HOFFMAN

A UNITYLAB CORP. BRAND

INSTRUCTION MANUAL & PARTS LIST

FX Series

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1.0 Introduction

This manual contains installation, operation, maintenance & adjustment instructions, trouble shooting guide, repair parts illustrations and lists for the FX Series Press.

The FX Series line of presses are designed with constant attention to quality, performance and operator safety. It is constructed of highest quality materials and rigorously tested at the factory.

1.1 Precautions

It is vital that the purchaser of a FX Series line of presses read these instructions and fully understands them before installing or operating the machine. It is also the responsibility of the purchaser to make sure that all personnel that come in contact with this machine comply with and understand all the safety related instructions and warnings that are in this Instruction Manual.

1.2 Safety Nomenclature

NOTES, CAUTIONS and WARNINGS are used throughout this manual to emphasize important and critical instructions.

Note: a note is used to emphasize operating procedures and conditions that are essential to highlight.

CAUTION

A CAUTION IS USED TO INDICATE A HAZARDOUS SITUATION, WHICH MAY RESULT IN PERSONAL INJURY OR DAMAGE TO THE MACHINE.

WARNING

A WARNING IS USED TO INDICATE A HAZARDOUS SITUATION, WHICH HAS SOME PROBABILITY OF DEATH OR SERIOUS PERSONAL INJURY.

1.3 Safety Summary

The following are general safety precautions that are not related to any specific instructions and therefore do not appear elsewhere in this manual. These are recommended precautions that personnel must understand and apply during all phases of operation and maintenance.

WARNING

DO NOT OPERATE OR SERVICE THIS MACHINE BEFORE READING AND UNDERSTANDING THIS INSTRUCTION MANUAL.

WARNING

IT IS THE RESPONSIBILITY OF THE PURCHASER OF THIS MACHINERY TO TRAIN THE OPERA TING PERSONNEL IN THE PROPER MANNER OF OPERATION. IT IS FURTHERMORE UNDERSTOOD THAT HOFFMAN ASSUMES NO RESPONSIBILITY FOR INJURY, DISABILITY, OR DEATH RESULTING FROM IMPROPER OPERATION OF, OR REMOVAL FROM OR BYPASSING THEREOF ANY ELECTRICAL OR MECHANICAL SAFETY DEVICES INCORPORATED IN THE DESIGN AND MANUFACTURING OF THIS MACHINERY.

WARNING

COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL CODES, ORDINANCES AND LAWS REGARDING THE INSTALLATION OF THIS MACHINE IS REQUIRED.

WARNING

THIS MACHINE DEVELOPS HIGH TEMPERATURES AND USES PRESSURIZED STEAM AND AIR. BEFORE SERVICING THIS MACHINE, DISCONNECT STEAM AND AIR, THEN BLEED AIR AND STEAM FROM THE MACHINE. ENSURE THAT THE HEAD, BUCK, AND ALL HEATED SURFACES ARE COOL AND ALL MECHANISMS ARE IN THEIR ZERO POSITION.

WARNING

OSHA'S LOCKOUT/TAGOUT STANDARD (29 CFR 1910.147) REQUIRES THAT ALL ENERGY SOURCES BE TURNED OFF AND "LOCKED OUT" WHILE MACHINES ARE BEING SERVICED OR MAINTAINED.

WARNING

WHEN SERVICING THIS MACHINE, USE ONLY APPROVED HOFFMAN REPLACEMENT PARTS.

1.4 Summary Data and Tables

Table 1.4.1 (FX Series)

General Specifications:	
Steam Pressure PSI	80
Approximate Weight -Uncrated lb.	647
Approximate Weight - Crated lb.	717
Service Connections:	
Steam Inlet - NPT	1/2" female
Steam Outlet - NPT	1/2" female
Vacuum - NPT	1 ¼" Female

Table 1.4.2 (Model H)

General Specifications:	
Steam Pressure PSI	80
Approximate Weight -Uncrated lb. (kg)	1250 (587)
Approximate Weight - Crated lb. (kg)	1450 (658)
Service Connections:	
Steam Inlet - NPT	N/A
Steam Outlet - NPT	N/A
Vacuum power HP (kw)	1.5 (1.1kw)

2.0 Installation & Startup Instructions

2.1 General Installation Instructions

All machines are tested and adjusted with steam, air, etc. before leaving the factory.

2.2 Installation Connections

Figure 2.1 illustrates the location of various supply connections.

2.3 Locating and Leveling

Remove press from shipping container and locate with approximately 24 inch clearance all around. This will simplify maintenance and servicing when necessary. Position the press with illumination from either side, not the front or back. Level the press so that it is stable and cannot rock or vibrate. Cedar shingles make excellent wedge type shims. The press can be bolted to the floor with 3/8 inch diameter x 2 ½ inch long lag screws. Four holes are provided in the press base.

When shipped, the press is locked in a closed position. Remove the paper wrapping from the buck and press the head down manually. Carefully remove the block and allow the head to open.

2.4 Steam Connections (FX Series Only)

The ½ inch steam inlet pipe, on the right side of the press, should be connected to the steam supply line with a pressure regulator, globe valve and a union near the press. Be sure connection to the main is off the top. (See Fig. 2.1) Pitch all supply lines upward to the press; this allows condensation to drain back to the boiler.

The ½ inch steam return pipe, on the left side of the press, should be connected through a Y strainer to a ½ inch bucket trap and a by-pass line with a ½ inch globe valve. (See Fig. 2.1) This trap should discharge into a vented receiving tank of a condensation return system. A common return line for several presses is recommended, providing each press is trapped individually. A defective trap would only affect one press, while a common trap on the main line would affect all the presses on the line.

CAUTION

NEVER EXCEED THE PRESSURE STAMPED ON THE PRESS NAMEPLATE.

2.5 Vacuum Connections (FX Series Only)

The air or steam vacuum valve is usually located on the left side of the press.

Connect the air vacuum valve to a vacuum unit header with I ¼ inch pipe. A union as near the valve as possible will aid in servicing the valve when required.

If the vacuum unit is servicing more than one press, check the manufacturers recommendations for the number of presses and pipe sizes. The vacuum unit should provide a minimum of 2.8 inches of mercury of vacuum for each press per operation.

The steam vacuum valve should be connected with I ¼ inch pipe to a 20 gallon discharge tank or outside atmosphere. Elbows should be avoided as they will restrict steam flow and reduce vacuum. The discharge end, or tank inlet, should be pitched at least 3 inches lower than the vacuum valve, to allow condensation to drain. A discharge tank must be vented and have a drain valve. Depending upon usage, the tank will have to be drained several times daily.

A proportionally larger discharge tank and a common vacuum line can be used for several presses providing that a I ¼ inch check valve is installed as near the press as possible. The arrow on the check valve must point in the direction of the steam flow.

2.6 Table and Backboard Mounting

Remove units from shipping container, lay table upside down, remove wood screws from cleats on the smaller section and separate the table.

Position the larger table section with a snug fit around the buck support. Set the backboard in position with the lower lip under the table. Locate the smaller table section and align the mounting holes, and backboard holes. Secure the table to the frame with four round head carriage bolts. The two rear bolts will go through the table, the lower lip of the backboard and the frame. The two front bolts go through the slots in the table support angle across the front of the frame. Secure the backboard to the table with additional carriage bolts in the remaining holes. Replace wood screws previously removed in the cleats to fasten the table sections together. (See Fig. 2.2)

2.7 Start-Up Instructions (FX Series Only)

(See Addendum for Model H for Model H Start-up Instructions)

1. Open any shut off valves in the steam return line.
2. Open the steam inlet valve slowly, allowing the steam to gradually enter the press. Rapid inlet of high-pressure steam can cause damage or even crack a head or buck.
3. When operating pressure is reached, open the press drain valve, located below the return connection (if equipped). (See Fig.2.1) Drain the condensate into a bucket until steam flows freely, then close the valve tightly. On presses with large heads and bucks opening the trap by-pass globe valve to increase steam flow can accelerate the warm up. Be sure this valve is closed tightly as soon as the head and buck are hot.
4. Open any vacuum shut off valves.

This press is now ready for operation.

Figure 2.1.1 - Installation and Location (FX Series Only)

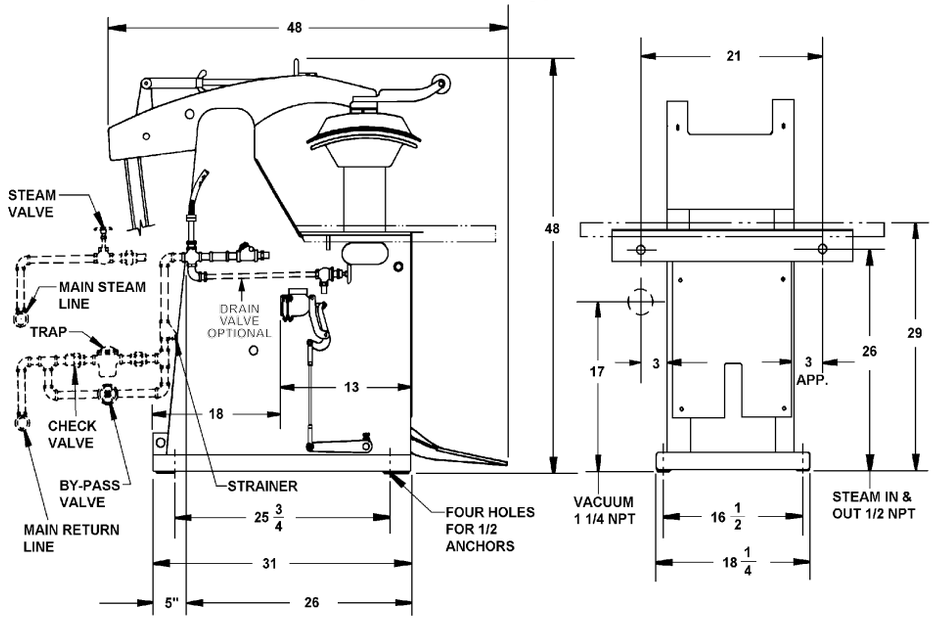


Figure 2.1.2 - Installation and Location (Model H Only)

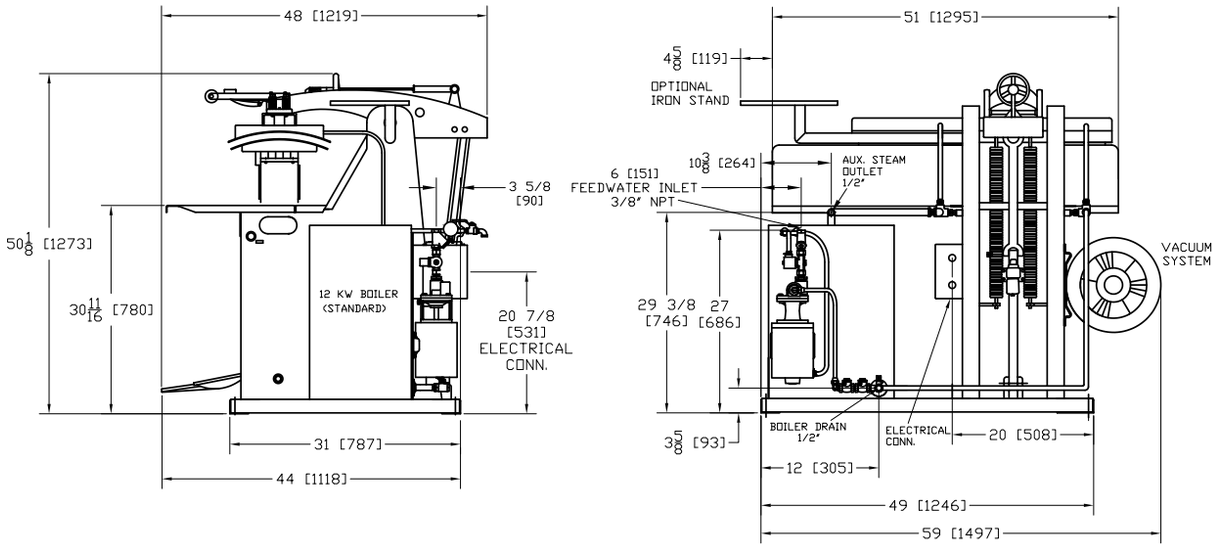
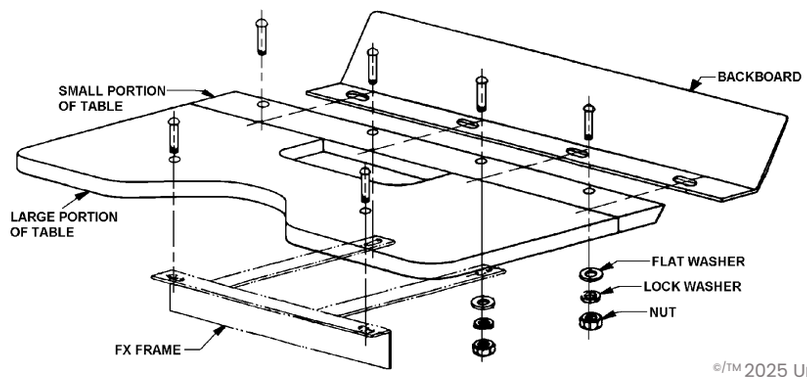


Figure 2.2 - Table and Backboard



3.0 Operating Instructions

(See Addendum for Model H for Model H steam and vacuum unit operating instructions)

This section contains instructions and information required to operate the press. Before operating the press, it is important that the operating personnel become thoroughly familiar with the operating instructions. (See ADDENDUM FOR Model H for Model H steam and vacuum unit operating instructions)

3.1 Operating Controls Instructions

To close the head, pull down on the handle above the head. As the head comes in contact with the buck step on the main pedal in the front of the press. Sufficient pressure will lock the head in a closed position. (See Section 5.5 for pressure adjustment).

The locked head is released by depressing the release lever located just behind the right end of the closing handle.

Depressing the head valve handle controls head steam. This is located just behind the center of the closing handle. Head steam is usually applied during the downward motion of the head, to moisten the work being pressed.

The pedal located to the right of the main pedal controls Buck steam. Buck steam is used to soften the garment for shaping before applying head pressure.

The pedal located to the left of the main pedal controls vacuum. Vacuum is used to dry and cool the garment before removing from buck.

3.2 Pressing Hints

Finishing a garment on a pressing machine is a craft which depends on a knowledge of materials and garment construction. The shape, fit and drape of a garment is the result of tailoring detail. During normal wear some parts of a garment are stretched, resulting in a fullness which detracts from the appearance. In finishing a garment, that has been worn, the press operator must reshape the garment by shrinking in the stretched areas.

Most materials become slightly plastic when subjected to the heat and moisture of steam. In this condition the press operator can mold the garment and return it to its original shape. The heat and pressure, exerted by the head when brought into contact, sets the fabric. The air drawn through the fabric by the vacuum removes residual moisture and cools the area preventing distortion when the garment is moved from the buck.

The following suggestions are offered as a guide to good pressing results:

1. A void excessive pressure - too much pressure causes “shine”.
2. Do not lock head on soft or napped fabrics - pat the fabric with the head using head steam.
3. Shape garment carefully using buck steam before applying pressure.
4. Shrink in fullness - do not stretch to smooth out.
5. Use vacuum freely to cool and dry garment before making next lay.
6. Keep buck padding soft and resilient.
7. Keep head and buck surfaces clean.

4.0 Maintenance & Adjustments

This sections contains information and instructions required for periodic inspections, lubrication and adjustments of the press.

4.1 Head Covering

Depending on the model, the head pressing surface may be a polished casting requiring no grid plate, or a standard tight fitting grid plate.

A grid plate should have a wire screen insert fitted within the plate. The grid plate should be carefully fitted and adjusted to follow the contour of the head. The springs on both ends should hold a standard grid plate snug against the head.

If “shine” is a severe problem a duck or moleskin cover and flannel should be used instead of an aluminum grid plate.

NOTE: KEEP HEAD CLEAN.

Clean cast aluminum heads with “Glass Wax”, use mild soap and water on grid plates. Depending on use, heads should be cleaned approximately weekly. Use a soft cotton rag and be careful not to scratch the pressing surface.

4.2 Buck Padding

Depending on the particular model buck, the padding may be a spring pad, a rubber pad or built-up padding of cotton, flannel and cover. The buck padding should be cleaned and inspected weekly. Hard, burned, powdery, worn or uneven padding should be replaced.

When replacing buck padding use identical padding to the original factory installation. Care should be taken to tighten cover strings and attach springs with the head down, to hold the padding in place. Open the head, smooth wrinkles and draw strings tight. Tie securely and tuck under edges.

4.3 Steam Problems

Generally steam problems can be traced to clogged valves, traps, elbows, etc. in the press and the condensate return line. In the manufacture of a pressing machine, sand is used in casting the head or buck, machining leaves small chips, and pipes are assembled with pipe dope which acts as a glue. During the assembly, testing, warm-up and operation of the press these particles can be loosened, flow with the water and clog in a valve seat. This is especially prevalent during the first weeks after installing a new press. While every effort is made to remove all these particles we cannot be I 00% successful.

Clogged valves in the return line will impede steam circulation and condensate lowering their temperature and producing a wet steam spray.

The only solution is to open the drain valve (if equipped) and blow down the press daily for the first few weeks. Open, inspect and clean check valves, globe valves, unions and reducing elbows weekly or as wet steam appears.

4.4 Head Valve

After considerable use the head valve will not shut off completely, allowing steam to escape. A low gurgling sound in the head, when the press is not being used is usually the first indication.

CAUTION

TURN OFF STEAM AND ALLOW PRESS TO COOL BEFORE SERVICING HEAD VALVE.

First check the spring in the valve handle. Replace if weak or broken before disassembling the valve.

To replace the seat, disconnect the clamp bolt on the handle support piece and remove from the top of the valve. Remove loose pin; loosen and remove top nut and disc holder from within the valve. Replace disc or disc holder and reassemble in inverse order. Check each part for smooth operation as assembling. See Fig. 6.7 for valve assembly and parts list.

Steam flow can be adjusted by the small screw within the spring holder in the valve handle. Turn clockwise for less steam flow and counter clockwise for more steam flow. After adjusting steam flow, carefully adjust the spring holder to provide proper tension for closing.

4.5 Buck Valve

After considerable use the buck valve will not shut off completely, allowing steam to escape. A low gurgling sound in the buck, when the press is not being used is usually the first indication.

First check the buck steam linkage and closing spring as shown in Fig. 6.3. Check for loose connections or weak spring. Replace if weak or broken.

CAUTION

TURN OFF STEAM AND ALLOW PRESS TO COOL BEFORE SERVICING BUCK VALVE.

Disconnect the actuating rod and remove from bottom of valve. Unscrew the locknut and remove stem guide. The stem and disc holder should come out very easily. Replace worn disc or disc holder and reassemble in inverse order or disassembly. Check each part for smooth operation when assembling. Reassemble actuating rod and adjust to hold valve closed with steam pressure on. See Fig. 6.8 for valve assembly and parts list.

4.6 Vacuum

A strong even vacuum is essential for proper pressing results. A simple test of the effectiveness of the vacuum can be made by spreading a sheet of newspaper over the padded buck, and stepping on the vacuum pedal. The paper will resist a strong pull with proper vacuum. If the paper pulls away easily, first check the buck padding. Hard, compressed padding restricts air flow and should be replaced. Powdery padding could be sucked into the buck, vacuum valve and piping, causing problems and blockage, and should also be replaced.

4.6.1 Air Vacuum Valve

This is a normally closed valve which should close with a snap when the foot pedal is released. A constant vacuum, or a noticeable reduction in the buck steam is an indication that the vacuum valve is not closing. Disassemble and check for weak or broken spring, frozen bearing on the actuator rod, or a worn gasket. Due to the type of valve, if the spring is broken or weak and is replaced, it is advisable to replace the gasket at the same time. See Fig. 6.9.

4.6.2 Steam Vacuum Valve

This valve is divided into 3 sections. The first or front section is similar to the air valve. See section 4.6.1 for service.

The second section is the steam valve. A constant steam leakage into the vacuum exhaust indicates a worn or broken spring or a defective seat. Remove the large hex nut on the side of the valve. The spring, disc holder and stem assembly can be easily removed. Replace a worn or defective seat or spring. It is advisable to replace both at the same time. Reassemble in inverse order of disassembly and check for smooth operation of components.

The third section, the venture, may become clogged with lint or powdered buck padding. A loss of vacuum on the pressing surface is the first indication. Unscrew the venture nipple from the body and clean. Remove the nozzle within the valve body. Replace if worn. Reassemble in inverse order of disassembly.

4.6.3 No Vacuum On Steel Bucks

These bucks are so designed as to spread the vacuum over the entire surface. Directly above the vacuum pipe inlet to the buck, in the upper chamber is a thin, flat, square baffle plate. During the manufacture, or under heavy vacuum conditions this light gauge baffle can be deformed and close the port completely. First check vacuum unit and valves before servicing buck.

4.7 Shock Absorber

The shock absorber is used to cushion the opening of the head, preventing jarring and rebound. It should be checked monthly for proper oil level (Refer to Fig. 11). Loosen pipe plug and check oil supply. If low, refill with SAE 10 oil. Replace pipe plug before operating press. Adjusting screw on the back can control the cushioning. Turn clockwise for more cushion, counter-clockwise for less cushion.

CAUTION

USE ONLY NON-DETERGENT OIL. OTHER OILS WILL FOAM AND AFFECT THE SHOCK OPERATION.

4.8 Pressure Adjustment

The head pressure is controlled by the hand wheel located behind the head valve. To increase pressure, turn hand wheel counterclockwise. Turn hand wheel clockwise to reduce pressure.

When buck padding compresses, it will be necessary to increase pressure to maintain the same quality pressing. After buck padding has been replaced, it may be necessary to reduce the pressure to be able to lock the head.

4.9 Lubrication

Check monthly and lubricate as required:

1. Shock Absorber (requires SAE 10 oil)
2. Y Piece Bearings (requires grease)
3. Bearings and Pivots (light machine oil)

5.0 Trouble Shooting

(See Addendum for FX Series steam and vacuum unit troubleshooting)

For technical support call 1-800-484-3013 or visit www.buyhoffmansteamnow.com and chat with an agent

5.1 Steam Problems

Generally steam problems can be traced to clogged valves, traps, elbows, etc. in the press and the condensate return line. In the manufacture of a pressing machine, sand is used in casting the head or buck, machining leaves small chips, and pipes are assembled with pipe dope, which acts as a glue. During the assembly, testing, warm-up and operation of the press these particles can be loosened, flow with the water and clog in a valve seat. This is especially prevalent during the first weeks after installing a new press.

While every effort is made to remove all these particles we cannot be I 00% successful. Clogged valves in the return line will impede steam circulation and condensate return, which will result in colder lines. This causes water to build up in the head and buck, lowering their temperature and producing a wet steam spray.

The only solution is to open the drain valve (if equipped) and blow down the press daily for the first few weeks. Open, inspect and clean check valves, globe valves, unions and reducing elbows weekly or as wet steam appears.

5.2 Head Valve

After considerable use the head valve will not shut off completely, allowing the steam to escape. A low gurgling sound in the head, when the press is not being used is usually the first indication.

CAUTION

TURN OFF STEAM AND ALLOW PRESS TO COOL BEFORE SERVICING HEAD VALVE.

First check the spring in the valve handle. Replace if weak or broken before disassembling the valve.

To replace the valve seat, disconnect the clamp bolt on the handle support piece and remove from the top of the valve. Remove loose pin; loosen and remove top nut and disc holder from within the valve. Replace disc or disc holder and reassemble in inverse order. Check each part for smooth operation as assembling. See Fig. 6.7 for valve assembly and parts list.

The small screw within the spring holder in the valve handle can adjust steam flow. Turn clockwise for less steam flow and counter clockwise for more steam flow. After adjusting steam flow, carefully adjust the spring holder to provide proper tension for closing.

5.3 Buck Valve

After considerable use the buck valve will not shut off completely, allowing steam to escape. A low gurgling sound in the buck, when the press is not being used is usually the first indication.

First check the buck steam linkage and closing spring as shown in Fig. 6.2 & 6.3. Check for loose connections or weak spring. Replace if weak or broken.

CAUTION

TURN OFF STEAM AND ALLOW PRESS TO COOL BEFORE SERVICING BUCK VALVE.

Disconnect the actuating rod and remove bottom of valve. Unscrew the lock nut and remove stem guide. The stem and disc holder should come out very easily. Replace worn disc or disc holder and reassemble valve in inverse order of disassembly. Check each part for smooth operation when assembling. Reassemble actuating rod and adjust to hold valve closed with steam pressure on. See Fig. 6.8 for valve assembly and parts list.

5.4 Vacuum

A strong even vacuum is essential for proper pressing results. Spreading a sheet of newspaper over the padded buck, and stepping on the vacuum pedal can make a simple test of the effectiveness of the vacuum. The paper will resist a strong pull with proper vacuum. If the paper pulls away easily, first check the buck padding. Hard, compressed padding restricts airflow and should be replaced. Powdery padding could be sucked into the buck, vacuum valve and piping, causing problems and blockage, and should also be replaced.

5.4.1 Air Vacuum Valve

This is a normally closed valve, which should close with a snap when the foot pedal is released. A constant vacuum, or noticeable reduction in the buck steam is an indication the vacuum valve is not closing. Disassemble and check for weak or broken spring, frozen bearing on the actuator rod, or a worn gasket. Due to the type of valve, if the spring is broken or weak and is replaced, it is advisable to replace the gasket at the same time. (See Fig. 6.9)

5.4.2 Steam Vacuum Valve

This valve is divided into three sections. The first or front section is similar to the air valve. (See Section 5.4.1 for service)

The second section is the steam valve. A constant steam leakage into the vacuum exhaust indicates a worn or broken spring or a defective seat. Remove the large hex nut on the side of the valve. The spring, disc holder and stem assembly can be easily removed. Replace a worn or defective seat or spring. It is advisable to replace both at the same time. Reassemble in inverse order of disassembly and check for smooth operation of components.

The third section, the venturi, may become clogged with lint or powdered buck padding. A loss of vacuum on the pressing surface is the first indication. Unscrew the venturi nipple from the body and clean. Remove the nozzle within the valve body and clean.

This requires a socket wrench to get in the body. Remove and check the piston within the valve body. Replace if worn. Reassemble in inverse order of disassembly.

5.5 Pressure Adjustment

The hand wheel located behind the head valve controls the head pressure. To increase pressure turn hand wheel counter clockwise. Turn hand wheel clockwise to reduce pressure.

When buck padding compresses, it will be necessary to increase pressure to maintain the same quality pressing. After buck padding has been replaced it may be necessary to reduce the pressure to be able to lock the head.

6.0 Drawings & Parts List

(See ADDENDUM FOR Model H for Model H additional drawings and parts list)

Figure 6.1 -Right Side View

Figure 6.2 -Left Side View (Partial)

Figure 6.3 -Rear View (Partial)

Figure 6.4 -Top View

Figure 6.5 -Steam Inlet Piping

Figure 6.6 -Steam Return Piping

Figure 6.7 -HF70 Head Valve

Figure 6.8 -14600-L or 14600-S Buck Valve

Figure 6.9 -AV70 or 24648 Air Vacuum Valve

Figure 6.10 -V62 Steam Vacuum Valve

Figure 6.11 -027353 Shock Absorber

The following item numbers refer to Figure 6.1 through Figure 6.6.

Item	Part No.	Description	Qty.
1	72042	Frame	1
2	70721	Y Piece Narrow Toe Cast	1
3	70722	Y Piece Wide Toe Cast	1
5	037182	½-13 x l" Head Oscillating Stud	1
6	21645	Right Handle Bracket-Wide Toe	1
7	20856	½ E Retaining Ring	1
8	21646	Left Handle Bracket-Wide Toe	1
9	20833	¾ E Retaining Ring	1
10	05783	Handle	1
*11	20262-5	5/16-18 x 10 ¼ Buck Valve Actuating Rod WT	1
11	20262-10	5/16-18 x 4 3/8 Buck Valve Actuating Rod Mushroom Buck	1
12	AP1295	1 1/16 Diameter Oscillating Spring	1
13	18804	½-13 Spring Adjusting Nut	1
14	AP869	½-13 Acorn Nut	1
15	20263-5	½-13 x 4" Head Mounting Stud	1
16	AP869	½-13 Acorn Nut	1
17	18804	½-13 Lock Nut	1
18	669	Spring	1
19	18783	Hand Wheel Casting	1
20	21759-1	Pressure Adjusting Rod	1
21	017622	¾-10 Clevis	1
22	32773	½ x 2 ¼ Clevis Pin	1
23	9549	Bell Crank Assembly	1
24	21647	Bell Crank Shaft	1
25	32776	¾ x 3 3/16 Back Lever Link	1
26	32723	Back Lever Link Cast	1
27	19308	Anti Rotation Pin	1
28	7635	Back Lever Link Assembly	1
29	027353	Shock Absorber	1
30	34039	l" x 12/32 x ¼ Co. Bal. Spring Washer	1
31	32813	Front Toggle Link Casting	1
32	21476	1" x 6 7/16 Lower Back Pivot Shaft	1
33	4305	Roller Shaft	1
34	20961	3/8 E Retaining Ring	1
35	32847	Spring Roller	1
36	061138	Spring Breaker	1
37	-	-	-
38	8282	Foot Lever Assembly	1
39	061442	Spring Pedal	1
40	32775	¾ x 3 ¼ Front Toggle Link Pin	1

Item	Part No.	Description	Qty.
41	32720	Front Toggle	1
42	32826	13/16 x ½ x .062 Flat Washer	1
43	21477	¾ x 2 ¾ Rocker Pivot Shaft	1
44	0569	1 ½ x ¾ Rubber Bumper	1
45	32722	Bumper Cup	1
46	32814	Push Link Casting	1
47	05021	1-14 Hex Jam Nut Right Hand	1
48	32820	Latch Bearing Shaft	1
49	05657	1 1/8 Rubber Washer Lock Latch	1
50	32826	13/16 x ½ x .062 Flat Washer	1
51	32819	Locking Latch Roller	1
52	070132	Latch Roller Bearing	1
53	061196	Locking Latch Spring	1
54	32817	Locking Latch	1
55	32825	Locking Latch Pin	1
56	20261-4	3/8-16 x 12" Steam Vacuum Valve Rod	1
57	05611	1" x ¾ Rubber Bumper without Hole	1
58	21644	Balance Spring Shaft	1
59	AP1684-4	3/8-16 x 13 ¾ Spring Adjusting Bolt	1
60	21517	Lower Counter Balance Spring Support	1
61	05029	1-8 Hex Jam Nut Right Hand	1
62	34031	1 ¼ x 13 1/8 Y Piece Shaft	1
63	34056-1	Y Piece Spacer	1
64	02145	Grease Fitting	1
65	32809	Y Piece Bearing Washer	1
66	070131	Roller Bearing	1
67	062283	1 ¼ x 1 ¾ x 1/8 Y Piece Bearing Packing	1
68	20837	Y Piece Shaft Spacer	1
69	0460805	¼-20 Speed Nut	1
70	21452	Frame Door	1
71	02369-1	¼-20 x ½ Fastener	1
72	060506	Finger Tip Pad	1
73	34037	Trip Lever Cast	1
74	60708	¼ x 51/64 Clevis Pin	1
75	01784	¼-20 Clevis Right Hand	1
76	32787	Trip Lever Stud	1
77	017675	¼-20 Clevis Left Hand	1
78	21648	Trip Lever Stud	1
79	34036	Release Bell Crank	1
80	21478	Bell Crank Mounting Stud	1
81	21479	Bell Crank Spacer	1
82	05653	I" x ½ Rubber Bumper without Hole	1
83	20260-30	¼-20 x 19 ¼ Lower Finger Release R	1
84	34034	Release Arm Cast	1

Item	Part No.	Description	Qty.
85	06113	Pedal Spring	1
86	21472N	Release Lever Mounting Stud	1
87	21473N	Release Lever Spacing	1
88	04622	5/16-18 x 2" Release Lever Spring Mounting	1
89	0503-1	5/16-18 Hex Jam Nut Right Hand	1
90	21610	¾ x 18 3/16 Pedal Shaft	1
91	061175	Torsion Spring	1
*92	32752	Buck Spray Arm W. T.	1
93	32878	Spray Shaft Spring Arm Cast	1
93	1097	Buck Steam Lever Cast	1
94	01777	5/16-18 Clevis Right Hand	1
95	01778	5/16-18 Clevis Left Hand	1
96	20261-3	5/16-18 x 16 ¾ Buck Steam Connecting Rod	1
97	21610	¾ x 18 3/16 Pedal Shaft	1
98	20089	¾ Set Collar	1
99	34030	Buck Steam Pedal - Short Standard	1
100	21777	Vacuum Pedal - Short	1
101	8103	Pedal Spring	1
102	02531	3/8-16 x 3 ½ Stop Bolt	1
103	20859	3/8-16 x 1 ½ Square Head Set Screw	1
104	15073	Vacuum Actuating Lever Assembly	1
105	72701	Vacuum Actuating Lever Assembly	1
106	20261-2	5/16-18 x 6 ¾ Vacuum Actuating Rod	1
107	18721-B	Vacuum Valve Air	1
108	-	-	-
109	21441-1	7 /8-9 x 3 ½ Pipe Support	1
110	20834	1" E Retaining Ring	1
111	05017	7 /8-9 Hex Jam Nut Right Hand	1
112	20898	½ Tee Side Outlet	2
113	20560	½P - ½T Straight Tube Fitting	1
114	047139	½ Close Nipple	1
115	031328	½ x 3/8 Reducer Bushing	1
116	06568	3/8" x 26" flex steam hose	1
117	06585-1	3/8" x 25" flex steam hose	1
118	06585-1	-	-
	06568	-	-
119	20383	½ Horizontal Swing Check	1
120	03319	½ x ¼ x 90° Elbow	1
121	04765	1/4 x 10" Pipe Nipple	1
122	27024	1/2 Cross, Side Mount	1
123	03311	1/4-90 Street Elbow	1
124	-	-	-
125	-	-	-

Item	Part No.	Description	Qty.
126	015633	1/4 Ball Valve	1
127	-	-	-
128	-	-	-
129	18852A	1/8 x ¾ Locking Latch Shoe	1
130	HF70	Head Steam Valve	1

*Note 1: Part number depends on model buck

Counterbalance Spring Assemblies

Outside Diameter	Part No.	Color	Model
7/8	9278	Green	FX-M1, FX-T11
1 5/8	9277	White	FX-42
2 5/8	8008C-A	Orange	FX-52, FX-L4, FX-L28

For Original Quality Parts: 1-800-484-3013

Figure 6.1- Right Side View

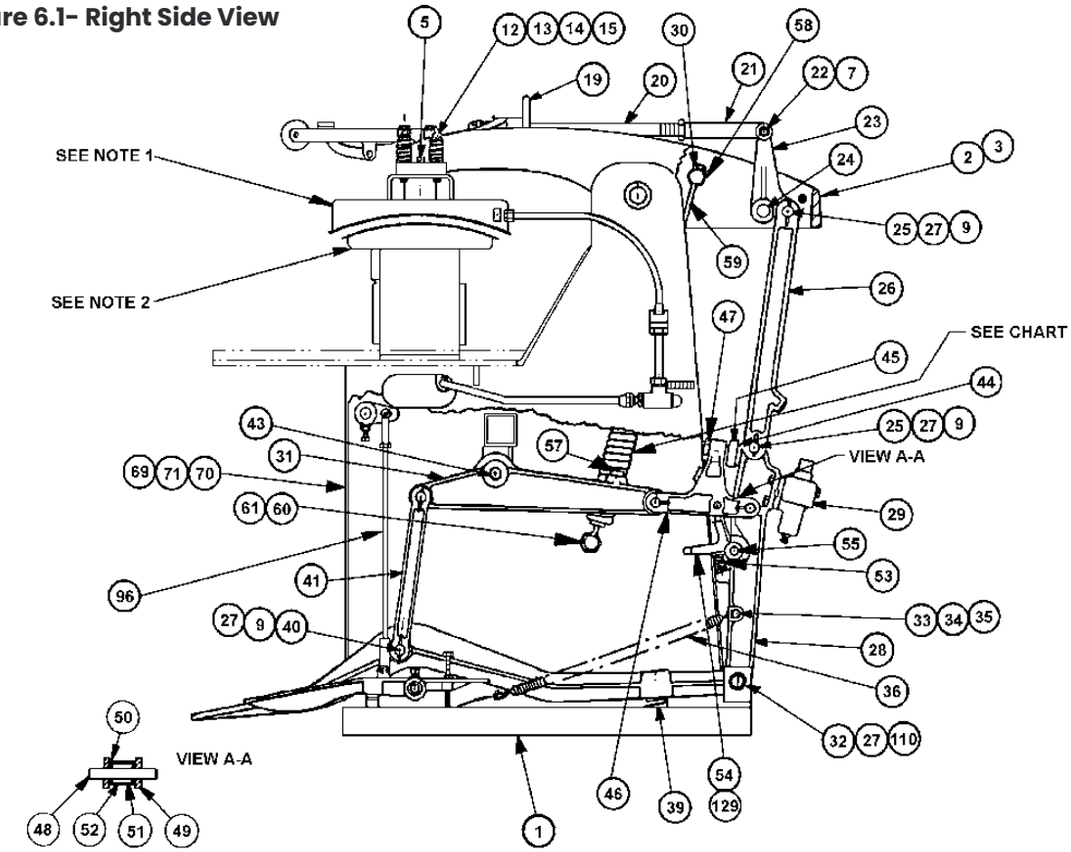


Figure 6.2 - Left Side View (Partial)

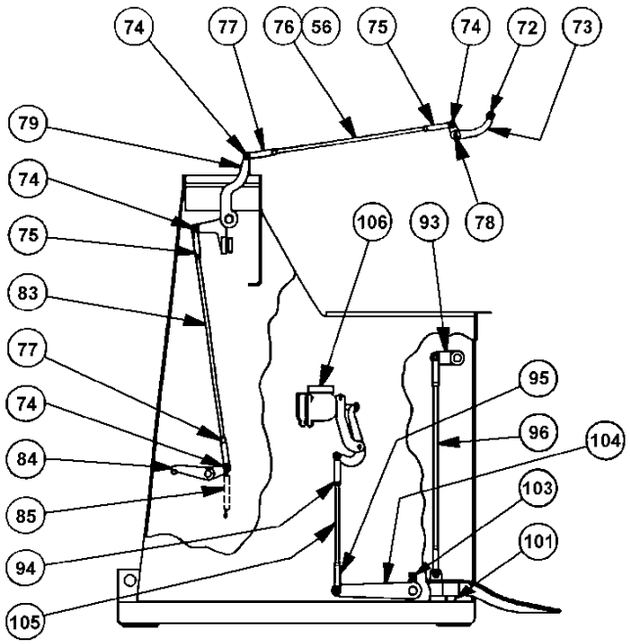


Figure 6.3 - Rear View (Partial)

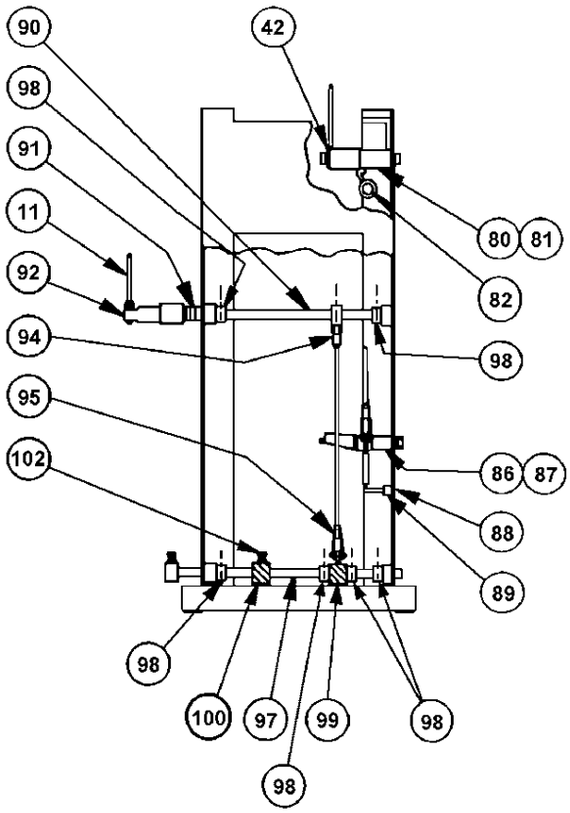


Figure 6.4 - Top View

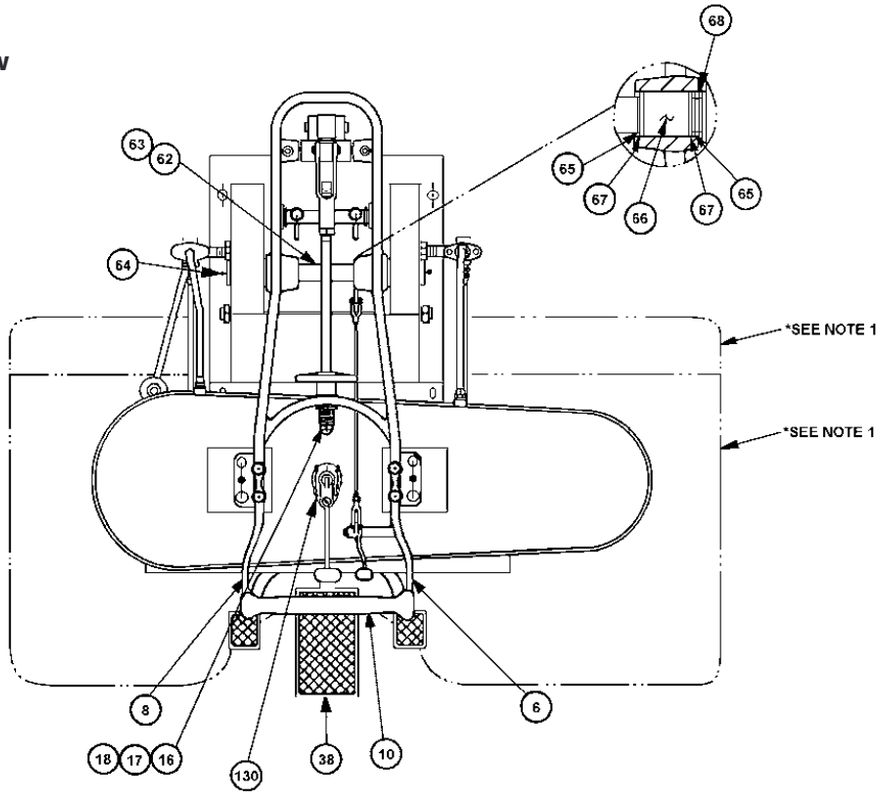


Figure 6.5 - Steam Inlet Piping

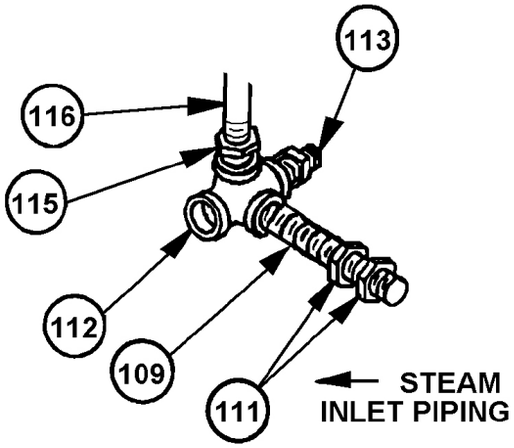


Figure 6.6 - Steam Return Piping

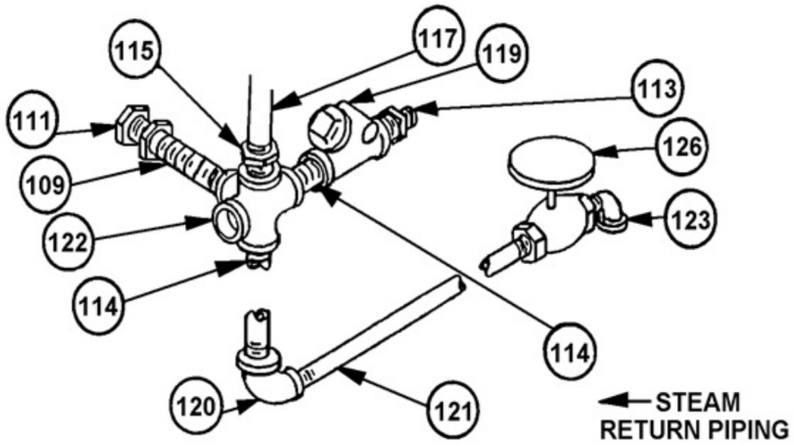
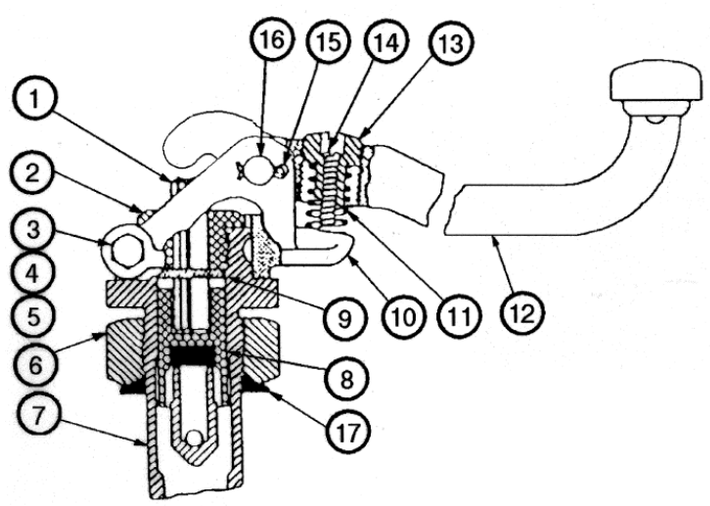
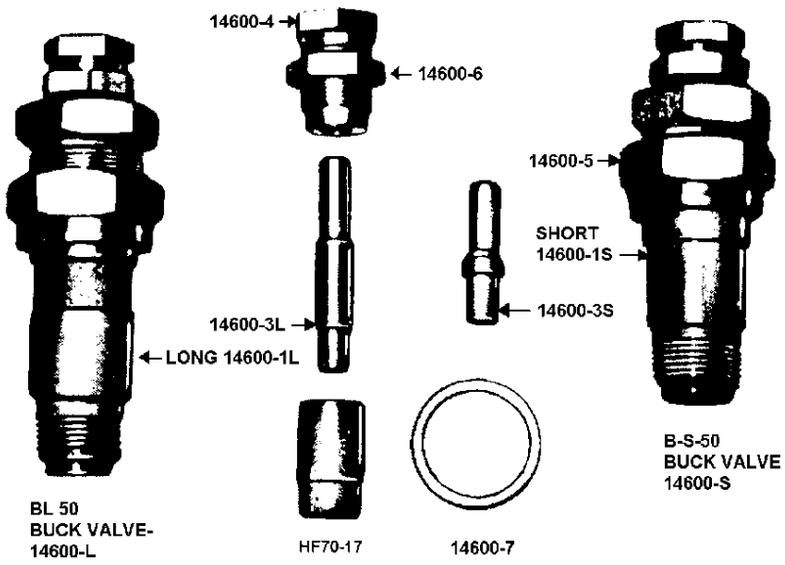


Figure 6.7 – HF70 Head Valve



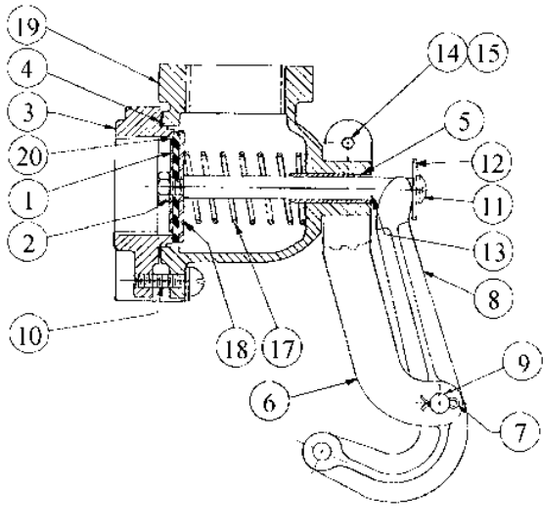
Item	Part No.	Description	Qty.
1	HF70-19	Valve Stem	1
2	HF70-20	Stem Guide	1
3	0466-1	¼-20 x 1 ¾ Hex Head Cap Screw	1
4	04910-1	¼-20 Hex Nut	1
5	0522-1	¼ Lock Washer	1
6	HF70-2	Body Lock Nut	1
7	HF70-1	Valve Body	1
8	HF70-17	Disc and Holder Assembly	1
9	HF70-21	Stem Seal	1
10	HF70-4	Bracket	1
11	HF70-9	Handle Spring	1
12	HF70-6	Handle Assembly - Short	1
13	HF70-11	Spring Plug	1
14	HF70-10	Adjusting Screw	1
15	0531	Cotter Pin	1
16	HF70-22	Bracket Pin	1
17	HF70-3T	Body Gasket	1
	HF70	Head Valve Assembly - Items 1 through 16	1
	0150806	Repair Kit – Items 8, 9, 11, 17	1

Figure 6.8 - 14600-L or 14600-S Buck Valve



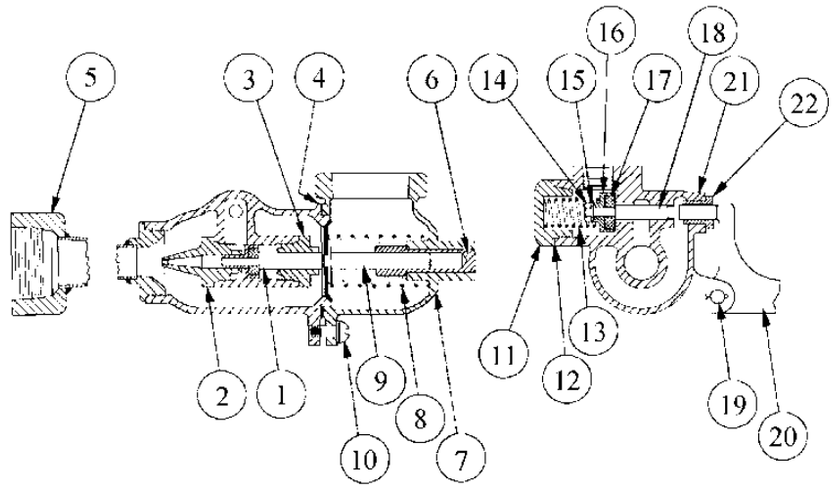
Part No.	Description	Qty.
14600-1L	Body 4 5/8 Long	1
14600-1S	Body 3 ¾ Long	1
HF70-17	Disc Holder Assembly	1
14600-3L	Valve Stem 2 ¾ Long	1
14600-3S	Valve Stem 1 ¾ Long	1
14600-4	Stem Guide	1
14600-5	Body Lock Nut	1
14600-6	Guide Lock Nut	1
14600-7	Gasket	1

Figure 6.9 - A V70 1 ¼ and 24648 2" Air Vacuum Valve Assemblies



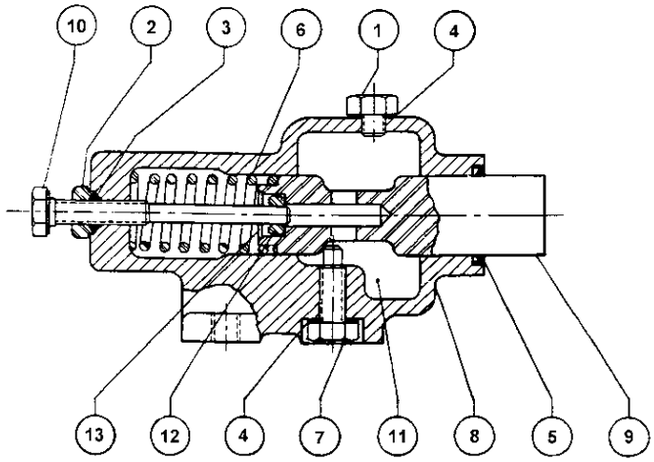
Item	Part No. (1 ¼")	Part No. (2")	Description	Qty.
1	18721-5	60871	Disc Retainer	1
2	050100-1	050100-1	¼-20 Elastic Stop Nut	1
3	18721-3	24647	Seat Flange	1
4	18721-2	062788	Flange Gasket	1
5	19350	19350	Valve Stem Bushing	1
6	18721-11	18721-11	Lever Support	1
7	18721-17	18721-17	1/8 x 7 /8 Cotter Pin	1
8	18721-19	18721-19	Operating Lever, Curved	1
	18721-20M	18721-20M	Operating Lever, Straight	1
9	60701	60701	5/16 x 1 ¼ Clevis Pin	1
10	02371-1	02371-1	¼-20 x ¾ Button Socket Head Cap Screw	1
11	02370-1	02370-1	¼ x 5/8 Round Head Machine Screw	1
12	18721-16	18721-16	Stem Washer	1
13	18721-18	18721-18	Valve Stem	1
14	02316	02316	8-32 x ¾ Round Head Machine Screw	1
15	0492	18721-14	8-32 Hex Nut	1
16	0460811-1	0460811-1	#8 Lock Washer	1
17	18721-9	18721-9	Valve Spring	1
18	18721-8	60872	Valve Stem Head	1
19	18721-1	24646	Valve Body	1
20	18721-4	062790	Rubber Disc	1
21	23945-2	23945-2	Mounting Bracket	1
	18721-21	9125	Valve Disc and Steam Assembly Items 1,2,4,13,17,18,20	1
	AV70	24648	Air Vacuum Valve	1
	0150820	-	Repair Kit for 1 ¼	1
	-	0150832	Repair Kit for 2"	1

Figure 6.10 - V62 Steam Vacuum Valve



Item	Part No.	Description	Qty.
1	V62-10	Cylinder Assembly	1
2	V62-8	Venturi Nozzle	1
3	V62-9	Piston Stem Guide	1
4	V62-16	Gasket Vent Valve Body	1
5	V62-3	Venturi Nipple	1
6	V62-21	Vent Valve Body Bushing	1
7	V62-2	Vent Valve Body	1
8	V62-19	Vent Valve Spring	1
9	V62-20	Disc	1
10	V62-7	Vent Valve Body Screw	1
11	V62-5	Cap Spring Nut	1
12	V62-18	Spring Nut Gasket	1
13	V62-17	Spring Valve	1
14	04960	#10-24 Hex Nut Brass	1
15	05250	#10 Lock Washer	1
16	V62-12	Disc Holder	1
17	V62-15	Disc	1
18	V62-13	Valve Stem	1
	V62-11	Stem and Disc Holder Items 14 Through 18	1
19	V62-6	Lever Pin	1
20	V62-4	Lever	1
21	V62-1	Valve and Venturi Body	1
22	V62-14	Bushing for Inlet Steam	1

Figure 6.11- 027353 Shock Absorber



Item	Part No.	Description	Qty.
1	027353-1	Shock Oil Level Screw	1
2	027353-2	Shock Packing Nut	1
3	027353-3	Shock Packing	1
4	027353-4	Shock Fiber Gasket	1
5	027353-5	Shock Piston Rod Seal	1
6	027353-6	Shock Spring	1
7	027353-7	Shock Stop Screw	1
8	027353-8	Shock Body Only	1
9	027353-9	Shock Piston Rod Assembly	1
10	027353-10	Shock Adjusting Screw #5	1
12	027353-12	Shock Adjusting Screw Oil Bushing	1
13	027353-13	Shock Retaining Ring	1

7.0 Recommended Spare Parts List

Part No.	Description	Qty.
HF70-3T	Head Valve Teflon Gasket	1
HF70-9	Head Valve Spring	2
HF70-17	Head Valve Disc Holder & Disc	1
HF70-21	Head Valve Stem Washer	1
HF70-17	Head Valve Disc Holder	1
14600-7T	Buck Valve Teflon Gasket	1
P724	¼ lb. String Steam Packing	1
API00	Shock Absorber Oil	1 pt.
8103	Pedal Spring	2
061442	Foot Pedal Spring	1
061138	Spring Breaker	1
061133	Latch Spring	1
061196	Locking Latch Spring	2
05611	1" x ¾ Rubber Bumper without Hole	1
05653	1" x ½ Rubber Bumper without Hole 1	1
0569	½ x ¾ Rubber Bumper	1

(Air Vacuum Models Only)

Part No. (1¼")	Part No. (2")	Description	Qty.
18721-2	062788	Vacuum Valve Gasket	1
18721-9	18721-9	Valve Vacuum Spring	1
18721-21	9125	Vacuum Valve Stem Assembly	1

(Steam Vacuum Models Only)

Part No.	Description	Qty.
V62-11	Stem & Disc Holder	1
V62-16	Gasket Vent Valve Body	1
V62-17	Spring Valve	1
V62-18	Spring Nut Gasket	1
V62-19	Spring Valve	1
V62-20	Disc	1

Note: the above parts can be ordered as a kit. Please specify kit No. 5, The model and serial number of your press.

Appendix A (Model H Only)

Steam System Design Guidelines

These guidelines are minimums and do not consider structural supports, thermal expansion, line sizing or air entrapment.

- Branch connections must always be made off the top of the header with valving as close as possible to the header.
- Y Strainers should be used at each branch and before each steam trap.
- Steam lines must slope toward steam traps a minimum of I degree. Condensate lines must be sloped a minimum of I degree back to the return.
- Follow the manufacturer's specifications for orienting accessories. Usually the best orientation for accessories with moving parts is vertical; however, some items such as bucket steam traps, swing check valves and solenoid valves must be mounted horizontally.

Addendum for Model H

1.0 Introduction

This manual contains the installation, operation and maintenance instructions, troubleshooting guide, repair parts illustrations and lists for the Hoffman Electric Steam Generators and Boilers. The Steam Generators and Boilers are designed and manufactured with constant attention to quality, performance, operator safety and energy efficiency. With proper installation, operation and maintenance, the Hoffman Electric Steam Generator or Boiler will last a lifetime.

The steam generators and boilers are composed of a pressure vessel, a safety valve, piping, a heating element, controls and the enclosure.

The pressure vessel is manufactured from high strength steel or cast bronze. It is rated at 100 pounds per square inch of steam pressure. The vessel, safety valve and piping have been designed to the standards set forth in the American Society of Mechanical Engineers Boiler and Pressure Vessel Code. It meets or exceeds their requirements for safety. Many steam generator and boiler assemblies are UL and/or CUL listed. Consult your Hoffman distributor for their identification.

The Heating Element is a flange mounted immersion element. Immersion elements are the most energy efficient heating elements available. This is due to the element making contact with the working fluid (water), transferring all the energy required for heating water into steam.

Some electric steam generator or boiler models use a thermostat controller to regulate the steam pressure. The controller senses the temperature and regulates the current to the heating element to provide the desired output. Larger generators are regulated with pressure switch controllers.

Steam pressure and temperature are related. The higher the steam pressure, the higher the temperature. For a listing of pressures and corresponding temperatures see Chapter 6, Table 6.1.1.

Hoffman also offers a wide variety of options for the steam generators and boilers. For a listing of the options available, please contact your Hoffman Distributor.

1.1 Intended Use

The generators and boilers listed in this manual are intended for various steam usage requirements. They may be used for dry cleaning and laundry garment presses, jewelry steam cleaning, dental lab steam cleaning, auto trim, furrier glazing of garments, or for use with steam irons, etc.

The units are capable of producing high-pressure steam. They should not be used for applications that require low-pressure steam unless provisions are made to limit the steam pressure (i.e. autoclaves, steam bath applications, etc.).

The machines are not intended for space heating purposes.

1.2 Registration With Local Jurisdiction

The steam generator or boiler may need to be registered with your local or state government. Check with your municipality for requirements.

1.3 Preliminary Delivery Inspection

INSPECT BOX/CRATE AND STEAM GENERATOR OR BOILER FOR SHIPPING DAMAGE AND SHORTAGE. ANY DAMAGE OR SHORTAGE IN SHIPMENT SHOULD BE NOTED ON THE FREIGHT BILL BEFORE IT IS SIGNED. CALL THE CARRIER IMMEDIATELY TO REPORT ALL DAMAGE OR SHORTAGE AND ARRANGE TO FILE A CLAIM. THE CARRIER IS RESPONSIBLE TO YOU FOR THE SAFE ARRIVAL OF THE EQUIPMENT.

1.4 Warranty Activation

To activate the Warranty coverage on your Hoffman equipment, please complete and return the Warranty Card supplied with the unit.

1.5 Safety And Precautions

It is vital that the purchaser of a Steam Generator or Boiler read this manual and fully understand the instructions before installing or operating the unit. Safety statements are made throughout the manual in the format stated on this page and the next page. Supervisors must assure that the personnel assigned to operate this Steam Generator or Boiler are instructed on and understand the operating and safety features of the unit. The foregoing is imperative, along with safe working habits of the operator, to assure worker safety.

1.5.1 Safety Nomenclature

NOTES, CAUTIONS and WARNINGS are used through out this manual to emphasize important and critical instructions.

NOTE: A NOTE IS USED TO EMPHASIZE OPERATING PROCEDURES AND CONDITIONS THAT ARE ESSENTIAL TO HIGHLIGHT.

CAUTION

A CAUTION IS USED TO INDICATE A HAZARDOUS SITUATION THAT MAY RESULT IN PERSONAL INJURY OR DAMAGE TO THE MACHINE.

WARNING

A WARNING IS USED TO INDICATE A HAZARDOUS SITUATION THAT HAS SOME PROBABILITY OF DEATH OR SERIOUS PERSONAL INJURY.

1.5.2 Safety Features

The following are safety features, which are incorporated into the Steam Generator or Boiler:

1. ASME Pressure Vessel.
2. ASME Pressure Relief Valve.
3. Steam Pressure Gauge to show internal pressure.
4. Sight Glass to show internal water level.
5. Sight Glass Shield to prevent inadvertent glass breakage.
6. Built in Low Water Cutoff.
7. Electric system designed, manufactured and tested to UL and/or CUL Standards.

1.5.3 Safety Summary

The following are general safety precautions that are not related to any specific instructions and therefore do not appear elsewhere in this manual. These are recommended precautions that personnel must understand and apply during all phases of operation and maintenance.

WARNING

DO NOT OPERATE OR SERVICE THIS MACHINE BEFORE READING AND UNDERSTANDING THIS INSTRUCTION MANUAL.

WARNING

COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL CODES, ORDINANCES AND LAWS REGARDING THE INSTALLATION OF THIS MACHINE IS REQUIRED.

WARNING

IT IS THE RESPONSIBILITY OF THE PURCHASER OF THIS MACHINERY TO TRAIN THE OPERATING PERSONNEL IN THE PROPER MANNER OF OPERATION. IT IS FURTHERMORE UNDERSTOOD THAT HOFFMAN ASSUMES NO RESPONSIBILITY FOR INJURY, DISABILITY OR DEATH RESULTING FROM THE IMPROPER OPERATION OF, REMOVAL FROM OR BYPASSING THEREOF ANY ELECTRICAL OR MECHANICAL SAFETY DEVICES INCORPORATED IN THE DESIGN AND MANUFACTURING OF THIS MACHINERY.

WARNING

THIS MACHINE DEVELOPS HIGH TEMPERATURES AND USES PRESSURIZED STEAM, AS WELL AS HIGH ELECTRICAL VOLTAGES. BEFORE SERVICING THIS MACHINE, DISCONNECT SOURCES OF ELECTRICITY AND STEAM, THEN BLEED STEAM FROM THE MACHINE. ENSURE THAT ALL HEATED SURFACES ARE COOL AND ALL MECHANISMS ARE IN THEIR ZERO POSITION.

WARNING

OSHA'S LOCKOUT/TAGOUT STANDARD (29 CFR 1910.147) REQUIRES THAT ALL ENERGY SOURCES BE TURNED OFF AND "LOCKED OUT" WHILE MACHINES ARE BEING SERVICED OR MAINTAINED.

WARNING

WHEN SERVICING THIS MACHINE, USE ONLY APPROVED HOFFMAN REPLACEMENT PARTS.

2.0 Installation

CAUTION

SOME ASSEMBLY MAY BE REQUIRED. FOLLOW ASSEMBLY INSTRUCTIONS PROVIDED WITH UNIT. PERFORM ALL ASSEMBLY BEFORE INSTALLING UNIT.

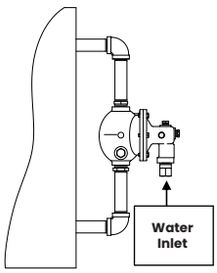
1. Some models are supplied with mounting holes. Mount generator or boiler to a bench or to the floor.

CAUTION

ASSURE FLOOR/TABLE BEARING CAPACITY IS ADEQUATE FOR THE LOAD IMPOSED BY THE STEAM GENERATOR OR BOILER.

2. On models with a Watts Water Feeder, mount the generator perfectly level to insure proper operation of the feeder.
3. Make sure that the unit is oriented so that the safety relief valve is pointed away from any aisle or work area. Discharge piping from the relief valve is recommended and may be required by local law.
4. If discharge piping must be installed on the safety relief valve, make sure that the piping is so supported that it imposes no load on the valve itself. The discharge pipe must be equal to or larger in pipe size than the outlet of the safety relief valve. See yellow card attached to the Safety Valve for instructions.
5. A water supply line must be connected to a generator or boiler with automatic water feed. (Watts Water Feeder or Pump). Use a Strainer on water supply line to protect the Watts Water Feeder or Pump.

Watts Water Feeder Connection



Pump and Motor Feed Connection

6. Power the generator from a separate fused supply line. The amperage ratings for various generators are indicated in Chapter 6, Table 6.2.1. Never power the generator from a line that is rated less than that required to run the unit.

WARNING

ALWAYS PROPERLY GROUND THE UNIT BEFORE OPERATING. ONLY A LICENSED ELECTRICIAN SHOULD SERVICE OR INSTALL A HOFFMAN STEAM GENERATOR.

7. Installation in an enclosed space shall require the following clearance around the steam generator: Each Side and Front/Rear Clearance....2 FT — Top Clearance....1 1/2 FT

3.0 Operating Instructions

1. Open the gauge glass valves on the top and bottom of the gauge glass assembly (on units supplied).
2. Check the drain valve to be certain that it is closed.
3. Filling the boiler:
   A. For *Manual Water Feed Models*: Open the water fill valve on the side of the boiler. Fill the boiler until the water reaches the "Full" mark (¾ the height of the glass).
      - NOTE: IT MAY BE NECESSARY TO OPEN THE STEAM OUTLET VALVE TO ALLOW AIR TO BREATHE FROM THE SYSTEM. AIR BOUND SYSTEMS WILL BE HARD TO FILL. THERE IS AN AIR BREATHER VALVE LOCATED ON THE STEAM GAUGE LINE ON SOME MODELS.
      - NOTE: IT IS RECOMMENDED TO USE DISTILLED WATER FOR OPTIMUM PERFORMANCE.
      - NOTE: DO NOT OVERFILL THE BOILER. OVERFILLING WILL CAUSE WET STEAM OR CAUSE DIRT PARTICLES TO DISCHARGE FROM THE STEAM NOZZLE.

   After the unit is full, close the water fill valve.

   B. For *Automatic Water Feed Models with a Watts Water Feeder*: Connect the water line. Turn the water supply on. The Water Feeder will fill the boiler.
      - NOTE: THE WATTS WATER FEEDER MUST BE SUPPLIED WITH A HIGHER WATER PRESSURE THAN OPERATING PRESSURE OF THE STEAM GENERATOR.

   C. For *Automatic Water Feed Models with a Pump*: Connect the water line, continue with the following steps. The pump will fill the boiler when the boiler power is turned on.
4. Turn the ON/OFF switch to the "ON" position.
5. For Steam Pressure Adjustment:

   Pressure Switch Controlled Units are factory set and do not require adjustment.

6. For *Models with a Low Water Cutoff with Manual Reset*: Once the power is turned on and the boiler is filled with water, push the reset switch. This will energize the heating element, the low water light will shut off and the heating light will turn on.
7. Allow some time for the boiler to build up pressure, then use as required. The heating light will shut off when the boiler comes up to pressure.

4.0 Maintenance

Boiler Theory and Operation

A boiler converts water to steam. This conversion requires 1 KW of electrical heater energy to produce 3.5#/hr of steam. Since there is both water and steam within a boiler, the fluid within the boiler is considered as a two-phase fluid. The temperature of two phase mixture can be determined by measuring the pressure. A pressure versus temperature chart is listed in Section 6.1.

The general operation of the boiler is simple. The boiler is first filled with water. The heating element may be energized once the water level reaches the minimum operating level. The heating element begins to generate steam and slowly the boiler builds pressure. Initial heat-up requires some time since the boiler shell and water are large quantities of mass consuming much heat energy. Once the boiler reaches operating pressure, the boiler is ready for use.

The boiler supplies steam for a particular application through an outlet valve on top of the boiler. When this valve is opened the pressure will decrease in the boiler. The heating element will turn on if the pressure drops about 10 psi below the set point. This will slow or stop the pressure drop. The amount of pressure drop will depend on the customer's steam demand. The boiler salesman is concerned with properly fitting a customer's demand with the right size boiler.

As a boiler is used, the water level will drop due to steam consumption. In automatic feed options, water will be made up by either a pump (high pressure application) or level control valve refilling as noted on the external sight glass. To manually refill, the boiler should be turned off and allowed to cool. Cooling can be accelerated by turning the unit off and bleeding the pressure down through the outlet valve.

The Hoffman Electric Steam Generator / Boiler is easy to clean and easy to maintain. It is strongly suggested that the following steps be followed to ensure a long and trouble- free life for the boiler.

4.1 Cleaning The Boiler

1. Turn the Thermostat to "OFF" and turn the power off.
2. Allow the boiler to cool. Check by opening steam valve.
3. Drain the boiler. Close the valve.
4. Fill the boiler to the "Full" mark or halfway up the sight glass with a solution of three parts water to one part vinegar.
5. Bring the boiler up to pressure. Allow the boiler to heat for 30-60 minutes.
6. Blow the boiler down. See Section 4.3 "Blowing Down the Boiler" for the proper procedure.
7. Repeat if necessary.

4.2 Cleaning The Sight Glass

1. Turn the Thermostat to "OFF."
2. Allow the boiler to cool. Check by opening steam valve or drain valve.
3. Drain the boiler. Leave the valve open.
4. Open the petcock at the bottom of sight glass (if so equipped).
5. Remove the sight glass and clean with a bottle washer. Use a plastic bristle brush. A metal wire brush could scratch the glass and is not recommended.
6. Install the sight glass.

4.3 Blowing Down The Boiler

This procedure should be performed at start up once a week providing the water is clean. In areas with high mineral content or rusty water, this procedure should be performed once a day. The boiler should be flushed with a cleaning solution at least twice a year.

1. Allow the pressure to reach 2 to 3 psig.
2. Turn the power off.

WARNING

THE WATER IN THE STEAM GENERATOR IS VERY HOT, THE DRAIN VALVE MUST BE PIPED TO A DRAIN TO PREVENT A POSSIBLE BURN.

3. Open the drain valve and drain the boiler.
4. Close the drain valve.

4.4 Cleaning The Low Water And Pump Control Probes

This procedure should be performed at least twice a year:

WARNING

BE SURE THERE IS ZERO PRESSURE IN THE BOILER BEFORE REMOVING PROBES. TEST BY OPENING THE STEAM OUTLET VALVE.

1. Turn the power to the boiler off.
2. Allow the boiler to cool.
3. Drain the boiler and leave the valve open.
4. Remove the cover on the top of the enclosure.
5. Remove the wires on the probe(s).

NOTE: FOR MULTIPLE PROBES, WIRES AND PROBES SHOULD BE REMOVED ONE AT A TIME TO ENSURE CORRECT WIRE CONNECTIONS UPON RE-ASSEMBLY.

6. Unscrew the probes from the boiler shell, using a socket wrench.
7. Clean the probes with steel wool.
8. Insert the probes in the boiler and tighten.
9. Reconnect the wires.
10. Replace the cover on top of the enclosure.
11. Close all open valves.

4.5 Cleaning The Strainer

1. Turn the power off.
2. Allow the boiler to cool.
3. Drain the boiler. Leave the valve open.
4. Remove Strainer Cap and clean Screen.
5. Replace Cap.

5.0 Troubleshooting & Servicing

For technical support call 1-800-484-3013 or visit www.buyhoffmanpressnow.com and chat with an agent

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Unit does not heat up.	Lack of power.	Check incoming power.
		Check fuses.
		Check On/Off switch is in “ON” position.
	Lack of water.	Fill unit.
	Bad Heating Element.	Replace. See Section 5.5 – Replacing the Heating Element.
	Bad On/Off Switch.	Replace. See Section 5.7 – Replacing the On/Off Switch.
Safety valve leaking.	Foreign material under seat.	Caution: Make sure discharge is away from people and work areas. Pop safety valve while steam is in unit to dislodge foreign material.
		Replace valve.
Fill valve leaking Steam.	Water between valve and fill cup.	Water must be drained or allowed to boil off to stop leaking.
	Packing nut loose.	When boiler is cool and pressure is at zero (test by opening steam outlet valve) tighten the nut on the handle stem.
	Bad fill valve.	Replace.
Water is dark brown or black.	Rust in Water.	See Section 4.3 – Blowing Down the Boiler. Rust is a normal occurrence in steam generator shells. The rust appearance in the water will slowly disappear after a few weeks of use. The steam generator must be blown down in accordance with instructions given in this manual. Blowing down will minimize the visual amount of discolored water.
No steam comes from the Solenoid Valve.	Bad Foot Switch.	Check Switch. See Section 5.6 – Replacing the Electric Foot Switch.
	Bad Solenoid Valve.	Replace. See Section 5.9 – Replacing the Electric Solenoid Valve.
Can not fill with water.	Breather valve not open.	Breather valve not open.
	Check Valve is stuck.	Lightly tap valve.
		Clean valve seat. Disconnect power and remove pressure from the boiler. Check no pressure by leaving the breather open.
		Replace valve.
	Water Inlet Solenoid Valve fails to operate.	Replace Water Inlet solenoid Valve.
Boiler keeps filling.	Inlet solenoid Valve is dirty.	Clean seat in Solenoid Valve. WARNING: Disconnect Power before servicing. Drain Boiler.
Wet Steam.	Too much water in Boiler.	Drain tank until water level fills sight glass approximately 75%.
Hard to see through the Sight Glass.	Minerals have coated the glass.	Clean or replace. See Section 4.2 – Cleaning the Sight Glass or Section 5.4 – Replacing the Gauge Sight Glass.

5.2 Adjusting The Steam Pressure

5.2.1 Pressure Control

The boiler contains a dual-limit pressure controller. The control has been factory set and sealed tight. If adjustment is necessary, the maximum setting shall be 90 psig on rising pressure. Thus, the low limit should be set at 85 psig maximum.

WARNING

HIGH VOLTAGE IS PRESENT. DO NOT TOUCH ANY WIRES IN THE PRESSURE CONTROL BOX.
A LICENSED ELECTRICIAN OR PLUMBER SHOULD PERFORM THIS ADJUSTMENT.

1. Remove the cover on the pressure controller.
2. Power the boiler and allow the boiler to come up to pressure.
3. Turn the set screw inside the controller to increase or decrease the pressure. The final pressure is reached when the heating light goes out. This should be set on rising pressure.
4. The dead-band adjustment screw should be set to turn the heating element on 5 to 10 psig below the cut-off pressure. This should be set on falling pressure.
5. Reattach the cover to the pressure controller.
6. DO NOT SET ABOVE RELIEF VALVE RATING.

5.3 Replacing The Pressure Controller

(To be performed by a licensed electrician)

1. Turn off the power to the boiler by pulling plug or turning off the power at branch switch or circuit breaker.
2. Allow the boiler to cool to zero pressure.
3. Drain the water from the boiler. Leave the drain valve open.
4. Remove the cover on the pressure controller.
5. Disconnect the wires in the pressure controller.
6. Remove the piping connected to the pressure controller.
7. Remove the mounting screws that hold the pressure controller to the mounting bracket.
8. Remove the controller.
9. Remount the new pressure controller.
10. Remount the pressure piping to the new controller.
11. Rewire the new pressure controller.
12. Adjust to proper steam pressure and dead-band as previously described. See Section 5.2.1.

5.4 Replacing The Gauge Sight Glass

1. Turn off power to the boiler by pulling the plug or turning off power at the branch switch or the circuit breaker.
2. Allow the boiler to cool to zero pressure.
3. Drain the water from the boiler. Leave the drain valve open.
4. Remove the Sight Glass Guard.
5. Remove the fittings that hold the glass in position. Top and Bottom nuts hold the glass in position.
6. Replace the gauge glass. Do not over tighten. Always use new seals when replacing the gauge glass.
7. Check for straight alignment of gauge glass. Brass fittings should not be touching glass, realign if necessary.
8. Reinstall Sight Glass Guard.
9. Check for leaks during initial operation.

5.5 Replacing The Heating Element

(To be performed by a licensed electrician)

The heating element is an immersion type, flange mounted, designed particularly for the Hoffman boiler. An element can be wired either single phase or three phase. However, machine electrical modifications would be necessary to perform such a change. The performance of a heating element depends on the voltage source. A 240 volt element operating at 208 volts performs at 75% capacity. A 208 volt element operating at 240 volts would operate 33% over capacity. Overdriving an element is hazardous to the electrical wiring. Underdriving an element results in poor performance. Thus, it is important to know the exact maximum supply voltage.

CAUTION

OVERDRIVING AN ELEMENT WILL CAUSE ELEMENT FAILURES ALONG WITH POTENTIAL WIRING DAMAGE.

1. Turn off the power to the boiler by pulling the plug or turning off the power at the branch switch or the circuit breaker.
2. For models with *manually operated steam outlet valves*, allow the boiler to cool to zero pressure. Test by opening steam outlet. For models with *pedal controlled steam outlet valves*, turn power on, turn thermostat to off. Allow boiler to cool to zero pressure. Test by stepping on pedal. At zero pressure, turn power off at branch switch or circuit breaker or pull the plug.
3. Drain the water from boiler. Leave drain valve open.
4. Remove the front cover to the boiler enclosure.
5. Disconnect the wires from the heating element.
6. Remove the bolts on the heating element.
7. Remove “old” heating element.
8. Seal the gasket on both sides of the “new” heating element with a gasket sealer. Use a “new” gasket.
9. Insert the “new” heating element, and tighten the bolts.
10. Rewire the heating element.
11. Fill the boiler to the normal level, and CHECK FOR ANY LEAKS.
12. Power the boiler and allow the boiler to come up to pressure. CHECK FOR ANY LEAKS.
13. Remount the front of the boiler enclosure.
14. Periodically, check for leaks during first few days after installing new element.

5.6 Replacing The Electric Foot Switch And/Or Cord

(To be performed by a licensed electrician)

1. Turn off the power to the boiler by pulling the plug or turning off the power at the branch switch or the circuit breaker.
2. Allow the boiler to cool to zero pressure. Drain the boiler. Leave the valve open.
3. Remove the front cover to the boiler enclosure.
4. Remove the top cover of the foot switch.
5. Disconnect the cord wires from the foot switch.
6. Check continuity through the switch while holding the switch lever down. If the switch passes the test, skip to number 10.
7. If the switch fails the continuity test, loosen two screws on the bottom side of the switch housing and remove the switch from the cord.
8. Insert cord through strain relief on the “new” foot switch and tighten strain relief screws enough so that the switch cannot be pulled from the cord.
9. Reconnect the wires to the switch and reassemble the switch housing.
10. Check continuity through cord.
11. If cord fails the continuity test, disconnect the cord from the switch.
12. Remove strain relief from the side of the boiler cabinet.
13. Reconnect the wires to the foot switch from the new cord.
14. Inside the boiler cabinet, reconnect the “new” foot switch wire to the same place that the “old” one was removed. Use the strain relief connection from the “old” switch. The strain relief pops into the cabinet’s side.
15. Remount the front of the boiler enclosure.
16. Test unit.

5.7 Replacing The On/Off Switch

(To be performed by a licensed electrician)

1. Turn off the power to the boiler by pulling the plug or turning off power at the branch switch or circuit breaker.
2. Allow the boiler to cool to zero pressure. Drain the boiler. Leave the valve open.
3. Remove the front cover to the boiler enclosure.
4. Disconnect the wires from the ON/OFF switch.
5. Remove the nut, which holds the switch to the cover. Located on the outside of the cover.
6. Remove “old” ON/OFF switch.
7. Insert the “new” On/OFF switch.
8. Rewire the switch.
9. Remount the front of the boiler enclosure.
10. Test the unit.

5.8 Cleaning The Electric Solenoid Valve

(To be performed by a licensed plumber)

1. Turn off the power to the boiler by pulling the plug or turning off power at the branch switch or at the circuit breaker.
2. Allow the boiler to cool to zero pressure.
3. Drain the water from the boiler. Leave the valve open.
4. Loosen the Romex connector screws.
5. Remove the large brass nut on the solenoid valve.

CAUTION

THIS SOLENOID VALVE IS SUBJECTED TO HIGH PRESSURE STEAM. INSURE THAT THE SOLENOID VALVE IS TIGHTLY SCREWED INTO THE STEAM OUTLET PIPING.

6. Slide off the electric box from the solenoid valve or remove nut, and remove valve coil.
7. Remove stem from valve.
8. Clean off seat in valve and clean the Teflon seat on the plunger. Do not scratch the seat in the valve or on the plunger.
9. Reassemble valve.

5.9 Replacing The Electric Solenoid Valve

(To be performed by a licensed electrician)

1. Turn off the power to the boiler by pulling the plug or turning off the power at the branch switch or at the circuit breaker.
2. Allow the boiler to cool to zero pressure. Drain the boiler. Leave the valve open.
3. Disconnect the wires from the solenoid valve.
4. Remove the “old” solenoid valve.
5. Install the “new” solenoid valve.

NOTE: MAKE SURE THAT PORT #1 IS CONNECTED TO THE BOILER VESSEL SIDE AND PORT #2 IS CONNECTED TO THE OUTLET SIDE.

CAUTION

THIS SOLENOID VALVE IS SUBJECTED TO HIGH PRESSURE STEAM. INSURE THAT THE SOLENOID VALVE IS TIGHTLY SCREWED INTO THE STEAM OUTLET PIPING.

6. Rewire the solenoid valve to the unit.
7. Test the unit.

6.0 Tables

6.1 Pressure Vs. Temperature

The following table shows the relationship between steam pressure in pounds per square inch (psig), and temperature in degrees Fahrenheit (°F). This table can be useful in determining the steam temperature at a corresponding pressure. It is helpful in setting the pressure when the steam generator is connected to auxiliary equipment that requires temperature adjustment.

Table 6.1.1

Pressure (psig)	Temperature (°F)
1	213
5	228
10	240
15	250
20	259
25	267
30	274
35	281
40	287
45	293
50	298
55	303
60	308
65	312
70	316
75	320
80	324
85	328
90	331
95	335
100	338

6.2 Electrical Specifications

The following table lists voltage and amperage requirements for the standard model RHPG-17 Steam Generator.

Table 6.2.1

Hoffman Steam Generator			
KW	**Voltage**	**Phase**	**Amps**
12.0	220	3/1	34/57

7.0 Drawings & Parts List

Figure 7.1 - Assembly for Hoffman Steam Generator

Figure 7.2 -52773 (rev B) Wiring Schematic Hoffman Steam Generator 3 Phase

Figure 7.3 - 52774 (rev A) Wiring Schematic Hoffman Steam Generator 1 Phase

Figure 7.4 - 75384 (rev B) Component Panel Assembly Hoffman Steam Generator

Figure 7.5 – 75385 (rev B) Outlet Solenoid Assembly Kit Hoffman Steam Generator

Figure 7.6 - 75308 (rev C) Water Pump Assembly Kit 380-460V, 3 Phase Hoffman Steam Generator

Figure 7.7 - 73529 (rev C) Water Pump Assembly Kit Single Phase Hoffman Steam Generator

Figure 7.8 – 52771 (rev B) Wiring Schematic Hoffman Steam Generator 3 Phase

Figure 7.9 – 52794 Wiring Schematic Hoffman Steam Generator 1 Phase

Figure 7.10 – 75285 (rev D) Electrical Enclosure Assembly – Hoffman Steam Generator

Figure 7.11 – 73493 (rev D) Water Pump Assembly Kit Hoffman Steam Generator

Optional Parts List

For Original Quality Parts: 1-800-484-3013

Figure 7.1 – Assembly for Hoffman Steam Generator

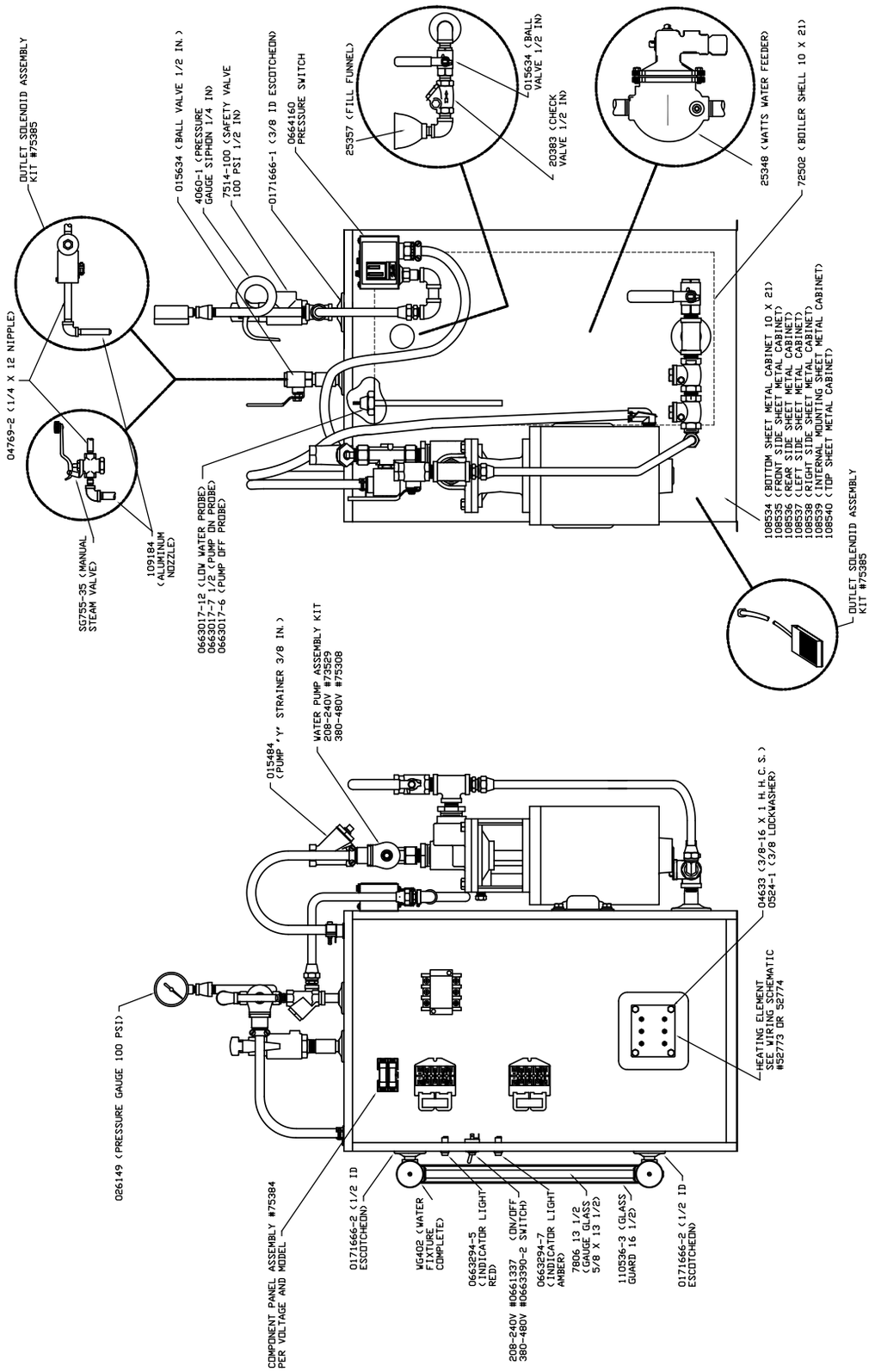
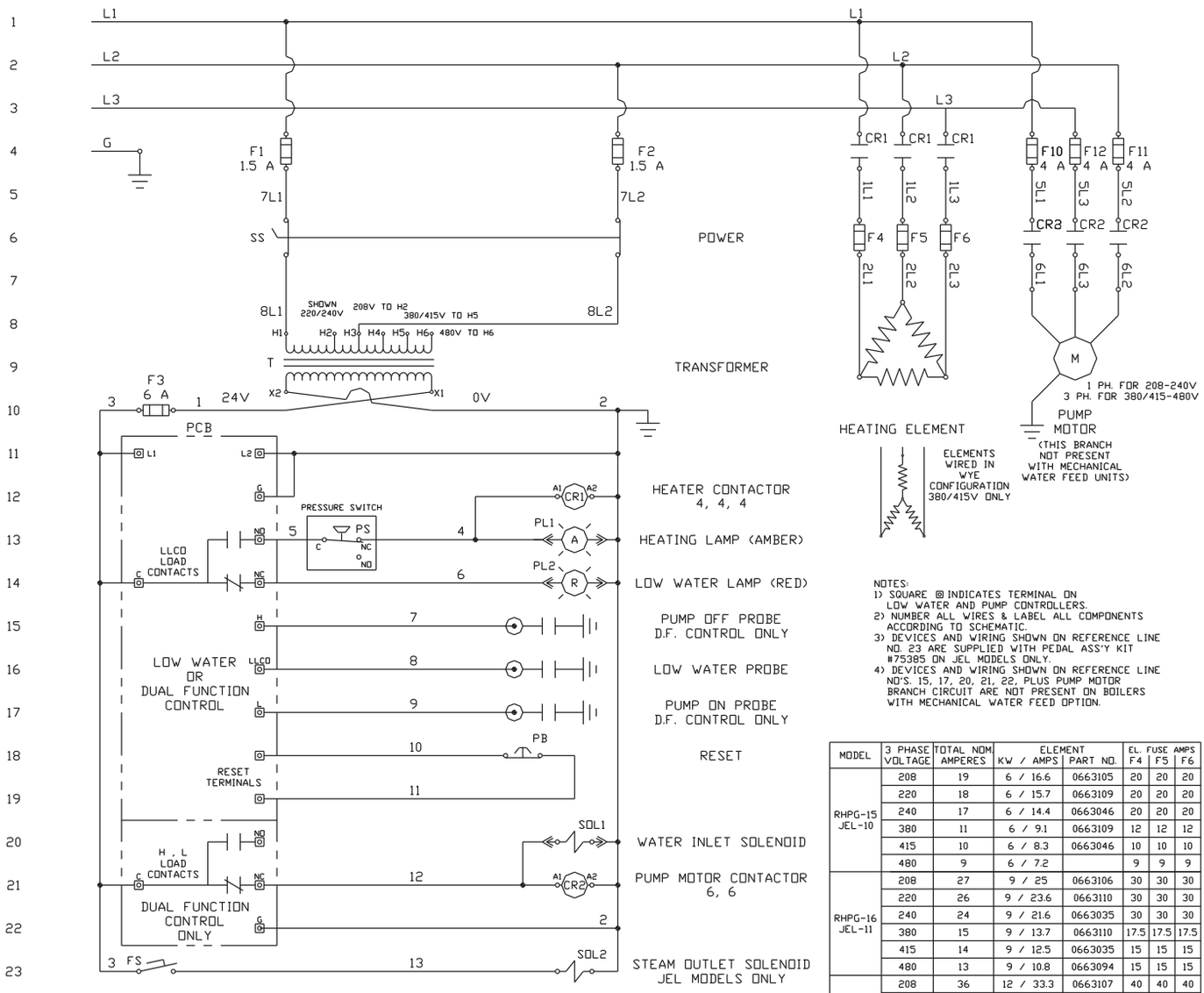


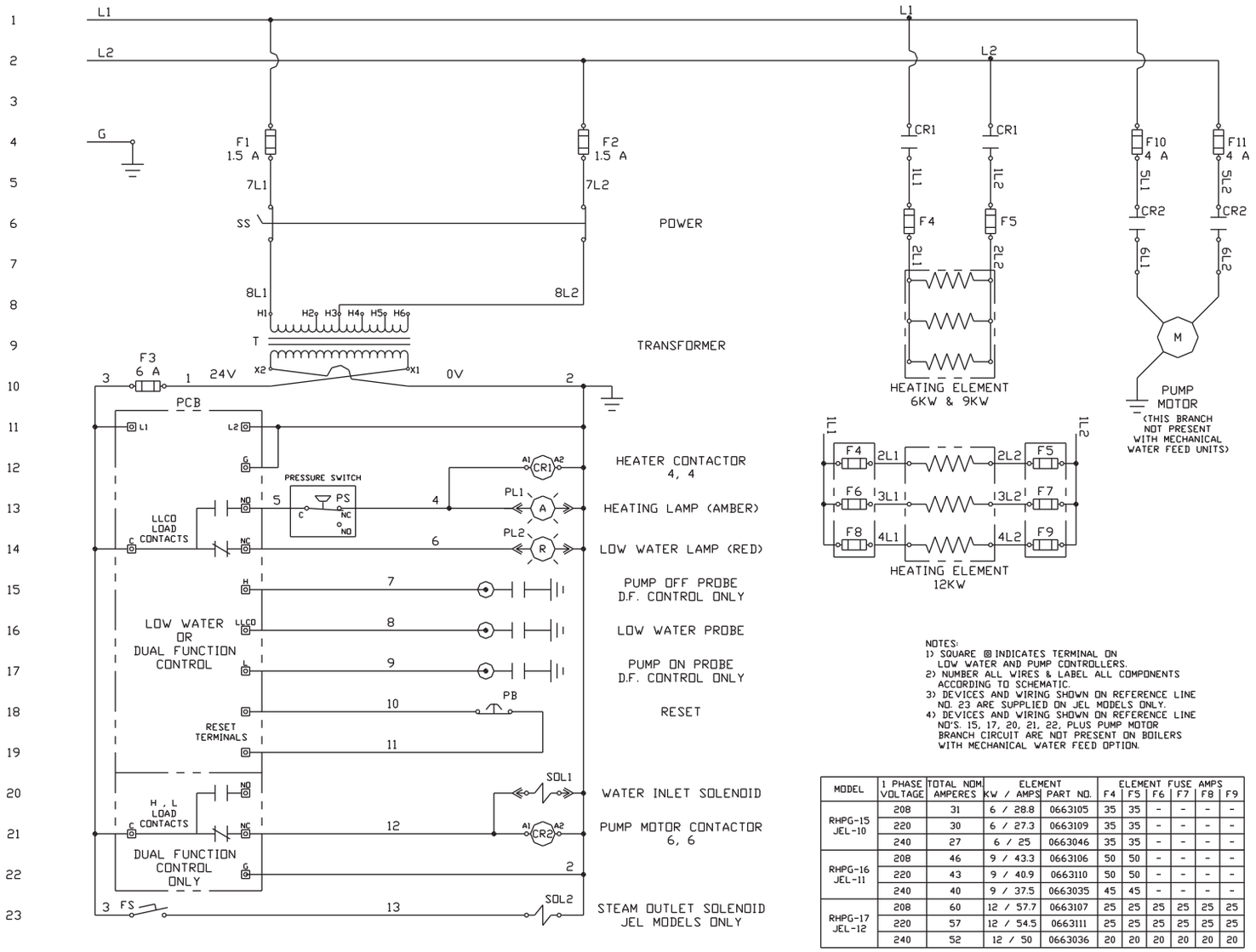
Figure 7.2 – 52773 (rev B) Wiring Schematic Hoffman Steam Generator 3 Phase



NOTES:
1) SQUARE ▣ INDICATES TERMINAL ON LOW WATER AND PUMP CONTROLLERS.
2) NUMBER ALL WIRES & LABEL ALL COMPONENTS ACCORDING TO SCHEMATIC.
3) DEVICES AND WIRING SHOWN ON REFERENCE LINE NO. 23 ARE SUPPLIED WITH PEDAL ASS'Y KIT #75385 ON JEL MODELS ONLY.
4) DEVICES AND WIRING SHOWN ON REFERENCE LINE NO'S. 15, 17, 20, 21, 22, PLUS PUMP MOTOR BRANCH CIRCUIT ARE NOT PRESENT ON BOILERS WITH MECHANICAL WATER FEED OPTION.

MODEL	3 PHASE VOLTAGE	TOTAL NOM AMPERES	ELEMENT KW / AMPS	ELEMENT PART NO.	EL. FUSE AMPS F4	F5	F6
RHPG-15 JEL-10	208	19	6 / 16.6	0663105	20	20	20
	220	18	6 / 15.7	0663109	20	20	20
	240	17	6 / 14.4	0663046	20	20	20
	380	11	6 / 9.1	0663109	12	12	12
	415	10	6 / 8.3	0663046	10	10	10
	480	9	6 / 7.2		9	9	9
RHPG-16 JEL-11	208	27	9 / 25	0663106	30	30	30
	220	26	9 / 23.6	0663110	30	30	30
	240	24	9 / 21.6	0663035	30	30	30
	380	15	9 / 13.7	0663110	17.5	17.5	17.5
	415	14	9 / 12.5	0663035	15	15	15
	480	13	9 / 10.8	0663094	15	15	15
RHPG-17 JEL-12	208	36	12 / 33.3	0663107	40	40	40
	220	34	12 / 31.5	0663111	40	40	40
	240	31	12 / 28.8	0663036	40	40	40
	380	21	12 / 18.2	0663111	25	25	25
	415	19	12 / 16.7	0663036	20	20	20
	480	17	12 / 14.4	0663092	20	20	20

Figure 7.3 – 52774 (rev A) Wiring Schematic Hoffman Steam Generator 1 Phase



NOTES:
1) SQUARE ⊠ INDICATES TERMINAL ON LOW WATER AND PUMP CONTROLLERS.
2) NUMBER ALL WIRES & LABEL ALL COMPONENTS ACCORDING TO SCHEMATIC.
3) DEVICES AND WIRING SHOWN ON REFERENCE LINE NO. 23 ARE SUPPLIED ON JEL MODELS ONLY.
4) DEVICES AND WIRING SHOWN ON REFERENCE LINE NO'S. 15, 17, 20, 21, 22, PLUS PUMP MOTOR BRANCH CIRCUIT ARE NOT PRESENT ON BOILERS WITH MECHANICAL WATER FEED OPTION.

MODEL	1 PHASE VOLTAGE	TOTAL NOM AMPERES	ELEMENT KW / AMPS	ELEMENT PART NO.	ELEMENT FUSE AMPS F4	F5	F6	F7	F8	F9
RHPG-15 JEL-10	208	31	6 / 28.8	0663105	35	35	-	-	-	-
	220	30	6 / 27.3	0663109	35	35	-	-	-	-
	240	27	6 / 25	0663046	35	35	-	-	-	-
RHPG-16 JEL-11	208	46	9 / 43.3	0663106	50	50	-	-	-	-
	220	43	9 / 40.9	0663110	50	50	-	-	-	-
	240	40	9 / 37.5	0663035	45	45	-	-	-	-
RHPG-17 JEL-12	208	60	12 / 57.7	0663107	25	25	25	25	25	25
	220	57	12 / 54.5	0663111	25	25	25	25	25	25
	240	52	12 / 50	0663036	20	20	20	20	20	20

Figure 7.4 – 75384 (rev B) Component Panel Assembly Hoffman Steam Generator
For drawing refer to next page

Item	Part No.	Description	Qty./ASSY. 75384									
			-1	-2	-3	-4	-5	-6	-7	-8	-9	-10
1	112298	Component Panel	1	1	1	1	1	1	1	1	1	1
2	0663678	Fuse Block (Element) 3-Pole	1	1					2	2	2	1
	0665265-2	Fuse Block (Element) 2-Pole			1	1						
	0665265-3	Fuse Block (Element) 3-Pole					1	1				
3	0663024-24	Contactor, 50 Amp, 24V Coil	1	1	1	1	1	1	1	1	1	1
4	0663730	Transformer, 100 VA	1	1	1	1	1	1	1	1	1	1
5	0663759	Level Control	1		1		1		1		1	
	0663871	Level Control		1		1		1		1		1
6	111775-2.5	Din Rail 2 ½"	1		1		1		1		1	
7	0663431	Contactor, 13 Amp	1		1		1		1		1	
8	0663680	Fuse Block 2-Pole	1		1		1		1		2	
9	0663471	Fuse Block 2-Pole	1	1	1	1	1	1	1	1		
10	0663471	Fuse Block 1-Pole	½	½	½	½	½	½	½	½	½	½
11	0663319-6	Fuse, 6 Amp, Fast Acting	1	1	1	1	1	1	1	1	1	1
12	0663866-1.5	Fuse, 1.5 Amp, Time Delay	2	2	2	2	2	2	2	2		
	0663679-1.5	Fuse, 1.5 Amp, Time Delay									2	2
13	0663679-4	Fuse, 4 Amp, Time Delay	2		2		2		2		3	
14	23008	Romex Connector, 1/2"	1	1	1	1	1	1	1	1	1	1
15	0663705	Ground Lug 4-14	2	2	2	2	2	2	2	2	2	2
16	0463-1	Hex Head Cap Screw ¼-20 x 1"	1	1	1	1	1	1	1	1	1	1
17	05238	Int. Ext. Tooth Lock Washer 1/4	4	4	4	4	4	4	4	4	4	4
18	04910-1	Hex Nut ¼-20	2	2	2	2	2	2	2	2	2	2
19	02314-1	Rnd. Head Mach. Screw 8-32 x 1/2	10	8	10	8	10	8	12	10	8	10
20	05115-1	Flat Washer #8	8	6	8	6	8	6	8	6	8	6
21	0233-1	Rnd. Head Mach. Screw 6-32 x 1/2	7	5	7	5	7	5	7	5	7	5
22	0460810-1	Lock Washer #6	9	6	9	6	9	6	9	6	9	6
23	0234-1	Rnd. Head Mach. Screw 6-32 x 5/8	4	3	4	3	4	3	4	3	4	3
24	0663292-4	Ring Terminal 18/14-8R	6	6	6	6	6	6	6	6	6	6
25	0663292-5	Ring Terminal 18/14-10R	5	5	5	5	5	5	5	5	5	5
26	0663292-18	Ring Terminal 8-10R	3	3	2	2	3	3	6	6	3	3
27	0663333	Fem./ Male Disc. Adapter .250	3	3	3	3	3	3	3	3	3	3
28	0663648-1	Fem. Disc., Insulated #16/14-250	13	10	13	10	13	10	13	10	13	10
29	0663774-4	Fem. Disc., Insulated #16/14-187	7	4	7	4	7	4	7	4	7	4
30	0663910-1	Fem. Disc., Piggyback #16/14-250	3	3	3	3	3	3	3	3	3	3
31	0662133	Ground Lug 14-10	2	2	2	2	2	2	2	2	2	2
32	05232	Internal Tooth Lock Washer #6	2	2	2	2	2	2	2	2	2	2

ASS'Y. NO.	DESCRIPTION
75384-1	208-220/240V, 6KW & 9KW, 3 PH.
75384-2	208-220/240V, 6 & 9KW, 3 PH., WATER FEED
75384-3	208-220/240V, 6KW & 9KW, 1 PH.
75384-4	208-220/240V, 6 & 9KW, 1 PH., WATER FEED
75384-5	208-220/240V, 12KW, 3 PH.
75384-6	208-220/240V, 12KW, 3 PH., WATER FEED
75384-7	208-220/240V, 12KW, 1 PH.
75384-8	208-220/240V, 12KW, 1 PH., WATER FEED
75384-9	380/415-480V, 6, 9, 12KW, 3 PH.
75384-10	380/415-480V, 6, 9, 12KW, 3 PH., WATER FEED

Figure 7.4 – 75384 (rev B) Component Panel Assembly Hoffman Steam Generator

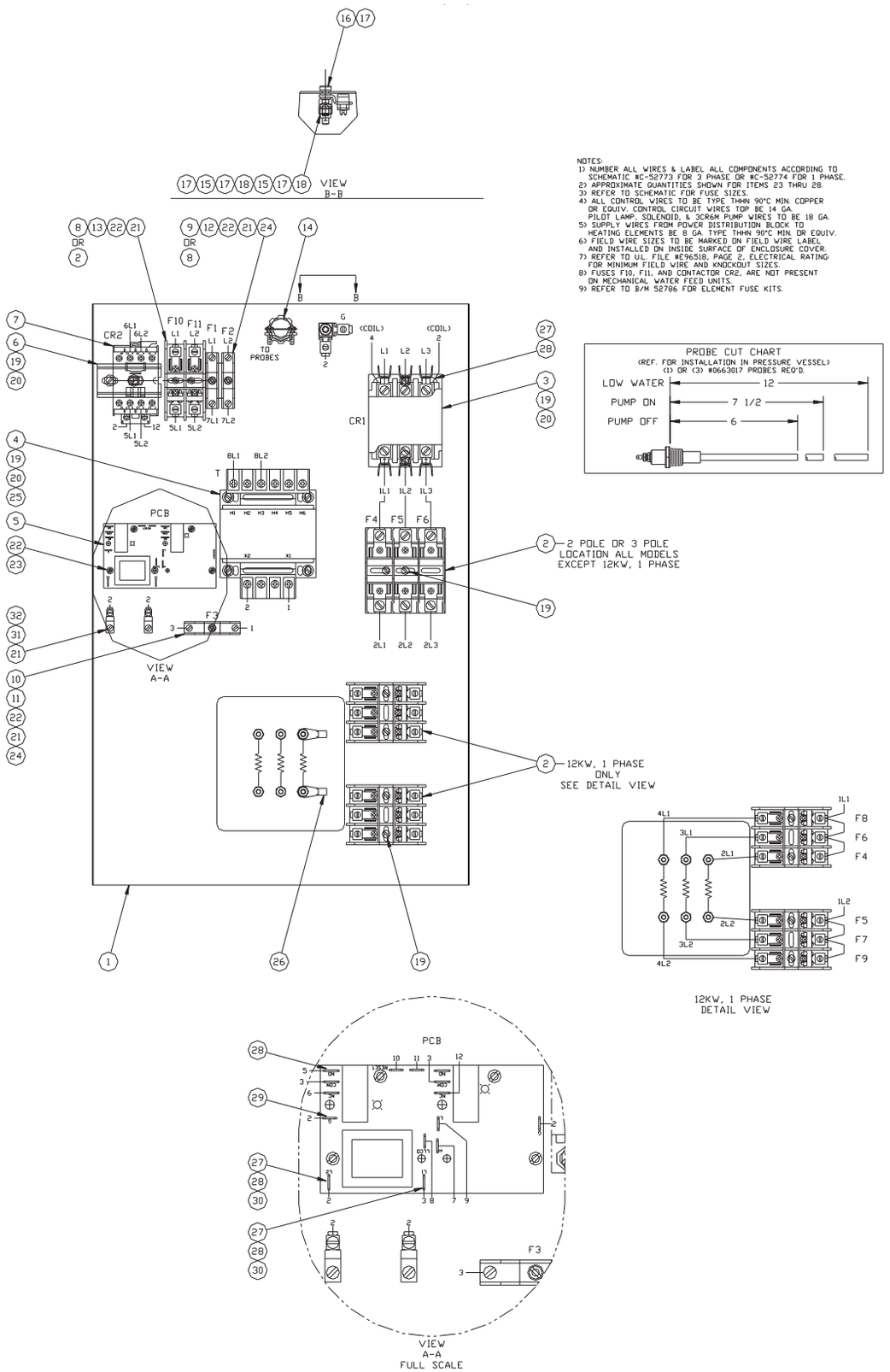


Figure 7.5 – 75385 (rev B) Outlet Solenoid Assembly Kit Hoffman Steam Generator

For drawing refer to next page

Item	Part No.	Description	Qty.
1	73322	Pedal & Cord Assembly	1
2	0663310	Strain Relief 90˚	1
3	75587-24	Solenoid Valve Assembly, 2/2, 24V	1
4	0150954	“Y” Strainer 1/4”	1
5	03153	Brass Hex Reducer, 1/2 x 1/4	1
6	033100	Brass Street Elbow, 1/4 x 90˚	1
7	033183	Brass Reducing Elbow, 1/4 x 1/8	1
8	05832	Brass Nipple, 1/4 Close	1
9	04753-2	Nipple, 1/4 x 4	1
10	04769-2	Nipple, 1/4 x 12	1
11	109184	Nozzle	1
12	0663894-3	Conduit, Flexible Type B, 3/8	1
13	0663889-3	Conduit Connector, Snap-In, 3/8	1
14	0663420-2	Conduit Connector, 3/8	1
15	02325-1	Round Head Machine Screw 10-32 x 1/2	1
16	05265-1	Internal Tooth Lock Washer #10	2
17	0493-1	Hex Nut 10-32	2
18	0663292-5	Ring Terminal 18/14 x #10	1
19	0663292-4	Ring Terminal 18/14 x #8	1
20	0663648	Female Disconnect, Ins. 22/18 x 1/4 x .032	4
21	0663649	Male Disconnect, Ins. 22/18 x 1/4 x .032	3
22	0663333	Male/Female Disconnect Adapter, 1/4	1

Figure 7.5 – 75385 (rev B) Outlet Solenoid Assembly Kit Hoffman Steam Generator

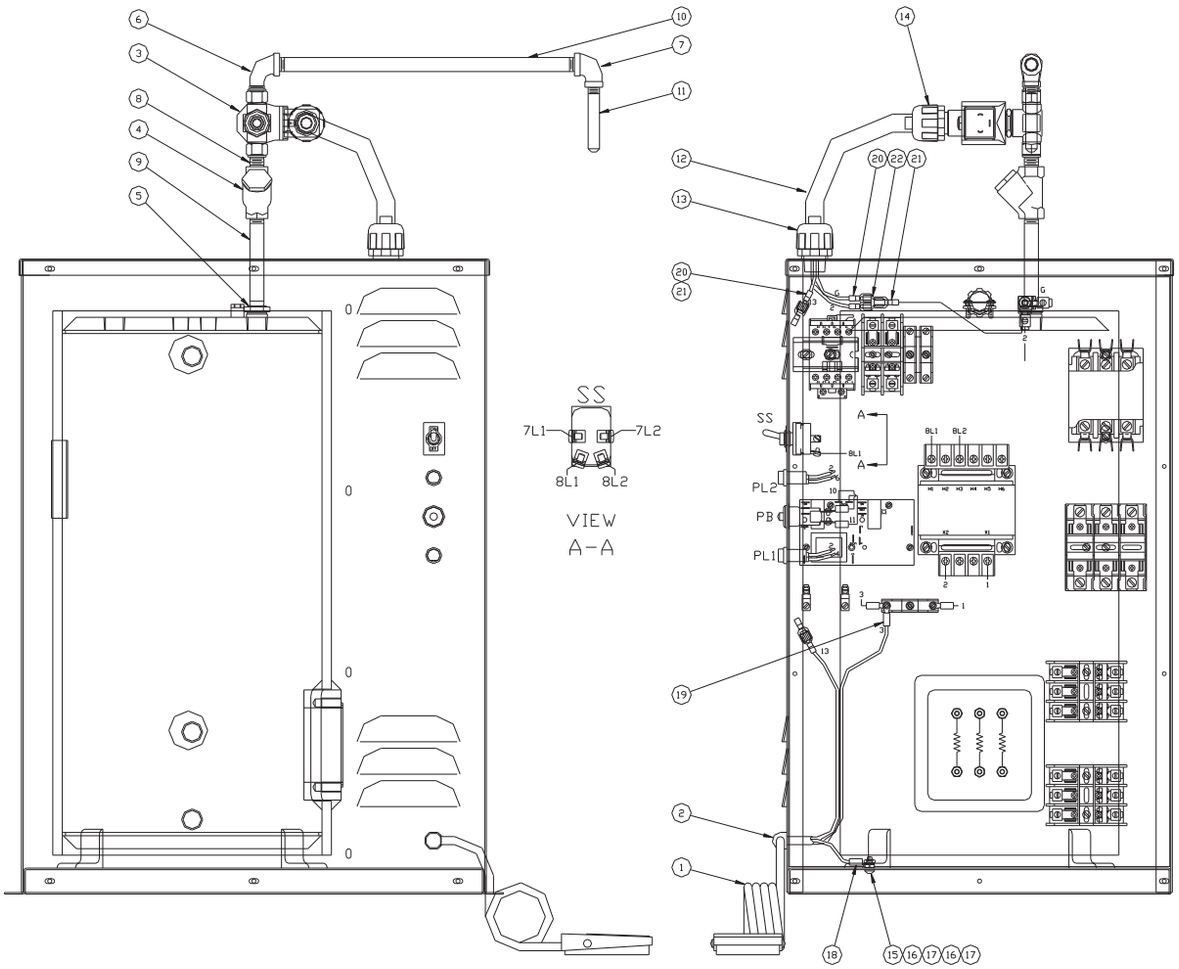


Figure 7.6 – 75308 (rev C) Water Pump Assembly Kit 220V, 3 Phase Hoffman Steam Generator

For drawing refer to next page

Item	Part No.	Description	Qty.
1	085177	Pump, 380-460V, 3 Phase	1
2	0663948-47	Solenoid Valve, 3/8, 24V	1
3	76637	Pump Conn./Drain Assembly	1
4	015484	“Y” Strainer, 3/8	1
5	015634	Ball Valve, 1/2	1
6	05894	Brass Nipple, 1/2 Close	2
7	031141	Brass Hex Reducer, 1 x 1/2	1
8	031370	Brass Hex Reducer, 1 x 3/8	1
9	0434	Brass Tee, 1/2	1
10	04617-1	Hex Head Cap Screw 5/16-18 x 3/4	4
11	0523-1	Lock Washer 5/16	4
12	05129	Flat Washer 5/16 S.A.E	4
13	110016-SP	Pump Mounting Plate	1
14	20560	Flare Connector, 1/2P x 1/2T	1
15	20539	Flare Nut, 1/2T	1
16	20210	Copper Tubing, 1/2 O.D.	2’
17	23008	Romex Connector, 1/2	2
18	22661	Duplex Connector, 1/2	1
19	20928	Anti-Short Bushing	4
20	0663297	Conduit, 3/8	3’
21	05863	Brass Nipple, 3/8 Close	2
22	20871	3/8-90 Elbow Connector	1

Figure 7.6 – 75308 (rev C) Water Pump Assembly Kit 220V, 3 Phase Hoffman Steam Generator

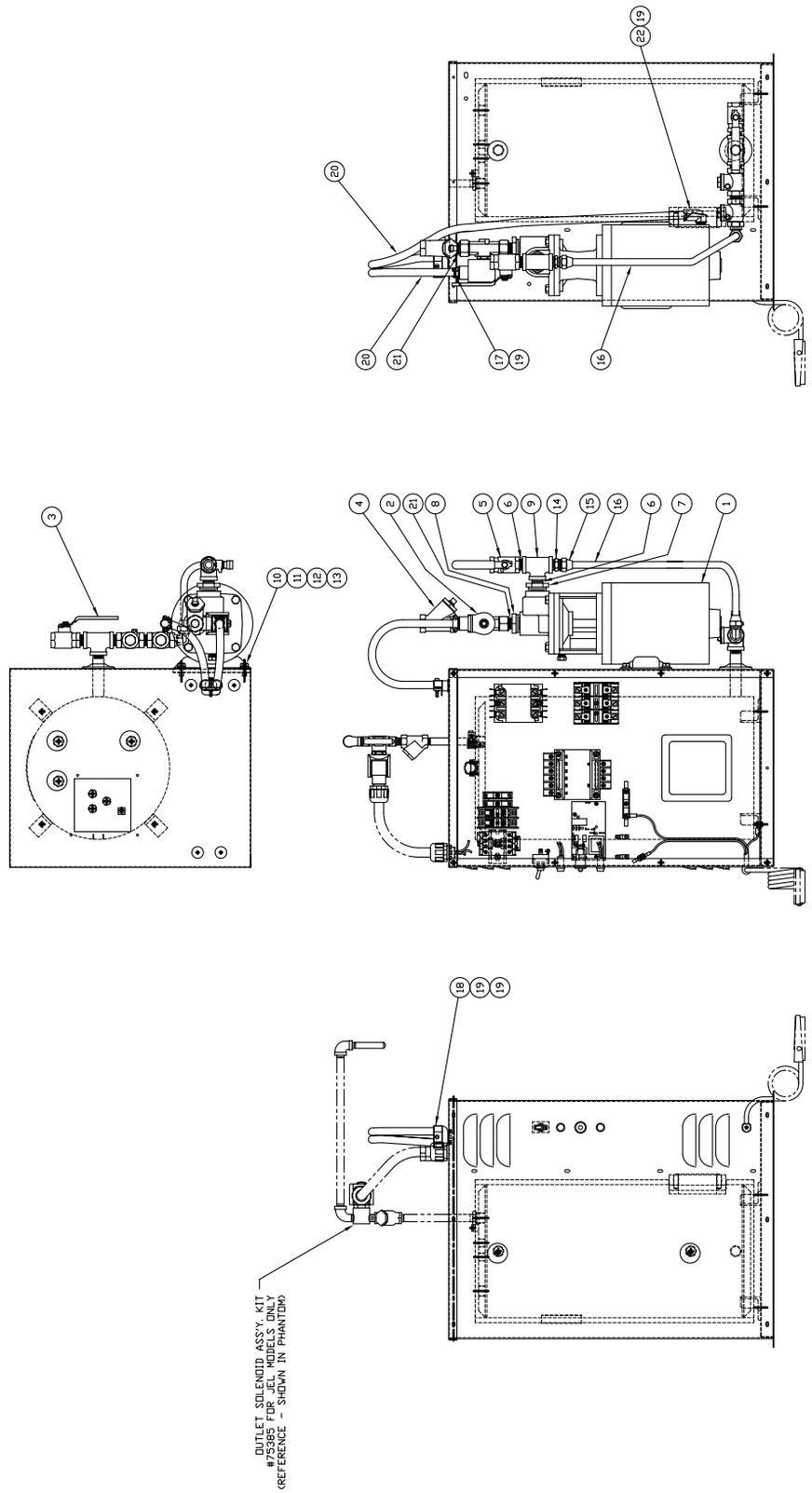


Figure 7.7 – 73529 (rev C) Water Pump Assembly Kit
Single Phase, Hoffman Steam Generator

For drawing refer to next page

Item	Part No.	Description	Qty.
1	3CT5M	Pump, Single Phase	1
2	0663948-47	Solenoid Valve, 3/8, 24V	1
3	76637	Pump Conn./Drain Assembly	1
4	015484	“Y” Strainer, 3/8	1
5	015634	Ball Valve, 1/2	1
6	05894	Brass Nipple, 1/2 Close	2
7	031141	Brass Hex Reducer, 1 x 1/2	1
8	031370	Brass Hex Reducer, 1 x 3/8	1
9	0434	Brass Tee, 1/2	1
10	04617-1	Hex Head Cap Screw 5/16-18 x 3/4	4
11	0523-1	Lock Washer 5/16	4
12	05129	Flat Washer 5/16 S.A.E	4
13	110016-SP	Pump Mounting Plate	1
14	20560	Flare Connector, 1/2P x 1/2T	1
15	20539	Flare Nut, 1/2T	1
16	20210	Copper Tubing, 1/2 O.D.	2’
17	23008	Romex Connector, 1/2	2
18	22661	Duplex Connector, 1/2	1
19	20928	Anti-Short Bushing	4
20	0663297	Conduit, 3/8	3’
21	05863	Brass Nipple, 3/8 Close	2
22	20871	3/8-90 Elbow Connector	1

Figure 7.7 – 73529 (rev C) Water Pump Assembly Kit
Single Phase, Hoffman Steam Generator

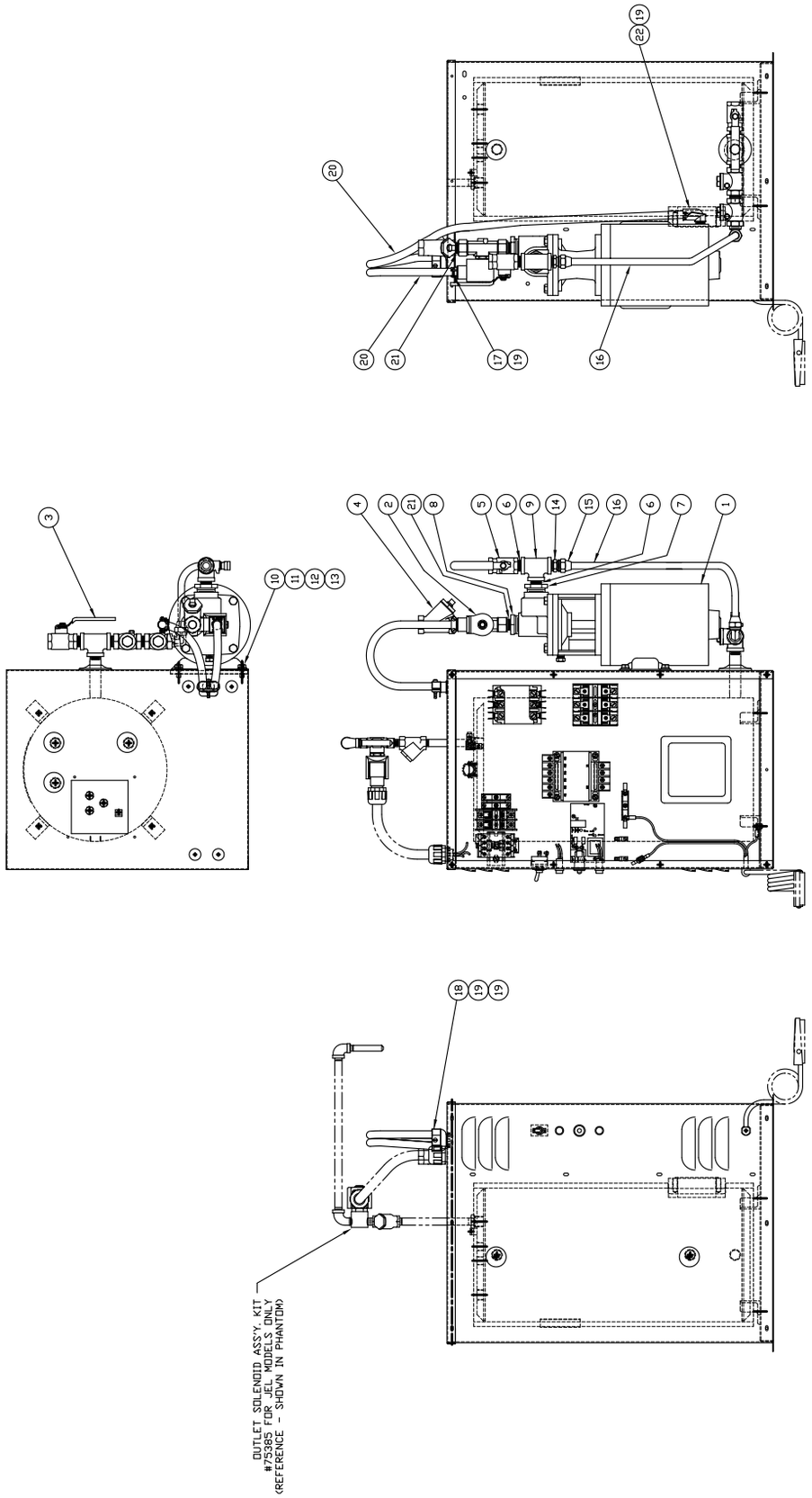
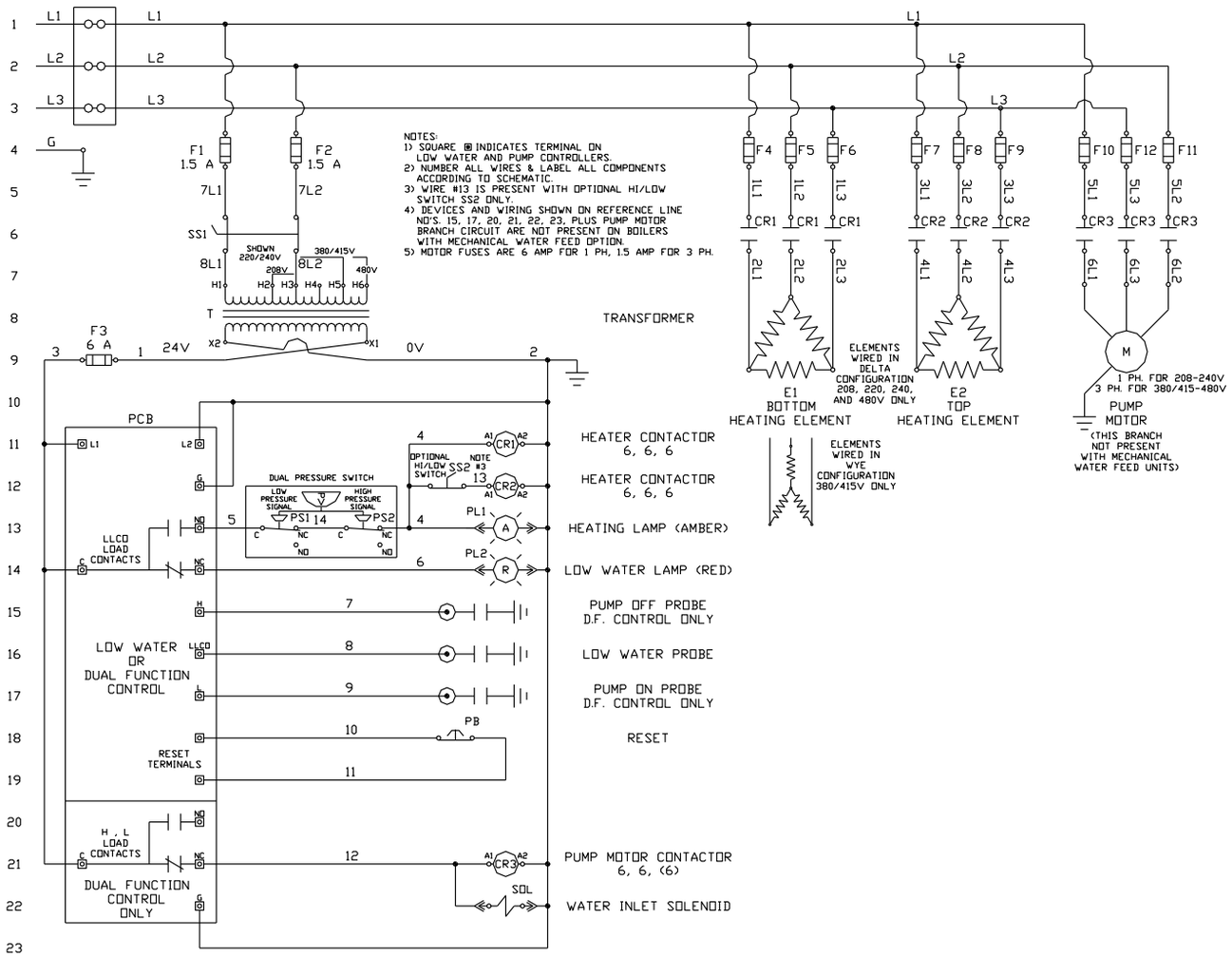
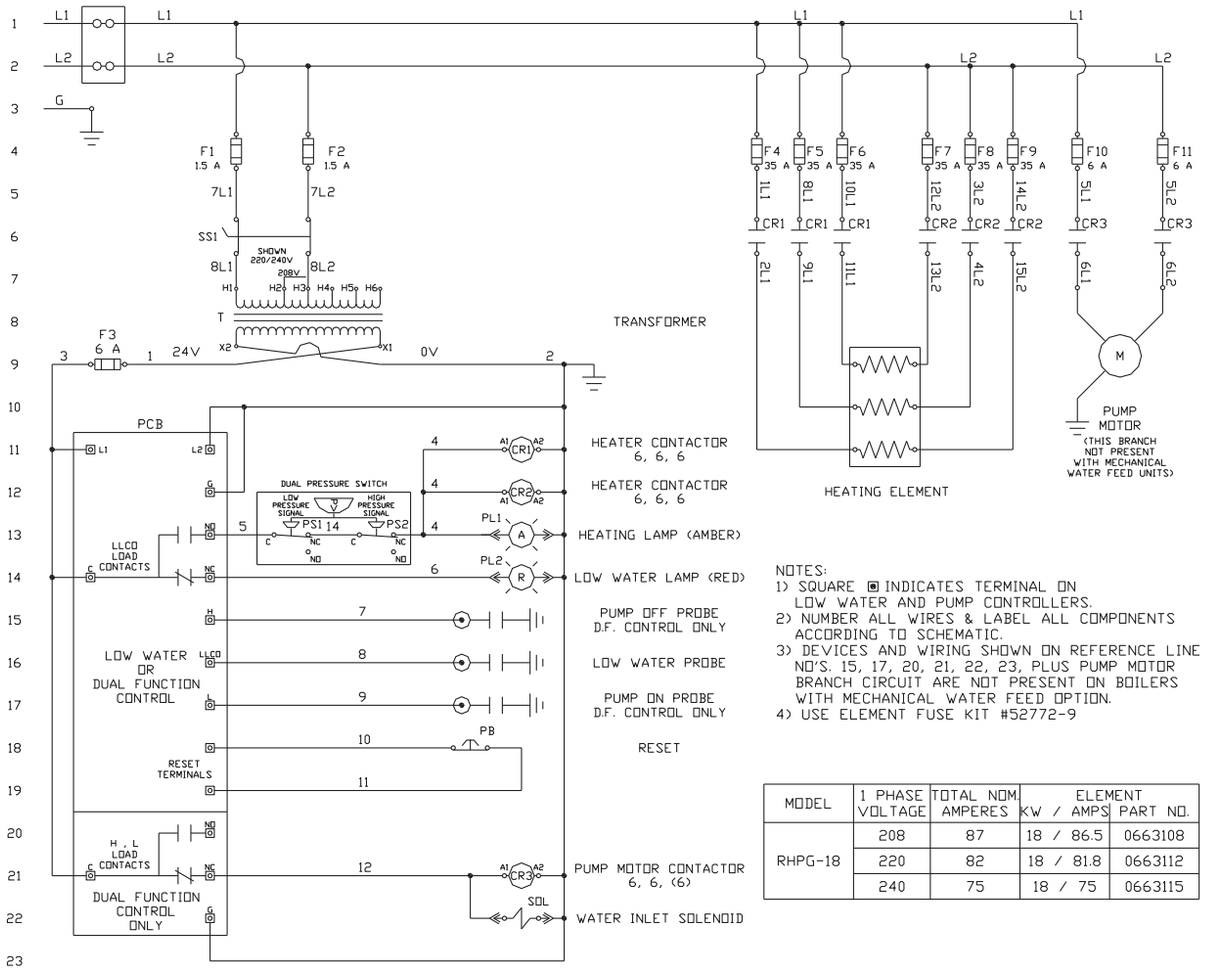


Figure 7.8 – 52771 (rev B) Wiring Schematic Hoffman Steam Generator 3 Phase



MODEL	3 PHASE VOLTAGE	TOTAL NOM. AMPERES	E1 – BOTTOM ELEMENT KW / AMPS	E1 – BOTTOM ELEMENT PART NO.	E2 – TOP ELEMENT KW / AMPS	E2 – TOP ELEMENT PART NO.	ELEMENT FUSE AMPS F4	F5	F6	F7	F8	F9
RHPG-18	208	50	18 / 49.9	0663108	–	–	60	60	60	–	–	–
	220	47	18 / 47.2	0663112	–	–	60	60	60	–	–	–
	240	44	18 / 43.3	0663115	–	–	50	50	50	–	–	–
	380	30	18 / 27.3	0663112	–	–	30	30	30	–	–	–
	415	28	18 / 25.0	0663115	–	–	30	30	30	–	–	–
	480	23	18 / 21.6	0663093	–	–	30	30	30	–	–	–
RHPG-24	208	67	12 / 33.3	0663107	12 / 33.3	0663107	40	40	40	40	40	40
	220	63	12 / 31.5	0663111	12 / 31.5	0663111	35	35	35	35	35	35
	240	58	12 / 28.9	0663036	12 / 28.9	0663036	35	35	35	35	35	35
	380	39	12 / 18.2	0663111	12 / 18.2	0663111	25	25	25	25	25	25
	415	36	12 / 16.7	0663036	12 / 16.7	0663036	20	20	20	20	20	20
	480	30	12 / 14.4	0663092	12 / 14.4	0663092	20	20	20	20	20	20
RHPG-29	208	81	17 / 47.2	0663560-1	12 / 33.3	0663107	60	60	60	40	40	40
	220	77	17 / 44.6	0663560-2	12 / 31.5	0663111	50	50	50	35	35	35
	240	70	17 / 40.9	0663560-3	12 / 28.9	0663036	45	45	45	35	35	35
RHPG-30	208	84	18 / 49.9	0663108	12 / 33.3	0663107	60	60	60	40	40	40
	220	79	18 / 47.2	0663112	12 / 31.5	0663111	60	60	60	35	35	35
	240	73	18 / 43.3	0663115	12 / 28.9	0663036	50	50	50	35	35	35
	380	48	18 / 27.3	0663112	12 / 18.2	0663111	30	30	30	25	25	25
	415	44	18 / 25.0	0663115	12 / 16.7	0663036	30	30	30	20	20	20
	480	38	18 / 21.6	0663093	12 / 14.4	0663092	30	30	30	20	20	20
RHPG-36	208	100	18 / 49.9	0663108	18 / 49.9	0663108	60	60	60	60	60	60
	220	95	18 / 47.2	0663112	18 / 47.2	0663112	60	60	60	60	60	60
	240	87	18 / 43.3	0663115	18 / 43.3	0663115	50	50	50	50	50	50
	380	57	18 / 27.3	0663112	18 / 27.3	0663112	30	30	30	30	30	30
	415	53	18 / 25.0	0663115	18 / 25.0	0663115	30	30	30	30	30	30
	480	45	18 / 21.6	0663093	18 / 21.6	0663093	30	30	30	30	30	30

Figure 7.9 – 52794 Wiring Schematic Hoffman Steam Generator 1 Phase



NOTES:
1) SQUARE ▣ INDICATES TERMINAL ON LOW WATER AND PUMP CONTROLLERS.
2) NUMBER ALL WIRES & LABEL ALL COMPONENTS ACCORDING TO SCHEMATIC.
3) DEVICES AND WIRING SHOWN ON REFERENCE LINE NO'S. 15, 17, 20, 21, 22, 23, PLUS PUMP MOTOR BRANCH CIRCUIT ARE NOT PRESENT ON BOILERS WITH MECHANICAL WATER FEED OPTION.
4) USE ELEMENT FUSE KIT #52772-9

MODEL	1 PHASE VOLTAGE	TOTAL NOM. AMPERES	ELEMENT KW / AMPS	ELEMENT PART NO.
RHPG-18	208	87	18 / 86.5	0663108
	220	82	18 / 81.8	0663112
	240	75	18 / 75	0663115

Figure 7.10 – 75285 (rev D) Electrical Enclosure Assembly – Hoffman Steam Generator
For drawing refer to next page

Item	Part No.	Description	Qty./ASSY.* *See chart on drawing for assembly description. 75285							
			-1	-2	-3	-4	-5	-6	-7	-8
1	112209	Enclosure	1	1	1	1	1	1	1	1
2	108812	Enclosure Cover (not shown)	1	1	1	1	1	1	1	1
3	0663089	Power Distribution Block	1	1	1	1	1	1	1	1
4	0662990	Fuse Block 3-Pole	2	1	2	1				
	0663331-2	Fuse Block 3-Pole					2	1	2	1
5	0663730	Transformer, 100 VA	1	1	1	1	1	1	1	1
6	0663024-24	Contactor, 50 AMP, 24V Coil	2	1	2	1	2	1	2	1
7	0663759	Level Control	1	1			1	1		
	0663871	Level Control			1	1			1	1
8	111775-2.5	Din Rail 2 ½"	1	1			1	1		
9	0663431	Contactor, 13 AMP	1	1			1	1		
10	0663471	Fuse Block 2-Pole, 250V	1	1	1	1				
11	0663680	Fuse Block 2-Pole, 600V	1	1			1	1	1	1
12	0663678	Fuse Block 3-Pole, 600V					1	1		
13	0663471	Fuse Block 1-Pole	½	½	½	½	½	½	½	½
14	0663679-6	Fuse, 6 AMP, Time Delay	2	2						
15	0663866-1.5	Fuse, 1.5 AMP, Time Delay	2	2	2	2				
	0663679-1.5	Fuse, 1.5 AMP, Time Delay					5	5	2	2
16	0663319-6	Fuse, 6 AMP, Fast Acting	1	1	1	1	1	1	1	1
17	0663318	Push Button, Momentary, N.C.	1	1	1	1	1	1	1	1
18	0663294-5	Pilot Lamp, 28V, Red	1	1	1	1	1	1	1	1
19	0663294-7	Pilot Lamp, 28V, Amber	1	1	1	1	1	1	1	1
20	0661337	Selector Switch, DPST	1	1	1	1				
	0663390-2	Selector Switch, DPST					1	1	1	1
21	0661977	Selector Switch, SPST (Optional)	1	1	1	1	1	1	1	1
22	0663299	Romex Conn., ¾"	2	1	2	1	2	1	2	1
23	23008	Romex Conn., ½"	4	4	4	4	4	4	4	4
24	02314-1	Rnd Hd. Machine Screw 8-32 x 1/2	24	18	24	18	24	18	24	18
25	05115-1	Flat Washer, #8	14	8	14	8	14	8	14	8
26	0233-1	Rnd Hd. Machine Screw 6-32 x 1/2	5	5	5	5	5	5	5	5
27	0460810-1	Lock Washer #6	9	9	9	9	9	9	9	9
28	0234-1	Rnd Hd. Machine Screw 6-32 x 5/8	4	4	4	4	4	4	4	4
29	20155	Ground Lug 2-8	1	1	1	1	1	1	1	1
30	0463-1	Hex Hd. Cap Screw ¼-20 x 1"	1	1	1	1	1	1	1	1
31	05238	I.E. Tooth Lock Washer 1/4	4	4	4	4	4	4	4	4
32	04910-1	Hex Nut ¼-20	2	2	2	2	2	2	2	2
33	0663705	Ground Lug 4-14	1	1	1	1	1	1	1	1
34	0460805	Speed Nut ¼-20	4	4	4	4	4	4	4	4
35	02369-1	R.H.M.S. ¼-20 x ½ (not shown)	4	4	4	4	4	4	4	4
36	0663649-1	Male Disc., Insulated #16/14-250	2	2	2	2	2	2	2	2
37	0663292-4	Ring Terminal #18-14R	2	2	2	2	2	2	2	2
38	0663292-15	Ring Terminal #14-6R	8	8	8	8	8	8	8	8
39	0663292-5	Ring Terminal #14-14R	4	4	4	4	4	4	4	4
40	0663333	Fem./Male Disc. Adapter .250	7	7	7	7	7	7	7	7
41	0663648-1	Female Disc., Insulated #16/14-250	28	28	28	28	28	28	28	28
42	0663774-4	Female Disc., Insulated #16/14-187	7	7	7	7	7	7	7	7
43	0663648	Female Disc., Insulated #22-18-250	3	3	3	3	3	3	3	3

Figure 7.10 – 75285 (rev D) Electrical Enclosure Assembly – Hoffman Steam Generator

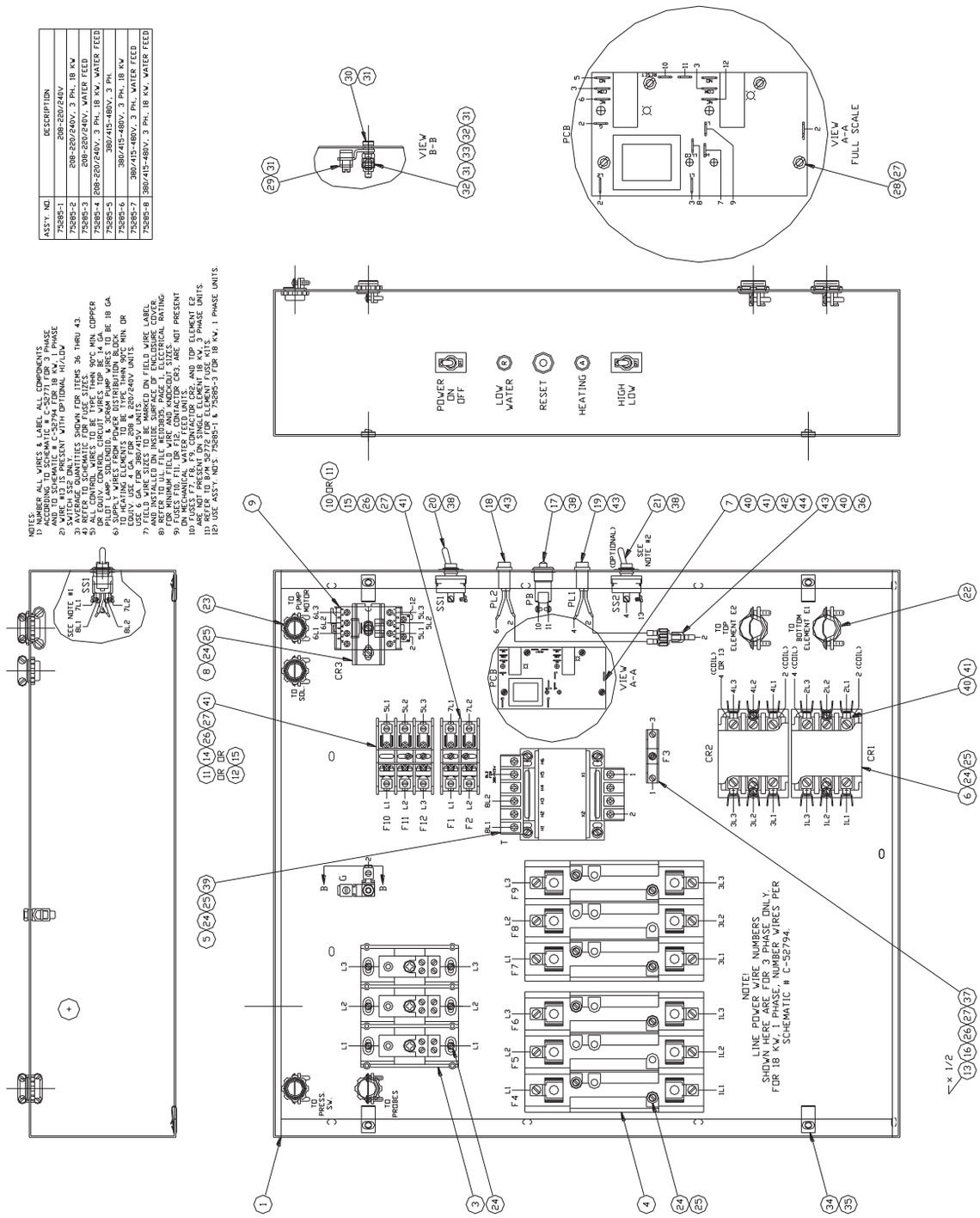
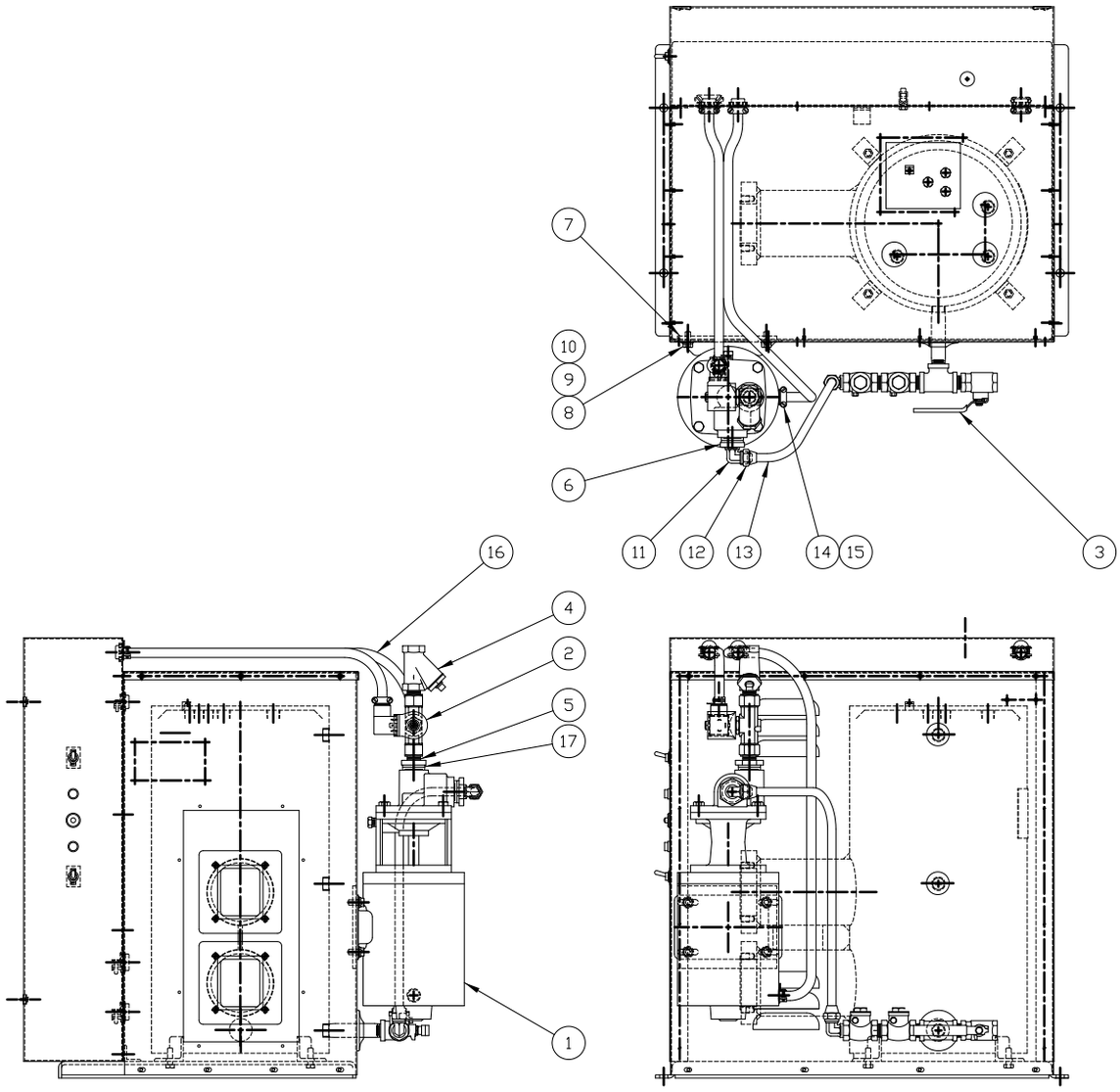


Figure 7.11 – 73493 (rev D) Water Pump Assembly Kit Hoffman Steam Generator
For drawing refer to next page

Item	Part No.	Description	Qty./ASSY.* *See chart on drawing for assembly description.		
			73493	-3	-CE
1	3CT5M*	Pump	1		
	085177	Pump		1	1
2	0663948-47	Solenoid Valve, 3/8, 24V	1	1	1
3	75507	Pump Conn./Drain Assembly	1	1	1
4	015484	"Y" Strainer, 3/8	1	1	1
5	05863	Brass Nipple, 3/8 Close	2	2	2
6	031141	Brass Hex Reducer, 1 x 1/2	1	1	1
7	110016	Pump Mounting Plate	1	1	1
8	04617-1	Hex Head Cap Screw 5/16-18 x 3/4	4	4	4
9	0523-1	Lock Washer 5/16	4	4	4
10	05129	Flat Washer 5/16 S.A.E	4	4	4
11	20561	Flare Elbow, 1/2P x 1/2T	1	1	1
12	20539	Flare Nut, 1/2T	1	1	1
13	20210	Copper Tubing, 1/2 O.D.	1.5'	1.5'	1.5'
14	23008	Cond. Connector, 3/8"	2	2	
	0663735-2	Cond. Connector, 1/2"			2
15	20928	Anti-Short Bushing	2	2	
16	0663297	Conduit, 3/8"	5'	5'	
	0663419-3	Conduit, 1/2"			3'
17	031370	Brass Hex Reducer, 1 x 3/8	1	1	1

ASS'Y NO.	DESCRIPTION
73493	1 PH., 208-240V
73493-3	3 PH., 380-480V
73493-CE	3 PH., 380-480V, CE

Figure 7.11 – 73493 (rev D) Water Pump Assembly Kit Hoffman Steam Generator



Optional Parts List

Part No.	Description	Qty.
108577-2	Caster Plate Models: JEL-10, JEL-11, JEL-12, RHPG-15, RHPG-16, RHPG-17	1
SG755	Manual Steam Gun Models: RHPG-15, RHPG-16, RHPG-17	1
74717	Handle Kit Models: JEL-10, JEL-11, JEL-12, RHPG-15, RHPG-16, RHPG-17	1
Handle Kit List:		
05788-1	Handle	1
EG9T-14	Handle Support	1
049163	5/16-18 Acorn Nut	2
0523-1	5/16 Lock Washer	2
20263-31	5/16-18 x 7 ¾ Threaded Rod	1
0462-1	¼-20 x ¾ Hex Head Cap Screw	2
0522-1	¼ Lock Washer	2
04910-1	¼-20 Hex Nut	2
23086	Teflon Hose	3 Feet
23082	Teflon Hose	5 Feet
23083	Teflon Hose	6 Feet
23084	Teflon Hose	7 Feet
23085	Teflon Hose	8 Feet
23087	Teflon Hose	10 Feet

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