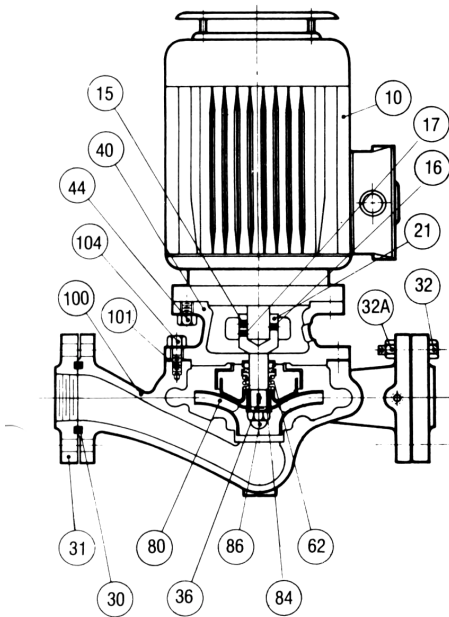
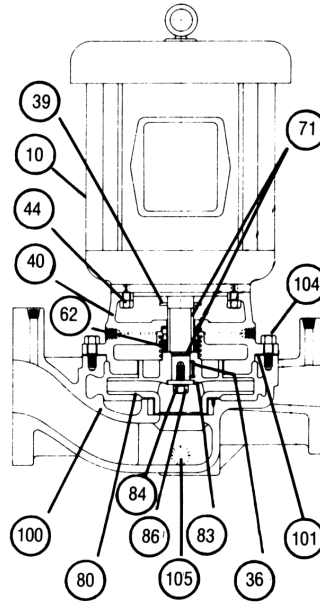


## INSTALLATION AND OPERATING INSTRUCTIONS VERTICAL IN-LINE PUMPS SERIES 4360

### 56C FACE MOTORS



### JM FRAME MOTORS



### ITEM DESCRIPTION

- 10 Motor
- 15-16-17 Set Screws
- 21 Shaft Extension
- 30 Flange Gasket
- 31 Flange
- 32 Flange Capscrew
- 32A Flange Nut
- 36 Impeller Key
- 39 Water Slinger
- 40 Adapter
- 43 Adapter Washer (not shown)
- 44 Adapter Capscrew
- 57 Flush Line Assembly (not shown)
- 58 Flush Line Assembly (not shown)
- 59 Flush Line Assembly (not shown)
- 62 Mechanical Seal
- 71 Shaft Sleeve & Spacer Kit
- 80 Impeller
- 83 Impeller Washer
- 84 Impeller Lockwasher
- 86 Impeller Nut/Capscrew
- 100 Casing
- 101 Casing Gasket
- 103 Casing Washer(not shown)
- 104 Casing Capscrew

### CAUTION: PARTICULAR CARE MUST BE TAKEN TO DOUBLE-CHECK THE FOLLOWING BEFORE THE PUMP IS STARTED UP:

1. Liquid in Pump?
2. Rotation OK?
3. Unit Properly Supported?
4. Voltage Supply OK?
5. Overload Protection OK?
6. Is the System Clean?

Armstrong warranty does not cover any damages to the equipment resulting from failure to observe the above precautions.

**GENERAL:** Armstrong Centrifugal Pumps, properly installed and given reasonable care and maintenance, will perform satisfactorily for a long period of time. These instructions describe the procedures which should be followed to ensure trouble-free operation.

### STORAGE

Make sure that the unit is kept perfectly clean. Do not remove crating or plastic wrapping until the pump is ready for installation. For long-term storage, the pump must be placed in a dry environment. Rotate the shaft periodically to prevent pitting of the finished surfaces and keep the rotating element free.

### UNCRATING

After removing the pump from the crate, make sure the equipment is in good order and that all components are received as called for on the packing slip. Any shortages or damage should be reported immediately. Use extreme care in handling the unit, placing slings carefully so that stress will not be imposed on the pump. NEVER PLACE CABLE SLINGS AROUND THE PUMP SHAFT. The eye bolts or lifting lugs on the motor are intended for lifting only the motor and not the complete unit.

### LOCATION

Locate the pump where it is easily accessible for inspection and servicing, and provide adequate head room for pump withdrawal. Do not locate the pump in damp atmospheres unless the motor enclosure is suitable for the environment. Do not operate the motor unless the surrounding environment is clear of construction dust and debris.

## INSTALLATION

The most important consideration in installing a vertical in-line pump is to make sure the pump is free to "float" with expansion and contraction of the piping. Recommended arrangements are:

- (a) Pump mounted in horizontal position (Fig. 1)
- (b) Supported from ceiling by pipe hangers (Fig. 2)
- (c) Floor mounted saddle supports (Fig. 3) Where required, additional floor support may be obtained as shown in Fig. 4. Note: The piping must be installed in such a manner that the pump is not used as a pipe support. \*Flexible connectors are required only when pump is mounted on floor base.

Do **NOT** support the unit by the motor eye bolts (Fig. 5) or by any other part of the motor.

Do **NOT** rigidly connect the pump to a permanent base (Fig. 6).

## PIPING

Piping is simple and straightforward with a vertical in-line pump. The unit fits in the line like a valve. \*Do not use flexible connectors on the suction or discharge. These are not necessary. All piping must be supported independent of pump. Piping must not impose strain on pump flanges.

## VALVING

Install gate valves or butterfly valves on the suction and discharge sides to permit isolation from the system for servicing. A check valve should also be installed on the discharge side.

## ELECTRICAL

Check to see that the electrical data stamped on the motor nameplate corresponds with the power supply available at the installation. Refer to the motor wiring diagram (normally located inside the motor terminal box) and check that the motor leads are properly connected. Inspect the circuit fuses and/or heater elements to make sure that they are correctly sized for the application.

## ROTATION

\*\*See final check. Energize the motor briefly. **CAUTION! DO NOT START PUMP WITHOUT LIQUID IN THE CASING; DAMAGE TO THE MECHANICAL SEAL WILL RESULT.** Check the rotation of the pump. This should correspond to the directional arrow (i.e. clockwise when looking down on top of the motor). To reverse the rotation of a three-phase motor, interchange two of the leads.

## PUMP LUBRICATION

Lubrication is not required. There are no bearings in the pump.

## MOTOR LUBRICATION

Refer to the motor installation and operating instructions and follow the lubrication procedures recommended by the motor manufacturer.

## SYSTEM CLEANLINESS

Before starting the pump, the system must be thoroughly cleaned, flushed and drained, then replenished with clean liquid. Welding slag and other foreign materials, "stop leak" and cleaning compounds, excessive or improper water treatment, are all detrimental to the pump internals. Proper operation cannot be guaranteed if any of these conditions are allowed to exist. Do not use pump for water treatment injection.

## \*\*FINAL CHECK

Particular care must be taken to double-check the following before the pump is started up:

- (a) Liquid in pump?
- (b) Rotation OK?
- (c) Unit properly supported?
- (d) Voltage supply OK?
- (e) Overload protection OK?
- (f) Is the system clean?
- (g) Are motor bearings protected from construction dust?
- (h) Is the mechanical seal vented?

**ARMSTRONG WARRANTY DOES NOT COVER ANY DAMAGES TO THE EQUIPMENT RESULTING FROM FAILURE TO OBSERVE THE ABOVE PRECAUTIONS.**

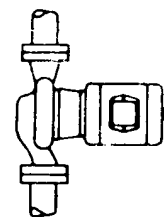


Fig. 1 Horizontal Installation

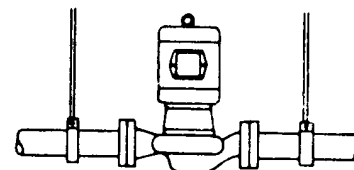


Fig. 2 Pipe Hanger Support

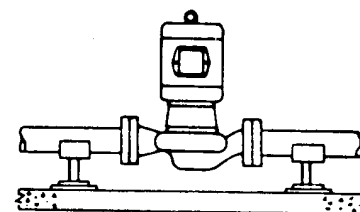


Fig. 3 Floor Saddle Support

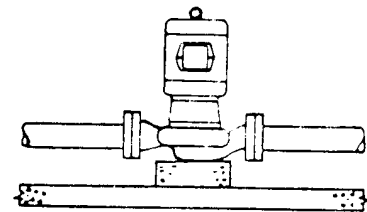


Fig. 4 Additional Floor Support

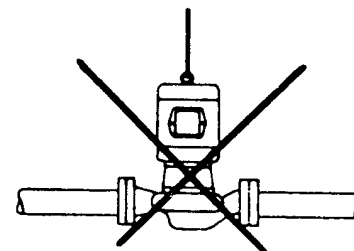


Fig. 5 Not Recommended

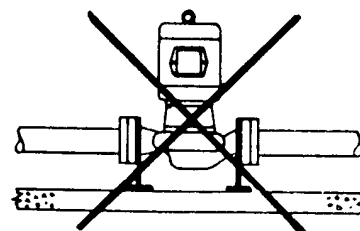


Fig. 6 Not Recommended

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