How to Repair an Apple Magsafe Charger Magnetic End

If you have a damaged MagSafe power connector, this guide can help you address one of the most common problems, a damaged magnetic end.

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INTRODUCTION

This guide will take you, step by step, through the process of determining if the repair is likely to succeed, and how to accomplish it

TOOLS:

- Flathead Screwdriver (1)
- Digital Multimeter (1)
- Large Needle Nose Pliers (1)

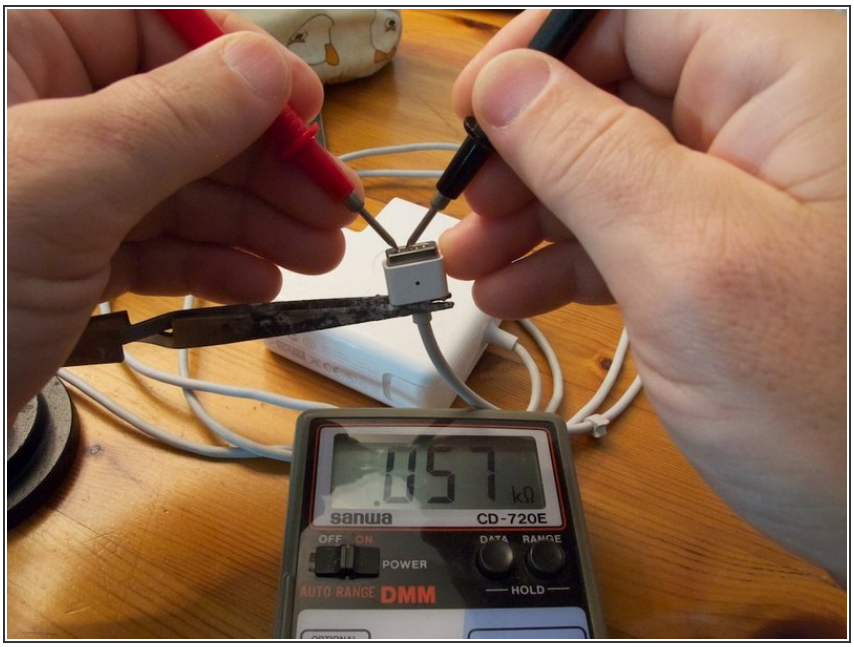
heavy duty

- Flush Cutter (1)
- Soldering Iron (1)

Step 1 — How to Repair an Apple Magsafe Charger Magnetic End

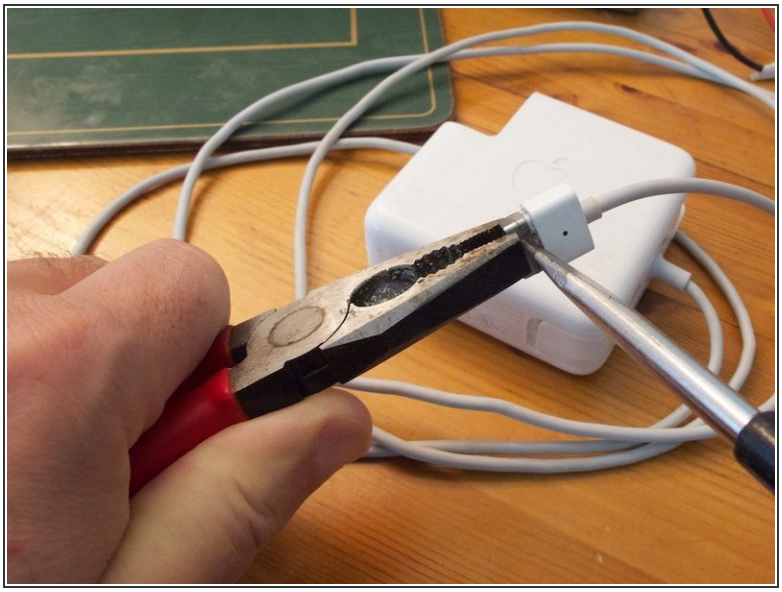
- Start by examining the cable for any obvious cracks, holes or exposed wires

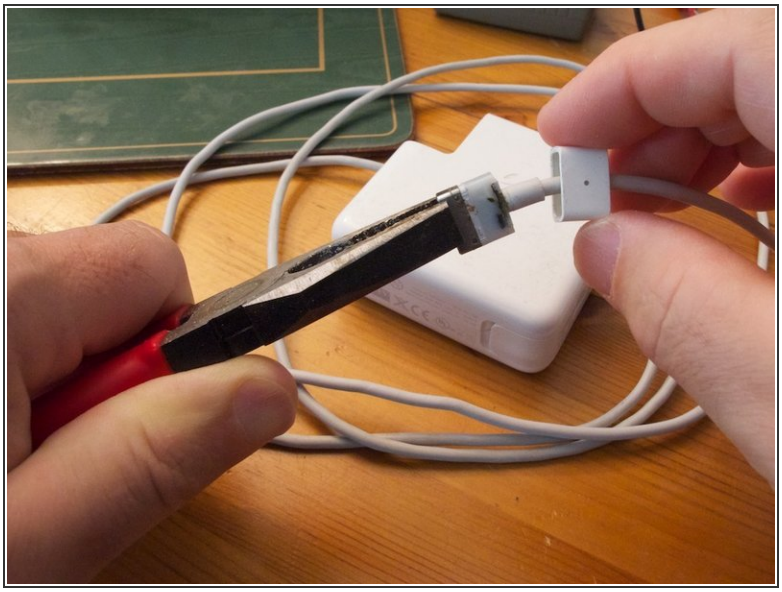
Step 2



- Using a multimeter or continuity tester check to see if the pins are shorted
- There are five pins in the plug end. The central one is used for signaling but the other four are used to carry power to the mac. Because the mag safe adapter is designed to be able to used in any orientation the outer pins (1 and 5) are equivalent and should show as connected when using the multimeter.
- The same should be true for the middle pins (2 and 4).
- If however any of the other pins appear to be connected, you have a short. In this case pins 1 and 2 are shorted.

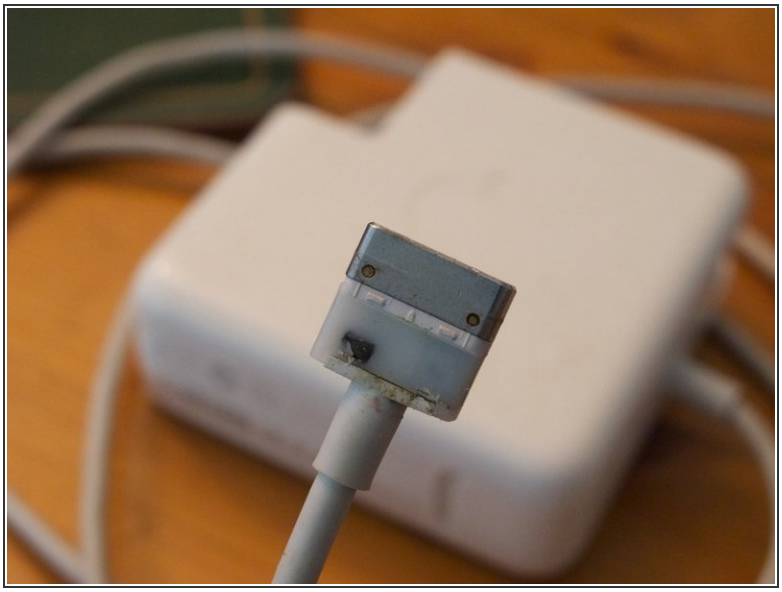
Step 3

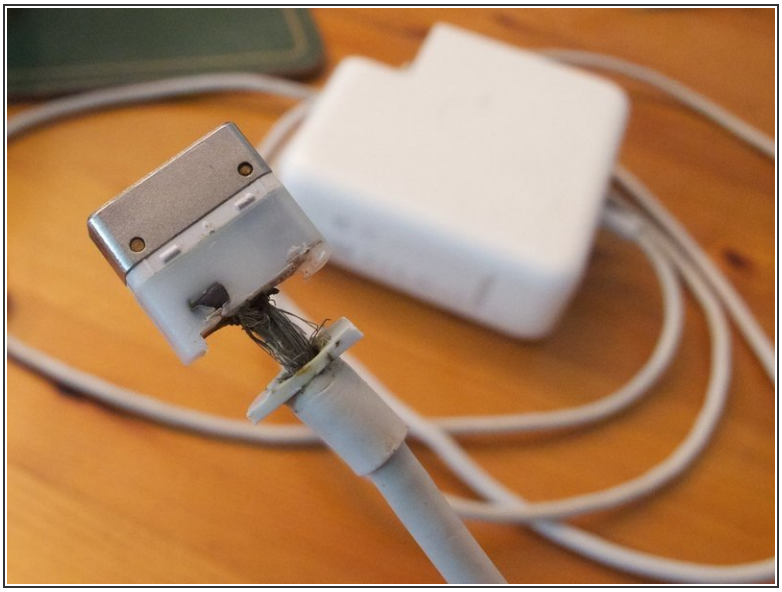




- To remove the plastic cover grasp the metal end using a pair of heavy duty pliers (or in a vice) and use a flat bladed screwdriver to gently lever the cover off

Step 4





- The discoloration here suggests we may have found the source of the problem
- Gently pull the rubber cover away from the head to reveal the connections

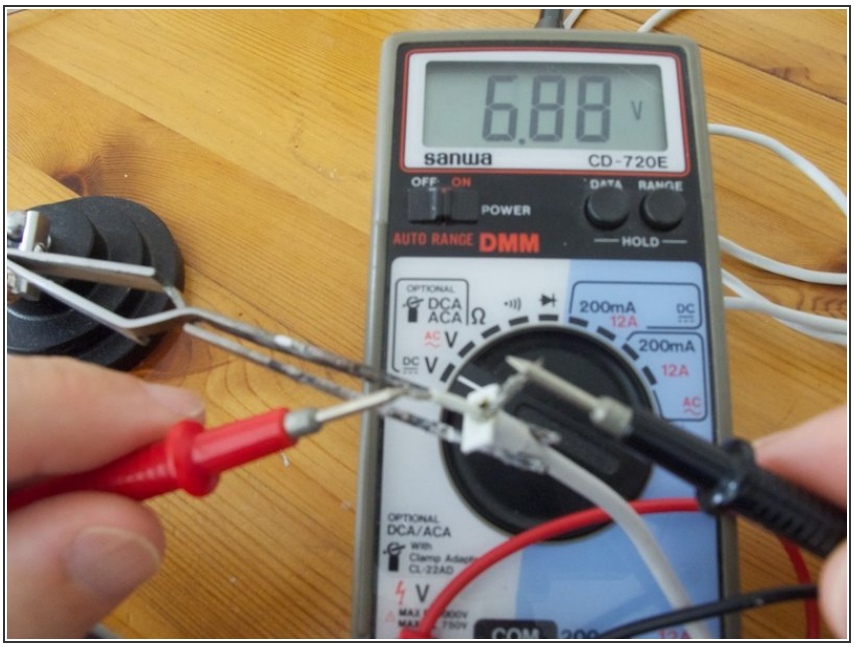
Step 5

- Having determined the likely source of the problem we need to remove the plug from the wire to see if the charger still works

Step 6

- Strip the ends of the cable and use a multimeter to check that these leads are no longer shorted
- If your continuity tester still shows a short, the cable may be damaged elsewhere, check again for any signs of damage - maybe you just need to shorten it a few more inches
- If you can't find the source of the short outside the adapter, you're going to have to open the adapter itself and continue there (see other guides for details on how to accomplish this)

Step 7



- Assuming you've confirmed the leads are not shorting the next step is to plug the adapter back in and check to see if power is still being delivered
- Use a multimeter to check that power is available. it should read around 6.8V DC
- If you've got power, congratulations, you can continue to repair the plug, otherwise you will need to dig deeper (look for other guides on repairing the adapter itself)

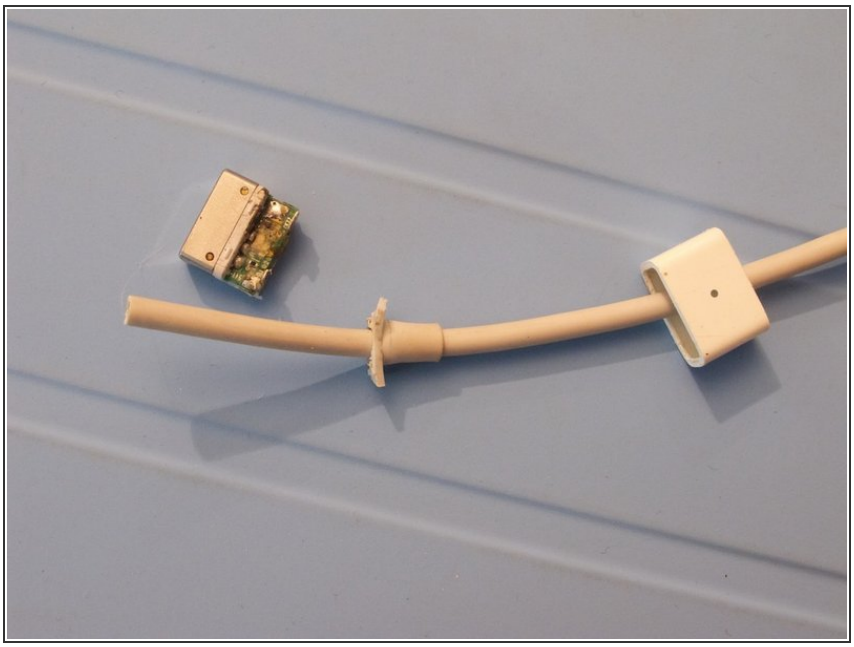
Step 8

- The first step is to carefully cut away the plastic moulding which is probably used as a diffuser for the status LED

Step 9

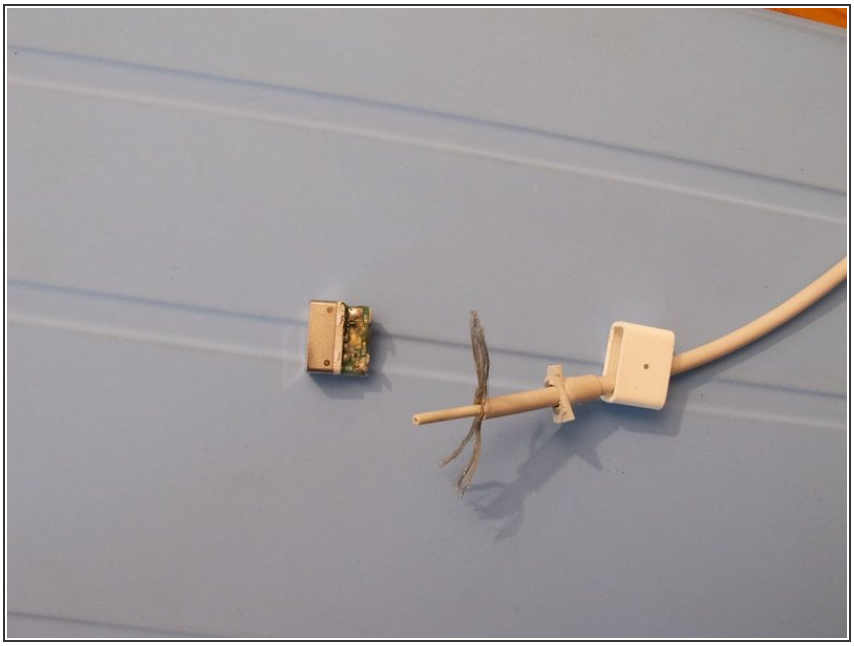
- once the plastic has been cleared away you should see a small green circuit board with the remnants of the wires you cut off earlier still attached
- Use a soldering iron to melt and lift away the old wires
- NOTE: Pay attention to where the leads go so you can reconnect them to the same place when it's time for re-assembly But it should be fairly obvious that the shield wire has been split into two strands and soldered to the back and front of the circuit board, with the central wire (covered with a white insulator) connected directly to the bottom left corner of the circuit board.

Step 10



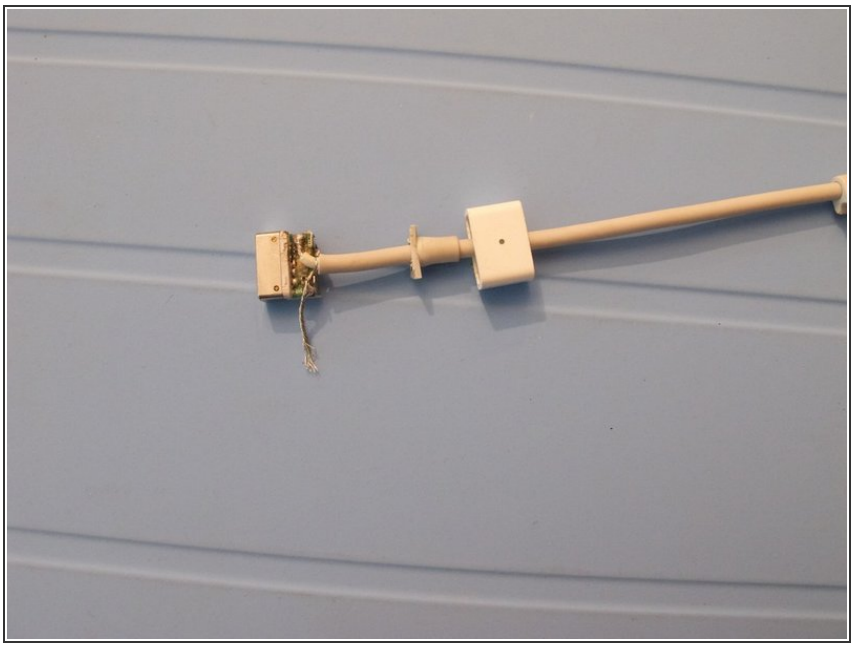
- Before reattaching the circuit board remember to thread on the plastic cover and rubber grommet
- Hint: insert a thin nosed pliers into the bottom of the grommet and open slightly to stretch the bottom of the grommet and a metal clamp there to make it easier to thread the cable back through

Step 11



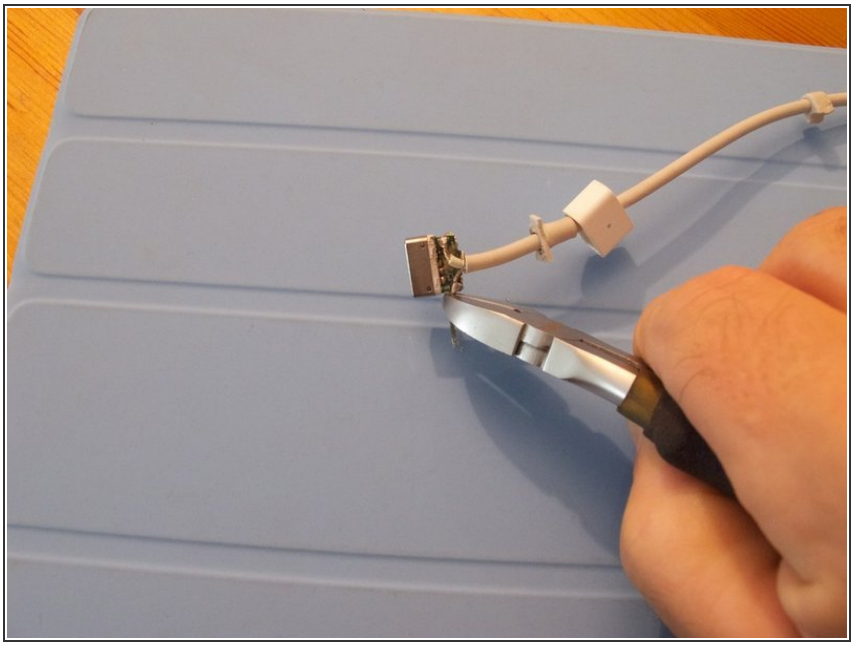
- cut back the outer insulation and divide the exposed shielding into two strands
- then leaving about 2-3mm still covered remove the white insulating sheath from the central wire

Step 12



- reattach the leads starting with the central (white) strand directly to the PCB
- Then solder one strand of the shield to the opposite side of the circuit board
- Flip the plug over and solder the remaining end of the shield to the opposite side
- Hint: The goal here is to make sure that the divided shield distributes any strain equally between front and rear sides and avoids straining the central wire

Step 13

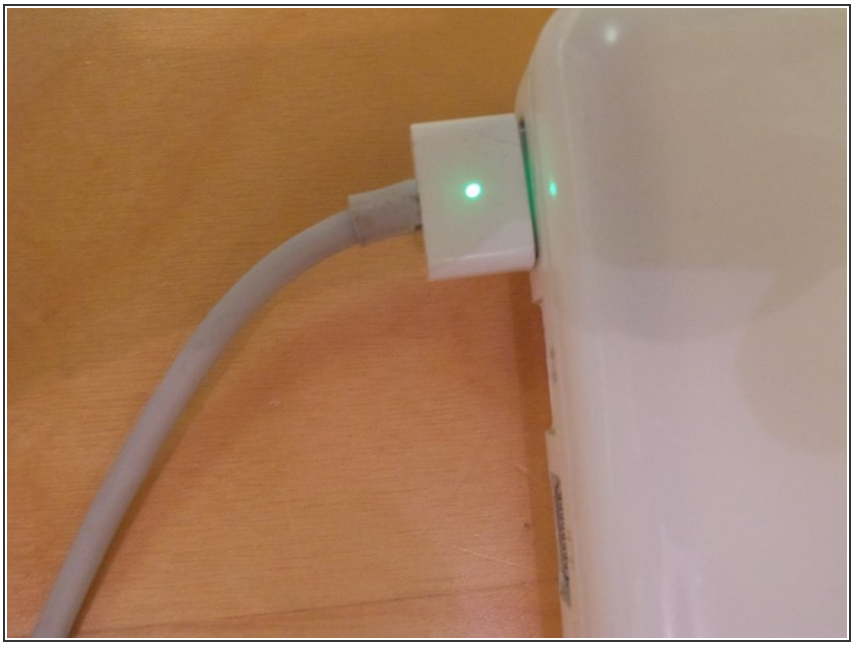


- Snip away any excess shield/solder

Step 14

- Use the multimeter to check your work;
  - pins 1 and 5 should not short with pins 2 or 3
  - and you should be able to see +6.8V DC between them
- If all looks good, its time to test with your mac. Even if the LED doesn't light (if might be heat damaged) boot your mac and check the power status

Step 15



- To finish up;
  - slide the grommet back down to the end of the cable and use a pair of pliers to gently squeeze the metal clamp shut again
  - Optionally seal the PCB with Areldite or perhaps hot glue but you can get by just fine without
  - Slide the plastic cover back down over your work - it'll probably be tight enough to snap back into place but if not a couple of drops of super glue should be enough

If all is well, you should get many more years from your trusty adapter.

