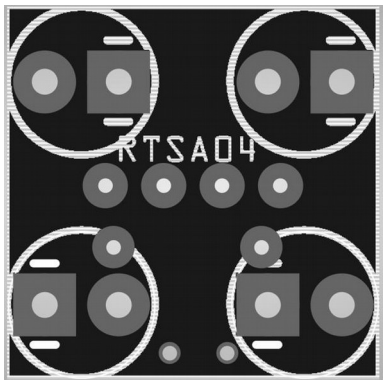
Construction Manual



BUILD INSTRUCTIONS

Rosscoe Train
DIY stay alive

Please read all of these instructions before commencing construction.

First the legal stuff.

I accept no responsibilty for the use or construction of this stay alive. It is totally your responsibility to make sure it works with your DCC decoder.

Bill of materials.

4 x 1F supercaps - recommended KYOCERA AVX SCCQ12E105PRB
1 x 1N4740A 10V 1W zener diode
1 x 1N4001 diode
1 x 100ohm 500mW resistor
PCB either the RTSA04 or RTSA04-1

Build instructions

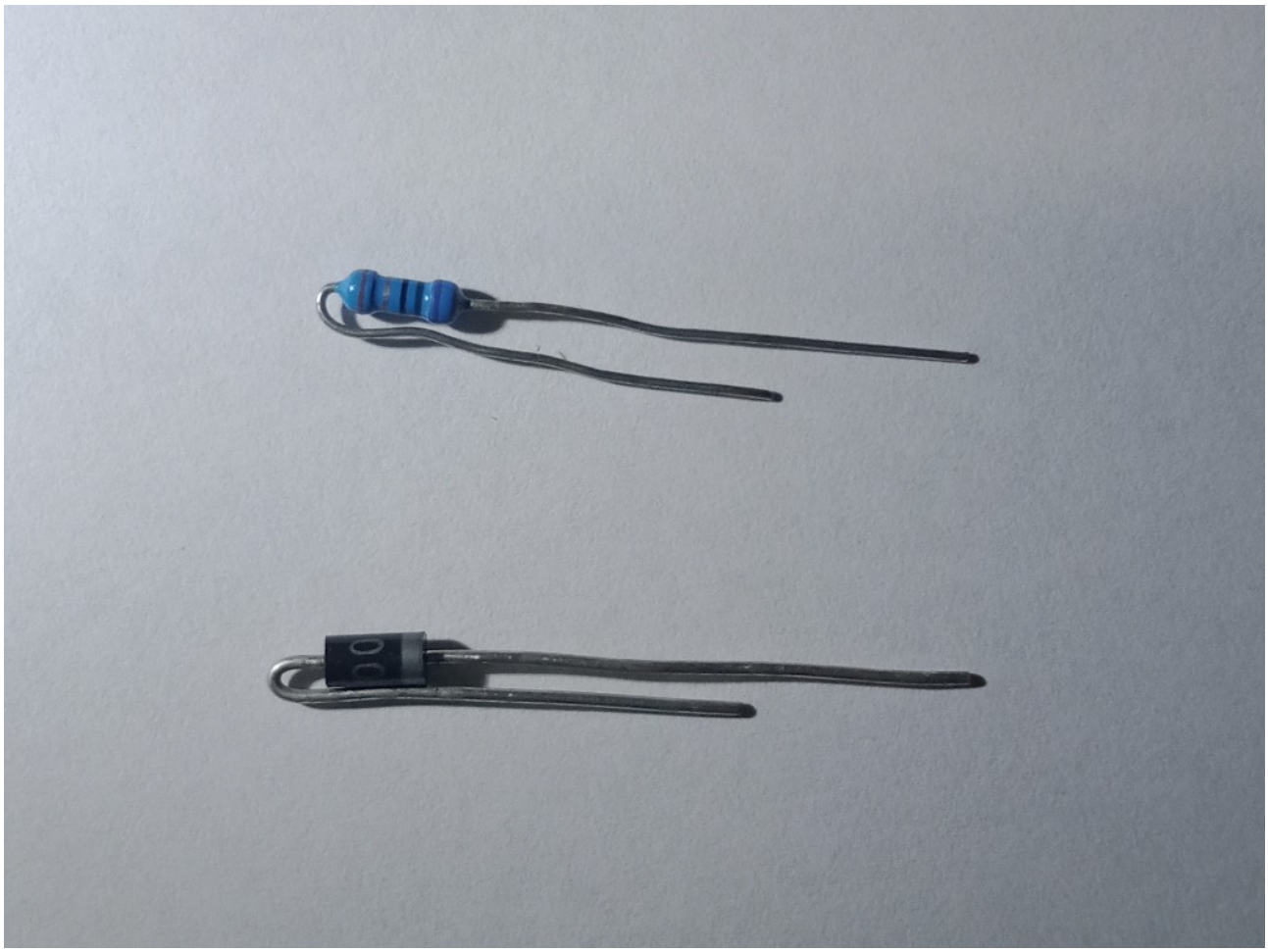
These instructions are applicable to both PCBs.

Soldering order.

R1 100ohm resistor
D1 1N4001 diode
C1 - 4 1F super cap
ZD1 1N4740A

On the top of the board:

1. Bend the leads of the 100ohm resistor and the 1N4001 diode like this:



2. Solder the 100ohm resistor in place as here:

3. Solder the 1N4001 diode in place as here, NOTE orientation:

4. Insert and solder the 4 super caps in place (only two shown), NOTE orientation:

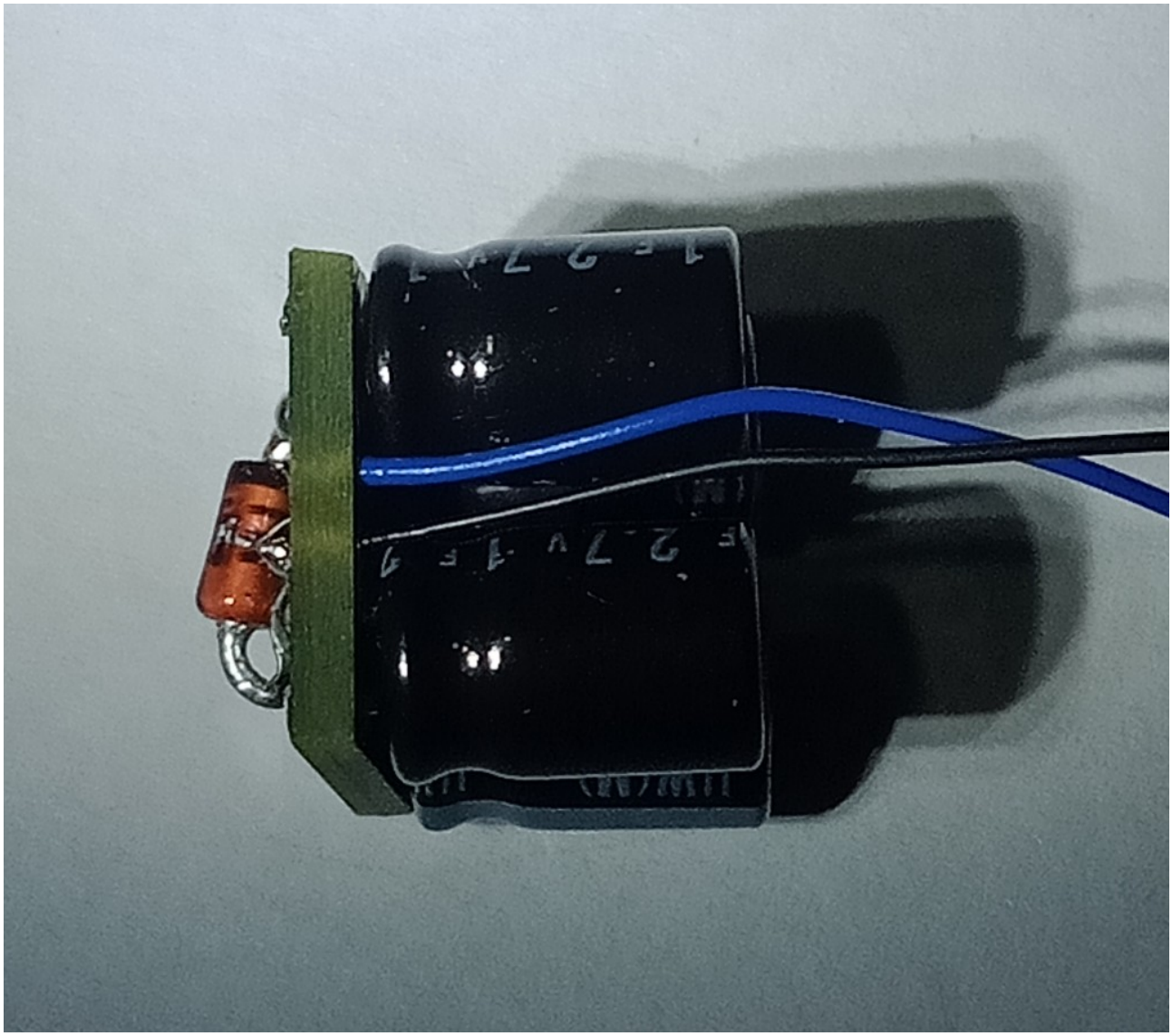

RTSA04

On the bottom of the board:

5. Solder the 1N5240B in place as here, NOTE orientation:


W357052AXF9
GND

6. Solder the black and blue wires to the pcb.



NOTE the black wire is soldered to the gnd pad and the blue wire is soldered to the + pad.

That completes the component soldering.

After connecting to the decoder it is recommended to insulate the stay alive using heatshrink tubing.

Connecting to DCC Decoder

How you connect it to the loco decoder is dependent on the decoder. This is an example of connecting to a LaisDCC 870015.

This is the simplest connection as the necessary wires are already connected to decoder.

On this decoder the blue wire from the decoder is soldered to the + pad on the stay alive. The black wire is then soldered to the GND pad on the stay alive.

Notes

The super caps recommended are Kyocera SCCQ12E105PRB - 1F 3V - 12mm high x 6.3mm diameter. With larger diameter super caps it becomes difficult to fit the diode and resistor in place.

Sources

Super cap
https://au.element14.com/kyocera-avx/sccq12e105prb/supercapacitor-1f-3v-radial/dp/3666075

Resistor 100ohm
https://au.element14.com/neohm-te-connectivity/rox05sj100r/res-100r-0-5w-axial-metal-oxide/dp/3229773

Diode 1N4001
https://au.element14.com/on-semiconductor/1n4001g/diode-standard-1a-do-41/dp/1458986

Zener diode 1N4740B
https://au.element14.com/multicomp-pro/1n4740a/zener-diode-1w-10v-do-41/dp/1861455

Addendum