



OWNER'S MANUAL
TUB-MASTER® "TMCP2" SERIES PUMPS

**IMPORTANT SAFETY
INSTRUCTIONS**

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. **READ AND FOLLOW ALL INSTRUCTIONS.**
2. **WARNING:** To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
3. **CAUTION:** This pump is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity and has a maximum dimension of 18 ft. (5.49m) and a maximum wall height of 42 in. (1.07m).
4. Do not install within an outer enclosure or beneath the skirt of a hot tub or spa unless so marked.
5. **SAVE THESE INSTRUCTIONS .**

INSTALLATION & OPERATING INSTRUCTIONS

WARNING: RISK OF ELECTRIC SHOCK. CONNECT ONLY TO A CIRCUIT PROTECTED BY A GROUND-FAULT CIRCUIT-INTERRUPTER. THE UNIT SHOULD BE INSTALLED BY A QUALIFIED SERVICE REPRESENTATIVE. ALL ELECTRICAL WIRING OF THE MOTOR INSTALLATION MUST BE DONE BY A QUALIFIED ELECTRICIAN IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES. GROUNDING IS REQUIRED. BEFORE WORKING ON ANY MOTOR, BE CERTAIN THAT THE SOURCE OF ELECTRICAL POWER IS OFF AT THE MAIN JUNCTION BOX.

BONDING WIRE – UPON INSTALLATION OF THE PUMP, THE MOTOR MUST BE BONDED WITH (NO SMALLER THAN) A **No.8 AWG (8.4mm²)** SOLID COPPER CONDUCTOR PER NATIONAL ELECTRIC CODE. THE CONNECTION SHOULD BE FROM THE ACCESSIBLE WIRE CONNECTOR ON THE MOTOR TO ALL METAL PARTS OF THE SWIMMING POOL, SPA, OR HOT TUB STRUCTURE AND TO ALL ELECTRICAL EQUIPMENT, METAL CONDUIT AND METAL PIPING WITHIN 5 FEET (1.5M) OF THE INSIDE WALLS OF THE SWIMMING POOL, SPA, OR HOT TUB, WHEN THE MOTOR IS INSTALLED WITHIN 5 FEET OF THE INSIDE WALLS OF THE SWIMMING POOL, SPA, OR HOT TUB.

NOTE: FOR ELECTRICAL CONNECTIONS, SEE WIRING DIAGRAM ON MOTOR RATING PLATE.

GENERAL

Your AQUA-FLO pump has been quality built and engineered to give maximum efficiency under normal water pumping conditions. Consult the manufacturer for any other applications.

LOCATION OF PUMP

For best pump performance, locate the system as close to the water source as possible. Provide adequate access around the pump for inspection and maintenance.

This pump was designed for below water level (flooded suction) applications. Make sure the pump is installed at a level that will allow the pump casing (volute) to be completely filled with water.

Two quick disconnect compression fittings are included with your pump for ease of installation and maintenance. Make sure the fittings are correctly aligned with pump connections to allow the o-ring to make the proper seal. **Hand tighten only. Do not use a wrench to tighten fittings.**

STARTING & PRIMING PUMP

Do not run unit dry. Always be certain that the pump casing and/or trap is filled with water before starting the unit. Allow a reasonable amount of time for priming. If pump will not start or will not prime, see troubleshooting section in this manual.

MAINTENANCE

Keep the motor clean. Ensure that the louvered openings are free from debris and obstructions. Over a period of time, the shaft seals may become damaged or worn and must be replaced.

WINTERIZATION

To prevent damage during freezing conditions, disconnect all electrical power. Drain thoroughly and clean out any debris. Protect pump and motor from elements by covering or, if possible, store in a dry, well ventilated room.

TROUBLESHOOTING

MOTOR WILL NOT START:

- 1) Check circuit breaker.
- 2) Check for incorrect or loose wire connections.
- 3) Make sure the correct power supply is being used.
- 4) Any on/off switch or pneumatic switch should be in the "on" mode.

MOTOR OVERHEATING AND CYCLING ON AND OFF:

- 1) Check for incorrect or loose wire connections.
- 2) Check for low voltage supply (frequently caused by undersized wire).
- 3) Make sure that the motor gets a fresh air supply and the vents are kept unclogged.

MOTOR MAKES HUMMING NOISE BUT WILL NOT START:

- 1) Check for low voltage supply (frequently caused by undersized wire).
- 2) Make sure that the motor shaft turns free.
- 3) Check for jammed impeller or an obstruction in the pump casing (volute).

NOISE:

- 1) Check plumbing vibration. Make sure lines are adequately supported.
- 2) Check for cavitation due to obstructed or undersized suction line.

PUMP WILL NOT PRIME:

- 1) Make sure pump is installed at the proper level and the plumbing lines have been correctly installed to allow the water to enter pump freely.
- 2) Make sure all suction and discharge lines are clear and unobstructed and all valves are open.
- 3) Check for air leaks in the suction line.

LOW WATER FLOW:

- 1) Check for clogged plumbing lines.
- 2) Check for worn or damaged impeller.
- 3) Check for low voltage.
- 4) Check filter pressure gauge, filter may need cleaning.

WATER LEAKS:

- 1) Check contamination or damage to shaft rotary seal. Replace if necessary.
- 2) Check compression fittings (union connectors); make sure they are properly aligned and secured. **Hand tighten only. Do not use tools.**
- 3) Make sure o-rings are properly seated and not damaged.

ASSEMBLY INSTRUCTION
(Impeller & Seal Replacement)

WARNING: RISK OF ELECTRIC SHOCK. BEFORE PERFORMING ANY WORK ON THE PUMP UNIT, BE CERTAIN THAT THE SOURCE OF ELECTRICAL POWER IS OFF AT THE MAIN JUNCTION BOX AND DISCONNECTED

TO DISASSEMBLE PUMP

CAUTION: DRAIN THE WATER FROM THE PLUMBING LINES BEFORE DISCONNECTING THE PUMP. ALWAYS PROTECT THE MOTOR FROM POSSIBLE WATER DAMAGE.

Removing the Volute (Cover)

1. Remove the 4 screws located around the perimeter of the volute and slide the volute off.

Removing the Impeller

2. At the rear of the motor, insert a wide blade screwdriver into the shaft end slot. If necessary, the fan guard may need to be removed. There is a screw located above and below the fan guard. Remove these screws to release the guard.
3. After inserting the wide blade screwdriver into the slotted shaft end, hold the screwdriver with one hand and with the other hand grip the impeller and turn it counter clockwise until it is completely free from the motor shaft thread.

Removing the Seal Plate from the Motor

4. Note the features on the seal plate and its position on the motor. The seal plate must be positioned in the same orientation when reinstalling. Note the o-ring around the edge. To remove the seal plate, carefully slide it off of the motor shaft.

Inspecting the Seal

5. Carefully examine the surfaces of the *carbon disk* (black rigid rotating part of the seal assembly mounted on impeller sleeve) and the white *ceramic ring* (stationary part of the seal assembly located in the center of the seal plate) for edge chipping, surface scratches, or uneven wear. The surfaces should be smooth and free from damage.
6. Both parts of the seal assembly should be free from cracks and should fit snugly with their respective mating parts.
7. Use alcohol wipes or isopropyl alcohol with clean 'lint free' soft cloth to clean the carbon disk and the ceramic ring surfaces if reusing the same assemblies.

NOTE: IT IS ADVISABLE TO REPLACE THE COMPLETE SEAL ASSEMBLY (BOTH THE CERAMIC AND CARBON SIDES) EVERY TIME THE PUMP IS DISASSEMBLED.

Removing the Seal Assemblies

8. Remove seal rotating assembly from the impeller by carefully sliding it off of the impeller sleeve. Be sure not to scratch or damage the carbon disk surface if you are reusing this part.
9. Remove the ceramic ring and rubber boot by knocking it out and/or prying it loose through the rear opening of the seal plate. Be sure not to scratch or damage the ceramic surface if you are reusing this part. Caution must be used so as not to damage the seal plate wall.

TO REASSEMBLE PUMP

Installing the New Seal Assemblies

1. Seal Rotating Assembly: Carbon Disk, Spring, Steel Collar, Rubber Ring
 - a. Before installing the seal rotating assembly, apply water to the impeller sleeve for lubrication.
 - b. Grasp the assembly with the carbon disk facing outward. Insert the impeller sleeve through the steel collar side. Using a twisting motion, push until the steel collar touches the base of the sleeve.
2. Seal Stationary Assembly: Ceramic Ring, Rubber Boot
 - a. Before installing the stationary assembly, apply water to the rubber boot's ribbing for lubrication.
 - b. Being careful not to damage the ceramic ring surface, press the seal assembly squarely into the seal cavity of the seal plate.

Reinstalling the Seal Plate to the Motor

3. Locate the 4 ribs on the ears of the motor and on the underside of the seal plate. The seal plate should fit snugly against the motor ears when the ribs are properly aligned. Carefully slide the seal plate onto the motor in the same orientation as noted before removal. The motor shaft should extend through the center of the seal plate but not touching the ceramic ring seal assembly.
4. Make sure the o-ring is properly in place around the edge of the seal plate. Inspect o-ring for damages. Replace if necessary.

Reinstalling the Impeller

6. At the rear of the motor, insert a wide blade screwdriver into the shaft end slot. Thread the impeller clockwise over the motor shaft end. **Hand tighten only.** Make sure the seal carbon disk contacts the ceramic ring.
7. If the fan guard was removed, properly secure it back on the rear of the motor with screws.

Reinstalling the Volute

8. The volute fits on the seal plate in one orientation only. An 'aligning' feature is built-in the volute and seal plate to ensure proper alignment. When properly positioned, the volute easily slides over the seal plate and rests up against the motor ears. Secure the volute in place with the 4 screws. Tighten all screws alternately (crisscrossing the cover) to achieve proper o-ring compression and volute seating. The volute is installed correctly if the discharge port is facing up as shown in Diagram A on page 7.
9. Through the suction port of the volute cover, rotate the impeller by hand to make sure that it rotates freely without interference.

Reconnecting the Pump Unit

10. Clean the seals, gaskets, or o-rings of the plumbing connectors. Replace if cracked, worn, or damaged.
11. Reconnect the plumbing lines to the pump. **Hand tighten only.**
12. Be sure that the pump unit is secured properly to the platform or base, if applicable. Tighten the bolts if necessary.
13. Reconnect the power supply. Be sure that all wiring is properly and securely connected.

CAUTION:

BEFORE TURNING THE POWER ON, BE SURE THAT:

1. **THERE IS AN ADEQUATE AMOUNT OF WATER IN THE SYSTEM.**
2. **ALL VALVES ARE OPEN TO ALLOW WATER CIRCULATION.**
3. **ALL CONNECTORS AND FITTINGS ARE PROPERLY ALIGNED AND SECURED.**

TUB-MASTER® "TMCP2" PARTS LIST
To Cross Reference: Refer to Diagram A Below.

Ref. No.	Description
1	Motor
2	Seal Plate, TMCP2 Series
3	Seal Replacement, #200
4	Impeller, .50 HP
4	Impeller, .75 HP
5	O-ring, Volute, #158
6	Volute, TMCP2 Series
7	Screw, #8-18 x 1"
8	O-Ring, #226
10	Fitting, Tail Piece, 1-1/2"
11	Fitting, Union Nut, 1-1/2"
12	Fitting, Compression, Complete, 1-1/2", Black

Call customer service for availability of parts.

DIAGRAM A: TMCP2 (Refer to Reference Table Above)

