

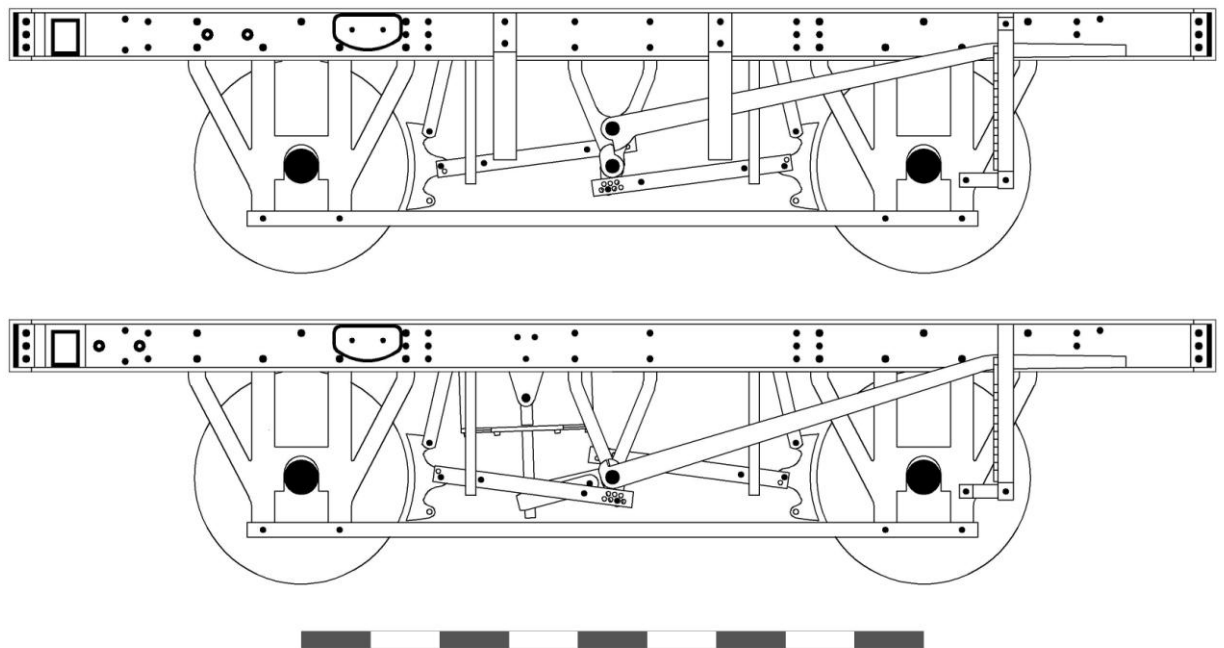
Rumney Models – RCH 17'6" x 9' Chassis Instructions

Notes

This set of instructions covers the RCH 17'6" x 9' general merchandise wagon chassis kit B.32. This will provide a detailed steel underframe for a range of late 1920s/early 1930s vans, opens, etc, built mainly for the GWR and LMS. The SR had a couple of types but generally didn't like paying for the patent on the Morton clutch so used independent brakes on chassis of this size. The LNER were still using wooden underframes. There are various kits around that will provide accurate bodies including Ratio and Cambrian.

This particular underframe was something of an interim step. Over time the RCH gradually updated it's specifications with regard to such matters and this fell between the move to 17' 6" long wagons and extending the wheelbase to 10'. A glossary of diagrams to which this underframe was fitted can be found at the end of these instructions. I cannot guarantee that it is exhaustive but it may prove useful.

Many wagons with this underframe were built unfitted with 2 shoe brakes; some were vacuum braked with four shoes. Provision is made for these variations along with both RCH pin type and GWR ratchet brake lever guards.



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 of these particular 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 use a temperature controlled soldering iron with predominantly 145° solder and La-Co paste flux.

Check all holes before removing parts from the fret. The drawing process for etching if you use a CAD program as I do is extremely accurate but the actual etching process itself not an exact science. If the fret is slightly over etched then there is no problem but if they are under etched the holes will need enlarging. I find that this is easiest to do before removing parts from the fret. The hole sizes will be noted at the appropriate points.

Technical

The suspension is individual springs made from 0.008" steel guitar wire soldered to the etched spring/bearing carriers. For this you will need a suitable flux. I use Carr's Black label. If the finished vehicle is weighted to 50g with the weight evenly distributed then this will produce a spring deflection of 0.5mm. Don't be tempted to up the gauge of spring wire. Even moving up to 0.009" springs will have a significant effect on the spring deflection. Also don't over weight the wagon or the springs will not have enough upwards movement before they hit the axleguards. 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 slightly 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 - Most of the brakegear, tie bars, brake lever guards, safety loops

0.8mm - Main brake cross shaft

1.0mm - Alignment pins for the axleguard assemblies and brakegear frets

You will also require items such as buffers, vacuum pipes and vacuum cylinder (if building fitted), axleboxes and springs as well as couplings and your choice of wheels & bearings to complete.

For buffers I would recommend those produced by Lanarkshire Model Supplies. They are by far the best around and a lot of types of buffers are available pre drilled for fitting sprung buffer heads. This service is particularly useful for some of the heavy duty buffers with their large 2.5mm shanks. The quality is excellent. Generally wagons with this underframe had 4 rib spindle buffers with 13" heads, either 1' 6" (Lanarkshire models code B002, B003 or B020) or 1' 8½" (B004 or B019) depending on whether the wagon was unfitted or vacuum braked and which company it was for. Some GWR wagons may have had 1' 6" GWR type 2 rib self contained buffers (Lanarkshire Models code B031). As usual check your prototype.

Both Wizard and MJT do 13" buffer heads and springs with 1mm shanks for spindle buffers. 13" metal buffer heads and springs with 2.5mm shanks are available from MJT for GWR self contained types.

If you wish to use the Rumney Models buffer springing unit to spring the buffers on this underframe use kit B.93A (9" solebar).

Lanarkshire Models do cast vacuum pipes of both upright and swan neck types. The upright type are great but I find the swan neck variety quite vulnerable and prone to being broken. I find that much better method is to fashion them from 0.7mm (ish) soft brass or copper wire with something like 41 SWG wrapped around it.

These wagons were fitted with 5 leaf springs and oil axleboxes. Rumney Models produces suitable 5 leaf spring castings with BR 2 part (FA.05), BR 2 part square (FB.05), BR welded (FC.05), RCH 2 part (FG.05), LMS 2 part (FH.05), LMS vertical Platefront (FJ.05), LNER Cast (FL.05) and LNER welded (FM.05) axleboxes. See the Rumney Models website for further details, including illustrations. They are listed under Wagon Castings in the 4mm scale section.

If you are constructing a fitted wagon then a vacuum cylinder will be needed. They were the 18" type on these underframes and are available from Rumney Models (F.01). These can be found in the same place as the spring and axlebox castings.

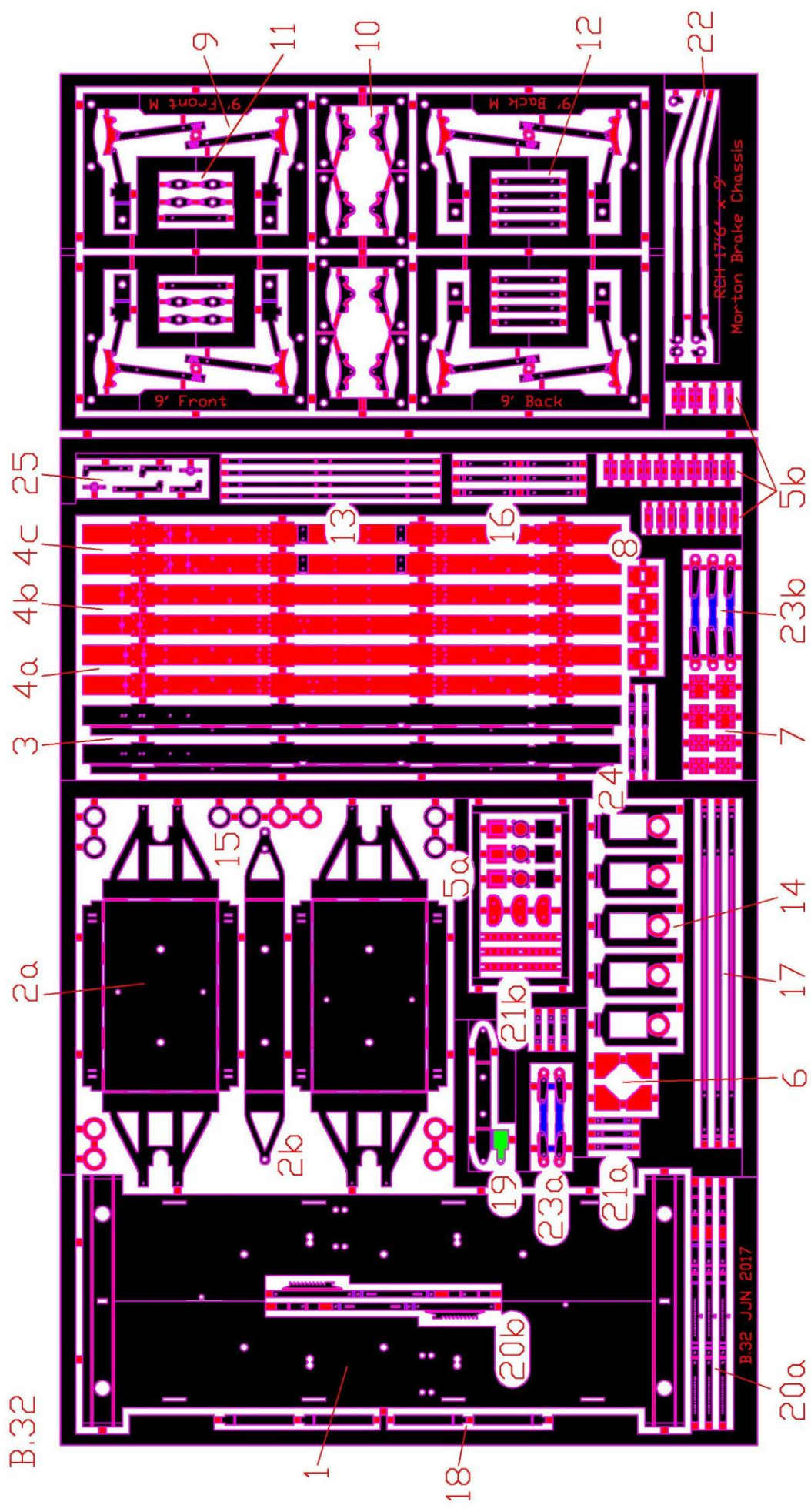
Rumney models produces coupling hooks suitable for these (B.94) and also BR Instantan links (B.95A) and screw couplings (B.96). These can be found in the 4mm section of the Rumney models website under Wagon Detailing.

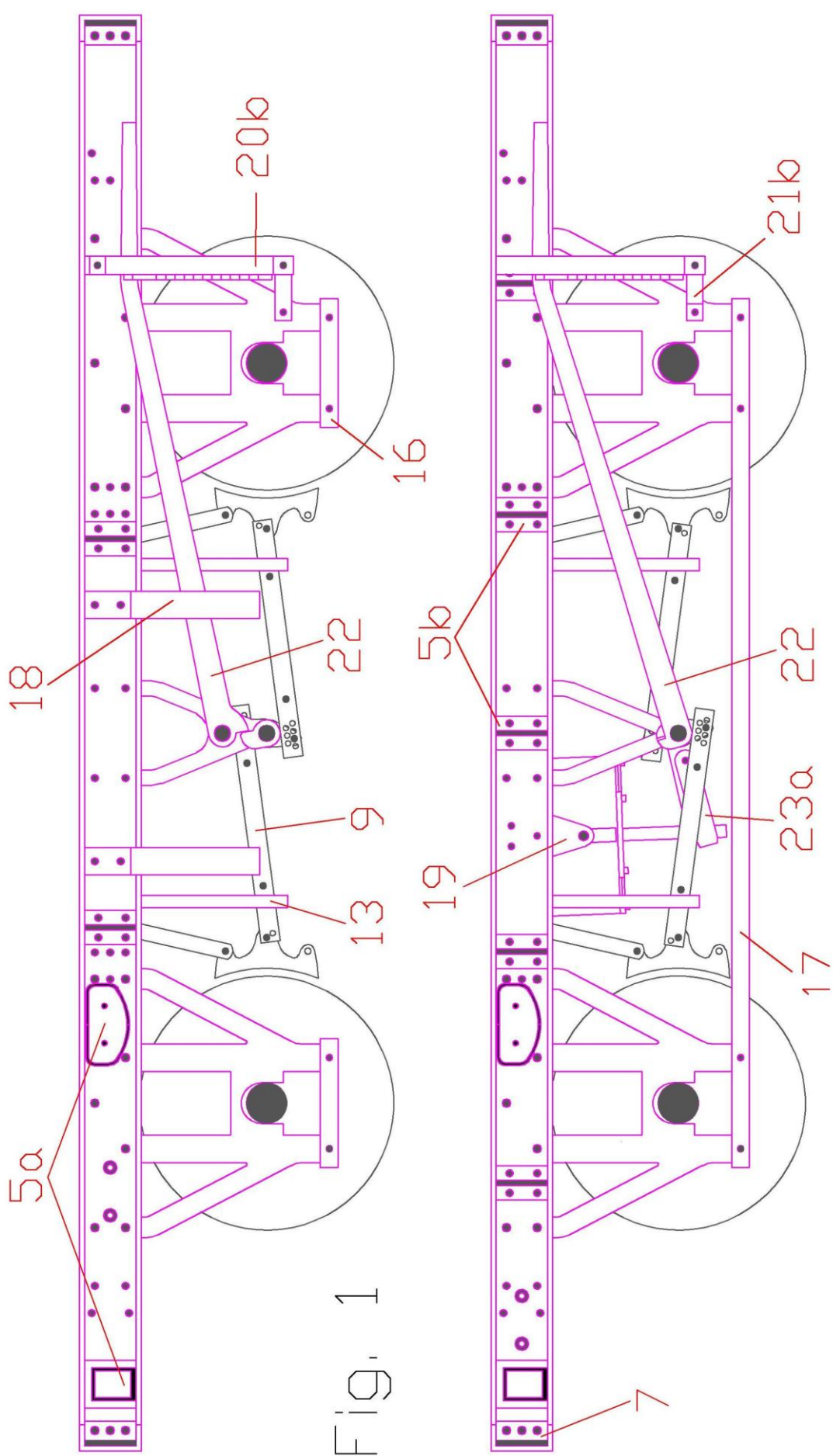
Contact details for the above suppliers can be found at the end of these instructions.

Component List

1 - Chassis top plate	14 - Spring Carriers
2a - Axleguards	15 - Bearing washers
2b - Vees	16 - Axle keeps
3 - Solebars	17 - Axle tiebars
4a - Solebar detailing overlays - LMS Vans	
4b - Solebar detailing overlays - GWR vans	18 - Door springs
4c - Solebar detailing overlays - GWR	19 - Vacuum cylinder bracket
Opens	
5a - Solebar detailing - Plates and stops	20a - Pin type brake lever
5b - Solebar detailing - Stanchion brackets	guards/brackets
	20b - GWR ratchet brake lever
6 - Solebar/Headstock corner plates	guards/brackets
7 - Solebar/Headstock bracing	21a - Pin type brake lever guard stays
8 - Coupling pocket detail	21b - GWR ratchet brake lever guard
	stays
9 - Main brakegear	22 - Brake levers
10 - Brake shoe infill	
11 - Push rod cranks	23a - Short vacuum cylinder actuators
12 - Push rod infill	23b - Long vacuum cylinder actuators
13 - Push rod safety loops	24 - Lamp Irons
	25 - Vacuum pipe brackets

B.32





Construction

Main Chassis

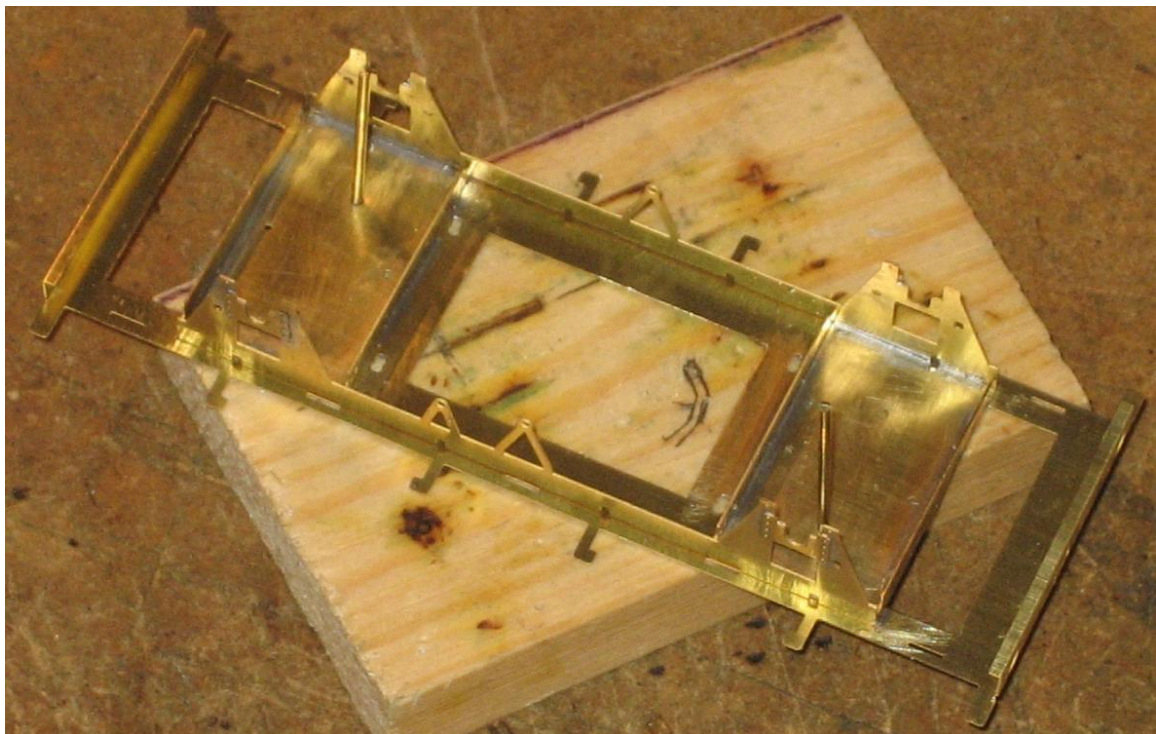
Firstly check the fit of your buffers in their holes in the headstocks. It may sound a bit odd starting with something that usually goes on at the end but it will be much easier to open out the holes now rather than later.

Start with the chassis top plate (1). Remove from the fret and fold up the headstocks. 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, fold the top plate 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.

Remove the axleguards (2a) from the fret. 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.

Check that all the holes in the in the vees (2b) will accept 0.8mm wire, remove from the fret and fold up to form a C shape.

The chassis top plate, the axleguards and vees then need to be soldered together. There are 1mm diameter holes on both the top plate and axleguard 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 parts together and then remove the locating pins. It doesn't matter which way around the vees.



Next remove the solebars (3) from the fret and fold into an L shape. I find the best way to do this is in a vice. Remove your chosen solebar overlays (4) from the fret.

There are three sets of solebar overlays 4a, 4b and 4c. Principally these cover LMS vans (4a), GWR vans (4b) and GWR opens (4c) though they can be used for other types. The differences between 4a and 4b are very slight and mainly relate to the position of the vacuum cylinder. This varied and as such the kit provides for two vacuum cylinder positions. If you wish to model an unfitted chassis then you will need to remove the rivets for the vacuum cylinder from 4a or 4b. Remove from the fret and tidy up any connecting tags.

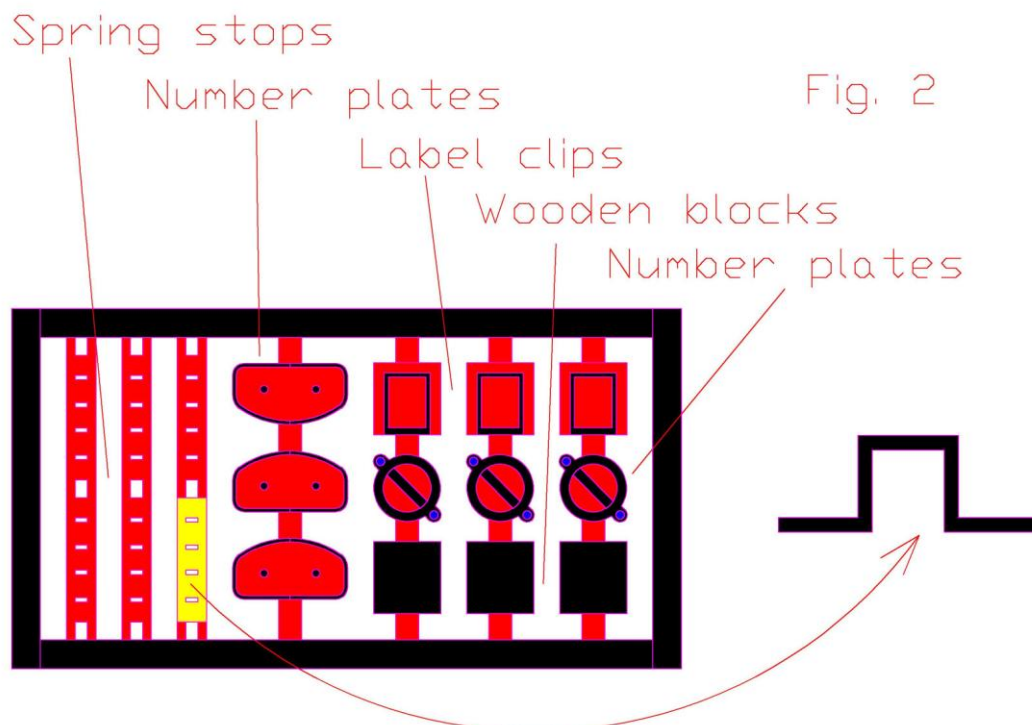
As a result of the etching process there should be a curve through them with the ends closer to you if looking at the rivet detail side. Carefully bend them so that the curve is reversed slightly and that the ends are further away when looking at the rivet detail. This can easily be done between thumb 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 place. Note that there is a right way up for all the overlays (note that the notches for the brake lever guard should match those in the solebar).

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

There are two types of solebar detailing. The plates and stops (5a) is standard on all Rumney Models underframes and comes contained in its own little fret. See Fig.2 below. On it you will find fabricated axle spring stops, two types of number plate, 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 was it was quite common. 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.

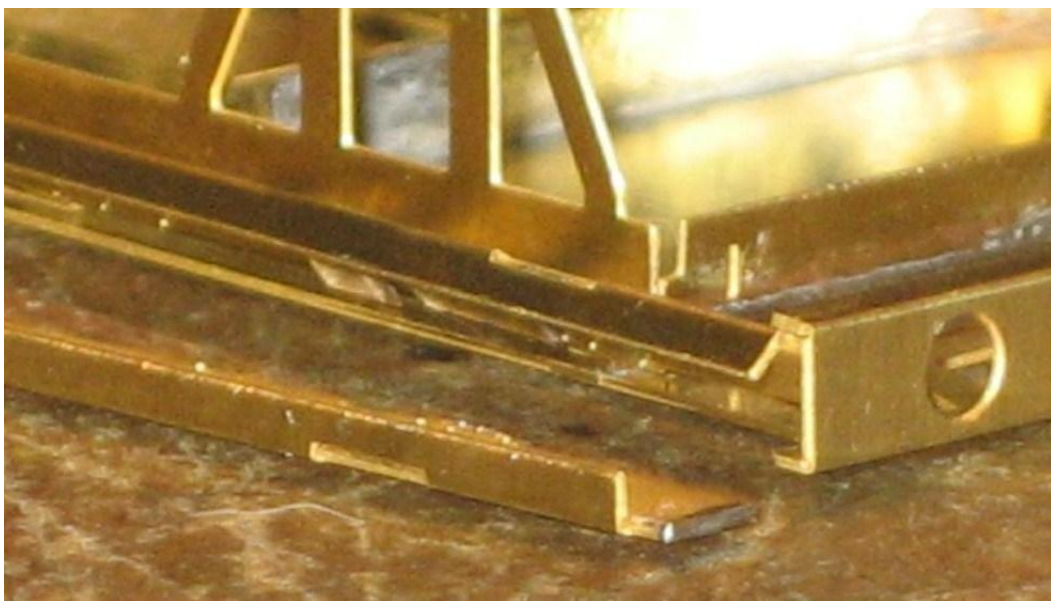




The second set of solebar detailing covers stanchion brackets (5b). The majority of wagons with this underframe had wrap under side stanchions that were attached directly to the solebar rather than to brackets. There are two types to cater for variations. If you wish to make use of these they should line up with the stanchions on the body that you are using. Solder in place.

Main Chassis Continued...

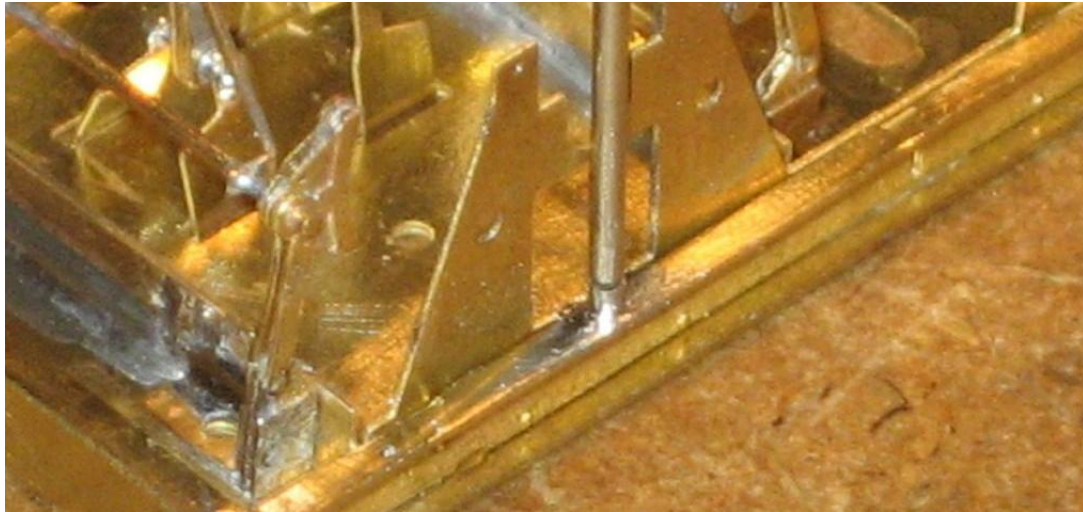
The solebars can now be fitted to the chassis. Note that there is a correct side for the solebars on all vacuum fitted wagons. The vacuum cylinder and hence the rivets on the solebar go on the non-Morton cam side. See Fig. 1. There are slots and tabs to aid location and the ends go into the channel that is the headstock. Fit the solebars at an angle and then straighten locating the slots and tabs at the same time. Once in place then the solebar can be soldered in place. If you have problems locating the solebar in place then you can gently bend the headstock back to allow the solebar to slot in. It is difficult to get the headstocks at 90° though if you do this though and it shouldn't be necessary. The accessible fold line on the headstock can now be reinforced with solder if you wish.



Add the Solebar/Headstock corner plates (6). These should be arranged so that the two straight sides go along the outer edge of the headstock and the inside of the Solebar.

You can also now add the solebar/headstock bracing (7). These fold into an L and fit into the solebar/headstock channels. There are small half etched slots to aid you locating the bend point.

Spring Stops



There were two different pattern of spring stops fitted depending on when they were built. There are 6 fabricated spring stops for early builds on the solebar detailing - plates and stops (5a) fret (see Fig.2) which can be folded up and then soldered in place. I find a small pair of self closing tweezers good for this.

Headstock detailing

Now is as good a time as any to fit the coupling pocket detail (8). 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.



Brakegear

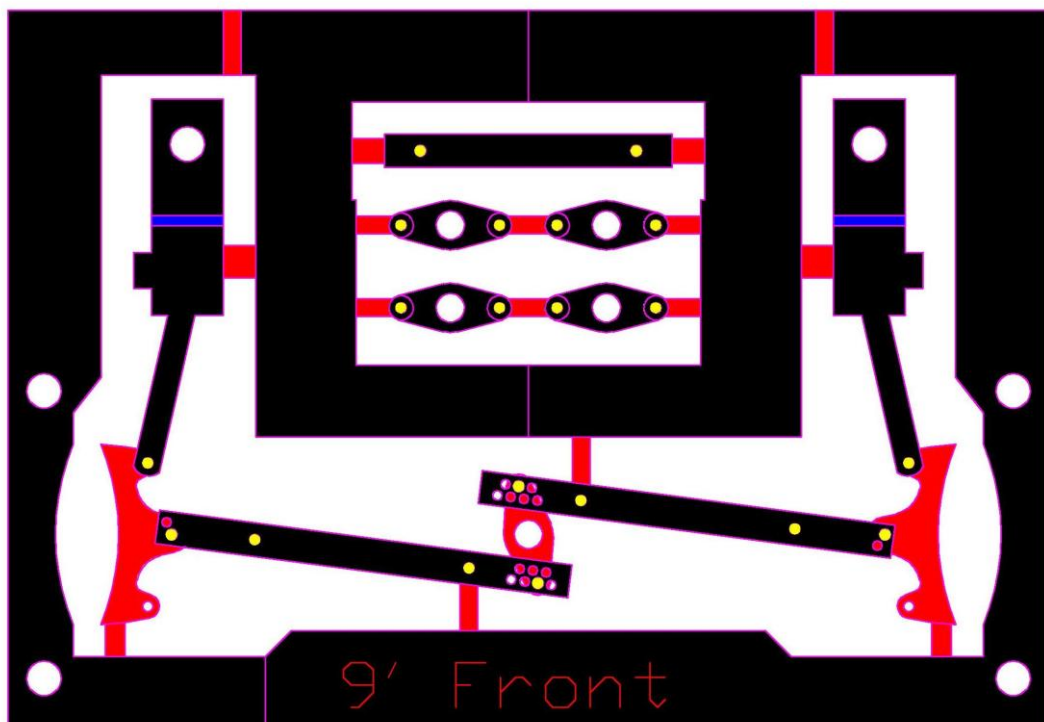
Unfitted wagons had 2 shoe brakes. For these you will only need the set marked with an M. These go on the side with the Morton cam. If in doubt see the top of the two drawings in Fig. 1 above.

The first step is to create a jig to aid assembling everything. Use a suitable piece of wood or mdf. Use the etch as a guide. Drill through the main brakegear (9) parts labelled **front** with the writing **facing** towards the wood. The larger holes are 1mm diameter and the smaller ones 0.3mm. If you are unsure which holes you should be drilling through see Fig. 3 below. If you are making a 4 shoe Morton chassis you will need two jigs, one for each side.

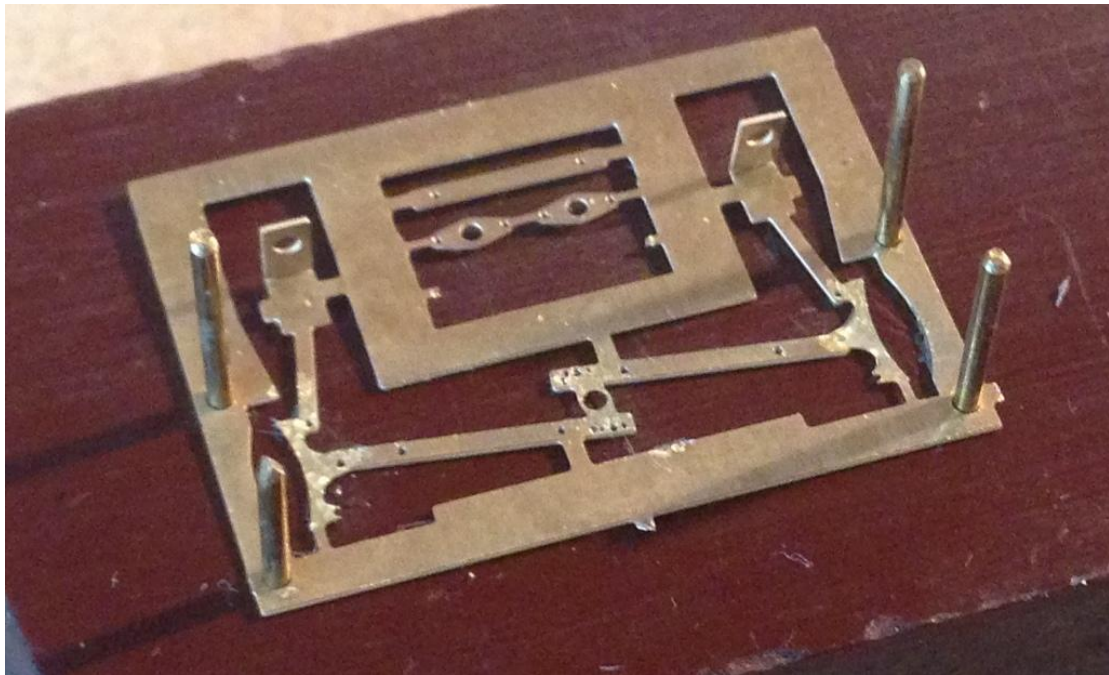


Check that the small holes in the fret can accept 0.31mm wire. These are marked in yellow on Fig. 3 below. I find it easier to locate the hole from the side with no writing.

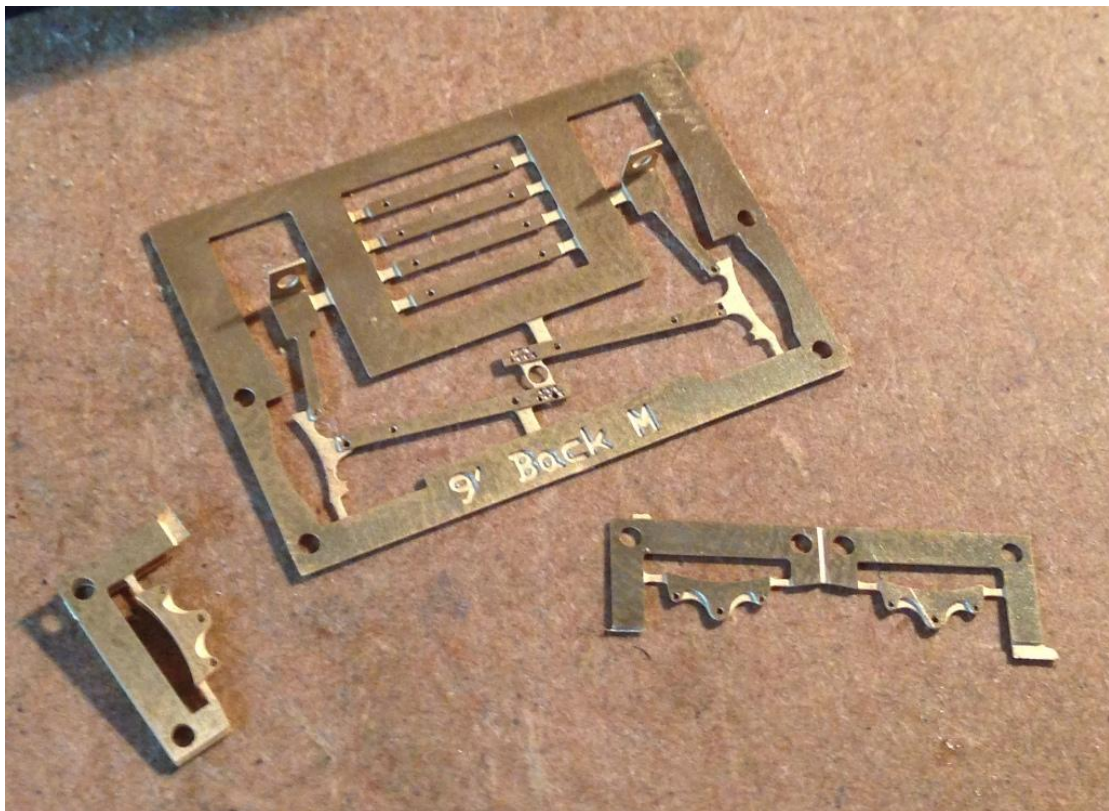
Fig. 3



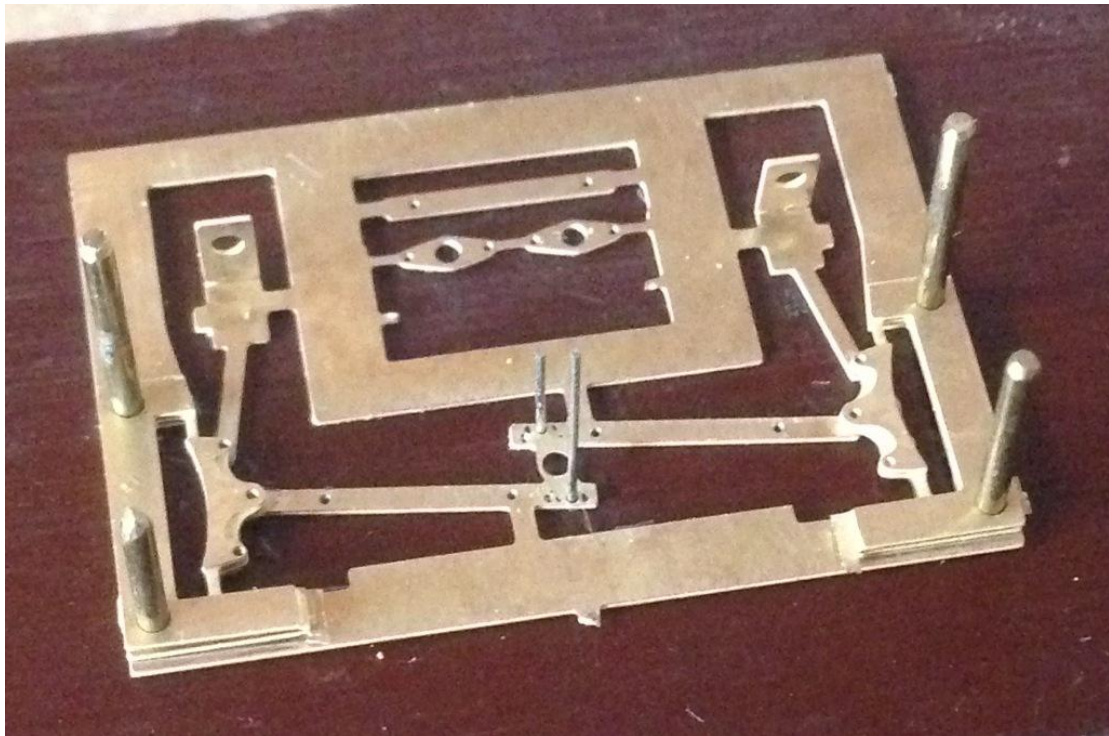
Remove the push rod cranks (11) and push rod infill (12) (if required). Carefully fold up the feet on the part labelled **front** and pin to the jig using short lengths of 1mm wire, writing side facing down.



Take the brake shoe infills (10) and fold double with the fold line on the outside.



Place the brake shoe infill over the front using the 1mm wire rods to align everything. Insert two short lengths of 0.31mm wire onto the holes where the push rods join the brake shaft cranks.

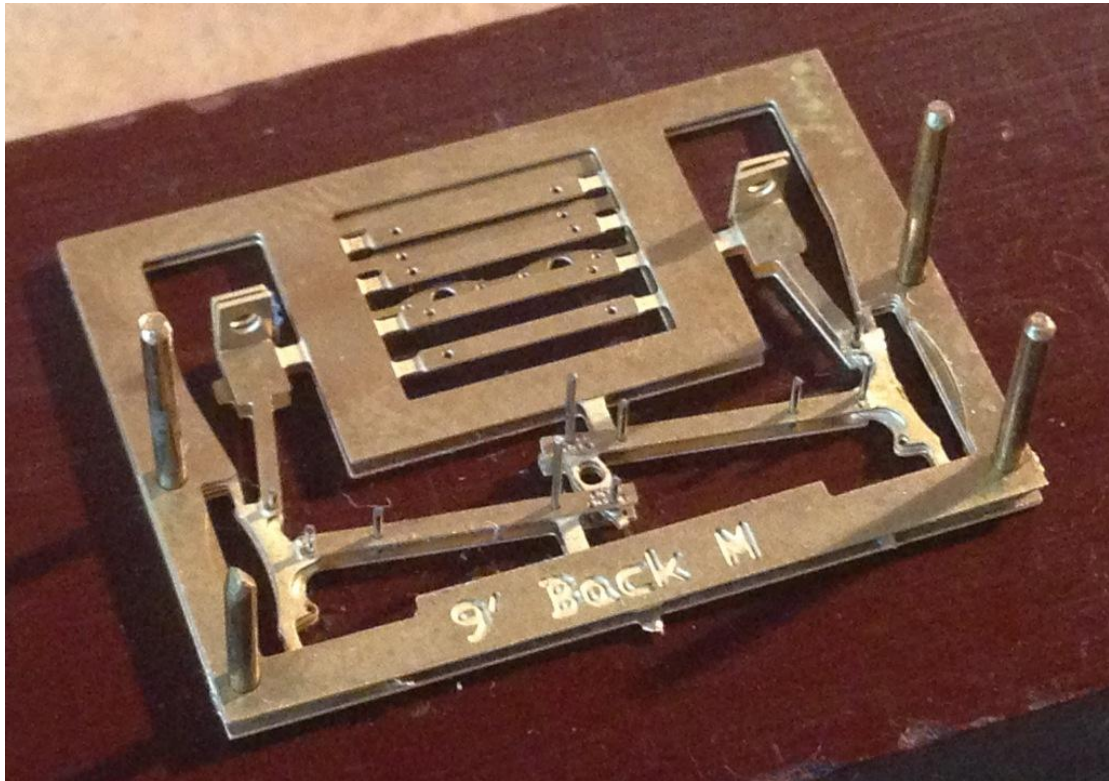


Fold up one set of push rod cranks and place onto the two lengths of 0.31mm wire.



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

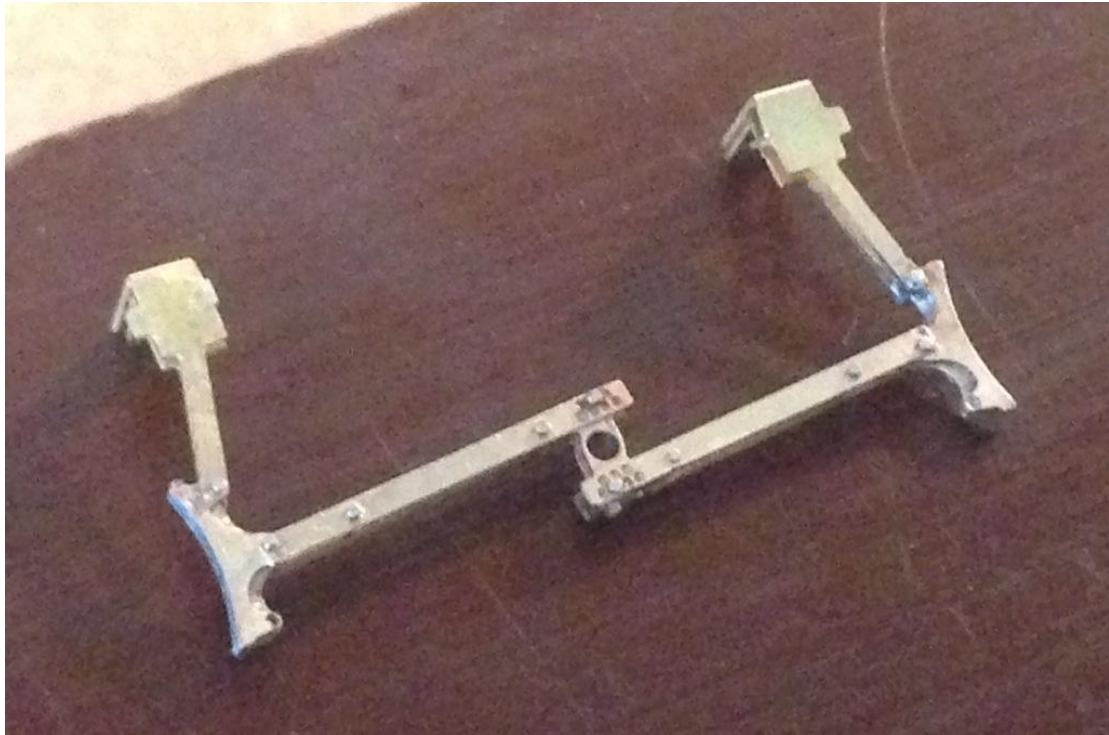
Carefully fold up the feet on the **back** part of the brakegear and pin onto the assembled layers with the writing visible and facing away from everything else. Make sure all the bits of wire go where they should. Fill the remaining holes with 0.31mm wire making sure it goes all the way through.



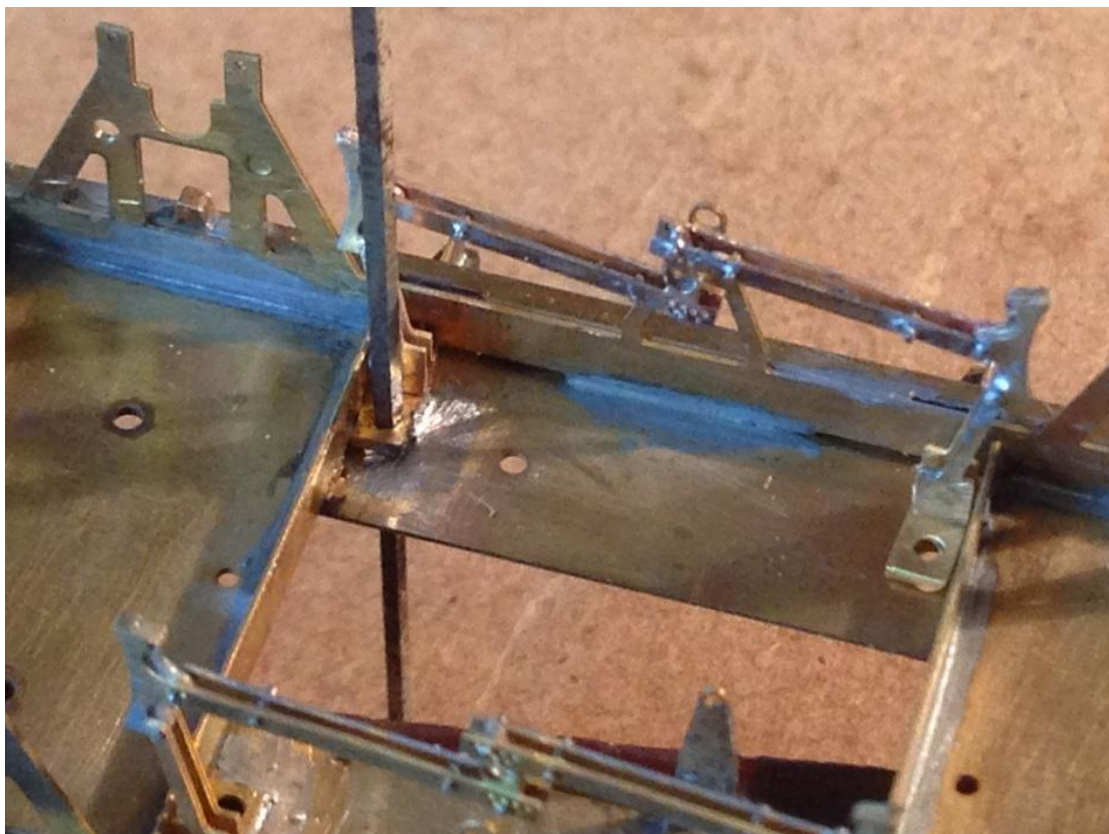
Solder the layers together paying particular attention to the brake shoes (I found it best to apply solder to the long curved edge) and the joints where the wire meet the etch.



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.



The brakegear can be fitted to the wagon using the tabs and slots as before. Gently bend the shoes to get the tabs into the slots. Use something suitable to pin the brakegear to the chassis through the holes in the feet while you solder them in place.



Finally the push rod safety loops (13) can be fitted. These fold up and once wrapped around the push rods can be soldered in place hard up against the base of the brake shoes.

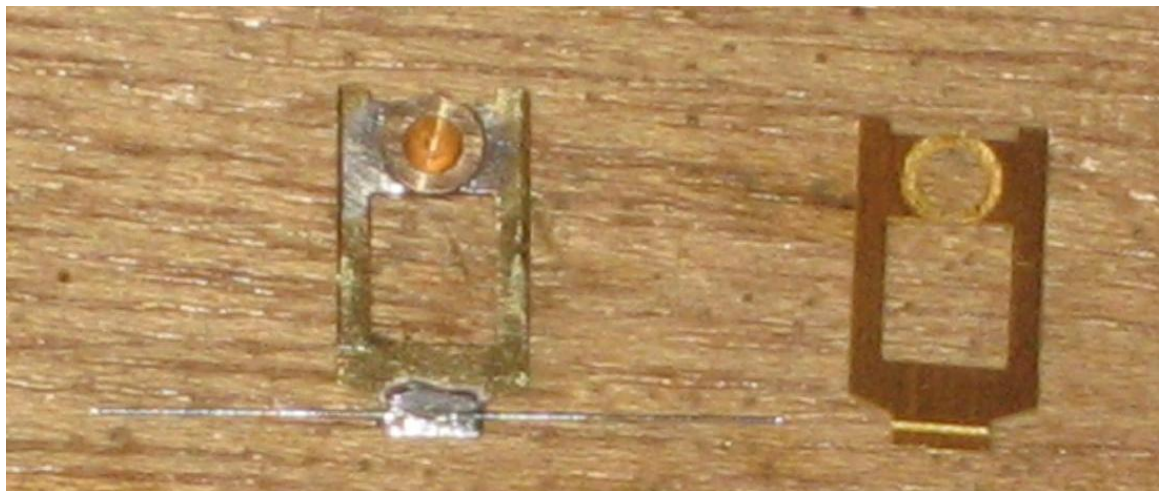
Spring Carriers

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 bit larger when compared with other systems and works out at 24.5mm. The advantage of this measurement is that if using pin point axles you don't have to hunt around for bearings that are deep enough but you may find that the carriers need packing out a little to take up any slop. Bearing washers (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 doing so then you will need to pack the bearings out on the back of the spring carriers before soldering them in place due to the length of the axle. Use the bearing washers provided. I have built chassis with Exactoscale parallel axles and used one half etched washer and one full width washer to pack the bearing out. This leaves the outer edge of the bearing 0.25mm beyond the axleguard and provides 1mm of bearing surface for the axle.

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

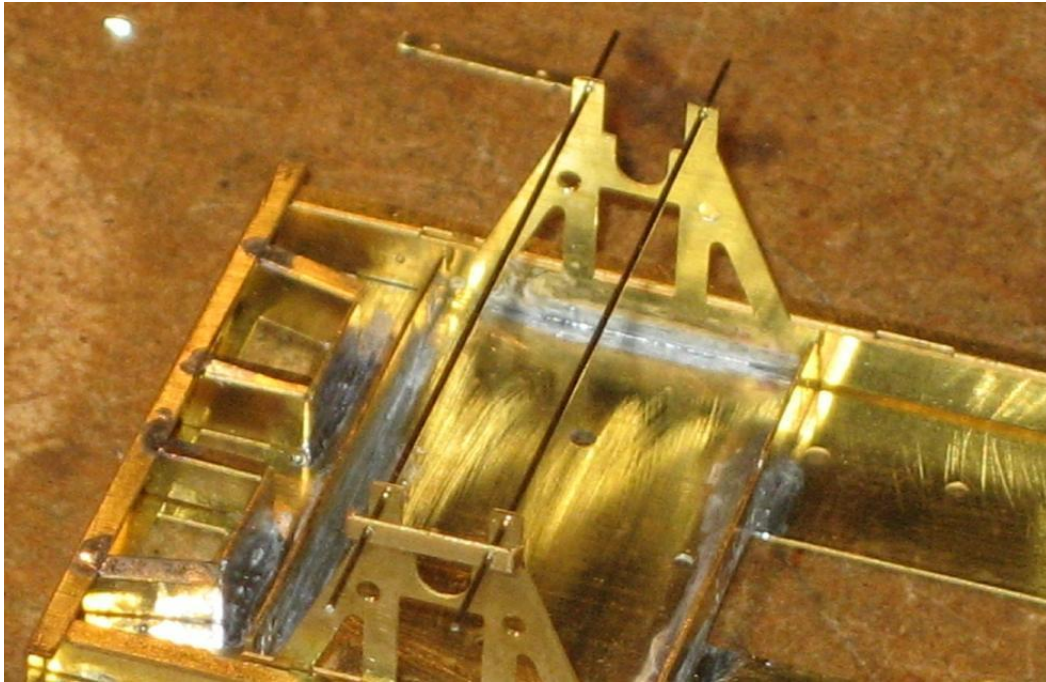


Axle keeps and tiebars

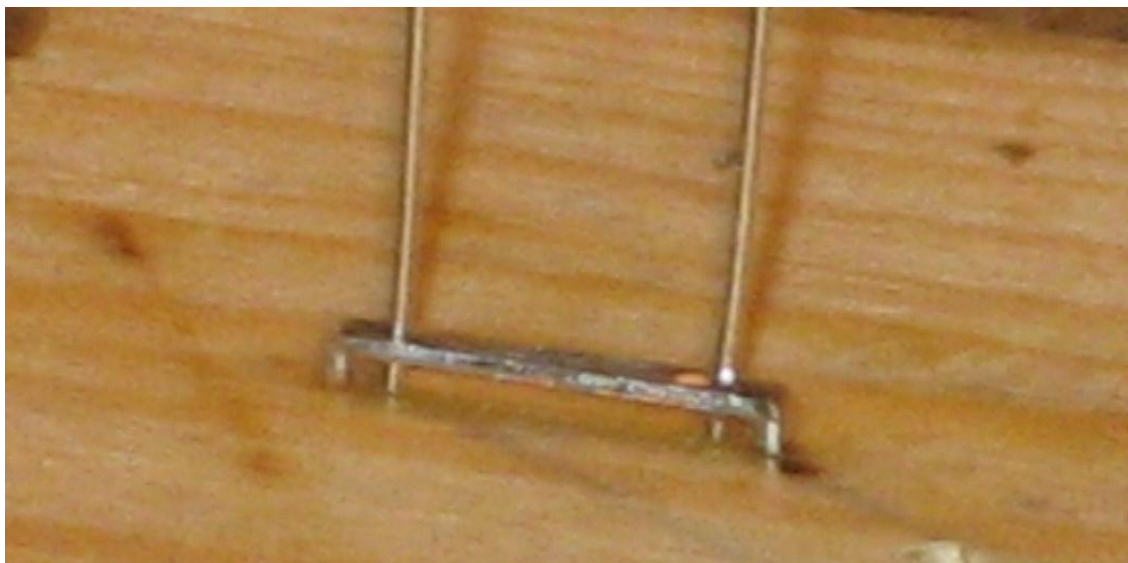
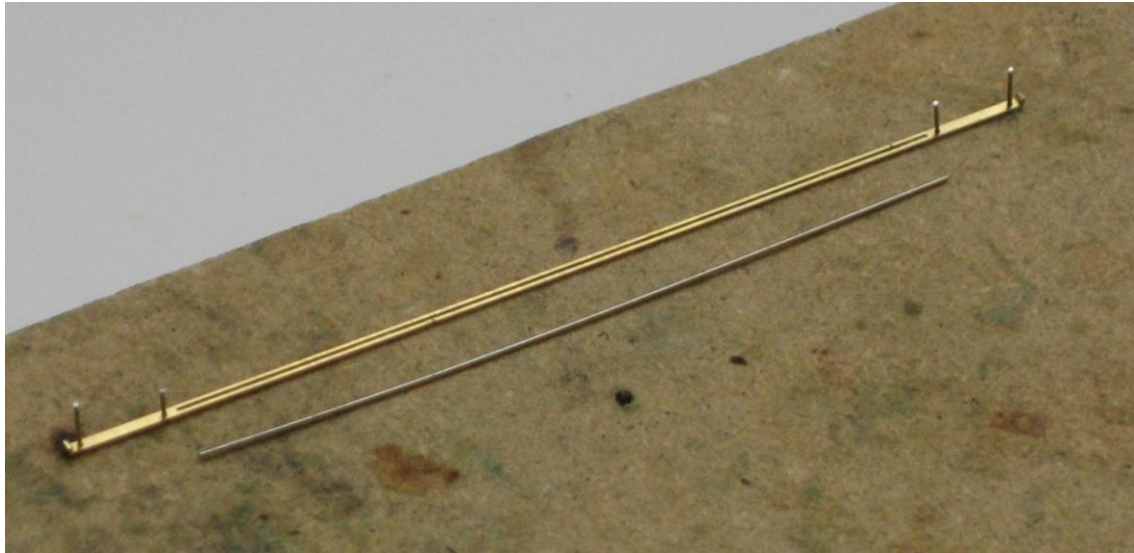
There are both individual axle keeps (16) and tie bars (17) included. Anything fitted would have had full length tie bars. Unfitted chassis generally had individual keeps but check your prototype. They are both assembled in the same way and are designed to be removable if you wish in order to allow the wheel sets to be easily dropped out. They can of course be soldered permanently in place but either way you will need to make sure the holes will accept 0.31mm wire before removing them from the fret.

Tie bars are fairly vulnerable so in order to strengthen them I have included a slot on the back into which you can solder a length of 0.31mm wire. This will make them a lot more robust.

If you are not planning on making them removable then they can be pinned and soldered to the axleguards. Remove from the fret and fold the ends up. Thread lengths of 0.31mm wire through an axle keep/tiebar and holes in an axleguard and then the corresponding holes on the opposite axleguard. Solder in place. Fit the other axle keep/tiebar 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 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 pins through the holes in the axle keeps/tiebars. I find the easiest way of doing this is to use one pair of holes as a jig and drill a pair of 0.3mm holes into a piece of scrap wood. Short lengths of 0.31mm wire can then be threaded through the axle guards locating into the holes in the wood. These can then be soldered in place and filed back to represent bolt heads before folding up the ends. Fold the ends of the axle keeps/tiebars 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 axleguards 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 keeps/tiebars 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.



Door springs

The door springs (18) were fitted to open wagons. These need to be folded into an L shape where the longer end is curved. There is a fold line to mark the bend point and then the short end fits into the slot in solebar 4c.

Vacuum Cylinder Bracket

You will need to fix in place the vacuum cylinder bracket (19) to provide the inner mounting point for the vacuum cylinder (Rumney Model F.01). You will need to make sure the holes can accept 0.5mm wire then remove from the fret. Fold the part shaded green on the parts diagram so that the fold is through 180° with the fold line on the outside then fold the bracket into a C shape.

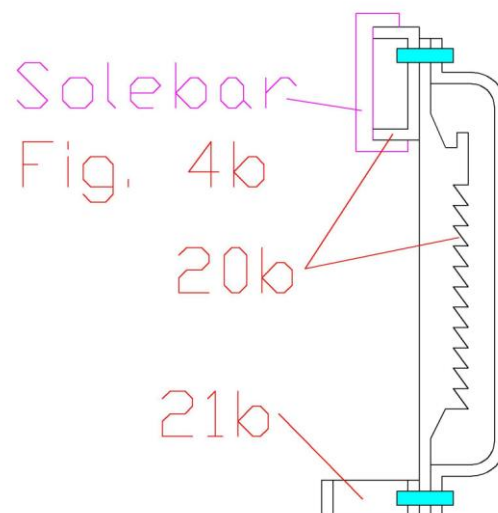
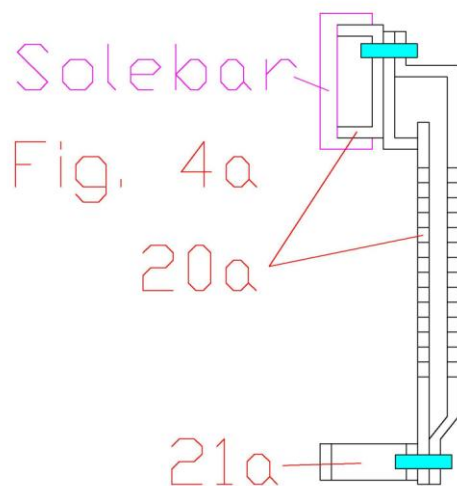
There are two sets of holes on the chassis top plate for aligning the bracket as on some wagons the vacuum cylinder was closer to the vees than on others. If you used solebar overlays 4a then use the position closest to the vees, if 4b then the position furthest away. Solder in place so that the end with the double layer is closest to the solebar.

Fit the vacuum cylinder using a length of 0.6mm wire for the piston.

Brake Lever Guards

Provision has been made for both the RCH pin type brake lever guard and the GWR ratchet type. The GWR type was confined to GWR built wagons and the RCH type was fitted to everything else.

Make sure that the holes in your chosen brake lever guards and brackets (20a or 20b) and the appropriate lever guard stays (21a or 21b) 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. 4a for the pin type or Fig. 4b for the GWR type. There are half etched slots on the ratchet type lever guard which pinpoint and aid the forming of the curved bends that are on the prototype. Solder the lever guard and bracket together using 0.31mm wire to align them. Trim the wire on both the front and back to represent a bolt. The whole assembly can then be located in the solebar and soldered in place. There are slots in the solebar to receive the lever guard brackets. Press out the half etched rivet on the brake lever guard stays and fold both ends through about 30°. The stay can then be pinned to the bottom of the lever guard using 0.31mm wire and then soldered to both the lever guard and the axleguard and any excess wire trimmed off.



Axleboxes and springs

Now is a good time to fit the cast axle boxes and springs (Rumney Models FA.05, FB.05, FC.05, FG.05, FH.05, FJ.05, FL.05 or FM.05). 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. I solder mine in place using low melt solder though I have heard good things about using 100°C solder for such things.

Brake shaft

Cut a length of 0.8mm wire to form the main brake shaft. This should extend about 0.75mm either side of the vees.

If you are constructing a fitted chassis check that the vacuum cylinder actuators (23a or 23b) of your choice can accept 0.8mm wire. The type will depend on the position you used for the vacuum cylinder bracket. The actuators need to have their half etched rivets pressed out and then folded over. They are designed for the ends to wrap around a 0.6mm piece of wire extending from the vacuum cylinder. These can be fitted along with the brake shaft (0.8mm wire) through the vees.



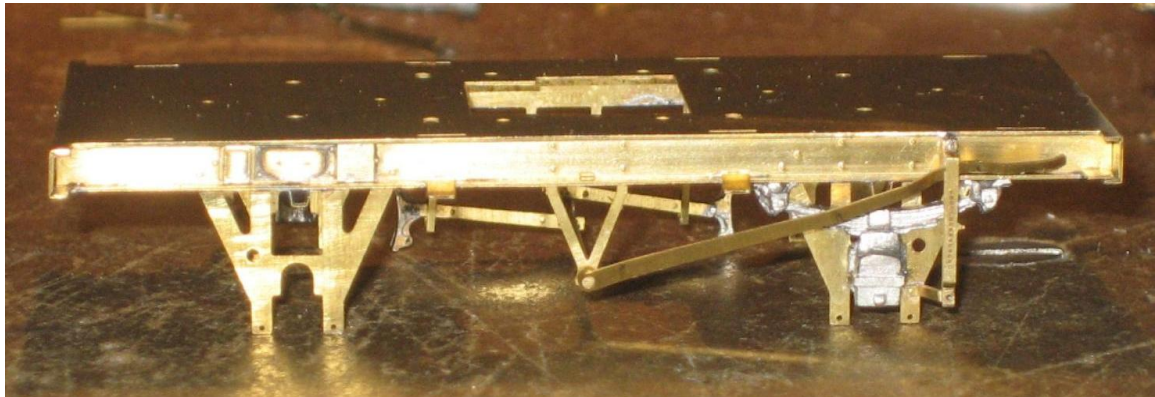
Solder the brake shaft in place and trim the ends if necessary.

If you haven't already fitted the vacuum cylinder do so now and then the two halves of the vacuum cylinder actuator soldered together and to the brake shaft.

Brake Levers

Make sure the holes in the brake levers (22) and the cams can accept 0.8mm wire. The levers and cams can then be removed from the fret but note that the connecting tab between the non-Morton lever and cam should be left intact. Once removed from the fret the connecting tab between the cam and the non-Morton brake lever can be folded through 180° with the fold line on the outside. Solder a short length of 0.8mm wire through the hole in the Morton cam brake lever. This will locate into the top hole on the vee. I use a hole drilled into a piece of scrap wood to aid doing this. Once soldered in place trim the wire and file so the end is flat.

The brake levers then need to be bent up as per the prototype clearing the axleboxes and then cranked for the handle. Check on the model and adjust until you are happy with the shape. Once you are happy with the shape the brake levers can be soldered in place. Solder the Morton cam into place in the lower hole on the appropriate vee.



Lamp Irons

Lamp irons (24) included for use with fitted wagons. I usually include a drilling jig to aid pinning them to plastic bodies. If you want to pin the lamp irons in place (they are much more robust if you do) use one of the lamp irons whilst still attached to the fret to create a jig by drilling a pair of 0.3mm holes in piece of fret that you can comfortably hold. I dislike relying on glued joints for these sorts of things on plastic bodies and so have included these for use with 0.31mm wire pins to provide a more positive location.

There are two pairs included, one with half etched holes for pressing out the bolt heads and one with the bolt holes etched out completely for pinning in place.

If you wish to use the half etched bolt type then press out the rivets whilst still in the fret and then remove and fold up and fix in place

If using the pinned type then check that the holes will accept 0.31mm wire and remove from the fret and fold up. Two short lengths of 0.31mm wire can be soldered in the holes and then the lamp iron glued in place on the body having drilled receiving holes for them. Alternatively simply glue the wire and lamp iron in place at the same time without the solder.

Vacuum pipe brackets

There are two swan neck vacuum pipe brackets (25) included. Most wagons with this underframe had upright type vacuum piped but occasionally they were fitted with the swan neck type that hung down from the headstock. They come in two parts. There is a bracket which attaches to the solebar and a round head that has 'tails' that fold up. Two length brackets are included. Check your prototype for which ones you need. Press out the rivets on the bracket and remove from the fret. Twist the base of the bracket through 90° so that the interface with the head faces away from the rivets. This bracket can then be soldered to the back of the head (the side with no half etched areas). It is easiest to do this while the head is still attached to the fret. There is a small slot to help provide a positive location. Once soldered in place the assembly can be removed from the fret and the 'tails' on the head folded out.

If you're brave these tiny fold lines can be reinforced by the use of a very small quantity of solder and a very quick soldering iron. Some step soldering might be a good idea but I haven't encountered many issues with just using 145° solder. These can then be soldered in place on the headstock.



Painting

One of the advantages of having the chassis as a complete unit with solebars and headstocks is that you can paint it separately from the body and then glue the two together afterwards. If using an airbrush or aerosol this means you can prime it and then paint it all black with no masking at all which makes life a little easier.

I now use Halfords grey primer in a tin through an airbrush with cellulose thinners to prime just about everything, including plastic bodies. The primer is synthetic and has no adverse effects on the types of plastics used on RTR railway models and kits. The cellulose thinners used evaporate so quickly that they don't have time to attack the plastic. You can then put your choice of paint over the top including cellulose. Don't use the red oxide in a tin on plastic though as it won't adhere and the paint will just come off.

Notes on wagon bodies and weighting

Some modifications may be necessary to the body to get it to fit the chassis. Principally this will revolve around removing the plastic headstocks from the ends of the kits. In some cases this will present no problems as a lot of BR built stock had a clear distinction between underframe and body with no stanchions extending from the body onto the headstock. Where there were such items though a little work will be needed to remove the headstocks and then thin down the backs of the stanchions to a near prototypical thickness. Careful use of a piercing saw and file will do the job. The suspension on the underframe is designed to work optimally under a 50g load. As there is limited space on the underframe due to all that brakegear the best place for it is in the wagon body. This is easy enough if the wagon is a van but if it's an open wagon then some work may be needed.

I make a new floor for open wagons and minerals and recess it from the bottom so that there is room for a piece of lead flashing to go between the new floor and the underframe. This does reduce the depth of the wagon but it isn't too noticeable on most types and saves trying to work around the brakegear. Unloaded Conflats and Lowfits are another matter. The only solution would be to try and get as much weight as possible into the underframe.

Finally

Thanks must go to the staff of The Great Western Society at Didcot for letting me measure up and photograph at close quarters 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 - September 2017

Suppliers List

Rumney Models (vacuum cylinders, axlebox and spring castings)
www.rumneymodels.co.uk

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

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

MJT (buffer heads)
Dart Castings
17 Hurst Close
Staplehurst
Tonbridge
Kent
TN12 0BX
www.dartcastings.co.uk

Wizard Models (buffer heads)
PO Box 70
Barton upon Humber
DN18 5XY
www.wizardmodels.co.uk

Appendix

Wagons fitted with RCH 17'6" x 9' Morton brake steel underframes

LMS

D.1660 Morton	Banana Van
D.1663 Morton (some VB)	Van
D.1832A Morton	Ventilated Van
D.1664 Morton (some VB)	Van
D.1828 Morton	Ventilated Van
D.1830 Morton	Ventilated Van (all steel)
D.1670 Morton (some VB)	Meat Van
D.1821 Morton	Meat Van
D.1672 Morton	Refrigerated Van
D.1672A Morton	Insulated Meat Van
D.1673 Morton	Ventilated Refrigerated Van
D.1676 Morton (some VB)	Ventilated Van
D.1676 Morton (some VB)	Ventilated Van (twin vents)
D.1817 Morton	Beer Van

GWR

H6 Morton VB	Conflat
O24 Morton	Open
O26 Morton	Open
O29 Morton	Open
O36 Morton VB	Open
V21 Morton VB	Ventilated Van
V33 Morton	Ventilated Van
Y7 Morton VB	Fruit Van

LNER

128 Morton	Open
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SR

1379 Morton	8 plank Open - Some?
1382 Morton (some VB)	Conflat