



## GENERAL TERMS OF SALE FOR PRODUCTS

Effective: January 2003

### I. GENERAL

A. Seller's price is based on these sales terms and conditions. This contract shall represent the final, complete and exclusive statement of the agreement between the parties and may not be modified, supplemented, explained or waived by parol evidence, any Terms and Conditions contained in Buyer's purchase order or request for quotation, any course of dealings between the parties, Seller's performance or delivery, or in any other way. The Terms and Conditions of this contract may only be modified or waived in a written document signed by an Officer of Seller. These terms are intended to cover all activity of Seller and Buyer hereunder, including sales and use of products, parts and work and all related matters (references to products include parts and references to work include construction, installation and start-up). Any reference by Seller to Buyer's specifications and similar requirements are only to describe the products and work covered hereby and no warranties or other terms therein shall have any force of effect. Any information provided by Seller including, but not limited to, suggestions as to specific equipment does not imply any guarantee of specific suitability and/or material compatibility in a particular application, since many factors outside the control of Seller may affect the suitability of products in a particular application. Catalogs, circulars, similar pamphlets and information contained on websites of the Seller are issued for general information purposes only and shall not be deemed to modify the provisions hereof. B. The agreement formed hereby and the language herein shall be construed and enforced under the Uniform Commercial Code as in effect in the State of California on the date hereof.

### 2. TAXES

Any sales, use or other similar type taxes imposed on this sale or on this transaction are not included in the price. Such taxes shall be billed separately to the Buyer. Seller will accept a valid exemption certificate from the Buyer if applicable; however, if an exemption certificate previously accepted is not recognized by the governmental taxing authority involved and the Seller is required to pay the tax covered by such exemption certificate. Buyer agrees to promptly reimburse Seller for the taxes paid.

### 3. PERFORMANCE, INSPECTION AND ACCEPTANCE

A. Unless Seller specifically assumes installation, construction or start-up responsibility, all products shall be finally inspected and accepted within thirty (30) days after arrival at point of delivery. Products not covered by the foregoing and all work shall be finally inspected and accepted within thirty (30) days after completion of the applicable work by Seller. All claims whatsoever by Buyer, (including claims for shortages) except only those provided for under the WARRANTY AND LIMITATION OF LIABILITY AND PATENTS CLAUSES, hereof, must be asserted in writing by Buyer within said thirty (30) day period or they are waived. If this contract involves partial performance, all such claims must be asserted within said thirty-(30) day period for each partial performance. There shall be no revocation of acceptance. Rejection may be only for defects substantially impairing the value of products or work and Buyer's remedy for lesser defects shall be those provided for under the WARRANTY AND LIMITATION OF LIABILITY CLAUSE.

B. Seller shall not be responsible for non-performance or for delays in performance occasioned by any causes beyond Seller's reasonable control, including, but not limited to, labor difficulties, delays of vendors or carriers, fires, governmental actions, or shortages of material, components, labor, or manufacturing facilities. Any delays so occasioned shall affect a corresponding extension of Seller's performance dates, which are, in any event, understood to be approximate. In no event shall Buyer be entitled to incidental or consequential damages for late performance or for a failure to perform. Seller reserves the right to make partial shipments and to ship products, parts or work which may be completed prior to the scheduled performance date.

C. In the event that Seller has agreed to mount motors, turbines, gears, or other products which are not manufactured by Seller and which are not an integral part of Seller's manufactured product, and a delay in the delivery of such products to Seller occurs that will cause a delay in Seller's performance date, Seller reserves the right to ship its product upon completion of manufacture and to refund an equitable portion of the amount originally included in the purchase price for mounting without incurring liability for non-performance.

D. Seller reserves to itself the right to change its specifications, drawings and standards if such changes will not impair the performance of its products, and parts, and further that such products, and parts, will meet any of Buyer's specifications and other specific product requirements which are a part of this agreement.

E. The manufacture and inspection of products and parts shall be to Seller's Engineering and Quality Assurance standards plus such other inspections or tests of documentation as are specifically agreed to by Seller. Requirements for any additional inspection, tests, documentation, or Buyer witness of manufacture, test, and/or inspection shall be subject to additional charges.

### 4. TITLE AND RISK OF LOSS

Title and risk of loss shall pass to buyer upon delivery of products at the designated "Ex Works" as defined by Incoterms 1990, unless other wise agreed by the parties.

### 5. EROSION AND CORROSION

It is specifically understood that products and parts sold hereunder are not warranted for operation with erosive or corrosive fluids. No product or part shall be deemed to be defective by reason of failure to resist erosive or corrosive action of any fluid and Buyer shall have no claim whatsoever against Seller therefore.

### 6. BUYERS RESPONSIBILITY

The design specifications of the equipment require the operation of the equipment within certain parameters and may call for the use of speed controls, safety devices, set points or other control devices to insure that the operation remains within design parameters. Buyer agrees and understands that the equipment must be operated and maintained within design specifications.

### 7. WARRANTY AND LIMITATION OF LIABILITY

A. Seller warrants only that its product and parts, when shipped, will be free from defects in materials and workmanship. With respect to products and parts not manufactured by Seller, Seller's only obligation shall be to assign to Buyer, to the extent possible, whatever warranty Seller requires from the manufacturer. All claims for defective products or parts under this warranty must be made in writing immediately upon discovery and, in any event, within one (1) year after initial start-up or eighteen (18) months after shipment, whichever first occurs, and all claims for defective work must be made in writing immediately upon discovery and in any event, within one (1) year of completion thereof by Seller. Defective items must be held for Seller's inspection and returned to the sellers' point of original shipment upon request. UNAUTHORIZED DISASSEMBLY OR TAMPERING WITH ANY PRODUCT OR COMPONENT MAY VOID ITS WARRANTY. THE FOREGOING IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES WHATSOEVER, EXPRESS, IMPLIED AND STATUTORY, INCLUDING WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.

B. ANY PRODUCT (S) SOLD HEREUNDER WHICH IS NOT MANUFACTURED BY SELLER IS NOT WARRANTED BY SELLER and shall be covered only by the express warranty, if any, of the manufacturer thereof.

C. Upon Buyer's submission of a claim as provided above and its substantiation, Seller shall at its option either (i) repair or replace its product, part or work at the original place of shipment, or (ii) refund an equitable portion of the purchase price.

D. THE FOREGOING IS SELLER'S ONLY OBLIGATION AND BUYER'S EXCLUSIVE REMEDY FOR BREACH OF WARRANTY AND, EXCEPT FOR GROSS NEGLIGENCE, WILLFUL MISCONDUCT, AND REMEDIES PERMITTED UNDER THE PERFORMANCE, INSPECTION AND ACCEPTANCE AND THE PATENTS CLAUSES HEREOF, THE FOREGOING IS BUYER EXCLUSIVE REMEDY AGAINST SELLER FOR ALL CLAIMS ARISING HEREUNDER OR RELATING HERETO WHETHER SUCH CLAIMS ARE BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHER THEORIES. BUYER'S FAILURE TO SUBMIT A CLAIM AS PROVIDED ABOVE SHALL SPECIFICALLY WAIVE ALL CLAIMS FOR DAMAGES OR OTHER RELIEF, INCLUDING BUT NOT LIMITED TO CLAIMS BASED ON LATENT DEFECTS. IN NO EVENT SHALL BUYER BE ENTITLED TO INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, NOR FOR DAMAGES FOR LOSS OF USE, LOST PROFITS OR REVENUE, INTEREST, LOST GOODWILL, WORK OR PRODUCTION STOPPAGE, IMPAIRMENT OF OTHER GOODS, INCREASED EXPENSES OF OPERATION, OR THE COST OF PURCHASING REPLACEMENT POWER OR OTHER SERVICES BECAUSE OF SERVICE INTERRUPTIONS. FURTHERMORE, IN NO EVENT SHALL SELLER'S TOTAL LIABILITY FOR DAMAGES OF BUYER EXCEED THE PURCHASE PRICE OF THE PRODUCTS OR PARTS MANUFACTURED BY SELLER AND UPON WHICH SUCH LIABILITY IS BASED. ANY ACTION ARISING HEREUNDER RELATED HERETO, WHETHER BASED ON BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE) OR OTHER THEORIES, MUST BE COMMENCED WITHIN ONE (1) YEAR AFTER THE CAUSE OF ACTION ACCRUES OR IT SHALL BE BARRED.

### 8. PURCHASER'S REPRESENTATIONS & WARRANTIES

Purchaser represents and warrants that the product(s) covered by this contract shall not be used in or in connection with a nuclear facility or application. The parties agree that this representation and warranty is material and is being relied on by seller. This provision may be modified in a separate writing signed by an officer of Price Pump Co.

### 9. PATENTS

Seller agrees to assume the defense of any suit for infringement of any patents brought against Buyer to the extent of such suit charges infringement of an apparatus or product claim by Seller's product in and of itself, provided (i) said product is built entirely to Seller's design, (ii) Buyer notifies Seller in writing of the filing of such suit within ten (10) days after the service of process thereof, and (iii) Seller is given complete control of the defense of such suit, including the right to defend, settle and make changes in the product for the purpose of avoiding infringement of any process or method claims, unless infringement of such claims is the result of following specific instruction furnished by Seller.

### 10. EXTENT OF SUPPLY

Only products as listed in Seller's proposal are included in this agreement. It must not be assumed that Seller has included anything beyond same.

### 11. MANUFACTURING SOURCES

To maintain delivery schedules, Seller reserves the right to have all or any part of the Buyer's order manufactured at any of Seller's, sellers' licensees or sub contractors' plants, globally.

### 12. TERMS OF PAYMENT

Net 30 days from date of invoice.

### 13. ARBITRATION

In the event a dispute arises between the parties relating to or arising out of this agreement, the parties agree to attempt to have their senior management amicably settle the matter. In the event that the matter cannot be settled, the parties shall submit all disputes relating to this Agreement (whether contract, tort, products liability or otherwise) to binding Arbitration before a panel of arbitrators under the Commercial Dispute Resolution Procedures of the American Arbitration Association. Each party shall appoint an arbitrator and the third shall be selected in accordance with the rules of the American Arbitration Association. Judgment upon the award may be entered in any court having jurisdiction. The parties shall cooperate in providing reasonable disclosure of relevant documents. Each party shall bear its own expenses, and the costs and fees of the arbitration shall be borne as allocated by the Arbitrator.



# Price Pump Company

## Type 2MS75SS MAG-DRIVE Installation, Operating and Maintenance Manual

### Warning:

**Before installing, repairing or performing maintenance on this pump, read these instructions completely.**

**Disconnect power to pump before servicing to avoid dangerous or fatal electrical shock .**

**Match supply voltage to motor nameplate voltage. Incorrect voltage can cause fire or serious motor damage and void warranty.**

**Ground motor before connection to electrical power supply!! Failure to ground motor can cause severe or fatal electrical shock!!**

**Do not ground to gas supply line!!**

**Before disassembling pump, be certain all liquid is removed. If pump was used to move hazardous or toxic materials, it must be decontaminated prior to disassembly.**

### Close Coupled Motor Pumps:

It is suggested that these pumps be firmly bolted to a level surface. Adequate air movement around motor will help prevent overheating. Do not over tighten inlet and outlet piping or volute may fracture.

### Power Frame Mounted Pumps

These pumps must be mounted on a rigid steel base that will not warp or flex. Each pump must be mounted such that the pump shaft centerline is on center with the driver shaft centerline. Pad and/or shims will be required on either pump, driver or both. The two shafts should not touch each other and the distance between them depends on the coupling used to connect them.

Misalignment will cause vibration, bearing failure and void warranty. Pumps are rough aligned at the factory but must be realigned after shipment and installation.

Pulley driven pump must have pulleys inline and good belt tightness practices followed.

### Direction of Rotation

**Note:** Motor shaft rotation is viewed from the suction end of pump. A rotational arrow is shown on the front of the pump volute casing. Incorrect rotation can cause pump damage, failure or reduced performance, voiding warranty. It is best to check rotation by momentarily energizing or jogging the motor prior to filling pump with liquid.

**Warning! Do not operate pump without liquid for more than a moment, as damage will result to the pump internal wear surfaces.**

### Plumbing

All piping should be supported independently of the pump. Piping should not exert any stress on the pump connections.

## PRICE® PUMP COMPANY

### Suction Piping (Horizontal Pumps)

Suction line must provide adequate suction pressure and smooth liquid flow for proper pump operation. Air in the suction line due to leaks or improper piping design may cause the pump to lose prime. Non-priming pumps must have their suction flooded at start up. Also, the suction line must provide sufficient pressure (NPSH) and smooth flow to pump inlet to prevent pump cavitation. The suction pipe length entering the pump should be a minimum of 5 times and preferably 10 times the pump inlet diameter. Elbows, fittings or valves installed close to the pump inlet can disrupt liquid flow and cause mal-function. Suction lines must be at least the same diameter as the pump inlet or larger if possible.

Price Pump Company recommends against using foot valves in the suction line to maintain liquid in the pump when it's not operating. If foot valves are used, due to suction lift conditions, they must be properly maintained to avoid leaks resulting from wear or fouling. Suction

piping must be designed to prevent vapor from being trapped in high spots in the piping. This condition may cause the pump to vapor lock.

### Discharge Piping

To control flow and discharge head, it is advisable to install a valve (globe, ball, or other adjustable and non-leak type) in the discharge line close to the pump. The valve may be closed during system repairs to prevent backflow. By installing a check valve in the discharge line backflow can also be prevented during maintenance or during periods of pump stoppage.

### Operation

All centrifugal pumps must be filled with liquid prior to start up. It is suggested that during initial start up the discharge valve be closed and then opened as the motor develops full rpm's. If pump does not build up pressure as motor speed increases, shut down and make sure that liquid flow into pump is not restricted (see "Troubleshooting").

**Note:** A centrifugal pumps flow and head (pressure) will vary with the amount of resistance (friction and flow restrictions) in the discharge line. As a valve on the discharge line opens the flow and motor amp draw will increase and head (pressure) will drop. As a valve on the discharge is closed the flow and amp draw will decrease and the head will increase.

If resistance in the discharge line is not sufficient the pump will operate at a condition of maximum flow, also sometimes called "end of performance curve." Maximum horse-power is required to operate at this point and motor overload may result. If excessive amp draw and motor overload is re-curring, reduce the system flow by installing a valve or orifice in the discharge line and restrict flow. Alternatively, reduce pump head by trimming impeller to a smaller diameter.

Consult local Price Pump distributor for assistance.

## TROUBLESHOOTING

### **1. Pump fails to build pressure:**

Check for:

- a. Pump not primed.
- b. Incorrect rotation.
- c. Driver speed too low.
- d. Suction line restricted.
- e. Driver failure.
- f. Plugged or damaged impeller.
- g. Pump or impeller undersized.
- h. Pump cavitation.
- i. Improper impeller clearance.

### **2. Pump fails to provide enough flow.**

Check for:

- a. System resistance too high.
- b. Pump undersized.
- c. Pump not primed.
- d. Driver speed too low.
- e. Poor suction conditions.
- f. Improper impeller clearance.

### **3. Excessive noise or vibration during operation.**

Check for:

- a. Motor bearing failing.
- b. Pump cavitating.
- c. Improper impeller clearance.

### **4. Pump gradually loses pressure and head.**

Check for:

- a. Increasing temperature causing cavitation or liquid vaporization.
- b. Driver failure.
- c. Suction lift too high.
- d. Air entering suction line.

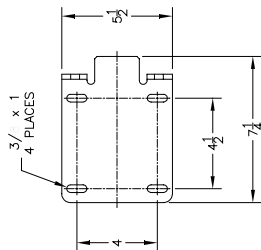
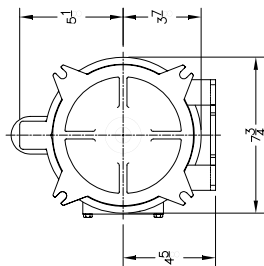
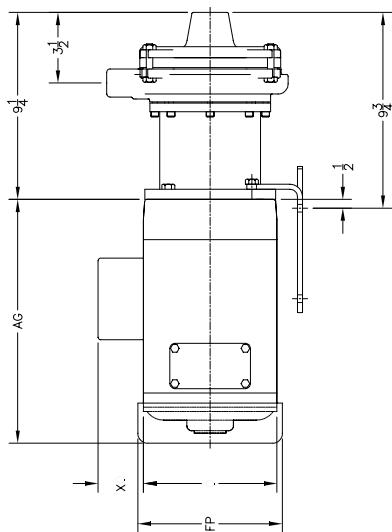
### **5. Motor/pump overheating.**

Check for:

- a. Excessive flow and amp draw (Throttle discharge).
- b. Low voltage or frequency.
- c. Flow too low with resulting heat rise.
- d. Bearing failure.
- e. System temperature too high.

If all else fails, call your distributor or Price Pump @ (707) 938-8441

**TYPE 2MS75 MAG-DRIVE OUTLINE DRAWING**



N.T.E. DIMENSIONS WILL VARY BY MANUFACTURER. MAKE, MODEL AND MATERIALS ARE TO BE USED FOR REFERENCE ONLY.

HP	FRM	AG	FP	X
1/4	1	56C	7 3/4	6 1/2
1/3	1	56C	1/4	6 1/2
1/2	1	56C	3/4	6 1/2
3/4	1	56C	9 1/4	6 1/4
1	1	56C	1	6 1/4
2	36	56C	11 1/2	7 3/16
3	36	56C	12 3/4	7 3/16
5	36	1 4C	13 5/8	1/2
7-1/2	36	1 4C	15 1/2	1/2

N.T.E. ALL DIMENSIONS HAVE BEEN ROUNDED TO THE NEAREST 1/8"

**2MS75 MAG-DRIVE MAINTENANCE AND REPAIR**

Before attempting any repairs under warranty, contact Distributor to obtain factory authorization. Repairs carried out without authorization may void warranty. Many causes of pump system failure are due to improper system design. Refer to the trouble shooting list in this manual before carrying out pump inspection.

**DISASSEMBLY**

1. Disconnect power source from motor.
2. Disconnect electrical connections, tagging wires carefully to preserve correct rotation. Loosen pump base.
3. Remove motor pump to repair area. Observe position of all parts prior to disassembly.

**NOTE: Place motor pump in vertical position. (pump end upward)**

4. Remove pump head assembly / volute (A) from the drive housing (V) by removing eight Allen head 1/4-20 x 7/8" bolts.(W)

**NOTE: There will be magnet resistance when separating volute from housing.**

5. Remove magnet drive housing (V) and base (Z) from motor by removing motor bolts: 2 ea. (X) and 2ea. (Y).
6. Pull out magnet cup (U) from magnet drive housing.
7. To remove the drive magnet (BB), loosen the two setscrews (AA) holding the driver magnet to the motor shaft. With the setscrews loosened, the magnet should now slide off the motor shaft. Check the setscrews (AA) and motor shaft key (CC) for wear and replace if necessary.

**Set motor aside**

8. Remove magnet cup O-ring (T) from back of the volute (A).
9. Loosen 4ea. 3/8 X 1-1/2 volute flange bolts (N) and remove suction plate (G)
10. Remove suction plate O-ring (M) from groove. Remove hub bushing (L) from suction plate (G).
11. Loosen and remove FRONT impeller (B) by holding driven magnet securely and unthreading impeller CCW..
12. Lift off diffuser (F) and remove o-ring (M)
13. Pull out separator plate (H)
14. Loosen and remove REAR impeller (C) by holding driven magnet securely and unthreading impeller CCW.
15. Slide driven magnet (Q) and shaft assembly out of the volute.
16. Remove shaft (D) and thrust washer (K) from driven magnet by removing lockdown bolt (S) washers(R) and shaft key (E)
17. Pull bushings (I) from volute and remove bushing key (J).
18. Remove thrust washer (K) from back side of REAR impeller (C)
19. Remove setscrew (EE) from volute (A)

**NOTE: Clean parts and passageways**

**before reassembly.**

**REASSEMBLY**

**NOTE: Place motor in vertical position for assembly.**

1. Insert motor shaft key (CC) into the motor shaft and slide the driver magnet (BB) onto the motor shaft. **Note:** 5/8" bored driver magnets will bottom out on the motor shaft to the internal snap ring, while the 7/8" bored driver magnets will need to be set back on the motor shaft until the shaft end is flush with the inside face of the driver magnet.
2. Once the driver magnet (BB) is set on the motor shaft, tighten the driver magnet down on the shaft with the two set screws (AA).
3. Place the drive housing (V) and base onto the motor flange and fasten with motor bolts (X) & (Y) **NOTE:** (Y) bolts are used on the bottom holes for mounting the base.
4. Place magnet cup (U) into top opening of drive housing (V).

**Set motor aside**

1. Insert bushing key (J) into keyway that's in the center bore of the volute (A).

**IMPORTANT: DO NOT put the bushing key into the keyway that has the hole drilled into it.**

## 2MS75 MAG-DRIVE MAINTENANCE AND REPAIR

## TYPE 2MS75 MAG-DRIVE PARTS LIST

2. Install both thrust bushings (I) into each side of the center bore of the volute (A) making sure to align with bushing key.
3. Install one thrust washer (K) into the inside of the driven magnet (Q) fitting the matching "D" flat.
4. Slide the keyed end of the shaft (D) into the bore of the open end of the driven magnet, while fitting the matching "D" flat of the thrust washer (K).
5. Install the shaft key (E) into the keyed opening on the back side of the driven magnet (Q).
6. Slide the lockdown washer (R), then flat washer ( ) onto the lockdown bolt (S).
7. Carefully slide the driven magnet (Q) / shaft assembly through the thrust bushing of the extended shoulder end of the volute (A) making sure not to dislodge thrust bushing.
8. Place one thrust washer (K) onto the threaded end of the shaft (D) making sure to align the D-drive flats.
9. Thread the **REAR** impeller (C) onto the shaft (D). Grasp driven magnet (Q) and tighten impeller.
10. Place separator plate (H) into volute opening on top of rear impeller.
11. Lubricate one large O-ring (M) with silicone grease and place it over the top of the separator plate (H). It will rest inside the volute opening.
12. Place the diffuser (F) (vane end facing separator plate) onto the volute opening and squeeze into place.
13. Thread the **FRONT** impeller (B) onto the shaft (D). Grasp driven magnet (Q) and tighten impeller.
14. Carefully press Hub bushing (L) into suction plate (G).
15. Lubricate one large O-ring (M) with silicone grease and place it into groove on the machined face of the suction plate (G).
16. Gently place the suction plate (G) onto the volute assembly and align flange bolt openings.
17. Install the four 3/8x2" hex volute bolts (N) in the slots of the volute assembly (nuts facing outward). Tighten evenly to 8 - 10 ft/lbs using a cross pattern.

**NOTE: Apply thread loctite 222 to the shaft threads.**

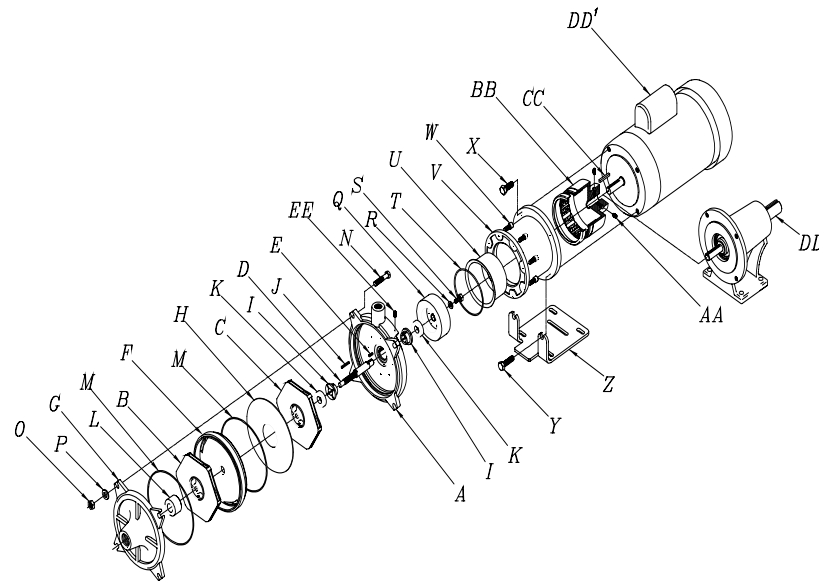
**NOTE:** Driven magnet should spin freely in assembly without resistance. If resistance is felt, loosen volute bolts and retorque. If resistance persists, volute assembly will have to be reassembled.

**WARNING: Care must be taken when engaging magnets during the final assembly.**

18. Lubricate magnet cup O-ring (T) with silicone grease and place it in the groove on the magnet end of the volute assembly.
19. **Place motor in the vertical position.** Firmly grasp the volute assembly and position centerline over the drive magnet housing. **SLOWLY** lower onto housing. The magnets will engage within 1" of mating flange.

**NOTE: Should mating flanges slam together, damage could occur to bushings and pump will have to be reassembled.**

20. Install eight Allen head 1/4x7/8" housing bolts (W) and tighten to 8-10 ft . lbs. **Be sure to tighten housing bolts evenly in a cross pattern.**
21. Apply thread sealer to set screw (EE) and insert into threaded hole next to the discharge port.



	Description:	P/N:	Description:	P/N:
A.	Volute	3619	N.	Volute Bolt (4 ea.)
B.	Impeller, Front 3624-dia		O.	Nut (4 ea.)
C.	Impeller, Rear	3625-dia	P.	Washer (4 ea.)
D.	Shaft 316SS (std.)		Q.	Driven Magnet
	For carbon/ceramic bushings 3628		R.	Lockdown Washer
	Shaft Tungsten Coated (opt.)		S.	Lockdown Bolt 0917
	For silicon carbide bushings 3628-30		T.	O-ring, Magnet Cup
E.	Shaft Key	2424	U.	Magnet Cup
F.	Diffuser	3621	V.	Drive Housing
G.	Suction Plate	3620	W.	Housing Bolts (8 ea.)
H.	Separator Plate 3622		X.	Top Motor Bolts (2 ea.)
I.	Thrust Bushing (2 ea.)		Y.	Bottom Motor Bolts (2ea.)
	Carbon (std.) 3699		Z.	Base Plate
	Silicon Carbide (opt.)	3630	AA.	Setscrew (2 ea.)2452
J.	Bushing Key	2467	BB.	Drive Magnet
K.	Thrust Washer (2 ea.)			5/8" Shaft Bore
	Ceramic (std.)	3700		7/8" Shaft Bore
	Silicon Carbide (opt.)	3629	CC.	Motor Shaft Key
L.	Hub Bushing		DD1.	Electric Motor
	Carbon (std.) 3705		DD2.	Power Frame
	Silicon Carbide (opt.)	3631	EE.	Setscrew
M.	Viton O-ring (2 ea.)	3659		Specify P/N