

INSTALLATION AND SERVICE MANUAL

PLEASE FILL IN FOR FUTURE REFERENCE:

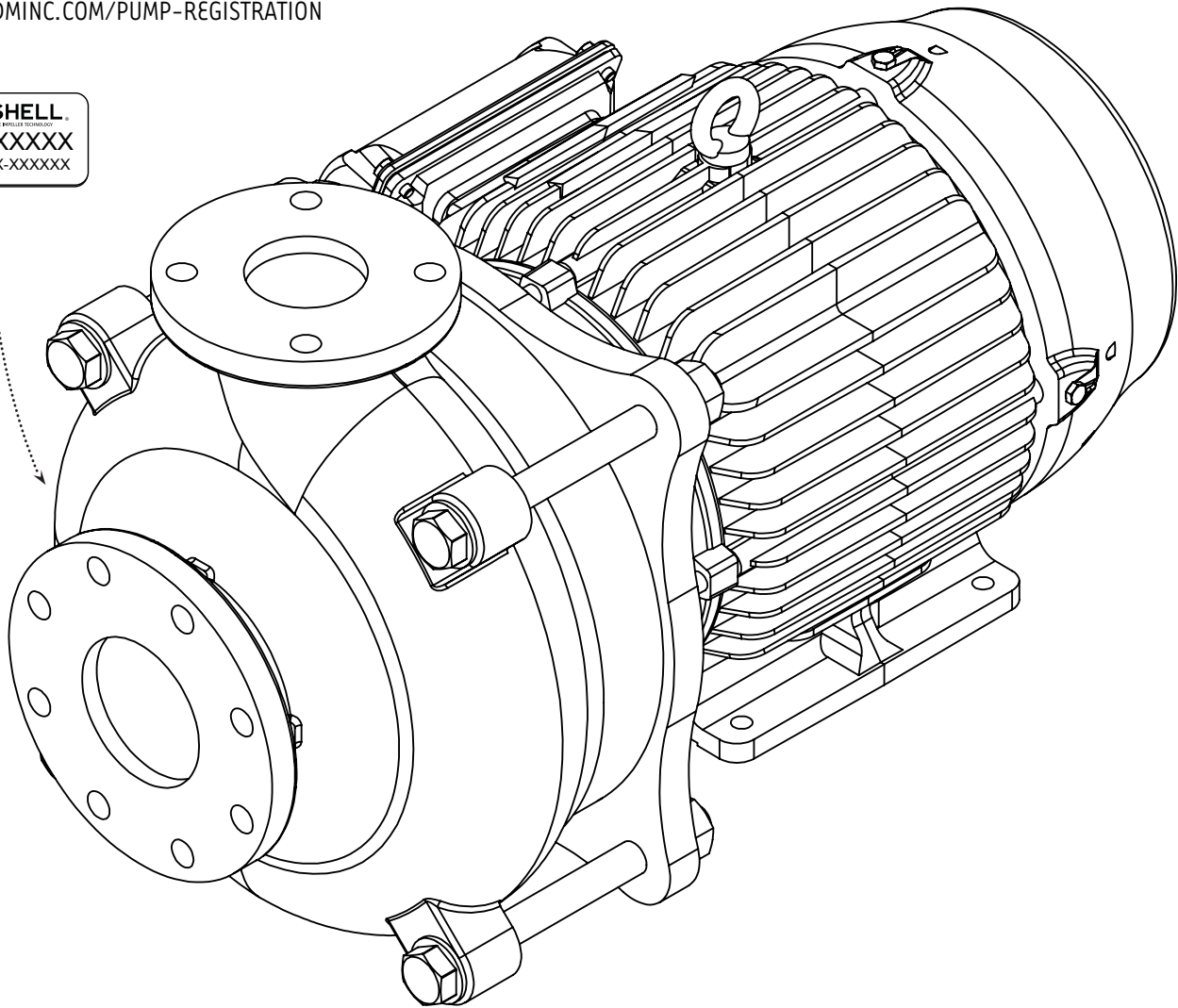
MODEL: _____

SERIAL NUMBER: _____

DATE PURCHASED: _____



* PLEASE FILL OUT THE WARRANTY REGISTRATION CARD INCLUDED WITH THIS PRODUCT OR ONLINE AT: WWW.MDMINC.COM/PUMP-REGISTRATION



WARNING: Please read completely before you install or operate your new pump. Do NOT allow the motor to become submerged. Never run dry - Never reverse rotation. Never exceed an internal case pressure of: 100 PSI.

WARNING: EYE PROTECTION IS STRONGLY RECOMMENDED

We congratulate you on your choice of the C-Shell[®] 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 and longevity, we urge you to carefully follow the instructions in this manual. If you have any questions, contact MDM for assistance.

PRIOR TO INSTALLATION

1. Once received from factory, store all crated pumps in a dry and covered location
2. Make certain all uncoated machined surfaces are coated with a dielectric or marine grease every seven day to prevent oxidation
3. Rotate motor shaft multiple times once a week

INSTALLATION

1. Locate the pump as near the fluid source as possible. A flooded suction situation is preferred.
2. Mount motor base to a secure, immobile foundation.
3. The pipe 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.)
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 C-Shell[®] Pump is not self-priming. It must not be run dry. We recommend a flooded suction installation.
6. For additional plumbing tips, review MDM's website: www.mdminc.com for pump installation recommendations.

ELECTRICAL HOOK-UP



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! 50 HZ motors available - contact your supplier for information.

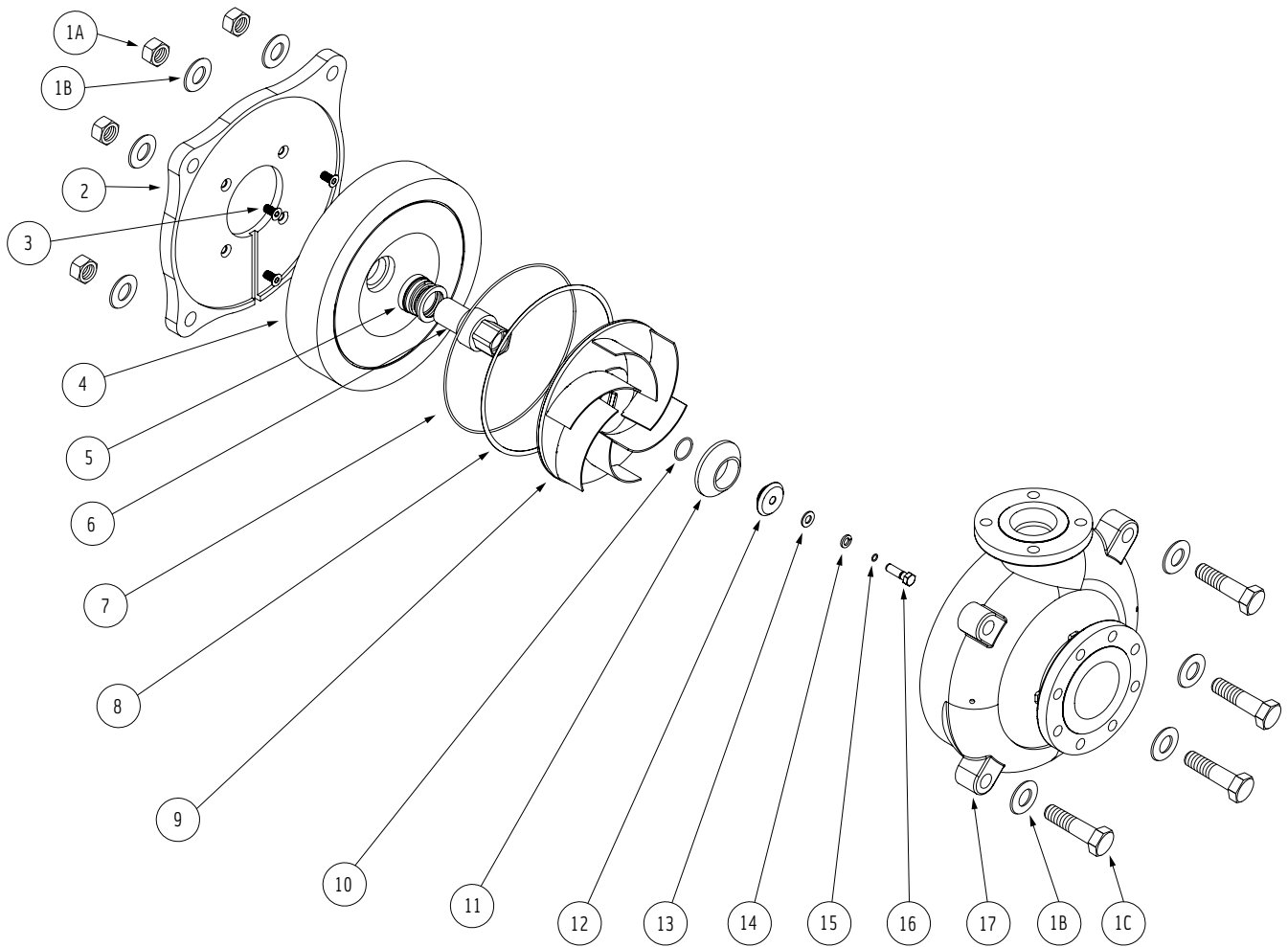
1. Check that supply voltages match the motor's requirements.
2. Check motor wiring and connect, according to instructions on motor, to match supply voltage.
3. Verify motor rotation with rotation meter. Incorrect rotation can cause serious damage to pump and/or motor. MDM does not recommend checking rotation by quickly switching power on and off because serious damage can occur.
4. Supply power wiring (load side) should be protected by conduit or by cable and be of proper gauge. Length should be no longer than necessary.
5. Power should be drawn directly from an enclosure with circuit breaker protection or with a fused disconnect switch.

PUMP END ASSEMBLY/DISASSEMBLY

Contact a factory authorized agent, service center, or factory directly before disassembly or assembly. MDM Incorporated factory hours are 7:30am - 4pm MST, Monday through Friday. You can reach us toll free at **(800) 447-8342** or e-mail us at sales@mdminc.com.

C-SHELL 4X3 GENERAL ASSEMBLY

WITH EDGE IMPELLER TECHNOLOGY



REFERENCE NUMBER	PART NAME	QUANTITY
1A	HEX NUTS 7/8" - 9	4
1B	FLAT WASHER 7/8"	8
1C	HEX BOLTS 7/8" - 9 x 9"	4
2	BRACKET PLATE	1
3	HEX HEAD CAP SCREW 1/2" - 13 x 3/4"	4
4	SEAL HOUSING	1
5	SEAL, CARBON GRAPHITE / CERAMIC (Option SIC VS SIC)	1
6	SHAFT SLEEVE	1
7	CASE O-RING	1
8	CASE GASKET	1
9	IMPELLER	1
10	PENTAGON HUB O-RING	1
11	IMPELLER SPACER	1
12	IMP PENTAGON HUB	1
13	FLAT WASHER 1/2", 316SS	1
14	LOCKWASHER 1/2, 316SS	1
15	IMPELLER BOLT O-RING	1
16	IMPELLER BOLT	1
17	CASE	1

MAINTENANCE

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

Lubrication:

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.

Motor Hums Or Will Not Rotate

1. Check for proper electrical connections to motor and proper wire size according to local electrical codes.
2. Check for foreign material inside pump.
3. Remove volute and check for impeller rotation without excessive resistance and/or noise.
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

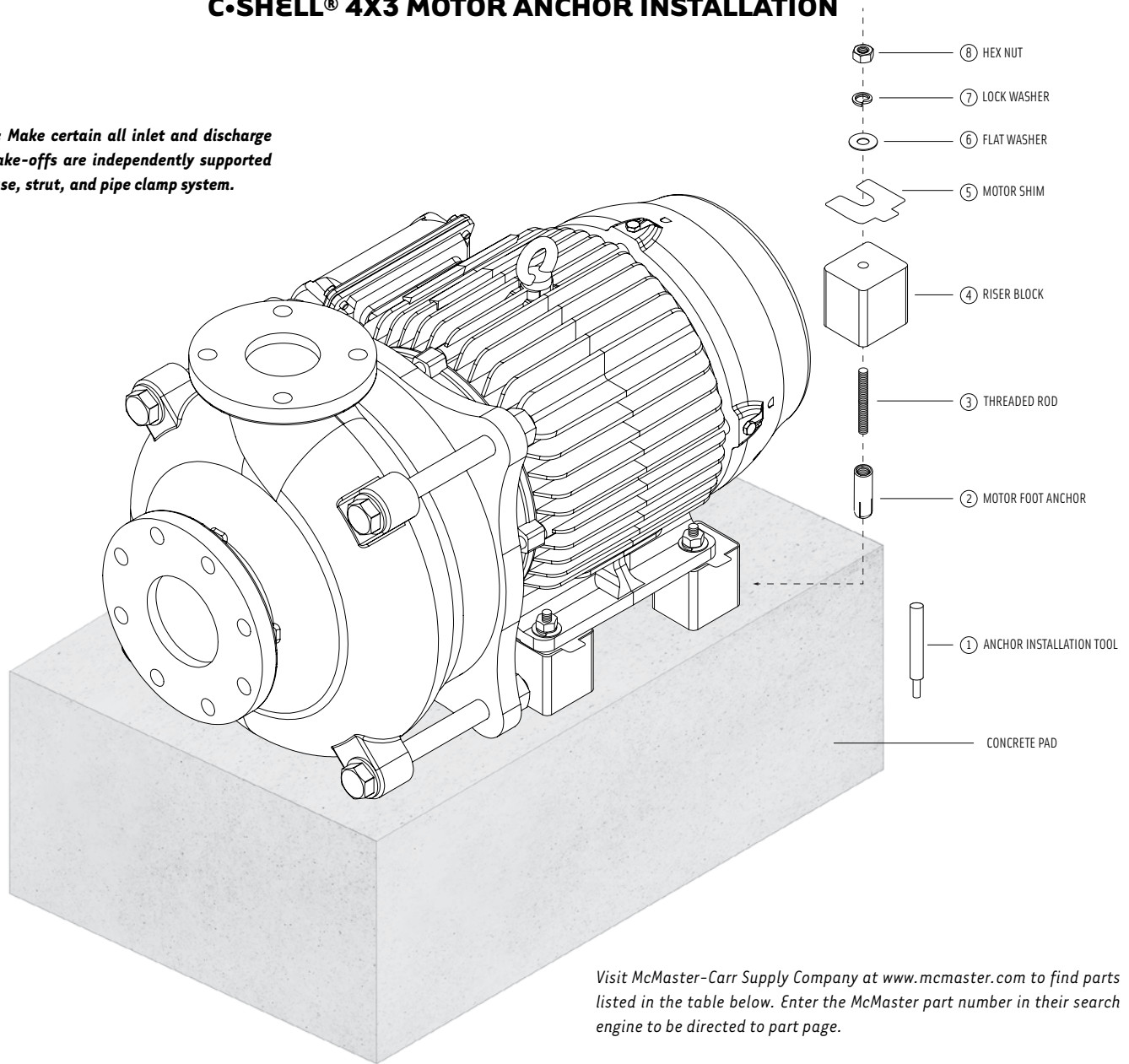


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C-SHELL[®] 4X3 MOTOR ANCHOR INSTALLATION

IMPORTANT: Make certain all inlet and discharge plumbing take-offs are independently supported to a post base, strut, and pipe clamp system.



Visit McMaster-Carr Supply Company at www.mcmaster.com to find parts listed in the table below. Enter the McMaster part number in their search engine to be directed to part page.

Consult Motor Name Plate for Frame Size Specification

NO.	DESCRIPTION	QTY.	B GROUP MOTORS 213/5JM 3/8-16	C GROUP MOTORS 254/6JM 1/2-13	D GROUP MOTORS 284/6JM 1/2-13	D GROUP MOTORS 324/6JM 5/8-11
1	ANCHOR INSTALLATION TOOL	1	97077A120	97077A130	97077A130	97077A140
2	MOTOR FOOT ANCHOR	4	97095A121	97095A131	97095A131	97095A141
3	THREADED ROD	4	90575A292	90575A736	90575A732	90575A810
4	RISER BLOCK	4	INCLUDED	INCLUDED	INCLUDED	INCLUDED
5	MOTOR SHIM (AS NEEDED)	4	94420A160	94420A160	94420A160	94420A160
6	FLAT WASHER	4	90107A127	90107A033	90107A033	90107A035
7	LOCK WASHER	4	92147A031	92147A033	92147A033	92147A035
8	HEX NUT	4	94819A049	94819A055	94819A055	94819A058

McMaster-Carr Part Numbers