



Preventive Maintenance Schedule for Cartridge Style Boiler and Steam Injector Units

Frequency of Preventive Maintenance by Site

<u>Customer Location</u>	<u>Level 1</u>	<u>Level 2</u>	<u>Level 3</u>	<u>Level 4</u>	<u>Level 5</u>
	Semi-Monthly	Monthly	Quarterly	Semi-Annually	Annually

Date: February 19, 2013
Supersedes: August 15, 2011

Red Bag Solutions - Daily Procedure

These actions are to be performed routinely by the Operator

For each Cycle

- 1 Prior to loading the SSM
 - Inspect the tank for any metal or foreign objects - Remove if found
 - Visually inspect the cutting system for damage
 - Check for missing screws/bolts - replace if necessary
 - Damage to cutter (missing inserts, etc.)
- 2 Wipe the face of the tank and the face of the door prior to closing for a run
 - Use a "scotch-brite" type pad to clean the door surfaces
 - A brush with stiff plastic bristles may be used.
 - However, a brush is not as effective a "scotch-brite" pad, it can leave debris stuck to the faces
 - Do not** use a brush with metal bristles
- 3 If cut of discharged debris is less than optimal
 - Check clearance between cutter and cutter bar plate
 - Reset if necessary
- 4 Clutch
 - After every reset;
 - Does the Clutch reset properly?
 - Does the Clutch make any unusual sound when it disengages?

At the beginning and end of each shift

- 1 Visually inspect the Belt Guard and Speed Switch
 - Make sure all latches are closed and connections are tight
 - No visible dents
 - Drive Belt is not rubbing against the Belt Guard
- 2 Visually inspect the flanges on the two drive pulleys
 - Replace broken or missing flanges

Visually inspect the Magnets on the outside of the Process Tank

 - Are they operating correctly
 - Remove any metal debris that may have accumulated on the magnet surface
- 4 At the end of the day, leave the door slightly open so moisture is not trapped against the door faces

Site:

Date: _____ Unit No.: _____

By: _____

Chopper Pump Style UnitsNote

- 1 Shut down 3-phase power and lock out. Put unit into manual mode per Operator Manual Section
- 2 Check the top and bottom pressure warning device holes on the door
Ensure they are clear of any blockages and remove any debris causing these holes to be blocked.
Lubricate the threads.
Replace gasket in pressure warning device if needed.
- 3 Remove debris from the process tank and visually inspect the cutting system. Remove any debris
- 4 Check printer paper and ribbon. Red line shows when printer paper level is nearing end. Replace
- 5 Check surfactant tank level and refill as necessary.
- 6 Check cutter ring bolts for tightness.
- 7 Check cutter cap retaining bolt for tightness.
- 8 Check diverter bolts for tightness, replace if necessary
- 9 Remove debris from plumbing, actuators, motor fins, frame, wiring, etc.
- 10 Unlock three-phase power lock out and turn back on.
- 11 Return Unit to Automatic Mode and perform water run per Operator Manual Section VI
Monitor the performance of the unit through all stages

Cartridge Style unitsNote

- 1 Shut down 3-phase power and lock out. Put unit into manual mode per Operator Manual Section VI
- 2 Check the top and/or bottom pressure warning device holes on the door
Ensure they are clear of any blockages and remove any debris causing these holes to be blocked.
Lubricate the threads.
Replace gasket in pressure warning device if needed.
- 3 Remove debris from the process tank and visually inspect the cutting system.
Remove any debris inside cutter. (A wet-or-dry shop-vac is recommended for this action)
Check gap between Cutter Bar Plate and Impeller, add/remove shims (cutter/impeller fit washers) if necessary to raise or lower the Impeller bringing it closer to the Cutter Bar Plate

Check gap between Cutter and Cutter Bar Plate, remove shims (cutter fit washers) if necessary to lower the Cutter bringing it closer to the Cutter Bar Plate
Check cutter cap retaining bolt for tightness.
Check tank flange protection ring and bolts for wear, replace if necessary
Check socket head cap screws for wear, replace if necessary
- 4 Check diverter bolts for tightness, replace if necessary
- 5 Check printer paper and ribbon. (Circuit board and Direct Logic units only)
Red line shows when printer paper level is nearing end.
Replace printer ribbon when print becomes light.
- 6 Check surfactant tank level and refill as necessary. (If applicable)
- 7 Remove debris from plumbing, actuators, motor fins, frame, wiring, etc.
- 8 Unlock three-phase power lock out and turn back on.
- 9 Return Unit to Automatic Mode and perform water run per Operator Manual section VI
Monitor the performance of the unit through all stages

All Doors (regardless of type)

- 1 Remove the o-ring from the door face and lubricate with silicone lubricant
Re-install the o-ring with the flat surface facing toward the door groove
Replace the o-ring if necessary

Tube Turns Door (old style)

- 1 Check the top and bottom pressure warning device holes on the door
Ensure they are clear of any blockages and remove any debris causing these holes to be blocked.
- 2 Lubricate the threads.
- 3 Replace gasket in pressure warning device if needed.

GD Door

- 1 Check tightness of bolts and nuts on closing mechanism, tighten if necessary
- 2 Lubricate closing mechanism if necessary
- 3 Check Dowty Seal, replace if necessary

Tube Turns Door (new style)

- 1 Check tightness of bolts and nuts on closing mechanism, tighten if necessary
- 2 Lubricate closing mechanism if necessary
- 3 Check O-ring in Pressure Warning Device (PWD), replace if necessary

Document maintenance procedures performed in machine log and/or maintenance log.
Include name of individual performing maintenance.

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Red Bag Solutions - Level 2 Preventive Maintenance

Site: _____

Date: _____ Unit No.: _____

By: _____

Note

- 1 Put Unit into Manual Mode
- 2 Shut down and lock out both 3-phase (480 volt) and 110 volt power.
Put unit into Manual Mode per Operator Manual section VI and shut down schematic.
Then shut down 110 volt power.
- 3 Check all electrical connections in 480V cabinet

CHOPPER PUMP or CARTRIDGE

- 1 Inspect Cartridge Seal for leaks
- 2 Inspect PSI-8 & copper line.
- 3 Remove check valves from water lines and inspect for debris.
- 4 Check allen-head set screws on Chesterton seals, tighten or replace if worn
- 5 Check 1/4" seal flush line for leaks and flow.

DOOR

- 1 Remove the o-ring from the door face and lubricate with silicone lubricant
Re-install the o-ring with the flat surface facing toward the door groove
Replace the o-ring if necessary
- 2 Check whistler for debris, remove if found
- 3 Inspect Whistler gaskets (replace if necessary)
- 4 Check tightness of whistler handles and door crank
- 5 Inspect O-ring in Pressure Warning Device (PWD), replace if necessary (new TT door)
- 6 Inspect dowty seal, replace if necessary (GD door)
- 7 Inspect and/ or lubricate yoke bolts (Tube Turns door only).
- 8 Check the Door Safety Switch for proper operation - Replace if necessary.
(use the PC to check for both Open Limit & Closed Limit)
- 9 Inspect door and neck surfaces for wear and/ or corrosion. Report if worn or badly corroded.

PRESSURE TANK

- 1 Check Cutting System (clearances and signs of wear), reset or replace as necessary
- 2 Check socket-head caps screws for wear, replace if necessary
- 3 Check diverter bolts, replace if worn
- 4 Check flange cover and bolts, replace if worn or damaged.
- 5 Inspect process tank flange for wear. Report immediately if showing signs of wear.
- 6 Inspect Pressure Tank Baffle (clean or replace if necessary)
- 7 Inspect inside of P-Tank for leaks from EV10/11 and EV4/5

PLUMBING

- 1 EV9 & EV14- Disassemble and inspect for debris in valves and 1/2" lines. Remove debris if found
(including flex line to Pressure Tank and the tee on top of the Pressure Tank)
- 2 Inspect 1/4" copper line to manifold
- 3 Inspect all valves and confirm proper operation (After restoring 110 VAC)
- 4 Inspect steam trap/separator for trash and/or debris, clean as necessary
- 5 Inspect MPS1/4, PSI5 Manifold (Drain down) (New units- PSI 5/6 Manifold)

BOOSTER PUMP

- 1 Inspect Booster Pump for leaks. (Repair or replace if necessary).

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Red Bag Solutions - Level 2 Preventive Maintenance

BOILER (If applicable)

- 1 Check boiler for leaks, including heating elements, sight glasses and inspection ports.
- 2 Check continuity of boiler level sensors.
- 3 Check and record amperage per contactor for boiler heating elements.(After turning 480 power
- 4 Check continuity of fuses
Direct Logic units - Boiler Fuses AGT50's only
Allen-Bradley units - FNQ-R-5's and FNQ-R-30's (If applicable)
- 5 Shut off steam supply at the ball valve. Applies to either facility steam or internal boiler steam
Remove and inspect 1/2" check valve at EV-10 and EV-11. (Replace if necessary)

SOMAT

- 1 Check Somat screen for material build up.
- 2 Inspect Somat screen for any signs of wear or rupture
- 3 Check connection from unit discharge to Somat / separator.
- 4 Check all electrical terminations in Somat cabinet.
- 5 Inspect wings (Cake Cutters) on auger for wear and/ or damage.
Report any damage noted to Baltimore Technical Services
- 6 Inspect gasket and center pin washer on bottom for leaks. (Repair or replace if necessary)
- 7 Inspect Gear box mounting bolts. (Replace if damaged)
- 8 Check fluid level in gear box. Fill as needed.

110V CABINET

- 1 Inspect all electrical terminations in 110V cabinet (Tighten as needed)
- 2 Inspect PLC cards and insure proper seating to PLC rack.
- 3 Check phone connection to modem (If applicable)
- 4 Check modem connection to PLC (If applicable)

MISCELLANEOUS

- 1 Check facility water temp/pressure, especially hot water temp
(After restoring 110 VAC and the schematic)
- 2 Check facility surfactant level (55 gal. Drum) (If applicable)
- 3 Inspect temp sensors and confirm accuracy (After restoring 110 VAC and the schematic)
- 4 Check printer paper, ribbon and printer connection (If applicable)
- 5 Fix any loose insulation on tank and boiler

FINAL INSPECTION

- 1 Turn 3 phase (480), 110 power and schematic back on
- 2 Return Unit to Automatic Mode and perform water run per Operator Manual section VI
Monitor performance of the Unit through all stages.
- 3 During water run inspect entire unit for leaks and repair as needed
- 4 Inspect EV-7 and EV-12 for leakage (At sight glass into separator).
If leakage is observed, replace valves
- 5 Document maintenance procedures performed in machine log and/or maintenance log.
Include name of individual performing maintenance.

**Red Bag Solutions - Level 3 Preventive Maintenance
INTERNAL BOILER UNITS ONLY**

Site:

Date: _____ **Unit No.:** _____

By:

Note

- 1** Check boiler elements for proper amperage draw during a run.
With Heater 1 & Heater 2 on - should be between 40 to 60 Amps
Amps Observed - _____

With Heater 1, Heater 2 & Heater 3 on - should be approximately 120 Amps
Amps Observed - _____

- 2** If the water outlet pipe from the boiler (where EV4 & EV5 are located) exits from the side of the boiler (rather than the bottom of the boiler) contact Baltimore Technical Services for further instruction

Document maintenance procedures performed in machine log and/or maintenance log.
Include name of individual performing maintenance.

Red Bag Solutions - Level 4 Preventive Maintenance

Site:

Date: _____ Unit No.: _____

By:

- 1 Grease motor (cartridge style units)
- 2 Check grease level in cartridge (add grease via grease nipple until small amount of grease flows from relief port)
- 3 Disconnect drive belt, use pallet jack to lift up the motor door, apply grease to the pins on the hinges that hold the motor door
- 4 Inspect boost pump for loose hardware and ensure pump is operating smoothly without vibration.

Note

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Document maintenance procedures performed in machine log and/or maintenance log.
Include name of individual performing maintenance.

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**Red Bag Solutions - Level 5 Preventive Maintenance
INTERNAL BOILER UNITS ONLY**

Site: _____

Date: _____ **Unit No.:** _____

By: _____

Level 5 Preventive Maintenance applies to SPECIFIED BOILER Units only

Applies only to boiler units where the water outlet pipe from the boiler (where EV4 & EV5 are located) exits from the side of the boiler (rather than the bottom of the boiler).

- 1** Shut down 3-phase and 110 power and lock out. Put unit into manual mode per Operator Manual Section VI
- 2** Allow boiler to cool then drain boiler
- 3** Remove two bottom heating elements and visually inspect the inside of the boiler for scale accumulation
- 4** If scale accumulation is evident, contact Baltimore Technical Services

Document maintenance procedures performed in machine log and/or maintenance log.
Include name of individual performing maintenance.

Note

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