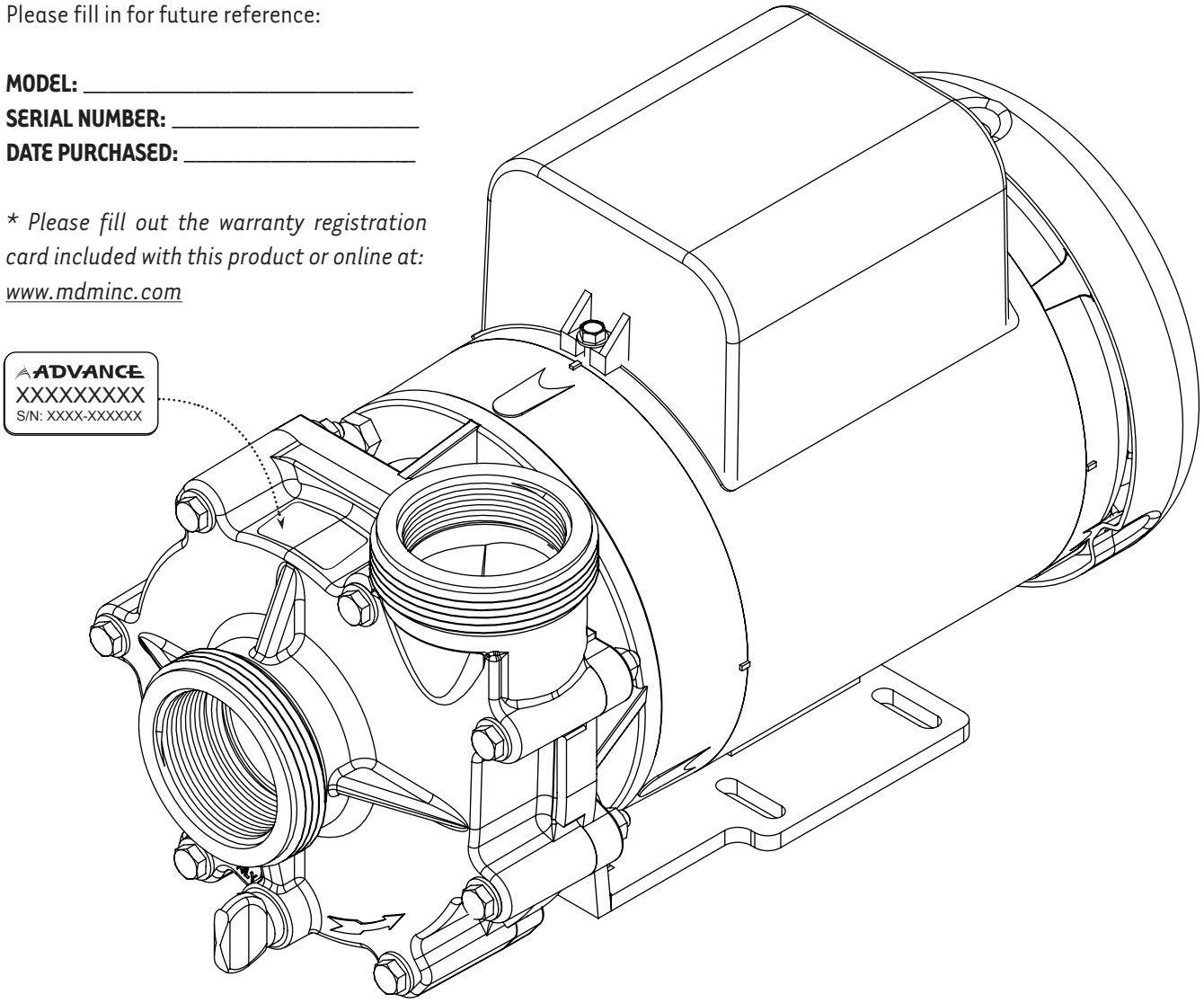
ADVANCE 4000

INSTALLATION AND SERVICE MANUAL

Please fill in for future reference:

MODEL: _____
SERIAL NUMBER: _____
DATE PURCHASED: _____

** Please fill out the warranty registration card included with this product or online at: www.mdminc.com*



TYPE: END-SUCTION CENTRIFUGAL
MOTOR: NEMA C FACE, 56J
PORT SIZE: 2" FNPT AND BUTTRESS THREAD PORTS - INLET & DISCHARGE
HORSEPOWER: 1/8 HP THROUGH 5 HP
MATERIAL: 30% GLASS-FILLED NORYL® IMPELLER
40% GLASS-FILLED POLYPROPYLENE - BRACKET AND VOLUTE

HARDWARE: STAINLESS STEEL
SEAL OPTIONS: STAINLESS STEEL WITH VARIOUS ELASTOMERS, NON-METALLIC IMPENATRA® SEAL WITH MULTIPLE CONFIGURATIONS FOR CHEMICAL COMPATIBILITY.
OTHER OPTIONS: EXTENSION COUPLED, PEDESTAL MOUNTED AND LONG COUPLED WITH PEDESTAL MOUNTED PUMP ON FIBER-GLASS BASEPLATE. PUMP ENDS ALSO AVAILABLE.

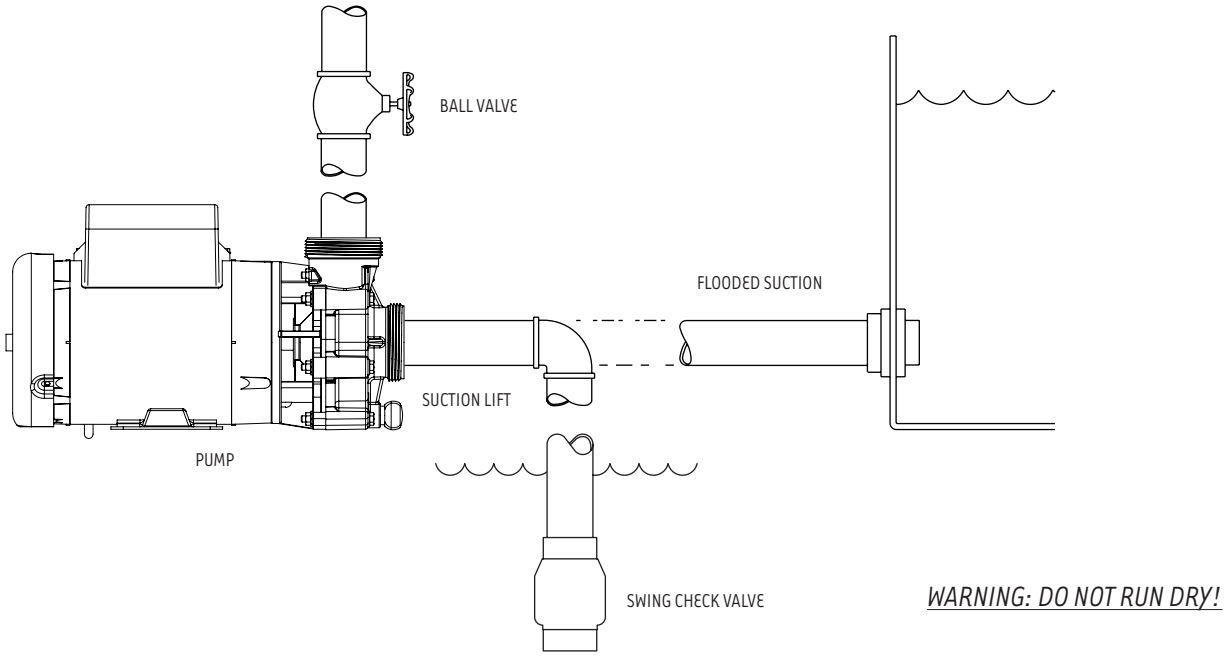
WARNING: Please read completely before you install or operate your new pump! This is an external "out-of-pond" pump! It is NOT submersible! Do NOT allow this pump to become submerged! Never run dry! Max. case pressure.- 65 PSI!

We congratulate you on your choice of the Advance 4000 Centrifugal Pump! It has been carefully designed using the advantages of today's technology and carefully constructed to give you the dependability of yesterday. To insure proper performance, we urge you to carefully follow the instructions in this manual. If you have any questions, call your nearest distributor or M.D.M. for assistance.

INSTALLATION

Please read carefully! When properly installed the Advance 4000 will provide dependable trouble-free service.

1. Locate the pump as near the water source as possible. A flooded suction situation is preferred. The pump is not self-priming, therefore, if the fluid level is below the pump, a swing check valve must be installed and the pump primed prior to start-up. (Figure 2)
2. Mount motor base to a secure, immobile foundation.
3. Use only plastic fittings on both the intake and discharge ports. Seal pipe connections with Teflon™ paste. These fittings should be self-supported and in neutral alignment with each port. (i.e. Fittings must not be forced into alignment which may cause premature line failure or damage to the pump volute.) For non-flooded installations, a strainer basket and check valve are recommended.
4. Never restrict the intake. Keep both input and discharge lines as free of elbows and valves as possible. Always use pipe of adequate diameter. This will reduce friction losses and maximize output.
5. The Advance 4000 is not self-priming! It must not be run dry! We recommend a flooded suction installation. Please read carefully! When properly installed, the Advance 4000 will provide dependable, trouble-free service.
6. For additional plumbing tips, review MDM's website: www.mdminc.com for pond plumbing and pump installation hints.



(Figure 2)

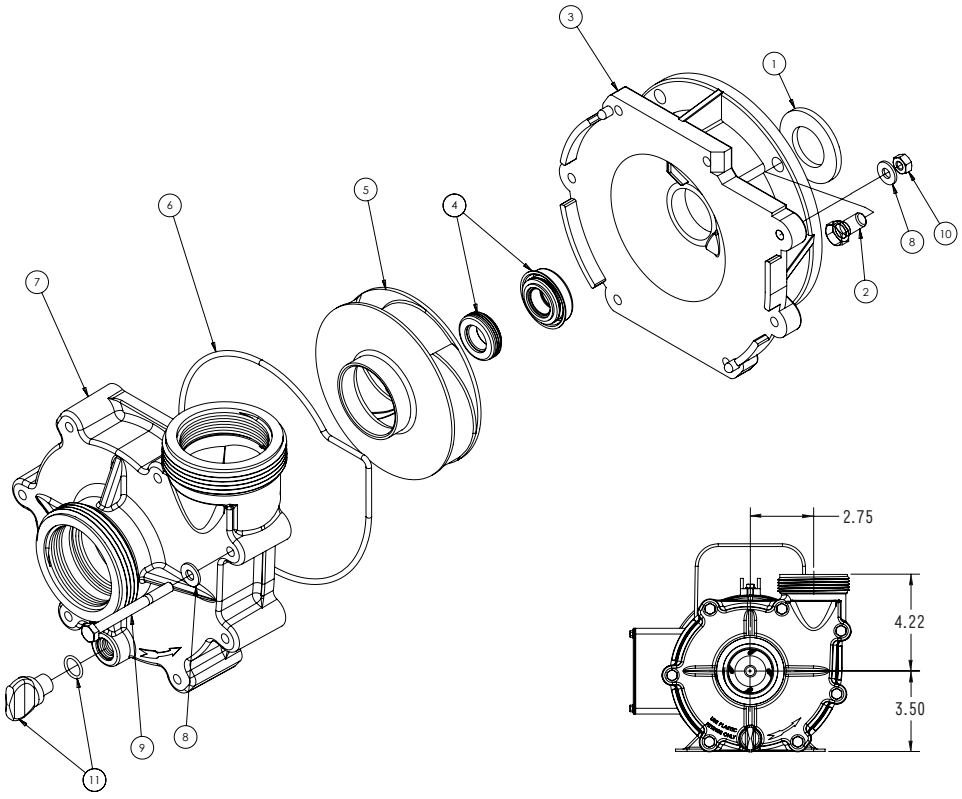
WARNING: ALWAYS SHUT OFF ELECTRICAL POWER BEFORE INSTALLATION AND / OR SERVICING THIS PUMP! ALL ELECTRICAL WIRING SHOULD MEET STATE AND LOCAL ORDINANCES. IMPROPER WIRING MAY NOT ONLY BE A SAFETY HAZARD BUT MAY PERMANENTLY DAMAGE THE MOTOR AND/OR PUMP! 230V 50 HZ MOTORS AVAILABLE - CONTACT YOUR SUPPLIER FOR INFORMATION.

ELECTRICAL HOOK-UP

1. Check that supply voltages match the motor's requirements.
2. Check motor wiring and connect, according to instructions on motor, to match supply voltage.
3. Power cord should be protected by conduit or by cable and be of proper gauge. It should be no longer than necessary.
4. Power should be drawn directly from a box with circuit breaker protection or with a fused disconnect switch.

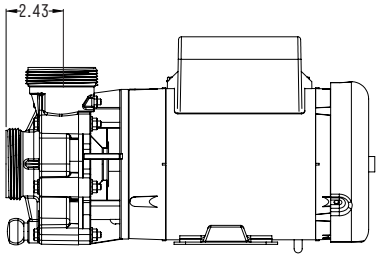
PUMP END ASSEMBLY

1. Clean and inspect all pump parts (0-ring, seal seats, motor shaft, etc.).
2. Apply sealant to the bracket bore ID wall and around the seal case - follow sealant mfg. instructions. We recommend using Gasgacinch®. Silicone sealant can also be used.
3. Press carbon graphite seal into bracket while taking care not to damage carbon graphite face.
4. Place slinger (rubber washer) over motor shaft and mount bracket to motor.
5. Carefully, lubricate the seal seat elastomer OD and impeller hub ID with water. Press the seal seat into the impeller hub making certain that the ceramic is in evenly - the sealing surface should be parallel with the impeller hub.
6. Carefully lubricate carbon-graphite and ceramic sealing surfaces with CLEAN water. Do not use silicon lubricants or grease!
7. Assemble Bracket to motor with four M-bolts
8. Thread impeller onto shaft and tighten! If required, remove motor end-cap and use a screwdriver on the back of motor shaft to prevent shaft rotation while tightening. Replace motor end cap.
9. Seat large O-ring in volute slot and assemble volute to bracket with seven 1/4-20 x 2 3/4" hex cap screws, washers and nuts. Tighten in a cross pattern (30 in-lbf).
10. Install drain plug with its O-ring in volute drain hole.
11. Before operating pump, allow a proper cure time for the sealant used in step 2.



ADVANCE 4000

NUMBER	DESCRIPTION
01	SLINGER
02	M-BOLT
03	BRACKET
04	MECHANICAL SEAL
05	IMPELLER
06	VOLUTE O-RING
07	VOLUTE
8, 9, 10	HARDWARE KIT
11	DRAIN PLUG & O-RING



*Motor illustration is for reference only.

DISASSEMBLY

1. Shut off power to motor before disconnecting any electrical wiring from the back of the motor.
2. Disassemble volute from bracket by removing the seven 1/4" - 20 threads per inch x 2 3/4" hex cap screws.
3. Remove cap covering shaft at back of motor and with a large screwdriver, prevent shaft rotation while unscrewing impeller.
4. Remove ceramic piece from impeller. (If you are replacing the seal)
5. Detach bracket from motor.
6. Remove carbon-graphite seal from bracket by pressing out from the back. Do not dig out from the front! (If you are replacing the seal)

WARNING: EYE PROTECTION IS STRONGLY RECOMMENDED

MAINTENANCE

**The pump must be drained before servicing or if stored below freezing temperatures. Periodic replacement of seals may be required due to normal carbon wear.*

Lubrication
Motor - Permanently Lubricated ball bearings - no service required.
Rotary Seal - Requires no lubrication after assembly.

TROUBLE SHOOTING AID

Motor Will Not Rotate
1. Check for proper electrical connections to motor.
2. Check main power box for tripped circuit breaker.
3. Check thermal overload on motor.

Motor Hums Or Will Not Rotate At Correct Speed
1. Check for proper electrical connections to motor and proper cord size and length.
2. Check for foreign material inside pump.
3. Remove volute and check for impeller rotation without excessive resistance.
4. Remove pump and check shaft rotation for excessive bearing noise.
5. Check start switch and/or capacitor.

Pump Operates With Little Or No Flow
1. Check to insure that pump is primed.
2. Check for leaking seal.
3. Improper line voltage to motor or incorrect rotation.
4. Check for clogged inlet port and/or impeller.
5. Defective check or foot valve.
6. Check inlet lines for leakage, either fluid or air.

Pump Loses Prime
1. Defective check or foot valve. 2. Inlet line air leakage.
3. Seal leaking. 4. Fluid supply low.

Motor Or Pump Overheats
1. Check for proper line voltage and phase, also proper motor wiring.
2. Binding motor shaft or pump parts.
3. Inadequate ventilation.
4. Fluid being pumped should not exceed 194°F (90°C) for extended periods of time

MDM INCORPORATED
3345 N. Cascade Ave • Colorado Springs, CO • 80907
Toll Free Phone (800) 447-8342 • Fax (866) 425-1346
www.mdminc.com • info@mdminc.com

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