Electric-TOWER of POWER™

Low Level Float Switch

Assembly, Operation & Maintenance

Congratulations on your purchase, and thank you for selecting the Low Level Float Switch from Blichmann Engineering™. We are confident that it will provide you years of service and many gallons of outstanding beer. This manual will familiarize you with the assembly, operation, and maintenance of your Low Level Float Switch.

IMPORTANT!!

****** PLEASE READ THOROUGHLY PRIOR TO USE FOR IMPORTANT SAFETY INFORMATION ******

Warning: Sections labeled "Warning" can lead to serious injury or death if not followed. Please read these thoroughly and understand them completely before use. If you do not understand them or have any questions, contact your retailer or Blichmann Engineering™ (www.BlichmannEngineering.com) before use. Do NOT at ANY time operate the product until you thoroughly read and understand these instructions!

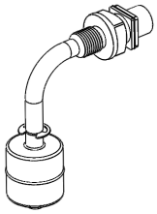
Caution: Sections labeled "Caution" can lead to equipment damage or unsatisfactory performance of the equipment. Please read these sections thoroughly. If you have any questions, contact your retailer or Blichmann Engineering™ (www.BlichmannEngineering.com) before use.

Important: Sections labeled "Important" are critical to the proper performance and life of the product.

Assembly:

A list of components included with your Low Level Float Switch follows as well as the basic tools required for assembly. Please carefully review the lists below to ensure you received all of the correct parts and have the required tools prior to assembly.

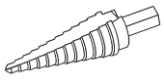
Parts List:

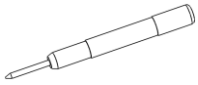
Item		Quantity	Item		Quantity
Level Switch Assembly		1	1/2-20 Hex Nut		1
O-ring Retainer		1	#111 O-ring		1
Cable		1			

Required Tools:

11/16" Wrench 

3/4" Wrench 

#4 Step Drill
(McMaster.com P/N 8841A24) 

Automatic Center Punch
(McMaster.com P/N 3489A12) 

3/16" Pilot Drill 

Electric Drill 

*Always follow tool manufacturer instructions and safety precautions

Step One:

If you purchased a Low Level Float Switch for installation in a BoilerMaker™ kettle pre-punched from the factory, please proceed to Step Four.

Installing the Low Level Float Switch in your brew kettle requires one 1/2" hole, and it's critical this hole is located properly. Included in this manual is a hole-location template and can be found on the last page. Cutout and affix the hole-location template as per the instructions provided on the template.

After attaching the template, use an automatic center-punch to mark the location of the hole on the brew kettle. An automatic center-punch can be purchased at most hardware stores and is available from McMaster-Carr, P/N 3489A12.

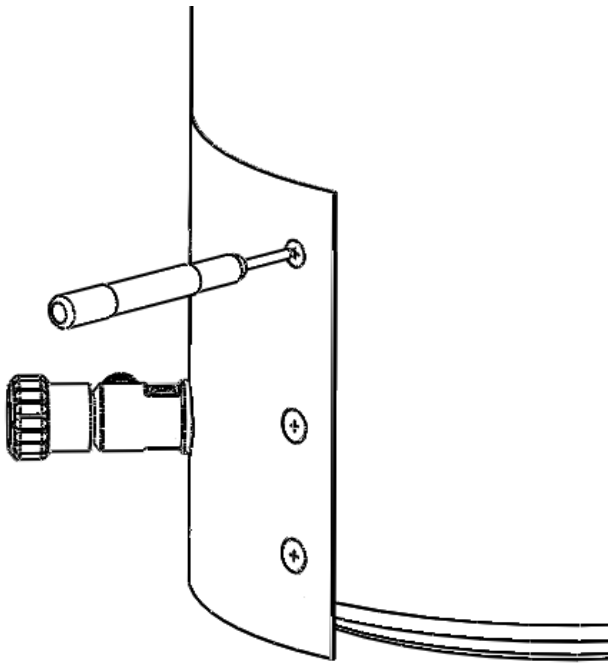


Figure 1

Caution: Locating the hole accurately is critical to the installation of the Low Level Float Switch.
Warning: Always follow manufacturer instructions and safety precautions when using hand and power tools.

Step Two:

After marking the kettle with the automatic center punch, use the 3/16" drill at moderate speed to make a pilot hole at the center-punch mark. Excessive speed will damage dill bits quickly. Make certain the center-punch mark is indented deep enough to prevent the drill bit from moving off the mark when you start drilling. If necessary, use the automatic center-punch multiple times to increase the depth of the indentation.

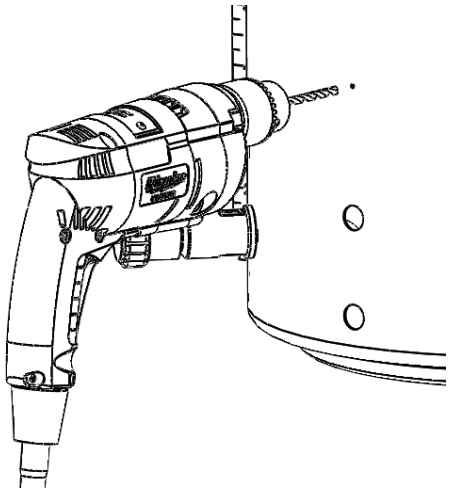


Figure 2

Step Three:

Use the #4 step drill to increase the size of the pilot hole to 1/2". To avoid creating excessive heat during drilling, operate the drill at low speeds. As the size of the hole increases, the required drill speed decreases. It is strongly encouraged to use a variable speed drill.

After the hole is enlarged to 1/2", use a de-burring tool, available from McMaster-Carr (P/N 4289A35) to remove the sharp burrs from the inside of the kettle. Alternatively, you can use the step drill at very low speed from the inside of the kettle and with light pressure to remove the burr.

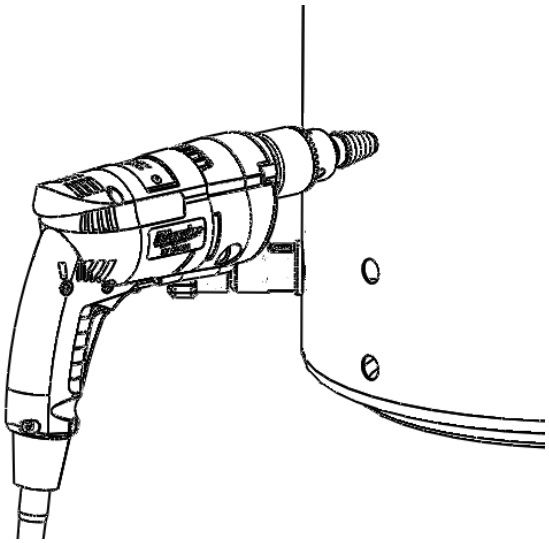


Figure 3

Tip: Allowing the drill bit to cool between steps will increase the life of the tool and improve performance.

Warning: Always follow manufacturer instructions and safety precautions when using power tools.

Step Four:

Remove the external retaining rings from the low level float switch as shown in Figure 4. Use caution when removing the external retaining rings to prevent losing them. Insert the tip of a small flat screwdriver between the retaining-ring and switch shaft. Carefully, turn the screwdriver to free the retaining ring from the shaft.

TIP: Use a towel or rag to cover the Low Level Float Switch when removing the external retaining ring to avoid losing the hardware.

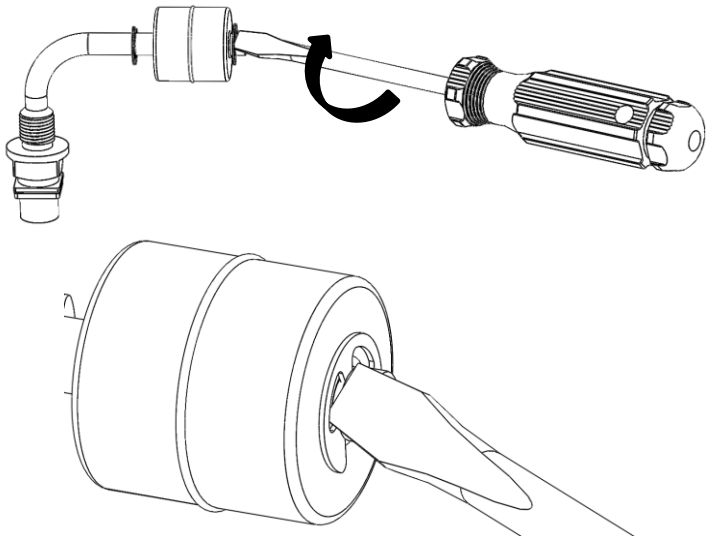


Figure 4

Step Five:

First, install the O-ring and O-ring retainer on to the Low Level Float Switch as shown in Figure 5a. Install the Low Level Float Switch through the 1/2" hole in the kettle and thread the 1/2-20 nut on to the switch, finger tight with the switch shaft pointed up as shown in Figure 5b.

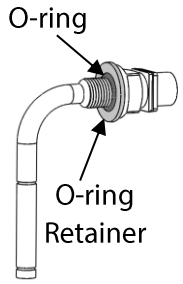


Figure 5a

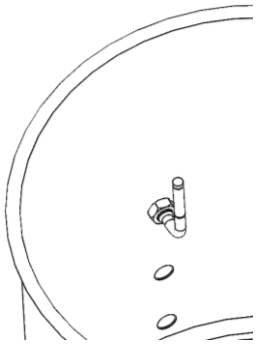


Figure 5b

Step Six:

Next, reinstall the external retaining ring on the groove closest to the 1/2-20 nut. Needle nose pliers may be helpful in the installation of the external retaining ring.

After installing the first external retaining ring, install the float on to the switch shaft. See Figure 6.

Reinstall the remaining external retaining ring in the groove closest to the terminal end of the switch shaft.

IMPORTANT: Insert the switch shaft into the hole on the side of the float with the dimple.

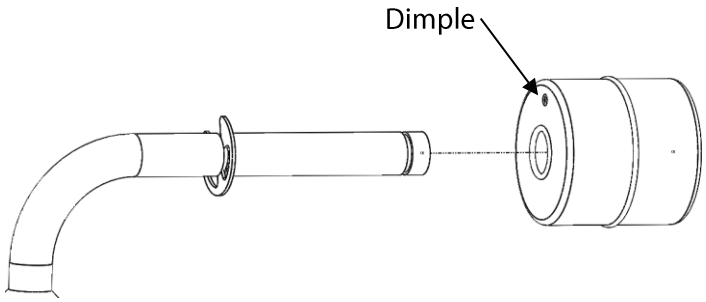


Figure 6

Step Seven:

Orient the Low Level Float Switch such that switch shaft is pointed down as shown in Figure 7. After reorienting the switch, tighten the 1/2-20 hex nut.

IMPORTANT: The switch shaft must be pointed down and the dimple in the float must be facing up for the Low Level Float Switch to function properly

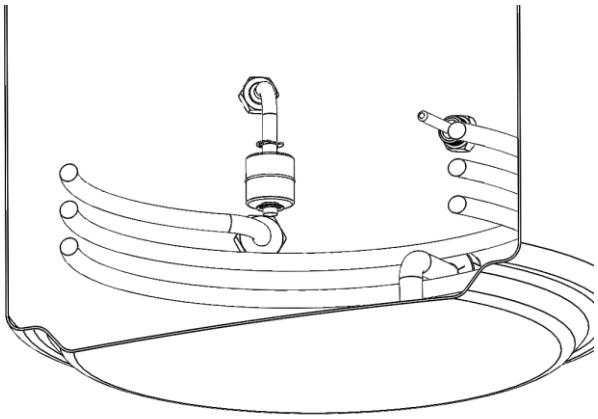


Figure 7

Operation:

Connect the supplied cable to the matching panel connector (two pin) on the TOWER of POWER™ electric temperature controller. Next, connect the cable to the Low Level Float Switch. See Figure 8a.

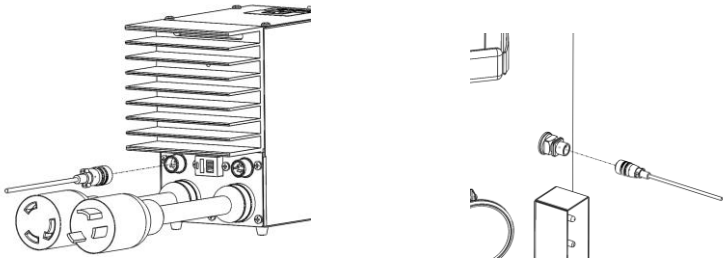


Figure 8a

When the float is in the low level position (down), the power output from the electric temperature controller is interrupted and the display of the digital power control will show "- -".
See Figure 8b.

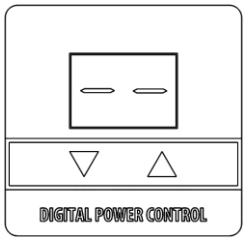


Figure 8b

TIP: Verify the power controller displays "- -" when the kettle is empty. If the digital power control does not display "- -" when the Low Level Float Switch is connected to the controller and the kettle is empty, confirm the orientation of the float, ensuring the dimple is facing up and the switch shaft is pointed down as described in Step Seven.

IMPORTANT: Unplugging the Low Level Float Switch will allow the heater to be energized regardless of the liquid level.

Maintenance:

The Low Level Float Switch will periodically require cleaning after use. Use hot water and Five Star Chemical's™ Powdered Brewery Wash or similar detergent and a scrub brush or ScotchBrite™ scouring pad to remove any heavy soil deposits. Avoid directly spraying the Low Level Float Switch's connector or cable with liquids. Never submerge the Low Level Float Switch's connector or cable in liquids.

Before and after each use, inspect the Low Level Float Switch for wear or damage. If any of the Low Level Float Switch components show signs of wear or damage, discontinue use and contact your Blichmann Engineering™ authorized retailer for replacement parts.

Blichmann Engineering Product Warranty

A. Limited Warranty

1. Blichmann Engineering warrants to the original purchaser that this product will be free from manufacturing defects in material and workmanship for a period of one (1) year from the date of purchase by the customer. Proof of purchase is required. Blichmann Engineering's obligation to repair or replace defective materials or workmanship is the sole obligation of Blichmann Engineering under this limited warranty.
2. This product is for home use only. The limited warranty covers only those defects that arise as a result of normal use of the product and does not cover any other problems, including, but not limited to, those that arise as a result of:
   a. Improper maintenance or modification;
   b. Damage due to incorrect voltage or improper wiring by customer;
   c. Operation outside of the product's specifications;
   d. Carelessness or neglect to operate the product in accordance with instructions provided with the product;
   e. Damaging the tamper label on the product;
   f. Damage by over-tightening the fasteners;
   g. Failure to follow cleaning and / or maintenance procedures; or
   h. Exceeding published operational temperatures.
3. Blichmann Engineering reserves the right to request delivery of the defective component for inspection before processing the warranty claim. If Blichmann Engineering receives, during the applicable warranty period, notice of a defect in any component that is covered by the warranty, Blichmann Engineering shall either repair or replace the defective component with a new or rebuilt component at Blichmann Engineering's option.
4. Blichmann Engineering must be notified within seven (7) days of the delivery date of any shipping damage. Customer is responsible for shipping damage outside of this time period. Approval for return must be provided by Blichmann Engineering prior to any return. Customer is responsible for keeping all original packaging material for warranty returns. Blichmann Engineering is not responsible for damage from improperly packaged warranty returns, and these repair costs will be the sole responsibility of the customer. Shipping costs for warrantee returns are covered only for the contiguous United States.
5. Blichmann Engineering's limited warranty is valid in any country where the product is distributed.

B. Limitations of Warranty

1. Any implied warranty that is found to arise by way of state or federal law, including any implied warranty of merchantability or any implied warranty of fitness, is limited in duration to the terms of this limited warranty and is limited in scope of coverage to this warranty. Blichmann Engineering disclaims any express or implied warranty, including any implied warranty of fitness for a particular purpose or merchantability, on items excluded from coverage as set forth in this limited warranty.
2. Blichmann Engineering makes no warranty of any nature beyond that contained in this limited warranty. No one has authority to enlarge, amend, or modify this limited warranty, and Blichmann Engineering does not authorize anyone to create any other obligation for it regarding this product.
3. Blichmann Engineering is not responsible for any representation, promise, or warranty made by any independent dealer or other person beyond what is expressly stated in this limited warranty. Any selling or servicing dealer is not Blichmann Engineering's agent, but an independent entity.

C. Limitations of Liability

1. The remedies provided in this warranty are the customer's sole and exclusive remedies.
2. Except for the obligations specifically set forth in this warranty, in no event shall Blichmann Engineering be liable for direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory and whether or not advised of the possibility of such damages.
3. This warranty does not cover, and in no event shall Blichmann Engineering be liable for, travel, lodging, or any other expense incurred due to manufacturing defects in material and workmanship, or any other reason.
4. Any performance of repairs after the warranty coverage period has expired or performance of repairs regarding anything excluded from coverage after this limited warranty
5. Shall be considered good-will repairs and they will not alter the terms of this limited warranty, or extend any warranty coverage period.
6. Venue for any legal proceedings relating to or arising out of this warranty shall be in Tippecanoe County, Indiana, United States, which courts will have exclusive jurisdiction.

D. Local Law

1. This warranty gives the customer specific legal rights. The customer may also have other rights that vary from state to state in the United States or other countries.
2. To the extent that this warranty is inconsistent with local law, it shall be deemed modified, only to the extent necessary to be consistent with such local law.

This product uses food grade materials anywhere the product touches the beverage.
Warning: This product contains or may contain chemical(s) known to the State of California to cause cancer, birth defects, or other reproductive harm.