

# USB PORT TESTER

BY BRUCE PIERSON

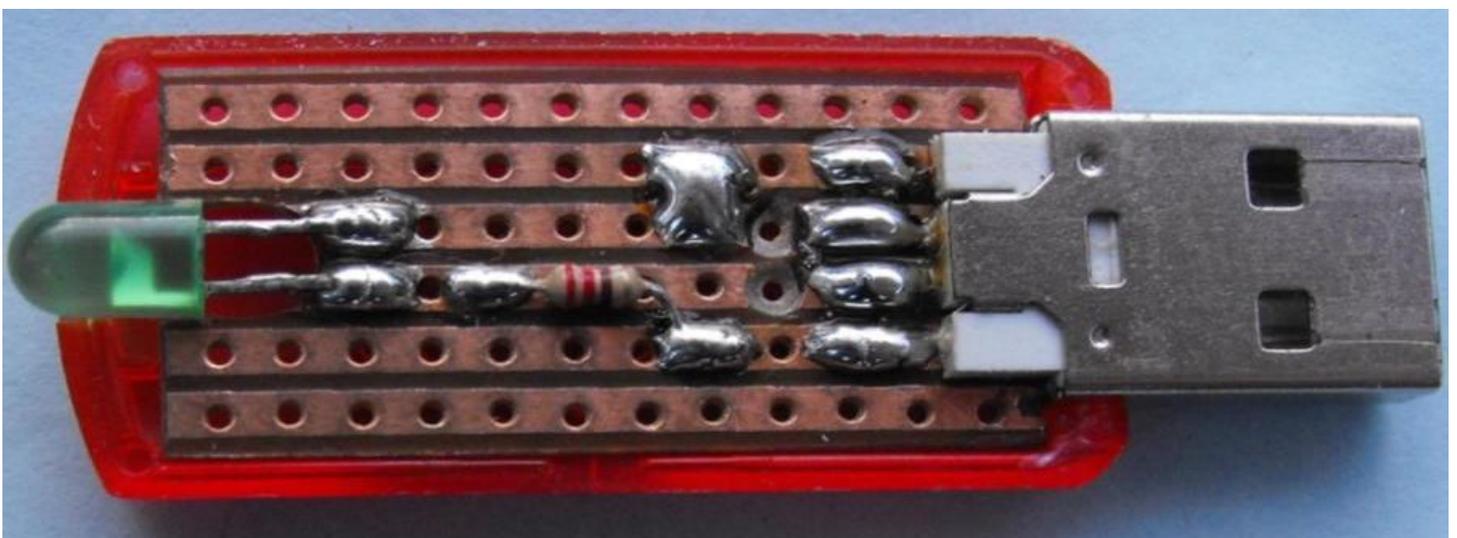


*The USB Port Tester in use*

If you have ever used your flash drive or external hard drive in someone else's computer, you may have been concerned about the safety of the USB port and whether it was wired correctly. Some years ago, I saw a friend blow up a new flash drive by plugging it into an incorrectly wired USB port. Following that incident, he always tested USB ports with a USB light. I also got into this habit and I took a standard USB light and shortened the shaft to make the whole light around 90mm long. I keep this with my flash drive for testing unknown USB ports.

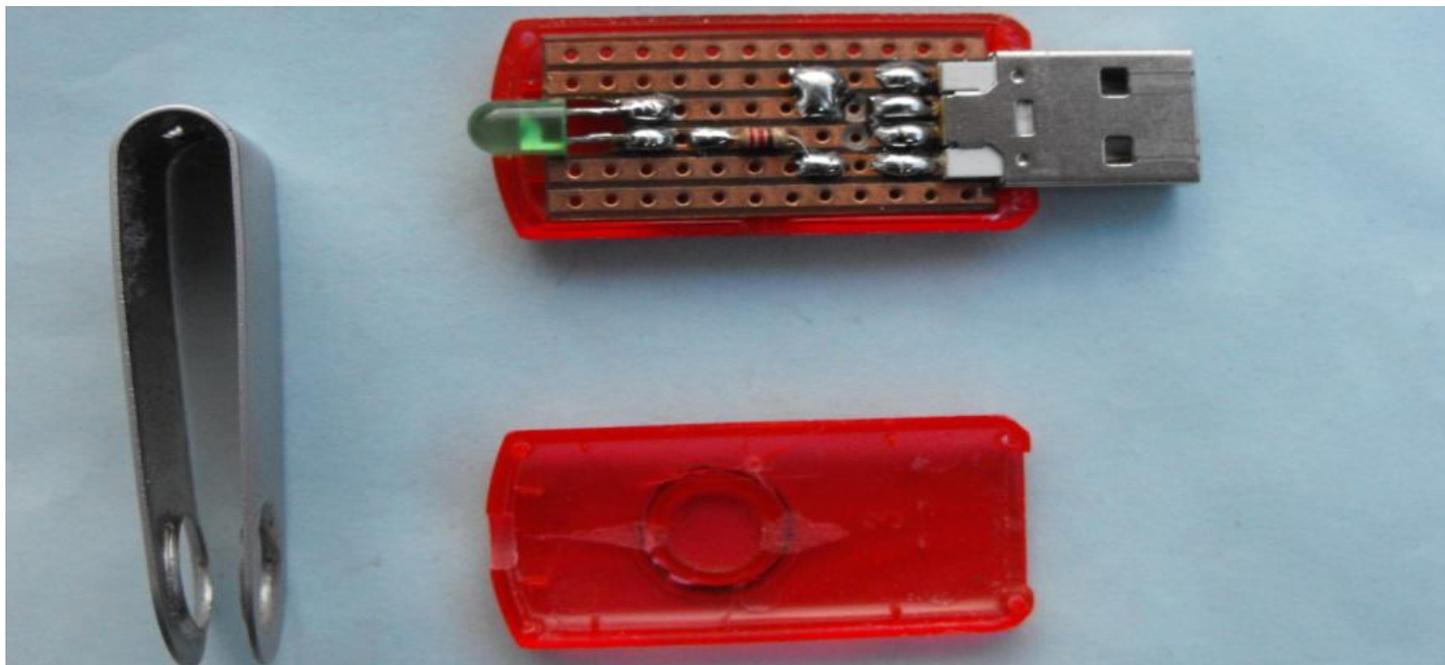
Just recently, I had the idea to convert a dead flash drive into a USB Port Tester. I had two dead flash drives on hand that I hadn't binned, so I dismantled one and inspected the internals of it. It looked like a straightforward job. Just remove the original PCB and then replace it with my own PCB with my own components – a green LED and a 220 ohm resistor in series.

The first thing I did was to un-solder the USB plug from the original PCB. I then cut a piece of vero board to the correct size to fit inside the case and I made a cut-out for the LED. That done, I filed a half-round recess in the end of each half of the case, to accommodate the LED.



*Close-up of the new PCB showing the component mounting*

I then cut the two tracks from the data terminals and soldered the components on the track side of the PCB. The final item to be installed was the original USB plug. It should be noted that the PCB in most flash drives will be mounted off-centre, so there is no room at the back of the PCB for components. The PCB sits against the back of the case, so the components will need to be installed on the track side of the PCB in order for the case to close properly.



*All the parts of the USB Port Tester, ready for assembly*

This particular Flash Drive was quite easy to dismantle, because the case was not glued together. By removing the retaining clip, the case was easily prised apart. I have an identical Flash Drive which actually had the case glued together and this proved to be more difficult to dismantle. Not all Flash Drives are suitable for conversion and each individual Flash Drive will need to be assessed for suitability.



*The completed USB Port Tester. - Looks like I should have cleaned the X off before taking the photo*

I had considered a DUAL LED for this project, to indicate reverse polarity of the power connections, but I decided against it, because if anyone else used it and a RED LED came on instead of a GREEN LED, they might think the USB port was safe to use.

So, if your Flash Drive just died, don't bin it, assess it for suitability for conversion to a USB Port Tester. It just might save you from killing an innocent Flash Drive in a deadly situation of an incorrectly wired USB port.