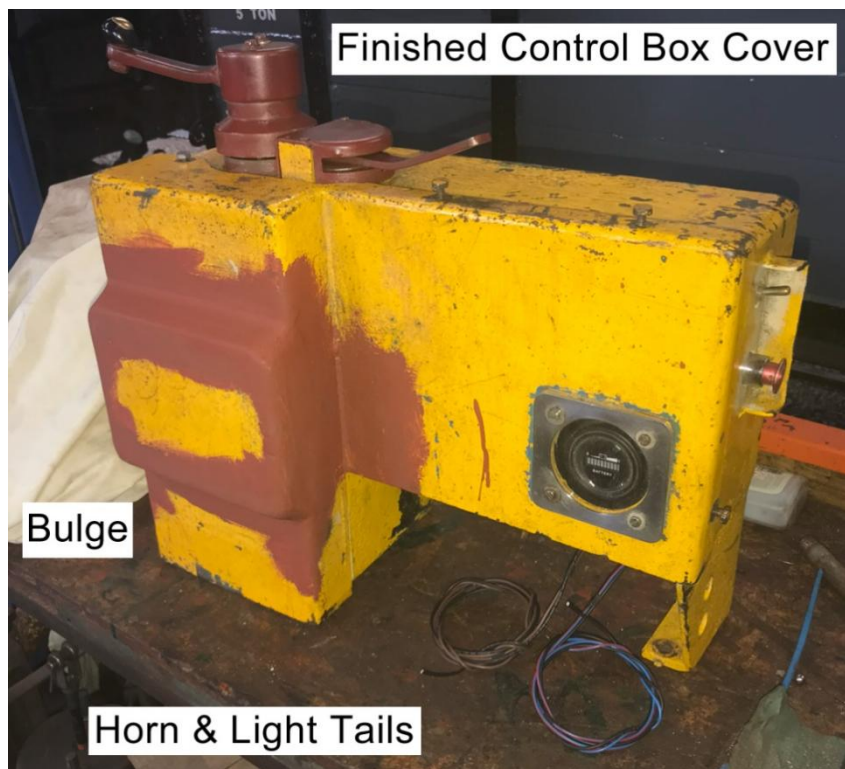


BEV WR5 Baby Jane restoration / recommissioning - Andy Kemplen – Control Box Latest Report

Following on from the previous article about the control box cover the welding of the 'bulge' and its corners were completed, with help from Ed. With an angle grinder I smoothed all the rough edges and weld splash ready for some fibre-glass filler as can be seen below.



Some fibre-glass filler was added and shaped, followed by some red oxide primer so as to protect the bare metal from rust – it can be seen finished below.



Overall, I am now pleased with our solution to covering up the arc chutes that have been added to the replaced contactors inside the control box, that necessitated the addition of the bulge to the control box cover- I am sure and happy that this should not look too bad when it's all painted.

Also, in the cover to the right of the bulge was an window aperture for the battery condition gauge to be viewed through – all we had left of the viewing window for this, stuck in the paint, was a gasket - I have made in the gaskets pattern a frame/retaining plate, out of an old stainless steel door sign, that was in the metal scrap bin that holds a drilled piece of perspex sight glass (provided by Charles) in position as per the original fitment. On the rear of the control box there is an access hole for the reverser cable terminals, the missing cover for this was also made from a piece of sheet steel again from the scrap bin. Two sets of matching retaining screws of the correct thread size were found in the easily accessible plastic wall bins (well done Derek) to attach the covers as shown below.



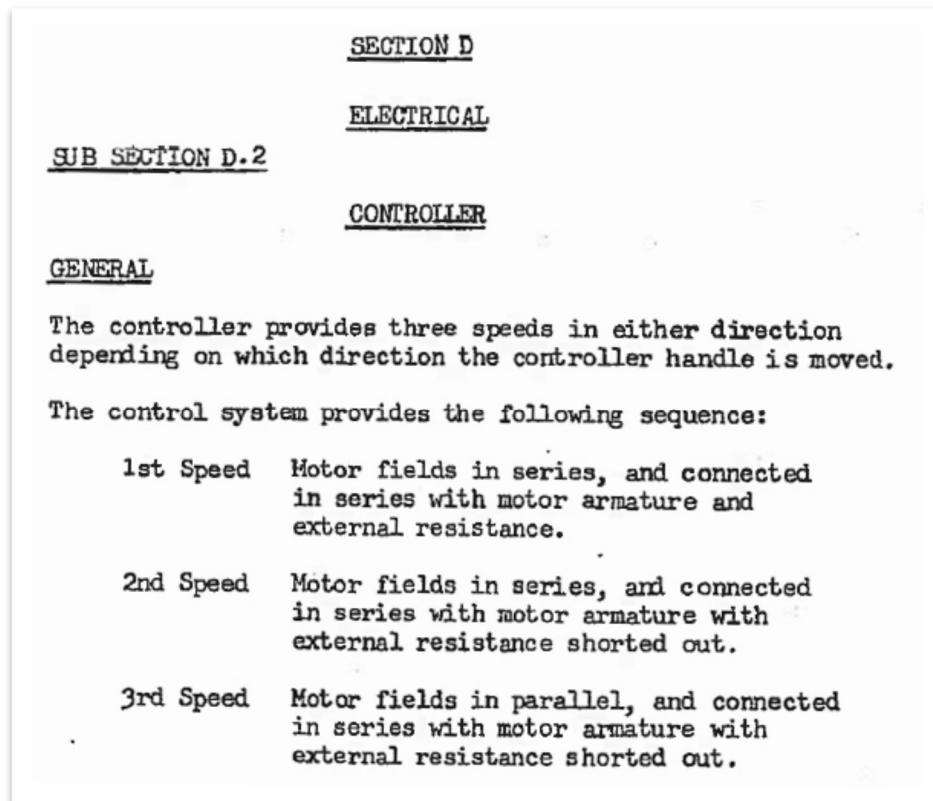
Inside the control box connectors had been included for the light and horn wires to be joined to – I have built up the other ends of these connectors with long tails ready to be connected to each respectively (visible in the second picture of this article) The Horn was removed from the loco and dismantled, it was found to be quite badly corroded inside. I have cleaned it all up and attempted a repair as where one of the wires from the coil inside joined to a tang to accept a cable terminal the tang had turned to powder ! – I am not that bothered if the repair is not successful as modern golf buggies and some other electric work vehicles still use 48 volt horns - so a replacement can be easily purchased for as little as £7.50 from China ! – but I think it probably deserves one of a better quality from a known manufacturer, that looks more substantial, available for under £30. Below the horn can be seen in situ and then with its internals all restored, repaired and cleaned up.



You may remember back to November 2022 when I removed the battery box to get to the bottom of which cable was 'R1' and which was 'R2' coming to the control box from the resistors mounted at the front of the locomotive – to further elaborate on my findings I found that it looked like it did not

matter as they identical and were joined in series (not what I was expecting) – this did not really make sense to me and at the time I had pushed it to the back of my mind for later consideration.

The reason for my misunderstanding of how the resistors were wired came from how I had created my original wiring diagram for Baby Jane, which has a three-speed controller. The two wiring diagrams that we had which I used for reference were for a four-speed locomotive and one for a solid-state controller version – I had just interpreted the photos I had taken before disassembly with the diagrams and connected up the cam switches to work as per the description contained in the manual that we had for the three-speed locomotive – as below



I had copied over and overlooked that the resistors did not go to ground individually as in the four-speed diagram – thus translating that directly to my diagram. When I had put my diagram into 'Circuit Wizard' (the electronics, circuit simulation and programming software, that I have on my computer) to prove the functionality by using light bulbs as the motor windings – dim for speed 1, medium brightness for speed 2 and full on for speed 3 I had just used a single resistor going to ground.

I don't know how but one Sunday early in the summer when I was Shed-Master and I was looking at the wiring diagram I realised my error and how to include the two in series resistors – they actually went to ground via the cam switch - that night I re-made my wiring diagram to be like how it actually is on Baby Jane, with the two resistors in series and isolated from ground. I also amended and tried my diagram in 'Circuit Wizard' - it still all worked – success !

I am now in a position to proceed with a higher level of confidence, although it would of just worked as it does not matter which is R1 and which is R2 – it was just my diagrams that were not correct !

More recently I have started to attempt to release the seat base from its mounting, the bottom of the mounting has rusted off but can be welded back on and the part that pulls out of the base is rusted in - I have drilled out the sheared clamp pin as can be seen below and have managed to move

it a small amount. The seat needed to be removable so the footplate could be folded to allow the locomotive to fit in the mineshaft lift – the seat parts and the progress in separating them can be seen below.



A more suitable, comfier detachable seat may be fitted in the long run as the need to go down a mine shaft probably no longer exists ? !

I have also planned out the battery connections and cable connectors with the incorporation of an emergency stop/battery disconnect and the onboard battery charger from the Cushman E-Z-GO Titan electric truck that we scrapped, this will include an interlock signal that stops it being driven when the charger is plugged in and on – as I finish this article all these parts have been ordered so we will be starting the battery box wiring soon, then when they are in place I will fit the Control Box and join up all the cables – hopefully testing will be commencing soon ?

Andy