START-UP FORM
FOR A .005 PRESSURIZED DEAERATOR

Job: _____ Date: _____
Location: _____ Serial Number: _____
_____
_____
Plant Contact: _____ 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® 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) Crack open the "upper" steam regulator (i.e., the regulator connected to the preheat tube *above the water line*) on the unit. *(Note: If the DA only has one steam regulator below the water line, skip this step).*

- ❑ 6.) Add water to the DA using the bypass around the modulating make-up valve. When the tank is about 1/3-1/2 full stop filling the DA.

- ❑ 7) When the water level in the receiver is visibly above the "lower" preheat tube, crack open the lower steam regulator.

- ❑ 8) Turn on the power to the control circuitry, *if applicable. (Note: not all DA's are designed with a control circuit disconnect).*

- ❑ 9) As the receiver is filling, manually check the operation of all floats on the DA.

- 9A) If unit was purchased with a Pressure Differential Controller – see Supplemental IOM
- 10) Ensure the selector switches for *each* pump are in the "Off" position.
- 11) Fully open the suction isolation valves on *each* boiler feed pump.
- 12) On vertical style 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.
- 13) 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.
- 14) 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.
- 15) Throttle and balance each pump to its design condition. *(Note: if the pumps include an automatic balancing valve, they should balance themselves within the operating range of the valve).*
- 16) Measure and record the incoming line voltage for each leg on all the pumps.
- 17) Measure and record the Amp draw on each leg of all the pumps.
- 18) Calibrate the *pneumatic* temperature controller *(if provided)* to the measure tank temperature per the IOM. *(Note: sometimes the controller could be self-contained design).*
- 19) Slowly bring the DA up to saturation point (i.e., temperature of 227^{o}F at sea level) or equivalently 5 psig..
- 20) Adjust the steam regulator[s] per the IOM to set the temperature of the DA. If the DA includes both an "upper" and "lower" steam regulator, the major portion of the steam supply should go to the "upper" regulator. The "lower" regulator is used to ensure the water in the receiver stays at the saturation temperature. This "lower" regulator is typically set at 6 psig to allow for the additional water weight in the unit.
- 21) Open inlet valve to the modulating make-up valve.
- 22) Adjust the modulating make-up valve controller as *(if necessary)* per the IOM.
- 23) Adjust pressure switch for stand-by pump[s] *(if applicable).*
- 24) Inspect the entire unit for any drips/leaks in piping caused by vibration during shipping.
- 25) 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
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