



**Model U3-02**  
**OPERATORS MANUAL**  
Manual No. 513557



This manual provides basic information about the machine. Instructions and suggestions are given covering its operation and care.

The illustrations and specifications are not binding in detail. We reserve the right to make changes to the machine without notice, and without incurring any obligation to modify or provide new parts for machines built prior to date of change.

**DO NOT ATTEMPT** to operate the machine until instructions and safety precautions in this manual are read completely and are thoroughly understood. If problems develop or questions arise in connection with installation, operation, or servicing of the machine, contact Stoelting.



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## ***A Few Words About Safety***

### **Safety Information**

**Read and understand the entire manual before operating or maintaining Stoelting equipment.**

This manual provides the operator with information for the safe operation and maintenance of Stoelting equipment. As with any machine, there are hazards associated with their operation. For this reason safety is emphasized throughout the manual. To highlight specific safety information, the following safety definitions are provided to assist the reader.

The purpose of safety symbols is to attract your attention to possible dangers. The safety symbols, and their explanations, deserve your careful attention and understanding. The safety warnings do not by themselves eliminate any danger. The instructions or warnings they give are not substitutes for proper accident prevention measures.

If you need to replace a part, use genuine Stoelting parts with the correct part number or an equivalent part. We strongly recommend that you do not use replacement parts of inferior quality.



### **Safety Alert Symbol:**

**This symbol** Indicates danger, warning or caution. Attention is required in order to avoid serious personal injury. The message that follows the symbol contains important information about safety.

### **Signal Word:**

Signal words are distinctive words used throughout this manual that alert the reader to the existence and relative degree of a hazard.



The signal word "WARNING" indicates a potentially hazardous situation, which, if not avoided, may result in death or serious injury and equipment/property damage.



The signal word "CAUTION" indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury and equipment/property damage.

### **CAUTION**

The signal word "CAUTION" not preceded by the safety alert symbol indicates a potentially hazardous situation, which, if not avoided, may result in equipment/property damage.

### **NOTE (or NOTICE)**

The signal word "NOTICE" indicates information or procedures that relate directly or indirectly to the safety of personnel or equipment/property.

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## SECTION 1 INTRODUCTION

### 1.1 DESCRIPTION

The Model U3 Remote Mix Pump is specially designed for use with Stoelting remote pressurized freezers. Used with large capacity mix containers located in your bulk storage cooler, the U3 Pump keeps mix handling to a minimum.

Stoelting's Model U3 Remote Mix Pump performs three important functions with precision and reliability. First, it transfers a continuous supply of mix from your remote storage container to the freezing cylinder of your freezer - quickly, conveniently. Second, the U3 Pump precisely injects a preset amount of air into the mix, maintaining overrun to assure maximum profitability. Third, it pressurizes the freezing cylinder, forcing frozen product through the spigot at the rapid dispense rates needed by high volume locations.

### 1.2 SPECIFICATIONS

#### WEIGHT

24 lbs. (10.89 kg)

#### DIMENSIONS

Width: 9-3/4" (24.8 cm)

Height: 8-1/2" (21.6 cm)

Depth: 10-1/8" (25.7 cm)

#### ELECTRICAL

1 phase, 120 volts. Approximately 1.6 total running amps. Cord and plug attached.

#### WARRANTY

One year parts.

UL, C-UL Approved, NSF Approved



Figure 1  
U3 Pump





## SECTION 2 INSTALLATION INSTRUCTIONS

### 2.1 SHIPMENT AND TRANSIT

The mix pump has been completely assembled, operated and inspected at the factory. Upon arrival at the final destination, the mix pump must be checked for any damage that may have occurred during transit.

The mix pump should arrive in satisfactory condition. THE CARRIER IS RESPONSIBLE FOR ALL DAMAGE IN TRANSIT, WHETHER VISIBLE OR CONCEALED. Do not pay the freight bill until you have checked the equipment. Have the carrier note any visible damage on the freight bill. If concealed damage and/or shortage is found later, advise the carrier inspector within 10 days and request inspection. The customer must place claim for damages and/or shortages in shipment with the carrier. **Stoelting, Inc. cannot make any claims against the carrier.**

### 2.2 NATIONAL SANITATION FOUNDATION COMPLIANCE REQUIREMENTS

In order to comply with "NSF International" (NSF) code #6:

- A. This unit (remote pump) must be installed with a "NSF" listed refrigerated mix transfer line. The mix transfer line must be pitched to cooler, with no sags or low points, to allow complete drainage (Fig. 2).
- B. The product at the mix pump and in transfer lines must be maintained below 41°F (5°C.)

### 2.3 INSTALLATION

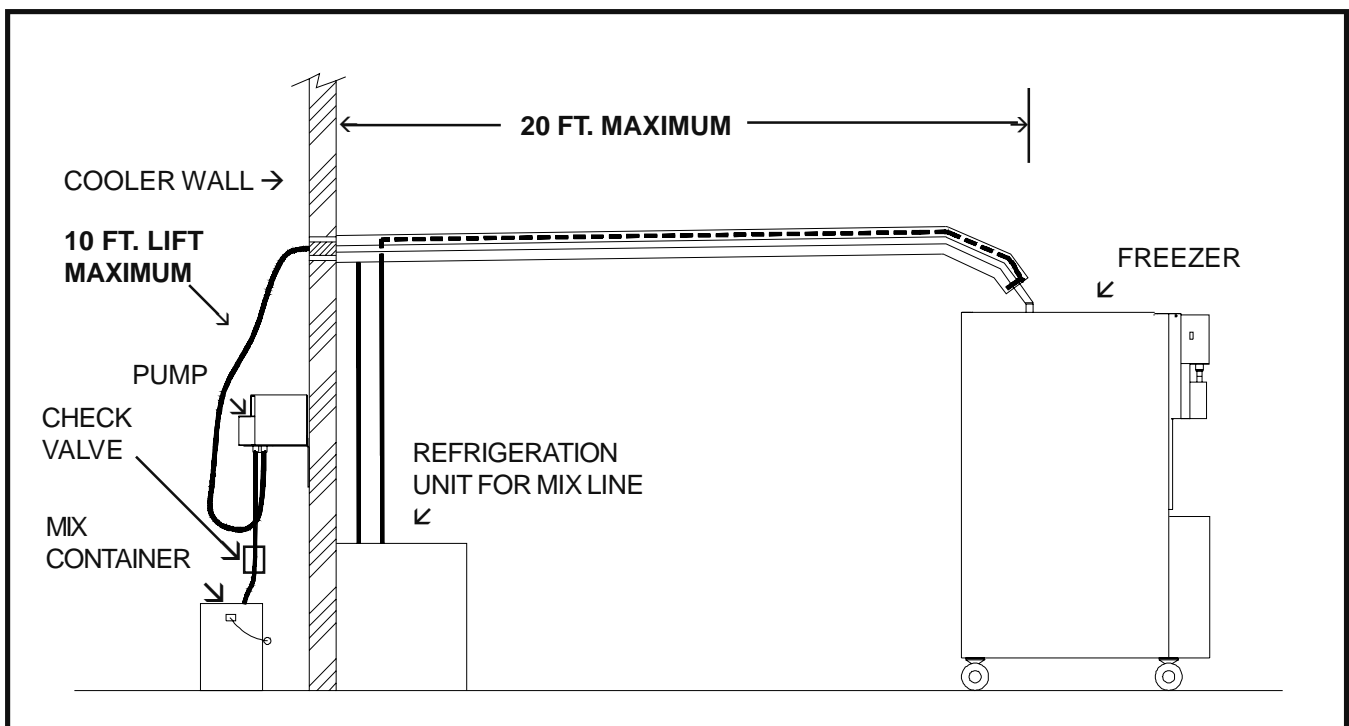
A. Follow the steps below to install the mix pump in an upright position on the wall using optional pump mounting kit. Allow clearance for a mix container under pump. See Figure 2.

1. Mount by locating four (4) hole centers on cooler wall using mounting bracket as template.

#### CAUTION

**KNOW THE COOLER'S WALL DESIGN BEFORE DRILLING TO PREVENT PERSONAL INJURY OR PROPERTY DAMAGE.**

2. Drill four (4) 1/2 inch diameter holes into cooler wall 3/4 inch deep. See Figure 3.
3. Insert well-nut to flange and apply silicone sealant around outside diameter of flange and cooler wall.
4. Repeat steps 2 & 3 for other located hole centers.
5. Mount bracket to cooler wall with supplied wing screws. Hand tighten until secure.
6. Thread plastic standoffs (small parts bag) onto all three pump mounting studs located under the pump until bottomed.
7. Mount pump to bracket with wing nuts. Pump will be held above the bracket by the standoffs.

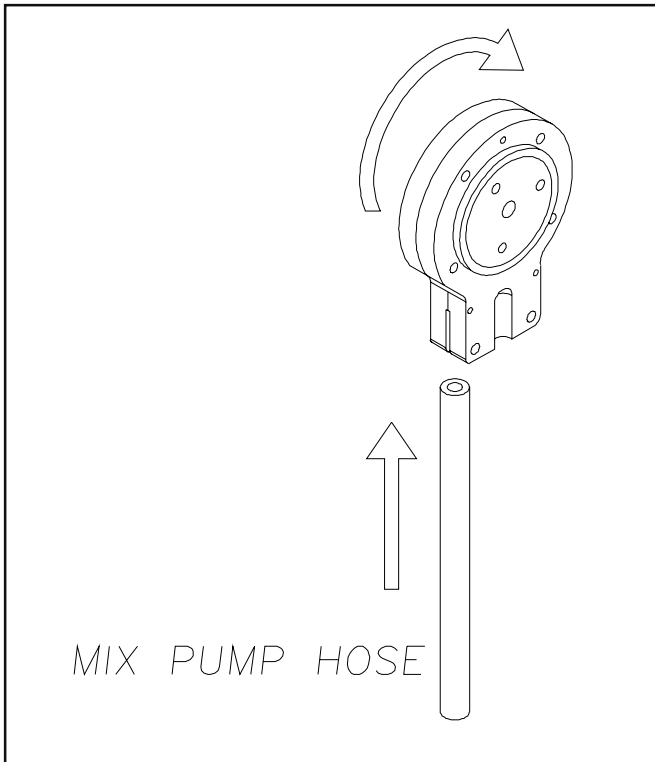


**Figure 2  
Mix Transfer Line**

## B. Mix Pump Hose Installation.

Follow the steps below to install the mix pump hose.

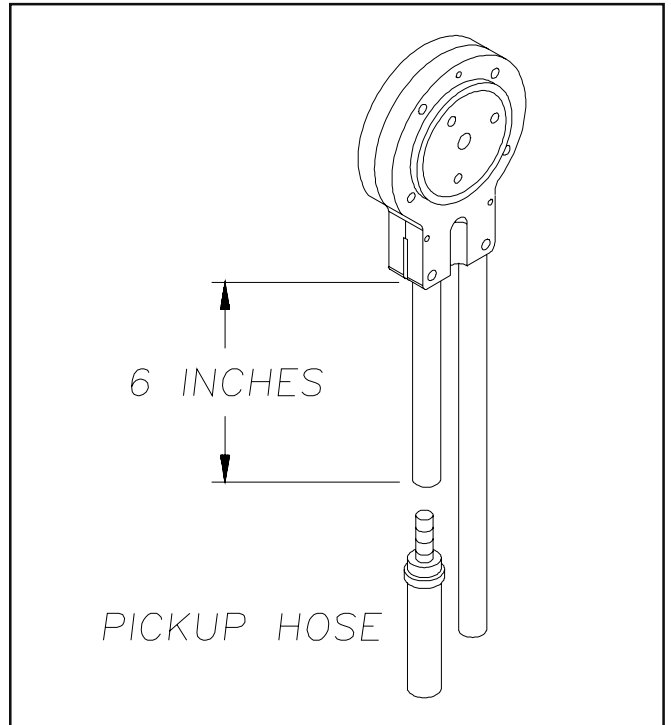
1. Turn pump on.
2. Feed one end of mix pump hose into the entering or pick-up hose side (left) of black cover.
3. Gently push the hose into the black cover until it begins to feed. See Figure A.



**Figure A**

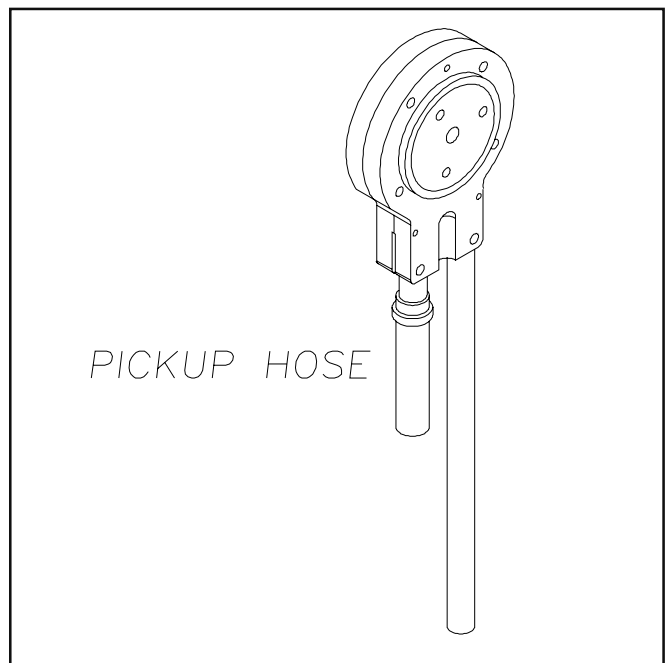
4. Allow the hose to feed itself thru the pump until 6" remains on the entering side.
5. Turn pump off.
6. Connect mix pump hose to pickup hose adapter using small hose clamp. See Figure B.

**CAUTION: DO NOT TWIST MIX PUMP HOSE.**

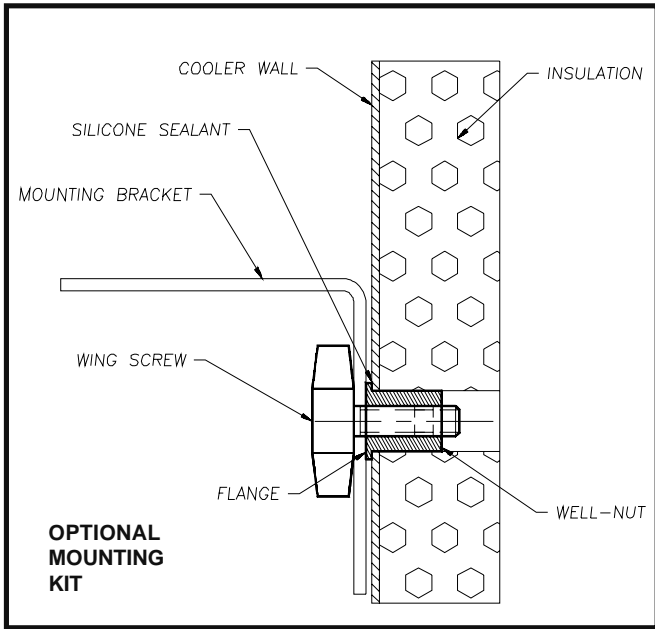


**Figure B**

7. Turn pump on.
8. Gently pull on the discharge hose to help remaining 6" of mix pump hose to feed thru pump until hose adapter prevents further feeding.
9. Turn pump off. See Figure C.

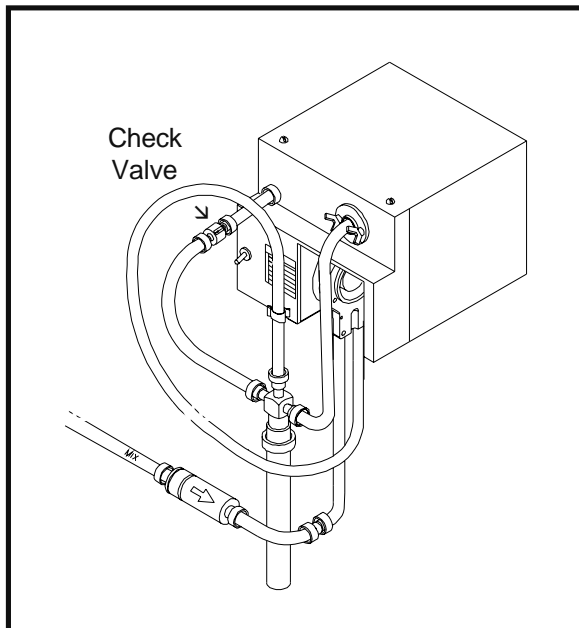


**Figure C**



**Figure 3**  
**Mix Pump Installation**

10. Connect free end of mix pump hose to "4 way Tee" as shown in Figure D. When all connections are complete the "4 way Tee" must be lower than the black pump housing.



**Figure D**

- C. Connect 1/2 inch (1.27 cm) I.D. plastic food grade tubing to the check valve and then to the mix container. Observe check valve flow arrow. Secure with hose clamps.

- D. Connect 1/2 inch (1.27 cm) ID plastic food grade tubing between the large port of air/mix tee and refrigerated mix transfer line. Secure with large hose clamp or equivalent.

**CAUTION**

**AIR/MIX TEE MUST REMAIN BELOW THE BLACK COVER/CLAMP. IF THE TEE IS ABOVE THE PUMP MIX WILL DRAIN TO THE AIR COMPRESSOR RESULTING IN PUMP DAMAGE.**

- E. Plug mix pump into a 115 volt grounded receptacle.

**WARNING**

**TO MINIMIZE SHOCK HAZARD, THE REMOTE MIX PUMP MUST BE PLUGGED INTO A PROPERLY GROUNDELECTRICAL RECEPTACLE WITHOUT THE USE OF A GROUND ADAPTER PLUG.**

**2.4 MIX PUMP CHECK OUT**

Before using, the U3 Mix Pump should be thoroughly cleaned. This is necessary to remove any foreign materials that may be present.

- A. The over-run adjustment is preset at the factory. If an adjustment becomes necessary, refer to Section 4.1.
- B. Check for air leaks by placing the suction line into two gallons of cold water. Place the freezer switch in the OFF position. Close the spigot and freezer air vent. Place mix pump switch in the ON position and allow the system pressure to build up and pump to shut OFF automatically. Leave the pump on for ten minutes.

During this time, do not open spigot or freezer air vent. If pump does not automatically start again during this period, the system is free of leaks. If the pump does start, there is a leak in the system. Locate leak by applying a liquid detergent or bubble solution with a small brush to all tubing connections and o-ring seals. Correct as required.



## SECTION 3 OPERATION INSTRUCTIONS

### 3.1 SAFETY PRECAUTIONS

Do not attempt to operate the U3 pump until the safety precautions and operating instructions in the manual are read completely and thoroughly understood.

Take notice of all warning labels on the U3 pump. The labels have been put there to help in maintaining a safe working environment. The labels are designed to withstand washing and cleaning. All labels must remain legible for the life of the mix pump. Warning labels should be checked periodically to be sure they have not been removed, painted over, rubbed off, and can be recognized as warning labels.

If replacement labels are needed, indicate the part number, type of label, location of label, and quantity required. Mail your name and address to:

**STOELTING, LLC**  
**ATTENTION: Customer Service**  
**502 Hwy 67**  
**Kiel, Wisconsin 53042**

Labels will be furnished and mailed at no charge.

SAFE OPERATION IS NO ACCIDENT; Observe these rules:

- A. Know the U3 pump - read and understand the Owner's Manual.
- B. Wear proper clothing - avoid loose fitting garments, and remove watches, rings or jewelry which could cause a serious accident.
- C. Maintain a clean work area - avoid tripping or slipping by cleaning up the area and keeping it clean.
- D. Stay alert at all times - know which switch, push button or control you are about to use and what effect it is going to have.
- E. Turn all switches to OFF prior to making any adjustments.
- F. Do not attempt to repair or perform maintenance on the mix pump until the main electrical power has been disconnected.
- G. Do not operate the mix pump if unusual or excessive noise or vibration occurs.

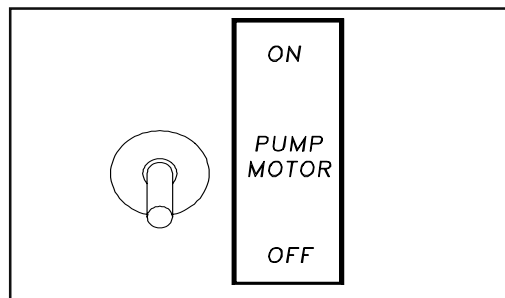
### 3.2 PUMP MOTOR SWITCH

The PUMP MOTOR switch (Fig. 4) is located on the mix pump assembly. When the pump motor switch is placed in the ON position, the mix pump motor will be actuated to pump mix into the freezer cylinder. When the set pressure is reached, the mix pump will shut off automatically. When the pump motor switch is placed in the OFF position, the mix pump will be inoperative.

#### NOTE

The mix pump motor is equipped with an internal overload that will "kick-out" when the motor is overloaded. Consult the trouble shooting section for corrective information. The internal overload will automatically reset after cooling. If the condition continues, contact a qualified service person.

### 3.3 OPERATION OF U3 MIX PUMP



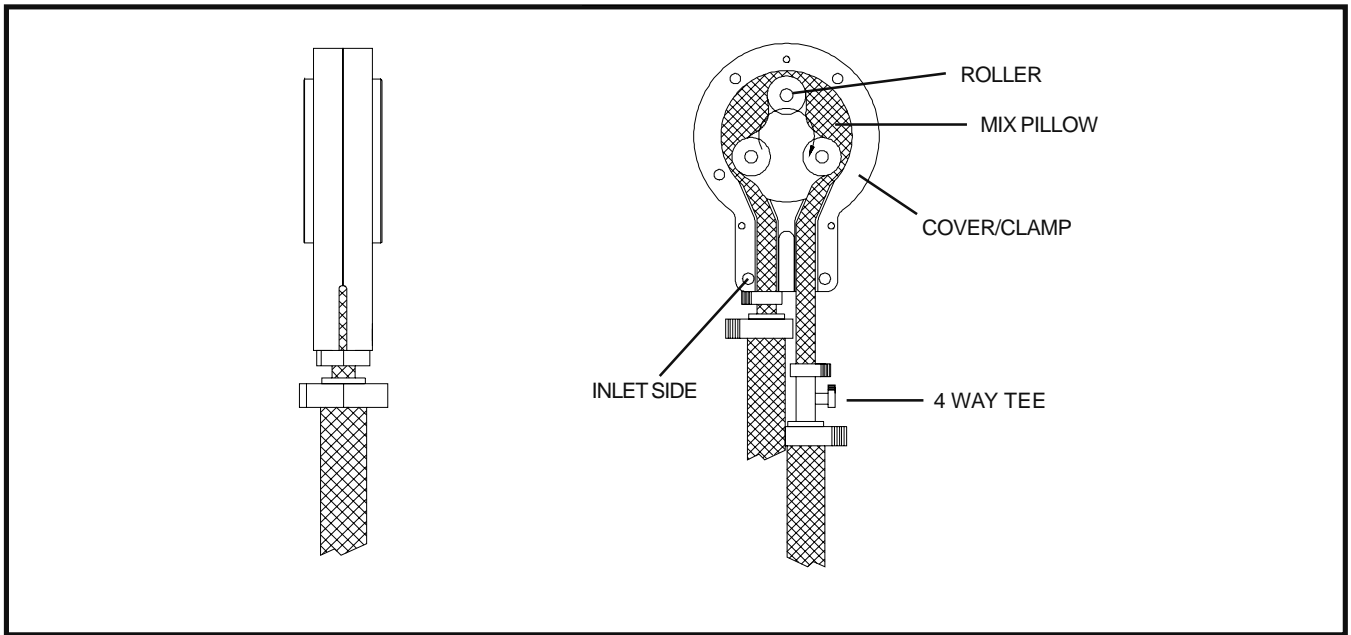
**Figure 4**  
**Pump Motor Switch**

This section describes the operation of the U3 mix pump.

#### NOTE

**Mix pump hose must be repositioned every 1 - 2 weeks.** Failure to comply will result in reduced mix pump liquid capacity, dispense stoppage, popping, and possible mix pump hose leakage. Ref. to Note from Section 4.2.

- A. Refer to freezer owners manual for the operation of the freezer.
- B. Mix Operation: The peristaltic mix pump contains one continuous mix pump hose. When looking at the face of the peristaltic mix pump, the left side of this hose is the suction or pickup. The right side of the hose is the discharge. Mix is drawn up the suction side of the hose and transferred thru the discharge side to the freezer (Fig. 5).
- C. Air Operation: The air compressor operates concurrently with the peristaltic mix pump. Air enters thru an internal check valve on the piston downstroke. The air is discharged thru a second internal check valve, and an external check valve on the piston upstroke. The air and mix join at the tee and then travel to the freezer.



**Figure 5**  
**Mix Pump Operation**

D. Overpressure Relief: Excess pressure is relieved backwards through the peristaltic mix pump and out the pickup side of the mix pump hose. This will occur only if the pressure switch fails to shut off the pump motor.

### 3.4 CLEANING

The mix pump must be cleaned when changing mix or whenever the freezer is shut off for an extended period, such as overnight or on nonbusiness days. For sanitary reasons, mix must not be allowed to remain in the freezer lines or mix pump when the freezer is not in operation.

#### NOTE

To clean the freezer, refer to the freezer owner's manual for complete cleaning procedures.

1. Place the CLEAN-OFF-ON switch in the clean position and agitate 5-10 minutes maximum.
2. Remove suction tube from mix container. Draw off the mix remaining in freezer barrel.
3. Pump 2 gallons (7.5 liters) of cold potable water thru freezer until water at spigot is free of mix.
4. Pump 2 gallons (7.5 liters) of warm detergent solution water thru freezer. The use of soft water is recommended, along with dishwashing detergents such as "Joy," "Dawn," or equivalent.
5. Place mix pump switch in OFF position. Open spigot to relieve remaining pressure.
6. Place the CLEAN-OFF-ON switch in the OFF position.

### 3.5 DISASSEMBLY AND INSPECTION OF REMOVABLE PARTS

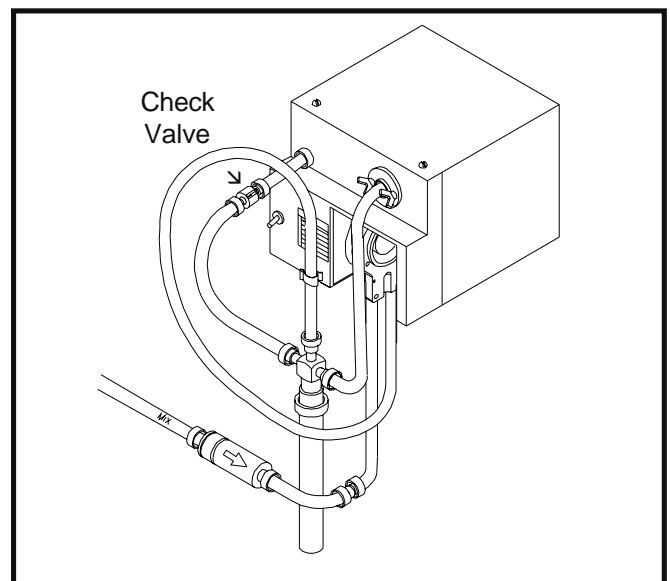
Inspection of removable parts should be made whenever maintenance is performed or pump requires disassembly.

#### WARNING

**THE MIX PUMP SWITCH MUST BE IN THE OFF POSITION WHEN SERVICING OR DISASSEMBLING PUMP.**

#### CAUTION

**NEVER DISCONNECT HOSES FROM FREEZER OR PUMP WITHOUT FIRST OPENING SPIGOT TO RELIEVE PRESSURE.**



**Figure 6**  
**Removing Parts**

### NOTE

If the mix lines or air lines are difficult to remove, soften with a rag soaked in hot water. Hose connections may be sprayed with Haynes Sanitary Lubricant for ease of removal. Do not loosen or remove the mix pump cover wingnuts. Maintain the mix pump hose in its operational condition.

1. Loosen clamp and remove air hose.
2. Remove the two wing nuts from the pressure control manifold and pull out to remove.
3. Loosen clamp and disconnect mix pump hose. Remove the pickup hose, check valve and pickup hose adapter (and bag adapter if applicable) as an assembly from mix container.
4. Completely disassemble both hose assemblies and check valve. Place hoses, pressure control manifold and o-ring, tee, check valve, and pickup hose adapter in mild detergent water and wash thoroughly. Use soft bristle brushes to clean inside of fittings. Rinse all parts in clean hot water.
5. Carefully inspect each part for wear or damage. Replace worn or damaged parts.
6. Prepare two gallons (7.5 liters) of sanitizing solution using a USDA certified grade sanitizing solution. Sanitize all removed parts, then air dry.
7. Check Hose Service Record decal to determine if hose reposition or replacement is required at this time (Sec. 4.2).
8. Reassemble both hose assemblies per the diagram (Fig.6). Lubricate the pressure control manifold oring with sanitary lubricant before assembly. Reconnect assemblies to the pump and discharge hose per the diagram, using the clamps, locking plate washer and wingnuts.

### CAUTION

**DO NOT FORCE PARTS, THEY FIT TOGETHER EASILY WHEN PROPERLY INSTALLED.**

### 3.6 SANITIZING AND STARTUP

For sanitizing to be effective, it must be performed after the mix pump and freezer parts have been cleaned, and just prior to filling the freezer with mix. Sanitizing the night before is not effective.

To sanitize, refer to local sanitary regulations for applicable codes and recommended disinfecting products and procedures. The frequency of cleaning must comply with local health regulations. Use a solution containing 100 PPM of free available chlorine. Use "Stera-Sheen Green Label Sanitizer and Cleaner," or others in accordance with Health Inspection Requirements.

### NOTE

Stoelting, Inc. has found that STERA-SHEEN GREEN LABEL SANITIZER AND CLEANER does an effective job of properly sanitizing and cleaning a pump and soft serve freezer. We therefore include a sample with each new freezer. For further information read the directions on the packet. Other products may be as effective.

### CAUTION

**PROLONGED CONTACT OF SANITIZER WITH FREEZER MAY CAUSE CORROSION OF STAINLESS STEEL PARTS.**

In general, sanitizing may be conducted as follows:

1. Prepare two gallons (7.5 liters) of sanitizing solution following manufacturer's instruction, and place pump suction (inlet) line into solution.
2. Place mix pump switch in ON position.
3. Check for leaks when freezer barrel is first pressurized with sanitizing solution.
4. Place freezer CLEAN-OFF-ON switch in CLEAN mode (no refrigeration).
5. After five minutes in CLEAN mode, open spigot and pump the remaining sanitizing solution thru the freezer, close spigot and switch the freezer and pump to OFF.
6. Place pickup tube into mix bag or container of mix and start the pump.
7. Open spigot, allowing incoming mix to push remaining sanitizer out of hoses and freezing cylinder. Close spigot as soon as pure mix begins to come out (after about one pint).
8. Push in the air bleed valve located on the front door (Challenger Series) and allow the mix to come within 1/2" of the air bleed valve, then close the valve.
9. Place freezer in the on or freezing position.

### 3.7 CLEANING MIX LINES

The mix lines must be cleaned and sanitized whenever changing mix or whenever the freezer is off for an extended period of time - such as overnight, or nonbusiness days. The mix lines are sufficiently cleaned and sanitized when cleaning and sanitizing the pump and freezer as an assembly.

Once every 2 weeks, if required, perform the following steps:

- A. Mix 2 gallons (7.5 liters) of milkstone remove solution according to the directions on the container and pump through the mix line.
  
- B. Cut a piece of sponge slightly larger than the inside diameter of the mix line. Place the sponge inside the mix line and force through with tap water pressure. A garden hose repair end clamped to the mix line works well for this purpose.



## SECTION 4 MAINTENANCE INSTRUCTIONS

### 4.1 OVER-RUN ADJUSTMENT

The product when served is a combination of air and mix. Over-run is a measure of the amount of air blended into the mix.

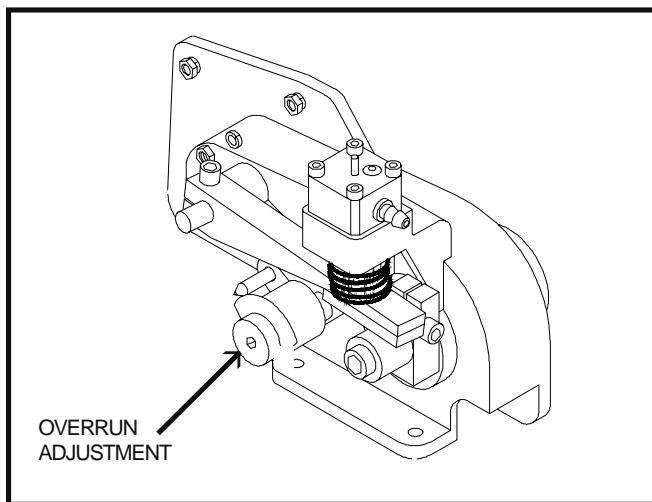
Over-run can be expressed in terms of the amount of weight loss for a given volume. For example, if a pint of liquid mix weighs 18 ounces and a pint of frozen product with air added weighs 12 ounces, the over-run is said to be 50 percent ( $18 \text{ oz.} - 12 \text{ oz.} = 6 \text{ oz.}$ ,  $(6 / 12) \times 100 = 50\%$ ).

The over-run can be checked by placing a one pint container on an ice cream scale and zeroing out the scale. Then fill a one pint container with frozen product. The container should be filled over the top and leveled with a straightedge. The product should not contain any air pockets. When weighed on an ice cream scale, one pint of product should weigh 12 to 13 ounces.

The mix pump has been preset at the factory to produce a product with approximately 40% overrun. Because of differences in mix formulation, temperatures and barometric pressure, this figure may vary. It will be necessary for approximately 2 gallons of mix to be pumped thru the freezer before changes in the product are noticeable due to adjustments in overrun.

Overrun is controlled by the length of the air compressor piston stroke within the piston cylinder. Lengthening the stroke within the cylinder will increase overrun. Conversely, shortening the stroke will decrease overrun. To perform an overrun adjustment, refer to the following procedure:

- A. Turn the mix pump switch to the OFF position and unplug the mix pump from its grounded 115V receptacle.
- B. Remove the 2 electrical box cover screws and remove the electrical box cover.
- C. On air compressor side of pump, locate the long/slender piston rocking arm. The rocking arm downward travel is limited by a stationery cam. On the face of the cam there is an overrun setting indicator plate numbered 3 thru 8 and an adjustment knob (Fig. 7).
- D. The overrun setting is indicated by a pointed pin.
- E. To adjust overrun, loosen the allenhead screw (located within the center of the adjustment knob) with the 5/32" allen wrench provided. Rotate the adjustment knob counterclockwise to a higher number for higher overrun, or clockwise to a lower number for lower overrun. Each number multiplied by 10 represents the overrun percentage (ie: #4 = 40% overrun).



**Figure 7**  
**Overrun Adjustment**

- F. Tighten the allen screw, then place the wrench back in its clip. Replace the electrical box cover and screws, plug the mix pump into its grounded 115V receptacle and turn the mix pump power switch to the ON position.

### 4.2 PREVENTATIVE MAINTENANCE

To assure trouble free operation and consistent over-run when using the U3 mix pump, we must follow mix hose repositioning and replacement procedures. The following is the preventative maintenance schedule:

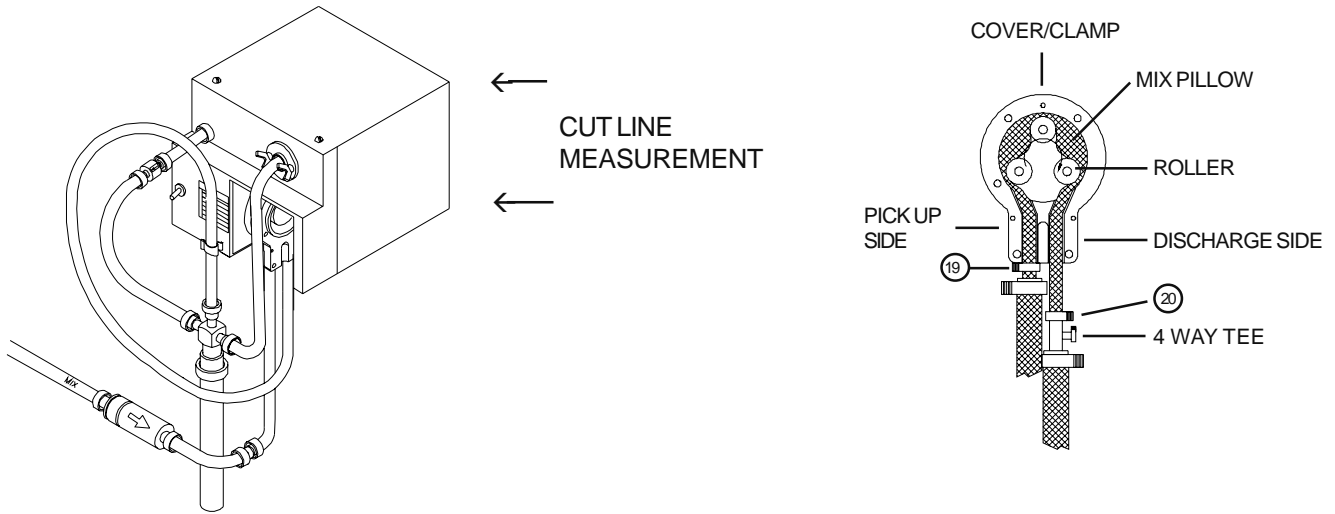
- A. MIX PUMP HOSE REPOSITION (every one or two weeks.)

#### NOTE

Mix pump hose must be repositioned every 1 - 2 weeks. Failure to comply will result in reduced mix pump liquid capacity, dispense stoppage, popping, and possible mix pump hose leakage.

1. Run cleaning solution through pump.
2. Turn pump off and if connected to freezer, relieve any pressure by opening the spigot.
3. Grasp the pick-up hose end of the mix pump hose with one hand and turn the pump on. Pull down on the pick-up hose end until 12 to 14 inches of tubing has reversed fed through the pump, then turn the pump off.
4. Loosen small clamp at the pick-up hose adapter and disconnect mix pump hose.
5. Cut 7-1/2 inches off the end of the mix pump hose. The height of the pump can be used to measure. See Figure 8.

**Pressures for Stoelting Freezers: Cut-out 24# ±3 PSIG  
For Duke Freezers: Cut-out 30# ±3 PSIG**



**Figure 8. Reposition Mix Pump Hose**

6. Reconnect mix pump hose to adapter.
7. Turn pump on.
8. Gently pull on the discharge hose to help remaining 6" of mix pump hose to feed thru pump until hose adapter prevents further feeding.
9. Turn pump OFF and pump will be ready for normal operation.

**NOTE**

Each hose is long enough for 3 repositions before replacement is required. Record each event on Hose Service Record decal.

**B. MIX PUMP HOSE REPLACEMENT**

**NOTE**

Mix pump hose must be replaced when tubing cannot be further repositioned (every four to eight weeks). Failure to comply will result in hose failure and possible pump damage.

1. Run cleaning solution through pump.
2. Turn pump off and if connected to freezer relieve any pressure by opening the spigot.

**WARNING**

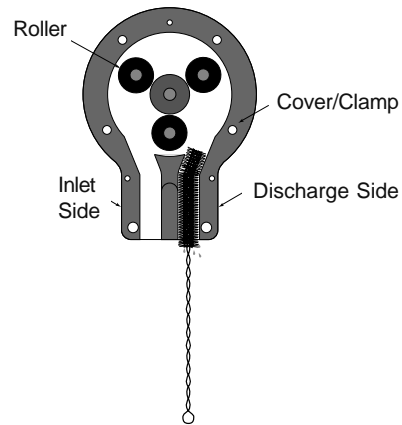
**THE MIX PUMP SWITCH MUST BE IN THE "OFF" POSITION WHEN SERVICING OR CLEANING PUMP.**

**CAUTION**

**NEVER DISCONNECT HOSES FROM FREEZER OR PUMP WITHOUT FIRST OPENING SPIGOT TO RELIEVE PRESSURE.**

3. Disconnect mix pump hose at each end.
4. Grasp the discharge hose end with one hand and turn the pump on. Pull down on the hose until all of the remaining hose is removed from the pump.

5. Turn pump roller assembly so one roller is at 6:00.



**Figure 9. Pump Roller Assembly**

6. Use a brush that fits in the opening and brush up and down, first with detergent water and then clear water.
7. Connect mix pump hose to pick-up hose adapter, using small clamp.
8. Insert free end of hose into the pick-up (suction side) hose side of the black cover. Gently push the hose into the black cover until it begins to self-feed. Allow the hose to feed itself through the pump until the mix pump hose comes out the discharge side. Then gently pull on the discharge hose to help remaining mix pump hose feed thru pump until hose adapter prevents further feeding, then turn pump off.

**NOTE**

Remove cover clamp from pump on a monthly basis to clean and check for wear. (Cover clamp & roller bearings) Clean parts with soap and water and re-assemble.

9. Reconnect mix pump hose to T using small clamp. Pump is now ready to sanitize.

## SECTION 5 TROUBLESHOOTING

### 1. PUMP MOTOR DOES NOT RUN

Power to pump is off.	Supply power to pump.
Low voltage.	Check for low voltage.
Mix pump hose jammed inside black cover/clamp.	Disconnect pump from power source. Remove four cover/clamp thumb screws. Separate cover/clamp halves and remove outer half. Remove jammed hose. Re-install cover/clamp and tighten four thumb screws securely. Allow motor thermal overload to reset. See Sec. 4.2 for hose replacement. Do not use jammed portion of hose.
Pump motor overloaded.	Allow internal thermal overload to reset; determine overload cause and repair.
Pressure switch on pump is defective.	Check mechanical operation and continuity of pressure switch.
Defective motor/capacitor	Check motor amperage draw and/or capacitor. Replace motor or capacitor.
Defective toggle switch.	Check continuity; repair or replace.

### 2. PUMP OPERATES BUT CYLINDER WILL NOT FILL

NOTE 1: A PROPERLY WORKING PUMP WILL FILL AN 8 OZ. CUP WITH MIX IN ABOUT 9 SECONDS.

NOTE 2: IMMEDIATELY AFTER A "BAG CHANGE" THE PUMP MAY BE UNABLE TO RE-ESTABLISH IT'S PRIME WITH THE SYSTEM AT OPERATING PRESSURE. IN THIS CASE, TURN THE PUMP OFF. DRAW 2-3 PINTS TO REDUCE SYSTEM PRESSURE TO ZERO. TURN PUMP ON. PURGE REMAINING AIR IN MIX BAG AND PICK-UP HOSE.

**IMPORTANT: Before connecting the pick-up hose to the mix bag, purge the mix bag of air to the extent possible.**

Out of Mix.	Replenish mix supply.
Mix pump hose kinked inside black cover/clamp.	Follow mix pump hose jammed repair. (See #1 above.)
Hoses assembled incorrectly.	Refer to diagram for correct hose connections.
Mix pump hose service life is exceeded.	Reposition/replace mix pump hose. See Sec. 4.2.
Mix pump hose not connected to freezer.	Connect mix pump hose to freezer.
Ice crystals in mix.	Completely thaw mix prior to use.
Mix bag drawn against adapter.	Assure bag is clear of pick-up tube.
Foreign objects in mix.	Clear blockage. Use fresh mix.
Check valve is backwards.	Observe flow arrow for proper orientation.

### 3. OVERRUN TOO LOW OR NO OVERRUN

Overrun setting too low.	Increase overrun setting.
Air leak.	Tighten all hose clamps.
Air compressor not pumping air.	Contact local Stoelting Distributor.

### 4. OVERRUN TOO HIGH

Mix pump hose service life is exceeded.	Reposition/replace mix pump hose.
Out of mix.	Replenish mix supply.
Overrun setting too high.	Decrease overrun setting.
Pick-up leg of mix pump hose is collapsing.	See Section 4.2.

NOTE: ALSO SEE "2" ABOVE.

<b>5. REPLACEMENT MIX PUMP HOSE WON'T FEED THROUGH PUMP</b>	
Feeding hose into discharge hole of mix pump cover.	Feed hose into pick-up side of cover.
Hose ends not cut squarely.	Carefully cut hose end off squarely (no tails).
Force feeding too quickly.	Gently and slowly assist feeding of hose up into pick-up hose side of cover.
Pump motor not running.	Turn on motor switch. Also see Item 1 above.
<b>6. AIR EXITING MIX PICK-UP HOSE</b>	
Pickup tube check valve missing.	Contact local Stoelting Distributor.
<b>7. DISPENSED PRODUCT AIR "POPS"</b>	
Overrun setting too high.	Reposition/replace mix pump hose.
Mix pump hose service life is exceeded.	Reposition/replace mix pump hose.
Overdrawing the freezer's capacity.	Reduce dispense rate.
Recent "mix-out" condition.	Open spigot fully and allow excess air to "belch" out.
NOTE: ALSO SEE 2 & 4 ABOVE.	
<b>8. MIX LEAKAGE FROM PUMP</b>	
<b>CAUTION: To prevent mix pump damage from dried mix deposits, immediately disassemble and clean pump.</b>	
Mix pump hose service life is exceeded.	Remove mix pump hose. Disconnect pump from power source. Remove mix pump cover/clamp. THOROUGHLY rinse three squeeze rollers using a spray bottle filled with hot water. Thoroughly clean all mix from pump. See Sec. 4.2 for hose replacement. Lubricate squeeze roller bearings, see Item #10 below.
<b>9. PUMP HAS POOR CAPACITY</b>	
Lift and run limits are exceeded.	Pump is limited to 10' lift, 20' run.
NOTE: Also see 2, 4, 6 & 7.	
<b>10. PUMP IS NOISY/SQUEAKING</b>	
NOTE: THE ACTION OF THE AIR COMPRESSOR ROCKING ARM CREATES A REPETITIVE CLICKING SOUND DURING OPERATION. THIS IS NORMAL.	
NOTE: THE PERISTALTIC MIX PUMP HAS THREE SQUEEZE ROLLERS WHICH USE SELF LUBRICATING BEARINGS. IF SQUEAKING EXISTS WITH THE MIX PUMP HOSE IN PLACE, AND STOPS WITH THE HOSE REMOVED, THE SQUEEZE ROLLER BEARINGS CAN BE LUBRICATED USING A SILICONE BASED SPRAY. REMOVE THE MIX PUMP HOSE. DISCONNECT PUMP FROM ELECTRICAL POWER. REMOVE FOUR COVER/CLAMP THUMBSCREWS. REMOVE ENTIRE COVER/CLAMP AS ONE UNIT. SPRAY SILICONE BASED LUBRICANT ON EACH END OF EACH SQUEEZE ROLLER. SPIN ROLLERS TO WORK LUBRICANT INTO BEARINGS. REPEAT AS NEEDED.	
<b>CAUTION: DO NOT USE CLEANING/DISSOLVING TYPE LUBRICANTS LIKE WD-40. THESE LUBRICANTS ARE NOT BEARING FRIENDLY AND WILL ACCELERATE BEARING WEAR.</b>	
<b>11. MIX IN AIR HOSES</b>	
Air/mix tee above black cover/clamp.	Air/mix tee must be below black cover/clamp.
Air leak.	Tighten all hose clamps.
Mix hose on wrong air/mix tee fitting.	Refer to diagram for correct hose connections.
Pressure control manifold o-ring leak.	Check o-ring and manifold; replace as required.

## SECTION 6 REPLACEMENT PARTS INFORMATION

### 6.1 HOW TO ORDER REPLACEMENT PARTS

To assure the receipt of the proper replacement parts, supply your dealer, distributor or the company with the following information:

- A. Model number of equipment.
- B. Serial number of Model. (Stamped on nameplate).

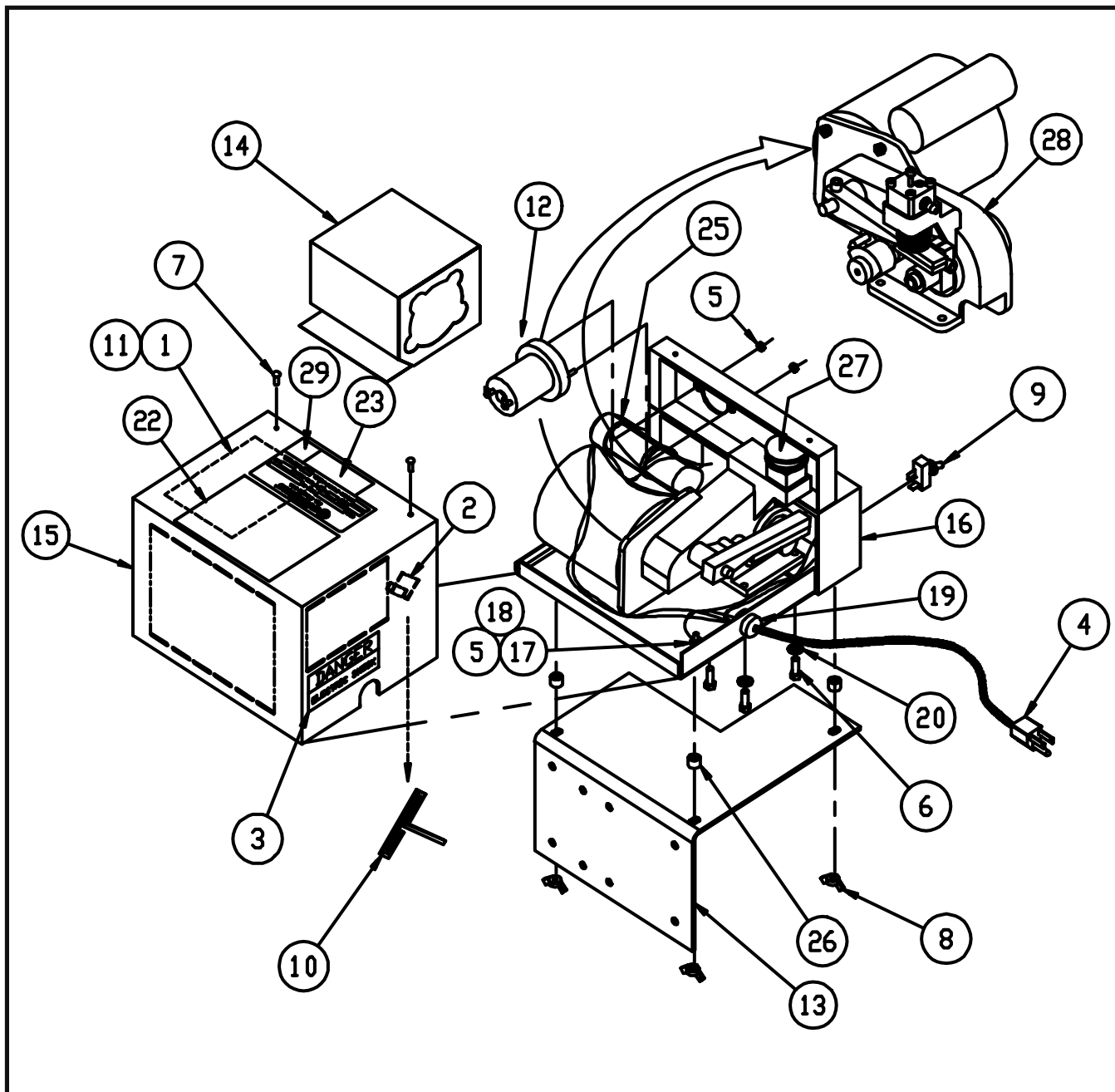
C. Part number, part name, and quantity needed. Many part names and numbers are listed in this manual.

#### NOTE

Minimum Billing is \$50.00 Net.

### 6.2 PARTS LIST AND REFERENCE DRAWINGS

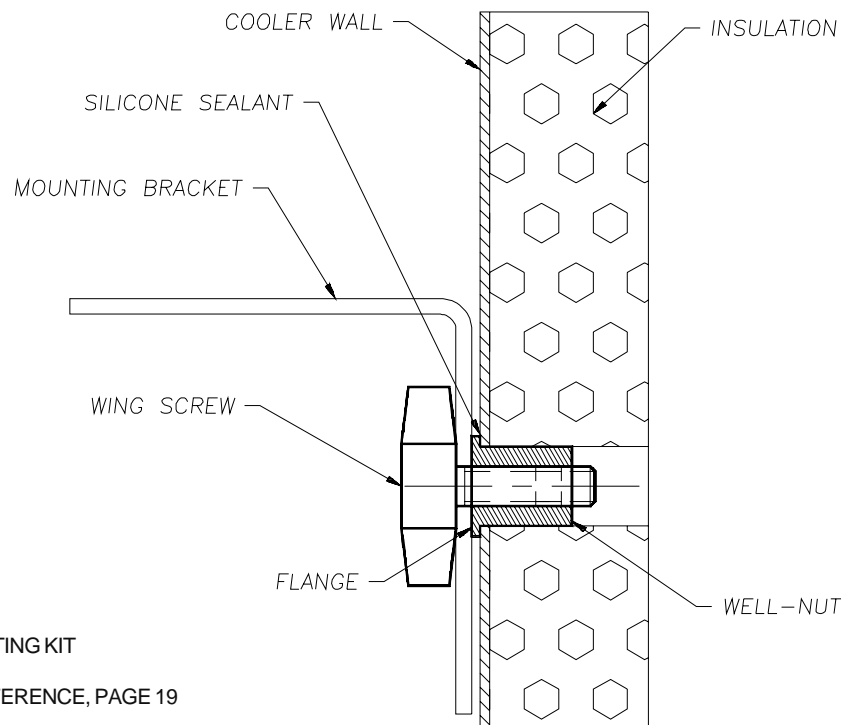
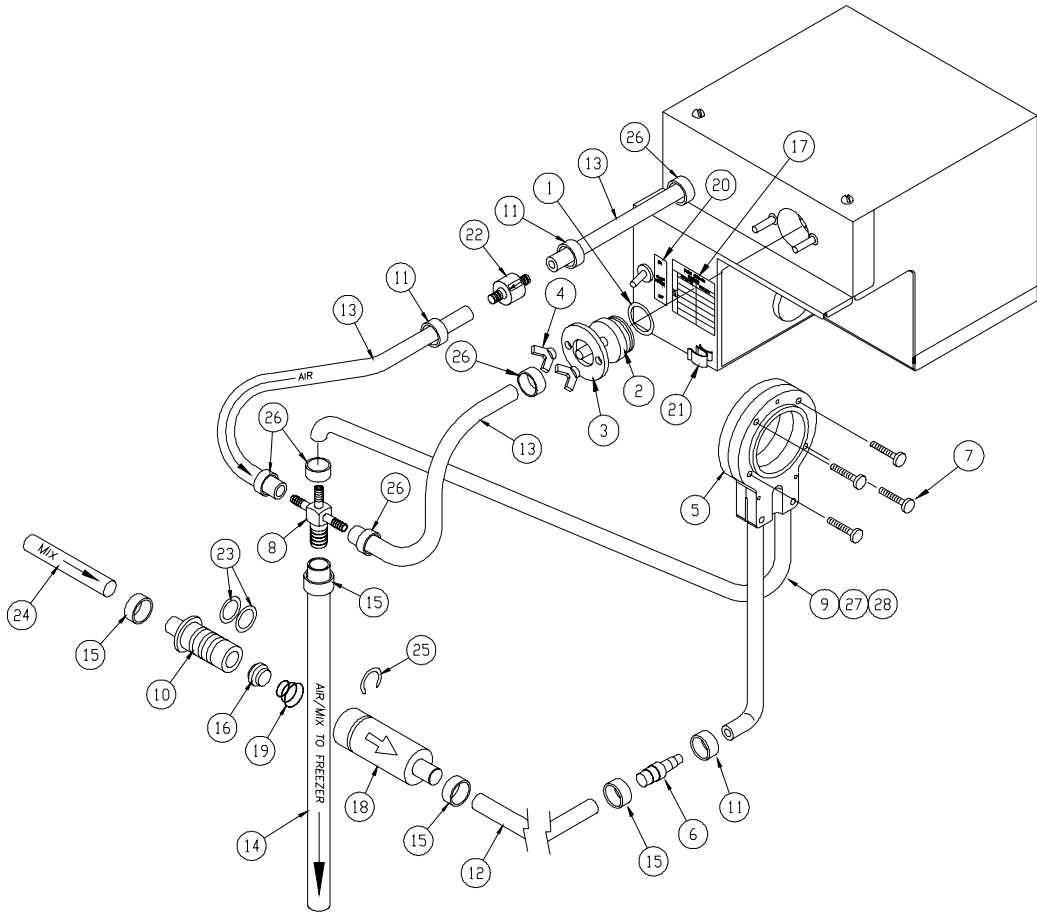
The following lists and drawings will aid the user when ordering parts or servicing the mix pump.



**Figure 10  
Pump and Decal Assembly**

## Pump and Decal Assembly Parts List

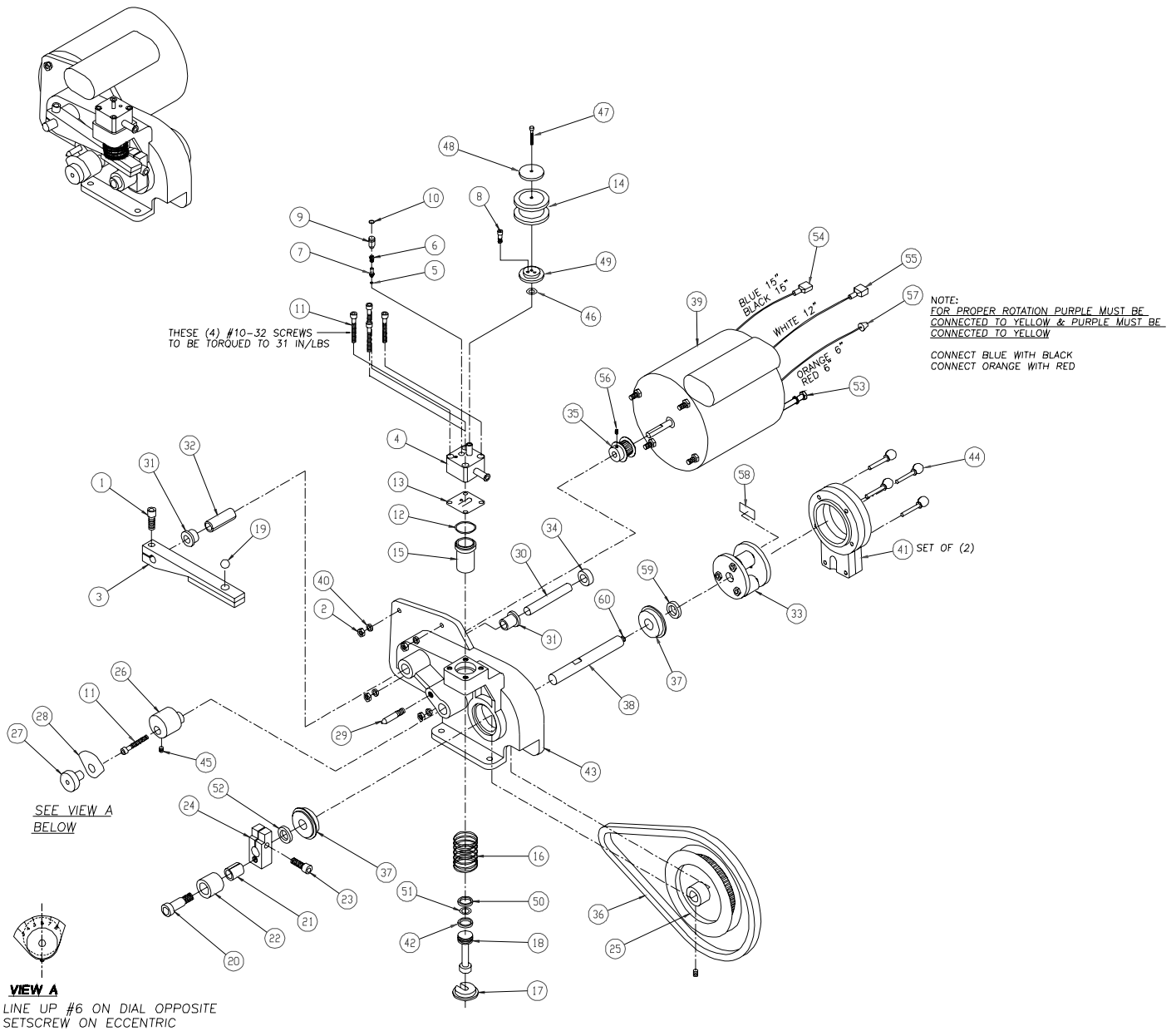
ITEM	STOELTING P/N	QTY.	DESCRIPTION
1	130000	1	Bag, Envelope Front Loading
2	266018	1	Clip Adhesive Backed "J"
3	324105	1	Decal Caution - Elect. Shock
4	430022	1	Harness Cord 6.50 Ft.
5	538296	3	Nut Hex #10-24 x 3/8 SS
6	644116	3	Screw Cap 1/4-20 x 3/4 Hx Hd
7	647512	2	Screw Mach 8-32 x 3/8 Pan Hd
8	539419	3	Nut Wing 1/4-20
9	718532	1	Switch Toggle 10 Amp 250V
10	778027	1	Wrench Allen 5/32
11	1995611	1	Wiring Diagram U3 Pump
12	717917-SV	1	Switch Pressure (Stoelting)
12	717919-SV	1	Switch Pressure (Duke)
13	3170824	1	Mounting Bracket
14	3171850	1	Splash Guard
15	4177692	1	Pump Box Cover
16	4177691	1	Pump Box
17	647667	1	Screw Mach 10-24 x 1/2 Rd Hd
18	766950	1	Washer Shakeproof #10
19	223162	1	Bushing Strain Relief
20	766066	3	Washer Lock 1/4-20
21	208467	1	Brush (Not Shown)
22	324509	1	Cleaning Decal
23	2171853	1	Model ID Plate
24			
25	1171960	1	Capacitor, Motor Start
26	692225	3	Spacer, Nylon .5 OD, 1/4-20
27	1171958	1	Air Filter
28	4171953	1	Main Pump Assembly
29	324023	1	Decal NSF



OPTIONAL MOUNTING KIT  
 SEE SERVICE REFERENCE, PAGE 19

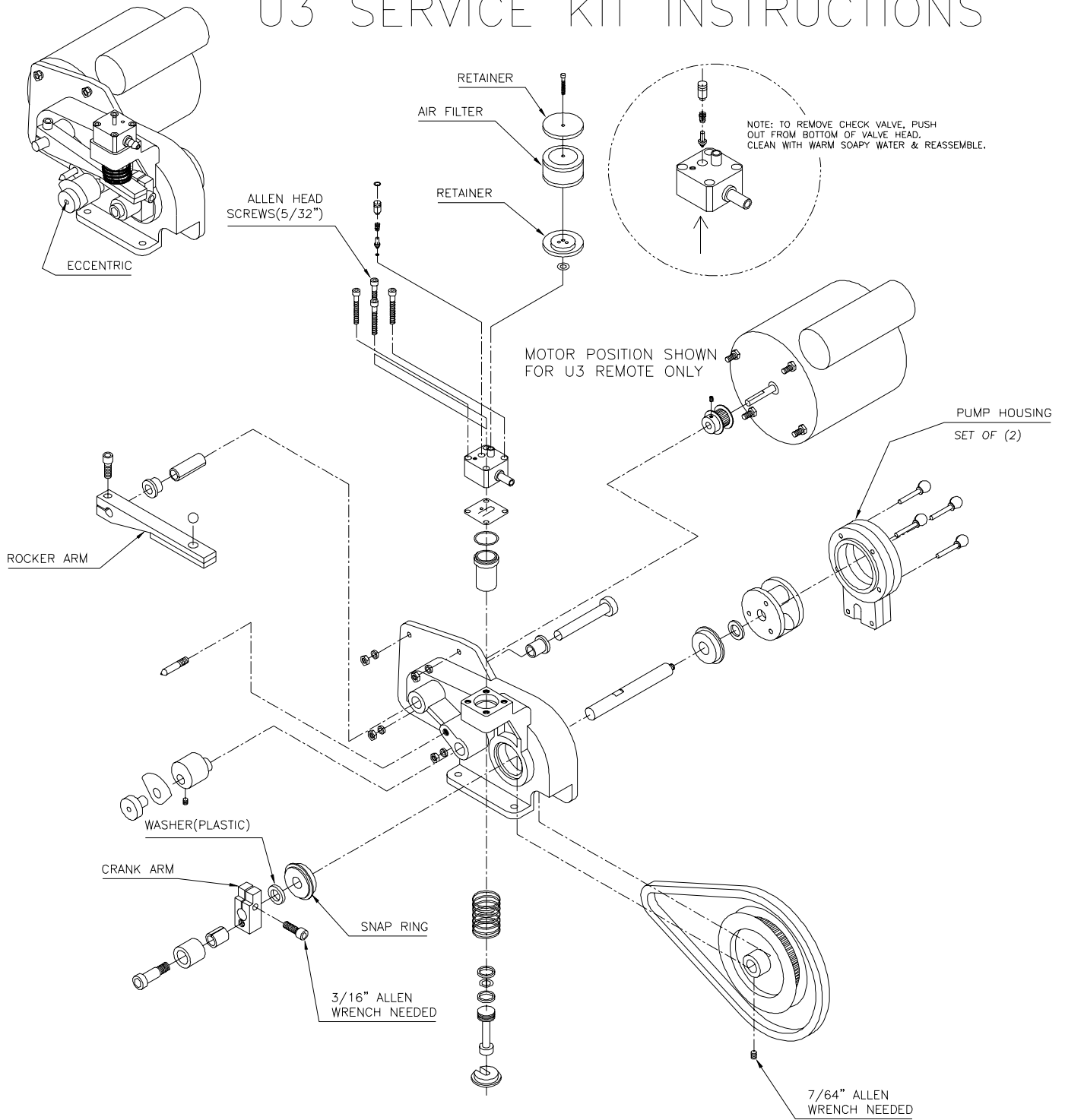
ITEM	STOELTING PN	QTY	DESCRIPTION
1	624676	1	RING O 1-1/8X1-5/16X3/32 70DUR
2	521226	1	PRESSURE CONTROL MANIFOLD
3	1111815	1	LOCKING PLATE WASHER
4	539408	2	NUT WING 10-24X27/32X13/32
5	3171952	2	COVER/CLAMP
6	375867	1	FITTING UNION 1/4"x1/2" BARBED
7	653042	4	SCREW THUMB 10-24 X 1-1/4 SS
8	1177816/376017	1	TEE AIR/MIX - 4 WAY
9	756204-40	1	TUBING .25 ID MIX PUMP
10	1151965	1	VALVE BODY-INNER
11	264054	6	CLAMP LOOP 7/16" ACETAL
12	756088-54	1	TUBING .50 ID
13	756067-10	2	TUBING .25 ID
14	756088-120	1	TUBING .50 ID
15	264055	4	CLAMP LOOP 11/16" ACETAL
16	762256	1	VALVE OUTLET CHECK (MOLDED)
17	324659	1	HOSE SERVICE DECAL
18	1172864	1	VALVE BODY-OUTER
19	694247	1	SPRING COMP 13/16x3/8x3/4
20	324150	1	PUMP ON OFF DECAL
21	266041	1	CLIP, HOSE
22	762258	1	CHECK VALVE
23	624607	2	O-RING 11/16x7/8
24	756088-04	1	TUBING .50 ID
25	696130	1	LOCK CLIP FOR VALVE
26	264064	2	CLAMP LOOP 1/2" ACETAL
27	723553	1	INSTRUCTION TAG, CAUTION
28	739040	1	CABLE TIE





ITEM	STOELTING PN	QTY	DESCRIPTION
1	644065	1	SCREW 1/4-20 X 3/4, S'STL
2	538306	4	NUT 10-32UNF
3	1177681	1	ROCKER ARM & PAD
4	1177680	1	VALVE HEAD ASSY
5	1171859	1	O-RING
6	1171860	1	VALVE SPRING
7	1171861	1	NEEDLE VALVE
8	1171862	1	SCREW 8-32 X 1/2
9	1171863	1	VALVE GUIDE
10	1171864	1	O-RING
11	1171866	5	SCREW 10-32 X 1-1/4
12	1171867	1	O-RING
13	1171868	1	REED VALVE
14	1171958	1	AIR FILTER
15	1171870	1	CYLINDER SLEEVE
16	1171871	1	PISTON SPRING
17	1171872	1	SPRING SEAT
18	1171873	1	PISTON
19	1171874	1	BALL BEARING
20	652412	1	SCREW SHOULDER 3/8 X 3/4 S'STL
21	1171994	1	SLEEVE BEARING
22	1171977	1	ROLLER
23	1171978	1	SCREW 1/4-28 X 3/4
24	1171979	1	CRANK ARM
25	1171980	1	PULLEY LARGE - ALUMINUM
26	1171981	1	ECCENTRIC
27	1171982	1	KNOB
28	1171983	1	DIAL
29	1171984	1	POINTER
30	1171985	1	DOWEL PIN 3/8 X 2.5LG
31	1171986	2	FLANGE BEARING
32	1171987	1	WICK
33	2177812/3177813	1	REMOVABLE ROLLER ASSEMBLY
34	1171988	1	COLLAR
35	1171989	1	PULLEY SMALL - ALUMINUM
36	1171990	1	BELT
37	1171991	2	BALL BEARING
38	674151	1	SHAFT, ROLLER CARRIER
39	522229-SV	1	MOTOR 115-230/60/1
40	1171999	4	LOCK WASHER #10
41	3171952	1	COVER/CLAMP
42	667896	1	BUMPER SEAL
43	246063	1	PUMP BODY CASTING
44	653042	4	SCREW THUMB 10-24NC
45	1171955	1	SET SCREW 10-32
46	1177036	1	WASHER 1/4"
47	1177037	1	SCREW 4-40 X 1.00
48	1177034	1	AIR FILTER RETAINER TOP
49	1177035	1	AIR FILTER RETAINER BOTTOM
50	1177033	1	BUMPER RING
51	1171959	1	O-RING
52	1171956	1	WASHER NYLON
53	766430	1	WASHER ROUND
54	732307	1	TERMINAL QUICK CONNECT FEMALE
55	732112	1	TERMINAL QUICK CONNECT MALE
56	650146	2	SCREW SSS 8-32 X 3/16 CUP PT
57	732133	1	WHITE CRIMP TERMINAL
58	1177767	1	DECAL, ROLLER HOUSING
59	1177915	1	SPACER
60	M820210	AS REQ	LUBRICANT NEVER SEEZE
61	M870229	AS REQ	GREASE, MULTIPURPOSE
62	M840073	AS REQ	MOTOR OIL 10W
63	M820172	AS REQ	ADHESIVE LOCTITE 242-31
64	M820097	1	ADHESIVE LOCTITE #609

# U3 SERVICE KIT INSTRUCTIONS



### U3-02 MAIN PUMP REMOVAL:

1. TURN TOGGLE SWITCH TO OFF.
2. UNPLUG POWER CORD FROM POWER SOURCE.
3. VENT OR RELIEVE PRESSURE IN HOSES OR FREEZER BEFORE REMOVING HOSES.
4. REMOVE 2 SCREWS SECURING SHEET METAL ENCLOSURE.
5. REMOVE AIR COMPRESSOR HOSE (LOCATED ABOVE ON/OFF SWITCH).
6. REMOVE TAN HOSE FROM PUMP HOUSING, THEN REMOVE 4 THUMB SCREWS TO ALLOW FOR REMOVAL OF PUMP HOUSING.
7. CLIP WIRE TIES TO ALLOW WIRES TO BE DISCONNECTED.
8. REMOVE 3 HEX BOLTS FROM BOTTOM OF PUMP ENCLOSURE.
9. REMOVE MAIN PUMP ASSEMBLY(NOTE POSITION OF STAINLESS GUARD FOR REINSTALLATION LATER).
10. PROCEED TO REPAIR.

### U431 MAIN PUMP REMOVAL:

1. TURN CLEAN-ON-OFF & PUMP SWITCH TO OFF POSITIONS.
2. DISCONNECT FREEZER FROM POWER SOURCE. (BOTH SIDES).
3. VENT OR RELIEVE PRESSURE IN HOSES OR FREEZER BEFORE REMOVING HOSES.
4. FROM INSIDE LOWER CAB REMOVE TAN HOSE FROM PUMP HOUSING, THEN REMOVE 4 THUMB SCREWS TO ALLOW FOR REMOVAL OF PUMP HOUSING.
5. REMOVE SIDE & REAR PANELS & DISCONNECT ELECTRICAL WIRING
6. REMOVE AIR COMPRESSOR HOSE.
7. REMOVE 3 HEX NUTS SECURING MAIN PUMP ASSEMBLY TO LOWER CAB WALL.
8. PROCEED TO REPAIR.

### ROLLER CARRIER REPLACEMENT:

1. REMOVE (4) THUMB SCREWS SECURING PUMP HOUSING.
2. TURN ROLLER ASSEMBLY CLOCKWISE (LEFT HAND THREAD) TO REMOVE AND REPLACE WITH NEW ASSEMBLY TURNING COUNTER CLOCKWISE TO TIGHTEN.
3. REPLACE PUMP HOUSING AND TIGHTEN THUMB SCREWS.

#### NOTE:

IF ROLLER CARRIER HAS A DECAL STATING "LEFT HAND THREAD", WITH 3 NUTS ON THE BACK SIDE, REPLACE WITH KIT NUMBER #2177812 (ROLLER ASSEMBLY ONLY)

IF NUTS AND DECAL ARE NOT PRESENT, REPLACE WITH KIT NUMBER #3177813 (ROLLERS AND SHAFT)

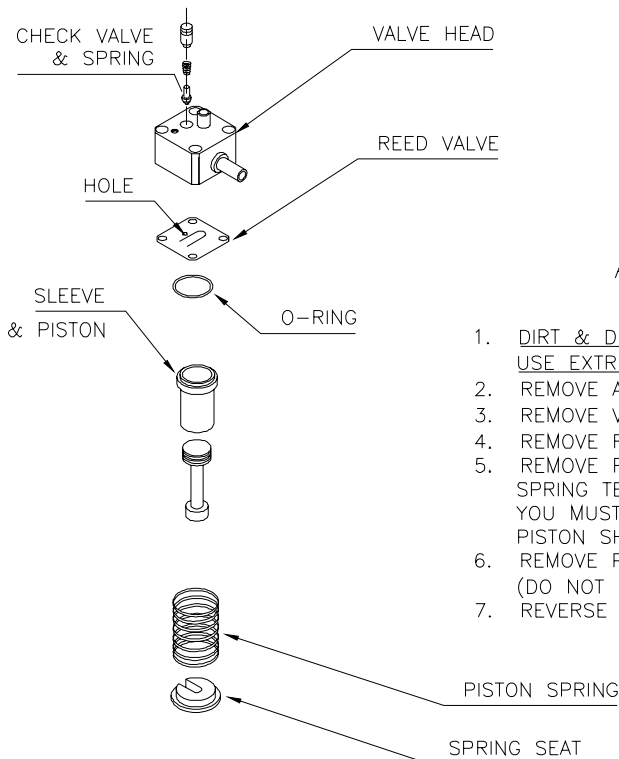
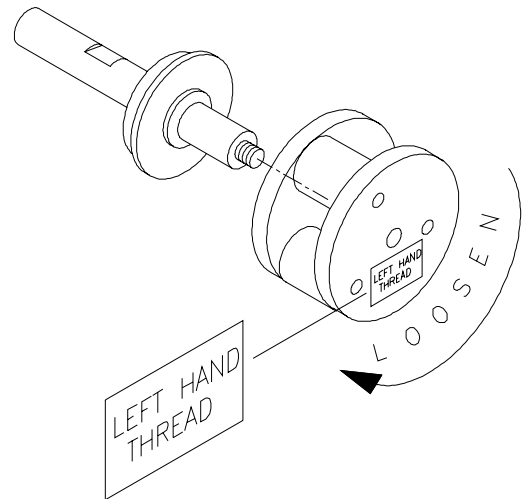
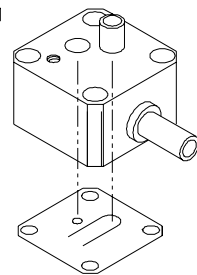


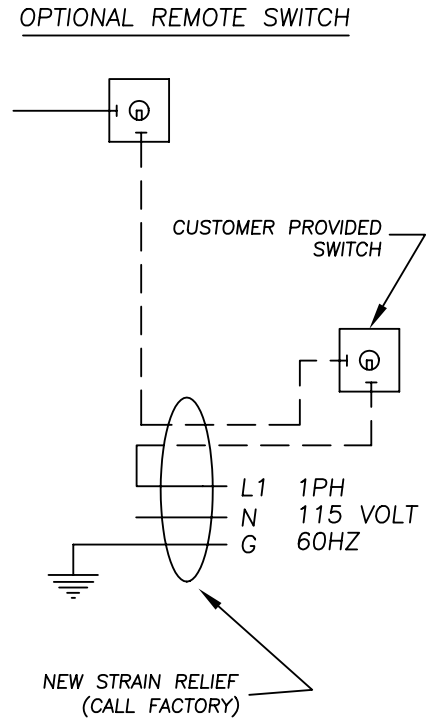
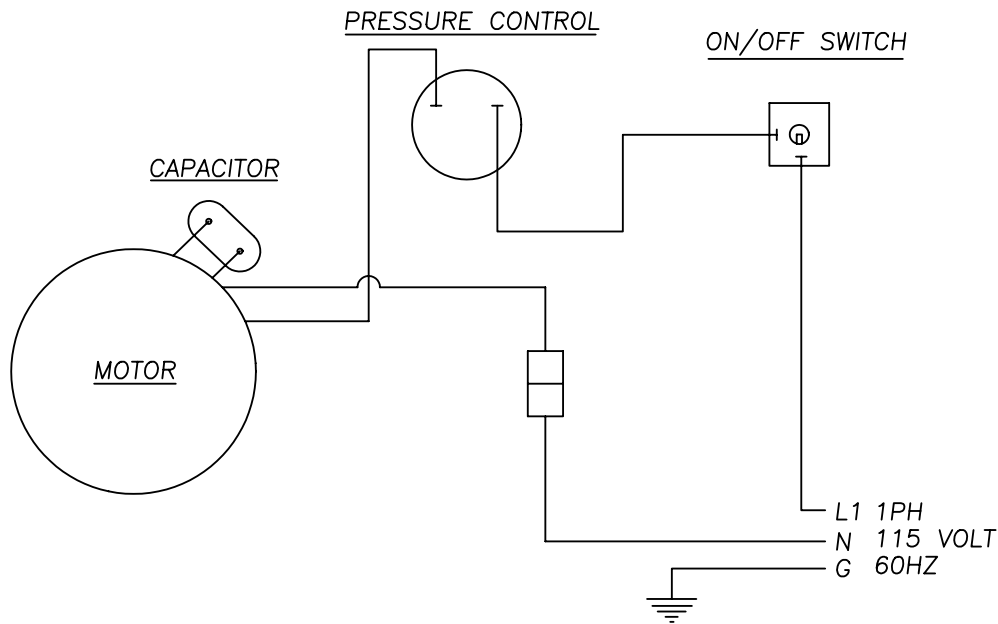
FIGURE 1



### AIR COMPRESSOR KIT

1. DIRT & DEBRIS WILL RUIN A NEW AIR COMPRESSOR. USE EXTREME CARE TO KEEP EVERY TOOL, PART & HANDS CLEAN.
2. REMOVE AIR FILTER & RETAINER (NOTE POSITION OF WASHER UNDER RETAINER).
3. REMOVE VALVE HEAD(4 ALLEN HEAD SCREWS).
4. REMOVE REED VALVE & O-RING (NOTE POSITION OF REED VALVE, SEE FIGURE 1).
5. REMOVE PISTON SPRING BY LOOSENING OVERRUN ECCENTRIC TO REDUCE SPRING TENSION. YOU MUST SQUEEZE PISTON SPRING TO ALLOW RETAINER TO LIFT OFF OF PISTON SHAFT.
6. REMOVE PISTON & CYLINDER BY LIFTING UP & OUT OF HOUSING. (DO NOT LOSE BALL BEARING).
7. REVERSE TO ASSEMBLE NEW PARTS & ADJUST OVERRUN SCALE TO PRIOR SETTING.

**ULTIMA PUMP  
WIRING DIAGRAM**



**CAUTION**  
DISCONNECT POWER  
SUPPLY BEFORE  
SERVICING

**STOELTING**  
KIEL, WISCONSIN U.S.A. 53042  
ELECTRICAL WIRING DIAGRAM  
MODEL NO. : U3-02  
DIAGRAM NO. : 1995611





## **WARRANTY SOFT SERVE / SHAKE FREEZERS**

**1. Scope:**

Stoelting, LLC warrants to the first user (the “Buyer”) that the freezer cylinders, hoppers, compressors, drive motors, speed reducers, auger and auger flights of Stoelting soft serve / shake freezers will be free from defects in materials and workmanship under normal use and proper maintenance appearing within five (5) years, and that all other components of such equipment manufactured by Stoelting will be free from defects in material and workmanship under normal use and proper maintenance appearing within twelve (12) months after the date that such equipment is originally installed.

**2. Disclaimer of Other Warranties:**

**THIS WARRANTY IS EXCLUSIVE; AND STOELTING HEREBY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.**

**3. Remedies:**

Stoelting’s sole obligations, and Buyer’s sole remedies, for any breach of this warranty shall be the repair or (at Stoelting’s option) replacement of the affected component at Stoelting’s plant in Kiel, Wisconsin, or (again, at Stoelting’s option) refund of the purchase price of the affected equipment, and, during the first twelve (12) months of the warranty period, deinstallation/reinstallation of the affected component from/into the equipment. Those obligations/remedies are subject to the conditions that Buyer (a) signs and returns to Stoelting, upon installation, the Checklist/Warranty Registration Card for the affected equipment, (b) gives Stoelting prompt written notice of any claimed breach of warranty within the applicable warranty period, and (c) delivers the affected equipment to Stoelting or its designated service location, in its original packaging/crating, also within that period. Buyer shall bear the cost and risk of shipping to and from Stoelting’s plant or designated service location.

**4. Exclusions and Limitations:**

This warranty does not extend to parts, sometimes called “wear parts”, which are generally expected to deteriorate and to require replacement as equipment is used, including as examples but not intended to be limited to o-rings, auger seals, auger support bushings and drive belts. All such parts are sold

**AS IS.**

Further, Stoelting shall not be responsible to provide any remedy under this warranty with respect to any component that fails by reason of negligence, abnormal use, misuse or abuse, use with parts or equipment not manufactured or supplied by Stoelting, or damage in transit.

**THE REMEDIES SET FORTH IN THIS WARRANTY SHALL BE THE SOLE LIABILITY STOELTING AND THE EXCLUSIVE REMEDY OF BUYER WITH RESPECT TO EQUIPMENT SUPPLIED BY STOELTING; AND IN NO EVENT SHALL STOELTING BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER FOR BREACH OF WARRANTY OR OTHER CONTRACT BREACH, NEGLIGENCE OR OTHER TORT, OR ON ANY STRICT LIABILITY THEORY.**