


MODEL SIGNAL ENGINEERING



Part of WIZARD MODELS

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SCALE	CODE	
4 mm	MP4	

SPRAT & WINKLE AUTO-COUPLING MOUNTING PLATES (4mm)

32 mounting plates for easier fixing of Sprat & Winkle couplings to 4mm scale RTR and kit-built wagons.

Enables both 3mm and 4mm versions of the coupling to be used on 4mm scale 2ft radius curves.

INSTRUCTIONS FOR USE

These notes should be used instead of those supplied with the couplings or coupling starter pack.

Preparing the wagon:

For reliable operation, Sprat & Winkle couplings must be mounted at a consistent height on each wagon. Most kit-built wagons have an open-frame arrangement of solebars and headstocks assembled around the wagon floor, whereas RTR stock tends to have a flat surface level with the bottom of the headstock and solebars. This effectively gives a choice of two mounting heights: inside the solebars ("upper" method), or on their bottom face ("lower" method). If you wish to maintain compatibility with stock already fitted with Sprat & Winkle couplings, you will have decided upon one or the other. **If you are a new user, then the lower method is strongly recommended, as it involves the minimum of modification to the wagon.** On the new Bachmann Blue Riband wagons, this option even preserves the original coupling mounting. Having made your choice, proceed as follows:

Lower method:

For RTR stock, remove as much of the old coupling mounting as is necessary to give a clear, flat area 22mm wide by 15mm deep at the very end of the wagon. For kit-built stock, use plasticard to fill in a similarly sized area immediately behind and flush with the bottom of the headstock.

Upper method

Cut a slot in the headstock to clear the coupling shank, and fix a length of MSE's *BW* brass wire across the buffer centre-line as shown below. Alternatively, fix a wire loop into the headstock, at the same height as the buffer centre-line. This will usually be 14mm above the railhead, and it is most important to get this dimension consistent between wagons.



Other types of rolling stock

Locomotives do not require a coupling to be fixed, only the wire across the buffers or the wire loop at the appropriate upper or lower height. Please note that the mounting plates have not been tested on bogie stock, but they should fit some types.

Preparing the coupling:

The mounting plates will work with the "3mm" coupling types *AC3/1* and *AC3/3*, and the "4mm" types *AC4/1* and *AC4/3*. Note that types *AC3/1* and *AC4/1* are different in appearance to most of the illustrations shown, but the difference is irrelevant. Begin by removing a coupling from its fret, and bending the paddle at 90° to the hook:



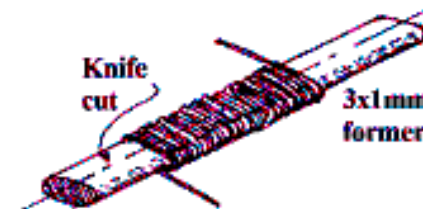
Next, offset the hook around 20° to the right, as viewed from the top of the coupling:

Finally, bend the paddle down around 10° from the horizontal, so it will clear the wagon floor when the coupling is disengaged:



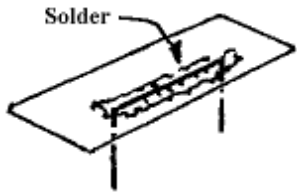
The exact angle of these last two bends is not critical, but make it consistent between couplings.

Make sufficient 3-link droppers by winding soft iron wire (MSE's *SIW4*) round a 3x1mm former. Score the side with a knife or saw, and break off the links with pliers. Alternatively, purchase MSE's ready-made links (*LNK4*).



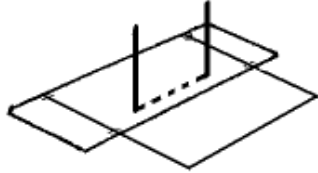
Assemble a 3-link chain as shown, inserting the top link through the dropper hole. Use pliers to close any unsightly gaps.

Preparing the mounting plate:



Remove a plate from the fret and burnish both sides. Fold up a wire staple from MSE's *NSW4* nickel silver wire to the shape shown. The legs should be around 6mm long, and 6mm apart for 3mm couplings, or 8mm apart for 4mm couplings.

Pass the legs through the inner or outer pair of holes in the plate as appropriate, from the side without the half-etched notches, and solder the staple in place. Do not pre-tin the wire before making the bends, as this tends to cause it to fracture.



If using the lower mounting height, prepare the coupling loop from MSE's *BW* brass wire. Again, this is staple-shaped, with the legs 14mm apart, and 14mm long for 3mm couplings, and 17mm long for the 4mm version.

Solder the wire to the plate as shown, using the half-etched notches as location points. The ends of the wire should be flush with the rear face of the plate. Again do not pre-tin the wire before making the bends.

Finally, drop the coupling top down onto the mounting plate, and bend over the legs to secure it in place. A pair of circlip pliers with 1mm diameter ends is the perfect tool for this (order MSE's *PLIERS*). Ensure that the coupling is free to pivot in the vertical plane; generously tinning the rear end of the paddle to provide a bit of extra mass helps in this. Wash off any surplus flux and spray the whole unit with black or red oxide primer, but keep the top (fixing) surface paint-free.

Fixing the coupling in place:

Note: For both methods, it may be necessary to fold the paddle or remove part of the rear or sides of the plate to clear the wheels and/or brakegear.

Lower method:



Roughen up the wagon base and the plate's top surface to provide a key for the adhesive. Offer up the coupling unit to the wagon, so that as seen from above, the loop

is in line with the front face of the buffers (hook omitted for clarity):

Using a minidrill and slitting disc, abrade a channel in the wagon base to accommodate the wire on the top surface of the plate. Once the plate fits flush to the floor, fix it in place using an impact adhesive such as Evostik, having checked that the adhesive does not harm the wagon.

Upper method

Proceed as above, but position the unit so the distance (x) between the loop and the inside of the hook bend is 5mm (3mm couplings) or 7mm (4mm version).



AC3/1 or AC4/1



AC3/3 or AC4/3

Once dry, check for free operation of the couplings. In particular, take care that any adhesive spilt out from the rear of the plate has not stuck to the coupling paddle. You may find that the two flat brass surfaces tend to stick to each other - if so, bend the paddle into a slight U shape, so it only makes contact with the mounting plate at the sides.

Adjusting the couplings:

Standardising the coupling height has already been covered for the upper height method. For the lower method, the loop should be around 12mm above the railhead. Again, it is important for all wagons to be the same, so either make a simple height gauge, or nominate a "master" wagon, and adjust all other couplings against this, by simply bending the loop up or down.

4mm couplings should cope with curves down to 2ft radius under all modes of operation. The 3mm version has been tested down to 3ft radius in all modes, and will also traverse 2ft radius curves when coupled, but not when pushing in the delay mode. So, if using the 3mm version with tight radii, set your magnet positions accordingly (see next section).

Location of magnets:

Magnets should be placed at any point where uncoupling is desired, remembering that with the *AC3/3* and *AC4/3* types, wagons can be uncoupled and then pushed as far as needed without recoupling taking place. At pointwork, ensure that the magnet position does not leave wagons within the fouling point of the converging track.

Both electromagnets (*PK MAG*) and permanent magnets (*4MAG*) are available from MSE. For *PK MAG*, follow the supplied installation instructions. For *4MAG*, orient the magnets parallel to the rails, with the widest face (the pole) uppermost. Reliability is aided by having all magnets with the same pole on top - check by bringing two magnets together, remembering that like poles repel. For best operation of both types, the magnet's pole should be within 3-4mm of the end of the 3-link chain. It is usually sufficient to bury the magnet within the thickness of the cork base (if used), as scale sleepers and scale rail will usually give the correct spacing. If you are using a deeper section rail and thicker sleepers, such as PECO Streamline, it may be necessary to bring the magnet nearer the sleepers' top surface. Try one magnet and see how it performs. If satisfactory, then follow for the others, if not then modify to suit. Once ballasted over, the magnets will be invisible, so don't forget to place a small trackside marker to remind you where they are.

Operation:

To couple two wagons (or a wagon to a locomotive), simply buffer up away from a magnet.

To uncouple, stop over a magnet, ease back slightly, at which point both couplings will drop, and then pull away. Alternatively, once the couplings have dropped, you can push the uncoupled portion as far as you wish (the "delay" mode).

Note that pulling or pushing at a steady speed over a magnet will not cause uncoupling.