

**Hops Bistro and Brewery
Pima Crossing
Mr. Russ Veenema
15230 N. 75th Street
Suite 2020
Scottsdale, AZ. 85260**

INSTALLATION AND START UP MANUAL

**Presented by:
JVNW, Inc.
28120 S.W. Boberg Road
Wilsonville, OR 97070
(503) 682-2596
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Owner/General Contractor Check List

Check List of Items to be available at time of tanks arrival

- Give advance notice to local inspectors that their services will be needed.
- Service on line. (ie. gas, electric). Please notify the local utility company of your upcoming needs and arrange to have your services turned on without delay.
- Equipment to off load tanks. Our installer will call with necessary requirements on weight loads when installation date is confirmed.
- Have Dollies, Rope, and Padding available to protect tanks.
- Prepare tank route from truck to final tank placement. Passageway should be clear and of adequate size.
- All work on floors and walls is completed.
- 110V 30A and 208/220V 50A outlets are available for installer's use.
- Schedule help for the installer in unloading and placing of tanks and equipment.
- Make-up air will be required. IMPORTANT Review Section 5.
- Electrical supplied for:
 - Main Power-Brewery Control Panel
 - Control Panel to pump motors, immersion heaters, etc.
 - Other items may include the refrigeration unit, conveyors, portable pump and temperature controllers.
 - Please refer to Utility Requirements under Section 2 of this manual.
- Plumbing requirements completed:
 - Supply a natural gas line from main meter to the Burner.
 - Supply a 1 1/2" main water line, or 20/30 gpm @ 30 to 60 psi.
 - See Section 3 of this manual.
- HVAC requirements completed
 - Kettle Static Steam Vent
 - Kettle Burner Vent
 - See Section 4 of this manual.

IMPORTANT

PLEASE NOTE:

- JVNW, Inc. strongly recommends a licensed refrigeration mechanic start up your glycol chiller. This is to insure that, the glycol/water mix is correct, the machine is running properly, and that the controls are set correctly. Failure to properly set these controls and insure that the machine is running correctly, will void the manufacturer's warranty.
- Please take note that the cooling jackets on your tanks have a maximum of 15psi operating pressure. Optimum performance is between 10 and 15psi at the jacket outlet of each tank. Each glycol chiller has a 15 psi preset "cross over" valve located near the glycol reservoir.
- The burner may be started and adjusted by a local boiler service mechanic.
- The issue of effluent generated by the brewing process usually comes up when your plans are submitted or during the time the city is looking over your plans. Generally, the highest percentage of the waste is water. 99% of the grain should be recyclable (contract with a local farmer). Yeast is sometimes processed for reuse, and caustic is usually used at a 2% solution. Waste water may average 100 gallons per BBL of brew, with suspended solids at 60 ppm and BOD of approximately 300 ppm. Please note that these figures are very approximate and subject to change according to your recipes and methods of brewing. Your Consultant or Brewer should make the final determination for submittal to the appropriate department at city hall.
- Your fermenters and serving tanks have been supplied with non-mechanical pressure relief discs as a secondary safety feature. It is of the utmost importance that you and your brewer read and understand the instructions on how to use the discs. They are meant to relieve dangerous pressure build-up and are quite sensitive. Improper use will result in the disc being rendered useless.
Rupture disc instruction manuals will be filed under Section 8.

Electrical Requirements

- **Main power from source to Brewery control panel**
- **From control panel to pump motors, immersion heaters, gas burner and thermocouples. (JVNW supplies the thermocouples and thermocouple wire.)**
- **Other wiring may include the Refrigeration unit, portable pump, and temperature controllers. Please refer to Utility Requirements.**
- **Water tight connectors are required.**
- **Reference Brewery Layout Drawing**

BREWHOUSE CONTROL PANEL UTILITY REQUIREMENTS

The following items are included in the control panel and must be wired from the panel to each item. (See Brewery Layout)

	<u>VOLTS</u>	<u>PH</u>	<u>FLA</u>	<u>HP</u>
BREWERY MAIN POWER	208 VOLTS	3 PH		
<hr/>				
VORLAUF PUMP	208	3	2	1/2
<p><i>ATTENTION: The Vorlauf pump works in conjunction with a high-low level controller which is mounted in the "wort receiver". A wiring diagram is included with the Panel Control. (Black wires-One Switch, White wires-2nd switch.)</i></p>				
<hr/>				
HOT WORT PUMP	208	3	6.2	2
<p><i>ATTENTION: The hot wort pump motor must be wired to the panel.</i></p>				
<hr/>				
HOT LIQUOR PUMP	208	3	3.8	1
<p><i>ATTENTION: The hot liquor pump motor must be wired to the panel.</i></p>				
<hr/>				
HOT LIQUOR TANK 15kw IMMERSION HEATER	208	3	42.0	
<p><i>ATTENTION: The immersion heater must be wired to the panel. The low level switch must be wired through the panel.</i></p>				
<hr/>				

Continued on P. 5

(Utility Requirements Continued)

	<u>VOLTS</u>	<u>PH</u>	<u>FLA</u>	<u>HP</u>
MALT AUGER	220	1	4.3	1/2

ATTENTION: Wire from panel to auger above Mash/Lauter Tun (See Brewhouse Layout).

**KETTLE
FORCED AIR BURNER
F40033**

110 1 6.0

ATTENTION: The kettle low level switch is wired inline from panel to burner

**KETTLE FAN SWITCH (STEAM
STACK)**

110 1 3.0

ATTENTION: Wire from fan motor to panel.

TOTAL FLA MAIN BREWHOUSE PANEL

67.3

IMPORTANT - PLEASE NOTE:

- ✓ *The Brewhouse Control Panel is prewired. Wiring schematics will be supplied with the Panel.*
 - ✓ *The Panel contains a main circuit breaker, an overload relay and short circuit protection for each of the above items.*
 - ✓ *Thermocouples and wire are supplied for the kettle and hot liquor tank. Connect the thermocouple wire directly to the temperature controller in the panel. Use plastic conduit only and do not splice wire.*
 - ✓ *The items listed on the "Brewhouse Control Panel Utility Requirements" are located on the Brewery Layout Blueprint.*
 - ✓ *Refer to Burner Instruction manual for Burner operational information. (Store the Burner Instructions behind tab 8 of this manual.)*
 - ✓ *Water tight connectors are recommended.*
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-

GLYCOL CHILLER

HP	VOLTS	PHASE	SERVICE AMPS
10.0	208	3	65.0

NOTE:

Unit is complete with manual starter and switches. Customer must supply main disconnect and power to the machine. See owners manual for start-up or other information. **CAUTION: STARTING THE UNIT WITHOUT LIQUID OR PROPER CHECK OUT BY QUALIFIED REFRIGERATION MECHANIC MAY DAMAGE THE UNIT AND VOID THE WARRANTY. THE CHILLER WARRANTY INCLUDES PARTS ONLY. IT DOES NOT INCLUDE ANY LABOR COSTS.**

CONVENIENCE OUTLETS

Add 110 volt outlets as desired, Add plugs for filter and for portable pumps. Insure all plugs are water resistant.

Add lighting as desired. Note that an important place for light is over the kettle and mash tun.

ROLLER MILL

RPM	VOLTS	PHASE	FLA	HP
1750	208	3	14.0	5

Customer to supply disconnect and starter.

NOTE: All mill room electrical items to be explosion proof.

AUGER

VOLTS	PHASE	FLA	HP
220	1	4.3	1/2

Wire from Auger motor to customer supplied starter.

D.E. FILTER

VOLTS	PHASE	FLA	HP
220	1	4.0	2 1/2

Customer to supply proper wall socket connector for unit.

TEMPERATURE CONTROLLERS

VOLTS	PHASE	FLA
110	1	0.3

NOTE:

Temperature controllers are supplied. They are mounted on the uni tanks. Each of these tanks will also have a solenoid. Customer to wire 110v hot violet wire in the controller, and from the blue wire in the controller to one side of solenoid, and neutral from the other side of the solenoid back to source. Instruction manuals are included with the controllers.

CAUTION: DO NOT APPLY POWER TO SOLENOIDS IF MAGNETS ARE DETACHED FROM SOLENOID BODY.

PORTABLE TRANSFER PUMP

NOTE:

Pump comes complete with starter, overload protection and 50 feet of cord. Customer to supply cord cap to fit wall socket.

Plumbing Requirements

- **Supply a natural gas line from the main meter to the Burner location (see tank layout) large enough to carry 800 cfh @ 5.0 to 14.0wci. Hook up to burner during installation.**
- **Supply a 1 1/2" main water line, or 20-30gpm @ 30-60psi to location on tank layout and 3/4" hose bibs as noted. Other water lines may be needed at the time of installation, please check with your brewer.**
- **Reference Brewery Layout Drawing**

HVAC/Ventilation

- The gas burner vent is 12" diameter (see tank layout).
Supply a double wall 600 degree F minimum stainless steel lined flue pipe. Insure that the flue is a UL listed package. Install a static barometric draft controller as close to exhaust port of tank as possible. We recommend a 200-1000 degree F dial thermometer be installed below the draft controller.

- Other items for the brewhouse:
 - (1) Kettle steam vent is static. Single wall 12" diameter stainless is recommended. A fan may be required in cases where stack exceeds a twenty five foot run, or faster removal of steam is desired. A Jenn-Air 70CR or equivalent is recommended.
 - (2) For Brewer comfort, an exhaust fan above the Kettle and Mash tun area is recommended. Insure that the fan does not create a negative atmosphere.
 - (3) Make up air for the main burner is necessary. Code requires one square inch per 5000 BTUs. Motorized louvers must have a proving switch connected to the burner relay in the panel. If necessary enlarge the open area to allow for balancing the pressure in the room. Vent should be placed at the lowest point nearest the Kettle burner. Some codes require an additional vent of the same size at the highest point in the room. See Section 5.

Burner Requirements

Make Up Air

Make up air will be required at the lowest point possible near the Kettle. An opening equal to 100 sq. inches is adequate. Please note that some codes require the same opening at the high point in the room. Both vents must be static and not tied into the air conditioning for the building. A motorized louver may be used but must be wired into the limit circuit at the burner control panel. Any other air exchange in the room must be balanced without affecting the static vents.

Burner

The burner must be started and adjusted by a local professional boiler service mechanic.

Main Gas

Supply main gas as located on Utility Layout sheet. Natural Gas @ 5-14 WCI.
800 CFH

Refrigeration Requirements

- **JVNW strongly recommends that a licensed refrigeration mechanic start up your glycol chiller. This is to insure that the glycol/water mix is correct, the machine is running properly and the controls are set correctly. Failure to properly set these controls to insure that the machine is running correctly, will void the manufacturer's warranty.**
- **The cooling jackets on your tanks have a maximum of 15psi operating pressure. Optimum performance is between 10 and 15psi at the jacket outlet of each tank. Each glycol chiller has a 15 psi preset "cross over" valve located near the glycol reservoir. Use this valve to adjust the main line supply pressure, and the individual valves at each tank to adjust the tank pressure.**

GLYCOL CHILLER

HP	VOLTS	PHASE	SERVICE AMP
10	208	3	65.0

NOTES: Unit is complete with manual starter and switches. Customer must supply main disconnect and power to the machine. See owners manual for start-up or other information. **CAUTION: STARTING THE UNIT WITHOUT LIQUID OR PROPER CHECK OUT BY QUALIFIED REFRIGERATION MECHANIC MAY DAMAGE THE UNIT AND VOID THE WARRANTY. THE CHILLER WARRANTY INCLUDES PARTS ONLY. IT DOES NOT INCLUDE ANY LABOR COSTS.**

TANK SPECIFICATIONS

Your fermenters and serving tanks have been supplied with non-mechanical pressure relief discs as a secondary safety feature. It is of the utmost importance that you and your brewer read and understand the instructions on how to use the discs. They are meant to relieve dangerous pressure build-up and are quite sensitive. Improper use will result in the disc being rendered useless. See Section 8.

PLEASE NOTE THAT ALL WEIGHTS AND GALLONS ARE APPROXIMATE AND MAY VARY SLIGHTLY. A FLOW METER IS AVAILABLE FOR YOUR USE IF OTHER CALIBRATIONS ARE DESIRED. ANY QUESTIONS PLEASE CALL BRIAN DONOVAN AT JVNW (503) 682-2596.

TANK SPECIFICATIONS

15 BBL BREW KETTLE/WHIRLPOOL

5'-0" Inside Diameter X 5'-0" Cylinder Height
5'-6" Outside Diameter X 8'-9" Overall Height

WT Empty 1641 lbs
WT Full 8024 lbs

12.24 Gallons per Inch,
722.16 Total Working Gallons

Tank has four legs on a 5'- 3" circle, on 6" dia pads

TANK SPECIFICATIONS

15 BBL MASH/LAUTER TUN

5'-6" Inside Diameter X 4'-0" Cylinder Height
5'-10" Outside Diameter X 8'-9" Overall Height

WT. Empty 2033 lbs

WT. Full 8075 lbs

14.8 Gallons per Inch

710.8 Total Working Gallons

Tank has four legs on a 5'-6" dia circle, on 6" dia pads

TANK SPECIFICATIONS

HOT LIQUOR TANK

4'-6" Inside Diameter X 6'-0" Cylinder Height
4'-10" Outside Diameter X 8'-3" Overall Height

WT. Empty 1030 lbs

WT. Full 8175 lbs

9.9 Gallons per Inch, 832.90 Gallons in Cylinder;
47.80 Gallons in Heads
880.70 Total Gallons
856.80 Total Working Gallons

Tank has four legs on 4'-6" dia circle, on 6" dia pads

TANK SPECIFICATIONS

15 BBL UNITANK

3'-9" Inside Diameter X 6'-0" Cylinder Height
4'-1" Outside Diameter X 10'-0" Overall Height

WT. Empty 1311 lbs

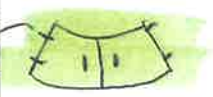
WT. Full 6615 lbs.

6.68 Gallons per Inch, 495.72 Gallons in Cylinder;
73.69 Gallons in Cone;
30.98 Gallons in Top;
600.39 Total Gallons
569.41 Total Working Gallons

Tank has four legs on a 4'-1" dia circle, on 6" dia pads.

STEVE'S ORDER FORM

CUSTOM	* HOPS - PIMA		
DUE	* 11-21-94	VOLTAGE * 208 3φ	
QTY	PO	DRG	ITEM
			KETTLE *
			MASH KETTLE *
1			KETTLE/ WHIRLPOOL 150*1 Brass bands direct fire
1			MASH TUN 150*1. 2-piece screen Custom Manway
			LAUTER TUN *
1			DRAIN SCREEN 2-Piece DIA * 6.5 1/2"
			RAKE ASSEMBLY
			KETTLE AGITATOR
1			HOT LIQUOR * 761
			COLD LIQUOR *
			GRIST CASE
4			UNITANK * 15 BBL *
			UNITANK * BBL *
			SERVING TANKS * 15
			BRIGHT BEER * BBL *
			CIP TANK *
			YEAST TANK *
1			PUMP 1/2 HP 1750 FULL IMP
1			PUMP 2 HP 3600 FULL IMP
1			PUMP * 1 HP 3600 rpm 3 5/8" Imp.
			PUMP *
			PUMP *
			PUMP *
1			PORTABLE PUMP 1-1/2HP 3600 FULL IMP
			PORTABLE PUMP *
			PORTABLE PUMP *
1			WORT RECEIVER W/ANTIVORTEX
1			SPLASH PLATE
			FILTER, PLATE & FRAME 40x40 n.20
1			FILTER, DE * 3 SQ. METER



hinged "book" doors

1 1/2" x 1 1/2" - Hot Liquor

			FILTER, MILLIPORE
1	✓		CONTROL PANEL
2			FUJI CONTROLLERS SENT TO ELECTRO PAC
			FUJI CONTROLLERS W/RAMP SENT TO ELECTRO PAC
			GRANT W/SINK
			KEG CLEANER/ FILLER
			* HP BOILER
			THERMOCOUPLE K49012U-SL-801-31
			FT. OF THERMOCOUPLE WIRE K20-1-304
1	✓		CHILLER * 10HP AIR COOLED
			CHILLER * 10HP WATER COOLED
			REMOTE CONDENSER
			COOLING TOWER
1			HEAT EXCHANGER W/ADPT FIT. T4CH-MST-71 (STK)
1	✓		HEAT EXCHANGER * T4CH - MST-11
1	✓		MILL * 2 ROLL w/weight dumper & leg kit
1			³ / ₄ HP EXPLOSION PROOF MOTOR
			MILL MOTOR
2	✓		AUGER FLEX
			AUGER RIDGID
1			AUGER BASE TO MILL
1			AUGER BASE TO GRIST CASE (Not standard unit)
			AUGER BASE
1			BEER HOSE (STANDARD 100')
			BEER HOSE (CUSTOM LENGTHS)
			HOSE *
			HOSE *
			HOSE *
			HOSE *
			HOSE *
1			VOREMASHER
			HYDRATOR - ON TANK
			MANIFOLD
20'			1" TUBE

glycol unit
 } Rostkamp

200'		1-1/2" TUBE
10'		2" TUBE
		3" TUBE
		BREWERS PLATFORM PAINTED
1		BREWERS PLATFORM SS
		BURNER DS45
1		BURNER F400-33
		THERMOMETER 9R 0-250
3		THERMOMETER 4R 0-250 W/ ADAPTER
1		1-1/2 IN LINE SITE GLASS
4		UE 800 W/PLAT PLUG
4		RUPTURE DISC 2" X 25LB
		RUPTURE DISC 2" X 35LB
		IMMERSION HEATER 12KW BHC726L3
1		IMMERSION HEATER 15 KW BHC732C3W
2		LOW LEVEL SENSOR L6EPB-B-S-3-A
		2" CHECK VALVE TC X TC
20		1-1/2" BF VALVE
1		1-1/2" BF VALVE W/10 POSITION HANDLE
1		2" BF VALVE
		3" BF VALVE
		4" BF VALVE
		6" BF VALVE
		12" BF VALVE, SS WETTED PARTS
		14" BF VALVE, SS WETTED PARTS
		16" BF VALVE, SS WETTED PARTS
1		1/2" SS GLOBE VALVE W/ADPT TO 1-1/2" TC
		1" SS GLOBE VALVE W/ADPT TO 1-1/2" TC
		1-1/2" SS GLOBE VALVE W/ADPT TO 1-1/2" TC
1		1" SS GATE VALVE W/ADPT TO 1-1/2" TC
3		1" SS BALL VALVE W/ADPT TO 1-1/2" TC
4		SAMPLE VALVES W/RED & WHT GASKETS
		GRUNDY VALVES W/CIP FITTINGS
		3/4 SOLENOID VALVE

4		1 SOLENOID VALVE
4		15 LB PR VALVE
7		25 LB PR VALVE
		TYPE A PAM
4		TYPE B PAM
		TYPE C PAM
4		1 CL 90 2CMP
2		1 BW 90
1		1 CL TEE 7MP
2		1 BW TEE
10		1 S FERR 14WMP
5		1 GASKET
		1-1/2 X 1" BW CONC REDUCER
10		1-1/2 CL 90 2CMP
60		1-1/2 BW 90
100		1-1/2 CLAMP 13MHHM
120		1-1/2 GASKET
2		1-1/2 CL TEE 7MP
15		1-1/2 BW TEE
		1-1/2 S FERR 14WMP
70		1-1/2 M FERR L14AM7
12		1-1/2 CAP 16AMP
20		1-1/2 PENNER HANGER
		2 X 1-1/2" BW CONC REDUCER
		2" 19WB
5		2" S FERR
1		2" BW 90^ ELBOW
1		2" CLAMP
1		2" GASKET
		2" PENNER HANGER
1		2" BW TEE
		3" BW 90^ ELBOW
		3" S FERR
		3" BW TEE

		3" CLAMP
		3" GASKET
		4 CLAMP
		4 GASKET
		1-1/2 TC CAP X 1/2 MNPT
2		1-1/2 TC CAP X 1 19WB
2		1-1/2 TC CAP X 1-1/2 19WB
		1-1/2 TC CAP X 3/8 BARB
		1-1/2 TC CAP X 1/2 HC
1		1-1/2 SPOOL W/1/8 HC & CHECK VALVE
		1-1/2 TC CAP X 1 HC
		1-1/2 TC CAP X RJT
1		3 TC CAP X 1-1/2 TC OFFSET
		2 X 1 BRASS BUSHING
4		RACKING ARMS
		CARB STONE 1/2ID X 4"
		CARB STONE 1/2ID X 8"
		CARB STONE 1/2ID X
		CARB STONE 3/4ID X 16" W/4" TUBE EXT.
		CARB STONE 3/4ID X
		OXY-CARB TEE TYPE
		MARINE LIGHT FLUSH MOUNT
		36 X 12" FLUE

SHIPPING LIST FOR HOPS PIMA

0		KETTLE *
0		MASH KETTLE *
1		KETTLE/WHIRLPOOL *
1		MASH TUN *
0		LAUTER TUN *
0		BREWERS PLATFORM PAINTED
1		BREWERS PLATFORM SS
0		COLD LIQUOR *
1		HOT LIQUOR *
4		UNITANK 15 BBL *
0		UNITANK * BBL *
0		SERVING TANKS *
0		BRIGHT BEER 0 BBL *
0		CIP TANK *
0		YEAST TANK *
1		MILL 2 ROLL
0		5 HP EXPLOSION PROOF MOTOR
0		MILL MOTOR
2		AUGER FLEX
0		AUGER RIDGID
0		FILTER, PLATE & FRAME 40x40 n.20
1		FILTER, DE 3 SQ. METER
0		FILTER, MILLIPORE 0
1		BURNER COVER
1		CONTROL PANEL
2		HEAT EXCHANGER W/ADPT FITTINGS
		BEER HOSE (STANDARD)
1		5' BREW HOSE
3		15' BREW HOSE
2		25' BREW HOSE
0		BEER HOSE (CUSTOM LENGTHS)
0		HOSE *
0		HOSE *
0		HOSE *
0		HOSE *
0		HOSE *
1		WORT RECEIVER W/ANTIVORTEX
1		CHILLER 10 HP AIR COOLED
0		CHILLER * HP WATER COOLED
0		REMOTE CONDENSER

0		COOLING TOWER
1		VOREMASHER
0		HYDRATOR - ON TANK
0		GRIST CASE
0		MANIFOLD
20		5/8" TUBE
20		1" TUBE
200		1-1/2" TUBE
10		2" TUBE
0		3" TUBE
0		4" TUBE
1		PORTABLE PUMP 1-1/2HP 3600 FULL IMP
0		PORTABLE PUMP *
0		GRANT W/SINK
0		KEG CLEANER/FILLER
0		BOILER
0		12" BUTTERFLY VALVE
0		14" BUTTERFLY VALVE
0		16" BUTTERFLY VALVE
0		0
0		0
		BOXED FITTINGS

19374
19374
19374
STK
0
0

DONE DOOR DEPT CUSTOMER HOPS PIMA

	0	BREWERS PLATFORM MS
	1	BREWERS PLATFORM SS
	1	WORT RECEIVER W/ANTIVORTEX
	1	PORTABLE PUMP 1-1/2HP 3600 FULL IMP
	0	PORTABLE PUM *
	1	3" HOP STRAINER
ALL CARB STONES ARE W/ 1-1/2" TC CAP X 3/8" HC		
	0	CARB STONE 1/2ID X 4
	0	CARB STONE 1/2ID X 8
	0	CARB STONE 1/2ID X __ 0
	0	CARB STONE 3/4ID X __ 0
	0	CARB STONE 3/4ID X __ 0
	1	SPLASH PLATE
	1	VOREMASHER
	0	HYDRATOR - ON TANK
	0	MANIFOLD
	0	COVER FOR BURNER DS45
	1	COVER FOR BURNER F400-33
	1	AUGER BASE TO MILL
	1	AUGER BASE TO GRIST CASE
	0	AUGER BASE
	0	ALLTHREAD FOR 6" BF VALVE SS WETTED
	0	ALLTHREAD FOR 12" BF VALVE SS WETTED
	0	ALLTHREAD FOR 14" BF VALVE SS WETTED
	0	ALLTHREAD FOR 16" BF VALVE SS WETTED

ASSEMBLE :

	2	ADD 1-1/2 TC M X 1 HC TO HT EXH.
	0	ADD 3/8" CHECK VALVE TO CARB STONE ASSEMBLIES
	0	ASSEMBLE MOTOR TO MILL
	0	ASSEMBLE AUGER

1	ASSEMBLE AUGER BASE TO MILL
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MIKE'S LIST CUSTOMER HOPS PIMA

16-Nov

QTY	ITEMS	BX	QT	BX	QT	CH	PO #	PART NO
1	HI-LOW LEVEL CONTROLLER 22082						STK	9084004
0	BURNER DS45						0	4006004
1	BURNER F400-33						19378	4006002
1	1-1/2 IN LINE SITE GLASS						STK	4054005
4	UE 800						STK	4042018
4	PLAT PLUG						STK	4042012
4	RUPTURE DISC 2" X 25LB						STK	4052225
0	RUPTURE DISC 2" X 35LB						0	4052235
0	THERMOCOUPLE K49012U-SL-801-31						0	9026002
0	FT. THERMOCOUPLE WIRE K20-1-304						0	9026100
0	IMMERSION HEATER 12 KW BHC726L3						0	9075012
1	IMMERSION HEATER 15 KW BHC732C3W						19379	9075015
2	LOW LEVEL SENSOR L6EPB-B-S-3-A						19380	9025002
0	2" CHECK VALVE TC X TC						0	
0	1/2" CHECK VALVE						0	
0	1" CHECK VALVE						0	
20	1-1/2" BF VALVE						19381	1510096
1	1-1/2" BF VALVE W/10 POSITION HANDLE						STK	
1	2" BF VALVE						STK	1510100
0	3" BF VALVE						0	1510104
0	4" BF VALVE						0	1510108
0	6" BF VALVE						0	
0	12" BF VALVE, SS WETTED PARTS						0	
0	12" SK38P AND SK39P						0	
0	MS NUTS AND BOLTS						0	
0	14" BF VALVE, SS WETTED PARTS						0	
0	14" SK38P AND SK39P						0	
0	MS NUTS AND BOLTS						0	
0	16" BF VALVE, SS WETTED PARTS						0	
0	16" SK38P AND SK39P						0	
0	MS NUTS AND BOLTS						0	
0	GRUNDY VALVES						0	1510158
0	GRUNDY CIP FITTING						0	9048022
0	3/4 SOLENOID VALV * Volt						0	1510139
4	1 SOLENOID VALVE * Volt						STK	1510140
4	1-1/2" SOLENOID VALVE * VOLT						0	
1	1 CL 90						STK	1035042

0	REMOVABLE TEMP WELL					STK	
3	1" SS BALL VAL W/1-1/2 TC X 1 19WB					STK	20100760
1	1/2 SS GLOBE VAL W. 1-1/2 TC X 1/2 MNPT					STK	20100790
0	1 SS GLOBE VAL W. 1-1/2 TC X 1/2 MNPT					0	20100793
0	1-1/2 SS GLOBE VAL W. 1-1/2 TC X 1/2 MNPT					STK	20100796
0	2 X 1 BRASS BUSHING					0	1065148
1	1" SS GATE VALVE W/ADPT					STK	20100780
0	15 LB PR VALVE					STK	1510250
0	25 LB PR VALVE					0	1510260
0	TYPE A PAM					0	20100010
4	TYPE B PAM					STK	20100011
0	1-1/2" TYPE C PAM					0	20100012
0	2" TYPE C PAM					0	20100013
0	1-1/2 TC CAP X 1/2 MNPT					0	1015039
2	1-1/2 TC CAP X 1 19WB					STK	1015018
2	1-1/2 TC CAP X 1-1/2 19WB					STK	1015024
0	1-1/2 TC CAP X 3/8 BARB					STK	1015075
0	1-1/2 TC CAP X 1/2 HC					STK	1015057
1	1-1/2 SPOOL W/1/8 HC & CHECK VALVE					STK	20101010
0	1-1/2 TC CAP X 1 HC					0	1015063
0	1-1/2 TC CAP X RJT					0	1015088
1	3 TC CAP X 1-1/2 TC OFFSET					STK	1015114
0	3 TC CAP X 2 TC OFFSET					0	10150272
1	HOP STRAINER						
1	3" TC HORSESHOE					STK	10990100
1	PUMP 1/2 HP 1750 FULL IMP					19375	
1	PUMP 2 HP 3600 FULL IMP					19375	
1	PUMP 1HP 3600RPM 358IMP 1.5X1.5					19375	
0	PUMP *					0	
0	PUMP *					0	
0	PUMP *					0	
0	PUMP *					0	
3	PUMP BASES UP TO 3 HP					STK	40500030
0	PUMP BASES FOR 3 HP					0	40500034
0	MARINE LIGHT					0	9041100
20	5/8" TUBE					19374	3580006
20	1" TUBE					19374	3581002
200	1-1/2" TUBE					19374	3581004
10	2" TUBE					STK	3581006
0	3" TUBE					0	3581010
0	4" TUBE					0	3581012
0	5 HP EXPLOSION PROOF MOTOR					0	4046001
2	AUGER FLEX					19365	

0	AUGER RIDGID		
1	CONTROL PANEL		
0	FILTER, MILLIPORE		
1	HEAT EXCHANGER - ST T4CH-MST-71		
1	HEAT EXCHANGER		
6	PIECES OF BREW HOSE		
1	SPLASH PLATE		
1	BURNER COVER		
1	AUGER BASE TO GRIST CASE ADAPTER		
1	VOREMASHER		

0
19364
0
STK
19366
STK
STK
STK
STK

4033010