

(Internal Shuttle) Installation Instructions

**WARNING: DO NOT LIFT PUMP OUT OF THE BOX BY THE TUBING.
THIS COULD CAUSE SERIOUS DAMAGE TO THE FITTINGS.**

- ◆ The PL60 base plate is designed to be mounted with two 3/8" or two 10mm socket head cap screws spaced 2.000" apart.
- ◆ Remove the base plate from the pump by lifting the lever lock base plate lever (10) and sliding the pump (1) forward then lifting it off of the base mount knobs (11) on the base plate (9).
- ◆ Install base plate (9) into work station by tightening it down with two 3/8" or two 10mm socket head cap screws, screwed into previously drilled and tapped mating holes at a 2" hole distance.
- ◆ Place the pump assembly (1) onto the mating base mount knobs (11) of the base plate (9) the lever (10) lifts up automatically. Slide the pump assembly (1) back and the lever (10) drops to hold the pump in place.
- ◆ Affix PFA thick wall tubing to fluid connectors without wrenches, hand tighten only. Installation of lines is: intake on bottom; discharge on top. If pump is equipped with Synchro flare fittings, use standard flaring procedures. Take care to make sure the PFA gripper washer (46) is in place in the nut (48) before flaring.
- ◆ Hook up 3/8" NPT fitting attaching a minimum of 3/8" PFA tubing to top of pump master head (24) (fitting location is actually at about 10:00). Air supply must be 1/4" minimum orifice (1/4" unrestricted air flow) back to supply source.
- ◆ Minimum operating pressure of 20psi. Maximum operating pressure of 100psi. Check temperature to air supply charts for exact maximum allowable air supply pressure.

CAUTION: AIR SUPPLY MUST BE 1/4" MINIMUM ORIFICE (1/4" UNRESTRICTED AIR FLOW) FROM SUPPLY SOURCE TO PUMP.

NOTICE: WHEN OPERATING A RENAISSANCE PUMP WITH A WHITE KNIGHT SHUTTLE VALVE IN CONJUNCTION WITH A PULSE DAMPENING DEVICE THE AIR SUPPLY PRESSURE (TO THE PUMP) SHOULD BE AT LEAST 10PSI OVER THE LIQUID LINE PRESSURE. FAILURE TO DO SO CAN CAUSE THE PUMP TO RUN ERRATICALLY.

**Problems or Questions, call toll free:
888.796.2476
Or 435.783.6040**

PL 60 (Dual Slave Heads) Installation Instructions

**WARNING: DO NOT LIFT PUMP OUT OF THE BOX BY THE TUBING.
THIS COULD CAUSE SERIOUS DAMAGE TO THE FITTINGS.**

- ◆ The PL60 base plate is designed to be mounted with two 3/8" or two 10mm socket head cap screws spaced 2.000" apart.
- ◆ Remove the base plate from the pump by lifting the lever lock base plate lever and sliding the pump (1) forward then lifting it off of the base mount knobs on the base plate (16).
- ◆ Install base plate (16) into work station by tightening it down with two 3/8" or two 10mm socket head cap screws, screwed into previously drilled and tapped mating holes at a 2" hole distance.
- ◆ Place the pump assembly (1) onto the mating base mount knobs of the base plate (16) the lever lifts up automatically. Slide the pump assembly (1) back and the lever drops to hold the pump in place.
- ◆ Affix PFA thick wall tubing to fluid connectors without wrenches, hand tighten only. Installation of lines is: intake on bottom; discharge on top. If pump is equipped with Synchro flare fittings, use standard flaring procedures.
- ◆ Install 2 each 1/4" NPT X 3/8" FNPT Adapters as well as 2 each 1/8" NPT mufflers to either the sides of the pump (face of pump heads) or to the back of the pump (radius of pump head). See picture below for details.
- ◆ Hook up 3/8" NPT fitting attaching a minimum of 3/8" PFA tubing to each of the two 1/4" NPT X 3/8" FNPT Adapters. Air supply must be 1/4" minimum orifice (1/4" unrestricted air flow) back to supply source.
- ◆ If Leak or Stroke detect options have been selected for pump see below picture for hook up instructions.
- ◆ Minimum operating pressure of 20psi. Maximum operating pressure of 100psi. Check temperature to air supply charts for exact maximum allowable air supply pressure.

CAUTION: AIR SUPPLY MUST BE 1/4" MINIMUM ORIFICE (1/4" UNRESTRICTED AIR FLOW) FROM SUPPLY SOURCE TO PUMP.

NOTICE: WHEN OPERATING A RENAISSANCE PUMP WITH A WHITE KNIGHT SHUTTLE VALVE IN CONJUNCTION WITH A PULSE DAMPENING DEVICE THE AIR SUPPLY PRESSURE (TO THE PUMP) SHOULD BE AT LEAST 10PSI OVER THE LIQUID LINE PRESSURE. FAILURE TO DO SO CAN CAUSE THE PUMP TO RUN ERRATICALLY.

NOTICE: WHEN OPERATING A RENAISSANCE PUMP IN TIMER/OSCILATOR MODE THE PUMP SHOULD RUN AT A SPEED FAST ENOUGH TO KEEP THE BELLOWS FROM REACHING THE END OF THE STROKE. THIS IS BECAUSE ONCE THE BELLOWS HAS REACHED THE END OF STROKE THE BELLOWS WILL BALOON AND FATIGUE. A GOOD WAY TO DETERMINE THE CYCLE RATE IS TO TAKE THE FLOW RATE AND DIVIDE IT BY THE PUMP DISPLACEMENT AND MULTIPLY IT BY 1.25. FOR EXAMPLE PUMP FLOW RATE IS 10GPM, THE DISPLACEMENT PER CYCLE FOR THE PL60 IS .05 GPM. THE CYCLE RATE WOULD THEN BE $10 / .05 = 200 \times 1.25 = 250$. IF LARGE AMOUNTS OF EXHAUST ARE COMING OUT THE SHIFT EXHAUST MUFFLERS THE SPEED SHOULD BE INCREASED. ONLY A SMALL AMOUNT OF EXHAUST SHOULD ESCAPE OUT.