Mounting plate for Sprat & Winkle couplings

Thank you for your purchase from 5522 Models.

Background notes

This design was born from my own desire for a standardised and easy-to-fit method of mounting Sprat & Winkle (S&W) couplings on 4mm scale wagons and coaches. These couplings are available from Model Signal Engineering (MSE) or other good model shops.

The mount uses the "lower method" of fixing described in the MSE instructions. This method does not require a slot to be cut into the bufferbeam of the vehicle. It also uses a loop made of thin wire for the hook to couple to, rather than a piece of wire stretched between the buffers. This helps reduce the visibility of the coupling. The wire loop for coupling is set at a height of 12mm above the rail.

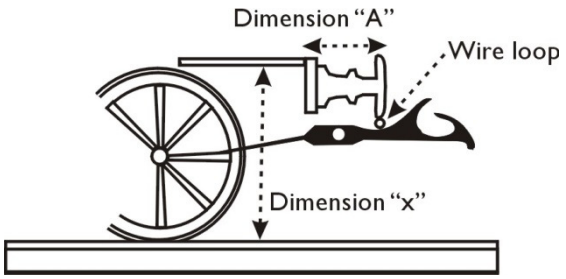
The design is based around the following standard dimensions, all derived from prototype measurements:

- Prototype height of centre of buffer from railhead = 3'6" (14mm in 4mm scale)
- Prototype height of underside of vehicle floor from railhead = 3'10 ½" (15.5mm in 4mm scale)
- Buffer distance between centres is 5'6½" (22.5mm in 4mm scale)

It is not essential that your vehicle matches these dimensions. However they are the baseline from which any small adjustments may be made, such as for a vehicle floor at a higher level.

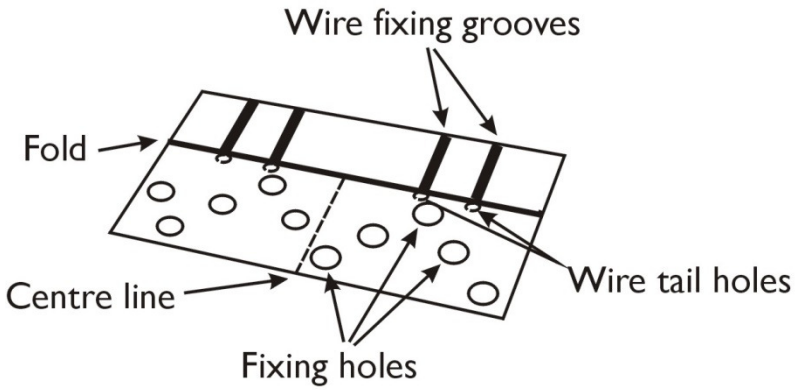
For mounting the coupling accurately, you need to know two dimensions:

- Dimension "x" is the distance from the underside of the vehicle floor to the top of the rail
- Dimension "A" is the distance from the back of the buffer beam to the front face of the buffers



Kit contents

This kit contains an etch with sufficient mounts to fit four wagons. The etch also has guides to help you form correctly the two wire loops necessary for these couplings.



1. You will also need: the 3mm version of the S&W coupling (ideally AC3/3), made up as in the "Preparing the coupling" section of the MSE instructions; a short length of 0.33 mm wire; a short length of 0.45mm wire; coupling loops or soft iron wire to make them.

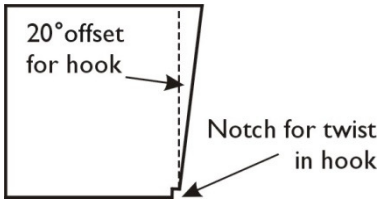
Assembly instructions

Important note: the design of this etch has been drawn so that certain holes are deliberately slightly undersize. This is so that if there is any over-etching during production, it is of no consequence in location or accuracy. It is easier to open out a small hole than to fill in an oversized one. Where this is relevant it will be specifically mentioned in the instructions.

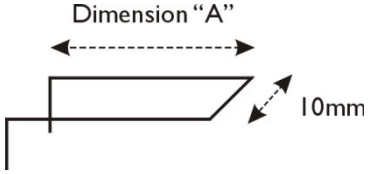
Before assembly of any etched brass parts, they should be thoroughly clean. This means that they are physically clean as well as chemically clean. Etched brass often has the remains of the etch resist used in the production process on its surface. Additionally, there may be oxidisation of the surface that starts naturally as soon as the metal is cleaned. Neither of these cause harm to the kit. To prepare the surface for soldering, I recommend that you clean it physically with a fibreglass "scratch" brush.

Etched parts can be cut from the fret using a stout sharp craft knife, a small chisel, or a pair of fine snips. It will aid the quality of assembly and the final finish if you clean up the remains of the holding tags with a fine file.

You should have prepared a suitable S&W coupling to use by detaching it from the fret and cleaning it up, bending the paddle down approximately 10° and offsetting the hook by an angle of 20° to the right, when looking down at the coupling from above. I use a simple jig made out of thick Plasticard to ensure consistency of this setting:



1. At a suitable preliminary stage during the building of your vehicle, it is helpful to scribe or mark a line longitudinally down the centre of the underside of the floor. This will help the coupling plate to be correctly aligned when it is fitted. Alternatively you can rely on the coupling hook for alignment.
2. Remove the coupling mount etch from the fret and clean up the tabs with a file.
3. Fold the coupling mount to 90° using the half-etched line across the width, with the line on the inside. The height of the upright, with the four grooves, should approximate that behind the buffer beam of your vehicle. If it is too high and would be visible when fitted, file an appropriate amount from the top edge.
4. If necessary, run a fine drill or reamer down the wire fixing grooves to ensure that you can pass a 0.33mm wire through the outer pair of holes in the fold line, and a 0.45mm wire through the inner pair.
5. The loop is made from 0.33 mm straight wire and will give a width of 10 mm. To make this, take a length of wire that is 40 to 50mm long. The length is not precise, as any excess will be cut off and discarded.
6. Starting from just off the centre of the wire, make a 90° bend in it. Place the leg of the wire through the hole on the etch marked "Loop". Using the notch on the edge of the etch, make a second 90° bend so that you have a "U" shape. Measure along a leg of the wire dimension "A", and make a 90° bend downwards at this point. Repeat for the second leg. You should have a shape like this.



7. Make a mark on the tail end of the wire at a distance (x-12) mm from the bend. This is where the wire is positioned in the angle of the mount.
8. Place the tails of the wire in the outer grooves of the mount and check that the mark is right in the fold at the wire tail holes. If the mark sits above the fold, because the floor of the vehicle is lower than normal, file an amount from across the top edge of the grooves until a fit is achieved. When all is correct, solder the wire in place.
9. The mount is made from 0.45 straight wire. Take a length that is around 30mm long and near the centre make a sharp 90° bend in it. Place the wire through the hole on the etch marked "Mount" and using the

notch on the edge of the etch, make a second 90° bend so that you have a "U" shape. It is important that both of these bends are sharp and not rounded, so if necessary tighten the shape of them up with pliers.

10. Place the bent wire through the two holes in the paddle of the coupling from below and check that the coupling swings freely. If the holes in the hook are under-etched, you may need to open them out slightly or clean away the cusp from the hole.

    NOTE: it is at this point that any slight under-etching of the hole in the edge of the fret that is used to set the correct size of the mount may reveal itself. If the width of the wire loop is too large for the coupling to swing freely on it, file a very small amount carefully from the Mount notch in the edge of the fret to reduce the dimension between the hole and the folding point until you achieve the correct spacing. Discard the now-useless piece of wire and try again. Once the mount spacing distance is set correctly, this will be used consistently, and the "tuning" exercise will not need to be done again.

11. Place the tails of the wire, with the coupling hook still in place on it, in the inner grooves of the mount. Adjust the height of the wire until the bottom edge of the coupling hook is horizontal when the top edge of the hook is resting on the wire loop. Solder both parts of the wire in place in the grooves on the mount. I use a soldering mat into which the wires can be pushed to hold everything in place whilst soldering, but a lump of Blutac or holding these in a vice or tweezers can work equally well.

12. Snip the excess ends from the four wires poking through the base of the mount and file flat. If you have used liquid flux to assemble the coupling, you should now wash it off.

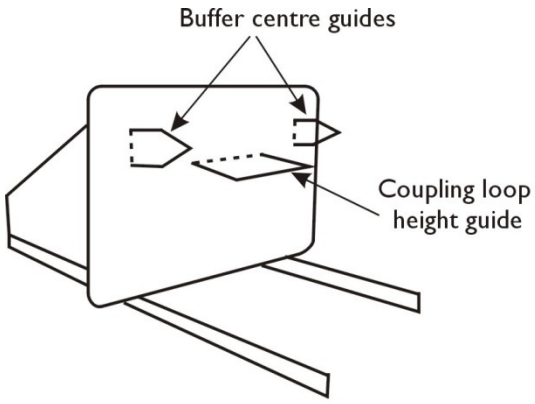
13. Use the centre line that you marked earlier underneath the vehicle to locate the coupling mount. If you are not able to mark a line, you can approximate the alignment from the hook in the buffer beam.

14. You can mount the coupling in at least three different ways:

    - Using small bolts or self-tapping screws through the fixing holes in the mounting plate. You may need to enlarge the holes to be able to do this.
    - By melting the plate into the bottom of the vehicle using a soldering iron. It is possible for melted plastic to "flow" up through the fixing holes: the grooves in the outside of the mounting plate will also help it to grip. Be aware that if you melt the mounting plate too far into the base of the vehicle, the hook and loop may no longer align at the correct heights.
    - By using a thick superglue or epoxy type glue. This can squeeze up through the holes in the mounting plate and help to "rivet" the plate in place.

    My preferred method is to use a two-part epoxy glue as this allows time to adjust the coupling whilst still giving a very strong bond.

15. After fitting the coupling, it is very important that the height of the loop is adjusted to ensure that it is consistent. You should have achieved a setting that is approximately 12mm above rail height. It is valuable to have a jig or gauge that you can compare vehicles against to ensure that the vehicles are all compatible with one another. I use a modified version of the Morgan Gilbert "Buffer and coupling height gauge" that is available to purchase by anyone from the Scalefour Society's Public E-shop (www.scalefour.org/eshop/), but any design of jig fulfilling a similar purpose would suit.



16. Repeat for the coupling at the other end of the vehicle.

Painting

Painting is perhaps not the correct term for this stage. If paint is used too thickly, it may cause the coupling to stick. You may find that a better alternative is the use of "metal black" or even a permanent marker pen.

The most important thing is to ensure that the contact faces of the hook and the centre section of the loop wire can slide over each other. For this, I've found that a touch with a black permanent marker is best. A grungy track colour of paint can be used for the other bits that don't have a mechanical function.

After colouring, you can fit the three link soft iron coupling loops to achieve magnetic decoupling.

Further information

Sprat & Winkle couplings are a product of Model Signal Engineering, and can be purchased from Wizard Models either at railway exhibitions or directly from their website at www.wizardmodels.co.uk.

The Scalefour Society. For all modellers interested in a finescale approach. The Scalefour Society promotes the use in 4mm scale modelling of prototype dimensions for the track gauge and wheel profile. See www.scalefour.org for more information.

5522 Models

For further information about the 5522 Models range please:

- visit our website at www.5522models.co.uk or
- email ***info@5522models.co.uk*** or
- write to:

5522 Models
Essex Cottage
Redricks Lane
Sawbridgeworth
Hertfordshire
CM21 0RL

We welcome any comments or feedback on our current or future models.