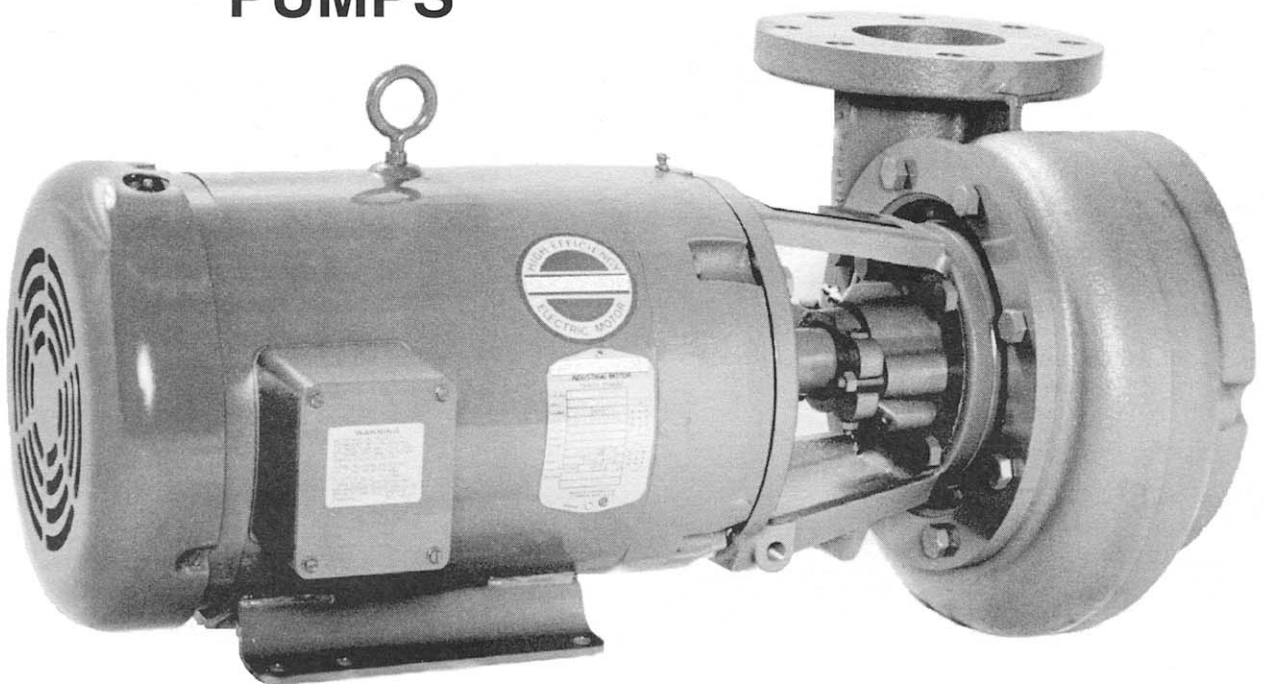


# **VERTIFLO**

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## **Series 1300 CLOSE-COUPLED END SUCTION PUMPS**



### **Installation, Operation & Service Instructions**

## I. INSTALLATION INSTRUCTIONS

**VERTIFLO Series 1300** horizontal close-coupled pumps are completely assembled, carefully adjusted and prelubricated at the factory before shipment.

A. Carefully set pump at the required location. Check for full contact of the motor base to the foundation.

B. Secure pump to foundation by bolting, etc.; whatever is convenient or required for the installer.

C. Connect the system piping to the pump; suction piping to the flange at the end of the pump and discharge piping to the flange which is part of the casing (51). A check valve and gate valve should be installed in the discharge piping and a gate valve in the suction piping. An elbow in the suction piping should not be closer to the pump than the equivalent of 5 times the suction pipe diameter.

**Note: All piping is to be supported independent of the pump. No piping strain is to be imposed on the pump.**

D. Connect power lines to motor leads as shown on the wiring diagram of the motor for specific line voltage used. Follow all state and local wiring codes.

E. Check and be sure starter and overload protection is proper for specific voltage and for the amperage rating.

F. Check for free rotation by turning the shaft. Binding in the pump is caused by (1) PIPING STRAIN (2) IMPELLER OUT OF ADJUSTMENT — (See IMPELLER ADJUSTMENT, Section III).

G. Jog motor quickly to check for proper rotation. Shaft rotation should be clockwise when looking from the motor end. If pump rotation is incorrect, contact a qualified electrician to make necessary corrections.

H. Open suction line gate valve. Close discharge line gate valve and start pump. Open discharge line gate valve SLOWLY until desired capacity is obtained. Pump should now operate smoothly. If vibration occurs, check for pipe stress.

I. Packed pumps are shipped with loosely adjusted glands (25). If excessive leakage occurs, evenly tighten the two packing nuts until leakage is a drip.

**NOTE: DO NOT TIGHTEN PACKING GLAND UNTIL ALL LEAKAGE STOPS. PACKING MUST HAVE SOME LEAKAGE FOR LUBRICATION. OVERTIGHTENING WILL BURN PACKING AND SCORE THE SHAFT.**

## II. LUBRICATION

All **VERTIFLO Series 1300** pumps are properly lubricated at the factory. Further on-site lubrication schedules depend upon local operation conditions. It is recommended that packing be periodically inspected and greased.

A. Packing (22) should be greased every two or three months.

B. Motor should be lubricated in accordance with manufacturer's recommendation.

## III. IMPELLER ADJUSTMENT

Impeller adjustment is accomplished by shimming behind the impeller until clearance of approximately .015" to .025" on iron units or .020" to .030" on alloy units is obtained between the suction head (52) and impeller (50).

A. Remove the motor and impeller assembly as described in LIQUID END INSPECTION (Section IV).

B. Using a depth micrometer, measure the depth of the casing (51), from the surface the case adaptor (53) contacts the casing, to the surface the impeller face runs against. Next measure the distance from the face of the impeller to the case adaptor (53) surface, which has the gasket (54). Include this gasket in the measurement. Subtract the first measurement from the second and this is the face clearance. If the face clearance is excessive, shims (8) must be added behind the impeller to move the impeller forward to decrease the face clearance. If the clearance is too little, shims must be removed.

EXAMPLE: Cast Iron Unit:  
Casing measurement = 2.542"  
Impeller measurement = 2.540"  
Difference = .002"

Required clearance for an iron pump is .015" to .025"

Remove shims with a total width of .013" to .023"

C. To adjust shims follow LIQUID END INSPECTION (Section IV)

D. After shim adjustment has been made, follow assembly as described in ASSEMBLY OF LIQUID END (Section VII).

#### IV. LIQUID END INSPECTION

**NOTE: Before disassembly, match mark parts for ease in reassembly.**

- A. Turn off electrical supply to the motor and all controls. Close suction line and discharge line gate valves. Remove drain plug from casing and drain pump.
- B. Remove the four capscrews in the motor feet.
- C. Remove capscrews (55) holding case adaptor to casing. D. Pull motor and rotating assembly straight out, leaving the casing (51) connected to the piping.
- E. To remove impeller (50), remove impeller screw (5) by holding the impeller and turning the impeller screw counterclockwise. Remove impeller washer (4), and impeller washer gasket (6). Use 3 fully threaded capscrews 1/2"-13NCx21/2" long as jackscrews in the threaded holes of the impeller. Tighten until impeller is forced off the shaft.
- F. Remove impeller key (3).

#### V. PUMP ASSEMBLY

- A. Remove shims (8).
- B. Remove the four capscrews holding the packing box or seal head (21), and case adaptor (53) to the motor adaptor (1).
- C. Remove case adaptor (53).
- D. Remove packing box or seal head (21), and sleeve (2) as an assembly.
- E. Remove slinger (9).

#### VI. REASSEMBLY OF PUMP UNIT

- A. Install slinger (9) by sliding over shaft.
- B. If packed pump, slide gland (25) over the shaft to the slinger.
- C. Slide packing box over the end of shaft until seated against motor adaptor (1). If mechanically sealed pump, press stationary face into seal head before installing seal head.
- D. Place gasket (56) over packing box and insert four capscrews (1 O, 11) into motor adaptor through packing box.

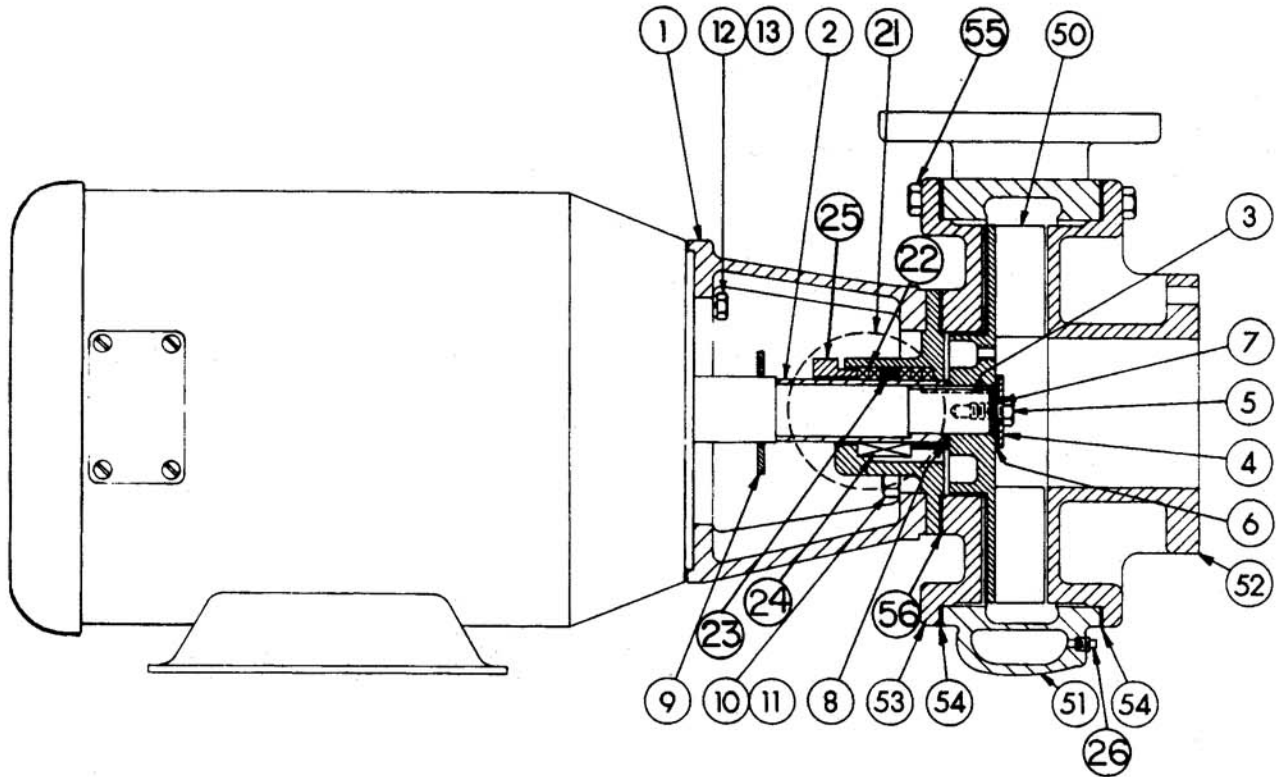
E. Seat case adaptor (53) into packing box using capscrews to align holes and gasket. Tighten capscrews. F. Install sleeve (2) aligning key in sleeve with keyway in the shaft. Install shims (8). If parts have been replaced which might affect the face clearance, install 2 shims as a starting point. Align keyway groove in shims with keyway in sleeve and insert impeller key (3).

G. Install packing or mechanical seal. If packed pump, install three rings of packing (22); next the lantern ring (23), then fill packing box with additional rings without overfilling. The cut edges of each packing ring should be placed 180 degrees from the previously installed piece. Slide the gland until it contacts the packing and install gland washer and nuts. Tighten fingertight. If sealed pump, install seal (24) per manufacturer's recommendation.

#### VII. ASSEMBLY OF LIQUID END

- A. Slide impeller (50) over shaft, aligning keyway to key.
  - B. Install "O" ring (7) on impeller screw (5).
  - C. Install impeller gasket (6), impeller washer (4) with ID chamfer away from the impeller, and tighten.
  - D. Set impeller as described in IMPELLER ADJUSTMENT (Section III).
  - E. Slide motor assembly into casing (51).
- NOTE: BE CAREFUL NOT TO FORCE MOTOR ASSEMBLY INTO CASING. CASING MAY HAVE SHIFTED DUE TO PIPE STRAIN. IF THIS IS THE CASE, REALIGN CASING WITH MOTOR ASSEMBLY,**
- F. Loosely install four capscrews in feet of motor. Install capscrews in case adaptor (53) and tighten. Tighten capscrews in feet.
  - G. Replace drain plug in casing.
  - H. Check for free rotation.
  - I. Turn on electrical supply to motor.
  - J. Open suction line and discharge line gate valves.

# VERTIFLO



ITEM DESCRIPTION

- 1 MOTOR ADAPTOR
- \*2 SHAFT SLEEVE
- 3 IMPELLER KEY
- 4 IMPELLER WASHER
- 5 IMPELLER SCREW
- 6 IMPELLER WASHER GASKET
- \*7 O-RING
- 8 SHIMS
- \*9 SLINGER
- 10 CAP SCREW
- 11 CAP SCREW
- 12 CAP SCREW
- 13 CAP SCREW

ITEM DESCRIPTION

- 21 PACKING BOX/SEAL HEAD
- \*22 PACKING
- 23 LANTERN RING
- \*24 MECHANICAL SEAL
- 25 PACKING GLAND
- 26 DRAIN PLUG
- 50 IMPELLER
- 51 CASING
- 52 SUCTION HEAD
- 53 CASE ADAPTOR
- \*54 CASE GASKET
- 55 CAP SCREW
- \*56 GASKET

\*Recommended Spare Parts

Refer to Pump Serial Number and Part Item Number when ordering parts.

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