

# TOUCH PROBE REPLACEMENT AND TROUBLESHOOTING

**Introduction:** This document describes how to disassemble the probe in order to replace broken probe tips and a few solutions to common probe issues.

**Step 1:** Disassemble the probe

- A. Use a 3/16 wrench to unscrew the top plate while holding it down with your thumb. This is important because the plate is under spring pressure.



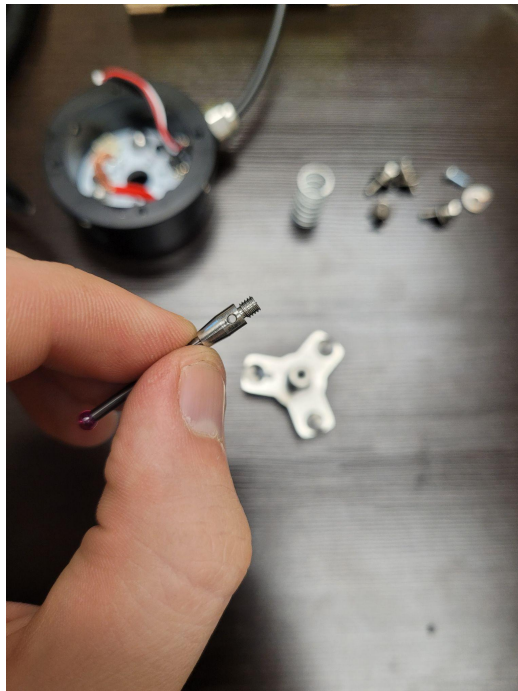
# MR-1

# LANGMUIR SYSTEMS

- B. Unscrew the large red wire with a small phillips screwdriver and unplug the control wires with a small flathead.



- C. Take out the probe base with the tip attached and use vise grips or pliers to remove the broken probe tip. The original tips are secured with loctite and may require additional force.
- D. Add loctite to a new probe tip and screw it into place.



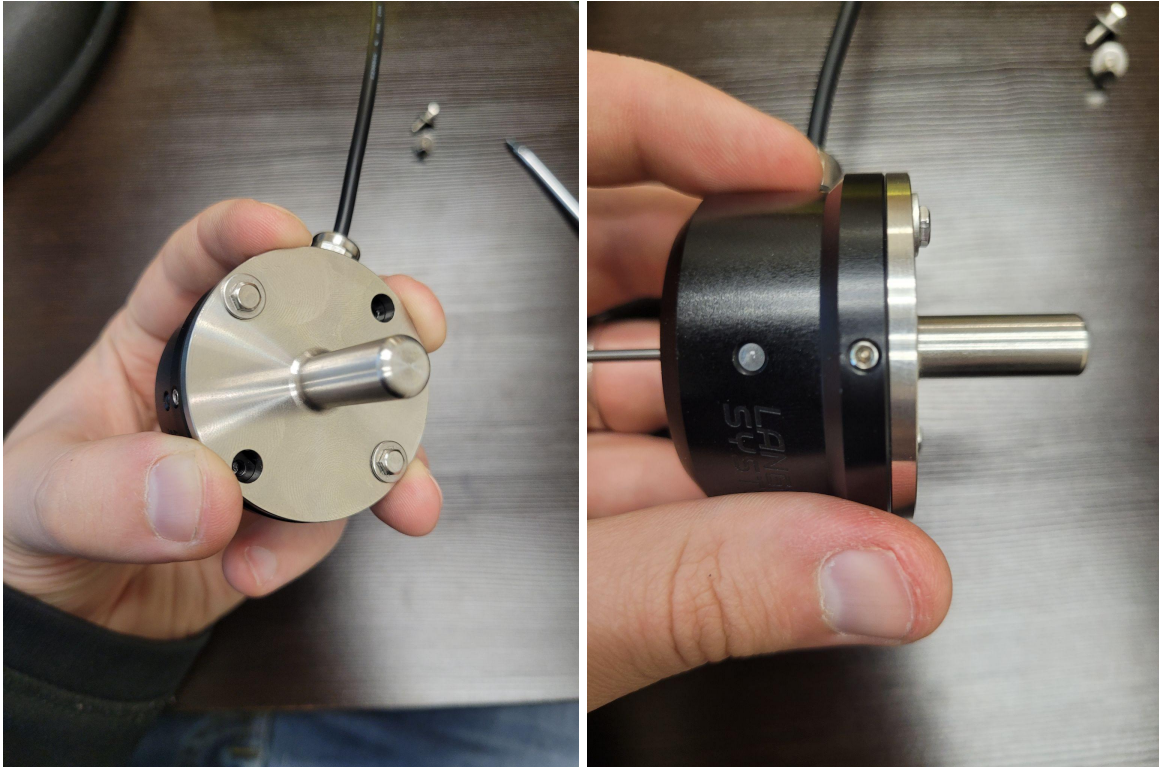
## Step 2: Reassemble the Probe

- A. Ensure that the probe base is securely seated on the ball bearings and oriented so that the large red wire will fit back into place.
- B. Start to thread the screw for the wire with the washer, then hook the ends of the wire around it. Use the flathead screwdriver to get into the tight space. Then tighten the screw so that the large red wire cannot be pulled out.
- C. Insert the control wire terminal with the groove side facing inwards towards the center of the probe. Use the flathead again to gently push down on the terminal to make sure it's seated. The assembly should now look like it did in step 1-B and there should be plenty of room for the spring to sit.



- D. Seat the spring into the probe base and line it up with the bored hole in the top plate.
- E. Use a thumb to hold down the top plate and re-insert the screws so that they are finger tight.

- F. Use 4 fingers to line the diameters of the probe body and top plate to bring them into rough alignment. The goal is to get the two diameters as close to concentric as possible.



- G. Tighten the 4 screws and check the diameters for concentricity.  
H. Follow the Probe Setup process as shown in our Touch Probe Tutorial Video at <https://youtu.be/DWqVIYrCeNU>.

## **Troubleshooting:** Common Problems and Solutions

- **Touch probe cycle will throw an alarm and fail to run.**

Open the CutControl settings and disable soft limits. Soft limits have been found to occasionally cause interference with the probing cycles so this is a temporary fix until we update the software.

- **The part is close to the travel limit and unable to run the full cycle.**

Open the touch probe settings and change the retract distance to .250". If the probe still cannot run the full cycle, consider moving the part away from the edge or touching off on a different surface.

- **The touch probe is constantly tripped or tripping occasionally when not touching any surface.**

Disassemble the probe and check that all of the wires are intact and connected properly. If you also have a tool setter, plug the tool setter into the touch probe connection at the back of the control box to see if the touch probe indicator continues to appear in CutControl. If so then contact our technical support at <https://www.langmuirsystems.com/support/mr1> to check if the control board is still covered under warranty. Lastly, make sure that the top plate screws are not overtightened so that they put too much pressure on the probe base.

- **The probe tip is shifting around.**

Double check that all three top plate screws are tight and that none of the ball bearings that the probe base sits on have come loose. Make sure that the probe tip is completely intact and not damaged.

- **For other issues not mentioned, contact MR-1 support.**

**General Probing Tips:** Ways to avoid crashes and get accurate readings.

1. Watch the full touch probe tutorial video that's linked in this document and can also be found on the MR-1 assembly manual.
2. Before running a cycle for the first time, start it a couple inches above the part just to see what the movements are. That way nothing will be unexpected.
3. Bring down the feed rate to 10 or 25 IPM when approaching a part with the probe tip. It's easy to misjudge how fast the spindle is moving and crash it into the part.
4. Always be aware which direction you are traveling when the probe tip is near a part.
5. Make sure that the surfaces the probe is touching off on are undamaged, clean, and clear of debris. At the same time, make sure the probe tip is undamaged, clean, and clear of debris.