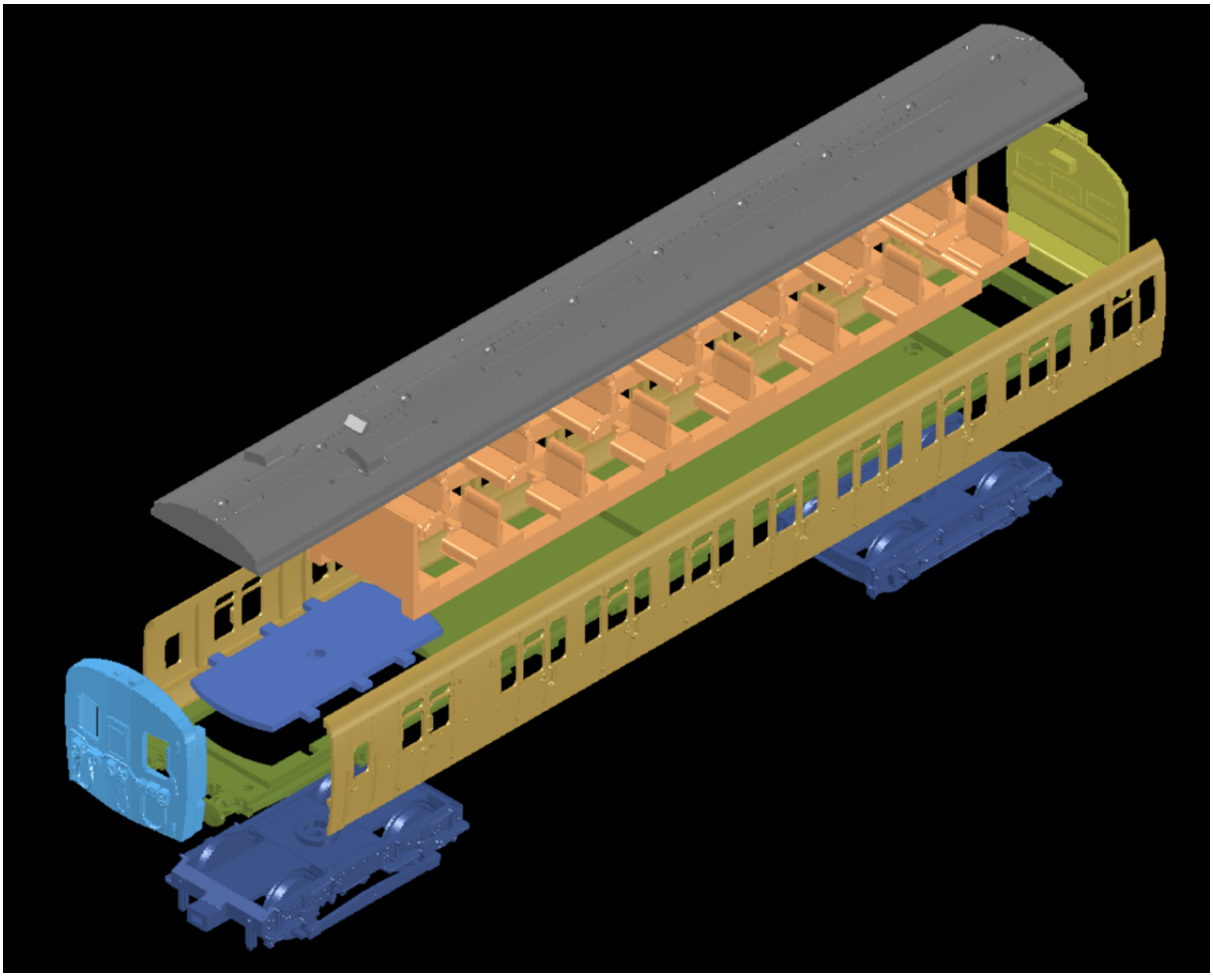
EMR EASTLEIGH MODEL RAIL



Southern Electric multiple units
Kit construction notes

You will need.....

In addition to the 3D printed parts in your Eastleigh Model Rail Southern Electric multiple unit kit you will also need:

- One or two powered motor bogies - see the "motorisation options" below.
- Couplings.
- Wheels and bearings
- 8BA/M2 nuts and bolts.
- Glazing
- Paints and transfers

Motorisation options

Eastleigh Model Rail Southern Electric multiple unit kits include components to make two 35mm wheelbase bogies, representing the Southern Railway's 'Central type' 8ft 9ins wheelbase motor and trailer pickup bogies. This was the type fitted to most Southern Electric suburban units, the principal exceptions being 4 Sub units 4667-4752 and EPB units 5001-5053 which had 9ft wheelbase 'Eastern' motor bogies.

4-car units had a motor bogie at the outer ends of the two driving motor coaches whilst two car units had one motor bogie and a similar but unpowered pickup bogie at the outer end of the driving trailer in order to minimise the risk of a unit losing electrical power as it crossed gaps in the conductor rail.

The Eastleigh Model Rail motor bogie kits can be used either to make an unpowered model or as a source of detailed, accurate sideframes and other components for adapting motor bogies with a 35mm wheelbase and 14mm diameter disc wheels.

At the time of writing the supply of suitable motor bogies for model railway multiple units of all kinds is somewhat problematic. The excellent Black Beetle motor bogie is out of production and I have not been impressed by the Tenshodo 'spud' unit in the past. They were something of a lottery - some individual units ran well, others not so good.

Two suppliers that I am aware of, though I have not had any experience of buying from them, are:-

- motorbogies.com
- locosnstuff.com

Another potential solution is to use Hornby motor bogie (Hornby part no. X6575) from the 2 Bil or 2 Hal range. They are not currently available from the manufacturer as a spare part but second-hand 2 Bil and 2 Hal models can be found on eBay and elsewhere and occasionally a damaged one with an intact motor bogie turns up at a bargain price.

To equip your model with the Hornby X6575 motor bogie you will need an Eastleigh Model Rail Hornby motor bogie housing (available separately).

A drawback of the Hornby motor bogie, and of any other motorised bogie that does not fit beneath the floor, is that it intrudes into the first seating bay of 8-compartment 4 Sub motor coaches so if you go down this route you will need to cut the motor coach interior to fit.

Whatever type of motor bogie you use, I recommend installing two for a 4-car unit, one under each motor coach, in order to have enough adhesion for curves and gradients.

Adding weight also helps to ensure adequate adhesion. The Hornby motor bogie housing incorporates a tray above the bogie that can be filled with lead shot. This can be secured in place by soaking it with PVA glue mixed with a small amount of washing up liquid to improve flow.

I also recommend fitting additional pickups to the inner bogies on the motor coaches. Wiper pickups and lead shot are both available online from DCC Concepts.

Couplings

Almost all SR suburban and medium-distance electric units were close-coupled within each, the exception being the 2 Wim units. The Eastleigh Model Rail 2 Wim kit is designed to take a pair of Kadee couplers mounted at buffer height.

Apart from the 2 Wim units, Eastleigh Model Rail Southern Electric kits are all designed to use the Keen close coupling system between the cars within each unit to enable the unit to traverse sharp curves.

You will therefore need one pair of Keen Systems close couplers for a 2-car unit and three pairs for a 4 car unit, plus your choice of NEM inter-unit couplers if you intend to operate the unit in multiple with other Southern Electric stock - the Eastleigh Model Rail motor bogies incorporate standard NEM sockets.

Assembling the kits

Eastleigh Model Rail kits are fairly straightforward to assemble and a wide range of adhesives can be used. I use Deluxe Materials 'Super Phatic', applied with a wooden cocktail stick, to join 3D printed components together and Deluxe Materials 'Glue 'n Glaze' to fix glazing in place. These have the advantage over the cyanoacrylate family that they do not set as soon as contact is made so there is more time to position items accurately. Cyanoacrylates can also cause 'fogging' of window glazing.

3D printed parts can bow slightly but they are usually quite easy to straighten, for example by taping the affected part to a flat surface and leaving overnight in a warm place. Avoid intense heat.

Due to the slightly matt surface of 3D printed parts you may need to fix transfers in place with Humbrol Decalfix or a similar product.

Body construction

It is easier to paint and glaze bodysides and cab ends before assembly. Glue the glazing into place and add 'No Smoking' triangles where appropriate - originally just one or two compartments towards the centre of each coach were designated as no smoking but the ratio of non-smoking to smoking accommodation increased as a result of social changes during the units' working lives.

As an alternative to gluing the completed body to the underframe, holes are provided at each end of the underframe for 5/16 inch 8BA or 8mm M2 metric bolts. This will enable the body and underframe to be separated at a later date if necessary. Before you start assembling the body, glue nuts into the hexagonal recesses in the coach ends and insert the bolts from beneath the underframe.

Have a dry run to ensure you understand how the roofs, ends and sides fit together, noting that the inner ends of the each car have tabs with matching slots in the roofs to ensure that the correct end is in the correct location.

Using the rooftop conduits as a guide to exact alignment, join one end to the roof. Check for squareness and let them set overnight. Join one side to the roof-end assembly, noting that the side overlaps the end. Once these are set, repeat for the remaining side and end, checking that the assembled bodies are square and sit flat.

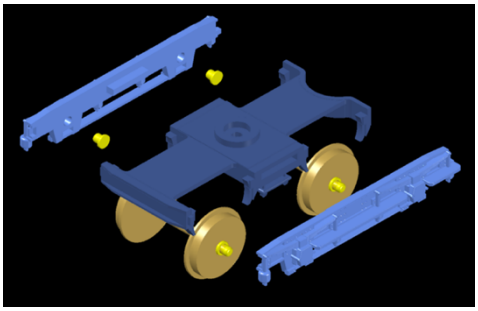
Bogie assembly

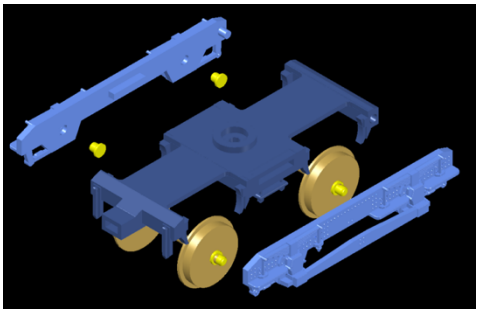
Each kit includes parts for two unpowered SR 'Central' 8ft 9in wheelbase motor/driving trailer pickup bogies. If you plan to use Hornby motor bogies you will not, of course, need to assemble the unpowered motor bogies included in the kit.

4-car kits contain parts for six 4mm scale SR standard 8ft bogies and 2-car kits contain parts for two 4mm scale SR standard 8ft bogies. These were mounted at the inner ends of driving vehicles and at both ends of intermediate cars.

The bogies are dimensioned to accommodate '00', 'EM' or 'P4' gauge 14mm disc wheelsets with standard 26mm 'pinpoint' axles and the sideframes have holes to fit shouldered 'top hat' brass wheel-bearings.

Motor bogie centre modules incorporate NEM pockets for your choice of inter-unit coupler. Trailer bogies have a recess at the outer end to provide clearance for an underframe-mounted Keen Systems close coupler.





Each bogie consists of a centre section and left- and right-hand sideframes. Bogie assembly is straightforward but do note that the sideframes are 'handed' to ensure that step-boards are correctly positioned. Slots at the outer end of each side-frame engage with locating tabs on the centre section.

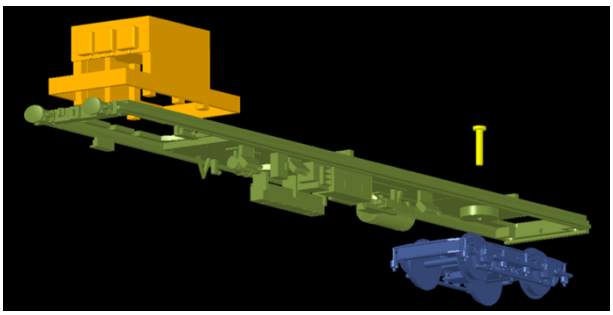
It is easier to paint the inner faces of the sideframes and the centre section before assembly. You may find it easier to assemble the bogie with the bearings and wheelsets in place rather than attempt to fit them afterwards.

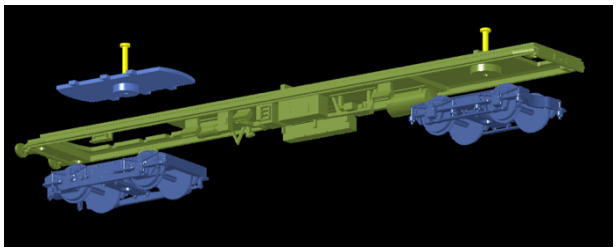
Check that all four wheels of your assembled bogie sit squarely on a flat surface before the glue finally sets.

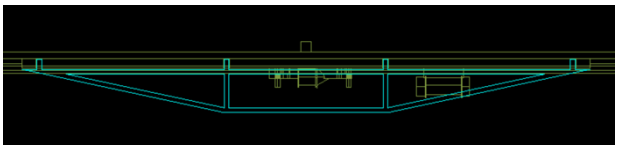
Underframe assembly

Depending on your choice of motor, glue either the pivot plate supplied with the kit or an Eastleigh Model Rail Hornby-type motor bogie housing over the large opening in the motor coach underframe, locating the tabs in the recesses on either side of the opening.

Assemble the Keen Systems close-coupler units according to the manufacturer's instructions and check that the delta plates move smoothly. Mount the couplers at the inner ends of the motor coaches and at both ends of the trailer coaches, above the underframe and abutting the ridge with the drop arms through the openings and the drawbars free to move beneath the buffer-beams. Glue the coupler units to the upper surface of the underframes with the trailing edge against the raised ridge on the underframe, taking care that adhesive does not interfere with the coupler's moving parts.







Drop 1/2 inch 8BA (12mm M2) cheese-head bolts through the holes in the underframe to act as bogie pivots. Check that they are straight and vertical and glue into place.

Pass the bogie pivot bolts on the assembled underframes through the hole in the centre of the bogies and secure with an 8BA/12mm washer and nut. A dab of glue on the nut helps to ensure that it remains in place.

Finally, glue the trusses into the locating holes on either side beneath the underframe.

Interiors

Motor coaches with open (centre gangway) interiors are laid out with the wider (3-seat) module on the left when viewed from the cab end. Centre gangwayed trailer coaches have the wider seat module on the left when viewed from the step end towards the switchbox end.

If you are using Hornby motor bogies or any other type of motor bogie that protrudes above floor level you will need to cut back the motor coach interior modules to fit.

Glue the interior module to the underframe using the ridge on the upper surface of the underframe to ensure precise location.

Stephen Grant