1 Introduction

This freezer is designed to produce shakes with a product serving temperature of 27° to 30°F (-3 to-1°C).

This manual has been prepared to assist you in the proper operation and general maintenance of the *Electro Freeze* Model 78RMT.

Your freezer will not compensate for or correct any assembly or priming errors made during the initial start-up. Therefore, it is extremely important to follow the assembly and priming procedures detailed in this manual.

Make sure all personnel responsible for equipment operation completely read and understand this manual before operating the freezer. When properly operated and maintained, the freezer will produce a consistent quality product.

If you require technical assistance, please contact your local authorized *Electro Freeze* Distributor as follows:

Name: _____

Address: _____

_____

Phone: _____

For factory service assistance — contact H. C. Duke & Son, *Electro Freeze* Service Department as follows:

Phone: (309) 755-4553

FAX: (309) 755-9858

2 Note to Installer

This freezer *must* be installed and serviced by an *Electro Freeze Distributor or authorized service technician* in accordance with the installation instructions.

After installation the warranty registration card must be completed and returned to validate the warranty.

2.1 Uncrating and Inspection

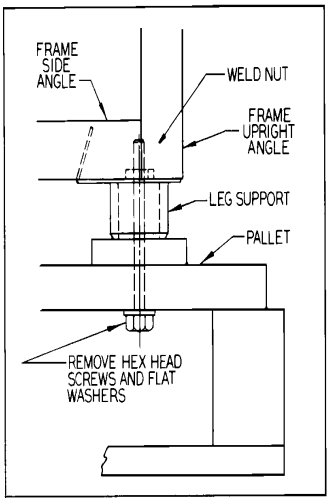

Figure 2-1 Bolted to shipping base

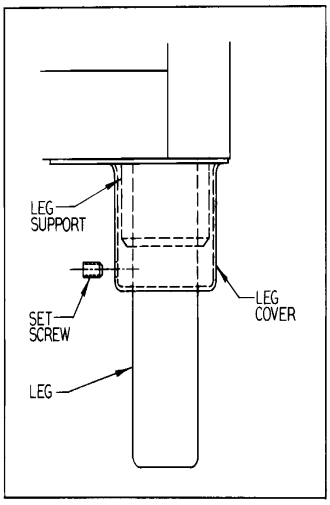

Figure 2-2 Install mounting legs

CAUTION

Be sure to properly support the machine when removing bolts and installing legs or casters.

When the unit is received and while the carrier is still present, inspect the shipping carton for any damage that may have occurred in transit. If the carton is broken, torn, or punctured, note the damage on the carrier's freight bill and notify the carrier's local agent immediately.

1. Remove the carton from the pallet, and move the machine as close as possible to the permanent location.

2. Remove the shipping bolts on the bottom of the freezer (figure 2-1) and install either the legs or casters (figure 2-2).

2.2 Installation

CAUTION

All materials and connections must conform to local requirements and be in compliance with the National Electrical Code (NEC).

1. Where codes permit, we recommend that the freezer be installed on casters and have flexible water and electrical connections for easier service and cleaning.

2. **Air cooled** models require a minimum 6-inch clearance on either the side panels or the rear panel for adequate ventilation. Freezers designed with top air discharge require that the top panel be free of obstructions. Anything blocking ventilation of the freezer (including cone dispensers) will reduce the efficiency of the freezer.

3. **Water cooled,** models require a 3/8-inch MPT water inlet and water waste connection. The connections are found on the bottom, under the compressor mounting area. They are tagged “Water Inlet” and “Water Waste.” A manual shut-off valve should be installed in the water inlet line at the time of installation.

4. Place the freezer in its final location and adjust the legs or casters so that it is level side-to-side and the front is approximately 1/4-inch lower than the rear to allow proper drainage of the freezing cylinder. To insure proper stability, do not mount cup dispensing racks or unapproved accessories on the freezer.

2.3 Electrical Requirements

CAUTION
To prevent accidental electrical shock, a positive earth ground is required.

1. Always verify electrical specifications on the data plate of each freezer. Data plate specifications will always supersede the information in this manual.

2. Supply voltage must be within ± 10% of voltage indicated on the nameplate. Also, on three-phase systems, voltage between phases must be balanced within 2%. (More than a 6 volt difference between any two voltage measurements at 208-230 volts indicates a possible imbalance.) Request your local power company to correct any voltage problem.

3. An easily accessible main power disconnect must be provided for all poles of the wiring to the freezer.

2.4 Electrical Connections

CAUTION
To prevent accidental electrical shock, a positive earth ground is required.

1. Check the data plate for fuse size, wire ampacity, and electrical specifications.

2. Refer to the wiring diagram provided for proper power connections.

3. Electrical connections are made in the junction box located mid-level behind the right side panel.

4. Use a flexible connection when permissible. All materials and connections must conform to local codes and/or the National Electrical Code (NEC).

5. For 3 phase freezers, beater shaft rotation must be clockwise as viewed from the front of the freezer.

3 Specifications

3.1 Particulars

Always check and verify voltage and amperage on the data plate located on the back panel of each freezer.

78RMT

Width (in/cm)	18/46
Height (in/cm	70/178
Depth (in/cm)	36/91.4
Weight (lbs/kg)	520/236
Compressor	1.5 HP/9500 BTUH 1.5 kw (Motor) 2.8 kw (Cooling)
Beater Motor	1.5 HP / 1.1 kw
Refrigerant	404a
Charge	3.75 lb. / 1.70 kg
Mix Container	28 Qts / 26.5 Liters
Cylinder	9 Qts / 8.51 Liters

*Contact factory for other voltages.

3.2 Data Plate

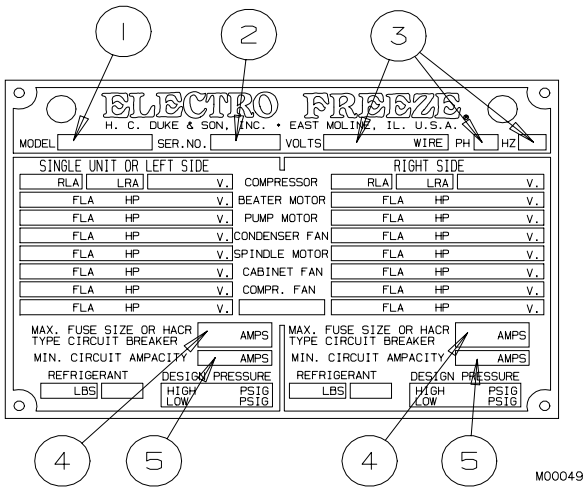

Figure 3-1

The data plate provides important information that the operator should record and have available for parts ordering, warranty and service requests.

3.3 Reference Information

Write in Reference Information HERE!

Fill in the following information as soon as you receive the *Electro Freeze* 78RMT Shake Freezer. (The item numbers — encircled, below — correspond with the callout numbers in figure 3-1.)

78RMT

1 Model Number: _____

2 Serial Number:_____

3 Electrical Spec: Voltage _____

Phase _____ Hertz _____

4 Maximum Fuse Size: _____

5 Minimum Circuit Ampacity:_____

3.4 Installation Date

Fill in the date of installation, and the name, address, and phone number of the installer in the space provided below. This information will be needed when ordering parts or service for the 78RMT Freezer.

Date of installation: _____

Installed by: _____

Address: _____

_____

Phone: _____

3.5 Dimensions

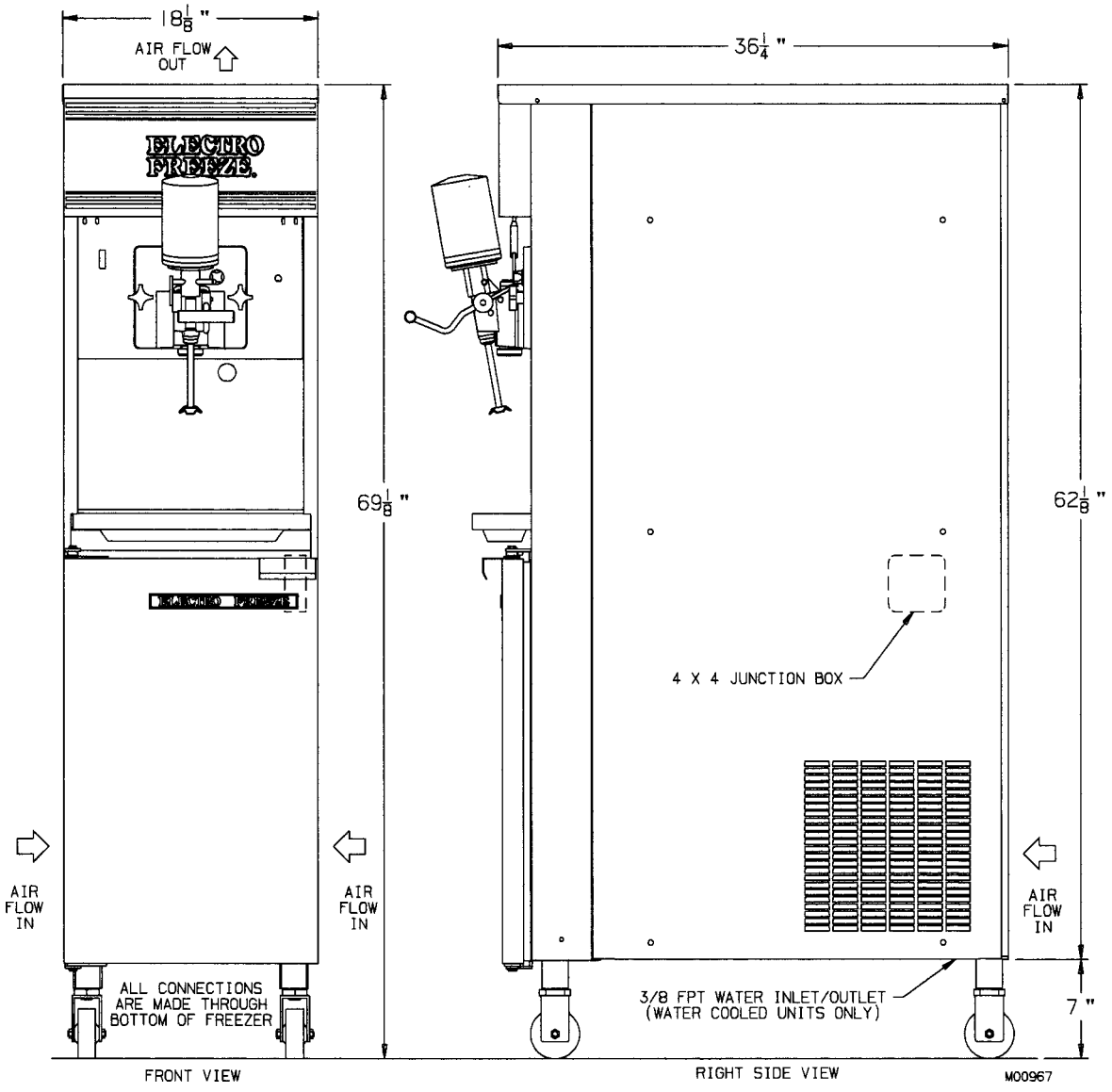

Figure 3-2

4 Part Names and Functions

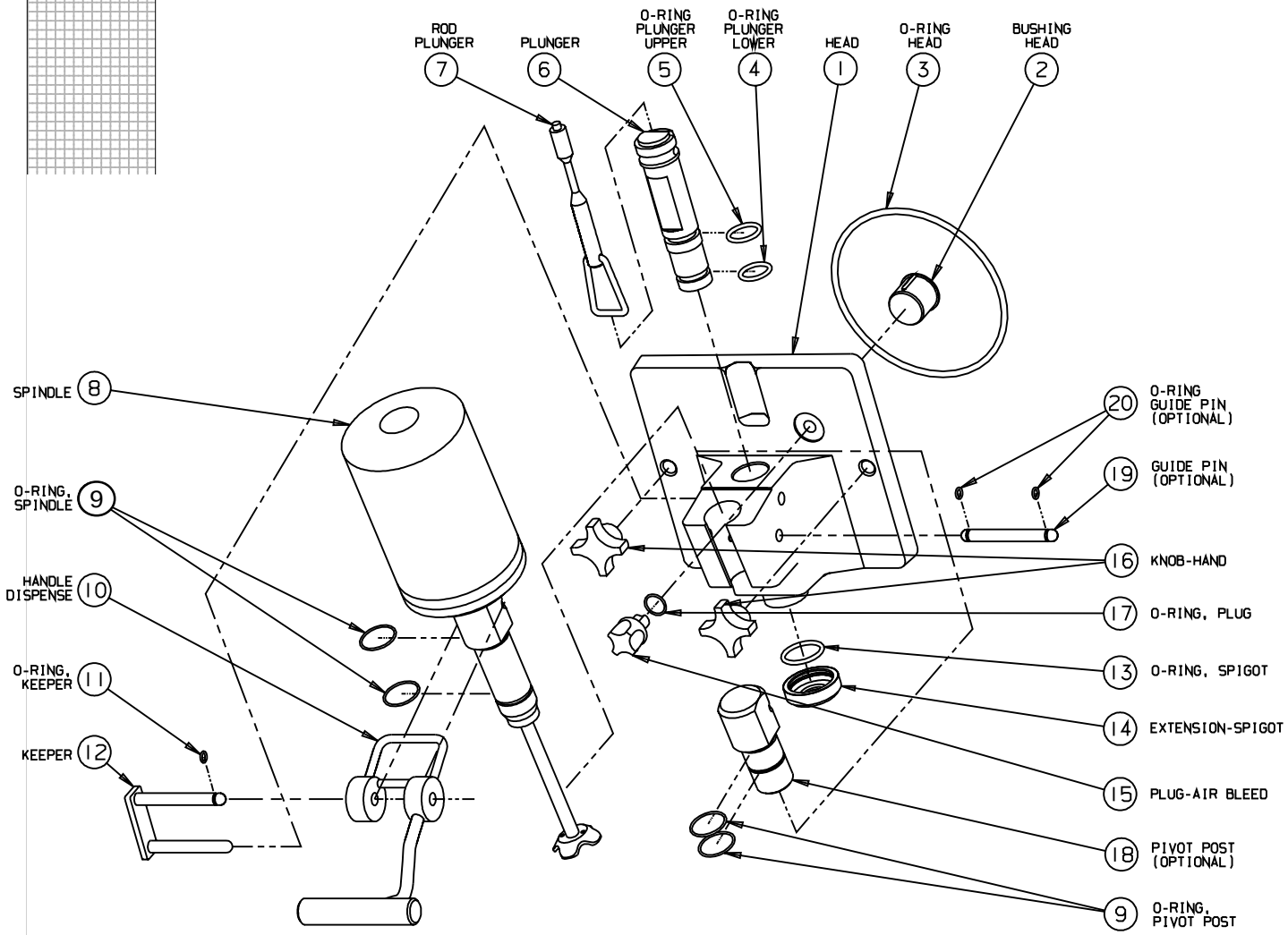

Figure 4-1 Head Assembly

4 Part Names and Functions (continued)

The following part names and descriptions refer to figure 4-1 - Head Assembly.

1. **HEAD - DISPENSE**
   Encloses the freezing cylinder and provides an opening for product to be dispensed.
2. **BUSHING - HEAD**
   Holds the beater in place at the front of the cylinder. Must be inserted into the head and lubricated before assembly.
3. **O-RING - HEAD**
   Seals the head to the freezing cylinder. Must be lubricated.
4. **and**
5. **O-RINGS - PLUNGER**
   Seals the plunger in the head. Must be lubricated to seal and slide properly.
6. **PLUNGER**
   Seals the product opening in the head when closed. Allows product to flow when open.
7. **ROD - PLUNGER**
   Starts the freezer when dispensing. Must be in place before freezer will operate.
8. **SPINDLE**
   Mixes the shake as it is dispensed.
9. **O-RING - SPINDLE/PIVOT POST**
   Holds the spindle or pivot post in place.
10. **HANDLE - DISPENSE**
    Opens and closes the plunger to start and stop the flow of product from the freezer.
11. **O-RING - KEEPER**
    Holds the keeper in place.
12. **KEEPER**
    Secures the handle to the head.
13. **O-RING-SPIGOT**
    Seals the extension to the head.
14. **EXTENSION-SPIGOT**
    Product flows from the head through the extension.
15. **PLUG - AIR BLEED SCREW**
    Seals the air bleed opening in the head when closed. Allows excess air to be removed from the cylinder when filling.
16. **KNOB - HAND**
    Secures the head to the freezing cylinder.
17. **O-RING - PLUG**
    Seals the air relief screw in the head.
18. **POST - PIVOT (Optional)**
    Holds the handle in place when the spindle is not used.
19. **PIN - GUIDE (Optional)**
    Secures the pivot post in the head.
20. **O-RING - GUIDE PIN (Optional)**
    Holds the guide pin in place.

4 Part Names and Functions (continued)

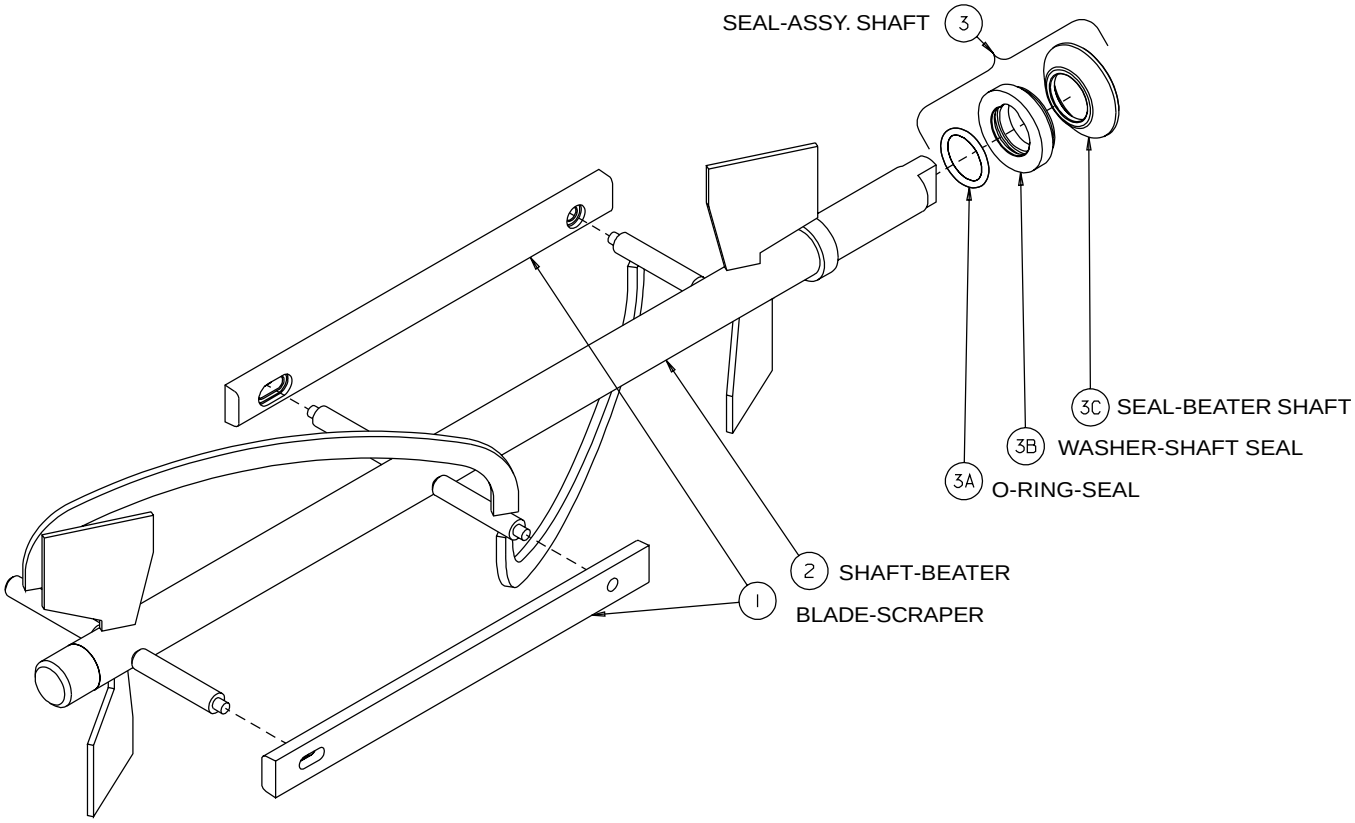

Figure 4-2 Beater Shaft Assembly

4 Part Names and Functions (continued)

The following part names and descriptions refer to figure 4-2 - Beater Shaft Assembly.

(1) **BLADE - SCRAPER**
Scrapes the frozen product from the freezing cylinder wall.

(2) **SHAFT - BEATER**
Rotates in the freezing cylinder, blending air and mix and ejecting product.

(3) **SEAL - ASSY. SHAFT**
Seals the opening between the freezing cylinder and the beater shaft. Consists of the following 3A, 3B, and 3C.

(3A) **O-RING - SEAL**

(3B) **WASHER - SHAFT SEAL (BUSHING)**

(3C) **SEAL - BEATER SHAFT (CUP SEAL)**

4 Part Names and Functions (continued)

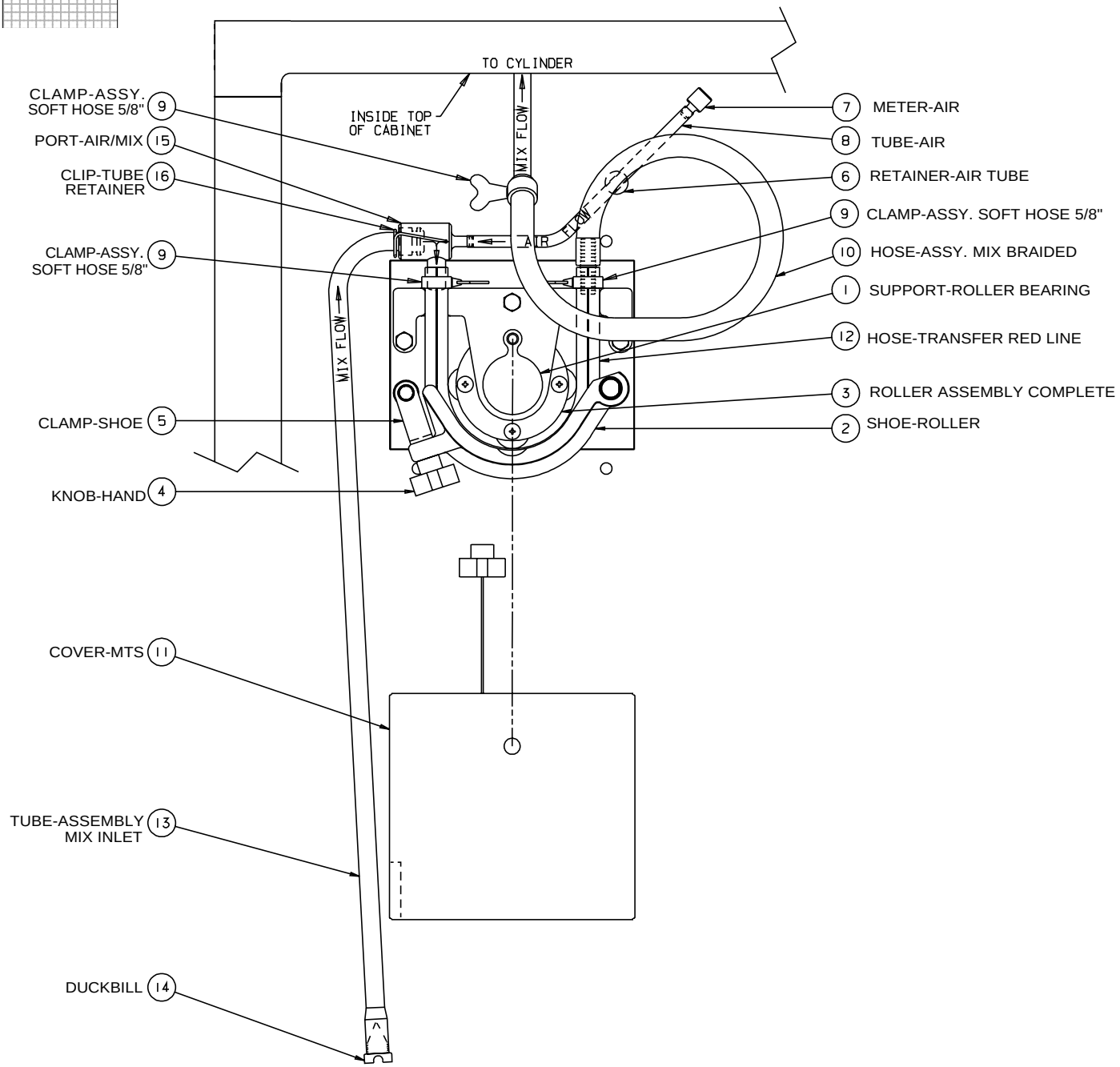

Figure 4-3 Mix Transfer System (MTS)

4 Part Names and Functions (continued)

The following part names and descriptions refer to figure 4-3 - Mix Transfer System.

1. **SUPPORT-ROLLER BEARING**
   Holds roller assembly in place.
2. **SHOE-ROLLER**
   Provides an opening to insert the mix transer hose. Squeezes transfer hose against rollers.
3. **ROLLER ASSEMBLY COMPLETE**
   Squeezes mix/air through tubing to freezing cylinder.
4. **KNOB-HAND**
   Locks roller shoe in positon.
5. **CLAMP-SHOE**
   Swings hand knob into position over roller shoe.
6. **RETAINER-AIR TUBE**
   Holds air meter tube in the “up” position.
7. **METER-AIR**
   Regulates the amount of air being drawn into the system.
8. **TUBE-AIR**
   Provides connection for the air meter.
9. **CLAMP-ASSY. SOFT HOSE 5/8"**
   Prevents mating parts from leaking.
10. **HOSE-ASSY. MIX BRAIDED**
    Connecting tube between the Mix Transfer System and the cylinder inlet.
11. **COVER-MTS**
    Protection against moving parts. Cover must be in place for the MTS to operate.
12. **HOSE-TRANSFER RED LINE**
    Special “red-lined” hose that is squeezed by rollers to transfer mix to freezer.
13. **TUBE-ASSEMBLY MIX INLET**
    Carries mix from mix container to MTS.
14. **DUCKBILL**
    A rubber check valve that prevents mix from falling back into the mix container.
15. **PORT-AIR/MIX**
    Blends air and mix as it flows into the transfer hose.
16. **CLIP-TUBE RETAINER**
    Locks mix pickup tube into air/mix port.

5 Operator Controls and Indicators

The following paragraphs describe the operator controls and indicators. Refer to figure 5-1 for locations of these controls and indicators on the Shake Freezer Model 78RMT.

CAUTION

Test operation of the head switch prior to placing the freezer in service. See Section 11, Routine Maintenance, Monthly.

Note: The head must be in place before the beater will operate.

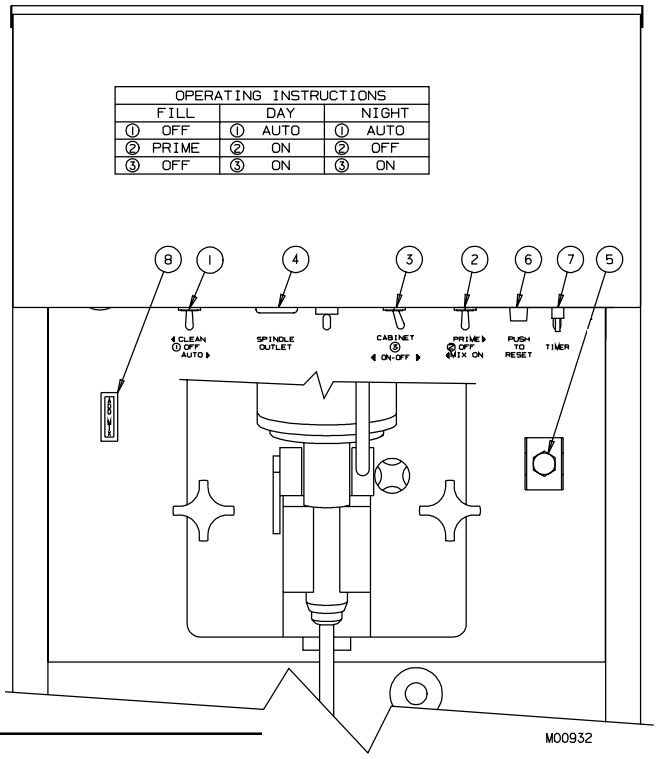

Figure 5-1

5.1 Selector Switch (1)

This three-position switch selects the mode of operation of the freezer.

a. **"CLEAN"** (left) — This position operates the beater only (no refrigeration). Always use this mode when performing cleaning and sanitizing operations.

b. **"OFF"** (center) — In this position the beater motor and refrigeration system will not operate.

⇨ ***Important:***
Do not use the "AUTO" position with water or sanitizer in the cylinder — the freezer will be damaged.

c. **"AUTO"** (right) — This position activates both the beater motor and refrigeration unit. This is the normal operating position which will maintain a cylinder temperature of 26° to 28°F (-3° to -2°C).

5 Operator Controls and Indicators (continued)

5.2 Mix Transfer Systems (MTS) Switch (2)

This three-position switch controls the operation of the MTS located in the refrigerated mix storage cabinet.

a. **"ON"** (left) — Use this position when the freezer is in the normal operating mode and/or when dispensing product from the cylinder.

b. **"OFF"** (center) — In this position the MTS will not operate.

c. **"PRIME"** (right) — Use this position fill the cylinder with mix or sanitizer.

5.3 Cabinet Switch (3)

This two-position switch controls the cabinet refrigeration.

NOTE: Cabinet door must be closed for cabinet refrigeration to operate.

a. **"ON"** (left) — The cabinet thermostat controls the system refrigeration to maintain a temperature of 35° to 40°F (2° to 4°C) in the storage cabinet. Always use this position when mix is in the storage cabinet but not in the cylinder.

b. **"OFF"** (right) — The cabinet will not be refrigerated if the selector switch is also in the "OFF" position.

NOTE: The cabinet is automatically "ON" when the selector switch is in the "AUTO" position.

5.4 Spindle Outlet (4)

This 115V receptacle provided in the electrical box accepts the spindle cord.

5.5 Spindle Switch (5)

This push-button, when depressed, will activate the spindle motor.

5 Operator Controls and Indicators (continued)

5.6 Reset — Overload (6)

⇨ ***Important:***
If the overload trips frequently, your freezer should be checked for proper product temperature, overrun and voltage. Contact your Electro Freeze Distributor.

This control protects the beater motor against failure from an overload condition by automatically shutting down the freezer. To restart properly, turn the selector switch to “OFF”, wait 2 –- 3 minutes, then depress the red reset button and turn the selector switch back to the “AUTO” or “CLEAN” position.

5.7 Timer (7)

⇨ ***Important:***
Excessive use of the timer causes freeze-up and damage to the freezer.

This control will bypass the thermostat, forcing the compressor and beater motor to run for approximately 3 minutes. Use the timer for quick start-ups or fast recovery when dispensing large portions.

5.8 Indicator Light — “ADD MIX” (8)

⇨ ***Important:***
If proper mix level is not maintained, a freeze-up may occur and cause damage to the freezer.

⇨ ***Important:***
For “Bag-in-Box” mix systems, add mix <u>immediately</u> when the light comes on.

When blinking, this light indicates the mix in the mix container is at a low level and should be refilled as soon as possible. Always maintain *at least 2 inches* (5.1 cm) of mix in the container. For best operating results keep the container full.

5 Operator Controls and Indicators (continued)

5.9 Probe — "ADD MIX" (not shown)

For the "ADD MIX" light to work, the probe must be installed in the mix container, with cords attached and plugged into the receptacles located in the top of the cabinet.

If you are using mix in a bag-in-box a spilt cord will be needed. One cord goes to the metal bag adapter and the other cord goes to the pin on the elbow.

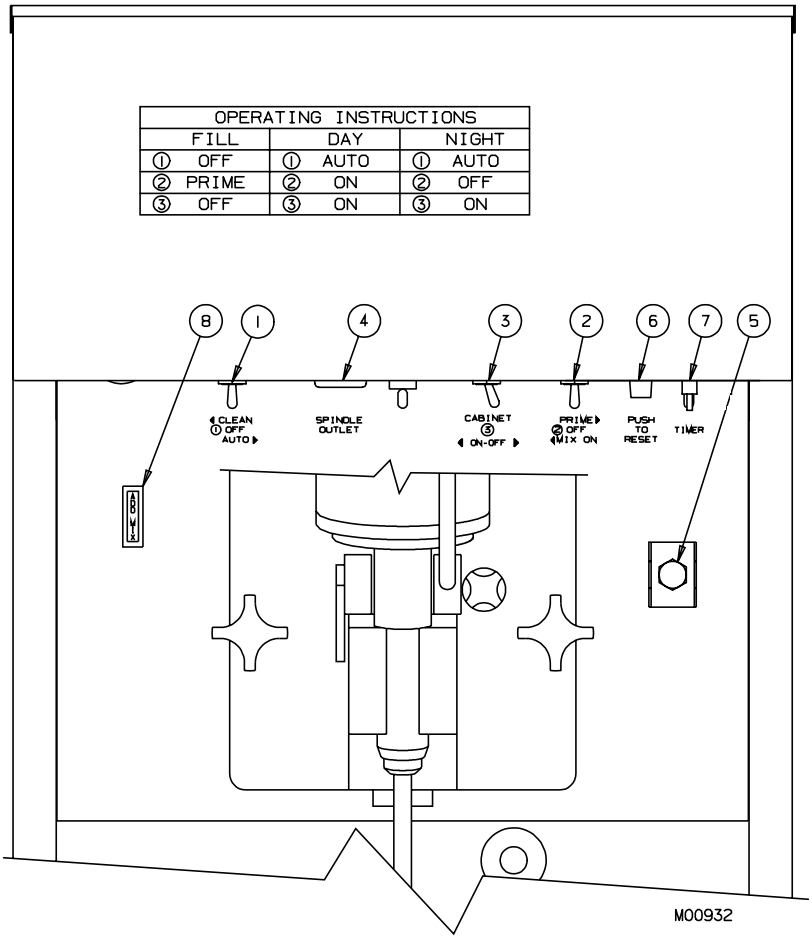

Figure 5-1

6 Disassembly and Cleaning

Safety Information

This freezer uses pressure to assure consistent product quality. It is important for your safety that the freezer is depressurized slowly and completely whenever the freezer is to be drained, disassembled, cleaned, or serviced. The safety instructions in this manual will remind you when to check to make sure the freezer is depressurized. When you see this CAUTION statement

CAUTION
Make sure freezer is depressurized before proceeding.

the following steps should be taken:

1. Make sure the MTS switch and the selector switch are in the “OFF” position.

2. Place a clean bucket under the dispense head.

3. ***Slowly*** open the plunger by pulling down on the dispense handle, allowing any pressurized product, cleaning solution, or air to escape.

4. Remove the plunger rod and open the plunger completely.

CAUTION
To avoid electrical shock or contact with moving parts, make sure all switches are in the “OFF” position and that the main power supply is disconnected.

5. Inside the refrigerated cabinet, remove the MTS cover, loosen the shoe clamp hand knob, swing back the shoe clamp and swing open the roller shoe on the mix transfer system.

Following these steps will assure that the system is depressurized.

It is important that the freezer be disassembled, washed, lubricated and sanitized before operation.

The cleaning and sanitizing instructions explained in this manual are required to maintain a clean, sanitary freezer. The freezer should be disassembled, cleaned, reassembled, lubricated and sanitized daily to ensure the best possible product quality and freezer operation.

Persons assembling, cleaning or sanitizing the freezer must first wash and sanitize hands and forearms with an approved sanitizer.

6.1 Cleaning Accessories

The following accessories shipped with the freezer are necessary for cleaning, sanitizing, and disassembly/assembly:

1. BRUSH, CYLINDER. 6 inch diameter with 36 inch handle used to clean the cylinder.
2. BRUSH. 7/16 inch diameter 12 inches long used to clean transfer hose, braided hose, air meter tube, and air bleed opening in the dispense head.
3. BRUSH. 9/16 inch diameter 30 inches long used to clean drain tube, mix feed tube in the ceiling of the cabinet, and the pickup tube.
4. BRUSH, 1 inch diameter with an overall length of 12 inches: used to clean plunger openings in the dispense head, head bushing and serrated nozzle. Also used to clean disassembled shaft seal.
6. LUBRICANT - PETROL-GEL. Approved lubricant for moving parts and O-rings.
7. KIT - O-RING. Contains all O-rings and seals needing replacement on a regular basis.
8. SANITIZER - SAMPLE. Approved sanitizer, Stera-Sheen, also available in 4 lb. jar.
9. TOOL - O-RING REMOVAL. Aids in removing O-rings from plunger, head, air relief plug, and spindle.

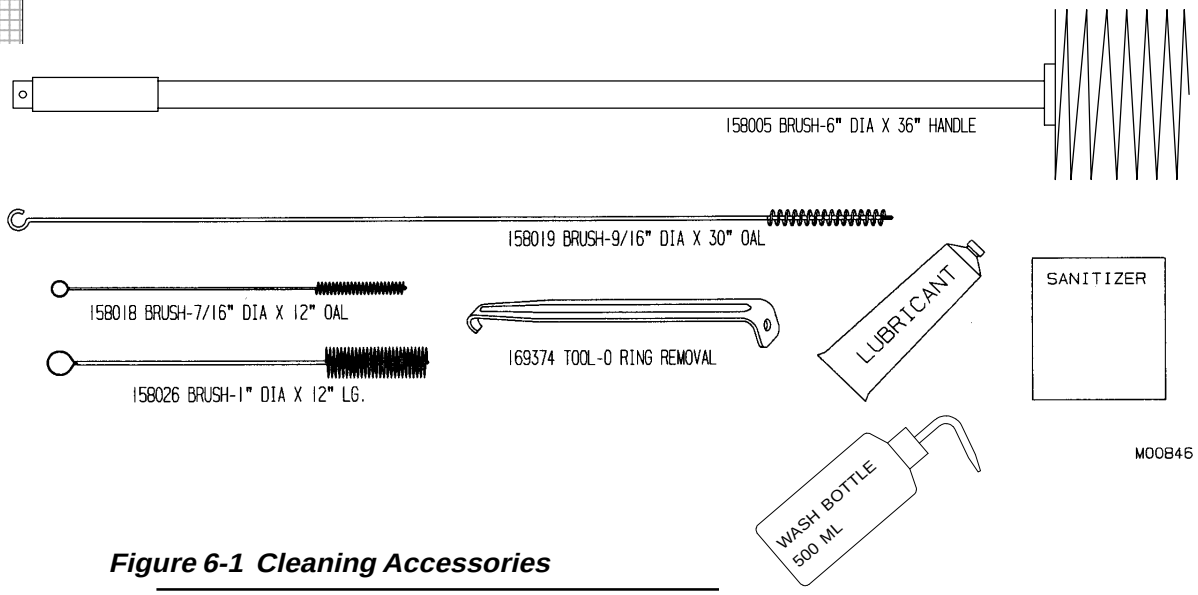

Figure 6-1 Cleaning Accessories

6.2 Disassembly Instructions

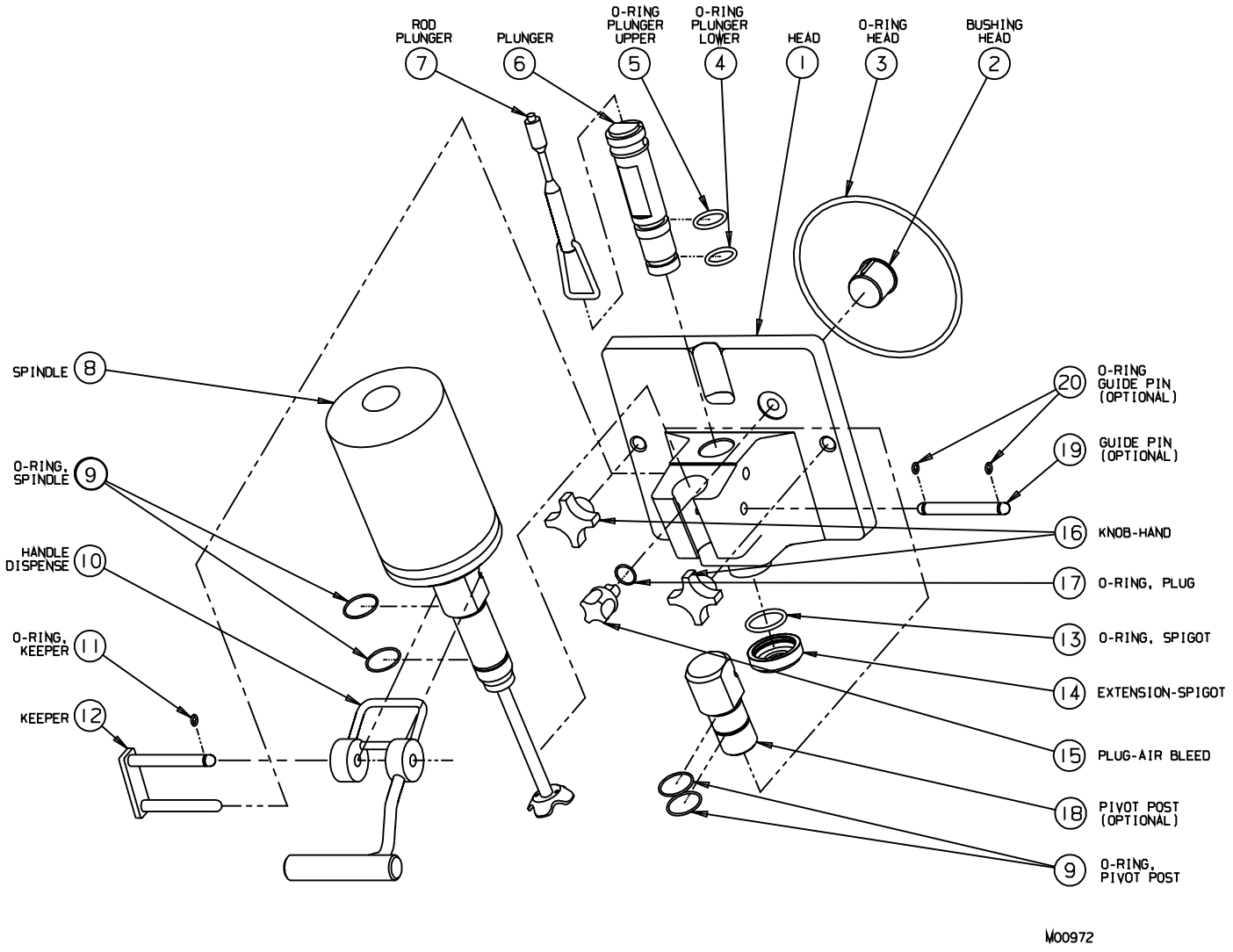

Figure 6-2 Head Assembly

6.2 Disassembly Instruction (continued)

CAUTION
To avoid electrical shock or contact with moving parts, make sure ALL switches are in the "OFF" position and that the main power supply is disconnected.

CAUTION
Make sure freezer is depressurized before proceeding.

1. If there is product in the freezer, refer to Section 9.1 CLOSING PROCEDURES, DRAINING PRODUCT.

2. Refer to figure 6-2. Remove the plunger rod (7) by lifting up and swinging the bottom out and down.

3. Remove the O-ring on the keeper (11) and pull the keeper (12) out of the head.

4. Unplug the spindle motor (8) and lift it upward, removing it from the head. If the optional guide pin is used with the optional pivot post, remove the o-ring and guide pin. Then remove the pivot post by lifting up on pivot post.

5. Remove the handle (10) and hand knobs (16) and then pull the head (1) straight out.

6. Remove the head bushing (2) and beater shaft from the cylinder.

7. Remove the scraper blades and shaft seal from the beater shaft.

CAUTION
To prevent bacteria growth, remove all O-rings when cleaning. Failure to do so could create a health hazard.

8. Remove the drip tray (see Replacement Parts Manual, figure 9 - Panels) and drip tray insert from the front of the freezer.

9. Remove the plunger (6) and O-rings from the head. Remove the O-ring and cup seal from the plastic washer on the shaft seal assembly. See figure 6-3.

10. Remove the air bleed plug (15, figure 6-2) and remove the o-ring.

11. Remove the mix container, covers, and low mix probe from the cabinet.

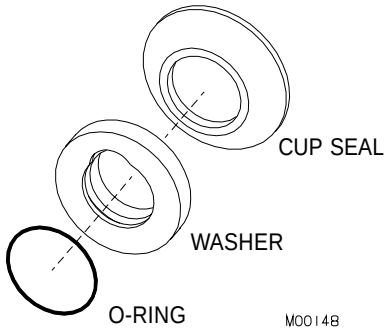

Figure 6-3 Shaft Seal Assembly

6.2 Disassembly Instruction (continued)

12. Remove MTS hose assembly from the Mix Transfer System as follows (figure 6-4):

a. loosen the hand knob,

b. swing back the shoe clamp,

c. swing open the roller shoe,

d. loosen the clamp on braided hose,

e. pull the braid hose off the cylinder inlet and slide the mix transfer hose assembly out of the roller support housing.

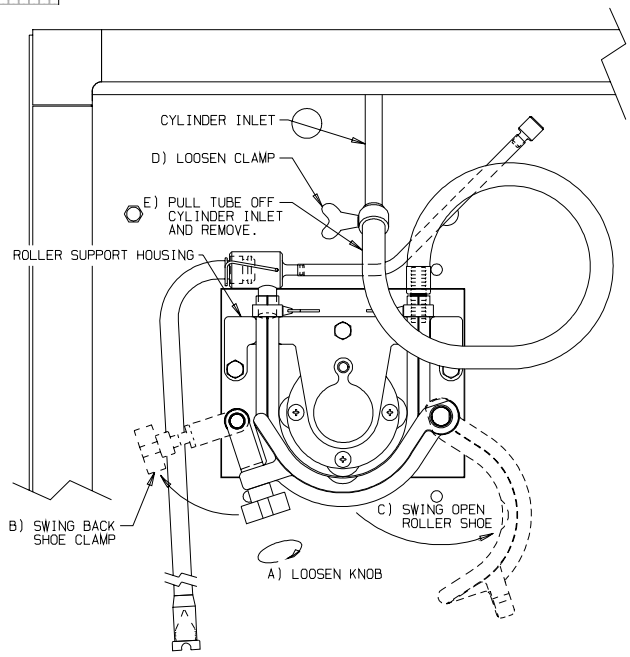

Figure 6-4 MTS

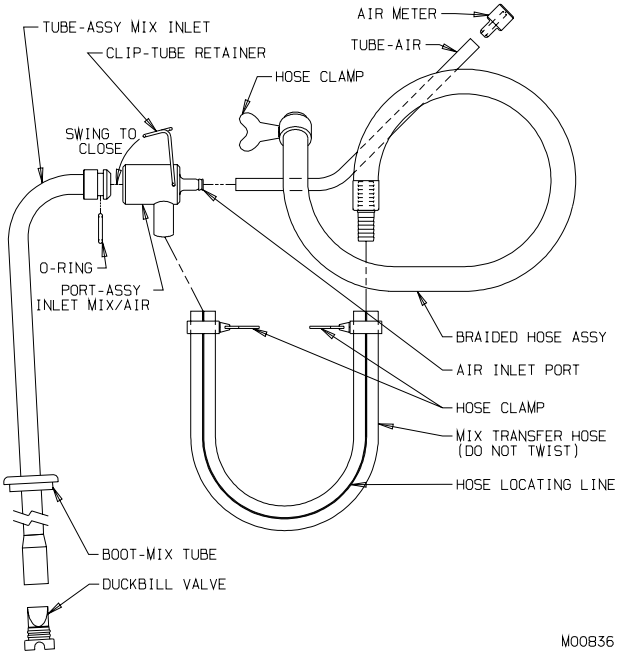

Figure 6-5 MTS Hose Assembly

6.3 Cleaning Instructions

CAUTION
Electric shock hazard. Do not splash water on switches or allow water to flow onto electrical components inside the machine.

CAUTION
To prevent bacteria growth, Remove all O-rings when cleaning. Failure to do so could create a health hazard.

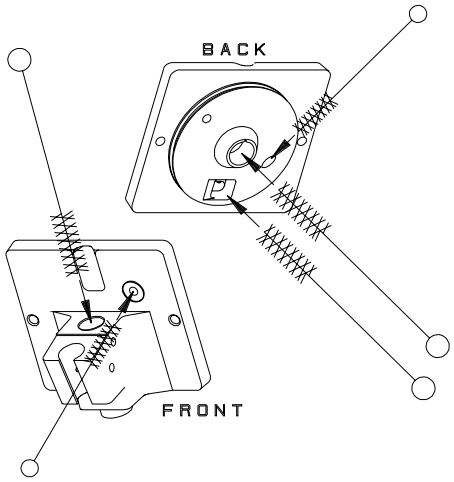

Figure 6-6 Clean head ports and openings.

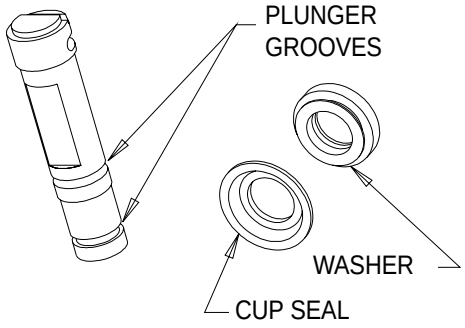

Figure 6-7 Clean O-ring grooves and seal.

The cleaning instructions explained in this section are procedures to remove bacteria and maintain a clean, sanitary freezer. The shake freezer must be disassembled, washed, and sanitized according to the instructions in this manual before start-up to ensure the best possible cleanliness.

⇨ ***Important:***
Do not use unapproved sanitizers or laundry bleach. These materials may contain high concentrations of chlorine and will chemically attack freezer components.

NOTE: It is your responsibility to be aware of, and conform to, the requirements for meeting Federal, State, and Local Laws concerning the frequency of cleaning and sanitizing the freezer.

1. Prepare a three-compartment sink for cleaning, rinsing, and sanitizing parts removed from the freezer, per applicable health codes. Also, prepare a clean surface to air-dry all parts.

NOTE: The sanitizer should be mixed according to the manufacturer's instructions to yield 100 ppm available chlorine solution (example: Stera-Sheen Green Label.) Use warm water (100° to 110°F or 38° to 43°C) to wash, rinse, and sanitize.

⇨ ***Important:***
Do not submerge the spindle motor in water. This will damage the motor.

2. Wash all parts removed from the freezer thoroughly with dish detergent soap. Clean the following parts with the appropriate supplied brush:

a. The mix container, pickup tube assemblies, hoses, and probes.

b. (See figure 6-6.) The head plunger, spindle and air bleed plug openings, and all O-ring grooves.

— continued

6.3 Cleaning Instructions (continued)

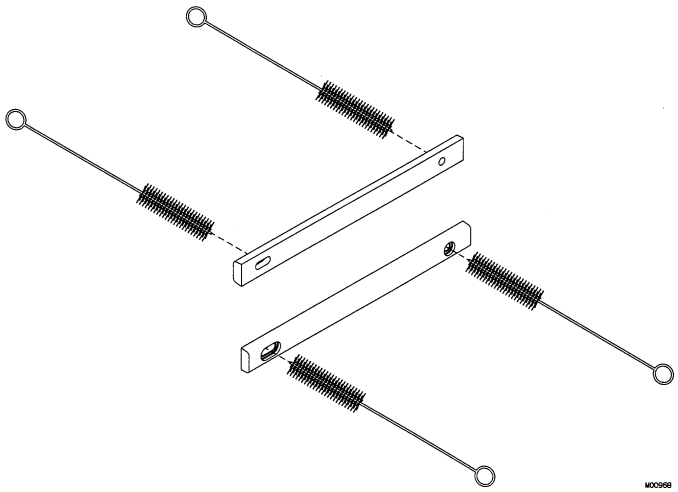

Figure 6-8 Clean beater shaft pin holes.

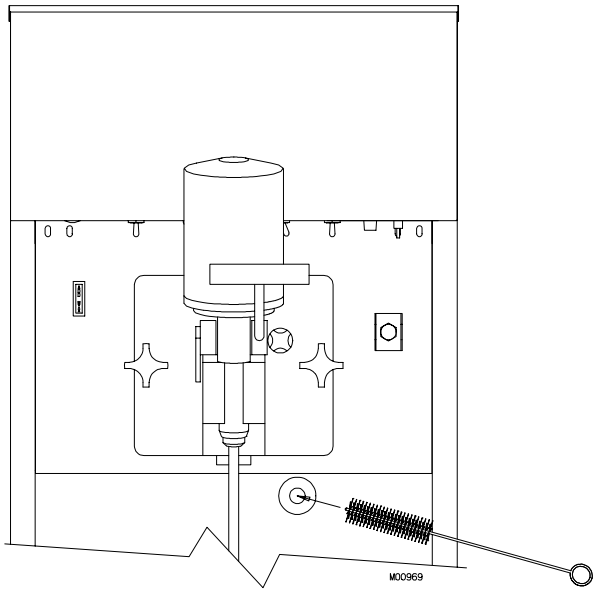

Figure 6-9 Clean inside of Drain Tube

c. (See figure 6-7.) The shaft cup seal, plastic washer, plunger O-ring grooves, spindle agitator shaft, and spindle disc.

d. (See figure 6-8.) The beater shaft and the scraper blade pin holes.

⇨ ***Important:***
Do not leave parts in sanitizer for extended periods of time.

3. After all parts are washed, rinse and then place them in the sanitizer solution. For proper sanitizing, the parts must remain fully immersed in the sanitizer for 5 minutes. Allow parts to air-dry after sanitizing.

4. Use the sanitizing solution and brush to thoroughly brush the mix feed tube from the refrigerated cabinet to the cylinder.

5. Brush the inside of the cylinder, making certain to clean back wall.

6. Brush the inside of the drain tube, as shown in figure 6-9.

Replace worn brushes. Use only Electro Freeze original or authorized replacement parts. See Accessories Parts List in Part II of this manual to order new brushes

6.3.1 Cleaning Shoe

NOTE: Clean the shoe weekly or when necessary. **Do not interchange the shoe with any other MTS shoes.**

1. Remove the O-rings and slide the shoe off of the pivot arm and the swing clamp off of the clamp arm. See figure 6-10.

2. Carry to the sink, wash in mild detergent with the brush provided and dry thoroughly.

3. Brush in between rollers. Flush clean with water bottle.

⇨ ***Important:***

Do not let shoe sit in sanitizing solution or water. Corrosion will occur in bore.

4. Lubricate the shoe pivot arm and the swing clamp arm with food grade lubricant such as Petrol-Gel.

5. Reassemble the shoe and O-ring on pivot arm.

6. Reassemble the shoe swing clamp and O-ring on the swing clamp arm.

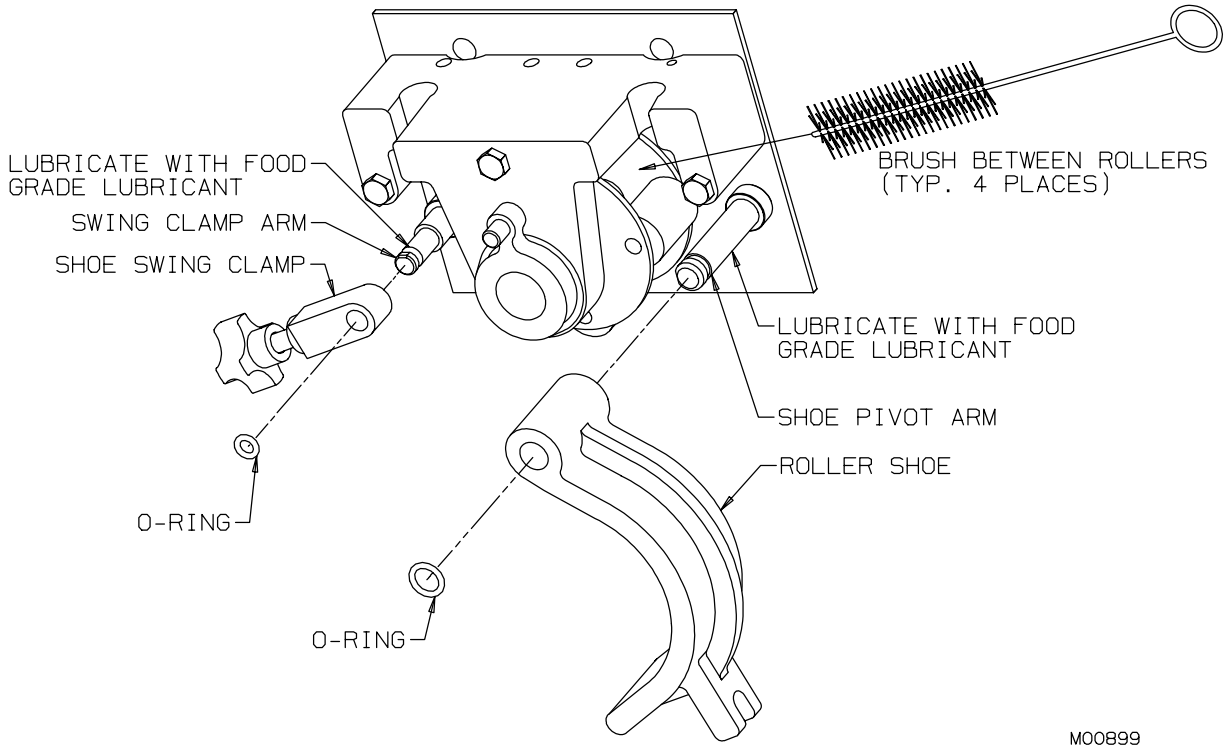

Figure 6-10

7 Assembly

7.1 Head and Beater Shaft Assembly

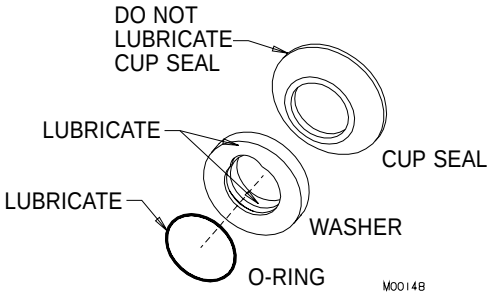

Figure 7-1

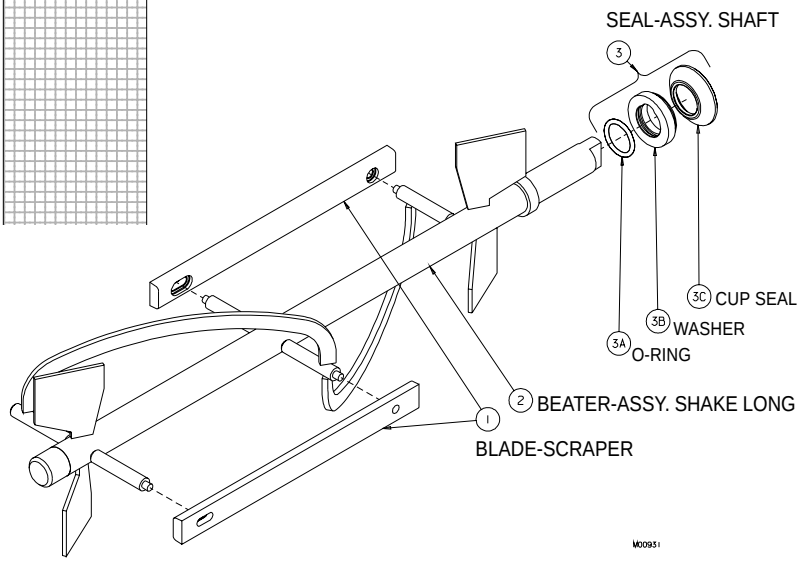

Figure 7-2

Correct assembly of the freezer is essential to prevent leakage of the product and damage to the freezer. To assemble the freezer you will need an approved lubricant (such as Petrol-Gel). Make sure all parts of the assemblies have been washed and sanitized before assembling. Persons assembling the freezer must first wash and sanitize their hands and forearms with an approved sanitizer.

CAUTION

To avoid electrical shock or contact with moving parts, make sure all switches are in the "OFF" position and that the main power supply is disconnected.

1. See figure 7-1. To assemble the shaft seal, install the cup seal and O-ring on the plastic washer. Apply a moderate amount of approved sanitary lubricant (such as Petrol-Gel) to the O-ring and the face of the plastic bushing opposite the bell portion of the seal. Do not allow any lubricant to come into contact with the bell-shaped rubber portion of the seal. Wipe off any excess lubricant from the beater shaft.

2. See figure 7-2. Install the shaft seal over the rear of the beater shaft with the bell-shaped portion facing the rear.

3. Place the scraper blades on the beater shaft, making sure the blades are installed properly.

4. Install the assembled beater shaft into the cylinder by placing the rear blade on the bottom of the cylinder. This will center the beater and allow alignment with the drive coupling. Rotate the beater assembly while pushing, until the shank has engaged the coupling.

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7 Assembly (continued)

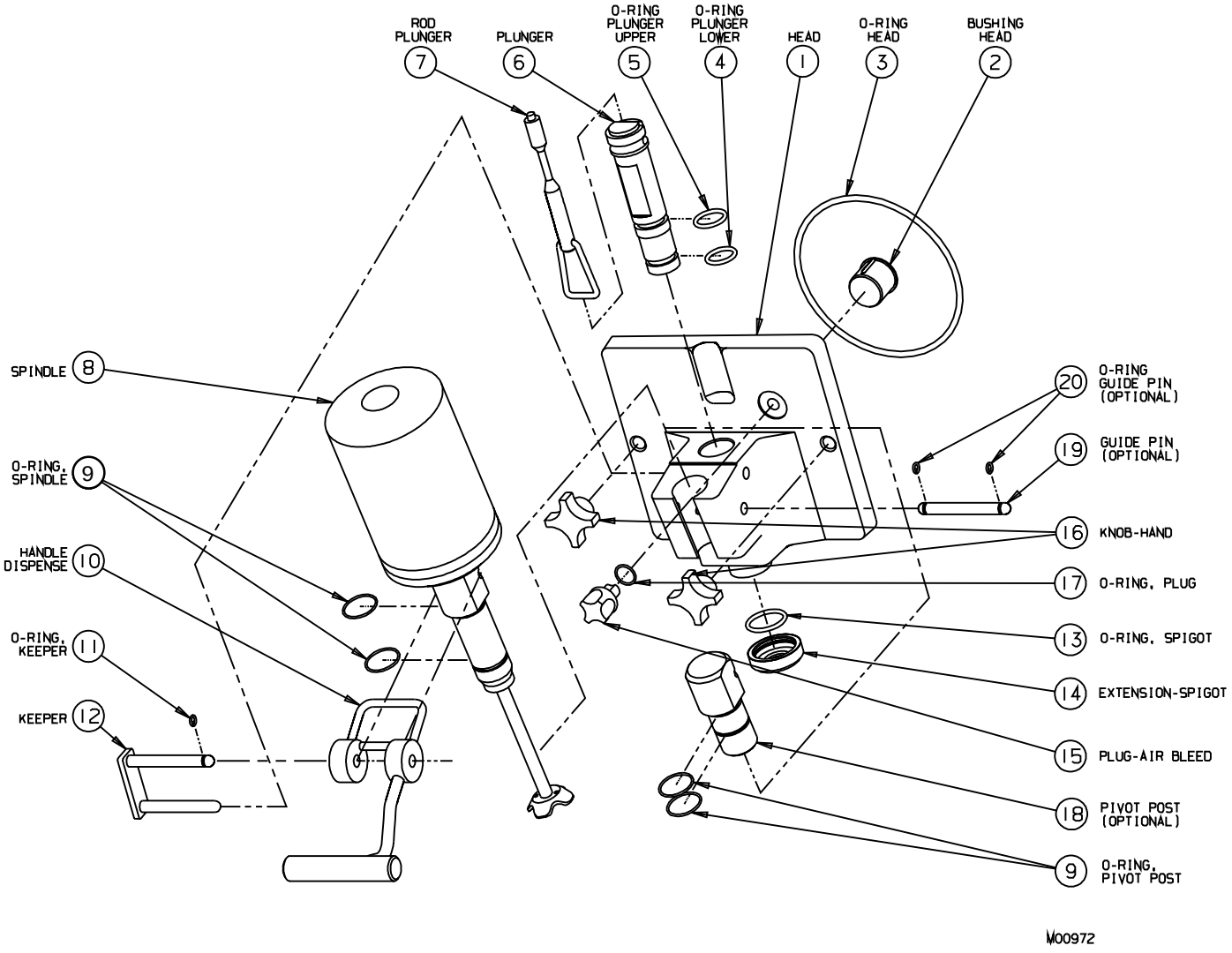

Figure 7-3

5. See figure 7-3 and O-ring chart in the Replacement Parts Section of this manual. Install and lubricate the O-rings (4,5) on the plunger (6) and insert into the head (1), with the slot facing the rear of the head.

6. Install and lubricate the 6-inch O-ring (3) on the head (1).

7. Install and lubricate the O-ring (17) on the air relief plug(15). Then, thread the plug into the head assembly.

— continued

7 Assembly (continued)

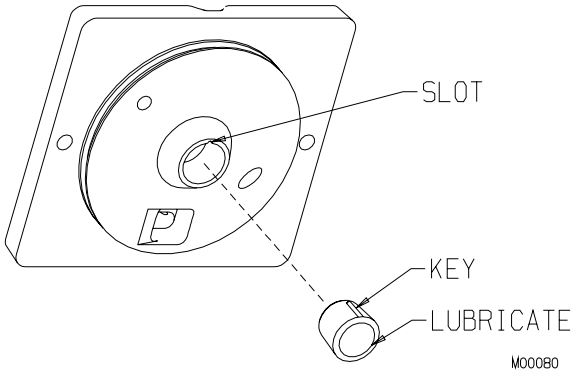

Figure 7-4 Head Bushing

8. Lubricate the inside surface of the head bushing (2) and place in the head, making sure to line up the bushing key into the head slot, as shown in figure 7-4.

Important:
ALWAYS make sure the head bushing is positioned in the head properly (see Figure 7-4). The head is slotted to match the key on the bushing. Make sure the key aligns with the slot. Failure to install the bushing properly in the dispensing head will damage the head.

9. Install the dispensing head onto the freezer by tilting the top of the head towards you, aligning the studs with the holes in the head, and sliding toward the freezer. As you push the head towards the freezer, carefully rock it into place, and align the shaft with the bushing in the head.

10. Tighten the hand knobs (16) simultaneously, finger-tight only.

Important:
Excessive force will damage the head. Do not use tools to tighten.

11. Hook the handle (10) into the slot on the plunger, then insert the spindle motor (8) onto the head.

12. Insert the keeper (12) through the holes in the handle (10), spindle (8) and head (1), then lock in place with the keeper O-ring (11).

13. Plug the spindle motor cord into the outlet provided in the bottom of the electrical box and install the plunger rod (7). If the optional pivot post is used insert the guide pin (19) and lock in place with the guide pin o-rings (20).

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7 Assembly (continued)

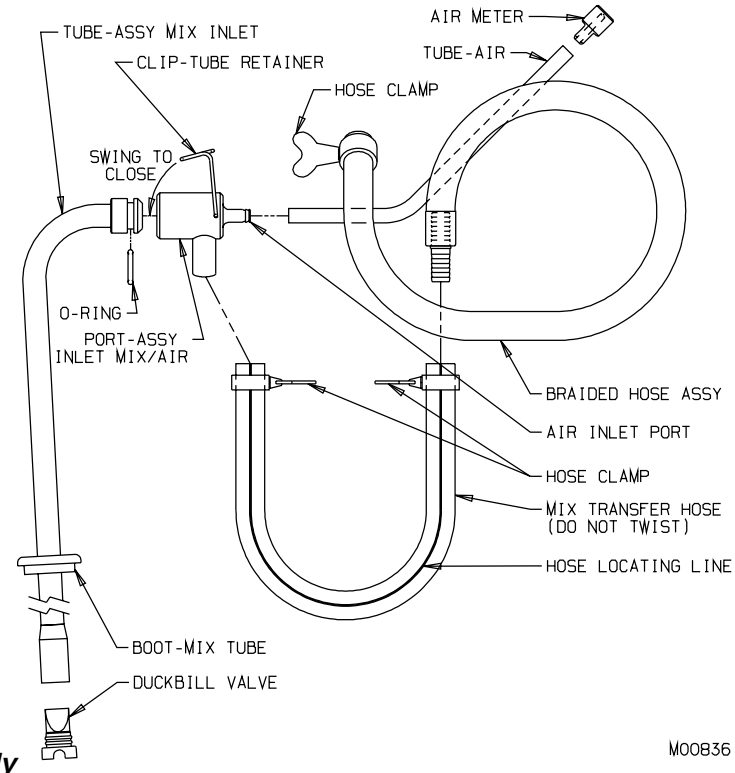

Figure 7-5 MTS Hose Assembly

⇨ ***Important:***
Always inspect the transfer hose during assembly for wear. Do not use tools or sharp objects to remove hose.

⇨ ***Important:***
Use original Electro Freeze transfer hose only. Your freezer will not operate properly with any other type of hose. Never twist the transfer hose when assembling or installing.

⇨ ***Important:***
Replace transfer hose every 30 days.

12. Assemble the MTS hose assembly as shown in figure 7-5. The transfer hose has a red locating line. Install the hose on the port assembly so the locating line is facing out. Secure the hose with the clamp positioned as shown.

13. Connect the transfer hose to the braided hose assembly at the barbed fitting and secure the hose with the clamp. The thumb screw must lay horizontal as shown.

14. Slide the air tube over the air inlet port and insert air meter in the opposite end of the air tube.

15. Install o-ring on mix inlet tube assembly. Place the tube assembly end into the port assembly and swing retainer clip over to lock tube assembly in place.

16. Install mix tube boot with flat side first, over the tube assembly.

17. Insert the duckbill valve into the bottom of the pickup tube. Push until the two ribs are completely inserted.

18. Refer to figure 7-6. Install the MTS hose assembly by placing the transfer hose under the rollers stretching the hose until the clamp on the right side is above the roller bearing support and push hose into the slot. Then stretch the hose so the left hand clamp is above the roller bearing support and push hose into the slot.

⇨ ***Important:***
Do not twist the hose assembly while installing.

— continued

7 Assembly (continued)

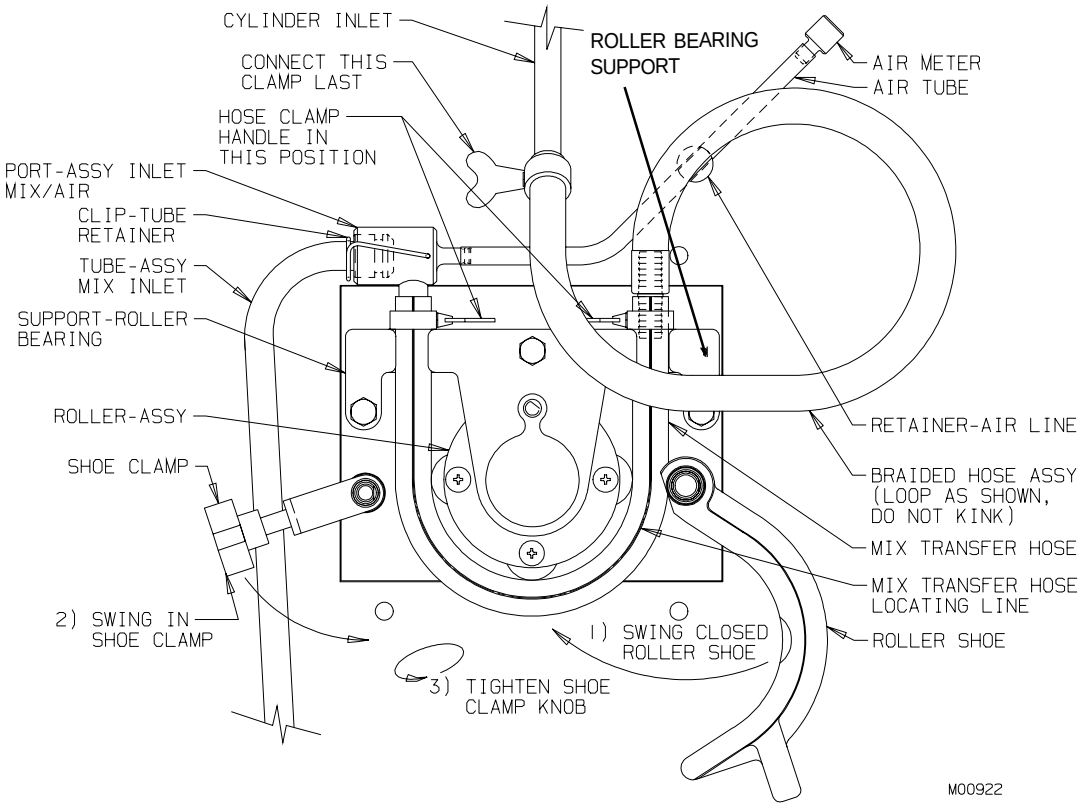

Figure 7-6 MTS

19. Check to ensure the transfer hose is straight and centered on the roller assembly by observing the locating line. The line should be in the same position at the inlet and outlet guides of the roller bearing support, as shown in figure 7-6.

20. Swing the shoe over hose and tighten the swing clamp hand knob in place.

21. Loop the braided hose towards you and slide the hose over the cylinder inlet tube. Tighten the clamp. Make sure the braided hose is not twisting transfer hose.

22. Insert the air tube into the retainer in the back of the cabinet.

23. Insert the MTS cover over stud, as shown in figure 7-7. Hose clamps should be exposed. Tighten cover knob. Hand tighten only.

⇨ ***Important:***
The MTS will not operate unless the cover is installed and secured by the hand knob.

— continued

7 Assembly (continued)

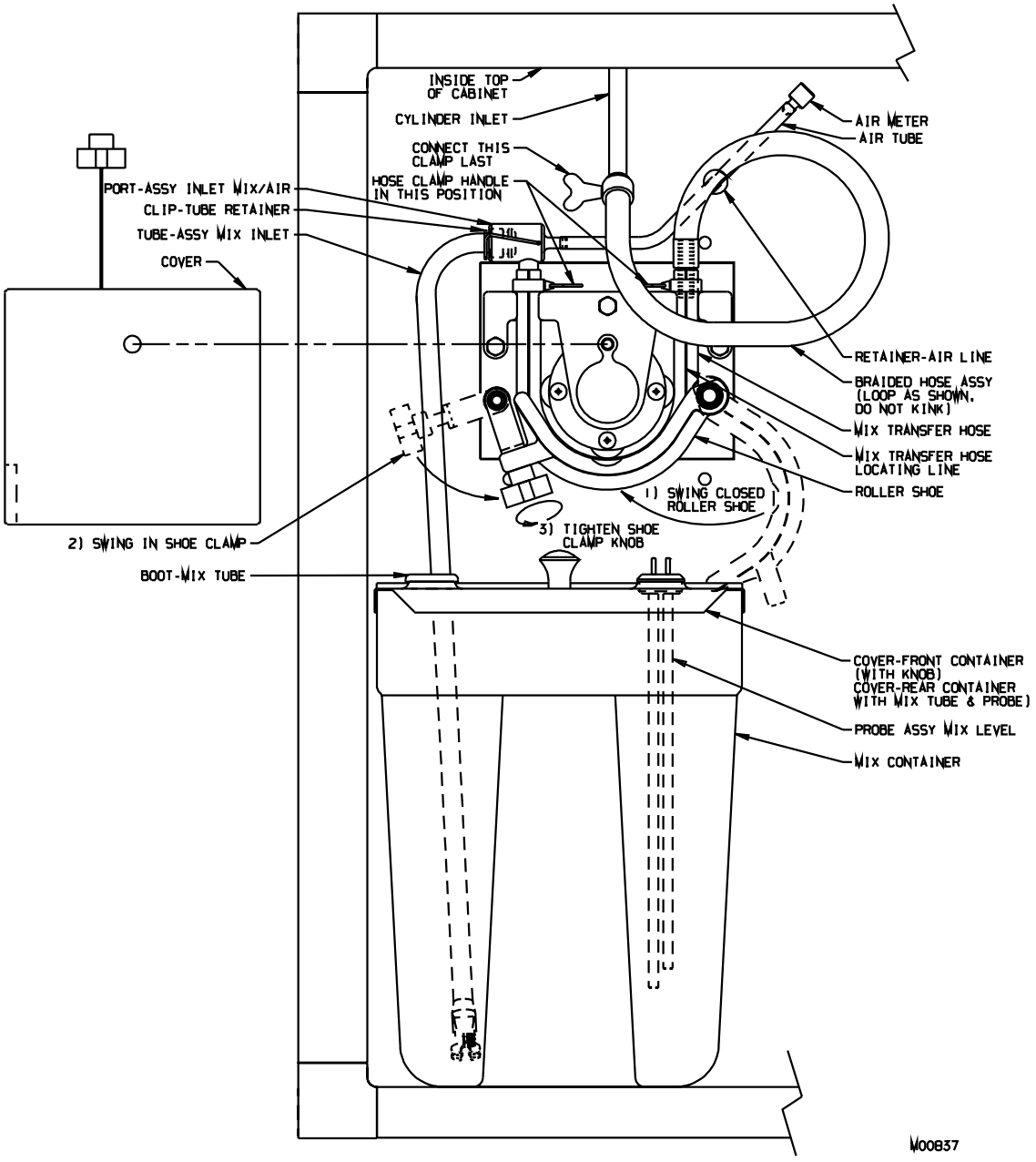

Figure 7-7 MTS

8 Start-up Instructions

CAUTION

Mix Transfer System will be pressurized during operation. Make sure all components and fasteners are secure before start-up.

8.1 Sanitizing Instructions

The washing and sanitizing instructions explained in this manual are important procedures to remove bacteria and maintain a clean, sanitary freezer. The shake freezer must be disassembled and washed according to the instructions in the manual before sanitizing to ensure the best possible cleanliness.

CAUTION

To prevent bacteria growth, use only approved sanitizers to sanitize the machine. Sanitizing must be done just prior to starting the machine. Failure to do so could create a health hazard.

⇨ ***Important:***

Do not use unapproved sanitizers or laundry bleach. These materials may contain high concentrations of chlorine and will chemically attack freezer components.

Note: It is your responsibility to be aware of, and conform to, the requirements for meeting Federal, State and Local Laws concerning the frequency of cleaning and sanitizing the freezer.

1. Prepare 2 gallons (7.6 liters) of sanitizing solution. Sanitizing solution must be mixed according to manufacturer's instructions to yield 100 PPM strength chlorine solution (example: Stera-Sheen Green Label). Use warm water (100° to 110°F or 38° to 43°C) to wash, rinse, and sanitize.

2. Clean the spindle shaft and disc, interior mix container walls, the underside of the container covers, and low mix probe with sanitizer solution and the appropriate brush provided.

3. Place the mix container with sanitizer in the refrigerated cabinet.

⇨ ***Important:***

Never let the sanitizer remain in the freezer for more than 15 minutes.

4. Insert the pickup tube into the sanitizer solution and clean the outside portion. If plastic mix bag systems are used, be sure all adaptors and items that will come into contact with mix are sanitized.

5. Place an empty container under the dispensing head.

6. Open the air relief plug by unscrewing 1½ turns.

7. Reconnect the main power supply. Turn the MTS switch to "PRIME". This will push the sanitizer up into the cylinder.

8. When sanitizer flows out of the air relief hole, close the air relief plug.

⇨ ***Important:***

DO NOT use the "AUTO" position with sanitizer in the cylinder. The freezer will be damaged.

— continued

8.1 Sanitizing Instructions (continued)

9. Turn the selector switch to "CLEAN" and allow the beater to run for 5 minutes. At that time check for leaks around the head, drain tube, clamps, and MTS.

10. Drain the solution from the cylinder by slowly pulling down on the dispense handle.

NOTE: Some sanitizer will remain in hoses and cylinder.

11. Leaving the handle down, turn the selector switch to "OFF" and let the MTS force all possible sanitizer out of the freezer.

12. Turn the MTS switch to "OFF".

13. Remove the pickup tube, holding the top 6-inch portion only.

14. Remove the mix container and empty any remaining sanitizer.

8.2 Priming

Priming the freezer removes excess air from the freezing cylinder and sets the proper overrun for the first cylinder of product.

1. Holding the top 6-inch portion only, insert the pick up tube into the sanitized mix container through the left side hole in the rear cover and set container in the cabinet.

2. Fill the mix container with mix and install the front cover.

3. Insert the sanitized mix probe through the right side hole in the rear cover, and connect probe cord to the probe and to the receptacle in the back of the cabinet.

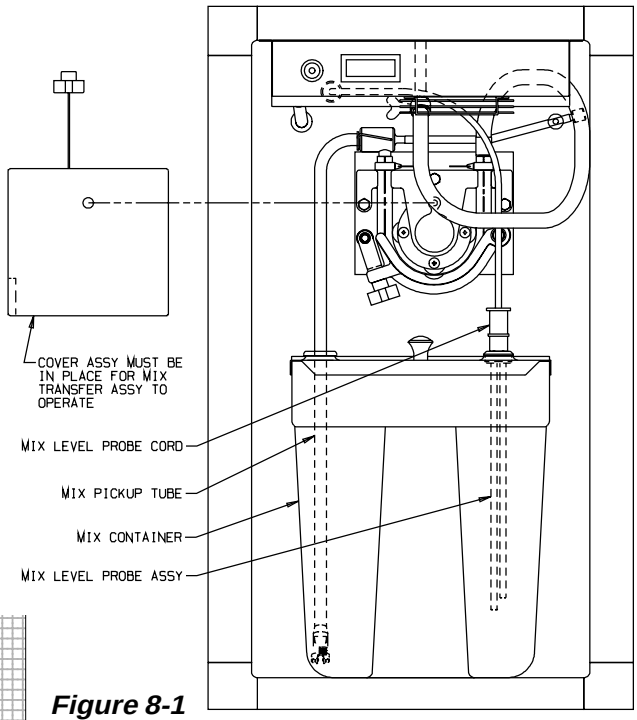

Figure 8-1

4. Turn the cabinet switch to the "ON" position and close the cabinet door.

5. Place an empty container under the dispensing head on the drip tray.

6. Open the air relief plug by unscrewing 1½ turns, then open the plunger.

7. Turn the MTS switch to "PRIME" and allow the mix to push the remaining sanitizer from the freezer.

8. Close the plunger when pure mix is being dispensed.

⇨ ***Important:***
Failure to completely remove sanitizer or water from the freezing cylinder before placing in "AUTO" will damage the freezer.

9. After ***2 minutes*** **and 45 seconds** close the air relief plug and wait for the MTS to fill the cylinder and shut off.

10. After the cylinder is pressurized and the MTS has cycled off (approximately 50 seconds) turn the MTS switch to "MIX ON" and the selector switch to "AUTO".

11. Allow the freezer to cycle for 15 minutes. The product is now ready to serve.

9 Closing Procedures

9.1 Draining Product From Freezer

To remove frozen product from the cylinder:

1. Place a clean, sanitized container under the dispensing nozzle.

3. Place the selector switch in the “CLEAN” position and the MTS switch in the “PRIME” position.

4. See figure 9-1. Remove the stainless steel pickup tube from the mix in the cabinet. Remove mix container from the cabinet, and disconnect low mix probe.

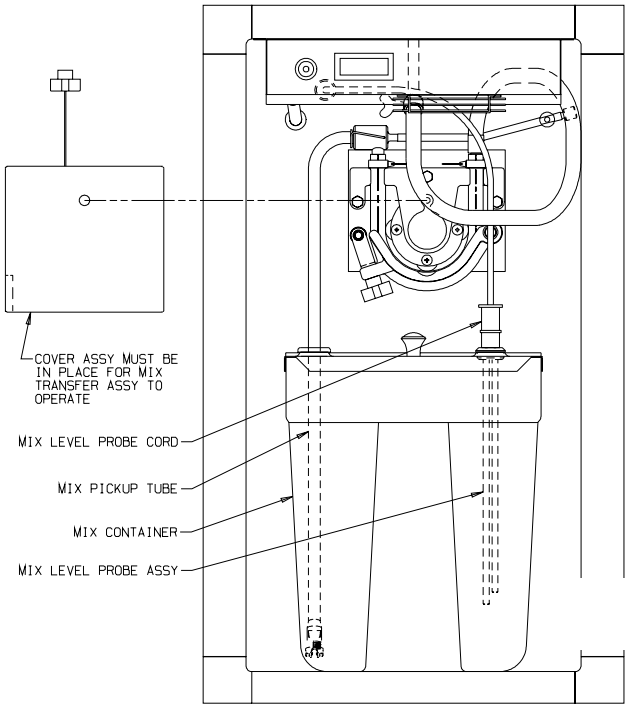

Figure 9-1

5. *Very slowly* dispense the semi-frozen product until no more product comes out.

6. Close plunger. Turn the cabinet and MTS switches to the “OFF” position. Place the pickup tube assembly into a container of cold water, turn the MTS switch to “PRIME” and allow the MTS to fill and pressurize the cylinder.

7. Very slowly dispense the cold water. Follow with a container of warm water (100 to 110°F or 37 to 43°C) and repeat until the dispensed water is clear. Turn all switches to “OFF” and drain all water from cylinder.

8. Prepare 2 gallons (7.6 liters) of sanitizing solution. Sanitizing solution must be mixed according to manufacturer’s instructions to yield 100 ppm available chlorine solution (example: Stera-Sheen Green Label). Use warm water (100° to 110°F or 38° to 43°C).

9. Insert the pickup tube into the sanitizing solution and close the plunger.

10. Open the air bleed plug on the head by unscrewing 1½ turns. Place the MTS switch in the “PRIME” position. When sanitizer solution appears at the air bleed, close the plug and allow the cylinder to pressurize.

11. Place the selector switch in the “CLEAN” position and allow the beater to run for 5 minutes.

12. Slowly open the plunger and allow the MTS to push the sanitizer out of the cylinder. Leaving the plunger open, turn the selector switch to the “OFF” position. Leave the MTS switch in the “PRIME” position and allow the MTS to push all remaining sanitizer out of the cylinder. When the sanitizer quits flowing, turn the MTS switch to the “OFF” position.

CAUTION
Be sure the freezer is depressurized before proceeding.

13. Refer to Disassembly and Closing Instructions.

10 Soft Serve Information

10.1 Overrun

As mix is frozen in the freezing cylinder, air is incorporated into the mix to increase its volume, as well as enhance the taste and texture of the finished product. The increase in volume is called *overrun.* Fifty percent overrun means a volume increase of 50% — 10 gallons of liquid mix has become 15 gallons of finished product.

Controlled overrun is important to maintaining consistency in product quality. Too much overrun (air) results in a light, fluffy product lacking the cold, refreshing appeal of a quality product. Too little overrun results in a soggy, heavy product.

To correctly measure the overrun, perform the following steps:

1. Place an empty pint container on the scale* and adjust your scale to zero.

2. Remove container from scale and fill with liquid mix to the top. Measure and record the weight of the container.

3. Replace liquid mix with frozen product, being sure to leave no voids or air spaces in the container.

4. Strike off the excess product so it is even with the top of the container and measure the weight.

5. Use the following formula to figure overrun percentage:

"Weight of liquid mix minus weight of frozen product/divided by the frozen weight." See example.

Example:

Weight of one pint of mix	**=**	**18 oz.**
Weight of one pint frozen product	**=**	**12 oz.**
Difference	**=**	**6 oz.**
6.0 oz. divided by 12 oz.	**=**	**.5**
.5 x 100	**=**	**50% overrun**

* Your Electro Freeze Distributor can provide a scale (P/N 158049) that is graduated in overrun percentage.

10.2 Overrun Adjustment

NOTE: Each person who operates the freezer should know what overrun is and how to calculate it.

Overrun is regulated by the air meter. You were supplied with three air meters, each one containing a different size orifice. The smaller the hole and number, the lower the overrun. The larger the hole and number, the higher the overrun. Each half-size change of the air meter number will change the overrun 3-5%. Each full-size change will change the overrun 5-10%.

The orifice or hole in this air meter must be open at all times. It is the only source of air into the freezing cylinder. *Check this daily!*

The mix will be a factor in determining the amount of overrun you will be able to achieve. Some mixes will accept more air than others, thus affecting the size of air meter you can use. Test to see which air meter will give you the best overrun and the best product. Run each air meter for a few hours until you decide.

You may have a slightly higher overrun when you first start up the machine. After the machine has run long enough to dispense at least one full cylinder of product, you will have the overrun that the machine will hold the remainder of the day. Contact your mix supplier for the recommended amount of overrun for each product used.

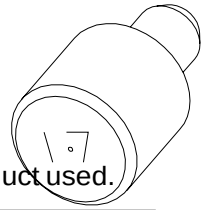

Figure 10-1 Air Meter