

## Installing Your PROCON Pump

Your Procon pump is a precision-built piece of equipment. Handle it carefully. Procon pumps should be installed only by qualified technicians.

### NOTICE

When you install your pump, follow these guidelines:

- Do not hammer or mishandle your pump.
- Keep all foreign materials out of your pump.
- Never vise or grip the round body portion of the pump housing. Grip only the square inlet/outlet bosses when you install fittings. Always support the pump when you install fittings to avoid bending the V-band clamp even if the pump is already mounted to the motor.
- Make sure the power is off before working with an electric motor. If possible, lock out the power at a disconnect.
- Make sure you have an adequate, well-lit work space and use the correct tools.
- Do not use any components that are damaged or deformed. You should not have to force any parts together. If you receive parts that are damaged or deformed, call your Procon factory representative.

We test every Procon pump at the factory for pressure and flow. If the pump has a relief valve, we set it to your specifications.

### CAUTION

Do not tamper with the relief valve on your pump. If you think the relief valve needs to be reset, contact your Procon factory representative.

We make every effort to ensure that your pump is of the highest quality. To get the most out of your pump, read and follow these instructions carefully.

## For all motors-- examining your pump *BEFORE* you get started

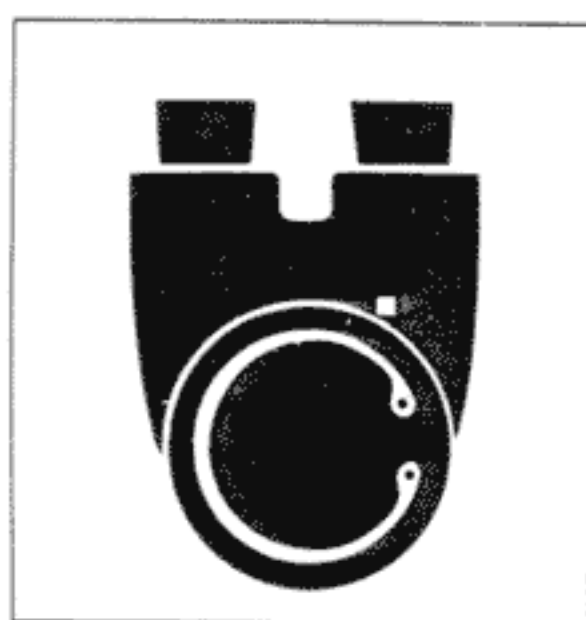
Before you install your pump, you must carefully unpack the pump and examine and prepare it to be installed. Follow these steps for all types of motors.

### NOTICE

Do not exchange one pump model for another. Pumps are carefully engineered to meet specific requirements and flow rates.

All pumps within a series have the same housing. They may look alike, but they perform differently. Check the model number to make sure you have the correct pump before you install it.

Using the wrong pump may damage your pump, your system, or your electric motor.



Do not remove the shipping plugs from the ports at the top of the pump until time to install fittings.

- 1. TAKE THE PUMP OUT OF ITS SHIPPING CONTAINER.** Do not remove the shipping plugs from the port until the fittings are ready to be installed. This will keep debris out of the pump.

If the pump has a shaft coupling, remove the coupling and discard the foam shipping strip. Reinsert the coupling. Be careful when handling the pump; do not drop it or bang it. If you mishandle the pump, especially the shaft end, you can disrupt or damage internal clearances and impair performance of your pump.



Examine the mounting surfaces on the pump.

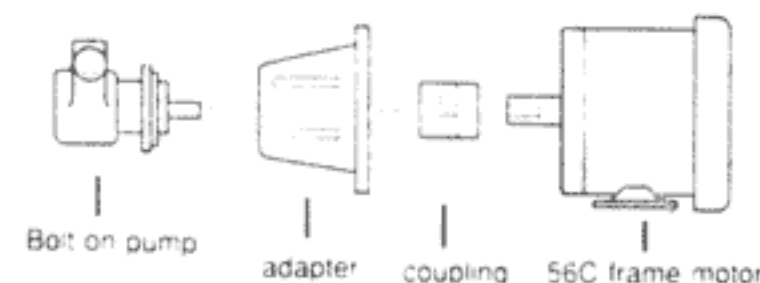
- 2. EXAMINE THE MOUNTING SURFACES.** Carefully remove any burrs or raised metal which may have occurred during unpacking and handling to make sure the pump will sit and be aligned properly.

Now you are ready to mount the pump to a motor. Procon pumps work with two types of electric motors-- a carbonator style motor (NEMA 48YZ frame) and a C-frame motor (NEMA 56C frame). Follow the steps for the type of motor you are using.

## Mounting your pump on a 56C frame motor

You should have these parts:

- bolt-on Procon pump
- Procon motor adapter
- 3-piece drive shaft coupling
- 56C frame motor



Correctly assembling the coupling and the adapter, and mounting the pump is a trial and error process. You may have to try several times before you get it right.

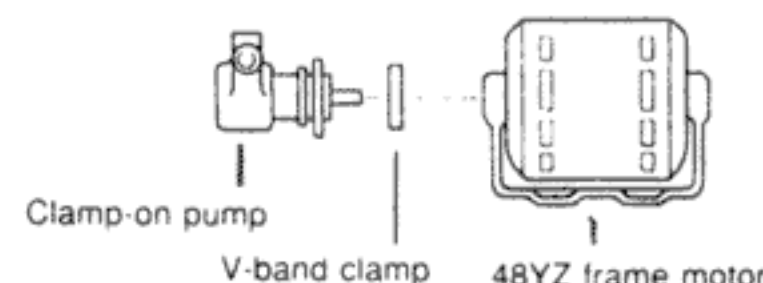
**FOLLOW THESE STEPS AFTER YOU HAVE EXAMINED YOUR PUMP.**

1. Mount the drive shaft coupling.
  - a. Make sure motor is electrically disconnected and cannot accidentally turn on.
  - b. Mount the half of the coupling for the motor onto the motor shaft and tighten the set screw.
  - c. Insert the elastomer piece onto the motor piece.
  - d. Mount the half of the coupling for the pump onto the pump shaft, but do not tighten the set screw.
 Make sure the coupling slides easily onto the pump and the motor shaft--do not force it. Make sure the shaft does not protrude into the space occupied by the elastomer piece. The series 6 pump requires a shaft key.
2. Mount the motor adapter onto the motor using four 3/8 inch dia. by 1 inch long bolts (16 threads/inch) and lock washers. Rotate the pump to orient the inlet/outlet ports as desired.
3. Mount the pump onto the motor adapter while simultaneously engaging the coupling pieces.
4. Check to make sure that the coupling is properly engaged.
5. Tighten the set screw on the pump coupling half.
6. Check your assembly. The elastomer coupling piece should have about 1/16 inch of play between the two metal pieces. If it does, go to step 7. If it does not, repeat steps 1 through 5, until the assembly is correct.
7. Fasten the pump to the adapter using three 1/4 inch dia. by 3/4 inch bolts (20 threads/inch) and lock washers or two 3/8 inch dia. by 1 inch bolts (16 threads/inch) for series 6.
8. Check to make sure that your motor rotates correctly. Motor rotation must correspond to the rotation arrow on the nameplate of the pump.

## Mounting your pump on a 48YZ frame motor

You should have these parts:

- Clamp-on Procon pump
- Procon V-band clamp
- 48YZ frame motor



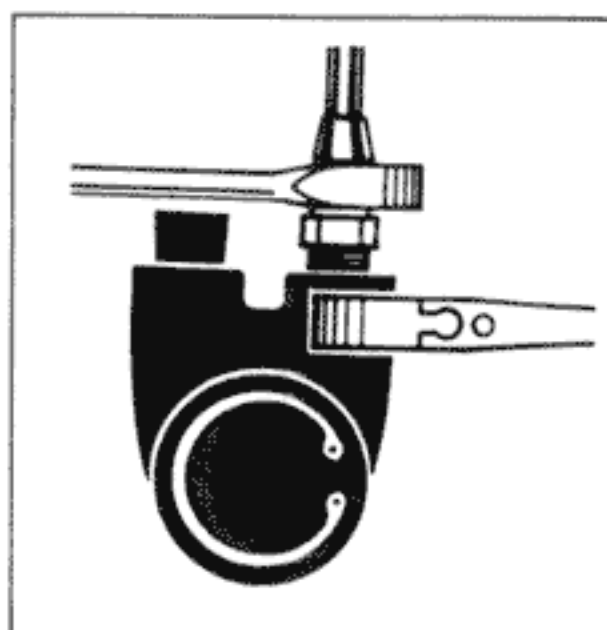
**AFTER YOU HAVE EXAMINED YOUR PUMP FOR DAMAGE, FOLLOW THESE STEPS.**

1. Make sure motor is electrically disconnected and cannot accidentally turn on.
2. Slip the V-band onto the motor ring flange.
3. Mount the pump to the motor by inserting the tang (shaft) of the pump into the slot on the motor.
4. Rotate the pump to orient the inlet/outlet ports as desired.
5. Make sure the ring flanges on the pump and on the motor are properly engaged and flush against one another.
6. Make sure the clamp is fully seated around the entire circumference of the pump and motor flanges.
7. Tighten the V-band clamp using 15 to 30 inch-pounds of torque.

**NOTE:** Do not over tighten the clamp. The V-band clamp is designed to support the pump and fittings only. Loads caused by rigid plumbing or heavy attachments may result in misalignment.

## For all motors--installing the plumbing

When you finish mounting your pump on a motor, you must install the plumbing for the pump. Follow these steps after you have mounted your pump.



Use a backup wrench on the square port boss to support the pump.

- 1. INSTALL THE INLET AND OUTLET FITTINGS.** Support the pump by using a backup wrench on the square port bosses. Do not put any strain on the V-band clamp. Use brass fittings or plastic fittings on a brass pump. Use stainless steel or plastic fittings on a stainless steel pump. Using dissimilar metals can cause corrosion, which may get into the pump and cause damage. Use teflon thread tape to install the fitting. Do not let any thread tape get into the pump and do not overtighten the fittings
- 2. CHECK THE INLET LINE.** Make sure that the inlet line is big enough to allow adequate flow to the inlet port of the pump (3/8 inch dia. ID for series 1, 2 and 3; 1/2 inch dia. ID for series 4 & 5; 1 inch dia. ID for series 6) Make sure that the inlet line is clean and properly flushed out. Protect the pump with a 100 mesh or finer strainer or filter.
- 3. CONNECT THE INLET LINE TO THE FITTING ON THE PUMP.**
- 4. CONNECT THE OUTLET LINE TO THE FITTING ON THE PUMP.**

**Arc-Zone.com**<sup>®</sup>, Inc.

2091 Las Palmas Drive Ste. C, Carlsbad CA 92009-1551

Ph: 1.800.944.2243 • 760.931.1500 • Fax: 760.931.1504 • Email: sales@arc-zone.com

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## READ BEFORE USING

### WARRANTY:

New Procon pumps are warranted to be free of defects in workmanship and materials for a period of 24 months from the date of factory shipment. Factory rebuilt Procon pumps are warranted to be free of defects in workmanship and materials for a period of 12 months from the date of factory shipment. Defective pumps will be rebuilt or replaced provided they are returned to Procon intact, freight prepaid and our inspection substantiates the claim.

### WARRANTY VOID IF:

1. Pump has been opened or dismantled in any fashion.
2. Foreign matter (i.e. abrasive particulate) has passed through the pump.
3. Non compatible liquids have been passed through the pump.
4. Pump was operated dry or was subjected to cavitation.
5. Pump operated at discharge pressures in excess of 250 PSI.

\*Special alert for those pumps which contain the integral relief valve - this valve should not be used as a flow or pressure regulator. This valve is designed to be a safety feature to prevent system damage. Continuous or frequent use of the valve may result in degraded pump performance and/or void the warranty.

All fittings should be removed from the pump before returning to Procon Products for rebuilding! Procon cannot be held responsible for the return of fittings, gauges and other accessories accompanying the pump. Pumps being returned for rebuilding should be packaged carefully to prevent damage in shipping.

Following are some suggestions for installing your Procon pump. If further instruction is needed feel free to call our factory and we will be glad to answer any questions.

Catalogs are available upon request.

An explanation of the warranty can be found on the back side of the invoice.

**NOTICE:** Your pump can be ruined or its service life shortened if these operating conditions aren't met at all times.

- Pumps must have a fluid supply to the pump inlet greater than the pump's flow rating.
- Fluid must be compatible with the pump.
- Fluid must not contain any particles.
- Pump must not operate above 250 PSI.
- Fluid flow should not stop suddenly while the pump is running.
- Operating pressure should be 50 PSI below Procon's relief valve setting.
- If using compressed air to purge the pump of fluid, install a coalescing filter in the air system to prevent contaminated air from entering the pump.

We suggest that you use the precautionary measures and piping layout that follow. This layout promotes a long trouble-free life for your pumps.

### SOLENOID VALVES

If you use solenoid valves in conjunction with Procon pumps, take the following precautions to prevent serious over/under pressurization.

If you can incorporate a time delay into the control circuit to turn off the pump motor and allow it to stop prior to the closing of the solenoid valve, then you can put the solenoid valve on either the inlet or the discharge of the pump. Also, the time delay should allow time for the solenoid valve to fully open prior to starting the pump motor.

If a time delay is not possible, locate the solenoid valve on the discharge side of the pump downstream of the relief valve.

If it is possible that the pump in your system may experience a sudden blockage of the discharge, then a customer supplied external by-pass valve should be installed on the discharge line and set to a maximum of 250 psi.

At this recommended setting, the by-pass valve should prevent sudden over-pressurization. If the discharge becomes blocked, the by-pass valve will bypass the fluid from the discharge line back to the reservoir or inlet line. Piping length should be long enough to allow heat dissipation and prevent the pump from overheating.

If particles may contaminate the fluid, use a particulate filter that is capable of filtering particles larger than 125 microns. If the particles are abrasive, use a filter that is capable of removing virtually all of the particles.

Make sure there is at least 6 inches of piping between the pump inlet and any "T-fitting," elbow, or system component to minimize turbulence. The piping should be made from a material that does not corrode or shed particles. A flexible hose of plastic, copper, or stainless steel are good choices, among others. Be sure no joint compound or tape falls into the inlet of the pump.

The inlet piping should have a minimum interior diameter of

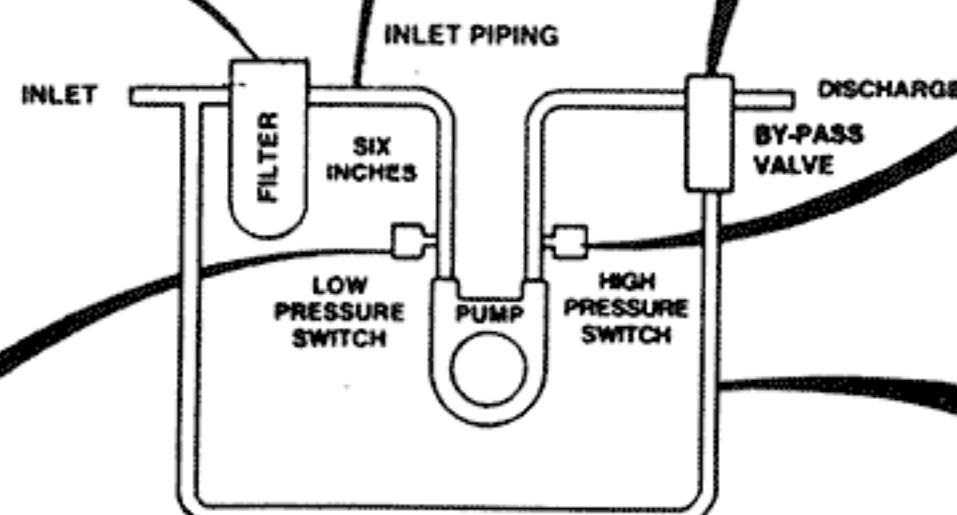
- 3/8 inch for series 1, 2, and 3 pumps
- 1/2 inch for series 4 & 5 pumps
- 1 inch for series 6 pumps

If it is possible that the pump in your system may experience too much discharge back pressure, install a pressure switch set to 250 psi.

Mount or port this pressure switch close to the pump outlet. If the outlet pressure rises too high while the pump is operating, the switch will shut the pump motor off. By shutting the motor off, this switch will help protect the pump from over-pressurization.

If it is possible that the pump in your system may experience insufficient fluid supply (low flow rate), install a pressure or suction switch to prevent cavitation. This switch should be mounted or ported close to the pump inlet. Series 1, 2, 3, 4 and 5 may operate with as much as 6 feet of suction lift, with the exception of the 330 GPH models, which require a minimum of 20 PSI inlet pressure. Series 6 must have positive inlet pressure.

If the inlet pressure falls too low while the pump is operating, the switch will shut the pump motor off. By shutting the motor off, this switch helps protect the pump from cavitation due to an insufficient fluid supply or a plugged filter.



As shown, the by-pass flow is directed to the inlet feed line. However, if your system is operating from a feed reservoir, we recommend by-passing any flow of the relief valve directly back into the reservoir, rather than back into the inlet feed line. If the inlet feed line is used, introduce the by-pass flow at least 12 inches upstream of the pump inlet port.

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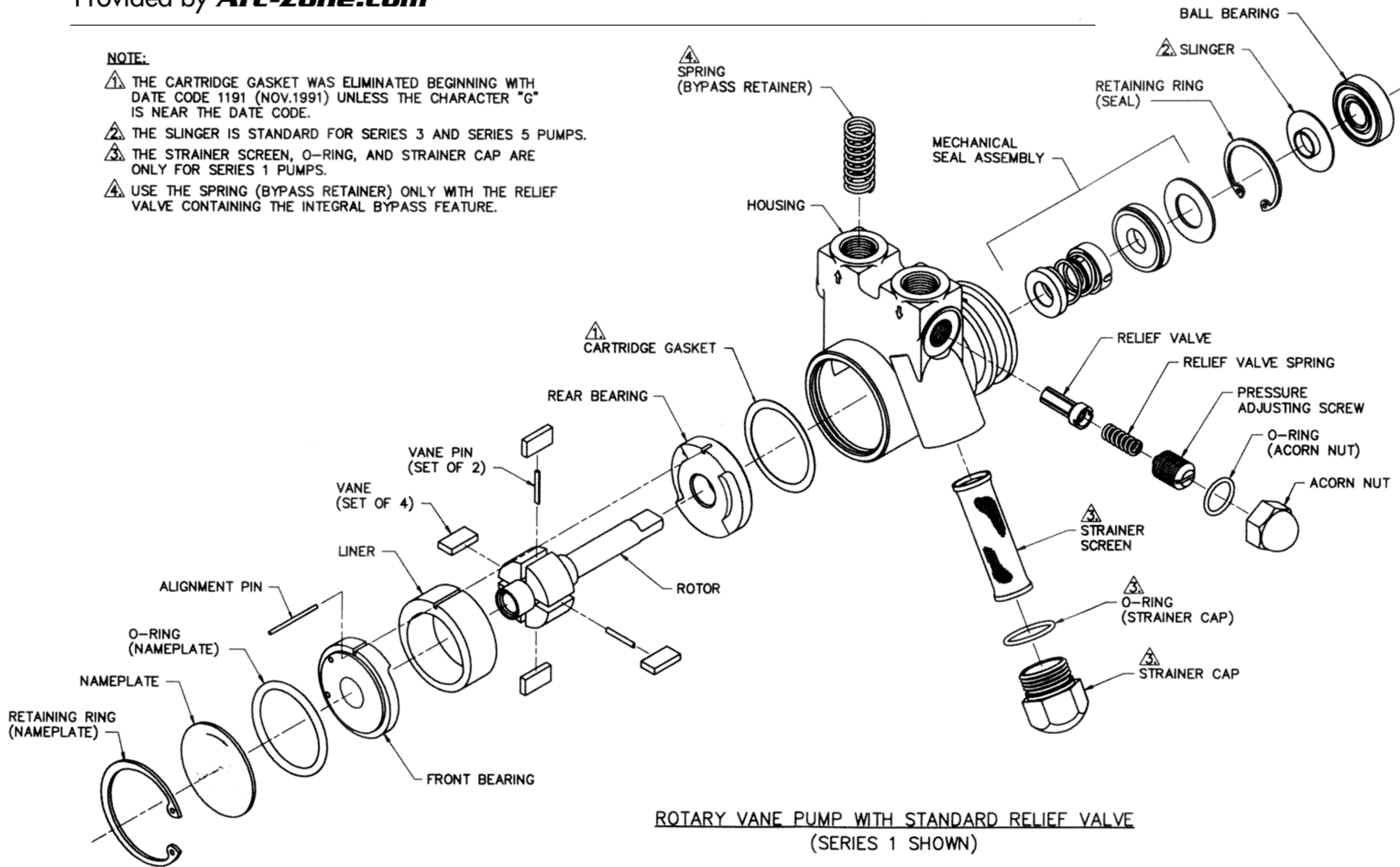
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**NOTE:**

- ① THE CARTRIDGE GASKET WAS ELIMINATED BEGINNING WITH DATE CODE 1191 (NOV.1991) UNLESS THE CHARACTER "G" IS NEAR THE DATE CODE.
- ② THE SLINGER IS STANDARD FOR SERIES 3 AND SERIES 5 PUMPS.
- ③ THE STRAINER SCREEN, O-RING, AND STRAINER CAP ARE ONLY FOR SERIES 1 PUMPS.
- ④ USE THE SPRING (BYPASS RETAINER) ONLY WITH THE RELIEF VALVE CONTAINING THE INTEGRAL BYPASS FEATURE.



**ROTARY VANE PUMP WITH STANDARD RELIEF VALVE  
 (SERIES 1 SHOWN)**