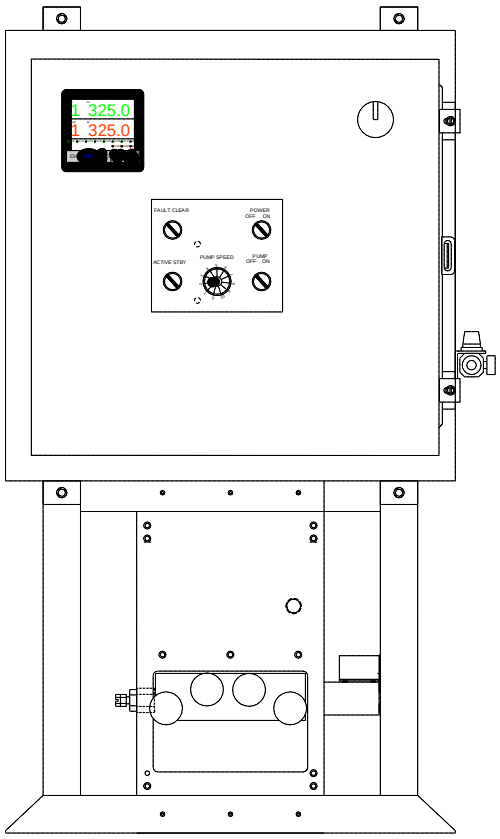
DARING inc.

FOAMER

MA-900 CONTROLS
VER 2.6



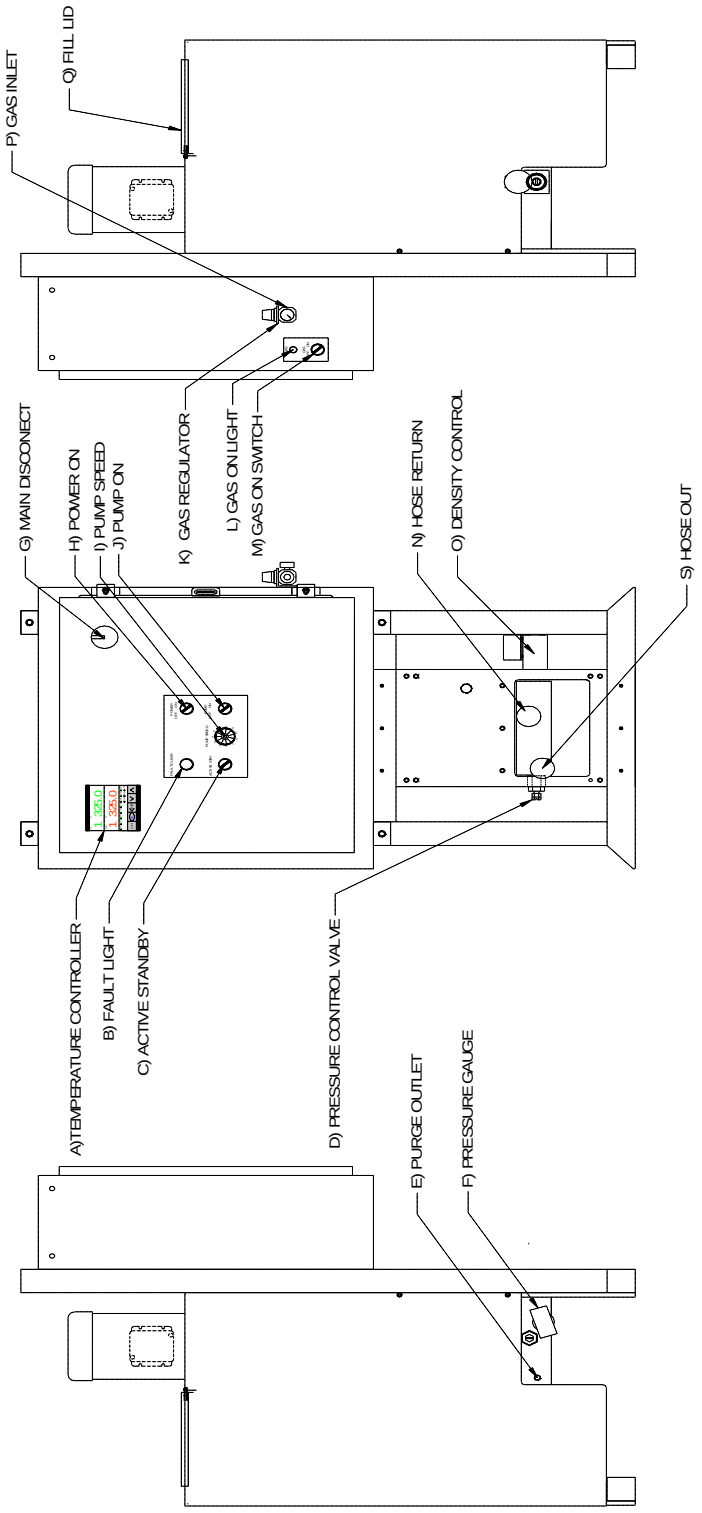
DARING LLC.
180 Engelwood Drive
Suite B
Orion, Mi. 48359
Fax (248) 340-0753
Ph. (248) 340-0741

TABLE OF CONTENS

1.0 Equipment overview ---- 3
1.1 General location of controls ---- 3
1.2 Temperature controller overview ---- 5
1.3 System function overview ---- 6
2.0 Temperature controller ---- 7
2.1 Setting temperature ---- 7
2.2 Set stand by temperature ---- 8
2.3 Turning channels on and off ---- 9
2.4 Turning channels on and off for stand by ---- 10
3.0 Operation ---- 11
3.1 First start up ---- 11
3.2 Daily start up ---- 11
3.3 Daily shut down ---- 11
4.0 Maintenance ---- 12
4.1 Lubrication ---- 12
4.2 Assembly drawing ---- 13
4.3 Parts list ---- 14
4.4 Spare parts list ---- 16
4.5 Electrical schematic ---- 17

1.0 Equipment overview

1.1 General location of controls



A) Temperature controller

The top number in green, indicates present temperature.
The bottom number indicates set temperature.

B) Fault light

The light is on green when all the faults are cleared.

c) Active standby switch

When the switch is set to standby the system is taken off line, and the temperature drops.

D) Pressure control valve

This valve sets the system pressure (bead size), clock wise to increase pressure, counter clock wise to decrease pressure (do not increase pressure past 1,200 P.S.I. as shown on pressure gauge).

E) Purge outlet

This outlet allows you to dump the hot melt out, and relieves pressure.

F) Pressure gauge

Indicates the system pressure (return side before pressure control valve).

G) Main disconnect

Turns of power coming into the electrical box (should be locked out for electrical repair).

H) Power on

This is the system start up switch.

I) Pump speed

The dial sets the pump speed, clock wise to increases pump speed, counter clock wise to decrease the Speed (pump speed should be always set the same)

J) Pump on

This switch turns the pump on.

K) Gas regulator

This regulator sets final gas pressure (set to 3 P.S.I. please note; do not try to use this regulator to control foam).

L) Gas on light

The light indicates when gas is be added to the hot melt.

M) Gas on switch

This switch turns the gas flow off or on.

N) Return hose

This hose returns hot melt to unit.

O) Density control

The density controller sets your foam density. Clock wise increase the amount of gas Injected into the hot melt. Counter clock wise decrease the amount of gas.

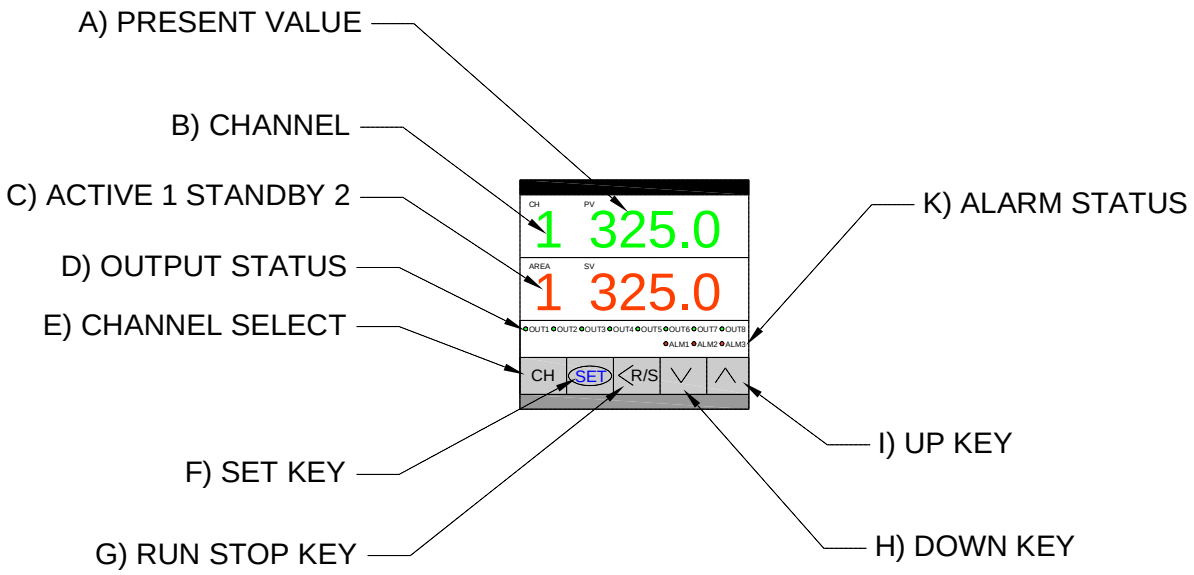
P) Gas inlet

Plant supplied inert gas is installed here.

Q) Fill lid

Hot melt is added under this lid.

1.2 Temperature controller overview



A) Present value

This display displays current temperature.

B) Channel

1) Tank (pump) temperature
2) Grid temperature
3) Hose #1 temperature
4) Head #1 temperature
5) Hose #2 temperature
6) Head #2 temperature
7) Hose #3 temperature
8) Head #3 temperature

D) Output status

The green light indicates the channel is heating.

E) Channel select

This key scrolls through the different channels.

F) Set key

This key sets many functions (temperature, channels on,).

G) Run stop key

This key scrolls numbers and has other functions.

H) Down key

This key lowers numbers and changes settings.

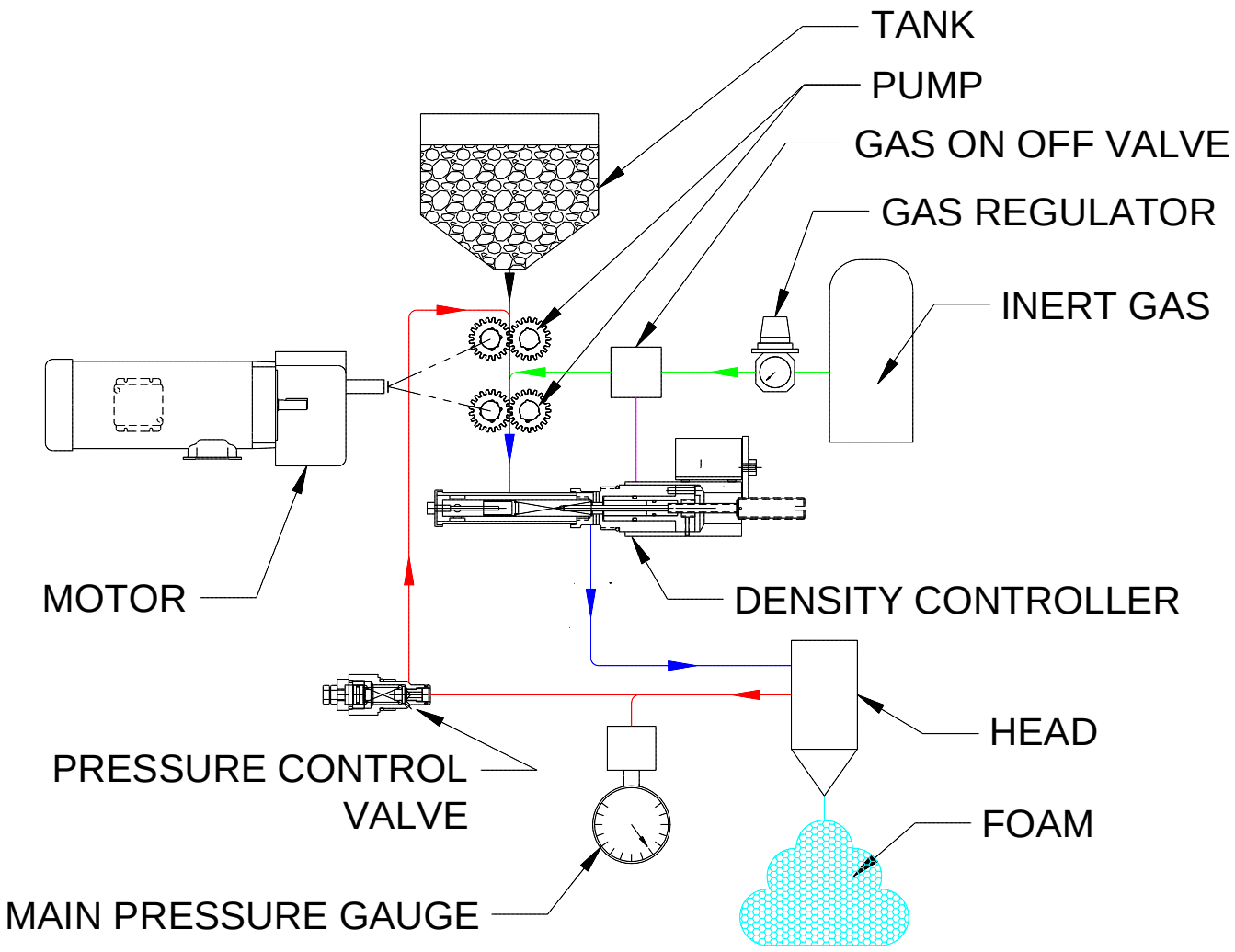
I) Up key

This key raises numbers and changes settings.

K) Alarm status

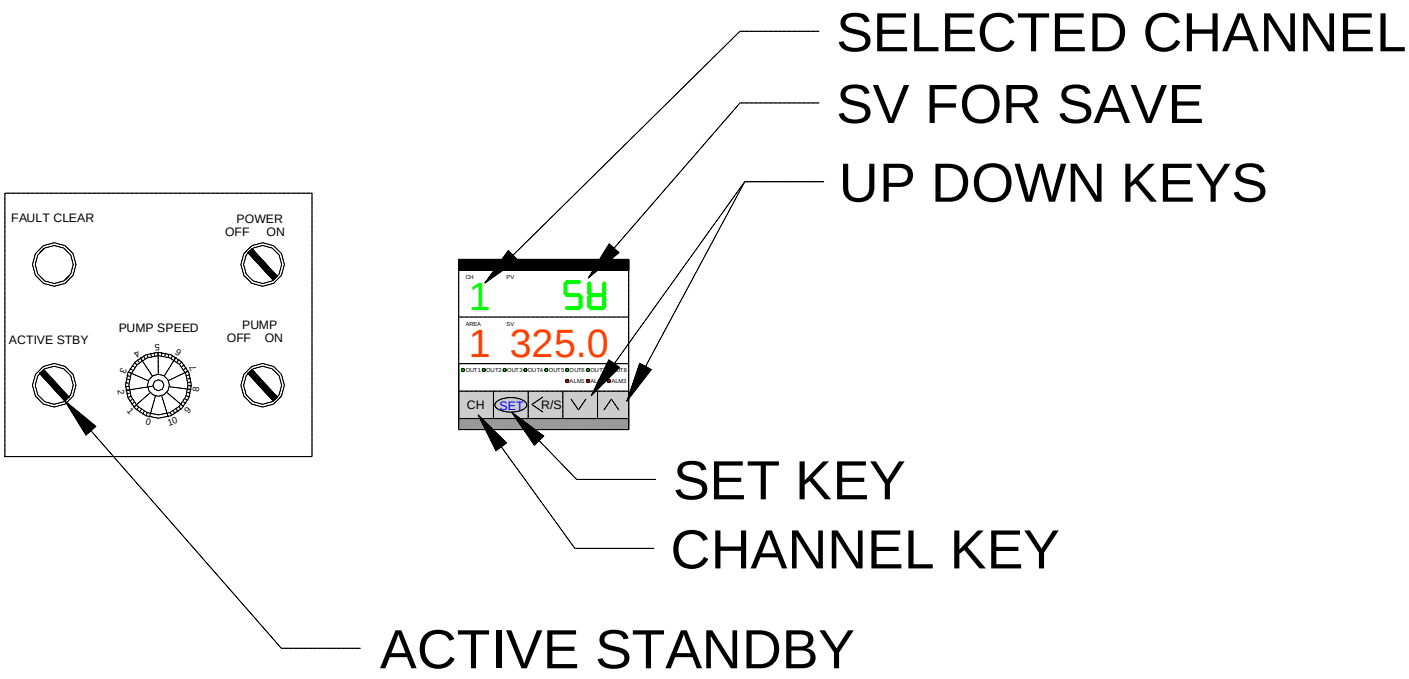
Alarm #1 lights up red when a channel goes over temperature. Alarm #2 lights up red when the system is not yet up to temperature

1.3 System function overview



The hot melt enters the pump from the tank. Between the first stage and second stage of the pump, the gas is added as needed. The density controller controls the gas on valve. The bead is dispensed from the head. The unused foam is returned. The unused foam goes to the pressure gauge and then to the pressure control valve were it is restricted. The hot melt returns to the first stage of the pump. A motor drives the pump.

2.0 Temperature controller
2.1 Setting temperature



Step 1 : Make sure the active standby switch is in the active position.

Step 2 : Select the channel you wish to change using the channel key. (After channel 8, there is a set all)

CHANNEL	TEMPERATURE ZONE CONTROLLED
1	Tank (pump)
2	Grid
3	HOSE #1
4	HEAD #1
5	HOSE #2
6	HEAD #2
7	HOSE #3
8	HEAD #3

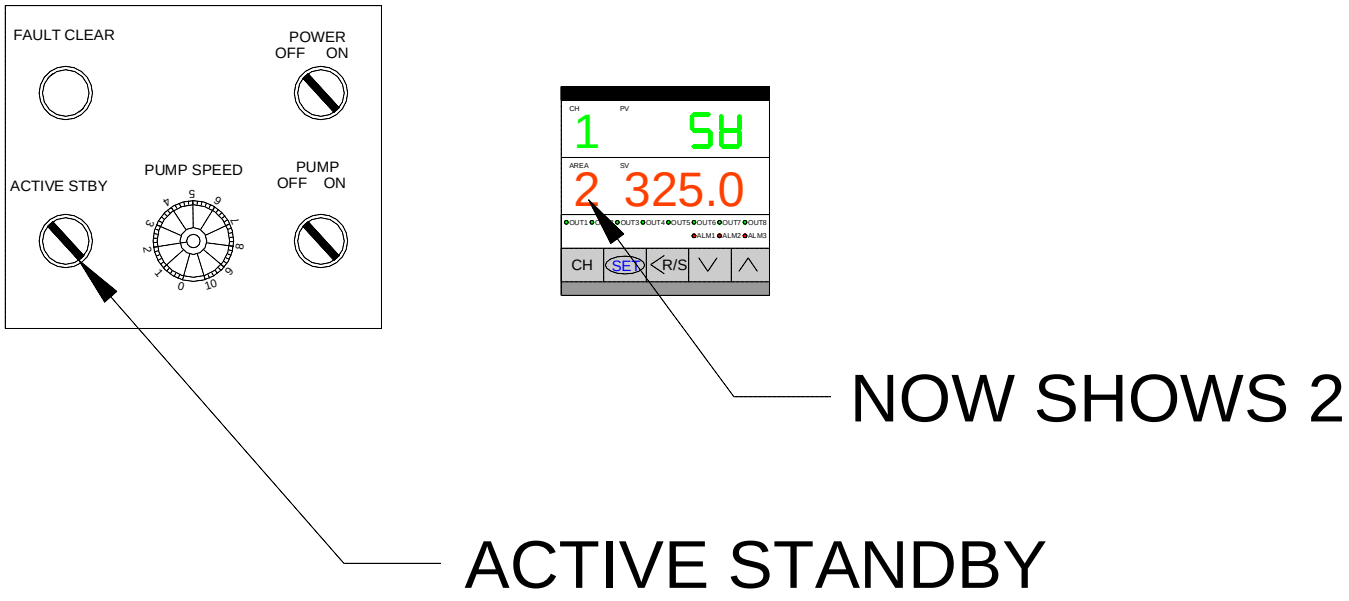
Step 3 : Now press the set key and you will see the “SV” appears in green.

Step 4 : Use the up down keys to set the temperature (Use the **<R/S** button to shift and highlight the digit that you would like to change. Use the up down keys to increase or decrease the temperature values).

Step 5 : You can change to a different channel and set it, or press the set key to return.

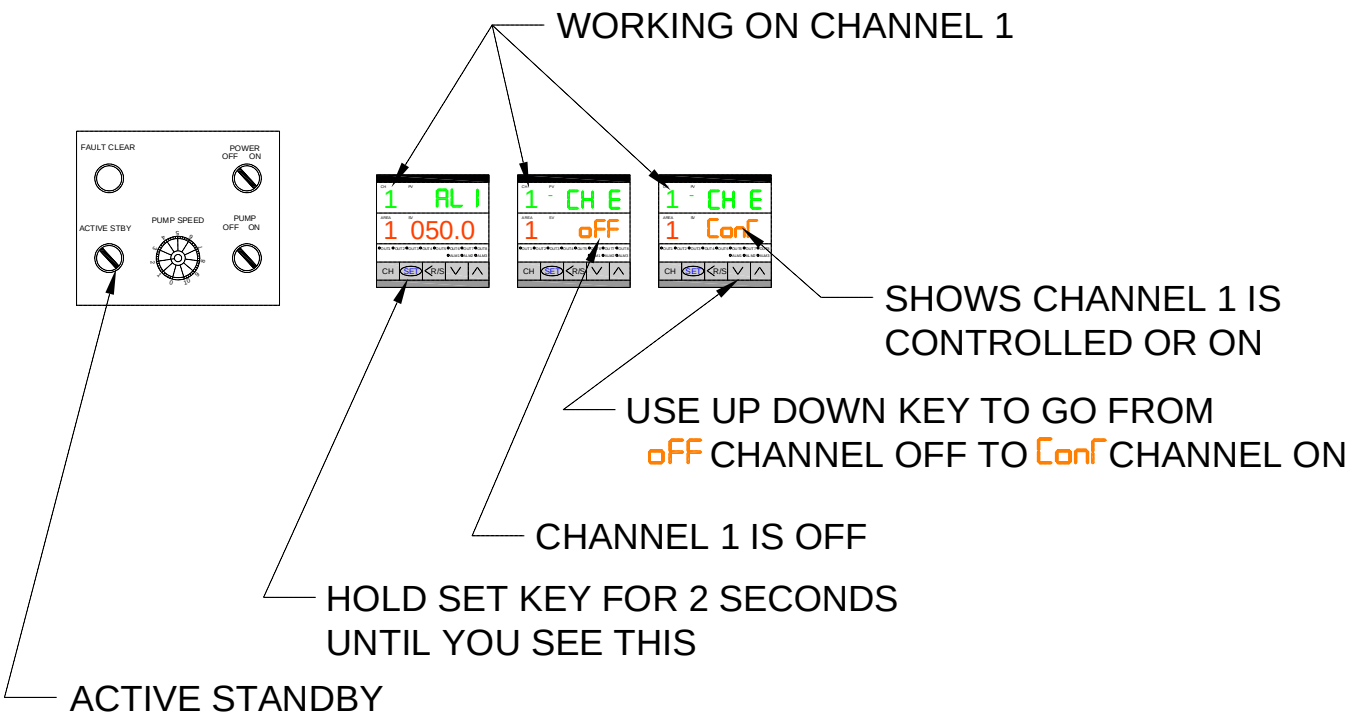
2.2 Set stand by temperature

Setting the stand by temperature is the same as “2.1 Setting temperature”, except for in Step 1, the active standby switch should be set to stand by. When you are setting or in stand by the area window shows the number 2.



2.3 Turning channels on and off

Many systems do not use all of the channels (i.e. hose #3 head #3). It is necessary to turn off channels not being used. If the unused channels are left on the controller does not see the sensor. The controller will assume unused channel is over temperature. Alarm 1 will turn on and the system fault clear light will go out.

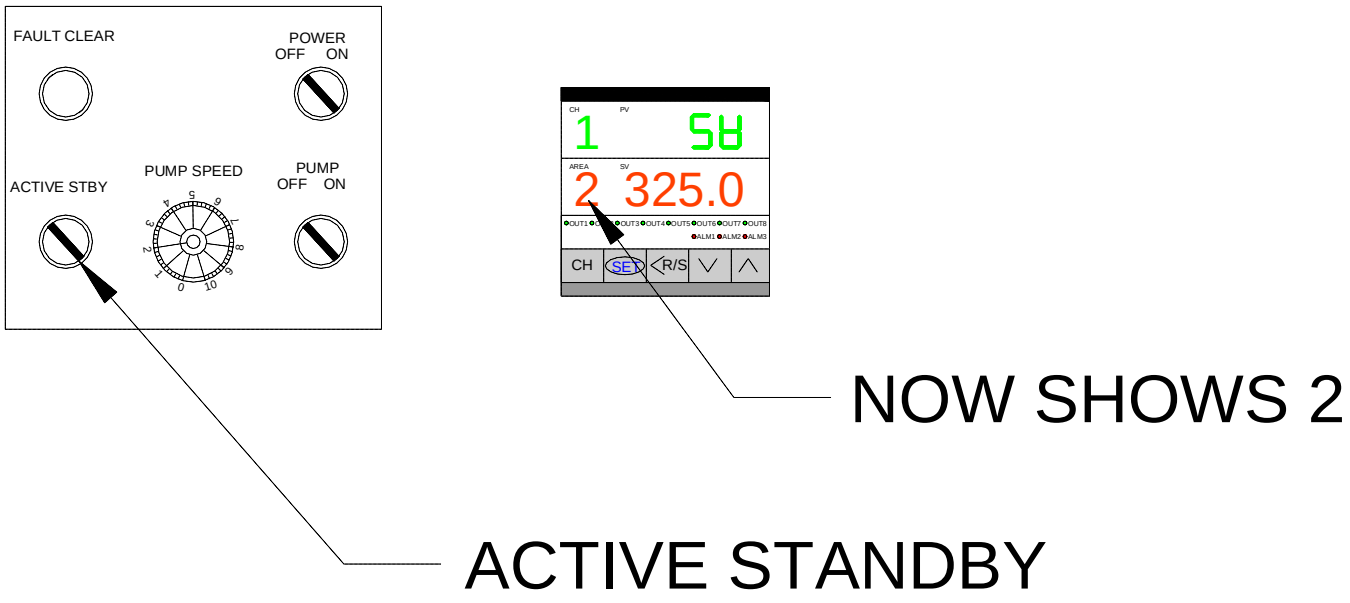


Step 1 : Make sure active stand by is switched to active.
Step 2 : Hold the set key for two seconds until you see AL 1.
Step 3 : Press the set key several times until you see CH E.
Step 4 : Use the up down key to change from Cont to oFF.
Step 5 : Repeat for channels you wish to change.

CHANNEL	TEMPERATURE ZONE CONTROLLED
1	Tank (pump)
2	Grid
3	HOSE #1
4	HEAD #1
5	HOSE #2
6	HEAD #2
7	HOSE #3
8	HEAD #3

2.4 Turning channels on and off for stand by

Turning channels on and off for standby is the same as “2.3 Turning channels on and off”, except for in Step 1, the active stand by switch should be set to stand by. When you are setting or in stand by, the area window shows the number 2.



3.0 Operation
3.1 First start up

Step 1 : Remove all packaging.
Step 2 : Attach hoses and heads.
Step 3 : Plug in hoses and heads
Step 4 : Attach power to main disconnect.
Step 5 : Attach inert gas line
Step 6 : Make sure the power switch, pump switch, and gas switch is in the off position.
Step 7 : Open lid and put hot melt into the hopper
Step 8 : Turn on main disconnect.
Step 9: Turn on power switch.
Step 10 : Allow system to come up to temperature, and alarm 2 will go off.
Step 11 : Wait 20 minutes for the heat soak timer to expire.
Step 12: Turn pump speed to "0", and turn on pump switch.
Step 13 : Open purge port.
Step 14 : Slowly bring up pump speed to three or four while watching pressure.
Step 15 : Wait until you start to see good flow coming from purge port.
Step 16 : Back out pressure control valve out (C.W.)
Step 17 : Close purge port.
Step 18 : ramp up pump speed to correct setting trying to maintain 2 to 1 ratio. Do not allow pressure to Exceed 1,000 psi
Step 19 : Turn the gas switch on. Back out, or move in the density controller until gas light start to flicker.
Step 20 : Adjust density controller, pump speed, and pressure control valve to desired setting.
Step 21 : Allow the system to stabilize.
Step 22 : Ready to run production.

3.2 Daily start up

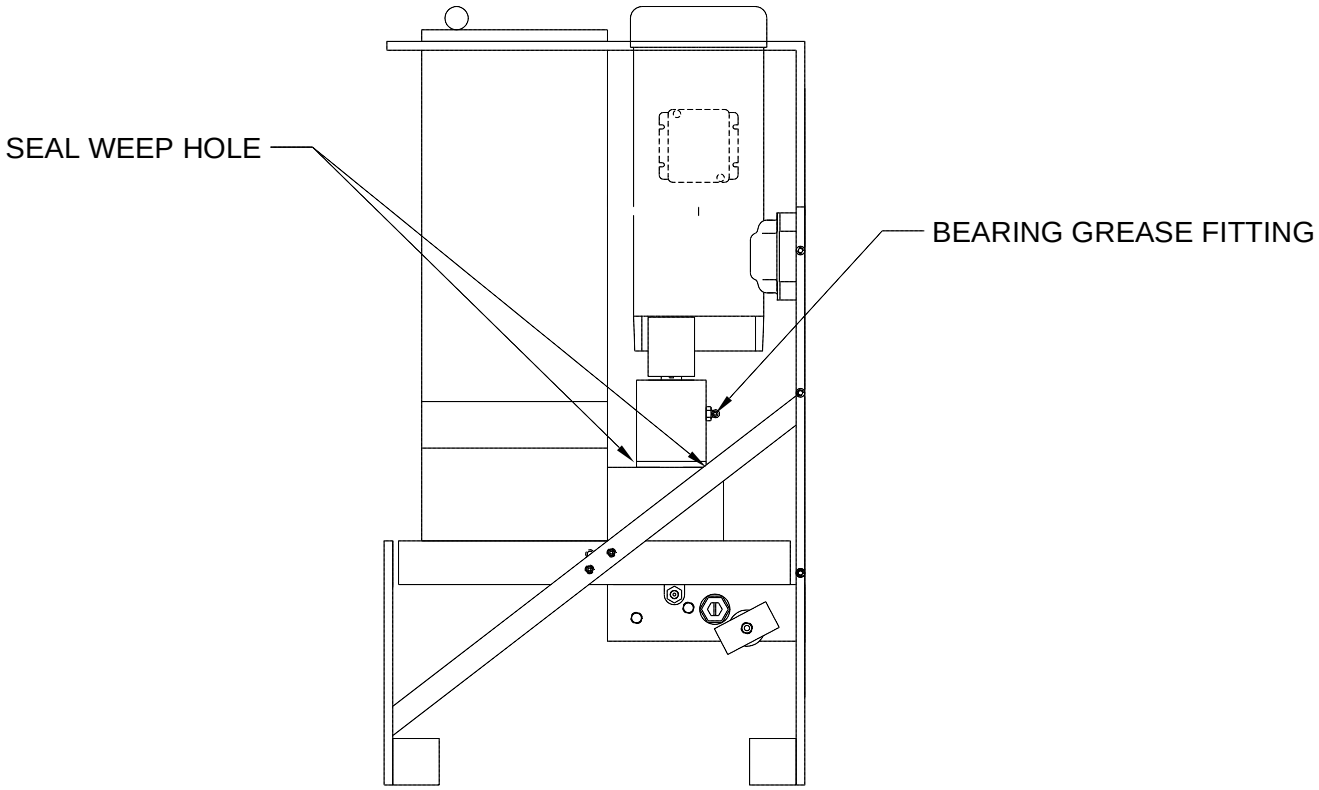
Step 1 : Make sure the power switch, pump switch, and gas switch are in the off position.
Step 2 : Open lid and put hot melt into the hopper
Step 3 : Turn on main disconnect.
Step 4: Turn on power switch.
Step 5 : Allow system to come up to temperature and alarm 2 will turn off.
Step 6 : Wait 20 minutes for the heat soak timer to expire.
Step 7 : Turn pump speed to "0", turn on pump switch, and turn on gas switch
Step 8 : Ramp up pump speed to the correct setting. Do not allow pressure to Exceed 1,000 psi
Step 9 : Allow the system to stabilize (10-15 minutes).
Step 10 : Ready to run production.

3.3 Daily shut down

Step 1 : Turn down pump speed to zero.
Step 2 : Turn off pump and gas switches.
Step 3: Turn off power switch.
Step 4 : Turn off inert gas valve.

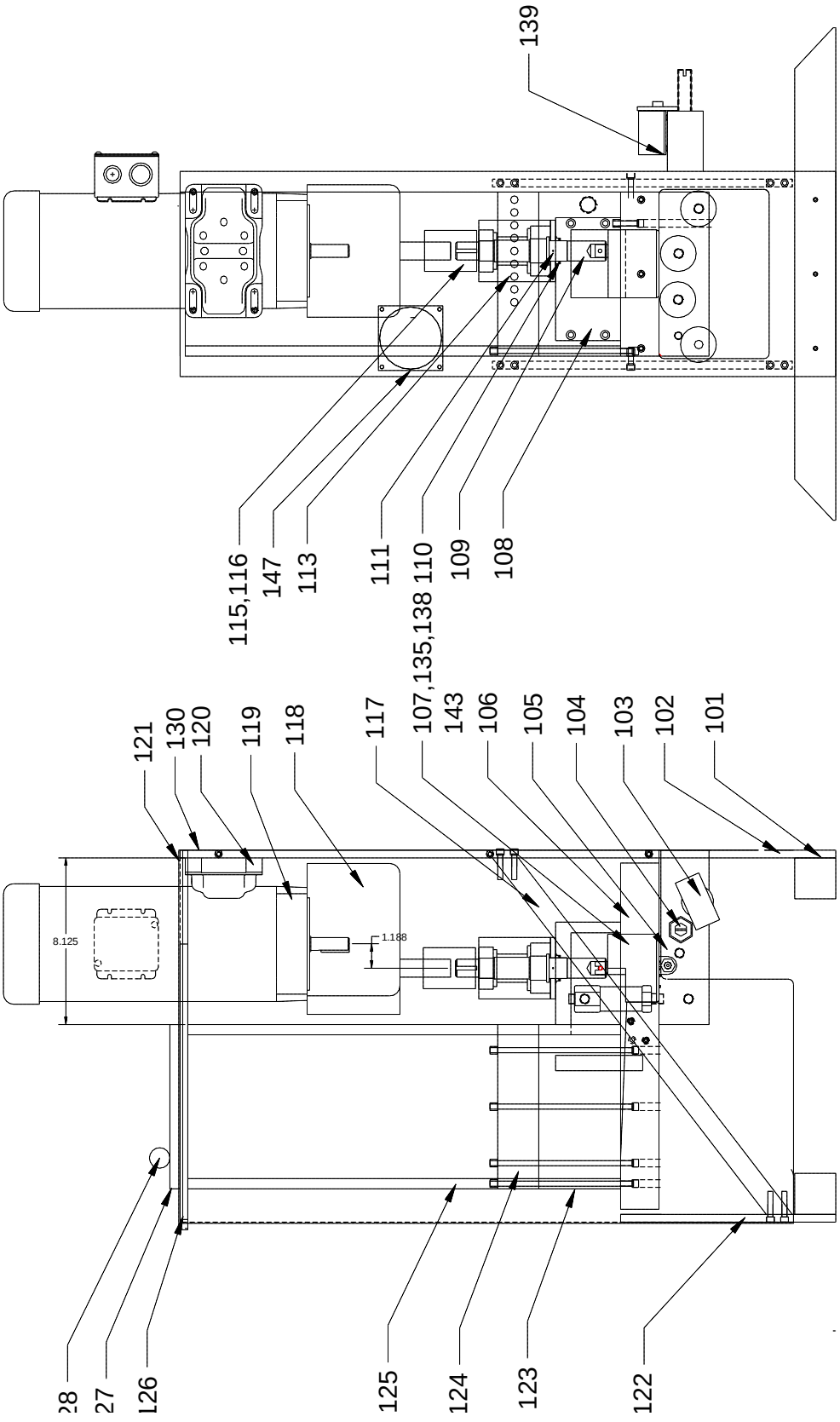
4.0 Maintenance
4.1 Lubrication

Gear lube and drive shaft bearing grease should be checked once a month. The cover needs to be removed Make sure the main disconnect is turned off before removing covers.



1) Check seal weep holes for hot melt. If hot melt is present, the seal must be replaced before the hot melt reaches the bearings
2) Using high temperature non-sagging red grease. Grease is full when you see grease coming from weep holes and/or the bearings at the top of the drive housing. Look for good color.

4.2 Assembly drawing



4.3 Parts list

1103 FOAMER

Detail	Qty	Name	Part #
101	1	FOOT	1103-101
102	1	COVER	1103-102R3
103	1	GAUGE 0-2000	33790
104	1	PRESSURE CONTROL	489-000
105	1	MANIFOLD	1103-105R3
106	1	TANK	1103-106R2
107	1	PUMP ASSY	310-218A
108	1	PUMP HOUSING	1103-108R2
110	1	SEAL	1103-110
111	1	SEAL RETAINER	1103-111
113	1	DRIVE ASSEMBLY	1103-113R1
115	2	HUB 7/8 BORE	6407K42 - 7/8 4016X7/8
116	1	CHAIN	6407K52
117	2	MOTOR SUPPORT	1103-117R1
118	1	High Efficiency Speed Reducer	M-164-C56-C7K
119	1	MOTOR	108092
120	2	MOTOR SPACER	1103-120
121	1	TOP COVER	1101-121R1
122	1	FRONT SUPPORT	1103-122
123	1	RESERVOIR	1103-123R2
124	1	GRID	1103-124R1
125	1	HOPPER	1103-125R2
126	1	HOPPER COVER	1103-126R1
127	1	TANK TOP	1103-127R2
128	1	HANDLE	8520BK
129	1	PRESSURE RELIEF VALVE	230C4-2000 ABC
130	1	MOTOR PLATE	1103-130R4
131	1	REGULATOR	R37121-100
132	1	BRACKET	104403
133	1	CHECK VALVE	7775K61
133	1	GAUGE	3847K52
134	1	CONTROL STAND	1103-134
135	1	016 O-RING PKG VITON	9464K22
137	1	O-RING VITON 129	9464K94
138	1	O-RING VITON 152	5267T133
139	1	DENSITY CONTROLLER	1128-000
140	0.25	Rigid Fiberglass Board, 1 inch	AST-1
142	10	SPACER	1103-142
143	1	011 O-RING PKG	9464K16
144	25	TUBING 1/8	9464K16
145	2	FITTING	50745K14
147	1	FAN	OA825AP-22-1TB
150	1	FINGER GUARD	1103-150
151	1	PRESSURE RELIEF	5026K31
152	12	HEATER 3/8 X 4 240VAC 500 WATT	HDC-00290
153	2	RTD	RTD00199D0316
154	8	CERAMIC BLOCK	EHD-108-114

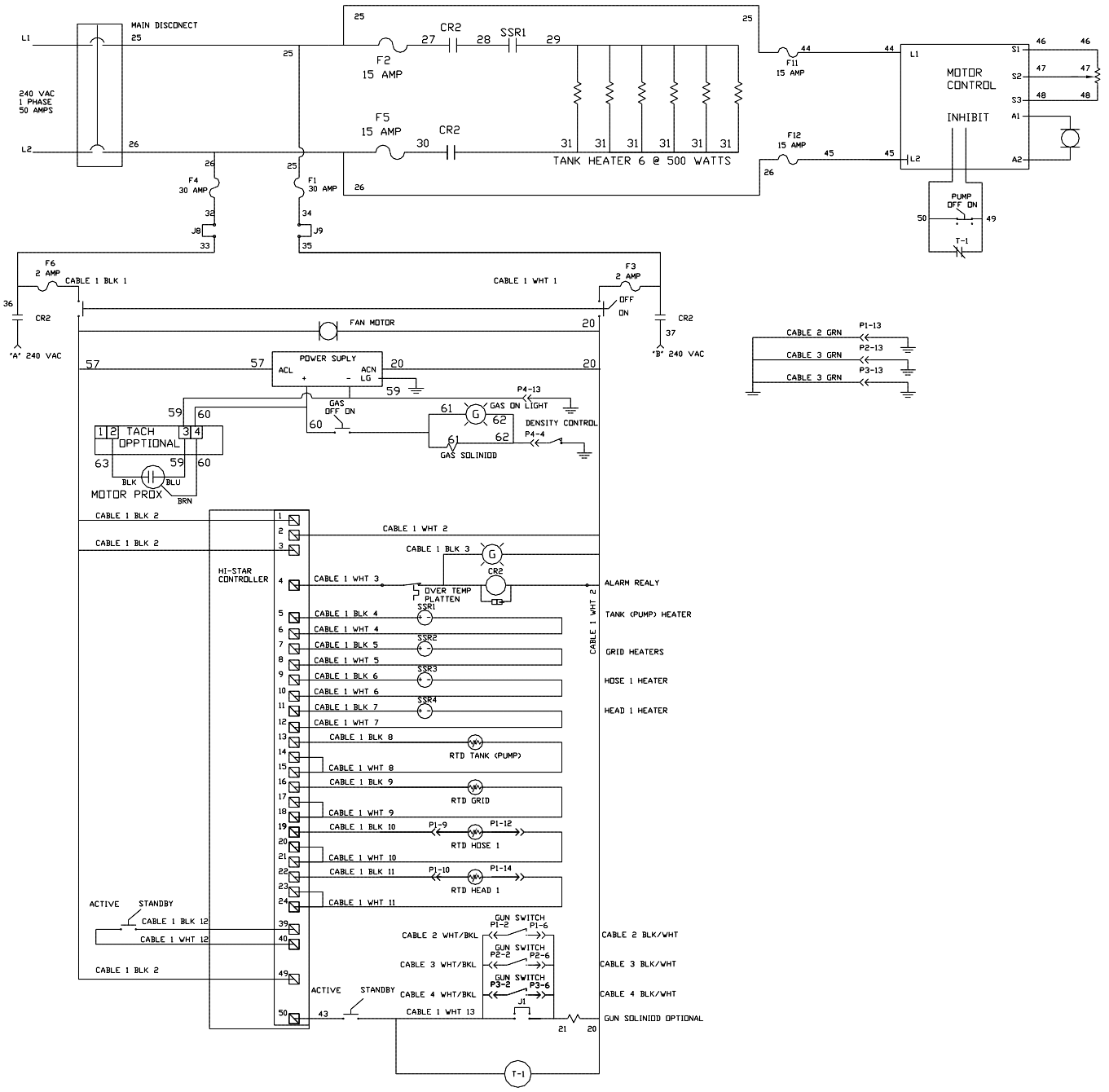
155	2	HEATER 1/4X4 240 300WATT	HDC-00075
156	1	SOLENOID VALVE	V114-6LOU
157	1	SUB PLATE	V100-74-1
158	1	GASKET	V100-31-1A
159	1	CONNECTOR	SY100-30-3A-6
201	1	CABINET	1123-201R2
202	1	SUB PLATE	1123-202R2
203	2	RED TERMINALS	CTS4U-N
204	1	TEMP CONTROL	1103-204
205	12	TERMINALS	CTS4U-N
206	6	SOLID-STATE RELAY	EZ240D18
207	2	END BLOCKS	CA802
208	3	PLUG	206043-1
209	1	GREEN LIGHT	ECX-2052-127L
210	2	SOLID-STATE RELAY	D4840
211	1	GREEN CONTACT (5)	ECX1040-5 BULK
212	1	RELAY	SQD 8910DPA44V09 40A 600V
213	1	DISCONNECT 40 AMP	SD1-040-BR
214	1	RED CONTACT (2)	ECX1040-5 BULK
215	1	HANDLE DISCONNECT	SD-HRY
216	1	REMOTE SHAFT	SD-S300
217	2	SWITCH SELECTOR	GCX1300
218	30	PLUG SOCKET	1-66360-1
219	1	RESISTOR	OM4735E
220	1	NAME PLATE	1123-220
221	2	CIRCUIT BREAKER	1C20UM
222	7	CIRCUIT BREAKER	1C15UM
223	2	CIRCUIT BREAKER	1C2UM
224	1	TIME DELAY RELAY	88826115
225	1	POWER SUPPLY	GECA40AG
226	1	MOTOR CONTROL	174311

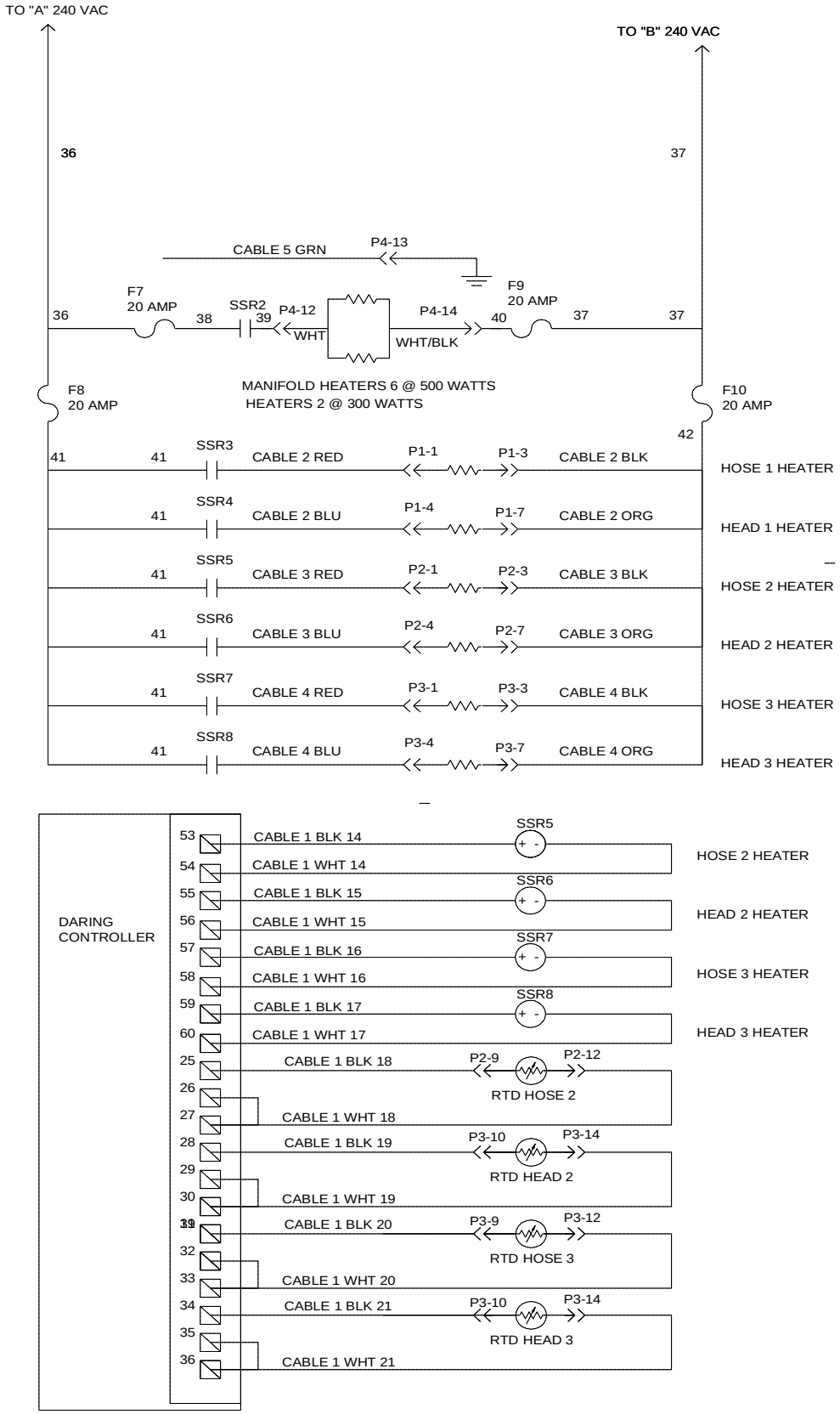
4.4 Spare parts list

SPARE PARTS LIST

Detail	Qty	Name	Part #
103	1	GAUGE 0-2000	33790
104	1	PRESSURE CONTROL	489-000
107	1	PUMP ASSY	310-218A
110	2	SEAL	1103-110
113	1	DRIVE ASSEMBLY	1103-113R1
118	1	High Efficiency Speed Reducer	M-164-C56-C7K
119	1	MOTOR	108092
129	1	PRESSURE RELIEF VALVE	230C4-2000 ABC
131	1	REGULATOR	R37121-100
133	2	CHECK VALVE	7775K61
135	1	016 O-RING PKG VITON	9464K22
137	1	O-ring VITON 129	9464K94
138	1	O-RING VITON 152	5267T133
139	1	DENSITY CONTROLLER	1128-000
143	1	011 O-RING PKG	9464K16
147	1	FAN	OA825AP-22-1TB
152	1	HEATER 3/8 X 4 240VAC 500 WATT	HDC-00290
153	1	RTD	RTD00199D0316
154	1	CERAMIC BLOCK	EHD-108-114
155	1	HEATER 1/4X4 240 300WATT	HDC-00075
156	1	SOLENOID VALVE	V114-6LOU
157	1	SUB PLATE	V100-74-1
158	1	GASKET	V100-31-1A
159	1	CONNECTOR	SY100-30-3A-6
204	1	TEMP CONTROL	1103-204
206	1	SOLID-STATE RELAY	EZ240D18
208	3	PLUG	206043-1
210	1	SOLID-STATE RELAY	D4840
212	1	RELAY	SQD 8910DPA44V09 40A 600V
219	1	RESISTOR	OM4735E
221	1	CIRCUIT BREAKER	1C20UM
222	1	CIRCUIT BREAKER	1C15UM
223	1	CIRCUIT BREAKER	1C2UM
224	1	TIME DELAY RELAY	88826115
225	1	POWER SUPPLY	GECA40AG
226	1	MOTOR CONTROL	174311

4.5 Electrical schematic




TO "A" 240 VAC
TO "B" 240 VAC
36
37
CABLE 5 GRN
P4-13
F7
20 AMP
SSR2
P4-12
P4-14
F9
20 AMP
36
38
39
40
37
37
WHT
WHT/BLK
F8
20 AMP
MANIFOLD HEATERS 6 @ 500 WATTS
HEATERS 2 @ 300 WATTS
F10
20 AMP
42
SSR3
41
41
CABLE 2 RED
P1-1
P1-3
CABLE 2 BLK
HOSE 1 HEATER
SSR4
41
CABLE 2 BLU
P1-4
P1-7
CABLE 2 ORG
HEAD 1 HEATER
SSR5
41
CABLE 3 RED
P2-1
P2-3
CABLE 3 BLK
HOSE 2 HEATER
SSR6
41
CABLE 3 BLU
P2-4
P2-7
CABLE 3 ORG
HEAD 2 HEATER
SSR7
41
CABLE 4 RED
P3-1
P3-3
CABLE 4 BLK
HOSE 3 HEATER
SSR8
41
CABLE 4 BLU
P3-4
P3-7
CABLE 4 ORG
HEAD 3 HEATER
DARING
CONTROLLER
53
54
55
56
57
58
59
60
25
26
27
28
29
30
31
32
33
34
35
36
CABLE 1 BLK 14
CABLE 1 WHT 14
CABLE 1 BLK 15
CABLE 1 WHT 15
CABLE 1 BLK 16
CABLE 1 WHT 16
CABLE 1 BLK 17
CABLE 1 WHT 17
CABLE 1 BLK 18
CABLE 1 WHT 18
CABLE 1 BLK 19
CABLE 1 WHT 19
CABLE 1 BLK 20
CABLE 1 WHT 20
CABLE 1 BLK 21
CABLE 1 WHT 21
SSR5
SSR6
SSR7
SSR8
HOSE 2 HEATER
HEAD 2 HEATER
HOSE 3 HEATER
HEAD 3 HEATER
P2-9
P2-12
RTD HOSE 2
P3-10
P3-14
RTD HEAD 2
P3-9
P3-12
RTD HOSE 3
P3-10
P3-14
RTD HEAD 3