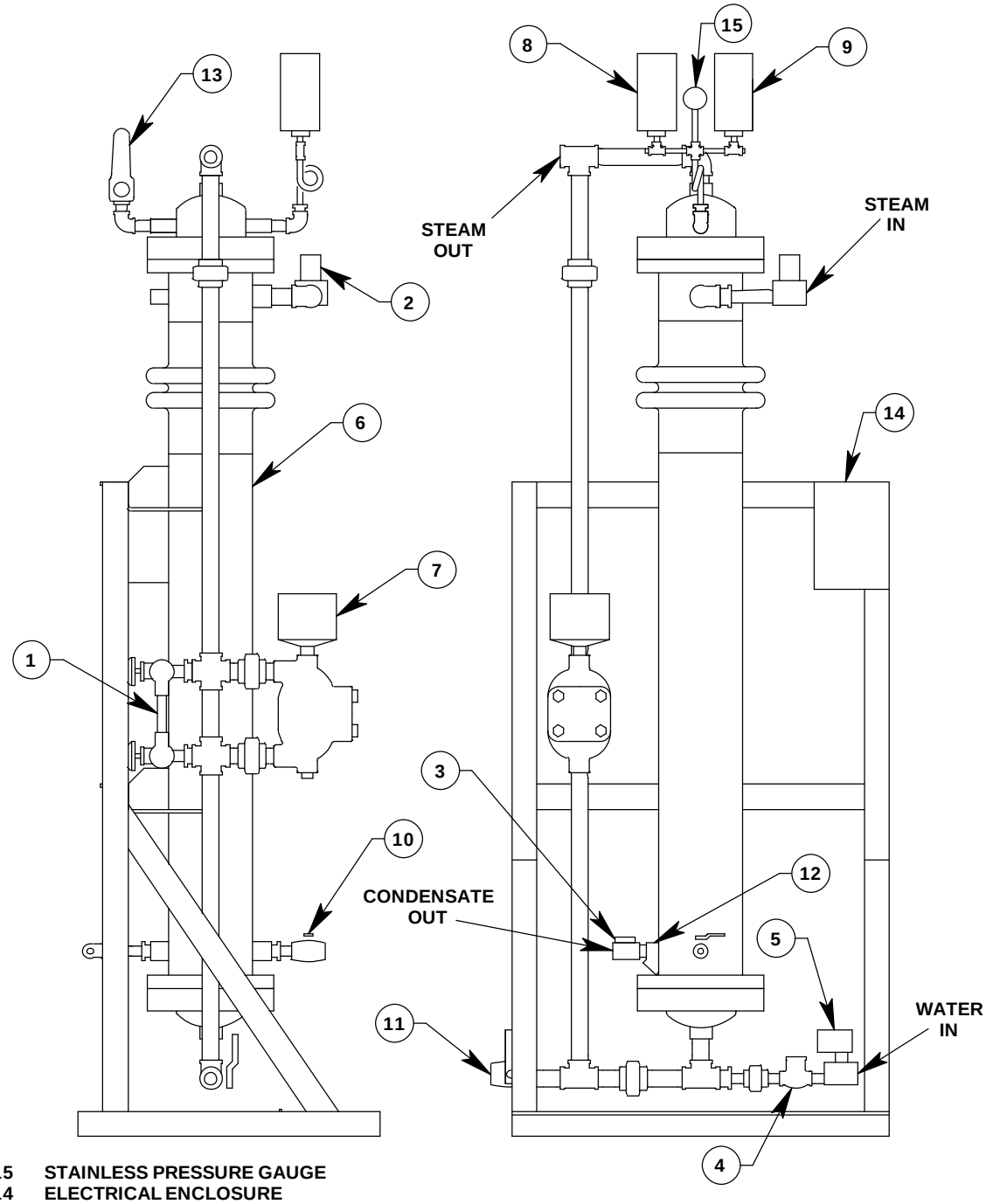
February 21, 2003

INSTALLATION INSTRUCTIONS
FOR STEAM TO STEAM GENERATOR

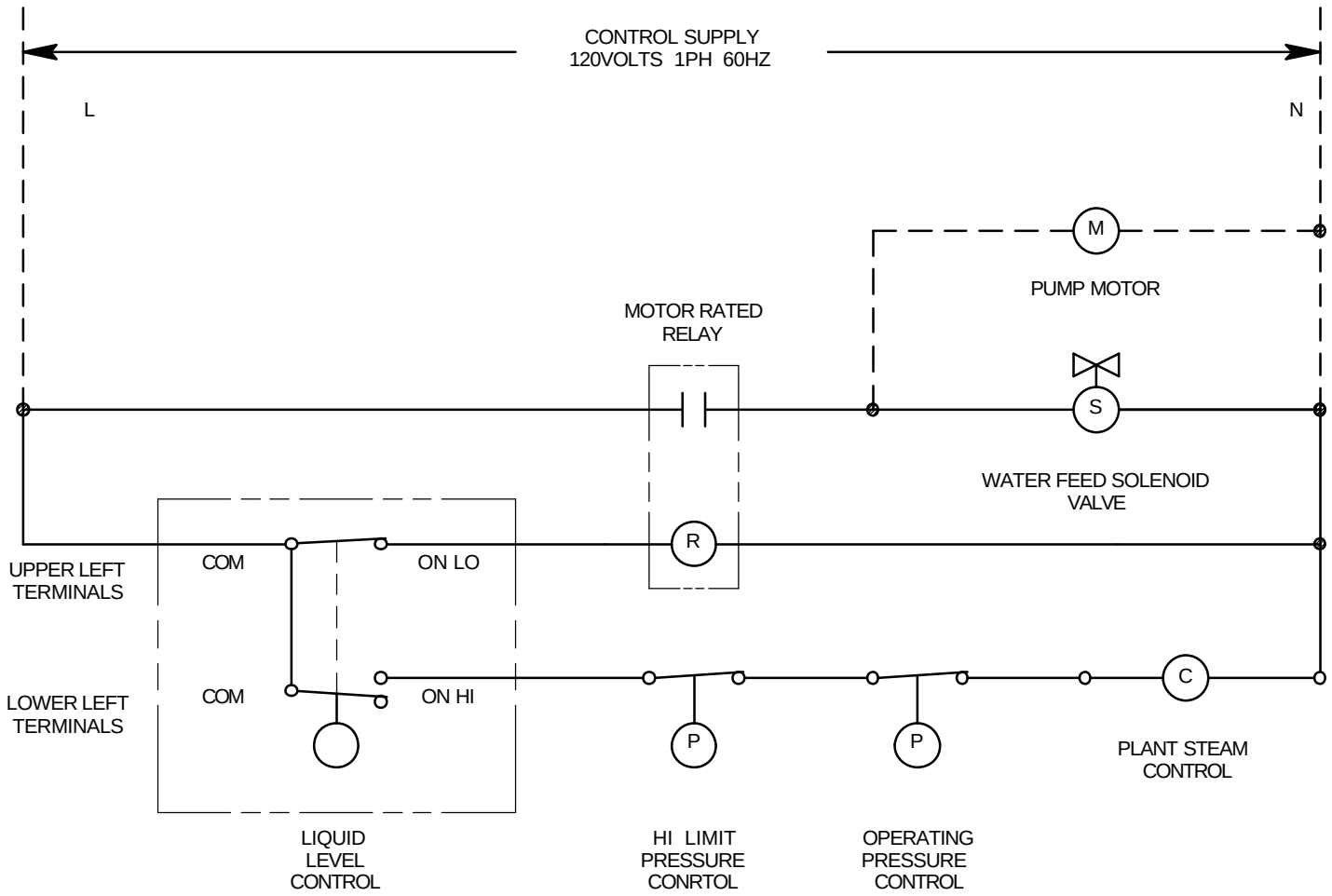
1. Mount Steam Generator Assembly vertically.
2. Connect deionized water feed source to generator water inlet.
3. Connect house steam supply to steam solenoid valve.
4. Connect generator condensate return output to plant steam condensate line.
5. Plumb clean steam drain and plant steam drain to an approved location.
6. Plumb safety valve outlet to an approved location.
7. Connect steam outlet to steam load.
8. Connect wiring according to wiring diagram.



ITEM	DESCRIPTION
15	STAINLESS PRESSURE GAUGE
14	ELECTRICAL ENCLOSURE
13	STAINLESS STEEL SAFETY VALVE
12	STRAINER
11	STAINLESS BALL VALVE (DRAIN)
10	DRAIN VALVE
9	HIGH LIMIT PRESSURE CONTROL
8	OPERATING PRESSURE CONTROL
7	LIQUID LEVEL CONTROL
6	STAINLESS STEEL HEAT EXCHANGER
5	ST STEEL WATER FEED SOLENOID VALVE
4	STAINLESS STEEL CHECK VALVE
3	STEAM TRAP
2	BRASS STEAM SOLENOID VALVE
1	GAUGE GLASS

TOLERANCES (EXCEPT AS NOTED)	SUSSMAN-AUTOMATIC CORPORATION 43-20 34TH STREET, LONG ISLAND CITY, NEW YORK 11101		
DECIMAL	JOB: INDUSTRIAL BOILER	SCALE: ~	DRAWN BY: FE APPROVED BY: CM
FRACTIONAL	TITLE: STEAM TO STEAM GENERATOR		
ANGULAR	DATE: 03-09-04	DRAWING NUMBER: MODEL SHE	

SYM	DATE	ECN	REVISION RECORD	AUTH



FIELD WIRING — — — — —

FACTORY WIRING ————

TOLERANCES (EXCEPT AS NOTED)	SUSSMAN-AUTOMATIC CORPORATION		
	43-20 34TH STREET LONG ISLAND CITY NEW YORK 11101		
DECIMAL ± .005	JOB: PURE STEAM GENERATOR	SCALE: ~	DRAWN BY: FE / APPROVED BY: CM
FRACTIONAL ± 1/64	TITLE: WIRING DIAGRAM STEAM TO STEAM GENERATOR		
ANGULAR ± 1°	DATE: 08-03-94	DRAWING NUMBER: A-103634	

May 5, 2006

PRINCIPLE OF OPERATION

THE SYSTEM CONSISTS OF STAINLESS STEEL HEAT EXCHANGER, LIQUID LEVEL CONTROL, PRESSURE CONTROLS, AND VARIOUS VALVES AND FITTINGS.

RAW PLANT STEAM IS INTRODUCED TO THE HEAT EXCHANGER SHELL THROUGH THE **STEAM SOLENOID VALVE**. STEAM CONDENSATE IS DISCHARGED FROM THE SHELL THROUGH THE **STEAM TRAP** AT THE SHELL OUTLET.

CLEAN WATER ENTERS THE HEAT EXCHANGER THROUGH THE **WATER FEED SOLENOID VALVE**. A **CHECK VALVE** PREVENTS STEAM FROM FLOWING BACK INTO THE PUMP. HEAT FROM RAW STEAM TURNS THE CLEAN WATER INTO STEAM IN THE **HEAT EXCHANGER** TUBES.

THE **LIQUID LEVEL CONTROL** IS CONNECTED TO THE HEAT EXCHANGER THROUGH A SERIES OF EQUALIZING PIPES. THE LIQUID LEVEL CONTROL PROVIDES LOW WATER CUT-OFF AND WATER FEED CONTROLS.

WHEN THE WATER LEVEL EXCEEDS THE MINIMUM OR MAXIMUM SET POINTS THE WATER FEED PUMP MOTOR IS ENERGIZED OR DE-ENERGIZED TO CONTROL WATER LEVEL. OPERATING WATER LEVEL IS AT APPROXIMATELY AT THE **SIGHT GLASS** LEVEL.

THE LOW WATER CUT-OFF SYSTEM DETECTS WATER LEVEL AND DE-ENERGIZES THE RAW STEAM SOLENOID VALVE WHEN WATER LEVEL FALLS A COUPLE OF INCHES BELOW MINIMUM LEVEL.

THE **OPERATING PRESSURE CONTROL** MONITORS THE CLEAN STEAM PRESSURE INSIDE THE TUBES AND ENERGIZES OR DE-ENERGIZES RAW STEAM SOLENOID VALVE TO MAINTAIN PROPER PRESSURE LEVEL.

THE **PRESSURE GAUGE** INDICATES THE CLEAN STEAM OUTPUT PRESSURE.

THE **HIGH LIMIT PRESSURE CONTROL** DOES THE SAME FUNCTION AS THE OPERATING PRESSURE CONTROL BUT AT A HIGHER PRESSURE LEVEL. IT IS A SAFETY BACK-UP FOR THE OTHER PRESSURE CONTROL.

THE **SAFETY VALVE** MECHANICALLY DISCHARGES STEAM WHEN MAXIMUM SYSTEM PRESSURE IS EXCEEDED.

Feb 28 2006

Steam Heat Exchanger Pressure Control Adjustment

WARNING: Avoid contact with exposed live electric wires.

SETTING MANUAL RESET HIGH LIMIT PRESSURE CONTROL

1. Turn off SHE control and temporarily short the two wires of Automatic Reset Pressure Control. Note wiring connections.
2. Turn on SHE control, shut off steam outlet and allow pressure to build up.
3. Steam pressure should build up to the factory set pressure; then the Manual Reset Pressure Control should trip.
4. Relieve boiler pressure to 70 psig below trip pressure.
5. Depress reset button of the Manual Reset Pressure Control to be sure switch is in the reset position.

To adjust:

6. Loosen Lock Ring on Adjusting Nut of Manual Reset High Limit Pressure Control. See Figures 1 and 2.
7. Turn Adjusting Nut 1/4 turn up or down using a 7/16 wrench.

CAUTION: Adjustment nut will turn easily until it hits a stop.
Do not over torque. Over torquing may cause damage.

8. Repeat steps 3 to 8 above, adjusting 1/4 turn at a time until Pressure Control cuts off below the safety valve set point, preferably 10 psi below or lower.
9. Secure Lock Ring on Adjusting Nut.
10. Depress reset button to be sure switch is in the reset position.
11. Turn off SHE control and reconnect wires of Automatic Reset Pressure Control. (See step 1).

SETTING AUTOMATIC RESET OPERATING PRESSURE CONTROL

1. Turn on SHE control, shut off steam outlet and allow pressure to build up.
2. Steam pressure should build up to factory set pressure, then the Automatic Pressure Control should trip.

To adjust:

3. Turn off all electric supply to boiler.
4. Turn Deadband Adjusting Knob on front of switch fully counter clockwise.
5. Turn Adjusting Nut at top of switch 1/4 turn. Clockwise to increase pressure, counter clockwise to reduce pressure.

CAUTION: Adjustment Nut and Deadband Adjusting Knob will turn easily until it hits a stop. Do not over torque. Over torquing may cause damage.

6. Relieve some of the boiler pressure until Automatic Reset Pressure Control cuts in. Depress reset button of the Manual Reset Pressure Control to be sure switch is in the reset position.
7. Steam pressure should build up, then Pressure Control should cut off again.
8. Turn Adjusting Nut 1/4 turn at a time and cycle pressure until Pressure Control cuts off below the high limit set point, preferably 10 psi lower.
9. Turn off electric supply to SHE control.
10. Re-adjust Proportioning Pressure Control setting.