

# Standard Maintenance Task List

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## **1. EQUIPMENT SYSTEM CHECKS**

### **1.1. Air Outlets**

Inspect air outlets at rear or top of machine for blockage

### **1.2. Battery Fluid Level**

Check each cell of battery for proper fluid level and add distilled water if required.

### **1.3. Door Hardware**

Repair, adjust and lube as necessary.

Make certain that latch holds the door closed securely and that the latch works freely.

### **1.4. Dry Sprinkler System**

The air or nitrogen pressure on each dry-pipe system should be checked at least once a week and maintained as per manufacturer's instructions.

All leakage resulting in pressure loss should be repaired.

Record gas and water pressures.

Insure that each head is free from any hanging items, wires, tape, cords, etc. Items stacked below the heads must be a minimum of 6 inches below the heads.

### **1.5. Fan**

Check for vibration and noise.

### **1.6. Fire Standpipes**

Charge and activate fire standpipes to check for proper operation.

### **1.7. Gas Piping and valves**

Check at critical points for deposits.

Check gas expansion valves for plugs.

### **1.8. Gas Solenoid Valves**

Check condition of plunger and diaphragm and replace if necessary.

### **1.9. General Equipment Check**

Visually inspect the general condition of equipment, paying close attention to possible safety hazards and note findings.

### **1.10. Hot Water Temperature**

Check water temperature at thermometer on unit and compare to a fixture in another location; note both.

### **1.11. Motors**

Clean and inspect all drive, pump and blower motors.

Check all related connections-electric, water, air and others.

**1.12. Notification of Supervisor**

Locate or call the area supervisor and apprise him/her of the condition and status of this equipment and inform all users of equipment status.

**1.13. Pump Suction & Discharge**

Insure that suction and discharge valves are in fully open position.  
Observe and note suction and discharge pressures.

**1.14. Spray Nozzles**

Check for tightness and alignment.

**1.15. Switches, Wiring and Connections**

Operate and visually inspect for proper function.

**1.16. Thermostats**

Ascertain that they cycle at proper temps.

**1.17. Transfer Switch**

Check mechanical interlock linkage to prevent both switches from closing at the same time.

Test operation of switch and verify control and timer operation.

Inspect panel doors, hinges and latches for proper fit.

**1.18. Vacuum Breaker**

If water is seen leaking from top of vacuum breaker, make necessary repairs. Make certain that supply pressure is adequate.

**1.19. Water Flow**

Check to make certain that all valves are open fully and water flow to unit is unrestricted.

**1.20. Wiring**

Inspect for loose or frayed wiring and poor connections.

## 2. EXTERIOR WORK

### 2.1. Custodial Services

Keep the exterior of the facility clean and orderly. (Includes entrance clean-up, street and gutter sweeping.)

### 2.2. Land Management

Maintain, repair, or improve the facility grounds (Includes lawn mowing, fertilizing, tree & shrub maintenance, and landscaping).

Painting/Repaint parking and traffic markings. Repaint curbs in no parking zone. Paint metal railing and stairs. Scrape, prime and paint all metal surfaces.

Apply wood preservatives to gazebo, picnic tables and benches.

### 2.3. Roof Deficiencies

Refill pitch pockets with asphaltic roof cement as required.  
Caulk counter flashing as necessary. Inspect all building roof for condition, paying particular attention to flashing details and roof penetrations.  
Inform if any deficiencies are found in any single sheet membrane roofing system.  
Clear all roof drains of leaves and debris.  
Clean scuppers.

### 2.4. Solid Waste Management

Collect/dispose of refuse and solid waste. (Includes incinerator operations, compactor duty, and trash can collections.)

### 2.5. Trees/Shrubbery

Spray bedding plants & trees  
Spray building foundation  
Aerate & thatch lawn areas  
Lime lawn areas  
Treat lawns with fungicide  
Treat lawns for crabgrass  
Plant annual flower beds  
Spray pine and oak trees for scale  
Spray bedding plants for red spider  
Fertilize lawn areas  
Fertilize trees and shrubs  
Mulch shrubs and trees  
Remove and place leaves in mulch pile  
Plant bulbs for next springs flower beds

### **3. INSPECTION**

#### **3.1. Abnormal Conditions**

Inspect the area for any abnormal conditions, paying attention to the appearance, integrity and safety of the unit being inspected.

Items to be included are paint flooring coverings, ceilings, plumbing lighting, electrical outlets, and miscellaneous equipment.

Correct any abnormal condition or initiate work order if correction is beyond the inspectors capability.

#### **3.2. Ash Conveyer System**

Drain ash quench tank and clean.

Inspect all below water components.

Grease and inspect lower and upper chain bearings.

Check drive assembly for proper alignment.

Adjust chain tension.

Refill tank.

#### **3.3. Bag House & Air Lock**

Open and inspect bag house for excess lime build up.

Grease air lock rotor bearings and lube drive chains.

#### **3.4. Boiler Sight**

Glass Inspect sight glass for signs of leakage. Repack ends of sight glass.

#### **3.5. Boiler Tubes**

Inspect each boiler tube for warping, deterioration and material accumulation.

#### **3.6. Burner Assembly**

Dismantle and clean pilot burner assembly.

Inspect conditions & connections of ignition leads to burners and replace as necessary.

Clean face of flame detection tubes as needed.

#### **3.7. Coupling**

Visually inspect to insure that motor & pump shafts are aligned.

(Adjust using shim).

Insure the two halves of the coupling are snug against the rubber sleeve and tighten the set screws.

#### **3.8. Deaerating Tank**

Install temporary feed line from condensate tank to boiler feedwater pump.

Remove DA tank from service, secure steam to DA tank and give tank time to cool.

Open manhole covers and flush tank with water hose.

Inspect diffusers in top section of tank.

Repack valves and sight glasses as needed.

Reassemble tank, fill with feedwater and start pumps.

Secure and remove temporary feedline from condensate tank.

### **3.9. Door Closures**

Check to see that the closure will hold the door closed securely and fully open.  
Make certain sequential closing function works.  
Check to see that the gasket is supple and sealing properly.  
Check door gasket for cracks or brittleness.  
Clean door surface, door frame surface and gasket surface with solvent making certain that surfaces are free of foreign matter.  
Make sure door guides are straight and fastened securely.

### **3.10. Drainage System**

Inspect trench drains, drain basins, grates, leaders, downspouts, and all support brackets for leaks, damage or distress.  
Repair system as necessary.

### **3.11. Heat Exchangers**

Inspect for proper operation, leaks, and corrosion.

### **3.12. Hydraulic system**

Check hydraulic fluid level and record.  
Observe unit for evidence of leakage while operating pump.

### **3.13. Induced Draft Fan**

Inspect induced draft fan dampers and fan blades for soot accumulation and clean unit.  
Check and tighten fan hub set screws and bearing hold down, foundation and motor mounting bolts.  
Examine all surfaces for erosion and excessive wear.  
Check belt tension.  
Balance fan, if necessary.

### **3.14. Lamp Holder and Lamp**

Inspect the lamp for damage or discoloration and replace if necessary.  
Check for burned socket contacts.  
Make sure lamp is firmly seated in its socket.  
If wires are frayed or insulation is worn, replace wires.  
Install lamp holder assembly, making sure the wiring doesn't interfere with its operation.

### **3.15. Light fixtures, Electrical Controls and Panels**

Inspect panelboards, circuit breakers, contactors, relays, switches, motors, wiring terminations and grounding for proper operation and condition.

### **3.16. Mechanical Area**

Inspect the area for abnormal conditions, damaged equipment and/or safety hazards.  
Correct problems found or write a work order and turn it into your supervisor.  
Record all readings taken in the appropriate logs.

### **3.17. Pump Packing**

Run pump with water flow normal. (A slight leak of a few drops a minute through the packing is desirable to lubricate and cool the shaft.) If leakage is less than this amount, loosen the packing nut; if more, tighten slightly.



### **3.18. Safety Valve**

Inspect for accumulations of rust, scale or other foreign substances which would prevent free operation of the device.

Ascertain that all discharge pipes are free and clear of obstructions.

Test the valve by operating the manual lifting lever.

(The lever should move freely and return to the closed position after each operation.) If leakage is evident, try operating the lever several times to make it stop. If leakage continues, replace the valve.

### **3.19. Security Devices**

Visually inspect all security devices and verify operating integrity.

### **3.20. Steam Trap**

Make certain all steam pressure has been relieved before opening these components.

(Allow thermostatic traps to cool to room temperature before removing cover.) Open and inspect the thermostatic steam traps.

### **3.21. Turbine**

Inspect foundation bolts for tightness.

Check governor linkage rods, clean and oil if necessary.

Manually rotate Turbine and generator shaft.

Check oil level in sump.

### **3.22. V-Belts**

(Before inspecting any piece of equipment, set disconnect to off and tag out of service.)

Inspect belt for cracks, broken bands.

(Maintain uniform tension on individual belts in matched sets.)

Inspect tension by pressing downward on top of belt.

### **3.23. Water Feed Solenoid**

(Shut off water supply.) Remove coil and valve top to inspect for corrosion, debris and condition of plunger.

Replace parts as necessary.

## 4. MAINTENANCE

### 4.1. *Air Cooled Condensers*

If unit is not very dirty use a brush to clean, only use high pressure water if needed.

### 4.2. *Air Filters*

(Remove cover from air filter.) Remove and inspect the filter cartridge and replace if needed.

Clean the filter cover and body assembly by wiping with a soft cloth. Reassemble the air filter cartridge.

### 4.3. *Battery Cables*

Remove battery cables from battery posts.

Clean posts with a steel with battery brush.

Apply grease to posts; replace cables and tighten securely.

Apply grease to cable clamps.

### 4.4. *Boiler Burner Assembly*

Remove diffuser plate and wire brush, clean oil burner barrel and check burner for proper fit.

Inspect gas burner ring, make certain all jets are clean.

Replace diffuser plate and adjust to manual specifications.

### 4.5. *Boiler Fire Sides*

Remove refractory from baffle wall of fire box.

(Generating tubes can now be water washed with city water pressure using a water lance.)

Fire box can be cleaned with vacuum cleaner.

Refractory plugs must be reinstalled and moisture should be baked out of refractory very slowly.

### 4.6. *Boiler Stack*

After boiler has cooled, stack door can be removed.

Stack can be wire brushed, chipped or scraped to clean rust and scale.

Clean and paint the stack with a high temperature silver paint.

### 4.7. *Boiler Water Column*

After pressure is off and boiler cooled and drained, remove top cap from water column then wire brush, vacuum out and inspect.

Clean electrodes, make a new gasket and reassemble.

Remove internal parts of try-cock valves and clean, replacing parts as necessary.

### 4.8. *Boiler Water Sides*

Drain boiler water sides, open steam drum and flush water sides, using domestic hot water and a fire hose.

(Use same method on mud drum of boiler.)

(Let boiler dry.)

Remove internal parts from steam drum.  
Wire brush internal parts of steam drum and mud drums.

#### **4.9. Condensate Receiver**

(Secure condensate pump and feed DA. tank with soft water).  
Pump all condensate returning to floor drains.  
Drain condensate tank, open manhole and flush tank with water hose.  
Inspect tank lining for cracks.  
Inspect drain and sight glass valves.  
Repack valves and sight glasses as needed.  
Refill tank., start pumps and secure soft water feed to DA. tank.

#### **4.10. Cooling Coils**

Use high pressure water to clean dirt and debris from unit.  
(Use only approved cleaning agents.)

#### **4.11. Cooling Tower Fan**

(Prior to draining oil from gear boxes, operate fan to warm oil in gear boxes.)  
Drain oil from gear boxes and replace.  
Grease all fan shaft bearings then operate fan and check for leaks.  
Inspect vibration switch operation.

#### **4.12. Diesel Engine (Oil Change)**

Start engine in run position. Let engine run 5 minutes to warm oil.  
Set selector; switch to stop.  
Tag machine out of service.  
Drain oil out of oil pan.  
Fill machine with new oil to full on oil dipstick.  
Start engine and let run another minute.  
Inspect for leaks and observe oil pressure.  
Stop engine.  
Let set for a few minutes and check oil level.  
Add more oil, if necessary, to bring level back to full mark on dipstick.  
Open filter vent, drain oil from filter.  
Install a new filter element and gasket.  
Fill filter casing with new oil, secure filter and run engine, check for oil leaks and observe oil pressure.  
Set selector switch back to Auto position.

#### **4.13. Fan Belts & Cooling System Hoses**

Inspect all cooling system and heater hoses.  
If hoses are cracked or feel soft or "mushy" replace.  
Inspect all belts & replace if any show signs of excessive wear or fraying.

#### **4.14. Fan Impeller**

Use high pressure water to remove all dirt and grease from the impeller.

#### **4.15. Filter**

Remove the washable filter & electronic cell from the unit.  
Soak cell & filter in cleaning solution until clean.  
Do not scrub or brush unit as this will break the wires on the cell.  
After unit is clean, reinstall in unit.

#### **4.16. Fire Alarm Notification**

(Before working on the fire alarm, notify the local fire station then inform the company switchboard operator and affected personnel of the location of the work, the time the system will be interrupted and when it will be returned to service.)

#### **4.17. Fuel Oil Strainers**

Set strainer selector lever to put clean strainer in service.  
Remove cover from dirty strainer; clean strainer in solvent.  
Replace strainer and cover.  
Test for leaks.

#### **4.18. Fuel Oil Heaters**

Secure inlet and outlet valves on heater.  
Fill heater with no-sludge solvent, using connections on heater.  
Circulate solvent through heater using auxiliary gear pump.  
Drain heater and operate under normal conditions.  
Inspect for leaks.

#### **4.19. Fuel Tank**

Drain fuel tank until clean fuel flows from drain plug at bottom of fuel tank.

#### **4.20. Hinges, Locks & Weatherstripping**

Apply machine oil to all door hinges, hood hinges, fan gate hinges, etc.  
Apply weatherstripping lubricant to all rubber weatherstripping and stops.  
Apply graphite to all locks.

#### **4.21. Incinerator Burner**

Clean fan and fire-eye controller.  
Adjust forced draft fan louver, clean and lubricate motor using a light machine oil.  
Test flame failure device.

#### **4.22. Incinerator Combustion Chamber**

Before entering incinerator combustion chamber, make certain they have cooled and all ashes have been removed.  
(DO NOT SPRAY WATER ON HOT REFRACTORY, THIS COULD CAUSE DAMAGE.)  
Inspect refractory, thermocouples and clean burner cones.

#### **4.23. Incinerator Maintenance**

Open air valves.  
Check hydraulic fluid level.  
Check ash conveyor float.  
Verify all control set points.  
Check loader slide carriage, cable and limit switches.  
Check boiler water level and feedwater pressure.  
Inspect and clean fire door shroud around hydraulic cylinder shafts.  
Inspect fire door hydraulic cylinder mounting bolt alignment.  
Inspect and secure all air tube mounting brackets.  
Check operation of ID fan dampers and draft, lime feeder, auger system, water sprayers, and bag house differential pressure.  
Inspect & adjust transfer ram limit switches.  
Inspect transfer ram wipers.

Inspect ash conveyor drag chain for tension; adjust as required.  
Verify proper operation of the ash conveyor on timed or continuous cycle.  
Inspect operation of combustion air fan for noise, vibration, and function monitoring.  
Check operation of all dampers, linkage assemblies and modulating motors.

#### **4.24. Motors**

Remove motor end bells, remove rotor, blow internal parts out with compressed air.  
Inspect bearings.  
Reassemble motor, operate under normal loading conditions.  
Using an AMP Meter compare motor amps to name plate data.

#### **4.25. Printed Circuit Boards**

Clean all the solid state cards in the card file and reseal cards tightly into their slots.

#### **4.26. Pumps Packing**

Operate pumps at normal pressure and oil at normal temperature and inspect pump shaft packing. To replace packing secure pumps, remove packing gland and old packing. Make a note of the number of rings of packing removed and replace the same number). Operate the pump and adjust packing leakage.

#### **4.27. Refrigeration Unit**

Inspect/clean evaporator and condenser coils.  
Clean and check components for proper operation.  
Clean out compartments recharge if needed.  
Replace panels.  
Note any abnormal conditions found.  
Restore Operation  
Restore all connections and utilities to operational status

#### **4.28. Sealant Systems**

Remove existing sealant system in air pint systems.  
Replace with new sealant material.

#### **4.29. Spark Plugs**

Replace all spark plugs.  
(Gap in accordance with maintenance manual.)

# Remaining Pages Not Included in Sample

Sample