MODEL SIGNAL ENGINEERING
MSE
Part of WIZARD MODELS LIMITED
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SCALE	CODE	
4 mm	AC4/1	

SPRAT & WINKLE 4mm SCALE AUTOCOUPLINGS

Fret of 40 Mark 1 original pattern autocouplings

For realistic, hands off train operation, using permanent or electromagnets

INSTRUCTIONS FOR USE

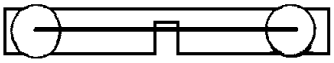
If you are using the MP4 mounting plates, ignore these instructions and follow those in the MP4 pack.

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.** 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 10mm wide by 12mm 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. On RTR stock, you will also need to cut a large hole in the wagon floor to clear the fixing wire - this will need to be at least 10mm wide and long enough reach a suitable anchoring point.

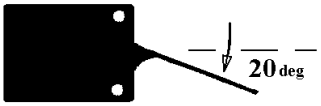


Other types of rolling stock
Locomotives do not require a coupling to be fixed, only the wire across the buffers or the wire loop at the appropriate upper or lower height. Please note that the couplings have not been thoroughly tested on bogie stock, but they should fit some types.

Preparing the coupling:

Begin by removing a coupling from its fret, and bending the paddle at 90° to the hook:

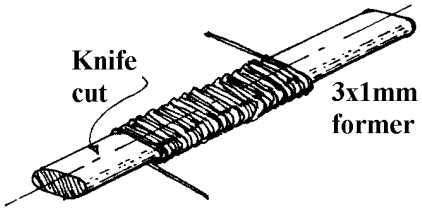
Next, offset the hook around 20° to the right, as viewed from the top of the coupling:



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 MSE's *SIW4* soft iron wire 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*).

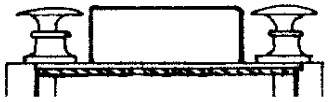


Assemble a 3-link chain as shown, inserting the top link through the dropper hole. Use pliers to close any unsightly gaps.

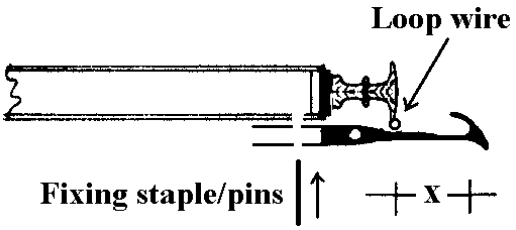
Fixing the coupling in place:

Note: For both methods, it may be necessary to fold the paddle to clear the wheels and/or brakegear.

Lower method:
Fold up a coupling loop in the form of a *BW* brass wire staple, with the legs 14mm apart. Glue the legs to the underside of the wagon, so that as seen from above, the loop is in line with the front face of the buffers:

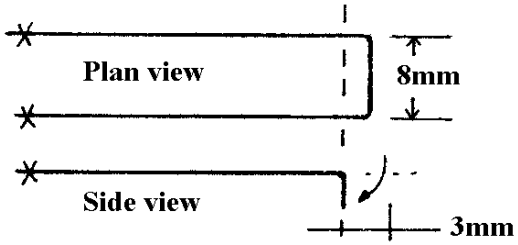


Use the coupling as a jig to drill two holes in the wagon floor, spaced equally about the longitudinal centre line, and sufficiently far back from the end of the wagon such that the distance (x) between the loop wire and the inside of the hook bend is 7mm:

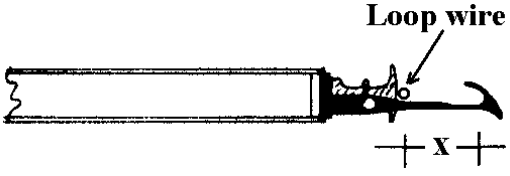


On an open wagon, take care that the holes do not break through the wagon floor. Fold up a fixing staple from MSE's *NSW4* nickel silver wire, with the legs 8mm apart. Pass the legs through the coupling holes, and glue them into the holes in the floor. Two pins may be used instead of the wire staple. Ensure that the coupling pivots freely.

Upper method
Prepare an *NSW4* nickel silver fixing wire as shown - the legs will need to be long enough to reach a good anchoring point:



Pass the wire through the holes in the coupling, and drop the coupling shank into the headstock shank. Glue or melt the fixing wires onto the wagon floor, positioning the coupling so that the distance (x) between the loop wire and the inside of the hook bend is 7mm:



For both methods, once dry, check for free operation of the couplings. In particular, take care that any adhesive has not stuck to the coupling paddle. 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.

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.

These 4mm couplings should cope with curves down to 2ft radius under all modes of operation.

Location of magnets:

Magnets should be placed at any point where uncoupling is desired, remembering that this original design does not feature delayed operation. 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 dropper. 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.

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

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