Step by Step Guide to Fixing Your Broken Power Supply

This guide is intended to serve the interests of those who are, by their natural inclinations, so lazy as to quickly find and employ the path of least resistance in fixing a problem, and so cheap as to prefer the long, previously avoided tedious fix over spending money.

You bought a great laptop that has lasted many years, but now an inevitability has occurred: your power supply stops working. It charges sporadically, unevenly, unpredictably, and, only if you fiddle with the with the connection points, gives a steady stream of power for several minutes before – mistakenly calling it resourcefulness – you jam it under the corner of your laptop to apply constant pressure and squeeze out a steady connection, telling yourself that you've fixed it while knowing that you have not. It doesn't matter. Your laptop is no longer on the edge of lying dead until you get a new power supply (weeks). You can continue with the immediate task at hand.

Two days later it breaks again, and the Universe has demonstrated one of the Fundamental Laws of Owning Electronics (or of Anything, Really): by twisting and jamming it you've made it worse (by solving a problem for the short term you've made it worse for the long term). Upon closer examination you notice a kink in the cord and severed metal wire poking through into the air. There is no way around it. You have to fix the power supply.

Note that you could buy a new power supply, but we have already ascertained that you are cheap, so actually you could not.

Read the entire guide before you start. DO NOT read as you go.

1. Take a pair of sharp scissors or knife, and cleanly cut the power supply cord in half at the point of the kink where the wires are poking out. You now have to pieces of power supply cord with exposed wires.

2. From the exposed end of each power supply, strip off 2-3 inches of the outer plastic wire coating (usually black). Inside, you should see a collection of a dozen or so thin metal wires, some probably frayed on the ends. These should be wrapped around another, thinner plastic coated wire (usually white).

   a. Do not cut the exposed metal wires or the interior wire. Only strip the outer plastic coating.

   b. You may be tempted to use wire strippers for this step. **However,** power supplies are often cheap in construction (making them trickier to fix when they break). A wire stripper may be too hard on the wires inside the outer coating and may break off many of them, causing you to have to strip off more plastic coating to expose more and drastically shorten the overall power supply length. **Therefore, my recommendation** is that you use a knife to strip off the outer plastic. Hold the blade at a 45 degree angle to the wire and away from you and gently scrape off the coating until you reach the wires.

   c. Expose several inches of the wires.

3. With your fingers, run over the bundle of loose wires and smooth them out so that they all run parallel with each other. Some wires will likely fray and break when you smooth them out (because, remember, this is poorly constructed). Smooth them out until you find the point where all the exposed metal wires are intact.

4. With a knife or other sharp blade, cut off the ends of the wires from the point at which some of them start to fray. They should not all be whole and end at the same point.

   a. If some of the wires broke off far down, you may need to strip off some more of the outer plastic coating (step 2). **Ultimately, you want to end up with 2-3" of exposed metal wires whose ends all line up.**

5. Repeat steps 2-4 for the other wire.

6. In like fashion as the outer wire, now strip off the outer plastic coating from the inner wire for each portion of your severed power supply. You should expose 1-2" of wires in this interior wire.

7. Repeat steps 3 and 4 for the exposed wires from the interior wire.

8. You should now have four ends of exposed wire: the two interior wires and the two exterior wires. Facing the ends of the interior wires toward each other and overlapping them so that the exposed wires run parallel along the length of exposure, make sure that the outer wires, when lined up in like fashion, will reach each other and also have some overlap. If they do not, you will have to shorten the lengths of the exposed interior wires until the exposed outer wires overlap each other.

9. Keeping the interior wires overlapped and in parallel, start from one end and twist them so that they are intertwined and do not come apart all the way to the other end.

10. Taking one end of a roll of electrical tape, wrap the length of exposed interior wire for three layers. **For easiest process and neatest results, one person should hold the wires while another person goes over and under them with the tape.**

    a. Start about an inch away from where the wires are exposed to ensure that they are completely covered.

    b. To minimize creases, first line the edge of the tape at a slight angle to the line of the wire so that with each wrap, the tape neatly progresses forward.

    c. When you reach the other end on the first wrap, do two more full wraps over the area. You do not want to make the wire too thick, but there will likely be a thicker area near the middle, over the exposed wire portion, and a tapering off at the edges of the wrap.

11. Repeat step 9 for the outer exposed wires. Make sure that together they cover the same length as the newly made interior wire. Do not wrap them around the interior wire.

    a. If there is excess wire on the edges, do not wrap it back over itself. Simply cut the extra wire off with a blade.

12. Repeat step 10 for the outer wire, encasing the exposed metal wires and the interior wire, which should be running in parallel as before. Add additional wraps of tape (4-5 total) to ensure that the wire is completely sealed. You can add even more wraps near the middle if you wish. **And again, for easiest process and neatest results, one person should hold the wires while another person goes over and under them with the tape.**

    a. **Important:** start wrapping 2-3" from the exposed wire on each end to cover enough extra area to make sure the cord is secure and the wire does not become re-exposed.

    b. Make sure while you wrap that the creases are minimal and that there are no holes or gaps for air or small debris to get in. The ends should be sealed flat against the outer plastic coating, and the surface of the entire wrap should be smooth and flat, other than the gradual bump.

13. Testing your newly repaired power supply to make sure your laptop is charging normally!

Congratulations on your like-new-but-visually-distinct power supply and on being cheap! Your reputation will precede you to whichever coffee shop you go.