

# Ultrascale Review

Review: 001-081221

## Scalefour, Quick and Easy.

by Ted Scannell

'Drop in wheelsets for a steam outline model - S4 in minutes.'

'Oh yeah, I've heard that one before, so prove it then...'

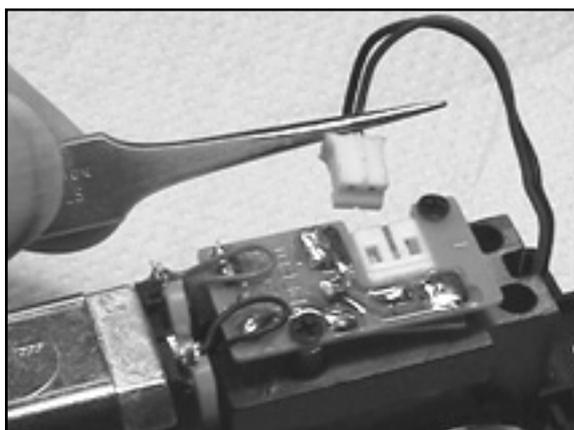
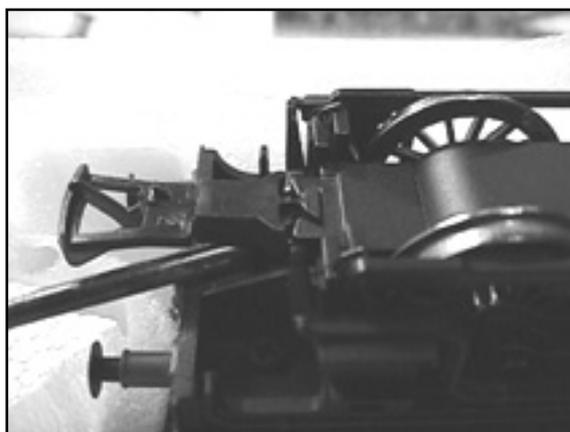
'Here are the wheels, all you need to do is go and buy the Bachmann pannier, fit them, and YOU can prove it...'

I'm not a Great Western groupie like some I know, but the 1961 shed allocations book showed three 57xx pannier tanks on my beloved S&DJR, one at Bath (Green Park) and two at Templecombe. In BR days ex-GW pannier tanks turned up almost everywhere, from Folkestone to Scotland via Birmingham and Birkenhead, so most post BR steam modellers should be able to work up an excuse to run at least one of them.



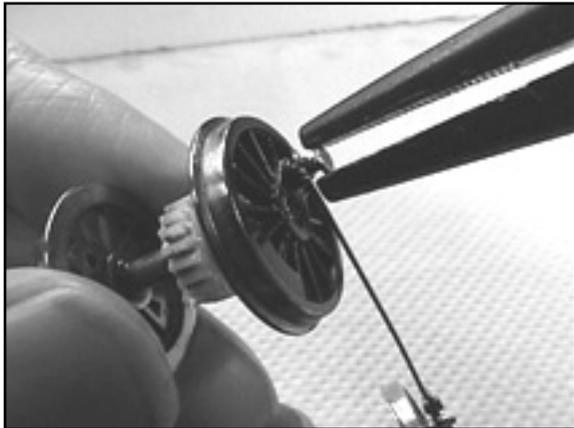
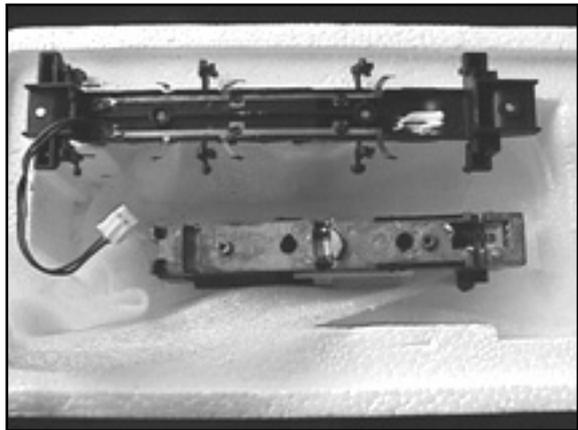
I didn't particularly want the lined one, but the plain black was not in stock at the shop so, trusting that the Bachmann lining would be easy enough to remove, I bought the Paddington Station pilot. The Ultrascale wheels come not 'just' assembled, but with replacement brass gear fitted, and the wheels quartered and back-to-backed properly too.

After studying the Bachmann exploded diagram for a few minutes, dismantling begins. First the couplings need to be gently levered out of their pockets to gain access to the screws which hold the body to the chassis block.



With the body placed to one side for now, the pickup plug can be wiggled from its socket. A far cry from the old Tri-ang days...

Now the two more central screws can be removed from the underside (see reassembly pic) and the pickup assembly can be lifted carefully from the chassis block. The wheels now just lift out in one piece, leaving you with these two lumps.

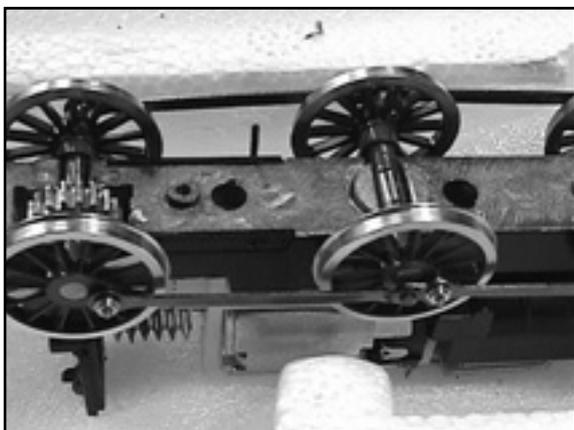


In the likely event that you can't find a spanner or nut runner of the appropriate size, the end of a pair of radio pliers will do to unscrew the coupling rod retaining bolts. These remain stiff throughout the whole of the unscrewing process, so hang on to your patience during this stage!

The rods that you have just removed can go straight onto the Ultrascale wheels, after removing the nuts supplied. Ultrascale recommend holding your nuts in a pin vice, and though I have no trouble starting them on the threads with my fingers, I have to agree that this is the easiest way to tighten them sufficiently. Take care not to over tighten them though.

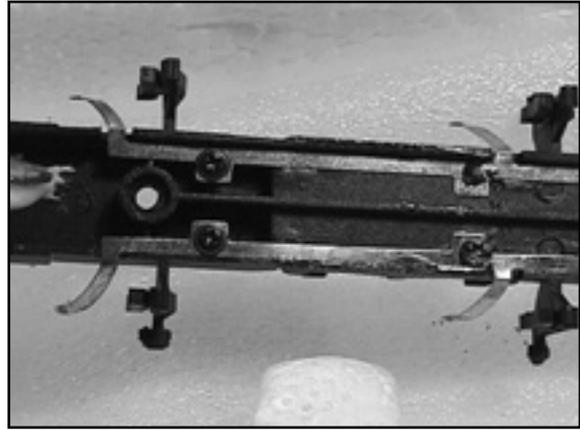


Note that the gear is offset on the driven axle, so do this one first, making sure that the rods go back on the right way up, after which the other two axles can go any way round.

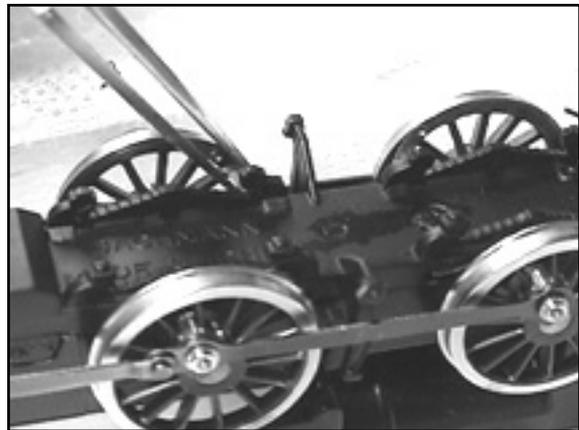
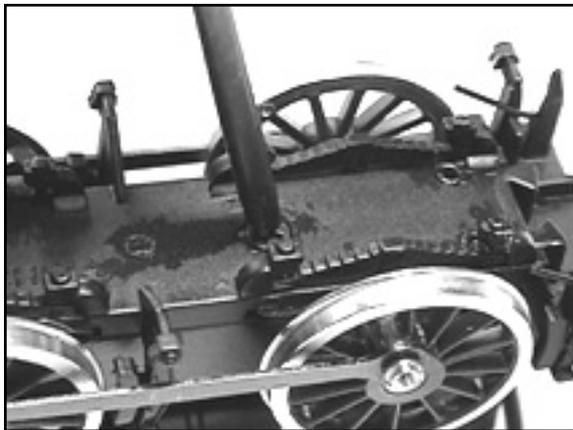


Now the wheelset assembly can be dropped straight into the waiting chassis block - really! Note the brilliantly simple but effective (more of which later) springing system on the centre axle.

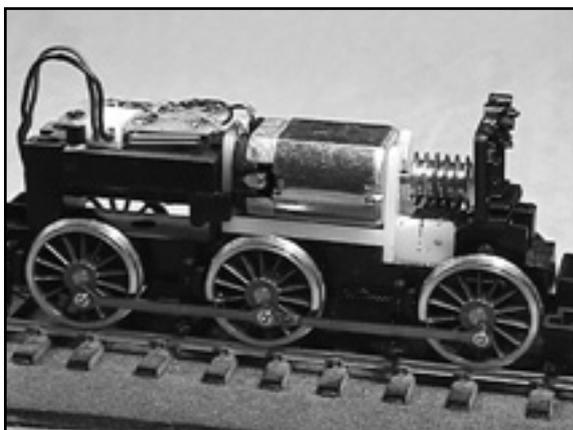
At this point a decision has to be made; to keep the brake pull rods but thin them down 'til they fit over the wheels, or cut them off and fabricate replacements. I didn't fancy either option too much, but suspecting that I'd probably break at least one anyway, and without sufficient prototype information at this stage to do a 'proper' job, I opted for the latter course and snipped them off.



Now comes what is probably the trickiest part of this exercise - refitting the pickup assembly. Well, fitting it is not so much the problem, as is adjusting the pickups to reach the wheels which are now much further away! I found that holding the business end at the desired angle with a pair of tweezers while pulling them a little past the desired final position worked for me, though several trial-and-error sessions were necessary before near perfection was achieved.

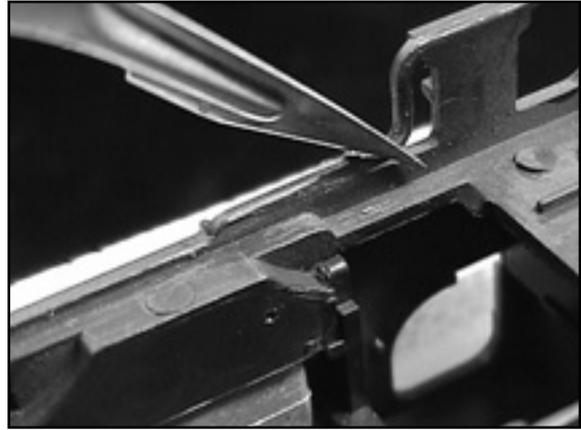


Once satisfied that the pickup ends reach the backs of the flanges at all extremes of sideplay, the pickup assembly can be screwed back into place on the chassis block. The pickup ends are easily tweaked into place on the centres of the backs of the flanges and....

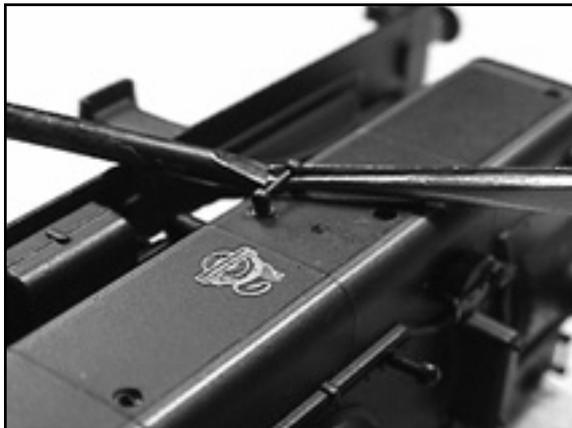


Presto! A running chassis. I didn't rush, spent some of the time thinking before making decisions, but measured the time taken. From image 2 above to image 11 the working chassis took me 36 minutes. The next one will probably take little more than half that time. But that's not quite the end of the story.

The pipework around the rear footstep just fouls the crankpin nut of the rear drivers. Some may prefer to remove these pipes completely and rebuild them, but I found that careful scraping of material from the backs allowed enough clearance for their total replacement to be unnecessary, though that may be an option for superdetailing later.



Now that the wheels are the right thickness and distance apart, it's time to look at the rest of the model critically to decide what other improvements are worthwhile. I feel that we all are allowed to have our own opinions on the level of accuracy and detail that we choose for our own models, and I would have no argument with those who would leave this particular Bachmann model as it is. It does seem to me a shame that the coupling rods are so skinny. Admittedly they are at least hinged where they are supposed to be, but Bachmann were kinda forced along that road by the springing of the centre axle. It's almost as if, along with the fat original wheels, the rods are a throwback to the style of fifties 'OO' models. They will be replaced, eventually, but to me, the handrail knobs stand out (!) as the next most obvious candidates for improvement.



Those fitted are made from a fairly soft alloy which crushes easily under pliers, so I used the method shown to lever them out. The existing handrails can be re-used if done this way, as the pliers method involves a certain amount of twisting, which I found damaged the wires too much. It is difficult to remove those on the tank tops at the front without damaging the plastic body using the way shown in the pic though, so I settled for the plier method and replaced the handrails with Alan Gibson 0.45 brass wire.

Once the handrails were out of the way, the lining succumbed to mere fingernail scraping, as expected. It was necessary to resort to a glass fibre eraser around some of the cab rivetwork, though.



Alan Gibson medium handrail knobs were used throughout as replacements. They are a beautiful interference fit in the existing holes - thank you Bachmann, and thank you too, Mr. Gibson. Ahhh, but; the Bachmann knobs have shorter base shanks than those from A.G., and there are body weights in the pannier tanks. One could drill extra depth in the existing holes, but previous experience has taught me that drilling past a soft material into a harder one is fraught with danger from wandering drill bits, so I cut the new knobs shorter with my Xuron cutters. The slight deformation caused served to improve the fit to the point where they had to be pressed home quite hard, but no adhesive necessary. The main handrail was a little too wide now, and some time was spent reshaping the curve over the smokebox door before it sat in place without stress, but it is possible. Whether it would have been quicker to make a new one is open to discussion...



Having changed the wheels, the balance weights still needed replacing, as did the brake pull rods. I admit to a temporary job (sales speak for bodge-up) on the rods, using 15 by 60 thou plastic card in the absence of better info, and I cut the balance weights from the same material with a pair of dividers. By now the glaring brass of the new knobs had got to me, so they were blackened with G96 brand gel gun blue, thinned with a little water and applied with a sacrificial brush. Once dry the white stains were dry-brushed, mostly,

from the plastic body and then the lot was rinsed in plentiful warm water.

These are the same brake rods, honest! I sprayed the chassis while running it, in what has come to be known as Ricey style, since he publicized the idea. This is the result of priming with red oxide cellulose, followed by a self mix airbrush spray of matt black J.P. acrylic brushing paint in Testors' Visions light grey, followed by a variable coat of the same make cinnamon and then splodges of peach. The picture was taken in mono so you'll have to have faith... More work with a dry brush on the brakes and mess and oil are still called for, but I'll wait for a photo to copy, and the body won't be done until the cast number plates arrive. There could be notes, in a later issue, on the tarting up the body if I don't make too much of a pig's ear of it.



## PERFORMANCE

My testing facilities are for P4/S4 only so I cannot compare the performance change, if any, caused by the wheel replacement. I should be surprised if Messrs Ultrascale were to claim any traction improvement other than the marginal difference caused by a possibly different tyre material. That said, I exaggerate not when I say that I found the tractive performance astonishing. On the dead level S4 'Green Street', with seven Bachmann Mk1s, a rapid application of full voltage causes a slip for roughly the length of the loco, followed by brisk acceleration to a scale 60 mph or so.

On the test rig it showed a peak pull of 55 grams before slipping at an average around 52 grams, which at an overall weight of 214 grams, gives drawbar pull figures either side of 25% of the tractive weight. Few Deputy Chairman's Cup entries have achieved this figure, even less with round and true wheels. Better still, as the prototype weights varied by a few tons up to just under 50 tons, it fits with my preferred 1 gram of pull per ton of prototype tractive weight theory - exceeding it slightly, even.

What makes this design so effective? Well, I would put it this way - if one accepts the premise that a rigid six-coupled chassis has in fact only three wheels in contact with the track most of the time, it follows that if the centre axle of a similar chassis is sprung with enough 'rock', then it will have five wheels in contact most of the time, except when it has six. Now, if the spring rate of the middle axle is carefully chosen, so that the effective weight on each axle is nearly identical, then the most efficient pull for a given tractive weight will be realised.

Not just pretty faces, these recent Bachmann locos. Not their fault, 'OO' standards. But pretty to beautiful, thanks to Ultrascale and minutes, rather than hours, of effort.

Bachmann 8750 Pannier Tank  
32-201 lined black  
32-200 green  
32-202 plain black  
prices variable around £40.00

Full price details for the conversion packs can be found in the 'Conversion packs' section of the Ultrascale products web site.