Jabsco Flexible Impeller Pump Manual

TCW Equipment

1 Introduction

This document will provide basic usage and maintenance instructions for your Jabsco Flexible Impeller Pump. It will also to show you how to use your Variable Frequency Drive (VFD) to control the speed and rotational direction of your pump.

2 General Principles of Operation

The pump is actually composed of three distinct parts, all mounted on a stainless steel cart:

1. The Variable Frequency Drive: This is the "brain" of the pump. We will explain its job in detail below.
2. The Motor: This is the largest component of your pump assembly. It converts the incoming electricity from the VFD into mechanical energy, which powers the pump.
3. The Pump Head: The pump head attaches to the face of the motor. It is powered by the motor's rotating shaft.

These three pieces work in concert to move liquid throughout your facility.

3 Plugging Into Power

Only 115 V pumps have a plug installed by TCW. 230 V and 480 V pumps do not have a plug installed. Because there are dozens of different NEMA, IEC, and regional plugs available, it is best to install plugs that match the existing receptacles in your facility.

Only qualified personnel should install an electrical plug.

3.1 Single Phase Plug Installation

Connect the green wire to the plug's ground terminal. The remaining two wires may be connected to either available terminal on the plug.

3.2 Three Phase Plug Installation

Connect the green wire to the plug's ground terminal. The remaining three wires may be connected to any available terminal on the plug.

4 Pump Controls

4.1 Controlling the Pump Without a Remote

If you did not purchase a remote control with your pump, you can control it with the keypad on the VFD using the following commands.

- Start Pump: Press the ◁□ button.
- Stop Pump: Press the ⊙▷ button.
- Reverse Flow Direction: Press the ⌂ button followed by ◁| to confirm.
- Adjust Pumping Speed: Press ↑ to increase speed and ↓ to decrease speed. Alternately, if your drive has a potentiometer installed on the front plate you can turn it to quickly adjust the speed.

If the above commands don't work for you, your drive may be in "Remote Mode", where it expects commands from a remote control. Press "CTRL" and the display should briefly show "Keypad full CTRL? ON" Press the ↵ key to confirm you want to switch to keypad control mode. Give us a call and we can explain how to change the drive to start up in keypad control mode permanently.

4.2 Controlling the Pump With a Speed-Only Remote or Faceplate Potentiometer

Both the speed-only remote and faceplate potentiometer let you control the speed of the pump using a small knob called a "potentiometer". You can quickly go from 0–100% speed with a twist of the knob. You cannot, however, change the direction of the pump or start/stop the pump without using the keypad.

- Start Pump: Press the ⏻ button. Ensure that the potentiometer is not turned all the way to the left. The pump should begin rotating once you increase the speed.
- Stop Pump: Press the ⏻ button. Turning the potentiometer all the way left should also reduce the pump's output to 0 Hz, effectively stopping it.
- Reverse Flow Direction: Press the ⏻ button followed by ◁ to confirm.
- Adjust Pumping Speed: Rotate the potentiometer clockwise to increase the speed, and counter-clockwise to decrease the speed.

4.3 Controlling the Pump With a Full-Control Remote

With a full-control remote you can start, stop, and reverse the pump all from the remote. You can still revert to using the keypad if you wish, but the remote will be your primary control source.

> Always start the pump with the REV/OFF/FWD control switch on the remote set to the center OFF position. Starting the pump with the control knob set to "FWD" or "REV" will cause the pump to display an error. To resolve this error you will need to unplug the pump, let it fully power down, and then restart it with the control knob set to "OFF"

- Start Pump: Turn the REV/OFF/FWD switch to either REV or FWD.
- Stop Pump: Turn the REV/OFF/FWD to the center OFF position.
- Reverse Flow Direction: Turn the REV/OFF/FWD switch to the opposite position.
- Adjust Pumping Speed: Rotate the potentiometer clockwise to increase the speed, and counter-clockwise to decrease the speed.

4.4 Switching to Keypad Controls

If you have a remote installed but need to revert to keypad controls—for example, if your remote stops working for some reason—you can quickly switch to full keypad control with the following steps:

- Press the CTRL key on the keypad.
- The display should flash "Keypad full CTRL? ON".

- While this message is visible press the ◁| key to confirm.

Repeat this procedure to revert control to the remote.

5 Usage Tips

Do not run the pump without liquid. The liquid you are pumping cools the head and the impeller. Running the pump dry will cause the head to overheat, destroying the impeller and seals.

- Flexible impeller pumps are self-priming, which means they are able to pull liquid some distance to their inlet and do not need to be "primed" by bringing liquid to the pump inlet. There is a practical limit to how far they're able to self-prime, though, particularly if the pump is dry. It is best to keep the distance from the source to the pump head as short as possible, and no more than 10–15 feet.

- In practice you will get the longest life from wear parts by running your pump at 40%–60% of its maximum rated speed the majority of time you are using it. Faster is fine, but you may notice that you need to replace wear parts more frequently.

- It is normal for the sound coming from the pump head to change over time. As the impeller warms up, cools down, and as it wears normally throughout its lifespan, the sound that comes from the pump head may change. This is normally not a cause for concern, unless the sound becomes like a loud rattle, as if ball bearings are loose inside the pump head. That sound could indicate "cavitation", a condition in which flow to the inlet is restricted. Cavitation can quickly cause premature wear of the impeller and seals. To correct cavitation, ensure that there are

no restrictions from the inlet of the pump to the source of liquid. If necessary, increase the size of hose at the inlet, and install a valve at the outlet of the pump head to reduce outlet flow.

- We recommend replacing the impeller yearly as preventive maintenance.

6 Troubleshooting

Here are some issues and concerns we see with some frequency. Please feel free to call us if you have an problem that is not addressed here.

- **Flow rates are greatly reduced.**
  - Check the impeller for cracked or missing blades. Replace the impeller as necessary.
- **There is a leak behind the head of the pump, or from the weep hole.**
  - The mechanical seal or stationary seal seat (or both) have broken. You can replace the broken mechanical or stationary seal, but it is often best to replace both at the same time so they wear evenly. These seals usually last a long time unless you are pumping abrasive materials, or the pump head has become too hot as a result of running dry. If the seal damage is a result of running dry, check the impeller as well, as it is likely damaged and should be replaced.
- **The speed control on the remote no longer works, or skips around.**
  - Water has likely entered the poteniometer and damaged it. We sell replacement remote assemblies that include the

cord. Remove the old remote from the drive, noting the position and color of the wires inside the drive. Reinstall the new remote in the same configuration.