

**DAILY BOILER BLOWDOWN INSTRUCTIONS**  
**1.5-3 H.P. PARKER GAS FIRED BOILER**

- I. **BOILER BLOWDOWN:** The Boiler should be either fully or partially Blowdown from High Pressure as required to maintain the Total Dissolved Solids (TDS) below 2,500 ppm (4200 micromhos/cm) in the boiler water and remove any mud or sediment buildup. The type and frequency of blowdown will be determined from water analysis in conjunction with your water treatment company. Blowdowns should be made in the middle or the start of each shift. The time period between Blowdowns may and should be extended when the Total Dissolved Solids (TDS) are maintained below 2,500 ppm (4200 micromhos/cm) but the frequency must be increased when the TDS is higher. The Boiler must be promptly re-filled after each Blowdown and brought to steam pressure.
- A. **PARTIAL BLOWDOWN:** Should be made at the middle and at start or end of each shift as follows:
1. While the Boiler is up to operating pressure, open Main Blow-Off Valve slowly and carefully for approximately 3-5 seconds. (When second slow opening valve is furnished, always open slowly and carefully after the quick opening valve and close it first.)
  2. Immediately close and allow boiler to operate in a normal manner.
- B. **COMPLETE BLOWDOWN(ONLY WHEN REQUIRED):** The complete Blowdown is accomplished as follows:
1. Manually turn off the Main Gas Cock nearest burner. (On Boilers with a Combination Gas Control Valve, turn Gas Cock Dial to "Pilot" or "Off" position.) Turn off the Electrical Boiler Controls Switch. Close the Main Steam Outlet Valve if there is no check valve in the steam line at the Boiler.
  2. Wait approximately 30 seconds and allow pressure to drop at least 5 PSI (on high pressure boilers). Open the quick opening main Blow-Off Valve carefully and slowly until fully open. Do not throttle quick opening valve. (Then if a second slow opening Blow-Off Valve is furnished, open it last carefully and slowly until fully open.) Allow Boiler to completely drain.
  3. Turn on electrical Boiler Controls Switch. On Boilers with Low Water Alarm, turn off the Main Burner Switch to silence alarm. Allow pump to operate for approximately 30 seconds.
  4. With the pump still running, first close the second slow opening Blow-Off Valve if furnished. Then close the quick opening Blow-Off Valve. If valves do not close freely, do not force, but let pump run longer to flush valves until they close easily. Open the Main Steam Line Valve.
  5. Allow pump to refill Boiler to normal water level. Do not leave Boiler dry without water. Always refill the Boiler promptly after Blowdown and leave water in the Boiler when not in use. (Except in areas subject to freezing conditions Boiler should be drained); consult factory for prolonged storage. If the boiler is left dry without water for any length of time, this may result in excessive oxygen in upper drum and cause rapid corrosion. NOTE: Be certain that the boiler does not overflow by siphoning water from the return tank.
  6. Always turn off the Main Gas Cock manually and the electrical Boiler Controls Switch when boiler is not in use.
  7. When ready to resume normal operation, check for proper water level and then: turn on all electrical switches, (reset manual reset controls, if furnished,) and with pilot safely on, then open the Main Gas Cock (on Boilers with a combination Gas Valve, turn dial to "ON" position). Refer to Operating Instruction Sheet for complete details.
- C. **FLUSH OUT UNDER THE WATER LEVEL CONTROL AND TEST LOW WATER CUT-OFF:** At the beginning of each shift, open the Drain Valve carefully and slowly until the water drains to a lower level in the glass and the Main Burner shuts off to check the low water cutoff. Then close valve. Do not continue using the boiler if the low water cut-off does not function. Do not attempt to blow boiler down from the drain valve or to open fully for any longer period of time.

**WARNING:** NEVER BLOWDOWN THE BOILER OR DISCHARGE THE SAFETY VALVE WITHOUT FIRST CHECKING TO SEE THAT PIPING IS SAFE, SECURED AND TO A SAFE POINT OF DISCHARGE. WHEN A SECOND SLOW OPENING BLOW-OFF VALVE IS USED, ALWAYS OPEN LAST ON BLOWDOWN AND CLOSE FIRST WHEN REFILLING BOILER.

**OTHER IMPORTANT MAINTENANCE:** The Boiler and all related components must be safely operated and properly maintained in accordance with good accepted practices and the Instruction Sheets furnished. Follow the Daily Blowdown Instructions, Operating Instructions and all other Maintenance Sheets as furnished in the Operation and Maintenance Manual.

**GENERAL BOILER MAINTENANCE INSTRUCTIONS**  
**1.5 - 3 H.P. GAS FIRED BOILER**

- I. **SOFT WATER:** Test water daily and regenerate the Water Softener when hardness exceeds 1.0 grains per gallon. Be certain all salt is removed from water softener and water tests soft before placing in service to Boiler.
- II. **BOILER WATER TREATMENT:** For complete details see Bulletin 1001-B.
  1. Selection of proper boiler compound and amount of dosage should be based on water analysis. When using PB677 compound initial usage should be on basis of 1.0 ounce per BHP per eight hour shift and thereafter on basis of Boiler Water Analysis.
  2. Regular Water Analysis should be made at least every 30 days until treatment is properly regulated. Thereafter, every 3-6 months or immediately on indication of scale, corrosion, or any unfavorable condition.
  3. Compound must be added uniformly preferably with an automatic feeder system or in equal dosages at least every two hours. Usage should be regulated to maintain pH between 10.0-11.5 and a sodium sulfite level between 40-100 ppm in the Boiler water.
- III. **RETURN TANK:** Every 90 days, inspect and clean return tank and pump strainer as needed.
- IV. **BLOWDOWN TANK:** Should be inspected every 90 days and cleaned as required.
- V. **WATER GAUGE GLASS:** Should be promptly replaced on indication of leak or when dirty. Install new glass with (2) new rubbers. Do not install when there is pressure on the boiler and always shut off the gauge valves. If Penberthy is furnished, see Bulletin on Penberthy.
- VI. **INTERNAL INSPECTIONS:** Internal tube header inspections should be made every 60 days until the Water Treatment Program is properly regulated. Thereafter, every 6-12 months or more often if an unsatisfactory condition is found. This is done by removing the two (2) caps on the lower and upper headers that extend out each end of the cabinet. The external tube and header surfaces may be viewed by use of a mirror near the floor under the boiler. Water feed inlet should be Inspected every 6 months by removing the plug on the inlet fitting to Boiler Drum. Clean as necessary.
- VII. **BOILER WATER FEED PUMP:** Burks Pumps do not require packing or lubrication. Current models have sealed permanently lubricated motor bearings when manufactured. The Mechanical Seal and O-ring should be promptly replaced if water leaks from the pump around the Motor Shaft. Be certain check valves are functioning properly before replacing Mechanical Seal. **NOTE: WHEN BOILER IS NOT IN USE IN AREAS SUBJECT TO FREEZING CONDITIONS DRAIN PUMP AND WATER FEED LINES. BEFORE STARTING PUMP BE CERTAIN WATER INLET VALVE AND ALL VALVES ON WATER FEED LINE ARE OPEN OR PUMP MAY BE DAMAGED.**
- VIII. **OTHER IMPORTANT MAINTENANCE:** The Boiler and all related components must be safely operated and properly maintained in accordance with good accepted practices and the Instruction Sheets furnished. Follow the Daily Blowdown Instructions, Operating Instructions and all other Maintenance Sheets as furnished in the Operation and Maintenance Manual.

**WARNINGS**

1. ONLY TRAINED AND KNOWLEDGEABLE QUALIFIED PERSONNEL SHOULD BE ALLOWED TO OPERATE, SERVICE OR REPAIR THE BOILER.
2. ALWAYS SHUT-OFF THE MAIN ELECTRICAL SUPPLY SWITCH(ES) BEFORE WORKING ON THE BOILER OR CONTROLS. NEVER ATTEMPT TO WORK ON ANY PIPING OR PRESSURE PARTS WHEN THERE IS PRESSURE IN BOILER. ALWAYS SHUT-OFF THE BOILER AND BLOWDOWN TO ZERO PRESSURE.
3. NEVER PUT AN EXTENSION ON VALVE HANDLE FOR MORE LEVERAGE. DO NOT APPLY UNDUE FORCE ON FITTINGS OR TO OPEN VALVES WHILE THERE IS PRESSURE IN BOILER. ANY PRESSURE PARTS AND PIPING SHOULD BE PROMPTLY REPLACED ON INDICATION OF LEAKS, DETERIORATION OR AN UNSAFE CONDITION. PROMPTLY REPLACE ANY FAULTY PARTS OR VALVES.
4. ALL STEAM VALVES AND BLOW-OFF VALVES MUST BE OPENED CAREFULLY AND SLOWLY. REPLACEMENT OF ANY VALVES OR PRESSURE PARTS MUST COMPLY WITH THE CODE FOR STEAM PRESSURE STAMPED ON THE BOILER.
5. NEVER BYPASS SAFETY CONTROLS. IMMEDIATELY REPAIR OR REPLACE FAULTY CONTROLS AND TEST BEFORE PLACING BOILER IN OPERATION. THE WATER INLET VALVE TO RETURN TANK SHOULD BE CLOSED WHEN BOILER IS NOT IN USE IF THERE IS A POSSIBILITY OF WATER DAMAGE TO PROPERTY.
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