Rumney Models Sprung Single Bolster Coach Bogies – Instructions

Notes

These kits are designed to provide a fully sprung, single bolster coach bogie that work along the lines of the prototype. Primary (wheels to bogie) and secondary (bogie to body) suspension are given equal importance and fulcrum points are arranged as wide apart on the bogie for stability. Correct profile ends are also included. Suitable cosmetic sideframes will be required.

Kits E.01 and E.02 are designed to be able to fit the Bachmann Mk1 coach without having to modify the plastic bolster.

This set of instructions covers all the bogie kits E.01 through E.05. They are all the same in principle and differ only in details. These detail differences are noted in the instructions.

Read through the instructions first and familiarise yourself with the components. Drawings and photographs taken during the construction of the test etches are included to attempt to make my waffle clearer. Note that not all the photo are from clasp brake chassis but illustrate the item in question.

All fold lines are through 90° with the fold line on the inside unless stated otherwise.

Everyone has their own soldering methods. I now use a temperature controlled soldering iron with predominantly 145° solder and La-Co paste flux. For a long time I used an Antex 18W soldering iron on virtually everything with few problems.

Check all holes before removing parts from the fret. The drawing process for etching if you use a CAD program as I do is extremely accurate but the actual etching process itself not an exact science. If the fret is slightly over etched then there is no problem but if they are under etched the holes will need enlarging. I find that this is easiest to do before removing parts from the fret. The hole sizes will be noted at the appropriate points.

Technical

Distance between backs of W-Irons is 24.5mm. The suspension is designed to provide 0.42mm deflection on both the primary and secondary springs using 0.009" guitar wire with 180g load (not including the weight of the bogies themselves). Primary suspension is arranged in individual springs that are soldered to the spring carriers. For this you will need a suitable flux. I use Carr's Black label. Secondary springs are arranged on the two point contact between two simple supports principle.

If your coach weighs significantly more than 180g then you should consider using 0.010" steel wire for the primary springs but leave the secondary springs at 0.009". Suitable guitar wire should be available from your local music shop.

Materials list

Spring wire and pins to act as a bearing point between bogies and body are included but you will need to obtain other items to complete.

Your favourite brand of 3'7" or 3'6" wheels and bearings are of course required. I use Exactoscale products.

The following sizes of wire will be needed:

0.8mm to help pin the brakes in place 0.31mm if making the axle guards/tiebars removable

Either M2 bolts and nuts 2.5mm outside diameter, 2mm inside diameter brass tube or 10BA bolts and nuts 2.5mm outside diameter, 1.5mm inside diameter brass tube will be needed to fix the bogie to the body.

I dislike using screw threads as a bearing surface hence the tubing.

The other item is suitable cosmetic sideframes.

Components list

Note that on some bogies the ends are etched as part of the spring bearing plates (4).

- 1 Main bogie assembly
- 2 Bolster guide
- 3 Bolster
- 4 Spring bearing plates
- 5 Ends
- 6 Spring carriers
- 7 Bearing washers
- 8 Axle guards/Tiebars
- 9 Brake shoes
- 10 Brake yokes
- 11 Bogie pivot plate
- 12 Pivot locating plate
- 13 End reinforcing plates (E.02 only)













Construction

Fig. 1 shows the general arrangement of the components.

Start with the main bogie assembly (1). If you intend using the axle guards/tiebars (8) included then you will need to ensure that the holes will accept 0.31mm wire. Remove the main bogie assembly from the fret and tidy up any connecting tags. If you intend to allow the wheels to drop out then remove the sections marked in green in Fig.1. Fold the side up and also the two small sections that will locate into the spring bearing plate (4). See photograph below.



Ensure that the holes in the bolster (3) will accept the pins that are included in the kit and then remove them along with the bolster guide (2) from the fret. The bolster guide needs to be folded into a deep channel and the bolster itself into a box. There are slots and tabs to help ensure that the bolster is folded up properly. See photograph at the top of page 10. Ensure all sides are at 90° to each other.

Solder the bolster together around the tabs and slots. Take the pins included and cut the shaft about 3mm from the head. Locate fully into the holes in the bolster and solder in place.



The bolster guide needs to be located in place on the main bogie assembly. There are tabs and slots to aid alignment. You need to make sure that the bolster guide is hard up against the main bogie assembly whilst you solder it in place or the sides will not be completely parallel. I use a small needle file to apply pressure whilst soldering. See photo below. This is easier than it sounds.



Remove the spring bearing plates (4) from the fret. There are numerous parts that need to be folded up. Basically where you see a fold line on the spring bearing plate make a fold through 90°. Locate the spring bearing plate onto the bogie making connections with slots and tabs with the main bogie assembly and the bolster guide.

The spring plates included with E.02, E.04 and E.05 have the ends etched as part of them. Locate the small tabs with the slots on the ends of the main bogie assembly. Solder the spring bearing plate in place.



Kit E.02 has a triangular end reinforcing plates (13) included that help to strengthen the ends in the centre. These can be soldered in place using the tabs and slots to locate them.

Kits E.01 and E.03 have individual ends (5). Press out the rivets and remove from the fret. I use a drop head rivet press to form these whilst holding the part on one of those ubiquitous green cutting mats. The ends need to be folded up to effectively form an L section. The bottom of the end in kit E.03 also needs to be shaped to the profile correct profile. See photo on page 12. Reinforce the fold line with solder. If you are fitting the E.01 bogies to a Bachmann Mk1 then make sure the end with the hole in attaches to the spring bearing plate with the semicircular impression on the other end of it rather than the spring bearing plate with the large slot. This will ensure that the end with the hole in faces towards the centre of the coach as per the prototype.

The ends can then be located in place using the tabs in the ends and the slots in the main bogie assembly and spring bearing plate as an aid. Solder in place.

Whatever the arrangement of the ends, make sure that the ends of the spring bearing plate are soldered to the main bogie assembly. If they aren't then the primary springs could work their way loose.



Spring Carriers

The spring carriers (6) can now be assembled. They are designed to be folded double and the springing wire soldered to the carrier using the etched slot as a guide.

The distance between the backs of the W-Irons is slightly larger when compared with other systems and is 24.5mm. The advantage of this measurement is that if using pin point axles you don't have to hunt around for bearings that are deep enough but you may find that the carriers need packing out a little to take up any slop. Bearing washers (7) are included for this purpose. There should be a good fit between the axles and the bearings with ideally no sideways movement at all. If using pinpoint axles use a waisted type of bearing to avoid having to remove any more material from the cosmetic sideframes than is necessary. I have used Exactoscale waisted pin point bearings which are just about perfect for the job with only occasional ones that require packing out.

Due to the removable nature of the axle guards you can easily use Exactoscale parallel axles and bearings if you wish. If doing so then you will need to pack the bearings out on the back of the spring carriers before soldering them in place due to the length of the axle. Use the bearing washers provided.

I find the easiest way to assemble the spring carriers is to make a small jig consisting of an off cut of wood with a 2mm hole drilled into it.

There are three half etched lines in the middle of the spring carrier. Fold the spring carrier double about the centre fold line with the fold line on the outside. The spring carrier can then be placed so that the bearing locates through the hole in the carrier and the wood. The bearing can then can be soldered in place. The spring wire can then be located in through its etched guide slot and soldered in place using a suitable flux. I use Carr's black label. The spring wire needs to extend at least 8.5mm either side of the point where it is attached to the carrier. They will need to be trimmed but do this whilst checking against the bogie after cleaning the carrier up.



Axle guards/Tiebars

Etched axle guards/tiebars (8) are included if you wish to enable the wheels to drop out. They can also be soldered permanently in place but either way if you intend using them you will need to make sure the holes will accept 0.31mm wire before removing them from the fret. If you intend on making the wheels removable you will also need to cut out the part of the main bogie assembly that is marked in green in Fig. 1 as noted earlier.

Some thought will be needed if using them as to how they will work with your chosen cosmetic sideframes. I thin mine down so the W-Iron part of the casting has all but disappeared and cut off the rest, then there is no problem with drilling holes through the sideframes to locate the axle guards/tiebars. Note that the tiebars for 9' heavy duty (B.04) and GWR 7' (B.05) bogies are shaped deliberately. Make sure they are the right way up. They should 'bow' downwards.

If you wish to use them and are not planning on making them removable then they can be pinned and soldered to the W-Irons. Remove from the fret and fold the ends up. Thread lengths of 0.31mm wire through the axle guard and holes in the W-Iron and the corresponding holes on the opposite W-Iron. Solder in place. Fit the other axle guard and solder in place. Trim the wire so that it represents bolt heads on the front of the axle guards and flush on the back



If you want to make them removable to allow the axles to be dropped out then you will need to solder 0.31mm wire 'pins' through the holes in the axle guards. I find the easiest way of doing this is to use one pair of holes as a jig and drill a pair of 0.3mm holes into a piece of scrap wood. Short lengths of 0.31mm wire can then be threaded through the axle guards locating into the holes in the wood. These can then be soldered in place and filled back to represent bolt heads before folding up the ends. You will need to make sure there is at least 0.75mm of wire projecting from the back of the axle guards otherwise the spring carriers will be able to fall out of place when everything is assembled.

It is a good idea to leave at least one of the pins in the axle guard as long as possible to give you somewhere to hold them when painting. Once the axle guards and the bogie are painted they can be tack glued together on final assembly. The glued joint can be broken and the tie bars removed if you find it necessary to remove the wheels at any point.



Commonwealth bogies (B.02) had a different arrangement of axle guards. If you wish to make the wheels removable you will need to contrive some arrangement to stop the wheels from falling out. I used 0.31mm wire soldered to the bogie as shown in the following photo. These retaining wires don't need to be very strong as they only have to hold the weight of the carriers, wheels and bearings.



Brakes and Yokes



The brake shoes (9) are designed to be folded up as one piece, soldered together and then tidied up afterwards. Remove from the fret and fold up. The two outer detail parts of the shoes wrap around the centre section. There is no need to separate the parts. See photo above. Fold the base through 90°. The three parts of the brake shoes need to be aligned and soldered in place. I do this by putting a 0.5mm drill bit through the holes for the yoke and clamp the etched layers together using a pair of self closing tweezers. If you hold the drill in one hand you can rest the base of the tweezers on the workbench leaving one hand free for the soldering iron. It's easier than it sounds, see attached photo. Solder together. You can now clean up the assembly and the shoes in particular.



The shoes need to be located against the spring bearing plate and soldered in place. Use a length of 0.8mm wire and the holes etch in the spring bearing plates and brake shoes to aid location and then solder in place.

The brake yokes can now be added. There are two types; one with two etched fold lines and one with one. Fold them up and attach them to the bogie as per Fig. 2. You may need to bend the brake shoes gently outwards to be able to fit the yokes. Ensure you are happy with the alignment of the brake shoes and then solder the yokes to the brake shoes and the spring bearing plate.



Pivoting points and adjustment

I dislike using screw threads as bearing surfaces and so have etched the holes in the bogies to 2.5mm diameter in order to be able to use a sleeve of 2.5mm outside diameter brass tube with the locating bolts. It may be a little extra work but there will be no catching of the bogies on the pivot bolt when moving up and down.

If you are fitting the bogies to a Bachmann Mk1 then use M2 bolts with a sleeve of 2.5mm outside diameter, 2mm inside diameter tubing. The M2 bolts will nicely self tap into the existing locating holes in the plastic Bachmann bolster. Make the tube 7mm long and screw thread on the M2 bolt 10mm long.

If you are fitting to a kit built coach then you can use the bogie pivot plate (11) and pivot locating plate (12) provided. You can either use M2 or 10BA bolts. If using 10BA bolts you will need 2.5mm outside diameter, 1.5mm inside diameter brass tube to use as a sleeve. This will need opening out slightly for the 10BA bolt.

Remove the bogic pivot plate form the fret and fold into a channel. The locating bolt can then be soldered in place from the inside of the channel. The hole in the bogic pivot plate is 2mm so I would suggest that you open it out to 2.5mm if using 10BA bolts and use the brass tube sleeve to align. This assembly can then be soldered to the pivot locating plate using the tabs and slots as an aid. See Fig. 3.

The pivot locating plates have lines etched at the mid points of the sides to help align them on the coach floor. The intersection of these four lines will mark the pivot centre.



Height adjustment is via pads on top of the bolster. These can be made out of plasticard or metal sheet. Ideally, if you are using plasticard, there should be a metal layer acting as the bearing surface for the pins on the bolster, 0.005" or 0.010" sheet would be fine. Make sure that each of the pads is the same thickness and then the coach will sit completely level.

Notes on weighting

The bogies are designed to operate on a load of 180g. They can be used on heavier coaches but you will need to up the gauge of the primary springs. This was noted in the technical section at the beginning. On lighter coaches you should add some weight to bring the total coach weight, not including bogies, to 180g with the weight evenly distributed.

Notes on cosmetic sideframes

The bogies are set up to the correct wheelbase, note that not all cosmetic castings are! I used Bachmann plastic sideframes on my BR1 and Commonwealth bogies and neither have the correct distance between axlebox centres. I had to cut and shut the BR1 to get the correct dimensions. Whitemetal castings for various bogie types are available form MJT and 247 developments. Plastic sideframes for Mk1 and GWR pressed steel bogies are available from Replica Railways. I haven't examined all of these bogies in detail and so cannot currently comment on their accuracy.

Thin the castings down as much as possible. Most castings when paired with sprung bogies are much too wide. This is generally down to the width of the cosmetic castings. Effort expended here will result in better looking bogies when placed under a coach.



The back of the axleboxes will need to be slotted to allow clearance for the bearings.

Painting

I now use Halfords grey primer in a tin through an airbrush with cellulose thinners to prime just about everything, including plastics. The primer is synthetic and has no adverse effects on the types of plastics used on RTR railway models and kits. The cellulose thinners used evaporate so quickly that they don't have time to attack the plastic. You can then put your choice of paint over the top including cellulose. Don't use the red oxide in a tin on plastic though as it won't adhere and the paint will just come off.

Finally

Thanks must go to the staff of The Buckinghamshire Railway Centre at Quainton and the GWS at Didcot for letting me measure up some of the coach bogies in their care which have greatly helped in the preparation of these kits.

Justin Newitt 2013

Suppliers List

Eileen's Emporium (wire, bolts & tube) Unit 19.12 Highnam Business Centre Newent Road Gloucester GL2 8DN UK www.eileensemporium.com

MJT (cosmetic bogie sideframes) Dart Castings 17 Hurst Close Staplehurst Tonbridge Kent TN12 0BX www.dartcastings.co.uk 247 Developments (cosmetic bogie sideframes) Seven Acres Meltham Rd Marsden West Yorkshire HD7 6JZ www.247developments.co.uk

Replica Railways Unit 46, BSS House Cheney Manor SWINDON United Kingdom SN2 2PJ www.replicarailways.co.uk