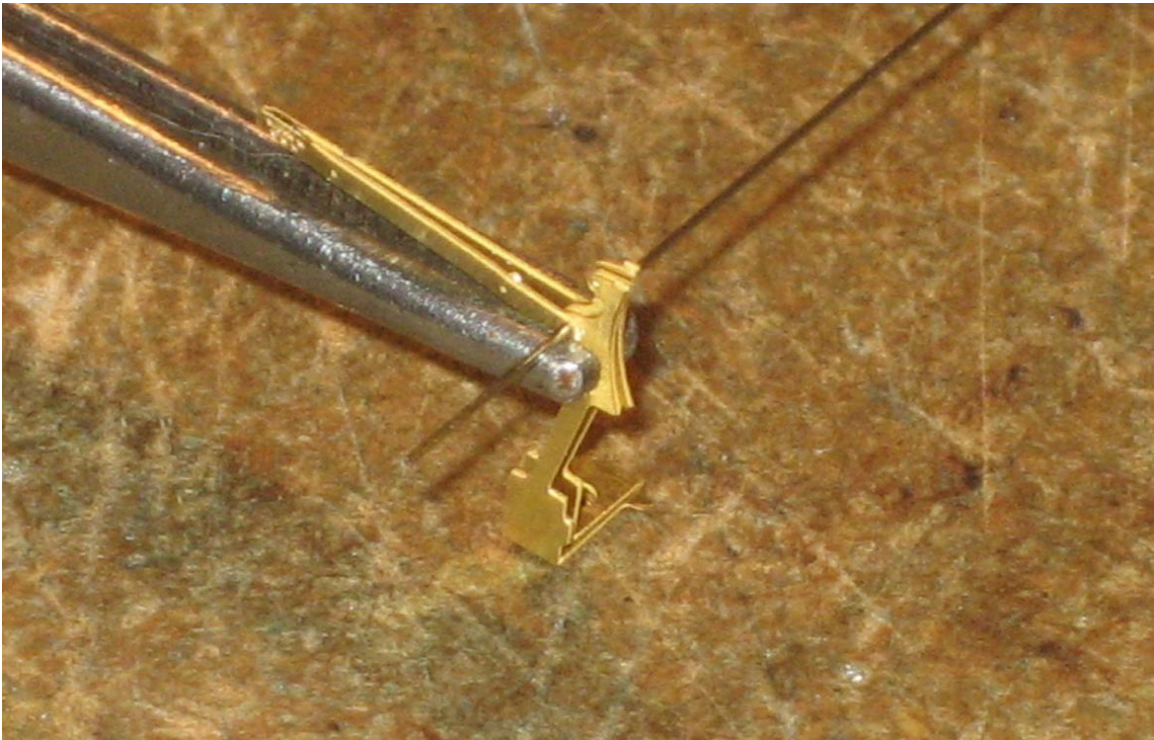




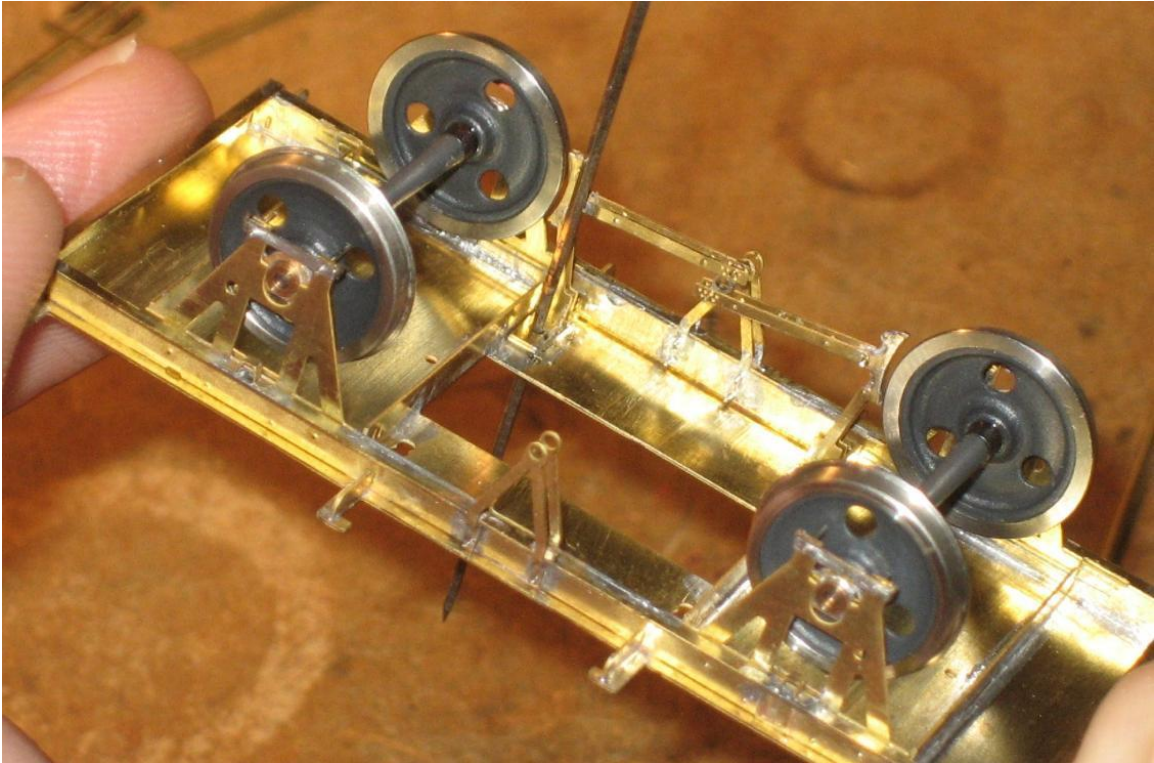












The push rod cranks (12) need to be tackled next. There are two sorts of push rod cranks. One set have half etched areas to match the profile of the prototype and the other are solid. You will need two cranks for each set of brakegear.

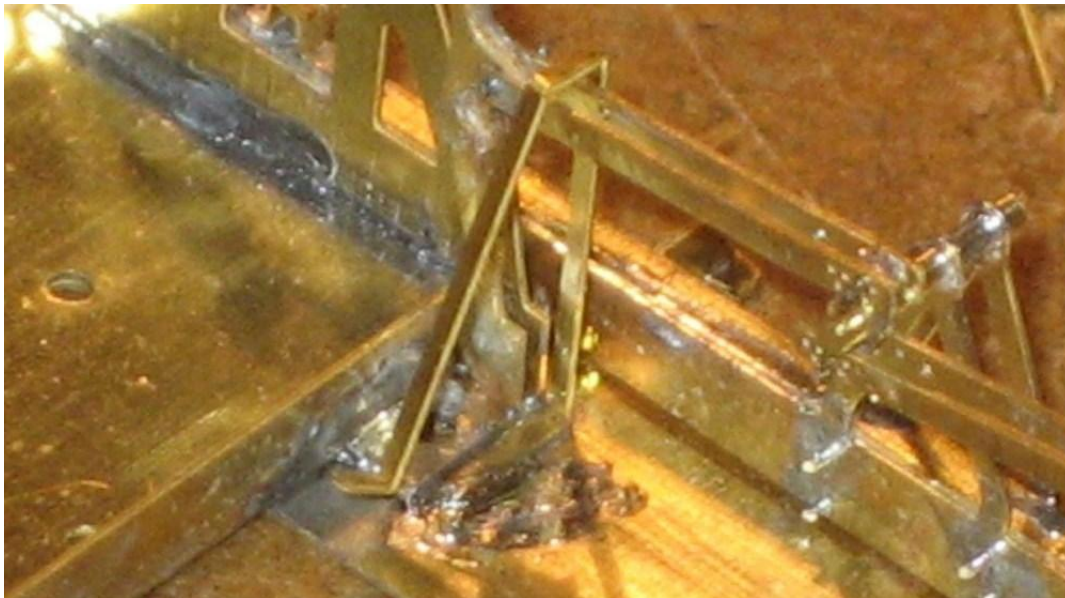
Make sure that the main hole in the push rod cranks can accept 0.8mm wire and the smaller holes 0.31mm wire. Whilst still on the fret use one of the cranks to drill two 0.3mm holes into a piece of scrap wood. This jig will be used to solder the two parts of the crank together. Solder the wire in place 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. I don't worry about soldering the crank to the push rods or indeed to the brake shaft.

## Safety Loops

The safety loops (13) 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.



## Spring Carriers

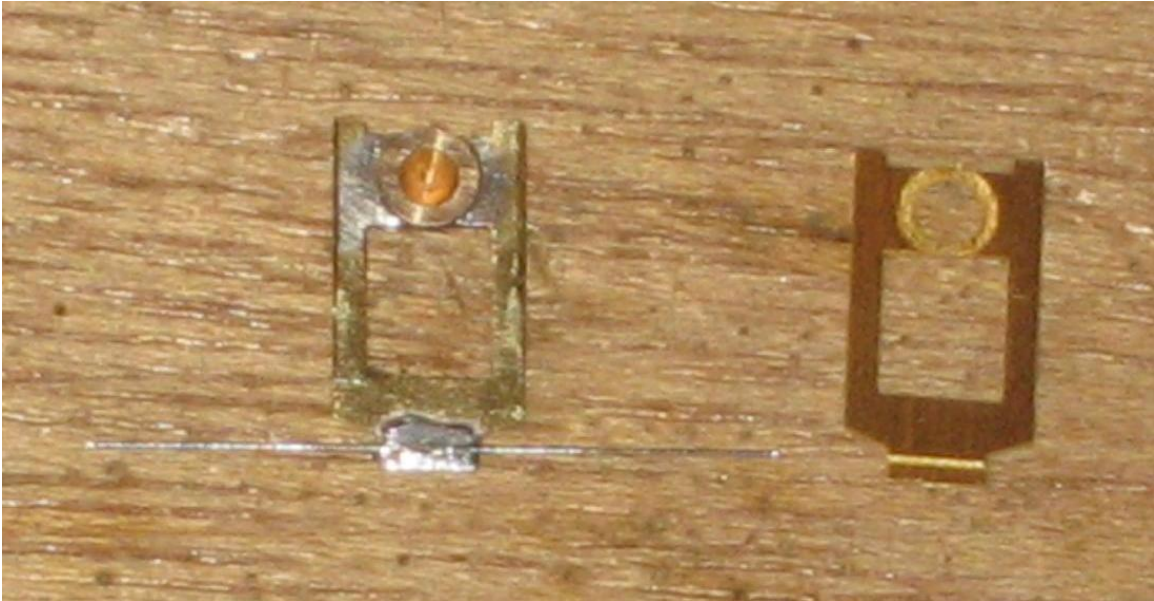
The spring carriers (14) can now be assembled. They are designed so that the springing wire is soldered to the carrier using the half etched slot as a guide.

The distance between the backs of the axleguards is a little bit larger when compared with other systems and is 24.5mm. The advantage of this measurement is that if using pin point axles you don't have to hunt around for bearings that are deep enough but you may find that the carriers need packing out a little to take up any slop. Bearing washers (15) are included for this purpose. There should be a good fit between the axles and the bearings with ideally no sideways movement at all. If using pinpoint axles use a waisted type of bearing to avoid having to remove any more material from the cast axleboxes than is necessary. I have used Exactoscale waisted pin point bearings which are just about perfect for the job with only occasional ones that require packing out.

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

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

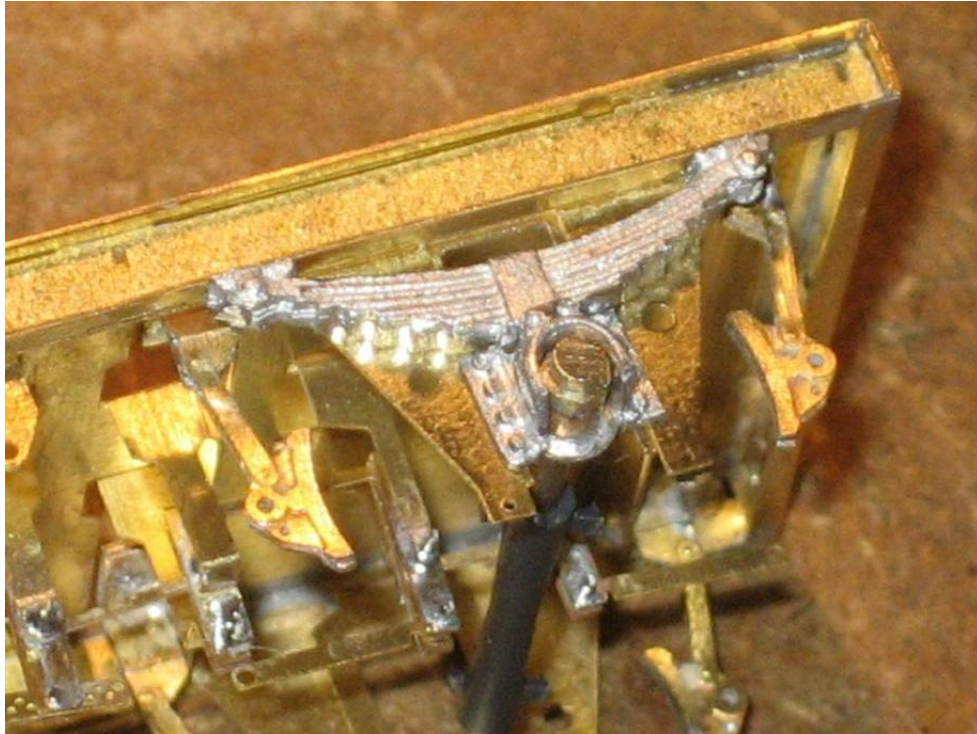




A note on roller bearings:

These were occasionally fitted non-vacuum braked plate wagons particularly latter on in their working life. One method of doing this is to extend a non-waisted pinpoint bearing using 1.5mm brass rod and a small sleeve of 2 x 1.5mm brass tube. The actual bearing part of the axlebox casting is then removed with the bearing moving up and down with the springing. Wizard Models make a suitable hooded type roller bearing axlebox casting (BRC023) as well a non-hooded type (BRC022).





Extending the bearings is a bit of a fiddle and I'm looking into easier solutions for this. Also this method looks good but really the roller bearing is too small, the casing around the real things was 9" in diameter, and it is tricky to remove the material from the casting for the non-hooded types. Another option that I wish to try is to attach the casting for the roller bearing to the axle bearing and have it move with the functional springing. This would require some material removing from the top of the axlebox casting so that the cosmetic spring doesn't impede the movement of the axle. Having removable keeps makes this feasible.

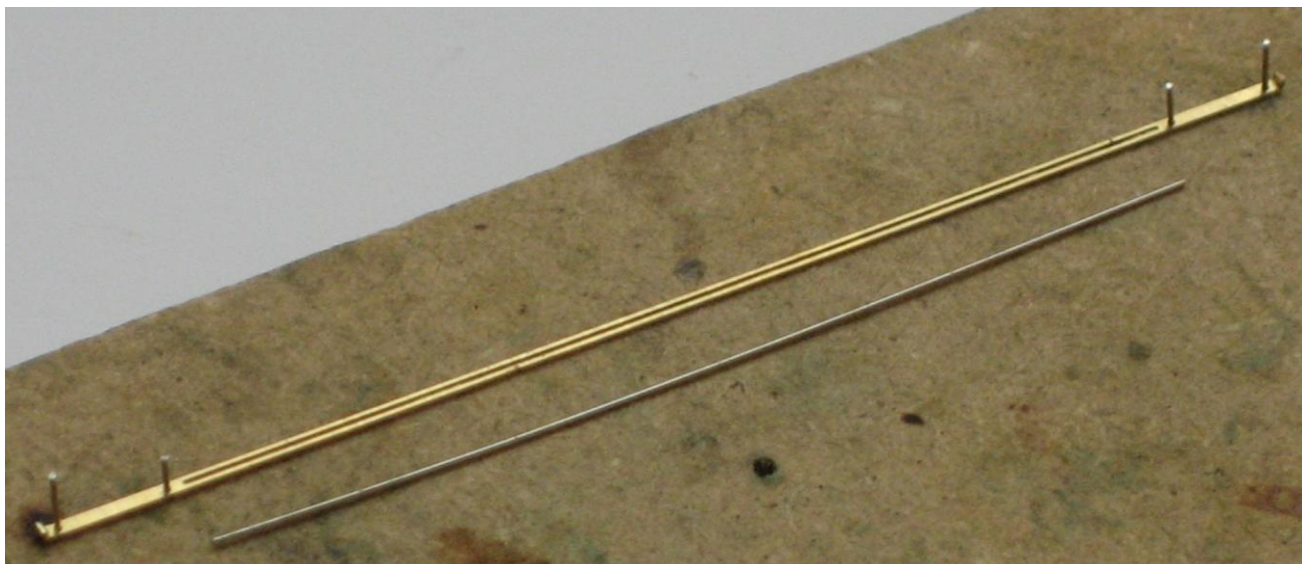
Tweak the brake shoes if necessary with the wheels in place

### **Tie Bars**

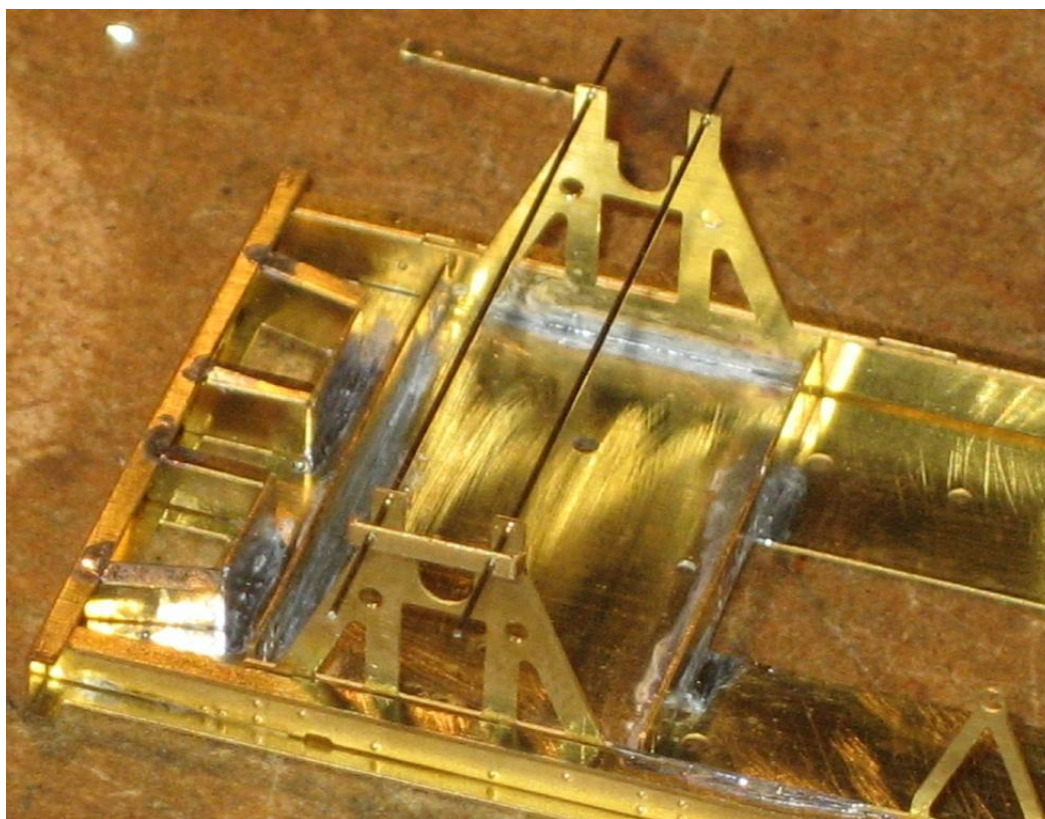
There are two sets of tie bars to suit the different axleguards. One is for the RCH type (16a) and the other for the BR type (16b). The tie bars are designed to be removable if you wish in order to allow the wheel sets to be easily dropped out. They can be soldered permanently in place but either way you will need to make sure the holes will accept 0.31mm wire before removing them set suitable for your choice of axleguard from the fret.

Whether you intend to make them removable or not I would recommend strengthening the tie bars with 0.31mm wire along the back. They are very long on 15' wheelbase wagons and I think they are too fragile to survive unscathed for long especially if they are removable. There are slots etched in the back of the tie bars to allow you to solder a length of wire in easily. Start soldering in the middle and work your way out to each end.





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



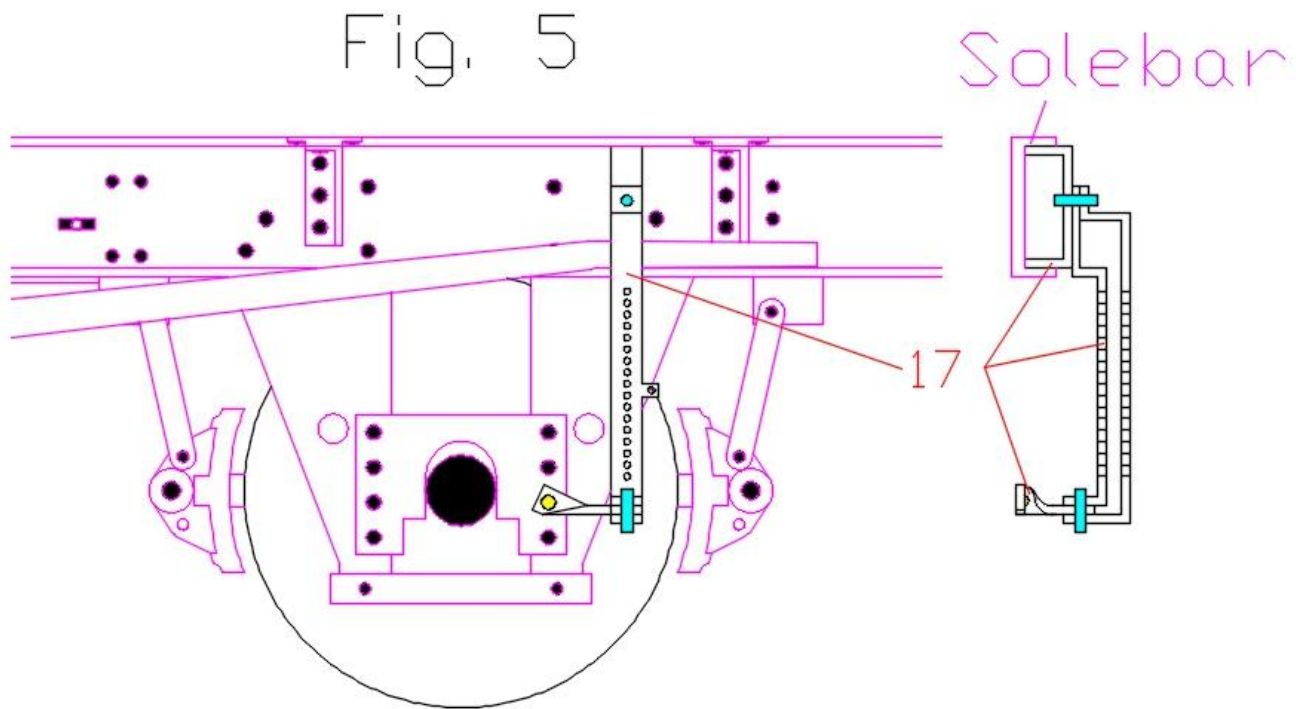
If you want to make them removable to allow the axles to be dropped out then you will need to solder 0.31mm wire 'pins' through the holes in the tie bars. I find the easiest way of doing this is to use one pair of the tie bars as a jig and drill two pairs of 0.3mm holes into a piece of scrap wood. Fold up the end of the tie bar and thread short lengths of 0.31mm wire through the tie bars locating into the holes in the wood. These can then be soldered in place and then filled back to represent bolt heads. You will need to make sure there is at least 0.75mm of wire projecting from the back of the tie bars 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 axleguard as long as possible to give you somewhere to hold them when painting. Once the axleguards and the chassis are painted they can be tack glued together on final assembly. The glued joint can be broken and the tie bars removed if you find it necessary to remove the wheels at any point.

### Brake lever guards

The brake lever guard, brackets and stay (17) can be found on a separate 'Lever Guards' etch. There were some holes that didn't come out on the ones on the main production etch. The stay is etched as part of the lever guard to make life easier. Fitting it as a separate detail is a pain. Remove from the fret and then separate the lever guard/stay from the lever guard bracket.

Press out the half etched rivet on the end of brake lever guard stay. Fold the stay through 180° with the fold line on the outside. Fold the lever guard along with the lever guard bracket as per Fig. 5 below. Insert a piece of 0.31mm wire through the lever guard and stay and solder in place to represent a bolt. The end of the stay needs to be twisted so that it locates on the riveted axlebox guide overlay. Again see Fig. 5 and the prototype picture below.







Solder the folded up lever guard and bracket together using 0.31mm wire. Note that the hole is slightly off centre on the bracket. The hole should end up slightly towards the top of the bracket on the completed lever guard assembly. Trim the wire on both the front and back to represent a bolt. The completed assembly can then be located in the solebar and soldered in place. There are slots in the solebar to receive the lever guard brackets. Solder the stay to the riveted axlebox guide overlay.

### **Axleboxes and springs**

Now is a good time to fit the cast axle boxes (if you haven't already done so in the case of roller bearings) 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 if using the riveted axlebox guide overlays.

## Brake levers

The general arrangement of the brake lever, lifting links and cranks can be found on Fig.1a, Fig.1b and also on the photographs included.

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

Brake levers (19) 0.8mm and 0.31mm  
Secondary brake lever vee overlay (20) 0.31mm  
Lifting link cranks (21) 0.8mm and 0.31mm  
Brake lever actuator (22) 0.8mm  
Lifting links (23) 0.31mm  
Brake lever washer (24) 0.8mm

Note that there are two types of lifting link cranks (21). The crank goes behind the brake shaft vee and then is bent to align with the brake lever and lifting links. There is a solid crank to be bent up prototypically or one with half etched fold lines to make things easier if required.

## Lifting link brake lever

A piece of 0.31mm wire needs to be soldered in place so that it projects at least 1mm on both sides at the end of the lifting link brake lever. If you are in any doubt this is the lever with two holes in. This will enable you to locate the lifting link in place. The same thing needs to be done with the lifting link crank (21) of your choice. A short length of 0.8mm wire needs to be soldered through the brake lever. The easiest way of doing these pins is to follow a similar method to the pins in the axle guards by drilling holes in a piece of scrap soft wood to accept the appropriate size of wire and then soldering in place.



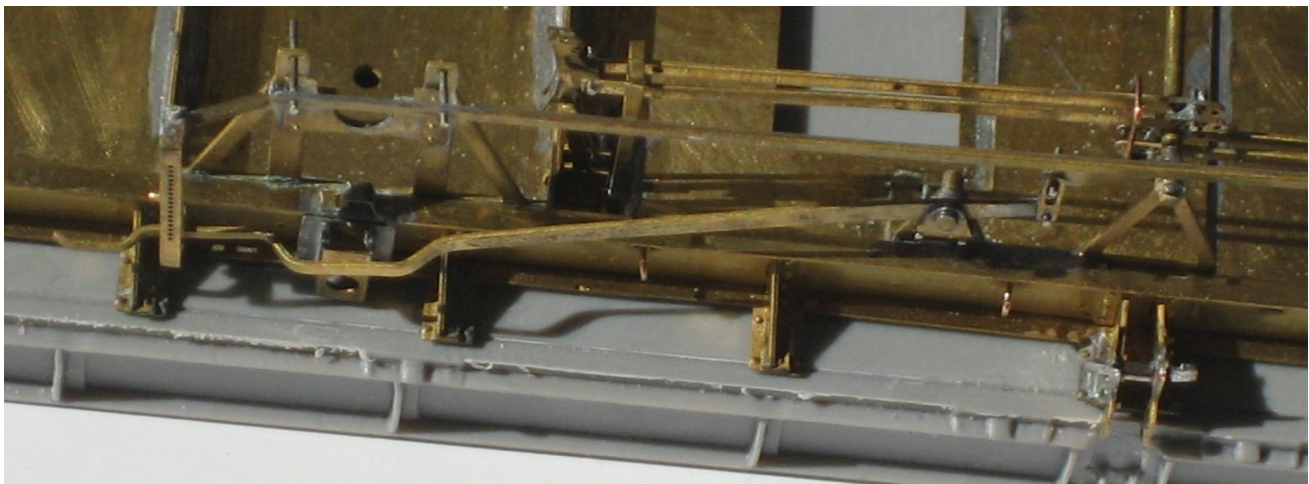


The brake lever needs to be bent up as per the prototype clearing the axleboxes and then cranked for the handle. Check on the model and adjust until you are happy with the shape. Once you are happy with the shape the brake lever can be soldered in place. You will need to fix the secondary brake lever vee overlay (20) in place at the same time. There are 0.31mm holes in it and the vee on the W-Iron assembly for short wire pins to aid this.

The lifting link crank (21) can now be bent or folded to shape depending on type. Note that the crank goes behind the vee. Adjust if necessary so that it aligns with the brake lever when placed behind the main brake shaft vee. At this time remove the brake lever actuator (22) from the fret and fold the small tab on it through 90°.

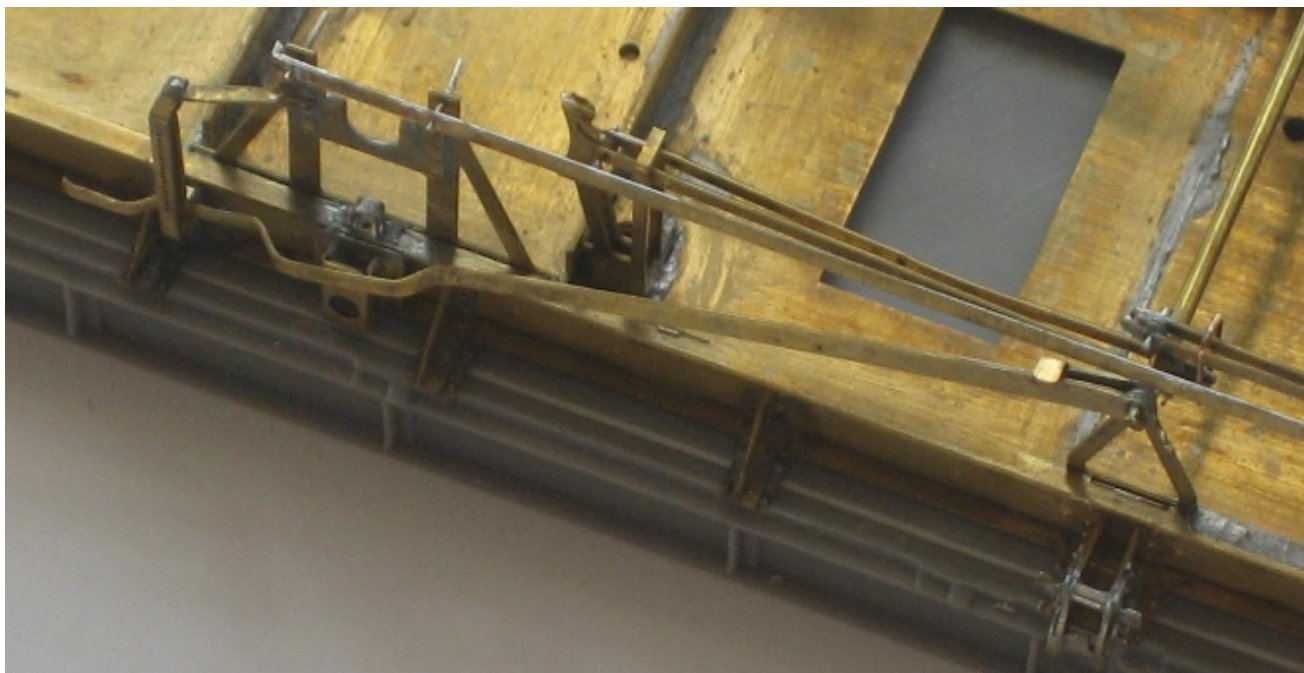
Cut a length of 0.8mm wire to form the brake shaft. This should extend approximately 0.5mm from each of the vees. Locate through the vees with the lifting link crank and brake lever actuator threaded on to it. Note that the brake lever actuator should be arranged so that the tab faces outwards from the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

Next fit the lifting links (23) in place joining up the brake lever and the lifting link crank and solder in place. Note that there should be two lifting links, one on either side of the lever/crank. I find some aluminium soldering clips are handy when doing this as it's a bit of a fiddle. A washer (24) can be added to the brake shaft on the outside of the vee and the lifting link crank soldered in place.



### **Non-lifting link brake levers**

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



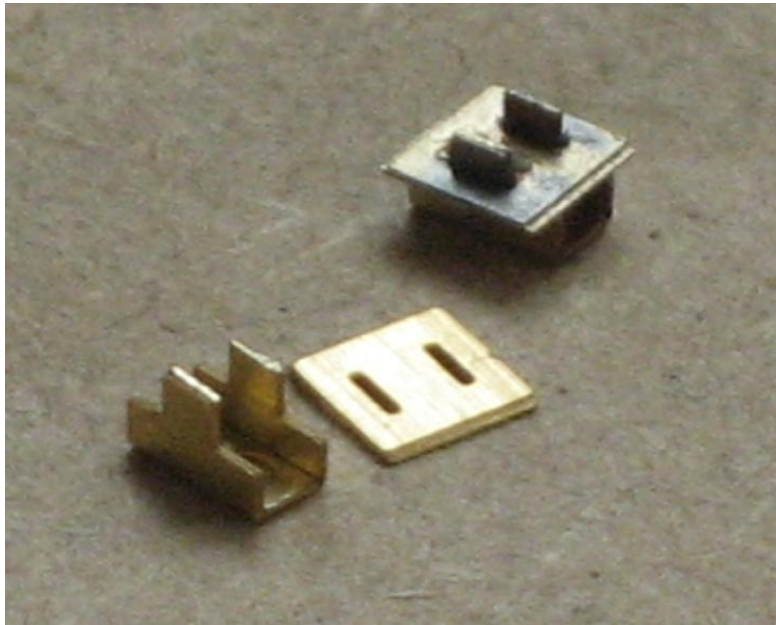
### **Headstock detailing**

Now is as good a time as any to fit the coupling pocket detail (25). There are two types included. There is a large rectangular riveted overlay and a small rectangular welded overlay. Check your prototype. The vast majority (indeed if not all) had the riveted type. 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.



## Double Bolster Pockets

The double bolster wagons were fitted with distinctive pockets on the solebar above the centre of each axleguard. They remained on those that were converted to plate wagons. This is a very easy way to spot an ex double bolster in use as a plate wagon. There are two parts to each pocket, a back plate (26) and a front (27). Remove from the fret and fold up the front into an L shape. Solder this into the back plate using the tabs and slots provided. Note that there are two half etched areas on one side of the back plate. These are designed to help locate the assembly on the solebar. Make sure they are on the back. Solder the assembly to the solebar directly above the centre of the axleguard noting that the hole goes towards the top of the solebar. See Fig. 1a or Fig. 1b.



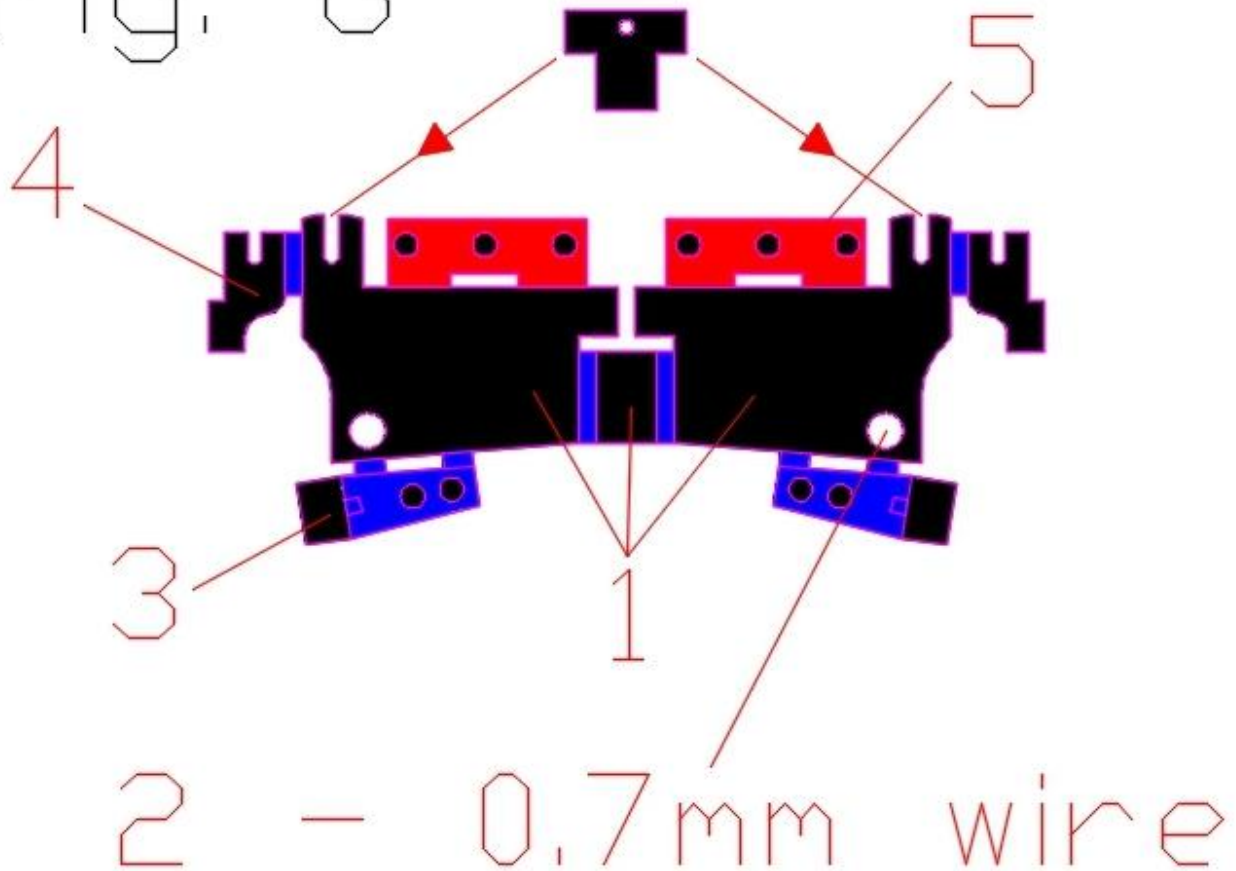
## Central door support bracket

The central support for the doors on plate wagons were removable to allow access to the whole length of the body and because of this they had a heavy bracket in the centre of the solebar to locate them.

A central door support bracket (28) is included with all the plate wagon chassis. It is in two parts, a main assembly to replicate the bracket itself and a T shaped plate that slots into the top. The main assembly is designed to fold up as one piece. Refer to Fig. 6 and the prototype picture below as you go along.



Fig. 6



1 – Remove the central door support bracket from the fret and clean up any tags. Fold the two sides at 90° to the piece connecting them to form a U shape.

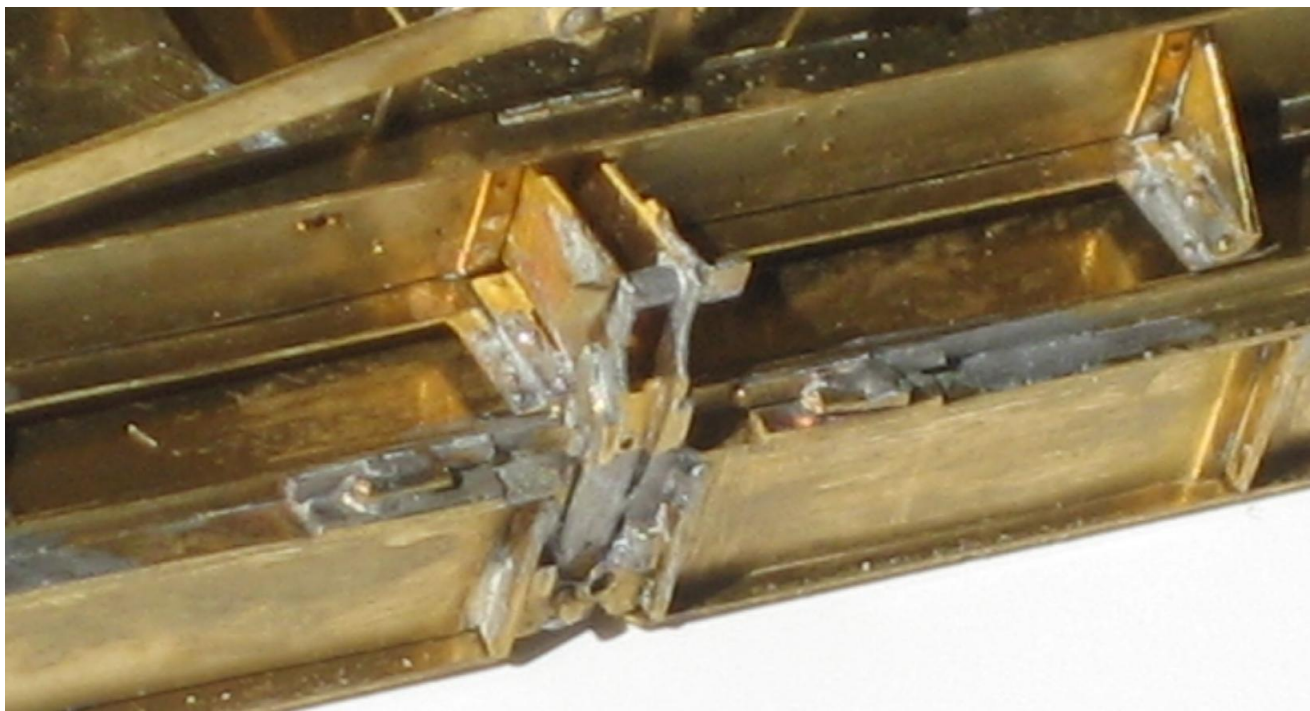
2 – Solder a piece of 0.7mm wire through the two holes in the sides. The wire will need to be filed flush with the outside of the bracket sides.

3 – There are small ‘wings’ at the bottom of the sides. These need to be folded through 180° so that the rivet detail is on the outside. The small full thickness rectangles on the front of the wings need to be folded through 90°. See the photo below. Solder in place.

4 – On each side are reinforcing pieces for the slot that locates the T shaped plate. These should be folded through 180° and soldered in place. Locate the T shaped plate into the slots in the top of the bracket and solder in place.

5 – The two sections that remain untouched on the top of the bracket need to be folded outwards through 90°.

The completed assemblies can now be located into the centre of the solebars using the tabs and slots provided and soldered in place in a similar manner to the side support brackets.



## **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 will 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 the body. Careful use of a piercing saw or scalpel and file will do the job.

The suspension on the underframe is designed to work optimally under a 50g load.

Generally I like to hide the lead ballast in the floor of the wagon. There is a little space in between the tops of the solebars. Something like spare brass sheet could be used to fill this area. If you are using the Rumney Models body the floor is placed at the correct height so there is a recess in the bottom of the body. This can be used to hide thin lead flashing as ballast after having checked the weight of the wagon. Given the size of the underframe there is plenty of scope for placing lead ballast amongst all the brakegear.

## **Finally**

Thanks must go to the staff of the Nene Valley Railway for letting me measure up and photograph at close quarters the Plate wagon in their care.

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 (Wire and sundries)  
Unit 19.12 Highnam Business Centre  
Newent Road  
Gloucester  
GL2 8DN  
UK  
[www.eileensemposium.com](http://www.eileensemposium.com)

Parkside Dundas (Plate wagon bodies)  
Millie Street  
Kirkcaldy  
Fife  
Scotland  
KY1 2NL  
[www.parksidedundas.co.uk](http://www.parksidedundas.co.uk)

Lanarkshire Models and Supplies  
(buffers)  
9 Nairn Avenue  
Blantyre  
G72 9NF  
[www.lanarkshiremodels.com](http://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)  
Michael Clark  
c/o 27 Crotch Crescent  
New Marston  
Oxford  
OX3 0JL  
[www.scalefour.org/masokits](http://www.scalefour.org/masokits)

MJT (axleboxes and spring castings)  
17 Hurst Close  
Staplehurst  
Tonbridge  
Kent  
TN12 0BX  
[www.dartcastings.co.uk](http://www.dartcastings.co.uk)

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