

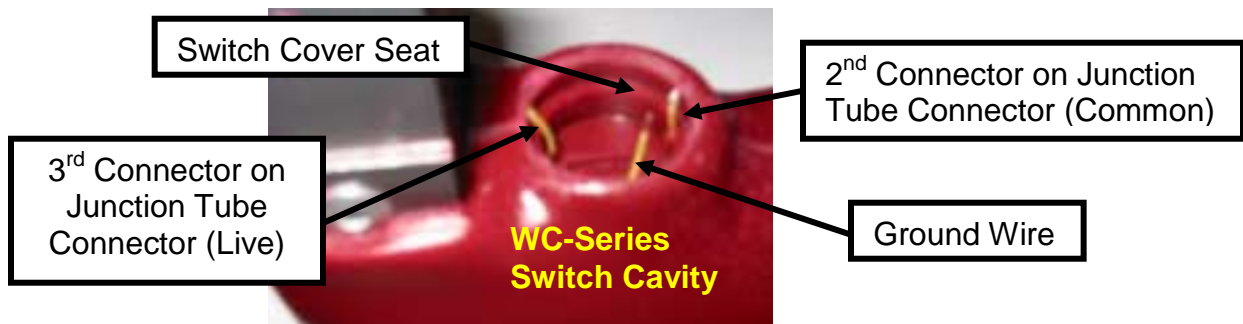
## WC-Series Yokes – Switch Replacement

WC-Series Yokes use the Omron B3F Series switch. These switches have a ground provision, are designed for rugged use, and are sealed. Additionally, these switches conduct less than ½ Watt of power, and are connected to our solid state switching module. WC switches are therefore unlikely to fail. There is, however, the chance that an electrical overload or mechanical damage may occur. These instructions can be used for all manufactured products that use the Omron B3F series switch.

1. Remove the switch cover. WC series yoke switch covers are glued in position to create a water resistant seal. Prying the switch cover off will damage the material, but it is prudent to replace the switch cover when repairing the switch.

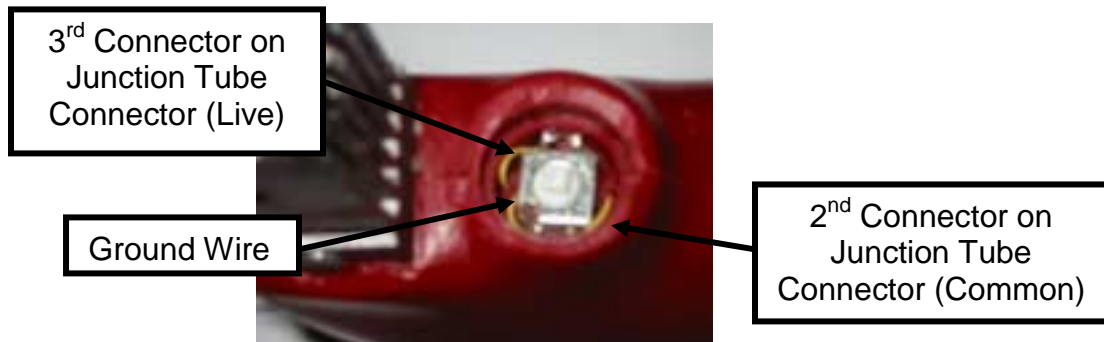
Using whatever tools at your disposal, the old switch cover must be removed, without damaging the switch cavity or the cast in Cover Seat that the switch cover sits on. Furthermore, it is better to remove the old glue as well.

Note: If the underside of the switch cover is burned, it is a telltale sign that the yoke has been connected to 110 volts DC. This power is found on old engine driven portable welders and some merchant ships.



2. Using a pair of tweezers or small pliers, gently lift the switch up out of the cavity without damaging the 3 wires that are soldered to it. Note the positions of the wires on the switch. When replacing the switch, the wires must be soldered in the same positions. Refer to *Testing WC-Series Frame* write up for the identification of wires on the Junction Tubes Connector.
3. Using the tweezers or pliers, hold the switch, then apply heat with your soldering iron. The switch is then easily removed and the switch wires are pre-tinned. Take care not to touch the encapsulant with the soldering iron.
4. Examine the switch cavity. Note any burns that would indicate a use of DC voltage.

5. Using a small brush, clean the switch cavity with electrical contact cleaner. Using the area inside the Junction Tube of the Yoke, test to ensure your contact cleaner does not affect the Urethane Encapsulant. If chemicals at your disposal are limited, first clean the cavity with 100% Stoddard Solvent (paint thinner), followed by 99% Isopropanol (Isopropyl alcohol).
6. Prepare the replacement Omron B3F series switch. The B3F is manufactured for PCB mount, so the 4 leads must be reshaped for use on the W-series products. Bend the leads to a 45 degree angle upward. Remove the 2 locating tabs on the underside of the housing. This will help the switch to lie flat in the bottom of the switch cavity.
7. Pre-solder the leads and ground on the switch . Only 2 leads need soldering. The ground solder is applied to the top of the switch. See the picture below.



8. Carefully establish which wire is the ground wire. If you were unable to take note of this when removing the damaged switch, use a continuity tester by placing one lead at the end of one of the wires, and the other lead on the ground lug or junction tube.
9. Solder the two switch wires to the 2 soldered leads and the ground wire to the top of the switch. Take care not to touch the encapsulant with your soldering iron.  
 Note: The switch has 4 solder leads, but only two are used. Ensure that the 2 leads that are used are diagonal to each other.
10. Position the newly soldered switch in the switch cavity, ensuring that the switch wire insulation is not pressed up against the leads. This may cause the insulation to be cut.
11. Care must also be taken to ensure that the switch wires do not protrude up above the seat to which the switch cover is affixed. If the wires are too high, they will be subject to wear during the operation of the switch. The repeated depression of the switch cover to operate the yoke may cause the wires to move, and eventually erode and disengage.
12. Once the switch is in position, press firmly on it so that it lies flat on the bottom of the switch cavity.

Note: Push all the switch solder leads into the wall of the switch cavity to secure the position of the switch.

13. Test the switch again using the continuity tester. Place the leads from your meter in the middle two connectors of the 4 pin module connector located in the junction tube. When the switch is pressed you should have continuity.
14. Clean the new switch cover using the chemicals used to clean the switch cavity.

Switch Installed



Applying glue  
carefully on  
switch cover  
Seat

15. Run a thin bead of Gap Filling Cyano-Acrylate Glue around the Seat for the switch cover. Reinsert the switch cover, and apply pressure for the time specified by the manufacturer. Ensure that the cover is glued continuously around the Seat. A water-resistant seal is required.

Note: Fabricating a tube out of a nonstick plastic, slightly smaller in diameter than the switch cover, will help in applying pressure where needed while the glue is setting. Applying pressure to the entire switch cover may cause the switch to stick in the on position.

Note: Do not use an excessive amount of glue, as you don't want it to flow down into the switch cavity. Too much glue may cause the switch to glue into the on position. Avoid gluing the Switch cover to the sides of the switch cavity, as will make future repairs difficult.