

# MISCELLANY MODELS

## Rolling Stock 3 – Midland dia 530 Full Brake Kit

March 2019 edition

**I keep all of my instructions under review and it is likely that these will be updated in the future; thus, please check for most up to date instructions at [www.miscellanymodels.com](http://www.miscellanymodels.com)**

### Prototype

This brake van was the most characteristic of the Midland Railways' brake vans and were found all over the company's system and, following grouping, over much of the breadth of the LMS system. There were over 300 examples and the Bain square panel stock but in practise were seen with a wide variety of stock, clerstorey and otherwise.

Partially as a result of their number, they did have variants between them. There were two different heights (13'3" and 13'1" – this model being to the latter) and different arrangements of guards duckets. In addition to this, some had gangway connections (these were accorded a different diagram, dia 568) and were conceived for use on Joint Stock trains (ie the Anglo Scottish trains across shared with the GSWR and NB). It is intended that a separate etch can be supplied to substitute this if you wish.

*Midland Numbers:* various in the series 1-631 and 576, 577 & 578, various in the series 44 – 155, various in the series 85 – 574

*LMS numbers (1<sup>st</sup> series):* same as the Midland numbers

*LMS numbers (2<sup>nd</sup> series):* 33933 – 33014, 34015 – 34068, 34069 – 33144

*Joint Stock (M&NB + MR&GSWR):* the original numbers are not known but the LMS second series numbers were 33480 – 33499.



### This Kit

The kit represents one of the later batches and covers the slightly higher variant of this diagram (although as the difference equates to 0.6mm in 4mm/1ft you might not notice!). It follows the photograph above, rather than the arrangement of guards duckets found in the published drawing and the no longer available 4mm kit from Slaters.

The kit comprises of the full etches necessary to build the coach, but none of the castings or "little bits" that will be needed to finish this. This is because these parts are readily available from other sources and hence I have not sought to go to the effort and expense of repeating these.

## Miscellany Models – Instructions for Lineside 3, 4 & 5; Arms/components, finials & lamps

Therefore, to finish the model, you will need to source the following:

1. Rod for brake pull rods – 0.6mm brass or nickel silver – Eileen's Emporium or similar
2. Rod for grab handles and handrails – 0.4mm brass from Eileen's Emporium or similar.
3. Axlebox and spring assemblies – either Slaters plastic mouldings (possibly available from Cooper Craft [http://shop.cooper-craft.co.uk/product\\_info.php?cPath=60\\_124\\_126&products\\_id=373](http://shop.cooper-craft.co.uk/product_info.php?cPath=60_124_126&products_id=373)) or Branchlines castings. Please note that in 2018/19 there have been complaints about Coopercraft not supplying goods paid for on line – we have successfully purchased from them at shows, so only offer a caution.
4. Spring suspension wire – 10 gauge (0.18mm) nickel plated guitar wire.
5. Waisted profile top hat bearings – Markits, Alan Gibson and others
6. Wheels – these should be Maunsell Pattern Wheels - a variety of options are available but the sliding axle method that is used works best with Alan Gibson wheels.
7. Sliding axles – Exactoscale pin point axle and 2mm outside/1mm inside brass tube
8. Buffers – from 51L Models: MR 13" Sprung Carriage Buffers (ref: MRC045).
9. Gas lamps – a variety of possibilities, including those from Miscellany Models, 51L Models, Stephenson Coaches or Branchlines,
10. Gas cylinder – 51L Models - Gas Cylinders for Clayton 6-wheel and Bogie Carriages (ref: MRC055)
11. Side Lamp – 51L Models or Modelu
12. Vacuum Pipes – whilst it is possible to use white metal vacuum pipes, it is better to use cast brass versions such as those from Branchlines.
13. Rod for internal bump bars – 0.31mm brass rod
14. Vacuum cylinder – a variety of options but I use those from MSE (ref: NERC053)
15. Nuts & bolts – 4 no short (circa 3/8ths inch) 10BA nuts and bolts
16. Lettering Transfers – HMRS Transfers (ref: HMRS 24P for Midland era or HMRS 1P for LMS era)
17. Glazing – plastic or glass (NB, the central fixed window is frosted)
18. Couplings – screw link couplings available from Exactosale (the coupling hooks are included in the kit).

## Components Included

- |    |  |
|----|--|
| A  | Main Floor/Solebars (1 no)                         |
| B  | Lower Footsteps (2 no)                             |
| C  | Upper Footsteps (2 no)                             |
| D  | Outer Ends (2 no)                                  |
| E  | Inner Ends (2 no)                                  |
| F  | Outer W-irons (2no)                                |
| G  | Centre W-irons (1 no)                              |
| H  | Sprung Bearing Carriers (6 no + 2 no spare)        |
| I  | Lamp Irons (2no)                                   |
| J  | V hanger assembly (1 no)                           |
| K  | Main Sides (2no)                                   |
| L  | Door hinge assembly (8no + 2n spare)               |
| M1 | Guards Duckets Outers Panelled (2 no)              |
| M2 | Guards Duckets Outers Plain (2 no)                 |
| N  | Bump guard jigs (6 no)                             |
| O  | Guards Duckets Inners (2no)                        |
| P  | Coupling hooks (2 no)                              |
| Q  | Drop lights (2no raised and 2no lowered)           |
| R  | Brakes (4no + 1no spare)                           |
| S  | Brakes (4no pairs + 2no spares)                    |
| U  | Clerestory Roof (1no)                              |
| V  | Roof base (1no)                                    |
| W  | Clerestory sides (1no)                             |
| X  | Roof side pieces (2no)                             |
| Y  | Roof end supports (2no)                            |
| Z  | Roof intermediate supports (2no)                   |
| AA | End piece stiffeners (4no + 2no spare)             |
| BB | Vacuum Cylinder Actuating Arms (4 no + 1 no spare) |
| CC | Additional door hinges (2no)                       |

## Livery

<i>Item</i>	<i>Midland era</i>	<i>LMS era</i>
<b>Main Body Colour</b>	Crimson Lake	As Midland era
<b>Clerestory Sides</b>	Crimson Lake	As Midland era
<b>Chalking boards</b>	Slate grey (these were to a limited number panels, as visible in the pictures)	As Midland era, but tended to fade out of use in the 1930s
<b>Lining Sides</b>	A black central line, with gold either side (actually, there was also a border between these of red, but you need to be fairly hardcore to include that!).  The lining was found to the top of all of the beading to the sides.	Until 1934, the Midland style was perpetuated but with stray/black/straw.  After this time, the lining was simplified to a pair of horizontal lines (still of gold/black/gold); one at the head and the other at the waist.
<b>Lining ends</b>	Black on the top of all of the beading.	None, it was all Crimson Lake except for the body ironwork
<b>Body Ironwork</b>	Black, accept the door handles which were likely to be exposed brass.	As Midland era
<b>Solebars</b>	Crimson Lake with the ironwork in black	As Midland era
<b>Underframe ironwork</b>	Black	As Midland era
<b>Buffers/Couplings</b>	Black	As Midland era
<b>Footboards</b>	Black, although it was not tended to much, so weathered wood is more common.	As Midland era
<b>Roof</b>	Mid grey between the rainstrips and black beyond but this attracted soot in a very sooty environment, so these almost instantly went to a dirty grey colour throughout.	As Midland era but the black beyond the rainstrips probably disappeared in the 1930's.
<b>Insignia</b>	Early “ <b>M R</b> ” or “ <b>M . R</b> ” on the waist panel to the centre. Late “ <b>Midland</b> ” on the waist panel to the centre.	“ <b>L M S</b> ” located in the waste panel to the left hand side.
<b>Numbering</b>	To the panel to the left of the guards ducket, mid height.	To the waste panel to the right-hand side.



## Instructions

### General

- i. Do please read these instructions through before starting to use these components.
- ii. Do not release parts from the fret until you are reading to use them as it is easy to loose them and the fret goes a long way to protect them.
- iii. Most of these components need to be soldered together and I have suggested that you utilise a number of different temperature grade (or melting point) solders. For those of you who are not that familiar with soldering, there are some good guidelines here:  
[http://www.finescale.org.uk/index.php?route=information/information&information\\_id=29](http://www.finescale.org.uk/index.php?route=information/information&information_id=29)
- iv. The key to good soldering is to keep the metal clean, apply plenty of heat for a short period of time and use the right solder and flux. Whilst it is possible (and at times preferable) to use cored solders or electrician's solders (which is what you will generally find in a DIY store) it is not normally best to use these and for most things you will find it much easier to use proper jeweller's or modeller's solders. Solders from Eileen's Emporium (<http://www.eileensemporium.com/>), Carrs (<http://www.finescale.org.uk>) or Hobby Holidays (<http://www.hobbyholidays.co.uk/categories.php?cat=7>) are good places to start.
- v. There are different approaches to how to approach the soldering of kits such as this and many of you will have your own thoughts. If you are a beginner, it is probably best to treat 188° solder as your base line (the number refers to its melt point) and then use lower/higher melt melt solders where I have suggested.
- vi. When cutting components from the etches, it is important not to bend or distort the part. Thus, scissors or snips are not generally appropriate. Instead, use a craft knife/sharp chisel and cut onto a firm base (wood or similar) or use a piercing saw.
- vii. Fold lines are always on the inside of the bend for 90° bends. Thus, the item is bent into the half etched line; best done with bending bars or in a smooth jawed vice (pliers are OK for small pieces).
- viii. Items that are folded through 180° are the opposite. In this instance fold away from the etch line. It is best to do this in two movements; get it to 90 – 120° in the first movement in bending bars or similar and then complete the bend by clasping this shut between a vice or pliers.
- ix. All of the holes should be etched slightly undersized. This is because the etch process is a little variable so it can over etch and an undersized hole is much easier to deal with than an over sized one! Thus, the holes will need to be opened out slightly either with a broach or with the appropriate sized drill in a pin vice. Take care when doing this, especially with the broach, to make sure that the hole is to the correct size – use a piece of wire to the correct diameter and continue until it is a tight fit.



### Body Sides

1. Starting with the sides (**part K**), form the tumblehome with either rolling bars or by using a rolling pin. If you are doing the latter, this works best on a slightly flexible bottom layer overlaid with a firmer one. I use some folded tea-towels overlaid with some newspaper. Utilise the end pieces to check how far the tumblehome curves and check to see that this is repeated down the whole length of the side.
2. Thereafter, fold over the stiffener to the base of the sides to 90° and solder in place. This takes care to avoid accidentally bending the side panel. To ensure that the former folded correctly, it is necessary to relieve the fold a bit by running a knife down the fold line – don't cut it through, just weaken it to allow the fold to be easier. The same process is repeated for the stiffener at the head of the sides (that includes the toplight casements) but this is folded through 180°. Once folded, strengthen the fold lines with a fillet of solder.
3. The drop light for the guard's door (**part Q**) comes with two options; with the drop light partially lowered and fully raised - select the version you wish for. Each have tabs for the upper two hinges included, so fold these over and utilise them to align the part – then secure in place with solder.
4. The remaining door hinges are loose (**parts CC and LL**) – they are inserted from behind and soldered in place.

### Body Ends and Assembly

5. The ends are formed of two layers that are laminated together. First form a tumblehome to the base of the inner (**part E**) and the outer ends (**part D**) as noted for the sides, and bend the buffer beam forward so it is parallel to the main portion of the ends. Then lift the 4no footsteps to 90° - they should then pass through the slots to the outer piece to the end. Then turn the side support tabs through 90° and once all aspects are properly seated, sweat the two layers together.

picture

6. Before assembling them, decide if you want to incorporate safety chains, as would have been fitted to these vehicles early in their life. Holes for these are formed on the inner end pieces, but not the outer. Therefore, you will need to drill these through if you are going to use them.
7. Offer the sides to the ends taking care to line the top and bottom of the sides with the corresponding points on the end, taking the joint initially. Only once you are certain it is correctly aligned, should the solder the joint firmly and along the seam. This tends to flood for the holes for the handrails and they need to be drilled clear. Then the handrails can be inserted, a short one to the right and a longer one to the left which has a gentle curve in it.

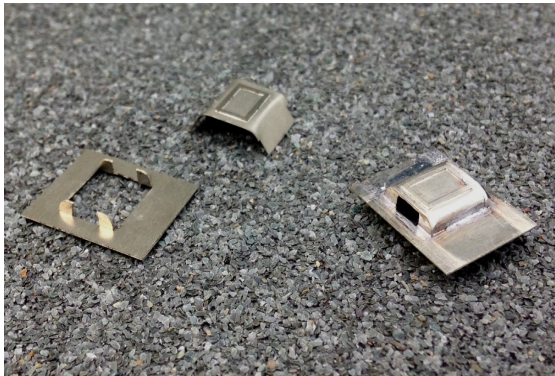


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8. The holes for the buffers may need opening up slightly, although this depends on the particular buffers you are using – then fit the buffers (if you are using sprung buffers, only fit the shanks with the buffers coming after painting). The coupling hooks (**part P**) needs to be laminated from the two pieces and once inserted the ends of the laminates can be prised apart behind the buffer beam to secure them in place.

### Guards Lookout Duckets & Body Detailing

9. It is best to assemble the guards ducket prior to fitting to the body. Start with the inner (**part O**) and fold the side tongue pieces inwards as shown to the left side of the picture below).
10. The guards duckets were initially panelled but were subsequently formed with a flush skin. The outer can be used either with the panelling to the outside (**Part M1**) or palin (**part M2**) to represent your desired form. The outer wrapper is designed to slot between the tongue and the head of the frame – it just might need a touch of work with the file to fit. Once both ends fit, the frame can be used as a former to start the bend of the ducket outer. You will find that this does not fold it to the full 90° and folds a bit better to the sides than the middle – take it as far as it can go by this method, and the wrapper will look like the middle of the picture below. Complete the folding by pushing the ends of the wrappers over a piece of bar – circa 5mm diameter – until they are at 90o to the main body of the wrapper.
11. The wrapper should now slip between the top and bottom face of the opening in the ducket frame, but will overhang the sides by approximately ½ mm each side. This is deliberate and it is intended that this be filed back. Seek to centre the framing on the ducket and when happy, solder in place. File back the overhanging wrapper sides and you should be left with a ducket as shown on the right of the picture above.



12. Offer into place in the opening on the body side and solder secure from behind. To prevent the sides deflecting, some bracing utilising scrap etc.

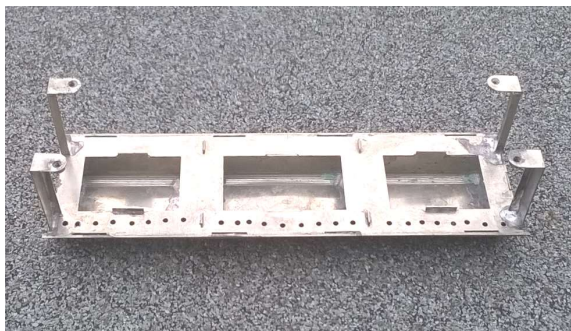


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13. You can, if you wish, install the door handles and handrails at this stage from brass wire, or you can leave them until after the vehicle has been painted and lined. This is particularly sensible if the vehicle is to be fully lined, as they get in the way of the lining pen – less relevant for the simpler liveries.
14. At certain times of their life the, there was a lamp above the guards ducket. If you are featuring this, then you can add this at this stage or hold back from doing so until the vehicle is painted and lined for the reason noted above.
15. A permanent jig has been provided to hold the internal bump bars in place (**part N**). It is best to install the jig at the construction stage of the model, with the actual bars (0.31mm brass rod) slotted into the holes after painting and glazing. The jig goes to the six windows (ie not the door) and sits on the turned over portion of metal to the main side piece (ie the bars are over the fixed lights, not the opening lights of the window).

### Roof

16. Start the assembly of the roof by mounting the intermediate cross supports (**part Z**) and the end pieces (**part Y**) onto the roof base (**part V**), then the clerestory sides (**part W**). All have tabs and slots to locate the parts.
17. Prior to the rolling of the roof pieces (**parts U and X**), determine whether you wish to install the roof handrails as they are likely to have been removed during the life of the coach. If you do wish to include them, then drill the half etched pip 0.35mm. If you wish to retain the gas lamps, drill the marked locations through with a drill size to suit the selected gas lamps. Don't fit either at this stage.
18. The rolling of the roof is probably the most challenging part of making this model due to the need to form the varying arcs, especially the sharper portions to the edges of the upper roof. To attempt to assist, the roof pieces have relieving lines to their interior. Start with the lower pieces to the roof (**part X**) and roll them in the same manner as the tumblehomes and then look to push the piece around a bar of metal until they reach the right shape. The roof will tend to fold on the relieving lines and take up a slightly faceted face. The facet lines can be removed by filing them once the roof is properly secured. Repeat with the upper roof (**part U**).



19. Turn the tongues of the end pieces over. These are not strong enough on their own, so end piece stiffeners (**part AA**) are provided to laminate on the inside – you may wish to use some scrap etch to laminate on the inside against the prongs as well for the same reason. Then secure a nut to the top face of the tongue, to provide the means of securing all of the components together.
20. Once the main elements of the roof have been completed, rain strips can be formed with 0.3mm wire. These take a gentle arc such that at the centre of the roof, they are approximately 2.5mm from the side of the clerestory and at the ends this increases to 6.5mm. It is easier to get a consistent curve on this before cutting it to accommodate the gas lamps – the cut needs to be 5mm and is centred above the window to



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the left of the ducket on the line of the rainstrip. Once the rainstrip is in place, the gas lamps (if required) can be fitted.



### Basic Underframe

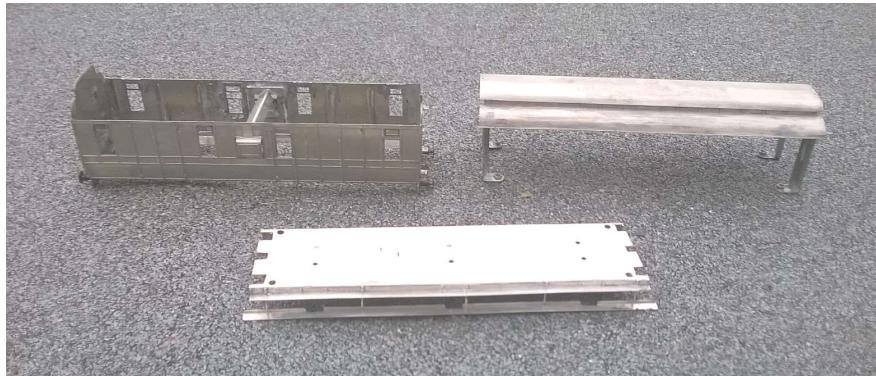
21. Fold down the solebars from the main part of the underframe/floor (**part A**). First fold the inners through 90° with the etch line in the inside and then tin the inside faces of the outer and inner solebars. Fold the outers through 180° so that they form a laminate.- then sweat the two layers together. The folds can be a little inconsistent so take care that the two layers are lined up by sighting through the slots that are to take the upper footboards and only solder when you are certain they are lined up.
22. It is best to fit the lower footsteps (**part B**) prior to the upper. Form the rivet heads in the mounting brackets with a rivet tool and then fold the tread over using a hold and fold (and it often pays to score the inside of the fold line with a scalpel to feather weaken the fold point). The correct mounting points for the footstep hangers are visible to the inside of the solebar, so use these to line these up and solder to the front face of the solebar (take care to get the hangers perpendicular/vertical as they can easily be knocked). It is then best to reinforce the inside face of these with a piece of 0.3mm wire, soldered into the rebate to the inner solebar and clamped to the rear face of the etched hanger – this adds a lot of strength to what is otherwise a vulnerable part.
23. The tabs to the upper footboards (**part C**) can then be slotted into place (note they do have a front and a back) on the solebars. Test fit these prior to soldering to ensure that they fit to the holes and over the hangers to the loer footboards – open up slots as required to get them to fit. Solder these in place after making sure that they are straight and correctly perpendicular to the solebars.



24. The underframe can now be offered up to the body; it should be just too tight to fit and can be filed back such that it just fits inside the headstocks. Do a trial fit with the screws to secure the roof in place and as these are tightened, all three parts should lock together.



25. Separated, the three parts now look like this.



### Sprung Chassis

26. Mount the brass bearings in the bearing carrier (**part H**) and secure with a very small amount of solder, taking care not to get any on the bearing surface. It is essential to use “waisted” bearings which have a reduced size so that they are easier to get into the slots/holes of the cosmetic springs. It pays to reduce the size of the “pip” to these that is formed in the turning process to assist in this regard but do not file too much such that there is a risk that the internal bearing surface is exposed as you will need to replace the bearing if this occurs.

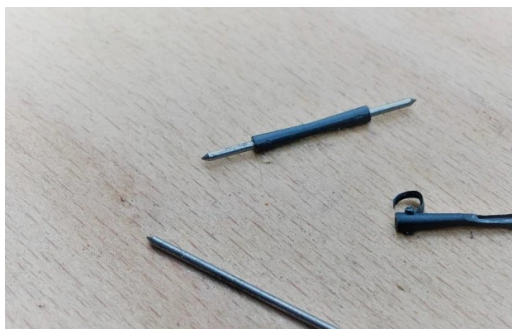


27. The bearing carriers are designed to take no 10 (0.18mm) guitar wire. This is slotted through the half etched lines on the ears of the carrier. It is best to ease the two side ears forward and the centre one back to accommodate the wire and to clasp these firm once the wire is in and solder secure. The wire tends to get bent in this process and ensure that it is bent back such that it is horizontal and flat in order to ensure that the bearing is at the right height.

28. Fold the sides and the ends of both the middle and outer W irons (**parts F & G**) up through 90° and strengthen the folds with a fillet of solder. Slot the ends of the guitar wire springs into the holes in the sides of the W-iron. Once they are in the correct location, trim the ends of the wire to stand proud by about 2mm and turn the ends through 90° to ensure the assembly does not fall free.

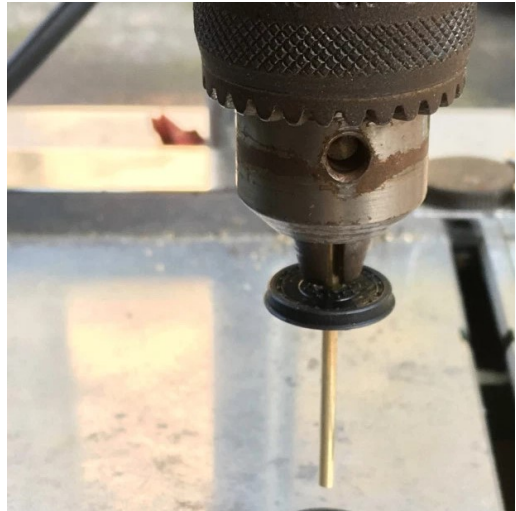


29. The sliding axle is formed with a tube that slides over a thinner inner axle. For the inner axle, use the Exactoscale pin point axle and strip off the plastic mould to leave just the steel inner. Remove the axle from the wheel blanks of the Alan Gibson wheel carefully, taking care not to distort the plastic blank in any way.



## Miscellany Models – Instructions for Lineside 3, 4 & 5; Arms/components, finials & lamps

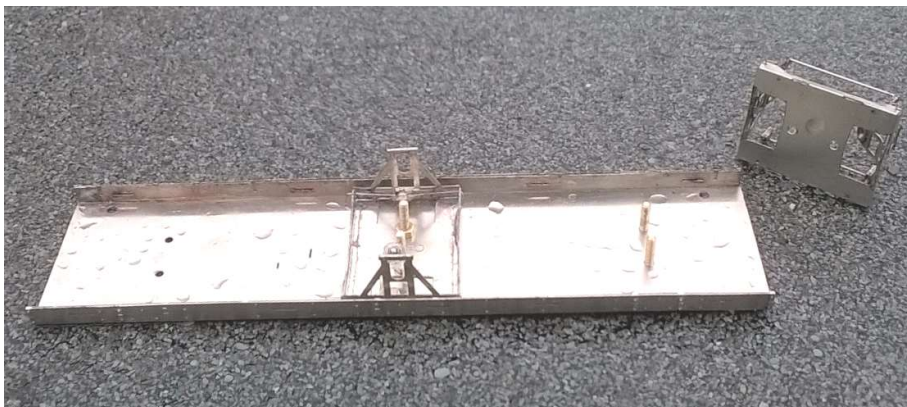
30. Cut a length of the brass tube that is circa 40mm in length and ensure that the ends are thoroughly deburred and slightly rounded so as not to score the soft plastic of the wheel blank. Utilising a drill press (or absent this a vice, taking extreme care to ensure that the axle is perpendicular in all planes to the wheel blank), mount the axle in the chuck and use the drill press to push this into the wheel blank. This should get the axle in perpendicular, but keep checking that this is achieved as this is very important. Continue pushing the brass tube through the wheel blank until at least 10mm protrudes from the far side. Mount this protrusion into the chuck of the drill press and repeat only on this occasion it is necessary to use a back to back gauge to ensure the correct spacing of the wheels.



31. You will now have a wheel mounted on a hollow axle, with tube sticking out from each end. With a saw, carefully (so as not to damage the wheel or give it a deflection), remove the excess tube. Use a ream to ensure that any burr to the inside of the tube has been removed and slot the tube over the inner axle. This axle is only required to go on the centre of the vehicle and it only needs a small amount of play to work.



32. The W-irons have holes to their bases that match holes on the underframe to assist the location of these and ensuring they are square. They are conceived to receive 10BA bolts but these are only for locational purposes and when soldering the W-irons in place, do not accidentally solder the bolt in place as they need to be removed. The W-irons are best fitted prior to the attachment of the brake gear (ie not as shown in the picture for the item description below).



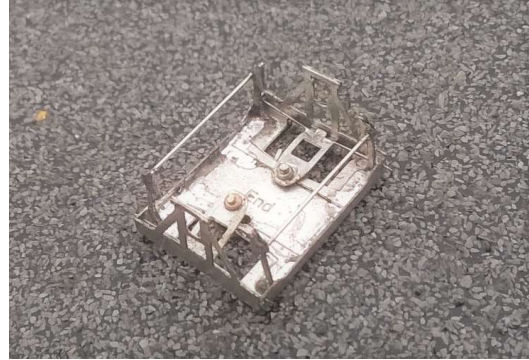
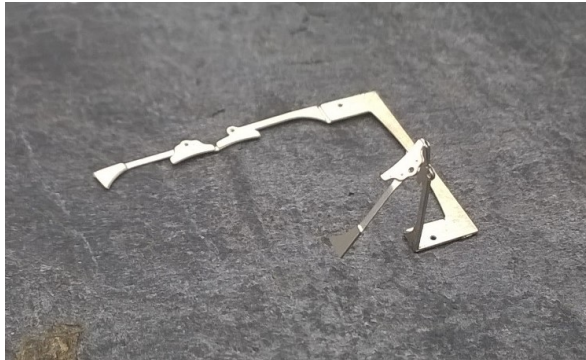
*NB, it is best to fit the footboards prior to the fitting of the W-iron assemblies*

33. The brakes comprise of three layers of laminate. The first two are on the main part of the brake etch (**part R**) and the parts are folded over as shown in the picture. The third layer is the separate part (**part S**) and is laminated to the inside. Once assembled, drill 0.65mm through the hole to accept the brake rod. Each



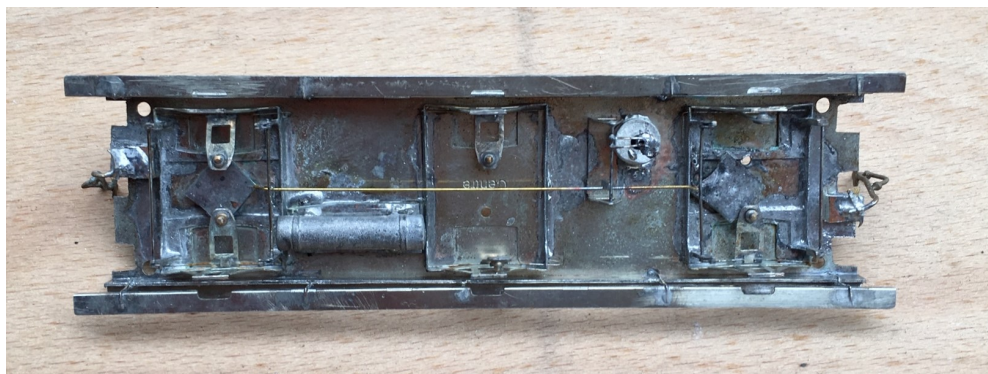
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brake assembly is added to the inside of the W-iron assembly and lined up with the tread of the wheel – ie the actual dimension will be different for P4, EM or OO. Once soldered in place, the brake pull rods can be formed with 0.6mm rod. It is not believed there were brakes to the central W-iron.



### Underframe Detailing

34. Castings or mouldings for the cosmetic spring and axlebox assembly can now be fitted. However, prior to fitting them, ensure that the hole for the head of the top hat bearing has been elongated to a slot that clears the full travel of the bearing top when it moves. You might wish to pack out the solebars slightly where these fit with plastic (if using the Slaters mouldings) or metal (if using the Branchlines castings) to prove a point to support the ends of the springs – these are long and delicate castings/mouldings, so they benefit from this extra strength.
35. The V hangers for the brake rods (**part J**) are folded up and inserted in the slots provided on the floor. A piece of 0.6mm brass rod is used to create the rod, remembering to thread on the actuating arms (**part BB**) to the brake cylinder as you fit this. Pull rods ran the length of the length of the underframe and attached to the brake yokes. These can be provided with further pieces of 0.6mm rod.
36. The brake cylinder is located in (if your selected version has a tongue) or on the hole to the floor, the actuating rods being attached to the brake piston.
37. A gas cylinder can be affixed to the underside of the floor, in the location indicated. In practise it is not clear what size/form of cylinder was used so you can substituted this if you please!



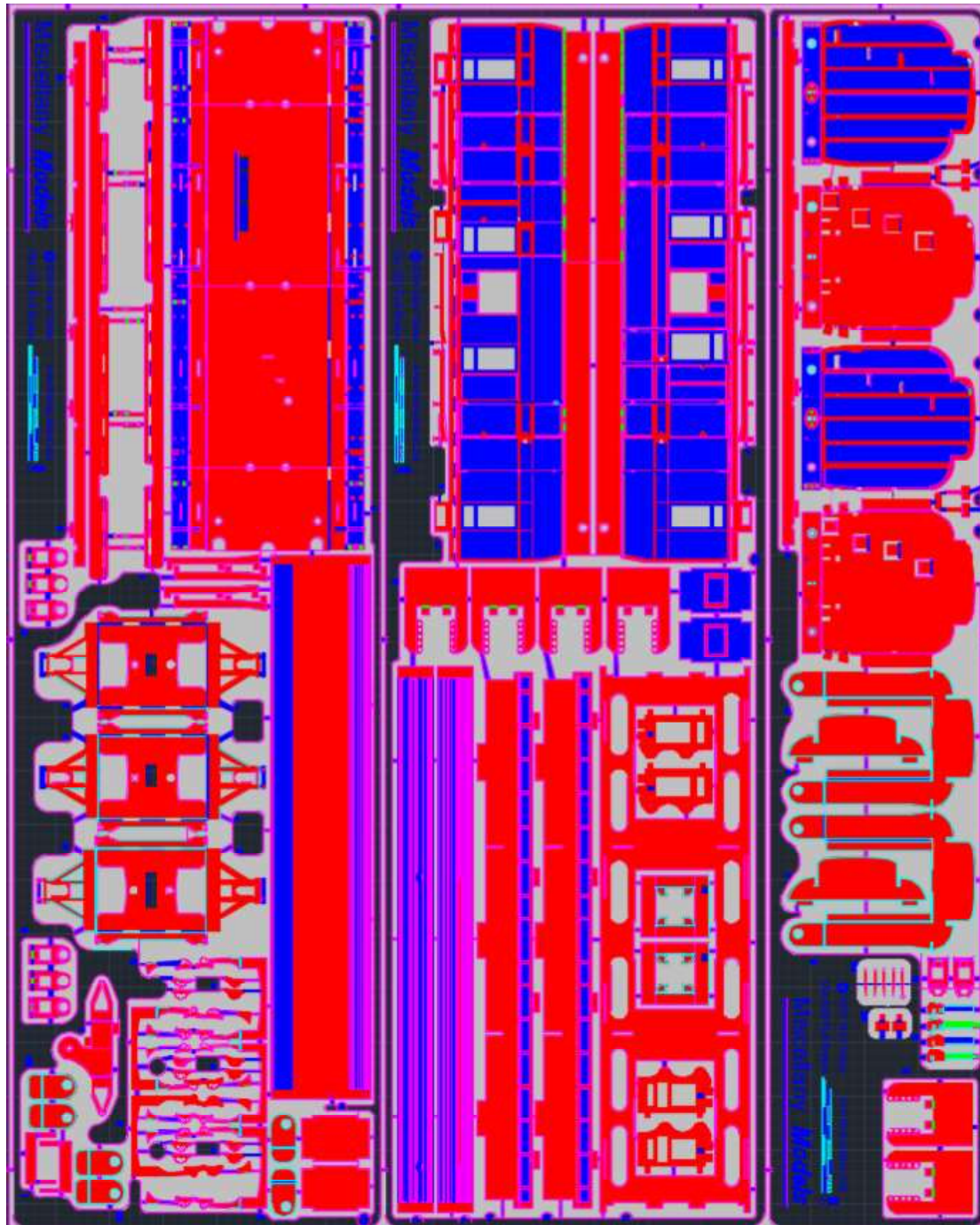
38. I have no evidence that these vehicles were electrically lit, but given that they survived for a long time it is quite possible that they did. If this is a feature that you wish to model, then you need not put in place the gas cylinders and the insertion of the gas lamps to the roof is also not necessary.



Completed Model



NB, the final image is from the National Railway Museum in York and seems to contain some subtle differences in comparison to the drawing and photographs (which in themselves also have differences!). It is good for livery guidance.



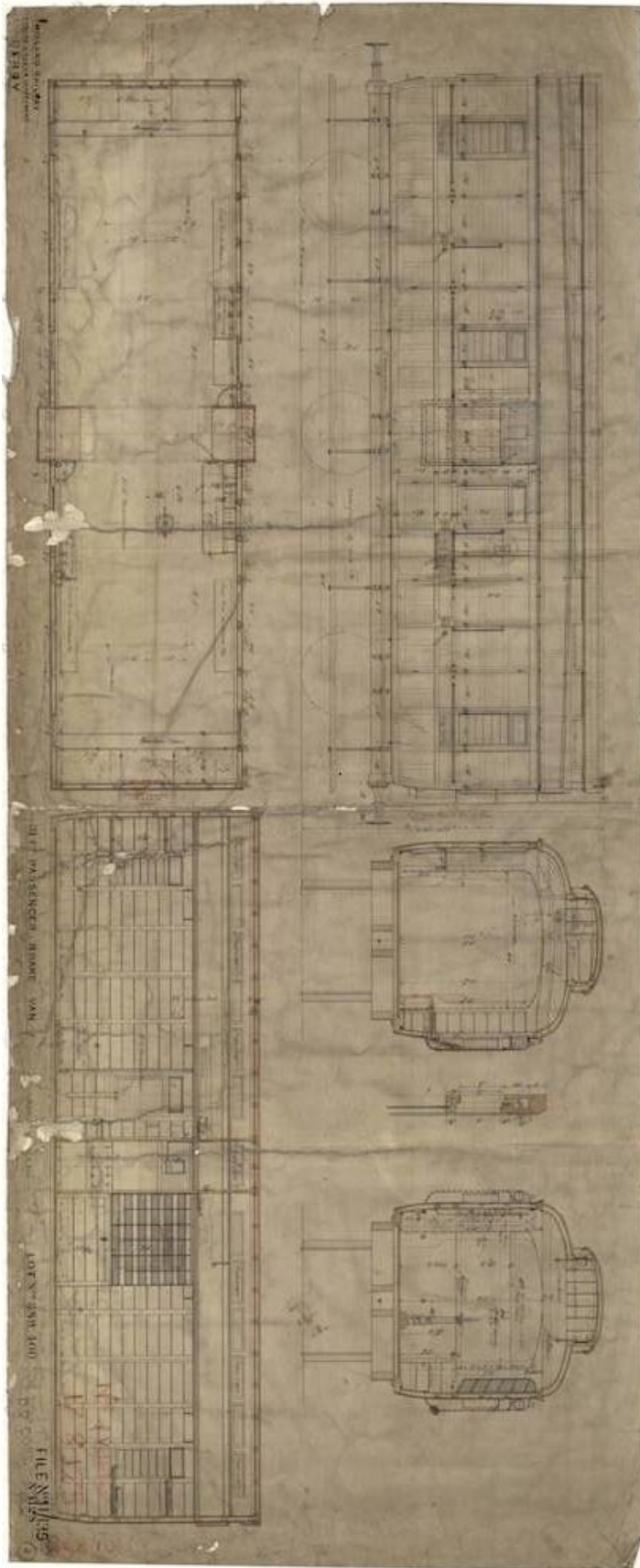
Other source material:

Midland Railway Carriages: Volumes 1 & 2 by R.E. Lacy & George Dow

Midland Carriages – An Illustrated Review by David Jenkinson & Bob Essery



Nearly the Right Official Drawing



Midland Railway official drawing of the dia 530 full brake coach, but with some detail differences such as the early pattern guards ducket and a slightly different panel arrangement around the ducket.