



# Instruction Sheet

302-001

## 2 1/2", 3" & 1600 Series Pumps

SUPERSEDES: August 1, 1991

EFFECTIVE: February 1, 2007

Plant ID# 001-972

### APPLICATION:

All pumps covered by this instruction sheet are designed for pumping water.

Working Pressure: 175 PSIG with cold water and  
125 PSIG at rated temperature

Temperature: 250°F Standard  
300°F with Hi-Temp Seal



### INSTALLATION:

Install horizontally only and with the two bracket ribs pointing to the ceiling. Do not support, suspend or brace motor and/or bracket. Support provided by casing is sufficient for structural integrity of the pump.

The casing can be rotated relative to the bracket for installation in vertical or horizontal pipe.

The pump must be installed far enough away from ceiling and walls to permit servicing of bracket and motor.



**CAUTION: UNDER NO CIRCUMSTANCES SHOULD ANY PART OF BRACKET OR MOTOR BE COVERED WITH INSULATION. OBSERVE ALL APPLICABLE ELECTRICAL AND MECHANICAL CODES.**

### START UP:

Before operating the pump for the first time, check the following:

1. Is motor correctly wired for voltage in use? Warranty is void if motor is damaged due to improper electrical hook-up.
2. If a magnetic starter is used, see that the heater element is sized for the Service Factor load of the motor otherwise nuisance tripouts may occur.
3. Motors are properly aligned with pump at the factory and normally require no attention. If due to rough handling, the motor base becomes bent, realign by shimming between cast iron and steel section of motor base.
4. Before starting motor, ascertain that pump is filled with water to lubricate the seal. Do not operate pump dry for motor checkout.

### LUBRICATION:

Pump is equipped with permanently lubricated ball bearings. Lubricate motor per instruction label attached to motor.

### SEAL REPLACEMENT:

The John Crane Type 21 Seal (see Photo "A") that had been used for many years on the 1600/1900 pumps was upgraded to the new "Unitized" John Crane Type 2100 (see Photo "B"). The new Type 2100 seal has the carbon rotating element, spring and retainer combined into a single assembly to facilitate easy replacement. (The ceramic stationary seat is still a separate component and is replaced in the same manner as the old Type 21.)

To replace the water seal, the following steps must be observed:

1. Disconnect electrical connections. Relieve system pressure and drain water from body.
2. Remove motor assembly from bracket and bracket from pump body.
3. Place bracket in vertical position, impeller up and loosen screw at center of impeller two turns ( $\frac{7}{16}$  Hex Head). This screw has a left-hand thread. Tap impeller at its outside diameter with handle of hammer to free tapered fit between shaft and impeller and completely remove screw, washer and impeller (see Figure 2 on reverse side of this Instruction Sheet).
4. Remove the complete rotating element, which includes the retainer, rubber bellows, carbon and spring (it may be necessary to pry these components loose using a screwdriver). Remove the stationary seat from the recess in the end of the bracket (again it may be necessary to pry it loose with a screwdriver, see Figure 3 on reverse side).



A



B

**IMPORTANT NOTE: DISCARD ALL OF THESE COMPONENTS. DO NOT REUSE ANY COMPONENTS FROM THE SEAL THAT IS BEING REPLACED.**

5. Thoroughly clean shaft sleeve and seat cavity.

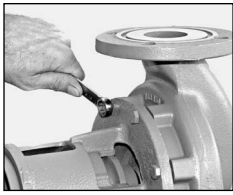


Figure 1



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6

6. Insert new seal seat. For easy assembly, coat OD of seal rubber (either a cup or an O-ring) with special grease provided in small container. Do not use any other oil or grease. Push seat all the way down into cavity. Seat must not be cocked relative to shaft. Be sure face of seal stays absolutely clean – wipe surface with soft, clean cloth if necessary. (See Figure 4.)
7. Install new carbon assembly. Coat inside of rubber bellows with special grease provided (do not use any other oil or grease) and slide assembly (carbon first) over shaft until carbon meets seat. Push on rubber insert on very end of assembly and not on outside diameter of carbon retainer. Be sure carbon face stays absolutely clean. (See Figure 5.)
8. Replace impeller using new impeller screw and washer provided. Make sure cones of both impeller and shaft are clean.
9. Reassemble bracket into pump casing. Use new gasket provided. Clean gasket surface of both casing and bracket if necessary. Be sure that the longer of the two outside bracket ribs is on top. (See Figure 1.)
10. Reinstall coupler and motor.
11. Follow procedure outlined under “START UP” section where required.

### IMPELLER REPLACEMENT:

Follow steps 1 through 3 and 8 through 11 outlined under “SEAL REPLACEMENT” section.

### BEARING (CARTRIDGE) REPLACEMENT:

If for some reason the bracket bearings should fail, it is not necessary to replace the entire bracket. A cartridge containing permanently lubricated ball bearings and shaft is available. To change the cartridge, follow this procedure:

- Follow steps 1 through 4 as outlined under “SEAL REPLACEMENT” section.
- Flip bracket around so that motor end is on top.
- Remove the two outermost socket head screws. (See Figure 6.)
- Pull out old cartridge. If necessary, tap cone end of shaft with a hammer to accomplish this.
- Insert new cartridge and refasten with socket head screws. Make sure shaft sleeve is in place with cone on sleeve resting against cone of shaft.
- Follow steps 5 through 11 outlined under “SEAL REPLACEMENT” section.

**NOTE:** It is recommended that when changing the cartridge the water seal be replaced also. However, if you plan to reuse the water seal, it is not necessary to remove the seal seat. The carbon assembly may be lubricated with water to make reinstallation easy.

## LIMITED WARRANTY STATEMENT

Taco, Inc. will repair or replace without charge (at the company's option) any commercial pump product or part which is proven defective under normal use within one (1) year from the date of start-up or one (1) year and six (6) months from date of shipment (whichever occurs first).

Taco, Inc. will repair or replace without charge (at the company's option) any 1600 series commercial circulator bearing cartridge which is proven defective under normal use within three (3) years from the date of start-up or three (3) years and six (6) months from date of shipment (whichever occurs first).

Seals provided on commercial pumps are not covered by this warranty.

In order to obtain service under this warranty, it is the responsibility of the purchaser to promptly notify the local Taco stocking distributor or Taco in writing and promptly deliver the subject product or part, delivery prepaid, to the stocking distributor. For assistance on warranty returns, the purchaser may either contact the local Taco stocking distributor or Taco. If the subject product or part contains no defect as covered in this warranty, the

purchaser will be billed for parts and labor charges in effect at time of factory examination and repair.

Any Taco product or part not installed or operated in conformity with Taco instructions or which has been subject to misuse, misapplication, the addition of petroleum-based fluids or certain chemical additives to the systems, or other abuse, will not be covered by this warranty.

If in doubt as to whether a particular substance is suitable for use with a Taco product or part, or for any application restrictions, consult the applicable Taco instruction sheets or contact Taco at [401-942-8000].

Taco reserves the right to provide replacement products and parts which are substantially similar in design and functionally equivalent to the defective product or part. Taco reserves the right to make changes in details of design, construction, or arrangement of materials of its products without notification.

**TACO OFFERS THIS WARRANTY IN LIEU OF ALL OTHER EXPRESS WARRANTIES. ANY**

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