

**PARKER INDIRECT WATER HEATER  
INSTALLATION & STARTUP CHECK-OFF SHEET**

**FACILITY**

**COMPANY/ADDRESS:**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**HEATER 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 heater startup, as well as any subsequent servicing.

The installer and a representative of the Owner and/or person or persons responsible for operating and maintaining the unit should be present during the initial startup 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 a Boiler Inspector be notified or present before startup.

Before beginning startup, the startup technician should thoroughly study installation instructions and become completely familiar with the exact sequence of operation and heater controls. This should include review of wiring schematic.

**II. EQUIPMENT REQUIRED**

- |                        |                              |                                |
|------------------------|------------------------------|--------------------------------|
| 1. Hand tools          | 3. Draft gauge               | 5. Gas line soap test solution |
| 2. Gas pressure gauges | 4. Barometric damper weights | 6. Volt meter                  |

<b>III. HEATER INSTALLATION</b>		<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Required Installation Permits obtained for heater, electrical, vent, gas and plumbing.			
2.	Heater installed on a concrete floor or noncombustible base.			
3.	Heater installed in approved room and properly protected from weather and drafts. Insure no flameable materials or fumes are in room or can enter room.			
4.	Heater installed in accordance with manufacture's instructions & code, adequate space for accessibility to inspect and service. Proper control panel access and clearance.			
5.	Adequate space in front for removal of heat exchanger.			
6.	Insure that make up water is not connected to unit unless required by Code, no drain valve should be connected.			
7.	Proper air openings provided conforming to Code and Manufacturer's instructions.			
8.	Insure no negative pressure in room. If any sort of exhaust fans are present in heater room, insure that heater draft is not affected. Draft inducer and engineered flue system may be required.			
9.	Proper electrical service to heater with disconnect per Code, interface wiring per diagram.			
10.	Proper earth ground connected to green ground screw in Parker panel by Electrician.			
11.	Relief valve for heater and heat exchanger are provided and are of the proper size and type.			
12.	Tank temperature and pressure relief valve is installed and of proper capacity.			
13.	Relief valve discharge independently piped full size, discharging to safe location. Pipe properly supported and secured with union provided at valve. Sch. 40 black steel recommended.			
14.	Draft hood or barometric damper properly installed on heater.			
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.			

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<b>III. HEATER INSTALLATION - continued</b>		<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
18.	Vent stack weight properly supported (not supported 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.			
<b>IV. WATER FILL</b>		<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Refer to service Bulletin WT210 for fill and treatment instructions. The heater is normally shipped dry. Remove expansion tank and thoroughly flush heater through drain plug by installing a hose in expansion tank opening, or on opening on front of unit.			
2.	Install proper amount of boiler treatment. For potable water service use only EMS 323 Water Control, or equivalent USDA Grade G1 chemical for potable water.			
3.	Fill with potable water to top of the upper header or to top of fill elbow.			
4.	Install plug or expansion tank as appropriate on fill opening.			
<b>V. HEATER AND CIRCULATING LINE PIPING</b>		<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Water inlet connected proper size to either side of heat exchanger with union near the heater.			
2.	Hot water outlet connected to other opening with union near heater.			
3.	Pipe material is proper with dielectric unions if required.			
4.	Circulating lines proper size as shown on installation drawing.			
5.	Expansion tank should be installed on heater, insure expansion tank is of adequate size for system and is provided with ASME label. In some areas a sight glass is required.			
6.	Since there are many and varied installation schemes and uses for the Parker Indirect Heater, insure that installation is in conformance with system design.			
7.	Operating water temperature control sensing bulb properly installed in inlet to heater.			
8.	If modulating or two-stage firing, second sensing bulb should be installed on inlet line to heater.			
9.	Heat exchanger relief valve should be installed on inlet or outlet water before any shutoff valves.			
10.	If pump is provided, insure materials of construction are proper and compatible with system.			
11.	Pump properly installed.			
12.	Pump properly wired to run at all times system is in service.			
13.	Check to be certain there is no way of operating the heater unless the circulating pump is in operation supplying water circulation through the heater. Insure pump does not cycle with the operating water temperature control.			
14.	Remote wiring and / or sensor mounting and wiring installed and correct if appropriate.			

**VI. ITEMS WHICH NEED TO BE CORRECTED:**

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

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<b>VII. STARTUP</b>		<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Notify appropriate facility personnel, system installer or owner that heater starting is occurring. It is their responsibility for gas and water system start and initial air removal. Have their individuals insure that water and gas systems are complete, safe and ready for operation.			
2.	<b>NOTE: Upon heating a cold volume of water significant water expansion will occur.</b> Bleed a small amount of water through faucet or valve during system startup to avoid system over pressuration and relief valve discharge.			
3.	Installer and owner to verify all system components are rated at or above relief valve setting and heater temperature capability.			
4.	Valves in system open, fill system with water if safe.			
5.	Check pump rotation.			
6.	Insure proper water circulation through heat exchanger.			
7.	Tighten all electrical terminals, conduit and linkages.			
8.	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 heater.			
9.	All heater gas valves turned off.			
10.	Gas line blown out, thoroughly cleaned, tested for leaks. Install gas pressure gauges of proper ranges upstream and at burner manifold downstream test tap.			
11.	Gas line size proper.			
12.	Shutoff valve with handle and union installed ahead of heater.			
13.	Gas pressure at test opening on heater inlet to Manufacturer's specifications.			
14.	Remove cabinet door on pilot side.			
15.	Check burners for proper position on orifices.			
16.	Check electrical wiring per wiring diagram. With Heater Controls Switch off, turn on electrical to heater if safe, hot lead (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.)			
17.	Turn Heater Controls Switch on. (Main Burner Switch Off.)			
18.	Check low water cutoff control or controls for proper installation and operation. Test for proper manual reset function.			
19.	Insure no personnel are near heater door. Note flame roll out could occur on cold heater start up so insure safety of all present. Light pilot - see Lighting Instructions.			
20.	With pilot safely "on" open main downstream gas cock at heater. Check burner for smooth light.			
21.	Check burners for foul burning or burning on orifice.			
22.	Re-light heater. Check ignitor and flame light-off system for proper operation. Replace cabinet door.			
23.	Close pilot and down stream valve and try and re-light heater. Check for flame failure lockout.			
24.	On flame safeguard controls where flame signal can be monitored, record pilot _____ and main flame _____ signals.			
25.	Set high fire gas pressure. Record setting _____. See "Maximum Manifold Pressure" on heater label.			
26.	If during start up heater goes out on low water, relieve all pressure from primary side and fill unit to upper header.			
27.	Soap test all heater gas lines and tubing, with heater firing. Repair any leaks.			
28.	Set operating temperature control to desired temperature. Off point _____ °F. Differential _____ °F.			
29.	Check operation of manual reset and automatic reset high limit controls. Setting _____ °F, _____ °F.			

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<b>VII. STARTUP - continued</b>		<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
30.	Adjust firing rate control i.e. modulating control or high/low control to suit job conditions. Check low fire gas pressure set point. Minimum <u>1</u> " W.C. for natural gas, <u>11</u> " W.C. for LPG. Record low fire gas pressure ____" W.C. <b>Caution:</b> Never set low fire gas pressure, below recommended ranges.			
31.	If optional digital temperature control is installed, refer to special instructions in manual. Insure control is in heat mode, wired properly, sensor mounted and wired. Set on/off point, differential, range, etc. record and test for proper operation.			
32.	Check all electrical interface points i.e. remote start-stop, alarm dry contacts, flow switch, alarm, run status if provided as shown on wiring diagram. Insure interface voltages are correct.			
33.	Insure that no wires have been connected to panel which will by pass any safety controls or interfere with proper heater operation. Any relays switching burner control circuit wiring must be electromechanical type, rated 115 VAC, 8 AMP as a minimum.			
34.	Set and test low gas pressure switch (if furnished) setting ____"W.C.			
35.	Set and test high gas pressure switch (if furnished) setting ____"W.C.			
36.	Test operation of flue gas spill switch (if furnished).			
37.	Check operation of IRI vent valve (if furnished). Insure discharge is to safe location with rain and bug protection. Recommend owner establish Program to continually monitor this valve.			
38.	With heater firing and heater room doors closed, check vent for flue gas leaks or spillage.			
39.	If barometric damper is furnished, adjust draft for .04 to .06" W.C. at high fire with barometric damper weights. Double nut damper weight to prevent loosening. If draft hood, insure proper draft record setting ____ " W.C.			
40.	Check that barometric damper is secured into vent with pivot arm in horizontal position to allow free movement. Insure damper secured to tee and screws do not interfere with damper swing.			
41.	Monitor water flow and temperature differential, insure that temperature differential is within Parker recommended ranges, adjust if required. Too much flow will erode heat exchanger and too little flow will allow heater to cycle on high limit control on primary side.			
42.	Record temperature into heater _____°F, out of heater _____°F. Primary temperature _____°F. Primary pressure _____ PSI.			
43.	Check entire System for insulation, leaks & proper installation.			
44.	Check heater and verify no leaks, damage or defective parts.			
45.	Replace all gas test point plugs.			

<b>VIII. FINAL INSTRUCTIONS &amp; RECOMMENDATIONS TO OPERATOR</b>		<b>YES</b>	<b>NO</b>	<b>REMARKS</b>
1.	Review Operating Instructions.			
2.	Review steps in Starting Heater.			
3.	Review Shutdown Instructions.			
4.	Review Water Treatment Procedure.			
5.	Review Tune-up, Annual Maintenance and Inspection Procedures.			

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

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**STARTUP PERFORMED BY** \_\_\_\_\_ **DATE** \_\_\_\_\_