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A Wickham Trolley: 0-4-0 electric locomotive

This document was written by Tim and Max Symons and was published in the Southern Federation newsletter in December 2019.

I've been interested in railways, and in particular the miniature variety, from an early age. This was mainly due to my father, who had many different jobs on the big railway. This had its advantages, mainly the privilege tickets for free travel. We travelled to all four corners of the country, and some of Europe, visiting railways of all shapes and sizes. Every year for my birthday, I was allowed to invite a few friends for a day trip to Dobwalls. This awesome line ignited my interest in the smaller scales (I wonder what my son, Max would have thought of the place?) Other early memories include a ride behind either Sian or Katie on the original 15in. gauge Fairbourne Railway, the Age of Steam complex at Crowlas, near Penzance, and the raised line in Central Park. - Fast forward a few decades, and again the interest in small stuff was brought back with the arrival of my son, Max. It was inevitable that he would have an interest in railways, and miniature lines seemed the ideal outlet. - After a chance meeting with a guy on Buckfastleigh station, we were invited to the private Kensey Valley Railway in Cornwall. The only way to describe this place is that it is just like a real life 'Peter's Railway' from the children's books. Little Max was in Dreamland. Imagine from the perspective of a 6-year-old boy being faced with a railway with no fences or signs, the only rule being 'use common sense'. The added incentive came in the form of a well-travelled battery powered tram, which had previously run at the original Buckfastleigh Miniature Railway and at Woody Bay. Max was shown the very primitive controls (a lever moved onto a copper bar to 'make the circuit', and a simple footbrake. The owner said "off you go then, lad". For the rest of the day, I only saw him occasionally as he trundled by, honking the horn. I'll never forget the look of absolute sadness when the batteries ran out. I can't blame him to be honest, I'd have been the same if I'd had the chance to drive a tram at that age. As Max became more confident, he was allowed to drive (with supervision) a lovely blue 0-4-0 Romulus, which went down very well. For those of you who haven't visited the Kensey, it's not the easiest line to drive due to its gradients (1 in 20 in one place). Max seemed to cope very well though. The drive home was always full of question, with the most popular being "Dad, when can we have our own miniature loco?" "One day, son", I'd say, but never really thought we'd actually have one. - One weekend at the KVMR, I got talking to a guy called Simon, who was driving a small American-looking steam loco. I knew that he had built a couple of 'minimal' locos, and we discussed various ideas for a simple, easy to build, entry level loco. Simon invited me to his railway in Calstock, to have a look at his various stock. For those of you know the geography of Calstock, it doesn't really lend itself to railway building. He had built a very small, but perfectly formed 7¼ in. gauge garden railway, complete with a tunnel, engine shed, and a curve radius of just 8ft. We crunched some numbers over a cup of tea, and worked out we could build something for around £500. I wasn't so sure, but I



started stockpiling some parts. Simon ordered the mechanical bits (sprocket, idler axle and chains), which came to just over £100. I had ordered two cheap 12V 250W wheelchair motors from China (£21 each delivered), and a rather extravagant £145 on a Parkside speed controller with reverse and re-gen braking.



The wheels and axles were £140 from Engineers' Emporium. The costs were starting to mount up and I hadn't any materials to build the chassis and body, plus I hadn't even decided what I was going to build. I had looked at many Minimal designs, but with my limited skill in making stuff from scratch, everything looked too complicated. Step forward a company called 'Ride on Railways'. I make no apologies for ashamedly copying their idea of a 7¼ in. gauge Wickham Trolley. - Simon and I sat

down over another brew, and scribbled down some drawing and measurements. We decided to make the chassis out of 2 x 2in. steel angle, with 6mm steel for the chassis horns. We would also need some thick metal for the buffer beam. For ease and cheapness, the body was to be made from plywood. - Now this was where I start my scavenging. A friend from my Road Rallying days owned an engineering firm: AC Haines in Estover. I popped up with a tray of ring doughnuts, and handed over a list of metal I needed, and enquired how much it would cost me. To my surprise, he cut all the steel to size and said, "Sounds like an interesting project ... just take the metal and send me some pics of the finished article." The plywood and 6mm aluminium alloy for the buffer beam came from my employers: Princess Yachts. It was all saved from the scrap bin, so technically I was doing them a favour by taking it. - One Sunday, all the raw materials were loaded into the car and taken to Simon's new house near Callington (his new railway at the new house has already been started). A basic box frame with chassis horns and brackets for the idler axle was achieved in a few hours. It was then given a protective coating of red oxide primer. Due to our working patterns, and family life getting in the way, progress ground to a halt for a few weeks. In the meantime, I ordered two 12V 32AH mobility scooter batteries from eBay. After a conversation with Colin Edmondson, these were chosen because the load on the batteries would be similar to that of a mobility scooter (a constant load, with an occasional hill to contend with), whereas car batteries are designed for a very big initial load. - Build day 2 consisted of mounting the centre shaft, bearings, wheels and sprockets, which had been machined by another friend at the Robey Trust in Tavistock. We also mounted the floor and one of the motors and made a cut-out for the chain to run down to the idler shaft. The next day, we made a start on the electrics. For a lot of people, this can be the scary part. Luckily, as my day job, I make complex wiring looms for multi-million pound motor yachts. I also added a circuit breaker to protect the speed controller. - Then it was the moment of truth - test time. We bolted together some pre-made track panels, and surprisingly it all worked perfectly. The only issue was that I had connected the wires to the motor the wrong way around, so when I



selected forwards, it went backwards! - During the following week, Simon built the wooden box onto the chassis, which doubled up as the seat. I could now bring it home and finish it all off. - I found a drawing online, and made up some templates for the front and rear panels. The dimensions looked okay, so I carried on and cut them out of plywood. I cut a hole out of the front panel, and routed a recess for some wire mesh. Some unplanned additions were a battery kill switch (again from work), some two slot couplings from eBay, and some front and rear

LED lights from the Pound Shop. The running boards are offcuts from a length of garden decking. The trolley was finished off in BR Green(ish) with black Hammerite for the chassis. It was approximately now when I had a sudden thought - will it fit in the back of the car! We lifted it towards the car, "It'll never fit" my mate said. Luckily it fitted in the back of my Skoda Roomster with 14in. clearance either side. - It was now time for its public debut, so I packed it all in the car (remembering to take the batteries off charge) as well as my son Max and his little sister Grace and set off for deepest, darkest Cornwall. At the Kensey Valley, we got

unloaded and connected the batteries (it's a lot easier to lift without them inside.) I think the regulars were quite impressed that it actually worked. It ran faultlessly all day and still had plenty of juice in the batteries. However, I didn't get much of a look in driving the thing, as Max seemed very attached to it. It coped well with the railway's gradients, and even managed to haul their Beer Wagon around. - On my first visit to Goodwin Park, not everything went to plan. Both the trolley and the newly constructed flat truck kept derailing just before the tunnel. So, the next job before I return, is to fit some rubber suspension to try and stop the derailing.

