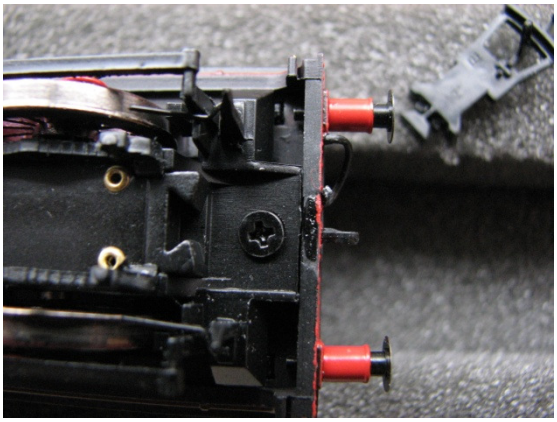
Bachmann GWR 57xx EM/S4 Finescale Conversion

Before you start, it is a good idea to have some small containers or snap top poly bags to put screws and components in for safe keeping.....much better than crawling about on the floor trying to find lost bits!

Loco Conversion.

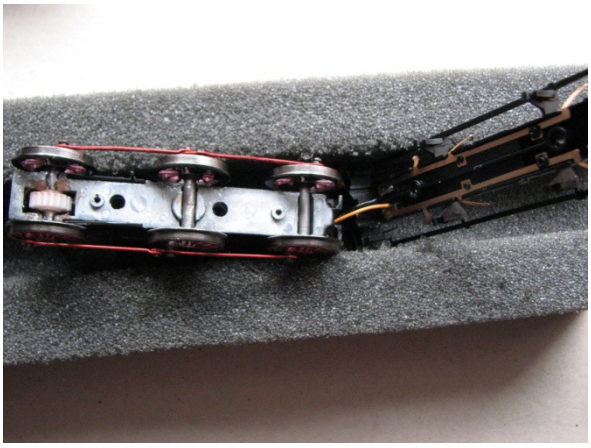
1. Invert the loco using a suitable support.. We use a foam cradle – the Peco loco service cradle being ideal.

2. Unclip and remove the couplings.



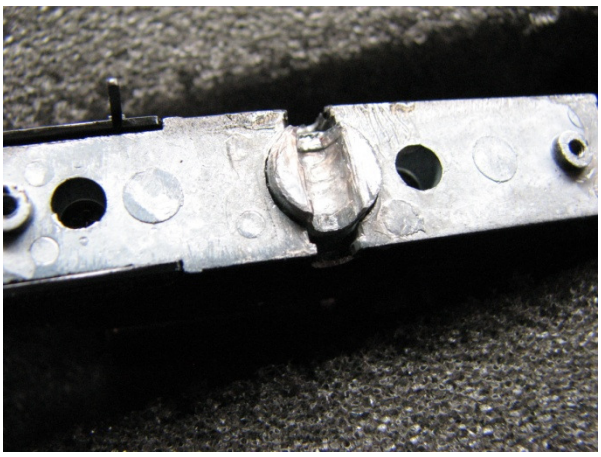
3. Undo the 2 screws, one at either end behind the buffer beams that were underneath the removed couplings. The chassis will now lift out of the body easily.

4. Undo the two remaining screws holding the keeper plate, it will lift away from the rear and unhook from the front of the chassis. It will still be attached by two wires to the chassis, so be careful not to break these connections to the pick ups. This exposes the wheel sets and bearings.



Keeper plate removed exposing axles and bearings.

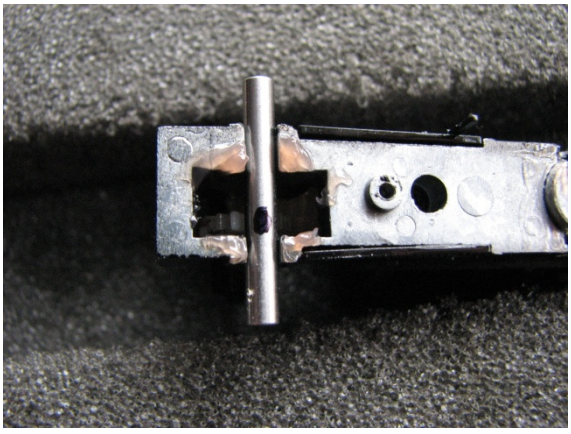
5. Lift out the coupled wheel sets. Undo the crankpin screws, recover the coupling rods and store safely. The crankpin screws can go into the spares box; we have no further use for these! Beware of the centre wheel springing arrangement, it can fall out as there is a spring underneath the round housing to assist it into orbit!



Centre axle springing housing.

6. Remove the wheels from the driven axle by either twisting the wheels off by hand, or punching the axle through the wheels, then recover the gear by holding the axle vertically on a firm surface and pushing the gear straight down with your thumbs – DO NOT TWIST the gear as it is held on a splined surface and twisting may well damage the bore of the gear.

7. Take one of the replacement Gibson axles, and place into the inverted chassis centre axle slot above the drive gears. Measure each side to ensure you have it centralised, and mark with a pen (we used a permanent marker) directly above the gear in the chassis that the axle gear meshes with.



Marking position of drive gear.

8. Place the axle onto a cutting mat or similar, take a hand file of around 6 inches in length, and using the edge of the file with teeth, roll the axle across the mat using the file and a fair degree of pressure at the point where you marked the axle. This will provide a splined effect on the axle sufficient to grip the axle gear wheel we removed from the Bachmann axle. Do not allow the file to wander as we do not want any more splines on the axle other than underneath the gear itself. The gear can be pressed onto the axle by holding in your fingers until the splined effect is reached, then hold vertically on a firm surface and push down with thumbs either side until the gear reaches the desired position. This can be simply checked by placing in the chassis and measuring if in doubt. We found there was no need for any loctite or similar, the splines hold the gear well enough.

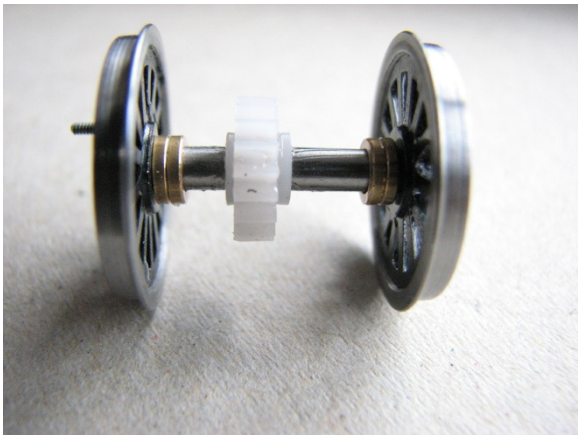
Axle prepared for gear.

Gear on new axle: note large boss faces chassis centre.

9. The new wheels can now be prepared. Because the wheels are moulded from older tooling, the crankpin screw holes will need drilling first. Just follow the simple instructions supplied with the crankpins; metric drill size required is 0.7mm. Insert crankpin screws and apply balance weights if desired. We use 10 thou plasticard and a compass cutter to make these.

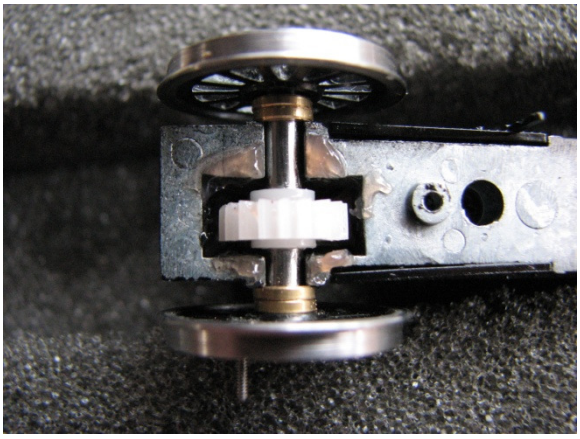
Wheel preparation.

10. Wheel set assembly can now begin. We use a GW Models wheel press and quartering jig for this. Also you will need some spacing washers to take up side play, and we find that 2x1mm thick each side gives sufficient side play on the rear or geared axle, but allows free turning of the axle, and 2x1mm + 1x0.5 gives reasonable side play on the front and centre axles. So push the axle just into one wheel, add one sides spacing washers, followed by the opposite side set of spacing washers. Then place in the jig with the other wheel and press on the wheels fully, the jig taking care of quartering at the same time.



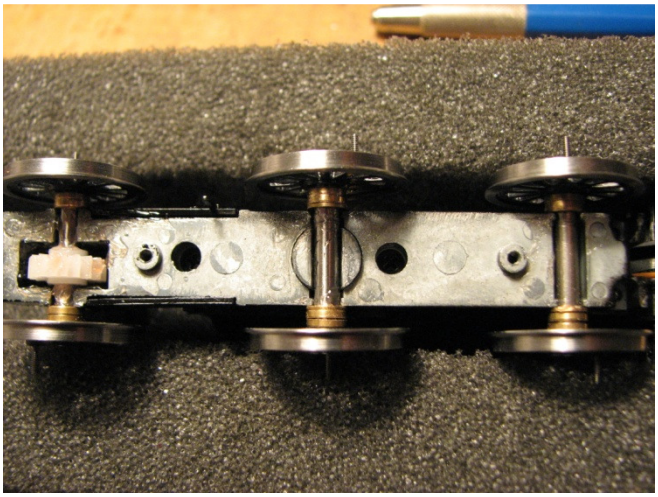
Assembled rear wheels with spacing washers.

11. Repeat this for the remaining axles.



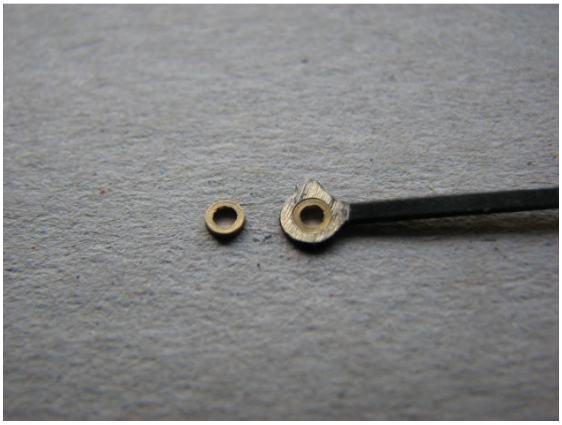
Driven axle with spacing washers placed in chassis.

12. Once all 3 axles are assembled and placed into the chassis, the keeper plate can be replaced and screwed down, having adjusted the pick ups to the wider gauge. It is always worth placing on the track and applying power gently at this point, just to ensure that all is well and we have free running of the driven axle.



All 3 axles assembled in the chassis.

13. Next are the coupling rods. The Bachmann rods require their large holes reducing in size by bushing. First, clean the rear of the rods around each hole by filing all plating off to expose the base metal. The Gibson rod bushes may require the rod holes to be opened a bit further with a taper broach to allow the bushes to be pressed in. This also cleans the inside of the hole prior to soldering from the back of the rod. Solder each bush in turn. If you accidentally fill the bushes solid with solder, don't panic! Allow all to cool, and you should notice in the middle of your filled in hole there is a slight depression in the centre – use this as your centre mark to run a drill through – simply hold a drill in a pin vice and twiddle away with moderate pressure on a firm surface – not the polished dining table preferably!



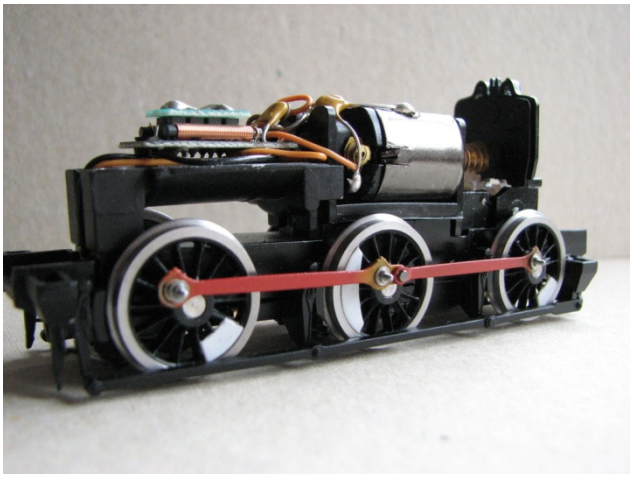
Bush inserted into rod ready for soldering.

Rods cleaned up after soldering.

14. The last job on the rods is to make sure the bushed holes are a fairly slack fit over the Gibson crankpin bushes – ream out as required with a cutting broach.

15. Place a short Gibson crankpin bush over each crankpin on one side of the chassis, place the correct coupling rod onto the bushed crankpins and retain with the crankpin nuts. You may wish to tighten these finally with fine nose pliers now, or later; but ensure you have firm hold of the wheel so as any turning pressure from the pliers does not move the wheel on the axle, thereby upsetting the quartering.

16. Repeat the previous step for the opposite side of the chassis.



Converted chassis ready for track test.

17. The chassis should now be placed on the track, power being applied gently to ensure all is well.

18. Once satisfied with the running, the crankpins should be re checked for security, trimmed and tidied up as required, before replacing the chassis into the loco body.

19. You will probably find that the rear wheel crankpin nut fouls the moulded pipe work under the cab. Simply file or scrape away some of the moulding from the rear. There is plenty of thickness in the moulding to allow this without weakening it, or upsetting the appearance of it.

20. You will find there is just sufficient room for the wheels between the outside brake rods. However, this does not allow for any side play in the wheels. You may wish to either thin down the rear of these, or snip out the parts of the rods in front of the wheels, and glue thin strips of brass to the remaining parts of the rods. This will allow for sufficient space for a degree of side play.

Limited clearance behind outside brake rigging.

Pete Hill
September 2013

Parts list

4800/14 Conversion Wheel set
4M42B Crankpin Set
4800 Coupling Rod Conversion Bushes