

EHU Contact Brush Replacement

Tools Needed:

- Soldering Iron/solder (Only Driven EHU's)
- Alligator clip fixture or other method of holding the ring lug/brush for soldering
(Only Driven EHU's)
- Sharp scissors or Tin snips
- ¼" small open-end wrench
- #1 small Phillips head screwdriver
- Standard pliers
- Ohmmeter/Multimeter

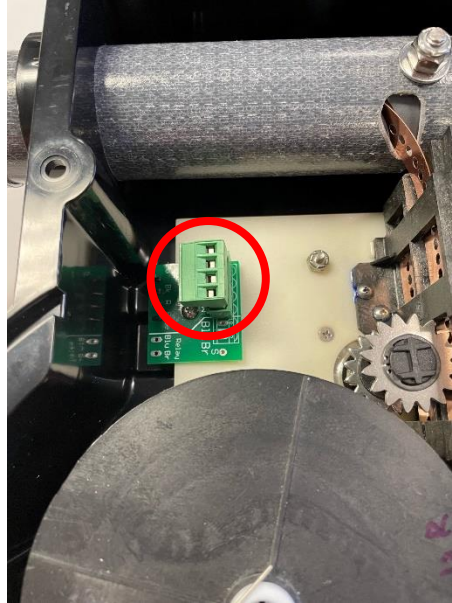
Note:

If doing this process on an old-style platen (2 piece with white cover) you may need to trim the outside edge of the brush where the contacts are mounted. The old-style platen had a smaller opening causing the tip of the brush to touch the platen which will prevent the brush from sitting correctly. This will cause high resistance between the EHU contact brush and the copper beryllium (Cu-Be) tape. Be sure to fit the brush before installing to verify that there is enough clearance between the brush and platen. The process will be slightly different as you will need to remove the white cover before removing the brush.

The brush contact will not sit flat on the copper tape, this is by design. To get the most life out of the contact it must start touching the copper tape at an angle so by the end of its life it has fully worn the contact surface. The surface area that does make contact in the beginning of its life is more than enough for high power and will make no difference to its power handling capability.

Non-relayed EHU Brush Replacement:

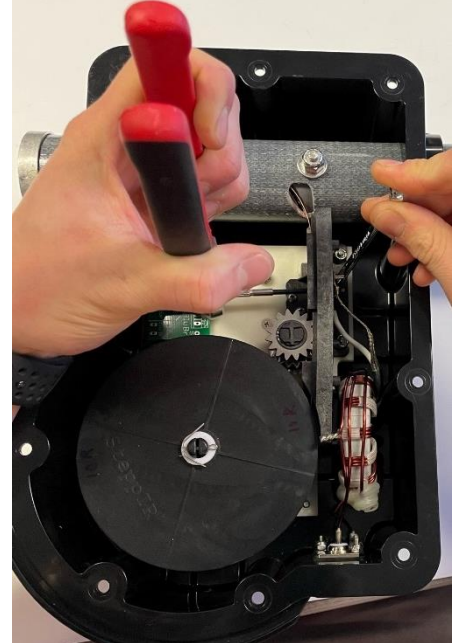
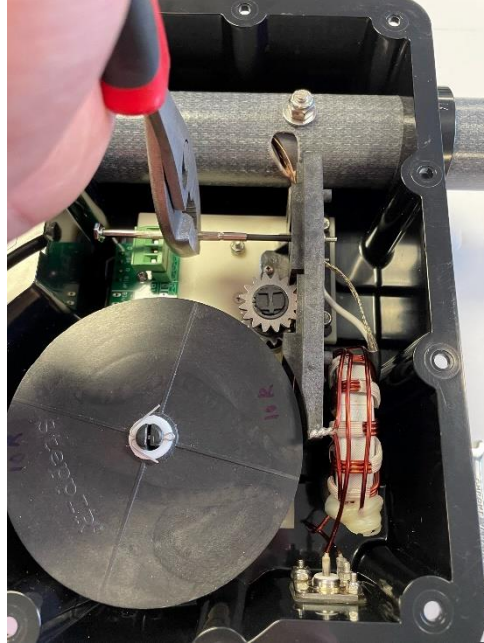
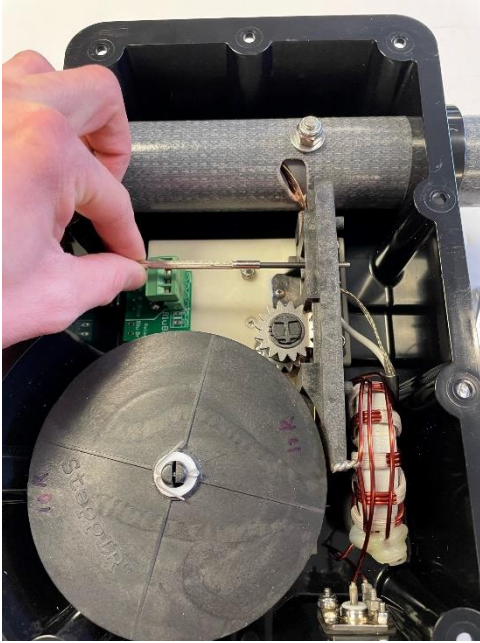
- Remove green phoenix plug (circled in red). (4 pin for non-relayed EHU's, 6 pin for relayed EHU's)



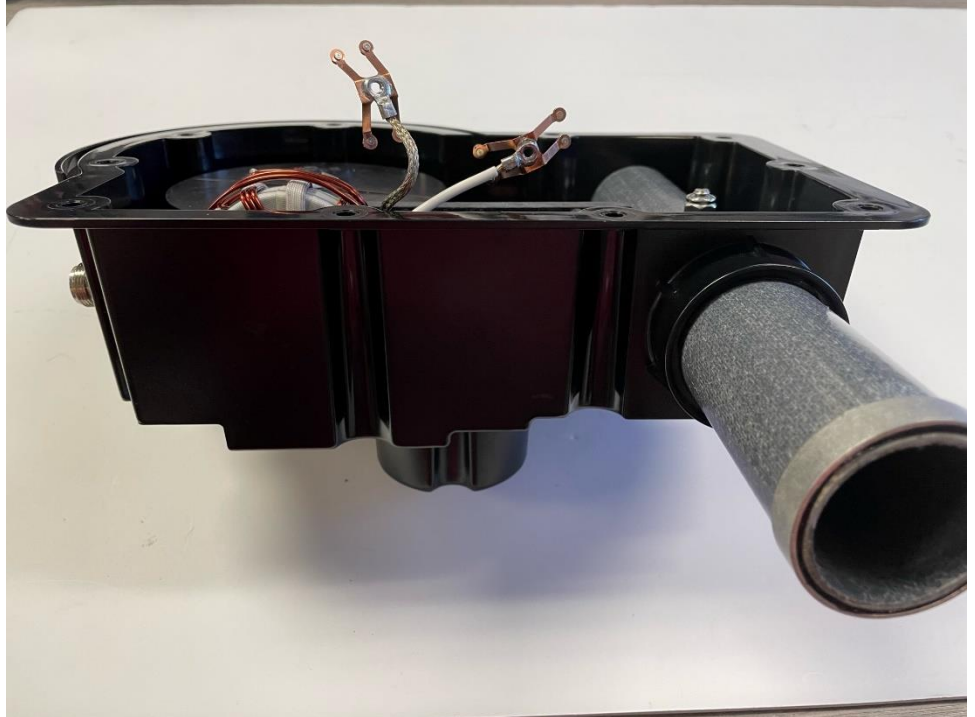
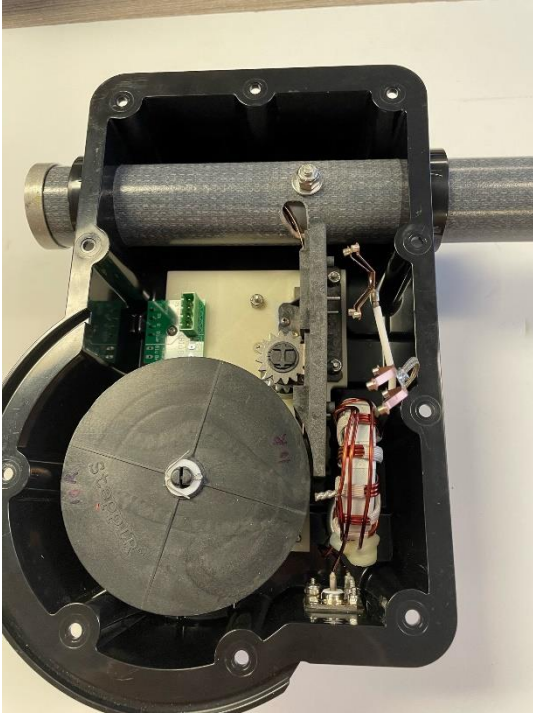
- Align holes in copper beryllium (Cu-Be) tape to the screws that hold the EHU contact brush in place (circled in red).



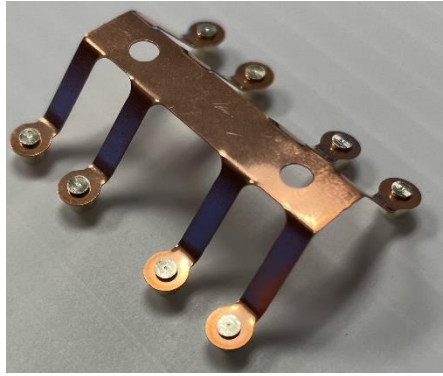
- Insert a small #1 Phillips screwdriver into hole and firmly against screw. Hold the screwdriver with pliers firmly into screw. Use $\frac{1}{4}$ " small open-end wrench to remove nut. Turn the nut with the $\frac{1}{4}$ " wrench, you may need to rotate the screw occasionally to get the correct angle so the wrench will fit onto the nut. Complete process for both the top and bottom screw.



- Once both nuts are removed carefully remove the EHU contact brush(es) from the screws and either remove the single double unit brush (passive, no balun) from the EHU or move the 2 dual brushes (driven, internal balun) that are connected to the internal balun out of the EHU housing. (Driven EHU shown)



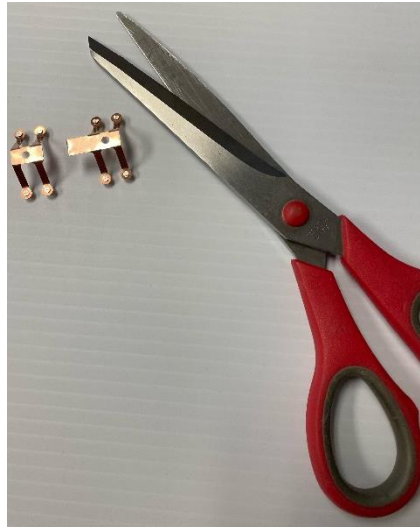
- At this point if you are completing this process on a passive EHU you may now install the single dual brush back onto the screws and re-install/tighten the nuts in the reverse order of removal. If you have a passive unit with terminal lug you will need to de-solder the Cu-Be tape that connects to the brush and re-solder it to the new brush in the same orientation. Be sure to tighten both nuts in intervals so that the pressure on the brush stays the same for both screws. Orientation of the brush does not matter, but you must align the brush so that the silver contacts ride on the non-punched surface of the copper beryllium (Cu-Be) tape. The brush should be square to the internal edge of the platen (fingers parallel to the length of the platen).



- If you are completing this process on a driven EHU (internal balun) you will need to de-solder the brushes and re-solder the new ones onto the internal balun ring lugs. Use an alligator clip fixture or some other way of holding the ring lug while de-soldering the brush.



- You will need to cut the new brush in half as it comes as a single dual unit so that it can be used for passive EHU's. Use a pair of sharp scissors to cut the brush in half closest to the center "fingers" of the brush, do this on both sides. Be careful not to cut yourself as the Cu-Be brush will be sharp after cutting it. You may sand or file the edge of the cut if you so please.



- Once the brush is cut in half and you now have 2 single brushes, you will need to solder them onto the ring lugs. SteppIR uses leaded solder for ease of soldering, but if you so please you may use un-leaded solder if you prefer and have the skills to do so.
- Hold the brush to the ring lug using an alligator clip fixture or something similar (hole in ring lug needs to be centered on EHU contact brush mounting hole) and solder the ring lug to the brush. The ring lug length (parallel to the wire) should be parallel to the EHU contact brush "fingers". Be careful not to fill the mounting hole with solder. If you do have excessive solder, you can either use the soldering iron to push through the excess solder, or you may drill the hole out. Be sure there is no solder on the bottom side of the brush, or it will not sit flat on the platen (black guide for the Cu-Be tape).

- Re-install the balun leads/brushes onto the screws and tighten the nuts that hold them in place. Install the brushes so that the center conductor of the balun is on the bottom (closest to the white mounting plate with spool shaft). Align the brush during final tightening so that the contacts ride on the non-punched surface of the copper beryllium (Cu-Be) tape. The brush should be square to the internal edge of the platen (fingers parallel to the length of the platen).



- Check the continuity between the brush and tape. You can put one lead of the ohmmeter/multimeter on the ring lug and the other lead on the Cu-Be tape (do this for both Cu-Be tapes/EHU contact brushes). Complete this step in the retracted position and at a couple of extended positions to ensure proper connection. You should have very little resistance between the two (essentially a perfect short).
- Be sure to re-install the green phoenix connector.