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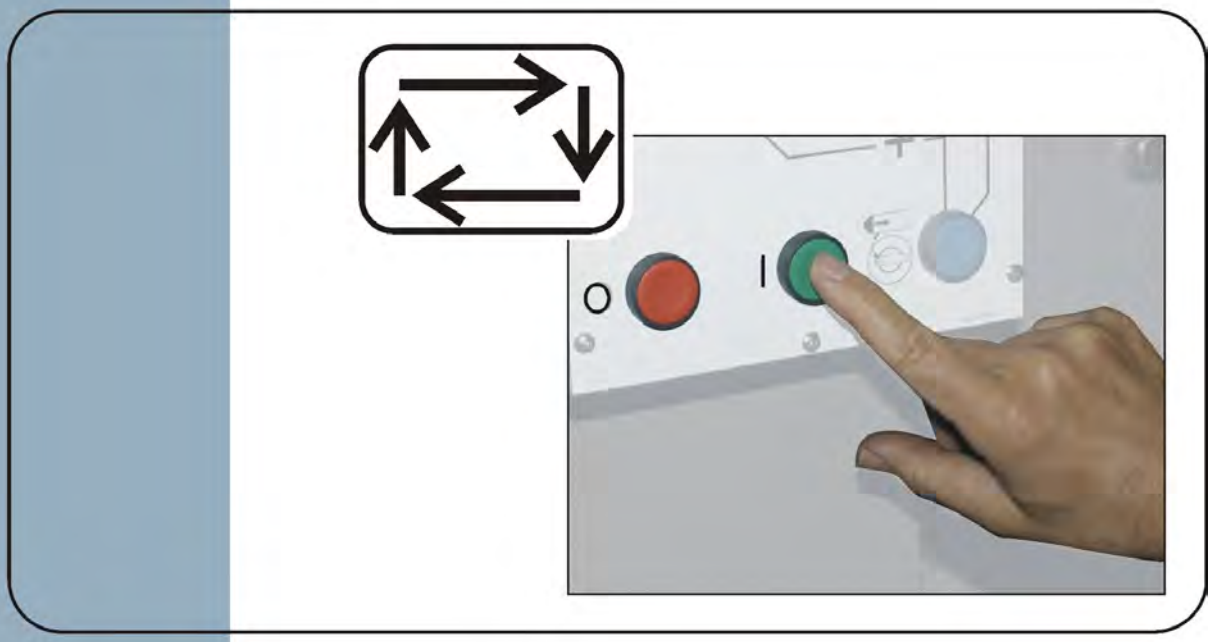
# MILRAIL™

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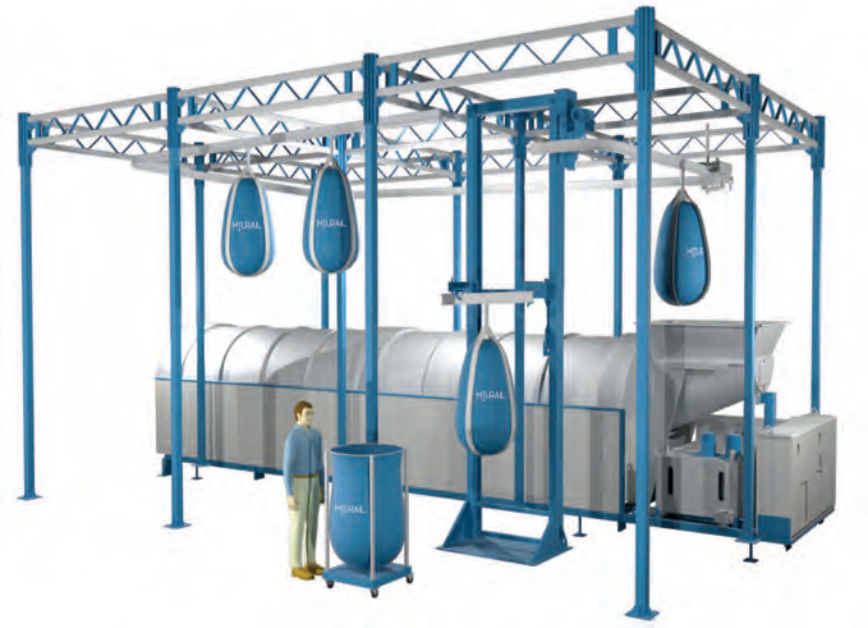
# MKRUSO01U1/21172A

# English 1

Manual Number: MKRUSO01EN
Edition (ECN): 2021172

# Operator Guide

# MILRAIL™ Simple Loop Rail System



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# 1 Preface

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## 1.1 About This Operator Guide and This MILRAIL™ Simple Loop Rail System

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This operator guide explains routine operation. It is for the operator and for supervisory personnel responsible for operator training. The system must be fully commissioned and ready before you attempt to operate it. A separate controller reference manual, MCRUSB01, is available from Milnor for use by technicians involved in the programming and troubleshooting of the system.

**WARNING: Careless use** — can cause death or serious injury and property damage.

▶ Read the machine manuals before you install, operate, service, or clean the machine.

This MILRAIL™ simple loop rail system has one or more physical switches and buttons (electromechanical controls), as well as a touch-sensitive display screen with virtual controls. Use the electromechanical controls to apply power, move the mast lift, and stop the system immediately (if necessary). Use the touch-actuated controls on the MILRAIL™ controller display screen to monitor production, enter sling data, and troubleshoot the system.

### 1.1.1 Rail System Terminology

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The following list of terms can help you identify the different parts of your rail system.

**Slings—** Bags full of goods that will be discharged to the CBW® washer's chute. Slings are also commonly referred to as bags.

**Mast Lift—** The device that lifts slings and transfers them to the rail loop. It consists of the carriage, the flight bar, and the floor scale. The mast lift is also commonly referred to as the elevator. The mast lift has four positions. See Section 1.1.2 .

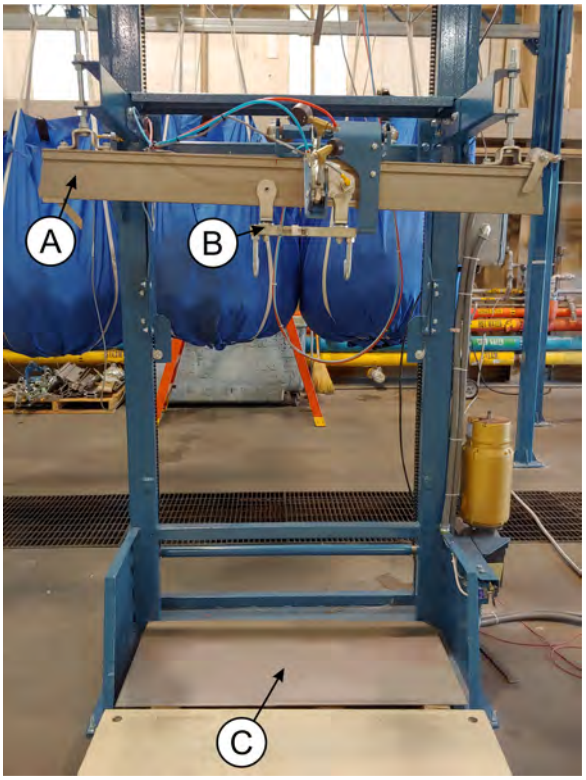
**Carriage (item A in Figure 1 )—** The piece of rail on the mast lift that holds the flight bar until it transfers the flight bar to the rail loop.

**Flight Bar (item B in Figure 1 )—** The device used to carry a sling along the rail loop. The operator manually attaches a sling to the flight bar. The flight bar is also commonly referred to as the trolley.

**Floor Scale (item C in Figure 1 )—** A scale built into the bottom of the mast lift used to weigh goods.

**PVC—** An optional device used to raise slings from a low rail to a higher rail on the rail loop. PVC stands for Pneumatic Vertical Conveyor.

**Figure 1. Parts of the Mast Lift**




**Discharger—** The device that discharges goods from a sling to the CBW® washer's chute.

**Stop—** A device used to temporarily stop and allow the progression of a sling along the rail, break the momentum of a fast-moving sling, or hold a sling in a particular position (such as on the discharger).

**Buffer—** A stop used to temporarily hold one or more slings, to prevent slings from progressing when a line (or device, such as discharger) is already full. For example, the full bag buffer prevents slings from entering the full bag storage line when the full bag storage line is full.

**Lift Bar—** A device located before a stop, which the controller uses to determine if a line is full.

**Empty Bag Buffer—** A storage location on the rail loop where the flight bar carrying an empty sling waits after the sling discharges its goods. Here, the operator removes the empty sling from the flight bar, and the flight bar waits to be retrieved by the mast lift's carriage.

**Full Bag Buffer—** A storage location on the rail loop where slings transferred from the mast lift to the rail loop wait to enter the full bag storage line.

**Full Bag Storage Line—** A storage location on the rail loop where slings wait to enter the discharger.

## 1.1.2 The Mast Lift Positions

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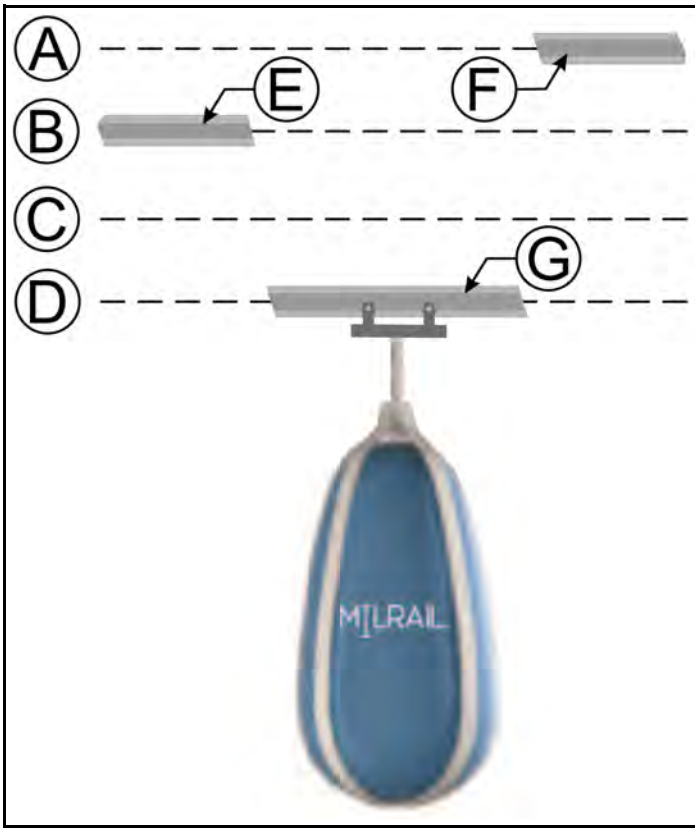
The mast lift has four different positions, as explained below. The following figure shows an example rail system layout with the different mast lift positions.

**Figure 2. Mast Lift Positions**




**Legend**

**A . . .** Top level— The highest lift position, where the lift transfers slings onto the rail loop.

**B . . .** Empty-bag level— After a sling discharges its goods, the lift waits at this position to retrieve the flight bar from the empty bag buffer.

**C . . .** Safety level— The operator raises the lift to this position after he/she attaches a sling to the flight bar. At the safety level, the system transitions to automatic mode.

**D . . .** Bottom level— The lowest lift position, where the operator attaches a sling to a flight bar. This position is also commonly referred to as the loading level.

**E . . .** Rail connecting to the empty bag buffer (rail loop exit).

**F . . .** Rail connecting to the full bag buffer (rail loop entrance).

**G . . .** The carriage with a flight bar and full sling attached

# 2 Controls



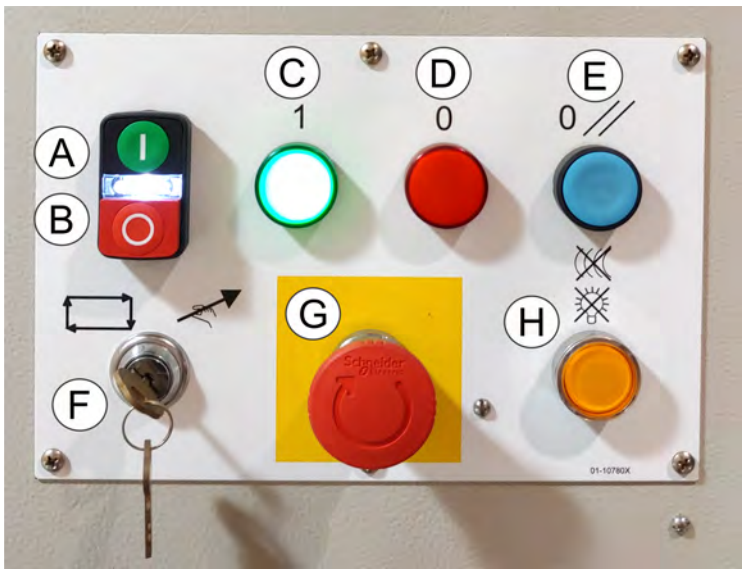
## 2.1 Physical Controls



There are two control panels with physical (electromechanical) controls for your rail system. The first control panel applies and removes power from the controller and is located on the fuse box. The second control panel controls the mast lift and is located beneath the touch-sensitive display screen on the controller.

The following figure shows how the control panel appears on your fuse box.

**Figure 3. Control Panel on the Fuse Box**




**Legend**

**A . . .** System start button
**B . . .** System stop button
**C . . .** System running status light
**D . . .** Emergency stop status light
**E . . .** System reset button
**F . . .** Empty fetch keyswitch
**G . . .** Emergency stop switch
**H . . .** Signal cancel

**System start button** — Applies power to the rail system. The light in the middle illuminates when the system has power.

**System stop button** — Removes power from the system and stops operation.

**NOTE:** This button does not remove power from the controller.

**System running status light (①)** — A status light that illuminates when the system has power.

**Emergency stop status light (⓪)** — A status light that illuminates when the emergency stop switch is activated and the external alarm is sounding.

**System reset button (⓪)** — Push this button, then push the system start button to reset the system and return to normal operation after the emergency stop switch is activated.

**Empty fetch keyswitch ( / )** — This keyswitch activates empty fetch mode when it is in the position. See Section 4.2 : The Empty Fetch Sequence, page 20 for more information.

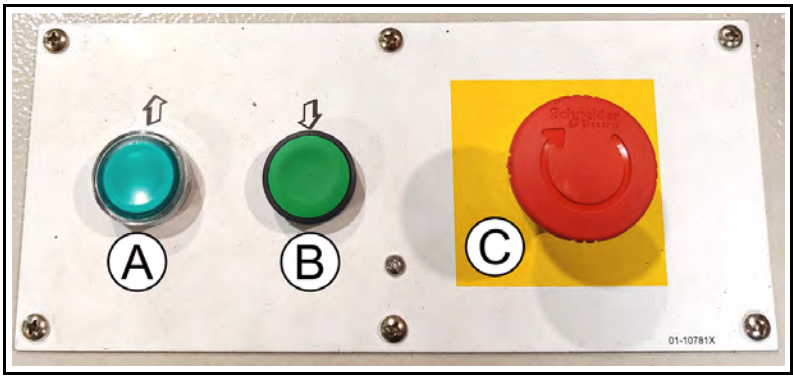
The system operates under automatic control.

The system operates in empty fetch mode.

**Signal cancel button ( )** — Cancels the external alarm.

The following figure shows how the control panel appears on your controller.

**Figure 4. Control Panel on the Controller**




**Legend**

**A . . .** Move up button
**B . . .** Move down button
**C . . .** Emergency stop switch

**Move up button ( )** — This button, when held, will move the mast lift (elevator) up. During normal operation, this button is only enabled when the controller is ready to transfer the sling to the rail loop (when the floor scale measures more than 50 pounds of goods), and illuminates to indicate when it is enabled. The mast lift automatically stops at the safety level, where the controller transitions to automatic mode.

**Move down button ( )** — This button, when held, will move the mast lift (elevator) down. During normal operation, the mast lift automatically stops at the bottom level, where the controller waits for an incoming sling.

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## 2.2 Emergency Stop Switch (locking push button)

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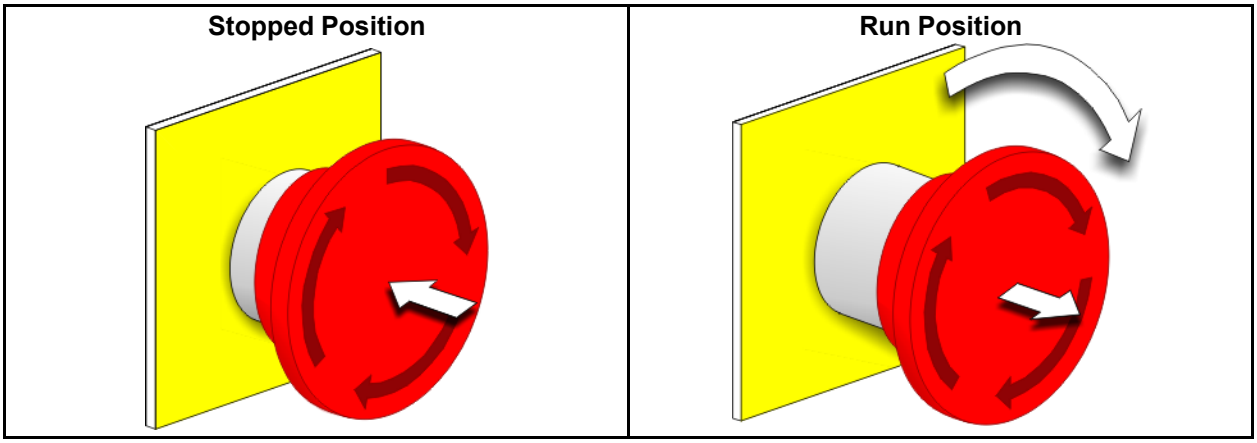
One or more **emergency stop** switches (pictured below) may be provided on the device. When pressed, any **emergency stop** switch removes power from the machine controls, stops the machine, and locks in the depressed (switch actuated, machine stopped) position. When safe to do so, turn the button clockwise to unlock the switch. To resume operation, perform the device's normal startup procedure.

**Figure 5. Emergency Stop Switch**




**NOTICE:** Press the **emergency stop** switch immediately in an emergency situation.

| Display or Action | Explanation |
|---|---|
| | This symbol represents the **emergency stop** switch in Milnor® documents other than electrical wiring diagrams. |

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# 2.3 How to Use the MILRAIL™ Simple Loop Controller

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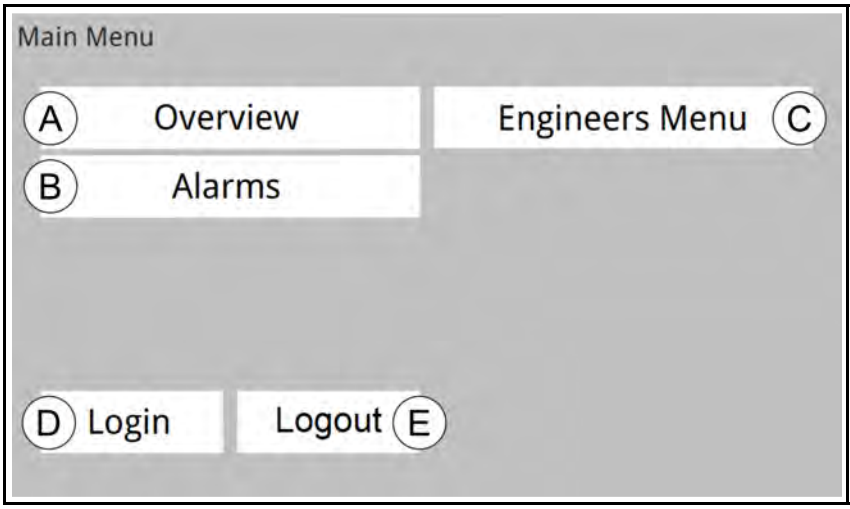
The MILRAIL™ simple loop controller uses a touch-sensitive display screen to operate the system.

**CAUTION:** **Excessive pressure** — can damage the display screen.

- Do not push hard on the glass.
- Use only a finger to touch the glass. Do not touch the screen with a tool.

The Main Menu is the default display on the MILRAIL™ simple loop controller. It is used to log in and access all the other menus, as shown below.

**Figure 6. Main Menu**




**Legend**

**A . . .** Access the Overview display (see Section 2.3.2 ).

**B . . .** Access the Alarms Menu (see Section 4.1.2 : The Alarms Menu, page 19).

**C . . .** Access the Engineers Menu (see the separate reference manual, MCRUSB01, for more information).

**D . . .** Access the Login window (see Section 2.3.1 ).

**E . . .** Log out of the current user's account

## 2.3.1 Select a user and log in.

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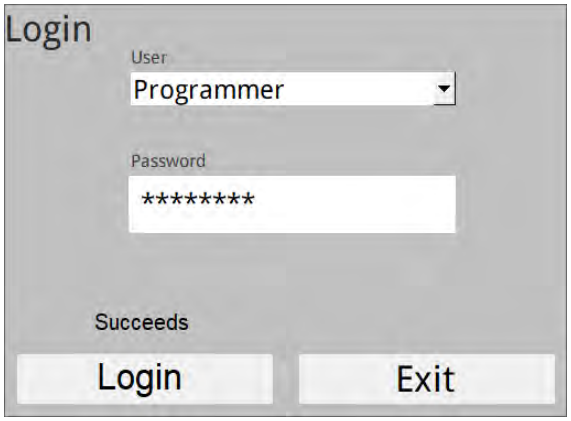
Select a user and log in to use the MILRAIL™ simple loop controller. There are four types of users, each with access to different features.

1. On the Main Menu, touch the button labeled "Login" at the bottom of the screen. The Login window appears, as shown in the following figure.

**Figure 7. Login Window**




2. Select a user from the dropdown menu. There are four choices:
   - Operator—Has access to most displays but cannot access the PLC Sequences display and cannot edit sling data.
   - Manager—Has access to all displays except the PLC Sequences display.
   - Engineer—Has access to all displays.
   - Programmer—Has access to all displays.
3. Touch the text box labeled “Password.”
4. Use the keypad to enter the password for the user you selected.
5. Touch the button labeled “Login” in the bottom-right of the window to log in.

## 2.3.2 The Overview Display

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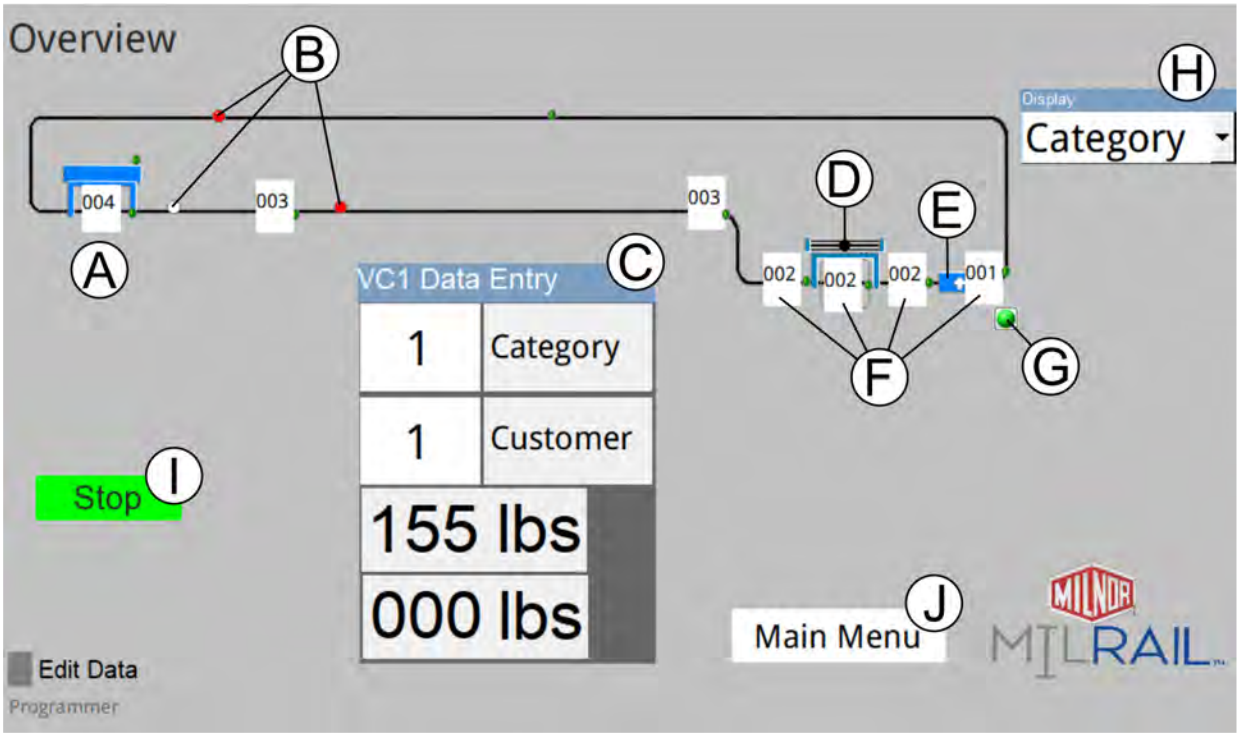
From the Main Menu, touch the button labeled “Overview” to access the Overview display. The Overview display depicts a customized, simplified version of your rail system that updates in real-time.

The display represents slings with square icons on the rail loop, and indicates how many slings are on the rail, and their locations on the rail. You can choose the data displayed on the sling icons— category, customer, weight, or destination— using the dropdown menu (item H in the following figure).

The Overview display also shows the locations and status of the mast lift, discharger, and optional PVC, and indicates if these devices have a sling.

The following figure shows an example rail system and explains how to interpret the Overview display.

**Figure 8. The Overview Display (Example)**




**Legend**

**A . . .** The mast lift (elevator), with a sling attached. See Figure 9 .

**B . . .** Lift-bar proximity switches, which indicate if a line can receive slings. White = can, red = cannot.

**C . . .** The data for the incoming sling (on the mast lift). The controller inputs this information automatically.

**D . . .** PVC, with a sling attached.

**E . . .** The discharger to the CBW® washer's chute, with a sling attached. The arrow icon indicates when the discharger receives a signal to release the sling contents into the tunnel.

**F . . .** Slings, with the Category number displayed.

**G . . .** Touch to pause the rail system (without cancelling production).

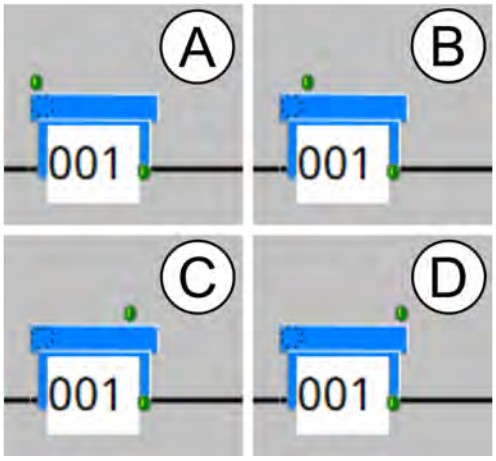
**H . . .** Choose the data displayed on the sling icons— category, customer, weight, or destination.

**I . . .** Indicates when production is stopped (when the user presses the system stop button). All devices in the rail system will stay in their current positions until operation is resumed with the system start button.

**J . . .** Return to the Main Menu.

The mast lift icon displays the current position of the mast lift using circular green indicators, as shown in the following figure. (See Section 1.1.2 : The Mast Lift Positions, page 3 for explanations of the different levels.) Arrows also appear on the mast lift icon to indicate its direction of movement.

**Figure 9. Mast Lift Positions**




**Legend**

**A . . .** Empty-bag level
**B . . .** Safety level
**C . . .** Top level
**D . . .** Bottom level

# 3 Normal Operation



## 3.1 Normal Operation

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During normal operation, the rail system operates automatically to queue slings and discharge goods to the CBW® washer's chute. The operator intervenes only to attach slings to the flight bar, then raise the mast lift to transfer the sling to the rail loop. The system returns to automatic operation when the operator raises the mast lift to the safety level. Occasionally, the operator may need to ask a supervisor to edit a sling's data.

**WARNING:** **Descending mast lift —** can crush bystanders.

- Make sure bystanders are safely away from the mast lift before you operate it.
- Do not stand near or under the mast lift while it moves under automatic control.

### 3.1.1 Enter the data for the incoming sling.

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Each sling has data associated with it— category, customer, and weight.

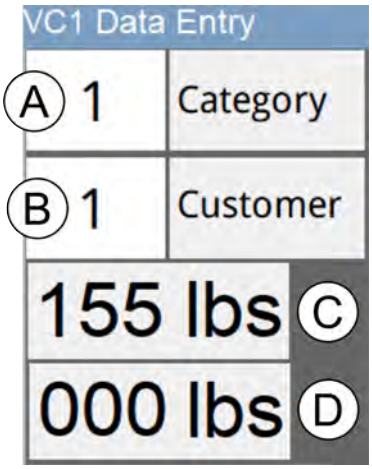
Slings will use the same category and customer data as the previous sling. If you need to update the category or customer data, ask your supervisor to log in and change this information.

The floor scale automatically weighs the goods, unless an error prevents the floor scale from reading the weight. If the scale malfunctions, you can manually enter the weight of the goods.

To enter the data for the incoming sling:

1. Press and hold the "move down" button (). The mast lift lowers until it stops automatically at the bottom level (loading level). On the Overview display, a sling icon appears on the mast lift.
2. If necessary, ask your supervisor to enter the customer and category data for the incoming sling in the "VC1 Data Entry" table, as shown in the following figure. Supervisors can refer to the reference guide, MCRUSB01, for instructions on how to edit and delete sling data.

**Figure 10. VC1 Data Entry Table**




**Legend**

**A . . .** Category— identifies a general type of goods, and thus can also identify the wash formula the CBW® washer will use.

**B . . .** Customer— identifies the customer (commercial laundry) or department (institutional laundry) the batch belongs to.

**C . . .** Weight (automatic)— the dry, soiled weight of a batch of goods, as measured by the floor scale.

**D . . .** Weight (manual)— If an error prevents the floor scale from reading the batch weight, you can manually enter the weight of the goods here.

3. Enter the required data into the Mentor® controller, such as account code, classification code, etc., or ask your supervisor to do so. The MILRAIL™ simple loop controller does not pass this information to the Mentor® controller.

## 3.1.2 Attach the sling to the flight bar.

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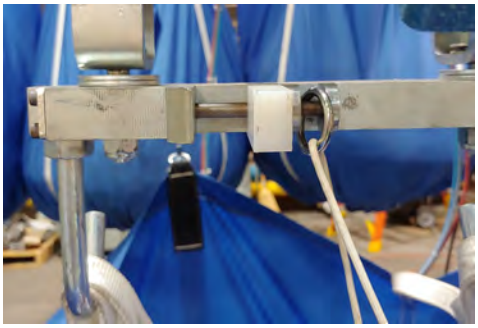
Ensure the mast lift is at the bottom level before you attempt to attach a sling to the flight bar.

1. Wheel the sling-lined cart with the sling full of goods onto the mast lift.
2. Attach the sling handles to the hooks on the flight bar.

3. On the flight bar, use your thumb to depress the spring-loaded switch (as shown), to open the ring latch.
4. With the switch still depressed, insert the ring for the cinch rope in between the two indicators on the open ring latch.

5. Release the switch to latch the ring into place.



**CAUTION:** Ensure the ring for the cinch rope is securely latched in place. If it comes loose, the sling can open and spill goods on people and equipment below.

## 3.1.3 Transfer the sling to the rail.

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The floor scale under the lift reads the weight of the goods automatically, and the weight appears in the table labeled “VC1 Data Entry” on the Overview display. If the scale reads more than 50 pounds, the “move up” button (⇧) will light up and become enabled.

**NOTE:** If an error prevents the floor scale from reading the batch weight, you can manually enter the weight of the batch in the bottom weight entry box on the “VC1 Data Entry” table (item D in Figure 10 ).

1. Press and hold the “move up” button (⇧) . The mast lift rises and automatically stops at the safety level.
2. Release the “move up” button. At the safety level, the system transitions to automatic mode. The mast lift rises to the top level and transfers the flight bar and sling onto the rail loop.
3. Remove the empty sling cart from the mast lift.

   When the CBW® washer signals that it is ready to receive goods, the discharger opens the last sling in the queue and discharges goods into the CBW® washer’s chute. The controller transfers the data for that sling to the Mentor® controller, then the flight bar and empty sling travel to the empty bag buffer.
4. Remove the empty sling from the flight bar. You may need to use a hook to reach the sling.

   The mast lift lowers to the empty-bag level to retrieve the flight bar. After 12 seconds, the empty bag stop is opened and the flight bar is released onto the carriage. After 6 seconds, the mast lift lowers to the safety level for manual operation again.

# 4 Troubleshooting

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## 4.1 Errors

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When the rail system encounters an error condition, production stops, the error signal sounds, and the controller displays the error code name on a scrolling red banner at the top of the screen. See Section 4.1.1 for a list of possible error conditions.

### 4.1.1 The Error Codes

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The following section describes the error codes the controller can issue. Operation halts and cannot be resumed until the cause of the error is corrected. Contact a service technician if you cannot correct the error. If an error occurs because a sling is stuck, nudge the sling with a pole or gaff hook.

**General Errors** — The following errors are not isolated to any one part of the rail system and can occur simultaneously with more specific errors.

**Emergency Stop** — This error occurs when the emergency stop switch is pressed. This error also triggers the “System Not Running” error. When safe to do so, turn the switch clockwise to restore power to the system and resume operation.

**System Not Running** — This error occurs when the emergency stop switch or system stop button is pressed, or any time operation has been halted.

**Mast Lift Errors** — The following errors can occur while the mast lift receives a flight bar or transfers a sling to the rail loop.

**VC1 Motor overload** — This error occurs if the mast lift tries to lift a sling weighing over 500 pounds. This error also triggers the “VC1 Inverter Fault” error.

**VC1 Switch fault** — The controller detected a fault with one of the proximity switches at the mast lift. This error can suggest a proximity switch has malfunctioned and may need to be replaced.

**VC1 Bag not arrived** — The mast lift did not receive a flight bar (the "Mast lift—Bag on carriage” input X13 was not made) within the required time limit when the controller expected it.

**VC1 Bag not settled** — The mast lift received a flight bar, but the flight bar did not settle. (The "Mast lift—Bag on carriage” input X13 was made, but did not remain made when the controller expected it.)

**VC1 Bag not released** — A sling remained (got stuck) on the carriage after the controller opened the stop. (The "Mast lift—Bag on carriage” input X13 remained made when the controller expected it to be released.)

**VC1 Inverter Fault** — The inverter that controls the mast lift motor malfunctioned. See the inverter manual for details.

**VC1 Chain Fault Up** — The mast lift jammed while moving up. See Section 4.3 : Chain Fault Recovery, page 21.

**VC1 Chain Fault Down** — The mast lift jammed while moving down. See Section 4.3 : Chain Fault Recovery, page 21.

**Full Bag Buffer Errors** — The following errors can occur when a sling is entering or exiting the full bag buffer.

**VC1 Full Bag Buffer Switch fault** — The controller detected a fault with one of the proximity switches at the full bag buffer. This error can suggest a proximity switch has malfunctioned and may need to be replaced.

**VC1 Full Bag Buffer not arrived** — The full bag buffer did not receive a sling (the "Full bag buffer— Bag at stop" input X30 was not made) within the required time limit when the controller expected it.

**VC1 Full Bag Buffer not settled** — The full bag buffer received a sling, but the sling did not settle. (The "Full bag buffer— Bag at stop" input X30 was made, but did not remain made when the controller expected it).

**VC1 Full Bag Buffer not released** — A sling remained (got stuck) on the full bag buffer after the controller opened the stop. (The "Full bag buffer— Bag at stop" input X30 remained made when the controller expected it to be released.)

**VC1 Full Bag Buffer Data error** — The controller cannot find the sling data when the sling is at the full bag buffer stop. The controller checks for a sling's data at the full bag buffer, full bag storage line, and discharger.

**Full Bag Storage Errors** — The following errors can occur when a sling is entering or exiting the full bag storage line.

**DC1 Full Bag Buffer Switch fault** — The controller detected a fault with one of the proximity switches at the full bag storage line. This error can suggest a proximity switch has malfunctioned and may need to be replaced.

**DC1 Full Bag Buffer not arrived** — The full bag storage line did not receive a sling (the "Full bag storage— Bag at stop" input X32 was not made) within the required time limit when the controller expected it.

**DC1 Full Bag Buffer not settled** — The full bag storage line received a sling, but the sling did not settle. (The "Full bag storage— Bag at stop" input X32 was made, but did not remain made when the controller expected it.)

**DC1 Full Bag Buffer not released** — A sling remained (got stuck) on the full bag storage line after the controller opened the stop. (The "Full bag storage— Bag at stop" input X32 remained made when the controller expected it to be released.)

**DC1 Full Bag Buffer Data error** — The controller cannot find the sling data when the sling is at the full bag storage line stop. The controller checks for a sling's data at the full bag buffer, full bag storage line, and discharger.

**PVC Errors** — The following errors can only occur on systems equipped with the optional PVC.

**PVC Switch fault** — The controller detected a fault with one of the proximity switches at the PVC. This error can suggest a proximity switch has malfunctioned and may need to be replaced.

**PVC Bag not arrived** — The PVC did not receive a sling (the "PVC— Bag on carriage" input X36 was not made) within the required time limit when the controller expected it.

**PVC Bag not settled** — The PVC received a sling, but the sling did not settle. (The “PVC— Bag on carriage” input X36 was made, but did not remain made when the controller expected it.)

**PVC Bag not released** — A sling remained (got stuck) on the PVC after the controller opened the stop. (The “PVC— Bag on carriage” input X36 remained made when the controller expected it to be released.)

**Discharger Errors** — The following errors can occur when the discharger receives a sling or releases a sling’s goods into the CBW® washer’s chute.

**DC1 Switch fault** — The controller detected a fault with one of the proximity switches at the discharger. This error can suggest a proximity switch has malfunctioned and may need to be replaced.

**DC1 Bag not arrived** — The discharger did not receive a sling (the “Discharger— Bag at stop” input X26 was not made) within the required time limit when the controller expected it.

**DC1 Bag not settled** — The discharger received a sling, but the sling did not settle. (The “Discharger— Bag at stop” input X26 was made, but did not remain made when the controller expected it.)

**DC1 Bag not released** — A sling remained (got stuck) on the discharger after the controller opened the stop. (The “Discharger— Bag at stop” input X26 remained made when the controller expected it to be released.)

**DC1 Load not dropped** — The discharger did not drop a load (the “Discharger load dropped” input X23 was not made) within the required time limit when the controller expected it.

**DC1 Data error** — The controller cannot find the sling data when the sling is at the discharger stop. The controller checks for a sling’s data at the full bag buffer, full bag storage line, and discharger.

**Empty Bag Buffer Errors** — The following errors can occur when a sling is entering or exiting the empty bag buffer. If your rail system has more than one empty bag buffer, the error code will indicate which buffer the error occurred at (ex. “ VC1 Empty Bag Buffer 2 not arrived”). The empty bag buffer closest to the discharger is empty bag buffer #1.

**VC1 Empty Bag Buffer Switch fault** — The controller detected a fault with one of the proximity switches at the empty bag buffer. This error can suggest a proximity switch has malfunctioned and may need to be replaced.

**VC1 Empty Bag Buffer not arrived** — The empty bag buffer did not receive an empty sling (the "Empty bag buffer— Bag at stop" input X14 or X37 was not made) within the required time limit when the controller expected it.

**VC1 Empty Bag Buffer not settled** — The empty bag buffer received an empty sling, but the sling did not settle. (The "Empty bag buffer— Bag at stop" input X14 or X37 was made, but did not remain made when the controller expected it.)

**VC1 Empty Buffer Bag not released** — An empty sling remained on the empty bag buffer after the controller opened the stop. (The "Empty bag buffer— Bag at stop" input X14 or X37 remained made when the controller expected it to be released.)

## 4.1.2 The Alarms Menu

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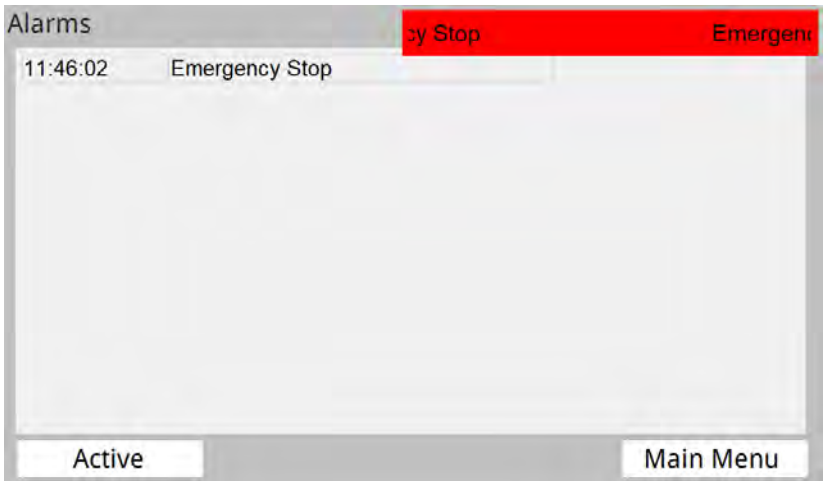
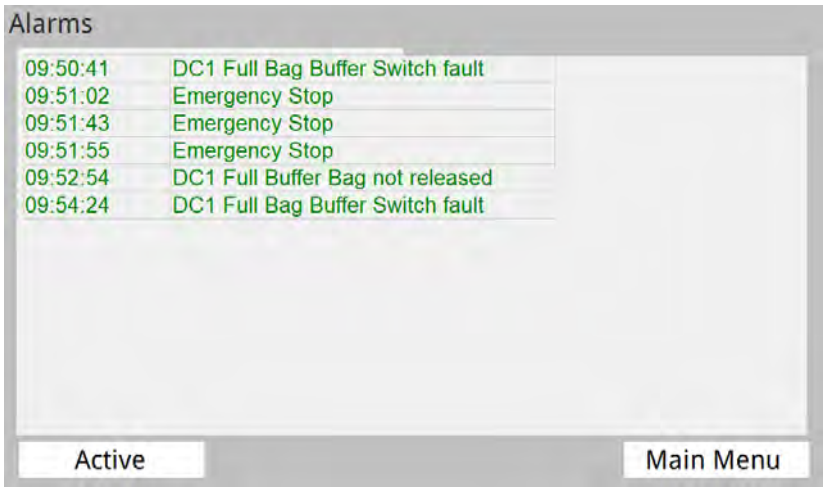
From the Main Menu, touch the button labeled “Alarms” to access the Alarms Menu, shown in the following figure. The default view of the Alarms Menu is the “Active” view. This view lists the active error codes (if any) and when they were triggered.

**Figure 11. Alarms Menu— Active View**




Touch the button labeled “Active” to switch to the “Error History” view, shown in the following figure. This view lists all the error codes the rail system encounters, and shows when the error was triggered.

**Figure 12. Alarms Menu— Error History View**



**BNRUST05 / 2021172** BNRUST05 0000334958 4/19/21 10:28 AM Released

# 4.2 The Empty Fetch Sequence

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Occasionally, flight bars can get stuck on the rail and interrupt the flow of normal operation. If a flight bar is unable to reach the empty bag buffer stop, the mast lift is unable to retrieve it, and the mast lift descends to the safety level for manual operation.

When the operator frees the flight bar, he or she must use the empty fetch sequence to retrieve the flight bar and return the machine to normal operation. The empty fetch sequence can also be used to return the system to normal operation if a flight bar needs to be removed from the rail system for maintenance.

**WARNING: Descending mast lift** — can crush bystanders.

- Make sure bystanders are safely away from the mast lift before you operate it.
- Do not stand near or under the mast lift while it moves under automatic control.

The following conditions must be met to initiate the empty fetch sequence:

- The mast lift is at the bottom level (X7 is made)
- There is an empty sling or empty flight bar at the empty bag buffer stop (X14 is made)
- The mast lift's carriage has no flight bar (X13 is NOT made)

To initiate the empty fetch sequence:

1. If necessary, remove the flight bar from the carriage at the safety level.
2. Press and hold the "move down" button (). The mast lift moves down and automatically stops at the bottom level.
3. Insert the key into the empty fetch keyswitch and turn it to the position. If there is a flight bar at the empty bag buffer stop, the "move up" button illuminates and becomes enabled.
4. Press and hold the "move up" button (). The mast lift rises and automatically stops at the safety level.
5. Release the "move up" button. The empty fetch sequence initiates:
   a. The mast lift automatically moves up to the top level and settles for 3 seconds.
   b. The lift moves down to the empty-bag level to fetch the flight bar from the empty bag buffer.
   c. The empty bag buffer stop opens and releases the flight bar onto the mast lift's carriage.
   d. After the flight bar settles on the carriage for 6 seconds (X13), the lift moves back down to the safety level and normal operation resumes.
6. Turn the empty fetch keyswitch back to the position to end the sequence.

BNRUST06 / 2021066 BNRUST06 0000335038 A.3 2/5/21 11:29 AM Released

# 4.3 Chain Fault Recovery

BNRUST06.T01 0000335037 B.2 A.3 A.6 2/5/21 11:13 AM Released

When a mast lift jam occurs, the system halts and the controller issues a chain fault up/down error. If your mast lift experiences a jam, follow these instructions to return the system to automatic operation after you resolve the chain fault error.

**WARNING: Descending mast lift** — can crush bystanders.

- Make sure bystanders are safely away from the mast lift before you operate it.
- Do not stand near or under the mast lift while it moves under automatic control.

The mast lift can experience four types of jams:

**If the mast lift jams above the safety level while moving up…**

1. The “move down” button ( ) becomes enabled.
2. Press and hold the “move down” button. The mast lift moves down and automatically stops at the safety level.
3. At the safety level, the system transitions to automatic mode. Release the “move down” button.
4. The mast lift automatically moves down to the bottom level.
5. The mast lift returns to normal operation.
   a. If the mast lift encountered the chain fault error before it transferred a sling to the rail loop, the mast lift waits for the operator to activate the “move up” button again to transfer the sling to the rail loop.
   b. If the mast lift encountered the chain fault error in empty fetch mode, the mast lift waits for the operator to activate the “move up” button again to retrieve the flight bar.

**If the mast lift jams above the safety level while moving down…**

1. The “move up” button ( ) becomes enabled.
2. Press and hold the “move up” button. The mast lift moves up and automatically stops at the empty-bag level, or the top level (depending on the position of the mast lift when the error occurred).
3. At the empty-bag/top level, the system transitions to automatic mode. Release the “move up” button.
4. The mast lift automatically moves down to the bottom level.
5. The mast lift returns to normal operation.
   a. If the mast lift encountered the chain fault error before it retrieved a flight bar, you may need to use the empty fetch procedure to retrieve the flight bar (see Section 4.2 : The Empty Fetch Sequence, page 20).

b. If the mast lift retrieved a flight bar, it waits for the operator to attach a new sling.

**If the mast lift jams below the safety level while moving up...**

1. The “move down” button (⇩) becomes enabled.
2. Press and hold the “move down” button. The mast lift moves down and automatically stops at the bottom level.
3. The mast lift returns to normal operation.
   a. If the mast lift encountered the chain fault error before it transferred a sling to the rail loop, the mast lift waits for the operator to activate the “move up” button again to transfer the sling to the rail loop.
   b. If the mast lift encountered the chain fault error in empty fetch mode, the mast lift waits for the operator to activate the “move up” button again to retrieve the flight bar.

**If the mast lift jams below the safety level while moving down…**

1. The “move down” button (⇩) becomes enabled.
2. Press and hold the “move down” button. The mast lift moves down and automatically stops at the bottom level.
3. The mast lift returns to normal operation. If the mast lift retrieved a flight bar, it waits for the operator to attach a new sling.

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## 4.4 How to Contact Milnor®

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Your authorized Milnor® dealer can assist you with your Milnor® machine and knows about the local conditions that may be pertinent to the installation, use, or maintenance of the machine. Contact your dealer first. For assistance from the Milnor® factory, refer to Table 1 for contact information.

**Table 1. Pellerin Milnor® Corporation Contact Information**

| Purpose | Department | Telephone | FAX | E-mail/Web site |
|---|---|---|---|---|
| Order or ask about replacement parts | Parts | 504–712–7775 or 800–299–1500 | 504–469–9777 | parts@milnor.com |
| Get advice on installing, servicing, or using | Customer Service/ Technical Support | 504–712–7780 | 504–469–9777 | service@milnor.com www.milnor.com (Customer Service) |
| Learn about, request, or enroll in Milnor® service seminars | Training | 504–712–7716 | 504–469–9777 | training@milnor.com |
| Determine warranty eligibility or claim status | Warranty Administration | 504–712–7735 | 504–469–9777 | service@milnor.com (Attention: Warranty) |

**Table 1 Pellerin Milnor® Corporation Contact Information (cont'd.)**

| Purpose | Department | Telephone | FAX | E-mail/Web site |
|---|---|---|---|---|
| Ask about, comment on, or report an error in equipment manuals | Technical Publications | 504–712–7636 | 504–469–1849 | techpub@milnor.com |
| European contacts | Milnor® International | + 32 2 720 5822 | — | milnor@milnor.be |
| Ask about the shipping weight of your machine before it arrives at your facility | Logistics Department | 504–712–7686 | 504–471–0273 | — |

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Pellerin Milnor Corporation
Post Office Box 400
Kenner, LA 70063-0400

Telephone: 504-467-9591
http://www.milnor.com
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