



# ***Equipment Safety Manual***

## ***Guidelines For Equipment Safety***



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**At Moline, safety is our number one priority. The following information provides guidelines for safety when using Moline equipment.**

Any piece of machinery can become dangerous to personnel when improperly operated or poorly maintained.

All employees operating and maintaining Moline equipment should be familiar with its operation and should be thoroughly trained and instructed on safety.

Most accidents are preventable through safety awareness.

Every effort as been made to engineer safety into the design of Moline equipment per standards set forth by ANSI, the National Electric Code, BEMA (Bakery Equipment Manufacturers Association) and others that apply as necessary. Areas of potential danger are mechanically and/or electrically protected. Safety labels and instructional decals are visible to the operator and located near any potential hazard.

# TRAINING and INSTRUCTION

It is the responsibility of the customer to ensure that all personnel who will be expected to operate or maintain the equipment participate in training and instruction sessions and become trained operators.



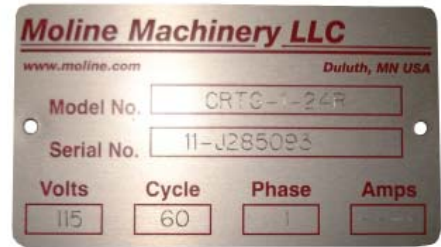
All personnel operating, inspecting, servicing or cleaning this equipment must be properly trained in operation and machine safety. BEFORE operating this equipment, read the operating instructions in the equipment technical manual and safety manual. Become thoroughly familiar with the machinery and its controls.

# GENERAL SAFETY

- Ensure that all power sources are turned off when the machine is not in use. This includes electrical and pneumatic power. Understand the LOCKOUT/TAGOUT procedure and use it before inspecting, maintaining, servicing or cleaning the equipment to help prevent anyone from accidentally turning on power to the machine.
- Read the manual for any special operational instructions for each piece of equipment. The Moline technical manual is typically included on a USB flash drive (as shown at right), or as a hard copy if requested.
- Know how the equipment functions and understand the operating processes.
- Know how to shut down the equipment. Stop buttons, emergency stop buttons or cables are located at various locations on the machinery. Activating these stop mechanisms will shut down specific equipment. Know where these stops are located and the equipment they shut down before operating the machinery.
- Understand the equipment safety labels and heed them.
- Wear the appropriate personal protective equipment for the job to be performed (EX: eye protection, hearing protection, gloves, safety shoes, hard hat). Ensure that nothing you are wearing could get caught in the machinery.



- When working on or around all equipment, avoid wearing loose clothing, jewelry, unrestrained long hair, or any loose ties, belts, scarves or articles that may be caught in moving parts. Keep all extremities away from moving parts. Entanglement can cause death or severe injury.
- For new equipment, check plant voltage with the voltage specified on the machine. Electrical specifications for your machine are printed on the machine serial number tag. A properly grounded electrical receptacle is required for safe operation regardless of voltage requirements.
- Treat this equipment with the respect its power and speed demand. Use it only for its intended purpose.
- Keep the operating zone free of obstacles that could cause a person to trip or fall toward an operating machine. Keep fingers, hands or any part of the body out of the machine and away from moving parts when the machine is operating.
- Any machine with moving parts and/or electrical components can be potentially dangerous no matter how many safety features it contains. Stay alert and think clearly while operating or servicing the equipment. Be aware of operations and personnel in your surroundings. Be attentive to indicator lights, warning lights and/or operator interface screens displayed on the machine and know how to respond.



- Do not operate machinery if you are fatigued, emotionally distressed or under the influence of drugs or alcohol.

- Know where the FIRST AID SAFETY STATION is located.



- Know where FIRE EXTINGUISHING EQUIPMENT is located.



- “Horseplay” around machinery at any time is dangerous and unacceptable.

- Never sit or stand on the machine or on anything that might cause you to fall against the machine.

- Rotating and moving parts are dangerous. Keep clear of the operating area. Never put any foreign object into the operating area.

- Use proper lifting and transporting devices for heavy equipment. Some types of equipment can be extremely heavy. An appropriate lifting device should be used.

- Use caution when moving portable equipment. In some cases the machinery can be heavy and/or may be top heavy if loaded. Portable equipment can gain momentum during transporting and must be controlled at all times.



# SAFETY SYMBOLS IN THE MANUAL

Safety precautions are located throughout the equipment manuals to highlight unsafe practices or possible hazards that could result in death, severe personal injury and/or equipment damage. The following symbols are used to direct attention to specific hazards and precautions. Pay close attention to all hazard warnings and their specific avoidance instructions.



Indicates a hazardous situation which, if not avoided, WILL result in death or serious injury.



Indicates a hazardous situation which, if not avoided, COULD result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Indicates information considered important but not hazard related (EX: messages relating to equipment/property damage).

## Sample of a Typical Safety Precaution in the Manual:



Rotating parts are dangerous. Keep hands and body out of the operating area. Do not stand or sit on any part of the machine. Never put any foreign object into the operating area. Failure to follow these warnings could result in death or severe personal injury.

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# SAFETY LABELS ON THE EQUIPMENT

The purpose of safety labels is to draw your attention to equipment and situations that could affect personal or plant safety.

The use of safety labels does not replace the need for appropriate accident prevention procedures.

Always pay attention to the safety instructions provided on each label.

Each section in the equipment manual lists the safety labels used on that piece of equipment, and includes a diagram of where they are located on the machine as shown at right.

- Do not alter or remove safety labels.
- Inspect the machine periodically to be certain the appropriate safety labels are in place.
- Replace damaged, worn or missing labels immediately.

Order replacement labels from Moline using the label part number. See our website for the replacement safety label program. For label lists, graphic representations and applicable mounting locations, see the individual sections for each piece of machinery in the equipment manual under the heading "Safety Labels".

**Safety Labels**

QTY	PART NUMBER	DESCRIPTION
As Needed	955305530	<b>LIBRA Sheeter Labels</b>
4	955305486	LABEL, electrical hazard (on all electrical boxes with voltage hazard)
6	9553054645	LABEL, arm/roller hazard LABEL, roller hazard
2	955288	MOLINE LOGO, 11.5 x 5.5
1	A36894	SERIAL NUMBER TAG (not shown - apply where visible)

**Locations Diagram**

**WARNING**

Do not alter or remove safety labels. Replace damaged or worn labels immediately.



# SAFETY LABEL DEFINITIONS

Safety labels are located on the equipment to bring attention to potentially hazardous areas. Most labels are in the ISO graphic-only style to convey the hazard without a language barrier.



Potential pinch point / entanglement hazard from rollers, rotating components or surfaces. Follow lockout/tagout procedure before accessing area.



Potential pinch point / cutoff hazard from structural components, heavy components, blades or sharp edges. Follow lockout/tagout procedure before accessing area.



Potential pinch point / entanglement hazard from chains, sprockets or serrated/toothed components. Follow lockout/tagout procedure before accessing area.



Potential electrocution, shock or burn hazard from electrical voltage. Follow lockout/tagout procedure before accessing area. Allow access by authorized personnel only.



Potential pinch point / entanglement hazard from toothed/serrated components inside a hopper or enclosed area. Follow lockout/tagout procedure before accessing area.



Potential hazard from high pressure or explosion. Wear personal protective equipment and release pressure before accessing area.



Potential pinch point / entanglement hazard from rotating auger, threaded component or drive line inside hopper, guard or enclosed area. Follow lockout/tagout procedure before accessing area.



Potential hazard from heavy components. Use an appropriate lifting device or use several people to manipulate the equipment.



Potential pinch point / entanglement hazard from moving components inside a hopper, guard or enclosed area. Follow lockout/tagout procedure before accessing area.

On current Moline equipment, the only two safety labels with text (as shown below) are located on the main electrical panels



Potential burn hazard from heat and/or hot surfaces. Keep clear or wear personal protective equipment.



Potential pinch point / entanglement hazard between rollers or between rollers and structural components. Follow lockout/tagout procedure before accessing area.



Potential pinch point, entanglement or cutoff hazard from rotary blades or sharp rotating objects. Follow lockout/tagout procedure before accessing area.

**SAFETY INSTRUCTIONS**

**GENERAL SAFETY PROCEDURES**

1. Do not operate this machine until you read and understand all operating instructions and become familiar with the machine and its controls.
2. Do not remove or disconnect any safety guards or safety cleaning.
3. Always wear the required safety equipment for the job (e.g. glasses, hat, hearing protection, etc.).
4. Never remove warning labels from the machine.
5. Use this equipment only for its intended purpose (see operating instructions).

**SAFETY INSTRUCTIONS**

**SUGGESTED LOCKOUT PROCEDURE**

1. Announce to other personnel the machine will be down for servicing or cleaning.
2. Make sure power is off.
3. Lockout electrical panel. Use a lock with only one key. Put the key in your pocket.
4. Clear all personnel from machine area.
5. Test lockout by hitting the "RUN" or "START" button.
6. Block, chain or release stored energy sources (e.g. pneumatics).
7. Perform servicing or cleaning.
8. Clear all personnel from machine area before restarting.
9. Unlock electric panel lock.
10. Turn power on at the electrical source.
11. Announce machine is on to other personnel.



# **GUIDELINES FOR SAFE OPERATION**

# SAFETY DURING OPERATION

## Mechanical and Electrical Safeties / Guards

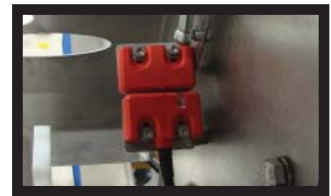
Every effort as been made to engineer safety into the design of Moline equipment per standards set forth by ANSI, the National Electric Code, BEMA (Bakery Equipment Manufacturers Association) and others that apply as necessary. Areas of potential danger are mechanically and/or electrically protected.

Prior to operating the equipment, the following items should be noted:

### Guards, Safety Switches and Sensors

Guards, safety switches and sensors are intended to provide hazard protection for personnel. All guards and safety switches must be installed on the machine, properly maintained and fully functional. Under no circumstances are these guards, switches or sensors to be removed, bypassed or disabled. Failure to follow this warning could result in death or severe personal injury.

Ensure that all doors and guards are installed, closed and secured before operating the equipment.



### Emergency Stop Buttons

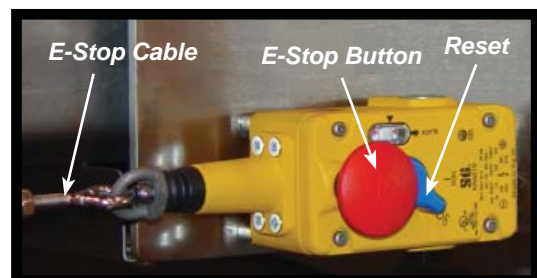
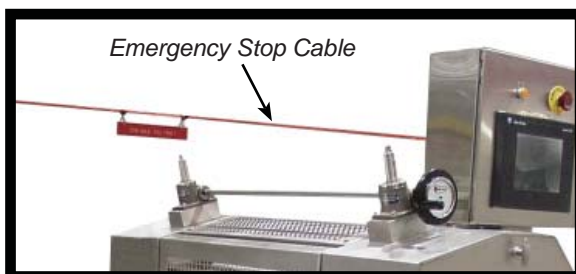
To stop the equipment in an emergency situation, press an emergency stop button.

Once an emergency stop button has been activated the equipment cannot be restarted until the emergency stop button has been released. This is done by twisting or pulling the center knob to the operational position and pressing the safety reset button.



### Emergency Stop Cables

If emergency stop cables are provided, typically a red tag hangs on the cable to identify it. Cables may be suspended over conveyors or mounted on conveyor rails and are pulled to activate the emergency stop system. Once an emergency stop cable has been activated the production line cannot be restarted until the cable reset has been activated. Reset levers (or buttons, styles vary) are located on the switch at the end of each cable and will mechanically reset the cable mechanism. The equipment safety reset button must also be activated before the system can be restarted.



## SAFETY DURING OPERATION

### Mechanical and Electrical Safeties / Guards Continued...

#### Main Disconnect Handles

The main electrical disconnect handle, located on the main electrical panel, is used to turn off all power to the equipment for inspection, maintenance or sanitation after the machine has been shut down. This is an electrical system safety device. All electrical panels and cabinets must be securely closed before the main electrical disconnect handle is moved to the ON position.

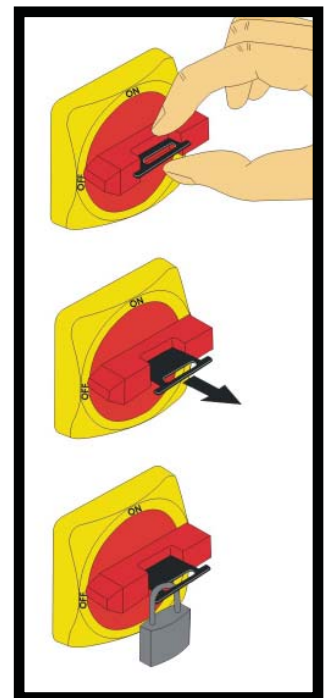


Do not use the main electrical disconnect as a quick machine shutdown; system damage may occur. Use the operator interface for standard shut downs. Use the emergency stop button for emergency situations

#### Electrical Motor Disconnect Switches

As an option, the equipment may contain electrical disconnect switches for individual motors or systems. If so equipped, the power can be shut down for these components by turning the disconnect switch to OFF. Power can typically also be locked out at the switch. To lockout a designated motor or system, move the handle on that disconnect switch to reveal the padlock hole. Install a padlock and put the key in your pocket to prevent accidental re-connection by other personnel.

These switches must be in the ON position to operate the equipment. Several types are shown.



#### Power Cords / Receptacles

An electrical power receptacle is used to connect power to a portable piece of equipment. These receptacles can be located on electrical panels, junction boxes or on the side of nearby equipment. The power receptacle cover should be kept closed when the power cord is not plugged in. Styles vary - only one type is shown.



## SAFETY DURING OPERATION

### Mechanical and Electrical Safeties / Guards Continued...

#### Startup Alarm

An equipment system will contain a startup alarm that activates for several seconds after the system start button has been pushed and before equipment operation begins. The alarm is intended to warn personnel of impending startup. At the time the alarm is activated, all personnel should move away from the operating zone and the equipment to prevent hazardous exposure to moving equipment.



#### Signal Lights

In some cases a signal light will activate to indicate customer-specified situations (startup, fault occurrence, etc). Understand the meaning of each signal light before operating the equipment. Adhere to any procedures required by the signal light.

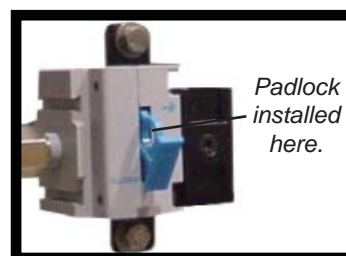


#### Pneumatic Shutoff/Lockout Valves

When shutting down for inspection, cleaning or maintenance, the pneumatic system must be shut off to prevent accidental activation by air-powered equipment.

Shut off and lock out pneumatic power by moving the pneumatic lockout valve to the OFF position. This relieves all air pressure beyond the lockout valve so that pneumatically operated components cannot be activated. Install a padlock through the lockout hole (styles vary) to secure the valve in the OFF position. Put the padlock key in your pocket to prevent accidental activation by other personnel. Use your company's lockout/tagout procedure or see the sample in this manual.

Once inspection/sanitation/maintenance is complete, the padlock can be removed and the lockout valve turned ON to restore air pressure to the equipment. The lockout valve must be in the ON position to run pneumatic components.



***Typical Lockout/Shutoff Valves (styles vary)***

# SAFETY DURING OPERATION

## Lockout / Tagout Procedure

The lockout/tagout procedure is a positive means of securing power sources in the OFF position, allowing only one person (the person performing the procedure) to have possession of the key.

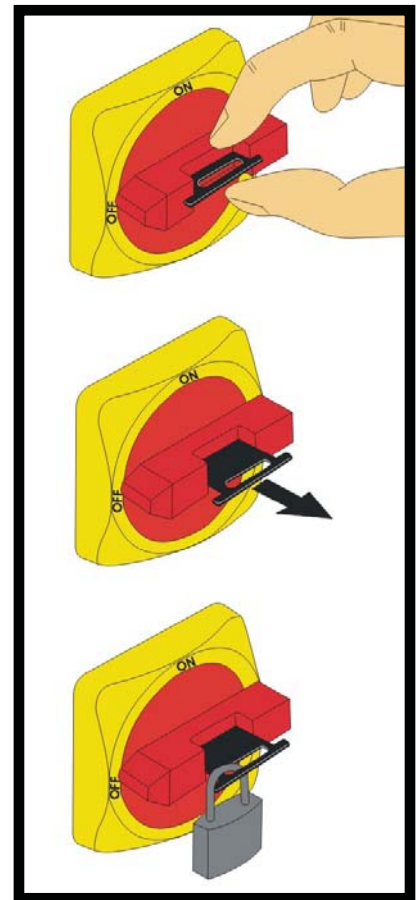
When equipment is being cleaned, serviced, inspected or maintained, a lockout/tagout procedure is required to prevent personal injury or equipment damage from an accidental startup. Follow your company's established procedure. If a procedure is not already provided, use the following instructions:

### LOCKOUT/TAGOUT PROCEDURE

1. Announce that the machine will be shut down. Ensure that all appropriate personnel are informed before actually shutting down the machine.
2. Shut down all power to the machine (electrical, pneumatic, hydraulic, water pressure, etc.).
3. Lockout all power panels and place "machine is locked out" tags on the panels. Use a lock with only one key for each panel or power source.
4. Put the key in your pocket.

NOTE: The type of lock used must prevent other personnel from connecting power to the machine - a lockout device that permits several padlocks to be installed is recommended. Lockout devices are commercially available.

5. Secure all equipment components against gravity or spring tension.
6. Lockout, block, chain, or release any stored energy sources (pneumatic system, water pressure, etc.).
7. Clear all personnel from the machine area.
8. When power sources have been locked out, test for movement by implementing the start procedure. If no machine movement or activation is detected, the machine has been successfully locked and tagged out.



**Typical Lockout Mechanism**  
(styles vary)



# SAFETY DURING OPERATION

## Recommendations for Production System Operation

1. Know when the equipment will be started. Ensure that all inspection/sanitation/maintenance procedures have been completed so that the equipment lockout/tagout procedure can be reversed.

2. Emergency stop buttons and/or cables are located at various locations on the equipment. Use these emergency stop buttons/cables to shut down the equipment in an emergency. Know where the emergency stop buttons/cables are located before operating the machinery.

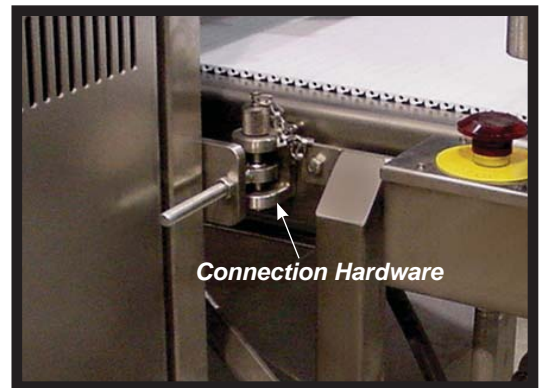


3. Ensure that all tools, cleaning supplies, etc. are removed from the equipment prior to startup.

4. Verify that hose and tubing connections for pneumatics, fluids and flour dust removal systems are connected and prepared for operation.

5. Ensure that all guards, doors and access panels are installed, securely closed and functioning properly prior to startup.

6. Ensure that any connecting bars, pins and brackets between the equipment and conveyors are installed and secured for stability during operation.



7. Verify that the equipment is clean, fully assembled, properly programmed and in the operating position.

8. Fill all dusters/dispensers with dry topping prior to startup.

9. Connect all power sources (including electricity, pneumatics, hydraulics and water sources).

10. Clear all obstacles and personnel from the operating area. A startup alarm will sound when the start button is activated to ensure that all personnel are aware of impending startup and move away from the operating area. Ensure that all personnel know what the startup alarm means and heed the warning.



11. Production is initiated by touching and holding the "SYSTEM START" button for 3-5 seconds during which time the start alarm will sound. When the alarm stops the equipment will begin operation.

NOTE: All pieces of equipment that were left in the "ON" or "AUTO" mode when the production system was shut down, will start when the production system is started.

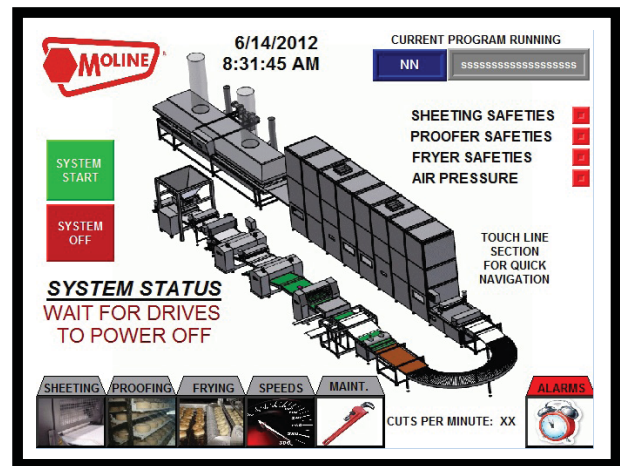


## SAFETY DURING OPERATION

### Recommendations for Production System Operation Continued...

If a piece of equipment was left in the “OFF” mode when the production system was shut down, it will not start with the production system and must be changed to “ON” prior to startup. In some cases, certain pieces of equipment should be turned on after the system is in operation – these can be activated manually as desired.

12. Monitor the equipment continually during operation. Ensure that no issues are apparent. If a problem occurs, press an emergency stop button if necessary or a stop button if the situation is not an emergency. Correct the problem and restart the equipment.
13. Do not run the equipment if a problem exists. The equipment must be functioning properly and smoothly during operation or it must be shut down and the problem corrected.
14. When operation is complete, shut down the equipment by pressing the appropriate stop button.
15. Turn the system off and disconnect all power sources before performing ANY type of servicing, cleaning, maintenance or inspections. Follow the LOCKOUT/TAGOUT procedure.



# **GUIDELINES FOR SAFE SANITATION**

# SAFETY DURING SANITATION

## Recommendations for the Sanitation Process

**All equipment requires periodic sanitation. Failure to practice proper sanitation and/or maintenance procedures as noted in the equipment manual can lead to unsafe conditions. Maintain optimum equipment sanitation to promote product quality and safe operating conditions.**

**General cleaning and sanitation recommendations for a production system are given below. For instructions specific to individual pieces of equipment, see the individual equipment sections in the equipment manual.**

- Turn the equipment OFF and disconnect all power sources before beginning the sanitation process. Follow the LOCKOUT/TAGOUT procedure. Failure to follow this warning could result in death or severe personal injury.
- Production systems are dangerous during operation. Death or severe personal injury may result if warnings are disregarded. When working on or around all equipment, avoid the use of loose clothing, jewelry or any loose articles that may be caught in moving parts. Keep all extremities away from moving parts. Never operate any equipment while other personnel are cleaning, servicing or performing maintenance.
- Proper sanitation is critical to the smooth operation and high performance of the equipment. Special care must be taken to ensure that it is kept clean and free of debris. The equipment is mainly constructed of noncorrosive stainless steel which provides fast and efficient sanitation.
- Wear personal protective equipment (safety garments, safety glasses, gloves, etc.) appropriate for sanitation.
- Equipment used to handle raw dough or batter must be kept in a high state of cleanliness at all times. Equipment cleanliness affects consumer health, product quality (flavor, texture and appearance) and equipment performance.
- Allow only trained personnel to sanitize the equipment. All personnel must be properly trained in safe sanitation practices and how the equipment should be disassembled for cleaning. Before operating the equipment, read the sanitation instructions in the equipment manual and become thoroughly familiar with the equipment and its assembly and disassembly procedures.
- Any equipment used intermittently should be cleaned after use and before storage. When taken out of storage for impending use, the equipment must be cleaned again prior to operation to remove any residual dust or debris incurred during storage.



## SAFETY DURING SANITATION

### Recommendations for the Sanitation Process Continued...

- Depending on the operating environment and the product being processed, the equipment may require more frequent cleaning than outlined in the manual. Individual operating parameters will help determine sanitation intervals. Intervals in the equipment manual are intended as a guide for typical operating conditions.
- Some equipment must be disassembled for cleaning. When reassembling, carefully inspect each component to verify that no foreign material remains. If component damage is noted, contact Maintenance to have the component repaired or replaced prior to reassembly and prior to operation.
- Many components are machined to fine tolerances and can easily be damaged if mishandled. Handle all components carefully during sanitation. Never throw parts into a bucket, tub or sink. Never drop a component or handle roughly. Use a lifting device for heavy pieces.
- Water in the electrical circuits will result in permanent electrical damage. Electrical components that are not washdown duty must be covered securely in plastic (bagged) prior to sanitation. Use caution to prevent possible electrical shock from water contacting electrical components.
- Cleaning solutions may contain caustics that will damage machine components. If unsure whether equipment can withstand the chemicals in a certain cleaning solution, use only warm water and mild soap.
- When using commercial cleaning compounds, it is essential to strictly follow the cleaning compound manufacturer's instructions for use (mixing, proportions, etc.). Consultation with the manufacturer's technical representatives for solutions to special problems is advisable.

- Never use wire brushes or metal tools to remove debris from the equipment as these may scratch or deform equipment surfaces. Use only nylon bristle brushes or plastic scrapers to remove debris. Never use abrasive materials such as scouring pads, wire cloth or grit cleansers.



**Plastic Scraper / Nylon Bristled Brush**

- Use clean, warm water. If the equipment is rated as washdown duty, pressure washing can be performed as long as electrical components are properly covered to prevent moisture from entering. Water in the electrical components can cause electrocution if the equipment is not properly locked out, resulting in severe personal injury. Equipment damage may also occur if water or moisture are allowed in the electrical components.

- If essential lubrication is washed away from the equipment, it must be reapplied prior to operation. After cleaning, check all equipment for proper lubrication. Reapply lubricant if necessary.



# **GUIDELINES FOR SAFE MAINTENANCE**

# SAFETY DURING MAINTENANCE

## General Maintenance Recommendations

Proper maintenance is critical to personnel safety, smooth equipment operation and lasting performance. A production system or individual piece of equipment requires regular maintenance to help promote equipment safety, provide an optimum end product and to prevent costly down time. Failure to practice proper maintenance procedures as noted in the equipment manual can lead to unsafe conditions and shorten the life of the equipment. A preventive maintenance program is imperative.

General maintenance recommendations are given below. For instructions specific to individual pieces of equipment, see the individual equipment sections in the technical manual.

- Prior to any maintenance procedure, turn the equipment OFF and disconnect all power sources. Follow the LOCKOUT/TAGOUT procedure. Failure to follow this warning could result in death or severe personal injury.
- Production systems are dangerous during operation. Death or severe personal injury may result if warnings are disregarded. When working on or around all equipment, avoid the use of loose clothing, jewelry or any loose articles that may be caught in moving parts. Keep all extremities away from moving parts. Never operate any equipment while other persons are cleaning, servicing, or performing maintenance.
- Wear personal protective equipment (safety garments, safety glasses, gloves, etc.) appropriate for the maintenance process to be performed.



- If you suspect faulty or damaged equipment, remove it from service and have it repaired or replaced by authorized personnel. Never allow equipment that is faulty or damaged to be operated.
- Maintain all safety devices, including switches, sensors and guards, for personnel safety. Ensure that these items are in proper working order prior to operation.
- Allow only trained personnel to service and maintain the equipment. Potential voltage hazards and other operational hazards are present.
- Follow the Preventive Maintenance Schedules in the technical manual for each piece of equipment to properly maintain components.

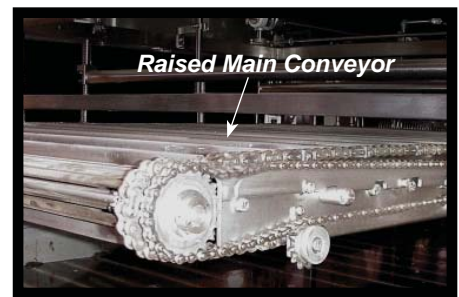




## SAFETY DURING MAINTENANCE

### General Maintenance Recommendations Continued...

- Depending on the operating environment and the product being processed, the equipment may require more frequent maintenance than outlined in the technical manual. Individual operating parameters will help determine maintenance intervals. Intervals in the technical manual are intended as a guide for typical operating conditions.
- Understand how the equipment is assembled and disassembled for proper maintenance. When reassembling, carefully inspect each component to verify that it is clean and is not damaged in any way. If component damage is noted, the component must be repaired or replaced prior to reassembly and prior to operation.
- Most components are machined to fine tolerances and can easily be damaged if mishandled. Handle all components carefully during maintenance. Never casually toss or drop a component and do not handle components roughly. Use a lifting device for heavy pieces.
- Use the recommended lubricant for each component and the appropriate amount. Do not over-lubricate. See the Lubricants section of the technical manual for lubrication amounts, intervals and types.
- Use caution during maintenance to prevent scratching or denting equipment surfaces.
- Allow adequate time for heated equipment (such as a proofer or fryer) to cool before performing any cleaning, servicing or daily preventive maintenance.



# SAFETY DURING MAINTENANCE

## Preventive Maintenance Recommendations

### Preventive Maintenance

A preventive maintenance program is critical to promote safety, smooth equipment function and to prevent costly down time.

Follow the Preventive Maintenance Schedules for each piece of equipment in the technical manual to properly maintain components. Each piece of equipment will have its own schedule.

Description	Daily (24 hr)	Weekly (50 hr)	Monthly (200 hr)	Qrtrly (600 hr)	6 Mo (1200 hr)
Ensure that sensors are clean and free from flour dust or debris. Ensure that beam areas are clear.	•				
Check spring tension on scrapers. Adjust as necessary.	•				
Check chains for stretching and wear. Replace if needed. Lubricate with a light coating of SAE 30 weight food-grade oil.			•		
Check sprockets for wear and damage. Replace if needed.			•		
Check gears for wear and damage. Replace if needed.			•		
Lubricate fittings with H-1 food grade grease.			•		
Check scrapers/pressure plates for wear. Replace if needed.			•		
Check oil level in gearmotors/reducers. Fill according to manufacturer's recommendations in vendor literature.				•	

Depending on the operating environment and the product being processed, the equipment may require more frequent maintenance than the intervals recommended to maintain safety and optimum equipment function. Individual operating parameters will help determine the appropriate maintenance intervals.

**Turn the machine off and disconnect all electrical and pneumatic power before performing ANY type of servicing or cleaning, maintenance or inspections. Follow the LOCKOUT/TAGOUT procedure. Failure to follow this warning could result in death or severe personal injury.**

# SAFETY DURING MAINTENANCE

## Equipment Lubrication Recommendations

### Lubrication

Recommended lubricant types, intervals and lubrication points on the machine are listed in the technical manual. Follow these recommendations to maintain machine safety and for optimum equipment function. Components that are not properly lubricated can seize, causing the equipment to function improperly and creating a hazard for personnel.

Dispose of used lubricant in accordance with all applicable laws and regulations.

After sanitation, maintenance personnel must check all equipment for proper lubrication and re-lubricate any areas where lubricant was washed away.

#### Lubricants

The following lubricants are recommended. Dispose of used lubricant in accordance with all regulations.

Application	Type of Lubricant
Bearings (general use)	H-1 food grade grease (2 - 3 grease gun applications on each fitting once every 200 hours, or more often in severe operating conditions).
Chains (general use)	SAE 30 weight oil (food grade).
Motors/Gearmotors/Reducers	See Vendor Literature section under manufacturer's name.

NOTE: Over-lubrication can cause bearing failure. Relubricate conservatively if bearing grease level is unknown.

#### Lubrication Points

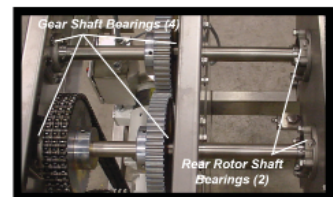
##### Gear Shaft Bearing Lubrication

Lubricate the four gear shaft bearings monthly with 2 - 3 grease gun applications of H-1 food grade grease.

##### Roller Shaft Bearing Lubrication

Lubricate the two front and two rear rotor shaft bearings monthly with 2 - 3 grease gun applications of H-1 food grade grease.

NOTE: Some of the bearings (typically those near the rotors) may be Micropoly and do not require lubrication. A plug will be installed where the grease fitting is typically located on these bearings.



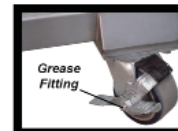
*Typical Gear Shaft and Rear Rotor Shaft Bearings*



*Typical Front Rotor Shaft Bearings*

##### Caster Lubrication

Lubricate the caster grease fittings monthly with 2 - 3 grease gun applications of H-1 food grade grease. There are typically two grease fittings per caster, one on the caster axle and one under the mounting pad for the swivel.



*Grease Fitting on Caster Axle*



*Grease Fitting on Caster Mounting Pad*

# **SAFETY GUIDELINES FOR SPECIFIC EQUIPMENT**

# Dough Forming Equipment Safety

Moline dough forming equipment is designed to provide a consistent and uniform dough sheet to the sheeting line. Mixed dough is delivered to the hopper of the dough forming equipment where it is then formed into a measured dough portion or into a dough sheet. Dough forming equipment includes starwheel chunkers, portable dough formers and extruders. The stationary YOGA dough former also falls into this category.



The following safety precautions must be followed:

- Shut the equipment down prior to any inspection, maintenance or sanitation. Use the lockout/tagout procedure to ensure the equipment cannot be restarted until all work is complete.
- Never access moving equipment, including the hopper, the dough chunks or the dough sheet during operation. Keep fingers, hands and body parts out of the operating area at all times during operation.
- Dough forming starwheels, rotors and rollers move with extreme force during operation and must not be touched, adjusted or accessed during operation except through the operator interface or via control buttons and handles.
- Do not attempt to remove foreign objects from the operating area until the equipment has been stopped and the lockout/tagout procedure has been implemented.
- Ensure that all guards and access doors are installed and closed securely prior to operation. Ensure that all safety devices are installed and functioning properly.
- Re-tension belts or adjust belt trackers only when the equipment is shut down and the lockout/tagout procedure has been implemented.
- Never stand on or inside equipment components during sanitation or maintenance. If components move or shift, pinch points can be created that can cause severe injury or death. Use appropriate ladders or catwalks during sanitation or maintenance.
- Never attempt to perform sanitation or maintenance on equipment that is running. Shut down the equipment and use the lockout/tagout procedure.
- Ensure that all guards, switches and sensors are clean and in good operating condition prior to equipment startup.
- Pneumatic components can retain stored energy. Release all air pressure to the pneumatic system prior to performing inspection, sanitation or maintenance procedures.

## Sheeting Line Safety

Using various combinations of rollers and roller styles, Moline sheeting equipment is designed to provide a precise and consistent dough sheet to customer specifications. Flour dusters apply flour to the top and bottom of the dough sheet for smooth travel.



The safety precautions below must be followed:

- Shut the equipment down prior to any inspection, maintenance or sanitation. Use the lockout/tagout procedure to ensure the equipment cannot be restarted until all work is complete.
- Never access moving equipment, the dough sheet or the product during operation. Keep fingers, hands and body parts out of the operating area at all times during operation.
- Sheeting rollers, drive chains/belts and conveyor belts are moving with extreme force during operation and must not be touched, adjusted or accessed during operation except through the operator interface or via control buttons.
- Sheeting rollers typically contain smooth surfaces which may not present an obvious visual indication that they are rotating during operation and creating a severe pinch point hazard. Ensure that the machine has been shut down, that all moving components have stopped moving and that the lockout/tagout procedure has been implemented prior to accessing any equipment components.
- Do not attempt to remove foreign objects from the operating area until the equipment has been stopped and the lockout/tagout procedure has been implemented.
- Flour dusters should be filled with flour prior to operating the equipment.
- Ensure that all guards and access doors are installed and closed securely prior to operation. Ensure that all safety devices are installed and functioning properly.
- Re-tension belts or adjust belt trackers only when the equipment is shut down and the lockout/tagout procedure has been implemented.
- Never stand on or inside equipment components during sanitation or maintenance. If components move or shift, pinch points can be created that can cause severe injury or death. Use appropriate ladders or catwalks during sanitation or maintenance.
- Never attempt to perform sanitation or maintenance on equipment that is running. Shut down the equipment and use the lockout/tagout procedure.
- Ensure that all guards, switches and sensors are clean and in good operating condition prior to equipment startup.
- Pneumatic components can retain stored energy. Release all air pressure to the pneumatic system prior to performing inspection, sanitation or maintenance procedures.



# Makeup Line Safety

Moline makeup lines include product forming, cutting, trim removal and dedusting equipment. Equipment may include stamping or cutting stations, product center hole removal units, crimpers, dough plows, curling rolls, water spray applicators, cinnamon dispensers, repositioners, trim removal units and flour dust removal systems.



The safety precautions below must be followed:

- Shut the equipment down prior to any inspection, maintenance or sanitation. Use the lockout/tagout procedure to ensure the equipment cannot be restarted until all work is complete.
- Never access moving equipment, the dough sheet, product or trim dough during operation. Keep fingers, hands and body parts out of the operating area at all times during operation. Do not try to pick up or realign the product, dough sheet or trim dough while the equipment is running.
- Cutting equipment is extremely sharp and is moving with extreme force during operation. This equipment must not be touched, adjusted or accessed during operation except through the operator interface or via control buttons.
- Do not attempt to remove foreign objects from the operating area until the equipment has been stopped and the lockout/tagout procedure has been implemented.
- Flour/cinnamon dusters or dry topping applicators should be filled with ingredient prior to equipment startup.
- Ensure that all guards and access doors are installed and closed securely prior to operation. Ensure that all safety devices are installed and functioning properly.
- Re-tension belts or adjust belt trackers only when the equipment is shut down and the lockout/tagout procedure has been implemented.
- Never stand on or inside equipment components during sanitation or maintenance. If components move or shift, pinch points can be created that can cause severe injury or death. Use appropriate ladders or catwalks during sanitation or maintenance.
- Never attempt to perform sanitation or maintenance on equipment that is running. Shut down the equipment and use the lockout/tagout procedure.



## Makeup Line Safety Continued...

- Ensure that all guards, switches and sensors are clean and in good operating condition prior to equipment startup.
- Some equipment (such as cutters, stamping dies and cutter-picker rods) contain very sharp components. Wear personal protective equipment when handling or adjusting these items during shutdown inspection, sanitation or maintenance procedures.
- Pneumatic components can retain stored energy. Release all air pressure to the pneumatic system prior to performing inspection, sanitation or maintenance procedures.
- Ensure that flour removal (dedusting) equipment is properly connected to the dust collector prior to operation to prevent excess flour from entering the operating area. Ensure that the dust collector filters and collection receptacle are clean and ready for operation. Do not allow excess flour to become airborne in the operating area or during sanitation and maintenance – this can cause a respiratory hazard to personnel.



## Proofer Safety

**Moline proofers provide a climate-controlled environment for uniform and consistent proofing of yeast-raised product. The product travels through the proofer for a predetermined amount of time to allow it to rise to customer standards prior to frying/baking. Heat and humidity are provided by steam, electricity and/or water.**

**The following safety precautions must be followed:**

- Shut the equipment down prior to any inspection, maintenance or sanitation. Use the lockout/tagout procedure to ensure the equipment cannot be restarted until all work is complete.
- Never access moving equipment or product during operation. Keep fingers, hands and body parts out of the operating area at all times during operation. Do not try to pick up or realign the product or equipment during operation.
- The proofer drive chains, trays and discharge mechanism are moving with extreme force during operation. These components must not be touched, adjusted or accessed during operation except through the operator interface or via control buttons.
- Re-tension chains only when the proofer is shut down and the lockout/tagout procedure has been implemented.
- Do not attempt to remove foreign objects from the operating area until the equipment has been stopped and the lockout/tagout procedure has been implemented.
- The starch duster and chain oil reservoirs should be filled prior to operating the equipment. Do not access these components during operation.
- Ensure that all guards and access doors are installed and closed securely prior to operation. Ensure that all safety devices are installed and functioning properly.
- Use an approved ladder or catwalk for accessing high components during inspection, sanitation and maintenance. Never stand on or inside the equipment. If components move or shift during shutdown, pinch points can be created which can cause severe injury or death.
- The proofer steam system must be installed by a qualified contractor to ensure proper function and installation of applicable safeties. Maintain correct PSI ratings for steam components per the equipment manual.
- The steam relief valve on top of the proofer can release at any time. The steam valve must be vented to a safe area away from contact with personnel. Keep all personnel away from this steam discharge area. Do not plug or cap the drain or vent openings on the steam pressure relief valve. The steam relief valve must also be periodically tested to verify correct function. Failure to follow these precautions will result in death or severe personal injury.



## Fryer Safety

Moline industrial fryers are available in either gas, electric or dual fuel to fry product on both sides as it moves through the kettle on the main conveyor (surface conveyor). The canopy and exhaust system remove frying oil residue and exhaust during operation.



The safety precautions below must be followed:

- Shut the equipment down prior to any inspection, maintenance or sanitation that does not require the main conveyor to be moving. Use the lockout/tagout procedure to ensure the equipment cannot be restarted until all work is complete.
- Use extreme caution when performing procedures that require the main conveyor to be running (EX: the boil-out procedure). Keep body, hands, feet, hair and clothing away from moving parts at all times. Always practice proper safety procedures and wear personal protective equipment (gloves, goggles, aprons and face shields, etc.) when performing any type of fryer procedure.
- Never access moving equipment or the product during operation. Keep fingers, hands and body parts out of the operating area at all times during operation. Do not try to pick up or realign the product or equipment during operation.
- The fryer main conveyor, turner and discharge conveyor are moving with extreme force during operation. This equipment must not be touched, adjusted or accessed during operation except through the operator interface or via control buttons.
- The hot shortening (frying oil) used in the fryer is extremely dangerous and can cause severe burns. Allow shortening and equipment to cool before performing any type of cleaning, maintenance or inspection. ALWAYS wear personal protective equipment to help prevent burns.
- Hot shortening in the fryer can present an uncontrolled fire hazard. Install an appropriate automatic fire suppression system prior to fryer startup. The type of suppression equipment and the installation requirements must comply with local fire and safety codes and should be in accordance with insurance guidelines. Keep extinguishing equipment available to all personnel around or near the fryer. Always wear protective garments to safeguard against burns.
- Metal will retain heat even after shutdown. Contact with hot metal surfaces can cause severe burns. Allow the equipment to cool down before performing any type of cleaning, maintenance or inspection. ALWAYS practice proper safety procedures and wear personal protective equipment (gloves, goggles, aprons, and face shields, etc.) when performing any type of procedure on the fryer and/or main conveyor.



## Fryer Safety Continued...

- Hot shortening that comes in contact with water can explode or erupt, spraying personnel and surrounding areas. Always ensure that fryer components are completely dry before filling the kettle with shortening and starting up the machine. Keep all water sources away from hot shortening.
- Under no circumstances is the fryer to be modified without factory authorization. Unauthorized modifications can result in severe personal injury or death.
- Ensure that all guards and access doors are installed and closed securely prior to operation. Ensure that all safety devices are installed and functioning properly.
- Do not alter, bypass or disconnect any of the system safeties used on this machine. Periodically inspect all safeties to ensure satisfactory operation - repair or replace any damaged components. Modification, damage or disconnection of these safeties can cause death, severe injury or property damage.
- Spills and splashes are a safety hazard. Always clean the fryer and surrounding areas immediately after a spill or splash occurs.
- Do not attempt to remove foreign objects from the fryer or the operating area until the equipment has been stopped and the lockout/tagout procedure has been implemented.
- Excessive buildup of grease and residue in canopy filters or exhaust blowers can become a fire hazard. Check the filters and exhaust blowers monthly for buildup and clean thoroughly.
- Exhaust flues should be routed individually straight up through the building roof. Exhaust flues should not be routed together to produce one primary stack. This can cause air flow restriction and the chance of flue gasses entering the building. Flue gasses contain carbon monoxide which can cause death or severe personal injury.
- Excessive buildup of soot and residue in the flue boxes and turbulators can become a fire hazard. Check these areas monthly for buildup and clean thoroughly.
- The pilot line must be mounted in all support brackets and properly positioned so that every burner nozzle is directly lit by the pilot during ignition. If the pilot line is installed too close or too far from the burner nozzles, the flame may not properly reach the burner tubes once ignition is activated. This can create a severe safety hazard due to gas buildup and the possibility of backfiring or a gas explosion.
- Long gas piping runs are prohibited due to combustible fuel buildup inside the piping during operation which can result in an explosion and/or fire hazard.





## Fryer Safety Continued...

- Thermocouples that are not submerged in the frying oil will cause excess heat which could result in severe degradation of the frying oil or a possible fire hazard.
- Filling the fryer with shortening should be done with constant vigilance and supervision. Do not leave the fryer unattended during the filling process. Ensure that enough personnel are available to properly fill the fryer. One person should be at the fryer controls at all times during the filling process.
- Use extreme caution when performing the boil-out process which requires applying power to the fryer and conveyor. Ensure that personnel are clear of the fryer and surrounding area when the fryer is started and run during boil-out.
- When certain dry crystals are added to the water during the boil-out procedure, they may cause bubbling and splattering. ALWAYS work carefully. Wear gloves, safety goggles, protective clothing, and a face shield for protection.
- During sanitation, residual water, moisture or condensation that contacts hot shortening can cause the shortening to burst from the kettle and spray personnel and surrounding areas. Ensure that all water is removed from the fryer before adding shortening.
- Use caution when performing any type of frying oil filtering process on the fryer. The metal will be very hot and can cause moderate or serious injury. Wear the proper protective gear (goggles, gloves, work apron, etc.) for the job.
- The fryer kettle must be drained of frying oil prior to any significant sanitation. The customer must have an adequate storage or discard system in place for this process.



***Moline equipment is designed to provide many years of safe, efficient operation when safety precautions are implemented and proper equipment procedures are performed.***

***Safety is our number one concern – make it yours.***



***Contact our Customer Service Department with any questions or concerns.***

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