4060 Bottle Filler/Capper (Manual or Semi-Automatic) Operating Instructions

CONTENTS

updated 3-2025

Milk Processing Equipment Warranty & Terms

12 MONTH LIMITED WARRANTY:
Your milk processing equipment from Carriage Machine Shop LLC (CMS LCC) is warranted for a period of 12 months from the date of manufacture, subject to the terms & conditions as follows:

- CMS LLC will repair or replace any part of our milk processing equipment which becomes faulty within a period of 12 months from purchase, provided the milk processing equipment is returned to us, shipping paid, and that the milk processing equipment has only been used in the normal and correct way. We reserve the right to change/improve specifications from time to time without notice. **Any repairs or modifications performed by anyone other than CMS LLC automatically voids this warranty.**
- Parts: CMS LLC will replace, at no charge to the owner, any defective parts which CMS LLC determines affects the operation of the milk processing equipment. Replacement parts will be shipped to the owner. Owner is responsible for shipping costs.
- Labor: The owner may at his option and with CMS LLC approval, have the milk processing equipment shipped to our shop for repair. All labor and material costs for repair at the factory will be borne by CMS LLC, but the owner assumes all shipping costs. **Should the owner choose a source other than CMS LLC to repair the milk processing equipment, this warranty will be voided and CMS LLC no longer assumes responsibility for the milk processing equipment.**
- Warranty applies to original owner only.

SHIPPING DAMAGES:
Shipping damages must be reported within 24 hours of delivery. Please keep your milk processing equipment and all packing materials for possible inspection. If the milk processing equipment returned under this clause is found to be perfect and in full working order, the equipment will be returned to you and an administration fee of 15% of the purchase price plus the shipping cost back to you will be charg*ed*.

RETURNS:
No returns will be accepted unless authorized by a representative of CMS LLC. Merchandise will be credited when it is in our warehouse. Return shipping costs must be prepaid. A 25% restocking fee applies to all returned or refused merchandise. No returns will be accepted after 30 days unless upon agreement. Items to be returned must be in original condition.

NOTICE:
Carriage Machine Shop will not be liable or responsible for any type of accident that may arise from any of our products. Use all of our products at your own risk.

TERMS:
Wholesale accounts get 1% discount when paid in 10 days, net 30. Retail customers payment is due upon receipt.

For replacement parts or service, please contact the manufacturer:

CMQ Milk Equipment
717-397-4079 ext 125

A department of:

CARRIAGE MACHINE SHOP, LLC
Serving you since 1979

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General Safety Rules

WARNING: READ ALL INSTRUCTIONS. Failure to follow the safety rules listed below and other basic safety precautions may result in serious personal injury.

KNOW YOUR BOTTLER
Read and attain a thorough understanding of the owner's manual and label attached to the bottler. Study your bottler application limitations and its potential hazards.

KEEP SAFETY SHIELDS IN PLACE
The shields must be maintained in working order.

KEEP THE WORK AREA CLEAN
Disorderly work area can cause accidents. Ensure that the floors do not become slippery as a result of liquids or any other materials.

AVOID DANGEROUS ENVIRONMENTS
Keep your work area well illuminated. Provide adequate surrounding work space.

KEEP CHILDREN AND ALL OTHER GUESTS AWAY FROM THE BOTTLER
All guests should be positioned at a safe distance from the work area.

DON'T FORCE THE BOTTLER
Your bottler will perform better and safer at the rate for which it is designed. Don't force the bottler to perform a job for which it was not designed.

WEAR THE PROPER APPAREL
Do not wear any loose clothing, gloves, neck ties, rings, bracelets, other jewelry, and tie back bonnet strings and hair which may become caught in moving parts. NONSLIP footwear is recommended. Wear protective hair covering to keep hair away from face. Long sleeves should be rolled above the elbow.

DON'T OVERREACH
Keep proper footing and balance at all times.

MAINTAIN YOUR BOTTLER WITH CARE
Clean your bottler frequently in order to maintain the safest operation.

DISCONNECT YOUR BOTTLER
Before servicing your bottler or when changing accessories, disconnect the unit.

AVOID ACCIDENTAL STARTING
Ensure that the switch in the OFF position before plugging in your bottler.

NEVER STAND ON THE BOTTLER
Serious injury may result if the bottler is tipped.

CHECK ANY DAMAGED PARTS
If any part of the bottler is damaged, discontinue use until the part is carefully checked to ensure that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other control factors that may affect its operation.

NEVER LEAVE THE BOTTLER UNATTENDED WHILE IT'S RUNNING
Turn off the power before walking away.

DRUG / ALCOHOL / MEDICATION
Do not operate the bottler while under the influence of drugs, alcohol or any medication.

USE THE PROPER EXTENSION CORD
Your bottler is equipped with a polarized plug (one blade is wider than the other) to reduce the risk of electrical shock. This plug will fit in a polarized outlet only one way. If the plug does not fit fully in the outlet, reverse the plug. If it still does not fit, contact a qualified electrician install the proper outlet. DO NOT change the plug in any way.

Specific Safety Rules

- **Always** keep your hands out of pinch areas.
- **Avoid** awkward operations and hand positions.
- **Never** use solvents to clean plastic parts. Use approved cleaning solutions.
- **Never** alter your bottler. Altering or modifying the bottler is considered misuse and may result in hazardous conditions.
- **Always** replace the power cord immediately if the power cord is worn or damaged in any way to avoid shock or fire hazard.
- **Only** use Carriage Machine Shop replacement parts. Any other parts may create a hazard.

Power Supply Requirements

Electrical Connections

- 110 plug needs a 20 amp breaker
- If applicable: 120 psi, 5 cfm"

Grounding Instructions

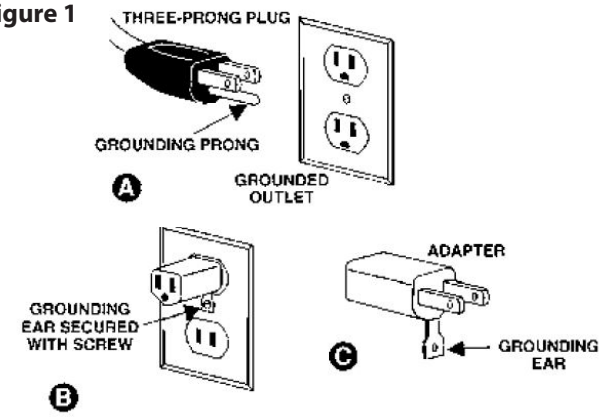
All grounded, cord-connected tools: In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electrical shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances. Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in a risk of electrical shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.

Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug. Repair or replace damage or worn cords immediately.

Figure 1



Grounded, cord-connected tools intended for use on a supply circuit having a nominal rating less than 150 volts:

This tool is intended for use on a circuit that has an outlet that looks like the one illustrated above in **Figure 1**(A). The tool has a grounding plug that looks like the plug illustrated in (A). A temporary adapter, which looks like the adapter illustrated in **Figure 1**(B & C), may be used to connect this plug to a 2-pole receptacle as shown in (B) if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. (This adapter is not applicable in Canada.) The green-colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box.

Make sure the tool is connected to an outlet having the same configuration as the plug. No permanent adapter is available or should be used with this tool. If the tool must be reconnected for use on a different type of electric circuit, the reconnection should be made by qualified service personnel and after reconnection, the tool should comply with all local codes and ordinances.

Extension Cords

If an extension cord is necessary, make sure the cord rating is suitable for the amperage listed on the machine's motor plate. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Use the chart below as a general guide in choosing the correct size cord. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

Recommended Gauges (AWG) of Extension Cords

Amps	Extension Cord Length *					
	25 feet	50 feet	75 feet	100 feet	150 feet	200 feet
< 5	18	16	16	14	12	12
5 to 8	18	16	14	12	10	NR
8 to 12	14	14	12	10	NR	NR
12 to 15	12	12	10	10	NR	NR
15 to 20	10	10	10	NR	NR	NR
21 to 30	10	NR	NR	NR	NR	NR

*based on limiting the line voltage drop to 5V at 150% of the rated amperes.
NR: Not Recommended.

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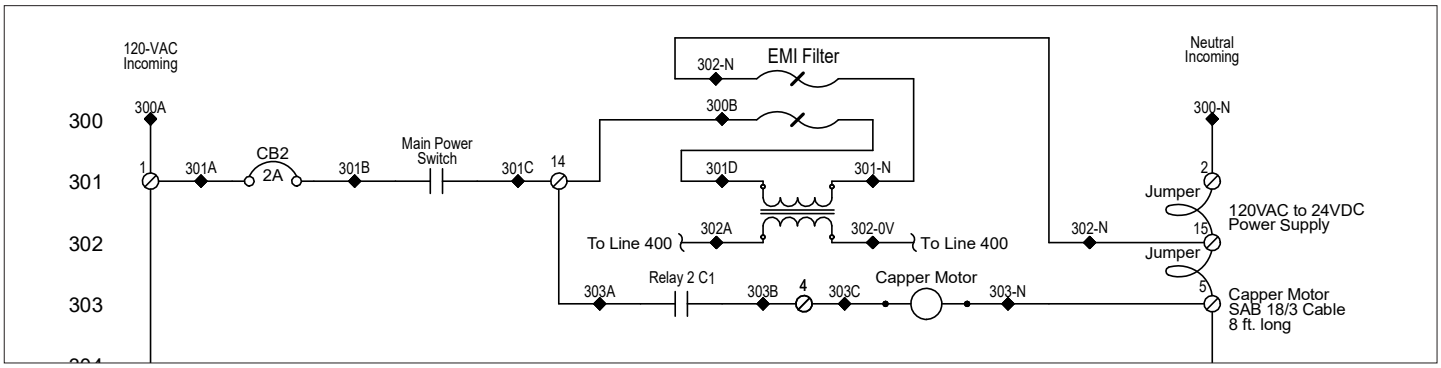
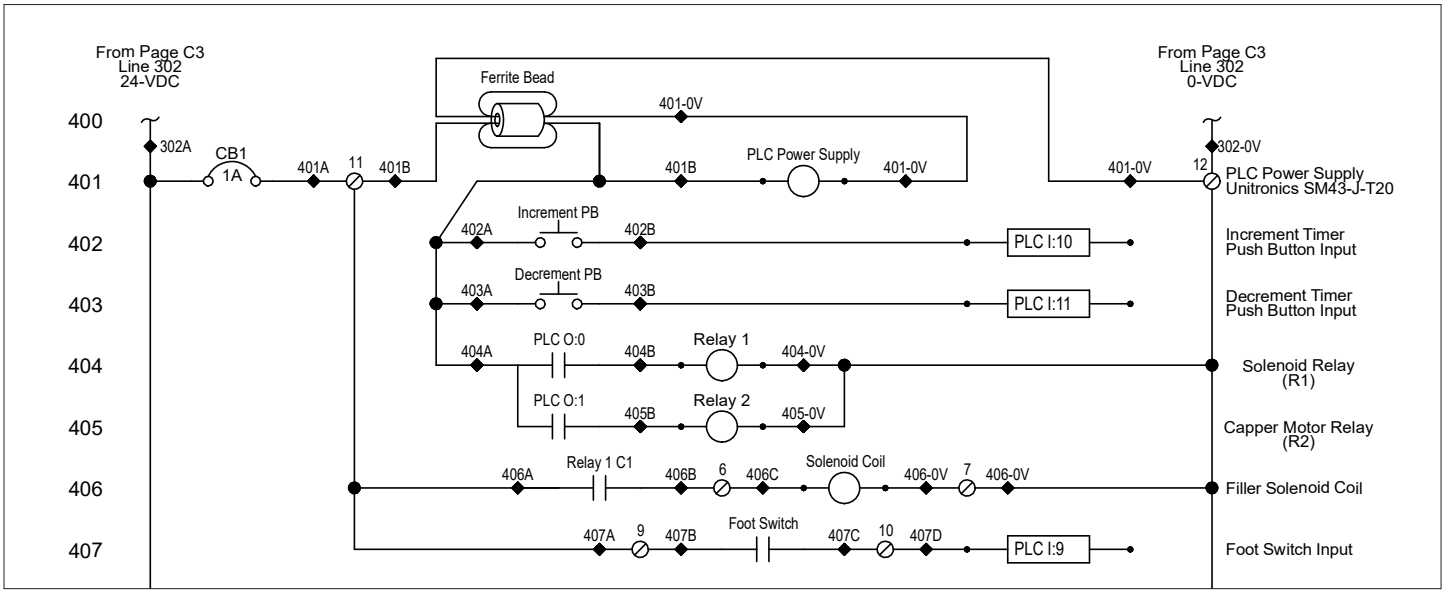
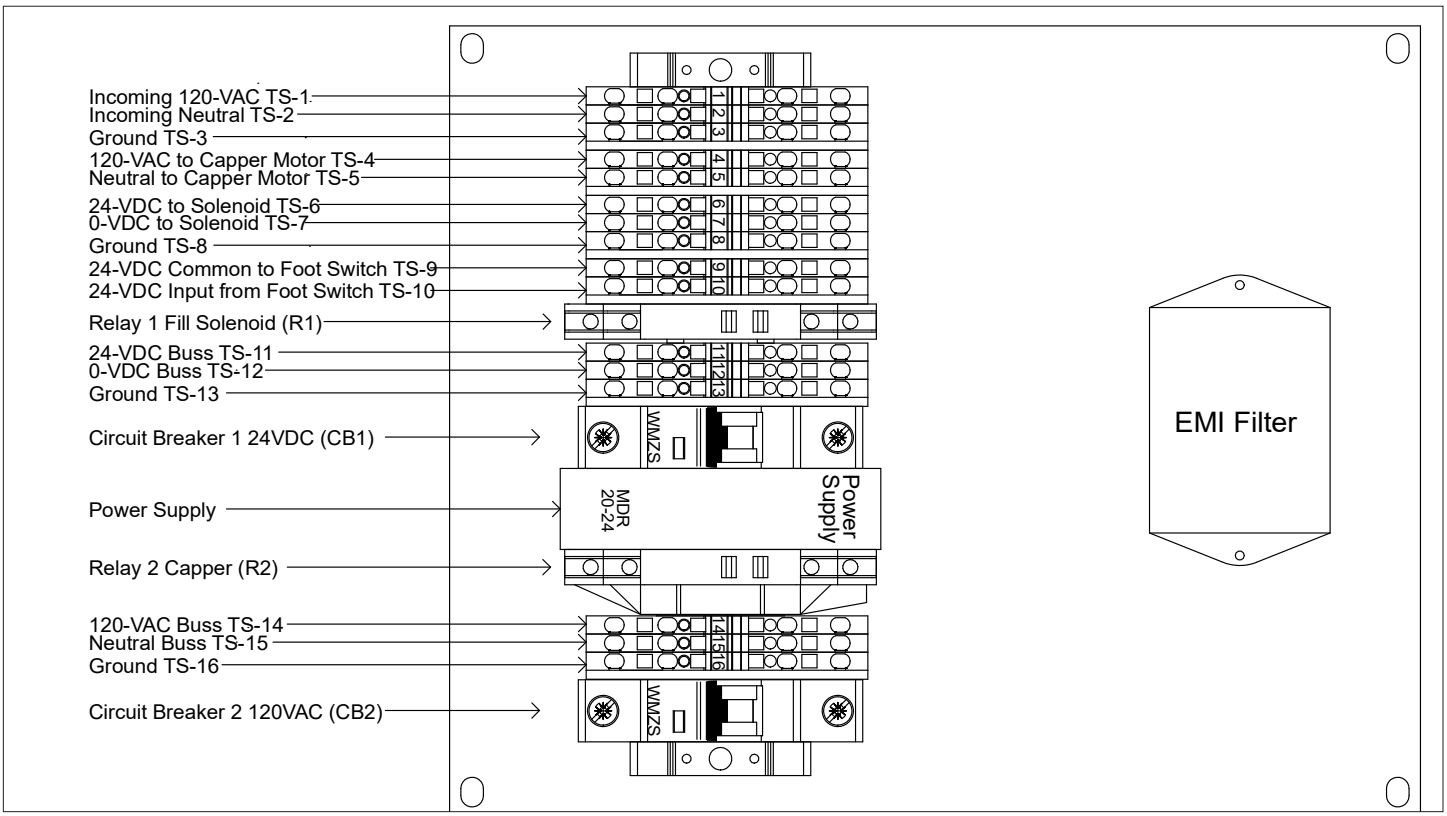
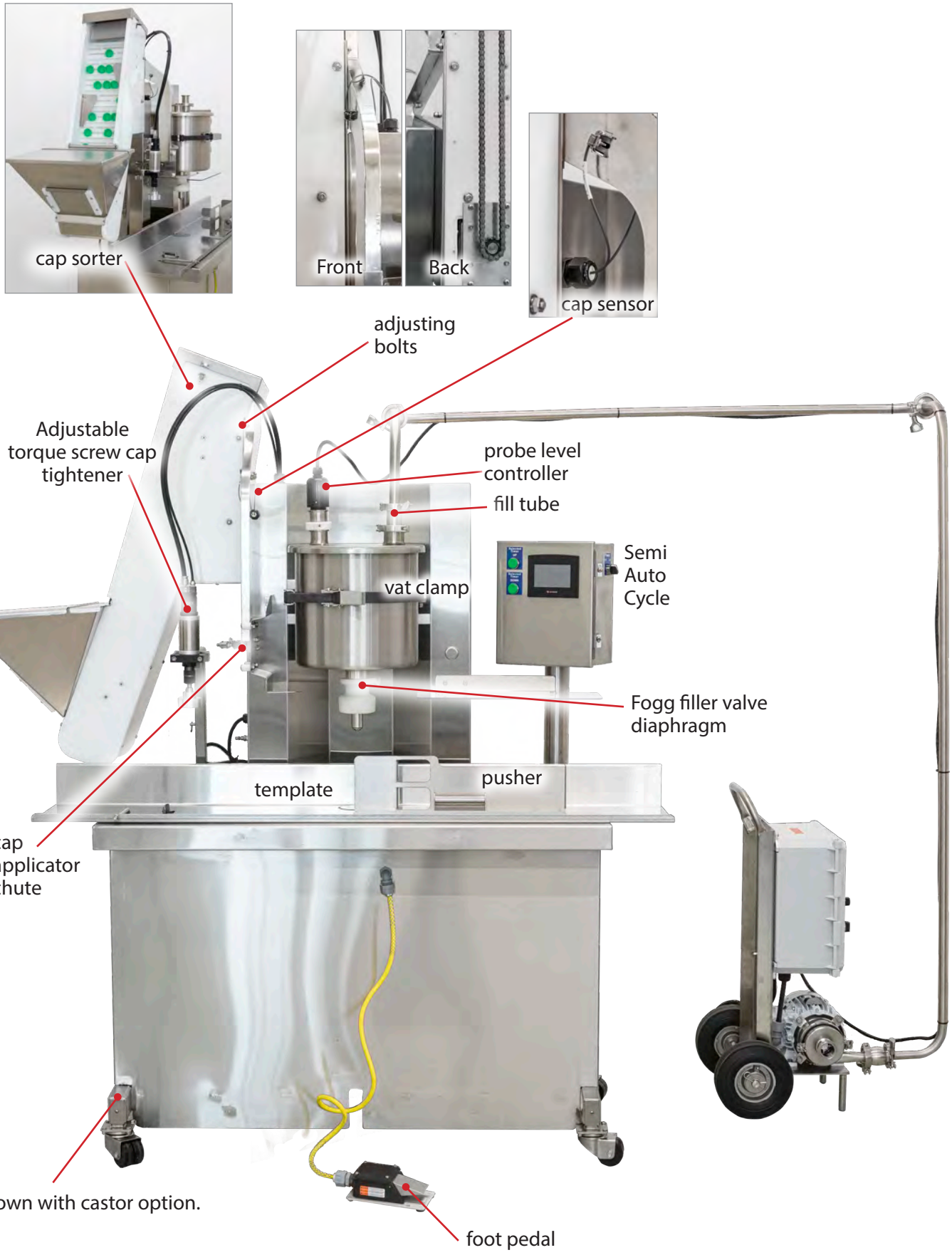
Wiring Schematic for the Auto-Cycle Feature *(if applicable)*







Getting to Know Your Bottler / Identification of Parts



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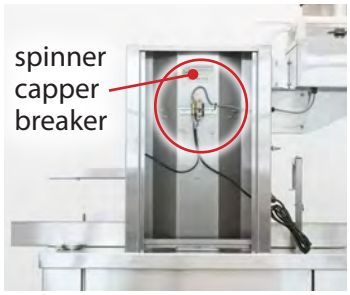
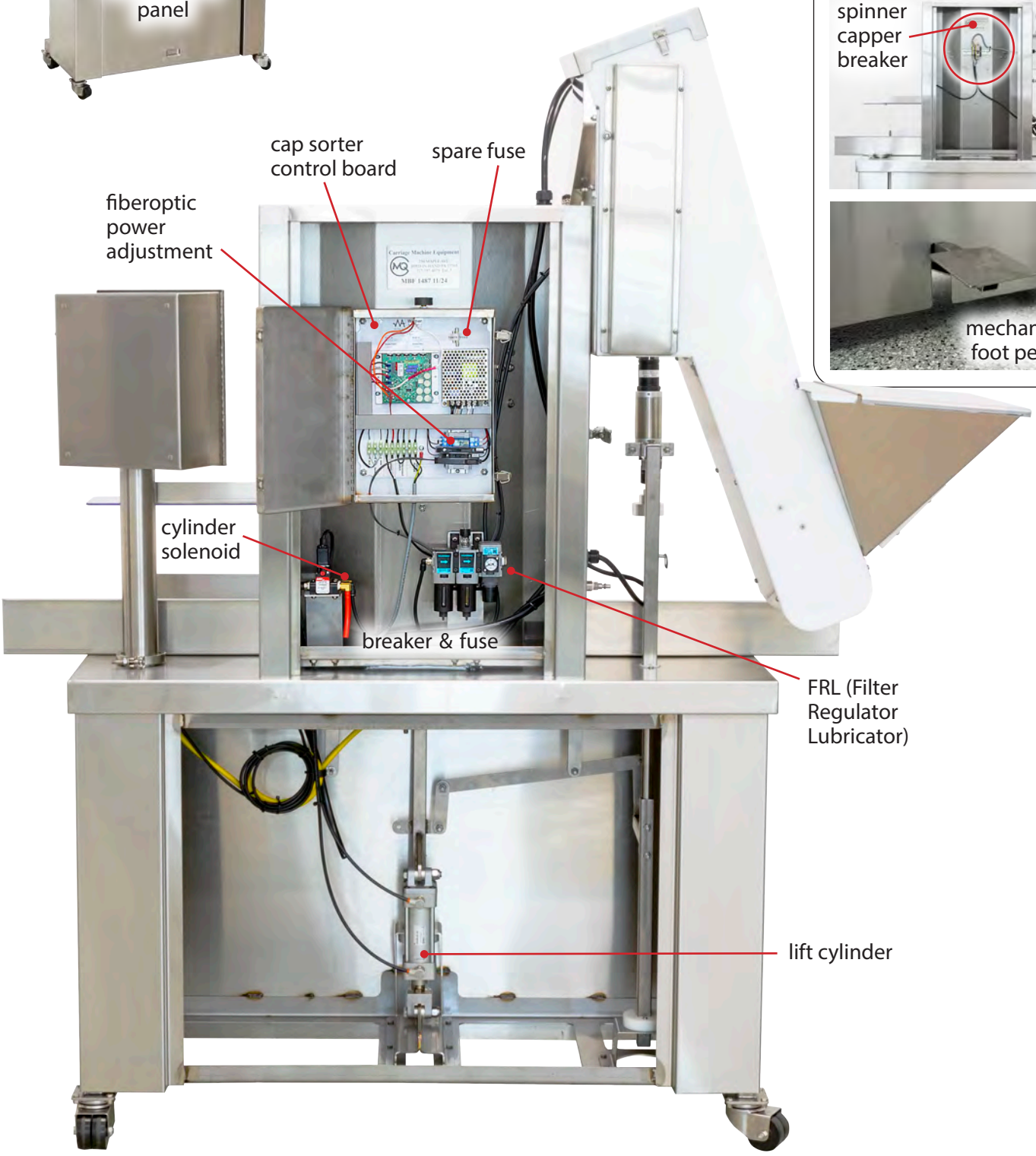
Incline capper adjustment

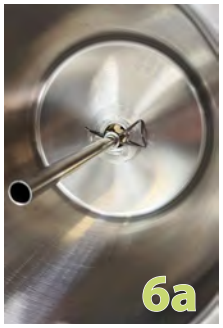
Manual Options





Vat & filler valve assembly

1. Place valve sleeve onto valve assembly tool.
2. Insert valve assembly tool into Fogg diaphragm and slide until seated properly like photo #2a.
3. Insert valve stem into bottler vat like photo 3a.
4. Slide Fogg diaphragm assembly over valve stem onto vat.
5. Place O-ring into groove of valve stem.
6. Flip vat onto its side, and place clip as shown in photo 6a. If clip is installed upside down, the valve will not feel secured.
7. Install Fogg splash deflector onto valve stem.
8. Install vat with assembled Fogg valve onto bottler. Secure vat clamp.
9. Assemble fill tube into lid, then place onto vat.



To disassemble:

a. Release vat clamp and remove from slider.

b. To disassemble the valve, remove the O-ring on bottom of nozzle,

c. Pull up on white diaphragm until it comes off the stem, and then

d. Release clip on inside of vat by pulling away from stem. Nozzle stem comes out completely. Remove stem from white diaphragm and disassemble all parts for proper cleaning

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The VentraFlow valve

The VentraFlow valve both improves filling accuracy and reduces filling losses. This high velocity valve efficiently handles milk, water, juice products, wine, syrups, edible oils, pharmaceuticals, chemicals and other light liquids that will flow readily by gravity.

Features

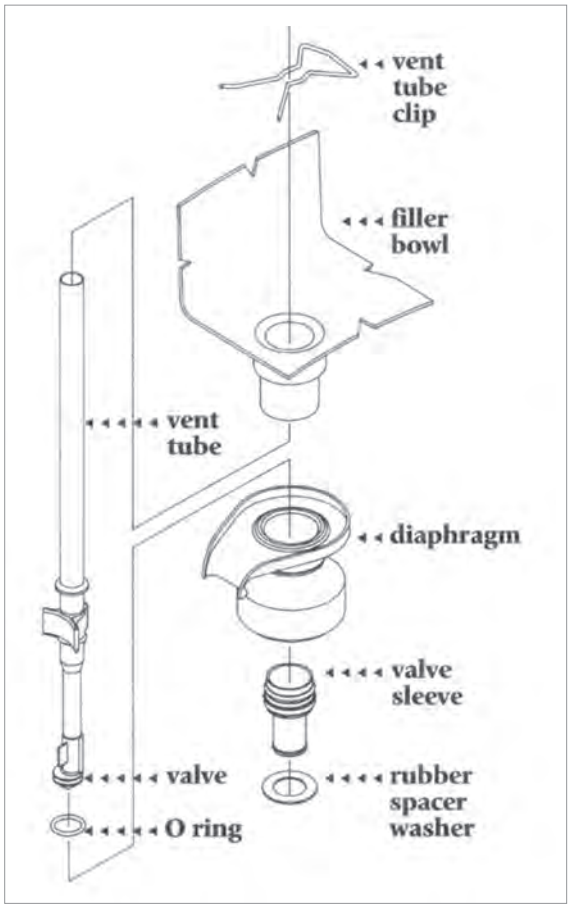
- Only five basic parts
- Easy clean up
- Made of food-grade stainless steel and FDA materials
- Valves can be all metal or VentraFlow with silicone diaphragms
- Quick change over
- Ozone and chemical resistant for bottled water, and cleaning solutions

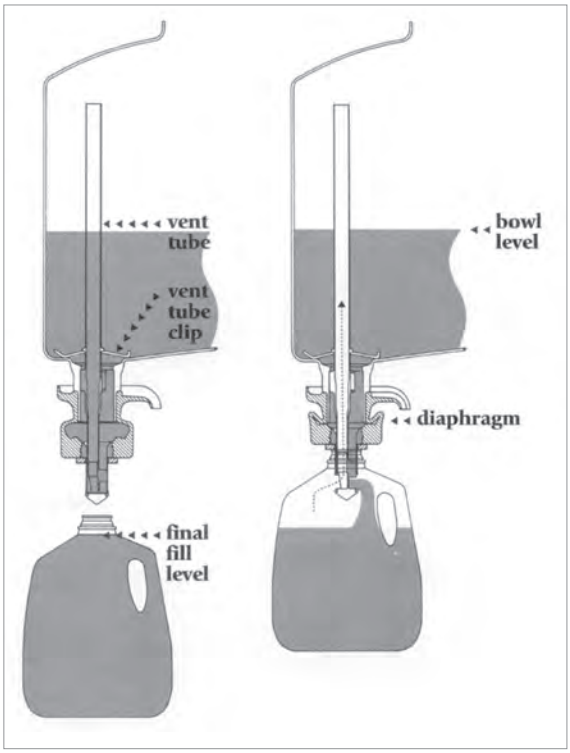
Accurate Filling

Fogg's VentraFlow valves use an air lock principal to attain very accurate fill levels. When liquid reaches the end of the valve sleeve, air cannot escape; pressure is created at the top of the bottle, and no more liquid can enter. This air lock provides continuous fill level accuracy.

Controlled Filling

The filling level is established by how far the telescoping valve sleeve extends into the bottle Fill level can be set and controlled through use of various sizes of valve space washers which are easily added or removed.



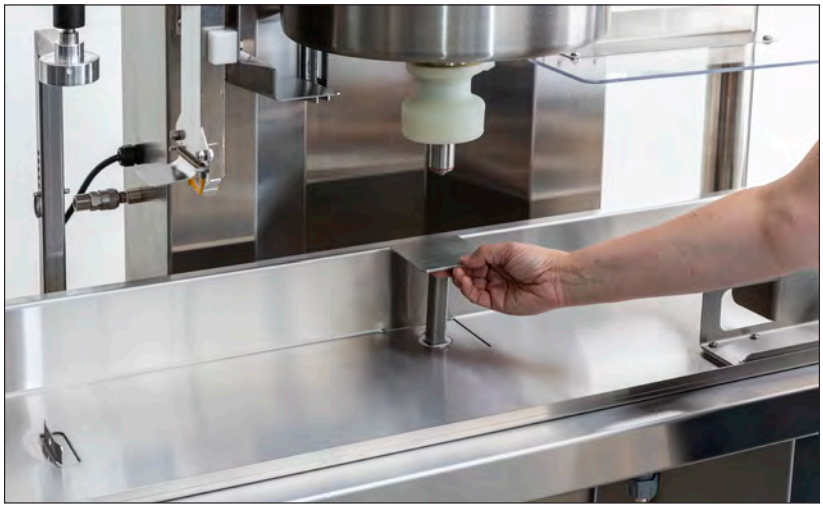


Preparing the Bottler

Before operating, please follow these guidelines to ensure the Bottler is adjusted and set up for the proper size bottles.

1. Select proper bottle template for the size you are filling by sliding the stainless tray in place over square hollow tube, with the taller guard to the back, aligning the pins in the holes on the table top.

2. Place lifter plate into lifter tube and be sure it sets in completely.



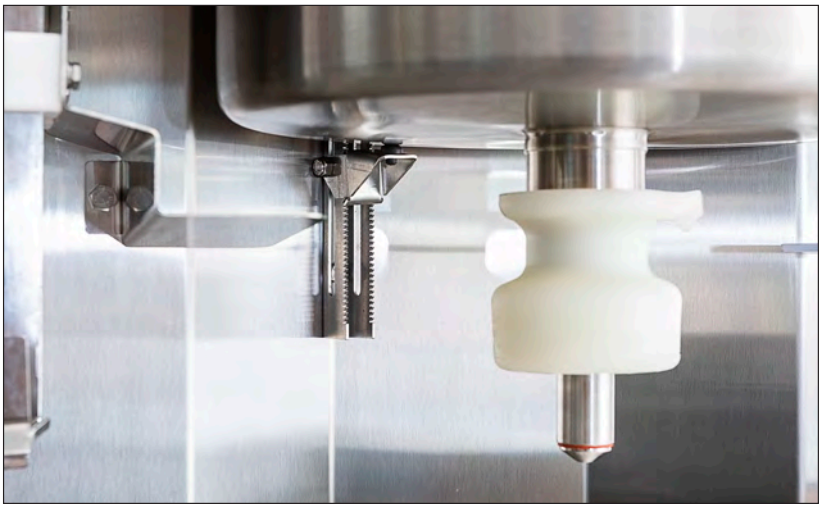
3. Place bottle pusher to the right of the filling nozzle against the front guard. NOTE: Get the proper bottle pusher for the size bottle you are filling. Use 4023A Bottle pusher for gallons & half gallons. Use 4023B bottle pusher for quarts & smaller.

4. If the bottle template needs to be adjusted, there are two nuts on the left in front of the cap application area. Turn the nuts in either direction to adjust the bottle template.

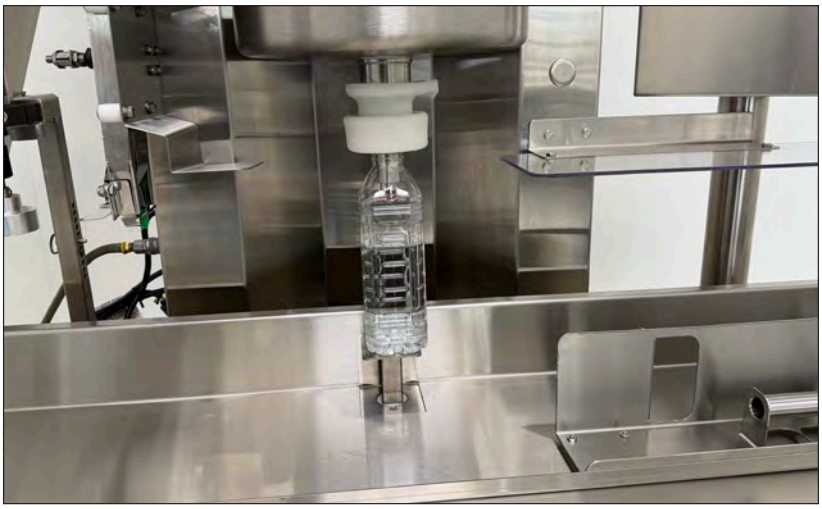
5. Place a bottle under cap chute. Set cap in place. Manually push bottle under the cap. If cap does not gently come to rest directly on top of the bottle, reach up behind cap applicator and release the stainless steel toggle clamp with one hand. With the other hand, adjust the capsetter applicator chute up or down, until cap properly sits on top of bottle without being forced. The cap applicator is not meant to completely apply the cap, only to *place* it properly.

6. Use pedal to set the cap stomper. When pedal is pressed, the torque wrench goes up allowing the bottle to go into place. Release the pedal and the torque wrench comes down to finish the application of the cap. If the stomper needs to be adjusted, pull the stainless pin on the side of the tube & adjust torque wrench to proper height and insert pin.

7. Adjust vat nozzle to the correct position for filling. Loosen vat strap by opening strap clamp to the left and lifting the vat up or down. There is a slider in the back of the vat to adjust to the different positions by lifting the slider up or down through the slots. The slider should be against the bottom of vat when the vat clamp is locked into place.

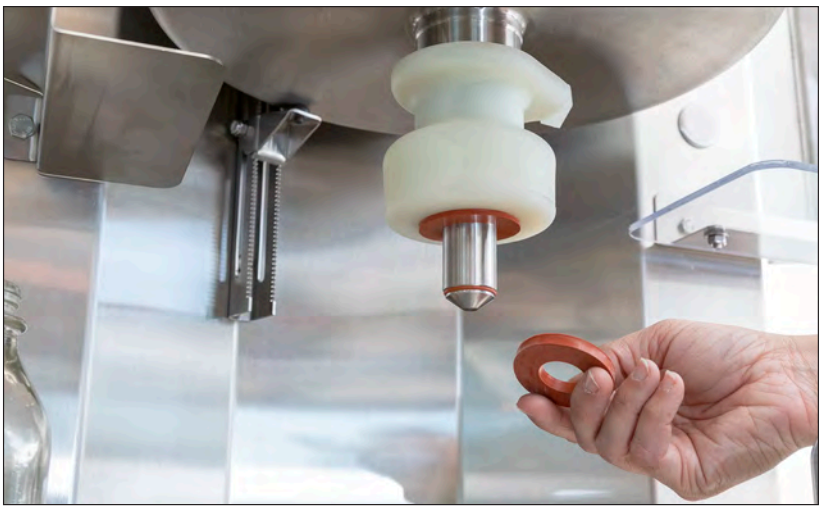


8. Place a bottle under the nozzle; depress pedal so bottle is lifted into place. If nozzle is not correctly positioned to fill, continue adjusting. The bottle must push against the white rubber Fogg valve to open the seal for filling. When adjusted properly, liquid begins to fill the bottle.



9. If desired product level in container is not achieved, adjust the fill level by sliding extra rubber washers over the stainless fill nozzle until desired level is achieved. The more washers you add the higher the fill level will be.

   One (1) Fogg spacer kit is included with each bottle filler.



10. Filling the cap spinner or hopper: This is the large white container with the stainless lid. Remove the lid and fill with the proper amount of caps.

***NOTE:** Do not overfill or force the lid on. The spinner needs space in the container to operate properly. It is better to put less caps in and refill as needed rather than to overfill causing the spinner to malfunction. We recommend a maximum of 150 caps for snap-cap & a maximum of 350 caps for DBJ screw cap.*

11. Once filled with caps and all other adjustments have been made manually, plug in the machine.

12. Turn the switch located on the right of the fill nozzle to engage the cap sorter to allow caps to fill the applicator chute.

13. The catch fingers on the cap chute are adjusted properly for standard size caps at our factory when the bottle filler is manufactured. If you need to adjust the cap fingers for non-standard caps, simply adjust the screw on the front of the cap applicator chute. There is a locking nut and spring that will adjust.

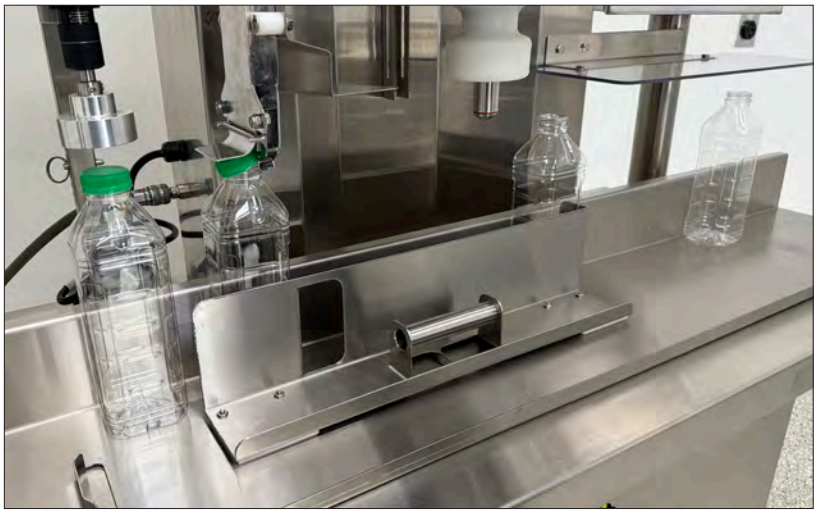
For glass & screw cap style bend fingers to adjust if necessary

14. Place empty bottles on right side of the table top. Using the right end of the bottle pusher to catch a bottle, slide the bottle to the left under the nozzle until bottle pusher hits the stop on the left side. If the pusher needs to be adjusted, adjust tabs in either direction on the stop. Bottle should come directly under the nozzle when the pusher hits the stop.

adjustable tabs

Operating the Bottler

Once bottle is in place using only the bottle pusher, release the fill pedal until the bottle is full. While the first bottle is filling you can use the pusher to catch the next empty bottle and slide it to left to be in pre-fill position. Release the pedal, sliding the pusher to the left. This will set the next bottle to fill and send the first bottle to the cap chute. Release pedal to fill the next bottle and seal the first.



Cleaning & Maintenance

See pg. 20 & 21 for detailed cleaning and maintenance instructions.

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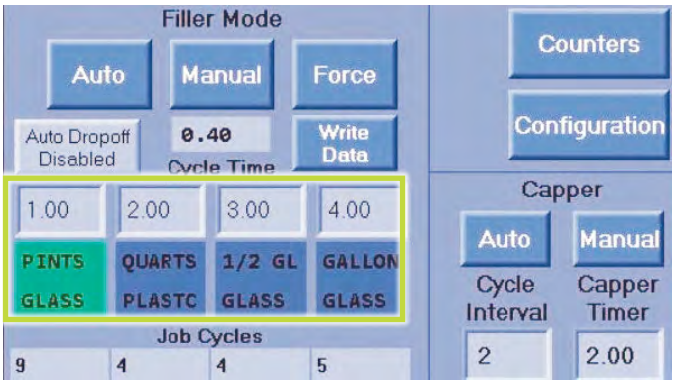
The Control Panel *(if machine has the Auto-Cycle Feature)*

HOME SCREEN

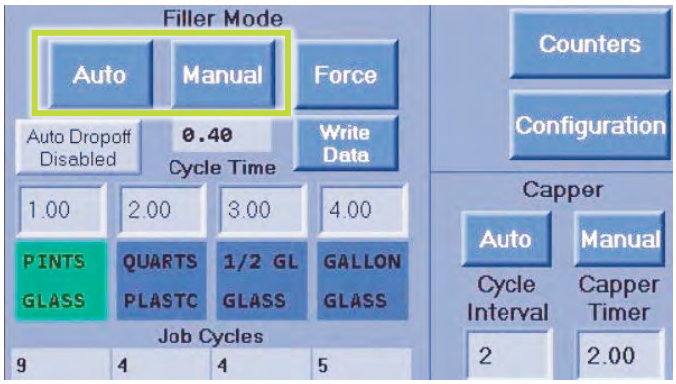
Cycle Time

Select one of the 4 sizes you want to fill. Tap the number above to enter a fill time for that size. 1=1 second.



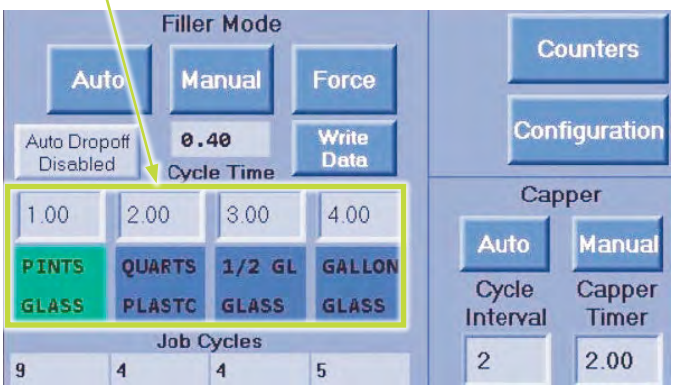
Filler Mode

Select either “Auto” or “Manual”

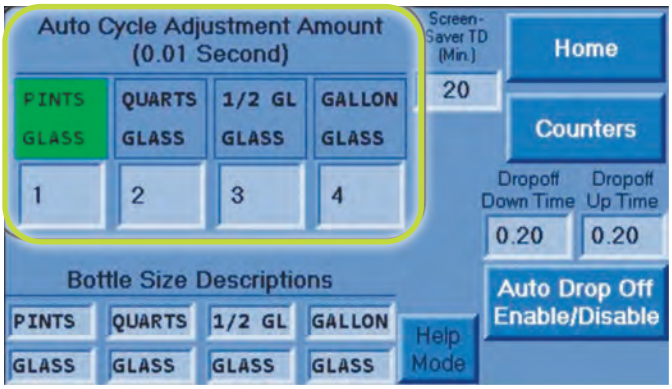


Auto Mode

In auto mode, tapping the foot pedal causes the filler to stay up the selected amount of time. Tap the number to type in a different number or use the green up/down buttons beside the screen to adjust the time. The amount the buttons adjust the time can be set in the configuration page. Tap the number to type in a different number. *For example,* the number 1 = 10 milliseconds or 0.01 second.

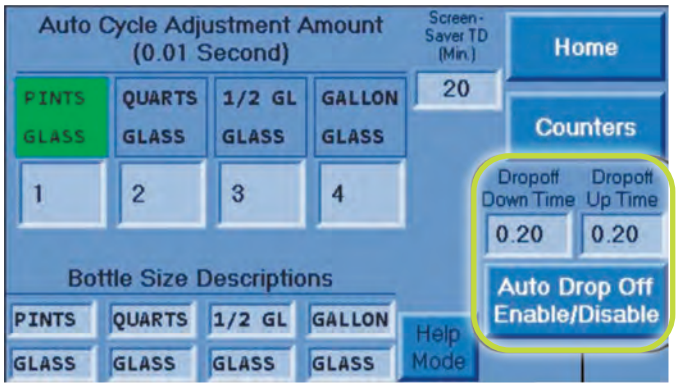


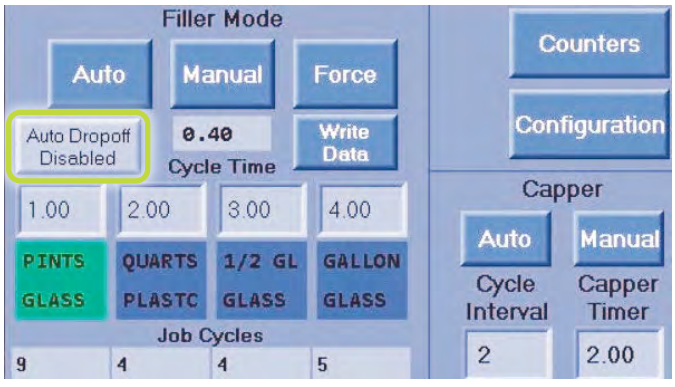
CONFIGURATION SCREEN



Auto Drop-off

The “Auto Dropoff Enabled/Disabled” button enables or disables the auto drop-off sequence when in “Auto” mode. When enabled, at the end of a fill cycle, the filler will drop down for a set amount of time and then go up again for a set amount of time before dropping down again. The “Auto Dropoff Time Settings” on the configuration screen allow you to set the amount of time the filler drops down and goes up at the end of the fill cycle. Tap the number to type in a different number. 1=1 second.

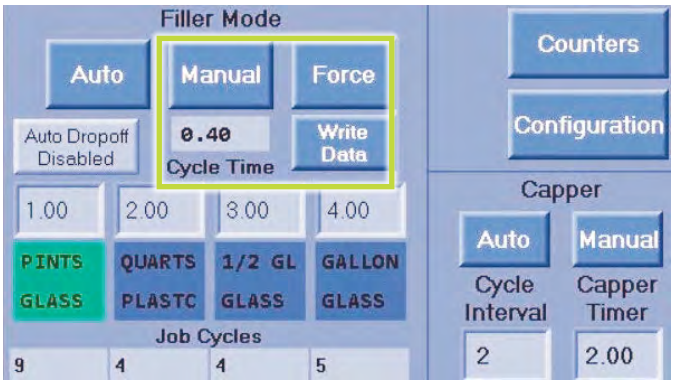




Configuration Screen cont.

Manual Mode

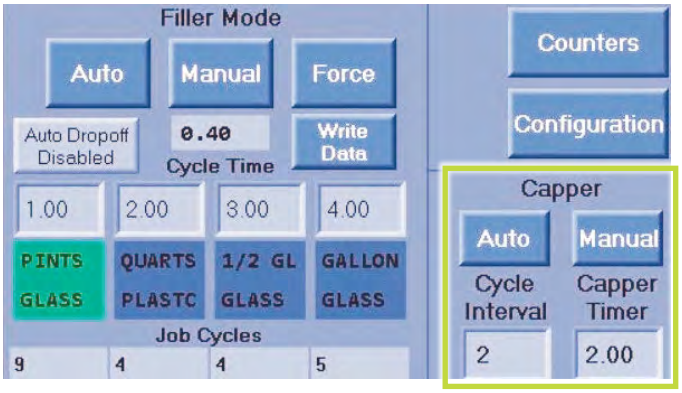
In manual mode the filler stays up as long as the foot pedal is held down. As soon as it is released, the filler lowers. When in manual mode, the manual timer counts up as long as the foot pedal is held down. When the foot pedal is released, the time is stored until the foot pedal is pressed again. Pressing the "Write Data" button stores that number into the cycle time of the selected fill size. In manual mode, pressing the "Force" button forces the filler up. The filler will stay up until the force button is pressed again or until the auto or manual button is pressed.



Capper

In "Auto" mode, the cycle interval number sets how many times the filler cycles until the cap- per runs. The capper timer number sets how long the capper runs. 1=1 second. Tap the numbers to type in a different number.

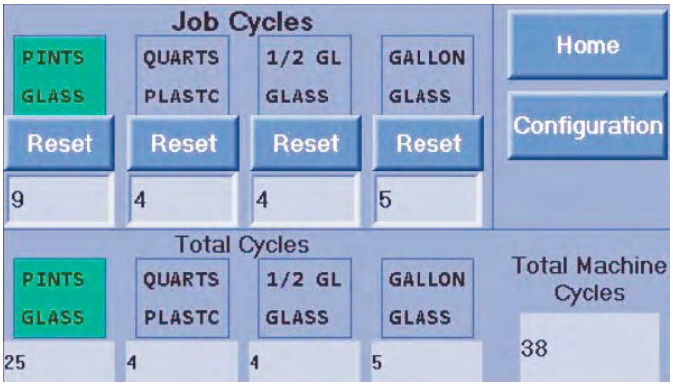
Pressing the capper "Manual" button runs the capper. Pressing the "Manual" button again stops the capper.

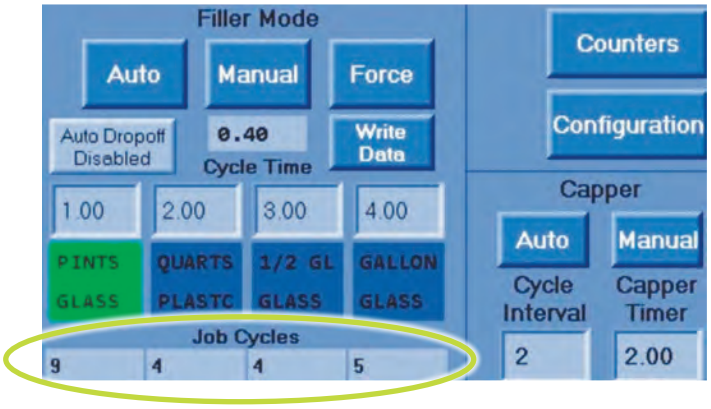


COUNTERS SCREEN

Job Cycle Counters

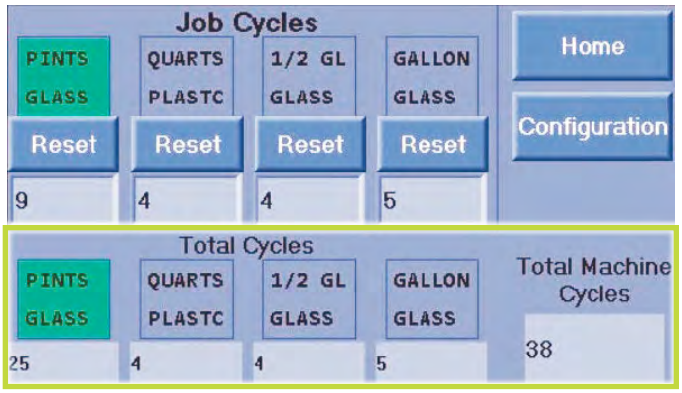
Press reset to reset the job cycle counters or tap the number to type in a different number. The job cycle counters are also displayed on the main screen.





Total Cycle Counters

The total cycle counters count total machine cycles and total cycles per size and cannot be reset from the operator screen.



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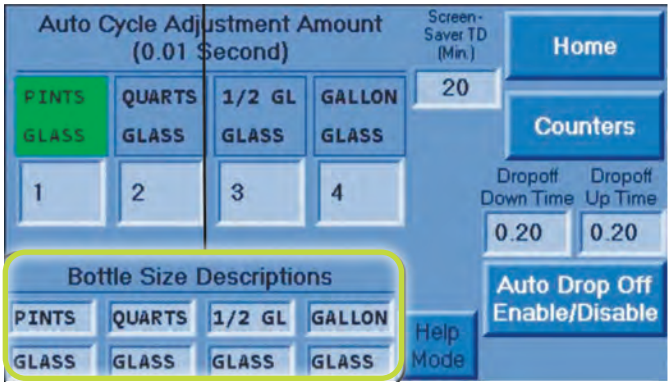
CONFIGURATION SCREEN

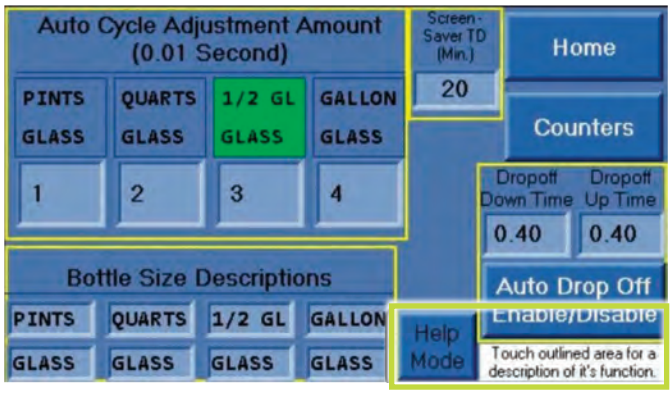
Bottle Size Descriptions

Tap these text boxes to enter descriptions for each bottle size.



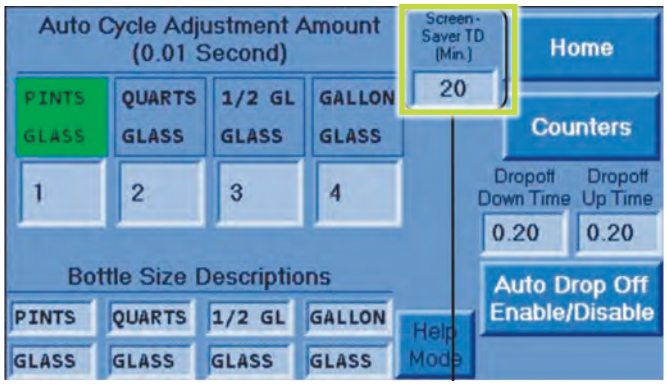
Help Mode

Press the "Help Mode" button to toggle the help mode on and off. When on, touch an outlined area for a description of it's function. This will not affect the operation of the bottler.



Screensaver

This is the time the screen stays on when not being used. 1=1 minute. Max Value=59
Touch anywhere on the screen to use again.



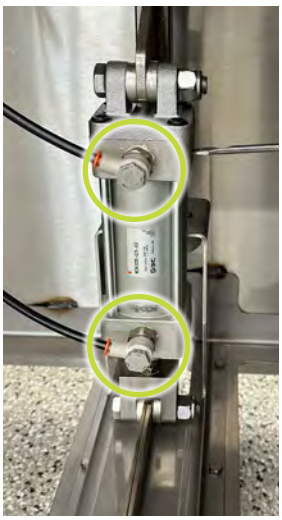
Note, the bottler will still operate in Auto, even when the screen-saver turns on.

Cylinder Cushion Adjustment

Turn the cushion screws clock-wise to increase the cushion and counterclockwise to decrease the cushion. The upper screw adjusts the up stroke cushion and the lower screw adjusts the down stroke cushion.

Cylinder Flow Control Adjustment

To adjust the air flow to the cylinder, pull out on the knob and rotate it until the desired speed is attained. Then push the knob back in. The upper flow control regulates the down stroke and the lower flow control regulates the up stroke.



Selected Timer Up

Push to increase fill time for selected bottle size. This can be used while a bottle is filling.

Selected Timer Down

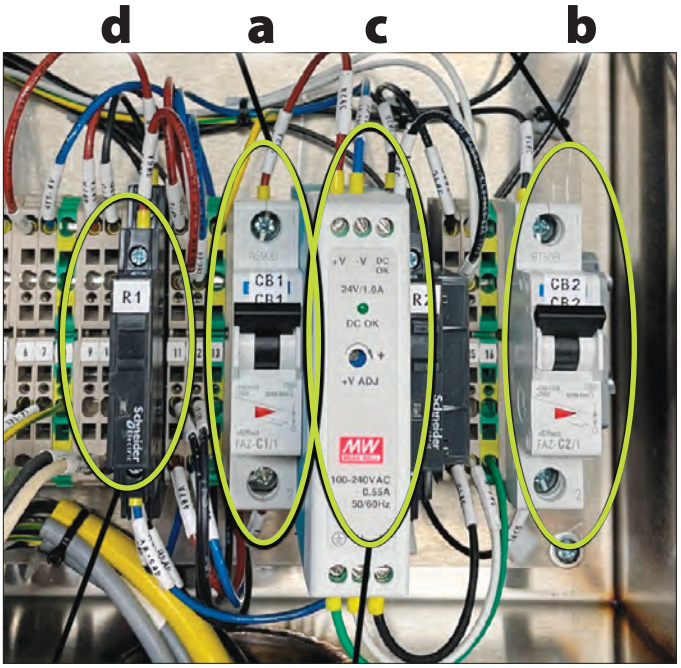
Push to decrease fill time for selected bottle size. This can be used while a bottle is filling.

Troubleshooting

WARNING!
Unplug power before working in Control Boxes.

General Things to check.

1. Check that the unit is plugged in and has power to it.
2. Make sure the Power switch on the side of the control box is On.
3. Make sure the breakers (CB1 **b** & CB2 **a**) are both on. If a breaker is tripping, check for a loose, cut, or pinched wire.
4. Make sure the green light on the power supply **c** is on.
5. Verify that the green light on the correct relay is coming on by consulting the electrical drawings **d**.
6. Check for any loose wires or connections.



Field Calibration & Troubleshooting For Bottle Capper (Model Bottlecapper90vdc)

PHOTOSENSOR FIELD CALIBRATION PROCEDURE
Do this before troubleshooting

This procedure should be done whenever commissioning a new machine OR WHENEVER CHANGING CAP STYLES. It should also be done as a first step in troubleshooting your machine. This is necessary to set up for the particular bottle caps you use in your machine:

1. Empty the cap chute. Observe the number displayed in the red numbers on the sensor and write it here:_____(empty chute sensor level)

2. Choose the caps you believe will allow the most light through. Usually this will be the clearest cap or else the one with the most red color. If you are unsure, try each one in the cap chute, one at a time, and observe the red number on the display. Calibrate the sensor using the cap with which you observe the HIGHEST number in red.

3. Fill the cap chute with the cap you choose in step #2. While keeping the cap chute full, Slowly eject a few caps to sequence caps down the chute and observe the HIGHEST number ever displayed in red. Write that number here:_____(full chute sensor level).

4. Using the up/down keys on the sensor, adjust the green number MID WAY between the number recorded in step 1 and the number recorded in step 3. For example, if the empty chute sensor level is 4000 and the full chute sensor level is 1000, then set the sensor level to 2500. The mathematical calculations to arrive at that figure are as follows: 4000-1000=3000, 3000/2=1500, 1500+1000=2500.

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Troubleshooting For Bottle Capper

TROUBLESHOOTING PROCEDURE

If motor does not run, and motor is not jammed, then follow the procedure below.
NOTE: Jammed motor will normally light RED CL light on DC drive board. If motor jams too often, it is necessary to perform PHOTOSENSOR CALIBRATION PROCEDURE on the previous page.

Is the GREEN LED on the bottom right of the PS1 power supply lit?
(PS1 is the power supply with perforated metal enclosure and screw terminals)

NO, the GREEN LED on PS1 is not lit.	Check for 120vac coming into terminals L1 & N (Is the machine plugged in?)		
	Check for bad connection (or open switch) between terminals 3 & 4 (apply jumper to bypass from 3-4 if necessary to troubleshoot)		
	Check for bad PS1 power supply or for short circuit on output circuit of PS1 (Disconnect gray wire from +V terminal of PS1 and cycle power on machine to check if GREEN LED on PS1 revives. If so, there is a short circuit. If not, PS1 is faulty.)		
YES, the GREEN LED on PS1 is lit.	Is the GREEN "PWR" LED on the green DC drive board on the left lit? (The DC drive board is the non-enclosed circuit board which has quick-connect terminals).	**NO**, the GREEN "PwR" LED on the DC drive board is not lit.	Check for blown ABC10 fuse
			Check for Bad DC drive (Call Witmer Automation)
		YES, the GREEN "PWR" LED on the DC drive board is lit.	Is Panasonic photosensor digital display lit?

NO, the Panasonic photosensor digital display is not lit.	Check for blown GMA0.5 fuse	
	Check cord connection on right side of Panasonic photosensor	
	Call Witmer Automation—possible bad Panasonic photosensor	
YES, the Panasonic photosensor digital display is lit.	Check speed knob to make sure it is set high enough	
	Check to make sure that Panasonic photosensor is calling for motor to run (Refer back to **FIELD CALIBRATION PROCEDURE** *(pg 16)*, above, then if that has been completed, check the following:	Check to make sure that both optical fibers are fully inserted and latched into Panasonic photosensor.
		Check for kinked or broken optical fiber cables running between Panasonic photosensor and cap chute.
		Check for proper alignment of optical fiber cables on either side of cap chute.
	Check motor brushes	

Troubleshooting

PROBLEM: Caps are falling off and not going into the chute
SOLUTION: Adjust angle of cap sorter to be less steep.

PROBLEM: Caps entering shoot backwards
SOLUTION: Adjust cap sorter angle to be steeper


Front


Back

PROBLEM: If the filler does not come up.
SOLUTION:

Verify Filler "Auto" button is selected on the screen to run auto cycle.

Try switching to Manual mode and using the foot pedal or the "Force" button on the screen.

Verify the green light on (R1) relay comes on.

Verify the light on the air solenoid underneath the machine comes on.

Verify the air pressure is 80+ PSI

Check foot pedal wiring connections.

PROBLEM: If the Capper does not run.
SOLUTION: Verify Capper "Auto" button is selected on the screen when running in auto.
Try the Capper "Manual" button on the screen.

Verify Capper "Cycle Interval" and "Cycle Timer" settings on the screen.

Verify the green light on (R2) relay comes on.

Check capper motor wiring connections.

PROBLEM: If the timer adjust pushbuttons don't work.
SOLUTION: Verify "Selected Timer Adjustment Amount" on Configuration screen.
Check Pushbutton wiring connections.

MAINTENANCE

Cord

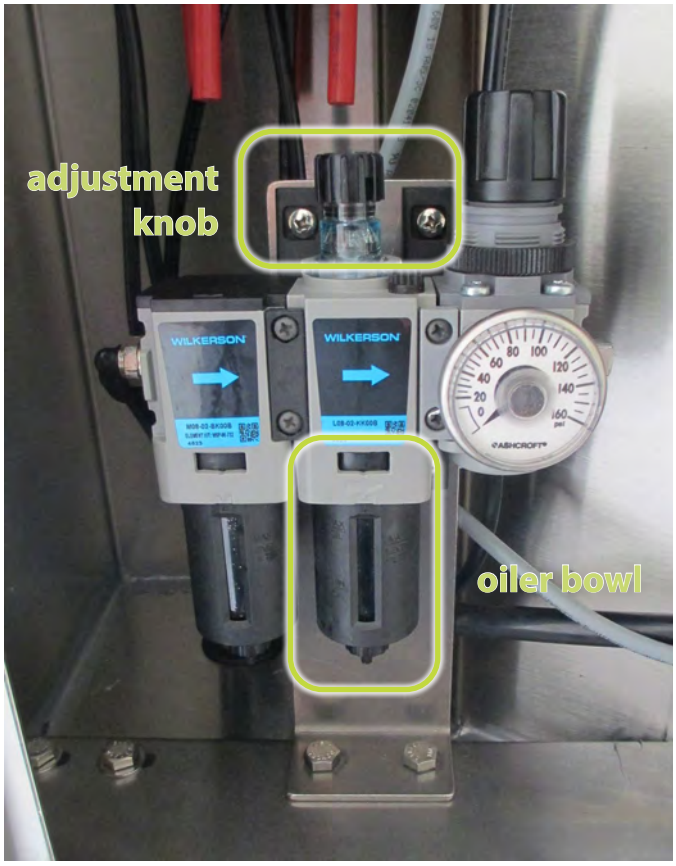
Keep cord in good condition.

Motor Compartment

Keep motor compartment clean & dry.

Oiling

- Be sure to frequently check oil level in oiler located inside the back panel of the bottler and refill if needed.
- Result of not having oil in the oiler can damage the torque wrench and air valves.
- If you see excess oil coming out of exhaust area's turn the clear knob on top of oiler clockwise.
- To refill oiler unplug the air then take oiler bowl off.



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CLEANING

Before starting cleaning and sanitizing:
SHUT OFF MACHINE AT PANEL and disconnect air supply.

After every use of the Bottle Filler, scrub the in- and outside with water and special detergent for stainless steel dairy equipment to clean the machine. Use a cleaning solution that is based on Sodium Hydroxide (NaOH) also known as caustic soda.

DO NOT spray any water on the Control Panel and Touchscreen, as this can cause damage to the Touchscreen and/or electronic parts.

Estimated Water Usage

- Initial rinse: 15-20 gallon
- Soap water wash: 15-20 gallon
- Sanitizing wash: 15-20 gallon
- Total water used: **45-60 gallon**

Manual Cleaning

This process requires the disassembly and sink washing of the Vat, Vat lid, Fogg Fill Valve, and bottle Templates after rinsing so that all product contact surfaces can be manually brush-washed to remove product residue.

All gaskets must be removed and inspected on a daily basis. Gaskets should be replaced as necessary.

The vat must be thoroughly brush washed with the proper detergent solution. The following items cannot be cleaned properly unless they are removed and disassembled.

1. Lid and attached piping
2. Vat
3. Fogg Filler Valve
4. Bottle Templates

Since manual washing is done with a brush, it is of utmost importance that proper brushes be utilized. A proper brush is one that has a block constructed of durable material that will be resistant to heat and chemicals and also be moisture proof. Also, the fill, or bristles, of the brush should be of nylon material. It is important that the fill does not act as a wick, maintaining moisture within itself that would tend to hold dirt and encourage the growth of bacteria and fungi. Rather, the brushes should be quick to dry.

Blends of various types and sizes of nylon bristles within a brush provide excellent water retention. If a nylon brush contains only one size and shape of bristle, water immediately escapes from the brush and does not provide good cleaning action. The brush that is constructed of various sizes, diameters and shapes of bristles will retain cleaning solution within it much like a sponge. This "sponge action", therefore, makes it possible to carry the cleaning solution to the surface to be cleaned. Its performance in this respect equals or surpasses that of a natural fiber bristle. Moreover, the use of a nylon or plastic block and nylon bristle provides a brush that retains its shape, has much wear resistance, and will normally outlast four or five cheaper brushes constructed of wood blocks and natural fiber bristles. At the same time, it will provide a sanitation tool that does not serve as a harbor for microorganisms. Therefore, it is the recommendation of this guideline that the term "proper brushes" indicates nylon fill with a plastic or nylon block construction.

Requirements for Sanitizers

Dairy Sanitizers should be:

- Non-toxic
- Quick acting
- Relatively non-corrosive
- Easily and quickly applied
- Relatively inexpensive
- Acceptable to USPHS/FDA and the Environmental Protection Agency (EPA)

General Considerations

Numerous sanitizers are available for use. Plant operators must be aware of and consider the following before purchase and use of any sanitizer:

1. It must be a product that is registered and approved by the EPA and be acceptable to the USPHS/FDA.
2. It must be capable of performing the function for which it is intended.
3. Complete instructions for proper handling and use should be readily available for supervisors and employees. Proper test kits should also be readily available.
4. Product should be stored in original containers with proper labels of identification.
5. Cleaners and sanitizers should not be stored in same area with food ingredients, e.g. nonfat dry milk, stabilizers, etc.
6. The possibility of any detrimental effect of the sanitizer on the waste disposal system should be considered.

Chemical Sanitization

Hypochlorites: The most common type of chlorine sanitizers used in the dairy industry are hypochlorites. They are economical and effective for plant use. Sodium or calcium hypochlorites at varying strengths may be purchased in either granular or liquid form. Sodium hypochlorite is also available with onsite generators, using common salt, water and electricity. The lower pH of onsite generated hypochlorite offers equivalent bacterial kill at lower concentrations. Chlorine in the undiluted form can be hazardous and corrosive. Care should be taken to prepare proper strengths and to prevent personal injury and damage to equipment.

Acid Sanitizers. Acid sanitizers are a mixture of acids and wetting agents. Their germicidal properties are based upon the lower pH and the activity of the wetting agents at this low pH. They are generally slower acting than hypochlorite sanitizers.