



# Celestron CPC 800 DC Power Socket Replacement

How to replace the CPC 800 with a longer DC power socket so that the factory power cable will physically screw onto the socket.

Written By: Michael Wofford



## INTRODUCTION

The factory installed 2.1 mm DC power socket is too short for the threads on the power cord to make a connection and screw the cord to the CPC800. By utilizing a longer DC power socket from Switchcraft (Manufacturer part number L722RA or DigiKey part number SC1331-ND), the power socket can be removed and replaced to work as intended with the power cord provided by Celestron. Soldering is required and it is assumed users are capable of performing this task.

This procedure will likely void your warranty and leave small scratches on the vertical forks and base plate around the DC socket.

### TOOLS:

- [2mm Allen Wrench](#) (1)
- [2.5mm Allen Wrench](#) (1)
- [Small Needle Nose Pliers](#) (1)
- [Wire stripper/crimping tool](#) (1)
- [Soldering Iron](#) (1)
- [Solder](#) (1)
- [Heat Shrink Tubing Assortment](#) (1)
- [Digital Multimeter](#) (1)

### PARTS:

- [Switchcraft L722RA](#) (1)  
DC power socket

## Step 1 — Confirming Replacement Socket Fits Properly



- Confirm power cable fits properly in new 2.1 mm DC power socket and will screw on properly.
- Other photos shown of factory installed socket, which will not connect properly, and a comparison of the interior of the factory socket (left side) and the replacement socket (right side).
- The replacement socket and the factory installed socket are the same size (2.1 mm) but may look different in the picture provided.

## Step 2 — Determining the Positive and Negative Terminal



- The ground pin is far back in the socket so it is easier to perform this task with the cable plugged into the socket. With the power cable inserted and tightly secured, locate and confirm with a meter which terminal on the back is the center pin and which is the outer ground pin.
- This step is important! The center pin of the socket will connect to the red wire (positive 12 VDC) while the black wire (negative or ground) will connect to the outer pin. The same is true for the power plug - the center conductor is +12 VDC (red) and the outer conductor is Ground (black).
- An open circuit (no continuity) is demonstrated by the OL notation on this digital multimeter.

### Step 3 — Remove Base Plate Locking Knob (Right Ascension)



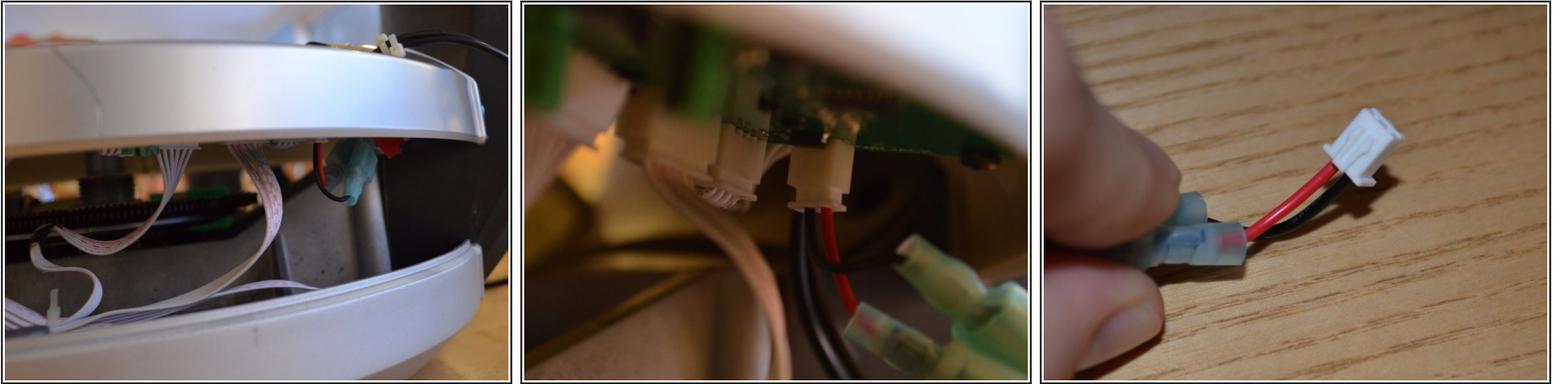
- Make a note or take a picture of the knob's placement and distance above the base plate before removal. Also pay close attention to the number of rotations to remove the knob completely.
- Locate the 2mm allen screw and remove completely. The locking knob should unscrew and be removed.

### Step 4 — Removing Base Cover



- This step will likely leave some scratches on the lower portions of both telescope fork arms!
- Remove the five 2.5mm allen screws from the base plate and slowly move the base plate up the fork arms as evenly as possible. The base plate shouldn't go any higher than you need to work inside of the unit without stretching the cables inside.

## Step 5 — Removing DC Power Socket



- The red and black cables seen here connect to the DC power socket. The blue connectors will not be present on other units as this was a temporary fix until the proper parts could be ordered.
- Make a note of the wire orientation (red and black wires) and connector since all units may not be the same. The connector can only insert in one direction. Also, note that the connector on this unit does not seem to push fully into the housing.
- Disconnect the cable and unscrew the nut on the DC socket. The nut is recessed in the base plate and needle-nose pliers may be the best tool to use but it may scratch the base plate finish.

## Step 6 — Preparing the Cable for Installation on Replacement Socket



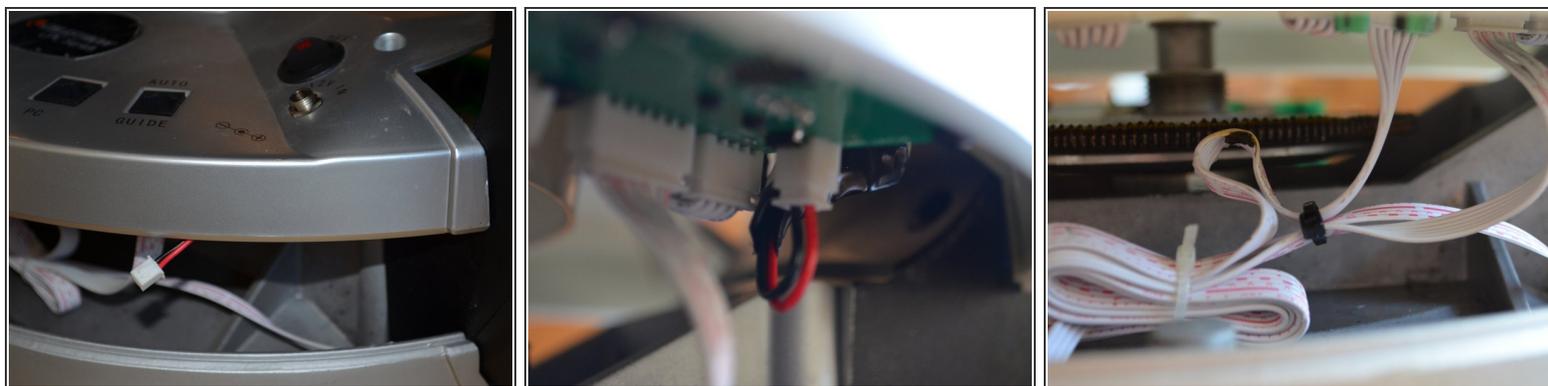
- Loosely install the replacement DC power socket in the base plate hole. While holding the back of the socket to prevent rotation, screw on the nut to hold in place and confirm the power cord fits properly.
- Note the location of the red and black wires on the factory installed DC power socket and then cut the wires close to the terminal points.
- Strip the wire ends to an appropriate length to solder to the replacement socket. Ensure you know the location of the red and black wires on the new socket before soldering.

## Step 7 — Soldering Replacement Part on Factory Cable



- Place heat shrink or rubber tubing on wires before soldering then wrap the wire around the terminal for proper soldering.
- Next, check to ensure you have continuity from the connector to the terminals. It is also good practice to check and make sure you do not have unwanted continuity between the other terminals.
- Slide heat shrink or rubber tubing over solder points and heat or add electrical tape to ensure isolation.

## Step 8 — Install and Connect Replacement Socket



- Holding the back side of the replacement socket so that the terminals do not interfere with the moving parts, cables, or circuit boards, loosely tighten the nut to hold the socket in place.
- Next, insert the wire connector in the same orientation as when it was removed.
- This is a good opportunity to relocate or tie wrap loose cables that may be too close to the gears inside the telescope.

## Step 9 — Testing the Replacement Socket before Reassembly



- Again, this step may leave scratches on the base plate.
- Tighten the socket nut with needle-nose pliers or other tool.
- Carefully plug in the power cord with a battery source connected and test to ensure the unit will turn on.

## Step 10 — Reassembly



- Gently push the base plate back into position making sure the plate does not get wedged sideways between the two fork arms. One side at a time works quite well. Also, make sure cabling stays away from the gears. Install the five 2.5 mm Allen screws and tighten.
- Screw the lock knob all the way until it becomes tight and then loosen about half a turn (the knob should sit in the same location as noted in Step 3). Insert the 2 mm Allen screw in the knob and tighten (but not too tight).
- Check for smooth operation and that the knob will lock and unlock the base of the telescope so that it will turn. If it does not work properly, either the knob is too loose or tight or the Allen screw in the knob is over tightened. The locking knob on the fork arm is a good reference of how the locking knob should operate.

## Step 11 — Function Test of Telescope



- Plug the unit into a 12 VDC power source, tighten the locking collar, and confirm proper operation.

Please add comments to improve this procedure.