

Ref. G3W027 & G3W028 - Gauge 3 Midland Railway 8 Ton 5 Plank Wagon Side & Side Door End Versions



INTRODUCTION

Prototype Information

The side door only versions were built to Diagram 299 Drawing No 550 a total of 62010 starting with Lot 82 in 1882 and finishing with lot 632 in 1905, they were all built with bottom doors brakes one side only and grease axle boxes. They were principally used as general merchandise wagons.

A further batch of 1000 were built in 1917 described as similar to lot 632 but these now had both side brake gear oil axle-boxes and the longer brake lever, they also had an extra vertical piece of strapping located midway between the side door and both ends of the wagon and as such cannot be built from this kit without modifications.

The side and end door version were built to Diagram 351 Drawing no 790 again built with bottom doors, brakes one side only and grease axle-boxes.

A total of 9000 were built starting with Lot 244 in 1890 and finishing with Lot 490 in 1900. They would have been used mainly for coal traffic

Additional information and photographs are contained in "An illustrated history of Midland wagons" Volume 1 by R J Essery

BEFORE STARTING THIS KIT IT IS IMPORTANT THAT THESE INSTRUCTIONS AND DRAWINGS ARE READ.

Tools Needed

You will also need a few small weights or large strong paper clamps, a few fine files and a pin chuck, Aliphatic resin or PVA adhesive, a tube of cyano (for sticking the bolts into the body) a piercing saw with fine blades and most important a flat surface to work on, either a sheet or plate glass or a piece of 1/2" thick MDF that is flat. Most of the hand tools can be purchased from Squires at any model railway exhibition they are attending.

Etched Components

Remove components from the sheets only when you need them. This is done by cutting through the small tabs with a Stanley-type knife, or a small chisel blade, whilst resting on a fairly hard surface like a piece of MDF. In many places it is

possible to cut the tabs with scissors or nippers, but however you do it, do it carefully to avoid distorting the part you are removing and any adjoining parts. Usually it is best to cut the tab at the end away from the part and then remove the remains with fine nippers, finishing off with a fine file.

Many of the etched components require folding, and as a general rule, where components form a right angle, the fold line is on the inside, but where it folds back on itself (i.e. to 180°), the line is on the outside.

Before you do any folding or assembly work, clean any edges or surfaces with the glass fibre brush or abrasive rubber prior to glueing. This is done by running some superglue into the joints after assembly or smear some epoxy (Araldite) on the faces and joints during assembly.

Removing plastic parts from the Sprues

Cut through the joining tabs with a sharp knife or nippers, away from item required, removing the remains of the tab afterwards with the knife and finishing with a file. Do not try to break or snap the tabs, as this usually results in breaking away part of the item you need!

Cleaning up Lost Wax Castings

Remove pieces from the sprue with a piercing saw or nippers and finish off with a fine file. Remove any blemishes with a file and finish with a quick polish with a glass fibre brush.

Painting and Finishing

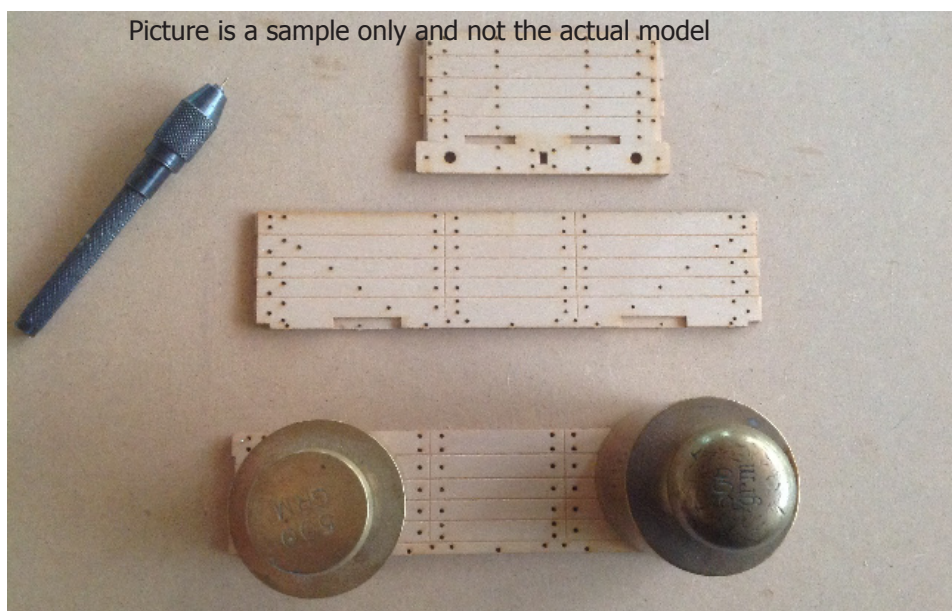
Once the body has been assembled and before you start fitting the strapping it is a good idea to give the body a coat of French Polish (Shellac) B&Q sell a small tin that is pure Shellac, this will help seal the plywood and make it waterproof.

Once all the strapping has been fitted the wagon can be given a coat of MR wagon grey, if it is a brand new wagon fresh out of the paint shops then it is a very light grey probably BR freight stock grey would be a good match however due to the paint being lead based this started to darken as the sulphur fumes from the Loco's attacked the paint until after a few years the wagon would be a very dark grey almost black, look at any MR freight yard photographs and the various shades of grey will be apparent. Only the white lettering remained white due to it being a special type of self-cleaning paint.

The MR wagon livery was simple everything including the iron work on the solebar was painted grey, all the iron work below the solebar was painted black with the exception of the brake lever and ratchet which was painted black. The cast wagon number plate was painted black and the numbers picked out in white, as was the builders plate

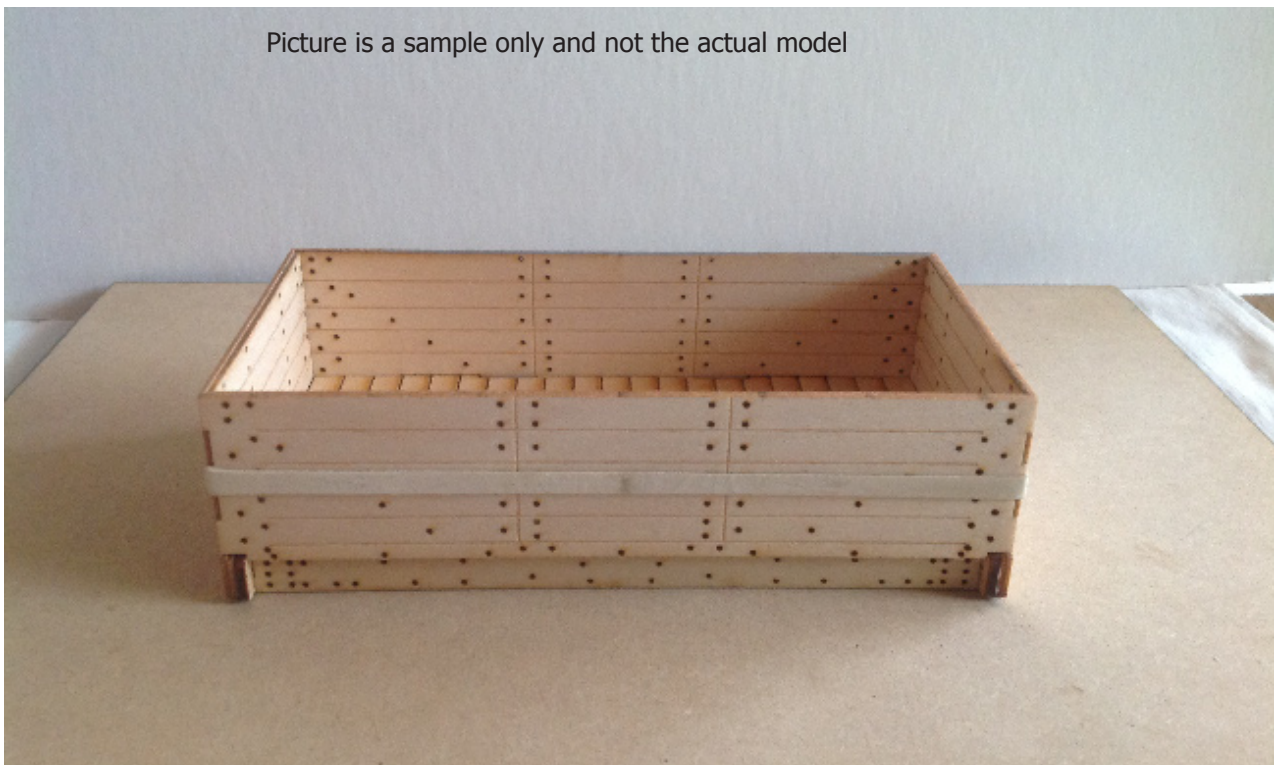
ASSEMBLY

1. The body of the kit consists of 1.5mm and 2.5mm plywood sheets, which will need to be bonded together. The first step is to poke out all the bolt holes, a small piece of 040" (1mm) brass wire sticking out of a pin chuck is the best method, you will now need your flat surface first cut 4 short pieces of the 1mm brass rod. These will be used as locating dowels one pin in each corner hole. Lay the outside side face down and smear the PVA or resin on the back. Now locate the inner side onto the outer side using the 4 alignment dowels to ensure that the two halves are correctly aligned note that the inside sheet is shorter at both ends for the side door version (the end door version has only the fixed end that is shorter, the open door end has both inner and outer side in-line). As soon as both halves are correctly aligned clamp or put a couple of weights on the side and leave to set on your hard surface. Thin plywood usually has a warp in it but once the glue is set the side will be straight. Leave for at least a couple of hours or overnight if possible. To make sure the glue is set and the warp in the sides has gone.



Next the ends can be completed in the same way except that there are 3 pieces, do not try and stick all 3 pieces together at once. Glue the two thin sides first and once set the headstock (buffer beam) can be bonded remember to use your clamps or weights. Finally, the solebars you have two thick pieces for each solebar. The two halves must be orientated correctly together, at the right hand end there is one hole larger than the bolt holes this is for the brake lever ratchet to fit into and at the left end two smaller holes horizontal along the solebar for the horse hook to go into. Study the later diagrams and this will be obvious.

2. Now that all the body parts have been glued together the body can now be assembled, large elastic bands will be very useful at this stage to hold the body together while you have a dummy run. The floor and the first underframe segment lock into the ends together. If any of the sides are not quite aligned correctly a quick touch with a fine file should make everything fit. (Note if you aligned all the parts to each other correctly this will not be necessary) once satisfied everything fits correctly apply glue to all the joints. Turn the whole assembly upside down and onto your flat surface with the elastic bands in place and your weights and leave to set.



3. The 3 remaining chassis frames can now be bonded in place but first put a 6BA brass nut into each aperture and carefully glue the next underframe section on top of them trapping them in place. Be careful not to get glue round the nuts they need to be able to move slightly in their holes. Carry on and glue the last two frames into the body and leave to set. Hopefully, your body will sit flat without any twist in it. If its not and you want to have another go at it, we can sell you another set of plywood parts.

4. Now comes the slow part, adding all the strapping. In the kit there are 4 sprues of large headed bolts and 7 small ones. The large headed bolts are used on the solebars and the small-headed bolts fasten all the strapping to the body. Do not try and get all the bolts into the piece of strapping at once, as you will end up with bolts all over the floor! Grip the sprue in a vice and hold the nut end in your pin chuck and then with a piercing saw cut off the nut and its shank from the feed. The shank is long enough to fasten both the inner and outer strapping onto the body. Where there is only outside strapping cut the shank very slightly shorter so that the shank just appears on the inside of the body. Just fasten each piece of strapping in place with a bolt at each end with Superglue (you need the thin type) and then stick the remainder of the bolts in. Some of the holes may have got filled in with the wood glue, if so just drill out with a 1mm dia drill in your pin chuck first. In fact it is a good idea to go round all the holes first and clean any glue out before trying to push the bolts through.

The Midland Railway had flush headed bolts on the inside of their wagons, unlike certain Private Owner Builders who thought it a good idea to put all the nuts on the inside of the wagon so just one man could tighten them up inside the body. The only problem being once you had dropped a few ton of coal into the wagon the nut was completely burred over, so when it needed to be undone for repairs it was impossible to undo.

5. When all the strapping is in place the axle guards ("W'Irons) can be cut out. Fold the two locating lugs that will hold the axle guard onto the body fold over into a right angle folding into the crease and run a fillet of solder into the crease to strengthen it. Do not fold the keeper plate over until you have fitted the bearings into the axle box. Note the slots in the square bearings are offset. The wider side of the bearing should go on the inside of the axle guard, if in doubt note that one side of the bearing has a slight recess on it, this is for the top hat bearing to fit into it and is the side that goes on the inside of the 'W'Iron. At the same time as you slide the bearing in put the spring onto the spigot on the bearing and the other end onto the tiny spigot in the etch, and then fold the keeper plate across the bottom two legs of the 'W' iron – trapping the square bearing in position. Note this is the only item in this kit that you fold out of the crease. Align the keeper plate carefully and then solder in place. The keeper plate has two small holes etched in each end use these as a jig to drill right through the bottom legs of the axle guard so that you can fit two of the small dummy bolts through the holes.

6. Once all four axle guards have been assembled they can be screwed into the chassis. There are some special 6BA screws with an allen key hole to fasten the axle guard onto the body. There is an allen key supplied for this purpose, the wheels will need to be fitted at the same time. Once the wheels are in place the brake gear can be fitted. Cut the brake shoes and their arms off their sprue and file the base flat. Drill the hole in the shoe out with a 0.6mm drill and bend up the etched brake linkages, attach each shoe to the link with a small length of 0.5mm brass wire and lower into the slot in the underside of the body. The diagram will show where is goes. When you are satisfied with the position of the shoes use some Araldite to stick them into place – at the same time the 'V' hanger can be fastened in place and the retaining bolt used to locate them to the brake arms.

NOTE: Apart from the last batch, these wagons were built with brakes on one side only. The horse hook goes on the left hand end of the solebar the brake lever and ratchet on the right hand side when you are looking at the wagon. After 1917 all new build wagons had brakes on both sides, but the Railway Companies were allowed until 1937 to convert all single braked wagons. Many early built wagons were probably worn out and scrapped before being converted.

ASSEMBLE AXLEBOXES.

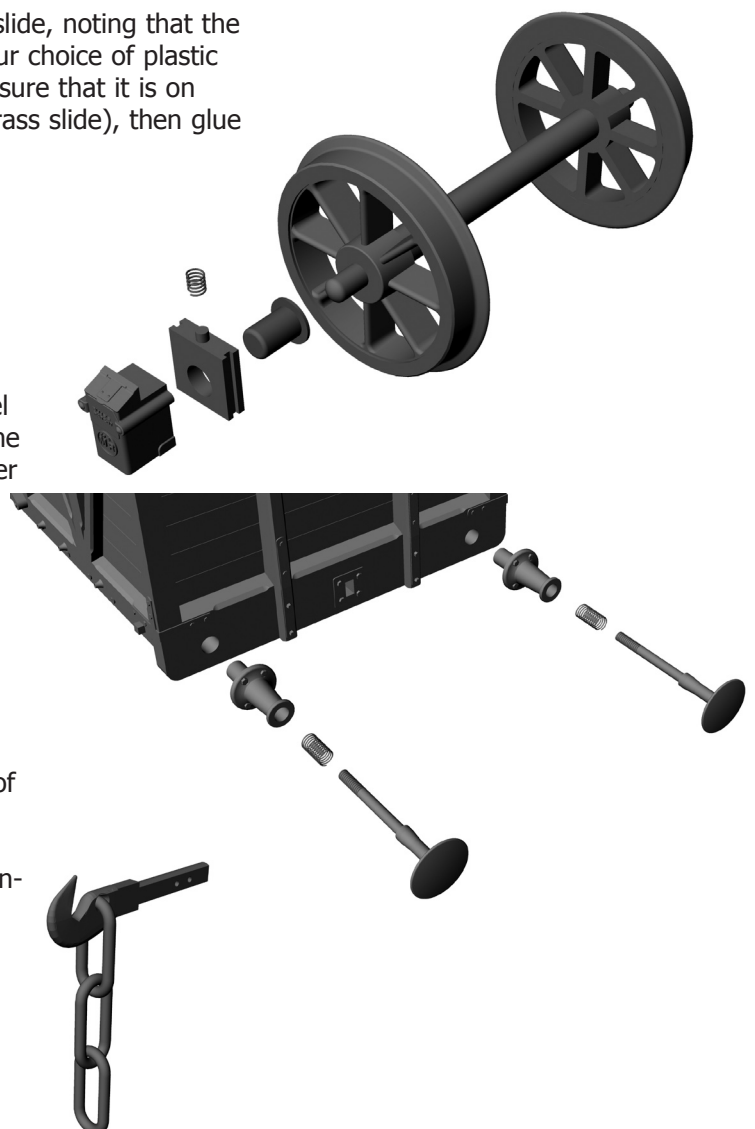
Place the "top hat" brass bearing into the brass axlebox slide, noting that the flange on the bearing goes in the recess on the slide. Your choice of plastic axlebox then pushes on to the protruding bearing. Make sure that it is on straight (i.e. that the top is parallel with the top of the brass slide), then glue the plastic to the brass with superglue or epoxy.

ASSEMBLE BUFFERS.

As well as removing each cast brass buffer base from its sprue, the inside needs cleaning out, with a 2.3mm drill from the back and a 3.3mm drill from the front. The steel buffer ram should then slide in and out smoothly. Glue the buffer bases into the buffer beam, making sure that closer spaced dummy bolt heads are horizontal, and the wider spaced ones are vertical. Then thread springs as shown and put the rams into the bases, with an 8BA nut on the inside (tightened right up to the end of the thread) to secure them. Lightly oil this assembly after painting.

ASSEMBLE COUPLINGS.

Using two pairs of plyers, twist open, as shown, four out of the six coupling links supplied. For each coupling, thread one opened link through the hole in the hook and twist closed. Thread another through that link and one of the un-opened links and twist that closed. the result should look like the second illustration.



Etchings

The photo shows the etching containing the body and solebar strapping, (the brake gear components are on a separate etch (the photo of which was shown in the previous article)). The most important job is to identify the various lengths of strapping and where they go and only break them out of the fret as you use them if you loose one they are not replaceable except by buying the complete etching, an expensive exercise

Most of the strapping on the body uses the smaller of the two sizes of bolts, cut the bolt off at the junction with its feed, line the strapping up with the holes in the body and just push the bolt through the strapping and into the wood, make sure the bolt is pushed right home and then a minute drop of cyano on a pin dropped onto the bolt and the assembly will be locked home permanently. This is an easy process but not quick there was 1/2 hours work in just fitting the parts.

Castings

This photograph shows a selection of the castings that are going to be fitted onto the body and solebars, reading from left to right the first sprue contains the brake lever ratchets at the top, they will plug into the appropriate hole in the solebar on the right hand side of the wagon when viewed from the front, although two ratchets are supplied but depending on the period modelled these wagons were not fitted with brakes both sides until the 1930's although it was mandatory on all new wagons built after 1917, the railway companies kept on applying for extensions to delay fitting of older stock with the extra set of brakes.

At the bottom of the same sprue are the two levers that operate the bottom doors on wagons fitted with bottom doors they are mounted on the underside of the solebar inline with the outside vertical strapping of the side door.

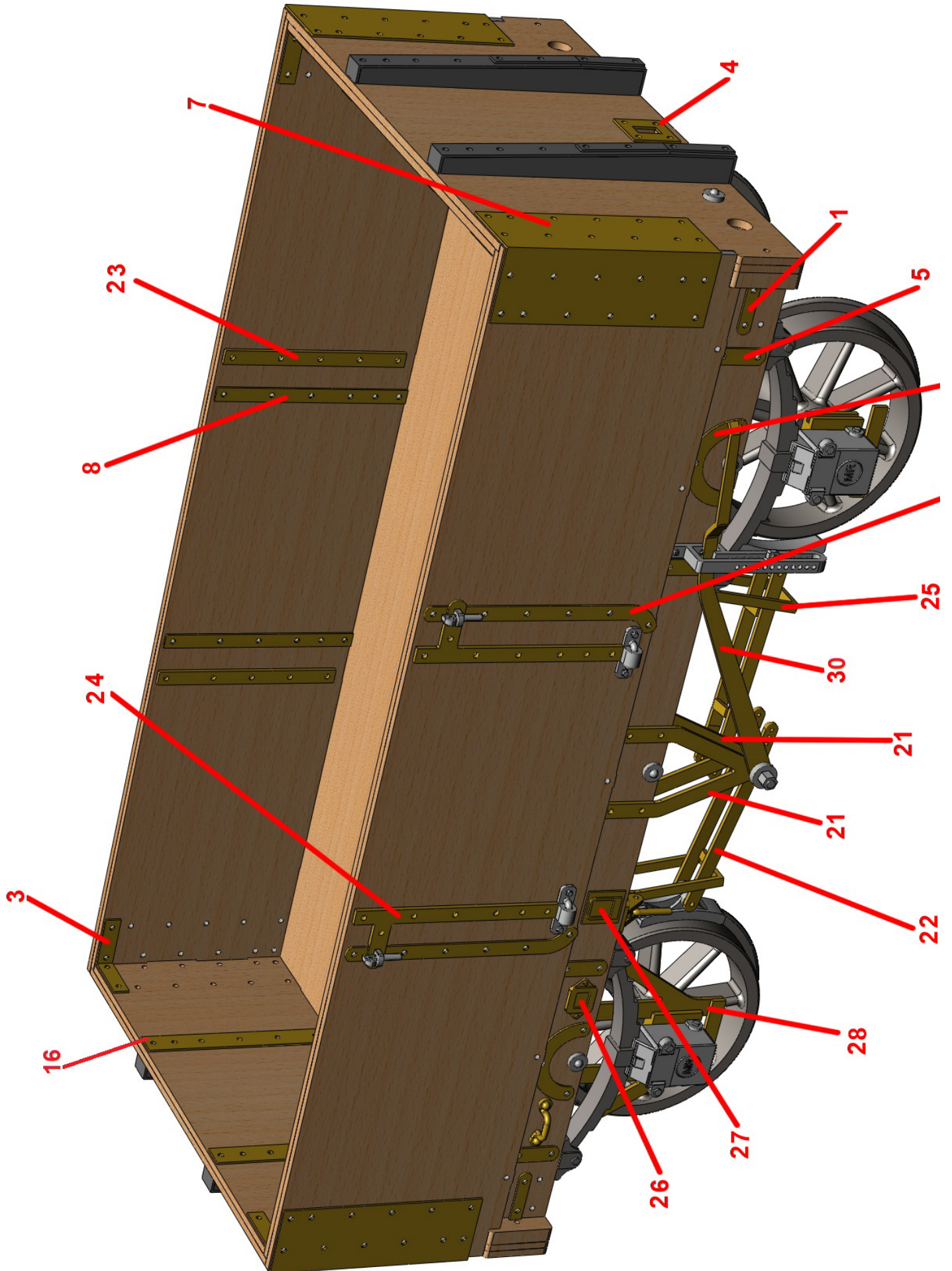
The next sprue (looks like a herring's skeleton) are the bolts that fasten the strapping to the body, there are two sizes of bolt the smaller sizes hold the body strapping in place whilst the larger size of bolts are used on the solebars

The next sprue contains the 4 hinges for the side doors again they just plug into the holes at the bottom of the door and at the top of the sprue are the pair of "horse hooks" one was mounted on the left hand side of each solebar these were used to enable the wagon to be pulled with the aid of a rope attached to a horse in the early days or in later days a lorry when an steam engine was not available.

The next sprue contains two very large nuts and washers these are to fasten the brake lever to the brake rigging again depending on your period modelled you may only need one of these and the bottom 4 smaller nuts are the ends of tie bars that go through the headstock longitudinally down the length of the wagon to hold the wagon together.



Side Door Only Etching number parts.



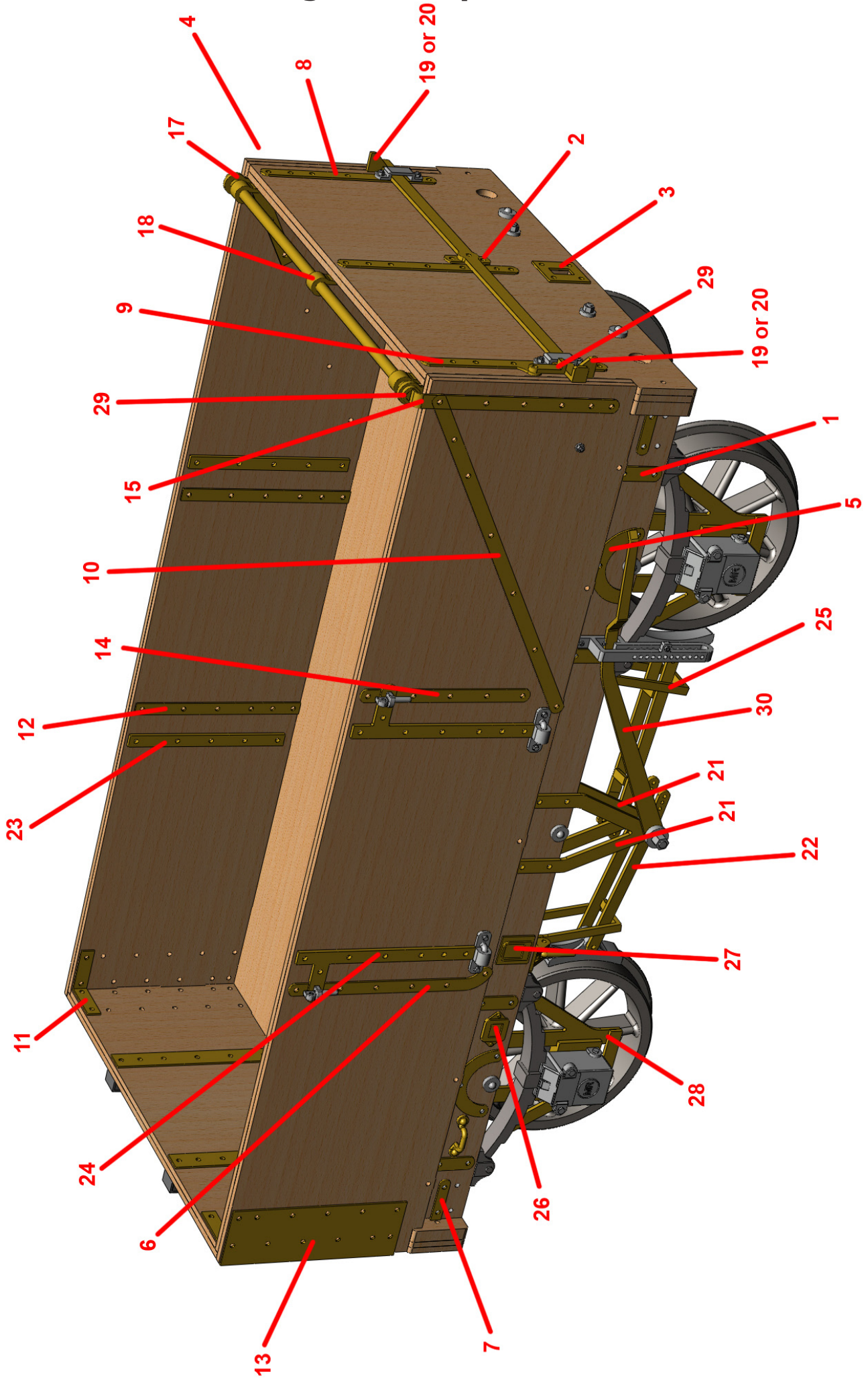
Thin Etch 15 thou (0.35mm)

1. Strap Bolts
2. Side Knee Washer Strapping
3. Top Inside Corner Strapping
4. Draw Bar Face Plate
5. Solebar Strapping Plate
6. Solebar Axleguard Strapping Plate
7. Corner Plate
8. Inside Side Knee Strapping
16. Internal Fixed End Strapping Plates

Thick Etch 28 thou (0.75mm)

21. Brake 'V' Hangers
22. Brake Push Rods
23. Internal Side Door Washer Plate
24. Side Door Hinge Bar
25. Brake Safety Loops
26. Registration Plate
27. Ticket Clip
28. W-Irons (Axleguards Wings)
30. Brake Lever

Side & End Door Etching number parts.

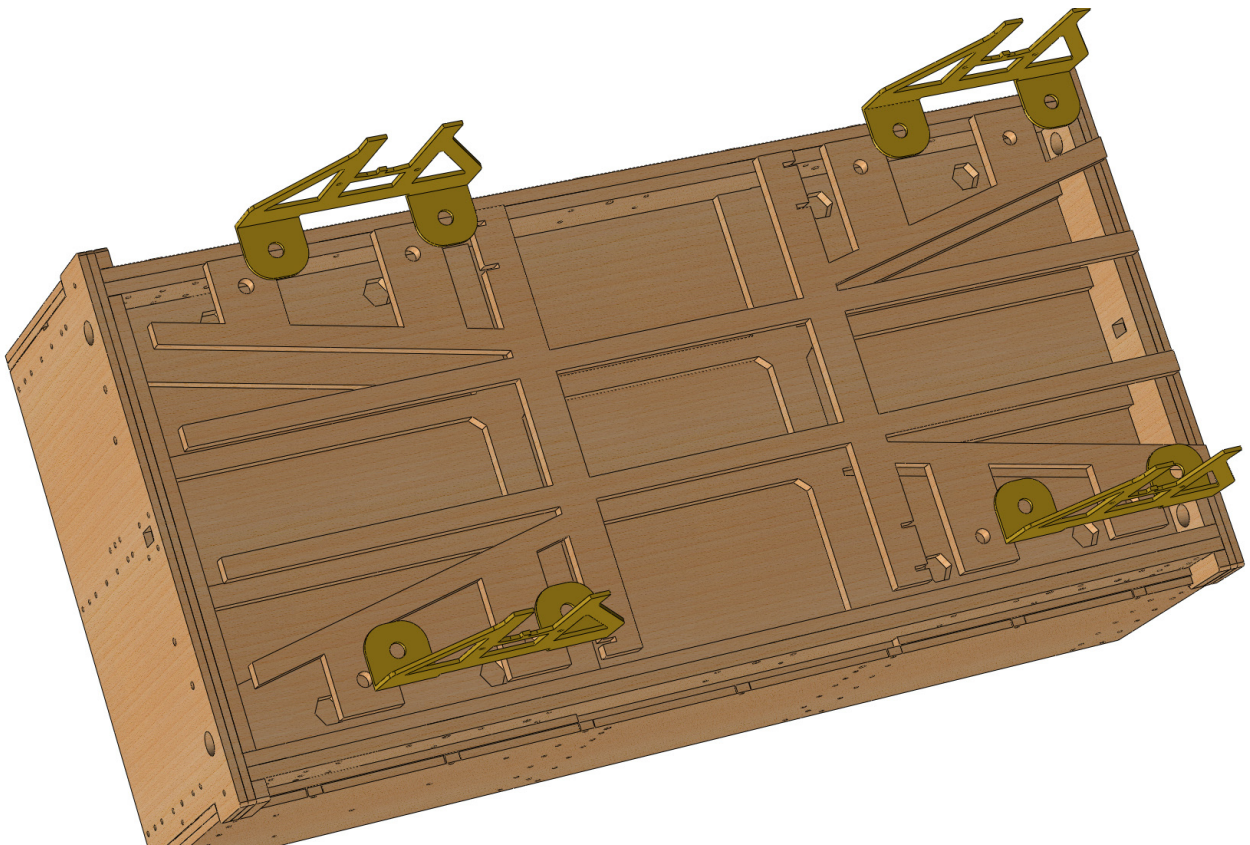
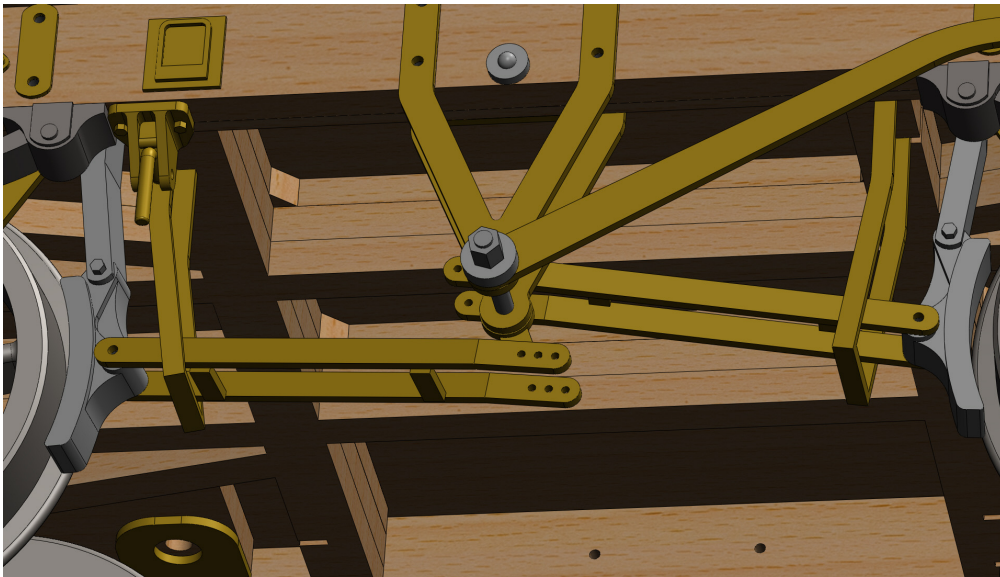
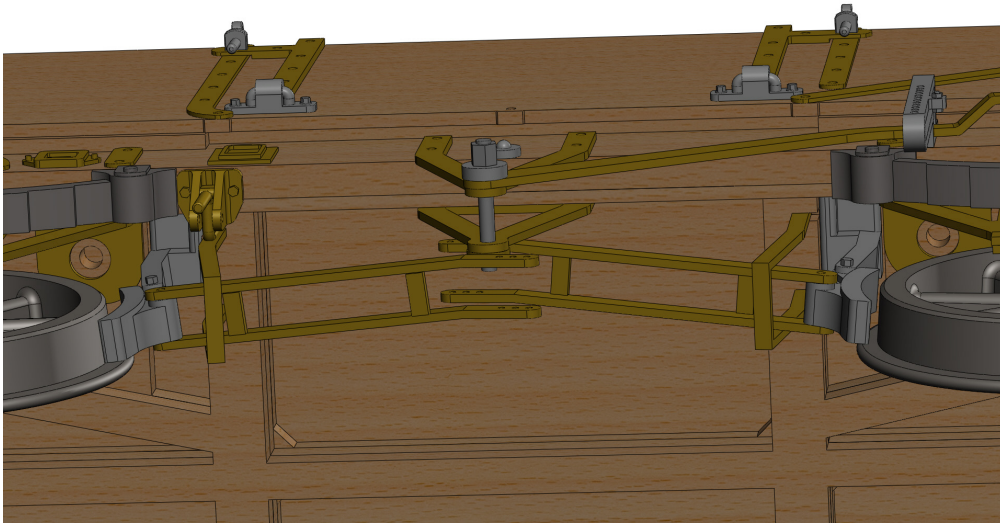


Thin Etch 15 thou (0.35mm)

1. Solebar Strapping Plate
2. End Door Locking Bar Strapping
3. Draw Bar Face Plate
4. End Door Knee Strapping
5. Solebar Axleguard Strapping Plate
6. Side Knee Washer Strapping
7. Strap Bolts
8. End Door Strapping
9. End Door Band Washer Plate
10. Diagonal Side Brace Washer Plate
11. Top Inside Corner Strapping
12. Inside Side Knee Strapping
13. Corner Plate
14. Side Knee Washer Plate
15. End Knee Strapping
16. Internal Fixed End Strapping Plates

Thick Etch 28 thou (0.75mm)

17. Internal End Knee
18. Internal End Door Band
19. End Door Locking Dogs
20. End Door Locking Dogs
21. Brake 'V' Hangers
22. Brake Push Rods
23. Internal Side Door Washer Plate
24. Side Door Hinge Bar
25. Brake Safety Loops
26. Registration Plate
27. Ticket Clip
28. W-Irons (Axleguards Wings)
29. End Door Hinge Bar Retaining Washer
30. Brake Lever
31. End Door Locking Lever



G3W027 Side Door Packing List

Item	Part No.	Description	No Per Kit
<u>CASTINGS</u>			
	G3W02710	Solebar Bolt head and washer	1 _____
	G3W02711	Brake Lever Bolt + Headstock Nuts and washers	1 _____
	G3155	Coupling Hook	1 _____
	G31562	Buffer Bodies	1 _____
	G3W02712	Solebar Horse Hooks/Side Door Hinges	1 _____
	G3W02713	Body Bolts (small head)	6 _____
	G3W02714	Underframe Bolts (large head)	3 _____
	G3W02715	Ellis Axleboxes (set of 4)	1 _____
	G3W02716	Side Door top Locking Dogs/ End door lever Retaining clamps	1 _____
	G3W02717	Brake Lever Ratchet/ Bottom Door Locking Levers	1 _____
	G3W02718	Brake Shoes (set of 4)	1 _____
	XG3W0271 X 1	XG3W0272 X 1 XG3W0273 X1	1 _____
<u>ETCHINGS</u>			
<u>OTHER PARTS</u>			
Laser Cut Body	G3W027	Laser Cut Body	1 _____
Moulding	X13W02712	Wagon Leaf Springs (set of 4)	1 _____
	G3	End Stanctions	1 _____
Screws	G3318	6BA Cap Head Bolts & 6BA Nuts	8 _____
Springs	X90054	Wagon Coil Springs (set of 4)	1 _____
Coupling Parts		6x Links, 2x X9156A Coupling Springs, 2x Split pins	1 _____
Buffer Heads		4x 12" Buffer Heads, 4x X790801 "Saint" Springs 4x 8 BA Nuts	1 _____
Wheels	G3121	3'1" 8 spoke Wagon Wheels + 4 Bearings	1 _____
Brass Wire	20Thou (0.5mm)		2 Inch 1 _____
Brass Wire	40Thou (1.0mm)		4 Inch 1 _____
Hornblocks	XG3B0271	Hornblocks Bearings	4 _____
	X78001	Allen Key	1 _____
Transfers	130146	(Sheets)	2 _____

G3W028 End Door Packing List

Item	Part No.	Description	No Per Kit
<u>CASTINGS</u>			
	G3W02710	Solebar Bolt head and washer	1 _____
	G3W02711	Brake Lever Bolt + Headstock Nuts and washers	1 _____
	G3155	Coupling Hook	1 _____
	G31562	Buffer Bodies	1 _____
	G3W02712	Solebar Horse Hooks/Side Door Hinges	1 _____
	G3W02713	Body Bolts (small head)	6 _____
	G3W02714	Underframe Bolts (large head)	3 _____
	G3W02715	Ellis Axleboxes (set of 4)	1 _____
	G3W02716	Side Door top Locking Dogs/ End door lever Retaining clamps	1 _____
	G3W02717	Brake Lever Ratchet/ Bottom Door Locking Levers	1 _____
	G3W02718	Brake Shoes (set of 4)	1 _____
<u>ETCHINGS</u>	XG3W0281 X 1	XG3W0282 X 1 XG3W0283 X1	1 _____
<u>OTHER PARTS</u>			
Laser Cut	G3W028	Laser Cut Body	1 _____
Moulding	X13W02712	Wagon Leaf Springs (set of 4)	1 _____
	G3	End Stanctions	1 _____
Screws	G3318	6BA Cap Head Bolts & 6BA Nuts	8 _____
Springs	X90054	Wagon Coil Springs (set Of 4)	1 _____
Coupling Parts		6x Links, 2x X9156A Coupling Springs, 2x Split pins	1 _____
Buffer Heads		4x 12" Buffer Heads, 4x X790801 "Saint" Springs 4x 8 BA Nuts	1 _____
Wheels	G3121	3'1" 8 spoke Wagon Wheels +4 Bearings	1 _____
Brass Wire	20Thou (0.5mm)	2 Inch	1 _____
Brass Wire	40Thou (1.0mm)	4 Inch	1 _____
Brass Wire	80Thou (2.0mm)	4 Inch	1 _____
Hornblocks	XG3B0271	Hornblocks Bearings	4 _____
	X78001	Allen Key	1 _____
Transfers	130146	(Sheets)	2 _____