



**AURORA<sup>®</sup>**

# MODEL 134-135 (04-05 SERIES) **SINGLE STAGE CLOSE COUPLED REGENERATIVE TURBINE**

## **INSTRUCTION AND REPAIR MANUAL**

NOTE! To the installer: Please make sure you provide this manual to the owner of the equipment or to the responsible party who maintains the system.

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**CALIFORNIA PROPOSITION 65 WARNING:**

**▲ WARNING** This product and related accessories contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

**SERVICE**

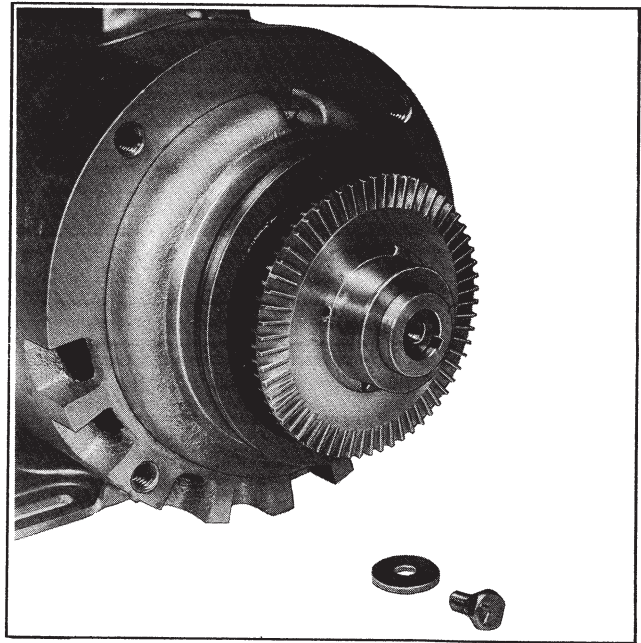
Your Aurora pump requires no maintenance other than periodic inspection and occasional cleaning. The intent of inspection is to prevent breakdown, thus obtaining optimum service life. The pump is lubricated by the liquid being pumped and therefore does not require periodic lubrication. The motor, however may require lubrication, in which case, the motor manufacturer's recommendation should be followed.

**REPAIRS**

The pump may be disassembled using the illustrations and text provided. Although complete disassembly is covered, it will seldom be necessary to completely disassemble your Aurora pump.

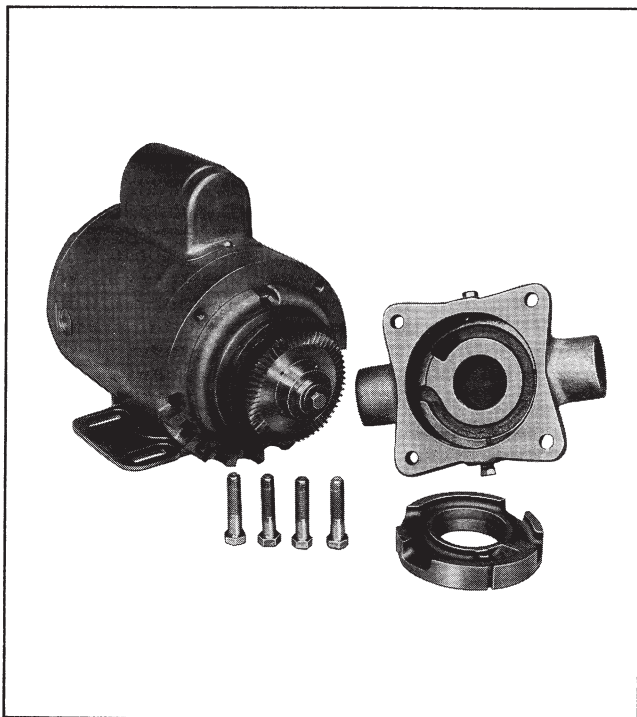
The illustrations accompanying the disassembly instructions show the pump at various stages of disassembly. The illustrations are intended to aid in the correct identification of the parts mentioned in the text.

Inspect removed parts at disassembly to determine their reusability. Cracked castings should never be reused. All packing and gaskets should be replaced

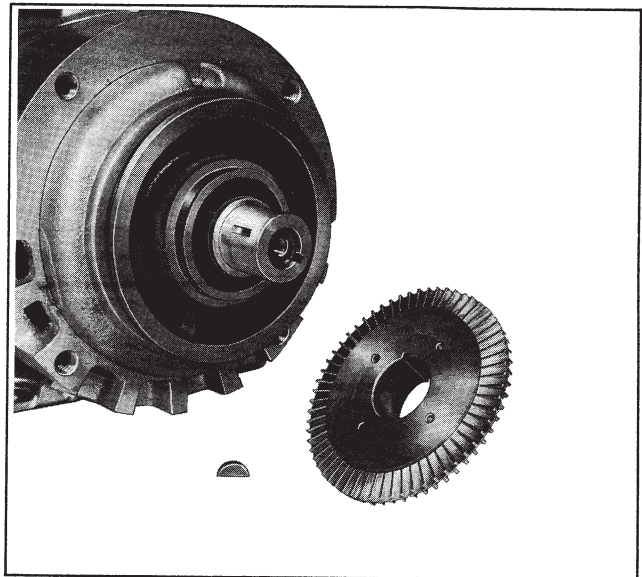


Impeller screw and washer removed.

with new ones at reassembly simply as a matter of economy; they are much less expensive to replace routinely than to replace as the need occurs. In general it is economical to return to the manufacturer for repair only the motor and motor controller.



Pump casing and outer ring removed.

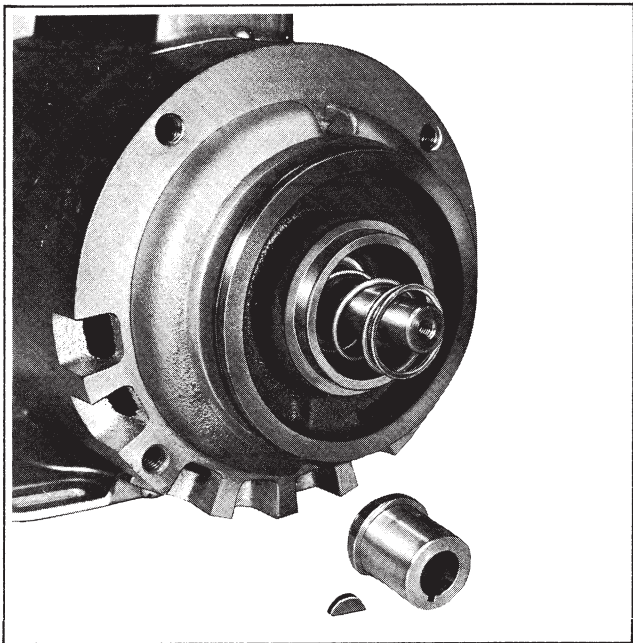


Impeller and key removed.

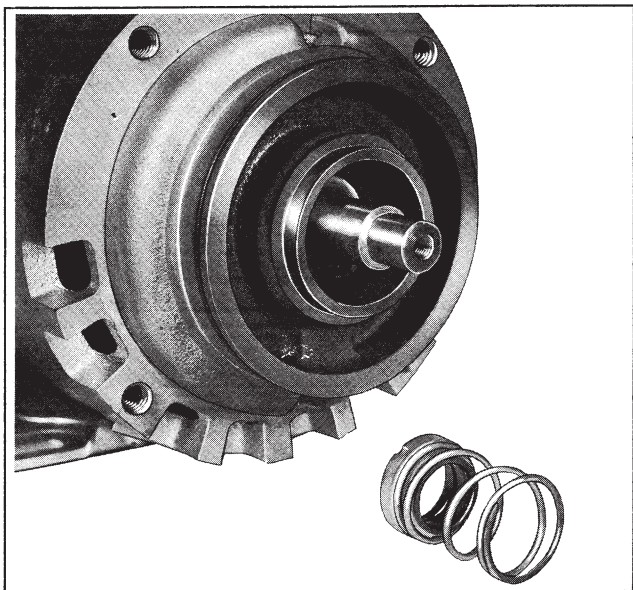
Disassembly. Disassemble only what is needed to make repairs or accomplish inspection.

Disassembling the Model 134 and 135 pumps (See Figure 3).

1. Remove the four screws (2) and separate the casing (6) from the motor bracket (19, 20).
2. Remove the two plugs (3), screws (4), and nameplate (5) only if replacement is necessary. Remove pin (15).
3. Remove outer ring (7).



Sleeve and key removed from shaft.



Mechanical seal and spring removed.

4. Remove screw (8) and washer (9) and remove impeller (10) with key (13) from impeller sleeve.
5. Remove impeller sleeve (12) with key (11) from shaft.
6. Carefully remove the mechanical seal (14). The stationary portion of the seal may be removed in Step 9.

**CAUTION**

The mechanical seal (see Figure 1) is a precision product and must be treated as such. During removal great care must be taken to avoid dropping any part of the seal. Take particular care not to scratch the lapped faces on the washer or the sealing seat. Do not put a seal back into service until the sealing faces of the washer and seat have been relapped or replaced.

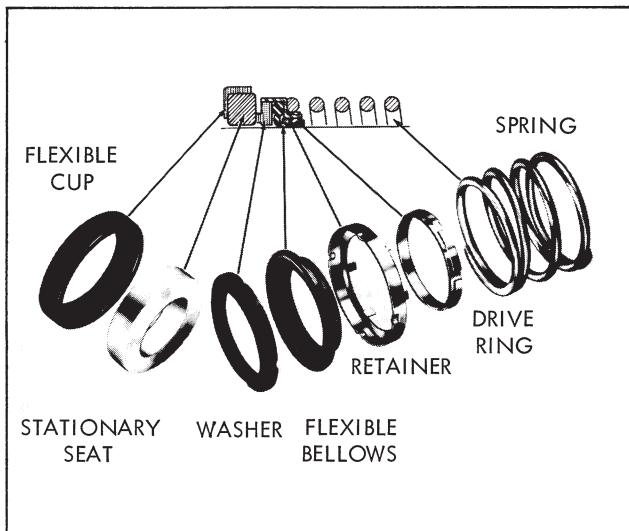
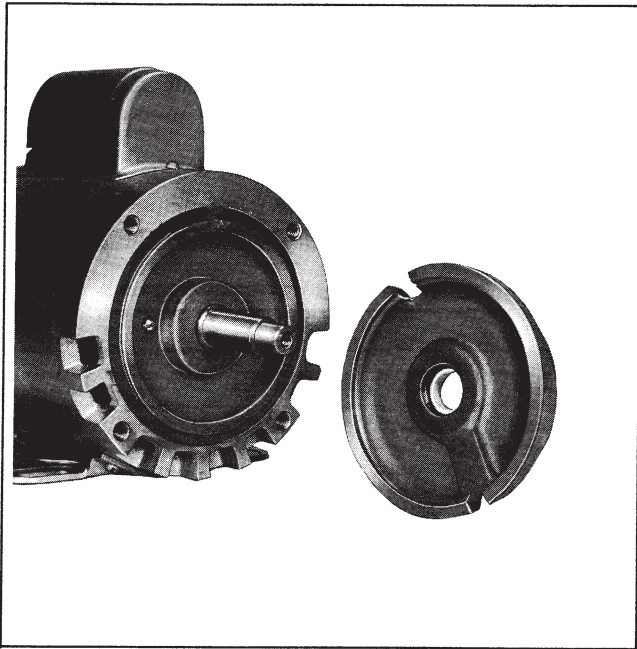


Figure 1. Mechanical Seal

7. Remove inner ring (16).
8. Gasket (17) may be removed from bracket if replacement is necessary.
9. Remove the four screws (18) (Model 135, 1-1/8 inch shaft only). Motor bracket with stationary portion of seal may now be removed by applying a steady force separating bracket and motor.

Reassembly. Clean and inspect all parts thoroughly prior to reassembly. Replace gasket. Check that all mating surfaces are free of nicks and burrs.



Bracket removed.

Inspect the impeller hub carefully for signs of excessive wear. Proceed to reassemble the pump as follows: (See Figure 3)

1. Position the motor bracket (19, 20) on the motor and secure with screws (18). Tighten screws evenly. (Screws used on 135 Series, 1-1/8 inch shaft only).

2. Attach nameplate (5) with screws (4), and replace plugs (3) if these were removed.

**NOTE**

The mechanical seal (14) cannot be installed as an assembly; the seal seat must be properly in place before the balance of parts can be added.

3. Thoroughly inspect the seal cavity in the motor bracket, checking for burrs or nicks which could damage the seat of the mechanical seal (14). Apply a film of liquid dishwashing detergent to the seal seat and install, taking care to seat it evenly and squarely.

**NOTE**

If it is not possible to insert seat with fingers, place cardboard protecting ring, furnished with seal, over lapped face of seat and press into place with a piece of tubing having end cut square. Tubing should be slightly larger than the diameter of the shaft. Remove cardboard ring after the seat has been firmly seated.

4. Apply a film of liquid dishwashing detergent to allow remaining seal parts to be pushed onto shaft. Check the proper sequence of assembly as shown in Figure 1.

5. Position gasket (17) on the motor bracket (19, 20) and gradually slip into its groove.

6. Install inner ring (16).

7. Replace shaft key (11) and impeller sleeve (12). Be sure spring of mechanical seal is properly positioned on back side of impeller sleeve.

8. Slip on impeller (10). Line up impeller keyway with key (13) so that key is not pushed out of keyway when the impeller is replaced. Secure impeller with washer (9) and screw (8).

9. Place the pin (15) and outer ring (7) in casing (6); slide casing into position over motor bracket (19, 20) being careful not to damage gasket (17).

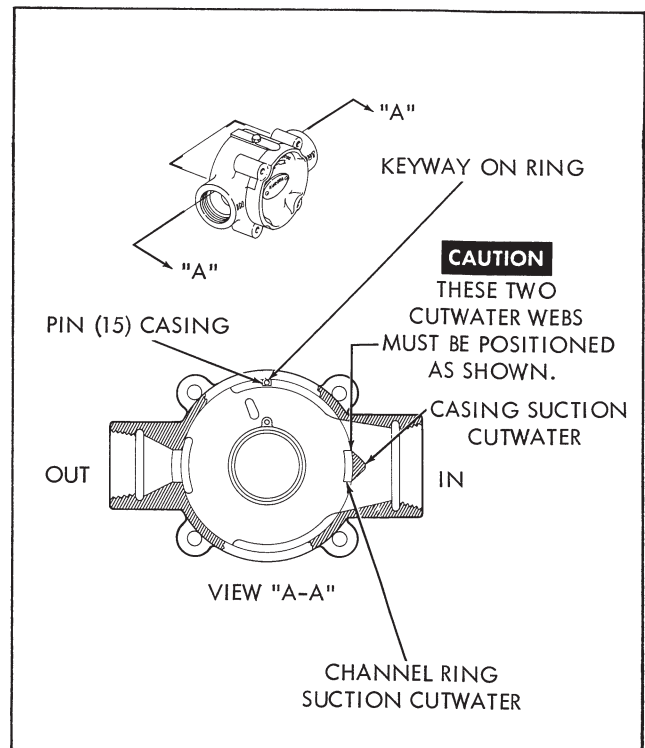


Figure 2. Model 134-135 Installing Inner and Outer Rings in Casing

Attach casing with screws (2). (See Figure 2 for proper positioning of inner and outer rings in casing.)

10. Replace pipe plug (3), and install nameplate (5) and attach with screws (4), if these were removed.



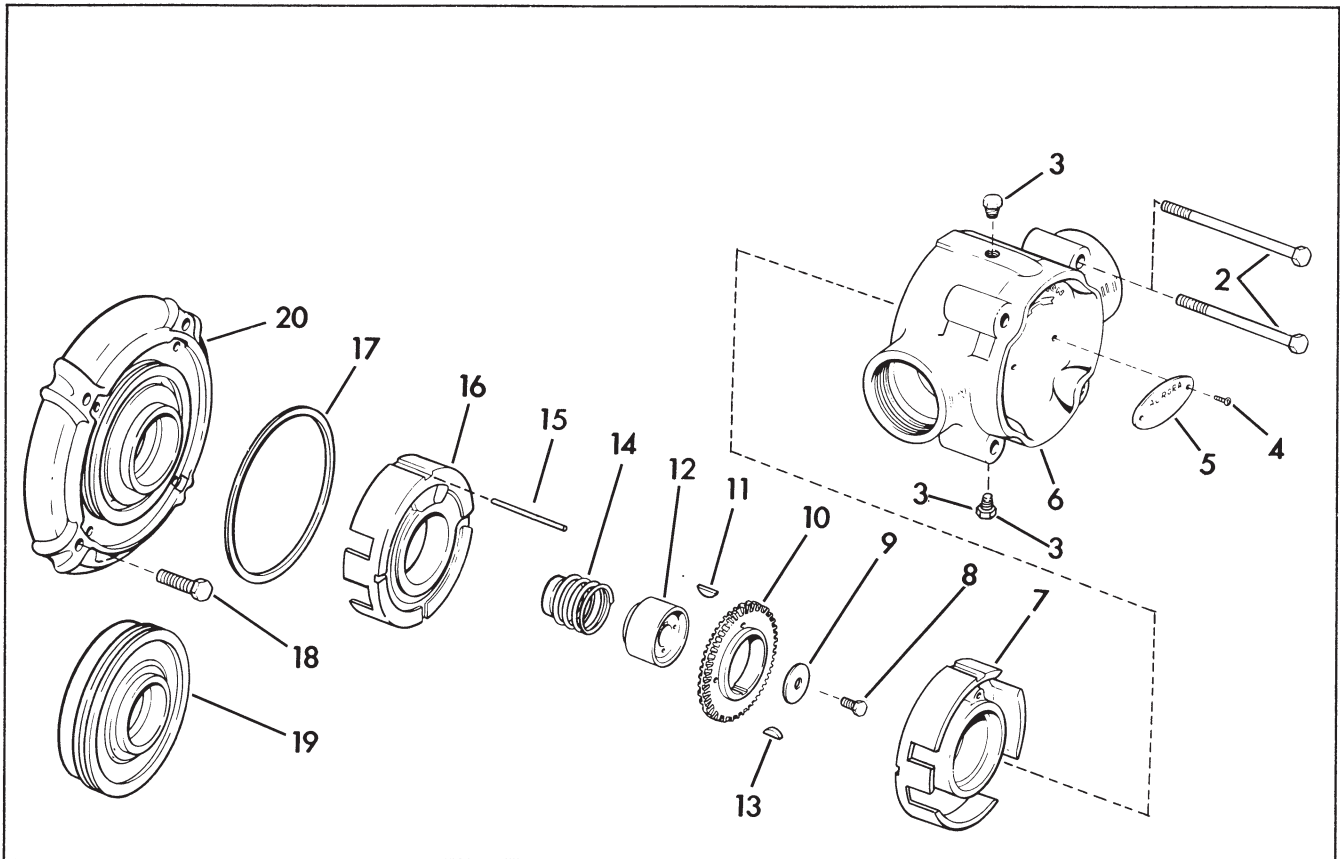


Figure 3. 134 and 135 Series Pump Exploded View

List of Parts For Model 134-135

- |                |                |
|----------------|----------------|
| 2. Capscrew    | 11. Key        |
| 3. Pipe Plug   | 12. Sleeve     |
| 4. Drive Screw | 13. Key        |
| 5. Nameplate   | 14. Seal       |
| 6. Casing      | 15. Pin        |
| 7. Outer Ring  | 16. Inner Ring |
| 8. Capscrew    | 17. Gasket     |
| 9. Washer      | 18. Capscrew   |
| 10. Impeller   | 19. Bracket    |
|                | 20. Bracket    |

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## WARRANTY

Seller warrants equipment (and its component parts) of its own manufacture against defects in materials and workmanship under normal use and service for one (1) year from the date of installation or start-up, or for eighteen (18) months after the date of shipment, whichever occurs first. Seller does not warrant accessories or components that are not manufactured by Seller; however, to the extent possible, Seller agrees to assign to Buyer its rights under the original manufacturer's warranty, without recourse to Seller. Buyer must give Seller notice in writing of any alleged defect covered by this warranty (together with all identifying details, including the serial number, the type of equipment, and the date of purchase) within thirty (30) days of the discovery of such defect during the warranty period. No claim made more than 30 days after the expiration of the warranty period shall be valid. Guarantees of performance and warranties are based on the use of original equipment manufactured (OEM) replacement parts. Seller assumes no responsibility or liability if alterations, non-authorized design modifications and/or non-OEM replacement parts are incorporated. If requested by Seller, any equipment (or its component parts) must be promptly returned to Seller prior to any attempted repair, or sent to an authorized service station designated by Seller, and Buyer shall prepay all shipping expenses. Seller shall not be liable for any loss or damage to goods in transit, nor will any warranty claim be valid unless the returned goods are received intact and undamaged as a result of shipment. Repaired or replaced material returned to customer will be shipped F.O.B., Seller's factory. Seller will not give Buyer credit for parts or equipment returned to Seller, and will not accept delivery of any such parts or equipment, unless Buyer has obtained Seller's approval in writing. The warranty extends to repaired or replaced parts of Seller's manufacture for ninety (90) days or for the remainder of the original warranty period applicable to the equipment or parts being repaired or replaced, whichever is greater. This warranty applies to the repaired or replaced part and is not extended to the product or any other component of the product being repaired. Repair parts of its own manufacture sold after the original warranty period are warranted for a period of one (1) year from shipment against defects in materials and workmanship under normal use and service. This warranty applies to the replacement part only and is not extended to the product or any other component of the product being repaired. Seller may substitute new equipment or improve part(s) of any equipment judged defective without further liability. All repairs or services performed by Seller, which are not covered by this warranty, will be charged in accordance with Seller's standard prices then in effect.

THIS WARRANTY IS THE SOLE WARRANTY OF SELLER AND SELLER HEREBY EXPRESSLY DISCLAIMS AND BUYER WAIVES ALL OTHER WARRANTIES EXPRESSED, IMPLIED IN LAW OR IMPLIED IN FACT, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Seller's sole obligation under this warranty shall be, at its option, to repair or replace any equipment (or its component parts) which has a defect covered by this warranty, or to refund the purchase price of such equipment or part. Under the terms of this warranty, Seller shall not be liable for (a) consequential, collateral, special or liquidated losses or damages; (b) equipment conditions caused by normal wear and tear, abnormal conditions of use, accident, neglect, or misuse of said equipment; (c) the expense of, and loss or damage caused by, repairs or alterations made by anyone other than the Seller; (d) damage caused by abrasive materials, chemicals, scale deposits, corrosion, lightning, improper voltage, mishandling, or other similar conditions; (e) any loss, damage, or expense relating to or resulting from installation, removal or reinstallation of equipment; (f) any labor costs or charges incurred in repairing or replacing defective equipment or parts, including the cost of reinstalling parts that are repaired or replaced by Seller; (g) any expense of shipment of equipment or repaired or replacement parts; or (h) any other loss, damage or expense of any nature.

The above warranty shall not apply to any equipment which may be separately covered by any alternate or special warranties.

**PERFORMANCE:** In the absence of Certified Pump Performance Tests, equipment performance is not warranted or guaranteed. Performance curves and other information submitted to Buyer are approximate and no warranty or guarantee shall be deemed to arise as a result of such submittal. All testing shall be done in accordance with Seller's standard policy under Hydraulic Institute procedures.

**LIABILITY LIMITATIONS:** Under no circumstances shall the Seller have any liability under the Order or otherwise for liquidated damages or for collateral, consequential or special damages or for loss of profits, or for actual losses or for loss of production or progress of construction, regardless of the cause of such damages or losses. In any event, Seller's aggregate total liability under the Order or otherwise shall not exceed the contract price.

**ACTS OF GOD:** Seller shall in no event be liable for delays in delivery of the equipment or other failures to perform caused by fires, acts of God, strikes, labor difficulties, acts of governmental or military authorities, delays in transportation or procuring materials, or causes of any kind beyond Seller's control.

**COMPLIANCE WITH LAW:** Seller agrees to comply with all United States laws and regulations applicable to the manufacturing of the subject equipment. Such compliance shall include: The Fair Labor Standards Acts of 1938, as amended; Equal Employment Opportunity clauses of Executive Order 11246, as amended; Occupational Safety and Health Act of 1970 and the standards promulgated thereunder, if applicable. Since compliance with the various Federal, State, and Local laws and regulations concerning occupational health and safety, pollution or local codes are affected by the use, installation and operation of the equipment and other matters over which Seller has no control, Seller assumes no responsibility for compliance with those laws and regulations, whether by way of indemnity, warranty, or otherwise. It is incumbent upon the Buyer to specify equipment which complies with local codes and ordinances.



**AURORA®**

800 Airport Road  
North Aurora, Illinois 60542  
630-859-7000  
[www.aurorapump.com](http://www.aurorapump.com)