

## START-UP FORM FOR A .005 TWO TANK PRESSURIZED DEAERATOR

Job: \_\_\_\_\_  
Location: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Plant Contact: \_\_\_\_\_

Date: \_\_\_\_\_  
Serial Number: \_\_\_\_\_  
\_\_\_\_\_  
Contact Phone: \_\_\_\_\_  
Contact Fax: \_\_\_\_\_

- 1) Installation pre-inspected to insure it meets all state and local codes. (*Note: Someone should perform this with local jurisdiction.*
  - Soft Water
  - Chemical Feed
  - Domestic Water Supply (Primary and Secondary)
  - Vent line properly sized and installed.
  - Regulator(s) properly dripped
  - Regulator Sensing Line(s) properly installed
  - Receiver overflow properly piped to drain
  - (*If required*) Air supply line and supply pressure properly installed to any air operated controllers/ valves. “This is normally 20#’s”. \_\_\_\_\_ Air pressure supplied to the unit.
  - Pump discharge piping including gate (isolation) valve, check valve (i.e., spring check design recommended), and balancing valve. (*Note: If discharge pressure of Shipco<sup>®</sup> centrifugal pump is 75 psig or greater, the pump will be fitted with a Griswold automatic flow control valve at the factory.*)
  
- 2) Check the nameplate on the electrical control panel to ensure the *design* incoming line voltage matches the *actual* incoming line voltage. If they are the same you may proceed. If they are different consult the factory to identify what changes to components are required in the control panel to support the actual line voltage.
  
- 3) Remove all the shipping brackets on the float switches.
  
- 4) Check to ensure the available steam pressure to the steam regulator[s] is as stated in the Installation, Operation and Maintenance (IOM) Manual for the Deaerator (DA).
  
- 5) Turn on the power to the control circuitry on the surge tank, *if applicable.* (*Note: not all units are designed with a control circuit disconnect.*)
  
- 6) Fill the surge tank to its normal level using the make-up valve on the unit.
  
- 7) As tank is filling, check the operation of the float switches on the surge tank.
  
- 7A) If unit was purchased with a Pressure Differential Controller – see Supplemental IOM
  
- 8) On vertical style *transfer pumps*, temporarily open the drain plug in the suction housing to allow air to escape and condensate to flood the suction chamber. Reinstall the drain plug and tighten as needed.
  
- 9) Fully open the suction and seal flush line isolation valves for *each* pump.

- 10) Turn the main power “on” to the *transfer pumps* on the surge tank. Crack open the seal flush line on *each* pump (one at time) to bleed off any air during “bump testing” the pump. Bump test each pump using the momentary test button to check for pump rotation. Pumps should rotate clockwise when facing the motor.
- 11) Correct any pump rotation problems that are found to prevent pump damage. If the unit has three-phase power, switching any two of the conductors on the output of the starter changes the rotation.
- 12) Place one *transfer pump* selector switch in the “auto” position. Place the other pump selector switch in the “stand-by” position.
- 13) Crack open the steam regulator on the “upper” valve (i.e., for the regulator above the water line on the DA tank). (*Note: if the DA tank only has a “lower” valve below the water line, omit this step.*)
- 14) Add water to the DA tank using the bypass around the modulating make-up valve. When the DA is about 1/3-1/2 full stop filling the DA.
- 15) When the water level in the DA tank is visibly above the “lower” preheat tube, crack open the “lower” steam regulator.
- 16) Turn on the power to the control circuitry, *if applicable.* (*Note: not all DA’s are designed with a control circuit disconnect.*)
- 17) As the DA tank is filling, manually check the operation of all floats.
- 17A) If unit was purchased with a Pressure Differential Controller – see Supplemental IOM
- 18) Ensure the selector switch for *each* boiler feed pump is in the “Off” position.
- 19) Fully open the suction isolation valves and seal flush lines on *each* boiler feed pump.
- 20) On vertical style *boiler feed pumps*, temporarily open the drain plug in the suction housing to allow air to escape and condensate to flood the suction chamber. Reinstall the drain plug and tighten as needed.
- 21) Turn the main power “on” to the *boiler feed pumps*. Crack open the seal flush line on *each* pump (one at time) to bleed off any air during “bump testing” the pump. Bump test each pump using the momentary test button to check for pump rotation. Pumps should rotate clockwise when facing the motor.
- 22) Correct any pump rotation problems that are found to prevent pump damage. If the unit has three-phase power, switching any two of the conductors on the output of the starter changes the rotation.
- 23) Throttle and balance each transfer and boiler feed pump to its design condition. (*Note: if the boiler feed pumps include an automatic balancing valve, they should balance themselves within the operating range of the valve.*)
- 24) Measure and record the incoming line voltage for each leg on all the pumps.
- 25) Measure and record the Amp draw on each leg of all the pumps.

- 26) Slowly bring the DA up to temperature of 212°F at sea level by slowly opening the valves to the steam regulator[s]. When the valves are fully open, continue adjusting by using the temperature controller[s]. Calibrate knobs on temperature controller[s] to correspond to the appropriate temperatures. (*Noted: sometimes the controller could be a self-contained design*).
- 27) Adjust the steam regulator[s] per the IOM to set the temperature of the DA. If the DA includes both an “upper” and the “lower” steam regulator, the major portion of the steam supply should go to the “upper” regulator. The “lower” regulator is typically set at 213°F to allow for the additional water weight in the unit.
- 28) Open the inlet valve to the modulating *transfer* valve.
- 29) Adjust the modulating *transfer* valve controller as (*if necessary*) per the IOM.
- 30) Adjust pressure switch for stand-by pump[s] (*if applicable*).
- 31) Inspect the entire unit for any drips/leaks in piping caused by vibration during shipping.
- 32) Observe unit for proper operation.

**Notes & Comments:**

Incoming line voltage \_\_\_\_-\_\_\_\_-\_\_\_\_

Unit Design Line Voltage \_\_\_\_-\_\_\_\_-\_\_\_\_

Amp draw(s) Pump #1 \_\_\_\_\_

Amp draw(s) Pump #2 \_\_\_\_\_

Amp draw(s) Pump #3 \_\_\_\_\_

Amp draw(s) Pump #4 \_\_\_\_\_

\_\_\_\_\_  
Start-up Technician

\_\_\_\_\_  
Owner Approval

J\Shipco\Website\Startup\_Guidelines  
Revised 3/25/08