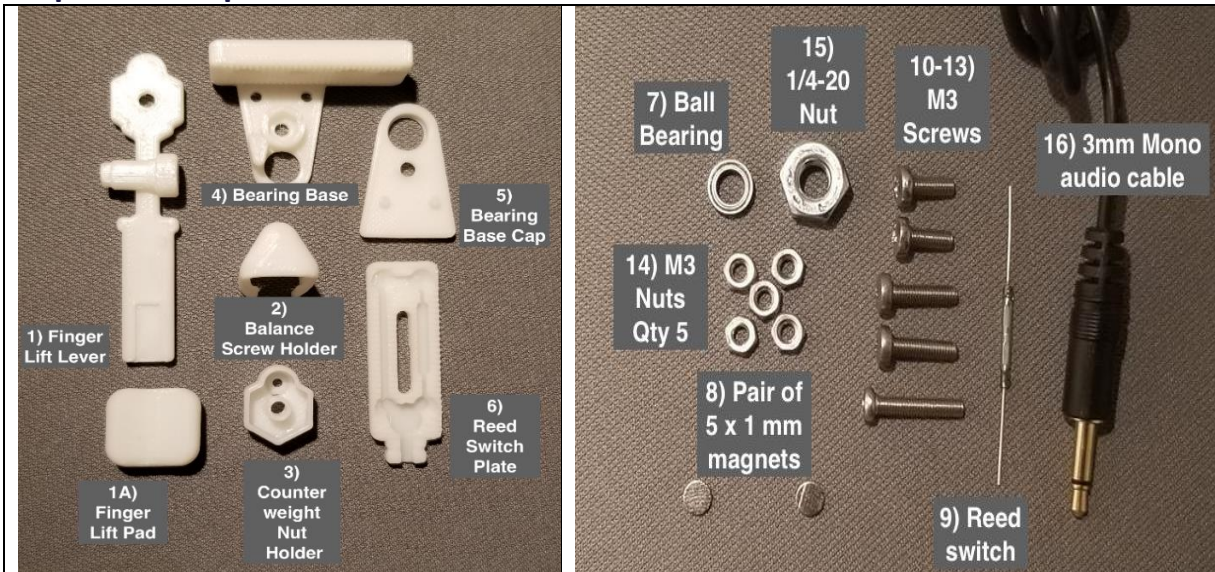


# Finger Lift Switch

## ASSEMBLY GUIDE

### Required Components



### BOM

- |  |                        |
|--|------------------------|
| 1. 1X Finger Lift Lever (3D)   | 1A. 1X Finger Lift Pad |
| 2. 1X Balance Screw Holder (3D)  |                        |
| 3. 1X Counterweight Nut Holder (3D)  |                        |
| 4. 1X Bearing Base (3D)  |                        |
| 5. 1X Bearing Base Cap (3D)  |                        |
| 6. 1X Reed Switch Plate (3D)   |                        |
| 7. 1X Ball Bearing: Type MR85ZZ (8 mm OD 5 mm ID)  |                        |
| 8. 2X 5 mm x 1 mm Magnets (Neodymium)  |                        |
| 9. 1X Reed Switch (Glass) Contact Normally Open (N/O) Magnetic Induction Switch (2 mm x 14 mm) |                        |
| 10. 2X M3 x 8 mm Stainless Steel screws (Base & Base Cap screws)                               |                        |
| 11. 1X M3 x 10 mm Stainless Steel screw (Counterweight screw)                                  |                        |
| 12. 1X M3 x 12 mm Stainless Steel screw (Bearing Screw)  |                        |
| 13. 1X M3 x 16 mm Stainless Steel screw (Balance screw)  |                        |
| 14. 5X M3 Stainless Steel Nut  |                        |
| 15. 1X 1/4-20 (Imperial size) Nut  |                        |
| 16. 1X 5-foot mono audio cable with 3.5 mm male phono plug                                     |                        |

# Finger Lift Switch

## ASSEMBLY GUIDE

### Required Tools

- Soldering Iron (fine tip)
- 60/40 rosin core electrical solder
- Multimeter (with continuity reading capability)
- Medium size Phillips screwdriver (type #1)
- Side cutters
- Wire strippers
- Super glue (gel type is best)
- Hot melt glue gun (low temp type)
- Permanent felt marker (fine tip)
- Needle nose pliers
- Sturdy metal tweezers

### Required Personal Protective Equipment (PPE)

- Approved safety glasses

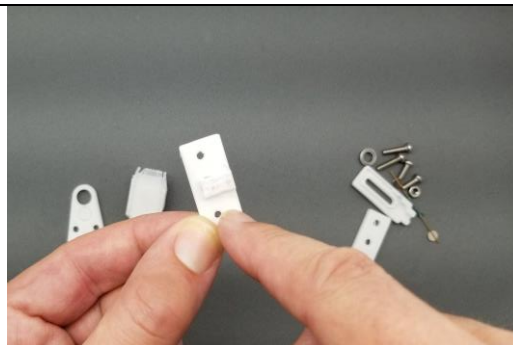
# Finger Lift Switch

## ASSEMBLY GUIDE

### Assembly Instructions

#### Step 1

Remove any 3D support material using side cutters. Make sure the pad on the Finger Lift Lever is especially free of burrs that could irritate skin. If needed, use a bit of fine sandpaper (or emery cloth) to smooth the pad. Additionally, remove support material from any blocked holes or channels. Holes can also be cleared using a 2.5 mm drill bit (3/32 or #40 in Imperial units)



#### Step 2

Apply a drop of superglue inside the corner magnet hole rim of the Bearing Base (Part #4).



#### Step 3

Insert one of the 5 mm x 1 mm magnets (Part #8) into the corner magnet hole of the Bearing Base (Part #4). Wipe off any excess glue and allow glue a few minutes to set.



# Finger Lift Switch

## ASSEMBLY GUIDE

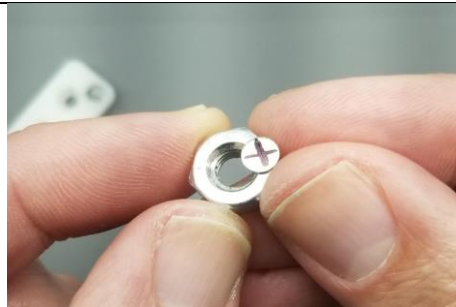
### Step 4

Place the second 5 mm x 1 mm magnet (Part #8) on top of the first glued magnet (don't use glue for the second one!) and mark the top side with a fine felt tip permanent marker. This step is important, as it will mark the side of the second magnet that will repel the face of the glued magnet.



### Step 5

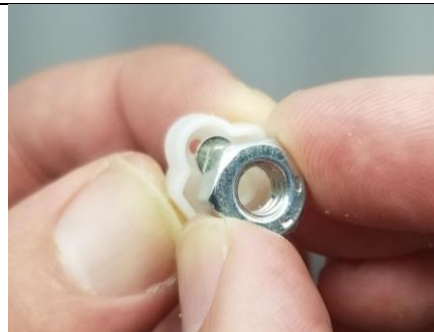
Take the top marked magnet from the marked side of the magnet and place it on the 1/4-20 nut. Make sure the marked side is on top.



### Step 6

Insert the nut (Part #8) and magnet (part #8) into the counterweight retainer (Part #3). Magnet side should go in first, with magnet in the rounded magnet slot, as shown in above photo.

**Important:** The marked side of the magnet must remain facing the plastic bottom well of the retainer.



### Step 7

Screw the counterweight retainer (Part #3) onto the Finger Lift Lever (Part #1) using an M3 x 10 mm screw (Part #11). Use one of the M3 nuts (Part #14) to capture the screw on the bottom side. Make sure the counterweight retainer goes on the same side of the lever arm as the bearing screw tube that straddles across it.



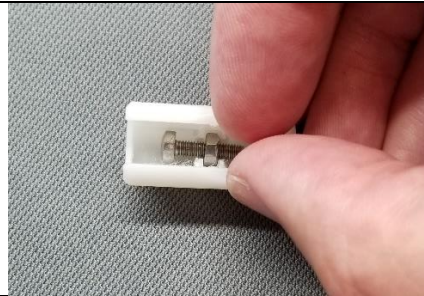


# Finger Lift Switch

## ASSEMBLY GUIDE

### Step 8

Insert one of the M3 nuts (Part #14) halfway onto an M3x12 screw and drop it into the slot of Balance Screw Holder (Part #2). Ensure that the screw head faces the small end hole, and that the top side of the nut is flat.



### Step 9

Slide Balance Screw Holder (Part #2) onto the Finger Lift Lever arm end (Part #1). Ensure the screw tip is facing towards the rounded end, as shown below on right.



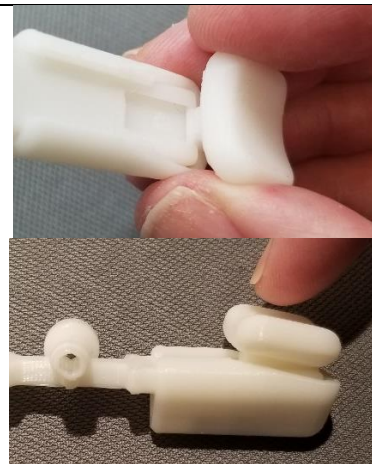
### Step 10

Put a small drop of Superglue into each of the two ends of the Balance Screw Holder. This will bond the Balance Screw Holder onto Finger Lift Lever arm.



### Step 11

As a test, slide the Finger Lift Pad into the inner slider of the Finger Lift Lever, ensuring that the high side of the pad goes in first, as seen in the second image. Make sure the lift pad slides in all the way.

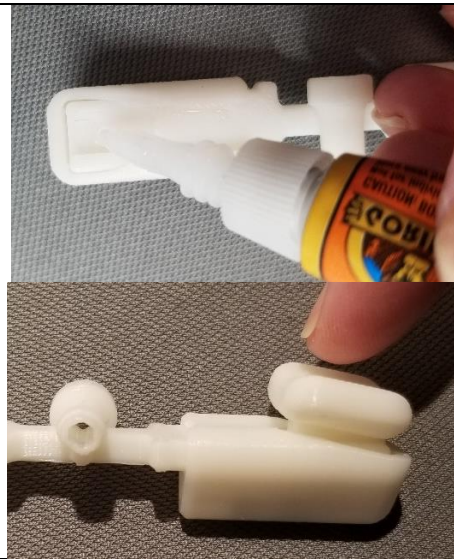


# Finger Lift Switch

## ASSEMBLY GUIDE

### Step 12

Slide out the finger lift pad and place a small drop of superglue at the end of the Finger Lift Lever where it was. Next, slide the finger lift pad back into place, in the same orientation as before. This completes the lever arm element.



### Step 13

Insert the MR85ZZ bearing (Part #7) into the large hole in the back of the Bearing Base Cap (Part #5, studded side). Make sure the bearing is properly aligned with the hole, or it may be difficult to insert.



### Step 14

Screw the bearing base cap (Part #5) onto the bearing base (Part #4) with an M3 X 8 mm screw (Part #12). Use one of the M3 nuts (Part #14) on the Bearing base side to hold the screw in place. This completes the Bearing Base element.



# Finger Lift Switch

## ASSEMBLY GUIDE

### Step 15

Lay the reed switch (Part #9) into the reed switch slot of the Reed Switch Plate (Part #6) as shown, and GENTLY mark the reed switch with a fine tip felt marker 1 mm shy of the solder cup edges.



### Step 16

Using needle nose pliers, firmly grip each end of the wire next to the cut marking on the reed switch side. Cut each wire end at the marked point, as shown in the image, with the needle nose pliers in the middle, to prevent wire strain from breaking the reed switch. **IMPORTANT!** Be extra careful not to place any pressure on the thin glass tube itself, as it is VERY easily broken.



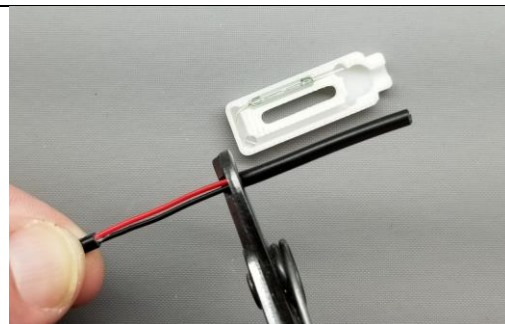
### Step 17

Once the reed switch wires are trimmed, drop the reed switch (Part #9) into the Reed Switch Plate (Part #6). As one wire on the reed switch will be longer, flipping the reed switch will be needed if the reed switch got turned around. Ensure the reed switch drops in completely without pressure, and that the wire ends aren't biting into the Reed Switch Plate.



### Step 18

Being careful not to nick the internal wires, use wire cutters to strip 42 mm of the outer insulation from the wire end of the 5-foot mono jack cable. Note that 42 mm is the same as the total length of the Reed Switch Plate, so you can use it as a ruler.



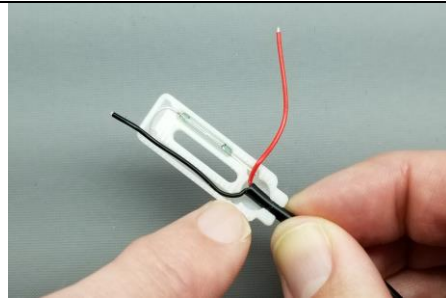


# Finger Lift Switch

## ASSEMBLY GUIDE

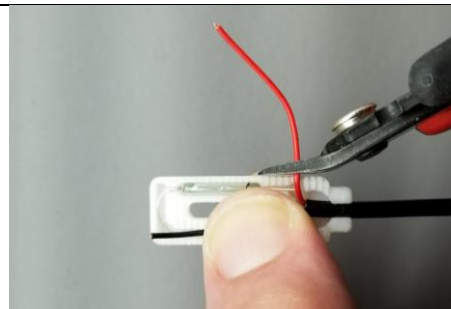
### Step 19

Insert the cable (Part #6) end into the Reed Switch Plate (Part #6) end hole until it hits the end of the screw slot. Hold it there. Tuck one wire into the long wire channel, and the other, over the side of the Reed switch plate where it crosses over the end of the reed switch (as in below photo). Note that wire color is not important for this application.



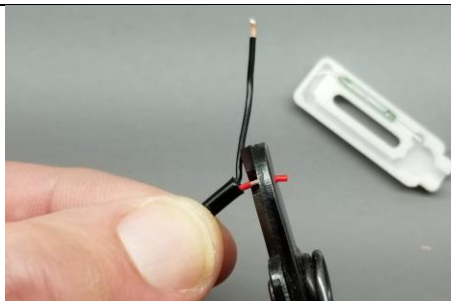
### Step 20

Using Side cutters, snip the wires where they cross over the edge of the Reed Switch Plate (Part #6).



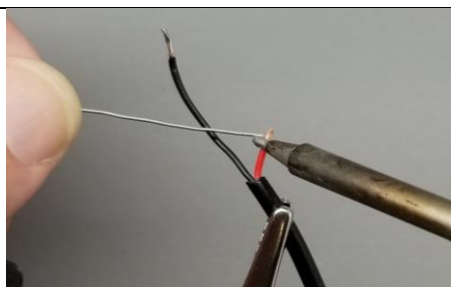
### Step 21

Remove the 3.5 mm cable (Part #16) from the Reed Switch. Using wire strippers, strip 3 mm of insulation from each wire within the cable. Pinch the cable end as you strip to prevent pulling wire from the outer insulation.



### Step 22

Using a heated soldering iron, tin (pre-solder) the wire ends with 60/40 electrical solder. Use just enough solder to coat the wire ends while leaving a minimal solder blob on the end.



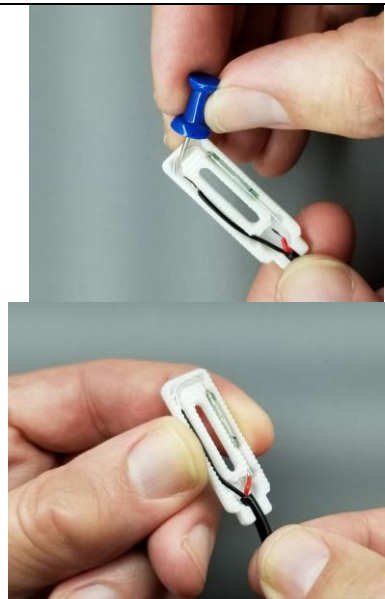


# Finger Lift Switch

## ASSEMBLY GUIDE

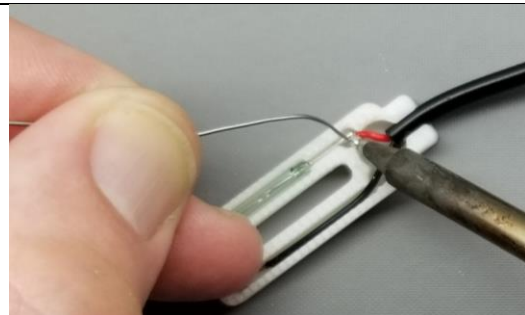
### Step 23

Return the prepared mono cable end into the Reed Switch Plate (Part #6), tucking the tinned wire ends under reed switch wire ends. Temporarily lift the reed switch wires with a push pin, or wire scrap, if necessary.



### Step 24

Solder the wire ends to the reed switch ends, on the Reed Switch Plate (Part #6), Solder as quickly as practical. Prolonged heat may weaken the magnetic properties of the reed switch or melt through the Reed Switch Plate plastic.



### Step 25

View the Reed Switch Plate (Part #6) from the side, to ensure no solder or wire protrudes above the grip edge. Use side cutters to cut off any excess solder blobs or protruding wires.



# Finger Lift Switch

## ASSEMBLY GUIDE

### Step 26

After soldering and trimming, it's a good idea to test the reed switch using the magnet previously glued into the bearing base. Clip multimeter leads to the Mono plug contacts, set the multimeter to continuity, and enable the beeper (if possible). Bring the base magnet up against the cable end of the reed switch solder joint. Your multimeter should beep and/or show a low resistance reading. If all is well, it's time to continue. If not, it's time to troubleshoot.



### Step 27

Add a drop of superglue to the cable end inside the Reed Switch Plate. Gently twist the cable back and forth 2-3 times, to work the glue around the full cable diameter.



### Step 28

Fill the reed carrier glue cavity (largest circle) with hot melt glue. Make sure the cable end is completely covered in glue, but don't overfill, as the glue shouldn't protrude above the plastic. If you get excess glue, use a side cutter to trim away excess glue once it has set.

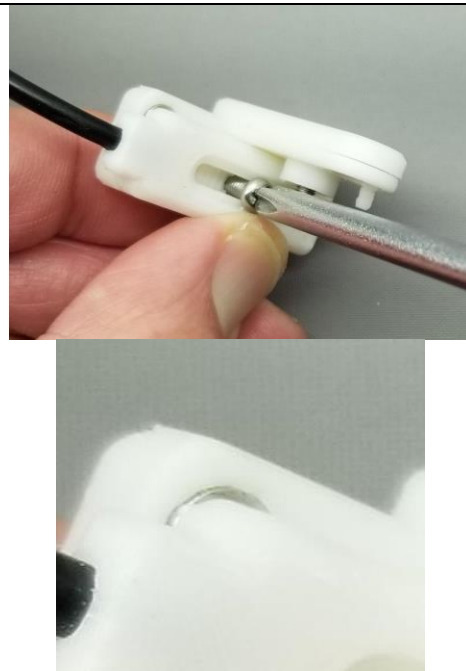


# Finger Lift Switch

## ASSEMBLY GUIDE

### Step 29

Add Preparation for mounting. Install the Reed Switch Plate onto the Bearing Base with an M3 x 8 mm screw, going through the M3 nut installed earlier. Position the Reed plate so that you see just a 1 mm crescent of the base magnet showing on back and side. Screw should only be kept finger tight.



### Step 30

Screw a M3 X 12 mm screw through the bearing, and through the shaft tube on the lever arm. Use one of the M3 nuts (Part 14) to capture the screw and secure the lever arm to the base. The screw should be finger tight, but still allow the lever arm to tilt without noticeable resistance. Make sure the screw head is centered within the outermost rim of the bearing. Note, the screw should be tightened just enough, to prevent side to motion of the lever arm.



# Finger Lift Switch

## ASSEMBLY GUIDE

### Step 31

To complete the Finger Lift Switch, the reed switch plate needs to be adjusted for optimum performance. Using a narrow Phillips screwdriver, loosen the reed switch plate, just enough to allow it to slide forward (towards user) or back (towards cord end).



### Step 32

Setup your Finger Lift Switch for testing, by connecting a multimeter to the 3 mm plug end of the switch. Ensure the Multimeter is set to (lowest) ohms setting, and that the continuity feature is turned on (if your meter has this).





# Finger Lift Switch

## ASSEMBLY GUIDE

### Step 33

Using a multimeter set to continuity (or ohms), slide the reed switch plate to the position where it best triggers when the finger lift pad is lifted. At one extreme the switch will always be on, and at the other the switch will always be off. It may help to mark the extreme positions with a pencil, and then slide to the middle point between them. Note: you may need to ensure your screwdriver is removed during testing, as it may have magnetic properties that can interfere with calibration.



More sensitive



Typical



Less sensitive

### Step 34: Completion

Again, using the multimeter set to continuity, and leads connected to the plug, lift the finger pad to confirm proper operation of the switch. The switch is now complete. If you wish, you can test the on resistance of the switch by using the multimeter set to the ohms range. Ideally, the resistance of the switch should be below 1 ohm when on, but may be up to 12 ohms, depending on application.



# Finger Lift Switch

## ASSEMBLY GUIDE

### Step 35: Optional Mounting Step

The finger lift switch can be mounted to a base plate (or splint) using double sided tape or hook and loop fastener (e.g., VELCRO). The use of hook and loop fasteners can allow for some minor repositioning of the switch if needed. Cut the tape to 34 x 14 mm.

