Rumney Models - 7mm Scale 21T Lifting Link Underframe Detailing

Notes

This set of instructions cover Rumney Models kit OB.110. This is designed to provide detailing pack for wagon underframes fitted with 12' RCH lifting link brakegear. This includes things like 21T minerals, 21T hoppers and engineering wagons such as the Grampus.

The plastic wagons can be assembled before fitting the detailing parts though it is worth remembering that space needs to be left for the etched vees behind the centre of the solebar and working on the solebars themselves, when drilling holes for things like lever guard brackets, is much easier before fitting the solebars to the wagon. I am a big fan of pinned joints between small metal and plastic parts as the joints are hopelessly vulnerable otherwise. I would suggest assembling the basic kit whilst leaving off any detailing parts that are included in these etches or can be fitted at a later point and leaving the solebars off until work has started on the etched components. Also note that the brakegear is designed to fit within the plastic trussing that accompanies at least Parkside's 7mm wagons.

Broadly the instructions come in two parts. The first deals with construction of the brakegear and the second the rest of the detailing components and assembly.

Construction Notes

Read through the instructions first and familiarise yourself with the components. Drawings and photographs are included to attempt to make my waffle clearer.

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

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.

Materials list

A few different sizes of wire are needed to build the items on the fret. Eileen's Emporium are good source for these and they do a mixed sizes pack if you don't want to buy large quantities.

0.5mm - Brakegear, tiebars, lever guards
0.7mm - Hopper door mechanism
1.0mm - Brakegear alignment pins
1.4mm - Main brake cross shaft and lifting link brake levers

I chose to make the holes for the main brake cross shaft and brake levers 1.4mm as this is what it should be when scaled out to 7mm. I neglected to check to see if this size of wire was readily available from the trade and it looks like it isn't. Eileen's Emporium sells 1.2mm wire which is probably the best alternative.

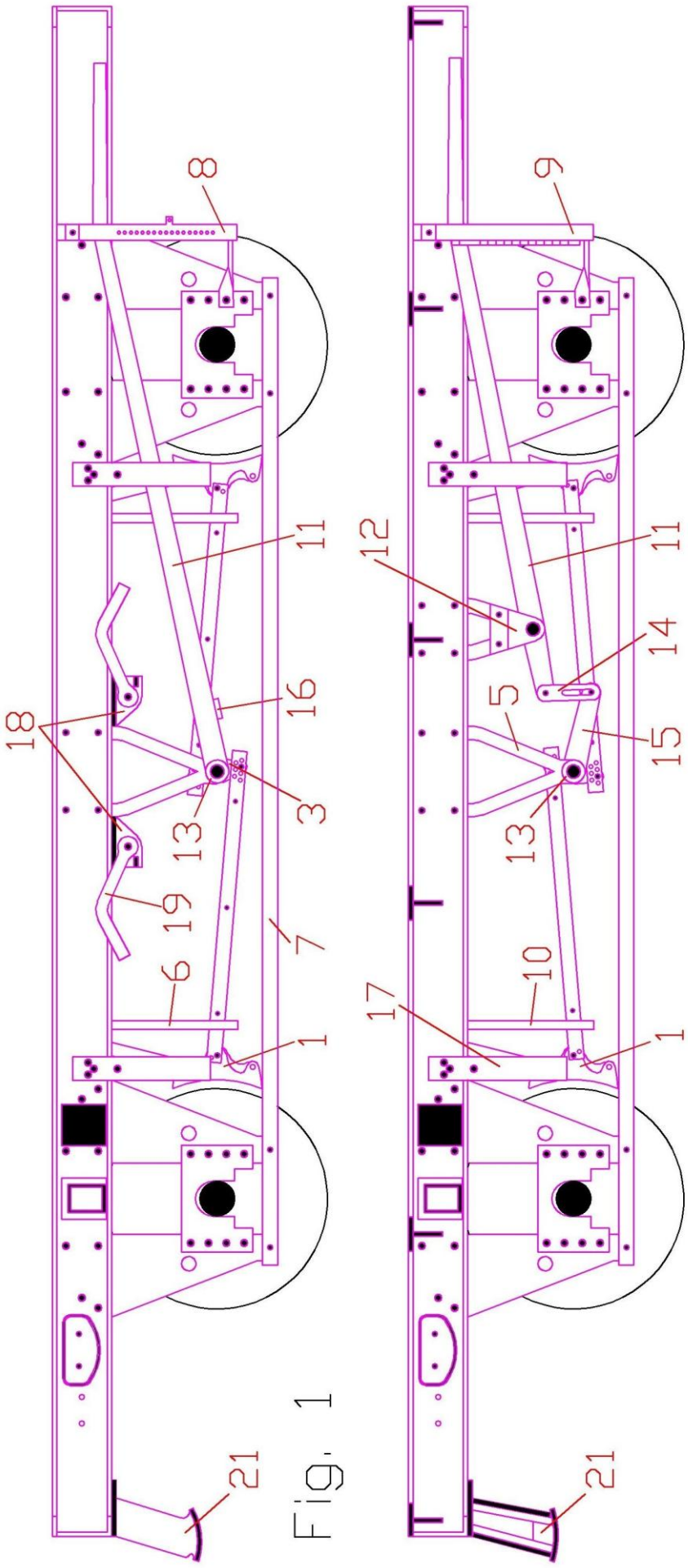
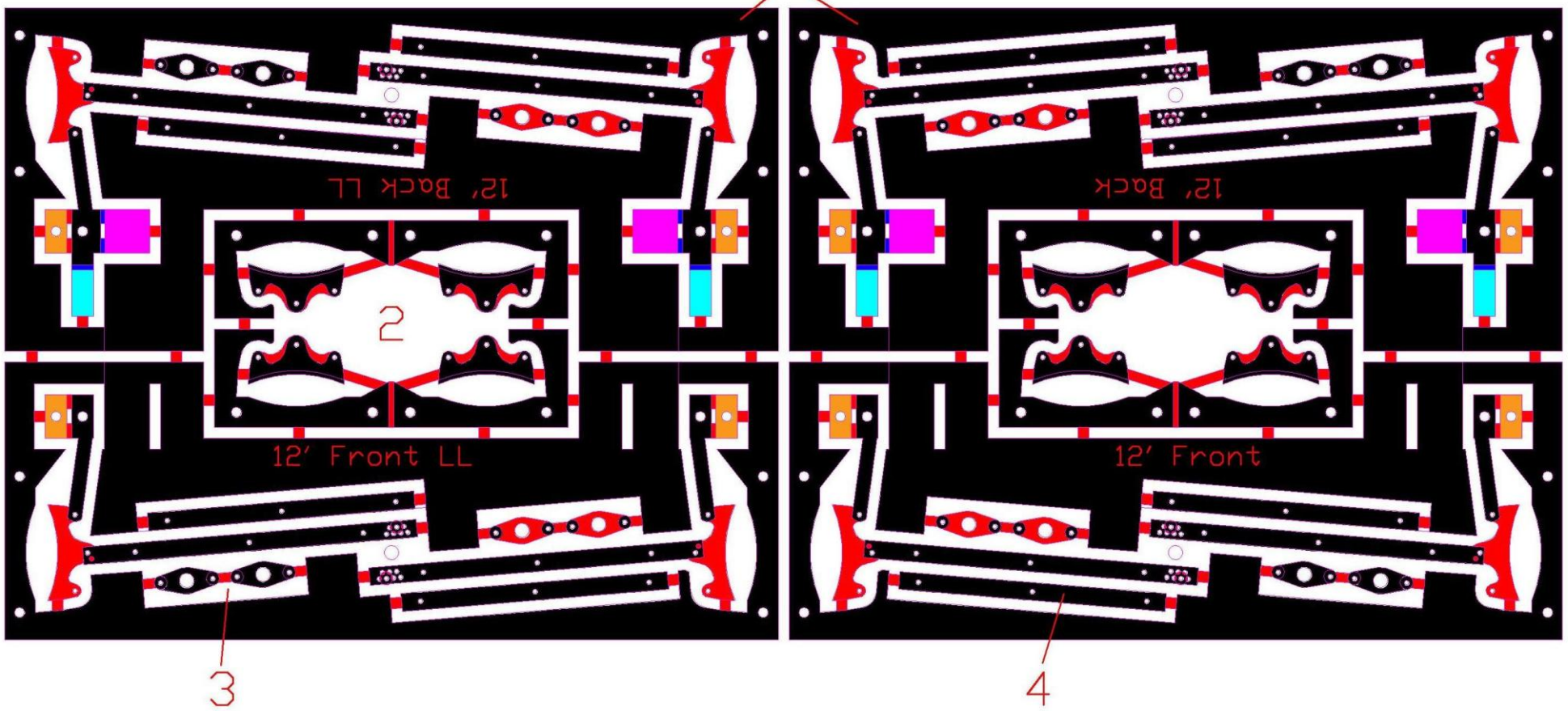


Fig. 1

B.110 - Brakegear



Brakegear Instructions

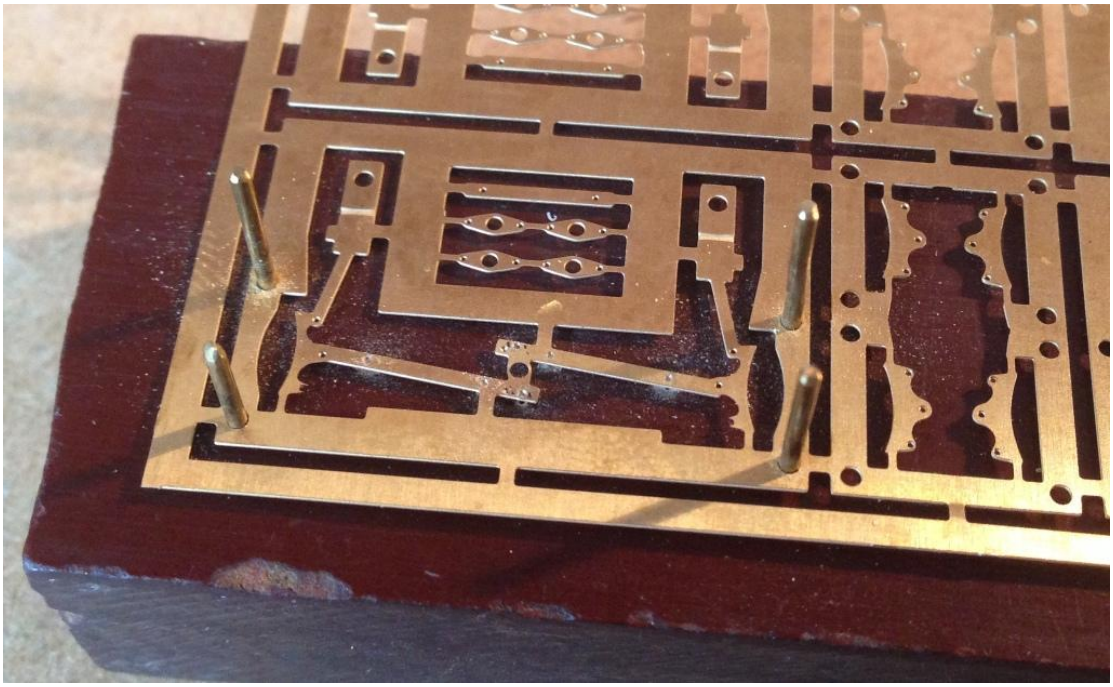
Parts List

1 - Brakegear
2 - Brake shoes
3 - Brakegear cranks
4 - Push rod infills

Construction

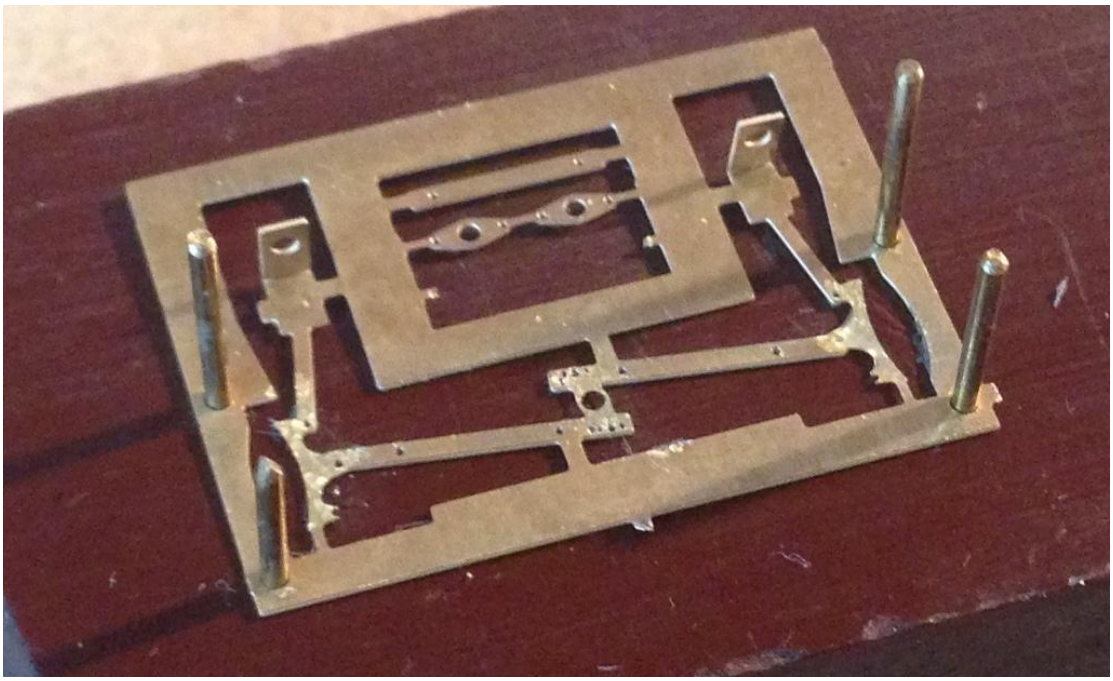
The brakegear is designed to be assembled and soldered together whilst still attached to the frets. This is done by pinning the relevant parts together using 1mm and 0.5mm wire and then once everything is soldered in place the parts can be removed and cleaned up. The following photos are of a shorter wheelbase 4mm version which differs slightly but not in principle. Note that there are two sets one of which is labelled LL for lifting link and that set goes, unsurprisingly, on the side where the lifting links are.

The first step is to create a jig to aid assembling everything. Use a suitable piece of wood or mdf. Using the brakegear (1) as a guide, drill through the one of the parts labelled front (it doesn't matter which one of the two) with the writing facing towards the wood. The larger holes are 1mm diameter and the smaller ones 0.5mm. The two sets are mirrored so when assembling the other set of brakegear you don't need a second jig but place the frets so that the side labelled back is orientated with the writing facing towards the wood.

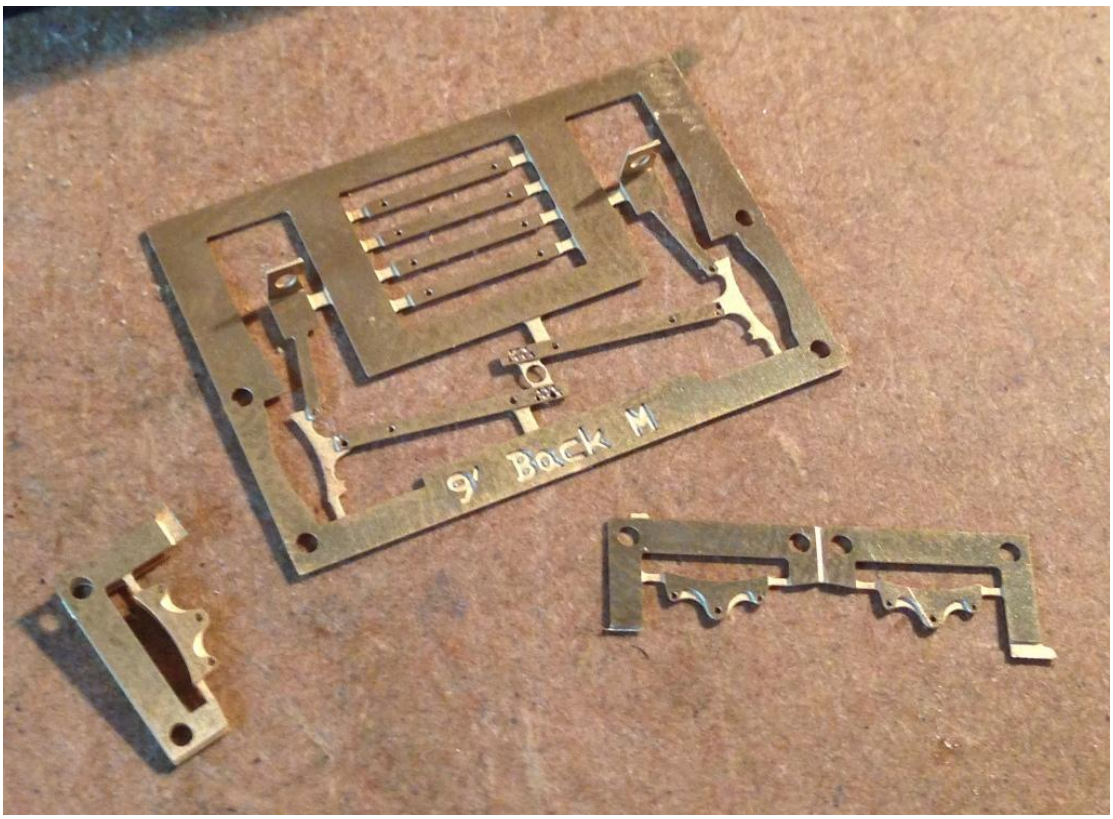


Check that the small holes in the fret can accept 0.5mm wire. Remove the brakegear cranks (3) and push rod infills (4) (if required). There are two types of brake shaft cranks one set that are full thickness and one set with half etched areas to look more like the prototype, the choice is yours. Carefully fold up the parts marked green on the brakegear parts diagram through 180° with the fold line on the outside (to do this you will need to snip the connecting tag that joins this part).

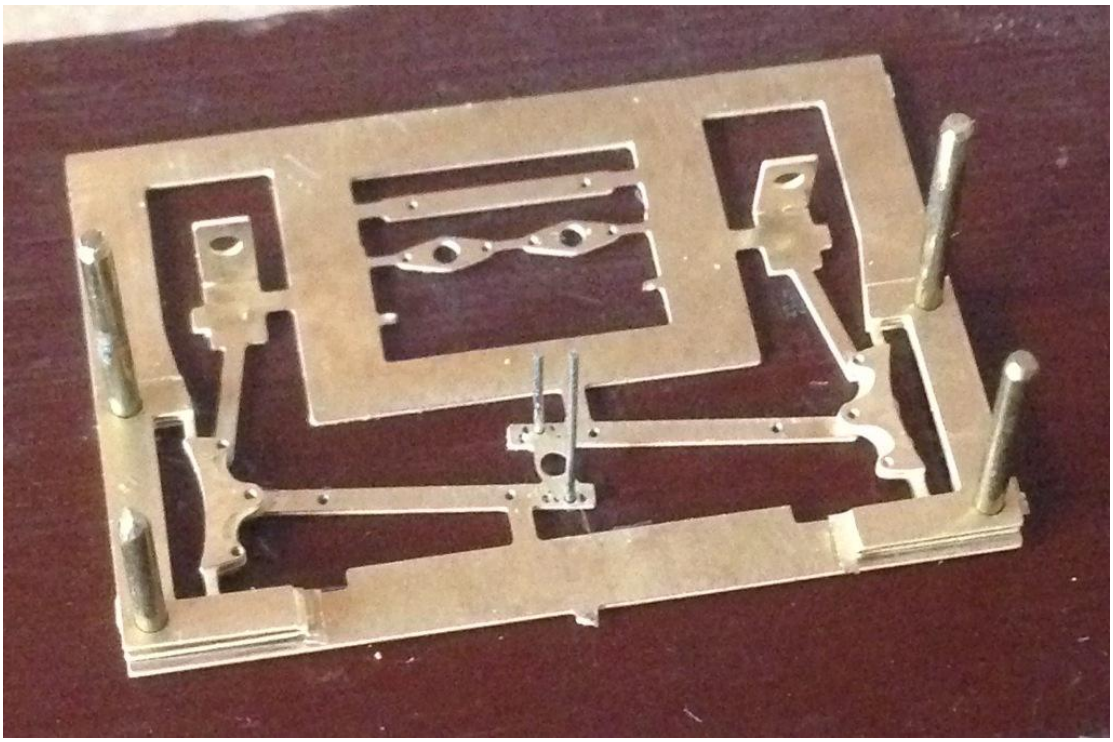
To assemble start with the part you used to drill the jig with and pin to the jig using short lengths of 1mm wire, writing side facing down.



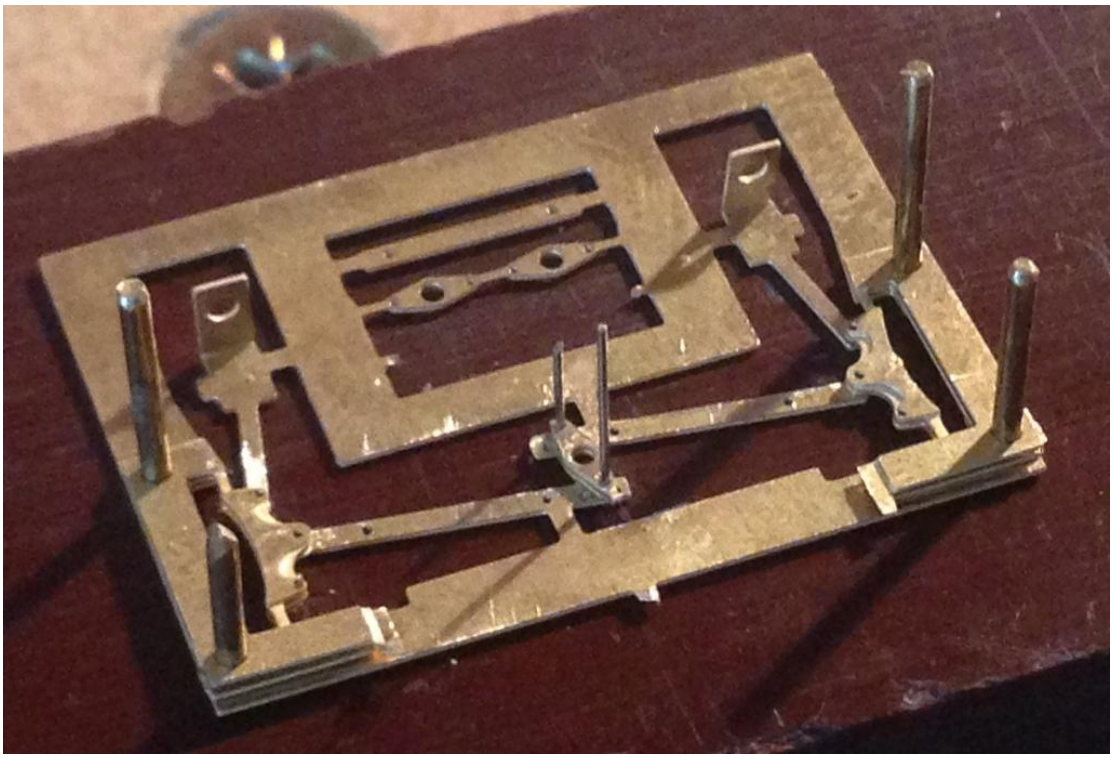
Take the brake shoes (2) and fold double with the fold line on the outside.



Place the brake shoe parts over the front using the 1mm wire rods to align everything. Insert two short lengths of 0.5mm wire onto the holes where the push rods join the brake shaft cranks.

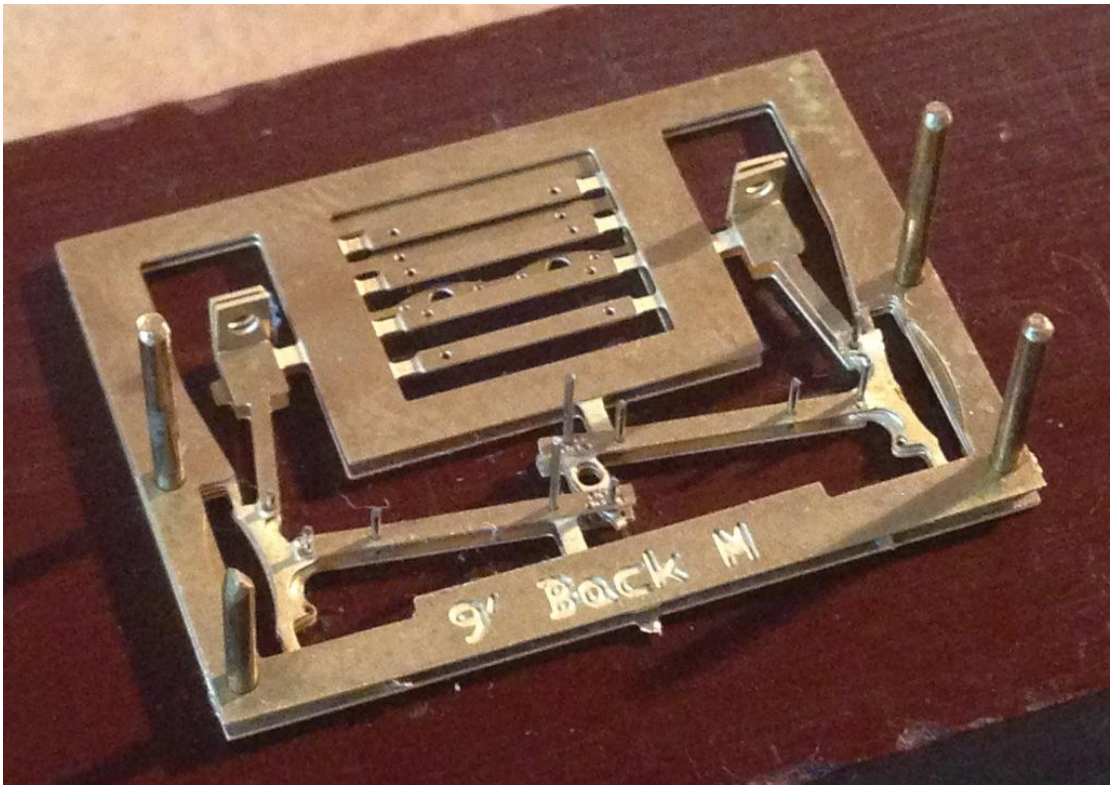


Fold up one set of brake shaft cranks and place onto the two lengths of 0.5mm wire.



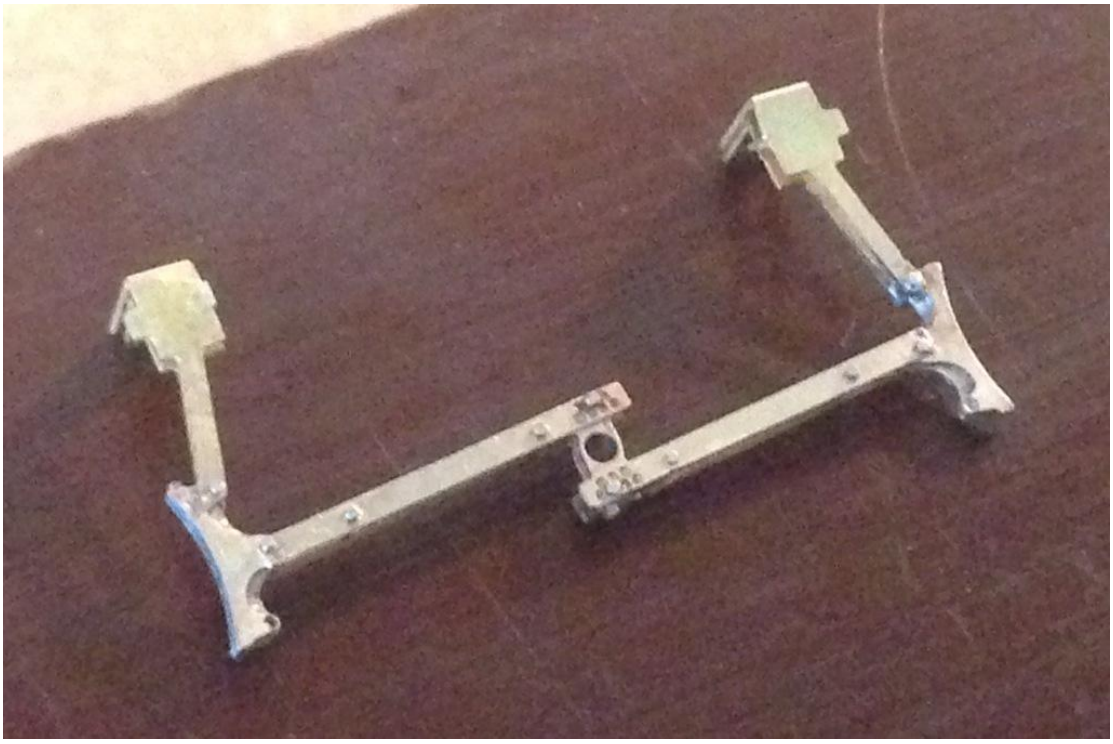
If you wish to use the push rod spacing pieces provided then repeat the process for these parts.

Carefully fold up the part marked in green on the brakegear parts diagram on the corresponding back part of the brakegear and pin onto the assembled layers with the writing visible and facing away from everything else. Make sure all the bits of wire go where they should. Fill the remaining holes with 0.5mm wire making sure it goes all the way through.



Solder the layers together paying particular attention to the brake shoes (I found it best to apply solder to the long curved edge) and the joints where the wire meets the etch.

Carefully remove the brakegear from the fret; I used a piercing saw. Clean up any tags that are left and also the wire to represent bolt heads.



Fitting the brakegear needs to be done when the wheels are in place. This means that the solebars will need to be prepared and fitted to the wagon. So we will continue to the detailing parts before returning to fit the brakegear.

Detailing Instructions

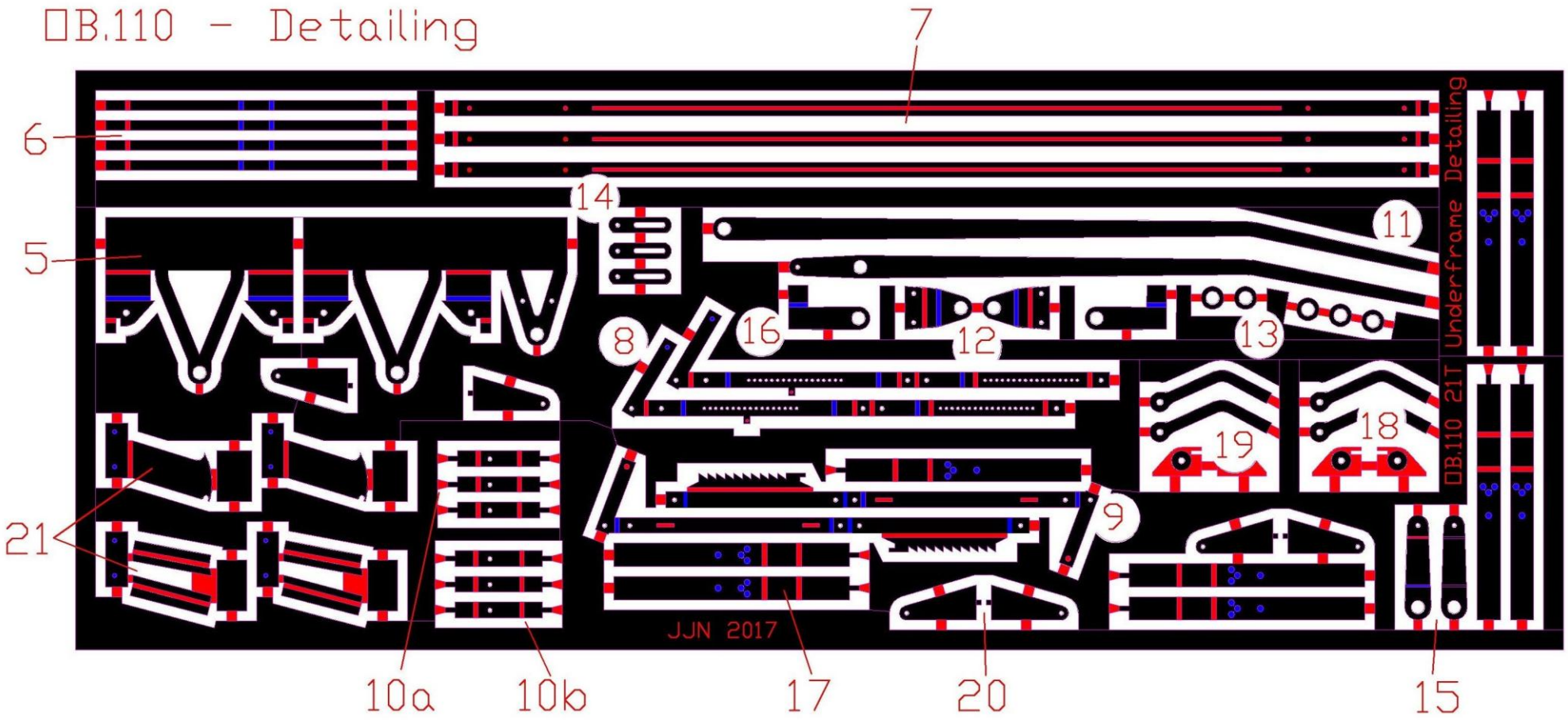
Parts List

5 - Vees
6 - Push rod safety loops
7 - Tiebars

8 - Brake lever guard (Pin type)
9 - Brake lever guard (GWR)
10a - Brake lever guard brackets (Parkside 21T Hopper)
10b - Brake lever guard brackets (Parkside Grampus)

11 - Brake levers
12 - Secondary brake lever vee overlay
13 - Brake lever washers
14 - Lifting links
15 - Lifting link cranks
16 - Brake lever actuator

17 - Mineral wagon door springs
18 - 21T hopper door handle bracket overlay
19 - 21T hopper door handles
20 - 21T hopper handrail brackets
21 - 21T hopper steps


□B.110 - Detailing
7
6
5
14
11
8
16
12
13
□B.110 21T Underframe Detailing
19
18
9
21
JJN 2017
10a
10b
17
20
15

Solebar preparation

The first job is to prep the solebars for fitting to the wagon. As mentioned in the intro I am a big fan of pinned joints between plastic and brass components so a series of holes will need to be drilled for the brake lever guard bracket and, if building a 21T or 24½T mineral or a Grampus, the door springs. If you are constructing a Grampus and using Rumney Models detailing kit OB.109 then once the holes for the brake lever guard bracket have been drilled to refer to the instructions for that kit for fitting the door springs.

The holes are drilled at the intersection of the top/bottom and back of the solebar. The holes for the brake lever guard bracket are at the top and bottom and those for the 21T minerals door springs are at the bottom only. The various dimensions on the solebar for drilling the holes can be found in Fig. 2. These are scaled up form the prototype. With the 21T mineral door springs you may want to check these against the body as the springs should be in the centre of each door.

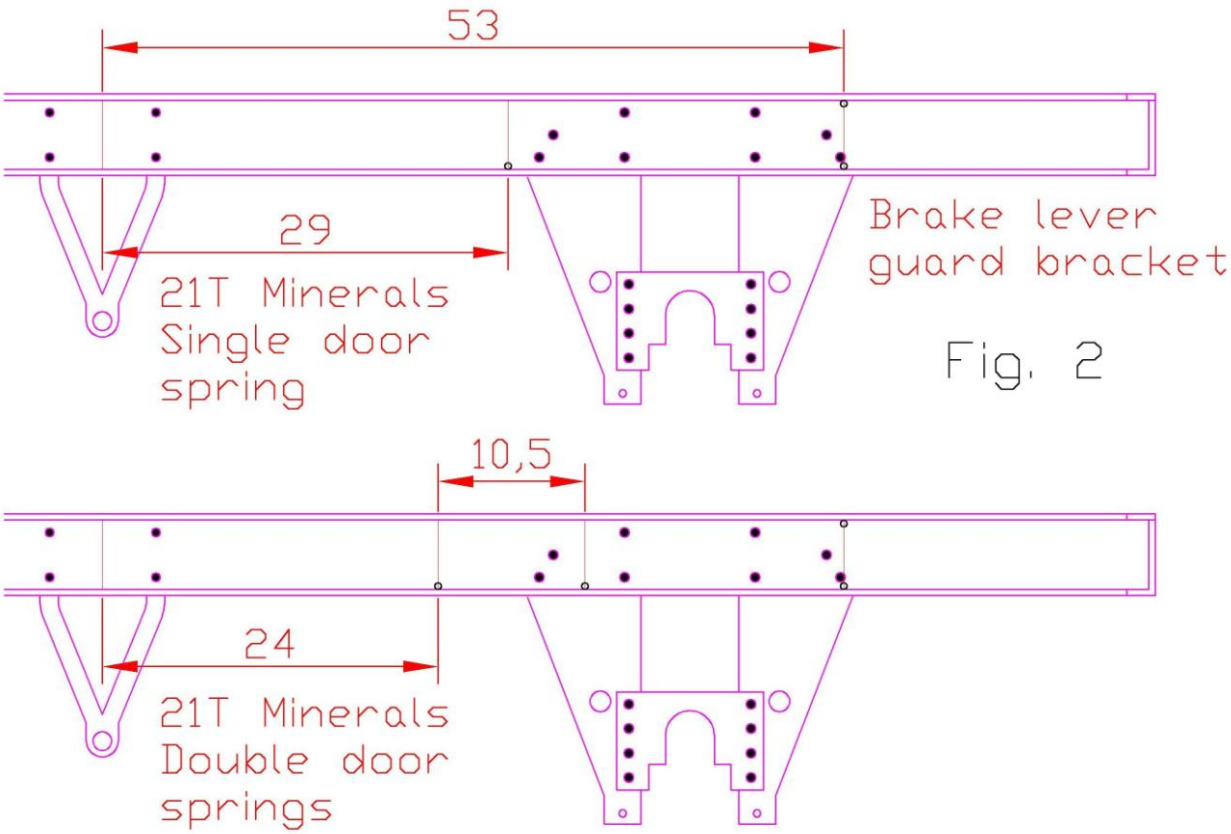


Fig. 2

If the solebar comes with plastic vees attached these can be removed in preparation for the fitting of the etched ones. Also if you wish to make use of the etched tiebars then the plastic ones can be removed at this point.

Once the solebars are in place and the wheels fitted the brakegear can then be fitted to the wagon. There are two tags on each set of brakegear which are marked in magenta and cyan on the brakegear parts diagram on page 3 and they are designed to make attaching the brakegear easier depending on the type of underframe you have. You should remove the parts marked in cyan if you are fitting the brakegear to 21T hoppers and the parts marked in magenta if fitting to something with a solid floor such as a Grampus or 21T mineral. The remaining tags can then be folded up and the brakegear glued in place to the wagon making sure that the brake shoes align with the wheels.

Vees and safety loops

Once the brakegear is fixed in place this can be used to set the position of the vees (5). Each set of vees has brackets on them for the door opening handles on 21T hoppers. If you are constructing a 21T hopper then drill the holes out in the brackets 0.7mm and then fold up, otherwise remove. Make sure the small holes in the lifting link vee can accept 0.5mm wire. Using a length of wire through the vees and brakegear to align everything, glue the vees to the back of the solebar.

The push rod safety loops (6) can be added next these simply fold up and then can be glued to the transverse cross members on the plastic underframe trussing.

Tie Bars

Tie bars (7) are included. I always find plastic tiebars very fragile and prone to warping. If you wish to replace them then now is a good time to fit the etched ones.

Despite the greater robustness of the brass compared to plastic, brass tie bars are still easily bent. To solve this I have included a half etched grove along the back to the tie bar into which a length of 0.5mm wire can be soldered which will make them a lot stronger.

When it comes to fitting them you have two choices. Either you can simply press out the half etched rivets, fold out the ends and then fit in place or you can pin the tiebars to the axleguards. This is by far the more robust method of attaching them. In order to do this a little work is requires. Drill out the four half etched holes in each of the tiebars to accept 0.5mm wire. Clamp a tie bar to the axleguards on the wagon and use it as a jig to drill four holes through the plastic and then do similar into a piece of scrap mdf or similar. Place the tie bar onto the scrap wood with the holes drilled into it and insert four lengths of 0.5mm wire trough the tie bar and into the wood. Solder in place. Solder a length of 0.5mm wire into the slot to reinforce the tie bar and fold up the ends. Once the 0.5mm wire has been tidied up to resemble bolt heads the tie bars can be fed into the holes in the plastic and glued in place.

Brake lever guards

There are two types included on the fret a standard pin type (8) and a GWR type (9). Make sure that the holes in the brake levers guards of your choice (8 or 9) and the appropriate brake lever guard brackets (10a or 10b) can accept 0.5mm wire and remove from the fret.

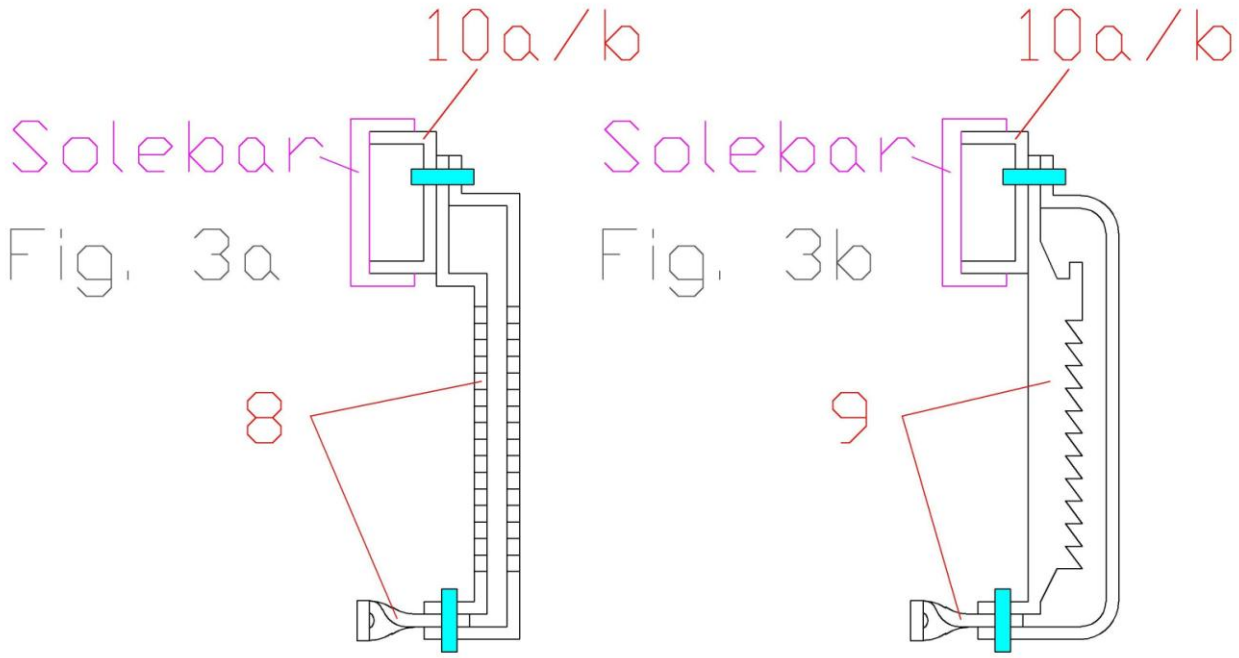
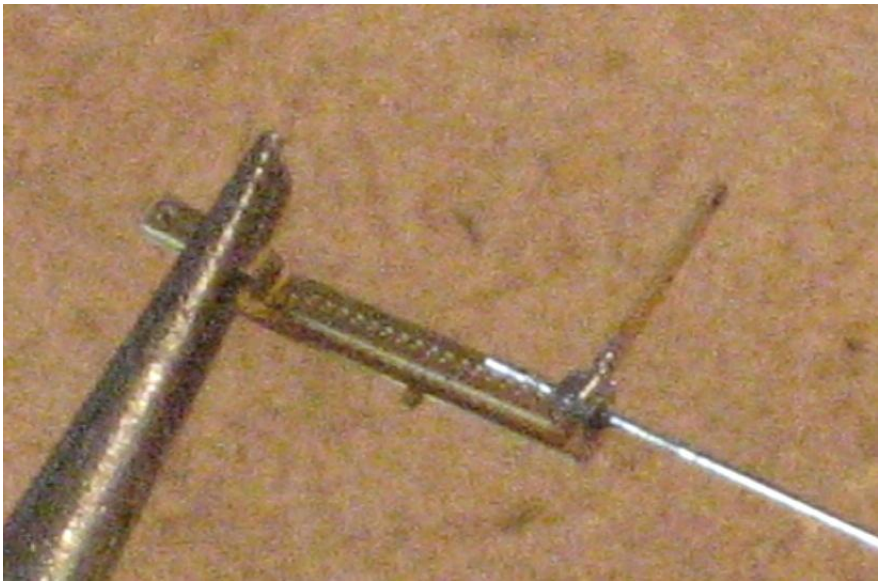


Fig. 3a

Fig. 3b

The brake lever guards come with their stays attached. The first thing to do is to push out the fold the stay through 180° with the fold line on the outside and solder a length of wire through the holes where the lever guard and stay meet to represent a bolt. You will also need to push out the rivet at the end of the stay or drill it out 0.5mm in preparation for pining it to the axleguard and then twist the end of the stay to fit against the axleguard.

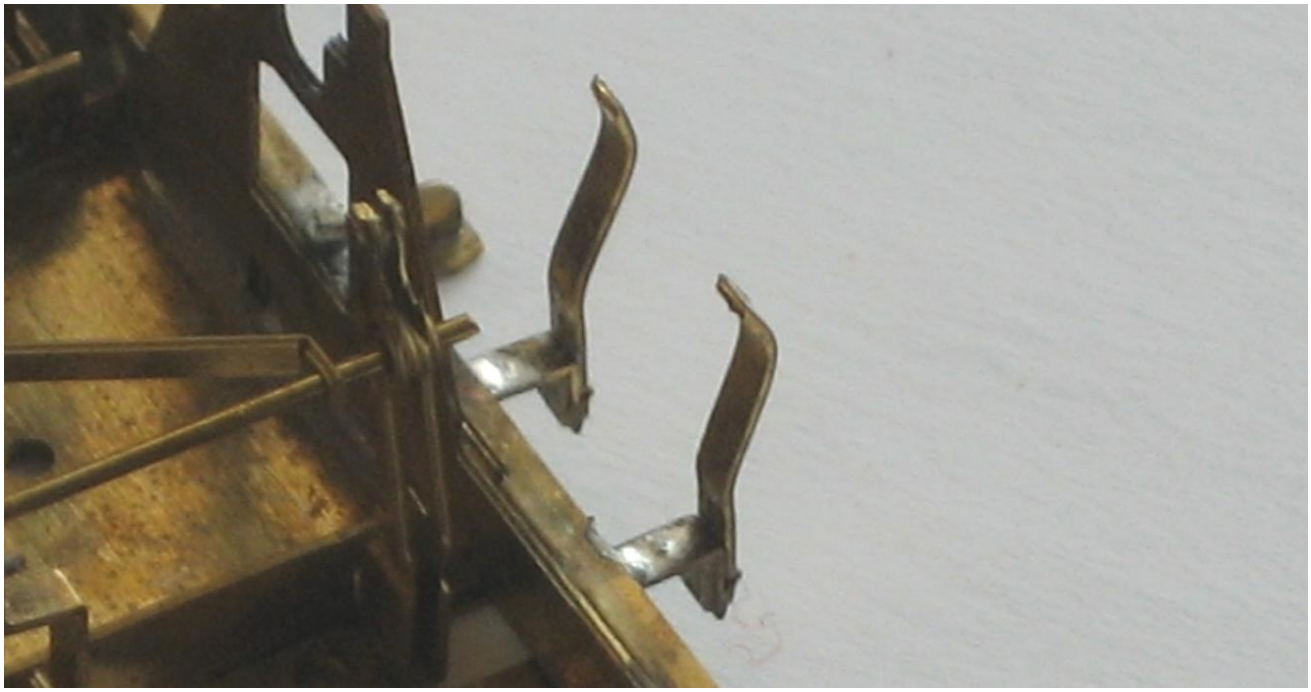
Fold the lever guard along with the lever guard bracket referring to Fig. 3a or 3b depending on the type. Note that for the GWR type the toothed part needs to be folded up and also note that the front of the guard is curved at the top and the bottom. There are half etched markers to aid with the location of these bends.



Solder the lever guard and bracket together using 0.5mm wire to align them. Trim the wire on both the front and back to represent a bolt. The whole assembly can then be glued in place using the holes in the solebar to locate the bracket.

21T Mineral door springs

Though it may seem jumping ahead a little now is the best time to fit the 21T mineral door springs (17) if required. You will need to bend the brake levers so they go behind the door springs and this is easier to do if they are in place. The door springs locate into the holes you drilled into the solebar. 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 glue in position against the lower edge of the solebar.



Brake levers

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

Brake levers (11) 1.4mm and 0.5mm
Secondary brake lever vee overlay (12) 1.4mm & 0.5mm
Brake lever washers (13) 1.4mm
Lifting links (14) 0.5mm
Lifting link cranks (15) 1.4mm and 0.5mm
Brake lever actuator (16) 1.4mm

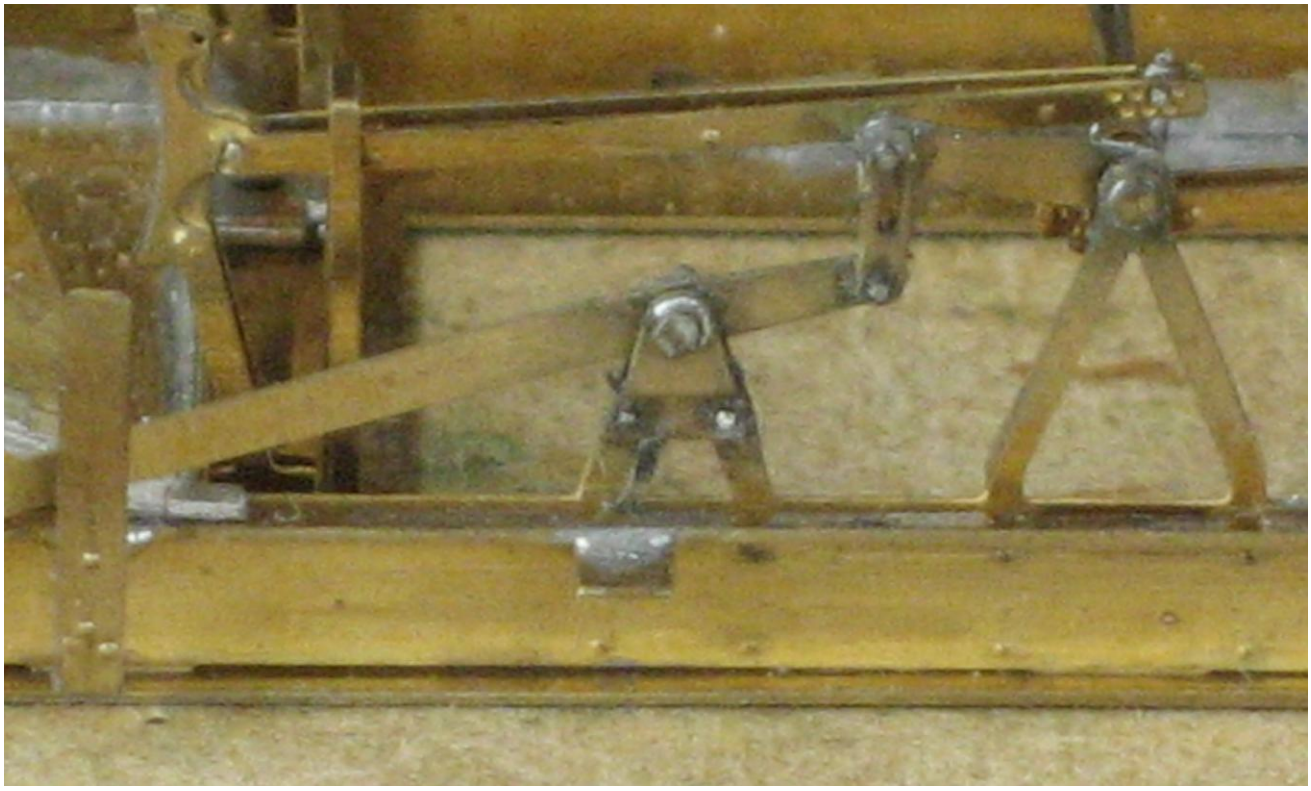
Note that there are two types of lifting link cranks (15). The crank goes behind the brake shaft vee and then is bent to align with the brake lever and lifting links. There is a solid crank to be bent up prototypically or one with half etched fold lines to make things easier if required.

Lifting link brake lever

A piece of 0.5mm 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 (11). A bit more wire will make things easier which can then be tidied up afterwards. 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 (15) of your choice. A short length of 1.4mm 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 tie bars by drilling holes in a piece of scrap soft wood to accept the appropriate size of wire and then soldering in place.

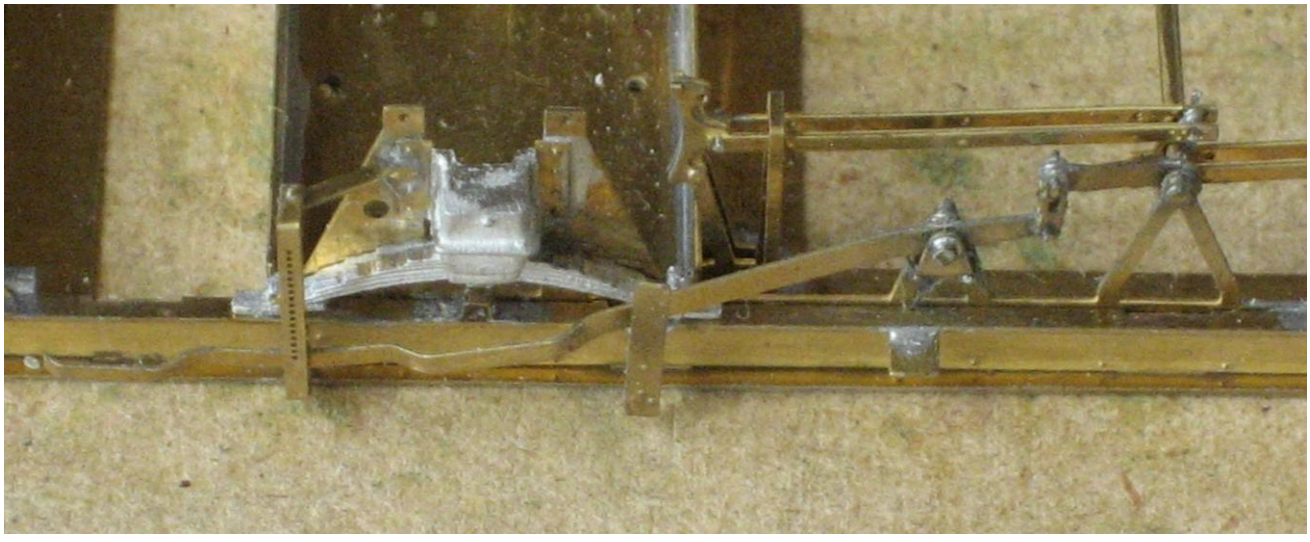
The brake lever needs to be bent up as per the prototype clearing the axleboxes and then cranked for the handle. Check on the model and adjust until you are happy with the shape. Once you are happy with the shape the brake lever can be soldered in place. You will need to fix the secondary brake lever vee overlay (12) in place at the same time. There are 0.5mm holes in it and the appropriate vee (5) to aid this.

The lifting link crank 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 from the fret and fold the small tab on it through 90°.



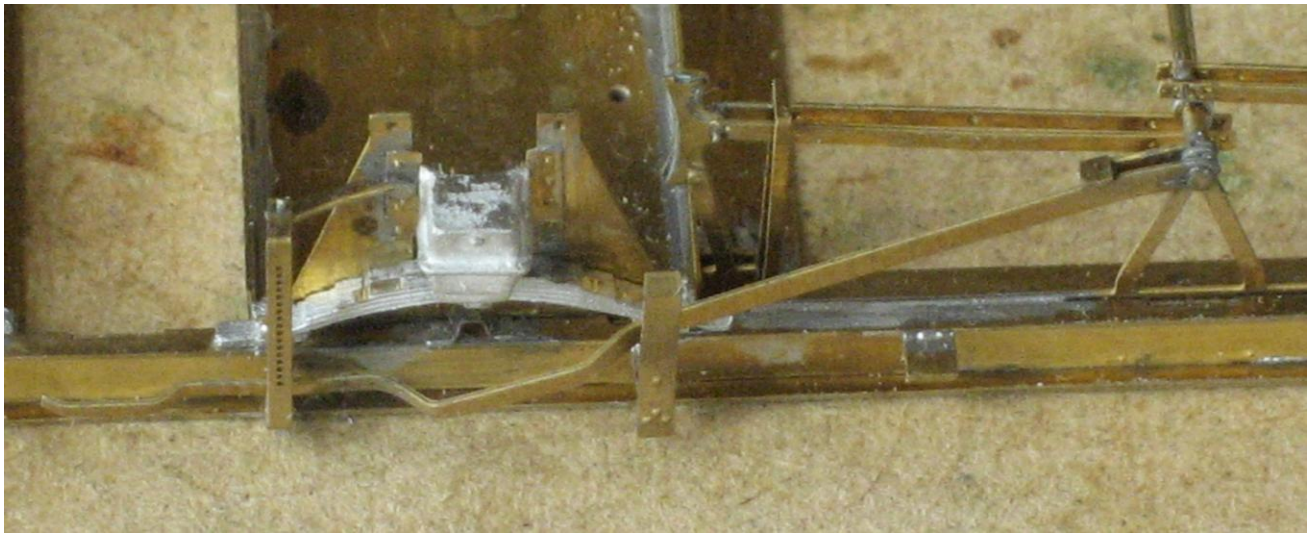
Cut a length of 1.4mm wire to form the brake shaft. This should extend approximately 1mm beyond each of the vees. Locate through the vees with the lifting link crank and brake lever actuator (if required) threaded on to it. Note that the brake lever actuator should be arranged so that the tab faces outwards from the chassis. 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 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.



Non lifting link side brake lever

As with the lifting link brake lever, it 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 then solder in place. Solder the brake lever actuator in place so that the tab is up against the bottom of the brake lever as illustrated below.



21T Hopper door handles

Fit two lengths of 0.7mm wire on the chassis so that they pass through the hopper door handle brackets on each vee and project past the each side of the underframe. Carefully solder in place to the brackets. Remove the hopper door handle bracket overlays (18) from the fret and fix in place using the 0.7mm wire as a locating aid. Make sure the hopper door handles (19) can accept 0.7mm wire and remove from the fret. The handles need to be bent so that they clear the solebars. Locate on the wire and solder in place. Any excess in the wire can now be trimmed back.

21T Hopper handrails

The arrangement of the handrails on the ends of 21T hoppers varied considerably. I have included some handrail brackets (20) to replicate the type seen below. Use 0.5mm wire for the handrail and glue the brackets in place on the hopper ends.

21T Hopper steps

There are two types of end step (21) included for fitting to 21T hoppers. There didn't seem to be much of a pattern to which type was fitted so check your prototype.

Fabricated

Plain

This is another area where you may wish to pin the brass part to the plastic moulding. If you don't then simply press out the half etched rivets that represent the bolts used to attach the steps to the solebar. If you wish to pin them to the solebar then drill through the half etched holes 0.5mm. Remove one from the fret and use it as a jig to drill two sets of holes in the ends of the solebar and a set into a scrap piece of wood to create a jig. Solder short lengths of 0.5mm wire through the holes and trim. Note that the steps went at the left hand end. The steps can then be folded up. The plain type basically folds into a C shape. The fabricated type is a bit more delicate. You need to fold the sides up whilst firmly holding the centre of the part. The top and the step can then be folded up. Reinforce the fold lines with solder. The steps are curved on the real thing and so try and bend the brass to shape.

Glue in place on the left hand end of the chassis.

Justin Newitt - February 2017

Suppliers

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