Round Flexure Switch Troubleshooting Guide

The Round Flexure Switch Troubleshooting Guide covers troubleshooting and repair of the Round Flexure Switch (https://www.makersmakingchange.com/project/round-flexure-switch-60mm/). The most common failures include cracked flexures and sub-standard solder joints. This document assumes that you're familiar with use of basic hand tools, and operation of an electrical multimeter.

Tools needed for testing:

- Screwdriver
- Multimeter

Tools needed for repair:

- Wire cutters
- Soldering iron
- Solder
- Soldering pump
- Two alligator clip jumper wires

Testing the switch

Set the multimeter to continuity mode. Hook up one alligator jumper to each lead of the multimeter. Test the multimeter by touching the remaining alligator clip ends together. If all is working properly you should hear a beep. On some meters you may only see a visual indication.

Main troubleshooting

Checking the switch for proper operation
Connect one meter/alligator clip to terminal A of the switch. Connect the other alligator meter clip to terminal B of the switch. Pressed the switch. You should get a beep, or indication of continuity.

Checking the jack for shorts.

Touch one alligator tip to the lug closest to the open end of the jack. Touch the other alligator tip to the center lug. If you hear a beep, the jack is probably shorted. If so, check to make sure no bridged solder joints or stray wires are joining the lugs.

Checking the switch for shorts.

Touch one alligator clip to the lug closest to the center lug of the switch. Touch the other alligator tip to the center lug.
If you hear a beep, the switch is probably shorted. If so, check to make sure no bridged solder joints or stray wires are joining the lugs.

Checking the two wires for breaks
Connect one meter alligator tip to the lug closest to the open end of the jack. Connect the other alligator tip to the side lug of the switch with the wire connected. You should get a beep, or indication of continuity. Connect one meter alligator tip to the center lug of the jack. Connect the other alligator tip to the center lug of the switch. You should get a beep, or indication of continuity.

Checking for cracked or "dry" solder joints

Examine the solder joints. Proper solder joints should be smooth and shiny, and should not appear dull or cracked. If a solder joints appear substandard, reheat the solder joint, and use the solder pump to suction away as much of the existing solder as possible. Apply fresh solder to the joint.

Flexure testing

The flexure in the flexure switch is a thin sheet of plastic with three approximately spiral shaped arms. Its purpose is to hold the button plate in place, horizontally, while allowing it to move vertically for switch operation. After heavy use, a flexure can fail. Signs of a failed flexure include:
- A visually tilted or loose feeling switch plate.
- A rough scratching sound when the switch is pressed.

If you suspect a flexure is cracked, disassemble the switch by unscrewing the top button plate, counter-clockwise, and then removing the three screws that hold down the flexure retaining ring, and flexure. The flexure can then be lifted out, examined for cracks, and replaced if necessary. Replacement flexures can be produced using a 3D printer from files available from makersmakingchange.com