# Quick guide to making a Blue Flagman/track tester.

The same idea as the Red Flag, but Blue Flags are used to protect equipment that crafts are working on. Electrically we could just substitute a blue LED but blue LEDs will break down if subject to more than about 5V reverse voltage (the RED ones go much higher so it's not a problem in the DCC world). Happily, if we have a pair of LEDS connected in parallel but with polarity reversed, the operation of the opposite LED at about 3V will protect its mate.
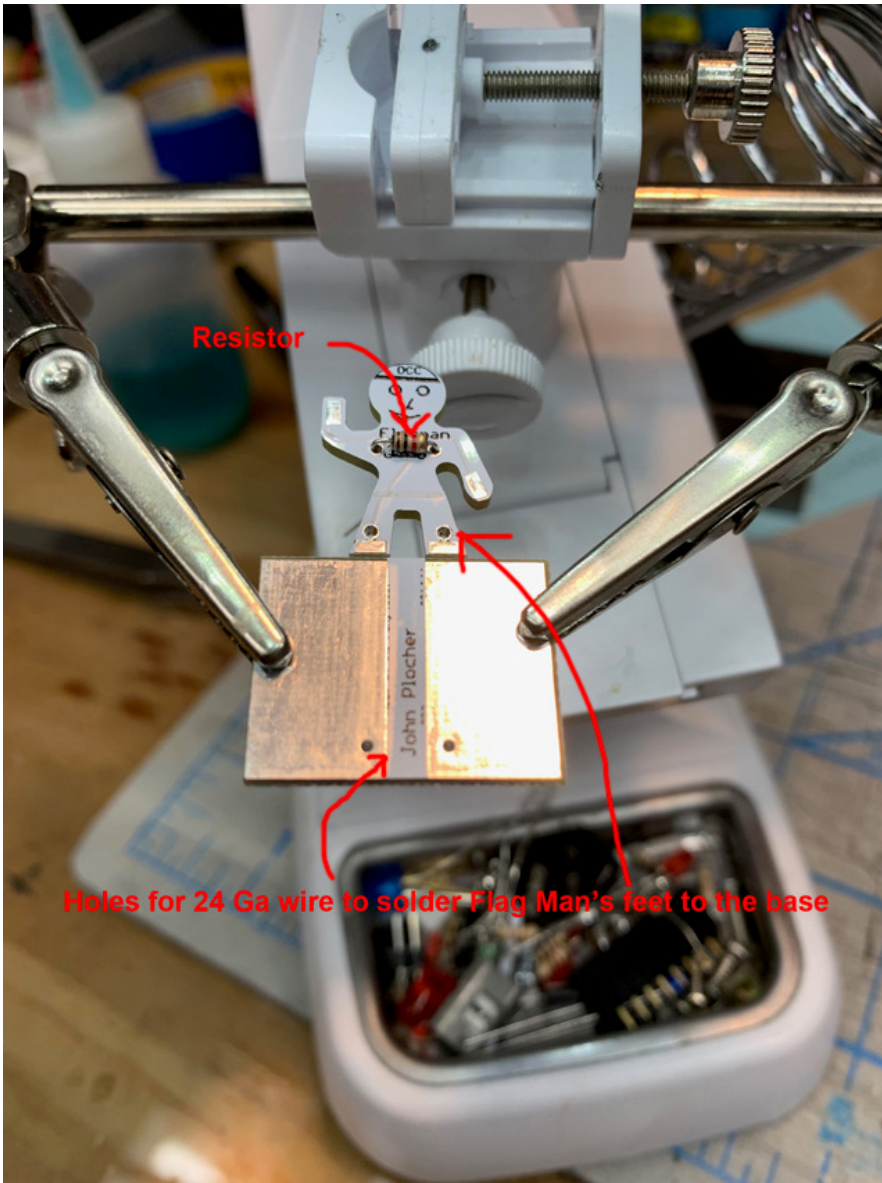
Step 1 is to identify polarity on the LED:
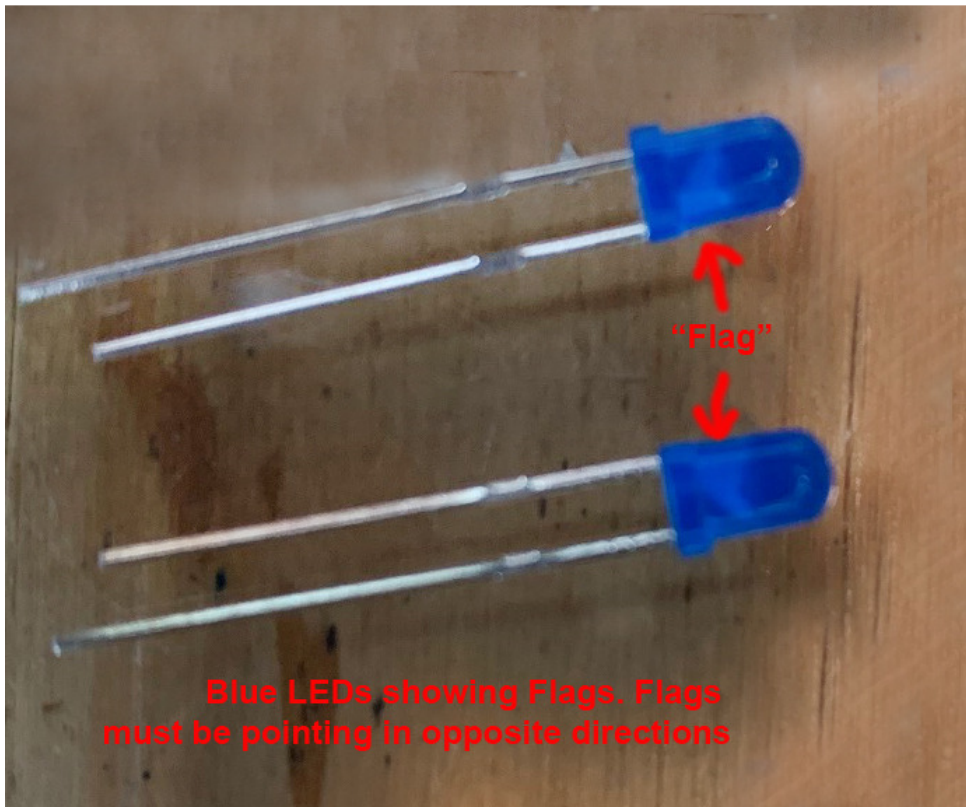
Note that each LED has triangular "Flag" in its colored lens. The Flag side is the cathode (negative), but all you need to do is make sure that they are facing opposite directions as you look along the flagman's "body"

Here's flag dude, (just snap him out of the frame) and his base. First, we'll add the 1K ohm, 1/8W resistor. The value isn't critical.

Resistor

Holes for 24 Ga wire to solder Flag Man's feet to the base

Note the direction the flag is pointing (Front or Back)

Clip the leads of the Blue LED to about ¼" and straddle the board, solder to the front and back (shown). Note direction of the flag, you'll do the other arm opposite. When you're done with the right arm, snap the base off so you can easily get to the left arm.
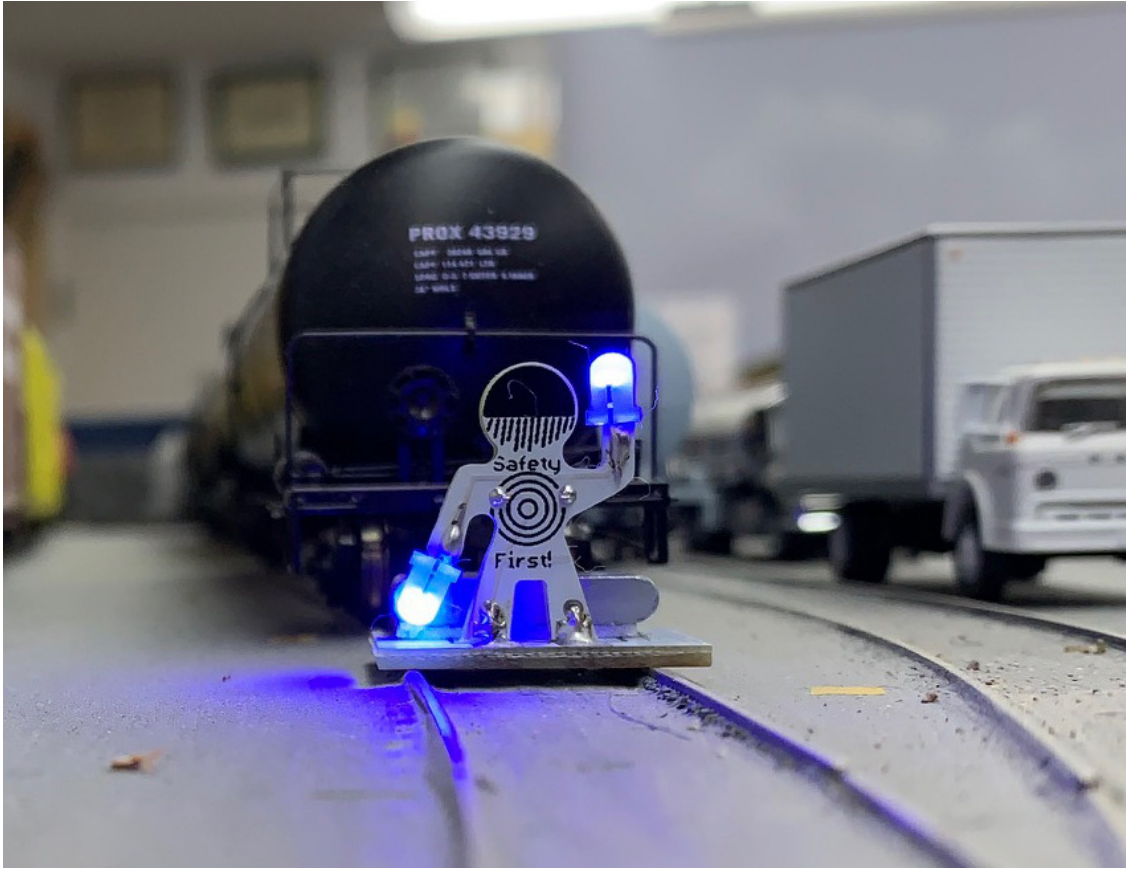
2nd LED

Now we'll add some 22-24 Ga wire to secure his feet to the base (or anything handy that will fit the holes – this for mechanical strength)

And then we'll cut the wires and solder him to the base. Note there is no proper front or back, set them up however makes sense to you!

Clip the wires on the bottom of the base, add the weight (see placement box on the base). Now test!

There's our guy and I need to clean the layout up in there!