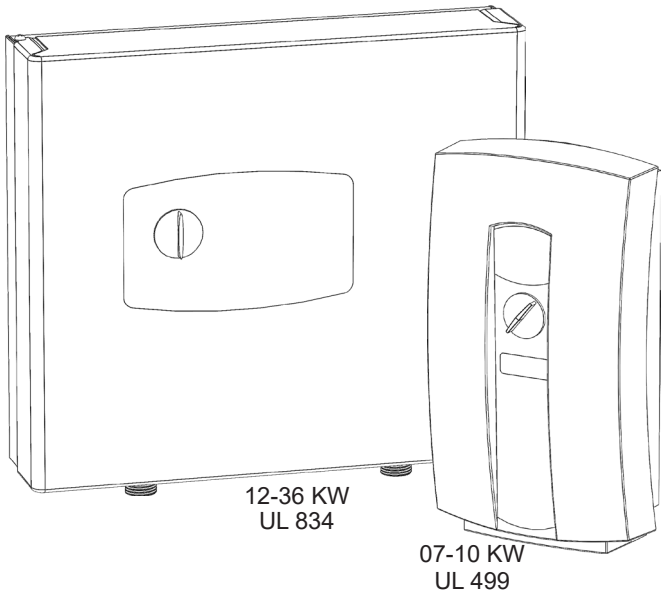
Hydro Shark Electric Boiler (07-36 KW)
Installation Manual and Owner's Guide



Do not return to stores. Damages or repairs call Hydro Smart at 763-331-3066

M-F 8 AM - 5 PM

Sat. 8 AM - 12 PM
(Winter Only)

The **Hydro Shark** Electric Boiler features advanced technology, impressive energy-saving performance, and a compact design. Exclusively manufactured by Stiebel Eltron, a leader in heating technologies for the past 80 years.

Models:

SH-07 KW
SH-10 KW
SH-12 KW
SH-14 KW
SH-19 KW
SH-24 KW
SH-29 KW
SH-36 KW

Featuring

- Efficiency: 100 %
- Wall Hung
- Flow Activated: .5 GPM
- Copper Heating Vessel
- Temperature Range: 86°-140° F*
- No Venting Required
- Modulation Status LED

STIEBEL ELTRON

Hydro Smart™

For documents and support please visit:
www.hydro-smart.com

CONTENTS

Installation Manual

OWNER'S GUIDE

IMPORTANT!

BOILERS ARE TO BE USED FOR RADIANT FLOOR HEATING ONLY!**

THIS MANUAL MUST BE READ CAREFULLY BEFORE ATTEMPTING TO INSTALL THE HYDRO SHARK BOILERS. IF YOU DO NOT FOLLOW THE SAFETY RULES OR THE INSTRUCTIONS OUTLINED IN THIS MANUAL, THE UNIT MAY NOT OPERATE PROPERLY AND IT COULD CAUSE PROPERTY DAMAGE, SERIOUS BODILY INJURY AND/OR DEATH.

MANUFACTURER WILL NOT BE LIABLE FOR ANY DAMAGES BECAUSE OF FAILURE TO COMPLY WITH INSTALLATION AND OPERATING INSTRUCTIONS OUTLINED IN THIS MANUAL OR BECAUSE OF IMPROPER USE. IMPROPER USE INCLUDES THE USE FOR THIS APPLIANCE TO HEAT ANY LIQUID OTHER THAN WATER OR PROPYLENE GLYCOL. FAILURE TO COMPLY WITH THE INSTALLATION AND OPERATING INSTRUCTIONS OR IMPROPER USE VOIDS THE WARRANTY. NEVER REMOVE THE UNITS FRONT COVER UNLESS POWER IS TURNED OFF.

IF YOU HAVE ANY QUESTIONS REGARDING THE INSTALLATION OR OPERATION OF THESE BOILER, PLEASE CALL OUR TECHNICAL SERVICE LINE AT 763-331-3066.

**Unless when used with Hydro Smart Combi Panel (Use SH-29 or SH-36 KW Boilers only with Combi Panel Systems, Size boilers accordingly)

Installation Manual

CONGRATULATIONS

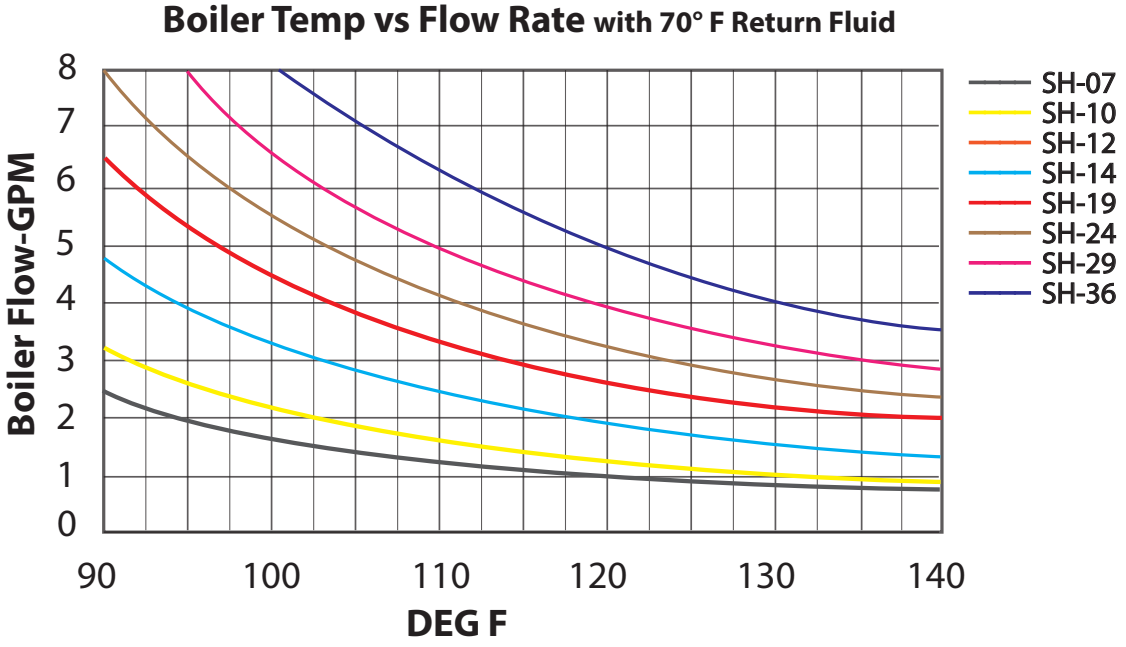
Congratulations and thank you for choosing our micro boiler. Before use, we recommend that you read through this installation manual carefully. Keep this manual for future reference.

If you need an additional manual, contact the manufacturer or your local distributor. When you call, please tell us the product name and the serial number of your unit written on the rating plate of the boiler.

SPECIFICATIONS

HYDROSHARK

MODEL	KW	VOLTS	WIRE SIZE	AMP DRAW (MAX)	DBL POLE BREAKER SIZE	BTU	WATER TEMP RANGE
SH-07	7	240	8	30	(1) 40	24,573	86° - 140° F
SH-10	10		6	40	(1) 50	32,765	
SH-12	12		4	50	(1) 70	40,956	
SH-14	14		2 x 8	60	(2) 40	49,147	
SH-19	19		2 x 6	80	(2) 50	65,526	
SH-24	24		2 x 4	100	(2) 70	81,912	
SH-29	29		3 x 6	120	(3) 50	98,977	
SH-36	36		3 x 4	150	(3) 70	122,868	



INTRODUCTION

IMPORTANT!

Read this entire manual. Failure to follow all the guides, instructions and rules could cause personal injury or property damage. Improper installation, adjustment, alteration, service and use of this unit can result in serious injury.

This unit must be installed by a licensed electrician and plumber. The installation must comply with all national, state and local plumbing and electric codes. Proper installation is the responsibility of the installer. Failure to comply with the installation and operating instructions or improper use voids the warranty.

Save these instructions for future reference. Installer should leave these instructions with the consumer.

If you have any questions regarding the installation, use or operation of this micro boiler, or if you need any additional installation manuals call Hydro Smart at 763-331-3066 or visit us online at www.hydro-smart.com

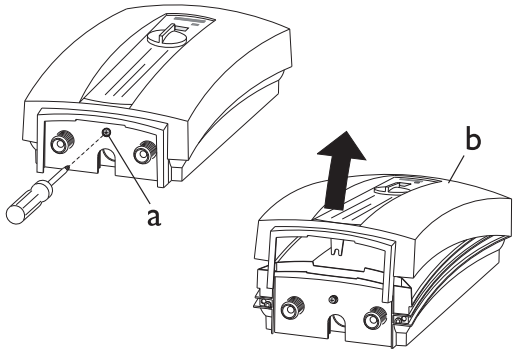
GENERAL

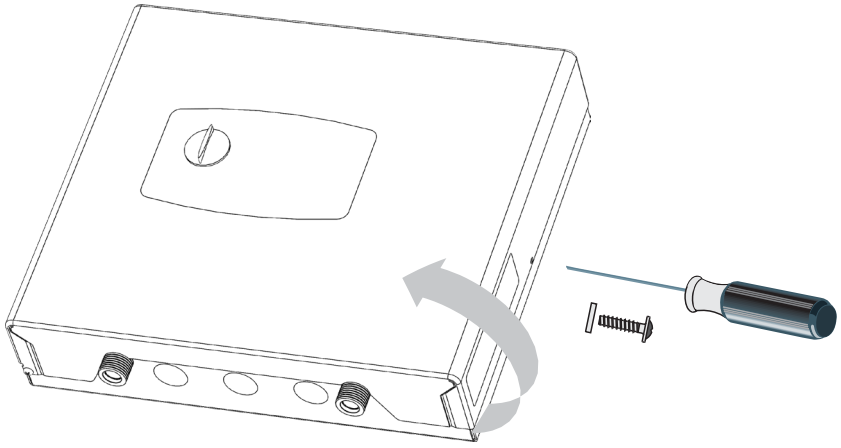
- The output of heat from the boiler is electronically controlled. The boiler will deliver any water temperature between 86° F - 140° F. Set the desired water delivery temperature using the knob on the front cover. **(Do not exceed temperatures above 130° when using this product with tubing in concrete)**
- When the power light **is** flashing, full element power is being applied. When the power light **is not** flashing, the element power is being modulated to the water delivery temperature.
- Recommend setting for radiant floor heating (Tubing in Concrete) is 105° F - 125° F.
- Recommended setting for Staple Up (Floor Warming Only) is 130° - 140° F.
- Temperature setting and water delivery temperatures may vary depending on flow rates. Size boiler accordingly. See flow rate chart for more information.

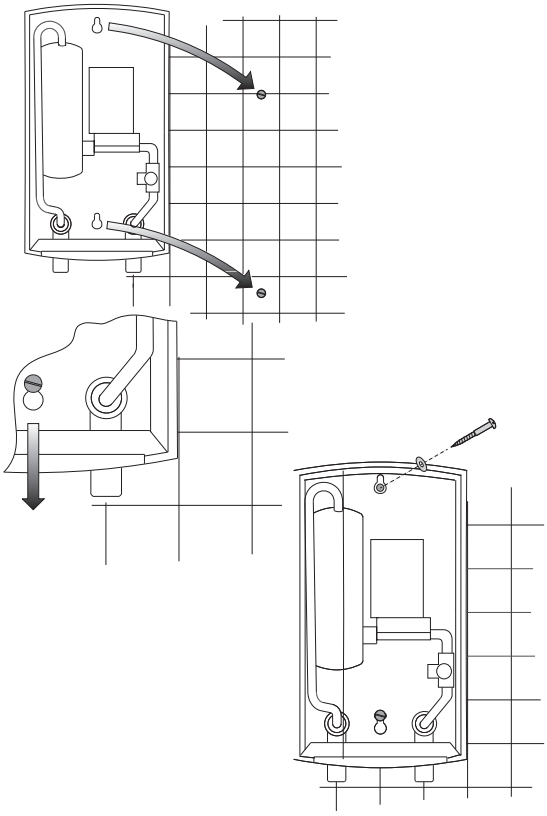
MOUNTINGTHEUNIT

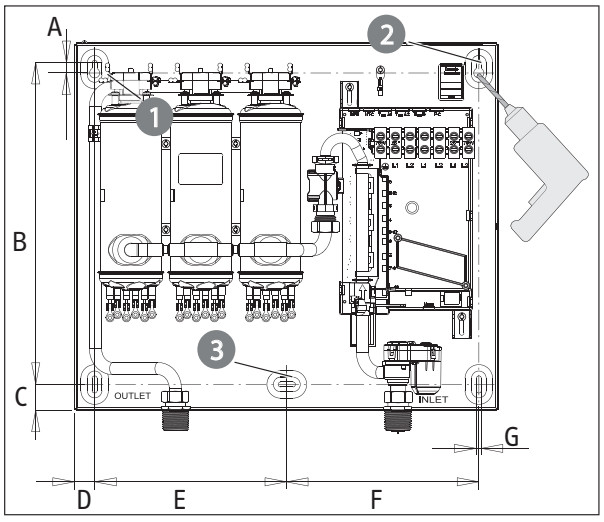
UNIT MUST BE INSTALLED IN A VERTICAL POSITION WITH THE WATER FITTINGS POINTING DOWNWARD. DO NOT INSTALL UNIT WHERE IT WOULD ROUTINELY BE SPLASHED WITH WATER OR ELECTRICAL SHOCK MAY RESULT.

1. Leave a minimum of 5” clearance on all sides for servicing.
2. Make sure the power is off.
3. Remove the cover.
4. Mount securely to wall by putting screws through mounting holes.
5. Screws and plastic wall anchors for mounting are provided.









Dimensions	
A	3/8″ / 10 mm
B	12 1/2″ / 318 mm
C	1″ / 26 mm
D	3/4″ / 19.5 mm
E	7 1/2″ / 190 mm
F	7 1/2″ / 190 mm
G	3/16″ / 5 mm

INSTALLATION

ELECTRICALCONNECTIONS

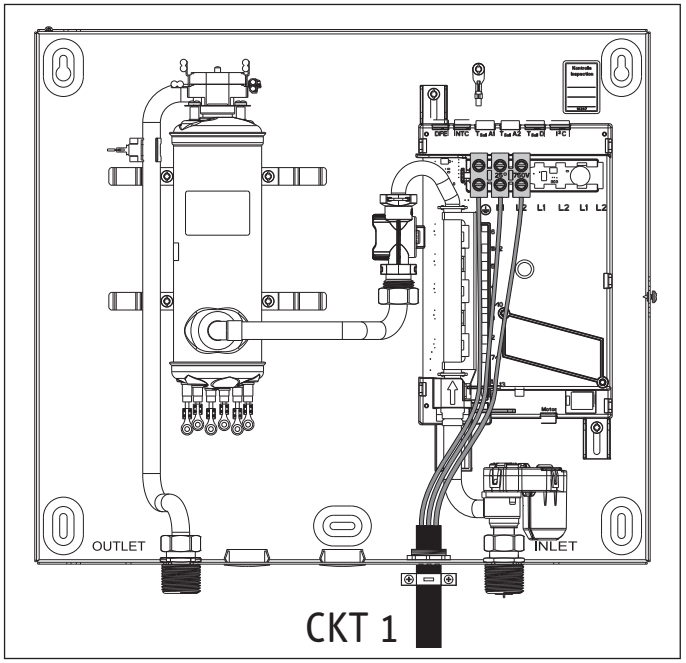
WARNING: BEFORE BEGINNING ANY WORK ON THE ELECTRIC INSTALLATION, BE SURE THAT THE MAIN BREAKER PANEL SWITCHES ARE “OFF” TO AVOID ANY DANGER OF ELECTRIC SHOCK. ALL MOUNTING AND PLUMBING MUST BE COMPLETED BEFORE PROCEEDING WITH ELECTRICAL HOOK-UP. WHERE REQUIRED BY LOCAL,STATE OR NATIONAL ELECTRICAL CODES THE CIRCUITS SHOULD BE EQUIPPED WITH A “ GROUND FAULT INTERRUPTER”.

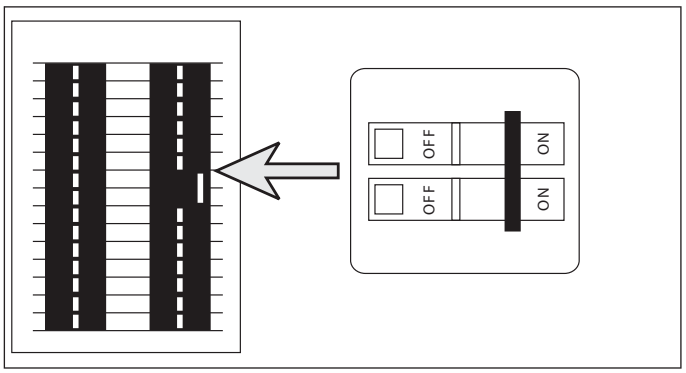
1. All electrical work must comply with the national, state, local & any other applicable codes.
2. The boiler should be connected to properly grounded dedicated branch circuits of proper voltage rating. Ground must be brought to the ‘Ground’ at the circuit breaker panel.
3. SH-12 can be connected to ONE independent circuit.
4. A SH-14, SH-19 & SH-24 can be connected to TWO independent circuits Use supply table. Protected by TWO double pole breakers sized for the load.
5. A SH-29 and SH-36, can be connected to THREE independent circuits. Use supply cable protected by THREE double pole breakers sized for the load.
6. Cut the electrical connection cable to length and strip.
7. The wire must be fed through the knockouts located between the Supply and Return fluid connections. The “Live” wires must be connected to the slots on the terminal block marked “L” and “L”. The ground wire must be connected to slot marked with the ground symbol.
8. Reinstall the cover screws.

WARNING! As with any electrical appliance, failure to electrically ground may result in serious injury or Death.

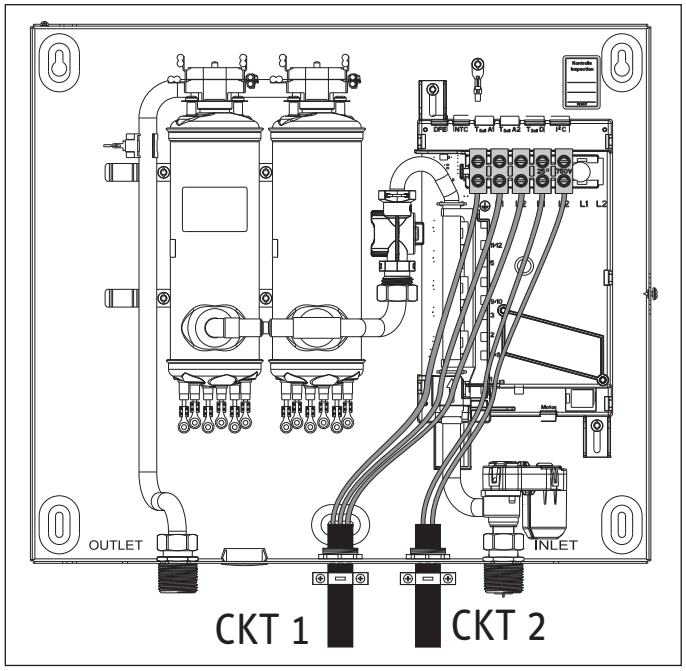
ELECTRICALCONNECTIONSCONT'D

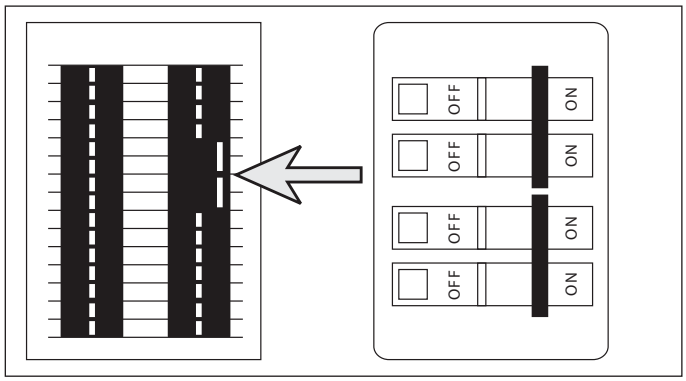
SH-12





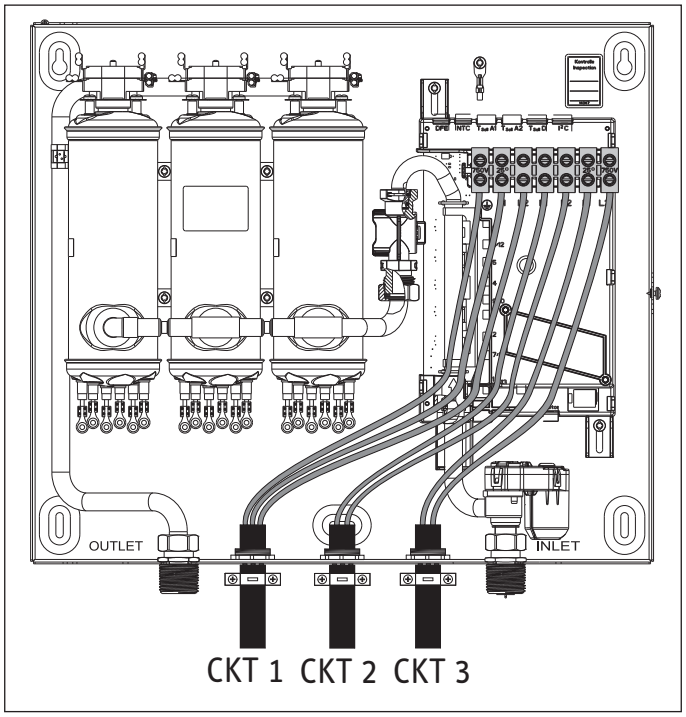
SH-14, SH-19, SH-24

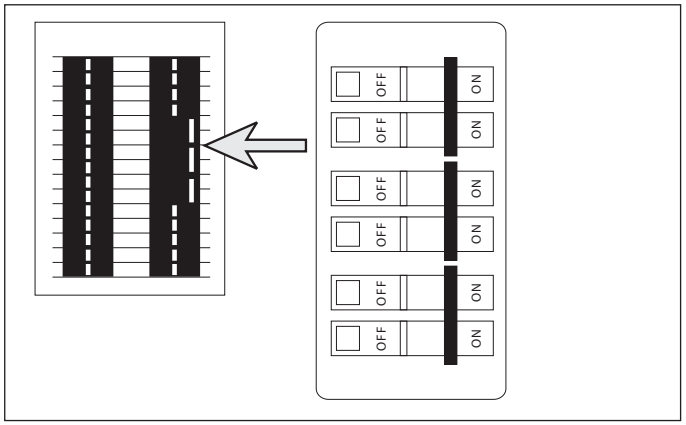




ELECTRICALCONNECTIONSCONT'D

SH-29, SH-36





CIRCUITCONNECTION

Please refer to specification table for wiring and circuit breaker size. See technical data section for wiring diagrams.

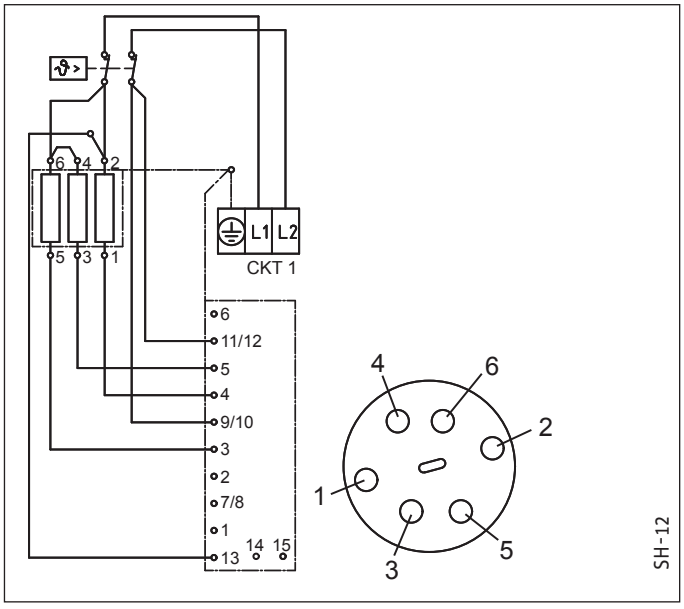
FLUID CONNECTIONS

NOTE: EXCESSIVE HEAT FROM SOLDERING COPPER PIPES NEAR THE BOILER MAY CAUSE DAMAGE.

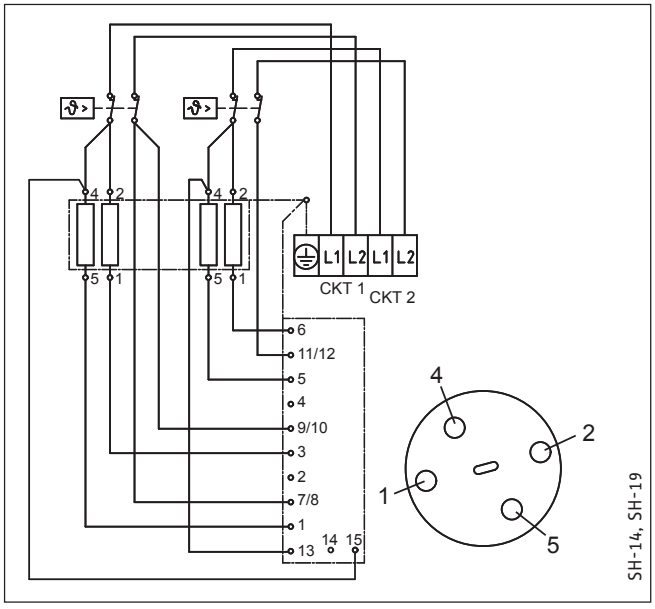
1. All plumbing work must comply with the national, state, local & any other applicable codes.
2. Make sure the radiant floor system has been purged & is free of floating debris.
3. The return side (inlet) is on the right side of the unit, the supply side (outlet) is on the left of the unit.
4. A pressure & temperature relief valve should be installed on the hot water supply side (outlet) of the unit. (Hydro Smart Pre-Plumbed Panels include pressure relief valve)
5. The boiler is designed for a connection to copper tubing and/or PEX tubing. If soldering the unit is necessary, please direct the flame away from the housing of the unit to avoid damage.
6. When all plumbing work is completed, check for leaks & take corrective action before proceeding.

TECHNICAL DATA

WIRINGDIAGRAMS

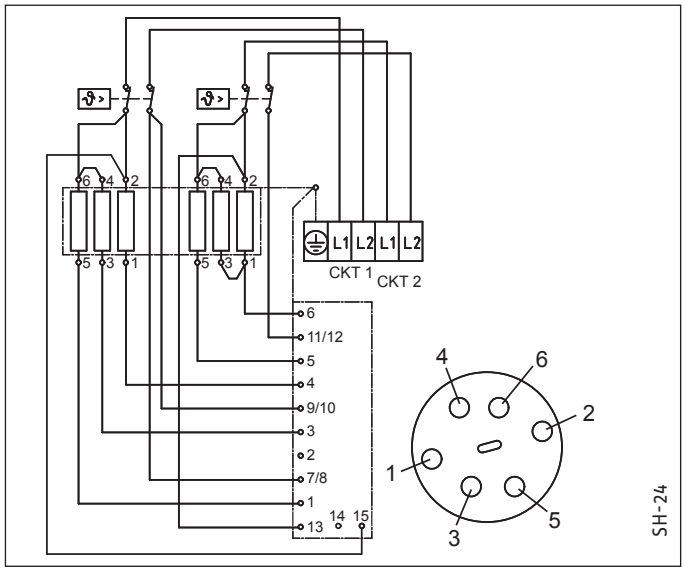


SH-12

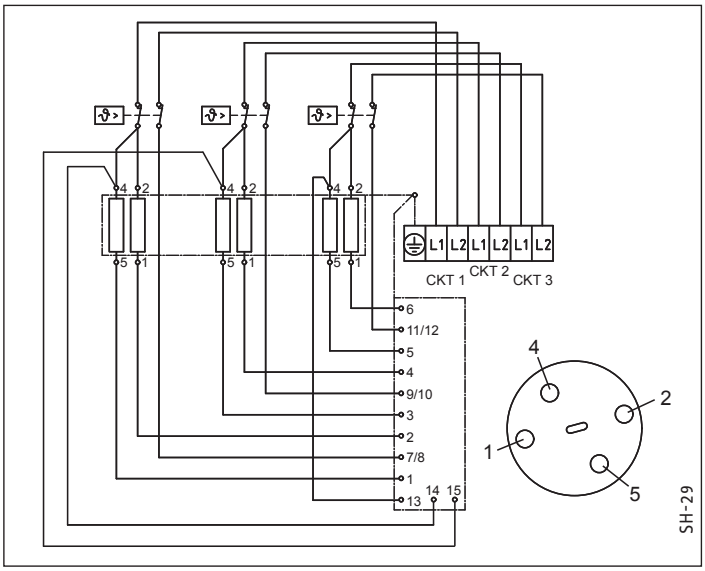


SH-14, SH-19

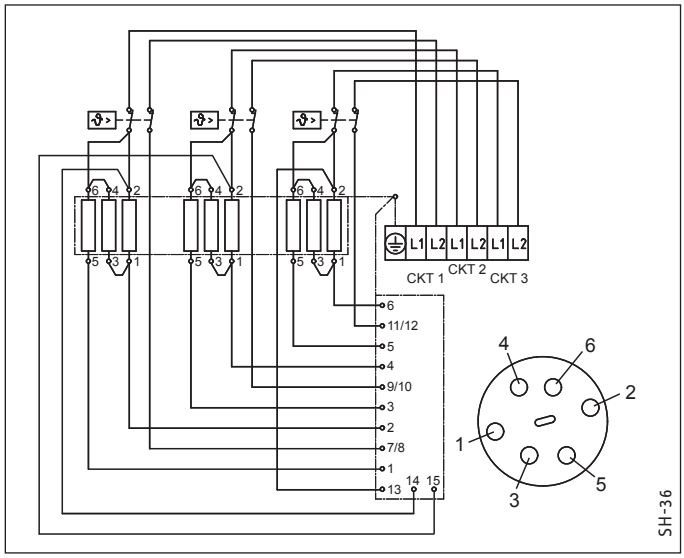
WIRINGDIAGRAMS



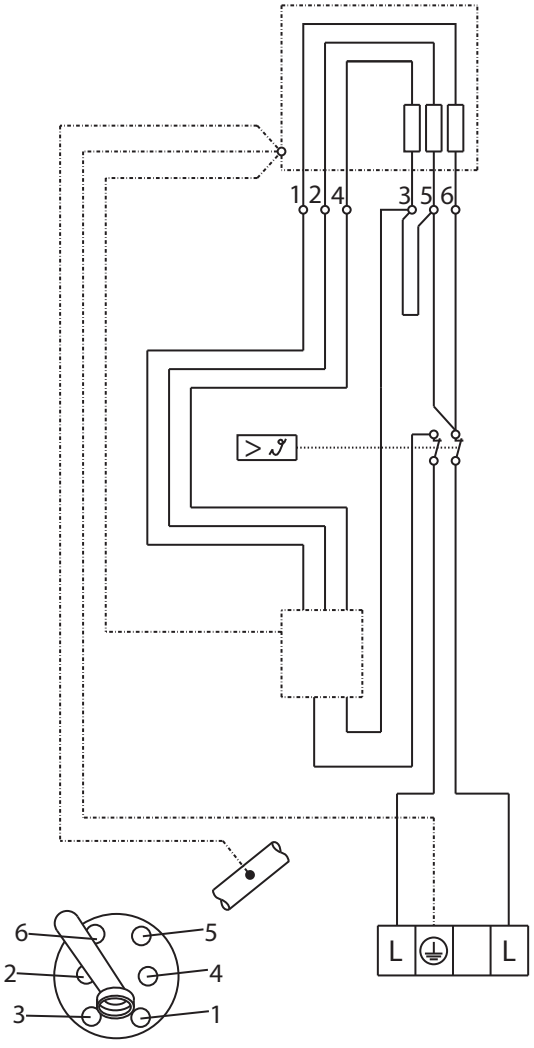
SH-24



SH-29



SH-36



SH-07 / 10 KW

Note:

1. **Boilers are considered a continuous load.**
2. **Copper conductors only.**

APPLICATIONS

Space Heating Applications

WARNING

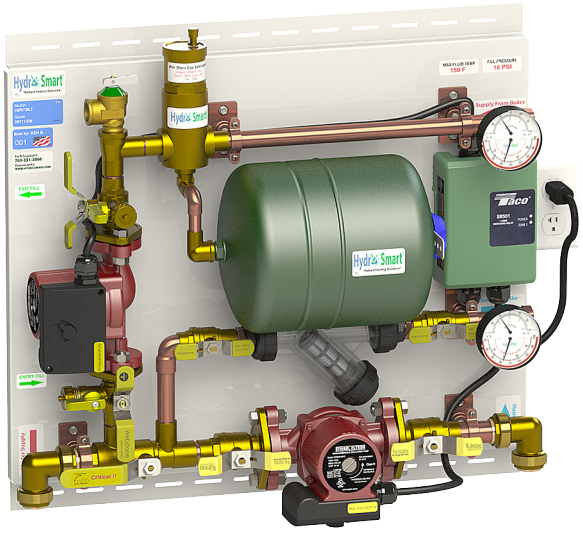
- In order to purge air in water pipes within a closed loop system, an air vent, air separator, and expansion tank should be installed in the system. **(Hydro Smart pre-built space heating panels incorporate all of these features).**
- Water temperature over 125° F (52° C) can cause sever burns instantly of death from scalding.
- Chemicals such as diluted Glycol can be used for radiant floor, Hydro/fan coil air or Baseboard heating only. The diluted solution of glycol must contain between 25% and 55% of Glycol. Be aware that in a closed loop system, low pressure in the heat exchanger can cause low-temperature boiling, resulting in excessive noise and damage to the micro boiler. Consult with the glycol maker for specifications prior to use.

Hydro Smart Pre-Built Space Heating Panels

Hydro Smart per-plumbed panels help make space heating easy and reliable. These panels are professionally engineered and use proven Primary/Secondary hydronic practices. Call Tech Support (1-763-331-3066) for assistance.

Sample:

HSPS120LT 1 Zone Panel:

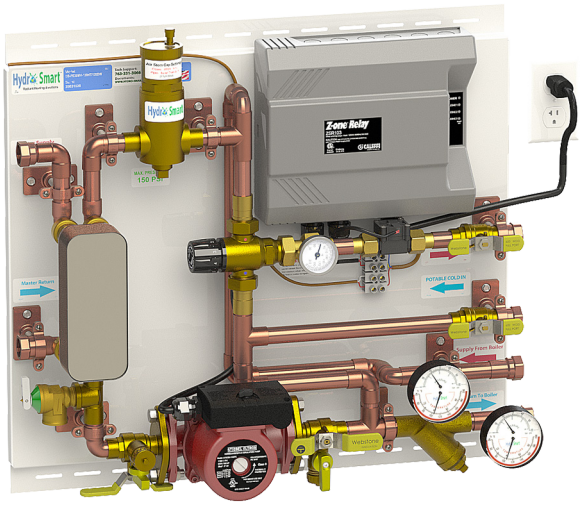


For more information on Hydro Smart pre-plumbed panels and zoning options for this boiler please visit www.hydro-smart.com or call 763-331-3066.

Dual-purpose hot water heating

(Domestic and Space Heating)

Insert a Hydro Smart Combi Panel to provide potable heated water and Hydronic Heating (with space heating panel(s)) with one heat source.



The Hydro Smart Combi Panel integrates with a wide variety of boilers and delivers “Priority” potable heated water with no storage tank and hydronic space heating in a small reliable package.

NOTICE Follow all local codes, or in the absence of local codes, follow the most recent edition of the National Standard Code, ANSI Z21.10.3.

For more information on Hydro Smart Combi panels and integrating space heating and domestic water for this boiler please visit www.hydro-smart.com or call 763-331-3066.

NOTICE Use Combi Panel with SH-29 or SH-36 KW Boilers Only. Size boiler for domestic and radiant applications accordingly.

Owner’s Guide

CONGRATULATIONS

Congratulations and thank you for choosing our micro boiler. Before use, we recommend that you read through this owner’s guide carefully. Keep this manual for future reference.

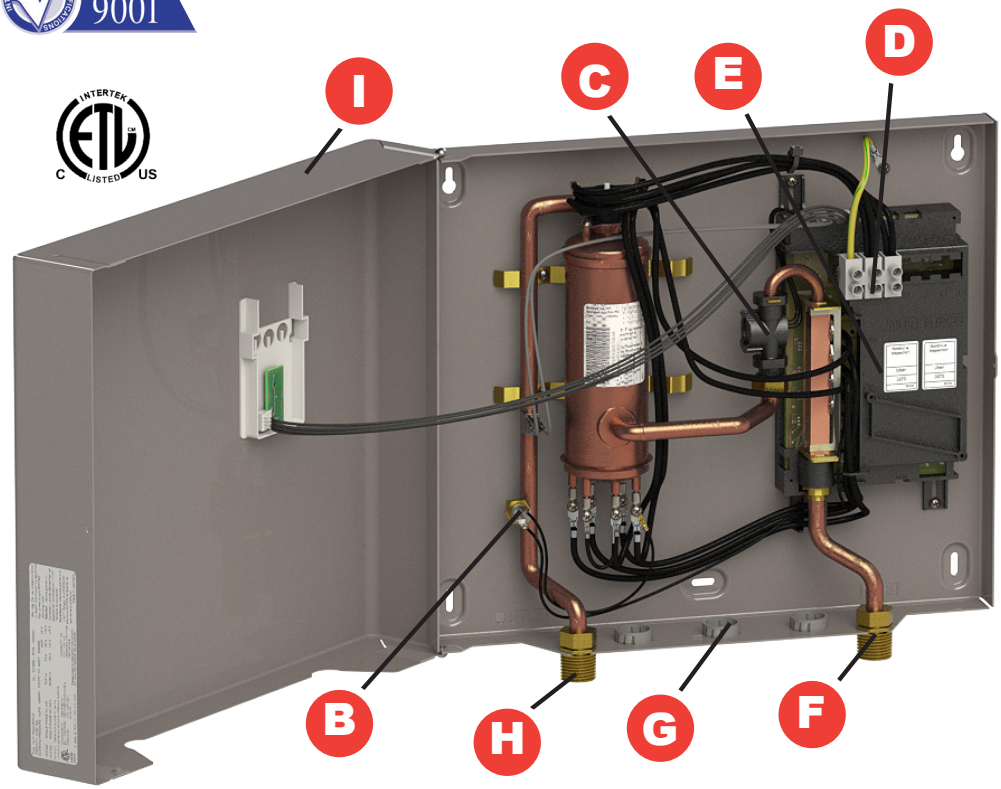
If you need an additional manual, contact the manufacturer or your local distributor. When you call, please tell us the product name and the serial number of your unit written on the rating plate of the boiler.

TROUBLESHOOTING

General

Symptom	Possible Cause	Solution
No Hot Water	•No Power •Safety Thermal Cut Off Tripped •Not Enough Flow Rate To Activate •Plugged Flow Sensor	•Utility Controlling Load •Reset Thermal Cut Off •Wrong Size Pump •Activate Thermostat/ Clean Flow Sensor
Water Not Hot Enough	•Water Flow Too High •Voltage To Low •Glycol/Water Ratio Too High •Manifold or Ball Valve Closed	•Reduce Water Flow Rate •Supply Correct Voltage to Unit •More than 20%, less than 50% •Open Loops/Ball Valves
LEDs Do Not Light	•Problem With Electronic Controls	Call Tech Support at 763-331-3066

COMPONENTS DIAGRAM



A- Fluid Temp.Controller
B- High Limit Safety
C- Flow Meter
D- Wiring Terminal
E- Control Board
F- Cold Fluid Return - 3/4” MPT
G- Electrical Circuit Knock-Outs
H- Hot Fluid Supply - 3/4” MPT
I- Hinged Cover on 12- 36 KW Units

PARTS LIST

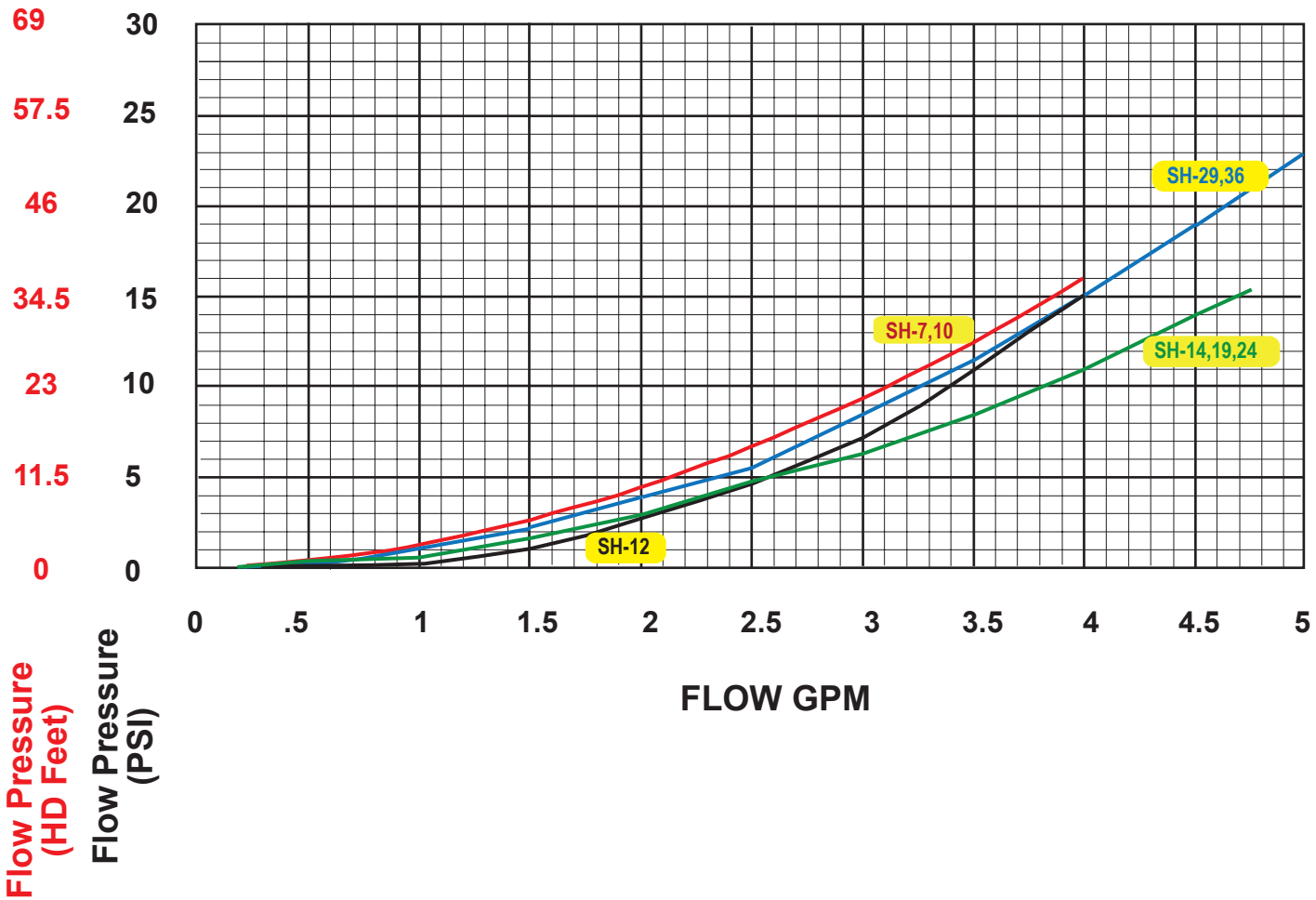
Part Number	Description
286356	Housing, SH-12 thru SH-36
245307	Temperature Control Knob, SH-07 thru SH-36
279998	Wiring Block, SH-07- thru SH-12
279997	Wiring Block, SH-14- thru SH-24
279996	Wiring Block, SH-29- thru SH-36
286360	Heating System, SH-12
286361	Heating System, SH-14
286362	Heating System, SH-19
286364	Heating System, SH-24
286373	Heating System, SH-29
286374	Heating System, SH-36
286369	High Limit, SH-07 thru SH-36
286366	Electronic Control Device Board, SH-12
286844	Electronic Control Device Board, SH-14 thru SH-19
286367	Electronic Control Device Board, SH-24
296888	Electronic Control Device Board, SH-29
296889	Electronic Control Device Board, SH-36
286461	Flow Sensor, SH-07 thru SH-36
278698	Plumbing Connection, S-R 3/4” NPT
286359	Electronic Temp Control, SH-07 thru SH-36
280677	Outlet Temperature Sensor, SH-07 thru SH-36
280730	Set Point Knob Board, SH-12 thru SH-36
292575	Housing, SH-07 thru SH-10
291851	Electronic Control Device Board, SH-07 thru SH-10
283455	Code Plug, SH-07 thru SH-10
292578	Back Panel, SH-07 thru SH-10
291699	Return Fluid Connection, SH-07 thru SH-10
278634	Supply Fluid Connection, SH-07 thru SH-10
292577	Cover, SH-07 thru SH-10
254312	Axis Connection Plug, SH-07 thru SH-10

Boiler Pressure Drops Table

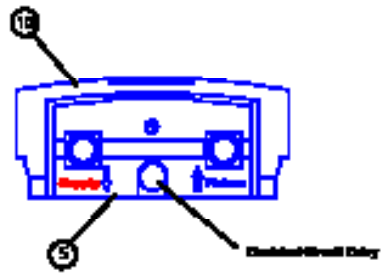
(Boilers SH-12 thru SH-36)

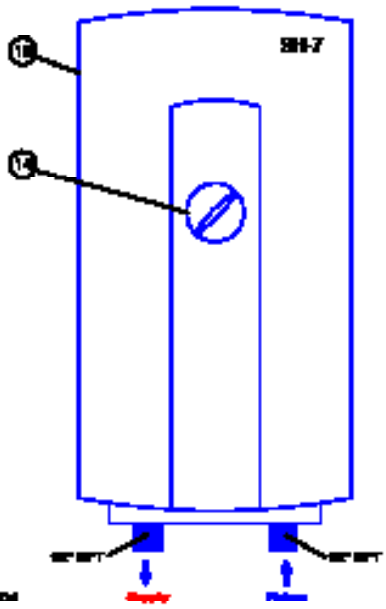
This table is used for sizing Primary (Boiler) Circulator

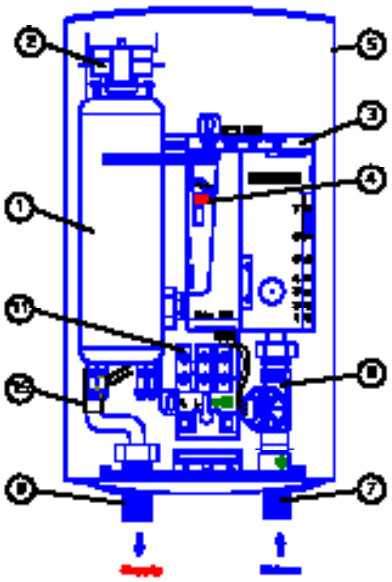
All boilers must use Primary/Secondary circuitry. This is used to create Hydraulic seperation between the Boiler and Emitter circulators allowing you to create different flow rates for each circuit.



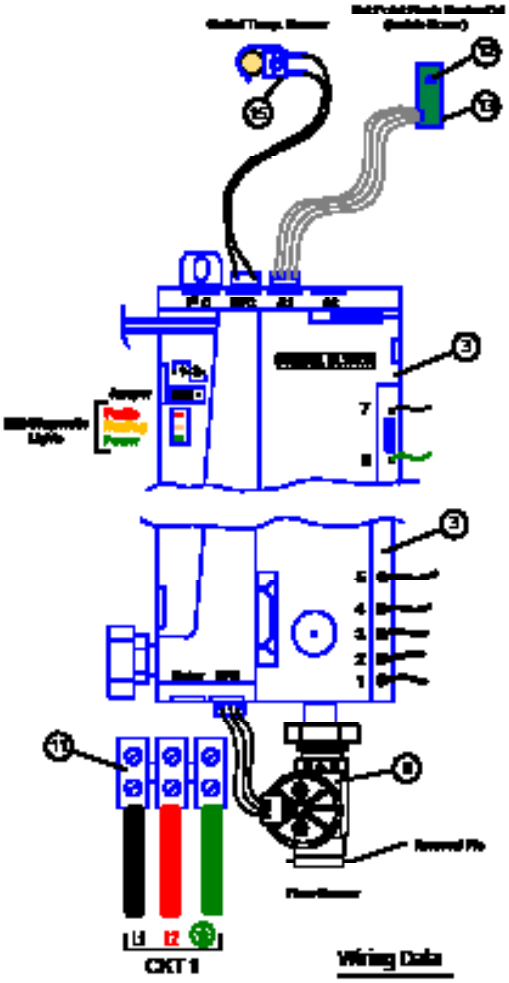
SH-07 Hydro Shark Electric Boiler



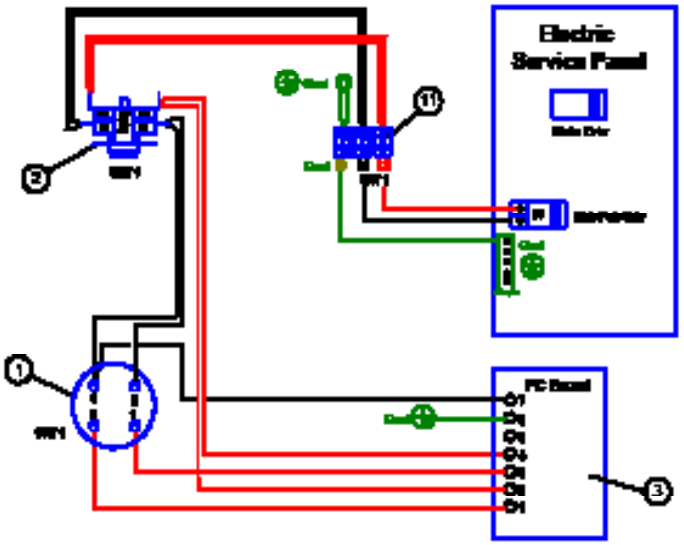




Sensor PCBD Connections



Wiring Diagram



CKT 1

Wiring Data

SH-07 RW

CKT	KW	Volts	Wire AWG (Copper)	Breaker (Std Pole)	Amp Draw (Max)
CKT 1	7.2KW	240V	6 AWG	[illegible] Amp	40 Amp

Note: Boiler wiring circuit for continuous duty.
All wiring to be installed to the National Electric Code.

Spare Parts

ITEM	P/N	DESCRIPTION
1	280220	Heating Element
2	280288	Safety Thermal Cut Out
3	280201	PCBD
4	280203	Cooling Jumper
5	280205	Back Panel
6	280207	Flow Sensor
7	280208	Return Fluid Connection
8	RTA	RTA
9	280209	Supply Fluid Connection
10	280210	Gasket
11	280211	Wiring Block 3 - Position
12	280212	Auto Connection Plug
13	280213	Electronic Temp Control
14	280214	Temperature Adjustment Knob
15	280215	Outlet Temperature Sensor

Element Wired to End (High Limit Trip)

1 - [illegible] Ohms

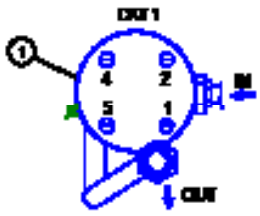
2 - [illegible] Ohms

Element Continuity

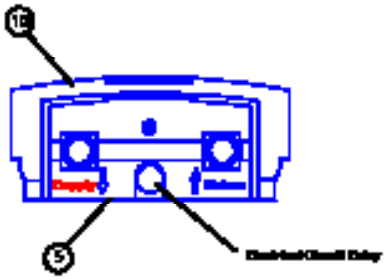
Element 1-4 [illegible]

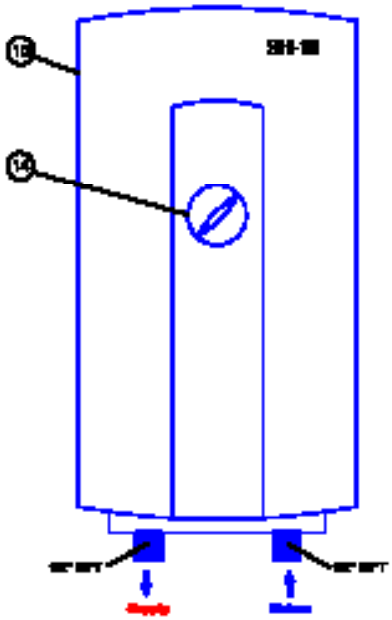
Element 2-4 [illegible]

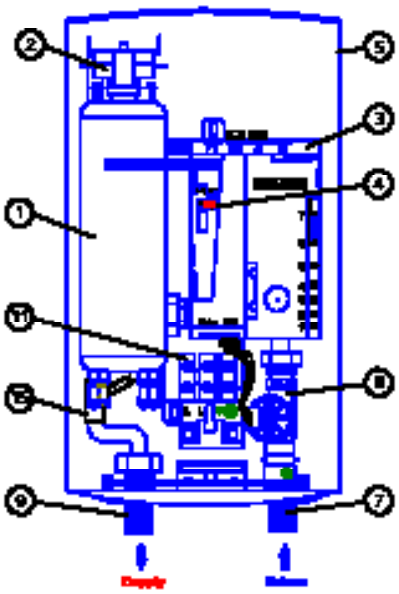
Thermal Matrix



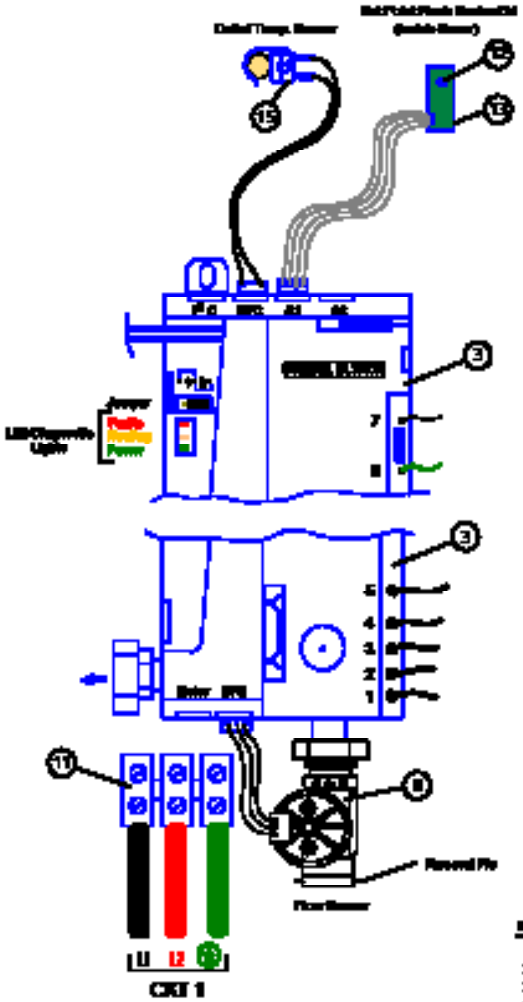
SH-10 Hydro Shark Electric Boiler



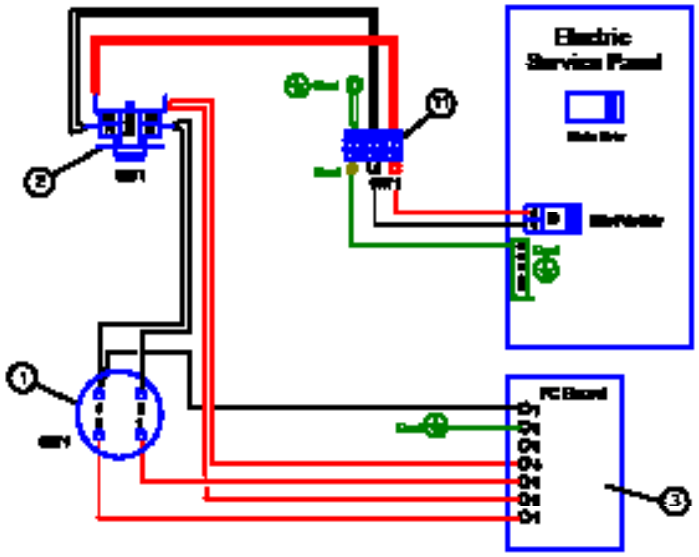




Sensor Connections PCB3



Wiring Diagram



Wiring Data

SH-10 KW

CKT	Wire AWG (Copper)	Breaker (Dbl Pole)	Amp Draw (Max)

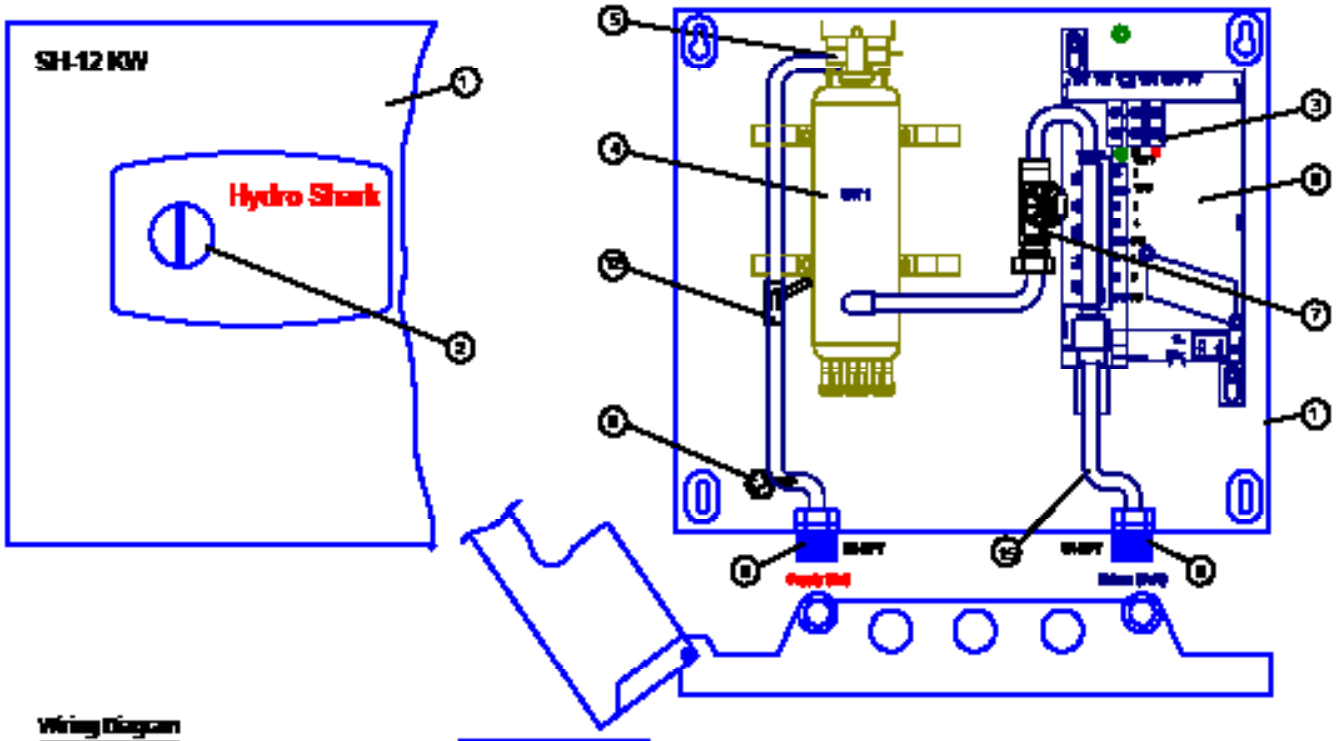
Note: Use copper wiring sized for ambient 40 deg.
All wiring to be installed to the National Electric Code.

Spare Parts

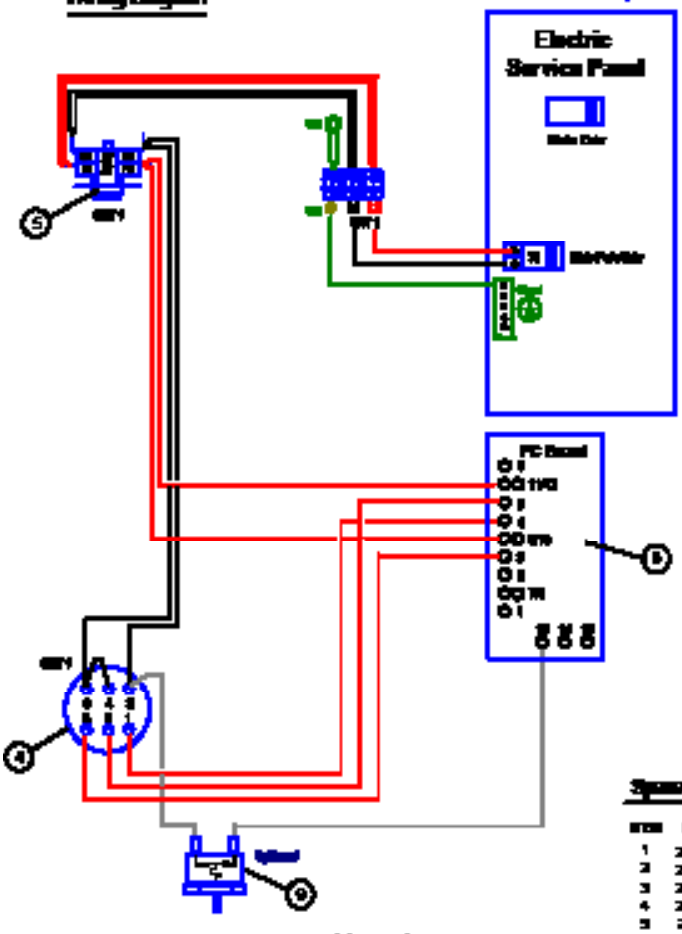
ITEM	PART	DESCRIPTION
1	28293	Heating Element
2	28288	Safety Thermal Cut Out
3	28408	PCB3
4	28293	Cooling Jumper
5	28295	Deck Panel
6	28298	Plug Sensor
7	28289	Return Fluid Connection
8	N/A	RTA
9	28294	Supply Fluid Connection
10	28297	Copper
11	28286	Wiring Block 3- Position
12	28302	Male Connection Plug
13	28299	Electronic Temp Control
14	28287	Temperature Adjustment Knob
15	28307	Outlet Temperature Sensor

Element Matrice

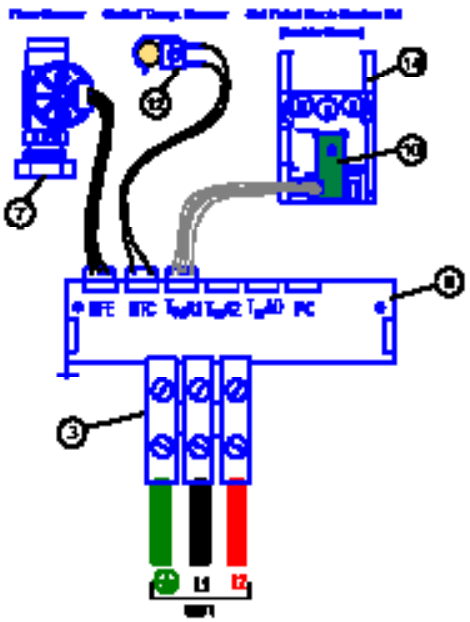
SH-12 Hydro Shark Electric Boiler



Wiring Diagram



Sensor Connections PCB3



Spare Parts

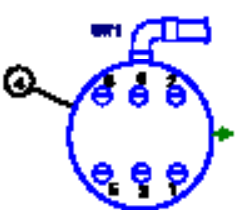
Item	Part	Description
1	200228	Housing, SH12 thru SH-36
2	200287	Control Knob
3	200880	Wiring Block, 3 - Position
4	200888	Heating Element Assy, SH-12
5	200308	High Limit Safety Cut Out, All Models
6	200309	PC Board, SH-12
7	200881	Flow Sensor
8	200888	Supply Water Field Connections
9	200307	High Limit Relief Temperature
10	200228	Set Point Knob Digital Set Assy
11	N/A	N/A
12	200877	Relief Temperature Sensor
13	N/A	N/A
14	200878	Set Point Knob Case
15	200883	Inlet Pipe Elbow

Element Matrix

SH-12 KW

CKT	KW	Volts	Wire AWG Size (Copper)	Breaker (Dbl Pole)	Amp Draw (Max)
CKT 1	12 KW	240 V	4 AWG Wire	70 Amp	50 Amp

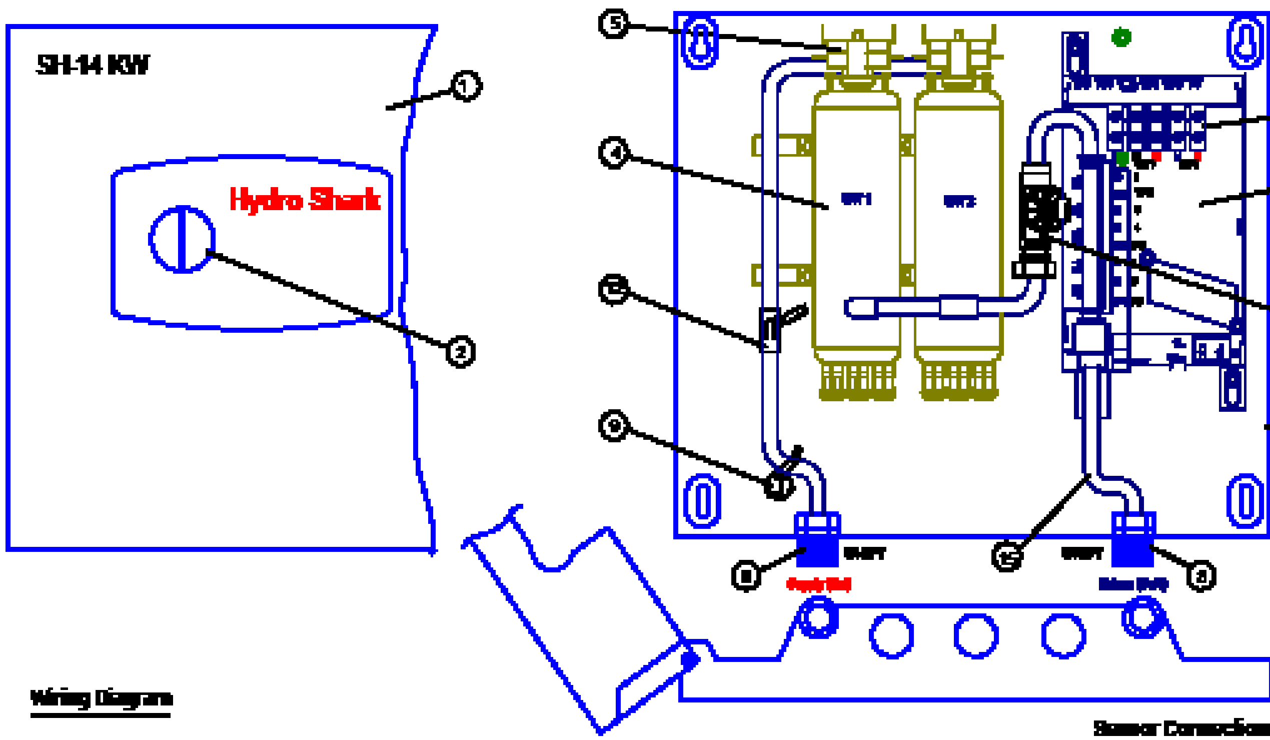
Wiring Data



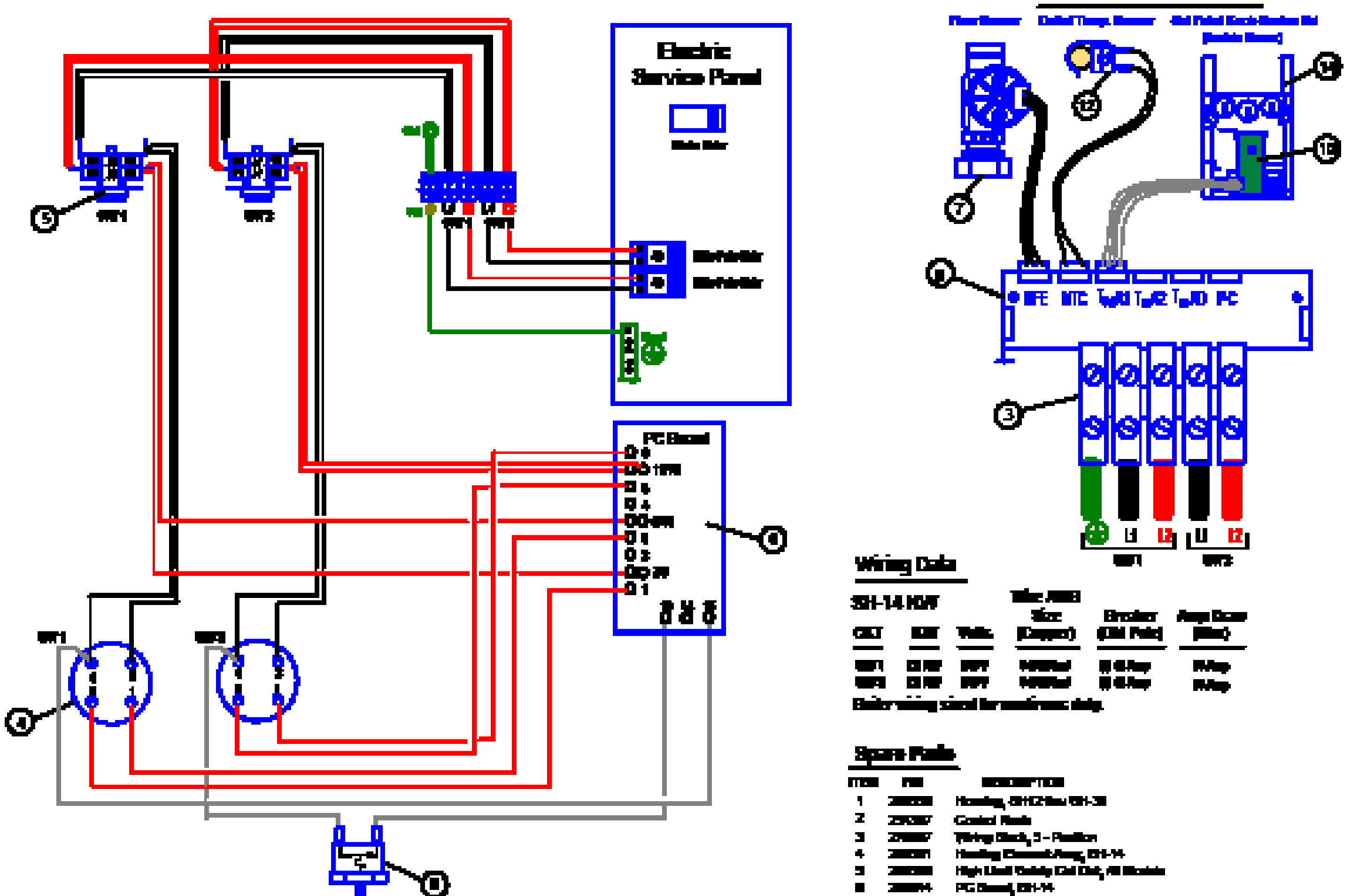
Element Polarity

Element #1 3,120 Ω, 208 Vac, 14.9 A, 17 Ohms
Element #2 3,120 Ω, 208 Vac, 14.0 A, 17 Ohms
Element #3 3,120 Ω, 208 Vac, 22.0 A, 11 Ohms
12 KW (3) = 12 KW

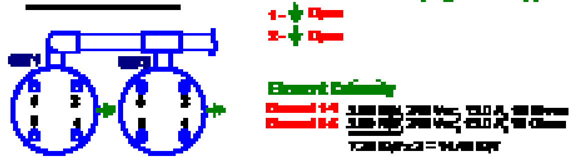
SH-14 Hydro Shark Electric Boiler



Wiring Diagram



Element Matrix



Wiring Data

SH-14 KW

CKT	KW	Volts	Wire AWG Size (Copper)	Breaker ([illegible] Pole)	Amp Draw (Max)
CKT1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
CKT2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

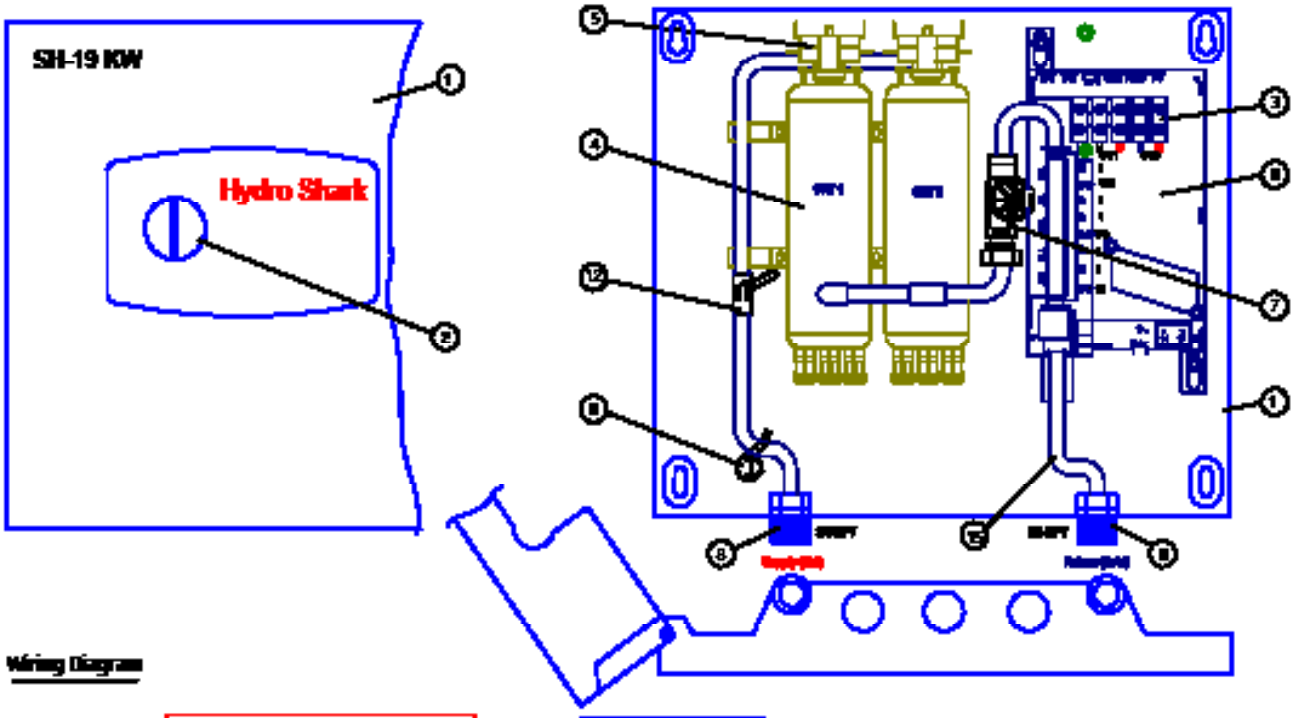
Boiler wiring sized for continuous duty.

Spare Parts

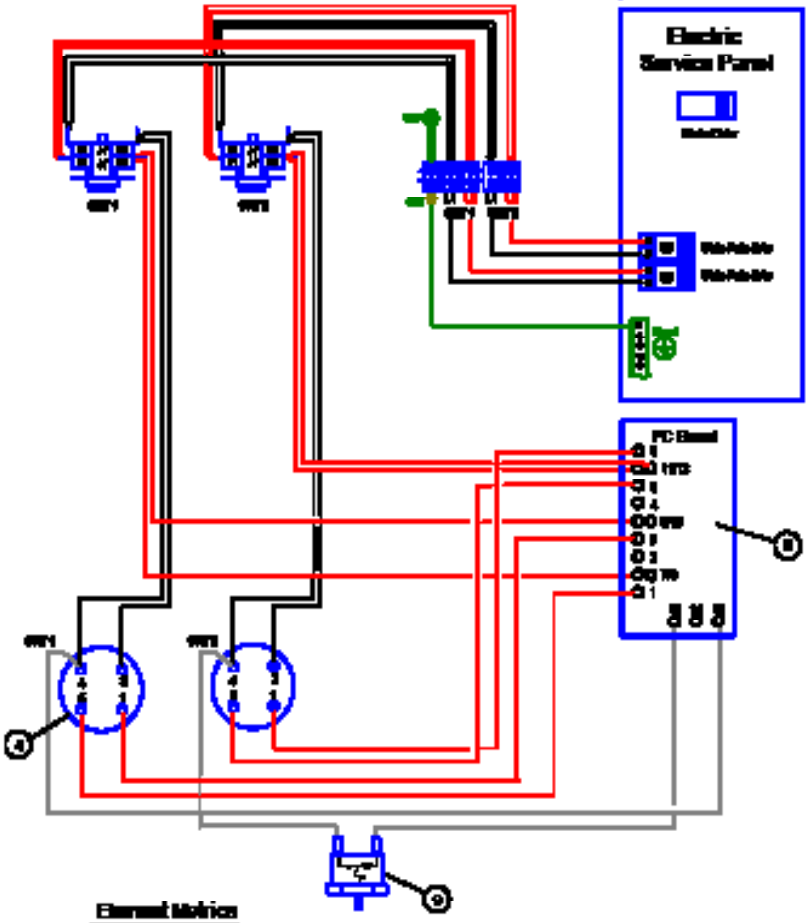
ITEM	P/N	DESCRIPTION
1	[illegible]	Housing, SH12 thru SH-36
2	[illegible]	Control Knob
3	[illegible]	Wiring Block, 3 – Position
4	[illegible]	Heating Element Assy, SH-14
5	[illegible]	High Limit Safety Cut Out, All Models
6	[illegible]	PC Board, SH-14
7	[illegible]	Flow Sensor
8	[illegible]	Supply-Return Field Connections
9	[illegible]	High Limit Outlet Temperature
10	[illegible]	Set Point Knob Display Ckt Assy
11	N/A	N/A
12	[illegible]	Outlet Temperature Sensor
13	N/A	N/A
14	[illegible]	Set Point Knob Cover
15	[illegible]	Inlet Pipe Clamp
16	N/A	N/A
17	N/A	N/A

Electrical Wiring – 14 KW
[illegible]

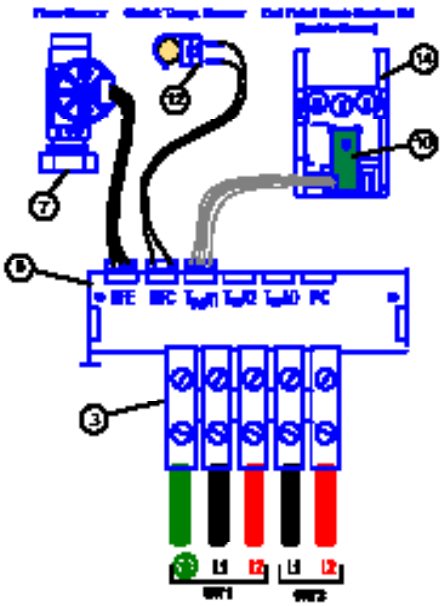
SH-19 Hydro Shark Electric Boiler



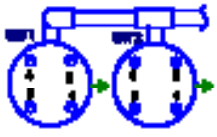
Wiring Diagram



Sensor Connections PCB0



Element Metrics



Wiring Data

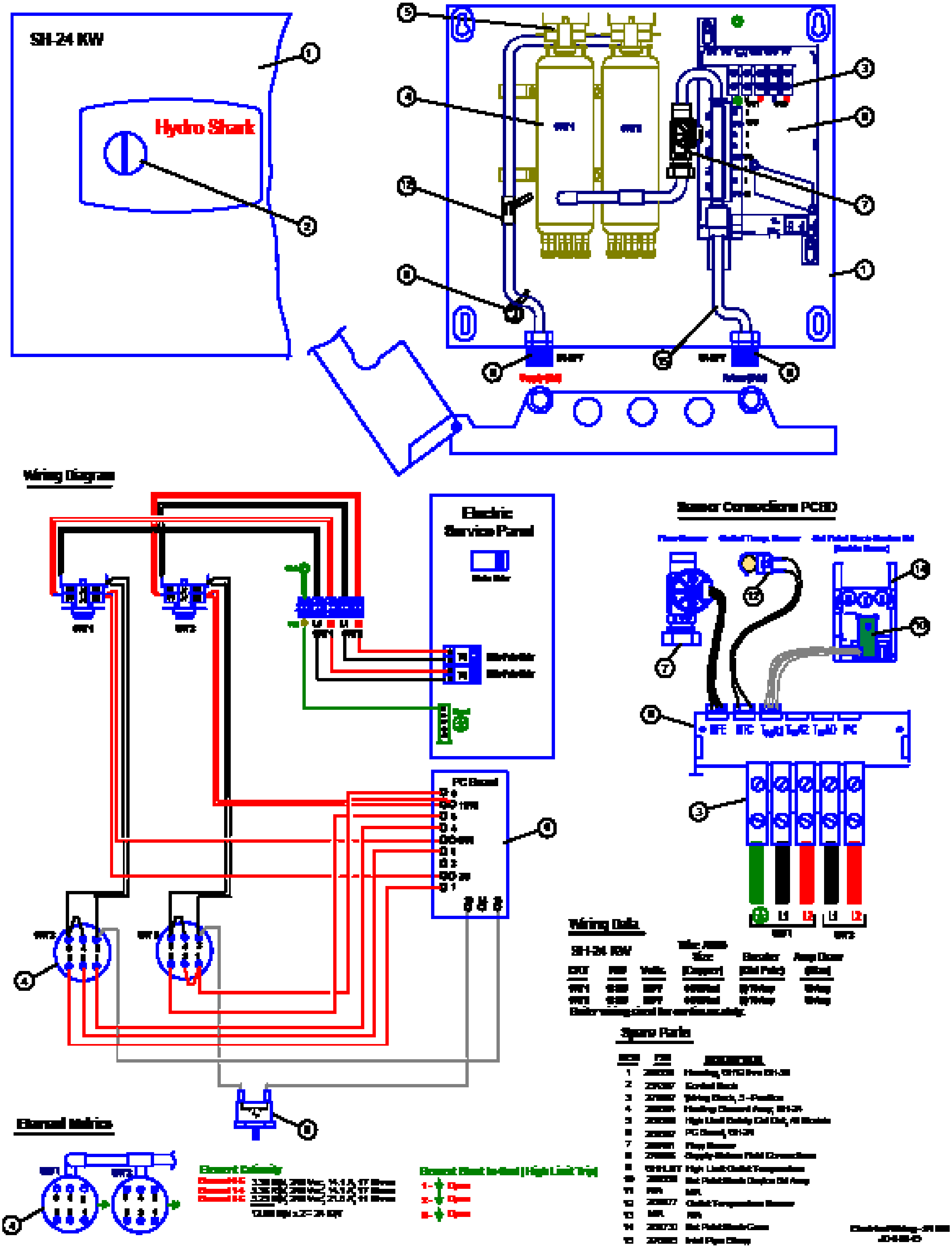
SH-19 KW

CKT	KW	Volts	Wire Size (Copper)	Breaker (DM Pole)	Amp Draw (Max)

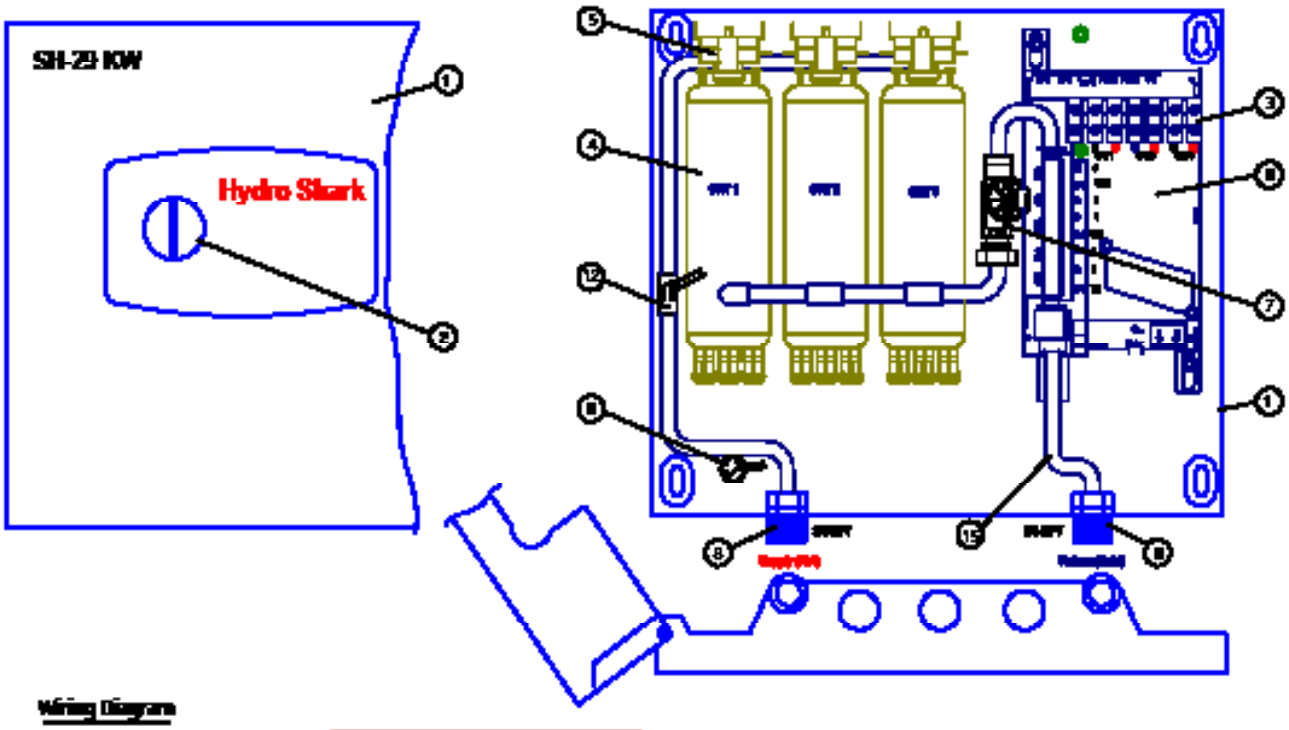
Spare Parts

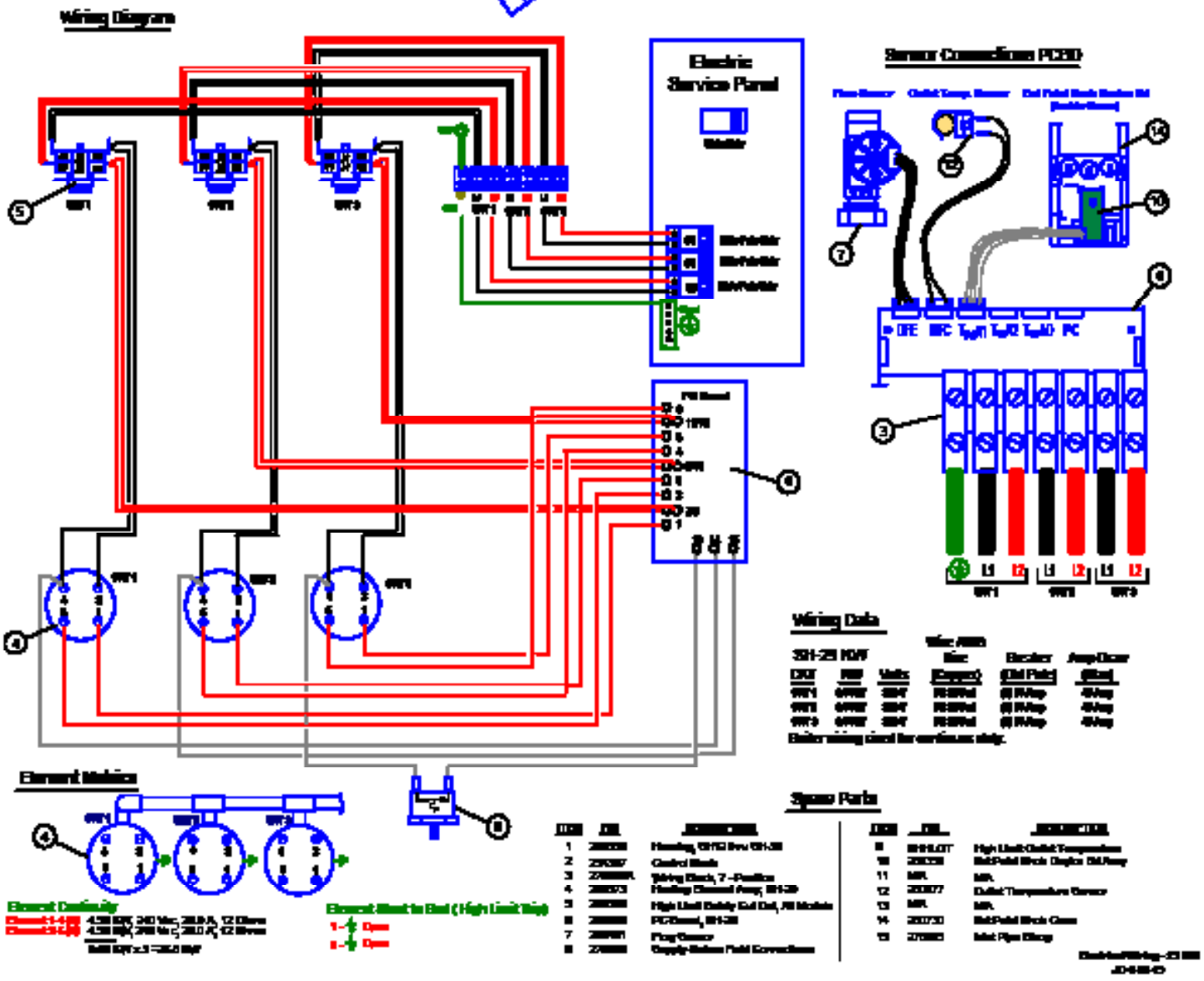
ITEM	P/N	DESCRIPTION

SH-24 Hydro Shark Electric Boiler

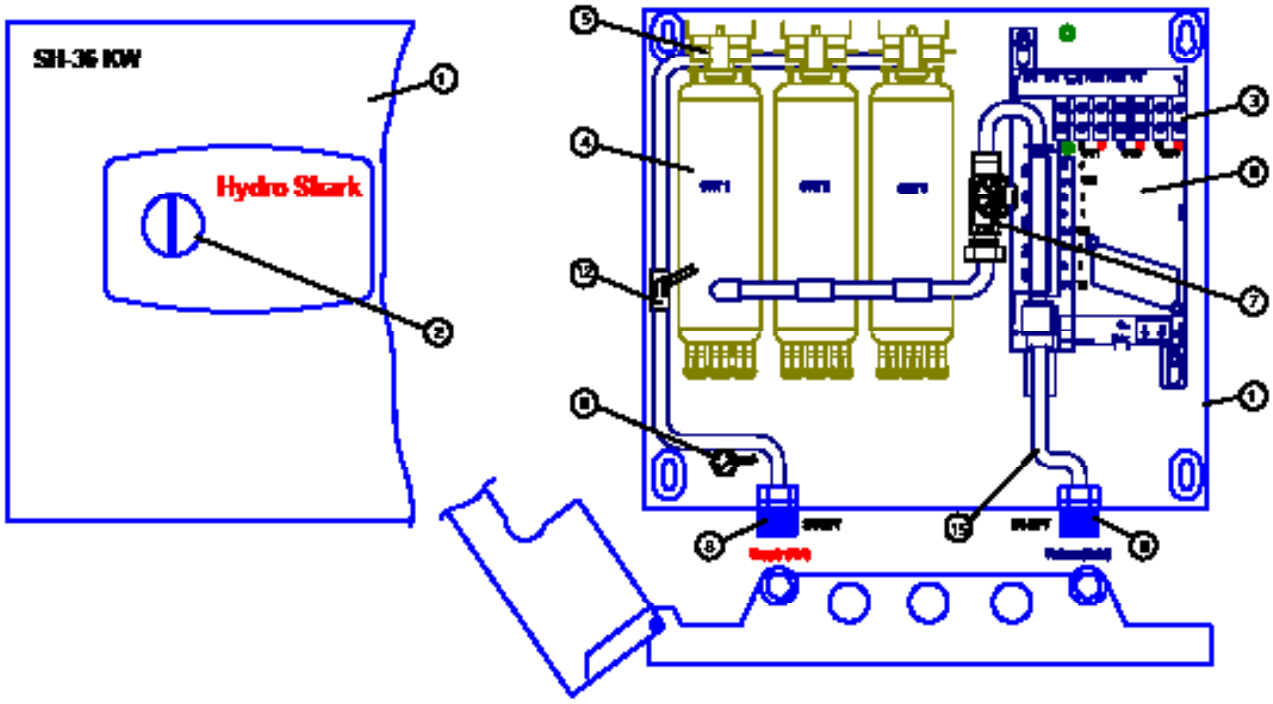


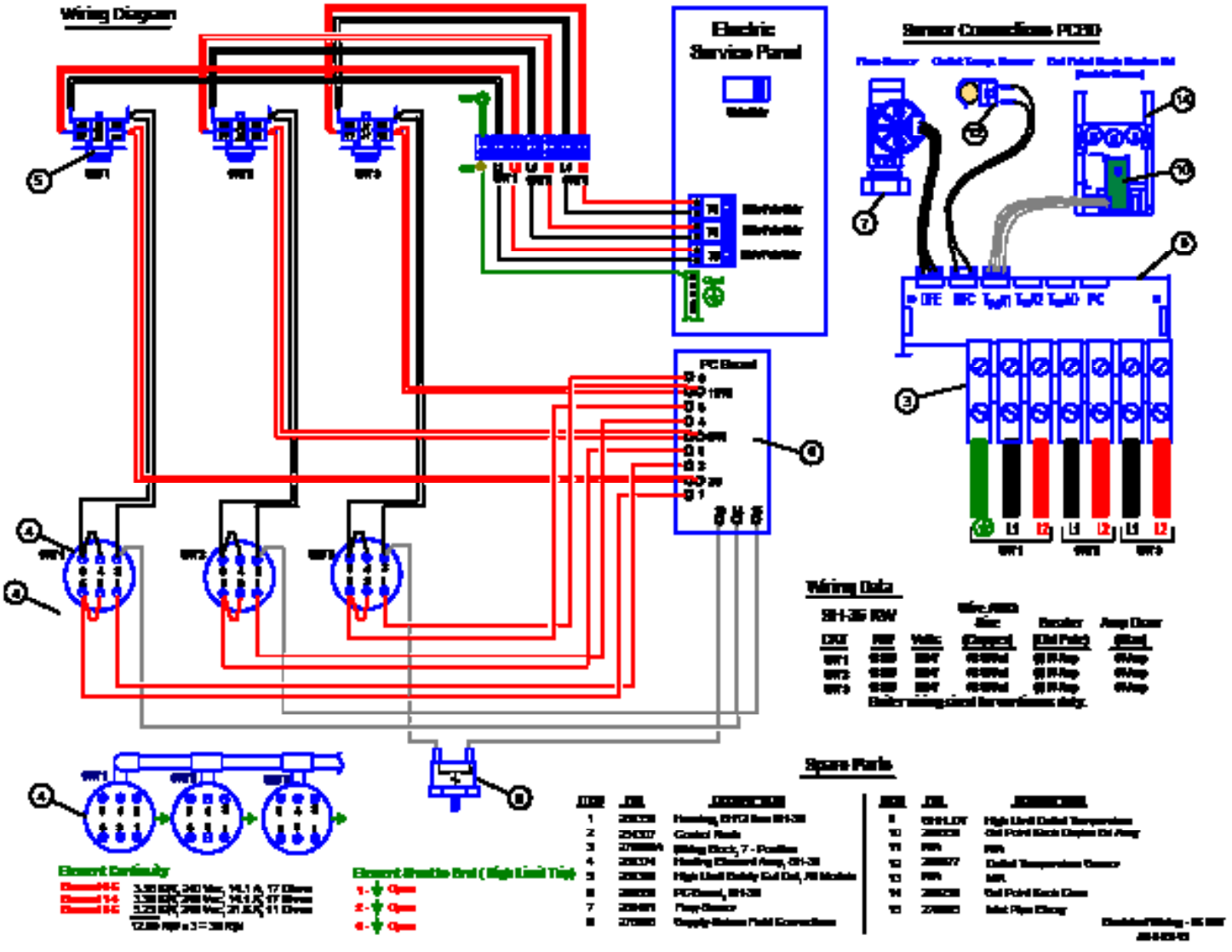
SH-29 Hydro Shark Electric Boiler





SH-36 Hydro Shark Electric Boiler





NOTES: