

Model K Assembly

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Model K



General Installation

Inspection upon Arrival

Your pump has been carefully inspected prior to shipment to insure that it meets your requirements. Please inspect the pump upon arrival for any damage that might have occurred during shipment. Report any damage immediately to the carrier.

Leave all shipping covers attached to the pump unit until it is ready for installation. If installation is to be delayed for more than 15 days, the pump shaft should be rotated by hand once a week to lubricate the bearings and prevent rusting.

Choosing Pump Location

The following recommendations may be helpful when choosing the best location for your pump.

- Locate the pump as close to the liquid source as practical so the intake pipe is short and direct with a minimum of elbows, fittings and valves.
- Place the pump in a location so the unit is accessible for inspection during operation as well as for maintenance operations involving removal and disassembly.

c. The Wilfley slurry pump has no suction and, therefore, must be set below the supply so the material to be pumped will flow into it by gravity. A hopper bottom, intake sump or tank should be provided. Intake pipe from sump should slope and be as short as possible. Do not pump from one pump directly into a second pump, but provide an intake sump for each one.

Foundation

The foundation should be sufficient to absorb any vibration and to form a permanent, rigid support for the baseplate. A concrete foundation on a solid base is satisfactory. Foundation bolts of the proper size should be embedded in the concrete located as indicated on the outline drawing.

Allow ample room for changing of pump parts because these parts are sometimes very heavy. Support the piping independently and be sure to consider thermal expansion and loading.

The discharge line should have sufficient spring to allow the discharge keeper to be raised about one half inch.

Intake pipe may be connected to either or both sides of the pump and need not be disturbed to change the pumping parts or the bearing unit.

Piping

Both suction and discharge pipes should be supported independently near the pump so when the flange bolts are tightened no strain will be transmitted to the pump casing or intake chamber.

Discharge Piping

A valve should be installed in the discharge line to prevent fluid from flowing back through the pump when it is shut down. The valve should block the discharge line during maintenance.

Suction Piping

Care should be taken in sizing and locating suction piping to prevent cavitation. A valve should be installed in the intake line to prevent fluid from flowing into the pump when it is shutdown.

Pre-starting Recommendations

Please perform the following operations before attempting to start your pump.

- a. Visually check all main and auxiliary piping to insure that all connections have been properly made.
- b. Check oil level by removing Oil Filler Cap. Oil should be one quarter inch above bottom of filler elbow. Do not overfill, oil will leak along shaft if too high.
- c. Rotate the pump by hand. There should be some drag due to the Check Valve being engaged. If unable to rotate the pump, check wear adjustment.
- d. Check voltage, fuse, starter amperage ratings and frequency on the motor nameplate against the electrical supply characteristics.
- e. Check the rotation of the motor by momentarily starting the motor with the motor disconnected from the pump assembly. Direction of rotation must be as shown by the arrow on the case and the direction shown by the pedestal cap. Starting or running the pump backwards will cause damage to internal parts.

Starting

Before starting the pump, it is advisable to have the pump casing and suction line filled with liquid. It is normal to have the discharge valve momentarily closed when the pump is started, since much less horsepower is required under these conditions.

DO NOT OPERATE THE PUMP IN A DEAD-HEADED (NO FLOW) CONDITION.

Shutdown

Close the suction valve and discharge valve, and then stop the pump.

General Servicing

Your Wilfley Model K pump is designed to provide long and

trouble-free service with a minimum of maintenance. It is recommended that the pump be inspected at regular intervals. It is also suggested that a service record be kept for the pump.

Every time your pump is reassembled, the Follower Plate Gasket (K3A) should be replaced.

Motor

Please refer to the manufacturer's motor manual for recommended service instructions. It is recommended that the motor be well ventilated when in operation.

Periodic Servicing

The following table contains recommended service checks that should be performed on a periodic basis.

	Upon Installation	After First Start-Up	Every Week	Every Month	Every 3 Months
Flow, Pressure and Temperature (a)		●	●		
Oil Level (b)	●	●	●		
Visual (c)		●	●		
Noise/Vibration		●	●		
Oil Change					●

a. Flow, Pressure and Temperature:

All flow pressure and temperature gauges should be monitored to ensure that the pump is operating within specified limits. If the frame bearing temperatures are monitored, this temperature should not exceed 220 F (104 C).

b. Oil Level:

Check the oil level by removing the Oil Filler Cap. Oil should be one quarter inch above bottom of filler elbow. Do not over fill, oil will leak along shaft if level is too high. Add clean oil when needed. Oil should be checked to insure lubricant is clean.

Pump Storage

If the pump is inoperative for a long period of time, it is recommended that the pump be flushed and drained to minimize corrosion. It is also advisable to drain the lines and case if there is any possibility of freezing.

The pump shaft should be rotated once a week to lubricate the bearings and prevent rusting.

c. Visual:

Periodic visual inspection should be made of the pump and its installation. This inspection should include the following:

1. All mounting supports should be secure.
2. All external nuts, bolts and fittings should be tight.
3. All suction and discharge piping should be secure.
4. All surfaces and joints should not show signs of leakage.

Lubrication:

- A. Use recommended oils (see table).
- B. After running the pump for one week, drain and fill with new oil.
- C. Change oil every three months unless oil becomes contaminated sooner. Should the oil appear contaminated flush with clean oil.

Clearance Settings

CAUTION: Never adjust the clearance while the pump is running.

- a. The Draw Bolt adjustment controls the clearance between the Runner and the Follower Plate and takes care of any drop in efficiency or capacity caused by wear.
- b. To make the clearance adjustment; loosen the Pedestal Cap (K28); loosen the Outer Draw Bolt Nut (K11A); move the Long Cylinder (K16) to rear of the pump by turning the Inner Draw Bolt Nut until the Runner (K25) touches the Follower Plate (K3). Back off the Inner Draw Bolt Nut 1/4 turn for metal pumps and 1/3 to 1/2 a turn for rubber pumps. Tighten and lock into position by tightening the Outer Draw Bolt Nut and Pedestal Cap.
- c. Rubber parts should be adjusted during installation. Re-adjustment is seldom needed. Adjust pumps with a rubber Case, a metal Runner and a metal Follower Plate as metal pumps. All other combinations of metal and rubber parts should be adjusted as rubber pumps.
- d. Excessive wear to metal parts will result from adjustments made too often. As a general rule, adjust clearance not more than four times during the life of the Follower Plate.
- e. All adjustments should be made while turning the pump over by hand. Caution should be taken not to rotate the pump in the wrong direction.

Sump Design Considerations

Refer to the Hydraulic Institute's recommendations under Intake Design.

Be sure the sump provides adequate volume to accommodate surges.

Sloped sides should taper toward the suction for proper flow.

Pump suction lines should be equal to or greater than the pump suction nozzle.

A.R. Wilfley & Sons would be happy to help you with Sump sizing and design. Feel free to contact us at:

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Acceptable Oils

Chevron	GTS oil 68
Exxon	Teresstic EP 68
Gulf	Gulf Harmony 68
Mobil	Mobil DTE 26 300 SSU 38°C (100°F)
Phillips	Mangus Oil Grade 315
Phillips	MM motor oil SAE 20-20W
Phillips	HDS motor oil SAE 20-20W

Lubricating Oil Requirements

	Bearing temperature below 82°C (180°F)	Bearing temperature above 82°C (180°F)
ISO Grade	VG 68	VG 100
Approx. SSU @ 38°C (100°F)	300	470
DIN 51517	C68	C100
Kinem. viscosity at 40°C (105°F) mm ² .sec	68	100

Safety Precautions

Like all machinery, centrifugal pumps can be dangerous if used improperly. Any of the following list of misuses may result in a pump which does not function properly. A pump functioning improperly may be a hazard and could cause damage or injury.

For maximum safety and reliability use only factory supplied parts and closely follow all maintenance and operating recommendations and instructions.

Use a Wilfley pump only for the specific application for which it was sold and in the manner prescribed by A.R. Wilfley & Sons. The Wilfley pump must be operated at the correct speed for the proper functioning of the centrifugal seal and Check Valve.

Do not change the pumping conditions or installation of a Wilfley pump without consulting A.R. Wilfley & Sons first to ascertain if the pump is capable of handling the new conditions and/or fluid.

It is not possible to list all pump misuses. Therefore, the following list is not meant to be complete and is provided only as a guide and as an example of the types of misuse which can damage a pump and cause injury. The list will also give a good idea of the kinds of misuses that void any and all warranties.

1. Do not run a pump with the discharge valve closed.
2. Do not run a pump in the reverse direction.
3. Do not start a pump that is "windmilling" in the reverse direction due to fluid flowing back down the discharge pipe and into the suction pipe.
4. Do not continue to operate a pump when there are indications that something is rubbing, binding or knocking.
5. Do not continue to run a pump which gives an indication of overheating.
6. Do not operate a pump with the belt or coupling guard removed. Make sure the guard fits snugly around the belts or couplings so there are no openings.
7. Do not operate a pump if the governor weights are of different sizes.
8. Do not operate a pump that is vibrating, surging or making abnormal noise.
9. Do not work on a pump unless the drive system is locked out and the pump is disconnected from the drive system.
10. Do not connect the pump to the drive system without first checking to see that the drive system is running in the correct direction.
11. Do not rely on the factory's alignment of pump and the drive system.
12. Do not put a cold liquid in a hot pump or a hot liquid in a cold pump.
13. Do not hit a pump with any object.
14. Do not use worn or faulty parts.
15. Do not stick hands, arms, legs or any other objects into the discharge or intake, or any other opening of a pump.
16. Do not weld attachments to the pump.
17. Do not apply external heat to the pump.
18. Do not lift the pump by the case.
19. Do not examine a pump without using proper eye and face protection.
20. Some materials deteriorate with time. If your pump has been out of operation for more than 3 months, please contact A.R. Wilfley & Sons for more information concerning its suitability for service.

Parts Ordering

Please include the serial number of your pump when ordering spare parts. With this number we can determine and duplicate the original configuration and materials of construction.

Special Service

The Check Valve assembly is very important to the efficiency of your K pump. Its parts and seals must be in good working order. Parts are often replaced unnecessarily due to unfamiliarity. The reverse is also true, many times parts are not replaced that should be. For these reasons we provide the service of factory rebuilding.

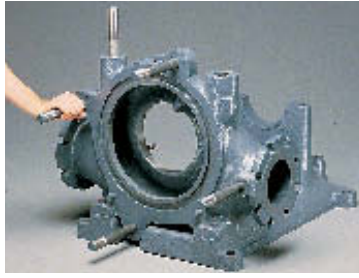
Your Wilfley K pumps and seals may be returned to the factory at any time, for complete overhaul and repair. Each pump is completely disassembled and any worn or inoperable parts are replaced. We charge the standard price for parts and a minimal reassembly fee.

The utilization of this service provides you with almost instantaneous pump repair at an economical price. The units are overhauled and returned to you quickly.

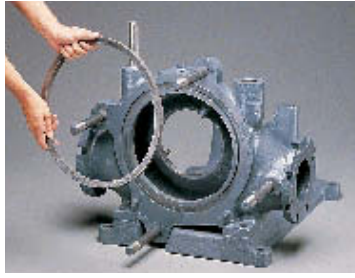
Please contact A.R. Wilfley & Sons or any of our representatives at any time, concerning our pumps or parts. You can be assured that we will do all within our power to insure your total satisfaction with Wilfley products.



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1. Attach Intake Chamber to the Frame Base and install the Case Stud Bolts.



2. Insert the Frame Packing Ring into the groove on the front face of the Intake Chamber.



3. Bolt the Blind Intake Flange onto the Intake Chamber. Note: Wilfley Model K pumps will accept intake from either, or both sides of the pump.



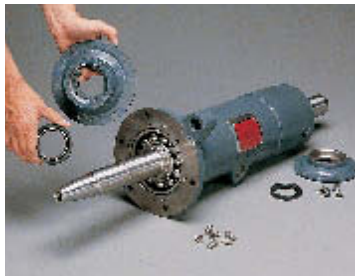
4. Install Gland Stud Bolts and the Draw Bolt on the back of the Intake Chamber.



5. Heat Bearings and slide them onto the Bearing Shoulders on the Shaft. Lock into place with Lock Nuts and Lock Washers.



6. Install Shaft and Bearing Assembly into the Long cylinder.



7. Place Oil Seals into the Front and Rear Bearing Caps and attach to the Long cylinder. Note: Front Oil Seal is designed to keep impurities from reaching the bearings. Mount Seal with spring forward.



8. Attach short cylinder to the Long Cylinder. Note: dished edge of the Short Cylinder must line up with the Draw Bolt Fitting on the Long Cylinder.



9. Install the Oil Filler Elbow assembly and the Oil Drain Plug on the Long Cylinder.



10. Place the Check Valve Spring into the Check Valve Spider and cover it with the Check Valve Packing Diaphragm Plate.



11. Compress the Check Valve Packing Diaphragm Plate and attach the Check Valve Weights with the cotter pins and washers.



12. Install the Check Valve Setscrews and the Check Valve Sleeve O-Ring on the Check Valve Sleeve.



13. Slide the Check Valve Spider Assembly onto the Check Valve Sleeve, secure with screws. Position the Check Valve Packing Diaphragm on the Check Valve Packing Diaphragm Plate.



14. Slide the Check Valve Assembly onto the Shaft and tighten the Setscrew in the notch on the Shaft.



15. Attach short Cylinder Head to Short Cylinder and secure with screws.



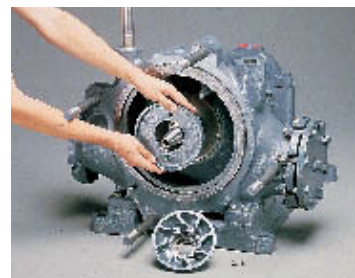
16. Place Gland Ring over the Short Cylinder.



17. Install Bearing Unit in rear bore of Intake Chamber. Attach Pedestal Cap and Draw Bolt Nut and Washer. Do not tighten at this time.



18. Install two layers of Gland Packing Ring into rear bore of the Intake Chamber and bolt the Gland Ring to the Intake Chamber. Attach Short Cylinder Cover. Do not tighten at this time.



19. Install Die Ring and secure with screws. The Expeller portion of two-piece runners must be installed at this time.



20. Install Frame Protecting Ring, Follower Plate and follower Plate Gasket into Front Bore of Intake Chamber.



21. Slide Expeller O-Ring Runner onto the Shaft and secure with Runner Bolt. (Expeller O-Ring for two-piece Runner only). Note: C-Clamp may be useful in holding the Follower Plate in position.



22. Attach Case and secure with washers and nuts.



23. Set Runner Clearance. For specific instructions refer to page 5 of the Model K Operating Handbook. Tighten Pedestal Cap and Gland Stud Nuts.



24. Attach Crane Arm Assembly.



25. Attach Discharge Keeper Assembly.