

**PARKER STEAM BOILER
INSTALLATION & START-UP CHECK-OFF SHEET**

FACILITY

COMPANY/ADDRESS:

BOILER MODEL NO.: _____

FUEL: _____ **SALES ORDER NO.** _____

SERIAL NO.: _____

PHONE: _____

DATE: _____

CONTACT: _____

INSTALLING CONTRACTOR: _____

I. GENERAL

A thoroughly qualified and experienced Boiler and Burner Technician should be employed to provide the initial boiler start-up, as well as any subsequent servicing. If boiler is a Power Burner or Low NOx Burner System, then use this sheet in addition to sheets for start-up and tuning of Powered or Low NOx Burners.

A representative of the Owner and/or person or persons responsible for operating and maintaining the unit should be present during the initial start-up to assume responsibility for gas, water, electrical and vent systems. A Service Representative may also be required by the local utility on gas fired equipment. Instructions regarding the proper care and maintenance of the unit should be outlined with these people present. In some States or Jurisdictions it is required that the Boiler Inspector be notified or present before start-up.

Before beginning start-up, the start-up technician should thoroughly study installation instructions and become completely familiar with the exact sequence of operation and boiler controls. This should include review of wiring schematic, and the Boiler Gas Train components.

II. EQUIPMENT REQUIRED

- | | | |
|------------------------|--------------------------------|---------------------------------|
| 1. Hand tools | 4. Barometric damper weights | 7. Combustion Analyzer Required |
| 2. Gas pressure gauges | 5. Gas line soap test solution | - if Low NOx or Power Burner |
| 3. Draft gauge | 6. Volt meter | |

III. BOILER INSTALLATION		YES	NO	REMARKS
1.	Required Installation Permits obtained on boiler, electrical, vent, gas and plumbing.			
2.	Boiler installed on a concrete floor or non-combustible base.			
3.	Boiler installed in approved room and properly protected from weather and drafts. Insure no flammable materials or fumes are in room or can enter room.			
4.	Boiler installed in accordance with manufacture's instructions and code, adequate space for accessibility to inspect and service. Proper control panel access and clearance.			
5.	Proper air openings provided conforming to Code and Manufacturer's instructions.			
6.	Insure no negative pressure in room. If any sort of exhaust fans are present in boiler room, insure that boiler draft is not affected. Draft inducer and engineered flue system may be required.			
7.	Provisions for proper boiler Water Treatment and water softening.			
8.	Proper electrical service to boiler with disconnect per Code and proper feed pump wiring per diagram.			
9.	Proper earth ground connected to green ground screw in Parker panel by Electrician.			
10.	Chemical feed pump wired properly.			
11.	Safety valve type, setting and capacity, is appropriate and correct for boiler.			
12.	Safety valve discharge independently piped full size with Sch. 40 pipe, discharging to safe location. Pipe properly supported and union provided.			
13.	Safety valve body drain piped to safe location.			
14.	Draft hood or barometric damper installed on boiler.			
15.	Flue gas spillage switch mounted and wired if (provided).			
16.	Vent stack full size with proper height and termination point.			
17.	Unrestricted vent cap on top to protect from weather and down drafts. Stack Termination meets code.			

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III. BOILER INSTALLATION - continued		YES	NO	REMARKS
18.	Vent stack weight properly supported (not on boiler).			
19.	Vent stack is installed in accordance with Local Code Regulations for proper fire protection.			
20.	Check gas devices for proper venting, provide goosenecks.			
IV. RETURN TANK INSTALLATION		YES	NO	REMARKS
1.	Return Tank vent connected to outside proper size.			
2.	Tank overflow and drain opening connected to safe drain. Shut off valve on drain line.			
3.	Soft water inlet to tank proper size with union, and line shut-off valve. Provision for filling chemical feed tank with soft water.			
4.	Tank float valve adjusted for proper level and tested for correct shut-off.			
5.	If water pressure exceeds 70 PSI, pressure reducing valve installed.			
6.	Water line to pump one pipe size larger than pump discharge with suction stop valve and strainer installed.			
7.	Pump properly aligned. Confirm wiring to feed pump motor is correct per nameplate and wiring diagram.			
8.	Check valves properly installed near pump discharge and boiler with proper pressure rating.			
9.	Is recommended pump relief device installed and properly piped?			
10.	Stop valve properly installed in water feed line near boiler with proper pressure rating.			
V. BLOWDOWN TANK INSTALLATION		YES	NO	REMARKS
1.	Blowdown Tank proper size and to Manufacturer's recommendations and Local Code requirements.			
2.	Proper size vent upward to safe point of discharge.			
3.	Blowdown line full size in accordance with Manufacturer's specification. Pipe to be Sch. 40, black steel with 125 PSI minimum fittings for boilers up to 100 PSI. For pressures over 100 PSI Sch. 80 black steel pipe, forged steel fittings.			
4.	Blowdown Tank outlet proper size and piped to sump and safe point of discharge.			
5.	Blowdown Tank clean out (drain) proper size with valve and piped to sump and safe point of discharge.			
6.	Blow-off valve properly installed on each blowdown connection and near boiler.			
7.	On pressure exceeding 100 PSI, additional slow opening blow-off valve properly installed.			
8.	Drain line from bottom of water column connected to Blowdown Tank.			
9.	All blowdown and drain piping in accordance with Code and good safety practices.			
10.	Gravity or cold boiler drain piped to floor sink.			
VI. START-UP		YES	NO	REMARKS
If boiler is a Low NOx system or Power Burner Model, refer to additional Supplemental Start Up Sheets in addition to this sheet.				
1.	Notify Boiler Inspection Jurisdiction if required.			
2.	Tighten all electrical terminals, conduit and linkages.			
3.	All boiler gas valves turned off.			
4.	System installer, plumber, owner and/or Gas Co. technician shall if safe turn on gas at meter and bleed air from gas line to proper safety standards if required to allow safe gas flow to boiler.			
5.	Gas pressure and service line proper size.			
6.	Shut-off valve with handle and union ahead of boiler.			
7.	Gas line blown out, thoroughly cleaned, tested for leaks. Install gas pressure gauges of proper ranges upstream and at burner manifold downstream test tap.			

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VI. START-UP – continued	YES	NO	REMARKS
8. Gas pressure at test opening on boiler inlet to Manufacturer's specifications, and Boiler Nameplate. LPG Models require 1-5 PSI.			
9. Insure boiler steam valve is closed.			
10. Remove cabinet door on pilot side.			
11. Check burners for proper position on orifices.			
12. Open water supply and boiler feedwater valves. Never operate the boiler feed pump with any valve in the suction or discharge piping closed as this will damage the pump. Check for water and proper float valve level in return tank.			
13. Check electrical wiring per wiring diagram. With Boiler Control Switch off - turn on electricity to boiler if safe - hot switched black wire should read 115 VAC to ground, neutral white wire should read 0 VAC to ground. (Not applicable if 3 Phase power is provided.)			
14. With Main Burner Switch off, turn Boiler Controls Switch on. Pump will be energized. Check pump for proper start, stop and rotation.			
15. With blow-off valves and gravity drain valve open, let pump run 3-5 minutes or until water shows good volume and clean. When clean, shut blowdown and drain valves, fill boiler.			
16. Check water level control for proper pump shut-off at slightly above center of glass.			
17. Insure no personnel are near boiler door. Note: flame rollout could occur on cold boiler start up so insure safety of all present. Light pilot - see Lighting Instructions.			
18. With pilot safely "on", open main downstream gas cock at boiler. Check burners for smooth light.			
19. Check burners for bad burning or burning on orifice.			
20. Re-light boiler. Check ignitor and flame light-off system for proper operation. Replace cabinet door.			
21. Close pilot valve and try and re-light boiler. Check for flame failure lockout.			
22. On flame safeguard controls where flame signal can be monitored, record pilot _____ and main flame _____ signals.			
23. Soap test all gas lines and tubing with boiler firing. Repair leaks.			
24. Set high fire gas pressure. Record setting _____. See "Maximum Manifold Pressure" on heater label and tables. Confirm that Pressure holds with all appliances firing. Check gas inlet pressure also.			
25. Set operating control to desired steam pressure. Adjust differential to suit job conditions. Off point _____ PSI. Differential _____ PSI.			
26. Check operation of high limit control, setting _____ PSI.			
27. Adjust firing rate control i.e. modulating control or high low control to suite job conditions. Record low fire gas pressure ____" W.C. Caution: Never set low fire gas pressure below recommended ranges.			

MANIFOLD GAS PRESSURE AND DRAFT REFERENCE TABLE

MODEL	GAS PRESSURE		DRAFT	
	HIGH MAXIMUM	LOW MINIMUM	DRAFT HOOD	BAROMETRIC
Atmospheric Natural Gas Boilers	4.0"	1.0"	0.01" – 0.02"	0.04" – 0.06"
LPG Atmospheric Boilers	18"	11"	0.01" – 0.02"	0.04" – 0.06"
9.5 LA	5.6-6.0"	NA	0.01" – 0.02"	0.04" – 0.06"
30LA, 40LA, 50LA	5.6-6.0"	4.0"	0.02" – 0.04"	0.04" – 0.06"

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VI. START-UP - continued		YES	NO	REMARKS
28.	Check all electrical interface points i.e. remote start-stop, alarm dry contacts, alarm, run status if provided as shown on wiring diagram. Insure interface voltages are correct.			
29.	Insure that no wires have been connected to panel which will by pass any safety controls or interfere with proper boiler operation. Any relays switching burner control circuit wiring must be electromechanical type, rated 115VAC, 8 AMP as a minimum.			
30.	After insuring Blowdown System is safe, open main blow-off valve and test to see if low water cut-off shuts off main burner when water reaches near bottom of glass. Blow boiler down to 0 pressure and refill. Insure secondary low water cut-off requires manual reset to fire boiler.			
31.	Set and test low gas pressure switch (if present) setting _____ " W.C.			
32.	Set and test high gas pressure switch (if present) setting _____ " W.C.			
33.	Check operation of flue gas and heat spill switches (if present).			
34.	Check operation of IRI vent valve (if present). Insure discharge is to safe location with rain and bug protection. Establish Program to continually monitor this valve.			
35.	With boiler firing and boiler room doors closed, check vent for no flue leaks or spillage.			
36.	If barometric damper is furnished, adjust draft per table with barometric damper weights. Insure free damper movement and double nut barometric damper weights. If draft hood, insure proper draft record setting _____ " W.C.			
37.	Blowdown boiler and refill until blowdown discharge water is clear.			
38.	Check entire Steam and Condensate Return System for proper installation with proper piping, valves, traps, supports, insulation and provision for expansion.			
39.	Check with Owner that steam system is complete, safe and ready for operation. If safe, open main steam valve slowly and check out entire system for leaks and proper operation.			
40.	Check Return Tank. Clean and flush as required. Clean strainer.			
41.	Carefully check entire boiler and approve for no leaks, damage or defective parts.			
42.	Replace all gas test point plugs.			

VII. FINAL INSTRUCTIONS & RECOMMENDATIONS TO OPERATOR		YES	NO	REMARKS
1.	Review Operating Instructions.			
2.	Review steps in Starting Boiler.			
3.	Review Shutdown Instructions.			
4.	Review Blowdown Instructions.			
5.	Review Water Treatment Procedure. It is critical to assure proper boiler life to institute proper program.			
6.	Review Water Sample Procedure.			
7.	Review Weekly and Quarterly Maintenance and Inspection Reports.			

VIII. LIST ANY ITEMS THAT ARE NOT APPROVED AS SATISFACTORY OR THAT MAY BE QUESTIONABLE:

1. _____
2. _____
3. _____

START-UP PERFORMED BY _____ **DATE** _____