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Installation and Service

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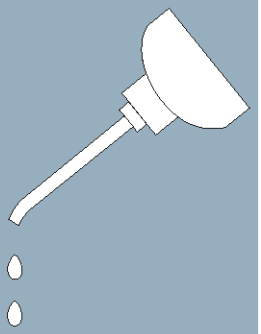

Read the separate safety manual before installing, operating, or servicing

PELLERIN MILNOR CORPORATION POST OFFICE BOX 400, KENNER, LOUISIANA 70063-0400, U.S.A.

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MPICOLFKAE/25036A

PELLERIN MILNOR CORPORATION
LIMITED STANDARD WARRANTY

We warrant to the original purchaser that MILNOR machines including electronic hardware/software (hereafter referred to as "equipment"), will be free from defects in material and workmanship for a period of one year from the date of shipment (unless the time period is specifically extended for certain parts pursuant to a specific MILNOR published extended warranty) from our factory with no operating hour limitation. This warranty is contingent upon the equipment being installed, operated and serviced as specified in the operating manual supplied with the equipment, and operated under normal conditions by competent operators.

Providing we receive written notification of a warranted defect within 30 days of its discovery, we will—at our option—repair or replace the defective part or parts, EX Factory (labor and freight specifically NOT included). We retain the right to require inspection of the parts claimed defective in our factory prior to repairing or replacing same. We will not be responsible, or in any way liable, for unauthorized repairs or service to our equipment, and this warranty shall be void if the equipment is tampered with, modified, or abused, used for purposes not intended in the design and construction of the machine, or is repaired or altered in any way without MILNOR's written consent.

Parts damaged by exposure to weather, to aggressive water, or to chemical attack are not covered by this warranty. For parts which require routine replacement due to normal wear—such as gaskets, contact points, brake and clutch linings, belts, hoses, and similar parts—the warranty time period is 90 days.

We reserve the right to make changes in the design and/or construction of our equipment (including purchased components) without obligation to change any equipment previously supplied.

ANY SALE OR FURNISHING OF ANY EQUIPMENT BY MILNOR IS MADE ONLY UPON THE EXPRESS UNDERSTANDING THAT MILNOR MAKES NO EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR USE OR PURPOSE OR ANY OTHER WARRANTY IMPLIED BY LAW INCLUDING BUT NOT LIMITED TO REDHIBITION. MILNOR WILL NOT BE RESPONSIBLE FOR ANY COSTS OR DAMAGES ACTUALLY INCURRED OR REQUIRED AS A RESULT OF: THE FAILURE OF ANY OTHER PERSON OR ENTITY TO PERFORM ITS RESPONSIBILITIES, FIRE OR OTHER HAZARD, ACCIDENT, IMPROPER STORAGE, MIS-USE, NEGLECT, POWER OR ENVIRONMENTAL CONTROL MALFUNCTIONS, DAMAGE FROM LIQUIDS, OR ANY OTHER CAUSE BEYOND THE NORMAL RANGE OF USE. REGARDLESS OF HOW CAUSED, IN NO EVENT SHALL MILNOR BE LIABLE FOR SPECIAL, INDIRECT, PUNITIVE, LIQUIDATED, OR CONSEQUENTIAL COSTS OR DAMAGES, OR ANY COSTS OR DAMAGES WHATSOEVER WHICH EXCEED THE PRICE PAID TO MILNOR FOR THE EQUIPMENT IT SELLS OR FURNISHES.

THE PROVISIONS ON THIS PAGE REPRESENT THE ONLY WARRANTY FROM MILNOR AND NO OTHER WARRANTY OR CONDITIONS, STATUTORY OR OTHERWISE, SHALL BE IMPLIED.

WE NEITHER ASSUME, NOR AUTHORIZE ANY EMPLOYEE OR OTHER PERSON TO ASSUME FOR US, ANY OTHER RESPONSIBILITY AND/OR LIABILITY IN CONNECTION WITH THE SALE OR FURNISHING OF OUR EQUIPMENT TO ANY BUYER.

BMP720097/19036

How to Get the Necessary Repair Components

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You can get components to repair your machine from the approved supplier where you got this machine. Your supplier will usually have the necessary components in stock. You can also get components from the Milnor® factory.

Tell the supplier the machine model and serial number and this data for each necessary component:

- The component number from this manual
- The component name if known
- The necessary quantity
- The necessary transportation requirements
- If the component is an electrical component, give the schematic number if known.
- If the component is a motor or an electrical control, give the nameplate data from the used component.

To write to the Milnor® factory:

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

Telephone: 504-712-7775
Fax: 504-469-9777
Email: parts@milnor.com

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Trademarks

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These words are trademarks of Pellerin Milnor® Corporation and other entities:

Table 1. Trademarks

AutoSpot™	GreenFlex™	MilMetrix®	PulseFlow®
CBW®	GearTrace™	MilTouch™	RAM Command™
Drynet™	GreenTurn™	MilTouch-EX™	Recirc*ONE*®
E-P Express®	Hydro-cushion™	MilRAIL®	RinSave®
E-P OneTouch®	Mentor®	Miltrac™	SmoothCoil™
E-P Plus®	Mildata®	MilVision™	Staph Guard®
Gear Guardian®	Milnor®	PBW™	

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Safety Information 1

Safety — Shuttle Conveyors

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1. Safety Alert Messages—Internal Electrical and Mechanical Hazards

BNSUUS01.C03 0000240137 A.3 B.2 1/2/20, 2:04 PM Released

The following are instructions about hazards inside the machine and in electrical enclosures.

WARNING: **Electrocution and Electrical Burn Hazards** — Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

- Do not unlock or open electric box doors.
- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.
- Keep yourself and others off of machine.
- Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.

WARNING: **Entangle and Crush Hazards** — Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

- Do not remove guards, covers, or panels.
- Do not reach into the machine housing or frame.
- Keep yourself and others off of machine.
- Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.

2. Safety Alert Messages—External Mechanical Hazards

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The following are instructions about hazards around the front, sides, rear or top of the machine.

CAUTION: **Strike and Crush Hazards** — A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately summon a shuttle or other traveling machine.

- Keep yourself and others off of machine.
- Keep yourself and others clear of movement areas and paths.
- Understand the consequences of placing a system machine on line.
- Know the location of all emergency stop switches, pull cords, and/or kick plates and use them in an emergency to stop machine motion.
- Know the location of the main machine disconnect and use it in an emergency to remove all electric power from the machine.

CAUTION: **Crush and Entrap Hazards —** A traveling machine such as a shuttle can crush or entrap you if the bed or bucket descends while you are under it. The bed or bucket can descend with power off or on.

- Keep yourself and others clear of movement areas and paths.

WARNING: **Fall, Entangle, and Strike Hazards —** Machine motion can cause you to fall or become entangled in or struck by nearby objects if you stand, walk, or ride on the machine. Shuttles and conveyor belts move automatically.

- Keep yourself and others off of machine.

3. Safety Alert Messages—Unsafe Conditions

BNSUUS03.C01 0000240133 A.3 B.2 1/2/20, 2:04 PM Released

3.1. Damage and Malfunction Hazards

BNSUUS03.C02 0000240132 A.2 B.2 1/2/20, 2:04 PM Released

3.1.1. Hazards Resulting from Inoperative Safety Devices

BNSUUS03.C03 0000240131 B.2 A.4 1/2/20, 2:04 PM Released

WARNING: **Multiple Hazards —** Operating the machine with an inoperative safety device can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.

WARNING: **Electrocution and Electrical Burn Hazards —** Electric box doors—Operating the machine with any electric box door unlocked can expose high voltage conductors inside the box.

- Do not unlock or open electric box doors.

WARNING: **Entangle and Crush Hazards —** Guards, covers, and panels—Operating the machine with any guard, cover, or panel removed exposes moving components.

- Do not remove guards, covers, or panels.

3.1.2. Hazards Resulting from Damaged Mechanical Devices

BNSUUS03.C04 0000240130 A.3 B.2 1/2/20, 2:04 PM Released

WARNING: **Multiple Hazards —** Operating a damaged machine can kill or injure personnel, further damage or destroy the machine, damage property, and/or void the warranty.

- Do not operate a damaged or malfunctioning machine. Request authorized service.

WARNING: **Crush Hazards** — Chain and hoist—A broken chain or a malfunctioning hoist can permit the belt/bucket assembly to fall or descend.

- Do not operate the machine with any evidence of damage or malfunction.

3.2. Careless Use Hazards

BNSUUS03.C05 0000240156 A.2 B.2 1/2/20, 2:04 PM Released

3.2.1. Careless Operation Hazards—Vital Information for Operator Personnel (see also operator hazards throughout manual)

BNSUUS03.C06 0000240155 A.2 B.2 1/2/20, 2:04 PM Released

WARNING: **Multiple Hazards** — Careless operator actions can kill or injure personnel, damage or destroy the machine, damage property, and/or void the warranty.

- Do not tamper with or disable any safety device or operate the machine with a malfunctioning safety device. Request authorized service.
- Do not operate a damaged or malfunctioning machine. Request authorized service.
- Do not attempt unauthorized servicing, repairs, or modification.
- Do not use the machine in any manner contrary to the factory instructions.
- Use the machine only for its customary and intended purpose.
- Understand the consequences of operating manually.

CAUTION: **Goods Damage and Wasted Resources** — Entering incorrect cake data causes improper processing, routing, and accounting of batches.

- Understand the consequences of entering cake data.

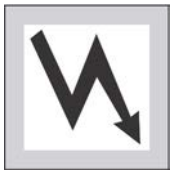
WARNING: **Strike and Crush Hazards** — Carelessly moving the machine with manual controls can cause it to strike, crush, entrap, or entangle personnel. You have total control of machine movement immediately after setting the Manual/Automatic switch to manual.

- Keep yourself and others clear of movement areas and paths.
- Understand the consequences of operating manually.

3.2.2. Careless Servicing Hazards—Vital Information for Service Personnel (see also service hazards throughout manuals)

BNSUUS03.C07 0000240154 A.3 B.2 1/2/20, 2:04 PM Released

WARNING: **Electrocution and Electrical Burn Hazards** — Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.



- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.

WARNING: **Entangle and Crush Hazards —** Contact with moving components normally isolated by guards, covers, and panels, can entangle and crush your limbs. These components move automatically.

- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- Abide by the current OSHA lockout/tagout standard when lockout/tagout is called for in the service instructions. Outside the USA, abide by the OSHA standard in the absence of any other overriding standard.

WARNING: **Crush and Entrap Hazards —** A traveling machine such as a shuttle can crush or entrap you if the bed or bucket descends while you are under it. The bed or bucket can descend with power off or on.

- Secure both red safety pins in accordance with the instructions furnished, then lock out and tag out power at the main machine disconnect before working under bed or bucket.

WARNING: **Strike and Crush Hazards —** A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately summon a shuttle or other traveling machine.

- Lock out and tag out power to the traveling machine at the main machine disconnect if you must work in the path of the traveling machine.

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Use the Red Safety Supports for Maintenance — CA_, CG_, COEL_, COLF_, COSH_

BNSUUH01.C01 0000374279 A.7 A.4 8/18/21 8:51 AM Released

1. What Safety Supports are Provided and Why

BNSUUH01.C02 0000374278 A.7 8/19/21 9:52 AM Released

These machines are provided with two safety pins. After the bed is raised, the pins are inserted in holes in both sides of the frame. The safety pins provide protection against the unpowered descent of the bed during maintenance. A mechanical problem such as a broken chain can cause the bed to fall. Use the safety support(s) whenever the maintenance to be performed requires you to place any part of your body in or near the path of the vertically moving portion of the machine.

WARNING: **Incorrect use of the safety supports** — can cause the machine to descend and crush you.

- Never work near the path of the vertically moving portion of the machine unless the safety supports are deployed and power is removed from the machine.
- Do not use power to close a small gap between the machine and the safety supports. Use care not to lower the machine with the safety supports deployed.
- Where a pair of safety supports is provided, always use both supports.
- Maintain the safety support(s) in good condition.
- When not in use, stow the safety support(s) in the location(s) provided on the machine or in a convenient, designated location.

2. How to Deploy the Safety Pins

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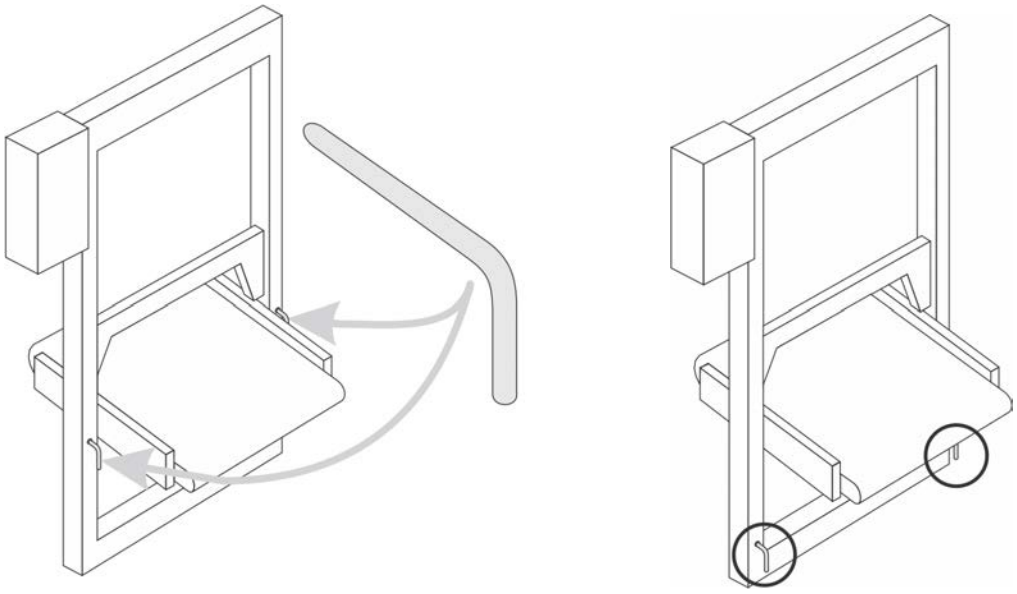
1. Use the Manual mode to raise the bed or bucket carrier only as far as needed to insert the pins at one of the receptacle holes.
2. The illustrations below show the safety pins deployed (at left) and stowed (at right). Install the safety pins into the receptacle holes in the frame.

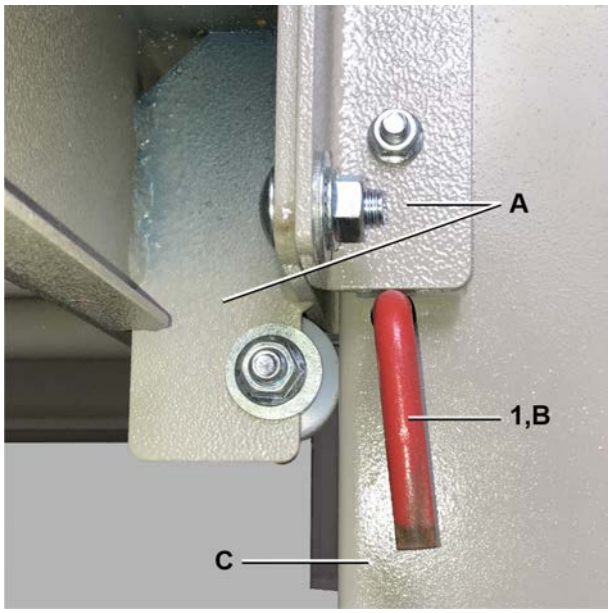


3. Remove electric power from the machine.

End of document: BNSUUH01

Safety Pin

All Elevating Shuttles and Pivoting Elevators.



Legend

A . . . Side Slider
B . . . Safety Pin, 2 instances, left and right
C . . . Vertical frame member

Table 1. Parts List—Safety Pin

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	**Item**	**Part Number**	**Description/Nomenclature**	**Comments**
Components				
all	1	04 21496	SAFETY PIN-COSHA	

Safety Placard Use and Placement

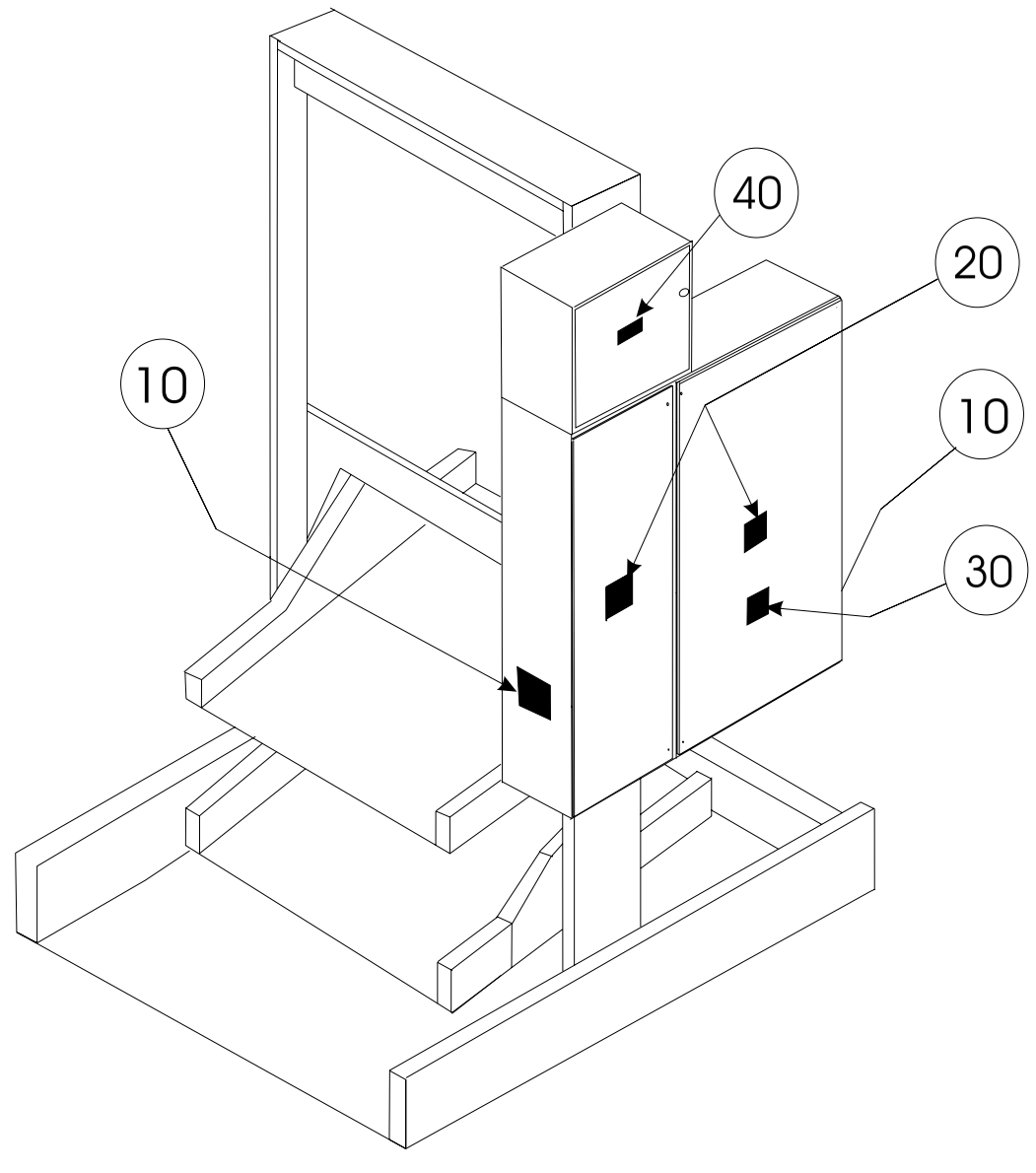
ALL ELEVATING CONVEYORS

Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

Notes:

1. **Replace placard immediately, if removed or unreadable.**
2. **Approximate locations of placards are shown. Mounting holes are provided on machine. Use #8 self-tapping screws.**



Pellerin Milnor Corporation
P. O. Box 400, Kenner, LA 70063-0400

Litho in U.S.A.

Parts List—Safety Placard Placement

Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
.				
			----------ASSEMBLIES----------	
			none	
			----------COMPONENTS----------	
all	10	01 10564A	NPLT:COSHA HAZARDS-TCATA	
all	20	01 10377A	NPLT:ELEC HAZARD LG-TCATA	
all	30	01 10699A	NPLT:SERV HZRD-PLYEST-TCATA	
all	40	01 10375B	NPLT:ELEC HAZARD SMALL-TCATA	

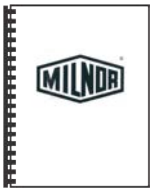
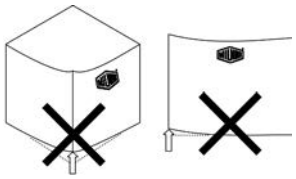
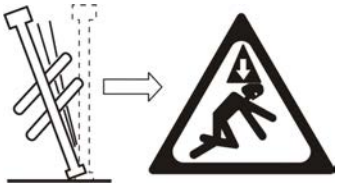
Installation Tag Guidelines

Cake Shuttles Loose Goods Shuttles

NOTICE: This information may apply to models in addition to those listed above. It applies to paper tags. It does not apply to the vinyl or metal safety placards, which must remain permanently affixed to the machine and replaced if no longer readable.

Paper tags on the machine provide installation guidelines and precautions. The tags can be tie-on or adhesive. You can remove tie-on tags and white, adhesive tags after installation. Yellow adhesive tags must remain on the machine.

The following entries explain the installation tags. Each entry includes: 1) the tag illustration, 2) the tag part number at the bottom of the tag, and 3) the meaning of the tag.

Display or Action	Explanation
	Read the manuals before proceeding. This symbol appears on most tags. The machine ships with safety, operator, and routine maintenance guides for customer use. Milnor dealer manuals for installing, commissioning, and servicing the machine are also available from the Milnor Parts department.
	B2TAG88005: This carefully built product was tested and inspected to meet Milnor performance and quality standards by (identification mark of tester).
	B2TAG94078: Do not forklift here; do not jack here; do not step here—whichever applies.
	B2TAG94084: Do not lift from one corner of the machine, as this can cause the frame to rack, damaging it.
	B2TAG94089: Do not attempt to balance the shuttle on the lower shipping brackets. Always suspend and lift the shuttle from the lifting eyes at the top of the machine.

B2T2002013: Do not start the machine until shipping restraints are removed. This tag will appear on the outside of the machine to alert you to the presence of internal shipping restraints. A tag will also appear on the restraint to help identify it. Most, but not all shipping restraints display the color red. Some shipping restraints are also safety stands. Do not discard these.

B2T2007003: Install the shuttle rail in accordance with this instruction and the installation manual.

B2T2010001: Mount festoon tow bar this way. (Used only on COSHM, COSHP, COSHQ & COSHR models.)

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Installation 2

External Fuse/Breaker, Wiring, and Disconnect Requirements

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An external fuse **or** circuit breaker and a disconnect switch must be provided in the facility for (and dedicated to) the machine. These may be in the same or separate, **permanently mounted** electric boxes. Electric power and ground connections will be made between the incoming power junction box on the machine and this external box (or one of the boxes).

1. Fuse or Circuit Breaker Size

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Refer to the “External Fuse and Wire Sizes...” document for your machine model. This document will be found in the machine's installation manual, available from the parts department. Choose the fuse or circuit breaker from the appropriate column of the table provided, as follows:

If a fuse is used — Match the fuse listed in the “Fuse” column for your machine's voltage. The specified fuse sizes are consistent with the USA National Electric Code (NEC), section 430-52, exception No. 2, Part B, which states: “The rating of a time-delay (dual-element) fuse shall be permitted to be increased, but shall in no case exceed 225 percent of the full-load current.”

If a standard circuit breaker is used — Match the amperage rating listed in the “Breaker” column for your machine's voltage.

If an inverse time circuit breaker is used — Match the characteristics (amperage rating) of the fuse listed in the “Fuse” column for your machine's voltage. When applied to an inverse time circuit breaker, the specified fuse sizes are consistent with the USA National Electric Code (NEC), section 430-52, exception No. 2, Part C, which states: “The rating of an inverse time circuit breaker shall be permitted to be increased, but shall in no case exceed 400 percent for full-load currents of 100 amperes or less.”

2. Wire Size

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Use wiring no smaller than that listed for your machine's voltage in the “Wire size... ”column in the “External Fuse and Wire Sizes...” document. The table value applies to runs up to 50 feet (15 meters). Use the next larger size for runs 50 to 100 feet (15 to 30 meters). Use wire two sizes larger for runs greater than 100 feet (30 meters). If an inverse time circuit breaker is used and local codes require a larger wire size than that specified by Milnor, abide by the local code.

NOTICE: The specified wire size may appear too small for the fuse or circuit breaker shown. However, it is consistent with both the load imposed and with the USA National Electric Code.

3. Ground

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The ground wire and connections must ensure a reliable earth ground (zero potential). Use wiring of at least as large a gauge as that required for incoming power. Do not rely on conduit, machine anchorage, etc. Use the ground lug provided in the incoming power junction box on the machine.

4. Disconnect Switch for Lockout/Tagout

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The disconnect switch must permit personnel to disconnect and lockout/tagout electric power from the machine. In the USA, refer to OSHA standard 1910.147 “The control of hazardous energy (lockout/tagout)”. Refer to the USA National Electric Code for requirements on locating the switch. In other locales, abide by these standards if no other local codes apply.

5. Using GFCI (Ground Fault Circuit Interrupter) Device

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The AC Drive will most likely cause the GFCI protection device to trip. The reason the AC Drive will cause this tripping of the GFCI is the Common Mode Current or Common Mode Noise (CM Noise) that the VFD is producing.

Use a GFCI with a higher trip level.

NOTE: Choose a GFCI designed specifically for an AC drive. The operation time should be at least 0.1 s with sensitivity amperage of at least 200 mA per drive. The output waveform of the drive may cause an increase in leakage current. This may in turn cause the leakage breaker to malfunction. Increase the sensitivity amperage or lower the carrier frequency to correct the problem.

Use a type B GFCI according to IEC/EN 60755.

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Proximity Safeguarding for Automatic Shuttle Conveyors

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Proximity safeguarding a means of preventing personnel from entering the path of a machine, such as an industrial robot, that moves within a large area.

1. Applicability

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This document—

applies to Milnor® automated laundering systems with shuttle conveyors that move without operator intervention (automatic operation),

does not apply to shuttles that require operator input continually, such as directing all shuttle movements (manual operation).

2. References for Proximity Safeguarding

BNSUUI01.C03 0000230081 A.3 B.3 1/2/20, 2:04 PM Released

ANSI Z8.1-2016 “American National Standard for Commercial Laundry and Drycleaning Equipment and Operations - Safety Requirements”

OSHA Standard 29 CFR § 1910.212 “General Requirements for All Machines”

OSHA Directive STD 01-12-002 - Pub 8-1.3 “Guidelines for Robotic Safety”

ANSI/RIA R15.06-2012 “American National Standard for Industrial Robots and Robot Systems- Safety Requirements”

ANSI/ASME B15.1-2000 “Safety Standard for Mechanical Power Transmission Apparatus”

OSHA Publication 3067 “Concepts and Techniques of Machine Safeguarding”

ISO 10472-1 “Safety Requirements for Industrial Laundry Machinery”

3. Hazards To Personnel in Proximity to Shuttle Conveyors

BNSUUI01.C04 0000230080 A.3 B.3 1/2/20, 2:04 PM Released

Milnor® automated laundering systems use *automatic shuttle conveyors* to transport goods among the processing machines in the system. Depending on model, an automatic shuttle conveyor may move in any of the following ways, in addition to running its conveyor belt(s):

- It may travel along (traverse) a line of machines (typically dryers).
- Its conveyor bed(s) may ascend and descend (elevate) within the machine frame.
- Its conveyor bed(s) may extend and retract within the machine frame.
- The conveyor bed and frame may pivot.
- Wet goods shuttles have a bucket that elevates and tilts.

These motions pose strike, crush, sever, and entrapment hazards to personnel in proximity to the shuttle. **For the safety of personnel, owner/users must provide proximity safeguarding that protects personnel from the moving shuttle.**

A common method of proximity safeguarding is safety fencing with interlocked gates that disable the shuttle when a gate is opened. When a shuttle is disabled, this will eventually cause other machines in the system to *hold* (wait for action from another machine), but it will not necessarily cause them to immediately stop moving. In the case of a tunnel system, the press or centrifugal extractor can pose additional hazards to personnel in proximity to the equipment. **Hence, the safeguards must also disable any presses or extractors**. Tunnels and dryers do not pose a significant hazard to personnel merely because they are in proximity to the equipment, and need not be automatically disabled.

WARNING: Multiple Hazards — Proximity safeguarding provides only partial protection and only against injury resulting from entering the shuttle path. It is not a substitute for proper lockout/tagout procedures and good safety practices.

- Always lockout/tagout any individual machine (or follow the published maintenance procedures) when performing maintenance or clearing a fault on that machine.
- Ensure that all personnel understand the safeguards and do not attempt to defeat them.
- Inspect safeguards weekly to ensure that they are not mechanically or electrically circumvented.

4. How Milnor® Accommodates Proximity Safeguarding

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Milnor® provides connection points on shuttles, presses and centrifugal extractors for interfacing with devices such as gate interlock switches. These connection points are tagged for easy identification. When Milnor® provides equipment layout drawings for an automated laundering system, it indicates on the drawing, the perimeter of the shuttle movement area that must be guarded. The following hazard statement is displayed on connection point tags as well as equipment layout drawings prepared by Milnor®:

WARNING: Strike, Crush, Sever, and Entrapment Hazards — Serious bodily injury or death can result to personnel in proximity to machinery/systems that traverse, elevate, extend, pivot, and/or tilt. The following mandatory minimum safety requirements must be installed with the machinery system (local codes may require additional precautions):

- Safety fence enclosing machine movement areas,
- Lockable electrical interlocks on all gates, properly interfaced as shown on machine schematics, to disable machine movement when any gate is opened,
- Signs to alert personnel to these hazards, placed prominently around the fenced area.

Although the objectives of proximity safeguarding are the same anywhere, design requirements vary with local codes (which occasionally change) and with the plant layout. For this reason, Milnor® does not provide detailed designs or materials for proximity safeguarding. If the necessary expertise does not exist within the owner/user's organization, consult appropriate sources such as local engineers or architects specializing in industrial facility design.

5. Examples of Safety Fencing With Interlocked Gates

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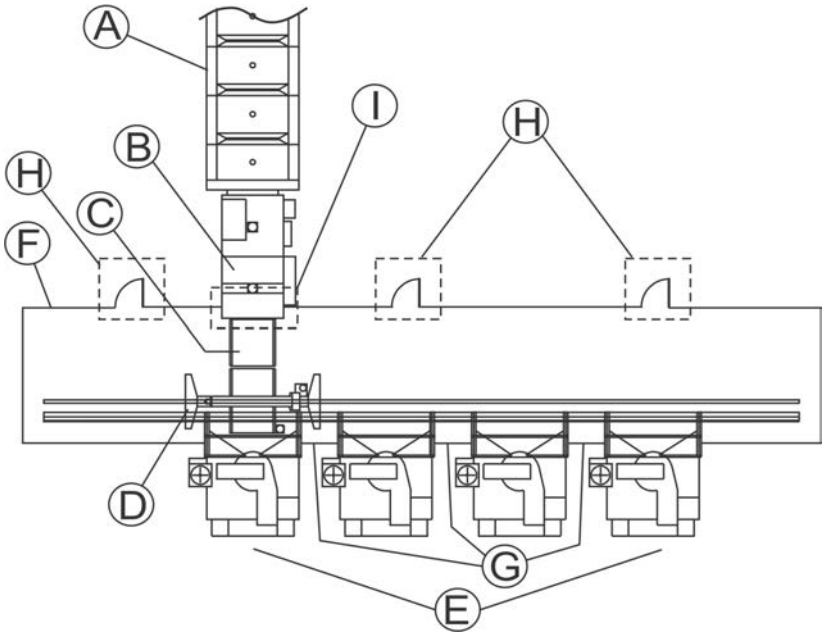
Fencing with interlocked gates like that depicted in Figure 1, page 3 and Figure 2, page 4, may be used to meet the proximity safeguarding requirement. Should the owner/user choose this method, the following information may be useful. However, **this information may not satisfy current or local code requirements. The owner/user must determine its suitability for his particular facility**.

Figure 1. Example Fence Layout for Automated Laundering System Where One Tunnel Serves a Bank of Dryers

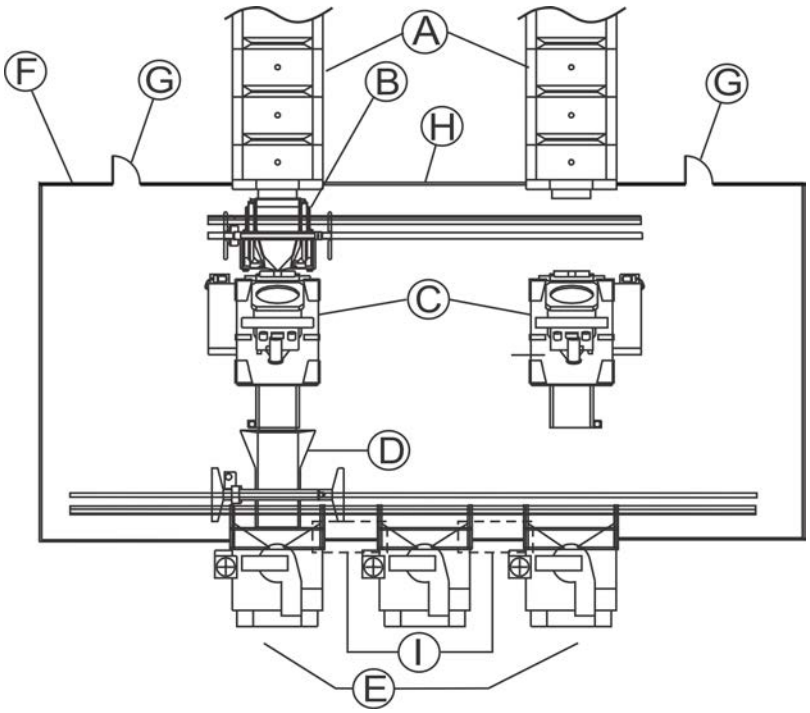
Plan View of Laundering System



Legend

- **A . . .** Continuous Batch Washer (tunnel)
- **B . . .** Press extractor
- **C . . .** COINC inclined conveyor
- **D . . .** Traversing and elevating shuttle conveyor for pressed cakes
- **E . . .** Bank of dryers
- **F . . .** Fence enclosing path of shuttle
- **G . . .** Fence segments between dryers
- **H . . .** Electrically interlocked gates. Gates swing outward at least 90 degrees and swing area is marked on floor. Provide multiple gates for long fence runs.
- **I . . .** Fence restricts access to unload end of press, but does not obstruct access to press controls.

Figure 2. Example Fence Layout for Automated Laundering System Where Two Tunnels Serve a Bank of Dryers



Legend

- **A . . .** Continuous Batch Washers (tunnels)
- **B . . .** Traversing and elevating shuttle conveyor for wet goods
- **C . . .** Centrifugal extractors
- **D . . .** Traversing and elevating shuttle conveyor for loose goods
- **E . . .** Bank of dryers
- **F . . .** Fence enclosing paths of both shuttles and both centrifugal extractors
- **G . . .** Gates interlocked with both shuttles and both centrifugal extractors
- **H . . .** Fence segment between tunnels
- **I . . .** Fence segments between dryers

5.1. Fence Dimensions

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The fence must discourage climbing over and prevent crawling under.

5.2. Fence Materials and Setback

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The fence must be constructed of materials and located so as to prevent personnel from reaching through gaps in the fence and contacting the enclosed machinery.

5.3. Gates

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Personnel gates must be held firmly closed but permit personnel to easily pass through when necessary. Gates must be equipped with a positive latching arrangement to prevent accidental opening. Adequate floor space must be provided to allow the gate to swing at least 90 degrees when fully open. Gates must open outward; that is, away from the fenced perimeter. The floor must be permanently marked to show the gate's swing area, to discourage obstructing its movement.

5.4. Control Circuitry

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All gates must be electrically interlocked with any shuttle conveyors within the fenced area and with any presses or centrifugal extractors that the fence either encloses or intersects. Opening any gate must have the following effects:

1. Shuttle(s), press(es), and/or centrifugal extractor(s) stop moving immediately.
2. An audible alarm sounds.
3. Shuttle(s), press(es), and/or centrifugal extractor(s) cannot be restarted merely by closing the gate(s), but must be restarted at the machine control panel once the gate(s) are closed.

Milnor® shuttles, presses and centrifugal extractors provide such functionality when properly interfaced with gate interlock switches.

5.5. System Emergency Stop Switches

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The laundry must establish rules and procedures that prohibit personnel from remaining within the fenced area with machine(s) enabled, except in accordance with published maintenance procedures. System emergency stop switches (panic buttons) should be provided inside and outside the fenced perimeter. Emergency stop switches should be located so that personnel anywhere inside the fenced perimeter are only a short distance from a switch, and they should be clearly marked as to their locations and function. Connect switches in series with the gate interlocks so that pressing an emergency stop switch performs the same control function as opening a gate.

5.6. Isolating Individual Machine Controls

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The interlock circuitry for each machine must be electrically isolated from that of the other machines. Hence, each gate interlock switch must provide as many pairs of dry contacts as there are machines to interface to. A pair of switch contacts must never be shared by two or more machines.

5.7. Recommended Signage

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Safety placards should be posted along the fence and at each gate, alerting personnel to the hazards within. At minimum, the size of lettering and distance between placards should be such that anyone contemplating entering the fenced area will likely see and read the placard first. Wording should be provided in each native language spoken by laundry personnel.

End of document: BNSUUI01

Wiring Safety Fence Gate Interlocks on Milnor® Shuttles, Presses and Centrifugal Extractors

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This document is to be used in conjunction with Milnor® document W6SYSSG "Micro 6 Systems Schematic: Customer-Provided Safety Fence Gate Interlock". You will find this schematic document in the circuit guide for your machine. Together, these documents describe how to connect a customer-provided gate switch or series of switches to any Milnor® shuttle, press, or centrifugal extractor. Another Milnor® document—BNSUUI01 "Proximity Safeguarding for Automatic Shuttle Conveyors"—discusses the general hazards that safety fencing addresses.

1. Precautions

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WARNING: Electrocution and Electrical Burn Hazards — Contact with electric power can kill or seriously injure you. Electric power is present inside the cabinetry unless the main machine power disconnect is off.

- Do not service the machine unless qualified and authorized. You must clearly understand the hazards and how to avoid them.
- Perform all work with machine power locked out/tagged out.

WARNING: Strike and Crush Hazards — A traveling machine such as a shuttle can strike, crush, or entrap you if you ride on it or enter its path. Traveling machines or their components can move automatically in any direction. Placing a system machine on line by energizing the machine control may immediately summon a shuttle or other traveling machine.

- Lock out and tag out power to the traveling machine at the main machine disconnect if you must work in the path of the traveling machine.

2. Wiring Guidelines

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As explained in BNSUUI01, a gate interlock switch must have one pole per machine to be interlocked. Each pole on the switch must be electrically isolated from any other poles on that switch. The gate interlock circuit for a given machine is a series circuit that includes one pole per switch (per gate). This circuit is wired into, and becomes part of the machine's *three-wire circuit* (see definition below).

three-wire circuit a circuit that provides control power for all machine functions. Any of several safety devices in the three-wire circuit will open the circuit and stop machine operation if a malfunction is detected. Once open, the three-wire circuit can only be closed by manual intervention and then only if the condition that opened the circuit is rectified.

W6SYSSG depicts schematically, various circuit segments the technician may encounter, depending on the type and age of the machine. Only one depiction will match a given machine. It may be helpful to refer to the electrical schematics for your machine; however, you should be able to identify the pertinent electrical components by referring to the tags inside the electric box doors on your machine. You will use one of two wiring methods depending on which circuit segment on W6SYSSG corresponds to your machine:

1. **Jumpered terminals**—Remove the jumper and connect the two incoming conductors to the terminals (pins) where the jumpers were removed. A tag was tied to the jumper at the factory to identify this as the gate interlock switch connection point.
2. **Circuitry that must be split**—Locate convenient connection points (e.g., a pin on a switch) at which to split the circuit and connect the incoming conductors. You may need to splice wires to complete the connection.

3. Testing

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Once wiring is completed, it is vital to test the system to ensure that:

1. all gate interlocks function properly, and
2. all components that were part of the machine's three-wire circuit before the gate interlocks were added continue to function properly. The objective is to ensure that the added wiring did not inadvertently bypass existing components.

3.1. Testing Gate Interlocks

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1. Close all gates.
2. Restore power to all interlocked machines.
3. **For each gate:**
   a. Start all interlocked machines (①) and place in **Manual** mode (all machines idling in manual).
   b. Open the gate and verify that all interlocked machines shut down (as indicated by their individual operator alarms).
   c. Close the gate so the next gate can be tested.

3.2. Testing Three-wire Circuit Components on Each Interlocked Machine

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Typically, these include the components listed in Table 1, page 2.

Table 1. Typical Three-wire Circuit Components

Component	Found On		
	Shuttle	Press	Centrifugal Extractor
Stop (0) push button on control panel	✓	✓	✓
Emergency Stop switch(es) (locking push button)	✓	✓	✓
Manually lifted access door (typically two per machine)		✓	
Manually removed access panel (typically two per machine)			✓

Typical Three-wire Circuit Components (cont'd.)

Component	Found On		
	Shuttle	Press	Centrifugal Extractor
Pull cord (certain shuttles)	✓		
Kick plate (typically two per machine)	✓		

Test each interlocked machine as follows:

1. Start the machine and place in **Manual** mode (machine idling in manual).
2. For each three-wire circuit component on the machine:
   a. Actuate the component (e.g., press the Stop button) and verify that the machine shuts down (as indicated by the operator alarm).
   b. If needed, de-actuate the component. For example, release an Emergency Stop switch or close an access door, so the next component can be tested.

End of document: BNSUUI02

Service and Maintenance 3

Torque Requirements for Fasteners

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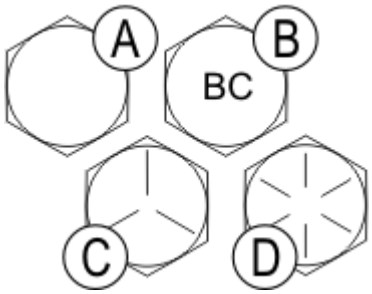
The document about the assembly gives the torque requirements for other fasteners. **If fastener torque specifications or threadlocker requirements in an assembly document are different from this document, use the assembly document.**

Figure 1. The Bolts in Milnor® Equipment

The Marks on Bolt Heads	Legend
	**A . . .** SAE Grades 1 and 2, ASTM A307, and stainless steel **B . . .** Grade BC, ASTM A354 **C . . .** SAE Grade 5, ASTM A449 **D . . .** SAE Grade 8 and ASTM A354 BD

1. Torque Values

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These tables give the standard dimension, grade, threadlocker, and torque requirements for fasteners frequently used on Milnor® equipment.

NOTE: Data from the Pellerin Milnor® Corporation “Bolt Torque Specification” (bolt_torque_milnor.xls/2002096).

1.1. Fasteners Made of Carbon Steel

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1.1.1. Without a Threadlocker

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Table 1. Torque Values for Standard Fasteners with Maximum 5/16-inch Diameters and No Lubricant

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	66	7	101	11	143	16	126	14
1/4 x 28	76	9	116	13	163	18	–	–
5/16 x 18	136	15	209	24	295	33	258	29
5/16 x 24	150	17	232	26	325	37	–	–

Table 2. Torque Values for Standard Fasteners Larger Than 5/16-inch Diameters and No Lubricant

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
3/8 x 16	20	27	31	42	44	59	38	52
3/8 x 24	23	31	35	47	50	68	–	–
7/16 x 14	32	43	49	66	70	95	61	83
7/16 x 20	36	49	55	75	78	105	–	–
1/2 x 13	49	66	75	102	107	145	93	126
1/2 x 20	55	75	85	115	120	163	–	–

Torque Values for Standard Fasteners Larger Than 5/16-inch Diameters and No Lubricant (cont'd.)

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
9/16 x 12	70	95	109	148	154	209	134	182
9/16 x 18	78	106	121	164	171	232	–	–
5/8 x 11	97	131	150	203	212	287	186	252
5/8 x 18	110	149	170	231	240	325	–	–
3/4 x 10	172	233	266	361	376	510	329	446
3/14 x 16	192	261	297	403	420	569	–	–
7/8 x 9	167	226	429	582	606	821	531	719
7/8 x 14	184	249	473	641	668	906	–	–
1 x 8	250	339	644	873	909	1232	796	1079
1 x 12	274	371	704	954	994	1348	–	–
1 x 14	281	381	723	980	1020	1383	–	–
1 1/8 x 7	354	480	794	1077	1287	1745	1126	1527
1 1/8 x 12	397	538	891	1208	1444	1958	–	–
1 1/4 x 7	500	678	1120	1519	1817	2464	1590	2155
1 1/4 x 12	553	750	1241	1682	2012	2728	–	–
1 3/8 x 6	655	888	1469	1992	2382	3230	2085	2827
1 3/8 x 12	746	1011	1672	2267	2712	3677	–	–
1 1/2 x 6	869	1178	1949	2642	3161	4286	2767	3751
1 1/2 x 12	979	1327	2194	2974	3557	4822	–	–

Table 3. Torque Values for Plated Fasteners with Maximum 5/16-inch Diameters and No Lubricant

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	49	6	76	9	107	12	95	11
1/4 x 28	56	6	88	10	122	14	–	–
5/16 x 18	102	12	156	18	222	25	193	22
5/16 x 24	113	13	174	20	245	28	–	–

Table 4. Torque Values for Plated Fasteners Larger Than 5/16-inch Diameters and No Lubricant

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
3/8 x 16	15	20	23	31	33	44	29	38
3/8 x 24	17	23	26	35	37	49	–	–
7/16 x 14	24	32	37	50	52	71	46	61
7/16 x 20	27	36	41	55	58	78	–	–
1/2 x 13	37	49	56	76	80	106	70	93
1/2 x 20	41	55	64	85	90	120	–	–
9/16 x 12	53	70	81	110	115	153	101	134
9/16 x 18	59	79	91	122	128	174	–	–
5/8 x 11	73	97	113	150	159	212	139	186
5/8 x 18	83	110	127	172	180	240	–	–
3/4 x 10	129	173	200	266	282	376	246	329
3/14 x 16	144	192	223	297	315	420	–	–
7/8 x 9	125	166	322	430	455	606	398	531
7/8 x 14	138	184	355	474	501	668	–	–
1 x 8	188	250	483	644	682	909	597	796

Torque Values for Plated Fasteners Larger Than 5/16-inch Diameters and No Lubricant (cont'd.)

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
1 x 12	205	274	528	716	746	995	–	–
1 x 14	210	280	542	735	765	1037	–	–
1 1/8 x 7	266	354	595	807	966	1288	845	1126
1 1/8 x 12	298	404	668	890	1083	1444	–	–
1 1/4 x 7	375	500	840	1120	1363	1817	1192	1590
1 1/4 x 12	415	553	930	1261	1509	2013	–	–
1 3/8 x 6	491	655	1102	1470	1787	2382	1564	2085
1 3/8 x 12	559	758	1254	1672	2034	2712	–	–
1 1/2 x 6	652	870	1462	1982	2371	3161	2075	2767
1 1/2 x 12	733	994	1645	2194	2668	3557	–	–

1.1.2. With a Threadlocker

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Table 5. Threadlocker by the Diameter of the Bolt (see below Note)

	Dimension			
LocTite Product	1/4-inch	1/4- to 5/8-inch	5/8- to 7/8-inch	1-inch +
LocTite 222	OK			
LocTite 242		OK		
LocTite 262			OK	
LocTite 272			High temperature	
LocTite 277				OK

NOTE: The acceptable bolt size ranges for various LocTite® threadlocking products is the LocTite manufacturer's **general** recommendation. Specific applications sometime require that a LocTite product is applied to a bolt size outside the ranges shown here. For example, Milnor® specifies LocTite 242 for use on certain 1" bolt applications and has confirmed this usage with the LocTite manufacturer. You may see variances such as this in the documentation for specific machine assemblies.

Table 6. Torque Values if You Apply LocTite 222

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	60	7	96	11	132	15	108	12
1/4 x 28	72	8	108	12	144	16	–	–

Table 7. Torque Values if You Apply LocTite 242

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
5/16 x 18	11	15	17	23	25	34	22	30
5/16 x 24	13	18	19	26	27	37	27	37
3/8 x 16	20	27	31	42	44	60	38	52
3/8 x 24	23	31	35	47	50	68	–	–
7/16 x 14	32	43	49	66	70	95	61	83
7/16 x 20	36	49	55	75	78	106	–	–
1/2 x 13	49	66	75	102	107	145	93	126

Torque Values if You Apply LocTite 242 (cont'd.)

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
1/2 x 20	55	75	85	115	120	163	–	–
9/16 x 12	70	95	109	148	154	209	134	182
9/16 x 18	78	106	121	164	171	232	–	–
5/8 x 11	97	132	150	203	212	287	186	252
5/8 x 18	110	149	170	230	240	325	–	–

Table 8. Torque Values if You Apply LocTite 262

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
3/4 x 10	155	210	240	325	338	458	296	401
3/4 x 16	173	235	267	362	378	512	–	–
7/8 x 9	150	203	386	523	546	740	477	647
7/8 x 14	165	224	426	578	601	815	–	–

Table 9. Torque Values if You Apply LocTite 272 (High-Temperature)

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
1 x 8	350	475	901	1222	1272	1725	1114	1510
1 x 12	383	519	986	1337	1392	1887	–	–
1 x 14	393	533	1012	1372	1428	1936	–	–
1-1/8 x 7	496	672	1111	1506	1802	2443	1577	2138
1-1/8 x 12	556	754	1247	1691	2022	2741	–	–
1-1/4 x 7	700	949	1568	2126	2544	3449	2226	3018
1-1/4 x 12	774	1049	1737	2355	2816	3818	–	–
1-3/8 x 6	917	1243	2056	2788	3335	4522	2919	3958
1-3/8 x 12	1044	1415	2341	3174	3797	5148	–	–
1-1/2 x 6	1217	1650	2729	3700	4426	6001	3873	5251
1-1/2 x 12	1369	1856	3071	4164	4980	6752	–	–

Table 10. Torque Values if You Apply LocTite 277

	The Grade of the Bolt							
	Grade 2		Grade 5		Grade 8		Grade BC	
Dimension	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
1 x 8	325	441	837	1135	1181	1601	1034	1402
1 x 12	356	483	916	1242	1293	1753	–	–
1 x 14	365	495	939	1273	1326	1798	–	–
1-1/8 x 7	461	625	1032	1399	1674	2270	1464	1985
1-1/8 x 12	516	700	1158	1570	1877	2545	–	–
1-1/4 x 7	650	881	1456	1974	2362	3202	2067	2802
1-1/4 x 12	719	975	1613	2187	2615	3545	–	–
1-3/8 x 6	851	1154	1909	2588	3097	4199	2710	3674
1-3/8 x 12	970	1315	2174	2948	3526	4781	–	–
1-1/2 x 6	1130	1532	2534	3436	4110	5572	3597	4877
1-1/2 x 12	1271	1723	2852	3867	4624	6269	–	–

1.2. Stainless Steel Fasteners

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Table 11. Torque Values for Stainless Steel Fasteners 5/16-inch and Smaller

Dimension	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
	Pound-Inches	N-m	Pound-Inches	N-m	Pound-Inches	N-m
1/4 x 20	79	9	76	9	45	5
1/4 x 28	100	11	94	11	56	6
5/16 x 18	138	16	132	15	79	9
5/16 x 24	148	17	142	16	85	10

Table 12. Torque Values for Stainless Steel Fasteners Larger Than 5/16-inch

Dimension	316 Stainless		18-8 Stainless		18-8 Stainless with Loctite 767	
	Pound-Feet	N-m	Pound-Feet	N-m	Pound-Feet	N-m
3/8 x 16	21	28	20	27	12	16
3/8 x 24	23	31	22	29	13	18
7/16 x 14	33	44	31	42	19	25
7/16 x 20	35	47	33	45	20	27
1/2 x 13	45	61	43	58	26	35
1/2 x 20	47	64	45	61	27	37
9/16 x 12	59	81	57	77	34	46
9/16 x 18	66	89	63	85	38	51
5/8 x 11	97	131	93	125	56	75
5/8 x 18	108	150	104	141	62	84
3/4 x 10	132	179	128	173	77	104
3/4 x 16	130	176	124	168	75	101
7/8 x 9	203	275	194	263	116	158
7/8 x 14	202	273	193	262	116	157
1 x 8	300	406	287	389	172	233
1 x 14	271	367	259	351	156	211
1-1/8 x 7	432	586	413	560	248	336
1-1/8 x 12	408	553	390	529	234	317
1-1/4 x 7	546	740	523	709	314	425
1-1/4 x 12	504	683	480	651	288	390
1-1/2 x 6	930	1261	888	1204	533	722
1-1/2 x 12	732	992	703	953	422	572

2. Preparation

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WARNING: Fire Hazard — Some solvents and primers are flammable.

- Use threadlocker and primers with sufficient airflow.
- Do not use flammable material near ignition sources.

1. Clean all threads with a wire brush or a different tool.
2. Remove the grease from the fasteners and the mating threads with solvent. Make the parts dry.

NOTE: LocTite 7649 Primer™ or standard solvents will remove grease from parts.

3. Apply a spray of LocTite 7649 Primer™ or equal on the fasteners and the mating threads. Let the primer dry for one minute minimum.

3. How to Apply a Threadlocker

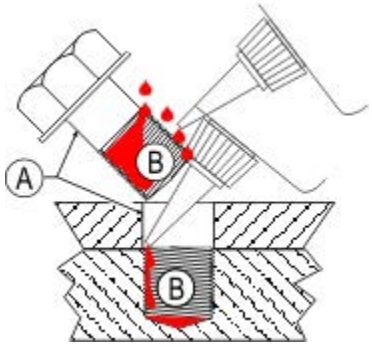
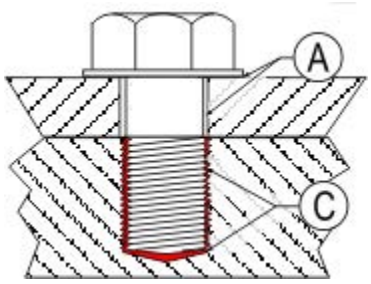
BNUUUN02.T02 0000222508 A.3 B.3 11/26/19 2:48 PM Released

CAUTION: **Malfunction Hazard —** Heat, vibration, or mechanical shocks can let the fasteners loosen if you do not apply the threadlocker correctly. Loose fasteners can cause malfunctions of the equipment.

▶ Read the threadlocker manufacturer's instructions and warnings. Obey these instructions.

Apply the threadlocker only to the areas where the fastener threads and the mating threads engage.

Figure 2. Apply Threadlocker in a Blind Hole

Application	Coverage
	

Legend

A . . . No threadlocker here
B . . . Apply here
C . . . Fill all space with threadlocker

3.1. Blind Holes

BNUUUN02.T03 0000222507 A.3 B.3 1/2/20 2:14 PM Released

1. Apply the threadlocker down the threads to the bottom of the hole.
2. Apply the threadlocker to the bolt.
3. Tighten the bolt to the value shown in the correct table (Threadlocker by the Diameter of the Bolt (see below Note) This topic can be found in Milnor document elsewhere to Torque Values for Stainless Steel Fasteners 5/16-inch and Smaller This topic can be found in Milnor document elsewhere).

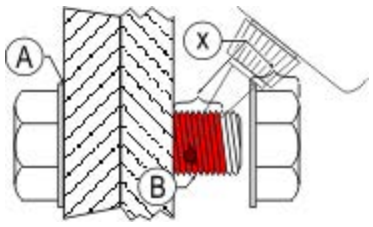
3.2. Through Holes

BNUUUN02.T04 0000222506 A.3 B.3 11/26/19 2:51 PM Released

1. Put the bolt through the assembly.
2. Apply the threadlocker only to the bolt thread area that will engage the nut.

3. Tighten the bolt to the value shown in the correct table (Threadlocker by the Diameter of the Bolt (see below Note) This topic can be found in Milnor document elsewhere to Torque Values for Stainless Steel Fasteners 5/16-inch and Smaller This topic can be found in Milnor document elsewhere).

Figure 3. Apply Threadlocker in a Through Hole

Application	Legend
	**A . . .** No threadlocker here **B . . .** Apply the threadlocker to this area **X . . .** Nut depth

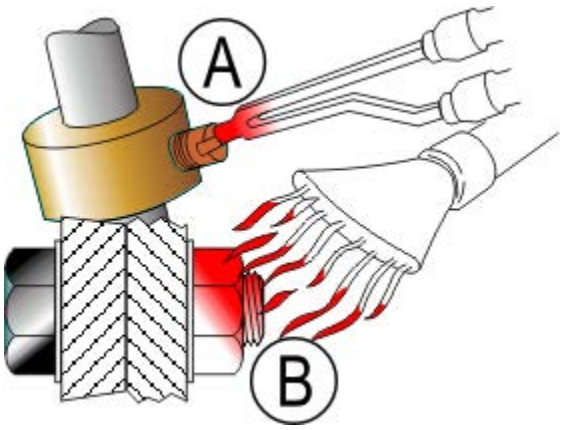
3.3. Disassembly

BNUUUN02.C07 0000222444 A.3 B.3 11/26/19 2:59 PM Released

For high-strength threadlocker, apply heat for five minutes. Disassemble with hand tools while the parts are hot.

For low-strength and moderate-strength threadlocker, disassemble with hand tools.

Figure 4. Use heat for disassembly of fasteners with threadlocker.

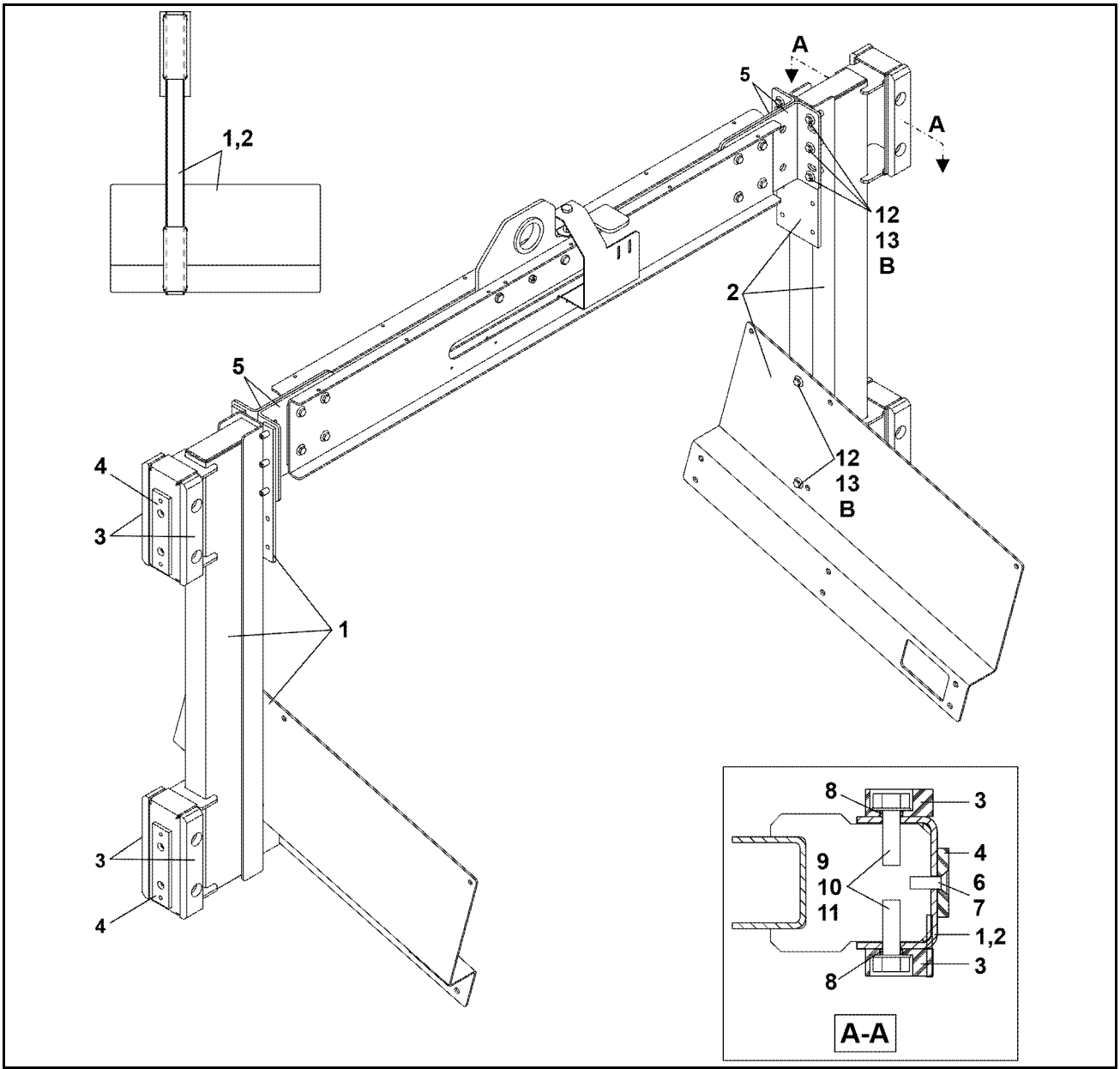
Apply Heat to a Small Area	Legend
	**A . . .** How to apply heat to a small fastener **B . . .** How to apply heat to a large fastener

End of document: BNUUUN02

4 Mechanical Parts

Side Slider & Bed Support

COLFJ111, COLFJ111A, COLFK111, COLFK111A



Legend

A—A . Cross section view of side slider pads and hardware

B . . . Typical

Side Slider & Bed Support

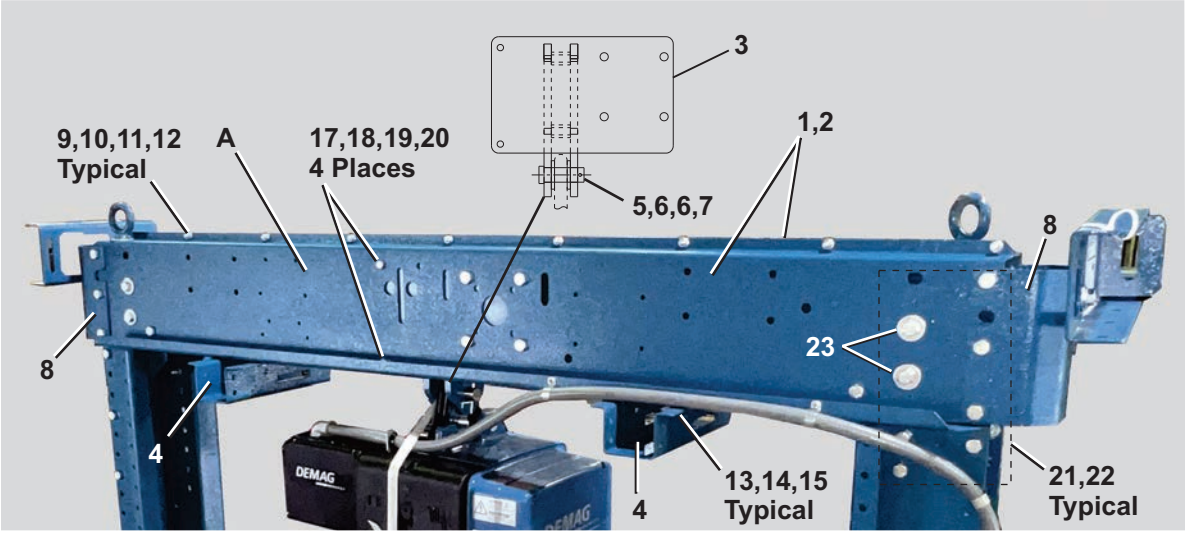
COLFJ111, COLFJ111A, COLFK111, COLFK111A

Table 1. Parts List—Side Slider & Bed Support

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	**Item**	**Part Number**	**Description/Nomenclature**	**Comments**
Assemblies				
	A	ALC420002N	LIFTING X-MEMBER+SLIDER-COLFJ111	INCLINED BED
	B	ALC420012G	LF/RT SIDE SLIDER HORZ BED-COLFJ/K111A	HORIZONTAL BED
Components				
A	1	W4 21867	SIDE SLIDER WLMT LF-COLFJ111	
B	1	W4 23797	SIDE SLIDER WLMT LF-COLFJ111A	
A	2	W4 21867A	SIDE SLIDER WLMT RT-COLFJ111	
B	2	W4 23797A	SIDE SLIDER WLMT RT-COLFJ111A	
all	3	X4 23391	TRACK SLIDER UHMW BAR	
all	4	X4 23326	BED SLIDE UHMW PAD	
all	5	04 24272	LIFTING X-MEM MTG ANGLE	
all	6	15N141	RDMACSCR 10-24NCX3/4 SLOTTED S	
all	7	15G126	HXLOCKNUT NYLON 10-24 UNC SS N	
all	8	27B25002SZ	SPCRROLL.39ID.125L.048T STLZNC	
all	9	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 P	
all	10	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
all	11	15G218	HXLOKNUT NYL 3/8-16 STL/ZNC	
all	12	15K092	HEXFLGSCR 3/8-16X1 GR8 CS	
all	13	15G198	HXFLGNUT 3/8-16 ZINC	

Top Beam Jrail Shuttles and Elevators

COLFJ111/112, COLFK111,112



Parts List

Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------REFERENCE ASSEMBLIES----------	
	A	ALC420001N	TOP BEAM ASSY 48W J-RAIL-COLFJ/K	
			----------COMPONENTS----------	
all	1	04 21730	MK2 TOP BEAM-RT=48W BED	
all	2	04 21730A	MK2 TOP BEAM-LF=48W BED	
all	3	W4 24200	HOIST HANGER WLMT-TOP BEAM	
all	4	04 21731B	CHANN LIFT STOP 10.88"L	
all	5	X4 24646	CLEVIS PIN 1"X3.13LG 304 SS	
all	6	15U390P	FLATWASHER(USS STD) 1" ZNC P	
all	7	15H060	STDCOTTERPIN 3/16X2 ZINCPL	
all	8	04 21009A	MK2 TRACTOR CONN.BRKT	
all	9	15K041	HXCAPSCR 1/4-2OUNC2AX1 GR 5 ZI	
all	10	15U185	FLATWASHER(USS STD) 1/4" ZNC P	
all	11	15U180	LOCKWASHER MEDIUM 1/4 ZINCPL	
all	12	15G165	HXNUT 1/4-20UNC2BSAE ZC GR2	
all	13	15K065	HEXCAPSCR 5/16-18UNC2AX1 GR5 Z	
all	14	15U210	LOKWASHER MEDIUM 5/16 ZINCPL	
all	15	15G185	HXNUT 5/16-18UNC2B SAE ZINC GR	
all	16	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
all	17	15K092	HEXFLGSCR 3/8-16X1 GR8 CS	
all	18	15U255	LOCKWASHER MEDIUM 3/8 ZINCPL	
all	19	15G205	HXNUT 3/8-16UNC2B ZINC GR2	
all	20	15U240	FLATWASHER(USS STD) 3/8" ZNC P	
all	21	15K153H	INDHEXFLGSCR1/2-13X1+1/4GR8ZN W/LOCTITE	
all	22	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	
all	23	15U280	FL+WASHER(USS STD)1/2 ZNC PL+D	

Hook Mounted Chain Hoist

- See the hoist manufacturer's manual shipped with the machine for safe use and care of hoist. See also the Milnor Maintenance Guide for the shuttle or elevator model.
- When ordering a replacement hoist supply the model, serial number, and nameplate data from the hoist.

Table 1. Parts List—Hook Mounted Chain Hoist

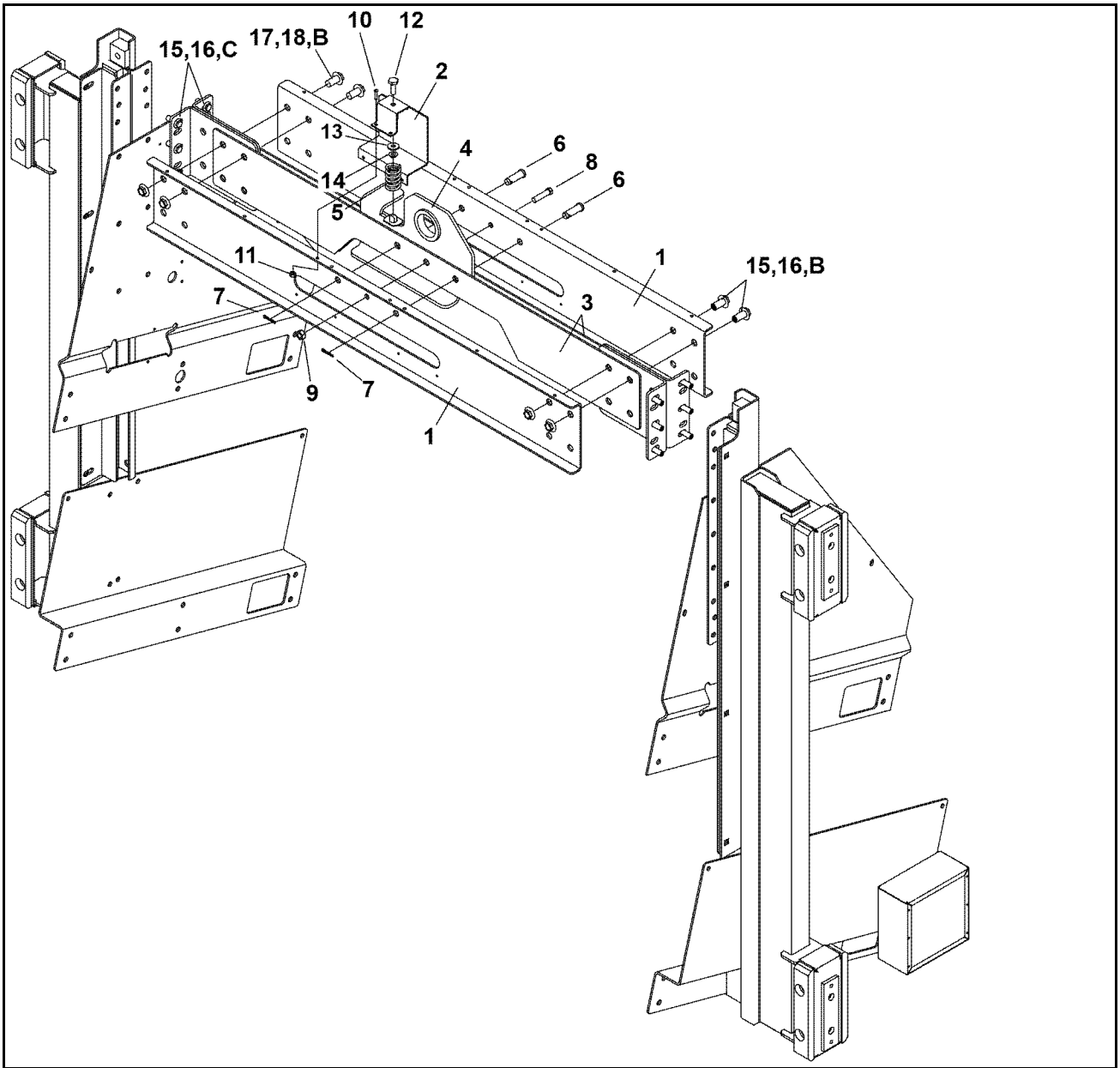
Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.

Used In	Item	Part Number	Description/Nomenclature	Comments
Assemblies				
none				
Components				
all	1	27KH050A83	DEMAGHOIST 2TON 24FPM 380V60	
all	1	27KH050A89	DEMAGHOIST 1TON48FPM 460V60	
all	1	27KH050A92	DEMAGHOIST 1TON39FPM 380-415V/3/50	
all	1	27KH050A81	DEMAGHOIST 2TON 24FPM 460V	
all	1	27KH04816	HOIST 1TON 48FPM 230V60 COFFING	
all	1	27KNER010A	HARRINGTON HOIST 1TON 28FPM 230/460V	

Lifting Cross Member for Hook Mounted Chain Hoist

COLFJ112, COLFK112, COSHJ112, COSHX112 (48” Wide, J-Rail, Two Bed Models)

Figure 1. Exploded View of Cross Member



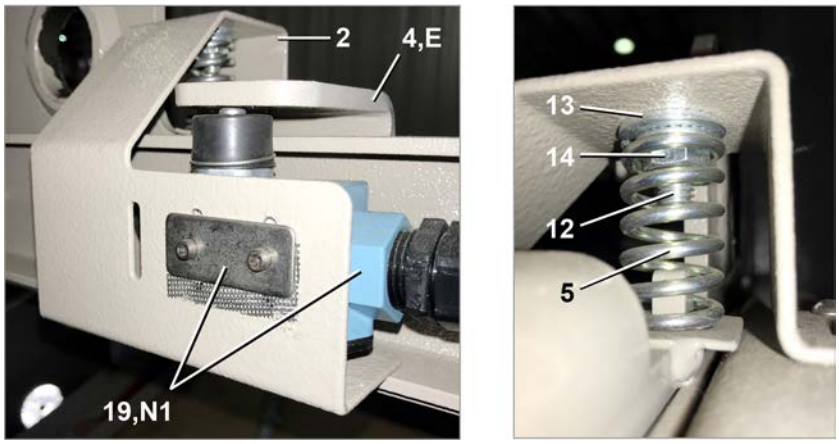
Legend

B . . . 8 instances
C . . . 20 instances

Lifting Cross Member for Hook Mounted Chain Hoist

COLFJ112, COLFK112, COSHJ112, COSHX112 (48” Wide, J-Rail, Two Bed Models)

Figure 2. Slack Chain Switch

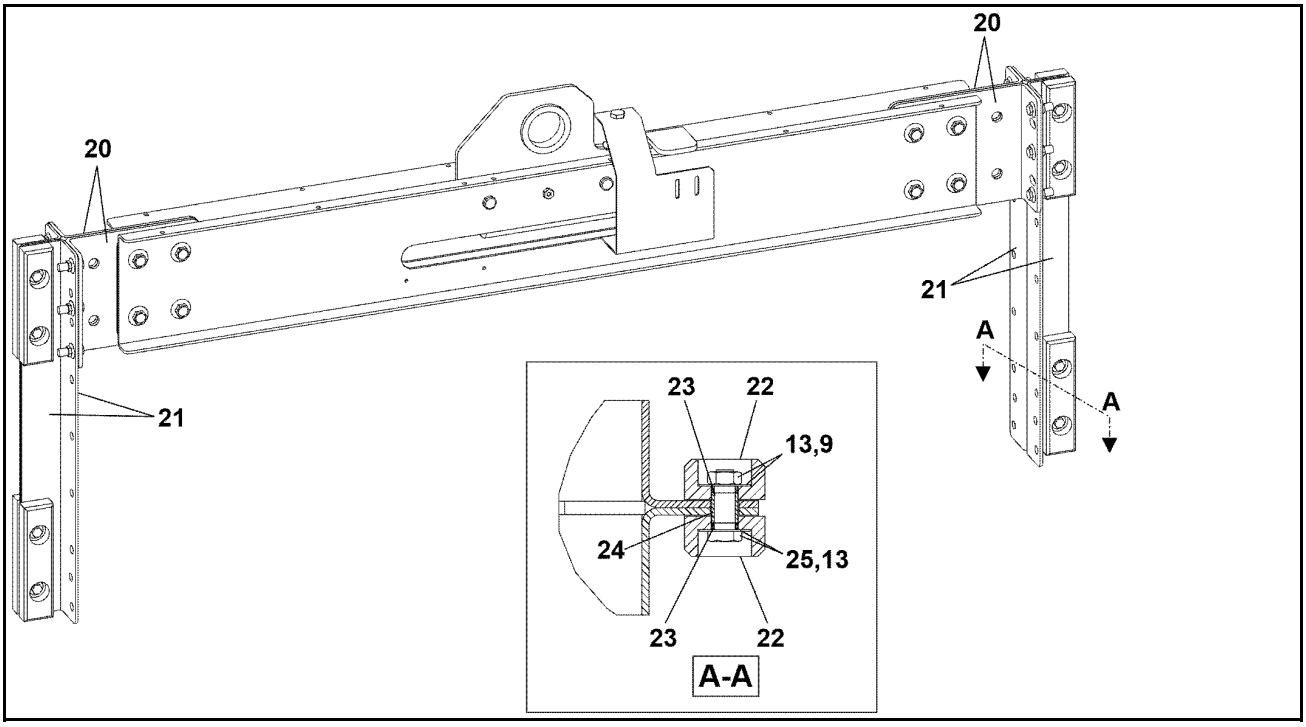


Legend

E . . . Target

N1 . . With no load on the lifting assembly, position the slack chain proximity switch to look as shown in this photo, touching the target. The slotted holes allow for vertical adjustment. This switch is actuated when the traveling beds to reach Full Down, causing the beds to rise to load.

Figure 3. Upper Bed Slider



Lifting Cross Member for Hook Mounted Chain Hoist

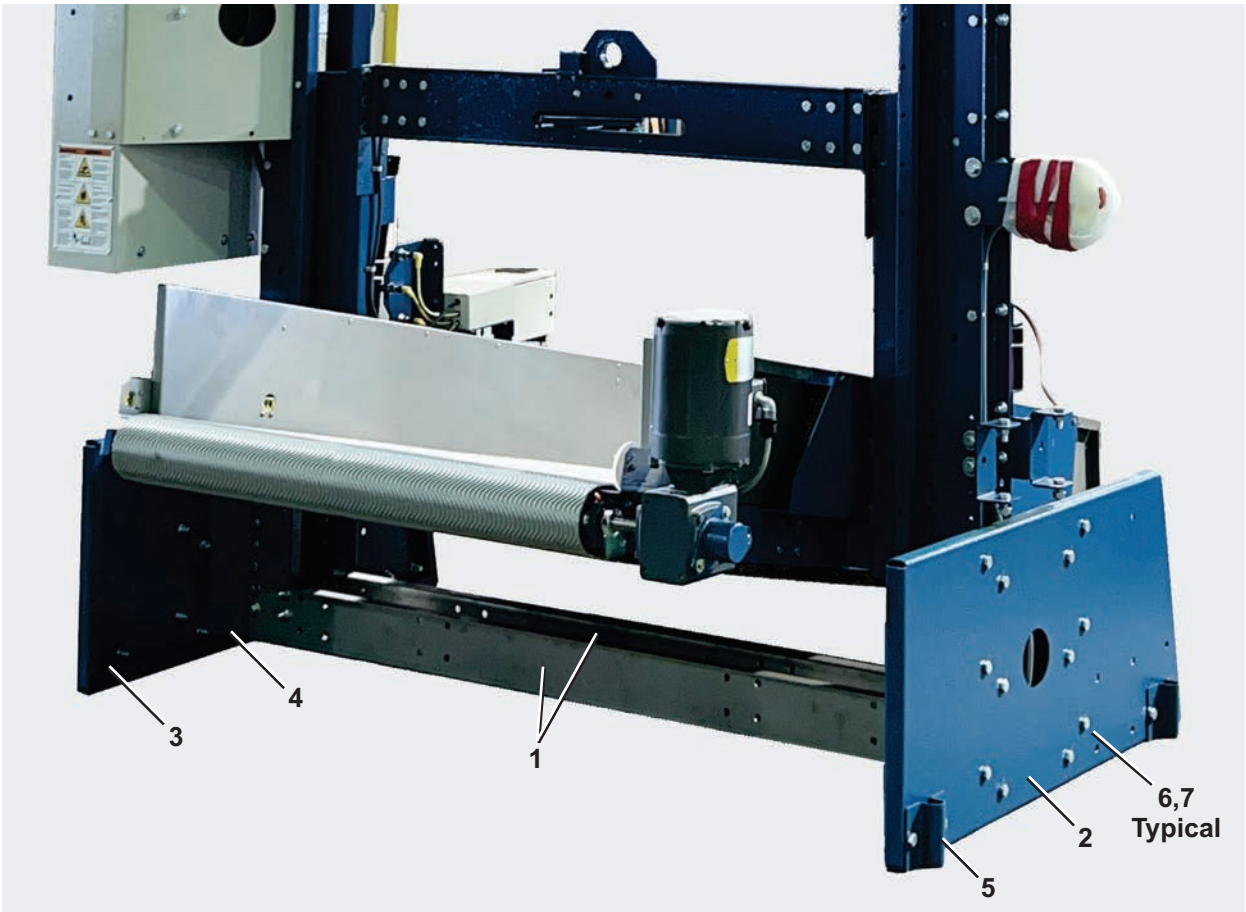
COLFJ112, COLFK112, COSHJ112, COSHX112 (48” Wide, J-Rail, Two Bed Models)

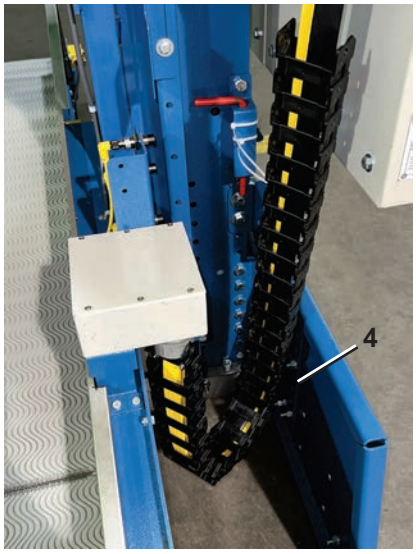
Table 1. Parts List—

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	**Item**	**Part Number**	**Description/Nomenclature**	**Comments**
Assemblies				
	A	ALC48010	LIFTING X-MEMBER 48W J-RAIL/DEMAG	REFERENCE
	B	ALC48011	LIFT X-MEMBER 48W J-RAIL-DEMAG	REFERENCE
Components				
all	1	04 24270	BED LIFTING CHANNEL-COLFJ112	
all	2	04 22321	SLACKCHAIN SPRING COVER-COSTE	
all	3	04 24271	LIFTING X-MEMBER SPACER	
all	4	W4 23347	BED LIFT PLATE WLMT	
all	5	02 18187	SPRING=OUTER DOOR 60 WEHU	
all	6	X4 24648	CLEVIS PIN 1/2"X1.50LG 304 SS	
all	7	15H040	STDCOTTERPIN 1/8X3/4 ZINCPL	
all	8	15K111	SKCPSC3/8-16 UNC3 X 1.5 BLK	
all	9	15G218	HXLOKNUT NYL 3/8-16 STL/ZNC	
all	10	15N141	RDMACSCR 10-24NCX3/4 SLOTTED S	
all	11	15G126	HXLOCKNUT NYLON 10-24 UNC SS N	
all	12	15K065	HEXCAPSCR 5/16-18UNC2AX1 GR5 Z	
all	13	15U200	FLATWASHER(USS STD) 5/16"ZNC P	
all	14	15G196	HXFLGNUT 5/16-18 ZINC	
all	15	15K092	HEXFLGSCR 3/8-16X1 GR8 CS	
all	16	15G198	HXFLGNUT 3/8-16 ZINC	
all	17	15K171B	HEXCAPSCR 1/2-13X1+3/4 GR8 ZIN	
all	18	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	
all	19	09R012STDG	* 09R012 +MOUNTING HDWRE+INST	
all	20	04 24272	LIFTING X-MEM MTG ANGLE	
all	21	04 21794	VERTSLIDER ANGLE-COSHJ112	
all	22	04 23322	UPPER BED SLIDER PAD	
all	23	27B25002SZ	SPCRROLL.39ID.125L.048T STLZNC	
all	24	27B2100G0L	SPCRROLL.39ID.562L.048T STLZNC	
all	25	15K105	HXCAPSCR 3/8-16UNC2A1.25 GR5 P	

Bottom Beam and Stand

COLFJ111/112, COLFK111/112





Bottom Beam and Stand

COLFJ111/112, COLFK111/112

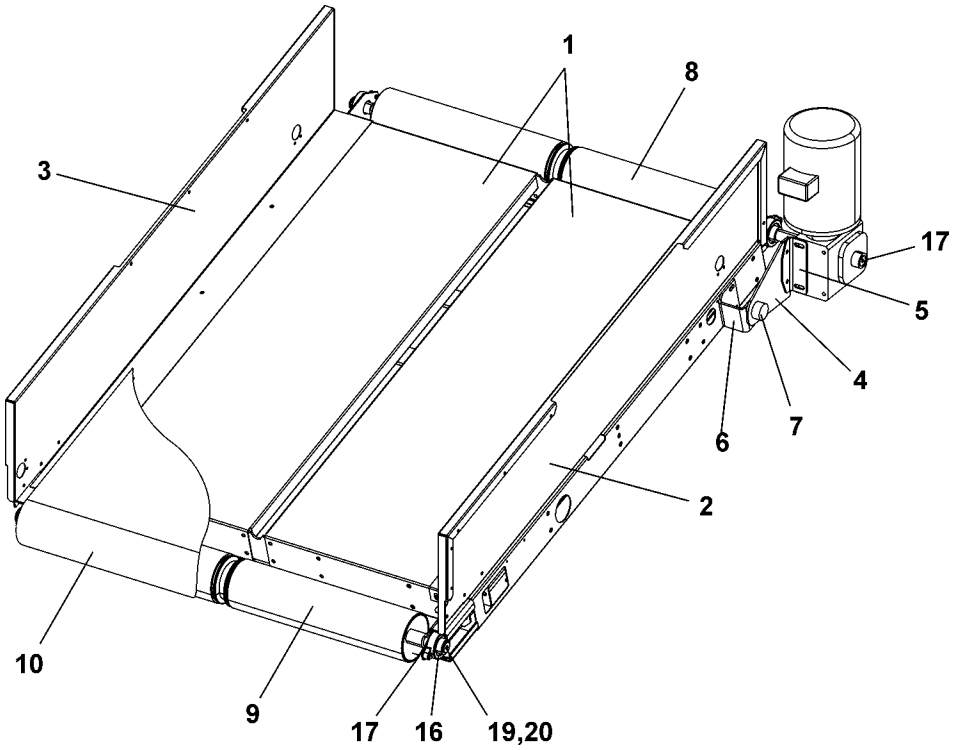
Parts List

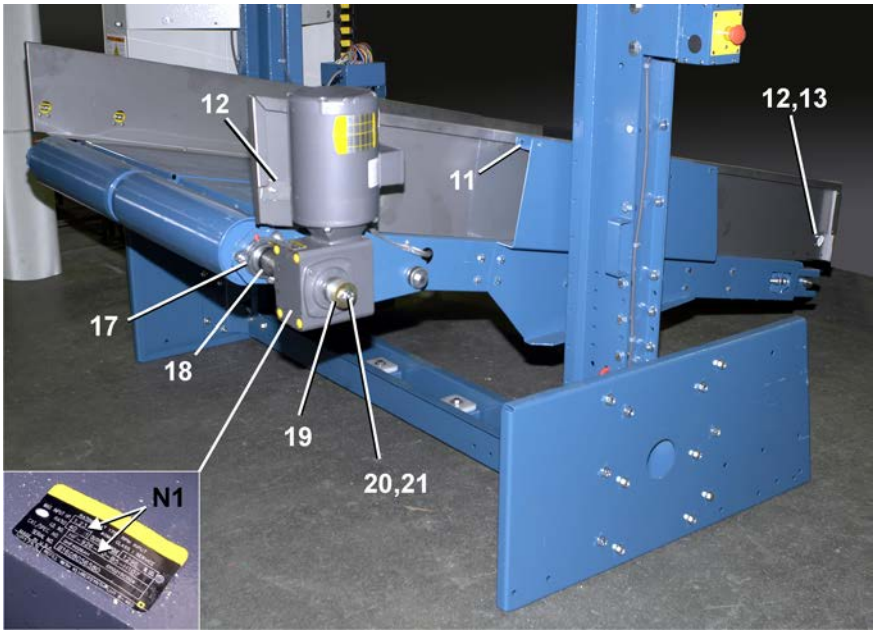
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
			----------REFERENCE ASSEMBLIES----------	
	A		COLFJ111,112	REFERENCE
	B		COLFK111,112	REFERENCE
			----------COMPONENTS----------	
all	1	04 21142B	MK2 COSHA BOTTOM BEAM-48 BED	
all	2	04 21033	SIDE LF SHUTTLE STAND BASE	
all	3	04 21034	SIDE RT SHUTTLE STAND BASE	
all	4	04 21147	ANGLE SUPPORT BASE MK2 COEL	
all	5	07 20802	HOLD DOWN BRKT	
all	6	15K153H	INDHEXFLGSCR1/2-13X1+1/4GR8ZN W/LOCTITE	
all	7	15G222B	HEXFLGNUT 1/2-13 ZINC SERRATED	

Bed Assemblies

COSHJ/K/L 111/112 & COLFJ/K/L 111/112

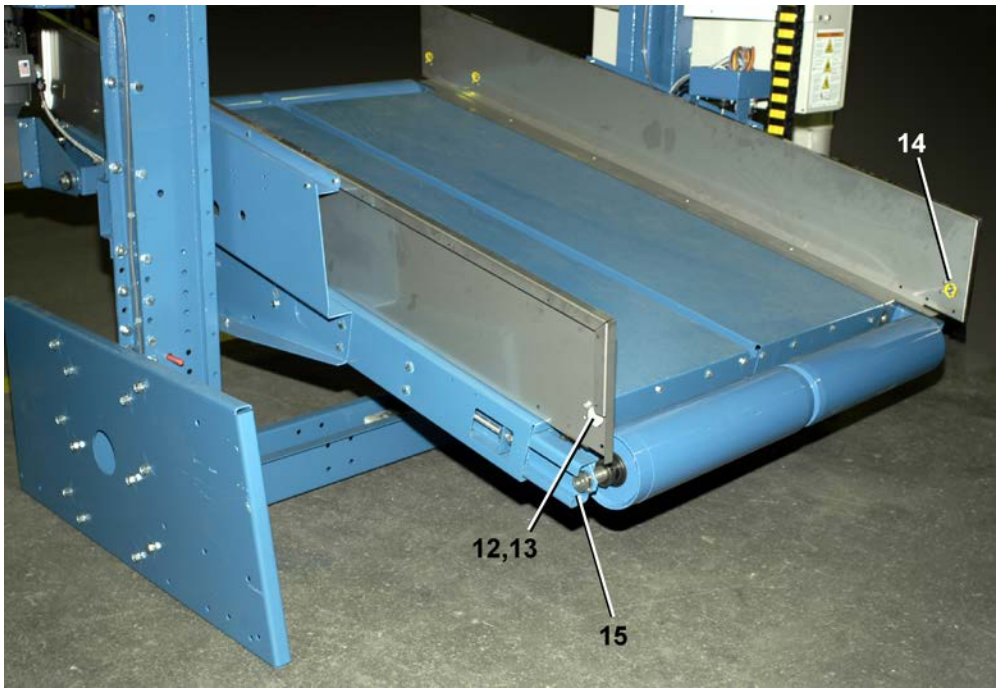


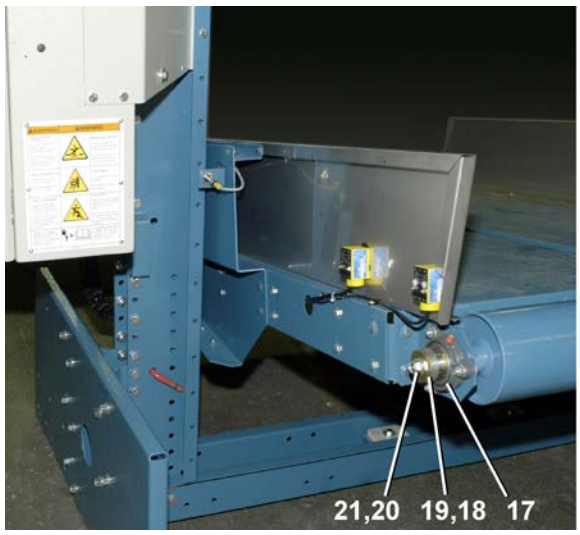


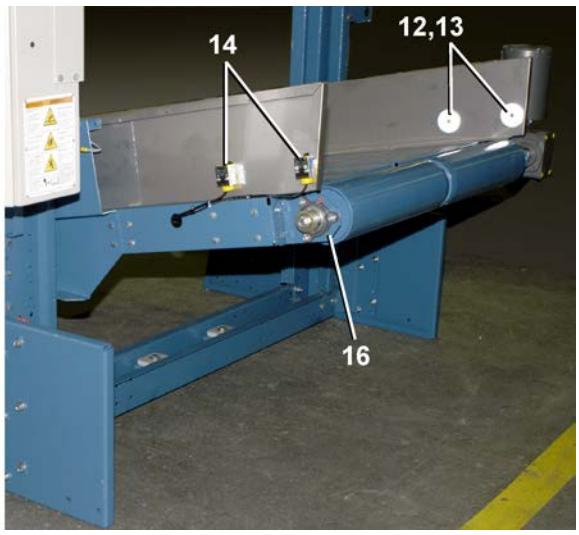
N1 To order gear reducers, supply the parts department with your gear reducer's serial number and gear ratio. An example is shown here.

Bed Assemblies

COSHJ/K/L 111/112 & COLFJ/K/L 111/112







Bed Assemblies

COSHJ/K/L 111/112 & COLFJ/K/L 111/112

Table 1. Parts List—Bed Assemblies

Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.				
Used In	**Item**	**Part Number**	**Description/Nomenclature**	**Comments**
Reference Assemblies				
	A	ALC50075	BED ASSY 44WX62L-COSHM111	COSHM/COLFM111 COSHJ/ COFJ111
	B	ALC50066	BED ASSY 44WX62LG-COSHM112	COSHM/COLFM112 COSHJ/ COLFJ112
	C	ALC50084	BED ASSY 44WX77LG-COSHQ111	COSHQ/COLFQ111 COSHJ/ COLFK111
	D	ALC50085	BED ASSY 44WX77LG-COSHQ112	COSHQ/COLFQ112 COSHK/ COLFK112
	E	ALC50130	BED ASSY 52WX84LG COINC11R	COSHR/COLFR111 COLFL111
Components				
AB	1	ALC50081	BED FRAME 44WX62LG ASSEMBLY	
CD	1	ALC50081A	BED FRAME 44WX77LG ASSEMBLY	
E	1	ALC50081C	BED FRAME 50WX84LG ASSEMBLY	
AB	2	04 22256	SIDE UPPER 62L BED-RT	
CD	2	04 22254	SIDE UPPER 77L BED-RT	
E	2	04 22864	SIDE UPPER 84L BED-RT	
AB	3	04 22256A	SIDE UPPER 62L BED-LF	
CD	3	04 22254A	SIDE UPPER 77L BED-LF	

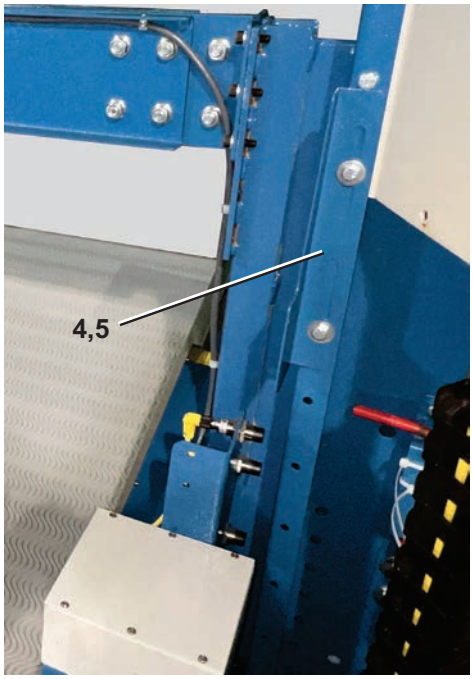
Parts List—Bed Assemblies (cont'd.)

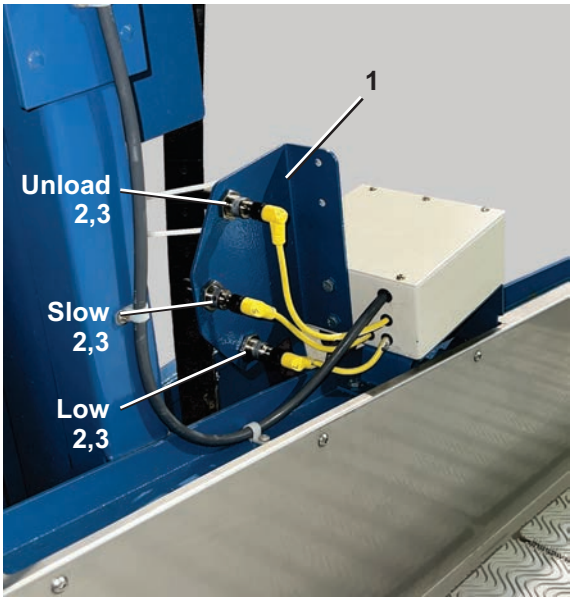
Find the assembly for your machine and the letter shown in the "Item" column. The components for your machine will show this letter or the word "all" in the "Used In" column. The numbers shown in the "Item" column are those shown in the illustrations.

Used In	Item	Part Number	Description/Nomenclature	Comments
E	3	04 22264A	BED HALF 40WX50LG-LF SIDE	
AC	4	04 22260	TORQARM-12DEG LOWER BED	
BD	4	04 22258	TORQARM-12DEG UPPER BED-RT	
E	4	04 20716	TORQARM COSHR LOWER BED-LF	
ABCD	5	04 22260B	TORQARM ADP ANGLE-SF718	
ACE	6	04 22233	TORQUE ARM GROMET MTG BRKT	
B	6	04 22259	TORQARM BRKT UPPER BED-RT	
B	6	04 22259A	TORQARM BRKT UPPER BED-LF	
all	7	ALC420063	TORQUE ARM BUSHING ASSEMBLY	
ABCD	8	Y4 20832E	DRVROLLER 4.50D X 53" OAL	
E	8	Y4 20832K	DRVROLLER 5.75D X 63.75"OAL	
ABCD	9	Y4 20832G	IDLER ROLLER 4.50D X 44.5" OAL	
E	9	ALC50131	IDLER 50W ROLLER ASSEMBLY	
AB	10	ALC50164	BELT+LACING FOR 'M' BED	
CD	10	ALC50166	BELT+LACING FOR 'Q' BED	
E	10	ALC50167	BELT+LACING FOR 'R' BED	
AC	11	04 23421	BED SIDE MTG CHAN-COSHP111	
all	12	03 BF2X4W	MOUNT PLT=PHOTO REFLECTOR	
all	13	09RPE001A	REFLECTOR 3"DIA CLEAR	
all	14	09RPE011	PHOTOEYE VALU-BEAM 10-30DC	
ABCD	15	04 22220	BRNGCARR 3.5H FRAME-LOADEND	
E	15	04 22868	BRNGCARR 84LG BED LOADEND RT	
ABCD	16	04 22221	BRNGCARR 3.5H FR-UNLOAD END	
E	16	04 22869	BRNGCARR 84LG BED-UNLOAD END	
all	17	54AF10001	FLG BRG 1" (2BOLT FLG)	
all	18	54JH11000A	SHAFTCOLLAR 1" CLPTYPE	
all	19	15U241MB	FLAT WASHER-1.50D 1+1/32ID 10G	
all	20	15K091H	HEXFLGSCR 3/8-16X3/4 ZN GRD.5	
all	21	15U245A	FLTWASH 25/64IDX1.25ODX3/32 S/S	
ABCD	22	04 22283	UNLOAD BRNG COVER 44W-RT	
ABCD	23	04 22293A	UNLOAD BRNG COVER 44W-LF	

Proximity Switches and Targets

COLFJ111/112, COLFK111/112





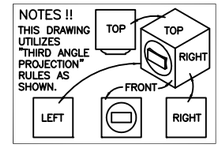
Parts List

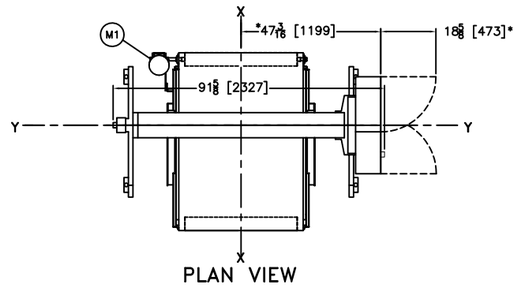
Find the correct assembly first, then find the needed components. The item letters (A, B, C, etc.) assigned to assemblies are referred to in the "Used In" column to identify which components belong to an assembly. The item numbers (1, 2, 3, etc.) assigned to components relate the parts list to the illustration.

Used In	Item	Part Number	Description	Comments
----------	----------	----------	----------REFERENCE ASSEMBLIES----------	----------
----------	----------	----------	----------COMPONENTS----------	----------
all	1	04 22456	BED STOP PROX.SW BRKT	
all	2	09RPS18ADU	PRXSW QK CONN 18M NO-DC UNSHLD EUROFAST	
all	3	09RPSDC003	CONN.STR FEMALE DC 3A 300V 3M RK4T-3 - EUROFAST	
all	4	04 22457	SLOW+LOAD TARGET	
all	5	04 22457A	SLOW+DISCHARGE TARGET	

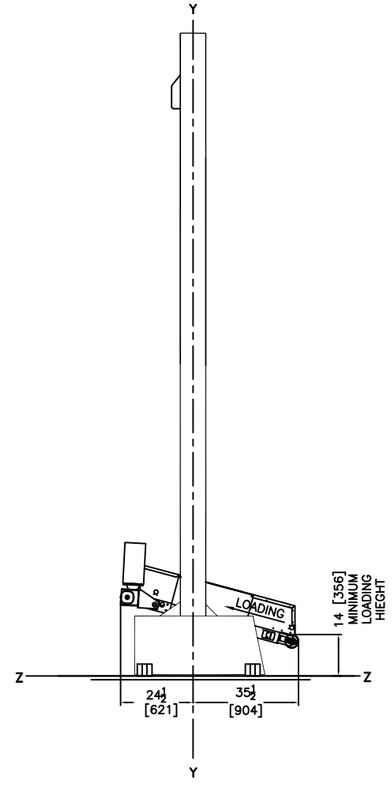
Dimensional Drawings 5

USE THIS SIDE RAIL EXTENDER		COLFJ111			
		DIMENSION "A"		DIMENSION "B"	
INCHES	mm	INCHES	mm	INCHES	mm
84	2134	196	4978	130	3302
91	2311	203	5156	137	3480
98	2489	210	5334	144	3658
105	2667	217	5512	151	3835
112	2845	224	5690	158	4013
119	3023	231	5867	165	4191
126	3200	238	6045	172	4369
133	3378	245	6223	179	4547
140	3556	252	6401	186	4724
147	3734	259	6579	193	4902
154	3912	266	6756	200	5080

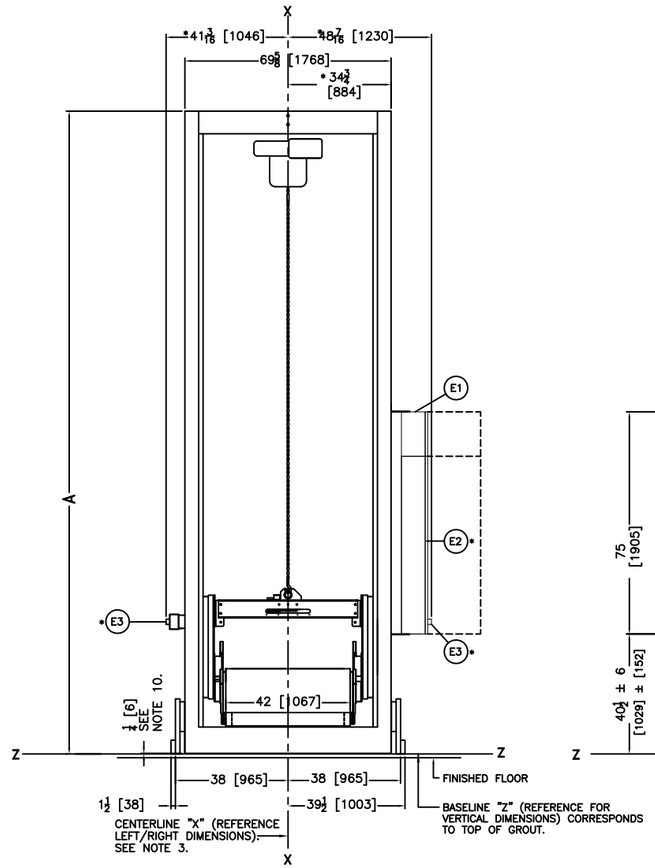




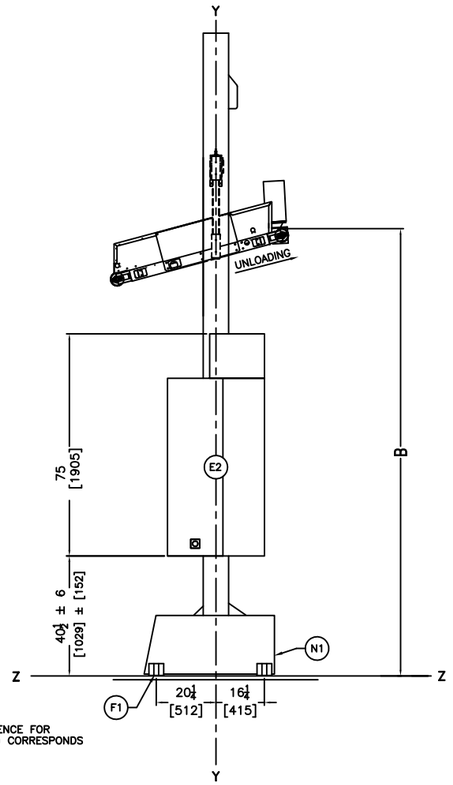
PLAN VIEW



LEFT SIDE VIEW



FRONT (LOAD END) VIEW



RIGHT SIDE VIEW

ITEM	LEGEND
N1	CONVEYOR STAND
M1	BELT MOTORS, ALTERNATES LEFT/RIGHT PER LEVEL.
F1	FOUR, ANCHOR BRACKETS. USE 1 [25] DIAMETER ANCHOR
	BOLTS (NOT SUPPLIED BY PMC). BOLTS MUST PROTRUDE
	6 [152] MINIMUM ABOVE BASELINE "Z".
E3	EMERGENCY STOP BUTTON. SEE NOTE 12.
*E2	HIGH & LOW VOLTAGE CONTROL BOXES IN RIGHT HAND
	POSITION. (LEFT HAND POSITION IS OPPOSITE)
*E1	MAIN ELECTRICAL CONNECTION

CAUTION: SWAY BRACES ARE REQUIRED (NOT FURNISHED BY MILNOR). IT IS NECESSARY TO PROVIDE SWAY BRACES AT THE TOP OF ALL COLFJ MODELS. BRACES MUST PREVENT HORIZONTAL MOVEMENT OF THE FRAME BOTH LONGITUDINALLY (IN THE X DIRECTION) AND LATERALLY (IN THE Y DIRECTION). CONSULT A STRUCTURAL ENGINEER TO DETERMINE A SUITABLE METHOD TO TIE THE BUILDING TO THE STRUCTURE.

NOTES

14 CONTROLS FOR THE COSHM SHUTTLE ARE CONTAINED IN THIS REMOTELY MOUNTED SHUTTLE CONTROL BOX WHICH MUST BE PLACED IN THE EQUIPMENT LAYOUT.

13 DIMENSION VARIES WITH HEIGHT OF EXTENDERS WHEN ADDED.

12 EMERGENCY STOPS ARE REQUIRED ON BOTH LEFT AND RIGHT SIDES OF THE CONVEYOR. ONE OF THE TWO EMERGENCY STOPS IS INSTALLED INTO THE DOOR OF THE CONTROL BOX. THE SECOND EMERGENCY STOP IS MOUNTED TO THE SIDE RAIL MEMBER OPPOSITE THE CONTROL BOX.

11 WHEN CONVEYOR IS LOADED DIRECTLY FROM TWO-STAGE PRESS THE EDGE OF THE CONVEYOR MUST BE 2 1/4 [57] MINIMUM FROM REAR FACE OF PRESS. THIS ALLOWS FOR CLEARANCE OF WATER CATCHER AND PRESS SLED WHEN EXTENDED, SEE THE TWO STAGE PRESS DIMENSIONAL DRAWING.

10 A MINIMUM 1/4 [6] AIRSPACE MUST BE MAINTAINED BETWEEN THE CROSSMEMBER OF CONVEYOR AND TOP OF GROUT OR OTHER FLOOR MATERIAL OR OBSTRUCTION.

9 THE HEIGHT EXTENDERS SHOWN IN THE TABLE ARE STANDARD EXTENTIONS AND THOSE THAT SATISFY MOST FACILITY REQUIREMENTS. HOWEVER, THE CONVEYOR MAY BE SPECIAL ORDERED IN OTHER HEIGHTS IF REQUIRED. CONSULT THE MILNOR FACTORY.

8 COLFJ111 MODEL NUMBERS SHOWN IN THE TABLE INDICATES THE NUMBER AND CONFIGURATION OF BATCHES STORED ON CONVEYOR. THE COLFJ111 ACCOMMODATES ONE BATCH ON THE CONVEYOR WIDTH, ONE BATCHES ON THE CONVEYOR LENGTH AND ONE LEVEL OF CONVEYOR.

7 CONVEYOR LENGTH DIMENSIONS SHOWN ARE FOR NEW MACHINES. AFTER MACHINE HAS BEEN COMMISSIONED, BELT MAY STRETCH SLIGHTLY REQUIRING ADJUSTMENT OF BELT ROLLERS AND SLIGHT LENGTHENING OF CONVEYOR.

6 AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS:
36 [914] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.
42 [1067] IF OBJECT IS A GROUNDED WALL (ie. BARE CONCRETE, BRICK, ETC.)
48 [1219] IF OBJECT IS ANY LIVE PART.
CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

4 BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.

3 USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

2 NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

1 ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESIGN AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN NO EVENT PRE-PIPE CLOSER THAN FIVE FEET FROM MACHINE. FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

ATTENTION

MOST REGULATORY AUTHORITIES (INCLUDING OSHA IN THE USA) HOLD THE OWNER/USER ULTIMATELY RESPONSIBLE TO MAINTAIN A SAFE WORKING ENVIRONMENT. ACCORDINGLY, THE OWNER/USER MUST RECOGNIZE ALL FORESEEABLE SAFETY HAZARDS, FURNISH SAFETY INSTRUCTIONS AND GUIDANCE TO ALL PERSONNEL WHO MAY COME IN CONTACT WITH THE INSTALLATION, AND PROVIDE ALL NECESSARY ADDITIONAL SAFETY GUARDS, FENCES, RESTRAINTS, DEVICES, ETC., NOT FURNISHED BY THE EQUIPMENT MANUFACTURER OR VENDOR.

ATTENTION

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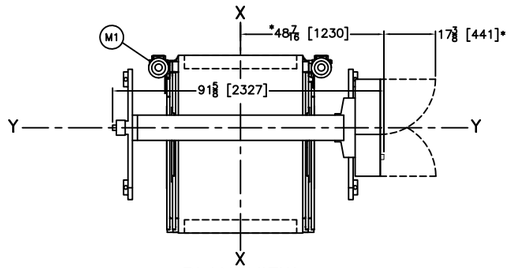
COLFJ111 (60K CAKES)

DM 0 0.5M 1M
INCHES 0 12 24 36

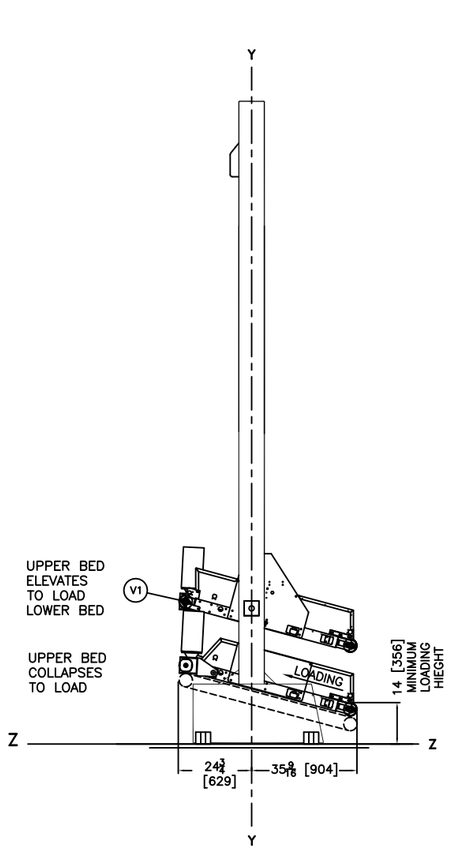
DWG# BDCOLFJ1AE 2013343D

PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/469-1849, Telex ITT 460124/PELM UI, Cable PELMILNOR

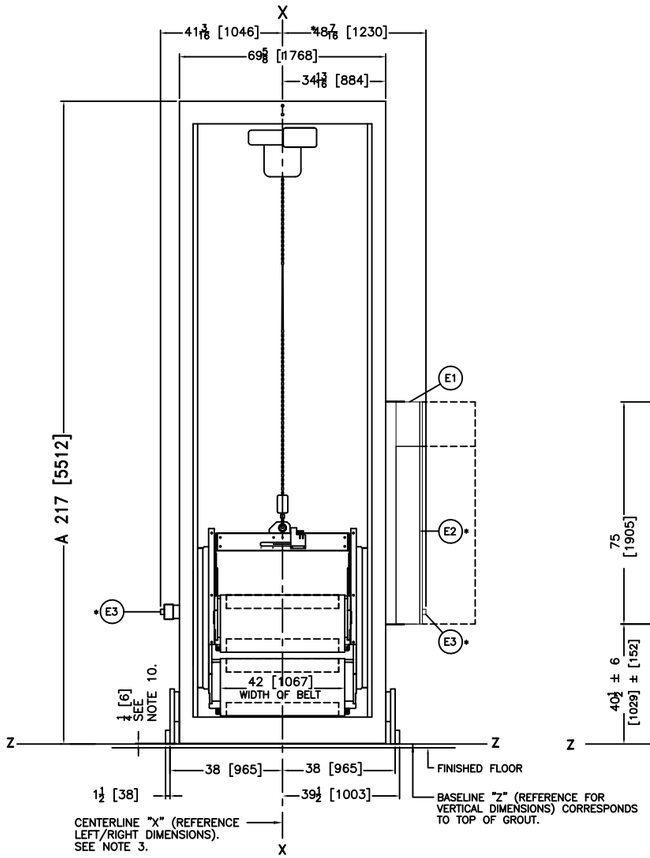
USE THIS SIDE RAIL EXTENDER		COLFJ112			
		DIMENSION "A"		DIMENSION "B"	
INCHES	mm	INCHES	mm	INCHES	mm
105	2667	218	5537	130	3302
112	2845	225	5715	137	3480
119	3023	232	5893	144	3658
126	3200	239	6071	151	3835
133	3378	246	6248	158	4013
140	3556	253	6426	165	4191
147	3734	260	6604	172	4369
154	3912	267	6782	179	4647
161	4089	274	6960	186	4724
168	4267	281	7137	193	4902
175	4445	288	7315	200	5080



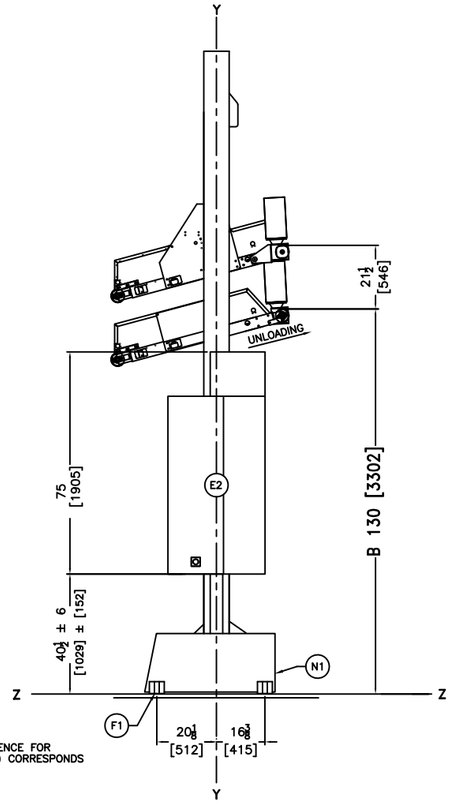
PLAN VIEW



LEFT SIDE VIEW



FRONT (LOAD END) VIEW



RIGHT SIDE VIEW

V1	TOP BED (COLFJ112 ONLY)
N1	CONVEYOR STAND
M1	BELT MOTORS, ALTERNATES LEFT/RIGHT PER LEVEL.
F1	FOUR, ANCHOR BRACKETS. USE 1 [25] DIAMETER ANCHOR
	BOLTS (NOT SUPPLIED BY PMC). BOLTS MUST PROTRUDE
	6 [152] MINIMUM ABOVE BASELINE "Z".
E3	EMERGENCY STOP BUTTON. SEE NOTE 12.
*E2	HIGH & LOW VOLTAGE CONTROL BOXES IN RIGHT HAND
	POSITION. (LEFT HAND POSITION IS OPPOSITE)
*E1	MAIN ELECTRICAL CONNECTION
ITEM	LEGEND

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NOTES

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COLFJ112 (60K CAKES)

DM 0 0.5M
INCHES 0 12 24

DWG# BDCOLFJ2AE 2016395D

PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/468-3094, Email: milnorinfo@milnor.com

USE THIS SIDE RAIL EXTENDER		COLFK111			
		DIMENSION "A"		DIMENSION "B"	
INCHES	mm	INCHES	mm	INCHES	mm
84	2134	196	4978	130	3302
91	2311	203	5156	137	3480
98	2489	210	5334	144	3658
105	2667	217	5512	151	3835
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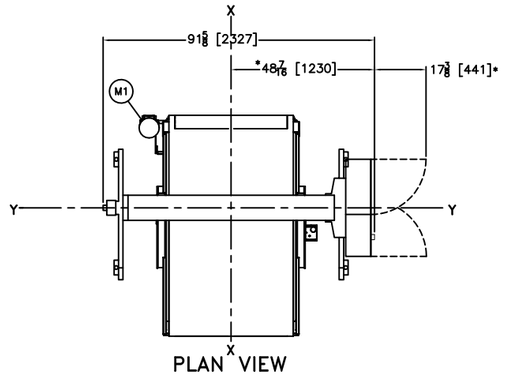
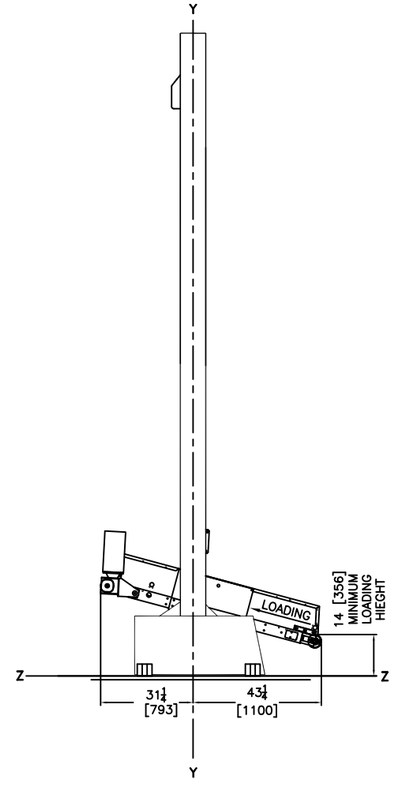
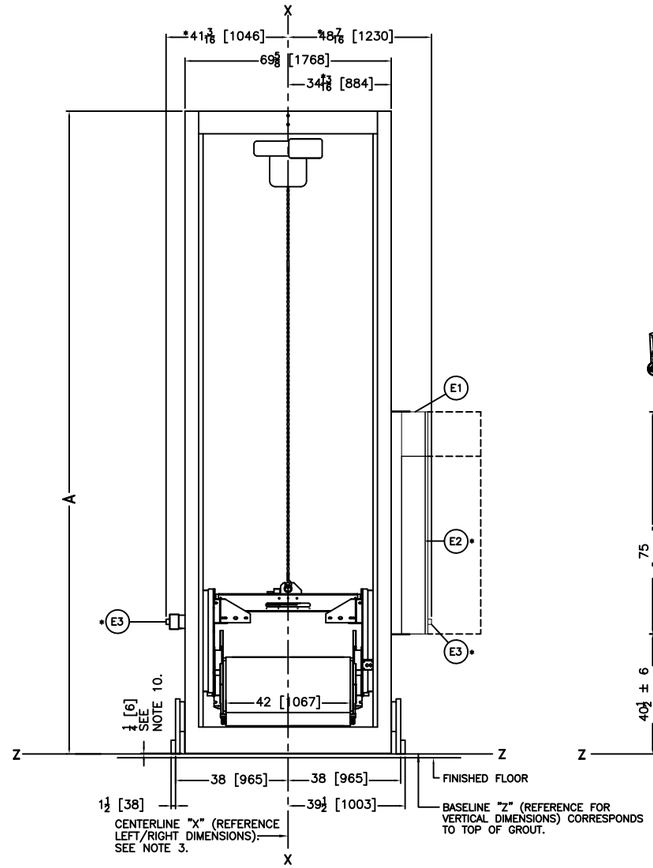


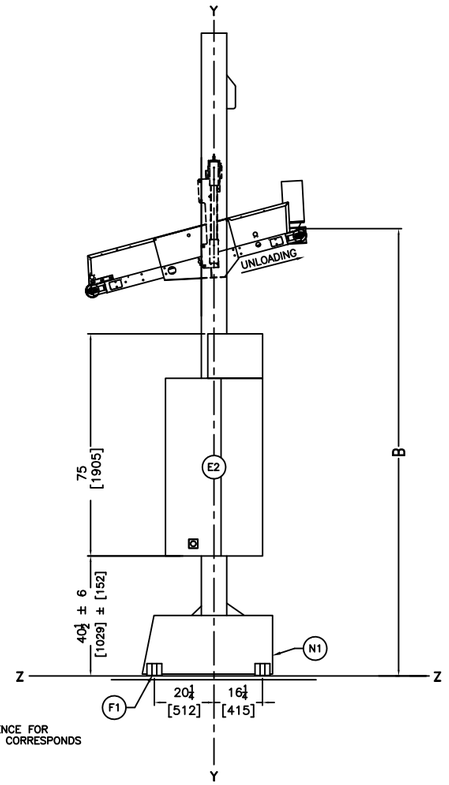
PLAN VIEW



LEFT SIDE VIEW



FRONT (LOAD END) VIEW



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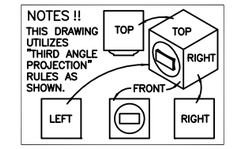

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ATTENTION

THE FLOOR AND/OR OTHER SUPPORT COMPONENTS MUST HAVE SUFFICIENT STRENGTH (AND RIGIDITY WITH DUE CONSIDERATION FOR NATURAL OR RESONANT FREQUENCY THEREOF) TO WITHSTAND THE FULLY LOADED WEIGHT OF THE MACHINE INCLUDING THE GOODS, THE WATER, AND ANY REPEATED SINUSOIDAL (ROTATING) FORCES GENERATED DURING ITS OPERATION. WRITE THE FACTORY FOR ADDITIONAL MACHINE DATA FOR USE BY A COMPETENT SOIL AND/OR STRUCTURAL ENGINEER.

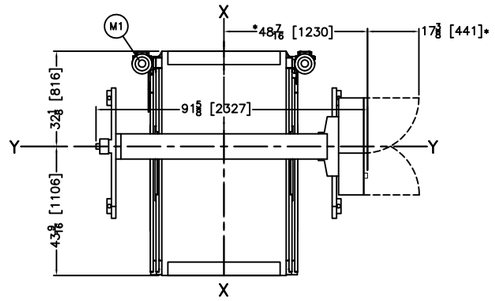
COLFK111 (60K CAKES)

DM 0 0.5M 1M
INCHES 0 12 24 36

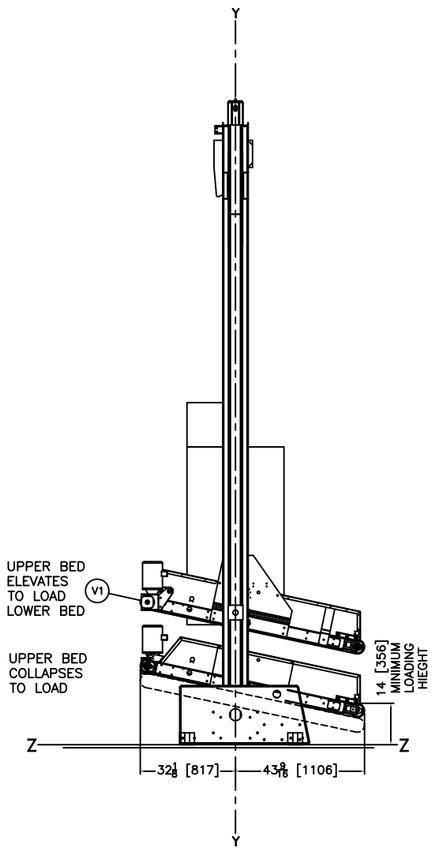
DWG# BDCOLFK1AE
2013343D

PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/469-1849, Telex ITT 460124/PELM UI, Cable PELMILNOR

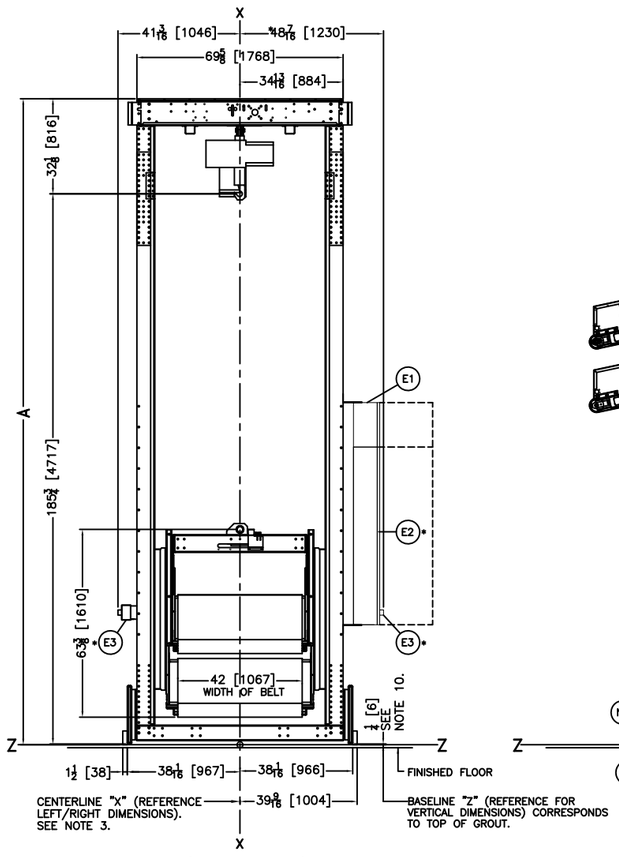
USE THIS SIDE RAIL EXTENDER		COLFK112			
		DIMENSION "A"		DIMENSION "B"	
INCHES	mm	INCHES	mm	INCHES	mm
105	2667	218	5537	132	3353
112	2845	225	5715	139	3531
119	3023	232	5893	146	3708
126	3200	239	6071	153	3886
133	3378	246	6248	160	4064
140	3556	253	6426	167	4242
147	3734	260	6604	174	4420
154	3912	267	6782	181	4597
161	4089	274	6960	188	4775
168	4267	281	7137	195	4953
175	4445	288	7315	202	5131
182	4623	295	7493	209	5309
189	4801	302	7671	216	5486
196	4978	309	7849	223	5664



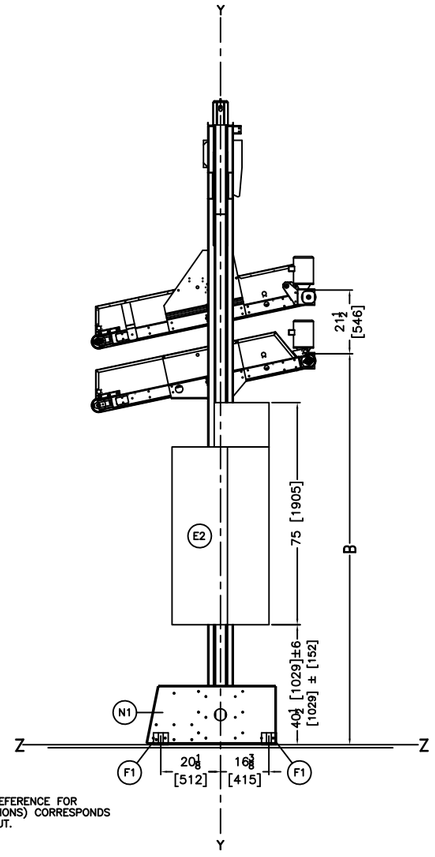
PLAN VIEW



LEFT SIDE VIEW



FRONT (LOAD END) VIEW



RIGHT SIDE VIEW

V1	TOP BED
N1	CONVEYOR STAND
M1	BELT MOTORS, ALTERNATES LEFT/RIGHT PER LEVEL.
F1	FOUR, ANCHOR BRACKETS. USE 1 [25] DIAMETER ANCHOR
	BOLTS (NOT SUPPLIED BY PMC). BOLTS MUST PROTRUDE
	6 [152] MINIMUM ABOVE BASELINE "Z".
E3	EMERGENCY STOP BUTTON. SEE NOTE 12.
*E2	HIGH & LOW VOLTAGE CONTROL BOXES IN RIGHT HAND
	POSITION. (LEFT HAND POSITION IS OPPOSITE)
*E1	MAIN ELECTRICAL CONNECTION
ITEM	LEGEND

CAUTION: SWAY BRACES ARE REQUIRED (NOT FURNISHED BY MILNOR). IT IS NECESSARY TO PROVIDE SWAY BRACES AT THE TOP OF ALL COLFK MODELS. BRACES MUST PREVENT HORIZONTAL MOVEMENT OF THE FRAME BOTH LONGITUDINALLY (IN THE X DIRECTION) AND LATERALLY (IN THE Y DIRECTION). CONSULT A STRUCTURAL ENGINEER TO DETERMINE A SUITABLE METHOD TO TIE THE BUILDING TO THE STRUCTURE.

NOTES

13 DIMENSION VARIES WITH HEIGHT OF EXTENDERS WHEN ADDED.

12 EMERGENCY STOPS ARE REQUIRED ON BOTH LEFT AND RIGHT SIDES OF THE CONVEYOR. ONE OF THE TWO EMERGENCY STOPS IS INSTALLED INTO THE DOOR OF THE CONTROL BOX. THE SECOND EMERGENCY STOP IS MOUNTED TO THE SIDE RAIL MEMBER OPPOSITE THE CONTROL BOX.

11 WHEN CONVEYOR IS LOADED DIRECTLY FROM TWO-STAGE PRESS THE EDGE OF THE CONVEYOR MUST BE 2 1/4 [57] MINIMUM FROM REAR FACE OF PRESS. THIS ALLOWS FOR CLEARANCE OF WATER CATCHER AND PRESS SLED WHEN EXTENDED, SEE THE TWO STAGE PRESS DIMENSIONAL DRAWING.

10 A MINIMUM 1/4 [6] AIRSPACE MUST BE MAINTAINED BETWEEN THE CROSSMEMBER OF CONVEYOR AND TOP OF GROUT OR OTHER FLOOR MATERIAL OR OBSTRUCTION.

9 THE HEIGHT EXTENDERS SHOWN IN THE TABLE ARE STANDARD EXTENTIONS AND THOSE THAT SATISFY MOST FACILITY REQUIREMENTS. HOWEVER, THE CONVEYOR MAY BE SPECIAL ORDERED IN OTHER HEIGHTS IF REQUIRED. CONSULT THE MILNOR FACTORY.

8 COLFK112 MODEL NUMBERS SHOWN IN THE TABLE INDICATES THE NUMBER AND CONFIGURATION OF BATCHES STORED ON CONVEYOR. THE COLFK112 ACCOMMODATES ONE BATCH ON THE CONVEYOR WIDTH, ONE BATCHES ON THE CONVEYOR LENGTH AND TWO LEVELS OF CONVEYOR FOR A TOTAL OF TWO BATCHES.

7 CONVEYOR LENGTH DIMENSIONS SHOWN ARE FOR NEW MACHINES. AFTER MACHINE HAS BEEN COMMISSIONED, BELT MAY STRETCH SLIGHTLY REQUIRING ADJUSTMENT OF BELT ROLLERS AND SLIGHT LENGTHENING OF CONVEYOR.

6 AS OF THIS WRITING, THE MINIMUM CLEARANCE REQUIRED BY U.S. NATIONAL ELECTRIC CODES, FROM ELECTRIC BOX TO ANY OBJECT IS:
36 [914] IF OBJECT IS AN UNGROUNDED (INSULATED) WALL.
42 [1067] IF OBJECT IS A GROUNDED WALL (ie. BARE CONCRETE, BRICK, ETC.)
48 [1219] IF OBJECT IS ANY LIVE PART.
CHECK LOCAL ELECTRIC CODES FOR FURTHER RESTRICTIONS.

5 CUSTOMER TO SUPPLY CIRCUIT BREAKER OR FUSED BRANCH CIRCUIT DISCONNECT (SAFETY) SWITCHES WITH LAG TYPE FUSES FROM POWER SOURCE TO MACHINE. A SEPARATE GROUND WIRE MUST BE CONNECTED FROM DISCONNECT TO EQUIPMENT.

4 BASELINE "Z" IS THE SAME FOR ALL MILNOR MACHINES AND IS SHOWN ON ALL DIMENSIONAL DRAWINGS. THE DISTANCE BETWEEN BASELINE "Z" AND THE FINISHED FLOOR MAY VARY (WITH CHANGES IN FLOOR HEIGHT) AS REQUIRED TO INSURE THAT BASELINE "Z" IS HORIZONTAL AND ALL COMPONENTS REQUIRING GROUT ARE SET ON A MINIMUM 1" [25] THICK GROUT BED.

3 USE REFERENCE LINES "X", "Y", AND "Z" TO LOCATE ALL SERVICE CONNECTIONS.

2 NUMBERS IN BRACKETS [] DENOTE DIMENSIONS IN MILLIMETERS.

1 ALL DIMENSIONS SHOWN ARE APPROXIMATE, SUBJECT TO NORMAL MANUFACTURING TOLERANCES, AND TO OCCASIONAL CHANGES WITHOUT NOTICE THROUGH REDESIGN AND/OR RELOCATION OF COMPONENTS, ETC. DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED, AND IN NO EVENT PRE-PIPE CLOSER THAN FIVE FEET FROM MACHINE. FACTORY MUST BE CONSULTED FOR DIMENSIONS IF MACHINE IS TO BE MOVED THROUGH NARROW OR LOW CORRIDORS OR OPENINGS.

ATTENTION

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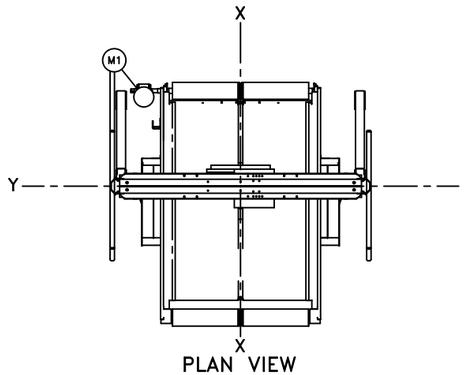
COLFK112 (60K CAKES)

DM 0 0.5M
INCHES 0 12 24

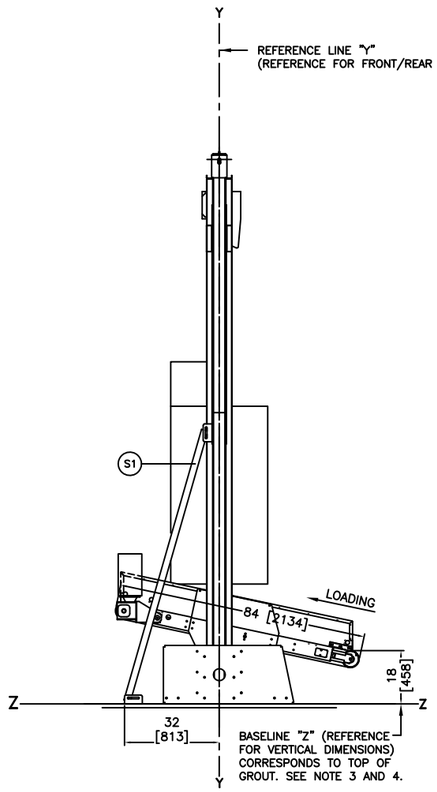
DWG# BDCOLFK2BE 2016395D

PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/468-3094, Email: milnorinfo@milnor.com

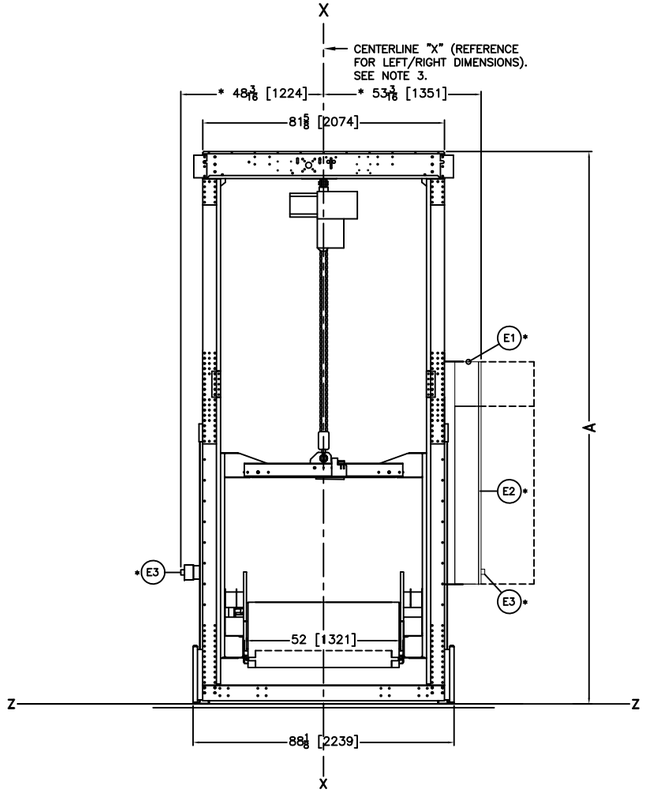
USE THIS SIDE RAIL EXTENDER		COLFL111A			
		DIMENSION "A"		DIMENSION "B"	
INCHES	mm	INCHES	mm	INCHES	mm
73 1/2	1867	186 1/2	4737	97	2464



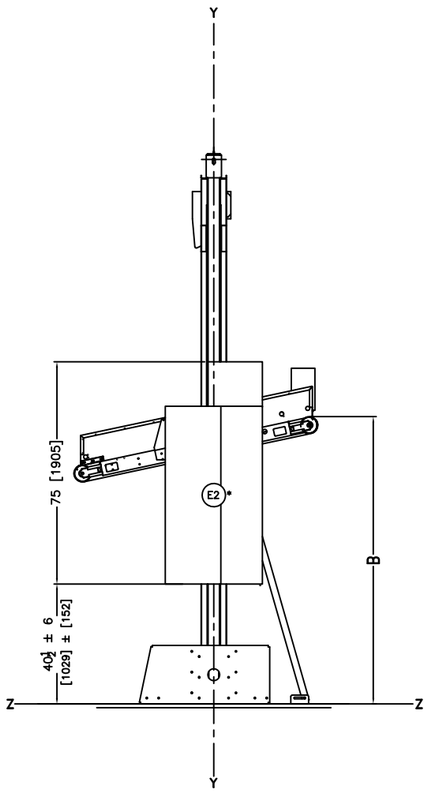
PLAN VIEW



LEFT SIDE VIEW



FRONT (LOAD END) VIEW



RIGHT SIDE VIEW

S1	SWAY BRACE, SUPPLIED BY MILNOR, MUST BE INSTALLED.
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M1	BELT MOTOR
F1	FOUR, ANCHOR BRACKETS. USE 1 [25] DIAMETER ANCHOR
	BOLTS (NOT SUPPLIED BY PMC). BOLTS MUST PROTRUDE
	6 [152] MINIMUM ABOVE BASELINE "Z".
E3	EMERGENCY STOP BUTTON. SEE NOTE 9.
*E2	HIGH & LOW VOLTAGE CONTROL BOXES IN RIGHT HAND
	POSITION. (LEFT HAND POSITION IS OPPOSITE)
E1	MAIN ELECTRICAL CONNECTION
ITEM	LEGEND

NOTES

11 ELECTRIC BOX AND EMERGENCY STOPS ARE SHOWN IN RIGHT HAND POSITION. FOR LEFT HAND POSITION THESE (*) COMPONENTS ARE ON THE OPPOSITE SIDE.

10 DIMENSION VARIES WITH HEIGHT OF EXTENDERS WHEN ADDED.

9 EMERGENCY STOPS ARE LOCATED ON BOTH LEFT AND RIGHT SIDES OF THE CONVEYOR.

8 A MINIMUM 1/4 [6] AIRSPACE MUST BE MAINTAINED BETWEEN THE CROSSMEMBER OF CONVEYOR AND TOP OF GROUT OR OTHER FLOOR MATERIAL OR OBSTRUCTION.

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COLFL111A (120K CAKES)

DM 0 0.5M
INCHES 0 12 24

DWG# BDCOLFL111AAE
2025036D

PELLERIN MILNOR CORPORATION
P.O. Box 400 Kenner, LA 70063, USA, Phone 504/467-9591,
FAX 504/468-3094, Email: milnorinfo@milnor.com