U. S. BOTTLERS MACHINERY CO.-CHARLOTTE

BOTTLING AND PACKAGING ENGINEERS

Creative Custom Packaging Equipment

Rotary Rinser (WAB) / PG Filler (USB) / Rotary Capper (AROL)

RR-30-58.5in / PG-40-78in / AROL VP-8-15.6in

USB MACHINE NO: 122300

Installation/Operation/Maintenance Manual for

Luxco

Copyright © 2022, US Bottlers Machinery Co.

All rights reserved. No portion of this manual may be used or reproduced in any manner without the written permission of US Bottlers Machinery Co.

Table Of Contents

About The Company

US Bottlers Machinery Company was founded in 1912 in Chicago, Illinois. During its 68 years in Chicago, the company developed a tremendously broad line of equipment including the industry leading Sanitair Air Cleaner, Rotary Vacuum, Gravity Filler, Container Feeder, and the Siphon Filler; which are all still present in today's production.

The company relocated to Charlotte, North Carolina in 1980. With this move came advancements, including the introduction of the Rotary Net Weigh Filler and the Rotary Capper. The company expanded to approximately twice the size it had been in Chicago, facilitated by modernized equipment and improved layout.

With greater production capabilities and design advantages in Charlotte, the company established itself as a leader in the hot pack juice industry during the 1990's. Consequently, the company marketed itself as a custom packager and support team for unique applications. This allowed for growth in the area of unique applications and production of machinery capable of higher volumes. US Bottlers Machinery became recognized for building some of the largest and strongest stainless steel machinery available.

An attitude of flexibility has allowed US Bottlers to progress in the design of advanced packaging concepts and options. Over the past decade, the company has added equipment lines for snap-on cap applications, ROPP caps, inserts, overcaps, mag-flow filling, rinsing, and the revolutionary volumetric piston filler.

US Bottlers Machinery continues to make advancements in the packaging field. Founded in 1912 as a private, family owned packaging firm, the company remains true to its roots of private ownership and is currently owned and operated by the fourth generation in this line of succession. US Bottlers Machinery continues to provide quality products paired with professional support, just as it has from the start.

US Bottlers Machinery Company, Inc

11911 Steele Creek Road
Charlotte, NC 28273

PO Box 7203
Charlotte, NC 28241

www.usbottlers.com

Customer Care Department

Phone: 704.588.4750
Fax: 704.588.3808
Email: support@usbottlers.com

Parts Department

Phone: 704.588.4750
Fax: 704.588.3808
Email: parts@usbottlers.com

24-Hour Service

Phone: 704.588.4750 x200

A Letter From The Owner

In 1906 my great grandfather established his packaging engineering enterprise, which eventually was reconfigured as US Bottlers Machinery Co in 1912. Since that time we have seen our company, as well as our industry, evolve many times over to become what we are today. That journey has taught us a lot about what it means to be a successful company and how reputation, quality, and loyalty impact our business and our future.

Personally, I take tremendous pride in our history and our roots from each of the four generations that have been involved with our family and our company. I value the employees of our company and the customers over these many years; in a manner that I think often gets lost in corporate big business. If you are a new customer of ours – thank you for supporting a modern American manufacturing and design company; and if you are one of our loyal customers from the past – thank you for your continued support. Together we believe that we can work towards simply the best possible relationship in terms of personal service, quality innovation, and superior design and manufacturing capability.

To help assure that goal, US Bottlers has spent the last few years investing in state-of-the-art technology to improve our manufacturing capabilities, restructuring our organization to provide valued customer service, and have increased personnel to improve efficiency in responding to the needs of our growing customer base. All of these moves, I feel, have enhanced the character and image of our company. We have made a commitment to be truly a unique source of modern packaging machinery as well as a full service oriented company for our customers' needs in this demanding business environment.

We invite you to come visit our inspiring facility here in Charlotte, NC and I think you will be witness to what is possible with a flexible and very capable organization that focuses on our business with talent, passion, pride, and integrity. It is my goal to continue to make our ancestors proud of where we are today; and of course where we are headed in the future.

Thomas Risser
President, US Bottlers Machinery Company

Customer Care, Aftermarket Sales And Parts

Our outstanding Service Department prides itself on satisfying all your needs as a customer, including helping ensure that your production is uninterrupted once you own US Bottlers equipment. US Bottlers Customer Care Staff cheerfully provides answers to your questions and helps you resolve any bottling/capping/parts issues by referring your call to the right personnel or department.

- **Customer Care** - Schedules equipment installation & maintenance service calls or answers operational questions about your machinery
- **Aftermarket Sales** - Provides general or specific information about our equipment including training, service, quotes, rebuilds, and modifications on existing equipment
- **Parts** - Provides support when ordering replacement and spare parts

WARNING: DAMAGED PARTS MUST BE REPLACED BEFORE RUNNING MACHINE. REPLACEMENT PARTS MUST MATCH SPECIFICATIONS OF ORIGINAL PARTS.

FAILURE TO PROPERLY MAINTAIN MACHINE MAY LEAD TO SYSTEM DAMAGE AND MAY LEAD TO INJURY OR DEATH OF INDIVIDUALS IN THE AREA AROUND THE SYSTEM.

Customer Care

US Bottlers technicians have the training and experience necessary to service the electrical, mechanical, and programming features of our bottling systems. Our technicians maintain the highest levels of technical skills through ongoing vendor training, studying technical bulletins, and attending in-house seminars.

The service department provides machine installation, start up coverage, training, modifications, audits, preventative maintenance, and troubleshooting services.

Customers have 24-hour access to our skilled Service Technicians for troubleshooting issues. More than 90% of our troubleshooting calls are solved over the phone. This service can save you the cost of an unnecessary service trip and eliminate unnecessary production down time spent waiting for a service technician to arrive.

Parts

Our **Parts Department** can fill your orders for replacement and spare parts quickly, accurately, and at competitive prices - often cheaper than your local suppliers. In-stock items are shipped the day you call (overnight if you need it). Our parts department also makes it easy to process warranty claims.

About The Manual

The instructions contained in this documentation must be read, understood, and followed. In order to utilize the full performance of your new machine, it is necessary to thoroughly understand its capabilities, performance levels, and the possibilities of its use. In order to obtain maximum lifespan and optimal efficiency from this machine, it is necessary to comply with the information contained in this documentation.

It is important that ***everyone involved*** (Supervisors, Maintenance Personnel, and Operators) receive instruction on the "SAFETY STANDARDS" described in this documentation, before machine start-up and operation.

Before starting work, the operator must:

1. Read this documentation in full
2. Understand machine layout
3. Understand operation of machine controls
4. Understand machine characteristics
5. Must continue to have access to this documentation in its entirety

All instructions, warnings, and accident prevention regulations contained in this documentation must be complied with. Failure to so may result in machine damage, severe bodily injury, or death.

IOM Manual Availability

This documentation is available online through the Customer Portal via www.usbottlers.com and will be updated as the machine is modified by USB or with USB notification and approval.

An "As Built" file will be provided on a Flash Drive with purchase, but will not be updated.

Paper hard copies are available by request at an additional cost.

Any modifications to or replacement of any of the machine's parts, without the express authority of the manufacturer, may constitute the potential risk of an accident and therefore relieves the manufacturer from any and all penal and civil responsibilities.

No part of this documentation should be removed or re-written.

The documentation provided via the Customer Portal shall be considered the only current documentation. The customer is held responsible for updating any additional digital or hard copies in their possession as modifications are made.
This documentation supplies the information and detailed instructions required for installation, operation, and maintenance of the machine. Subsequent users or owners of the machine must notify US Bottlers Machinery Co. and request access to on-line documentation available for the machine.

NOTE: US Bottlers Co. declines responsibility for any errors or damage resulting from the failure to update any documentation not supplied online.

Explanation Of Terms Used

OPERATOR: This is an individual who is responsible for the installing, operating, adjusting, and the day-today maintaining and cleaning of the machine.

QUALIFIED TECHNICIAN: This is an individual who is qualified and specifically trained and capable of performing maintenance or repair operations that require a specialized knowledge of the machine, its parts, its operation, its safety devices, and their methods of operation.

WARNING: PROVIDES INFORMATION THAT, IF UNHEEDED, MAY RESULT IN PERSONAL INJURY OR DEATH

CAUTION: Provides information that, if unheeded, may result in equipment damage

ATTENTION: Provides information that is deemed of special importance

NOTE: Provides helpful hints to assist in performing the tasks at hand

Safety and Accident Prevention
122300 WAB Rinser / USB PG Filler / AROL Capper

SAFETY PRECAUTIONS

SAFETY PARAMETERS

The following Safety Precautions are intended to assist Machine Operators and Maintenance Personnel in practicing good Safety Procedures while operating or maintaining US Bottlers Machinery.

This entire safety section must be thoroughly read and understood before attempting to power up or service the Machine. Please note that these Safety Precautions are to be used only as a guide to supplement proper training for other safety considerations and warnings in the following areas:

A) All other documentation pertaining to the Machine and its components, controls and auxiliary equipment.

B) All locally established shop Safety Rules and Codes. The Machine owner MUST provide complete safety and operational training before permitting employees to work on or around any US Bottlers Machinery!

C) Applicable Federal and National Safety Laws and Regulations*.

** Refer to the latest edition of the Occupational Safety and Health Standards available from The Department of Labor, Washington, D.C.*

US Bottlers Machinery should NEVER be powered up before all set-up procedures are verified, all Guards are in place and the Operator is thoroughly trained for all of the applicable Safety and Operating Procedures.

⚠ WARNING

Read all related Safety Precautions before operating, maintaining or programming this machine. Failure to do so may result in damage to the equipment and/or serious personal injury or death.

GENERAL SAFETY INSTRUCTIONS AND CONSIDERATIONS

Machine operators, maintenance personnel and programmers must be aware of the fact that constant day-to-day Safety Procedures are a vital part of their job. Accident prevention must be one of the principal objectives of the job.

Know and respect the machinery. Read and practice the prescribed Safety and Checking Procedures. Make sure that everyone who works for, with or near you on this machine fully understands and complies with the following Safety Precautions and Procedures.

SAFETY PRECAUTIONS

PERSONAL SAFETY

The following Safety Recommendations are intended to supplement your local Safety Rules and Procedures. These recommendations are provided as a general guide only in working with this Machine and are neither all inclusive nor a substitute for an established shop Safety Training Program.

Safety First is the key to avoid dangerous conditions for personnel and equipment. Always be alert to the presence of others who may be working on, passing by or observing the Machine. Look before you press a button. Always Lockout the Machine in the OFF position when it is necessary to place your hands in the Machine for maintenance or repair. A local Lockout/Tagout procedure must be developed and adhered to in order to comply with OSHA Standard 1910.147. This US Bottlers Machine is equipped with devices to Lockout power to both its electrical and pneumatic systems.

NOTE: Stored Energy (compressed air) still exists with the Electrical Panel Locked Out !

Sudden movements, loud noises, horse-play, etc. must be avoided at all times. These distractions could result in unsafe conditions for those working on or near the machinery.

Observe all posted safety instructions and warnings such as “HIGH VOLTAGE”, “DANGER”, etc., in your work area.

Accidents can occur that result in serious injury to yourself or others due to clothing and other articles becoming entangled or in contact with revolving parts, handwheels, levers, moving machine components and electrical equipment. Compliance with the following rules will help to avoid such accidents when operating or working on the machine, its controls and/or auxiliary equipment:

A) Do not wear neckties, scarves, gloves or loose fitting clothes.
B) Do not wear jewelry: bracelets, watches, rings or necklaces.
C) Restrain long hair by wearing a cap or hair net.

The area around the machine should be well lit, dry and free of obstructions. Always keep the area in good housekeeping order.

Use approved safety protective equipment. Wear approved eye or face protection and steel-toed safety shoes with slip resistant soles at all times. Always keep your protective equipment in good condition.

SAFETY PRECAUTIONS

SHUTDOWN PROCEDURE

The following shutdown procedure must be read and followed before attempting any cleaning or maintenance work.

1. Switch off and lockout electrical power to the Machine.*
- Switch off the Main Switch and check to be sure the Machine is dead.
- Secure the Main Switch per your established Lockout/Tagout procedure so that it cannot be switched back on again.

2. Switch off, depressurize and lockout the pneumatic system.*
- Close the Dump/Exhaust Valve.
- Depressurize all pressurized systems and lockout the exhaust valve. Upon lockout, all stored air will be automatically exhausted.
- Ensure that all valves and actuators are at a zero state.
- Make sure any spring-loaded systems have been released.

*** The Machine must be released from Lockout/Tagout only by the person authorized and responsible for the Lockout/Tagout condition.**

3. Close all open doors.
- Ensure that the doors of the Electric Switch Cabinet are closed before cleaning to prevent spray water and dust from getting inside.

WARNING! The Shutdown Procedure above, including Lockout/Tagout, MUST be followed before attempting to service this Machine. Failure to lockout electrical and pneumatic power could result in serious personal injury or death.

LOCKOUT/TAGOUT DEVICES

The following electrical and pneumatic Lockout/Tagout devices must be used as part of an established Lockout/Tagout Shutdown Procedure before attempting to service the Machine.Per the warning above, failure to do so could result in serious personal injury up to and including death.

Operator Control Box on Turret

Main Electrical Box

Exhaust Valve at Pneumatics Assembly

Proper use of Lockout/Tagout devices will insure that electrical (A) and pneumatic (B) power can't be switched back on during maintenance or repairs.

SAFETY PRECAUTIONS

WORK AREA SAFETY

Always keep your work area clean. Dirty work areas with hazards such as oil, water or debris on the floor may cause someone to fall either into the machine or onto the floor, resulting in serious personal injury.

Make sure your work area is free from hazardous obstructions and be aware of protruding machine components.

Return tools and similar equipment to their proper storage place immediately after use. Keep work benches neat, clean, and orderly. Do not use machine elements for a work bench. Wrenches, tools, and other miscellaneous parts should be kept off and well away from the machine, as well as off moving parts of the machine.

Report unsafe working conditions to your supervisor or safety department. Items such as worn or broken flooring, handrails, and ladders; unstable or slippery platforms or scaffolds must be reported and repaired before use. Do not use skids, workpieces, stock, machines, tote pans, or boxes as makeshift climbing aides.

US Bottlers Machinery should NEVER be powered up before all machine set-up procedures are verified, all guards are in place and the operator understands and complies with all safety and operating instructions.

INSTALLATION, SET-UP AND OPERATOR SAFETY

Do not set-up or operate this machine until you are fully trained and have read and understand all of the Safety Instructions.

IMPORTANT: Know where all of the Stop Buttons are located in case of Emergency !

The owner must assign only qualified personnel who are fully instructed in safety and all machine functions to operate this machine.

Operators and maintenance personnel must carefully read, understand, and comply with all machine mounted Warning and Instruction plates/labels. Do not paint over, alter or deface the plates/labels in any way which could make them illegible.

Never operate the machine with safety guards, shields, barriers, covers or other protective devices disconnected, removed or out of place. The electrical cabinet door should always be kept closed.

Know where the Stop buttons are located in case of an emergency.

Safety limit switches, interlocks, etc., are provided for various units. Never remove, by-pass, or “wire around” these Safety devices in an effort to save time or take a short-cut.

SAFETY PRECAUTIONS

The following safety rules must apply (in addition to your local rules) while operating, maintaining or repairing this machine:

• Only qualified personnel who are fully trained in all safety and machine functions should be assigned to operate or service this machine.

• Approved safety glasses and safety shoes must be worn at all times when operating or repairing US Bottlers machinery.

• Remove all jewelry (rings, bracelets, watches and necklaces) before working around the machine. Protect long hair with a hair net and wear snug-fitting clothes (neck ties, scarves or gloves should never be worn when working on or around US Bottlers machinery).

• All personnel should be familiar with the locations of ALL Emergency Stop buttons.

• Make sure all guards are in place and in good condition at all times before the machine is powered up. NEVER run this machine with missing guards.

• Always turn off, lock-out and tag-out both electrical and pneumatic power to the machine before any maintenance or repair work is started.

• After working on the machine, immediately replace all guards and move personnel away from machine before restoring power.

• Before starting the machine, make sure all personnel are a safe distance away, then yell "CLEAR" in a loud voice to alert everyone in the vicinity that you are about to start the machine.

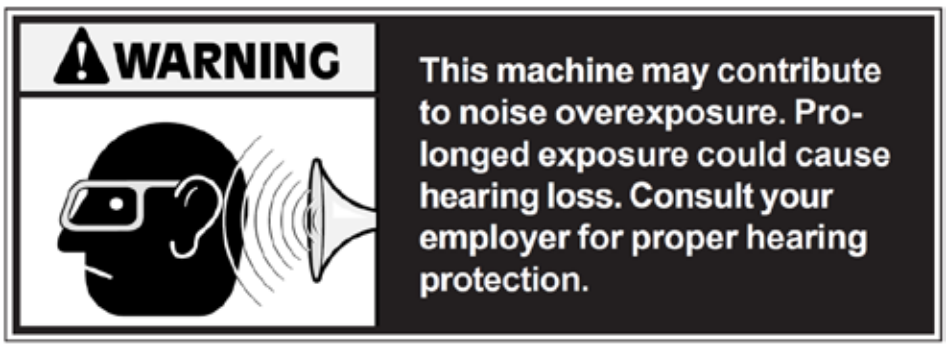
• Read and obey all warning stickers on the machine. (Refer to the examples throughout this Safety Precautions section.)

• Always push the Emergency Stop button before clearing jams.

• NEVER tie down, wire back, or electrically jumper out any safety switch.

• Follow the appropriate OSHA hearing protection guidelines.*

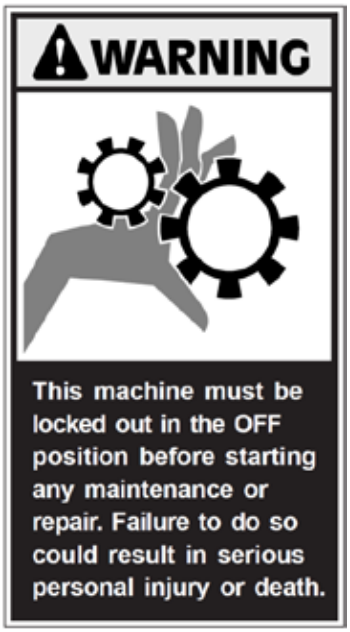
IMPORTANT:
All personnel should know where the E-stop buttons are located in case of Emergency !



*The Occupational Safety and Health Administration (OSHA) defines the Permissible Exposure Level (PEL) as 90 D.B.A. TWA for an eight hour exposure.

SAFETY PRECAUTIONS

A qualified electrician must read and understand the Electrical Schematics prior to connecting the machine to the power source. After connecting the machine, all aspects of the electrical system must be tested for proper functioning. Make sure the machine is grounded properly. Place all selector switches in their OFF or neutral position. The door(s) of the main electrical cabinet must be closed and the main disconnect switch must be in the OFF position after the power connection is complete.



When the machine is installed, make sure that all motors rotate in the proper indicated direction.

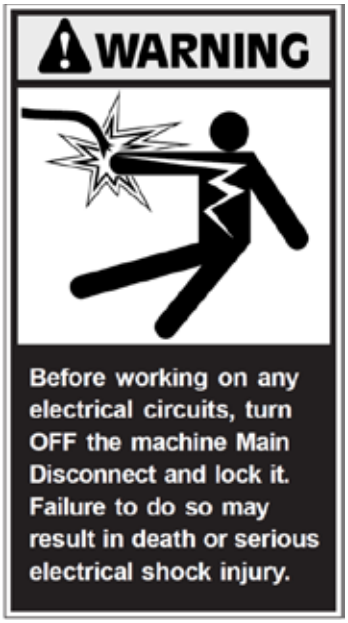
Do not brake or slow down moving machinery with your hands or with some makeshift device. Never use machine power to remove or install a nut from any shaft. The machine must be stopped and locked out using proper procedures before beginning any repair, maintenance, cleaning, or service work.

Keep all parts of your body off the machine and out of the path of moving parts while the machine is in operation. Never lean on, climb on or under the machine, or reach over or through the machine. You may become entangled in moving parts or accidentally activate start buttons, sensors, limit switches, etc.

During machine operation, be attentive to excessive vibration or unusual sounds, which may indicate problems requiring immediate attention.

MAINTENANCE SAFETY

Do not perform maintenance on this machine until you read and understand all of the safety instructions.



Only qualified service/maintenance technicians who have been thoroughly trained to perform maintenance and repair work on a US Bottlers machine should be allowed to work on this machine. Consult the machine maintenance manual before starting any service or repair work. Please contact US Bottlers customer service with questions concerning proper machine maintenance.

Use only quality US Bottlers recommended replacement parts. Other parts may cause damage to the machine or impair its safety.

Before starting any maintenance or repair work, “WARNING” or DANGER” signs must be placed conspicuously around the machine’s perimeter.

SAFETY PRECAUTIONS

Before working on any electrical circuits, turn the machine's main disconnect switch off and lock it out.

Unless expressly stated in the applicable US Bottlers Machinery Co. documentation, NEVER work with the electrical power on. If any such express statement or advice exists, all such work should be performed only by a US Bottlers Machinery Co. technician. If such work is attempted without the knowledge and consent of US Bottlers Machinery Co., the customer and subsequent transferees must take responsibility and determine that any other person performing work with electrical power on is fully trained and technically qualified. Failure to follow this instruction may result in serious personal electric shock injury or death.

Before removing or opening any electrical enclosure, cover or door, be sure the Main Disconnect Switch is in the off position.

If any tool is required to remove a guard, cover, bracket, or any basic part of this machine, switch the Main Disconnect to the "OFF" position and lock it. Place the appropriate lockout tag on the switch lock indicating that maintenance is being performed.

Working space around electrical equipment must be clear of obstructions and adequate illumination must be provided to allow for proper operation and maintenance.

Before adjusting, repairing, or performing maintenance on electrical circuits connected with yellow wires, find the power source and turn it off. Always make sure to lock it out.

Machine interlock control circuits connected with yellow wires are powered from a source away from the machine which carry voltage even when in the machine's Main Disconnect device is turned to the off position.

When removing electrical equipment, place numbered or labeled tags on those wires not marked. If wiring is replaced, be sure it is of the same type, length, size, and has the same load carrying capacity. An electrical technician must analyze the electrical system to determine the possible use of power retaining devices such as capacitors. All power retaining devices must be disconnected or discharged before maintenance is performed.

Inspect all assemblies for loose fasteners. Close and securely fasten all guards, shields, covers, plates, or doors before power is reconnected. Handwheel and/or jog the machine slowly to insure that no mechanical interference exists.

SAFETY PRECAUTIONS

SAFETY INSTRUCTIONS TO BE CARRIED OUT BY THE OWNER

The operating and maintenance manuals are an integral part of the machine and must be:

• Readily at hand for operators and maintenance personnel at all times so the warnings and other important information can be referenced and heeded accordingly.

• Read before the Machine is set up, serviced or repaired.

The owner must:

• Provide training that instructs his operating and maintenance personnel in the proper use and operation of the machine and its safety devices.

• Ensure that all safety precautions/procedures are strictly enforced.

• Ensure that the frequency of inspections/checks is strictly enforced.

The owner must comply with his local operating license and all of the provisions contained therein:

• Personnel Safety
• Material Safety
• Disposal Of Products
• Disposal Of Materials
• Cleaning
• Environmental Protection Regulations

HAZARDS

DANGER ZONE (WORKING AREA)

The safety systems and safety instructions described in this manual must be strictly enforced by the owner and proper training for all operating and maintenance personnel must be provided.

A protective guard assembly encloses the machine turret and its immediate functional area. The operator should always check to be sure all guards are properly installed and in good condition before applying power to the machine. Do not begin use of the machine if any of the fixed guarding has been disassembled. Make sure all fixed guarding has been properly reassembled before applying power and beginning operation of the machine.

WARNING!

Wear protective goggles and safety shoes at all times when operating or repairing a US Bottlers Machine and follow the appropriate OSHA hearing protection guidelines.

Make sure all tools have been removed, all guards are in place and all personnel are clear before powering up the machine.

Read and obey all warning stickers on the Machine and enforce the proper Lockout/Tagout procedure during shutdown/startup.

Keep the danger zone free of objects when the Machine is in operation so that unimpeded access is possible at all times.

Remove all jewelry (bracelets, watches, rings and necklaces) before operating or working around machinery. Protect your hair with a hair net and wear snug-fitting clothes.

Wear suitable protective clothing, goggles and gloves when handling cleaning, decalcifying and disinfectant chemicals.

In the interests of accident prevention and hygiene, maintain scrupulous cleanliness when handling oils and lubricants.

Always keep the machine's control elements (buttons, levers and handles), and all gangways, passages, footbridges, steps, handrails, etc., clean and free of grease. If this is not done, there is a danger that you might slip and fall.

Never attempt to power up, operate or work on a US Bottlers machine without training for safety and proper operating procedures.

Failure to follow these warnings could result in machine damage, poorly applied closures and/or serious personal injury up to and including death.

HAZARDS

OPERATING & MAINTENANCE PERSONNEL

WARNING! Operating and maintenance personnel must be fully trained and responsible for their specific tasks. This would include suitable training for proper transport, assembly, installation, set-up, operation, maintenance/cleaning and repair of the machine. Failure to follow this warning could result in improperly applied closures, damage to the machine equipment and/or serious personal injury up to and including death.

1. The Machine must be operated by trained/authorized personnel only.

2. The different responsibilities and procedures required for proper operation of the Machine must be clearly defined and enforced so that no confusion arises which could endanger personnel or damage the Machine.

3. Whenever any work (operation, maintenance, repair etc.) is carried out, the Lockout/Tagout shutdown procedure specified in the operating manual must be strictly followed and enforced. Disconnection of all electrical and pneumatic sources must be performed by qualified personnel.

4. The cleaning, maintenance and repair work described in this operating manual is explained in such a way that it can be understood by persons with technical training in :
- Electrical engineering/electronics.
- Mechanical science/cleaning and maintenance.
Technicians must be equipped with the proper tools and test materials.

5. The operator must be fully trained in machine safety and may not apply any working methods that impair the safety of the machine.

6. The operator is responsible for ensuring that no unauthorized persons operate or work on the Machine.

7. The operator must immediately report any changes to the Machine that impair its safety to the responsible executive.

8. The machine must only be operated when it is in perfect working order.

9. Access to the machine at any height must occur using certified means.

10. The special keys for the switch cabinet must be kept in safekeeping by authorized persons.

HAZARDS

SPARE AND WEAR PARTS

Spare parts and accessories that have not been supplied by US Bottlers have also not been tested and approved by US Bottlers.

The fitting and/or use of such products could therefore negatively affect the design characteristics of this Machine.

US Bottlers accepts no liability for damages arising from the use of non-original parts and accessories.

The parts catalog (included with the machine manual) lists all of the individual components of the machine.

Whenever any assembly, dismantling or commissioning work is to be carried out, always request the services of appropriately trained technicians from US Bottlers or consult US Bottlers for complete information.

SHUTDOWN PROCEDURE

*** The Machine must be released from Lockout/ Tagout only by the person authorized and responsible for the Lockout Condition.**

The following shutdown procedure must be strictly enforced before any cleaning or maintenance work is carried out.

1. Switch off and lockout electrical power to the machine.*
- Switch off the main switch.
- Check to make sure that the machine is dead.
- Secure the main switch per an established lock-out/tag-out procedure so that it cannot be switched back on again.

2. Switch off, depressurize and lockout the pneumatic system.*
- Close the dump/exhaust valve.
- Depressurize all pressurized systems and lockout the exhaust valve. Upon lockout, all stored air will be automatically exhausted.
- Ensure that all valves and actuators are at a zero state.
- Make sure any spring-loaded systems have been released.

3. Close all open doors.
Ensure that the doors of the electric switch cabinet are closed before cleaning to prevent spray water and dust from getting inside.

WARNING! The shutdown procedure above MUST be followed before any cleaning or maintenance work is begun. Failure to do so could result in serious personal injury or death.

The maintenance and lubrication intervals can be found in the Maintenance Instructions Section of this Manual.

PAGE INTENTIONALLY LEFT BLANK

Use Restrictions
122300 WAB Rinser / USB PG Filler / AROL Capper

Prescribed Use and Forbidden Uses

The machine has been designed and made to rinse, fill, and apply closure systems (caps/corks) on preformed rigid containers with production limits indicated.

The machine must be used to rinse, fill, and apply closure systems (caps/corks) on preshaped rigid containers already produced according to the order, planning and building stages, as described in the tables attached to this manual.

The machine receives the closure systems correctly orientated by its orientation system.

The following uses are forbidden and not expected:

- use of closure systems (caps/corks) and/or preshaped rigid containers whose specifications are different to the ones described in the expected use.
- supply to the closure systems (caps/corks) and/or preshaped rigid hand containers by other means.
- revert the rotation direction of motors.
- tamper guards and/or protection devices.
- overlook the protection means using means to rise on the top or climb on parts of the machine.
- perform maintenance operations without insulating and locking all the energy sources and dissipating the residual energies.
- do not comply with the specifications of power sources listed.
- Treat products with characteristics other than those communicated at the order, changing the environmental conditions where the machine must be fitted (example: temperature of the treated product; with environmental characteristics other than those communicated at the order).

Operating Modes

The machine cannot work autonomously.

The installation technician must thus install the machine under his own responsibility and according to the local and Federal standards and take care that all requirements and specifications of the laws in force are complied with.

Professional Roles of Users

The machine user shall check that the operators have the following requierements:

- Have read and understood the indications that are in the manual.
- Have received job instruction and training appropriate to their tasks.
- Have been properly trained about the correct use of the machine, about the residual risks, on the machine controls and on the PPM.

Only the operators and the person charged with the maintenance with a suitable training can use the machine.

The professional terms used are specified here below to understand the manual fully:

TERM	DESCRIPTION
EMPLOYER	Person legally responsible for the use of the machine described herein.
OPERATOR	Person charged with the standard machine operation.
MECHANICAL MAINTENANCE OPERATORS	Person charged with the routine and mechanical maintenance of the machine.
ELECTRICAL MAINTENANCE OPERATORS	Person charged with the routine and electrical maintenance of the machine.
QUALIFIED TECHNICIAN	This is an individual who is qualified and specifically trained and capable of performing maintenance or repair operations that require a specialized knowledge of the machine, its parts, its operation, its safety devices, and their methods of operation.

Operator

The Operator must have:

- familiarity with the use of the check system (operator interface), with capacity of checking the correlation between the set data and the effect of these on the production.

- knowledge of the technology and specific experience in operating the machine acquired through the basic training of this manual.

- base general knowledge and sufficient technical knowledge to read and understand the manual content and the annexes, included the correct interpretation of the drawings.

- Sufficient technical knowledge to carry out intervention specified in the manual, in safe operation condition.

- Knowledge of the accident-preventing norms.

- General Health and safety, prevention of the accidents on the work place.

- Specification (for the type of product processed by the machine, according the laws in force of the country in which the machine is installed).

Maintenance Operator

The Maintenance Operator (mechanical/electrical), besides the above characteristics, must also have a good technical preparation and a suitable working experience in the relevant field. Further, he must have specific and special (mechanical and electrical) technical knowledge needed for the operations described in this manual.

Employer's Obligations

The employer shall guarantee appropriate training and information of all the professional roles of the machine on the following topics:

- Instruction and specific procedures for use and maintenance of the machine.

- The user of the machine should comply with the safety and health prescriptions on the workplace, in force in the premises where the machine is started; all the specific risk conditions should be taken into account.

He must have acquired a good knowledge of the contents of this manual so that he can correctly process the training procedures of the professional roles of the machine.

At the end of the training, the employer must make sure that operators and maintenance technicians have understood the above points.

Assess the risks resulting from installing the machine in the workplace.

The employer must supply the PPM (Personal Protection Means) required for all operations linked to the useful life of the machine.

Job Instructions

The customer shall inform and train the personnel charged to use the machine and make sure that:

- On the work place there are suitable information concerning dangers, risks and prevention and protection solutions including the use of P.P.M., if provided.
- The workers the task of using of work equipment receive a suitable training accordingly.
- The workers the task of using of equipment requiring special knowledge and responsibility receive a suitable and specific training, so that they can use such equipment safely and suitably, also as far as risks caused to other people are concerned.

Training

Training serves to explain the correct use of the machine, in compliance with the obligations prescribed by national laws concerning minimum safety and health requirements for the use of working tools by the operators while working.

Arrangements by the Customer

Excluding special contract conditions, the user must arrange the following:

- The machine must be electrically supplied by the electric board of the machine to which the partly completed machinery is to be installed. The protection against indirect contact must be anticipated during installation.
- Compressed air mains connection.
- Generic tools for the machine maintenance and consumables.
- Lifting means suitable for the machine handling.

Signs for Warning, Obligation, Prohibition, and Danger

Symbols Contained in the Manual

The graphic symbols inside the manual are described and shown below.

GRAPHIC SYMBOL	DESCRIPTION
	Indicates a potential hazard, obstacle, or condition requiring special attention
	• Indicates that all electrical sources or connections must be terminated beform performing an operation or task • Insulate the machine from all energy sources dissipating residual energies.
	Indicates a special tip, recommendation, in regards to a specific task or function.
	Indicates that proper hearing protection must be worn.
	Indicates that approved safety glasses must be worn.
	Indicates a **Crush Hazard** situation that, if not avoided, will result in serious personal injury or death.
	Indicates an **Electrical Hazard** situation that, if not avoided, will result in death or serious electrical shock injury.

Technical Information

122300 WAB Rinser / USB PG Filler / AROL Capper

About The Product

The product addressed in this manual was designed and manufactured to specific customer defined specifications relative to function and speed.

In manufacturing this machine, US Bottlers Machinery has employed decades of expertise and cutting edge technology, paired with a sense of personal pride in product outcome and customer satisfaction. For this reason, special attention is paid to material selection to ensure a long machine life with low maintenance.

This machine comes to you with all attachments necessary to handle the full range of containers listed on your order.

All attachments are marked or otherwise identified for pairing with the containers submitted.

For the use of attachments capable of handling several different containers, “Table 1-3: Attachment Reference & Setup Parameters” starting on page 41.

Theory Of Operation

The Containers are fed back-to-back to the machine via a conveyor chain. An integrated feed worm specifically designed to work in time with the infeed star, separates the incoming containers. The feed worm is a cylindrical auger apparatus mounted parallel to the conveyor chain and rotates on axis so that each container, when encaptured, is moved forward within the auger's recess to the infeed star.
Motion is transferred to the feed worm from the infeed star shaft through a pulley and belt configuration. The ratio change from pulley to pulley ensures feed worm and infeed star concerted timing.
The machine's onboard operator panel is the controlling force behind all electrical and pneumatic activities. The main drive train is comprised of a motor and gearbox combination providing torque from one machine drive shaft and gear combination to the others.

The infeed star is a circular plate attachment with cutouts around its periphery and is positioned so that as each container is presented by the feed worm, becomes caught within the available cutout. The cutouts are sized and shaped to accommodate the applicable container. The rotating motion of the infeed star transfers containers consecutively to the turret's turntable. A center guide plate ensures proper transfer and prevents the containers from flying away through the centrifugal force of the infeed star's rotation.The infeed star's shaft usually has a centrally located, and concentrically mounted gear which engages the much larger gear of the machine's center turret; thusly, keeping them timed.The center turret rests upon a large four-point contact radial bearing allowing the rotation of the machine's central portion, including it's carousel turntable.

As the containers move into position, so are the turret mounted filling valves aligned with the openings. Rollers attached to each valve rod are driven around within the rotational carousel and track upon a stationary cam ring. The cam raises and lowers the filling valves via the rods by way of sliding bushings of two parallel plates referred to as slide rings. An integrated hand-wheel or gear motor permits the raising and lowering of the cam track to accommodate different container heights. The rollers on the cam allows the valves to lower onto the top of the container.

As the filling valve descends toward a container, a seal connected to the outer tube also descends until contacting the top of the container. At this time, the seal, clamp, outer tube, tube body, tube bushing, and overflow hose cease descent while the tube head and inner tube continue, compressing a spring located between the two units. This action forces the inner tube downward beyond the outer tube to expose the opening of the inner tube.
The inner tube slides through a non-metallic bushing seal to provide proper valve alignment during stroking. The upper portion of the valve strokes the inner tube open while the outer tube, with its seal securely positioned, remains atop the bottle allowing product to pass from the inner tube into the bottle.

Product is pumped to the supply manifold from an atmospheric tank through a single supply line and then distributed into separate filling lines for each valve as allowed by the supply manifold. The supply atmospheric tank provides a reservoir for the product to settle before pumping to the roof.

In the supply manifold is comprised of a shutoff shoe plate system that prevents product from being supplied to certain filling valves. An integrated rotary union allows the shutoff shoe to remain stationary while the manifold rotates. This rotational activity permits filling by the alignment of orifices within the manifold and the shoe. When these orifices are not aligned, supply flow is obstructed.

The product travels under pressure down the open product supply hose to the tube head, through the inner tube to the tip of the valve and into the container. Overflow product is discharged to an externally placed atmospheric tank via an overflow manifold, rotary union, and pipe. The overflow manifold is fixed to the carousel and the rotary union permits its rotation. A coupled pump located on the output side of the overflow tank transfers the discharged liquid back into the supply system for container filling.

Theory of Operation (continued)

The filling valve system is comprised of two functional sub-assemblies: the tube head (upper portion) and the tube body (lower portion). The tube head is connected to the supply hose and upper supply manifold, and the tube body is connected to the overflow hose and corresponding discharge manifold.
Space between the inner tube and the outer tube provides a path to displace the air within the bottle allowing the product to flow into the container until it reaches the end of the outer tube. Excess product flows through the overflow hose and out into the atmospheric return tank. Extension of the outer tube past the sealer rubber traps some air at the top of the bottle and prevents any product to rise past that compression level to establish the product fill height. Extension and retraction of the outer tube relative to the sealer rubber permits adjustment of the fill height.

Upon reaching the lift cam, the bottom of the inner tube makes contact with the outer tube and the valve closes. The tube head along with the tube body and outer tube rise, withdrawing the valve from the bottle. The container is rotated via the carousel to the transfer star.

Like the infeed star, the discharge star is a circular plate attachment with cutouts around its periphery that are sized and shaped to accommodate specific containers. The discharge star turns concentrically on a drive shaft and is positioned so that as the machine presents each filled container, it becomes caught in its available cutout. The discharge star then rotates the filled container onto the conveyor or the next machine available.

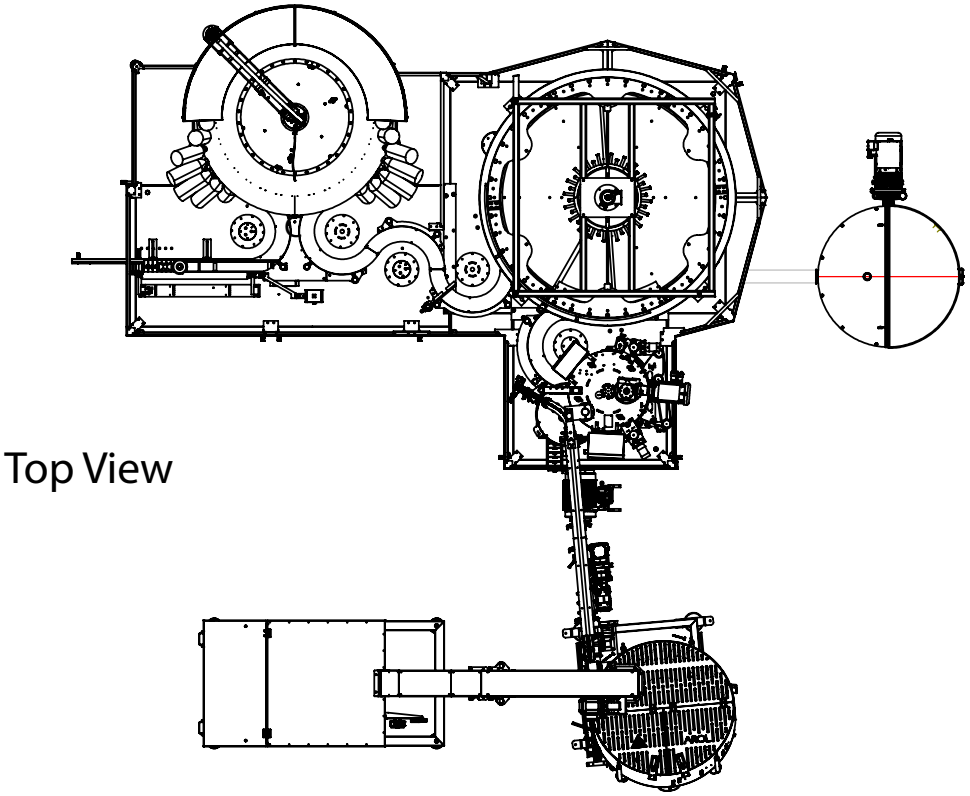
Technical Data	
FACILITY REQUIREMENTS	
Environmental Conditions	Enclosed structure, climate controlled, free of visible atmospheric pollutants.
Electrical Supply	480VAC, 3 Phase, 60HZ
Pneumatic Supply	80 psi, 20 CFM
Water Supply	As required for cleaning
MACHINE SPECIFICATIONS	
Machine Dimensions	Monoblock: 212" W x 153 5/8" L x 141 3/4" H (approximate) Electrical Panel: 60" H x 61" W x 18" D (approximate) Supply/Return Tank: 38" OD x 42" H (approximate)
Machine Weight	Monoblock: 10,000 lbs. (estimated) Electrical Panel: 1,000 lbs. (estimated) Supply Tank: 500 lbs. (estimated)
Production Capacity	200-265 BPM
LUBRICATION	
Bearing Grease	Food Grade: Lubricate FGL-1 Standard: 630-AA Grade (G-81322 Compliant)
Gearbox Oil	See Stober gearbox lubrication specs (pgs. 4-124,125)
Chain Lubricant	Customer Determined
FILLER DRIVE MOTOR SPECIFICATIONS	
Volts	230 / 460
Hertz	60
Phase	3
Horsepower	3.0
Revolutions Per Minute (RPM)	1742
Enclosure/Application	EPNV
Service	CONT
RINSER DRIVE/STARS MOTOR SPECIFICATIONS	
Volts	230 / 460
Hertz	60
Phase	3
Horsepower	2.0
Revolutions Per Minute (RPM)	1750
Enclosure/Application	EPNV

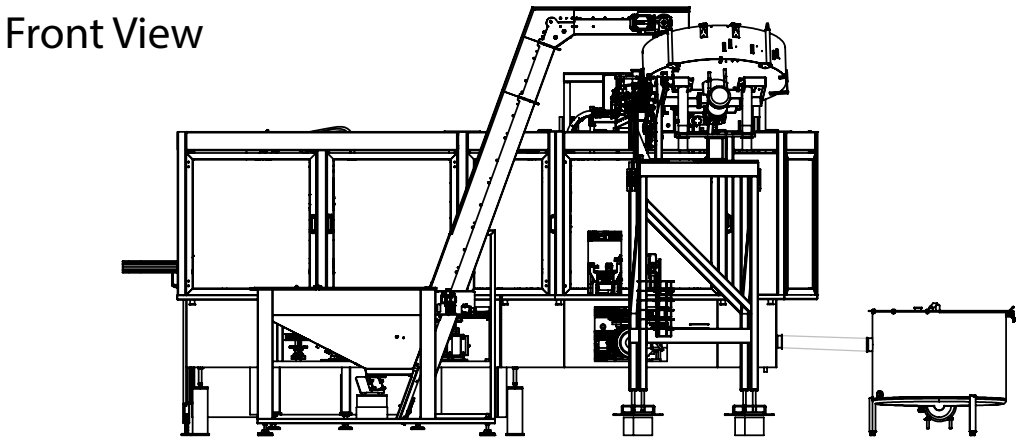
Table 1-1: *Technical Data*

Technical Data continued		
CAPPER SPINDLE MOTOR SPECIFICATIONS		
Volts	230 / 460	
Hertz	60	
Phase	3	
Horsepower	5.0	
Revolutions Per Minute (RPM)	1765	
Enclosure/Application	EPNV	
PUMP MOTOR SPECIFICATIONS		
	Supply	**Return**
Volts	230 / 460	230 / 460
Hertz	60	60
Phase	3	3
Horsepower	2.0	2.0
Revolutions Per Minute (RPM)	1750	1750
Enclosure/Application	TEFC / Continuous Duty	TEFC / Continuous Duty
ELEVATOR SORTER DRIVE MOTOR SPECIFICATIONS		
See AROL Documentation		

SETUP PARAMETERS *(see separate Setup Sheets documentation)*											
Container	**Machine Speed**	**Idle Speed**	**CAP Sorter Format**	**Main Flow Valve**	**Supply Tank Level**	**Supply Pump Speed**	**CAP Sorter Speed**	**CAP Elevator Speed**	**Infeed Worm Position**	**Rinser Height Position**	**Filler Height Position**
x	x	x	x	x	x	x	x	x	x	x	x
x	x	x	x	x	x	x	x	x	x	x	x

Table 1-2:*Setup Parameters*





RR-30-58.5" / PG-40-78" / AROL-8-15.6"

Figure 1-1: ***Machine Layout***

Attachment Sheets

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-1

ATTACHMENT SHEET - U.S.B.M. RINSER

MODEL RR-	30-58.5”		ENG#122300-1	ORDER# 122300-1	
CUSTOMER	Luxco, Inc.		DATE: 9/19/22	SHEET 1 OF 7	
			REV	REV 1	
	BOTTLE SIZE	**700 ML REBEL**	**750 ML DAVIES COUNTY**	**750 ML OLD EZRA**	
	DESCRIPTION	Round plastic bottle 1.280” dia x 4.155” tall	Square glass bottle 1.700” sq x 2.840” tall	Round glass bottle 3.620” dia x 10” tall	
RINSER FEED WORM ASSEMBLY	MARK	**1**	**2**	**3**	
	CODE	119600-8-1	119600-9-1	122300-10-1	
	PART	A18540	A18540	A18540	
RINSER CENTER GUIDE ASSEMBLY	MARK	**1**	**2**	**3**	
	CODE	Top: 122300-8-3 Bottom: 122300-8-4 Top Disch: 122300-8-5 Btm Disch: 122300-8-6 Top Disch Ext: 122300-8-7 Btm Disch Ext: 122300-8-8	Top: 122300-9-3 Bottom: 122300-9-4 Top Disch: 122300-9-5 Btm Disch: 122300-9-6 Top Disch Ext: 122300-9-7 Btm Disch Ext: 122300-9-8	Top: 122300-10-3 Bottom: 122300-10-4 Top Disch: 122300-10-5 Btm Disch: 122300-10-6 Top Disch Ext: 122300-10-7 Btm Disch Ext: 122300-10-8	
	PART	X90977	X90977	X90977	
RINSER INFEED & DISCHARGE STARS	MARK	**1**	**2**	**3**	
	CODE	Top: 122300-8-12 Bottom: 122300-8-13	Top: 122300-9-12 Bottom: 122300-9-13	Top: 122300-10-12 Bottom: 122300-10-13	
	PART	X90981 (2)	X90981 (2)	X90981 (2)	
RINSER TRANSFER CENTER GUIDE	MARK	**1**	**2**	**3**	
	CODE	Top: 122300-8-16 Bottom: 122300-8-17 Top Inf Ext: 122300-8-18 Btm Inf Ext: 122300-8-19 Top Disch Ext: 122300-8-20 Btm Disch Ext: 122300-8-21	Top: 122300-9-16 Bottom: 122300-9-17 Top Inf Ext: 122300-9-18 Btm Inf Ext: 122300-9-19 Top Disch Ext: 122300-9-20 Btm Disch Ext: 122300-9-21	Top: 122300-10-16 Bottom: 122300-10-17 Top Inf Ext: 122300-10-18 Btm Inf Ext: 122300-10-19 Top Disch Ext: 122300-10-20 Btm Disch Ext: 122300-10-21	
	PART	X90978	X90978	X90978	
RINSER TRANSFER STAR	MARK	**1**	**2**	**3**	
	CODE	Top: 122300-8-25 Bottom: 122300-8-26	Top: 122300-9-25 Bottom: 122300-9-26	Top: 122300-10-25 Bottom: 122300-10-26	
	PART	X90981	X90981	X90981	

Table 1-3: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-1

ATTACHMENT SHEET - U.S.B.M. RINSER

MODEL RR-	30-58.5”		ENG#122300-1	ORDER# 122300-1	
CUSTOMER	Luxco, Inc.		DATE: 9/19/22	SHEET 2 OF 7	
			REV	REV 1	
	BOTTLE SIZE	**1.75 L REBEL**	**750 ML DAVID NICHOLSON**	**700 ML DAVID NICHOLSON**	
	DESCRIPTION	Round glass bottle 4.398” dia x 12.662” tall	Round glass bottle 4.016” dia x 8.406” tall	Round glass bottle 3.917” dia x 8.406” tall	
RINSER FEED WORM ASSEMBLY	MARK	**4**	**5**	**6**	
	CODE	122300-11-1	122300-12-1	122300-13-1	
	PART	A18540	A18540	A18540	
RINSER CENTER GUIDE ASSEMBLY	MARK	**4**	**5**	**6**	
	CODE	Top: 122300-11-3 Bottom: 122300-11-4 Top Disch: 122300-11-5 Btm Disch: 122300-11-6 Top Disch Ext: 122300-11-7 Btm Disch Ext: 122300-11-8	Top: 122300-12-3 Bottom: 122300-12-4 Top Disch: 122300-12-5 Btm Disch: 122300-12-6 Top Disch Ext: 122300-12-7 Btm Disch Ext: 122300-12-8	Top: 122300-13-3 Bottom: 122300-13-4 Top Disch: 122300-13-5 Btm Disch: 122300-13-6 Top Disch Ext: 122300-13-7 Btm Disch Ext: 122300-13-8	
	PART	X90977	X90977	X90977	
RINSER INFEED & DISCHARGE STARS	MARK	**4**	**5**	**6**	
	CODE	Top: 122300-11-12 Bottom: 122300-11-13	Top: 122300-12-12 Bottom: 122300-12-13	Top: 122300-13-12 Bottom: 122300-13-13	
	PART	X90981 (2)	X90981 (2)	X90981 (2)	
RINSER TRANSFER CENTER GUIDE	MARK	**4**	**5**	**6**	
	CODE	Top: 122300-11-16 Bottom: 122300-11-17 Top Inf Ext: 122300-11-18 Btm Inf Ext: 122300-11-19 Top Dis Ext: 122300-11-20 Btm Dis Ext: 122300-11-21	Top: 122300-12-16 Bottom: 122300-12-17 Top Inf Ext: 122300-12-18 Btm Inf Ext: 122300-12-19 Top Disch Ext: 122300-12-20 Btm Disch Ext: 122300-12-21	Top: 122300-13-16 Bottom: 122300-13-17 Top Inf Ext: 122300-13-18 Btm Inf Ext: 122300-13-19 Top Disch Ext: 122300-13-20 Btm Disch Ext: 122300-13-21	
	PART	X90978	X90978	X90978	
RINSER TRANSFER STAR	MARK	**4**	**5**	**6**	
	CODE	Top: 122300-11-25 Bottom: 122300-11-26	Top: 122300-12-25 Bottom: 122300-12-26	Top: 122300-13-25 Bottom: 122300-13-26	
	PART	X90981	X90981	X90981	

Table 1-4: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-1

ATTACHMENT SHEET - U.S.B.M. RINSER

MODEL RR-	30-58.5”		ENG#122300-1	ORDER# 122300-1	
CUSTOMER	Luxco, Inc.		DATE: 9/19/22	SHEET 3 OF 7	
			REV	REV 1	
	BOTTLE SIZE	**750 ML YELLOWSTONE**	**750 ML GEORGE REMUS**	**750 ML REMUS REPEAL RESERVE**	
	DESCRIPTION	Round glass bottle 3.010” dia x 11.657” tall	Round glass bottle 3.701” dia x 9.110” tall	Rectangular glass bottle 3.925” wide x 2.378” thick x 10.316” tall	
RINSER FEED WORM ASSEMBLY	MARK	**7**	**8**	**9**	
	CODE	122300-14-1	122300-15-1	122300-16-1	
	PART	A18540	A18540	A18540	
RINSER CENTER GUIDE ASSEMBLY	MARK	**7**	**8**	**9**	
	CODE	Top: 122300-14-3 Bottom: 122300-14-4 Top Disch: 122300-14-5 Btm Disch: 122300-14-6 Top Disch Ext: 122300-14-7 Btm Disch Ext: 122300-14-8	Top: 122300-15-3 Bottom: 122300-15-4 Top Disch: 122300-15-5 Btm Disch: 122300-15-6 Top Disch Ext: 122300-15-7 Btm Disch Ext: 122300-15-8	Top: 122300-16-3 Bottom: 122300-16-4 Top Disch: 122300-16-5 Btm Disch: 122300-16-6 Top Disch Ext: 122300-16-7 Btm Disch Ext: 122300-16-8	
	PART	X90977	X90977	X90977	
RINSER INFEED & DISCHARGE STARS	MARK	**7**	**8**	**9**	
	CODE	Top: 122300-14-12 Bottom: 122300-14-13	Top: 122300-15-12 Bottom: 122300-15-13	Top: 122300-16-12 Bottom: 122300-16-13	
	PART	X90981 (2)	X90981 (2)	X90981 (2)	
RINSER TRANSFER CENTER GUIDE	MARK	**7**	**8**	**9**	
	CODE	Top: 122300-14-16 Bottom: 122300-14-17 Top Inf Ext: 122300-14-18 Btm Inf Ext: 122300-14-19 Top Dis Ext: 122300-14-20 Btm Dis Ext: 122300-14-21	Top: 122300-15-16 Bottom: 122300-15-17 Top Inf Ext: 122300-15-18 Btm Inf Ext: 122300-15-19 Top Disch Ext: 122300-15-20 Btm Disch Ext: 122300-15-21	Top: 122300-16-16 Bottom: 122300-16-17 Top Inf Ext: 122300-16-18 Btm Inf Ext: 122300-16-19 Top Disch Ext: 122300-16-20 Btm Disch Ext: 122300-16-21	
	PART	X90978	X90978	X90978	
RINSER TRANSFER STAR	MARK	**7**	**8**	**9**	
	CODE	Top: 122300-14-25 Bottom: 122300-14-26	Top: 122300-15-25 Bottom: 122300-15-26	Top: 122300-16-25 Bottom: 122300-16-26	
	PART	X90981	X90981	X90981	

Table 1-5: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-1

ATTACHMENT SHEET - U.S.B.M. RINSER

MODEL RR-	30-58.5”		ENG#122300-1	ORDER# 122300-1	
CUSTOMER	Luxco, Inc.		DATE: 9/19/22	SHEET 4 OF 7	
			REV	REV 1	
	BOTTLE SIZE	**750 ML BLOOD OATH**	**750 ML MICHIGAN**	**750 ML PEARL**	
	DESCRIPTION	Rectangular glass bottle 3.825” wide x 2.953” thick x 8.359” tall	Rectangular glass bottle 4.035” wide x 2.348” thick x 10.125” tall	Round glass bottle 2.886” dia x 12.669” tall	
RINSER FEED WORM ASSEMBLY	MARK	**10**	**11**	**12**	
	CODE	122300-17-1	122300-18-1	122300-19-1	
	PART	A18540	A18540	A18540	
RINSER CENTER GUIDE ASSEMBLY	MARK	**10**	**11**	**12**	
	CODE	Top: 122300-17-3 Bottom: 122300-17-4 Top Disch: 122300-17-5 Btm Disch: 122300-17-6 Top Disch Ext: 122300-17-7 Btm Disch Ext: 122300-17-8	Top: 122300-18-3 Bottom: 122300-18-4 Top Disch: 122300-18-5 Btm Disch: 122300-18-6 Top Disch Ext: 122300-18-7 Btm Disch Ext: 122300-18-8	Top: 122300-19-3 Bottom: 122300-19-4 Top Disch: 122300-19-5 Btm Disch: 122300-19-6 Top Disch Ext: 122300-19-7 Btm Disch Ext: 122300-19-8	
	PART	X90977	X90977	X90977	
RINSER INFEED & DISCHARGE STARS	MARK	**10**	**11**	**12**	
	CODE	Top: 122300-17-12 Bottom: 122300-17-13	Top: 122300-18-12 Bottom: 122300-18-13	Top: 122300-19-12 Bottom: 122300-19-13	
	PART	X90981 (2)	X90981 (2)	X90981 (2)	
RINSER TRANSFER CENTER GUIDE	MARK	**10**	**11**	**12**	
	CODE	Top: 122300-17-16 Bottom: 122300-17-17 Top Inf Ext: 122300-17-18 Btm Inf Ext: 122300-17-19 Top Dis Ext: 122300-17-20 Btm Dis Ext: 122300-17-21	Top: 122300-18-16 Bottom: 122300-18-17 Top Inf Ext: 122300-18-18 Btm Inf Ext: 122300-18-19 Top Disch Ext: 122300-18-20 Btm Disch Ext: 122300-18-21	Top: 122300-19-16 Bottom: 122300-19-17 Top Inf Ext: 122300-19-18 Btm Inf Ext: 122300-19-19 Top Disch Ext: 122300-19-20 Btm Disch Ext: 122300-19-21	
	PART	X90978	X90978	X90978	
RINSER TRANSFER STAR	MARK	**10**	**11**	**12**	
	CODE	Top: 122300-17-25 Bottom: 122300-17-26	Top: 122300-18-25 Bottom: 122300-18-26	Top: 122300-19-25 Bottom: 122300-19-26	
	PART	X90981	X90981	X90981	

Table 1-6: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-1

ATTACHMENT SHEET - U.S.B.M. RINSER

MODEL RR-	30-58.5”		ENG#122300-1	ORDER# 122300-1	
CUSTOMER	Luxco, Inc.		DATE: 9/19/22	SHEET 5 OF 7	
			REV	REV 1	
	BOTTLE SIZE	**750 ML ROUND**	**1 L ROUND**	**1 L PEARL**	
	DESCRIPTION	Round glass bottle 3.026” dia x 11.172” tall	Round glass bottle 3.368” dia x 11.847” tall	Round glass bottle 3.327” dia x 12.815” tall	
RINSER FEED WORM ASSEMBLY	MARK	**13**	**14**	**15**	
	CODE	122300-20-1	122300-21-1	122300-22-1	
	PART	A18540	A18540	A18540	
RINSER CENTER GUIDE ASSEMBLY	MARK	**13**	**14**	**15**	
	CODE	Top: 122300-20-3 Bottom: 122300-20-4 Top Disch: 122300-20-5 Btm Disch: 122300-20-6 Top Disch Ext: 122300-20-7 Btm Disch Ext: 122300-20-8	Top: 122300-21-3 Bottom: 122300-21-4 Top Disch: 122300-21-5 Btm Disch: 122300-21-6 Top Disch Ext: 122300-21-7 Btm Disch Ext: 122300-21-8	Top: 122300-22-3 Bottom: 122300-22-4 Top Disch: 122300-22-5 Btm Disch: 122300-22-6 Top Disch Ext: 122300-22-7 Btm Disch Ext: 122300-22-8	
	PART	X90977	X90977	X90977	
RINSER INFEED & DISCHARGE STARS	MARK	**13**	**14**	**15**	
	CODE	Top: 122300-20-12 Bottom: 122300-20-13	Top: 122300-21-12 Bottom: 122300-21-13	Top: 122300-22-12 Bottom: 122300-22-13	
	PART	X90981 (2)	X90981 (2)	X90981 (2)	
RINSER TRANSFER CENTER GUIDE	MARK	**13**	**14**	**15**	
	CODE	Top: 122300-20-16 Bottom: 122300-20-17 Top Inf Ext: 122300-20-18 Btm Inf Ext: 122300-20-19 Top Dis Ext: 122300-20-20 Btm Dis Ext: 122300-20-21	Top: 122300-21-16 Bottom: 122300-21-17 Top Inf Ext: 122300-21-18 Btm Inf Ext: 122300-21-19 Top Disch Ext: 122300-21-20 Btm Disch Ext: 122300-21-21	Top: 122300-22-16 Bottom: 122300-22-17 Top Inf Ext: 122300-22-18 Btm Inf Ext: 122300-22-19 Top Disch Ext: 122300-22-20 Btm Disch Ext: 122300-22-21	
	PART	X90978	X90978	X90978	
RINSER TRANSFER STAR	MARK	**13**	**14**	**15**	
	CODE	Top: 122300-20-25 Bottom: 122300-20-26	Top: 122300-21-25 Bottom: 122300-21-26	Top: 122300-22-25 Bottom: 122300-22-26	
	PART	X90981	X90981	X90981	

Table 1-7: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-1

ATTACHMENT SHEET - U.S.B.M. RINSER

MODEL RR-	30-58.5”		ENG#122300-1	ORDER# 122300-1	
CUSTOMER	Luxco, Inc.		DATE: 9/19/22	SHEET 6 OF 7	
			REV	REV 1	
	BOTTLE SIZE	**1.75 L GLASS**	**1.75 L PET**	**1.75 L CUSTOM**	
	DESCRIPTION	Round glass bottle w/vertical handle 4.953” dia x 12.029” tall	Round plastic bottle 4.448” dia x 12.146” tall	Round plastic bottle 4.250” dia x 12.252” tall	
RINSER FEED WORM ASSEMBLY	MARK	**16**	**17**	**18**	
	CODE	122300-23-1	122300-24-1	122300-25-1	
	PART	A18540	A18540	A18540	
RINSER CENTER GUIDE ASSEMBLY	MARK	**16**	**17**	**18**	
	CODE	Top: 122300-23-3 Bottom: 122300-23-4 Top Disch: 122300-23-5 Btm Disch: 122300-23-6 Top Disch Ext: 122300-23-7 Btm Disch Ext: 122300-23-8	Top: 122300-24-3 Bottom: 122300-24-4 Top Disch: 122300-24-5 Btm Disch: 122300-24-6 Top Disch Ext: 122300-24-7 Btm Disch Ext: 122300-24-8	Top: 122300-25-3 Bottom: 122300-25-4 Top Disch: 122300-25-5 Btm Disch: 122300-25-6 Top Disch Ext: 122300-25-7 Btm Disch Ext: 122300-25-8	
	PART	X90977	X90977	X90977	
RINSER INFEED & DISCHARGE STARS	MARK	**16**	**17**	**18**	
	CODE	Top: 122300-23-12 Bottom: 122300-23-13	Top: 122300-24-12 Bottom: 122300-24-13	Top: 122300-25-12 Bottom: 122300-25-13	
	PART	X90981 (2)	X90981 (2)	X90981 (2)	
RINSER TRANSFER CENTER GUIDE	MARK	**16**	**17**	**18**	
	CODE	Top: 122300-23-16 Bottom: 122300-23-17 Top Inf Ext: 122300-23-18 Btm Inf Ext: 122300-23-19 Top Dis Ext: 122300-23-20 Btm Dis Ext: 122300-23-21	Top: 122300-24-16 Bottom: 122300-24-17 Top Inf Ext: 122300-24-18 Btm Inf Ext: 122300-24-19 Top Disch Ext: 122300-24-20 Btm Disch Ext: 122300-24-21	Top: 122300-25-16 Bottom: 122300-25-17 Top Inf Ext: 122300-25-18 Btm Inf Ext: 122300-25-19 Top Disch Ext: 122300-25-20 Btm Disch Ext: 122300-25-21	
	PART	X90978	X90978	X90978	
RINSER TRANSFER STAR	MARK	**16**	**17**	**18**	
	CODE	Top: 122300-23-25 Bottom: 122300-23-26	Top: 122300-24-25 Bottom: 122300-24-26	Top: 122300-25-25 Bottom: 122300-25-26	
	PART	X90981	X90981	X90981	

Table 1-8: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-1

ATTACHMENT SHEET - U.S.B.M. RINSER

MODEL RR-	30-58.5”		ENG#122300-1		ORDER# 122300-1	
CUSTOMER	Luxco, Inc.		DATE: 9/19/22		SHEET 7 OF 7	
			REV		REV 1	
	BOTTLE SIZE		**750 ML DECANTER**	**1.75 L OLD EZRA**	**1 L REBEL**	
	DESCRIPTION		Round glass bottle 3.760” dia x 9.055” tall	Round glass bottle 4.625” dia x 12.780” tall	Round glass bottle 3.673” dia x 10.945” tall	
RINSER FEED WORM ASSEMBLY	MARK		**19**	**20**	**21**	
	CODE		122300-26-1	122300-27-1	122300-28-1	
	PART		A18540	A18540	A18540	
RINSER CENTER GUIDE ASSEMBLY	MARK		**19**	**20**	**21**	
	CODE		Top: 122300-26-3 Bottom: 122300-26-4 Top Disch: 122300-26-5 Btm Disch: 122300-26-6 Top Disch Ext: 122300-26-7 Btm Disch Ext: 122300-26-8	Top: 122300-27-3 Bottom: 122300-27-4 Top Disch: 122300-27-5 Btm Disch: 122300-27-6 Top Disch Ext: 122300-27-7 Btm Disch Ext: 122300-27-8	Top: 122300-28-3 Bottom: 122300-28-4 Top Disch: 122300-28-5 Btm Disch: 122300-28-6 Top Disch Ext: 122300-28-7 Btm Disch Ext: 122300-28-8	
	PART		X90977	X90977	X90977	
RINSER INFEED & DISCHARGE STARS	MARK		**19**	**20**	**21**	
	CODE		Top: 122300-26-12 Bottom: 122300-26-13	Top: 122300-27-12 Bottom: 122300-27-13	Top: 122300-28-12 Bottom: 122300-28-13	
	PART		X90981 (2)	X90981 (2)	X90981 (2)	
RINSER TRANSFER CENTER GUIDE	MARK		**19**	**20**	**21**	
	CODE		Top: 122300-26-16 Bottom: 122300-26-17 Top Inf Ext: 122300-26-18 Btm Inf Ext: 122300-26-19 Top Dis Ext: 122300-26-20 Btm Dis Ext: 122300-26-21	Top: 122300-27-16 Bottom: 122300-27-17 Top Inf Ext: 122300-27-18 Btm Inf Ext: 122300-27-19 Top Disch Ext: 122300-27-20 Btm Disch Ext: 122300-27-21	Top: 122300-28-16 Bottom: 122300-28-17 Top Inf Ext: 122300-28-18 Btm Inf Ext: 122300-28-19 Top Disch Ext: 122300-28-20 Btm Disch Ext: 122300-28-21	
	PART		X90978	X90978	X90978	
RINSER TRANSFER STAR	MARK		**19**	**20**	**21**	
	CODE		Top: 122300-26-25 Bottom: 122300-26-26	Top: 122300-27-25 Bottom: 122300-27-26	Top: 122300-28-25 Bottom: 122300-28-26	
	PART		X90981	X90981	X90981	

Table 1-9: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-2

ATTACHMENT SHEET - U.S.B.M. GRAVITY FILLER

MODEL PG	40-78”			ENGR #	122300-2	ORDER #	122300-2
CUSTOMER	Luxco, Inc.			DATE:	9/19/22	SHEET 1	OF 7

	BOTTLE SIZE	**700 ML REBEL**	**750 ML DAVIES COUNTY**	**750 ML OLD EZRA**
	CAP			
	DESCRIPTION	Round glass bottle 3.650” dia x 8.681” tall	Round glass bottle 3.437” dia x 11.077” tall	Round glass bottle 3.620” dia x 10” tall
FILLER INFEED STAR	MARK	**1**	**2**	**3**
	CODE	Top: 122300-8-29 Bottom: 122300-8-30	Top: 122300-9-29 Bottom: 122300-9-30	Top: 122300-10-29 Bottom: 122300-10-30
	PART	X90981	X90981	X90981
FILLER CENTER GUIDE	MARK	**1**	**2**	**3**
	CODE	Top Inf: 122300-8-33 Btm Inf: 122300-8-34 Top Ext: 122300-8-35 Btm Ext: 122300-8-36	Top Inf: 122300-9-33 Btm Inf: 122300-9-34 Top Ext: 122300-9-35 Btm Ext: 122300-9-36	Top Inf: 122300-10-33 Btm Inf: 122300-10-34 Top Ext: 122300-10-35 Btm Ext: 122300-10-36
	PART	X90979	X90979	X90979
FILLER CENTER STAR	MARK	**1**	**2**	**3**
	CODE	122300-8-39	122300-9-39	122300-10-39
	PART	X90970	X90970	X90970
FILLER INFEED FINGER	MARK	**1**	**2**	**3**
	CODE	122300-8-40	122300-9-40	122300-10-40
	PART	X90971	X90971	X90971
FILLER DISCHARGE FINGER	MARK	**1**	**2**	**3**
	CODE	122300-8-41	122300-9-41	122300-10-41
	PART	X90972	X90972	X90972

Table 1-10: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-2

ATTACHMENT SHEET - U.S.B.M. GRAVITY FILLER

MODEL PG	40-78”			ENGR #	122300-2	ORDER #	122300-2
CUSTOMER	Luxco, Inc.			DATE:	9/19/22	SHEET 2	OF 7

	BOTTLE SIZE	**1.75 L REBEL**	**750 ML DAVID NICHOLSON**	**700 ML DAVID NICHOLSON**
	CAP			
	DESCRIPTION	Round glass bottle 4.398” dia x 12.662” tall	Round glass bottle 4.016” dia x 8.406” tall	Round glass bottle 3.917” dia x 8.406” tall
FILLER INFEED STAR	MARK	**4**	**5**	**6**
	CODE	Top: 122300-11-29 Bottom: 122300-11-30	Top: 122300-12-29 Bottom: 122300-12-30	Top: 122300-13-29 Bottom: 122300-13-30
	PART	X90981	X90981	X90981
FILLER CENTER GUIDE	MARK	**4**	**5**	**6**
	CODE	Top Inf: 122300-11-33 Btm Inf: 122300-11-34 Top Ext: 122300-11-35 Btm Ext: 122300-11-36	Top Inf: 122300-12-33 Btm Inf: 122300-12-34 Top Ext: 122300-12-35 Btm Ext: 122300-12-36	Top Inf: 122300-13-33 Btm Inf: 122300-13-34 Top Ext: 122300-13-35 Btm Ext: 122300-13-36
	PART	X90979	X90979	X90979
FILLER CENTER STAR	MARK	**4**	**5**	**6**
	CODE	122300-11-39	122300-12-39	122300-13-39
	PART	X90970	X90970	X90970
FILLER INFEED FINGER	MARK	**4**	**5**	**6**
	CODE	122300-11-40	122300-12-40	122300-13-40
	PART	X90971	X90971	X90971
FILLER DISCHARGE FINGER	MARK	**4**	**5**	**6**
	CODE	122300-11-41	122300-12-41	122300-13-41
	PART	X90972	X90972	X90972

Table 1-11: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-2

ATTACHMENT SHEET - U.S.B.M. GRAVITY FILLER

MODEL PG	40-78”			ENGR #	122300-2	ORDER #	122300-2	
CUSTOMER	Luxco, Inc.			DATE:	9/19/22	SHEET	3	OF 7

	BOTTLE SIZE	**750 ML YELLOWSTONE**	**750 ML GEORGE REMUS**	**750 ML REMUS REPEAL RESERVE**
	CAP			
	DESCRIPTION	Round glass bottle 3.010” dia x 11.657” tall	Round glass bottle 3.701” dia x 9.110” tall	Rectangular glass bottle 3.925” wide x 2.378” thick x 10.316” tall
FILLER INFEED STAR	MARK	**7**	**8**	**9**
	CODE	Top: 122300-14-29 Bottom: 122300-14-30	Top: 122300-15-29 Bottom: 122300-15-30	Top: 122300-16-29 Bottom: 122300-16-30
	PART	X90981	X90981	X90981
FILLER CENTER GUIDE	MARK	**7**	**8**	**9**
	CODE	Top Inf: 122300-14-33 Btm Inf: 122300-14-34 Top Ext: 122300-14-35 Btm Ext: 122300-14-36	Top Inf: 122300-15-33 Btm Inf: 122300-15-34 Top Ext: 122300-15-35 Btm Ext: 122300-15-36	Top Inf: 122300-16-33 Btm Inf: 122300-16-34 Top Ext: 122300-16-35 Btm Ext: 122300-16-36
	PART	X90979	X90979	X90979
FILLER CENTER STAR	MARK	**7**	**8**	**9**
	CODE	122300-14-39	122300-15-39	122300-16-39
	PART	X90970	X90970	X90970
FILLER INFEED FINGER	MARK	**7**	**8**	**9**
	CODE	122300-14-40	122300-15-40	122300-16-40
	PART	X90971	X90971	X90971
FILLER DISCHARGE FINGER	MARK	**7**	**8**	**9**
	CODE	122300-14-41	122300-15-41	122300-16-41
	PART	X90972	X90972	X90972

Table 1-12: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-2

ATTACHMENT SHEET - U.S.B.M. GRAVITY FILLER

MODEL PG	40-78”			ENGR #	122300-2	ORDER #	122300-2
CUSTOMER	Luxco, Inc.			DATE:	9/19/22	SHEET 4	OF 7

	BOTTLE SIZE	**750 ML BLOOD OATH**	**750 ML MICHIGAN**	**750 ML PEARL**
	CAP			
	DESCRIPTION	Rectangular glass bottle 3.825” wide x 2.953” thick x 8.359” tall	Rectangular glass bottle 4.035” wide x 2.348” thick x 10.125” tall	Round glass bottle 2.886” dia x 12.669” tall
FILLER INFEED STAR	MARK	**10**	**11**	**12**
	CODE	Top: 122300-17-29 Bottom: 122300-17-30	Top: 122300-18-29 Bottom: 122300-18-30	Top: 122300-19-29 Bottom: 122300-19-30
	PART	X90981	X90981	X90981
FILLER CENTER GUIDE	MARK	**10**	**11**	**12**
	CODE	Top Inf: 122300-17-33 Btm Inf: 122300-17-34 Top Ext: 122300-17-35 Btm Ext: 122300-17-36	Top Inf: 122300-18-33 Btm Inf: 122300-18-34 Top Ext: 122300-18-35 Btm Ext: 122300-18-36	Top Inf: 122300-19-33 Btm Inf: 122300-19-34 Top Ext: 122300-19-35 Btm Ext: 122300-19-36
	PART	X90979	X90979	X90979
FILLER CENTER STAR	MARK	**10**	**11**	**12**
	CODE	122300-17-39	122300-18-39	122300-19-39
	PART	X90970	X90970	X90970
FILLER INFEED FINGER	MARK	**10**	**11**	**12**
	CODE	122300-17-40	122300-18-40	122300-19-40
	PART	X90971	X90971	X90971
FILLER DISCHARGE FINGER	MARK	**10**	**11**	**12**
	CODE	122300-17-41	122300-18-41	122300-19-41
	PART	X90972	X90972	X90972

Table 1-13: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-2

ATTACHMENT SHEET - U.S.B.M. GRAVITY FILLER

MODEL PG	40-78”			ENGR #	122300-2	ORDER #	122300-2
CUSTOMER	Luxco, Inc.			DATE:	9/19/22	SHEET 5	OF 7

	BOTTLE SIZE	**750 ML ROUND**	**1 L ROUND**	**1 L PEARL**
	CAP			
	DESCRIPTION	Round glass bottle 3.026” dia x 11.172” tall	Round glass bottle 3.368” dia x 11.847” tall	Round glass bottle 3.327” dia x 12.815” tall
FILLER INFEED STAR	MARK	**13**	**14**	**15**
	CODE	Top: 122300-20-29 Bottom: 122300-20-30	Top: 122300-21-29 Bottom: 122300-21-30	Top: 122300-22-29 Bottom: 122300-22-30
	PART	X90981	X90981	X90981
FILLER CENTER GUIDE	MARK	**13**	**14**	**15**
	CODE	Top Inf: 122300-20-33 Btm Inf: 122300-20-34 Top Ext: 122300-20-35 Btm Ext: 122300-20-36	Top Inf: 122300-21-33 Btm Inf: 122300-21-34 Top Ext: 122300-21-35 Btm Ext: 122300-21-36	Top Inf: 122300-22-33 Btm Inf: 122300-22-34 Top Ext: 122300-22-35 Btm Ext: 122300-22-36
	PART	X90979	X90979	X90979
FILLER CENTER STAR	MARK	**13**	**14**	**15**
	CODE	122300-20-39	122300-21-39	122300-22-39
	PART	X90970	X90970	X90970
FILLER INFEED FINGER	MARK	**13**	**14**	**15**
	CODE	122300-20-40	122300-21-40	122300-22-40
	PART	X90971	X90971	X90971
FILLER DISCHARGE FINGER	MARK	**13**	**14**	**15**
	CODE	122300-20-41	122300-21-41	122300-22-41
	PART	X90972	X90972	X90972

Table 1-14: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-2

ATTACHMENT SHEET - U.S.B.M. GRAVITY FILLER

MODEL PG	40-78”			ENGR #	122300-2	ORDER #	122300-2
CUSTOMER	Luxco, Inc.			DATE:	9/19/22	SHEET 6	OF 7

	BOTTLE SIZE	**1.75 L GLASS**	**1.75 L PET**	**1.75 L CUSTOM**
	CAP			
	DESCRIPTION	Round glass bottle w/ vertical handle 4.953” dia x 12.029” tall	Round plastic bottle 4.448” dia x 12.146” tall	Round plastic bottle 4.250” dia x 12.252” tall
FILLER INFEED STAR	MARK	**16**	**17**	**18**
	CODE	Top: 122300-23-29 Bottom: 122300-23-30	Top: 122300-24-29 Bottom: 122300-24-30	Top: 122300-25-29 Bottom: 122300-25-30
	PART	X90981	X90981	X90981
FILLER CENTER GUIDE	MARK	**16**	**17**	**18**
	CODE	Top Inf: 122300-23-33 Btm Inf: 122300-23-34 Top Ext: 122300-23-35 Btm Ext: 122300-23-36	Top Inf: 122300-24-33 Btm Inf: 122300-24-34 Top Ext: 122300-24-35 Btm Ext: 122300-24-36	Top Inf: 122300-25-33 Btm Inf: 122300-25-34 Top Ext: 122300-25-35 Btm Ext: 122300-25-36
	PART	X90979	X90979	X90979
FILLER CENTER STAR	MARK	**16**	**17**	**18**
	CODE	122300-23-39	122300-24-39	122300-25-39
	PART	X90970	X90970	X90970
FILLER INFEED FINGER	MARK	**16**	**17**	**18**
	CODE	122300-23-40	122300-24-40	122300-25-40
	PART	X90971	X90971	X90971
FILLER DISCHARGE FINGER	MARK	**16**	**17**	**18**
	CODE	122300-23-41	122300-24-41	122300-25-41
	PART	X90972	X90972	X90972

Table 1-15: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-2

ATTACHMENT SHEET - U.S.B.M. GRAVITY FILLER

MODEL PG	40-78”			ENGR #	122300-2	ORDER #	122300-2
CUSTOMER	Luxco, Inc.			DATE:	9/19/22	SHEET 7	OF 7

	BOTTLE SIZE	**750 ML DECANTER**	**1.75 L OLD EZRA**	**1 L REBEL**
	CAP			
	DESCRIPTION	Round glass bottle 3.760” dia x 9.055” tall	Round glass bottle 4.625” dia x 12.780” tall	Round glass bottle 3.673” dia x 10.945” tall
FILLER INFEED STAR	MARK	**19**	**20**	**21**
	CODE	Top: 122300-26-29 Bottom: 122300-26-30	Top: 122300-27-29 Bottom: 122300-27-30	Top: 122300-28-29 Bottom: 122300-28-30
	PART	X90981	X90981	X90981
FILLER CENTER GUIDE	MARK	**19**	**20**	**21**
	CODE	Top Inf: 122300-26-33 Btm Inf: 122300-26-34 Top Ext: 122300-26-35 Btm Ext: 122300-26-36	Top Inf: 122300-27-33 Btm Inf: 122300-27-34 Top Ext: 122300-27-35 Btm Ext: 122300-27-36	Top Inf: 122300-28-33 Btm Inf: 122300-28-34 Top Ext: 122300-28-35 Btm Ext: 122300-28-36
	PART	X90979	X90979	X90979
FILLER CENTER STAR	MARK	**19**	**20**	**21**
	CODE	122300-26-39	122300-27-39	122300-28-39
	PART	X90970	X90970	X90970
FILLER INFEED FINGER	MARK	**19**	**20**	**21**
	CODE	122300-26-40	122300-27-40	122300-28-40
	PART	X90971	X90971	X90971
FILLER DISCHARGE FINGER	MARK	**19**	**20**	**21**
	CODE	122300-26-41	122300-27-41	122300-28-41
	PART	X90972	X90972	X90972

Table 1-16: *Attachment Reference*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-3

ATTACHMENT SHEET - U.S.B. CAPPER

MODEL AROL 8-15.6”			ENGR #	122300-3	ORDER #	122300-3		
CUSTOMER	Luxco, Inc.		DATE:	9/19/22	SHEET	1	OF	7

	BOTTLE SIZE	**700 ML REBEL**	**750 ML DAVIES COUNTY**	**750 ML OLD EZRA**
	CAP			
	DESCRIPTION	Round glass bottle 3.650” dia x 8.681” tall	Round glass bottle 3.437” dia x 11.077” tall	Round glass bottle 3.620” dia x 10” tall
STAR SPACING				
CAPPER CENTER GUIDE	MARK	**1**	**2**	**3**
	CODE	Top Fill Disch: 122300-8-43 Btm Fill Disch: 122300-8-44 Top Capper: 122300-8-45 Btm Capper: 122300-8-46	Top Fill Disch: 122300-9-43 Btm Fill Disch: 122300-9-44 Top Capper: 122300-9-45 Btm Capper: 122300-9-46	Top Fill Disch: 122300-10-43 Btm Fill Disch: 122300-10-44 Top Capper: 122300-10-45 Btm Capper: 122300-10-46
	PART	X90980	X90980	X90980
CAPPER INFEED STAR	MARK	**1**	**2**	**3**
	CODE	Top: 122300-8-49 Bottom: 122300-8-50	Top: 122300-9-49 Bottom: 122300-9-50	Top: 122300-10-49 Bottom: 122300-10-50
	PART	X90981	X90981	X90981
CAPPER DISCHARGE STAR	MARK	**1**	**2**	**3**
	CODE	Top: 122300-8-53 Bottom: 122300-8-54	Top: 122300-9-53 Bottom: 122300-9-54	Top: 122300-10-53 Bottom: 122300-10-54
	PART	X90982	X90982	X90982

Table 1-17: *Attachment Reference for AROL Turret*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-3

ATTACHMENT SHEET - U.S.B. CAPPER

MODEL AROL 8-15.6”			ENGR #	122300-3	ORDER #	122300-3	
CUSTOMER	Luxco, Inc.		DATE:	9/19/22	SHEET 2	OF	7
	BOTTLE SIZE	**1.75 L REBEL**	**750 ML DAVID NICHOLSON**	**700 ML DAVID NICHOLSON**			
	CAP						
	DESCRIPTION	Round glass bottle 4.398” dia x 12.662” tall	Round glass bottle 4.016” dia x 8.406” tall	Round glass bottle 3.917” dia x 8.406” tall			
STAR SPACING							
CAPPER CENTER GUIDE	MARK	**4**	**5**	**6**			
	CODE	Top Fill Disch: 122300-11-43 Btm Fill Disch: 122300-11-44 Top Capper: 122300-11-45 Btm Capper: 122300-11-46	Top Fill Disch: 122300-12-43 Btm Fill Disch: 122300-12-44 Top Capper: 122300-12-45 Btm Capper: 122300-12-46	Top Fill Disch: 122300-13-43 Btm Fill Disch: 122300-13-44 Top Capper: 122300-13-45 Btm Capper: 122300-13-46			
	PART	X90980	X90980	X90980			
CAPPER INFEED STAR	MARK	**4**	**5**	**6**			
	CODE	Top: 122300-11-49 Bottom: 122300-11-50	Top: 122300-12-49 Bottom: 122300-12-50	Top: 122300-13-49 Bottom: 122300-13-50			
	PART	X90981	X90981	X90981			
CAPPER DISCHARGE STAR	MARK	**4**	**5**	**6**			
	CODE	Top: 122300-11-53 Bottom: 122300-11-54	Top: 122300-12-53 Bottom: 122300-12-54	Top: 122300-13-53 Bottom: 122300-13-54			
	PART	X90982	X90982	X90982			

Table 1-18: ***Attachment Reference for AROL Turret***

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-3

ATTACHMENT SHEET - U.S.B. CAPPER

MODEL AROL 8-15.6”			ENGR #	122300-3	ORDER #	122300-3		
CUSTOMER	Luxco, Inc.		DATE:	9/19/22	SHEET	3	OF	7
	BOTTLE SIZE	**750 ML YELLOWSTONE**	**750 ML GEORGE REMUS**	**750 ML REMUS REPEAL RESERVE**				
	CAP							
	DESCRIPTION	Round glass bottle 3.010” dia x 11.657” tall	Round glass bottle 3.701” dia x 9.110” tall	Rectangular glass bottle 3.925” wide x 2.378” thick x 10.316” tall				
STAR SPACING								
CAPPER CENTER GUIDE	MARK	**7**	**8**	**9**				
	CODE	Top Fill Disch: 122300-14-43 Btm Fill Disch: 122300-14-44 Top Capper: 122300-14-45 Btm Capper: 122300-14-46	Top Fill Disch: 122300-15-43 Btm Fill Disch: 122300-15-44 Top Capper: 122300-15-45 Btm Capper: 122300-15-46	Top Fill Disch: 122300-16-43 Btm Fill Disch: 122300-16-44 Top Capper: 122300-16-45 Btm Capper: 122300-16-46				
	PART	X90980	X90980	X90980				
CAPPER INFEED STAR	MARK	**7**	**8**	**9**				
	CODE	Top: 122300-14-49 Bottom: 122300-14-50	Top: 122300-15-49 Bottom: 122300-15-50	Top: 122300-16-49 Bottom: 122300-16-50				
	PART	X90981	X90981	X90981				
CAPPER DISCHARGE STAR	MARK	**7**	**8**	**9**				
	CODE	Top: 122300-14-53 Bottom: 122300-14-54	Top: 122300-15-53 Bottom: 122300-15-54	Top: 122300-16-53 Bottom: 122300-16-54				
	PART	X90982	X90982	X90982				

Table 1-19: *Attachment Reference for AROL Turret*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-3

ATTACHMENT SHEET - U.S.B. CAPPER

MODEL AROL 8-15.6”			ENGR #	122300-3	ORDER #	122300-3	
CUSTOMER	Luxco, Inc.		DATE:	9/19/22	SHEET 4	OF	7
	BOTTLE SIZE	**1.75 L REBEL**	**750 ML DAVID NICHOLSON**	**700 ML DAVID NICHOLSON**			
	CAP						
	DESCRIPTION	Round glass bottle 4.398” dia x 12.662” tall	Round glass bottle 4.016” dia x 8.406” tall	Round glass bottle 3.917” dia x 8.406” tall			
STAR SPACING							
CAPPER CENTER GUIDE	MARK	**10**	**11**	**12**			
	CODE	Top Fill Disch: 122300-17-43 Btm Fill Disch: 122300-17-44 Top Capper: 122300-17-45 Btm Capper: 122300-17-46	Top Fill Disch: 122300-18-43 Btm Fill Disch: 122300-18-44 Top Capper: 122300-18-45 Btm Capper: 122300-18-46	Top Fill Disch: 122300-19-43 Btm Fill Disch: 122300-19-44 Top Capper: 122300-19-45 Btm Capper: 122300-19-46			
	PART	X90980	X90980	X90980			
CAPPER INFEED STAR	MARK	**10**	**11**	**12**			
	CODE	Top: 122300-17-49 Bottom: 122300-17-50	Top: 122300-18-49 Bottom: 122300-18-50	Top: 122300-19-49 Bottom: 122300-19-50			
	PART	X90981	X90981	X90981			
CAPPER DISCHARGE STAR	MARK	**10**	**11**	**12**			
	CODE	Top: 122300-17-53 Bottom: 122300-17-54	Top: 122300-18-53 Bottom: 122300-18-54	Top: 122300-19-53 Bottom: 122300-19-54			
	PART	X90982	X90982	X90982			

Table 1-20: ***Attachment Reference for AROL Turret***

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-3

ATTACHMENT SHEET - U.S.B. CAPPER

MODEL AROL 8-15.6”			ENGR #	122300-3	ORDER #	122300-3		
CUSTOMER	Luxco, Inc.		DATE:	9/19/22	SHEET	5	OF	7
	BOTTLE SIZE	**750 ML ROUND**		**1 L ROUND**		**1 L PEARL**		
	CAP							
	DESCRIPTION	Round glass bottle 3.650” dia x 8.681” tall		Round glass bottle 3.437” dia x 11.077” tall		Round glass bottle 3.620” dia x 10” tall		
STAR SPACING								
CAPPER CENTER GUIDE	MARK	**13**		**14**		**15**		
	CODE	Top Fill Disch: 122300-20-43 Btm Fill Disch: 122300-20-44 Top Capper: 122300-20-45 Btm Capper: 122300-20-46		Top Fill Disch: 122300-21-43 Btm Fill Disch: 122300-21-44 Top Capper: 122300-21-45 Btm Capper: 122300-21-46		Top Fill Disch: 122300-22-43 Btm Fill Disch: 122300-22-44 Top Capper: 122300-22-45 Btm Capper: 122300-22-46		
	PART	X90980		X90980		X90980		
CAPPER INFEED STAR	MARK	**13**		**14**		**15**		
	CODE	Top: 122300-20-49 Bottom: 122300-20-50		Top: 122300-21-49 Bottom: 122300-21-50		Top: 122300-22-49 Bottom: 122300-22-50		
	PART	X90981		X90981		X90981		
CAPPER DISCHARGE STAR	MARK	**13**		**14**		**15**		
	CODE	Top: 122300-20-53 Bottom: 122300-20-54		Top: 122300-21-53 Bottom: 122300-21-54		Top: 122300-22-53 Bottom: 122300-22-54		
	PART	X90982		X90982		X90982		

Table 1-21: *Attachment Reference for AROL Turret*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-3

ATTACHMENT SHEET - U.S.B. CAPPER

MODEL AROL 8-15.6”			ENGR #	122300-3	ORDER #	122300-3		
CUSTOMER	Luxco, Inc.		DATE:	9/19/22	SHEET	6	OF	7
	BOTTLE SIZE	**1.75 L GLASS**	**1.75 L PET**	**1.75 L CUSTOM**				
	CAP							
	DESCRIPTION	Round glass bottle w/ vertical handle 4.953” dia x 12.029” tall	Round plastic bottle 4.448” dia x 12.146” tall	Round plastic bottle 4.250” dia x 12.252” tall				
STAR SPACING								
CAPPER CENTER GUIDE	MARK	**16**	**17**	**18**				
	CODE	Top Fill Disch: 122300-23-43 Btm Fill Disch: 122300-23-44 Top Capper: 122300-23-45 Btm Capper: 122300-23-46	Top Fill Disch: 122300-24-43 Btm Fill Disch: 122300-24-44 Top Capper: 122300-24-45 Btm Capper: 122300-24-46	Top Fill Disch: 122300-25-43 Btm Fill Disch: 122300-25-44 Top Capper: 122300-25-45 Btm Capper: 122300-25-46				
	PART	X90980	X90980	X90980				
CAPPER INFEED STAR	MARK	**16**	**17**	**18**				
	CODE	Top: 122300-23-49 Bottom: 122300-23-50	Top: 122300-24-49 Bottom: 122300-24-50	Top: 122300-25-49 Bottom: 122300-25-50				
	PART	X90981	X90981	X90981				
CAPPER DISCHARGE STAR	MARK	**16**	**17**	**18**				
	CODE	Top: 122300-23-53 Bottom: 122300-23-54	Top: 122300-24-53 Bottom: 122300-24-54	Top: 122300-25-53 Bottom: 122300-25-54				
	PART	X90982	X90982	X90982				

Table 1-22: *Attachment Reference for AROL Turret*

US BOTTLERS MACHINERY COMPANY ATTACHMENT REFERENCE & SETUP PARAMETERS

WORK ORDER: Luxco 122300-3

ATTACHMENT SHEET - U.S.B. CAPPER

MODEL AROL 8-15.6”			ENGR #	122300-3	ORDER #	122300-3
CUSTOMER	Luxco, Inc.		DATE:	9/19/22	SHEET 7	OF 7
	BOTTLE SIZE	**750 ML DECANTER**	**1.75 L OLD EZRA**	**1 L REBEL**		
	CAP					
	DESCRIPTION	Round glass bottle 3.760” dia x 9.055” tall	Round glass bottle 4.625” dia x 12.780” tall	Round glass bottle 3.673” dia x 10.945” tall		
STAR SPACING						
CAPPER CENTER GUIDE	MARK	**19**	**20**	**21**		
	CODE	Top Fill Disch: 122300-26-43 Btm Fill Disch: 122300-26-44 Top Capper: 122300-26-45 Btm Capper: 122300-26-46	Top Fill Disch: 122300-27-43 Btm Fill Disch: 122300-27-44 Top Capper: 122300-27-45 Btm Capper: 122300-27-46	Top Fill Disch: 122300-28-43 Btm Fill Disch: 122300-28-44 Top Capper: 122300-28-45 Btm Capper: 122300-28-46		
	PART	X90980	X90980	X90980		
CAPPER INFEED STAR	MARK	**19**	**20**	**21**		
	CODE	Top: 122300-26-49 Bottom: 122300-26-50	Top: 122300-27-49 Bottom: 122300-27-50	Top: 122300-28-49 Bottom: 122300-28-50		
	PART	X90981	X90981	X90981		
CAPPER DISCHARGE STAR	MARK	**19**	**20**	**21**		
	CODE	Top: 122300-26-53 Bottom: 122300-26-54	Top: 122300-27-53 Bottom: 122300-27-54	Top: 122300-28-53 Bottom: 122300-28-54		
	PART	X90982	X90982	X90982		

Table 1-23: *Attachment Reference for AROL Turret*

Attachments Layout

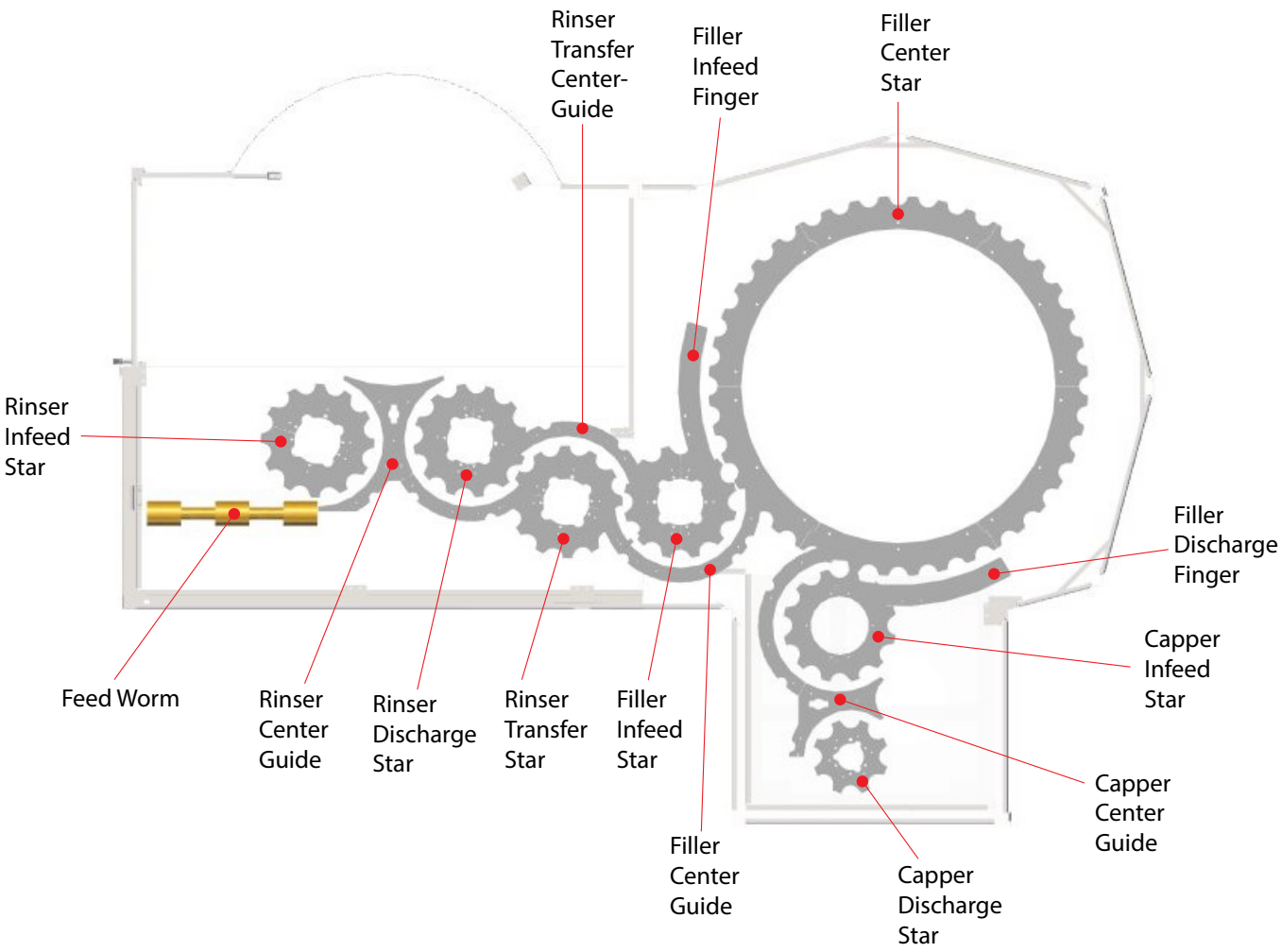


Figure 1-2: *Attachments Layout*

Machine Setup

122300 WAB Rinser / USB PG Filler / AROL Capper

Unpacking

1. **Uncrate the machine carefully.**
   All crates and boxes are to be placed right side up, as determined by the printing on their sides, and opened in manner that does not damage their contents. Shipping containers must be placed on a flat and stable surface to prevent property damage and personal injury.

> **NOTE:** Most machines are shipped FOB (free on board) Charlotte which places responsibility with the customer to look for damaged equipment due to shipping or weather and to address those issues with the trucking firm and insurance agencies.

2. **Check all attachments and parts against the main packing slip.**
   Upon delivery, the customer is to obtain a copy of the Bill Of Lading from the trucker and verify that all items are received. Upon unpacking, ensure that all equipment, assemblies, and components are present. If it is discovered that an item or items are missing and is not listed as a part delivered, contact US Bottlers Machinery immediately.

3. **Use extreme care to see that no instruction tags are lost or parts misplaced in the wrapping or packing material.**
   When unpacking, keep property organized to assist location and identification during the installation process. Do not remove any identifying labeling or tags from the property until after it has been installed, unless such identification poses a hindrance to their installation.

> **ATTENTION:** It is advised that the machine feet be located and isolated first in order to prevent loss and to facilitate a timely installation.

This machine has been shipped with major electronic components removed. The main power source is packaged separately.

> **ATTENTION:** Instruct your shipping and machinery rigging personnel not to attempt to unpack any of the items from the containers marked "Open by U.S.B. Service Personnel Only".
>
> **DO NOT** make any attempt to install electronic components on the machine. These boxes contain electronic components and MUST be properly handled to prevent damage.

The U.S. Bottlers service engineer assigned to assist you with machine set up will check and install these components. The engineer will also train your operators and service personnel regarding proper care and operation of this machinery.

4. **If the machine has been uncrated in an area distant from the final installation point, move the machine on the skid to the final location before removing the machine from the skid.**

Transport

It is very important to observe all transport instructions and safety warnings to prevent possible personal injury or damage to the equipment.

ATTENTION: To prevent possible damage, it is recommended that the machine's doors closest to the forklift be removed prior to lifting.

CAUTION: When transporting the machine for the purpose of installation, it is advised that the unit be lifted and positioned at the correct angle.

Only qualified or experienced personnel may transport and unloading the equipment.

WARNING: ONLY LIFT AND MOVE PALLETIZED EQUIPMENT USING A FORKLIFT OR PALLET JACK APPROVED FOR THE PACKAGED WEIGHT.

Once unpacked, the machinery can usually be lifted from the bottom using a forklift and then moved. If transporting by forklift, the operator is to ensure that the forks traverse fully from one side of the machine to the opposite side and that the forks only make contact with the machine's frame structure.

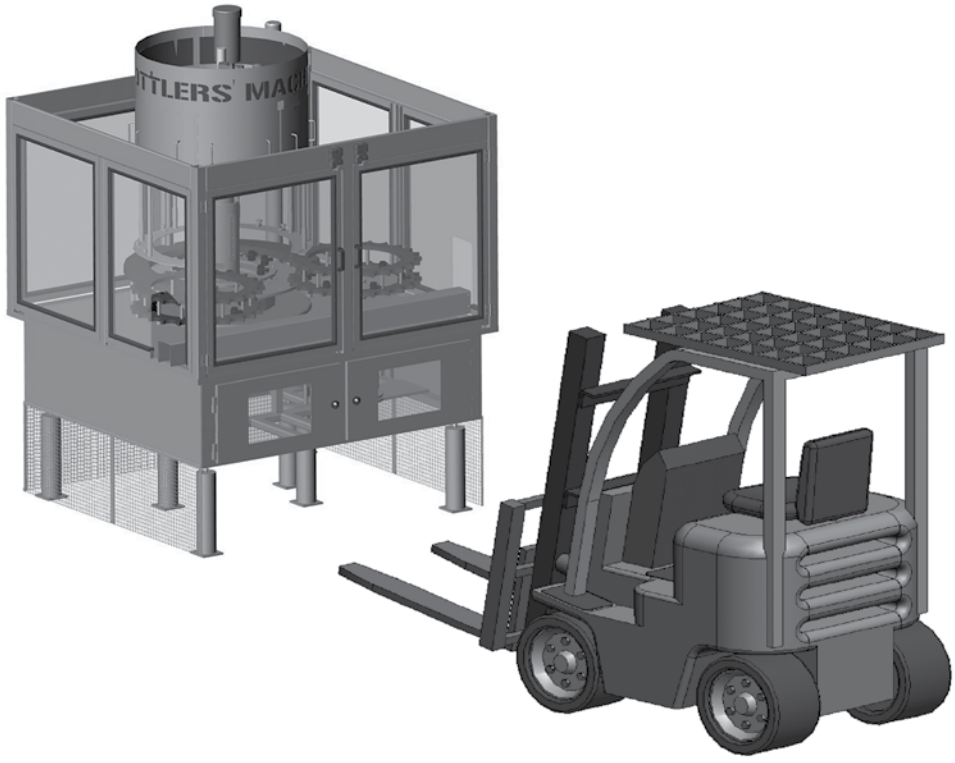


Figure 2-1: ***Transport by forklift***

Transport (continued)

CAUTION: Before moving the equipment, ensure there is adequate clearance in passages and doorways.

NOTE: Figure 2-1 is a representation displaying a typical machine to be transported. The machine displayed is not the machine ordered.

WARNING: ONLY USE LIFTS AND LIFTING GEAR CERTIFIED TO ACCOMMODATE A LOAD CAPACITY THAT EXCEEDS THE EQUIPMENT BEING MOVED.

If a gantry crane is the transport method, insert cross members through the frame structure at each end of the equipment. Chokers used are to be of equal length and must comply with weight requirements. All transport equipment, cross members, chokers, and shackles are to be supplied by the customer and are the customer's responsibility in the manner of use and performance ability.

WARNING: NEVER STAND UNDER A SUSPENDED LOAD. THERE SHOULD ALWAYS BE A PERSON STATIONED ON EACH SIDE OF THE EQUIPMENT TO ENSURE THE PATH IS CLEAR OF OBSTRUCTION.

Machine Installation

Installation must be carried out in accordance with these instructions and must only be performed by experienced contractors or personnel to ensure a safe and correct installation.

WARNING: KEEP FINGERS AWAY FROM POSSIBLE PINCH POINTS TO AVOID INJURY. WORK WITH CARE.

Before beginning installation:

1. Ensure that access to the machine's installation site is clear and reasonably level
2. Ensure that adequate power supply is available
3. All lifting equipment and hardware must be available
4. Work area must be free of debris

WARNING: ONLY BEGIN INSTALLATION AFTER ALL LITERATURE HAS BEEN REVIEWED. FOLLOW ALL INSTRUCTIONS AS DIRECTED. CONTACT US BOTTLERS MACHINERY IF ANY DRAWINGS OR LITERATURE ARE MISSING.

Move the uncrated machine into position and place it in line with the proper conveyor. Adjust the jack screws so that the machine is level by using a finished surface such as the filler cabinet or bridge plate as a reference. It will not be necessary to attach the machine to the floor when weight is properly distributed because machine weight will eliminate vibrations. Ensure that the jack screws used for leveling the machine are positioned in the center of the foot pedestals and that the load of the machine is equally distributed between the machine feet.

Your machine bridge plate is built to accommodate the type of conveyor chain specified on your order. Connect the feed and discharge conveyor tracks and carefully check their alignment. Run conveyor chain through machine and feed return back through return plate support beneath the bridge plate.

After machine installation is complete, rotate filler and observe the action of all rotary and moving parts ensure smooth movement through their complete cycle. Pay particular attention to cam followers and rollers that should flow smoothly from one cam track onto another cam track. Abnormal rapid wear can occur on a machine that has been improperly installed.

When machine installation is complete, machine is positioned properly on the packaging line, and conveyor system has been installed, proceed to install liquid piping system and main machine control enclosure. Provide power to the electronic power source and connect this unit to the main machine junction box terminal strip. Ensure that all motor control wires are run in a separate conduit.

Machine Installation (continued)

After all primary services are installed and connected to the filler, the U.S.B. service engineer should be scheduled. In one to two days, this engineer will be able to install the remaining items on the filler and run necessary diagnostic tests.

During this period, personnel responsible for service of the machine should be present to work with the U.S.B. engineer. Personnel will receive instruction on operation and maintenance of the system. Bottle handling and product testing should be scheduled for the third day and generally the service engineer should complete work on the fourth day.

Electrical Installation

A wiring diagram and cable schedule are provided as part of the literature package included with this machine. All cable work between the machine, control panel, junction box, and power supply connection must be in accordance with information provided in the wiring diagram.

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES WHEN PERFORMING ANY ELECTRICAL ACTIVITY.

WARNING: LEGALLY QUALIFIED PERSONNEL MUST PERFORM ALL ELECTRICAL ACTIVITY IN ACCORDANCE WITH APPLICABLE REGULATIONS.

WARNING: DO NOT APPLY POWER TO MACHINE UNTIL ALL WIRING CONNECTIONS HAVE BEEN VERIFIED. FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY OR COMPONENT FAILURE.

CAUTION: Any terminal sleeves removed during lead connection must be replaced afterwards.

CAUTION: Ensure to use only the recommended wiring and cabling specified in this document or in other material provided with the machine.

Electrical Installation (continued)

CAUTION: To ensure proper machine operation, each level of wiring must be run in its own conduit or separated in the wireway with the appropriate barriers to ensure adequate isolation.

CAUTION: Ensure all ground wires are connected as directed in the schematics provided.

Drive Motor

US Bottlers suggests wiring the drive motor first. Flexible conduit should be used at the motor since it must be moved a considerable distance to vary the machine speed through the complete operating range. Remove the belt before attempting to adjust the motor, as it is nearly impossible to increase the center distance between the drive pulley and the motor pulley unless the high-low pulley is revolving. This also provides the added safety of preventing the machine from being rotated while someone is working on it.

CAUTION: Do not under any circumstances apply power to the machine until correct motor rotation has been determined. It is recommended that the belt be removed until all wiring and motor testing is complete.

When viewing drive motor from the shaft end, motor should rotate in a clockwise direction. When wiring drive motor control circuit, provide a start and stop button at the front of the machine. These control buttons should be located where they will be readily accessible to the line operator and convenient to anyone who changes attachments on the machine.

Dome Safety Switch

The dome safety switch is adjusted so that in the event of a jam in the feed worm of the cleaner, the switch will be activated and stop the machine. In order for this safety switch to function properly, a magnetic starter of the proper type and size must be used for the machine drive motor. The magnetic starter for the machine drive must be able to permit the use of a remotely located start-stop button. The safety switch must be wired in series in the stop button circuit making use of the common lug and the normally open lug provided on the limit switch.

In addition, the dome switch located on the roof of the cleaner is to be wired into the stop circuit of the magnetic main drive motor starter. This limit switch is to be adjusted so that if a bottle is miss-centered as the cleaner clamping bell is lowered, the bell head will trip the limit switch and stop the main drive motor. The machine will coast to a stop before the air tube comes in contact with the mispositioned bottle and clamping bell head.

Electrical Installation (continued)

Feed Worm

A piece of flexible cable should be used at the feed worm safety switch. This assembly will be moved in and out for container adjustment.

> **ATTENTION:** It is recommended that at least 18 inches of flexible cable be used to permit complete removal of the switch when changing feed stars and other attachments.

Stop Buttons

It is often advantageous to be able to stop this machine from either end of the production line. Installing additional stop buttons wherever desired can do this.

> **WARNING:** INSTALLATION OF ADDITIONAL START BUTTONS MAKE IT POSSIBLE TO RESTART THE MACHINE WHILE ANOTHER PERSON IS PERFORMING MAINTENANCE, WHICH COULD LEAD TO SEVERE INJURY OR DEATH.
>
> **DO NOT** INSTALL ADDITIONAL START BUTTONS.

Pneumatics Installation

ATTENTION: If you have doubts as to the proper installation, it is recommended that you contact a local field engineer supplying compressors and filters. A good field engineer should be fully acquainted with your requirements and be able to provide the proper recommendations.

The machine requires clean, dry, oil-free air. The amount of compressed air required depends mainly on the pressure used; however, size of the container being filled and capped does not affect the volume of compressed air required.

CAUTION: IF THE MAIN AIR LINE PRESSURE IS IN EXCESS OF OUR MAXIMUM RECOMMENDED OPERATING PRESSURE OF100 PSI, A REDUCING VAVLE MUST BE USED AT THE MACHINE.

Carefully run the air line to the machine. This line should not have pockets or bends that will permit the collection of moisture or oil vapors that may be carried over from your compressor. Corrosion resisting fittings are required.

CAUTION: DO NOT EXCEED 15 PSI AT ANY BLADDER STYLE BOTTLE STOPS. THE BLADDERS WILL BURST.

Carefully select a good air and oil filter and separator of sufficient capacity to handle nearly double the volume of your air requirements. Install it as close to the cleaner as possible and provide it with a well- located blow-down valve.

CAUTION: SUPPLY ONLY CLEAN, DRY AIR TO THE MACHINE - NEVER SUPPLY LUBRICATED AIR.

Installation Checklist		
Machinery		Position filler
		Position capper
		Attach filler to capper
		Adjust filler height and lock feet
		Adjust capper height and lock feet
		Connect conveyor frames
		Install conveyor chain
Electrical		Mount main PLC panel
		Run and mount high voltage conduit
		Run and connect power supply cable(s)
		Run and connect point to point I/O wiring
Pneumatics		Run, mount, and connect facility supply
		Connect point to point lines
		Test for leaks
Tanks		Product supply tank positioned.
		Overflow tank positioned.
		Product & Overflow tanks height adjusted and feet greased/locked.

Table 2-1: *Installation Checklist*

Machine Operation

122300 WAB Rinser / USB PG Filler / AROL Capper

LIQUID SUPPLY SYSTEM-DUAL TANK

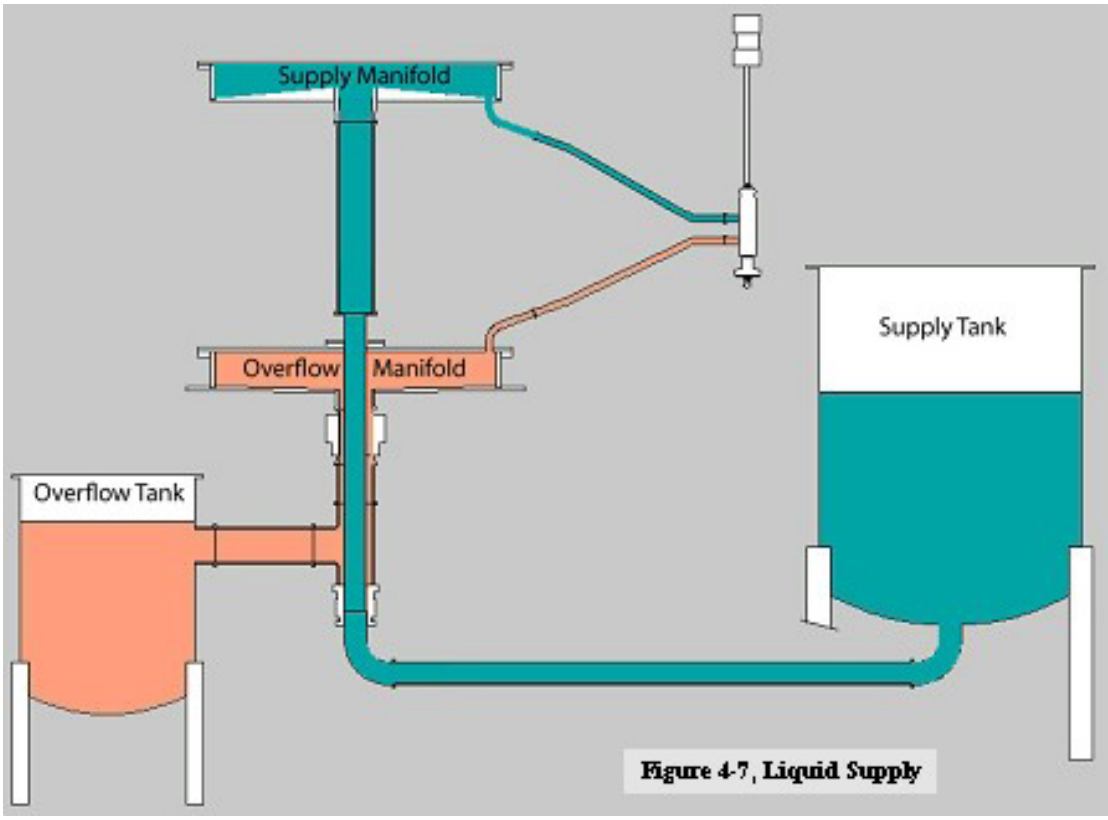


Figure 3-1:*Liquid Supply System*

Supply Tank

The machine is provided with a stand alone product supply tank equipped with a liquid level controller to be connected to the supply pipe using a 2 or 3 inch Tri-Clover fitting and clamp. The supply tank is to be placed close to the filler at floor level with the product level not to exceed conveyor height. The pump should not have to deliver product through a long distance or over a large number of pressure drops or devices to create agitation.

> **ATTENTION:** When securing the product supply tank, ensure the feet threads are greased so they do not gall and that the lock nuts are secure. Ensure all feet are in position and contacting the floor.

Product from this tank is fed to the filler liquid manifold under pressure via the HMI. Use only as much product pressure as required to operate the machine at the required production speeds. Excess pressure can produce foam and high forces against the bottle. Erratic pressures acting on the bottle will affect the accuracy of the filler and its repeatability will suffer. Product pressures of 2-4 pounds should normally be sufficient to operate the filler properly.

Liquid System (continued)

Overflow Tank

The overflow tank is to be placed very close to the filler to allow entrapped air escape from the system. Keep a flexible connection on the overflow to allow the rotary union to float.

ATTENTION: Do not allow the fluid level to climb above halfway on the overflow connection. This will choke the overflow and backpressure the system.

CAUTION: IF THE OVERFLOW CONNECTION IS HARD-PIPED, IT MAY BIND THE UNION AND LEAD TO IT'S FAILURE. POSSIBLE FATIGUE OF THE FERRULE MAY ALSO OCCUR CAUSING THE BOTTOM OF THEMANIFOLD TO BREAK OFF.

Piping

The supply line dead-end product pressure cannot exceed 30 psig. The product valve is controlled by the air operated liquid level control. A supply of filtered air at 30 to 35 psig is required. Refer to the manufacturer's instructions for adjusting the level control and servicing the valve and control.

CAUTION: DO NOT CHANGE THE PIPE SIZE FROM WHAT IS RECOMMENDED. DO NOT ADD FILTERS OR SPECIAL SENSORS. DO NOT RESTRICT OR REDUCE THE OVERFLOW CONNECTION. DO NOT EXCEED 40-PSI PRODUCT PRESSURE AT THE TANK INLET VALVE.

The product to be supplied by your line should be at a near constant pressure, not exceeding 30 psig when the filler throttling valve is completely closed. The product being supplied to the filler must be reasonably free of entrained air and foam-free. The pressure in the line must be reasonably constant from full flow to near zero flow. There should be no hammering of the supply line when the filler throttling valve opens and closes.

Cap Feed & Chuck Height Adjustment

To establish the height adjustment of the capper chucks, the correct cap slide plate must be mounted to the slide plate posts. Position a chuck over the cap slide plate on the last drop of the lifting cam and lowered to the cap retrieve depth and with the jaw closed.

> **CAUTION:** EXERCIZE CARE WHEN PERFORMING THIS PROCEDURE. IF THE CHUCKS ARE NOT SET AT THE PROPER HEIGHT, MECHANICAL DAMAGE CAN OCCUR WHEN ROTATING THE MACHINE UNDER POWER.

1. Open safety doors as necessary to access the cap feed assembly.
2. Use the jog & hoist cord of the machine's operator panel to fully raise the chuck assembly.
3. Remove the height spacers from each of the three cap slide plate posts.
4. Loosen the friction clamp locking levers of each cap slide plate post.
5. Insert alternate height spacers (if aplicable), to upper portion of each cap slide post to establish proper plate height. Retighten each friction clamp locking lever to secure.

   NOTE: (If applicable), A set of height spacers has been supplied to accommodate each changeover configuration. Ensure to select the applicable set.

   NOTE: For some applications each of the height spacers of a given set may be of different lengths. For those applications, ensure that each spacer is placed onto its respective post.

6. Use the jog & hoist cord to rotate a chuck assembly over the cap slide plate stopping at its lowest point.
7. Place the thickness gauge flatly onto the top surface of the cap slide plate centered beneath the chuck assembly.
8. Use the jog & hoist cord to lower the capper's chuck assembly toward the cap slide plate until almost making contact. Remove thickness gauge.

*** Refer to AROL documentation for AROL Capper requirements***

Cap Feed & Chuck Height Adjustment (continued)

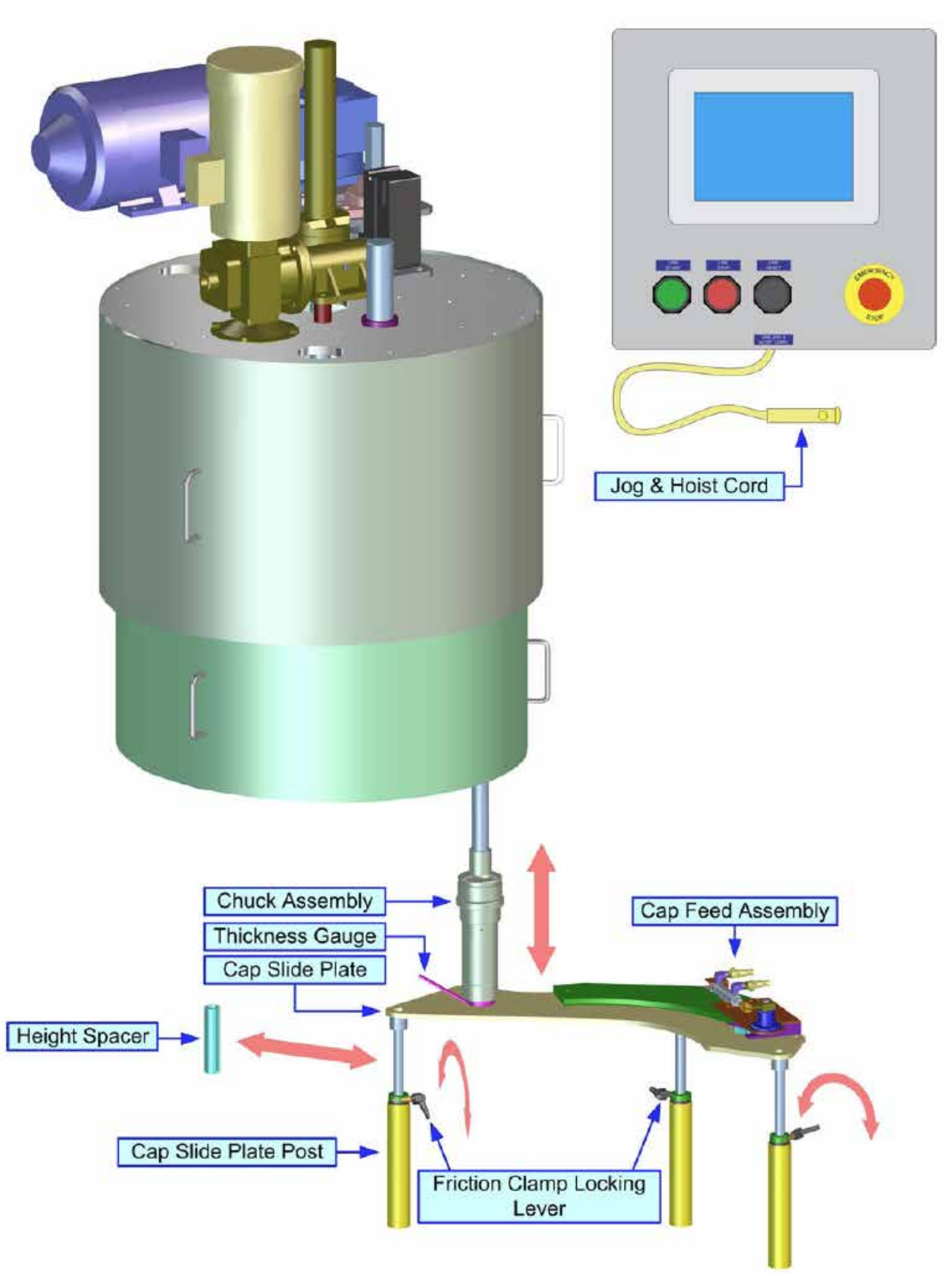


Figure 3-2:*Cap Feed/Chuck Height Adjustment*

Limit Rail and Feed Worm Adjustment

Most container size changes will require the position adjustment of the limit rail and the feed worm. Their proper positioning will allow the container to travel on the conveyor chain without any lateral movement due to contact with either components.

> **ATTENTION:** A properly adjusted limit rail and feed worm will allow the containers to move freely and in single file without applying pressure on either side. A 1/8 to 1/4 inch space on either side of the container will suffice.

The limit rail is secured into position by two knob bolts located underneath their respective brackets. Slightly loosen these bolts to freely move the limit rail inward or outward as required. Retighten the bolts when proper positioning is achieved.

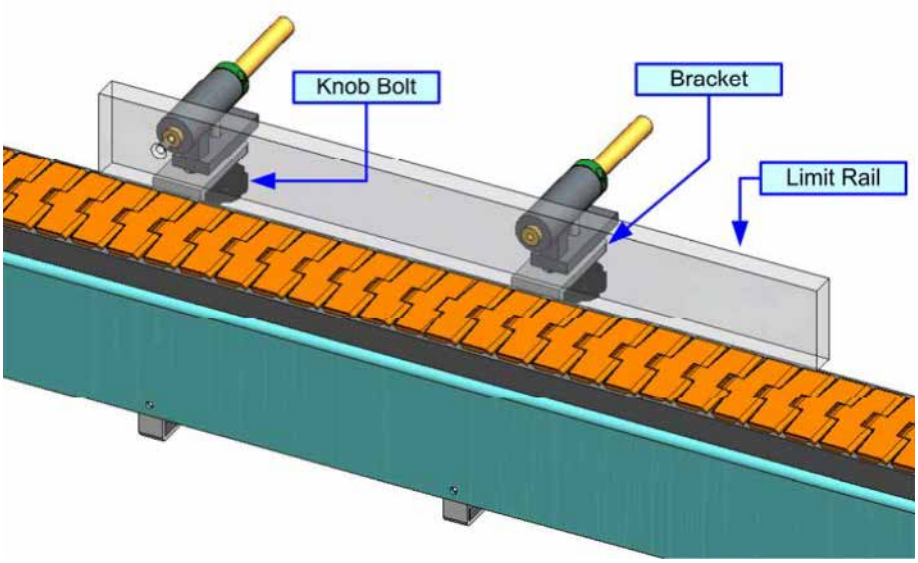


Figure 3-3:*Limit Rail Adjustment*

The feed worm is secured into position by two quick release levers. Slightly loosen these levers to freely move the feed worm inward or outward as required. Retighten the levers when proper positioning is achieved.

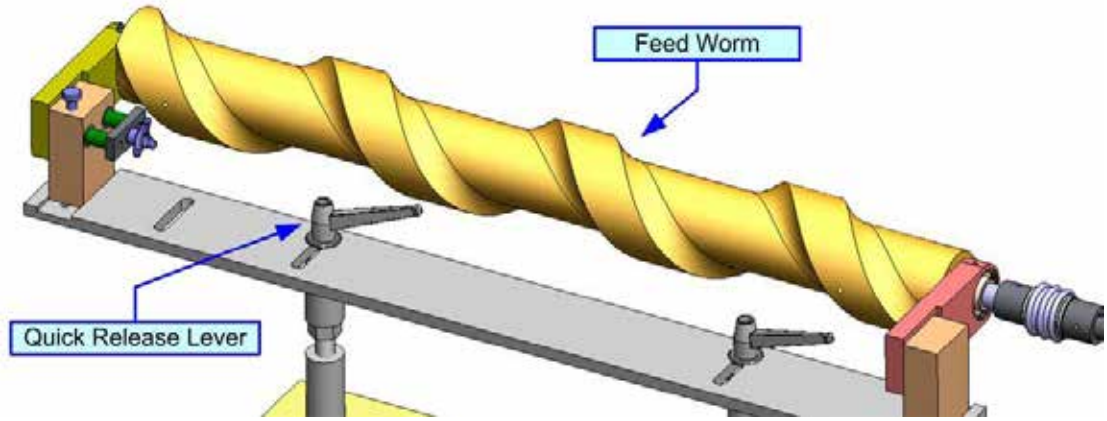


Figure 3-4:*Feed Worm Adjustment*

Conveyor Rail Adjustment

CONFIGURATION A

To determine if the conveyor rails are properly set, place a container onto the center of the conveyor at each end of the rail assemblies. Visually regard the rail assemblies in relation to the container to determine if the spacing and height is desirable.

> **NOTE:** Properly adjusted conveyor rails will allow the containers to move freely and in single file without applying pressure on either side. A 1/8 to 1/4 inch space on either side of the container will suffice.

If horizontal adjustment is required, loosen the knob set bolts and manually adjust the rails assemblies inward or outward as necessary to achieve equal and proper spacing to the bottles on each end. Retighten the knob set bolts onto their respective rail assembly shafts when complete.

If vertical adjustment is required to improve container stability while being conveyed, loosen the height set bolts to vertically free the conveyor rails and manually raise or lower as desired. Hold each rail assembly in position while retightening the height set bolts.

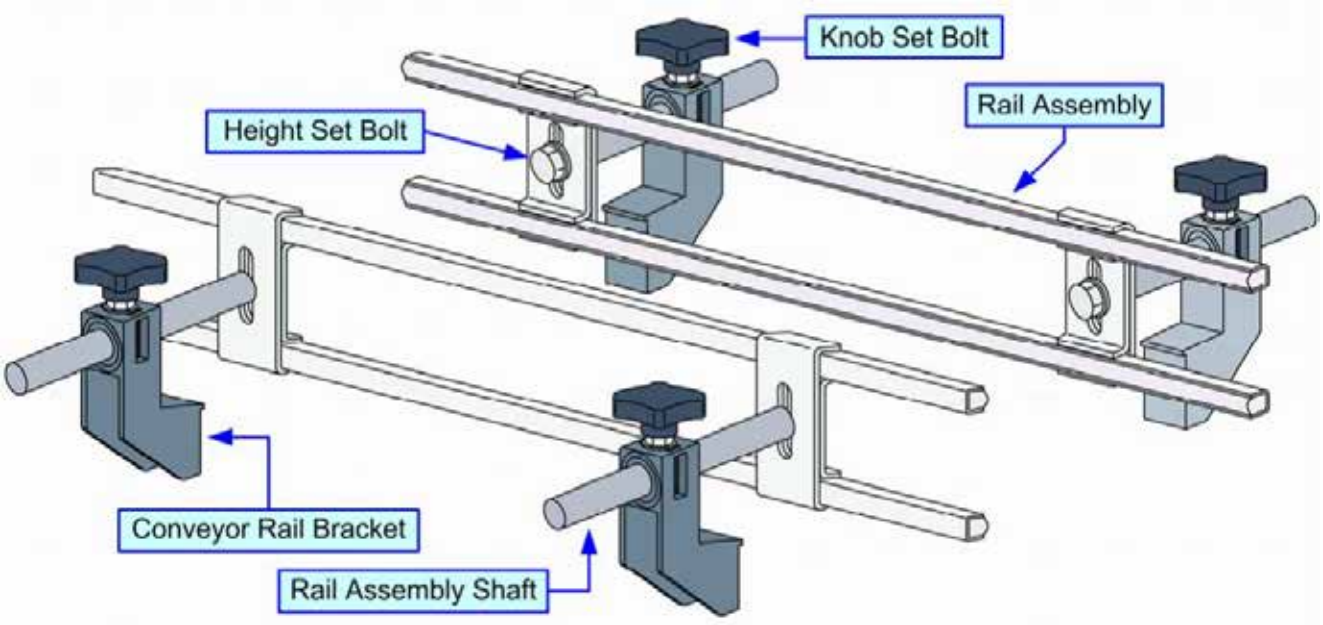


Figure 3-5:*Conveyor Rail Adjustment A*

Conveyor Rail Adjustment

CONFIGURATION B

To determine if the conveyor rails are properly set, place a container onto the center of the conveyor at each end of the rail assemblies. Visually regard the rail assemblies in relation to the container to determine if the spacing and height is desirable.

> **NOTE:** Properly adjusted conveyor rails will allow the containers to move freely and in single file without applying pressure on either side. A 1/8 to 1/4 inch space on either side of the container will suffice.

If horizontal adjustment is required, loosen the knob set bolts and manually adjust the rails assemblies inward or outward as necessary to achieve equal and proper spacing to the bottles on each end. Retighten the knob set bolts onto their respective rail assembly shafts when complete.

If vertical adjustment is required to improve container stability while being conveyed, loosen the height set bolts to vertically free the conveyor rails and manually raise or lower as desired. Hold each rail assembly in position while retightening the height set bolts.

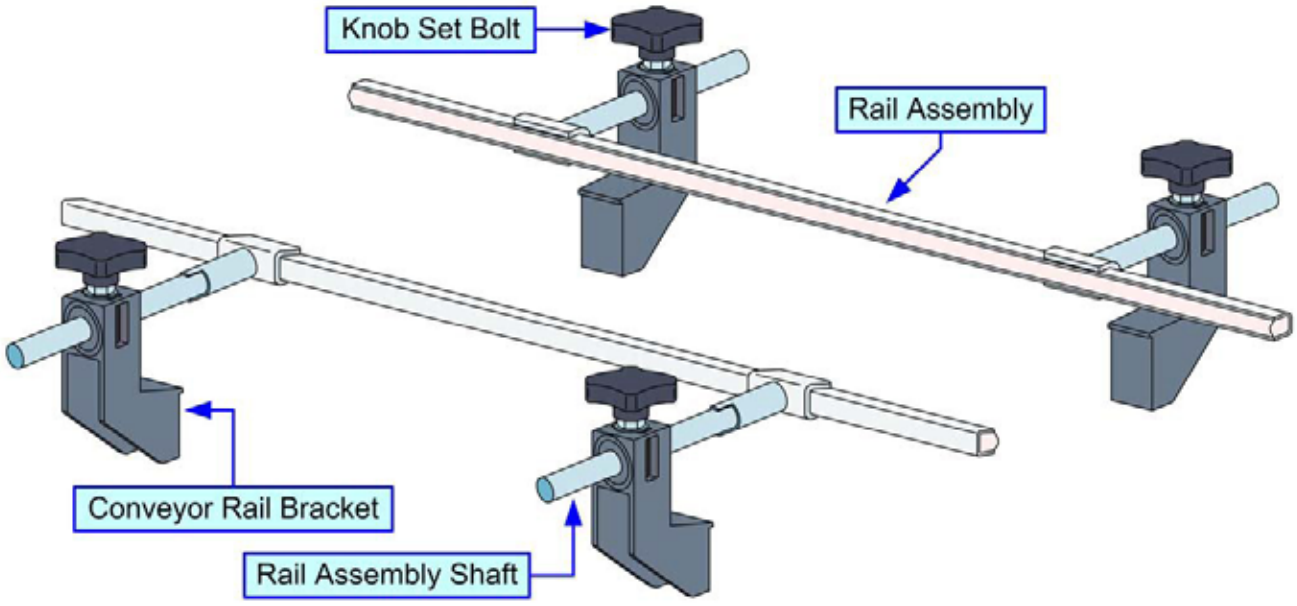


Figure 3-6:*Conveyor Rail Adjustment B*

Filler Cam Height Adjustment

INFEED CLEARANCE

Infeed clearance is a measurement from the top of the container to the tip of the filling stem when the tube or bell (whichever suspends the lowest) is at the highest possible position on the cam's lift section. This occurs at the front of the machine when the filling tube is midway between the feed and discharge stars. Adjust the cam height so that approximately 1/4 inch of space is available between the valve and the top of the container. This dimension varies depending upon the shape and size of the container and model of the filler, but a basic starting dimension is approximately 1/4 inch.

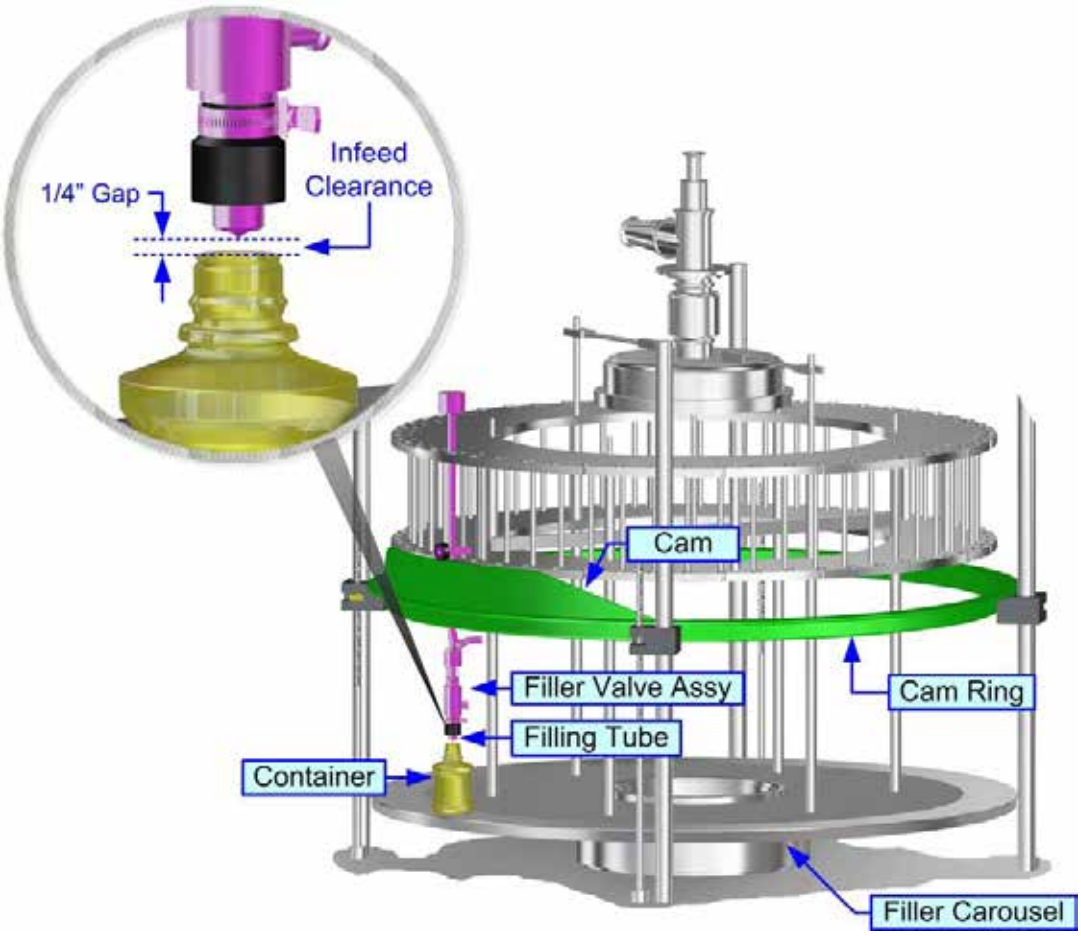


Figure 3-7:*Filler Cam Height / Infeed Clearance*

It is important that the cam be set high enough so that the tube does not begin to enter the bottle opening until the container is properly positioned below the tube and is no longer being moved by the feed star. Do not set the cam so high that the valve does not locate the bottle until the container is no longer in contact with the feed star. This type of setting encourages free-wheeling and also reduces the available filling time.

Filler Cam Height Adjustment (continued)

It is practical to look along an imaginary line of sight extending from the center of the machine to the center of the feed star. At this angle, the filling valves are beginning to drop, thus allowing the tubes to enter the bottles. The centering action of the feed star is complete and if properly timed, the container is positioned on the filler carousel and waiting to receive the filling tube. Changes in bottle handling can be produced by slight increases or decreases in infeed clearance (cam height adjustment) or timing changes in the feed star.

To adjust filler cam height, navigate to the “Maintenance Screen” on the operator panel. From this screen the Filler Hoist can be activated. Touching the Filler Hoist button will toggle between Filler Up, Filler Down, and Filler Hoist.

To raise cam height:

1. Press filler hoist button until Filler Up is selected
2. Use jog cord to raise cam height

To lower cam height:

1. Press filler hoist button until Filler Up is selected
2. Use jog cord to lower cam height

Feed Worm Change

To remove the feed worm, lift upward on the knurled release pin, then push outward on the adjustment knob while supporting the feed worm. When the adjustable bracket is clear of the feed worm, lift upward on its free end and pull it outward from the stationary bracket.

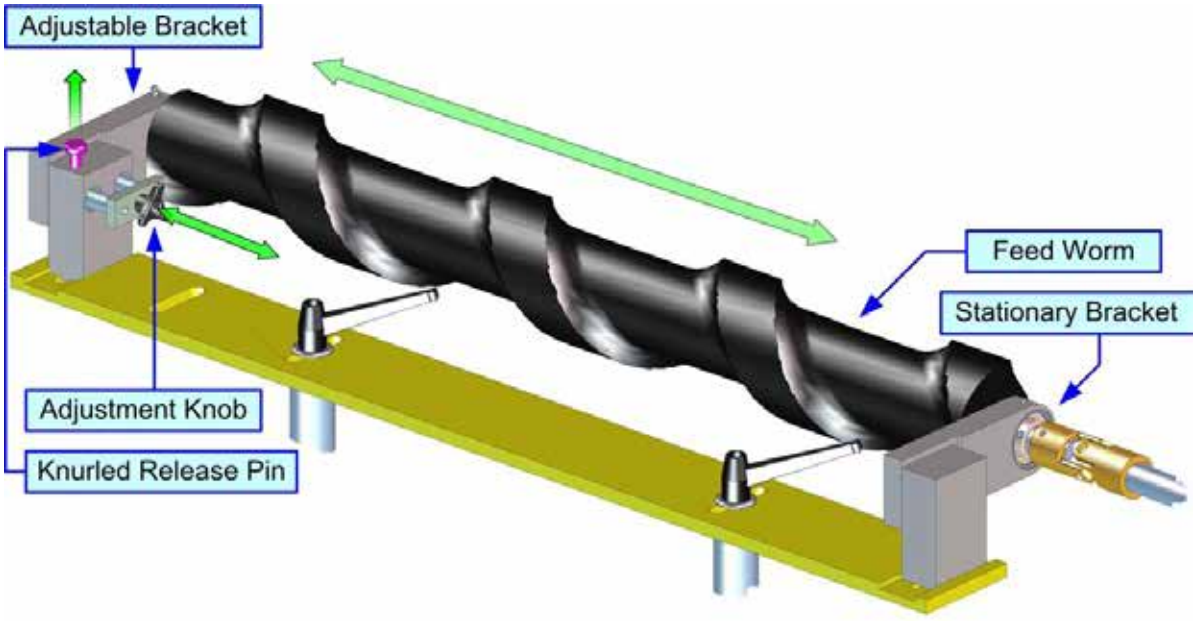


Figure 3-8:*Feed Worm Change*

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLLOW ALL LOCKOUT /TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVITIES.

To remove feed worm:
1. Open access door
2. Lift knurled release pin up
3. Support feed worm
4. Push adjustment knob towards release pin
5. Ensure adjustable bracket is clear of feed worm
6. Pull feed worm away from assembly

To install feed worm:
1. Locate stationary bracket on idle end of feed worm, which has a positioning peg to keep feed worm in timing with star gear
2. Position feed worm so that it lines up with positioning peg
3. Insert feed worm into stationary bracket
4. Lower free end of feed worm towards adjustable bracket
5. Line up feed worm with adjustable bracket
6. Pull adjustment knob away from adjustable bracket
7. Ensure feed worm is properly aligned with adjustable bracket
8. Lower knurled release pin
9. Close access door

The worm feed must be properly positioned for correct timing in order to guide containers into the infeed star. To adjust positioning use the procedure in “Limit Rail & Feed Worm Adjustment” section of this manual.

Cleaning

Due to customer specific requirements relative to machine cleanliness, information provided here as to methods and types of cleaning, is intentionally vague. However, cleaning procedures and frequency should be sufficient so as to not inhibit proper machine functionality.

WARNING: DO NOT PRESSURE WASH OPERATOR PANEL, DRIVE MOTORS, OR ANY OTHER ELECTRICAL CIRCUITRY. COMPONENT DAMAGE AND/OR ELECTROCUTION MAY OCCUR.

ATTENTION: The specific process for cleaning solutions, temperatures, concentrations, etc, must be established by the customer's own quality control and cleaning standards. The definition of clean varies widely from plant to plant depending on unique local requirements.

External Cleaning

Although the machine is highly resistant to chemical wash downs, consider chemical concentration, temperature, and what component materials may be attacked when selecting a cleaning solution. Pay special attention to ensure solution does not deteriorate machine hosing. Chemical corrosion is not covered under warranty. Install a flexible air hose to the machine and use compressed air to easily remove debris.

WARNING: ALWAYS WEAR SAFETY GOGGLES WHEN USING COMPRESSED AIR TO CLEAN THE MACHINE.

Cleaning Stainless Steel

The stainless steel components in US Bottlers equipment are machined, welded, and assembled by skilled craftsmen using manufacturing methods that preserve the corrosion-resistant quality of the stainless steel. To retain the corrosion-resistant qualities requires regular attention to the following precautions:

1. Hydrochloric acid, even with inhibitors added, should not be used for cleaning stainless.
2. When a layer of protective oxide film is formed on stainless steel, corrosion resistance is greatest. Should this protective film be disturbed or destroyed, the stainless steel can become active and considerably less resistant to corrosion.
3. Stray currents caused by damaged insulation, improper grounding, or other defects can cause pitting. Regularly check all electrical components connected to the equipment. Pitting can occur when current comes in contact with moist stainless steel.
4. Never leave tools, fittings, rubber mats, etc. in contact with stainless steel. Objects left on the equipment can slow the drying process and prevent reformation of a protective oxide film. Galvanic action occurs when two dissimilar metals are touching when wet.

Cleaning (continued)

5. The use of water conditioners is suggested when the water supply contains foreign objects that may cause discoloration or deposits. Deposits can counteract even the best cleaning practices and cause corrosion of the highest quality stainless steel.
6. Clean equipment manually or with CIP as soon as possible after rinsing. Product deposits can cause pitting beneath the particles.
7. Use only cleaning compounds recommended for use with stainless steel. Purchase chemicals from reputable chemical manufacturers familiar with stainless steel equipment and check effects their products have on stainless steel.
8. Use all cleaning chemicals exactly as specified by the manufacturer. Permanent damage can occur from incorrect temperatures, chemical concentrations, or exposure times.
9. For cleaning manually, use only soft brushes, pads, or sponges that are nonmetallic. Brush with the grain of the stainless steel on polished surfaces and avoid scratching the surface. Metal brushes or sponges can scratch the surface and create corrosion over time. Particles of metal allowed to remain on the stainless steel will cause pitting.
10. Inspect pipeline joints on a regular basis. Be sure all fitting connections are tight and not binding. Small crevices can be caused by improperly seated gaskets and can promote crevice corrosion. Stainless steel under stress can develop stress cracking, especially with the use of bactericides containing chlorine.
11. Regularly inspect equipment for surface corrosion such as deposits, pitting, stress cracks, etc. If color corrosion or deposits are detected, remove immediately using detergents and a mild scouring powder. Rinse thoroughly and air dry. Examine all cleaning and production procedures to determine the cause of corrosion. If corrosion is not removed, the protective oxide film cannot be restored and corrosion will continue to grow at an accelerated rate.

Dust Removal

Dust accumulation on the machine and inside its cabinet is not due to improper dust collection, but is rather dust, lint, etc. from the outside of the containers. Only after several days of operation will it be evident how much debris from the shipping cases is deposited on the container.

WARNING: ALWAYS WEAR SAFETY GOGGLES WHEN USING COMPRESSED AIR TO CLEAN THE MACHINE.

A good way to remove this material is to install a flexible air hose to the machine and use compressed air to blow it off.

CAUTION: Exercise care when using compressed air for blowing out the manifolds, clamping bells, and the dust collection heads. Fine particles of glass or metal may be present that could damage components.

Changeover Cleaning

The path for product through the liquid system is also the primarily the path for cleaning. Feed your CIP (Clean In Place) solutions through the filler just as if this were product; therefore, using the same piping and pumps. Due to the velocity requirement through the system, the pump speed can now be increased for higher pressures and flow. Furthermore, the spray balls in the supply and overflow tank is incorporated to clean the walls of these larger areas.

ATTENTION: The specific process for cleaning solutions, temperatures, concentrations, etc, must be established by the customer's own quality control and cleaning standards. The definition of what is clean varies widely from plant to plant dependent on the unique local requirements. The following are tips to assist in the cleaning process.

WARNING: ALWAYS WEAR SAFETY GOGGLES WHEN USING COMPRESSED AIR TO CLEAN THE MACHINE.

WARNING: DO NOT PRESSURE WASH THE OPERATOR PANEL, DRIVE MOTORS, OR ANY OTHER ELECTRICAL CIRCUITRY. COMPONENT DAMAGE AND/OR ELECTRICUTION MAY OCCUR.

Back Flush

Don't be afraid to intentionally backpressure the overflow leg and actually back up the level in the return tank to cover the overflow line. This may promote some leakage at the tube bushings which assists in cleaning these areas. It is common to cycle this level up and down and therefore assist in the velocity through the line.

External Cleaning

The machine is highly resistant to chemical washdowns; however, this is not a license to blast away with no regard to effect. When selecting the cleaning solution, consider what concentration and temperature of chemical is being used, and what materials it may attack component materials. Pay special care to ensure the solution does not deteriorate the hosing. Chemical corrosion is not covered under warranty.

Pressure

The liquid system is not a rated system should not be pressurized over 15 psig. Typically, 7-9 psi is satisfactory for efficient cleaning. If further velocity is required, for example in the overflow pipe, use backflushing or even install a separate spray ball for cleaning in the overflow elbow.

CIP Cups

A variety of styles are available to help keep the valve open during cleanup and promote higher rates of overflow and clean the tip of the valve. This can also be accomplished by using containers and removing the stars and center guide. Then the machine can be slowly rotated and help clean the system under the shoe.

CIP (Clean in Place) Procedure

Grease the Rotary Union: High temperatures of the CIP process could bake the grease inside the Rotary union. It is best to grease the rotary union after every CIP.

> **NOTICE:** Only machine models that have rotary unions with ball bearings will require grease.

The CIP trays can help capture cleaning product leaving the valves during the CIP process. The connection at the back of the tray should be connected to a flexible hose that leads to a drain or back to the return tank. Completely extend trays and set filler high enough that valves clear tray when rotating.

A CIP recipe has been set up to initiate valves opening and closing over the CIP trays.

If there are valve screens in the nozzles, remove these and wash them separately.

IMPORTANT – if your CIP solutions attack the hose from the inside or the outside, this is not a warranty item. If you are not sure, contact the cleaning solution supplier. Also be careful not to thermally shock the hose. In other words, if hot product is flowing through the hose, while cold water is sprayed on the outside of the hose, it can lead to thermal separation within the hose layers.

Pneumatic Regulator Block Assembly

The minimum desired input air supply pressure to the regulator is 80psi. Its respective pressure adjustment dial allows manual pressure regulation by turning the dial clockwise until the desired or optimum pressure is achieved. The pressure level may be read by the supply pressure gauge attached to the face of the regulator.

> **CAUTION:** Do not set the bottle stop pressure higher than 12 psi or the bladder will burst.

Supply Air Lockout
Provides manual shutoff for air.

Supply Air Regulator
The input pneumatic regulator is equipped with a filter vessel to catch excess fluids from the air supply lines. Periodically, the vessel must be emptied to continue to provideservice. Unscrew the knurled, filter bleed valve located at the bottom of the vessel to drain the accumulated fluids.

Machine Low Air Pressure
Monitors air pressure to the machine. If too low, will give warning via HMI panel.

Air Dump Valve A
Dumps air from machine filler.

Air Dump Valve A
Dumps air from machine capper.

Air Dump A Pressure Switch
Redundant air dump.

Air Dump B Pressure Switch
Redundant air dump.

Supply Air
Extra supply air module.

JB2 Supply Air
Controls supply air to Junction Box 2.

Pneumatic Regulator Block Assembly (continued)

Figure 3-9: ***Pneumatic Regulator Block Assembly***

Changeover Procedure

ATTACHMENT CHANGE

1. Open safety doors as necessary to access the changeover attachments.
2. As applicable, change the operator panel settings.

   NOTE: Refer to the OPERATOR PANEL chapter of this unit for specific menu details.

3. Raise rinser turret to its highest possible position.
4. Raise filler turret to its highest possible position.
5. Raise capper turret to its highest possible position.
6. As applicable, manually unscrew each of the chuck jaw assemblies from chuck shafts (If cap change).

   NOTE: A spanner wrench may be required.

7. Remove all rinser, filler and capper infeed/discharge stars, center guides, and infeed/discharge fingers. ***Refer to AROL documentation for AROL specific attachment changes***.
8. Install alternate attachments in reverse order.
9. Manually thread on the applicable chuck jaw assemblies(If cap change).
10. Install the applicable upper cap slide plate(If cap change).
11. Raise/lower cap transfer star to appropriate height(If cap change).

    NOTE: The appropriate cap transfer star height is determined by a scale designation.

12. Adjust turrets to correct height.

    NOTE: Use the height setup table to determine the capper height. *Use the applicable container with cap applied.

13. As applicable, change the operator panel settings.
14. Close doors, restore power, and test cycle to ensure a proper setup/changeover.

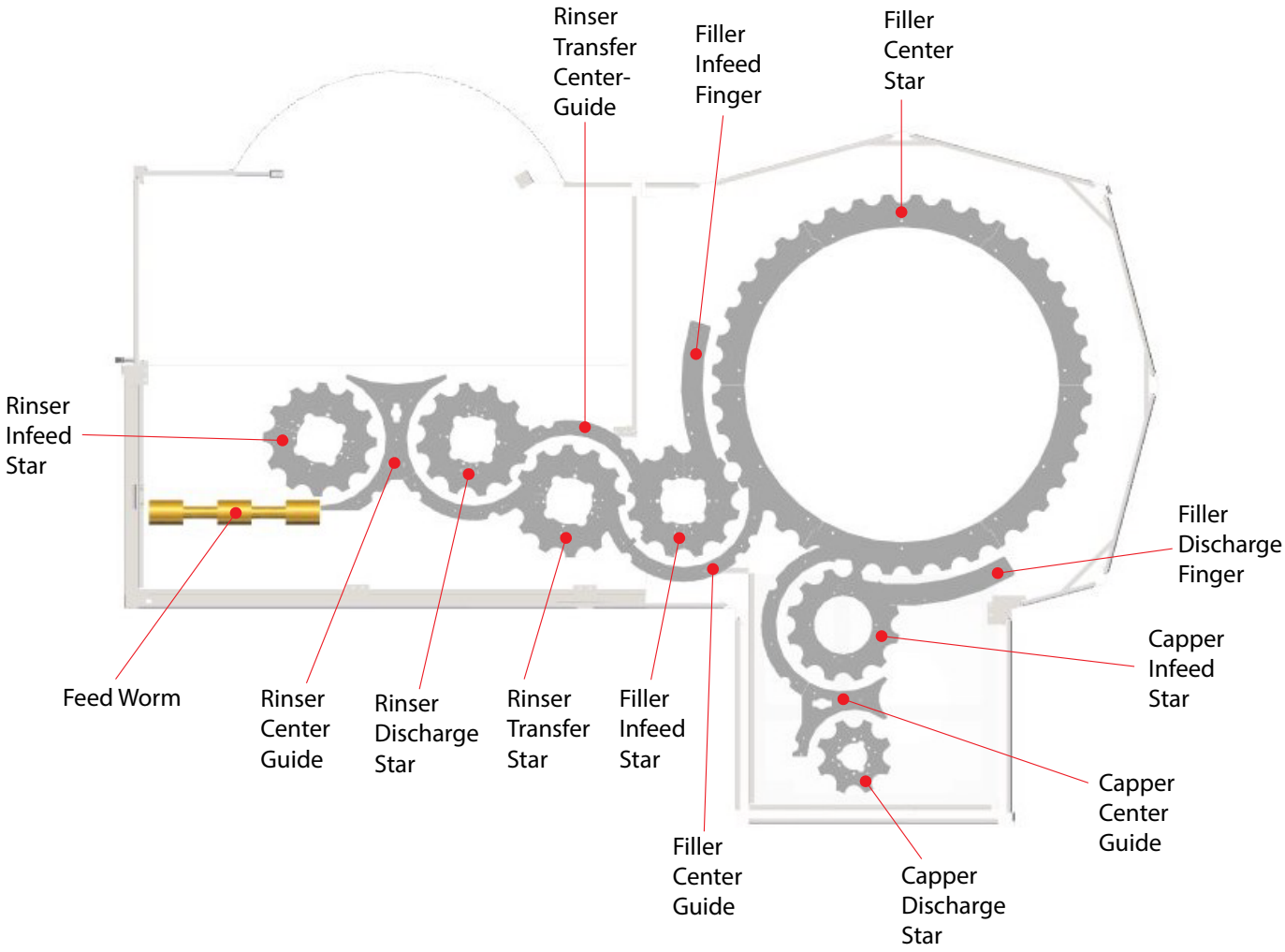


Figure 3-10:*Changeover Diagram*

Operator Panel Buttons

Figure 3-11: ***Operator Control Panel***

Buttons	Description
LINE START	Initiate machine operation.
LINE STOP	Stop machine operation.
LINE RESET	Clear fault from machine memory once fault is corrected. If fault exists machine will not reset and fault condition will not be cleared from memory.
EMERGENCY STOP	Shut down machine in emergency situations where expediency is required.
MODE	JOG mode activates line jog cord. Press button on jog cord to move machine at preset jog speed. RUN mode activates normal machine operating status.

NOTE: In JOG MODE, machine will jog if all doors are shut.
In DOOR BYPASS MODE machine will still jog if only one door is open.
If more than one door is open, in any mode, the machine will E-STOP.

Operation Screens

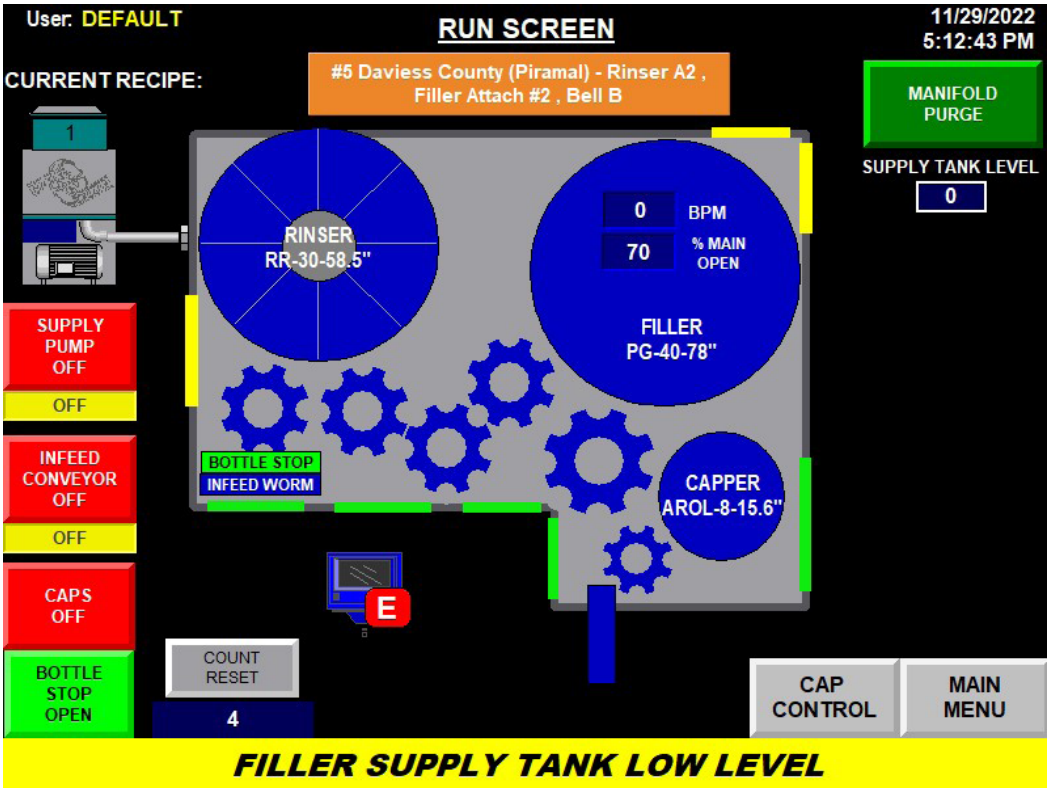


Figure 3-12: ***Run Screen***

BUTTONS/DISPLAYS	DESCRIPTION
CURRENT RECIPE	Read only display of the current recipe.
COUNT RESET	Resets the machine's counter to zero.
SUPPLY TANK LEVEL	Displays level of product in Supply Tanks.
MANIFOLD PURGE	Manually purge all air from the Filler Manifold.
BOTTLE STOP OPEN/CLOSED/AUTO	Opens and closes the bottle stop.
INFEED CONVEYOR ON/OFF	ON: Infeed conveyor runs. OFF: Infeed conveyor off.
RINSER SUPPLY PUMP ON/OFF	ON: Supply pump runs. OFF: Supply pump off.
FILLER SUPPLY PUMP ON/OFF	ON: Return pump runs. OFF: Return pump off.
CAPS CONTROL	AUTO: Cap sorter runs until the upper chute eye is blocked with caps. Also allows cap gate to open when a bottle is present. OFF: Cap system turned off.
MANIFOLD PURGE	Purges product from the upper Filler manifold.
CAP CONTROL	Advance to Cap Control screen.
MAIN MENU	Return to Main Menu screen.
STATUS BANNER (YELLOW)	Displays current machine status.

Figure 3-13: *Login Screen*

BUTTONS/DISPLAYS	DESCRIPTION
CURRENT USER	Displays name of current user.
USER LOGIN	Activates the popup screen to allow entry of a username and password.
USER LOGOUT	Sets the current user to “Default”
EDIT PASSWORD	Active only when the security level is at an administrator level. This allows the user to modify the current passwords.
MAIN MENU	Return to Main Menu screen.

Operation Screens

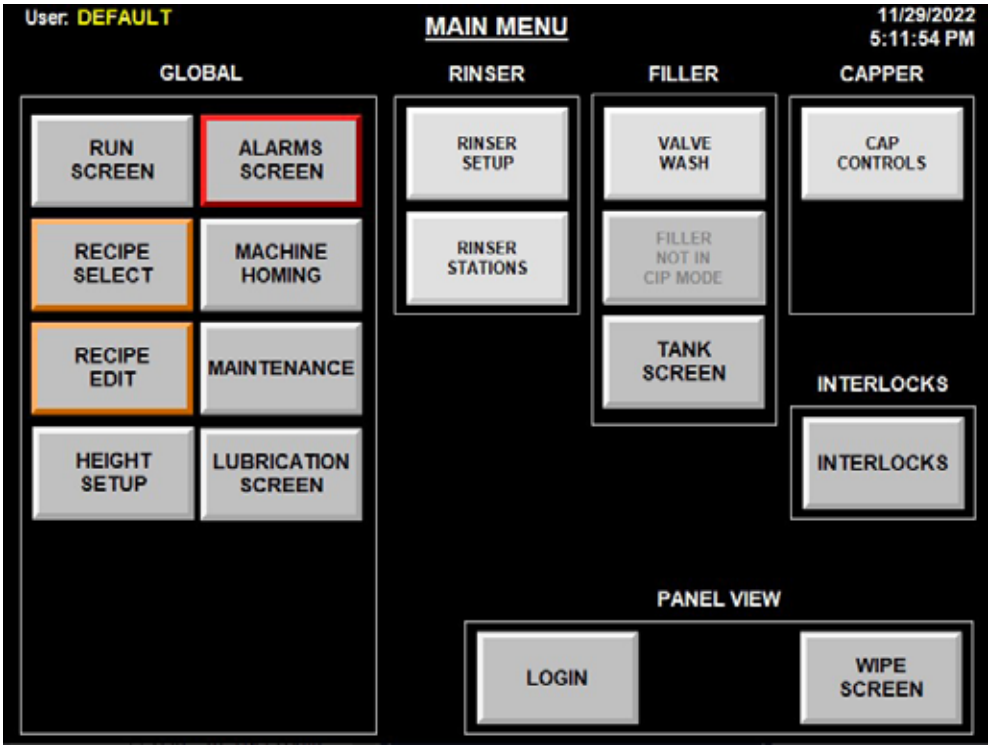


Figure 3-14: *Menu Screen*

BUTTONS/DISPLAYS	DESCRIPTION
RUN	When pressed, advances to the Run Screen menu. Is the primary screen for machine operation.
RECIPE SELECT	Advances to the Recipe Select Screen.
RECIPE EDIT	Advances to the Recipe Edit Screen.
SUPPLY TANK	Advances to the Supply Tank Screen.
CIP	Advances to CIP Control Screen.
ALARMS SCREEN	Advances to the Alarms Screen.
MACHINE HOMING	Advances to Machine Homing Screen.
MAINTENANCE	When pressed, advances to the Maintenance menu. This menu allows features to be bypassed and counters to be reset. Contains controls for machine setup and troubleshooting.
LUBRICATION SCREEN	Advances to Lubrication Screen.
RINSER SETUP	Advances to Rinser Setup Screen.
RINSER STATIONS	Advances to Rinser Stations Screen.
VALVE WASH	Advances to Valve Wash Screen.
TANK SCREEN	Advances to Tank Screen.
HEIGHT SETUP	Advances to Height Setup Screen.
CAP CONTROLS	Advances to the Cap Controls Screeen.
INTERLOCKS	
LOGIN	Advances to the User Login Screen.
WIPE SCREEN	Advances to the Wipe Screen. Used to wipe the screen.

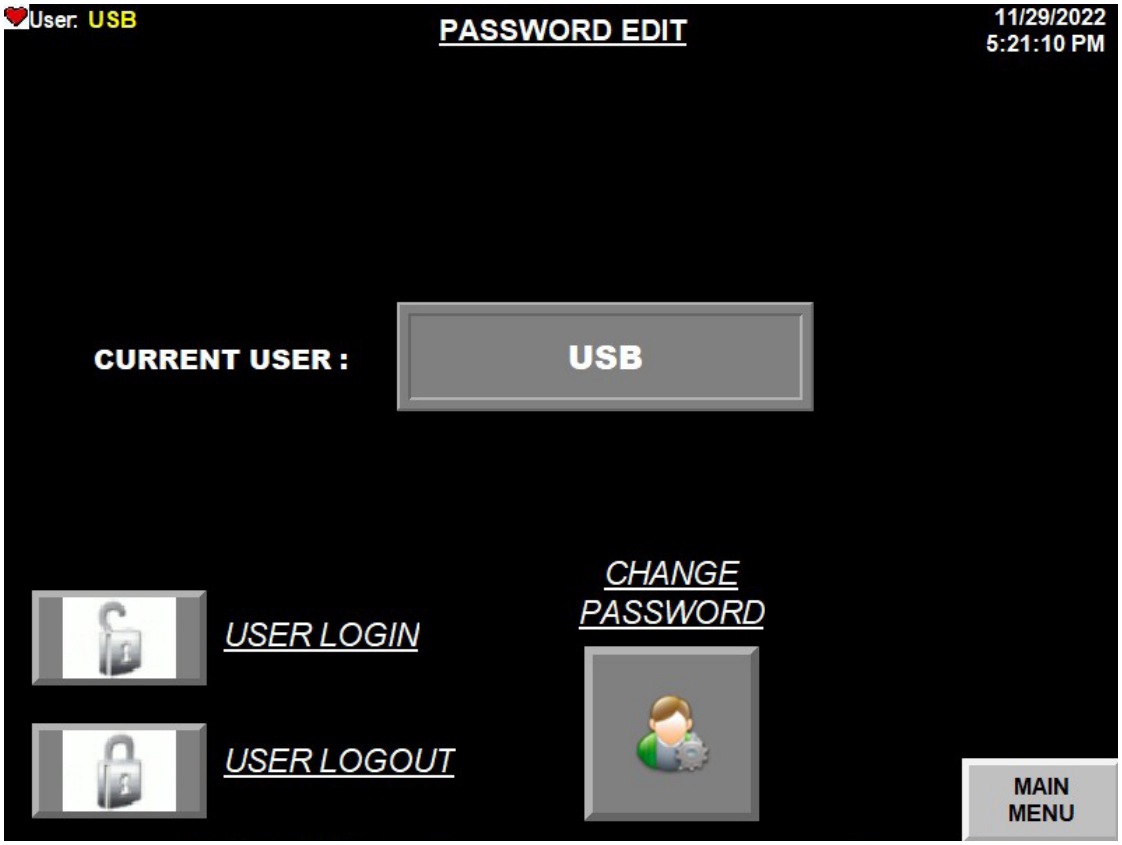


Figure 3-15: ***Password Edit Screen***

BUTTONS/DISPLAYS	DESCRIPTION
CURRENT USER	Displays name of current user.
USER LOGIN	Activates the popup screen to allow entry of a username and password.
USER LOGOUT	Sets the current user to “Default”
CHANGE PASSWORD	Activates the popup screen to allow the current password to be changed.
MAIN MENU	Return to Main Menu screen.

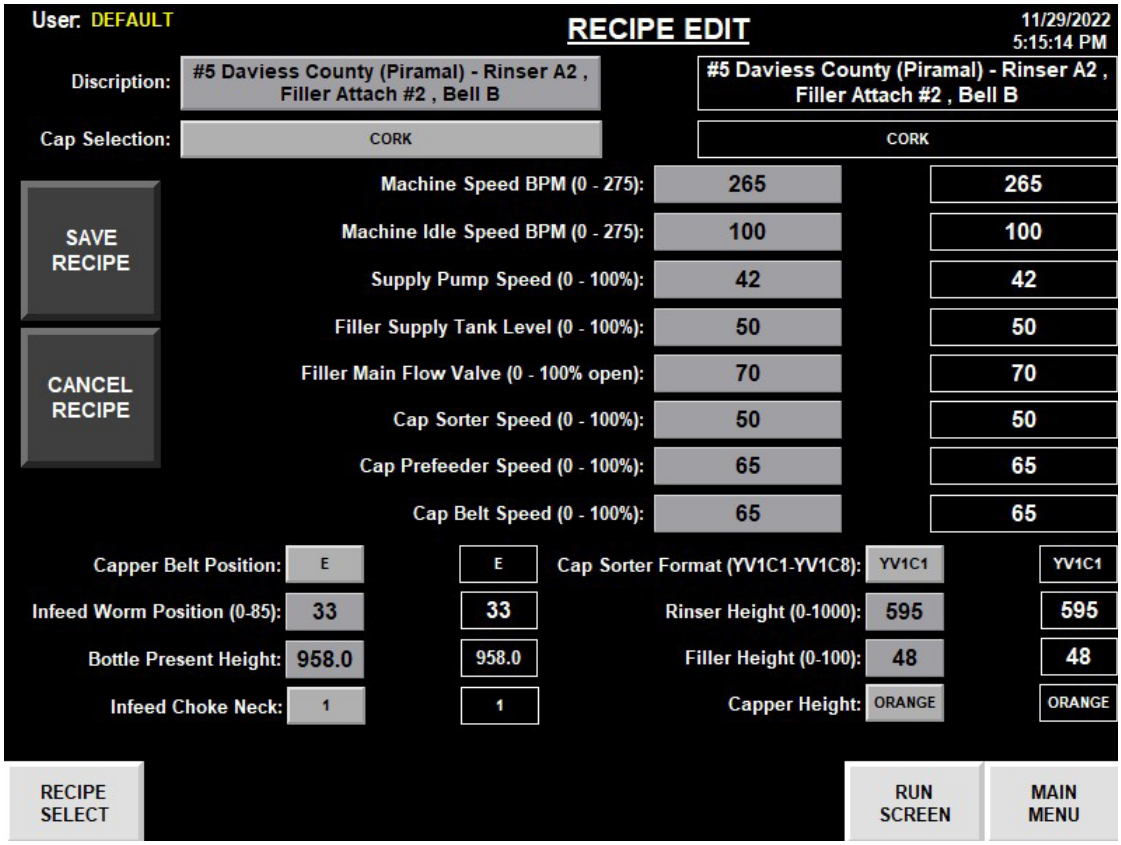


Figure 3-16: ***Recipe Edit Screen***

BUTTONS/DISPLAYS	DESCRIPTION
DISCRIPTION	Displays the current recipe selection.
EDITS (INDIVIDUAL MACHINE FUNCTION VALUES)	Press to alter individual functions.
ACTUALS (DISPLAY OF ACTUAL MACHINE FUNCTION VALUES)	Displays the actual output for each of the EDITS.
SAVE RECIPE:	Saves the recipe edits and applies them.
CANCEL RECIPE	Press to cancel current recipe edits.
RECIPE SELECT	Press to advance to the Recipe Select Screen.
RUN SCREEN	Press to advance to the Run Screen.
MAIN MENU	Return to Main Menu screen.

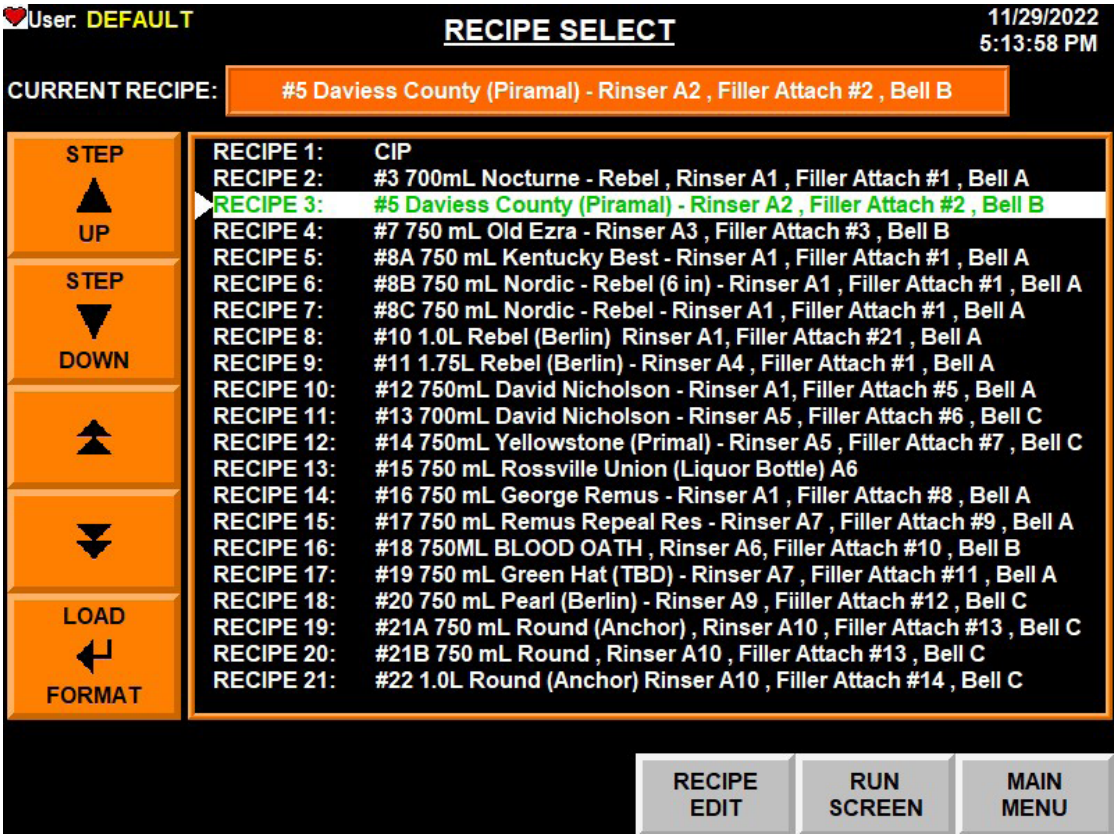


Figure 3-17: *Recipe Select Screen*

BUTTONS/DISPLAYS	DESCRIPTION
CURRENT RECIPE	Displays the current recipe selection.
STEP UP	Press to scroll up.
STEP DOWN	Press to scroll down.
DOUBLE ARROW UP	Press to return to the beginning of recipe selections menu.
DOUBLE ARROW DOWN	Press to advance to the end of recipe selections menu.
LOAD FORMAT	Press to load selected recipe.
RECIPE EDIT	Return to Recipe Edit Screen.
RUN SCREEN	Return to Run Screen.
MAIN MENU	Return to Main Menu screen.

Operation Screens

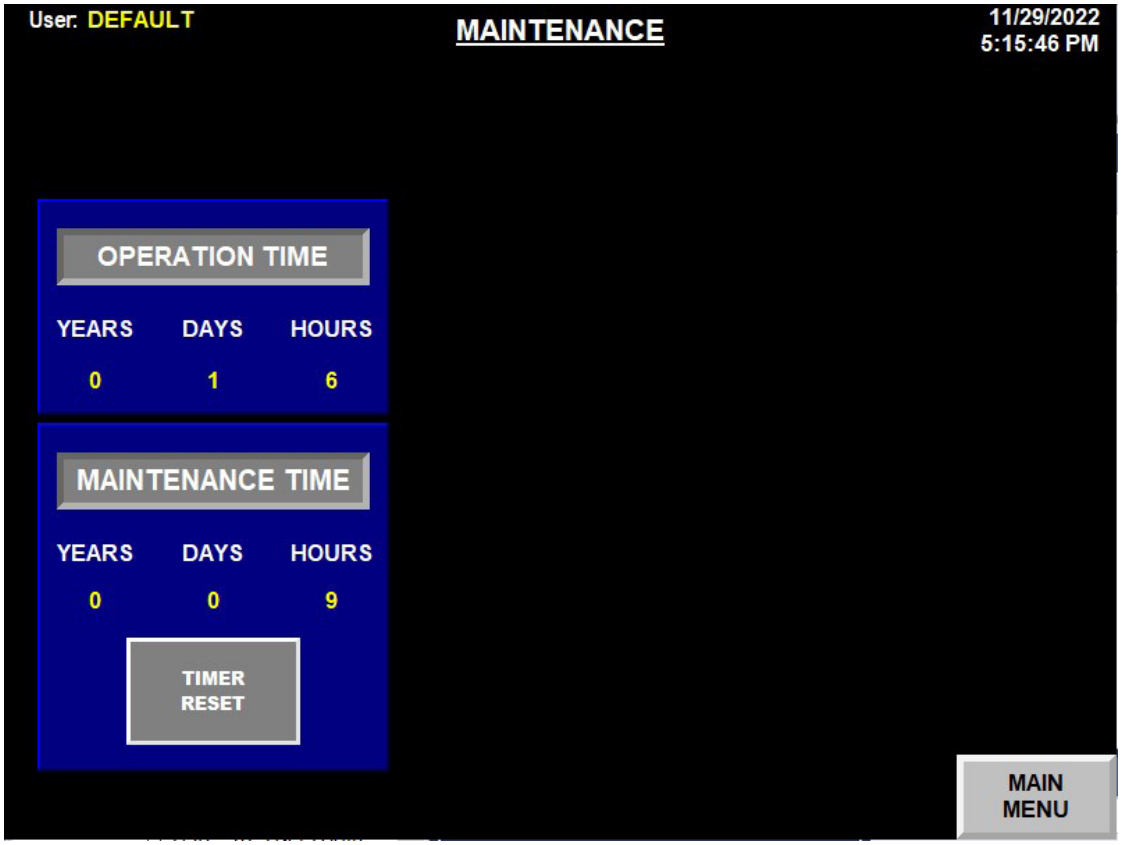


Figure 3-18: ***Maintenance Screen***

BUTTONS/DISPLAYS	DESCRIPTION
OPERATION TIME	Displays the amount of time the machine has been in operation.
MAINTENANCE TIME	Displays the time the machine has been running since the Maintenance Time was last reset.
TIMER RESET	Press to reset timers to zero.
MAIN MENU	Return to Main Menu screen.

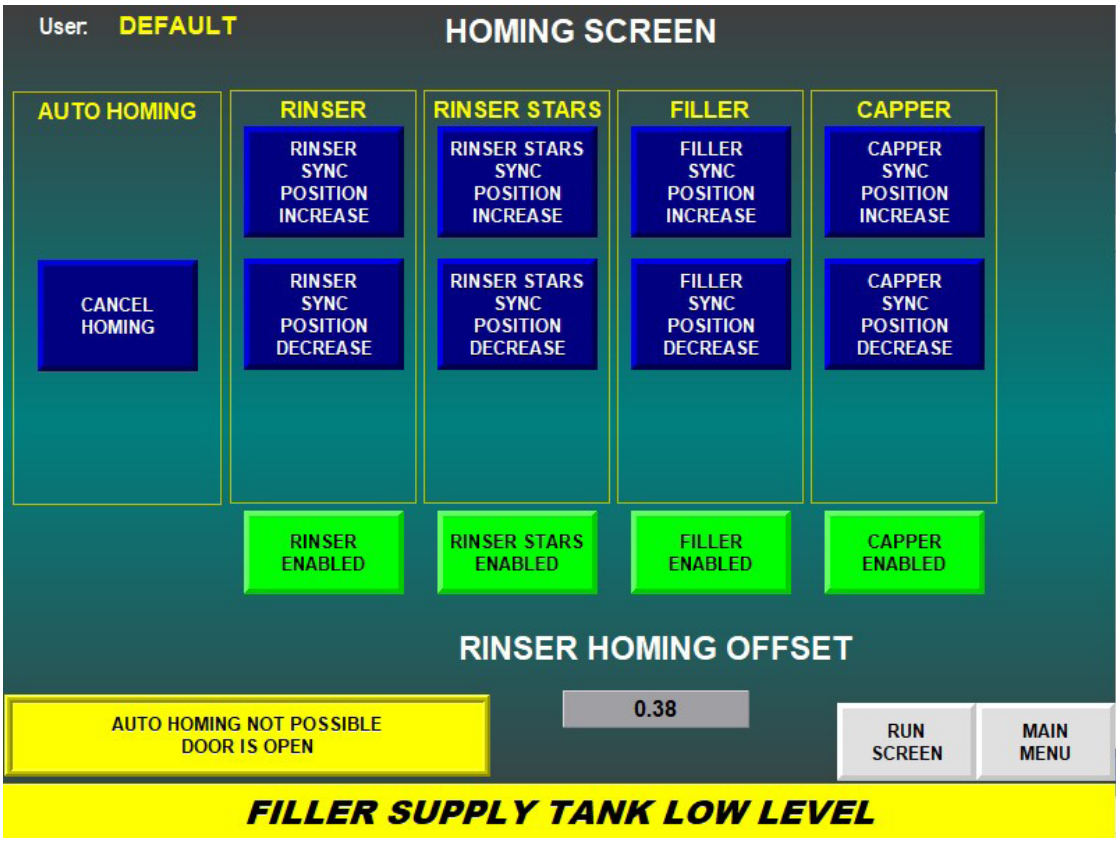


Figure 3-19: ***Machine Homing Screen***

BUTTONS/DISPLAYS	DESCRIPTION
AUTO HOMING	Press to initiate Automatic Homing process. Filler will automatically initiate first, followed by the capper.
RINSER	Press to move the rinser forward/backward by one increment relative toits current position.
RINSER STARS	Press to move the rinser table stars forward/backward by one increment relative to there current position.
FILLER	Press to move the filler forward/backward by one increment relative to its current position.
CAPPER	Press to move the capper forward/backward by one increment relative to its current position.
RINSER HOME POSITION OFFSET	Additional pulses to increase/decrease home position.
RUN SCREEN	Return to Run screen.
MAIN MENU	Return to Main Menu screen.

Operation Screens

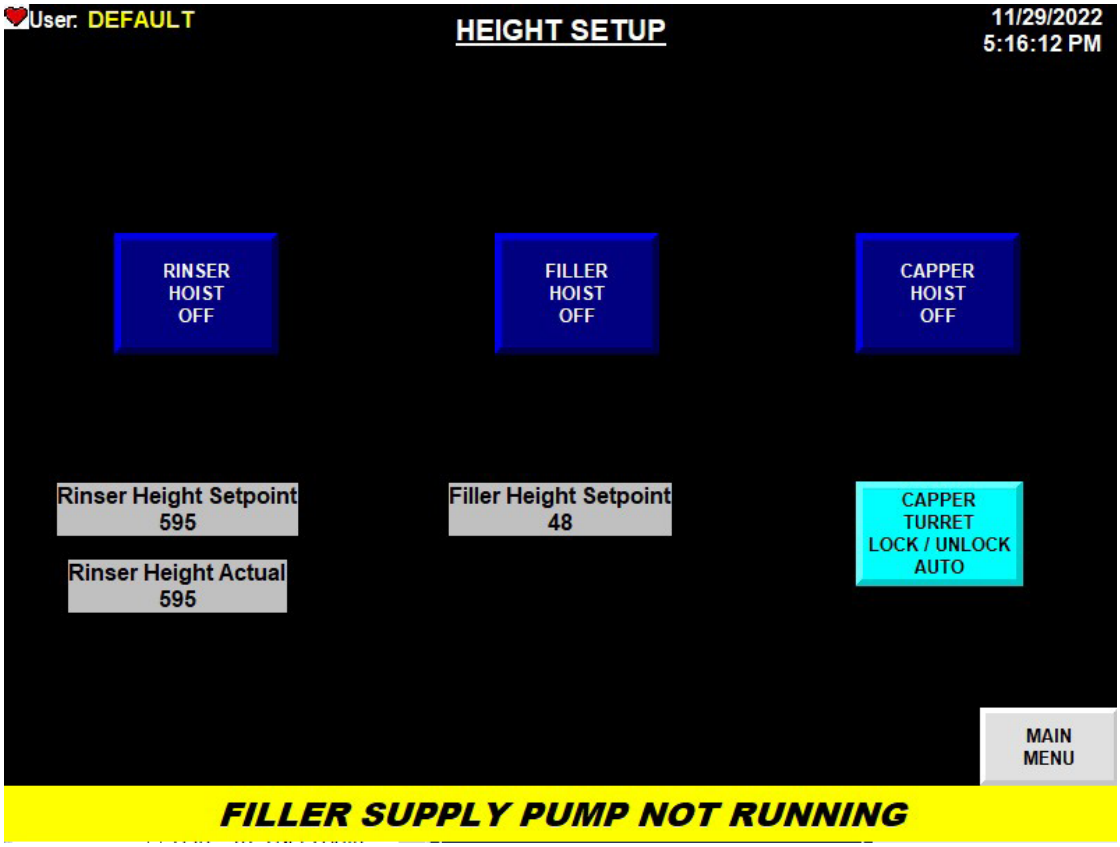


Figure 3-20: ***Height Setup Screen***

BUTTONS/DISPLAYS	DESCRIPTION
RINSER HOIST ON/OFF	Turns Rinser hoist motor on/off
FILLER HOIST ON/OFF	Turns Filler hoist motor on/off
CAPPER HOIST ON/OFF	Turns capper hoist motor on/off
MAIN MENU	Return to Main Menu Screen.
STATUS BANNER (YELLOW)	Displays current machine status.

Operation Screens

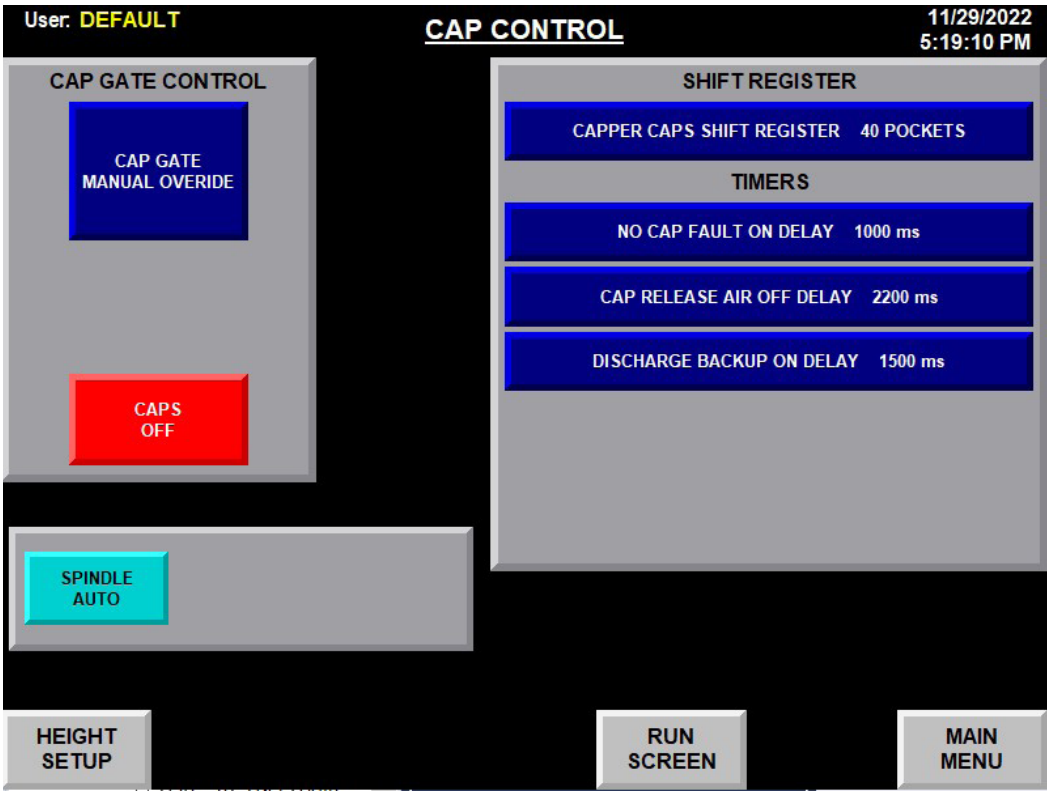


Figure 3-21: *Cap Control Screen*

BUTTONS/DISPLAYS	DESCRIPTION
CAP GATE MANUAL OVERIDE	Press to manually open/close cap gate.
CAPS OFF	Press to select manual or automatic operation of the cap chute.
CAPPER SPINDLE OFF/AUTO	Press to select manual or automatic operation of the capper spindle.
CAPPER CAPS SHIFT REGISTER	Press to enter number of bottle pockets between bottle presents ensor and cap release point. This value is usually constant once set at startup.
DISCHARGE BACKUP ON DELAY	Press to enter amount of time machine will wait after sensor detects caps backup before stopping and displaying a backup fault alarm - enter value in 1/1000 sec
NO CAPS FAULT ON DELAY	Press to enter amount of time machine will wait after sensor detects no caps present before stopping and displaying a no cap alarm - enter value in 1/1000 sec
SPINDLE CONTROL OFF/ AUTO/JOG	OFF: Off AUTO: Runs spindle with the machine at speed based on the number of spindle turns desired JOG: Enables Jog mode
HEIGHT SETUP	Press to return to Height Setup screen.
RUN SCREEN	Press to return to Run screen.
MAIN MENU	Return to Main Menu screen.

Operation Screens

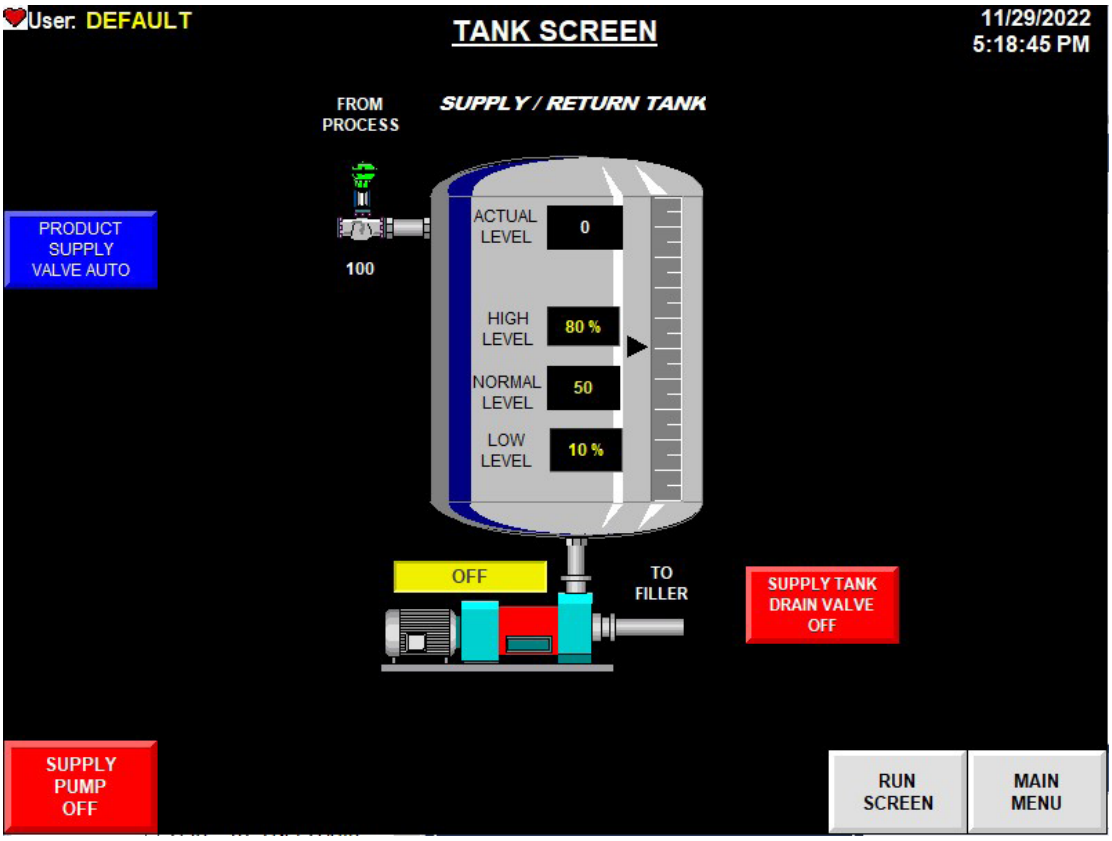


Figure 3-22: ***Tanks Level Screen***

BUTTONS/DISPLAYS	DESCRIPTION
PRODUCT VALVE AUTO/ON/OFF	Turns the supply valve on/off.
SUPPLY TANK DRAIN ON/OFF	Turns the supply tank drain on/off.
SUPPLY PUMP MANUAL/OFF	Turns supply pump to manual/on/off.
HIGH LEVEL	When the tank level exceeds the established high point, a warning message is displayed.
NORMAL LEVEL	Indicates normal supply tank level setting of current running recipe.
LOW LEVEL	When the tank level exceeds the established low point, a warning message is displayed.
ACTUAL LEVEL	Displays the actual liquid level within the supply tank.
RUN SCREEN	Press to return to Run screen.
MAIN MENU	Return to Main Menu screen.

Figure 3-23: *Alarm History Screen*

BUTTONS/DISPLAYS	DESCRIPTION
ACK ALARM	Activation of this button acknowledges the most recent alarm.
SILENCE ALARMS	Activation of this button silences the alarm horn.
ALARM STATUS	Display active alarms.
ACK ALL	Activation of this button acknowledges all alarms.
CLEAR ALL	Activation of this button clears all alarms.
PRINT HISTORY	Press to print out list alarm history
SORT ALARMS	Inverts alarm order.
CLOSE	Activation of this button will close Alarm screen.
MENU	Return to Menu screen.

Operation Screens

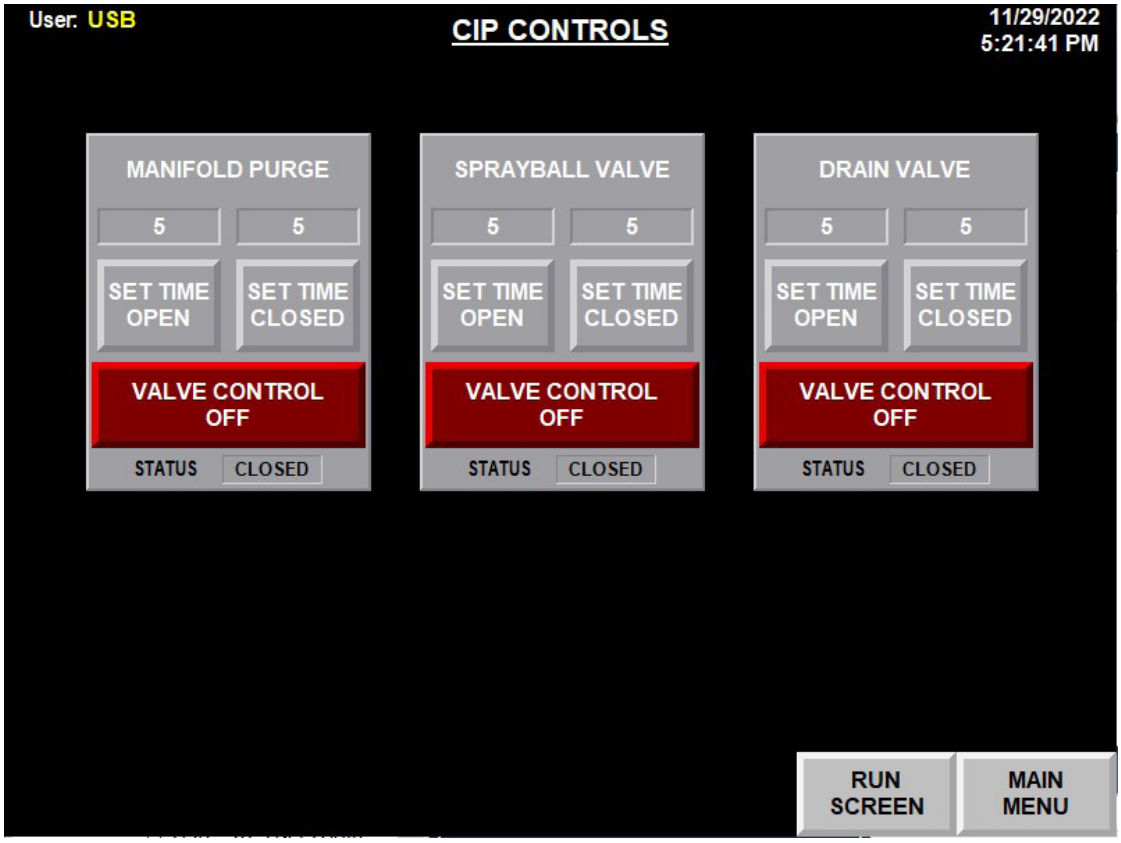


Figure 3-24: *CIP Controls Screen*

BUTTONS/DISPLAYS	DESCRIPTION
MANIFOLD PURGE	Press to manually open/close the manifold purge valve. Can also set time in the valve control push button to automatically open/close the valve.
SPRAY BALL VALVE	Press to manually open/close the supply tank spray ball valve. Can also set time in the valve control push button to automatically open/close the valve.
DRAIN VALVE	Press to manually open/close the supply tank drain valve. Can also set time in the valve control push button to automatically open/close the valve.
RUN SCREEN	Press to return to Run screen.
MAIN MENU	Press to return to Main Menu screen.

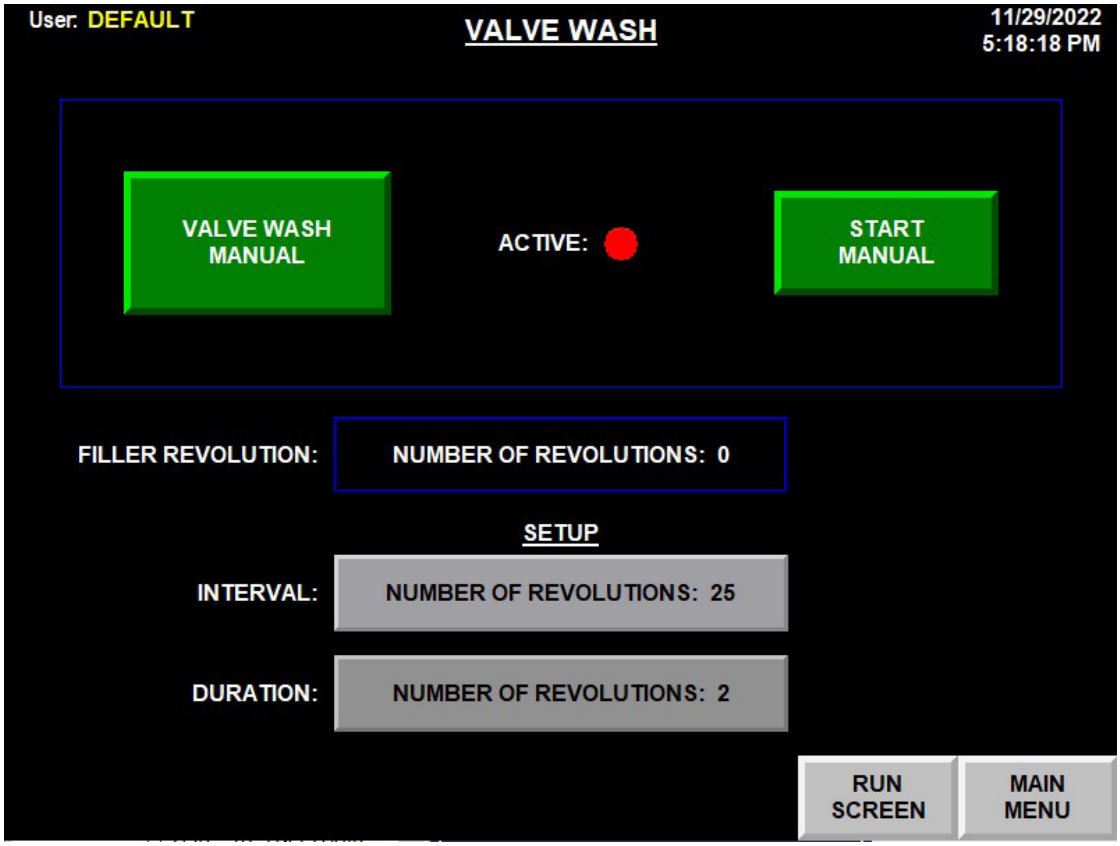


Figure 3-25: *Valve Wash Screen*

BUTTONS/DISPLAYS	DESCRIPTION
VALVE WASH MANUAL	Press to select Manual, Auto, or Off operation of the valve wash solenoid
START MANUAL	Press to manually activate the valve wash solenoid
FILLER REVOLUTION	Read only
INTERVAL	Setup time for the valve wash activation in revolutions
DURATION	Time remaining for the valve wash activation in revolutions
RUN SCREEN	Press to return to Run screen
MAIN MENU	Return to Main Menu screen

Operation Screens

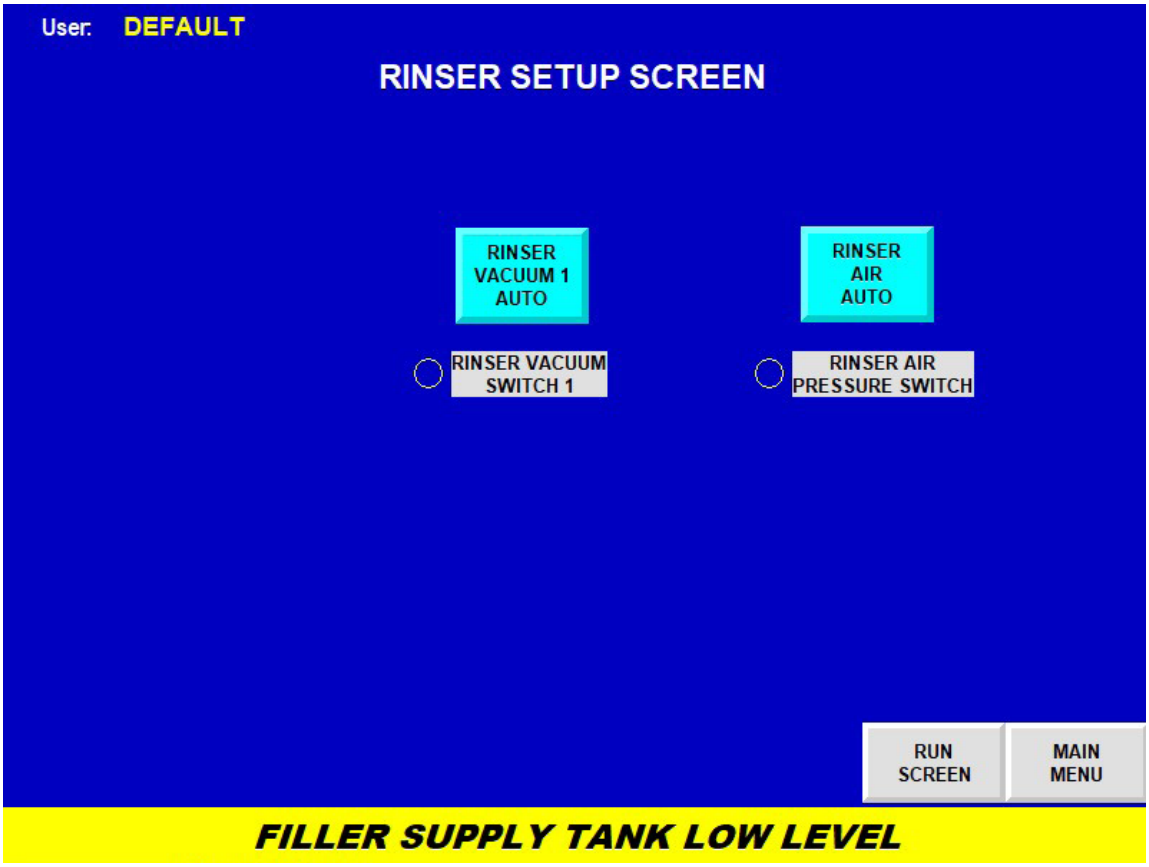


Figure 3-26: ***Rinser Controls Screen***

BUTTONS/DISPLAYS	DESCRIPTION
RINSER VACUUM	Turn rinser vacuum on/off/auto
RINSER AIR	Turn rinser air on/off/auto
RUN SCREEN	Press to return to Run screen
MAIN MENU	Return to Main Menu screen
YELLOW STATUS BANNER	Displays current Rinser status

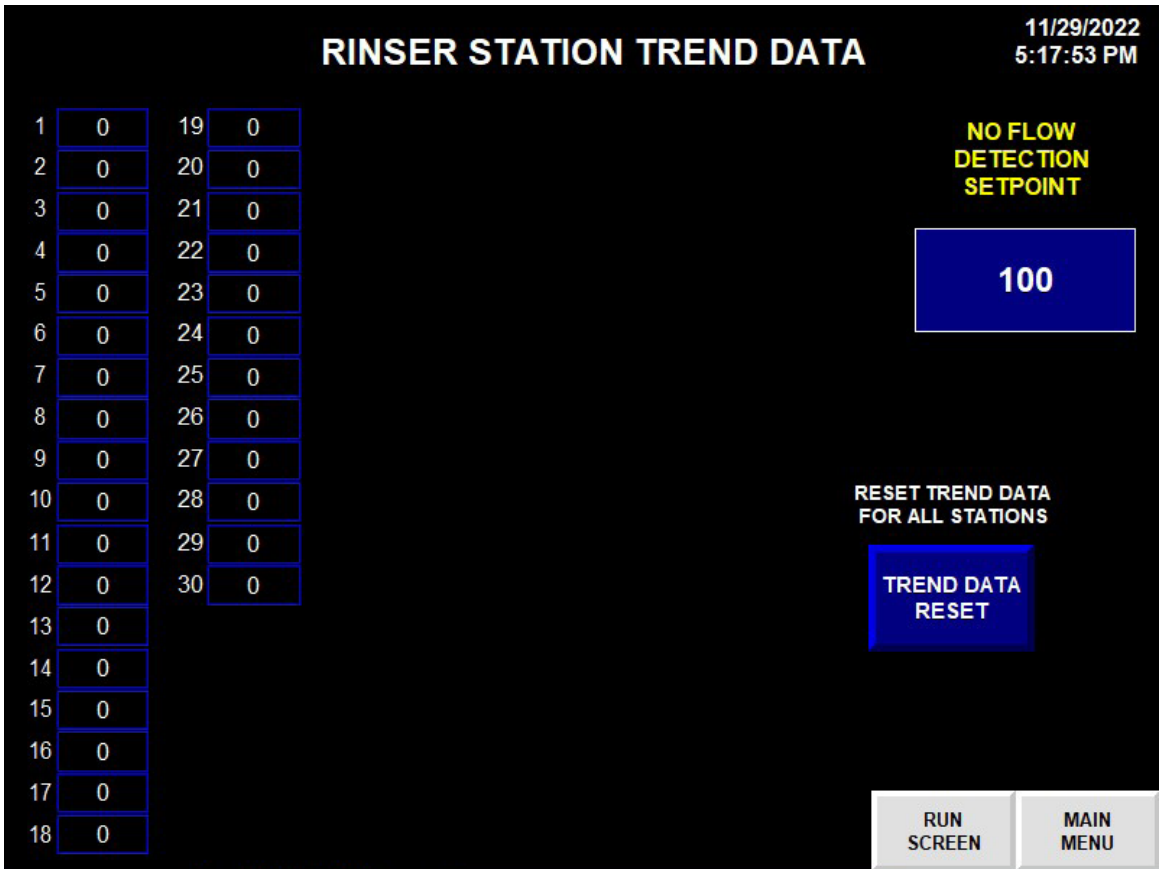


Figure 3-27: *Rinser Stations Screen*

BUTTONS/DISPLAYS	DESCRIPTION
NO FLOW DETECTION SETPOINT	Sets number of consecutive no flows to stop machine
TREND DATA RESET	Press to reset trend data for all stations
RUN SCREEN	Return to Run Screen
MAIN MENU	Return to Main Menu Screen

Operation Screens

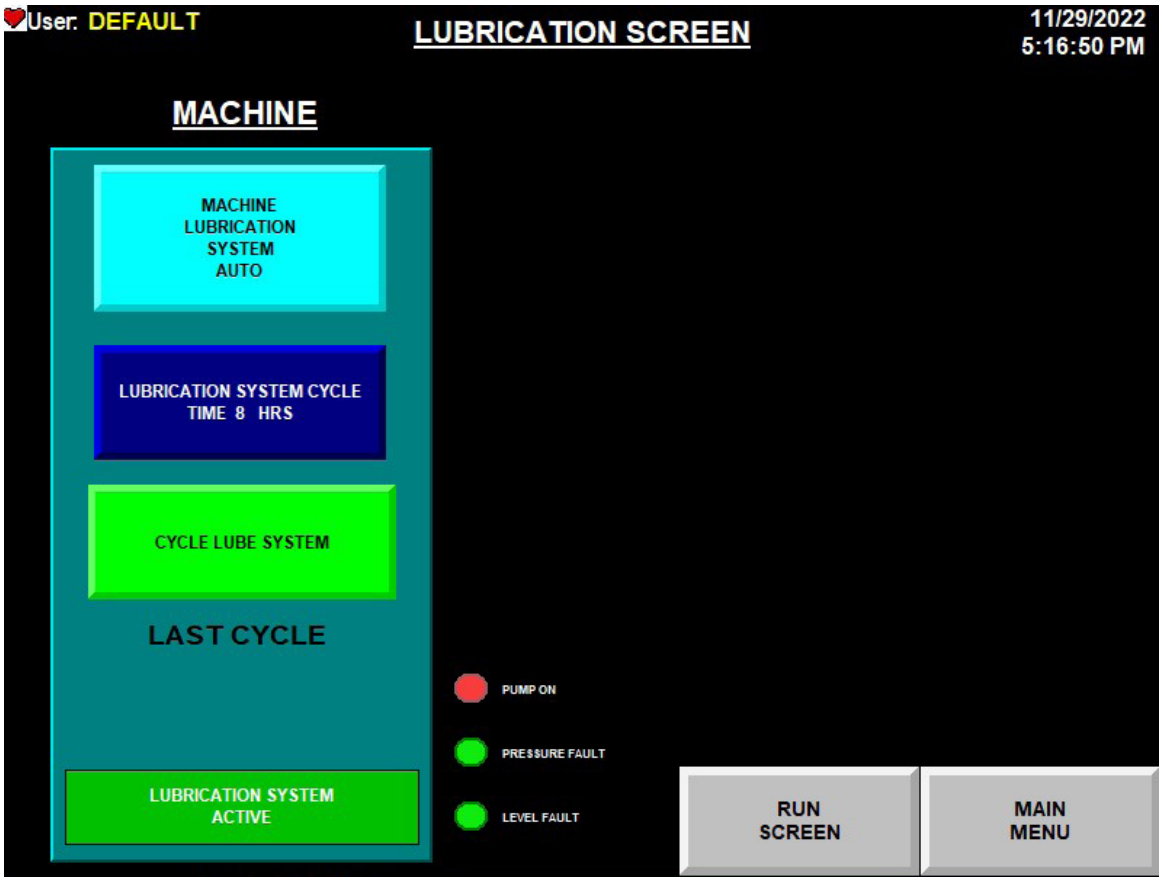


Figure 3-28: ***Lubrication Screen***

BUTTONS/DISPLAYS	DESCRIPTION
MACHINE LUBRICATION SYSTEM AUTO/	Press to turn lubrication system on/off or auto
LUBRICATION SYSTEM CYCLE TIME	Displays duration of time between lubrication system cycles
CYCLE LUBE SYSTEM	Press to manually cycle the machine lube system
RUN SCREEN	Return to Run screen
MAIN MENU	Return to Main Menu screen

Figure 3-29: *Wipe Screen*

BUTTONS/DISPLAYS	DESCRIPTION
-----	Screen is blank to allow screen surface to be cleaned
BACK	Returns to the Main Menu.

Maintenance

122300 WAB Rinser / USB PG Filler / AROL Capper

Preventive Maintenance

PREVENTIVE MAINTENANCE SCHEDULE	
EACH SHIFT	
Filling Valve O-Rings	‰ Visually inspect for swollen or damaged.
Inner Tube O-Rings	‰ Visually inspect for swollen or damaged.
Tube Body	‰ Visually inspect for leaks around inner tube seal.
Filling Valve Hoses	‰ Ensure are flexible. ‰ Overflow hoses are properly placed.
Filling Valve Tubes	‰ Visually inspect for bending. ‰ Visually inspect for leaks around inner tube seal.
Filler Valve Tube Gaskets	‰ Visually inspect for product leakage.
DAILY	
Limit Switch & Mounting Bracket	‰ Verify electrical control logic.
Clutch Keyways	‰ Inspect for wear. ‰ Tighten screws and keyless bushings.
Bull Gear & Pinion Gear	‰ Inspect for worn or missing teeth. ‰ Inspect for corrosion. ‰ Check for excessive backlash.
Filler Slides & Bushings	‰ Check for wear, binding, or sticking. ‰ Inspect for bent slides.
Backup Rods	‰ Check for wear, binding, or sticking. ‰ Inspect for bent slides. ‰ Verify snap rings are in place.
Roller Bearings	‰ Check for flat spots. ‰ Ensure proper positioning on cam lift sections.
Crossover Plate	‰ Inspect for wear. ‰ Ensure proper shimming in relation to rotary table segments and conveyor chain.
Guard Doors, Switches, Hinges	‰ Verify switches are properly functional. ‰ Inspect hinges for damage. ‰ Hand clean.
Product Supply	‰ Inspect for contaminated liquid in filler container.
Product Pressure	‰ Ensure adjusted to match required filling application.
Rotary Union	‰ Inspect for product leakage at relief vent holes. ‰ Listen and observe for binding or interference during rotation.
Feed Worm Gearbox	‰ Inspect for vibration, grinding, or excessive heat. ‰ Check for increasing backlash between input and output shaft. ‰ Check shaft rotation for tight spots.
Chuck Assembly	‰ Inspect for loose hardware.

Table 4-1: ***Preventative Maintenance Schedule (1 of 3)***

Preventive Maintenance (continued)

Pump	‰ Visually inspect for leaks. ‰ Ensure not running too hot.
Feed Worm Drive Assembly	‰ Check u-joints for wear, binding, excessive slop, backlash. ‰ Check bearing for wear. ‰ Ensure feed worm mounting bracket is secure. ‰ Ensure limit switches are functional and properly positioned. ‰ Inspect worm gearbox for vibration, grinding, or excessive heat. ‰ Check worm gearbox for backlash between input/output shafts. ‰ Check shaft rotation for tight spots.
EVERY TWO DAYS	
Roller Chain Worm Drive	‰ Inspect bevel gear for backlash and wear. ‰ Inspect roller chain for excessive stretching.
Main Chassis Bevel Gear	‰ Inspect cam adjustment for backlash and wear. ‰ Inspect roller chain for excessive stretching.
Filler Components	‰ Clean. ‰ Inspect cam for wear and grooves.
WEEKLY	
Conveyor Drive Train Chain CAM Lift Screw Chain	‰ Check conveyor drive train and cam lift screw chains for any excessive stretching during the first three months of initial break in. ‰ After initial break in period, inspect every two weeks.
Entire Machine	‰ Hand rub light covering of oil to all unpainted surfaces. ‰ Check for bent knobs, broken plates, and damaged attachments.
Detent Clutch	‰ Ensure slippage during high speed motor starts. ‰ Check for proper mechanical function. ‰ Check keyless bushings for tightness. ‰ Check shaft key and keyway for excessive wear.
Main Chassis	‰ Inspect cam stud shafts for corrosion. ‰ Ensure roller chains are not excessively stretched. ‰ Ensure cam ring and studs are level. ‰ Ensure cam adjusting hardware moves freely. ‰ Inspect bed plate covers for wear. ‰ Check pinion shaft for excessive looseness. ‰ Ensure static charge eliminator ground strap is connected.
Main Chassis Bevel Gear	‰ Inspect cam adjustment for backlash and wear. ‰ Inspect roller chain for excessive stretching.
Main Bearing	‰ Check for deterioration by slowly rotating machine and checking for jerking or rumbling noise.
Conveyor Assembly	‰ Inspect conveyor wear strips for wear. ‰ Ensure guide rail hardware is firmly tightened. ‰ Ensure limit switches are functional and that the electronic control circuits are active. ‰ Check the parallel shaft reducer for backlash between input and output shafts. ‰ Check parallel shaft reducer for corrosion on top housing plate. ‰ Check universal joints and slide couplings for wear. ‰ Check timing belt for wear and excessive stretching. ‰ Inspect the worm idler end bearing for wear. ‰ Check worm mounting for binding between worm and support hardware.

Table 4-2: *Preventative Maintenance Schedule (2 of 3)*

Preventive Maintenance (continued)

Conveyor Assembly	‰ Check feed worm gearbox for backlash between input and output shaft. Rotate input shaft and check for tight or rough spots.
Filler Components	‰ Clean. ‰ Inspect cam for wear and grooves. ‰ Ensure limit switches are functional and properly positioned.
Head Assembly	‰ Check for loose, worn, or broken roller assemblies.
Cap Feed Assembly	‰ Inspect air connections and lines for pinching, damage, and degradation. ‰ Inspect the pivot bushing for swelling and ream. ‰ Check pistons for proper stoking and cleanliness.
Chuck Assembly	‰ Check for broken or damaged chuck release springs.
Chuck Shaft Assembly	‰ Check for bent shafts. ‰ Check rollers and bearings for wear, corrosion, and flat spots.
Star Drive	‰ Inspect belts for wear and proper tension. ‰ Check micro-switch for correct setting and proper electronic control logic. ‰ Ensure manifold lubricant lines are in place and without leaks. ‰ Ensure star and drive shaft bearings for sloppy contact.
Manifold Shutoff Shoe Pad	‰ Visually inspect for wear.
SEMI-ANNUALLY	
Entire Machine	‰ Check gears for uneven wear or broken teeth. ‰ Check for excessively sloppy bushings.
Feed Worm Gearbox	‰ Rebuild or replace.
Motor Drive Train	‰ Replace worn or excessively stretched belts. ‰ Replace worn, corroded, or excessively stretched chains. ‰ Replace worn chain sprockets.
Rotary Union	‰ Replace bearings, liquid seal, and o-rings.
Clamping Belt Assembly	‰ Check pulley bearings for wear and corrosion. ‰ Check take-up assembly for wear, corrosion and damage.
Capper Head Assembly	‰ Check lifting jack for binding. ‰ Check pneumatic cam for wear. ‰ Check roller carrier bearings for wear, corrosion, and damage.
Filler Main Gearbox	‰ Replace gearbox oil.
Capper Main Gearbox	‰ Replace gearbox oil.
Capper Independent Spindle Gearbox	‰ Replace gearbox oil.

Table 4-3: ***Preventative Maintenance Schedule (3 of 3)***

Mechanical Detent Clutch Adjustment

To adjust the detent clutch, simply loosen its two setscrews located on the unit's lower flange. Apply a spanner wrench to one of it's respective bores also located on the detent clutches lower flange and turn horizontally to adjust.

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVIES.

NOTE: Adjustment of the detent clutch is a trial and error process. Test cycle the machine following each adjustment until the correct setting is found.

CAUTION: RETIGHTEN AT LEAST ONE SETSCREW BEFORE TEST CYCLING THE MACHINE.

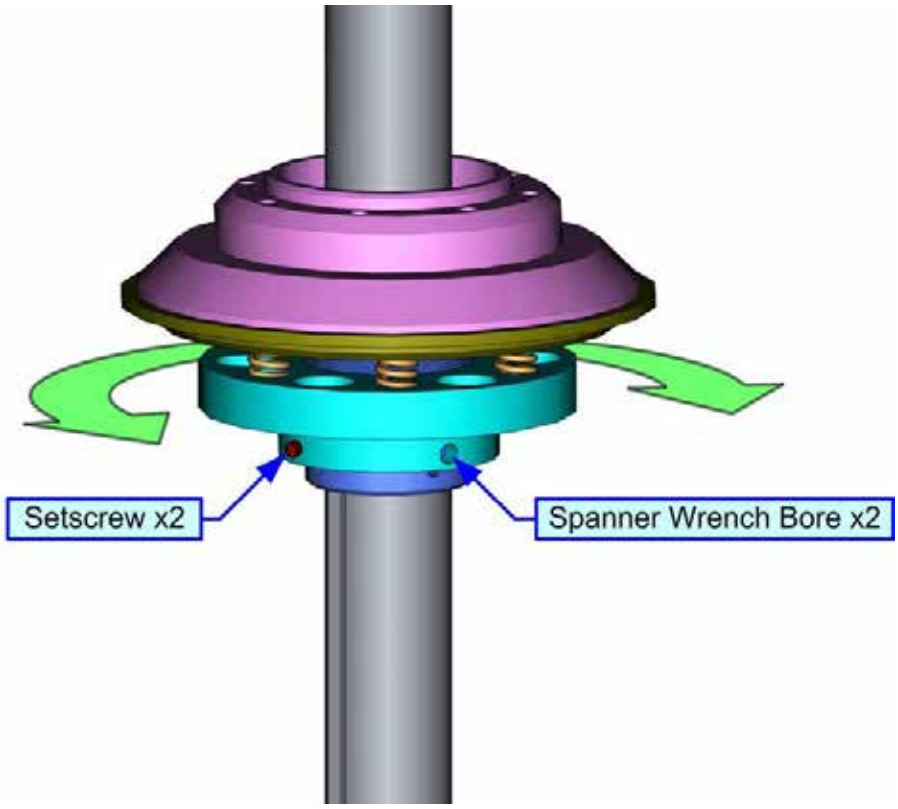


Figure 4-1:*Mechanical Detent Clutch Adjustment*

Capper Spindle Drive Belt Adjustment

Over operational time, the drive belt will stretch and require tension adjustment. To tension the drive belt, loosen the four set nut/bolts securing the motor/gearbox to its mounting plate and manually pull the assembly to increase the distance between its pulleys A and B. Retighten the four set nut/bolts.

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVIES.

NOTE: A properly adjusted belt will be tensioned so as to prevent slippage, but not provide excessive drag on the drive mechanisms.

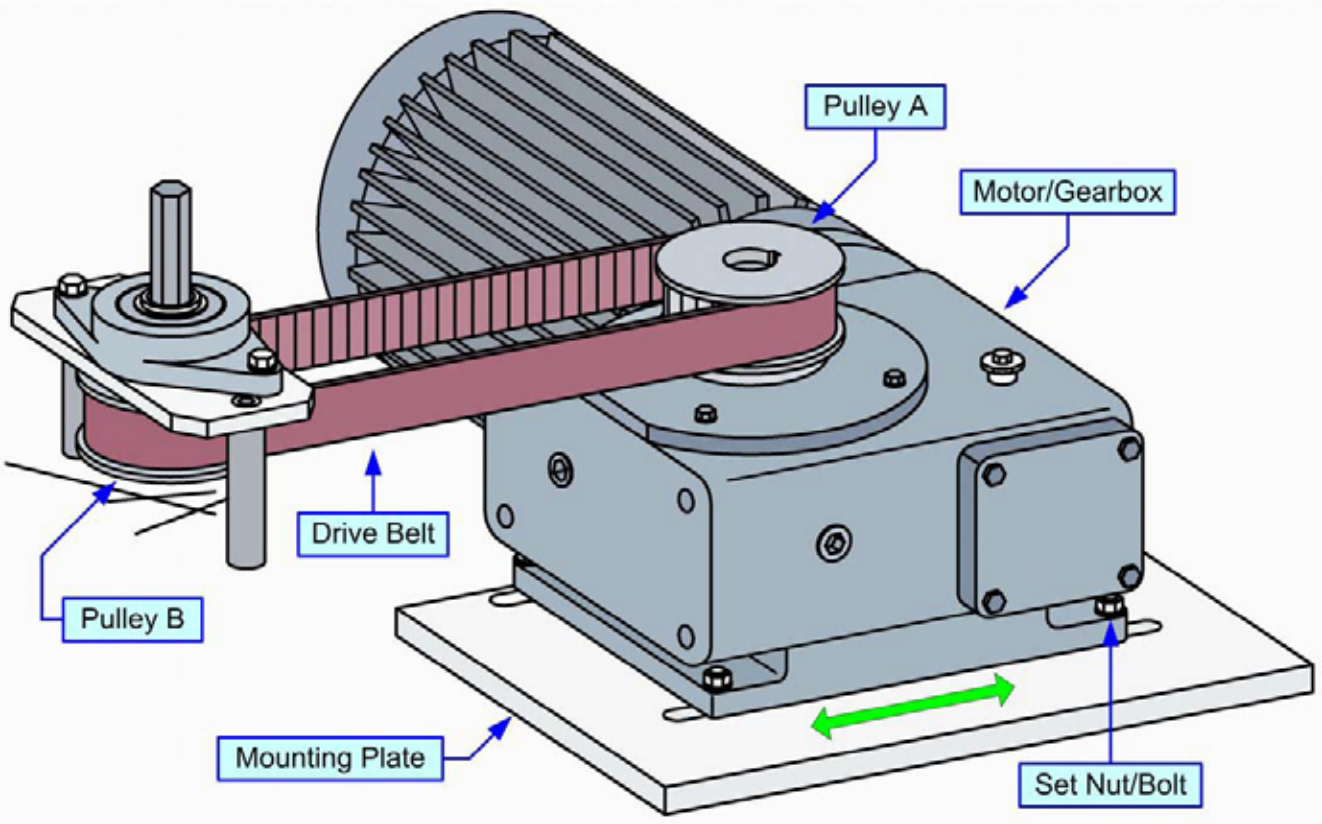


Figure 4-2:*Capper Spindle Drive Belt Adjustment*

Feed Worm Drive Belt Adjustment

Over operational time, the worm belt will stretch and require tension adjustment. To tension the belt, loosen the four bolts securing the worm drive gearbox to its mounting plate and manually pull the gearbox outward to increase the distance between its two pulleys. Retighten the four bolts.

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVIES.

NOTE: A properly adjusted belt will be tensioned so as to prevent slippage, but not provide excessive drag on the drive mechanisms.

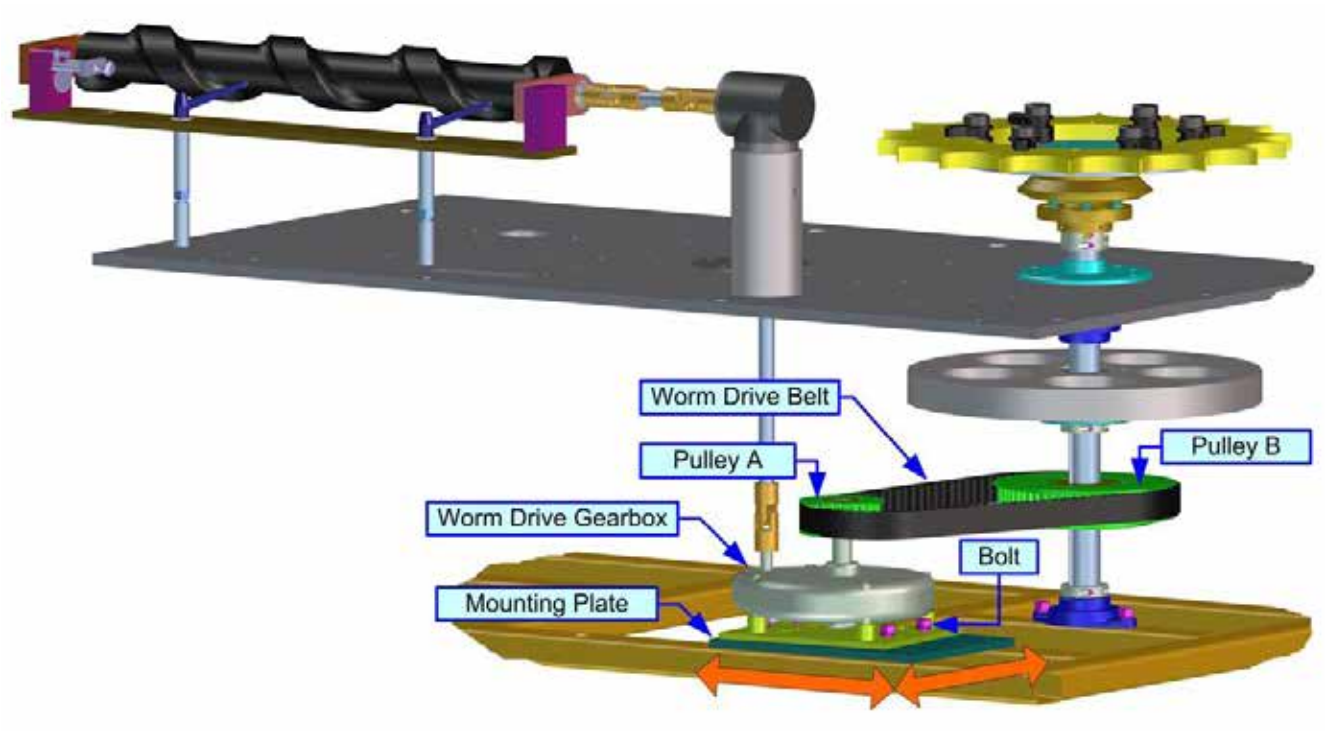


Figure 4-3:*Feed Worm Drive Belt Adjustment*

Hoses, Gaskets, Seals and O-ring Materials

The o-rings, gaskets, hoses, and seals are all rubber components (unless Teflon is used) that must be reviewed. Look for cracking, deformations, and breakdown of integrity with these items and keep spares on hand. When replacing hoses, ensure to make replacements the same length and ensure the fittings are properly secured for cleaning requirements. Do not interchange hose manufacturers without knowing that they are in fact interchangeable. Wall thickness and ID tolerances are critical in working with the supplied fittings. Be careful also not to use non-FDA components in the liquid system.

Pinion & Bull Gears

The pinion drive gears and bull gear are to be inspected to ensure that wear or corrosion has not reduced the surface areas of these gears, and that they have not developed cracked or broken teeth.

Pay particular attention to the strength of pinion gear teeth when reviewing because they turn multiple times that of the bull gear. Replace pinion gears as soon as wear is identified.

The bull gear of the machine is subjected to less wear than the pinion gears. Replacing a bull gear is a big job, but if properly serviced, it should have a long operational life. Normally, it is considered good practice to change all gears of any gear set whenever the drive is overhauled. In this case, since the bull gear is so large and costly, and requires so much effort to replace, every attempt should be made to service the pinion gears and replace them separately before they can damage the bull gear.

Use a brush to apply a heavy coating of grease that resists water and steam to the teeth of the gears. If the gears are plastic, do not use a lubricant that will attack nylatron GSM. Inspect the existing grease on the gears for broken glass or any other object that could damage the teeth if left in place.

Check the drive system for backlash. Increasing backlash indicates tooth wear and suggests a possible need for pinion gear and/or bull gear replacement.

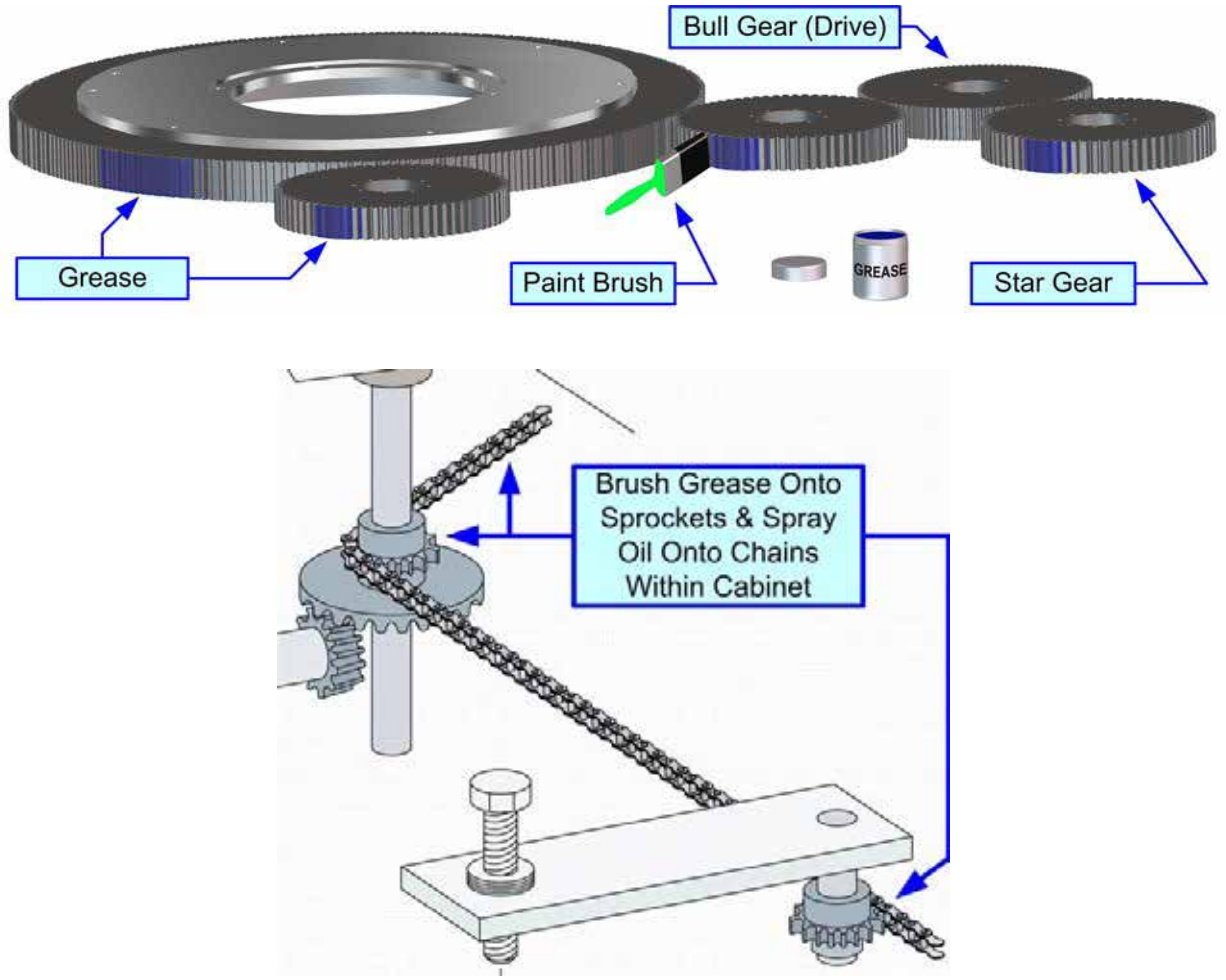


Figure 4-4:*Pinion & Bull Gears*

Filler Slide Rods, Bushings, & Rollers

The filler's slide assembly, including its bushings, roller assemblies, backup rods, and snap rings, are to be reviewed as specified. The bushings are semi self-lubricating and the slides work well without lubricants; however, cleaning is very important.

Binding slides can cause the machine to jump or jerk. Sometimes if enough slides are sticking or binding, they can cause the filler to stop rotating. This condition often is misdiagnosed as a faulty main bearing. Slide bushings are the wear items and frequently require replacement. Slides, on the other hand, need only be replaced if they are physically bent due to a jam. Generally, slides do not wear out.

Roller assemblies are constructed using an acetron inner sleeve with a urethane outer wear surface. The wheel should be replaced whenever the rollers show signs of not operating properly. Ensure that the rollers turn during their passage around the cam. Rollers that stop turning quickly develop flat spots and will never operate properly afterward. Flat spots on rollers will also quickly wear the cam.

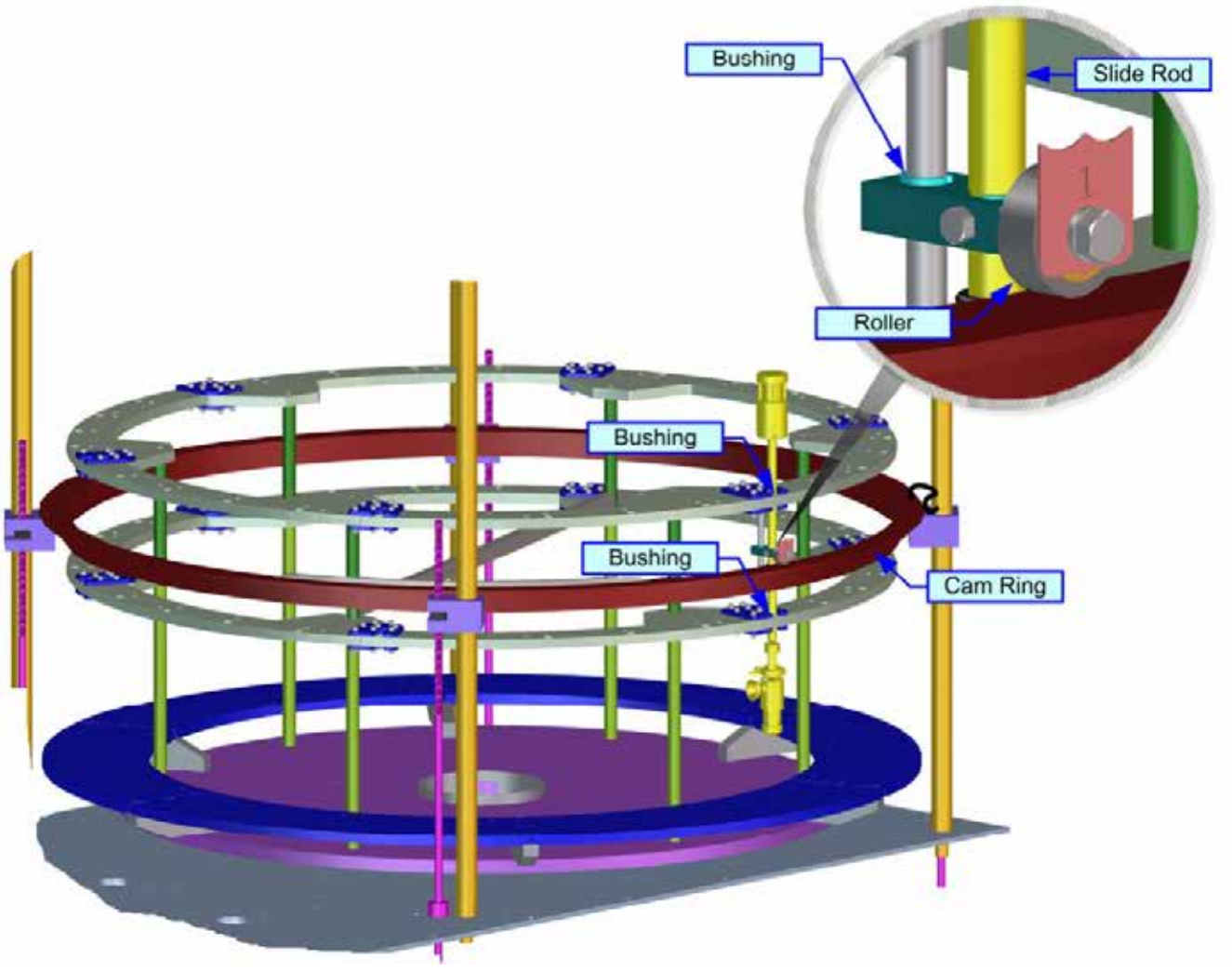


Figure 4-5:*Pinion & Bull Gears*

Filler Valves

Valves must have their inner and outer tubes penetrate the opening of the container and are, therefore, subject to the stability and quality of the container. Choke neck bottles, round bottoms, unstable containers, and bad bottle handling practices all contribute to the damage of filling valves. The hardware provided takes into account the need for high product flow rates in conjunction with the necessity for mechanical strength in the filing tube assembly.

Valves need to be reviewed to ensure that they are opening and closing smoothly and not sticking or jamming in the open or closed position. Any o-rings or seals that are damaged need to be replaced. When liquid appears at the top of the tube bushing, the lip seals need to be replaced. Sealer rubbers that are worn need to be replaced in order to maintain the proper liquid level fills. As hoses become old, they become dried, stiff, and cracked, and also must be replaced.

If the filling valves are assembled and disassembled often for cleaning and inspection, the threads tend to wear. The pounding action of the valve also accelerates this process. The valves should be checked to ensure that the inner tubes are tight into the tube head and the tube head is attached properly to the slides. Outer tubes are to be tight and the gaskets need to be properly functional. Sealer rubbers and gaskets must to be in good working order. If difficulty is experienced in maintaining the tightness of the mechanical hardware, the use of a food grade lock tight material will often help.

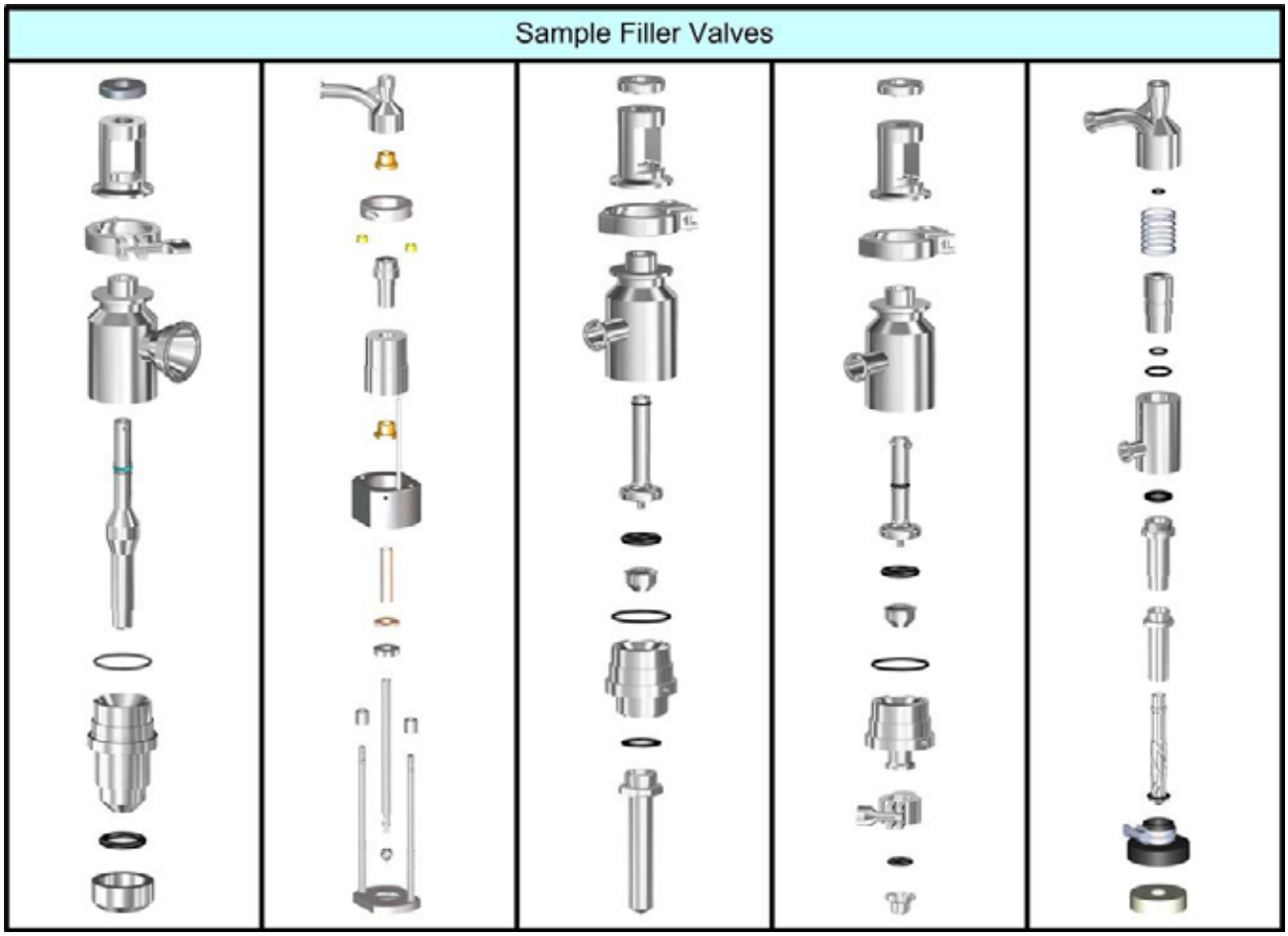


Figure 4-6:*Filler Valves*

Feed Worm Drive Assembly

Periodically inspect the timing belt and pulleys for wear and replace them as necessary. Ensure that both the drive gearbox and right-angle gearbox are both lubricated regularly as prescribed. The worm shaft bearings are to be checked often to ensure that the internal bearing is rotating and has not seized. If the bearing appears to run hot, consider replacing the unit with a new bearing. Also ensure that the keys are not worn and that backlash in the gearboxes isn't excessive.

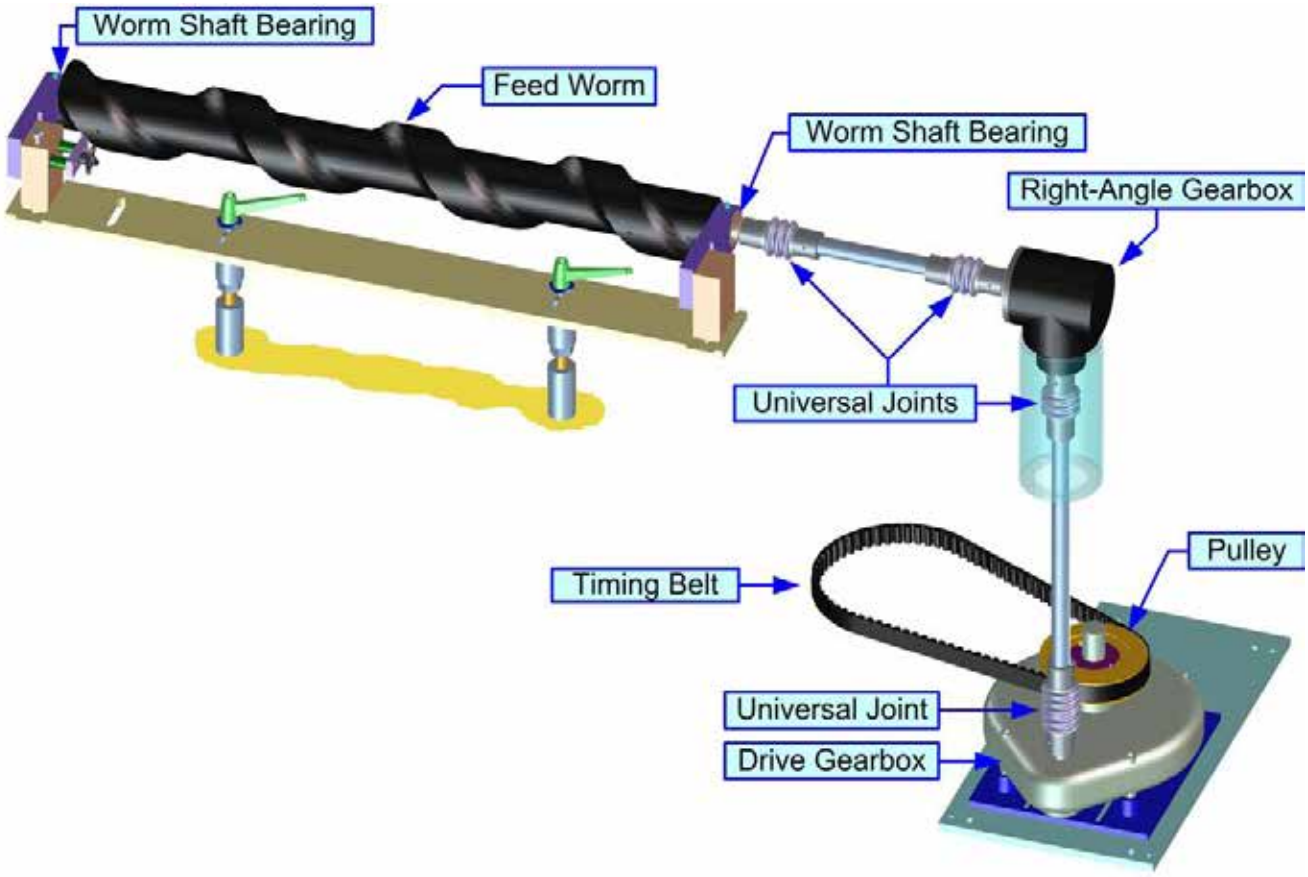


Figure 4-7:*Feed Worm Drive Assembly*

Crossover Plates, Bedplates, and Conveyor Wear Strips

Review the crossover plate to ensure that the bottle action of moving on and off the conveyor is smooth. When necessary, replace the crossover plate or adjust it upwards to ensure proper transfer. The crossover plate is to always be vertically positioned so that it is slightly higher so the container traveling off the plate doesn't trip.
If the bedplates are badly worn, three things can occur:

1) the containers will jostle on the bed plate when entering the filler causing the filling tube to have difficulty aligning with the opening of the bottle;

2) spilled liquid can become trapped on the bed plate and drip down through the attachment screws accelerating corrosion; and

3) properly filled bottles will not smoothly exit the machine.

Conveyor wear strips that support the conveyor motion and the return conveyor chain section must be inspected to ensure that they have not worn through. Only chain lubricant is necessary for the conveyor wear strips.

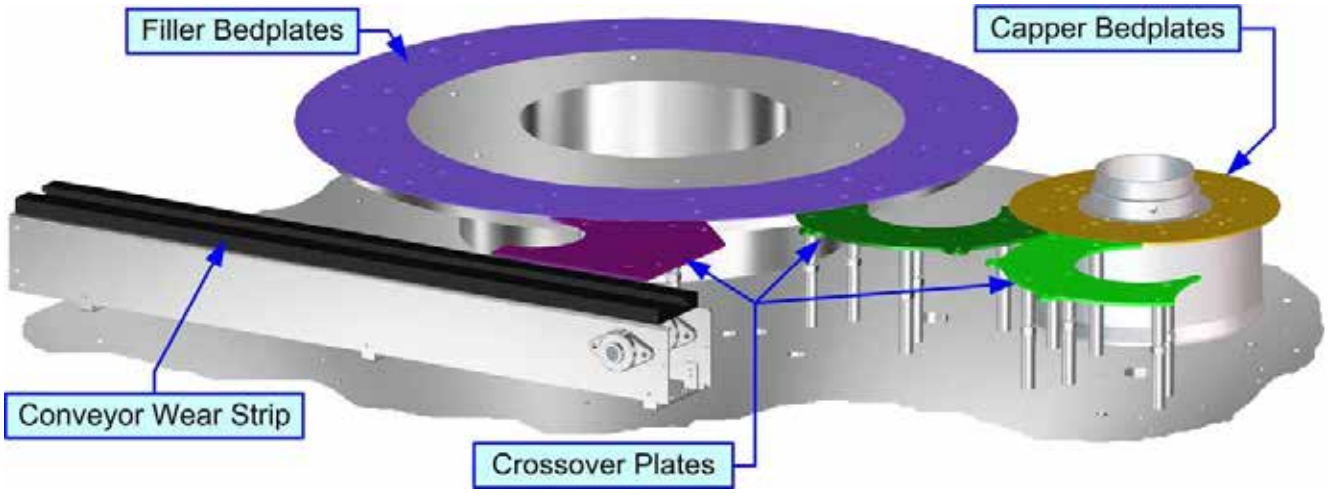


Figure 4-8:*Crossover Plates, Bedplates, and Conveyor Wear Strips*

Filler Rotary Unions

During normal operation, it is recommended that lubricant be applied at the grease fittings at least once every 40 hours. Apply grease until it is observed escaping through the upper split spacer ring. When the cavity within the rotary union is full, grease will be forced up and out through this spacer ring, rather than through the seal rings.

It is important to maintain a film of lubricant over the seal to metal contact surface to prevent the seal from prematurely wearing. Make sure grease (FDA as required) is applied before and after CIP procedures to ensure the rubber is not running directly on the metal surface without lubricant.

> **ATTENTION:** There is now a version of this size union which eliminates the rubber seals and use a lubricant impregnated Teflon packing gland system. In this version, regular greasing is not required and does not incorporate rubber quad seals. If interested in testing this newer design, please consult with our sales team.

Figure 4-9:*Filler Rotary Union*

Machine Lubrication

LUBRICATION

Proper lubrication is an absolute necessity for any piece of mechanical machinery to operate at full capacity. Improper lubrication can be as harmful to the equipment as without lubrication.

This chapter provides basic information relative to maintaining proper lubrication of the machine. Whereas the information provided here is as specific as possible, much of the information is intentionally vague so as to not conflict with customer requirements or governmental regulations.

CAUTION: DO NOT APPLY ANY LUBRICANT TO ANY PART OF THE MACHINE THAT ATTACKS NYLATRON GSM. COMPONENT DAMAGE WILL OCCUR.

CAUTION: DO NOT ALLOW CORROSION AND RUST TO BUILD UP TO DESTROY NON-STAINLESS STEEL COMPONENTS SUCH AS GEARS, SLIDE RINGS, SPROCKETS, AND GEARBOXES.

WARNING: THE LUBRICATION ACTIVITIES IDENITIFED IN THIS CHAPTER DOES NOT ADDRESS THE CAPPER TURRET. REFER TO THE APPENDIX UNIT OF THIS MANUAL FOR THOSE INSTRUCTIONS RELATIVE TO THE CAPPER TURRET.

GEARBOXES

Each of the machine's gearboxes has a lubrication fill port with an associative over-fill port. The fill port is the location where lubrication is applied to the gearbox, and the over-fill port lets the technician know when the proper fill quantity is reached.

To fill a gearbox, remove the fill port and over-fill port plugs. Pour the specified lubricant into the fill port until it begins to run from the over-fill port. Then replug each port. Refer to the Technical Data unit of this manual for the required lubricant type.

Machine Lubrication (continued)

Stoeber Lube Recommendations

MGS® / Servo Gear Units
Speed Reducers / Precision Gearheads

All units are shipped filled with the required amount of lubrication (Mobil XP600}. If food grade or synthetic oil is requested, it will be Mobil SHC Cibus 220 Food Grade or Mobil SHC630 synthetic. With STOBER reducers very little, or often, no maintenance is required under normal operating conditions.

Cibus• is a registered trademark of Exxon Mobil Corporation.

Units without breathers are lubricated for life.

For units with breathers, we recommend that the lubrication be changed according to the schedule below.

For all Units:
Units must be mounted according to the mounting position on the nameplate for proper lubrication!

Characteristic of STOBER Standard Lubricants

	Mobile 600 XP220	Mobile SHC Cibus 220 Food Grade	Mobile SHC629	Mobile SHC630
Anti-Foaming Additives	X	X	Excellent	Excellent
Corrosion Protection	X	Optimum	X	Optimum
Exterme Pressure Additives	X	X	X	X
Friction and Wear Reducing Characteristics	X	Excellent	X	Superior
Oxidation Protection	X	Enhanced	X	Enhanced
Wide Temperature Range		X	X	X

Lubrication Schedule:
Normal/Dry Operating Conditions: After 10,000 Hours
Wet Operating Conditions: After 5,000 Hours

Machine Lubrication (continued)

Stoeber Preventive Maintenance Oil Change

If your reducer is supplied with a breather. STOBER has recommended oil change frequency. If your application is a dry environment the oil should be changed every 10,000 hours of operation. If your reducer is in a wet application the oil should be changed every 5,000 hours of operation.

Example as follows: Case conveyors in a warehouse would be considered a dry environment. Applications such as Rinsers and Fillers where a reducer is exposed to water all day is considered a wet environment.

STOBER supplies users with one of the following oil types:

- Food Grade: Mobil SHC CIBUS 220
- Corrosion Resistant duty: Mobil 600XP220
- Synthetic: Mobil SHC 630

16 STEPS TO A SIMPLE OIL CHANGE

1. Install Proper Lock Out Tag Out.
2. Find Reducer Nameplate and record the serial number.
3. If your reducer nameplate has a QR Code, it can be scanned and will redirect you to STOBER's website to obtain all the information concerning oil type and quantity. If it does not have QR follow step number 4.
4. Visit https://id.stober.com to obtain all the information concerning oil type and quantity.
5. Allow reducer time to cool.
6. Loosen Oil Fill plug to allow the reducer to vent.
7. Remove Drain plug at lowest point on the reducer.
8. Remove Oil Fill plug to allow unit to drain.
9. Once unit is drained reinstall the drain plug.
10. Fill unit with recommended oil quantity.
11. Reinstall the Oil Fill Plug.
12. Run the reducers for 20-30 minutes to remove any contaminates left from previous oil.
13. Repeat steps 5-11.
14. Your reducer is ready for operation.
15. Remove Lock Out Tag Out.
16. Document all oil type and quantity information so it is available for the next scheduled PM.

Machine Lubrication (continued)

OIL POINTS

There are points on this machine that would benefit from periodically having oil applied as either a lubricant or rust inhibitor. However, due to unique applications and possible governmental regulations, the determination if to lubricate, the method of lubrication, and the type of lubrication is left to customer discretion.

Applying a small amount of light mineral oil or light machine oil to the slides is often helpful; however, excessive oil is counter-productive because It collects dirt from the air and produces a gummy material that clogs the bushings and affects the slide action. In a dry environment, the oil film need not even be applied. Apply oil to the ground-strap to prevent corrosion.

CAUTION: NEVER APPLY ANYTHING TO SLIDE ROD SURFACES THAT WILL BUILD UP A STICKY RESIDUE AND ULTIMATELY ATTRACT SUGAR AND DEBRIS. THE PRESENCE OF SUCH RESIDUE WILL SCORE ITS BUSHINGS AND BIND THE MACHINE.

EXPOSED GEARS

All exposed gears are to be located and have grease sprayed or brushed onto their contact surfaces.

GREASE FITTINGS

The most severe point for a bearing assembly is immediately following machine operation under high temperature conditions. As the machine cools to room temperature, the bearing housing cavity which is already full of moist ambient air, begins to cool generating additional moisture through condensation. This accumulative moisture will inevitably find its way into the bearing housing and if allowed to remain, will eventually mix with bearing lubricants and ultimately reduce its corrosive resistant characteristics. Therefore, the lubricant type is of utmost importance, especially regarding the machine's main bearing.

CAUTION: ALWAYS VERIFY THAT THE MECHANICAL ASSEMBLY IS RECEIVING PUMPED GREASE AND THAT THE GREASE LINES ARE NOT CLOGGED PREVENTING LUBRICATION TRANSFER.

Machine Lubrication (continued)

Most of the components that can be lubricated under the basic chassis of the machine, up to and including the main bearing, are fed from the main grease manifold. The lubrication lines that feed out from this manifold will feed and lubricate all of the elements associated with the vertical rotational shafts of the machine, the cam adjusting screw hardware, the main bearing, and the bearings located under the rotational drive pinions. This manifold supplies lubrication to other component units located within the cabinet that are necessary as part of the main machine drive.

The fittings on the manifold are then connected from left to right to grease point requirements inside the cabinet as they are found moving from left to right. Using this method, the required grease point found furthest to the right inside the cabinet should be attached to the right most grease manifold fitting. The main bearing fitting should be near the center of the manifold fittings. The main bearing fitting is the only manifold fitting that is labeled with an exact component name.

Rotary Union
During normal operation, it is recommended that a food grade lubricant be applied at the grease fitting (***hand lube only***), at least once every 40 hours. Grease until it is observed escaping through the upper split spacer ring. When the cavity within the rotary union is full, grease will be forced up and out through this spacer ring, rather than through the seal rings.

Main Bearing
The main bearing is a sealed, four-point contact bearing in an enclosed housing. It is designed with a single lubricant grease point located on the front of the machine cabinet, centered behind the front removable door panel or directly on the bearing housing. Themain bearing is to be lubricated at startup, while the machine is running, and also at the end of the operating cycle when the bearing is cooling down if it will not be operated in the near future. Lubrication is to be pressed into the bearing housing with at least 15 solid strokes of a pneumatic or hand operated grease gun.

CAUTION: FOR HOT JUICE APPLICATIONS, USE GREASE THAT CONFORMS TO MILITARY SPECIFICATION G-81322.

Cam Adjustment Bearings
A small amount of lubricant wiped on the threads of the cam stud bearing is all that is necessary to maintain the operation of this unit. Within the machine cabinet, are several flange bearings that require periodical lubrication. Also brush lubrication onto the roller chain sprocket system.

Machine Lubrication (continued)

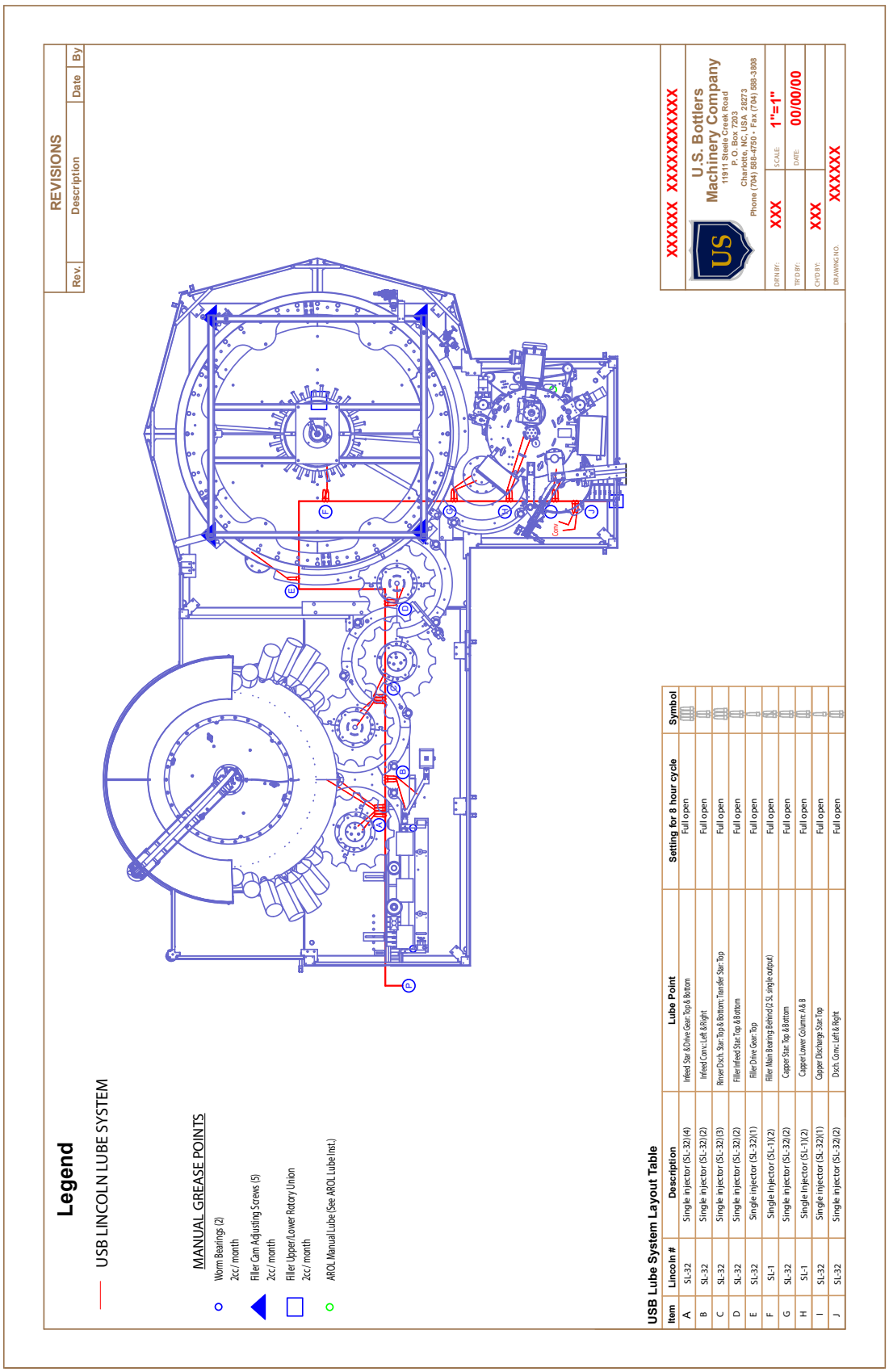


Figure 4-10:*Machine Lubrication Points*

Machine Lubrication (continued)

Lubrication Schedule

NOTE:

1 day is equal to 12-20 hours run time.

Grease types:

Food Grade: F6L-1

Synthetic: Anderol 783

LUBRICATION POINTS					
Part Name	**LubricationType**	**Method**	**Points/ Frequency**	**Location**	**Amount**
Feed Conveyor Bearing (outside)	Grease	Alemite	Weekly	Conveyor End	1cc
Feed Conveyor Bearing (inside)	Grease	Alemite	Weekly	Cabinet Right Rear	1cc
Filler Main Bearing	Grease	Alemite	1 / Daily Also After CIP	Above Cabinet	15cc per 8hr run
Drive Shaft Bearing (top)	Grease	Alemite	2 / Weekly	Within Cabinet	2cc
Star Shaft Bearings (top)	Grease	Alemite	2 / Weekly	Within Cabinet	2cc
Star Shaft Bearings (bottom)	Grease	Alemite	2 / Weekly	Conveyor End	2cc
Conveyor Drive Bearing (inside)	Grease	Alemite	1 / Weekly	Within Cabinet	1cc
Conveyor Drive Bearing (outside)	Grease	Alemite	1 / Weekly	Feed Worm Brackets	1cc
Idler Bearing (inside)	Grease	Alemite	1 / Weekly	Within Cabinet	1cc
Idler Bearing (outside)	Grease	Alemite	1 / Weekly	Within Cabinet	1cc
Discharge Conveyor Bearing (outside)	Grease	Alemite	1 / Weekly	Lower Turret	1cc
Discharge Conveyor Bearing (inside)	Grease	Alemite	1 / Weekly	Bevel Gear Set	1cc
Rotary Union (liquid system) *Hand lube only	Grease	Alemite	1 / Weekly Also After CIP	Slide Ring	1cc min
Rotary Union (lower carousel) *Hand lube only	Grease	Alemite	1 / Weekly Also After CIP	Within Cabinet	1cc min
Feed Worm Brackets	Grease	Alemite	2 / Weekly	Cabinet Top	1cc
Upper Bearings	Grease	Alemite	1 / Weekly	Within Cabinet	2cc
Lower Bearings	Grease	Alemite	1 / Weekly	Bull/Star Gear	2cc
Filler Main Gearbox: SEW	Shell HD220 Mobile SHC630	Oil Bath	Check 1 / Monthly	Within Cabinet	Fill to Level
Filler Main Gearbox: Hub City & Winsmith	Spirex Exp140	Oil Bath	Check 1 / Monthly	Within Cabinet	Fill to Level

Machine Lubrication (continued)

Bevel Gear Set	Grease	Brush	1 / Monthly	Bevel Gear Set	Light Coat
Chain Tensioner	Grease	Brush	3 / Monthly	Chain Tensioner	Light Coat
Worm Drive Chain	Grease	Brush	1 / Monthly	Worm Drive Chain	Light Coat
Bull/Star Gears	Grease	Brush	1 / Monthly	Bull/Star Gear	Light Coat
Worm Drive Gearbox (upper)	Spirex Exp140	Oil Bath	Check 1 / Monthly	Cabinet Top	To Level
Worm Drive Gearbox (lower)	Spirex Exp140	Oil Bath	Check 1 / Monthly	Within Cabinet	To Level
Filler Cam Adjusting Screws	Grease	Alemite	4 / Monthly	One Point per Screw – Filler Cabinet Top	1cc
Capper Main Bearing	Grease	Alemite	1 / Weekly	Above Cabinet	3cc
Capper Independent Spindle Gears	Grease	Brush	1 / Monthly	Cabinet Top	Light Coat
Capper Chuck Shaft Spindle Gears	Grease	Brush	1 / Monthly	Capper Cabinet Top	Light Coat
Lifting Gearbox	Spirex Exp140	Oil Bath	Check 1 / Year	Capper Roof	Fill to Level
Carrier Bearing Blocks	Grease	Alemite	1 / Monthly	Lower Turret Cover	1cc
Chuck Open/Close Cams	Grease	Brush	1 / Monthly	Upper Turret Cover	Light Coat
Spindle Drive Shaft Bearings (upper)	Grease	Alemite	1 / Monthly	Turret Roof	1cc
Spindle Drive Shaft Bearings (lower)	Grease	Alemite	1 / Monthly	Upper Turret Cover	1cc
Capper Main Gearbox: SEW	Shell HD220 Mobile SHC630	Oil Bath	Check 1 / Monthly	Within Cabinet	Fill to Level
Capper Main Gearbox: Hub City & Winsmith	Spirex Exp140	Oil Bath	Check 1 / Monthly	Within Cabinet	Fill to Level
Capper Independent Spindle Gearbox	Spirex Exp140	Oil Bath	Check 1 / Monthly	Capper Roof	Fill to Level
Center Column	Grease	Alemite	1/ Monthly	Lower Turret	1cc

Filler Cam Bearings & Ground Strap

Over time, the rotation of the filler carousel produces an electric charge. Since there is a fine film of oil on the main bearing balls, an electrical discharge path needs to be provided. If the ground strap is not in place, an electrical charge jumps across the gap between the upper and lower race housing of the bearing. The balls will slowly become pitted from this electrical discharge, thus promoting premature failure of the main bearing. The ground strap prevents this from occurring by providing a proper electrical discharge path from the cam and rotational parts of the machine down to the grounded base cabinet of the filler. Ensure that the machine base is properly grounded.

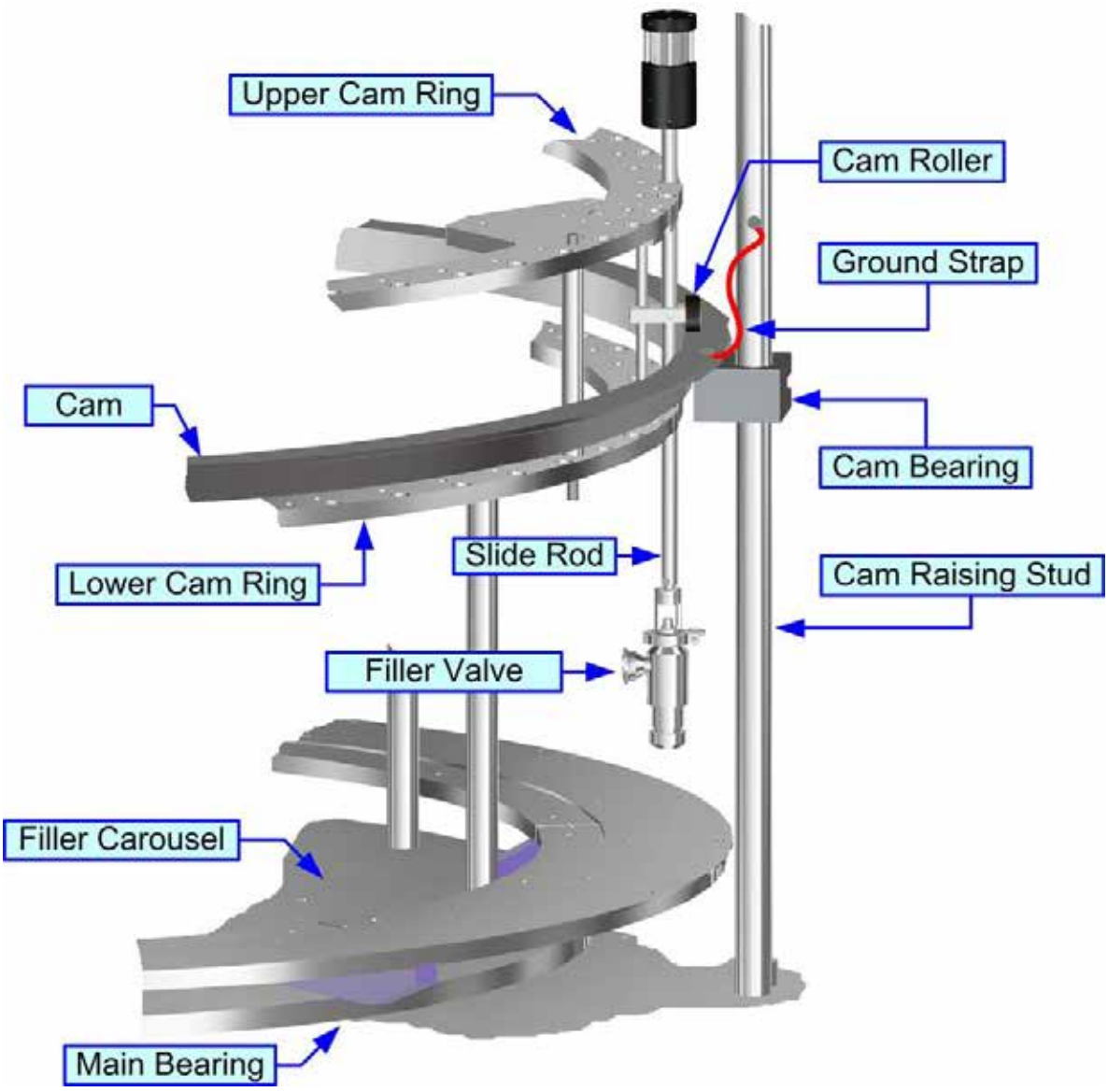


Figure 4-11:*Filler Cam Bearings & Ground Strap*

Rotary Union Rebuild

1. Remove clamps and gaskets from the top and bottom of the rotary union. Lift away the rotary union.

> WARNING: ENSURE THE LIQUID MANIFOLD IS SUPPORTED BEFORE RELEASING ITS MOUNTING HARDWARE.

2. Pry snap ring (1, Diagram A) from rotary union (2) using a large standard screwdriver (A).

> NOTE: To release the snap ring, pry inward, then upward on its free end and continue around its circumference until totally withdrawn.

3. Withdraw two ring spacer halves (3) from within rotary union (2).
4. Pry o-rings (4) and (5) from within rotary union (2) using a jewelers standard screwdriver (B).
   Discard removed o-rings.
5. Place a flat bar onto the rim of rotary union (2, Diagram B) and pry ferrule (6) along with seal support (7) and snap ring (8) from union (2) using large standard screwdriver (A).

> NOTE: Relocate the bar and screwdriver to different quadrants around the ferrule's flange to prevent binding while prying upward.

6. Inspect the sleeve surface of ferrule (6) for wear grooves.

> NOTE: Run a fingernail down the ferrule's sleeve to determine if wear grooves are present. If grooves are deep enough to be noticed, the ferrule is to be replaced.

7. If grooves are present, remove snap ring (8) followed by seal support (7) from ferrule (6).
8. Insert seal support (7) onto replacement ferrule (6) and secure with snap ring (8).

> NOTE: A properly installed seal support will be oriented so that its smaller outside diameter will face the ferrule's flange.

9. Flip rotary union (2) and manually withdraw one tri-lobe seal (9) and one quad seal (10). Discard seals.
10. Tap two bearing assemblies (11) and one spacer (12) from within rotary union (2) using brass bar (C).

> NOTE: Begin with the outer-most bearing assembly and using the brass bar and a hammer, tap around its circumference to prevent binding as being removed. Manually withdraw the spacer, then tap out the remaining bearing assembly.

> CAUTION: EXERCISE CARE WHEN TAPPING OUT THE BEARING ASSEMBLIES TO PREVENT BURRS AND SCRATCHES FROM OCCURRING ON THEIR FERRULE CONTACT SURFACES.

11. Test each removed bearing assembly (11) for wear and grit. Discard as necessary.

Rotary Union Rebuild

NOTE: To test the removed bearing for wear or grit, hold its inner ring while spinning its outer ring. If any snagging is noticed, the bearing assembly is to be replaced. The outer ring should spin freely.

12. Thoroughly clean the interior of rotary union (2).

NOTE: Use a rag to wipe all grease and foreign matter from the unit's interior surfaces.

13. Brush grease onto the interior surfaces of rotary union (2) until thoroughly covered.

NOTE: Only use food grade grease and apply using an approximately one inch wide paint or basting brush. Ensure that loose brush bristles do not contaminate the brushed on grease.

14. Insert two bearing assemblies (11) into rotary union (2) separated by spacer (12).

NOTE: The orientation of the bearings assemblies and the spacer is unimportant in their installation. The spacer must only separate the two bearings.

15. Apply replacement quad seal (10) and tri-lobe seal (9) into their respective grooves within union (2).

NOTE: The orientation of the two seals is unimportant in their installation. The tri-lobe seal (9) is to be inserted into the groove located closest to the ferrule's flange and the quad seal (10), further into the rotary union.

16. Brush grease onto all exposed interior surfaces within rotary union (2) until thoroughly covered

NOTE: Only use food grade grease.

17. Brush grease onto the exterior of ferrule sleeve (6).
18. Insert ferrule assembly (6, 7, 8) into rotary union until it makes contact with the first tri-lobe seal (9).
19. Using jeweler's screwdriver, pull edge of tri-lobe seal (9) back so that ferrule may continue to travel.

CAUTION: EXERCISE CARE IN PRYING BACK THE SEALS EDGE TO PREVENT DAMAGE.

20. Repeat step 19 so that ferrule (6) may continue to travel past quad seal (10).
21. Place a plate onto the flange of ferrule (6) and tap with a hammer until the ferrule is fully inserted.

NOTE: Tap the ferrule down in a manner as to prevent binding.

22. Apply o-ring (5, Diagram A) onto its respective groove of seal support (8), then press into the groove using large screwdriver (A).

NOTE: Press the o-ring into the groove at one inch intervals around the entire circumference and then repeat the process again to press in the remainder.

CAUTION: EXERCISE CARE IN PRESSING IN THE O-RING TO PREVENT DAMAGE.

Rotary Union Rebuild

23. Apply o-ring (4) onto its respective groove of seal support (8), then press into the groove using large screwdriver (A).

24. Insert two ring spacer halves (3) within rotary union (2) and secure using snap ring (1).

> **ATTENTION:** The break between the spacer halves is to be aligned with grease fittings (13) located on the rotary unions outer body. The break of the snap ring is to be positioned between the break of one of the spacers.

25. Install the assembly, apply extra grease, and test for functionality and leaks.

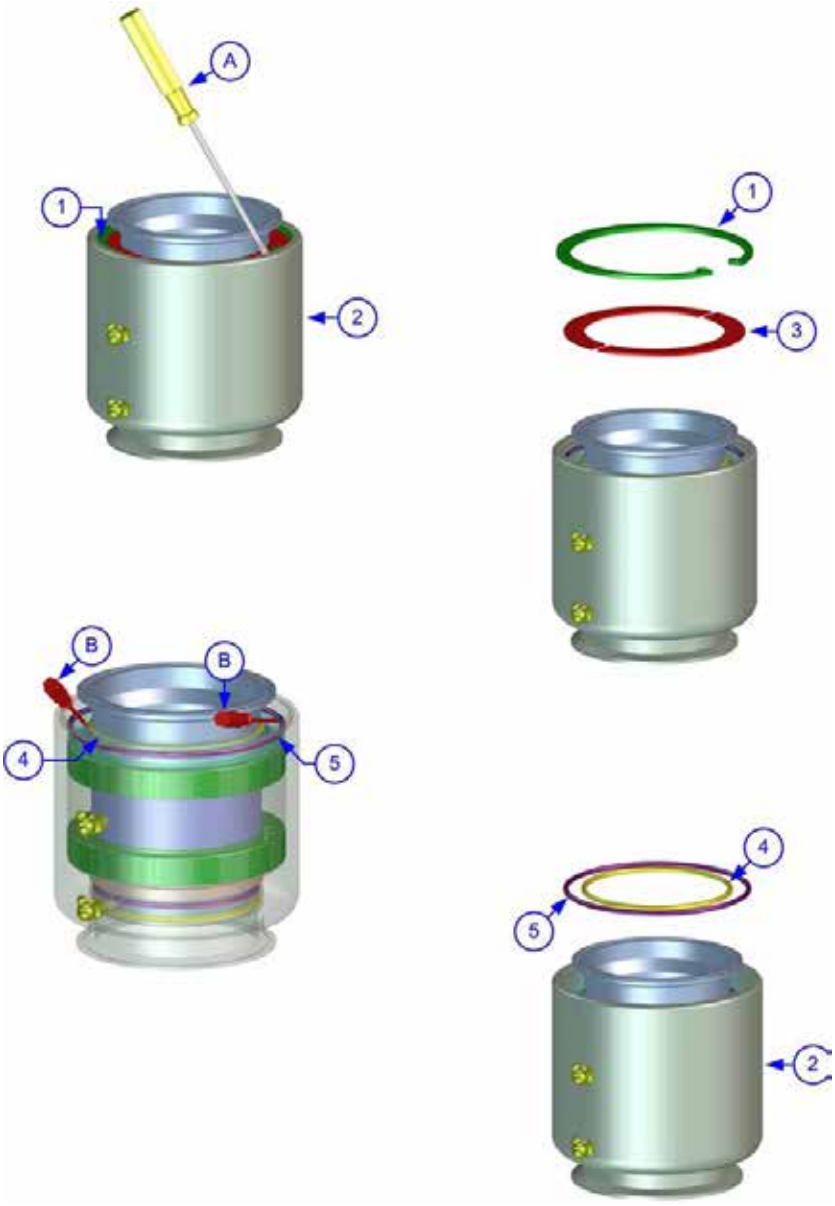


Diagram A

Rotary Union Rebuild

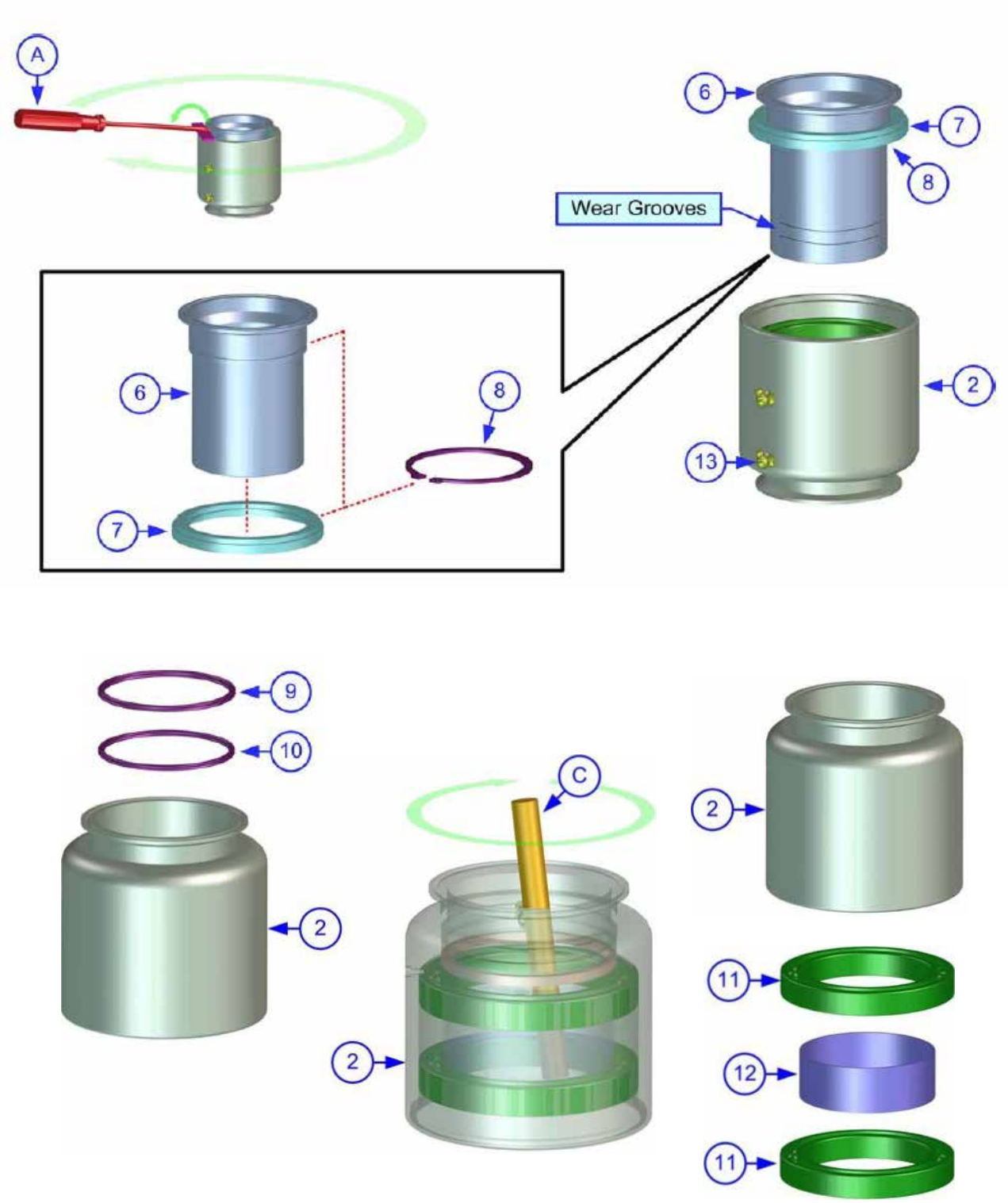


Diagram B

Filler Slide Rod Roller Replacement

1. Power down the machine.

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVIES.

2. Remove bolt (1) with lock washer (2) followed by indicator plate (3), flat washer (4), roller (5), bushing (6), and second flat washer (4) consecutively from block (7).
3. Discard worn components.
4. Assemble components bolt (1) with lock washer (2) followed by indicator plate (3), flat washer (4), roller (5), bushing (6), and second flat washer (4) consecutively to block (7).
5. Repeat step 2 through 4 for each applicable roller assembly.
6. Restore power and test cycle machine.

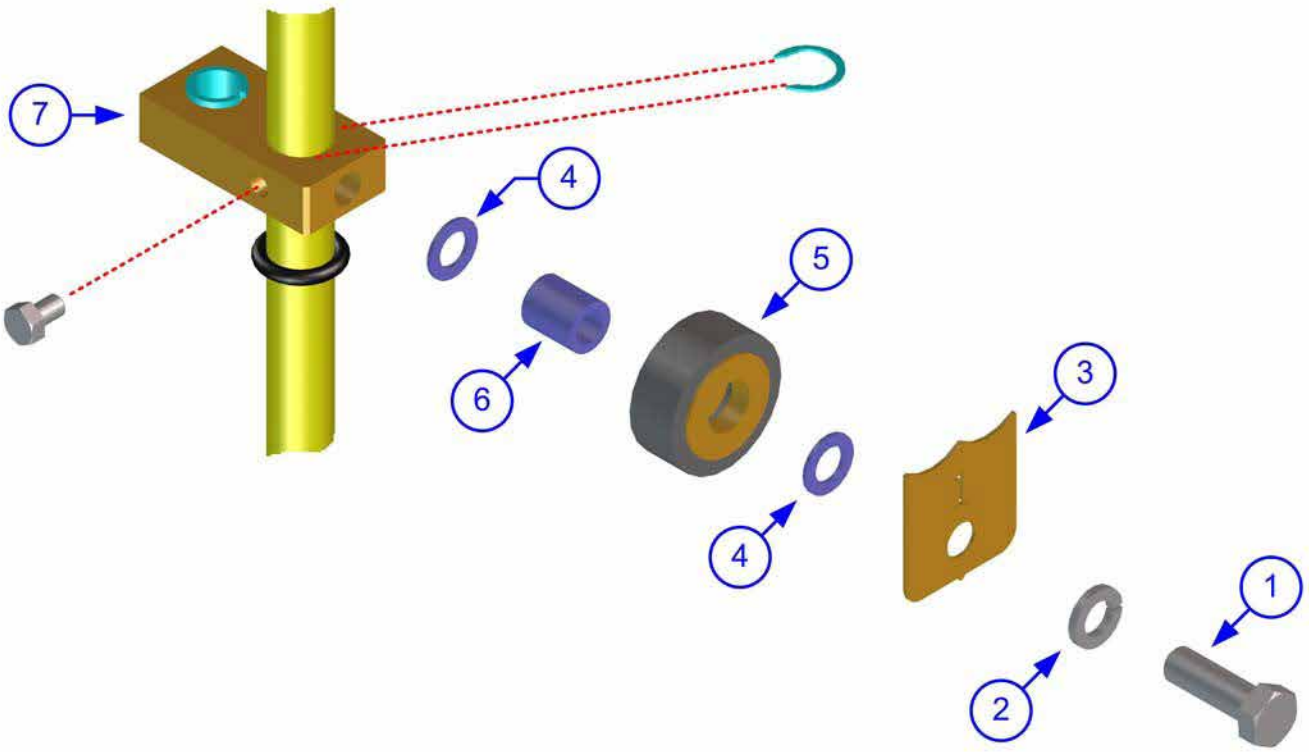


Figure 4-12:*Filler Slide Rod Replacement*

Proximity Switch Replacement

1. Power down the machine and remove pneumatic supply.

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVIES.

2. Locate defective proximity switch (1).
3. Unscrew power cord (2) from defective switch (1).
4. Unscrew front nut (3) securing defective switch (1) to bracket (4).
5. Withdraw defective switch (1) from bracket (4).
6. Adjust rear nut (5) of replacement switch (1) to an equal distance from the sensor's front edge as that of defective switch (1).
7. Insert replacement switch (1) into bracket (4) so that rear nut (5) rests against bracket (4).

NOTE: A properly installed switch will be oriented so that its sensor faces the surface to be detected.

8. Secure replacement switch (1) to bracket (4) from the front using nut (3).
9. Thread power cord (2) onto switch (1).
10. Restore power and pneumatic supply to the machine and test cycle to ensure proper function.

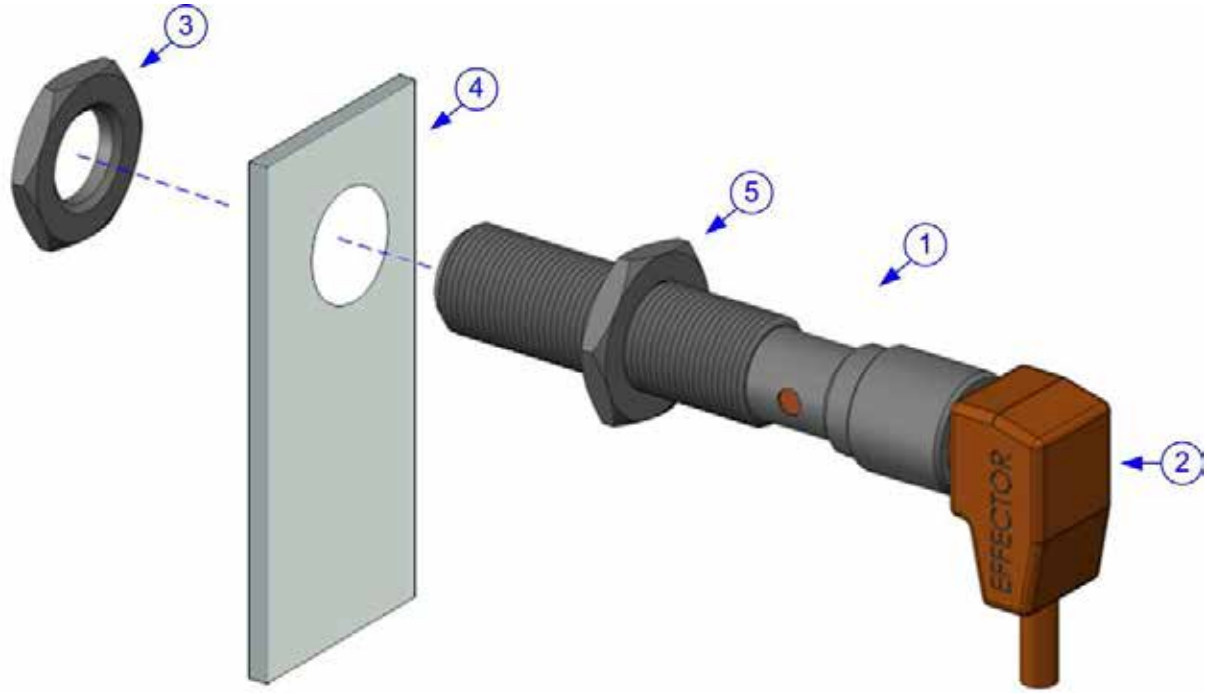


Figure 4-13:*Proximity Switch Replacement*

Roller Chain Replacement

1. Power down the machine and remove pneumatic supply.

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVIES.

2. Open cabinet doors to access roller chain (1).
3. Note the route of roller chain (1) to be replaced.
4. Loosen at least one chain tensioner (2) to release roller chain (1) tension.
5. Locate the connector link on chain (1).
6. Detach retaining clip (3) and withdraw female connector (4) from male connector (5).
7. Withdraw male connector (5) from worn chain (1).
8. Remove worn chain (1) from sprockets (6) and apply replacement chain (1) in its place.
9. Insert male connector (7) to connect each end of roller chain (1), apply female connector (4), and secure using clip (3).
10. Manually maneuver adjustable chain tensioner (2) inward to increase roller chain (1) tension.
11. Lubricate chain as directed in the Preventive Maintenance unit of this manual.
12. Restore power to the machine and test cycle.

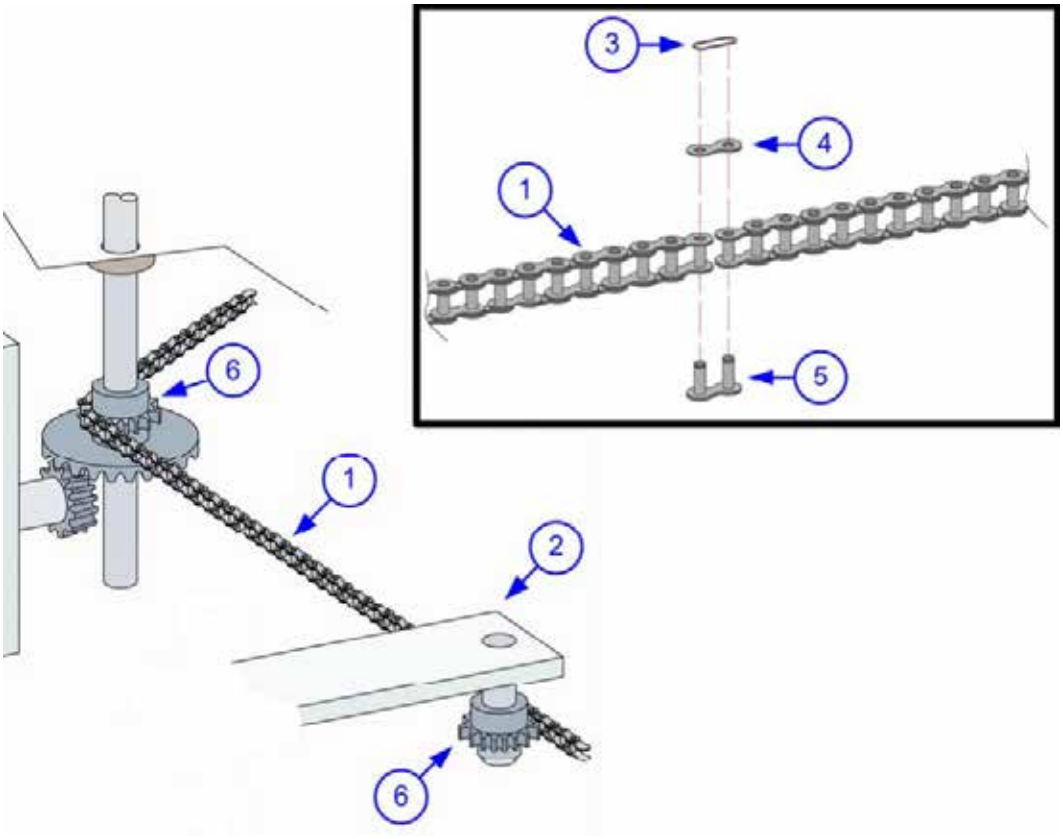


Figure 4-14:*Roller Chain Replacement*

Capper Spindle Drive Belt Replacement

1. Power down the machine.

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVIES.

2. Loosen four set nuts/bolts (1) securing motor/gearbox (2) to mounting plate (3).
3. Manually move motor/gearbox (3) inward to relieve tension on worn drive belt (4) between pulleys (A) and (B).
4. Remove two bolts (5) securing bearing assembly (6) to spacers (7). Lift away assembly (6).
5. Withdraw worn drive belt (4) from pulleys (A) and (B) and install replacement belt (4) in its place.
6. Apply bearing assembly (6) onto spindle (9) and secure to spacers (8) using two bolts (5).
7. Manually maneuver motor/gearbox (2) outward to provide tension on replacement belt (4) between pulleys (B) and (A).

NOTE: A properly adjusted belt will be tensioned so as to prevent slippage, but not provide excessive drag on the drive mechanisms.

8. Tighten four set nuts/bolts (1) to secure motor/gearbox (2) in position on mounting plate (3).

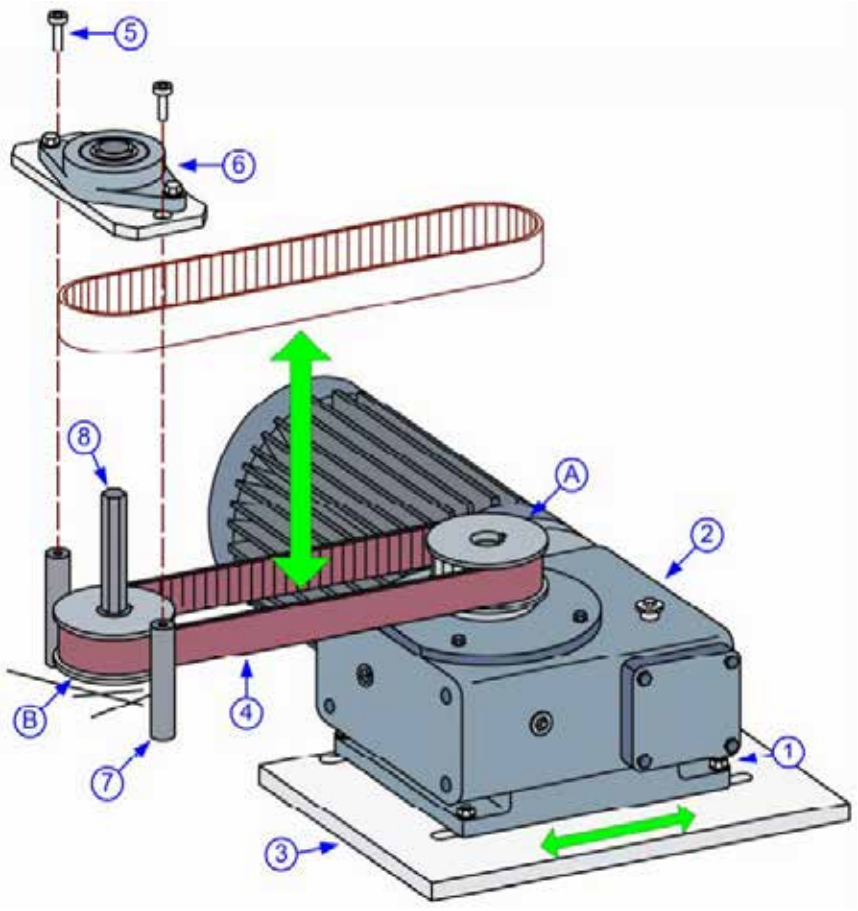


Figure 4-15:*Capper Spindle Drive Belt Replacement*

Star Drive Belt Replacement

1. Power down the machine.

> **WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVIES.**

2. Loosen belt tensioner (not shown) to loosen worn belt (1).
3. Remove bolt (2) along with proximity sensor assembly (3) and bolt (4) from flanged bearing (5).
4. Loosen set collar (6) and manually slide upward followed by flanged bearing (5).
5. Manipulate worn belt (1) downward from pulley (A) and through the gap under flanged bearing (5).
6. Remove four bolts (7) securing cover (8) to table top (9). Lift away cover (8).
7. Loosen six bolts (10) on bushing (11) to free gear (12).
8. Loosen two bolts (13) on pulley assembly (B).
9. Loosen all set collars (14) and lift upward on drive shaft (15) until fully clear of motor (16).
10. Manipulate worn belt (1) downward from pulley (B) and through the gap between drive shaft (15) and motor (6).
11. Compare worn belt (1) with its replacement to ensure they are the same. Discard worn belt (1).
12. Manipulate replacement belt (1) through the gap between motor (16) and drive shaft (15).
13. Lower drive shaft (15) then reposition all set collars (14) and pulley (B), gear (12).
14. Tighten two bolts (13) to secure pulley (B) and six bolts (10) to secure gear (12).
15. Manipulate the opposite end of belt (1) through the gap beneath flanged bearing (5).
16. Lower flanged bearing (5) and set collar (6). Tighten set collar (6).
17. Secure flange bearing (5) using bolt (4) and bolt (2) with proximity sensor assembly (3) attached.
18. Manually apply replacement belt (1) to pulleys (B) and (A) and tensioner (not shown).
19. Adjust tensioner (not shown) outward to provide tension on replacement belt (1) between pulleys (B) and (A). Tighten tensioner (not shown).

> NOTE: A properly adjusted belt will be tensioned so as to prevent slippage, but not provide excessive drag on the drive mechanisms.

20. Restore power to machine and test cycle to ensure proper function.

Star Drive Belt Replacement

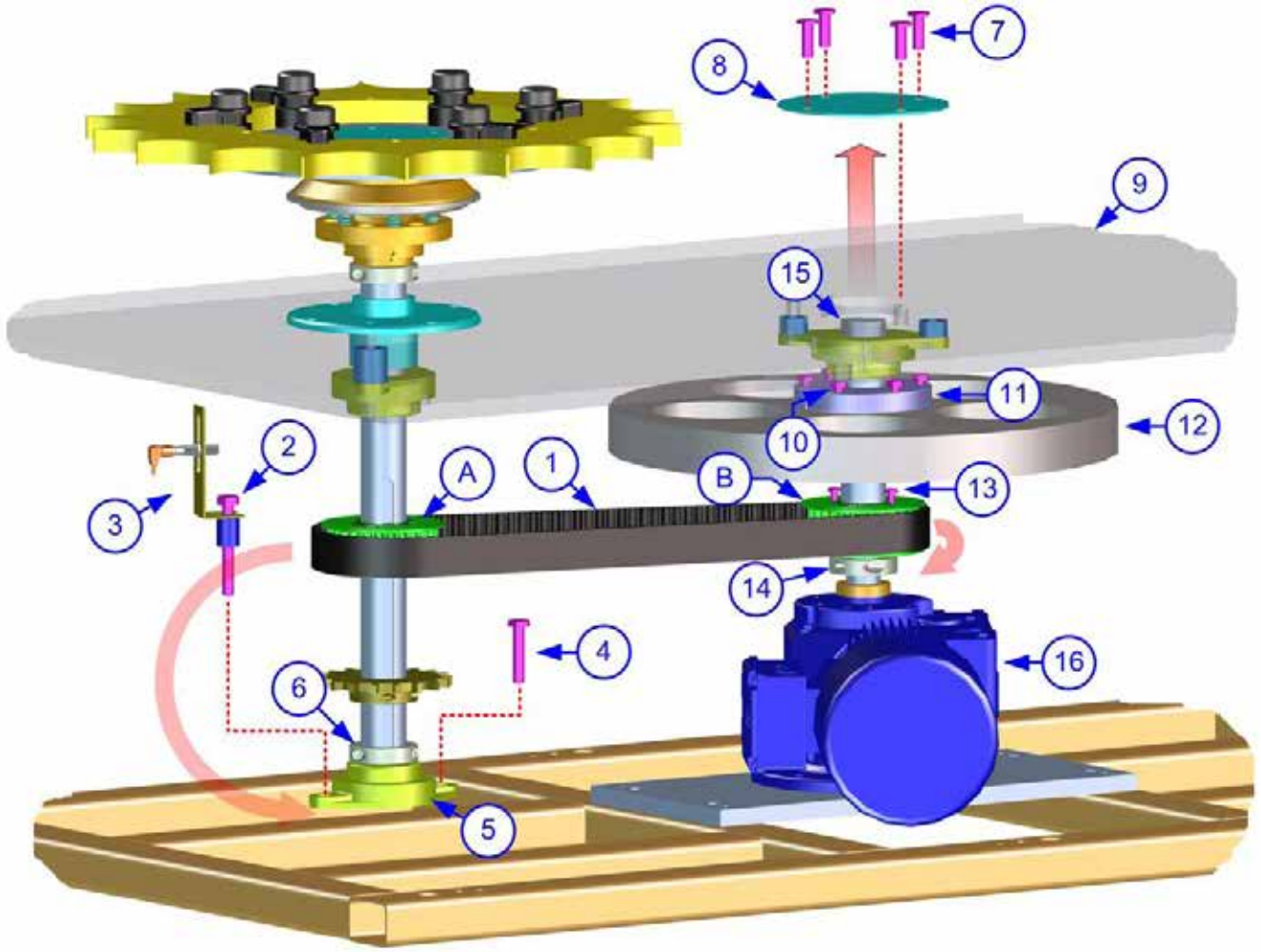


Figure 4-16:*Star Drive Belt Replacement*

Filler Hose Replacement

1. Power down the machine and remove product supply to the machine.

WARNING: ENSURE THE POWER SUPPLY IS DISCONNECTED AND FOLLOW ALL LOCKOUT/TAGOUT PROCEDURES BEFORE PERFORMING ANY MAINTENANCE ACTIVIES.

2. Remove the tri-clamp (1) from one end of the hose section (2) to be replaced.
3. Detach the ferruled hose section (2) along with ferrule (3) ferrule o-ring (4).
4. Repeat steps 2 and 3 for the opposite end of the hose.
5. Loosen hose clamps (5) from each end of hose (2) and detach each ferrule (3).
6. Thoroughly clean the fitting components.

NOTE: If necessary, use a stiff bristle brush and detergent to clean the components.

7. Determine the desired length of replacement hose (2) to be installed.

CAUTION: ONLY PURE FIT HOSE IS TO BE USED WITH PURE FIT HOSE FITTINGS. THE USE OF OTHER HOSE WILL RESULT IN VOIDED WARRANTIES AND POSSIBLE JOINT FAILURE.

8. Cleanly cut the replacement hose on each end at a 90 degree angle to its length.
9. Apply a hose clamp or crimp clamp (5) to each end of replacement hose (2).
10. Manually screw a ferrule (3) fully into each end of replacement hose (2).
11. Tighten hose clamps or crimp clamps (5) to secure ferrules (3).

NOTE: Hose clamps may be tightened using a screwdriver. A special tool sold by US Bottlers is required tighten crimp clamps.

12. Apply o-ring (4) to ferrule (3) and secure one end to the liquid system (6) using tri-clamp (1).
13. Repeat step 10 to secure the opposite end of replacement hose (2) to filler valve (7).
14. Repeat steps 2 through 10 for each hose (2) to be replaced.

CAUTION: ENSURE THAT EACH HOSE IS ROUTED SO AS TO PREVENT ABRASION, KINKING, AND PINCHING. THE HOSE MUST ALSO ALLOW THE FILLING VALVE TO FULLY RAISE AND LOWER WITHOUT APPLYING TENSION TO THE HOSE.

ATTENTION: Fully raise and lower each filling valve following hose replacement and observe for potential problems. Reroute hoses as necessary to remedy problem installations.

Filler Hose Replacement

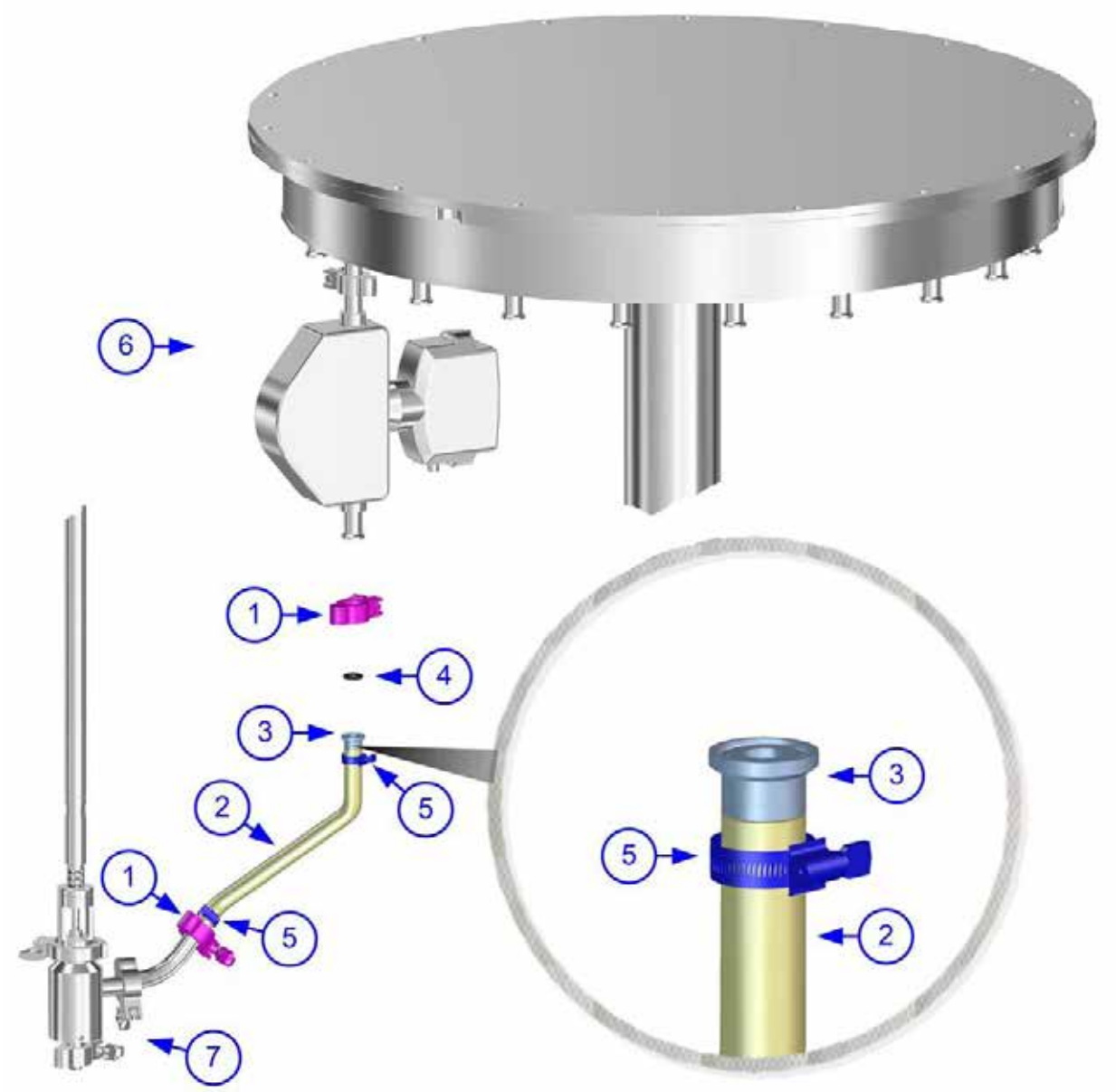


Figure 4-17:*Filler Hose Replacement*

Filler Slide Rod, Pillar, & Bushing Replacement

Pillar & Pillar Bushing

1. Remove filler valve (1) from slide rod (2).
2. Detach retaining clips (3) from each end of pillar (4).
3. Pivot roller block (5) so that pillar (4) clears rings (6) and (7). Withdraw pillar (4) from block (5).
4. Tap worn bushing (8) from block (5), then press replacement bushing (8) into roller block (5).
5. Insert pillar (4) into block (5), then pivot pillar (4) back between rings (6) and (7). Reapply retaining clips (3) to secure.

Slide Rod & Slide Rod Bushings

6. Detach retaining clip (9) from slide rod (2), then loosen setscrew (10) in roller block (5).
7. Withdraw slide rod (2) upward from upper ring (6), lower ring (7), roller block (5), and o-ring (11).
8. Tap bushings (12) from upper ring (6) and lower ring (7), then press in replacement bushings (12).
9. Insert slide rod (2) downward through upper ring (6), lower ring (7), roller block (5), o-ring (11).

NOTE: If replacing slide rod (2), be sure to install o-ring (13).

10. Install filler valve (1) to lower end of slide rod (2), then reattach hoses, etc.
11. Apply retaining clip (9) to slide rod (2) above roller block (5), then retighten setscrew (10) to secure roller block (5) against bottom side of clip (9).

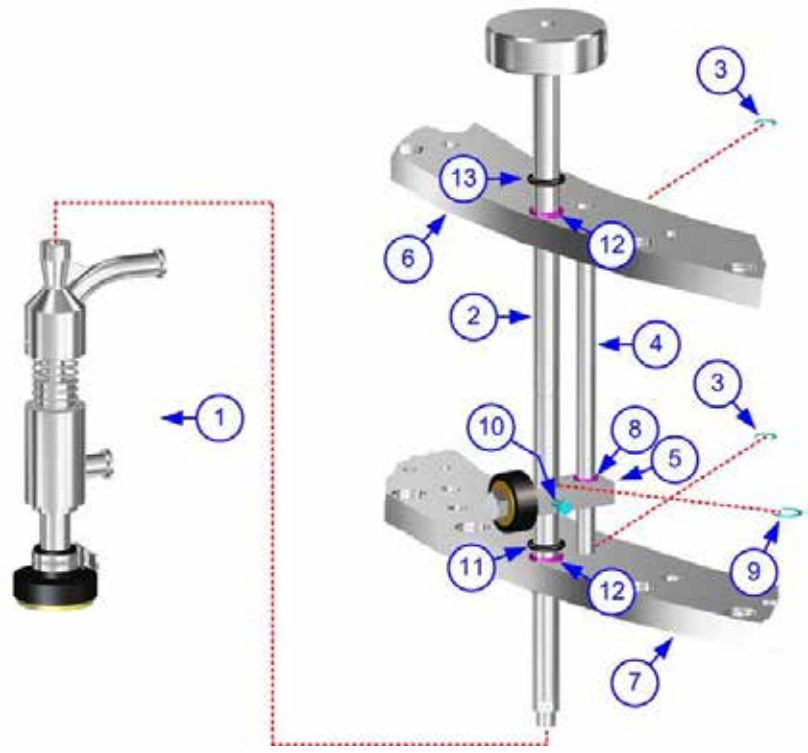


Figure 4-18:*Filler Slide Rod, Pillar, & Bushing Replacement*

Star Shaft Bearing Replacement

Star shafts vary in the components attached. The procedure below covers the most complex.

Upper Bearing

1. Remove star attachment.
2. Remove two setscrews (1) securing core plate assembly (2) to star shaft (3). Lift away core plate assembly (2).
3. Loosen or remove two screws (4) securing collar (5) to shaft (3). Lift away collar (5).
4. Remove two bolts with washers (6) securing worn upper bearing (7). Discard worn bearing (7).
5. Insert replacement bearing (7) onto shaft (3) and secure using two bolts with washers (6).
6. Insert collar (5) onto shaft (3) and secure using two screws (4).
7. Insert core plate assembly (2) onto shaft (3) and secure using two setscrews (1).

Lower Bearing

8. Remove two bolts with washers (8) along with proximity sensor bracket (9), bracket spacers (10), and bearing spacers (11).
9. Lower worn bearing (12) from shaft (3) and insert replacement bearing (12) in its place.

> NOTE: If spacers (12) are not present, lift upward on the shaft to provide the space needed to insert bearing (13) onto shaft (4).

10. Apply spacers (11) beneath bearing (12) and spacers (10) above, followed by brackets (9). Secure using bolts with washers (8).

> **ATTENTION:** After replacing either bearing, reset the star timing.

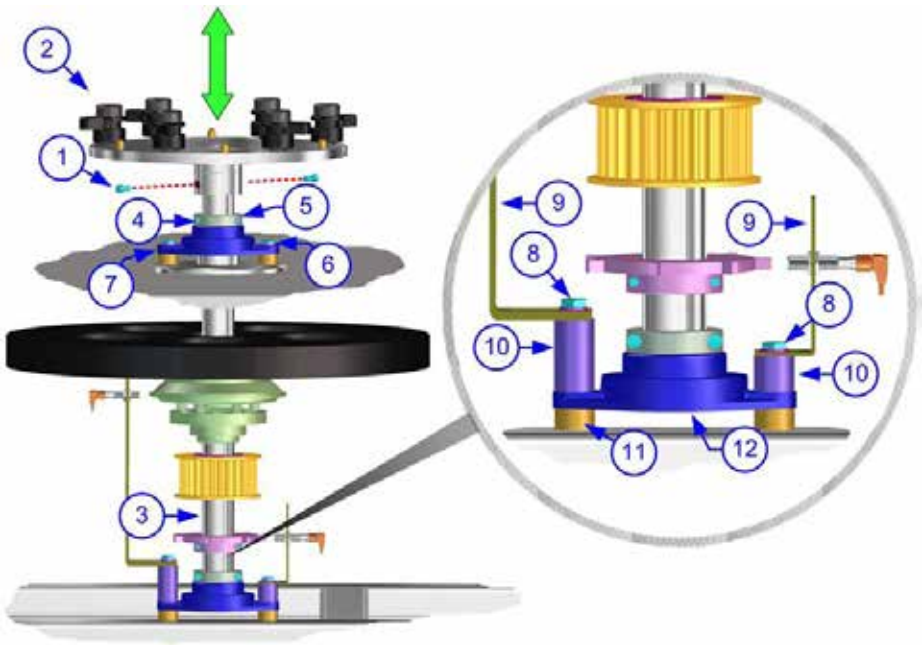


Figure 4-19:*CStar Shaft Bearing Replacement*

Steam Wand Cleaning

Please refer to following information when using the steam wand for the USB filler and WAB Rinser.

The machine can be cleaned with the steam wand, as long as responsible qualified personnel with adequate training follow set protocol.

> **NOTE:** The machine for Sugarlands can be cleaned with a steam wand set to the pressure of 1 bar.

The components used in the construction of the machine can withstand the temperature required for the steam wand cleaning except for the fiber optic sensors used for bottle present. The fiber optic sensors can be damaged by the steam and precaution must be taken to protect them during any cleaning.

Other components that can be damaged by excessive steam and pressure spray are:

- Bearings: The bearings used are either SS or have a protective coating however the use of high pressure/high temperature spray can breach the bearing seals allowing liquid to enter the bearing that will result in a shortened life span.
- Gearboxes: The gearboxes used are wash-down rated however the use of high pressure/high temperature spray can breach the gearbox seals allowing liquid to enter the gearbox that will result in a shortened life span.
- Electrical panels/junction boxes: The electrical panels and junction boxes mounted on the tri-block are NEMA 4X rating which are designed for incident hose directed water not continuous blast from a steam wand.
- Rubber Parts: As much as possible, avoid any rubber material parts.

*** For AROL Capper specifications, refer to the AROL documentation***

Troubleshooting

122300 WAB Rinser / USB PG Filler / AROL Capper

Troubleshooting Procedures

This section provides information intended to help evaluate and resolve various performance problems.

Immediately contact the Service Department of US Bottlers Machinery for issues not listed here or issues that your service personnel cannot remedy.

TROUBLESHOOTING TABLE	
SYMPTOM	**POSSIBLE CAUSE/SOLUTION**
Gravity Filler	
Containers not properly separated by feed worm.	• Incorrect feed worm in use: Ensure the feed worm and the container type match. • Incorrect clearance between worm and limit rail: Ensure positioning with proper spacing. • Leading edge of worm excessively worn: Order replacement sending three sample containers to USB. • Conveyor speed set too slow or fast: Adjust to work in unison with the feed worm.
Containers not properly entering feed star.	• Worm improperly timed: Adjust the timing speed of the feed worm. • Conveyor speed too fast or slow: Adjust to work in unison with the feed worm. • Incorrect feed worm in use: Ensure the feed worm and the container type match. • Incorrect infeed star in use: Ensure the infeed star and the container type match. • Feed worm and limit rail improperly positioned: Reposition the feed worm. Reposition the limit rail. • Limit switch incorrectly set: Reset as necessary. • Uneven worm crossover plate: Check for smoothness and shim if needed.
Container not properly leaving filler.	• Improper timing of discharge star: Adjust discharge star timing. • Improper setting of discharge guide finger: Adjust guide finger setting. • Improper conveyor speed: Adjust to work in unison with the feed worm. • Bent filling tube: Check straightness and replace as necessary. • Improper crossover plate height: Ensure flush height, shim or adjust shim as required.

Table 5-1: ***Troubleshooting Table (1 of 7)***

Filling tube not centering on bottle opening.	• Feed star improperly adjusted: Adjust as necessary. • Filling stems are too long or short: Refer to attachment reference to ensure correct setup. • Incorrect center guide: Refer to attachment reference to ensure correct setup. • Infeed guide finger is improperly set: Adjust as necessary. • Bent or worn filling tubes: Check straightness and replace as necessary. • Container centering pockets out of position: Realign with valve assembly. • Worn crossover plate: Replace as necessary. • Worn tube slide bushings: Replace. • Failure to use infeed guide finger on non-round containers: Install. • Cam improperly adjusted: Adjust.
Erratic fill levels.	• Incorrectly positioned seals: Reposition. • Seals leaking air at container's top: • Seals leaking air around outer tube: • Air entrapped in supply manifold: • Excessive product pressure: • Restricted overflow: • Bent inner and outer filling tubes: • Mal-adjusted or damaged shutoff shoe: • Aerated product:
Low fill volume.	• Slow product flow: • Machine speed too high: • Shoe not properly adjusted: • Seal and clamp not properly set: • Overflow system clogged: • Filling tube supply hose restricted:
High fill volume.	• Air leak between container and tube: Replace seal as required. • Seal incorrectly set: Adjust as required.

Table 5-2:*Troubleshooting Table (2 of 7)*

Excessive foam during fill.	• Product liquid entering container at wrong position: Return to manufacturer for testing/replacement. • Product pressure and tube tip liquid velocity too high: Reduce product pressure. Alter first/second stage fill levels. • Aerated overflow mixing with product supply: • Pressure feeding tank too high: • Erratic supply tank level control: • Machine speed too high relative to fill speed: • Incorrect filling stem design:
Liquid spillage at discharge.	• Fill level too high: • Transfer at crossover not smooth: • Conveyor speed too fast or slow: • Discharge rail improperly set: • Discharge star not properly timed: • Lift cam extension causing tube to exit bottle too soon: • Drip pan too high above container top: • Choke neck bottle detector too far from discharge star:
Liquid spraying out of container top during tube withdrawal.	• Fatigued tube springs: • Bent inner and outer tubes: • Supply manifold shoe improperly set: • Excessive product pressure: • Restricted overflow:
Erratic supply tank levels.	• Product supply capacity too high: • Non-controllable supply product pump: • Product pump pressure too high for control tank throttling valve: • Improper setting of pneumatic control valve actuator: • Electronic sensors place too far apart:
Foreign material in filled containers.	• Plastic shavings: Worn supply manifold shoe. • Rubber shavings: Worn o-rings at tube tip.

Table 5-3:*Troubleshooting Table (3 of 7)*

Tube Drippage.	• Air leak at tube connector: Replace defective gasket at tube head. • Hoses overlapping: Re-arrange to eliminate problem. • Restricted overflow: • Overflow hoses too long: • Excessive product pressure: • Valve stem not properly closing: Replace valve seat o-ring. Check valve stroke for correct over travel. • Damaged inner tube: • Product tube holes too large or tube too long: Return to manufacturer for testing/replacement. • Cam and tube action at discharge too rough: Adjust cam so the roller slide at discharge contacts cam at shallowest angle for smoothest release. • Damaged product valve seat: Visually inspect for nicks or foreign material. Replace as required.
Difficult cam adjustment.	• Vertical cam stud shaft corroded or dirty: • Improper roller chain tension: • Worn bearings on cam adjusting shaft: • Worn bevel gear set:
Jerking action while machine rotates.	• Slides binding on lift cam:
Noise in center of machine.	• Main bearing failure: Replace and ensure proper lubrication in future.
Slide rollers skipping/sliding on cam.	• Worn roller: Locate and replace all rollers as required.
Noise at certain station.	• Binding slide: • Interference between rotating table and a fixed piece: • Cam stud bolt hitting cam: • Worn or high point in a gear: • Star shaft or pinion gear shaft bushing or bearing malformed:
Worm drive backlash.	• Excessive backlash in worm gearbox: • Sloppiness in universal joint: • Sloppiness in parallel shaft reduction box: • Play in keys between timing belt sprockets and drive shafts: • Worn bevel gear: • Stretched roller chain:

Table 5-4:*Troubleshooting Table (4 of 7)*

Rotary Capper (*see AROL documentation for Capper troubleshooting procedures*)	
Container not leaving capper properly.	NA
Cap not centering on container opening.	NA
Low cap torque.	NA
Scored cap.	NA
Dropping caps.	NA

Table 5-5:*Troubleshooting Table (5 of 7)*

Missing caps.	• Chuck chute jammed: Clear chute. • Cap gate not releasing caps: Incorrect gate assembly. Gate air lines not connected. Photo eye not sensing container in worm. Timing sensor on discharge star shaft defective. • Incorrect feed worm: Install correct worm. • Use of incorrect attachments: Ensure correct attachments for product. • Incorrect cap for container and attachments: Load proper caps.
General Machine	
Rocking condition.	• Worn keyways on drive shaft: Replace as required. • Loose keyless bushings: • Worn detent clutch: Replace as required. • Worn Drive pinion gear/bull gear: Replace as required. • Worn coupling parts: Replace as required. • Worn main gearbox components: Rebuild or replace as required. • Detent clutch engaging and dis-engaging:
Stars loose on shafts.	• Worn key or keyway on feed star flanges: replace as required. • Loose or worn key in belt sprocket or pinion gear driving star shaft: • Worn bushings in star shaft bearings: Replace as required. • Worn star shaft: Replace as required. • Driving gear or bull gear worn or missing teeth: Replace as required.
Main drive gearbox failure.	• Improper lubrication type or frequency: Change as required. • Product or cleaning solution entering gearbox due to faulty seal: Replace all components as required..
Unable to turn machine.	• Prime motor has inadequate power: • Main machine clutch malfunctioning: • Slides binding at lift cam: • Inadequate clearance between cabinet top and rotary tank base: Failure in main bearing. • Worm binding:

Table 5-6:*Troubleshooting Table (6 of 7)*

Poor bottle handling.	• Incorrect attachments for container: Refer to attachment reference and install correct attachments. • Worn attachments: Replace as required. • Attachments improperly set: Adjust as required. • Worn crossover plate: Replace as required. • Worn bedplate covers: Replace as required. • Bent filler tubes: Straighten or replace. • Variations in containers: Verify container quality. • Container neck not square with base: Verify container quality. • Uneven container bottom: Verify container quality. • Infeed clearance too great: Adjust as required. • Center guide improperly positioned: • Conveyor rails too loose or tight: • Rail improperly positioned: • Incorrect worm pitch:
Skipping conveyor.	• Conveyor requires lubrication: • Worn return rail and conveyor wear strips: Replace as required.
Machine as a whole goes out of time.	• Improper roller chain tension: Check and adjust as required. • Worn roller chains and/or sprockets: Replace as required. • Improper timing belt tension: Check and adjust as required. • Gear tooth damage: Determine cause. Replace as required. • Damaged electric/electronic leads and circuits: Repair or replace as required.
Premature failure of belt bearing.	• Excessive tension on belts: Adjust as required.

Table 5-7:*Troubleshooting Table (7 of 7)*

Reducing Foam and Aeration

This section provides useful information to foam and aeration during the process of filling the container.

Supply
A larger tank on the supply side will allow the product to settle longer if it is subject to easier foaming in piping transfers. The product level should be kept high in the tank and a baffle system used to help stabilize product on the opposite side from the inlet. Thepump should be run as slow as possible and large piping will help reduce turbulence andvelocity. Ensure that unnecessary bends, filters, etc; are not in the piping that can add to the agitation on the way to the manifold.

The supply control throttling valve should be checked to ensure that it can maintain control of the liquid level within the tank at a +/- 1/2-inch range. Excessive up and down conditions within the tank cause aeration of the product and also affects the way the product pump system handles the incoming pressure. The pump suction head variance can produce significant problems in maintaining final container liquid level control. Also, if the liquid level in the tank is cycling up and down, it shows that the product flow rate into the tank is changing drastically and inconsistently. It is far better for the customer to provide a liquid supply system that sends liquid to the supply tank at a rate just slightly faster than the requirements of the machine. Under these conditions, the throttling valve can work at a near open position, maintaining an almost perfect flow of liquid matching the rate the filler discharges the liquid into the containers.

Machine Speed
Ensure the machine has time to clear the foam off the top. Do not run the machine so fast that the bottles are filled but the foam isn't cleared before engaging the shoe.

Outer Tube and Inner Tube Clearance
Ensure the length of the outer tube relative to the inner tube allows the gap between the two permits plenty of clearance for the overflow path. In the case of a spiral inner tube, ensure this path is sufficient. If the product has some pulp, this may be creating a restriction or clogging that will prevent this natural flow from occurring.

Choking
Ensure that the tube is not swirling the product flow in the top of the container. It should be flowing smoothly across the inside of the container for a very gentle fill. If it is too high in the neck, it may also be trapping air in the container and not allowing it to freely pass.

Restricted Overflow Leg
If the overflow hose is not clearing, this can cause delays in the fill cycle. Ensure the overflow tank is not back pressuring the liquid system.

Return Mixing With Supply
If the foam seems to build up in the run or fill levels, and become more aerated the longer the run, this means the overflow is affecting the supply. The overflow is a combination of product and air from the evacuated bottle; therefore it must be allowed to settle before being re-introduced into the supply stream. The filler can only fill clean product if it is delivered clean product.

Cleaning
The pumps need not be dismantled for cleaning and cleaning solutions can be flushed through the tank and the pump. The seals and impellers in the pump should be inspected weekly. If the pump seals begin to wear, the pump will begin to suck air into the liquid, thus aerating the product.

Reducing Product Overflow

There are several methods that may be employed to reduce product overflow. The application of a restrictor valve mounted to the tee at the top of the filler where product enters the filler may be used to restrict flow when overflow conditions are at the highest. This is when the filling valve is open and the machine stops, or when there are not bottles present. In these cases, use the restrictor valve or bi-flow valves to radically restrict flow and then open these when flow is required.

If the machine is designed for gallons but only now runs 10 oz. size, increase the shoe or add restrictors to the supply hoses to reduce flow by increasing resistance. Ball valves are also sometimes used on the hose for variable shutoff.

Ensure the pump is not running too high. Accelerating the pump speed does not increase flow nor lead to faster fills.

CAUTION: ATTEMPTING TO REDUCE OVERFLOW BY CHANGING PUMP SPEED IS NOT RECOMMENDED. THIS CAN RESULT IN LOSS OF FLOW AND AIR ENTRAPMENT IN THE VERTICAL PIPING. IT CAN ALSO RESULT IN MORE AGITATION AND FOAMING WHICH REQUIRES MORE TIME TO SETTLE.

With some insightful programming, the customer can do a lot of things to reduce the rate of return. For example, the overflow tank pump can be used to recirculate the product to the supply tank if the temperature allows. The bottle stop control can interface with the restrictor valve to slow product flow. Consult with the service team at US Bottlers for suggestions that would apply to your type of filler.

Reducing Product Overflow

With lighter-weight containers and especially with higher fill temperatures, plastic containers tend to change shape with less pressure being exerted upon them. The top weight is necessary to maintain a seal on the finish of the container, but this can be reduced by placing a spacer onto the slide rod below the weigh to rest upon the upper ring. Cutting this spacer to the correct length, will prevent the container from collapsing. An o-ring under this spacer will also help cushion the weight as it falls off the cam and onto this stop.

Stopping the filler with containers in the machine also leads to ballooning containers. So take care to avoid this condition. Spraying cold water on the containers to keep them stable can lead to thermal shock and separation if made from layered plastics. It can also lead to thermal shock in the filling valve hoses due to the same reason. If your bottle supplier approves of spraying the containers, be careful not to cool the outside of the hose when running hot liquids.

Round containers will always be more stable than rectangular shapes because the pressure inside is uniform and pushing against the weaker sides trying to create a round shape. A round bottle is already preformed into that shape.

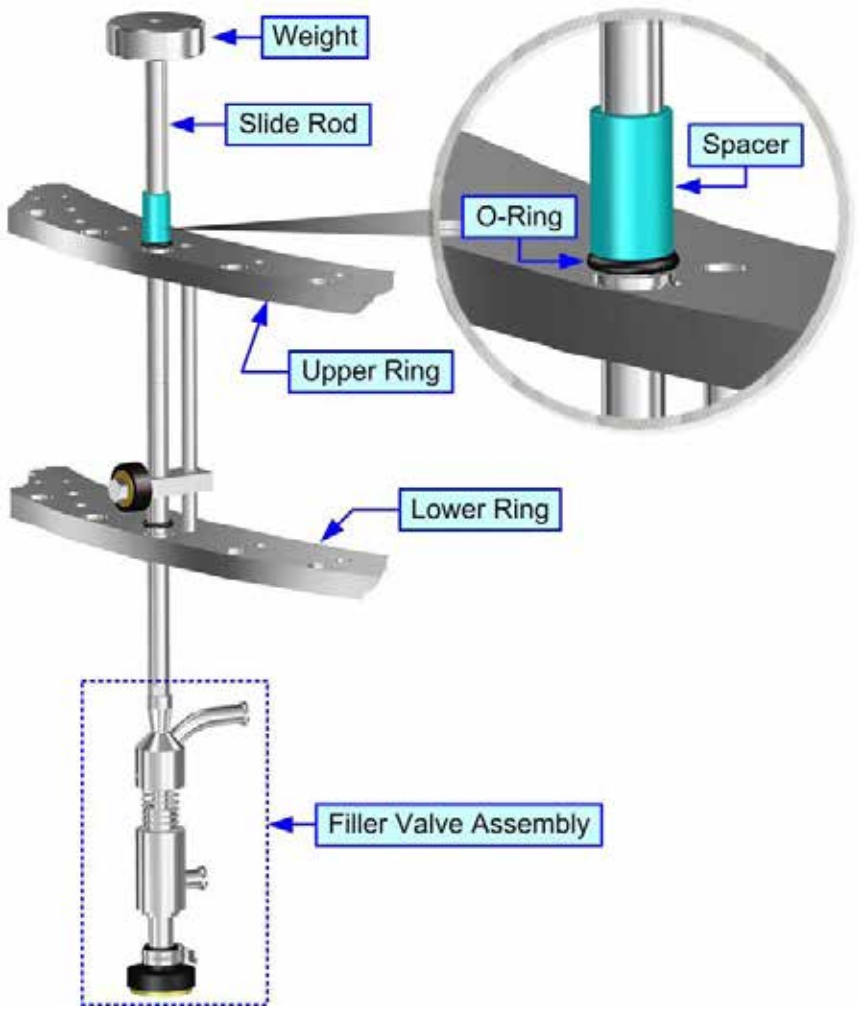


Figure 5-1:*Reducing Plastic Bottle Expansion*

Feed Worm/Conveyor Timing

Loosen the socket head setscrew/s on the collar located in the worm driving flange so that the feed worm can be revolved by hand.

Time the feed worm so that when a container is in the last thread of the worm (closest thread to the feed star), and the machine is rotated by hand, the bottle moves into the pocket of the feed star with about 1/8 or 1/4 inch clearance behind the back of the preceding star pocket at the instant the last worm thread releases the container. When proper timing is achieved, retighten the setscrews.

> **NOTE:** Container shape differences may have an affect on the proper timing setting.

The conveyor speed is to be slightly faster than the final lead of the feed worm so the bottle is always held against the leading front edge of the worm.

Set the feed worm so that its smallest diameter is in line with the radius of the center guide. Adjust the worm bracket so as to achieve a smooth transition from the worm to the center guide. Adjust the feed worm parallel with the conveyor and the limit rail, and then retighten all setscrews.

> **NOTE:** Following feed worm adjustment, the limit switch may also require adjustment.

Detent Clutch Sensor Adjustment

This switch must be accurately positioned in order to register the disengagement of the clutch. Maximum movement of the clutch limit switch plate is less than sixty thousandths. Therefore, it is important that the detent be properly set to ensure that when the detent clutch does disengage and that it trips the limit switch (proximity sensor) that is wired into the operator panel to activate emergency stop conditions. This will be required since, at the point when the detent does disengage, the machinery is no longer synchronous with the rest of the packaging line.

To adjust the sensor, loosen the two set nuts and manually adjust the sensor both vertically and laterally. Adjust vertically to position the tip of the sensor directly adjacent to the end of the clutch limit plate. Adjust laterally to provide a 1/16" to 1/8" gap between the end of the limit plate and the tip of the sensor. When complete, retighten the two set nuts and test functionality by tripping the detent clutch and checking for the error of the machine's operator panel.

> **NOTE:** A properly set limit switch will only require a small amount of pressure to activate.

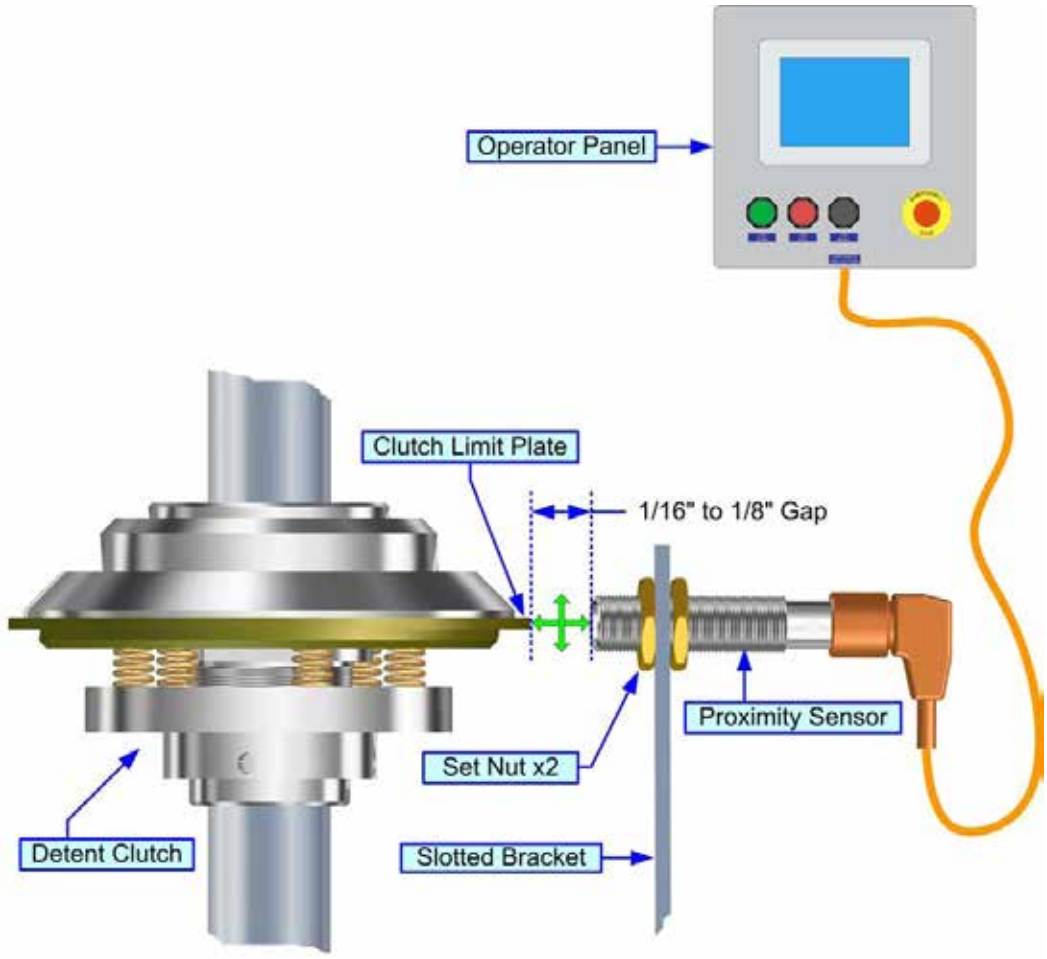


Figure 5-2:*Detent Clutch Sensor Adjustment*

Brim Filling

Often a customer will set up the sealer rubber on the end of the outer tube thereby not allowing an air space at the top of the container. This is termed a "brim fill". It is practically a standard in some customer's plants. However it leads to some concerns that should be noted here.

First of all, we cannot guarantee a brim fill or any fill less than 1/4" from the top. It leads to a significant likelihood of spillage when the tube is withdrawn and when the bottle transfers out of the filler. Spillage not only results in lost product but can lead to premature corrosion issues. Also, when the tube is pulled from the bottle, it hasn't air to replace it and can lead to a vacuum that can actually lift a bottle off of the table. This is why many sealer rubbers incorporate a thin raised ridge or "vacuum breaker" on the underside for these applications. If these breakers wear away they can lead to bottles being lifted and bent filling valves.

Some customers actually move the shoe out of position to squirt product into the bottle at the discharge to top off the container. Keep in mind, the machine is not designed to operate in this manner, but it has been used in this way by customers who wanted to strive for an overfilled final product.
If the same finish and fill heights can be standardized on from bottle to bottle, then this changeover can be made extremely quickly and efficiently.

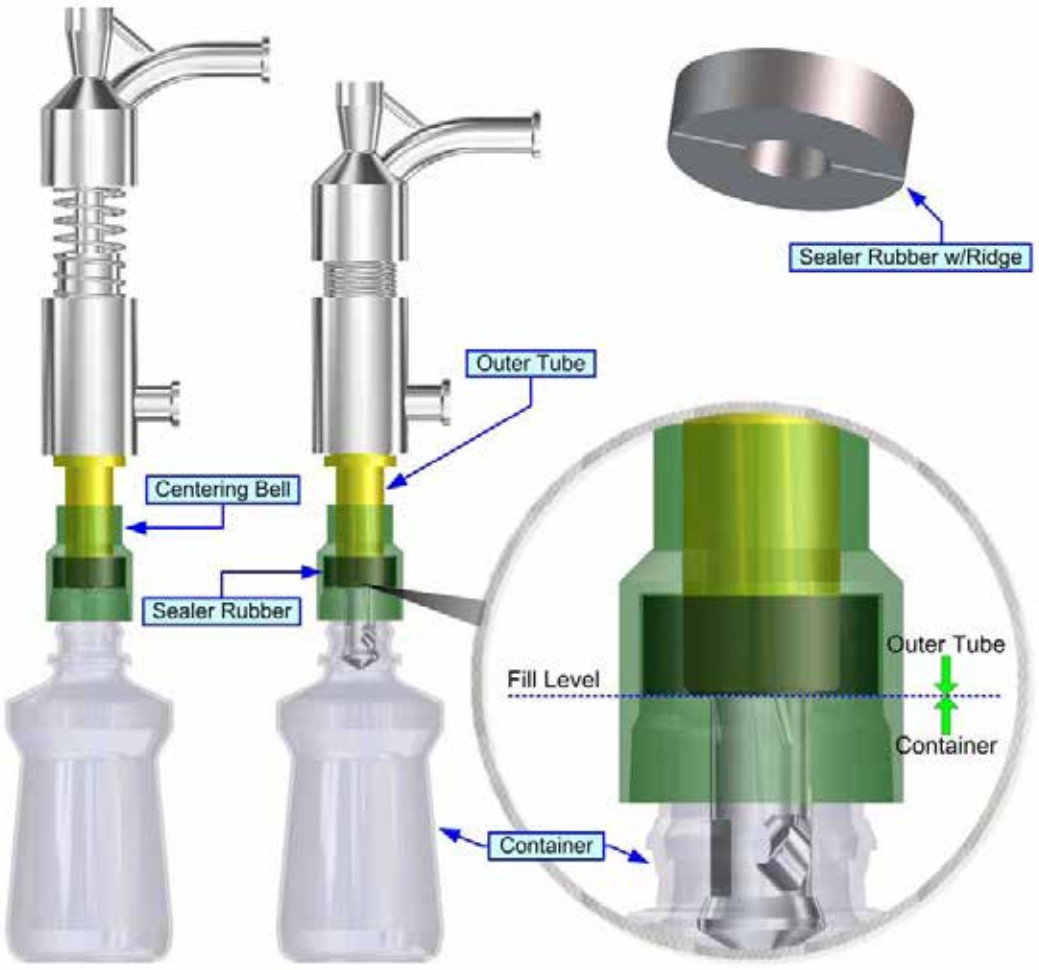


Figure 5-3:*Brim Filling*

Mechanical Detent Clutch

The detent clutch provides a means of varying the break-away torque. Two flange units are attached to each of two concentrically located shafts. These two flanges are pushed together and connected by a number of balls resting in dimples in the flanges. Manual adjustment determines the amount of torque required to force the balls from the dimples that holds the flanges apart.

The clutch is factory lubricated and normally requires very little maintenance except occasional lubrication through fittings located on the side of the unit.

CAUTION: LUBRICATION OF THE CLUTCH IS TO BE PERFORMED IN ACCORDANCE WITH ITS PREVENTIVE MAINTEANCE SCHEDULE. LUBRIATE LIGHTLY TO PREVENT SLIPPAGE DURING OPERATION.

A proximity switch and mounting bracket is provided with the detent clutch. This switch must be accurately positioned in order to register the disengagement of the clutch. It is important that the detent be checked occasionally to ensure that when the detent clutch does disengage, it trips the proximity switch to stop the machine.

Under normal operation, when the clutch is under high pressure, there is a slight separating of the two clutch flanges. The design of the feed star shaft is such that a small vertical movement of the star shaft is not detrimental to the equipment. There are not any limiting devices on the star shaft that will pose problems. Loads are not transmitted to the input or output shaft due to this allowable float. The vertical movement of the shafts should be minimal - no more than 1/32 inch.

If the machine can be rocked forward and back with a large amount of backlash, one may assume that the detent clutch is beginning to wear or is loose. When the clutches' dimpled driving flange plate begins to wear, the angular alignment between the input shaft and the output shaft becomes excessive. Since the clutch no longer positions the load balls in a perfectly round dimpled pocket, the flange, as it wears, produces a groove in the pocket and the clutch turns greater amounts without disengaging. As the wear continues, the clutch allows backlash, and larger amounts of tension is necessary for the same engagement pressure.

CAUTION: OPERATION OF THIS EQUIPMENT WITHOUT PROPER ELECTRICAL CONTROLS MAY RENDER THIS HARWARE INOPERABLE AND VOID ALL WARRANTIES RELATIVE TO THESE DRIVE TRAIN COMPONENTS.

WARNING: FAILURE TO PROPERLY USE THIS SAFETY SYSTEM MAY RESULT IN PERSONAL INJURY.

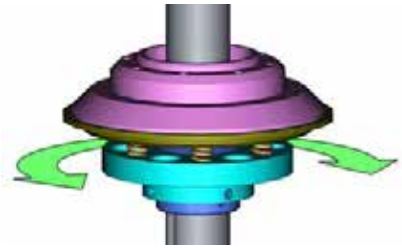


Figure 5-4:*Mechanical Detent Clutch*

Limit Rail Adjustment

A properly positioned limit rail is oriented so that its face rests just behind the deepest portion of the infeed star's pocket. Loosen the quick release levers located on each adjustment bracket to adjust the limit rail forward or backward as required. Retighten the levers to secure its position.

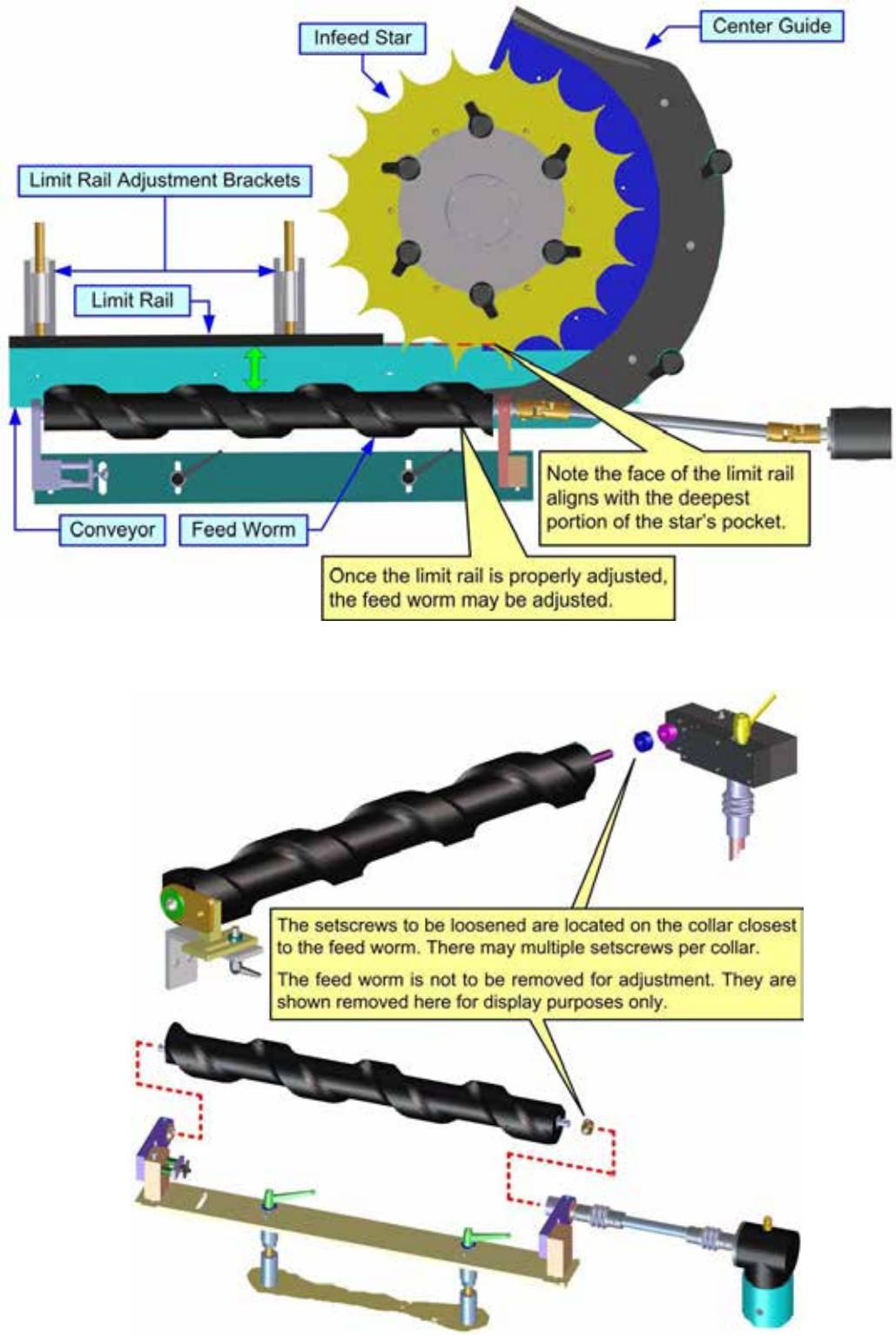


Figure 5-5:*Limit Rail Adjustment*

Main Bearing

If the main bearing begins to fail it is identifiable by several conditions. Firstly, it will be necessary to use more than normal power to rotate the machine. Secondly, rotational motion of the machine will exhibit a vibration or a bumping action. In addition, the rotational part of the machine may actually have dropped down as much as 1/32 inch causing the main rotational part of the filler to sit on top of the cabinet. Under these conditions it is almost impossible to turn the machine. Check the crossover plate where the bottles enter and leave the filler against the bed plate sectional covers that the bottles sit on. If the sectional segments of the rotary machine appear lower than the bed plate crossover, the main bearing may have failed.

A false indication of bearing failure can occur if the filler slides become dirty and sticky. To eliminate slide concerns, wipe the slides clean, place a small amount of mineral oil on them, and verify they move freely up and down. If the problem disappears, the bearing is more than likely in good working shape.

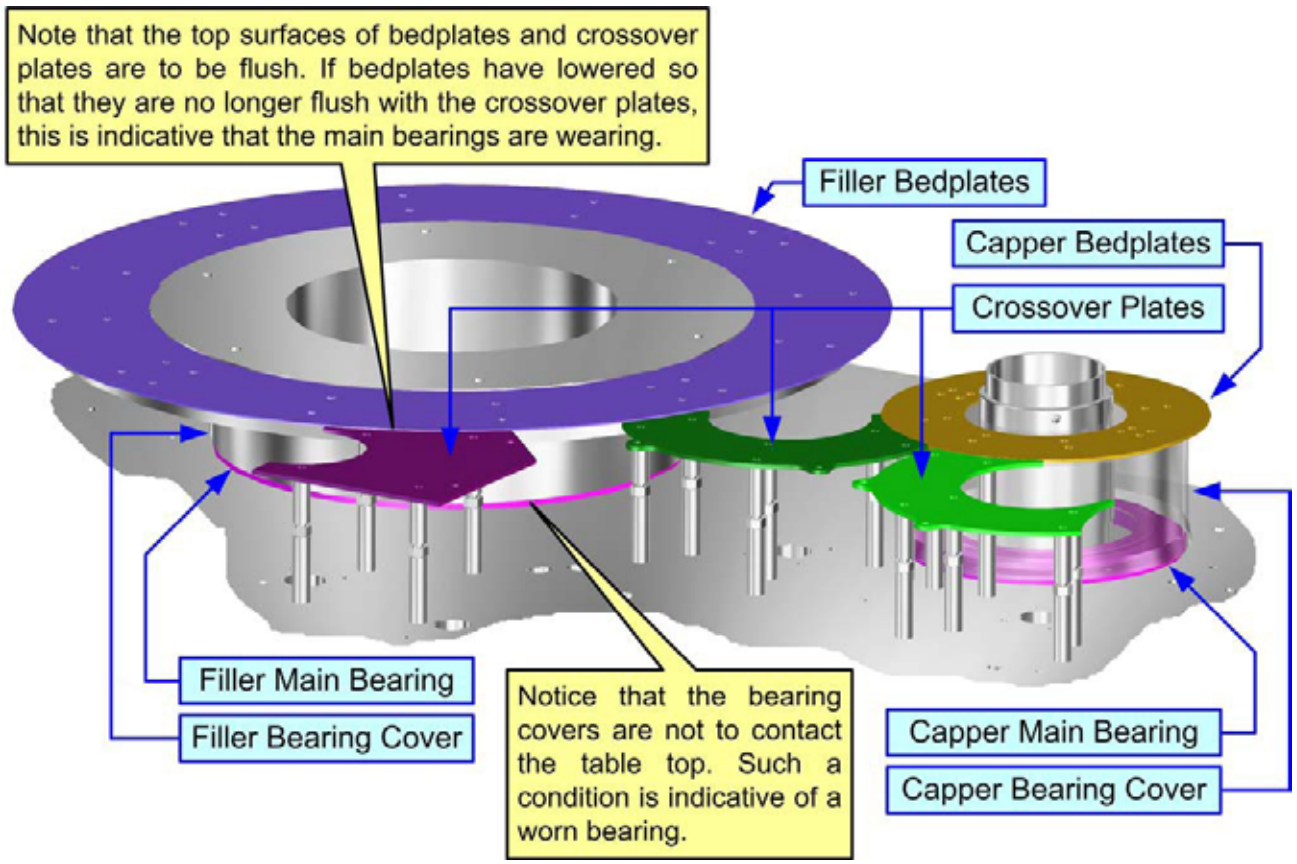


Figure 5-6:*Main Bearing*

Bottle Stop

Being able to control the flow of containers to the machinery can provide a better method of operation rather than starting and stopping the main equipment. It is always best to run the filler and capper full of containers rather than intermittingly due to the added wear and tear on the drive train as well as, providing less fluctuation in filling pressures and torque variations. The option of a bottle stop or other method to control bottle flow can be programmed to always maintain a backlog of containers against the feed screw for proper bottle handling. This can also be used with a series of sensors to protect against a downed bottle before it jams the equipment. If the bottle stop is engaged for a long period, consider slowly ramping the speed of the equipment down and then bringing it back up to speed just after the bottle stop opens. This will smooth out the bottle transfer process and reduce wear on the equipment. Tying this into a restrictor valve system on the supply product side can also reduce waste.

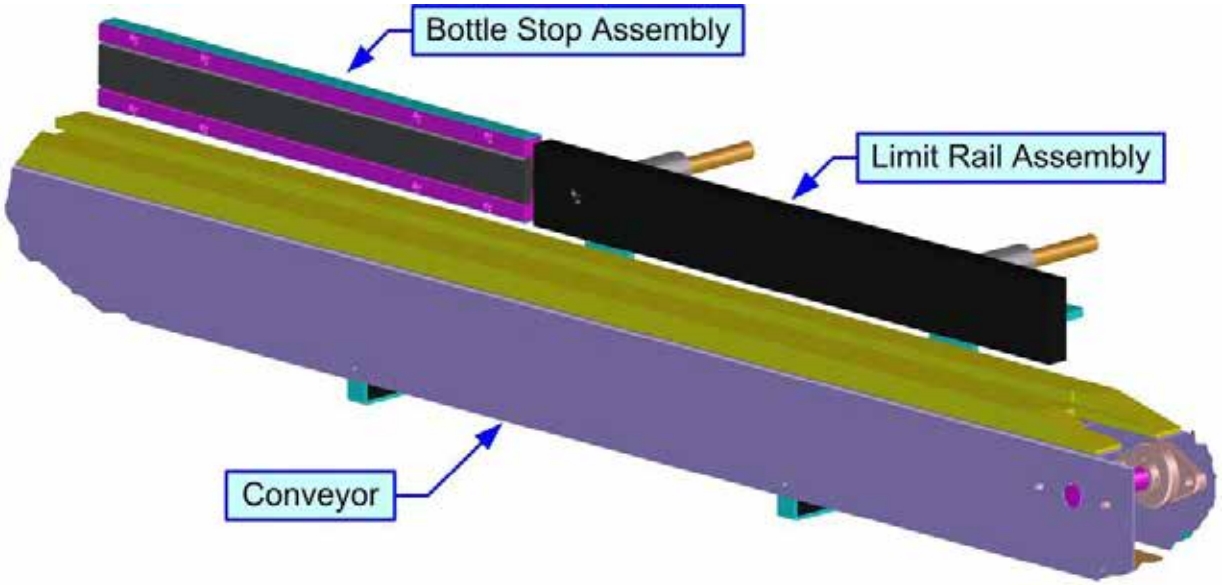


Figure 5-7:*Bottle Stop*

Discharge Star Timing

DISCHARGE STAR TIMING (For Core Mounted Stars)

A properly positioned discharge star is oriented so that the star's pocket is aligned 1/16" behind the bottle. To adjust, loosen two set bolts to rotate the star to the proper position on the core plate and retighten the set bolts.

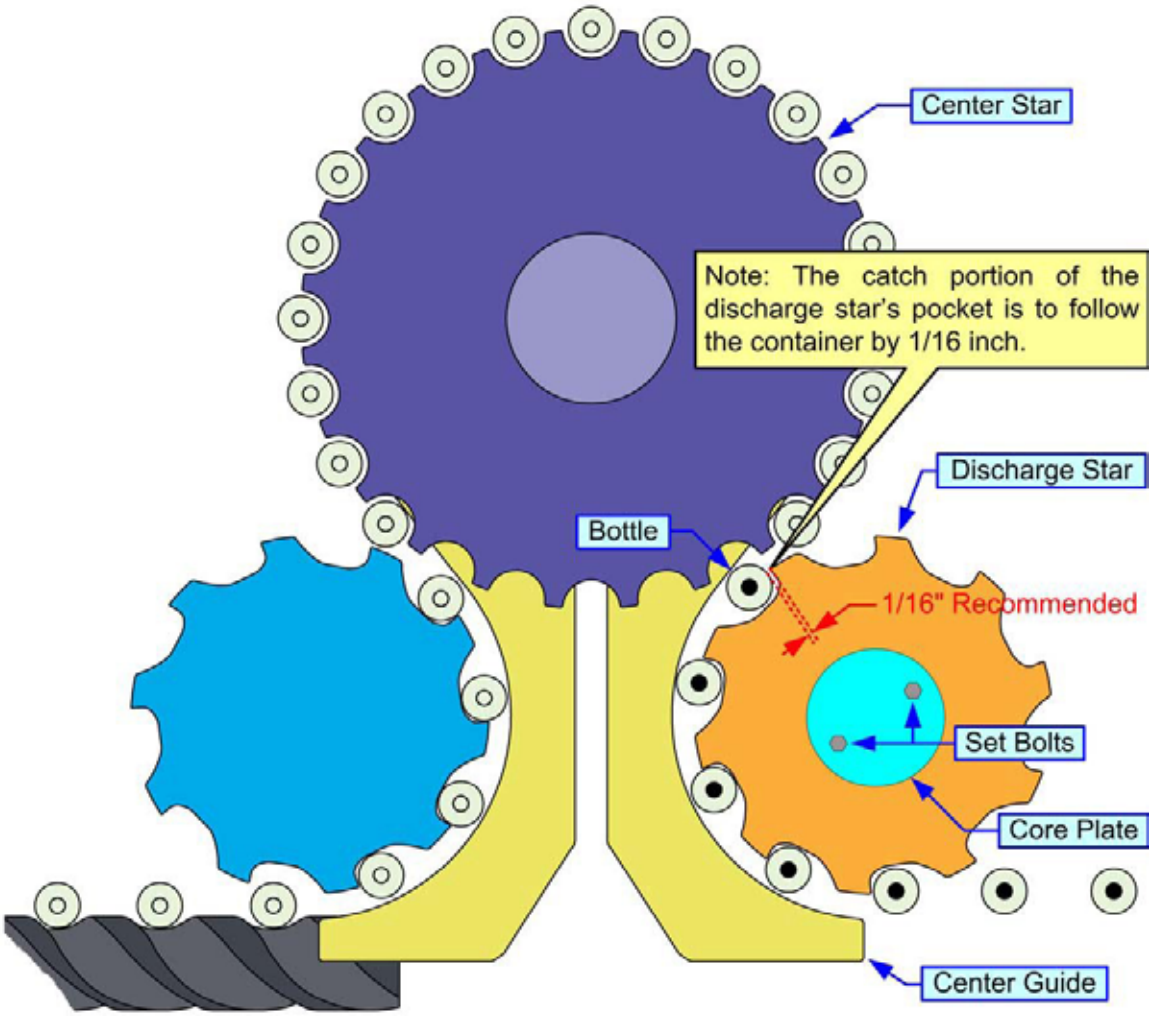


Figure 5-8:*Discharge Star Timing*

Filler Rotary Unions

The filler rotary union is designed to act as a controlled alignment device using two rotary bearings with product seal rings, and retainer snap rings. The union is to be installed in the upper portion of pressure gravity fillers so that the upper manifold ferrule has its tri-clamp at the top of the assembly, allowing for product drainage at the end of an operational cycle. A rotary union is located within all filler cabinets, centered within its main bearing.

Product under pressure enters the upper ferrule and passes through to the rotary lower housing. Liquid is contained within these elements by the seal rings. It is important to maintain a film of lubricant over the seal to metal contact surface to prevent the seal from prematurely wearing.

WARNING: ROTARY UNIONS ARE NOT DESIGNED TO SUPPORT WEIGHT. ASSEMBLY DAMAGE AND PERSONAL INJURY MAY OCCUR IF IMPROPER LOADS ARE PLACED ON THEM. ENSURE THE MACHINE'S SUPPORT STRUCTURE IS PROPERLY IN PLACE AND ADJUSTED TO ALEVIATE EXCESSIVE WEIGHT LOADS.

The rotary union is designed to act as a seal system between a stationary and a rotary liquid environment. It is not meant to support heavy loads. If the rotary union is forced to support weight, it may incur an additional thrust load that could eventually wear the retaining sleeves, causing the unit to separate slightly and leak. If significant wear on these rings is observed, this would be the first area to review.

Figure 5-9:*Rotary Unions*

Fill Height-Filler Valve Adjustment

The method used to support the sealer rubber and properly position it on the outer tube depends on the design of the valve. The distance between the sealer rubber and the lower end of the outer tube represents the vertical distance from the top of the container to the liquid level at the end of the cycle. To lower the fill point, raise the sealer rubber to expose more of the outer tube. To raise the fill point, the sealer rubber must be lowered. The sealer rubber may either be secured via a clamp or is part of the centering bell housing.

When the fill heights are fairly high and uniform across a range of containers, a centering bell system may be used. The centering bell is often removable and can easily be changed depending on the size of the container opening. The length of the bell may need to be cut in the field for the proper fill height under temperature. Ensure these are all cut the same and the integrity of the bell action is not compromised leading to chipped glass.

ATTENTION: For some containers and valves, moving the centering bell excessively upward will render the bell ineffective. In such cases, a different valve is required.

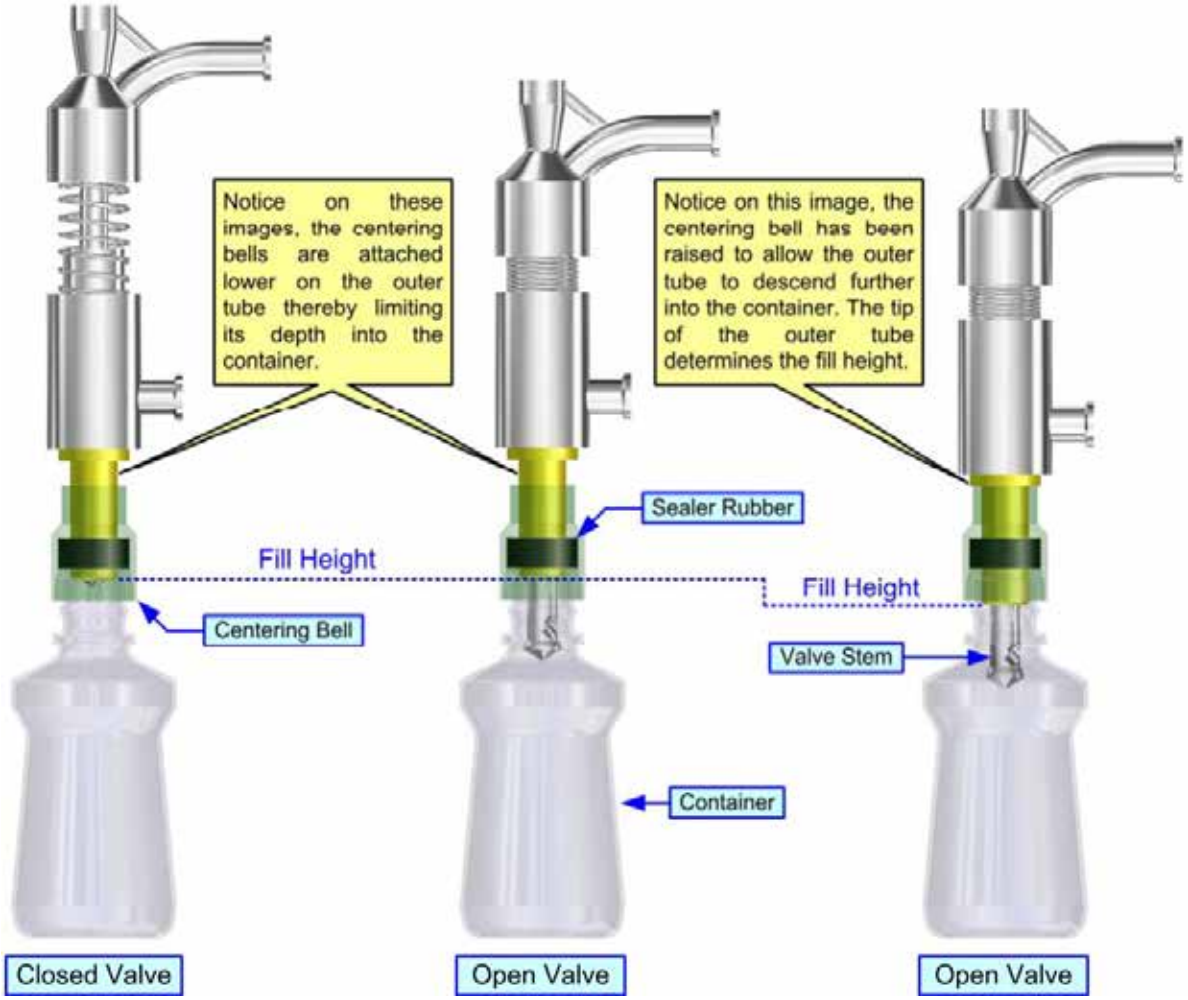


Figure 5-10:*Fill Height-Filler Valve Adjustment*

Crossover Plates, Bedplates, and Conveyor Wear Strips

Review the crossover plate to ensure that the bottle action of moving on and off the conveyor is smooth. When necessary, replace the crossover plate or adjust it upwards to ensure proper transfer. The crossover plate is to always be vertically positioned so that it is slightly higher so the container traveling off the plate doesn't trip.

If the bed plate covers become worn or warped, they should be replaced. If the bedplates are badly worn, three things can occur:

1) the containers will jostle on the bed plate when entering the filler causing the filling tube to have difficulty aligning with the opening of the bottle;

2) spilled liquid can become trapped on the bed plate and drip down through the attachment screws accelerating corrosion; and

3) properly filled bottles will not smoothly exit the machine.

Conveyor wear strips that support the conveyor motion and the return conveyor chain section must be inspected to ensure that they have not worn through. Only chain lubricant is necessary for the conveyor wear strips.

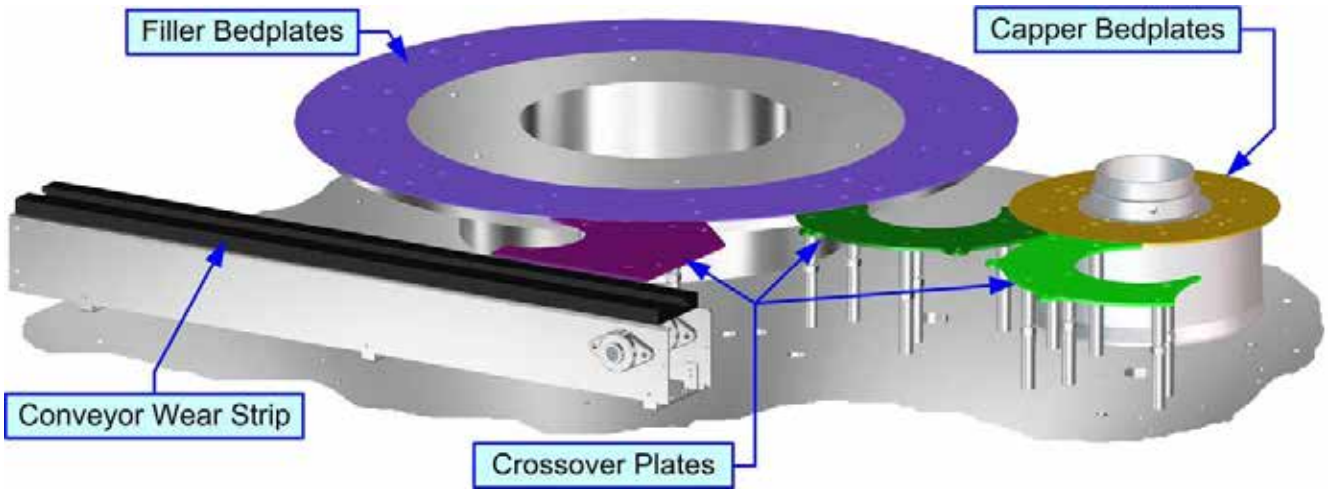


Figure 5-11:*Crossover Plates, Bedplates, and Conveyor Wear Strips*

Hoses, Gaskets, Seals and O-ring Materials

Depending on your particular product, the machine has been selected with what was felt to be the correct materials. However, it is very difficult to anticipate all of the chemicals and products that the customer may choose to use throughout the lifetime of the machine that may have an adverse affect on these materials.

For example, a typical gravity juice filler will be supplied with silicone tri-clamp gaskets and silicone hosing material and sealer rubbers, since these are best suited for the citrus acid environment, and a lightweight flexible material is required in the hosing material. However, silicone can be attacked by various chemicals in cleaning solutions, and these should be reviewed prior to use on the equipment.

For applications such as the liquor industry, Teflon-lined hosing may be incorporated. In unique applications, unusual style o-rings and seals have been customized for each individual job. It is the guarantee of U.S. Bottlers Machinery Company to provide materials of quality, free of defects or faults in workmanship. However, it is the customer's responsibility that they do not adversely affect these materials with chemicals or caustics, which may lead to their degradation. All of these items are, in their nature, wear items and eventually will need to be replaced.

Supply Manifold Shoe Adjustment

The supply manifold shoe is to be set to allow internal container pressure to stabilize before withdrawing the filling valve. This is most critical for plastic containers to prevent burping.

Standard Gravity Filler (Non Bi-Flow Version)
The gravity filler incorporates a shaft or pipe through the upper rotary union as a holding mechanism for the manifold shut-off shoe plate. This rod or pipe must be held from rotating to keep the shoe in the proper angular alignment.
To adjust the shoe position, the locking collar must be loosened to allow the shoe to turn. This is usually the collar or clamp on the roof at the top of the 4" tri-clamp cap. The set collar or set of locking bolts must be loosened to allow the rod to be turned with a wrench and then retightened. Another approach is to loosen the 4" tri-clamp at the base of this cap and to turn the cap and the shaft together. This is not recommended if there is product pressure on the liquid system at the time.

ATTENTION: If it appears that a group of bottles in a row are not filling, this could be a sign that the shut-off shoe has been spinning with the rotation of the filler or has moved out of position.

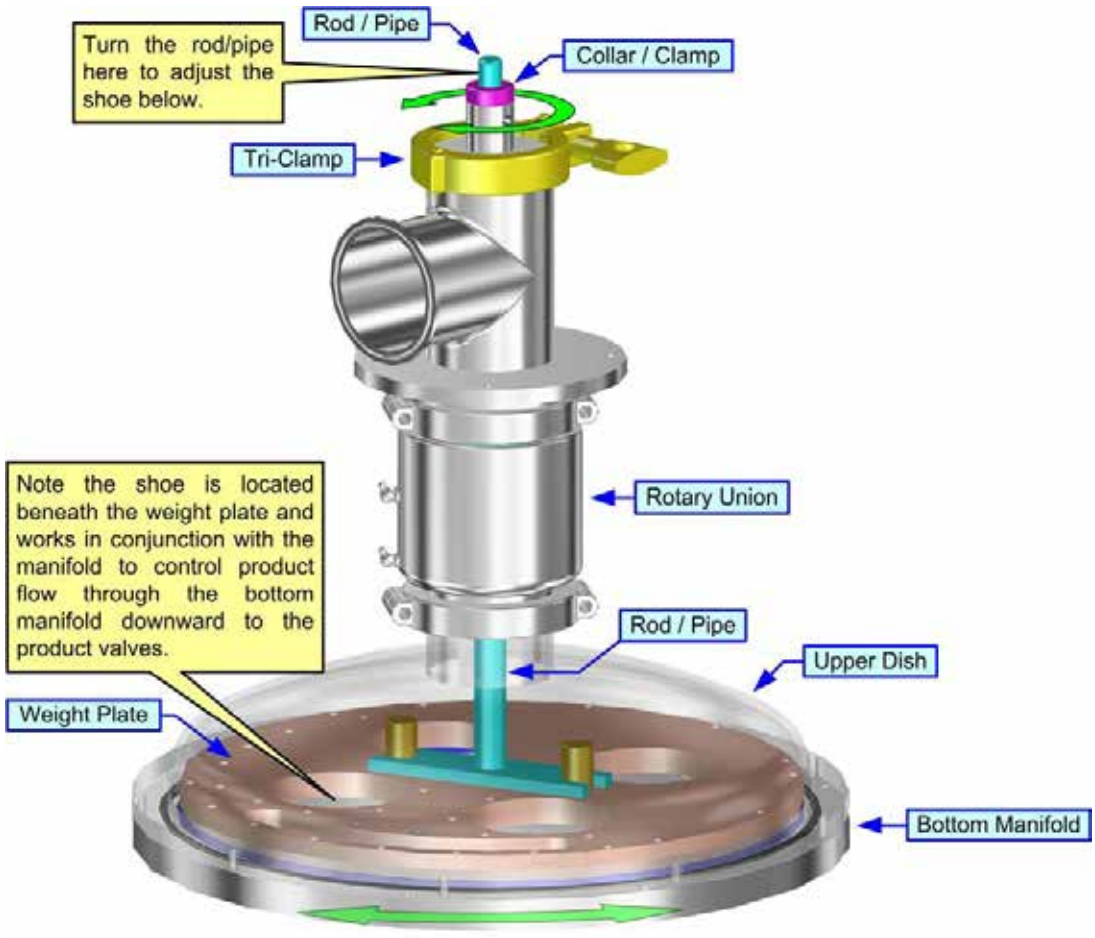


Figure 5-12:*Supply Manifold Shoe Adjustment*

Filler Bottle Present Logic

In order to start a filling cycle, the machine must be capable of determining if a bottle is present at the correct filling station when the start fill pulse is generated. This is accomplished by the use a bottle-present sensing eye. This eye is located near the infeed star of the filler. If this eye senses the presence of a bottle in the programmed bottle present angular window, then the correct product filling valve will be opened. If the bottle present angular window is passed and the bottle eye has not sensed a container, the fill will not begin.

ATTENTION: If your hand or any other object passes in front of the sensor while in the filling mode, this will result in a filling valve opening even if the machine isn't rotating.

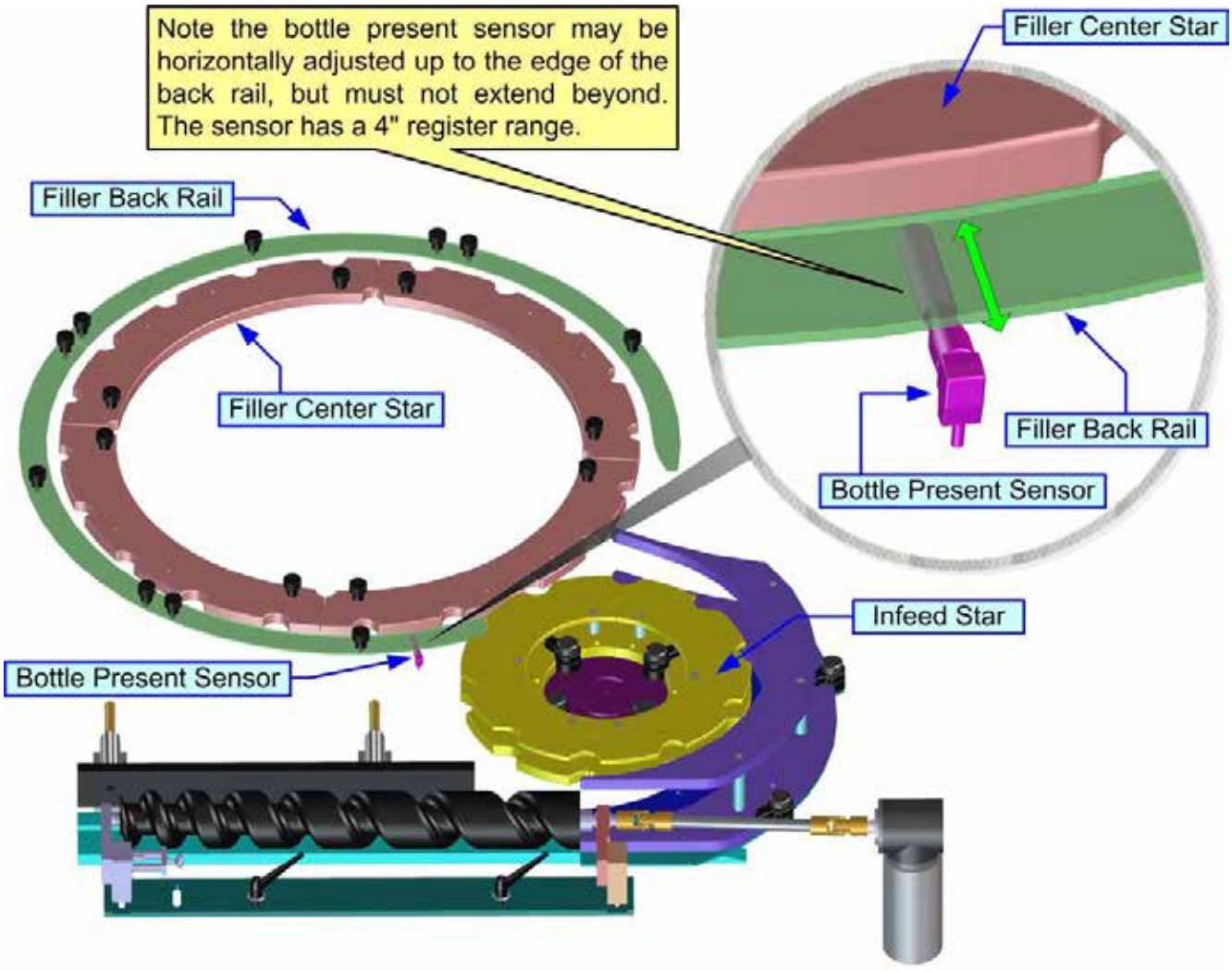


Figure 5-13:*Filler Bottle Present Logic*

WAB Rinser / USB PG Filler / AROL Capper

RR-30-58.5in / PG-40-78in / AROL VP-8-15.6in

USB MACHINE NO: 122300

APPENDIX A - Figures List

Figure 6-1:*Figures List*

WAB Rinser / USB PG Filler / AROL Capper

RR-30-58.5in / PG-40-78in / AROL VP-8-15.6in

USB MACHINE NO: 122300

APPENDIX B - Tables List

Table 7-1:*Tables Listing*