

Rail Replacement at Bow December 2009 to February 2010

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It was in November 2009 that we first heard whispers of possible rail replacement work to be carried out at Bow. It transpired that Network Rail needed to do some training with their high technology rail replacement train following transfer of the operating contract to Colas Rail, and the Dartmoor Railway, with its current lack of regular trains was thought to be an ideal location.

Early December was to see the first signs of work with men in high-visibility jackets swarming over the line, measuring, estimating and leaving painted marks and symbols as evidence of their work. Then we saw a rail-tractor fitted with flail working up and down, clearing overhanging branches and the worst of decades of undergrowth. We also acquired over a mile of white-painted wooden stakes, laid out neatly alongside the track every ten metres, each numbered and marked with the adjacent rail height.

On Monday 14th December, things got serious with the arrival from Thingley Yard of Freightliner 66 528 hauling the first of three scheduled rail delivery trains. The rail came in lengths of approximately 300 feet and the first train ran with a total of seventeen lengths. Unfortunately, and slightly comically, the train had been despatched the wrong way round and, with the cranes on the wrong side, it couldn't drop the rails it brought. A second problem was the failure of the on-board generator, used to operate the cranes, so it must have been a slightly red-faced train (if trains apart from Thomas have faces) which headed back to Thingley with its complement of track still on board.

The second and third delivery trains ran on Wednesday 16th and Friday 18th December, hauled by 66 550 and 66 622 respectively. The work went a little better now, with all the track being dropped alongside the line, in batches of four rail lengths. As an aside at this point, the rail was dropped in fours since it had been decided to replace the existing wooden sleepered track at a first pass, subsequently to be replaced in turn as a proper training run.

Everything went quiet over the Christmas period but started



Figure 2. Positioning rail using one of the rail-mounted tractors on 12 January.

A yellow 'LOAD EXAMINED' form from EWS. The form includes fields for 'FROM' (Thingley Yard), 'Date' (14/12/09), 'To' (MELB 60), 'Wagon Letter & Number' (DE 92507), 'Load Cat.' (L), 'Gross Weight of Contents' (85T), and 'Heaviest Single Lift' (5T). It also has a signature line for 'SPAWAR' and a 'Contents' field with 'CRANE RAIL 117'. A warning at the bottom states: 'NOT TO BE LOOSE SHUNTED NOR MUST OTHER VEHICLES BE SHUNTED AGAINST THIS VEHICLE. MOVEMENT RESTRICTION CODE / SPECIAL HANDLING CODE TO APPLY'. The EWS logo is in the top left corner.

Figure 1. Load card authorising rail sent from Thingley Yard on 14 December 2009.

again in earnest on Monday 11th January. A gang of men arrived to start preparing the track lengths ready for installation but unfortunately their equipment didn't turn up so no work was done. The following day was a little better, despite the late arrival of equipment, and preparation of the rail got underway. This entailed cutting clean ends for each track length, making sure there were no welds close to the ends, and positioning the prepared lengths right alongside the existing track. This entailed the use of an interesting rail mounted tractor-come-crane, two of which were to become regulator workhorses over the next three or four weeks.

Work on rail preparation continued for the rest of the week



Figure 3. Cutting rail ends on 12 January; notice the rotten weather.



Figure 4. Rail-tractor moves out of the way ready for arrival of the Tamper on 15 January.

then on Friday 15th January a delivery of sleepers passed by on its way to Meldon early in the morning double-headed by Freightliner 66 604 and 66 624. They returned light engines mid-morning and rail work was also interrupted by the Tamper which passed by at lunchtime. Early evening saw the arrival of the High Output Track Replacement train (HOTR), sighted for the first time of many as it headed to be stabled at Meldon. A busy day.

Work started in earnest the following day with the first use of the HOTR train delivered by Freightliner 66 624. It started work midway between Buttisland Crossing and Bow Station, working up towards Bow, and spent over seven hours on site. It was followed by a set of five ballast wagons hauled by 66 604. Initially, one of the most impressive parts of the operation centred around the onboard cranes which run up and down the HOTR getting the new sleepers in place and removing the old sleepers to be taken away.

It was at this stage that the reason for two replacement runs became apparent. Lifting the old wooden sleepers was causing continual problems for the automated equipment, and a technique evolved which entailed men working beneath the moving train to cut the old rail clips away so that the rail chairs did not foul the works.

Sunday 17th January saw the first run of the Tamper, DR73114 "Ron Henderson", which slewed the old track away from the platform at Bow to provide clearance for the HOTR, which started work again mid-morning. This was one of the most in-

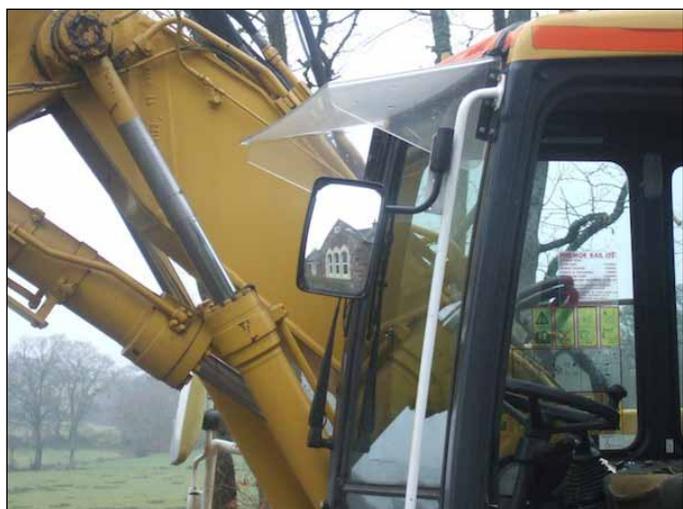


Figure 7. Close-up of one of the rail tractors with Bow Station reflected in its mirror on 21 January.



Figure 5. Freightliner 66624 and 66604 return light-engines having delivered sleepers to Meldon on 15 January.



Figure 6. The Tamper passes Bow Station on its way to be stabled at Meldon Quarry on 15 January.

teresting days with fantastic close-up views of the operation beneath the train as it lifted the old rail, removed the old sleepers, placed the new concrete sleepers and finally laid the new rail, all in one continuous operation – fantastic! Obviously it is impossible to show the work successfully in still images but the enthusiast can see the whole operation in some detail on the train manufacturer's website www.matisa.com (select "Track



Figure 8. New concrete sleepers on the HOTR train alongside Bow Station on 16 January.



Figure 9. The Tamper unit at work, DR73114 “Ron Henderson”



Figure 10. Replacement rail fed onto the newly-laid sleepers on 17 January.

Laying and Renewal Trains – P95”, and then click on “Video P95 UK”).

The whole of the next fortnight was taken up with similar operation of the HOTR and the Tamper, with the first appearance of the Regulator DR77903 “Frank Jones” on Friday 22nd. This device follows the Tamper and effectively performs a clean-up operation, moving excess ballast to the sides of the track and sweeping up. The HOTR finally completed its work by Friday 29th, and departed the line at teatime, followed shortly afterwards by the Tamper, which was to return later.

The week beginning Monday 1st February saw the start of the final track operation, welding all the joints, fitting the breather slips (expansion joints) at each end of the continuous section, and tensioning the new length of track.

The following week was dormant with little apparent work, albeit still with a number of hi-vis vests around, but the next operation was to start on Monday 22nd February. This was ballast cleaning with the automatic HOBC train. This device works slowly along the line, completely lifting the track and attached sleepers, clearing out all the existing ballast, sieving and sorting the ballast, feeding clean ballast back down onto the track bed, supplemented by brand new ballast where necessary, and relaying the track and sleepers. This all takes place in a central section of the train over a length of about 20 metres, the remainder of the very long unit having hopper wagons to take the reject ballast at the front, and further hopper wagons full of new ballast at the back, all joined by continuous belts.



Figure 11. The Regulator DR77903 “Frank Jones” on 22 January.

In our case a decision had been taken not to clean the old ballast, but to replace it completely with new material, from Meldon Quarry of course, some welcome trade for the quarry in such difficult times. The old ballast would normally have been taken away for disposal but a quantity was donated to local farmers and dropped by the HOBC train as it travelled back in the evenings to be stabled at Meldon. One of these journeys was reckoned by driver Peter Chapman to be one of the largest trains



Figure 12. Frank and Ron have their tea break on 22 January.



Figure 13. Preparing one of the rail joints for welding on 1 February.



Figure 14. Thermite welding of the joint – fireworks at Bow!



Figure 15. The main working section of the HOBC train, seen on 23 February.

ever seen on the line; he commented:

“Yesterday evening [22 February] Stuart Cowan and I believe that we worked the longest, heaviest, most powerful train ever on the line (unless anyone knows different?). 6Y11 was worked from Fairwater empty by Darren and Eddie in two halves as Network Rail wouldn’t allow it to run as one train. At Meldon it was loaded with stone and joined together, then worked to Bow with just 66 617 powering. After work had finished at Bow the train was worked away with 66 610 & 66 605 leading. The spoil was dropped on North Tawton Bank and restarted with all three locos powering for the run to Meldon.

Vital statistics of the train:

2934 tons, 2373ft (113SLU) 40 vehicles long, plus locos 66 610, 66 605, & 66 617, combined hp 9900, combined tractive effort 315,240lbs (1401kN).

Interestingly 610 & 605 in multiple handled the train with no problems, the addition of 617 made it pretty effortless”.

The runs of the HOBC were followed repeatedly by runs of the

Tamper and Regulator, with all three finally leaving the line on Friday 26th (Tamper and Regulator together followed by the first half of the HOBC) and Saturday 27th February (the remaining half of the HOBC).

The following week saw the final clearing up, with the Tamper returning for two days to do its final runs, including slewing the track back into correct alignment past the Bow platform. And that was it, apart from minor further work positioning and testing all the redundant rail, and some work to replace sleepers which were either damaged or had defective rail clips.

And at the end of it all we have around one mile of continuous welded track from a point between Buttisland Crossing and Bow Station up to midway between the two Common Moor crossings. Dartmoor Railway has the track and lots of spare rail and Network Rail have a trained crew ready to work on the main network. And the cost of the work? Estimates vary but at around £750,000 per kilometre, a simple sum would lead to a total in the region of one million pounds. Great value for the Dartmoor Railway.



Figure 16. A minor hill in the track at the end of the day’s work on 23 February, before the HOBC restarted work.



Figure 17. A record train? 6Y11 departs Bow for Meldon, this time on 25 February (courtesy Peter Chapman).