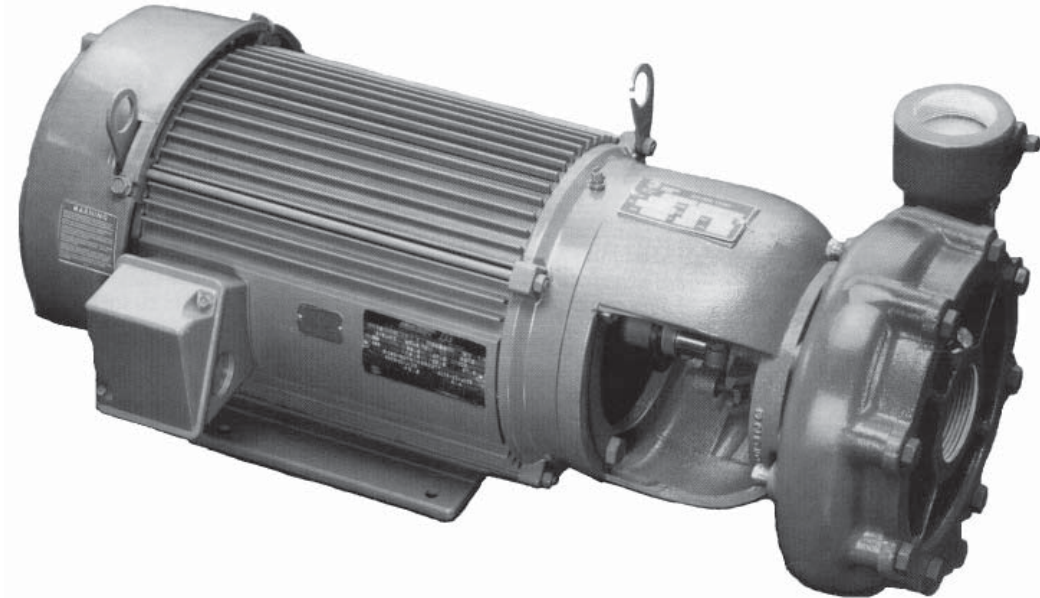


DEMING®

INSTALLATION, OPERATION & MAINTENANCE MANUAL MotorMount Centrifugal Pumps

Series: 4240



IMPORTANT!

***Read all instructions in this manual before operating pump.
As a result of Crane Pumps & Systems, Inc., constant product improvement program,
product changes may occur. As such Crane Pumps & Systems reserves the right to
change product without prior written notification.***

CRANE[®]

A Crane Co. Company

PUMPS & SYSTEMS

420 Third Street
Piqua, Ohio 45356
Phone: (937) 778-8947
Fax: (937) 773-7157
www.cranepumps.com

83 West Drive, Bramton
Ontario, Canada L6T 2J6
Phone: (905) 457-6223
Fax: (905) 457-2650

Form No. 120006-Rev. D

CONTENTS

SAFETY FIRST	3
A. GENERAL INFORMATION.....	4
Receiving	
Storage	
Service Centers	
B. INSTALLATION	4 - 5
Foundation	
Piping	
Wiring / Rotation	
C. OPERATION.....	5
Starting	
Priming	
D. MAINTENANCE	6
Lubrication	
Stuffing Box - Packing	
Mechanical Seal	
Impeller Adjustment	
E. REPAIR	6 - 8
Disassembly of Liquid End	
Packing Box Cover - Packing	
Seal Cover - Type 21 Mechanical Seal	
Seal Cover - Type 9 Mechanical Seal	
Seal Cover - Type 21 Double Mechanical Seal	
Inspection	
Reassembly - Packing Box Cover - Packing	
Reassembly - Seal Cover - Type 21 and Type 9	
Reassembly - Liquid End	
F. LOCATING TROUBLE	8
CROSS-SECTION & PARTS LIST	9
WARRANTY & RETURNED GOODS	11

SAFETY FIRST!

Please Read This Before Installing Or Operating Pump. This information is provided for **SAFETY** and to **PREVENT EQUIPMENT PROBLEMS**. To help recognize this information, observe the following symbols:



IMPORTANT! Warns about hazards that can result in personal injury or indicates factors concerned with assembly, installation, operation, or maintenance which could result in damage to the machine or equipment if ignored.

CAUTION! Warns about hazards that **can or will cause minor** personal injury or property damage if ignored. Used with symbols below.

WARNING! Warns about hazards that can or will cause serious personal injury, death, or major property damage if ignored. Used with symbols below.



Hazardous fluids can cause fire or explosions, burns or death could result.



Extremely hot - Severe burns can occur on contact.



Biohazard can cause serious personal injury.



Hazardous fluids can Hazardous pressure, eruptions or explosions could cause personal injury or property damage.

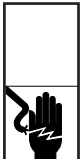


Rotating machinery Amputation or severe laceration can result.



Hazardous voltage can shock, burn or cause death.

Only qualified personnel should install, operate and repair pump. Any wiring of pumps should be performed by a qualified electrician.



WARNING! To reduce risk of electrical shock, pumps and control panels must be properly grounded in accordance with the National Electric Code (NEC) or the Canadian Electrical Code (CEC) and all applicable state, province, local codes and ordinances. Improper grounding voids warranty.



WARNING! To reduce risk of electrical shock, always disconnect the pump from the power source before handling or servicing. Lock out power and tag.



WARNING! Operation against a closed discharge valve will cause premature bearing and seal failure on any pump, and on end suction and self priming pump the heat build may cause the generation of steam with resulting dangerous pressures. It is recommended that a high case temperature switch or pressure relief valve be installed on the pump body.



CAUTION! Pumps build up heat and pressure during operation-allow time for pumps to cool before handling or servicing.



WARNING! Do not pump hazardous materials (flammable, caustic, etc.) unless the pump is specifically designed and designated to handle them.



WARNING! Do not wear loose clothing that may become entangled in moving parts.



WARNING! Keep clear of suction and discharge openings. **DO NOT** insert fingers in pump with power connected.

Always wear eye protection when working on pumps.

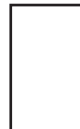


Make sure lifting handles are securely fastened each time before lifting. **DO NOT** operate pump without safety devices in place. Always replace safety devices that have been removed during service or repair. Secure the pump in its operating position so it can not tip over, fall or slide.

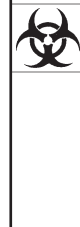
DO NOT exceed manufacturers recommendation for maximum performance, as this could cause the motor to overheat.



WARNING! To reduce risk of electrical shock, all wiring and junction connections should be made per the NEC or CEC and applicable state or province and local codes. Requirements may vary depending on usage and location.



WARNING! Products returned must be cleaned, sanitized, or decontaminated as necessary prior to shipment, to insure that employees will not be exposed to health hazards in handling said material. All Applicable Laws And Regulations Shall Apply.



Bronze/brass and bronze/brass fitted pumps may contain lead levels higher than considered safe for potable water systems. Lead is known to cause cancer and birth defects or other reproductive harm. Various government agencies have determined that leaded copper alloys should not be used in potable water applications. For non-leaded copper alloy materials of construction, please contact factory.



Crane Pumps & Systems, Inc. is not responsible for losses, injury, or death resulting from a failure to observe these safety precautions, misuse or abuse of pumps or equipment.

A - GENERAL INFORMATION

TO THE PURCHASER:

Congratulations! You are the owner of one of the finest pumps on the market today. These pumps are products engineered and manufactured of high quality components. With years of pump building experience along with a continuing quality assurance program combine to produce a pump which will stand up to the toughest applications.

Check local codes and requirements before installation. Servicing should be performed by knowledgeable pump service contractors or authorized service stations.

RECEIVING:

Upon receiving the pump, it should be inspected for damage or shortages. If damage has occurred, file a claim immediately with the company that delivered the pump. If the manual is removed from the crating, do not lose or misplace.

STORAGE:

Short Term - Pumps are manufactured for efficient performance following long inoperative periods in storage. For best results, pumps can be retained in storage, as factory assembled, in a dry atmosphere with constant temperatures for up to six (6) months.

Long Term - Any length of time exceeding six (6) months, but not more than twenty four (24) months. The units should be stored in a temperature controlled area, a roofed over walled enclosure that provides protection from the elements (rain, snow, wind blown dust, etc.), and whose temperature can be maintained between +40 deg. F and +120 deg. F. Pump should be stored in its original shipping container and before initial start up, rotate impeller by hand to assure seal and impeller rotate freely.

SERVICE CENTERS:

For the location of the nearest Deming Service Center, check your Deming representative or Crane Pumps & Systems Service Department in Piqua, Ohio, telephone (937) 778-8947 or Crane Pumps & Systems Canada, Inc., Bramton, Ontario, (905) 457-6223.

B - INSTALLATION

1. FOUNDATION

The Motor-Mount pumps can be installed on any sufficiently solid foundation since pump and motor are rigidly aligned. The unit may be installed on a concrete foundation with anchor bolts set in place or securely mounted on a wall in either a horizontal or vertical position with motor above pump. The pump should be located as near the source of supply as possible with a minimum of suction pipe and elbows. Minimum suction lift (lift plus pipe friction) is 15 feet based on 65°F water at sea level.

Foundation bolts, of the proper size, should be imbedded in the concrete. A pipe sleeve, about 2½" diameters larger than the bolt, should be used to allow for final positioning of the bolts. See Figure 1.

Position unit on foundation and level using rectangular metal blocks and shims, or wedges having a small taper as shown in Figure 2.

2. PIPING

A foot valve and strainer must be installed on the lower end of the suction pipe to keep pump completely filled with liquid when the pump is used under suction lift conditions. Connect suction pipe to pump, making certain that all connections are airtight. When a foot valve and strainer are used, it is necessary to install a check valve in the discharge line near the pump to prevent possible casing damage due to line shock or surge when the pump stops. A gate valve should also be installed in the discharge line. Connect discharge pipe to pump casing.

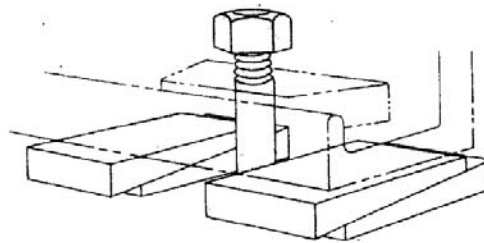


Figure 2. Adjusting Wedges for Mounting

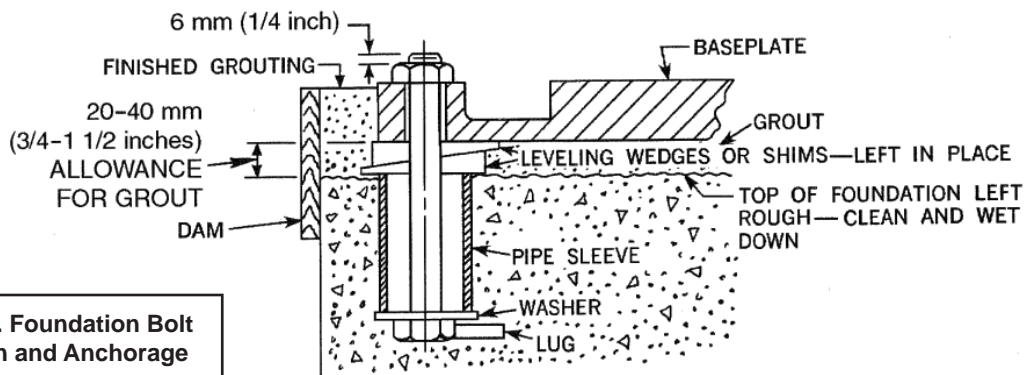


Figure 1. Foundation Bolt Location and Anchorage

It is important that the suction and discharge pipes “line up” naturally with the pump. Do Not “pull” pipes into position with flange bolts or fittings. Both suction and discharge pipes must be supported independently near the pump to eliminate any strain on the pump. Piping should be arranged with as few bends as possible, and, preferably, with long radius elbow whenever possible. Turn shaft to see that it rotates freely. If rotor binds, it indicates a strain on the casing, which must be corrected before operating pump. It may be necessary to shim motor at foundation to assist piping connection line-up.

3. WIRING / ROTATION

Check motor name plate for electrical characteristics. Be sure they are the same as the rating of the electric power available. Connect power lines to motor in accordance with the wiring diagram on the motor. Test rotation by jogging motor. Shaft must rotate in the direction indicated by arrow cast on pump casing.

NOTE: These units are designed to operate at a *maximum* speed of 1750 rpm.

C - OPERATION

1. STARTING THE PUMP

The following important items should be checked before starting.

- a. Pump and driver securely bolted
- b. Piping complete
- c. Motor properly lubricated. Follow the recommendations found in the Maintenance Section
- d. Check the seal or packing. For pumps furnished with packing, the gland nuts should be finger tight to allow for proper lubrication.
- e. Open the seal flush valve, if used
- f. Shaft turns freely
- g. Rotation is correct. The pump must rotate in the direction of the arrow on the casing.
- h. Discharge valve. A high or medium head centrifugal pump operating at full speed with the discharge valve closed, requires much less power than when operating at its rated head and capacity with the discharge valve open.

For this reason, it is usually best to have the discharge valve only partially open when starting the pump.



WARNING! - Operating the pump with a closed or partially open discharge valve can result in excessive heat buildup. Such operation should be limited to the shortest practical duration.

Operating the pump at or near shut-off head places greater loads on the shaft and motor than operation at the designed flow rate and head.

- i. Suction valve, if used, must be fully open. Do not use suction valve as a throttling device.
- j. Pump fully primed

Only after these items have been checked should the pump be started.

2. PRIMING

Before starting the pump, the casing and suction line must be filled with liquid, and air-vented through the vent pipe plugs. The pump must not be run until it is completely filled with liquid, because of danger of injuring some of the parts of the pump which depend upon liquid for lubrication.

The discharge gate valve should be closed during priming. Be sure the mechanical seal and power frame are supplied with the proper lubrication. See LUBRICATION.

PRIMING BY SUCTION PRESSURE

When operating with suction pressure (flooded suction), remove the pipe plug at the top of the casing and when pump is filled with liquid, replace plug.

PRIMING WITH FOOT VALVE AND STRAINER

A foot valve and strainer may be installed on the lower end of the suction pipe to keep pump filled with liquid. Incorporate filler pipe in discharge pipe between pump and check valve. Remove pipe plug at top of casing, then fill suction pipe and pump with liquid. When pump is full of liquid, replace plug and close filler pipe.

CAUTION: When a foot valve and strainer are installed on the suction pipe, a spring loaded type check valve **MUST** be installed next to the pump in the discharge piping to prevent pump rupture from water hammer shock.

Priming by means of primer pump or ejector, attached to the pump, will also remove air from suction pipe and pump casing. When pump is filled with liquid, start motor and slowly open discharge gate valve.

3. STARTING

Start the pump. When the pump has reached its designed operating speed slowly open the discharge valve to obtain the desired capacity and pressure.

With the pump running, carefully check for unusual vibration, quiet operation, packing or mechanical seal function and unusually high temperature.



WARNING! - NEVER try to adjust or work on the pump while it is running. Always stop the unit completely before attempting any adjustment.

D. MAINTENANCE

1. LUBRICATION

Motor bearings should have periodic attention and lubrication in accord with motor manufacturer's recommendations. Under ordinary conditions a ball bearing will run from 10°F to 60°F above ambient temperatures. Unless bearing temperature runs extremely hot do not become alarmed.

2. STUFFING BOX - PACKING

The packing gland (017) should be adjusted occasionally to insure proper packing lubrication. Slow dripping through the gland is necessary for good lubrication with long packing and shaft sleeve life.

When installing new packing remove the split gland (017), old packing (013) and lantern ring (029). Clean stuffing box cavity and inspect parts for and damage. If the shaft sleeve (014) is worn or grooved it should be replaced. New packing will not seal properly on a worn shaft sleeve.

Insert two new rings of packing into the stuffing box. Stagger joints to minimize leakage. Tamp each ring into place. Replace lantern ring. Add two more rings of packing following lantern ring. Replace gland, rotate shaft and tighten securely. Loosen the gland and add the final ring of packing. Be sure the lantern ring is positioned to receive lubrication through the orifice. Tighten gland nuts securely to seat packing and rotate shaft. After rotating several turns, loosen nuts to finger tight for starting.

3. MECHANICAL SEAL

Both single and double mechanical seals are available on this pump. By their nature, a properly lubricated mechanical seal requires no maintenance.

4. IMPELLER ADJUSTMENT

A close running clearance between the impeller vanes and casing is required to reduce losses from high to low pressure within the pump. This clearance is provided by shims (287) between the packing box cover (011) and motor adapter (071).

During normal operation slight wear takes place at the impeller vanes and mating casing face. The impeller can be readjusted to its normal clearance of .007" to .017" by:

1. Loosen the motor mounting screws.
2. Alternate tightening the two pump jackscrews (286), then loosening the four capscrews (212). This procedure holds the packing box cover (011) against the casing (001) while opening the gap between the packing box cover and motor adapter (071).
3. Remove shims (287) in .010" increments. (Brown shim equals .010", yellow shim equals .020").

4. Reverse the procedure for step 2 and check for impeller interference by turning the shaft. If the impeller rubs the casing add the proper shims to provide normal clearance.
5. If required repeat steps 2, 3 and 4 until the impeller just clears the casing.
6. Tighten the motor mounting screws.

E - REPAIR



WARNING - If pumping any fluid that could cause bodily injury (hot water, caustic, etc.), always use eye protection and wear protective clothing over all exposed body areas.

REMOVE AND LOCK-OUT POWER TO THE DRIVER WHILE PERFORMING THESE TASKS
Be sure that no one can accidentally restore power while the pump is being serviced.

1. **DISASSEMBLY OF LIQUID END** - The following procedure is for the complete disassembly of the pump. If complete disassembly is not necessary, use only those steps which apply.
 - a. Slowly remove drain plugs (216) in top and bottom of casing (001). Disconnect suction and discharge pipes.
 - b. Remove motor foundation bolts.
 - c. Remove suction head capscrews (215). Separate suction head (009) and casing (001).
 - d. Unscrew impeller capscrew (026), counter-clockwise, while firmly holding the impeller (002). Slide the impeller washer (270), gasket (030), impeller (002), impeller key (032) and shaft sleeve gasket (038) off the shaft.
 - e. To remove the casing, first disconnect the by-pass tube (127), if used. Remove casing capscrews (212). Separate casing (001) and casing gasket (241) from motor adapter (071) and packing box cover (011).

2. PACKING BOX COVER - PACKING

- a. Remove packing box cover (011) from the motor adapter (071) and the shaft sleeve (041) from the motor shaft.
- b. Remove the gland assembly (071), packing (013) and lantern ring (029) from the packing box cover (011).

3. SEAL COVER - TYPE 21 MECHANICAL SEAL

- a. Remove the spacer sleeve (266) from the shaft sleeve (014).
- b. Remove the shaft sleeve (014) from the motor shaft which will still have the seal rotating element (089) attached. Remove the rotating element from the sleeve.
- c. Remove the mechanical seal cover (011) which houses the seal seat (089). Remove the seal seat from the mechanical seal cover.

4. SEAL COVER - TYPE 9 MECHANICAL SEAL

- a. Unbolt the seal gland (251). Remove the seal cover (011).
- b. Slide the shaft sleeve (014) with seal rotating element, off the motor shaft. Mark the shaft sleeve to designate the location of the seal retainer. Slide the gasket (259) and gland (251) off the motor shaft.
- c. Remove the seal rotating element from the sleeve and the seal stationary seat from the gland.

5. SEAL COVER - TYPE 21 DOUBLE SEAL

- a. Slide the seal cover (011), gland (251), sleeve (014) and seal (089) as a unit, from the motor shaft.
- b. Remove the gland (251) from the seal cover (011). Slide the sleeve with seal rotating element out of the seal cover.
- c. Remove the seal rotating element from the sleeve. Also, remove the seal seats from the seal cover and gland.

6. INSPECTION - Clean and carefully inspect all parts for wear or damage. Replace any part which is excessively worn or damaged.

7. REASSEMBLY - PACKING BOX COVER - PACKING

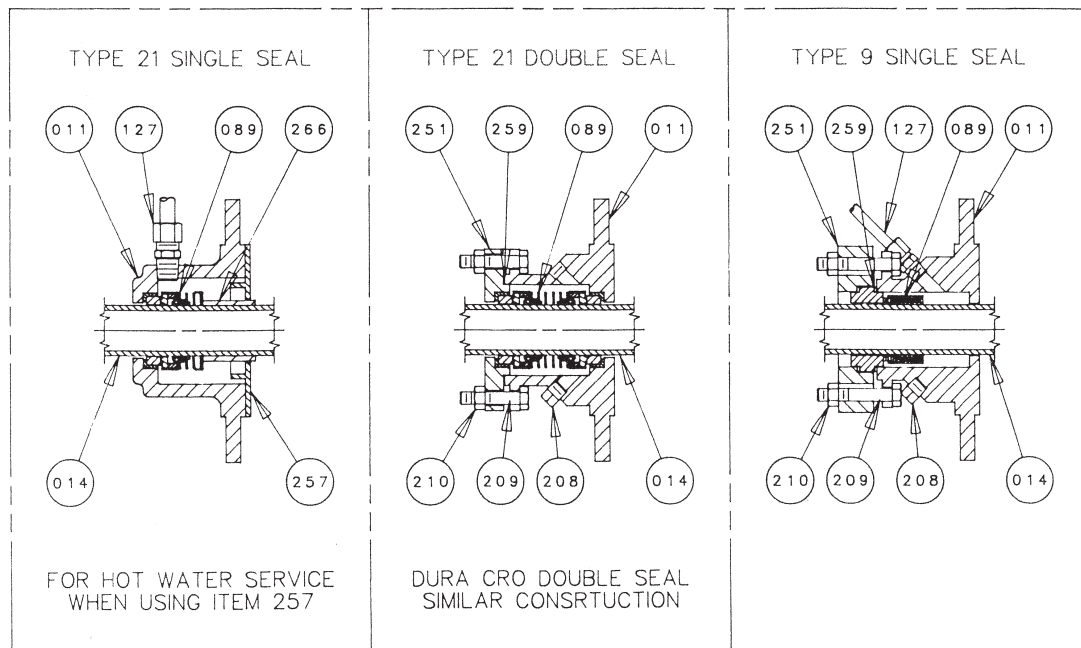
- a. Cut five rings of packing (013) so that when wrapped around the shaft, the ends do not quite touch. A beveled cut is recommended.
- b. Tamp one ring into the packing box. Add a second ring with its joint 180° apart from the first.
- c. Slide both lantern ring halves into the packing box. Position so that they form a groove in the middle where they meet.
- d. Position and seat three more rings of packing separately, staggering the joints 180° apart. Tamp each ring into place.
- e. Attach the split gland to the packing box cover leaving the adjusting nuts finger-tight.

8. SEAL COVER - TYPE 21 AND TYPE 9

- a. The single seal is used for clear liquids at temperatures below their boiling point. A Type 21 single seal may be used for hot water service by adding a choker ring (257).

Part of the liquid being pumped is by-passed into the seal chamber through the by-pass tube to lubricate and cool the seal. The by-pass liquid must be at least 10 pounds of pressure above the suction pressure of the pump.

- b. Double seals are used when pumping abrasives, non-lubricating fluids or high temperature liquids. A sealing liquid at 10 to 15 pounds above the pump suction pressure must be circulated through the seal chamber. Clear water under pressure can be used in most applications as a sealing liquid for lubrication and cooling.



- c. Extreme care must be used when handling the parts of a mechanical seal during installation. Do not drop the seal face carbons or floating seats, nor scratch the lapped faces of these pieces.
- d. To install a new seal assembly oil the face and outer surfaces of the seal seat.
 - 1.) For a Type 21 single seal press the seal seat into the seal cover (011).
 - 2.) For a Type 21 double seal press one seal seat into the seal cover (011) and the second seal seat into the seal gland (251).
 - 3.) For a Type 9 single seal press the seal seat into the seal gland (251).
- e. Apply a thin coat of light oil to the inside of the seal bellows and the seal face carbon. Slide the seal rotating element on to the shaft sleeve.
 - 1.) A Type 21 single seal also has a spacer sleeve (266) placed on the shaft sleeve.
 - 2.) A Type 9 single seal is securely fastened to the shaft sleeve at the previously marked position. See "Seal Cover - Type 9 Mechanical Seal".
- f. Place the seal gland (251) and gland gasket (259) on the motor shaft. Slide the shaft sleeve with mounted rotating element, through the seal cover and on to the motor shaft. Support and position the complete assembly carefully. The shaft sleeve must butt solidly against the shoulder in the motor shaft.
- g. Align and attach the seal cover to the motor support. For seals with a seal gland position the gland slots and bolts on the horizontal center line.
- h. Attach seal gland (251) to seal cover (011) with capscrews (209) and nuts (210). Be sure that the gland gasket (259) is positioned correctly before tightening gland nuts.

9. REASSEMBLY - LIQUID END

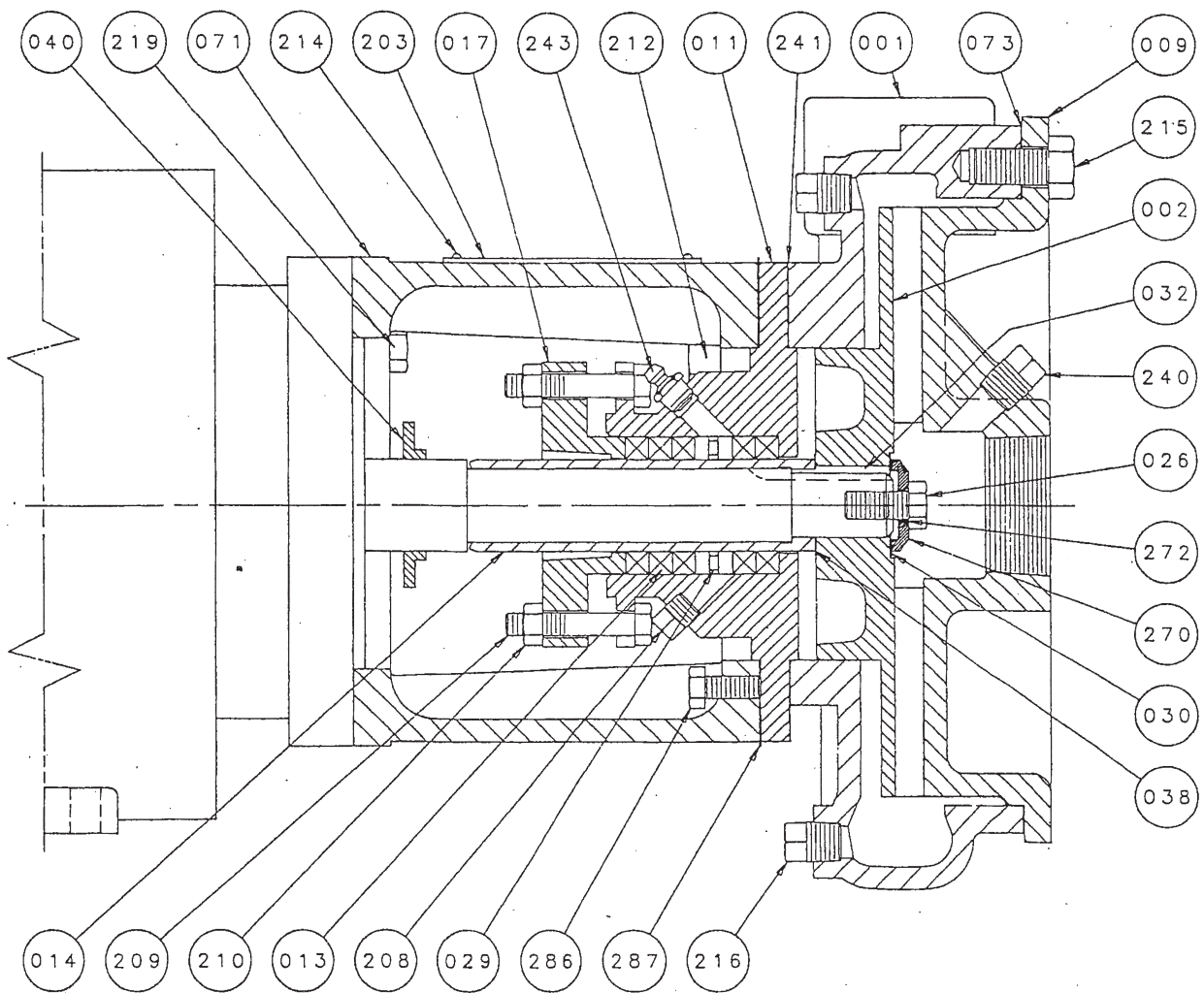
- a. Place casing gasket (241) against the packing or seal cover (011) which was previously mounted to the motor adapter (071). Attach the casing with capscrews (212). Connect seal by-pass or flush line (127), if used.
- b. Place sleeve gasket (038) against the face of the sleeve and position impeller key (032) in the motor shaft. Slide impeller (002) on to shaft. Secure impeller with gasket (030), washer (270), o-ring (272) and impeller capscrew with Nylok® insert (026).
- c. Position suction head gasket (073) on the Suction head (009). Attach the suction head to the casing (001) with capscrews (215).

- d. Insert drain plugs (216) and re-install pump.
- e. Check all connections and assembly points for proper register fit and tighten fasteners.
- f. Prepare to start pump. Follow the directions Section C.

NOTE: Model number, pump serial number and part item number are always required to secure correct replacement parts. Refer to the pump serial plate and illustrations in this booklet.

F - LOCATING TROUBLE

1. No Liquid Delivered
 - a. Pump not primed - See Priming
 - b. Speed too low - Check motor speed and nameplate
 - c. Discharge head too high
 - d. Suction lift over 15 feet. Check with vacuum gauge.
 - e. Impeller completely plugged
 - f. Wrong direction of rotation - Check wiring
2. Not Enough Liquid Delivered
 - a. Air leaks in suction piping
 - b. Speed too low - Check motor speed
 - c. Discharge head higher than anticipated.
 - d. Suction lift over 15 feet. Check with vacuum gauge.
 - e. Impeller partially plugged
 - f. Not enough suction head for hot water.
 - g. Mechanical defects. Impeller or casing worn or damaged
 - h. Foot valve too small
 - i. Foot valve not immersed deep enough.
3. Not Enough Pressure
 - a. Speed too low - Check motor speed
 - b. Air or gas in liquid
 - c. Mechanical defects. Bent shaft or impeller binding
 - d. Impeller diameter too small
4. Pump Works For A While Then Quits
 - a. Leak in suction line
 - b. Suction plugged
 - c. Suction lift over 15 feet. Check with vacuum gauge
 - d. Air or gas in liquid
5. Pump Takes Too Much Power
 - a. Speed too high
 - b. Head lower than rating - pumps too much liquid. Check system requirements
 - c. Liquid either viscous or heavier than water, or both.
 - d. Mechanical defects.



ITEM No.	DESCRIPTION
001	Casing
002	Impeller
009	Suction Head
011	Packing Box Cover
*013	Packing
*014	Shaft Sleeve
017	Packing Gland
*026	Capscrew
029	Lantern Ring
*030	Impeller Gasket
032	Impeller Key
*038	Sleeve Gasket
040	Slinger
071	Adapter
*073	Casing Gasket
203	Name Plate

ITEM No.	DESCRIPTION
208	Pipe Plug
209	Gland Bolts
210	Nut
212	Cap screw
214	Drive screw
215	Capscrews
216	Pipe Plug (Casing)
219	Cap screw
240	Pipe plug
*241	Gasket (Casing)
243	Grease Fitting
*270	Impeller Washer
*272	O-ring
286	Jackscrew
*287	Shim (Adjustment)

(*) Recommended Spare Parts

BARNES®



burks®

WEINMAN®

DEMING®

PROSSER®

Limited 24 Month Warranty

Crane Pumps & Systems warrants that products of our manufacture will be free of defects in material and workmanship under normal use and service for twenty-four (24) months after manufacture date, when installed and maintained in accordance with our instructions. This warranty gives you specific legal rights, and there may also be other rights which vary from state to state. In the event the product is covered by the Federal Consumer Product Warranties Law (1) the duration of any implied warranties associated with the product by virtue of said law is limited to the same duration as stated herein, (2) this warranty is a LIMITED WARRANTY, and (3) no claims of any nature whatsoever shall be made against us, until the ultimate consumer, his successor, or assigns, notifies us in writing of the defect, and delivers the product and/or defective part(s) freight prepaid to our factory or nearest authorized service station. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply. **THE SOLE AND EXCLUSIVE REMEDY FOR BREACH OF ANY AND ALL WARRANTIES WITH RESPECT TO ANY PRODUCT SHALL BE TO REPLACE OR REPAIR AT OUR ELECTION, F.O.B. POINT OF MANUFACTURE OR AUTHORIZED REPAIR STATION, SUCH PRODUCTS AND/OR PARTS AS PROVEN DEFECTIVE. THERE SHALL BE NO FURTHER LIABILITY, WHETHER BASED ON WARRANTY, NEGLIGENCE OR OTHERWISE.** Unless expressly stated otherwise, guarantees in the nature of performance specifications furnished in addition to the foregoing material and workmanship warranties on a product manufactured by us, if any, are subject to laboratory tests corrected for field performance. Any additional guarantees, in the nature of performance specifications must be in writing and such writing must be signed by our authorized representative. Due to inaccuracies in field testing if a conflict arises between the results of field testing conducted by or for user, and laboratory tests corrected for field performance, the latter shall control. **RECOMMENDATIONS FOR SPECIAL APPLICATIONS OR THOSE RESULTING FROM SYSTEMS ANALYSES AND EVALUATIONS WE CONDUCT WILL BE BASED ON OUR BEST AVAILABLE EXPERIENCE AND PUBLISHED INDUSTRY INFORMATION. SUCH RECOMMENDATIONS DO NOT CONSTITUTE A WARRANTY OF SATISFACTORY PERFORMANCE AND NO SUCH WARRANTY IS GIVEN.**

This warranty shall not apply when damage is caused by (a) improper installation, (b) improper voltage (c) lightning (d) excessive sand or other abrasive material (e) scale or corrosion build-up due to excessive chemical content. Any modification of the original equipment will also void the warranty. We will not be responsible for loss, damage or labor cost due to interruption of service caused by defective parts. Neither will we accept charges incurred by others without our prior written approval.

This warranty is void if our inspection reveals the product was used in a manner inconsistent with normal industry practice and/or our specific recommendations. The purchaser is responsible for communication of all necessary information regarding the application and use of the product. **UNDER NO CIRCUMSTANCES WILL WE BE RESPONSIBLE FOR ANY OTHER DIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO TRAVEL EXPENSES, RENTED EQUIPMENT, OUTSIDE CONTRACTOR FEES, UNAUTHORIZED REPAIR SHOP EXPENSES, LOST PROFITS, LOST INCOME, LABOR CHARGES, DELAYS IN PRODUCTION, IDLE PRODUCTION, WHICH DAMAGES ARE CAUSED BY ANY DEFECTS IN MATERIAL AND/OR WORKMANSHIP AND/OR DAMAGE OR DELAYS IN SHIPMENT. THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY OTHER EXPRESS OR IMPLIED WARRANTY, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**

No rights extended under this warranty shall be assigned to any other person, whether by operation of law or otherwise, without our prior written approval.

CRANE[®]

PUMPS & SYSTEMS

A Crane Co. Company

420 Third Street
Piqua, Ohio 45356
Phone: (937) 778-8947
Fax: (937) 773-7157
www.cranepumps.com

83 West Drive, Brampton
Ontario, Canada L6T 2J6
Phone: (905) 457-6223
Fax: (905) 457-2650

**IMPORTANT!
WARRANTY REGISTRATION**

Your product is covered by the enclosed Warranty.
To complete the Warranty Registration Form go to:

<http://www.cranepumps.com/ProductRegistration/>

If you have a claim under the provision of the warranty, contact your local
Crane Pumps & Systems, Inc. Distributor.

RETURNED GOODS

**RETURN OF MERCHANDISE REQUIRES A "RETURNED GOODS AUTHORIZATION".
CONTACT YOUR LOCAL CRANE PUMPS & SYSTEMS, INC. DISTRIBUTOR.**



**Products Returned Must Be Cleaned, Sanitized,
Or Decontaminated As Necessary Prior To Shipment,
To Insure That Employees Will Not Be Exposed To Health
Hazards In Handling Said Material. All Applicable Laws
And Regulations Shall Apply.**



A Crane Co. Company

PUMPS & SYSTEMS

START-UP REPORT

General Information

Pump Owner's Name: _____
 Address: _____
 Location of Installation: _____
 Contact Person: _____ Phone: _____
 Purchased From: _____

Nameplate Data

Pump Model #: _____ Serial #: _____
 Part #: _____ Impeller Diameter: _____
 Voltage: _____ Phase: _____ Ø Hertz: _____ Horsepower: _____
 Full Load Amps: _____ Service Factor Amps: _____
 Motor Manufacturer: _____

Controls

Control panel manufacturer: _____
 Model/Part number: _____
 Number of pumps operated by control panel: _____
 Short circuit protection? YES___ NO___ Type: _____
 Number and size of short circuit device(s): _____ Amp rating: _____
 Overload Type: _____ Size: _____ Amp rating: _____
 Do protection devices comply with pump and motor Amp rating? YES___ NO___
 Are all electrical and panel entry connections tight? YES___ NO___
 Is the interior of the panel dry? YES___ NO___
 Liquid level Control Brand and Model: _____

Pre-Startup

All Pumps

Type of equipment: NEW___ REBUILT___ USED___
 Condition of equipment at Start-Up: DRY___ WET___ MUDDY___
 Was Equipment Stored? YES___ NO___ Length of Storage: _____
 Liquid being pumped: _____ Liquid Temperature: _____
 Supply Voltage/Phase/Frequency matches nameplate? YES___ NO___
 Shaft turns freely? YES___ NO___
 Direction of rotation verified for 3Ø motors? YES___ NO___
 Debris in piping or wet well? YES___ NO___
 Debris removed in your presence? YES___ NO___
 Pump case/wet well filled with liquid before startup? YES___ NO___
 Is piping properly supported? YES___ NO___

Non-Submersible Pumps

Is base plate properly installed / grouted? YES___ NO___ N/A___
 Coupling Alignment Verified per I&O Manual? YES___ NO___ N/A___
 Grease Cup/Oil Reservoir Level checked? YES___ NO___ N/A___

Submersible Pumps

Resistance of cable and pump motor (measured at pump control):

Red-Black: _____ Ohms(Ω) Red-White: _____ Ohms(Ω) White-Black: _____ Ohms(Ω)

Resistance of Ground Circuit between Control Panel and outside of pump: _____ Ohms(Ω)

MEG Ohms check of insulation:

Red to Ground: _____ White to Ground: _____ Black to Ground: _____

Operational Checks

Is there noise or vibration present? YES___ NO___ Source of noise/vibration: _____

Does check valve operate properly? YES___ NO___ N/A___

Is system free of leaks? YES___ NO___ Leaks at: _____

Does system appear to operate at design flow rate? YES___ NO___

Nominal Voltage: _____ Phase: 1Ø 3Ø (select one)

Voltage Reading at panel connection, Pump OFF: L1, L2 _____ L2, L3 _____ L1, L3 _____

Voltage Reading at panel connection, Pump ON: L1, L2 _____ L2, L3 _____ L1, L3 _____

Amperage Draw, Pump ON: L1 _____ L2 _____ L3 _____

Submersible Pumps

Are BAF and guide rails level / plumb? YES___ NO___

Is pump seated on discharge properly? YES___ NO___

Are level controls installed away from turbulence? YES___ NO___

Is level control operating properly? YES___ NO___

Is pump fully submerged during operation? YES___ NO___

Follow up/Corrective Action Required

YES___ NO___

Additional Comments:

Startup performed by: _____ Date: _____

Present at Start-Up

() Engineer: _____ () Operator: _____

() Contactor: _____ () Other: _____

All parties should retain a copy of this report for future trouble shooting/reference



PUMPS & SYSTEMS

A Crane Co. Company

420 Third Street
Piqua, Ohio 45356
Phone: (937) 778-8947
Fax: (937) 773-7157
www.cranepumps.com

83 West Drive, Brampton
Ontario, Canada L6T 2J6
Phone: (905) 457-6223
Fax: (905) 457-2650

