
Budd Railway Diesel Car

How to install DCC with Sound into Proto 1000 RDCs

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Although others have already described this process in much detail, I found recommendations lacking on the placement of the speaker for the sound decoder.

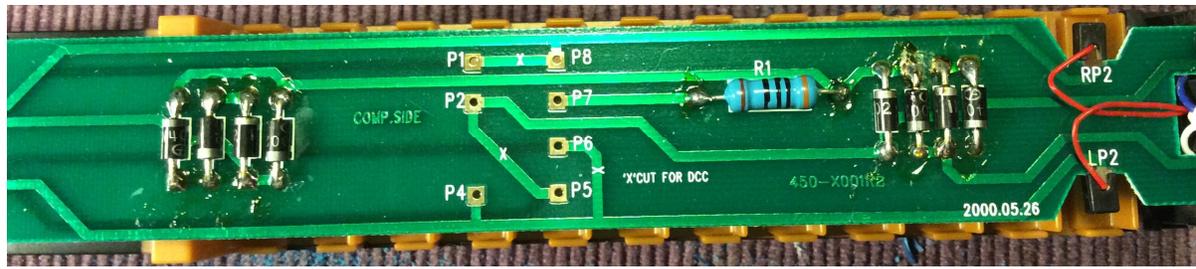
For the general details of a conversion consult this excellent description:
Installing DCC into the Proto 1000 HO RDC by Bevis King et al.

Circuit Board Modification

For reasons of availability I've used the Soundtraxx DSD-100LC diesel sound decoders out of my 'grab box'. Although the engine sound as such is not really prototypical, the motor 'hum' is reasonable at low levels and more so the horn and bell plus the control of the head lights. Observe the limited maximum DCC track voltage of 16V for those LC decoders.

My PC board modification includes also the anti-flicker circuit, peculiar to the DSD-100LC decoder series. The circuit as described on "Mr.DCC University" website.

This here is the original LifeLike Proto PC board of a newer generation:

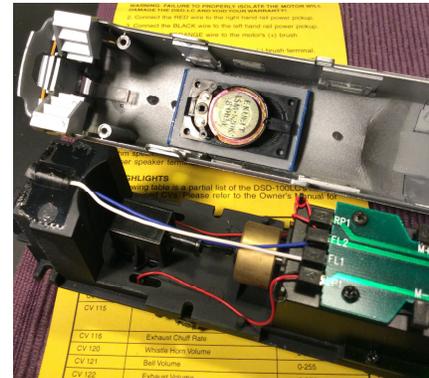


Carefully grind gaps where an X is printed (3 places). Unsolder and remove all eight diodes and the resistor R1. Replace D4 with a wire link. Shown below as R1 is a new 510 ohm dropping resistor for the LED headlights. In place of D5 is a 1k resistor and besides it a 0.1 microfarad capacitor to squelch any rear light flicker. That circuit is complete only with a wire link underneath the PCB between the solder points marked with the red arrows. The original light bulbs are to be replaced by appropriate LEDs as described in the articles mentioned previously.



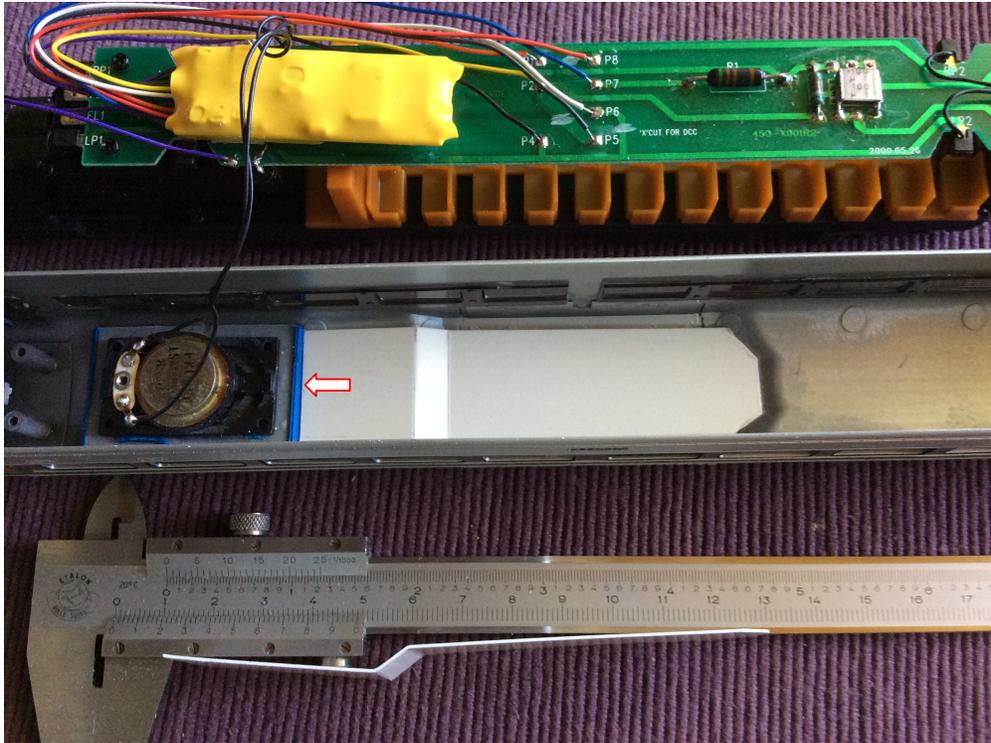
Speaker installation

My desire was to leave the visible passenger areas untouched as much as possible by any of the DCC decoder and speaker installations, but still provide a small speaker enclosure for a better sound. The space besides the motor, above the drive train seemed ideal for a rectangular speaker.



The RDC-2 has some roof vents right above the speaker's position I attempted to drill some tiny holes below the vent covers as a 'high frequency output'. Do this from the inside out right besides the stem of the vent cover. After first tests, I felt the need for more volume in the speaker enclosure to support the

lower frequencies. To open the already glued-in enclosure at the side, I ground a slot on the side towards the blister (arrow) with a small Dremel disk (on the next conversions, I just narrowed that side before gluing). A thin styrene sheet serves as cover of cavity formed by the exhaust blister in the center of roof. The decoder still fits in the space below the blister.



A side view of the cover is seen standing upright besides the caliper. The cover is shaped for a tight fit on all four sides and carefully glued to the roof.

On my RDC-1 I found another means to create a sound port on the roof since there are no roof vents above the speaker. Some RDCs remoted with Cummins diesels were fitted with standing up exhaust pipes in the middle of the roof blister. So did I by using short pieces of blackened brass (ballpoint) tubings, thus providing another sound path.

