BURFORD CORP®

SERVICE MANUAL

FOR YOUR

BURFORD

MELT/MIX TANK (Station #4)

Model #_____
Serial #_____
Wiring Diagram #_____ Issue___

DATE: August 8, 2006

MANUAL PART No. SO47574 ISSUE “B”

DISCLAIMER

The descriptions contained in this Service Manual were in effect at the time this manual was approved for printing. Our policy is one of continuous improvement, and we do hereby reserve the right to discontinue models at any time, or to change specifications, prices, or designs without notice and without incurring obligations.

Burford Corp. expressly disclaims any liability for damages and/or injuries caused as a result of negligence or misuse of its product. Such negligence or misuse includes, but is not limited to the removal of guards, or faulty wiring due to improper installation.

NOTICE:

As Burford Corp. strives to promote safety in the maintenance and operation of Burford equipment, we request that the following safety procedures be followed, along with any additional safety procedures set by the customer's in-plant safety officers or local codes.

1. **Read operation manual completely before attempting installation or operation of unit.**
2. **Incoming electrical power must be properly shielded, routed and grounded. All safety codes should be followed. Study wiring diagram before attempting installation.**
3. **Disconnect power to equipment before removing any guards or covers. Replace guards and covers before resuming operation of unit.**
4. **Loose clothing and long hair should be considered a safety hazard around mechanical equipment. Ensure that they will not be entangled in the equipment.**
5. **Do not by-pass safety switches.**
6. **Do not attempt repairs while equipment is running.**
7. **Use only original equipment parts designed to safely operate in the equipment.**
8. **Only authorized personnel should be allowed to operate or perform maintenance on the unit.**
9. **The equipment should only be used for the purpose for which it was sold and should not be modified in any way without notifying the general manager of Burford Corporation in writing of the modification.**

TABLE OF CONTENTS

1.0 GENERAL INFORMATION

1.1 Introduction

The Burford Melt/Mix Tank has been designed to mix a pre-determined amount of product and transfer the “batch” to the next operation.

The following pages contain installation, operation and maintenance instructions. To ensure maximum performance, these instructions should be followed with care.

1.2 Specifications

1. Air – 40 scfm @ 60 psi
2. Electricity – 208/220-50/60-1 phase @ 30 amps

2.0 THEORY OF OPERATION

2.1 Operation Sequence

Start the unit, place a block of butter on the melting rack, and allow it to melt into the tank. Repeat until desired amount of butter is melted into the tank. Add ingredients and select “START BATCH”. Follow the instructions displayed in the “START BATCH” pop-up. Once “BATCH” is complete select “TRANSFER” to allow the unit to maintain the product until the Arcall Slinger signals for additional product.

2.2 Machine Description

3.0 INSTALLATION PROCEDURES

Your unit was shipped to you completely assembled.

3.1 Determining the best location to locate the unit

1. Position the unit within 10 feet of the Arcall slinger.
2. Route and connect electrical supply.
3. Connect transfer hose and signal cable to the Arcall slinger.

3.2 Utility Installation

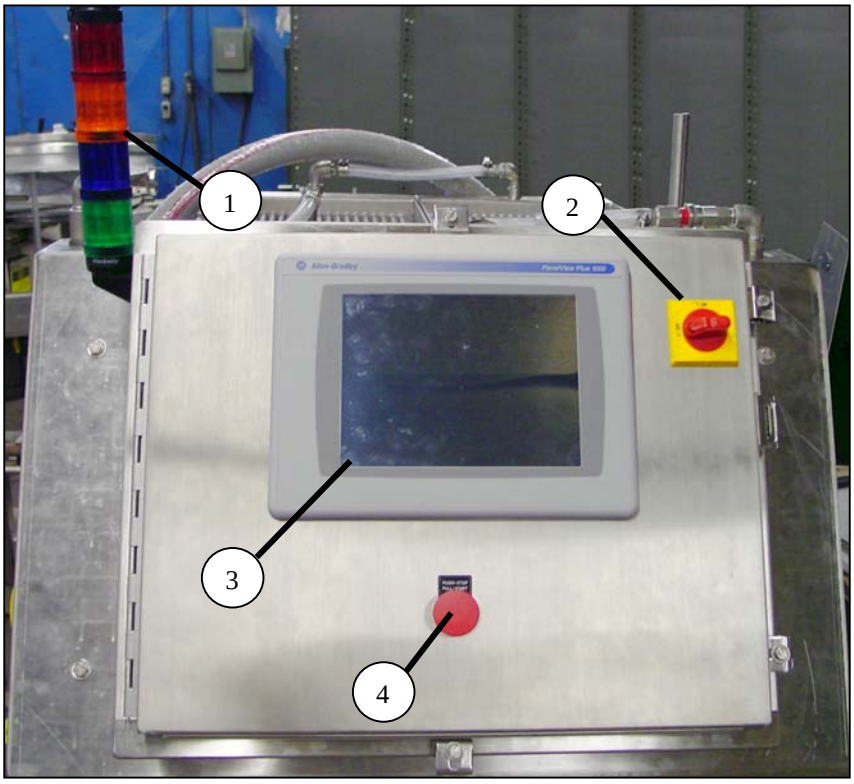
A qualified electrician must make all electrical connections. A suitable circuit must be chosen so the 30 AMP requirement does not overload the total current capacity. A suitable circuit with all safety requirements must comply with local electrical codes.

Once the unit is mounted to the conveyor and the uprights containing the nozzles are in place, the tank assembly can be located next to the conveyor. This should be mounted so the machine operator can have easy access to the controls.

4.0 USING THE OPERATOR CONTROLS

4.1 Control Panel Description

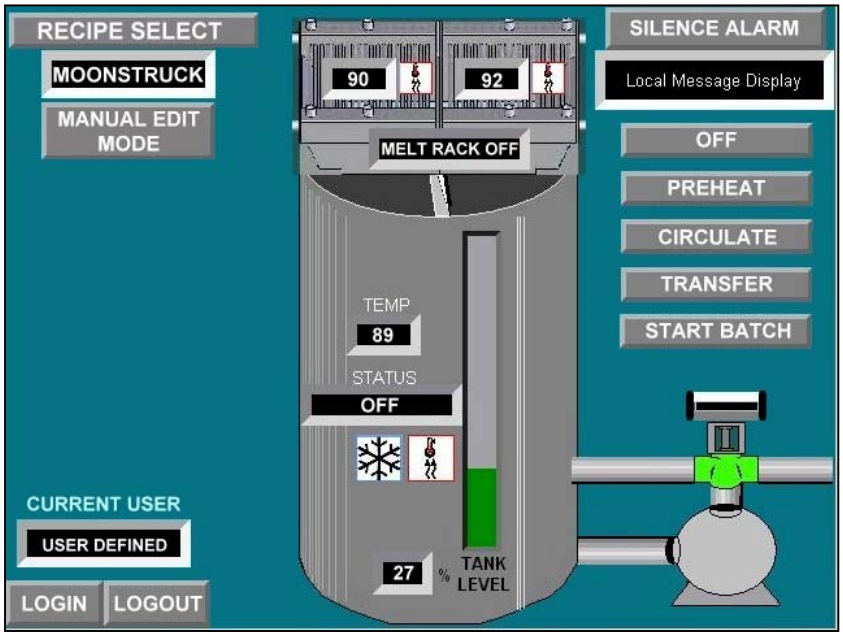
Other than mechanical set-up, the operator control panel controls all functions required to operate the Melt/Mix Tank. The functions of the operator control panel are outlined below.



ITEM	DESCRIPTION	FUNCTION
1	Light Tower	Notify operator of machine status. See Section 11.1 for descriptions.
2	Primary Disconnect	Remove electrical power from unit.
3	Main Display	Displays menu screens, error messages and allows convenient operator interface. Simply touch the screen at the desired function and follow pop-up screen instructions.
4	Start/Stop Button	Removes electrical power from machine components.

4.0 USING THE OPERATOR CONTROLS, cont'd.

4.2 Main Screen Functions



Use the function keys to select the desired machine function. Once the desired function is selected a 5 second wait period is required for the function to initiate.

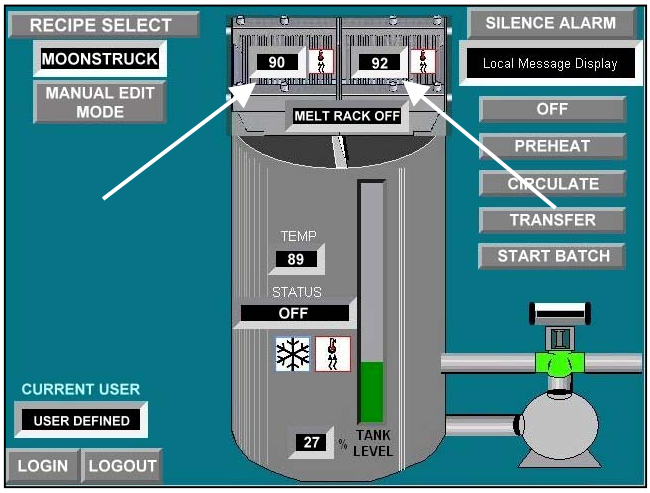
DESCRIPTION	FUNCTION
OFF	Turns "OFF" all internal relays and CLEARS the programming registers residing in the Programmable Logic Controller (PLC).
PREHEAT	Turns "ON" the melting rack and product tank water jacket circulating pumps and initializes the temperature controls. The agitator is also turned "ON" after a 15 second delay timer expires; provided the tank lid (section 6.1) is in place. The transfer pump is NOT energized.
CIRCULATE	Product tank water jacket, agitator and transfer pump are turned "ON". Transfer (3-way) valve circulates product back into the mix tank.
TRANSFER	Same as "CIRCULATE", except transfer valve is open.
START BATCH	Initiates a batch sequence, these are individually preset to recipe names. Follow pop-up screen instructions.
LOGIN / LOGOUT	LOGIN allows authorized users to enter their user name and password access to "MANUAL EDIT MODE". LOGOUT returns the unit to "AUTO MODE".
MANUAL EDIT MODE	This mode is password protected and allows the authorized user to create recipes and make additional machine setting changes. NOTE: This box is not shown until an authorized user has completed the "LOGIN" sequence.
Other Functions	Touch desired "ICON" to access additional pop-up screens. Follow pop-up screen instructions. Individual "ICON" settings are accessible while in "MANUAL EDIT MODE", which is password protected, see your supervisor.

4.0 USING THE OPERATOR CONTROLS, cont'd.

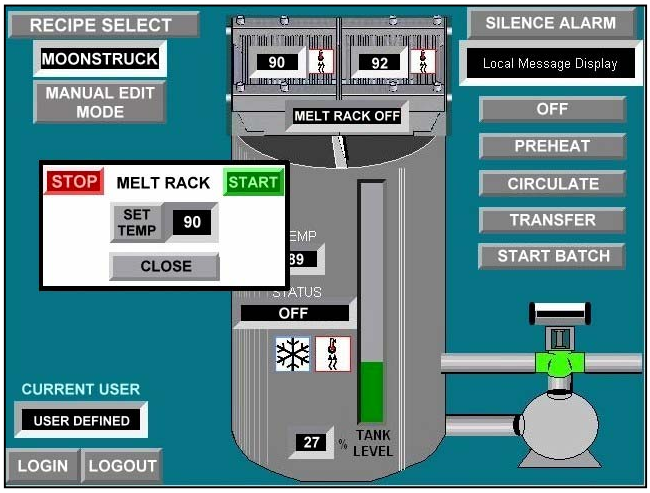
4.3 Melting Rack Heater Control

Butter must be pre-melted to enter the transfer tank. The heaters are located in the return side of the melting racks and are used to heat water circulating through the melting rack. Once the butter is melted, it falls into the transfer tank, where the product is stabilized at the appropriate temperature. The recommended temperature setting for the temperature controller is 120° Fahrenheit (range: 65°-135° F.). A lower setting could require excessive time for the butter to enter the transfer tank. Once the desired amount of butter is melted into the transfer tank, melting rack control should be turned "OFF" to avoid scorching residual butter left on the melting rack bars and screen.

1. Touch the desired melt rack "ICON" to access the "SET TEMP" pop-up screen. Note that the melting racks are controlled individually.



2. Touch the "SET TEMP" box to modify the temperature setting. This box is ONLY accessible when in the "MANUAL MODE".

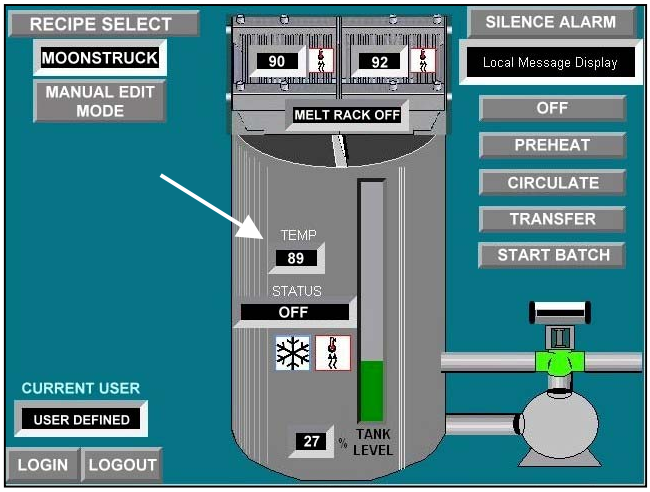


CAUTION: Melting rack heats quickly but cools down very slowly. Use care NOT to set temperature too high.

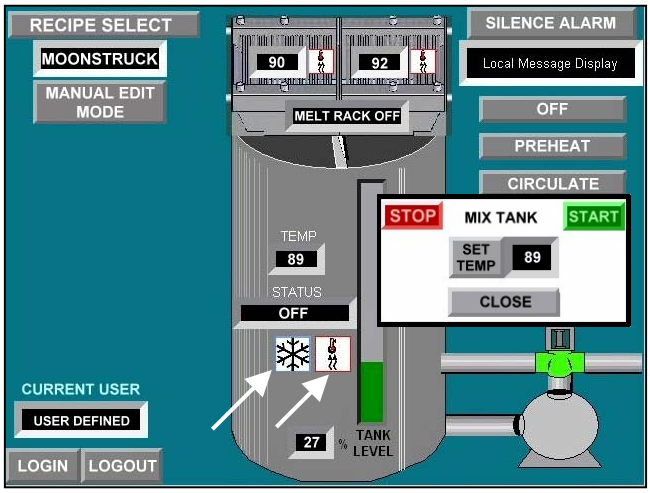
4.4 Tank Heater Control

The transfer tank is a double wall design with water being circulated through the outer jacket. The temperature of this water is controlled from the operator panel. The controller will signal the tank heater or tank chiller to maintain the temperature setting. The temperature range for this controller is 65° – 135° F. The controller should be set to maintain the desired product consistency. A hand-held thermometer will be required to measure actual product temperature.

1. Touch the mix tank temp “ICON” to access the “SET TEMP” pop-up screen.



2. Touch the “SET TEMP” box to modify temperature setting. To turn the tank chiller and tank heater “OFF” or “ON”, touch the respective “ICON” (see arrows) and follow pop-up screen instructions.

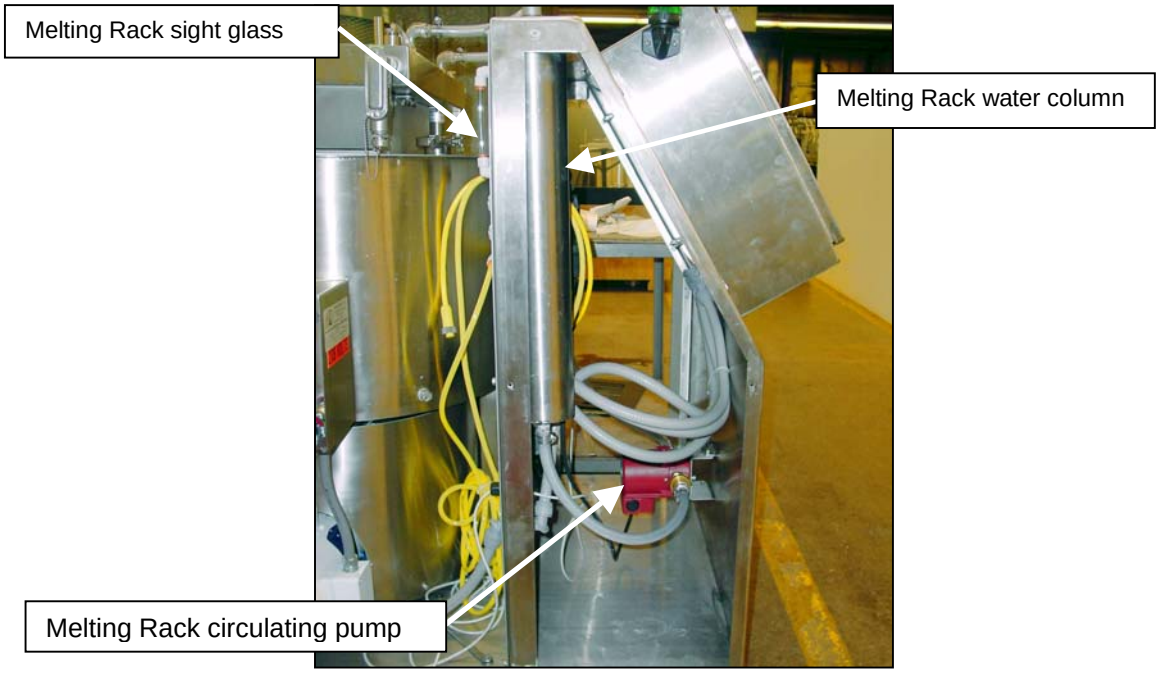


NOTE: This value is the temperature of the circulating water in the tank water jacket, NOT the actual product temperature.

CAUTION: Mix tank heats quickly but cools down very slowly. Use care NOT to set temperature too high.

4.5 Control Cabinet

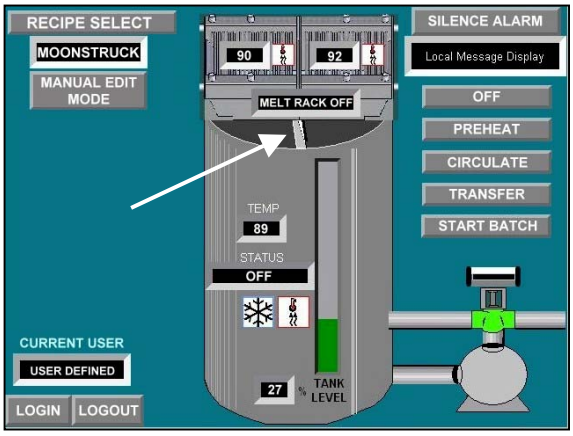
The control cabinet houses the melting rack circulating pump, product tank circulating pump and other electrical components. The product tank circulating pump is located beneath the product tank next to the agitator motor.



4.6 Tank Agitator

The transfer tank is equipped with an agitator to keep the butter in constant motion, in order to maintain smooth product consistency. The agitator also aids in tank clean out by “wiping” the tank walls with each revolution.

NOTE: Agitator will automatically shutdown when access lid is removed.



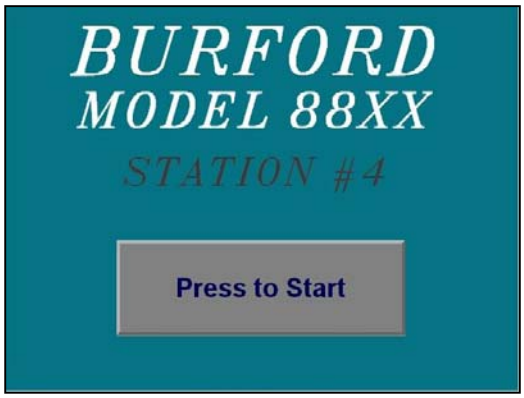
The agitator is only operational when activated via “ICON” located on the panelview display.

CAUTION: NEVER attempt to use solid butter with the agitator. Damage to the impeller may result.

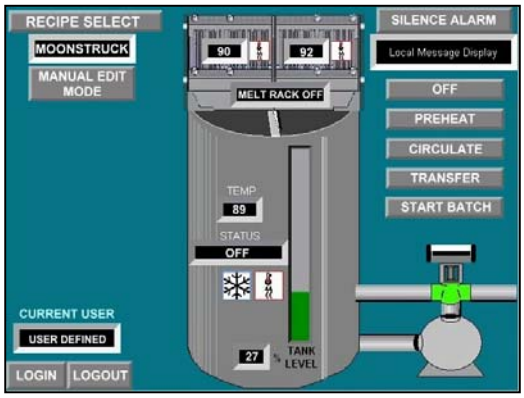
5.0 OPERATION PROCEDURES

5.1 Initial Start-Up

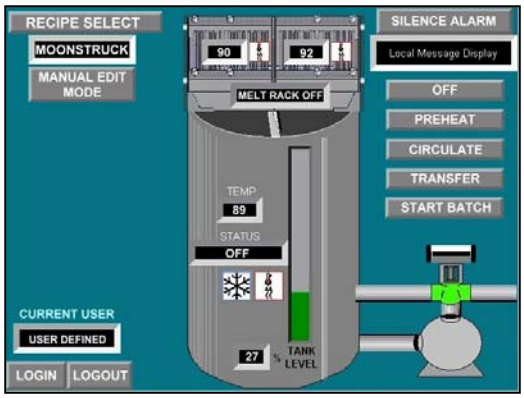
1. Turn on electrical power via the main enclosure disconnect switch. Verify the red “Start/Stop” button is in the “OUT” position to initiate machine operation. Check that all hoses are securely connected. The following screen will be shown on the operator display.



2. Once unit has completed the set-up sequence, the “MAIN MENU” screen will be displayed. Verify the correct recipe is displayed, if not; touch the “RECIPE SELECT” button and highlight the desired recipe, then press “enter”. Touch “PREHEAT” and place the desired amount of butter on the melting rack(s). Adjust the melting rack and tank heater controls to begin preparing butter for mixing. Verify the agitator is free from any obstruction.

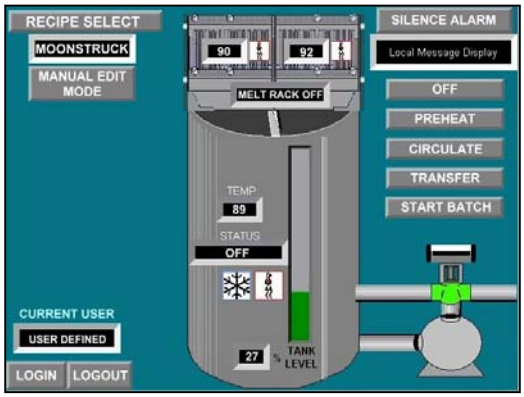


3. Touch “START BATCH” and follow pop-up screen instructions. Add any additional components to the tank and allow to mix for the pre-set period.



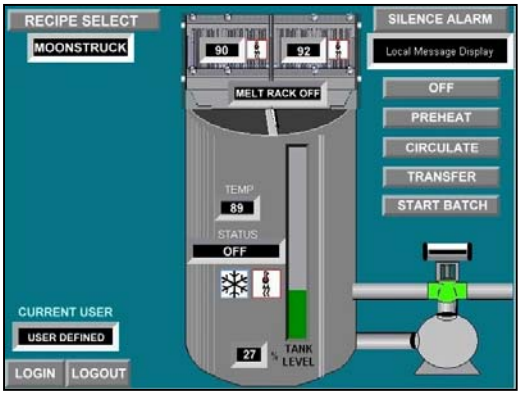
4. Once butter has been melted and of desired consistency, select the “TRANSFER” function. This function will maintain the mix as the Arcall Slinger signals for more product.

5. Begin production operations.



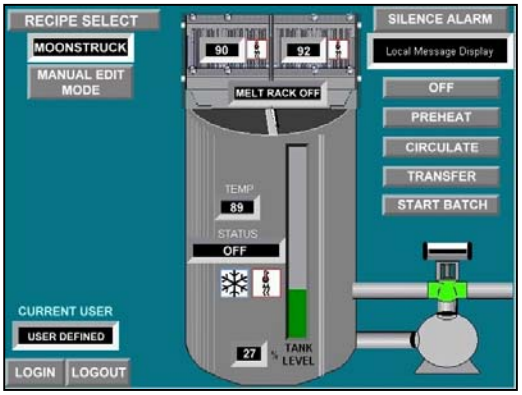
5.2 Creating a New Recipe

1. Initially the unit will be in “AUTO” mode as shown by the following screen. Touch “LOGIN” and enter the authorized user name and password.

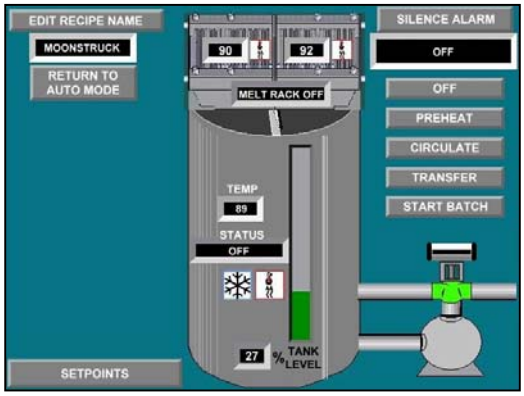


NOTE: See your supervisor or contact Burford Corporation for an authorized user name and password.

2. Once the login is successful the “MANUAL EDIT MODE” box will be shown in the upper left corner of the screen. To enter the “MANUAL” mode, touch the “MANUAL EDIT MODE” box.



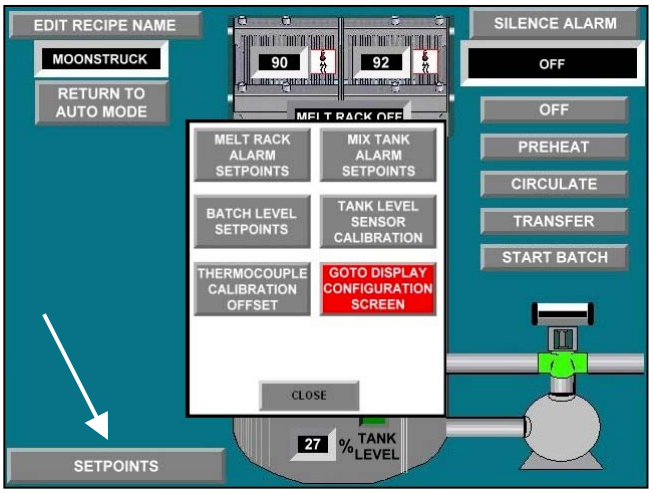
3. Once in the “MANUAL” mode the user now has access to the machine “SETPOINTS” (lower left corner) and “EDIT RECIPE NAME” (upper left corner). See section 5.3 for more information concerning “SETPOINTS”. To change the recipe name touch the “EDIT RECIPE NAME” box and follow screen directions.
4. To exit the “MANUAL” mode touch the “RETURN TO AUTO MODE” box. Then touch the “LOGOUT” box to prevent unauthorized access.



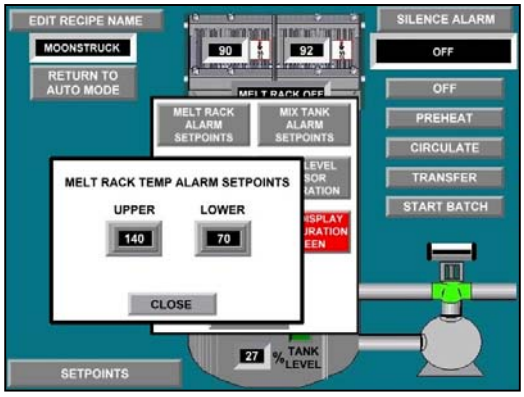
NOTE: All changes made to the machine “SETPOINTS” will be saved to the recipe name shown in the upper left corner of the screen.

5.3 Changing Machine Setpoints

There are six screens related to machine set-up. They are accessible only while in “MANUAL EDIT” mode. Once in “MANUAL EDIT MODE” touch “SETPOINTS” and the pop-up screen will be shown. All changes made will only be saved to the recipe name shown in the upper left corner. See section 11.2 for table of start up values.

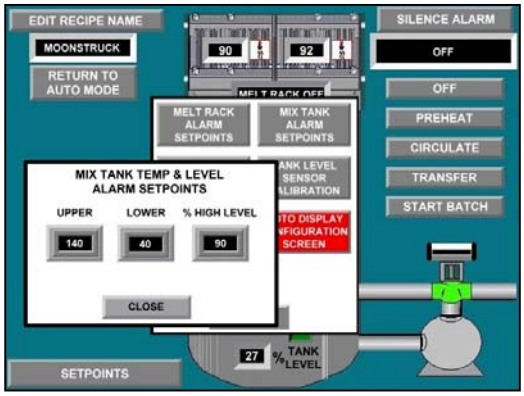


5.3.1 Melt Rack Alarm Setpoints



1. From the “MAIN MENU” screen, touch “MELT RACK ALARM SETPOINTS”.
2. The following pop-up screen will appear.
3. This setting determines at what temperature the alarm will be displayed indicating the maximum or minimum desired temperature for the melt rack(s) have been reached. Once the desired adjustments have been entered touch the “CLOSE” box to return to the previous screen.

5.3.2 Mix Tank Alarm Setpoints

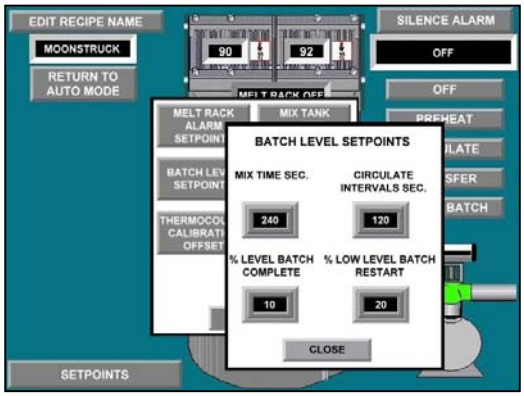


1. From the “MAIN MENU” screen, touch “MIX TANK ALARM SETPOINTS”.
2. The following pop-up screen will appear.
3. This setting determines at what temperature the alarm will be displayed indicating the maximum (range: 0 – 150) or minimum (range: 0 – 80) desired temperature for the mix tank has been reached. Also sets the tank level (range: 0 – 100) at which the alarm will be displayed to prevent the mix tank from being overfilled. Once the desired adjustments have been entered touch the “CLOSE” box to return to the previous screen.

5.2 Changing Machine Setpoints, cont'd.

5.3.3 Batch Level Setpoints

1. From the "MAIN MENU" screen, touch "BATCH LEVEL SETPOINTS".
2. The following pop-up screen will appear. See table below for screen descriptions.
3. Once the desired values have been entered touch the "CLOSE" box to return to the previous screen.



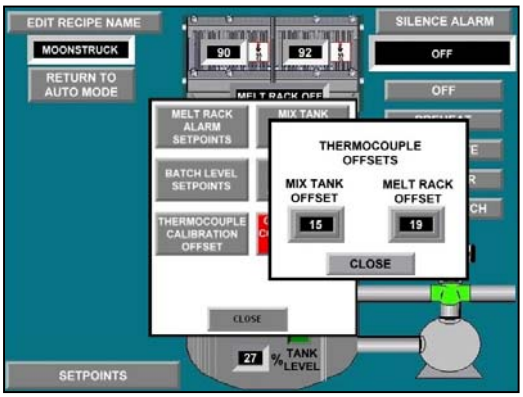
SETPOINT	FUNCTION
MIX TIME	Sets the amount of time in seconds the unit will prepare the batch before making it available for transfer.
CIRCULATE INTERVALS	Sets the amount of time in seconds before the unit will circulate the batch to keep the product ready for transfer.
% LEVEL BATCH COMPLETE	Sets the lower tank level limit. Allows the user to "reserve" a set amount of the batch.
% LOW LEVEL BATCH RESTART	Once this value is reached a new batch is required.

NOTE: These settings will only be effective for the recipe displayed in the main screen.

5.2 Changing Machine Setpoints, cont'd.

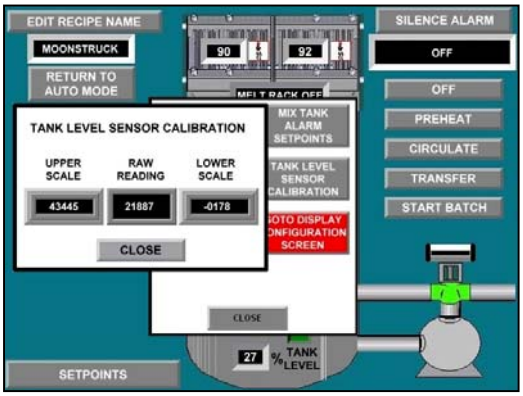
5.3.4 Thermocouple Calibration Offset

1. From the "MAIN MENU" screen, touch "THERMOCOUPLE CALIBRATION OFFSET".
2. The following pop-up screen will appear.
3. Adjust these offsets to correct differences between thermocouple output and actual temperatures. Once the desired offsets have been entered touch the "CLOSE" box to return to the previous screen. Range: -999 to +999.



5.3.5 Tank Level Sensor Calibration

1. From the "MAIN MENU" screen, touch "TANK LEVEL SENSOR CALIBRATION".
2. The following pop-up screen will appear.
3. This setting is used to fine-tune the sensitivity of the level sensor. Contact Burford Corporation for additional information. Once the desired adjustments have been entered touch the "CLOSE" box to return to the previous screen.



5.3.6 Goto Display Configuration Screen

These settings are preset at the factory. Contact Burford Corporation for additional information.

6.0 SETTINGS AND ADJUSTMENTS

6.1 Product Tank Level Sensor

The ultrasonic tank level sensor is pre-programmed with the correct operational settings. The sensor's internal settings will work with any of the 8830 units. To maintain interchangeability, these settings should not be modified. This sensor has an analog output and is used to determine fill levels, as well as, alarm setpoint violations.

The agitator is prevented from running when the tank lid is removed.

WARNING: Do not depress the small white button on the product tank level sensor. Sensor failure may result.

7.0 MAINTANENCE AND SERVICE PROCEDURES

7.1 Filling the Product Tank Water Jacket

1. Verify all electrical power is removed from unit.

2. Connect house water supply to yellow water valve located at back of product tank.

3. Turn on house water supply, and then open yellow water valve on product tank.

4. Close yellow water valve when water level reaches the sight tube. Touch “CIRCULATE” from the operator panel. This will operate the circulating pump. Add or remove water until sight tube is half full while the circulating pump is running. IMPORTANT: If the water jacket is completely filled the water jacket will not vent properly during machine operation.

> NOTE: Visually verify water is circulating through supply and return hoses. Pump damage may occur if ran dry.

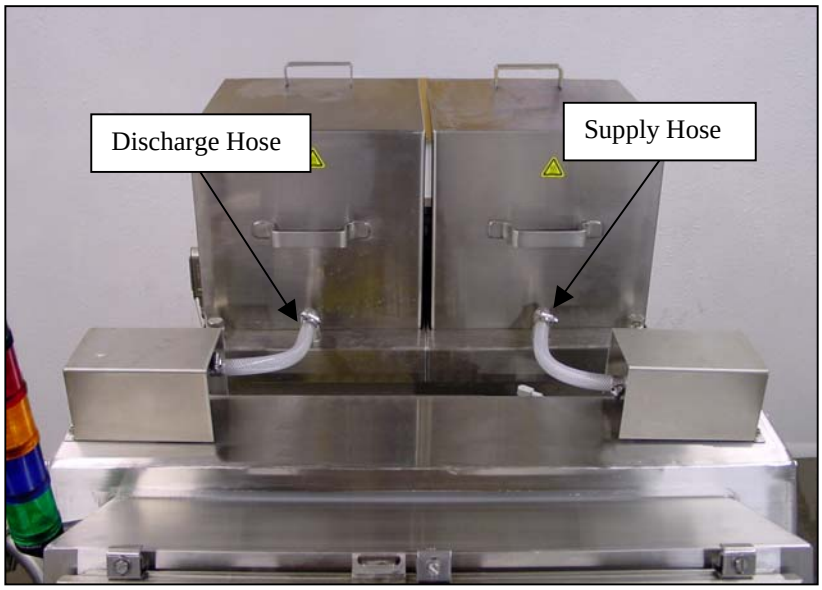
5. Turn off house water supply; disconnect supply hose from yellow water valve.

> NOTE: Check sight tube daily for correct water level. Additional water may be required due to evaporation.

> NOTE: Filling the water jacket too rapidly may result in water expulsion from vent.

7.2 Filling the Melting Rack Water Jacket

1. Verify all electrical power is removed from unit.
2. Disconnect the supply hose and connect the provided quick connect coupling to the melting rack discharge hose inlet.



3. Connect house water supply to coupling.
4. Slowly fill melting rack water jacket until water is seen in the sight glass. Water level should be maintained between lines as shown on right. Turn off water supply and disconnect from discharge inlet.
5. Reconnect discharge hose to melting rack

NOTE: Filling the water jacket too rapidly will cause water spillage from the vent stack.

6. Turn on the "MELTING RACK CONTROL" from the operator control panel and verify water level through sight glass.
7. Verify sight tube level, repeat procedure until proper water level is maintained.

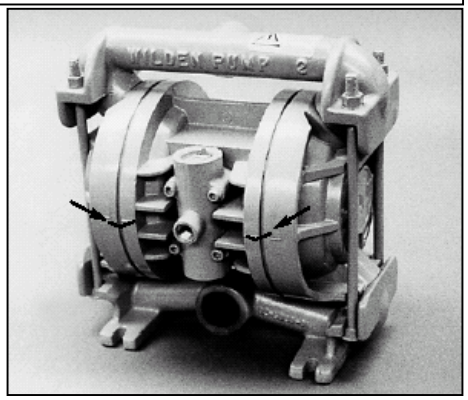
NOTE: Visually verify water is circulating through supply and return hoses. Pump damage may occur if ran dry.

CAUTION: Low water level inside the water jacket may result in heater failure.

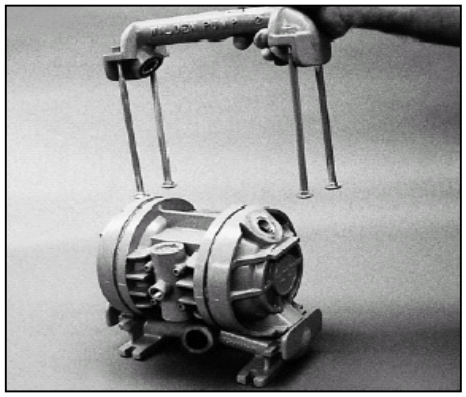
7.3 Product Pump Disassembly/Reassembly

CAUTION: Disconnect the compressed air line and allow all air pressure to bleed from pump before performing these steps.

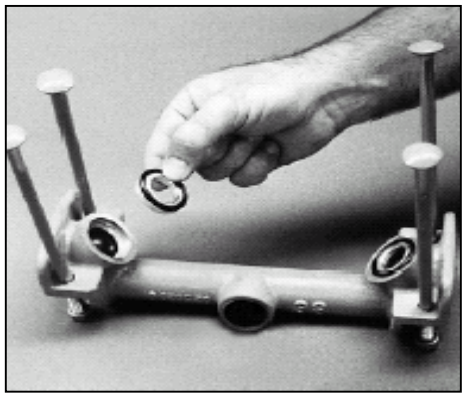
1. Before starting disassembly, mark a line from each liquid chamber to its corresponding air chamber. These lines will assist in proper alignment during reassembly.



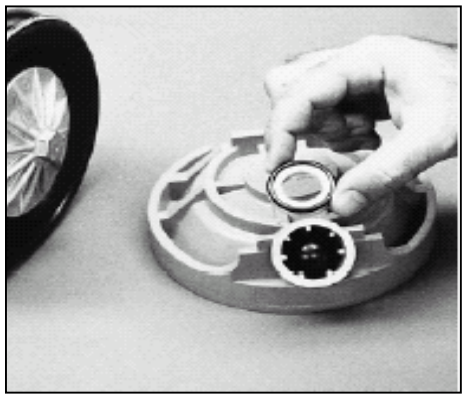
2. Remove the four long carriage bolts that secure the top and bottom manifolds to the center section. Remove the top manifold and lift the center section off the bottom manifold.



3. Remove the discharge valve balls, seats and O-rings from the top manifold and inspect for damage or wear. Note: Teflon O-rings should be replaced when reassembled.

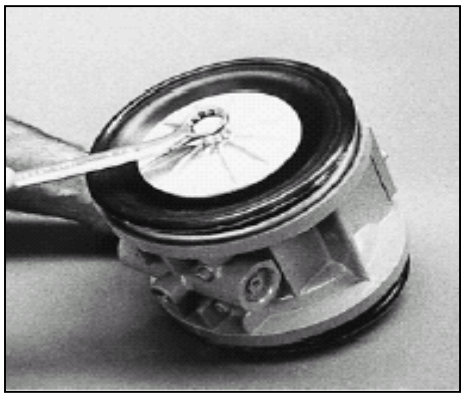


4. Remove the valve seat, valve seat O-ring and valve ball from the bottom manifold and inspect for damage or wear. Note: Teflon O-rings should be replaced when reassembled.

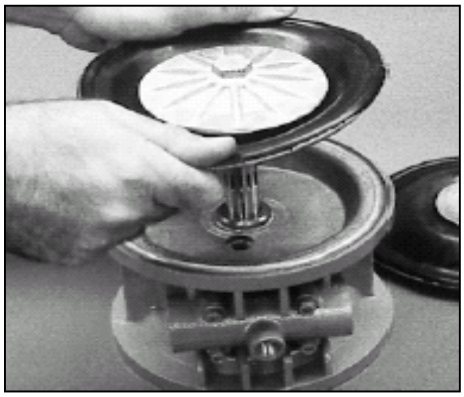


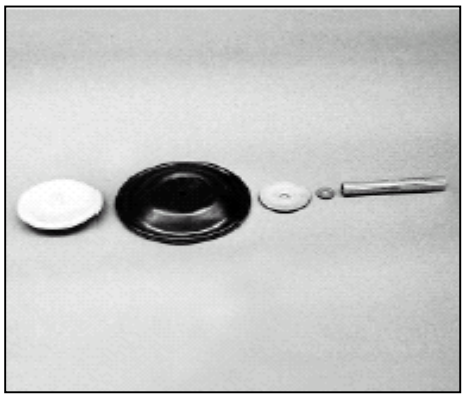
7.3 Product Pump Disassembly/Reassembly, cont'd.

5. Remove the diaphragm assembly with a ¾" box wrench or by rotating the diaphragm by hand.

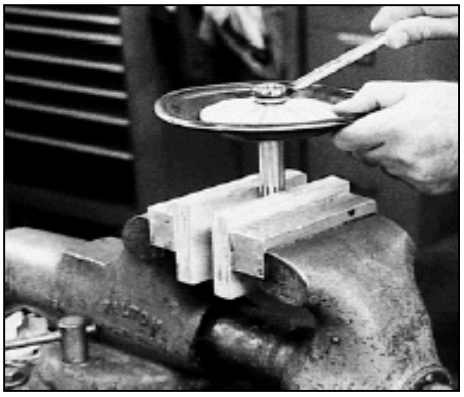


6. Note: One of the following two situations may occur. (1) The outer piston, diaphragm and inner piston remain attached to the shaft and the entire assembly can be removed from the center section. (2) The outer piston, diaphragm, inner piston and disc spring separate from the shaft which remains connected to the opposite side diaphragm assembly. NOTE: Teflon-fitted pumps come standard with back-up diaphragms (not shown).



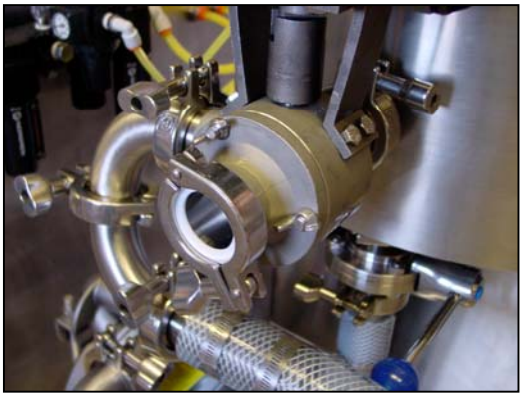
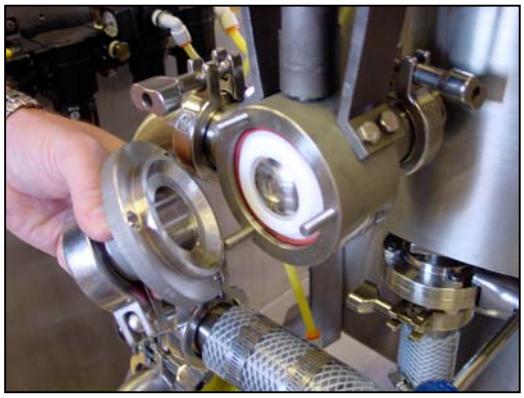


7. To remove the diaphragm assembly from the shaft, secure the shaft with soft jaws (a vise fitted with plywood or other suitable material) to ensure the shaft is not damaged. Using an adjustable wrench, remove the diaphragm assembly from the shaft.

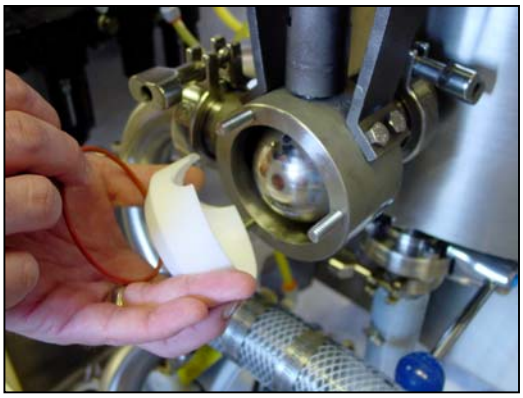
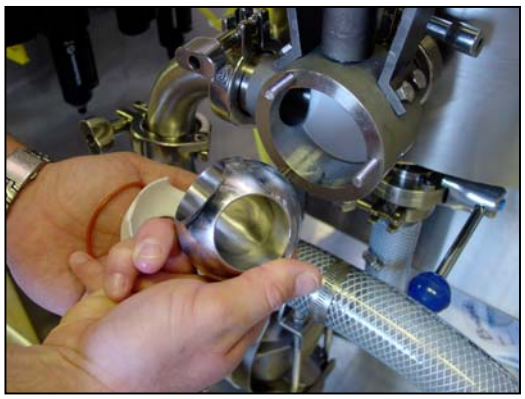


7.4 3-Way Valve Disassembly/Reassembly

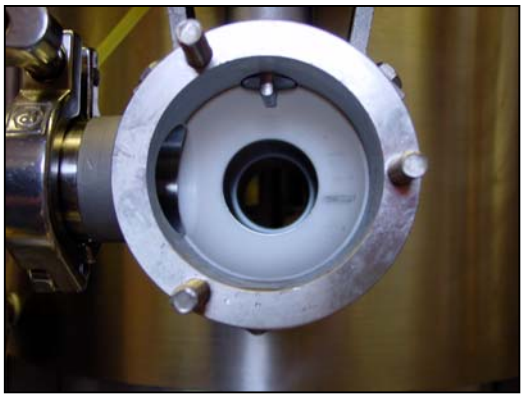
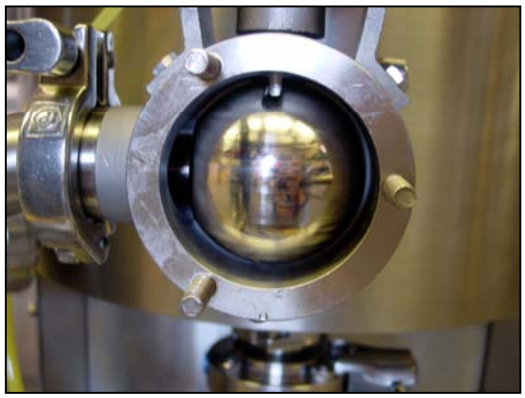
1. Remove the valve discharge cap by loosening and removing the three wingnuts.

2. Remove O-Ring, valve ball bushing and valve ball; then inspect for damage or wear. NOTE: Use care when removing these items.

3. Inspect the housing and valve ball actuator tab before reassembly.

7.5 Restoring Product Flow

If the “CIRCULATE” is inadvertently turned off or the unit loses power for and extended period, the viscosity of the product inside the tank may become of too high to adequately flow through the system.

1. Turn on unit and select “PREHEAT”.
2. Shut the isolation valve located on front of product tank.
3. Disconnect inlet hose from valve to pump and manually flush butter from line. It may also be necessary to remove and clean the elbow and tee on the infeed side of the pump. Reconnect hose and fittings.
4. Turn on the “Tank Control” and adjust the setpoint to 95° F. Allow product tank to heat to pre-set temperature.
5. Open isolation valve and verify the preheated butter has reached the pump infeed.
6. Select “CIRCULATE” from the control panel. Check for fluid circulating through the fluid lines and returning to the product tank.

NOTE: System **MUST** be depressurized before disconnecting hoses.

7. Allow product temperature to stabilize, test application consistency (purge nozzles), and then resume operation.

NOTE: If the high pressure switch is made, the pump may cycle between low and high speeds, trying to break the viscous fluid up and restore flow.

8.0 START-UP PROCEDURE

1. Turn on Main Disconnect.
2. Allow displays to initialize. Select “MELT” on main menu screen.
3. Drain water separator at incoming air supply (FRL assembly).
4. Verify melting rack and tank water jacket water levels.
5. Place butter block onto the melting rack and replace rack cover. Turn on the melting rack control and verify temperature is increasing to setpoint.
6. Turn “Tank Control” on and verify “Tank Control” is set to 95° F. This will maintain the butter at the desired application consistency.
7. Select “MIX” mode and verify desired product temperature and consistency have been reached.
8. From main menu, switch to “TRANSFER” mode.

8.1 Start-Up Checklist

8.1.1 Mechanical Setup

1. Locate applicator cart into position and lock wheels to secure.

8.1.2 Electric

1. Connect power cord from cart to appropriate power drop.
2. Connect cables to both sides of melting rack for heaters and thermocouples (4x). ***Caution: Do not force as pin damage may occur.***
3. Connect level sensor cable. ***Caution: Do not force as pin damage may occur.***
4. Connect both ethernet cables from conveyor to applicator cart, located under main electrical enclosure.
5. Turn on main power located on the conveyor.
6. Turn on the local power located on the cart electrical enclosure.

8.1.3 Pneumatic

1. Connect air line to pump.
2. Connect air line to transfer valve.
3. Connect main air line from conveyor to filter/regulator located on cart.
4. Turn on main air located on conveyor.
5. Turn on local filter/regulator located on the cart, verify 60 psi on gauge.
6. Adjustment of regulator located on the pump may need to be adjusted due to varying ambient temperatures and/or desired fill speeds.

8.1.4 Product Lines

1. Reassemble pump per manual instructions.
2. Verify transfer valve is properly installed (see section 7.4).
3. Connect first 2-ft. hose from bottom of tank (isolation valve) to bottom of pump, using screen gasket (p/n 611354) on either end of hose.
4. Connect second 2-ft. hose from top of pump to the side of the transfer valve.
5. Connect 4-ft. hose from the end of the transfer valve to the Arcall system.
6. Check all tri-clamp connections for tightness and fit.
7. Close isolation valve coming out of the bottom of the applicator use tank, until fluid has reached appropriate level. ***Note: Opening valve before ready to circulate may cause line to solidify with product.*** ***Caution: Verify valve is open before turning product pump to circulate. When using butter, remove hose and open valve (with catch tray in place) to assure product has not solidified in fitting.***

8.1.5 Tank Check

1. Verify water level of use tank and melting rack is in the upper 1/3 of sight tubes.
2. Verify water hoses are connected to both sides of melting rack. ***Caution: Pull on hoses to verify connection. Water pump and heater damage can occur if hoses are not properly connected.***
3. Verify lift-off lid is in place.

9.0 CLEANING PROCEDURES

9.1 Basic Procedure (after each production run)

1. Disconnect the return line from the melting rack and place in a suitable catch container. Pump remaining butter into a suitable container.

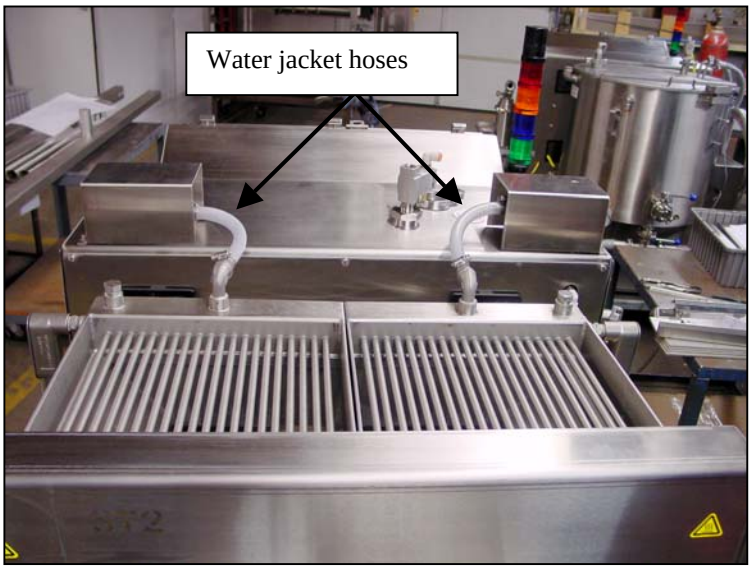
2. Partially fill product tank with hot water; turn on agitator. Flush through system as in step 1. Wipe residual butter from inside of product tank walls and repeat as necessary until product has been flushed from system.

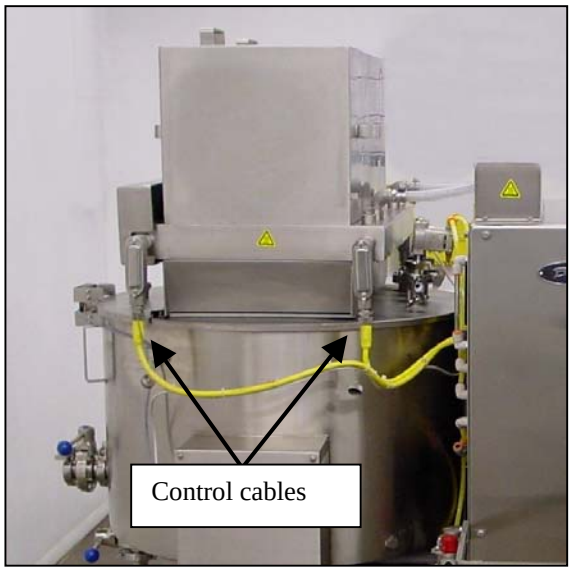
3. Once the majority of the butter has been flushed into a container, reconnect the return line and circulate hot water through system until product has been flushed from supply and return hoses.
4. Empty water from system as in step 1.
5. Repeat step 3 and 4 using a hot water solution with a sanitizing agent such as; Ball® mfg Quad10®, then flush with clean water.

NOTE: This procedure will remove most, but not all of, the butter inside the product tank and lines. Complete disassembly of the unit, as shown in the following sections, is required to completely clean the system.

9.2 Cleaning the Product Tank, Agitator and Melting Rack

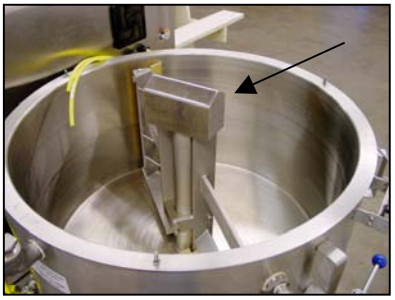
1. Loosen and remove wing nuts, then disconnect control cables from the melting rack thermocouple and heater. Disconnect water supply and return hoses from melting rack (both sides). Remove melting rack covers.



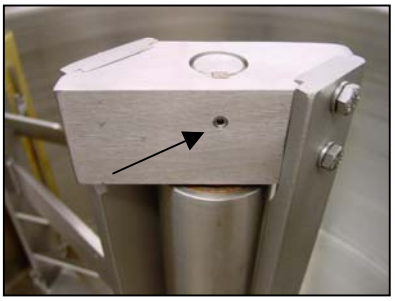


2. With assistance, lift the melting rack from product tank.

3. Remove agitator cap.

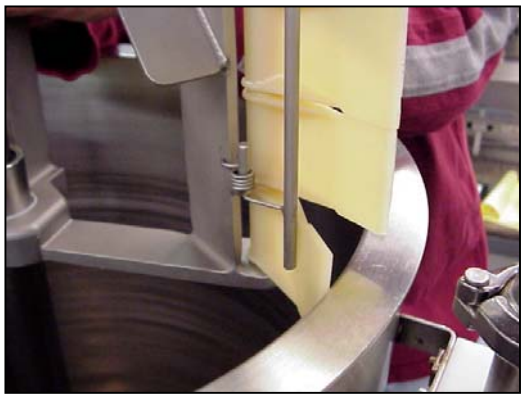


4. Loosen agitator setscrews on both sides of the agitator shaft.

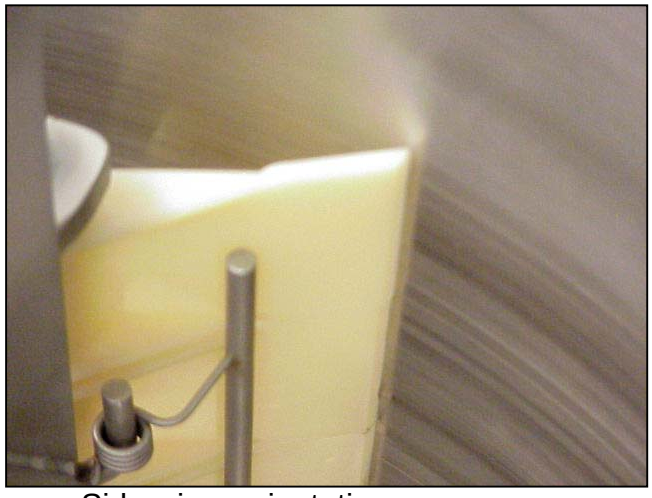


9.2 Cleaning the Product Tank, Agitator and Melting Rack, cont'd.

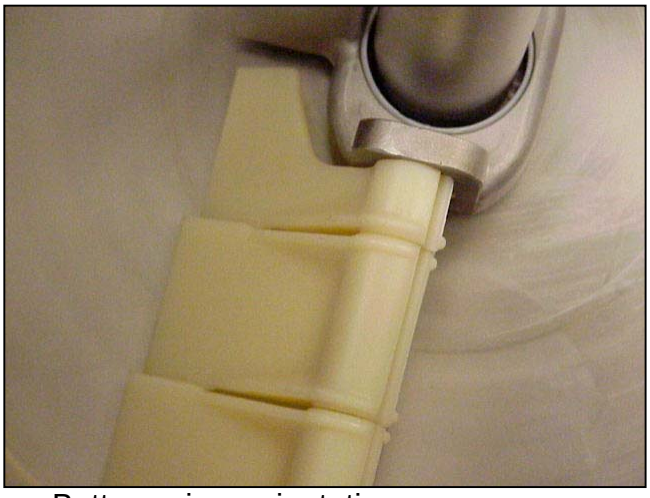
5. Carefully lift agitator from tank. Wipers are spring-loaded use care as they exit product tank.



6. Clean any remaining product from tank, agitator assembly and melting rack. Rinse with clean water.
7. Assemble in reverse order.



Side wiper orientation



Bottom wiper orientation

10.0 RECOMMENDED SPARE PARTS

QTY.	PART NUMBER	DESCRIPTION
1	210451	ASSEMBLY, ENCODER w/CABLE
1	611204	CHILLER, ½ HP, CUSTOM
1	611222	CONTROLLER, PWR-FLEX4, 220-1 INPUT, 220-3 OUTPUT, 1 HP
1	610899	COUPLING, HELICAL, PUMP DRIVE SYSTEM
1	611282	FILTER, #1, MIST COLLECTOR, STD – Yellow
1	611283	FILTER, #2, MIST COLLECTOR, Secondary – Pink
1	611284	FILTER, #3, MIST COLLECTOR, Containment – White
10	611031	FILTER, MEDIA, 40 MICRON, CLOTH
5	611354	GASKET, SST SCREEN, 1 1/2 TRI-CLAMP
15	610803	GASKET, TEFLON, ½"
15	610760	GASKET, TEFLON, 1-1/2"
1	611188	GEARBOX, WASHDOWN, NIAGARA, PUMP DRIVE SYSTEM
1	611216	GEARBOX,AGITATOR 300/450/750 LB TANK
2	611215	HEATER, 1000 WATT, 300/450/750 LB TANK
1	610778	HEATER, FIREROD CARTRIDGE, SST, MELTING RACK
5	611209	HOSE, ½" TRI-CLAMP X 9/16-18 JIC
1	611239	HOSE, SANITARY, RETURN, 1/2" X 10'. OAL
1	610754	HOSE, SANITARY, TRANSFER, 1-1/2" X 10', OAL
1	611243	HOSE, SANITARY, TRANSFER, 1-1/2" X 14", OAL
1	611208	HOSE, SANITARY, TRANSFER, 1-1/2" X 2', OAL
1	611207	HOSE, SANITARY, TRANSFER, 1-1/2" X 4', OAL
1	611234	HOSE, SANITARY, TRANSFER, 1-1/2" X 5', OAL
1	611221	MIXER, HIGH SPEED
1	610748	MOTOR, 1 HP, 230/460-3, 56C, WASHDOWN, NO BASE, PUMP DRIVE SYSTEM
1	611220	MOTOR, AGITATOR 300/450/750 LB TANK
1	611212	O-RING, VALVE SEAT, DOUBLE DIAPHRAGM PUMP
1	304160	POWER SUPPLY, 110/220 TO 24 VDC, 10 AMP
1	611198	PUMP, HOT WATER CIRCULATOR, 1/12 HP
1	611206	PUMP, SANITARY DOUBLE DIAPHRAGM
1	611197	PUMP, SANITARY, WAUKESHA -015
1	C01029	RELAY, 24 VDC, 2PDT, 8 PIN (K10)
1	A08361	RELAY, 24 VDC, 3PDT, 11 PIN OCTAL
1	A02403	RELAY, 24 VDC, 4PDT, 14 PIN KHA
1	610404-001	RELAY, TERMINAL MOUNTING, 24 VDC, 1PDT, 6 AMP
1	611210	REPAIR KIT, AIR, DOUBLE DIAPHRAGM PUMP
1	611211	REPAIR KIT, ELASTOMER, DOUBLE DIAPHRAGM PUMP
2	C00527	REPAIR KIT, SPRAY GUN
1	611357	SENSOR, FLOW METER, STATION 3
1	C06752-001	SENSOR, PROX, 80MM, 10-55 VDC, PNP, EDDY
1	611259	SENSOR, PROXIMITY,18 MM, M12
2	611202	SENSOR, ULTRA-SONIC, DUAL-LEVEL, ANALOG
5	611251	SPRAY GUN, RECIRCULATING INLET, SPECIAL
1	210467	SWITCH, PRESSURE TRANSDUCER, SANITARY, 1-1/2" TRI-CLAMP
1	611217	THERMOCOUPLE, TYPE K, 6" LONG, SS
1	610779	THERMOCOUPLE, TYPE K, MELTING RACK
5	611287	TIP, NOZZLE, FULL CONE, STATION #3
5	C00536	TIP, NOZZLE, TEE-JET, STRAIGHT STREAM, STATION #1
5	611279	TIP, NOZZLE, UNIJET, FLAT SPRAY, STATION 2B
5	610805-04	TIP, NOZZLE, VISIFLO GREEN, 0.15 GPM, CONE, STATION 2A
5	610805-01	TIP, NOZZLE, VISIFLO PURPLE, 0.050 GPM, STATION 2C
1	611358	TRANSMITTER, FLOW METER, STATION 3
5	611230	VALVE, 3 PORT, 1/8 NPT, M8
1	611205	VALVE, PNEUMATIC, 3-WAY, BALL
1	611218	VALVE, SOLENOID, ½" FLUID, AIR OPERATED, SST
6	611378	O-RING, COVER, WAUKESHA –015, FKM
8	611379	O-RING, PUMP BODY, WAUKESHA –015, FKM
8	611380	O-RING, SHAFT, WAUKESHA –015, FKM

11.0 PREVENTIVE MAINTENANCE

In order to ensure proper performance of your unit, the following should be done as noted.

1. Flush tank after each production run with hot water.
2. Check oil in main air supply weekly.
3. Visually inspect air and butter lines. Replace when needed.
4. Break apart and clean transfer pump as needed.
5. Check sight tubes and verify correct water levels.

11.1 Light Tower Descriptions

FUNCTION	DESCRIPTION
Solid Green Light	Indicates normal machine operation.
Solid Blue Light	Indicates the unit is in “BATCH” mode (if equipped).
Blinking Blue Light	Indicates the unit is in “BATCH” mode (if equipped) and is waiting for user input.
Blinking Yellow (Amber) Light	Indicates there is a spray rail mismatch.
Solid Yellow (Amber) Light	Indicates the “RAIL OVERRIDE” function is currently being used. See Section 5.3.5.
Solid Red Light	Indicates there is a machine fault. See control panel for possible fault description.

11.2 Set-Up Values

Station #4
Product: FTO GDR
Ingredient: Butter
RMATL: 218905

Tank Level Calibration	
Upper	10000
Raw (when empty)	6750
Lower	7160
% (when empty)	-15

Mix Tank Temp & Alarm Setpoints	
Upper Temp	120
Lower Temp	50
% High Level	90
Mix Tank Temp Setpoint	100

Melt Rack Temp Setpoint	
Setpoint	140

Thermocouple Offset	
Mix Tank	18
Melt Rack	14

Batch Level Setpoints	
Mix Time	N/A
Circulate Interval (sec)	120
% Level Batch Complete	N/A
% Low Level Batch Restart	---

Station #4
Product: FTO SWDR
Ingredient: Butter
RMATL: 218905

Tank Level Calibration	
Upper	10000
Raw (when empty)	6750
Lower	7160
% (when empty)	-15

Mix Tank Temp & Alarm Setpoints	
Upper Temp	120
Lower Temp	50
% High Level	90
Mix Tank Temp Setpoint	100

Melt Rack Temp Setpoint	
Setpoint	140

Thermocouple Offset	
Mix Tank	18
Melt Rack	14

Batch Level Setpoints	
Mix Time	N/A
Circulate Interval (sec)	120
% Level Batch Complete	N/A
% Low Level Batch Restart	2

12.0 PARTS LISTS / ASSEMBLY DRAWINGS

12.1 Wiring Diagram

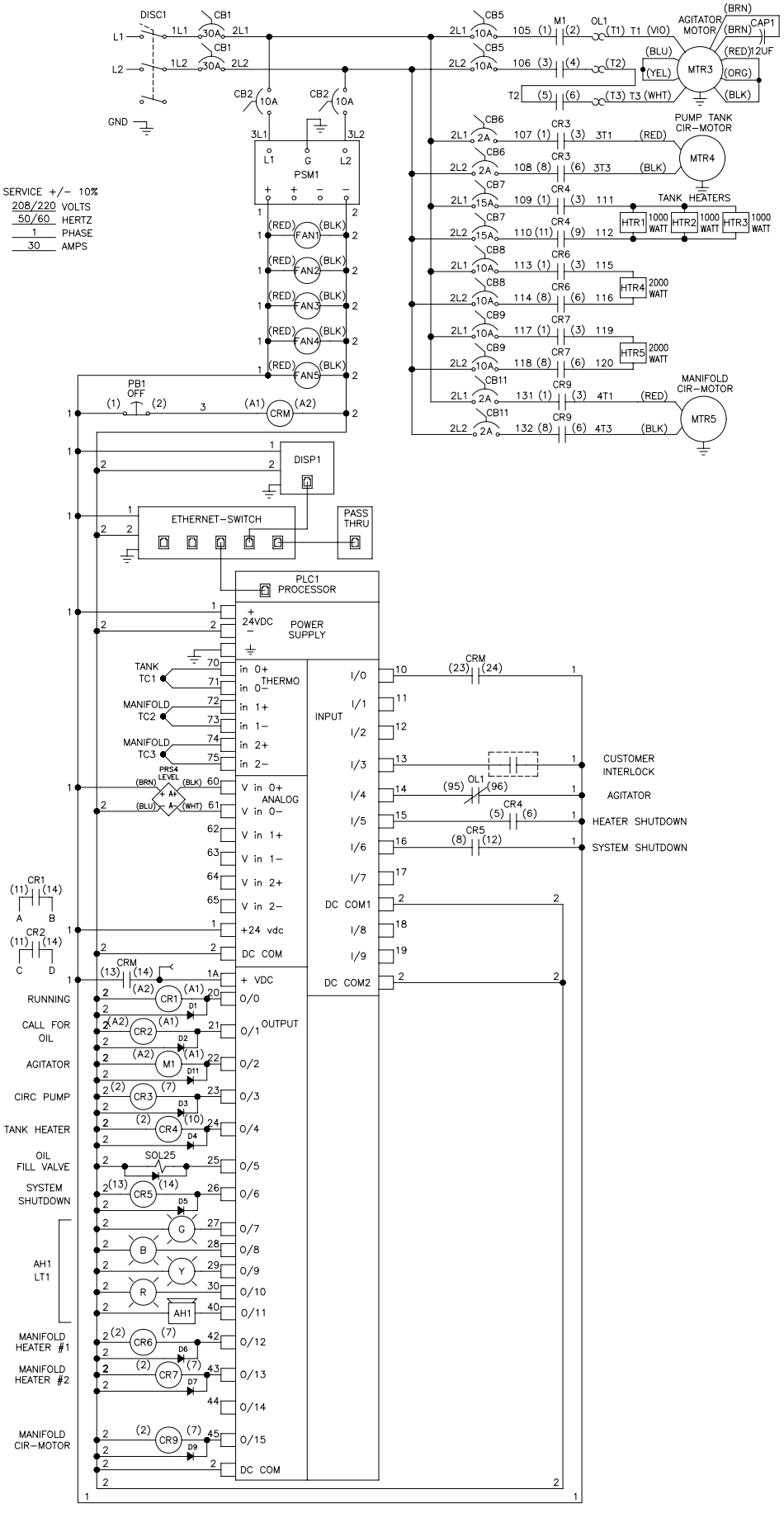
REF	SYMBOL	PART #	QTY	DESCRIPTION
1	CB1	C07650-030	2	CIRCUIT BREAKER, 30 AMP
2	CB2,5,8,9	C07650-010	8	CIRCUIT BREAKER, 10 AMP
3	CB6,11	C07650-002	4	CIRCUIT BREAKER, 2 AMP
4	CB7	C07650-015	2	CIRCUIT BREAKER, 15 AMP
5	CB1,2,5-9,11	C07648	8	ROD, CIRCUIT BREAKER CONNECTING
6	CRM	C07245	1	CONTACTOR, 10 AMP, 24 VDC, 4 POLE
7	CR1,2	610404-001	2	RELAY, 24 VDC, 1PDT, 6 AMP
8	CR3,6,7,9	C01029	5	RELAY, 24 VDC, 2PDT, 8 PIN OCTAL
9	CR3,6,7,9 P/O	C06723	5	BASE, RELAY, DIN MOUNTING, 8 PIN OCTAL
10	CR4	A08361	1	RELAY, 24 VDC, 3PDT, 11 PIN OCTAL
11	CR4 P/O	C06724	1	BASE, RELAY, DIN MOUNTING, 11 PIN OCTAL
12	CR5	A02403	1	RELAY, 24 VDC, 4PDT, 14 PIN KHA
13	CR5 P/O	A02499	1	BASE, RELAY, DIN MOUNTING, 14 PIN KHA
14	D1-7,9,11	A08359	9	DIODE, IN4001, 1 AMP, 50 VOLT
15	DISC1	A02345	1	DISCONNECT, 30 AMP, 3 POLE
16	DISC1 P/O	A02346	1	HANDLE, DISCONNECT
17	DISC1 P/O	610342-001	1	SHAFT, DISCONNECT, 7.1”
18	DISP1	611223	1	DISPLAY, PV+1000 PLC
19	ENCL1	712629	1	ENCLOSURE, MAIN ELECTRICAL, SST
20	ENCL2	712625	1	ENCLOSURE, JUNCTION BOX, SST
21	ENCL3	C01040	1	ENCLOSURE, 4X4X3, SST
22	FAN1-4	610747	4	FAN MUFFIN, 24 VDC, TYPE 3
23	FAN1-4	610124	4	COVER, FAN GUARD
24	FAN5	C07060	1	FAN, MUFFIN, 24 VDC
25	FAN5 P/O	A06862	1	BRACKET, FAN MOUNTING
26	GND	C06488	1	LUG, GROUNDING
27	GND STRP	C07156	1	STRAP, DOOR GROUNDING, 24”
28	HTR1-3	611215	3	HEATER, 1000 WATT, 300 LB TANK
29	HTR4,5	610778	2	HEATER, 2000 WATT, FIREROD CARTRIDGE
30	LT1	611226	1	LIGHT TREE, 24 VDC, (GRN,YEL,BLU,RED, HORN)
31	M1	C06702-001	1	RELAY, MOTOR STARTER, 24 VDC
32	MTR3	611220	1	MOTOR, 115/208/230-50/60-1
33	MTR4,5	611198	2	PUMP, HOT WATER CIRCULATOR
34	OL1	C06678-001	1	RELAY, OVERLOAD, 3.7 – 12 AMP
35	PB1	C07213	1	SWITCH, PUSH / PULL, RED, MUSHROOM
36	PB1 P/O	C05395	1	NAMEPLATE, “PUSH – STOP / PULL – START”
37	PB1 P/O	C07101	1	CONTACT CARTRIDGE, NORMALLY CLOSED
38	PLC1	611133	1	PLC, COMPACTLOGIX, PROCESSOR, 750K, ETH.
39	PLC1 P/O	611134	1	PLC, COMPACTLOGIX, MEMORY CARD, 64MB
40	PLC1 P/O	610882	1	PLC, COMPACTLOGIX, POWER SUPPLY, PB4
41	PLC1 P/O	610657	1	PLC, ML1500, INPUT MODULE
42	PLC1 P/O	610632	1	PLC, ML1500, OUTPUT MODULE
43	PLC1 P/O	611225	1	PLC, COMPACTLOGIX, ANALOG MODULE
44	PLC1 P/O	610656	1	PLC, ML1500, THERMOCOUPLE MODULE, 6 CH.
45	PLC1 P/O	610494	1	PLC, ML1500, END CAP

047574-WD ISSUE “A”

12.1 Wiring Diagram, cont'd.

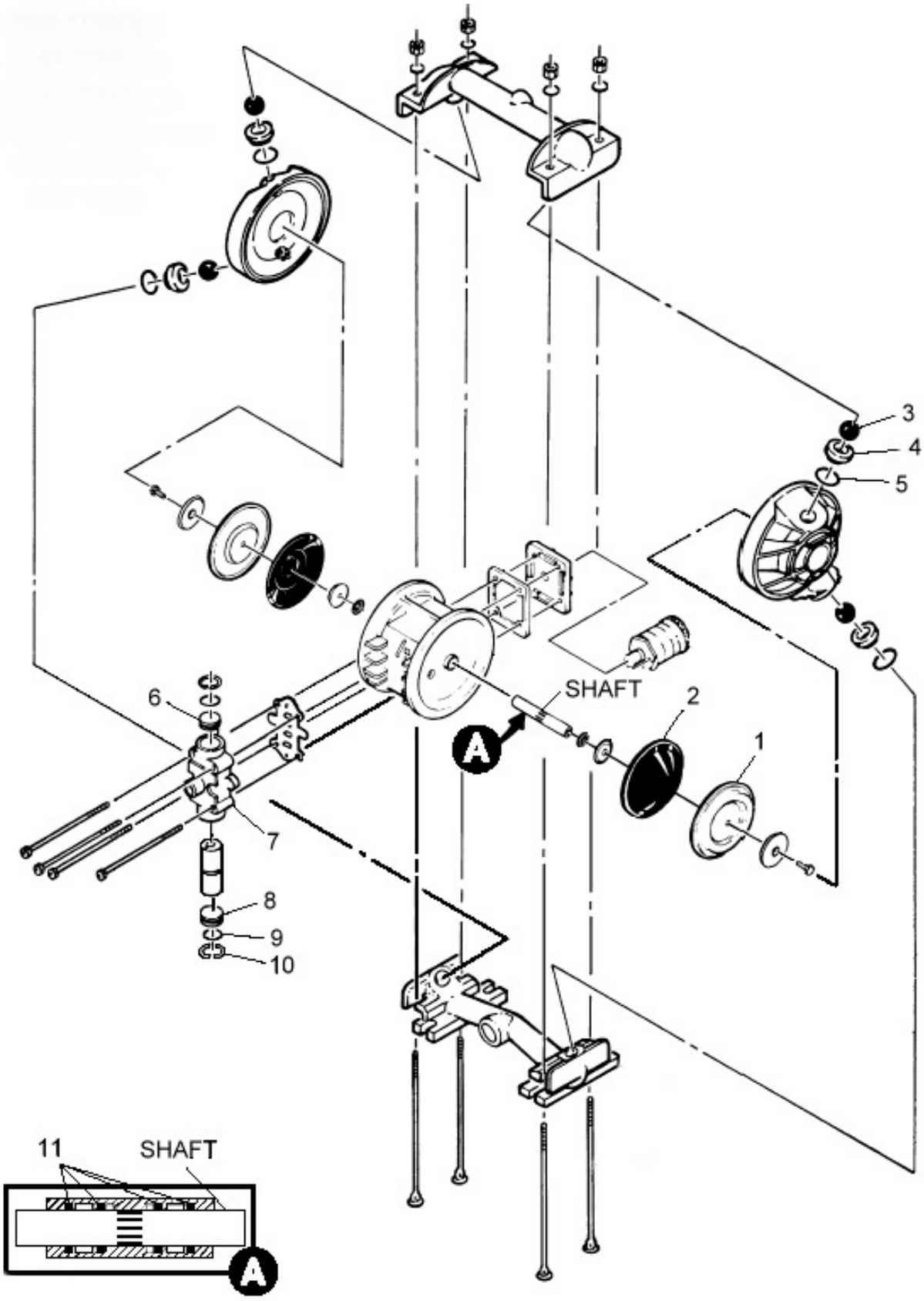
REF	SYMBOL	PART #	QTY	DESCRIPTION
46	PLC1 P/O	611227	1	PLC, ETHERNET MODULE, HIRSCHMANN
47	PLC1 P/O	611228	1	PLC, ETHERNET, PASS-THRU
48	PLC1 P/O	611229	1	PLC, ETHERNET CABLE, PASS-THRU
49	PNL1	C01383	1	PANEL, MAIN ELECTRICAL, REWORKED
50	PNL2	712626	1	PANEL, JUNCTION BOX, REWORKED
51	PRS4	611202	1	SENSOR, ULTRASONIC, DUAL-LEVEL, ANALOG
52	PRS4 P/O	304154	1	CABLE, SENSOR, M12, 4 WIRE, FEMALE, 90°
53	PSM1	304160	1	POWER SUPPLY, 110/220 TO 24 VDC, 10 AMP
54	SOL25	611218	1	VALVE, SOLENOID, ½" FLUID, AIR-OPERATED
55	SOL25 P/O	A02349	1	CABLE, SENSOR, M8, 3 WIRE, FEMALE
56	TB1,4,5	C05843	240	TERMINAL, MARKER STRIP, BLANK
57	TB5 P/O	C06411	2	TERMINAL, JUMPER, 3 POSITION
58	TB1,4,5 P/O	C06461	95	TERMINAL, BLOCK, SINGLE LEVEL
59	TB1,4,5 P/O	C06462	3	TERMINAL, END COVER, SINGLE LEVEL
60	TB1,4 P/O	C06463	2.5	TERMINAL, JUMPER, 10 POSITION
61	TB1-5	C06464	84"	RAIL, DIN MOUNTING
62	TB1-5	C06465	11	TERMINAL, CLAMP, END ANCHOR
63	TB1,4,5 P/O	C06525	12	TERMINAL, GROUNDING
64	TB1,4 P/O	C07117	25	TERMINAL, BLOCK, DUAL LEVEL
65	TB1,4 P/O	C07118	2	TERMINAL, END COVER, DUAL LEVEL
66	T/C1	611217	1	THERMOCOUPLE, TYPE K, 6"
67	T/C2,3	610779	2	THERMOCOUPLE, TYPE K, 2"

047574-WD ISSUE "A"


SERVICE +/– 10%
208/220 VOLTS
50/60 HERTZ
1 PHASE
30 AMPS
DISC1
CB1
L1
L2
GND
CB2
PSM1
FAN1
FAN2
FAN3
FAN4
FAN5
PB1
OFF
CRM
DISP1
ETHERNET–SWITCH
PASS THRU
PLC1
PROCESSOR
POWER SUPPLY
24VDC
TANK TC1
MANIFOLD TC2
MANIFOLD TC3
THERMO
PRS4 LEVEL
ANALOG
INPUT
OUTPUT
DC COM1
DC COM2
CR1
CR2
RUNNING
CALL FOR OIL
AGITATOR
CIRC PUMP
TANK HEATER
OIL FILL VALVE
SOL25
SYSTEM SHUTDOWN
AH1
LT1
MANIFOLD HEATER #1
MANIFOLD HEATER #2
MANIFOLD CIR–MOTOR
CB5
M1
OL1
AGITATOR MOTOR
MTR3
CAP1
12UF
CB6
CR3
PUMP TANK CIR–MOTOR
MTR4
CB7
CR4
TANK HEATERS
HTR1
HTR2
HTR3
1000 WATT
CB8
CR6
HTR4
2000 WATT
CB9
CR7
HTR5
CB11
CR9
MANIFOLD CIR–MOTOR
MTR5
CR5
CUSTOMER INTERLOCK
AGITATOR
HEATER SHUTDOWN
SYSTEM SHUTDOWN

12.2 Transfer Pump Repair Kit Drawing

REPAIR KIT – ELASTOMER (Burford P/N 42249-035)		
REF	**QTY**	**DESCRIPTION**
1	2	DIAPHRAGM
2	2	BACK-UP DIAPHRAGM
3	4	VALVE BALL
4	4	VALVE SEAT
5	4	VALVE SEAT O-RING
REPAIR KIT – AIR (Burford P/N 42249-036)		
6	1	AIR VALVE CAP with GUIDE (TOP)
7	1	AIR VALVE ASSEMBLY
8	1	AIR VALVE CAP without GUIDE (BOTTOM)
9	2	AIR VALVE CAP O-RING
10	2	SNAP RING
11	4	CENTER SECTION GLYD™ RING


3
4
5
SHAFT
2
1
A
6
7
8
9
10
11
SHAFT
A