



BAGPASTEURIZER/BAGWARMER

Owner Manual





& BAG WARMER

Owner Manual

TABLE OF CONTENTS

Introduction	3
Disclaimers	3
Product Warranty	4
Product Registration	4
Important Safety Instructions	4
Receiving Your Equipment	4
Installation	5
Location of Equipment	5
Lid Operation	5
Leg Kit	5
Connecting the Hoses for Water-Cooling	6
Water Quality	6
Electrical Requirements	7
External Fuse Board	7
Grounding	7
Heating Elements	7
Cleaning The System	8
Energy and Time Saving Tips	8
When Service Is Required	8
Quality Control and System Monitoring	9
Time and Temperature for Proper Pasteurization	9
How to Use the Perfect Udder Bag Pasteurizer	9
Using and Programming The Touchscreen Controller	10
Controller Button Legend	10
Adjusting Settings	11
Resetting the Password	11
Selecting a Language	12
Setting Date and Time	12
Calibrating Thermocouple Temperature	13
Celcius/Fahrenheit	14
Adjusting Feed and Cool Temperatures	14
Downloading Pasteurization Data	15
Testing the Heat Circuit	16
Using Your Bag PASTEURIZER	17
PASTEURIZE	17
Repeat Last	17
Feed Now	18
To Store	19
WARM	20
COOL	21
Helpful Hints For Successful Pasteurization	22
Using Your Bag WARMER	23
How Long Will It Take to Warm a Bag of Colostrum?	23

Trouble Shooting

Bag PASTEURIZER 24
Bag WARMER 27

Bag PASTEURIZER Replacement Parts 29

Bag PASTEURIZER Wiring Diagram

3 Phase Schematic 30
1 Phase Schematic 31

Bag WARMER Replacement Parts 32

Bag WARMER Wiring Diagram

3 Phase Schematic 33
1 Phase Schematic 34

Accessories 35

Leg Kit Assembly Instructions 36



For parts list and ordering
visit www.dairytechinc.com

You may also see the last pages of this user manual.

Contact Dairy Tech, Inc.

Dairy Tech, Inc.
34824 CR 29
Greeley, CO 80631

Toll Free: 1-866-384-2697
Local: 1-970-674-1888
Fax: 1-970-686-5871
Hours: M – F 7am – 4pm, MST
Web: www.DairyTechInc.com
eMail: office@DairyTechInc.com

A NOTE ABOUT WATER QUALITY

POOR WATER QUALITY WILL HAVE AN ADVERSE EFFECT ON HEATING ELEMENT LONGEVITY AS WELL AS THE OTHER COMPONENTS OF THIS EQUIPMENT.

Dairy Tech Inc is not responsible for your water quality and the effects that it may have on our equipment.

Have a local water quality expert analyze both samples. Local experts will be able to tell you if your water quality will be detrimental to electric heating elements and other components of our system. They will also be able to tell you if the included Dairy Tech Inc Water Filtration/Softener System is NOT adequate for your needs. If so, then take steps to install a more adequate system.

Read more about water quality on page 6



INTRODUCTION

Thank you for purchasing a Dairy Tech, Inc. BAG Pasteurizer/BAG Warmer. Your satisfaction with this product is very important to us. This guide will help you understand how your pasteurizer operates, and how to get the most benefit from it for you and your dairy operation.

DISCLAIMERS

THIS EQUIPMENT IS INTENDED TO BE USED IN THE MANNER DESCRIBED IN THIS USE AND CARE GUIDE. IT IS NOT INTENDED TO PASTEURIZE MILK OR OTHER GOODS FOR HUMAN CONSUMPTION.

Dairy Tech, Inc. has provided this use and care guide to assist you in the assembly, installation, and maintenance of your BAG Pasteurizer/BAG Warmer (the Equipment). Serious injury and even death to persons and livestock can occur from improper installation and use of the Pasteurizer. Serious property damage can result from improper installation and use of the Pasteurizer. We recommend professional installation by qualified plumbers and electricians familiar with such devices

DAIRY TECH, INC. RECOMMENDS THAT INSTALLATION OF ANY ELECTRICAL, MECHANICAL, GAS OR PLUMBING DEVICES REQUIRED FOR THE INSTALLATION, OPERATION AND MAINTENANCE OF THE DAIRY TECH EQUIPMENT BE DONE ONLY BY QUALIFIED INDIVIDUALS.

It is your responsibility or the responsibility of the electrician, plumber or other qualified installation expert to obtain all necessary permits and certifications required by your town, county, state or other jurisdiction before installation of the Equipment. It is your responsibility to read and understand the operational requirements of the equipment before using it and to observe all safety precautions. It is also your responsibility to see that your personnel are properly trained to operate and maintain the Equipment.

DAIRY TECH, INC. PROVIDES YOU WITH INSTRUCTIONS AND WARNINGS IN THIS USE AND CARE GUIDE, BUT WE ARE UNABLE TO COVER ALL POSSIBLE CONDITIONS AND SITUATIONS THAT MAY OCCUR IN YOUR DAIRY OPERATION. IT MUST BE UNDERSTOOD THAT COMMON SENSE, CAUTION AND CAREFULNESS ARE FACTORS WHICH CANNOT BE BUILT INTO THE PASTEURIZER. THESE FACTORS MUST BE SUPPLIED BY THE PERSON(S) INSTALLING, MAINTAINING OR OPERATING THE PASTEURIZER.

Under no circumstances is Dairy Tech, Inc., its directors, officers, shareholders or employees responsible for damage to property or injury to persons or livestock resulting from the improper installation or use of the Equipment. Installation by an unqualified individual and improper use and improper maintenance may also void any equipment warranty that Dairy Tech, Inc. offers.

This use and care guide is based on information and data considered to be accurate; however, no warranty is expressed or implied regarding the accuracy of the information or data herein or the results to be obtained from the use of this data or information.

PLEASE READ THIS GUIDE CAREFULLY AND THOROUGHLY BEFORE INSTALLING AND OPERATING THE EQUIPMENT.

If you believe the Equipment is operating incorrectly, please refer to the trouble shooting guide included with these instructions before calling our service department. If you still have questions, contact your local representative or call 1-866-384-2697 extension 2 and we will help you to address your needs.



Warning:
Hot Surface



Warning:
High Voltage



Caution:
Important
Information

For your safety, the recommendations and information in this manual must be followed to minimize the risk of serious burn or electrocution, as well as to prevent property damage, personal injury, or death.

If you are burned by the heating coil, hot water, steam or hot colostrum: Contact a physician or other medical personnel for expert advice, or go to an emergency treatment facility.

Do not feed pasteurized colostrum to calves without first cooling it back down so that it is no hotter than 110°F (43°C). Colostrum hotter than 110° can cause severe burns to the calves.

PRODUCT WARRANTY

This product is warranted to be free of manufacturing defects. For up to 12 months from the date of purchase, all parts will be covered by a free replacement guarantee not including shipping or service. This warranty is intended for equipment in use under normal operating conditions and does not cover damages incurred by improper use or unforeseen acts of nature. Determination of covered defects, damages or repairs is at the discretion of Dairy Tech, Inc. This warranty covers only the cost of replacement parts at Dairy Tech, Inc. current pricing. Service is not covered by this warranty. Parts replaced under warranty must be returned to:

Dairy Tech, Inc.
34824 CR 29
Greeley, CO 80631

Parts not returned will be charged to customer at retail pricing.

PRODUCT REGISTRATION

If this product was purchased directly from Dairy Tech in Greeley, CO, it has already been registered and no further action is required. If the product was purchased by a distributor or other representative, please call Dairy Tech, Inc. at **866-384-2697** within 10 days to register the product.

Failure to do so may result in a decreased or voided warranty period for your unit. When calling, please have the serial number which can be found on the back side of the control housing or back panel.

You may also register on-line at **www.dairytechinc.com** where you can "Contact Us", fill in your information and in the notes type the product model and serial number and the word "Register".

RECEIVING YOUR EQUIPMENT

Use care when unpacking your Equipment. It will have arrived in one box or crate. Please make a note of any cautionary labels that are used on the carton suggesting orientation, where to cut with a knife, fragile, etc.

IMPORTANT SAFETY INSTRUCTIONS



WARNING: To reduce the risk of electric shock, burns, serious injury or death to persons when using the Equipment, follow these basic precautions:

1. Read all instructions before using the Equipment.
2. Make certain to install the Equipment on a sturdy table or countertop or purchase the accessory leg kit. When full of product the unit is quite heavy in excess of 250lbs.
3. Always disconnect the electrical power before attempting service. All power sources must be disconnected before any covers are removed for repair.
4. Do not allow children to operate or play around the Equipment. Close observation of children is necessary when the unit is used with children nearby.
5. Do not reach into the Equipment when the power is on and the pump is circulating. This can cause serious burns.
6. Hot Surfaces include the edge of the lid, plumbing fixtures, electrical fixtures, hoses, heater body, cabinet surfaces, draining water and the containers of milk or colostrum. Touching these surfaces during operation may result in severe burns.
7. This equipment is designed to operate in an ambient temperature range of 35°F (2°C) – 100°F (38°C), altitude up to 2000m, maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% RH at 40°C, for indoor use only.
8. Do not try to change the settings in the Equipment controller without consulting a technical expert at Dairy Tech, Inc.
9. Do not repair or replace any part of the Equipment, or attempt any servicing unless specifically recommended in the trouble-shooting portion of this manual. Any modifications made to the unit beyond these instructions will void all warranties.
10. Always clean the unit immediately after each use, according to the instructions in the "Cleaning of your Equipment" section of this manual. Build up of residue on the heating elements and inside of vessel will decrease heating and cooling efficiency, as well as harbor potentially harmful pathogens.
11. During the heating cycle, always make certain the Equipment lid is firmly seated on the sink top.
12. Do not force the lid into the closed position. It will close slowly as an intended feature. Forcing the lid to close faster than it is intended may permanently damage the slow closure feature.
13. The lid may be hot. Do not touch while in operation.
14. Use the Equipment only for its intended purpose. This is not an approved tool for milk intended for human consumption as this product has not been approved for such use.
15. Do not touch the tank of water, motor, hoses, lid, handle or metal fittings while the unit is hot and working.
16. Do not attempt to tilt the machine while it is full. It is extremely heavy and can cause severe injury to the operator and may cause failure of the support structures.
17. To prevent severe burns, always allow the milk or colostrum to cool completely before handling or feeding to calves.
18. The Equipment must be electrically grounded. DO NOT modify the plug that is provided with the Equipment; if it will not fit the outlet, have an electrician install a proper electrical outlet.
19. The Equipment must be installed on a level surface to evenly distribute weight to all the support structures.

INSTALLATION



WARNING: INSTALL THE UNIT ACCORDING TO THE INSTALLATION INSTRUCTIONS. TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, SERIOUS INJURY OR DEATH TO PERSONS, READ THE IMPORTANT SAFETY INSTRUCTIONS BEFORE OPERATING THIS EQUIPMENT. BEFORE USING THIS UNIT FOR THE FIRST TIME, WASH OUT THE INSIDE OF THE SINK WITH HOT SOAPY WATER AND RINSE CLEAN.

Location of the Equipment



The Equipment is shipped ready to be used on a countertop, table or other suitable surface that is capable of holding 200lbs (91 kg). The location should also have the following characteristics:

- Close to your electrical power source
- Nearby source of cold water
- A drain line that will not create any back pressure on the system
- Hot water source for cleaning purposes
- Enclosed area free of excessive dust
- Climate controlled enough to prevent freezing
- Avoid drafty areas
- Easy access for all day use by calf managers

Remove the unit from the packaging and place it in position to be used. There is also an optional leg kit included as described later in this document.

Operation of the Lid

The lid is already attached and fully operational. It is designed with special resistance hinges that permit it to slowly lower itself onto the cabinet. All that is required is a simple start by hand and the lid can be released to close on its own. If force is used to push the lid down quickly, it will destroy the damper features of the lid and this benefit will be lost. This will not be repaired or replaced under warranty if the lid is forced to close even one time.

Leg Kit

See the end of this owner manual for assembly instructions pertaining to the leg kit.



Connecting the Hoses for Water Cooling

The Perfect Udder® Bag PASTEURIZER and Bag WARMER are both water cooled machines. A 6' black water supply hose is included with the machine. This hose with factory ends supplies all the cold water to cool the product when pasteurization is finished or when the unit is used to pre-chill colostrums bags. It can connect to any normal domestic pressure cold water source including a hose but it **MUST BE ON AT ALL TIMES DURING OPERATION**. Using the supplied hose, attach one end where indicated on the back of the unit, with the other end going to a regular hose bib supply. Pressure reduction is provided by the orifice of the solenoid valve.

Excess water leaves the unit by the interior drain line. This may occur when bags or bottles are placed into the machine and cause displaced water to overflow the drain. This is normal.



A corrugated drain hose is also included. This is a free flow zero-pressure hose that must fall to an open drain or into a bucket. If you wish to have waste water scavenged for other uses, place a sump pump into the bucket so that it can pump water to your secondary source as needed while not creating any back pressure.

It is important to keep water turned on anytime the Bag PASTEURIZER is in operation to prevent damage to the heating elements and pump.

Water Quality

POOR WATER QUALITY WILL HAVE AN ADVERSE EFFECT ON HEATING ELEMENT LONGEVITY AS WELL AS THE OTHER COMPONENTS OF THIS EQUIPMENT THAT ARE IN CONTACT WITH WATER OF POOR QUALITY.

Dairy Tech Inc is not responsible for your water quality and the effects that it may have on our equipment.

- The intent of this water filtration/softener combination is provided to you as an aid when water quality may not be ideal.
- This water filtration/softener equipment will not be adequate to treat all bad water.
- Because the quality of water can vary so drastically from farm to farm, Dairy Tech Inc cannot offer clear guidelines with regards to how often to change filter/softener cartridge. This information must be determined on each farm by utilizing local water experts and results of tests performed on your water.

DAIRY TECH RECOMMENDS THE FOLLOWING STEPS:

- Test a sample of water that will be used with the Dairy Tech equipment.
- Install the water filtration/softener system (Included with your equipment)
- Allow water to flow through the system at a slow rate and collect a second sample after 1 minute of slow flow
- Have a local water quality expert analyze both samples. Local experts will be able to tell you if your water quality will be detrimental to electric heating elements and other components of our system. They will also be able to tell you if the included Dairy Tech Inc Water Filtration/Softener System is NOT adequate for your needs. If so, then take steps to install a more adequate system.
- If the starting water quality is acceptable, take additional samples at monthly intervals to help determine how often to replace the cartridges in your system
- Replace cartridges if they are visibly dirty or if water flow is being compromised



THIS SYSTEM WILL NOT REMOVE CHEMICALS OR DISINFECT WATER AND IS NOT INTENDED FOR DRINKING WATER.

ELECTRICAL REQUIREMENTS

The standard electrical cord emerging from the back of the machine should be plugged directly into a 240vac grounded receptacle on a 30amp breaker for both the BAG Pasteurizer/Warmer. Take special note of the electrical label on the back of the machine to be sure. Failure to meet these requirements will void the warranty and could result in serious damage to the unit, bodily injury or death. The receptacle should be fitted with a water resistant cover for added protection.

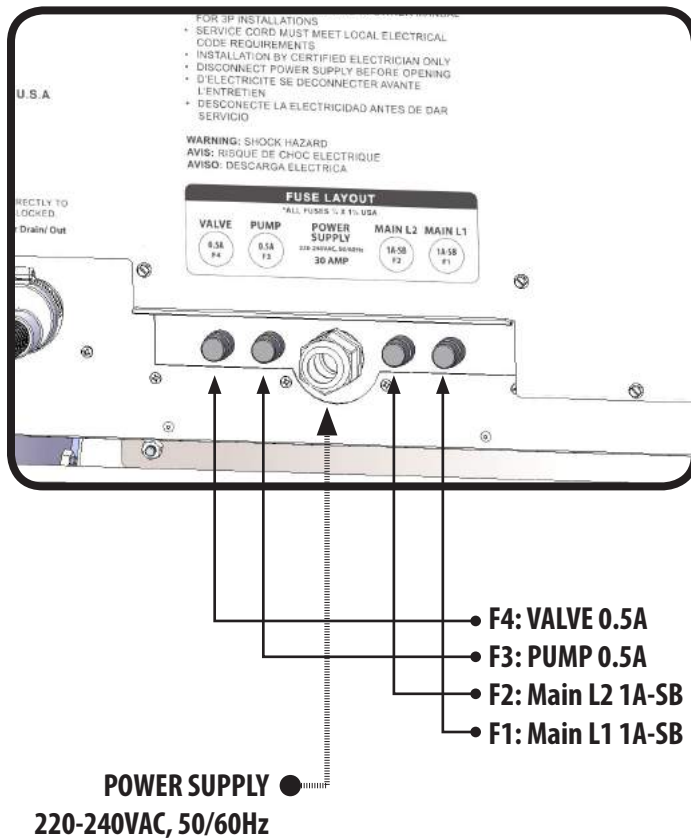


ALL CONNECTIONS SHOULD BE PERFORMED BY AN ELECTRICIAN OR OTHER TRAINED PERSONNEL.

- The receptacle should be sharing minimal usage with other equipment to avoid unexpected outages and tripping. If the power is lost, but returns within 1 hour, the cycle will resume automatically in most instances with the Bag PASTEURIZER. Bag WARMERSs will need to be restarted after power outages.
- BAG Pasteurizer/Warmer units at full power are rated at 19-22 amps, 1P. Do not install on circuit breakers greater than 30 amps.
- Units designed for 3-Phase installations must be installed by a certified electrician according to local electrical ordinances. The main power consumption of the machine is a 4500watt heater. Wire gauge and current supply should be sized accordingly.
- DO NOT use an extension cord to operate the unit. Use only the cord provided.
- Check your electrical system to make certain it is properly grounded to avoid the possibility of electrical shock.

External Fuse Board

The unit is equipped with 4 external fuses on the back of the unit. These fuses protect delicate electronics and also serve as a troubleshooting guide in cases of system malfunction. The layout of the fuses is described below as well as on the unit itself. Refer to Trouble Shooting for further information.



Grounding

The Pasteurizer is equipped with a cord having an equipment grounding conductor and a grounding plug. The plug must be inserted into an appropriate outlet that is installed and grounded in accordance with all local codes and ordinances. DO NOT modify the plug provided with the Pasteurizer; if it will not fit the receptacle, have a proper outlet or new plug end installed by a qualified electrician.

WARNING: Component Ratings

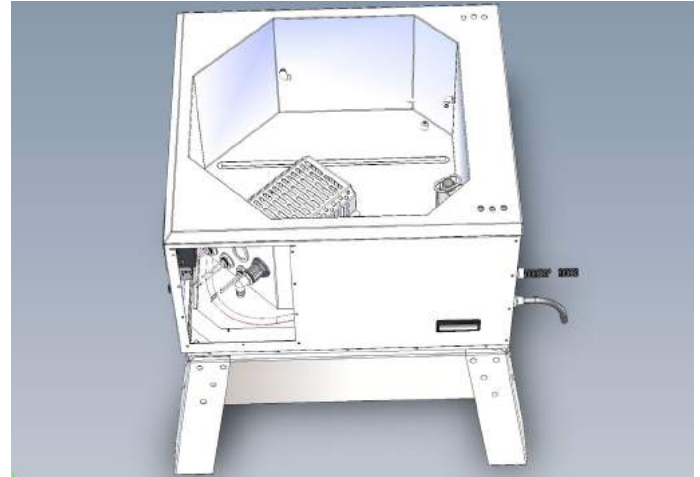
Touch Screen Control: 120-240vac, 1amp, 1P, 50-60Hz

Circulating Pump: 240vac, 1P, 1 amp, 50/60Hz

Heating Elements: 1500watt, 240vac

Heating Elements

The heating elements are easily replaced when necessary by first unplugging the machine and draining all water from the unit. Remove the FOUR (4) nuts that hold the element guard in place. Set guard aside. Remove the wire ends from the end terminals of the element. Remove the element from the sink. Reverse the disassembly procedure to install the new element. Make certain all connections are tight before filling with water.



CLEANING THE SYSTEM

Filling and Emptying the Water Bath

The unit does not need to be emptied completely between every use; however, it is recommended that the unit be drained every two days or any time that colostrum residue has spilled into the bath. To drain the system, raise the lid and pull the drain plug as shown in the view below. *(This is also the tube where overflow water will exit the tank).* Allow the unit to drain completely and then rinse with warm water followed by a hot water and detergent bath, finishing with a hot water rinse.

1. Drain the machine by lifting up the SS Plunger in the right rear of the sink. Twist as shown to keep the drain "Open".



2. With the unit off and the pump stopped, raise the lid for full access. Perform a warm water rinse to remove spilled colostrum and dirt. *(avoid hot water rinse as this can cause calcium deposits to stick to surfaces at this step)*
3. Clean the following surfaces with hot water and soap. We routinely recommend a powerful dish soap such as DAWN. Go over all the exposed surface areas with the included scrub brushes and appropriate disinfectants. A mild scrub pad may be used to remove any residue on the following components:
 - Thermocouple well at bottom of bath
 - Underside of the Pasteurizer/Warmer lid
 - Bottom strainer and the corner drain area
 - Accessory spigots, pitchers or hoses
4. For stubborn residues or buildup, consult with your dairy chemical distributor. Avoid the use of acids on non-stainless steel surfaces as they may corrode some of the brass or aluminum parts on the equipment. Follow manufacturers handling recommendations for all chemicals.
5. Perform a final hot water rinse of all surfaces and allow to dry completely if possible.
6. Spray the stainless steel surfaces with a disinfectant and allow it to dry on the surface. This will help to eliminate the build-up of a biofilm. *(Dairy Tech recommends Effersan reconstituted tablets as a proven disinfectant for the final spray of the milk surfaces. Call for ordering information.)*
7. Replace SS Plunger by gently twisting back and forth as it is pushed downward. If it is forced too quickly, it may dislodge the rubber gasket in the bottom of the drain.

ENERGY AND TIME SAVING TIPS

1. Pasteurize the colostrum as quickly as possible after collection to take advantage of the heat already in the colostrum to improve energy efficiency. This will also prevent the immediate heavy growth of bacteria in this fresh product.
2. Avoid placing the unit in an area of high drafts to prevent convection heat losses while pasteurizing.
3. Colostrum can be stored in the refrigerator for 24-48 hours if it is handled cleanly once it has been pasteurized. Filling Perfect Udder® Colostrum management bags allows for a disposable system that makes it easy to keep track of dates and colostrum quality. These bags also allow the product to be warmed more quickly when they are needed for the newborn and can then be fed without recontamination of the product.

These can be ordered at: www.dairytechinc.com.

4. Always wear nitrile or latex gloves when handling the milk or colostrum to prevent the spread of pathogens from the skin surface.

WHEN SERVICE IS REQUIRED

If you purchased this equipment from an authorized dealer, contact them directly with inquiries or repair questions. For prompt service, work through the troubleshooting guide in this manual to give an accurate description of the problem.

The Dairy Tech, Inc. Service & Parts department can also assist when needed 1-866-384-2697 extension 2

Repair by an unauthorized service technician will void the warranty.

DairyTech[®]
INCORPORATED

For parts list and ordering
visit www.dairytechinc.com

You may also see the last pages of this user manual.

Contact Dairy Tech, Inc.

Dairy Tech, Inc.
34824 CR 29 | Greeley, CO 80631

Toll Free: 1-866-384-2697

Local: 1-970-674-1888

Fax: 1-970-686-5871

Hours: M – F 7am – 4pm, MST

Web: www.DairyTechInc.com

eMail: service@DairyTechInc.com

QUALITY CONTROL AND SYSTEM MONITORING

The following recommendations should be carried out when the system is first installed and then on a monthly schedule to make certain that the pasteurization process is working adequately.

1. Follow all instructions for proper installation by thoroughly reading the manual.
2. Use quality colostrum in the machine. The process can be overwhelmed if there are too many bacteria to begin with.
3. Handle the colostrum cleanly after pasteurization to prevent recontamination.
4. Verify display temperatures periodically with a second thermometer to be sure that the displayed reading matches closely with a trusted calibrated source.

TIME & TEMP FOR PROPER PASTEURIZATION

- **Colostrum 140°F (60°C)/ 60 minutes**



**THIS IS THE RESEARCH RECOMMENDED
COMBINATION.**

HOW TO USE THE PERFECT UDDER BAG PASTEURIZER Formerly the MilkWorks® Gold and Silver Models

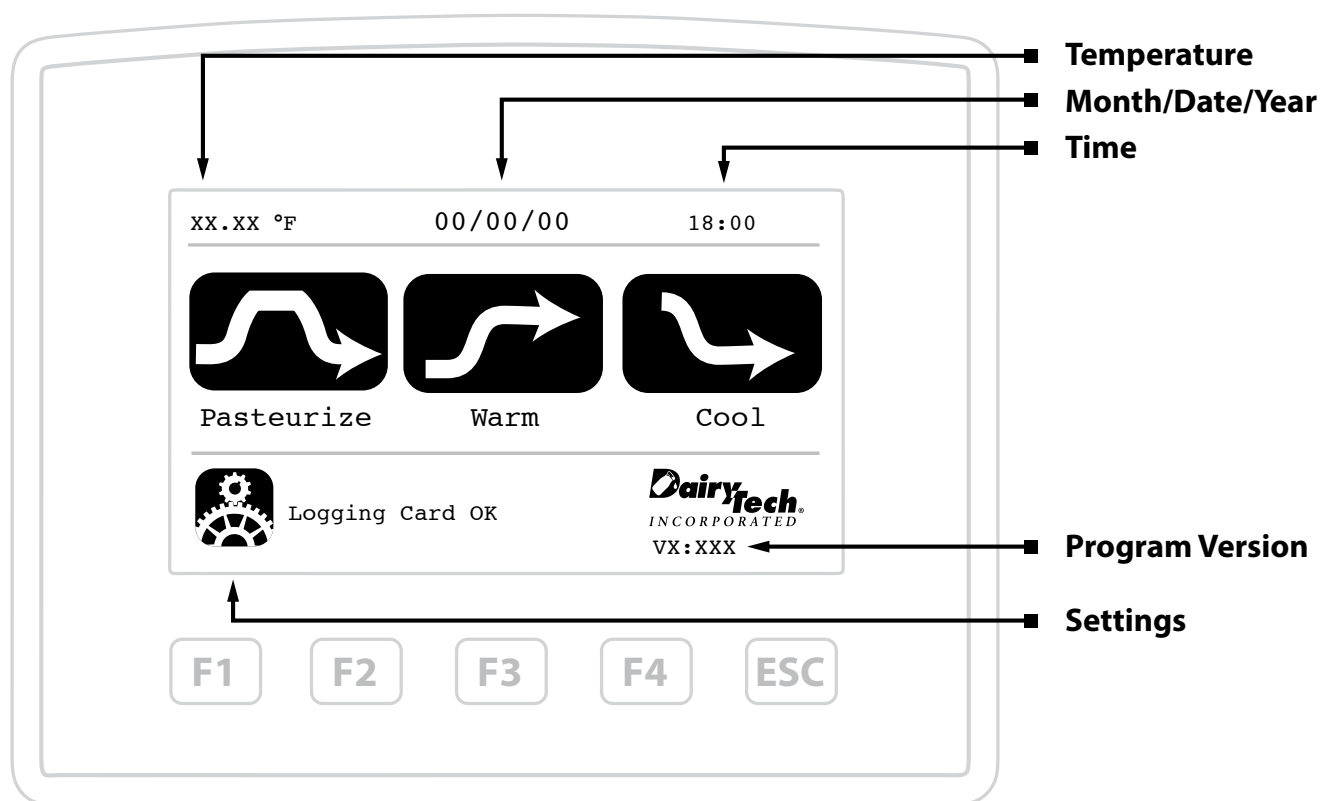


The Perfect Udder® Bag PASTEURIZER was designed to be an all-purpose colostrum management tool. This unit comes equipped with the same touch screen control technology that is found on our COMBI Pasteurizers. With this control system, temperatures are able to be held within exacting tolerances to ensure that colostrum is properly heat treated without causing damage to the delicate immunoglobulin (Ig) proteins.

When the system is first plugged in and turned on, it will fill itself with water to protect the heating elements and pump. Once the float valve detects that sufficient water is available for safe operation, power will be sent to the controller ready for operation.

The water valve is designed to run for a brief period after the fill line is reached so that waves in the bath do not affect operation.

USING AND PROGRAMMING THE TOUCHSCREEN CONTROLLER



CONTROLLER BUTTON LEGEND



Pasteurize



Warm



Cool



Settings



Back



Repeat Last



Feed Now



Store



Home



Information



STOP



Adjustable Setting



Adjust Down



Adjust Up

ADJUSTING SETTINGS

*** IMPORTANT WARNING ***



DO NOT ALTER SETTINGS IN THE CONTROLLER WITHOUT CONSULTING A DAIRY TECH REPRESENTATIVE. ANY UNAUTHORIZED ADJUSTMENTS WILL VOID THE PRODUCT WARRANTY AND MAY LEAD TO SERIOUS HEALTH CONSEQUENCES FOR THE CALVES.

Resetting the Password

1. Select **"SETTINGS"**



2. Select **"SYSTEM PROFILES"**

3. Select **"ENTER PASSWORD"**

Enter Password				Esc
1	2	3	Del	
4	5	6	←	→
7	8	9	↶	↷
+/-	0	.		

This information is protected by a password. You will be asked to enter a password to continue.

4. Enter the default password, **"0"** and press **"RETURN/BACK"**. You now have access to the **"SYSTEM PROFILES"**.

5. Select **"ENTER NEW PASSWORD"**

6. A new password screen will appear that shows the default password **"0"**, or the last password saved. Selecting this box will open a new screen that will allow you to create your new password.

7. Enter password of choice, then press **"RETURN/BACK"**.

Variable 428												
										(Dec)	▲	Esc
←	Home	End	Del	↶	↷							
1	2	3	4	5	+/-							
6	7	8	9	0	.							
A	B	C	D	E	F	Exp	Base					

Keep your new password in a safe place. *If at any time the new password is lost or cannot be remembered, the system has default password that can retrieved by contacting your Dairy Tech Dealer or our Service Department.*

8. If you are satisfied with your new password, press **"OK"** to save or press **"Cancel"** to keep the previous password.

9. Select **"BACK"** to complete



Selecting a Language

1. Select "SETTINGS"



2. Select "LANGUAGE"

XX.XX °F 00/00/00 18:00

Language

Date & Time

System Profiles

◀

Manual

DairyTech.
INCORPORATED

3. Select a language from list on screen

XX.XX °F 00/00/00 18:00

Language

☒ English
 ☐ Portugues
 ☐ Italian
 ☐ Spanish
 ☐ German
 ☐ Danish

◀

F2
English

← 1/2 →

DairyTech.
INCORPORATED

4. Select "BACK" to save your changes



Setting Date and Time

1. Select "SETTINGS"



2. Select "DATE & TIME"

XX.XX °F 00/00/00 18:00

Language

Date & Time

System Profiles

◀

Manual

DairyTech.
INCORPORATED

To adjust any of the fields, select the desired box with a blue outline.

DATE: The First box is for the MONTH, and has a range from 01 to 12, the Second Box is for DAY and has a range from 01 to 31, and the Third Box is for YEAR and has a range from 01 to 99. The First box is active and ready

TIME: First box is for HOUR and has a range from 01 to 24, the Second box is for MINUTES and has a range from 01 to 59. The Third Box is for SECONDS and has a range from 01 to 59. Time is set as Military Time.

XX.XX °F 00/00/00 18:00

Click to Change Date

M D Y

01 / 01 / 16

Click to Change Time

H M S

10 : 55 : 16

◀

DairyTech.
INCORPORATED

3. After selecting a field to adjust, a keypad will appear.

0			Esc
1	2	3	Del
4	5	6	◀ ▶
7	8	9	↩
+/-	0	.	

Enter the desired number and select "RETURN/BACK" to complete the change. Repeat this step as needed until all fields are correct.

4. Select "BACK" to save your changes



Calibrating Thermocouple Temperature

It is a good idea to double check program temperatures. Allow a cycle to climb to the pasteurization temperature and level out for five minutes. Now it is okay to check the temperature of the water with a high quality thermometer. If the control reads high, reduce offset, if the control reads low, increase offset.

1. Select **"SETTINGS"**



2. Select **"SYSTEM PROFILES"**

XX.XX °F 00/00/00 18:00

Language

Date & Time

System Profiles

Manual

DairyTech
INCORPORATED

Enter Password			
1	2	3	Esc
4	5	6	Del
7	8	9	←
+/-	0	.	→

This information is protected by a password. You will be asked to enter a password to continue.

3. Enter your password, then press **"RETURN/BACK"**. You now have access to the **"SYSTEM PROFILES"**.
4. Select **"SYSTEM"**

XX.XX °F 00/00/00 18:00

System Profile

Pasteurize Temperature 140.0 °F

H M S

Dwell Time 00:60:00

Factory Reset

System

Enter New Password

DairyTech
INCORPORATED

5. Select **"SCALE TEMPERATURE"**

XX.XX °F 00/00/00 18:00

Maximum Feed Adjust	120.0 °F	PID Values	°F
Minimum Feed Adjust	90.0 °F		
Maximum Cool Adjust	120.0 °F	Manual	°C
Minimum Cool Adjust	70.0 °F		

Scale Temperature

Stirring

DairyTech
INCORPORATED

You will need to adjust the additive variable. You can adjust the temperature by a (+,-) degree.

XX.XX °F 00/00/00 18:00

Measured Temperature

Scale & Offset

Scaled Temperature

999.9 Deg F * -9.999 + -9.999 = 999.9 Deg F

←

0			
1	2	3	Esc
4	5	6	Del
7	8	9	←
+/-	0	.	→

Enter the desired number and select **"RETURN/BACK"** to complete the change. Repeat this step as needed until all fields are correct.

6. Select **"BACK"** to save your changes



Celsius/Fahrenheit

Changing from Fahrenheit to Celsius is simple.

1. Select “**SETTINGS**”



2. Select “**SYSTEM PROFILES**”

XX.XX °F 00/00/00 18:00

Language Date & Time

System Profiles

Manual

DairyTech.
INCORPORATED

Enter Password

1	2	3	Esc
4	5	6	Del
7	8	9	Left Arrow
+/-	0	.	Right Arrow

This information is protected by a password. You will be asked to enter a password to continue.

3. Enter your password, then press “**RETURN/BACK**”. You now have access to the “**SYSTEM PROFILES**”.
4. Select “**SYSTEM**”

XX.XX °F 00/00/00 18:00

System Profile

Pasteurize Temperature 140.0 °F

H M S

Dwell Time 00:60:00

Factory Reset

System Enter New Password

DairyTech.
INCORPORATED

5. Select °F or °C

XX.XX °F 00/00/00 18:00

Maximum Feed Adjust 120.0 °F

Minimum Feed Adjust 90.0 °F

Maximum Cool Adjust 120.0 °F

Minimum Cool Adjust 70.0 °F

PID Values

Manual

Scale Temperature Stirring

DairyTech.
INCORPORATED

Your temperature choice will be reflected throughout the program.

XX.XX °C 00/00/00 18:00

Maximum Feed Adjust 48.9 °C

Minimum Feed Adjust 32.2 °C

Maximum Cool Adjust 48.9 °C

Minimum Cool Adjust 21.1 °C

PID Values

Manual

Scale Temperature Stirring

DairyTech.
INCORPORATED

6. Select “**BACK**” to save your changes



Adjusting Feed and Cool Temperatures

Dairy Tech Inc. has designed the feeding temperature parameters and cooling temperature parameters to reflect university and industry research.

Currently, each controller is set up to have the below parameters for feeding and cooling temperatures:

- **Maximum Feeding Temperature: 115 degrees**
- **Minimum Feeding Temperature: 90 degrees**
- **Maximum Cooling Temperature: 110 degrees**
- **Minimum Cooling Temperature: 75 degrees**

To change Maximum Feed and Cool Temperatures:

1. Select “**SETTINGS**”



2. Select “**SYSTEM PROFILES**”

XX.XX °F 00/00/00 18:00

Language Date & Time

System Profiles

Manual

DairyTech.
INCORPORATED

Enter Password

1	2	3	Esc
4	5	6	Del
7	8	9	Left Arrow
+/-	0	.	Right Arrow

This information is protected by a password. You will be asked to enter a password to continue.

3. Enter your password, then press **"RETURN/BACK"**. You now have access to the **"SYSTEM PROFILES"**.
4. Select **"SYSTEM"**

XX.XX °F	00/00/00	18:00
System Profile		
Pasteurize Temperature	140.0 °F	
	H M S	
Dwell Time	00:60:00	
Factory Reset		
◀	System	Enter New Password

DairyTech
INCORPORATED

Adjust the **"FEED"** or **"COOL"** temperatures by touching the BLUE box that contains the temperature you want to change.

XX.XX °F	00/00/00	18:00
Maximum Feed Adjust	120.0 °F	PID Values
Minimum Feed Adjust	90.0 °F	
Maximum Cool Adjust	120.0 °F	Manual
Minimum Cool Adjust	70.0 °F	
◀ Scale Temperature Stirring		

DairyTech
INCORPORATED

After selecting a field to adjust, a keypad will appear.

0	Esc
1 2 3	Del
4 5 6	◀ ▶
7 8 9	↩
+/- 0 .	

Enter the desired number and select **"RETURN/BACK"** to complete the change. Repeat this step as needed until all fields are correct.

5. Select **"BACK"** to save your changes



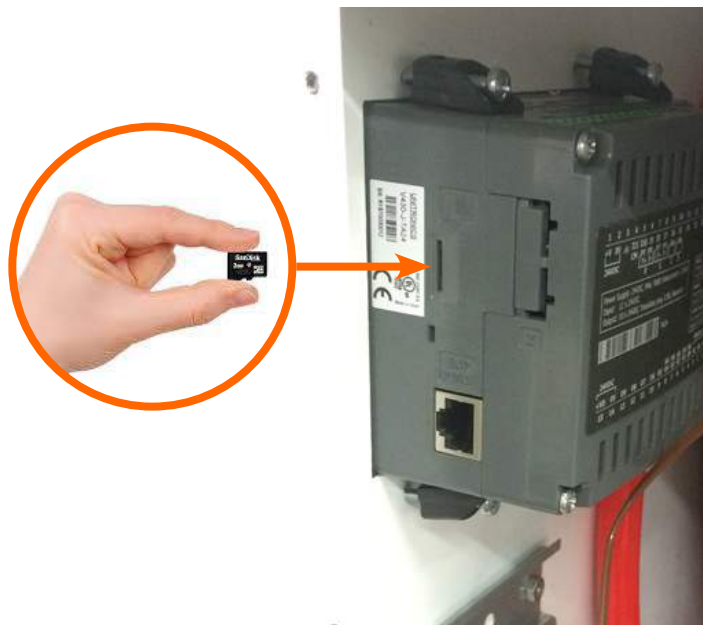
Downloading Pasteurization Data

A micro-SD card is located on the right hand side of the controller. You will see the word **"SD"** above the slot containing the card.

When Data is needed, please remove the Micro SD Card and connect to adapter of choice.

**** Please note that the SD Adapter card is located with the extra fuses. The user will be able to input the micro-SD card to the large SD Adapter. This can easily be adapted to a USB connector. ****

Connect Large SD Card to a USB Connector then attach USB connection to a computer and wait for documents to load. You will find an excel file of the data.



Testing the Heat Circuit

Follow these steps to manually check each component of the Heating Circuit.

1. Select “**SETTINGS**”



2. Select “**MANUAL**”

XX.XX °F 00/00/00 18:00

Language Date & Time

System Profiles

Manual

3. Select “**HEATERS**” and check for Power

XX.XX °F 00/00/00 18:00

PID Off Mixer Off

Heaters ON Water Valve Off

Selecting the button again will return it to the “OFF” state.

4. Select “**MIXER**” and check for Power

XX.XX °F 00/00/00 18:00

PID Off Mixer ON

Heaters Off Water Valve Off

Selecting the button again will return it to the “OFF” state.

5. Select “**WATER VALVE**” and check for Power

XX.XX °F 00/00/00 18:00

PID Off Mixer Off

Heaters Off Water Valve ON

Selecting the button again will return it to the “OFF” state.

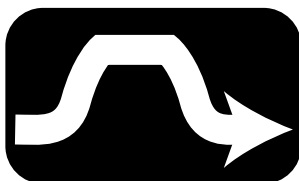
6. Remember to deselect each button **before** returning to the Home screen.
7. Select “**BACK**” to return to the Home screen



USING YOUR BAG PASTEURIZER



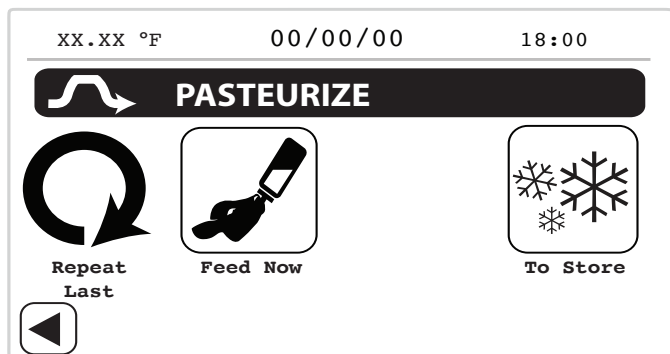
Warning: Bags can cause severe burns if handled before the product is completely cooled. Always finish the cooling cycle before handling the bag. Do not handle the colostrum unless it has cooled.



PASTEURIZE

When "PASTEURIZE" is selected, four profile options will appear. These options dictate what will occur when pasteurization is complete.

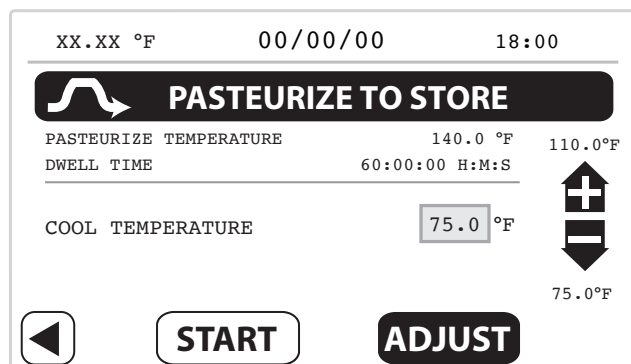
1. REPEAT LAST
2. FEED NOW
3. TO STORE






REPEAT LAST

Selecting the "REPEAT LAST" Pasteurization Option will open a screen that shows the parameters of the last Pasteurization Option ran.

This example shows a "Pasteurize, To Store" Option.



You have 3 choices: BACK, ADJUST or START

1.  Press "**BACK**" button and return to the "Pasteurize" menu to select from one of the other 3 options
2.  Press "**ADJUST**" to change the current settings. *Please refer to the "ADJUST PROGRAM SETTINGS" instructions listed in the FEED LATER Pasteurize Options section.*
3.  When you are satisfied with your adjustments, press "**START**" to begin the program.

Once the program is in progress, the screen will indicate which stage the program is in.

Upon completion, the Controller Screen will indicate "COMPLETE".



Pressing the "HOME" button will take the operator back to HOME screen.



FEED NOW

Selecting the “**Feed Now**” Pasteurization Option allows you to pasteurize colostrum then feed at a selected temperature when pasteurization is complete.

A screen will show all the parameters of the last “FEED NOW” program ran.

XX.XX °F 00/00/00 18:00

PASTEURIZE FEED NOW

PASTEURIZE TEMPERATURE 140.0 °F 115.0°F

DWELL TIME 60:00:00 H:M:S

FEED TEMPERATURE 105.0 °F 90.0°F

START ADJUST

You have 3 choices: BACK, ADJUST or START

1. Press “**BACK**” button and return to the “Pasteurize” menu to select from one of the other 3 options
2. **ADJUST** Press “**ADJUST**” to change the current settings.

Adjusting Program Settings

Pressing the “ADJUST” button will highlight all available adjustments that can be made to the current program. A BLUE BOX will indicate the current active fields to be adjusted.

XX.XX °F 00/00/00 18:00

PASTEURIZE FEED NOW

PASTEURIZE TEMPERATURE 140.0 °F 115.0°F

DWELL TIME 60:00:00 H:M:S

FEED TEMPERATURE 105.0°F 90.0°F

START **ADJUST**



Use the arrow buttons to adjust the setting in the active BLUE BOX up or down. To activate a different field, simply touch it and it will turn BLUE to indicate that it is now active.

XX.XX °F 00/00/00 18:00

PASTEURIZE FEED NOW

PASTEURIZE TEMPERATURE 140.0 °F 115.0°F

DWELL TIME 60:00:00 H:M:S

FEED TEMPERATURE 105.0°F 90.0°F

START **ADJUST**

3. **START** When you are satisfied with your adjustments, press “**START**” to begin the program.

Once the program is in progress, the screen will indicate which stage the program is in.

XX.XX °F 00/00/00 18:00

PASTEURIZE FEED NOW

Increasing Temp to 140°F

CURRENT TEMP 130°F

i Stop

Upon completion, the Controller Screen will indicate “COMPLETE”.

XX.XX °F 00/00/00 18:00

PASTEURIZE FEED NOW

PROGRAM COMPLETE

i Home



Pressing the “HOME” button will take the operator back to HOME screen.



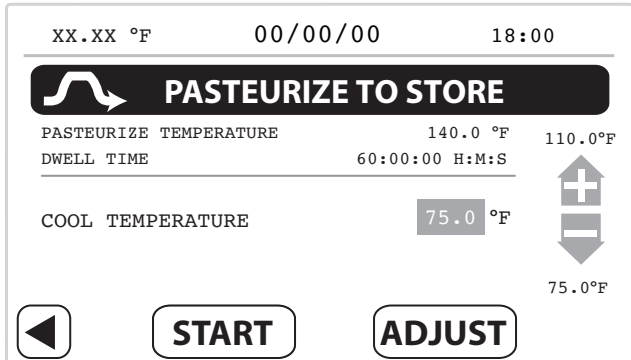
WARNING: TEMPERATURES GREATER THAN 120°F (49°C) WILL BURN THE ESOPHAGUS OF THE CALF AND CAUSE SEVERE ILLNESS AND/OR DEATH.



TO STORE

Selecting the “**To Store**” Pasteurization Option allows you to pasteurize, then cool colostrum to be stored in the refrigerator or the freezer. This profile is recommended for use with Perfect Udder® Bags.

A screen will show all the parameters of the last “TO STORE” program ran.



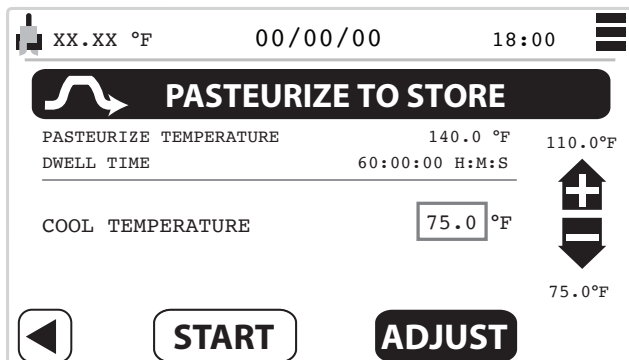
You have 3 choices: BACK, ADJUST or START

1. Press “**BACK**” button and return to the “Pasteurize” menu to select from one of the other 3 options

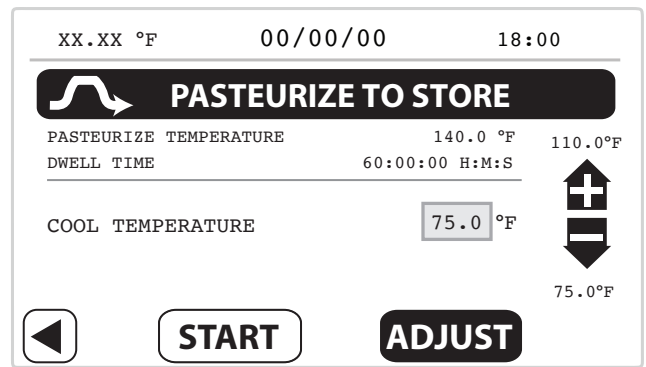
2. Press “**ADJUST**” to change the current settings.

Adjusting Program Settings

Pressing the “ADJUST” button will highlight all available adjustments that can be made to the current program. A BLUE BOX will indicate the current active fields to be adjusted.

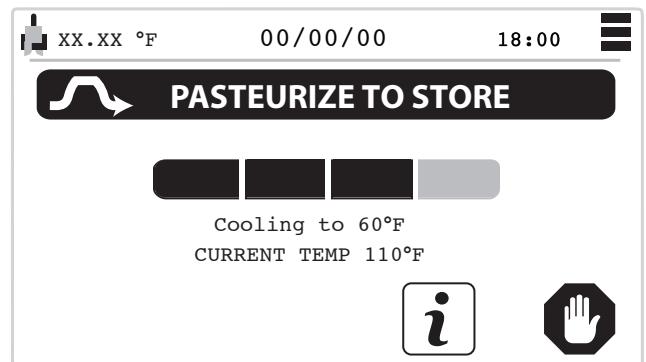


Use the arrow buttons to adjust the setting in the active BLUE BOX up or down. To activate a different field, simply touch it and it will turn BLUE to indicate that it is now active.



3. When you are satisfied with your adjustments, press “**START**” to begin the program.

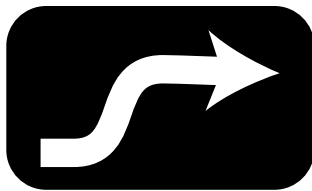
Once the program is in progress, the screen will indicate which stage the program is in.



Upon completion, the Controller Screen will indicate “**COMPLETE**”.



Pressing the “**HOME**” button will take the operator back to HOME screen.



WARM

Warm is to be used when you would like to warm pasteurized colostrum to a feeding temperature.

Pressing the “WARM” button will open a new screen with the WARM Header showing all the parameters of the last WARM program ran.

XX.XX °F 00/00/00 18:00

WARM

FEED TEMPERATURE 90.0 °F 115.0°F

DWELL TIME 00 : 30 H M

90.0°F

BACK START ADJUST

You have 3 choices: BACK, ADJUST or START

1. Press “BACK” button and return to the “Pasteurize” menu to select from one of the other 3 options

2. **ADJUST** Press “ADJUST” to change the current settings.

Adjusting Program Settings

Pressing the “ADJUST” button will highlight all available adjustments that can be made to the current program. A BLUE BOX will indicate the current active field to be modified.

XX.XX °F 00/00/00 18:00

WARM

FEED TEMPERATURE 95.0 °F 115.0°F

DWELL TIME 00 : 30 H M

90.0°F

BACK START **ADJUST**



Use the arrow buttons to adjust the setting in the active BLUE BOX up or down.

3. **START** When you are satisfied with your adjustments, press “START” to begin the program.

Once the program is in progress, the screen will indicate which stage the program is in.

XX.XX °F 00/00/00 18:00

WARM

Increasing Temp to 105°F
CURRENT TEMP 80°F

i Stop

Upon completion, the Controller Screen will indicate “COMPLETE”.

XX.XX °F 00/00/00 18:00

WARM

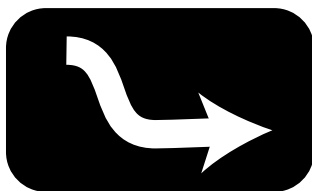
PROGRAM COMPLETE

i Home

Pressing the “HOME” button will take the operator back to HOME screen.



WARNING: TEMPERATURES GREATER THAN 120°F (49°C) WILL BURN THE ESOPHAGUS OF THE CALF AND CAUSE SEVERE ILLNESS AND/OR DEATH.



COOL

Cool is to be used when you would like to cool pasteurized colostrum to a lower temperature for storage or to be held for a later feeding.

PLEASE NOTE: Passive cooling relies on the temperature of the incoming supply water. This unit DOES NOT contain an active cooling system.

Pressing the “COOL” button will open a new screen with the COOL Header showing all the parameters of the last COOL program ran.

You have 3 choices: BACK, ADJUST or START

1. Press “**BACK**” button and return to the “Pasteurize” menu to select from one of the other 3 options

2. Press “**ADJUST**” to change the current settings.

Adjusting Program Settings

Pressing the “ADJUST” button will highlight all available adjustments that can be made to the current program. A BLUE BOX will indicate the current active field to be modified.



Use the arrow buttons to adjust the setting in the active BLUE BOX up or down.

3. When you are satisfied with your adjustments, press “**START**” to begin the program.

Once the program is in progress, the screen will indicate which stage the program is in.

Upon completion, the Controller Screen will indicate “COMPLETE”.

- Pressing the “HOME” button will take the operator back to HOME screen.

HELPFUL HINTS FOR SUCCESSFUL PASTEURIZATION

Time pasteurization so that it happens as quickly as possible after harvest of the milk or colostrum. If pasteurization is not going to be started for more than a couple of hours, it will be important to first cool the milk or colostrum so that spoilage and pathogenic bacteria do not multiply in the product.

1. Will I need to add anything to the colostrum after it has been pasteurized?

Not Usually. There are certain vitamins that are heat sensitive and may be decreased in concentration due to the pasteurization process but to our knowledge, no cases of deficiency or hypovitaminosis have been attributed to proper pasteurization. There may be circumstances due to regional or farm-specific conditions that would dictate supplementation of vitamins, minerals or even added fat/protein. Always check with your local veterinarian if there are such suspicions and treat according to their instructions.

2. What if the colostrum becomes spoiled before I pasteurize it?

This condition is fairly common and can happen at times even when the same successful routines have been followed. There are spoilage bacteria in milk and colostrum that release acid as their by-products. This is usually lactic acid but there are also others. The release of acid from these proliferating bacteria then drives down the pH of the milk making it more acidic. Once the product is pasteurized it is safe for the calves to drink, but this can lead to rancid odors and flavors that might decrease consumption by the calves. Digestibility might also be different which can lead to scours. In cases of severe drop in pH, the milk will separate completely with a very thick layer of “cheese” on top or thick like pudding throughout the product. This is not due to overheating, it is due to the fact that protein denaturation and separation is made worse by the added heat of the pasteurization process. Heat combined with spoiled colostrum of low pH is a bad recipe which is why we recommend that you always try to pasteurize as soon as possible after harvest.

3. What is the optimal routine for handling colostrum?

We recommend that colostrum be pasteurized immediately after harvest and then either fed at once or cleanly transferred to a refrigerated holding vessel. The colostrum can then be warmed to body temperature prior to feeding.

4. Are there ways to preserve the colostrum if refrigeration is not an option?

Yes. Potassium sorbate and other preservatives can be added to milk or colostrum that is already pasteurized and this will help to prevent the growth of any remaining bacteria in the product. It is important to note that K-sorbate will not kill existing bacteria but will prevent any new growth. Do not add it prior to pasteurization as it will cause a lower pH and the symptoms described above including thickened or separated product and bad flavors.



5. Will I harm immunoglobulins if I pasteurize colostrum?

NO. When done properly colostrum can be successfully pasteurized to eliminate the same pathogens that can be found in the milk. These pathogens are even more dangerous in colostrum since these bacteria and viruses can easily pass through the gut wall along with the large proteins that impart immunity to the calf. Colostrum can be safely pasteurized at 140F for 60 minutes to remove all pathogens without significant damage to immunoglobulins. Colostrum pasteurization should be as much a part of herd biosecurity as milk pasteurization.



USING YOUR PERFECT UDDER BAG WARMER *(formerly the MilkWorks Silver Model)*

The Bag WARMER was designed for those dairies that already have colostrum pasteurization capabilities but now need a controlled method for properly preparing the colostrum for the newborn calf. Our Bag WARMER allows for rapid warming of colostrum that saves valuable time and also provides the immune function of colostrum to the calf in the quickest manner. All the while, the temperature controls of the Bag WARMER prevent damage to the immunoglobulin (Ig) molecules that the calf needs for survival. We warm colostrum the fastest, safest way possible based on solid research.



When the unit is first turned on, it will automatically fill with water to the top. Once the unit is full, the heater will automatically turn on so that the water bath begins to prepare itself for use throughout the day. The Bag WARMER works with a timer that enables the operator to select an amount of time based on what combination of products are to be prepared for consumption. To provide the best chance of getting the timing right, the Bag WARMER preheats before it will allow operation. Preheating is indicated by a red light and once the operational temperature (90-100°F or 32-38°C) has been reached, the green light will turn on and permit the system to be engaged.

The system is designed to work with the Perfect Udder® bags ONLY.



The Bag WARMER very simple to operate.

1. **Place your bag(s) of colostrum into the preheated water bath**
2. **Turn the dial clockwise to select the operation time**
3. **Close the lid**

The circulation pump will engage to rapidly exchange heat evenly throughout the system. At no point will the water temperature exceed 120°F (48°C). This is to protect the Ig proteins.

How Long Will It Take to Warm a Bag?

Under normal circumstances, our Bag WARMER will take 70 minutes to warm two frozen 4 liter Perfect Udder® bags to a Feeding Temperature of 105°F (40.5°C).

Please note that warming times will vary depending on:

- **Number of Bags**
- **Sizes of Bags - 4L, 3L, 2L**
- **Colostrum Quality**
- **Freezer Temperature**

Always check the temperature of the colostrum prior to feeding calves.

For best absorption of immunoglobulins, feed between 95°F (35°C) and 105°F (40.5°C).



WARNING: TEMPERATURES GREATER THAN 120°F (49°C) WILL BURN THE ESOPHAGUS OF THE CALF AND CAUSE SEVERE ILLNESS AND/OR DEATH.

TROUBLE SHOOTING BAG PASTEURIZERS

- **This guide is intended for use as a troubleshooting directive. All electrical tests and diagnostics should be performed only by those skilled in the electrical profession**
- **All electrical testing and repairs should be performed by an experienced professional or technician trained in the electrical trade**
- **Serious injury or death may result from improperly testing or handling this equipment**
- **This unit contains HIGH VOLTAGE electricity that can cause serious harm or death**



All parts can be ordered at our website
www.DairyTechInc.com

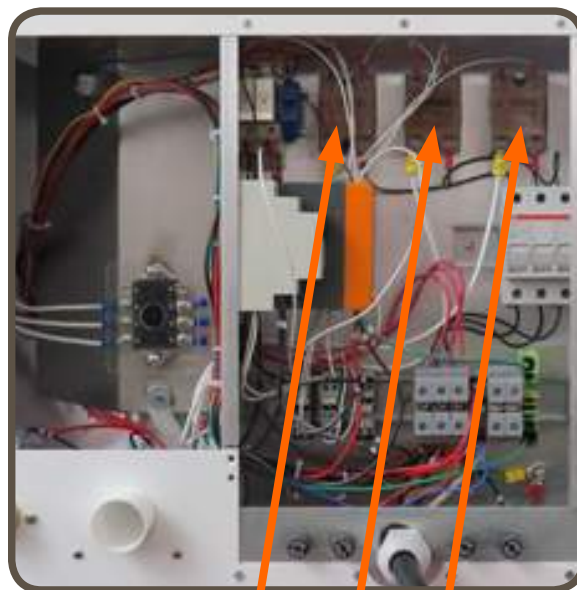
1. No power to the control panel

- Check to be certain unit is plugged into 240vac outlet and that there is power at the outlet.
- Be certain that breakers in your electrical panel box are not tripped
 - If the breakers are being tripped, the system is likely being shorted to ground. Look for any blown fuses to indicate trouble areas and consult the fuse layout for more detail. Have the system checked by a certified electrician before operating.
- Is the unit full of water? If the float switch is not elevated, it will not allow power to travel through the time delay relay and then onto the controls. Trouble shoot the float switch if the unit is full of water.
- Check the 1amp fuses (F1 and F2). Make sure there is line voltage to and through the fuses. If not, replace with appropriate fuse. **DO NOT REPLACE WITH OVERSIZED FUSES.**
- Voltage across the red and black wires of the switch should be at 240vac on the top leads and then across the bottom leads once the switch is depressed. No voltage when pressed indicates a bad switch that needs to be replaced.

- Make certain that the power connections between the front terminal block and the controller have not become loose. These are the wires at terminals 1 and 2 (Top) on the back of the control. Check for D/C Power at terminals 14 and 15 (Bottom).
- The control itself could be malfunctioning or internally damaged. This is only rarely seen. Call for assistance.
- Check for D/C Power from the power supply.

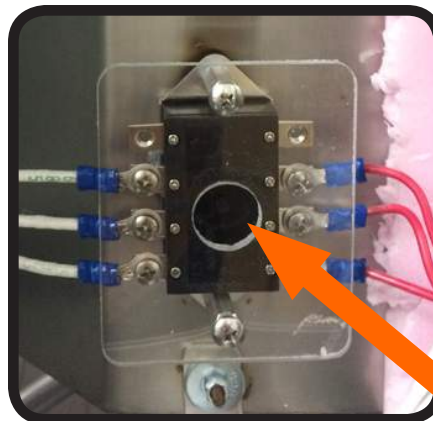
2. Bath does not heat and the heater is not hot.

- Heat components:** Control calls for heat by signaling the Solid State Relays (SSR). Current passes through a high limit thermostat to prevent runaway situations before reaching the elements.



Solid State Relays (SSRs)

- If there is not power to and through the Over Temperature Thermostat on the way to the heater shown here, then try to reset the thermostat by pressing the Manual Reset Button. If the thermostat will not reset, replace it. If the thermostat does reset and this solves the problem, please inform Dairy Tech that this has occurred so that we are aware of it.



Manual Reset Button

- c. If there is power through the thermostat but no current draw in the line, the heater is damaged and requires replacement.



- d. Check the Solid State Relay (SSR)
 - i. Is there line voltage at position 1 & 2 of the SSR when calling for heat? If not, check the SSR. There should be a D/C signal though position's 3⁽⁺⁾ and 4⁽⁻⁾ of the SSR and the LED on the SSR should be lit when activated. Line voltage is supplied to the SSR through the black wire at position 1. Once signaled by the D/C, there should be A/C line voltage out of the black wire position 2 to the SST. If not, replace the SSRii. No D/C signal to the SSR through position's 3⁽⁺⁾ and 4⁽⁻⁾. Check to make sure the control is indicating heat on the display when operating a normal heat cycle. Three (3) small red heating boxes will flash in upper right hand corner of control window. Check outputs 5, 6 and 7 from the control for signals to the SSR 3⁽⁺⁾.
- g. 240VAC is getting to the heating elements but still no heat, replace the heating element.

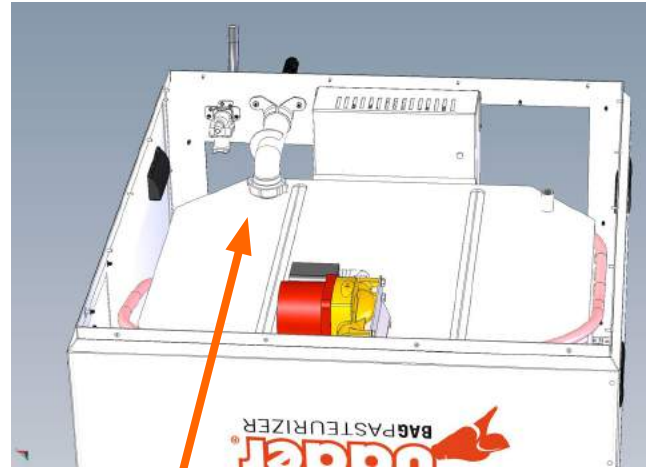
TO TEST HEAT CIRCUIT, SEE CONTROLLER INSTRUCTIONS PG 16

3. Bath does not get to temperature but the Heater is hot and drawing current.

- a. This is a function of heat exchange. Check the amp draw and compare for a 4500watt heater with the local line voltage to determine if it is working at full capacity. Possibly one or more heating elements are damaged.
- b. Cold water is coming into the system. If there is a leak in the system, such as a leaking cold water solenoid valve, the heater cannot keep up and the bath will not heat properly. Repair the leak or replace the valve if water continues to flow out of the unit.

4. Water is leaking out the bottom of the Unit

- a. Check the drain line to see if water is draining when it is not supposed to. May need to replace the seal in the bottom of the drain pipe. See next image.



Drain Pipe

5. Bath will not cool

- a. At the end of the heating and time-out cycle, the cooling solenoid valve should automatically open and flow cold water into the unit forcing out the hot water down the overflow drain.
 - i. Make certain the cold water supply to the unit is always on ... it is common to find that someone has shut the valve not knowing its importance.
 - ii. Make certain that the user did not initiate a "Heat Only" cycle after which the unit does not cool the bath automatically. Use the "Full pasteurization cycles" to make sure it goes through all steps.
- b. Check the cooling solenoid valve. The thermocouple temperature must be 100F, or above your cool setting in the control for the cycle to initiate.
 - i. During a cooling segment of the profile with the #2 LED on the control lit up, is there power to the solenoid valve? If the power is on and the machine has water but it will not flow, replace the valve.
 - ii. No power to the valve: Check the Valve fuse (F4). Replace if necessary and check for power to the fuse from the control through terminal 8 (BOTTOM) blue wire. IF there is no line voltage power from the control at terminal 8 (BOTTOM) then the control may be damaged.
- c. Check the water supply to make sure screens and filters are free from debris and there are no kinks in the hoses.
- d. Use manual settings to check the valve.

6. Temperature Display is erratic or incorrect.

- a. Either the controller is corrupt or
- b. The thermocouples are polar sensitive and will yield erratic numbers or even move down in temp when the process is heating if they are wired in reverse. The unit may also flash an unusually high number and then immediately indicate that the cycle has ended. Make certain that purple or white leads are positive (+) and red leads are negative (-) at all junctions.
- c. Is the unit housed in an extremely drafty location. Rapidly changing temperatures around the control can cause erratic temperature display.

7. Colostrum is separated or congealed

- a. The most common cause for milk or colostrum to separate or congeal is acidification of the milk caused by two processes:
 - i. Fermentation of the milk by bacteria will cause the release of lactic acid and other acidic by-products resulting in a lower pH of the milk. This in turn allows it to separate. The heat of pasteurization will exacerbate this problem. To control this, cool the milk during holding stages or pasteurize the milk sooner after collection to prevent the start of fermentation.
- b. Acidic cleaners that find access to the colostrum can also cause a low pH and congealing of product.

8. Circulation Pump is not pumping

- a. Check the fuse for the pump (F3)
- b. If the fuse is good, make certain that the wire to the pump has not been damaged or pulled out of the terminal block.
- c. If there is power to the pump and it will not turn, replace the pump.
- d. If there is no power to the pump and the fuse is good, check the control. There should be line voltage between terminal 9 (bottom) to a neutral wire during heating or cooling. No voltage could indicate problems with the controller.
- e. Use the manual settings to check pump function

9. Delay start does not come on automatically

- a. Follow instructions to make certain the clock is set for the correct time of day.

10. Cycle starts automatically when toggle is switched on

- a. Your pasteurizer is equipped with a security feature that reminds it to come back on to its last unfinished cycle once power is restored after a power failure. This will also occur if someone shuts the unit off prior to completion of its assigned cycles, and the unit will automatically restart when the toggle switch or power is restored. If a long time period has elapsed, the control will reset itself. If it does not it will restart when power is returned and must be reset by using the ABORT PROFILE command as listed on the control.
- b. If the unit begins to heat even when power is not applied, the only explanation would be one or more damaged solid state relays that are allowing current to flow to heaters at all times. The high temperature thermostat will eventually protect the unit from overheating, but SSR's must be repaired/replaced immediately.

11. Cooling solenoid valve will not stop running

- a. Check the power supply to the valve. IF there is power keeping it open during unwanted times, the control could be malfunctioning. Replace the control.
- b. It is possible that some debris has held the solenoid open. Disconnect power and remove tubing from valve inside cabinet. Blow into the supply hose to eject any debris from the valve or force water backward through the valve.
- c. The valve may need to be replaced if it is powering properly but not closing when the solenoid closes
- d. Float Valve may be defective and not telling the control that the unit is full of water.

TROUBLESHOOTING THE BAG

WARMER D10 Temperature Control

- **This guide is intended for use as a troubleshooting directive. All electrical tests and diagnostics should be performed only by those skilled in the electrical profession**
- **All electrical testing and repairs should be performed by an experienced professional or technician trained in the electrical trade**
- **Serious injury or death may result from improperly testing or handling this equipment**
- **This unit contains HIGH VOLTAGE electricity that can cause serious harm or death**



The Perfect Udder® BAG Warmer contains the D10 Temperature Controller. This unit is intended to control the temperature of the water bath during the “Ready State” as well as during the “Heating State”. This allows the unit to be ready with a large heat sink for rapid warming of colostrum.

Seen from the front of the machine just above the timer knob, the D10-Front is located behind the red transparent plastic. In the rare event you need access to this control, gently push in on the sides of the red plastic part while lifting to free it from the holding tabs.



To access the control for setting adjustments, hold in the M button for 5 seconds to display the function screens. Press the S button to see the value for that function and then the UP and DOWN arrows to make adjustments to that function. To save a setting, press the S button again to return to the Function display.



The following is a list of the normal parameter settings for the D10 control

- F11 Set Point Temperature = 118°F (47.7°C)**
- F12 Temperature Difference = 1°**
- F13 Max Temperature = 180°F (82°C)**
- F14 Min Temperature = 35°F (2°C)**
- F19 Calibration Difference Between Test Thermometer and Display** (*measured near 125°*)
- F21 Compressor Delay Time = 0.00**
- F29 Temp Mode = HEAT**
- F50 Ext alarm mode = 0**
- F80 password = OFF**
- F81 Temperature Units = F or C**
- F98 Reserved = Do Not Touch**
- F99 Self Test = Do Not Use This Function When Controller is Running**
- END Exit**
- M Button = to Exit the Control**
- M Button = can also be used to cancel when in the process of setting a parameter.**

POSSIBLE ERROR MESSAGES

- A21 flashing “SHr” means temp sensor is shorted out and must be replaced.**
- A21 flashing “OPE” means the temp sensor is either; broken, disconnected or damaged and may need replaced.**

1. No Power to the Unit

- Make sure that the unit is plugged into the receptacle and check the breaker for the power supply
- Check fuses F1 and F2, replace if necessary
- Is there power to the switch at the front of the unit from black to red? If yes but no light on the switch then replace the switch.

2. No Power to D10 Temperature Controller

- Check the leads coming from pin 11 and 12 on the control where they connect at the front terminal strip. If there is power at the terminal strip but nothing on the display, remove the wires from the D10 control at pins 11 and 12 to make certain the wire has not failed. If the wires are delivering the voltage, replace the D10 control.
- The D10 Control relies on a supply from K3 Time Delay Relay which is only active if the float switch is "UP", the timer has been wound and the green light indicates Ready State has been reached. If the D10 has power but will not signal the contactor, troubleshoot these other components.

3. Water Does Not Fill The Unit When Started

- Make sure that the water supply is connected at the valve in the rear and that the water is turned on.
- Check the fuse F4 and replace if necessary
- The water valve can only turn on if the float switch is not sending line voltage to the delay start relay K1 at the L terminal.
 - Check for voltage between L and N terminals on K1. If line voltage is present, check to make sure the float switch is not stuck in the up position. Replace float switch if necessary.
 - If the fuse F4 is good, check for line voltage between pin 12 on K1 and the red Line 2 wire at the valve. If no voltage then replace the Delay Relay K1.
 - If there is voltage between pin 12 on K1 and red Line 2 on the valve but no water flow, replace the valve.

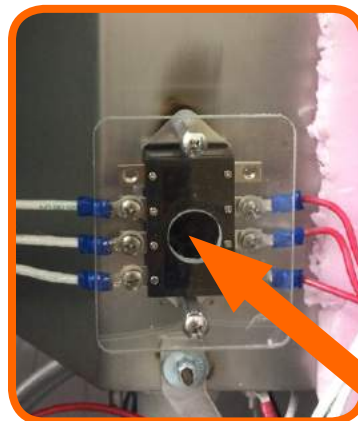
4. Water Enters The Sink Only Briefly At Startup Or Will Not Replenish Lost Water

- Check the voltage across L and N on delay start relay K1. If there is 230VAC there, and the float on the float switch is in the bottom position, replace the float switch.
- If when the water level is full and the float switch is submerged, there is no water added to the sink by the valve when you depress the float downward, replace the float switch.

5. The Heater Does Not Warm The Bath For The "Ready State"

- During the "Ready State", the heater responds to a signal from D10. Check for D/C signal to 3+/4- on the 3 SSRs. If there is voltage here but the relay does not engage, replace the relay.
- Check for voltage at Terminal 1 & 2 on the SSR to trouble shoot the SSRs.

- If there is power at the SSR output but not power to and through the Over Temperature Thermostat on the way to the heater shown here, then try to reset the thermostat by pressing the Manual Reset Button. If the thermostat will not reset, replace it. If the thermostat does reset and this solves the problem, please inform Dairy Tech that this has occurred so that we are aware of it.



**Manual
Reset Button**

6. No Heat during the "Heating State"

- During the heating state, the heaters are controlled by the SSRs which receive signals from the D10 control. Note in the schematic that the D10 can only work properly if the float switch is in the up position, the unit has reached the "Ready State" as indicated by the Green light, and the timer is wound. Troubleshoot these areas if the D10 control does not seem to signal the Relay 3+/4- pins.
- If the temperature of the bath is above the set point for the D10-Front control, it will not signal the contactor to engage heaters.
- Check for line voltage between SSR Terminal 2 and both sides of the over temperature thermostat. If voltage only to one side then try to reset the thermostat by pushing the center button. If it will not reset, replace the thermostat. If the thermostat does reset and this solves the problem, please inform Dairy Tech that this has occurred so that we are aware of it.
- Check for line voltage between SSR Terminal 2 and both sides of the over temperature thermostat. If voltage to both sides but no current drawn by the heater, then replace the heating element.

7. Timer does not operate properly.

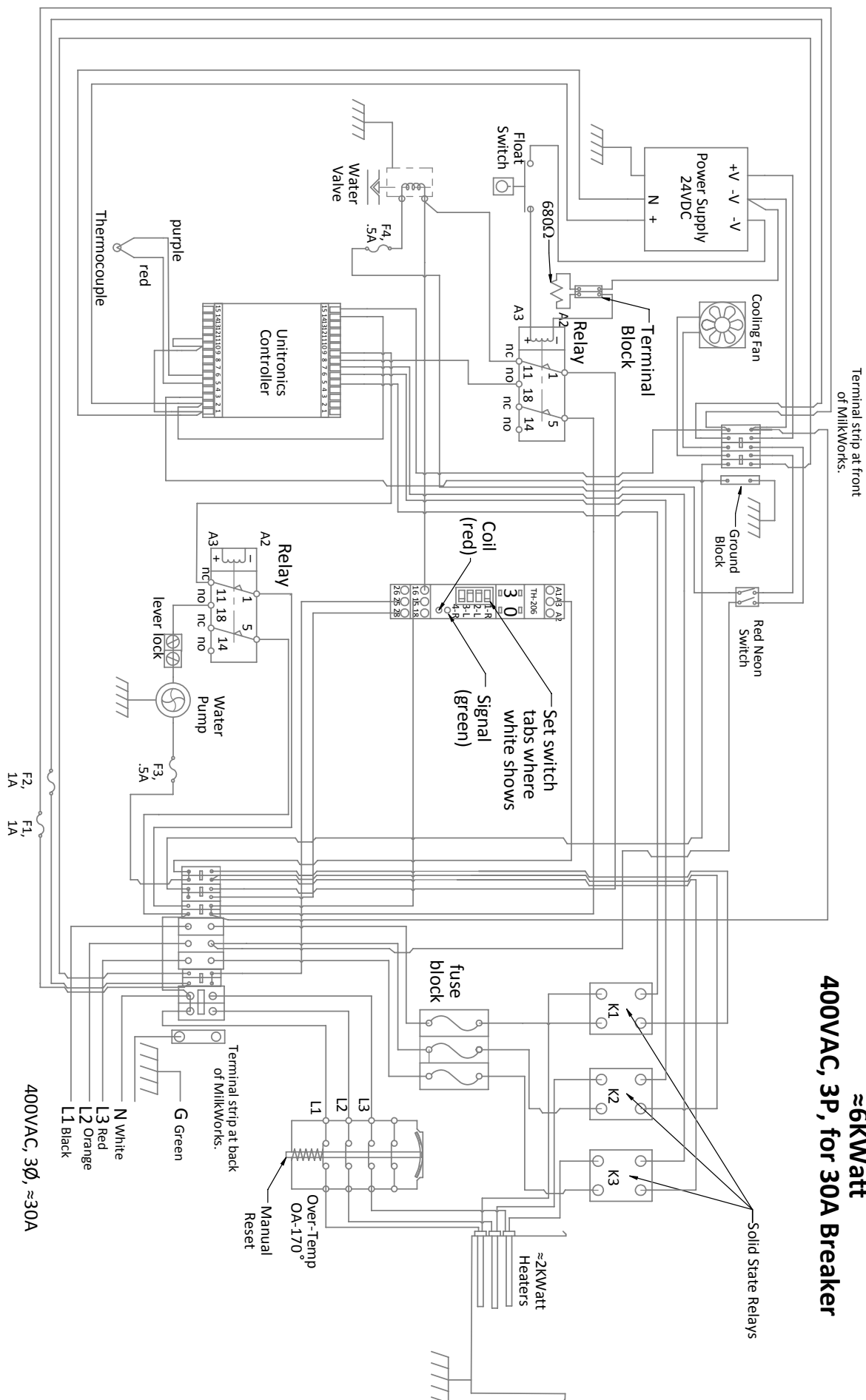
- The timer should make the clock tick audibly when wound clockwise. If not, replace the timer.
- The timer can only function if the "Ready State" is reached. This is when the CA-100 thermostat passes Line 2 voltage to Relay K2 pin 14, the Green light is on, and the float is in the "UP" position. Check these conditions. Replace K2 cube relay if Line 1 voltage is not available to the timer but these other conditions are met.

BAG PASTEURIZER REPLACEMENT PARTS

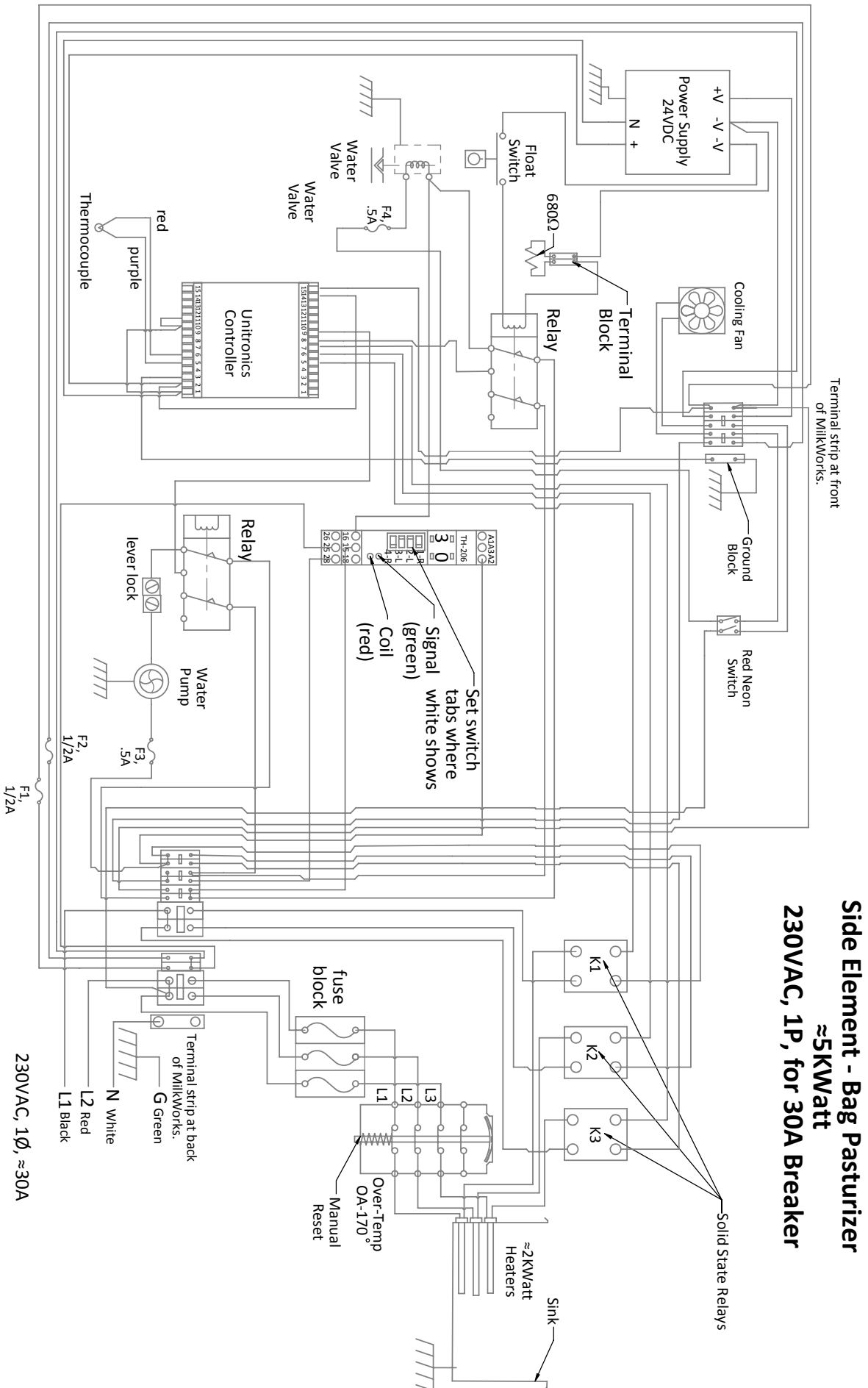
Part #	Description
GE-FloatSwitch	220v float switch
GE-RelayDelay	time delay socket relay
GE-termstrip4	4 position terminal strip
GH-clampStrap	14x44mm SS strap clamp
GH-damper	hinge damper
GM-FeetCast	cast metal feet for Milkworks
GH-handle	black plastic insert handle
GH-rubberfeet	Rubber Feet for Milkworks
GM-2510-HingeAnchor	lid hinge anchor
GM-53373_Guard	element guard
GM-2539-FootPlate	foot reinforcer plate
GM-2564-HingeSpacer	hinge spacer MW
GM-53425A-DrainRetain	MW drain retainer
GM-HingeCover	anchor for milkworks hinge
GM-HingeCup	torque cup for milkworks hinge
GM-hingeGasket	gasket for Milkworks hinge
GM-Lid_Milkworks	molded plastic milkworks lid
GM-PipeSeal	stand pipe seal for drain
GM-SinkSS	stainless steel sink for MW
GP-Clamp1.25	1.25" pipe suspension clamp
GP-CrimpRing.5	1/2" hose crimp ring SS pinch
GP-manifold	pex manifold 4way
GP-pump	3spd circulator pump 200vac
ME-Control-Touch	Unitronics Touch Screen 430
MP-ValAppliance230v	230vac appliance solenoid valv
ME-fan220v	220v AC Fan
ME-jumper1	series 21000 barrier jumper
ME-corddryer	6' 4-wire dryer cord 30amp

Part #	Description
ME-cordgrip1	1" cord grip strain relief
ME-fuse1	1amp fast blow fuse
ME-fuse.5	.5 amp fuse 1x1.25
ME-fusehold-1	fuse holder 16a 1/4x1 1/4
ME-switch220v	red toggle - led switch 220
MP-hose_Supply	3/4 GHTsupply hose
G-LegKitAssy	Milkworks Leg Kit Assembly
GE-element 2kw-flange	flange style 2kw element
ME-fanfilt	filter screen for AE-fan
JH-ferrule	SS 1/4" twin ferrule
GP-Elbow3/4	Barbed 90 Degree Elbow 3/4"
ME-thermostat-4	4 channel temp Switch 75 C
GP-drain-tube	1.5" x 7" waste drain tube
GP-Elbow3/4	Barbed 90 Degree Elbow 3/4"
GE-Jump2	2-pole Jump KN-T4
GE-Termblock12-4AWG	12-4 AWG 80A
ME-PowerSupply24VDC	60W 24VDC power supply 100-240VAC
ME-Fuse15 Midget	15 amp midget fuse
GE-Fuse1A-SB	1 amp Fuse Slow Blow
ME-MidgetFuseBlock	3 Pole Midget Fuse Block
GE-CubeRelay	Cube Relay 2016 Model
GE-CubeRelaySocket	Cube Relay Socket
ME-termBlock14AWG-Ground	ground terminal block
ME-relaySS-screw	solid state relay 20A
ME-termBlock14awg	14awg terminal block
ME-termJump2	terminal block 2-way jumper
AE-TC-2.5-G	type E 2.5" t/c 1/4"d

BAG PASTEURIZER SCHEMATIC - 3 PHASE



BAG PASTEURIZER SCHEMATIC - 1 PHASE

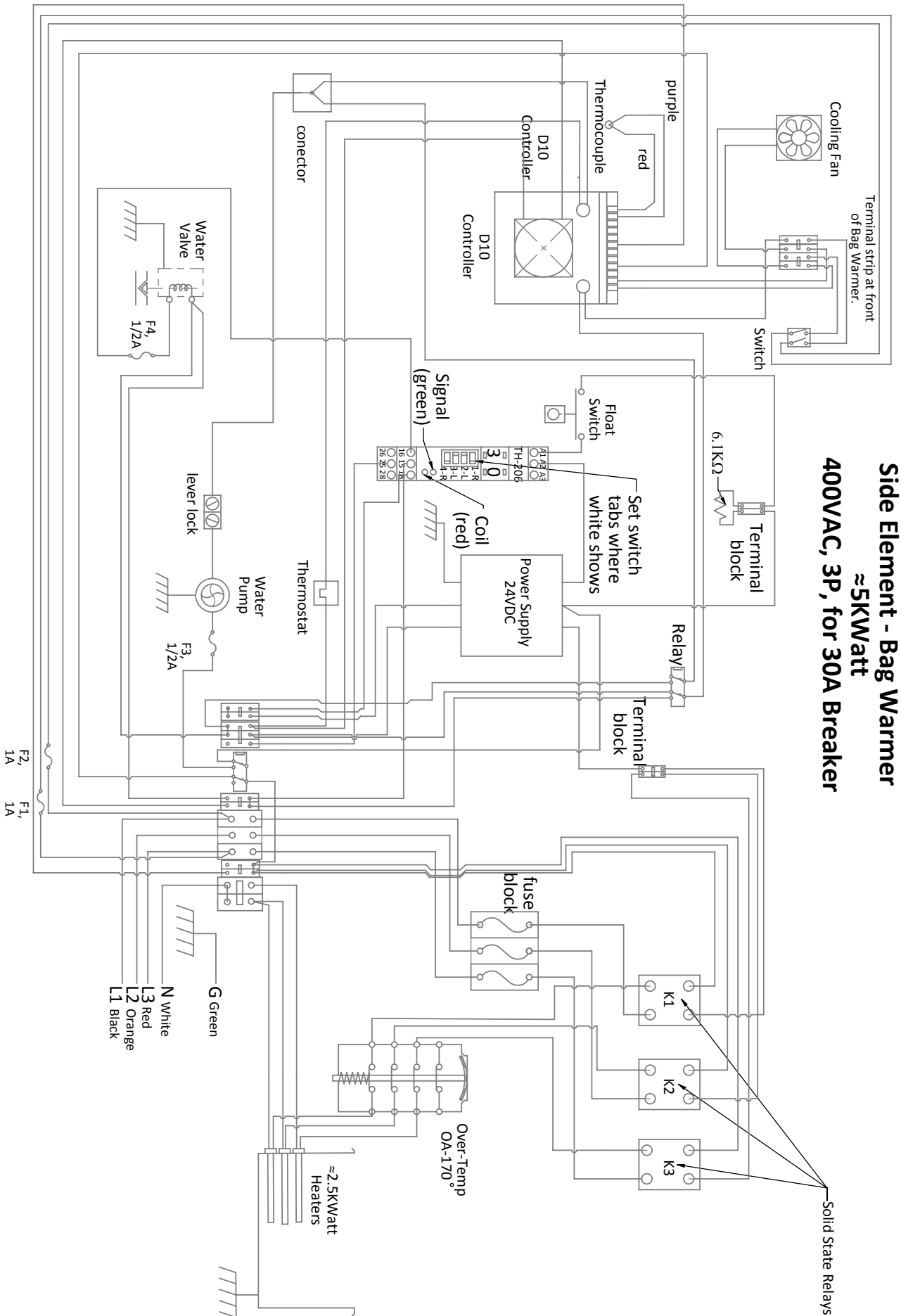


BAG **WARMER** REPLACEMENT PARTS

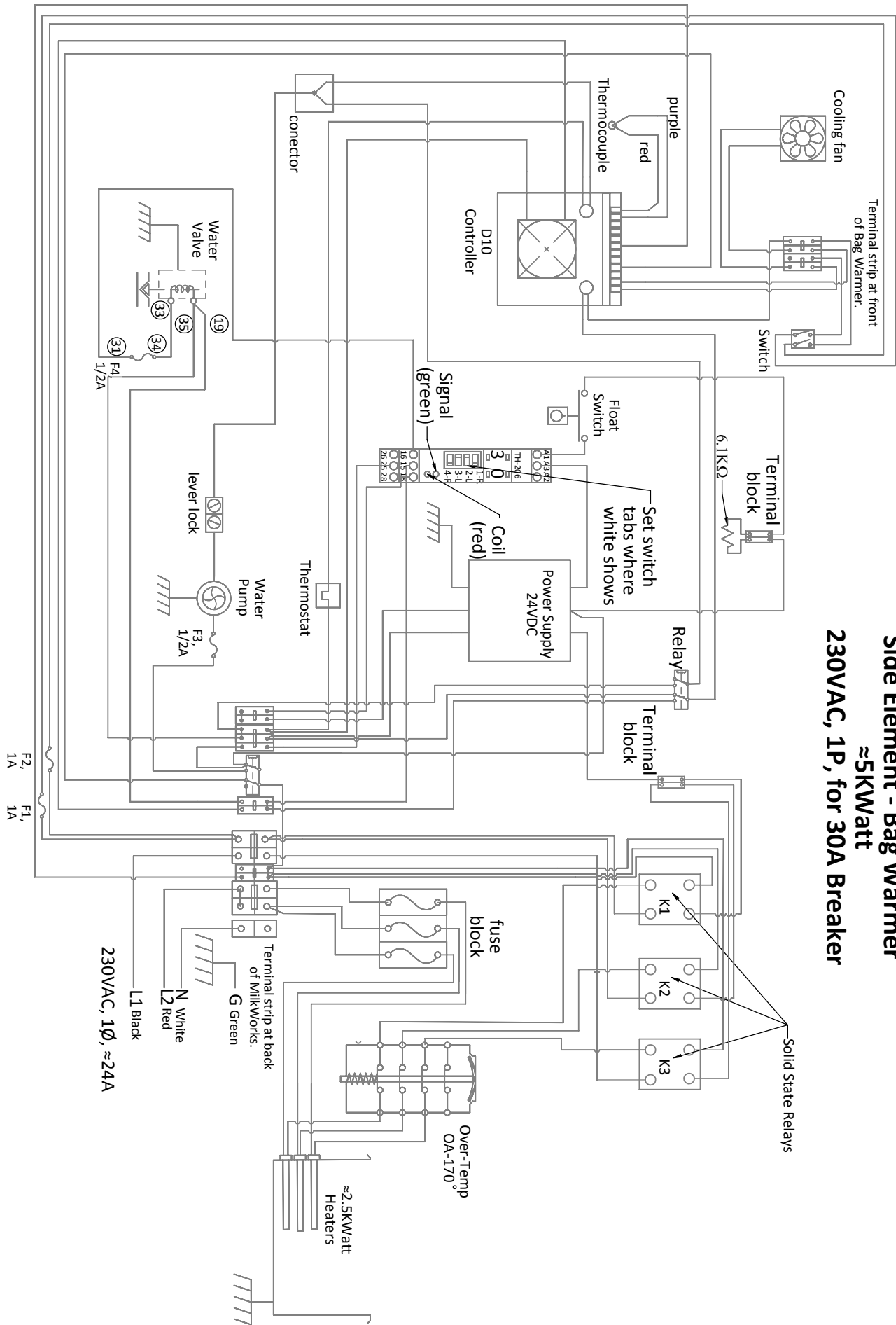
Part #	Description
MP-ValAppliance230v	230vac appliance solenoid valv
GE-element 2kw-flange	flange style 2kw element
GE-FloatSwitch	220v float switch
GE-panelLightGreen	green panel light 220vac
GE-panelLightRed	red panel light 220vac
GE-RelayCube	220vac cube relay
GE-RelayDelay	time delay socket relay
GE-RelaySocket	socket base for GE-RelayCube
GE-tempControl	temp control for Econ model
GE-tempProbe	cooling thermosensor temp ctrl
GE-termstrip4	4 position terminal strip
GE-timer	220vac timer switch
GH-clampStrap	14x44mm SS strap clamp
GH-damper	hinge damper
GM-FeetCast	cast metal feet for Milkworks
GH-handle	black plastic insert handle
GH-knob	dial knob for Milkworks
GH-rubberfeet	Rubber Feet for Milkworks
GM-2513-Arm-R	lid cantilever right
GM-2514-Arm-L	lid cantilever left
GM-53373_Guard	element guard
GM-2564-HingeSpacer	hinge spacer MW
GM-53425A-DrainRetain	MW drain retainer
GM-HingeCover	anchor for milkworks hinge
GM-HingeCup	torque cup for milkworks hinge
GM-hingeGasket	gasket for Milkworks hinge
GM-Lens	red ABS transparent panel lens
GM-Lid_Milkworks	molded plastic milkworks lid
GM-PanelTimer	ABS panel mount for timer mode

Part #	Description
GM-PipeSeal	stand pipe seal for drain
GM-SinkSS	stainless steel sink for MW
GP-Clamp1.25	1.25" pipe suspension clamp
GP-CrimpRing.5	1/2" hose crimp ring SS pinch
GP-manifold	pex manifild 4way
GP-pump	3spd circulator pump 200vac
GE-DC Power supply	LED driver DC24-240V
ME-jumper1	series 21000 barrier jumper
ME-corddryer	6'4-wire dryer cord 30amp
ME-cordgrip1	1" cord grip strain relief
ME-fuse.5	.5 amp fuse 1x1.25
ME-fuse1	1amp fast blow fuse
ME-fusehold-1	fuse holder 16a 1/4x1 1/4
ME-switch220v	red toggle - led switch 220
MP-hose_Supply	3/4 GHTsupply hose
G-LegKitAssy	Milkworks Leg Kit Assembly
JH-ferrule	SS 1/4" twin ferrule
CB-10ctSampler3qt	Perfect Udder 10ct 3qt
GP-Bulkhead3/4	3/4"NPT poly bulkhead
ME-thermostat-4	4 channel temp Switch 75 C
GE-Jump2	2-pole Jump KN-T4
GE-Termblock12-4AWG	12-4 AWG 80A
ME-Fuse15 Midget	15 amp midget fuse
GE-Fuse1A-SB	1 amp Fuse Slow Blow
ME-MidgetFuseBlock	3 Pole Midget Fuse Block
ME-relaySS-screw	solid state relay 20A
ME-fan220v	220v AC Fan
ME-fanfilt	filter screen for AE-fan
ME-termBlock14awg	14awg terminal block

BAG **WARMER** SCHEMATIC - 3 PHASE



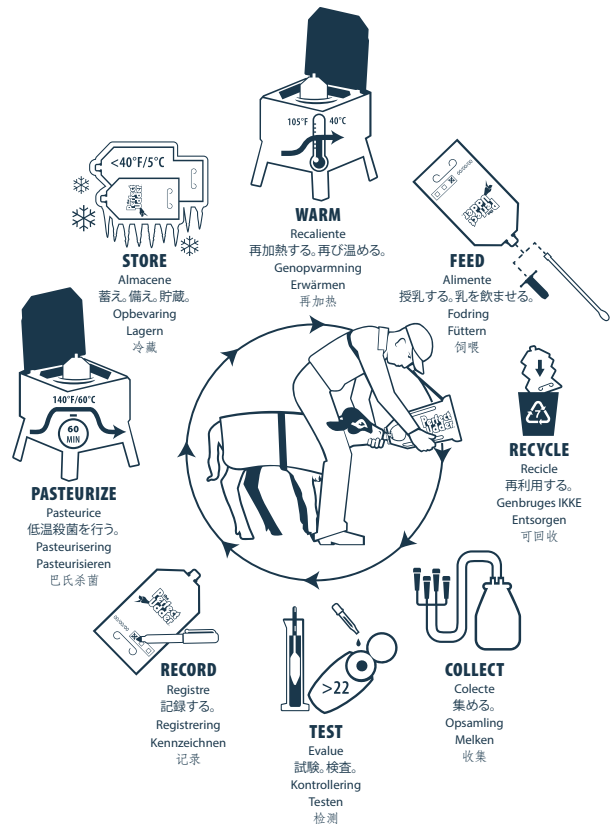
BAG **WARMER** SCHEMATIC - 1 PHASE





Perfect Udder® COLOSTRUM MANAGEMENT SYSTEM

The Perfect Udder® Colostrum Management System is the solution for handling colostrum, from harvest to feeding, without fear of re-contamination. Our patented design allows the colostrum to be pasteurized, refrigerated, frozen, warmed and fed through a nipple or esophageal feeder **all from the same bag**.



Perfect Udder® KITS

Perfect Udder® Colostrum Management Kit contains:

- 50 Colostrum Bags (2L, 3L, or 4L)**
- 3 Nipple Assemblies**
- 1 Nipple Assembly Tool**
- 3 Standard Feed Tubes**
- 5 Freezer Sheets**

CUSTOMIZED KITS ALSO AVAILABLE

Create your own kit. Choose the bag volume (2L, 3L or 4L), then select your choice of feeding attachments:

- ☐ 3 Nipple Assemblies
- ☐ 5 Standard Feed Tubes
- ☐ 3 Nipple Assemblies & 3 Standard Feed Tubes
- ☐ 3 Nipple Assemblies & 2 Deluxe Feed Tubes
- ☐ 3 Deluxe Feed Tubes
- ☐ Bags Only

Sample kits available upon request!

Perfect Udder® ACCESSORIES



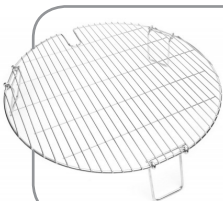
STANDARD ESOPHAGEAL FEED TUBES
10 Pack 20" length



DELUXE ESOPHAGEAL FEED TUBES
5 Pack 50" length includes pinch clamp and flexible section for flow control



NIPPLE ASSEMBLIES
5 Pack of nipple assemblies



BAG GUARD COMBI PASTEURIZER
10G, 30G, 60G
Stainless steel guard prevents the Perfect Udder® bags from being damaged by the agitator in our Combi Pasteurizers.

BAG CADDY
Turns any Perfect Udder® bag into a rigid bottle for easy handling at the calf. Easy to clean.

DELUXE BAG FILLER

Allows hands-free accurate filling of either the 3L or 4L bags. Just pour colostrum into the wide top opening to the required fill line and tilt to fill the bags. Easy to assemble and clean. Dishwasher safe.



STANDARD BAG FILLER

Holds the Perfect Udder® bag and funnel for you while you fill.





LEG KIT ASSEMBLY INSTRUCTIONS FOR Bag PASTEURIZER & Bag WARMER

STEP 1 should be done on a flat surface.

14-20 Hex Nuts

3/8-16
Hex Nut

Longest Piece

Carriage Bolts

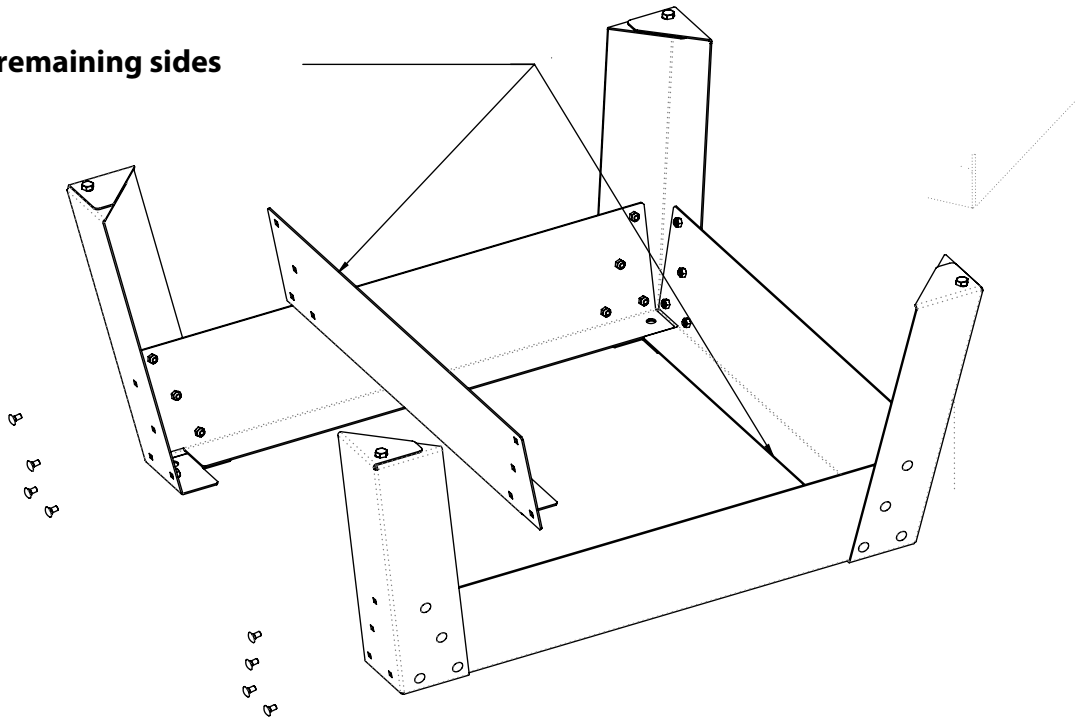
3/8" x 3/4 Long Hex Head

• Install all bolts with appropriate nuts.

• Make two assemblies like this.
• Finger tighten for now.

STEP 2 should be done on a flat surface.

• Install remaining sides



• Install all bolts with appropriate nuts.
• Finger tighten all nuts at this time.

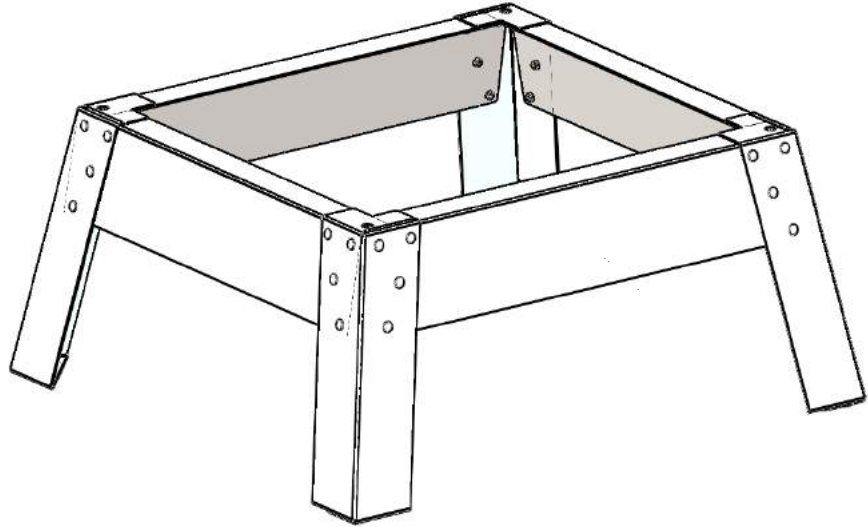


LEG KIT ASSEMBLY INSTRUCTIONS FOR Bag PASTEURIZER & Bag WARMER

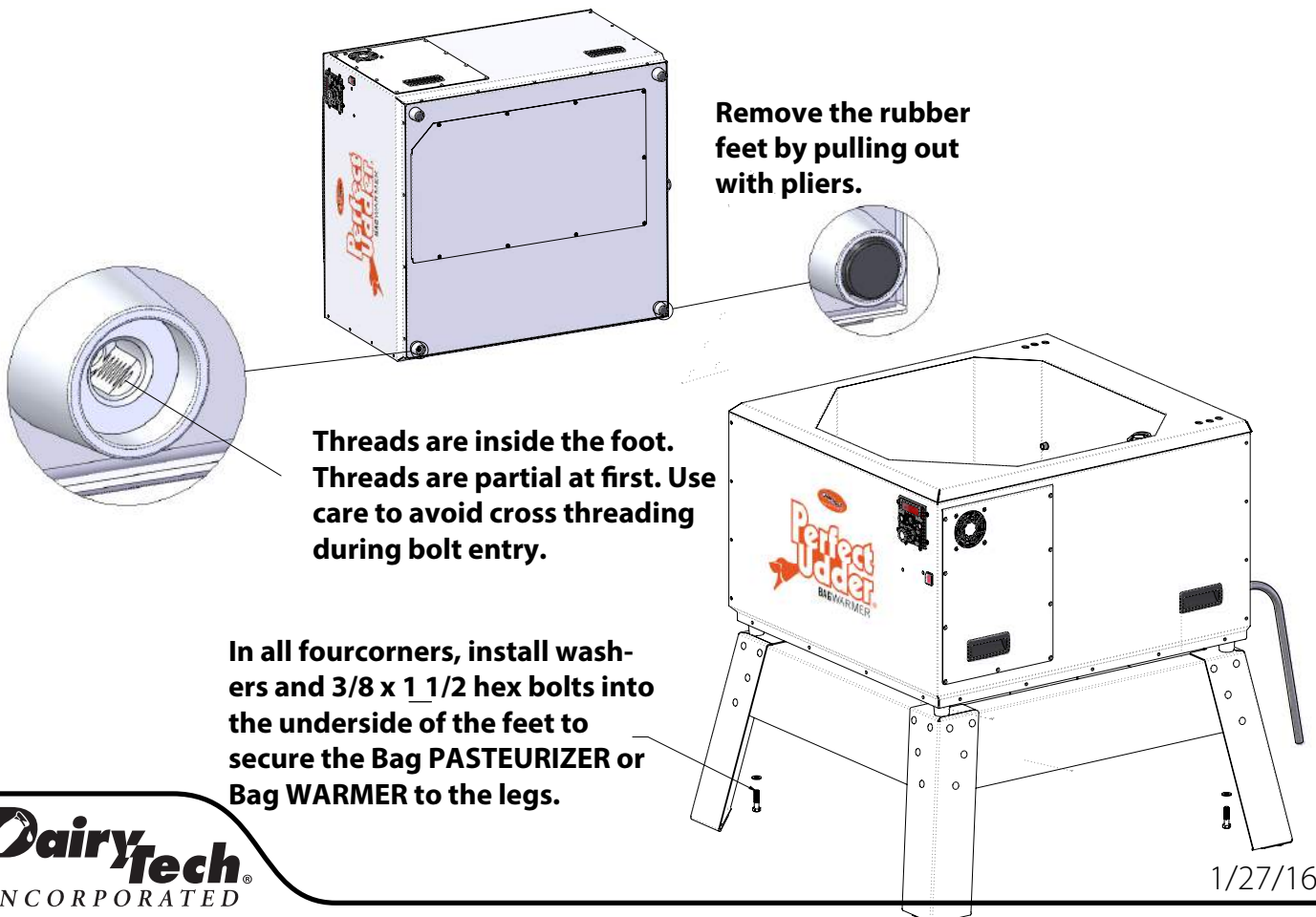
STEP 3 will be done with the legs standing.

Place the leg set on a flat surface and apply only enough force to the top of the legs so the feet find their largest footprint.

Check that the top surface is as level as the floor surface, then tighten all hardware.



STEP 4 requires access to the bottom of Unit.



DairyTech
INCORPORATED



MADE IN U.S.A.

For parts list and ordering
visit www.DairyTechInc.com

Contact Dairy Tech, Inc.

**Dairy Tech, Inc.
34824 CR 29
Greeley, CO 80631**

Toll Free: 1-866-384-2697 ext. 2

Local: 1-970-674-1888

Fax: 1-970-686-5871

Hours: M – F 7am – 4pm, MST

Web: www.DairyTechInc.com

eMail: service@DairyTechInc.com

