Bachmann 45xx 2-6-2T EM 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 loco and place in a suitable cradle or similar.

2. Remove the two pony trucks and brake gear.

Pony trucks and brake gear removed.

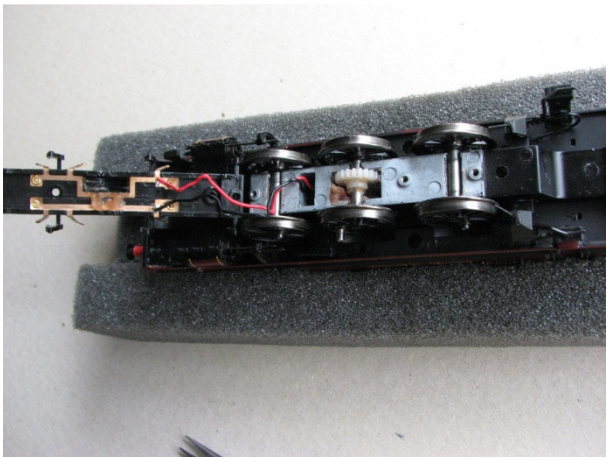
3. Slacken retaining screws and remove the coupling and connecting rods.

Take good note which way round the rods fit.

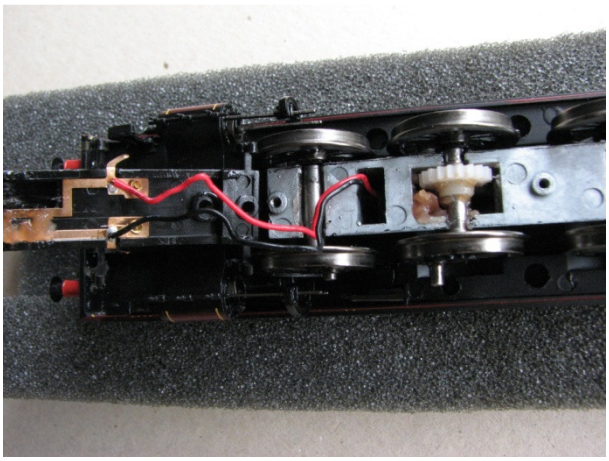
Also it is worth sliding out the connecting rod and crossheads from the slide bars, otherwise they will keep falling out and be a nuisance.

Inverted chassis with rods removed.

4. Undo the cross head screws in the keeper plate - store these safely – and gently tease the keeper plate upwards from the rear end. It should lift and fold away towards the cylinders, the wires being plenty long enough and coming out of a rectangular pocket in the chassis. Pick-ups are fastened to this plate, and will not fall off.

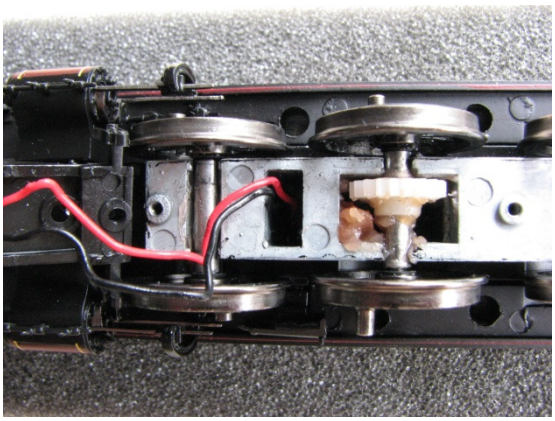


Keeper plate lifted away.



Keeper plate removed showing the nice long wiring!

5. The wheelsets should now lift out.....but do note that the axles run directly in the cast chassis, no axle bushes to contend with.



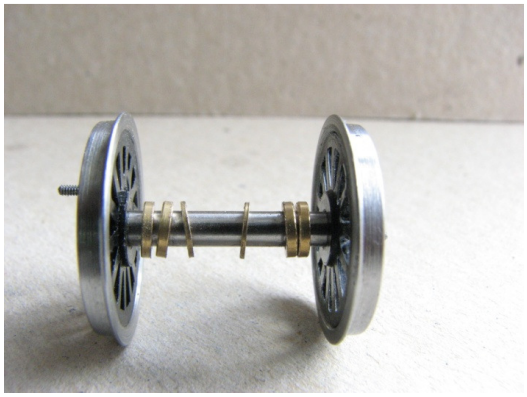
Wheels now simply lift out.

6. The wheels on the geared axle need removing and the gear needs to be pushed off. Simply support the axle end on solid surface, pushing straight down with your thumbs. The gear should slide off. Do not TWIST the gear, as it sits on a knurled part of the axle and you may damage the inside surface of the gear bore.

7. The Gibson wheels can now be prepared.
These wheels do not have crankpin screw holes moulded in, so need drilling first. We simply use a hand held pin vice and take our time doing this. Full instructions are provided in every pack of crankpins.
Crankpins can now be inserted and any balance weights made up and glued on. We make these from 10 thou plasticard and use a compass cutter. The supplied axles were reduced to 22.5mm.

Gibson wheels fitted with crankpins and balance weights.

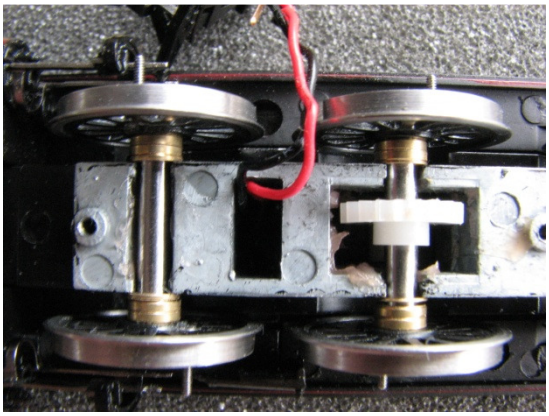
8. Now begin to assemble the wheelsets. We will need some spacing washers to take up the side play. We used 2 x 1mm plus 1 x 0.5 thick washers each side on the leading and trailing axles.
2 x 1mm plus 1 x 0.25 bushes each side on the centre axle.



Wheels assembled (leading and trailing).

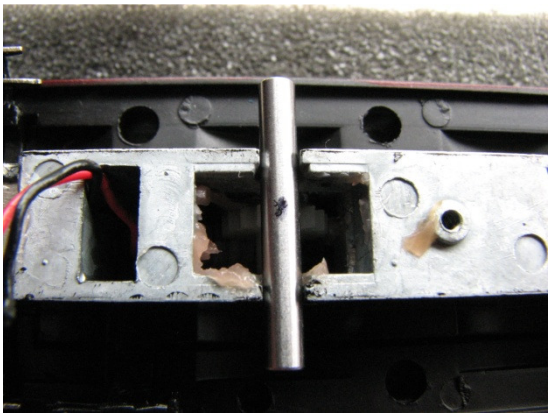
9 We use a GW Models wheel press for assembly, which will also quarter the wheels as well as press them on square.

10 These wheel sets can now be placed in the chassis.



Leading wheelset installed.

11 The centre axle first needs to be “knurled” for the gear wheel. We place the plain axle into the chassis, measuring the overhang each side to make sure it is central. Take a permanent marker pen, and mark the position of the gear on the axle.



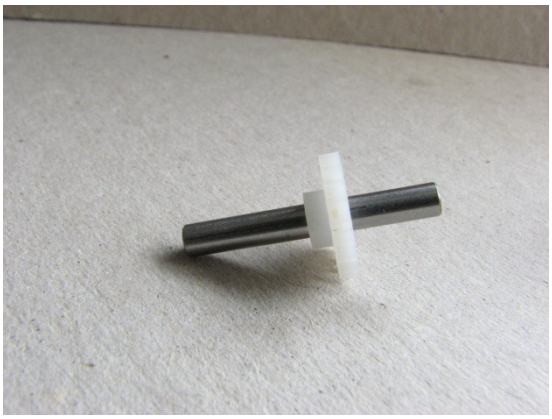
The black dot marks the spot!

12 Place the axle on a cutting mat or similar. Take a small hand file, we use a 4” second cut file, and using the file on edge, roll it with firm downward pressure over the axle where you marked the gear position. Do not stray away from this narrow area, as we do not want knurling where the axles run in the chassis block, and knurling in these areas won’t help good running!

Not too neat....but it works!

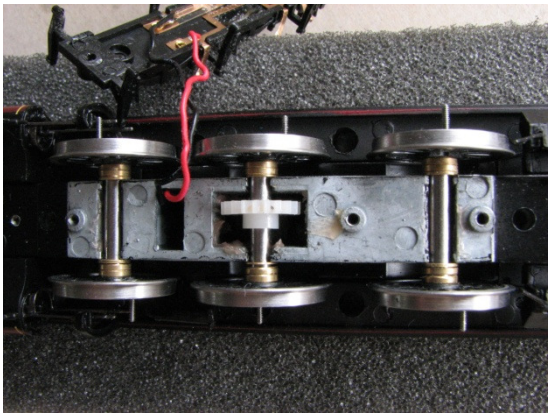
13 The gear can now be slid onto the axle and pressed over the “knurling”. We found that the side of the gear was 7.5mm from the axle end, with the boss facing the axle centre. Place in the chassis and check...if all is well you can slide the gear to one side, apply a little Loctite, replace and check gear is in the correct position. Leave alone to cure.

Treat yourself to a cuppa or similar.....or deal with the pony truck (see later)



Assembled axle and gear.

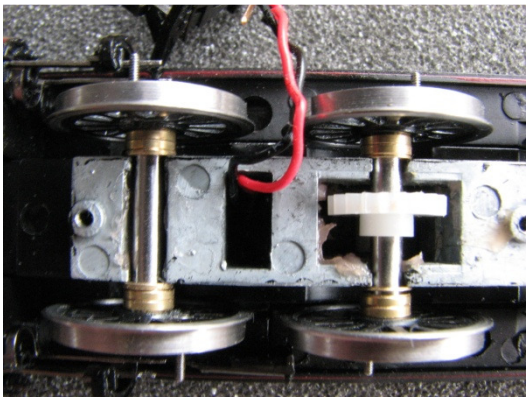
14 Once the Loctite has cured, assemble the driven axle in the press with spacers.



All three axles installed.

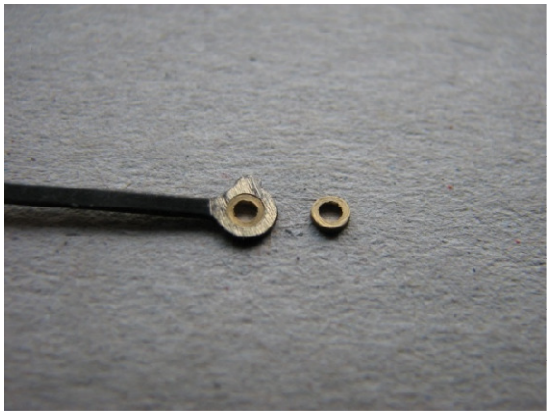
15 Before we replace the keeper plate, chamfer the rear of the brake shoes with a needle file to make sure the brakes Do not foul the wheels.

16 Lift the keeper plate back into position, trying to pack all that wire back into the chassis. To be honest, we gave up and took the body off to pull the wires through from above.....much easier! Bend the pickups out a little further to accommodate the wider gauge.



All the wires must go back in the hole!

17 Next we tackle the coupling rods and the connecting rod big ends. The Bachmann holes are too large for Gibson crankpins, so we need to bush them with the Gibson bushes available just for this purpose.
First, file the plating back to the brass base metal on the rear of the rods. Place a bush in the rod hole, and solder in position. Do this for all 6 coupling rod holes.
If you fill the bush completely with solder.....don't panic! As the solder sets, it contracts slightly, leaving a dimple in the centre – use this to as your centre for drilling out. A suitable drill twiddled with fingers in a pin vice is all that is needed.



Bush in rod ready for soldering.

The resulting central dimple after over enthusiastic soldering.

18 The bushes then need a gentle opening out to be a good running fit on the crankpin bushes....simply use a suitable cutting broach and use one of the Gibson bushes as a guide.

19 Assemble the rods onto the wheels. Use a long crankpin bush on the centre wheelset, and short ones on the front and rear axles. Crankpin nuts are fitted to front and rear only. Tighten and trim back the front axle crankpins, and file the nuts to about half their thickness, in order to give clearance for the connecting rod. The rear pins can be left for now if you wish.

Note the correct way round of the rods

20 The Bachmann connecting rod is quite a beefy thing, and is too wide at the big end to fit the crankpin bush. So we file the boss on the rod rear back flush with the remainder of the rod. This leaves ample thickness for appearance.

Upper is original, lower has been filed down.

The big end hole of the connecting rod is also rather on the large side, so we slice off a piece of 2mm OD brass tube to fit inside this hole, and its inside dimension was just right to fit over the crankpin bush.

Cutting the tube for a bush.

Bush fitted to rod.

21 The combined crossheads and rods can now be fitted back into their respective slidebars.

22 Slip the connecting rod over the crankpin bush, and place a large washer over the pin before putting the crankpin nut on. This simply prevents the large hole and bush creeping over the crankpin nut in service. The washers we used are Romford crankpin spacing washers.

Washer and crankpin nut.

All done!

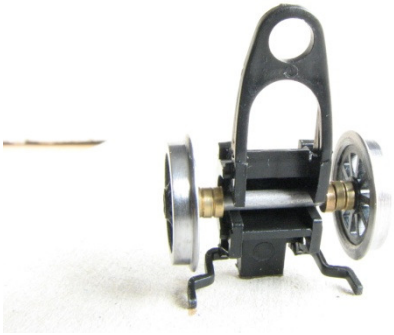
23 You can now track test the completed chassis.

THE PONY TRUCKS

1. Simply twist and pull one Bachmann wheel from its axle, and slide the remaining wheel and axle out the other side.

2. Assemble the Gibson wheel onto its axle, and then slide the appropriate spacing washers on, thread through the pony moulding hole, adding the appropriate spacing washers and remaining wheel. We used 3 x 1mm 2mm bore brass spacing washers each side.

Re wheeling the Pony Truck.



Completed pony truck.

3. Refit Pony trucks. Remember the shorter of the two goes at the rear!

Finally a bit of lubrication on all these new parts would not go amiss.

FINAL ASSEMBLY

Refit the brake pull rods carefully.

Pete Hill

June 2013.

Other Parts Used in this Method
4800 Coupling rod Bushes
4M42 Crank pins
4M67/2 2mm Spacing Washers
4M67/3 2mm Spacing Washers
Romford Crankpin Spacing Washers
2mm Outside Diameter Brass Tube
Loctite, Pete uses some of his precious stock of 601 and we wouldn't want to comment on the suitability of other products.