

Sequence of Operation

The following sequence is a description of how the DynaSeal™ oil sealed vacuum pump system should operate. The description is general to cover simplex to multiple (more than one pump) systems. It is assumed that all start-up procedures have been followed. Ensure that pump reservoirs are filled with oil (See start-up procedures.) Make sure that the seal fluid isolation of the component. If any of the below do not occur, see the “Trouble-shooting” section.

DANGER: HIGH VOLTAGE! valve is the open position. If unsure about the function if one of the electrical controls mentioned below, see the “Electrical Controls” section for a description

Once the power connection to the system has been made, the following should occur:

- ◆ If disconnects or circuit breakers are installed on the control panel, and are turned to the “on” position, the system will be energized. If “power on” indicating lights are installed on the panel, the lights will be illuminated.
- ◆ If any other lights are illuminated, see the “Trouble-shooting” section.
- ◆ If “hand-off-auto” selector switches are installed turned to the “Hand” mode, the pump(s) will immediately start. If “Pump on” light(s) are installed in the panel, they should light up to indicate pump operation. We suggest that each pump be tested (“bump started”) in the “Hand” mode initially to check rotation of the pump. When facing the back end of the motor, the correct rotation is a clockwise direction. When in “Hand” mode, the pumps will run continuously unless an alarm condition is triggered. If such a condition occurs, see the “Trouble-shooting” section.
- ◆ When the “hand-off-auto” selector switch is placed in the “Auto” mode, the pump(s) will operate from vacuum switches (if installed). In multiplex pump systems, each vacuum switch is set with a differential as well as an offset relative to the next switch. The switches should not be set identically. The differential is usually between 4 to 6 inches of Mercury. For details on setting the vacuum switches, see the vacuum switch specifications section in this manual. The differential for each switch is 5”Hg., the offset between the two switches is 2”Hg. Below is an example for a duplex system.

Pump	Pump On	Pump Off
Pump one (lead pump)	@ 20”Hg.	@ 25” Hg.
Pump two (lag pump)	@ 18”Hg.	@ 23” Hg.

- ◆ The switches are set in this manner so that if pump “one” cannot satisfy demand and the vacuum level drops below 20”Hg., the “lag” pump will start-up when the vacuum level reaches 18”Hg and stops at 23” Hg as standard.
- ◆ All multiplex systems are supplied with “Automatic alternation” and “Frequent stop/start protection.”
- ◆ **“Automatic alternation”** allows the pump to operate equally (even run time) by alternating each pump whenever the pump(s) shut down. When alternation occurs the “lead” pump becomes the “lag” pump and the “lag” pump becomes the “lead” pump.
- ◆ **“Frequent stop/start protection”** is used to allow the pump(s) to operate a minimum amount of time. The time period is factory set at 10 minutes. This allows the pump(s) to warm up and eliminates frequent starting of the pump(s) which can cause premature coupling failure and breakdown of electrical components. The pump(s) will continue to operate after the vacuum level has been satisfied. In order to maintain the desired vacuum level, a vacuum relief valve is usually supplied with the system. If a vacuum relief valve is not supplied with the system and the vacuum level is critical, a relief valve must be installed.
- ◆ If the pump(s) are not alternating and/or are frequent starting, one of the electrical components may be defective. Contact the factory for more information.